



**EKONOMI
HÖGSKOLAN**
Lunds universitet

Master Thesis
Department of Economics
October 2007

Cursed Exports?
Natural Resource Endowment,
Trade Policy and the WTO

Erik Leijonhufvud Ringborg

Supervisors: Yves Bourdet
Joakim Gullstrand

Abstract

This study investigates the relationship between natural resource endowments and openness to trade. With the help of regression analysis the study tests for the impact natural resource endowments may have on the probability of countries to be members of the World Trade Organization (WTO), as well as accounting for a the impact on a country's more general trade regime. Departing from the assumption that open trade has a positive effect on economic growth and the empirical evidence of the curse of natural resources - i.e. the observation that countries abundant in natural resources tend to perform poorly in terms of economic growth - this study examines if trade policy is a channel for the resource curse. When controlling for other empirically significant variables of trade openness inspired by the gravity model, as well as governance, fuels riches were found to be negatively correlated both with the probability of membership in the WTO and the general measure of degree of liberalized trade policy. While there is no inherent bias against exports of natural resources in the multilateral trading system and the negative correlation between fuels endowments and trade openness is significant, the curse of natural resources appears to be transmitted also to the domain of trade. The finding that countries rich with fuels are less open to trade is considered having explanatory power when assessing the slow pace of economic growth in the resource rich countries.

Keywords: Natural resources; Trade openness; Resource curse; WTO

Table of Contents

List of Figures and Tables	4
1. Introduction	5
2. Natural Resources and Trade	6
2.1. Natural Resources and Production Patterns	6
2.2. The Resource Curse	7
2.2.1. <i>Crowding Out</i>	8
2.2.2. <i>Political and Institutional Factors</i>	12
2.2.3. <i>The Resource Curse and Trade</i>	14
3. The World Trade Organization	15
3.1. The Multilateral Trading Organization	15
3.2. WTO and Trade in Natural Resources	17
3.3. WTO Accession Process	19
4. The Model	21
4.1. The Openness Framework	21
4.2. Specification	22
4.3. Empirical Analysis	23
4.3.1. <i>WTO Membership</i>	23
4.3.2. <i>Trade Policy – Robustness Checks</i>	28
5. Summary and Concluding Remarks	31
6. References	32
Appendix A - Countries included in the WTO Membership regression	37
Appendix B - Countries included in the WTO Membership regression	38
Appendix C - WTO members and date of accession	39

List of Figures and Tables

Figure 1	Growth and Natural Resource Abundance 1970-1989	8
Figure 2	Natural Resource Intensity/Manufacturing	11
Table 1	The GATT Trade Rounds	16
Table 2	Parameter estimates from the WTO membership equation	24
Table 3	Parameter estimates from the trade policy equation	28

1. Introduction

Orthodox neoclassical theory considers natural resources to be a potential source of income, and accentuates the positive role of natural resources in economic development. Despite the potentially beneficial impact of natural resource wealth on economic prosperity, empirical research has shown that natural resource abundant economies tend to grow at a slower pace than natural resource scarce ones. This paradox of plenty has been a conceptual puzzle to many, but empirical evidence has given rise to the hypothesis of the curse of natural resources. A number of studies have established a negative impact of natural resource endowment on economic growth. Others have taken a step further by investigating the reasons for this paradox. Few, however, have dealt with the resource curse in the context of trade. I will in this thesis attempt to analyze the relationship between natural resource abundance and openness to trade.

Our purpose is to investigate the relationship between natural resource endowments and openness to trade. With the help of regression analysis the study tests for the impact natural resource endowments may have on the probability of countries to be members of the World Trade Organization (WTO), as well as accounting for a the impact on a country's more general trade regime. Departing from empirical evidence of the resource curse and the assumption that open trade has a positive effect on economic growth, *the hypothesis of this study is that countries abundant in fuels and minerals pursue a less liberal trade policy and that this may be an important channel for the resource curse.*

The thesis is organized as follows. The following section begins with an outline of natural resources and trade, with special emphasis on the resource curse phenomenon and then moves on with a brief account of the WTO and the role of natural resources in the WTO framework. The third section introduces the model and presents the empirical findings. The fourth and final section concludes.

2. Natural Resources and Trade

Natural resources are naturally occurring substances that are considered valuable in their relatively unmodified form. A natural resource's value rests in the amount of the material available and the demand for the certain material. The demand is determined by its usefulness to production. A commodity is generally considered a natural resource when the primary activities associated with it are extraction and purification, as opposed to creation. Thus, petroleum extraction, mining, forestry, hunting and fishing generally considered natural-resource industries, while agriculture is not. This study, however, includes agriculture into the definition of a natural resource endowment by encompassing examples such as forestry and fishing under the agricultural category alongside agricultural primary products under the World Bank's World Development Indicators' definition of agricultural products. As we shall see, the inclusion of agriculture will add value in terms of comparison.

2.1. Natural Resources and Production Patterns

Many economists and economic historians, e.g. Rostow (1960), have emphasized the great benefits which natural resources endowed on a nation imply, therefore the tendency of many natural resource-abundant countries to experience relatively low economic growth is somewhat of a puzzle (Robinson et al. 2006:448; Papyrakis and Gerlagh 2004:182).

Economic theory would hold natural resources to be a potential source of income, which in turn can be used for investment in future production (Papyrakis and Gerlagh 2004:182). Rents from resources may be used for construction or modernization of infrastructural systems such as roads, telecommunication, health and education. For example, Ecuador experienced a significantly higher per-capita income level after its boom in oil assets in the 1970s (Sachs and Warner 1999:51).

The role of natural resources in trade theory can be traced back to the Heckscher-Ohlin model of international trade. While David Ricardo's theory of comparative advantage considered a single factor of production (labor) and had trade ultimately motivated by differences in labor productivity using different technologies, the Heckscher-Ohlin model removed technology

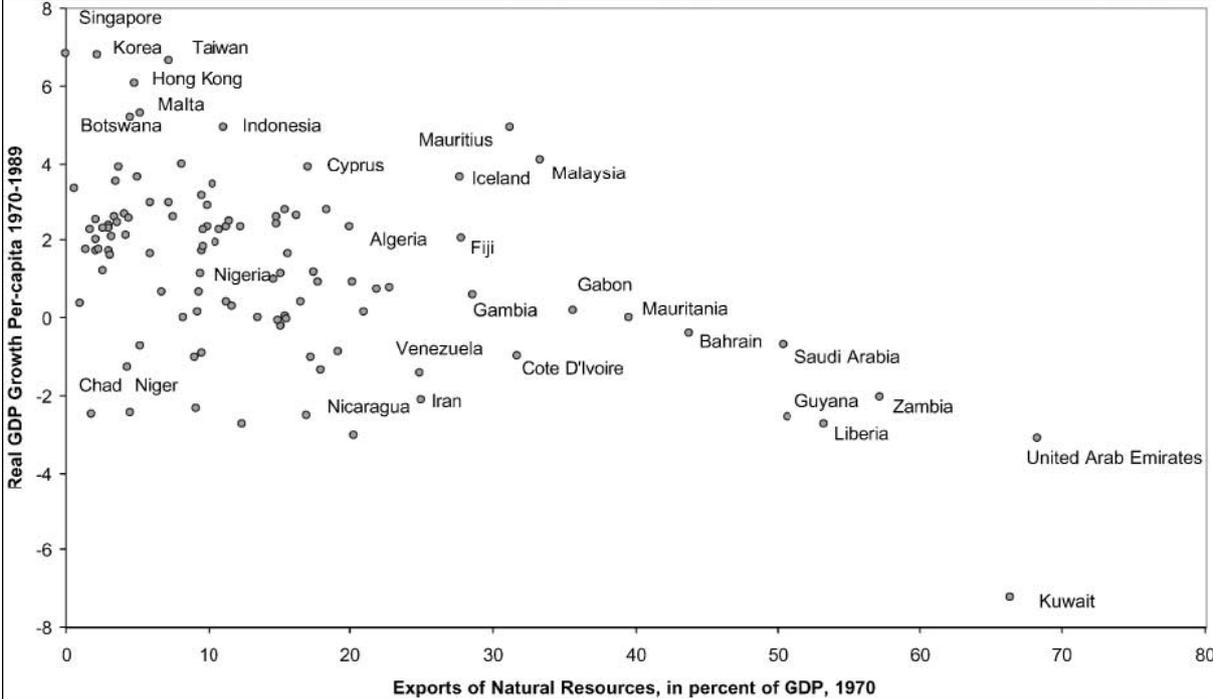
variations but introduced relative endowments of the factors of production (land, labor and capital) as determinants of a country's comparative advantage. Countries have comparative advantages in those goods for which the required factors of production are relatively abundant locally. This is because the prices of goods are ultimately determined by the prices of their inputs. Goods that require inputs that are locally abundant will be cheaper to produce than those goods that require inputs that are locally scarce.

2.2. The Resource Curse

The curse of natural resources, i.e. the observation that countries abundant in natural resources tend to perform poorly in terms of economic growth, has been empirically established and analyzed over the last two decades. On an intellectual level the issue first gained prominence in Latin America during the inter-war period after many Latin American economies suffered from the global slump in commodity prices (Sachs and Warner 2001:828). The skepticism against resource-led development remained in the post-war period and was eventually formulated in the Prebisch-Singer Thesis stating that the terms-of-trade between primary products and manufactured products tend to deteriorate over time. Exporters of primary commodities, usually developing countries, are thus able to import less and less for a given volume of exports. Studies on the resource curse emerging in the late 20th century, notably Sachs and Warner (1995, 1997) and Gylfason et al (1999), went beyond the structuralist/cepalist forecasts of declining global demand and commodity prices, arguing that the curse of natural resources is a demonstrable empirical fact, even after controlling for trends in commodity prices.

According to Sachs and Warner (2001) empirical support for the resource curse is “not bulletproof, but it is quite strong” (Sachs and Warner 2001:828). From casual observation glance the authors note that a) there is virtually no overlap between the set of countries that have large natural resource endowments and the set of countries that have high levels of GDP per capita, and b) extremely resource-abundant countries such as the oil-rich Persian Gulf states, or Nigeria, or Mexico and Venezuela, have not experienced sustained rapid economic growth.

Figure 1. Growth and Natural Resource Abundance 1970-1989



(Source: Sachs and Warner (2001))

This casual observation is confirmed by earlier studies. For example Gylfason et al. (1999) and Sachs and Warner (1995, 1997) using growth data from the post-war period find that high resource intensity tends to correlate with slow growth, surviving a long list of additional regressors.

Although the existence of a resource curse phenomenon is fairly robust, we lack a universally accept theory of the reasons behind it. Two main strands of explanations to the curse can be identified in the literature: 1) Dutch Disease/crowding out factors; and 2) institutional/political factors.

2.2.1. Crowding Out

First, the Dutch Disease may offer us some insight on the foundations of the resource curse. In the 1960s the Netherlands experienced a vast increase in its wealth after discovering large

natural gas deposits in the North Sea. This, at a first glance, positive development turned out to have serious repercussions on important segments of the country's economy. As the Dutch guilder became stronger it made Dutch non-oil exports less competitive, thus naming this syndrome 'Dutch disease'.

Corden and Neary (1982) divide an economy experiencing an export boom into three sectors: the booming export sector, the lagging export sector and the non-traded sector. When a country catches the Dutch Disease the traditional exporting sector gets crowded out by the two other sectors. A boom in a certain sector, e.g. through a jump in a country's natural gas exports as in the Netherlands, initially raises incomes as more foreign exchange flows in. If the foreign exchange were entirely spent on imported goods it would have no direct impact on the country's money supply or demand for domestically produced goods. But suppose the foreign currency is converted into local currency and spent on domestic non-traded goods.

What happens next depends on whether the country's nominal exchange rate is fixed or flexible. If the exchange rate is fixed the conversion of foreign currency into local currency would increase the country's money supply and pressure from domestic demand would push up domestic prices. This would amount to an appreciation of the country's 'real' exchange rate, i.e. a unit of foreign currency now buys fewer domestically produced goods and services compared to before the boom. If the exchange rate is flexible, the increased supply of foreign currency would drive up the value of the local currency, which also implies an appreciation of the real exchange rate. In this case it works through a rise in the nominal exchange rather than domestic prices. In both cases the appreciation of the real exchange rate weakens the competitiveness of the country's exports and causes the traditional sector to shrink, a process called the 'spending effect'.

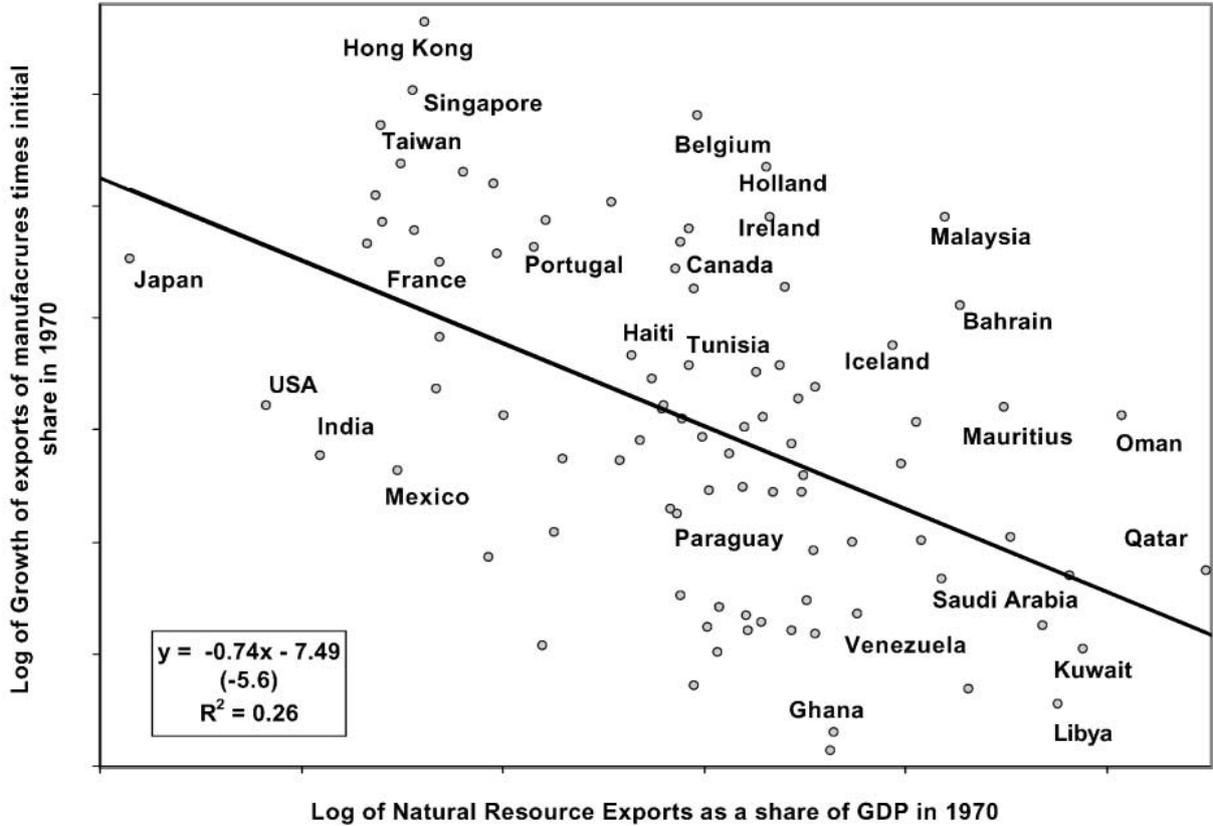
Parallel to this development there is a 'resource movement effect'. The increased domestic demand of non-traded goods and world demand of the booming sector commodity, e.g. natural gas, leads to a shift in production into these two expanding sectors as they attract production factors (capital and labor).

To summarize, the Dutch Disease may lead to a de-industrialization in the non-booming export sector, often characterized as the manufacturing sector as opposed to the primary commodity sector.

Another approach also follows a crowding-out logic, however somewhat different from the traditional Dutch Disease analysis. Sachs and Warner (2001) illustrate this logic by arguing that natural resource abundance crowds out activity x . Activity x drives growth and therefore natural resource abundance harms growth. Due to the diversity of views on what exactly drives growth, this implies an equal number of hypotheses on the resource curse. Sachs and Warner (1995, 1999) identify x as traded manufacturing activities. The mechanism is similar to the ‘spending effect’ above: positive wealth shocks from the natural resource sector (along with consumer preferences that translate this into higher demand for non-traded goods) creates excess demand for non-traded products and drives up non-traded prices, including particularly non-traded input costs and wages. This in turn squeezes profits in traded activities such as manufacturing that use those non-traded products as inputs yet sell their products on international markets at relatively fixed international prices. The decline in manufacturing then has ramifications that grind the growth process to a halt.

To test whether this explanation is credible, Sachs and Warner (2001) show that natural resource abundance is correlated with higher non-traded prices across countries by controlling for the systematic relationship between price levels and (non-natural resource) GDP and see whether natural resource intensive economies had higher relative prices on top of this. Sachs and Warner (2001) thus provide some evidence that one of the consequences of resource abundance in the 1970s was that other businesses in resource-abundant countries had to try to compete with higher than normal price levels. To the extent that they used domestic inputs and sold products on international markets their competitiveness suffered.

Figure 2. Natural resource intensive economies have had smaller contributions from exports of manufactures to overall GDP growth.



(Source: Sachs and Warner (2001))

Sachs and Warner (2001) then go on to examine whether this lower competitiveness impeded export growth. Fig. 2 shows the relation across countries between the log of the export contribution to growth during the period 1970-1990 and the log of natural resource abundance in 1970. There is a strong inverse relationship. Resource abundant countries tended to have small contributions from export growth in manufactures. According to Sachs and Warner (2001) the tendency for natural resource intensive economies to have high price levels may be part of the reason for this, but the authors also mention other possible causes that may have affected the results, such as the lack of measures to promote exports. Nonetheless, Sachs and Warner’s (2001) analysis clearly shows that we have not seen strong export-led growth in resource abundant economies. Therefore, one explanation of the resource curse is that natural resource abundance tended to render the export sectors uncompetitive and that as a consequence resource-abundant countries never successfully pursued export-led growth.

2.2.2. Political and Institutional Factors

Turning to the second strand, the institutional/political foundations of the resource curse, there is a fairly large body of literature dealing with these issues. Robinson et al. (2006) depart from the claim that resource dependent economies and resource booms seem to lead to highly dysfunctional state behavior, particularly large public sectors and unsustainable budgetary policies. Although they agree that inter-sectoral resource allocation is a key part of the story about the resource curse, in their theory this is driven by political not economic incentives.

Robinson et al. (2006) present a formal political-economy analysis of the impact of natural resources on development. Their model provides several conclusions: first, politicians tend to over-extract natural resources relative to the efficient extraction path because they discount the future too much. Second, Robinson et al. (2006) show that permanent resource booms may improve the efficiency of the extraction path, since the politicians now value future stocks and thus has preferences for an extraction intensity that is closer to the socially efficient level. Third, resource booms, by raising the value of being in power and by providing politicians with more resources which they can use to influence the outcome of elections, increase resource misallocation in the rest of the economy. Lastly, the overall impact resource booms have on the economy is ultimately dependent on institutions. The institutional matrix is critical in determining the extent to which political incentives form policy formulation. Robinson et al. (2006) point out that countries with institutions that promote accountability and state competence will tend to benefit from booms in resources since these institutions will help the circumvent the perverse political incentives that such resource booms create. Countries without such institutions may on the other hand suffer from a resource curse. (Robinson et al. 2006:462ff)

This leads us to another approach to the curse of natural resources, namely the one departing from an institutionalist viewpoint.

Mehlum et al. (2006) argue that countries rich in natural resources constitute both growth losers and growth winners. They underline that empirical findings confirm that resource rich economies tend to grow slower than economies without substantial resources. Countries with poor growth performance such as Nigeria, Zambia, Sierra Leone, Angola, Saudi Arabia and

Venezuela, are all resource abundant, while the successful Asian tiger economies of South Korea, Singapore, Hongkong and Taiwan are all resource poor. On average resource rich countries lag behind countries with less natural resource endowments (Melhum et al. 2006:1; Papyrakis and Gerlagh 2004:182). Despite this Melhum et al. (2006) calls for caution when it comes to simply claiming that all resource abundant economies are cursed. Economies which have performed well in terms of growth such as Australia, Botswana, Canada and Norway are rich in resources.

Melhum et al. (2006) claim that the main reason for these diverging experiences in growth are due to differences in the quality of institutions. Based on the assertion that the variance of growth performance among natural resource abundant countries is primarily due to how resource rents are distributed via the institutional arrangement. Melhum et al. (2006) make a distinction between producer friendly institutions and grabber friendly institutions. In the category of countries with producer friendly institutions rent-seeking and production are complementary activities, while with grabber friendly institutions, rent-seeking and production are competing activities. With grabber friendly institutions the incentive structure favors specialization in unproductive influence activities, for instance due to a malfunctioning bureaucracy, weak rule of law and corruption. Particularly negative effects on growth are found in a grabber friendly institutional matrix where resource abundance attracts scarce entrepreneurial resources out of production and into unproductive activities. (Melhum et al. 2006:12ff)

Melhum et al. (2006) conclude that institutions may be decisive for how natural resources affect economic growth even if resource abundance has no effect on institutions. The authors claim that natural resources put the institutional arrangements to a test, so that the resource curse only appears in countries with inferior institutions.

In terms of how resource abundance affects institutions Ross (2000; 2001) finds the claim that oil and mineral wealth inhibits democracy both valid and statistically robust. Ross (2000; 2001) also argue that oil does greater damage to democracy in poor countries than in rich ones, and a given rise in oil exports will do more harm in oil-poor states than in oil-rich ones. Hence, oil inhibits democracy even when exports are relatively small, particularly in poor states. Moreover, the harmful influence of oil is not restricted to the Middle East. Oil wealth has according to Ross (2000; 2001) probably also made democratization harder in states like

Indonesia, Malaysia, Mexico, and Nigeria; it may well have the same affect on the oil-rich states of Central Asia.

2.2.3. The Resource Curse and Trade

Little research has been done on the relation between trade policy and the resource curse. As noted above, Sachs and Warner (2001), while focusing on growth rather than trade as such, showed evidence that resource-abundant countries tended to be high-price economies and that, partly as a consequence, these countries tended to miss-out on export-led growth.

Papyrakis and Gerlagh (2004) touch briefly on trade as a possible transmission channel of the curse. They find that natural resources have a negative impact on growth if considered in isolation, but a positive direct impact on growth if other explanatory variables, such as corruption, investment, openness, terms of trade, and schooling, are included. Moreover they study the transmission channels, i.e. the effect of natural resources on the other explanatory variables, and calculate the indirect effect of natural resources on growth for each transmission channel. Papyrakis and Gerlagh find that the negative indirect effects of natural resources on growth are shown to outweigh the positive direct effect.

Looking at the effects of natural resources on the degree of openness of the economy and its terms of trade Papyrakis and Gerlagh (2004) find that these two transmission channels taken together account for 42 percent of the negative indirect impact of natural resources on growth (Papyrakis and Gerlagh 2004:189). Natural resource abundance reduces openness and has negative effects on terms of trade. Since natural resources weaken the manufacturing sector, policymakers may impose import quotas and tariffs that, in the short run, protect domestic producers. In the long run, however, such measures reduce the openness of the economy and retard its integration into the world economy.

3. The World Trade Organization

3.1. Development of the Multilateral Trade Organization

Born out of negotiations, the World Trade Organization (WTO) began life on 1 January 1995. Its trading system, however, is half a century older. Since 1948, the General Agreement on Tariffs and Trade (GATT) had provided rules for the system. The GATT was a result from the negotiations to create an International Trade Organization (ITO) after the Second World War. The negotiations did not attain its the final objective they were set out to do - the establishment of the ITO - but the 1947 exchange of tariffs reduction of the GATT was a concrete result of this process (GATT 1947; Hoekman and Kostecki 2001:38).¹

Having been conceived as a temporary trade agreement the GATT lacked institutional structure. It did not take long for the General Agreement to give birth to a *de facto* international organization, also known informally as GATT. Being created in the postwar era, a fundamental perception of the founders of the GATT was that multilateral institutions facilitating cooperation between countries were important not only for economic reasons, but that the resulting increase in interdependence would help reduce the risk of war (Hoekman and Kostecki 2001:37). The expected increase in real incomes following trade liberalization and non-discriminatory access to markets was expected to reduce the scope for conflicts. The increase in transparency and the availability of a forum in which to discuss potential or actual trade conflicts was expected to reduce the probability of these spilling over into other domains. The preamble of the GATT 1947 states that the endeavor of the contracting parties “should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, developing the full use of the resources of the world and expanding the production and exchange of goods” (GATT 1947).² The stated objectives were to be met by means of entering into reciprocal and

¹ The founding parties to the GATT, negotiated between 23 countries, were Australia, Belgium, Brazil, Burma, Canada, Ceylon, Chile, China, Cuba, Czechoslovakia, France, India, Lebanon, Luxembourg, Netherlands, New Zealand, Norway, Pakistan, Southern Rhodesia, Syria, South Africa, the United Kingdom and the United States. China, Lebanon and Syria subsequently withdrew.

² The author makes a distinction between the GATT 1947 (the old GATT) and the GATT 1994 that is embodied in the WTO. The old GATT was both a set of rules and an institution; the new GATT is simply a set of rules that is part of the WTO.

mutually advantageous trade arrangements directed toward the substantial reduction of tariffs and other trade barriers, and by the elimination of discriminatory treatment in international commerce (Hoekman and Kostecki 2001:37; GATT 1947). As pointed out by Hoekman and Kostecki (2001), there is no mention of free trade as an ultimate goal.

Over the years GATT evolved through several rounds of negotiations. The last and largest GATT trade round was the Uruguay Round which lasted from 1986 to 1994 and led to WTO’s creation. As mentioned above, GATT was not formally an international organization (i.e. a legal entity in its own right), but an inter-governmental treaty. Whereas GATT had dealt mainly with trade in goods, the WTO, besides trade in goods (GATT 1994, as well as numerous issue-specific agreements on antidumping, subsidies, import-licensing etc.) now also cover trade in services (GATS), and in traded inventions, creations and designs, i.e. intellectual property (TRIPS). (Hoekman and Kostecki 2001:37, World Trade Organization 2007:10)

Table 1. The GATT Trade Rounds

Year	Place/Name	Subjects covered	No. of countries
1947	Geneva	Tariffs	23
1949	Annecy	Tariffs	13
1951	Torquay	Tariffs	38
1956	Geneva	Tariffs	26
1960-1961	Geneva(Dillon Round)	Tariffs	26
1964-1967	Geneva (Kennedy Round)	Tariffs and anti-dumping measures	62
1973-1979	Geneva (Tokyo Round)	Tariffs, non-tariff measures, “framework” agreements	102
1986-1994	Geneva (Uruguay Round)	Tariffs, non-tariff measures, rules, services, intellectual property, dispute settlement, textiles, agriculture, creation of WTO, etc.	123

(Source: World Trade Organization (2007:16))

WTO is a rules-based organization, meaning it is built around a set of rules. In its center are the WTO agreements, negotiated and signed by the majority of the world's trading nations. These documents provide the legal ground-rules for international commerce. They are essentially contracts, binding governments to keep their trade policies within agreed limits. Although negotiated and signed by governments, the goal is to help producers of goods and services, exporters, and importers conduct their business, while still allowing governments to meet social and environmental objectives. (World Trade Organization 2007:9f)

Departing from the idea of positive effects on economic development and well-being provided by open trade the overriding purpose of the multilateral trading system of the WTO is to "help trade flow as freely as possible - so long as there are no undesirable side-effects" (World Trade Organization 2007:10). That entails removing obstacles and providing a transparent and predictable set of trade rules. Given that trade relations often involve conflicting interests, a final central component of WTO's work is dispute settlement.

At the WTO's Fourth Ministerial Conference in Doha, Qatar, in November 2001 WTO member governments agreed to launch a new round of trade negotiations. They also agreed to work on other issues, in particular the implementation of the present agreements. The entire package is called the Doha Development Agenda (DDA). Agreement is yet to be reached.

3.2. WTO and Trade in Natural Resources

Trade in natural resource products is not treated separately from trade in other goods under the GATT 1994 agreement. Trade in agricultural products, however, is dictated by the WTO Agreement on Agriculture negotiated during the Uruguay Round. The Agreement on Agriculture includes commitments on the following three areas: 1) increased market access; 2) cuts in domestic support; and 3) cuts in export support. The agreement's effect on total support levels has been limited and has not resulted in any significant further liberalization of the agricultural trade (Kommerskollegium 2004: 11). In the ongoing DDA-negotiations a large group of developing country-members as well as a number of developed countries are therefore pushing for a more ambitious deal on agriculture.

Petroleum is the largest primary commodity of international trade in terms of both volume and value. Trade in oil also encompasses the national security element involved in it for both producing/exporting and consuming/importing countries. The political stability and economic survival of both groups of countries, and hence of the entire international community, depends to a large extent on the availability and affordability of oil in the international marketplace. Desta (2006)

Maintaining this delicate balance has never been easy. While petroleum importers have historically used different means, including bilateral/multilateral treaties and military and economic occupations to control their sources, exporters have combined forces under the umbrella of OPEC³ to protect and promote their common interests. The state of international relations over the last several decades has to a large extent been dictated by the balance of power between these two contending interests.

The relationship between these divergent petroleum interests is complex and the role of the multilateral trading system on international trade in petroleum products has not always been clear. Due to the strategic importance of petroleum to the world economy, it has often been treated in a largely political context and outside the GATT system of multilateral trade rules. However, there is no GATT provision which exempts petroleum trade from its coverage. In principle, therefore, trade in petroleum products among GATT/WTO members is governed by the rules of the trading system. Yet, a combination of factors has, *de facto*, brought the virtual exclusion of international trade in petroleum products from the rules of the trading system. The most important ones in this respect include absence of petroleum export interests from GATT's origins, the consequent lack of specific trade/import liberalization commitments by GATT/WTO members, and the system's inherent market access bias. (Desta 2004)

Although petroleum was not explicitly excluded from the GATT 1947 Hussein (2006) argues that the principal trading parties to GATT, mainly OECD⁴ members, treated oil as if it was. Their main goal of the Western nations was to safeguard the energy inflow to the growing postwar economies and avoid problems that may cause unnecessary disruptions in the oil supply (Hussein 2006:273). GATT was thus a market opening weapon for the products of its

³ The Organization of the Petroleum Exporting Countries (OPEC) is an international cartel made up of Algeria, Angola, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. OPEC was founded in 1960.

⁴ Organisation for Economic Co-operation and Development

industrialized proponents, hence almost by definition predominantly concerned with the manufacturing sector. This meant that while each contracting party had a vested interest in the opening of markets for its products in other GATT members, none had an interest in market access for petroleum products. Consequently, the tariff schedules of GATT contracting parties typically contained hardly any tariff reduction and binding commitments in the petroleum sector. Although applied tariffs on petroleum imports are generally low, many WTO member countries are thus free to raise them to any desired levels, in as long as they remained unbound (which is the case to this day for such countries as Japan and the US), while they would not be allowed to erect quantitative import restrictions. (Desta 2004)

A crucial question to be asked is if there is compatibility between the two diametrically opposed positions the global economy the two organizations often are associated with: “the WTO with the sometimes savage rules of the market and OPEC with the often demonized intergovernmental manipulation of prices” (Desta 2004).

3.3. WTO Accession Process

Since its creation in 1995 32 new members have acceded to the WTO. Countries applying for membership in the trade organization face a complex and usually long process. Some applications date back to the late 1980s (e.g. Algeria) and early 1990s (e.g. Russia). Applicant countries often need to implement substantive reforms to align their domestic institutions and policies to WTO disciplines, and given that all most applicants are developing countries (and many of them least-developed countries) with institutional and financial constraints, these often lack the capacity to effectively engage in the accession negotiations. (Evenett and Braga 2005).

Evenett and Braga (2005) pose the question why nations do join the World Trade Organization. They find that policymakers from countries seeking to join the WTO give a range of economic, legal and political reasons for doing so. In the first category, economic reasons, further integration into the world economy is the underlying rationale. Here the exception is that more predictable access to foreign markets, which a WTO membership can bring at least formally, will result in higher export earnings. Another economic rationale is to

attract more foreign direct investment and through tariff bindings, quota elimination and reformed state measures also use the WTO membership itself as a seal of approval recognized by the international business community by offering some degree of predictability and certainty. Trade theory would also emphasize the improved market access for trading partners in the acceding country leading to lower prices and a greater variety of imports. (Evenett and Braga 2005)

Turning to the legal advantages of accession the primary objective is to make use of the rules-based organization's dispute settlement system. Political reasons pertain to many transition economies who often view WTO membership as a means to signal their commitment to joining the international community of market-based economies. (Evenett and Braga 2005).

The procedures an applicant country must follow in order to become a member of the WTO are well established, with focus lying on the applicant attempts to satisfy the demands of existing WTO members. Paradoxically for a rules-based organization, however, the WTO does not have any clear rules on the 'price' of membership. Article XII of the Marrakesh Agreement, the legal instrument covering the WTO accession process, only states that the new members may join "on terms to be agreed it and the WTO" (Marrakesh Agreement: Article XII(1)). From a mercantilist perspective, the relative 'price' of WTO accession has risen since the Uruguay Round, according to Evenett and Braga (2005). The 'price' is here identified as commitments made by acceding countries directly relating to market access on goods and services and on rules.

4. The Model

4.1. The Openness Framework

Regarding the type of equation that could be expected to explain the trade openness of countries, only limited guidance is provided by economic theory as there is no general theoretical model on the matter. New trade theory models with differentiated goods and increasing returns to scale suggest that countries will specialize in particular goods, and the amount of trade they engage in will be inversely proportional to their size.

Given the absence of a complete theoretical model for understanding trade openness, the approach of this study is more pragmatic. Drawing on the insights provided by earlier empirical work on the gravity model, we estimate an equation for openness. The study do not claim to be estimating a structural model and we are aware that causality between the left-hand side variable and the right-hand side variables may go in both directions, and that there may be causality between right-hand side variables. Nor do we test any specific model of international trade. Remembering the stated aim of the thesis, the regressions should be interpreted as an attempt to identify potential correlation between a set of probable variables and a country's trade policy/openness, with special emphasis on the effect, or lack of effect, natural resource endowments may have.

Standard gravity analysis in economics is based on the presumption that economic mass and trade costs are key explanators of bilateral trade flows. The former constitute GDP and population, while the latter include distance (between economic centers of gravity, usually capitals), adjacency and cultural similarities (usually defined by language). These explain the normal volume of trade between two countries. It can then be written as:

$$F_{ij} = G * (M_i M_j) / (D_{ij}^2) \quad (1)$$

The model implies that trade increases with size and proximity of the trading partners. F_{ij} , again, is flow of goods from country i to country j . M_i and M_j are the economic masses of the two countries and D_{ij} is the distance between them. G is a constant. By adding more

explanatory variables to the gravity equation it can be augmented into capturing trade policy effects on the volume and direction of trade. (Head 2003:2; Greenaway and Milner 2002:575; Porojan 2001:266)

4.2. Specification

Based on the insights from gravity framework we thus depart from the conjecture that openness will be related to various economic, geographic and policy factors. The following equation contains 11 explanatory variables. As noted above, the panel estimation is done holding WTO membership and trade policy, respectively, as the dependent variable. The selection of variables is based largely on the availability of data and the aim to maintain as large a sample size as possible. Following Guttman and Richards (2006) the applied openness equation includes three possible economic or geographic determinants of trade openness: the population, total area and GDP of each country, all of them collected from the World Bank's World Development Indicators Database (WDI). Data for GDP is expressed in constant 2000 US dollars. The natural resource endowment variables (fuels, ores and minerals and agricultural primary products) are calculated as export earnings from these sectors' share of total GDP and were also collected from the WDI Database. Thereafter follows a variable representing governance⁵ gathered from the World Bank's Worldwide Governance Indicators (WGI). The governance variable is also interacted with the three natural resource endowments variables to account for possible effects there between.

$$\begin{aligned}
 Y_i = & \alpha + \beta_1 \log(GDP_i) + \beta_2 \log(population_i) + \beta_3 \log(area_i) + \quad (2) \\
 & \beta_4 \log(remoteness_i) + \beta_5(fuels_i) + \beta_6(ores \text{ and } minerals_i) + \\
 & \beta_7(agriculture_i) + \beta_8(governance_i) + \beta_9(governance_i * fuels_i) + \\
 & \beta_{10}(governance_i * ores \text{ and } minerals_i) + \\
 & \beta_{11}(governance_i * agriculture_i) + \varepsilon_i
 \end{aligned}$$

Given the multilateral trade aspects studied, each country's economic location is proxied with a variable encompassing a weighted average of distance to all possible trading partners, termed remoteness:

⁵ The WGI account for six dimensions of governance: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption.

$$Remoteness_i = \sum_{\substack{j \\ i \neq j}}^J distance_{ij} w_j \quad (3)$$

Where distance is the great world circle distance⁶ between the capital cities of two countries, J is the sample of countries, i is the home country, j is the potential trading partner, w_j is the weight of country j in world GDP. Data on great world circle formula distances were collected from the CEPII Database.

Y is the dependent variable. The regressions were conducted applying different types of dependent variables. First, Y represents WTO membership and in the second regression a trade policy variable is set as the dependent variable. The specific details of the two dependent variables tested for will be dealt more in-depth below. The regression analysis were in both cases done using panel data regressions encompassing the years 1990-2004, with each year as a separate time period. The sample of countries included in the regressions were gathered from the CIA World Facts Book definition of a sovereign nation, totaling 195 countries. Due to data limitation this sample was later reduced to include 165 nations in the binary probit estimation on WTO membership and 142 countries in the OLS estimation using trade policy as a dependent variable.⁷ Also due to incomplete data in the governance index, the applied regressions use the 1996 governance score for the time period 1990-1996. .

4.3. Empirical analysis

4.3.1. WTO membership

The study estimates a panel data regression with the full sample of countries available in each time period where 1 signals that country i was a member of WTO that given year, and conversely 0 implies non-membership in that time period.

⁶ Using longitudes and latitudes the great circle formula approximates the shape of the earth as a sphere, and calculates the minimum distance along the surface between two locations.

⁷ See appendices A and B for complete lists of countries.

Table 2 Parameter estimates from WTO membership equation

GDP	1.205798***
Population	-0.032760
Total area	-0.422213***
Remoteness	0.955629***
Fuels	-2.589176***
Ores and minerals	-0.769486
Agricultural primary products	9.938252***
Governance	0.579246***
Governance x Fuels	0.029943
Governance x Ores and minerals	-3.445364**
Governance x Agricultural primary products	1.148750
Constant	-47.81969
McFadden R ²	0.238829
Number of observations	1765

Note: Significance at the 1, 5 and 10 percent levels are denoted ***, ** and, * respectively.

The economic mass of a country, here proxied by GDP turns out positively significant at the one percent level. This finding indicates that larger economies are to a higher degree prone to be members of the WTO. The fact that all of the world's developed economies are member states of the WTO, and the reverse is true for many of the world's least developed countries, the empirical result is as expected. The result confirm the Evenett and Braga's (2005) claim that many of the less developed countries facing institutional and financial constraints, often lack the capacity to effectively engage in the accession negotiations. The population variable turns out insignificant with a slightly negative coefficient score, also expected since nothing in the WTO agreements is biased towards members with large populations. The trend is rather the opposite in the ongoing DDA-negotiation round with proposals for special and differential treatment for small and vulnerable economies.

Total area is significant and the one percent level with a negative sign. Small-sized nations are therefore more prone to be members of the trade organization than large ones. This result can perhaps be ascribed to the non-membership of countries of large size areas in the applied regression such as Russia, Saudi Arabia and a number of African countries. Conversely, the long-time membership of smaller-sized European states may have influenced the outcome.

As expected the result for remoteness is positive and highly significant (one percent level). The farther away an economy is from its trading partners, the more important trade treaties guaranteeing non-discriminatory treatment become. Active participation in the multilateral trade system may serve as a comparative advantage for remotely located economies in competition with more closely positioned non-members. Without natural trading partners, remote countries are given at least a formally equal market access (i.e. absent transportation costs) through membership.

Turning to the natural resource variables, firstly fuels endowments are associated with a strong negative impact on the probability of WTO membership, significant at the one percent level. The obvious explanation is the non-membership of many of the world's major oil and gas exporters in the time period of the applied regression, e.g. Saudi Arabia, Russia, Iran and Iraq. Why many major fuel producers choose not to accede to the trade organization may partly be attributed to the conflicting routes pursued by OPEC and WTO, as accounted for above. These should, however, not be overemphasized. Hussein (2006) puts forward the idea of compatibility between the two organizations, arguing that although GATT rules prohibit the imposition of quantitative restrictions on both exports and imports, Article XX of GATT 1947 provides general exceptions to those rules for certain cases. The introductory clause and article XX(g) read as follows:

“Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in the agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures... (g) Relating to the conservation of exhaustible natural resources, if such measures are made effective in conjunction with restrictions on domestic production or consumption” (GATT 1947: Article XX).

Consequently, Hussein (2006) identifies three conditions to be fulfilled and proved by an oil exporter who wishes to benefit from these exceptions: 1) quantitative restrictions have to be related to the conservation of the exhaustible natural resource; 2) the exceptional measures must be applied in conjunction with restrictions on domestic production or consumption; and 3) the application of such measures should not constitute a means of arbitrary or unjustifiable discrimination between countries, or a disguised restriction on international trade. Given the above rules and conditions, Hussein (2006) argues that an OPEC decision to set a production ceiling does not violate these three conditions.

Abundance of ores and minerals has no significant effect on membership in the WTO. While many of the mineral rich countries in sub-Saharan Africa and Asia remained outside the organization during the GATT years in the earlier time periods in the applied regression, other nations in Europe, Oceania and South America also endowed with ores and minerals were in fact members, suggesting an evening out of these countries' relative impact and thus explaining the insignificant outcome of the coefficient.

Turning to the last of the three natural resource variables, agricultural primary products, the result is very strong and positive, with a significance at the one percent level. In the period 1990 to 2004 52 new members acceded to the GATT/WTO, all of them developing countries and a many of them agricultural exporters. First with the completion of the Uruguay Round an agreement on trade in agricultural products was reached. Although criticized by many developing countries and civil society for allowing the richer members to pursue highly protectionist policies in the agricultural sector, the agreement did achieve average cuts in tariffs and export support of 36 percent, and 20 percent cuts in the trade distorting domestic support, thus offering an improved transparency and predictability for the exporters in comparison to earlier (Kommerskollegium 2004:11). The agreement also includes, *inter alia*, rules on minimum levels of market access for tariff quotas, rules on special safeguard measures against substantial volume increases or price decreases for imports as well as rules on export restrictions. To provide the special needs for developing countries the agreement also includes rules for special and differential treatment and a commitment to take measures should the food security be jeopardized because of potential negative effects the agreement might have on the least developed countries and those countries who are net-importers of food (Kommerskollegium 2004:11).

Absent its many shortcomings, the WTO Agreement on Agriculture does offer some degree of certainty for agricultural exporters and can thus explain the positive and highly significant probability of membership for these nations. Moreover, membership offers non-discriminatory access to the important markets in the developed world for developing country agricultural output.

In comparison with the oil market, the market for agricultural produce is closer to perfect competition, i.e. a hypothetical market form in which no producer or consumer has the power

to influence the market price.⁸ The oil market, on the other hand, is more characterized by an oligopoly of petroleum producing countries setting the world prices through cartel-like behavior. While the former situation of perfect competition is at the groundwork of WTO's guiding principles, the latter is in many aspects WTO-inconsistent, at least in policy principle.

The governance variable comes out positive and significant at the one percent level. As expected, good governance is associated with membership in the WTO. Returning to the claim by Evenett and Braga (2005), a membership in the WTO has become a means for transition economies to signal a willingness to join the international community of market-based economies. It can therefore be assumed that a transition to better governance is accompanied with a closer integration with the rest of world, also in terms of international commerce. An institutional matrix based on good governance is more prone to result in policies that economic theory would define as sound, than one based on bad governance, therefore open trade and deeper integration with trading partners is the expected outcome from the governance variable (Rodrik and Subramanian 2003:31ff).

Looking at the interaction variables between natural resource endowments and governance, only the interaction with ores and minerals is significant. The coefficient, negative and significant at the five percent level, suggest that better governance is associated with a higher probability of WTO membership, but that large shares of GDP coming from export earnings from the ores and minerals sector reduces this probability. The institutional approach to the resource curse provides some explanatory groundwork when analyzing this result. Mineral wealth is often geographically concentrated and if it happens to be concentrated in a region populated by an ethnic or religious minority, resource extraction may promote or exacerbate ethnic tensions, as federal and regional actors compete for authority over mineral rights. These disputes may lead to higher military spending and less democracy in resource-rich, ethnically fractured states such as Angola, Burma, the Democratic Republic of Congo, Indonesia, Nigeria, Papua New Guinea and Sierra Leone, and South Africa (Ross 2000:14f).

As mentioned in section 3.3, the binary probit estimation on WTO membership includes 165 countries, with varying degree of participation in different time periods. Important to mention

⁸ Although large agricultural producers such as the EU or USA do in fact have the power to influence world market prices by manipulating production through domestic support and other trade distorting measures, most developing country producers themselves set production levels given a certain world market price.

is that non-members were to a higher proportion omitted due to incomplete data. The constructed model on which the regression was conducted may therefore amplify the probability scores of membership.

4.3.2. Trade policy – Robustness checks

The dependent trade policy variable was constructed from the trade policy component of the Economic Freedom of the World Index produced by the Institute for Economic Freedom (IEF). The IEF's summary measure is based on five separate indicators of countries' openness to trade. One of these, the ratio of actual trade to predicted trade, is not included in this study's trade policy regression since its sub-components are captured by other independent variables in the specification used. Therefore the measure used for the dependent trade policy variable is made up of four components: the existence of capital market controls, the existence of regulatory trade barriers, taxes on international trade and the difference between official and black market exchange rates. A simple average, scaling from one to ten with a higher score indicating a more liberal trade regime, is calculated from these four components. Due to data limitation in the earlier time periods, the trade policy score for 1990 is used for the period 1990-1994 and the 1995 score for the period 1995-1999.

Again, a panel data regression is estimated with the full sample of countries available in each time period, this time using ordinary least squares.

Table 3 Parameter estimates from the trade policy equation

GDP	1.112827***
Population	-0.349687***
Total area	-0.314420***
Remoteness	0.673868***
Fuels	-0.761879*
Ores and minerals	2.796789***
Agricultural primary products	-2.283910
Governance	0.228203**
Governance x Fuels	1.450222***
Governance x Ores and minerals	0.451450
Governance x Agricultural primary products	1.304127
Constant	-28.60801

Adjusted R2	0.309273
Number of observations	1338

Note: Significance at the 1, 5 and 10 percent levels are denoted ***, ** and, * respectively

The first four independent variables in Table 3 are significant at the one percent level. The signs of the standard gravity variables (GDP, population, total area, remoteness) are identical to the results in Table 1 and the underlying reasons guiding a country to join the WTO can obviously be assumed to coincide with those policies pursuing a more liberal trade regime.

Looking at GDP, it is positively correlated with a more liberal trade policy. Recalling section 3.1., we are aware that causality between the left-hand side variable and the right-hand side variables may go in both directions. Again the population has a negative and significant coefficient. As pointed out by Nilsson (2000) the size of country's population may affect trade in two ways: a large population indicates a large domestic market, a higher degree of self-sufficiency and thus less need to trade. Secondly, a large population promotes division of labor and implies the presence of economies of scale in production and therefore also opportunity and desire to trade in a greater variety of goods. The empirical result indicates that governments tend to make decisions on their trade policy based on the former assumption.

The result on the coefficient for total area suggests that smaller countries adopt a more liberal trade regime. Similarly, more remotely located economies are more open to trade.

Countries abundant in fuel resources pursue a more protectionist trade policy. The negative impact fuel endowments have on the degree of liberalized trade is statistically significant at the ten percent level, confirming the result from the regression testing for WTO membership. Unlike the result from Table 2, the ores and minerals variable is highly significant when holding trade policy as the dependent variable. The empirical result shows that endowment of ores and minerals gives a positive impact on openness to trade. The author finds no reasonable explanation of this discrepancy, which calls for further research. High exports earnings from the agricultural sector have no significant effect on a country's chosen trade policy, contrasting the highly significant results from the WTO membership regression.

Again, governance is positively correlated with freer trade, as expected. The governance variable is significant at the five percent level. The interaction between the fuel riches and governance turns out positive and significant.

5. Summary and Concluding Remarks

The curse of natural resources may have foundations in both political and institutional shortcomings as well as in the economists' crowding-out approach. Regardless, the observation that countries abundant in natural resources tend to perform poorly in terms of economic growth, has been empirically established.

Little research has been done on the resource curse in the context of trade policy. Departing from the assumption that openness to trade has a positive impact on economic growth, this study has offered some further insight on the resource curse by producing evidence on the direct negative impact abundance in fuels have on openness to trade, and thus in the extension – economic growth.

While controlling for other empirically significant variables of trade openness inspired by the gravity model, as well as governance, fuels riches were found to be negatively correlated both with the probability of membership in the WTO and the general measure of degree of liberalized trade policy. Endowments of agricultural primary commodities and ores and minerals produced less evident effects in terms of robustness. Agricultural exporters were associated with a strong probability of membership in the WTO, while agricultural primary commodities had no significant effect on the degree of liberalized trade in the more general measure. Ores and minerals had no significant effect on the probability of WTO membership but were positively correlated with general trade openness. The standard gravity variables turned out as expected, notably GDP and remoteness which both had strong positive and highly statistically significant effects on openness to trade.

The hypothesis of this study was confirmed for countries abundant in fuels resources. While there is no inherent bias against exports of natural resources in the multilateral trading system and the negative correlation between fuels endowments and trade openness is significant when controlling for governance, the curse of natural resources appears to be transmitted also to the domain of trade. The finding that countries rich with fuels are less open to trade may very well be part of the slow pace of economic growth in the resource rich countries.

6. References

Literature

Corden, W.M. and Neary, J.P. (1982) “Booming Sector and De-Industrialisation in a Small Open Economy”. *The Economic Journal*, 92, pp. 825-848.

Destra, M.G. (2004) “OPEC and the WTO: Petroleum As A Fuel For Cooperation In International Relations”. *Middle East Economic Survey*, March.

Evenett, S. and Braga, C. (2005) “WTO Accession: Lessons From Experience”. Trade Note 22, World Bank Group.

GATT 1947 (1986) “The Text of the General Agreement on Tariffs and Trade (GATT)”. GATT, Geneva.

Greenaway, D. and Milner, C. (2002) “Regionalism and Gravity”. *Scottish Journal of Political Economy*, 49, pp. 574-585.

Guttman, S. and Richards, A. (2006) “Trade Openness: An Australian Perspective”. *Australian Economic Papers*, September, pp. 188-203.

Gylfason, T., Herbertsson, T.T. and Zoega, G. (1999) “A mixed blessing: Natural resources and economic growth”. *Macroeconomic Dynamics*, 3, pp. 204-225.

Head, K. (2003) “Gravity for Beginners”. Faculty of Commerce, University of British Columbia, Vancouver.

Hoekman and Kostecki (2001) *The Political Economy of the World Trading System – The WTO and Beyond, Second Edition*. Oxford University Press, Oxford.

Hussein, A. (2005) "Oil Exports under GATT and the WTO". *OPEC Review*, December, pp. 267-294.

Kommerskollegium (2004) "WTO – Basfakta och knäckfrågor".
Kommerskollegium/National Board of Trade, Stockholm.

Marrakesh Agreement (1994) a.k.a. "Agreement Establishing the World Trade Organization". GATT/World Trade Organization, Marrakesh.

Mehlum, H., Moene, K. and Torvik, R. (2006) "Institutions and the resource curse". *The Economic Journal*, 116, pp.1-20.

Nilsson, L. (2000) "Trade integration and the EU economic membership criteria". *European Journal of Political Economy*, 16, pp. 807-827.

Papyrakis, E. and Gerlagh, R. (2004) "The resource curse hypothesis and its transmission channels". *Journal of Comparative Economics*, 32, pp. 181-193.

Porojan, A. (2001) "Trade Flows and Spatial Effects: The Gravity Model Revisited". *Open Economies Review*, 12, pp. 265-280.

Robinson, J.A., Torvik, R. and Verdier, T. (2006) "Political foundations of the resource curse". *Journal of Development Economics*, 79, pp. 447-468.

Rodrik, D. and Subramanian, A. (2003) "The Primacy of institutions (and what this does and does not mean)". *Finance and Development*, 40, pp.31-34.

Ross, M.L. (2001) "Does oil hinder democracy?". *World Politics*, 53, pp. 325-361.

Ross, M.L. (2000) "Does Resource Wealth Cause Authoritarian Rule?". Development Research Group, World Bank.

Rostow, W.W. (1960) “The Stages of Economic Growth: A Non-Communist Manifesto”. In: Roberts, J.T. and Hite, A. (eds.) (2000) *From Modernization to Globalization, Perspectives on Development and Social Change*. Blackwell Publishers Ltd, Oxford.

Sachs, J.D. and Warner, A.M. (2001) “Natural Resources and Economic Development – The Curse of Natural Resources”. *European Economic Review*, 45, pp. 827-838.

Sachs, J.D. and Warner, A.M. (1999) “The big push, natural resource booms and growth”. *Journal of Development Economics*, 59, pp.43-76.

Sachs, J.D. and Warner, A.M. (1997) “Fundamental Sources of Long-Run Growth”. *American Economic Review*, 87, pp. 184-188.

Sachs, J.D. and Warner, A.M. (1995) “Natural resource abundance and economic growth”. NBER Working Paper No 5398. National Bureau of Economic Research, Cambridge, MA.

World Trade Organization (2007) “Understanding the WTO – 3rd Edition”. World Trade Organization Information and Media Relations Division, Geneva.

Databases

CEPII, Centre D’Etudes Prospectives et d’Informations Internationales, www.cepii.org, November 1, 2006.

CIA World Facts Book Online, <https://www.cia.gov/cia/publications/factbook>, November 1, 2006.

IEF, Institute for Economic Freedom’s Economic Freedom of the World Index, www.freetheworld.org, December 15, 2006.

WDI, World Bank’s World Development Indicators Database, www.worldbank.org, November 1, 2006.

WGI, World Bank's Worldwide Governance Indicators Database, www.worldbank.org,
December 15, 2006.

Appendix A – Countries included in the WTO Membership regression

Albania	Germany	Papua New Guinea
Algeria	Ghana	Paraguay
Angola	Greece	Peru
Antigua and Barbuda	Grenada	Philippines
Argentina	Guatemala	Poland
Armenia	Guinea	Portugal
Australia	Guinea-Bissau	Qatar
Austria	Guyana	Republic of Korea
Azerbaijan	Haiti	Republic of Moldova
Bahamas, The	Honduras	Romania
Bahrain	Hong Kong, China	Russian Federation
Bangladesh	Hungary	Rwanda
Barbados	Iceland	Saint Kitts and Nevis
Belarus	India	Saint Lucia
Belgium	Indonesia	Saint Vincent and the Grenadines
Belize	Iran, Islamic Rep.	Samoa
Benin	Ireland	Saudi Arabia
Bhutan	Israel	Senegal
Bolivia	Italy	Serbia and Montenegro
Botswana	Jamaica	Seychelles
Brazil	Japan	Singapore
Brunei	Jordan	Slovak Republic
Bulgaria	Kazakhstan	Slovenia
Burkina Faso	Kenya	Spain
Burundi	Kiribati	Sri Lanka
Cambodia	Kuwait	Sudan
Cameroon	Kyrgyz Republic	Suriname
Canada	Latvia	Swaziland
Cape Verde	Lebanon	Sweden
Central African Republic	Libya	Switzerland
Chile	Lithuania	Syrian Arab Republic
China	Luxembourg	Tajikistan
Colombia	Macao, China	TFYR Macedonia
Comoros	Madagascar	Thailand
Congo, Rep.	Malawi	Togo
Costa Rica	Malaysia	Tonga
Cote d'Ivoire	Maldives	Trinidad and Tobago
Croatia	Mali	Tunisia
Cuba	Malta	Turkey
Cyprus	Mauritania	Turkmenistan
Czech Republic	Mauritius	Uganda
Denmark	Mexico	Ukraine
Djibouti	Mongolia	United Arab Emirates
Dominica	Morocco	United Kingdom
Dominican Republic	Mozambique	United Republic of Tanzania
Ecuador	Myanmar	United States
Egypt, Arab Rep.	Namibia	Uruguay
El Salvador	Nepal	Venezuela, RB
Estonia	Netherlands	Vietnam
Ethiopia	New Zealand	Yemen, Rep,
Fiji	Nicaragua	Zambia
Finland	Niger	Zimbabwe
France	Norway	
Gabon	Oman	
Gambia, The	Pakistan	
Georgia	Panama	

Appendix B - Countries included in the Trade Policy regression

Albania	Germany	Nigeria
Algeria	Ghana	Norway
Argentina	Greece	Oman
Armenia	Guatemala	Pakistan
Australia	Guinea	Panama
Austria	Guinea-Bissau	Papua New Guinea
Azerbaijan	Guyana	Paraguay
Bahamas, The	Haiti	Peru
Bahrain	Honduras	Philippines
Bangladesh	Hong Kong, China	Poland
Barbados	Hungary	Portugal
Belgium	Iceland	Republic of Korea
Belize	India	Romania
Benin	Indonesia	Russian Federation
Bolivia	Iran, Islamic Rep.	Rwanda
Botswana	Ireland	Saint Kitts and Nevis
Brazil	Israel	Saint Vincent and the Grenadines
Brunei	Italy	Saudi Arabia
Bulgaria	Jamaica	Senegal
Burkina Faso	Japan	Serbia and Montenegro
Burundi	Jordan	Singapore
Cameroon	Kazakhstan	Slovak Republic
Canada	Kenya	Slovenia
Cape Verde	Kuwait	Spain
Central African Republic	Kyrgyz Republic	Sri Lanka
Chile	Latvia	Sweden
China	Lebanon	Switzerland
Colombia	Lithuania	Syrian Arab Republic
Congo, Rep.	Luxembourg	TFYR Macedonia
Costa Rica	Macao, China	Thailand
Cote d'Ivoire	Madagascar	Togo
Croatia	Malawi	Trinidad and Tobago
Cyprus	Malaysia	Tunisia
Czech Republic	Mali	Turkey
Denmark	Malta	Uganda
Djibouti	Mauritania	Ukraine
Dominican Republic	Mauritius	United Arab Emirates
Ecuador	Mexico	United Kingdom
Egypt, Arab Rep.	Morocco	United Republic of Tanzania
El Salvador	Mozambique	United States
Estonia	Myanmar	United States
Fiji	Namibia	Uruguay
Finland	Nepal	Venezuela, RB
France	Netherlands	Vietnam
Gabon	New Zealand	Zambia
Gambia, The	Nicaragua	Zimbabwe
Georgia	Niger	

APPENDIX C WTO members and date of accession (Source: World Trade Organization)

Albania	8 September 2000	Gabon	1 January 1995
Angola	23 November 1996	The Gambia	23 October 1996
Antigua and Barbuda	1 January 1995	Georgia	14 June 2000
Argentina	1 January 1995	Germany	1 January 1995
Armenia	5 February 2003	Ghana	1 January 1995
Australia	1 January 1995	Greece	1 January 1995
Austria	1 January 1995	Grenada	22 February 1996
Bahrain, Kingdom of	1 January 1995	Guatemala	21 July 1995
Bangladesh	1 January 1995	Guinea	25 October 1995
Barbados	1 January 1995	Guinea Bissau	31 May 1995
Belgium	1 January 1995	Guyana	1 January 1995
Belize	1 January 1995	Haiti	30 January 1996
Benin	22 February 1996	Honduras	1 January 1995
Bolivia	12 September 1995	Hong Kong, China	1 January 1995
Botswana	31 May 1995	Hungary	1 January 1995
Brazil	1 January 1995	Iceland	1 January 1995
Brunei Darussalam	1 January 1995	India	1 January 1995
Bulgaria	1 December 1996	Indonesia	1 January 1995
Burkina Faso	3 June 1995	Ireland	1 January 1995
Burundi	23 July 1995	Israel	21 April 1995
Cambodia	13 October 2004	Italy	1 January 1995
Cameroon	13 December 1995	Jamaica	9 March 1995
Canada	1 January 1995	Japan	1 January 1995
Central African Republic	31 May 1995	Jordan	11 April 2000
Chad	19 October 1996	Kenya	1 January 1995
Chile	1 January 1995	Korea, Republic of	1 January 1995
China	11 December 2001	Kuwait	1 January 1995
Colombia	30 April 1995	Kyrgyz Republic	20 December 1998
Congo	27 March 1997	Latvia	10 February 1999
Costa Rica	1 January 1995	Lesotho	31 May 1995
Côte d'Ivoire	1 January 1995	Liechtenstein	1 September 1995
Croatia	30 November 2000	Lithuania	31 May 2001
Cuba	20 April 1995	Luxembourg	1 January 1995
Cyprus	30 July 1995	Macao, China	1 January 1995
Czech Republic	1 January 1995	Madagascar	17 November 1995
Democratic Republic of the Congo	1 January 1997	Malawi	31 May 1995
Denmark	1 January 1995	Malaysia	1 January 1995
Djibouti	31 May 1995	Maldives	31 May 1995
Dominica	1 January 1995	Mali	31 May 1995
Dominican Republic	9 March 1995	Malta	1 January 1995
Ecuador	21 January 1996	Mauritania	31 May 1995
Egypt	30 June 1995	Mauritius	1 January 1995
El Salvador	7 May 1995	Mexico	1 January 1995
Estonia	13 November 1999	Moldova	26 July 2001
European Communities	1 January 1995	Mongolia	29 January 1997
Fiji	14 January 1996	Morocco	1 January 1995
Finland	1 January 1995	Mozambique	26 August 1995
Former Yugoslav Republic of Macedonia (FYROM)	4 April 2003	Myanmar	1 January 1995
France	1 January 1995	Namibia	1 January 1995
		Nepal	23 April 2004
		Netherlands	— For the Kingdom in Europe and

for the Netherlands Antilles 1 January 1995
New Zealand 1 January 1995
Nicaragua 3 September 1995
Niger 13 December 1996
Nigeria 1 January 1995
Norway 1 January 1995
Oman 9 November 2000
Pakistan 1 January 1995
Panama 6 September 1997
Papua New Guinea 9 June 1996
Paraguay 1 January 1995
Peru 1 January 1995
Philippines 1 January 1995
Poland 1 July 1995
Portugal 1 January 1995
Qatar 13 January 1996
Romania 1 January 1995
Rwanda 22 May 1996
Saint Kitts and Nevis 21 February 1996
Saint Lucia 1 January 1995
Saint Vincent & the Grenadines 1 January 1995
Saudi Arabia 11 December 2005
Senegal 1 January 1995
Sierra Leone 23 July 1995
Singapore 1 January 1995
Slovak Republic 1 January 1995
Slovenia 30 July 1995
Solomon Islands 26 July 1996
South Africa 1 January 1995
Spain 1 January 1995
Sri Lanka 1 January 1995
Suriname 1 January 1995
Swaziland 1 January 1995
Sweden 1 January 1995
Switzerland 1 July 1995
Chinese Taipei 1 January 2002
Tanzania 1 January 1995
Thailand 1 January 1995

Togo 31 May 1995
Tonga 27 July 2007
Trinidad and Tobago 1 March 1995
Tunisia 29 March 1995
Turkey 26 March 1995
Uganda 1 January 1995
United Arab Emirates 10 April 1996
United Kingdom 1 January 1995
United States of America 1 January 1995
Uruguay 1 January 1995
Venezuela (Bolivarian Republic of) 1 January 1995
Viet Nam 11 January 2007
Zambia 1 January 1995
Zimbabwe 5 March 1995

Observer governments

Afghanistan
Algeria
Andorra
Azerbaijan
Bahamas
Belarus
Bhutan
Bosnia and Herzegovina
Cape Verde
Equatorial Guinea
Ethiopia
Holy See (Vatican)
Iran
Iraq
Kazakhstan