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Lund University Department of Economics

Bachelor Essay

Spring of 2012

The Land of Milk and Honey

A case study of Argentinean trade with a focus on primary commodities

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*“There are countries which are rich
and countries which are poor.
And then there are countries which are growing rich.
And then there is Argentina.”*

Mario Vargas Llosa,
Nobel Prize winner in literature 2010

Abstract

Argentina is a country enriched with an abundance of natural resources. This great wealth of primary commodity goods has turned the region into one of the world's most prominent exporters of agricultural goods like soybeans, wheat and oil. However, there is more to the story than just milk and honey. In light of the fluctuating nature of primary commodity prices, countries with high primary commodity dependence are vulnerable to the constant changes in the world market. Using traditional trade theory, the aim of this essay has been to investigate whether Argentina's current trade patterns are sustainable or not. We have applied three different methods to obtain our results; a trade share analysis of total exports and imports, a gravity model and a price volatility analysis. The final results proved tendencies towards primary commodity dependence; this was evident in both the total shares analysis and gravity regression. Additionally, the prices of the three most commonly traded primary goods that represented over 34 % of total exports in 2009 were highly irregular. Thus, we could conclude that Argentina's trade patterns in fact are not sustainable.

Keywords: Primary Commodity Dependence, Argentina, Mercosur, Gravity Model, Price Volatility, Trade Patterns

Acknowledgments

We would like to express our deepest gratitude to our tutor Susanna Thede that has been the best tutor any student could ever wish for.

Also we would like to thank our dear friend MJ Green that gave us moral support and guidance throughout the process.

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Section 1: Introduction

Argentina is a country rich with immense surfaces of fertile soil; this fact has turned the region into an important exporter of agricultural products (Cavallo, Domnech, & Mundalk, 1989). Since the abundance of natural resources has provided the nation with a source of income it has often been considered a blessing. In reality, the wealth of natural resources can also turn into a curse if not managed wisely (John, 2010).

Having a secure income already given by nature might not create incentives to diversify, develop and modernize the economy in the required manner (Davis & Tilton, 2005). In order for the economy to be stable to world market fluctuations and for the gains to be well distributed, well thought out strategies are necessary.

Argentina is since its beginning built upon export earnings and international credits and trade is hence a very important part of the economy (Cavallo, Domnech, & Mundalk, 1989). When trade is important, so is managing it in order not to become too sensitive to the rest of the world and to contain the autonomy and power of the nation. There is a risk that a country like Argentina will be caught in agricultural exports dependence and lag behind in value added exports. Argentina might be degraded to a food store if it does not play its cards right.

The underlying notion of this essay is to investigate the trade patterns of Argentina. We have limited the study by focusing on the subject of primary commodities and whether Argentina has unsound primary commodity dependence or not.

The core question:

- Is Argentina's current trade pattern sustainable?

Sub queries:

- How is Argentina's trade composed and does Argentina have primary commodity dependence?
- Which factors influence Argentina's export?
- Does Argentina stand price volatility in the world market?

We will begin our essay by introducing some relevant background information about Argentina in section 2 where we go through Argentina's economic history, important trade products and trade partners with a closer look into the Mercosur trade agreement. The background is angled to give the reader a better understanding of the

Argentinean economy, its potentials, dangers and its structure. In section 3 follows a theoretical framework, where economic theories relevant for the analysis and discussion will be presented. Theories included are the Infant Industry Argument, The Prebisch-Singer hypothesis, The Import Substitution Industrialization, South-South Trade, The Market Size Effect and general theories about primary commodities influence on trade.

The sections preceding sector 3 are analytical sections where we attempt to answer our core question, whether Argentina's current trade patterns are sustainable or not. We have constructed three sections each one corresponding to the sub queries that were initially presented. In section 4 we have decomposed exports and imports into shares of its totals in order to be able to investigate if primary commodity dependency prevails in Argentina. The decomposition has been made over time to be able to see the trends and observe the changes that have taken place. A share analysis has also been made on the three most important commodities of total exports to get an understanding of their importance and the low diversification of exports. In section 5 we have conducted a gravity model analysis to demonstrate the factors most important to Argentinean trade. With the gravity model we have also tested the importance of the commodity being a primary commodity over another commodity in the incidence of export. This is to indicate how important primary commodities are within Argentinean exports. In sector 6 price trends of Argentina's three most important commodities have been investigated. The price volatility dimension of a country trading with primary commodities is very important, as it is to a great extent precisely the fluctuating nature of these kinds of commodities that can be a threat to the nations depending upon them. Other than the fluctuation of primary commodities prices there has been a discussion since the 50's that primary commodity prices might be declining relative to other types of commodities over time. This thought was first articulated by the two economists Prebisch and Singer and will also be brought up in this paper. Considering both volatility and a supposedly declining relative price trend for primary commodities puts even more emphasis on having a sound export mix. In the final section we summarize and conclude our analysis.

Section 2: Background

2.1 Argentina's economic history

Considering the magnitude of the economic history in the country we will only bring up some aspects that we consider relevant to our study rather than mapping it out in a more comprehensive way, as that would take at least another paper. The main goal is to catch the underlying structural explanations rather than to render a complete account of the course of historical events.

Due to its big areas of fertile soil the nation naturally became a big exporter of agricultural commodities. International credits and the strong agrarian export market made Argentina one of the richest countries in the world from mid-1800 until the strike of the Great Depression. Ironically it seems like Argentina's strength also has become its weakness. Being dependent on international credit and exports, Argentina has become sensitive to changes in the world market and after the Great Depression Argentina never truly recuperated into its glory days (Cavallo, Domnech, & Mundalk, 1989).

In the years after the independence from Spain, Argentina was tormented by conflict, including the war that expelled the native inhabitants. With this war, the foundations of the future export economy as well as the great landowning inequalities were cemented. This was due to that the financing of the war meant selling great amounts of fertile soil to a few influential men. A disadvantage with the huge land owning was that it created disincentives to invest in productivity-raising methods, as labor was a cheap factor and land an expensive one. Regarding the Argentinean industry, it grew much during the 30s and 40s, but it did so under synthetically good market-conditions. With the Great Depression and the Second World War the western industries were unable to produce as much as was demanded, making it possible for the Argentinean industries to grow. The industries that flourished during this time created import dependence for Argentina, since they needed imports such as machinery and semi manufactures in order to function. The structural problems of the industries grew as the industries did and by the 50s, when the industrialized world recuperated, it was impossible for the Argentinean industries to survive without protection. As the industries became uncompetitive under normal market conditions

the decades of Import Substitution Industrialization (ISI) began, which meant restricting trade and using export earnings for industry projects. As a consequence of the necessity for political help in order for industries to survive, politics came to overshadow the economic mechanisms. (Rojas, 2002)

The ISI period came to its end in the beginning of the 80s, when it simply collapsed. An important reason why the ISI-politics was unsustainable was that it was unfavorable for the traditional export sector, while at the same time relying on its revenues for industry investments. Simultaneously the industries invested in still did not achieve enough competitiveness to take over the economic drive of the traditional export, which ultimately became an insufficient economic engine and the inflow of foreign loans became crucial to the economy. The collapse of the ISI period was mostly due to the burden of foreign loans that had become so great that interests and amortizations could not be paid for with the incomes of exports. The 1980s, often called “the lost decade”, was a rough period for Argentina as for most of the South American countries, which were troubled by huge debts, stagnating economies and hyperinflation (Rojas, 2002).

In 1989 Carlos Menem was voted president in a chaotic Argentina. To break the back of the hyperinflation Menem imposed a one to one peg with the US dollar in 1992, accompanied with a neo-liberal policy package. Between 1989 and 1998 the Argentinean economy grew with 50 % and the market liberalization was seemingly successful. The peso-dollar convertibility was nevertheless unfavorable for trade and Argentina once again took major foreign loans. The economic progress, however, was only to last a decade and recession began 1998, which ultimately ended with economic collapse and default in December of 2001 (Gunnarsson & Rojas, 2008).

After the economic recession and crash in 2001, the economy started its comeback in 2002 as the peso-dollar convertibility was abolished. The convertibility-break meant a depreciation of the peso that boosted the exports and helped the country to get back on track again. (Rojas, 2002) In the 2003 elections Nestor Kirchner was elected and Argentina after the crisis was once again setting up higher trade barriers and began a more inward-looking strategy. This was to be continued with the subsequent election in 2007 when Kirchner’s wife, Cristina Fernández de Kirchner, was voted president and she is also the current president of Argentina (Hedges, 2011).

2.2 Argentina's trade

Argentina's economic strength lies in its prosperous natural resources. The country has a large petroleum sector and a mining industry that has doubled over the past three decades, while the industry sector takes up about ten percent of the total exports. At the same time, the country is one of the major agricultural producers in the world, with a highly diversified rural industry including commodities such as cereals, meat and soybean products. Around half of Argentina's exports are from the country's agricultural sectors. Other important export goods are manufactured goods, which have increased in the latest twenty years, today it accounts for about one third of total exports. Common manufactured goods are chemicals and medicine, motor vehicles and parts, as well as metals such as steel and aluminum (Central Intelligence Agency of the United States of America).

The goods imported by the nation are heavily industrial, about three-fourths of the total imports are manufactured equipment, machines and spare parts. The rest of the imports consist of motor vehicles and other consumer goods (Central Intelligence Agency of the United States of America).

The nation trades with many different regions in the world and has signed several trade treaties, which has allowed for more open trade. One of these treaties is the Mercosur trade agreement amongst Argentina, Brazil, Uruguay and Paraguay (Venezuela is in the process of becoming a member). This has led to the emergence of Brazil as Argentina's leading trade partner. The second largest trade partner is the European Union that takes up almost a fifth of Argentina's total exports and a third of Argentina's imports. Many Asian countries have entered the Argentinean market, with China as the largest trade partner from the Asian continent. Other significant trading partners are the Middle Eastern countries. The United States is also an important trading region for Argentina and the country has been running a trade surplus with Argentina the past sixty years. Additionally, the neighboring country Chile has been proven to be crucial for Argentina's economy and this is also the country with which Argentina is running the biggest surplus. (World Bank, 2009)

2.2.1 Argentina and Mercosur

Argentina together with the countries Brazil, Paraguay and Uruguay formed the

custom union Mercosur in 1991 (there are also five associate members: Bolivia, Chile, Colombia, Ecuador and Peru). Venezuela signed a membership year 2006 but the membership hasn't been ratified yet by Paraguay (Glickhouse, 2011). The goal with Mercosur has been from the beginning to promote free trade and a flow of goods including both labor and capital between the member states. Aside from economic integration the members are also bound together politically and culturally and there is even a military cooperation to some extent. The total members of Mercosur correspond to about 67% of the land area in Latin America, 47 % of the Latin American population and about half of the total GDP of the region. However, there are also considerable differences between the members both in areal and economic size. Brazil on its own represents 40 % of the Latin American land area whereas Uruguay represents less than one percent. Simultaneously, Brazil accounted for 38 % of total GDP in 2001, while Uruguay only accounted for about half of a percent the same year (Paiva & Gazel, 2003).

Due to the member countries differences in size, economic conditions, inability to cooperate and the recurring economic crises in the region, Mercosur has not become as successful as was originally predicted. The integration between the member states has failed mostly due to economic factors such as the Asian financial crisis, the devaluation of the Brazilian currency real as well as the Argentinean economic crisis in 2001-2002. Also, the union has often been dominated by political rather than economic objectives, which has created disincentives to fully cooperate (Paiva & Gazel, 2003).

Other than the factors mentioned above one must keep in mind that the integration process of Mercosur occurred at an extremely fast rate. This was done in order to catch up with the economies of the rest of the world. The integration within Mercosur occurred both as trade liberalization and as a political wave where the goal was to remove all trade impediments and go in the direction of a less interventionist state with stronger democratic systems. This was in great contrast to the earlier widespread ISI-model within the countries. For this reason the union is difficult to define and the development hasn't been uniform throughout the region. One can say that the union has worked as a partial free trade area even though it has been promoted as a customs union and still today several exceptions exist to free trade within the organization (Paiva & Gazel, 2003).

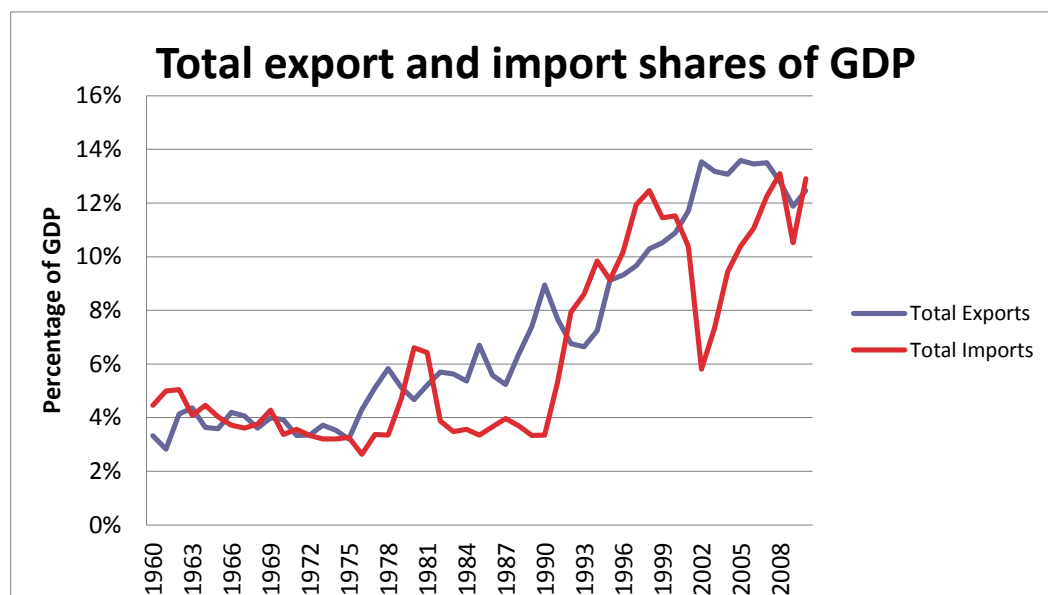
The positive effects of the trade union have been stronger democratic regimes as well as a large increase in intra-trade with negligible trade diversions. The democracy work within the region can be seen as the most successful accomplishment since the establishment of the agreement. The members decided early on in the integration process that the democratic system is an elementary factor in order to succeed within the trade bloc. In the Ushuaia Protocol of 1998 the member countries set up measures to follow in case the democratic order would rupture in any of the countries. These procedures were followed the preceding year when political violence took place in Paraguay. The countries also acknowledged Mercosur together with their associate members as a peace zone. The natural expectation when it comes to South-South agreements of this type where the member countries differ in size is that trade diversion will occur. However, in the case of Mercosur this didn't happen because the total imports by the members increased more than total exports. At the same time imports from external countries boosted as well. So the liberalization process took place in an environment of overall trade liberalization and for this reason the trade diversion was insignificant (Paiva & Gazel, 2003).

2.2.2 Argentina's trade development

Graph 1 shows Argentina's exports in relation to GDP since the 60's. While trade has an increasing importance in relation to the GDP, two sharp drops of imports can be seen. The prolonged import drop of the 80s, Latin America's so called lost decade, was due to the debt crisis and the sharp drop of imports in 2002 was due to the economic crash in late 2001. These two economic crises should not be taking into account analyzing trends in export and import shares over time since a crisis do not necessarily imply any structural change in the long run but abnormal circumstances during it. Taking out of consideration the periods of crisis, the import and export curves in graph 1 move uniformly in relation to each-other with a strong tendency of taking a greater share of the country's GDP (The World Bank). This can be explained by the fact that countries in general trade more today than in say the 60's, simply as transport costs has declined and the world climate today is more open (Krugman & Obstfeld, 2006). It is clear however that trade has become more important to

Argentina, which also put more emphasis on a healthy composition of imports and exports.

During the 90's, imports were constantly higher than exports, reflecting the trade policy at the time. During the 90's trade barriers were almost taken away and the currency was strong due to the convertibility with the US dollar. The convertibility also led to higher credibility and lower risk premium, which lead to more loans but also more investments. As a result of the strong currency and the loans along with low the trade barriers, imports grew larger than exports. The convertibility with the US dollar could not be sustained during the economic crash of in the beginning of the millennium and the Argentinean peso was let floating in early 2002, with the result of a depreciation of 200 % of the Argentinean peso and subsequent export boost and import impediment (Turner & Carballo, 2005). During the first decade of 2000 Argentina ran a surplus on the current account, due to once again higher trade restrictions, a weaker currency and less loans being given in a combination with higher primary commodity prices (Carter, Rausser, & Smith, 2011) (Gunnarsson & Rojas, 2008).



Graph 1: The graph shows the change of export- and import shares of GDP from 1960 to 2008

Section 3: Theoretical framework

This paper is limited to look at trade and the focus is to investigate whether Argentina might have unsound primary commodity dependence or not. First we will bring up the infant industry argument and import substitution industrialization as this thinking has had, and still has, a great influence on Argentinean trade and industry policy.

Furthermore, we will present the Prebisch-Singer hypothesis that aims to explain the declining terms of trade of primary commodities over time. Additionally, we will look into theories about south-south trade and market size effect as a basis to understand trade flows between Argentina and its trading partners. In conclusion: we will also present supplementary theories about the primary commodities trade sector.

3.1 The Infant Industry Argument

The infant industry argument builds on the idea that in order to catch up with industries operating in the world market with significant scale advantages, protectionism is needed. The protection is supposed to be temporary in order to be effective, i.e. protection should be taken away once industries have gained scale advantages great enough to be competitive in the world market (Nathan Associates Inc. , 2004). Even though the protectionism will probably be costly, long-run gains can be won if the infants become competitive adults (Economy Watch, 2010).

The infant industry argument is historically justified as many of today's high income countries, for example the United States, industrialized with high trade protection. It is further argued that almost all of the so called NICs (Newly Industrialized Countries), such as South Korea and Taiwan, industrialized highly protected. What makes the infant industry argument controversial though, is that it has failed in many cases and sometimes even left the protected industries worse off. There are many reasons as to why the infant industry argument might fail. One reason is the imminent risk of moral hazard behavior, since the industry is protected from competition, with the result that the industry simply does not grow up. In order for the infant industry argument to work, it is of high importance that the government has a sufficient degree of autonomy to be able take the protection away at the right time. Two crucial but very difficultly feasible aspects to make the infant industries become competitive in the world market is for the government to first: make a strategically correct decision

considering the choice of industries to protect, put differently, to correctly divine where it will be beneficial to create comparative advantages, and second: to take away the protection in time and by that expose the industries to competition (Gunnarsson & Rojas, 2008).

3.2 The Prebisch-Singer hypothesis

The Prebisch-Singer hypothesis was developed by the two economists separately. Hans Singer in the U.K. and Raúl Prebisch in Argentina published their papers, “The Economic Development of Latin America and its Principal Problems” and “U.S. Foreign Investment in Underdeveloped Areas: The Distribution of Gains Between Investing and Borrowing Countries”. The papers were published in 1950, and both of them separately came to the conclusion that the terms of trade for primary commodities is declining over time and hence the gains from trade will continue to be distributed unequally between nations that export mainly manufactures relative to nations that mainly export primer commodities (Toye & Toye, 2003). The hypothesis has foundations in center-periphery thinking with the conclusions that terms of trade for products mainly originating from the periphery is declining over time, thus deepening unequal patterns in the world (Todaro & Smith, 2009).

Both Prebisch and Singer came to the conclusion that the implications of the Ricardian model does not hold in this case of trade. There are some differences though of how the two of them explains why this is. As Prebisch focuses more on explanations of the relative supply side, Singer’s explanation has its focus in the relative demand side. Prebisch argued that developed countries, mainly producing and exporting manufactures, had strong labor unions that pushed the wages upward in upswings of the business cycle and made the wages stick in downturns of the business cycle. As the wages become higher so do the production prices and the price of manufactures. As for developing countries with weak labor unions he claimed that the wages did not raise equally much in good times and did not stick, but fell in bad times. As wages in the developed countries, producing manufactures continuously became higher than the wages in developing countries, producing primary commodities, the relative price P_p/P_m continuously went down (Cuddington, Ludema, & Jayasuriya, 2002).

Singer explained that the phenomenon was due to low elasticity of income and demand and that monopoly power in the manufacturing industry and technical progress tended to be resource saving in the sense that synthetics were developed. As to the low-income elasticity, the implication is that as incomes rise, the demand for primary products rise by less than the demand for manufactured. When the relative demand declines, so does the relative price. The monopoly power in manufactures had the implication that it prevented the technical progress from lowering the prices. Both Prebisch and Singer came to the inference that fostering industrialization would be the policy implications considering the findings. The import substitution industrialization widely used in South America has its roots in the work of Prebisch and Singer (Cuddington, Ludema, & Jayasuriya, 2002).

As the world has changed and research has progressed since the hypothesis was first articulated, thoughts considering the hypothesis have also changed. The hypothesis which primarily focused on the type of commodity traded, hence primary commodities vs. manufactured products, later on has become more country specific than commodity specific. Today the structure of comparative advantages has changes as developing countries have comparative advantages in certain manufactures instead of primary products, while developed countries have moved on to services and high value added manufactures. Declining terms of trade, however, can still be found for the commodities traded by developing countries, which indicate that the terms of trade effects are not purely commodity specific but perhaps more country specific. Today the declining terms of trade effects are often explained by for example the lack of innovation and technology-intense exports or low entrance barriers of the exported commodities (Kaplinsky, 2006).

3.3 The Import Substitution Industrialization

Import substitution industrialization, ISI, has its foundations in the infant industry argument and the Prebisch-Singer hypothesis way of thinking. It is built upon inward-looking policies with the main characteristic of substituting imports with domestic production. The idea is to create forward and backward linkages by initially substitute the importation of simple consumer goods with domestic production and then gradually move on to substituting the importation of more and more sophisticated manufactured goods. In this way learning by doing in manufacturing is supposed to

occur and the country will, since it is learning by its own doing and not copying the development processes of another country, develop technologies appropriate to its own resource endowments. The ultimate stage of ISI is to achieve a balanced growth with a diverse industrial base and an export sector that has grown strong enough to compete on the world market without protection. (Todaro & Smith, 2009)

The standard procedure of ISI is to use trade barriers such as tariffs or quotas on certain imported commodities and in this way protect domestic production of these commodities. The initial cost of producing these commodities domestically is usually higher than importing them and the economic justification of this is usually the infant industry argument and the improvement of the balance of payments. (Todaro & Smith, 2009)

3.4 South-South Trade

The theory of South-South trade is that southern countries export with one another is more capital intensive than their exports to other developed countries. At the same time they are importing capital-intensive goods from developed countries while importing capital scarce products from other developing countries. The South-South trade gives developing countries the opportunity to have a more diverse trade than it should have had only having North-South trade relations. Even though South-South trade is less rational from a static comparative advantage viewpoint, since South-South trade has shown to be more intensive in both physical capital and human capital than North-South trade, it thus has its advantages. Simple market size effects often explain South-South trade effects. Since the 70s there has been the idea that South-South trade could be a response to the declining strength of the Northern economies (Havrykyshyn, 1984).

Another strong argument in favor of South-South trade in comparison with North-South trade is that Southern countries have a more equal starting point in trade negotiations than the Southern countries have in North-South trade relationships. In North-South trade relations Northern countries are usually economically stronger than Southern countries and can then steer the negotiations in their favor, capturing the bulk of gains from trade. This is also a critique that has been articulated considering for example WTO negotiations. Many agreements to foment South-South trade are signed in the aspiration of improving the stability of the region and strengthening their

bargaining power in international negotiations. However, analyzing the trade effects of South-South agreements the encouragement to more trade has often failed. According to Greenway and Milner unions among similar economies presumes trade expansion through intra-industry specialization and product differentiation, which has not occurred sufficiently in most South-South integrations agreements. Moreover they point out that repeated South-South integration agreements are rather politically motivated than economically. Greenway and Milner finally concludes a trade expansion process grows within in multilateral context and therefore the process should include respectively North-South, South-South and North-North relations (Greenway & Milner, 1990).

3.5 The Market Size Effect

Even when countries do not differ in technology or in resources, mutual gains from trade can be made simply because of the market size effect. Trade creates a bigger market than the countries have without trade and the effect of trade is therefore the same as growth of a market within a country. As an increase in market size allows more production, the firms get lower average costs, which for the consumers result in a greater variety of goods (as the number of firms increase) at a lower price (Krugman & Obstfeld, 2006).

A country is better off trading further away from its autarky price ratio and big economies move the world price closer to its own price. Because of this, small economies gain more from trade than big economies does (Markusen, Melvin, Kaempfer, & Maskus, 1995).

3.6 Primary Commodities Theories

In the 60's, the economist Simon Kuznets made estimations of different countries dependence of primary commodities over time. The data he estimated for primary commodity shares went as far back as the middle of the 19th century. What he found whilst conducting his study was a negative correlation between shares of primary commodities and a higher level of economic development. He realized that; as countries become more industrialized, the importance of primary commodities in the economy declines (Kuznets, 1966).

How can this change in primary commodity shares be explained? Within non-

industrialized countries, raw material is produced and consumed without being further ennobled. However, in industrial countries, primary goods are processed which causes productivity to rise. With increased productivity, fewer production factors are used to extract the same amount of primary goods as earlier. This in turn leads to a transfer in production factors from the primary commodity sector to another sector, usually the industrial sector. Over time, the industrial sector also becomes more sophisticated, which yet again reduces the need for certain production factors. These unnecessary production factors are moved to another sector, this time the service sector and the cycle continues as the economy grows, causing a decrease in primary commodity shares. (Radetzki, 2007)

In the 80's further theories were developed on the subject, theories that would go under the name resource curse theories. The general idea within these theories is that countries with a high level of primary commodities, in particular non-renewable resources such as minerals and fuels, usually experience a slower economic growth and development compared to countries with a small amount of primary commodities. This is due to many reasons; the price volatility of primary commodities in the global market, weakened competitiveness of other sectors in the economy as well as weak and corrupt institutions. Hence, an abundance of natural resources is considered a curse more than a blessing (John, 2010).

According to the work of Grynberg and Newton, in 2008 high dependence of primary commodities, which they define as at 50 % of export earnings, exposed the dependent country to the risks of price shocks. Further problems with primary commodity dependence according to them are that the income-elasticity of demand is low. A declining intensity in the use of raw materials dampens demand, while at the same time the supply has increased with the emergence of new suppliers and due to developed countries agricultural protectionist policies alongside with improved technology (Grynberg & Newton, 2008).

Primary commodity dependence slows down the development of a country's economy because the institutions within the country aren't motivated to build up the economy outside of the primary commodity sector. Especially in regions with limited natural resources there is usually a lack of incentives to diversify the economy. This is due to the existence of an already lucrative industry where all of the focus is put. As long as

the revenue continues to flow from the primary commodity sector the country will continue to be discouraged to invest in other sectors. A problem related with relying on natural resources is that typically few individuals are employed since usually extracting primary commodities doesn't require that much manpower. In other countries, the governments are dependent on their citizens in an entirely different manner since human capital is very crucial in production and the governments are dependent on the taxes they receive from the population. In resource-rich countries the lack of motivation to build up the economy can lead to political corruption where the resources are allocated to the elite. This usually takes place because it is easier to maintain authority if fewer individuals are included (Brunschweiler & Bulte, 2008).

It is however important to remember that primary commodities are not mainly something bad, but the very foundation of the world economy and our survival. Without primary commodities the world won't be fed and there will be no production input. Having primary commodities is initially a good thing for a country but can, and has often, been turned in some senses to a negative thing (Radetzki, 2007).

3.6.1 The weight of commodity goods in international trade

The decreasing significance of primary commodities as nations undergo economic development can also be seen in the global economy and historically the proportions of primary commodities in exports have diminished. Between 1965 and 2005, the figure was reduced from 50 % to 30 % of total global trade. It might seem as a reduction of primary commodities in absolute terms, however this is not the case, instead the share of industrial goods has increased over time. If we analyze the primary commodities separately we see that for all products except for fuels, the shares have decreased. In fact, in 2005 the export of fuels represented almost half of the total primary commodities exports. Since the 70's, during which the oil crisis took place, oil exports account for about three fourths of total fuel exports and this is a reason as to why the shares have increased rather than decreased. The strong declines are most evident in the provisions sectors, where the number has decreased from 18.3 % to 6.7 % of total global export¹. The agricultural sector has also experienced a dramatic decrease from 8.1 % to 1.7 %. In addition, there has been a decrease of shares within the minerals and metals sectors from 12.4 % to 6.6 %, but it has been

¹ Provisions sector refers to eatable products.

less dramatic (Radetzki, 2007). All of these numbers are comparisons between 1965 and 2005.

When it comes to primary commodities, single nations have very little power over the price setting, since primary commodities in all countries are close to- or perfect substitutes that are reference-priced. Primary commodity prices are commonly known to be volatile and are therefore risky to depend upon. The general price trends for primary commodities have been declining from the end of the 70s until the ongoing rising price trend, beginning approximately by the millennium with a peak in 2008.

The average food price level of 2011 was 24 % above the average price level of 2010, thereby being close to 2008 peak prices and prospects for 2012 food prices are favorable, indication that the positive price trend still is not to end (The World Bank, 2012). According an OECD report the upward price trend started due to low supply and increasing demand, because of growth in non-OECD countries, feedstock use in bio fuels, a continuing devaluation of the US dollar, energy price increases and investments in futures commodity markets from non-traditional sources. The report also indicates that some factors may have permanent impact on prices, keeping them on a higher level than before the turn of the long-lived declining trend (OECD, 2008).

Besides the higher price-level of primary commodities today it has been recognized that commodities prices in general are more closely tied to each other. Further it is concluded that the biofuel era in particular has connected the agricultural and petroleum markets. The agricultural market was before mostly affected by petroleum prices in the sense that the costs for production, shipping and fertilizers went up as petroleum did. (Carter C. R., 2009)

Section 4: Primary commodity dependence over time

In this section we will study Argentina's primary commodity dependence over time. The main focus will lie on the country's exports and imports from 1992 to 2009. We will start off by decomposing Argentina's primary commodity export shares of total exports and continue with an analysis of the shares of the three most important export products. Following that, we will conduct a similar analysis of Argentina's import sector, and group all imports to give a clear picture of its composition.

4.1 Data collection selection

The data used in this analysis comes from the World Bank's database and the World Integrated Trade Solution. The first part of the data was used to find the primary commodity dependence within Argentina's exports. We have taken use of Radetzki's definition of primary goods, in which he used the Standard International Trade Classification, SITC (for further information about the definition and group numbers see appendix I). For the data of the three largest export products in table 2 we used the HS combined nomenclature at a four-digit group specification (for specific group numbers see appendix II). The HS combined nomenclature was employed instead of the SITC that was used in the former case, since the HS nomenclature is more detailed and hence it was easier to find the specific commodities on which we based our analysis. The different product sector shares of the exports are built on prices and not the quantity traded, which means that increased shares of total export can be due to price increase, quantity increase or a combination of the two.

4.2 Export composition

As shown in table 1, the primary commodity shares of total export from 1992 to 2009 fluctuated between 70 % to 86 %. This number indicates that Argentina is a country with very high primary commodity dependence. This is especially evident if we put the country in contrast with typical industrial countries where primary goods usually account for less than 5 % (Radetzki, 2007).

Furthermore, it is apparent in table 1 that the provisions sector is the largest primary commodity export sector in Argentina and it is also within this category that the most

dramatic variation has occurred over the years². Nevertheless, the results from 2003 to 2009 show a trend towards lower provisions shares.

The agricultural raw material sector in Argentina appears to have always accounted for a very small share of total export. We can also observe a decrease in agricultural raw materials share over time.

Similar to the provisions sector, the mineral, metal and fuel sectors show a great variation in shares. Even so, what is interesting to see is that they both seem to have an upward trend pattern. It is important, however, to keep in mind how the data has been reported. The importing countries report Argentina's export according to value of the goods and not the quantity imported. Increased prices of a product-group will therefore increase the share of this group even if the quantity exported would remain the same, hence the upward trend of energy prices on the world market could have affected the shares of total export, perhaps even more so than an increased quantity of exports would have.

Table 1: Argentina's exports between 1992 and 2009:

Year	Billion dollars					
	Total export, all products	Total Primary commodity exports	Provisions	Agricultural raw Material	Minerals and metals	Fuels
1992	9.55	85 %	70 %	4 %	4 %	8 %
1995	18.02	78 %	57 %	4 %	4 %	12 %
1998	22.68	73 %	54 %	3 %	5 %	12 %
2003	23.36	86 %	65 %	2 %	7 %	12 %
2004	34.13	83 %	56 %	2 %	7 %	18 %
2005	41.14	85 %	59 %	2 %	7 %	17 %
2006	43.38	81 %	55 %	2 %	8 %	16 %
2007	57.44	81 %	61 %	1 %	7 %	12 %
2008	59.01	80 %	62 %	1 %	6 %	10 %
2009	40.41	70 %	48 %	1 %	6 %	16 %

² For specific HS nomenclature numbers included in the provisions sector see appendix II.

4.2.1 The three most important export products

As can be seen in table 2, the three most important export products put together represent a high share of total exports, ranging from 16.7 % to 34.5 % during the years included in this investigation. Out of these products, crude oil has the largest shares followed by soybeans. The disadvantage with a few products taking big shares of total exports is that the economy becomes more sensitive to changes on the world market.

Table 2: The three largest product's shares of total export:

Year	Wheat and Soy beans meslin	Soy beans	Crude oil and prod.	Sum of shares
1992	4.8 %	5.8 %	7.4 %	17.9 %
1995	4.5 %	3.1 %	12.2 %	16.7 %
1998	1.5 %	1.9 %	11.4 %	17.8 %
2003	4.1 %	8.7 %	12.1 %	24.9 %
2004	3.7 %	5.7 %	17.9 %	27.3 %
2005	3.6 %	6.9 %	16.5 %	27.0 %
2006	3.5 %	4.4 %	16.5 %	24.4 %
2007	3.7%	12.5 %	16.0 %	32.2 %
2008	5.4 %	2.0 %	9.9 %	17.3 %
2009	4.8 %	5.0 %	24.7 %	34.5 %

4.3 Import composition

Observing table 3, machinery stands for the largest shares of imports, almost representing half of total imports. Following machinery are the shares of manufactures and chemicals, respectively representing about a fifth of import shares. As Argentina's main exports belong to the group primary commodities the shares of imports of the same are naturally not so large, constantly fluctuating slightly over 10 %.

Comparing the composition of import shares with export shares it becomes evident that the imports are much more technology intense than exports. The great import share of machinery and chemicals, and also manufactures to some extent, imply that the Argentinean industry is far from self-sufficient, relying on imports for it to

function. This lack of industry self-sufficiency puts stronger emphasis on export earnings in order to be able to manage the import dependence.

Table 3: Argentina's imports between 1992 and 2009:

Year	Billion dollars Total import, all products	Products			
		Chemicals	Machinery	Manufactures	Primary commodities
1992	14.83	14 %	48 %	26 %	12 %
1995	20.12	36 %	45 %	24 %	13 %
1998	31.30	16 %	51 %	23 %	10 %
2003	13.76	28 %	37 %	22 %	13 %
2004	22.20	23 %	45 %	21 %	11 %
2005	28.44	20 %	47 %	21 %	12 %
2006	33.91	19 %	49 %	21 %	11 %
2007	44.72	18 %	48 %	21 %	13 %
2008	57.09	18 %	46 %	20 %	16 %
2009	39.97	19 %	47 %	21 %	12 %

Commodities and transactions account for a very marginal share of total imports, less than 0.01% most years and has therefore been disregarded from the table.

4.4 Analysis

Even though some changes can be observed and the economy has been stable since the crash of 2001 it is not evident that the composition of exports and imports has become better. For example, according to Kaplinsky it is recommendable for a country to include commodities that are technology intense and have high barriers of entrance in their export mix (Kaplinsky, 2006). The compositions of export shares and import shares in the tables 1 and 3, show that the primary commodity export shares have rather increased than decreased while technology intense commodities such as machinery and chemicals are pretty unchanged in their shares of import.

Manufacture's share of imports in table 3 have declined slightly before the 90s, implying that there could be more home production in Argentina but it seems to have made no progress since. The declining imports of manufactures can also be due to declining demand and does not necessarily mean higher home production.

Section 5: The Gravity Model

In this section we present the econometric investigation, which we conducted to get a deeper understanding of the factors that influence Argentinean trade. We will also test for the significance of primary commodities in the trade sector, which is why we have run the regression on product level instead of using the aggregate trade with each country. Starting off this section, we will go through the gravity model, which is the base for our regression specification. Following that we will explain our variables and why we have chosen them. We will also give a brief account of the selected data and its origins. Thereafter, we will discuss the econometric issues that we came across during our research and how we have adjusted for them. Lastly, we present the estimation output and our conclusions.

5.1 The Gravity Model

The gravity model received its name from Newton's law of gravity. Newton's law states that the gravity between two objects is proportional to the product of their masses and diminishes with distance. In the same way the gravity model predicts trade to be proportional to the product of two trading parts GDP and diminishes with the distance.

$$T_{ij} = A * Y_i * Y_j / D_{ij} \quad (\text{Equation 1})$$

Where T represents the value of trade between country i and j, A is a constant, Y is the GDP of the two trading parts respectively and D is the distance between the trading parts. Empirically this relationship has been shown to be strong, which also implies that divergence from this model can predict abnormalities in trade. To fit the actual data as closely as possible dummies can be used as additional sources influencing trade. These dummies can take the form of many different factors such as trade agreements, common languages or historical connections. Dummies are included because they may have an impact on the value of trade that differs from the impact that comes from size and distance (Krugman & Obstfeld, 2006). To get a linear regression you take the logarithm of the equation.

5.2 The regression specification

Our regression equation explains Argentina's exports to a particular market j in a certain product category k :

$$\text{Log}(T_{ijk}) = b_0 + b_1 * \text{Log}(D_{ij}) + b_2 * \text{Log}(Y_i) + b_3 * \text{Log}(Y_j) + b_4 * \text{Log}(\text{Custom}_{jk}) + b_5 * (\text{Language}_{ij}) + b_6 * (\text{Mercosur}_{ij}) + b_7 * (\text{Product}_{ijk}) + e_{ijk} \quad (\text{Equation 2})$$

Where T represents exports from country i (Argentina) to country j within product group k . D represents the distance between country i and country j . Y_i is the GDP of country i and Y_j represents the GDP of country j . Custom_{jk} represents the custom set by country j on country Argentina's export products, k . The dummy variable Language_{ij} takes the value of one if country j is a Spanish speaking country and 0 otherwise. Further the dummy variable Mercosur_{ij} takes the value of 1 if country j is a member of the Mercosur agreement and 0 if not. Our third dummy variable Product_{ijk} makes difference if between primary commodities and other commodities exported by country i to country j . If the product traded is classified as a primary commodity the dummy variable Product_{ijk} takes the value of 1 and if the product is classified as "other commodity" it takes the value of 0³. Lastly, e_{ijk} is our residual term.

5.2.2 The variables

Trade is the dependent variable in our regression, represented by Argentina's export. Digits used in the regressions are reported from Argentina's export partners and hence not Argentina itself. The distance variables are weighted distances between the import countries and export country. The variable of the importing countries is set as the importing countries GDP digits. The variable of the exporting country only includes Argentina's GDP, which means that there is no variation in this variable.

The customs included are the ones that have been set up by other countries for Argentinean imports. Customs are an important addition to the original gravity model as they obviously are trade impediment variables and they are measurable with

³ See appendix II how the products are classified.

numbers. Furthermore we have chosen to include three dummy variables in order to increase the regression's explanation of Argentinean exports. We have considered common language, being part of the free trade union Mercosur and primary commodities to be important factors in the determination of Argentinean export.

5.2.3 Data collection selection

The data used in this study is data collected from the World Bank data bank of Development Indicators, their software World Integrated Trade Solution (TRAINS) and the CEPII database. The data is neither complete nor without measurement error but it is the most detailed and exact data available to conduct this type of study. Moreover, many international organizations such as the WTO frequently take us of the TRAINS database, which is the same database that we have used within WITS. The World Bank has worked intensively to minimize measurement errors that might exist by coordinating several different independent sources.

We have chosen to run regressions for the years 2003 and 2009. The years within the first decade of the millennium were selected in order to analyze recent trade patterns. The choice of 2003 was made because the Argentinean economy by then had recuperated considerably from its crash in late 2001. We chose 2009 simply because it is the most recent year with sufficient data reported.

The trade data of exports from Argentina was taken from WITS and was inflation adjusted to constant US dollars with 2000 as the base year. The gravity model has been made on product levels, using the HS combined nomenclature with all its 97 groups included, in order to be able to investigate the significance of primary commodities in the trade sector. Conducting the regressions on product level, instead of the aggregated export value with each country, gave us the possibility to use a primary commodity dummy.

The distances have been collected from the CEPII web page and we have chosen to use the different countries weighted distance measure to get the most accurate results as possible. The simple distance measurement is calculated using a great circle formula including longitudes and latitudes from the most important city, while the weighted distance take into account city level data to assess the geographical

distribution of population in each country. For the European Union we have chosen Brussels as the capital (Mayer & Zignago, CEPII, 2011).

When investigating trade flows, GDP is the most convenient measurement to represent the size element of the gravity model and therefore we have used it in our specification. Our GDP numbers both for the import countries and for Argentina have been derived from the Development Indicators data bank. This data was inflation adjusted to constant US dollars with the base year 2000. The custom types we have chosen to include are effectively applied rates of ad valorem tariff equivalents, where all trade barriers that can be estimated in ad valorem terms are included.

The language dummy has been set for countries where more than 9 % of the population speaks Spanish. Mercosur in turn has been included for the countries that are members of the trade union Mercosur. The primary commodity dummy has been used for product groups from the HS nomenclature which we consider being primary commodities (for specification of chosen product groups see appendix II). Running the regression on a product level, instead of using the aggregated export with each country, was necessary to be able to use the primary commodity dummy.

5.2.4 Countries included in the analysis

We have used data from 24 different countries (where the European Union is considered as one country). The idea has been to include as many countries as possible to get an as complete grasp as possible of Argentina's trade. However, this was not possible due to lack of data for certain import countries during some years. Consequently, we decided to select countries by taking into consideration Argentina's most important trade partners. The 24 countries we have chosen represent over 90 % of the destination of Argentina's exports, which means that the loss of observations is marginal.

The import countries that we have analyzed are: Brazil, Canada, Chile, China, Colombia, European Union, Indonesia, Japan, Jordan, Korea Republic, Malaysia, Mexico, New Zealand, Norway, Pakistan, Paraguay, Peru, Singapore, Switzerland, Thailand, Turkey, United States, Uruguay and Venezuela.

5.3 Econometric Issues

We have taken use of the Ordinary Least Squares Method. Further we have tested for normality and heteroskedasticity.

The normal distribution is a symmetric bell shaped continuous probability distribution, with an expected value and a variance stretching equally on both sides of the expected value. It is of importance that the residuals have a normal distribution if the cluster sample is not big enough, as the inference otherwise can be misleading. (Westerlund, 2005). To investigate whether our residuals are normally distributed we have carried out a Jarque-Bera test, where the skewedness should equal zero and the kurtosis three in the case of a normal distribution. Since our results are close to these numbers we consider our residuals to be sufficiently close to a perfect normal distribution and thus there is no need to worry about inference.

If heteroskedasticity is detected when running a regression, the estimator is no longer BLUE (Best Linear Unbiased Estimator). This is because the estimator won't have the lowest variance amongst all linear and unbiased estimators. Additionally, the p-statistics might be ambiguous which causes problems upon inference (Westerlund, 2005). To test for heteroskedasticity we have taken use of White's test where we found a violation of the homoskedasticity assumption in the regression of 2003. To adjust for the heteroskedasticity in the regression we used White's Robust Standard Errors model.

5.4 Estimation output

In table 4 we have gathered all of the results from our two regressions.

Table 4: Estimation output from 2003 and 2009

2003			2009		
Variable	Coefficient	Probability	Variable	Coefficient	Probability
D_{ij}	-1.17	0.00	D_{ij}	-1.61	0.00
Y_j	0.80	0.00	Y_j	0.60	0.00
Y_i	0.07	0.41	Y_i	0.43	0.00
$Custom_{jk}$	-0.23	0.00	$Custom_{jk}$	-0.34	0.00
$Language_{ij}$	1.21	0.00	$Language_{ij}$	-0.25	0.49
$Mercosur_{ij}$	0.36	0.33	$Mercosur_{ij}$	0.23	0.84
$Product_{ijk}$	1.17	0.00	$Product_{ijk}$	1.71	0.00
R^2	0.26		R^2	0.22	
Adjusted R^2	0.26		Adjusted R^2	0.22	

In 2003 we had 1247 observations and in 2009 we had 1092 observations. Since we have conducted the regression on product level instead of the aggregated trade of each bilateral trade relation we have a different amount of observations for the two years, simply since a different amount of product groups were reported as traded in 2003 than in 2009.

5.4.1 Recent trade patterns

In 2003, all of the coefficients except for Y_i and $Mercosur_{ij}$ are significant on a 1% significance level. As can be seen in table 4, the distance coefficient has a negative influence on trade while the coefficient for the economic size of the import country, j , is positive. The custom parameter is as expected negative. Moreover, the $Language_{ij}$ and $Product_{ijk}$ dummies are both positive.

Similar to 2003, for 2009 the coefficient $Mercosur_{ij}$ was insignificant as well as the $Language_{ij}$ dummy. The distance parameter proved yet again to be negative. Correspondingly one can yet again observe a positive correlation between trade and the economic size of the import country. In 2009, the Y_i coefficient was significant and showed a positive value. The customs parameter shows a negative correlation with trade. $Product_{ijk}$ was stronger in 2009 compared to 2003.

5.5 Analysis

The overall explanatory values of around 24 percent indicate that our regression results explain about one fourth of the behavior of Argentina's export⁴. This number is quite low and we believe that it is at a low level due to the fact that we have solely focused on one country's exports. In standard gravity studies there is usually a lot more variation in exporter data since they use two-way bilateral trade relations instead of one way as used here. As mentioned above, the gravity model has empirically shown to strongly predict trade and can hence indicate trade abnormalities. The low explanatory value of our regressions can also indicate i.e. corruption; as such an institutional problem can decrease production possibilities.

Observing the distance coefficients, we can see that they have strong trade impeding effects. The longer the distance is between Argentina and another country, the less likely it is that the countries will trade with each other. According to a survey conducted by Leamer and Levinsohn's in 1994, the negative effect of the distance coefficient on bilateral trade is one of the "clearest and most robust empirical findings in economics". According to theory, there are two reasons why distance matters: 1) distance can be translated into higher transport costs and 2) distance designates the time elapsed during shipment. A longer time interval in transit will in most cases mean a higher risk for damage of the traded goods. In Argentina's situation most of their exports are primary commodities (see Section 4). Primary goods are in many cases perishable goods that have a lower probability of arriving to their destination in one piece. The commodities might for example decompose or be infested by maggots during the journey. A greater geographic distance can also result in cultural differences; these differences can cause misunderstandings between trading partners and conflicts because of different negotiation styles (Head, 2000).

The market sizes of the different import countries have become less important over the years. The market size of Argentina was not a significant coefficient in 2003, which might be because we have included only one country as exporter. Nonetheless, in 2009 the coefficient was significant and showed a positive influence on trade. This

⁴ We tried to include import country dummies to capture import country specific factors that influence trade. However, this resulted in a near singular matrix error and is therefore not included in the regression.

could be because a higher domestic GDP leads to a higher productivity, which in turn creates a larger supply of goods as well as lower prices.

Trade barriers, such as customs, distort trade and are expected to give negative outcomes on the volumes traded. Examining the values of the custom coefficient from 2003 to 2009 we can see that the parameter has in fact become more negative. This leads us to believe that effects of trade barriers were stronger in 2009 as opposed to 2003.

Countries speaking different languages are less likely to trade with one another because of communication difficulties. This can also be linked to the cultural differences argument we brought up earlier in the analysis. We have included a language dummy in our regression. If we take a look at the language dummy, we can observe a high positive relation between sharing the same language and trade in 2003. This helps to verify the notion that language differences are trade-impeding factors. However, in 2009, the language dummy was unfortunately insignificant and hence we cannot draw any conclusions from this coefficient.

As can be seen in the regression data both for 2003 and 2009, the dummy Mercosur is insignificant. Thus we can't trace any trade explaining factor of Mercosur in our regression. Our results confirm that the Mercosur agreement is not working properly in terms of trade between the member nations. As mentioned in section 3 of this essay, there have been quite a few difficulties with the cooperation between the Mercosur countries; this is validated by our results.

What is quite clear from our results is that the primary commodity dummy is a very decisive coefficient to explain the trade pattern of Argentina. In table 4 the results confirm Argentina's primary commodity dependence. The parameter magnitude of the primary commodity dummy was larger in 2009. Again, we can determine that the primary commodity sector is very important for Argentina's economy and international trade and that it has become more significant over the years.

Section 6: Price trends

In order to sum up the analysis concerning if Argentina has unsound commodity dependence or not, price trends and price volatility of primary commodities is an important component. The prices of primary commodities can also be connected to the Prebisch-Singer hypothesis, even though we will not specifically look into the terms of trade. In this section we will analyze price trends of the three most important export products from 1970 to 2010. We will analyze the price trends and the price volatility of these products.

6.1 Data collection selection

The price data is collected from UNCTADs database. The prices from UNCTAD are world market prices in current US dollars. To be able to analyze price changes over time we have adjusted for inflation, using the deflators for US dollars with base year 2005 collected from the WDI database. We have price data from 1970 to 2010 since this is the widest range of years we could obtain and adjust for inflation. Having price data from 1970 to 2010 we have a satisfactory foundation for our price trend analysis.

We have compiled the data as one table showing every second year and two diagrams showing every year. In the diagrams we have included linear trend lines. From the yearly data we have also calculated the mean and the standard deviation.

6.2 Price trend analysis

Primary commodity prices are commonly known to be volatile and are therefore risky to depend upon. As can be seen in graph 2 the general price trends for primary commodities have been declining from the end of the 70s until the ongoing rising price trend, which began approximately around the millennium with a peak in 2008.

The average food price level of 2011 was 24 % above the average price level of 2010, thereby being close to 2008 peak prices and prospects for 2012 food prices are favorable, indicating that the positive price trend will continue (Cuesta, 2012).

According to an OECD report, the upward price trend started due to low supply and increasing demand, growth in non-OECD countries, feedstock use in bio fuels, a continuing devaluation of the US dollar, energy price increases and investments in

futures commodity markets from non-traditional sources. The report also indicates that some factors may have permanent impact on prices, keeping them on a higher level than before the turn of the long-lived declining trend (OECD, 2008).

Besides the higher price-level of primary commodities today it has been recognized that prices of agricultural products are now more closely tied to fossil-based fuels than ever. It is concluded that the bio fuel era in particular is what has connected the agricultural and petroleum markets, as bio fuels are composed by agricultural products. The agricultural market was before mostly affected by petroleum prices in the sense that the costs for production, shipping and fertilizers went up as petroleum did (Carter, Rausser, & Smith, 2011).

It is evident that the price hikes of food prices can have negative consequences for net importers but it might also have some negative impact on the exporting countries, at least in a longer time perspective. Price volatility means increases the uncertainty, which leads to higher risk and might deter investments (Hallman, 2011).

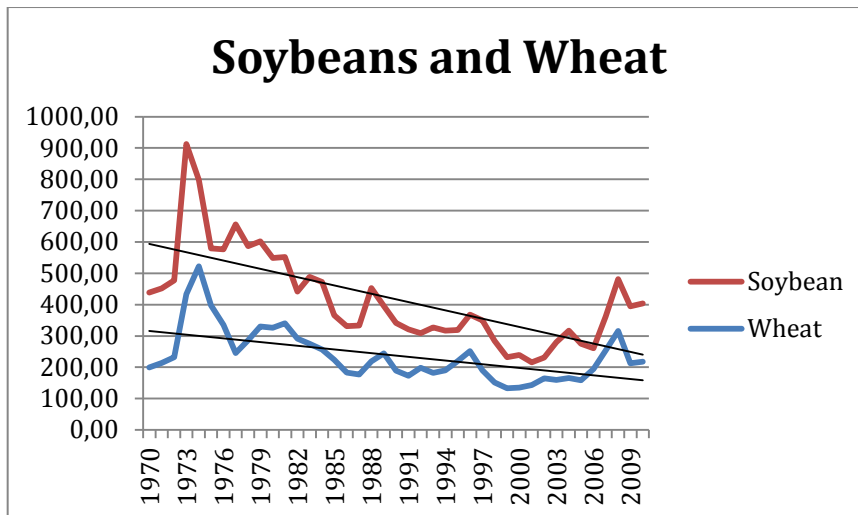
Further concluded in an IMF report is that it is rather volatility of primary commodities than the mere primary commodity export dependence that has negative effects on growth. The negative effects of price volatility are mainly caused by lower accumulation of physical capital (Cavalcanti, V., Mohaddes, & Raissi, 2011).

By studying the commodity prices over time in table 5 we get a clear picture of their fluctuating nature. When it comes to the peaks and valleys of the prices they occurred approximately at the same times for Argentina's three largest commodities, indicating the global trends in primary commodity prices. The fact that the three most important commodities exported by Argentina fluctuate within the same world market price trends makes the Argentinean economy more prone to boom and bust cycles as would have been the case with a more diversified export mix. Having a diversified export mix can be seen as having invested in a diversified stock portfolio hedging risk. As food prices are now even more tightly tied to crude oil prices than before, these effects probably will worsen in the future.

Table 5: Price changes of Argentina's most important export goods from 1970 to 2010:

Constant US dollars in 2005 prices			
	per tonne	per tonne	per barrel
Year	Wheat	Soybeans	Crude oil
1970	199.13	438.43	7.66
1972	231.56	477.23	9.29
1974	521.95	798.18	32.33
1976	334.95	576.1	29.45
1978	286.45	587.12	28.33
1980	325.95	548.65	65.7
1982	291.51	441.32	56.65
1984	256.6	472.05	47.28
1986	182.53	331.04	21.95
1988	218.34	452.58	21.1
1990	189.38	341.65	30.52
1992	198.21	308.85	23.89
1994	189.85	316.74	19.45
1996	251.52	368.16	24.66
1998	151.38	283.99	15.29
2000	134.45	238.99	31.84
2002	164.41	230.86	27.08
2004	165.98	316.72	39.02
2006	194.1	260.2	62.25
2008	316.01	481.41	89.33
2010	218.05	403.51	70.94

According to the Prebisch-Singer hypothesis a long-run decline of primary commodity prices is expected to be seen. The prices are fluctuating but a totally clear long-run declining price trend is not observable. Within primary commodities, wheat and soybeans are classified as provisions and crude oil as fuels, making the former a bit more comparable with each other than the latter. We will therefore analyze wheat and soybeans separately from crude oil considering the implications of the Prebisch-Singer hypothesis, beginning with wheat and soybeans.



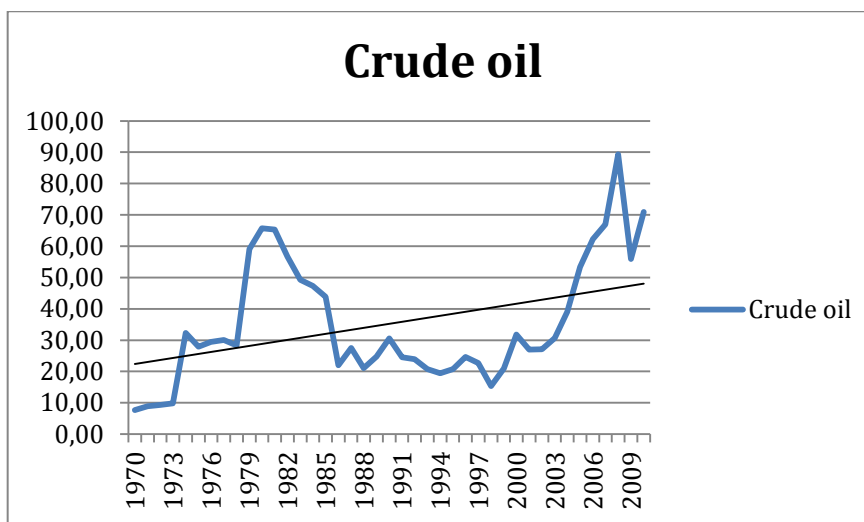
Graph 2: The graph shows constant soybean and wheat prices.

From the 70s a somewhat downward price trend is observable giving the Prebisch-Singer hypothesis support. This price trend was however ruptured around 2000 when it turns upwards, peaking by 2008. Even though this price trend to some extent breaks with the Prebisch-Singer implications it is worth to notice that even by the peak year of 2008 prices do not nearly reach the peak prices of the 70s. In graph 2, showing price changes of soybeans and wheat since the 1970s, a clear long-run concordance with the Prebisch-Singer implications is observable. The reasons why the implications of the Prebisch-Singer hypothesis may not hold as clear-cut since the 2000 can be because the mechanism setting the prices of primary commodities are affected by other and by more factors than considered by Prebisch and Singer. Prebisch explained the relative price decline for primary commodities with the labor market and wages while Singer explained it with elasticity of income and demand but non off then considered factors such as the ones mentioned above as explaining the increased price trend of today. The great question that this discussion ends in is whether the price setting mechanisms behind provisions have changes, and hence the price trend, permanently.

Gilbert and Morgan states in their study that the price boom and volatility increase of recent years concerning food prices are not out of line with historical experiences and that these periods raised the same questions about possible permanent changes. The factors indicating that there might be a permanent change are global warming, the volatility of oil prices being transmitted via biofuels and new types of investments in the future markets. They conclude, however, that the price hikes and the higher

volatility probably is temporary but that it is too early to say definitely (Gilbert & Morgan, 2010).

When it comes to oil prices, Barrell and Kirby write that the price increase has both a temporary and a permanent aspect to it, they conclude that the price increase is due to both a reduction of supply and an increase in demand. The demand increase is due to growth in mainly China and India but also elsewhere, alongside with supply restraints in Russia, the North Sea and Latin America. By the price peak in 2008 Saudi Arabia also played a role in the price increase, as they didn't want to increase their supply (Barrell, 2008).



Graph 3: The graph shows constant crude oil prices.

When it comes to crude oil the support for the Prebisch-Singer hypothesis is not observable. In graph 3 the trend line has an upward inclination, opposite of what the Prebisch-Singer hypotheses suggests for primary commodity trade.

Comparing graphs 2 and 3, the upward price trend since 2000 is much stronger for crude oil than for wheat and soybeans. Further, considering the two price peaks, the one in the 70s was the greatest for soybeans and wheat while the current one is greatest for crude oil. This again implies that the Prebisch-Singer hypothesis holds for soybeans and wheat to a much larger extent than for crude oil, where the support rather is adverse.

Soybean and wheat price trends seem to be fluctuating more similarly with the crude oil price trend in recent years than they have before. Ante 2000 soybeans and wheat

had a clear downward price trend while the crude oil price was fluctuating around its mean, only showing a slight upward trend.

In order to say anything more precisely about the price's fluctuation the volatility can be calculated using the standard deviation. Calculating historical price volatility with the standard deviation we get the dispersions of the observations from their mean, with higher deviation meaning higher volatility. We have calculated the standard deviation using the same price data as in graphs 2 and 3, with the following results: soybeans; 152.66 (mean 256.58), wheat; 84.28 (mean 173.04), crude oil; 19.65 (mean 37.39). The standard deviation is expressed in the same unit as the data, making the comparison between soybeans and wheat (given per tonne) and crude oil (given per barrel) incompatible. Another problem comparing the three standard deviations is that the means are very different. In order to make them comparable the coefficient of variance can be calculated. The coefficient of variance is calculated dividing the standard deviation with the mean, which will give a comparable percentage measure. This gives the results: soybeans; 1.68, wheat; 2.05, crude oil; 1.9. The lower the coefficient of variance, the better the risk-return trade off. The three commodities all have a coefficient of variance close to or over 200 % showing the great volatile and high-risk nature of them all.

Section 7: Conclusion

The purpose of this essay has been to investigate Argentina's trade patterns with a closer look into the primary commodity sector. In order to do this, we have taken use of three different analysis approaches, the first one being a trade share analysis of total exports and imports. Furthermore, we have examined trade patterns using a gravity model and lastly we have looked at the price implications of Argentina's primary commodity trade.

The results we obtained indicate that Argentina is a highly primary commodity dependent country, which both the share analysis and the gravity model results confirm. Exports have shown to have low technology intensity, while the imports have shown to be very technology intense. The results of our investigation also indicate that Argentina's trade has not changed much over the years but trade in general has become more important today than say fifty years ago. This is an interesting result, especially in light of the formation of the Mercosur trade agreement, where the goal has been to diversify trade. In our gravity-model application, we could not find that Mercosur had any impact on Argentina's export. However, in the future this could perhaps change if the member countries were to harmonize their policies creating opportunities to diversify trade. This in turn could have a positive effect on the country's present high primary commodity dependence.

As for price volatility our results point to that the nature of the most important export commodities as well as the low differentiation of the export mix can create price volatility problems for Argentina. Hence the trade patterns of Argentina imply that the country is highly exposed to external price chocks, which may create large negative adjustment effects in the economy. Thus we can say that when it comes to the core question, whether Argentina's current trade patterns are sustainable or not, we have according to our analysis approaches come to the conclusion that it is not. However, we must not forget that Argentina is far from the worst-case scenario and currently one of the wealthiest economies in South America.

Additionally our investigation has been quite limited and in order to obtain more accurate results, further studies should be made on the subject. The regressions can for example be run for more years or in a time-series analysis. Moreover, our study

focuses more on exports than imports and an equally deep import examination could be relevant to undertake. If one takes import prices into account, the possibility of more precise terms of trade analysis becomes possible. Another field of study could be Argentina's trade partners, i.e. its changing trade patterns and implications thereof.

We hope that this study will encourage further investigations on the Argentinean economy.

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Appendix I

The SITC Revision 4 nomenclature builds upon 9 product groups with adherent sub-groups (only used sub-groups are given here). The 9 main groups were used as the total of trade.

0 - Food and live animal

1- Beverages and tobacco

2 - Crude materials, inedible except fuels

22 - Oil-seeds and oleaginous fruits

27 - Crude fertilizers, other than those of Division 56, and crude minerals (excluding coal, petroleum and precious stones)

28 - Metalliferous ores and metal scrap

3 - Mineral fuels, lubricants and related materials

4 - Animal and vegetable oils, fats and waxes

5 - Chemicals and related products, n.e.s

6 - Manufactured goods classified chiefly by material

67 - Iron and steel

68 - Non-ferrous metals

7 - Machinery and transport equipment

8 - Miscellaneous manufactured articles

9 - Commodities and transactions not classified elsewhere in the SITC

Radetzki's product groups

Total primary commodities:

0, 1, 22, 27, 28, 3, 4, 67, 68

Provisions:

0, 1, 22, 4

Agricultural raw material:

2, except numbers; 22, 27, 28

Minerals and metals:

27, 28, 67, 68

Fuels:

3

Chemicals:

5

Manufactures and miscellaneous goods:

6, 8

Machinery:

7

Other:

8

Appendix II

The HS combined nomenclature builds upon 97 product groups with adherent sub-groups (only used sub-groups are given here). The 97 main groups were used as the total of trade.

HS combined classification

- 01 - Live animals
- 02 - Meat and edible meat offal
- 03 - Fish & crustacean, mollusk & other aquatic invert
- 04 - Dairy prod; birds' eggs; natural honey; edible prod
- 05 - Products of animal origin, nes or included
- 06 - Live tree & other plant; bulb, root; cut flowers
- 07 - Edible vegetables and certain roots and tubers
- 08 - Edible fruit & nuts; peel of citrus fruit
- 09 - Coffee, tea, mati and spices
- 10 - Cereals
 - 1001 - Wheat and meslin
- 11 - Prod.mill.indust; malt; starches; inulin
- 12 - Oil seed, oleagi fruits, miscell grain, seed
 - 1201 - Soya beans, whether or not broken
- 13 - Lac; gums, resins & other vegetable saps & extracts
- 14 - Vegetable plaiting materials; vegetable products
- 15 - Animal/veg fats & oils & their cleavage products
- 16 - Prep of meat, fish or crustaceans, molluscs and etc
- 17 - Sugars & sugar confectionery
- 18 - Cocoa & cocoa preparations
- 19 - Prep. of cereal, flour, starch/milk; pastrycook
- 20 - Prep. of vegetable, fruit, nuts & other parts
- 21 - Miscellaneous edible preparations
- 22 - Beverages, spirits and vinegar
- 23 - Residues & waste from food industry

- 24 - Tobacco & manufactures tobacco substitutes
- 25 - Salt; sulphur; earth & stone; plastering material
- 26 - Ores, slag & ash
- 27 - Mineral fuels, oils & products of their distillation
 - 2707 - Oils & other products of the distillation of high temperature
 - 2709 - Petroleum oils & oils obtained from bituminous minerals, crude
 - 2710 - Petroleum oils and oils obtained from bituminous minerals, other
 - 2711 - Petroleum gases & other gaseous hydrocarbons
 - 2713 - Petroleum coke, petroleum bitumen & other residues of petroleum
- 28 - Inorgn chem; compds of prec mtl, radioact element
- 29 - Organic chemicals
- 30 - Pharmaceutical products
- 31 - Fertilizers
- 32 - Tanning/dying extract; tannins & derivs; pigm. etc.
- 33 - Essential oils & resinoids; perfume; cosmetic/toilet
- 34 - Soap, organic surface-active agents, washing prep.
- 35 - Albuminodial subs; modified starches; glues; enzy
- 36 - Explosives; pyrotechnic prod; matches; pyrop allo
- 37 - Photographic or cinematographic goods
- 38 - Miscellaneous chemical products
- 39 - Plastics and articles thereof
- 40 - Rubber and articles thereof
- 41 - Raw hides and skins (other than fur skins) & leather
- 42 - Articled of leather; saddler/harness; travel goods
- 44 - Wood and articles of wood; wood charcoal
- 47 - Pulp o wood/of other fibrous cellulosic material
- 48 - Paper and paperboard; art and paper pulp
- 49 - Printed books, newspaper, pictures & other prod
- 50 - Silk

- 51 - Wool, fine/coarse animal hair, horsehair yarn
- 52 - Cotton
- 53 - Other vegetable textile fibers; paper yarn and wove
- 54 - Man-made filaments
- 55 - Man-made staple fibers
- 56 - Wadding, felt & non-woven; yarns; twine; cordage
- 57 - Carpets and other floor coverings
- 58 - Special woven fab; tufted tex fab; lace; tapestry
- 59 - Impregnated, coated, cover/laminated textile fabrics
- 60 - Knitted or crocheted fabrics
- 61 - Art of apparel & clothing access, knitted or crocheted
- 62 - Art of apparel & clothing access, not knitted or crocheted
- 63 - Other made up textile articles; sets; worn clothing
- 64 - Footwear, gaiters & the like; parts of such arts
- 65 - Headgear and parts thereof
- 66 - Umbrellas, walking sticks, seat-sticks, whips, etc.
- 67 - Prepr feathers & down; arti flower
- 68 - Art of stone, plaster, cement, asbestos, mica/sim
- 70 - Ceramic prod
- 71 - Natural/cultured pearls, prec. stones & metals
- 72 - Iron and steel
- 72 - Articles of iron and steel
- 74 - Copper and articles thereof
- 75 - Nickel and articles thereof
- 76 - Aluminum and articles thereof
- 78 - Lead and articles thereof
- 79 - Zink and articles thereof
- 80 - Tin and articles thereof
- 81 - Other base metals; cermets; articles thereof

- 82 - Tool, implement, cutlery, spoon & fork
- 83 - Miscellaneous prod of base metals
- 83 - Miscellaneous articles of base metals
- 84 - Nuclear reactors, boilers, mchy & mech appliance
- 85 - Electrical mchy equip parts thereof; sound record
- 86 - Railway/tramway locom, rolling-stock & parts thereof
- 87 - Vehicles o/t railway/tramway roll-stock, pts & access
- 88 - Aircraft, spacecraft & parts thereof
- 89 - Ships, boats & floating structures
- 90 - Optical, Photo, cine, meas, checking, precision
- 91 - Clocks & watches & parts thereof
- 92 - Musical instruments; parts & access of such art
- 93 - Arms & ammunition; parts & accessories thereof
- 94 - Furniture; bedding; mattress, matt support, cushion
- 95 - Toys; games & sports requisites; parts
- 96 - Miscellaneous manufactured articles
- 97 - Works of art; collectors' pieces & antiques

The three most exported products:

Wheat and meslin:

1001

Soybeans:

1201

Crude oil and products:

2707, 2709, 2710, 2711, 2713

Primary commodity dummy:

01-29, 41-42, 44, 47, 50-53, 71-76, 76-81, 83