

PREFERENTIAL TRADE AGREEMENTS WITH THE EUROPEAN UNION AND
IMPLICATIONS FOR THE FRUIT AND VEGETABLE SECTOR: THE CASE OF
SOUTH AFRICAN LEMON EXPORTS

By

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To my family

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LIST OF ABBREVIATIONS

AOA	Agreement on Agriculture
ACP	African Caribbean Pacific
ASEAN	Association of Southeast Asian Nations
CAP	Common Agricultural Policy
CCT	Common Customs Tariff
C.I.F.	Costs Insurance and Freight
CN	Combined Nomenclature
EBA	Everything But Arms
EPS	Entry Price System
EU	European Union
EURO-MED	Southern and Eastern Mediterranean countries
F.O.B	Free on board
GATT	General Agreement on Tariffs and Trade
GSP	Generalized System of Preferences
GSP+	Generalized System of Preferences Plus
LDC	Least Developed Country
LDBC	Least Developed Beneficiary Country
MERCOSUR	Common Market of the South
MFN	Most Favored Nation
MTE	Maximum Tariff Equivalent
PO	Producer Organization
PTA	Preferential Trade Agreement
RPS	Reference Price System
SADC	Southern African Development Community

SFP	Single Farm Payment
SIV	Standard Import Value
SPS	Sanitary and Phytosanitary
TDCA	Trade, Development and Cooperation Agreement
TRQ	Tariff rate quotas
UNCTAD	United Nations Conference on Trade and Development
URAA	Uruguay Round Agreements Act
US	United States of America
WTO	World Trade Organization

Abstract of Thesis Presented to the Graduate School
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The fruit and vegetable market has become one of the most dynamic areas of international trade. A steady supply of seasonally grown, perishable fresh fruits and vegetables is demanded by consumers in developed countries. In order to satisfy the year-round demand for a variety of high quality produce, the global fruit and vegetable market has become dependent on trade between developed and developing countries.

The European Union (EU) has the most extensive network of preferential trading agreements, with multiple layers of trade integration with more partners in the developing world than any other large trading region. A preferential trade agreement is a policy that offers partial liberalization to an eligible developing country. We examined the impact of EU's preferential trade agreements on the fruit and vegetable sector's sensitive products from the perspective of welfare economics. We identified two recent time periods when the EU's import barrier, the entry price system, was relevant and had no relevance, on lemon imports from South Africa. We found that, as expected, when the import barrier is not effective the welfare of South African producers is improved.

However South African producer welfare could be further improved by elimination of the sensitive product scheme.

CHAPTER 1

INTRODUCTION

Background

The fruit and vegetable market has become one of the most dynamic areas of international trade. A steady supply of seasonally grown, perishable fresh fruits and vegetables is demanded by consumers in developed countries. In order to satisfy the year-round demand for a variety of high quality produce, the global fruit and vegetable market has become dependent on trade between developed and developing countries, especially between the north and south.

Fruit and vegetable exports from developing countries, as a percentage of total agricultural exports, have risen from 16% in 1981 to 22% in 2008-09 (Food and Agriculture Organization of the United Nations, 2012). This 6% increase has brought the world's fruit and vegetable market to a trade value of over \$168 billion in 2009. Further increases in the fruit and vegetable south-to-north trade should help developing nations' economies, especially by redistributing income from developed countries to developing counties.

The world's population has surpassed seven billion people. One quarter of that population subsists on less than \$1.25 a day. The poorest regions in the world are located in Sub-Saharan Africa, Southern Asia and the Caribbean (United Nations, 2011). The growing demand for fresh fruits and vegetables in developed countries has led to the development of export based economies in those regions (as presented in the section's two success stories of China and India). Additionally, the potential exists to increase the presence of these regions' economies in the global market through the encouragement of growth in the fruit and vegetable sector.

This paper describes the influence of tariff barriers on fruit and vegetable based export economies of the developing world through a welfare economic framework emphasizing changes in producer and consumer surpluses. We aim to understand the potential impact of the monetary transfers from the developed country's import tariff, under sensitive product schemes, to the developing country. Sensitive product schemes protect selected domestic sub-sectors by use of trade barriers, mostly import tariffs and import quotas.

Preferential trade agreements (PTAs) are a policy tool that grants select countries preferred market access to the importing country. This preferred market access aims to reduce the price of exports from developing countries, boosting competitiveness, so importers in developed regions will buy the lower-cost goods. The resulting redistribution of income from developed to developing nations boost economic development by improving the developing country's agricultural economic performance, thus potentially reducing poverty.

Developing countries have argued that even with preferential trade agreements, trade can still be restricted by the agreements. The main criticisms are that the trade agreements dictate terms of trade, the agreements may end with limited notice, and that restrictive quota and import tariffs limit the ability of sub-sectors to reach significant economic size. Further, non-tariff barriers to trade, such as Sanitary and Phytosanitary (SPS) measures and country of origin requirements can often negatively affect the fruit and vegetable industries in the developing countries. The focus of this paper is the terms of trade designated by PTAs. Although the other issues are important in understanding the overall problem, this paper is concerned with import trade barriers.

Trade barriers can be quantified and examined, allowing us to examine the current and potential changes of policy impacts on the economic welfare of developing countries.

Fruit and vegetable trade reforms. Agricultural trade reforms can increase the amount of fruit and vegetable exports from developing countries to developed countries (Nash & McCalla, 2007). Elimination of tariff barriers on imports from developing countries will increase production, decrease prices for consumers and improve the efficiency of resource allocation. The overall benefit derived from supplying fresh fruits and vegetables to high income markets will encourage developing country participation in world fruit and vegetable trade.

Poverty reduction in developing countries. Developing countries have a comparative advantage over developed countries in fruit and vegetable production due to lower labor costs and their location in the necessary agro-climates for growing many popular fruits and vegetables. Figure 1-1 illustrates the significance of China and India and also the other main fruit and vegetable producing regions in the world. In 2010, China and India produced 50% of the world's fruits and vegetables.

The economic rise of China and India has led to rising incomes and increased urbanization in both regions. Rising income and urbanization are both highly correlated to fresh fruit and vegetable consumption (Diop & Jaffee, 2005). The seasonal nature of fruit and vegetable production creates an opportunity for export. For example when the apple harvest supplies domestic demand but an apple surplus remains, the export market provides effective demand for the apple surplus. Export to high income regions can garner a higher price, thus stimulating economic growth.

Figure 1-2 depicts a comparison of the simultaneous growth of agricultural commodities and domestic consumption in developing countries. Domestic consumption and exports of high-value products in developing countries are growing rapidly. The reasoning is that if the export sector grows this infuses the economy with income that is used to increase purchasing power. Also noted from Figure 1-2 is the increased importance of horticulture product export compared to traditional export products. Figure 1-3 shows the reduction in China and India's poverty using the purchasing power parity as the measurement indicator the last few decades, from 1980 to 2005. This further illustrates how increased purchasing power can lead to poverty reduction. China and India are both successful, albeit different, cases of implementing the export models of growth in which have led to significant poverty reduction.

China and India have had the overall greatest improvements in poverty reduction worldwide in the last few decades. From 1990 to 2005, it has been estimated that these two countries reduced the number of people living in extreme poverty by 455 million people (United Nations, 2011). China and India have intrinsically different levels of planning of their economy. China is viewed as a more "command" economy whereas India is more "mixed" of central planning and capitalist. High investment rates have led to increased GDP growth rates in both countries. Both countries have implemented high export- high accumulation growth models which have led to the increased investments expanding GDP and infusing specific sectors with income growth (Ghosh, 2010).

In China infrastructure improvements and state controlled credit investments have led to increased incomes. In India the service sector has increased income for

families. The increased production trends (1990-2010), for especially China and India, parallel trends in growth in GDP in those nations (Ghosh, 2010), which suggests that the export of fruits and vegetables has, in addition to development of other aspects of their economies, contributed to the successes of China and India in poverty reduction.

The reduction of China and India's poverty illustrates the favorable performance and potential of the global fruit and vegetable sector contribution to fulfilling multiple roles, and within a spectrum of economies. Those roles include improving developing country welfare, boosting the consumption of healthy products and the role of developing countries in international trade. Although these two economies produce a large portion for domestic demand, much can be learned from the fruit and vegetable commodities as an export model of growth and development. The regions have increased production through political objectives and improved infrastructure which in turn have led to export growth in the fresh market.

The case for using the powers of agriculture for poverty reduction and as an engine of growth for the agriculture-based countries is still very much alive today. Effective use requires adjusting agendas to each country type and within countries as well (The World Bank, 2007).

Fruit and vegetable demand in high income regions. The European Union (EU) and the United States (US) are the largest importers of fruits and vegetables with a combined 65% of world fruit and vegetable imports from 2005 to 2009. Both regions are net importers of fruits and vegetables as an overall category, importing an average of \$45 billion annually from 2005 to 2009 (Food and Agriculture Organization of the United Nations, 2012).

Demand for fruits and vegetables have outgrown supply in the EU and the US, as they are now net importers of key products that are also domestically produced. The

EU is a top producer and still a net importer of apples, grapes, oranges, pears and watermelon. The US is a top producer but nevertheless a net importer of grapes, onions, potatoes, tomatoes and watermelon (Food and Agriculture Organization of the United Nations, 2012). Both regions have strong import demand for temperate fruits and vegetables, such as apples, tomatoes and grapes. Both regions display a growing demand for tropical fruits and vegetables like pineapples, mangoes and avocados. Increased demand for temperate and tropical fruits and vegetables requires year-round supplies to keep markets stocked.

Neither the EU nor the US have the ability to produce temperate and tropical fruits on a year-round basis, so both utilize seasonal import tariffs, which act as windows of opportunity to import. The function of the tariff windows is to reinforce imports during the domestic producers off seasons. It works by lowering tariffs when produce is needed to fulfill demand that cannot be met by domestic producers. Likewise tariffs are raised during periods when domestic producers have product to sell. In addition to tariff windows, the EU and the US use preferential trade agreements to expand their imports of selected fruits and vegetables from developing countries. The function of how seasonal tariff windows act to determine the terms of trade for preferential trading partners was further investigated in the analysis section of this paper.

The fruit and vegetable industry is generally well positioned to enhance the agricultural earnings of a developing country while satisfying the growing trend toward increased fresh fruit and vegetable consumption in developed nations. As aforementioned, fresh fruit and vegetable consumption is highly correlated with two

factors, rising incomes and increasing urbanization. These two factors can increase the significance of the crops in developing countries and supply developed countries imports (Diop & Jaffee, 2005). Additionally, fruit and vegetable demand is relatively insensitive to income, especially in higher income markets. Thus, those markets can offer exporting developing countries farmers a more reliable source of income (Diop & Jaffee, 2005).

Trade barriers in sensitive sectors. Trade policy instruments are an integral part of international trade. The most common trade policy instruments are import tariffs, export subsidies, import quotas, voluntary export restraints, and local content requirements. In agricultural trade the main instruments used are import tariffs and import quotas. Tariffs are essentially taxes on imports, while quotas restrict quantities imported. Many of the trade policies of developed countries are designed to protect sensitive industries and are referred to as “protectionist” policies. Sensitive industries are those that often compete with important sectors in developing countries that benefit from a low cost advantage. These include textiles and clothing, fish and fishery products, and fruits and vegetables (Diop & Jaffee, 2005; Panagariya, 2003).

Preferential trade policies and the European Union. The EU has the most extensive network of preferential trading agreements, with multiple layers of trade integration with many partners. Panagariya (2003) distinguished seven layers of EU agreements, that range in terms of their degree of economic integration “deep”, such as the EU-27 member countries with a common market and currency, to “shallow,” exemplified by one-way trade preferences granted to a single developing country.

One-way trade agreements grant preferential market access to a developing country. The goal of one-way trade agreements is to promote the integration of a poor country or a set of poorer countries into the world trading regime. The EU has in place three sets of agreements specifically for developing countries. Those agreements are the Euro-Mediterranean (EMP), African Caribbean Pacific (ACP) Preferences and the Generalised System of Preferences (GSP).

A preferential trade agreement is a policy that usually offers partial liberalization to a developing country in the form of reductions in tariffs or tariff rate quotas. A tariff rate quota specifies some quantity of a good that will be imported with a very low (or zero) tariff applied; typically that rate will increase with imports exceeding the quota. Some agreements offer completely duty free market access to the poorest countries. The aim of these is to encourage product sourcing from the lowest cost supplier. The Generalized System of Preference (GSP) is the main preferential trade agreement between developed and developing countries, currently used by ten importing regions: Australia, Canada, European Union, Iceland, Japan, New Zealand, Norway, Switzerland, Turkey, and United States.

There are criticisms in the literature as to whether the one-way preferences provided by large and affluent regions such as the EU and the US have succeeded in having a positive impact on developing countries aside from the obvious money transfers (Panagariya, 2003). The complicated nature of overlapping agreements, limitations of product scope and coverage, and the lack of long term disaggregated available data make it difficult to estimate the true impacts of the preferences. Empirical

studies often yield conflicting evidence concerning net impacts, but there is general agreement that this depends on the specificity of the agreement, country and sector.

The standard theory of the effects of PTAs suggests that preferential trade agreements increase trade between member countries and reduce trade with third countries leading to negative welfare effects for non-member of PTAs (World Trade Organization, 2011).

Fruits and vegetables. The global fruit and vegetable commodities market has expanded more than any other commodity market over the last three decades (Huang, 2004). Fruit and vegetables have claimed a growing share of world agricultural trade, from a nominal value of \$3.91 million, or 11% in 1961, to nearly \$168 billion, or 17%, of total agricultural trade in 2009 (Food and Agriculture Organization of the United Nations, 2012). Developing countries are significant exporters of fresh and processed fruits and vegetables, accounting for over 20% or \$10 billion in total agricultural exports in 2009 (Food and Agriculture Organization of the United Nations, 2012).

The types of produce demanded have also increased by 22%. In the late 1960s the top ten traded fruits and vegetables (processed and fresh) included bananas, oranges, apples and tomatoes and accounted for 53% of import values. In 2009, the top ten traded fruits and vegetables accounted for 38% of imports, with the more exotic commodities of tropical fruit and juices topping the list (Food and Agriculture Organization of the United Nations, 2012).

The global fruit and vegetable market: trade patterns and trends. In order to understand recent global fruit and vegetable trade patterns and trends, fruit and vegetable trade and production data collected from the Food and Agriculture Organization database (FAOSTAT) was examined using the 2005-2009 five year average.

The EU imported 17% of the world's fruits and vegetables and exported 6% from 2005 to 2009, not accounting for intra-EU trade (Food and Agriculture Organization of the United Nations, 2012). The United States is the second largest importer with 12% of the world's fruit and vegetable imports and the largest exporter with 13% of exports. The largest fruit and vegetable producer in the world is China with nearly half of world's production (Figure 1-1). Domestic demand consumes a large part of China's produce, albeit exports are growing in significance with a growth rate of 271% from 1999 to 2009 (Food and Agriculture Organization of the United Nations, 2012).

Europe, North America and Asia (East, Southeast and South) are the major destinations for and sources of the supply for fruits and vegetables. The three markets exhibit similarity in trade flows. The regions are dominated by high income consuming regions and neighboring supplying regions with suitable climates and infrastructure for exports (Huang, 2004). Additionally, within each area intra-regional and extra-regional trade play important roles linking domestic production and consumption with international trade in order to supply the growing volume and variety of produce demanded.

Commonly traded fresh fruits and vegetables (bananas, potatoes, apples, tomatoes, onions, and oranges), account for 31% of the total quantity imported in the world (Food and Agriculture Organization of the United Nations, 2012). The bulk of these products are exported by a handful of countries, usually with one leading world exporter. On average, 61% of bananas, potatoes, apples, tomatoes, onions and oranges are exported by five countries. For example, the leading exporter of oranges is Spain accounting for 24%, followed by South Africa with 18% of world orange exports.

When including intra-regional trade, fruit and vegetable trade of the three regions account for 91% of world import value of \$152 billion, and 78% of export value in the fresh and processed fruit and vegetable markets. The largest portion of trade occurs with Europe, accounting for 60% of the import values and 46% of the export values for fruit and vegetable trade.

Intra-regional trade flows within the EU flow mainly to the United Kingdom, France and Germany, with the largest volume of exports coming from Spain, Italy and Netherlands. The same patterns can be viewed in North America and Asia. In North America trade flows to the United States with the majority of imports coming from Mexico. In Asia the largest importer is Japan and China is the largest exporter.

External trade is influenced by seasonal import demand for fresh fruits and vegetables by large and relatively affluent populations, residing in highly urbanized areas (Kelch, 2004). All three regions rely on Southern Hemisphere countries for imports for off-season fresh fruits, juices and the leading fresh produce item traded, bananas. The majority of the top traded fresh fruits and vegetables are driven by year-round demand that is reliant on global trade to keep supermarket shelves stocked with specified products.

Agricultural trade reforms. Agricultural trade reforms are important for two key reasons: the importance to agriculture in developing countries, and the slow growth of agricultural trade from developing countries to developed countries (Nash & McCalla, 2007). Agricultural development is critical to developing countries because agriculture's contribution to GDP in those countries is relatively high.

Agriculture remains the largest employer in developing countries. It is the largest source of GDP, and the largest source of exports and foreign exchange earnings in many developing countries. Rural areas contain about 75% of poor people worldwide, and most of them are dependent on agriculture. Table 1-1 exhibits the importance of agricultural exports to industrial countries compared to manufactured exports over three decades time. It is interesting to note that developing countries' trade with other developing countries has become more significant. This may be due to the increased performance of developing countries in the international market place, which is one of the objectives of PTAs.

While agriculture declines relative to the rest of a growing economy as incomes improve, its growth is absolutely critical at early stages of development, and it can often drive export-led growth (Nash & McCalla, 2007).

Problem Statement

This research asks the question; what are the welfare implications of the EU's preferential trade agreements, especially with respect to the sensitive product scheme, on developing countries? The effectiveness of the sensitive product scheme is examined from the impact of the EPS on imports. The answer is sought from the perspective of changes in welfare as a result of the price policies used by the EU in fruit and vegetable trade matters. One country, South Africa, and one product, lemons, were selected to provide data for a case study analysis to explore this issue. It is hoped that the outcomes may be generalizable to other developing country situations with PTAs with the EU.

The EU has historically protected its farmers from lower world prices with various protectionist policies. The EU protects EU producers of 15 fresh fruits and vegetable categories by use of reduced import tariffs and preferential quotas to selected countries. The fruit and vegetable industry in the EU is regulated by a common agricultural fruit and vegetable policy under the Common Agricultural Policy (CAP). Internal market management schemes and external protection support the EU fruit and vegetable producers and processors. The domestic support policies for the fruit and vegetable sector have undergone several reforms in the past few decades. The last major reform took place in 2008.

There are two categories of instruments used for the protection of the EU fruit and vegetable sector, market management and border measures. On the one hand, market management schemes provide domestic growers with a stable income and farm-gate prices that supports the EU's high factor costs. On the other hand, the main instrument protecting the EU fruit and vegetable sector is market access regulation through the use of a border intervention system. The EU's border intervention system is a complex web of ad valorem tariffs, specific duties, seasonal tariffs, tariff escalation and preferential access along with tariff-rate quotas. This system is referred to as the Entry Price System (EPS).

The EPS protects selected fruit and vegetable producers against international competition by mitigating trade seasonally, by product and country of origin through import tariff/quota selectivity. The EPS is applied seasonally and based on politically designated minimum import prices, ad valorem tariffs of up to 20% and potentially prohibitive tariffs. The EPS strongly restricts an exporter's ability to increase market

shares in the EU based on lower prices and efficiency (Diop & Jaffee, 2005). The EPS is presented in greater detail in Chapter 2.

The EPS replaced the reference price system (RPS) in 1995 in order to comply with the World Trade Organization's Uruguay Round Agreement on Agriculture to reduce domestic protection and improve market access to third country suppliers. Empirical studies have shown conflicting evidence as to whether the EPS has reduced protection and improved market access for third country suppliers. There are debates in the literature as to whether the EPS is really that different from the RPS (Swinbank & Ritson, 1995; Rickard & Sumner, 2011; Cioffi & dell'Aquila, 2004).

The EPS is criticized from a development policy perspective due to its complexity and lack of transparency. Critics charge that it restricts imports from developing countries that may have cost competitive (or even absolute) advantage in labor-intensive fruit and vegetable production (Cipollina & Salvatici, 2010; Diop & Jaffee, 2005; Goetz & Grethe, 2010). And, the overall development agenda of the EU appears to be in conflict with the use of this price policy.

This paper investigates the impact of the EU's seemingly contradictory objectives of preferential trade agreements with fruit and vegetable exporters in the developing world, and the EU's border measures and tariff barriers protecting domestic industry. Over 70% of EU fruit and vegetable imports are from countries that benefit from PTAs for some portion of that trade (Hasha, 2004).

The EU aims to decrease poverty with market access, while employing potentially prohibitive tariffs on key fruit and vegetable imports from the same countries receiving development aid. This paper considers the evidence from the perspective of

South African lemons exported to the EU. South African lemons were chosen as a case study because South Africa has typically received preferential access to the European market through several PTAs. South Africa's fruit and vegetable industry has exhibited tremendous growth in the last decade and some may be attributable to its relationship with the EU. However, lemons are highly protected in the EU and South Africa does not receive preferential treatment for this commodity (although it does for limes).

This paper explores the potential welfare improvement that in South Africa can be explained if lemons were to receive the preference that other developing countries receive in an ex-post analysis of 2002 to 2010 price data. This aims to provide insight into the implications of the EU's PTAs, especially on the sensitive fresh fruit and vegetable industry. Liberalizing trade barriers in this sector could provide farmers in poor countries with a greater livelihood, thus reducing poverty.

Objectives

There are two general questions this paper sought to investigate. The first question, does the EPS influence the EU import price? The findings of the restrictiveness of the EPS provided the necessary results and data for the welfare estimation. We estimate the welfare for the most relevant period of South African lemon imports of the EPS with the changes from a period when the EPS is not relevant. This led to the second general question. What are the changes in welfare between a period of high EPS effectiveness to a period of no EPS effectiveness.

The following objectives were established with respect to South African lemons that are exported to the EU.

- Determine the effectiveness of the EPS on imports. More specifically, how restrictive has the EPS been on South African lemon imports from 2002 to 2010.

- The changes in welfare between a period when the EPS is most effective and a period when the EPS is least effective.

Hypotheses

The following hypotheses are proposed:

1. The EPS has high relevance, meaning it restricts South African lemon exports into the EU for the eight year period of 2002 to 2010.
2. When the EPS is most effective South African producer welfare is decreased.

The first hypothesis used an indicator that analyzed the effectiveness of the EPS on South African lemon imports. A unique data set was used comprising over 3500 observations of the standard import value (SIV), a synthetic import price calculated by the European Commission based on wholesale quotations.

The welfare estimations were carried out using an applied welfare economics framework on South African lemon exports with the variables of quantity supplied by South Africa, quantity demanded in the EU and the estimated prices, including world price.

This research aims to provide insight into the effectiveness of the EU's development agenda and elucidate issues pertaining to the WTO's ongoing talks on global trade and agriculture. The results with the South African lemons as a case study may be generalizable to other situations in the fruit and vegetable sector.

Structure of Thesis

Chapter 1 describes the issue of trade barriers within the global fruit and vegetable market and identifies the consequences and advantages of PTAs to developing countries. Chapter 2 provides background information, including the legal background of PTAs and the role of sensitive products. Chapter 3 reviews relevant literature within the scope of fruit and vegetable trade with the EU and the measures

used to evaluate trade policies. Chapter 4 provides the theoretical considerations of international trade and comparative advantage using an applied welfare economics conceptual framework. Chapter 5 provides the methodology for estimating the domestic price, world price and tests of the relevance of the EPS on South African lemon imports. Chapter 6 specifies the equations and models, and supplies estimated results. Finally, the implications for developing countries are discussed as are possible directions for further research in the concluding Chapter 7.

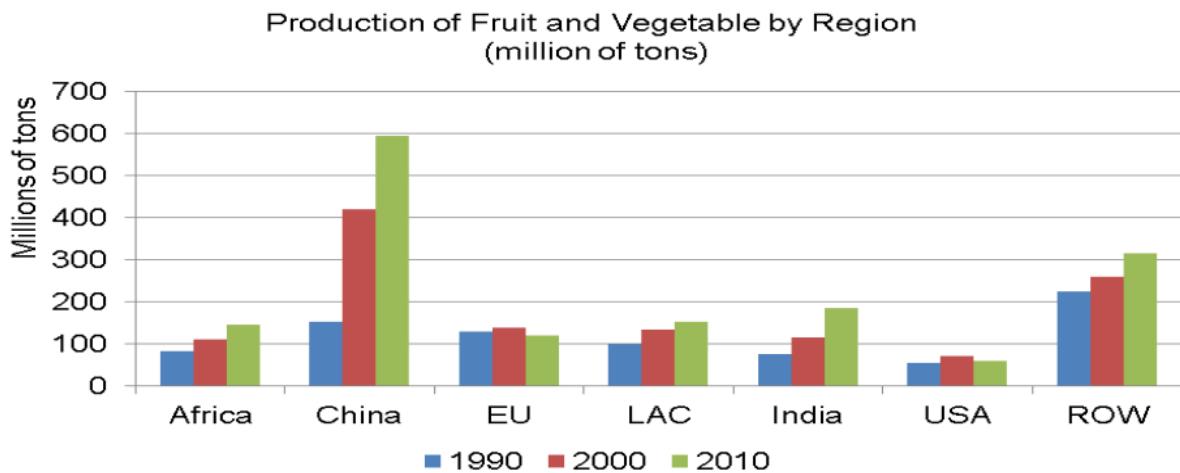


Figure 1-1. Comparison of selected regions in fruit and vegetable production (Food and Agriculture Organization of the United Nations, 2012)

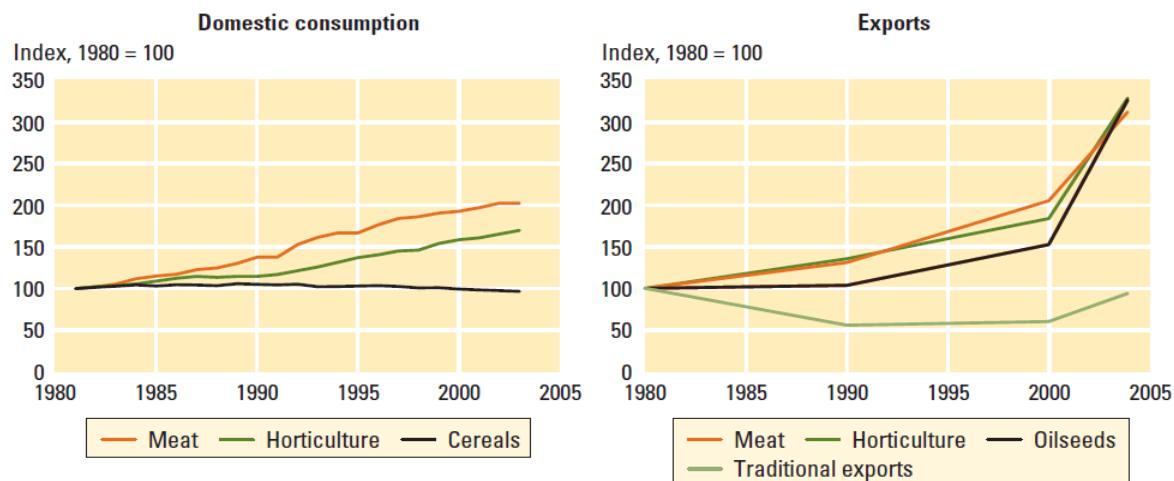


Figure 1-2. Developing countries growth of domestic consumption and high value exports [reprinted from The World Bank. 2007. World Development Report Agriculture for Development. 2007, (p. 13, Figure 6). The International Bank for Reconstruction and Development, The World Bank. Washington DC.]

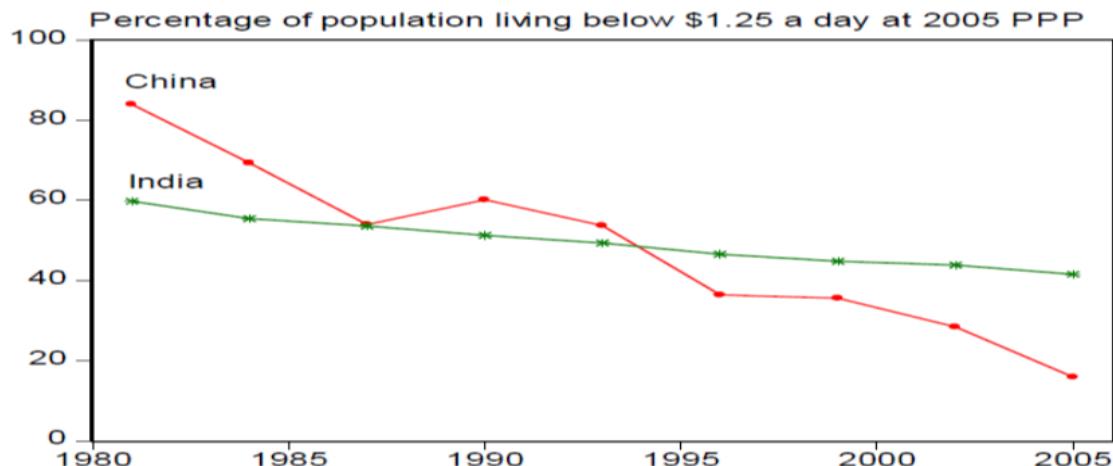


Figure 1-3. Developing countries growth of domestic consumption and high value exports [adapted from Ravallion. 2009. A Comparative Perspective on Poverty Reduction in Brazil, China and India. The World Bank Development Research Group. Washington, DC.]

Table 1-1. The importance of agricultural exports to developing countries

	Share of Developing Countries' Exports in World Trade		
	1980/81	1990/91	2000/01
Total agricultural exports	35.4	32.2	36.3
To developing countries	9.5	8.9	13.4
To industrial countries	25.8	23.3	22.9
Total manufacturing exports	19.3	22.7	33.4
To developing countries	6.6	7.5	12.3
To industrial countries	12.7	15.2	21.1

[adapted from McCalla, Alex F; Nash, John. 2007. Reforming Agricultural trade for Developing Countries. 2007, (p. 3, Table 1-2). The World Bank, Washington, DC.]

CHAPTER 2

THE ROLE OF PREFERENTIAL TRADE AGREEMENTS IN DEVELOPMENT

Preferential trade agreements (PTA) provide partial liberalization of markets for trading partners. One of the aims of PTAs is to link high income markets with developing countries' exports to boost developing countries' economic growth and development. PTA's offer a preferential tariff to an exporting country, giving them an advantage over all others not included in the PTA. Preferential *agricultural* trade is one of the most effective tools to foster economic development (Awokuse, 2009). An increase in agricultural export earnings for a developing country encourages the diversification of the economy and accelerates economic growth. The role of agriculture in development is crucial in developing countries where there is a higher reliance on agriculture as a value-added component to the Gross Domestic Product (GDP).

Preferential trade policies that encourage agricultural trade can be effective in the primary sector of a developing country (due to the reliance of many low-income countries on exporting primary products) impacting the rural poor population. Land based activities in the developing economies provide employment and enable the rural people to acquire and/or increase their purchasing power.

It is estimated that 16% of global merchandise trade received preferential treatment in 2010 and 25% of PTAs were between developing and developed countries (Carpenter & Lendle, 2010). The World Trade Organization (WTO) has developed a database for one-way preferential trade agreements which was used to gather the information for Table 2-1. However, limitations to the available data include the actual preferences that developing countries utilize. A popular method from the literature that is used for calculating an estimated preference value provided to beneficiary countries

is by determining the preferential margin. The preferential margin is the difference between the lowest application preferential tariff and the Most Favored Nation (MFN) rate applied. The majority of global trade weighted preferential margins (90%) is related to reciprocal PTAs (World Trade Organization, 2011). The remaining 10% falls under non-reciprocal PTAs. Theoretically this 10% is the benefit attainable under one way PTAs for developing countries. That is another way that wealth is distributed from the donor (importing) countries to the beneficiary (exporting) countries with the aim of improving economic development and reducing poverty in the latter.

Legal Foundations

There are four levels of international trade relationships. Those levels are (1) unilateral measures (Generalized System of Preferences) (GSP); (2) bilateral relationships (Canada-United States Free Trade Agreement); (3) plurilateral agreements (Agreement on Government Procurement); and (4) multilateral agreements (WTO). This paper will focus on unilateral trade agreements.

The General Agreement on Tariffs and Trade (GATT) (1946) is the legal foundation for world trade. GATT led to the creation of the World Trade Organization (WTO), on January 1, 1995. One of the founding pillars in that legal foundation is the Most Favored Nation (MFN) principle in Article 1 of the agreement. The MFN states that WTO members must grant all members the same treatment. The key implication is that WTO members must not discriminate with tariff policies among members.

Preferential Trade Agreements are in conflict with the MFN principle since it provides preferential treatment to select WTO members only. There are three provisions that were developed to accommodate trade preference within the WTO

system. The purpose of the first two provisions are to further support the GATT/WTO objective of the improving economic development in developing or least-developed countries by the benefit of international trade (World Trade Organization, 2012).

First, developed countries can provide one-way trade preferences to developing countries. This is the basis for GSP and African Caribbean Pacific (ACP). It is allowed under a special waiver that was specially granted by WTO members and is intended to promote exports from developing to developed countries.

Second, the ‘Enabling Clause’ allows developing countries to exchange nearly any trade preference with other developing countries. This was adopted in 1979 from the Decision on Differential and More Favourable Treatment, Reciprocity and Fuller Participation of Developing Countries, and under Part IV of the GATT (World Trade Organization, 2012). This “special and differential treatment” is intended to promote trade among developing countries. Partial tariff preferences among goods are allowed. The Common Market of the South (MERCOSUR) and Association of Southeast Asian Nation (ASEAN) free trade areas (FTA) were developed under this provision.

Finally, Article XXIV of GATT allows two or more members to form a FTA or Customs Union (CU). The European Union (EU) and North American Free Trade Agreement (NAFTA) were developed under this provision.

Article XXIV is the only way that developed countries can be the recipient of trade preferences. However there is a requirement that trade preferences should not be partial but should cover “substantially all trade”. The definition of “substantially all trade” has not been completely clarified and agreed on among WTO members. Although the

provisions of Article XXIV have not been entirely enforced, there is evidence that it has influenced the PTAs in which developed countries participate (Panagariya, 2000).

The EU and the US are the largest providers of preferential trading agreements to developing countries. Table 2-1 provides a snapshot of the non-reciprocal PTAs provided to developing countries by the EU and the US that were notified to the WTO by the end of 2011. As shown in Table 2-1, the agreements are not limited to GSP programs. Many countries are eligible for more than one arrangement; if so, the beneficiary country may apply for the best preference (Appendix A).

In 1968, the Generalized System of Preference was conceived and recommended by the United Nations Conference on Trade and Development (UNCTAD) as a method to assist developing countries with trade opportunities (United Nations, 1968). This program provides more countries with non-reciprocal preferential market access to the importing countries than any other existing PTA.

In order to give a point of reference to the EU's use of GSP for imports from developing countries, it is useful to compare trade statistics between the EU and the US. The available data is a limiting factor however that will not allow an exact comparison.

The US GSP scheme imported \$18.5 billion in 2011, less than 1% of all US imports for consumption. Nearly 5000 tariff lines were duty-free for GSP beneficiaries. The top beneficiary countries were India, Thailand and Brazil, importing 51% of the total. Fruit and vegetable products imported under the GSP arrangement were \$154 million. Least-developed beneficiary countries (LDCBs) are eligible for extra provisions including more duty-free and quota-free tariff lines than GSP beneficiaries. Imports

from LDBC were about \$60,000 for vegetable products and \$260,000 for fruit products (United States International Trade Commission, 2012).

The EU imports that received GSP preference were worth €60 billion in 2009. This represented 4% of total EU imports and 9.3% of total EU imports from developing countries (European Commission, 2011). The main beneficiary countries were Armenia, Pakistan and India due to the fact that over 50% of their share of EU bound exports enter under GSP duty free (Gasiorek, 2010).

Preferential Trade Agreements of the European Union

The EU has granted trade preferences within the framework of the GSP since 1971. The GSP is implemented through successive regulations applying the tariff preference usually within a period of three years at a time. The scheme was established by European Parliament and Council regulation and falls under the Treaty on the Functioning of the European Union, Article 207(2) (European Commission, 2008). The most recent time frame for the EU's completed GSP scheme was applied from January 2009 to December 31, 2011. The GSP legislation was rolled over in May 2011 and the regulation was extended until December 31, 2013 (European Commission, 2011).

The EU's GSP is one of the key EU trade instruments for its developmental strategy towards developing countries. The EU's development policy is governed by Article 208 of the Treaty on the Functioning of the European Union (European Commission, 2008). The main objectives are the eradication of poverty and the promotion of sustainable development and good governance in developing countries. With regard to complying with WTO requirements, the 'Enabling Clause' states how

WTO Members may “accord differential and more favorable treatment to developing countries” and that a GSP scheme should be “generalized, non-reciprocal and non-discriminatory”. Countries not classified by the World Bank as high income are eligible (European Commission, 2006). Table 2-1 compares the EU and US categories of unilateral, non-reciprocal programs, as notified to the WTO.

Revisions of the development policy framework took place in 1995, 2001 and 2004, introducing substantial changes to the way the EU promotes trade with developing countries. The most recent changes were aimed at being simpler and more generous. In force since 2006, the revision was partially in response to a critical WTO Appellate Body report brought on by a complaint from India about the discriminatory nature of the previous scheme. The revision also brought EU trade policy more in line with the WTO’s “Doha Development Agenda” (United Nations, 2011). The current guidelines for the period of 2006 to 2015 were set out in the EU Communication COM (2004) 461 in July 2004 (Commission of the European Communities, 2004).

Previous schemes. In 1995 a scheme entered into force for a ten-year cycle offering five GSP arrangements. The general arrangement included 7000 tariff lines classified by sensitivity into four product groups according to the depth of tariff cut. Non-sensitive products entered duty-free for 3300 tariff lines. Sensitive products of 3700 tariff lines were grouped as very sensitive at 85% of MFN rate, sensitive at 70% and semi-sensitive at 35%. Special incentives and arrangements were made for various groups regarding protection of labor rights, environmental protection, drug trafficking in South and Central American countries and the Everything But Arms (EBA) initiative for the 50 poorest countries in the world (DeMaria, Drogue, & Matthews, 2008).

In 2001 a new proposal was adopted by the Council for revision of the GSP scheme. The number of product categories was reduced from four to two. Duty-free access for all non-sensitive products was maintained, while all sensitive products were placed into a single category. The tariff rate for sensitive products were granted a flat 3.5% point reduction from the MFN duty applied to *ad valorem* or mixed tariffs. The reduction represented a 30% cut from the MFN rates with a lower reduction for textiles, clothing and ethyl alcohol (DeMaria, Drogue, & Matthews, 2008).

The EU redesigned the program in 2006 in order to give developing countries simpler and broader access to their market by increasing product coverage and reducing the number of GSP arrangements from four to three. The general GSP arrangement increased the number of tariff lines covered to 7200, mainly in the agricultural sector. A program was implemented for sustainable development and good governance. This program was designated as Generalized System of Preference Plus (GSP+) and designed for countries deemed vulnerable. The EBA arrangement was largely maintained with some provisions for three sensitive products (bananas, rice and sugar) to be phased in at duty free rates in the near future.

The GSP+ was applied before the 2006 reform took place due to a WTO ruling on special arrangements to combat drug production and trafficking, but officially became a part of the EU agenda in 2006. The beneficiary countries must meet a number of criteria and includes the effective application of 27 international conventions on human and labor rights, environmental protection, the fight against drugs and good governance. The criteria of “dependent” and “vulnerable” are attributed to poorly diversified economies, small, lower-income, and land-locked or small island nations.

Poor diversification and dependence is determined by summing the five largest sections of the country's GSP-covered imports to see if they represent more than 75% of its total GSP-covered imports. Additionally, the GSP-covered imports from the country must represent less than 1% of total EU import under GSP.

The EU has been the largest provider of GSP to developing countries. In 2004 GSP claimed imports entered the EU in the amount of €40 billion, incrementally rising to €58.6 billion in 2007 and €60 billion in 2009. The value of imports in 2009 was greater than the total value of GSP imports of US, Canada and Japan combined. Additionally imports from EBA countries increased 35% in 2006 and GSP+ beneficiary country imports increased 15% in 2006 and another 10% in 2007 (Gasiorek, 2010).

The EU Common Customs Tariff reports 10,300 tariff lines. Out of these tariff lines, 2,100 products have a MFN zero duty, which means that a preferential tariff will not be beneficial. From the remaining 8,200 dutiable products, GSP covers 7,000, of which 3,300 are non-sensitive and 3,700 are sensitive. The non-sensitive products enter at a duty free rate under GSP, whereas the sensitive products usually benefit by a tariff reduction.

Sensitive Products

Sensitive products are determined by the level of domestic production and competitiveness of EU producers. Agricultural products covered by the Common Agricultural Policy (CAP) are deemed to be too sensitive for duty-free market access to be granted to potentially large and competitive suppliers. The EU production accounts for a significant portion of domestic fruit and vegetable consumption which is concentrated in a handful of products (Table 2-2). Nearly half of the EU internal support

provided to EU farmers for vegetable production is support for tomatoes, onions and carrots. Internal support for EU fruit production is concentrated in apples, oranges and peaches, with 58.4% of total fruit production (European Commission, 2011).

Sensitive and non-sensitive products have always been distinguished by the EU's GSP, although the treatment of sensitive products has changed over time. Tariff rate quotas and ceilings on imports for individual countries and products, changes in product coverage and the depth of tariff cuts have also varied according to the EU's periodic reviews of the policy.

Determinants of Fruit and Vegetable Trade with the European Union

This section will specifically focus on the effects of the fruit and vegetable trade determinants for preferential trading arrangements with the EU. The main determinants of fruit and vegetable trade are geographic proximity, climate, historical and political elements and preferential trading arrangements (Huang, 2004).

The EU is the largest (arguably) fruit and vegetable trading area in the world. Fruit and vegetable trade within the EU is valued at \$53.8 billion and comprises 35% of world fruit and vegetable trade. Although intra-regional trade in the EU provides insights into the rationale for domestic support and protectionist policies affecting fruits and vegetables, it may or may not be applicable to other regions. One thing is clear: The EU fruit and vegetable market is a lucrative one, and a steady stream of imports from developing countries is desirable for both EU consumers and developing countries' producers.

Geographic Proximity

The majority of the EU's fruit and vegetable imports come from trading partners geographically close to the EU Member States. Southern and Eastern Mediterranean countries (EURO-MED) are the largest fruit and vegetable exporters into the EU. Improving their access to the EU market is of great importance to these countries. Since Spain joined the EU's single market in 1993, the Euro-Med countries are in competition with the same products and growing cycles as those of Spain.

The Barcelona Declaration in 1995 began the process of creating a free trade area in order to liberalize trade between the EU and Euro-Med regions. As of 2006, this had not been successful.

The European Neighborhood Policy's central element is bilateral agreements negotiated separately among countries. Algeria, Egypt, Israel, Jordan, Lebanon, Morocco and Tunisia have each signed the Bilateral Euro-Mediterranean Association Agreement.

The EU is the main export market for the EURO-MED countries with 87.5% of exports routed to the EU. The major trade partners are Turkey, Morocco Israel and Egypt with 95% of EURO-MED imports form the region (Table 2-5). The major products imported into the EU are tomatoes, citrus fruits and nuts (7, 10 and 26% of fruit and vegetable exports) (Emlinger, Florence, & Chevassus Lozza, 2008).

The EURO-MED countries fruit and vegetable sector has attracted quite a bit of research regarding the impacts of European policy on various trade related factors. The literature will be more closely examined in Chapter 3 but referenced throughout the

paper. The existing work provides examples and indicators of what has been done with the available data, as well as insights into the EU policy affects for developing countries.

In 2005 the Barcelona process was re-negotiated, this time through a gradual but full liberalization of agricultural products, except for a number of sensitive products. Current status of the process has resulted in separate bilateral agreements between each country. The difference in agreements with respect to fruits and vegetables has resulted in varying degrees of preference allotted to country-specific products. Morocco has shown to have the highest preference and is the leading exporter of the major fruits and vegetables into the EU. Credit for this is given to a Moroccan state trading office that manages the quotas and the Entry Price System (EPS) (Emlinger, Chevassuss-Lozza, & Jacquet, 2010).

Climate

Climate is a determinant of trade that assists in setting the context of the global fruit and vegetable market. Imports from the southern regions of the globe have increased due to the counter-cyclical seasons of the two hemispheres. For example, apples harvested and sold in the fall and winter months in the EU will be sourced from Chile or South Africa during the southern hemisphere summer harvest time.

The nature of fruit and vegetable production depends on specific geographical growing conditions, often linked to latitude and climate. The global fruit and vegetable trade is critical to ensure a steady supply of fresh products that consumers expect and are willing to pay for. Perishability is another factor that is related to climate. Some fruits and vegetables must be transported under specific climatic conditions and time constraints in order to be sold to markets like the EU with high quality standards.

Additionally, some products can only grow in specific climate conditions, such as bananas, which are only grown in regions near the equator. Some banana producing countries have been producing for export markets for many years and are dependent on large markets for year-round sales (Josling & Taylor, 2003). The EU and the US produce very little bananas and are the largest banana consuming markets. Banana imports into the EU and US account for over 50% of total banana trade (Food and Agriculture Organization of the United Nations, 2012). Bananas are the most significant fruit or vegetable product traded in terms of quantity and value. The case of bananas illustrates several important issues.

Historical and Political Elements

Trading arrangements are also often influenced by previous colonial relationships and is of particular importance for the EU. Special privileges for historically linked countries have been a prominent feature of the EU's trade and development policy which was rooted in Robert Schuman's speech, "A United States of Europe", in May of 1950 (Bartels, 2007). Part of this speech references special trading relations with colonial territories was written into the 1957 European Economic Community Treaty. It has since been a major part of the agenda in the Community's activities, "the association of the overseas countries and territories in order to increase trade and to promote jointly economic and social development" (European Economic Community, 1957). The policy originated from negotiation powers of the French Union which was comprised of France, its overseas departments, African colonies and an Indo-Chinese group. In 1973 when the United Kingdom joined the European Community, the association agreement was extended by the Lomé convention to include the British

colonies of Sub-Saharan Africa, the Caribbean and Pacific (known in the future as ACP) (Bartels, 2007).

The Cotonou Agreement, formerly known as the Lomé convention, is the most comprehensive partnership agreement between developing countries and the EU (European Commission, 2011). The preferential trading arrangements exist with 79 countries from Africa, the Caribbean and the Pacific (ACP) and include 39 of the poorest countries in the world. From ACP countries agricultural exports to the EU totaled €16.7 billion in 2011. Vegetable products from ACP countries comprised 11.4% share of total EU imports (European Commission, 2011).

Bananas are a particularly controversial product in agricultural trade policy. Bananas produced in developing countries with post-colonial relationships have been exploited by the EU with various preferential trading regimes since the beginning of the European Economic Community in 1957. In France, the UK and few other countries a quantitative restriction protected foreign producers by inflating the domestic price of bananas. In Germany a preferential duty was in place for banana imports. In 1993 as a result of the EU implementing the single market, the two different banana import regimes had to be harmonized. The EU policy change brought about claims of discrimination against Latin American bananas exports due to preference granted to former colonies which led to a WTO trade dispute.

The banana trade dispute, ending in 2001, was a trade conflict that challenged EU development policy. Lessons learned from the impact of the welfare changes incurred on the developing country producers may bring light to the potential of policy changes on the fruit and vegetable sector. One of the key policy issues in resolution

was the economic and social problems expected to affect small island developing countries that depended on market access from the EU for export economy.

The “bananas wars” ended in 2009, ruled by WTO to be incompatible to the non-discriminatory principle of the WTO MFN policy. The outcome of the WTO-sponsored Geneva Agreement on Trade in Bananas is that the EU agreed to cut Latin American banana tariffs successively over a 6 year time period from €176 per ton to €114 (European Commission, 2011). The impacts of this partial liberalization will be further examined in subsequent review sections.

European Union’s Support Policies for Fruits and Vegetables

The EU’s fruit and vegetable support policies and instruments are market management schemes and border intervention as referred to in Chapter 1. Additionally some growers are eligible for Single Farm Payments (SFP). Table 2-2 lists the major fruit and vegetable products and producing Member States in the EU in 2007. In terms of harvested production the main vegetables in 2007 were tomatoes (15.3 million tons), carrots (5.4 million tons), and onions (5.1 million tons), whereas the main fruits were apples (about 9.8 million tons), oranges (6.2 million tons) and pears (2.6 million tons) (Camanzi, Malorigo, & Azcarate, 2011). A list of products covered by the EU fruit and vegetable regime is listed in Appendix B. This section will provide a brief overview of the mechanisms and costs associated.

The SFP is the direct payments granted to farmers in the EU. The SFP is eligible to growers under certain schemes depending on how the Member States decides to allocate the subsidy. Farmers must comply with certain requirements of public, animal and plant health, environment and animal welfare, under a system called cross-

compliance (European Commission, Directorate-General for Agriculture and Rural Development, 2012).

Market management schemes are carried out by the EU's Common Market Organization principally implemented through producer organizations. Producer organizations (POs) are legal organizations formed by producers that aim to boost supplier competitiveness. The main function of a PO is to increase market power, improve and maintain marketing activities and provide partial price stabilization for the EU fruit and vegetable sector. Producer Organizations are supported by the EU's CAP to assist farmers with crisis prevention and management measures.

Crisis prevention is implemented when necessary through product withdrawals, green harvesting, free distribution schemes and export subsidies. Crisis management can affect prices on the domestic market by removing excess products. The limits to the amount of product which can be removed from the market are no more than 5% of the volume of marketed production, per year. Additionally the amount of funding contributed by the EU and the PO for withdrawals is specified by legislation and by product. Lemons are capped at €19.5 per 100 kilograms (European Commission, 2007).

Management of the market quality is implemented with specific and general marketing standards for classifying product quality and size. This scheme aims to facilitate trade and increase the profitability of high quality fruit and vegetable products.

Entry Price System

European fruit and vegetable producers are protected from foreign competition by two main features at the border; the EPS and seasonal tariff windows that vary

throughout the year. The EPS includes country and product specific ad-valorem duties and specific tariffs that can be prohibitively high (Figure 2-1 and Table 2-4). The seasonal tariffs are broken up into product designated periods throughout the year. Each period is equipped with a trigger price that acts as a price floor for imports. We refer to this as the entry price (EP).

The EPS regulates the import of 15 fresh fruits and vegetables; tomatoes, cucumbers and gherkins, artichokes, courgettes or zucchini, oranges, tangerines, clementines, lemons and limes, apples, pears, apricots, cherries, peaches, prunes and grapes. The purpose of the EPS is aimed at reducing instability of the domestic producer prices by limiting the volatility of a price decrease and by avoiding low import prices of fruits and vegetables (Emlinger, Chevassuss-Lozza, & Jacquet, 2010; Goetz & Grethe, 2009; Swinbank & Ritson, 1995). This is accomplished by establishing a minimum entry price for imports which is determined daily by the European Commission. As aforementioned this acts as a price floor for the 15 select fresh fruits and vegetable sold on the EU market.

Entry Price System Application to South African Lemons

The EPS uses three specific import tariff instruments; *ad-valorem* tariffs, specific duties and a prohibitive tariff called the maximum tariff equivalent (MTE). Import tariffs are characterized by the seasonal tariff windows. The *ad-valorem* changes depending on the period of application, in some instances providing higher protection to growers during certain times of year. The conditions of the specific duties depend on the import price range. In order to illustrate the conditions for period one of South African lemons follow:

- If the declared entry price is equal to or greater than 46.20 Euro / 100 kg; apply a duty of 6.4%
- If the declared entry price is equal to or greater than 45.30 apply a duty of 6.4% plus 0.90 Euro/100 kg
- If the declared entry price is equal to or greater than 44.40 apply a duty of 6.4% plus 1.80 Euro/100 kg
- If the declared entry price is equal to or greater than 43.40 apply a duty of 6.4% plus 2.80 Euro/100 kg
- If the declared entry price is equal to or greater than 42.50 apply a duty of 6.4% plus 3.70 Euro/100 kg
- If the declared entry price is equal to or greater than 0 apply a duty of 6.4% plus 25.60 Euro/100 kg

For lemon imports the *ad-valorem* stays the same throughout the year at 6.4%.

But for other fruits and vegetables can range up to nearly 18%.

The trigger price, or as we are referring to as the EP, in this case 46.20, is the price in which if the import is declared equal to or above the EP then the Common Customs Tariff (CCT) will trigger only the *ad-valorem* tariff. In the event the actual import price is lower than the EP then the specific tariffs are added to the CCT. In this example, if the actual import price is declared between 0 and 42.50 then the MTE is activated at the prohibitively high rate of 25.60 euros.

The seasonality of the tariffs is based on the EU's 15 protected fruit and vegetable production calendar. As an example the seasonal tariff windows for lemons follow:

- PERIOD 1. January 1 to April 30.
- PERIOD 2. May 1 to May 31.
- PERIOD 3. June 1 to July 31.

- PERIOD 4. August 1 to August 15.
- PERIOD 5. August 16 to October 31.
- PERIOD 6. November 1 to December 31.

The EPS accounts for the fact that fresh fruits and vegetables are sold on commission, meaning that the real import price is not determined until the produce is sold. Therefore the European Commission calculates a daily import price based on each specific product and country of origin, the standard import value (SIV), as a value in which to declare the CCT. The SIV is determined by collected import values surveyed daily from each EU Member State's representative fruit and vegetable wholesale markets. The SIV's are calculated by taking the weighted average of the collected wholesale prices, subtracting a marketing and transportation margin, and the applied tariffs.

The document used to verify the import price is the invoice declaring the import price. This document determines the customs duty applied. The EU import charges can be based on free on board (F.O.B) adjusted for freight and insurance or the actual costs (C.I.F.), as stated by the invoices.

Declaring Entry Price System Imports

Exporters have three options in which to declare fruit and vegetables subject to the EPS during the customs procedures and two ways in which to circumvent the EPS. In order to declare the import values the three options follow:

- THE STANDARD IMPORT VALUE METHOD. The importer accepts the entry price of the product as the EU's designated standard import value. This is the easiest method for the importer and does not lead to specific tariffs if the price of the imported product if the SIV is higher than the entry price (Figure 2-1). The other two options are determined by the values declared on the products invoice. These two methods may be used if there is an incentive for the importer to avoid

paying additional specific tariffs due to the SIV being below the EP, or high above the EP, resulting in a high *ad valorem* duty.

- THE INVOICE METHOD. The importer declares the products entry price as the F.O.B price from the country of origin plus the costs of insurance and freight up to the EU border, thus the actual costs (C.I.F.). The importer may have to lodge a security equal to the difference between the CCT from the SIV and the CCT based on the invoice.
- THE DEDUCTIVE METHOD. The importer declares the entry price (pre-tariffs) as the effective selling price of the product according to the invoice. This is based on the unit price for identical or similar imported goods. The importer must lodge security equal to the amount of the duty which would be paid based on the SIV.

Of the two method of circumventing the EPS one is legal and the other illegal.

The legal method is to put the product in storage and wait for the price to rise. Of course this is only possible for products that can last in a storage facility. When the price rises to above the EP the importer can go through customs clearance. This method is used when the EP is lower than the SIV to avoid paying a higher specific tariff.

The illegal method involves altering the invoice date by falsifying the selling price. This method is more prevalent in small-scale trading between related trading partners (Goetz & Grethe, 2009) .

To summarize the operation of the EPS, as depicted in Figure 2-1, the following three scenarios are listed:

1. $EP \geq SIV$, the importer pays the *ad-valorem* duty
2. $EP > 92\%$, if the $SIV < EP$ the importer pays the *ad-valorem* duty plus the tariff equivalent of the difference of the EP and SIV
3. $EP < 92\%$ of the SIV the importer pays the *ad-valorem* and the MTE

Fresh Fruit and Vegetable Import Situation for the European Union

The import situation for fruits and vegetables entering the EU is depicted in Table 2-5. The large majority of imports come from the Southern Mediterranean countries listed. These countries also are the main beneficiaries of preferential EPS treatment, either by a preferential entry price or tariff reduction. The major southern hemisphere countries that import fruit and vegetables in to the EU are Argentina, Brazil, Chile, Ecuador, New Zealand, South Africa and Thailand (Food and Agriculture Organization of the United Nations, 2012).

The Case of South African Lemons

In this section we provided a brief description of South Africa and justify why we chose South Africa for the case study. We presented the trade situation for South African lemons. We examined the EU market ending with a chapter conclusion.

Description of South Africa

South Africa has a 23% poverty rate, a low life expectancy of 53 years and a Gross National Income average of \$6,960. The agricultural value added to GDP is relatively low at 2.5%, which is below the average middle income developing country at 7.3%, but rose over 1% during the food crisis of 2007 and 2008. The sharp increase over a short period of time provides an insight into the volatility of the economic sector.

South Africa exports of agriculture and processed agricultural products to the EU surpassed €1.9 billion per year, on average, from 2007 to 2009. Trade relations between the EU and South Africa have evolved from Lomé Agreements (GSP) into a Trade, Development and Cooperation Agreement (TDCA). This is a bilateral agreement

which has been applied (provisionally) since January 1, 2000, officially entering into force on May 1, 2004 (European Commission, 2011).

Duties applied on most South African agricultural exports to the EU have been gradually phased out during a 10 year transitional period. All liberalization that EU has committed to make under the TDCA has happened as of January 1, 2010. However, certain products are subject to partial liberalization under tariff rate quotas (TRQs), and some sensitive products remain excluded from any concessions.

South Africa is a member of the Southern African Development Community (SADC), an economic partnership. The other member countries are Angola, Botswana, Lesotho, Mozambique, Namibia, Swaziland and South Africa (Table 2-3). South Africa is of interest since it is located within the region of Sub-Saharan Africa where poverty remains to be the highest in the world. Economic growth and development is sometimes modeled after the success of EU integration and regional trading agreements are encouraged through the use of PTAs (Woolcock, 2007). Previous attempts at integration among regional Africa countries have occurred with mixed results. It has been a central matter for EU development policy and its preferential trading schemes with African partners, in the past and in current negotiations. The effects of integration with South African agriculture could have positive implications for neighboring countries.

Citrus exports are becoming a significant export crop for South Africa. The country has grown to the third-largest exporter worldwide, despite not even being in the top ten production regions (Food and Agriculture Organization of the United Nations, 2012). The EU imported 570,626 tons of lemons and limes from South African, on

average, from 2005 to 2009. This represents 27% of world trade in lemons and limes (Figure 2-2).

South African Lemon Exports

The majority of South African lemons are grown in the Eastern Cape. South Africa harvests lemons in the southern hemispheres' cooler months, between the end of February through mid-November. The varietals of lemons (and limes) produced are Eureka, Fino, Genoa, Limoneire, Libon, Verna (Ortmann, 2005). The varietal, Eureka accounts for 90% of the country lemon production. Overall fruit sales have achieved good prices over the last five years and many South African farmers are turning from Navel oranges in order cultivate lemons. Lemons are relatively insensitive to price changes with respect to other fresh fruits. However if the market was oversupplied this would change.

Argentina is a competitor of fresh South African lemons on the world market. However the Argentinean citrus sub-sectors has been fraught with late and lower volumes due to cold weather, droughts and strikes. Processed lemon juice and the rind oil is a key ingredient for Coca-Cola and Pepsi. More and more the lemons grown in Argentina have been being sent to that market (Fresh Fruit Portal, 2012). In anticipation of the 2012 lemon season, Exporter Core Fruit technical manager, Steve Turner from South Africa said the following quote.

We are fairly optimistic about the future of our lemons. South Africa has a good climate for lemons (Fresh Fruit Portal, 2012).

South African Lemon Market in the European Union

In this section we briefly described the EU market situation with respect fresh fruit and vegetable imports. The recent history of lemon imports was examined. Then, data, with respect to South African lemon import prices and quantities was presented.

Market Description for the European Union

The EU market for imports has 504 million consumers and is the largest single market in the world. Seven percent of the world's population lives within the EU border. About 40% of the population lives in urban areas covering about 9% of the EU land area. This factor is significant due to the logistical advantage of delivering consistent, year around, fresh produce to urban areas.

The GDP was \$16.24 billion in 2010. Due to the relatively high average income of the many of the Member States fruit and vegetable consumption is high and relatively consistent. According to a market survey by the Ministry of Foreign Affairs of the Netherlands, published in 2009, the EU market for fresh fruits and vegetables was 46 and 59 million tons, respectively, in 2007. The EU market demands a large variety of products however there are large differences in consumption patterns between the 27 Member States (Centre for the Promotion of Imports from Developing Countries, 2009).

Italy and Spain consumed 35% of the EU market in 2007 and are the largest fruit and vegetable producing states (Table 2-2). France, Germany, United Kingdom and Poland also have high consumption levels, but depend strongly on imports. Overall consumption is expected to grow in the intermediate future, due to growth in the markets of the new EU member states and the increased access to large marketing channels. The value of consumption will grow more than volume due to overall

increasing costs to produce and transport, and also the increase in demand of value added fresh fruit and vegetable products (Centre for the Promotion of Imports from Developing Countries, 2009).

Fresh Fruit Imports from Developing Countries

Imports from developing countries were substantial with a value of at €7.8 billion and a volume 10.6 million tons in 2007. Their market share is increasing. Developing countries have strong positions in bananas, pineapples, mangos, papayas, guavas, dates, passion fruit and avocados. In the off-season they supply citrus fruits, grapes, apples and pears. In 2007, developing countries had a 37% share of the total EU import value. The leading developing country exporters of fresh fruit to the EU are South Africa, Costa Rica, Ecuador, Chile and Colombia. South Africa is a major supplier, especially of off-season products: grapes, apples and citrus fruit. South American countries dominate the external EU import of tropical fruits (bananas and pineapples) (Centre for the Promotion of Imports from Developing Countries, 2009).

South African Lemon Imports

The price and quantity trade data from 2002 to 2011 was presented and described in this section that will provide the background necessary for the empirical analysis in Chapter 5 and Chapter 6. The EU statistical database shows no data available for lemon imports from South Africa before 2002.

South Africa lemon import quantity ranged from 25,000 tons in 2002 to the highest quantities imported in 2008 of nearly 65,000 tons (Figure 2-3). The imports are, on average, highest in the months of June, July, August and September with a mean quantity of 20% of the yearly total of quantity imported. This falls within the Period of 3,

4 and 5. These are the periods when the entry price is the highest. One major exception to this was in 2003 when 50% of the annual imports entered in December. Overall the quantity of South Africa imports has risen in the last five years.

The value of South African lemon imports has trended upwards from 2002 to 2011. The highest value of imports was in 2008 and the lowest was in 2002. The per unit value of lemons declined in 2011 from 2010 (Figure 2-3 and Figure 2-4).

Fruit and vegetable prices are normally highly variable. Lemons are no exception, as displayed in the average monthly price of lemons imports in Figure 2-5. The range of prices over the ten year period is 1328, which is so high due to several zero values. When considering each year's range the lowest is in 2002 and 2006. This is due to no monthly records of zero imports most likely due to weather changes that allowed South Africa's production of lemons to be available for export during the southern hemisphere southern months. From the EU price policy perspective the monthly imports will be more closely scrutinized in Chapter 5.

The period of increased volatility with respect to the price of lemons can be also viewed in Figure 2-5. From then end of 2007 to 2010, the price volatility was higher, when compared to the time period of 2002 to the middle of 2007. Again this is related to months in which zero imports are recorded. Figure 2-6 depicts the price per unit, in euros, on average for the five year period of 2007 to 2011, roughly the most volatile time period. The prices are the lowest in the months of January, February, and December, on average. The prices dip slightly in the middle of the South African lemon import season, during the months of June and July. These import prices are C.I.F. values collected from the Eurostat database.

Entry Price System Application to Lemons. In order to illustrate the EPS, South African lemon exports export into the European Union were applied to the graphic depicting the EPS (Figure 2-1). The trigger price is the EP which for Period 1 is 46.20 Euros. If the declared import value is equal to or more than 45.83 then the Common Customs Tariff (CCT) is 6.4% on 100 kilograms plus a specific tariff that increases the lower the declared import value (Table 2-4). In a hypothetical situation an exporter sold 100 kilograms of lemons in February to the EU market. The declared price is 43.45 per 100 kilograms. Then the CCT would be the import price multiplied by 6.4%, equaling 49.27 plus the specific tariff of 2.80, so the price paid is 51.67. If the price was 42 then the MTE would be applied and the wholesale price paid would be 70.33. In the latter situation the rents of the increased wholesale price go to the EU government budget in the form of customs duties while the exporter still receives a lower price.

Figure 2-7 exhibits the import season of South African lemon imports in 2010 with the highest month in July and virtually no imports during December. This has generally been the trend for the import season, with some exceptions as mentioned previously. This coincides with the southern hemisphere winter harvest months with normal weather patterns. Additionally it is opposite the harvest season of the lemon producing regions in the EU.

The season for lemon production falls nearly opposite of that of the EU, during the winter months. The majority of production is in the Member State of Italy and Spain with nearly 92% of total EU production of lemons (European Commission, 2012).

Chapter Conclusion

Chapter 2 provided the background information on the issues behind preferential market access to the EU with respect to the fruit and vegetable market. The history of PTA with the EU was reviewed with special consideration on the sensitive product protection. The main import instruments of the EPS and the seasonal tariff windows was presented and explained. The EU fruit and vegetable import policy was applied to South African lemon imports to exemplify the application of the import process. Then we presented a case study for South African lemon imports. We chose this product and country since South Africa is a beneficiary of EU's PTA, but have the constraints of sensitive product policy exceptions. Additionally the data is available to analyze the ex-post impacts of EU fruit and vegetable policy on South African lemon producers.

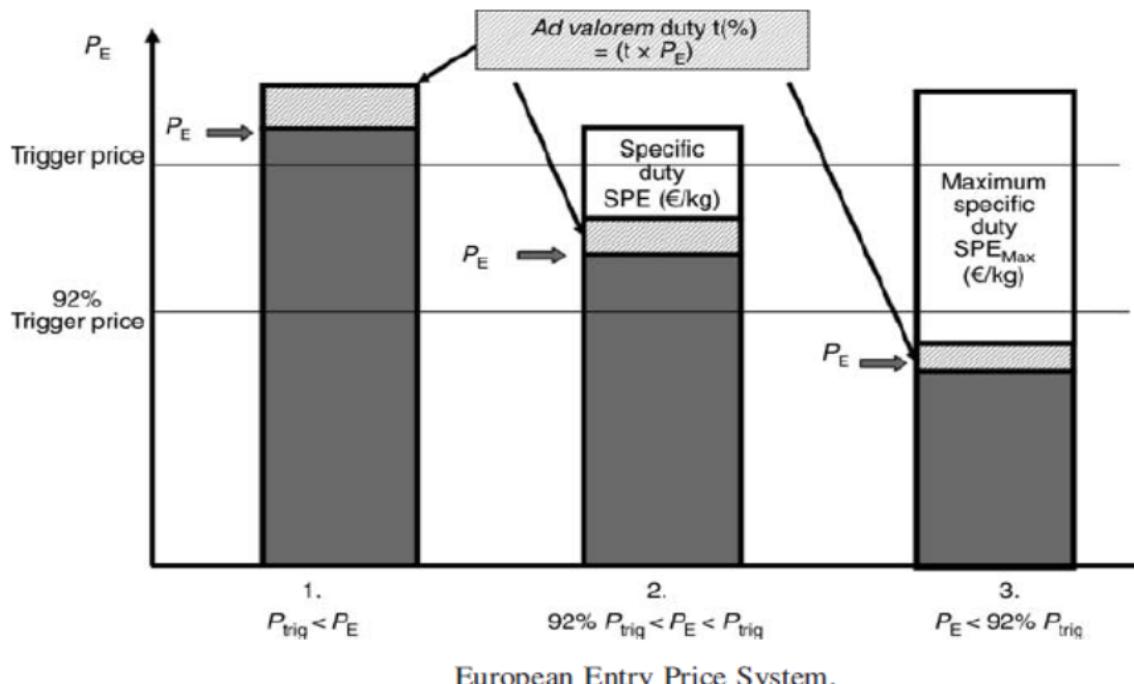


Figure 2-1. A graphic of the entry price system [reprinted by permission from Emlinger, Florence, & Chevassus Lozza. 2008. Tariffs and other trade costs; assessing obstacles to Mediterranean countries' access to EU-15 fruit and vegetable markets. 2008. (page 418, Figure 2) European Review of Agricultural Economics. Elsevier. Brussels.]

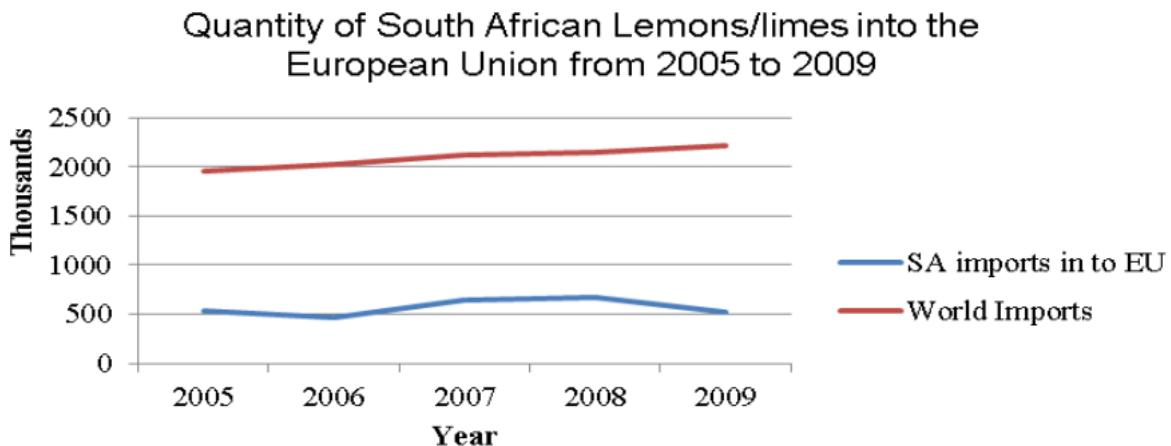


Figure 2-2. South African lemon imports compared to world lemon trade (Food and Agriculture Organization of the United Nations, 2012)

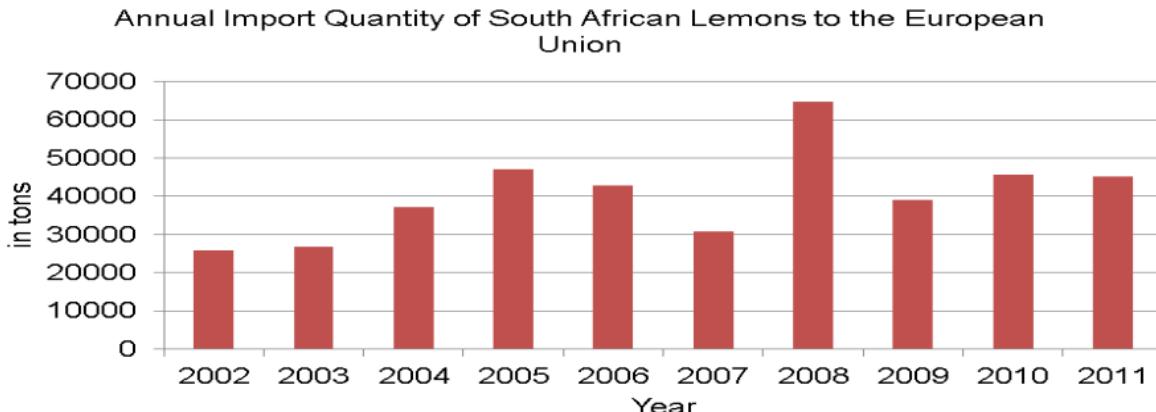


Figure 2-3. South African lemon imports into the European Union (European Commission, 2012)

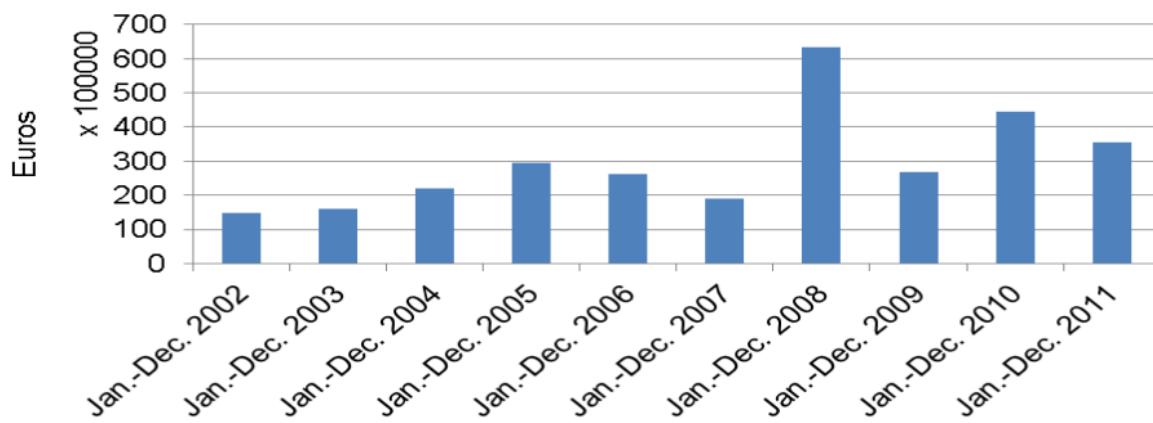


Figure 2-4. South African lemon imports, annual values (European Commission, 2012)

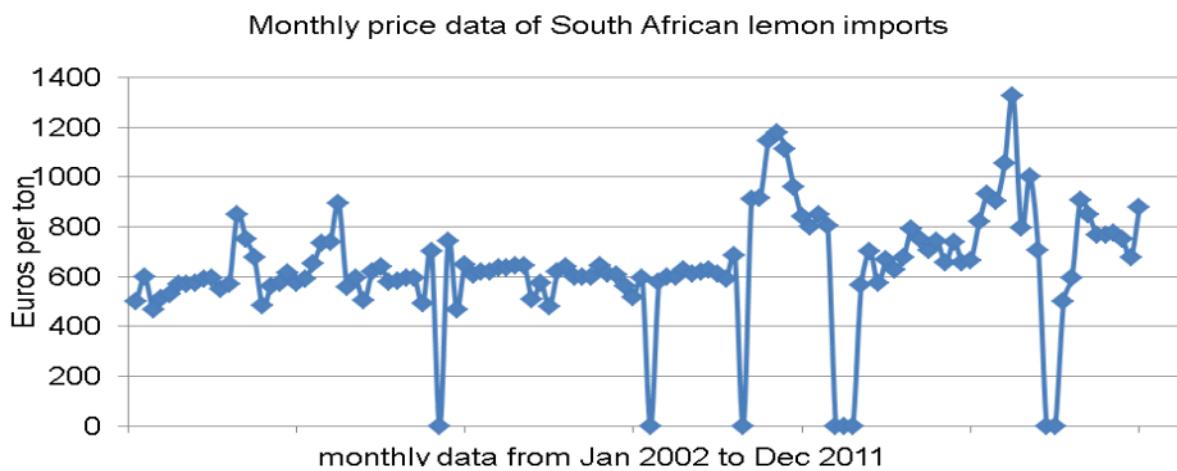


Figure 2-5. Monthly prices of South African lemon imports (European Commission, 2012)

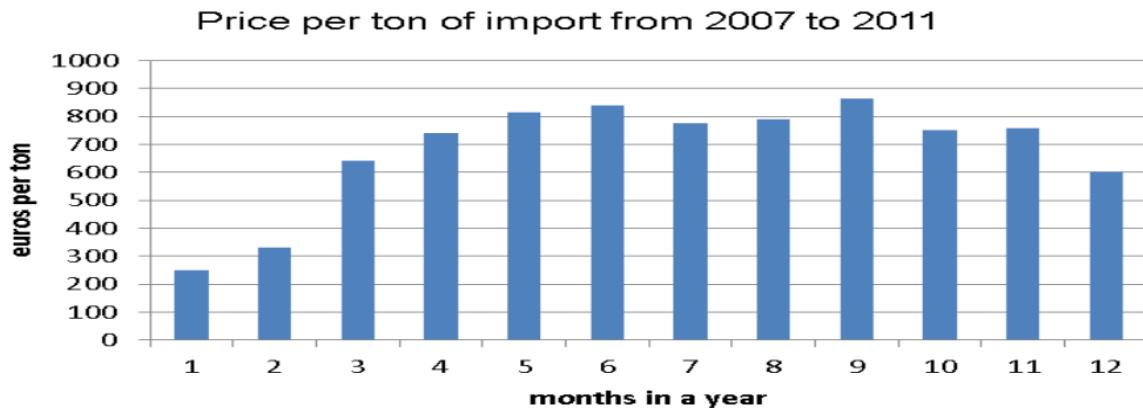


Figure 2-6. South African lemon imports seasonal variation (European Commission, 2012)

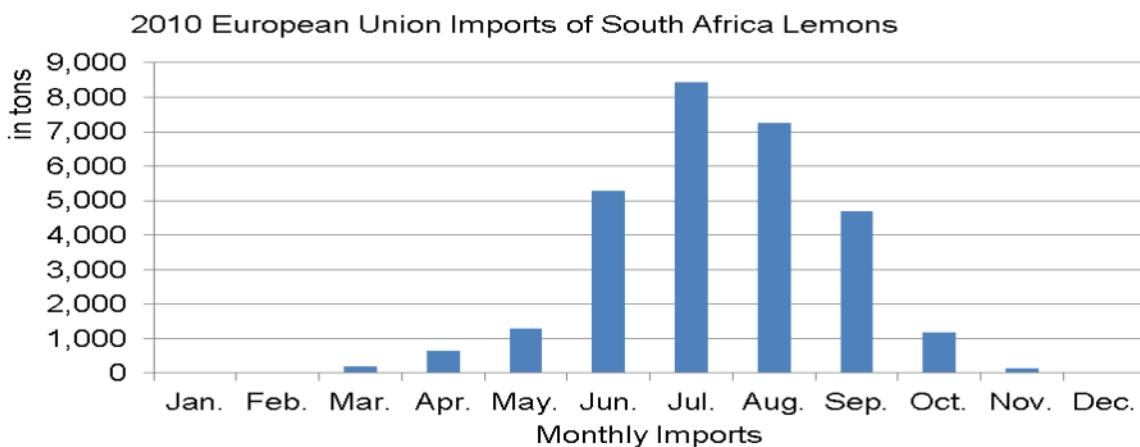


Figure 2-7. Lemon import quantity, on average, in 2010 (European Commission, 2012)

Table 2-1. Comparison of Documented Preferential Trade Agreements, European Union and United States

European Union and United States Preferential Trade Agreements				
	Type of Agreement		Beneficiaries	Entry Date
US	Generalized System of Preference		129	1976
	Least-developed beneficiary countries		43	
	African Growth and Opportunity Act		40	2000
	Andean Trade Preference Act		2	1991
	Caribbean Basin Economy Recovery Act		17	1984
	Former Trust Territory of the Pacific Island		4	1948
EU	Generalized System of Preference		176	1971
	GSP +		14	
	Everything but Arms (LCDs)		48	2001
	Trade Preferences for Countries of the Western Balkans		7	2000
	Trade Preferences for the Republic of Moldova		1	2008

[adapted from World Trade Organization. (2010, December 14). Transparency Mechanism for Preferential Trade Arrangements. Retrieved May 31, 2012, from World Trade Organization: www.ptadb.wto.org/docs/pta_transparency_pta_en.pdf.]

Table 2-2. Main producers of fruits and vegetable in the European Union

2007 percent share of EU fruit and vegetable producers (from total harvested production)					
Tomatoes Italy (40.1)	Carrots Spain (22.8)	Onions Poland (15.7)	Apples Poland (19.7)	Oranges Spain (48.1)	Pears Italy (32.0)
Spain (23.2)	United Kingdom (11.9)	Netherlands (18.2)	Italy (18.0)	Italy (35.1)	Spain (20.8)
Greece (9.8)	France (11.8)	Poland (11.7)	France (17.8)	Greece (12.8)	Belgium (9.5)
Portugal (6.3)	Italy (11.7)	Italy (7.5)	Germany (8.1)	Portugal (3.5)	France (8.3)
France (4.7)	Netherlands (10.2)	U.K. (7.4)	Spain (5.6)	Cyprus (0.4)	Netherlands (7.8)

[adapted from Camanzi, L; Malorigo, G; Garcia Azcarate, T. 2011. The role of Producer Organizations in supply concentration and marketing: a comparison between European Countries in the fruit and vegetable sector. 2011, (p. 3, Table 1). Food Products Pr., Binghamton.]

Table 2-3. The importance of agriculture in the Southern African Development Community region

Country	Life Expectancy (in years)	GNI per capita (in US\$)	Value added % of Agricultural to GDP	Rural population as a % of total population
Angola	51	4,060	10	42
Botswana	53	7,480	2	39
Lesotho	47	1,220	8	73
Mozambique	50	470	32	62
Namibia	62	4,700	7	62
South Africa	52	6,960	2	38
Swaziland	48	3,30	8	75

[adapted from The World Bank. 2007. World Development Report Agriculture for Development. 2007, (p. 26, Table 1). The International Bank for Reconstruction and Development, The World Bank. Washington, DC.]

Table 2-4. Basic elements of the Entry Price System

	MFN tariff (%)	MFN EP Level (€/t)	Period of application	Pref. EP Level (€/t)	Specific tariff as a % of MFN EP	MTE (€/t)
Apples	4.8-11.2	457-568 771-	01.01-31.12	-	41.9-52.1	238
Apricots	20	1071	01.06-31.07	-	21.2-29.4	227
Artichokes	10.4	654-826 916-	01.11-30.06	571	27.7-35.0	229
Cherries	12	1494	21.05-10.08	-	18.3-29.9	274
Clementines	16	649	01.11-28.02	484 413	16.3	106
				-		
Courgettes	12.8	413-692 481-	01.01-31.12	424	22.0-36.8	152
Cucumbers	12.8-16	1105	01.01-31.12	449	34.2-78.6	378
Lemons	6.4	462-558	01.01-31.12	-	45.9-55.4	256
Mandarins	16	286	01.11-28.02	-	37.1	106
Oranges	3.2-16	354	01.12-31.05	264	20.1	71
Peaches/ne ctarines	17.6	600-883	11.06-30.09	-	14.7-21.7	130
Pears	4-10.4	288-510	01.07-30.04	-	46.7-61.3	238
Plums	6.4-12	696	11.06-30.09	-	14.8	103
Table grapes	8-17.6	476-546 526-	21.07-20.11	-	17.6-20.2	96
Tomatoes	8.8-14.4	1126	01.01-31.12	461	26.5-56.7	298

[Reprinted with permission by Groetz and Grethe, The EU entry price system of fresh fruits and vegetables- Paper tiger or powerful market barrier? 2009. Food Policy. Elsevier. Brussels.]

Table 2-5. The fruit and vegetable import situation for the European Union

Main non-EU fruit and vegetable suppliers to the EU (25), average 2004-2006			
	Exports to European market (millions \$)	Share of the European market (%)	Percentage exports of fruit and vegetables to the EU by the countries concerned (%)
Developing countries	599	5.2	48
Southern hemisphere countries	2,300	19.9	39
USA	1,740	15.1	21
China	503	4.4	13
ROW	3,555	30.8	29
Mediterranean countries	2,860	24.7	55
Turkey	1,570	13.6	57
Morocco	507	4.4	73
Israel	489	4.2	78
Egypt	158	1.4	48
Tunisia	103	0.9	77
Algeria	16	0.1	77
Syria	9	0.1	2
Jordan	8	0.1	3
Lebanon	2	0	3
Total	11,559	100	

[adapted from Emlinger, Florence, & Chevassus Lozza. 2008. Tariffs and other trade costs; assessing obstacles to Mediterranean countries' access to EU-15 fruit and vegetable markets. 2008. (page 422, Figure 4) European Review of Agricultural Economics. Elsevier. Brussels.]

Table 2-6. The seasonal tariff schedule for 2010 South African lemon exports

Lemons: EU Import Schedule (CN code: 0805501010)		
Seasonal Periods	Entry Price Range (euros)	MFN tariff % + Specific Tariff (per 100/kg) Range
Period 1	46.20 – 42.50	6.4 + 0 - 25.6
Period 2	46.20 – 38.80	6.4 + 0 - 25.6
Period 3	55.80 - 46.90	6.4 + 0 - 25.6
Period 4	55.80 – 48.00	6.4 + 0 - 25.6
Period 5	55.80 – 51.30	6.4 + 0 - 25.6
Period 6	42.60 – 42.50	6.4 + 0 - 25.6

[European Commission. (2006, June). The CAP and International Trade Negotiations.

Retrieved May 29, 2012, from EU trade documents:

http://trade.ec.europa.eu/doclib/docs/2006/june/tradoc_129092.pdf]

CHAPTER 3 LITERATURE REVIEW

This chapter reviews the literature on trading issues between the European Union (EU) and the rest of the world with respect to the fruit and vegetable sector. First, the former import regime is discussed in light of a paper written shortly after the Uruguay Round Agreement Acts (URAA). In this paper, the Reference Price System (RPS) and the Entry Price System (EPS) are compared. Next, the effects of the EPS are discussed from the viewpoint of empirical estimates performed on three significant products, apples, oranges and tomatoes. Several studies testing the impacts of preferential trading arrangements and the different methods employed follow. Finally, in light of the on-going Doha Round, the issues of preference erosion and trade diversion and creation are briefly reviewed.

Reference Price System

In order to understand the EPS one must understand the RPS, the EU's former import regime. The RPS sets the reference price for most fruits and vegetables produced in the EU. The RPS was intended to protect and enhance the domestic sector. From 1986 to 1988, the EU's support for the fruit and vegetable sector enhanced domestic production by 42% (Swinbank & Ritson, 1995).

The “market price support” for the fruit and vegetable sector was not determined on the basis of government expenditure for withdrawals and other support measures. Rather, the “market price support” was determined by the difference between an ‘external price’ and an ‘applied administrative price’, multiplied by the volume of production ‘eligible to receive the applied administrative price’. The ‘external price’ is a proxy for the world price. The EU ‘applied administrative price’ (or domestic price), as a

percentage of the ‘external’ price, is reported as the price gap. For example, in the data exhibited in the article for years 1986 to 1988 the domestic price of lemons was set at 205.6% above the external price, which was second highest to pears at 208.8% of the external price. The lowest recorded domestic price was 121.7% above the external price for plums and peaches.

The European Council was responsible for establishing the rules for the RPS. Additionally they determined product coverage and fixed the reference prices each year for 19 products. The reference prices were determined by taking the arithmetic mean of the Member States’ producer prices, and then adding an allowance for transportation between production and consumption areas.

The reference prices fluctuated according to the production calendar of each product, with the lowest levels at the peak of the harvest season, and higher reference prices protecting EU growers during the off-season and at the beginning and end of marketing periods.

Each EU Member State monitored the price of imports from each country of origin and reported this to the European Commission. The wholesale market prices were monitored in order to maintain the desired price levels. When a country supplied a significant amount of produce at a low price, so-called “countervailing charges” were applied to the supplying country. The countervailing duty was charged when the price, as calculated by the import price less the customs duty, was more than 6% less than the reference price, per 100 kilograms. If this was the case for more than two successive days or three times in five days, the country was charged a countervailing duty equal to the difference in the reference price and the import price.

The RPS provided incentives for supplying countries to sell their EU bound exports at the reference price. The incentives were created so that supplying countries could avoid countervailing duties when selling their EU-bound products. Countervailing charges, once incurred, usually did not last long, as they forced the exporting country to withdraw some or all of the “offending” product from the market.

Swinbank and Ritson (1993) conducted a study that provided a record of the application of these countervailing duties between 1988 and 1994. They found that when patterns of charges reached prohibitive rates, the EU country stopped importing. They also recorded the number of times countervailing charges were introduced in each country and for each protected product.

Three noteworthy findings relevant to this paper came from this study. The first finding pertained to countervailing charges. The study revealed that countervailing charges increased significantly during that period. Specifically, 500 countervailing charges occurred in that period.

The second finding was that lemons received the most countervailing duties with 159 charges. This means that lemons had become the product to which reference prices were having the most protective effect. Over 50% of the countervailing charges were to Turkey and Argentina; South Africa received two countervailing charges.

The third finding was that Spain incurred over one-third of the countervailing charges on 50% of its products exported to the European Community countries. Although Spain joined the EU in 1986, it was not until the common market was implemented that Spain got free access to the other Member States. This took place for fresh fruits and vegetables in 1993.

The RPS benefited and protected well-organized exporting nations. Morocco's citrus exports were then channeled through a state marketing organization that was very good at avoiding countervailing charges (Swinbank & Ritson, 1995).

The EPS changed duties that were applied to consignments and eliminated a few products from the minimum price requirement (cabbage, lettuce, chicory, eggplant). The duties applied to consignments led to the creation of the standard import value (SIV). The SIV was used to gauge the customs duty charge. The maximum countervailing charge is now specified in the tariff schedules. It is called the maximum tariff equivalent (MTE).

Swinbank and Ritson questioned the compatibility of the EPS with some of the binding commitments of the URAA (specifically, the tariffication requirements). Moreover, the EPS may bring greater pricing freedom to the EU's preferential access partners, such as the Southern and Eastern Mediterranean countries (EURO-MED) countries. Swinback and Ritson predicted that the impact and relevance of the import scheme, EPS, would be highly dependent on product type and country of origin.

The Effects of the Entry Price System

Cioffi and dell'Aquila (2004) analyzed the effects of the EPS on the three most important fruits and vegetables (apples, oranges and tomatoes) with regard to top importing countries in the EU. These three particular products were selected since they directly compete with EU production. Due to the lack of data on the actual duties paid on daily imports they examined the distribution of the SIV with respect to the marketing season and the application of the MTE.

In order to carry out the analysis they examined the SIV data from the first day of the new import regime from 1995 to 2000. They examined (a) how many times the SIV was lower than the entry price, and (b) how many times the entry price was lower than 92% of the SIV, which is the price that triggers the MTE. They found that, just after the EPS began, there were relatively few days in which the SIV was lower than the entry price. Then they plotted the data in monthly distributions and compared it to the EU marketing year of the product. The distribution showed that the SIV for apples was below EP during the fall season when apple imports from the southern hemisphere had ended (coinciding with the apple harvest in the EU).

The flow of orange imports changed with the implementation of the EPS. The import of oranges from Morocco and Israel decreased while the imports of oranges from South Africa and Brazil had steadily increased. Cioffi and dell'Aquila found that the opportunity to sell oranges at low tariffs in the EU existed during times in which southern hemisphere countries harvested oranges, thus displacing previous exports of EU members Spain and Italy.

They also found that the EPS has not opened market access to more trade in fruits and vegetables. Imports consisted of high quality produce that priced higher than the entry price (EP) in order to avoid prohibitive tariffs. The EPS, compared to the RPS, had not increased the opportunity for new trade partners (particularly developing countries) to sell fruits and vegetables on the EU market (Cioffi & dell'Aquila, 2004).

The key literature for the first objective of this thesis provided an indicator that is applied to our dataset in Chapters 5 and 6. This indicator follows the previous article (Cioffi & dell'Aquila, 2004) but takes it one step further in determining the effectiveness

of the EPS using available price data over time (Goetz & Grethe, 2009). This study comprehensively analyzes the effectiveness of the EPS for all the major products and countries of origin impacted by the EU's fruit and vegetable regime.

Goetz and Grethe sought to answer the central question; does the EPS influence EU import prices? They used disaggregated fruit and vegetable data from the 15 EPS protected products for all the major exporting countries. They used 60,000 observations based on 81 countries of origin, using the SIV collected for the time period of 1995 to 2005. This is the period in which the RPS ended and the EPS began.

The authors used a cluster analysis methodology to group the products most relevant to the impact of the EPS. The first part of their analysis used the GAP indicator which determines the relative difference between the SIV and the entry price and identifies those products are most affected. The GAP indicator follows:

$$GAP_{ijt} = \frac{(SIV_{ijt} - EP_{ijt})}{EP_{ijt}}$$

In order to illustrate EPS relevance and non-relevance the authors used two examples. They graphed two histograms of the results of the GAP indicator for Moroccan oranges and Moroccan tomatoes. This showed the difference between a product and country of origin that is not affected by the EPS (oranges) and one that was impacted by the EPS (tomatoes).

The authors pointed out the accumulation of values around the EP, as importers sought to pay the lowest ad-valorem tariff value without the specific tariff addition. These GAP values are positive but are less than 0.05-quantile. The 0.05 quantile is 0.03 for tomatoes compared with 0.31 for oranges, or the smallest 5% of observations

of a positive GAP value is 3% for tomatoes and 31% for oranges. This suggests that the EPS is much more effective for tomatoes than oranges. In order to account for the concentration of values around the EP they developed a second indicator. The second indicator determines the degree of concentration of observations with GAP that cluster around the EP. Since the variance of the different products and countries of origin are not comparable they standardized the 0.05 quantile by the standard deviation. They also weighted the large values by taking the logarithms. The second indicator follows:

$$Q_{0.05}^* = \ln\left(\frac{Q_{0.05}}{sd(GAP)}\right)$$

In order to graphically depict the two variables in a cluster analysis, the results were ranked. Four categories comprised the derived indicators creating two variables to test. The four categories were scaled from most relevant to having the least relevance on the effects of the EPS. The variables were graphed as follows: $Q_{0.05}^*$ on the x-axis and negative GAP values on the y-axis. Cluster 1 was determined to have the highest relevance with respect to the EPS for the products surveyed. The products traded with the most price effects from the EPS trade instrument in the study, on average, were plums, lemons, and tomatoes. Cluster 2 was considered relevant, cluster three less relevant and cluster four with least relevance.

The authors found that the greatest effects of the EPS were felt by the EU's southern neighbors with the exception of China and South Africa. The researchers found the price of plums varied widely, in the EU, due to production practices. Plums are segmented into a high quality product and low quality product. This was determined to be the explanation for the indicators falling within Cluster 1.

The products determined to be most affected by the EPS, within the surveyed products, countries and time period, were countries that neighbor the EU. The exception to this is China and South Africa. Lemon imports from Argentina, South Africa, Turkey, Uruguay, and Zimbabwe were all congregated in Cluster 2. We considered tomatoes and lemons for our economic analysis. However, within the available body of literature more work has been applied to the tomato market than the lemon market. In order to fill the literature gap this research focuses on lemons.

In formulating the decision to apply the analysis to South African lemons we also considered the major competition of EU lemon imports, Argentina and Turkey. In recent years Argentina's fresh lemon market has declined in value and quantity of lemons exported to the EU. Argentina has been selling lemons for processed market. Turkey now has a free trade agreement with the EU which has given them preferential access under the sensitive product scheme. Uruguay and Zimbabwe are also eligible countries for the PTAs extended by the EU, but the data was not as complete as it was for South African lemons.

Preferential Trade Impact Studies

Three methodologies are employed for estimating the impacts of the agricultural trade preferences. Those methodologies are a) Computable General Equilibrium b) Partial Equilibrium, and (c) Gravity Models.

An ambitious study by van der Mensbrugghe and Beghin (2004) estimated the global impact from removing trade and support policies, using the LINKAGE model. The LINKAGE model is a dynamic general equilibrium model. Their findings were that the world gain from removal of all trade barriers/price supports would be approximately

\$385 billion. The most significant welfare gains were in the agricultural and food sector (70%). Developing countries gained more in initial income, with the largest share going to the agricultural sector- where poverty tends to be concentrated.

Another trade model was developed by Garcia-Alvarez-Coque, Gomez, and Villanueva, (2007), for testing different policy scenarios affecting the EPS and the impacts of specific instruments on trade. This static partial equilibrium model considered imports as imperfect substitutes under the non-linear Armington assumption. It was applied to the EU-25 tomato market with specific attention to the Euro-Med trading partners under five different possible scenarios. The outcomes of the modeling efforts were criticized by the authors as being “exercise simulations” due to the inability to generalize the modeling to the real situation. The difficulty was in modeling product differentiation and the seasonality of fruit and vegetable products- especially given the complex instruments that vary across EU trading partners. The instruments vary within each time period, and at the daily dependence on the import tariff on the politically designated SIV. At any rate, the authors determined that the worst case scenario for EU producers was total removal of the EPS. They determined that domestic tomato supply could be reduced by 20% within this scenario. The overall message from this analysis was that the EPS has the potential to distort the world market.

The Gravity Model, which was pioneered by Tinbergen (1962), was used to predict and describe trade diversion and trade creation effects in many previous literatures with respect to trade impacts. The gravity model gets its name from Isaac Newton’s formula for gravitational attraction between two masses. This model has been crucial to the studying of trade flows and related issues in international economics. The

gravity model reflects trade flows to country characteristics and contrasts them with the costs involved in trading transactions. Country characteristics (population size and distance as it relates to the costs incurred) are used to explain the interaction of flow between origin and destination.

Criticisms of the empirical implementation of the gravity model lay in the strong assumptions imposed on the trade costs between origin and destination. It is common to assume that trade costs are a function of distance, shared border, language, and colonial relationships, and these variables share a symmetric relationship with one another. This can lead to biased results, especially with the modernization of transport and logistics.

Skripnichenko, Beladi and Koo (2004) studied the overall and general effect of PTAs on agricultural trade and agricultural income by using a two part gravity equation approach. They ask the question, are preferential trade arrangements an effective tool for stimulating agricultural income, given the overall protected status of agriculture?

First, they measured the effects of PTAs on agricultural trade. In the equation, they employed a large sample of cross-sectional import data along with various economic, geographic and demographic variables into the gravity equation in order to measure the effects of PTAs on agricultural trade. They used the gravity model developed by Frankel and Romer (1999).

Next, they estimate the income effects of PTAs on agricultural trade. The equation regresses agricultural income on agricultural trade variables in order to determine the relationship between the two. Then they measured the effects of trade

creation and trade diversion using the dummy variable to see if membership in a PTA, in excess of the trade predicted from the gravity model, takes place or is diminished.

In conclusion this study determined that preferential trading arrangements have a positive trade effect with the exception of the North American Free Trade Agreement (NAFTA). The trade creating effect was not found to be statistically significant for the Andean trade agreement, the EU and NAFTA. Trade diversion effects were statistically significant and negative for the Andean agreement and NAFTA. The overall effect of trade diversion was positive which indicated that agricultural trade with non-member countries does not deter agricultural trade with member countries. The authors attribute this to the non-substitutability between the traded products. PTAs may also create a demand for products from non-member countries by increasing purchasing power, thus increasing income.

The study is relevant for this research because it responds to some of the criticisms of PTAs that claim that the preferences do not increase trade or impact income. Moreover the insignificance of EU's trade creation gave us a reason to further investigate the trade situation between the EU and South Africa using the example of lemon imports.

Preference Erosion

The outcome of the URAA on agricultural trade in 1994 spurred a number of studies that attempted to estimate the likely impact on the world economy and commodity markets.

Yamazaki (1996) asked the question; to what extent is the Uruguay Round likely to reduce the benefits accruing to developing countries as a result of preferential trade

in agricultural products? He calculated the difference between the MFN rate and the preferential rate and multiplied it by the world price and the import volume for all agricultural commodity exports from developing countries eligible for trade preferences in the EU, US and Japan. He estimated the potential value of trade preferences at \$1.9 billion in 1992 with one-third going to Africa, 40% to Latin America and the Caribbean and the rest to East Asia and the Oceania region. The preference erosion was estimated at \$0.7 billion after the reduction in the MFN accorded by the URAA.

Preference utilization is one of the main criticisms of this study. A country may be granted preferences but there are a number of reasons (do not produce or export the product, country of origin requirements, Sanitary and Phytosanitary (SPS) or other non-tariff barriers) why they are not utilized. Utilization rates are still a problem with quantifying the impact of PTAs on developing countries. The data are not always available for declaring the price and quantity of preferential imports for the specific agreements. However, this study was careful not to double count the countries that were beneficiaries of multiple PTAs which at the time contributed to the literature.

Intensive and Extensive Margins

According to the literature there are two ways in which the GSP can foster export growth from developing countries: a) by expanding the existing products depth of tariff reduction (the intensive margin) and b) through diversifying into new products (the extensive margin). The impact of the preference depends on the country's export goods and competition of domestic and exporting suppliers to the EU. One study, which hypothetically removed all EU duties on imports from all GSP products entering the EU, found large gains in welfare for some exporting countries but not for those

exporting countries that were most in need, i.e., some poor African regions lose, most notably the Everything But Arms (EBA) beneficiaries (Gasiorek, 2010). This clearly exemplified preference erosion.

The problem of preference erosion is one that is being discussed by the WTO members especially in light of the ongoing Doha Round. In Goetz and Grethe (2009) cluster analysis, as previously mentioned, the main purpose was to understand the product and country of origin most affected by the EPS. They did so by measuring the intensive margins of the products considered. The intensive margin was measured as the difference between SIV and the entry price.

Trade Creation and Trade Diversion

Fundamental work on regional trading patterns dates back to Viner's (1950). Viner introduced the analysis of trade creation and trade diversion within a traditional static welfare approach. Welfare changes were tracked, for example, when a preference is provided to a developing country the changes in trade come at the expense of another country.

Trade creation occurs when imports increase from a member country to replace domestic production that, prior to the trading arrangement, was being produced domestically at relatively higher costs than could be imported from a more efficient country. Trade diversion occurs when a change in the trading situation displaces imports coming from a low cost region, to imports coming from another region that is producing at a higher cost, due to the provided preference. Trade diversion is one of the main criticisms of the formation of PTAs, especially in the case of the high number of preferential trading agreements provided by the EU.

Cipollina and Salvatici (2010) assessed determinants of bilateral trade flows at the sectoral level. They provided a micro-level assessment of the impact of trade preferences on extensive and intensive margins using highly disaggregated data. They found that developing country agricultural exports encompassed a wide range of products, 87% of total number of agricultural imports possible into the EU. Fruits and vegetables made up the largest share of preferential imports (48%), which are roughly divided equally by preferential duty free and preferential duty. The remaining 52% entered the EU at either the MFN duty free (one-third) or under normal MFN tariffs. The largest share of imports is fruits and vegetables (27%) and tropical products (17%). However, the respective relative preferential factors are among the lowest (Cipollina & Salvatici, 2010).

Chapter Conclusion

The literature on fruit and vegetable trade with the EU is growing quickly as more studies are interested in determining the effects of PTAs in the sector. The gravity model has been the workhorse of previous studies, but now transportation costs may be less associated with distance due to globalization effects. Equilibrium models may capture income and efficiency changes but the supply and demand functions must be carefully specified to mimic the situation being researched.

The use of a welfare analysis for lemons from South Africa contributes to the literature by providing a test of traditional theories to the complex trading situation that has become cluttered with actors and policies.

CHAPTER 4

THEORETICAL CONSIDERATIONS OF TRADE

Exchange or trade has existed since the beginning of time and is the core focus of classical economic theory. Classical economics states that a product's value consists of the cost of materials plus the cost of labor, which factor into the price. Adam Smith (1776) explained the effects of the division of labor on the wealth of nations, linking economic development with the role of trade. This was carried forward with Ricardo's theory of comparative advantage and its effect on labor as the primary (and perhaps *only* real) factor of production (Ricardo, 1817).

Neoclassical Trade Theory

Neoclassical trade theory updated Ricardo's theory to include additional factors of production. Neo-classical theories of international trade are used to predict or describe the patterns of trade around the world and the consequences of applying policies that are derived from them. Consumers, interested in maximizing utility, and profit-maximizing firms come together in a market which is modeled using supply and demand functions.

This section reviews international trade theory from the neoclassical perspective. International trade theory was modeled using supply and demand in a simple market model. The aim was to demonstrate the changes in welfare and efficiency from an equilibrium situation in case of no government intervention, so-called free trade, to welfare and efficiency under protectionist policy. Typically, this model uses trade between a large importing country and a small exporting country to display the welfare changes most clearly. The large country was depicted in models showing its potential influence on price (the "large country effect"). A preferential import tariff was then

introduced with the large importing country characterized as the donor and the small country exporter seen as the beneficiary. The theoretical impact on producer and consumer surplus and price between the two countries was then analyzed.

Traditional neoclassical economic assumptions were applied to comparative static partial equilibrium trade models. These assumptions state that economic agents such as producers, consumers and government act rationally with perfect knowledge under the law of diminishing returns, and with equality in goods and sales within a perfectly competitive market. Additionally, transaction costs are assumed to lie within the price of goods.

International Trade and Comparative Advantage

There are, in general, two diverging viewpoints on trade. One focuses almost exclusively on the benefits of international exchange under a free trade regime. The other focuses on the costs to domestic producers from foreign competition, and thus calls for implementing protective measures.

Free trade advocates maintain that gains attainable from open markets are maximized when trading nations utilize their comparative advantages. This is the most efficient use of world resources. Comparative advantage is when it costs one country (say, B) less, compared to another country (A), to produce a product. If country B is a more efficient producer and therefore has comparative advantage, it should specialize in producing product X and export X to country A. Free trade theory states the net benefit is higher because world output is maximized with the most efficient use of its production factors of land, labor, capital, human capital and technology.

Labor is the factor of production that is most available in developing countries. Fruits and vegetables require a labor intensive production process. Following the comparative advantage theory, developed countries should utilize other factors of production, such as human capital or technology, and import products that have a lower production cost, such as fruits and vegetables. For overall world welfare, free trade will maximize output with the most efficient use of resources, warranting the highest net benefits or gains from trade.

In contrast to the free trade view is belief that foreign competition will destroy domestic sectors by flooding the market with goods from low cost competitors. Agriculture is the sector most at risk in this view. Agriculture is traditionally a protected market due the importance of food production, price volatility and the historical or cultural significance of farming. This historically has justified a relatively higher use of government intervention compared to other sectors. The use of agricultural subsidies and border interventions, such as import tariffs, has the effect of raising domestic prices relative the world price. The greater the protective rate that is applied to a product or sector, the greater the distance the domestic price is from world price, hence the more market distortion (Jechlitschke, Kirschke, & Schwarz, 2007).

Welfare Economics

Applied welfare economics was used to measure the changes in well-being of relevant groups as a result of policy change. According to welfare economic theory, the well-being of two groups, consumers and producers, can be quantified in economic terms by using monetary units as indicators of well-being. The concepts of consumer and producer surplus are broadly used for policy purposes since decision makers must

often choose between reallocation of resources between these two groups (Schmitz, Moss, Schmitz, & Schmitz, 2010). The consumer and producer group's gains and losses from a policy change are measured through the changes in a government's budget. The necessary price and quantity data is usually available to perform empirical estimations of producers' and consumers' gains or losses due to a policy change.

Comparative Static Partial Equilibrium Analysis

Comparative static partial equilibrium analysis was used to model supply, demand and trade. The comparative nature of this type of trade model focuses the market in one state and the changes induced by changing one variable. The variable we changed to illustrate the effects of trade policies was price. The market model is said to be in static equilibrium because the values of the endogenous variables do not change. They would change if the model was disturbed, i.e. through an expansion of supply, demand or a shift of the production possibilities curve.

International Trade Market Model

The intention of the first market model (Figure 4-1) was to show the world market in equilibrium. This was our starting point for the next two models and depicts the welfare distribution and price in a world trade situation. The large country (Home) was a net importer and the small country (Foreign) was a net exporter.

The market model Figure 4-1 assumed that the large country was the only demander in the world market and the small country the only suppliers of product X in the world market. This is demonstrated in two ways in the model. First, the quantity exported by the small country equals the quantity imported by the large country. Second, the price of exported good on the world market is the minimum supply price.

This means the cost to produce is lower in the small country compared to the large country. In a trading situation the small country has a comparative advantage because it gives up less resources to produce X, compared to the large country.

Producer revenue in the respective countries provides an indication of the difference in cost to produce. Revenue equals price supplied multiplied by quantity demanded. In our model producer revenue was much smaller in the exporting country (Foreign) thus represents the differences in income between producers in a developing country compared to that of a large developed country. However, consumers spend less in the small country to acquire the goods. Consumer expenditure is defined as the domestic price (or world price in the world market) multiplied by the quantity demanded.

Trade necessitates the exchange of different currencies which leads to foreign monetary changes. The results of foreign exchange may be a net gain or loss, depending on the currency values during the transaction period, the price policies applied to the trading situation. In Figure 4-1 foreign exchange in the importing country would be the negative because they are sending money to the small country. The foreign exchange value is defined by the quantity imported multiplied by the world price. This is the area q_m up to p_w .

When the market is in equilibrium it is most efficient in terms of resource allocation. However the income distribution of an efficient market may not meet the objectives of the decision makers. Policies that aim to meet specific objectives, such as agricultural policies favoring the farm sector, redistribute income between producers and consumers, creating inefficiencies in the market. The implementation of a price policy can be understood in the market model Figure 4-2. In this market model the

world price was lower than the intervention price and the rents are re-distributed among the producers, consumers and government.

Import Tariff Market Model

The second market model demonstrates the impact of a protectionist price policy, as depicted in Figure 4- 2. Here the changes in welfare can be seen in the difference between world price, p_w and domestic price, p .

Under free trade the quantity imported at the world price in the importing (Country Considered) was equal to:

$$q^d(p^w) - q^s(p^w)$$

The impact of protectionism policy of the importing country changes the quantity imported at the domestic price as follows:

$$q^d(p) - q^s(p)$$

Assuming the actors in this market model act alone (no other buyers or sellers), the world market excess supply and import demand are in equilibrium. Therefore, import demand (IM) equals the difference of quantity supplied at the domestic price "p" and the quantity demanded at "p", in the importing country, as if assuming free trade.

$$Q^{ex} = Q^{im} = q^d(p) - q^s(p)$$

Applying the assumption that IM and ES are in equilibrium and the effect of the protection policy the world price decreased to p_w' .

At this price the quantity demanded on the world market falls to q^s . The world market price differentiates further from the domestic price the more inelastic the demand and supply are in the respective markets.

Preferential Trade Theory

Preferential trade theory simple indicates that preferential access to markets is granted, compared to other trading countries. In theory this leads to higher levels of imports from the beneficiary country with the preference, stimulating their economy by increased imports, thus production. The core mechanism stems from the transfer of rent from the developed country's government budget to the developing country in the form of producer rents.

Preferential trade theory is based on the notion that countries will develop better and/or more industries, leading to increased productivity, competitiveness and possibly a diversification of exports which may stabilize the economy. Foreign investment may be encouraged by the integration of developed and developing economies. Preferential access from the development perspective as a poverty reduction tool, theoretically leads to an increase in exports from the developing country with which the export income will stimulate economic growth thus stimulating purchasing power. Purchasing power will then lead to increased imports, investment and productivity in the developing country. Therefore growth rates will impact various dimensions of development, Gross Domestic Product (GDP) expansion per capita thus reducing poverty.

Preferential Trade Market Model

The final market model demonstrates the effect of preferential market access in the form of a tariff on the large and small trading regions (Figure 4-3). The preferential tariff here was assumed zero duty tariffs, such as those granted to the poorest countries in the world. This figure shows the tariff preference as the red line. The area above red line and between p and p_w are the exchange of rent between the beneficiary and donor

countries, due to the tariff reduction. The model shows the amount of rent that can be calculated using price and quantity data. Here we proved that we can empirically estimate the rent transfer among producer and consumer groups. The exchange of rent comes from the EU government budget to the exporting producer group.

In order to estimate the welfare change the welfare equations were defined. The total benefit (TB), costs (C) and foreign exchange (FE) equations follow:

$$TB(p^d) = \int_0^{q^d(p^d)} \tilde{p}^d(v) dv$$

$$C(p^s) = \int_0^{q^s(p^s)} \tilde{p}^s(v) dv$$

$$FE(p^d, p^w) = (q^s(p^s) - q^d(p^d))p^w$$

Applying the equations to any of our market models we described the area in which the variables were identified. Total benefit as the area under the demand curve up to $q^d(p^d)$. Cost as the area under the supply curve up to the quantity supplied as a function of price supplied. Foreign exchange as the area under world price and between $q^s(p^s)$ and $q^d(p^d)$. Foreign exchange can be positive or negative depending on export revenues or import expenditure. Foreign exchange revenues from trade can increase welfare in the case of exports, since the exports generate more money to buy foreign goods. Import expenditure decreases the ability of the market to buy more foreign goods, decreasing welfare.

Welfare distribution in a free trade situation:

$$W = \sum TB - \sum C$$

Welfare distribution with an import tariff, the domestic price at p^d :

$$W = \sum TB - \sum C + \sum FE$$

Welfare can also be considered as the distribution of income in the form of gains and losses of consumers, producers and taxpayers. In this case the welfare function was defined as:

$$W(p, p^w) = CS(p) + PS(p) + B(p, p^w)$$

Consumer surplus was described by Alfred Marshal (1920) as the “excess of the price which (the consumer) would be willing to pay rather than to go without the (good), over that which he actually does pay”. Consumer surplus (CS) is the difference between the willingness to pay (or total benefit) and the consumer expenditure.

Consumer surplus:

$$CS(p^d) = \int_0^{q^d(p^d)} \tilde{p}^d(v) dv - q^d(p^d)p$$

Consumer Expenditure:

$$E(p^d) = q^d(p^d) * p^d$$

Producer surplus evolves from cost theory and the associated cost breakdown:

$$PS(p^s) = q^s(p^s)p^s - \int_0^{q^s(p^s)} \tilde{p}^d(v) dv$$

Government budget:

$$B(p^s, p^d, p^w) = q^d(p^d)(p^d - p^w) - q^s(p^s)(p^s - p^w)$$

Foreign Exchange:

$$FE(p^d, p^w) = (q^s(p^s) - q^d(p^d))p^w$$

Revenue:

$$R(p^s) = q^s(p^s) * p^s$$

Government intervention equations were considered for the import tariff instrument, protection rate (r):

$$p = (1+r) p^w$$

Limitations in Welfare Economics

The assumptions necessary for applied welfare economics may be far reaching with regards to developing country markets. The general assumptions may not apply perfectly to developing countries markets and scenarios, the weakness of altering only one variable while others are constant and the reality of producer revenue changes impacting producer groups. Finally rent-seeking is considered in the context of agricultural policy and the difficulty in applying the data to consumer benefits. These limitations are presented in this section.

Markets in developing countries may operate with imperfect knowledge (or lacks technology that advances knowledge, especially when compared to developed economies) with higher than average vulnerability to price shocks, and government corruption.

Applying a methodology with only one changing variable and other significant variables *ceterius paribus* is a major limitation for obvious reasons. However it is useful as a starting point for understanding the costs and benefits that may change significantly for the producer and consumer groups. It is also a useful tool in presenting simplified alternatives for policy makers or interest groups.

Producer revenues may be viewed as a theoretical stretch. The theory states that the rents are re-allocated to producers, in the form of revenue. However this may not be the case due to factors ranging from corruption to domestic policies, or outside

agencies required to complete the more complicated transactions (due to necessary paperwork needed to be eligible for the tariff preference). This limits our ability to understand specifically the re-distribution of rents as result one variable, the price policy change.

The producer group gain may be significant but in actuality the majority of the surplus is going a particular firm or sub-sector as a result of rent seeking behavior. Rent-seeking behavior is the active pursuit from special interest groups for policies that are favorable to the interest of their group. The pursuit of rent seeking is visible in activities such as lobbying, corruption in government or other powerful decision making bodies, or even non-governmental organizations (Schmitz, Moss, Schmitz, & Schmitz, 2010). Rent seeking as a concept is helpful when considering the rates of protection but is generally beyond the scope of this paper.

Welfare economics is more useful to gauge the measurement of foreign exchange, government budget, producer costs and surplus than the abstract notions relating to consumer benefits. Consumer benefit is more difficult to quantify with price and quantity data. The use of applied welfare economics approximating welfare indicators is more acceptable when applied to small parts of the economy, like a commodity market (Jechlitschke, Kirschke, & Schwarz, 2007).

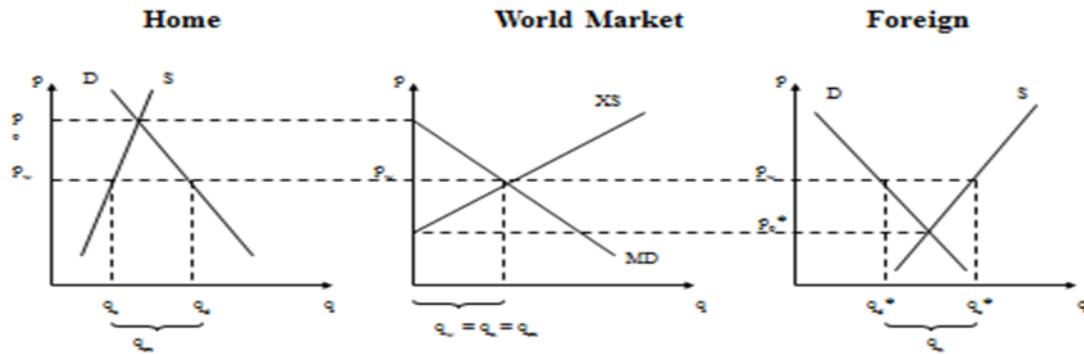


Figure 4-1. The equilibrium world market price [adapted with permission from Schmitz, Andrew; Moss, Charles B; Schmitz, Troy G; Schmitz, Carole H. 2010. Agricultural Policy, Agribusiness and Rent Seeking Behavior. 2010, (p. 121, Figure 3-6). University of Toronto Press, London]

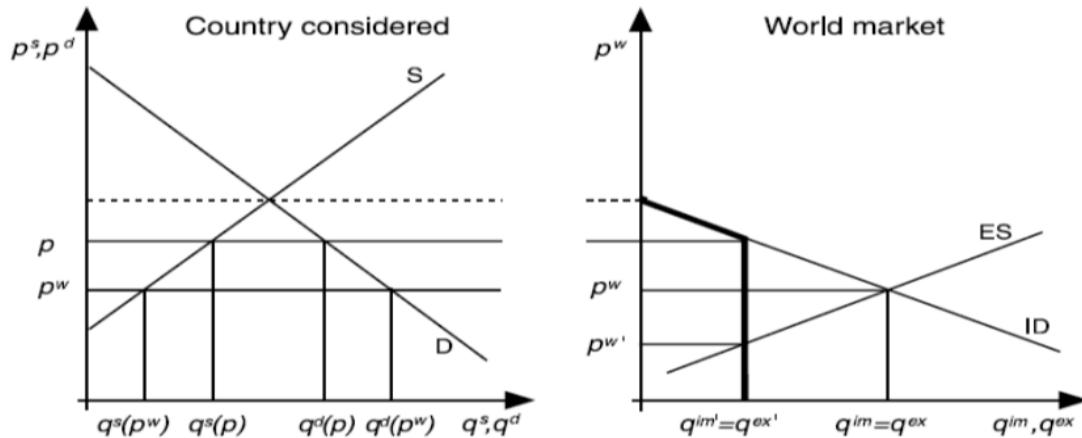


Figure 4-2. Impact of a protectionist price policy on the world market price [adapted with permission from Jechlitschke, Kurt; Kirschke, Dieter; Schwarz, Gerald. 2007. Microeconomics using Excel (p.28, Figure 3.1). Routledge, Milton Park]

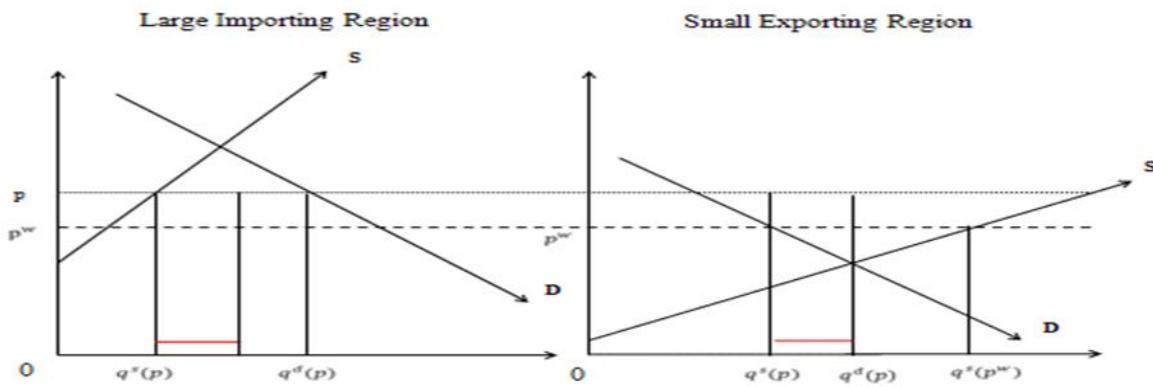


Figure 4-3. Preferential treatment in the form of a 0% duty [adapted with permission from Jechlitschke, Kurt; Kirschke, Dieter; Schwarz, Gerald. 2007. Microeconomics using Excel (p.55, Figure 6.2). Routledge, Milton Park]

CHAPTER 5 METHODOLOGICAL PROCEDURES

The overall research inquiry seeks to investigate the implications of preferential trade policies the European Union (EU) extends to developing countries. More specifically the aim is to understand the impact of conflicting trade barriers and trade promotion on the exports of fruits and vegetables. This paper asks the question; what are the welfare implications of the EU's preferential trade agreements, especially with respect to the sensitive product scheme, on developing countries?

In order to determine the changes in welfare with respect to the trade barriers, we first had to determine if the EU's import price policy instruments, the Entry Price System (EPS), were relevant on the selected country of origin, South Africa and the product- lemons. Then we sought the time periods where the EPS was the most and least relevant. Once we confirmed that the EPS had an effect on the imports, and then we calculated the changes in welfare using the producer and consumer surplus equations. We calculated the changes in the most relevant time period and least or non-relevant period.

In order to estimate the changes in welfare as the change between the two scenarios (most and non-relevant) several overall steps were taken.

We derived two scenarios, Scenario 1 and Scenario 2. Scenario 1 was when the EPS is relevant to imports, or in other words we assume that it is effectively restricting imports due to the increased tariff thus increased price to import the product. Scenario 2 was when the EPS had no relevance on the imports, meaning that the import price was above the entry price (EP), thus an additional specific tariff is not applied and the cost of the product was lower.

Then we calculated the potential preference margin. The potential preference margin is the incentive that beneficiary have to import- the ability to sell the product at a lower cost in the EU market. Here we assumed that the EU provided a zero ad-valorem duty to South African lemon imports.

Methodological Design

We used quantitative research methods within a case study design of South African lemon imports into the EU. We used secondary empirical time series price data. We examined our observations based on the sample population of Standard Import Value (SIV) over the period of 2002 to 2010. We formulated a sub-set of our sample population for the first part of our analysis that seeks the specific time period in which EPS restricts imports, and a time period when it does not (Scenario 1 and Scenario 2). After we collected, cleaned and organized our data we proceeded using the following data analysis procedure:

1. Descriptive statistics on the SIV
2. Calculate the GAP indicator for all observations
3. Graph the GAP values into a histogram to identify key characteristics of the relevance of the EPS
4. Determine specific period of highest EPS relevance on the imported product and a period of non-EPS relevance
5. Estimate the changes in welfares for the producer and consumer groups
6. Calculate the potential preferential margin if total preference was given to the product imported

Justification of each of the procedure and the data analysis components:

- DESCRIPTIVE STATISTICS ON THE IMPORT PRICE (SIV). We describe the SIV over the nine year period in order to understand the changes in price and to check our data for incorrect data entry or outliers. We also compare the overall mean with each annual mean.

- CALCULATE THE GAP INDICATOR FOR ALL OBSERVATIONS. This allows us to distinguish the relevance for the EPS and the degree of relevance. We use the SIV as the EU import price and the respective EP. This allows us to compare the time periods when the EPS is effective.
- GRAPH THE GAP VALUES INTO A HISTOGRAM TO IDENTIFY KEY CHARACTERISTICS OF THE RELEVANCE OF THE EPS. This shows us the distribution over the time period of 2002 to 2010. We observe the frequency of the declared import prices that are less than, right around or much higher than the EP.
- DETERMINE SPECIFIC PERIOD OF HIGHEST EPS RELEVANCE ON THE IMPORTED PRODUCT AND A PERIOD OF NON-EPS RELEVANCE. This provides us with a sample population based on empirical data in which to derive the necessary price and quantity data for the welfare equations.
- ESTIMATE THE CHANGES IN WELFARE FOR THE PRODUCER AND CONSUMER GROUPS. First, we were interested in the producers' welfare that was at stake when the EPS was relevant. Additionally we wanted to demonstrate the relationship between trade barriers and developing country welfare.
- CALCULATE THE POTENTIAL PREFERENTIAL MARGIN IF TOTAL PREFERENCE WAS GIVEN TO THE PRODUCT IMPORTED. We used the results of the four objectives, as well as additional information gained in the analytical process to calculate the preference margin, or the amount of welfare the developing countries are giving up as a result of the trade barriers under the sensitive product scheme.

Variables defined for GAP indicator

Standard Import Value (SIV) is the weighted sum of the average representative prices collected on import markets within the EU, weighted by the quantity traded on each market less a 9% margin for transport, marketing margins of 8 or 15 %, five euro per 100 kilograms.

Entry price (EP) is the seasonally designated import entry price (Appendix C).

GAP indicator for testing the relevance of the EPS

The GAP indicator provides us with the relative difference between the EP and the import price. GAP was defined as the following formula:

$$GAP_{ijt} = \frac{(SIV_{ijt} - EP_{ijt})}{EP_{ijt}}$$

Where i = kind of produce, j = country of origin and t = was the time.

If the import price was equal to or higher than the EP then:

$$GAP_{ijt} \geq 0$$

If the import price was lower than the EP then:

$$GAP_{ijt} < 0$$

The rationale was that if the GAP is a negative value then there exists an export supply that is below the EP and the EPS is relevant. The higher the share of observations with a negative GAP value, the higher the share of export supply that exists below the EP. This means that the EPS may be effective in restricting imports.

Therefore we defined the share of observations with $GAP_{ijt} < 0$ of all the GAP observations as a key indicator in determining the period when EPS is of the highest relevance in our sample populations as:

$$\begin{aligned} Neg. GAP_{ijt} &= (\text{number of observations } GAP_{ijt} \text{ with } GAP_{ijt} \\ &< 0) / (\text{number of observations}) \end{aligned}$$

The smaller the negative GAP the less relevant was the EPS for the import price of the product from the country of origin of interest. Conversely the larger the negative GAP the higher was the EPS on the product's import price.

Welfare Equations: Consumer and Producer Surplus

The welfare analysis established the changes in welfare when the EPS is relevance and when it is not. The equations for producer and consumer surplus from chapter 4 were constructed and calculations executed in an Excel spreadsheet modeled after the example provided in the reference (Jechlitschke, Kirschke, & Schwarz, 2007)

The welfare variables are derived from the EU and South Africa trade data. We define the variables as follows:

- SIV. Proxy for import price
- EP. Proxy for world price
- EP. Average value of the high EP and the low EP = $51 = P_w$
- P. Mean of SIV for 2004 and 2010 = import price= domestic EU price
- QUANTITY DEMANDED. (domestic production - exports) + imports
- SPECIFIC TARIFF. 6.4 %

Assumptions

We made the following assumptions:

- Importers declared the import price using the standard import value method in order to obtain the Common Customs Tariff (CCT) to be paid, whether it is below the EP or not
- The SIV is the import price of the product for the GAP indicator
- The SIV is EU's domestic price for the welfare analysis.
- The EP is the world price for the welfare analysis.
- If the tariff preference was offered it would be utilized.
- The potential tariff preference goes to the producers.

Chapter Conclusion

In Chapter 5 we outlined the methodological procedures we used for our dataset and research questions. We described our research design, data analysis procedures and equations. We defined our variables and put forth the assumptions for our analysis. In the Chapter 6 we further specified our sample population, data, models, and results.

CHAPTER 6

MODEL SPECIFICATIONS AND RESULTS

We used South Africa lemon trade price, quantity data in order to determine the relevance of the Entry Price System (EPS), estimated the welfare changes and determined the potential preferential margin. As discussed in the literature one method that has been used for determining the relevance of the EPS on fruit and vegetable imports is the GAP indicator developed by Goetz & Grethe (2009). The GAP indicator is used to estimate the actual tariff applied to eligible fruit and vegetable imports of the European Union (EU). We estimated the changes in welfare under different price scenarios. Finally we calculated the potential preference margin.

Data Analysis

In this section we presented our analyzed data descriptively. We then applied the derived data to the applied welfare economic framework in order to determine the changes in welfare for the producer, consumer and government groups.

Descriptive Statistics of Standard Import Value

Based on our dataset we ran several descriptive statistical tests, using the open source software Gretl. The summary statistical output for sample population is presented in Table 6-1.

The overall mean Standard Import Value (SIV) was compared to that for each year in the dataset (Table 6-1). Table 6-2 describes that the overall average price of lemon import. The mean price, 69.8, declined in between 2003 and 2007, on average. The price of lemon imports was higher than the nine year average in years 2002, 2008 and 2010. These prices were stated in euros and are not adjusted for inflation.

Figure 6-1 displays all the standard import values as observations over the nine year period. The x-axis represents the daily record of SIV (on the y-axis). Day 1 was January 1, 2002 and Day 3287 was December 31, 2010. The lowest recorded price was 27.8 on day 491 or May 6, 2003. The highest price recorded was Day 241, or August 29, 2002. Overall year 2008 was the highest average prices recorded.

Descriptive Statistics for GAP Indicator

Summary statistics for the GAP indicator was presented in Table 6-3. The standard mean of the GAP indicator for all the observed SIV values was 0.34. This means that on average, over the period 2002 to 2010, the SIV was 34% of the entry price (EP) (Table 6-3).

The lowest GAP recorded was -0.398. This was on May 6, 7, and 8, 2003. At this import price the maximum tariff equivalent (MTE) was triggered adding 25.60 to the SIV of 27.80. The *ad-valorem* tariff (6.4%) is applied to the total import price of 53.40, increasing the import price to 56.82. This price is slightly higher than the average SIV documented for the month of May 2003 at 55.50.

The highest GAP on record is 2.459. This means that the documented SIV was 159.80 during this time period when the EP was 46.20, the SIV was 245% higher than the EP. This was on May 27, 2008. The year 2008 was the overall highest recorded SIV prices recorded over the years surveyed.

Results

In this section we determine whether the EPS is effective and relevant on the price of imports.

Relevance of the Entry Price System on South African Lemon Imports

We applied the GAP indicator to the 3287 observations of the SIV. We used the 10 digit combined nomenclature (CN) for fresh South African lemon imports to determine the relevance of the EPS on South African lemon exports into the EU. We graphed the values into a histogram (Figure 6-2). South African lemon imports rise sharply in the histogram at the 0 on the x-axis. This indicates a cluster of imports at just above the minimum import price.

Tables 6-5 and Table 6-6 displays the results of the negative GAP values in two formats, per year and per period over the nine year period. The ranking of the years with the highest share (number one) of negative GAP values to the years where the EPS is not relevant follows:

1. 2004
2. 2003
3. 2002
4. 2006
5. 2007
6. 2008 and 2010 (non-relevant)

These tables and the ranking list informed us that the year 2004 was the most restrictive to South African lemon imports. The seasonal tariff period of Period 1 is the most restrictive. The ranking follows with the same format as above but we considered it within the tariff dependent time periods:

- Period 1 – Jan 1 to April 30
- Period 5 – August 16 to October 31
- Period 3 – June 1 to July 31
- Period 6 – November 1 to December 31
- Period 4 – August 1 to 15
- Period 2 - May 1 to May 31

GAP Indicator

The import price observations with the GAP values less than zero indicates that there exists an export supply below the EP (or the world price). The higher the number of observations with GAP less than zero, the higher the export supply was at prices below the EP. In these cases the EPS was relevant and effective at raising imports to the EP for sales within the EU (possibly distorting the world price). A high share of observations with negative GAP values indicates that if the EPS was abolished then increased imports may enter into the EU market at a price below the EP.

We looked again at Figure 6-2, the histogram and Table 6-6. A high share of GAP values is observed congregating between 0 and 0.5 (about 40% of observed values). This may indicate that importers are importing at the price just above the EP in order to avoid high ad-valorem tariffs. Roughly 15% of all imports priced below the EP were between 0 and 10% of the EP, thus falling within the specific tariff application and avoiding the maximum tariff equivalent (MTE). Another sharp rise of about 23% of total imports surveyed was between 10 and 12% of the EP.

Welfare Analysis

We applied the welfare equations to the year 2004 (of the highest EPS relevance) and the year 2010, the year of no EPS relevance. We used the equations from Chapter 4 linked in an Excel spreadsheet modeled from the examples in Microeconomics using Excel (Jechlitschke, Kirschke, & Schwarz, 2007).

Since our proxy for world price changes according to the seasonal tariff period we divided the year into Period low = P_L and Period high = P_H

- P_L = Period 1 = Period 2 = Period 6 = 46.50 = world price
- P_H = Period 3 = Period 4 = Period 5 = 55.80 = world price

- 2004 SIV mean value for $P_L = 53.7$ = EU domestic price
- 2004 SIV mean value for $P_H = 56.8$ = EU domestic price
- 2010 SIV mean value for $P_L = 71.7$ = EU domestic price
- 2010 SIV mean value for $P_H = 101.2$ = EU domestic price

We began with a starting point, when the world price equaled domestic price as an assumption of free trade (Table 6-7 and Table 6-8). We created the following scenarios:

- SCENARIO 1. $46.20 = 46.20 = P_L$
- SCENARIO 2. $55.80 = 55.80 = P_H$

In the “free trade” scenario the higher world price of 55.80, yield producers more revenue and consumer less, since they pay more for the product, compared to the lower world price, 46.50. Overall welfare was decreased when consumer pay more in this scenario, otherwise said, the total benefit declined as the price increased. Applying the welfare equation as a function of consumer and producer surplus plus government budget:

- Welfare $P_L = 5507 = 1523 + 3984 + 0$
- Welfare $P_H = 2535 = -2556 + 5092 + 0$

Now we applied the welfare equation as a function of total benefit, cost and foreign exchange (Tables 6-9 and Table 6-10). We have the same welfare outcome but the foreign exchange was improved by about 35% when the price is higher. The foreign exchange is assumed to go to the South African producers.

- Welfare $P_L = 5508 = 19310 + 1195 + (-12607)$
- Welfare $P_H = 2535 = 23390 - 1527 + (-19326)$

We calculated the 2004 and 2010 relative differences in world price or entry price (EP) and the EU domestic price (SIV) to understand the price gap between the two prices.

The relative difference in the world price and the EU domestic price in 2004 was observed to be 15.5% for Periods 1, 2 and 6, on average. This was when the world price is lower than in Periods 3, 4 and 5. The relative price difference between the world price and the EU domestic price in the latter period set was 1.8%, on average.

In 2010 the relative price difference was, on average, greater than in 2004. In Periods 1, 2 and 6 (P_L) the domestic price was 54% higher than the world price, on average. In Periods 3, 4 and 5 (P_H) the domestic price was 81.4% higher than the world price, on average.

We measured the changes in welfare with the import tariff, with respect to the free trade scenario and observed the changes.

In P_L the consumers become progressively worse off due to the increase of price from 2004 to 2010. The producers gain welfare but at lower rate than consumers due to the import tax. The government budget was not calculated here since we must take into consideration the value of MTE duties applied in 2004 (35% of the observations in that year, or about 128 days). In 2010 the government budget gains more than the biggest loser, consumers, however the total welfare is overall higher than in free trade or 2004.

In P_H the consumer surplus was the same in free trade and in 2004 due to the very low price gap between world price and domestic price (1%). The increase of price from 2004 to 2010 however decreases the consumer surplus over 2500%, since the price gap between world price and domestic price was the highest in all of our

scenarios. The producers gain welfare, in a similar fashion to the consumers' loss. There was little change in 2004 compared to free trade, and then in 2010 the gain was significant due to the larger price gap. The government budget was the highest overall in 2010 periods 3, 4 and 5. The welfare overall was also highest in the same period set; 2010 periods 3, 4 and 5.

Hypotheses

The following hypotheses were proposed:

HYPOTHESIS 1. The EPS has high relevance, meaning it restricts South African lemon exports into the EU for the nine year period of 2002 to 2010.

Overall the EPS was found to be relevant on the import of South African lemons in the period of January 1, 2000 to December 31, 2010. However it was discovered that the latter half of the period the EPS was not relevant. Period 1 was found to be the most restrictive period overall.

HYPOTHESIS 2. When the EPS is most effective South African producer welfare is decreased.

Producer welfare was found to be effected by the EPS in our analysis. We considered the producer surplus that was diminished in 2004 compared to that of 2010.

Tariff Margin and Preference Margin

The potential preference margin can be derived from the welfare equation's government budget equation with some modifications based on the EU's EPS effectiveness and tariff schedule. We use the following equations on the year 2010 to determine the potential preference margin.

If the SIV was higher than the EP the EPS is non-relevant and the *ad-valorem* duty is 6.4% on the declared import price (we used the SIV).

For the year 2010, 37096 tons of lemons were imported from South Africa. Since the SIV was never below negative we easily calculate the tariff revenue based on the *ad-valorem* tariff of 6.4% on 100 kilograms of imports.

$$\text{Tariff value for 2010} = \text{import quantity of } 45632.5 * 6.4\% = € 29204.80$$

If the SIV was lower than the EP then EPS was relevant and we estimated the specific tariff based on the SIV's negative distance from the EP, i.e. the less distance the negative SIV is from the EP the lower the specific tariff (Appendix B).

Finally, when the SIV was less than 92% of the EP the prohibitive tariff is applied. Therefore, if SIV was less than 92% of the EP then the *ad-valorem* is applied to the import price plus the MTE.

In 2004 the SIV was below zero 35% of the year or 127 days out of 366 (considering leap year). We calculated the specific tariff based on the number of tons imported in 2004, which was 370,960 in 100 kilograms.

$$\text{Specific tariff value} = 370,960 * 4\% = € 29204.80$$

Estimating the amount paid due to the 127 days that the SIV was below the EP was more difficult to calculate since we do not have the daily import data. However we do note that the MTE was applied for at least 8 days of the month in April. Just the MTE generates tax revenue of €204.80 per 100 kilograms.

The potential preferential margin can be calculated by the difference between the EU's domestic price (SIV) and the world market price (EU). Because we do have

monthly import data available and we can use the EP as the world price and the SIV as the domestic price we calculate the preference margin per month as follows:

Preferential margin = monthly mean SIV – EP * Quantity imported

For 2004: € 1,338,677.00

For 2010: € 20,625,203.00

Data Specification

The estimated price and CCT data was retrieved then derived from prices published in the Official Journal of the European Union. The SIV data was collected for everyday from 2002 to 2010, for 3287 total observations. The price data was entered into a database classified according to seasonal tariff period, year and one dataset with all the observations.

Integrated Community Tariff from the European database TARIC was used to collect data for the entry price along with the seasonal tariff schedule and daily standard import value. The 10 digit Goods combined nomenclature (CN) code: 0805501010 defined as SECTION II: Vegetable Products, Chapter 8 Edible fruit and nuts; peel of citrus fruit or melons for Fresh Lemons (*Citrus limon*, *Citrus limonum*). More generally this trade classification falls under the 4 digit Harmonized System code; 0805 Citrus fruit, fresh or dried; 0805 50 Lemons (*Citrus limon*, *Citrus limonum*) and limes (*Citrus aurantifolia*, *Citrus latifolia*) 0805 50 10 Lemons (*Citrus limon*, *Citrus limonum*). In order to retrieve the data the country code for South Africa (ZA) was used.

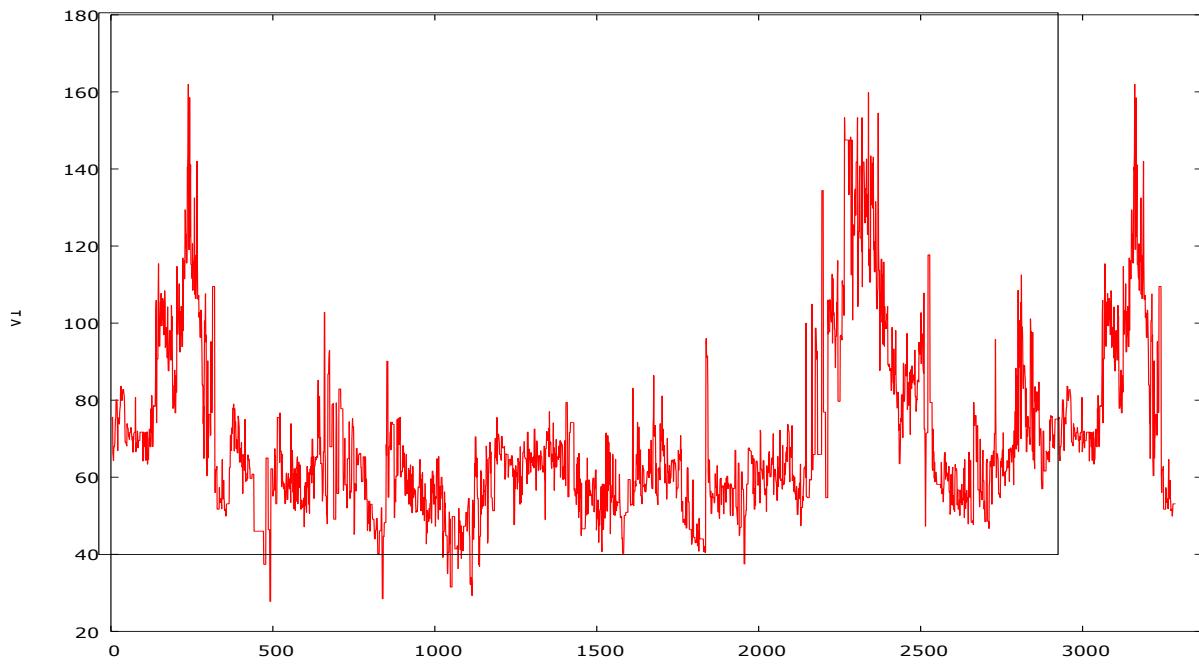


Figure 6-1. Recorded standard import values over time, 2002 to 2010

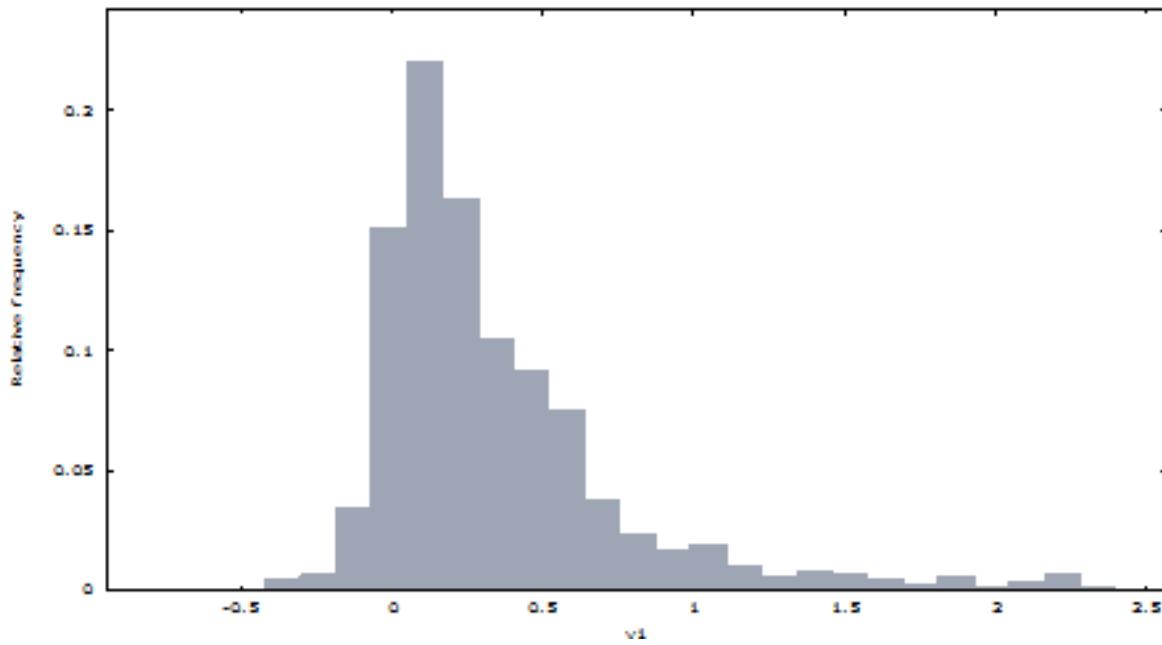


Figure 6-2. Lemons originating in South Africa between 2002 and 2010 (Integrated Community Tariff (TARIC), 2012)

Table 6-1. Gretl output for sample population

Summary Statistics, using the observations 1 - 3287 for the variable v1 (3287 valid observations)			
Mean	Median	Minimum	Maximum
69.8188	64.5000	27.8000	162.000
Std. Dev.	C.V.	Skewness	Ex. kurtosis
21.4955	0.307876	1.45352	2.22426

Table 6-2. Comparison of the overall SIV mean to each annual mean SIV (Integrated Community Tariff (TARIC), 2012)

Comparing the annual SIV means to the overall mean SIV of 69.82									
	2002	2003	2004	2005	2006	2007	2008	2009	2010
SIV	84.07	61.51	55.02	62.98	56.43	60.23	99.99	65.48	84.07

Table 6-3. Gretl output for total population

Summary Statistics, using the observations 1 - 3287 for the variable v1 (3287 valid observations)			
Mean	Median	Minimum	Maximum
0.339892	0.216500	-0.398000	2.45900
Std. Dev.	C.V.	Skewness	Ex. kurtosis
0.410051	1.20641	2.01686	5.14997

Table 6-4. 2002 to 2010 annual mean GAP value (Integrated Community Tariff (TARIC), 2012)

Comparing the GAP averages for each year									
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
GAP%	16	21	35	8	15	10	0	3	0

Table 6-5. GAP values less than zero

The percentage of GAP values that are less than zero									
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
Percentage	16	21	35	8	15	10	0	3	0

Table 6-6. Breakdown of negative GAP values

Negative GAP values over 2002 to 2010 period per tariff period by year										
	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total days
P1	29	37	25	21	8	12	0	0	0	132
P2	0	3	0	0	3	3	0	0	0	9
P3	10	11	16	5	7	8	0	10	0	67
P4	3	7	6	0	4	1	1	0	0	22
P5	15	19	43	1	7	14	0	0	0	99
P6	0	0	37	1	27	0	0	0	0	65
Total days	57	77	127	28	56	38	1	10	0	

Table 6-7. Welfare “free trade”

	Revenue	Expenditure	Foreign exchange	Government budget
P _L	5179	17787	-12607	0
P _H	6620	25947	-19326	0

Table 6-8. Welfare, consumer and producer surplus tables “free trade”

	Cost	Total benefit	Welfare	Producer surplus	Consumer surplus
46.20	1195	19310	5507	3984	1523
55.80	1527	23390	2535	5092	-2556

Table 6-9. Costs and benefits

	Revenue	Consumer Expenditure	Foreign Exchange	Government Budget
2004P _L	6298	25947	-19402	246
2004P _H	6775	25947	-19291	N/A
2010P _L	9171	42840	-21694	11974
2010P _H	14354	85345	-32408	38581

Table 6-10. Benefits and losses

	Cost	Total benefit	Welfare	Producer surplus	Consumer surplus
2004P _L	1453	23390	2534	4844	-2556
2004P _H	1563	23390	2535	5211	-2556
2010P _L	2116	31837	8025	7054	-11003
2010P _H	3312	53089	17367	11042	-32256

CHAPTER 7 CONCLUSIONS

In this section we conclude the thesis research and summarize the finding of the results. We discuss the implications for developing countries and future research.

Summary

In this research we sought to understand the dynamics of the European Unions' (EU) trade and development policies on developing country welfare with respect to fruits and vegetables. We used a case study methodology with an applied welfare economic framework on South African lemon exports designated to the EU. We sought to estimate the difference in producer welfare in a period when the trade policies seemed to contradict the development policies with a period in which the trade policies did not affect the EU's development policies.

We used an indicator used in the literature, GAP, for determining the relevance of the Entry Price System (EPS) on lemon imports from South Africa. We applied the GAP indicator to price and quantity data over a nine year period from 2002 to 2010 in order to determine two periods in which the EPS affected lemon imports and was did not affect lemon imports.

Implications for Developing Countries

The implications of trade barriers for developing countries can only be viewed in this thesis through the lens of research, analysis and the quality of data. We have attempted to quantify the changes in welfare with respect to the changes in the EU's domestic price relative to world price. We used values that the EU government published as proxy for the actual price data. According to our work we understand that generally the welfare has improved in our South African lemon import situation.

It must be taken into context that the direct transfer of producer welfare is assumed to come from the EU's government budget. Phrased a different way, the welfare is received by the producers by not having to pay the tax that their competitors pay. This is not the case for South African lemon producers whom export to the EU. The amount of tax that they pay to the EU government has grown higher at a rate faster than their welfare improvement, over the time period we studied.

As we have seen in our analysis the changes in welfare seem relatively small in the case of South African lemon exports. However we see that the amount of tax paid is double that of producer surplus. This value of the tax is small by EU standards. We estimated around 30,000 euros. The impact of this low value is not going to make a huge difference in the lives of Europeans but when the value is considered in the context of the developing country, it is considerably a larger impact.

Developing countries have a higher reliance on agriculture, than more developed economies, in which more of their citizens depend on agricultural businesses than high income countries. This means that the implications of a transfer of a large importing countries tax to a small developing countries has a greater chance to directly affect the rural and farming population. When a country has much of its farming and rural population living so close to the poverty line what seems small so some provides a safety net, or a livelihood to others.

Limitations

The lack of disaggregated data causes many limitations to the analysis. We imposed rather large and most likely significant assumptions in order to create general calculations in which to interpret the trade situation. One thing is certain that the lemon

market in the years from 2008 to 2010 was better than average and the higher the price the less likely effect the EPS will have on the tax burden for developing countries. This trend may continue, since the overall price of food has increased from the time period when the EPS was relevant. This assessment is based on the prices that were quite high compared to previous years. When the price is high, there are no problems with the EU's possibility of distorting the world market price. However should the developing countries, such as our South African lemon case study, bank on the lemon market success? Argentina has re-routed much of its fresh lemon market to the processed market in the last few years providing a stronger incentive to the South Africa's to take over their market share. More South African citrus farmers are switching production from oranges to the lemon market due to its recent years of high prices.

If the lemon market was to become oversupplied then the lower prices in the early 2000s, as our data has shown, may create a reason to question the EU's use of the EPS as a complicated, discriminating trade barrier. Also the EU may pass legislation that raises the entry price (EP) of the fresh lemon import price minimum, or other fresh fruit and vegetable products that have the potential to create a living for farmers and others living in rural areas in developing countries.

Further Research

The theoretical notions of producers' surplus and foreign exchange assume that these values are revenues for the producing country and actors. While conducting this research it was often brought up in the literature and reports the complexity of the trade processes, especially the entry price system. In order to facilitate trade the large importing countries, such as the EU, often set up import or export brokers in the country

of export, who are responsible for handling much of the trading complexities of so called “paperwork”. The advantage to this is that the markets are linked between developed and developing countries. The question this poses is then who is receiving the share of “savings” from utilizing a preference? More specifically does this share come at a cost to the farmer profits? Further research may consider how the producer revenue or foreign exchange is received between importers, exporters and the actual farmer.

APPENDIX A
BENEFICIARY COUNTRIES

Table A-1. European Union's Generalized System of Preference Countries (Part 1)

176 Beneficiary Countries		
Afghanistan	Cayman Islands	Gibraltar
Algeria	Central African Republic	Greenland
American Samoa	Chad	Grenada
Angola	China	Guam
Anguilla	Christmas Island	Guatemala
Antactica	Cocos (Keeling) Islands	Guinea
Antigua and Barbuda	Colombia	Guinea Bissau
Argentina	Comoros	Guyana
Armenia	Congo	Haiti
Aruba	Cook Islands	Heard Island and Mcdonald Islands
Azerbaijan	Costa Rica	Honduras
Bahamas	Côte d'Ivoire	India
Bahrain	Cuba	Indonesia
Bangladesh	Congo	Iran
Barbados	Djibouti	Iraq
Belize	Dominica	Jamaica
Benin	Dominican Republic	Jordan
Bermuda	Ecuador	Kazakhstan
Bhutan	Egypt	Kenya
Venezuela	El Salvador	Kiribati
Bolivia	Equatorial Guinea	Kuwait
Botswana	Eritrea	Kyrgyz Republic
Bouvet Island	Ethiopia	Lao's
Brazil	Falkland Islands (Lebanon
British Indian Ocean Territory	Fiji	Lesotho
Brunei Darussalam	French Polynesia	Liberia
Burkina Faso	French Southern Territories	Libya
Burundi	Gabon	Macao, China
Cambodia	Gambia	Madagascar
Cameroon	Georgia	Malawi
Cape Verde	Ghana	Malaysia

Table A-2. European Union's Generalised System of Preference Countries (Part 2)

176 Beneficiary Countries Continued

Maldives	Papua New Guinea	Syrian Arab Republic
Mali	Paraguay	Tajikistan
Marshall Islands	Peru	Tanzania
Mauritania	Philippines	Thailand
Mauritius	Pitcairn	Timor-Leste
Mayotte	Qatar	Togo
Mexico	Russian Federation	Tokelau
Micronesia	Rwanda	Tonga
Mongolia	Saint Helena	Trinidad and Tobago
Montserrat	Saint Kitts and Nevis	Tunisia
Morocco	Saint Lucia	Turkmenistan
Mozambique	Saint Pierre and Miquelon	Turks and Caicos Islands
Myanmar	Saint Vincent and the Grenadines	Tuvalu
Namibia	Samoa	Uganda
Nauru	Sao Tome and Principe	Ukraine
Nepal	Saudi Arabia	United Arab Emirates
Netherlands Antilles	Senegal	United States Minor Outlying Islands
New Caledonia	Seychelles	Uruguay
Nicaragua	Sierra Leone	Uzbekistan
Niger	Solomon Islands	Vanuatu
Nigeria	Somalia	Viet Nam
Niue	South Africa	Virgin Islands, British
Norfolk Island	South Georgia and the South Sandwich Islands	Virgin Islands, US
Northern Mariana Islands	Sri Lanka	Wallis and Futuna Islands
Oman	Sudan	Yemen
Pakistan	Suriname	Zambia
Palau	Swaziland	Zimbabwe
Panama	-	-

APPENDIX B
FRUIT AND VEGETABLES COVERED BY EUROPEAN UNION REGIME

Table B-1. Fruits covered by the EU's Common Agricultural Policy 1 to 18

CN code	Description, Product Name
1 0802 11 + 0802 12	Almonds
2 0802 21 + 0802 22	Hazelnuts or filberts (<i>Corylus spp.</i>)
3 0802 31 + 0802 32	Walnuts
4 0802 40	Chestnuts (<i>Castanea spp.</i>)
5 0802 50 00	Pistachios
6 0802 60 00	Macadamia nuts
7 ex0802 09	Other nuts, excluding areca (or betel) and cola nuts falling within subheading 08029020
8 0803 00 11	Fresh plantains
9 ex0803 00 90	Dried plantains
10 0804 20 10	Figs, fresh
11 0804 30 00	Pineapples
12 0804 40 00	Avocados
13 0804 50 00	Guavas, mangos and mangosteens
14 0805 10	Oranges
15 0805 20	Mandarins (including tangerines and satsumas); clementines, wilkins and similar citrus hybrids
16 0805 40 00	Grapefruit, including pomelos
17 0805 50	Lemons (<i>Citrus limon</i> , <i>Citrus limonum</i>) and limes (<i>Citrus aurantifolia</i> , <i>Citrus latifolia</i>)
18 0805 20 90 + 0805 90 00	Other citrus fruits

Table B-2. Fruits covered by the EU's Common Agricultural Policy 19 to 36

	CN code	Description, Product Name
19	0806 10 10	Fresh table grapes
20	0807 11 00	Watermelons
21	0807 19 00	Other melons
22	0807 20 00	Pawpaws (papayas)
23	0808 10	Apples
24	0808 20 10 +	Pears
	0808 20 50	
25	0808 20 90	Quinces
26	0809 10 00	Apricots
27	80920	Cherries
28	0809 03	Peaches, including nectarines
29	0809 40	Plums and sloes
30	0810 10 00	Strawberries
31	0810 20	Raspberries, blackberries, mulberries and loganberries
32	0810 40	Cranberries, bilberries and other fruits of the genus Vaccinium
33	0810 50 00	Kiwifruit
34	0810 60 00	Durian
35	0810 90	Other fruit, fresh
36	0813 50 31 +	Mixtures exclusively of dried nuts of headings 0801 and 0802
	0813 50 39	

Table B-3. Vegetables covered by the EU's Common Agricultural Policy 1 to 14

	CN code	Description, Product Name
1	0702 00 00	Tomatoes, fresh or chilled
2	0703 10	Onions and shallots
3	0703 20 00	Garlic
4	0703 90 00	Leeks and other alliaceous vegetables
5	0704 10 00	Cauliflowers and headed broccoli
6	0704 20 00	Brussels sprouts
7	0704 90 10	White cabbages and red cabbages
8	0709 90 90	Other edible brassicas
9	0705 11 00	Cabbage lettuce (head lettuce)
10	0705 19 00	Other lettuce
11	0705 21 00	Witloof chicory (<i>Cichorium intybus</i> var. <i>foliosum</i>)
12	0705 29 00	Other chicory
13	0706 10 00	Carrots and turnips
14	0706 90	Other edible roots

Table B-4. Vegetables covered by the EU's Common Agricultural Policy 15 to 33

	CN code	Description, Product Name
15	0707 00 05	Cucumbers
16	0707 00 90	Gherkins
17	0708 10 00	Peas (<i>Pisum sativum</i>)
18	0708 20 00	Beans (<i>Vigna</i> spp., <i>Phaseolus</i> spp.)
19	0708 90 00	Other leguminous vegetables
20	0708 20 00	Asparagus
21	0709 30 00	Aubergines (eggplants)
22	0709 40 00	Celery other than celeriac
23	0709 51 00	Mushrooms of the genus <i>Agaricus</i>
24	0709 59	Other mushrooms and truffles
25	0706 10 00	Sweet peppers
26	0709 70 00	Spinach, New Zealand spinach and orache spinach (garden spinach)
27	0709 90 10	Salad vegetables, other than lettuce (<i>Lactuga sativa</i>) and chicory (<i>Cichorium</i> spp.)
28	0709 90 20	Chard (or white beet) and cardoons
29	0709 90 40	Capers
30	0709 90 50	Fennels Fenouils Fenche
31	0709 90 70	Zucchini (Courgettes)
32	0709 90 80	Globe artichokes
33	0704 90 90	Other vegetables

APPENDIX C
ENTRY PRICE SYSTEM

Table C-1. Entry Price System Period 1

January 1 to April 30		
1	If the declared entry price is equal to or greater than 46.20 EUR/100 kg	Apply a duty of 6.40%
2	If the declared entry price is equal to or greater than 45.30 EUR/100 kg	Apply a duty of 6.40% + 0.90 EUR/100 kg
3	If the declared entry price is equal to or greater than 44.40 EUR/100 kg	Apply a duty of 6.40% + 1.80 EUR/100 kg
4	If the declared entry price is equal to or greater than 43.40 EUR/100 kg	Apply a duty of 6.40% + 2.80 EUR/100 kg
5	If the declared entry price is equal to or greater than 42.50 EUR/100 kg	Apply a duty of 6.40% + 3.70 EUR/100 kg
6	If the declared entry price is equal to or greater than 0 EUR/100 kg	Apply a duty of 6.40% + 25.60 EUR/100 kg

Table C-2. Entry Price System Period 2

May 1 to May 31		
1	If the declared entry price is equal to or greater than 46.20 EUR/100 kg	Apply a duty of 6.40%
2	If the declared entry price is equal to or greater than 45.30 EUR/100 kg	Apply a duty of 6.40% + 0.90 EUR/100 kg
3	If the declared entry price is equal to or greater than 44.40 EUR/100 kg	Apply a duty of 6.40% + 1.80 EUR/100 kg
4	If the declared entry price is equal to or greater than 43.40 EUR/100 kg	Apply a duty of 6.40% + 2.80 EUR/100 kg
5	If the declared entry price is equal to or greater than 42.50 EUR/100 kg	Apply a duty of 6.40% + 3.70 EUR/100 kg
6	If the declared entry price is equal to or greater than 41.60 EUR/100 kg	Apply a duty of 6.40% + 4.60 EUR/100 kg
7	If the declared entry price is equal to or greater than 40.70 EUR/100 kg	Apply a duty of 6.40% + 5.50 EUR/100 kg
8	If the declared entry price is equal to or greater than 39.70 EUR/100 kg	Apply a duty of 6.40% + 6.50 EUR/100 kg
9	If the declared entry price is equal to or greater than 38.80 EUR/100 kg	Apply a duty of 6.40% + 7.40 EUR/100 kg
10	If the declared entry price is equal to or greater than 0 EUR/100 kg	Apply a duty of 6.40% + 25.60 EUR/100 kg

Table C-3. Entry Price System Period 3

	June 1 to July 31
1	If the declared entry price is equal to or greater than 55.80 EUR/100 kg
2	If the declared entry price is equal to or greater than 54.70 EUR/100 kg
3	If the declared entry price is equal to or greater than 53.60 EUR/100 kg
4	If the declared entry price is equal to or greater than 52.50 EUR/100 kg
5	If the declared entry price is equal to or greater than 51.30 EUR/100 kg
6	If the declared entry price is equal to or greater than 50.20 EUR/100 kg
7	If the declared entry price is equal to or greater than 49.10 EUR/100 kg
8	If the declared entry price is equal to or greater than 48.00 EUR/100 kg
9	If the declared entry price is equal to or greater than 46.90 EUR/100 kg
10	If the declared entry price is equal to or greater than 0 EUR/100 kg

Table C-4. Entry Price System Period 4

	August 1 to August 15
1	If the declared entry price is equal to or greater than 55.80 EUR/100 kg
2	If the declared entry price is equal to or greater than 54.70 EUR/100 kg
3	If the declared entry price is equal to or greater than 53.60 EUR/100 kg
4	If the declared entry price is equal to or greater than 52.50 EUR/100 kg
5	If the declared entry price is equal to or greater than 51.30 EUR/100 kg
6	If the declared entry price is equal to or greater than 50.20 EUR/100 kg
7	If the declared entry price is equal to or greater than 49.10 EUR/100 kg
8	If the declared entry price is equal to or greater than 48.00 EUR/100 kg
9	If the declared entry price is equal to or greater than 0 EUR/100 kg

Table C-5. Entry Price System Period 5

August 16 to October 31		
1	If the declared entry price is equal to or greater than 55.80 EUR/100 kg	Apply a duty of 6.40%
2	If the declared entry price is equal to or greater than 54.70 EUR/100 kg	Apply a duty of 6.40% + 1.10 EUR/100 kg
3	If the declared entry price is equal to or greater than 53.60 EUR/100 kg	Apply a duty of 6.40% + 2.20 EUR/100 kg
4	If the declared entry price is equal to or greater than 52.50 EUR/100 kg	Apply a duty of 6.40% + 3.30 EUR/100 kg
5	If the declared entry price is equal to or greater than 51.30 EUR/100 kg	Apply a duty of 6.40% + 4.50 EUR/100 kg
6	If the declared entry price is equal to or greater than 0 EUR/100 kg	Apply a duty of 6.40% + 25.60 EUR/100 kg

Table C-6. Entry Price System Period 6

November 1 to December 31		
1	If the declared entry price is equal to or greater than 46.20 EUR/100 kg	Apply a duty of 6.40%
2	If the declared entry price is equal to or greater than 45.30 EUR/100 kg	Apply a duty of 6.40% + 0.90 EUR/100 kg
3	If the declared entry price is equal to or greater than 44.40 EUR/100 kg	Apply a duty of 6.40% + 1.80 EUR/100 kg
4	If the declared entry price is equal to or greater than 43.40 EUR/100 kg	Apply a duty of 6.40% + 2.80 EUR/100 kg
5	If the declared entry price is equal to or greater than 42.50 EUR/100 kg	Apply a duty of 6.40% + 3.70 EUR/100 kg

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BIOGRAPHICAL SKETCH

Emily Dunn is from Key West, Florida, USA. She earned her Associates Degree in General Studies at Florida Keys Community College. Emily went on to study Hospitality and Food Service Management at University of Central Florida, before attending University of Florida in Gainesville for graduate school. She earned a Master in Agribusiness before and during participation in the double degree study abroad program, Trans- ATLANTIS. The ATLANTIS degree awards an International Master of Science in Rural Development, on the European side, and a Master of Science in Food and Resource Economics from the University of Florida, on the United States side. The study plan requires one year of educational training on each side of the Atlantic Ocean.

While writing her Master of Science thesis for the ATLANTIS program Emily lived in Ghent, Belgium, Berlin, Germany and Melbourne, Florida. During the study abroad program she traveled to 27 different countries in the one year, observing and experiencing the food, beverage and agricultural economics in each and every one. Emily hopes to work in the food and beverage industry, more specifically international food and beverage trade.