CHAPTER 3

THE THEORY OF INTERNATIONAL TRADE AND CUSTOMS UNIONS

3.1 Introduction

This chapter focuses mainly on the economic theory of international trade or comparative cost advantage, the theory of Customs Unions and the political economy of regional trading blocs. Because Botswana belongs to a customs union (SACU) as well as a regional economic and trading bloc (SADC), theories concerning the two trade formations are essential for one to understand how the benefits stemming from trade liberalization and regional integration can be maximized while costs are minimized. International trade liberalization and regional integration are considered as potential ways of improving per capita food consumption, household food security, foreign income and earnings, etc (Sarris, 1997; Yeats, 2000; Lewis, 2001; Lewis, Robinson & Thierfelder, 2002). Since both SACU and SADC are liberalizing their economies as well as working towards trade integration, the theories of comparative advantage as well as those regarding customs unions and regional economic blocs are useful in establishing how to promote sustainable development. Further, it is also expected that Botswana as a member of SACU is likely to enter into a free trade agreement with the EU as well as the US. The envisioned SACU-EU FTA will represent an expansion of the current South African-EU trade arrangement while negotiations on the future SACU-US FTA are ongoing. The proposed FTAs with SACU are expected to provide opportunities for Botswana, while also exposing her least competitive industries to more risks/threats.

Before considering the theories of international trade economics, it is worth understanding from the outset why nations trade in the first place. A working knowledge of this matter is helpful in appreciating the justification for further trade liberalization whilst also being cognizant of the reluctance by other

countries, including regional trade groupings or customs unions, to improve market access (WTO, 1999). The creation of the General Agreement on Tariffs and Trade (GATT) after World War II and subsequently the present WTO was intended to improve human welfare by fostering, *inter alia*, international trade based upon comparative advantage and global competition.

Botswana as an open economy and a member of WTO argues for improved market access for her exports, given the small size of the domestic market, while at the same time subscribing to import liberalization by means of reduced tariffs in order to meet the country's food requirements. As Botswana is a food deficit country, it is desirable that more competitive regional and global sources of food and other inputs for agro-business and industrialization are identified, so as to enhance household food security. The implementation of global trade liberalization based on comparative advantage, as currently promoted by the WTO and consistent with theory of international trade, can partly benefit small economies like that of Botswana. The tools used in this study (see Chapters 4, 5, 7 and 8) to analyze the effects of trade liberalization on household food security and agricultural competitiveness in Botswana assume an understanding of international trade theory hence the present Chapter.

Further, an understanding and application of theories of international trade and customs unions provides a context within which to appreciate the likely effects of global trade liberalization on Botswana's food and agricultural sectors. As indicated earlier, Botswana is a member of a customs union and as a price-taker in world trade, improved market access by means of liberalized global commerce is very important for her food security, agricultural sector and industrialization (NDP 9, 2003).

3.2 Gains from International Trade

In general, nations trade to improve welfare, widen choices for consumers; maximize net social returns/profit through the efficient allocation of scarce resources to more productive areas of the economy, and increase both national output/gross domestic product (GDP) and world output (Sodersten & Reed, 1994; Ethier, 1995). The benefits of trade are largely seen in terms of earlier studies by classical economists, namely Smith (1776) and Ricardo (1815-17), whose work concluded that gains from trade can be maximized if based mainly on the theory of comparative cost advantage between and among nations.

Subsequent empirical studies by MacDouglas (1952) and Stern (1962) also confirmed, in general, that international trade based on comparative cost advantage can benefit nations. The assumptions of international trade and the elaboration of the theory of comparative advantage or comparative costs (Sodersten and Reed, 1994, p.3) are discussed later in this chapter. Suffice it to say here that, by and large, countries trade to maximize social welfare or improve their standard of living, and also allocate resources to those productive activities where the country can also increase its net returns from investments.

Figures 3.1 and 3.2 illustrate how social welfare and resource efficiency can be maximized under free trade while under autarky (no trade) conditions this situation cannot be realized. In essence, autarky conditions are similar to food self-sufficiency or complete import substitution (see Chapter 2) where a country decides to consume only what it produces.
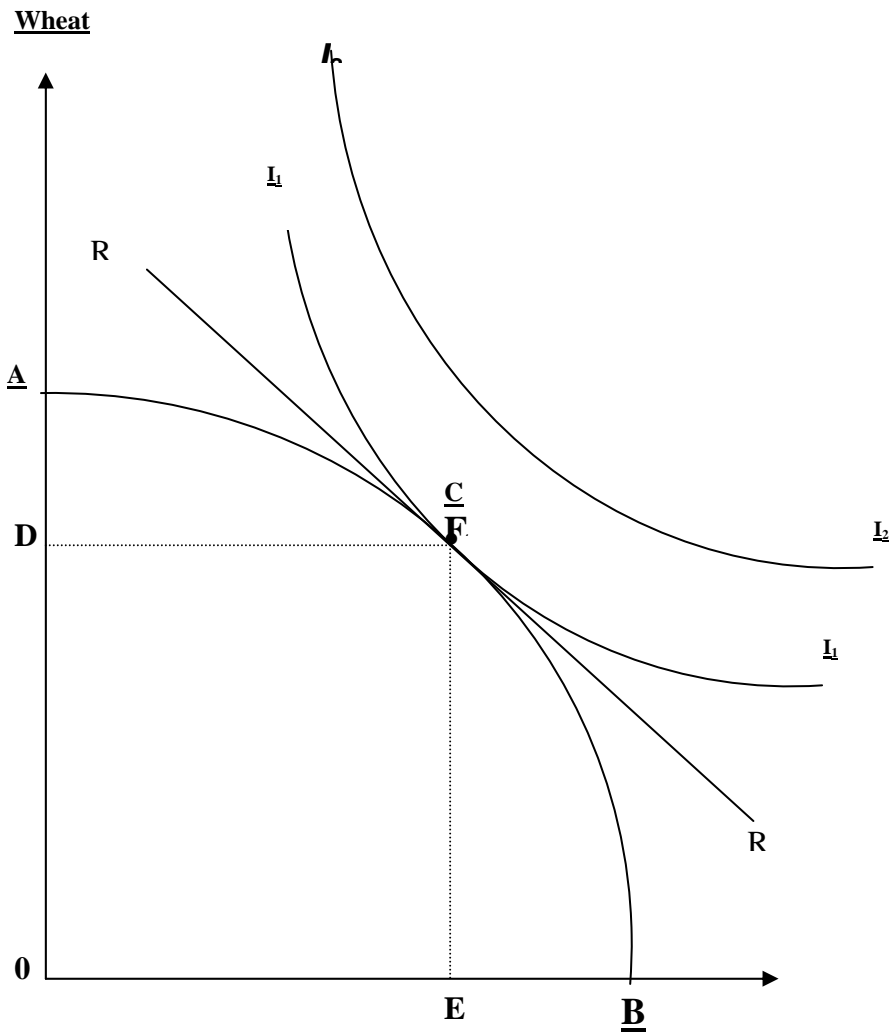
Wheat

Figure 3.1: Equilibrium under Autarky

According to Figure 3.1, assuming a small country model,[2] if autarky conditions prevail, the country's production possibility curve (PPC) of two commodities, namely wheat and beef, is given by AB while the budget line or price ratio is RR. Point C represents the equilibrium where the opportunity cost of production domestically is equal to the marginal rate of substitution in consumption.

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[2] A small country model assumes a country the size of whose economy is too insignificant to influence global commodity prices or volumes. Botswana fits this model.

In short, at point C the marginal rate of transformation in production is equal to the marginal rate of substitution in consumption as well as the budget line/price ratio. Since there is no trade in this country, point C indicates the equilibrium for both domestic production and consumption. This country consumes only what it has produced. The indifference curve, I_1, illustrates the country's consumption/utility possibilities. The country's utility is also maximized at point C. Factor and product prices are also domestically determined because there is no trade. Similarly, consumers only purchase at prices determined by the local market, as international prices are not applicable under conditions of autarky. Consumers do not have much choice since they are only allowed to purchase locally produced goods.

If the small country is allowed to trade freely as advocated by Smith (1776), Ricardo (1817) and other classical economists, the equilibrium point for both production and consumption changes. The price/budget line also changes because of the influence of the international prices on both the factor and product markets. The country is relatively free to produce according to its comparative cost advantage, and in this way maximizes social returns by specializing in those commodities which it can produce more cheaply.

Figure 3.2 illustrates the equilibrium conditions for the small country under free market arrangements. The curves AB still represents the production possibility curve, while the new point, D, shows the optimum point of production, with line TT representing the terms of trade following the opening up of the country's economy to world competition.
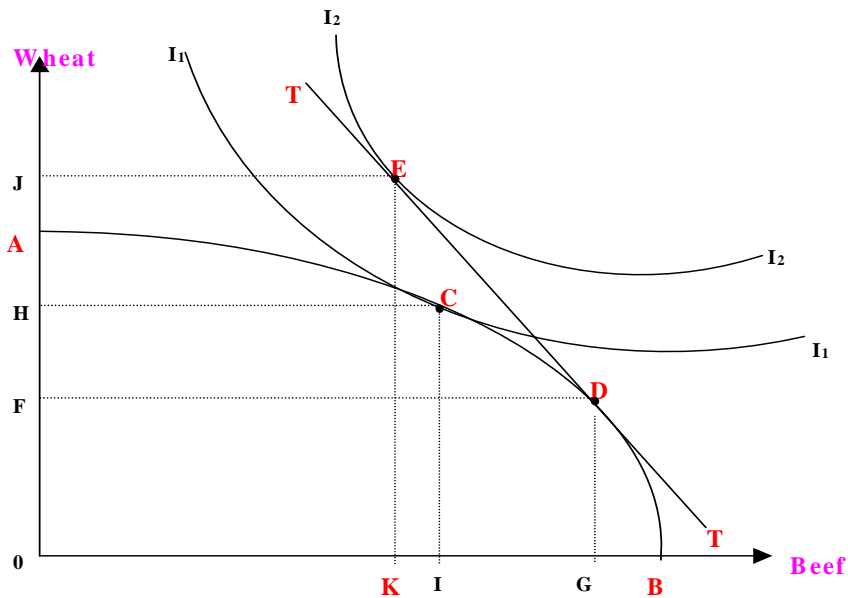
Figure 3.2: Equilibrium under Free Trade

While under autarky, the equilibrium of production is at point C, through free trade, the optimal production point moves to D, with an increase in the domestic production of beef from OI under autarky conditions to OG when free trade conditions prevail. The movement of the optimal production point from C to D under free trade conditions results from the anticipated higher profits of international trade (Field, 1997, p.90). Through free trade only OK beef is consumed, as the equilibrium social/community welfare point is E on indifference curve I_2, which is evidently superior to I_1 or point C. The balance of KG beef is exported.

As far as wheat is concerned, under free trade conditions, domestic production declines from OH under autarky to OF. As the equilibrium point of social consumption is E on indifference curve I_2, to satisfy the demand an amount of JF of wheat is imported.

According to Figure 3.2, this country enjoys a comparative cost advantage in the production of beef while wheat is less suitable given the country's factor endowment. As defined by Ethier (1995, p.123) factor endowments "are the productive ingredients available to an economy: land, labour, capital, natural resources, skills, and so on".

Whereas under autarky conditions the country produced less beef and consumed less, for both commodities (see point C on I_1), through free trade domestic production shifted to the commodity (beef) which intensively uses the factor(s) that this country possesses in relative abundance (which in this case are labour and land). Overall consumption, as indicated in Figure 3.2, also increased under free trade conditions to point E. Free trade has therefore benefited the country by allocating scarce resources to areas where net social returns can be maximized while at the same time providing a higher social consumption level (point E on I_2 is greater than point C on 1_1). Technology is also a factor that can influence a country's comparative cost advantage. Below we describe one of the trade theories in modern international economics, which elaborates the comparative advantage theorem.

3.3 Theory of Comparative Advantage: The Hecksher-Ohlin-Samuelson Model

Since Ricardo's theory of comparative advantage around 1817, other neoclassical and modern economists have developed this model further and carried out empirical studies to verify its validity. The theory of comparative advantage, sometimes also referred to as factor endowment/proportions theory (Ethier; 1995, p.125; Field, 1997, p.128; Krugman and Obstfeld, 2000, p.66), has been elaborated and refined many times. Quite prominent in international economics literature on comparative advantage is the Hecksher-Ohlin-Samuelson (HOS) model. In essence the standard HOS model is based on the comparative cost advantage of factor endowments (labour, capital) between and among nations.

It is often indicated that trade takes place between nations because of different relative factor prices (Sodersten and Reed, 1994; Ethier, 1995; Field, 1997; Krugman and Obstfeld, 2000). According to the HOS theorem, a country "has a comparative advantage in the good that makes relatively intensive use of the country's relatively abundant factor" (Ethier, 1995, p.130).

Figure 3.3 illustrates that if one country enjoys a relative abundance of labour while another is relatively more endowed with capital, *ceteris paribus*, the former will produce goods that are labour-intensive while the latter possesses a comparative advantage in capital-intensive goods. In fact Figure 3.3 shows how the theory of comparative advantage between two "small economy" model countries functions in terms of a standard HOS model. Country A's production possibility curve is given by MM while that for country B is NN.

Assuming country A has relatively abundant labour while country B has a better factor endowment in physical capital, according to the Hecksher-Ohlin-Samuelson theorem/model each country will specialize in the production system that makes an intensive use of its relatively abundant resource. Commodity X produced by country A on MM possibility curve is relatively labour intensive, hence the optimal production at point S, while for commodity Y produced by country B the optimal point of production is R on NN. Commodity Y is relatively capital intensive. Algebraically a labour intensive good in country A means the ratio L/K is higher there than in country B, while for a capital-intensive good the K/L ratio is higher in one country than the other. L and K, as expected, represent labour and capital respectively.

Figure 3.3 therefore shows that country A will produce goods that are labour intensive like X, while for country B capital-intensive goods like Y will be produced and exported.
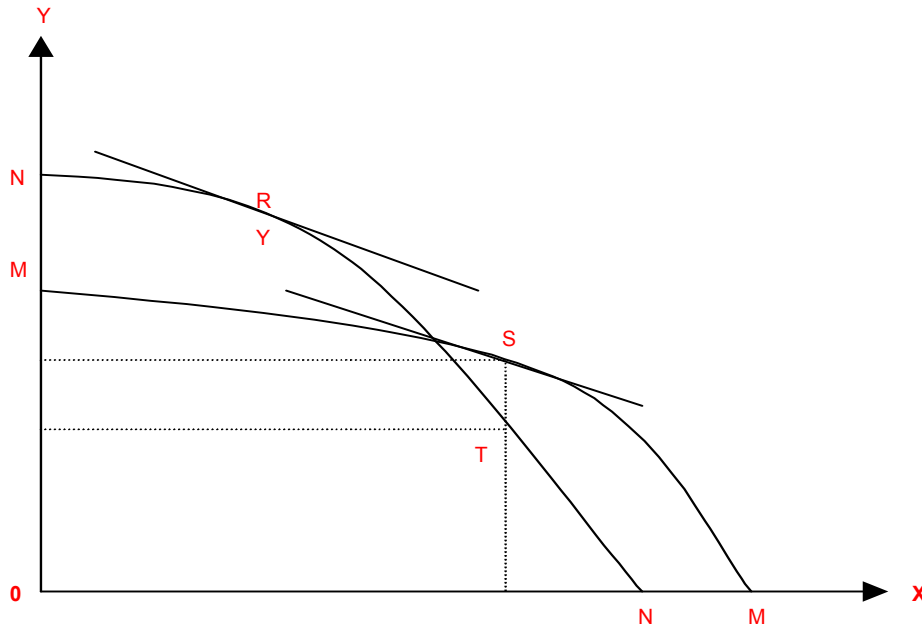

Figure 3.3: The Production Possibility Curves for two countries with different capital and labour factor endowments

3.3.1 Hecksher-Ohlin-Samuelson (HOS) Assumptions

Before considering some of the empirical findings of the HOS theory, it is also necessary to understand briefly the standard assumptions of this model or theorem:

(1)   There are no transport costs or impediments to trade;

(2)   All production functions between the trading countries are subject to constant returns to scale;

(3)   Labour and capital within the same country are perfectly mobile between industries/sectors but these two factor endowments are not mobile between trading countries;

(4)   The production functions of the commodities exhibit different factor endowment uses/intensities at any given factor price ratio;

(5)   Technologies in the trading countries are identical;

(6)   There is perfect competition, in both trading countries, in the factor and product markets; and

(7)   Trading countries display similar/homothetic tastes.

Samuelson's inclusion of assumption (7) in the standard Hecksher-Ohlin framework has led to the theorem being known as the Hecksher-Ohlin-Samuelson model. In fact, according to the HOS model, the low-income countries, which possess relatively abundant labour, and by definition cheaper labour vis-à-vis the high-income countries, will generally produce, and trade in, commodities that are intensive in the use of this resource. Specifically, low-income countries trade in labour-intensive goods such as agricultural commodities while the high-income countries dominate in capital-intensive traded commodities such as machinery, chemicals, motor vehicles and electronics.

As high-income countries have access to relatively more capital per man-hour than low-income countries, the former therefore exhibit a higher K/L ratio compared to low-income nations. This means that current international trade between the two groups is based on comparative factor cost advantage. The trade between the two income group countries is primarily inter-industry trade (Sodersten & Reed, 1994; Ethier, 1995).

While the EU exports capital-intensive goods such as heavy equipment, computers, vehicles and aircraft, the ACP countries produce and export relatively labour-intensive products: cotton, sugar, grains, vegetables, tea, timber, and the like. The Cotonou Convention, as a trade agreement between ACP and EU countries, is the successor to the Lome Convention of 1975. The agreement is valid for twenty years but some of its discriminatory provisions like the banana and beef protocols are the subject of dispute amongst other WTO members. According to the WTO provisions, market access should be non-discriminatory unless in the case of the least-developed countries (WTO, 1994). Non-ACP countries do not enjoy preferential market access to the premium EU market. For several agricultural products, ACP exporters receive

prices above world prices. ACP countries are reluctant to lose preferential market access in compliance with WTO because of the likely reduction in producer prices and subsequently in incomes.

3.3.2 Income Distribution and the HOS Model: The Stopler-Samuelson Theorem

As part of the gains from trade, relatively abundant factors that are reallocated to an industry based upon comparative cost advantage can increase domestic production and improve overall community welfare (see Figure 3.2 where the equilibrium production point moves from point C to D after free trade is undertaken). The increased domestic production is exported in order to import (assuming no tariff barriers) low-cost goods.

However, while free trade is beneficial to a society, there are associated costs, especially in the short to medium term. These costs include, among others, the unequal distribution of income. In particular, "the owners of the factor of production used intensively in the export industry will gain relatively by the move to free trade, while owners of the factor of production used intensively in the import-competing industry will lose relatively" (Sodersten and Reed, 1994, p.65).

The movement from point C to D after free trade in Figure 3.2 means that as long as domestic production of beef, an export industry, increases, owners (whether households or firms) of the relatively abundant labour will gain while those in wheat production will lose. The growth in the export beef industry also leads to an increase in the price of the factor that is intensively used, which in this case is labour. The owners of capital in the less efficient and competitive wheat industry lose (Sodersten and Reed, 1994; Ethier, 1995; Field, 1997). The general conclusion arrived at regarding the relationship between free trade and income distribution according to the standard HOS theorem/model is that, "owners of the country's abundant factors gain from

54

trade, but owners of a country's scarce factors lose" (Krugman & Obstfeld, 2000, p.76).

The relationship between free trade and income distribution according to the HOS model is known as the Stopler-Samuelson theorem, according to which, "an increase in the relative price of the labour-intensive good will increase the wage rate relative to both commodity prices and reduce the rent relative to both commodity prices" (Ethier, 1995, p.134).

In Figure 3.2 the growth in the demand for beef, a labour-intensive industry, *ceteris paribus*, leads to a relative increase in the wage rate, while the relative price of capital or rent reduces, owing to the decline in domestic demand following the alignment of relative factor prices with international terms of trade. This means that owners of labour, whose "price" (their wages) increases relative to rent, in general, should improve their household income.

3.4 Empirical Validity of HOS Model

Empirically, however, based upon US trade data, it has been found that income inequalities are not necessarily caused by trade but rather by other factors such as technological differences (Field, 1997). Such inequalities do occur even in non-traded industries. For trade between the industrialized countries and low-income countries, or the north-south trade, income inequalities are related to trade because the first-mentioned countries export skill and capital goods while the others export unskilled and semi-skilled labour intensive products (Krugman and Obstfeld, 2000). Capital goods require advanced technology unlike exports from low-income countries.

A loss of income after free trade is instituted may, in the short to medium term, require some public compensation (Ethier, 1995; Field, 1997) for affected industries to be able to adjust. For instance, since 1962, the US government has established a trade adjustment assistance programme to

help industries adjust to further tariff reductions as part of worldwide trade liberalization (Field, 1997, p.99).

Besides the unequal distribution of income after the introduction of free trade, there might be other private and social costs that require consideration/analysis. According to Field (1997), the movement from autarky to free trade (point C to D in Figure 3.2) may require that some workers be retrained to fit into the export-led industries. Similarly, additional environmental investment and monitoring may be required to ensure sustainable development in the export industry. The WTO has observed poor adherence to sustainable economic transformation by export-led industries that in turn has caused some serious environmental costs (WTO, 1994).

Among the several economists who have attempted to evaluate the HOS model empirically is Leontief (1953). According to the Leontief model, the US economy should specialize in capital-intensive exports as the country possesses relatively abundant physical capital. In his input-output study, Leontief found that instead the US exports were labour-intensive (i.e. the labour-capital ratio, or l/k was higher for exports than imports).

As a result of this paradox, some additional empirical work has been undertaken to explain the puzzle of the HOS theorem. In a multi-country and multi-factor study by Bowen, Leamer and Sveikauskas (1987), it was established that a modified HOS theorem including more goods and factors in trade between nations "can be explained in terms of an interaction between factor input requirements and factor endowments" (Bowen, *et al.*, 1987, pp. 804-805). While the result of the multi-country and multi-factor study did not strongly vindicate the conventional HOS model, there is, however, some evidence that different factor endowment does influence trade between countries.

Insofar as the Leontief paradox is concerned, US exports were found to be relatively skill-intensive (Field, 1997), which was one of the relatively

abundant factors in this economy. The standard HOS model assumes two factors, labour and capital, as well as two tradable goods. The labour factor in the HOS model is assumed to be homogeneous, although some labour is highly skilled and some is not. If skilled labour is treated as a separate and independent factor in its own right, then the HOS model is validated (Ethier, 1995, p.123; Field, 1997, p.160)

3.5 Limitations of the HOS Theorem

Besides empirical studies by Leontief regarding the standard HOS theorem, this framework has also been found to be deficient in explaining intra-industry trade that is a dominant feature in the relationship between industrial countries, the development of increasing economies of scale, imperfect competition and the growth of trading blocs, which tend to prevent free trade.

Indeed a recent article in the *Economist* entitled "Finding your Niche" argues that modern trade developments defy the HOS model based upon Ricardo's theory of comparative advantage (March 1, 2003). The article observes that since capital is mobile, entrepreneurs identify niche markets not necessarily based upon the theory of comparative advantage. Further, the article notes that success in industry is based upon "trial and error" as opposed to comparative advantage. Neither the HOS nor the Ricardo models capture the development of market imperfections in industries, a common feature in modern economies. New trade theory also identifies the deficiencies of the two models by indicating the following limitations (Robinson & Thierfelder, 1999; Brown, 2002).

3.5.1 Intra- Industry Trade

Conventional trade theory as well as the standard HOS model is based on inter-industry trade, where products are assumed to be homogeneous. When trade between countries takes place in products falling in the same classification category, such as cars or television sets, the factor endowment

approach becomes very deficient. Hence, over the years, the HOS model has been found to be deficient in explaining trade between high-income countries that is characterized by intra-industry transactions.

If there are few or minimal comparative cost differences between countries, which exhibit similar tastes, similar technology and comparable income levels, such countries generally concentrate on intra-industry trade independent of comparative cost advantage (Sodersten & Reed, 1994; Ethier, 1995; Field, 1997; Krugman & Obstfeld, 2000). Products such as motor vehicles or specialized and sophisticated equipment are a common feature in trade between high-income countries. Intra-industry trade is strongly characterized by product differentiation or the availability of various brands of the same product class. The application of tariff and non-tariff barriers may, however, reduce intra-industry trade among these countries. In contrast, intra-industry trade among low-income countries is unarguably very limited.

Whereas intra-industry trade is very strong (about 64 per cent), among the developed market economies (DMEs) themselves, the same cannot be said for low-income countries (LICs) whose intra-industry trade runs at about 22 per cent or a third of that of the DMEs (Sodersten & Reed, 1995). Further, unlike labour-intensive primary goods from low-income countries, manufactured goods from DMEs are characterized by highly intensive skills and technology (Sodersten & Reed, 1995). In addition, such products generally demonstrate higher income elasticity because of greater added value.

3.5.2 Increasing Returns to Scale

The HOS model assumes constant returns to scale, which means that when inputs are increased by a certain amount, output will also increase by the same amount. In the perfectly competitive market that the HOS model assumes, if firms operated under constant returns to scale, none of them would influence either the cost of inputs or the prices of outputs (Ethier, 1995).

Whilst it is possible to observe constant returns to scale in small and spatially dispersed sectors or activities such as agriculture, with regard to the production of manufactures such as motor vehicles, highly specialized equipment, electronic gadgets and the like, available evidence shows that production is most efficient when conducted under economies of scale or increasing returns to scale.

Economies of scale here mean that as output increases, the unit costs decline owing to improved productivity/efficiency. For increasing returns to scale, an equal percentage increase in factor inputs leads to a higher percentage growth in output. The economies of scale, unlike constant returns to scale, are common in intra-industry trade (Ethier, 1995; Field; 1997; Krugman & Obstfeld, 2000). The HOS model assumes constant returns to scale and also that none of the firms/countries involved should influence factor and commodity prices since both production and trade operate under perfectly competitive conditions. Empirically, Balassa (1986) found that intra-industry trade was dominant when trading countries exhibited generally similar per capita income, tastes, open economies and including technologies.

3.5.3 Imperfect Competition

The classical comparative cost advantage as indicated in the HOS model assumes perfect competition in both input and output markets. Insofar as trade among highly industrialized countries is concerned, however, imperfect competition in markets is the norm. In imperfect competition, a firm may influence prices whereas in perfect competition all firms or producers are price-takers. Industries such as aircraft, motor and petroleum producers, as well as those manufacturing highly capital- and skill-intensive goods such as specialized equipment (computers, television sets etc.), are dominated by oligopolistic firms in Europe, Asia and America (Ethier, 1995; Field, 1997; Krugman & Obstfeld, 2000).

A few oligopolistic firms, including the highly technology-intensive Swiss watch sector, also dominate the watch industry. The growing concentration of production by firms in the industrialized countries has indeed weakened the HOS model, as in some cases tradables are dominated by a few firms or multinational corporations. Multinational companies account for about 25 per cent of world income (Ethier, 1995, p.314). Given their size and market influence, these corporations can affect commodity prices.

3.5.4 No Barrier to Trade: Zero Transport Costs

It is also argued that accessibility by means of lower transport costs and the latest developments in information technology among industrial countries have further contributed to intra-industry trade. In many low-income countries, lack of infrastructure and technology may adversely affect productivity, transport costs and other transaction costs. Access to technology and electronic commerce could improve the competitiveness of low-income countries, as well as help to close the gap with industrialized nations (WTO, 1999). In fact, productivity gains in the high-income countries of Southeast Asia are partly attributable to greater access to infrastructure and investment in technology (Stiglitz, 1998).

The HOS model assumes that transport costs offer no barrier to trade, but in a study by Ahmed and Rustagi (1987), it was found that 40 percent of the difference in marketing costs of traded goods between Africa and Asia was owing to high transport costs in the former. Besides a poor and underdeveloped physical infrastructure in most African countries, there has been a tendency to concentrate this important input in urban areas, hence exacerbating producer-consumer-marketing margins.

3.5.5 Factor Price Equalization Theorem

According to the HOS model, factors are allowed to be mobile within industries in the same country. Ideally this means that labour and capital can

move freely from industry to agriculture, services, and vice versa as long as this movement takes place within a single country's economy. Factors are not allowed to move freely from one country to the other even when free trade is allowed to take place between countries. It is only goods/commodities that are allowed to move freely between nations.

With the advent of free trade between two countries this will. "cause factor prices in the countries to become more equal. If both countries continue to produce both goods, their factor prices will actually be equal" (Ether, 1995, p.132.

Assuming that labour and capital are the two factors used in the two countries, and that the countries face perfect competition, exhibit the same relative commodity prices (of, say, beef and wheat), and apply the same technology (see Figure 3.2), the Factor Price Equalization Theorem states that in equilibrium, relative factor prices will be equalized between the two countries (Sodersten and Reed, 1994; Ethier, 1995; Field, 1997; Krugman and Obstfeld, 2000). However, the equalization of relative factor prices assumes that neither country specializes completely, as this will violate the one factor-one product relationship as well as the different relative prices assumed by the HOS model.

As the HOS model does not allow for the free movement of factors, free trade provides a proxy for this movement through the free mobility of goods. Traded goods embody relatively abundant factors in each country (Krugman and Obstfeld, 2000, p.77).

3.6 The Rybczynski Theorem

This theorem states that where prices are adjusted for inflation or constant prices, an increase in one factor endowment, say labour, will increase, by a greater proportion, the output of the good which is intensive in that factor; but

reduce the output of the good to which this factor is not intensively applied (Ethier, 1995, p.135).
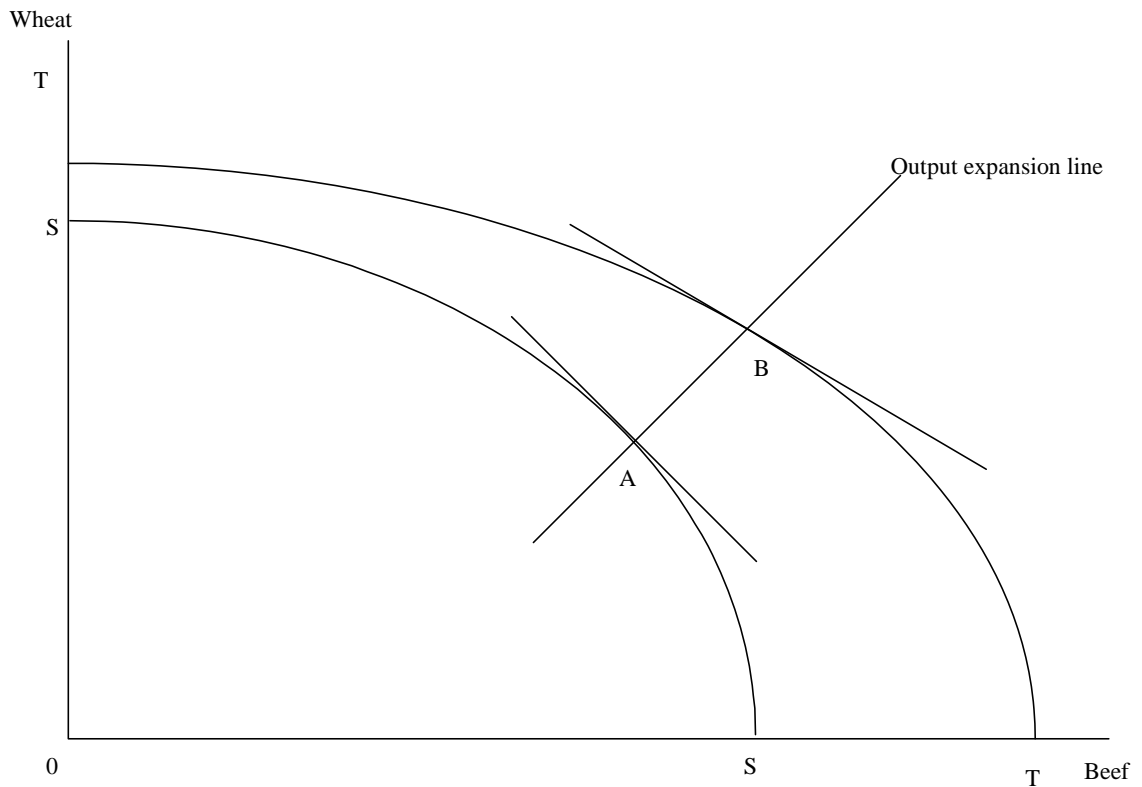

Figure 3.4: Illustration of Rybczynski Theorem

According to Figure 3.4, at constant prices, an increase in labour has increased the output of the labour-intensive good, beef, but reduced the output of the capital-intensive product (wheat). The increase in beef output, which is labour-intensive in terms of the Stopler-Samuelson theorem, has increased the incomes of owners of this labour-intensive product. The shift in the production possibility frontier, SS, according to the Rybczynski Theorem, to TT at point B, has increased by a greater proportion the output of beef compared to wheat. This in turn will cause beef producers to earn more income relative to wheat farmers.

3.7 The Theory of Customs Unions or Regional Free Trade Zones

Whereas standard trade theory assumes free trade between and among countries, since World War II, there has been an increase in the number of customs unions or regional free trading blocs. A customs union exists when a group of countries, normally geographically close to each other, apply a common external tariff to goods originating from third parties/non-members, while goods from members move freely within the union's territory (Krugman and Obstfeld, 2000). In a customs union all members establish a uniform tariff administrative structure to ensure compliance.

Unlike a customs union, in a free trade area, member countries agree to trade freely together but still exercise sovereignty in maintaining different tariff rates for third parties. In essence, in a free trade area each country sets its own tariff rates for the rest of the world. Some customs unions in the world include the former European Economic Community Union, the Southern African Customs Union, the now resurrected East African Community, the Caribbean Community and the Common Market, while the European Free Trade Association and the North American Free Trade Agreement are preferential free trade areas where member countries still independently maintain their own tariff rates. SACU is among the oldest customs unions in the world.

The most advanced form of economic and trade integration is an economic union where the monetary and fiscal policies of member states are standardized and a common currency is adopted (Sodersten and Reed, 1994; Field, 1997; Krugman and Obstfeld, 2000). The present European Union is almost an economic union since economic policies are being harmonized while a single common currency, the Euro, has been adopted. However, certain EU members still express reservations about the loss of sovereignty in economic policy decisions and management as well as about the sustainability of the Euro-based economy. While a major motivation for creating customs unions or regional trading blocs is to influence common

political interests, the economic, trade and investment reasons for members to work together are also paramount.

The joint decision to cooperate as an economic and trade grouping is intended to pool resources in order to maximize the benefits to members, at the expense of third parties (Sodersten and Reed, 1994). Some of these benefits include a better regional physical infrastructure, access to a bigger and protected market, industrial development, free movement of goods, improved educational facilities, etc. In general, a regional trade arrangement is not supported by the WTO as this could undermine trade liberalization by reinstating barriers between states and trading blocs, and lead to a proliferation of preferential as well as discriminatory practices (WTO, 1994; Krugman and Obstfeld, 2000, p.241). The current WTO provisions and obligations do not favour differential trade arrangements that discriminate against other countries, as market access to and by all member countries forms one of the main tenets of the global trade agreement.

One of the main aspects that the theory of customs unions attempts to address is whether trading blocks create trade or divert it. According to standard trade theory as advocated by Ricardo, HOS models, etc., free trade improves social welfare, leads to the optimal allocation of resources and provides consumers with a wider choice. The different relative prices in factors and products contribute to the overall increase in free trade. However, the creation of customs unions has over the years led to concerns being raised over the efficiency and welfare gains derived from this form of economic integration. If a small country model is adopted, trade creation, according to the theory of customs unions, occurs when imports from a low-cost producer(s) in the partner country replace imports from a high-cost and inefficient domestic producer (Sodersten and Reed, 1994, p.324; Field, 1997, p.356; Krugman and Obstfeld, 2000, p.243).
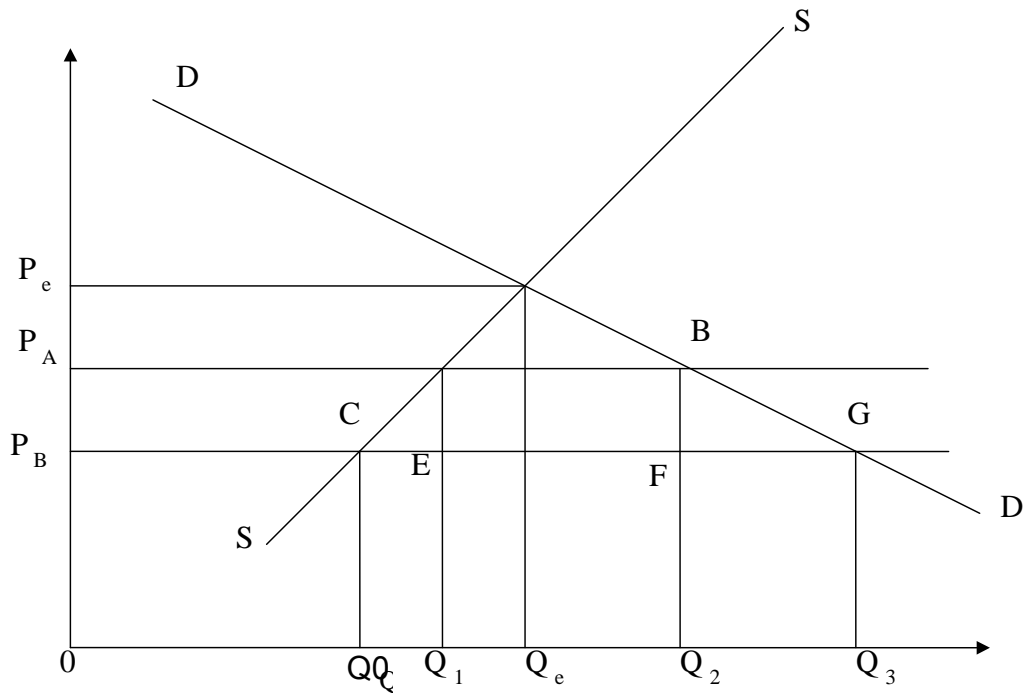
Figure 3.5 Trade Creation

For trade *creation* to take place in a customs union, the following must take place: before the union, country A obtained quantity $0Q_1$ of good X from its domestic producers at the protected domestic price, P_A, and also imported quantity $Q_1 Q_2$ from country B at price P_B to meet her total consumption requirements, $0Q_2$. The difference between country A's price, P_A, and that of country B, P_B is due to the tariff imposed by the former to protect local producers. When the two countries form a customs union, the tariff is removed and therefore country A can now purchase good X at a lower price, i.e. P_B After the union or economic integration, it is expected that the domestic price for good X in country A will be equal to P_B, which means that the domestic production of good X will now drop to $0Q_0$, while total consumption is $0Q_3$. With the formation of the union, country A now imports more from country B i.e. $Q_0 Q_3$ as opposed to the pre-union quantity, Q_1Q_2. Under these conditions, it is said that the formation of the customs union has been trade-creating between countries A and B because more of good X has been imported from a low cost/cheaper partner country, B.

The importation of a cheaper good X from country B by country A into its territory enhances welfare and provides consumers with a choice, and country A could re-allocate resources, previously tied to the production of X, to more efficient uses. In fact Sodersten and Reed (1994, p.329) underscore the value of this type of economic integration by observing that, "production gains associated with trade creation arise as resources are reallocated from industries where costs are high at the margin to other industries where costs compare favourably with those of world suppliers". It is hoped that the envisioned SADC regional integration, and the entering of FTAs with the EU and US by SACU, will enable Botswana to access food, agricultural and other imports from cheaper and more competitive world suppliers. Studies on trade liberalization in SACU and the rest of Southern Africa/SADC by Masters, Davies and Hertel (1999), Lewis (2001) and Lewis, Robinson and Thierfelder (2002), based on economy-wide analysis, indicate that overall there will be trade creation especially with the EU. Specifically, SACU experiences an increase in agricultural imports from the EU some of which could benefit food deficit countries such as Botswana due to limited natural resource base.

Trade *diversion*, however, takes place when a member of the customs union decides to import from a high-cost and inefficient partner country, although a source outside the union could supply good X more cheaply if there were no common external tariff. Trade diversion reduces welfare, since consumers in the union pay a higher price; whereas if there were no common external tariff, good X could be supplied by a third party – more cheaply. Trade diversion can also contribute to misallocation of resources because high cost and inefficient domestic producers in the union are protected from external competition by the common external tariff. Of course, it should be acknowledged that any support for high-cost producers among Customs Union members could be aimed at realizing other benefits such as political solidarity, employment security and social stability.

Whereas studies cited above indicated trade creation, Masters, Davies and Hertel (1999) also pointed out that if EU-SACU trade relations including the

rest of Southern Africa did not cover liberalization in the agricultural industry including the food industry, economic losses to SACU etc could be experienced as more costly imports could be sourced from Europe as opposed to cheaper ones from elsewhere. Under these circumstances trade diversion could occur to the detriment of the region. The study therefore advocates for trade negotiations/agreement with the EU, in particular, that include agricultural products so that those countries in the sub-region with comparative cost advantage benefit from trade liberalization/integration

3.8 Economies of Scale and the Customs Unions

Standard trade theory assumes a small country model whose system of production does not affect the factor costs because several producers exist in it. However, the possibility exists that certain goods (electricity, motor cars, and so on) may be produced under economies of scale. This might lead to the reduction of marginal costs as the level of output increases. In fact a firm/producer in the union may establish a bigger plant to produce certain goods more cheaply because of the size of the protected market. Prior to the formation of a union, the development of a plant so as to benefit from increasing returns to scale might not have been viable, given the size of the domestic market. Already within SADC opportunities exist to supply electricity to other countries, as larger energy producers like Mozambique and South Africa enjoy economies of scale. Access to low-cost energy is very important for regional integration and conservation of forest resources.

Corden (1972) observes that even with a protected market in a customs union, very few firms may benefit, as some might lose business owing to competition from within the union by efficient big plant operators. It is also possible that both trade creation and diversion could take place in the customs union even while certain producers enjoy economies of scale (Sodersten & Reed, 1994, p.341). For those countries that, prior to joining the union, faced high domestic costs of production but upon gaining membership are able to import goods from low-cost partner members, trade creation will

improve efficiency and welfare. However, if the high-cost countries/firms in the customs union displace low-cost and competitive world suppliers after becoming members, efficiency and welfare will be affected adversely.

3.9 Intra-Industry Trade and the Customs Union

As indicated earlier, a customs union also provides an opportunity to benefit from increasing returns to scale. The traditional theory of trade assumes constant returns to scale and perfect competition in factor and product markets. Trading countries within a standard trade framework are price-takers and therefore cannot influence prices or traded volumes. For increasing returns to scale, marginal costs reduce as the level of output increases.

Differentiated products such as cars and television sets can benefit from increasing returns to scale and promote intra-industry trade among members of the union. One member of the union may specialize in the low-cost production of a certain brand of car, for instance, and export it to high-cost members of the union more cheaply because of the absence of tariffs for members. Similarly, other union members could also export different brands or varieties of the same product as long as these brands are not perfect substitutes for one another (Sodersten and Reed, 1994, p.341). Intra-industry trade in goods such as cars, beer and electronic goods is very prevalent in the EU and NAFTA. Further, it is also assumed that the intra-industry trade undertaken by union members is based on competitive international costs and that trade diversion does not take place.

3.10 Terms of Trade and the Customs Union

The phrase terms of trade refers to "the number of units of imports of a country can obtain for each unit of exports" (Ethier, 1995, p.18).

An improvement in the terms of trade means that a unit of exports purchases more imports than previously whereas deterioration in these terms means that

a country gives up more exports to buy the same unit of imports. For small economies, the terms of trade or the price of export/price of import ratio is given, as these countries are price-takers in the world trade economy.

For a regional economic grouping like the European Union or free trade area like the North American Free Trade Association (NAFTA), these trading blocs can alter the terms of trade concerning goods and services, from both the supply and demand perspectives. Specifically, large trading blocs or customs unions like the EU and NAFTA can shift the demand and supply curves to their benefit, which in turn could have significant effects on export-import price relations. The EU is the largest trading bloc in the world and therefore can influence the terms of goods that it exports and imports, including agricultural products such as grains, meat and dairy (WTO, 1999).

The relatively high self-sufficiency ratios achieved by the EU in farm products since the 1970's occur mainly because of subsidies in terms of the Common Agricultural Policy (Anderson & Tyers, 1990). For a large customs union like the EU, influencing terms of trade that can raise or reduce world commodity prices especially for non-members, the welfare and efficiency effects for the latter may be worse or improve (Sodersten & Reed, 1994, p.343). Improving the terms of trade for EU members implies a deterioration of terms of trade for third party countries, as import prices will increase.

3.11 Non-tariff Barriers to Trade and the Customs Union

Besides tariff barriers, members of a customs union as well as of free trade areas also impose non-tariff barriers to trade, in order to protect their industries further. Some of the frequent restrictions imposed by customs unions are the use of quotas, rules of origin, licences, import permits, voluntary export restraints and subsidies to member country producers. In agriculture, additional non-tariff measures such as sanitary and phyto-sanitary (SPS) instruments may be imposed. SPS measures are basically intended to

ensure that imported agricultural products are disease-free and safe for human consumption (WTO, 1994).

Empirically, the welfare and efficiency gains of customs unions are still subject to controversy and major disagreement. While pre-union trade among EU states might have been limited because of high tariffs, various studies indicate that intra-union and intra-industry trade has increased because of the reduction in tariffs and free movement of goods in the customs union area (Truman, 1969; Balassa *et al.*, 1975; Hine, 1985). These studies indicate growth in trade creation and diversion. In general, trade creation enhances welfare whilst diversion reduces welfare and promotes inefficiency in production.

3.12 Rent Seeking and the Customs Union

As part of the political economy on protection, industries and pressure groups exist that argue for continued use of tariffs and other measures to maintain benefits even if this may reduce both economic efficiency and the welfare of the country (Krueger, 1974; Baldwin, 1976; Bhagwati, 1982; Sodersten and Reed, 1994; Field, 1997). Practices employed by pressure or interest groups such as farmers, industrialists and trade unions to resist foreign competition that could threaten or erode their benefits are also present in a customs union. In a union, tariffs and non-tariff barriers are imposed to protect industries as well as the interests of various players such as investors, farmers, workers and politicians.

Baldwin (1986) shows how politicians in the US argue for industry protection in exchange for votes. In fact the political support for the protection of the tomato industry in Florida against cheaper imports from Mexico is testimony to how various interest groups (farmers, workers, politicians) can collaborate in order to maximize economic rents. Economic rents exist when the domestic price of a commodity by means of tariff protection or other barriers is kept higher than the world price for the same product. As a result of restricted

competition and industry protection coupled with government or customs union support, economic rents are gained by those in the protected industries, including workers and manufacturers.

In addition, where a government in a customs union grants licences to certain individuals/companies to import specific goods in terms of quotas, owners of such licences will gain more while consumers and those who are not allowed to obtain licences are likely to be disadvantaged by paying higher prices because of quantitative restrictions. The welfare or cost of living of those not licensed to import is likely to worsen when such restrictions are imposed. Similarly, total prohibition of imports in a customs union will benefit domestic industries that are insulated by tariffs, quotas or any other policy measure which limits competition or an increase in aggregate supply so as to influence price. Pressure or interest groups enjoying protection, restricted or monopoly import licences and such like, are likely to lobby for more government intervention in the economy in order to safeguard their economic interests, at the expense of the efficient and equitable allocation of scarce resources to more sustainable and productive activities (Bhagwati, 1982).

At price P_A, Figure 3.5 above shows the likely efficiency, welfare and distributional effects following the imposition of trade restrictions (in terms of a tariff/quota) by country/union A to protect producers of good X. Besides the country/union producing the good more expensively ($P_A > P_B$), per capita consumption of this commodity is significantly reduced whilst the rent-seeking groups benefit. Producers of good X in the union benefit from higher domestic prices like P_A, while consumers are penalized. If, however, trade creation is advocated in the union then more effective allocation of resources and welfare gains could be achieved.

3.13 Real Exchange Rate

This is the relative price of a non-traded good to that of a traded good. If the price of a non-traded good, like wood, is P_n while that for a traded good like

wheat is P_t, the ratio P_n / P_t gives the real exchange rate. The relationship created between a non-traded good/sector and traded good/sector through relative changes in prices can be explained as follows. If labour is assumed to be a fixed and yet a mobile factor in a small economy model, and there is a booming traded sector like diamond production, the booming sector can cause the wage rate to increase. An increase in the wage rate not only affects the sector where the good is traded but also other traded and non-traded sectors in the economy. Other traded sectors may include textile and beef production while non-trading sectors could cover construction, wood gathering, repairs, and so on. The increase in the wage rate also increases production costs for all sectors of the economy.

Since traded sectors in a small economy cannot change the terms of trade of their goods and yet are forced to absorb additional costs due to a high wage rate, these sectors cannot pass on the additional production costs to consumers since they are competing internationally. Unlike the booming diamond industry, other traded sectors are forced to contract or decline in size. The non-traded sectors (construction, wood gathering, etc.) could, however, pass some of the additional costs on to domestic consumers as they do not face any import competition (Sodersten & Reed, 1994, p.284). The net result of the booming diamond industry is the decline in the relative growth/size of the other traded sectors owing to the additional costs arising from high wages. The non-traded good sectors like construction and wood gathering will experience relative growth compared to the contracting non-diamond-producing traded industries.

In short, the potential comparative cost advantage of the declining but traded sectors will be adversely affected by the booming diamond industry. As the non-traded good sectors relatively prosper, this means that the real exchange rate, P_n/ P_t, goes up or simply appreciates (i.e. $P_n > P_t$). Specifically, the relative price in the non-traded good sector, P_n, has increased vis-à-vis P_t, for the non-booming traded sectors such as textiles. The decline of sectors which

had previously been exported, owing to the effects of the booming sector, is commonly known as the "Dutch disease".

Botswana, like other mineral/petroleum-based economies, is experiencing the "Dutch disease" caused by the booming diamond industry that has increased the relative prices of the factor costs of labour. Other tradable sectors such as agriculture and textiles are forced to absorb additional production costs owing to this boom, which causes these sectors to decline and become uncompetitive. It is currently difficult to retain labour for farming and other trading sectors because of the high expectations by unskilled and semi-skilled workers that they will receive a higher wage, induced by the diamond mining and allied industries in the country. For instance, the request sometimes made to government by farmers and manufacturing industries to be allowed to import unskilled and semi-skilled workers from neighbouring countries is partly due to the effects of the Dutch disease, as local workers have become relatively more costly.

3.14 Summary

In summary, this chapter has described the theory of international trade based upon the neoclassical model proposed by Ricardo and later developed by HOS. The chapter has also identified deficiencies in the neo-classical trade theory and indicated some of the challenges to it based upon the new trade theory. While recognizing the limitations of the HOS model, this chapter still shows the relevance of comparative advantage between and among trading countries. In fact one of the main objectives of the WTO is to improve social welfare and reduce poverty, partly by means of encouraging global trade based upon the HOS model.

For Botswana, this chapter indicates how extensive beef production as opposed to wheat production is relatively more suitable, competitive and export-driven, owing primarily to favourable factor/natural resource endowment as well as to world producer prices. Climate and land are some of

the positive factors promoting relatively viable livestock farming. Available empirical evidence shows that the failure and costly nature of several food self-sufficiency initiatives in Botswana and elsewhere in the world are partly due to ignoring the virtues of the HOS theory/model. Agriculture is primarily a biological activity and therefore optimal climatic and physical conditions are necessary for both plant and animal growth and development. Unfortunately, for Botswana the climatic conditions are not conducive to viable crop production as a result of erratic rainfall and a semi-desert environment. Botswana can therefore benefit from trade creation if market access to more competitive food and agricultural imports from many parts of the world, based upon the HOS model, is achieved. Poor households in Botswana, as in many low-income countries, spend over 30 per cent of their disposable income on food. Some of the food is produced locally at high cost while the imported food is also made expensive because of tariffs used by government as revenue (Weber, *et al.* 1988; Lewis, Robinson and Thierfelder, 2002).

In addition, this chapter has also described the theory of customs unions or regional blocs as well as identifying potential benefits and costs associated with these systems. As a member of both the customs union (SACU) and a regional economic and trading bloc (SADC), Botswana can benefit from the applications of the theory of customs unions or regional trading blocs if trade is, as far as possible, based on comparative advantage, taking into account the different development challenges of member countries, which are also supported by WTO provisions such as special differential treatment (SDT) for developing countries, safeguarding mechanisms, etc. (WTO, 1995). The theory of customs unions is very relevant to Botswana and indeed other SADC countries, especially since the sub-region is moving towards economic integration as well as the formation of FTAs with large economies. The sub-region should, unless there is deliberate dumping, guard against trade diversion and rent-seeking, as these developments could negate the achievement of improved food security, social welfare and optimal use of scarce resources.

For the purpose of this study, fundamental issues have been raised in this chapter that will be investigated in detail for Botswana. In particular, can the application of the theory of international trade based on the comparative advantage/HOS model contribute to improved food security, greater household consumption and increased competitiveness of the agricultural sector in Botswana, unlike the system of food self-sufficiency covered in Chapter 2. The HOS model shows that food security or household consumption in Botswana could be enhanced by increasing domestic supply, in terms of encouraging both efficient and competitive domestic production and imports. Chapter 4 will apply partial equilibrium analysis to assess the likely effects of global trade liberalization on Botswana's food security and agricultural sector. Botswana, like many WTO members, advocates global trade based upon the HOS model while taking into account the level of development of each country.

As Botswana is a member of a customs union (SACU), this chapter has also shown that in the event that global trade liberalization creates trade by replacing high-cost SACU agricultural products with cheaper but comparable and competitive imported food and other agricultural products, this could also improve household food security and possibly per capita consumption. Trade is created within a customs area when imports from cheaper and more competitive producers are allowed in order to satisfy domestic consumption (unlike the situation under conditions of autarky or food self-sufficiency).

In general, certain countries or producers in a customs union usually resist the reduction of tariffs as this reduces domestic producer prices, which in turn negatively affects business profits. Tariffs are used to protect domestic producers and industries against foreign competition by increasing domestic producer prices. If after tariff reduction Botswana is able to obtain cheaper and more competitive imported cereals (wheat, maize, rice, barley, and the like), dairy and sugar products this could enhance household security, especially among poor families and workers. As a member of SACU, will trade creation enhance food security? What complementary policies are required

which could enhance household food security in a customs area when tariffs and other barriers to trade are reduced? While Chapter 8 will further examine the effects on food security in Botswana of the reduction of SACU tariffs in selected traded products, chapter 7 will investigate the effects of improved market access for the country's exports in terms of generating additional foreign earnings so as to import food and other goods. Improved market access for Botswana's exports also assumes reduction of tariffs and other trade barriers in pursuance of global trade based on the HOS model.