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ABSTRACT

ANALYSIS OF TRADE FLOWS IN STAPLE AGRICULTURAL COMMODITIES IN THE SADCC REGION

By

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This study addresses the issue of whether a basis for trade in agricultural commodities in the SADCC region exists. The institutional barriers to trade in the region, are examined. The extent of regional dependency on South Africa, and the impact of intraregional trade on U.S. markets are also analyzed.

These problems are addressed by analyzing the existing theoretical studies, using information from various country reports and sector studies to describe the institutional barriers to trade, and developing a data base on the quantity and direction of trade for staple food crops including maize, wheat, rice, and other coarse grains.

The study found that only a limited potential for trade in these commodities exists in the region. The institutional barriers to trade are extensive. Dependence on South Africa is large, although difficult to quantify. And, the U.S. market share in the region will not be severely cut by increased intraaregional trade.

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Chapter 1

Overview of SADCC Trade Study: Background and Approach

In a world which is becoming increasingly interdependent, many third world countries are reformulating their existing production and trade policies in an effort to maintain economic stability in the midst of a growing economic crisis. In an attempt to establish regional independence, the countries of Southern Africa; Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe have organized themselves into a loose association known as the Southern African Development Coordination Conference (SADCC). One of SADCC's goals is to increase intraregional trade.

1.1 Trade Problems Resulting from the Current World and Regional Situations

Several economic factors have interacted to create a situation in which it is difficult for the developing countries of Southern Africa to prosper. SADCC has envisioned increasing intraregional trade as a way to combat this trend. The rest of this section will briefly describe the reasons for the current economic crisis in the Third World and the regional problems such as historical

trade patterns, transport problems, weather, war, and domestic policies, which must be overcome if SADCC intraregional trade is to succeed.

1.1.1 Economic Crisis in the Third World

The countries of Southern Africa have not escaped the economic crisis which has plagued most Third World countries in the 1980's. Several variables have interacted to create a bleak economic situation for even the most prosperous Third World countries. This crisis can be traced back partly to the oil shocks of the 1970's which led to increased borrowing to finance petroleum imports. At the same time the relatively high export commodity prices in the 1970's led many countries to pursue debt financed investment. For all but the major oil exporters, this combination resulted in a high debt to GNP ratio and skyrocketing rates of inflation. While there is great diversity in the economic situations of various countries, Africa's overall debts grew by 21% per year from 1970 to 1980. In 1984, the debt to GNP ratio for Zambia was 181%; Tanzania's was 86.9%; Malawi's was 66.1%; Lesotho's was 45.3%; Zimbabwe's was 41.8%; Swaziland's was 40.2% and Botswana's was 28.5%. (ERS, 1986. pgs. 15-16)

The world recession of the early 1980's, in combination with the declining price for major SADCC export commodities such as coffee, cocoa, tea, tobacco, cotton and sugar; and the tight monetary policies of the developed

countries have only increased the severity of the situation.

Coffee and tobacco prices improved somewhat in 1986 due to a drought in Brazil. Earnings from major coffee exporters were 15% higher in 1986 than in 1985. However, Brazilian production should increase in 1987 reducing prices again. In 1985, Zimbabwean tobacco prices were up 30% in local currency terms. Nevertheless, world tea prices have fallen from 300 pence per kilo in 1984 to 120-150 pence per kilo in 1986. Sugar prices fell from 45 cents a pound in 1980 to 3 cents a pound in 1985. In 1984, cotton prices were only 64% of 1980 prices and cocoa prices dropped from $1.08 per pound in 1985 to $.90 per pound in 1986. (ERS, 1986. pgs. 37-44)

The fall in export prices in combination with an increase in real interest rates and the strong dollar made paying back loans nearly impossible. With no excess of petrodollars available for investment and a growing crisis of confidence in the Third World's ability to pay back their existing debts, the supply of credit available to them has been tightened substantially.

Furthermore, in an effort to combat burgeoning national deficits, both the U.S. and the EC have decreased the funding available for foreign aid while continuing to assist their farmers by funding extensive agricultural price support programs. These subsidization programs have distorted world market prices which has led to imports

being cheaper than domestic production in many Third World countries, further impairing their ability to compete on the international market. (ERS, 1986. p.14) Consequently, the SADCC countries have decided to promote intraregional trade in agriculutural commodities to conserve hard currencies for debt repayments and imports of capital goods. However, there are major barriers to intraregional trade which must be overcome first.

1.1.2 Major Barriers to Intraregional Trade

Historical Trade Patterns

The present trade patterns in the SADCC region are largely the result of colonial trade patterns and established dependencies on regional economic centers, the main one being South Africa. Since many of the Southern African countries have similar natural resource endowments and were developed along the same lines by their respective colonial powers, there exists a limited complementarity between their economies. This raises the important question of whether a basis for trade in agricultural commodities exists in the region.

The theory of comparative advantage is based on the relative efficiency of production. That is, even in the case of absolute advantage there are gains to be captured from trade if each partner produces and trades those goods which they can produce relatively cheaply. To assess the potential for trade, three questions must be addressed.

First, which goods are being produced in the region? Second, do some countries have a comparative advantage in the production of certain goods based on a more favorable climate, and availabilty of inputs and manpower? Finally, does the high cost of transportation in the region preclude any benefits that might be gained by specialization and trade?

It is clear that intraregional trade would be enhanced by the development of industry in the region since the largest percentage of imports to the region are made up of machinery and capital intensive items. However, the development of such industry in the region will take some time and it is beyond the scope of this paper to deal with this topic. Hence, in the interests of promoting regional food security[1] the above mentioned questions will be addressed as they relate to the staple food crops in the region. While white maize is the most important staple, wheat, rice, and other coarse grains are also major commodities grown in the region.

Transport

Even if a basis for trade exists, the problems created by a poor transport network should not be underestimated. Many of the rail lines running through the SADCC region are subject to sabotage from South African guerillas or

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[1]For the purpose of this study, food security is defined as the ability of a country or region to assure, on a continuous long-term basis, that its food system provides the total population access to a timely, reliable and nutritionally adequate supply of food.

political groups attempting to destabilize various governments. The end result is that many of the SADCC countries have become dependent on South African railroads for both imports and exports. Roads present an alternative to rail transportation, but they are expensive to build and maintain. Furthermore, if intraregional trade were dependent on roads, it would require a fairly extensive system over a vast expanse of territory. While an improved road system would unquestionably be of value, it has limited potential as a primary source of transport in the region.

The seriousness of this dilemma is heightened by the fact that six out of the nine SADCC countries are completely landlocked; and air transport is expensive and inappropriate for shipping bulky agricultural commodities.

Weather

Another deterrent to trade is the variable weather conditions which are found in the region. Botswana is currently entering their sixth year of drought. On the other hand, Zimbabwe had a record maize crop in 1984/85 which was estimated at approximately 2.9 million tons. This allowed Zimbabwe to rebuild low stocks and resume exports after three consecutive years of poor rainfall. In 1986, Zimbabwe's maize output fell 20%. While this shortfall was not detrimental, given the previous year's large carry-over stocks, production is predicted to decline even further in

1987 due to another drought. Since Zimbabwe is the region's main producer of maize for export, this could have a significant impact on intraregional trade in agricultural commodities.

War

Two of the nine SADCC countries, Angola and Mozambique are currently in the midst of civil war. Practically all agricultural production in the two countries has ceased and little is known about food availability in either country. In Angola, most of the people of the central highlands, the most fertile agricultural area, have been displaced. As a result, the urban areas which are already heavily dependent on imports are even more dependent. In both countries most transport facilities have been totally destroyed. (ERS, 1986. p.31) Mozambique's food imports have been dominated by food aid which represented 90% of grain imports in 1984/85. Angola, on the other hand has more foreign exchange because it is an oil producer. Thus, it has been able to purchase 90% of its commercial imports. However, this is not likely to continue because of decreased foreign reserve holdings. Consequently, Angola will be forced to increase their dependence on food aid. (ERS, 1986. p.47)

Domestic Policies

Furthermore, many of the countries within SADCC have domestic policies which discourage intraregional trade.

These include the maintenance of overvalued currencies which result in increased imports and decreased exports and the use of tarriffs to control domestic spending and for tax collection purposes. Many governments give preferential access to foreign exchange to those sectors that they determine should advance and often food security is not a high priority for imports.

Other Barriers to Trade in the Region

Additional barriers to importing from within the region include: "the limited availability of essential goods and services; to the extent that they are available, poor knowledge of availability; higher costs or lower quality (believed or real); in some cases higher tariffs; limited credits; uncertain deliveries and possible delays; and existing established trade connections (including special interests of those involved in this trade to maintain it.)" (Michelson, 1986, p.7)

Barriers to exporting within the region are "poor knowledge of market opportunities, uncertain markets, and uncertain payments, delays; small markets, possibly not profitable; no essential products to be imported in return (in the case of countertrade); and, established export channels and commitments to other (third) countries." (Michelson, 1986, p.7)

Despite the many constraints to intraregional trade, there is limited evidence that intraregional trade does

exist and that it can be improved to the benefit of all those in the region. SADCC's emphasis on improving regional food security and trade reflects this belief.

1.1.3 SADCC: A Step Towards Regional Integration

To promote regional growth, lessen their growing international dependency and assure regional food security, the SADCC states met in Lusaka in 1980 and agreed on a regional scheme for cooperation. The four objectives in the Lusaka Declaration are as follows:

1. the reduction of economic dependence, particularly, but not only, on the Republic of South Africa;
2. the forging of links to create a genuine and equitable regional integration;
3. the mobilization of resources to promote the implementation of national, interstate and regional policies; and
4. concerted action to secure international cooperation within the framework of the strategy for economic liberation. (Koester, 1986. p.16)

A small secretariat was created to administer SADCC activities. The responsibility for implementing programs is given to individual member states, each of which is responsible for at least one portfolio. Each country submits proposals to the Council of Ministers for the area assigned to it. If these are approved, they become the SADCC program of action. "SADCC's refusal to build a huge bureaucracy implies countries have not agreed on a detailed regional development strategy." (Koester, 1986. p. 20.)

The original food security plan consisted of eight projects. These included the coordination and cooperation on all agrarian issues, a regional early warning system, a regional resources information system, a regional inventory of the agricultural resources base, a regional food reserve, a program to reduce regional post-harvest food losses, a more efficient food marketing infrastructure, and regional food aid. Several elements are necessary to acheive the food security objectives listed above. These include strengthening national food production capacity; improving the food storage, marketing and distribution systems; developing skilled manpower; developing intraregional trade; establishing systems for the prevention of food crisis; establishing programs for the control of major pests and diseases; developing national food policies; and developing institutions and mechanisms for the exchange of information on all these issues.(Koester, 1986. p.20)

1.2 Thesis Objectives

This study deals with issues involved in quantifying the existing intraregional trade patterns as a basis for future research on increasing regional trade. The specific objectives of this study are:

1. To assess the basis for trade in agricultural commodities in the SADCC region.
2. To examine the institutional barriers to trade in the region and assess their overall potential for hindering such trade.

3. To establish a data base on the quantity and direction of trade for staple food crops including maize, wheat, rice and other coarse grains. This will be used to evaluate the current trends in agricultural trade and assess the potential for expanding trade.

4. To identify and analyze the extent of regional dependency on South Africa.

5. To determine the impact of increased intraregional trade on U.S. markets for maize, wheat, rice, and other coarse grains in the SADCC region.

1.3 Procedures

These objectives are acheived by first analyzing existing theoretical studies to determine if a sufficient complementarity exists among the agricultural sectors of the various countries to provide a basis for increased intraregional trade. Second, information from various country reports and sector studies is used to describe the institutional barriers to trade. Finally, a trade data base is developed and analyzed to quantify the volume and direction of trade flows in the region based on data obtained from the U.N. Trade Tapes, the Food and Agriculture Organization, and the United States Department of Agriculture.

1.4 Thesis Organization

Chapter 2 discusses the major differences in the SADCC cooperation scheme and traditional integration schemes. This is followed by an analysis of the methodology and findings of the Koester study, the only major theoretical

study which attempts to determine if there is a basis for trade in the SADCC region. In the course of this analysis, several production and trade indexes are developed and analyzed.

Chapter 3 exams institutional barriers to trade in the region. Macroeconomic policies, transportation, pre-existing trade agreements and non-tariff barriers to trade are presented and analyzed in terms of their current or potential impact on intraregional trade in agricultural commodities.

Chapter 4 analyzes the available trade data to identify the direction and quantity of trade flows in the region over the last 15 years. Data problems and constraints are discussed. It is hoped that the data base developed here will stimulate further research. Since most of the commodity imports into the region are in the form of food aid, a general overview of food aid imports is presented and trilateral transactions are discussed as a means to promote intraregional trade through food aid.

Chapter 5 summarizes the major conclusions generated by the study, notes limitations of the study, and identifies areas for future research.

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Chapter 2

Survey of Previous Work on the Potential for Increased Intraregional Trade in The SADCC Region

Before proceeding to examine the current trade flows and the institutional barriers to trade in the SADCC region, several theoretical questions should be addressed. For instance, is there a basis for trade in the SADCC region in staple agricultural commodities, would such trade compensate for production instability in the individual countries, and will regional cooperation as a step towards integration improve regional welfare? This chapter critically analyzes some of the previous work that has attempted to address these issues.

2.1 Theory of Economic Integration

The theory of economic integration is a "second-best" approach to a world in which multiple trade distortions exist. If perfect competition prevailed, free trade would allow prices to equilibrate supply and demand, but governments tend to place other non-economic national objectives such as employment, national defense and food security above the workings of a free market. Therefore, economic integration represents only a partial move towards

a free market, and as the general theory of second best suggests, it is impossible to determine, a priori, if acheiving partial Paretian optimum conditions will improve or worsen an existing situation. (Lipsey and Lancaster, pgs. 11-12).

The traditional theory of economic integration classifies integration into five stages: free trade area, customs union, common market, economic union and complete economic integration. Each classification is based on the degree of discrimination employed against partner countries. A free trade area allows for the movement of goods and services within the designated area while each country maintains its own tariff structure against third countries. A customs union provides for the free movement of goods within the union while imposing a common external tariff against nonmembers. A common market is a customs union which allows for the free movement of factors such as labor and capital in addition to the free movement of goods. An economic union moves beyond a common market by harmonizing economic policies. And finally, economic integration involves the complete integration of economic policy.

2.1.1 The Impact of Integration on World and National Welfare

The majority of the integration analysis to date has focused on the static and dynamic effects on world and national welfare caused by the formation of customs unions

among developed countries. Static effects include the allocation effect on production and consumption, and changes in the terms of trade. The dynamic effects are hard to measure and include such things as accelerating the rate of growth through increasing the rate of technological change, increasing the effectiveness of competition and acheiving internal and external economies of scale. (Clement, 1967. p.177) Viner, in his seminal work on customs unions entitled The Customs Union Issue , (1950), identified trade creation and trade diversion as two static effects on trade flows which result from integration. Trade creation generally refers to a decrease in inefficient domestic production as tariffs are lowered or eliminated on member countries who are more cost effective producers and imports from these countries are increased. Trade diversion refers to more efficiently produced imports from third countries being displaced by the member countries in the customs union because of the tariff discrimination imposed upon nonmembers. While trade creation is considered to improve world welfare by increasing efficiency through capturing economies of scale, trade diversion has negative world welfare consequences. (Viner, 1950. p.44) Viner's work stimulated a great deal of theoretical work in response to and as an extension of his theories. (See Balassa, Cooper and Massell, Cordon, Johnson, Lipsey, Meade, Viner). However, the majority of the empirical work has focused on the welfare implications of customs unions

on developed countries. (See Balassa, Bentick, Krause, Kreinen, Thorbecke).

2.1.2 Economic Integration and Developing Countries

Integration in developing countries presents different problems and opportunities. As Kreinen notes, there are important differences between the effects of integration in developed and developing countries. In the former, the effect on world welfare is of primary importance, but in the latter the impact on world welfare is fairly insignificant.

> "In Europe, trade diversion is considered harmful because it implies misallocation of fully employed resources from more efficient to less efficient pursuits. But in developing countries, the domestic labor drawn into trade diverting activities may have been formerly unemployed or underemployed, so that the opportunity cost is at or near zero." (Kreinen, 1987. p.395)

In most cases the industrial trade diversion from integration of third world countries is limited because they lack the internal capacity to meet their requirements anyway. However, in some cases, trade diversion among developing countries may actually be beneficial to developing industries in these countries. As intraregional trade increases, economies of scale may lead to saving scarce foreign exchange. (Kreinen, 1987. p.395). H.G. Johnson (p.279) and Cooper and Massell (p.461-476) extend this to the infant industry argument by noting that if

there is a divergence in private and social marginal costs, and nations feel that they need to support the development of certain industries "the welfare losses might be less if they cooperate than if they pursue autonomous national policies." (Koester, 1987. p.26)

This line of reasoning is particularly valid for economic cooperation among the SADCC countries because in this region the development of a regional transportation system is a prerequisite to regional food security. In Southern Africa, transport infrastructure has the characteristics of a public good since six out of nine countries are landlocked and depend on the transportation systems in neighboring countries to market their goods. Thus, regional cooperation may provide a more efficient means of development than each country pursuing their own infrastructural projects without regard to how these projects will complement each other.

If trade diversion is not a problem, what then can be said about trade creation? While there is no satisfactory way of quantifying the gains and losses from economic integration, the following four qualitative statements provide insights into conditions which must prevail to maximize a welfare improvement through integration.

1. The higher the price elasticities of demand and supply in the member countries for goods traded before forming the union, or for goods that will be traded following the elimination of barriers, the greater the trade creation effect.

2. The greater the proportion of pre-union foreign trade of each member-to-be that is with other members-to-be, the greater is the probability that cooperation will raise welfare.

3. The higher the barriers before cooperation, the greater the increase in trade following the removal of these barriers.

4. And finally, trade creation is more likely to dominate if the economies are competitive; and the greater the differences in production costs in the countries for the goods involved. (Clement et al., 1967. p. 186-188)

Unfortunately, economists have not extended the above analysis of integration to examine the effects on national or regional food security especially in the case of developing countries. This study will examine these statements as they relate to the production and trade of staple grains in the SADCC region.

2.2 SADCC Approach Broader than Market Integration

The SADCC approach to integration is very different from the market approach of the European Community. An extensive literature review identified "Regional Cooperation to Improve Food Security In Southern and Eastern African Countries" by Koester as the only theoretical analysis on the potential gains from regional cooperation among the SADCC states. Koester makes two important points before analyzing whether a basis for agricultural trade among the SADCC countries exists.

He notes,

> "that if one of the objectives of an integration scheme is improvement of food security, it is not advisable to accept the narrow definition of integration incorporated in traditional economic integration theory. Market integration which is the only concern of traditional economic integration is just one of several strategies to be investigated." (Koester, 1986. p.24)

The SADCC approach to cooperation is not limited to market integration, rather it focuses on a series of development portfolios. Koester's second point is that theory can not tell us whether potential gains will be exploited. The realization of these gains depends on the establishment and cooperation of various institutions (Koester, 1986. p.24). This will be examined in greater detail in the next chapter.

2.2.1 Review of Previous Theoretical Analysis on Regional Cooperation Among SADCC Nations

While Koester does not directly address the issue of pre and post cooperation demand and supply elasticities, he does attempt to develop the relationship between regional and national production variability and to address the question of whether there is a basis for trade among the SADCC countries in agricultural commodities. His major hypotheses are that trade can substitute for national stockpiling and thus even out national production variability; and that trade allows specialization in production in accordance with comparative advantage.

Koester analyzes these hypotheses by examining trade and production patterns. He uses the Cuddy Della/Valle Index to measure the production instability in each SADCC country. He then sums the coefficients of variation for each SADCC country to determine the regional instability. To examine the second hypothesis six indexes are used. These include the production similarity index, the comparative production performance coefficient, the export similarity index, the coefficient of comparative advantage, the trade overlap indicator, and the trade expansion coefficient. These are discussed in detail below.

2.2.2 Trade Used to Compensate for Variation in National Production

To examine the first hypothesis, Koester uses a series of equations. The Cuddy/Della Valle Index is used to measure national cereal production variability. This index is defined as:

$$I = CV\sqrt{1-\bar{R}^2} \qquad (1)$$

where:

CV = cofficient of variation, and
$\bar{R}^2$ = adjusted coefficient of determination of an arithemetic linear or log-linear trend.

(See Appendix 1 for the derivation of this index.) The advantage of this index is that it can be applied to non-trended, or trended time series data, whereas, in theory, the coefficient of variation (CV) is applicable only to a non-trended data series. Although the unadjusted

coefficient of variation is often used on trended data, if a statistically significant trend exists, it will overestimate the fluctation in production. The Cuddy/Della Valle index has a lower limit of 0 and an upper limit equal to the CV of the series. If $\bar{R}^2=1$, the measure of instability is equal to 0. As Cuddy and Della Valle note, "when $\bar{R}^2=1$ the actual values of y show no deviation whatsoever about the estimated regression line, and thus the y's are not at all 'unstable' with regard to the model explaining them." If $\bar{R}^2$ is equal to 0, then the index is equal to the CV because the model explaining y explains nothing at all. (Cuddy and Della Valle, 1978. p.82) The better the fit of the regression model, the lower the index value. Consequently, the value of the index depends on the regression model used. Koester fails to mention whether he used an arithematic linear or log linear trend function in his calculations. The two methods produce slightly different $\bar{R}^2$'s. Cuddy and Della Valle suggest that if both the parameters and the $\bar{R}^2$ are significant that the model with the highest explanatory value should be used. If the $\bar{R}^2$ is low, then the CV should be used. (Cuddy and Della Valle, 1978. p.83)

Koester then uses the standard equation for the variance of a sum of numbers (2) to derive the equation for the coefficient of variation for the region as a whole (3) to compare the level of regional instability to the level of national instability, as measured by the Cuddy/Della

Valle index. As a measure of variability, the coefficient of variation is superior to an index based on variance which doesn't take into account that the quantity produced or consumed varies among countries. The variance of a sum of numbers is given by:

$$\operatorname{var}\left(\sum_{1}^{n} Qi\right) = \sum_{1}^{n} \operatorname{var}(Qi) + 2 \sum_{i<j}^{n\,n} \operatorname{cov}(Qi, Qj), \qquad (2)$$

where:

$\operatorname{var}\left(\sum_{1}^{n} Qi\right)$ = variance of regional production around the trend

1,...,n = number of countries,
var(Qi) = variance in production of country i
var(Qj) = variance in production of country j,
cov(Qi,Qj) = covariance in production of country i and country j.

The coefficient of variation for the region is derived from the equation above and is:

$$CV^2\left(\sum_{1}^{n} Qi\right) = \sum_{1}^{n} s_i^2\, cv^2(Qi) + 2 \sum_{j}^{n} \sum_{i<j}^{n} s_i s_j\, r_{ij}\, cv(Qi)cv(Qj) \qquad (3)$$

where:

s_i = share of country in regional production, and
r_{ij} = coefficient of correlation between deviation from trend production of country i and j.

The r_{ij} will determine the sign of the second term in the equation. If fluctations in national production are independent the second term will drop out. Therefore, regional cooperation to reduce supply fluctations is useful

if fluctations in production are independent or somewhat positively correlated and especially if production fluctations are negatively correlated. (Koester, 1986. p. 42) Koester finds that in seven out of nine countries production fluctates between years by more than 10%. According to his calculations the instability index for Botswana is 68.8, Swaziland is 26.4, Zimbabwe is 22.3, Lesotho is 19.7, Mozambique is 12.7, Zambia is 12.7, Malawi is 11.6, Angola is 9.8, and Tanzania is 9.2. With regional cooperation, he predicts that the production instability of the region would drop to 9. (Table 2.1).

2.2.3 Relevance of the Cuddy/Della Valle Index

This analysis quantifies the volatility of production in each nation. Koester then provides a reliable measure of regional variation which is based on the summation of the variations of each SADCC country. In aggregate terms this indicates that there is potential basis for trade in the region.

However, the validity of the index as a basis for the assumption that production can be stabilized through trade which will stabilize consumption and insure food security is questionable for the following reasons.[1] First, the analysis shows that regional production variability is less

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[1]Food security is defined by Koester to be the ability of food deficit countries, or regions, or households within these countries to meet target consumption levels on a year-to-year basis. (Koester, 1986. p.12)

Table 2.1 Instability in Cereal Production, SADCC Countries, 1960-1980

Country	Production Share	Instability Index	Correlation Coefficients							
			Angola	Botswana	Lesotho	Malawi	Mozamnique	Zimbabwe	Swaziland	Tanzania
Angola	0.0779	9.8120	1.0000	...	...	...	...	...	...	...
Botswana	0.0082	68.8476	0.2114	1.0000	...	...	...	...	...	...
Lesotho	0.0315	19.6511	-0.4517	-0.1322	1.0000	...	...	...	...	...
Malawi	0.1782	11.6434	0.0292	0.0986	0.2541	1.0000	...	...	...	...
Mozambique	0.1008	12.7504	0.2638	0.2563	-0.1770	0.5577	1.0000	...	...	...
Zimbabwe	0.2496	22.3248	0.2796	0.6722	-0.0878	0.1533	0.1533	1.0000	...	...
Swaziland	0.0109	26.4070	0.3907	0.6311	-0.2191	0.4021	0.4021	0.7947	1.0000	...
Tanzania	0.1962	9.2383	-0.2381	-0.2786	0.0448	-0.1822	-0.2432	-0.1697	-0.2908	1.0000
Zambia	0.1467	12.6643	0.2832	0.7444	-0.0584	0.3779	0.3451	0.6367	0.6002	-0.2908

Note: The Instability Indexfor the region was 9.0222 and that for the rest of the world was 2.3999.
Source: Ulrich Koester. "Regional Cooperation to Improve Food Security in Southern and Eastern African Countries," International Food Policy Research Institute Research Report 53. (1986):45.

than national production variability. This by no means assures stabilization in the region through trade because the index does not take into account the institutional barriers which prevent the flow of goods from one area to another.

Second, Koester assumes that regional consumption is equal to regional production and that "an individual country's share in consumption is equal to the country's share of expected regional production." (Koester, 1986. p.43) This guarantees that the individual country's consumption is the same and equal to the coefficient of variation of regional production resulting in a decreased variance in consumption as a result of regional integration. This assumption is unrealistic since with very few exceptions (Zimbabwe in maize, and sometines Malawi and Tanzania in maize), the region consumes more than it produces. The difference is made up of food imports and food aid as will be discussed in detail in Chapter 4. Hence, while stabilizing production will stabilize consumption, this does not solve the problem of inadequate regional food supplies.

Third, Koester's analysis concerning price fluctations is incomplete. He estimates that if free trade prevailed, world grain prices would fluctate by about 4.8%. He obtains this figure by noting that world grain production fluctated by only 2.4% during the period 1960-1980. Since the world price elasticity of demand is

estimated to be approximately -0.5, free market prices should vary by about 4.8%. He then states that "if price fluctations are pronounced, it indicates that individual countries are not allowing trade to compensate for fluctations in production" and therefore there is a basis for intraregional cooperation. (Koester, 1986. p.44). While this statement is generally valid, Koester fails to establish the link between production instability and price fluctations in the region. In most of the countries, the governments subsidize the food prices so production fluctations may not be reflected in prices regardless of the level of trade. Second free trade does not prevail; world grain prices are distorted by the subsidization policies of the U.S. and the EC. Third, if wide price fluctuations in agricultural commodities exist within the SADCC countries, it may reflect the fact that agricultural imports are constrained by foreign exchange shortages. Thus, the need for intraregional cooperation centers on its potential to conserve hard currency rather than on the ability to limit price fluctations to those that would occur if a free world market existed. As a byproduct of cooperating to conserve hard currency, agricultural prices may be stabilized to some degree. However, if regional exporting countries require hard currencies in exchange for their goods, trade may not occur because the importing countries need this currency to pay off debts and import

capital goods and price fluctations will not necessarily decrease.

2.3 Comparative Advantage and Potential Trade Expansion

The second question that Koester addresses is whether there is a basis for trade in agricultural commodities in the region. To determine this he calculates several indexes which shall be examined below.

2.3.1 The Production Similarity Index

The hypothesis of limited complementarity is addressed by calculating a production similarity index, defined as:

$$S^{a}(ab,c) = \{\sum_{i} \text{Minimum } [x_i(ac), x_i(bc)]\}100 \qquad (4)$$

where:

$x_i(ac)$ = the share of commodity i in a's agriculture production, and
$x_i(bc)$ = the share of commodity i in b's agricultural production.

If the production patterns between countries are completely the same, the index will equal 100, if they are completely dissimilar the index will equal 0. In other words, if Tanzania produces 20% maize, 40% sorghum and 40% millet and it is being compared with Malawi which produces 70% maize, 10% sorghum and 20% millet, the index would equal 50. This is determined by taking the minimum value between the two countries for each commodity (i.e. 20% for maize, 10% for sorghum, and 20% for millet). FAO Production Yearbook data

for various years between 1977 and 1979 for forty-seven products are used to formulate the production similarity indexes. Koester's results are shown in Table 2.2. On the basis of this data, he claims that there are significant differences in production patterns.

This analysis has two major deficiencies. First, Koester does not provide evidence that the production patterns in this period are representative of most years in these countries. For example, the production patterns in Zimbabwe during this period were atypical because of the guerilla warfare and embargoes Zimbabwe suffered as they fought to establish their independence.

Second, including 47 commodities makes it impossible to determine whether there is a basis for trade in staple commodities. Reestimating the production similarity index using only wheat, rice, maize, sorghum, and millet, for 1977 to 1979, shows that the production patterns are quite similar. (Table 2.3). It should be noted that Koester implies by an explanatory example that he uses value of production data rather than quantity of production data. The index was recalculated using quantity of production data which accounts for some of the variation in results. In general, value data is less reliable because it "suffers from all the problems of quantity data plus the special problems associated with setting on a price." For instance, prices are often quoted in national currencies and then

Table 2.2 Production Similarity Indexes, 1977-1979

Country	Angola	Botswana	Lesotho	Malawi	Mozambique	Swaziland	Tanzania	Zambia	Zimbabwe
Angola	...	18.22	11.33	62.07	85.90	17.74	37.63	53.18	68.95
Botswana	...	...	62.19	29.36	15.66	97.38	6.86	34.26	12.56
Lesotho	...	...	...	18.26	9.73	63.86	4.26	21.31	7.81
Malawi	...	...	...	...	53.30	28.59	23.36	85.68	42.80
Mozambique	...	...	...	...	...	14.91	43.81	45.68	80.27
Swaziland	...	...	...	...	...	...	6.86	33.40	12.25
Tanzania	...	...	...	...	...	...	...	20.01	54.58
Zambia	...	...	...	...	...	...	...	...	36.67

Notes: An indexof 100 shows that the patterns of the two countries are completely alike; an index of 0 shows them to be completely dissimilar.
Source: Ulrich Koester. "Regional Cooperation to Improve Food Security in Southern and Eastern African Countries," International Food Policy Research Institute Research Report 53. (1986): 45.

Table 2.3 Production Similarity Indexes for Maize, Wheat, Rice, Sorghum, and Millet, 1977-1979

Country	Angola	Botswana	Lesotho	Malawi	Mozambique	Swaziland	Tanzania	Zambia	Zimbabwe
Angola	...	55.38	55.11	85.09	66.29	87.95	81.39	89.90	92.10
Botswana	...	...	75.49	55.20	81.17	50.10	72.14	58.79	58.36
Lesotho	...	...	...	61.42	80.67	56.32	73.72	57.81	61.60
Malawi	...	...	...	...	71.64	93.79	76.91	92.29	81.93
Mozambique	...	...	...	...	...	68.18	79.43	66.04	64.50
Swaziland	...	...	...	...	...	...	71.81	90.73	82.42
Tanzania	...	...	...	...	...	...	...	79.43	85.07
Zambia	...	...	...	...	...	...	...	...	89.65

Notes: An index of 100 shows that the patterns of the two countries are completely alike: an index of 0 shows them to be completely dissimilar.
Source: Author's calculations using FAO data. Based on Production Similarity Index developed by Ulrich Koester. "Regional Cooperation to Improve Food Security in Southern and Eastern African Countries," International Food Policy Research Institute Research Report 53. (1986):45.

converted into dollar value. However, exchange rates may vary considerably over time. (Hiemstra, 1986. p. 5-6.)

The recalculated index shows that Zimbabwe and Angola, Zambia and Angola, Malawi and Swaziland, Malawi and Zambia, Swaziland and Zambia, and Zimbabwe and Zambia all have similarity indices approximately equal to or greater than 90. The lowest index number is for Lesotho and Angola and is still quite high at 55.11.

When the production similarity index was reestimated to reflect production patterns from 1982-1984, similar results were found although the overall similarity of production patterns in the region decreased somewhat. (Table 2.4) The lowest index number was 45.01 for Malawi and Tanzania. Malawi and Swaziland, Zimbabwe and Angola, and Botswana and Mozambique, had particularly high indices with Lesotho and Zimbabwe, Malwai and Zimbabwe, Angola and Swaziland, and Malawi and Angola following close behind. It is difficult to say what caused the index values to change.

Without considering cost of production data, this index is not a valid indicator of the degree of complementarity between production schemes in the SADCC countries. Hence, it is incorrect to assume that current production patterns reflect comparative advantage. It is possible for countries A and B to have production possibility curves which imply different comparative advantages and yet, have the same production patterns. This could result from similar tastes

Table 2.4 Production Similarity Indexes for Maize, Wheat, Rice, Sorghum, and Millet, 1982-1984

Country	Angola	Botswana	Lesotho	Malawi	Mozambique	Swaziland	Tanzania	Zambia	Zimbabwe
Angola	...	59.17	75.16	81.5	59.61	82.74	54.54	77.64	90.57
Botswana	...	...	79.33	55.30	86.80	56.30	64.96	57.20	67.02
Lesotho	...	...	...	73.70	76.71	74.70	64.81	75.60	84.30
Malawi	...	...	...	...	61.14	98.00	45.01	77.00	83.21
Mozambique	...	...	...	...	...	62.73	66.83	69.89	63.11
Swaziland	...	...	...	...	...	...	46.79	79.13	84.20
Tanzania	...	...	...	...	...	...	...	55.30	59.79
Zambia	...	...	...	...	...	...	...	...	77.11

Notes: An index of 100 shows that the patterns of the two countries are completely alike; an index of 0 shows them to be completely dissimilar.

Source: Author's calculations using FAO data. Based on Production Similarity Index developed by Ulrich Koester. "Regional Cooperation to Improve Food Security in Southern and Eastern African Countries", International Food Policy Research Institute Research Report 53. (1986):45.

and preferences or government policies which encourage self-sufficiency as a means of assuring food security.

However, if one accepts the index as providing some indication of what current production patterns are, it appears that the production patterns for staple food crops in the region are very similar which is contrary to Koester's original findings.

2.3.2 The Comparative Production Performance Coefficient

In order to further examine the similarity of production patterns, Koester uses a comparative production performance coefficient (CQP) defined as:

$$CQP = Q_{ij}/Q_{iw} : \sum_{i=1}^{49} Q_{ij} \Big/ \sum_{i=1}^{w} Q_{iw} \qquad (5)$$

where:

Q = quantity produced,
i = type of product,
j = country in question, and,
w = world.

An index greater than one merely indicates that the share of the commodity in the country's total production is greater than the commodity's share in total world production. If countries have similar production patterns, the CQP coefficient for individual products should vary only slightly. Hence, the commodity's share in world production is used as a standard to compare the similarity of production patterns between two countries.

Koester estimated the coefficients for 49 products for 1967-69, 1972-74, and 1977-79, but only reports the three

products with the highest coefficients in each country during each time period. In total, eighteen different products are in the top three listed for each SADCC country and only five appear more than once. Based on these results, Koester concludes that agricultural production patterns differ considerably among the SADCC countries.

This model has several weaknesses. First, twelve out of the eighteen products listed are cash crops. This is not surprising since these crops are major foreign exchange earners and hence would be disproportionately produced in these countries. Second, the presentation of this analysis does not shed much light on the similarity of production patterns in staple food crops in the region except to show that in both Zimbabwe and Zambia the share of millet and sorghum is greater than the share produced in the world as a whole. On balance, this a fairly meaningless finding.

Recalculating the index for rice, wheat, maize, sorghum and millet only, shows that there is actually very little variation in the production patterns of the SADCC states during the 1977/79 period. (Table 2.5). While the production of sorghum and millet as a per cent of total production varies (standard deviations equal 2.968 and 1.87 respectively), there is little variation in the production of maize (standard deviation equals only .570.) The standard deviations of rice and wheat production are even smaller, but this is largely due to the fact that very little of these commodities are produced in the region.

Table 2.5 Comparative Production Performance Coefficient for Rice, Wheat, Maize, Sorghum and Millet 1977-1979

Country	Rice	Wheat	Maize	Sorghum	Millet
Angola	.17	.070	2.82	0.00	4.06
Botswana	.00	.040	1.60	8.29	2.74
Lesotho	.00	.590	1.82	5.10	0.00
Malawi	.11	.002	3.04	1.59	0.00
Mozambique	.19	.013	2.06	6.15	0.40
Swaziland	.20	.035	3.13	0.44	0.00
Tanzania	.05	.130	2.31	3.12	4.03
Zambia	.00	.160	3.02	0.83	2.68
Zimbabwe	.00	.16	3.02	0.83	2.68
Variation	.0083	.0332	.3259	8.811	3.498
Standard Deviation	.0908	.1822	.5709	2.968	1.870

Source: Author's calculations based on Koester's Comparative Production Performance Coefficient. Ulrich Koester. "Regional Cooperation to Improve Food Security in Southern and Eastern African Countries," International Food Policy Research Institute Research Report 53. (1986):46.

This supports the earlier findings that production patterns in staple foods are very similar.

Third, the index is not a valid measure of the potential for intraregional trade because it provides no indication of the existence of relative efficiency of production, i.e. comparative advantage, since no information is provided on the cost of production. A greater share of a commodity in a country's production than in the world's production may merely reflect a series of market distortions instituted to acheive any number of possible governmental objectives.

Finally the index does not account for varying consumption patterns between an individual country and the world. If maize, as a share of Zambia's production, is 20% higher than maize as a share of the world's production, yet consumption of maize is also 20% higher in Zambia than the rest of the world, there is no surplus to export. The index becomes fairly meaningless and does not prove Koester's statement that "differences in production patterns will most likely be reflected in differences in export patterns." (Koester, 1986. p. 46)

2.3.3 The Export Similarity Index

In addition, Koester develops an export similarity index and a coefficient of comparative advantage to measure the differences in production patterns in the SADCC states. These are based on the assumption that differences in

production patterns are reflected in differences in export patterns. The Export Similarity Index is defined as:

$$S(a,b,c) = \{\sum_{i=1}^{49} \text{Minimum } [x_i(ac), x_i(bc)]\} 100 \qquad (6)$$

where:

$x_i(ac)$ = the share of commodity i in a's exports to c, and

$x_i(bc)$ = the share of commodity i in b's exports to c.

If the export patterns are the same for both countries, the index will equal 100. Therefore, the lower the indexes the more dissimilar are the export patterns. Koester proceeds to compare the world exports of similar countries in SADCC for 1967-69, 1972-74, and 1977-79. He finds that "the generally low indexes indicate that for the most part the export patterns are dissimilar." (Koester, 1986. p.46).

This conclusion has several weaknesses. First, the results indicate very little about the potential for intraregional trade since recorded intraSADCC trade only represents between 4 and 5% of the SADCC countries total imports and exports. (Michelson, Supporting Volume 1, 1986. p.1)

Second, Koester argues that "even indexes around 50 do not support the hypothesis that there is limited scope for trade within the region because the countries are too similar." (Koester, 1986. p.46) This argument is based on a study conducted by Finger and Kreinen in 1979 which found similarity indexes around 50 for U.S.-EC exports in the early 70's. Subsequently, there has been a significant

increase in U.S.-EC bilateral trade. However, in the U.S.-EC case, trade expansion occurred because of an increased demand for differentiated manufactured goods. Since raw agricultural goods are difficult to differentiate, except possibly by grades, a similar exchange of differentiated products in the same SITC classification is unlikely to develop in the SADCC region.

2.3.4 The Coefficient of Comparative Advantage

The coefficient of comparative advanatge (RCA), is defined as:

$$RCA = \ln \left(X_i / Mi : \sum_{i=1}^{49} X_i \Big/ \sum_{i=1}^{49} M_i \right) \qquad (7)$$

where:
X_i = exports, and
M_i = imports.

The higher the value of the index, the more successful the country is in exporting i. If the country is only importing or if the ratio of export to import values for product i is smaller than the ratio of the total exports and imports, the index number will be negative. Koester produced an index number for 49 commodities, but Table 2.6 reports only the results for the most important products.

A careful examination of the results Koester presents shows that this index is subject to many of the previously mentioned problems. For instance, many of the goods listed are cash crops. Coffee, wool, cotton, and tobacco have high index values while maize and wheat have low or negative

Table 2.6 Export Performances of Main Agricultural Products, 1967- 1969, 1972-1974, and 1977-1979

Country	Product	Years	Export Value as Share of Total Agricultural Exports	Revealed Comparative Advantage Index[a]
Angola	Coffee	1967-69	75.8	76.7
		1972-74	69.4	8.9
		1977-79	86.7	16.4
	Maize	1967-69	5.3	5.0
		1972-74	2.7	0.2
		1977-79	0.0	-14.0
	Cotton	1967-69	4.6	7.2
		1972-74	6.4	12.9
		1977-79	0.0	13.7
Botswana	Live Animals	1967-69	55.8	3.4
		1972-74	5.8	1.4
		1977-79	0.7	-0.8
	Fresh and frozen meat	1967-69	55.8	3.4
		1972-74	91.0	4.8
		1977-79	92.3	3.7
	Cotton	1967-69	3.0	10.1
		1972-74	0.4	8.5
		1977-79	0.3	9.1
Lesotho	Live Animals	1967-69	55.8	3.4
		1972-74	48.2	0.6
		1977-79	46.1	0.4
	Wheat and meslin	1967-69	8.1	10.7
		1972-74	1.5	9.8
		1977-79	0.0	-9.7
	Wool	1967-69	18.7	11.5
		1972-74	46.5	13.3
		1977-79	41.8	14.2
Malawi	Tobacco, unmanufactured	1967-69	40.0	3.2
		1972-74	50.8	0.7
		1977-79	58.1	2.4
	Tea and mate	1967-69	26.1	5.0
		1972-74	20.5	3.2
		1977-79	21.3	5.1
	Oilseeds	1967-69	16.3	5.6
		1972-74	9.7	5.1
		1977-79	5.1	4.5

Table 2.6 (cont'd)

Country	Product	Years	Export Value as Share of Total Agricultural Exports	Revealed Comparative Advantage Index[a]
Mozambique	Cotton	1967-69	31.1	13.7
		1972-74	27.5	9.2
		1977-79	22.5	14.2
	Sugar and honey	1967-69	19.4	3.5
		1972-74	28.2	6.2
		1977-79	17.7	14.0
	Oilseeds	1967-69	12.7	0.5
		1972-74	11.7	0.7
		1977-79	15.3	13.9
Swaziland	Sugar and honey	1967-69	64.2	12.8
		1972-74	72.0	13.4
		1977-79	77.0	14.2
	Fresh fruits and nuts	1967-69	14.8	11.4
		1972-74	10.3	11.5
		1977-79	8.5	12.0
Tanzania	Cotton	1967-69	26.9	13.3
		1972-74	27.2	14.6
		1977-79	16.8	7.9
	Coffee	1967-69	26.6	5.8
		1972-74	29.7	7.8
		1977-79	50.7	11.6
	Vegetable fibers	1967-69	18.2	12.9
		1972-74	19.5	14.3
		1977-79	8.2	13.3
Zambia	Maize	1967-69	46.5	2.3
		1972-74	37.9	2.7
		1977-79	41.3	1.2
	Tobacco, unmanufactured	1967-69	37.3	14.0
		1972-74	45.3	13.6
		1977-79	45.9	14.8
	Oilseeds	1967-69	9.8	4.8
		1972-74	9.8	6.7
		1977-79	8.2	1.7
Zimbabwe	Tobacco unmanufactured	1967-69	42.7	13.1
		1972-74	45.3	13.6
		1977-79	35.7	1.9
	Fresh and frozen meat	1967-69	25.3	12.5
		1972-74	16.8	12.6
		1977-79	14.6	1.7
	Cotton	1967-69	9.8	11.6
		1972-74	16.2	12.6
		1977-79	17.5	12.5

Source: Ulrich Koester. "Regional Cooperation to Improve Food Security in Southern and Eastern African Countries", International Food Policy Research Institute Research Report 53. (1986).

Notes: [a]The higher the Revealed Comparative Advantage Index, the more successful the country has been in exporting the product.

index values. Cost of production is not accounted for and no effort is made to examine the demand for these products within the producing countries. Although demand for some goods may be high, governments may restrict supply so that they can sell certain commodities on the world market for hard currency. Just because exports of a good are greater than imports of the same good does not imply that a country has a comparative advantage in that good or that there is a basis for trade in that commodity with other SADCC countries.

2.3.5 The Trade Overlap Indicator

Koester develops two additional indexes of some interest. The first is a trade overlap indicator. The purpose of the indicator is to identify countries which are both exporting and importing the same goods. The index is defined as:

$$TO = 2 \left(\sum_{i=1}^{49} \min(X_i, M_i) \right) / \sum_{i=1}^{49} (X_i + M_i) \qquad (8)$$

where:

X_i = exports, and
M_i = imports.

The coefficient will vary between 0 and 1 for each product, and will equal 0 if the country only exports or imports the product, and 1 if it both exports and imports the product. Koester expected to find more trade overlap in the region than the index revealed because

> "natural conditions are often similar between subregions that are divided by a national boundary, whereas areas that are not closely related to each other but belong to the same national entity may not be at all alike. Thus, one would expect significant trade in agricultural products among subregions in a country, and among neighboring countries as well." (Koester,1986. p.49)

He implies that these "natural conditions which are often similar between subregions that are divided by a national boundary" would cause a country to be both an importer and an exporter of the same commodity.

The primary problem with the index is that it does not measure the trade that occurs within the country between production subregions and it is likely that government policies are established to encourage the trade of commodities between surplus and deficit areas within the country. Therefore, it is not surprising that Koester's results show that there is very little trade overlap.

Furthermore, the validity of the index itself is questionable. Just because Country A exports and imports the same good, does not imply that there is a basis for increased intraregional trade beecause it does not prove that any other SADCC country could supply Country A with the desired imports. He does note that the region as a whole "spent 15% of the revenue gained from exporting a product for imports of the same product." He states that this proves that there is a potential for trade in the region. (Koester, 1986. p.49) A small potential may exist if the same country is not exporting and importing the same good. However, it may prove impossible to realize this

potential because the exporting country in the region may not want to trade with the importing country in the region if the importing country can not pay in hard currency or if they have nothing to trade in exchange.

2.3.6 The Trade Expansion Coefficient

Finally, to measure the scope for expanding intraregional trade, Koester develops the Trade Expansion Coefficient (TE) which measures the percent of the regions exports that are matched by imports of the same item into the region. The index is defined as:

$$TE = [\min (X_i, M_i) / \max (X_i, M_i)] \, 100 \qquad (9)$$

where:

X_i = exports of good i, and
M_i = imports of good i.

The results show that the greatest potential for expanding intraregional trade is in live animals, meat, maize, vegetables, sugar and honey, vegetable oils and animal feed. The major problem with the index is that it deals with aggregate regional imports and exports and provides little insight into the direction of flow of these commodities, the potential for trade expansion between individual countries in various commodities, and the distribution of benefits from increased trade in these commodities.

Overall, the production similarity index shows that production patterns vary when cash crops are included in the calculation. When it was recalculated for staple

grains, the production patterns were very similar. The comparative production performance coefficient, the export similarity index, and the coefficient of comparative advantage are indicators of trade potential between SADCC and the world. The trade overlap indicator shows that there is little overlap between exports and imports of the same product in each country and even if there were an overlap it does not show that there is an increased potential for intraregional trade. Only the trade expansion coefficient indicates that there may be potential for increased trade in the region. However, the aggregate nature of this index makes it difficult to determine what the real world potential for increased trade is. This is partially due to Koester's failure to adequately address the importance of institutional barriers to increasing trade in the region.

The need to improve the regional transport system is referred to by noting that the positive welfare effects from cooperation will be increased "the greater the differential between import and export parity prices for trade with third countries and the smaller the differential for intraregional trade." (Koester, 1986. p.54) Panterritorial and panseasonal pricing, external trade restrictions, and exchange rate policies are noted as barriers to increased intraregional trade. Yet, Koester maintains that the higher variability of production on the subregional level than on the regional level - due to various soil conditions, amounts of rainfall, shadow prices

for inputs and government policies - implies that comparative advantage in the production of various commodities does exist and that welfare gains might be exploited by encouraging intraregional trade.

2.4 Conclusion

In conclusion, the preceeding equations and indexes have been discussed in terms of reliability and validity. The primary threats to reliability revolve around the commodities that are included and the time periods over which the indexes were calculated. The finding that there is a basis for trade in the region is largely based on the idea that a variety of crops are produced in the region. However, many of these are cash crops produced for export to the U.S. or the EC and do not present realistic opportunities for intraregional trade expansion since they would be considered luxury items by the majority of the region's population.

The primary threat to validity is the inability of the equations and indexes to prove that trade can even out national production or that sufficient comparative advantage exists in the region - in commodities which are traded intraregionally - to provide a basis for increased intraregional trade.

Furthermore, the use of aggregate trade data for the region makes it difficult to assess the potential for increased intraregional trade on a country by country and

commodity by commodity basis. However, Koester provides an interesting table entitled "Staple Foods in Surplus and Deficit in SADCC Countries Bordering Each Other," (Table 2.7) which provides an overview of the potential for intraregional trade in staple grains.

Thus, while Koester's work provides a preliminary assessment of the potential for trade, there is clearly a need to examine the disaggregated regional trade data before making conclusive statements about the potential for increased intraregional trade.

Koester's study has provided an initial attempt to determine if there is a basis for trade amomg the SADCC countries. The rest of this thesis will extend Koester's work by examining the flow of trade in the region in staple grains to determine if there is a basis for increased intraregional trade, and the institutional barriers that currently exist to thwart such trade.

Table 2.7 Staple Foods in Surplus and Deficit in SADCC Countries Bordering Each Other, 1979-81

Country	Surplus Staple Foods	Border Countries	Deficit Staple Foods
Angola	Cassava, millet and Sorghum	Zambia	Wheat, Rice, Millet, and Sorghum
Malawi	Rice, Maize, Millet Sorghum, and Cassava	Mozambique	Wheat, Rice, Maize
		Tanzania	Wheat
		Zambia	Wheat, Rice, Millet, and Sorghum
Swaziland	Wheat, Rice, Maize Sorghum	Mozambique	Wheat, Rice, Maize
Tanzania	Rice, Maize, Millet, Sorghum, and Cassava	Malawi	Wheat
		Zambia	Wheat, Rice, Millet, and Sorghum
		Mozambique	Wheat, Rice, Maize
Zambia	Cassava, Maize	Angola	Wheat, Rice, Maize
		Botswana	Wheat, Rice, Maize, Millet, Sorghum, and Cassava
		Malawi	Wheat
		Mozambique	Wheat, Rice, Maize
		Tanzania	Wheat
		Zimbabwe	Rice, Millet, Sorghum, and Cassava
Zimbabwe	Wheat, Maize, Millet, and Sorghum	Botswana	Wheat, Rice, Maize,Millet, Sorghum, and Cassava

Source: Ulrich Koester. "Regional Cooperation to Improve Food Security in Southern and Eastern Africa," International Food Policy Research Institute Research Report 53. (1986). Table 21. Pg.60.

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Chapter 3

Institutional Barriers to Trade in the SADCC Region

On an aggregate basis, it may be possible to improve intraregional food security by promoting intraregional trade since the regional variability in production is indeed smaller than the national variability. However, there are economic, physical, historical, and institutional barriers to trade in the SADCC region which must be removed before intraregional trade can reach its fullest potential. This chapter examines the impact of various macroeconomic policies, the transportation infrastructure, existing inter and intraregional trade agreements, and other nontariff barriers on intra-SADCC trade.

3.1 Trade and Macroeconomic Policy

For most countries in the region, macroeconomic policies are significant barriers to intraregional trade. Each country has multiple policy objectives and has instituted policies which they believe are necessary to attain their goals. Trade policies are often the residual of other economic policies such as promoting industrial growth or paying off rapidly increasing foreign debts. For example, the overvaluation of exchange rates and the high priority given to the accumulation of foreign exchange,

goods and repay debts, has had a significant and detrimental impact on trade in the region. The macroeconomic policies of Zimbabwe, Botswana, Zambia, Malawi, Swaziland, and Lesotho and their effects on trade are examined in this section. Current information on Angola, Mozambique and Tanzania is unavailable.

3.1.1 Impact on Trade of Overvalued Exchange Rates

One of the major barriers to trade in the region is that the exchange rates of all the SADCC countries are overvalued to some degree. To say that a currency is overvalued implies that the exchange rate does not reflect the purchasing power of parity (PPP) between the country and its major trading partners. There are two primary ways to measure the PPP. The absolute approach compares the price level of a basket of goods in two countries and says that the exchange rate between the two respective currencies should reflect the relative price levels of their basket of goods. However, since it is difficult to identify a representative basket of goods that is similar for both countries, the relative measure of PPP was developed. This "relates the exchange rate to changes over time in the purchasing powers of the two currencies as measured against a prior base period in which the actual exchange rate was supposedly in equilibrium." In other words, if prices triple in Zambia and double in Malawi, then Zambia should devalue their currency by one third with

respect to that of Malawi to remain in equilibrium. (Kreinen, 1987. p.156) When exchange rates do not adjust to the differentials in price, and trade is liberalized, significant amounts of real income are transferred. "For instance, from 1970 to 1978-80, Tanzania paid 23.5% less for its imports from neighboring Malawi and received 23.5 % more for its exports to Malawi because of overvaluation." (Koester, 1986. p.64) This problem can not be solved by clearing accounts in hard currency because stronger currencies are merely penalized to the benefit of weak currencies. (Koester, 1986. p.64) Table 3.1 compares the real exchange rate to the official exchange rate for the SADCC countries for 1984, the latest date with complete data. The real exchange rate is equal to the official exchange rate multiplied by the ratio of the consumer price index in the U.S. to the consumer price index in the country.

The table indicates that the currencies in Zambia and Zimbabwe are highly overvalued. Botswana's overvaluation is the lowest in the region because inflation has been low due to favorable movements in cross exchange rates. This will be discussed further in section 3.1.4. Tanzania's currency is currently undervalued to the U.S. dollar. This implies that their imports are more expensive and their exports are cheaper.

Table 3.1 Official and Real Exchange Rates for SADCC Countries, 1984

	Exchange Rate per U.S. Dollar		
	Official	Real	Overvaluation (per cent)
Zimbabwe	.66	.45	47
Zambia	.45	.31	46
Swaziland	.5	.37	36
Malawi	.64	.48	33
Lesotho	.5	.38	30
Botswana	.64	.52	23
Angola	29.92	NA	NA
Mozambique	43.96	NA	NA
Tanzania	18.11	8.17	222*

Source: Author's calculation using International Financial Statistics, IMF, 1986.
Notes: NA means "not available".
* means undervalued.

There are two major causes of currency overvaluation in the Third World. The first stems from high inflation which is caused by expansionary monetary and fiscal policies instituted to acheive higher growth rates. The second comes from countries pursuing an industry led growth strategy which occurs when countries try to promote industrial growth by putting import restrictions on manufactured goods. This causes domestic prices to increase. Consequently, the official exchange rate overvalues local currency compared to foreign currency because the purchasing power of the local currency is less. (Cleaver, 1985. p.17)

Once an exchange rate becomes overvalued, policy makers are unlikely to seek realignment through devaluation because it usually does not serve their short term goals and political interests. First, devaluation tends to make both export and import substituting industries more profitable. This leads to a shift in production towards traded goods as the price ratio of traded to nontraded goods increases. This results in a change in the distribution of incomes. The income of government workers and those engaged in the local production and trade of manufactured goods (often protected by import restrictions) drops and the incomes of farmers and exporters increase. (Cleaver, 1985. p.23) Second, the rise in the price level which occurs because of devaluation tends to decrease the real value of private sector financial assets and those factor incomes whose nominal values do not rise proportionally with devaluation. (Kahn, 1987. p.31) Third, devaluation raises the price of imported foods. If this increase in price is passed on to the consumer, it may cause riots and political unrest in urban areas. If the government subsidizes the price increase, the IMF and other donors may withdraw financial support. Since government officials, local manufacturers, capitalists, and the urban population are more politically organized than farmers, officials may hesitate to pursue currency devaluation.

However, devaluation has been shown to have several positive impacts. When a currency is overvalued, imports

are cheaper than they should be and exports are more expensive. For example, if the official exchange rate is $1 = 1MK, and the real exchange rate is $1 = MK1.5, (MK is Malawian kwacha), the Malawian importer pays only 66% of the true price for his imports. The American importer receives less for his dollar than he would if the real exchange rate prevailed and the Malawian producer/exporter receives less in local currency than he should. This has two major impacts on the agricultural sector. There is a decreased incentive to produce export crops and there is an increased incentive to sell produce on the black market.

Cleaver has shown that export crops are responsive to price variation. Based on an econometric analysis of 31 countries in sub-Saharan Africa from 1970-1981, he found that a 1% per annum increase in the rate of currency depreciation is associated with a .15% increase in agricultural growth. Cleaver concluded that although devaluation would not solve all the agricultural growth problems, (others are related to government involvement in farm input, supply, and marketing; population growth; resource endowment and efficiency of agricultural research extension and credit services), it would increase the incentive to expand production. (Cleaver, 1985. p.18,22)

Gulhati, Bose, and Atukorala (1985, p.18,22) point out several additional benefits from devaluation. First, it will increase government receipts for those countries for which import and export taxes are a major source of revenue

because it will expand the local currency base for import and export taxes. For instance, a 30% tax on imports at an exchange rate of $1 = 1.5MK yields .45MK in revenues per dollar of imports. A 30% tax on imports at $1 = 2MK yields .6MK for the government in revenues. Of course this benefit will be diluted if import taxes are specific rather than ad valorum. Furthermore, this example is a bit simplistic because devaluation would reduce the dollar value of imports. The elasticity of import demand is also important in determining what the government revenues from import taxes would be. Second, devaluation would raise the local currency value of inflows such as loans and grants, but it would also raise the local currency value of the import component of public expenditure. This includes such things as debt service on foreign borrowing and the import components of capital outlays. This impact could be quite significant, especially when one considers the debt levels guaranteed by many Central governments. (Gulhati, Bose, and Atukorala p. 21-27).

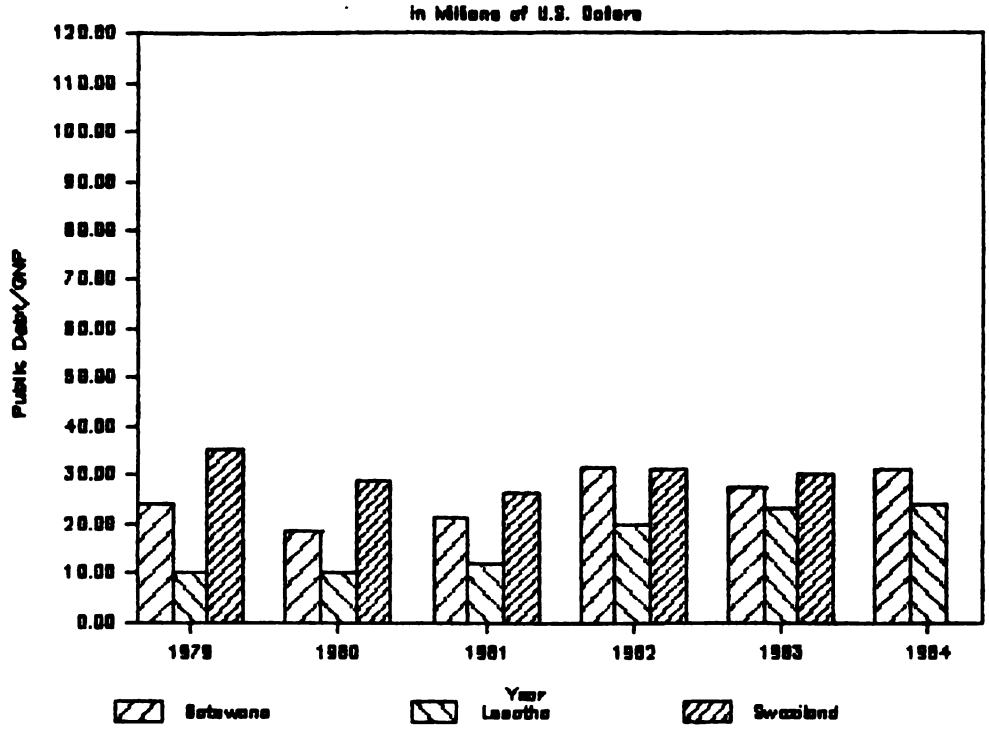
On balance, Kahn emphasizes that the actual impact of devaluation will vary from country to country because of the offsetting effects it generates. The relative price elasticities of exports and imports, shares of tradable and nontradable goods in production and other policies that are adopted simultaneously are also important determinants of the impact of devaluation. (Kahn p.32)

3.1.2 Trade and Foreign Debt

Foreign debt repayment has become an increasingly important problem in the economic management of Third World countries. Theoretically, a country should borrow as long as borrowed capital can produce a return to cover the cost of borrowing. In reality, it is impossible to calculate a sustainable level of debt because exogenous factors such as a decrease in the terms of trade, slow growth in major trading partners, price shocks and high interest rates in developed countries affect a country's debt burden. If borrowing outstrips the country's capacity to carry the debt burden, exports must be expanded or imports must be cut to service the debt. If these measures are not instituted, additional borrowing will be necessary to pay the interest on the existing debt. (Kahn, 1987. p.35)

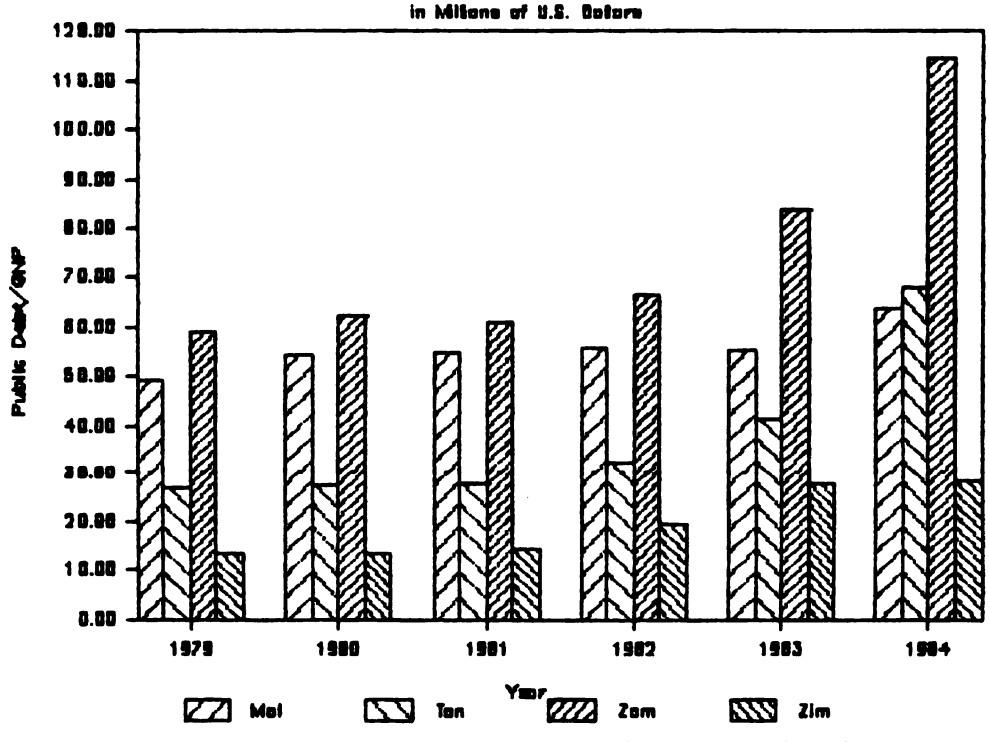
The SADCC countries face this predicament. Generally, the debt to GNP ratio in the SADCC countries has increased from 1976-1984. (Figures 3.1 and 3.2) The debt to GNP ratios of Lesotho, Tanzania, Zambia and Zimbabwe have continually increased from 1978-1984. Zambia had the highest debt to GNP ratio in 1984-over 110%. The externally held debts of Malawi and Swaziland remained somewhat constant, although relatively high, up to 1984. In descending order, the latest available data shows Zambia had the highest ratio followed by Tanzania, Malawi, Botswana, Zimbabwe and Lesotho. Data on Swaziland is not available for 1984. In addition to the burden of servicing

FIGURE 3.1 Public Debt to GNP Ratio



Source: International Financial Statistics, IMF, 1986.

Figure 3.2 Public Debt to GNP Ratio



Source: International Financial Statistics, IMF, 1986.

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their external debts, commodity export earnings for these countries have been low. "Nominal and real prices for most of Africa's export commodities fell steadily from the high levels in the 1970's until some prices began to recover in 1983. By historical standards, most prices remain low [and]... significant improvements in African export prices and terms of trade against manufactures appear unlikely." (Situation and Outlook Report, 1986. p. 45)

Despite these trends, the share of foreign exchange devoted to major food imports has remained relatively constant. (Table 3.2) This data does not mean that commercial imports have remained constant, but only that the percent of foreign exchange available for food imports has remained relatively constant. As foreign exchange reserves are depleted, agricultural imports also decrease.

Table 3.2 Share of Foreign Exchange Devoted to Major Food Imports, Selected SADCC Countries (%).

Country	1980	1981	1982	1983	1984	1985*	1986*
Mozambique	19	12	26	28	80	NA	45
Tanzania	19	5	14	15	NA	11	11
Malawi	8	10	6	8	NA	8	8
Lesotho	7	8	8	7	NA	7	7
Zambia	8	4	8	4	8	5	7
Zimbabwe	2	1	1	5	8	NA	5
Botswana	3	7	7	4	NA	5	6

Source: USDA: World Food Needs and Availabilities 1985: Update and 1986/87 Spring Update. (from Hawkins, 1986)
Notes: NA means data was not available.
* referrs to estimates.

The increasing debt problem has resulted in a channeling of exports to those countries that can pay for them in convertible foreign exchange which can be used to make debt payments. In addition to payment for exports in hard currency, developed countries often allow Third World countries to import from them "without making immediate foreign exchange payments by means of grants, loans, bank credits and supplier credits." (FAO #41, p.40) In fact, "most SADCC countries are so short of hard currency that they limit the credit that their exporters can extend (often to as little as 3 months) and buy preferentially from those who offer the longest credit (preferably a year or more). This serves as a barrier to intraregional trade and partially explains South Africa's export dominance in the region since South African firms have various schemes to provide up to one year's credit. (Lipton, 1986. p.10).

3.2 Economic Situation in Selected SADCC Countries

Given this general background, the economic situation of selected SADCC countries is presented below. This information provides some indication of the potential for increased intraregional trade. It should be noted at the outset that the countries that belong to SADCC are highly diverse in terms of economic problems, resource bases and political alliances, as indicated by the general information in Table 3.3. The following discussion focuses on the balance of payments, external debt and foreign

Table 3.1 Background Information on SADCC Countries

Background Information	Angola	Botswana	Lesotho
Population (1985 estimate):	8.8 million	1.1 million	1.5 million
G.N.P. per caput:	U.S.$ 470 (1981)	U.S.$ 910 (1984)	U.S.$ 530 (1984)
Characteristics of Country:	Low-income food-deficit country; Civil disburances	Land-locked; drought-prone; agricultural production only in east and south-east	Land-locked: low-income food-deficit;
Logistics:	Inadequate port, rail and road facilities; disruption by guerillas	Imports through South Africa	All imports through South Africa
Marketing year:	April/March	July/June	July/June
Lean Season:	January-April	January-March	February-April
Per caput consumption of cereals:	70 kg. per year	165 kg. per year	187 kg. per year
Share of cereals in total calorie intake:	35 percent	55 percent	75 percent
of which:			
Coarse Grains:	23 percent	43 percent	57 percent
Wheat:	9 percent	10 percent	17 percent
Rice:	3 percent	2 percent	1 percent

Background Information	Malawi	Mozambique	Swaziland
Population (1985 estimate):	20 million	14.1 million	650,000
G.N.P. per caput:	U.S.$ 210 (1983)	U.S.$ 165 (1983)	U.S.$ 950 (1983)
Characteristics of Country:	Land-locked; importer and exporter of grain	Low-income; food deficit; affected by civil strife; exposed to tropical storms	Land-locked
Logistics:	Imports/exports through Dar es Salaam (Tanzania) or Beira (Mozambique)	Dilapidated transport fleet; poor roads; disruption by guerillas	Good road network; imports through Mozambique or South Africa
Marketing Year:	April/March	May/April	May/April
Lean Season:	February-March	February-April	February-April
Per Caput Consumption of cereals:	180 kg. per year	58 kg. per year	165 kg. per year
Share of cereals in total calorie intake:	70 percent	33 percent	49 percent
of which:			
Coarse Grains:	68 percent	23 percent	45 percent
Wheat:	1 percent	5 percent	3 percent
Rice:	1 percent	5 percent	1 percent

Background Information	Tanzania	Zambia	Zimbabwe
Population estimate (1985 estimate)	22.5 million	6.7 million	8.8 million
G.N.P. per caput	U.S.$ 210 (1984)	U.S.$ 470 (1984)	U.S.$ 740 (1984)
Characteristics of Country	Cereal surplus in south; cereal deficit in north-west; poor distribution	Land-locked; low income food deficit country	Land-locked; exporter and importer of grain
Logistics:	Shortage of rolling stock, fuel and spare parts	Imports through Dar es Salaam (Tanzania); inadequate rail and road connections	Exports and imports through Mozambique and South Africa
Marketing Year:	June/May	May/April	April/March
Lean Season:	February-April	March-May	February-April
Per caput consumption of cereals:	140 kg. per year	150 kg. per year	179 kg. per year
Share of cereals in total calorie intake:	50 percent	70 percent	66 percent
of which:			
Coarse Grains:	42 percent	60 percent	56 percent
Wheat:	2 percent	9 percent	9 percent
Rice:	6 percent	1 percent	1 percent

Source: Food Supply Situation and Crop Prospects in Sub-Saharan Africa; FAO, 1986.

exchange problems; inflation; and agricultural imports and exports. Only Zimbabwe, Botswana, Malawi, Zambia, Swaziland, and Lesotho are included in the discussion because there is little available information on Angola, Mozambique, or Tanzania.The data comes from various sources and represents the most reliable and recent information obtainable.

3.2.1 Zimbabwe[1]

The economic situation in Zimbabwe has been favorable during the last two years. However, the real growth in the economy is unlikely to exceed 3% in 1986 because of slower agricultural expansion due to weather, increasingly severe foreign currency constraints restricting growth in the industrial sector, and low international commodity prices for the mining sector. The following discussion examines some critical aspects of the current economic situation in more detail.

Balance of Payments, Foreign Exchange Availability and External Debt

There was an improvement in the balance of payments position in 1984 and 1985 due to a small increase in export earnings and import restrictions. The external account benefitted by the increased volume of exports and the rising prices for some commodities. There was a 23.5%

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[1]The following information comes from "Zimbabwe - Agricultural Situation - Annual", Guy L. Haviland,Agricultural Counselor, American Embassey, Pretoria, 3-10-87.

expansion in export earnings from 1984 to 1985 which resulted in an increase in export earnings from Z$1.43 billion to Z$1.77 billion (US$ 1.17 billion at the effective exchange rate of .666 U.S.$/Z$ in 1984.) Further improvements in the balance of payments will be necessary to sustain the the development target of 5% annual growth. However, this may be difficult to achieve given the unstable political environment in Southern Africa which may lower exports and have adverse affects on the terms of trade. An indication of the balance of payments problems faced by Zimbabwe is given by the fact that import capacity has decreased by 32% over the last five years as measured by Special Drawing Rights (SDR's).[2]

The external debt increased to Z$2,215 million by June of 1986 - a 27.8% increase compared to 1985. Although foreign assets continue to increase, it is unlikely that this will result in increased foreign currency allocations since the debt repayment requirements are expected to peak in 1987.

Inflation

The inflation rate jumped from 8% in 1985 to 15% in 1986 due to a 42% increase in electricity costs, a 13%

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[2]SDR's were created by the IMF to assist in balancing accounts without using hard currencies. They are issued by the IMF on a quota basis to each member country and are a part of each member country's official reserves. All members of the IMF are obligated to accept them as payment.

increase in drink, tobacco, clothing and footwear prices, and a 15% increase in vehicle expenses. The more rapid depreciation of the Zimbabwean dollar in 1987 against major currencies (U.S. dollar, British pound, South African rand, and West German mark), is expected to put further upward pressure on the price level.

Agriculture Growth - Imports and Exports

Agricultural exports account for nearly 50% of total exports and were valued at Z$766.6 million in 1985. This represented a 32% increase from the previous year which was mainly due to the increase in the volume of cotton, coffee, and sugar exports and favorable tobacco prices.

The Grain Marketing Board (GMB) has also been forced to hold undesirably large surpluses of corn, sorghum, and millet which have proven difficult to dispose of on either the domestic or international market. The GMB decided to concentrate their sales in Africa and exported 650,000 tons of grain in 1986 at prices well above net world prices outside of Africa. This was possible because of lower transport costs from Zimbabwe to regional markets. Of the 650,000 tons, 200,000 (30.8%) went to South Africa, 90,000 (13.8%) went to Mozambique, and 67,000 (10.3%) went to Botswana.

Despite this sale to South Africa, in 1985, Zimbabwe's overall exports to South Africa declined by 25% and their exports to the U.K. increased by 24% . Although,

South Africa is still a major source of imports, Zimbabwe is trying to expand and diversify their import suppliers. For instance, in 1983, the top ten sources of imports accounted for 72% of the total value of imports. In 1984, they accounted for only 65% and in 1985, they accounted for less than 50%.

Wheat was the only major agricultural commodity which was imported (98,000 tons) in 1986. Imports are likely to decline in 1987 due to high levels of production resulting from increased availability of irrigation water, and excellent growing conditions. The GMB's wheat intake for 1986 reached 241,500 tons. This is the highest level of wheat production ever acheived in Zimbabwe.

While agricultural growth is projected to increase by 5% a year for the next five years, real overall growth is projected to decline from 6% in 1985 to 3% in 1986 and is likely to weaken even further by 1987. Nevertheless, agricultural growth should exceed population growth which is predicted to be 2.67% a year, leading to an expected increase in exports of between 6 and 7%.

In the government's recently published five year national development plan, agriculture development of the communal areas has been given high priority.

In conclusion, Zimbabwe has the potential to be a major agricultural exporter to the SADCC region, but will provide only a limited import market because of its foreign currency restraints and debt problems.

3.2.2 Botswana[3]

Botswana is in a rather unique position. Although they are in the sixth year of a drought, the level of foreign exchange reserves at the Bank of Botswana is approximately 2,200 million Pula (1,276 million U.S. dollars). This is a sufficient amount of foreign exchange to pay for 16 months of visible and invisible payments. The main reason for the increase in reserves is not due to the improvement in the diamond industry, as many believe, but has been caused by the cross exchange rates between the U.S. dollar and the South African Rand.

Balance of Payments, Foreign Exchange Availability and Foreign Debt

Botswana sells its diamonds and copper-nickel matte for U.S. dollars while most of its imports come from South Africa and are therefore paid for in rand since Botswana is a member of the South African Customs Union. Dollars and rand amount to 88% of Botswana's earnings and 82% of their expenditures of foreign exchange. The rand has dropped precipitously (48%) from 1983-1986 against the U.S. dollar. (In 1983 it was equivalent to U.S.$.9, in 1984, U.S.$.7; in 1985, U.S.$.46, and in 1986, U.S.$.44.) At the same time the inflation rate in South Africa was 11.7% for 1984, 16.1% for 1985, and 18.7% for 1986. Therefore, the rate of

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[3]The following information comes from papers generated by the Ministry of Finance and Development Planning - Botswana, 1987.

16.1% for 1985, and 18.7% for 1986. Therefore, the rate of depreciation of the rand to the dollar was greater than the increases in South African prices in rand - so the same quantity of South African imports cost less in terms of dollars. Botswana's cost of buying South African goods using dollars declined by 13% in 1984, 34% in 1985, and 25% in 1986 relative to prices in 1983. The total addition to foreign exchange from this was U.S.$505 million or P850 million from 1983-1986. This places foreign exchange earnings above the Sixth National Development Plan's projected level by about P1,000 million. (580 million U.S. dollars) However, the pula has also depreciated against the U.S. dollar and the SDR which has resulted in increased foreign debt when measured in pula. At the same time the pula has appreciated against the rand which led to a lower cost of rand denominated import goods.

These movements in exchange rates led to a greater increase in government cash balances than the government forecast causing foreign donors to raise questions about whether Botswana should continue to receive large quantities of food aid and general development assistance in the form of loans and grants. The government of Botswana argues that they need a larger level of reserves for ordinary transactions because of the openness of their economy. The World Bank suggested level of foreign reserves required by a middle income developing economy, such as

Botswana, is the amount which is needed to purchase three months worth of imports.

However, Botswana disagrees with this rule of thumb since it is based on the Bank's estimate that the average ratio of imports plus exports to GDP for middle income countries like Botswana should be between 45 and 50%. Botswana's ratio is 120%. Second they argue that they need more foreign exchange because they do not impose direct exchange controls, but control the balance of payments through general macroeconomic policy which means they must be prepared to handle an upsurge in the demand for foreign exchange. Third, Botswana basically depends on a single export commodity. In 1986, diamonds accounted for 77% of commodity exports. A significant decline in diamond prices would prove disasterous for the economy. Fourth, since Botswana's foreign exchange earnings are a function of cross exchange rates over which they have no control, it is possible that the rand could appreciate against the dollar resulting in a reversal of the current situation. This even seems likely with the firming up of gold prices, the improvement in the South African balance of payments, and the weakening of the U.S. dollar. Finally, Botswana argues that despite all the economic assistance they receive, the government still spends over 50 million pula a year (29 million U.S. dollars) for drought relief programs. Therefore, they need to maintain a higher than usual level of reserves.

Inflation

Little information is available about the domestic rate of inflation in Botswana. However, as noted above, cross exchange rates have moved to allow for increased imports at lower prices. Since the economy is so open, this has probably worked to check the rapid inflation which is typical in some of the other SADCC countries.

Agricultural Growth - Imports and Exports

The level of food production in Botswana has been inadequate to meet their consumption needs for the last six years because of the drought. Rainfed cultivation is the primary means of crop production. However, even before the drought the vast majority of farming households produced below self-sufficiency levels.

With such large reserves Botswana has the capacity to be a major importer in the SADCC region. However, because of their membership in SACU most of their regional food imports come from South Africa. In 1986, the World Food Program provided 58% of Botswana's food aid (22,797 metric tons). Of this, 8,090 metric tons of cereals (35.5%) and 6,568 metric tons of noncereals (28.8%) were purchased from the region. Other sources of food aid included Canada (6%), USAID (15%), the EEC (9%), the Federal Republic of Germany (7%), and New Zealand (4%).

In conclusion, Botswana will be a food importer for several years, at a minimum. While they do have the foreign currency reserves to purchase grain from surplus SADCC countries like Zimbabwe and Malawi, they are economically tied to South Africa at this point. Under these circumstances, it may be possible to promote trade in the region by encouraging Botswana's food aid donors to become involved in triangular transactions with surplus SADCC countries.

3.2.3 Zambia[4]

Unlike Botswana, Zambia's economy has been on the decline since the mid 1970's. Population has grown at an average rate of 3.1%. By 1982, the real GNP per capita was 29% lower than in 1974. Ninety percent of Zambia's export earnings come from copper, but the price of copper has dropped 60% in real terms over the last 15 years. Furthermore, the volume of copper exports decreased from an average of 670,000 metric tons per year in the 1970's to 463,000 metric tons in 1985 and 436,000 metric tons in 1986. Imports in 1986 were less than 65% of the average level in 1978 - 1981, and one third the level in the mid 1970's. The lack of imported inputs has constrained economic growth in Zambia even further.

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[4]The following information comes from "Zambia Agricultural Situation Annual Report", H.L. Norton, Agricultural Attache, American Embassy, Nairobi, 3-24-87.

Balance of Payments, Foreign Exchange Availability, and Foreign Debt

A decline in export earnings in combination with large debt service obligations has produced a prolonged imbalance in Zambia's external account. In 1986, the interest charges on the debt were equal to 40% of total budget expenditures or approximately 100% of export earnings. In addition, short term commercial arrears were equal to U.S.$600 million. In 1987, the country will face an external financing gap of U.S.$ 1 billion. Reduced access to credit and foreign exchange has significantly reduced imports which has constrained the manufacturing and mining industries which are heavily import dependent.

In 1986, with the IMF's assistance, the government of Zambia implemented a reform package which included the liberalization of the economy to decrease the distortions in prices, improve incentives for production and diversification, and strenghten the government's capacity for economic management.

In October 1985, a weekly foreign exchange auction was established. Foreign exchange for all imports and service payments including remittances of profits, dividends and transfers are sold through the auction. At the same time the import licensing system was dismantled and import prohibitions on 50 goods which had been instituted for protective purposes were abolished. This led to a sharp rise in the exchange rate and a sharp increase in credit and interest rates. The value of the kwacha

dropped from Kw2.4 to the U.S. dollar to Kw14 to the dollar. In 1987, the government revalued the Kwacha to equal 9 per dollar because they felt that the sudden rise in prices had imposed undue hardship on the lower classes. The kwacha is currently allowed to float against five currencies. The establishment of the foreign exchange market led to an assurance of foreign exchange availability if one was willing to pay enough for it. This decreased the need to hold large inventories and increased competition between imports and domestically produced goods.

Inflation

Inflation in the first half of the 1980's averaged 17%, but by 1986 it rose to 55% due to the decontrol of prices and the failure to manage the budget deficit appropriately. In 1983 and 1984, the budget deficit averaged 9% of GDP. However, by 1986, the deficit had risen to 30% of GDP because of higher recurrent costs, rising subsidy payments, and increased domestic interest payments.

Agricultural Growth - Imports and Exports

The government is trying to increase the exports of agriculture and related products to earn foreign exchange and compensate for the export decline in metals. Zambia's principle agricultural exports are molasses, grey cloth, fruits and vegetables, meats, hides and skins, and coffee and tea. As an incentive to increase exports of non-metals, exporters are allowed to retain 50% of foreign

exchange earnings to import inputs and materials to expand production.

In 1986-1987, increased producer prices and favorable weather led to self-sufficiency in several commodities, particularly maize. Total grain imports are projected to decrease from 194,000 MT in 1985/86 to 140,000 MT in 1986/87 (a decrease of 27.84%). These imports will consist mainly of wheat and rice. Although the domestic production of wheat increased from 10,000 MT in 1984/85 to 30,000 MT in 1986/87, and demand for wheat constricted because of the doubling of consumer prices which resulted when prices were decontrolled, the demand for wheat in 1986-87 is still estimated to be between 90 and 100,000 MT. In an effort to purchase as much local wheat as possible and thereby conserve foreign exchange, the National Milling Corporation agreed to buy wheat in 1987-1988 at Kw135.00 per 90 kilogram bag although the official floor price is 110.00 per 90 kilogram bag. This should provide an incentive to increase plantings for 1987.

Concessional food grain imports (including PL480 Title 1) increased from 16,000 MT in 1984 to 60,000 MT in 1986/87. This includes 45,000 MT under the 1986 U.S. Title 1 wheat program and 14,000 MT from CIDA.

Despite all of these reforms, Zambia is still economically unstable. In December of 1986, Zambia abolished the maize subsidies as part of an austerity agreement with the IMF. This led to a 120% rise in the

price of maize meal and resulted in riots in which 15 people were killed. After three days President Kuanda reinstituted the subsidies and announced that he would no longer work with the IMF and other international institutions to seek a solution to Zambia's debt and balance of payments problems. Consequently, the Export-Import Bank of the U.S. has withdrawn export credit insurance and guarantee cover for Zambia.

In conclusion, under these constraints, it is difficult to predict Zambia's future role in intraregional trade. While it has the potential to be self-sufficient in maize, wheat and rice imports will be needed for the foreseeable future. However, food aid will probably play a large part in their future imports because of a need to conserve foreign exchange.

3.2.4 Malawi[5]

In the 1980's the economic situation in Malawi deteriorated due to the decreasing terms of trade, drought, and the disruption of their normal transportation routes through Mozambique. Consequently, the 1980's have been characterized by falling per capita incomes and consumption levels. In 1986, GDP stagnated at -.3%.

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[5]The information in this section comes from "Malawi, Economic Recovery: Resource and Policy Needs an Economic Memorandum", 1985.

Balance of payments, Foreign Exchange Availability and External Debt

In 1983, the the overall balance of payments was in deficit and the level of foreign reserves was drawn down to a level capable of supporting less than one month of imports. However, the merchandise trade balance of the balance of payments improved in 1986 due to a 19% decrease in the volume of imports. Export receipts in 1986, were marginally higher than 1984 and 1985. This mainly reflects an increase in the volume of trade because sugar and tea prices for 1986 decreased by 32.6% and 20.8% respectively. Thus, the current account balance fell from 8.2% of GDP in 1985 to 7.2% of GDP in 1986. A slight improvement in the balance of payments position is predicted for 1987. (Malawi: Economic Report,1987, p.8) However, future economic growth will require increased imports of capital goods because Malawi has exhausted most of its short term possibilities for import substitution. Thus, imports are projected to increase 3.6% annually (in real terms) between 1984 and 1990.

To cope with the declining terms of trade and drought induced maize production shortfalls, foreign borrowing increased steadily up to 1979 and took a quantum leap in 1980. In 1982, Malawi was forced to ask the London and Paris Clubs to reschedule their debt. This resulted in the temporary relief of U.S.$18.7 million in 1982, U.S.$59.2 million in 1983, and U.S.$26.2 million in 1984. Foreign debt payments reached a peak in 1986 with the debt service

ratio equal to 49.8%. However, the debt service ratio is expected to decline to 37% in 1987. (Malawi: Economic Report, 1987, p. 26)

Inflation

High inflation has plagued the economy in recent years, reaching 15% in 1985 and 1986. This resulted from increased domestic borrowing by the government, increased import prices, rising transport costs, imported inflationary pressures, and currency depreciation of 43.9% against the U.S. dollar.

Agricultural Growth - Imports and Exports

Import volume fell 50% from 1980-1984 while export volumes behaved erratically. For instance, smallholder exports of cotton and groundnuts declined, tobacco volumes oscillated, tea exports remained steady, and sugar exports fell off considerably because of the price collapse. Increased incentives for maize production led to a fall in the production of almost all other smallholder crops, but resulted in a significant increase in maize exports in 1983 and 1984. Food represented only a small proportion of total imports in 1985 and 1986 (approximately 3%).

In conclusion, Malawi's generally low level of food imports and their need to import capital goods suggests that they will not provide a large market for intra-SADCC trade in staple commodities. However, if weather conditions remain favorable, Malawi's capacity to

export maize to the region may improve or at least remain constant.

3.2.5 Swaziland[6]

Swaziland is surrounded by South Africa, except for a short border with Mozambique, and is a member of both the Rand Monetary Area (RMA) and the South African Customs Union (SACU). Hence, Swaziland depends on South Africa for imports, exports, tariffs, government revenues, and monetary arrangements. Sixty percent of Swaziland's revenues come from SACU which amounts to approximately 18% of GDP. The money supply, prices and interest rates are largely externally determined.

Balance of Payments, Availability of Foreign Exchange and Foreign Debt

The balance of payments situation in South Africa determines foreign exchange availability and the credit worthiness of the Rand Monetary Area. Swaziland's currency, the emalangeni, is fully backed by and convertible into the South African rand which is also legal tender in Swaziland. Consequently, Swaziland has no foreign exchange problems as long as sufficient emalangeni can be generated to purchase rand. Seventy-five percent of foreign reserves are held with the South African Reserve Bank.

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[6]The following information comes from "Economic Memoranda on Swaziland", The World Bank, 1985, and, "Swaziland Agricultural Sector Update", The World Bank, 1987.

The public sector debt is low, amounting to less than 7% of total exports or 39% of GDP. However, the rand depreciated against the dollar by 84% in nominal terms from the beginning of 1983 to the end of 1984. This has increased the cost of imports and debt payments to countries other than South Africa.

Inflation

As a result of the rand's depreciation, inflation in Swaziland reached 28% in 1984 and membership in the RMA prevents Swaziland from pursuing any independent monetary policy.

Agricultural Growth - Imports and Exports

Swaziland experienced a widely fluctating growth pattern since independence in 1968, varying from 9% in 1973, to 0.2% in 1979 and 7.9% in 1981. Between 1981 and 1984, the growth rate averaged 0.5%.

Swaziland has a very open economy with combined imports and exports equalling 150% of GDP. Eighty-five percent of the imports come from South Africa and 30% of the exports go to South Africa. While Swaziland is a net exporter because of its sugar exports, it is very dependent on South Africa for its food imports. However, export earnings dropped from U.S.$418 million to U.S.$360 million in 1984 because of the decrease in sugar prices. Other major exports include wood pulp, fresh and canned citrus and pineapple. Agriculture and forestry account for 73% of

total exports while food and beverage imports represent only 10% of total imports.

While cereals are the largest component of food imports, they still account for only 2-3% of total imports. Cereal imports increased from 20,000 tons in the early 1970's to 50,000 tons in 1983. Maize marketing in South Africa is handled by the South Africa Maize Board (SAMB). Since Swaziland is considered to be a domestic purchaser, sales are not recorded as exports from South Africa. This is good for Swaziland because it assures domestic maize supplies, even if South Africa must import maize in years of inadequate production. However, Swaziland does not like being totally dependent on South Africa because of the precarious political situation there. Consequently, Swaziland hopes to acheive self-sufficiency in maize. Imports could be reduced 63% by raising the yield to 2 MT per hectare. This seems to be an attainable goal with the intensified use of weed control.

In conclusion, this analysis suggests that it is unlikely that Swaziland will become a major importer of staple grains from the SADCC region because of their limited food imports and their dependence on South Africa.

3.2.6 Lesotho[7]

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[7]The following information comes from "Lesotho: Country Economic Memorandum", The World Bank, 1987, and "Lesotho: Agricultural Sector Review", The World Bank, 1986.

Lesotho is both a member of SACU and the RMA, but it is much more dependent on South Africa than is Swaziland. It is completely surrounded by South Africa, has a poor natural resource base, and has a poorly developed domestic economy. Hence, it depends on South Africa for employment, transport routes, imports, revenues and monetary arrangements. Real GDP declined from 1981-1984, but increased in 1985 by 3%.

Balance of Payments, Foreign Exchange Availability, and Foreign Debt

Prior to the 1980's, Lesotho's balance of payments position was characterized by sizable current account deficits. However, the situation began to improve in 1980, and in 1985 the current account had returned to surplus due to expanding remittances from the 138,000 Lesotho citizens employed in South Africa. In 1986, imports totalled U.S.$343 million while exports were about U.S.$25 million. The improvement in the current account occurred despite the fact that imports have grown 15% a year since 1980, because remittances have grown 20% a year.

The exchange rate of the loti, Lesotho's currency, is tied to the South African rand. In general this has benefitted Lesotho. Because imports from South Africa constitute 95% of total imports, the real exchange rate of the loti has depreciated little from 1985-1987 despite substantial nominal depreciation. (The loti has depreciated 287% compared to the dollar from 1980 to 1986.) The rand

still circulates freely in the Lesotho economy making monetary policy virtually impossible to control.

Debt service in 1985 equalled 3% of GNP and 5.5% of exports of goods and services. Unfortunately, most of Lesotho's foreign debt is denominated in currencies other than the rand. Therefore the debt servicing requirements have increased substantially. Total foreign debt outstanding was approximately 35% of GNP at the beginning of 1986.

Agricultural Growth - Imports and Exports

The percent of GDP accounted for by agriculture declined from 38% in 1974/75, to 30% in 1979/80, to 23% in 1983/84. Only 13% of the land is suitable for cultivation, although 80% is suitable for raising livestock. Crop yields have remained static, but area planted declined due to drought from 1981/82 -1983/84, unfavorable terms of trade for agriculture, and an increasing ratio of input to output prices. Maize production in 1984/85 supplied less than half the countries consumption requirements and future growth is predicted to be modest. Consequently, Lesotho depends heavily on food imports from South Africa and on food aid.

In conclusion, it is unlikely that Lesotho will be involved in any intra-SADCC trade in the near future given their geographic and economic dependence on South Africa.

3.3 Transportation as a Constraint to Regional Trade

The lack of an adequate transportation system in Southern Africa is a major constraint to increased intra and interregional trade since six of the SADCC countries are landlocked. The components of this system include rail links, ports, roads, and air links.

The main means of transportation is the rail system which provides access to the sea for all countries in SADCC except Lesotho. There are currently 13,000 kilometers of railroads in the region. The railroads to Nacala, Tanzania; Beira, Mozambique; and Maputo, Mozambique, are the main arteries for Mozambique, Botswana, Zimbabwe, Malawi, and to some extent Zambia. Hoff and Overgaard, an independent research team hired by SADCC to study the problem noted that, the existing railroads and ports will have a capacity well above the total import/export demand of the region if they are brought up to satisfactory infrastructure and operation standards. (Hoff and Overgaard, 1980. p.I-3.) While there is no need for new rail lines, there is a need to rehabilitate and improve the existing lines. Figure 3.3 shows the existing railroads and the major ports in the SADCC region.

The main ports on the western side of the continent are at Luanda, Mocamedes and Lobito - the main terminus for the Benguela railway. All of these are located in Angola and were the main exit routes for copper exports from Zambia and Zaire before the war. Luanda and Lobito suffer

Figure 3.3 Ports and Main Railway Lines

Source: Hoff and Overgaard Planning Consultants, Transport and Communications Projects, 1980

from inefficient management, inadequate storage facilities and equipment, and a shortage of skilled manpower and staff. On the eastern side, the major ports are Nacala, Beira and Maputo in Mozambique and Dar es Saalam in Tanzania - all of which have insufficient infrastructure to operate at full capacity.

As noted, it will be necessary to invest in upgrading these rail lines and ports to facilitate increased intraregional trade. However, a lack of financial resources and continual sabotage of rail lines by various geurilla groups make upgrading difficult. The rest of this section will be devoted to a discussion of various topics related the current transport situation in the region.

3.3.1 Economic Impact of Disruption of Rail Lines

Unfortunately, several of the major lines have deteriorated due to lack of adequate manpower, and are subject to sabotage. The groups responsible for this are RENAMO in Mozambique, which is backed by South Africa; and the National Union for Total Independence of Angola (UNITA), in Angola.

Three stages of disruption have been identified. In the shortest run, trade doesn't occur. The second stage, known as the adjustment stage, involves the transition to alternative trading partners or transport routes. The final stage involves incurring ongoing and greater costs if the alternative routes have a higher net operating cost (Berg,

1987. p.8). This situation has forced the SADCC countries to depend more heavily on South Africa for transportation, despite their goal of increased independence. Table 3.4 shows the difference in distance between shipping to a SADCC port and shipping through South Africa. For instance, it is three times farther from Harare, Zimbabwe to Durban, South Africa than it is from Harare to Beira, Mozambique. It is almost six times farther from Blantyre, Malawi to Durban, South Africa than it is from Blantyre to Beira. Botswana is the only country shown in Table 3.4 which has a more direct route to the sea through South Africa than through another SADCC port.

The economic impact of the existing transport situation is illustrated by the Malawi case.[a] Traditionally, Malawi exported 90 to 95% of their goods by rail to either the port of Beira or Nacala. The Beira Corridor was the most important and handled 70% of Malawi's traffic. Beira is the only port capable of handling bulk goods such as fertilizer and sugar and has a major storage facility for fuel. Nacala was used mainly for container cargo. Since 1979, these routes have been less reliable because of poor maintenance, a shortage of wagons, locomotives, and personnel and most importantly, insurgence.

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[a]This case study comes from "Malawi Economic Recovery", The World Bank, 1985. pgs. 59-61.

Table 3.4 Railway Distances to Major Ports of SADCC and South Africa

To :	S A D C C					: South Africa	
From	Dar es Salaam	Beira	Maputo	Lobito	Nacala:	Durban	East London
Zambia							
Lusaka	2,045	2,026	2,679			2,812	3,116
Ndola	1,993	2,353	2,361			3,130	3,434
Zimbabwe							
Harare	698	1,178				2,077	2,404
Bulawayo	1,181	1,061				1,859	1,921
Botswana							
Francistown	1,377	1,257				1,663	1,725
Gaborone	1,813	1,693 a				1,409	1,289
Malawi							
Blantyre	567				840	3,342	3,669
South Africa		636				777	1,016

Source: Fawsi Taha. "SADCC's Economic Dependence on the Republic of South Africa" 1987

Notes: a. Distance via Bulawayo; the distance via Johannesburg is 1,268 km.

Table 3.5 Distribution of Malawi Traffic by Route (%)

Country	Port	1981	1982-1984	Current	Average Distance (km)	Average Cost (mk/ton)
Mozambique	Beira	70%	5%	-	640	202
	Nacala	25%	35%	-	815	202
South Africa	Durban	5%	60%	90%	2,600-3,500	350 700
Tanzania	Dar es Salaam	-	-	5%	1,800	260
		100%	100%	100%		

Source: Government of Malawi.

By 1983/84, the average monthly volume of imports and exports moving through Mozambique was less than 40% of the average 1977-81 level. Malawi was forced to ship goods to the coast along South African lines. This increased the cost of exports and contributed to a critical shortage of imported goods. Freight and insurance costs rose from 16% of the value of imports in 1973 to 25% in 1979/80 and to 40% in 1984. The estimated total cost of transport disruptions to Malawi's economy in 1984 was U.S.$ 50 million - approximately 20% of the value of total exports.

This figure undervalues the real cost since it does not include intangibles such as the cost of carrying large inventories due to uncertainties in shipments, loss of confidence by firms purchasing Malawian exports, reluctance of business to invest in an uncertain atmosphere, and lost sales from shortage or late delivery.

The tangible increased costs incurred by shipping through South Africa are considerable. (Table 3.5) It is 1.7-3.5 times more expensive for Malawi to ship through Durban, South Africa than through Beira or Nacala, Mozambique. Even shipping through Dar es Salaam, Tanzania is 1.3 to 2.7 times cheaper than shipping through South Africa. Nevertheless, 95% of Malawi's goods are currently shipped through Durban, South Africa.

However, efforts are in progress to reduce the regional dependency on South Africa. The South African Transport and Communications Commission (SATCC) was set up

in 1980 under SADCC and is administered by Mozambique with the mandate to improve transportation and communications in the region. The projects with the highest priority include improving the ports at Dar es Salaam, Nacala, Beira, Maputo, and Lobito, and rehabilitating the Benguela line and the rail lines from Nacala to Malawi, and from Mozambique to Swaziland. (Taha, 1987, p.8) In 1984, proposed SADCC transport projects would cost U.S.$ 4.9 billion. At that time 24% were financed and 14% were under negotiation with donors. Consequently, it is unlikely that all of these high priority projects will be completed in the near future. However, some progress is being made. Plans are under way to upgrade the Beira harbor to handle ships as large as 65,000 tons. (Currently they can only handle 25,000 ton ships.) Furthermore, money has already been invested to upgrade the port at Dar es Salaam. (Taha, 1987. p.10)

Given the current financial situation in the region and the vested interest South Africa has in keeping SADCC dependent on them, it is unlikely that the transport constraint will be significantly eased in the near future.

3.3.2 South African Dependency on SADCC Trade[9]

SADCC's transport dependency on South Africa is only one side of the coin. South Africa is also very dependent

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[9]Information for this section comes from Lewis, 1986. pgs. 5-10.

on the revenues generated by the South African Transport System (SATS). In 1985/86 the SATS system handled over 3 million tons of goods moving to and from Southern Africa. This provides vital foreign exchange earnings to South Africa whose balance of payments position is precarious at best.

SADCC estimates that diversion to the SATS system costs them approximately U.S.$100 million per year due to the increased distance to the sea and the rail tariff rates imposed by South Africa. This figure does not include insurance cost payments which are now more likely to be handled by South African firms or the clearing and forwarding charges they accrue. Hence, Lewis (see citation below), estimates that Southern Africa must contribute over U.S.$200-300 million per year to the South African balance of payments.

Furthermore, this dependence gives South Africa a privileged position as a buyer and supplier of goods. This can be seen in the five fold increase in exports to South Africa between 1970 and 1979. During this period the share of SADCC's total imports from South Africa rose from 21% to 35%, but by 1984 it had fallen back to under 30%. In closing, Lewis remarks that "the surplus BOP position that South Africa enjoys with the SADCC countries could be substantially eroded if the transport system were reconstructed and reliable suppliers outside the region could be found."

3.3.3 Impact on SADCC of U.S. Sanctions on South Africa

In 1986, the United States imposed stricter sanctions against South Africa which prohibited the purchase of agricultural commodities from South Africa. The resulting loss in sales amounts to appproximately 10% of South Africa's yearly agricultural exports. However, United States exports to South Africa are not effected. South Africa has threatened to impose counter measures on both the U.S. and Southern Africa by cutting grain imports from the U.S. and prohibiting the use of SATS for the transport of U.S. grains to Southern Africa. While, this is unlikely to have a large impact on the U.S., it could effect Southern Africa.

In 1985, the U.S. exported 200,000 tons of grain to the region, one fourth of which was transhipped through South Africa. The closures of ports and rails would not necessarily stop exports to the region, but would increase freight costs considerably. These are usually paid by the U.S. because most of the grain is food aid.

Among countries in South Africa, there is considerable difference in the degree of dependence on South Africa for transportation of grain imports. (Table 3.6)

Table 3.6 Dependece on South African Transport for Grain Imports in 1986

Country	Per Cent
Lesotho	100
Malawi	100
Swaziland	100
Zimbabwe	100
Botswana	95
Zambia	50
Angola	0
Mozambique	0

Source: Economic Research Service Estimates. November 1986.

Lesotho is the most susceptible because they are highly dependent on grain imports and there are no alternative routes. However, the U.S. supplies less than 20% of their grain imports. Botswana and Swaziland could also be hurt but it is unlikely that there will be any serious food crises before the 1987 harvest and at this point, South Africa has not acted to carry out their threat anyway. (ERS, 1987).

3.3.4 Development of the Tazara Rail Line

Western donors have expressed increased interest in upgrading the Tazara railroad from Zambia to Tanzania. This was considered economically unviable because it would not be used if the rail lines through Mozambique were restored. It now appears to be the best option for the landlocked states seeking a route to the coast, given the poor

security and limited capacity of the Benguela and Beira lines. An international aid program funded by a European donor is supporting infrastructural development to upgrade the lines freight capacity from 1.4 million to 2.5 million tons per year. A related $91 million project to upgrade the port at Dar es Saalam is under way. However, the Tazara line still faces problems. For instance, it is still shorter for Zimbabwe to ship through South Africa and there is a shortage of locomotives and rolling stock on the line. Presently, two thirds of the volume on the line services Zambian external trade and the rest is domestic traffic for southwestern Tanzania. (WSJ 6/23/87 p.41)

3.3.5 Alternative Means of Transport in the Region

Roads in the region provide short distance transportation for people and goods, feeder service to railways and ports, transport between places where rails are not available, and special transport for products which need quick delivery. However, road transport consumes more fuel than rail transport. Furthermore, road maintenance is poor, exacerbated by a lack of skilled personnel, equipment, spare parts and repair facilities. Hence, the volume of international goods transported on roads is low and the the region has generally expressed an interest in directing as much transport as possible to rail. Most of the currently proposed road projects for international financing are aimed at upgrading existing roads. There is

also a need for regional cooperation to standardize the regulations on maximum axle loads, vehicle wieghts and sizes, speed limits, road signs, and design standards for roads and bridges. (Hoff and Overgaard, 1980) Figure 3.4 shows the major existing roads in the region and the proposed road projects.

Direct air services are either limited to a few flights a week or are nonexistent. Intraregional air transport is expensive and does not offer a cost effective alternative to the previously discussed freight alternatives. This is especially true for the transport of staple food crops which are by nature high volume low value goods. (Hoff and Overgard, 1980.)

In conclusion, the major means of intraregional transport in the region is by rail. However, most of the rail lines are in poor condition, either from lack of maintenance or sabotage. While some projects are under way to correct this, it will remain a problem as long as insurgency is prevalent. Furthermore, until the transport system is improved, the prospects for increased intraregional trade are limited by the inadequate physical capacity to move goods from surplus to deficit areas.

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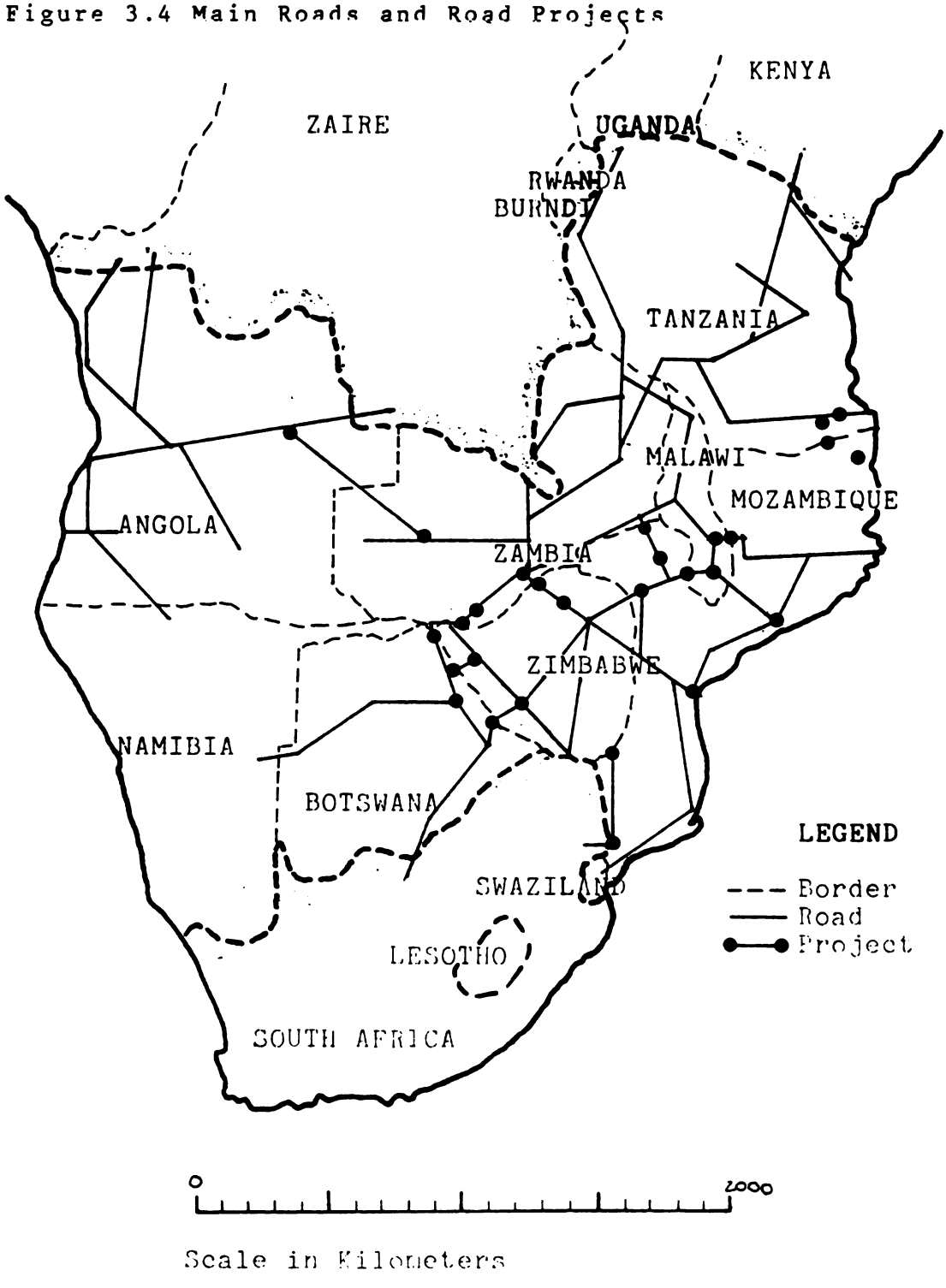
[10]Information for this section is primarily based on "SADCC Intraregional Trade Study", CHR. Michelson Institute, Norway:1986.This study was commissioned by the SADCC Council of Ministers in 1984.

Figure 3.4 Main Roads and Road Projects



Source: Hoff and Overgaard Planning Consultants, Transport and Communications Projects, 1980

3.4 Existing Institutions and Trade Agreements[10]

Both inter and intraregional trade agreements already exist in the SADCC region. These serve to promote trade among certain members of SADCC, while hindering trade among others. In examining the barriers to trade in the region, it is necessary to examine the trade policies of SADCC to determine how these will conflict with or compliment the preexisting trade agreements. The major existing intraregional trade agreements are the South African Customs Union (SACU) between South Africa, Botswana, Lesotho, and Swaziland; and various bilateral trade agreements. The Preferental Trade Area for Eastern and Southern Africa (PTA) is the main alternative to SADCC regional integration. The current plans for the PTA call for the membership of all the SADCC states and nine additional states. This section will examine these agreements and organizations to determine how they relate to the overall SADCC trade agenda.

First, the organization and goals of SADCC will be presented to serve as a framework against which to evaluate other intraregional agreements and the PTA. This is followed by a discussion of bilateral and multilateral agreements (i.e. the South African Customs Union - SACU) already in existence in the region. Finally, the PTA is

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[10]Information for this section is primarily based on "SADCC Intraregional Trade Study", CHR. Michelson Institute, Norway:1986.This study was commissioned by the SADCC Council of Ministers in 1984.

discussed last because at this date it is unclear whether the PTA agreement will work at all, and if it does, it is unclear how much impact it will have on SADCC trade.

3.4.1 The Organization and Goals of SADCC

The basic document for SADCC cooperation was the Lusaka Declaration signed in 1980. However, it wasn't until January of 1983 that the development of regional trade was taken up as a specific issue on the agenda. At that time trade development was envisioned to be a network of bilateral agreements which would include the following points:

"a. Cover of all major transactions, not simply visible trade or trade in manufactures;

b. Agreed target levels of trade in each direction not necessarily balance;

c. Sub-targets by main service or product with rough quantity and unit value goals;

d. Adequate data to make (c) a serious projection exercise;

e. Direct and indirect association of major enterprises whose actual production and sourcing of purchases would be critical to whether the actual outcome roughly corresponds to the target;

f. The use of mutual credits handled via Central Bank accounts to facilitate trade flows and to insure that exporters receive prompt payment in their own currency;

g. Monthly initial payments, swing credits and prompt mechanisms for agreeing on how to overcome divergencies of actuals from projections before they swamp the agreements;

h. Consideration of multiyear contracts for new industries agreed within the SADCC Industrial Coordination context to become part of the baseline data for successive annual trade agreements."

(Michelson Report p.11).

Although these goals have been set out, they have not yet been worked into an operational agreement. The plan is that the bilateral agreements would evolve into a multilateral system. SADCC has not instituted a preferential tariff system, but is encouraging the member countries to provide Most Favored Nation (MFN) status to other SADCC countries in terms of granting import and export licenses. SADCC also recommends that public foreign purchases should be made from SADCC states and that there should be an active trade promtion effort. Several general bilateral agreements are already in existence in the SADCC region.

3.4.2 Sub-Regional and Bilateral Agreements within SADCC

The South African Customs Union

The South African Customs Union was formed in 1910 when the High Commission Territories of Bechuanaland, Basutoland and Swaziland were joined in a union with South Africa. The union had a common external tariff decided by South Africa and provided the other territories with a fixed share of the pool of customs and excise taxes. In

general, there are fairly high tariffs on products produced by South Africa and farily low tariffs on other gooda.

After Botswana, Lesotho and Swaziland (BLS) obtained independence in the mid 1960's, a new agreement was signed in 1969 which created the present South African Customs Union. The agreement was amended in 1976 and states that there shall be a sharing of revenue from a common customs pool based on a formula that makes revenue dependent on the level of imports into each BLS country from all sources, including those from outside the Customs Union. The payments are made two years in arrears.

BLS countries are allowed to protect infant industries by an additional duty imposed against other customs union imports, but the revenue from the duty goes into the general pool. The agreement also provides for "the free movement of goods, nondiscrimination in freight rates, non-discriminatory pricing and quotas in agricultural marketing, and consultation on various matters such as veterinary or plant disease problems." (Lewis, 1986. p.17) Finally, there are no import regulations such as quotas to ration foreign exchange. (Michelson, Supporting Volume 1, 1986. p.13)

SACU does recognize previous arrangements made between the BLS countries and other SADCC countries. For instance, in 1969, Southern Rhodesia and Bechuanaland signed an agreement creating a free trade territory between the two colonial governments. Today Zimbabwe's imports are not

subject to import duties in Botswana, although Botswana receives revenue from the customs union based on the value of these imports.

The SACU channels a considerable amount of revenue back to BLS countries. In the last five years, this revenue has amounted to over $300 million per year. (Lewis, 1986. p.17) Eighty percent of BLS imports come from South Africa. Lesotho and Swaziland are members of the Rand Monetary Area. Some of the pros and cons of this were presented in sections 3.2.5 and 3.2.6.

Distance, inadequate transportation systems, and established contacts with South African firms hinder BLS trade with other SADCC countries. In fact, many of the companies in the BLS countries are South African owned or dominated. Since Angola and Tanzania do not trade at all with South Africa, this makes it difficult for them to trade with the BLS countries.

Bilateral agreements Between SADCC Countries

The Michelson report found that intra SADCC trade - based on exports and imports measured in millions of U.S. dollars - was greatest for Botswana, Malawi, Mozambique and Zimbabwe. It was of moderate importance for Swaziland, Tanzania, and Zambia and insignificant for Angola and Lesotho. One explanation for greater trade between some SADCC countries can be found in the bilateral agreements they have with each other. (Table 3.7)

Table 3.7 Major Bilateral Trade Agreements Within SADCC and Between SADCC Countries and South Africa

Members of Agreements
Botswana-Zimbabwe
Botswana-Malawi
Zimbabwe-Malawi
Tanzania-Mozambique
Angola-Mozambique
Zimbabwe-South Africa
Malawi-South Africa

Source: CHR. Michelson Institute, "SADCC Intraregional Trade Study: Supporting Volume I", 1986.

There were free trade agreements between Botswana, Zimbabwe, Zambia, and Malawi. These originated in 1956 when an agreement between the British Protectorate of Bechuanaland, and the Federation of Rhodesia and Nyasaland was signed. Zambia withdrew from the agreement during the period of the Unilateral Declaration of Indepedence (UDI) in Rhodesia and never rejoined.

Before the insurrection in Mozambique, Malawi and Zimbabwe carried on a significant level of trade, fluctuating around U.S.$ 10 million in recent years. However, transport conditions have deteriorated to the extent of negating the trade creating effects of the agreement. Trade relations between Zimbabwe and Malawi further deteriorated when Zimbabwe joined the PTA in 1984 and placed the same import restrictions on Malawi (who is also a PTA member) that apply to other PTA countries. Thus,

there was a 30% decrease in trade between the two countries from 1981 to 1984.

The agreements between Zimbabwe and Botswana and Malawi and Botswana are still in force. Botswana gives Malawi and Zimbabwe a tariff preference vis a vis the rest of the world, but not vis a vis South Africa, Lesotho and Swaziland. Malawi's imports from Botswana are almost nonexistent.

Both Zimbabwe and Malawi have limited preferential agreements with South Africa. South African trade with Malawi is somewhat restricted by long distances and high costs of transport. Many of the ties between South Africa and Zimbabwe were strengthened in the period of Southern Rhodesia's Unilateral Declaration of Independence. Zimabawe obtained approximately 25% of their imports from South Africa in 1985. A new round of preferential trade agreements between Zimbabwe and South Africa was finalized in 1986, but the details of these agreements have not been made public. (Lewis, 1986. p.20)

In 1978, Mozambique and Tanzania signed the Ruvuma Free Trade Agreement which was based on a political decision to promote stronger trade relations, although the two countries are linked by neither roads nor railways. The plan provides for balanced trade with a swing credit facility of 10 million Tanzanian shillings and calls for a yearly agreement for quantities and values to be traded.

Angola does not trade with South Africa and only has a preferential trade agreement with Mozambique. The wars in both countries have made transport nearly impossible and SADCC trade must be carried out by sea or air. In both countries, agricultural production is limited to local and national markets and there is little room for trade expansion in regional markets under the present circumstances.

The Michelson Report notes that while the SADCC countries have had limited experience with trade plans, existing bilateral agreements reveal several problems. A major problem has been to link government officials negotiating the plan and producers and traders that will implement the plans. If the relevant companies are private, they may require strong incentives to implement the plan. If they are public, there may be other reasons why the planned targets are not reached such as bureaucratic inefficiency and opposing viewpoints on the benefits of such trade plans. Finally, "there is always an uncertainty as to whether the products are delivered on time, with the agreed quality, whether the price is still competitive, etc." (Michelson Supporting Volume 1, 1986. p.22).

Thus, the majority of SADCC's trade agreements are still constrained by trade ties that were established in colonial times or are a result of political decisions which may not provide for the most efficient trade arrangements. Furthermore, the agreements that exist are subject to the

problems listed above. Currently, there appears to be no operational way to transform this group of bilateral agreements into a regional multilateral trade agreement. The impact of these agreements in terms of agricultural trade in the region is further examined in Chapter 4.

3.4.3 The Preferential Trade Area of Eastern and Southern Africa (PTA) And SADCC

There has been a great deal of discussion about the potential conflicts that could arise between a SADCC intraregional trade agreement and the PTA. The two institutions are very different in terms of ideology. SADCC was established, "in the terms used by international organization specialists, on 'functionalist' principles." That is to say, "the aims were pragmatic and limited and focused on relatively attainable goals." On the other hand, PTA documents are more idealistic and are couched in strong statements about the advantages of free multilateral trade and payments. (Lewis, 19886. p. 15,20). In a region containing such a variety of economic ideologies and political alliances, the PTA goals may prove unattainable. It is with this cautionary note a discussion of the conflicts and complementarities of SADCC and PTA follows.

The Economic Commission for Africa (ECA) was the major force behind initiating talks to establish the PTA. In 1978, the declaration of intent to form the PTA was signed. After some research was conducted, the treaty establishing PTA was signed by 9 countries in 1982. The ECA envisioned

that 18 countries would join. However, only 15 have joined up to this point, including Rwanda and Burundi which were not among the original 18. Angola, Botswana, and Mozambique have not joined. The PTA was set up to facilitate movement through the traditional steps of integration which would lead to the development of an economic community. The co-signers had hoped for the removal of all duties and nontariff barriers to trade among themselves, but the treaty includes a clause which states that any member may oppose this if it considers the removal of these barriers detrimental to its national security. This clause will slow and perhaps limit the attainment of this goal.

There is currently a Common List of import and export goods on which the member countries have agreed to reduce intra PTA customs duties to a specific percentage. For example, the tariffs on food were to be reduced by 30% in 1984 and further reduced by 25% of the original tariff every two years starting in 1986. The hope is that within ten years the customs tariffs will be reduced to zero. Every two years new products can qualify for the Common List. These products must fulfill certain rules of origin. These rules require 51% local ownership and a majority of locals in management. For all goods on the Common List, the members must cede most favored nation status to PTA members. As far as trade with third countries is concerned, no concessions can be offered beyond those offered to PTA members. Countries can grant preferences to third countries

as long as they also offer the same preferences to PTA members.

Monetary and financial transactions are expected to pass through the PTA clearinghouse. The clearinghouse was started in 1984, but in 1986, only nine countries had used it and the cash clearing represented only 5% of intra-PTA trade. The main reasons for this failure are the lack of knowledge, the risk elements involved because creditors share the costs of the possible default of the debtors, and the desire of countries to get hard currency for their services (mostly transport) and energy products. (Michelson p.33) Consequently, it is unlikely that in the near future this mechanism will acheive its objective that "all bilateral clearing and payment arrangements will cease to have effect in 1988," as stated in the PTA treaty. (Michelson, p.36)

Special provisions have been made for the BLS countries because of their membership in SACU. PTA members will grant BLS the trade concessions, but the BLS countries are exempt from the application of preferences to the other PTA countries. However, the reexport of goods from South Africa is prohibilted.

The major areas of conflict between SADCC and the PTA are that the MFN clause is absolute and there can be no bilateral and clearing arrangements outside the PTA. Hence, there is some potential for conflict concerning the agreements between Botswana and Zimbabwe and Botswana and

Malawi as mentioned above. This does not seem to be a major issue because these agreements do not severely affect intra-PTA trade and the formulators of the PTA treaty expect Botswana and Mozambique to become members soon. The requirement that no other clearing arrangements should be made outside of the PTA may prove to be more restrictive than the requirement to restrict bilateral trade agreements. However, it is unlikely that the PTA will achieve its projected goals in this area in the near future, given that its ideological conflicts and the political realities in the region. Therefore, at this point, there seems to be no overriding conflicts between the two organizations.

3.5 Non-Tariff Barriers to Trade in the SADCC Region

There are few, if any, tariff barriers to trade in staple agricultural commodities in the region. Many of the previously mentioned barriers to trade actually fall under the category of nontariff barriers. This section will discusses these barriers and the reasons why it is difficult to measure the impact of nontariff barriers on trade.

3.5.1 Major Nontariff Barriers Employed in the SADCC Region

The concept of nontariff "barriers" to trade is slightly misleading. While it includes trade distorting mechanisms such as quotas, voluntary export restrictions,

and exchange controls, it also includes any policy that alters price and or volume of trade, including trade expanding policies such as export subsidies. (Deardorff, 1985. p.2) Deardorff breaks nontariff barriers down into five categories: quantative restrictions, nontariff charges and related policies, government policies and participation in trade, customs procedures and administrative practices, and technical barriers to trade.

Common types of quantative restrictions employed by SADCC states include exchange and other financial controls such as foreign exchange licensing and dual exchange rates, domestic content and mixing requirements (See Section 3.4.3), discriminatory bilateral agreements (see section 3.3.2), and countertrade.

Nontariff charges and related policies such as variable levies, border tax adjustments, antidumping duties, and countervailing duties are more commonly used by industrialized countries.

Government policies include government procurement policies which favor domestically produced goods over foreign goods. A good example of this is the National Milling Corporation of Zambia agreeing to purchase domestic wheat at a higher price to conserve foreign exchange. This category also includes government financed regional development measures, and macroeconomic policies.

Customs procedures and administrative policies include valuation, classification, and clearance

procedures. Unfortunately, information on this type of barrier can only be obtained from extensive contact with the customs and excise departments of each individual SADCC country which is beyond the scope of this report. Finally, technical barriers to trade include health, sanitary, and safety regulations and quality standards. (Deardorff, 1985. pgs. 13-14) This information is not commonly available either.

3.5.2 Measuring Non-traiff Barriers

It is difficult to measure the impact of nontariff barriers on trade. In general, they tend to reduce demand and make demand less elastic because imports are being restricted to a fixed amount, regardless of price. It is possible to measure the price and quantity change of a nontariff barrier, but the real outcome depends on the supply elasticities. "In general, even if it is possible to observe what actually occurs as a result of the nontariff barrier, this does not in itself measure the nontariff barrier, since it captures other extraneous information such as the supply elasticity." (Deardorff, 1985 p. 7)

For tariff barriers, the tariff rate provides a description of the barrier in a given industry. To measure the effect of a nontariff barrier, one needs to know the reduction in the quantity of imports, the increase in price, the change in the elasticity of demand for imports, and the variability of the nontariff barrier over time.

For instance, if the NTB is held fixed over time when supply, demand, and exchange rates change, the effects will vary. One must also know the certainty with which these barriers are implemented, the welfare costs in terms of producer and consumer surplus, and the resource costs such as rent seeking which arises from competing for rents which are accrued through obtaining import licenses. (Deardorff, 1985. p. 8-10). Consequently, measuring the impact of non-tariff barriers is a major task.

3.6 Conclusion

This chapter describes the four major existing barriers to trade in the SADCC region.

Initially, the macroeconommic situations faced by these countries precludes the establishment of an environment which is truly conducive to increased intraregional trade. The desire to obtain high growth levels has resulted in high levels of foreign debt, and limited foreign exchange availability. Furthermore the political will to resolve the currency overvaluation problems remains weak. Agricultural growth is variable, although Zimbabwe and Malawi have had occassional surpluses for export. The other countries have already established food import agreements, are trying to become self-sufficient in staple grains, or rely heavily on food aid.

Second, even if a basis for trade existed in the

region, the transport infrastructure is inadequate to service an increased level of intraregional trade.

Third, in addition to being dependent on South Africa's transport system, one of the biggest barriers to increased regional trade is the existing trade agreements between South Africa and other SADCC countries. This includes both the SACU agreement and various bilateral agreements, including those with Zimbabwe and Malawi.

Finally, we know that non-tariff barriers exist, but it is impossible to measure their impact on trade. In general, however, they tend to shift the demand curve back and make it more inelastic. On balance, the overall prospects for increased intraregional trade in staple grains are very limited.

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Chapter 4

Trade Flows: Intra-SADCC Trade, SADCC-South Africa Trade, and SADCC-U.S. Trade

There has been very little research to estimate the actual volume and direction of trade flows in the SADCC region. This chapter discusses the difficulties inherent in analyzing trade flows in general and in the SADCC region in particular. Within the data constraints, SADCC trade is evaluated to determine the current patterns of trade in staple agricultural commodities in the region. The last section discusses food aid and its potential to improve intraregional trade.

4.1 Sources of Data and Problems Inherent in the Development of Trade Matrices

The United Nations (U.N.), the Food and Agriculture Organization (FAO), and the United States Department of Agriculture (USDA) are the primary sources of regional and global trade data in the world. Unfortunately, each records data from various sources in a slightly different way. To develop a comprehensive picture of world trade it is necessary to reconcile these statistics. Some methods for doing this will be discussed below. However, all of the above organizations face several problems in gathering and recording data.

4.1.1 Inconsistencies in Trade Data

The very definition of "trade" itself leads to inconsistencies in the data. For instance, "trade" among countries may be a gift, an obligation, a transfer between divisions of a multinational corporation, or a commercial transaction. Furthermore, the commodity traded can be used for domestic consumption, processing, storage, re-export, or speculation. The nature of an import's use determines the way in which it is recorded. Because of this, importer and exporter data are rarely comparable. (Hiemstra, 1986. p.1) Data are said to be consistent when import statistics equal export statistics.

In a study conducted by the U.S. Bureau of the Census and Statistics Canada between the U.S. and Canada who share a common border, speak the same language, have readily convertable currencies, and advanced systems of record keeping, the following reasons for trade inconsistencies were noted:

1. Nonreceipt of export documents by exporting country.
2. Countries defined merchandise trade transactions differently.
3. The two countries classified commodities differently.
4. Processing lags led the two countries to include the transaction in different time periods.

The FAO also reported the following sources of inconsistency:

5. Customs officials paid more attention to import data.

6. The origin or destination of some commodities was unknown because of storage, further processing, or transhipment. (Hiemstra, 1986. p.1-2)

In addition to these problems, data from many centrally planned and developing countries are subject to additional problems. First, many do not report trade for all years and some developing countries report only commercial imports. Second, food aid from the U.S. is frequently not reported as an import by the recipient country. Third, some developing countries tend to record only those commercial transactions which require scarce foreign exchange. Fourth, determining what is transhipped can be difficult and often results in double counting. Fifth, changes in political boundaries make historical trade statistics obsolete. Sixth, smuggling results in unreported trade. And finally, the size of the data set leads to problems in reporting, handling and updating the statistics especially when many countries don't use the Standard International Trade Classification (SITC) codes for customs administration. Usually exports are reported F.O.B. and imports are reported C.I.F., but 18 countries still report imports F.O.B. For these reasons, it is not surprising that import volumes reported to the U.N. for food and feed grains differed 32-52% from reported export volumes. (Hiemstra, 1986. Summary-p.4).

4.1.2 Sources of Trade Data

As mentioned earlier, the U.N., the FAO, and the USDA are the most comprehensive sources of regional and world trade flows. However, each source differs from the others in some way. The Foreign Agriculture Service (FAS- part of USDA) and FAO data consist of statistics on world imports and exports rather than data on country of origin and destination as reported by the U.N. The most important discrepancy between the FAS and FAO data is that the FAO data is based on the calendar year in which the whole or the bulk of the production is harvested while FAS reports data on a marketing year basis (July-June), for all crops except rice. Because of this, FAO and FAS cereal trade data tend to be widely divergent. Other differences include the fact that the FAO reports data for small developing countries that FAS does not include, and they use different sources of unofficial information and undertake different degrees of historical revision. (Hiemstra, 1986. p.2).

The FAO trade matrices are developed in the following way. The data is collected through annual questionaires. If statistics from one side of the exchange are available, they are added to the matrix. If both import and export statistics are available and the range of their ratio is between .8 and 1.2, the import statistics are used. If the ratio of imports to exports is outside the range, a question mark is added. When statistics are unavailable, data from unofficial sources are used or the FAO makes

provisional estimates. The FAO also breaks down their classifications into special and general trade categories. Under the special trade system, goods are cleared through customs and recorded when they are imported for domestic use only. Under the general trade system, all goods crossing national boundaries are recorded. (Hiemstra, 1986. p.4) The FAO publishes production and trade esstimates for more countries than FAS.

FAS data comes primarily from agricultural attaches which are located in 70 offices around the world and are responsible for more than one hundred countries. The data comes from official statistics released by national governments, nongovernmental contacts, and the reports of international organizations. The reliability, objectivity and consistency of the collected statistics are addressed and if the agency deems appropriate the official country figures are replaced by FAS estimates. (Paulino, 1980. p.15-16). For countries which are reported by both FAO and FAS, three-fifths diverge by more than 20%. More specifically, "based on the average number of countries reported in common for each cereal in [1965, 1970, and 1975], the percent of FAO and USDA reports that differ by more than 20%, are 44% for rice, and 63-66% for wheat, maize, barley and oats." (Paulino, 1980. p. 32) In Africa, there are wide divergences for the wheat and maize statistics reported by the FAO and USDA. However, data on cereal imports show closer agreement than data on cereal

exports and data from countries in FAO's general trade group were in closer agreement with FAS data than the the countries in the special trade group. (Paulino, 1980. p.35).

In all cases FAO and FAS import and export statistics become more consistent at higher levels of aggregation, but the greater the level of aggregation, the more likely that dissimilar commodities are being grouped together. At high levels of aggregation, the value of commodities grouped together provides the only meaningful unit of measurement. However, value statistics have their own problems. Value is equal to quantity times price. This becomes complicated when prices are quoted in terms of national currencies and the importing country has an overvalued exchange rate, or multiple exchange rates. Furthermore, barter agreements are often based on quantities without specific prices, re-imports and re-exports can go unsold, and private agencies or persons can make gifts. "In other words, not all trade involves a commercial transaction." In general, discrepancies in quantity data are compounded in value data. (Hiemstra, 1986. p.4-6).

The U.N. data is particularly useful because it records commodity flows by destination. However, it also has some problems. The data comes from the indivdiual reporting countries or territories in the form of publication or tabulation listings. They also use the "special" and "general" trade system mentioned above. SADCC

countries reporting under the "special" system are Angola, Botswana, Mozambique, and Zambia. Countries reporting under the "general" trade system are Lesotho, Malawi, Swaziland, South Africa, Tanzania, and Zimbabwe.

Another problem arises in the definition of "trading partner" for the importing country. For Angola, Malawi, Mozambique, Tanzania (up to 1975), and Zambia, the trading partner is the country of origin of production. In other words, this is the last country in which goods received appreciable physical transformation. Botswana and Tanzania (after 1975) consider the trading partner to be the country of consignment, that is , the country from which goods were first dispatched to the importing country. Swaziland defines "trading partner" as the country of the residence of the seller. All other countries consider the "trading partner" to be the country of provenance. For exports, Malawi and Tanzania consider the "trading partner" to be the country of last consignment, (i.e. last known destination). Angola and Mozambique report trade to the country of consumption. That is, "the country where merchandise should receive treatment for which it was designed at the time of production or manufacture, or the place where it should be transformed, repaired, or submitted for further workmanship; not including, blending, repacking or reassortment." (U.N. Trade Series "C") Swaziland considers the "trading partner" to be the country of residence of the buyer. All other countries report

exports to the country of destination. (U.N. Trade Series "C") The U.N. data is collected on a calendar year and imports do include food aid.

The Economic Research Service (ERS), a branch of USDA, has established a trade data base which is continually being updated and edited. The U.N. trade statistics provide the primary source of data and the following procedures are then employed to edit the data. Each importing country and its trade partners are listed. When importer data is available, it is entered into the matrix. If importer data is unavailable, but exporter data is available, the export statistic is entered. "When both import and export data are available, the program prints the import data and records the per cent difference between the two with a single letter. The numbers are summed and displayed opposite the import total reported by FAO in its trade yearbook." (Mackie, p.6) The matrix is then filled in by data from the country trade yearbooks, and publications from international trade organizations. Once the worksheet is complete, the totals are compared with FAO import totals. If the origin and destination data is judged to be unrealistic or inconsistent with FAO import totals, the data are rejected and analyzed to see if transhipment relationships can be identified. (Hiemstra, 1986. p.9)

4.1.3 Trade Data Problems in Southern Africa

In analyzing the intraregional flows of trade in agricultural commodities in Southern Africa, several unique problems arise in addition to the problems mentioned above. As previously noted, agricultural trade in the SADCC region accounts for only 4-5% of intraregional trade. Many of the data sources tend to round the import quantities to the nearest hundred metric tons. Since the quantity of trade is quite small this may make a significant difference when aggregated over the entire region and several small trade flows which could be exploited in the future may not be recorded at all.

However, this problem is dwarfed by the immense lack of data that exists in the region. No trade flows are recorded for Botswana, Swaziland, or Lesotho because they are part of the South African Customs Union (SACU). The SACU is discussed extensively in Chapter 3. However, it may be beneficial to note again that there is a free trade area between the countries in SACU and the common external tariff is decided by South Africa. South Africa does not record their trade with Botswana, Lesotho, or Swaziland as export trade because it is viewed as a domestic transaction.

Although one of the purposes for the formation of SADCC was to decrease its reliance on South Africa, the SADCC countries are very dependent on South Africa for trade and transportation as mentioned in Chapter 3. South

Africa is also dependent on trade with the SADCC countries. Both sides confirm that there is considerable economic interaction and that this interaction has been increasing. In fact the 1986 SADCC Macroeconomic Survey stated that there had been an "increase in dependence on the South African transport system and on food imports" (Lipton, 1986. p.13) Despite the fact that trade occurs, no one in the SADCC region is willing to quantify the extent of this trade because many of the SADCC states have a political policy against trading with South Africa until its apartheid policies are abolished.

Furthermore, South Africa does not report imports from or exports to the rest of the region to the U.N., FAO or USDA. "Because of the threat of sanctions, South Africa curtailed publication of material on its trade with Africa after 1977." (Lipton, 1986. p.1) Some data is available from partner countries but it is sketchy and unreliable. "One consultant to SADCC commented that in some cases the unrecorded trade may be of a size comparable to the recorded trade.'" (Lipton, 1986. p.1) The head of the South African Trade Association remarked that, "official South African statistics are not disaggregated, while those of other countries are out of date, and those published, for example by the IMF are 'totally unreliable...with the decimal point sometimes in the wrong place.'" (Lipton, 1986. p.1)

Nevertheless, Lipton has provides three tables which provide some sense of the magnitude of the trade between SADCC and South Africa. Table 4.1 gives the percentage distribution of intra-SADCC and South Africa-SADCC trade in 1982. The dependence of the BLS countries on South Africa is quite significant, especially in terms of imports. The other SADCC countries are also much more heavily dependent on South Africa for imports than they are on other SADCC countries. It should also be noted that these statistics underestimate the importance of SADCC-South Africa trade from both sides. (Lipton, 1986. p.15) Table 4.2 shows the commodity break down of South African trade with Africa. The important thing to note is that cereals fall under vegetable products. Although, there was a five fold increase in total food exports from 1973 to 1980, there was an eight fold increase in vegetable product exports. Between 1980 and 1983, there was a decrease in overall exports, but this amount still represented a three-fold increase over the 1973 level. Vegetable product exports were only twice as high as the 1973 level. (Lipton, p.15) Finally, Table 4.3 provides some vital statistics on South African maize exports to the BLS countries. While, there is some variation in the figures, the trend is unquestionably towards greater dependence on South African maize. Thus, despite a lack of accurate statistics, it is known that trade with South Africa is occurring at significant levels. However, without more detail as to the exact quantities and

Table 4.1 Intra-SADCC and South Africa-SADCC Trade, 1982

	Percent distribution of:			
	Exports to:		Imports from:	
	other SADCC countries	South Africa	other SADCC countries	South Africa
Angola	0.1	-	0.8	-
Botswana	11.9	11.3	6.3	85.1
Lesotho	0.1	41.3	0.1	97.1
Malawi	9.7	5.7	9.6	34
Mozambique	11.6	1.8	3.0	8.1
Swaziland	2.7	36.9	0.7	82.9
Tanzania	0.8	-	4.2	-
Zambia	3.5	0.3	6.3	14.5
Zimbabwe	11.5	17.1	7.6	22.1
SADCC Total	5	7	4.4	30.2
SADCC Total (in US$ millions)	276	382	316	2,161

Source: Merle Lipton, "South Africa's Role in Agricultural Production and Marketing in Southern Africa",:1986.

Table 4.2 South African Agricultural Trade With Africa,*
1973, 1980 and 1983 (Rand million)

	1973		1980		1983	
	Exports	Imports	Exports	Imports	Exports	Imports
Live animals, animal products	7.7	16.8	56.4	4.1	39.4	5
Vegetable products	29	21.6	253.5	46.3	67.8	44.5
Fats, oils and cleavage products	0.9	4	8.5	5.1	9.8	1.7
Prepared foodstuffs, beverages, spirits and vinegar, tobacco	16.8	23	35.3	33.9	53.8	53.4
Raw hides and skins, products	.07	1.7	1.1	5.2	1.5	4.1
Total	55.2	65.4	298.4	94.5	172.3	108.7

Source: Merle Lipton, "South Africa's Role in Agricultural Production and Marketing in Southern Africa": 1986.

Notes: *Excluding trade with Southern African Customs Union, i.e. with Botswana, Lesotho, and Swaziland.

Table 4.3 South African Maize Exports to Africa, 1971/2-1984/5
(in '000 MT)

Year	Exports to BLS and Namibia*	Exports to Rest of Africa**	Total
1971/2	70	65	135
1972/3	83	35	118
1973/4	139	19	158
1974/5	60	106	166
1975/6	73	54	127
1976/7	131	56	187
1977/8	171		
1978/9	248		
1979/80	250		
1980/81	347	(1,502)***	1849?
1981/82	214	(1,500)	1714?
1982/83	222	(814)	1036?
1983/84	248	(238)	486?
1984/85	408	(9)	417?

Source: Merle Lipton, "South Africa's Role in Agricultural Production and Marketing": 1986.

Notes: * Botswana, Lesotho, Swaziland and Namibia
** Believed to be predominately SADCC and Zaire.
*** From "Destination Unknown" category in Maize Board Reports. As other major destinations of food exports are listed (Europe and Far East), it seems likely that this is mainly Africa. This category does not include BLS and Namibia, listed separately in the Reports, see,eg, 1985 Report, p.9.

direction of flows, it is difficult to determine how South Africa-SADCC trade influences intraregional trade.

Finally, war in Mozambique and Angola has resulted in limited knowledge about food supplies in various parts of the two countries. The exodus from rural to urban areas has resulted in an increased demand for food imports, but the data collection system is poor and little is known about the quantities or sources of imports from within the SADCC region. The major exception to this is where international organizations such as the World Food Program or other donors participate in triangular trade transactions involving other countries in the region. However, these transactions provide only a small amount of the overall food requirements. These are discussed in some detail in section 4.5.

4.1.4 Methodology Used to Form Intra-SADCC Trade Matrices

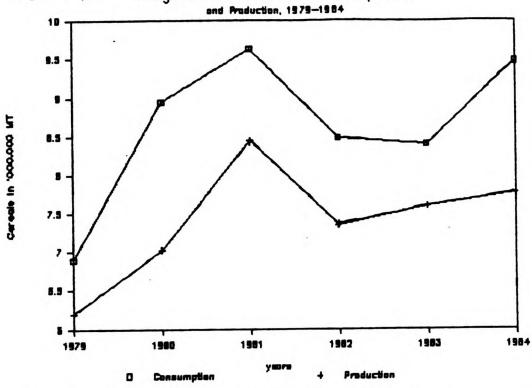
Despite the previously mentioned data constraints, data is available on intraregional trade flows in staple grains in the SADCC region, between SADCC and South Africa, and between SADCC and the U.S. Furthermore, an analysis of this data provides important insights on the nature of trade in the region. Trade matrices for maize, wheat, rice, and "other grains" were developed much along the lines used by ERS. The initial source of information was the U.N. trade tapes. If importer data were available, it was entered into the trade matrice. If only exporter data were

available it was entered into the trade matrice. If both importer and exporter data were available, the more reliable source (usually the U.S.), was included. The rest of the matrice was filled in where possible by using reports from other international sources and country trade reports. Production and consumption figures were provided by the FAS and can be compared to FAO figures. Information on trade with countries from outside the region was taken from the ERS matrices. The methodology of how these were developed was given in section 4.1.2.

4.2 Grain Trade in the SADCC Region

Intra-SADCC trade in agricultural comodities represents only a very small percent of total SADCC trade. However, grain imports into the region were quite significant from 1979-1984. (Figure 4.1) In 1983, overall grain imports into the region were relatively small, equal to 9.5% of total consumption. In 1984, regional imports increased significantly to 18% of total consumption. Figures 4.2 and 4.3 show the commodity composition of imports in these two years. In 1983, total regional cereal imports were made up of 35.9% maize, 39.6% wheat, 18.4% rice, and 6.1% other cereals. The 1984 figures (which actually reflect the effects of the 1983 drought because of a lag in the reporting period) indicate that in food deficit periods, maize imports become more important (50.8% of total imports). This reflects the importance of maize as

Figure 4.1 Regional Cereal Consumption and Production, 1979–1984



Source: FAO Production Yearbook, FAS Data Base, 1986

Figure 4.2
Commodity Composition of Cereal Imports
1983

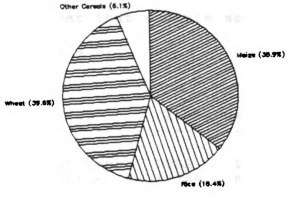
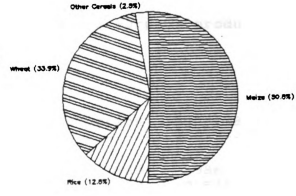


Figure 4.3
Commodity Composition of Cereal Imports
1984



Source: For Figures 4.2 and 4.3, FAO Trade Yearbook, 1986

the regional staple food crop. Wheat imports dropped slightly to 33.9%, but stayed basically the same. Rice imports dropped to 12.8% and imports of other cereals dropped to 2.5%. This analysis provides an overview of the regional cereal import situation, but is subject to all of the critisms of aggregate regional analysis. For this reason, the rest of this chapter focuses on an analysis of intraregional trade on a commodity by commodity basis.

4.2.1 Maize

Maize is the primary staple food crop and most traded agricultural commodity in the region. Zimbabwe is the major regional supplier. Most of Zimbabwe's regional exports occurred from 1981-1985, with the exception of Malawi who has maintained some level of maize imports from Zimbabwe since 1970. (Table 4.4 and Figure 4.4) Assuming that there is approximately a one year lag in reporting trade data, it is clear that exports are a residual of surplus production. (Table 4.5)

Table 4.5 Zimbabwe's Maize Production: 1982-1986

Harvest Year	1982	1983	1984	1985	1986
Production	1,786	884	1,400	2950	2,546
Exports to the Region	100.4	37.5	21.4	42.1	157*

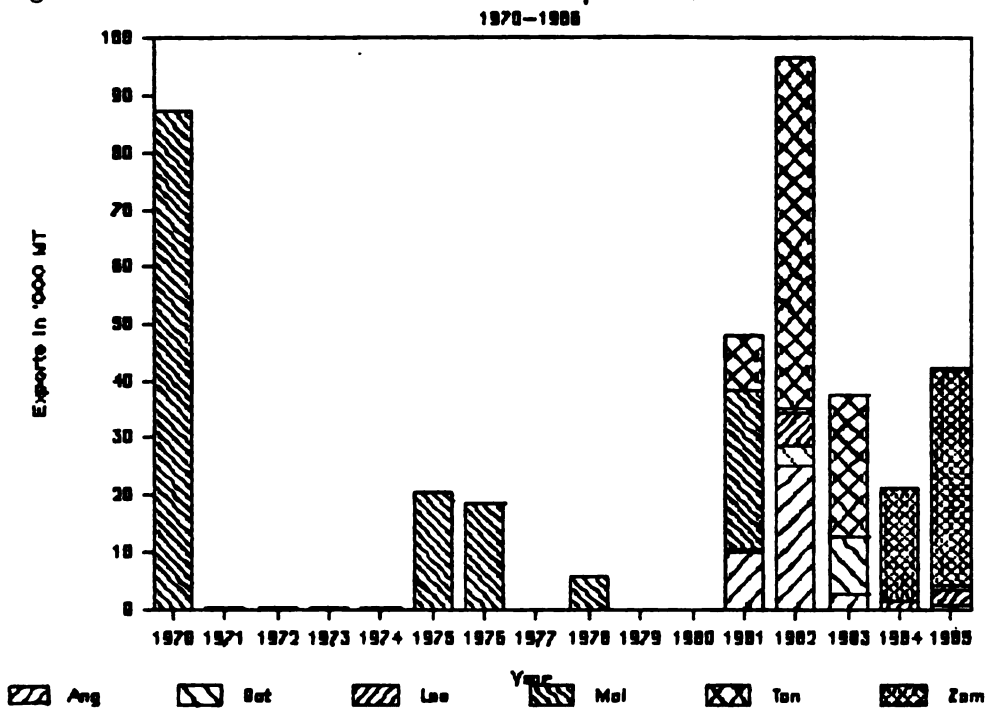
Source: FAS Agricultural Attache Report,1987.
Notes: In '000 Tons
* means approximation for marketing year 1986/87.

Table 4.4 Zimbabwe's Maize Exports to the SADCC Region: 1970-1985
(in '000 MT)

	Ang	Bot	Les	Mal	Swaz	Tan	Zam	Total
1970	0	NA	NA	87.2	NA	0	0	87.2
1971	NA	NA	NA	0.1	NA	0	0	0.1
1972	0	NA	NA	0.1	NA	0	0	0.1
1973	0	NA	NA	0.1	NA	0	NA	0.1
1974	0	NA	NA	0.3	NA	0	0	0.3
1975	NA	NA	NA	20.6	NA	0	0	20.6
1976	NA	NA	NA	18.6	NA	0	0	18.6
1977	NA	NA	NA	NA	NA	0	0	0
1978	NA	NA	NA	5.6	NA	0	0	5.6
1979	NA	NA	NA	NA	NA	0	0	0
1980	NA	NA	NA	NA	0	0	0	0
1981	10	0.2	NA	28.2	0	9.7	NA	48.1
1982	25.3	3.5	5.8	0.7	3.8	61.5	NA	100.6
1983	3	9.8	NA	0	0	25	NA	37.8
1984	0	0	1.3	NA	0	0	20.1	21.4
1985	0	0.6	2.9	NA	0	1	37.9	42.4

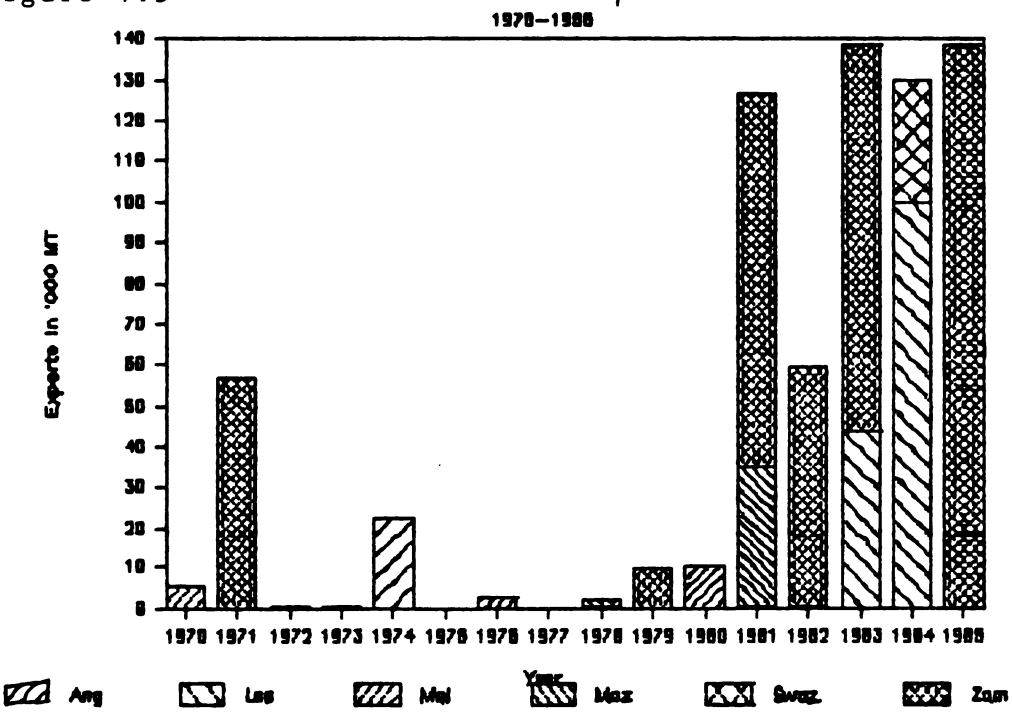
Source: Author's Trade Matrix
Notes: NA means no data is available.

Figure 4.4 Zimbabwe's Maize Exports to SADCC



Source: Author's trade matrix.

Figure 4.5 South Africa's Maize Exports to SADCC



Source: Author's trade matrix.

The major impact of the drought on production occurred in 1983-1984, resulting in a significant drop in exports in 1984 and a low level of exports in 1985 compared to 1982. However, production increased significantly in 1985 and 1986. The available data suggests that exports have also risen significantly in these years.

In addition to Zimbabwe; Malawi, Zambia, and Tanzania were major maize exporters in the region between 1970 and 1984. The major importers were Tanzania, Mozambique, Angola and Zambia. (Table 4.6) Figures 4.6-4.12 show the source of imports from SADCC and South Africa for those countries with available data. The figures clearly show that the majority of regional trade in maize has occurred since 1980. Intraregional trade accounts for only a small share of regional maize imports except in the case of Malawi. (Table 4.7) Yet, it is evident that intraregional trade in 1982 and 1983 increased significantly - reflecting good production years in 1981 and 1982. In 1983, 22.6% of the region's total maize imports were supplied by intraregional trade. Whereas, in 1984 <1% of total maize imports were supplied by intraregional trade. This indicates that there is some possibility of increasing maize trade in the region, despite the similarity of production patterns.

While trade with South Africa is underreported if reported at all, available data on South African exports to the SADCC region indicates that South African exports to

Table 4.6 Regional Maize Trade Excluding Zimbabwe: 1970-1984
(in '000 MT)

Year	Exporter	Importer	Quantity
1970	Angola	Mozambique	7.5
1971	Malawi	Zambia	4.65
	Angola	Mozambique	.01
1972	Malawi	Tanzania	11.97
1973	Malawi	Zimbabwe	.02
1974	Zambia	Tanzania	69.13
	Malawi	Tanzania	5.49
1975	Malawi	Tanzania	15.96
1976	Zambia	Malawi	.30
1977	Zambia	Angola	22.11
	Zambia	Tanzania	.03
1978	Zambia	Angola	21.9
	Tanzania	Mozambique	37.12
1979	Tanzania	Mozambique	14
1980	Tanzania	Mozambique	.02
	Malawi	Zambia	13.35
1981			
1982	Malawi	Mozambique	.05
1983	Malawi	Mozambique	15.14
1984	Malawi	Mozambique	5
	Malawi	Tanzania	21

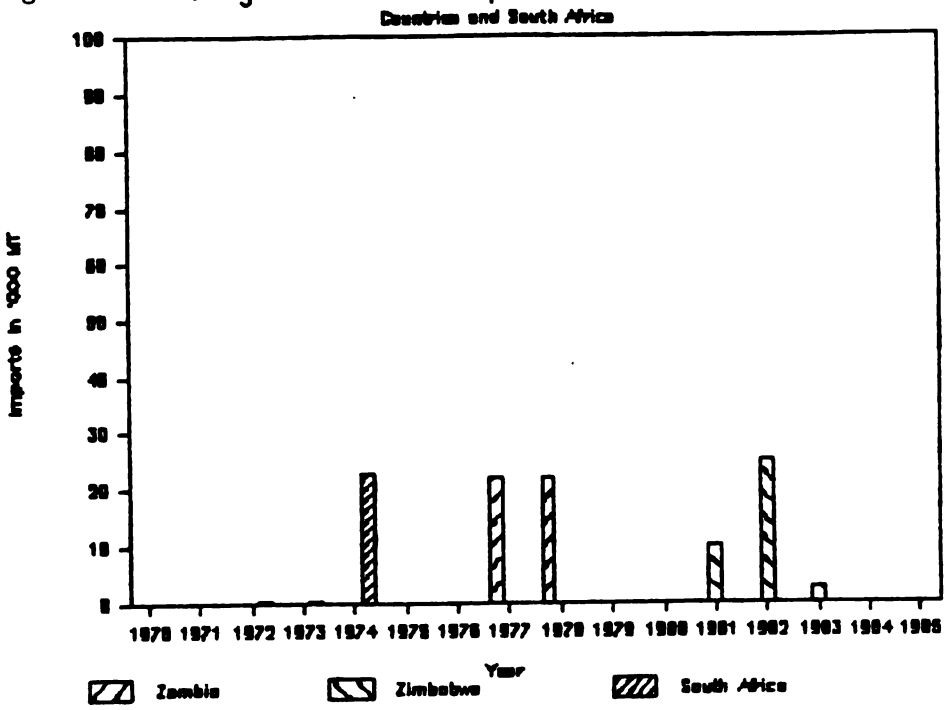
Source: Author's Trade Matrix.

Table 4.7 Percent of Total Maize Imports from the SADCC Region
(in '000 MT)

Country	1980	1981	1982	1983	1984
Angola	0	7.77	21.22	3.58	0
Botswana	0	1.05	19.71	25.24	1.5
Lesotho	0	0	14.45	0	2.58
Malawi	0	44.75	60	90	-
Mozambique	.01	0	.05	25.23	3.3
Swaziland	0	0	0	0	0
Tanzania	0	5.68	50.5	20.6	0
Zambia	0	0	0	38.95	.08
Zimbabwe	0	-	0	0	0

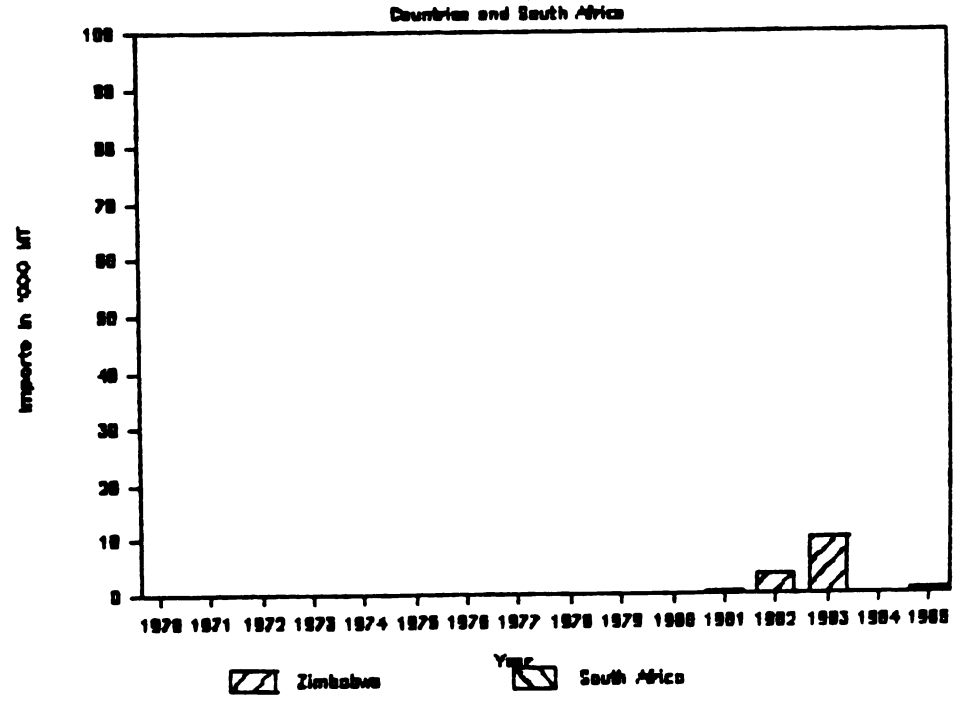
Source: Author's Trade Matrix
Notes: Information based on available data. A dash means no imports from the region.

Figure 4.6 Angola: Maize Imports from SADCC



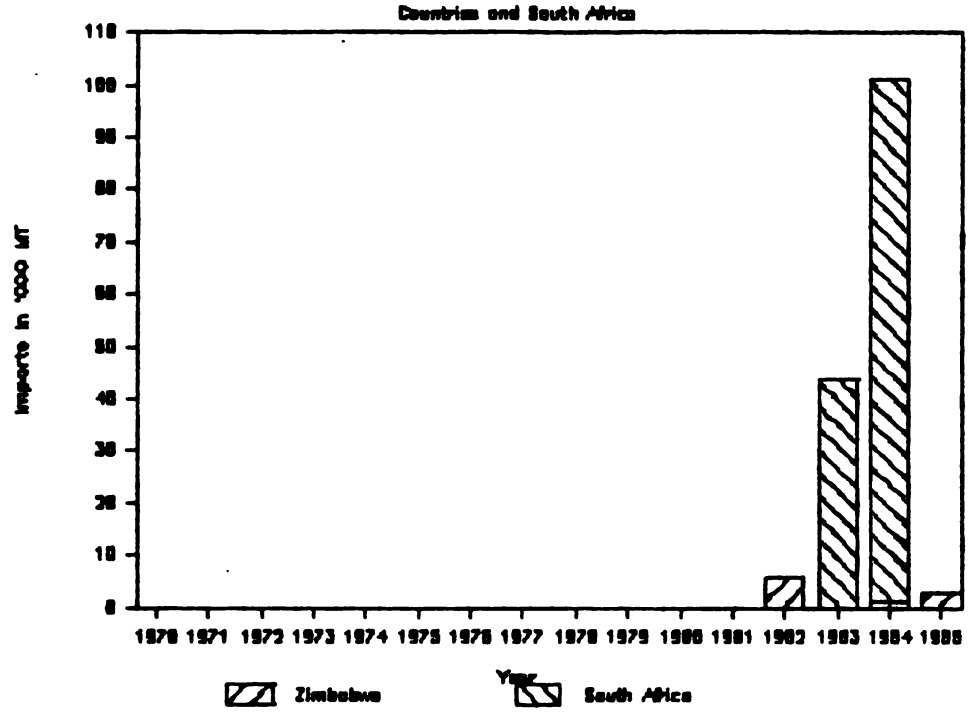
Source: Author's trade matrix.

Figure 4.7 Botswana: Maize Imports from SADCC



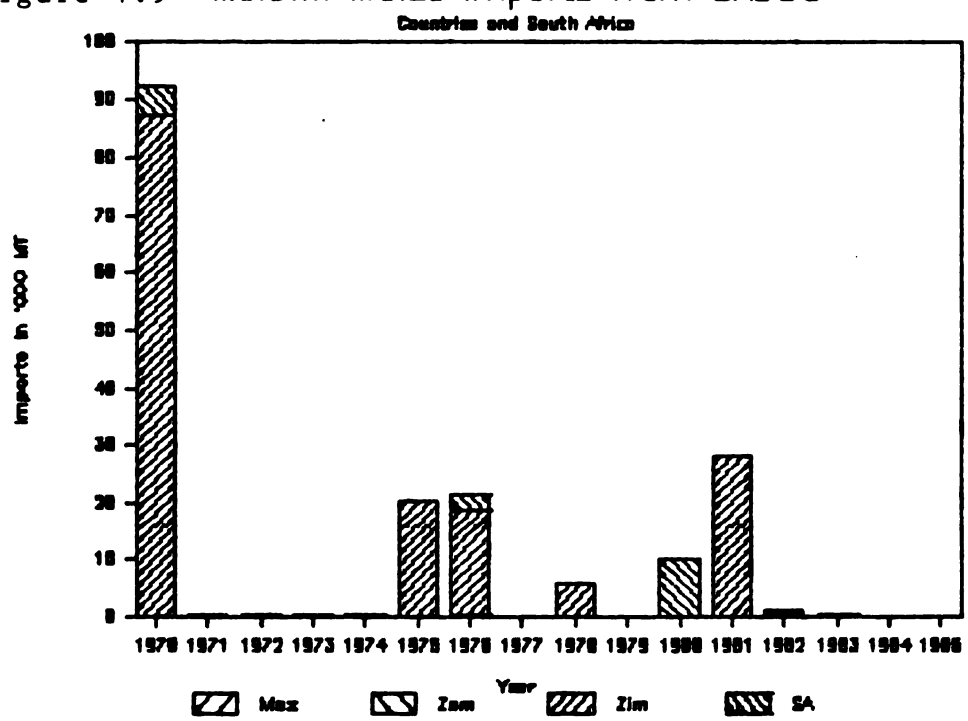
Source: Author's trade matrix.

Figure 4.8 Lesotho: Maize Imports from SADCC



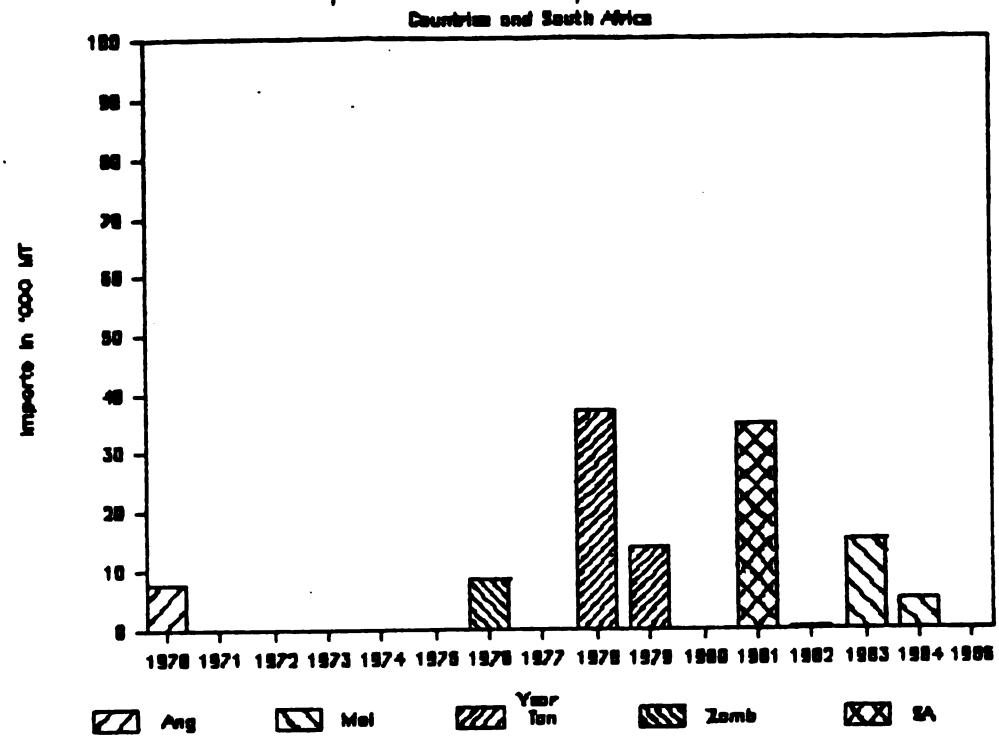
Source: Author's trade matrix.

Figure 4.9 Malawi: Maize Imports from SADCC



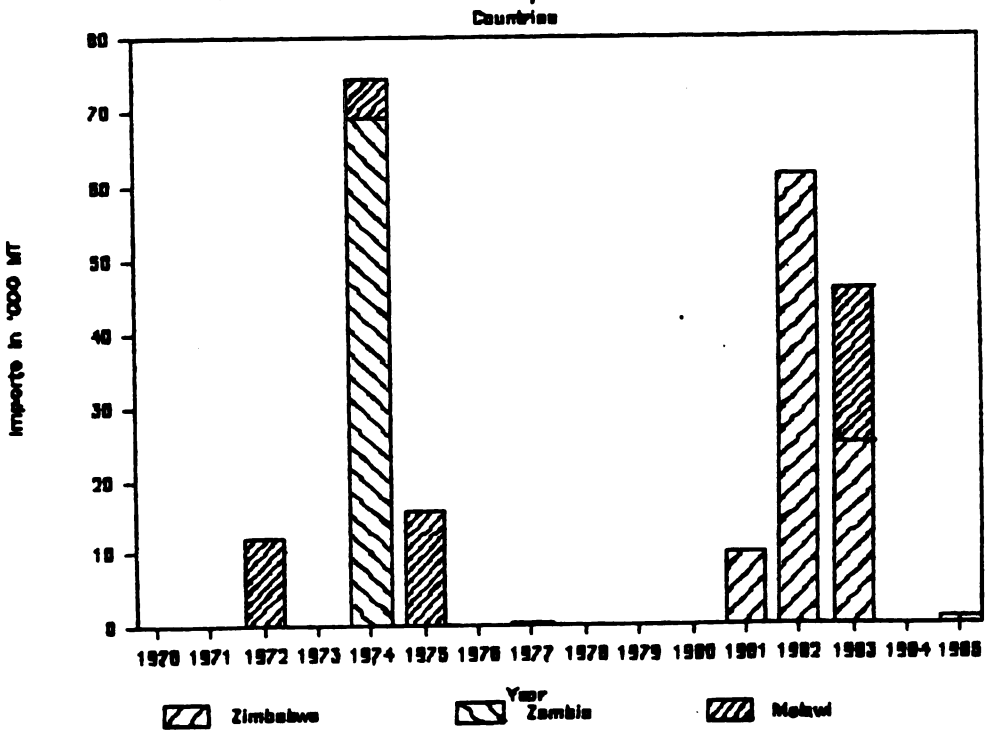
Source: Author's Trade Matrix.

Figure 4.10 Mozambique: Maize Imports from SADCC



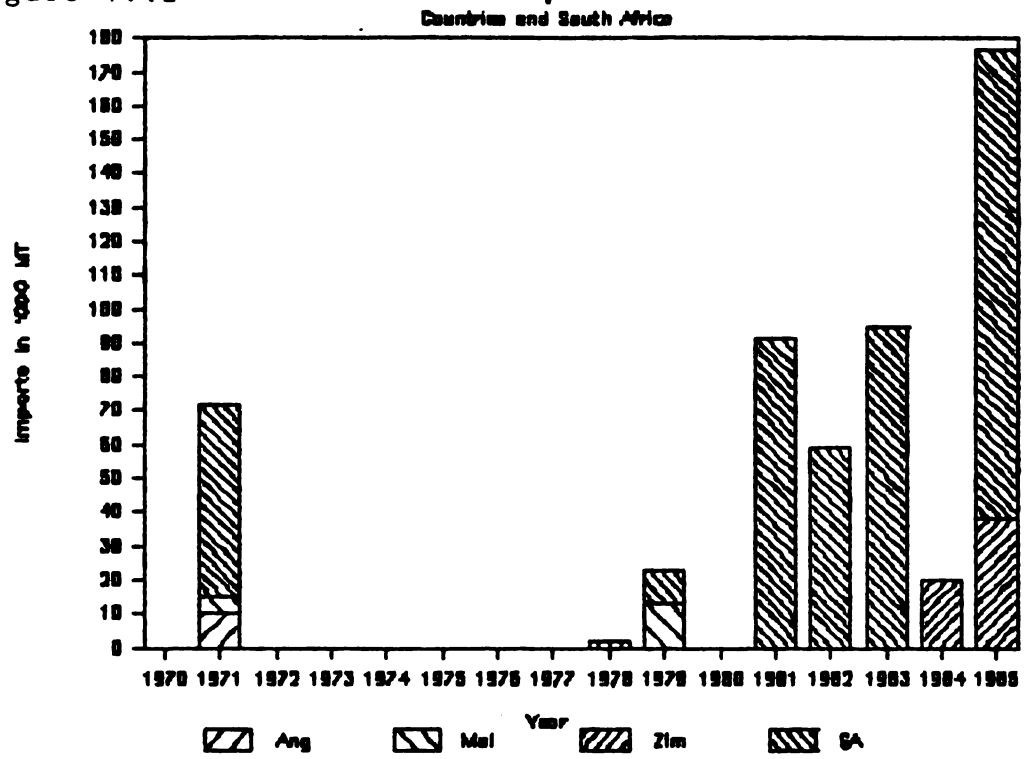
Source: Author's trade matrix.

Figure 4.11 Tanzania: Maize Imports from SADCC



Source: Author's trade matrix.

Figure 4.12 Zambia: Maize Imports from SADCC



Source: Author's trade matrix.

SADCC have increased substantially since 1980. (Figure 4.5) In particular, South Africa met most of the maize import requirements of the BLS countries. Other major suppliers of maize from outside the region include the U.S., France, Argentina, Thailand and Canada.

While conclusions derived from the above analysis are constrained by sketchy and unreliable data, intraregional trade has increased since 1980 and accounts for the largest perent of total regional imports in years when Zimbabwe's production is highest. Other occassional exporters in the region are Malawi, Tanzania, and Zimbabwe. South Africa is suspected to play a major, though unquantifiable, role in the region's maize trade.

4.2.2 Wheat

All of the SADCC countries are deficit in wheat. Therefore, there is little intraregional trade in this commodity. Zimbabwe and Malawi exported small quantities during the past 15 years. Malawi imported 54,000, 52,000, and 55,000 MT of wheat form Zimbabwe in 1970, 1971, and 1972, respectively. Zambia imported 1, 1, 2, and 7 MT form Malawi in 1971, 1973, 1974, and 1975, respectively. Zambia also imported 1 MT from Zimbabwe in 1972. Other than these few observations from 12 to 15 years ago, there is no further evidence of intraregional trade.

It is quite likely that South Africa is supplying a large percent of the wheat imported by the BLS countries,

although this is not quantifiable. There is also sparse evidence of trade between South Africa and some other SADCC countries. Angola purchased 32,130 and 72,440 MT from South Africa in 1973, and 1974 and Malawi purchased 3,170, 21,440, 4,850, and 1,510 MT from South Africa in 1979, 1980, 1982, and 1983. However the role of South Africa in regional wheat trade is probably more significant than these data indicate since most of the trade is severely underreported.

During 1980-1985, wheat imports were significant in Angola, Mozambique, Tanzania, Zambia, and Zimbabwe. (Figures 4.13 and 4.14) Angola and Mozambique were the largest importers. Tanzania and Zambia's imports fluctated across the years while Zimbabwe's imports have trended up and Malawi only imports very small quantities.[1] Other major suppliers of wheat from outside the region include the U.S., Australia, Argentina, France, Canada, the Federal Republic of Germany, Belgium-Luxemberg, and Sweden.

This analysis indicates that there is little scope for increasing intraregional trade in wheat because all SADCC countries are deficit in this commodity.

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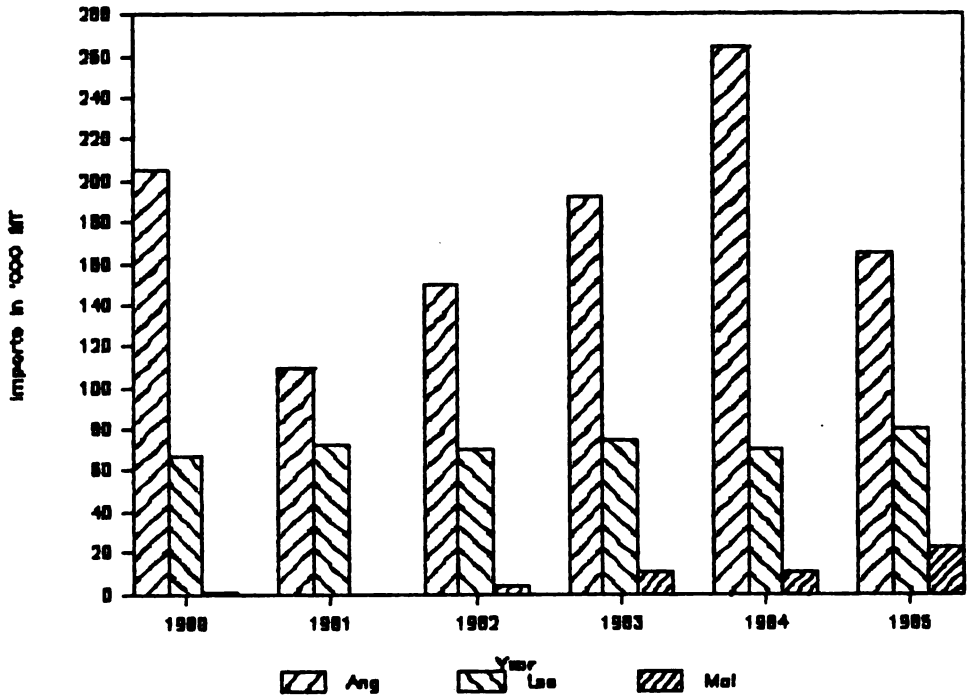
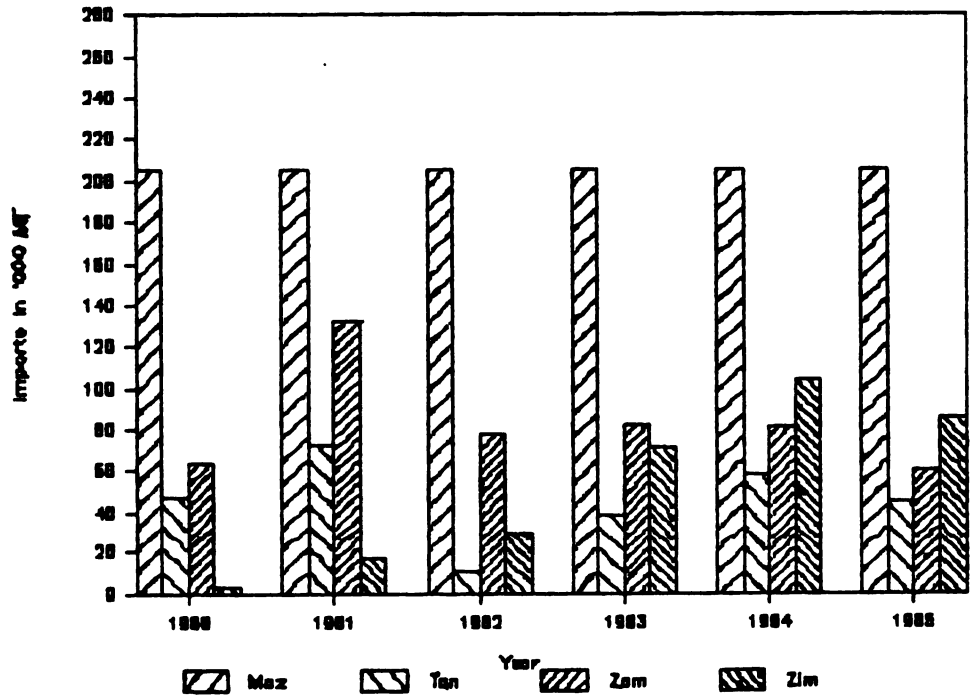
[1]This analysis is based on FAS data because it is likely to be more reliable than ths FAO data which is based on country reports. Hoowever, the accuracy of the FAS data is also open to question. For the 36 observations in the graph, 25% showed less than 10% variation between FAS and FAO data, 19.4% varied by 11-20%, 19.4 varied by 21-30%, and 36.1% varied by more than 30%.

Figure 4.13 SADCC Wheat Imports, 1980–1985



Source: Author's trade matrix.

Figure 4.14 SADCC Wheat Imports, 1980–1985



Source: Author's trade matrix.

4.2.3 Rice

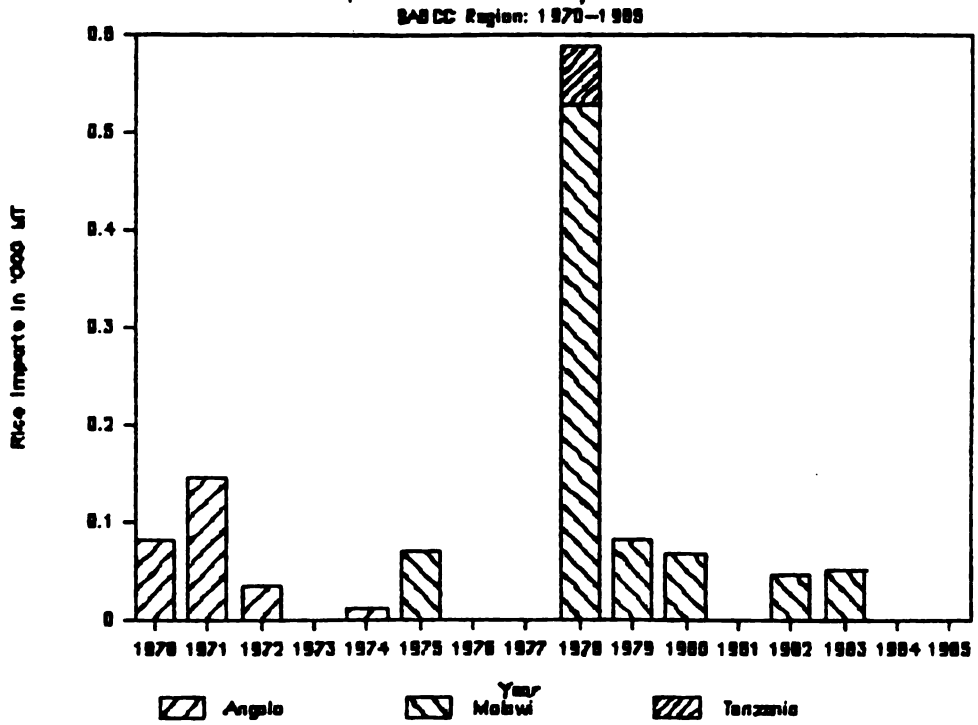
The SADCC region is basically deficit in rice, wuth the exception of Malawi which is the largest rice exporter in the region. Angola exported a small amount of rice to Mozambique from 1970-1972, and in 1974. Tanzania exported rice to Zambia between 1970 and 1974, and Swaziland exported rice from 1970 to 1976 to an unknown destination.

The major rice importers in the region are Mozambique, Zimbabwe, and Zambia. (Figures 4.15-4.17) Again, very little is known about the situation in Botswana, Lesotho and Swaziland.

South Africa exports small quantities of rice to Angola, Malawi, and Zambia. Figure 4.18 depicts the quantity and dates of such exports. It is also likely that South Africa trades extensively with Botswana, Lesotho, and Swaziland, although it is not possible to quantify the extent of this trade. Other major suppliers to the region are Thailand, the U.S., Brazil, Italy, Spain, Japan, Pakistan, and Singapore.

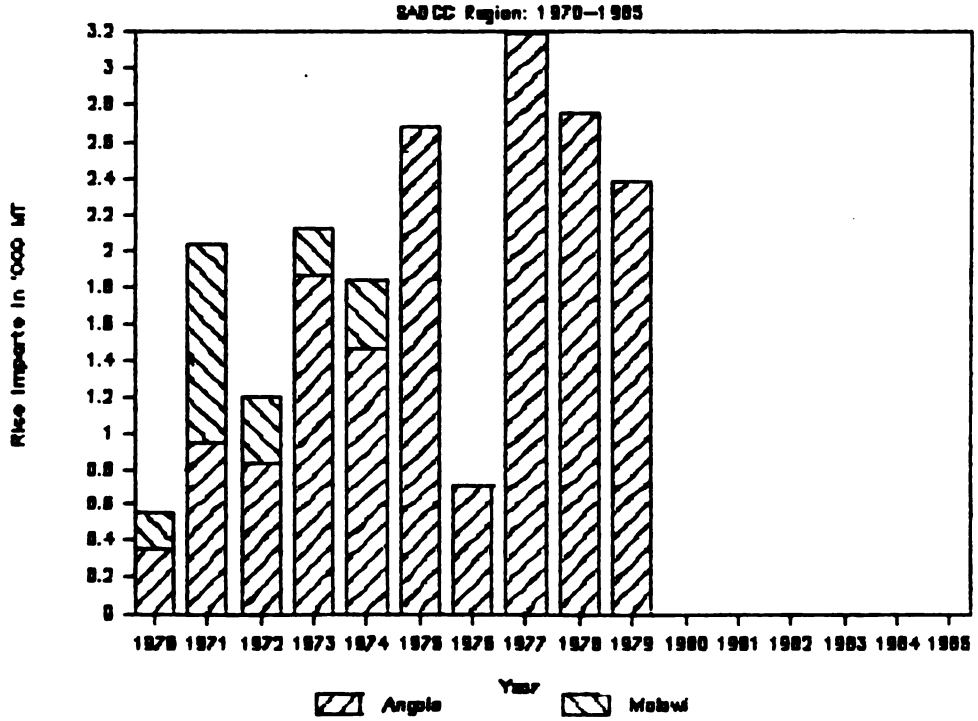
The propects for increased intraregional trade in rice appear to be bleak. Although Malawi is a net exporter, the largest quantity of rice it ever exported to the region was 8,878 MT exported to Zimbabwe in 1973. This is a relatively small quantity in terms of regional consumption.

Figure 4.15 Mozambique's Rice Imports from the SADCC Region: 1970–1985



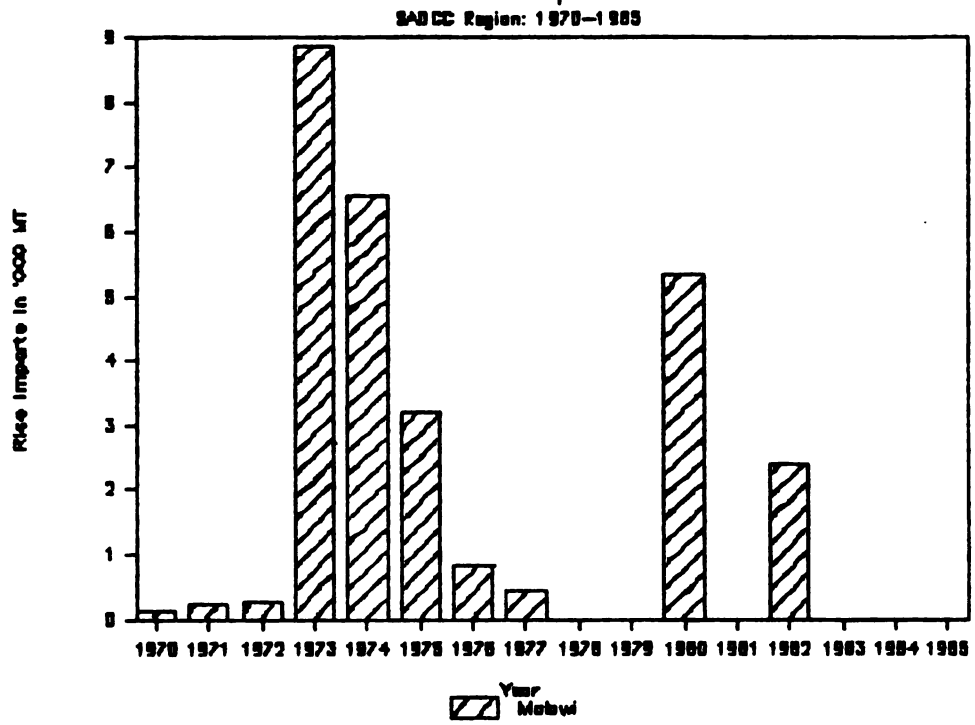
Source: Author's trade matrix.

Figure 4.16 Zambia's Rice Imports from the SADCC Region: 1970–1985



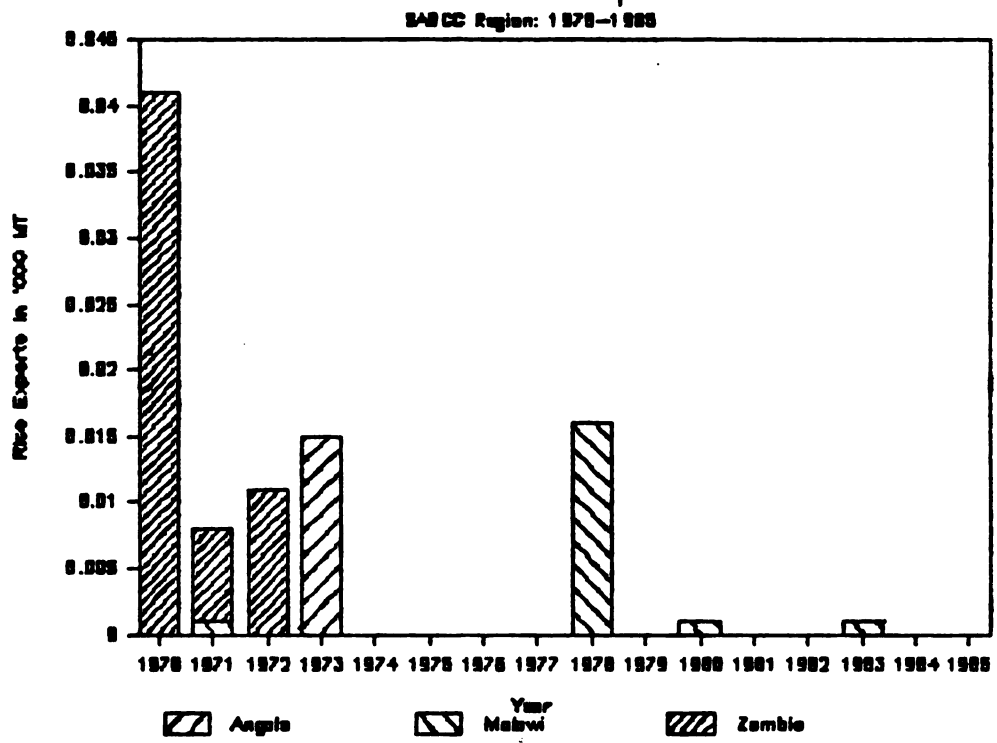
Source: Author's trade matrix.

Figure 4.17 Zimbabwe's Rice Imports from the



Source: Author's trade matrix.

Figure 4.18 South Africa's Rice Exports to the SADCC Region: 1970–1985



Source: Author's trade matrix.

4.2.4 Other Crops

Trade in grains other than maize, wheat, and rice, (i.e. sorghum, millet, barley, oats, and other grains which have not been mentioned elsewhere) is relatively small. Malawi imported small quantities from Zimbabwe between 1970 and 1977. Mozambique imported from Angola in 1970 and 1971, Tanzania in 1978, and Zambia in 1970. Zimbabwe imported from Malawi in 1971, 1973-1974, and 1980, and Zambia imported from Malawi in 1970 and 1971. Although South Africa is a more significant trader of these other crops than the United States, neither trade a significant amount with the region. In fact there is only one transaction recorded for either since 1979 when the U.S. supplied Zimbabwe with 1 ton of these grains in 1980.

In conclusion, this analysis raises two questions which should be addressed in future research. First, what are the implications for intraregional trade if Zimbabwe can continue to produce a surplus of maize? As mentioned earlier, when Zimbabwe's production increases, intraregional trade increases substantially. And secondly, what conditions prevailed in the early 1970's which resulted in more intraregional trade and how might similar conditions be acheived today? It is quite possible that during this earlier period the foreign exchange constraints were less severe, but this hypothesis should be investigated more intensively.

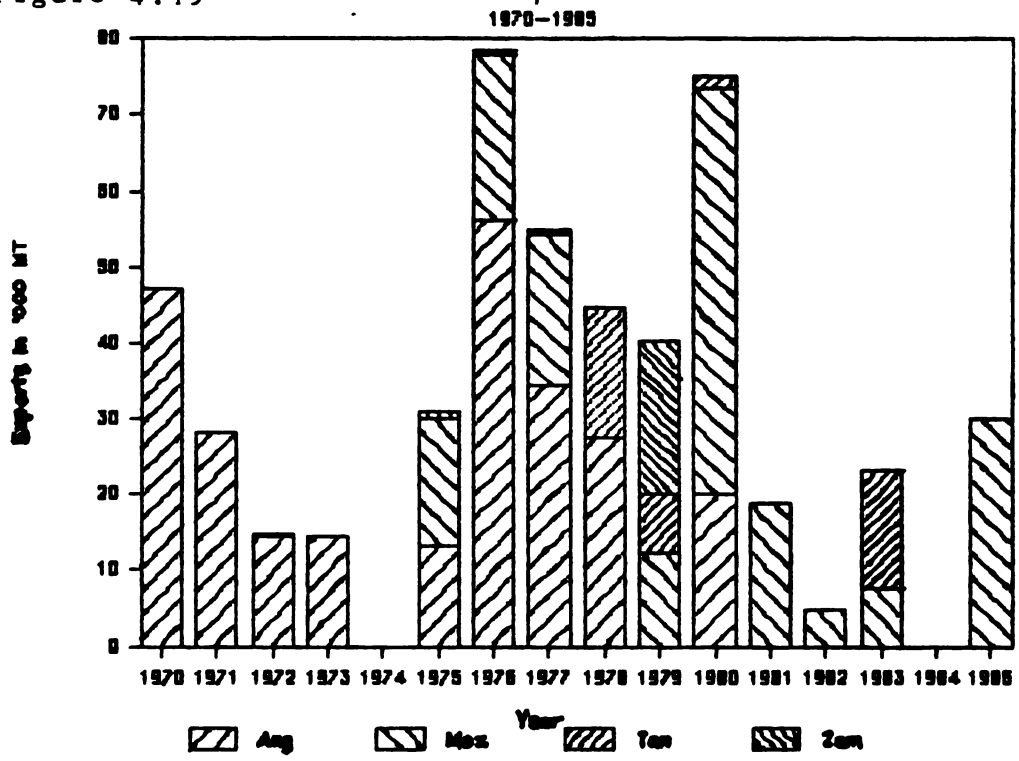
4.3 U.S. Exports to the SADCC Region

There has been some concern in the United States that encouraging intraregional trade in the SADCC region would decrease U.S. market share. The preceeding analysis should dispel any fear that the U.S. wheat market could be displaced by intraregional trade since regional production of wheat is so small.

U.S. wheat exports peaked in 1976 and 1980. (Figure 4.19) Since then France has become a major competitor for wheat markets in the region. Australia and Canada have also increased exports. It is important to keep this in mind when discussing the pro's and con's of trilateral transactions. (See Section 4.5.1) France, Australia and Canada are also involved in trilateral transactions and one argument for U.S. participation in such arrangements is to secure future markets by establishing trade channels now through the use of these transactions.

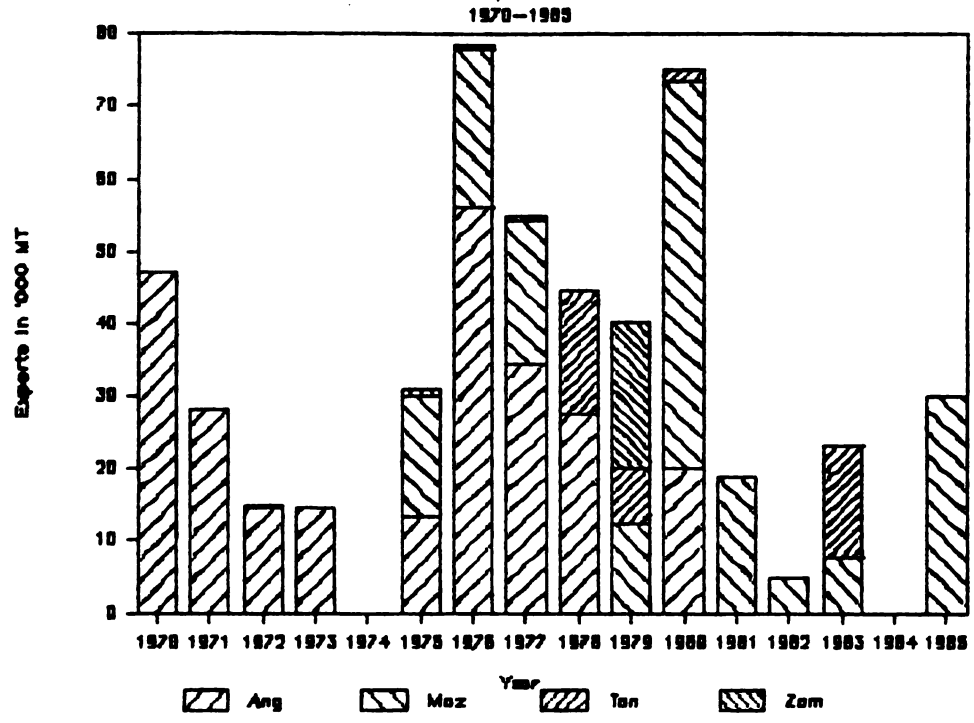
The U.S. market share in rice is fairly small and is more likely to be decreased by competition from Thailand, or Japan than from intraregional trade. U.S. rice exports peaked in 1978. (Figure 4.20) Since then, U.S. exports have been highly variable ranging from less than five thousand tons in 1981 and 1984 to over 30,000 tons in 1985. Part of the large increase in 1985 can be accounted for by increased food aid shipments to Mozambique. Unfortunately, updated statistics are not available to distinguish exactly what proportion of these exports were bought on a

Figure 4.19 U.S. Wheat Exports to SADCC,



Source: Author's trade matrix.

Figure 4.20 U.S. Rice Exports to SADCC,



Source: Author's trade. matrix.

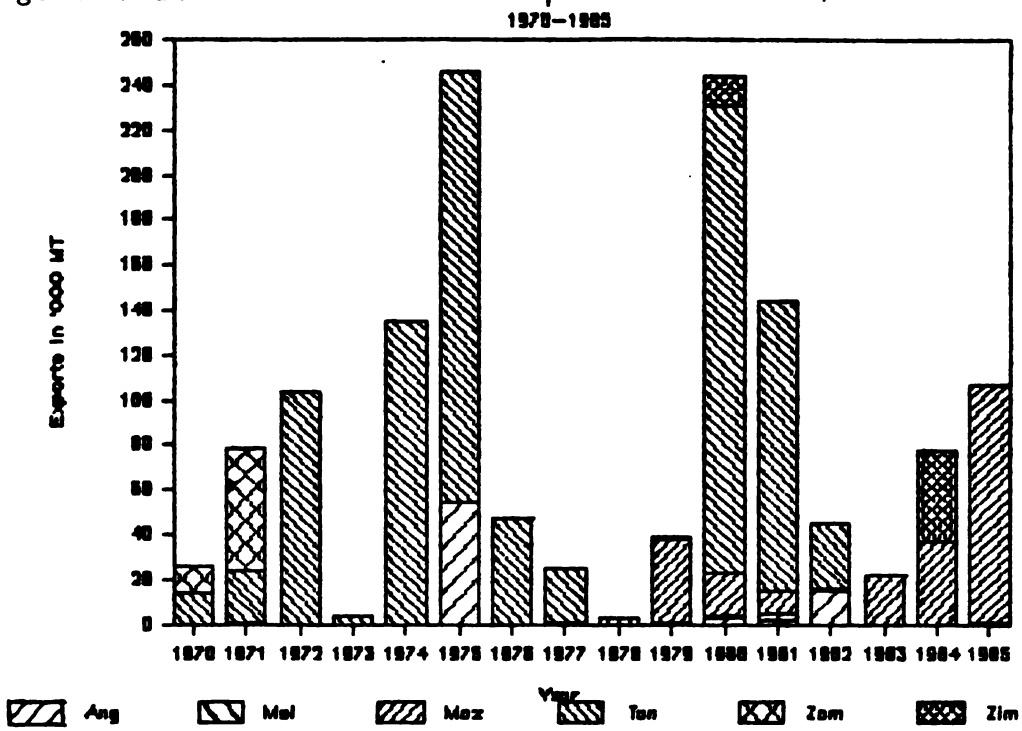
commercial basis and what proportion were provided through U.S. food aid programs.

Maize is the most important U.S. agricultural export commodity to the region -over 3 times the volume of U.S. trade in wheat and 4.5 times the U.S. trade in rice. (Figure 4.21) However, the U.S. exports yellow maize and the preferred type for human consumption in the region is white maize. The major competitor for the white maize market is South Africa, although the data is poor and it is difficult to quantify the size of South Africa's actual market share. The major competitors for the yellow maize market are Argentina and France.

In the past, a large percent of U.S. exports went to Tanzania which is less likely to import from South Africa. However, Kenya also produces white maize and has had a surplus in recent years. Tanzania is probably importing more maize from Kenya since the border was reopened in 1983 which might account for the decrease in U.S. exports to Tanzania in 1983-1985.

U.S. exports to Mozambique increased between 1983 and 1985. This probably reflects the increase in food aid to Mozambique, but this is also impossible to quantify. The FAO provides the only accessible source of data on food aid by donor and destination (it is rumored that OECD also keeps these records), but they aggregate maize with coarse grains. However, it is reasonable to expect that by far the largest proportion of coarse grain imports is composed of

Figure 4.21 U.S. Maize Exports to SADCC:



Source: Author's trade matrix.

maize. Since Food Aid in Figures, (FAO), indicates that most of the exports to Mozambique are in the form of food aid rather than commercial exports we can assume that most maize transactions are food aid.

In conclusion, U.S. trade with the SADCC region is miniscule compared to their overall world trade in wheat and maize. (Table 4.8)

Table 4.8 U.S. Exports to the SADCC Region as a percent of Total U.S. Exports, 1977-1984

Year	Maize	Wheat
1977	.06	.22
1978	.01	.13
1979	.07	.12
1980	.39	.20
1981	.26	.04
1982	.09	.01
1983	.05	.06
1984	.20	0

Source: Author's calculations using data from the FAO Trade Yearbook. 1986.

Furthermore, the U.S. stands to lose more of its market share to other developed countries than they do to intraregional trade within SADCC. The only possible exception is in the case of maize, since the region both produces and prefers to consume white maize. However, regional production is so variable that it remains to be seen if either Zimbabwe or Malawi can actually produce a surplus over an extended period with which to supply the regional market.

4.4 Food Aid in the SADCC Region

Considerable research has been undertaken to determine how food aid effects domestic production. It is generally agreed that the consequent positive or negative impacts depend on the general overall economy of the recipient countries, on the price and income elasticities of demand, the type of food aid and how it is distributed, and other government policies that may be in effect at the time the aid is received and dispersed. (See Huddleston, 1984.) However, little research has addressed the impact of food aid on intraregional trade. It is beyond the scope of this study to explore this topic or to analyze in depth the variety of donor programs which supply food aid to the SADCC region. Rather a brief discussion of trilateral transactions in Southern Africa will be presented since these transactions affect food aid and intraregional trade.

4.4.1 Food Aid Data Constraints

Data on food aid is very limited. The only readily available source of information on food aid by donor and destination is Food Aid in Figures, published yearly by the FAO. As the data is collected on a marketing year basis (July-June), it can not be compared to the FAO Trade Yearbook data which is collected on a calendar year basis. Thus, the following analysis uses FAO food aid data and FAS total import data. Generally, the FAS total import data does not include food aid data, but it is recorded on a

marketing year basis. For those reasons stated in section 4.2, the FAS data is generally considered more reliable than FAO trade data. Therefore,the following analysis combines FAO food aid data and FAS import data.

The analysis is further limited by the fact that Food Aid in Figures does not separate maize statistics from the coarse grain statistics. Although the "coarse grains" flowing into the region are mostly composed of maize, the FAO's aggregation makes comparisons between food aid and commercial imports of maize more tenuous since one is actually comparing food aid in coarse grains to commercial imports of maize.

4.4.2 General Observations on Food Aid in the SADCC Region

In general, the increase in demand for food aid is a function of population growth, national income, foreign exchange availability, domestic staple crop supply, changes in the economic structure that put more emphasis on export industries and less on staple crop production, and increases in urbanization without increases in incomes. (Huddleston, 1984. p.41) Severe weather conditions and war also result in an increased demand for food aid. Food aid increases the most where growth earnings for GNP, export earnings, and staple crop production are all weak. (Huddleston, 1984. p.42) Developing countries like food aid because it reduces the balance of payment burden for cereal imports and "allows governments to avoid making the

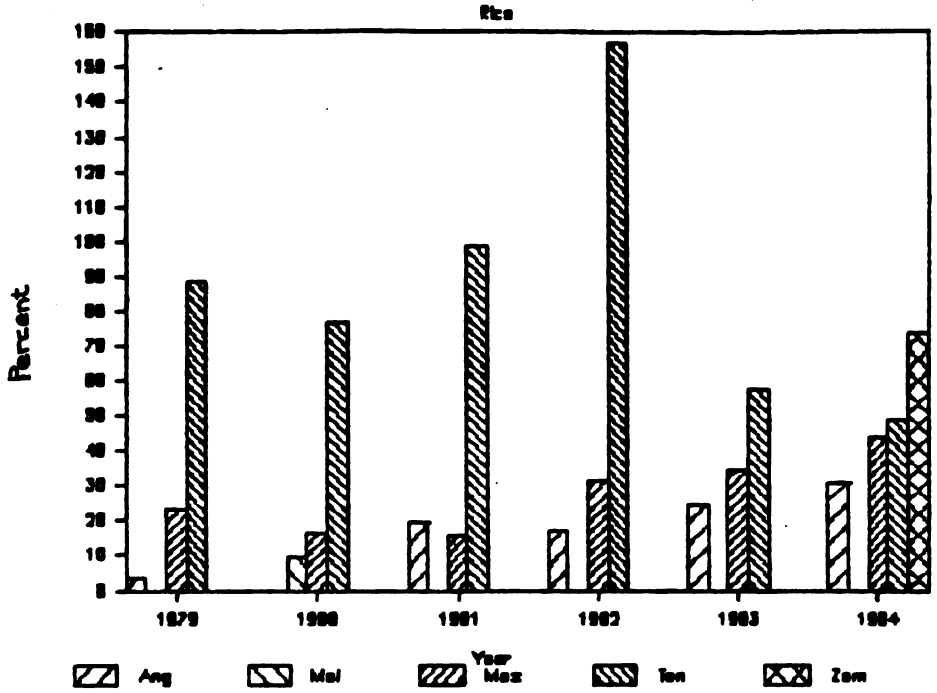
politically difficult decisions to change policies that favor urban industry and urban consumers at the expense of agriculture." (Huddleston, 1984. p.30,65)

The SADCC region consists of a variety of surplus, deficit and self sufficient countries. The balance of production is so tenuous that droughts often shift the commercial food and food aid import requirements from marginal to large. Recently, Botswana, Angola, and Mozambique have been facing exceptional food emergencies while Zimbabwe and Malawi have had such large exportable surpluses (of maize) that they require external assistance to facilitate exports. (Situation and Outlook Report, 1986. p.30).

In several SADCC countries, food aid is a large percent of commercial food imports for maize, wheat and rice. (Figure 4.22-4.25) Botswana has the highest ratio of maize food aid to commercial imports. At its lowest level in 1982, Botswana's maize food aid was 140% of its commercial imports. At its highest in 1984, it was over 500%. Lesotho's recorded maize aid was low, except in 1983; Mozambique's maize aid increased significantly in 1984, while Tanzania's increased over the period (with the exception of 1983). Zambia's maize aid was low, except in 1980.

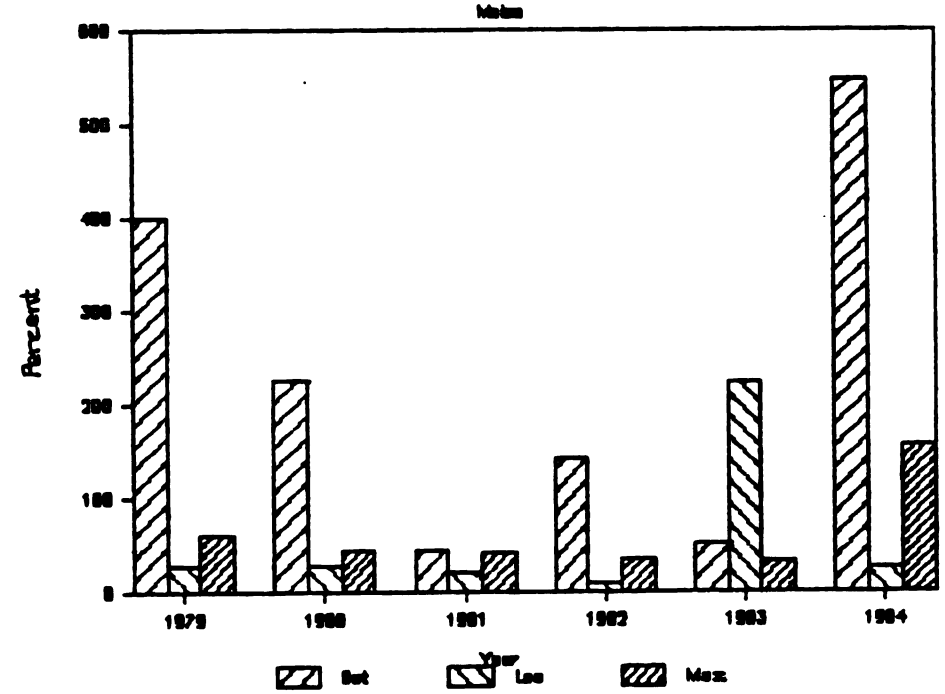
Wheat food aid has been significant in SADCC countries during 1979-1984. Tanzania is generally the largest recipient of wheat food aid in the region-

Figure 4.22 Food Aid as a % of Commercial Imports,



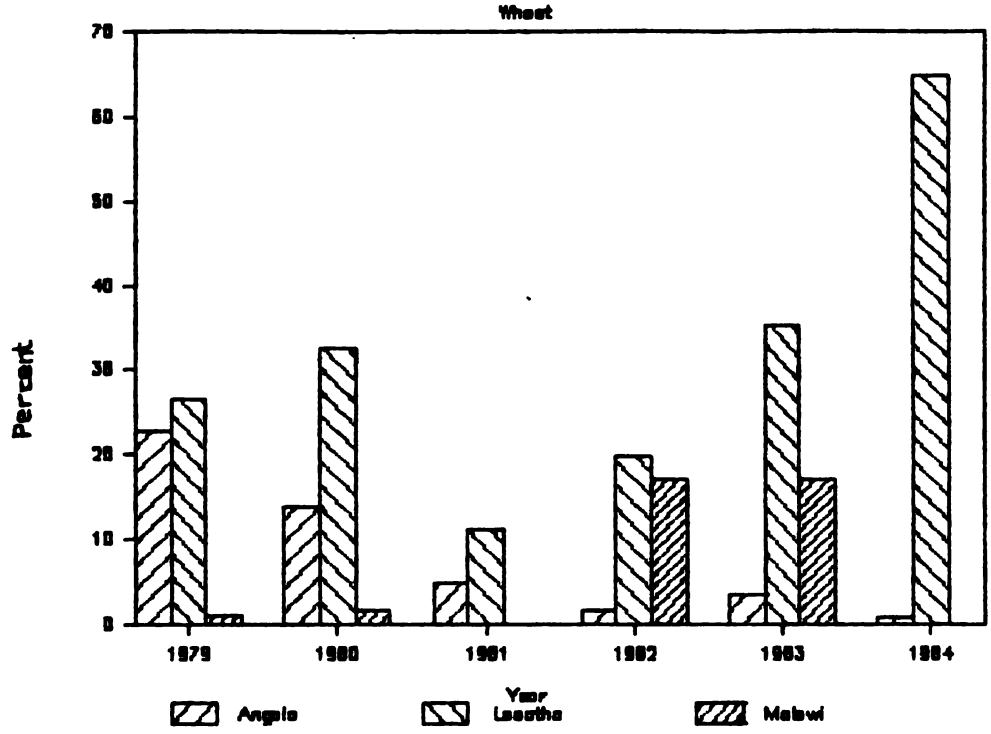
Source: Food Aid in Figures; FAO, 1986. FAS trade data, 1987.

Figure 4.23 Food Aid as a % of Commercial Imports,



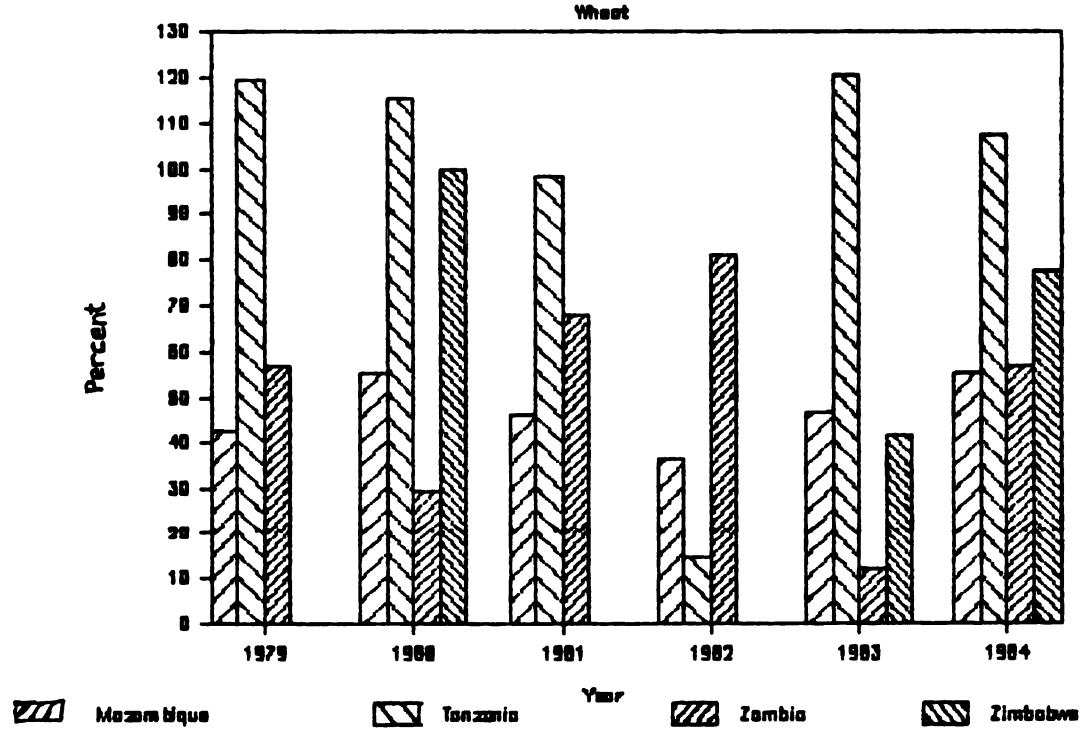
Source: Food Aid in Figures; FAO, 1986. FAS trade data, 1987.

Figure 4.24 Food Aid as a % of Commercial Imports



Source: Food Aid in Figures; FAO, 1986. FAS trade data, 1987.

Figure 4.25 Food Aid as a % of Commercial Imports



Source: Food Aid in Figures; FAO, 1986. FAS trade data, 1987.

equalling approximately 100% of comercial imports (with the exception of 1982). Zimbabwe received the next highest amount of wheat aid in 1980, and 1984. While there is some variation, food aid in wheat has remained at a relatively constant and high level from 1979-1984 for Mozambique and Zambia. Wheat aid has decreased for Angola (for political reasons), and increased for Lesotho. Malawi receives very little wheat aid. There is little information on the wheat food aid imports of Botswana or Swaziland.

Rice food aid has also been important for for several countries during 1979-1984. Tanzania also has the highest level of rice food aid imports. Angola and Mozambique's rice aid imports have increased gradually since 1981. Zambia received substantial rice aid in 1984 only, and Malawi receives practically no rice food aid at all. There is little information on the rice food aid imports of Botswana, Lesotho, Swaziland, and Zimbabwe.

4.5 Trilateral Transactions in the SADCC Region

During the past two years, there has been a great deal of discussion about the pros and cons of trilateral transactions. Three types of transactions fall under the category of trilaterals. The first involves the cash purchase of food in one country for shipment to another. The alternative to this is to supply the commodities from a developed country or buy the commodity on the world market. The second type of transaction is similar to the first in

that it involves a cash purchase of commodities for distribution in the same country. The World Food Program conducts these types of trilateral transactions. The third category of transaction involves the donor shipment of one commodity to a developing country in exchange for another commodity which is shipped to a third country as food aid. This is the usual format for U.S. trilateral transactions.

Although these transactions have received considerable publicity, they actually represent only a very small per cent of total food aid. For instance, in 1986 triangulars accounted for 900,000 tons of food aid or less than 9% of all cereal food aid. (WFP,p.11) The U.S. trilaterals approved from 1983-1986 provided only 13,910 ton of wheat, 9,229 tons of rice, and approximately 10,000 tons of maize out of a U.S. sponsered bilateral P.L.480 food aid program of 39,974,000 tons of grain equivalent. (.082%) A more telling comparison, however, is the trilateral share of Title II food aid (emergency food aid) because U.S. participation in trilaterals generally falls under Title II programs. From 1983-1986 U.S. trilaterals represented only .15% of Title II programs - 21,572,000 tons of food aid. (Morton, 1987. p.10) Because the magnitude of these transactions is so small, they have little impact on world prices.

Most of the SADCC trilateral transactions in 1985/86 were sponsered by the EEC or other European countries. (Table 4.9) Zimbabwe and Malawi are the only countries in

Table 4.9 SADCC Trilateral Transactions 1985/86 (July/June)

Recipient	Country of Purchase	Donor	Quantity (in tons)	Shipment or Allocation Period
		Coarse Grains		
Angola	Zimbabwe	Australia	504	Jan. 1986
	Malawi	ICRC Purchases	300	Jan.-June 1986
	Zimbabwe	ICRC Purchases	430	Jan.-June 1986
Botswana	Zimbabwe	Germany, F.R.	1590	Jan.-May 1986
	Malawi	Norway	6500	Jan.-May 1986
Malawi	Local Purchase	Norway	448	Jan.-May 1986
	Local Purchase	WFP	629	Jan.-May 1986
Mozambique	Zimbabwe	EEC	12,000	March 1986
	Malawi	Germany, F.R.	10,000	Oct./Nov. 1985
	Zimbabwe	Australia	9,000	Dec. 1985-Feb. 1986
	Zimbabwe	Austria	5,050	Jan.-May 1986
	Malawi	Norway	1,100	July 1985
Tanzania	Malawi	EEC	10,000	March 1986
Zambia	Malawi	EEC	20,000	Oct. 1985
	Zimbabwwe	EEC	15,000	March 1986
	Malawi	Germany, F.R.	200	July 1985
	Zimbabwe	Japan	9,854	May/June 1986
	Zimbabwe	Germany, F.R.	660	July-Dec. 1985
Zimbabwe	Local Purchase	Germany, F.R.	1,800	July-Dec. 1985
		Rice		
Malawi	Local Purchase	WFP	135	Jan.-May 1986

Source: Alice L. Morton, et.al. "Study of Trilateral Food Aid Transactions", Ronco Consulting Corporation; 1987.

the region which have surpluses and these are only in coarse grains. (Table 4.10)

4.5.1 Pro's and Con's of Trilateral Transactions

Several advantages to trilateral transactions have been noted. However, the degree to which these are realized depends on the specifications of the transaction, the institutional arrangements to facilitate trade, and existing agricultural policies in the recipient countries.

Trilateral transactions increase the effective demand for the regional exporting country. However, as the Morton study states, "the development effects of purchases from some traditional exporting developing countries is probably marginal, except for those that have the potential for becoming regular exporters, such as Zimbabwe, where the effect is probably greater." (Morton, 1987. p.4) On the other hand, financing additional purchases may reinforce inappropriate agricultural policies. (RDI, 1987. p.5) Some analysts view trilaterals as a means to influence these policies in countries like Zimbabwe which is anxious to dispose of their surpluses. As Morton notes,

> "given the eagerness of surplus producing countries to enter into trilateral arrangements, it is plausible to assume that at least in some instances, the sorts of Self-Help Measures required by Title I/III agreements could be included at least as side letters to trilateral letters of agreement." (Morton, 1987. p.22)

Second, trilaterals promote the export of agriculture products and increase foreign exchange earnings. However,

Table 4.10 Utilization of 1986/87 Cereal Surpluses in SADCC
(in '000 MT)

Country	Cereal Import Requirements		Availabilities for export and/or local purchase	Utilized so Far Exports			Remaining Surpluses
	Wheat and Rice	Coarse Grains		Commercial	Triangular Transactions	Donor-financed local purchases	
Angola	190	140	-	-	-	-	-
Botswana	39	149	-	-	-	-	-
Lesotho	58	139	-	-	-	-	-
Malawi	36	-	104	-	28	4	72
Mozambique	240	365	-	-	-	-	-
Swaziland	19	27	-	-	-	-	-
Tanzania	160	105	-	-	-	-	-
Zambia	65	10	-	-	-	-	-
Zimbabwe	93	-	2009	288	141	3	1577

Source: Alice L. Morton et.al. "Study of Trilateral Food Aid Transactions", Ronco Consulting Corporation; 1987.

swap arrangements (U.S. type transactions) do not increase foreign exchange earnings that can be used by the developing country to purchase desired imports. (RDI, 1987. p.5,13)

Third, trilaterals provide food aid in commodities that are normally consumed in the region. This is of particular importance in the SADCC region where the preferred commodity for human consumption is white maize. Food aid from developed countries is usually yellow maize. Many donors feel that the appropriateness of the commodity to already existing consumption patterns is not of major importance in an emergency situation. They argue that people will eat whatever is available and it is better to send food aid through established bilateral channels than to depend on trilateral negotiations which may be more costly, are more risky and may take more time. (RDI, 1987. p.68) These issues will be addressed below.

Other possible advantages of trilaterals include: reducing transport costs by substituting food movements between neighboring countries for international operations, decreasing delivery times, strenghtening logistics between neighboring countries and stimulating intraregional trade. (WFP p.5)

Whether all of the above noted benefits can actually be acheived is questionable. In most cases (with the exception of the Zimbabwe-Mozambique trade) trilaterals are at least as cost efficient as bilaterals. (Table 4.11)

Table 4.11 WFP Purchases of White Maize from Non-Regular Export Sources in 1986, Quantities and Costs

Destination	Country of Origin	Total Quantity '000 tons	Average Price/Ton	Costs per ton Transport	Total Cost/t
			$ US per ton		
Botswana	Malawi	6.5	156	55	211
	Zimbabwe	17.1	132.6	25.4	158
(alternative)	(US Gulf Port)		(75)	(85)	(160)
Mozambique	Kenya	14	89	26	115
	Zimbabwe	55.4	129	23	152
	(US Gulf Port)		(75)	(40)	(115)
Zambia	Malawi	?	145	45	190
	Zimbabwe		102	30	132
	(US Gulf Port)		(75)	(125)	(200)

Source: "A Study of Triangular Transactions and Local Purchases", Relief and Development Institute: 1987.

However, the risk factor in these transactions can be quite high because of nondelivery or loss. Nondelivery usually means the postponement or cancellation of the contract for "strategic purposes" (i.e. a bad production year). The World Food Program (WFP) has experienced this problem over the past four years with Zimbabwe. The Malawi-Mozambique transaction has been plagued by loss due to security problems; resulting in long delays and "uncontrollable losses due to thefts and pilferage from vechicles or rail wagons." Losses also occur due to the quality of storage and packaging. Finally, poor transportation facilities may result in blockage as roads are washed out, or railway problems occur.(RDI, 1987. p.82,95.). Hence, many of the advantages of trilaterals may be thwarted by preexisting conditions in the SADCC region.

Another possible disadvantage of trilaterals is the long transaction time required to negotiate the arrangement in an emergency situation. Past transactions indicate that the timeliness of the transactions is quite variable and depends on the speed with which all parties approve the transaction. The US-Zimbabwe-Mozambique transaction was as timely as most bilateral transactions. On the other hand, the US-Malawi-Mozambique transaction, took much longer to execute. (Morton, 1987. pgs.13-14)

It should be noted that trilateral transactions are relatively new methods of providing food aid for developed countries and most of the African partners are not

consistent exporters. Therefore, the speed with which these transactions are completed should improve as standard operating procedures are developed by both parties. However, infrastructural constraints in the region present an increasingly large barrier to the actual delivery of the goods. World Vision, who was mandated to oversee the first U.S.-Zimbabwe-Mozambique transaction, noted:

> "that while the trilateral with Zimbabwe had gone very fast and expediously they were now having more and more difficulty getting approvals for the various steps in the process of implementing a number of other trilaterals for other donor countries. Thus they suspected that subsequent trilateral arrangements negoiated by the U.S. with the GMB would experience delays as well, as more and more demands were placed on limited infrastructure. It was asserted in February that all freight space on the railroad was now booked through July." (Morton, 1987. p.18)

4.5.2 Conflicts between USAID and the USDA

It is important to note that there is a continuing conflict between the USDA and USAID on the role of trilateral trade. The USDA wants to promote American agricultural products overseas and hence would prefer to ship yellow maize to Mozambique and wheat to Zimbabwe. USAID wants to promote development of Third World countries. Given the regional preference for white maize rather than yellow maize, it may be in the best interests of future U.S. market development to participate in trilaterals with Zimbabwe. As soon as food aid is no longer needed in the region, consumption of yellow maize will drop signficantly. On the other hand, wheat consumption seems to

be trending upward and Zimbabwe is more likely to have the necessary foreign exchange to sustain commercial wheat imports over a long period of time. Furthermore, they are very anxious to dispose of their maize surpluses. With the EEC and other European countries willing to participate in trilateral transactions with Zimbabwe, and thus capture the growing wheat market for themselves, it may be in the long run market interests of the U.S. to participate in trilaterals with Zimbabwe in which they provide wheat in exchange for maize to be shipped elsewhere - since there is very little market potential for yellow maize in Southern Africa anyway. (Morton, 1987.)

4.5.3 Negotiating a Trilateral Transaction

Every country and international organization has their own method for negotiating trilateral transactions. This section will briefly discuss the steps taken by the U.S. in formulating these transactions. Figure 4.26 describes the steps necessary to approve Title II Emergency Aid for either bilaterals or trilaterals.

Figure 4.26 Major Steps in the Approval of Title II Emergency Aid[a]

- A/Aid may offer or instruct a missiomn to offer emergency food assistance or

- Any cooperating sponser may request food for emergency assistance from USAID and forward information to AID/W with appropriate recommendations.

- Missions may propose emergency programs for consideration by AID/W prior to required receipt of formal host-country requests.

- Mission director makes determination regarding the ability of the cooperating sponser to perform A.I.D. Reg.11 record keeping and other requirements.

- Mission provides information on other donor actions, location and nature of emergency, administrative provisions for management and control of the emergency program, adequacy of storage facilities, and that distribution will not result in substantial domestic production discentives nor disrupt normal marketing.

- Where a PVO is involved, a Plan of Operation or an amended Plan of Operation and supplemental AER are required.

- PVO calls forward the commodities.

- Mission cables a program summary.

- AID/W prepares Transfer Authorization (TA) for signature by recipient government.

- USDA contracts with independent surveying firm to obtain discharge report.

- Ocean freight information provided by Mission, including schedule, port, consignee.

AID/W approval may also include the Office of Foreign Disaster Assistance (OFDA) participation in the review and approval process. Emergency projects take precedence over all other matters.

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[a]This information comes from Morton, 1987. It has taken from A.I.D.Handbook Nine, Ch.9, p.4-5.

In addition to these, the following steps must be taken for trilaterals:[3]

1. Get the DCC (an interagency food aid committee responsible for U.S. food aid policy), to approve the idea of a trilateral transaction in principle, based on the request of an AID mission which has already done some preliminary analysis on the issue; including information on "the availability of reasonable transport possibilities, an estimate of how long it would take to mobilize the two developing country governments to agree to such an arrangement, whether there is an available institution--probably a PVO-- to act as facilitator and freight forwarder, and an assumption about the appropriate ratio between U.S. commodities and exporting country commodities that would be swapped under the proposed arrangement." (Morton, 1987. p.41)

2. Identify the third country or countries to participate.

3. Select intermediaries (Private Voluntary Organizations - PVO's) where required.

4. "Ensure that all amendments or updates to any relevant existing country agreements for the selected PVO(s) are taken care of, so that such agreements will allow for trilateral transactions." (Morton, 1987. p.43)

5. Work out the details with the third country of what they will supply, where, who will pay freight, and the surplus commodity to be exported and swapped for the U.S. commodity.

6. Go through the same steps as 5 concerning the transport of the U.S. commodity to be received by the exporting country.

7. Get a consensus from all parties at the field level that the prior steps have been accomplished.

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[3]The above information comes from Morton, 1987. p.41-44.

8. "Send in proposal to AID\Washington...detailing all the arrangements... that have been informally agreed upon, and suggesting language for the Transfer Authorization and the letters of agreement to be signed with the third country."(Morton, 1987. p.43.)

9. Obtain DCC approval.

10. Sign the Transfer Authorization and the Letters of Agreement and assure that the PVO is protected by appropriate documentation.

In conclusion, it seems that one way to develop intraregional trade channels is to encourage the use of trilateral transactions. To date these have been so small that they have had no effect on total U.S. exports nor have they been frequent enough to result in the development of new trade agreements between the SADCC countries. The main problem with these transactions is that while they may help alleviate the lack of foreign exchange, they still suffer from the same infrastructural transportation problems that inhibit intraregional trade.

4.6 Conclusion

Several conclusions can be drawn from the above analysis. First, there is a tremendous need to improve the data base on intraSADCC trade. Until this is done, accurate analysis of potential regional exporters and markets is limited. Second, while it appears that there is some possibility of expanding regional trade in maize if Zimbabwe and Malawi can continue to produce surpluses, there is no potential for intraregional trade in wheat and

rice in the region. Third, trilateral transactions provide an experimental mechanism to develop intraregional trade channels in the region. The success of these transactions in accomplishing this goal depends on whether the developed countries will continue to deliver food aid through trilaterals and most importantly, if the the regional infrastructure can be developed to support these transactions.

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Chapter 5

Summary, Conclusion, and Policy Implications

The nine countries that make up SADCC decided that one way to promote regional welfare was to increase intraregional trade. This study provides an overview of the world economic situation which partially explains the severity of the economic problems faced by these countries. An analysis of the theoretical literature on expanding intraregional trade in the SADCC area, a discussion of the institutional barriers to trade in the region, and an analysis of the available data on trade flows in the region from 1970 to 1985 is presented. A summary of each of these sections and the conclusions drawn from each follows.

5.1 Review of the Major Points

Chapter 1 provides a general overview of the economic problems faced by third world countries in the 1980's. The SADCC countries have faced declining export commodity prices and overextended debt positions. Furthermore, the increase in real interest rates and the strong dollar, in combination with decreased funding for foreign aid, has resulted in reduced imports of staple commodities in an

effort to conserve hard currencies for debt repayment and the import of capital goods.

Consequently, if intraregional trade in staple commodities using regional currencies or barter arrangements were increased, it could improve the balance of payments positions of these countries while simultaneously promoting regional food security. However, there are several institutional barriers to regional trade which must be overcome first. These include historically determined trade patterns, transport problems, variable weather conditions, insurgency, and various domestic policies instituted to attain other national objectives.

The basic structure of SADCC is discussed as is the relationship of trade to the other food security projects being instituted by SADCC.

Chapter 2 reviews typical market integration schemes and examines how third world integration schemes in general, and the SADCC cooperation scheme in particular, are different in terms of organization and welfare effects. SADCC is based more on political cooperation than market integration. There is no free trade area or common external tariff. Rather the member countries have agreed to divide the responsibilty for various development porfolios between themselves and to cooperate with each other on certain mutually beneficial projects.

Koester's study of intraregional trade is the major theoretical work undertaken to date to determine if there is a basis for trade in the region. Koester has two hypotheses. First, he argues that regional trade can even out national production variability because regional production variability is less than national production variability. Second, trade allows specialization in production in accordance with comparative advantage.

Koester proceeds to establish a measure of national production variability and finds that regional variability is less than national variability. He then assumes that consumption is equal to production. Therefore, if production is stabilized, consumption will be stabilized and food security will be attained. There are two major problems with this analysis. First, the assumption that an adequate level of food is produced in the region to sustain the overall regional population is clearly not true, as indicated by the immense commercial and food aid imports coming into the region (Chapter 4). Thus, food production and consumption may be stabilized and yet be inadequate to provide food security. Second, he assumes that trade can take place. However, as discussed in Chapter 3, there are many institutional barriers to trade in the region. It does not matter if regional variability is less than national variability if institutional barriers prevent trade from occurring.

Koester develops two indexes to determine if production patterns are similar among the SADCC countries. Presumably, if they are dissimilar there is a greater basis for intraregional trade. In the calculation of these indexes, Koester examines many products, including cash crops which are not normally traded intraregionally. He determines that production patterns are different and therefore there is a basis for trade. When the indexes are recalculated using only staple grains, which compose the majority of intraregional trade, the production patterns are shown to be very similar.

Koester then develops four measures of comparative advantage. His major finding is that the SADCC countries have comparative advantages in the production of different cash crops. Since cash crops are generally not traded in the region, this finding is of limited importance for increasing intraregional trade. Finally, Koester's work is constrained by the use of aggregate data. He uses no information on the trade flows of particular commodities between countries in the region in his analysis.

Koester's work provides a preliminary assessment of the potential for trade. However, a careful examination of the reliability and validity of his equations and indexes reveals that they do not provide support for his hypotheses. A closer analysis of the current production patterns and trade flows in the region (Chapters 3 and 4),

in staple grains indicates that the potential for increased intraregional trade is fairly limited.

Chapter 3 provides further evidence of the limited potential for increased intraregional trade due to the institutional barriers to regional trade. The chapter covers four main areas: macroeconomic policies, transportation, existing trade agreements, and non-tariff barriers to trade.

The chapter starts with a discussion of the impact of overvalued exchange rates on trade. Almost all of the currencies in the region are overvalued with respect to the U.S. dollar. This tends to make imports less expensive and exports more expensive than they should be. Overvaluation usually occurs as a result of rapid growth policies which depend on the import of capital goods. Once a curency is overvalued, it is politically unpopular to revalue it so this rarely occurs unless mandated by the IMF or other major financial donors.

Foreign debt also presents a barrier to increased regional trade. In order to service outstanding debt, the SADCC countries must export to those countries which can pay in hard currencies and they tend to import from those countries which provide the most substantial export credits. This partially explains their dependence on South Africa for trade.

The rest of the macroeconomic section is devoted to a description of the current economic situations in Zimbabwe,

Botswana, Zambia, Malawi, Swaziland, and Lesotho. (Unfortunately, updated information was not available for Tanzania, Angola, and Mozambique.) The diversity between these countries is immense. Each country is discussed in terms of their balance of payments, foreign exchange availability, foreign debt, inflation, and agricultural imports and exports.

In terms of the overall potential for increased trade, Zimbabwe has surpluses in maize, but their foreign debt situation precludes substantial imports from the region. Botswana, Swaziland, and Lesotho are very dependent on South Africa although Botswana has the foreign exchange capacity to be a net regional importer. Since Malawi has a serious balance of payments problem and their production of maize is increasing, they will probably not become a major regional importer in the near future. Furthermore, their export capacity in maize seems to be fairly marginal and is largely dependent on weather conditions. Zambia is experiencing severe financial problems, but they have managed to become self sufficient in several crops. On balance, the possibilities for increased trade in food grains appear to be fairly limited.

Even if the financial capability to support increased intraregional trade existed, the infrastructure necessary to move the goods from surplus to deficit countries is inadequate. The railroads to Nacala, Beira, and Maputo are the main arteries for Mozambique, Botswana, Zimbabwe,

Malawi, and to some extent Zambia. The Benguela railroad runs through Angola and is a main transport route for Zambia. All these routes have suffered from deterioration, lack of adequate manpower and sabotage to the extent that the SADCC countries are now heavily dependent on South Africa for transport routes to the sea - despite the increased distance and cost of shipping via South Africa. Until the transportation system is improved, intraregional trade will be severely limited.

Another deterrent to increased intraregional trade is the extensive system of trade agreements already in existence. Three of the nine SADCC countries, Botswana, Swaziland and Lesotho, are members of the South African Customs Union and depend almost exclusively on South Africa for imports, exports and monetary policy. There are also a plethora of bilateral agreements in the region which encourage trade with some countries while inhibiting trade with others. Finally, if the PTA becomes more active, it may result in some conflicts for those SADCC countries that are PTA members. These conflicts would center mostly on payment clearing arrangements and the granting of preferential trade status to SADCC members that do not belong to PTA. However, at this point the PTA does not appear to present a significant barrier to increased intraregional trade.

Finally, several non-tariff barriers to trade exist in

the region. Unfortunately, it is beyond the scope of this study to measure the impact of these barriers on trade.

Chapter 4 presents an analysis of the current trade flows in staple commodities in the region. This is based on the development of a trade matrix which combines the major sources of information on these regional trade flows. Numerous general data problems are encountered in constructing a trade matrix, such as different systems of classifying commodities, failure to document transactions, and data processing and reporting lags which result in the transactions being recorded in inappropriate periods. In addition, there are data problems which are specific to developing countries in general and the SADCC region in particular. These include the practice of only reporting transactions which involve the exchange of hard currencies, failure to report food aid as an import, failure to record transhipments, and a general failure to maintain and update records. The SADCC region in particular, suffers from a lack of reliable trade data on transactions with South Africa.

Based on available data, a trade matrix was developed and used to describe and assess intraregional trade. The analysis confirmed that maize was the primary staple in the region and the most traded commodity. Zimbabwe is the largest exporter of maize, although Malawi also exports some maize. The major importers are Tanzania, Angola, Mozambique, and Zambia. All of the SADCC countries are

deficit in wheat. Angola and Mozambique are the largest wheat importers. The region is basically deficit in rice with the exception of Malawi.

In all cases, especially maize trade, it appears that South Africa conducts a significant level of trade with the region. Botswana, Lesotho, and Swaziland are very dependent on South Africa because of their membership in the South African Customs Union. While no data exists to quantify the exact direction and quantity of trade between South Africa and the other SADCC countries, it is likely that this trade is extensive because of South Africa's virtual monopoly on the transport system.

In general, it appears that there is limited potential to increase intraregional maize trade if Zimbabwe and Malawi can continue to produce a surplus of maize. However, this may not be possible given the highly variable weather conditions in the region. There appears to be little potential for intraregional trade in wheat, rice, or other cereals.

The SADCC region is a major importer from the U.S. but U.S. exports to the SADCC region are a very small percent of total U.S world exports. A large percent of the U.S. exports to SADCC are in the form of yellow maize which is provided as food aid. There are also some commercial and food aid exports of wheat and rice. In the region, yellow maize is an inferior product to white maize and is seldom consumed unless there is an emergency food situation. Since

trade with the SADCC region is such a small proportion of overall U.S. trade, an increase in SADCC intraregional trade should not be detrimental to the U.S. trade position.

Finally, the pros and cons of trilateral food aid transactions as a means of promoting intraregional trade were discussed. In general, they seem to provide a means for establishing intraregional markets and for developed countries to encourage the adoption of more efficient agricultural policies in the exporting SADCC country.

5.2 Policy Recommendations

This study identifies four specific policy recommendations. First, a more systematic method of data collection should be adopted by SADCC. The techniques of data collection should be standardized and agreed on by the member countries and a central collection agency should be given the responsibility for gathering and updating data seasonally from each country. A good data base is essential to determine whether there really is a basis for trade in the region and for monitoring the flows of trade to determine the impact of various non-tariff barriers on intraregional trade. Until such a data base is established, which includes SADCC trade with South Africa, very little can be said with certainty about trade flows in the region.

Second, an improved transport system is a prerequisite to increased intraregional trade. The importance of this should not be underestimated. However, improving the

transport system presents a problem because of the insurgency in Mozambique and Angola and hence there seems to be a tendency to look for other ways to develop the region. Nevertheless, the very fact that the region is politically unstable and upgrading the dilapidated transport system will be extremely expensive, is the major reason why long term development assistance from donors is needed in this area. An improved transport system would provide the means to move goods between the SADCC countries and lessen their dependence on South Africa. Even if there are currently minimal possibilities for trade in the region, an improved transport system is needed to move food aid to food deficit countries in emergency situations and to build a foundation for long term intraregional development.

Third, the potential for increased intraregional grain trade among the SADCC countries seems to rest on the ability of Zimbabwe and Malawi to maintain surplus production in maize - assuming that they would be willing to trade with the other SADCC countries. They may refuse to trade if there is nothing to gain in return or if they are paid in regional currencies rather than hard currencies. Nevertheless, if the trade potential is to be exploited there is a need to encourage the growth of maize production in these countries through appropriate agronomic research and agricultural policies. In fact, further research should be done to determine what "appropriate" policies are for

the Zimbabwean and Malawian maize subsectors. Special attention should be given to determining the degree to which the surpluses reflect comparative advantage or internal policies which produce uneconomic surpluses.

Finally, since it appears that food aid will continue to be a major source of staple food imports into the region, trilaterals should be used more extensively. They increase the effective demand for the regional exporting country, allow food aid to be provided in commodities that are normally consumed in the region, reduce transport costs and strenghtan logistics between neighboring countries. Thus, if there is a basis for trade in the region, trilaterals can help lay the foundations for future trade flows.

5.3 Limitations of the Study

The major limitation of this study is a lack of complete and reliable data on the quantity and direction of trade within the SADCC countries and between the SADCC countries and South Africa. Most of the specific data problems were mentioned in Chapter 4. In general, it is difficult to evaluate trade flows in the region and the potential for increased trade without this data. The lack of data on South African trade flows is a major analytical consstraint because without this data, it is only possible to speculate about the role South Africa plays in the region.

Another limitation of the study is that there was no opportunity to discuss the current policies with the policymakers in the individual countries in order to understand their priorities and reasoning. Such an opportunity would make it possible to determine the major non-tariff barriers to trade and the importance of existing bilateral trade agreements in intraregional trade, as well as the overall desire of the various countries to improve intraregional trade.

Finally, the scope of the study allowed for only a limited discussion of food aid. However, food aid is very important in the trade of staple commodities and should be studied further as noted below.

5.4 Recommendations for Future Research

There are several areas in which further research should be conducted in order to formulate optimal policies on the intraregional trade issue. As mentioned previously, there is a need for improve the quality of data on trade flows between the SADCC countries and between South Africa and the SADCC region. The data base should include information on trade in agricultural commodities, consumer goods, and utilities such as electricity. Information on consumption and production patterns should also be maintained.

Further research is needed to determine the potential for trading non-grain commodities in general, and for

trading these commodities in exchange for agricultural commodities. Barter trade and trade in local currencies should be examined to assess what can be done to further ease the foreign exchange problem.

The role of South Africa in the region needs to be examined more carefully and the trade flows between South Africa and SADCC need to be quantified.

Parastatal marketing boards in the region should be studied to determine their current and potential role in intraregional trade. In addition, the role of private traders in the region should be examined.

An important and yet undetermined aspect of intraregional trade is whether the political will of the SADCC countries exists to develop alternative trade channels to those already in existence. That is, are they willing to decrease the non-tariff barriers to trade and participate in barter trade or trade in regional currencies with each other - rather than with South Africa or other developed countries? This can only be determined by extensive contact with people in positions of power in the various countries.

Finally, the question of whether food aid in general presents a barrier to intraregional trade has not been adequately addressed in the current literature. It appears that developing a staple food import strategy is not a high priority for the SADCC countries when food aid is so readily available.

In general, there is a need for considerable additional research on intraregionl trade in SADCC. This study has provided some insight into past and current flows of staple commodities in the region and an analysis of the major institutional barriers to trade in the region. Hopefully it will serve as a basis for continuing research on improving intraregional trade among the SADCC countries.

Appendix 1

The coefficient of variation for a sample of observations is defined as:

$$CV = \frac{100}{\bar{y}} \sqrt{\frac{\Sigma (y - \bar{y})^2}{N - 1}} \qquad (1)$$

where y is the price variable, $\bar{y}$ is its arithmetic mean and Σ runs over N observations.

The coefficient of multiple determination for a simple multiple regression is defined as:

$$R^2 = 1 - \frac{\Sigma (y - \hat{y})^2}{\Sigma (y - \bar{y})^2} \qquad (2)$$

$\hat{y}$ is the estimated value of y calculated from the regression.

This equation can be rewritten as:

$$\Sigma (y - \hat{y})^2 = (1 - R^2) \Sigma (y - \bar{y})^2$$
$$= (N - K)(1 - R^2) \frac{N - 1}{N - K} \frac{\Sigma(y - \bar{y})^2}{N - 1} \qquad (3)$$

The standard error of five regression estimates is:

$$SEE^2 = \frac{\Sigma(y - \hat{y})^2}{N - K} \qquad (4)$$

dividing both sides of equation 3 by (N-K) and extracting the square root results in

$$SEE = SD\sqrt{(1 - R^2) \frac{N - 1}{N - K}} \qquad (5)$$

multiplying each side by $\frac{100}{\bar{y}}$ =

$$Ix = 100 \frac{SEE}{\bar{y}} = CV\sqrt{(1 - R)^2 \frac{N - 1}{N - K}} \qquad (6)$$

correcting R^2 for the degrees of freedom used in calculating the regression yields:

$$\bar{R}^2 = 1 - (1 - R^2) \frac{W - 1}{W - K} \qquad (7)$$

This results in: $Ix = CV\sqrt{(1 - R^2)}.$ (8)