ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ECONOMICS

A SIMULATION ANALYSIS ON THE IMPACT PHASING-OUT OF EXPORT SUBSIDIES BY THE OECD ON SUB-SAHARAN EXPORTS; THE CASE OF ANIMAL AND ANIMAL PRODUCTS

Prepared by: Tewodros Makonnen Gebrewolde (GSR/1378/98)

A thesis submitted to the school of graduate studies of Addis Ababa University in partial fulfillment of the requirements of the Degree of Masters of Science in Economic Policy Analysis in the Department of Economics

Supervisor: Dr. Girma Estiphanos

Addis Ababa

July, 2007

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"A Simulation Analysis of the Impact of Phasing – out of Export Subsidies by the OECD on Sub – Saharan Exports: The Case of Animal and Animal Products."

By

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Acknowledgement

These past two years were filled with a great deal of challenge and excitement. Most of the challenges have been dealt with more or less in a successful manner. Of course this would not have been possible without the help and support of those to whom I owe a great deal.

I thank God Almighty initially, for without his will none of this would happen. I would also like to thank my advisor Dr. Girma Estiphanos for his insightful advises. My deepest gratitude also goes to Dr. Alemayehu Geda and Mr. Steven Karingi in the UNECA for their great technical assistance during the preparation of this thesis. I also appreciate the National Bank of Ethiopia and African Economic Research Consortium (AERC) for sponsoring the education and the thesis respectively.

I want to express my love for my family, my mom, Mitu, Liyusha, George and Sinish for their emotional and psychological support. My love also goes to Filagot for her encouragement and help in the process of collecting the data.

I would not have done it without all of you. Thank you.

Tewodros Makonnen

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Acronyms

- AGOA – Africa Growth Opportunity Act
- AoA - Agreement on Agriculture
- ATPSM – Agricultural Trade Policy Simulation Model
- CGE – Computable General Equilibrium
- FAO – Food and Agricultural Organization
- GATT – General Agreement on Trade and Tariff
- GDP – Gross Domestic Product
- LDCs - Least Developed Countries
- OECD – Organization for Economic Cooperation and Development
- OLS – Ordinary Least Squares
- SAMIC – South African Meat Industry Company
- UNCTAD – United Nations Conference on Trade and Development
- UR - Uruguay Round
- USD – United States Dollar
- WTO - World Trade Organization

Abstract

This study is set out to simulate the impact of phasing out of export subsidies by the OECD on the exports of animal and animal products in Sub-Saharan Africa. The global trade of animal and animal products has been increasing significantly over the past 20 years although the share of SSA has been low. The number of SSA countries that are net importers of animal and animal products has increase over the years owing to a large increase in imports of animal and animal products among themselves and with the rest of the world. The simulation analysis in the paper is done using two models. The first model is ATPSM and is developed by FAO and UNCTAD for the purpose of simulating agricultural trade policies. It is a partial equilibrium static model. The first scenario to be simulated is 36% reduction in market access, 21% reduction in domestic support and a 100% reduction in export competition. The results reveal that this would result in a 7% increase in exports of animal and animal products by SSA countries. For the second scenario only the phasing out of export subsidies by 100% was taken and this resulted in a 2% increase in the exports of animal and animal products by SSA. The second model is an export model estimating using a panel data from 42 SSA countries and 21 years. This model takes production capacity, domestic price index, price of exports, export price of trading partners and income of trading partners as explanatory variables to determine exports. Although the theoretical framework defines a simultaneous estimation, test for endogeniety indicated that the model should be estimated with OLS. After estimating with a panel corrected standard errors the results of the model showed that the only variables affecting the value of exports are real GDP (substituting production capacity) and unit value of exports (substituting for price of exports). Given the result from the two models it can be seen that the changes in trade policies by OECD countries doesn't significantly change the exports of the SSA countries. This calls for more inward looking policies where it becomes important to enhance production capacity and improve institutions and infrastructure.

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I. Introduction

1.1 Background

Agreement on the world trade arena has increasingly become tough in recent years. A big chunk of the disagreement revolves around agricultural policies especially those followed by the developed countries. They are condemned by most for not practicing what they are preaching by over-protecting their agricultural sector. A substantial amount of government support goes to the agricultural sector of the developed countries as indicated by their support estimates. This issue seems to have created a lot of disagreements in multilateral negotiations. There appear to be two substantial arguments both revolving around the interests of developing countries.

The first of these arguments asserts that it is to the benefit of the developing countries if the developed ones are protecting since developing countries are net importers of agricultural products. This assertion basically puts forward that protection in agriculture by developed countries would lower international prices of agricultural products and therefore would benefit net importers of agricultural products, the developing countries. This line of argument has basically two fundamental questions following it. Primarily, what comparative advantage do developing countries have to continue importing agricultural products from developed countries? Is it a structurally feasible and long run phenomenon?

The second argument pertains to the more obvious issue of hurting agricultural exports of developing countries. Plainly put, this argument (Panagariya, 2005) bases itself on the fact that most developing countries are dominant on the agricultural sector, which in most of the cases carries the livelihoods of the majority of the population and accounts for the bulk of exports. Agricultural support in developed countries by lowering world prices depresses agricultural exports of LDCs, thus contracting the income of the poor. This argument is also prone to some serious questions. Is the support in developed countries actually responsible for the depressed exports in LDCs or is it constrained by other factors (eg. supply side factors)?

The above two basic notions have occupied the minds of negotiators in the WTO and other multilateral meetings. Obviously the issues could be different for different developing countries and different commodities. Some of the developing countries are net importers of agricultural products and some are net exporters. Similarly there are agricultural commodities that are exported by developing countries but that are not principally produced or exported by the developed countries. The problem as a whole requires the delineation of the countries that are net importers and net exporters of agricultural products and at the same time picking out those agricultural products that are exported by the developing countries while being supported in the developed countries.

Another facet of the issue is that the support given to the producers of agricultural products in the developed countries are broadly categorized into three types; export competition, domestic support and market access. All the support given by the

governments of developed countries are categorized under any of these three groups. Export competition means those types of support that are given to enhance the export of agricultural commodities by the developed countries including export subsidies, food aid and state trading enterprises. Domestic support mainly includes the different production incentives given to the farmers. Domestic support causes changes in production and trade decisions (Young et al., 2005). It mainly includes market price support, output and input subsidies, supply and payment limits, and farm-based payments. Finally the market access component of the support pertains mainly import restrictions imposed on agricultural products coming from abroad.

The above-mentioned supports have been major points of discussion in the WTO (and in the Uruguay round) since they portray a substantial involvement of government in the market, which this is highly discouraged by the WTO. Member countries especially developing ones have been urged to remove government involvement from the market so as to enhance freer trade among themselves. Continuous assessment is required on the implications of the various negotiations and agreements on the production and trade situations of the different stakeholders.

1.2 The Problem

WTO negotiations held at Geneva (July 2006) ended on the agreement that export subsidies by the developed countries should be phased out until 2013. As indicated above, there has been a debate on the different impacts of the decisions (agreements) in WTO negotiations. It is therefore imperative to continuously assess the possible outcomes of the agreements both from the perspective of the developing and developed

countries. It is therefore the concern of this paper to assess the impact of the phasing out export subsidies on the export performance of counties in Sub-Saharan Africa. In other words the big question becomes will the phasing out of export subsidies significantly enhance the export of Sub-Saharan African countries?

1.3 Objectives

Principally the study is intended to assess the impact of the phasing out of export subsidies on the export performance of Sub-Saharan African countries. In the road to achieving this objective the study will indulge into;

- Assessing the general export performance of Sub-Saharan Africa.
- Reviewing the historical out turn of trade negotiations, especially concerning Agriculture with special emphasis on WTO negotiations.
- Skimming through the status of Agricultural products of Sub-Saharan African countries in global agricultural markets.
- Looking at elasticities of export supply response for Sub-Saharan Africa for changes in border prices of agricultural products.

1.4 Hypothesis

Drawn from the above objectives the following hypotheses can be cited;

- The export sector in Sub-Saharan Africa is moderately responsive to changes in global prices. This means although there are some constraints on the supply side that might impede the response of supply for changes in the global agricultural prices.

- Therefore, it is hypothesized that the phasing out of export subsidy will have an improving impact on the export performance of Sub-Saharan African countries.
- It is also hypothesized that the status of Sub-Saharan African exports is dismal and it has continued to deteriorate with time.

1.5 Delimitation

The study is limited to the assessment of the impact of the phasing out of export subsidies by Organization of Economic Cooperation and Development (OECD) countries on the level of export performance of 47 Sub-Saharan African countries. In order to have a concise analysis the study has chosen livestock and livestock products since they are highly protected by the developed countries while at the same time they are major export for Sub-Saharan Africa. The analysis will be using the Agricultural Trade Policy Simulation Model (ATPSM) to assess the possible impacts of phasing out exports subsidies. To complement the results of this model the export of animal and animal products model would be estimated for some Sub-Saharan African countries.

1.6 Relevance

As indicated above, there have been serious disagreements in international trade negotiations. Part of the disagreements pertains to the conflict of interests between the different negotiating parties. Accordingly, the proper understanding of the interest of the different parties requires the reliable estimates of the consequences of possible measures (decisions) in the negotiations. The decision in July 2006 to phase out export subsidies by the developed countries is an agreement towards enhancing trade among countries. In

order to ensure this, it is imperative that a proper quantitative analysis be made to inform negotiations as to how the different decisions will be made. This study is an addition to the stock of information required to inform negotiations. Negotiators with Sub-Saharan African interests would use the information to see whether or not the phasing out of export subsidies by the developed countries out bring about the desired results.

1.7 Data and Methodology

1.7.1 Data

The data for the descriptive analysis can be obtained from the United Nations Food and Agricultural Organization (FAO) and the United Nations Conference on Trade and Development (UNCTAD) websites. These data will include, data on production estimates and trade of generally all agricultural commodities and with special emphasis on livestock and livestock products. For the descriptive analysis the data will include time series overview of production and trade both for Sub-Saharan Africa and developed countries. Also included in this analysis would be the relative importance of the livestock and livestock products in the entire agricultural products as compared to other commodity groups.

For the simulation with Agricultural Trade Policy Simulation Model (ATPSM) the elasicities and equations are already built in the model. Therefore there will be no collection or modification of the data in the model.

For the estimation of the exports model, the study will use a panel data with 42 countries and 20 years. The data is taken from the Africa Database and World Development Indicators and the UNCTAD database.

1.7.2 Methodology

i. ATPSM

As mentioned above the study will employ the Agricultural Trade Policy Simulation Model (ATPSM). ATPSM is a deterministic partial equilibrium comparative static model. It covers 161 countries and 35 commodities. The first version of the model was developed and published in 1990 by the United Nations Conference on Trade and Development (UNCTAD) (Peters et. al., 2004). For this study version 3.1 developed in January 2006 is used.

The model can be used to simulate different issues related to agricultural trade policy issues. It can used to measure changes in welfare, trade and prices that result from different policy measures. The model has also the feature of grouping different countries and can be used to simulate impacts on different regions of the world and at global level. What the model does is to model and simulate the different trade policy and price changes on the supply and demand changes that arise using simultaneous equations. These equations are characterized by behavioral relationships designed to simulate the real world. In addition to this the model considers three agents consumers, producers and government. Therefore the results could be used to see impacts on different trade policies on different agents of an economy.

However there are different shortcomings of the model. One of the biggest problems of the model is that it is a deterministic model that rules out any stochastic effect. It doesn't allow for any uncertainty. This would have a great implication on the use of the model since it would mean that there is no room for considering other variables that might impact upon the variables. Another big problem with the model is that it is a static model. This also has very important implication on the use of the model. It would mean that changes that result with time are not considered here. It would be difficult to see how adjustments would occur over a period of time. The model would only indicate a static impact of the changes in the supply and demand with no specific time dimension. The last obvious shortcoming of the model is that it is a partial equilibrium model in which feedback effects from other sectors are not considered. This is also a significant drawback since the results would have certain components, which are not reflective of the reality.

The basic structure of model is based on the supply, demand, imports and exports of the agricultural commodities. Therefore, the demand function for country r and commodity i is expressed as

$$\hat{D}_{i,r} = \eta_{i,i,r}[\hat{P}_{wi} + (1+t_{ci,r})] + \sum_{\substack{i=1 \\ i \neq j}}^{J} \eta_{i,j,r}[\hat{P}_{wi} + (1+t_{ci,r})] \quad \text{----------1}$$

The domestic supply function for country r and commodity i is similarly expressed as;

$$\hat{S}_{i,r} = \varepsilon_{i,i,r}[\hat{P}_{wi} + (1+t_{pi,r})] + \sum_{\substack{i=1 \\ i \neq j}}^{J} \varepsilon_{i,j,r}[\hat{P}_{wi} + (1+t_{pi,r})] \quad \text{----------2}$$

The import and export functions are expressed as,

$$\Delta M_{i,r} = D_{i,r}\hat{D}_{i,r} - S_{i,r}\hat{S}_{i,r} + \Delta X_i \text{ and } \Delta X_{i,r} = \gamma_{i,r}\Delta S_{i,r} \quad \text{----------3}$$

Where;

D,S,X and M are Demand Supply Export and Import respectively

^denotes a relative change and Δ absolute change

P_w denotes world price

t_c denotes domestic consumption tariff and t_p denotes the domestic production tariff

ε denotes supply elasticity, η denotes demand elasticity, γ the ratio of export to production

i, j are commodity indices and r is a country index.

Some peculiar characteristics can be observed from the above equations. Firstly each country has four equations pertaining to demand, supply, imports and exports. The other thing that can be noticed is that agricultural trade policies will affect the world price first which would transmit to demand and supply through their respective elasticities. The results from the demand and supply would then help determine demand and supply volumes of each commodity. Another thing to observe here is that imports clear the market and there is a constant share of export to production. This point arises from the fact that the model is a static model (Poonyth et. al., 2003).

ii. Exports Model for Sub-Saharan Africa

For this estimation the study employs the exports model developed by Goldstein and Khan (1978), which presents the export model as a simultaneous model taking total exports and export prices as endogenous models explained within the model. The basic

theoretical framework of the model brings together the demand and supply for exports. The demand equation is specified as;

$$\log X_t^d = a_0 + a_1 \log(PX/PXW)_t + a_2 \log YW_t \quad \text{.....4}$$

Where X^d_t is the quantity of export demanded at time t

PX_t is Price of exports at time t

PWX_t is the weighted average of export prices of the countries trading partners at time t

YW_t is the weighted average of the real incomes of trading partners at time t

In this equation the demand for exports is determined by the price ratio of exports of the domestic economy and trading partner and the weighted average of the real income of the trading partners. The demand for exports for one country is negatively the relative price of exports and positively related to the income of trading partners.

$$\log X_t^s = \beta_0 + \beta_1 \log(PX/P)_t + \beta_2 Y_t^* \quad \text{.....5}$$

Where X^s_t is the quantity of export demanded at time t

PX_t is Price of exports at time t

P_t is the domestic price index at time t

Y_t is the logarithm of an index of domestic capacity at time t

The supply of exports on the other hand is determined by the relative price of exports to domestic price index and domestic capacity. In a forward manner the increase in price ratio would encourage exporters to supply more and an increase in capacity would mean also increased supply.

$$\log PX_t = b_0 + b_1 \log X_t^s + b_2 Y_t^* + b_3 \log P_t \quad \text{----------6}$$

- the variables are as defined above

Equation (6) is a normalized equation derived from equation (5) and presents that the price of exports in turn is determined by the supply of exports domestic capacity and domestic price. Deriving the signs of the parameters b_0, b_1, b_2 and b_3 from equation (5) we have b_1 and b_3 positive and b_2 to be negative.

Combining equation (6) with equation (4) we get the simultaneous equation for our equilibrium model.

$$\log X_t = c_0 + c_1 \log PXW + c_2 \log YW + c_3 \log Y^* + c_4 \log P \quad \text{----------7}$$

$$\log PX_t = d_0 + d_1 \log PXW + d_2 \log YW + d_3 \log Y^* + d_4 \log P \quad \text{----------8}$$

- the variables are as defined above

The parameters c_1-c_4 *and* d_1-d_4 are functions of the parameters in the above demand and supply equations.

With some modification this study estimates equations 7&8. The first inclusion in the model as an instrument is the support estimate by the OECD countries to see the effect on the exports. Assuming that the inclusion and exclusion of the support estimates work through the increase and decrease of export prices, the support variable is included in the second equation. Therefore, for this study the specification is;

$$\log X_t = c_0 + c_1 \log PXW + c_2 \log YW + c_3 \log Y^* + c_4 \log P \quad \text{----------7}$$

$$\log PX_t = d_0 + d_1 \log PXW + d_2 \log YW + d_3 \log Y^* + d_4 \log P + d_5 \log PSE \quad \text{----------8}$$

Where, PSE is the support estimate.

1.8 Limitations

During the preparation of this paper numerous challenges were posed. The biggest of all this is that of collecting data for the export model. This arose because of the fact that the countries and the year considered for the panel was big. This constrained the collection of more relevant variables suitable for animal and animal products resulting in a smaller R^2. Related with this the shortage of time and resources is another constraining factor. Another problem is the unavailability of a comprehensive export subsidy data for the OECD. Being our main subject of concern, it was not possible to acquire the data.

1.9 Organization

The first chapter presents the introduction and points out the specific problems, objectives, hypothesis, scope and methodology. The second chapter would present literature on the basic tenets of modern trade liberalization theories on which the current philosophy is based on. In addition to this, presentation of the major trade negotiations of WTO and other multilateral negotiations would be made. The chapter after that will deal with the descriptive analysis of the historical trends of agricultural exports and a short overview of the relevant trade terms and conditions in international trade agreements. Description of data, methodology and simulation analysis would be made in the fourth chapter and finally summary and policy suggestion would be made in the fifth chapter.

II. Literature Review

Here the study briefly tries to build a theoretical framework to base the different arguments pertaining to agricultural trade liberalization. To that effect it initially attempts to outline the basic notion of trade liberalization with reference to the benefits of free trade compared to government intervention. It then continues to highlight some of the other issues related to liberalization. The second part of the chapter deals with the empirical aspect of the issue with special reference to trade liberalization in Sub Saharan Africa in general and the livestock sector in particular.

2.1 Theoretical Literature

2.1.1 Theories of Trade Liberalization

Theoretically the bulk of the literature establishes that free trade is always beneficial to government intervention. Tupy (2005) and McCulloh puts forward three of the most known benefits of liberalization and free trade. First, free trade improves global allocation of goods by getting resources to those who value them most. Secondly, it leads to specialization and therefore comparative advantage, which leads to the improvement in product quality. The third benefit according to Tupy (2005) comes from the improved standard of living that comes from cheaper goods that in turn come from efficient ways of production.

Another definition of free trade according to the free encyclopedia wikipedia,

*'**free trade** is an idealized market model, often stated as a political objective, in which trade of goods and services between countries flows unhindered by government-imposed tariff and non-tariff barriers. The Laissez-Faire school holds that no other requirements exist, while students of Microeconomics, sometimes called Welfare Economics, point out that Perfect Competition is also required in order for theory, specifically the General equilibrium theorems, to apply.'*

Looking at it deeper the basic notion is that trade liberalization brings about the concept of global resource allocation. This would mean, bluntly, that there would be a chance for producers to search for a wide range of consumers thereby getting the opportunity to supply to those who value the commodities more. On the other side consumers would be able to consume a variety of products and will have a wide range of choices to fit their needs. Crudely speaking this seems to benefit everybody involved (producers and consumers) (ibid).

According to the handbook of Trade Liberalization and Poverty (McCulloh) trade liberalization leads to cheaper consumption. That is because when there is liberalization trade barriers will be lifted and markets will function effectively. This in turn would lead to the reduction in the price of the liberalized good.

On the supply side liberalization leads to efficient production and allocation of resources. In the short run there might be the case of unemployment but as the domestic industries start joining the competition in the long run the benefits of

liberalization are great considering the level of increased efficiency, specialization and economies of scale (ibid).

Still another benefit of globalization according to the handbook is the transfer of ideas and technology. Trade liberalization encourages the import of foreign goods and this would help domestic producer examine the ideas and technology with which the imported goods are produced from. Therefore increased trade liberalization has the benefit of transfer of ideas and technology.

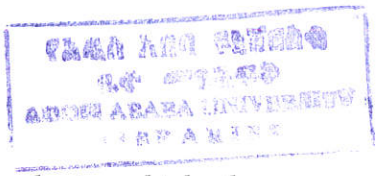
Generally liberalization means the movement of an economic system towards a more market and price determined situation from a more regulated one. More specifically with respect to agriculture liberalization would usually result in the narrowing of the margin between the prices of the same farm products in different countries. This implies that there is greater integration or link between the farmers in different countries (either through facing the same demand or cost situations) (Gilbert 2003).

The way to liberalization has principally been through the reduction of the role of the government in agricultural markets as is the case of liberalization in other sectors. These include the abolition of government marketing enterprise, the reduction of implicit and explicit taxes, the removal of administered prices and privatization of government owned assets (ibid).

2.2 Empirical Literature

2.2.1 Link between trade openness and growth

Wacziarg and Welch (2003) find a more optimistic relationship between trade openness and growth. They used the Sachs and Warner (1995) measure of openness with some adjustments to assess the link between trade openness and growth in 141 countries. They analyzed the link in different perspectives; on a date based liberalization indicators to see whether the link is sensitive to decades (the decade in which liberalization was made); the within country liberalization dynamics and individual country cases.



For the date based indicators they found out that the decade in which the liberalization took place does matter in that in countries that liberalized in the 1980s saw a significant relationship between openness and growth. On the other hand countries that liberalized in the 1990s saw a positive but insignificant link between the two variables. In the within country liberalization dynamics they found out that those countries that liberalized have a 1.53 percentage point more annual growth than those countries that have not liberalized. In the analysis of individual countries they found out that liberalization has more contribution to growth if it is made on a sustainable basis rather than it being a one time thing (ibid).

This study is very comprehensive and encompassing as far as cross-section analysis is concerned. It has also attempted to establish the link from different perspectives which is a plus to the paper. On the other hand certain questions could be raised as

far as the methodology is concerned. I attempting to establish the within country liberalization dynamics they used a fixed effect regression and used liberalization as the only independent variable. This has the problem of lumping up the sources of the changes to liberalization when other variables may have been related to the growth.

Another important study that links trade liberalization and growth is by Shafaeddin (2005). The study assesses 46 countries dividing them in three different groups. The first group includes those countries like the East Asian countries and NIEs which have already established their industrial capabilities. The second group includes countries in Latin America, North Africa and Middle Eastern countries that have some industrial capabilities that came through import substitution. The last group of countries includes those countries mainly in Africa that don't have much industrial capabilities. The study discovers that there is a high growth in output and exports in the first group then with successively to the second and third groups.

The study doesn't clearly establish the link between growth and trade liberalization in a more objective sense. It just describes the level of growth in the different groups of countries and this level of growth could have been attributed to a host of other variables that are unrelated to trade liberalization like the developed industrial sector.

A more neutral view is presented in the Trade Liberalization and Poverty Handbook (McCulloh). It states that there are numerous studies that link economic growth to trade liberalization however these studies have been highly criticized with respect to

the measure of openness and their econometric techniques. It therefore assesses that the link between trade liberalization and growth has not been unambiguously established in light of two major problems. The first problem arises from the difficulty of assessing the trade liberalization position of a country. Secondly, individually picking out the effects of trade liberalization on growth is difficult since to impact on growth trade liberalization need to be linked with other policies such as investment in infrastructure. It concludes that although the link has not been established between trade liberalization and growth it has not been proven to be an impediment as well. But there are other benefits of trade liberalization such as more stable policies, strong competition and macroeconomic stability. Therefore trade liberalization most likely benefits economic development.

2.2.2 Agricultural Trade Liberalization

a. Historical Perspective

Since the end of the Second World War with the birth of international economic integration there has been a greater pressure to liberalize economies. This has been manifested through different international conferences and agreements. But the negotiation to liberalize the agricultural sector did not occupy the center stage up until the late 1980s in the Uruguay Round (UR) of the General Agreement on Trade and Tariff (GATT) (Rayner, 1993).

Primarily GATT is an agreement between countries it is not an institution on its own. Secondly GATT is more concerned with tariff reductions and didn't do much with respect to non-tariff barriers. Thirdly, a number of sectors like agriculture,

services and textiles were considered exceptions and lots of the moves to liberalize those sectors were futile. The fact that it was not an institution has limited its power of enforcing the agreements. The fact that it concentrated on tariff resulted in countries resorting to non-tariff barriers and the market distortionary effects of protections persisted. Finally the sectors that were marked exception were of great interest to some of the contracting member countries of the GATT. These questions were the primary issues in the Uruguay round (WTO website).

The success or failure of the Uruguay round was linked to the agreement that were to be made on Agriculture. This is because prior to this round agriculture was considered a special case and was not included in the negotiations. But this has stirred up problems in the negotiations. Owing to this fact the negotiations in the Uruguay round had as their center agricultural trade (Rayner, 1993).

It was in this round that agricultural trade liberalization was given importance and with the pressure of the Cairns Group (14 countries that are agricultural exporters) the Agreement on Agriculture (AoA) was signed among the contracting countries of the GATT. Basically most of the agreements in the GATT concentrated on tariff reductions rather than other non-tariff barriers. In 1994 the GATT gave rise to the birth of the WTO which later included negotiations on other non-tariff barriers too (Cassel, 2003).

In the WTO there are three principal pillars of agricultural protection removal; market access, export competition and domestic support. Under market access it

concerns the tariff and non-tariff barriers. It puts forward that all countries try and convert all non-tariff barriers to bound tariff (tariffication) and reduce the tariff rates. Under export competition the principal issue is the reduction of value and volume export subsidies. Finally under the domestic support there are three categories of domestic support that the WTO recognizes. Two of these types of supports are deemed distortionary. Generally domestic support includes production supports like production quota subsidies, land subsidies etc...(Action Aid website).

According to the study on the WTO agreement on agriculture by Action Aid even the agreements in the WTO are unequal. It puts forward that the agreement doesn't take into consideration the actual situation that the developed and the developing countries are actually in. This is manifested by the fact that the agreement doesn't give any guarantee of food security to the developing countries and doesn't give enough weight to the fact that developing countries rely heavily on agriculture. Concerning domestic support the allowed type of domestic support is very expensive to developing countries and benefits the developed ones (Action Aid website).

b. Empirics

Blake et al (2001) studies the impact of agricultural trade liberalization in Uganda taking into consideration both multilateral and unilateral agricultural trade liberalizations. For the multilateral trade liberalization they assessed the impact of changes in world prices on the production and export of agricultural products. They

also did a simulation analysis using a Computable General Equilibrium (CGE) model for Uganda. They discovered that unilateral rather than multilateral trade liberalization is more impacting. Given that the study employed the neo classical CGE model with the assumption that there is perfect competition and constant returns to scale technology, the results would be a bit questionable as they would be assuming away certain rigidities in the market.

The results of another study (McMahon 1998) indicate that agreement on agriculture affect development and poverty alleviation in developing countries. This comes from the logic that the poorest in the developing countries depend heavily on agriculture and agricultural trade in turn highly affects the status of agricultural income in developing counties. The study continues on criticizing the agreements in the Uruguay round. The first point is the fact that developed countries have other means to counteract the effects of reforms.

Tokarick (2005) has assessed the impact of removing agricultural support from OECD using both partial and general equilibrium analysis. In the partial equilibrium analysis the study analysis the impact of removing two types of supports; market price support and complete liberalization. As is expected the removal of support results in the increase of international prices of the commodities. But market price removal yields the biggest result as far as increasing international prices are concerned. An interesting result in this study pertains to the case of net importing countries and what liberalization might impact upon them. They show that for most of the countries labeled net importers their net import cost doesn't increase since

overall their export earning also increases. In results from the general equilibrium analysis reveals that multilateral liberalization by both OECD and developing countries would increase the global income by USD 128 billion or 0.4 percent of world GDP. The ones that gain most would be the ones with the biggest protection. The OECD as a group accounts for 75 percent of the gains from liberalization.

According to Subramanian and Wei (2003) the WTO promotes trade strongly but unevenly. In a study that uses the Gravity model to show the impact of three asymmetries in the international trade arena. The first asymmetry was between the developed and developing countries and their differences. The second asymmetry concerned the new and old developing country members. And finally the last asymmetry was between sectors. With respect to the first asymmetry, they found a positive relationship between WTO and trade in the developed countries both in the early years and later years. For developing countries, on the other hand the study found a positive and significant relationship between the WTO and trade in the developing countries in initial years and negative and usually insignificant relationship during latter years. With respect to the second asymmetry the results showed that when 2000 is used as a cut-off point the there is an increase of 30 percent trade in new member countries while it is neither positive nor significant for the old developing country members. Finally concerning the last asymmetry they found that for the agricultural sector the results indicate a significant negative relationship between WTO and industrial countries' agricultural trade. No portrayal of the result in this sector for developing countries.

2.2.3 Agricultural Trade and Sub-Saharan Africa

In a study conducted on Sub-Saharan Africa Tupy(2005) depicts that contrary to most of the above studies agricultural trade liberalization wouldn't increase welfare in Sub-Saharan Africa. Rather its more liberalization in Sub-Saharan Africa that would bring about a significant change. The study also asserts that the developed world concentrates protection on agriculture and this hurts the developing countries 60 percent of whose population derives its income from agriculture. It also indicates that the developed countries' protection against agricultural exports from the developing countries is four to seven times as high as the manufactures exports. There is also tariff escalation on agricultural imports. As a result of this protection there is an extensive depression of the world prices and over production of those protected products that undermine unprotected farmers. However the study continues to stress that protection in developing countries are much worse than the developed world. The tariff rate in developing countries averages almost three times that of the developed countries. Liberalization by the developing countries is more beneficial to themselves than others. And this is the solution to the problem rather than putting pressure on the developed countries to remove protection. The study also puts forward a rather bold statement that African leaders are hypocrites in that they demand more open developed countries' market while they have closed their own markets.

2.2.4 Animal and Animal Products Trade and Support

Turning now towards trade in animal and animal products the issue tend to become quite specific and would normally concentrate on specific regions of the world. According to quite a number of literature (Perry, 2005, Annand, 2001) there are specific issues in the WTO negotiations concerning trade in animal and animal products. The prominent one of them all is the provision of WTO on Sanitary and Phyto-Sanitary (SPS) measures that affects trade in animal and animal products.

Perry 2005, gives a detailed account of the situation of SPS in affecting livestock exports in developing countries. In order to do this it has taken case studies of different countries from different parts of the world. It has taken Thailand and Philippines from South East Asia; Kenya, Ethiopia, Namibia and South Africa from Africa and Costa Rica, Guatemala, Honduras and Nicaragua from South America. In the case of the African countries, Kenya's export of bacon, sausage and ham is seriously challenged by the outbreak of swine fever and FMD (pig disease). Having the largest stock of cattle in Africa Ethiopia's export of cattle has been constrained similarly by disease related issues. The outbreak of rinderpest, Rift Valley Fever and FMD highly constrains the export of cattle, goats, sheep and carcasses to Saudi Arabia. In the case of Namibia things are looking up. The country has managed to meet EU standards by establishing the Farm Assured Namibian meat under the Meat Board of Namibia. The story of South Africa is another success story. Under the establishment of the South African Meat Industry Company (SAMIC) the country

has managed to benefit from different provisions like the AGOA and also managed to put up standards for Abattoirs.

Subsidies in the livestock sector is prominent in different respects in China says a study by Bingsheng (1997). There are production, consumption and international trade subsidies for the livestock sector. The production subsidy includes subsidized credit for investment, technical assistance and improved bred given to farmers. Concerning consumption subsidies there used to be meat supply at a subsidized price with poor quality in the 1970s. And the meat was rationed. But that was abolished in mid 1980s and the consumers buy at retail price. As with the consumption subsidies there were export subsidies but stopped since 1990. There is also import restrictions like many countries, tariff and non-tariff barriers except on breeding animals.

Wise (2005) and Olson (2006) assert that there should be more focus the corporate livestock sector as beneficiaries of farm subsidies in the US rather than the farmers. This, according to the two studies, is because the subsidies cause prices of animal feeds to be reduced and this is an indirect benefit the corporate livestock sector. The study also asserts that the benefits that farmers reap from the agricultural subsidies are not substantial and their net income has remained low over the past few decades seen against the volume of the subsidies.

A large chunk of the subsidies given to the agricultural sector is provided by the EU. According to Economic Research Service the EU accounted for 90 percent of the

total export subsidies given to agriculture. The EU provides subsidies on almost all of its agricultural products. Leetmaa (2001) presents that more than 80 percent of the volume of most of the livestock products are subsidized. In the study eggs, bovine meat, other milk products, cheese, skim milk powder, butter/butter oil receive subsidies for more than 80 percent of the volume. This study also recommends that the EU should use other means to reduce the production surplus rather than using export subsidies. The study further continues to see the effect of eliminating subsidies on EU export of agricultural products under different scenarios.

Action Aid International (2004) also puts forward that elimination of agricultural subsidies by the EU in WTO negotiations would require another compensating area through which a trade off has to occur. This is because in giving up subsidies the EU would be giving up lots of benefits. Therefore the EU would most likely resort to tightening the market access to EU in return for reducing or eliminating subsidies. The briefing continues to recommend that all forms of subsidies in all sectors be eliminated immediately.

Poonyth and Sharma (2003) assessed the impact of Harbinson's modalities on the three groups of countries, developed, least developed and the rest of developing countries. The result of the simulation done using the ATPSM model revealed theoretically consistent result in that further liberalization among countries raised international prices which increases consumers surplus and lowers producers gain. The US proposal was found to be more beneficial for all country groups. The proposal puts that higher tariffs should be cut more deeply than lower tariffs on the

Market access component. On the domestic support component, the proposal brings down all domestic support items to at most 5% of the average value of the commodities. And finally concerning the export subsidy component the proposal puts forward the elimination of all export subsidies over a 5 year period. Although the study is quite a good use of the ATPSM model it didn't see the specific gains and losses on Sub-Saharan Africa it grouped the developing countries together.

Peters (2006) presents a specific analysis on the persistence of export subsidies. It presents that the removal of export subsidies accrues benefits to consumers in developed countries and producers in the developing countries caused by the increase in global prices. The welfare effect in this aspect is ambiguous since the price rise affects consumers in developing countries also. Similar to the above study there is little said on Sub-Saharan Africa and no consideration is made of the limitations of the model.

III. Agricultural Trade in Sub-Saharan Africa and the WTO

As seen above in the literature review there is much debate on the substance of agricultural trade liberalization and its hand in the overall growth of developing countries. Its vital therefore to see whether there is any truth in all the arguments and assertions. This chapter and the following would deal on the analysis of the data descriptively and empirically respectively.

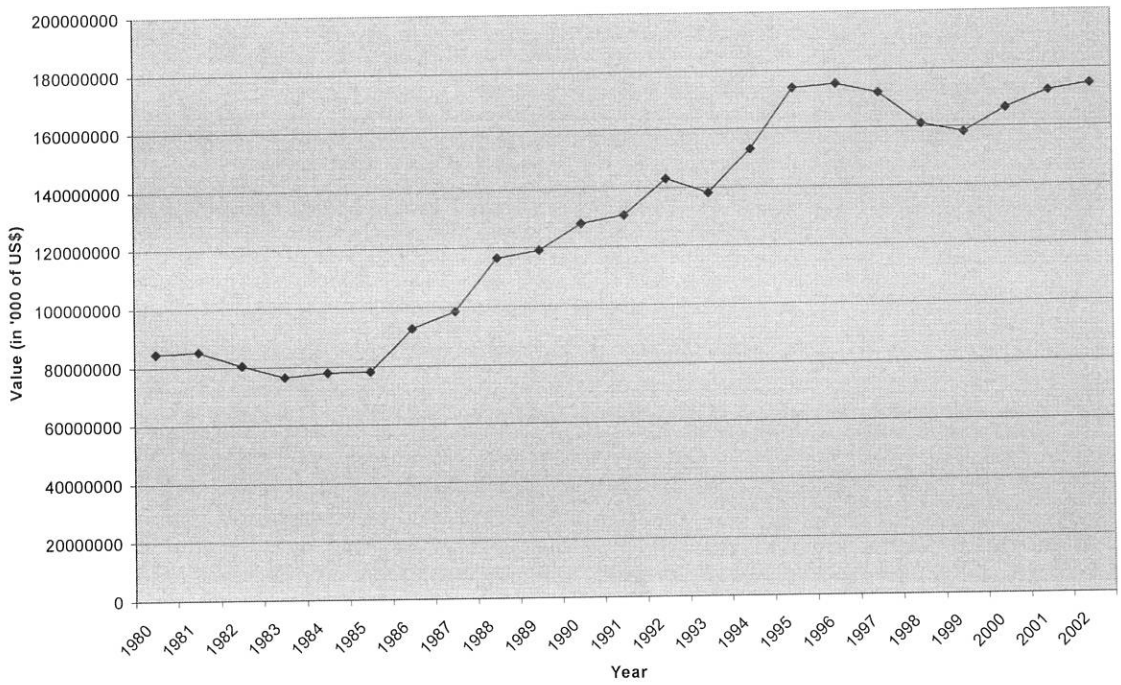
Here in this chapter two basic issues would be covered. Firstly, using the data for Sub-Saharan Africa and the OECD countries, it would be attempted to see the structure of international agricultural trade with special reference to animal and animal products. An attempt would be made to see the direction of trade to and from the OECD to the Sub-Saharan Africa in agricultural trade. On the other side the situation concerning producer and consumer support in the OECD would be seen to see the possible implications on the prices.

The second issue that would be covered in this chapter would be the different articles and agreement on the international agricultural trade. Here special emphasis would be give to those negotiations and agreements in the WTO as the bulk of recent negotiations concerning trade in the sector is made in it. However, trade negotiations in the GATT especially the Uruguay round would be briefly discussed in order to cover the base of the issues.

3.1. Trade Scenario for Animal and Animal Products

According to the UNCTAD hand book over the period 1980 and 2003 the global exports of animal and animal products averaged US$ 128 billion, the biggest export being fresh meat chilled and frozen (averaging US$ 28.1 billion) over the said period. This product accounted for 22 percent of the total trade in animal and animal products. The export of fish and shell fish both, fresh, chilled and frozen follow suit with a share of 11 and 9 percent respectively.

Figure 3.1: Global Exports of Animal and Animal Products from 1980-2002

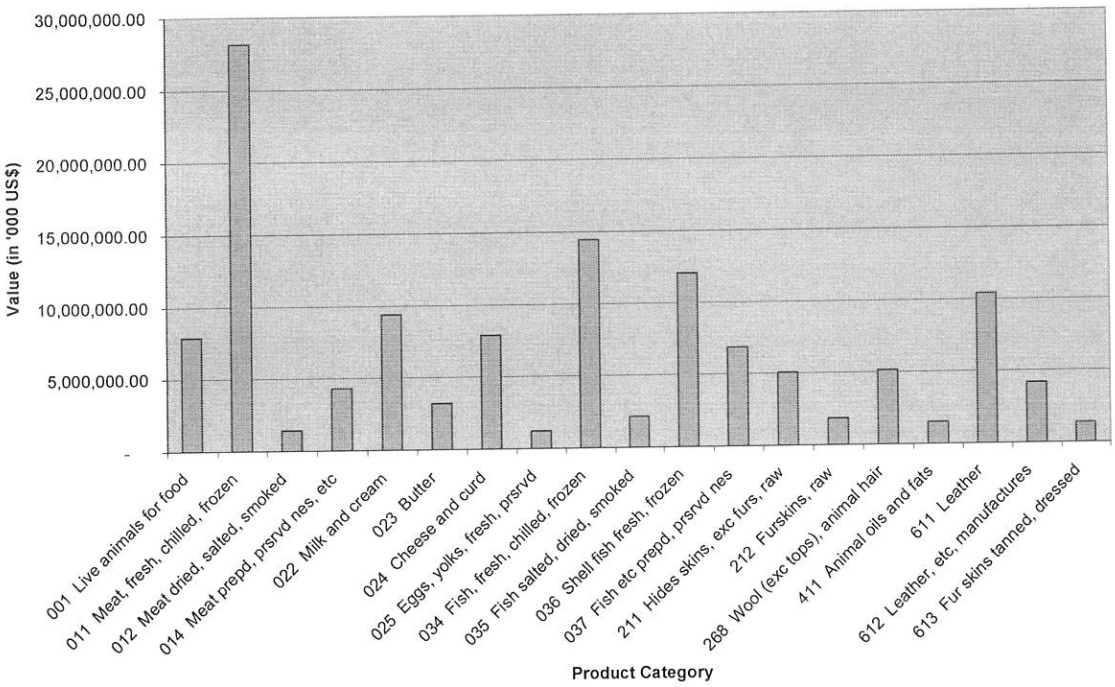


Source: UNCTAD Handbook

Looking at the time trend in the export of animal and animal products in figure 3.1 it can be seen that there has been an increasing trend in the value of exports over the period 1980-2002 with slight declines in the mid 1980s and late 1990s. This was because of the decline in fresh meat, chilled and frozen, during those periods.

Commodity wise out of the total 18 categories of animal and animal products 8 product categories have a share of more than 5 percent and only 2 product categories have a share of more than 10 percent. Figure 3.2 shows the main product categories under animal and animal products.

Figure 3.2: Value of Global Exports of Animal and Animal Products by Product Category



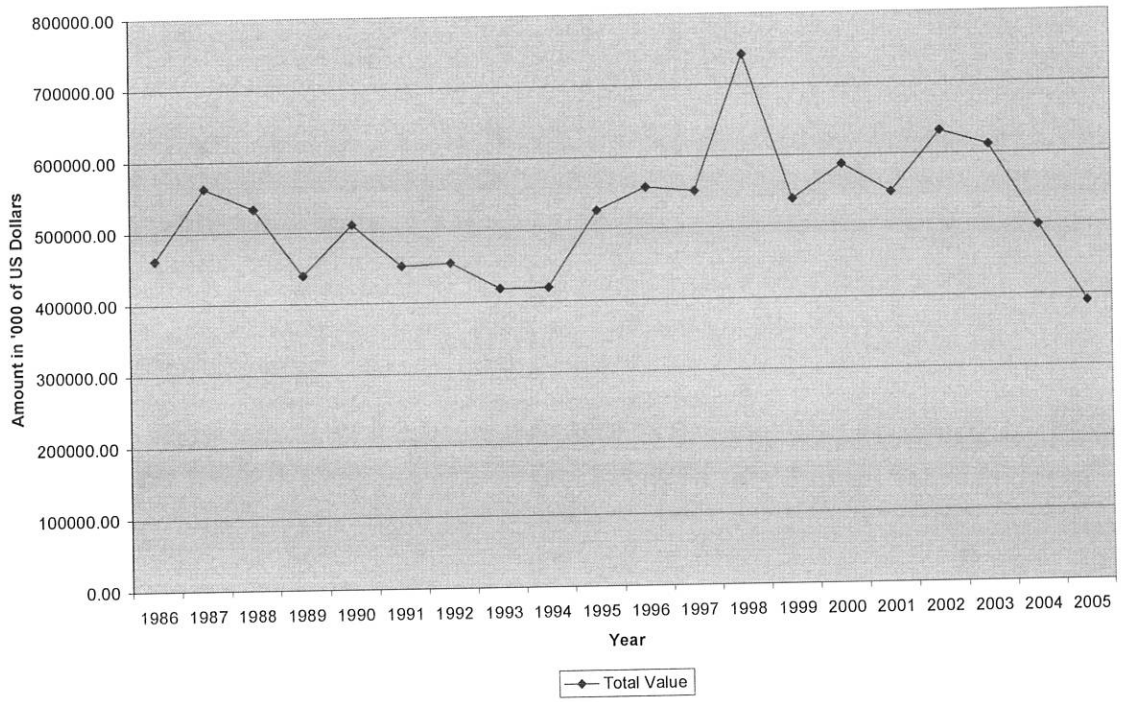
Source: UNCTAD Handbook

Looking at the share of countries in this total export, the developed countries accounted for 70 percent of the total export while the developing countries account for 27 percent. Only 2.6 percent accrues to Africa and only half to Sub-Saharan Africa.

3.1.1 Exports of Animal and Animal Products in Sub-Saharan Africa

On the overall trade in animal and animal products has had a steadily fluctuating trend since the mid 1980s. Figure 3.3 shows trends in the total value of exports of animal and animal products by Sub-Saharan African countries. As can be seen from the figure the trend has a steady position fluctuating between 400 million US$ and 600 million US$ except in three of the years since 1986. The lowest point is recorded around 1993 and 1994 owing to the reduction of exports by Ethiopia and Namibia which together cover around 30 percent of the total exports of animal and animal products in Sub-Saharan Africa. The peak of export occurred in 1998 this time attributed to Sudan, a new comer in the exports.

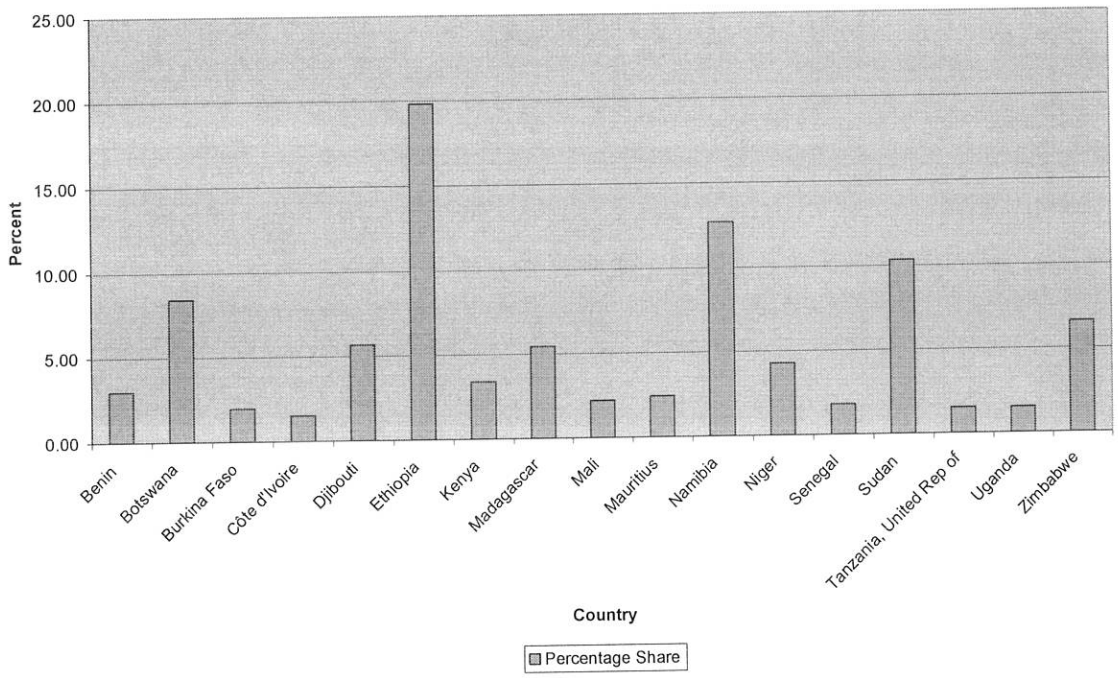
Figure 3.3: Total Value of Exports of Aminal and Animal Products in Sub-Saharan Africa



Source: www.faostat.fao.org

Only 18 countries out 49 account for 92 percent of the total exports of animal and animal products in Sub-Saharan Africa. Among these Ethiopia (19%) has the biggest share followed by Namibia (13%), Sudan (11%) and Botswana (8%). These four countries take almost 50% of the total exports over the period 1986-2005. This shows that there are very few countries in SSA that aggressively export from the sector (Figure 3.4).

Table 3.4: Percentage Share in Total Exports of Animal and Animal Products (countries with more than 1% share)



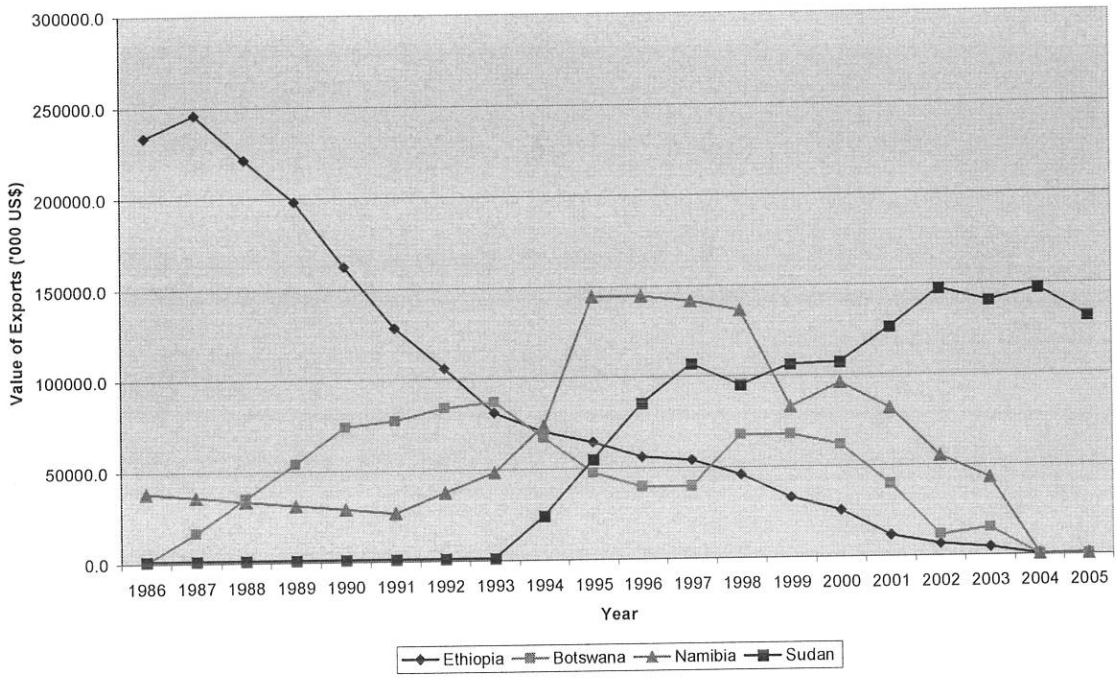
Source: www.faostat.fao.org

Looking at the export performance of the countries above temporally, over the past 19 years there has been a significant structural change. Although Ethiopia has the biggest share of exports over all, its trend has been declining on an inter-temporal basis. Out of the four countries with the highest share only Sudan (a relatively newcomer) is increasing in its value of exports from the sector. The other two countries Botswana and Namibia have increased their export towards the 90s but then decline after 2000.

Looking at the data starting from 2000 onwards the picture changes. As indicated above the share of Sudan in the overall export of animal and animal products has increased. Average exports between 2000 and 2005 shows that Sudan has 20 percent share of the

total exports followed by Namibia (11%), Botswana and Niger each with an 8 percent share of the total export. The share of Ethiopia falls to 4 percent during the period.

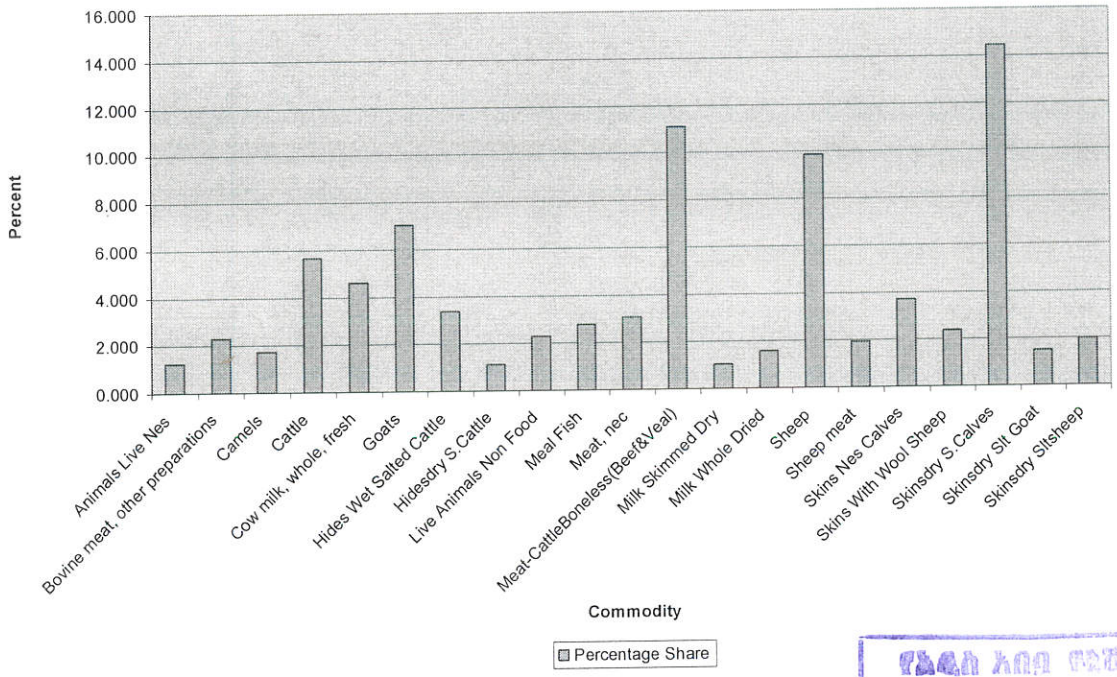
Figure 3.5: Trends in Total Exports of Animal and Animal Products for Selected Countries (4 years moving average)



Source: www.faostat.fao.org

Likewise 21 out of 116 commodities account for 85 percent of the total exports. This shows that although there are quite a number of commodities that are exportable in SSA only few of them are actually being utilized. Out of these commodities, dry calves' skin accounts for highest exports with 14% share out of the total. It is followed by boneless cattle meat (beef and veal) with 11% share, live sheep (9% share) and live goats (7% share)(Figure 3.6). These four commodities account for 42% or the total exports.

Figure 3.6: Percentage Share of Animal and Animal Products Exported out of Total (Commodities with more than 1% share)

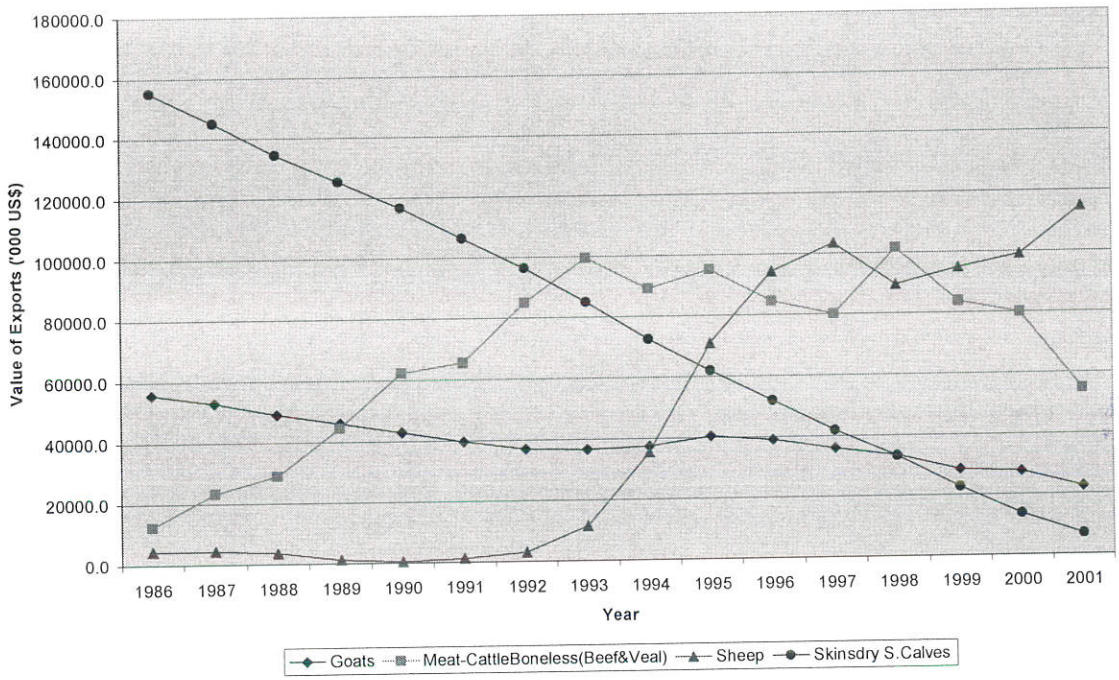


Source: www.faostat.fao.org

In inter-temporal sense the trend for the 4 most traded commodities gives an intriguingly similar result with the country case. In the case of dry calves' skin, which is the highest animal product to be exported from Sub-Saharan Africa, its share has a declining trend up until 2002 where it starts to pick up again up until 2005. The high share of this product is related to the high share that Ethiopia has since it has been the biggest exporter of the commodity. Also the rising of Sudan as a new exporter of animals and animal products contributed to the significant increase in the export of live sheep. The export of boneless cattle meat (beef and veal) has had an increasing trend up until the beginning of the 90s and maintains its high position up until 1998 where it starts to

decline. The decline in its exports was caused by the decline in exports by Namibia which has been the prominent exporter of the commodity.

Figure 3.7: Trends in Value of Sub-Saharan African Exports for Selected Commodities (4 years moving average)



Source: www.faostat.fao.org

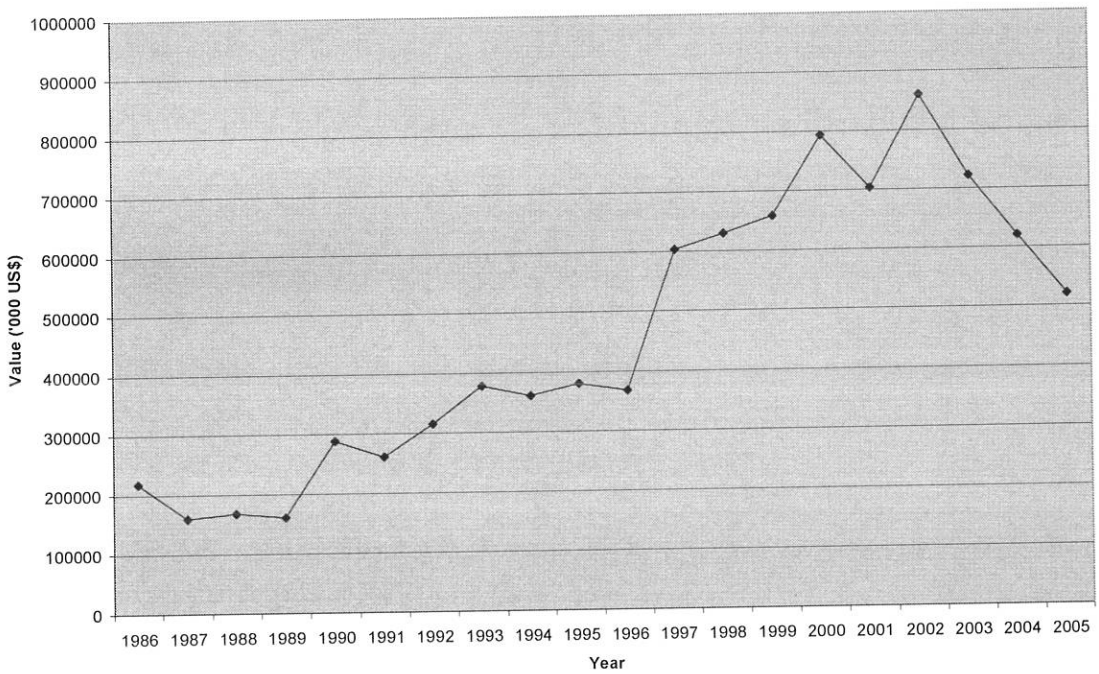
Overall it can be seen that Sub-Saharan African exports of animal and animal products is characterized by few commodities and few countries taking big shares. As presented above the 4 biggest exporters account for 50% of the total and the 4 highly exported commodities account for 42 percent of the total. This shows that there is a high concentration of export origins and commodities. In addition to this except for boneless cattle meat the other three commodities require little or no processing and can totally be considered primary commodities.

3.1.2 Net Importer or Net Export

A very important question that has to be asked is whether Sub-Saharan Africa is actually a net exporter or a net importer of agricultural products and, in this case, animal and animal products. Before looking at whether or not Sub-Saharan Africa is a net exporter or net importer it better to look at the imports side.

The total imports of animal and animal products of Sub-Saharan African countries from the years 1986-2005 grew from around 200 million US$ in late 1980s to a maximum of 860 million in 2002. After 2002 however it dropped to 520 million in 2005. TO make things clear, however, the import of the said goods could be both within Sub-Saharan Africa and out side of it.

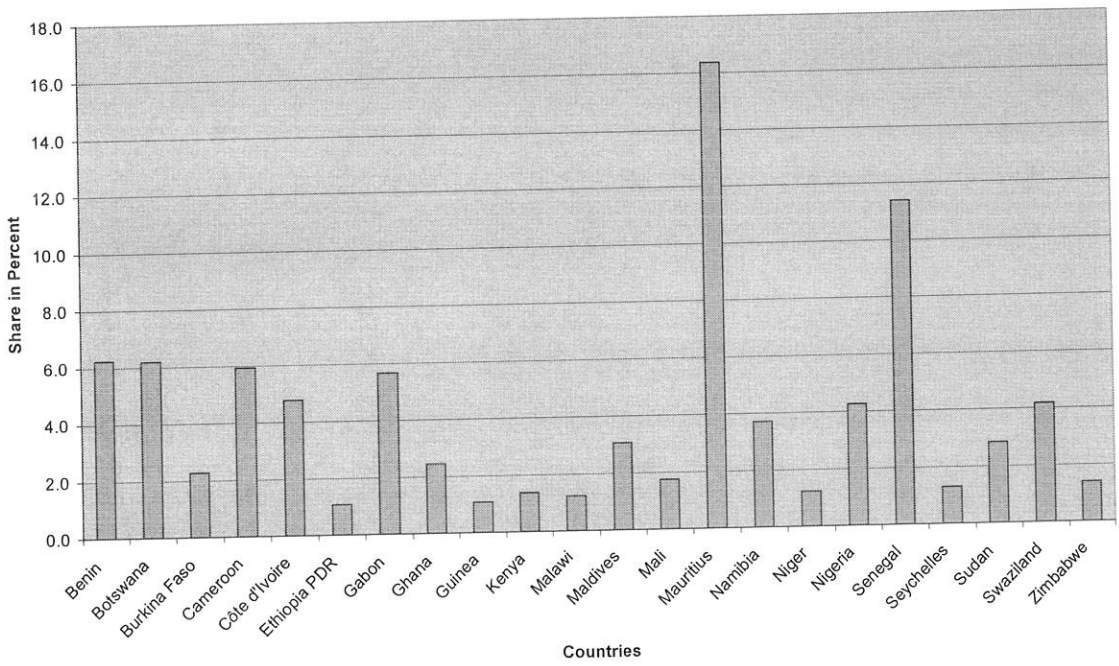
Figure 3.8 : Imports of Animal and Animal Products by Sub-Saharan Africa



Source: www.faostat.fao.org

Looking at the data country wise only two countries, Mauritius and Senegal, account for more than 10 percent of the total imports. Mauritius accounts around 16 percent while Senegal accounts for 11 percent. Then Benin, Botswana, Cameroon and Gabon follow with around 6 percent share of the total import (figure 3.9).

Figure 3.9: Share of Imports of Animal and Animal Products by Sub-Saharan African Countries (with more than 1% share)

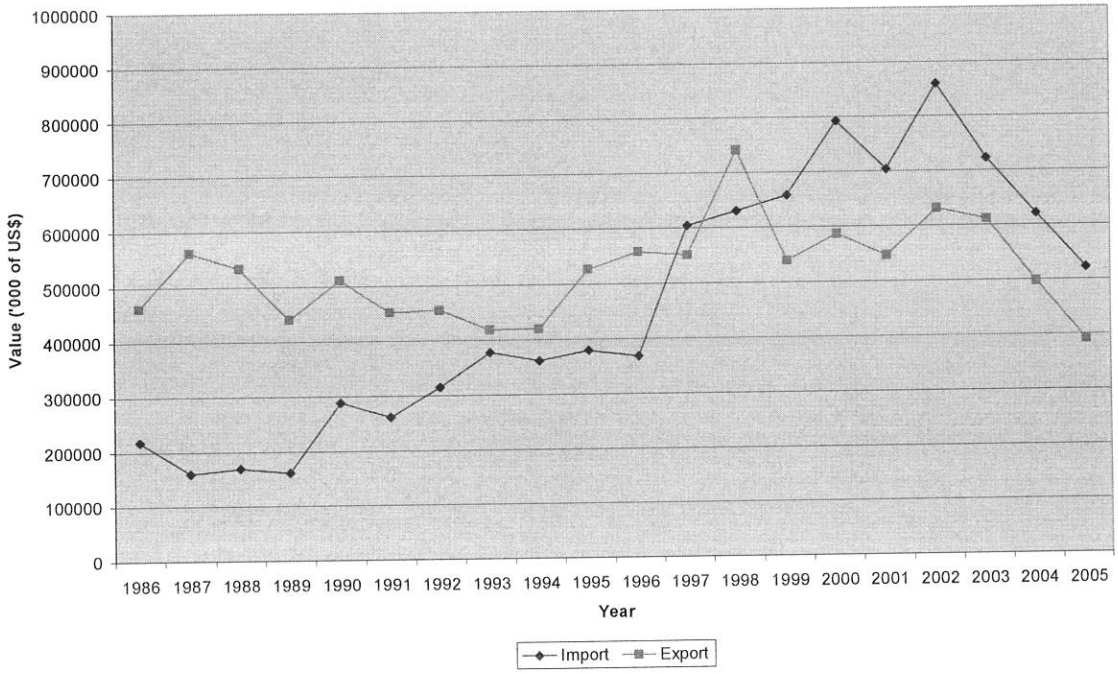


Source: www.faostat.fao.org

Concerning the big issue of whether or not Sub-Saharan Africa is a net importer or net exporter it can be seen by bringing together the import and export scenarios. Again it is important to note that this export and import is the sum of the individual member

countries and represents trade among themselves and with the outside world. The following figure shows the time trend in both imports and export.

Figure 3.10: The Comparison of Imports and Exports of Animal and Animal Products in Sub-Saharan Africa



Source: www.faostat.fao.org

As can be seen in the figure members of Sub-Saharan Africa were net exporters up until 1997 where there is a jump in imports owing a leap in imports of these products by a number of countries (Cote d'Ivoire, Gabon, Sudan, Namibia, Swaziland). This leap continues until 2002 where it started to decline. Therefore since 1997 speaking in totality the total value of imports was greater than the total value of exports.

Another good question is which countries are net importers and what percentage these countries account for out of the total number of Sub-Saharan Africa. Over the period 1986 up to 1992 the only 38 percent of the countries are net importers of the animal and animal products. Continuing on to the next 6 year period (1993-1999) the net importers grow to 55 percent owing to the growth of imports by the countries mentioned above. And then this figure declines to 51 percent in the period (2000-2005).

It can therefore be seen that in value terms Sub-Saharan Africa is actually a net importer and as far as the number of countries are concerned, in recent years a little more than half of the number of countries (24 out 47) are net importers of animal and animal products.

3.1.3 Agricultural Support Trends in OECD

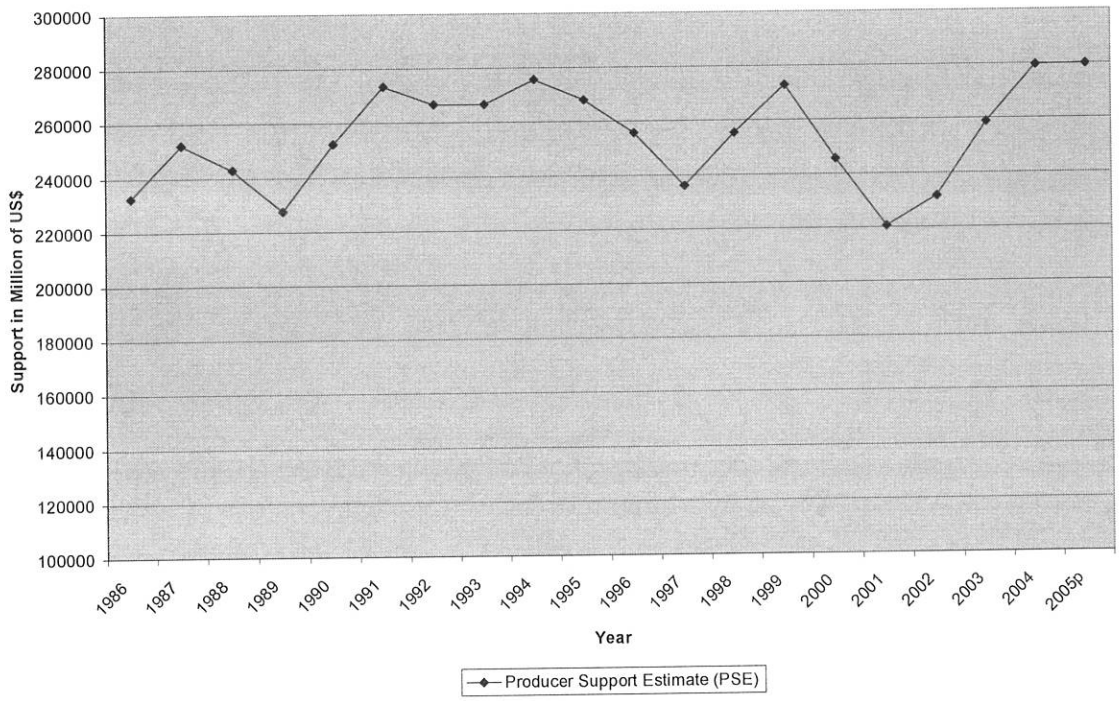
As indicated in the literature review the crux of the discussions concerning trade as a whole and agricultural trade in particular was the level of government intervention. In their attempt to protect and advance their local industries and farmers, governments put in different incentives both on the demand and supply sides. These incentives could be seen in two categories; producer support and consumer support.

The Organization for Economic Cooperation and Development (OECD), which is mainly a collection of countries that are developed, has its share of support in its different sectors. In this aspect the agricultural sector remains the greatest beneficiary of the support. From 1986 to 2005 the average annual production support estimate amounted to USD 254 billion for the whole of OECD member countries. This amount is

approximately 36 percent of the average annual production for the same period. Out of this production support estimate 70 percent of it is market price support for producers. Looking at the production support estimate over time it has reduced. The average producer support estimate accounted for 42 percent of the total value of production from 1986-1989. It then declined to 36 percent in the 90s and further to 34 percent from 2000-2005. The reduction was probably caused by the numerous negotiations and agreements in different multilateral and bilateral trade negotiation venues. However, the amount of producer support estimates remain more than one third of the value of production implying that there could be a significant impact on the price of the agricultural products.

Over time producer support estimates have maintained a steady but slightly fluctuating trend. The figure below shows the trend of producer support estimate from 1986-2005. The years 2004 and 2005 saw a records highest producer support amount in 20 years. The lowest amount of support was in 2001. The fluctuating trend gets worse beginning 1994 going up and down in a cyclical manner changing course every 3 years.

Figure 3.11: Annual Trends in Producer Support Estimates of the OECD Countries

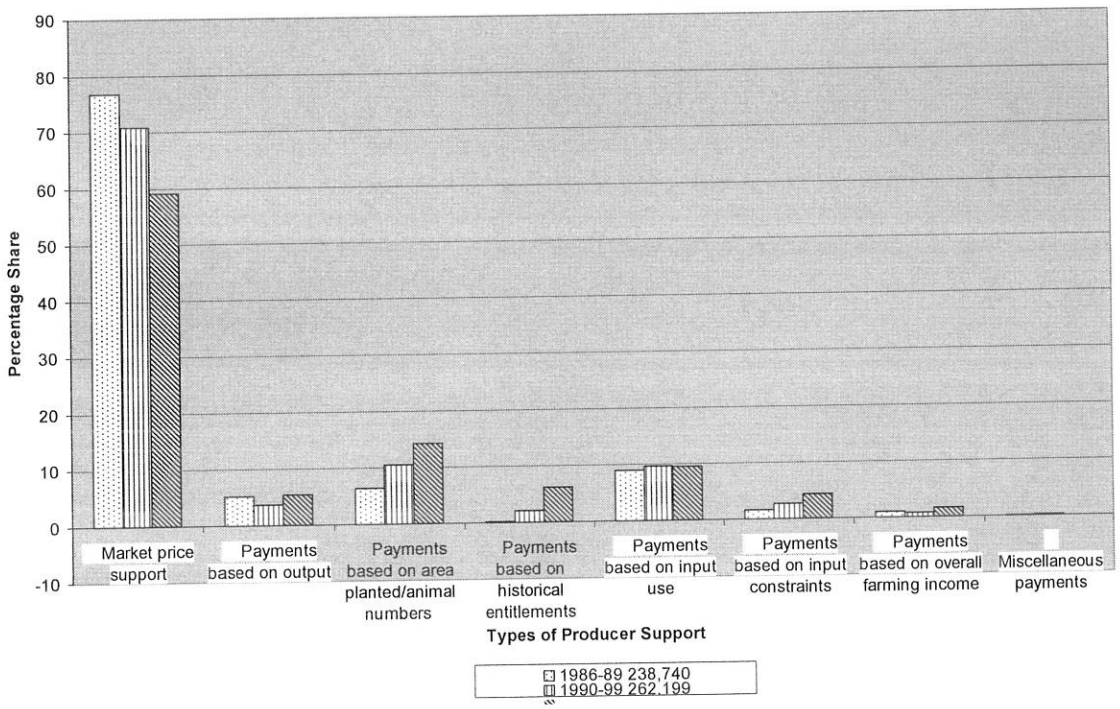


Source: www.oecd.org

It is important to look deeper into the different types of production supports. As mentioned above market price support takes up the majority of the productions support estimate (70 percent of the total producer support estimate). Over time, though, this high share has been declining. During the period 1986-1989 the average share of market price support in the total producer support estimate was 77 percent declining to 70 percent in 1990s and further to 59 percent in the period 2000-2005. There seems to be a shift of support from market price support to the other types of support. The shift was more towards payment based on area planted and/or number of animals. The share of this payment increased from an average of 6 percent in 1986-1989 to 15 percent from

2000-2005. This shift was probably made as a result of negotiations to reduce more price distorting supports.

Figure 3.12: Percentage Share of Types of Producer Support Estimates for OECD

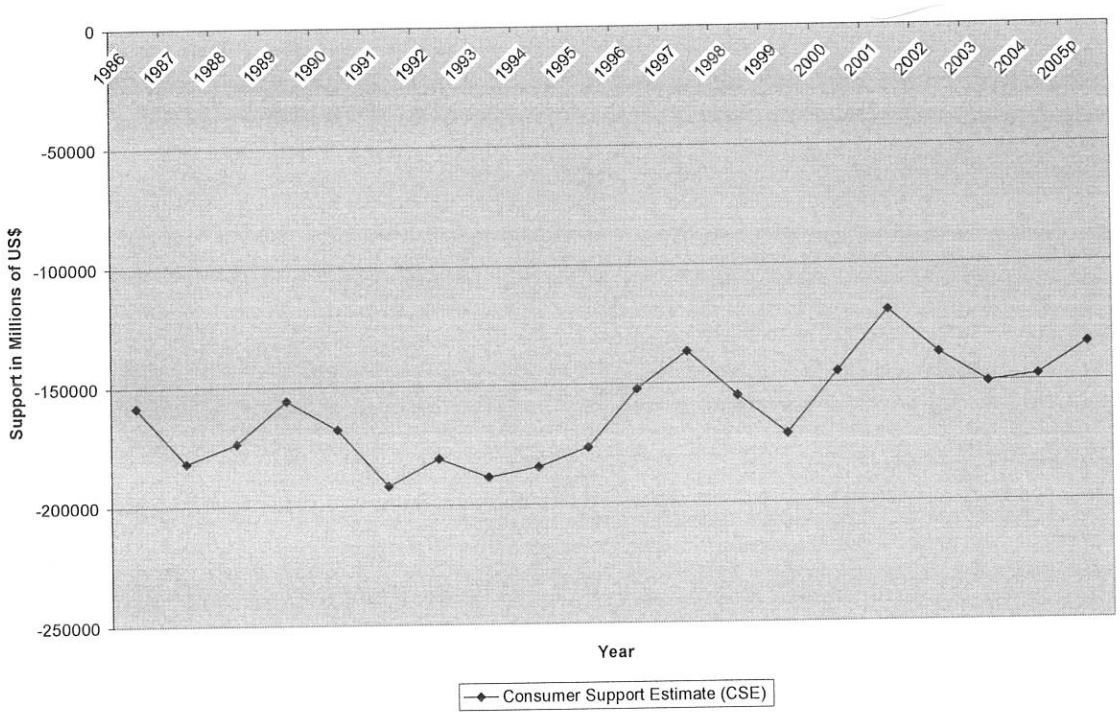


Source: www.oecd.org

Consumer support estimates on the other hand include direct support to consumers or those payments that the consumer is exempted from. A negative consumer support estimate depicts an implicit tax imposed on the consumer. Trends in consumer support estimates show that the consumers in the OECD countries have been implicitly taxed. The figure below shows the trends in consumer support estimates over the period 1986-2005. As can be seen in the figure the value of consumer support estimates are negative depicting an implicitly taxed consumer. This negative number is derived from the notion

that consumers loose efficiency loses from the support given through market price support to the producers. This lose offsets whatever direct support that is given to the consumer by the government. In absolute value terms this consumer support estimate has been improving owing to a reduced producer support estimate.

Figure 3.13: Trends in Consumer Support Estimates for OECD Countries



Source: www.oecd.org

3.2. WTO Agreements on Agricultural Trade

The negotiation on Agriculture in the WTO started with the articles of the Agreement on Agriculture (AoA). Article 20 of this agreement states that member countries should start negotiations by end 1999 or beginning of 2000. This was further strengthened and

officiated by the Doha Ministerial Meeting in November 2001. The following table presents the Article 20 of the Agreement on Agriculture.

Article 20 of the Agriculture Agreement
Continuation of the Reform Process

Recognizing that the long-term objective of substantial progressive reductions in support and protection resulting in fundamental reform is an ongoing process, Members agree that negotiations for continuing the process will be initiated one year before the end of the implementation period, taking into account:

(a) the experience to that date from implementing the reduction commitments;
(b) the effects of the reduction commitments on world trade in agriculture;
(c) non-trade concerns, special and differential treatment to developing-country Members, and the objective to establish a fair and market-oriented agricultural trading system, and the other objectives and concerns mentioned in the preamble to this Agreement; and
(d) what further commitments are necessary to achieve the above mentioned long-term objectives.

Source: WTO website, Agricultural Negotiations: where we are now

3.2.1 The Doha Declaration on Agriculture

In November 2001 the Doha Ministerial Meeting was held and it officiated the continuation of the negotiations on agriculture. The negotiation has the usual WTO theme of establishing a fair and market oriented trading system. The negotiation included all the three sects namely; market access, export competition and domestic support. The export competition negotiations are done with the idea of phasing out totally while a substantial reduction was the idea for the other two.

From the perspective of developing countries priority was to be given to their food security and rural development and this called for special and differential treatments in the negotiations.

The first phase of negotiations from early 2000 to March 2001 was characterized by the presentation of a wide range of proposals on the issue of agricultural trade. Since this was the early stage of negotiation 126 out of the 142 countries participated. This was followed by the second phase of negotiations which took place from 2001 to 2002. This phase involved a lot of informal meeting which were not part of the official records of the WTO but dealt further into more technical details and more specific proposals. The November 2001 ministerial meeting gave the official mandate for the negotiations with clear specification of the direction of the negotiations.

The Doha mandate
From the Doha Ministerial Declaration, November 2001

13. We recognize the work already undertaken in the negotiations initiated in early 2000 under Article 20 of the Agreement on Agriculture, including the large number of negotiating proposals submitted on behalf of a total of 121 members. We recall the long-term objective referred to in the Agreement to establish a fair and market-oriented trading system through a programme of fundamental reform encompassing strengthened rules and specific commitments on support and protection in order to correct and prevent restrictions and distortions in world agricultural markets. We reconfirm our commitment to this programme. Building on the work carried out to date and without prejudging the outcome of the negotiations we commit ourselves to comprehensive negotiations aimed at: substantial improvements in market access; reductions of, with a view to phasing out, all forms of export subsidies; and substantial reductions in trade-distorting domestic support. We agree that special and differential treatment for developing countries shall be an integral part of all elements of the negotiations and shall be embodied in the schedules of concessions and commitments and as appropriate in the rules and disciplines to be negotiated, so as to be operationally effective and to enable developing countries to effectively take account of their development needs, including food security and rural development. We take note of the non-trade concerns reflected in the negotiating proposals submitted by Members and confirm that non-trade concerns will be taken into account in the negotiations as provided for in the Agreement on Agriculture.

14. Modalities for the further commitments, including provisions for special and differential treatment, shall be established no later than 31 March 2003. Participants shall submit their comprehensive draft Schedules based on these modalities no later than the date of the Fifth Session of the Ministerial Conference. The negotiations, including with respect to rules and disciplines and related legal texts, shall be concluded as part and at the date of conclusion of the negotiating agenda as a whole.

Source: WTO website, Agricultural Negotiations: where we are now

A series of dates were decided in order to facilitate the negotiations. Accordingly, the draft modalities were to be prepared until 31 of March 2003 and based on that draft commitments by the members were to be presented in the Cancun (Mexico) conference in September 2003. However, this deadline could not be met because of the number of countries and shortage of guidance from the member governments on how to proceed with the compromise on the basic issues. However there was a significant progress on the technical parts of the negotiations.

As the Cancun Ministerial Meeting approached around August 2003, a significant progress began to be seen towards compromise. This was began by the EU and US preparing a draft on the key issues which was followed by 20 developing countries and the others. Although there was a significant progress made there were still some problems concerning investment, competition policy, transparency in government procurement and trade facilitation in the Cancun Ministerial Meeting. Then until March 2004 all negotiations on agriculture were discontinued. The negotiations then continued on 22 March 2004. These negotiations were much fruitful in communicating the different negotiators as it allowing many delegations to negotiate among themselves and it allowed them to learn each others concerns. The delegations identified that negotiations on market access was the most difficult one. Further Negotiations in April and June further made a lot of progress in the compromise process. On the last two weeks of July Ministers and Ambassadors met in Geneva to finalize the process and after two weeks of negotiations finally they were able to agree on a draft framework.

3.2.2 The Issues behind Export Competition (Subsidy)

As indicated above there are three spectrums of agricultural support namely; market access, domestic support and export competition (subsidy). As export subsidy is the main stay of this study this section would attempt to see the negotiations points in the export competition aspect a bit in depth.

Export competition is further categorized into five different categories; export credits, guarantees and insurance, food aid, exporting state trading enterprises and export restrictions and taxes. Some of these have the effect of enhancing export while some have a reducing impact on exports. Of course, non-trade concerns and special and differential treatments are considered in the negotiations.

In the first phase of the negotiations some of the members anticipated the complete phasing out of export subsidies with a substantial down payment in the coming year. The down payment is not an actual payment but a significant reduction on export subsidies. Others were more committed in that they were for complete elimination of the subsidies without the down payment. This attitude was because of the idea that most of the countries asserted that their domestic producers were being disadvantaged because of the depressed prices arising out of export subsidies.

On the special and differential aspect the developing countries were negotiating on the grounds that subsidies in developed countries are greatly hurting their farmer and

substantial reduction is required on the part of the developed countries. They also negotiated that they be allowed to maintain subsidies for marketing purposes and maintain high tariff rates to counter act the subsidies. Another important point is that there is an inequality on the export subsidies aspect in that developing countries lack the funds to subsidize.

In the second phase there were proposals by some of the negotiators to reduce the subsidies by 50 percent as a down payment and completely eliminate them over the next 3 years for developed countries and 6 years for developing countries. Another issue raised is to have a moderate reduction on some commodities in return for a much deeper reduction on other commodities. Some other countries emphasized on the disciplining of other forms of subsidies like export credits and food aid.

The first draft modality put forward that for some products export subsidy be eliminated in 5 year (10 years for developing countries) and 9 years for some other products (12 years for developing countries).

Looking at the issue deeper negotiators believe that subsidized export credits along with exporting state trading enterprises and food aid could be used to go around export subsidy reduction commitments. So they called for discipline in this aspect. Concerning the export credit aspect the issues are that export credits should be on commercial terms and any subsidized part should be eliminated. And this would require calculating the subsidized part of export credit and add it to the regular export subsidy. The modalities

on this issue state that the reduction and elimination of the subsidized part of export credit should be made in accordance with the export subsidies.

Another point in the export subsidies portion is food aid. The basic idea behind food aid is that it should not be used to get rid of surpluses rather it should respond to demands from the countries concerned or international institutions like the World Food Program. In the negotiations there was the worry that too much suppression of food aid might deprive those that are really in need of it. In addition all food aid should be in a grant form and all other aid should be banned or be considered as export subsidy.

A third issue is the case of exporting state trading enterprises. The basic debates here pertain to whether there should be more focus on exporting enterprises or importing enterprises as they both affect prices in the world market the former by depressing world prices while the latter by restricting market access through tariff and quota restrictions. The other point here is whether these enterprises are operating commercially or are they getting support from the government. If they are operating commercially then they could be considered as private enterprises. The modalities under this issue state that these enterprises should operate without government support and subsidy.

There are also implementation issues, special and differential treatments for developing countries and special circumstances. On the implementation point the reductions would be made on an annual basis. As with all the past negotiations special treatments should be given to developing countries. State trading enterprises could be maintained if they

use it for food security. Also a longer period is given to them in the elimination of the export subsidy. Other special circumstances are also considered.

IV. Simulation Analysis

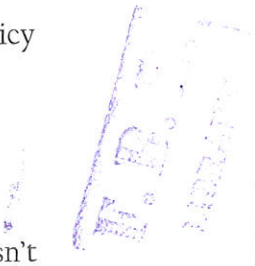
This chapter would present the main part of the study, which is the simulation of the impact of phasing out of export subsidies on Sub-Saharan African exports of animal and animal products. The first part of the chapter will deal with the simulation using the Agricultural Trade Policy Simulation Model. The model would allow the inclusion of a number of scenarios which would allow the simulation of a number of scenarios. The second part will simulate using an exports model developed for selected Sub-Saharan African countries. The last part would then outline the differences, if any, between the results of the two simulation methods.

4.1 Simulation with ATPSM

As indicated in the methodology section in chapter 1 the Agricultural Trade Policy Simulation Model (ATPSM) is a model developed by UNCTAD and FAO to simulate the effects of different agricultural policy changes on consumption, production, imports, exports, government revenue and welfare of a country. In addition to covering these areas, the model accounts for 161 countries and 35 commodities. This country coverage and commodity coverage allows simulating the effects of policy changes of one country on another country from the perspective of the above variables mentioned. The second most important benefit of the model is that it differentiates between the different types of agricultural support (domestic support, export competition and market access). This allows the user of the model to simulate

between different policy changes giving due emphasis on the type of support. The program also gives results in detailed and convenient manner.

It has certain limitations though. Firstly it is a partial equilibrium model and would not take into account feedback impacts from the rest of the economy. Secondly, it is a static model meaning that it would not give results from the inter-temporal perspective. It only presents the effects in totality. This limits the power of level of understanding as to when the expected changes would take place. For policy purposes however, it is important to have information on the timing of the effect.



A third limitation, probably the most important one would be that the model doesn't allow users to change the elasticities embedded within the model. This would also pose a challenge on the user when trying to check for different scenarios using different elasticities. Finally it is a deterministic model, in that it doesn't allow for the stochastic behavior of variables.

This being said, however, it is clear any model has its own limitations and if complemented with other models it would give better results. And also, it could serve to give signals of the movements of different variables. For this purpose, the study has performed 3 different scenarios with different levels of policy changes.

4.1.1 Scenario I: Optimist Scenario

In this scenario it is assumed a reduction would be made by the OECD countries on all three types of support. As export competition is our point of concern and in accordance with recent agreements, it is assumed that export subsidies would be reduces by 100% or will totally be phased out. On the other two supports, domestic support and market access, the agreements in the Uruguay round (a respective 21% and 36% reduction). This is an optimist assumption in that so far actual reductions in the WTO negotiations have gone very stringently and no significant move has been made so far. The likelihood of this scenario is very low considering the progress of events until now. In order to present the results of the simulation we would show the effects of the simulation on global prices, consumption, production, imports and exports with special emphasis on the latter.

i. Global Prices

A reduction in support by the stated amount above increases global prices according to the model. Global prices for animal and animal products increase by an average of US$ 123 per metric ton (7%). With the exception of livestock, whose price declines by a slight US$4 per metric ton, the prices of all the products in the category have increased. The product with the biggest increase in price is milk concentrates (US$ 342/ metric ton) followed by butter (US$ 161/metric ton) and hides and skins (US$ 140/metric ton).

ii. Consumption

Assuming that export subsidies by the OECD member countries are completely phased out and there are reductions in market access and domestic support as per the Uruguay round, it is expected that overall consumption of animal and animal products would decline. According to primary theory with a reduction of support there is an expected increase in global prices which in turn would result in the reduction of consumption.

The result from the model is mixed geographically. For the developed countries especially OECD countries the consumption of animal and animal products increases. According to the results of the model the OECD will increase its consumption of the products by 2.1 million metric ton (1.3% increase).

In the case of developing countries including the Sub-Saharan Africa the reduction in support would result in the reduction in consumption. For the whole of developing countries there will be a decrease in consumption of animal and animal products by 1.9 million metric ton. Out of this reduction in consumption SSA accounted for only 184 thousand metric ton.

iii. Production

On the other side, production in the OECD is expected to decline assuming that total support is reduced. And this is confirmed by the model. Accordingly, OECD production of animal and animal products reduces by 1.4 million metric ton (1%). This conforms to the theory considering support encourages surplus production.

Developing countries on the other hand will increase production owing to the fact that prices would increase. To this effect the simulation analysis reveals that the developing countries would increase production by 1.1 million metric ton. However the share of Sub-Saharan Africa in the increase in production is small. With the above stated optimist reduction the increase in production by the SSA is only 66 thousand metric ton (0.5%).

iv. *Imports*

Import of animal and animal products is in concordance with consumption. Developed countries especially the OECD countries imports increase respectively by 3.4 million metric ton and 3.8 million metric ton. This is because of the fact that with increased global prices it becomes cheaper to import products rather than produce them.

Developing countries on the other hand have reduced imports considering increased prices and increase in production. Accordingly developing countries as a whole reduce imports by 1.4 million metric ton (8%). SSA imports reduce by 130 thousand metric ton (4%).

v. *Exports*

Turning now to our main point of concern export, it is important to see what kind of impact the reduction of support would bring. On the developed countries side exports will increase by 277 thousand metric ton (1%). The OECD countries exports

of animal and animal products also increases by 264 thousand metric ton (1%). Given that there is a reduction in export subsidies, it might look surprising that there will be an increase in exports. However, the reduction of the other supports and the increase in global prices would lead them to export more since domestic consumption would be shared by products from other countries now that the market is open (reduction in Market access component).

Looking at the OECD countries deeper the most important parts of the OECD, EU and US have different results concerning exports of animal and animal products. Exports by the EU declines by 504 thousand metric ton (9%) while there would be a 412 thousand metric ton (6%) increase in US export.

Table 4.1: Changes in Exports in Metric Ton, Scenario I

	Dairy Products	Animal and Animal Products		Meat
		Changes in Metric ton	%age Change	
Central America	1,011	10,363	3	8,042
Caribbean	407	7,161	59	5,656
Central Asia	1,674	17,512	17	7,179
Central and Easter Europe	34,110	68,742	11	18,099
Developed Countries	92,539	277,200	1	453,719
Developing Countries	378,656	1,603,266	27	1,030,081
Least Developed Countries	27,658	86,965	26	44,360
North Africa and Middle East	82,287	164,214	89	68,782
North America	-1,636	425,435	5	382,369
Oceania	123,254	312,285	4	86,428
OECD	94,928	264,356	1	442,270
South America	77,721	694,094	33	495,656
Sub-Saharan Africa	7,583	65,068	7	33,900
Western Europe	-37,168	-508,903	-9	-41,492
World	587,325	2,050,663	6	1,522,206

Source: ATPSM result.

Developing countries exports of animal and animal products increases by 1.6 million metric ton under this optimist scenario. This would mean a 27% increase which would be quite a significant gain in exports. Looking at SSA, it would benefit from an increase of 65 thousand metric ton of exports which is a 7% increase. Relating this to a 7% price increase it shows that there is a strong relationship between global prices and SSA exports.

4.1.2 Scenario II: Reduction of only Export Subsidies

In this second scenario it is assumed a reduction would be made by the OECD countries on only export subsidy. Accordingly all export subsidies would be reduces by 100% or will totally be phased out. This scenario is a medium level scenario in which because of lack of significant agreements of reduction on the other two types of protections. In order to present the results of the simulation we would present the effects of the simulation on global prices, consumption, production, imports and exports with special emphasis on the latter.

i. Global Prices

The phasing out of subsidies increases global prices according to the model. Global prices for animal and animal products increase by an average of US$ 70 per metric ton (5%) which is lower compared to the optimist scenario above. With the exception of livestock and sheep-meat, whose prices decline, the prices of all the products in the category have increased. The product with the biggest increase in

price is milk concentrates (a US$ 291/ metric ton reduction). This is followed by butter and cheese with US$ 91/metric ton and US$ 79/metric ton increases respectively.

ii. Consumption

Assuming that export subsidies by the OECD member countries are completely phased out it is expected that overall consumption of animal and animal products would decline.

The results for this scenario is similar to the first scenario. For the developed countries especially OECD countries the consumption of animal and animal products increases although with a smaller magnitude compared to the first scenario. Consumption increases by 1.1 million metric ton in the developed countries and by 943 thousand metric ton in OECD countries.

In the case of developing countries the result is opposite to the case of the developed countries. For the whole of developing countries there will be a decrease in consumption of animal and animal products by 1.1 million metric ton. Out of this reduction in consumption in SSA is only 67 thousand metric ton.

iii. Production

Not surprisingly the case of production is similar to the results in the first scenario. The difference is only the magnitude of the effects. Accordingly, OECD production of animal and animal products reduces by 612 thousand metric ton (1%).

The increase in prices would increase the production of animal and animal products by developing countries. To this effect the simulation analysis reveals that the developing countries would increase production by 484 thousand metric ton. However the share of Sub-Saharan Africa in the increase in production is small. With the phasing out of export subsidies the increase in production by the SSA is only 20 thousand metric ton (0.2%).

iv. *Imports*

As in the first scenario import of animal and animal products by the Developed countries and the OECD countries increases respectively by 1.6 million metric ton and 1.5 million metric ton. For the developing countries as a whole imports are reduced by 1.1 million metric ton (7%). SSA imports reduce by 67 thousand metric ton (2%).

v. *Exports*

In this medium scenario, the exclusive impact of export subsidies on exports would be seen particularly to OECD and SSA. On the developed countries side exports will decrease by 15 thousand metric ton. The OECD countries exports of animal and animal products also increases by 14 thousand metric ton. Although the magnitude is small and insignificant the result is as expected.

As in the first scenario EU and the United States have different result regarding the export of animal and animal products. The EU faces a significant reduction in

exports amounting to 279 thousand metric ton. The US on the other hand shows an increasing exports since their level of export subsidies is small. In addition to this it could be able to cover the demand that was otherwise taken by the EU before the reduction in subsidies.

Table 4.2: Changes in Exports in Metric Ton, Scenario II

	Dairy Products	Animal and Animal Products		Meat
		Changes in Metric ton	%age Change	
Central America	661	3,005	1	1,921
Caribbean	211	1,971	16	1,443
Central Asia	569	4,641	5	1,499
Central and Easter Europe	18,979	25,555	4	2,822
Developed Countries	50,963	-15,699	-0	69,037
Developing Countries	189,031	433,108	7	196,938
Least Developed Countries	12,260	25,487	8	8,405
North Africa and Middle East	31,464	40,846	22	4,319
North America	6,408	109,032	1	68,386
Oceania	69,736	148,474	2	30,616
OECD	55,299	-14,001	-0	69,227
South America	36,999	205,885	10	142,544
Sub-Saharan Africa	4,010	20,870	2	8,585
Western Europe	-34,148	-288,077	-5	-30,014
World	327,546	515,472	1	271,481

Source: ATPSM result.

Developing countries exports of animal and animal products increases by 433 thousand metric ton under this scenario. This would mean a 7% increase which would be quite a significant gain in exports. Looking at SSA, it would benefit from an increase of 21 thousand metric ton of exports which is a 2% increase. Given a price increase of 5% this

increase doesn't show as strong a relationship between price and exports as the first scenario.

4.2 Export Model

4.2.1 Results of the Model

As specified in the methodology section the export model is taken from Khan and Goldstein (1978) and it is a simultaneous equation model that takes exports and price of exports as endogenous variables and estimates the respective equations simultaneously. For our purpose we have added the support estimates as explanatory variable to see the effect. As the data taken is a panel data for 42 countries and 20 years, it is important to do perform tests that are important in checking the soundness of the data in accordance with the properties of a panel data.

Taking the simultaneous equation model described in the methodology section first chapter, we have;

$$\log X_t = c_0 + c_1 \log PXW + c_2 \log YW + c_3 \log Y^* + c_4 \log P \text{ ----------7}$$

$$\log PX_t = d_0 + d_1 \log PXW + d_2 \log YW + d_3 \log Y^* + d_4 \log P + d_5 \log PSE \text{ ----------8}$$

For the purpose of the estimation some of the variables have been proxied by a closer variable. For example the variable Y* which stands for domestic capacity is substituted by real GDP. Therefore, the estimated equation and the variable definition is given by;

$$\log exan_{it} = c_0 + c_1 \log pwx_t + c_2 \log wgdp_t + c_3 \log gdp_{it} + c_4 \log cpi_{it} \text{ ----------9}$$

$$\log exuval_{it} = d_0 + d_1 \log pwx_t + d_2 \log wgdp_t + d_3 \log gdp_{it} + d_4 \log cpi_{it} + d_5 \log pse_t + d_6 \log sub_t \text{ --10}$$

Where, $exan_{it}$ – is exports of animal and animal products for country i at time t

$pwx_t(+)$ – is the price of world exports at time t

$wgdp_t$ (-)- World GDP which is a proxy for income of partner countries at time t.

$gdp_{it}(+)$- Gross Domestic Product for country i at time t taken as a proxy for domestic capacity.

$cpi_{it}(-)$- Consumer price index for country i at time t proxy for domestic prices

$exuval_{it}(+)$- Export unit value index for country i at time t proxy for price of exports.

$pse_t(-)$- Support estimate by the OECD countries at time t.

$sub(-)$- Export subsidies proxied by the sum of development food aid and official export credits.

The data for PSE representing the amount of export subsidies offered during the period is taken from the OECD website and is measured by the total volume of exports of animal and animal products that has taken subsidy.

In light of the fact that the theoretical framework requires a simultaneous regression of the exports and price of export, test of endogeneity is undertaken to see whether it actually exists for the Sub-Saharan African case. To this effect the Hausman test for endogeneity was undertaken.

In order to do this we estimate the both the simultaneous and the OLS regressions and compare the coefficients. This is done by testing whether there is a systematic difference between the coefficients. Using the Hausman test we test the

Ho: Difference in coefficients is not systematic

chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 8.03
Prob>chi2 = 0.1548

With this result we don't reject the null hypothesis that the difference in coefficients is not systematic and the estimation could be done using the OLS.

The next test we need to check for is for the estimation of a random or fixed panel model. This test would be used to allow for variables that are fixed over time. But in this model, although there are variables that are fixed across individual countries like the subsidy variable (lnpse) and price of world exports (lnpxw) and World GDP (lnwgdp), there is no variable that is fixed over time. Therefore, by assumption the estimation of the model is made on a random panel model.

Table 4.3: Results of OLS Estimation of the Exports of Animal and Animal Products.

Variable	Coefficient	Standard Error	Z-statistics	P-Value
Dependent Variable: log of Exports of Animal and Animal Products				
Log of Price of World Exports	-0.823	0.538	-1.530	0.126
Log of CPI	-0.048	0.022	-2.190	0.029
Log of Export Subsidy	-0.301	0.304	-0.990	0.322
Log of Export Unit Value	0.299	0.110	2.730	0.006
Log of World GDP	1.265	0.546	2.310	0.021
Log of GDP	0.735	0.149	4.940	0.000
Constant	-24.544	7.296	-3.360	0.001
R-sq: within = 0.0429 between = 0.3814		Number of obs = 812 Number of groups = 42		

overall = 0.2405		
Wald chi2(5) = 63.39 Prob > chi2 = 0.0000	sigma_u 1.3170765 sigma_e 1.33013 rho .49506908	

Source: Results of Stata Software

Given this result however, further post estimation tests and adjustments are needed to align the estimation results with OLS assumptions. Therefore, the estimation results need to be checked of heteroscedasticiy, autocorrelation and multicollinearity, since the presence of these affects the estimation results and leads to wrong conclusions.

Therefore, the study corrected for heterscedasticity and first order autocorrelation. In addition to this a correlation matrix was generated to check for a strong multicollinearity among the explanatory variables. The table for the correlation matrix is presented below.

Table 4.4: Correlation Matrix for the Explanatory Variables.

	lnexuval	lngdp	lnwgdp	lnpxw	lncpi	lnsub	lnpse
lnexuval	1						
lngdp	0.0136	1					
lnwgdp	0.098	0.0956	1				
lnpxw	0.1074	0.0742	0.8163	1			
lncpi	-0.0612	-0.1476	0.3591	0.3039	1		
lnsub	0.0795	-0.0251	0.006	-0.0422	0.0111	1	
lnpse	-0.0862	-0.0971	-0.9894	-0.7883	-0.3606	0.0089	1

Source: Results of Stata Software

As can be seen in table 4.5 there is a strong correlation among world GDP (lnwgdp), world price of exports (lnpxw) and producer support estimate (lnpse). These three variables show strong correlation. Therefore it is important to remove two of the

variables in order to avoid multi-collinearity problem. Since the producer support estimate is a variable of concern log of world GDP and log of price of world exports were removed from the equation.

After having adjusted the estimation for heteroscedasiticity and autocorrelation the final result is presented in the following table;

Table 4.5: Results of Preis-Winston Estimation of the Exports of Animal and Animal Products with Panel-Corrected Standard Errors.

Variable	Coefficient	Panel-Corrected Standard Error	Z-statistics	P-Value
Dependent Variable: log of Exports of Animal and Animal Products				
Log of GDP	0.7346	0.0815	9.0100	0.0000
Log of Export Unit Value	0.4703	0.1037	4.5400	0.0000
Log of CPI	0.0424	0.0360	1.1800	0.2390
Log of Export Subsidy	-0.1288	0.1906	-0.6800	0.4990
Log of Producer Support Estimate	0.1773	0.6448	0.2800	0.7830
Constant	-11.1711	6.0093	-1.8600	0.0630
R^2	0.2554			
Estimated covariances = 903 Estimated autocorrelations = 1 Estimated coefficients = 6		Number of obs = 812 Number of groups = 42		
Wald chi2(5) = 129.03 Prob > chi2 = 0.0000		rho | .8076088		

Source: Results of Stata Software

This second model gives interesting results concerning the exports of animal and animal products. Compared to the GLS estimation above quite fewer variables are significant. These are the Export Unit Value (lnexuval) and the GDP variable (lngdp). The rest of the variables have not been found significant. This is an interesting result in that it indicates that exports of animal and animal products is affected by domestic capacity rather than World prices or world demand.

Given that the subsidy variable is not significant it is not feasible to do simulations by changing the values of export subsidies. Therefore, the

4.3 Comparison of the Results from the Two Models

As was seen in the above analysis the two models revealed different results. Although it is difficult to compare the two models as they are structurally different, its important to compare the results to see similarities.

The ATPSM model revealed that there is a significant increase in the exports of animal and animal products will be there given that there is a reduction in export subsidies. On the other hand the estimation of the exports model revealed that export subsidies are insignificant with respect to affecting exports of Sub-Saharan African countries.

The first result operates with the assumption that on static basis exports of Sub-Saharan African countries respond to the changes in export subsidies. This arises from the notion that international prices respond to changes in export subsidies and this increase in international prices would cause a change in exports in Sub-Saharan African exports. The exports model on the other hand reveals that exports of animal and animal products don't respond to international price changes and production capacity are the ones that strongly explains exports.

V. Conclusion and Policy Suggestions

5.1 Conclusion

This study was set out to test the impact of reducing or phasing out export subsidies on Sub-Saharan African exports of animal and animal products. In addition to this general objective the study also set out to see trends and developments in Sub-Saharan African export of animal and animal products along with the historical turnout and negotiation points pertaining to agriculture. In addition to that it also intended to see the elasticity of the export subsidies of OECD countries on the exports of animal and animal products of Sub-Saharan African countries.

Global trade in animal and animal products has been increasing steadily. Meat products take up a big share of this global trade followed by fish and leather products. Turning now to the Sub-Saharan Africa the growth in the exports of animal and animal products is much slower compared to the global growth with a slight fluctuation. Country wise Ethiopia, Namibia and Sudan have more than 10% of the total exports from Sub-Saharan Africa for the Period 1986 to 2005. For Sub-Saharan Africa meat products and skins have a great share. In the inter-temporal sense the share of Ethiopia has been declining and the share of Sudan has been increasing over the period in consideration. Another crucial point is whether Sub-Saharan African countries are net-importers or net-exporters. The status of Sub-Saharan African countries changes through time. For the year 1986-1990

only 38% of the countries are net importers. But it grows to 55% in 1991-1999 and 51% from 2000-2005.

Negotiation on agriculture in the WTO started with the agreement on agriculture and the Doha declaration in November 2001. The basic essence of the negotiations is that agricultural trade should be free and market oriented. A wide range of proposals and deliberations were forwarded which were supposed to be presented for decision in the 2003 Cancun Ministerial Meeting. It was not until July 2004 that a draft framework of agreement was signed. Given the Three sectors of export competition, namely export credits, food aid and exporting state trading enterprises. With regards to the export credits the agreement was that all export credits should be on commercial terms and all subsidized part should be eliminated. With respect to Food aid the notion is that it has to respond to demands by the recipient country and should be used to get rid of surpluses. And finally the point with exporting state trading enterprises should operate commercially and shouldn't affect global prices.

Moving on to the simulation analysis part of the study two models were used to simulate the effect of phasing out export subsides on the export of animal and animal products by Sub-Saharan Africa. The first model is a model developed by FAO and UNCTAD and is designed to simulate agricultural policy. It is a static partial equilibrium model taking import, exports, supply and demand equations. Simulation with this model revealed that exports of animal and animal products by Sub-Saharan African countries significantly improve with the reduction in export subsidies. The first optimist scenario simulates the 100 percent reduction in export subsidies and a 36% and 21% reduction in market access

and domestic support respectively. With this change in policy variables, global prices increases by 7%, consumption by developed countries increase while that of developing countries declines; production by the developed countries declines while that of the developing countries increases; imports takes the same direction as consumption. Exports of animal and animal products both by developed and developing countries increases with this scenario. SSA Exports increases by 7% under this scenario. The second scenario simulates the phasing out of only export subsidies totally. Global prices, production, consumption, imports and exports behave the same as the first scenario with a difference in magnitude. With a 100% phasing out of export subsidies exports by SSA increases by only 2%. At a static level this increase is very small.

The second model is based on an exports specification to estimate exports and its unit value simultaneously. The exogenous variables of the model include production capacity, domestic prices, income of partner countries, price of exports of partner countries. This model was developed by Goldstein and Khan (1978). To this model for the purpose of this study producer support estimates and export subsidy data proxied by development food aid and export credits by the OECD countries. The estimation is based on 812 observation comprised of 42 Sub-Saharan African countries and 21 years (1984-2004). After checking for endogeniety in the model the result of the test gave that the model doesn't require a simultaneous equation. Therefore, after estimating the equation and correcting for autocorrelation, heteroscedasticity and multicollinearity the results reveal that only the domestic production capacity variable and export unit value variable were significantly affecting the exports. This result goes with the notion by some that exports

in Sub-Saharan African countries respond to price changes very slowly because of supply constraints.

5.2 Policy Suggestions

As was seen in the descriptive analysis part negotiations in agriculture have had a bumpy road over the past two decades. Considering the slow progress in opening markets, the optimistic simulations are realistically speaking less likely to take place. And even if these were to take place the increase in exports for Sub-Saharan Africa is very limited. This calls for inward looking policies in enhancing production capacities and further improving institutions and infrastructure to facilitate the response of exports.

The fact that export unit value was not endogenous in the model shows that SSA is a price taker in global markets. Given this and the fact that increasingly more SSA countries have become net importers of animal and animal products, the importance of enhancing domestic production in order to meet both export and domestic consumption is magnified. This would reduce strains on foreign exchange reserves of SSA countries.

However this doesn't mean that we should do away with negotiations on multilateral or bilateral levels. The result of this study pertains only to one component of protection, export subsides. It is also important to see the response to the reductions in the other two components like market access and domestic support. This presents with the strategic tools to forward proposals. In other words SSA could concentrate on those

components that have a significant impact and use the rest that don't have that much impact to trade off.

In addition to the protection components further study is also required for agricultural products other than animal and animal products. The scenario for crops could reveal a different result.

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Annex I: Data Used in the Estimation of the Panel Data

countrycode	country	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
1	Angola	1984				875.3535	5027.507	19309000	118.5273			6.774628	8.522679	4.775143		5036	8.524367
1	Angola	1985	6.88E+09	7.60E-07	64.5374	833.4435	4897.76	20012000	113.2772	22.65219	4.167245	6.725566	8.496533	4.729838	-14.09058	6014	8.701845
1	Angola	1986	7.05E+09	6.86E-07	58.4877	793.54	4764.424	20676000	107.394	22.67675	4.068817	6.676504	8.468932	4.676504	-14.19197	6296	8.74767
1	Angola	1987	7.49E+09	6.91E-07	62.9025	720.98	4627.609	21421000	97.3573	22.73612	4.141586	6.580611	8.439795	4.578388	-14.18458	7571	8.93208
1	Angola	1988	7.96E+09	7.80E-07	64.6647	718.85	4487.454	22412000	111.3688	22.79705	4.169216	6.577652	8.40904	4.712847	-14.06447	6198	8.731982
1	Angola	1989	7.89E+09	8.63E-07	75.0095	681.51	4344.119	23247000	126.3149	22.7884	4.317615	6.524311	8.376578	4.838778	-13.96286	5968	8.694167
1	Angola	1990	8.09E+09	7.49E-07	83.1163	644.16	4197.797	23921000	144.5023	22.81328	4.420241	6.467947	8.342316	4.973296	-14.10386	6024	8.703506
1	Angola	1991	7.99E+09	1.39E-06	75.0727	606.82	4048.71	24299000	145.0169	22.80194	4.318457	6.408232	8.306153	4.976851	-13.48724	5200	8.556414
1	Angola	1992	7.60E+09	5.54E-06	74.6783	371.27	3897.108	24827000	136.0335	22.75125	4.31319	5.91693	8.26799	4.912901	-12.10321	9678	9.17761
1	Angola	1993	5.62E+09	0.000082	57.8728	532.15	3743.275	25253000	146.316	22.45022	4.058248	6.276926	8.227716	4.985768	-9.408939	7856	8.969033
1	Angola	1994	6.39E+09	0.000861	64.0113	494.8	3587.523	26086000	148.491	22.57749	4.15906	6.204154	8.185218	5.000524	-7.057782	6428	8.768418
1	Angola	1995	6.59E+09	0.02386	64.1748	457.45	3430.2	26817000	144.9738	22.60894	4.161611	6.125668	8.140374	4.976553	-3.735543	7701	8.949105
1	Angola	1996	7.24E+09	1.01311	91.0927	411.91	3264	27735000	162.1599	22.70237	4.511878	6.020805	8.090709	5.088583	0.013025	6093	8.714896
1	Angola	1997	7.88E+09	3.25705	69.8328	382.76	3097	28755000	162.4242	22.78745	4.246104	5.947408	8.038189	5.090211	1.180822	8297	9.023649
1	Angola	1998	8.42E+09	6.75606	44.578	345.73	2931	29454000	162.5781	22.85328	3.79724	5.845658	7.983099	5.091159	1.91044	6299	8.748146
1	Angola	1999	8.69E+09	23.5278	62.4895	311.37	2765	30369000	144.0425	22.88516	4.134998	5.740982	7.924796	4.970108	3.158183	6837	8.830104
1	Angola	2000	8.95E+09	100	100	274.55	2598.7	31583000	137.9905	22.91484	4.60517	5.615133	7.862767	4.927185	4.60517	6455	8.772611
1	Angola	2001	9.23E+09	252.586	86.1236	241.38	2598.7	32016000	154.6581	22.94578	4.455783	5.486372	7.862767	5.041217	5.531752	5979	8.696009
1	Angola	2002	1.06E+10	527.634	86.1892	18.18	2598.7	32606000	173.6552	23.07991	4.456545	2.900322	7.862767	5.157072	6.268403	5450	8.603371
1	Angola	2003	1.09E+10	1046.3	102.813	160.63	2598.7	33528000	153.7882	23.11382	4.632912	5.079103	7.862767	5.035576	6.953015	5536	8.619027
1	Angola	2004	1.21E+10	1510.85	129.067	154.45	2598.7	34369470	167.5051	23.21931	4.860332	5.03987	7.862767	5.121014	7.320428	7075	8.864323
2	Benin	1984	1.16E+09		65.4341	512.1357	5027.507	19309000	118.5273	20.87163	4.181044	6.23859	8.522679	4.775143		5036	8.524367
2	Benin	1985	1.22E+09		61.5975	450.6863	4897.76	20012000	113.2772	20.92117	4.120621	6.110772	8.496533	4.729838		6014	8.701845
2	Benin	1986	1.24E+09		71.4967	396.61	4764.424	20676000	107.394	20.93748	4.269651	5.982954	8.468932	4.676504		6296	8.74767
2	Benin	1987	1.23E+09		81.6232	359.57	4627.609	21421000	97.3573	20.92649	4.402113	5.884909	8.439795	4.578388		7571	8.93208
2	Benin	1988	1.30E+09		93.5619	322.5	4487.454	22412000	111.3688	20.98751	4.538623	5.776103	8.40904	4.712847		6198	8.731982
2	Benin	1989	1.29E+09	47.7224	83.187	210.44	4344.119	23247000	126.3149	20.97868	4.421091	5.349201	8.376578	4.838778	3.865401	5968	8.694167
2	Benin	1990	1.32E+09	48.2474	106.69	210.14	4197.797	23921000	144.5023	21.0028	4.669928	5.347774	8.342316	4.973296	3.876342	6024	8.703506
2	Benin	1991	1.38E+09	49.2605	98.0939	238.39	4048.71	24299000	145.0169	21.04433	4.585925	5.473908	8.306153	4.976851	3.897123	5200	8.556414
2	Benin	1992	1.43E+09	52.1669	68.7509	257.31	3897.108	24827000	136.0335	21.08249	4.23049	5.550282	8.26799	4.912901	3.954448	9678	9.17761
2	Benin	1993	1.47E+09	52.4278	83.939	587.03	3743.275	25253000	146.316	21.10556	4.43009	6.375076	8.227716	4.985768	3.959437	7856	8.969033
2	Benin	1994	1.55E+09	72.631	91.3416	1165.53	3587.523	26086000	148.491	21.16032	4.514606	7.060931	8.185218	5.000524	4.285392	6428	8.768418
2	Benin	1995	1.60E+09	83.0821	128.599	1576.06	3430.2	26817000	144.9738	21.19488	4.856699	7.362683	8.140374	4.976553	4.419829	7701	8.949105
2	Benin	1996	1.69E+09	87.1673	112.699	1327.11	3264	27735000	162.1599	21.24739	4.72472	7.190759	8.090709	5.088583	4.467829	6093	8.714896
2	Benin	1997	1.80E+09	90.4797	109.711	1159.97	3097	28755000	162.4242	21.31208	4.69785	7.056149	8.038189	5.090211	4.505126	8297	9.023649
2	Benin	1998	1.88E+09	95.6822	113.619	1076.77	2931	29454000	162.5781	21.35669	4.732851	6.981721	7.983099	5.091159	4.561032	6299	8.748146
2	Benin	1999	1.96E+09	95.9693	111.977	518.01	2765	30369000	144.0425	21.39724	4.718294	6.249995	7.924796	4.970108	4.564028	6837	8.830104
2	Benin	2000	2.08E+09	100	100	1707.57	2598.7	31583000	137.9905	21.45407	4.60517	7.442827	7.862767	4.927185	4.60517	6455	8.772611
2	Benin	2001	2.18E+09	104	100.207	10344.04	2598.7	32016000	154.6581	21.50258	4.607238	9.244165	7.862767	5.041217	4.644391	5979	8.696009
2	Benin	2002	2.28E+09	106.308	106.046	34587.45	2598.7	32606000	173.6552	21.5463	4.663873	10.45125	7.862767	5.157072	4.66634	5450	8.603371
2	Benin	2003	2.36E+09	108.967	129.298	58146.75	2598.7	33528000	153.7882	21.5826	4.86212	10.97073	7.862767	5.035576	4.691045	5536	8.619027
2	Benin	2004	2.43E+09	112.233	142.634	84718.44	2598.7	34369470	167.5051	21.61052	4.960282	11.34709	7.862767	5.121014	4.720577	7075	8.864323
3	Botswana	1984	1.56E+09	20.7416	58.8639	311.8315	5027.507	19309000	118.5273	21.16749	4.075228	5.742463	8.522679	4.775143	3.032141	5036	8.524367
3	Botswana	1985	1.70E+09	22.4217	52.9567	263.7842	4897.76	20012000	113.2772	21.25171	3.969475	5.575131	8.496533	4.729838	3.110029	6014	8.701845
3	Botswana	1986	1.83E+09	24.6639	62.3321	223.14	4764.424	20676000	107.394	21.32963	4.132476	5.407799	8.468932	4.676504	3.205341	6296	8.74767
3	Botswana	1987	2.05E+09	27.0809	82.1339	189.4	4627.609	21421000	97.3573	21.43847	4.408351	5.243861	8.439795	4.578388	3.298829	7571	8.93208
3	Botswana	1988	2.46E+09	29.3557	90.0515	153.88	4487.454	22412000	111.3688	21.6233	4.500382	5.036173	8.40904	4.712847	3.379487	6198	8.731982
3	Botswana	1989	2.79E+09	32.761	91.3815	121.92	4344.119	23247000	126.3149	21.74761	4.515043	4.803365	8.376578	4.838778	3.489239	5968	8.694167
3	Botswana	1990	2.93E+09	36.4957	104.724	65352.05	4197.797	23921000	144.5023	21.79942	4.651328	11.08754	8.342316	4.973296	3.597194	6024	8.703506
3	Botswana	1991	3.08E+09	41.0942	101.317	74820.39	4048.71	24299000	145.0169	21.84736	4.618254	11.22285	8.306153	4.976851	3.715867	5200	8.556414
3	Botswana	1992	3.12E+09	47.8747	101.479	74969.09	3897.108	24827000	136.0335	21.86158	4.619852	11.22483	8.26799	4.912901	3.868587	9678	9.17761
3	Botswana	1993	3.23E+09	54.7687	100.44	81109.62	3743.275	25253000	146.316	21.89451	4.60956	11.30356	8.227716	4.985768	4.003119	7856	8.969033
3	Botswana	1994	3.41E+09	60.5742	102.596	77925.19	3587.523	26086000	148.491	21.95107	4.630799	11.2635	8.185218	5.000524	4.103869	6428	8.768418
3	Botswana	1995	3.59E+09	66.9344	108.891	101219.6	3430.2	26817000	144.9738	22.00196	4.690347	11.52505	8.140374	4.976553	4.203713	7701	8.949105
3	Botswana	1996	3.80E+09	73.6948	105	88043.2	3264	27735000	162.1599	22.05694	4.65396	11.38558	8.090709	5.088583	4.299932	6093	8.714896
3	Botswana	1997	4.04E+09	80.2537	107.803	30.19	3097	28755000	162.4242	22.11904	4.680305	3.407511	8.038189	5.090211	4.385193	8297	9.023649
3	Botswana	1998	4.26E+09	85.4701	101.144	27.95	2931	29454000	162.5781	22.17153	4.616545	3.330417	7.983099	5.091159	4.448167	6299	8.748146
3	Botswana	1999	4.48E+09	92.1368	102.348	69342.07	2765	30369000	144.0425	22.22253	4.628379	11.14681	7.924796	4.970108	4.523274	6837	8.830104
3	Botswana	2000	4.85E+09	100	100	88582.13	2598.7	31583000	137.9905	22.30254	4.60517	11.39169	7.862767	4.927185	4.60517	6455	8.772611
3	Botswana	2001	5.13E+09	106.585	92.5502	111954	2598.7	32016000	154.6581	22.35805	4.527751	11.62584	7.862767	5.041217	4.668943	5979	8.696009
3	Botswana	2002	5.32E+09	115.103	91.5358	10.98	2598.7	32606000	173.6552	22.39476	4.51673	2.396075	7.862767	5.157072	4.745827	5450	8.603371
3	Botswana	2003	5.60E+09	125.761	124.156	45368.85	2598.7	33528000	153.7882	22.44616	4.821539	10.72258	7.862767	5.035576	4.834383	5536	8.619027
3	Botswana	2004	5.86E+09	134.487	137.572	15.02	2598.7	34369470	167.5051	22.49053	4.924148	2.709383	7.862767	5.121014	4.901467	7075	8.864323
4	Burkina Fa	1984	1.35E+09	63.7852	81.44	4447.282	5027.507	19309000	118.5273	21.02211	4.399867	8.400048	8.522679	4.775143	4.155521	5036	8.524367
4	Burkina Fa	1985	1.45E+09	70.6614	79.75	4209.927	4897.76	20012000	113.2772	21.09714	4.378897	8.345201	8.496533	4.729838	4.257899	6014	8.701845
4	Burkina Fa	1986	1.58E+09	69.6791	83.7494	3985.24	4764.424	20676000	107.394	21.18305	4.427829	8.290353	8.468932	4.676504	4.2439	6296	8.74767
4	Burkina Fa	1987	1.56E+09	59.2665	109.864	3778.8	4627.609	21421000	97.3573	21.16862	4.699243	8.237162	8.439795	4.578388	4.082044	7571	8.93208
4	Burkina Fa	1988	1.67E+09	64.5711	123.978	3547.37	4487.454	22412000	111.3688	21.23481	4.820104	8.173962	8.40904	4.712847	4.167767	6198	8.731982
4	Burkina Fa	1989	1.68E+09	64.4401	133.478	3365.94	4344.119	23247000	126.3149	21.24326	4.893937	8.121463	8.376578	4.838778	4.165736	5968	8.694167
4	Burkina Fa	1990	1.66E+09	65.4879	138.994	3159.51	4197.797	23921000	144.5023	21.22792	4.934431	8.058172	8.342316	4.973296	4.181865	6024	8.703506
4	Burkina Fa	1991	1.79E+09	66.4702	128.986	2953.08	4048.71	24299000	145.0169	21.30483	4.859704	7.990604	8.306153	4.976851	4.196754	5200	8.556414
4	Burkina Fa	1992	1.80E+09	62.5409	89.4274	2746.65	3897.108	24827000	136.0335	21.30981	4.493427	7.918137	8.26799	4.912901	4.135821	9678	9.17761
4	Burkina Fa	1993	1.89E+09	62.148	88.1401	2540.23	3743.275	25253000	146.316	21.36051	4.478928	7.84001	8.227716	4.985768	4.129519	7856	8.969033
4	Burkina Fa	1994	1.91E+09	77.5377	123.376	23697.31	3587.523	26086000	148.491	21.36947	4.815237	10.07312	8.185218	5.000524	4.350764	6428	8.768418
4	Burkina Fa	1995	1.99E+09	88.998	147.926	31382.35	3430.2	26817000	144.9738	21.41253	4.996712	10.354	8.140374	4.976553	4.488614	7701	8.949105
4	Burkina Fa	1996	2.13E+09	94.4335	140.919	25363.6	3264	27735000	162.1599	21.47832	4.948185	10.14107	8.090709	5.088583	4.547896	6093	8.714896
4	Burkina Fa	1997	2.24E+09	96.6601	128.885	21482.35	3097	28755000	162.4242	21.52901	4.858921	9.974987	8.038189	5.090211	4.571201	8297	9.023649
4	Burkina Fa	1998	2.27E+09	101.441	121.975	1535.39	2931	29454000	162.5781	21.54193	4.803816	7.33654	7.983099	5.091159	4.619477	6299	8.748146
4	Burkina Fa	1999	2.41E+09	100.327	109.345	22878.51	2765	30369000	144.0425	21.60302	4.694508	10.03795	7.924796	4.970108	4.608435	6837	8.830104
4	Burkina Fa	2000	2.56E+09	100	100	15141.75	2598.7	31583000	137.9905	21.66412	4.60517	9.625211	7.862767	4.927185	4.60517	6455	8.772611
4	Burkina Fa	2001	2.63E+09	104.715	106.514	14686.74	2598.7	32016000	154.6581	21.69173	4.668276	9.594701	7.862767	5.041217	4.651242	5979	8.696009
4	Burkina Fa	2002	2.76E+09	107.138	99.7164	9689.72	2598.7	32606000	173.6552	21.73957	4.60233	9.178821	7.862767	5.157072	4.674118	5450	8.603371
4	Burkina Fa	2003	2.76E+09	109.299	118.855	5883.68	2598.7	33528000	153.7882	21.73962	4.777905	8.679937	7.862767	5.035576	4.694088	5536	8.619027
4	Burkina Fa	2004		108.906	135.349	5313.4	2598.7	34369470	167.5051		4.907856	8.577987	7.862767	5.121014	4.690485	7075	8.864323
5	Burundi	1984	5.66E+08	17.1406	683.707	181.2361	5027.507	19309000	118.5273	20.15455	6.527529	5.1998	8.522679	4.775143	2.84145	5036	8.524367
5	Burundi	1985	6.35E+08	17.7927	678.019	199.9834	4897.76	20012000	113.2772	20.26981	6.519175	5.298234	8.496533	4.729838	2.878788	6014	8.701845
5	Burundi	1986	6.57E+08	18.0909	882.126	220.67	4764.424	20676000	107.394	20.30307	6.782335	5.396668	8.468932	4.676504	2.895409	6296	8.74767
5	Burundi	1987	6.88E+08	19.3777	616.355	172.33	4627.609	21421000	97.3573	20.34867	6.423823	5.149411	8.439795	4.578388	2.964123	7571	8.93208
5	Burundi	1988	7.00E+08	20.2471	766.168	195.41	4487.454	22412000	111.3688	20.36638	6.641401	5.2751	8.40904	4.712847	3.008012	6198	8.731982
5	Burundi	1989	6.99E+08	22.6084	638.704	83.75	4344.119	23247000	126.3149	20.36537	6.459441	4.427836	8.376578	4.838778	3.118321	5968	8.694167
5	Burundi	1990	7.52E+08	24.1914	494.969	170.14	4197.797	23921000	144.5023	20.43826	6.204495	5.136621	8.342316	4.973296	3.185997	6024	8.703506
5	Burundi	1991	7.76E+08	26.3679	501.121	157.53	4048.71	24299000	145.0169	20.46929	6.216847	5.059616	8.306153	4.976851	3.272147	5200	8.556414
5	Burundi	1992	7.96E+08	27.7728	320.978	144.89	3897.108	24827000	136.0335	20.4951	5.771373	4.975975	8.26799	4.912901	3.324057	9678	9.17761
5	Burundi	1993	7.53E+08	30.4705	332.59	120.95	3743.275	25253000	146.316	20.43987	5.806911	4.795377	8.227716	4.985768	3.416759	7856	8.969033
5	Burundi	1994	6.96E+08	34.9536	464.66	123.39	3587.523	26086000	148.491	20.3608	6.141306	4.81535	8.185218	5.000524	3.554022	6428	8.768418
5	Burundi	1995	6.48E+08	41.721	494.453	142.19	3430.2	26817000	144.9738	20.28905	6.203452	4.957164	8.140374	4.976553	3.731005	7701	8.949105
5	Burundi	1996	6.19E+08	52.7422	302.654	146.7	3264	27735000	162.1599	20.24357	5.71259	4.988389	8.090709	5.088583	3.965416	6093	8.714896
5	Burundi	1997	6.21E+08	69.1566	304.397	151.21	3097	28755000	162.4242	20.24677	5.718333	5.01867	8.038189	5.090211	4.236373	8297	9.023649
5	Burundi	1998	6.46E+08	77.8199	236.972	401.63	2931	29454000	162.5781	20.28602	5.467942	5.995531	7.983099	5.091159	4.354397	6299	8.748146
5	Burundi	1999	6.45E+08	80.4464	150.739	468.25	2765	30369000	144.0425	20.28392	5.01555	6.149003	7.924796	4.970108	4.387591	6837	8.830104
5	Burundi	2000	6.32E+08	100	100	324.64	2598.7	31583000	137.9905	20.2644	4.60517	5.782717	7.862767	4.927185	4.60517	6455	8.772611

countrycode	country	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
5	Burundi	2001	6.50E+08	109.255	65.8888	408.19	2598.7	32016000	154.6581	20.29208	4.187969	6.011733	7.862767	5.041217	4.693685	5979	8.696009
5	Burundi	2002	6.86E+08	107.803	58.5575	324.16	2598.7	32606000	173.6552	20.34653	4.070009	5.781237	7.862767	5.157072	4.680305	5450	8.603371
5	Burundi	2003	6.75E+08	119.331	47.2785	412.3	2598.7	33528000	153.7882	20.33057	3.856056	6.021751	7.862767	5.035576	4.781901	5536	8.619027
5	Burundi	2004	7.08E+08	128.875	66.5371	243.11	2598.7	34369470	167.5051	20.37836	4.19776	5.493514	7.862767	5.121014	4.858843	7075	8.864323
6	Cameroon	1984	9.15E+09	47.1377	133.907	3550.749	5027.507	19309000	118.5273	22.93643	4.897146	8.174913	8.522679	4.775143	3.853073	5036	8.524367
6	Cameroon	1985	9.96E+09	51.1079	128.293	4139.233	4897.76	20012000	113.2772	23.02162	4.854317	8.328266	8.496533	4.729838	3.933939	6014	8.701845
6	Cameroon	1986	1.06E+10	55.0781	135.111	4825.25	4764.424	20676000	107.394	23.08488	4.906096	8.481618	8.468932	4.676504	4.008752	6296	8.74767
6	Cameroon	1987	1.03E+10	62.3252	127.571	6536.84	4627.609	21421000	97.3573	23.05546	4.848673	8.785209	8.439795	4.578388	4.132366	7571	8.93208
6	Cameroon	1988	9.60E+09	63.3965	118.947	7525.02	4487.454	22412000	111.3688	22.98477	4.778678	8.925989	8.40904	4.712847	4.149409	6198	8.731982
6	Cameroon	1989	9.29E+09	62.3252	111.212	10040.03	4344.119	23247000	126.3149	22.9526	4.711438	9.214335	8.376578	4.838778	4.132366	5968	8.694167
6	Cameroon	1990	8.76E+09	63.0184	120.334	7315	4197.797	23921000	144.5023	22.89295	4.790271	8.897682	8.342316	4.973296	4.143427	6024	8.703506
6	Cameroon	1991	8.38E+09	63.0814	138.637	4343.31	4048.71	24299000	145.0169	22.84956	4.931859	8.376392	8.306153	4.976851	4.144426	5200	8.556414
6	Cameroon	1992	7.88E+09	63.0184	123.975	417.1	3897.108	24827000	136.0335	22.78798	4.82008	6.033326	8.26799	4.912901	4.143427	9678	9.17761
6	Cameroon	1993	7.64E+09	60.6867	128.865	1266.68	3743.275	25253000	146.316	22.75722	4.858766	7.144155	8.227716	4.985768	4.105724	7856	8.969033
6	Cameroon	1994	7.73E+09	68.3939	115.804	1867.99	3587.523	26086000	148.491	22.76775	4.751899	7.532618	8.185218	5.000524	4.225284	6428	8.768418
6	Cameroon	1995	8.08E+09	86.0395	131.722	3994	3430.2	26817000	144.9738	22.81308	4.880693	8.292548	8.140374	4.976553	4.454806	7701	8.949105
6	Cameroon	1996	8.30E+09	89.137	118.873	1894.73	3264	27735000	162.1599	22.83929	4.778056	7.546832	8.090709	5.088583	4.490174	6093	8.714896
6	Cameroon	1997	8.66E+09	92.7916	117.303	5118.87	3097	28755000	162.4242	22.88236	4.76476	8.540689	8.038189	5.090211	4.530356	8297	9.023649
6	Cameroon	1998	9.04E+09	96.4104	105.569	21280.11	2931	29454000	162.5781	22.92478	4.659365	9.965528	7.983099	5.091159	4.568614	6299	8.748146
6	Cameroon	1999	9.43E+09	99.2063	90.8682	5984.61	2765	30369000	144.0425	22.96686	4.50941	8.696946	7.924796	4.970108	4.597201	6837	8.830104
6	Cameroon	2000	9.83E+09	100	100	2849.33	2598.7	31583000	137.9905	23.0091	4.60517	7.954839	7.862767	4.927185	4.60517	6455	8.772611
6	Cameroon	2001	1.03E+10	102.8	88.1317	2304.67	2598.7	32016000	154.6581	23.05622	4.478832	7.742693	7.862767	5.041217	4.632785	5979	8.696009
6	Cameroon	2002	1.08E+10	105.678	91.7633	1937.77	2598.7	32606000	173.6552	23.09872	4.519212	7.569293	7.862767	5.157072	4.660397	5450	8.603371
6	Cameroon	2003	1.12E+10	106.312	112.587	2178.69	2598.7	33528000	153.7882	23.14116	4.723726	7.686479	7.862767	5.035576	4.666378	5536	8.619027
6	Cameroon	2004	1.17E+10	106.631	122.671	2146.34	2598.7	34369470	167.5051	23.18101	4.809506	7.671519	7.862767	5.121014	4.669374	7075	8.864323
7	Cape Verd	1984		82.4074	37.8458	992.3759	5027.507	19309000	118.5273		3.63352	6.900102	8.522679	4.775143	4.411675	5036	8.524367
7	Cape Verd	1985		86.8519	34.1022	939.288	4897.76	20012000	113.2772		3.529362	6.845122	8.496533	4.729838	4.464204	6014	8.701845
7	Cape Verd	1986	2.09E+08	96.2963	74.2898	889.04	4764.424	20676000	107.394	19.15558	4.307974	6.790142	8.468932	4.676504	4.56743	6296	8.74767
7	Cape Verd	1987	2.15E+08	100	88.0656	723.7	4627.609	21421000	97.3573	19.18732	4.478082	6.584377	8.439795	4.578388	4.60517	7571	8.93208
7	Cape Verd	1988	2.30E+08	100	93.3574	705.72	4487.454	22412000	111.3688	19.25136	4.536435	6.559218	8.40904	4.712847	4.60517	6198	8.731982
7	Cape Verd	1989	2.37E+08	100	89.3257	425.37	4344.119	23247000	126.3149	19.28165	4.492289	6.052959	8.376578	4.838778	4.60517	5968	8.694167
7	Cape Verd	1990	2.36E+08	100	101.769	587.86	4197.797	23921000	144.5023	19.27796	4.622705	6.376489	8.342316	4.973296	4.60517	6024	8.703506
7	Cape Verd	1991	2.38E+08	102.5	104.092	528.94	4048.71	24299000	145.0169	19.28791	4.645275	6.270875	8.306153	4.976851	4.629863	5200	8.556414
7	Cape Verd	1992	2.42E+08	113.5	113.008	470.01	3897.108	24827000	136.0335	19.30257	4.727458	6.152754	8.26799	4.912901	4.731803	9678	9.17761
7	Cape Verd	1993	2.57E+08	105.8	107.093	411.08	3743.275	25253000	146.316	19.36459	4.673697	6.018788	8.227716	4.985768	4.661551	7856	8.969033
7	Cape Verd	1994	2.74E+08	103.4	113.264	352.15	3587.523	26086000	148.491	19.42719	4.729722	5.864057	8.185218	5.000524	4.638605	6428	8.768418
7	Cape Verd	1995	2.94E+08	108.4	125.836	293.22	3430.2	26817000	144.9738	19.50028	4.83498	5.680923	8.140374	4.976553	4.685828	7701	8.949105
7	Cape Verd	1996	3.06E+08	106	123.845	234.3	3264	27735000	162.1599	19.53767	4.819031	5.456603	8.090709	5.088583	4.663439	6093	8.714896
7	Cape Verd	1997	3.27E+08	108.6	118.496	149.45	3097	28755000	162.4242	19.60549	4.774879	5.006962	8.038189	5.090211	4.687671	8297	9.023649
7	Cape Verd	1998	3.53E+08	104.4	117.539	557.6	2931	29454000	162.5781	19.68289	4.76677	6.323642	7.983099	5.091159	4.64823	6299	8.748146
7	Cape Verd	1999	3.85E+08	104.4	117.043	80.41	2765	30369000	144.0425	19.76893	4.762541	4.387138	7.924796	4.970108	4.64823	6837	8.830104
7	Cape Verd	2000	4.11E+08	100	100	33.05	2598.7	31583000	137.9905	19.83479	4.60517	3.498022	7.862767	4.927185	4.60517	6455	8.772611
7	Cape Verd	2001	4.28E+08	103.763	99.75	73.04	2598.7	32016000	154.6581	19.87483	4.602667	4.291007	7.862767	5.041217	4.642109	5979	8.696009
7	Cape Verd	2002	4.50E+08	105.682	106.804	161.77	2598.7	32606000	173.6552	19.92451	4.670995	5.086175	7.862767	5.157072	4.660435	5450	8.603371
7	Cape Verd	2003	4.81E+08	106.918	121.659	68.59	2598.7	33528000	153.7882	19.99061	4.801222	4.228147	7.862767	5.035576	4.672062	5536	8.619027
7	Cape Verd	2004	5.01E+08	104.897	131.008	87.37	2598.7	34369470	167.5051	20.03138	4.875258	4.470152	7.862767	5.121014	4.652979	7075	8.864323
8	Central Afr	1984	7.13E+08	71.001	0.27264	3.611037	5027.507	19309000	118.5273	20.38534	-1.299603	1.283995	8.522679	4.775143	4.262694	5036	8.524367
8	Central Afr	1985	7.41E+08	78.402	0.312579	2.837713	4897.76	20012000	113.2772	20.42332	-1.162898	1.042998	8.496533	4.729838	4.361849	6014	8.701845
8	Central Afr	1986	7.65E+08	80.064	0.333987	2.23	4764.424	20676000	107.394	20.45549	-1.096653	0.802002	8.468932	4.676504	4.382826	6296	8.74767
8	Central Afr	1987	7.33E+08	74.561	0.351539	2.46	4627.609	21421000	97.3573	20.41224	-1.045435	0.900161	8.439795	4.578388	4.311617	7571	8.93208
8	Central Afr	1988	7.46E+08	71.605	0.357731		4487.454	22412000	111.3688	20.43083	-1.027974		8.40904	4.712847	4.271165	6198	8.731982
8	Central Afr	1989	7.67E+08	72.17	0.383303	2.9	4344.119	23247000	126.3149	20.45783	-0.95893	1.064711	8.376578	4.838778	4.279025	5968	8.694167
8	Central Afr	1990	7.43E+08	71.903	0.398239	3.13	4197.797	23921000	144.5023	20.42654	-0.920703	1.141033	8.342316	4.973296	4.275318	6024	8.703506
8	Central Afr	1991	7.31E+08	70.356	0.323781	3.35	4048.71	24299000	145.0169	20.4103	-1.127688	1.20896	8.306153	4.976851	4.253568	5200	8.556414
8	Central Afr	1992	6.84E+08	69.374			3897.108	24827000	136.0335	20.3439			8.26799	4.912901	4.239512	9678	9.17761
8	Central Afr	1993	6.87E+08	67.351		918.97	3743.275	25253000	146.316	20.34725		6.823254	8.227716	4.985768	4.209918	7856	8.969033
8	Central Afr	1994	7.20E+08	83.9		615.81	3587.523	26086000	148.491	20.39508		6.422938	8.185218	5.000524	4.429626	6428	8.768418
8	Central Afr	1995	7.72E+08	100		1205.59	3430.2	26817000	144.9738	20.46461		7.094724	8.140374	4.976553	4.60517	7701	8.949105
8	Central Afr	1996	7.41E+08	103.72		499.03	3264	27735000	162.1599	20.42379		6.212666	8.090709	5.088583	4.641695	6093	8.714896
8	Central Afr	1997	7.81E+08	105.4		379.29	3097	28755000	162.4242	20.47543		5.938301	8.038189	5.090211	4.657763	8297	9.023649
8	Central Afr	1998	8.17E+08	103.41		584.23	2931	29454000	162.5781	20.52136		6.370295	7.983099	5.091159	4.638702	6299	8.748146
8	Central Afr	1999	8.47E+08	101.95	102.501	1187.16	2765	30369000	144.0425	20.55673	4.629872	7.079319	7.924796	4.970108	4.624483	6837	8.830104
8	Central Afr	2000	8.66E+08	105.21	100	224.17	2598.7	31583000	137.9905	20.57947	4.60517	5.412405	7.862767	4.927185	4.655958	6455	8.772611
8	Central Afr	2001	8.79E+08	108.75	103.338	109.83	2598.7	32016000	154.6581	20.59435	4.638005	4.698934	7.862767	5.041217	4.689052	5979	8.696009
8	Central Afr	2002	8.72E+08	112.44	103.242	22.62	2598.7	32606000	173.6552	20.58632	4.637076	3.118834	7.862767	5.157072	4.72242	5450	8.603371
8	Central Afr	2003	8.34E+08		160.381	501.63	2598.7	33528000	153.7882	20.54122	5.077552	6.217863	7.862767	5.035576		5536	8.619027
8	Central Afr	2004	8.44E+08		159.026	89.79	2598.7	34369470	167.5051	20.55414	5.069068	4.497474	7.862767	5.121014		7075	8.864323
9	Chad	1984	8.04E+08	62.5987	78.3787	116.7218	5027.507	19309000	118.5273	20.50498	4.361552	4.759793	8.522679	4.775143	4.136744	5036	8.524367
9	Chad	1985	9.84E+08	65.8246	72.6062	111.5357	4897.76	20012000	113.2772	20.70672	4.28505	4.714345	8.496533	4.729838	4.186994	6014	8.701845
9	Chad	1986	9.41E+08	57.23	77.9453	106.58	4764.424	20676000	107.394	20.66238	4.356007	4.668896	8.468932	4.676504	4.047078	6296	8.74767
9	Chad	1987	9.16E+08	53.8108	87.2281	101.95	4627.609	21421000	97.3573	20.6354	4.468526	4.624483	8.439795	4.578388	3.985474	7571	8.93208
9	Chad	1988	1.05E+09	62.1294	96.0932	95.54	4487.454	22412000	111.3688	20.77391	4.565319	4.559545	8.40904	4.712847	4.129219	6198	8.731982
9	Chad	1989	1.11E+09	59.0999	80.981	92.69	4344.119	23247000	126.3149	20.8294	4.394215	4.529261	8.376578	4.838778	4.079229	5968	8.694167
9	Chad	1990	1.05E+09	59.4647	109.652	88.07	4197.797	23921000	144.5023	20.76917	4.697312	4.478132	8.342316	4.973296	4.085383	6024	8.703506
9	Chad	1991	1.16E+09	61.8798	108.823	83.44	4048.71	24299000	145.0169	20.87156	4.689723	4.424128	8.306153	4.976851	4.125194	5200	8.556414
9	Chad	1992	1.25E+09	59.5283	105.267	78.81	3897.108	24827000	136.0335	20.94581	4.6565	4.36704	8.26799	4.912901	4.086452	9678	9.17761
9	Chad	1993	1.05E+09	55.3613	91.9928	69.13	3743.275	25253000	146.316	20.76993	4.52171	4.235989	8.227716	4.985768	4.013881	7856	8.969033
9	Chad	1994	1.18E+09	78.2256	98.6527	74.62	3587.523	26086000	148.491	20.88511	4.591606	4.312408	8.185218	5.000524	4.359597	6428	8.768418
9	Chad	1995	1.17E+09	85.4223	119.423	72.08	3430.2	26817000	144.9738	20.87996	4.782672	4.277777	8.140374	4.976553	4.447607	7701	8.949105
9	Chad	1996	1.19E+09	95.0751	129.88	85.61	3264	27735000	162.1599	20.89885	4.866611	4.449802	8.090709	5.088583	4.554667	6093	8.714896
9	Chad	1997	1.26E+09	100.399	118.138	91.1	3097	28755000	162.4242	20.95152	4.771853	4.511958	8.038189	5.090211	4.609152	8297	9.023649
9	Chad	1998	1.34E+09	104.716	124.759	96.59	2931	29454000	162.5781	21.01452	4.826384	4.570475	7.983099	5.091159	4.651252	6299	8.748146
9	Chad	1999	1.34E+09	96.3391	110.651	102.08	2765	30369000	144.0425	21.0124	4.706381	4.625757	7.924796	4.970108	4.567874	6837	8.830104
9	Chad	2000	1.33E+09	100	100	107.74	2598.7	31583000	137.9905	21.00868	4.60517	4.679721	7.862767	4.927185	4.60517	6455	8.772611
9	Chad	2001	1.47E+09	112.4	111.475	20.54	2598.7	32016000	154.6581	21.10751	4.7138	3.022374	7.862767	5.041217	4.722064	5979	8.696009
9	Chad	2002	1.59E+09	118.245	119.773	104.25	2598.7	32606000	173.6552	21.18382	4.785598	4.646792	7.862767	5.157072	4.772759	5450	8.603371
9	Chad	2003	1.83E+09	116.091	140.424	124.7	2598.7	33528000	153.7882	21.3261	4.944666	4.825911	7.862767	5.035576	4.754375	5536	8.619027
9	Chad	2004	2.38E+09	109.823	174.886	130.36	2598.7	34369470	167.5051	21.59134	5.164135	4.8703	7.862767	5.121014	4.69887	7075	8.864323
10	Comoros	1984	1.46E+08		59.704	163.4241	5027.507	19309000	118.5273	18.79555	4.089399	5.096349	8.522679	4.775143		5036	8.524367
10	Comoros	1985	1.51E+08	62.5489	73.4053	150.349	4897.76	20012000	113.2772	18.83327	4.295996	5.012959	8.496533	4.729838	4.135949	6014	8.701845
10	Comoros	1986	1.53E+08	67.0856	90.8502	138.32	4764.424	20676000	107.394	18.84577	4.509212	4.92957	8.468932	4.676504	4.205969	6296	8.74767
10	Comoros	1987	1.59E+08	69.2477	102.848	127.14	4627.609	21421000	97.3573	18.88373	4.633252	4.845289	8.439795	4.578388	4.23769	7571	8.93208
10	Comoros	1988	1.63E+08	69.4486	111.929	116.15	4487.454	22412000	111.3688	18.90897	4.717865	4.754882	8.40904	4.712847	4.240587	6198	8.731982
10	Comoros	1989	1.58E+08	72.5321	105.365	90.92	4344.119	23247000	126.3149	18.87752	4.657431	4.50998	8.376578	4.838778	4.284029	5968	8.694167
10	Comoros	1990	1.66E+08	67.172	125.588	94.25	4197.797	23921000	144.5023	18.92757	4.833007	4.545951	8.342316	4.973296	4.207256	6024	8.703506
10	Comoros	1991	1.57E+08	68.3139	111.86	83.3	4048.71	24299000	145.0169	18.86838	4.717248	4.422449	8.306153	4.976851	4.224113	5200	8.556414
10	Comoros	1992	1.66E+08	67.3575	117.008	72.35	3897.108	24827000	136.0335	18.9266	4.762242	4.281516	8.26799	4.912901	4.210014	9678	9.17761
10	Comoros	1993	1.71E+08	68.7046	97.9315	61.39	3743.275	25253000	146.316	18.95508	4.584268	4.117247	8.227716	4.985768	4.229816	7856	8.969033
10	Comoros	1994	1.61E+08	86.0869	73.3591	55.8	3587.523	26086000	148.491	18.898	4.295367	4.021774	8.185218	5.000524	4.455357	6428	8.768418
10	Comoros	1995	1.69E+08	88.7987	112.218	96.27	3430.2	26817000	144.9738	18.94785	4.720443	4.567157	8.140374	4.976553	4.486372	7701	8.949105
10	Comoros	1996	1.67E+08	90.9298	112.074	113.11	3264	27735000	162.1599	18.93603	4.719159	4.728361	8.090709	5.088583	4.510088	6093	8.714896
10	Comoros	1997	1.71E+08	92.2938	99.0481	44.38	3097	28755000	162.4242	18.9583	4.595606	3.792789	8.038189	5.090211	4.524977	8297	9.023649

countrycode	country	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
10	Comoros	1998	1.80E+08	93.4013	90.6598	36.99	2931	29454000	162.5781	19.00623	4.507114	3.610648	7.983099	5.091159	4.536905	6299	8.748146
10	Comoros	1999	1.83E+08	94.4287	93.1665	39.29	2765	30369000	144.0425	19.02381	4.534388	3.67097	7.924796	4.970108	4.547845	6837	8.830104
10	Comoros	2000	1.90E+08	100	100	121.84	2598.7	31583000	137.9905	19.06015	4.60517	4.802709	7.862767	4.927185	4.60517	6455	8.772611
10	Comoros	2001	1.94E+08	105.6	128.411	164.74	2598.7	32016000	154.6581	19.08326	4.855236	5.104369	7.862767	5.041217	4.659658	5979	8.696009
10	Comoros	2002	1.95E+08	109.402	137.24	165.36	2598.7	32606000	173.6552	19.08696	4.921731	5.108125	7.862767	5.157072	4.695029	5450	8.603371
10	Comoros	2003	2.01E+08	113.449	239.526	65.19	2598.7	33528000	153.7882	19.11944	5.478662	4.177306	7.862767	5.035576	4.731353	5536	8.619027
10	Comoros	2004	2.06E+08	118.555	184.888	71.67	2598.7	34369470	167.5051	19.14441	5.21975	4.272072	7.862767	5.121014	4.775377	7075	8.864323
11	Congo, De	1984	7.19E+09	2.84E-10	171.635	1361.094	5027.507	19309000	118.5273	22.69521	5.14537	7.216044	8.522679	4.775143	-21.98265	5036	8.524367
11	Congo, De	1985	7.12E+09	3.51E-10	155.648	1274.038	4897.76	20012000	113.2772	22.68603	5.047597	7.149947	8.496533	4.729838	-21.76899	6014	8.701845
11	Congo, De	1986	7.49E+09	5.07E-10	167.295	1192.55	4764.424	20676000	107.394	22.73618	5.119759	7.083849	8.468932	4.676504	-21.40157	6296	8.74767
11	Congo, De	1987	7.99E+09	9.07E-10	154.19	1074.57	4627.609	21421000	97.3573	22.80191	5.038186	6.979676	8.439795	4.578388	-20.8212	7571	8.93208
11	Congo, De	1988	7.97E+09	1.55E-09	171.873	1036.96	4487.454	22412000	111.3688	22.7986	5.146756	6.944048	8.40904	4.712847	-20.28417	6198	8.731982
11	Congo, De	1989	7.86E+09	3.17E-09	186.03	966.32	4344.119	23247000	126.3149	22.78499	5.225908	6.873495	8.376578	4.838778	-19.5709	5968	8.694167
11	Congo, De	1990	7.41E+09	5.74E-09	225.361	897.45	4197.797	23921000	144.5023	22.72626	5.417704	6.799557	8.342316	4.973296	-18.97594	6024	8.703506
11	Congo, De	1991	6.83E+09	1.29E-07	182.556	827.71	4048.71	24299000	145.0169	22.644	5.207057	6.718663	8.306153	4.976851	-15.86046	5200	8.556414
11	Congo, De	1992	6.16E+09	5.47E-06	231.595	756.17	3897.108	24827000	136.0335	22.54147	5.44499	6.628266	8.26799	4.912901	-12.11586	9678	9.17761
11	Congo, De	1993	5.25E+09	0.000114	225.274	692.48	3743.275	25253000	146.316	22.3809	5.417317	6.540279	8.227716	4.985768	-9.077594	7856	8.969033
11	Congo, De	1994	5.04E+09	0.027262	264.408	627.9	3587.523	26086000	148.491	22.34043	5.577493	6.442381	8.185218	5.000524	-3.602258	6428	8.768418
11	Congo, De	1995	5.08E+09	0.174998	268.054	570.11	3430.2	26817000	144.9738	22.3476	5.591188	6.345829	8.140374	4.976553	-1.742981	7701	8.949105
11	Congo, De	1996	5.12E+09	1.03676	250.233	8.75	3264	27735000	162.1599	22.35679	5.522392	2.169054	8.090709	5.088583	0.0361	6093	8.714896
11	Congo, De	1997	4.73E+09	3.0949	211.888	453.75	3097	28755000	162.4242	22.27797	5.356058	6.117547	8.038189	5.090211	1.129756	8297	9.023649
11	Congo, De	1998	4.74E+09	3.99703	276.81	396.08	2931	29454000	162.5781	22.27932	5.623332	5.981616	7.983099	5.091159	1.385552	6299	8.748146
11	Congo, De	1999	4.58E+09	15.3844	110.875	330.35	2765	30369000	144.0425	22.24576	4.708404	5.800153	7.924796	4.970108	2.733354	6837	8.830104
11	Congo, De	2000	4.25E+09	100	100	304.82	2598.7	31583000	137.9905	22.17104	4.60517	5.719721	7.862767	4.927185	4.60517	6455	8.772611
11	Congo, De	2001	4.14E+09	413.719	89.0093	258.74	2598.7	32016000	154.6581	22.14367	4.488741	5.555824	7.862767	5.041217	6.025187	5979	8.696009
11	Congo, De	2002	4.27E+09	571.322	110.594	168.51	2598.7	32606000	173.6552	22.17517	4.705866	5.126995	7.862767	5.157072	6.347953	5450	8.603371
11	Congo, De	2003	4.52E+09	644.635	139.172	166.61	2598.7	33528000	153.7882	22.2306	4.93571	5.115656	7.862767	5.035576	6.468684	5536	8.619027
11	Congo, De	2004	4.82E+09	670.905	158.149	110.72	2598.7	34369470	167.5051	22.29545	5.063538	4.707005	7.862767	5.121014	6.508627	7075	8.864323
12	Cote d Ivo	1984	1.03E+10	44.5321	90.7304	7701.189	5027.507	19309000	118.5273	23.05949	4.507893	8.94913	8.522679	4.775143	3.79621	5036	8.524367
12	Cote d Ivo	1985	1.07E+10	45.3126	98.4814	7083.922	4897.76	20012000	113.2772	23.09337	4.589868	8.865583	8.496533	4.729838	3.813585	6014	8.701845
12	Cote d Ivo	1986	1.11E+10	48.4107	109.446	6516.13	4764.424	20676000	107.394	23.1272	4.695431	8.782036	8.468932	4.676504	3.879721	6296	8.74767
12	Cote d Ivo	1987	1.09E+10	51.789	103.991	6019.25	4627.609	21421000	97.3573	23.11067	4.644304	8.702718	8.439795	4.578388	3.947178	7571	8.93208
12	Cote d Ivo	1988	1.12E+10	55.3804	98.2203	5522.37	4487.454	22412000	111.3688	23.1402	4.587213	8.616563	8.40904	4.712847	4.014226	6198	8.731982
12	Cote d Ivo	1989	1.18E+10	55.9265	84.6847	5025.47	4344.119	23247000	126.3149	23.18859	4.438935	8.522274	8.376578	4.838778	4.024038	5968	8.694167
12	Cote d Ivo	1990	1.18E+10	55.5584	83.7821	4524.11	4197.797	23921000	144.5023	23.18802	4.428219	8.417176	8.342316	4.973296	4.017435	6024	8.703506
12	Cote d Ivo	1991	1.18E+10	56.4474	83.6238	4031.69	4048.71	24299000	145.0169	23.1874	4.426328	8.301941	8.306153	4.976851	4.033309	5200	8.556414
12	Cote d Ivo	1992	1.17E+10	58.8182	94.7229	3480.53	3897.108	24827000	136.0335	23.18459	4.550956	8.15494	8.26799	4.912901	4.074451	9678	9.17761
12	Cote d Ivo	1993	1.19E+10	60.3474	96.8232	3011.1	3743.275	25253000	146.316	23.19973	4.572886	8.01006	8.227716	4.985768	4.100118	7856	8.969033
12	Cote d Ivo	1994	1.20E+10	79.7793	102.948	2524.93	3587.523	26086000	148.491	23.21108	4.634224	7.833969	8.185218	5.000524	4.379264	6428	8.768418
12	Cote d Ivo	1995	1.24E+10	85.9223	122.834	2043.23	3430.2	26817000	144.9738	23.24458	4.810834	7.622287	8.140374	4.976553	4.453444	7701	8.949105
12	Cote d Ivo	1996	1.35E+10	88.9296	129.231	1548.39	3264	27735000	162.1599	23.32368	4.861601	7.344971	8.090709	5.088583	4.487845	6093	8.714896
12	Cote d Ivo	1997	8.54E+09	92.6371	116.443	11923.03	3097	28755000	162.4242	22.86794	4.757402	9.386227	8.038189	5.090211	4.52869	8297	9.023649
12	Cote d Ivo	1998	9.01E+09	96.8083	119.855	9716.46	2931	29454000	162.5781	22.92146	4.786283	9.181577	7.983099	5.091159	4.572733	6299	8.748146
12	Cote d Ivo	1999	9.29E+09	97.5287	116.819	15061.83	2765	30369000	144.0425	22.95239	4.760626	9.619919	7.924796	4.970108	4.580147	6837	8.830104
12	Cote d Ivo	2000	9.51E+09	100	100	15753.69	2598.7	31583000	137.9905	22.97532	4.60517	9.66483	7.862767	4.927185	4.60517	6455	8.772611
12	Cote d Ivo	2001	9.92E+09	104.355	104.935	18645.78	2598.7	32016000	154.6581	23.01816	4.653341	9.833375	7.862767	5.041217	4.647799	5979	8.696009
12	Cote d Ivo	2002	1.04E+10	107.569	130.242	15009.69	2598.7	32606000	173.6552	23.06382	4.869394	9.616451	7.862767	5.157072	4.678133	5450	8.603371
12	Cote d Ivo	2003	1.09E+10	111.116	147.315	24990.01	2598.7	33528000	153.7882	23.11557	4.992573	10.12623	7.862767	5.035576	4.710575	5536	8.619027
12	Cote d Ivo	2004	1.14E+10	112.737	148.974	1440.08	2598.7	34369470	167.5051	23.15916	5.003772	7.272454	7.862767	5.121014	4.725058	7075	8.864323
13	Eritrea	1984				479.9265	5027.507	19309000	118.5273			6.173633	8.522679	4.775143		5036	8.524367
13	Eritrea	1985				452.5102	4897.76	20012000	113.2772			6.11481	8.496533	4.729838		6014	8.701845
13	Eritrea	1986				426.66	4764.424	20676000	107.394			6.055987	8.468932	4.676504		6296	8.74767
13	Eritrea	1987				403.06	4627.609	21421000	97.3573			5.999085	8.439795	4.578388		7571	8.93208
13	Eritrea	1988				379.46	4487.454	22412000	111.3688			5.938749	8.40904	4.712847		6198	8.731982
13	Eritrea	1989				355.87	4344.119	23247000	126.3149			5.874566	8.376578	4.838778		5968	8.694167
13	Eritrea	1990				332.27	4197.797	23921000	144.5023			5.805948	8.342316	4.973296		6024	8.703506
13	Eritrea	1991				308.67	4048.71	24299000	145.0169			5.732273	8.306153	4.976851		5200	8.556414
13	Eritrea	1992	3.85E+08	43.0072	65.7792	285.07	3897.108	24827000	136.0335	19.76746	4.186304	5.652735	8.26799	4.912901	3.761368	9678	9.17761
13	Eritrea	1993	4.23E+08	43.4809	101.538	261.47	3743.275	25253000	146.316	19.86233	4.620433	5.566319	8.227716	4.985768	3.772322	7856	8.969033
13	Eritrea	1994	5.31E+08	49.1893	109.896	237.86	3587.523	26086000	148.491	20.09085	4.699534	5.471682	8.185218	5.000524	3.895676	6428	8.768418
13	Eritrea	1995	5.46E+08	55.0799	114.244	214.27	3430.2	26817000	144.9738	20.11805	4.738337	5.367237	8.140374	4.976553	4.008785	7701	8.949105
13	Eritrea	1996	5.99E+08	60.6789	112.902	191.23	3264	27735000	162.1599	20.21037	4.72652	5.253477	8.090709	5.088583	4.105596	6093	8.714896
13	Eritrea	1997	6.42E+08	65.3732	109.452	244.52	3097	28755000	162.4242	20.28064	4.695486	5.499297	8.038189	5.090211	4.180112	8297	9.023649
13	Eritrea	1998	6.67E+08	71.2698	99.2641	30.12	2931	29454000	162.5781	20.31895	4.597784	3.40519	7.983099	5.091159	4.266473	6299	8.748146
13	Eritrea	1999	6.66E+08	78.8425	97.4076	354.37	2765	30369000	144.0425	20.31678	4.578904	5.870342	7.924796	4.970108	4.367452	6837	8.830104
13	Eritrea	2000	5.89E+08	100	100	389.37	2598.7	31583000	137.9905	20.19422	4.60517	5.96453	7.862767	4.927185	4.60517	6455	8.772611
13	Eritrea	2001	6.40E+08	107.749	101.742	469.59	2598.7	32016000	154.6581	20.27737	4.62244	6.15186	7.862767	5.041217	4.679804	5979	8.696009
13	Eritrea	2002	6.19E+08	133.412	100.828	117.73	2598.7	32606000	173.6552	20.24307	4.613416	4.768394	7.862767	5.157072	4.893442	5450	8.603371
13	Eritrea	2003	6.55E+08	161.225	118.891	599.04	2598.7	33528000	153.7882	20.30059	4.778207	6.395329	7.862767	5.035576	5.082801	5536	8.619027
13	Eritrea	2004	6.67E+08	189.251	152.571	640.56	2598.7	34369470	167.5051	20.31791	5.02763	6.462343	7.862767	5.121014	5.243074	7075	8.864323
14	Ethiopia	1984	5.21E+09	37.7258	115.991	197969.3	5027.507	19309000	118.5273	22.37454	4.753512	12.19587	8.522679	4.775143	3.630344	5036	8.524367
14	Ethiopia	1985	4.70E+09	44.6537	115.991	185179.8	4897.76	20012000	113.2772	22.27035	4.753512	12.12908	8.496533	4.729838	3.798937	6014	8.701845
14	Ethiopia	1986	5.10E+09	46.7207	115.991	173217.6	4764.424	20676000	107.394	22.35222	4.753512	12.0623	8.468932	4.676504	3.844187	6296	8.74767
14	Ethiopia	1987	5.85E+09	42.3035	115.991	264200.3	4627.609	21421000	97.3573	22.48948	4.753512	12.48446	8.439795	4.578388	3.74487	7571	8.93208
14	Ethiopia	1988	5.83E+09	43.219	115.991	257175.6	4487.454	22412000	111.3688	22.48589	4.753512	12.45751	8.40904	4.712847	3.76628	6198	8.731982
14	Ethiopia	1989	5.78E+09	47.3626	115.991	239377.7	4344.119	23247000	126.3149	22.47714	4.753512	12.3858	8.376578	4.838778	3.857833	5968	8.694167
14	Ethiopia	1990	5.93E+09	49.8071	115.991	222523.4	4197.797	23921000	144.5023	22.50399	4.753512	12.31279	8.342316	4.973296	3.908158	6024	8.703506
14	Ethiopia	1991	5.46E+09	60.2178	114.006	165560.6	4048.71	24299000	145.0169	22.42134	4.736251	12.01709	8.306153	4.976851	4.097968	5200	8.556414
14	Ethiopia	1992	4.93E+09	72.856	120.475	163955.4	3897.108	24827000	136.0335	22.31845	4.791442	12.00735	8.26799	4.912901	4.288485	9678	9.17761
14	Ethiopia	1993	5.53E+09	80.1331	101.89	97111.86	3743.275	25253000	146.316	22.43306	4.623894	11.48362	8.227716	4.985768	4.383689	7856	8.969033
14	Ethiopia	1994	5.59E+09	81.0676	109.939	86346.65	3587.523	26086000	148.491	22.44377	4.699926	11.36613	8.185218	5.000524	4.395283	6428	8.768418
14	Ethiopia	1995	5.89E+09	91.8936	156.52	75595.66	3430.2	26817000	144.9738	22.49649	5.053184	11.23315	8.140374	4.976553	4.520631	7701	8.949105
14	Ethiopia	1996	6.64E+09	92.7383	124.126	64664.6	3264	27735000	162.1599	22.61637	4.821297	11.07697	8.090709	5.088583	4.529781	6093	8.714896
14	Ethiopia	1997	6.84E+09	86.7842	132.142	54093.68	3097	28755000	162.4242	22.64649	4.883877	10.89847	8.038189	5.090211	4.463425	8297	9.023649
14	Ethiopia	1998	6.54E+09	89.9084	147.428	62531.93	2931	29454000	162.5781	22.601	4.99334	11.04343	7.983099	5.091159	4.498791	6299	8.748146
14	Ethiopia	1999	6.99E+09	94.1985	120.596	42137.84	2765	30369000	144.0425	22.66747	4.792446	10.6487	7.924796	4.970108	4.545404	6837	8.830104
14	Ethiopia	2000	7.36E+09	100	100	56178.46	2598.7	31583000	137.9905	22.71883	4.60517	10.93629	7.862767	4.927185	4.60517	6455	8.772611
14	Ethiopia	2001	7.90E+09	94.7863	94.96	20500.02	2598.7	32016000	154.6581	22.79005	4.553456	9.928181	7.862767	5.041217	4.551625	5979	8.696009
14	Ethiopia	2002	7.87E+09	87.9389	83.8551	12448.59	2598.7	32606000	173.6552	22.78665	4.42909	9.429362	7.862767	5.157072	4.476642	5450	8.603371
14	Ethiopia	2003	7.61E+09	101.218	84.3457	12277.34	2598.7	33528000	153.7882	22.75313	4.434924	9.41551	7.862767	5.035576	4.617277	5536	8.619027
14	Ethiopia	2004	8.46E+09	109.938	81.2953	392.27	2598.7	34369470	167.5051	22.85801	4.398088	5.971951	7.862767	5.121014	4.699917	7075	8.864323
15	Gabon	1984		55.8168	160.542	1051.379	5027.507	19309000	118.5273		5.078556	6.957858	8.522679	4.775143	4.022075	5036	8.524367
15	Gabon	1985	2.54E+09	59.9882	171.254	1098.642	4897.76	20012000	113.2772	21.65687	5.143148	7.00183	8.496533	4.729838	4.094148	6014	8.701845
15	Gabon	1986	2.52E+09	63.6961	108.115	1148.03	4764.424	20676000	107.394	21.64913	4.683196	7.045803	8.468932	4.676504	4.154123	6296	8.74767
15	Gabon	1987	2.06E+09	63.1002	135.072	1180.61	4627.609	21421000	97.3573	21.44445	4.905808	7.073787	8.439795	4.578388	4.144724	7571	8.93208
15	Gabon	1988	2.41E+09	57.6046	131.453	1011.42	4487.454	22412000	111.3688	21.60202	4.878649	6.919111	8.40904	4.712847	4.053602	6198	8.731982
15	Gabon	1989	2.50E+09	61.4449	130.055	943.12	4344.119	23247000	126.3149	21.63803	4.867958	6.849194	8.376578	4.838778	4.118141	5968	8.694167
15	Gabon	1990	2.64E+09	66.2121	166.429	1277.49	4197.797	23921000	144.5023	21.69514	5.114569	7.152652	8.342316	4.973296	4.192863	6024	8.703506
15	Gabon	1991	2.78E+09	69.7876	150.698	1339.56	4048.71	24299000	145.0169	21.74538	5.015278	7.200097	8.306153	4.976851	4.245456	5200	8.556414
15	Gabon	1992	2.69E+09	66.3446	148.265	1383.07	3897.108	24827000	136.0335	21.71117	4.999001	7.232061	8.26799	4.912901	4.194862	9678	9.17761
15	Gabon	1993	2.75E+09	60.4517	109.24	1470.39	3743.275	25253000	146.316	21.73555	4.693547	7.293283	8.227716	4.985768	4.101845	7856	8.969033
15	Gabon	1994	2.87E+09	88.6826	126.474	1506.03	3587.523	26086000	148.491	21.77672	4.840037	7.317232	8.185218	5.000524	4.485064	6428	8.768418

...ry	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
15 Gabon	1995	2.98E+09	91.6978	142.535	1535.69	3430.2	26817000	144.9738	21.81479	4.959588	7.336735	8.140374	4.976553	4.518498	7701	8.949105
15 Gabon	1996	3.10E+09	97.3031	167.507	1586.55	3264	27735000	162.1599	21.85542	5.121025	7.369317	8.090709	5.088583	4.578653	6093	8.714896
15 Gabon	1997	3.30E+09	99.3308	148.978	1633.55	3097	28755000	162.4242	21.9184	5.003798	7.398511	8.038189	5.090211	4.598456	8297	9.023649
15 Gabon	1998	3.37E+09	101.367	104.532	1695.34	2931	29454000	162.5781	21.93746	4.649493	7.435638	7.983099	5.091159	4.618748	6299	8.748146
15 Gabon	1999	3.43E+09	98.5729	103.769	1926.15	2765	30369000	144.0425	21.95197	4.642167	7.563279	7.924796	4.970108	4.590796	6837	8.830104
15 Gabon	2000	3.50E+09	100	100	2321.69	2598.7	31583000	137.9905	21.97595	4.60517	7.750051	7.862767	4.927185	4.60517	6455	8.772611
15 Gabon	2001	3.59E+09	101.984	141.067	2037.21	2598.7	32016000	154.6581	22.00253	4.949235	7.619337	7.862767	5.041217	4.624816	5979	8.696009
15 Gabon	2002	3.70E+09	102.074	154.432	2276.62	2598.7	32606000	173.6552	22.03055	5.039754	7.730447	7.862767	5.157072	4.625698	5450	8.603371
15 Gabon	2003	3.82E+09	105.649	191.378	2085	2598.7	33528000	153.7882	22.06374	5.254251	7.642524	7.862767	5.035576	4.660122	5536	8.619027
15 Gabon	2004	3.95E+09	107.744	216.539	2275.53	2598.7	34369470	167.5051	22.09754	5.377771	7.729968	7.862767	5.121014	4.679758	7075	8.864323
16 Gambia TI	1984	2.43E+08	22.2278	46.349	3351.807	5027.507	19309000	118.5273	19.30725	3.8362	8.117255	8.522679	4.775143	3.101344	5036	8.524367
16 Gambia TI	1985	2.38E+08	26.2999	63.204	2566.105	4897.76	20012000	113.2772	19.28896	4.146368	7.850144	8.496533	4.729838	3.269565	6014	8.701845
16 Gambia TI	1986	2.38E+08	41.1753	66.7975	1964.58	4764.424	20676000	107.394	19.28594	4.201666	7.583034	8.468932	4.676504	3.717839	6296	8.74767
16 Gambia TI	1987	2.45E+08	50.8634	83.013	1779.48	4627.609	21421000	97.3573	19.31697	4.418997	7.484076	8.439795	4.578388	3.929144	7571	8.93208
16 Gambia TI	1988	2.47E+08	56.8099	96.0249	1594.39	4487.454	22412000	111.3688	19.3263	4.564608	7.374247	8.40904	4.712847	4.039711	6198	8.731982
16 Gambia TI	1989	2.55E+08	61.5107	96.6021	1403.96	4344.119	23247000	126.3149	19.3585	4.570601	7.247052	8.376578	4.838778	4.119211	5968	8.694167
16 Gambia TI	1990	2.65E+08	69.0344	104.071	130.47	4197.797	23921000	144.5023	19.39496	4.645073	7.871143	8.342316	4.973296	4.234605	6024	8.703506
16 Gambia TI	1991	2.66E+08	74.9579	100.889	1039.14	4048.71	24299000	145.0169	19.39711	4.614021	6.946149	8.306153	4.976851	4.316926	5200	8.556414
16 Gambia TI	1992	2.74E+08	79.3804	107.04	854.04	3897.108	24827000	136.0335	19.42756	4.673203	6.749978	8.26799	4.912901	4.374251	9678	9.17761
16 Gambia TI	1993	2.88E+08	82.5557	109.573	658.24	3743.275	25253000	146.316	19.47859	4.696591	6.48957	8.227716	4.985768	4.413473	7856	8.969033
16 Gambia TI	1994	2.89E+08	85.8579	108.404	483.87	3587.523	26086000	148.491	19.48008	4.685865	6.181816	8.185218	5.000524	4.452693	6428	8.768418
16 Gambia TI	1995	2.91E+08	89.9791	113.055	298.78	3430.2	26817000	144.9738	19.48877	4.727874	5.699708	8.140374	4.976553	4.499578	7701	8.949105
16 Gambia TI	1996	2.97E+08	91.8686	113.458	73.51	3264	27735000	162.1599	19.51054	4.731433	4.297421	8.090709	5.088583	4.52036	6093	8.714896
16 Gambia TI	1997	3.17E+08	94.4409	113.073	64.02	3097	28755000	162.4242	19.57381	4.728034	4.159195	8.038189	5.090211	4.547974	8297	9.023649
16 Gambia TI	1998	3.27E+08	95.4798	111.095	13.51	2931	29454000	162.5781	19.60429	4.710386	2.60343	7.983099	5.091159	4.558915	6299	8.748146
16 Gambia TI	1999	3.52E+08	99.108	108.267	289.56	2765	30369000	144.0425	19.67847	4.6846	5.668363	7.924796	4.970108	4.59621	6837	8.830104
16 Gambia TI	2000	3.71E+08	100	100	348.57	2598.7	31583000	137.9905	19.73106	4.60517	5.853839	7.862767	4.927185	4.60517	6455	8.772611
16 Gambia TI	2001	3.99E+08	104.5	93.8498	304.24	2598.7	32016000	154.6581	19.80338	4.541696	5.717817	7.862767	5.041217	4.649187	5979	8.696009
16 Gambia TI	2002	3.83E+08	113.487	85.7908	190.71	2598.7	32606000	173.6552	19.76464	4.451912	5.250754	7.862767	5.157072	4.731688	5450	8.603371
16 Gambia TI	2003	4.12E+08	132.78	79.064	536.09	2598.7	33528000	153.7882	19.83696	4.370258	6.284302	7.862767	5.035576	4.888694	5536	8.619027
16 Gambia TI	2004	4.44E+08	151.635	87.4186	85.09	2598.7	34369470	167.5051	19.91114	4.470708	4.443709	7.862767	5.121014	5.021476	7075	8.864323
17 Ghana	1984	2.94E+09	2.26523	66.6117	3894.789	5027.507	19309000	118.5273	21.79996	4.19888	8.267395	8.522679	4.775143	0.817676	5036	8.524367
17 Ghana	1985	2.96E+09	2.49868	73.8529	3643.872	4897.76	20012000	113.2772	21.80704	4.302075	8.200802	8.496533	4.729838	0.915763	6014	8.701845
17 Ghana	1986	2.98E+09	3.11249	130.795	3409.12	4764.424	20676000	107.394	21.81547	4.873631	8.13421	8.468932	4.676504	1.135423	6296	8.74767
17 Ghana	1987	3.01E+09	4.35173	124.869	3189.51	4627.609	21421000	97.3573	21.82553	4.827265	8.067622	8.439795	4.578388	1.470573	7571	8.93208
17 Ghana	1988	3.05E+09	5.7164	112.134	2985.04	4487.454	22412000	111.3688	21.83753	4.719695	8.001369	8.40904	4.712847	1.743339	6198	8.731982
17 Ghana	1989	3.09E+09	7.15828	92.8313	2773.81	4344.119	23247000	126.3149	21.85185	4.530784	7.927977	8.376578	4.838778	1.96827	5968	8.694167
17 Ghana	1990	3.15E+09	9.82539	98.8056	2562.58	4197.797	23921000	144.5023	21.86893	4.593154	7.84877	8.342316	4.973296	2.28497	6024	8.703506
17 Ghana	1991	3.21E+09	11.6008	101.899	2351.34	4048.71	24299000	145.0169	21.88933	4.623982	7.762741	8.306153	4.976851	2.451074	5200	8.556414
17 Ghana	1992	3.29E+09	12.7633	97.886	2062.67	3897.108	24827000	136.0335	21.91368	4.583804	7.631756	8.26799	4.912901	2.546574	9678	9.17761
17 Ghana	1993	3.39E+09	15.949	91.4593	1859.72	3743.275	25253000	146.316	21.94277	4.515894	7.528181	8.227716	4.985768	2.769396	7856	8.969033
17 Ghana	1994	3.50E+09	19.9155	98.7082	1588.2	3587.523	26086000	148.491	21.97637	4.592168	7.370357	8.185218	5.000524	2.991498	6428	8.768418
17 Ghana	1995	3.64E+09	31.7676	112.206	1504.05	3430.2	26817000	144.9738	22.01542	4.720336	7.315917	8.140374	4.976553	3.458447	7701	8.949105
17 Ghana	1996	3.81E+09	46.5713	114.167	1300.17	3264	27735000	162.1599	22.06043	4.737662	7.17025	8.090709	5.088583	3.840985	6093	8.714896
17 Ghana	1997	3.97E+09	59.5647	114.258	1087.19	3097	28755000	162.4242	22.10095	4.738459	6.991352	8.038189	5.090211	4.087063	8297	9.023649
17 Ghana	1998	4.18E+09	71.0607	118.359	2774.37	2931	29454000	162.5781	22.15232	4.773722	7.928179	7.983099	5.091159	4.263535	6299	8.748146
17 Ghana	1999	4.36E+09	79.8722	102.676	2764.46	2765	30369000	144.0425	22.19561	4.631578	7.924601	7.924796	4.970108	4.380428	6837	8.830104
17 Ghana	2000	4.52E+09	100	100	3161.86	2598.7	31583000	137.9905	22.2317	4.60517	8.058916	7.862767	4.927185	4.60517	6455	8.772611
17 Ghana	2001	4.51E+09	133	98.8282	1465.52	2598.7	32016000	154.6581	22.22878	4.593383	7.289966	7.862767	5.041217	4.890349	5979	8.696009
17 Ghana	2002	4.44E+09	154.147	109.874	1919.38	2598.7	32606000	173.6552	22.21415	4.699334	7.559758	7.862767	5.157072	5.037907	5450	8.603371
17 Ghana	2003	4.39E+09	169.87	125.019	90.96	2598.7	33528000	153.7882	22.20211	4.828466	4.51042	7.862767	5.035576	5.135034	5536	8.619027
17 Ghana	2004		180.912	131.493	96.35	2598.7	34369470	167.5051		4.878953	4.567987	7.862767	5.121014	5.198011	7075	8.864323
18 Guinea	1984				642.9563	5027.507	19309000	118.5273			6.466077	8.522679	4.775143		5036	8.524367
18 Guinea	1985				580.4166	4897.76	20012000	113.2772			6.363746	8.496533	4.729838		6014	8.701845
18 Guinea	1986	1.77E+09	19.9467	150.897	523.96	4764.424	20676000	107.394	21.2948	5.016597	6.261415	8.468932	4.676504	2.993064	6296	8.74767
18 Guinea	1987	1.83E+09	27.6571	153.022	490.78	4627.609	21421000	97.3573	21.32885	5.030582	6.195996	8.439795	4.578388	3.319882	7571	8.93208
18 Guinea	1988	1.94E+09	31.8063	141.798	451.33	4487.454	22412000	111.3688	21.38648	4.954403	6.112199	8.40904	4.712847	3.459664	6198	8.731982
18 Guinea	1989	1.99E+09	37.7113	157.83	291.23	4344.119	23247000	126.3149	21.41211	5.061519	5.674113	8.376578	4.838778	3.62996	5968	8.694167
18 Guinea	1990	2.09E+09	46.4993	173.574	310.87	4197.797	23921000	144.5023	21.45859	5.156604	5.739375	8.342316	4.973296	3.839437	6024	8.703506
18 Guinea	1991	2.09E+09	58.1721	134.333	358.03	4048.71	24299000	145.0169	21.46049	4.900322	5.880617	8.306153	4.976851	4.063406	5200	8.556414
18 Guinea	1992	2.14E+09	76.9993	132.285	197.17	3897.108	24827000	136.0335	21.48233	4.884959	5.284066	8.26799	4.912901	4.343796	9678	9.17761
18 Guinea	1993	2.22E+09	73.7718	131.02	291.66	3743.275	25253000	146.316	21.52185	4.87535	5.675589	8.227716	4.985768	4.300976	7856	8.969033
18 Guinea	1994	2.32E+09	76.8456	151.391	258.46	3587.523	26086000	148.491	21.56359	5.019866	5.554741	8.185218	5.000524	4.341798	6428	8.768418
18 Guinea	1995	2.44E+09	81.149	133.586	1652.11	3430.2	26817000	144.9738	21.6169	4.894745	7.409809	8.140374	4.976553	4.396287	7701	8.949105
18 Guinea	1996	2.57E+09	83.5834	124.018	1568.04	3264	27735000	162.1599	21.66686	4.820426	7.357582	8.090709	5.088583	4.425845	6093	8.714896
18 Guinea	1997	2.68E+09	85.1715	125.798	1429.24	3097	28755000	162.4242	21.70704	4.834677	7.264898	8.038189	5.090211	4.444667	8297	9.023649
18 Guinea	1998	2.80E+09	89.5153	111.451	1335.89	2931	29454000	162.5781	21.75234	4.713585	7.197353	7.983099	5.091159	4.49441	6299	8.748146
18 Guinea	1999	2.92E+09	93.633	106.425	1338.71	2765	30369000	144.0425	21.79421	4.66744	7.199462	7.924796	4.970108	4.539383	6837	8.830104
18 Guinea	2000	3.00E+09	100	100	1309.95	2598.7	31583000	137.9905	21.82054	4.60517	7.177744	7.862767	4.927185	4.60517	6455	8.772611
18 Guinea	2001	3.12E+09	105.4	103.937	919.21	2598.7	32016000	154.6581	21.8594	4.643785	6.823514	7.862767	5.041217	4.657763	5979	8.696009
18 Guinea	2002	3.22E+09	108.562	100.561	551.95	2598.7	32606000	173.6552	21.89398	4.610765	6.313457	7.862767	5.157072	4.687321	5450	8.603371
18 Guinea	2003	3.27E+09	122.566	109.18	796.19	2598.7	33528000	153.7882	21.90851	4.692998	6.679838	7.862767	5.035576	4.80865	5536	8.619027
18 Guinea	2004	3.36E+09	144.016	107.66	108.41	2598.7	34369470	167.5051	21.93382	4.678978	4.68592	7.862767	5.121014	4.969924	7075	8.864323
19 Guinea-Bis	1984			149.318	232.504	5027.507	19309000	118.5273		5.006078	5.448907	8.522679	4.775143		5036	8.524367
19 Guinea-Bis	1985			155.972	214.1908	4897.76	20012000	113.2772		5.049676	5.366867	8.496533	4.729838		6014	8.701845
19 Guinea-Bis	1986			68.3691	197.32	4764.424	20676000	107.394		4.224921	5.284827	8.468932	4.676504		6296	8.74767
19 Guinea-Bis	1987	1.46E+08	1.45878	162.747	185.26	4627.609	21421000	97.3573	18.8015	5.092197	5.22176	8.439795	4.578388	0.377601	7571	8.93208
19 Guinea-Bis	1988	1.53E+08	2.33816	138.397	135.12	4487.454	22412000	111.3688	18.84771	4.930126	4.906163	8.40904	4.712847	0.849364	6198	8.731982
19 Guinea-Bis	1989	1.63E+08	4.22711	144.026	156.7	4344.119	23247000	126.3149	18.90982	4.969994	5.054333	8.376578	4.838778	1.441519	5968	8.694167
19 Guinea-Bis	1990	1.73E+08	5.62214	140.239	130.07	4197.797	23921000	144.5023	18.97117	4.943348	4.868073	8.342316	4.973296	1.726712	6024	8.703506
19 Guinea-Bis	1991	1.82E+08	8.8605	115.934	142.71	4048.71	24299000	145.0169	19.01784	4.753021	4.960814	8.306153	4.976851	2.181603	5200	8.556414
19 Guinea-Bis	1992	1.85E+08	15.0092	100.217	130.35	3897.108	24827000	136.0335	19.03557	4.607338	4.870223	8.26799	4.912901	2.708663	9678	9.17761
19 Guinea-Bis	1993	1.88E+08	22.2679	124.087	122.47	3743.275	25253000	146.316	19.05361	4.820983	4.807866	8.227716	4.985768	3.103146	7856	8.969033
19 Guinea-Bis	1994	1.94E+08	25.6525	115.51	121.73	3587.523	26086000	148.491	19.08459	4.749357	4.801805	8.185218	5.000524	3.244641	6428	8.768418
19 Guinea-Bis	1995	2.02E+08	37.2989	113.177	109.38	3430.2	26817000	144.9738	19.12544	4.728953	4.694828	8.140374	4.976553	3.618964	7701	8.949105
19 Guinea-Bis	1996	2.26E+08	58.4098	115.402	120.24	3264	27735000	162.1599	19.2348	4.748422	4.78949	8.090709	5.088583	4.067484	6093	8.714896
19 Guinea-Bis	1997	2.40E+08	87.0891	106.15	119.49	3097	28755000	162.4242	19.29795	4.664853	4.783233	8.038189	5.090211	4.466932	8297	9.023649
19 Guinea-Bis	1998	1.74E+08	94.0562	89.4478	102.68	2931	29454000	162.5781	18.97499	4.493655	4.631618	7.983099	5.091159	4.543892	6299	8.748146
19 Guinea-Bis	1999	1.86E+08	92.081	102.371	118.01	2765	30369000	144.0425	19.04265	4.628603	4.77077	7.924796	4.970108	4.522669	6837	8.830104
19 Guinea-Bis	2000	1.99E+08	100	100	117.26	2598.7	31583000	137.9905	19.10843	4.60517	4.764394	7.862767	4.927185	4.60517	6455	8.772611
19 Guinea-Bis	2001	2.01E+08	103.3	80.119	116.52	2598.7	32016000	154.6581	19.11838	4.383513	4.758063	7.862767	5.041217	4.637638	5979	8.696009
19 Guinea-Bis	2002	2.12E+08	106.709	86.2654	22.02	2598.7	32606000	173.6552	19.17003	4.457428	3.091951	7.862767	5.157072	4.670105	5450	8.603371
19 Guinea-Bis	2003	2.13E+08	108.416	101.458	115.03	2598.7	33528000	153.7882	19.17799	4.619645	4.745193	7.862767	5.035576	4.685976	5536	8.619027
19 Guinea-Bis	2004	2.20E+08	109.284	123.024	25	2598.7	34369470	167.5051	19.20756	4.812379	3.218876	7.862767	5.121014	4.69395	7075	8.864323
20 Kenya	1984	6.77E+09	18.5905	114.906	3934.917	5027.507	19309000	118.5273	22.63634	4.744114	8.277645	8.522679	4.775143	2.922651	5036	8.524367
20 Kenya	1985	7.12E+09	20.5239	100.905	10005.32	4897.76	20012000	113.2772	22.68635	4.61418	9.210873	8.496533	4.729838	3.02159	6014	8.701845
20 Kenya	1986	7.52E+09	21.7137	110.821	25440.56	4764.424	20676000	107.394	22.74066	4.707916	10.1441	8.468932	4.676504	3.077943	6296	8.74767
20 Kenya	1987	7.89E+09	23.2009	100.315	29278.31	4627.609	21421000	97.3573	22.78818	4.608315	10.2846	8.439795	4.578388	3.144191	7571	8.93208
20 Kenya	1988	8.29E+09	25.7292	105.553	36043.48	4487.454	22412000	111.3688	22.83829	4.659213	10.49248	8.40904	4.712847	3.247627	6198	8.731982
20 Kenya	1989	8.71E+09	29.1924	98.3363	2983.69	4344.119	23247000	126.3149	22.8879	4.588393	8.000916	8.376578	4.838778	3.373909	5968	8.694167
20 Kenya	1990	9.08E+09	22.7477	92.9645	11821.9	4197.797	23921000	144.5023	22.92911	4.532218	9.377709	8.342316	4.973296	3.124464	6024	8.703506
20 Kenya	1991	9.27E+09	27.2062	93.6986	12800.44	4048.71	24299000	145.0169	22.9497	4.540083	9.457234	8.306153	4.976851	3.303445	5200	8.556414

countrycode	country	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
20	Kenya	1992	9.31E+09	34.6335	92.7951	24615.52	3897.108	24827000	136.0335	22.95449	4.530394	10.11113	8.26799	4.912901	3.544822	9678	9.17761
20	Kenya	1993	9.33E+09	50.565	73.133	34115.76	3743.275	25253000	146.316	22.95693	4.29228	10.43751	8.227716	4.985768	3.923259	7856	8.969033
20	Kenya	1994	9.62E+09	65.1277	87.5459	1963.96	3587.523	26086000	148.491	22.98682	4.472163	7.582718	8.185218	5.000524	4.17635	6428	8.768418
20	Kenya	1995	1.01E+10	66.14	105.576	1724.98	3430.2	26817000	144.9738	23.03388	4.659431	7.452971	8.140374	4.976553	4.191774	7701	8.949105
20	Kenya	1996	1.06E+10	72.0027	103.961	22533.88	3264	27735000	162.1599	23.07919	4.644016	10.02278	8.090709	5.088583	4.276704	6093	8.714896
20	Kenya	1997	1.06E+10	80.5871	114.042	18860.55	3097	28755000	162.4242	23.08179	4.736567	9.844828	8.038189	5.090211	4.389338	8297	9.023649
20	Kenya	1998	1.10E+10	85.9991	114.54	27698.65	2931	29454000	162.5781	23.11632	4.740924	10.22914	7.983099	5.091159	4.454337	6299	8.748146
20	Kenya	1999	1.12E+10	90.9462	99.0642	19677.06	2765	30369000	144.0425	23.14296	4.595768	9.887209	7.924796	4.970108	4.510268	6837	8.830104
20	Kenya	2000	1.13E+10	100	100	16988.37	2598.7	31583000	137.9905	23.14589	4.60517	9.740284	7.862767	4.927185	4.60517	6455	8.772611
20	Kenya	2001	1.18E+10	105.757	103.135	22567.29	2598.7	32016000	154.6581	23.1942	4.636039	10.02426	7.862767	5.041217	4.661144	5979	8.696009
20	Kenya	2002	1.19E+10	107.832	104.695	6093.06	2598.7	32606000	173.6552	23.19922	4.651052	8.714906	7.862767	5.157072	4.680574	5450	8.603371
20	Kenya	2003	1.22E+10	114.949	107.48	13459.76	2598.7	33528000	153.7882	23.22829	4.677305	9.50746	7.862767	5.035576	4.744489	5536	8.619027
20	Kenya	2004	1.27E+10	124.375	105.131	24388.51	2598.7	34369470	167.5051	23.26595	4.655207	10.10187	7.862767	5.121014	4.823301	7075	8.864323
21	Lesotho	1984	3.86E+08	17.5095	89.5397	438.517	5027.507	19309000	118.5273	19.77015	4.494682	6.083399	8.522679	4.775143	2.862744	5036	8.524367
21	Lesotho	1985	4.07E+08	19.8386	66.2779	430.9736	4897.76	20012000	113.2772	19.82308	4.193857	6.066047	8.496533	4.729838	2.98763	6014	8.701845
21	Lesotho	1986	4.13E+08	23.408	71.769	423.56	4764.424	20676000	107.394	19.83894	4.273453	6.048695	8.468932	4.676504	3.153078	6296	8.74767
21	Lesotho	1987	4.29E+08	26.1575	103.954	272.33	4627.609	21421000	97.3573	19.87698	4.643949	5.607015	8.439795	4.578388	3.264136	7571	8.93208
21	Lesotho	1988	4.68E+08	29.155	112.725	362.47	4487.454	22412000	111.3688	19.96494	4.724951	5.892942	8.40904	4.712847	3.372627	6198	8.731982
21	Lesotho	1989	5.08E+08	33.4548	109.379	226.32	4344.119	23247000	126.3149	20.0465	4.694819	5.42195	8.376578	4.838778	3.510195	5968	8.694167
21	Lesotho	1990	5.45E+08	37.3412	124.554	301.38	4197.797	23921000	144.5023	20.11569	4.824739	5.708372	8.342316	4.973296	3.620097	6024	8.703506
21	Lesotho	1991	5.62E+08	43.9495	120.852	270.83	4048.71	24299000	145.0169	20.14707	4.794567	5.601491	8.306153	4.976851	3.783041	5200	8.556414
21	Lesotho	1992	5.87E+08	51.5087	138.904	151.28	3897.108	24827000	136.0335	20.19077	4.933783	5.019133	8.26799	4.912901	3.941751	9678	9.17761
21	Lesotho	1993	6.07E+08	58.2754	136.996	207.98	3743.275	25253000	146.316	20.22429	4.919952	5.337442	8.227716	4.985768	4.06518	7856	8.969033
21	Lesotho	1994	6.29E+08	63.0645	137.871	126.4	3587.523	26086000	148.491	20.25949	4.926319	4.839451	8.185218	5.000524	4.144158	6428	8.768418
21	Lesotho	1995	6.56E+08	68.9079	147.192	148.67	3430.2	26817000	144.9738	20.30096	4.991738	5.001729	8.140374	4.976553	4.232771	7701	8.949105
21	Lesotho	1996	7.18E+08	75.3371	134.976	125.57	3264	27735000	162.1599	20.39158	4.905097	4.832863	8.090709	5.088583	4.321973	6093	8.714896
21	Lesotho	1997	7.83E+08	80.8597	139.145	57.21	3097	28755000	162.4242	20.47817	4.935516	4.046729	8.038189	5.090211	4.392715	8297	9.023649
21	Lesotho	1998	7.52E+08	86.787	134.446	79.36	2931	29454000	162.5781	20.43884	4.901163	4.373994	7.983099	5.091159	4.463457	6299	8.748146
21	Lesotho	1999	7.62E+08	94.2507	105.873	47.32	2765	30369000	144.0425	20.45133	4.662241	3.856933	7.924796	4.970108	4.545958	6837	8.830104
21	Lesotho	2000	7.79E+08	100	100		2598.7	31583000	137.9905	20.47333	4.60517		7.862767	4.927185	4.60517	6455	8.772611
21	Lesotho	2001	8.01E+08	106.9	94.0474	21.33	2598.7	32016000	154.6581	20.50095	4.543799	3.060115	7.862767	5.041217	4.671894	5979	8.696009
21	Lesotho	2002	8.23E+08	120.369	90.6989	303.97	2598.7	32606000	173.6552	20.52838	4.507545	5.716929	7.862767	5.157072	4.790562	5450	8.603371
21	Lesotho	2003	8.48E+08	129.036	131.454	442.86	2598.7	33528000	153.7882	20.55892	4.878657	6.093254	7.862767	5.035576	4.860091	5536	8.619027
21	Lesotho	2004	8.75E+08	135.488	170.727	589.28	2598.7	34369470	167.5051	20.58939	5.140066	6.378901	7.862767	5.121014	4.908883	7075	8.864323
22	Madagasc	1984	2.48E+09	0	62.7395	69906.13	5027.507	19309000	118.5273	21.63301	4.138991	11.15491	8.522679	4.775143		5036	8.524367
22	Madagasc	1985	2.51E+09	10.6137	55.7561	66089.23	4897.76	20012000	113.2772	21.64445	4.020987	11.09876	8.496533	4.729838	2.362146	6014	8.701845
22	Madagasc	1986	2.56E+09	11.9282	65.2635	62480.74	4764.424	20676000	107.394	21.66394	4.178433	11.04261	8.468932	4.676504	2.478905	6296	8.74767
22	Madagasc	1987	2.59E+09	14.1817	67.4335	58016.49	4627.609	21421000	97.3573	21.67569	4.211142	10.96848	8.439795	4.578388	2.651952	7571	8.93208
22	Madagasc	1988	2.68E+09	17.917	66.692	53547.14	4487.454	22412000	111.3688	21.70911	4.200085	10.88832	8.40904	4.712847	2.88575	6198	8.731982
22	Madagasc	1989	2.79E+09	19.5318	55.46	49080.34	4344.119	23247000	126.3149	21.74907	4.015662	10.80121	8.376578	4.838778	2.972044	5968	8.694167
22	Madagasc	1990	2.87E+09	21.8346	67.6759	49123.98	4197.797	23921000	144.5023	21.77582	4.21473	10.8021	8.342316	4.973296	3.083496	6024	8.703506
22	Madagasc	1991	2.77E+09	23.6985	62.2265	46744.19	4048.71	24299000	145.0169	21.74035	4.130781	10.75245	8.306153	4.976851	3.165412	5200	8.556414
22	Madagasc	1992	2.80E+09	27.3227	63.8617	41407.28	3897.108	24827000	136.0335	21.75097	4.15672	10.63121	8.26799	4.912901	3.307718	9678	9.17761
22	Madagasc	1993	2.87E+09	29.8461	63.1233	31213.13	3743.275	25253000	146.316	21.77764	4.14509	10.34859	8.227716	4.985768	3.396054	7856	8.969033
22	Madagasc	1994	2.87E+09	41.5082	72.85	34114.32	3587.523	26086000	148.491	21.77706	4.288403	10.43747	8.185218	5.000524	3.725891	6428	8.768418
22	Madagasc	1995	2.92E+09	61.8625	81.9827	37082.94	3430.2	26817000	144.9738	21.79383	4.406508	10.52091	8.140374	4.976553	4.124914	7701	8.949105
22	Madagasc	1996	2.98E+09	74.0911	84.2694	27122.16	3264	27735000	162.1599	21.81614	4.434019	10.20811	8.090709	5.088583	4.305295	6093	8.714896
22	Madagasc	1997	3.09E+09	77.418	82.9231	14405.77	3097	28755000	162.4242	21.85203	4.417914	9.575384	8.038189	5.090211	4.349219	8297	9.023649
22	Madagasc	1998	3.21E+09	82.2185	90.0552	13834.18	2931	29454000	162.5781	21.89009	4.500423	9.534898	7.983099	5.091159	4.40938	6299	8.748146
22	Madagasc	1999	3.36E+09	90.3659	88.2308	11037.22	2765	30369000	144.0425	21.93464	4.479956	9.309029	7.924796	4.970108	4.503867	6837	8.830104
22	Madagasc	2000	3.49E+09	100	100	7398.02	2598.7	31583000	137.9905	21.97162	4.60517	8.908968	7.862767	4.927185	4.60517	6455	8.772611
22	Madagasc	2001	3.68E+09	106.929	101.022	7468.35	2598.7	32016000	154.6581	22.0256	4.615338	8.918429	7.862767	5.041217	4.672165	5979	8.696009
22	Madagasc	2002	3.26E+09	124.289	99.7142	6954.04	2598.7	32606000	173.6552	21.90377	4.602308	8.847078	7.862767	5.157072	4.822609	5450	8.603371
22	Madagasc	2003	3.50E+09	122.89	127.254	6284.66	2598.7	33528000	153.7882	21.97535	4.846185	8.745867	7.862767	5.035576	4.81129	5536	8.619027
22	Madagasc	2004	3.67E+09	140.046	141.332	7612.82	2598.7	34369470	167.5051	22.02436	4.951112	8.937589	7.862767	5.121014	4.941971	7075	8.864323
23	Malawi	1984	9.30E+08	2.85952	107.431	2039.603	5027.507	19309000	118.5273	20.65012	4.676849	7.620511	8.522679	4.775143	1.050654	5036	8.524367
23	Malawi	1985	9.71E+08	3.1612	81.6708	1805.942	4897.76	20012000	113.2772	20.69372	4.402697	7.498837	8.496533	4.729838	1.150952	6014	8.701845
23	Malawi	1986	9.82E+08	3.6073	83.9183	1599.05	4764.424	20676000	107.394	20.7046	4.429844	7.377165	8.468932	4.676504	1.28296	6296	8.74767
23	Malawi	1987	1.00E+09	4.51233	92.1324	1650.09	4627.609	21421000	97.3573	20.7268	4.523227	7.408585	8.439795	4.578388	1.506814	7571	8.93208
23	Malawi	1988	1.04E+09	6.04318	96.5326	2013.49	4487.454	22412000	111.3688	20.75916	4.569881	7.607625	8.40904	4.712847	1.79893	6198	8.731982
23	Malawi	1989	1.08E+09	6.79738	105.256	2109	4344.119	23247000	126.3149	20.79898	4.656395	7.653969	8.376578	4.838778	1.916537	5968	8.694167
23	Malawi	1990	1.13E+09	7.59971	126.242	385.69	4197.797	23921000	144.5023	20.8456	4.838201	5.955034	8.342316	4.973296	2.02811	6024	8.703506
23	Malawi	1991	1.22E+09	8.55609	137.388	344.96	4048.71	24299000	145.0169	20.92071	4.922809	5.843429	8.306153	4.976851	2.146643	5200	8.556414
23	Malawi	1992	1.12E+09	10.5908	115.228	1195.03	3897.108	24827000	136.0335	20.83822	4.746913	7.085927	8.26799	4.912901	2.359986	9678	9.17761
23	Malawi	1993	1.24E+09	13.001	97.1185	263.49	3743.275	25253000	146.316	20.9405	4.575932	5.574016	8.227716	4.985768	2.565026	7856	8.969033
23	Malawi	1994	1.10E+09	17.4867	92.3307	221.04	3587.523	26086000	148.491	20.81733	4.525377	5.398344	8.185218	5.000524	2.861441	6428	8.768418
23	Malawi	1995	1.27E+09	30.593	112.234	161.12	3430.2	26817000	144.9738	20.96393	4.720586	5.08215	8.140374	4.976553	3.420771	7701	8.949105
23	Malawi	1996	1.40E+09	32.6466	117.79	142.7	3264	27735000	162.1599	21.05905	4.768903	4.960744	8.090709	5.088583	3.485741	6093	8.714896
23	Malawi	1997	1.49E+09	37.5959	123.316	622.04	3097	28755000	162.4242	21.12284	4.81475	6.433004	8.038189	5.090211	3.626895	8297	9.023649
23	Malawi	1998	1.51E+09	57.5766	99.9779	560.7	2931	29454000	162.5781	21.13339	4.604949	6.329186	7.983099	5.091159	4.053116	6299	8.748146
23	Malawi	1999	1.56E+09	73.8309	103.953	67.5	2765	30369000	144.0425	21.16819	4.643939	4.212128	7.924796	4.970108	4.301777	6837	8.830104
23	Malawi	2000	1.57E+09	100	100	473.95	2598.7	31583000	137.9905	21.17591	4.60517	6.161102	7.862767	4.927185	4.60517	6455	8.772611
23	Malawi	2001	1.51E+09	122.121	97.7825	1116.71	2598.7	32016000	154.6581	21.13357	4.582746	7.018142	7.862767	5.041217	4.805012	5979	8.696009
23	Malawi	2002	1.54E+09	131.392	94.3854	1255.97	2598.7	32606000	173.6552	21.15418	4.547386	7.135664	7.862767	5.157072	4.878185	5450	8.603371
23	Malawi	2003	1.60E+09	144.3	100.144	919.38	2598.7	33528000	153.7882	21.19246	4.606609	6.823699	7.862767	5.035576	4.971894	5536	8.619027
23	Malawi	2004	1.68E+09	164.062	109.702	43.48	2598.7	34369470	167.5051	21.24202	4.697768	3.772301	7.862767	5.121014	5.100245	7075	8.864323
24	Mali	1984	1.35E+09		107.55	807.0312	5027.507	19309000	118.5273	21.02148	4.677956	6.693362	8.522679	4.775143		5036	8.524367
24	Mali	1985	1.37E+09	66.6153	103.726	760.8651	4897.76	20012000	113.2772	21.035	4.641753	6.634456	8.496533	4.729838	4.198935	6014	8.701845
24	Mali	1986	1.49E+09	65.7015	112.773	717.34	4764.424	20676000	107.394	21.11929	4.725377	6.57555	8.468932	4.676504	4.185122	6296	8.74767
24	Mali	1987	1.50E+09	64.65	138.176	676.07	4627.609	21421000	97.3573	21.12966	4.928528	6.516297	8.439795	4.578388	4.168988	7571	8.93208
24	Mali	1988	1.50E+09	69.3176	141.204	572.29	4487.454	22412000	111.3688	21.12948	4.950206	6.349646	8.40904	4.712847	4.238699	6198	8.731982
24	Mali	1989	1.68E+09	69.248	133.415	528.8	4344.119	23247000	126.3149	21.24103	4.893465	6.27061	8.376578	4.838778	4.237694	5968	8.694167
24	Mali	1990	1.68E+09	69.6659	156.309	552.24	4197.797	23921000	144.5023	21.24199	5.051835	6.313982	8.342316	4.973296	4.243711	6024	8.703506
24	Mali	1991	1.66E+09	70.9199	147.529	510.95	4048.71	24299000	145.0169	21.23251	4.994025	6.236272	8.306153	4.976851	4.261551	5200	8.556414
24	Mali	1992	1.81E+09	66.4613	137.455	469.67	3897.108	24827000	136.0335	21.31884	4.923296	6.15203	8.26799	4.912901	4.19662	9678	9.17761
24	Mali	1993	1.77E+09	66.0625	128.561	398.23	3743.275	25253000	146.316	21.29397	4.856403	5.98703	8.227716	4.985768	4.190601	7856	8.969033
24	Mali	1994	1.81E+09	82.413	114.78	356.76	3587.523	26086000	148.491	21.31526	4.743017	5.877063	8.185218	5.000524	4.411743	6428	8.768418
24	Mali	1995	1.85E+09	92.5993	138.774	345.85	3430.2	26817000	144.9738	21.33773	4.932847	5.846005	8.140374	4.976553	4.528282	7701	8.949105
24	Mali	1996	1.95E+09	98.6182	135.779	62107.37	3264	27735000	162.1599	21.39269	4.911028	11.03662	8.090709	5.088583	4.591256	6093	8.714896
24	Mali	1997	2.08E+09	97.9575	115.461	3002.07	3097	28755000	162.4242	21.45722	4.748933	8.007057	8.038189	5.090211	4.584534	8297	9.023649
24	Mali	1998	2.17E+09	101.928	115.074	3162.94	2931	29454000	162.5781	21.49612	4.745575	8.059258	7.983099	5.091159	4.624267	6299	8.748146
24	Mali	1999	2.31E+09	100.705	103.538	1785.55	2765	30369000	144.0425	21.56195	4.639939	7.487482	7.924796	4.970108	4.612195	6837	8.830104
24	Mali	2000	2.26E+09	100	100	2489.83	2598.7	31583000	137.9905	21.53656	4.60517	7.81997	7.862767	4.927185	4.60517	6455	8.772611
24	Mali	2001	2.51E+09	105.2	108.031	3741.59	2598.7	32016000	154.6581	21.64404	4.682418	8.227266	7.862767	5.041217	4.655863	5979	8.696009
24	Mali	2002	2.58E+09	110.46	99.8248	40219.51	2598.7	32606000	173.6552	21.66984	4.603416	10.60211	7.862767	5.157072	4.704653	5450	8.603371
24	Mali	2003	2.78E+09	109.024	127.04	43341.86	2598.7	33528000	153.7882	21.74542	4.844502	10.67687	7.862767	5.035576	4.691568	5536	8.619027
24	Mali	2004	2.81E+09	105.644	148.094	61987.73	2598.7	34369470	167.5051	21.75528	4.997847	11.03469	7.862767	5.121014	4.660075	7075	8.864323
25	Mauritania	1984	5.29E+08		71.5985	7499.185	5027.507	19309000	118.5273	20.08719	4.271074	8.922549	8.522679	4.775143		5036	8.524367
25	Mauritania	1985	5.45E+08	39.42	80.1676	7068.845	4897.76	20012000	113.2772	20.11646	4.38412	8.863452	8.496533	4.729838	3.674273	6014	8.701845
25	Mauritania	1986	5.82E+08	42.3369	86.3334	6663.2	4764.424	20676000	107.394	20.18155	4.458217	8.804356	8.468932	4.676504	3.745659	6296	8.74767
25	Mauritania	1987	5.97E+08	45.8057	93.5539	6285.94	4627.609	21421000	97.3573	20.20785	4.538538	8.746071	8.439795	4.578388	3.824409	7571	8.93208
25	Mauritania	1988	6.09E+08	46.3971	94.589	5922.94	4487.454	22412000	111.3688	20.2273	4.549541	8.686588	8.40904	4.712847	3.837237	6198	8.731982

countrycode	country	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
25	Mauritania	1989	6.42E+08	52.4283	105.767	5552.82	4344.119	23247000	126.3149	20.28062	4.661239	8.622061	8.376578	4.838778	3.959446	5968	8.694167
25	Mauritania	1990	6.29E+08	55.8578	113.03	5182.68	4197.797	23921000	144.5023	20.25906	4.727653	8.553078	8.342316	4.973296	4.022809	6024	8.703506
25	Mauritania	1991	6.34E+08	59.0115	113.76	4820.87	4048.71	24299000	145.0169	20.26684	4.734091	8.48071	8.306153	4.976851	4.077733	5200	8.556414
25	Mauritania	1992	6.46E+08	64.9713	106.039	4442.11	3897.108	24827000	136.0335	20.28675	4.663807	8.398885	8.26799	4.912901	4.173945	9678	9.17761
25	Mauritania	1993	7.41E+08	71.0341	101.856	4019.58	3743.275	25253000	146.316	20.4231	4.62356	8.298933	8.227716	4.985768	4.26316	7856	8.969033
25	Mauritania	1994	7.63E+08	73.9515	101.237	3706.92	3587.523	26086000	148.491	20.45262	4.617464	8.217957	8.185218	5.000524	4.30341	6428	8.768418
25	Mauritania	1995	7.84E+08	78.7607	118.629	3452.25	3430.2	26817000	144.9738	20.47941	4.776001	8.146782	8.140374	4.976553	4.366414	7701	8.949105
25	Mauritania	1996	7.98E+08	82.4622	115.612	3071.69	3264	27735000	162.1599	20.49695	4.75024	8.029984	8.090709	5.088583	4.41234	6093	8.714896
25	Mauritania	1997	8.31E+08	86.1743	117.614	2683.1	3097	28755000	162.4242	20.5382	4.767408	7.894728	8.038189	5.090211	4.456372	8297	9.023649
25	Mauritania	1998	8.58E+08	93.0821	109.832	2460	2931	29454000	162.5781	20.57018	4.698952	7.807917	7.983099	5.091159	4.533482	6299	8.748146
25	Mauritania	1999	9.33E+08	96.8054	97.9539	2126.47	2765	30369000	144.0425	20.65339	4.584497	7.662219	7.924796	4.970108	4.572703	6837	8.830104
25	Mauritania	2000	1.00E+09	100	100	1777.75	2598.7	31583000	137.9905	20.72742	4.60517	7.483104	7.862767	4.927185	4.60517	6455	8.772611
25	Mauritania	2001	1.04E+09	104.8	103.919	1463.9	2598.7	32016000	154.6581	20.76027	4.643612	7.288859	7.862767	5.041217	4.652054	5979	8.696009
25	Mauritania	2002	1.07E+09	111.507	112.752	521.73	2598.7	32606000	173.6552	20.78738	4.725191	6.25715	7.862767	5.157072	4.714087	5450	8.603371
25	Mauritania	2003	1.13E+09	116.637	117.077	637.31	2598.7	33528000	153.7882	20.84754	4.762832	6.457256	7.862767	5.035576	4.759067	5536	8.619027
25	Mauritania	2004	1.21E+09	128.767	135.777	453.08	2598.7	34369470	167.5051	20.91302	4.911014	6.116069	7.862767	5.121014	4.858005	7075	8.864323
26	Mauritius	1984	1.55E+09	33.6282	61.2866	77.87519	5027.507	19309000	118.5273	21.16159	4.115561	4.355107	8.522679	4.775143	3.515365	5036	8.524367
26	Mauritius	1985	1.64E+09	36.4193	57.0815	73.16516	4897.76	20012000	113.2772	21.21802	4.04448	4.292719	8.496533	4.729838	3.595099	6014	8.701845
26	Mauritius	1986	1.77E+09	37.9854	67.2583	68.74	4764.424	20676000	107.394	21.29376	4.20854	4.230331	8.468932	4.676504	3.637202	6296	8.74767
26	Mauritius	1987	1.92E+09	38.2513	79.875	64.36	4627.609	21421000	97.3573	21.37661	4.380463	4.164492	8.439795	4.578388	3.644178	7571	8.93208
26	Mauritius	1988	2.06E+09	38.825	86.2969	54.75	4487.454	22412000	111.3688	21.44678	4.457794	4.002778	8.40904	4.712847	3.659064	6198	8.731982
26	Mauritius	1989	2.17E+09	45.037	83.9601	55.84	4344.119	23247000	126.3149	21.49943	4.430342	4.022491	8.376578	4.838778	3.807484	5968	8.694167
26	Mauritius	1990	2.30E+09	49.856	87.9616	3896.59	4197.797	23921000	144.5023	21.557	4.476901	8.267858	8.342316	4.973296	3.909139	6024	8.703506
26	Mauritius	1991	2.44E+09	56.2376	96.9301	3942.84	4048.71	24299000	145.0169	21.61329	4.57399	8.279656	8.306153	4.976851	4.029585	5200	8.556414
26	Mauritius	1992	2.57E+09	57.8685	94.7441	5652.73	3897.108	24827000	136.0335	21.66778	4.551179	8.639894	8.26799	4.912901	4.058173	9678	9.17761
26	Mauritius	1993	2.72E+09	63.0187	96.3843	11633.89	3743.275	25253000	146.316	21.72463	4.568343	9.361677	8.227716	4.985768	4.143432	7856	8.969033
26	Mauritius	1994	2.85E+09	68.9425	90.5342	21550.08	3587.523	26086000	148.491	21.77199	4.505728	9.978135	8.185218	5.000524	4.233273	6428	8.768418
26	Mauritius	1995	3.00E+09	73.148	100.218	20568.37	3430.2	26817000	144.9738	21.82221	4.607348	9.93151	8.140374	4.976553	4.292485	7701	8.949105
26	Mauritius	1996	3.18E+09	77.3906	107.377	17989.45	3264	27735000	162.1599	21.87906	4.676346	9.797541	8.090709	5.088583	4.348866	6093	8.714896
26	Mauritius	1997	3.37E+09	83.5044	106.43	18328.18	3097	28755000	162.4242	21.93686	4.667488	9.816195	8.038189	5.090211	4.4249	8297	9.023649
26	Mauritius	1998	3.55E+09	88.0137	97.3223	17416.9	2931	29454000	162.5781	21.98945	4.578028	9.765196	7.983099	5.091159	4.477492	6299	8.748146
26	Mauritius	1999	3.75E+09	94.9668	95.0061	11389.04	2765	30369000	144.0425	22.0443	4.553941	9.340406	7.924796	4.970108	4.553527	6837	8.830104
26	Mauritius	2000	3.87E+09	100	100	12117.1	2598.7	31583000	137.9905	22.07577	4.60517	9.402373	7.862767	4.927185	4.60517	6455	8.772611
26	Mauritius	2001	4.18E+09	104.4	96.0134	12006.54	2598.7	32016000	154.6581	22.15464	4.564488	9.393207	7.862767	5.041217	4.64823	5979	8.696009
26	Mauritius	2002	4.37E+09	111.019	81.2208	15011.66	2598.7	32606000	173.6552	22.19881	4.397171	9.616583	7.862767	5.157072	4.709702	5450	8.603371
26	Mauritius	2003	4.47E+09	116.681	85.33	19242.56	2598.7	33528000	153.7882	22.22102	4.446526	9.86488	7.862767	5.035576	4.759444	5536	8.619027
26	Mauritius	2004	4.66E+09	121.231	93.9912	25889.78	2598.7	34369470	167.5051	22.26122	4.543201	10.1616	7.862767	5.121014	4.797698	7075	8.864323
27	Mozambiq	1984	1.60E+09	0.512106	70.5987	1314.034	5027.507	19309000	118.5273	21.19266	4.257012	7.180857	8.522679	4.775143	-0.669224	5036	8.524367
27	Mozambiq	1985	1.68E+09	0.669756	70.7799	1239.445	4897.76	20012000	113.2772	21.2439	4.259575	7.122419	8.496533	4.729838	-0.400842	6014	8.701845
27	Mozambiq	1986	1.67E+09	0.940946	80.5874	1169.09	4764.424	20676000	107.394	21.23391	4.389342	7.063981	8.468932	4.676504	-0.06087	6296	8.74767
27	Mozambiq	1987	1.80E+09	2.48518	88.5311	1088.29	4627.609	21421000	97.3573	21.3129	4.483354	6.992363	8.439795	4.578388	0.910345	7571	8.93208
27	Mozambiq	1988	1.92E+09	3.93917	87.3256	1021.16	4487.454	22412000	111.3688	21.37534	4.469644	6.928695	8.40904	4.712847	1.37097	6198	8.731982
27	Mozambiq	1989	2.00E+09	5.59662	84.5671	976.06	4344.119	23247000	126.3149	21.41571	4.437545	6.883524	8.376578	4.838778	1.722163	5968	8.694167
27	Mozambiq	1990	2.01E+09	8.04364	85.1002	911.88	4197.797	23921000	144.5023	21.42197	4.44383	6.815508	8.342316	4.973296	2.084882	6024	8.703506
27	Mozambiq	1991	2.13E+09	10.7188	90.0635	817.36	4048.71	24299000	145.0169	21.48096	4.500515	6.706079	8.306153	4.976851	2.371999	5200	8.556414
27	Mozambiq	1992	1.93E+09	15.5504	88.5959	783.53	3897.108	24827000	136.0335	21.379	4.484086	6.663809	8.26799	4.912901	2.744086	9678	9.17761
27	Mozambiq	1993	2.06E+09	22.1213	81.8173	714.68	3743.275	25253000	146.316	21.4467	4.404489	6.571835	8.227716	4.985768	3.096541	7856	8.969033
27	Mozambiq	1994	2.27E+09	36.0848	87.7331	655.17	3587.523	26086000	148.491	21.54076	4.474299	6.484895	8.185218	5.000524	3.585872	6428	8.768418
27	Mozambiq	1995	2.29E+09	55.7258	94.3422	574.02	3430.2	26817000	144.9738	21.5521	4.546928	6.352664	8.140374	4.976553	4.020443	7701	8.949105
27	Mozambiq	1996	2.55E+09	80.5862	98.5214	540.65	3264	27735000	162.1599	21.65765	4.590274	6.292772	8.090709	5.088583	4.389328	6093	8.714896
27	Mozambiq	1997	2.81E+09	85.7301	96.7044	438.64	3097	28755000	162.4242	21.75611	4.571659	6.083679	8.038189	5.090211	4.451204	8297	9.023649
27	Mozambiq	1998	3.16E+09	86.2445	90.7274	433.62	2931	29454000	162.5781	21.87444	4.507859	6.072168	7.983099	5.091159	4.457186	6299	8.748146
27	Mozambiq	1999	3.36E+09	88.7149	103.856	438.77	2765	30369000	144.0425	21.93603	4.643005	6.083975	7.924796	4.970108	4.485428	6837	8.830104
27	Mozambiq	2000	3.40E+09	100	100	405	2598.7	31583000	137.9905	21.94833	4.60517	6.003887	7.862767	4.927185	4.60517	6455	8.772611
27	Mozambiq	2001	3.89E+09	109.039	89.0818	404.36	2598.7	32016000	154.6581	22.08219	4.489555	6.002306	7.862767	5.041217	4.691706	5979	8.696009
27	Mozambiq	2002	4.22E+09	127.321	90.6509	206.71	2598.7	32606000	173.6552	22.16267	4.507016	5.331317	7.862767	5.157072	4.846712	5450	8.603371
27	Mozambiq	2003	4.53E+09	144.443	91.0735	312.28	2598.7	33528000	153.7882	22.23481	4.511667	5.7439	7.862767	5.035576	4.972885	5536	8.619027
27	Mozambiq	2004	4.88E+09	162.698	99.341	247.58	2598.7	34369470	167.5051	22.30816	4.598558	5.511734	7.862767	5.121014	5.091896	7075	8.864323
28	Namibia	1984	1.81E+09	18.67	102.509	47303.31	5027.507	19309000	118.5273	21.31885	4.629951	10.76434	8.522679	4.775143	2.926918	5036	8.524367
28	Namibia	1985	1.84E+09	20.91	76.282	44510.34	4897.76	20012000	113.2772	21.33218	4.334437	10.70348	8.496533	4.729838	3.040227	6014	8.701845
28	Namibia	1986	1.90E+09	23.71	84.0836	41882.28	4764.424	20676000	107.394	21.36696	4.431812	10.64262	8.468932	4.676504	3.165897	6296	8.74767
28	Namibia	1987	1.98E+09	26.7	96.7754	39491.07	4627.609	21421000	97.3573	21.40558	4.572393	10.58383	8.439795	4.578388	3.284664	7571	8.93208
28	Namibia	1988	2.01E+09	30.13	109.5	37099.86	4487.454	22412000	111.3688	21.42066	4.695925	10.52137	8.40904	4.712847	3.405521	6198	8.731982
28	Namibia	1989	2.04E+09	34.68	118.366	34673.82	4344.119	23247000	126.3149	21.43589	4.773781	10.45374	8.376578	4.838778	3.546163	5968	8.694167
28	Namibia	1990	2.09E+09	38.85	127.913	32317.43	4197.797	23921000	144.5023	21.45784	4.85135	10.38336	8.342316	4.973296	3.659708	6024	8.703506
28	Namibia	1991	2.26E+09	43.48	107.741	29926.22	4048.71	24299000	145.0169	21.54014	4.67973	10.30649	8.306153	4.976851	3.772301	5200	8.556414
28	Namibia	1992	2.42E+09	51.19	113.358	27510.9	3897.108	24827000	136.0335	21.60695	4.730551	10.22234	8.26799	4.912901	3.935544	9678	9.17761
28	Namibia	1993	2.36E+09	55.55	103.367	25143.79	3743.275	25253000	146.316	21.58358	4.638286	10.13237	8.227716	4.985768	4.017283	7856	8.969033
28	Namibia	1994	2.54E+09	61.53	114.008	22752.57	3587.523	26086000	148.491	21.65585	4.736269	10.03243	8.185218	5.000524	4.119525	6428	8.768418
28	Namibia	1995	2.62E+09	67.7	114.421	74297.41	3430.2	26817000	144.9738	21.68745	4.739884	11.21583	8.140374	4.976553	4.215086	7701	8.949105
28	Namibia	1996	2.69E+09	73.1	113.442	70101.55	3264	27735000	162.1599	21.71334	4.731292	11.1577	8.090709	5.088583	4.291828	6093	8.714896
28	Namibia	1997	2.78E+09	79.54	114.045	127144.1	3097	28755000	162.4242	21.74622	4.736593	11.75308	8.038189	5.090211	4.37626	8297	9.023649
28	Namibia	1998	2.88E+09	84.45	103.858	306646.9	2931	29454000	162.5781	21.77952	4.643024	12.63345	7.983099	5.091159	4.43616	6299	8.748146
28	Namibia	1999	2.97E+09	91.75	99.4848	74646.03	2765	30369000	144.0425	21.81049	4.600005	11.22051	7.924796	4.970108	4.519067	6837	8.830104
28	Namibia	2000	3.08E+09	100	100	57176.73	2598.7	31583000	137.9905	21.84805	4.60517	10.9539	7.862767	4.927185	4.60517	6455	8.772611
28	Namibia	2001	3.14E+09	109.54	94.7691	106479.4	2598.7	32016000	154.6581	21.8688	4.551444	11.57571	7.862767	5.041217	4.69629	5979	8.696009
28	Namibia	2002	3.37E+09	121.918	89.0439	91889.48	2598.7	32606000	173.6552	21.93693	4.48913	11.42834	7.862767	5.157072	4.803349	5450	8.603371
28	Namibia	2003	3.49E+09	130.696	107.495	126557.7	2598.7	33528000	153.7882	21.97405	4.677444	11.74845	7.862767	5.035576	4.872874	5536	8.619027
28	Namibia	2004	3.71E+09	136.055	132.57	184.83	2598.7	34369470	167.5051	22.0335	4.887111	5.219437	7.862767	5.121014	4.913059	7075	8.864323
29	Niger	1984	1.18E+09		146.552	889.7191	5027.507	19309000	118.5273	20.89142	4.987381	6.790906	8.522679	4.775143		5036	8.524367
29	Niger	1985	1.28E+09		133.032	1096.095	4897.76	20012000	113.2772	20.96846	4.89059	6.999509	8.496533	4.729838		6014	8.701845
29	Niger	1986	1.36E+09		174.73	1350.34	4764.424	20676000	107.394	21.03132	5.163242	7.208112	8.468932	4.676504		6296	8.74767
29	Niger	1987	1.37E+09		203.172	1271.2	4627.609	21421000	97.3573	21.03845	5.314053	7.147717	8.439795	4.578388		7571	8.93208
29	Niger	1988	1.49E+09		193.781	1192.06	4487.454	22412000	111.3688	21.11837	5.266729	7.083438	8.40904	4.712847		6198	8.731982
29	Niger	1989	1.47E+09		170.831	2020.96	4344.119	23247000	126.3149	21.10849	5.140675	7.611328	8.376578	4.838778		5968	8.694167
29	Niger	1990	1.47E+09		173.993	2381.99	4197.797	23921000	144.5023	21.10745	5.159015	7.775692	8.342316	4.973296		6024	8.703506
29	Niger	1991	1.52E+09	64.0832	158.373	2743.04	4048.71	24299000	145.0169	21.14043	5.064953	7.916822	8.306153	4.976851	4.160182	5200	8.556414
29	Niger	1992	1.42E+09	62.2248	166.71	3104.08	3897.108	24827000	136.0335	21.07411	5.116256	8.040473	8.26799	4.912901	4.130754	9678	9.17761
29	Niger	1993	1.44E+09	62.825	116.152	3465.12	3743.275	25253000	146.316	21.0884	4.7549	8.150502	8.227716	4.985768	4.140353	7856	8.969033
29	Niger	1994	1.50E+09	79.1649	133.759	4894.6	3587.523	26086000	148.491	21.12996	4.896039	8.495888	8.185218	5.000524	4.371533	6428	8.768418
29	Niger	1995	1.54E+09	87.835	150.856	21349.22	3430.2	26817000	144.9738	21.15203	5.016326	9.968771	8.140374	4.976553	4.47546	7701	8.949105
29	Niger	1996	1.59E+09	92.5035	133.023	48632.19	3264	27735000	162.1599	21.18432	4.890522	10.79204	8.090709	5.088583	4.527246	6093	8.714896
29	Niger	1997	1.63E+09	95.1862	121.53	37009.54	3097	28755000	162.4242	21.21056	4.800161	10.51893	8.038189	5.090211	4.555835	8297	9.023649
29	Niger	1998	1.80E+09	99.4695	126.699	24481.16	2931	29454000	162.5781	21.31031	4.841814	10.10566	7.983099	5.091159	4.599851	6299	8.748146
29	Niger	1999	1.79E+09	97.1817	122.922	41672.17	2765	30369000	144.0425	21.30302	4.81155	10.63759	7.924796	4.970108	4.576582	6837	8.830104
29	Niger	2000	1.76E+09	100	100	55897.36	2598.7	31583000	137.9905	21.28683	4.60517	10.93127	7.862767	4.927185	4.60517	6455	8.772611
29	Niger	2001	1.88E+09	104	110.578	55227.19	2598.7	32016000	154.6581	21.35523	4.705721	10.91921	7.862767	5.041217	4.644391	5979	8.696009
29	Niger	2002	1.94E+09	106.808	115.471	51818.37	2598.7	32606000	173.6552	21.38363	4.74902	10.8555	7.862767	5.157072	4.671033	5450	8.603371
29	Niger	2003	2.04E+09	104.885	155.244	54028.14	2598.7	33528000	153.7882	21.43511	5.044998	10.89726	7.862767	5.035576	4.652864	5536	8.619027
29	Niger	2004		105.305	171.275	17108.53	2598.7	34369470	167.5051		5.14327	9.747333	7.862767	5.121014	4.656861	7075	8.864323
30	Nigeria	1984	2.18E+10	2.53077	34.3135	8970.413	5027.507	19309000	118.5273	23.80311	3.535539	9.101687	8.522679	4.775143	0.928524	5036	8.524367
30	Nigeria	1985	2.38E+10	2.71894	33.0875	7485.583	4897.76	20012000	113.2772	23.89277	3.499156	8.920734	8.496533	4.729838	1.000242	6014	8.701845

countrycode	country	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
30	Nigeria	1986	2.45E+10	2.87438	25.6622	6246.53	4764.424	20676000	107.394	23.92363	3.245019	8.739781	8.468932	4.676504	1.055837	6296	8.74767
30	Nigeria	1987	2.44E+10	3.19891	53.3353	804.41	4627.609	21421000	97.3573	23.91891	3.976599	6.690109	8.439795	4.578388	1.16281	7571	8.93208
30	Nigeria	1988	2.69E+10	4.94267	39.4818	733.03	4487.454	22412000	111.3688	24.01341	3.67584	6.597187	8.40904	4.712847	1.597906	6198	8.731982
30	Nigeria	1989	2.88E+10	7.43707	52.8713	681.13	4344.119	23247000	126.3149	24.08467	3.967861	6.523753	8.376578	4.838778	2.006477	5968	8.694167
30	Nigeria	1990	3.12E+10	7.98477	77.0843	842.78	4197.797	23921000	144.5023	24.16348	4.3449	6.736706	8.342316	4.973296	2.077536	6024	8.703506
30	Nigeria	1991	3.27E+10	9.02335	60.6163	855.58	4048.71	24299000	145.0169	24.2097	4.104564	6.75178	8.306153	4.976851	2.199816	5200	8.556414
30	Nigeria	1992	3.36E+10	13.0467	79.7417	868.35	3897.108	24827000	136.0335	24.23903	4.378793	6.766595	8.26799	4.912901	2.568535	9678	9.17761
30	Nigeria	1993	3.43E+10	20.9269	60.3954	878.36	3743.275	25253000	146.316	24.25871	4.100913	6.778057	8.227716	4.985768	3.041035	7856	8.969033
30	Nigeria	1994	3.43E+10	32.8553	55.3222	889.78	3587.523	26086000	148.491	24.25927	4.013174	6.790974	8.185218	5.000524	3.492113	6428	8.768418
30	Nigeria	1995	3.52E+10	56.8068	59.6623	906.47	3430.2	26817000	144.9738	24.28353	4.0887	6.809558	8.140374	4.976553	4.039656	7701	8.949105
30	Nigeria	1996	3.67E+10	73.4512	72.8788	920.45	3264	27735000	162.1599	24.32586	4.288798	6.824862	8.090709	5.088583	4.296621	6093	8.714896
30	Nigeria	1997	3.80E+10	79.5477	68.9993	964.31	3097	28755000	162.4242	24.3609	4.234097	6.871413	8.038189	5.090211	4.376357	8297	9.023649
30	Nigeria	1998	3.86E+10	87.7411	43.3072	948.48	2931	29454000	162.5781	24.37564	3.768319	6.854861	7.983099	5.091159	4.474391	6299	8.748146
30	Nigeria	1999	3.91E+10	93.5454	58.8694	3109.99	2765	30369000	144.0425	24.38869	4.075321	8.042375	7.924796	4.970108	4.538447	6837	8.830104
30	Nigeria	2000	4.07E+10	100	100	4147.84	2598.7	31583000	137.9905	24.42983	4.60517	8.330343	7.862767	4.927185	4.60517	6455	8.772611
30	Nigeria	2001	4.21E+10	118.9	96.4623	8770.43	2598.7	32016000	154.6581	24.4623	4.569152	9.079141	7.862767	5.041217	4.778283	5979	8.696009
30	Nigeria	2002	4.27E+10	134.238	99.5073	4120.26	2598.7	32606000	173.6552	24.4764	4.600231	8.323671	7.862767	5.157072	4.899614	5450	8.603371
30	Nigeria	2003	4.73E+10	153.031	114.83	1065.63	2598.7	33528000	153.7882	24.57957	4.743453	6.971322	7.862767	5.035576	5.030641	5536	8.619027
30	Nigeria	2004	5.02E+10	175.986	151.166	1279.35	2598.7	34369470	167.5051	24.63879	5.018379	7.154108	7.862767	5.121014	5.170404	7075	8.864323
31	Rwanda	1984	1.49E+09	23.4712	109.777	42.48581	5027.507	19309000	118.5273	21.12209	4.698451	3.74917	8.522679	4.775143	3.155774	5036	8.524367
31	Rwanda	1985	1.55E+09	23.8841	80.102	40.18035	4897.76	20012000	113.2772	21.16146	4.383301	3.693378	8.496533	4.729838	3.173213	6014	8.701845
31	Rwanda	1986	1.64E+09	23.6173	104.308	38	4764.424	20676000	107.394	21.21494	4.647348	3.637586	8.468932	4.676504	3.161979	6296	8.74767
31	Rwanda	1987	1.64E+09	24.5934	61.562	36	4627.609	21421000	97.3573	21.2206	4.120045	3.583519	8.439795	4.578388	3.202478	7571	8.93208
31	Rwanda	1988	1.71E+09	25.3129	76.7253	34	4487.454	22412000	111.3688	21.25736	4.340231	3.526361	8.40904	4.712847	3.231314	6198	8.731982
31	Rwanda	1989	1.71E+09	25.5793	68.0936	32	4344.119	23247000	126.3149	21.25914	4.220883	3.465736	8.376578	4.838778	3.241783	5968	8.694167
31	Rwanda	1990	1.68E+09	26.6451	69.2088	30	4197.797	23921000	144.5023	21.23969	4.237128	3.401197	8.342316	4.973296	3.282605	6024	8.703506
31	Rwanda	1991	1.65E+09	31.8676	72.1809	28	4048.71	24299000	145.0169	21.22377	4.279175	3.332205	8.306153	4.976851	3.46159	5200	8.556414
31	Rwanda	1992	1.74E+09	34.9318	63.9944	26	3897.108	24827000	136.0335	21.27649	4.158795	3.258096	8.26799	4.912901	3.553398	9678	9.17761
31	Rwanda	1993	1.59E+09	37.9359	69.9856	24	3743.275	25253000	146.316	21.18445	4.24829	3.178054	8.227716	4.985768	3.635898	7856	8.969033
31	Rwanda	1994	8.18E+08	62.2149	83.6828	1019.32	3587.523	26086000	148.491	20.52252	4.427033	6.926891	8.185218	5.000524	4.130595	6428	8.768418
31	Rwanda	1995	1.07E+09	75.9021	108.11	1428.04	3430.2	26817000	144.9738	20.79427	4.683149	7.264058	8.140374	4.976553	4.329444	7701	8.949105
31	Rwanda	1996	1.20E+09	82.6574	95.228	4709.12	3264	27735000	162.1599	20.90828	4.556274	8.457256	8.090709	5.088583	4.414704	6093	8.714896
31	Rwanda	1997	1.35E+09	92.3193	126.446	8571.37	3097	28755000	162.4242	21.02604	4.839815	9.056183	8.038189	5.090211	4.525253	8297	9.023649
31	Rwanda	1998	1.48E+09	98.6361	95.496	6297.77	2931	29454000	162.5781	21.11197	4.559084	8.747951	7.983099	5.091159	4.591437	6299	8.748146
31	Rwanda	1999	1.59E+09	96.2464	82.7168	3655.47	2765	30369000	144.0425	21.18735	4.415423	8.203979	7.924796	4.970108	4.566912	6837	8.830104
31	Rwanda	2000	1.69E+09	100	100	3479.25	2598.7	31583000	137.9905	21.24846	4.60517	8.154572	7.862767	4.927185	4.60517	6455	8.772611
31	Rwanda	2001	1.79E+09	103.4	59.5383	5311.44	2598.7	32016000	154.6581	21.30638	4.08662	8.577619	7.862767	5.041217	4.638605	5979	8.696009
31	Rwanda	2002	1.95E+09	105.468	47.5312	7174.38	2598.7	32606000	173.6552	21.39059	3.861386	8.878272	7.862767	5.157072	4.658408	5450	8.603371
31	Rwanda	2003	1.94E+09	113.315	50.9538	8283.1	2598.7	33528000	153.7882	21.38698	3.930919	9.021973	7.862767	5.035576	4.730172	5536	8.619027
31	Rwanda	2004	2.03E+09	126.856	62.0758	5124.3	2598.7	34369470	167.5051	21.43137	4.128356	8.541749	7.862767	5.121014	4.843052	7075	8.864323
32	Sao Tome	1984				73.23455	5027.507	19309000	118.5273			4.293667	8.522679	4.775143		5036	8.524367
32	Sao Tome	1985		1.45431		69.09	4897.76	20012000	113.2772			4.23541	8.496533	4.729838	0.374532	6014	8.701845
32	Sao Tome	1986	38280600	1.64051	182.927	65.18	4764.424	20676000	107.394	17.46045	5.209087	4.177153	8.468932	4.676504	0.495007	6296	8.74767
32	Sao Tome	1987	40699200	2.05063	153.007	61.61	4627.609	21421000	97.3573	17.52172	5.030484	4.120824	8.439795	4.578388	0.718147	7571	8.93208
32	Sao Tome	1988	38564300	2.63506	201.698	58.04	4487.454	22412000	111.3688	17.46784	5.306772	4.061132	8.40904	4.712847	0.968906	6198	8.731982
32	Sao Tome	1989	41182200	3.84719	100.592	54.46	4344.119	23247000	126.3149	17.53352	4.611073	3.997467	8.376578	4.838778	1.347343	5968	8.694167
32	Sao Tome	1990	42752300	5.47067	97.7586	50.89	4197.797	23921000	144.5023	17.57093	4.582501	3.929667	8.342316	4.973296	1.699401	6024	8.703506
32	Sao Tome	1991	43471100	8.01448	101.582	47.32	4048.71	24299000	145.0169	17.58761	4.620866	3.856933	8.306153	4.976851	2.08125	5200	8.556414
32	Sao Tome	1992	42193300	10.2024	95.5012	43.75	3897.108	24827000	136.0335	17.55777	4.559139	3.778491	8.26799	4.912901	2.322623	9678	9.17761
32	Sao Tome	1993	42341500	12.8041	105.685	88.13	3743.275	25253000	146.316	17.56128	4.660463	4.478813	8.227716	4.985768	2.549765	7856	8.969033
32	Sao Tome	1994	43111300	16.2158	123.111	111.97	3587.523	26086000	148.491	17.5793	4.813087	4.718231	8.185218	5.000524	2.785986	6428	8.768418
32	Sao Tome	1995	43271700	22.2558	111.905	135.81	3430.2	26817000	144.9738	17.58301	4.71765	4.911257	8.140374	4.976553	3.102603	7701	8.949105
32	Sao Tome	1996	44602300	30.603	142.12	159.64	3264	27735000	162.1599	17.6133	4.956672	5.072921	8.090709	5.088583	3.421098	6093	8.714896
32	Sao Tome	1997	43929900	51.3317	145.981	183.48	3097	28755000	162.4242	17.59811	4.983477	5.212106	8.038189	5.090211	3.938308	8297	9.023649
32	Sao Tome	1998	42270300	77.441	115.905	207.32	2931	29454000	162.5781	17.5596	4.752771	5.334263	7.983099	5.091159	4.349516	6299	8.748146
32	Sao Tome	1999	38638200	90.0901	114.782	231.16	2765	30369000	144.0425	17.46975	4.743035	5.44311	7.924796	4.970108	4.50081	6837	8.830104
32	Sao Tome	2000	41400300	100	100	255	2598.7	31583000	137.9905	17.5388	4.60517	5.541264	7.862767	4.927185	4.60517	6455	8.772611
32	Sao Tome	2001	42326300	109.5	69.5971	278.84	2598.7	32016000	154.6581	17.56092	4.242723	5.630638	7.862767	5.041217	4.695925	5979	8.696009
32	Sao Tome	2002	43077200	119.574	75.0174		2598.7	32606000	173.6552	17.5785	4.31772		7.862767	5.157072	4.783936	5450	8.603371
32	Sao Tome	2003	45501400	131.053	80.2322	326.51	2598.7	33528000	153.7882	17.63325	4.384925	5.788461	7.862767	5.035576	4.875602	5536	8.619027
32	Sao Tome	2004		148.483	74.144	349.46	2598.7	34369470	167.5051		4.306009	5.856389	7.862767	5.121014	5.000471	7075	8.864323
33	Senegal	1984	2.42E+09	58.8766	118.58	5440.861	5027.507	19309000	118.5273	21.60884	4.775588	8.601692	8.522679	4.775143	4.075444	5036	8.524367
33	Senegal	1985	2.53E+09	66.4037	121.633	6305.037	4897.76	20012000	113.2772	21.65102	4.801008	8.749104	8.496533	4.729838	4.195753	6014	8.701845
33	Senegal	1986	2.66E+09	70.4786	137.722	7306.47	4764.424	20676000	107.394	21.70194	4.925237	8.896516	8.468932	4.676504	4.255309	6296	8.74767
33	Senegal	1987	2.77E+09	67.5679	156.359	6581.25	4627.609	21421000	97.3573	21.74189	5.052155	8.79198	8.439795	4.578388	4.213133	7571	8.93208
33	Senegal	1988	2.92E+09	66.3495	154.118	9513.05	4487.454	22412000	111.3688	21.79485	5.037718	9.160419	8.40904	4.712847	4.194936	6198	8.731982
33	Senegal	1989	2.89E+09	66.6338	159.154	12660.86	4344.119	23247000	126.3149	21.78413	5.069872	9.446271	8.376578	4.838778	4.199212	5968	8.694167
33	Senegal	1990	2.99E+09	66.8504	179.682	11029.26	4197.797	23921000	144.5023	21.81943	5.191189	9.308307	8.342316	4.973296	4.202457	6024	8.703506
33	Senegal	1991	2.93E+09	65.6726	173.57	6014.06	4048.71	24299000	145.0169	21.79806	5.156581	8.701856	8.306153	4.976851	4.184682	5200	8.556414
33	Senegal	1992	3.00E+09	65.6726	179.35	6375.1	3897.108	24827000	136.0335	21.82088	5.189339	8.760155	8.26799	4.912901	4.184682	9678	9.17761
33	Senegal	1993	2.93E+09	65.0093	163.928	9320.28	3743.275	25253000	146.316	21.7994	5.099427	9.139948	8.227716	4.985768	4.174531	7856	8.969033
33	Senegal	1994	3.08E+09	85.8122	143.605	5089.06	3587.523	26086000	148.491	21.84645	4.967066	8.534848	8.185218	5.000524	4.452161	6428	8.768418
33	Senegal	1995	3.16E+09	93.0599	168.847	10043.4	3430.2	26817000	144.9738	21.87464	5.128993	9.214671	8.140374	4.976553	4.533243	7701	8.949105
33	Senegal	1996	3.29E+09	95.6656	158.436	418.42	3264	27735000	162.1599	21.91299	5.065351	6.036486	8.090709	5.088583	4.560859	6093	8.714896
33	Senegal	1997	3.44E+09	97.3876	115.637	9226.9	3097	28755000	162.4242	21.95833	4.750456	9.129878	8.038189	5.090211	4.578699	8297	9.023649
33	Senegal	1998	3.57E+09	98.4588	117.925	8022.86	2931	29454000	162.5781	21.99599	4.770049	8.99005	7.983099	5.091159	4.589638	6299	8.748146
33	Senegal	1999	3.77E+09	99.2574	107.471	6555.51	2765	30369000	144.0425	22.05022	4.677221	8.788061	7.924796	4.970108	4.597716	6837	8.830104
33	Senegal	2000	3.92E+09	100	100	12500.19	2598.7	31583000	137.9905	22.08865	4.60517	9.433499	7.862767	4.927185	4.60517	6455	8.772611
33	Senegal	2001	4.20E+09	102.963	98.4743	11814.46	2598.7	32016000	154.6581	22.158	4.589796	9.377079	7.862767	5.041217	4.63437	5979	8.696009
33	Senegal	2002	4.16E+09	105.374	103.883	12571.19	2598.7	32606000	173.6552	22.14938	4.643265	9.439163	7.862767	5.157072	4.657516	5450	8.603371
33	Senegal	2003	4.43E+09	105.334	145.147	14858.63	2598.7	33528000	153.7882	22.21097	4.977747	9.606336	7.862767	5.035576	4.657136	5536	8.619027
33	Senegal	2004	4.67E+09	105.869	141.867	13510.73	2598.7	34369470	167.5051	22.26535	4.95489	9.511239	7.862767	5.121014	4.662202	7075	8.864323
34	Seychelles	1984	2.47E+08	71.7316		942.3203	5027.507	19309000	118.5273	19.32503		6.848345	8.522679	4.775143	4.272932	5036	8.524367
34	Seychelles	1985	2.71E+08	72.3301	115.696	1032.984	4897.76	20012000	113.2772	19.41731	4.750966	6.940207	8.496533	4.729838	4.28124	6014	8.701845
34	Seychelles	1986	2.68E+08	72.5011	86.9958	1132.37	4764.424	20676000	107.394	19.40602	4.46586	7.032068	8.468932	4.676504	4.283602	6296	8.74767
34	Seychelles	1987	2.83E+08	74.382	97.3893	1022.16	4627.609	21421000	97.3573	19.46185	4.578716	6.929673	8.439795	4.578388	4.309214	7571	8.93208
34	Seychelles	1988	2.83E+08	75.75	101.516	945.08	4487.454	22412000	111.3688	19.46163	4.620216	6.85127	8.40904	4.712847	4.327438	6198	8.731982
34	Seychelles	1989	3.12E+08	76.9469	81.5667	801.79	4344.119	23247000	126.3149	19.55842	4.401421	6.686847	8.376578	4.838778	4.343115	5968	8.694167
34	Seychelles	1990	3.35E+08	79.9393	91.5242	1343.34	4197.797	23921000	144.5023	19.6292	4.516603	7.202914	8.342316	4.973296	4.381268	6024	8.703506
34	Seychelles	1991	3.56E+08	81.5636	81.8245	1064.37	4048.71	24299000	145.0169	19.6913	4.404577	6.970139	8.306153	4.976851	4.401383	5200	8.556414
34	Seychelles	1992	3.62E+08	84.2072	96.2035	1292.76	3897.108	24827000	136.0335	19.70627	4.566466	7.164535	8.26799	4.912901	4.43328	9678	9.17761
34	Seychelles	1993	3.61E+08	85.2896	96.1353	539.79	3743.275	25253000	146.316	19.70559	4.565757	6.29118	8.227716	4.985768	4.446053	7856	8.969033
34	Seychelles	1994	3.78E+08	86.8644	100.395	1119.62	3587.523	26086000	148.491	19.74911	4.609112	7.020745	8.185218	5.000524	4.464348	6428	8.768418
34	Seychelles	1995	3.97E+08	86.6525	109.583	1007.1	3430.2	26817000	144.9738	19.79879	4.696682	6.91483	8.140374	4.976553	4.461906	7701	8.949105
34	Seychelles	1996	4.20E+08	85.6992	110.004	1131.37	3264	27735000	162.1599	19.85516	4.700517	7.031185	8.090709	5.088583	4.450843	6093	8.714896
34	Seychelles	1997	4.78E+08	86.2288	103.827	430.39	3097	28755000	162.4242	19.98545	4.642726	6.064692	8.038189	5.090211	4.457004	8297	9.023649
34	Seychelles	1998	5.16E+08	88.4534	102.855	417.59	2931	29454000	162.5781	20.06068	4.63332	6.0345	7.983099	5.091159	4.482476	6299	8.748146
34	Seychelles	1999	5.26E+08	94.0678	111.458	461.01	2765	30369000	144.0425	20.07992	4.713648	6.13342	7.924796	4.970108	4.544016	6837	8.830104
34	Seychelles	2000	5.63E+08	100	100	3564.61	2598.7	31583000	137.9905	20.14846	4.60517	8.17881	7.862767	4.927185	4.60517	6455	8.772611
34	Seychelles	2001	5.49E+08	101.9	97.5467	5993.64	2598.7	32016000	154.6581	20.12442	4.580331	8.698454	7.862767	5.041217	4.623992	5979	8.696009
34	Seychelles	2002	5.46E+08	102.104	104.266	44046.29	2598.7	32606000	173.6552	20.11869	4.646945	10.693	7.862767	5.157072	4.625992	5450	8.603371
34	Seychelles	2003	5.16E+08	105.371	105.797	3932.78	2598.7	33528000	153.7882	20.06215	4.661522	8.277102	7.862767	5.035576	4.657487	5536	8.619027

countrycode	country	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
34	Seychelles	2004	5.08E+08	109.481	103.887	694.94	2598.7	34369470	167.5051	20.04503	4.643304	6.543826	7.862767	5.121014	4.695751	7075	8.864323
35	Sierra Leo	1984	7.60E+08		68.4884	304.6544	5027.507	19309000	118.5273	20.44855	4.226665	5.719178	8.522679	4.775143		5036	8.524367
35	Sierra Leo	1985	6.65E+08		73.4244	292.734	4897.76	20012000	113.2772	20.31506	4.296257	5.679264	8.496533	4.729838		6014	8.701845
35	Sierra Leo	1986	6.60E+08		27.6267	281.28	4764.424	20676000	107.394	20.30696	3.318783	5.63935	8.468932	4.676504		6296	8.74767
35	Sierra Leo	1987	6.75E+08		120.453	229.57	4627.609	21421000	97.3573	20.32964	4.79126	5.436208	8.439795	4.578388		7571	8.93208
35	Sierra Leo	1988	6.88E+08	1.80414	245.068	252.43	4487.454	22412000	111.3688	20.3495	5.501536	5.531134	8.40904	4.712847	0.590084	6198	8.731982
35	Sierra Leo	1989	7.13E+08	2.89886	125.817	244.93	4344.119	23247000	126.3149	20.38511	4.834828	5.500972	8.376578	4.838778	1.064318	5968	8.694167
35	Sierra Leo	1990	7.20E+08	6.11573	101.153	232.95	4197.797	23921000	144.5023	20.39462	4.616634	5.450824	8.342316	4.973296	1.810864	6024	8.703506
35	Sierra Leo	1991	7.70E+08	12.3966	81.6801	226.35	4048.71	24299000	145.0169	20.46207	4.402811	5.422082	8.306153	4.976851	2.517422	5200	8.556414
35	Sierra Leo	1992	6.18E+08	20.5183	74.7879	149.19	3897.108	24827000	136.0335	20.24194	4.314656	5.005221	8.26799	4.912901	3.021317	9678	9.17761
35	Sierra Leo	1993	6.16E+08	25.0745	93.3934	181.88	3743.275	25253000	146.316	20.23852	4.536821	5.203347	8.227716	4.985768	3.221851	7856	8.969033
35	Sierra Leo	1994	6.05E+08	31.1376	199.682	194.9	3587.523	26086000	148.491	20.22115	5.296726	5.272487	8.185218	5.000524	3.438416	6428	8.768418
35	Sierra Leo	1995	5.47E+08	39.2295	188.276	164.54	3430.2	26817000	144.9738	20.1194	5.237909	5.103154	8.140374	4.976553	3.669429	7701	8.949105
35	Sierra Leo	1996	5.50E+08	48.3059	110.542	212.24	3264	27735000	162.1599	20.12614	4.705396	5.357718	8.090709	5.088583	3.877554	6093	8.714896
35	Sierra Leo	1997	5.64E+08	55.5274	105.373	144.4	3097	28755000	162.4242	20.15048	4.657506	4.972587	8.038189	5.090211	4.016877	8297	9.023649
35	Sierra Leo	1998	5.74E+08	75.2546	113.721	236.74	2931	29454000	162.5781	20.16792	4.733748	5.466962	7.983099	5.091159	4.320877	6299	8.748146
35	Sierra Leo	1999	5.62E+08	100.908	88.3282	237.38	2765	30369000	144.0425	20.14635	4.48106	5.469662	7.924796	4.970108	4.614209	6837	8.830104
35	Sierra Leo	2000	5.97E+08	100	100	243.98	2598.7	31583000	137.9905	20.20815	4.60517	5.497086	7.862767	4.927185	4.60517	6455	8.772611
35	Sierra Leo	2001	5.47E+08	103.4	100.494	276.19	2598.7	32016000	154.6581	20.12025	4.610098	5.621089	7.862767	5.041217	4.638605	5979	8.696009
35	Sierra Leo	2002	7.04E+08	100.195	119.415	902.74	2598.7	32606000	173.6552	20.37155	4.782605	6.805435	7.862767	5.157072	4.607118	5450	8.603371
35	Sierra Leo	2003	7.76E+08	111.517	85.0844	310.22	2598.7	33528000	153.7882	20.46902	4.443644	5.737282	7.862767	5.035576	4.714177	5536	8.619027
35	Sierra Leo	2004	8.52E+08	125.791	92.0086	319.8	2598.7	34369470	167.5051	20.56357	4.521882	5.767696	7.862767	5.121014	4.834622	7075	8.864323
36	Sudan	1984	5.73E+09	0.187817	124.043	1752.861	5027.507	19309000	118.5273	22.46943	4.820628	7.469005	8.522679	4.775143	-1.672287	5036	8.524367
36	Sudan	1985	5.40E+09	0.273228	121.649	1692.822	4897.76	20012000	113.2772	22.41006	4.80114	7.434153	8.496533	4.729838	-1.297449	6014	8.701845
36	Sudan	1986	5.73E+09	0.339982	129.407	1634.84	4764.424	20676000	107.394	22.46881	4.862962	7.3993	8.468932	4.676504	-1.078863	6296	8.74767
36	Sudan	1987	6.60E+09	0.410391	208.752	1394.03	4627.609	21421000	97.3573	22.60978	5.341147	7.239954	8.439795	4.578388	-0.890645	7571	8.93208
36	Sudan	1988	6.37E+09	0.664552		1453.01	4487.454	22412000	111.3688	22.57478		7.281393	8.40904	4.712847	-0.408642	6198	8.731982
36	Sudan	1989	7.17E+09	1.10655		1427.81	4344.119	23247000	126.3149	22.69242		7.263897	8.376578	4.838778	0.101247	5968	8.694167
36	Sudan	1990	6.81E+09	1.87028		1399.92	4197.797	23921000	144.5023	22.64226		7.24417	8.342316	4.973296	0.626088	6024	8.703506
36	Sudan	1991	7.27E+09	4.16889		1330.06	4048.71	24299000	145.0169	22.70704		7.192979	8.306153	4.976851	1.42765	5200	8.556414
36	Sudan	1992	7.69E+09	2.7332		1344.13	3897.108	24827000	136.0335	22.76273		7.203502	8.26799	4.912901	1.005473	9678	9.17761
36	Sudan	1993	8.03E+09	5.49924		1341.25	3743.275	25253000	146.316	22.80592		7.201357	8.227716	4.985768	1.70461	7856	8.969033
36	Sudan	1994	8.18E+09	11.8521		990.17	3587.523	26086000	148.491	22.82525		6.897877	8.185218	5.000524	2.472505	6428	8.768418
36	Sudan	1995	8.67E+09	19.9573		1403.35	3430.2	26817000	144.9738	22.88349		7.246617	8.140374	4.976553	2.993595	7701	8.949105
36	Sudan	1996	8.79E+09	46.4686	131.007	1430.96	3264	27735000	162.1599	22.89732	4.875251	7.266101	8.090709	5.088583	3.838777	6093	8.714896
36	Sudan	1997	9.54E+09	68.1454	132.388	92592.6	3097	28755000	162.4242	22.97898	4.885737	11.43596	8.038189	5.090211	4.221643	8297	9.023649
36	Sudan	1998	1.02E+10	79.8005	131.489	124391.3	2931	29454000	162.5781	23.04388	4.878923	11.73119	7.983099	5.091159	4.37953	6299	8.748146
36	Sudan	1999	1.12E+10	92.5637	98.0181	122615.2	2765	30369000	144.0425	23.13588	4.585152	11.71681	7.924796	4.970108	4.527897	6837	8.830104
36	Sudan	2000	1.19E+10	100	100	86820.11	2598.7	31583000	137.9905	23.19669	4.60517	11.37159	7.862767	4.927185	4.60517	6455	8.772611
36	Sudan	2001	1.26E+10	104.871	98.537	46724.94	2598.7	32016000	154.6581	23.25588	4.590432	10.75203	7.862767	5.041217	4.652731	5979	8.696009
36	Sudan	2002	1.33E+10	113.576	111.534	167300.4	2598.7	32606000	173.6552	23.314	4.714329	12.02755	7.862767	5.157072	4.732472	5450	8.603371
36	Sudan	2003	1.45E+10	122.321	122.369	127003.3	2598.7	33528000	153.7882	23.40023	4.807041	11.75197	7.862767	5.035576	4.806649	5536	8.619027
36	Sudan	2004	1.53E+10	132.596	157.011	163320.6	2598.7	34369470	167.5051	23.45129	5.056316	12.00347	7.862767	5.121014	4.887307	7075	8.864323
37	Swaziland	1984	4.14E+08	19.3374	82.6012	3474.502	5027.507	19309000	118.5273	19.84015	4.414024	8.153207	8.522679	4.775143	2.962041	5036	8.524367
37	Swaziland	1985	4.29E+08	23.2943	57.6509	3256.363	4897.76	20012000	113.2772	19.87712	4.054406	8.088367	8.496533	4.729838	3.148209	6014	8.701845
37	Swaziland	1986	4.82E+08	26.4943	65.3891	3051.92	4764.424	20676000	107.394	19.9938	4.180356	8.023526	8.468932	4.676504	3.27693	6296	8.74767
37	Swaziland	1987	5.55E+08	30.0383	87.0867	2866.59	4627.609	21421000	97.3573	20.13356	4.466904	7.960878	8.439795	4.578388	3.402473	7571	8.93208
37	Swaziland	1988	5.91E+08	36.1645	74.8632	2681.26	4487.454	22412000	111.3688	20.19729	4.315662	7.894042	8.40904	4.712847	3.588078	6198	8.731982
37	Swaziland	1989	6.51E+08	38.8935	75.5178	2495.94	4344.119	23247000	126.3149	20.29381	4.324368	7.822421	8.376578	4.838778	3.660827	5968	8.694167
37	Swaziland	1990	7.10E+08	43.9856	84.5619	2312.59	4197.797	23921000	144.5023	20.38054	4.437484	7.746123	8.342316	4.973296	3.783862	6024	8.703506
37	Swaziland	1991	7.28E+08	47.9154	85.4296	2130.62	4048.71	24299000	145.0169	20.40627	4.447693	7.664168	8.306153	4.976851	3.869437	5200	8.556414
37	Swaziland	1992	7.35E+08	51.537	93.2107	1948.63	3897.108	24827000	136.0335	20.41491	4.534863	7.574882	8.26799	4.912901	3.9423	9678	9.17761
37	Swaziland	1993	7.60E+08	57.7335	95.3745	1766.64	3743.275	25253000	146.316	20.44814	4.557811	7.476835	8.227716	4.985768	4.055838	7856	8.969033
37	Swaziland	1994	7.85E+08	65.683	107.544	1584.67	3587.523	26086000	148.491	20.48114	4.6779	7.368132	8.185218	5.000524	4.18484	6428	8.768418
37	Swaziland	1995	8.17E+08	73.7545	114.151	1402.68	3430.2	26817000	144.9738	20.52061	4.737522	7.24614	8.140374	4.976553	4.300742	7701	8.949105
37	Swaziland	1996	8.49E+08	78.4934	107.234	1220.7	3264	27735000	162.1599	20.55927	4.675014	7.10718	8.090709	5.088583	4.363015	6093	8.714896
37	Swaziland	1997	8.83E+08	84.7294	108.058	12136.21	3097	28755000	162.4242	20.59831	4.682668	9.403949	8.038189	5.090211	4.439463	8297	9.023649
37	Swaziland	1998	9.12E+08	91.0929	100.093	7552.21	2931	29454000	162.5781	20.63094	4.6061	8.929596	7.983099	5.091159	4.51188	6299	8.748146
37	Swaziland	1999	9.46E+08	96.4329	100.048	675.75	2765	30369000	144.0425	20.66784	4.60565	6.515823	7.924796	4.970108	4.568848	6837	8.830104
37	Swaziland	2000	9.65E+08	100	100	18209.59	2598.7	31583000	137.9905	20.68753	4.60517	9.809704	7.862767	4.927185	4.60517	6455	8.772611
37	Swaziland	2001	9.80E+08	110.784	87.758	7459.74	2598.7	32016000	154.6581	20.70352	4.474583	8.917275	7.862767	5.041217	4.707582	5979	8.696009
37	Swaziland	2002	1.01E+09	123.524	84.1165	9835.96	2598.7	32606000	173.6552	20.7346	4.432203	9.1938	7.862767	5.157072	4.816435	5450	8.603371
37	Swaziland	2003	1.04E+09	129.231	129.865	61.84	2598.7	33528000	153.7882	20.75871	4.866496	4.12455	7.862767	5.035576	4.861601	5536	8.619027
37	Swaziland	2004	1.06E+09	133.625	184.358	60.85	2598.7	34369470	167.5051	20.77943	5.216879	4.108412	7.862767	5.121014	4.895037	7075	8.864323
38	Tanzania	1984		3.2511		424.2424	5027.507	19309000	118.5273			6.050305	8.522679	4.775143	1.178993	5036	8.524367
38	Tanzania	1985		4.33314		401.6602	4897.76	20012000	113.2772			5.995606	8.496533	4.729838	1.466292	6014	8.701845
38	Tanzania	1986		5.73848		380.28	4764.424	20676000	107.394			5.940908	8.468932	4.676504	1.747194	6296	8.74767
38	Tanzania	1987	5.31E+09	7.45712	66.2118	357.8	4627.609	21421000	97.3573	22.39304	4.192859	5.879974	8.439795	4.578388	2.009169	7571	8.93208
38	Tanzania	1988	5.55E+09	9.78274	71.2351	335.51	4487.454	22412000	111.3688	22.43639	4.265985	5.815652	8.40904	4.712847	2.28062	6198	8.731982
38	Tanzania	1989	5.74E+09	12.3116	83.9023	317.71	4344.119	23247000	126.3149	22.47058	4.429653	5.761139	8.376578	4.838778	2.510542	5968	8.694167
38	Tanzania	1990	6.17E+09	16.7224	78.4587	301.69	4197.797	23921000	144.5023	22.5436	4.362572	5.7094	8.342316	4.973296	2.816749	6024	8.703506
38	Tanzania	1991	6.35E+09	21.5211	82.9803	268.93	4048.71	24299000	145.0169	22.57103	4.418603	5.594451	8.306153	4.976851	3.069034	5200	8.556414
38	Tanzania	1992	6.46E+09	26.2207	75.9749	247.35	3897.108	24827000	136.0335	22.58905	4.330403	5.510804	8.26799	4.912901	3.266549	9678	9.17761
38	Tanzania	1993	6.49E+09	32.2742	78.2104	255.21	3743.275	25253000	146.316	22.59303	4.359403	5.542087	8.227716	4.985768	3.474268	7856	8.969033
38	Tanzania	1994	6.58E+09	44.2642	85.1409	239.86	3587.523	26086000	148.491	22.60693	4.444307	5.480055	8.185218	5.000524	3.790176	6428	8.768418
38	Tanzania	1995	6.81E+09	54.8662	75.2099	14862.06	3430.2	26817000	144.9738	22.64196	4.320283	9.606567	8.140374	4.976553	4.004898	7701	8.949105
38	Tanzania	1996	7.10E+09	66.1204	78.5457	8985.95	3264	27735000	162.1599	22.68307	4.363681	9.103417	8.090709	5.088583	4.191477	6093	8.714896
38	Tanzania	1997	7.33E+09	76.3211	116.557	14797.6	3097	28755000	162.4242	22.71571	4.75838	9.602221	8.038189	5.090211	4.334949	8297	9.023649
38	Tanzania	1998	7.63E+09	86.3712	95.2935	15414.56	2931	29454000	162.5781	22.75472	4.556962	9.643067	7.983099	5.091159	4.458654	6299	8.748146
38	Tanzania	1999	7.99E+09	94.1472	104.083	14046.68	2765	30369000	144.0425	22.80109	4.645189	9.550141	7.924796	4.970108	4.544859	6837	8.830104
38	Tanzania	2000	8.38E+09	100	100	17340.05	2598.7	31583000	137.9905	22.84877	4.60517	9.760775	7.862767	4.927185	4.60517	6455	8.772611
38	Tanzania	2001	8.86E+09	105.184	102.416	16717.58	2598.7	32016000	154.6581	22.90463	4.629043	9.724216	7.862767	5.041217	4.655711	5979	8.696009
38	Tanzania	2002	9.40E+09	110.05	106.943	13572.33	2598.7	32606000	173.6552	22.96443	4.672296	9.515788	7.862767	5.157072	4.700935	5450	8.603371
38	Tanzania	2003	9.94E+09	114.983	114.037	12418.05	2598.7	33528000	153.7882	23.01956	4.736523	9.426907	7.862767	5.035576	4.744784	5536	8.619027
38	Tanzania	2004	1.06E+10	119.967	131.425	13446.27	2598.7	34369470	167.5051	23.08471	4.878437	9.506457	7.862767	5.121014	4.787217	7075	8.864323
39	Togo	1984	7.73E+08	54.2091	95.1098	874.7263	5027.507	19309000	118.5273	20.46628	4.555032	6.773911	8.522679	4.775143	3.992849	5036	8.524367
39	Togo	1985	8.17E+08	53.2255	92.3116	830.7844	4897.76	20012000	113.2772	20.52123	4.52517	6.72237	8.496533	4.729838	3.974538	6014	8.701845
39	Togo	1986	8.35E+08	55.4209	105.951	789.05	4764.424	20676000	107.394	20.54246	4.662977	6.67083	8.468932	4.676504	4.014957	6296	8.74767
39	Togo	1987	8.44E+08	55.4508	113.047	730.73	4627.609	21421000	97.3573	20.5532	4.727804	6.594044	8.439795	4.578388	4.015496	7571	8.93208
39	Togo	1988	8.98E+08	55.3672	120.832	711.68	4487.454	22412000	111.3688	20.6153	4.794401	6.567628	8.40904	4.712847	4.013988	6198	8.731982
39	Togo	1989	9.42E+08	55.6357	119.393	672.98	4344.119	23247000	126.3149	20.66367	4.782421	6.511715	8.376578	4.838778	4.018825	5968	8.694167
39	Togo	1990	9.42E+08	55.4508	131.682	634.48	4197.797	23921000	144.5023	20.66387	4.88039	6.452806	8.342316	4.973296	4.015496	6024	8.703506
39	Togo	1991	9.52E+08	55.6172	123.873	596.06	4048.71	24299000	145.0169	20.67376	4.819257	6.390341	8.306153	4.976851	4.018493	5200	8.556414
39	Togo	1992	9.27E+08	56.5044	131.109	556.9	3897.108	24827000	136.0335	20.64764	4.876029	6.322386	8.26799	4.912901	4.034318	9678	9.17761
39	Togo	1993	8.03E+08	56.449	89.34	474.77	3743.275	25253000	146.316	20.50338	4.492449	6.16283	8.227716	4.985768	4.033338	7856	8.969033
39	Togo	1994	9.16E+08	76.3558	90.797	2577.88	3587.523	26086000	148.491	20.63568	4.508626	7.854722	8.185218	5.000524	4.335404	6428	8.768418
39	Togo	1995	9.75E+08	88.3332	106.524	1820.4	3430.2	26817000	144.9738	20.69746	4.66837	7.506812	8.140374	4.976553	4.481116	7701	8.949105
39	Togo	1996	1.06E+09	92.3965	111.737	2644.16	3264	27735000	162.1599	20.77712	4.716148	7.880109	8.090709	5.088583	4.526089	6093	8.714896
39	Togo	1997	1.20E+09	97.2935	99.51	1875.07	3097	28755000	162.4242	20.90774	4.600258	7.536401	8.038189	5.090211	4.577732	8297	9.023649
39	Togo	1998	1.21E+09	98.2665	109.167	3323.22	2931	29454000	162.5781	20.91683	4.692879	8.108689	7.983099	5.091159	4.587683	6299	8.748146
39	Togo	1999	1.25E+09	98.1682	106.817	3929.85	2765	30369000	144.0425	20.94642	4.671117	8.276357	7.924796	4.970108	4.586682	6837	8.830104
39	Togo	2000	1.24E+09	100	100	3878.84	2598.7	31583000	137.9905	20.9408	4.60517	8.263291	7.862767	4.927185	4.60517	6455	8.772611

countrycode	country	year	Real GDP	CPI	EXUVAL	EXAN	PSE	WGDP	PXW	lngdp	lnexuval	lnexan	lnpse	lnpxw	lncpi	sub	lnsub
39	Togo	2001	1.22E+09	103.911	91.4992	5847.1	2598.7	32016000	154.6581	20.91876	4.51633	8.673701	7.862767	5.041217	4.643535	5979	8.696009
39	Togo	2002	1.27E+09	107.097	104.669	11537.57	2598.7	32606000	173.6552	20.96238	4.650803	9.353364	7.862767	5.157072	4.673735	5450	8.603371
39	Togo	2003	1.28E+09	106.1	117.139	5319.7	2598.7	33528000	153.7882	20.9675	4.763361	8.579172	7.862767	5.035576	4.664382	5536	8.619027
39	Togo	2004	1.31E+09	106.522	132.142	11799.3	2598.7	34369470	167.5051	20.99656	4.883877	9.375795	7.862767	5.121014	4.668352	7075	8.864323
40	Uganda	1984	2.37E+09	0.220832	223.573	1946.34	5027.507	19309000	118.5273	21.58529	5.409738	7.573706	8.522679	4.775143	-1.510353	5036	8.524367
40	Uganda	1985	2.30E+09	0.404858	244.025	1838.741	4897.76	20012000	113.2772	21.55494	5.497271	7.516836	8.496533	4.729838	-0.904219	6014	8.701845
40	Uganda	1986	2.32E+09	1.03055	249.441	1737.09	4764.424	20676000	107.394	21.56268	5.519222	7.459967	8.468932	4.676504	0.030093	6296	8.74767
40	Uganda	1987	2.40E+09	3.27567	260.535	1644.02	4627.609	21421000	97.3573	21.59973	5.562737	7.4049	8.439795	4.578388	1.186522	7571	8.93208
40	Uganda	1988	2.59E+09	8.79647	239.264	1550.94	4487.454	22412000	111.3688	21.67327	5.477568	7.346616	8.40904	4.712847	2.174351	6198	8.731982
40	Uganda	1989	2.74E+09	20.3165	192.474	1457.85	4344.119	23247000	126.3149	21.73182	5.259961	7.284718	8.376578	4.838778	3.011433	5968	8.694167
40	Uganda	1990	2.90E+09	29.5547	136.138	1364.76	4197.797	23921000	144.5023	21.78777	4.913669	7.218734	8.342316	4.973296	3.386243	6024	8.703506
40	Uganda	1991	3.05E+09	36.8053	114.634	1219.55	4048.71	24299000	145.0169	21.83824	4.741745	7.106237	8.306153	4.976851	3.605642	5200	8.556414
40	Uganda	1992	3.14E+09	52.3371	100.229	1189.88	3897.108	24827000	136.0335	21.8686	4.607458	7.081608	8.26799	4.912901	3.957705	9678	9.17761
40	Uganda	1993	3.41E+09	68.053	95.2903	1104.8	3743.275	25253000	146.316	21.9491	4.556928	7.00742	8.227716	4.985768	4.220287	7856	8.969033
40	Uganda	1994	3.59E+09	72.028	111.084	20842.57	3587.523	26086000	148.491	22.00169	4.710287	9.944753	8.185218	5.000524	4.277055	6428	8.768418
40	Uganda	1995	3.97E+09	76.9231	168.049	15632.19	3430.2	26817000	144.9738	22.10261	5.124256	9.657087	8.140374	4.976553	4.342806	7701	8.949105
40	Uganda	1996	4.28E+09	82.7015	140.711	11011.31	3264	27735000	162.1599	22.17749	4.946708	9.306678	8.090709	5.088583	4.415238	6093	8.714896
40	Uganda	1997	4.48E+09	89.0688	125.877	15083.24	3097	28755000	162.4242	22.22186	4.835305	9.62134	8.038189	5.090211	4.489409	8297	9.023649
40	Uganda	1998	4.73E+09	94.2952	112.101	10960.54	2931	29454000	162.5781	22.27659	4.7194	9.302057	7.983099	5.091159	4.54643	6299	8.748146
40	Uganda	1999	5.08E+09	94.4792	102.824	8209.32	2765	30369000	144.0425	22.3489	4.633019	9.013025	7.924796	4.970108	4.54838	6837	8.830104
40	Uganda	2000	5.40E+09	100	100	16784.98	2598.7	31583000	137.9905	22.40874	4.60517	9.72824	7.862767	4.927185	4.60517	6455	8.772611
40	Uganda	2001	5.68E+09	104.49	91.1546	16907.18	2598.7	32016000	154.6581	22.46018	4.512557	9.735494	7.862767	5.041217	4.649091	5979	8.696009
40	Uganda	2002	6.02E+09	102.392	82.5462	11104.01	2598.7	32606000	173.6552	22.51771	4.413358	9.315062	7.862767	5.157072	4.628808	5450	8.603371
40	Uganda	2003	6.29E+09	108.211	85.3299	3487.35	2598.7	33528000	153.7882	22.56182	4.446525	8.156898	7.862767	5.035576	4.684083	5536	8.619027
40	Uganda	2004	6.64E+09	113.633	96.409	7679.9	2598.7	34369470	167.5051	22.61588	4.5686	8.946362	7.862767	5.121014	4.732974	7075	8.864323
41	Zambia	1984	2.45E+09		138.489	869.9632	5027.507	19309000	118.5273	21.61949	4.930791	6.768451	8.522679	4.775143		5036	8.524367
41	Zambia	1985	2.52E+09		121.235	820.4846	4897.76	20012000	113.2772	21.64551	4.797731	6.709895	8.496533	4.729838		6014	8.701845
41	Zambia	1986	2.51E+09		101.703	773.82	4764.424	20676000	107.394	21.64267	4.622057	6.65134	8.468932	4.676504		6296	8.74767
41	Zambia	1987	2.63E+09	0.10712	137.794	856.06	4627.609	21421000	97.3573	21.68826	4.92576	6.75234	8.439795	4.578388	-2.233806	7571	8.93208
41	Zambia	1988	2.92E+09	0.166633	203.279	673.34	4487.454	22412000	111.3688	21.79586	5.314579	6.51225	8.40904	4.712847	-1.791962	6198	8.731982
41	Zambia	1989	2.78E+09	0.379737	177.757	533.78	4344.119	23247000	126.3149	21.74561	5.180418	6.279984	8.376578	4.838778	-0.968276	5968	8.694167
41	Zambia	1990	2.70E+09	0.825976	211.155	572.86	4197.797	23921000	144.5023	21.71554	5.352592	6.350641	8.342316	4.973296	-0.19119	6024	8.703506
41	Zambia	1991	2.77E+09	1.59086	200.036	511.35	4048.71	24299000	145.0169	21.74198	5.298497	6.237054	8.306153	4.976851	0.464275	5200	8.556414
41	Zambia	1992	2.68E+09	4.731	191.304	446.1	3897.108	24827000	136.0335	21.70866	5.253864	6.100543	8.26799	4.912901	1.554137	9678	9.17761
41	Zambia	1993	2.86E+09	13.6278	175.441	1124.35	3743.275	25253000	146.316	21.77513	5.167303	7.024961	8.227716	4.985768	2.612112	7856	8.969033
41	Zambia	1994	2.53E+09	20.9336	176.888	371.91	3587.523	26086000	148.491	21.65034	5.175517	5.918652	8.185218	5.000524	3.041356	6428	8.768418
41	Zambia	1995	2.48E+09	28.2395	220.204	1752.45	3430.2	26817000	144.9738	21.6321	5.394554	7.46877	8.140374	4.976553	3.340722	7701	8.949105
41	Zambia	1996	2.66E+09	40.4019	168.832	269.64	3264	27735000	162.1599	21.70096	5.128904	5.597088	8.090709	5.088583	3.698877	6093	8.714896
41	Zambia	1997	2.75E+09	50.2617	162.84	3183.08	3097	28755000	162.4242	21.73295	5.092768	8.065604	8.038189	5.090211	3.917243	8297	9.023649
41	Zambia	1998	2.71E+09	62.5707	113.914	188.12	2931	29454000	162.5781	21.71899	4.735444	5.23708	7.983099	5.091159	4.136297	6299	8.748146
41	Zambia	1999	2.79E+09	79.3385	88.0215	4429.62	2765	30369000	144.0425	21.74949	4.477581	8.39607	7.924796	4.970108	4.373724	6837	8.830104
41	Zambia	2000	2.89E+09	100	100	3337.39	2598.7	31583000	137.9905	21.78274	4.60517	8.112945	7.862767	4.927185	4.60517	6455	8.772611
41	Zambia	2001	3.02E+09	121.7	111.337	4213.71	2598.7	32016000	154.6581	21.82807	4.712562	8.346099	7.862767	5.041217	4.801559	5979	8.696009
41	Zambia	2002	3.16E+09	148.717	93.1851	5958.98	2598.7	32606000	173.6552	21.87272	4.534588	8.692655	7.862767	5.157072	5.002045	5450	8.603371
41	Zambia	2003	3.35E+09	174.239	86.2102	4030.4	2598.7	33528000	153.7882	21.93106	4.456789	8.30162	7.862767	5.035576	5.160428	5536	8.619027
41	Zambia	2004	3.52E+09	204.731	90.9822	8784.1	2598.7	34369470	167.5051	21.98108	4.510664	9.080699	7.862767	5.121014	5.321697	7075	8.864323
42	Zimbabwe	1984	4.18E+09	3.25303	177.805	54158.75	5027.507	19309000	118.5273	22.15236	5.180687	10.89967	8.522679	4.775143	1.179587	5036	8.524367
42	Zimbabwe	1985	4.51E+09	3.52871	159.35	43376.53	4897.76	20012000	113.2772	22.22973	5.071103	10.67767	8.496533	4.729838	1.260932	6014	8.701845
42	Zimbabwe	1986	4.59E+09	4.03441	172.139	34740.89	4764.424	20676000	107.394	22.24751	5.148303	10.45567	8.468932	4.676504	1.39486	6296	8.74767
42	Zimbabwe	1987	4.66E+09	4.53746	184.549	56882.33	4627.609	21421000	97.3573	22.26314	5.217915	10.94874	8.439795	4.578388	1.512367	7571	8.93208
42	Zimbabwe	1988	4.94E+09	4.87425	198.908	34740.89	4487.454	22412000	111.3688	22.32067	5.292842	10.45567	8.40904	4.712847	1.583966	6198	8.731982
42	Zimbabwe	1989	5.12E+09	5.50215	200.472	215.43	4344.119	23247000	126.3149	22.35625	5.300674	5.372636	8.376578	4.838778	1.705139	5968	8.694167
42	Zimbabwe	1990	5.49E+09	6.45748	198.637	21656.76	4197.797	23921000	144.5023	22.42558	5.291479	9.983073	8.342316	4.973296	1.865239	6024	8.703506
42	Zimbabwe	1991	5.66E+09	7.96207	182.101	25409.65	4048.71	24299000	145.0169	22.45737	5.204561	10.14288	8.306153	4.976851	2.074689	5200	8.556414
42	Zimbabwe	1992	5.36E+09	11.3135	155.316	36611.24	3897.108	24827000	136.0335	22.4013	5.045462	10.50811	8.26799	4.912901	2.425997	9678	9.17761
42	Zimbabwe	1993	5.45E+09	14.4389	147.401	58143.66	3743.275	25253000	146.316	22.41847	4.993157	10.97067	8.227716	4.985768	2.669926	7856	8.969033
42	Zimbabwe	1994	5.88E+09	17.6483	146.756	59672.39	3587.523	26086000	148.491	22.49456	4.988771	10.99662	8.185218	5.000524	2.87064	6428	8.768418
42	Zimbabwe	1995	5.87E+09	21.639	151.132	60283.36	3430.2	26817000	144.9738	22.49225	5.018154	11.00681	8.140374	4.976553	3.074497	7701	8.949105
42	Zimbabwe	1996	6.48E+09	26.2755	165.103	53539.87	3264	27735000	162.1599	22.59123	5.106569	10.88818	8.090709	5.088583	3.268637	6093	8.714896
42	Zimbabwe	1997	6.57E+09	31.2025	159.828	42520.94	3097	28755000	162.4242	22.60592	5.074098	10.65775	8.038189	5.090211	3.440498	8297	9.023649
42	Zimbabwe	1998	6.71E+09	41.1277	110.739	38988.72	2931	29454000	162.5781	22.62613	4.707176	10.57103	7.983099	5.091159	3.716682	6299	8.748146
42	Zimbabwe	1999	6.76E+09	64.2261	110.584	38093.4	2765	30369000	144.0425	22.63434	4.705775	10.5478	7.924796	4.970108	4.16241	6837	8.830104
42	Zimbabwe	2000	6.35E+09	100	100	53581.64	2598.7	31583000	137.9905	22.5714	4.60517	10.88896	7.862767	4.927185	4.60517	6455	8.772611
42	Zimbabwe	2001	6.18E+09	212.1	93.4918	4728.02	2598.7	32016000	154.6581	22.54504	4.537874	8.461262	7.862767	5.041217	5.357058	5979	8.696009
42	Zimbabwe	2002	6.00E+09	634.029	91.0178	36865.5	2598.7	32606000	173.6552	22.51483	4.511055	10.51503	7.862767	5.157072	6.452095	5450	8.603371
42	Zimbabwe	2003	5.23E+09	4430.24	95.4976	508.06	2598.7	33528000	153.7882	22.37807	4.559101	6.230599	7.862767	5.035576	8.396209	5536	8.619027
42	Zimbabwe	2004	4.45E+09	10309.2	85.5368	30637.08	2598.7	34369470	167.5051	22.21525	4.448946	10.32997	7.862767	5.121014	9.240792	7075	8.864323

Annex 2: Stata Output for Panel Estimation

```
xtreg lnexan lnpxw lncpi lnsub lnexuval lngdp lnwgdp

Random-effects GLS regression                   Number of obs      =       812
Group variable (i): countrycode                 Number of groups   =        42

R-sq:  within  = 0.0429                         Obs per group: min =        11
       between = 0.3814                                        avg =      19.3
       overall = 0.2405                                        max =        21

Random effects u_i ~ Gaussian                   Wald chi2(6)       =     63.39
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
      lnexan |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnpxw |  -.8233228   .5375566    -1.53   0.126    -1.876914    .2302688
       lncpi |  -.0484005   .0221412    -2.19   0.029    -.0917965   -.0050045
       lnsub |  -.3012808   .3040033    -0.99   0.322    -.8971164    .2945549
    lnexuval |   .2988769   .1096755     2.73   0.006     .0839168     .513837
       lngdp |   .7348378     .14884     4.94   0.000     .4431168    1.026559
      lnwgdp |   1.264977   .5464481     2.31   0.021     .1939582    2.335996
       _cons |  -24.54432   7.296146    -3.36   0.001     -38.8445   -10.24414
-------------+----------------------------------------------------------------
     sigma_u |  1.3170765
     sigma_e |    1.33013
         rho |  .49506908   (fraction of variance due to u_i)
------------------------------------------------------------------------------
xtivreg lnexan lnpxw lncpi lnsub lnwgdp lngdp (lnexuval = lnsub lnwgdp lngdp
lgexuval), re

G2SLS random-effects IV regression              Number of obs      =       812
Group variable: countrycode                     Number of groups   =        42

R-sq:  within  = 0.0429                         Obs per group: min =        11
       between = 0.3813                                        avg =      19.3
       overall = 0.2404                                        max =        21

                                                Wald chi2(6)       =     63.35
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
      lnexan |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    lnexuval |   .2987683   .1096783     2.72   0.006     .0838028    .5137338
       lnpxw |  -.8233102   .5375307    -1.53   0.126    -1.876851    .2302306
       lncpi |  -.0484297   .0221414    -2.19   0.029     -.091826   -.0050334
       lnsub |  -.3012734   .3039888    -0.99   0.322    -.8970805    .2945337
      lnwgdp |   1.265364   .5464628     2.32   0.021     .1943165    2.336411
       lngdp |    .734668   .1489309     4.93   0.000     .4427688    1.026567
       _cons |  -24.54684   7.295839    -3.36   0.001    -38.84642   -10.24726
-------------+----------------------------------------------------------------
     sigma_u |  1.3181637
     sigma_e |    1.33013
         rho |  .49548161   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   lnexuval
Instruments:    lnpxw lncpi lnsub lnwgdp lngdp lgexuval

. hausman, save
You used the old syntax of hausman. Click here to learn about the new syntax.
```

```
(storing estimation results as _HAUSMAN)

. xtreg lnexan lnpxw lncpi lnsub lnexuval  lnwgdp

Random-effects GLS regression                   Number of obs      =       819
Group variable (i): countrycode                 Number of groups   =        42

R-sq:  within  = 0.0427                         Obs per group: min =        11
       between = 0.0185                                        avg =      19.5
       overall = 0.0102                                        max =        21

Random effects u_i ~ Gaussian                   Wald chi2(5)       =     35.10
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
      lnexan |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnpxw |  -.8281942   .5346571    -1.55   0.121    -1.876103    .2197144
       lncpi |  -.0748041   .0217458    -3.44   0.001    -.1174251   -.0321831
       lnsub |  -.3823907   .3013294    -1.27   0.204    -.9729854     .208204
    lnexuval |   .2449018   .1107479     2.21   0.027     .0278399    .4619636
      lnwgdp |   2.106686   .5081265     4.15   0.000     1.110776    3.102596
       _cons |  -22.19613   7.172528    -3.09   0.002    -36.25403   -8.138234
-------------+----------------------------------------------------------------
     sigma_u |  1.7931312
     sigma_e |  1.3327686
         rho |  .64414714   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. hauman, sigmamore
unrecognized command:  hauman
r(199);

. hausman, sigmamore
You used the old syntax of hausman. Click here to learn about the new syntax.


                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |   Consistent    Efficient      Difference          S.E.
-------------+----------------------------------------------------------------
    lnexuval |    .2987683     .2449018        .0538665        .0696957
       lnpxw |   -.8233102    -.8281942         .004884        .3541451
       lncpi |   -.0484297    -.0748041        .0263744        .0149977
       lnsub |   -.3012734    -.3823907        .0811173        .2018319
      lnwgdp |    1.265364     2.106686       -.8413219        .4084927
------------------------------------------------------------------------------
                    b = consistent under Ho and Ha; obtained from xtivreg
         B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                        =          8.03
              Prob>chi2 =        0.1548
 correlate lnexuval lngdp  lnwgdp lnpxw lncpi lnsub lnpse
(obs=815)

             | lnexuval    lngdp   lnwgdp    lnpxw    lncpi    lnsub    lnpse
-------------+---------------------------------------------------------------
    lnexuval |   1.0000
       lngdp |   0.0136   1.0000
     lnwgdp |   0.0980   0.0956   1.0000
```

lnpxw	0.1074	0.0742	0.8163	1.0000			
lncpi	-0.0612	-0.1476	0.3591	0.3039	1.0000		
lnsub	0.0795	-0.0251	0.0060	-0.0422	0.0111	1.0000	
lnpse	-0.0862	-0.0971	-0.9894	-0.7883	-0.3606	0.0089	1.0000

Annex 3.1: ATPSM output for Scenario I

Exports (Percentage Change)

	Beverage	Cereal	Dairy Products	Fruits	Animal and Animal Products	Meat	Oilseeds	Sugar	Tobacco and Cotton	Vegetable
Central America	0	0	2	0	3	8	0	0	0	0
Carribean	0	0	9	0	59	630	0	0	0	0
Central Asia	0	0	74	0	17	174	0	0	0	0
Central and Easter Europe	0	0	12	0	11	15	0	0	0	0
Developed Countries	0	0	2	0	1	4	0	0	0	0
Developing Countries	0	0	45	0	27	32	0	0	0	0
Least Developed Countries	0	0	997	0	26	302	0	0	0	0
North Africa and Middle East	0	0	270	0	89	121	0	0	0	0
North America	0	0	0	0	5	6	0	0	0	0
Oceania	0	0	6	0	4	4	0	0	0	0
OECD	0	0	2	0	1	4	0	0	0	0
South America	0	0	33	0	33	28	0	0	0	0
Sub-Saharan Africa	0	0	10	0	7	17	0	0	0	0
Western Europe	0	0	2	0	9	2	0	0	0	0
World	0	0	9	0	6	9	0	0	0	0

Imports (Percentage Change)

	Beverage	Cereal	Dairy Products	Fruits	Animal and Animal Products	Meat	Oilseeds	Sugar	Tobacco and Cotton	Vegetable
Central America	0	0	8	0	8	20	0	0	0	0
Carribean	0	0	9	0	5	4	0	0	0	0
Central Asia	0	0	14	0	9	5	0	0	0	0
Central and Easter Europe	0	1	30	0	7	4	0	0	0	0
Developed Countries	0	1	67	0	21	31	0	0	0	0
Developing Countries	0	0	12	0	8	7	0	0	0	0
Least Developed Countries	0	0	7	0	5	6	0	0	0	0
North Africa and Middle East	0	0	10	0	4	4	0	0	0	0
North America	0	4	8	0	6	17	0	0	0	0
Oceania	0	2	49	0	5	21	0	0	0	0
OECD	0	1	56	0	24	37	0	0	0	0
South America	0	1	30	0	41	54	0	0	0	0
Sub-Saharan Africa	0	0	7	0	4	4	0	0	0	0
Western Europe	0	7	261	0	137	175	0	0	0	0
World	0	0	9	0	6	9	0	0	0	0

Consumption (percentage change)

	Beverage	Cereal	Dairy Products	Fruits	Animal and Animal Products	Meat	Oilseeds	Sugar	Tobacco and Cotton	Vegetable
Central America	0	0.03	4	0	1	2	0	0	0	0
Carribean	0	0.03	6.13	0	2	1	0	0	0	0
Central Asia	0	0	4	0	0	1	0	0	0	0
Central and Easter Europe	0	0	4	0	1	1	0	0	0	0
Developed Countries	0	0	2	0	1	1	0	0	0	0
Developing Countries	0	0	5	0	1	1	0	0	0	0
Least Developed Countries	0	0	5	0	1	1	0	0	0	0
North Africa and Middle East	0	0.02	4	0	1	1	0	0	0	0
North America	0	0	1	0	1	1	0	0	0	0
Oceania	0	0	3	0	1	2	0	0	0	0
OECD	0	0	2	0	1	2	0	0	0	0
South America	0	0	5	0	1	2	0	0	0	0
Sub-Saharan Africa	0	0	6	0	1	1	0	0	0	0
Western Europe	0	0	4	0	3	3	0	0	0	0
World	0	0	0	0	0	0	0	0	0	0

Production (Percentage Change)

	Beverage	Cereal	Dairy Products	Fruits	Animal and Animal Products	Meat	Oilseeds	Sugar	Tobacco and Cotton	Vegetable
Central America	0	0.11	1.4	0	1	2	0	0	0	0
Carribean	0	0.04	2	0	0	0	0	0	0	0
Central Asia	0	0	3	0	1	1	0	0	0	0
Central and Easter Europe	0	0	3	0	1	1	0	0	0	0
Developed Countries	0	0	1	0	1	1	0	0	0	0
Developing Countries	0	0	2	0	1	0	0	0	0	0
Least Developed Countries	0	0.05	4	0	1	1	0	0	0	0
North Africa and Middle East	0	0	4	0	1	1	0	0	0	0
North America	0	0	0	0	0	1	0	0	0	0
Oceania	0	0	6	0	2	1	0	0	0	0
OECD	0	0	1	0	1	1	0	0	0	0
South America	0	0	3	0	1	1	0	0	0	0
Sub-Saharan Africa	0	0	3	0	1	1	0	0	0	0
Western Europe	0	0	2	0	3	2	0	0	0	0
World	0	0	0	0	0	0	0	0	0	0

Annex 3.2: ATPSM output for Scenario II
Exports (Percentage Change)

	Beverage	Cereal	Dairy Products	Fruits	Animal and Animal Products	Meat	Oilseeds	Sugar	Tobacco and Cotton	Vegetable
Central America	0	0	2	0	1	2	0	0	0	0
Carribean	0	0	5	0	16	161	0	0	0	0
Central Asia	0	0	25	0	5	36	0	0	0	0
Central and Easter Europe	0	0	7	0	4	2	0	0	0	0
Developed Countries	0	0	1	0	0	1	0	0	0	0
Developing Countries	0	0	22	0	7	6	0	0	0	0
Least Developed Countries	0	0	442	0	8	57	0	0	0	0
North Africa and Middle East	0	0	103	0	22	8	0	0	0	0
North America	0	0	1	0	1	1	0	0	0	0
Oceania	0	0	3	0	2	1	0	0	0	0
OECD	0	0	1	0	0	1	0	0	0	0
South America	0	0	16	0	10	8	0	0	0	0
Sub-Saharan Africa	0	0	5	0	2	4	0	0	0	0
Western Europe	0	0	2	0	5	1	0	0	0	0
World	0	0	5	0	1	2	0	0	0	0

Imports (percentage Change)

	Beverage	Cereal	Dairy Products	Fruits	Animal and Animal Products	Meat	Oilseeds	Sugar	Tobacco and Cotton	Vegetable
Central America		0	8	0	6	6	0	0	0	0
Carribean	0	0	6	0	3	1	0	0	0	0
Central Asia	0	0	10	0	5	2	0	0	0	0
Central and Easter Europe	0	1	19	0	4	2	0	0	0	0
Developed Countries	0	1	45	0	10	13	0	0	0	0
Developing Countries	0	0	9	0	7	7	0	0	0	0
Least Developed Countries	0	0	5	0	2	1	0	0	0	0
North Africa and Middle East	0	0	8	0	2	1	0	0	0	0
North America	0	2	50	0	9	15	0	0	0	0
Oceania	0	1	29	0	2	6	0	0	0	0
OECD	0	0	36	0	10	12	0	0	0	0
South America	0	0	24	0	30	38	0	0	0	0
Sub-Saharan Africa	0	0	5	0	2	1	0	0	0	0
Western Europe	0	4	239	0	107	128	0	0	0	0
World	0	0	5	0	1	2	0	0	0	0

Consumption (percentage change)

	Beverage	Cereal	Dairy Products	Fruits	Animal and Animal Products	Meat	Oilseeds	Sugar	Tobacco and Cotton	Vegetable
Central America	0	0	4	0	1	1	0	0	0	0
Carribean	0	0	5	0	1	0	0	0	0	0
Central Asia	0	0	3	0	0	0	0	0	0	0
Central and Easter Europe	0	0	3	0	1	0	0	0	0	0
Developed Countries	0	0	2	0	1	1	0	0	0	0
Developing Countries	0	0	4	0	1	1	0	0	0	0
Least Developed Countries	0	0	3	0	0	0	0	0	0	0
North Africa and Middle East	0	0	3	0	1	0	0	0	0	0
North America	0	0	2	0	0	1	0	0	0	0
Oceania	0	0	2	0	0	0	0	0	0	0
OECD	0	0	2	0	1	1	0	0	0	0
South America	0	0	3	0	0	1	0	0	0	0
Sub-Saharan Africa	0	0	4	0	0	0	0	0	0	0
Western Europe										
World										

Production (percentage change)

	Beverage	Cereal	Dairy Products	Fruits	Animal and Animal Products	Meat	Oilseeds	Sugar	Tobacco and Cotton	Vegetable
Central America	0	0	1	0	0	0	0	0	0	0
Carribean	0	0	1	0	0	0	0	0	0	0
Central Asia	0	0	2	0	0	0	0	0	0	0
Central and Easter Europe	0	0	2	0	0	0	0	0	0	0
Developed Countries	0	0	1	0	0	0	0	0	0	0
Developing Countries	0	0	1	0	0	0	0	0	0	0
Least Developed Countries	0	0	2	0	0	0	0	0	0	0
North Africa and Middle East	0	0	2	0	1	0	0	0	0	0
North America	0	0	2	0	0	0	0	0	0	0
Oceania	0	0	3	0	1	1	0	0	0	0
OECD	0	0	1	0	0	0	0	0	0	0
South America	0	0	2	0	0	0	0	0	0	0
Sub-Saharan Africa	0	0	2	0	0	0	0	0	0	0
Western Europe	0	0	2	0	2	1	0	0	0	0
World	0	0	0	0	0	0	0	0	0	0

DECLARATION

I, the undersigned, declared that the thesis is my original work and it has never been presented in any other university. All sources of materials used for this study have been dully acknowledged.

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Place and Date of Submission: Addis Ababa University, July 2007