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Draft – Final Analysis of Constraints on Economic Growth

**The Republic of
Malawi**

**The Millennium
Challenge
Account – Malawi**

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Executive Summary

The Constraints Analysis Study is an attempt to accomplish a comprehensive analysis of constraints that impede sustainable economic development and poverty eradication in Malawi. It analyses a large variety of potential problems related to issues generated by the geographical position of the country, the status of infrastructure components, the situation in the area of human resources supply, difficulties in accessing financial resources, innovation skills as well as to the problems related to macroeconomic risks and investment climate. It also analyses the effects of the constraints identified on food security and diversification. An important tool used to identify the potential constraints is the comparison of Malawi's performance with the achievements attained by other countries, especially by those from Sub-Saharan Africa.

The study comes with the conclusion that power, international corridors, human capital, water and irrigation and finance represent the binding constraints for economic growth at the moment. The study further identifies other equally binding constraints, namely: an overvalued exchange rate, administrative barriers to trade and regular changes to trade rules.

In arriving at the above conclusions the study looked at all the potential problems beginning with Malawi's human capital as a constraint and ending up with macro-and micro-risks. The analysis noted that returns to tertiary education are high and in consequence Malawians make great efforts to study in overseas universities. Primary school completion rates are low and tertiary education is highly concentrated. Most of the members of the private sector cite shortage of highly skilled workers as the number 8th constraint. There is a mismatch between school and tertiary institutions curricula and what is required by most businesses and that technical training institutions are not properly functioning.

Regarding geography the analysis arrived at a number of conclusions. First it was noted that rainfall is a major driver of maize yields and subsequently of GDP per capita growth. However controlling for rainfall variability reduces the standard deviation of GDP per capita growth from 5.6% to 4.4%, which is still higher than most of the countries' GDP per capita volatility and as such rainfall does not explain all GDP volatility. Second we looked at Malawi's geographical position compared to other countries among the comparators as one of the drivers for GDP per capita growth. The Analysis noted that Malawi is landlocked and is over 900 kilometers from the sea but so are many other countries, some even are much further away (over 2000kms away). Distance only explains a third of the very high transport costs in Malawi, for instance, transport costs are estimated at 56% of the export value, one of the highest proportions in the world. This makes access to external markets more costly and therefore the analysis had to look at the root cause of the high transport costs.

The analysis therefore looked at the state of infrastructure and in this case the first to be analyzed was state of transport infrastructure. The analysis noted that road density is good by regional standards. However, whereas many of the paved roads are in good or fair condition, 76% of roads are unpaved and nearly 50% of them are in poor condition and access during the rainy season is very difficult. More importantly access to ports is problematic and there are costly delays occasioned by the 77kilometres stretch between Cuamba and Entre Lagos on the Nacala railway line which reduces train turnaround times forcing shippers to use the longer alternative routes to Durban and Dar es Salaam. In addition there have been considerable delays in repairing the Blantyre Lilongwe rail line thereby forcing shippers to switch to the more expensive road haulage thereby exacerbating the already high transport costs. Second the poor state of the power

infrastructure is clearly a major constraint on returns to investment within the private sector for both existing and new investors. As a result, the risk of lower returns limits diversification into non-traditional exports and particularly undermines manufacturing output and investment. Third, on water and irrigation beside frequent droughts and flooding as well as low levels of irrigation, one of the other challenges in this sector is the degradation of water resources through deforestation and sedimentation that negatively impacts businesses and individuals as well as other sectors such as health, power generation and the transport network. The droughts affect agricultural productivity and the floods contribute to agricultural land and crops damage.

Notwithstanding the results of the ICA 2006 feedback which ranked macroeconomic instability as the number one constraint for the business community it should be noted that level of inflation has dropped dramatically in recent years and Malawi's fiscal balance is now better than average for the region; a huge improvement since the early 2000's. Nevertheless the worsening trade balance and the resulting deterioration in the current account is of most concern as the increasingly over-valued exchange rate has led to loss of competitiveness in world markets and periods of chronic forex shortages experienced in recent years has hurt both exporters and importers. Donor inflows are helping cushion these imbalances. On micro-risks the overall the business climate in Malawi compares relatively favourably with SSA peers although Malawi has been consistently falling in the rankings in recent years as other countries reform at a faster rate. However, given the non-administrative barriers to trade mentioned in previous sectors, this high administrative burden on exporters is extremely unhelpful in promoting an export-oriented economy, especially as Malawi is so highly reliant on trade.

Malawi has a highly concentrated export basket which is compounded by low export sophistication, in which Malawi ranks amongst the least sophisticated countries. The country is also adversely affected by regional co-ordination failures to achieve transport/energy network efficiencies and reliability. However coordination failures, deficiencies in innovation and inability to innovate are not considered to be binding constraints according to this study. The country's ability to innovate and improve export sophistication is affected by the constraints mentioned above.

Based on the ICA 2006 survey, businesses quote "cost of finance" and "access to finance" as highly important constraints. Analysis shows that whilst real lending rates have been decreasing since 2004, real interest lending rates and nominal spreads remain very high compared to peers. Paradoxically, the prevailing negative real deposit rates imply the absence of private savings constraint. Hurdles to economic growth still remain in the financial sector notably in financial intermediation and in accessing venture capital.

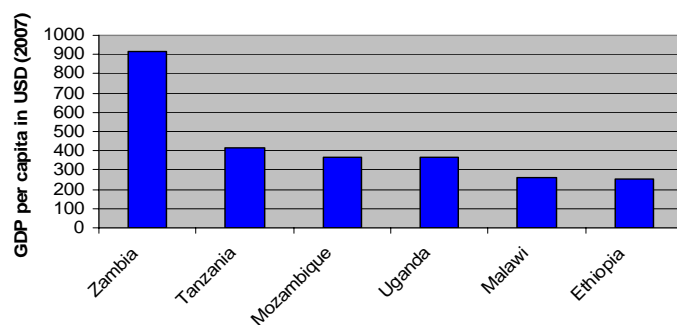
1. SITUATION ANALYSIS

1.1 Overview of Long – Term Economic Trends

2.1.1 GDP/Capita Growth Dynamics

Malawi remains one of the poorest countries in the world. According to the 2008/09 World Economic Forum (WEF) Global Competitiveness Report, out of the 134 countries surveyed Malawi's GDP per capita was ranked 131, significantly behind other neighbouring SSA countries

Fig. 1



The WEF report also shows a widening gap between Malawi's economic growth and Sub-Saharan Africa as a whole.

Fig. 2

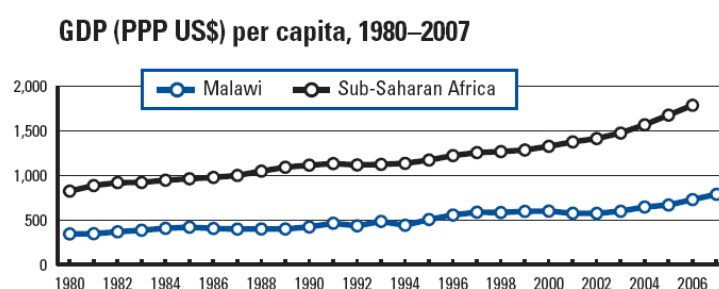


Fig. 3

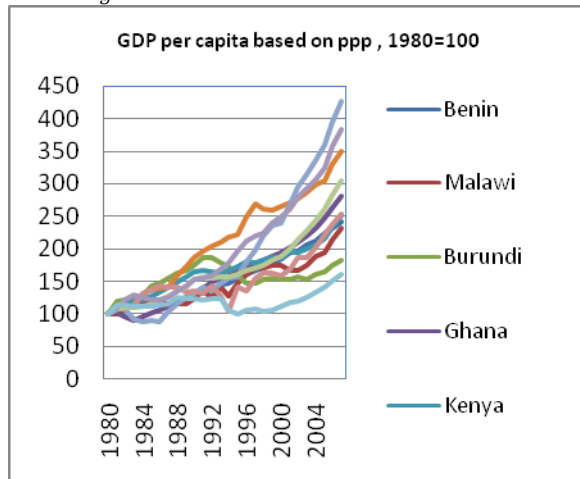
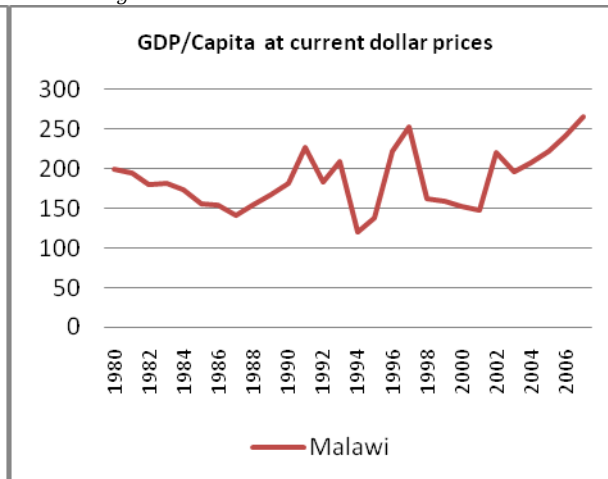


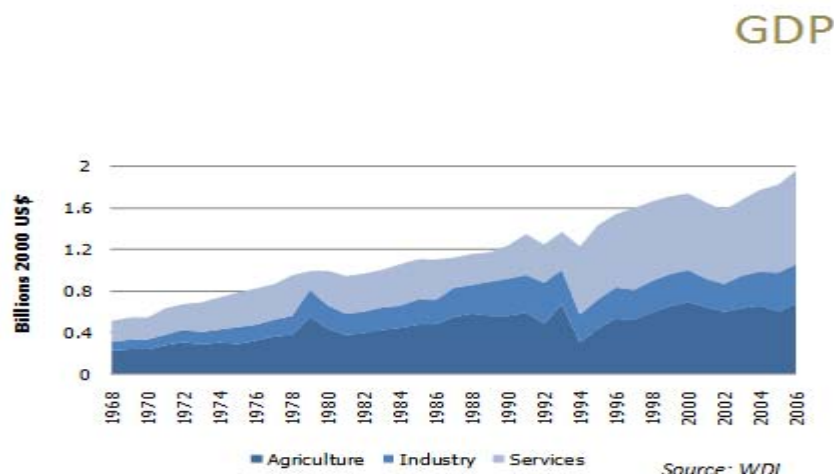
Fig. 4



However, Malawi's very recent economic growth has been more encouraging. In 2007, Malawi ranked sixth out of the eleven Sub-Saharan countries in terms of growth rate (8.5%) and exports grew from \$550m to \$720m between 2006 and 2007, driven by increases in agricultural output and world commodity price increases. Investment levels have rebounded since 2001 and Malawi now outperforms the SSA average in real % terms.

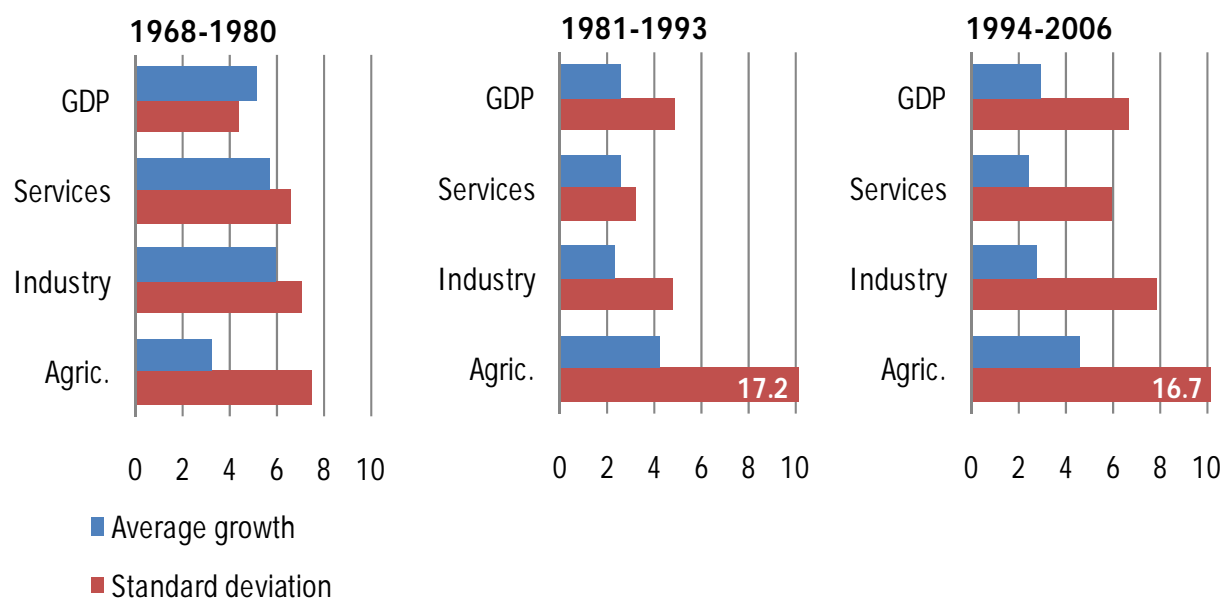
2.1.2 GDP Composition and Growth Dynamics

Fig. 5 GDP Composition and Dynamics



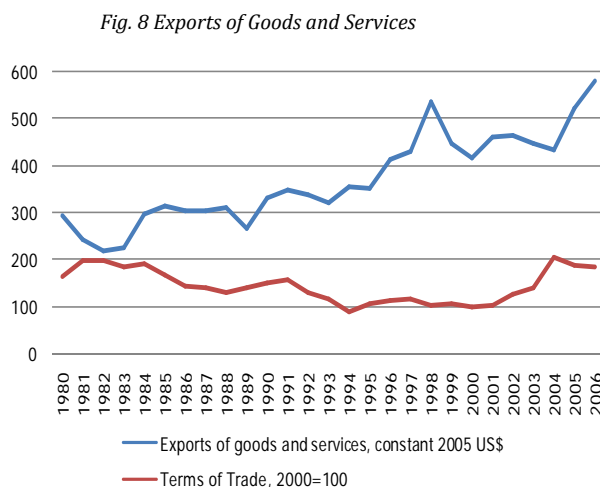
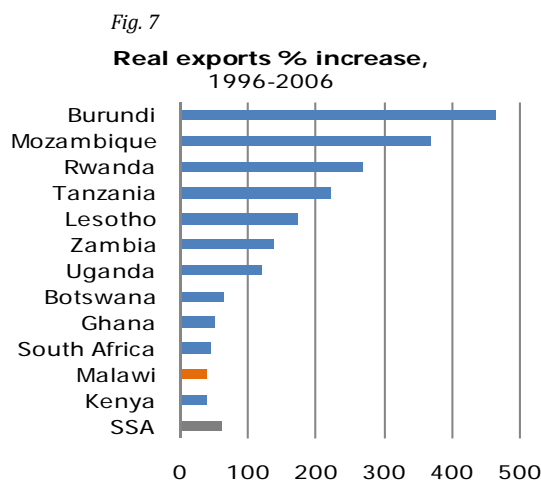
Despite these recent improvements, considerable challenges remain. Agriculture still dominates GDP with the share of industry steadily declining from 25~30% in 1987-1992 to 17%~20% in 2002-2006. Historically this reliance on agriculture has been one of the factors leading to high volatility in GDP growth as poor harvests coupled with regular droughts have significantly impacted agricultural output average and hence GDP growth especially between 1981 and 2006 (fig 5 refers). Whilst the GDP volatility is driven by agriculture which became even more pronounced after 2004 Malawi has over the past decade experienced increased volatility across sectors.

Fig. 6 Average GDP Growth by Sector

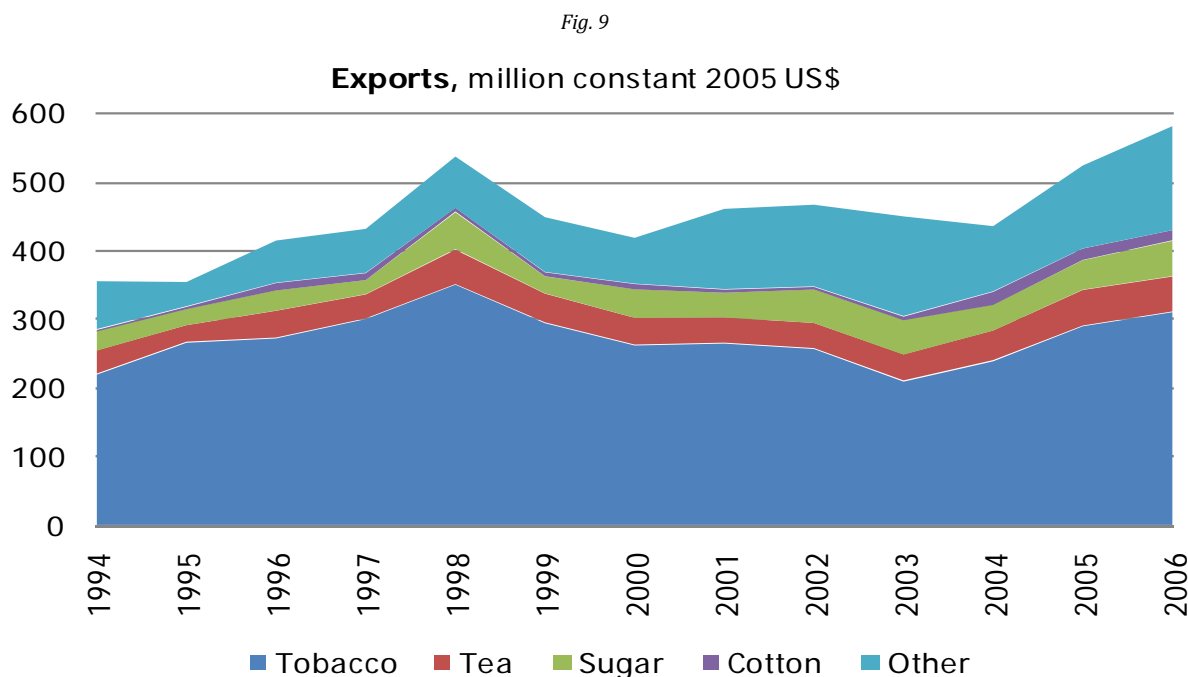


2.1.3 Export Trends and Composition

Figure 8 shows that nominal exports have grown from between US\$350 and US\$450 million per annum to around US\$600 million per annum in 2006. However, in real terms export growth has fallen below the Sub-Saharan Africa average (fig. 7). Whilst the majority of its comparators have more than doubled their exports in real terms in a decade, Malawi has only managed to increase its exports by a little over a third during the same period which is indicative of the fact that Malawi has not been able to take advantage of the various opportunities at its disposal including AGOA. Malawi is an open economy and therefore export growth is vital if the country is to sustain the higher growth levels needed to reduce poverty.

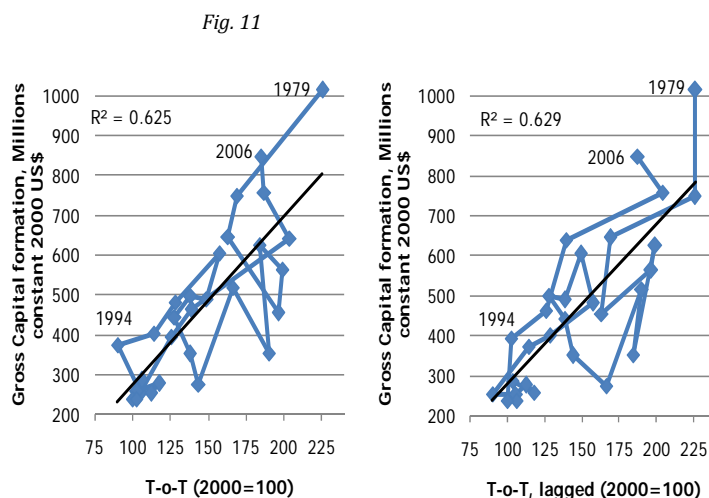
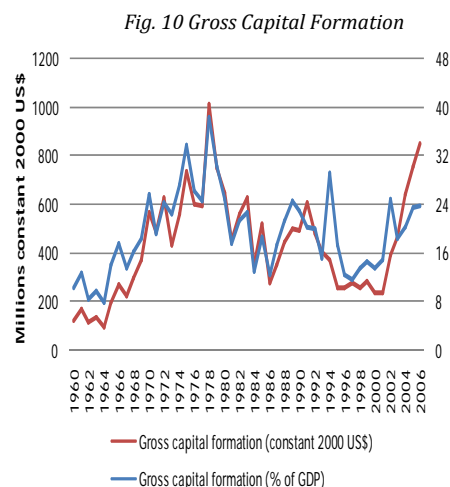


The graph below shows that tobacco is still running the show. The share of tobacco to total exports is still around 55%. Just four crops (Tobacco, tea, sugar and cotton) account for 75% of exports (down from 85% around 1998).



2.1.4 Investment Rates Trends

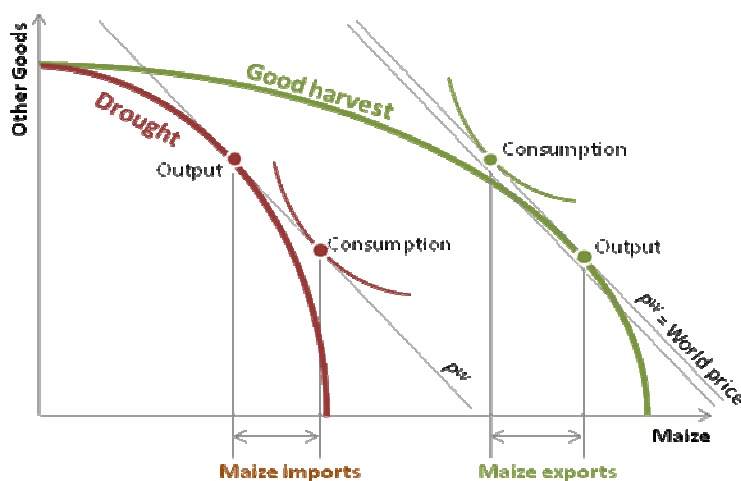
Since 1980 investment rates have been low and falling. Share of gross capital formation in aggregate demand has been trending down since 1980. By far investment flows have been the lowest in the region and that the collapse in the terms of trade since 1979 seems to coincide with contracting investments according to the regression lines below. However investment has started trending up with gross fixed capital formation reaching 24% of GDP in 2006 and most likely the Kayelekera uranium mines could be one of the major drivers.



2.2 Understanding why Food Security is number one priority in Malawi

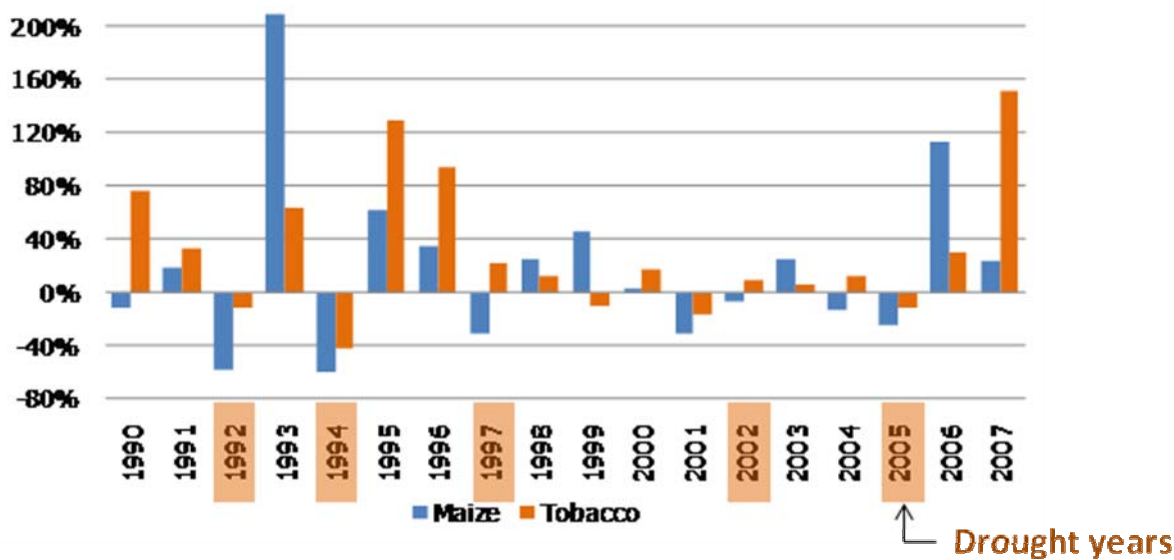
Food security seems to be topping every single government strategy. Until recently the country has been struggling to supply its own maize both at a national and household level. One of the reasons is that farmers are not insulated from weather shocks. Additionally, yields are low and land is scarce. As a result in drought years, maize output is insufficient to feed the country. But international trade economics tells us that this should be irrelevant because according to the figure below Malawi should produce at the tangency of production possibilities frontier and world price line and consume at the tangency of world price line and highest indifference curve during a good harvest, assuming no barriers to trade. During a very severe drought year as depicted by the red production possibilities curve, through imports the nation is still able to produce at a tangent between the production possibilities curve and the world price line and consume at the tangent between the highest indifference curve and the world price line. As such Malawi can trade the difference in a good year and in a drought year Malawi can import food. But this logic does not seem to apply to Malawi.

Fig. 12



One of the reasons why the international trade story does not work in the case of Malawi is that output of maize and output of export commodities are correlated. In order to import maize in a drought year the country must export other goods. However output of traditional exports is also affected by droughts as tobacco which also depends on rain fed agriculture represents over 60% of export value. The graph below shows that there is a direct relationship between maize output and tobacco output with a correlation coefficient of 70%. Nevertheless it should be noted that there is no statistical significant relationship between maize output and export revenues because Malawi is not a price taker especially in as far as burley tobacco is concerned. This implies that expansion in production may not necessarily have a proportionate increase in burley export revenues.

Fig. 13



Second Malawi has a problem in regard to transport costs which are higher than those obtaining within its comparator group as the table below shows. Transport costs create a large wedge between world prices and those faced by domestic agents as relative price of maize with no transport costs would be as depicted below:

$$P = P_{maize}^w / P_{other}^w = P^W$$

However with unit transport cost c_t (for now, assumed equal for import/export of all goods):

If the country exports maize then:

$$P^X = P_{maize}^w (1 - c_t) / P_{other}^w (1 + c_t) < P^W$$

If the country imports maize then:

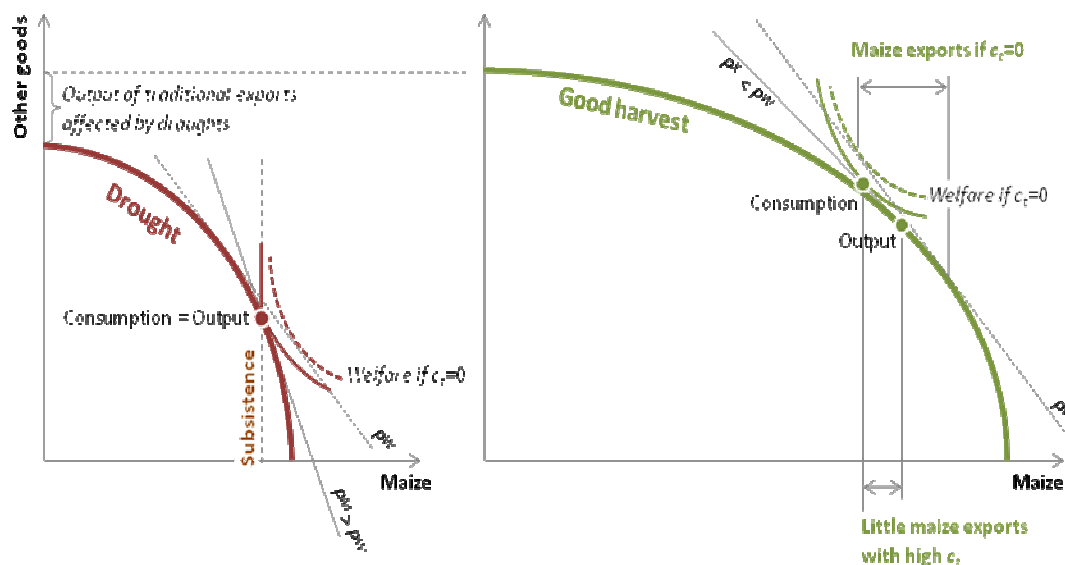
$$P^M = P_{maize}^w (1 + c_t) / P_{other}^w (1 - c_t) > P^W$$

If c_t is huge it means that during a year of abundance the country's economic agents export at a loss or reduced returns because of high transport costs and during lean years the country will have to import with a very high price to pay due to high transportation costs. As will be noted later Malawi has one of the highest transport costs in the world for non – traditional exports and certain imports.

As the CEM Agriculture chapter notes “Due to the high costs of transport from South Africa, import parity prices are commonly US\$100 to US\$150 above domestic retail prices. When there is severe drought across southern Africa, clogged transport systems raise the costs of import dependence even further. Transport costs alone can rise as high as US\$180 per tonne. “It therefore does not come as a surprise that maize prices in Malawi have a large bandwidth to the extent that rational decision making is almost impossible and that diversification out of maize is almost impossible because everybody including those in employment have to assure themselves of availability of maize supplies before they can think of embarking on other economic ventures.

The figures below depict two production possibilities curves for lean years and those of good harvests. If c_t were lower than what it is now we should be able to export maize and that the country's welfare would be higher as depicted by the dotted indifference curve on the right. However because of the high transport costs Malawi exports less and the country moves to a lower indifference curve where consumption is restricted to what the country is able to produce and is unable to take advantage of benefits from international trade.

Fig. 14



In summary a failed harvest removes the principal source of consumption for rural households. Capacity to replace lost production through imports is limited by foreign exchange earnings and lack of farm diversification. This situation is compounded by the high cost of transportation which limits the benefits of maize exports during years of a good harvest. Increased demand on the formal market during lean years greatly raises food prices making it harder to substitute lost subsistence production. The end result is that there is low demand during times of good harvests and large surges of demand in times of poor harvests leading to high price volatility and the farmer is pushed into a corner. It is therefore not surprising that food security is the number one Government policy.

2.3 Conclusion on the Situation Analysis

Economic performance has improved over the last few years but the gains made so far need to be consolidated and sustained. However GDP per capita growth is volatile and that volatility has increased in the recent past. Despite the fertilizer subsidy program which has resulted in maize surpluses the food security situation still remains tenuous due to the country's overreliance on rain-fed agriculture. This problem is compounded by lack of export diversification as 55-60% of Malawi's export basket is accounted for by tobacco. This is further compounded by co-linearity between food crop output and tobacco output both of which are affected rainfall. Investment flows are improving but still below most comparators. Nevertheless Malawi needs to sustain investment levels that are equal to or higher than those experienced in the recent past if GDP per capita growth rates are to be sustained at levels needed to substantially reduce the high poverty levels and also to be closer to achieving the poverty MDG. Finally despite recent gains Malawi's export performance has been far below most of its comparators and as an open economy export performance is vital for sustained and rapid growth. What next? Malawi needs to remove constraints to economic growth and export diversification and structurally transform the economy. In this regard the study sets out to identify the main constraints to Malawi's growth.

2. CONSTRAINTS ANALYSIS METHODOLOGY

The study follows the growth diagnostics methodology proposed by Hausmann, Rodrik and Velasco (Kennedy School of Government- Harvard University). The main premise for the methodology is that different countries do not necessarily face the same set of problems and, certainly, the relative severity of these problems varies widely. Consequently, one size fits all policies like the set of recommendations collectively known as the Washington consensus will not necessarily spur growth. Therefore, a successful growth strategy has to be contingent on the economic environment at hand and focus on one or two main constraints. Consequently, the study aims to identify the constraints that are binding to Malawi's economic growth, and which should be targeted in the framework of the MCC program and the Malawi Growth and Development Strategy MGDS.

The HRV approach is based on fundamental results of neoclassical growth models, according to which growth is proportional to the private return to assets, net of cost of financing it. In other words, growth follows the ubiquitous Euler equation:

$$\text{Growth} = \frac{\dot{c}}{c} = \frac{\dot{k}}{k} = \sigma[r(1-\tau) - \rho]$$

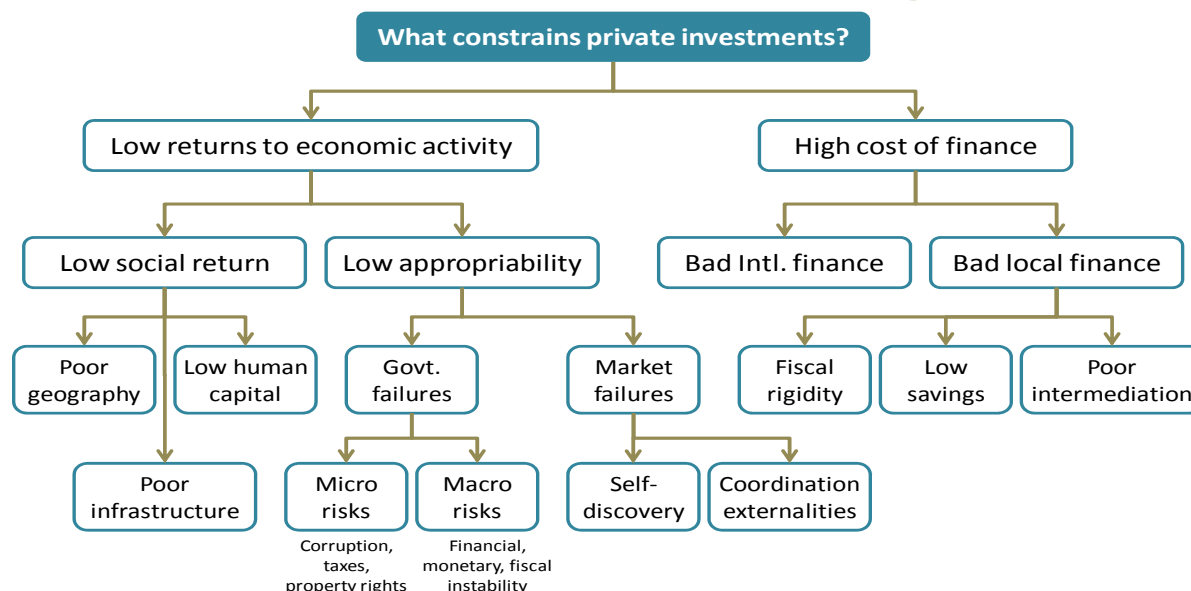
Where r is rate of social returns, $(1 - \tau)$ is the rate of appropriability, and ρ is the cost of capital. The rate of appropriability represents the share of returns that are passed to the private sector, i.e. what is left after, *inter alia*, taxes, corruption, regulatory delays, expropriation through changes in laws and the judicial system.

This equation provides the general answer to the question “what constrains growth?” It must be caused by at least one of the three factors: social returns are low, the rate of appropriability is low or the capital is too expensive. However, to have a policy-relevant answer, we need to disaggregate the equation even further:

- If it is low returns, is it insufficient investment in complementary factors of production (human capital, technical know-how or infrastructure)?
- If it is poor appropriability, is it due to high taxation, poor property rights and contract enforcement, labor-capital conflicts, or low productivity, incomplete information and other market failures?
- If it is poor finance, are the problems to do with domestic financial markets or external ones?

We can organize these possible options in a decision tree, which is presented in below.

Growth diagnostics



In conformity with this representation, the report analyses the following potential constraints:

- Scarcity of factors of production: geography, human capital and infrastructure.
- Failures in innovations and competitiveness. Low productivity (effectiveness with which the factors of production are combined) can be explained by inability to introduce better technologies at producing existing productions or to discover products that are better suited to the country's conditions.
- The high cost of finance
- Low appropriability of returns $(1-\tau)$:
 - Macroeconomic risks. Potential reasons of macroeconomic nature that result in low appropriateness include macroeconomic instability and volatility, tax regime and unfavorable terms of trade shocks.
 - Investment climate. Potential reasons for microeconomic risks and terms for doing business include fiscal practices, corruption, property rights and access to justice.

In order to determine the most binding constraints the answer can be extracted from the neoclassical production function, in which all factors are complements (this is a safe assumption, given that rich countries are abundant in everything: from physical and human capital to infrastructure and institutions).

1.2 Role of Diagnostic Signals

1.2.1 Direct Evidence

The return to the scarce factor is pushed up and the return to the other factors is much lower. For example, if access to capital is a problem, interest rates should be high. If there is a paucity of human capital, the skills premium should be high and unemployment among skilled labor low. If the binding constraint to growth is poor infrastructure, then we should see bottlenecks and

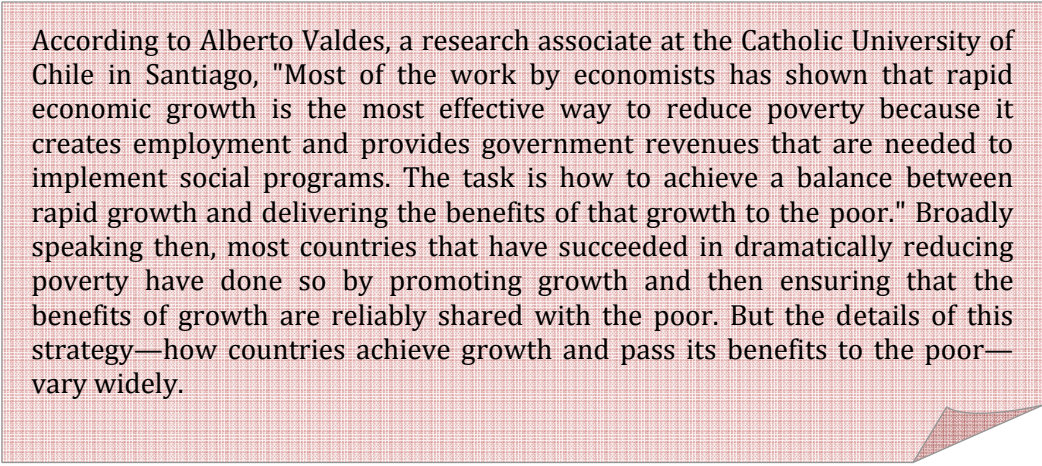
concentration of economic activity in areas with good infrastructure. A useful tool in analyzing the relative importance of constraints is benchmarking: comparing Malawi to a number of countries similar in size, level of economic development, past common history, physical proximity.

1.2.2 Indirect Evidence

The camels and the hippopotamus – i.e. what do you observe, for instance, why are there no hippopotamus in the desert and why do camels thrive in the desert. A hippo cannot survive where there is little or no water and a camel is able to thrive in such environments. When constraints bind, they result in activities designed to get around them. High taxes result in high informality. When poor legal institutions abound you see, high demand for informal mechanisms of conflict resolution and contract enforcement. Poor financial intermediation results in internalization of finance through business groups, informal lending, etc.

1.2.3 Why Target Growth

This can be answered by a quotation found in the article from IFPRI Forum of October/November 2007 titled **Cutting Poverty: Learning from the Leaders:**



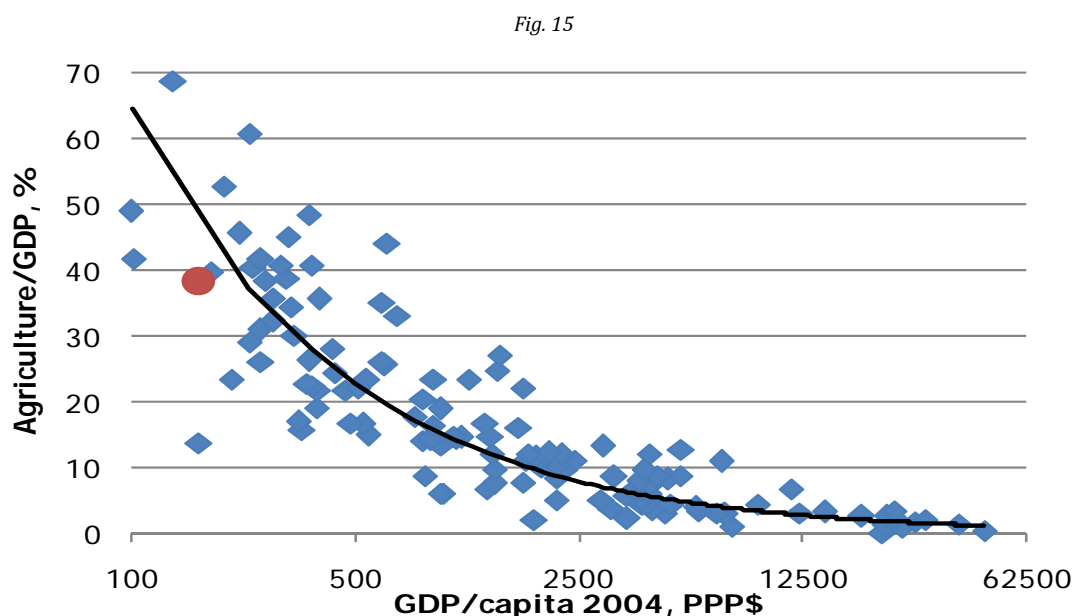
According to Alberto Valdes, a research associate at the Catholic University of Chile in Santiago, "Most of the work by economists has shown that rapid economic growth is the most effective way to reduce poverty because it creates employment and provides government revenues that are needed to implement social programs. The task is how to achieve a balance between rapid growth and delivering the benefits of that growth to the poor." Broadly speaking then, most countries that have succeeded in dramatically reducing poverty have done so by promoting growth and then ensuring that the benefits of growth are reliably shared with the poor. But the details of this strategy—how countries achieve growth and pass its benefits to the poor—vary widely.

As we examine the constraints to private investment we will begin by examining the causes for low returns to economic activity. However in view of the complexity of Malawi's problems the analysis will not follow the chronological order afforded by the Growth Diagnostics Tree. The analysis will first look at whether or not Lack of Self-Discovery/Innovation and/or Geography are the main culprits. Thereafter the analysis will then move on to infrastructure, human capital, macro-and micro-risks and finance.

3. INNOVATION

As noted from the foregoing it is not surprising that food security tops every government agenda. However, a country does not have to meet its own food requirements through local production. Food security at a national and farm level can be assured if the country is able produce other goods in sufficient quantity and export in order to earn foreign exchange. To do this the country needs to innovate because real technological advance usually results in enlarging the list of goods produced by the country (sophistication) and enhancing the quality of the existing products. The question is whether or not Malawi is innovating. In order to determine whether or not Malawi is innovating there is need for an understanding of Malawi's export composition and dynamics: What does Malawi export? How diversified is the export basket? How sophisticated are Malawi's exports/products?

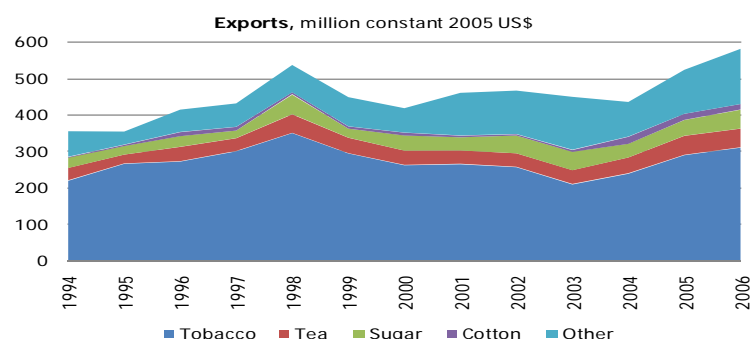
The graph below shows where Malawi as a predominantly agricultural country is placed and it is very clear that the majority of countries that are predominantly agricultural have far much lower GDP per capita in comparison to those that have undergone structural transformation.



Notwithstanding the current commodity boom, especially non-petroleum commodities one should take due cognizant that World maize yields have only been able to increase by 2.5 times in 40 years. As such diversification both at farm and national levels is of essence.

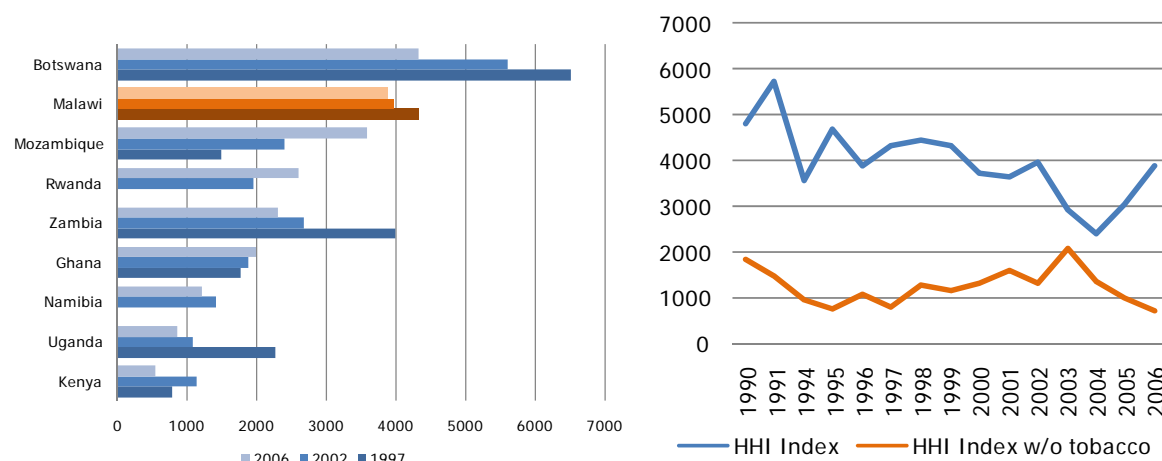
The graph below shows that tobacco is still running the show. The share of tobacco to total exports is still around 55%. Just four crops (Tobacco, tea, sugar and cotton) account for 75% of exports (down from 85% around 1998).

Fig. 16



From the charts below Malawi's export basket is highly concentrated based on the Hirschman-Hirfindahl index of export concentration although there is some improvements once tobacco is factored out. Malawi is only second to Botswana in terms of export concentration but above the majority of countries among its comparators. Malawi's export concentration is trending up from 2004 after having trended down from 1991 and this is primarily due to an increase in tobacco export values and volumes.

Fig. 17 Charts based on Hirschman-Hirfindahl index of export concentration



Source: UN Comtrade, Authors' calculations

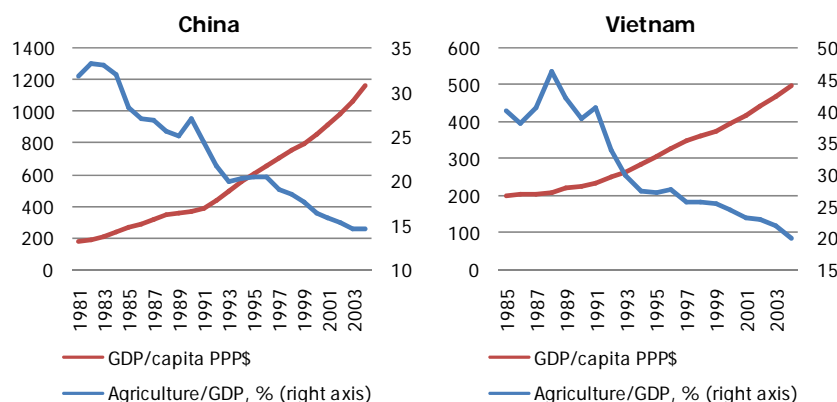
3.1 What you export matters

According to Hausmann & Rodrik (2005) Rich and poor countries export different goods. Rich countries that are at the technological frontier export more sophisticated goods (those goods embody frontier technologies). Poor countries export goods that embody below-the frontier technologies. A country that exports a basket of goods which is characteristic for a richer country has a relatively "sophisticated" export basket (closer to the frontier). Countries with more sophisticated export baskets grow faster. (most telling example – China).

The graphs below tell of an interesting story on how China has managed to quintuple its GDP per capita in just 20 years whilst Vietnam also has managed to more than double its GDP per capita in just 15 years and this has been done through structural transformation. In both cases the share of agriculture has gone down from between 33%-45% to under 20%. However, in the case of China, according to Dani Rodric this happened through “Strategic and sequential approach targeting one binding constraint at a time. First agriculture, then industry, then foreign trade, now finance...” The following by IFPRI captures this adequately.

... market opportunities and hence growth contributions of traditional agricultural products can significantly increase if the quality of the products can be improved or if the products can be processed (even just go through primary processing) within the region. There is a substantial difference between a brand product, for example, a gourmet coffee, and a non-brand product. Improving product quality will generate more farm income from the same volume of production, and processing the products in the region will provide more employment and improve the linkage effects both within the producing country and to some extent to neighboring African trading partners - *A General Equilibrium Examination of Demand-Side Constraints on Agricultural Growth in East and Southern Africa* -

Fig 18

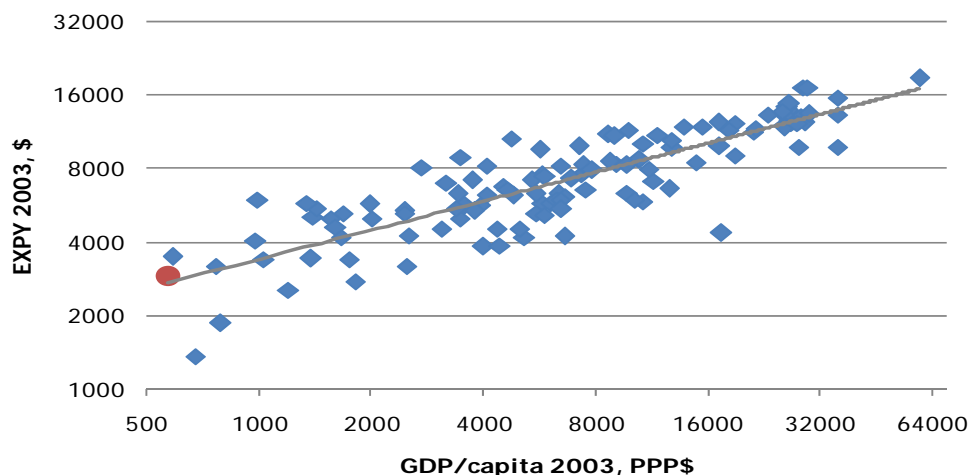


The foregoing is not intended to negate the importance of agriculture especially for countries like Malawi where agriculture is considered as an engine of growth and the majority of Malawians earn their livelihoods out of this important sector. The important point is to determine whether Malawi is attaining the level of sophistication that enables it to export goods that are competitive by definition, or correspond to minimum quality standards and that the list of goods produced and/or exported is enlarging.

3.2 How to compute export sophistication

PRODY: goods can be associated with a GDP/capita (weighted average of GDPs of countries that export that good) : for instance wristwatches are associated with countries with percapita incomes of \$31651 whilst cotton and tea are respectively associated with countries that have per capita incomes of \$409 and \$402. EXPY: the average PRODY of products exported by the country, weighted by the share of each good in the value of total exports. Having explained as to how export sophistication is computed not surprisingly Malawi is where one would expect it to be as represented by the red dot.

Fig. 19 Level of Sophistication



The graph also shows that countries with higher levels of export sophistication have higher levels of income per capita. Malawi's export sophistication is stagnating although tobacco hides some recent progress. The graph on the right below shows that once tobacco is excluded Malawi's export sophistication increases beginning 2004 after experiencing a sharp decline in 1994. Model simulations by IFPRI conducted on a number of countries including Malawi indicate that agricultural growth will be limited without the growth of other sectors as the following captions aptly describe to drivers to poverty reduction: The study by IFPRI notes:

There are two major reasons why rapid growth in traditional exports fails to increase real GDP substantially in this scenario. First, for most of the sample countries, the traditional export sector accounts for a small share of the total agricultural GDP, even though it accounts for a large share in its total agricultural exports. The second reason is that markets for the traditional export commodities involve relatively little domestic processing and therefore generate only weak linkage effects through the domestic market economy. Only the farmers cultivating these crops reap major direct benefits from increased exports, and their increased income and that from the directly related nonagricultural sectors cannot provide enough demand to stimulate further growth in broad

Fig. 20

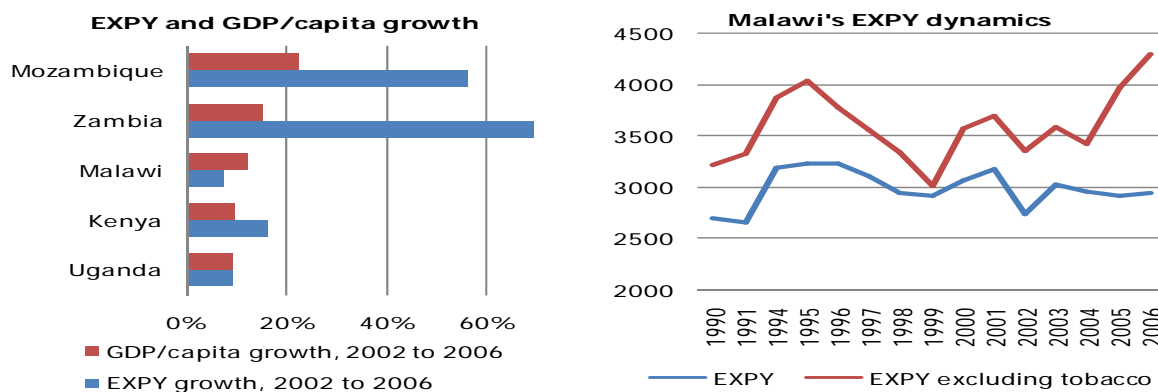


Figure 20 above shows that Zambia and Mozambique have been undergoing rapid structural transformation. Between 2002 and 2006 Zambia experienced EXPY growth of over 60% and Mozambique had EXPY growth of over 55%. Cumulative GDP growth per capita for both countries was, respectively, over 15% and 20%. On the other hand Malawi's EXPY growth was just over 5% over the same period and not surprisingly Malawi's cumulative GDP growth over the same period was just over 7%. Obviously other factors were also at play but there is a direct relationship between a country's export sophistication and GDP per capita growth.

4. GEOGRAPHY

Malawi is a landlocked country with an area of 118,484 square kilometers. Bordered by Tanzania, Mozambique and Zambia, it is a narrow territory with a total length of about 1000 km running from North to South. The Northern half of the country is bordered on the East by Lake Malawi, which is 570 kilometers long and occupies 24800 square kilometers in Malawi.

Malawi is surrounded by much bigger neighbors and its small economy depends on its neighbors for access to the sea and international markets. For this reason, Malawi suffered for more than two decades from the chronic instabilities in the neighboring countries like the civil war in Mozambique and the political turmoil in Zimbabwe.

Droughts are endemic to Malawi and have had devastating effects on crop and livestock production. Between 1967 and 2003 the country experienced six major droughts which affected 21 million people. The worst of these droughts was in 1993, which affected 7 million people; other significant droughts occurred in 1990, 1992, 1994 and 2002. The impacts of drought are felt mainly by smallholder farmers themselves who are generally among the poorest members of the population. For example, crop failure in the 2001/2002 growing season due to drought was estimated between US\$150 and US\$180 million (as estimated in the Banks Emergency Drought recovery Project).

Floods are also common in Malawi. Eighteen major floods have occurred between 1967 and 2003 (the most significant floods were in 1991, 1997 and 2001) killing 570 people, rendering 132,000 homeless and affecting a total of 1.8 million people. Total damage caused by flooding over this period is estimated at around US\$700,000. Floods occur in the south, particularly in the lower shire areas of Lake Malawi, Lake Malombe and Lake Chilwa. Floods also occur in the lower reaches of the Songwe River in the Northern Region. The main problems of flooding are damage of agricultural lands and crop damage. Droughts, floods and rainfall variability also assert risk-averse behaviour by farmers and other investors in agricultural industries and services, slowing the diversification of economic activities.

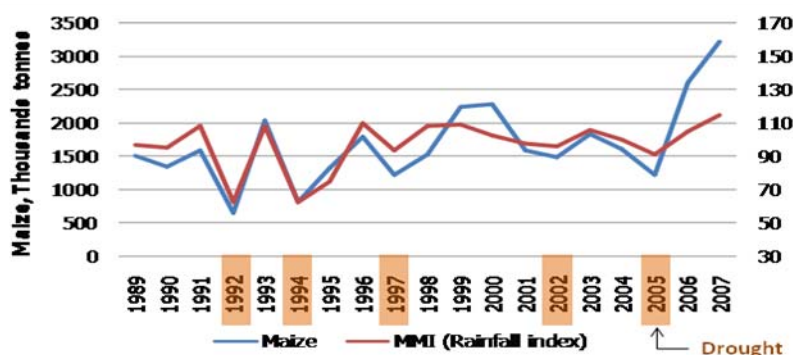
4.1 Degradation of upper catchments

De-vegetation, erosion and sedimentation are Malawi's most serious environmental threats. Throughout most of the country a new dam is likely to fill with sediment within a few years of commissioning, which raises the most risk of the development of water storage structures. The most significant dams are the hydropower dams on the Shire River, which are badly affected by sedimentation. Sedimentation is particularly acute in the Nkula pondage which supplies a power plant and Blantyre Water Board (BWB). With the increased soil erosion in the catchment, the sediment load carried between Liwonde and Nkula in the wet season is accumulating in the Nkula pondage affecting the power output and water supply in Blantyre. Deforestation is considered to be a major threat to surface water resources as it causes reduced base flows and higher flood peaks. The National Environment Action Plan, 1994 showed that deforestation from 67 percent forest cores in 1967 to 49 percent in 1992 and had a significantly negative effect on the country's water resources.

Agriculture is by far the most important sector in the Malawi economy accounting for 85 percent of all employment and generating 90 percent of all export earnings. Low irrigation development and poor water management are the key issues

underlying the low productivity and profitability of Malawi's agriculture. The country experiences unreliable rainfall combined with extended period of dry spells which adversely affect the productivity of its agriculture.

Fig. 20



Maize yields have remained stagnant since 1963 at just over a tone per hectare which is far below the world average of 5 tonnes per hectare and is still below Malawi's comparators and that of the whole of Africa average at 1.8 tonnes per hectare. The fertilizer subsidy program programme is making a positive impact but in the medium term sustainability is still an issue as donor support is crucial at this stage.

Fig. 21

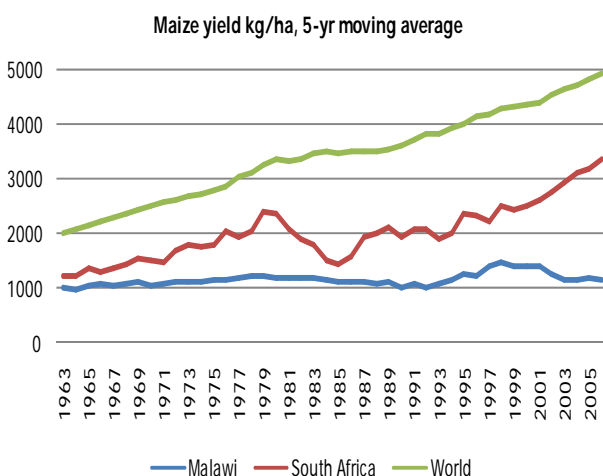
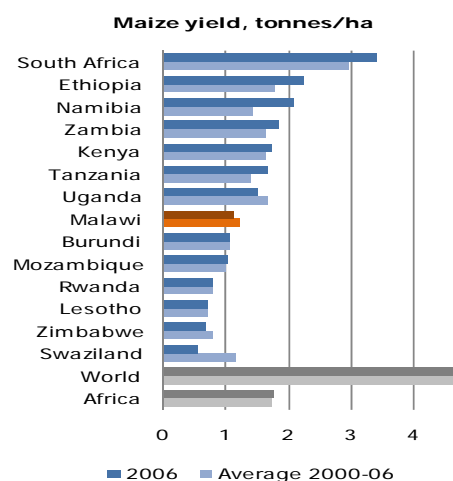
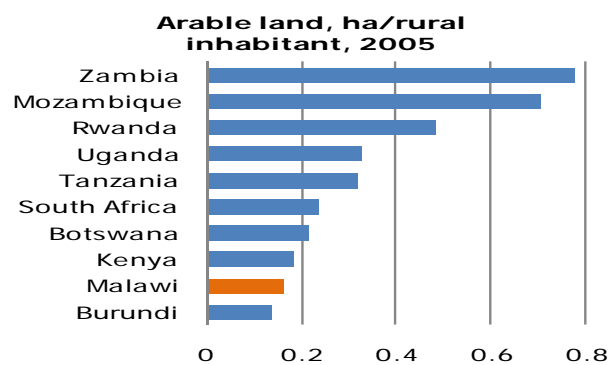


Fig. 22



By African standards, Malawi is a densely populated country with one of the lowest urbanization levels in the world as 83% of population live in rural areas. As result Malawi has little arable land per rural inhabitant. Land is overused, which depresses yields further and soil fertility declining at a rate of 60kg of NPK per ha per year.

Fig. 23



(Source: GoM and WB "Malawi PVA")

4.2 Geography- Location

In the previous section we learnt about how the effects of droughts coupled with limited export earning capacity is impacting on food security and lack of diversification at the farm level. International economics tells us that attaining food security at a national level should not be a problem provided the country is able to have sufficient export earnings and reached the conclusion that export diversification is key to unlocking the food security problem. Recent data (MEPD AER 2008) suggests that only 14% of Malawi's non-agricultural manufacturing output is exported, with the majority of manufacturing output focused on import substitution. Further analysis suggests that Malawi's low export penetration is due to two key factors (1) supply chain inefficiencies (2) low price competitiveness on the global market. Only exports that are not time- and- logistics-critical survive (tobacco, tea, sugar, cotton).

Fig. 24

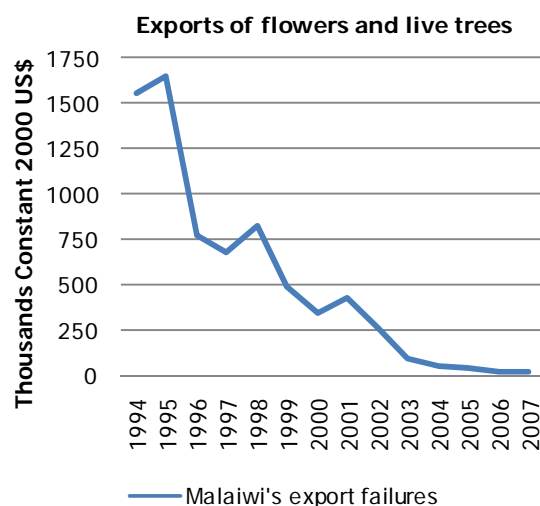
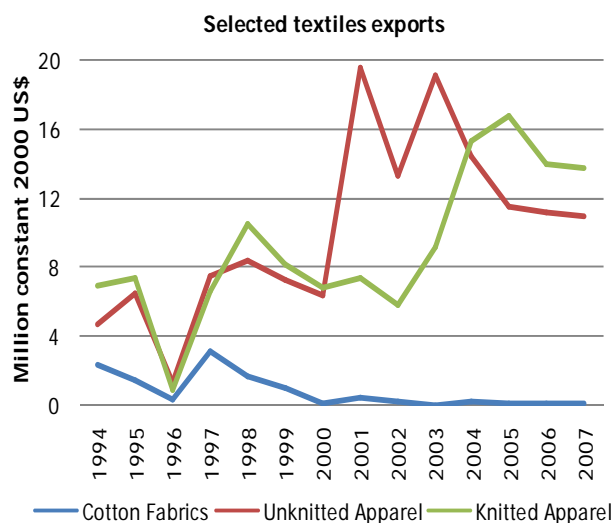
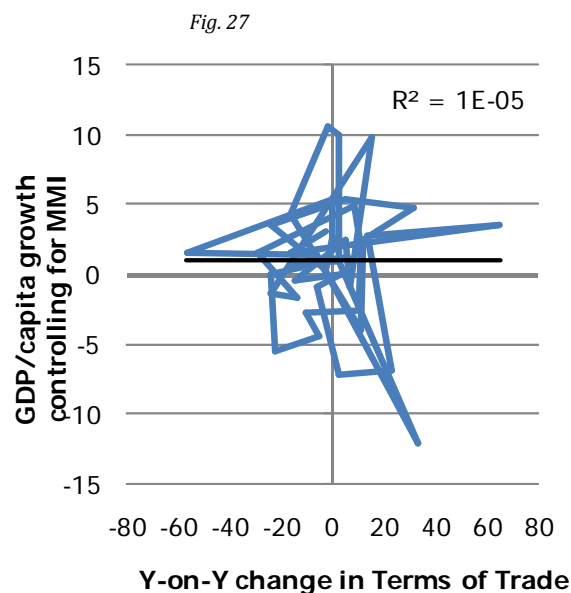
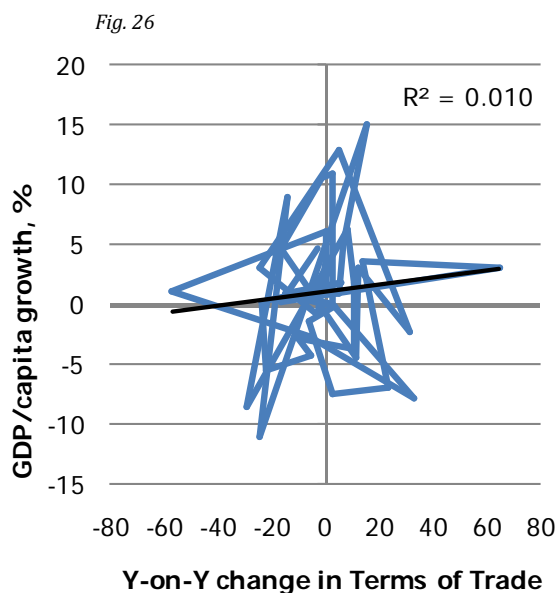


Fig. 25



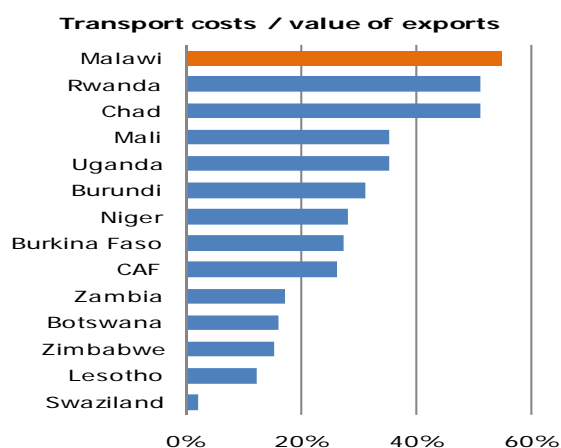
Malawi made various attempts at export diversification including encouraging flower exports but the results have been less than encouraging. For instance the country started exporting flowers in 1994 with export values exceeding US\$ 1.5 million but by 2007 this figure had dropped to zero. Transport logistics have been blamed for this dismal performance in the flower industry and all the flower farms whose products were destined for the export market ended up closing. Again Malawi

has had a rather limited response to the opportunities provided by AGOA as textile exports are time-and-logistics critical a failure, due to poor logistics (air transportation).



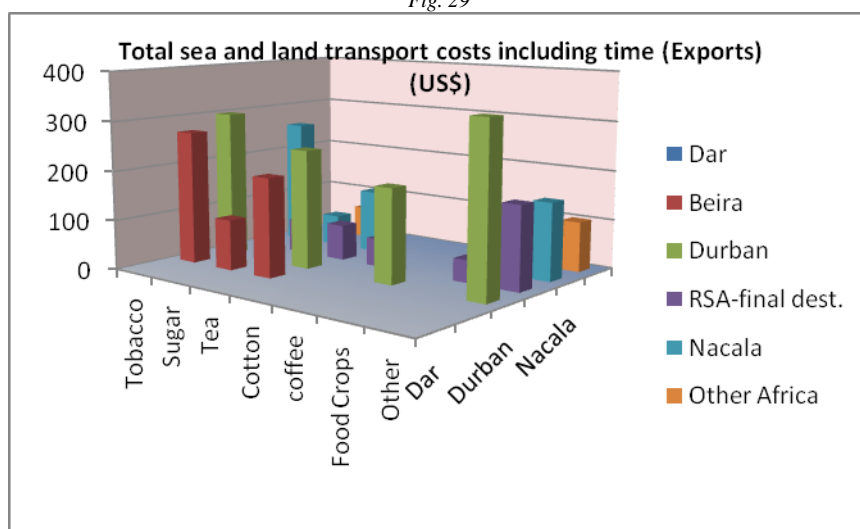
Further analysis shows that there is no correlation between GDP/capita growth and changes in terms of trade. The Correlation coefficient is low and not statistically significant (t-stat around 0.5). Correlation between GDP/ capita growth and terms of trade is even lower when one subtracts the weather component from GDP/capita growth (t-stat around 0.02). Identical results are observed for lagged values of T-o-T, % change of T-o-T, GDP growth or gross capital formation growth instead of GDP/capita growth. All these point to the fact that Malawi is not well integrated to the rest of the world. This limited integration to the rest of the world is because there is a high wedge between domestic and international prices. The question is how do we make sense of this high wedge between domestic and international prices? According to AER 2008, transport cost was reduced from 55% of import/export bill in 2006 to 53% in 2007. Despite this reduction comparatively this is still one of the highest if not the highest in the world.

Fig. 28



However according to a World Bank mission which carried out a transport logistics study in 2004 the costs of shipping goods in and out of Malawi have been reviewed in several reports since 2001 (USAID 2001 report on SADC freight transport corridors, WFP/World Bank drought recovery project 2002 and DTIS 2003). The mission team updated the cost information by interviewing forwarders, exporters and importers and found that the prices did not vary much during the period and came to the conclusion that actual prices differ substantially from quotes, as large importers and exporters are able to get substantial discounts. For small exporters and Greenfield projects the story is different.

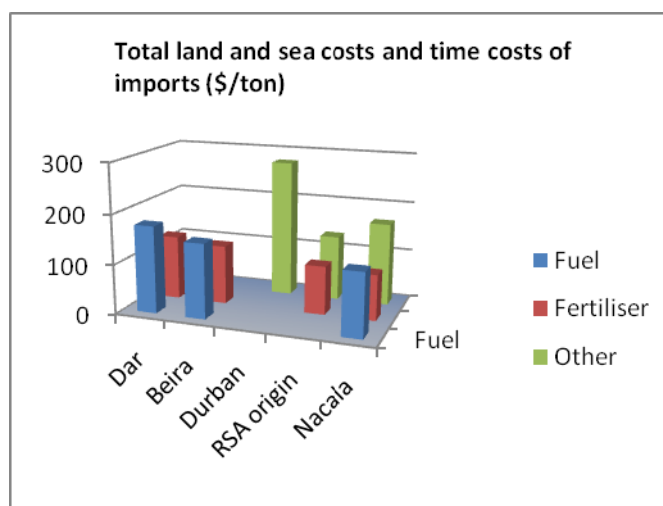
Fig. 29



Source: TERA 2005

As can be observed from the figure below, imports other than fuel and fertilizer have the highest transport costs even when the Nacala route is used. The Durban route which carries over 56% of the non – RSA originating imports costs close to one and two thirds in transport costs compared to the Nacala route.

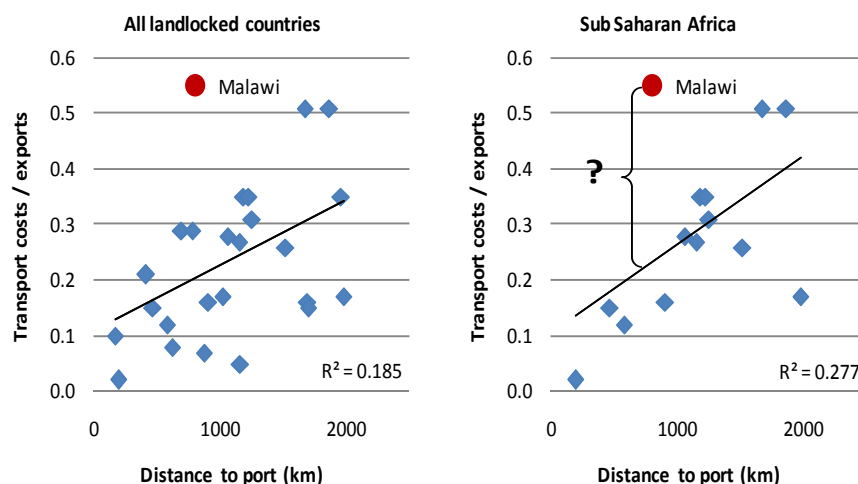
Fig. 30



Source: TERA2005

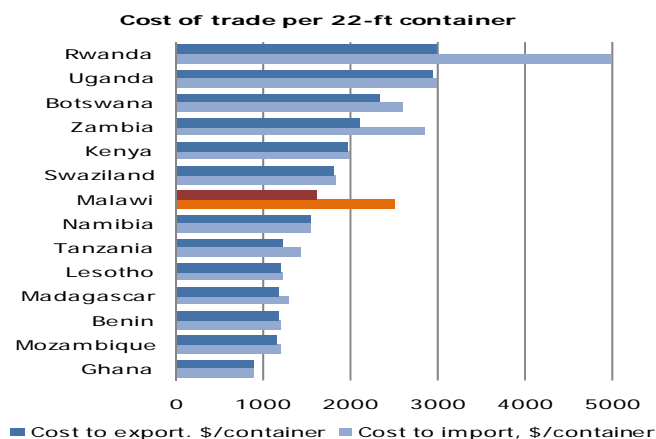
One of the reasons advanced for the high transport costs is that the country is landlocked. However Africa as a continent is not short of landlocked countries. The continent is the most fragmented continents in the world, even after the break-up of the Soviet Union which has seen a lot of births of countries in Eastern Europe. Africa is therefore one of the continents with the highest number of landlocked countries.

Fig. 31



The above graphs show that transport costs for exports can be as high as 50% but distance does not explain the whole story. Malawi is landlocked, but so are many other countries! Distance to nearest port with regard to Malawi is less than 900km. There are countries that are 2000 kilometers away from the nearest port and yet their costs of transportation for exports are lower with ratios of transport costs to exports below 20%. As such Malawi might be landlocked and this has an impact of its transport costs but this factor only explains a third of the story.

Fig. 32



Source: Doing Business Indicators 2008

The high cost of transportation is not because of shipment. The above chart shows the average cost to ship 20ft container to a port of final destination and from a port of origin for African countries.

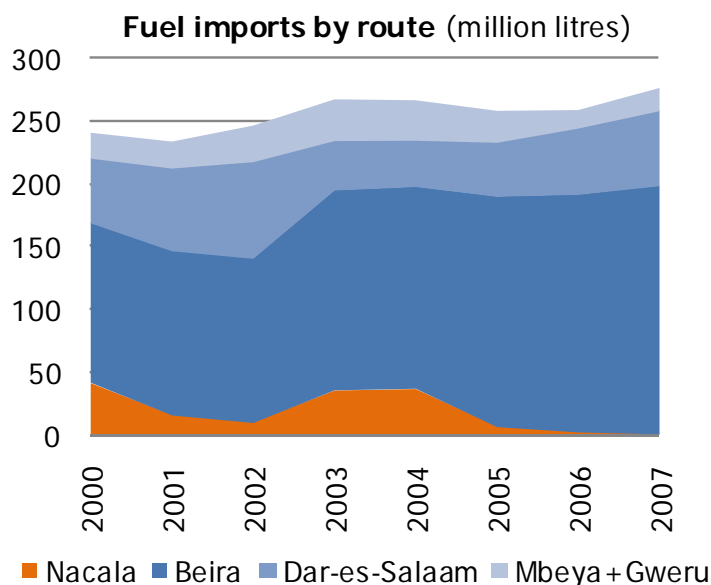
Malawi is in the middle of the pack in the case of exports but is above most of the comparators in the case of imports. Further analysis shows that actual prices differ substantially from quotes, as large importers and exporters are able to get substantial discounts. Additionally, transport costs for most export costs are lower than import costs as a result of the trade deficit (*Kadale 2007*), as will be discussed later. Figures 29 and 30 above show that the cost of transportation is not uniform across all commodities. Further analysis shows that transportation cost differences across commodities are more pronounced on the Durban route.

According to TERA (2005) the high cost of transportation for commodities other than traditional exports as well as imports of fuel and fertilizer is because of *how [un]reliably* Malawi ships its commodities. Shipping by rail through Nacala may be cheaper than alternative routes, but it is unreliable. For instance TERA (2005) estimates that the Lilongwe-Beira route is 948 km and takes **3 days** transit by road whilst the Lilongwe-Nacala route by rail is 989 km and takes **10 days** transit by rail. One of the reasons it takes that long is due to the 77 kilometers between Enter Lagos and Cuamba which due to poor condition of the rail road at the said segment forces trains to move at below 15 km/h and the situation worsens during the rainy season as the segment is prone to chronic flooding. In consequence large retail business state that: "If a delivery is time-critical, I route it through Dar." Below are indicative costs and duration of import from India depending on the route used:

Nacala:	\$4000	12 weeks
Beira:	\$4800	12 weeks
Dar-es-Salaam:	\$6000	6-8 weeks

According to the MEPSD Annual Economic Report (AER) 2008 Government recognizes that: "[...] logistical and capacity problems with the Nacala rail line" results in most gasoline being imported through other routes.

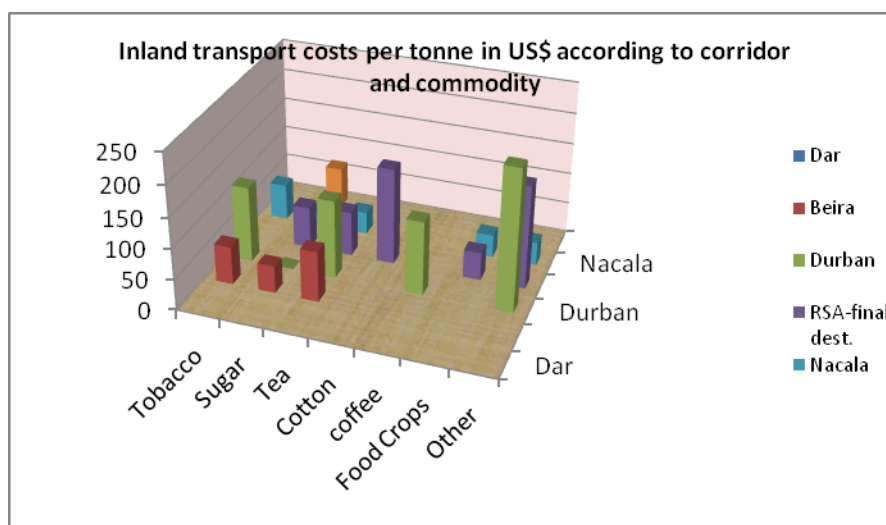
Fig. 33



Source: MEPSD AER 2008

Shipping a container may not be expensive, but neither are its contents since exporting low value commodities means that transportation cost per dollar of exports is high. This factor is compounded by the fact that Exports and imports are both seasonal, but fall in different seasons (tobacco vs. fertilizer) resulting in containers and trucks running empty one way. However, as noted above exporters of traditional crops are able to take advantage of the empty backhauls through discounted transport costs and the fact that they are not time-and logistics-sensitive. That is how they have been able to survive.

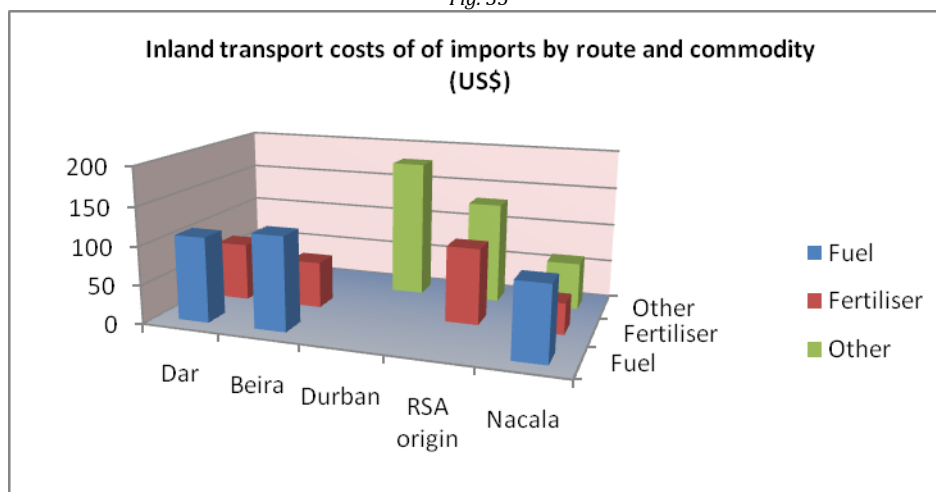
Fig. 34



The table above shows the cost of inland transport costs for various export commodities. For most non-traditional exports including green-field exports, they may not be able to take advantage of these discounts because of their nature i.e. they are time and logistics sensitive and as such the cost of transportation tends to be high.

The high cost of transportation can also be overcome if Malawi's export basket was more sophisticated as this would automatically reduce the ratio of costs to the higher value of commodities exported. The next section will look at whether or not Malawi is innovating and therefore overcoming the hurdles posed by high transportation costs.

Fig. 35



Summary of the initial constraints and conclusion

The analysis has looked at the initial constraints i.e. Geography and Innovation. Rainfall is a major driver of maize yields and, subsequently, of GDP/capita growth. Weather factors including droughts and are responsible for food insecurity and lack of diversification at a farm level. This problem is compounded by land pressure which results in low productivity and as such farmers are pushed into a corner situation. A failed harvest removes the principal source of consumption for rural households. Capacity to replace lost production through imports is limited by foreign exchange earnings and lack of farm diversification. This situation is compounded by the high cost of transportation which limits the benefits of maize exports during years of a good harvest. Increased demand on the formal market during lean years greatly raises food prices making it harder to substitute lost subsistence production. Price volatility creates a disincentive to diversify- The farmer cannot guarantee household access to maize without a significant cash crop production. Eliminating rainfall variability reduces the standard deviation of GDP/capita growth from 5.6% to 4.4%. Even after controlling for rainfall, GDP/capita growth volatility is high compared to other countries in the region. International trade tells us that food insecurity need not be a problem because a country can fill the gap through imports. But that is not the case in Malawi because of limited integration to the world economy.

Apart from weather as a geographical factor the analysis also looked at Malawi's remoteness as a factor affecting GDP and export performance. Malawi is landlocked, but so are many other countries! The analysis looked at whether or not this explains the high cost of trade and the answer was **NO**. Malawi's distance to nearest port is less than 900km. Distance explains only a third of high transportation costs. Apart from geography the analysis looked at whether or not Malawi is innovating and the answer is that the country is at the lowest end of technological frontier but some advancement is being made if tobacco is excluded from the export basket. However in view of the massive importance of tobacco in the economy the said advancements are too little to assure enough foreign exchange supply to assure food security and drive sufficient GDP/capita growth that will reduce poverty.

Malawi needs to have an enlarged and stable source of foreign exchange if it is to effectively address the problem of food security both at the farm level and national level. It will also have to find solutions to the gluts in maize supply during years of a good harvest. Addressing these factors will solve the problem of wild price swings between years of good harvest and drought years and hence address the risk aversion of Malawian farmers which is preventing them from on-farm diversification.

In view of the foregoing we will look at other factors that hinder growth and export diversification. These factors are infrastructure, human capital, finance macro shocks and investment climate.

5. INFRASTRUCTURE

...model simulations suggest that changes outside the farm sector itself—reduced marketing costs and more rapid growth in the nonfarm economy—are required to provide sufficient market demand to support rapid agricultural growth. Model simulations suggest that a sharp reduction in marketing costs through investments in marketing infrastructure (for example, roads and bridges, ports, storage facilities, electricity) and development of market institutions...combined with agricultural productivity growth would raise per capita GDP growth by approximately 2 percent per year in the sample countries. Simulation results also suggest that, combined with nonagricultural productivity growth, productivity growth in agriculture results in per capita annual agricultural real income growth of 3.0–4.4 percent.(IFPRI)

5.1 Transport Infrastructure

Malawi is served by four transport modes namely road, rail, lake and air transport which consists of a road network with an estimated distance of 15,451 km; 797 km of railway track from Mchinji border with Zambia to Nsanje boarder with Mozambique; 4 harbors on Lake Malawi that handle cargo mainly from Ntwara in Tanzania; and 5 commercial airports (two major international airports in Lilongwe and Blantyre) including 33 aerodromes.

Transport infrastructure plays a major role to the Malawian economy in terms of distribution of exports and imports. The major trading blocs for Malawi comprise of the European Union (EU), Southern African Development Community (SADC), United States of America (USA) and the Common Market for East and Southern Africa (COMESA). The EU is the key export destination for Malawi accounting for 35% of Malawi's exports, followed by SADC (29%) of which 16% goes to the Republic of South Africa (RSA), COMESA (19%), USA (9%) and rest of the world (ROW) accounting for 9%. Malawi's major imports come from SADC (55%) particularly from the RSA which accounts for 37% of Malawi's imports. Imports from the EU account for 17% of Malawi's imports and COMESA account for 11% of the imports to Malawi¹. Food items including agricultural and manufactured products constitute the bulk of imports from RSA. Figure 1 (see annex 1) outlines the trend of Malawi exports and imports to major trading blocs and countries and the rest of the world.

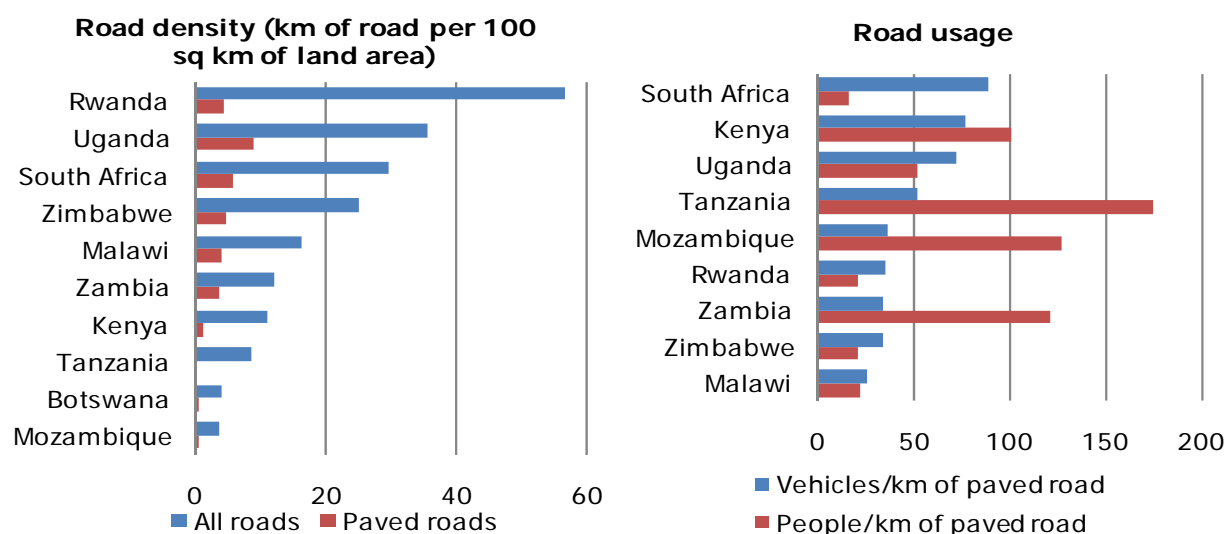
5.1.1 Road infrastructure

Malawi roads fall into five (5) classes of main, secondary, tertiary, district and urban roads. In addition to these classes nonstandard roads are estimated to cover a distance of approximately 10,000 km. Of the total road length, paved roads constitute 26% (4,038 km) and 74% of unpaved roads. The paved roads constitute mainly main roads (70%) and urban roads (19%). District roads serve as feeder roads connecting to main roads as well as community roads.

The analysis set out to find out if the high cost of transportation is due to bad or congested national roads. The answer according to the charts below is that by regional standards, Malawi's road network is dense by regional standards.

¹ These calculations are obtained from the SADC Trade data obtained at www.sadctrade.org/tradedata

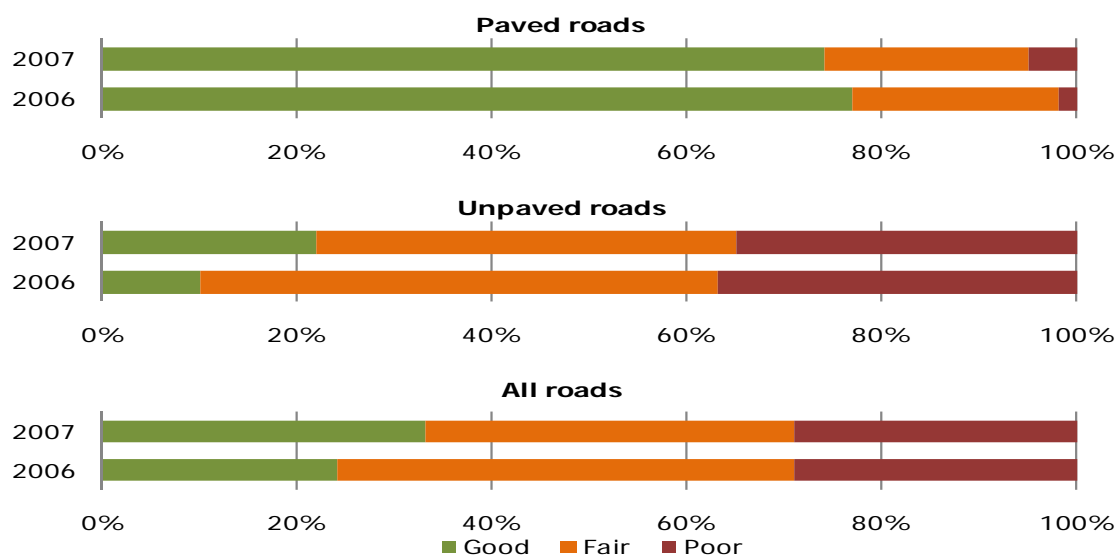
Fig. 36



Road conditions as a result of implementation of several projects by the Ministry of Transport and Public Works (MTPW) and the National Roads Authority (NRA) improved significantly since 2004. In 2007, 33% of the total road network was in good condition compared to 24% recorded in 2006. Though paved roads can be regarded to be in good condition, most of the unpaved roads are underdeveloped and seriously damaged and require immediate upgrading for Malawi to reap high economic benefits from economic activities happening in these areas.

Although the main road infrastructure within Malawi is in good condition this is the result of active donors' support, notably that of the European Union. The Malawi government will however need to establish a sustainable maintenance policy as the road fund can only provide 25 percent of maintenance needs. Despite donors' intervention, the backlog in periodic maintenance is growing. The chart below shows that over 70% of paved roads were in good condition. This however represented a slight decrease from the 2006 percentage of over 75%.

Fig. 37



On the other hand just over 20% of unpaved roads were in good condition. Of the remainder, nearly 35% of the unpaved road network was in poor condition. This hinders access by agricultural buyers and sellers of farm inputs. It also hinders access to such services as tourism, education, health and micro-finance. It should be noted that more than 85 percent of Malawi's population lives in rural areas and they are dependent on secondary and tertiary roads for transporting their goods. The quality and funding of this network is problematic. These roads and the river crossings are not well maintained. This results in high transport costs and renders certain regions in the country inaccessible during the rainy season. Improved rural infrastructure can provide all year access to key collection areas to connect farmers to markets and therefore improve, through increased trade, the living standards of small farmers. Rural accessibility and mobility is seriously compromised by the poor condition of the rural road network. During the rainy season accessibility to the collection points can be extremely difficult and delivery or collections can face up to 5 days of vehicle delays.

According to TERA few transport operators wish to take their 5-10 ton trucks to inaccessible rural destinations, leaving only pickups operated or hired by intermediaries to deliver seeds and fertilizers at very high prices. They also buy the produce at very low farm-gate prices claiming that transport costs are very high.

The long civil war in Mozambique disrupted many of the traditional trade routes towards the open sea, including the former Beira Railway Line. In a long and costly process, the country re-orientated its trade lanes during the 1980ies and 1990ies to its present configuration. The opening of new roads and the availability of improved transport equipment - last not least the advent of the container - helped in this process, but also imposed some constraints, which today tend to cement trade routes, transport modes and resulting commercial habits. Thus, the re-opening of a potential new transport corridor or the previous corridors may not necessarily meet with general approval, as many more or less vested interests profiting from the present situation may feel jeopardized by a new orientation. Advantages must really be substantial and risks minor in order to convince the final customers, who after all will have to take the decision to ship their cargoes by a new route with a new set of transport means. However, considering that trucking is by far the least economic mode of transport and thus the most expensive for the country, any other option beyond trucking should merit at least a hard glance.

5.1.2 Rail

Malawi has a total of 797 km of single-track within the countries' borders, of which 757 km is operational. The rail network serves the Southern half of the country, South of Lilongwe. It starts from the Mozambique border, branching to the Beira line in Mozambique in the south, through Blantyre up to the port of Chipoka, and the town of Salima on the lake. From there, the line runs west through Lilongwe to Mchinji and the Zambian border. In Nkaya, mid way between Blantyre and Salima, a branch goes east to the Mozambican border (Nayuchi/ Entre Lagos) to reach the Nacala line at Cuamba. Historically the Beira railway line played an important role in the development of Malawi and is the shortest in terms of distance to the sea port.

The Nkaya-Nayuchi route has a total length of 101 km and branches off towards the east of the country from Nkaya (about 90 km north of Blantyre city) and passes through Liwonde to Nayuchi at the border post with Mozambique. From Nayuchi to the Nacala port connects Malawi to the Indian Ocean passing through Entre Lagos, Cuamba and Nampula in Mozambique. However, the 77-km railway section from Entre Lagos to Cuamba was in a bad state and the Mozambican government through its concessionaire is currently carrying out major rehabilitation works.

The current cargo transportation volume by rail remains at a level of about 190,000 metric tons per year. It has been reported that the volume decreased by 20% in 2003 when the Central and East African Railways (CEAR) obtained its concession from Government. This was as a result of the shifting of cargo from rail to road transportation due to the collapse of the Chiromo Bridge in 1997 and furthers the collapse of the railway bridge on the Rivirivi River in 2003. Though the latter was restored in 2005, the initial volume of cargo did not return to rail transportation, which remained at about 30% of the 2002 figures.

Lead times using rail transportation has been affected by the existing condition of both locomotives and rails. All locomotives operated by CEAR are old and dilapidated and this has increased operation and maintenance costs for the concessionaire. Furthermore, the frequent suspension of rail services has affected the condition of the rails of which most of them have deteriorated and need urgent upgrading. The major problem has been the 77-km section in Mozambique from Entre Lagos to Cuamba that remained undeveloped due to civil conflicts. It usually takes between six (6) to seven (7) hours to travel this section by train and during the rainy season train services are suspended which makes the Nacala route to be unreliable. This has been one of the major reasons for low volumes of cargo and passengers utilizing this route and the contributing factor to the uncompetitiveness of rail transportation against other transport modes such as roads. Improving this section in Mozambique is, therefore, of top priority.

The TERA (2005) study looked at whether poor access to ports through the railway network is a constraint to economic growth by looking at the state of the infrastructure. It was noted that there has been a long delay in rehabilitating the 77 km stretch to Cuamba on the Mozambique side, severely impacting transit times. There is no rail infrastructure to Beira and the port is currently accessible only by road, thereby making it more expensive than needed. Rail infrastructure in Malawi is poor and is in need of major rehabilitation. There have been considerable delays in repairing the Blantyre-Lilongwe rail line which was cut in 2003 by floods and was never repaired until more than two years after. This compares unfavourably to the swift repair of the road link.

The state of rail infrastructure reduces transportation options and drives costs up. The study observes that shipping by rail through Nacala may be cheap, but it is unreliable. The study estimates that Lilongwe to Beira which is 948 km and takes **3 days** transit by road whilst a similar distance on the Nacala line: Lilongwe to Nacala which equally is 989 km takes **10 days** transit by rail due the 77km bad stretch between Cuamba and Entre Lagos at average speeds of 15km/h). As a result large retail businesses would rather use any other route than Nacala if a delivery is time-

According to TERA 2005 delays, in many cases, 'cause total loss of a shipment. Many products are perishable, such as horticulture products, tropical ornamental fish, and fresh food products. Both total trip time and reliability are critical. For products which are seasonal, delays can be as consequential as for perishables, such as products sold in anticipation of specific holidays. Where ship port calls are infrequent, delayed cargo may miss a critical shipping date and incur extra storage costs and exposure to loss and damage. Alternatively, a shipper will have to plan for cargo to arrive in port substantially in advance of the ship call date, simply to avoid risk of delays, with extra cost of storage and delay in payment. If delivery of a farm input such as fertilizer is delayed and unavailable at planting, then the cost is enormous in terms of lost productivity, plus holding costs for use next season.'

With the condition of the railroad being poor and very inconsistent it is therefore of no surprise that shippers of commodities other than tobacco, tea and sugar prefer the longer more expensive route through the port of Durban as:

- The line between Blantyre and Salima as well as the branch from Nkaya to the border is generally in good acceptable condition although it needs some re-ballasting² and repair.
- In 2003 a washed out bridge South of Salima prevented operations to Salima and Lilongwe. The bridge has finally been repaired with the support of a DFID grant.
- The tracks south of Blantyre (a 209 km section) are in a poor condition. The most southern section 80 km south of Machanga is no longer in use and needs rehabilitation as some sections have been washed out by floods.
- In Mozambique, a 77km section located in a flood area between Cuamba to Entre-Lagos has been in very poor condition, causing many interruptions. It is currently being rehabilitated

Since the rail sub-sector is capable of transporting large volumes of goods at a low price and on time, the functionality of rail transport is of vital importance to Malawi. This becomes important when we consider terms of trade and competitiveness of agricultural products with Malawi's trade counterparts within and outside the region. With the current estimates of transportation costs up to 56% of the export value non-traditional exports, upgrading and reviving rail transportation is important for Malawi's economic development if it is to shift from a predominantly consuming and importing country to one that predominantly manufactures and exports.

Historically, the Beira corridor had been the main Malawi trade artery, having been disrupted by the war in Mozambique. Presently it is returning to its old predominance and handles again nearly half of its foreign trade. The Sena railway line in Mozambique, coming up from Beira, is being rehabilitated by an Indian consortium and will have a connecting spur into Malawi, liaising with the Malawi railway network at Nsanje/Bangula. It is assumed to be operational in 2009, then connecting Malawi again directly to Beira by railway. Up to then, there is only a road connection starting in Blantyre of some 800 Km, passing through the border post of Mwanza. The main commodities moving on this route are: in export: sugar (50,700 t in 2003), tobacco (31,700 t) and tea (7,100t). In import: fuel (123,800 t in 2003) and fertilizer (33,900 t). The transit time between southern Malawi and Beira by road is about 3 days. Beira offers regular feeder calls for Durban.

The South African corridor is actually a network of roads, liaising southern Malawi via the border post of Mwanza through Mozambique to Zimbabwe and South Africa. The distances are around 600 km to Harare, 1,600 Km to Johannesburg and 2,000 Km to Durban. Durban is the main intercontinental shipping hub of southern Africa and from there Malawi cargo destined to Europe, America and Far East is shipped. Durban is accessible from Malawi either by land transport by truck or by feeder shipping through the corridor ports of Beira and Nacala. Accordingly, the main volumes of cargo are moved on these routes by truck. Thus, in 2003: in export: tobacco (77,700 t), tea (28,200 t), cotton (11,500 t) and sugar (10,400 t). In import: general cargo (375,200 t) and fertilizer (128,800 t).

The war in Mozambique in the 1970s forced Malawi to re-orientate its external trade and transport routes, as the nearest ports Beira and Nacala were not available any more. South Africa, being by far the main trade partner of Malawi, was accessible only by road, which implied the increased use of

trucks. Thus, the trucking industry during the 1990ies was much promoted and attracted much entrepreneurial initiative. It has developed into an important economic force, which is said to even exert strong political influence. This is felt to be reflected in a preference for road traffic and the funding for maintenance of the roads. The established transport modes like railway and shipping on Lake Malawi have been unable to offer the same speed and efficiency as the road transport, reflected in a steady decline of their performances. Without projects allowing them to operate near full capacity and/or shielding them from the trucks competition, no fundamental change appears possible, as they will never be able to offer the same flexibility as their road competition.

5.1.3 Malawi Lake Services

Malawi Lake Services (MLS) was established as a division of Malawi Railways (MR) to provide the essential transport services for freight and passengers along the 500 km length of the lake. MLS operates a fleet of about 10 vessels. Ship services are provided to 21 landing points on Lake Malawi, four of which have freight and passenger handling facilities. With the increasing efficiency, speed and deregulation of road transportation, the lake transportation experiences similar problems as general freight carried by rail. Due to the lack of flexibility and the additional costs of transshipment, the activities of MLS have been gradually declining over the years, with the exception of renewed interest in the mid 1970s to the 1980s, when access to ports in Mozambique, Nacala and Beira, were closed due to the civil war. Investments were made into port infrastructure and vessels, but problems were experienced with low lake water levels and access to the key ports.

The lake levels have since recovered, but the traffic volumes still showed a steady decline, leading to a decision in 1995 to separate MLS from Malawi Railways and to concession the operations to a private sector enterprise.

Water transportation on Lake Malawi is used to transport goods and services such as foods, fertilizers, construction materials, daily commodities, fuel and passengers (both local and tourists). There are six (6) major ports along Lake Malawi, namely: Itungi (Tanzania); Chilumba, Nkhatabay, Chipoka, Monkey-bay, and Ngara ports. These are all in a dilapidated state thus affecting the efficient use of water transportation in the country. Table 1 outlines some of the key constraints at selected ports along Lake Malawi.

Only Chipoka and Chilumba ports are equipped with a quay/pier, loading and unloading facilities, warehouse, repair yard and reserve tanks. There are only three ports at Nkhatabay, Ngara and Monkey-bay equipped with floating piers. Only the Monkey-bay port was operated by a private company, the Malawi Lake Services, until their concession expired in 2008. The pier at Nkhotakota port is dilapidated and cannot be used.

On the other hand, the marine services have witnessed a decrease in passenger services and an increase in the volume of cargo moved by the Malawi Lake Services since 2004. While passenger services have decreased by 12%, the volume of cargo has increased by over 300% since 2004. The latter is attributed to the opening of the Ngara port in Dwangwa that transports mainly cargo from the Ethanol Company and the Dwangwa Sugar Corporation. However, with the poor state of most of the ports along Lake Malawi has resulted into the concessionaire making losses on passenger

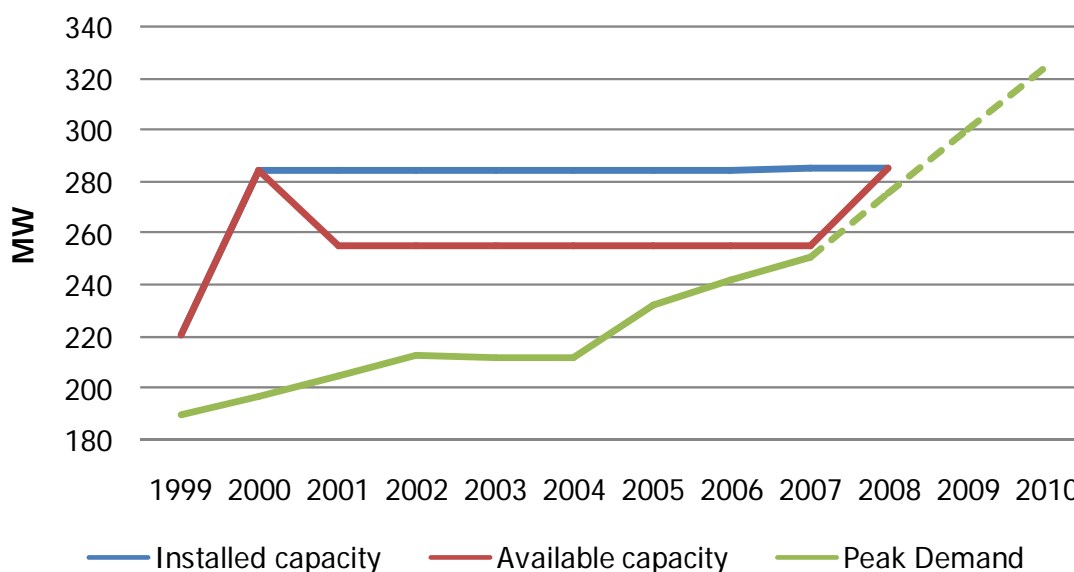
When growth in agriculture is combined with a more efficient transport sector, both total GDP and farm income increase sharply: additional GDP per capita annual growth rises to close to or more than 1 percent in five of the countries (all except Mozambique and Zimbabwe, Table 4.2, part A, column 7), and per capita farm income goes up by close to or more than 2 percent in all seven countries (Table A12, part B, column 2). Agricultural exports benefit more from improving the transport sector's productivity: total agricultural exports annually increase by 4.17–6.18 percent per capita in six countries and by 8.43 percent in Zambia (Table A12, part B, column 6). **Malawi's agricultural export growth rate in this scenario is more than two times higher than the growth rate in the scenarios of agricultural growth alone.** For the other six countries, agricultural export growth rates increase by 30 to 90 percent.

5.2 Infrastructure - Power

Malawi currently suffers major shortages of generating capacity and power outages but planned investment in Kapichira-II hydropower plant and the interconnection of Malawi's electricity grid with Mozambique in 2011 should help reduce capacity shortages and load shedding and improve supply reliability. But demand is growing rapidly and is projected to reach 325 MW, 478 MW and 757 MW for years 2010, 2015 and 2020 respectively. Given the expected load growth, a continuation of current problems with the availability and reliability of existing hydroelectric power plants would, despite the planned investments, lead to more load shedding, discouragement of business investment, and would undermine economic development and efforts to reduce poverty. It would also damage attempts to widen access to electricity among Malawi's population.

The analysis performed shows that currently ESCOM's installed capacity is 302MW (95% hydro; 5% diesel) whilst available capacity is only 265MW against forecast demand of 295MW. With the rehabilitation of Tedzani I and II and the expected decommissioning of one of the machines for purposes of rehabilitation an additional 20MW is expected by the end December (Rehabilitation of Tedzani I & II completed) bringing total available capacity to 285 MW which is still below current demand. With this scenario load shedding is inevitable regardless and the situation will continue to deteriorate as demand grows. It should be noted that access to electricity currently stands at 7.9%.

Fig. 38



The poor performance of existing hydropower plants has partly been a consequence of capacity shortages - without spare capacity, it has not been possible to take plant out of service to allow

proper maintenance and refurbishment. Additionally, problems with weed infestation, siltation and debris in the river have damaged turbines and generators.

Overloaded transmission and distribution networks result in unreliable electricity supply leading to regular interruptions and voltage fluctuations damage consumers' (households and businesses) electricity equipment.

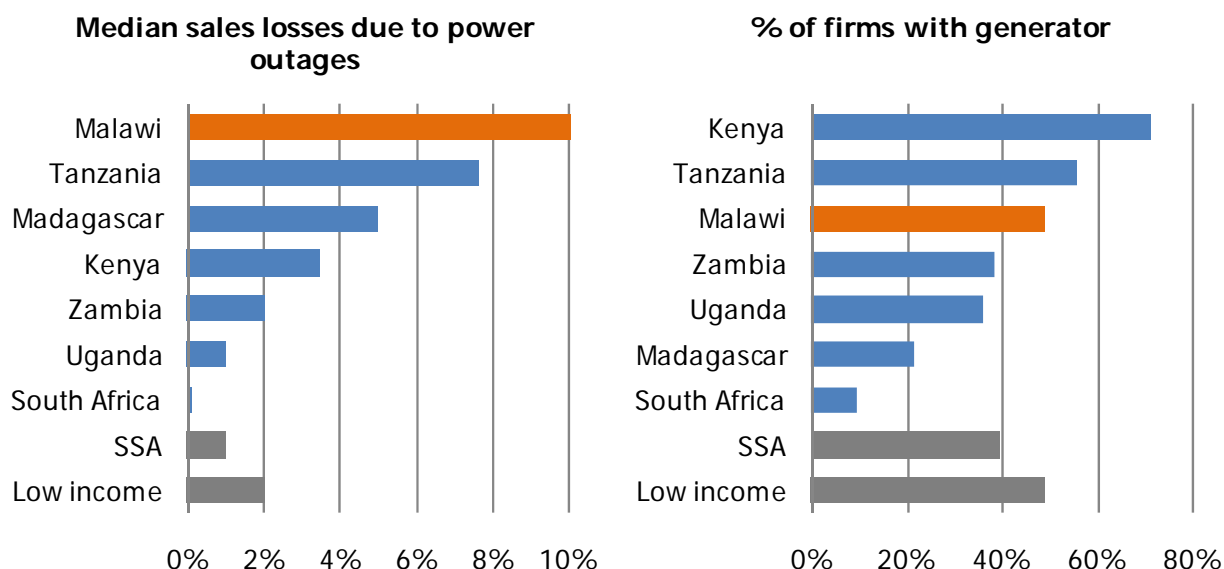
The implications of low generation capacity coupled with unreliable transmission and distribution networks is that ESCOM cannot guarantee quality and quantity of supply to new and existing customers and that the country continues to suffer from regular power outages. There is also a backlog of unconnected customers as well as potential customers that have deferred investment or moved to other countries where power is not a problem. This has adversely affected both domestic consumers as well as industry and has ended up driving away investors. The following examples serve to illustrate the adverse effect of the state of power supply:

- ✿ ESCOM couldn't guarantee quantity of to **uranium mines** and as a result Paladin resorted to the importation of diesel generators which is a much more expensive form of energy and results in increased diesel imports which creates additional pressure on international transport as well as foreign exchange. The operations at the uranium mines require very reliable power sources which ESCOM could not guarantee due to insufficient generation capacity. This problem is compounded by a weak transmission line to the Northern region.
- ✿ **Heavy sands extraction** never materialized because of the same inability to guarantee power supply. Heavy sands are used in the manufacture of titanium, a light and robust metal, which is, *inter alia*, used in airframe manufacture. Malawi lost out on an opportunity to diversify its export base and the investors moved to Mozambique where power then was not a problem. Heavy sands can also be mined at a small scale level and therefore Malawi missed out on an opportunity to empower the majority of its citizens who could have benefited from being linked to a large producer of titanium.
- ✿ **BAT** quoted power outages as one of the reasons for their departure from Malawi as each power outage cost the company lots of money as 50,000 cigarettes had to be thrown away with each of power failures. Once the machines stop as a result of power outages the product has to be thrown away as it cannot be recycled. This has affected the competitiveness of most industries including Unilever, a detergent manufacturer which had to move its major production lines to other countries including Zimbabwe.
- ✿ **Dairy industry** can't provide consistent quality of milk (outages preclude maintaining constant temperature). As a result losses are high. Rural households that in milk-shade areas quoted lack of access to power as one of the major impediments to the growth of the rural-based dairy industries and hence limits improvements in rural livelihoods.
- ✿ **Plastics:** Each time there is a power outage the machines get clogged by molten plastics and result in expensive cleaning operations of equipment. This adversely affects the competitiveness of the sub-sector and consequently the export potential is limited.
- ✿ Several potential **textile investors** have considered investment in Malawi in recent years. Textile manufacture, especially spinning, is a power sensitive operation which requires good quality power (in particular, a consistent power voltage to avoid uneven thread

thickness). The cost of unscheduled outages can often be disproportionate to the duration of the outage. For example, the Mapeto textile factory may lose between 300 and 500 metres of fabric in their finishing/dyeing operation, whenever there is a supply interruption. A number of textile factories have closed in recent years, with some of them (e.g. HAPS) citing power supplies as a major reason for closure. A crocodile farm closed for similar reasons.

Comparatively, median sales losses due to power outages are at 10% the highest within Malawi's comparators. In fact for companies without a generator, median sales losses are of the order of 20 percent compared to those with a generator whose losses are of the order of 5 percent. In consequence the number of firms with a generator is at 50%, one of the highest in the region. Press Corporation has cited power problems and the consequent purchase of thermal generation capacity as a diversion of resources that could have been used to start a new business.

Fig. 39



In summary the state of power infrastructure is poor and impacting on returns to investment and constraining new investments in the country. It has prevented the country's diversification into non-traditional exports (e.g. Titanium and on farm processing). A large number of companies have heavily invested in generating plant. This is a diversion of resources which could be used for investment in other ventures and also it does have an impact on Malawi's competitiveness. In addition it puts pressure on foreign exchange which is meager at the moment, raises the cost of transportation as larger fuel quantities have to be imported and eventually it has an adverse effect on the cost of other imports including fertilizer. If nothing is done now agriculture as a sector will continue to be adversely affected by increasing costs of transportation and hence inputs. Finally power quality and quantity has led to the shrinking of manufacturing output and in consequence it is concluded that power is a constraint to growth.

5.3 Infrastructure - Water and Irrigation

The study looked at water and irrigation. Droughts are endemic to Malawi and have had devastating effects on crop and livestock production. Floods occur in the south, particularly in the lower shire areas of Lake Malawi, Lake Malombe and Lake Chilwa. Floods also occur in the lower reaches of the Songwe River in the Northern Region. The major consequences of flooding are

damage of agricultural lands and crop damage. Droughts, floods and rainfall variability also intensify risk-averse behavior by farmers and other investors in agricultural industries and services, slowing the diversification of economic activities.

De-vegetation, erosion and sedimentation are Malawi's most serious environmental threats, affecting energy generation and water supply to homes and industries. The most significant dams are the hydropower dams on the Shire River, which are badly affected by sedimentation. Sedimentation is particularly acute at Nkula one of the power plants and Blantyre Water Board (BWB). Almost 50 percent of all illnesses in Malawi are water-related, such as cholera and typhoid, a problem exacerbated by the rapid spread of HIV/AIDS. The chemical contamination of stream water in urban and peri – urban areas is becoming a common problem due to the improper disposal of industrial waste. The growth of water weeds, including water hyacinth threatens fish resources.

As far as meeting the water MDG is concerned 74.2% of Malawians have access to improved water supply implying that the country is on course to attaining the water MDG. As for urban areas of Lilongwe and Blantyre there is significant challenge in maintaining the ageing water system as the urban population increases. Water shortages are very common especially in Blantyre and seriously affect business operations. Despite abundance of water resources irrigation development has been limited. Only 27% of the irrigation potential has been exploited

Water supply service delivery in the cities of Blantyre and Lilongwe are operated through Blantyre Water Board and Lilongwe Water Board, respectively. The two water boards are commercial statutory corporations required to operate on a sound economic basis within their gazetted or designated water supply areas. The demand for water supply and sanitation services in these urban areas has been growing over the past decades due to population growth, urbanisation and improvements in the economic and social well-being of people living in the two major cities of the country.

The water supply and sanitation services are currently characterised by inadequate and inefficient delivery of services. The most affected are the low income areas that incidentally make up an increasing proportion of the urban population (currently estimated at 69% for Blantyre and 70% for Lilongwe). The services being provided are unreliable, spurred by high water losses (48% and 34% of unaccounted for water in Blantyre and Lilongwe Water Boards, respectively). This is a result of the inheritance of old water supply delivery systems and occasioned by lack of adequate and timely investments for rehabilitation. This has a negative impact on the private sector and the overall national economic development of Malawi.

It has been projected that with the existing capacity, Lilongwe Water Board will be able to meet its demand up to 2010. With the growing demand as a result of rapid urbanisation in the city (currently projected at 7.1%), the capacities and efficiency of some of the plant systems continue to deteriorate and there is need to add more infrastructures to meet the growing demand expanding towards the borders of the city. Blantyre Water Board is responsible for the provision of water supply services in the city of Blantyre and inherits a water supply system that is over 45 years old. Its water supply system draws water from the Shire River through a 36-km transmission pipeline to Blantyre that has an overall pump head of approximately 800 metres. Almost 50% of the revenue collected is thus spent on electricity costs which affect the water board operations and maintenance activities. A second source of water supply is through the Mudi Dam which contributes 10% of the water supplied to the city.

The intake arrangements and treatment plants operating on the Shire River are located at Walkers Ferry on which the water board has a compound of operators and technicians working at the raw water pumping station, water treatment plants and the high-lift pumping station. The intake structure was constructed in 1963 and has expanded in line with increased abstraction requirements from the growing city.

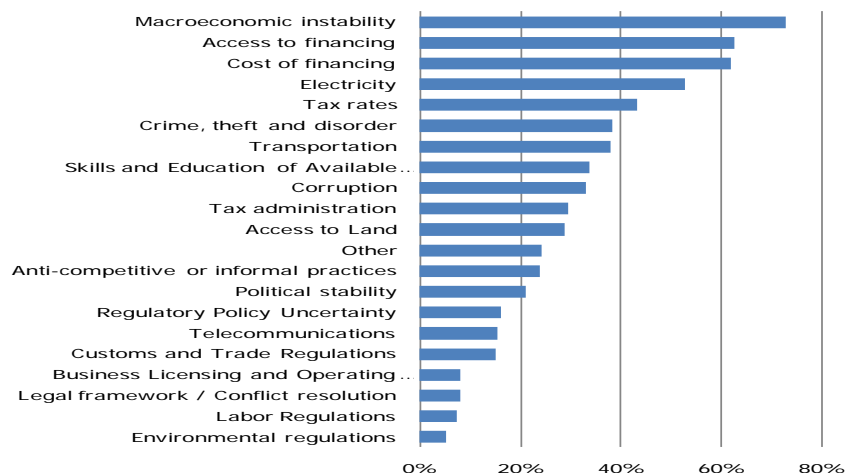
The raw water pumping station is reported to have a design capacity of 106, 000 m³/day and the treatment plant and high lift pumping station have design capacities of 78, 000 m³/day and 83,000 m³/day respectively. Chileka high lift station and the pipeline from Walkers Ferry to Blantyre have design capacities of 83,000 m³/day and 96,000 m³/day respectively. Due to current condition of the equipment, Walkers ferry system is capable of producing an average of 75,000 m³/day to Blantyre. Mudi system has a design capacity of 45,000 m³/day but due to degradation of catchment and hence poor raw water condition, the current production capacity is 8,000 m³/day. In total, Blantyre Water Board has a production capacity of approximately 83, 000 m³/day against an average demand of 87,000 m³/day and peak demand of 95,000 m³/day.

In summary the country experiences serious droughts which impede agricultural productivity and floods which contribute to agricultural land and crop damage. These natural disasters reinforce farmers' aversion to risk-taking including diversification. Malawi is not exploiting its irrigation potential. Degradation of water sources affects activities such as power generation and water supply to Blantyre. Access to water has improved and Malawi is on course to attaining the water MDG by 2015, however water resource management is still an issue and could constrain growth.

6. HUMAN CAPITAL

In the International Competitiveness Assessment (ICA) shortage of skills is quoted as 8th by businesses and that the absence of skills prevents existence of high-skill businesses. One of the indicators of skills shortage is that Malawi has a high number of foreign workers in key management/ technical posts in firms and NGOs and that there is a high proportion of businesses owned or managed by foreigners in formal sector.

Fig. 40



Malawi's literacy rates among the youth are improving following the free primary education program. However primary school completion rates for the first four years of primary school are at 44.2% the lowest of the comparator countries. Additionally, literacy levels among the adult population are among the lowest in the region. Studies show that primary education is accompanied by higher cash-crop income.

Fig 42 Tobacco income against years of primary education

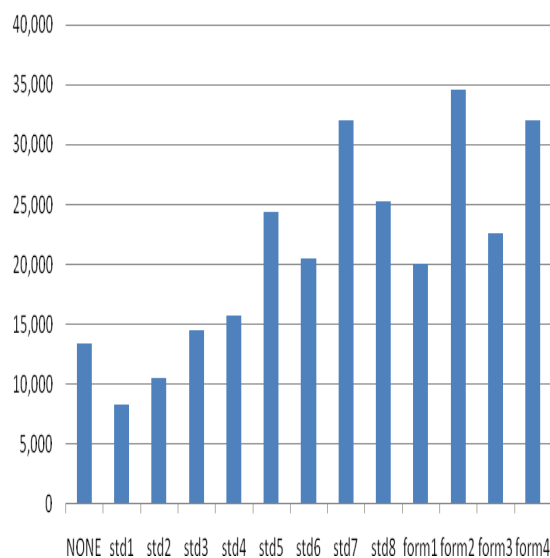
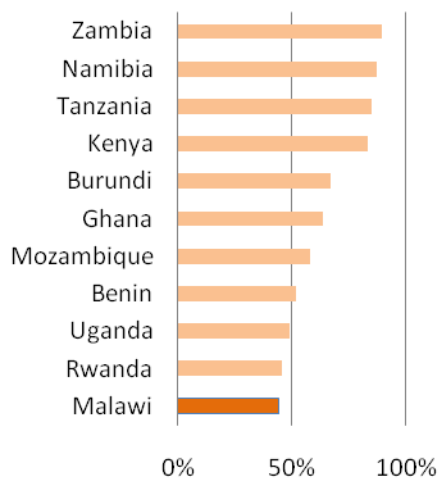


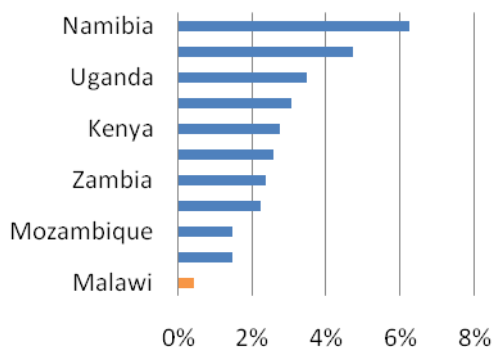
Fig. 43 Completion of 4 years of primary school



Source: WDI 2005

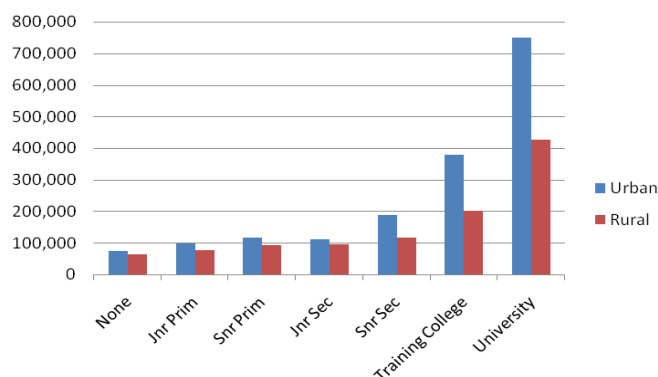
Tertiary enrollment in Malawi is the lowest of comparators at 0.4% gross enrollment (see chart below). Annual expenditure for urban university graduates is four fold that of secondary school leavers.

Fig. 44 Gross enrollment in tertiary education



Source: WDI

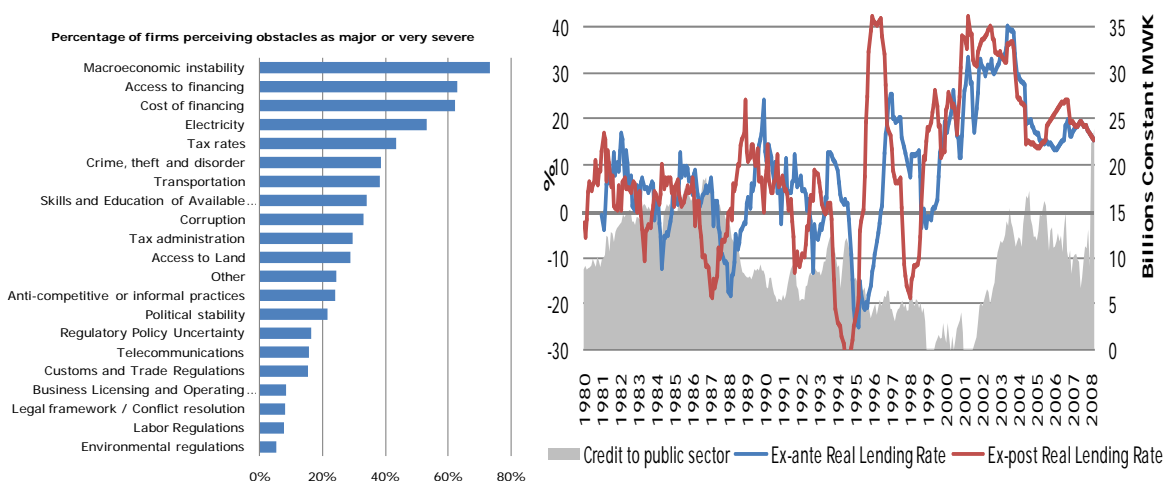
Fig. 45 Annual Expenditure for Each



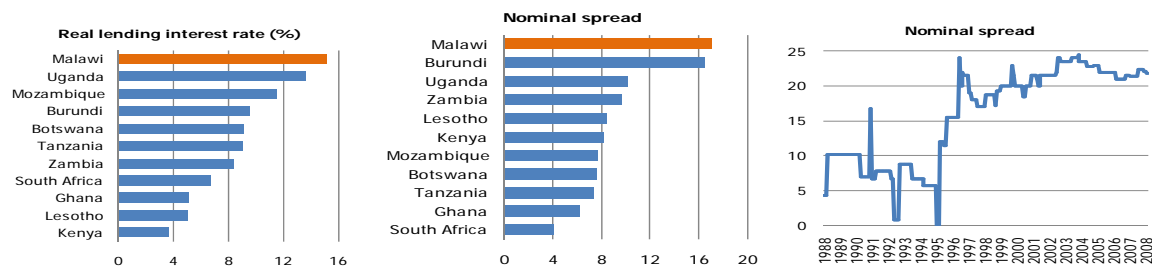
In conclusion returns to tertiary education are high and in consequence Malawians make great efforts to study in overseas universities. Primary school completion rates are low and tertiary education is highly concentrated. Most of the members of the private sector cite shortage of highly skilled workers as the number 8th constraint. There is a mismatch between school and tertiary institutions curricula and what is required by most businesses and that technical training institutions are not properly functioning.

7. FINANCE

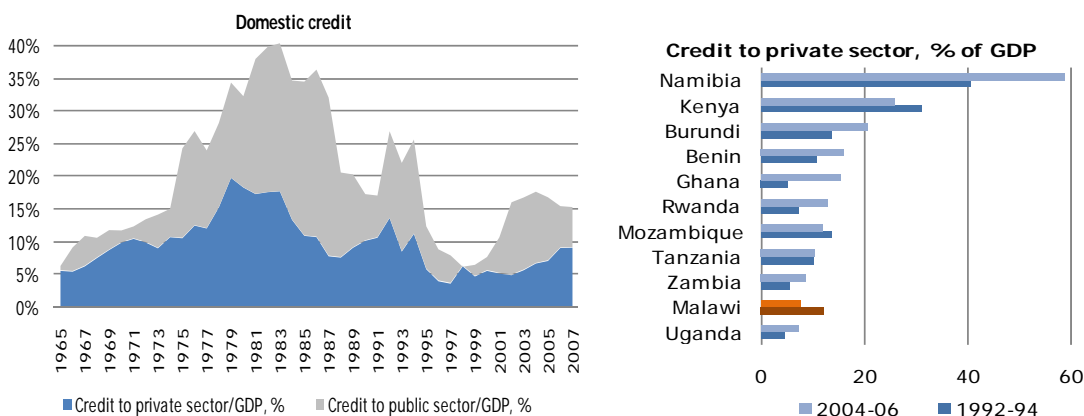
According to the International Competitiveness Analysis (ICA) the cost of finance ranks as number 2 constraint reported by formal firms and access to finance number 1 constraint reported by informal firms. What the study tried to establish is whether or not their complaints are valid.



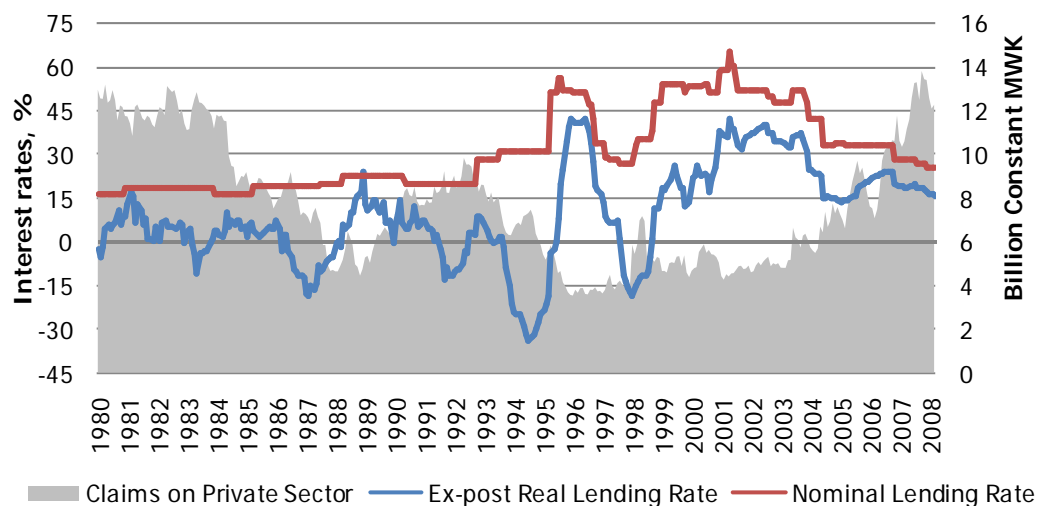
Judging from the above graph (on the right) real lending interest rates in 1996 increased to over 40% and although they gyrated momentarily downwards between 1997 and 1998 they increased in 2000, when domestic public debt shot up and peaked up in 2001 at over 40% again. Interest rates have been decreasing since 2004 due to improving fiscal management.



Comparatively Malawi's real lending rates are of the order of 15% which is by far one of the highest in the world (the charts above refer). Interest rate spreads are the highest in the region though decreasing slowly which is indicative of lack of competition in the Banking system and that there is scarcity of capital. Real deposit rates are negative which is indicative of the fact that the economy is not savings-constrained.

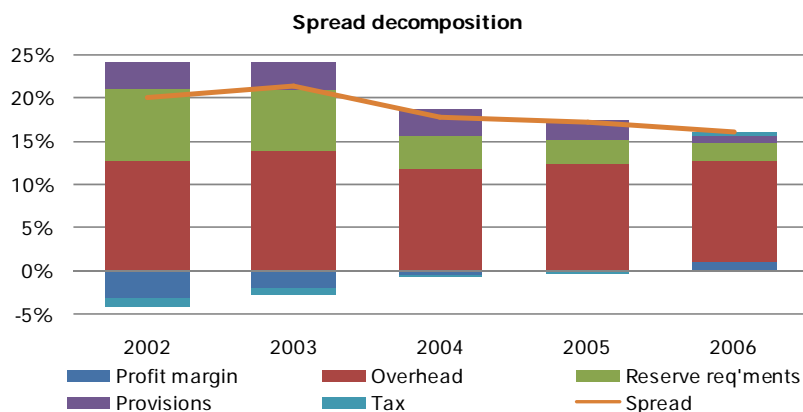


Credit to private sector is only 6% of GDP, but this was not always the case. Private credit dropped from 12 million const. MWK in 1980 to 5 in 1987. If investment is capital-constrained, we should see increased interest rates.

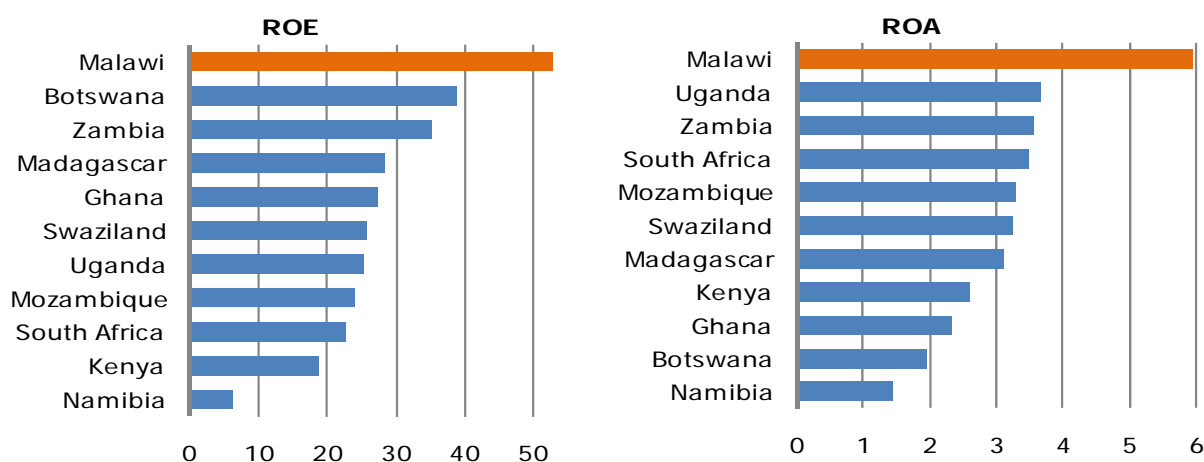


In reality, interest rates barely moved (We take note of the fact that at the time the banking sector was heavily regulated). Credit to the private sector collapsed around 1980 as investment opportunities went down as a result of external shocks (oil crisis, Mozambique civil war which resulted in the closure of external transport routes). In other words private credit went down because demand shrunk (fewer investment projects yielding a given rate of return). Crowding out of the private sector in subsequent years never helped matters as its share to GDP kept on declining. Although there is a slight improvement in subsequent years as public debt shrunk (crowding-in) the financial sector still remains shallow.

The chart below shows the interest rate spreads and spread composition. The chart shows that there has been a steady decline in interest rate spreads from a high of 28% in 2003 to 15% in 2006. Recent reduction in spreads is due to lower reserve requirements (inflation put under control by fixing the fiscal stance) and fewer bad loans, while overheads remained stable.



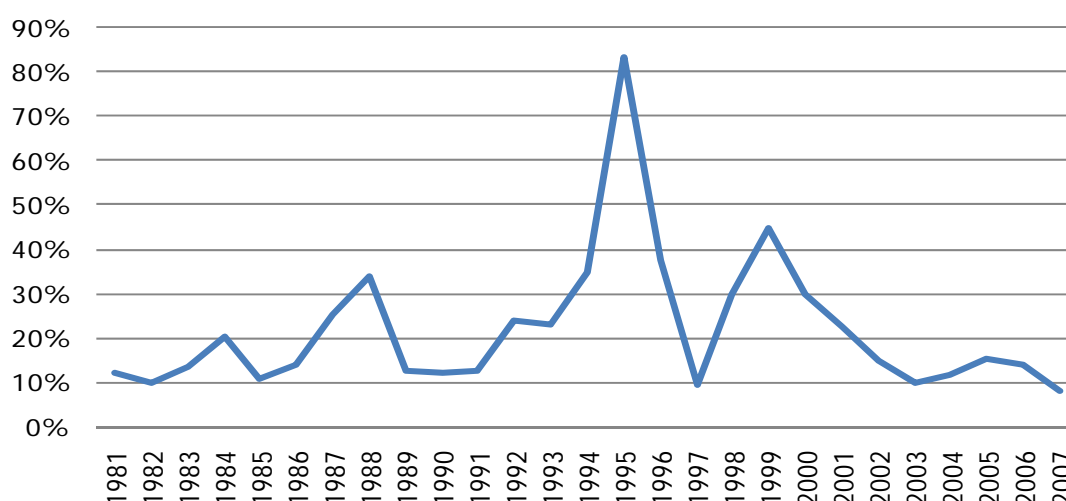
Little investment opportunities means that per-client overheads are high and at the same time remained highly profitable. Return on assets and return on equity as measures of profitability indicate that Malawian Banks are by far the most profitable amongst Malawi's comparators (see tables below) It is therefore not surprising that the deregulation of the sector triggered a rapid increase in the number of banks (from 2 prior to 1994 to 9 today).



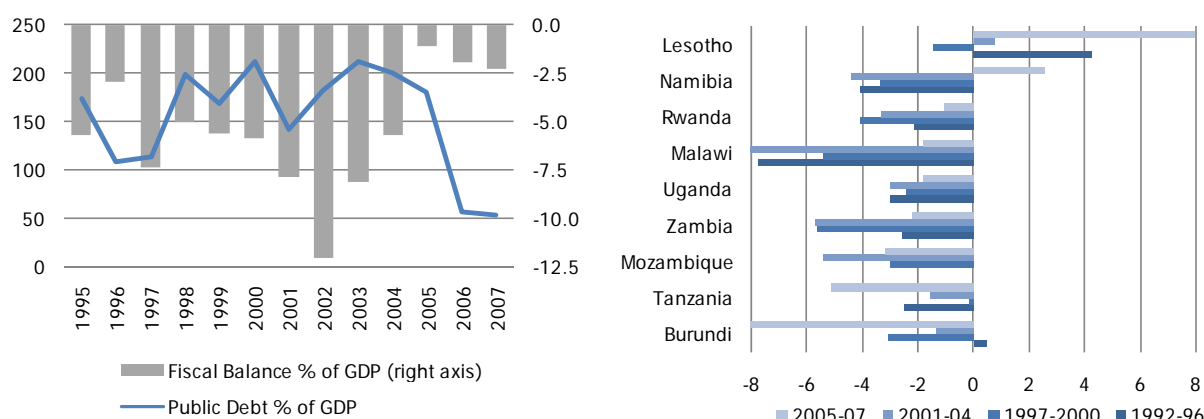
In conclusion access to capital was determined to be a constraint. Interest rates are high by international standards, there are high spreads and overheads are quite high. There is small financial depth in the sector, although between 1980 and 1990 the reduction in private sector credit was due to a reduction in investment opportunities and not vice versa. The study noted that the banking system is highly profitable using such measures as return on assets and return on equity and access to capital especially venture capital is an issue. However all these point to poor financial intermediation and high overheads are at least partly explained by small market size. But things are gradually improving with the recent financial innovations including First Merchant Bank's Makwacha cards, increased ATM networks and decreasing interest rate spreads notwithstanding the fact that these are not due to competition-induced cost cutting reductions.

8. MACRO RISKS

The stability of the macroeconomic environment is important for business and, therefore, is important for the overall competitiveness of a country and conversely, macroeconomic disarray harms the economy as firms cannot make informed decisions when inflation is raging out of control. The share of resources to finance government services gets squeezed as it has to make high-interest payments on its past debts. In sum, the economy cannot grow unless the macro environment is stable. Malawi's Real GDP growth is still high and inflation moderate. The figure below shows that inflation has dramatically fallen from as high as 80% in the mid-90s to a single digit figure of 8%. Latest figures show that consumer prices increased by 9.3 percent in the 12 months to September 2008, largely because of a 25 percent increase in fuel prices in June 2008. Food price inflation continues to be subdued, though domestic maize prices reportedly shot up in some areas in the first half of 2008

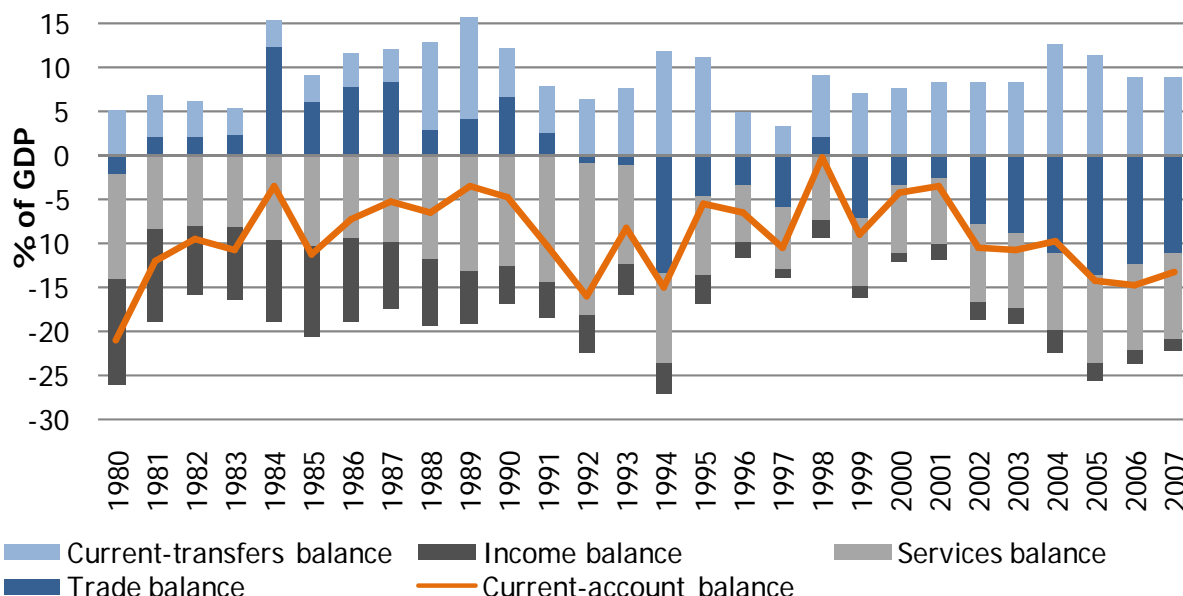


Malawi's fiscal position has improved dramatically. Deficits went down to the level of 1-2% after having hovered at between 6% and 11.5% during the period 1995 to 2004. The graph on the bottom right shows that Malawi's fiscal balance has gone from the worst in the region to above average. Due to Multilateral Debt Relief Initiative public debt fell fourfold to 50% of GDP. However uncertainty still remains as the country enters election year.



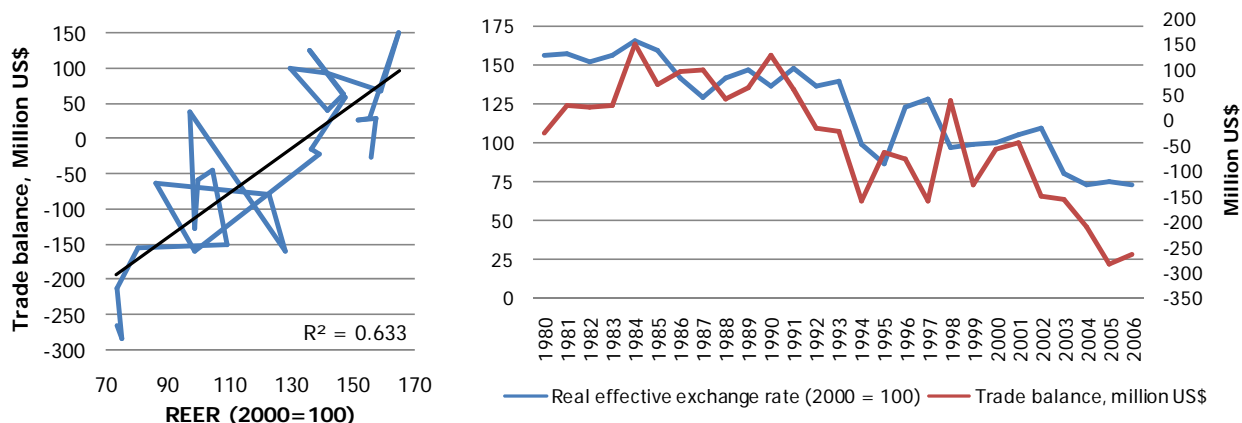
Source: WDI

On the down side Malawi is running a chronic CA deficit, which deteriorated since 2000. Most of the CA deterioration due to worsening trade balance. However much of this deterioration is covered by concessionary donor inflows.

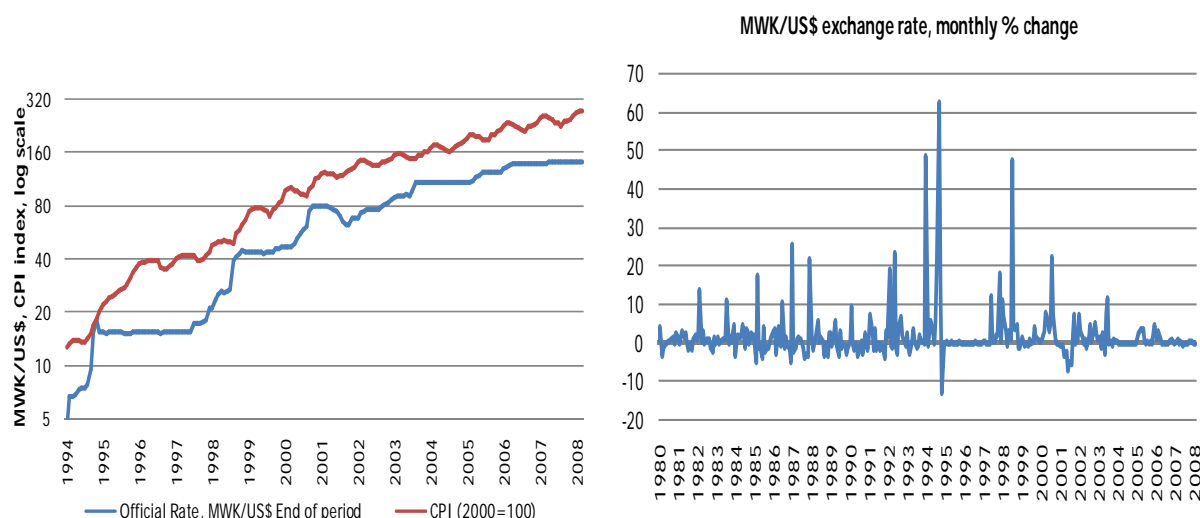


Source: EIU

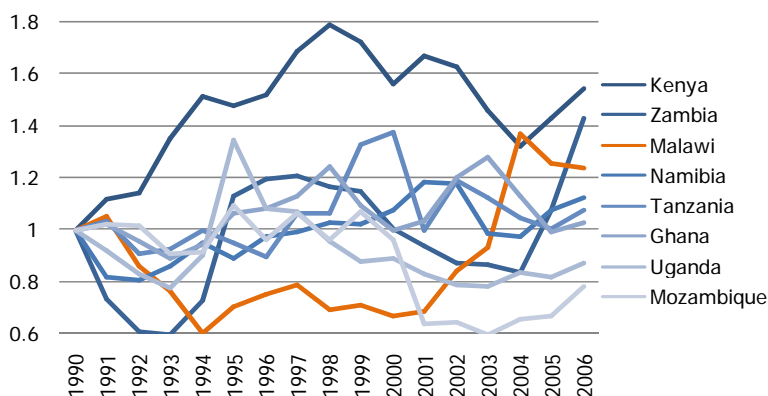
The real effective exchange rate (REER) appreciated sharply in 2003 and has remained relatively stable since then, helped by the weakening of the U.S. dollar. However the appreciation of the U.S. dollar against the currencies of many of Malawi's trading partners since the onset of the credit crunch may lead to a sizable appreciation of the Malawi REER. Much of the trade balance deterioration is due to the appreciation of Malawi's REER in 2003. The graph below right shows a positive correlation between the real effective exchange rate and the trade balance.



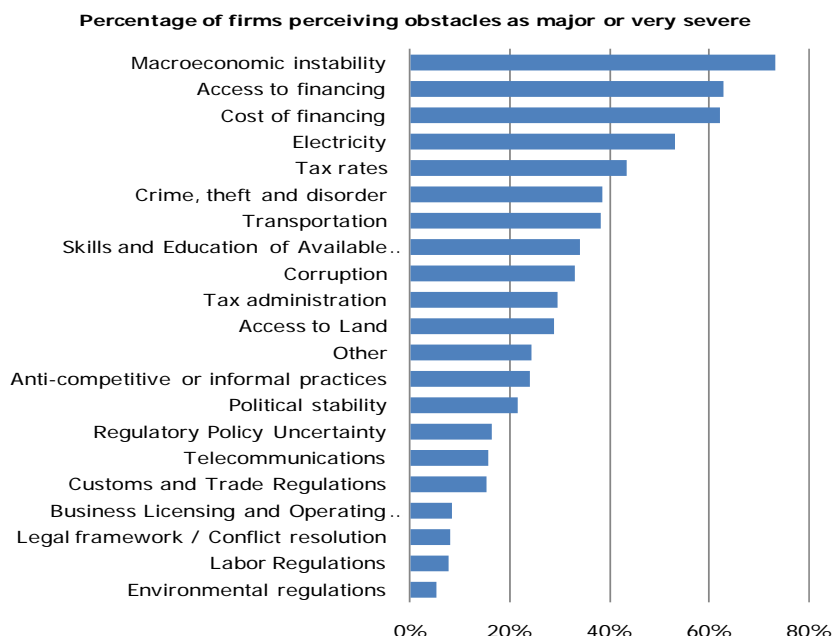
The government continues to place substantial weight on stabilizing the nominal exchange rate against the U.S. dollar, which has held steady since May 2006. The authorities believe exchange rate stability has helped signal their commitment to economic stability and anchored inflation expectations and the prices of traded goods.



Historically Malawi has gone through periods of stability, followed by abrupt step devaluations (regularly reaching 20% per month), which led to High exchange rate uncertainty. However, since 2004 step devaluations have been rare and of smaller magnitude. Exchange rate stability promotes trade but recent stability appears unsustainable and may be increasing risk of dramatic devaluation in near future. Terms of trade have been rapidly improving since 2001. But the current commodity boom seems to have done more damage than good as Malawi has been experiencing a sharp deterioration in the TOT (every other comparator country improved their T-o-T in 2006 relative to 2005).



According to ICA macro-economic instability was cited as the over 70% of the firms in Malawi perceive macroeconomic instability as a major impediment to development, followed by access to financing and electricity. The situation is however different today as the economy has enjoyed relative stability over the past four years with single digit inflation rates.



Summary on Macro-risks

Malawi is maintaining an artificially overvalued exchange rate which is leading to demand for foreign exchange exceeding supply thereby resulting in chronic foreign exchange shortages. As a result foreign exchange payments are delayed as importers cannot pay the bills in time because the banks don't have the foreign exchange. This in turn leads to late payment penalties by foreign partners and loss of commercial credit.

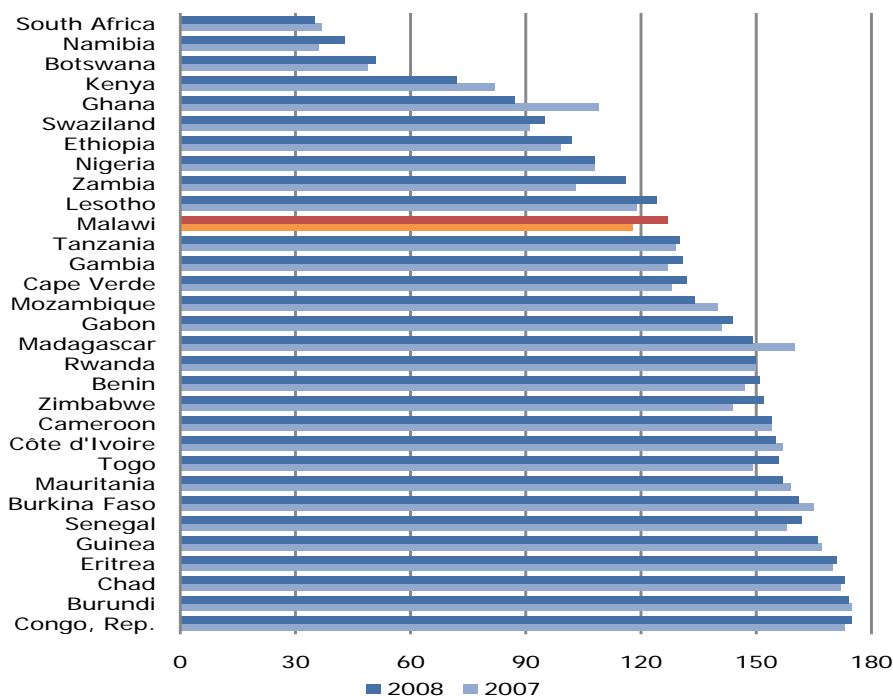
The camels in the desert:

In order to survive under the circumstances firms have accounts with multiple banks to minimize risk of foreign exchange shortage at any one of them. Importers ready to buy foreign exchange at higher exchange rates, so banks introduced quasi-forward contracts (legal, but against the spirit of RBM's policy). RBM ended up closing this loophole. Interviews with the private sector reveal that there are widespread expectations of devaluation in 2009 and the end result is that exporters postpone repatriating foreign currency, thereby exacerbating the shortage of foreign exchange. Exporters hurt by overvalued exchange rate.

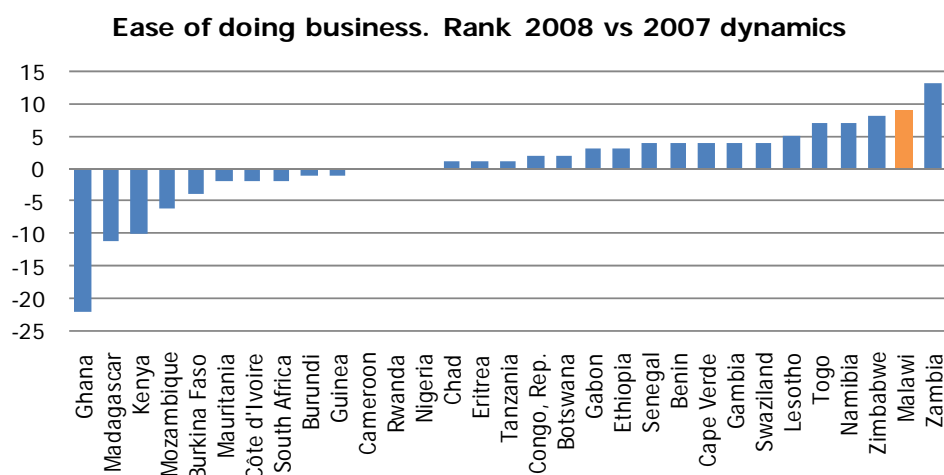
In conclusion fiscal stance much improved, but credibility of recent advances has yet to be established. Inflation is under control and the country's debt profile has improved. However the country has an overvalued exchange rate which hurts exporters and is maintained in a fashion that also penalizes importers.

9. MICRO RISKS

Overall business climate is better than expected, Malawi's position in the doing business ranking is relatively good as the country ranks 11th out of 31 countries sampled.

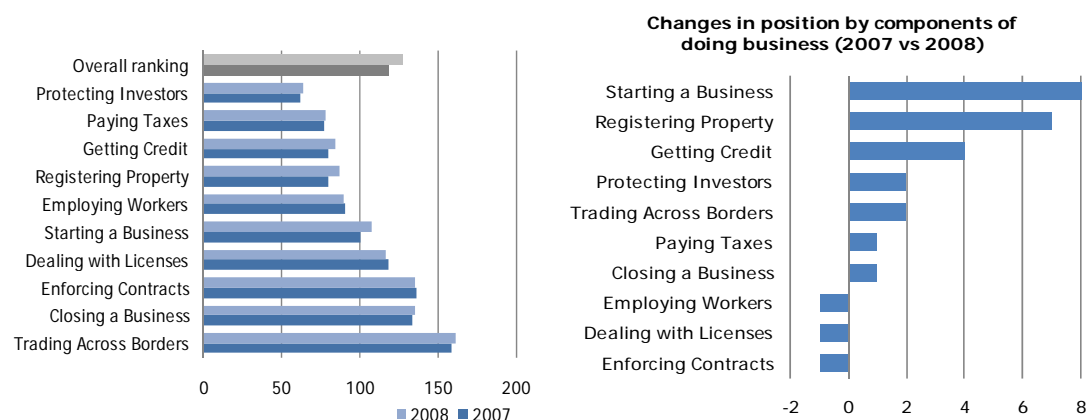


But the country has been rapidly slipping down on the ease of doing business. The bar above is getting longer as Malawi would have been above Lesotho if it had maintained the 2007 rating. According to the chart below, Malawi is only second to Zambia among the 18 countries that slipped.

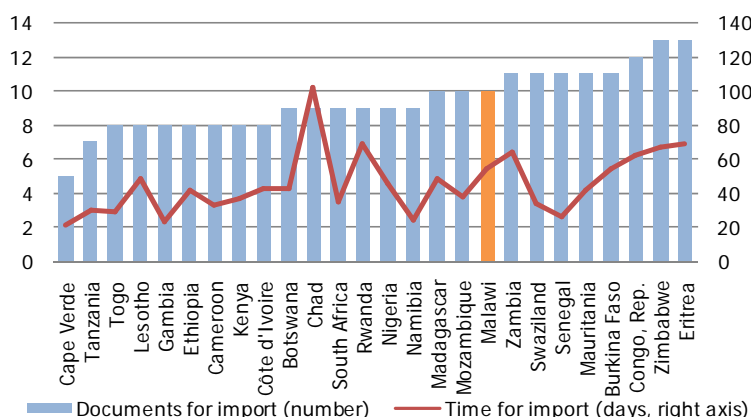


A decomposition of the ease of doing business ranking shows that Malawi is trailing in particular in trading across borders, contract enforcement and closing of businesses. Malawi has been slipping almost across the board including starting a business, registering property and getting credit is relatively (compared to other countries) more complicated than the previous year. There was even a slight slippage on paying taxes, and this probably has to do with the way MRA administers the tax

law. According to one of the organizations consulted it was noted that MRA on occasions selectively applies tax rebate on capital goods depending on ability to pay.



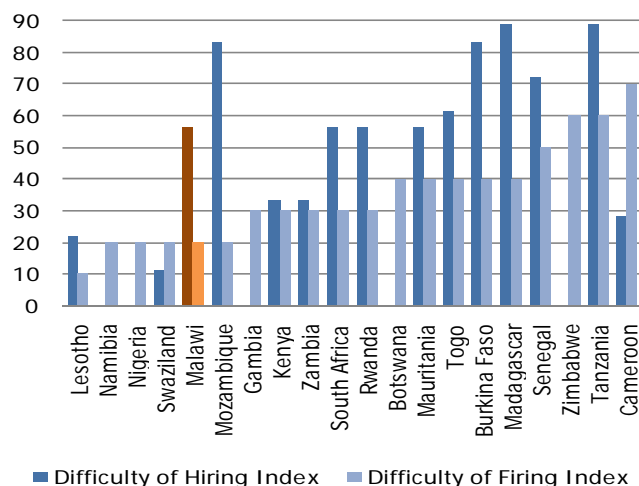
Trading across borders, the most critical component if Malawi is to effectively deal with the problem of food security and also effectively transform the economy, is also deteriorating. Trading across borders is cumbersome, esp. exports. Malawi is doing poorly both on number of documents and time required to complete an export or import operation. But exports are burdened in particular by administrative barriers.



Labor market

Interestingly, the ongoing debate on severance payments is not reflected in Malawi's position in the rankings – on the difficulty of firing index the country is doing better than average.

Constraints Analysis



Micro risks: conclusion

Malawi is doing less than its neighbors to provide a favorable business climate to investors. Given non-administrative barriers to trade (landlockness, unreliable and expensive transport to ports, overvalued exchange rate), the high administrative burden on exporters is extremely unhelpful in promoting an export-oriented economy.

Summary of the findings of the Constraints Analysis

High cost of finance	Low Social returns				Low appropriability			
	Lack of complementary factors				Government failures			Coordination/ Market failures
Bad local finance	Human Capital	Geography	Infrastructure	Land	Ex-ante risks	Ex-post risks		Low R&D, self- discovery
					(Perceptions)	Tax, reg Labour, FX	Legal, Property rights etc	
1) High real lending rates 15%. 2) Spreads much higher than comparators 3) High overheads drives spread. Limited investment opportunities. 4) Now de-regulated. # banks increased from 2 in 1994 to 9 today 5) Base rate of 15% indicating possible savings constraint 6) Negative real deposit rates implying no private-S savings constraint.	1) Returns to education 14.5% medium-high but drop to 9.5% once training is accounted for (ICA) 2) Possible high returns to tertiary education (40% IHS)	1) Rainfall - agricultural growth highly dependent on rainfall. 2) Landlocked –trade must pass through neighbours’ ports. 4) High population density leading to pressure on land and loss of fertility	1) Regional trade infrastructure: Transport cost higher than distance to port warrants. 2) Importers will pay a premium for timeliness. 3) Power: losses from power outages highest in region Uranium mines bought diesel generators. 4) Air ports, airlines (open skies) affecting cut flower exports 5) Water supply problems especially In Blantyre Low utilization of irrigation potential	1) Scarce, small average land size of holdings compared to other countries. 2) Small-holder supply response - diversify to cash crops once more estates land available	1) Expectation of changes of trade barriers and minimum pricing 2) Expectation of macro-instability (#1 in ICA)	1) Regular changes of trade rules and price setting (leading to market failure) 2) Poor customs: documents required for export is highest of comparators. 3) Over-valued exchange rate 4) Long start-up period against comparators. Multiple licences?	1) Governance, rule of law, political stability, voice and accountability on trend. 2) Regional co-ordination failures to achieve transport/energy network efficiencies and reliability	1) Index of export sophistication (EXPY) is on trend but at a minimum point. Innovation in profitable sectors (Makwacha card) 2) Regional co-ordination failures to achieve transport/energy network efficiencies and reliability
(**) Finance	(**) Tertiary education		(**) Trade corridors (**) Electricity (**) Water & Irrigation		(*) Ex-ante risk of micro and macro policy	(*) Exchange rate (*) Unpredictable price/ trade controls, poor customs documentation		