

Constraints to Growth in Malawi

Nicholas Lea
Lucia Hanmer

The World Bank
Africa Region
Southern Africa Poverty Reduction and Economic Management Unit
October 2009



Abstract

This paper applies a growth diagnostics approach to identify the most binding constraints to private-sector growth in Malawi—a small, landlocked country in Southern Africa with one of the lowest per capita incomes in the world. The approach aims to identify the constraints (in terms of public policy, implementation, and investments) most binding on marginal investment, and therefore whose relaxation would have the largest impact on growth through the investment channel.

The authors find that growth in Malawi has been primarily driven by the domestic multiplier effect from export revenues. The multiplier effect is particularly pronounced due to the high number of smallholder farmers, which produce Malawi's main export crop, tobacco, and consequently results in the widespread and rapid transmission of agricultural export income.

Furthermore, despite changes in the structure of agricultural production from estate to smallholder farming and liberalization of prices and finance, a longstanding relationship persists between exports in real domestic currency and overall gross domestic product. This central role of exports in creating domestic demand highlights the importance of the real exchange rate in Malawi's growth story, which directly increases the strength of the export multiplier.

The most pressing constraint to growth in Malawi continues to be the regime of exchange rate management. Despite good progress, there is compelling evidence that the rate is still substantially overvalued. Furthermore, it is also likely that the inflow of foreign aid—in excess of 50 percent of exports—contributes to the overvaluation through its large component of recurrent expenditures.

This paper—a product of Southern Africa Poverty Reduction and Economic Management Unit, Africa Region—is part of a larger effort in the department to analyze constraints to growth and poverty reduction. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at nick.lea@kuona-consult.com, l-hanmer@dfid.gov.uk, or jverbeek@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

CONSTRAINTS TO GROWTH IN MALAWI

Nicholas Lea and Lucia Hanmer***¹

*Consultant, World Bank, Email address:nick.lea@kuona-consult.com; ** Senior Advisor, DFID, Email address: l-hanmer@dfid.gov.uk

¹ This paper was prepared as a background paper to the Malawi Country Economic Memorandum (CEM) of 2009, and was funded by the UK Department for International Development (DFID) and the World Bank (IDA). The analysis builds on earlier work done by Alex Culiuc, and benefited greatly from feedback from stakeholders in Malawi where initial results were discussed at a workshop in December 2008. The authors would particularly like to thank the following for their insights and guidance: Jos Verbeek, Khwima Nthara, Hans Binswanger-Mkhize, Hardwick Tchale, David Rorhbach, Nick Dyer, David Woolnough, Manu Mathri, Alex Gomani, Martha Phiri, Jason Agar, Eduardo Ley, Steven Jaffee, John Panzer, Sudhir Shetty, and Alan Winters.

I. INTRODUCTION

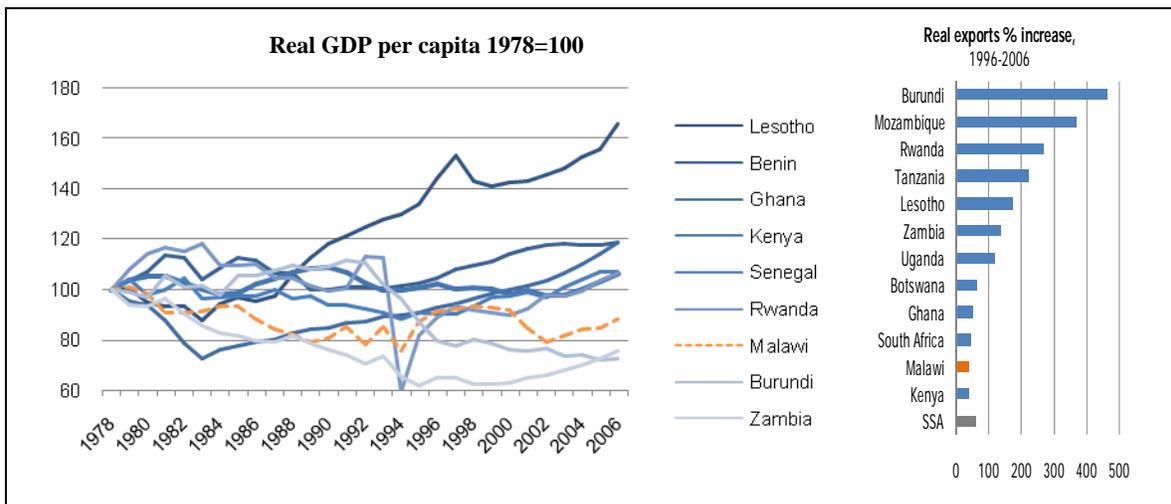
“Growth is not an end in itself. But it makes it possible to achieve other important objectives of individuals and societies. It can spare people en masse from poverty and drudgery. Nothing else ever has. It also creates the resources to support health care, education, and the other Millennium Development Goals to which the world has committed itself. In short, we take the view that growth is a necessary, if not sufficient, condition for broader development, enlarging the scope for individuals to be productive and creative.”

The Growth Report, Commission on growth and development, 2008

Malawi is a landlocked, densely-populated country in Southern Africa where per capita annual income currently stands at around \$290 (IMF, 2008). The population is highly rural; agricultural production is predominately subsistence; and due to having a single rainfall season and limited irrigation, the country experienced food shortages in 1994, 2002 and 2005. Furthermore, unlike many of its neighbors, Malawi has not benefited from significant mineral endowments, and its export corridors to the ports in Mozambique have yet to be repaired from the damage done by that country’s civil war.

Growth performance has been strong in recent years. GDP grew at 6.7% in 2006, 8.6% in 2007 and 9.7% in 2008. Growth is projected to fall to around 6% in 2009 and 2010. While recent performance is good by any standards, Malawi’s growth has a history of volatility, and recovery from the recession of the 1980s was slow compared to other countries in the region. Furthermore as a small, low income landlocked economy, export growth is vital if Malawi is to achieve the sustained increases in GDP needed to reduce poverty. Again, until very recently Malawi’s export growth performance has been sluggish by regional standards.

Figure 1: GDP and export growth in context

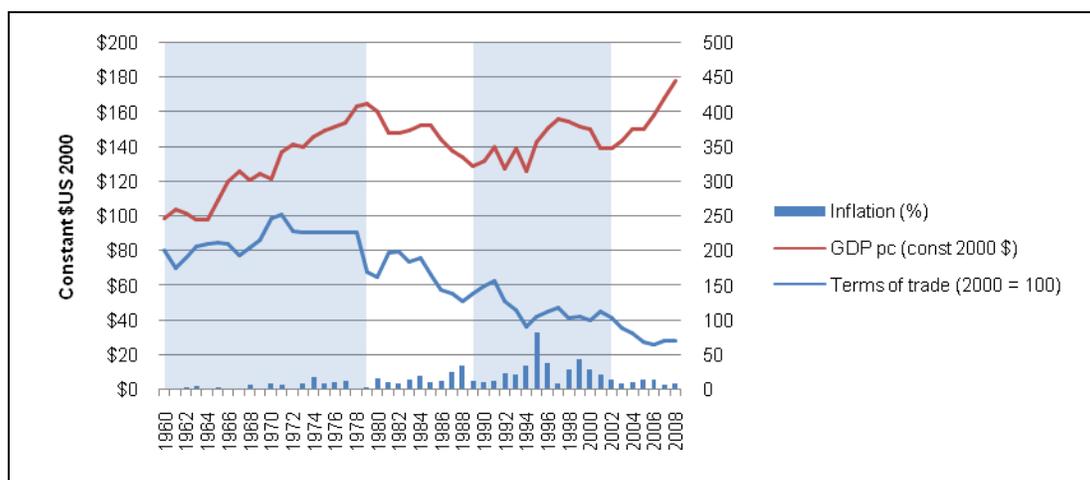


Source: WDI

A. GROWTH HISTORY

The history of growth in Malawi since 1960 can be characterized by four distinct phases: (a) 1960-79 estate-based growth; (b) 1979-89 decline; (c) 1989-02 stagnation due to shocks and transition to smallholder led growth; and (d) 2002-08 recovery. The evolution of per capita GDP from 1960 to 2006 is plotted in Figure 2. It shows a period of strong growth between 1960 and 1979 followed by a more or less secular decline in standards of living until 1989. Macro-instability and external shocks create volatility and stagnation in the period to 2002, and growth resumes in the most recent phase 2002-08.

Figure 2: Phases of GDP per capita in Malawi 1960-2008



Sources: GDP per capita - WDI 1960-1993, NSO 1994-2008, using population from WDI;

Inflation: WDI 1960-1979 (from GDP deflator), IMF 1980-2008 (from CPI);

Terms of trade: WDI rebased to 2000=100

Estate-based Growth: 1960-1979

The high growth period of the 1960s and 1970s was founded on export agriculture, with estates producing export crops and smallholders producing food and supplying cheap labor to the estates. Government policies supported large-scale agriculture, affording them preferential access to land, investment and credit (Harrigan, 2003). The monopoly state marketing board ADMARC channeled profits into the estate sector, subsidized investment in industry and supported smallholder production and consumption of food through cross subsidies (Harrigan, 1991; Harrigan 2003; Kydd and Christiansen, 1982). During this period estates grew at an average annual rate of 17% while smallholder production grew at 3%. Smallholder income was supplemented by remittances from migrant labor. The condition of transport infrastructure was relatively good and 95% of Malawi's exports were routed via the Mozambican ports of Nacala and Beira.

Decline: 1979-89

Following the oil price shock at the end of the seventies, the terms-of-trade collapsed by 25% beginning a long deteriorating trend. As commodity prices fell, so did demand in

South Africa for migrant labor, reducing remittance incomes of Malawian households. Civil war in Mozambique 1985-1992 damaged transport infrastructure and blocked the ports of Nacala and Beira raising transport costs. Additionally high financial losses of ADMARC and other parastatals - exacerbated by poor sequencing of price and market liberalization - resulted in the steep decline of living standards between 1979 and the late 1980s (Harrigan, 2003).

This rise and fall of incomes between 1960 and the late eighties points to the dominant role of producer terms-of-trade. Estate-led growth was made possible by relatively high product prices, the efficient value chain of estate marketing, good transport infrastructure and cheap credit. The reversal of these factors between 1979 and 1989 correspondingly contracted incomes.

Volatility and Transition to Smallholder Growth: 1989-02

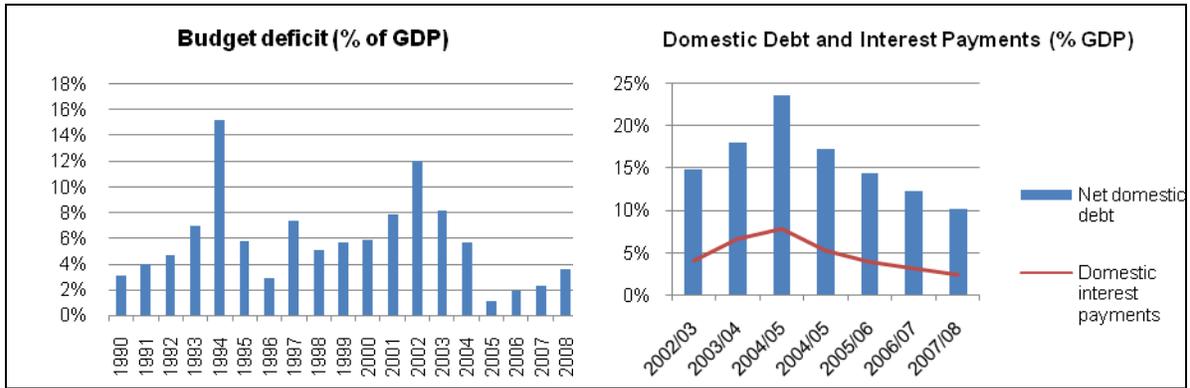
Agricultural reform began in the early 1990s and dismantled many of the constraints imposed on smallholders by the estate-led model. The repeal of the Special Crops Act made it legal for smallholders to grow export crops bringing about a dramatic shift in the sector - from nearly nothing in 1990, smallholders now produce around 70% of the tobacco crop. However growth was volatile in the face of increasing macro-instability and exacerbated by various external shocks: droughts in 1992 and 1994; an increased influx of Mozambican refugees and, suspension of all Western non-humanitarian aid in 1992-3 (Harrigan, 2003).

Inflation reached a high of 83% in 1995 and was only brought under control to around 10% in 2003. The much needed liberalization of the exchange rate in 1994 was not accompanied by fiscal discipline (partly explained by the electoral cycle) and hence higher import prices immediately fed through into the CPI. Excessive government borrowing financed by domestic treasury bills resulted in real interest rates exceeding 20% between 2000 and 2004. For part of this period Malawi had the notoriety of having real interest rates among the highest in the world. Private investment was crowded out, growth was damaged.

Stabilization and Recovery: 2002-08

The change of government in 2004 brought about a rapid turnaround in government finances. In extremely difficult fiscal circumstances, and for the first time since 1994, the government stayed within the budget approved by parliament (Whitworth 2005). As a result government expenditure stabilized and the fiscal deficit improved dramatically.

Figure 3: Government deficit and domestic debt



Source: IFS, IMF Country Report No. 08/3, Jan 2008

Despite continued falls in the terms of trade, growth and exports began to recover in 2003, and by 2007 GDP per capita had regained its level achieved in 1979. The recovery had taken 28 years. This paper attempts to identify the key constraints to growth to ensure that Malawi's recent growth continues, and how the country can achieve sustained faster growth in the medium term.

II. GROWTH DYNAMICS

B. METHODOLOGY

The analysis framework used in this paper is the growth diagnostic approach of Hausmann, Rodrik and Velasco (2005), a methodology for identifying the principal obstacles to an economy's optimal rate of capital growth. In particular the approach aims to identify those constraints most binding on the marginal investment, and therefore whose relaxation would have the largest impact on growth through the investment channel. The authors propose that economic growth is a function of the returns to asset accumulation, the extent to which they can be privately appropriated, less the cost of financing this accumulation. In this framework, growth can thus be constrained by:

- a) *Low social returns* through lack of complementary factors such as infrastructure, human capital, low total factor productivity or unfavorable externalities.
- b) *Poor appropriability* through high taxation, poor property rights, weak contract enforcement, labor conflicts, incomplete information, or other market failures
- c) *High cost of capital* through domestic financial markets or external ones

The approach is grounded in the standard economic theory expressed in the Ramsey model. The equation states that the optimal growth path of consumption and capital is determined by:

$$\frac{\dot{c}_t}{c_t} = \frac{\dot{k}_t}{k_t} = \sigma[r(a, \theta, x) \cdot (1 - \tau) - \rho]$$

where:

- c, \dot{c} is consumption, and the derivative of consumption with respect to time.
- k, \dot{k} is capital, and the derivative of capital with respect to time.
- τ is the tax rate on investment returns, actual or expected, formal or informal
- ρ is the world rate of interest
- σ is the elasticity of intertemporal elasticity in consumption²
- r is a function of a, θ, x representing the rate of return on capital where:
- a is the indicator of total factor productivity
- x is the availability of complementary factors of production such as infrastructure or human capital
- θ is the index of externality (a higher θ means a larger distortion)

Growth diagnostics consists of analyzing the parameters of the optimization equation to assess which are the most binding to growth. However the data required to empirically estimate most of these parameters is rarely available in developing countries, therefore the exercise becomes one of carefully using available data as proxies. For example a constraint may be binding if historical movements in the constraint produce significant movements in growth; if the shadow price³ of the constraint is high; if agents in the economy are engaging in significant efforts to bypass the constraint; or if activities less obstructed by the constraint are seen to grow or survive. Constraints in ex-ante risks (such as the anticipation of expropriation) may be signaled by high current profits failing to trigger entry of other firms.

Although the original methodology focused on identifying a single binding constraint – perhaps in reaction to the traditional laundry list approach which disregarded country context – subsequent versions of the HRV have stressed a set of interacting binding constraints. For example poor financial intermediation for smallholder agriculture combined with poor links to export markets can compound the problems faced by farmers seeking to diversify into higher earning export crops.

² Investment is deferred consumption. The parameter indicates the population's elasticity for deferment of consumption.

³ A shadow price is the change in the price (objective function) due to a relaxation of a constraint at the margin (by one unit)

Figure 4: The HRV Constraints Matrix

Binding Finance		Binding social returns					
Low aggregate Savings	Bad finance	Lack of complementary factors		Low appropriability			Coordination
				Government failure			Market fail.
		Human Capital	Infrastructure & public goods (geography ?)	Ex ante	Ex post		Low R&D Low Self discovery
Ex ante risks	Tax			Low property rights, crime & corruption			
High lending interest rate		Low lending interest rate					
Low net cash flow from banks		High net cash flow from banks (dC/C - i)					
Investment elastic to interest rate		Lack of investment response to interest rate change					
Access to external finance (EMBI, Default risk, CAD, Unsustainable debt)			Low infrastructure wrt comparable countries	High static markups & low entry; in industries with entry costs	Monopoly power, high markups. Regulated entry	Expropriation	Low sophistication (EXPY) and few new industries
Short loan duration, credit rationing		Inward migration high skills	Shocks to infrastructure (hurricane, war)	Political risk, social risk	High taxes: Top marginal tax rate, corporate tax, VAT	Social unrest	Growth responds to new indus
High deposit interest rate	High spread	High returns to education		Tax policy risk		Open conflict	Few products "nearby" to move (openforest low)
Negative relation between growth and current account.	If it's high risk, then low profits	Procyclical mincerian returns	Growth elastic to infrastruct. Change	Labor market risks	Restrictive labor regulations	Corruption (illegal tax rate) (Kaufman)	
	High operating expens /assets	Low tertiary for level of development	Congestion	History of expropriation	Inflation tax	High protection costs (ICA)	
	Monopoly powers: high (P/E) ratio of banks	Returns decrease as education grows	Port quality. High losses in transport (ICA)	High expectation of losing future profits	Cost of doing business		High returns to coordination activities

Source: Hausmann (2007)

Taking the Ramsey model, the framework proposes an extensible matrix of checks which form the basis of the analysis in later sections. First we use historical data on output, prices, and production to investigate the governing dynamics of growth and to answer the question of what has driven and what currently drives growth in Malawi.

C. WHAT HAS DRIVEN GROWTH?

In 2007 after 28 years, incomes per capita recovered their level of 1979. The deterioration of the terms-of-trade and infrastructure damage in Mozambique clearly played a large part in this collapse, yet incomes have recovered without an accompanying recovery in the terms-of-trade. Over the 28 years, the economy has moved from export-orientated estate-agriculture to being led by smallholder production. This section discusses the drivers of long-run growth with particular attention to the recent recovery.

Growth in Malawi is dominated by agriculture, and recently has seen an increasing contribution from domestic services. Between 1995 and 2003 agriculture accounted for nearly three-quarters of all economic growth (see Table 1). After 1995, there is a general pattern of falling growth rates until reaching a low point during the drought of 2001/02, followed by a gradual resumption output growth. However growth since 2004 has been structurally different, being composed of increasingly important contributions from

distribution, finance, construction and manufacturing. The headline data on trade also shows an equivalent change in dynamic: whilst exports have stayed within the region of 20 percent of GDP, the trade deficit has significantly worsened and since 2003 has exceeded 10 percent of GDP.

Table 1: GDP and sources of growth

	95	96	97	98	99	00	01	02	03	04	05	06	07
National Account (\$US m)													
GDP (\$US m)	1,925	3,149	3,669	2,451	2,447	2,402	2,365	2,665	2,425	2,625	2,755	2,917	3,324
Exports, fob (\$US m)	444	510	539	539	447	402	427	414	433	499	509	543	706
Imports, fob (\$US m)	508	588	697	497	573	460	471	595	684	810	1,006	1,055	1,182
Trade ratios (as percentage of GDP)													
Exports (fob)	23.1	16.2	14.7	22.0	18.3	16.7	18.0	15.5	17.9	19.0	18.5	18.6	21.2
Imports (fob)	26.4	18.7	19.0	20.3	23.4	19.2	19.9	22.3	28.2	30.9	36.5	36.2	35.6
Trade balance	-3.3	-2.5	-4.3	1.7	-5.1	-2.4	-1.9	-6.8	-10.3	-11.8	-18.0	-17.6	-14.3
Growth in GDP (factor cost)													
Growth in GDP (factor cost)	13.8	10.0	6.6	3.0	1.6	0.8	-3.9	1.9	3.9	5.1	2.2	8.6	9.2
Agriculture	9.8	7.8	0.0	5.3	1.6	2.0	-2.4	1.0	2.3	1.1	-3.5	4.3	3.5
Mining, quarrying	0.0	1.5	-0.4	0.1	0.0	0.1	0.1	-0.6	0.2	0.5	0.8	-0.5	0.0
Manufacturing	0.9	-0.1	0.1	0.2	0.2	-0.4	-1.8	0.0	0.4	0.8	0.9	0.7	1.0
Electricity, water	0.0	0.0	0.1	0.1	0.0	0.1	-0.1	0.1	0.0	0.1	0.1	0.1	0.1
Construction	0.1	0.2	0.1	0.0	0.3	0.0	-0.1	0.3	0.3	0.3	0.4	0.4	0.9
Distribution	0.6	-0.2	3.7	-1.6	-0.4	-0.1	0.2	0.3	-0.2	1.4	2.8	1.8	1.3
Transport, communications	0.9	-0.4	0.4	0.0	0.2	-0.2	0.1	0.6	0.4	0.4	0.5	0.4	1.3
Financial, professional	0.7	1.3	2.5	-0.7	0.0	0.2	-0.2	0.5	0.5	0.8	0.7	1.7	1.1
Ownership of dwellings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Government services	1.0	-0.3	0.2	-0.5	-0.2	-1.0	0.1	0.0	0.2	0.2	0.1	0.3	0.6

Source: NSO 1994 series of accounts. GDP is from 2002 series back-adjusted using the 1994 series rates of growth.

Maize Production

Agricultural production and policy is dominated by maize. Although there has been some diversification and a notable increase in smallholder tobacco production, the area under maize cultivation is still roughly equivalent to that of all other crops combined. Over 60 percent of national calorie consumption derives from maize; 97 percent of farmers grow maize; and over half of households grow no other crop⁴. Given Malawi's vulnerability to drought, the maize harvest is thus central to the welfare of the population, and one of the most important political and social variables. This is reflected by the prominence of food security in public policy. Through the Fertilizer Subsidy Program, the government has made increasing maize yields the mainstay of agricultural policy, and has designated it a "strategic crop" subject to import and export bans (more recently intervening to set the domestic price). Together with good rains, the increased use of fertilizer has increased yields and in the last three seasons has substantially strengthened food security. Given the prominence of maize production in the national dialogue, it seems a reasonable hypothesis that the maize harvest has had a large impact on GDP.

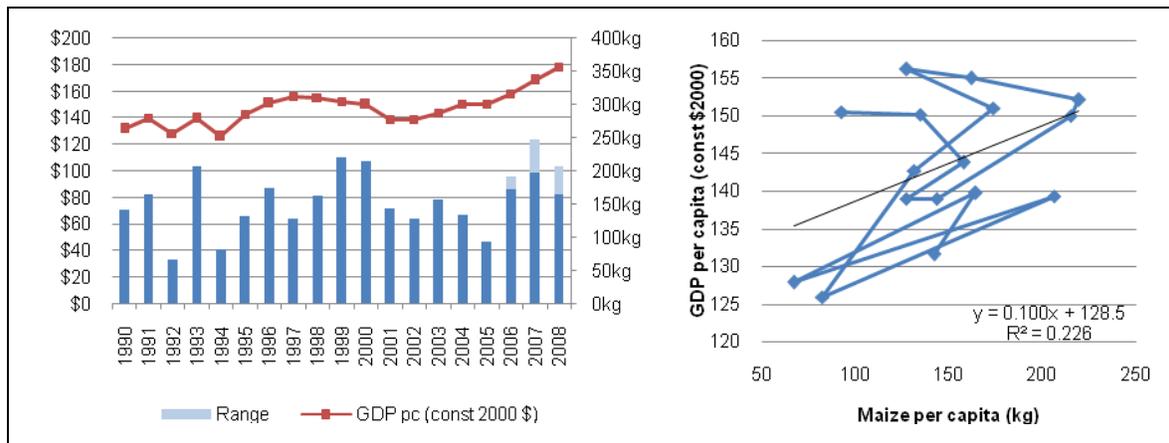
Yet despite the prevailing assumption of the centrality of maize in the economy, the maize harvest drives volatility but does not dominate growth. The per-capita maize harvest is plotted alongside GDP⁵ in Figure 5. Following the end of UNFAO monitoring

⁴ Integrated Household Survey, 2005 and Poverty and Vulnerability Assessment, World Bank, 2006.

⁵ The comparison of production weight against value-added is justified here since this series of National Accounts uses fixed baseline prices to construct GDP.

of crop estimates in 2005, a downwards adjustment of 10% is applied to the harvest in 2006 and of 20% for the harvests of 07 and 08. This reflects evidence from trade and price data, and the consistent opinion among observers in the development community that methodological problems have inflated estimates for these years⁶.

Figure 5: Per Capita Maize Harvest and GDP



Source: NSO, Ministry of Agriculture and World Bank Staff

Although clear that very poor harvests are associated with contractions in output (GDP/cap fell by 8.5 percent in 1992 and by 9.6 percent in 1994) the correlation is weaker in years of good harvest. Clearly maize contributes to GDP – by definition – but strong maize harvests alone do not inevitably create strong overall growth. The scatter plot in Figure 5 shows the two series omitting the data for 2006-08. Linear regression⁷ gives an explanatory power of 23% ($R^2=0.226$) for the association of maize harvest with GDP which increases to 24% when the adjusted figures for 06-08 are included. These low correlation scores imply that the maize harvest, while central to welfare in Malawi, contributes to GDP but does not dominate the dynamics of growth.

One explanation for this limited correlation is the high proportion of output which is consumed by the producer and which never reaches the market. The majority of smallholders in Malawi are subsistence farmers and market minimal surplus, thus although this production increases GDP by the amount produced, its multiplier effect is limited. The Poverty and Vulnerability Assessment (World Bank, 2006) estimates that only 10-15% of the total crop is sold, that around half (52%) of small holders sell *some* of their output on the market, but that only 18% sell more than half of their output. A further reason is the low net profitability of maize production using fertilizer at current prices. Although the application of fertilizer increases yields, its effect on smallholder

⁶ The National Statistical Office plans to revise agricultural GDP when the imminent agricultural census is released.

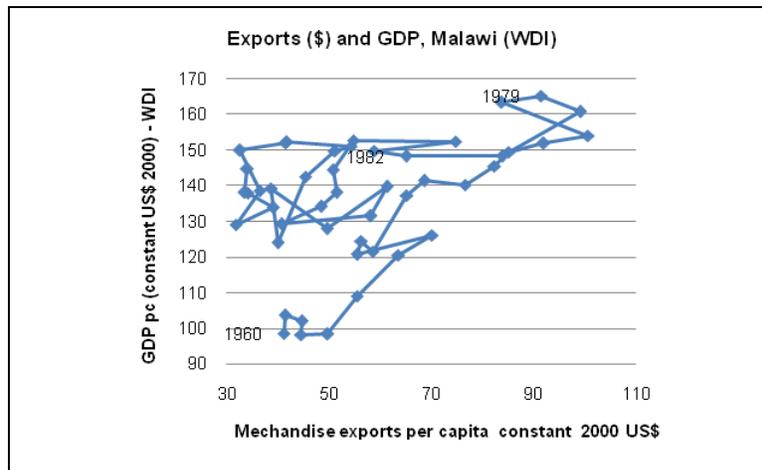
⁷ In common with other HRV analyses (e.g. Klinger, 2007) we use X-Y correlation plots of per capita variables. This approach does not correct for trending but observations are joined by line in date order so that any trending is immediately visible. $(1-R^2)$ gives the contributing variance of the residual.

value added is limited since the increased production is offset by significantly increased input costs. This is discussed in detail later in the agricultural chapter which performs a profitability analysis for several configurations of smallholder maize farming. The study estimates that at recent prices, the net profitability of farming maize using hybrid seeds with 400kg/hectare of fertilizer is no more than of using OPV seeds and 100kg/hectare of fertilizer.

Exports

The second candidate driver of growth is exports. Malawi's exports are dominated by tobacco (60% of domestic export revenue 1994-2008 in nominal USD) followed by sugar, tea, cotton and more recently apparel. Like GDP, export income has undergone dramatic shifts since 1960 and has recently grown strongly thanks to the performance of tobacco in 2008. Figure 6 correlates per capita exports in real dollars against per capita GDP. We seek to clarify whether exports have driven growth – not only through their intrinsic contribution to output – but also through the demand effect created by revenues multiplying out through the rest of the economy. Exports at constant prices from traditional national accounts (i.e. those that don't implement chained pricing) are unsuited to this task because the methodology fixes prices at a specific base year thus functioning as an index of quantity.

Figure 6: Exports in real USD and GDP (1960-2007)

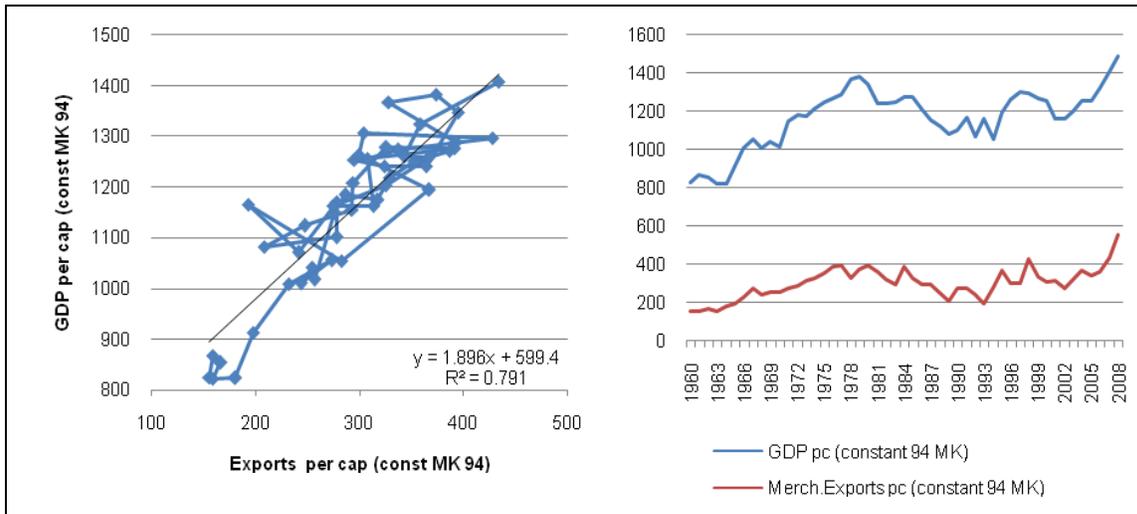


Source: NSO, WDI and World Bank Staff estimates.

However, changes in the export price are critical to any multiplier effect and so the series plotted in Figure 6 is constructed using current USD revenue deflated by US consumer prices. Nevertheless the relationship with GDP is partial. Although there is a clear correlation between the two series in the years 1960-1980, the relationship breaks down after 1982, and there is little discernable dependence. At first sight this would indicate that recent growth has not been governed by export dynamics but rather by endogenous forces within the domestic economy.

Yet the demand effect of export revenues is exerted on the domestic economy relative to domestic prices, not those in the US. A very different picture emerges if the export series is expressed in real kwacha rather than in real dollars – that is current export revenue in kwacha deflated by the Malawian CPI.

Figure 7: Exports in real MK and GDP (1960-2007)

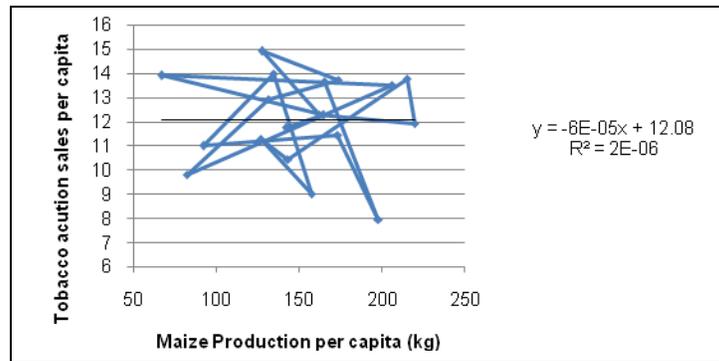


Source: NSO, WDI and World Bank Staff estimates.

Export revenues expressed in real kwacha are strongly correlated with GDP with an explanatory power of 79% ($R^2 = 0.791$). This is consistent with the demand effect of export income acting as the dominant driver of growth through its multiplier effects in the rest of the economy. There are grounds to take this hypothesis seriously. Firstly, as already discussed, the prevalence of subsistence farming restricts the demand effect from smallholder agriculture (the largest sector of the economy) to the portion of production that is marketed. Secondly, there is the dominant role of the distribution sector, which is highly sensitive to trade volumes. An increase in export crops increases distribution activity from smallholders, exporters and eventually importers once foreign exchange becomes available. And lastly, it is because of the reported substantial increase in sales by rural retail networks in years where cash crop income from smallholders is high (particularly from tobacco).

It is unlikely that causality runs the other way around – GDP growth causing a rise in real domestic export income – because of the significant role of exogenous export prices. Neither do we observe covariant behavior between the export and domestic agriculture sectors. The maize harvest is nearly perfectly independent from the amount of tobacco brought to the auction floors. This lack of correlation with domestic agriculture signals that the relationship between domestic export income and GDP is likely to be a causal one.

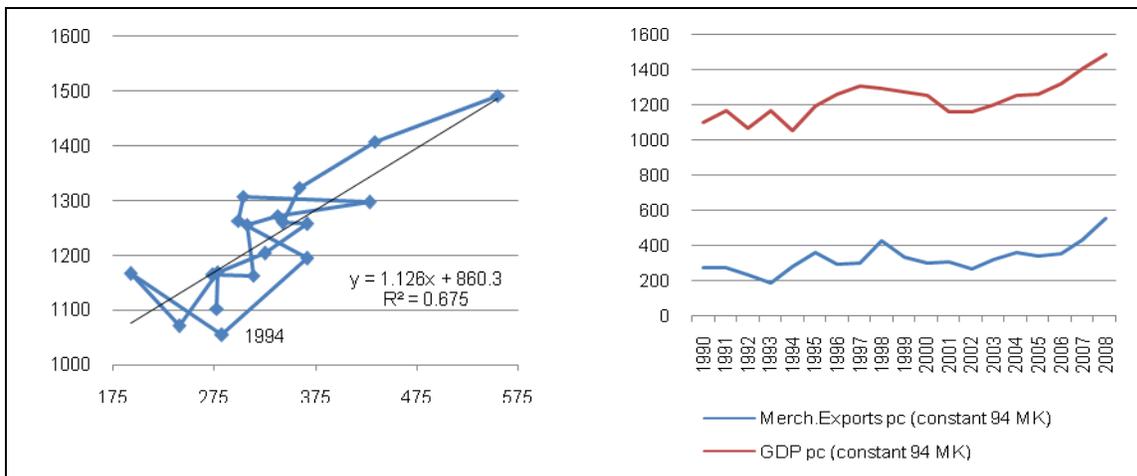
Figure 8: Maize and tobacco production are independent



Source: Ministry of Agriculture, Tobacco Control Commission

Furthermore, despite the structural shift away from estates towards smallholder production, and the changes in macro and financial environments, this relationship appears to hold over the long term. Figure 9 presents export and GDP data for the recent period 1990-2008.

Figure 9: Exports/cap and GDP/cap (1990-2008)



Source: NSO, WDI and World Bank Staff estimates.

The relationship continues to be significant with an explanatory power of 67.5%. It is possible that macro-instability accounts for the lowering of this correlation since performing the regression excluding the three years of highest inflation (1994-6, 1999) improves the fit to 76%. The data suggests that exports drive growth through the multiplier effect, and that for an additional 1% increase in the real domestic value of exports, GDP increases by 1.9%. The persistence of this effect over the long-term implies multiplier effects for both smallholder and estate production. There is some evidence to support this: firstly much of the demand effect is exerted at the wholesale level for transport and finance which is independent of the production mode. Secondly estates disburse cash wages (albeit meager) to a large labor force which creates demand effects observable through the increased retail activity in districts with large tea estates such as Thyolo, and around the sugar estates such as Dwangwa.

The Real Exchange Rate

The importance of exports expressed in real kwacha rather than real dollars highlights the importance of the real exchange rate in Malawi's growth story. The two series of real exports are defined as nominal exports deflated by the price level – in this case the CPI - of the relevant country:

$$\tilde{X}_{MK}(t) = \frac{X_{MK}(t)}{P_{MK}(t)} \quad \tilde{X}_s(t) = \frac{X_s(t)}{P_s(t)}$$

Because the ratio between nominal exports in MK to nominal exports in USD is simply the nominal exchange rate, the two series are related to other by:

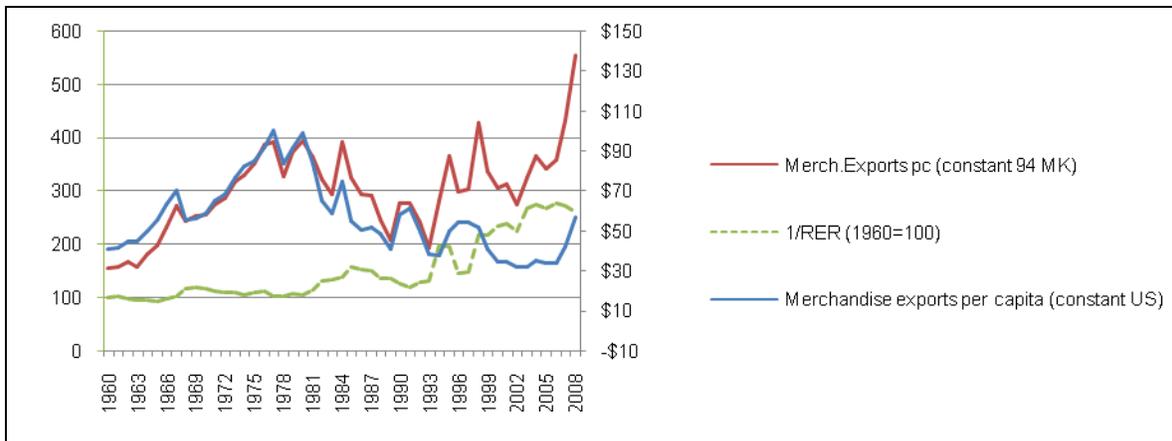
$$\frac{\tilde{X}_{MK}(t)}{\tilde{X}_s(t)} = \frac{P_s(t)}{P_{MK}(t)} \cdot \frac{1}{e(t)}$$

Where $e(t)$ is the nominal price of MK in USD. In other words, the two series are related to each other via the reciprocal of the MK:USD real exchange rate, $\varepsilon(t)$.

$$\tilde{X}_{MK}(t) = \tilde{X}_s(t) \cdot \frac{1}{\varepsilon(t)} \quad \text{where:} \quad \varepsilon(t) = \frac{P_{MK}(t)}{P_s(t)} e(t)$$

Thus a devaluation of the real exchange rate increases the real domestic value of exports relative to the real dollar value. To illustrate quite how important this variable has been for growth, Figure 10 plots per capita exports in both real dollars and real kwacha.

Figure 10: Real exports and the real exchange rate



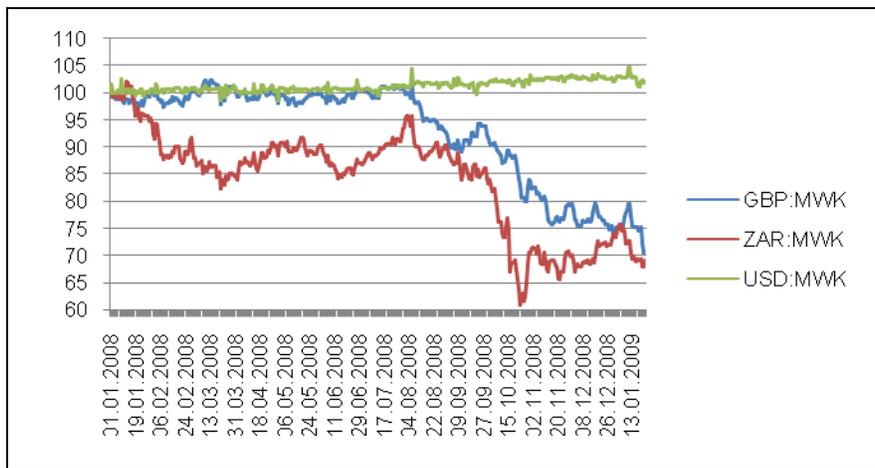
Source: WDI, World Bank Staff calculations

The two series track each other reasonably well until 1994 when kwacha exports sharply depart from the dollar series. The improvement is due to a steady depreciation of the real exchange rate – shown on the graph by the rise in its reciprocal. This depreciation has

increased the real kwacha value of exports by about 2.5 times since the exchange rate levels of the 1970s. Because, as we have seen, GDP is highly sensitive to export revenues in real kwacha, this management of the exchange rate is very likely to have had a large beneficial effect on incomes, and more than any other policy instrument, enabled Malawi to grow in a hostile terms-of-trade environment.

That said, the data implies that prior to liberalization in 1994, the formal exchange rate was greatly overvalued, and Malawi could only have experienced such high growth in the seventies due to exceptionally favorable export prices. It is also clear that although the long-term trend has been positive, the management of the rate has been volatile. Sharp step devaluations couple with inadequate fiscal discipline have rapidly transmitted into domestic prices causing the real exchange rate to depreciate and then re-appreciate, and this instability is likely to have disrupted growth by increasing uncertainty in real export prices. Partly as a result of this, the government has used the nominal exchange rate as a stabilization instrument, implementing a slow crawling peg to the US dollar since 2006.

Figure 11: Recent nominal exchange rates (rebased to 1 Jan 08 = 100)



Source: Oanda

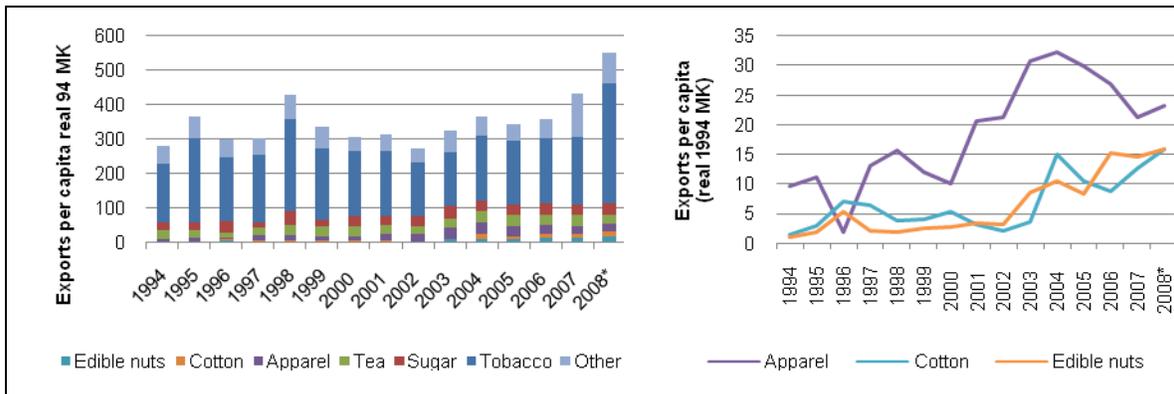
The sharp devaluation of most global currencies against the dollar since August 2008 has resulted in a very significant appreciation of the Malawian kwacha against its main trading counterparts, and an opening of the gap between formal and informal exchange rates⁸. During 2008 the real exchange rate appreciated by 20, 10, and 40 percent against the South African rand, the Euro, and the British pound, respectively. Given the sensitivity of the economy to this variable, stable management of the real rate and managed depreciation are highly likely to stimulate future growth.

⁸ As of February 2009 there was a 30% premium between the official rate and the informal market rate

Sources of Export Growth

If export income has had such an impact on growth then what has driven exports? Most export revenue has come from tobacco. Tobacco has consistently dominated Malawi's merchandise exports and, since 1994 has accounted for about 60% of revenue.

Figure 12: Sources of exports per capita (real 1994 MK)

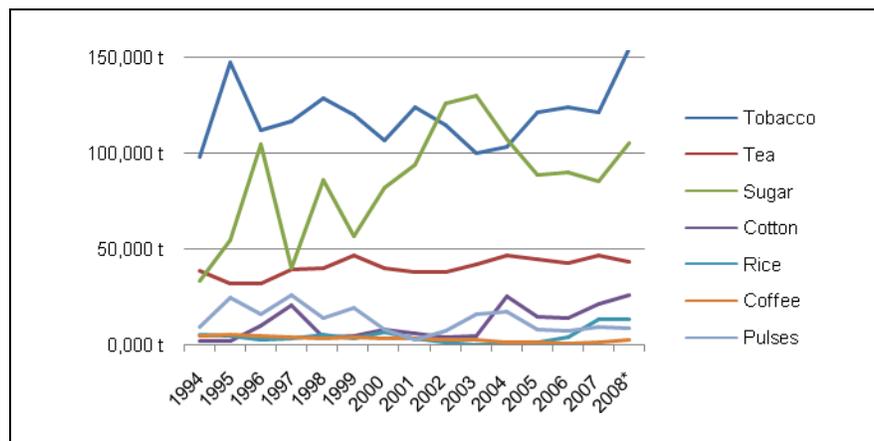


Source: NSO, Balance of Payments, deflated by the CPI (IMF) and population (WDI)

Yet despite the evolving prices, the composition of exports has stagnated. There has been virtually no change in the export basket since 1994 bar the nascent incursions of apparel, cotton and edible nuts. These have expanded at an average per capita rate of 11% since 1994 but combined still account for less than one tenth of total revenue.

The volumes of non-tobacco agricultural exports as recorded in the balance of payments have shown less growth. The production of sugar shows volatile but gradual growth, tea production is stagnant, and the exports of coffee and pulses show gradual decline. At a low-level there has been rapid growth in the volume of cotton exports since 2003, and rice since 2006.

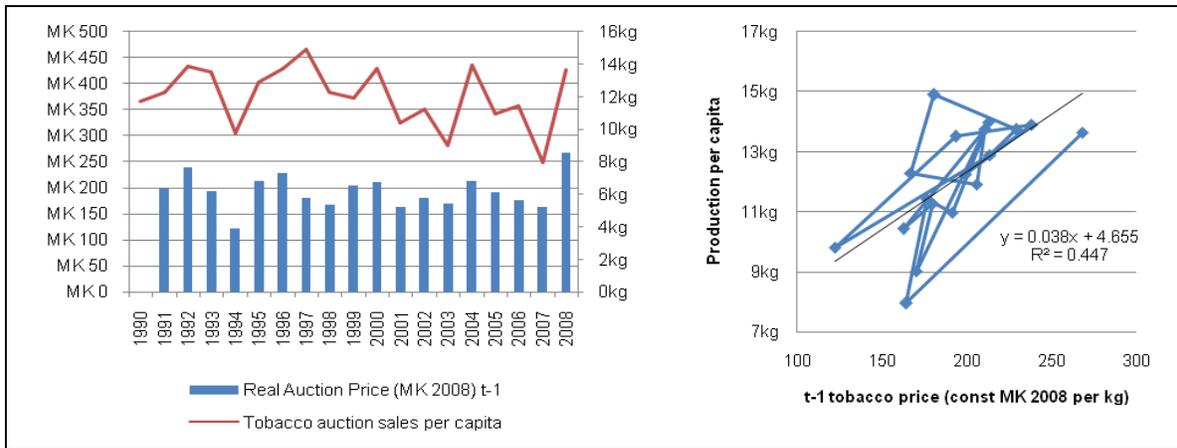
Figure 13: Export Volumes (non-tobacco)



Source: NSO, Balance of Payments

The vast majority of production expansion has come from tobacco. What then has driven this growth? Data from the Tobacco Control Commission reveals that production responds moderately to the real auction price of the previous year. Note that the product sold at auction is “green form” tobacco directly from the smallholder or intermediate trader and that the exported product undergoes a level of processing which removes the leaf stem, cleans and evenly hydrates the product for transit.

Figure 14: Tobacco price and production



Source: Tobacco Control Commission of Malawi

Prices in the preceding year account for just under 50% of the production response. Again, there is a better correlation between production and real *domestic* prices ($R^2=45\%$) than production and dollar prices ($R^2=35\%$) implying an additional growth dependency on the real exchange rate. Smallholders respond to price signals with a price elasticity of supply of 0.61 - a 1% rise in the real domestic price at auction yields a 0.61% rise in the following year’s supply.

Growth Dynamics

In summary, a significant amount of growth can be accounted for by the domestic multiplier from export revenues. Since 60% of export revenues are from tobacco, a high proportion of this feeds directly into the distribution, finance and smallholder sectors. Production growth in most exports appears relatively constrained, but there is an identifiable supply response in tobacco to prices in the previous year.

This combination of GDP sensitivity to exports, and export volume sensitivity to prices creates a double (quadratic) dependency on the domestic export prices:

$$\left. \begin{aligned} Y(t) &\approx \alpha_0 + \alpha_1 X_{mk}(t) \\ X_{mk}(t) &\approx P_{mk}^X(t) Q^X(t) \\ Q^X(t) &\approx \beta_0 + \beta_1 P_{mk}^X(t-1) \end{aligned} \right\} \text{ where } \begin{cases} Y(t) & \text{is GDP per capita for year } t \\ X_{mk}(t) & \text{is real exports in domestic currency} \\ P_{mk}^X(t) & \text{is unit real domestic price of exports} \\ \alpha, \beta & \text{are regression coefficients} \end{cases}$$

Giving:

$$Y(t) \approx \alpha_0 + \alpha_1 P_{mk}^X(t) (\beta_0 + \beta_1 P_{mk}^X(t-1))$$

Or, expressed in real dollar prices and the real exchange rate (ε):

$$Y(t) \approx \alpha_0 + \alpha_1 \frac{P_s^X(t)}{\varepsilon(t)} \left(\beta_0 + \beta_1 \frac{P_s^X(t-1)}{\varepsilon(t-1)} \right)$$

Since the real domestic price of exports is equal to the dollar price converted by the real exchange rate, a depreciation in the real exchange rate is likely to increase GDP both by increasing the supply response and by increasing real export revenue. Alongside the domestic price of key exports, this analysis suggests that the real exchange rate has been, and continues to be, a central policy instrument of growth for Malawi.

However, the role of agricultural exports in explaining growth together with a lack of diversification into new sectors reveals a key weakness of the economy. Recent growth can be explained in large part by rises in the tobacco price and improvements in the real exchange rate. Yet expansion based on increased tobacco production does not appear to be a viable strategy for the medium to long term. The majority of Malawi's tobacco crop is burley which is used mainly as a neutral flavored filler in the market for high-end cigarettes. Although expanding, there is a ceiling on world demand for such tobacco which the industry manages with care. There are also industry indications that recent high prices are due to buyers having unwound their stocks and are now rebuilding. It is unlikely that Malawi could multiply up tobacco production over the medium term without bringing about a decline in world market price.

The lack of diversification into new export sectors puts heavy reliance on the tobacco channel, and commits the economy to growth constrained by world demand for a niche product. A failure to diversify into new export products thus constrains Malawi's growth and renders the economy vulnerable to adverse price shocks when they occur in the future.

D. THE PATTERN OF GROWTH

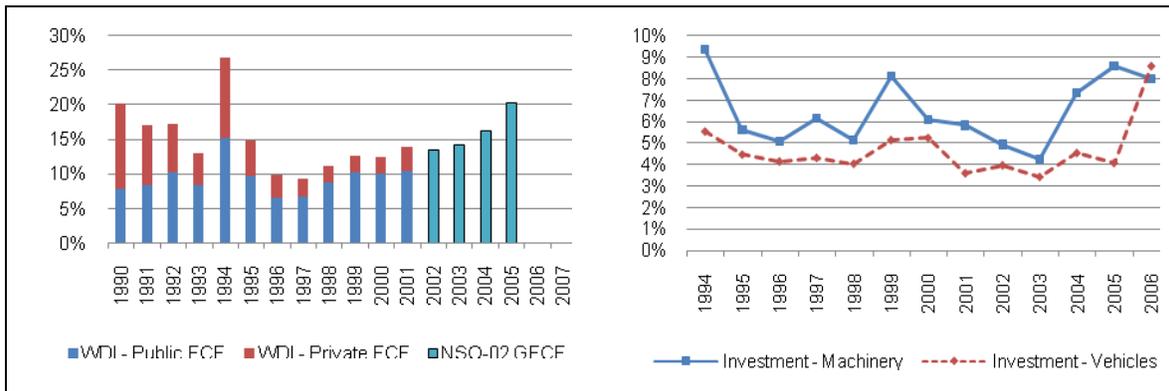
How does export growth translate into general growth of the economy? This section considers the transmission mechanism by looking at investment dynamics, sectoral behavior and aggregate demand.

Investment

The behavior of investment is difficult to map accurately in Malawi. Methodological problems and a reluctance by firms to declare their plans has hampered formal sector efforts; and it has been extremely difficult to assess the investments – often in kind – of rural farmers. Tiny outlays in livestock, soil fertility, curing barns, fruit trees are often

key to the underlying productivity of smallholder agriculture but no systematic attempt has yet been made to capture them. The most accurate sources of investment data are plotted in Figure 15 (WDI 1990-2001, NSO 2002 series). There are no reliable figures after 2005 but the NSO reports strong investment intentions in subsequent business surveys⁹ and consequently expects a continued rise in investment as a share of GDP.

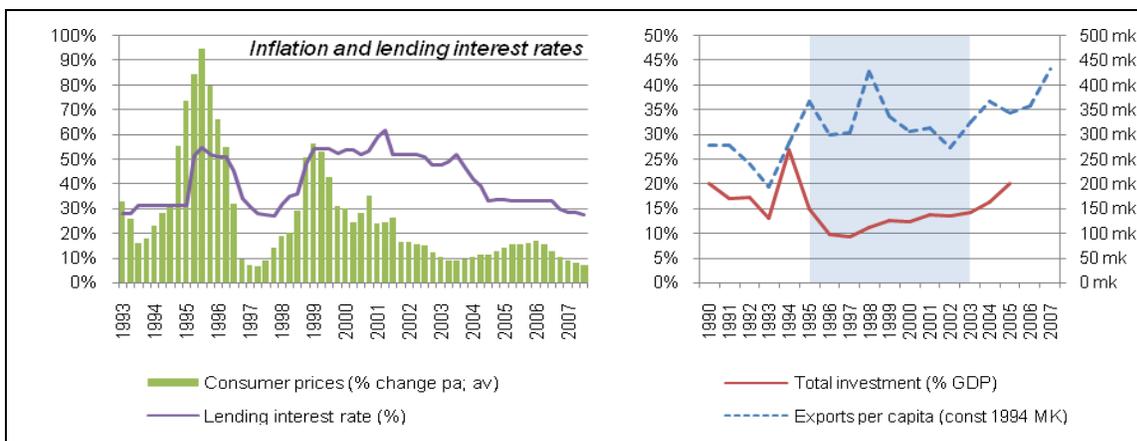
Figure 15: Investment and imports of investment goods (% GDP)



Source: NSO trade unit, NSO 2002 series, WDI (1990-2001)

Data on machinery goods imports confirms an investment recovery from 2004 with continued strong performance in 2005/06 - particularly for vehicles in 2006 (non-commercial vehicles are not separated out of the import data). This recovery coincides with the sharp correction of real lending rates which fell from 43% in the third quarter of 2003 to 22% a year later. Similarly domestic credit to the private sector resumed growth in 2004 as fiscal discipline improved and reversed the crowding-out effect.

Figure 16: Macro-environment and investment



Source: IFS, WDI, NSO and World Bank staff estimates

Is investment data consistent with the hypothesis that growth is driven by the domestic multiplier from export revenues? At face value the two time series in Figure 16, seem

⁹ NSO conducts a Annual Economic Survey of businesses but which are not available to researchers.

weakly related. However between 1995 and 2003 the macroeconomic environment was extremely hostile. Nominal lending rates exceeded 45% for three-quarters of this period, and inflation peaked at over 90% early on in 1995. It is extremely difficult for any private investment to weather such a macroeconomic winter, and thus plausible that investment failed to respond in this period due to this instability.

Incorporating the dampening effect of macro-instability during 1993-2005, it is likely that investment - like output - is also affected by the demand effect from export revenues. Although investment data is not disaggregated, the next section investigates the output response of each sector. The pattern of growth is indicative of the factors which constrain growth.

Sectoral Pattern

The sectoral pattern of GDP confirms a lack of transmission during the macro-instability of 1993-2003, and presents growth diffusing through the sectors starting with agriculture. The pattern is particularly clear from 2002 where growth resumes in agriculture and diffuses through to financial services, distribution, manufacturing, transport/communications and eventually through to construction.

Table 2: Sectoral contributions to growth in GDP

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Agriculture, Forestry and Fishing	7.8%	0.0%	5.3%	1.6%	2.0%	-2.4%	1.0%	2.3%	1.1%	-3.5%	4.3%	3.5%
Financial and Professional Services	1.3%	2.5%	-0.7%	0.0%	0.2%	-0.2%	0.5%	0.5%	0.8%	0.7%	1.7%	1.1%
Distribution	-0.2%	3.7%	-1.6%	-0.4%	-0.1%	0.2%	0.3%	-0.2%	1.4%	2.8%	1.8%	1.3%
Manufacturing	-0.1%	0.1%	0.2%	0.2%	-0.4%	-1.8%	0.0%	0.4%	0.8%	0.9%	0.7%	1.0%
Transport and Communications	-0.4%	0.4%	0.0%	0.2%	-0.2%	0.1%	0.6%	0.4%	0.4%	0.5%	0.4%	1.3%
Construction	0.2%	0.1%	0.0%	0.3%	0.0%	-0.1%	0.3%	0.3%	0.3%	0.4%	0.4%	0.9%
Producers of Government Services	-0.3%	0.2%	-0.5%	-0.2%	-1.0%	0.1%	0.0%	0.2%	0.2%	0.1%	0.3%	0.6%
Electricity and Water	0.0%	0.1%	0.1%	0.0%	0.1%	-0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%
Private Social and Community Services	0.2%	0.2%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Ownership of Dwellings	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%
Mining and Quarrying	1.5%	-0.4%	0.1%	0.0%	0.1%	0.1%	-0.6%	0.2%	0.5%	0.8%	-0.5%	0.0%
Unallocable Finance Charges	-0.1%	-0.4%	0.1%	-0.3%	-0.1%	0.1%	-0.5%	-0.3%	-0.6%	-0.7%	-0.7%	-0.7%
Growth in GDP at Factor cost	10.0%	6.6%	3.0%	1.6%	0.8%	-3.9%	1.9%	3.9%	5.1%	2.2%	8.6%	9.2%

Source: National Statistics Office, National Accounts 1994-2007

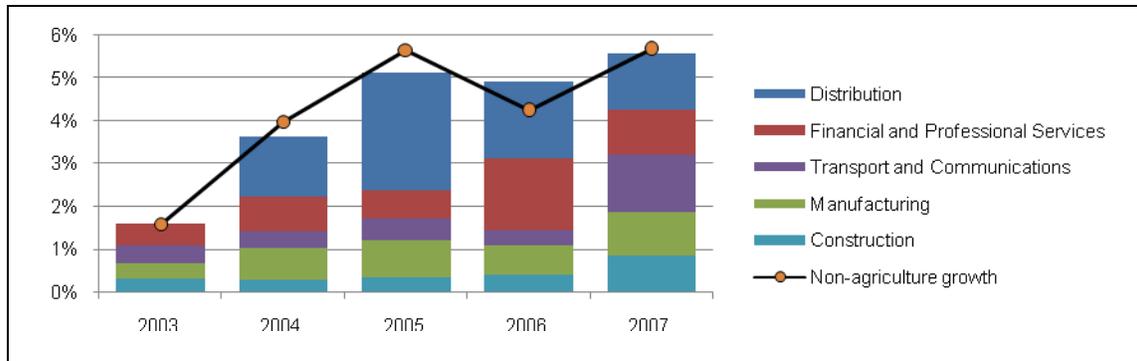
The largest contribution to growth comes from agriculture, nearly all of which is attributed to the smallholder sector. Although likely that smallholder output has been overestimated¹⁰, the sales of rural retail networks and recent growth in livestock indicate that significant rural growth is taking place.

However other factors have been in play alongside the stimulus from agriculture. Financial reform since the 1980s catalyzed growth in the banking sector enabling the number of banks to expand from two in 1994 to nine in 2008. A relaxation of state

¹⁰ Small holder production of root crops and more recently of maize may be significantly overstated. The Agricultural Census for 2007 compiled by the NSO is due to be released soon which will enable triangulation of these estimates.

ownership of manufacturing coupled with trade reforms caused an adjustment contraction in manufacturing in the late 1990s. The five sectors of distribution, finance, transport/communications, manufacturing and construction account for practically all recent growth outside of agriculture. Distribution contributed most to this growth - predominantly a passive response to increased international trade and growth in agriculture. Financial services have also accelerated – particularly from 2006 – and finally construction responded strongly in 2007.

Figure 17: Non-agricultural sources of growth



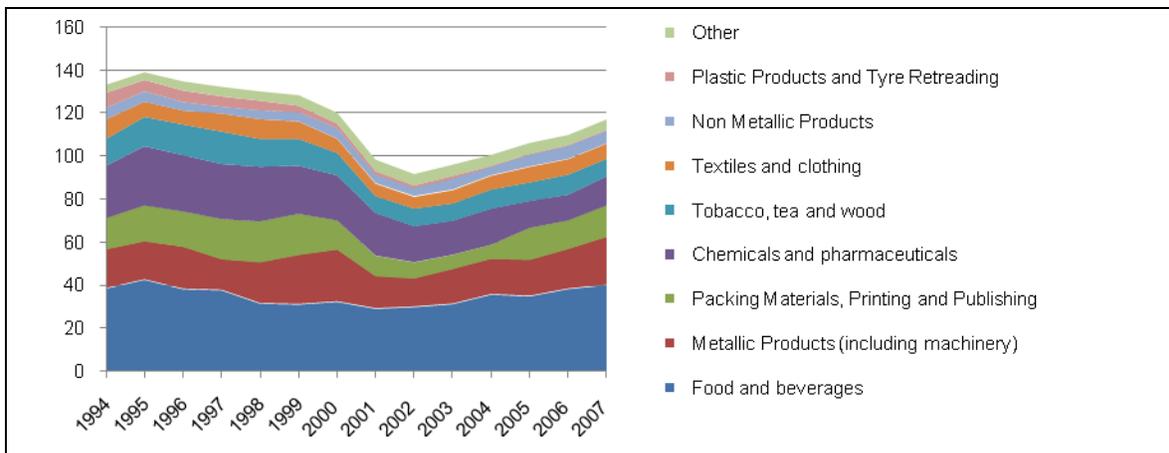
Source: NSO National Accounts 1994-2007

The stagnation of the electricity and water sector since 1995 – which in per capita terms represents a steady contraction - despite the expansion of user industries and the prevalence of load shedding is an early signal of a supply constraint.

Tradeables and the Import Boom

Demand generated by growth in agriculture has created a strong response from non-tradeable services but only a muted response from domestic manufacturing. Although expansion resumed in the sector in 2003, its per capita growth has since averaged only 3.7% and is yet to reclaim its level of 1995.

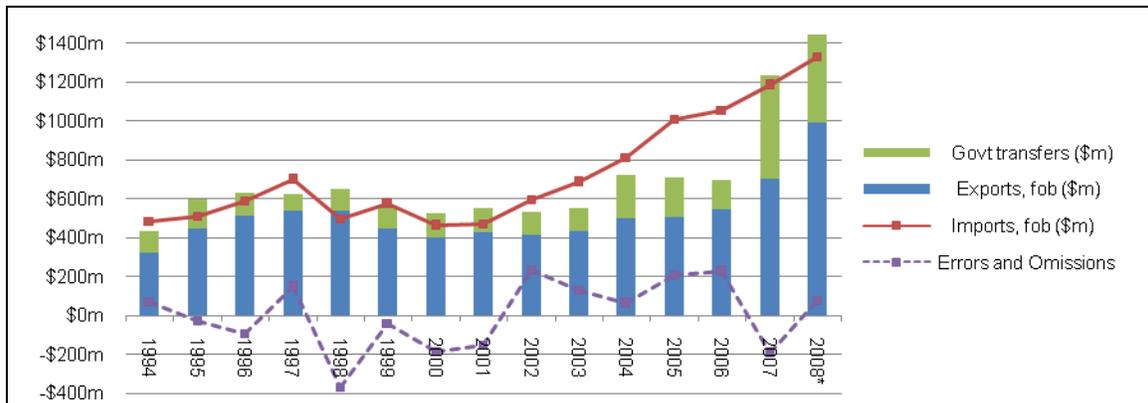
Figure 18: Manufacturing value-added per capita (const 1994 MK)



Source: NSO National Accounts 1994-2007

This muted response is important. Production for the domestic market, ISI (Import-Substituting Industrialization) is naturally protected from external competition by the relatively high costs of importing into a landlocked country¹¹; and its slow growth contrasts sharply with a strong rise in imports. According to provisional figures from the NSO, imports have doubled over the last five years in nominal dollar terms. The sluggish performance of domestic manufacturing cannot therefore be blamed on a lack of aggregate demand.

Figure 19: Imports and sources of foreign exchange (current \$US)



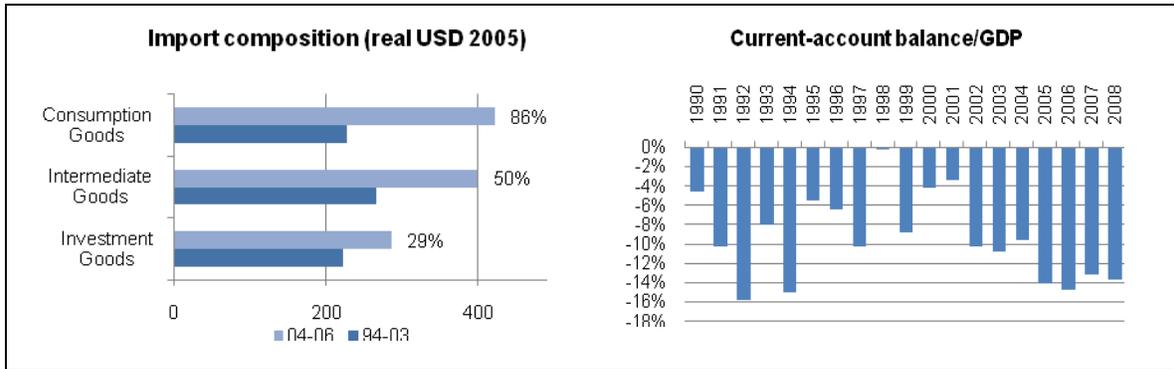
Source: NSO Balance of Payments, Figures for 07 and 08 are provisional

How was such an import boom financed? Principally it was through the foreign exchange generated by exports, aid and the errors and omissions. The depletion of foreign exchange reserves has also contributed falling to 1.3 months of import cover by the end of 2008. The combination of exports and official transfers fell short of funding imports in 2004-06 which looks to have been closed by the contribution from errors and omissions. This account is unusually large, often exceeding $\pm 10\%$ of GDP and could refer to capital flight, unregistered aid, informal trade or simply mistakes. It seems likely that the account includes a proportion of repatriated capital since the flow reverses at the end of the inflationary period from a \$200m outflow 1998-2001 to a similar sized inflow 2002-06.

The rise in imports since 2004 has been accompanied by a change in composition skewed towards consumption. In real dollar terms consumption imports have increased by 86%, intermediate imports by 50% (mainly on account of fuel and fertilizer) and investment imports by only 29%. In 2006 at over 14% of GDP, Malawi's current account deficit was the highest of all comparator countries.

¹¹ In 2006, carriage insurance freight charge for imports was around 15% of their FOB value (NSO).

Figure 20: Import Composition and the external balance



Source NSO Trade Data, IMF

A boom in consumer imports and deterioration of the trade balance is a worrying signal in any economy. What does it mean for Malawi? Unlike larger and less open economies, this change of composition is unlikely to be a signal of an impending brake on growth due to a future foreign exchange constraint. As already discussed, Malawi's engine of growth is not endogenous demand but export income which has exhibited a relatively low dependence on import prices (although clearly imports feed into the general CPI).

Rather, this expansion of consumption imports signals two things. Firstly – assuming import elasticities are a good proxy for general elasticities – it confirms a low marginal propensity to invest. An extra import expenditure of \$1 would result in only 16c spent on investment goods. Unlike the growth diagnostics for South Africa (Frankel, 2007) the data does not enable us to look at the sectoral decomposition of investment to determine the extent of capacity growth in tradeable sectors. However if recent growth has been driven principally through improvements in real domestic export prices, then this low figure implies that future growth will also be constrained in this channel since investment rates appear insufficiently high to break out.

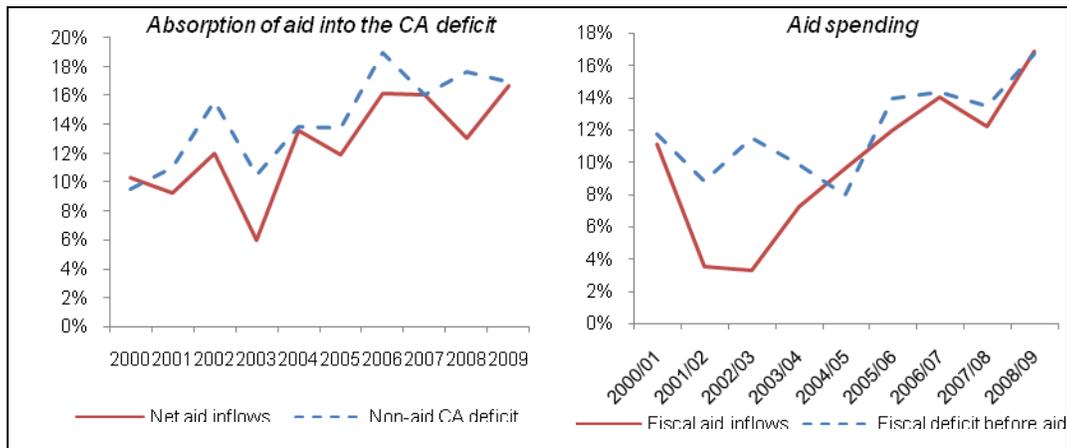
Secondly it reveals a strong growth of consumption demand which - despite natural protection - has *not* created a response from domestic industry. Taken together with the trade deficit and run down of reserves, this implies that the exchange rate is still overvalued. More recently banks have been forced to ration foreign currency to importers and the spread between formal and informal exchange rates has widened to 30%. Over a longer term, there has been support for an overvaluation hypothesis in the literature. Rajan and Subramanian (2005) find Malawi's exchange rate to be overvalued, but others have found that technical properties of the data have precluded the use of standard techniques to estimate equilibrium levels. The switching of regimes contaminate the unit roots for purchasing power parity preventing it from reverting to a long-run equilibrium; and the lack of forward exchange markets prevents the use of interest rate parity (Mathisen, 2003).

The Role of Aid

Has aid exacerbated the problem of overvaluation in Malawi? Aiyar, Berg and Hussain (2008) present a framework for reasoning about aid which makes a distinction between aid absorption and aid spending. Absorption is the degree to which aid currency finances net imports. This is determined by the central bank in deciding whether to sell the foreign exchange to the private sector or to use it to build up reserves. Aid spending is simply the degree to which the government uses the domestic currency raised from the sale of aid inflows to finance net expenditure. The normal situation for aid recipients is that aid is both absorbed and spent, but Aiyar et al suggest that countries facing problems of stabilization could use aid to slow monetary growth by absorbing but not spending aid.

Malawi has both absorbed and spent its aid inflows. Figure 21 shows that since 2000, net aid inflows have been absorbed effectively into the non-aid current account deficit (that is the deficit excluding interest payments on external concessionary debt) with local deviations rapidly corrected in subsequent years. Likewise aid entering the fiscal accounts after 2004 closely tracks the level of the pre-aid fiscal balance. The budget crisis prior to 2004 which resulted in such high levels of domestic debt is evident in the widening gap between the two series between 2001 and 2004: aid levels fell and were consequently over-spent.

Figure 21: Aid absorption and spending



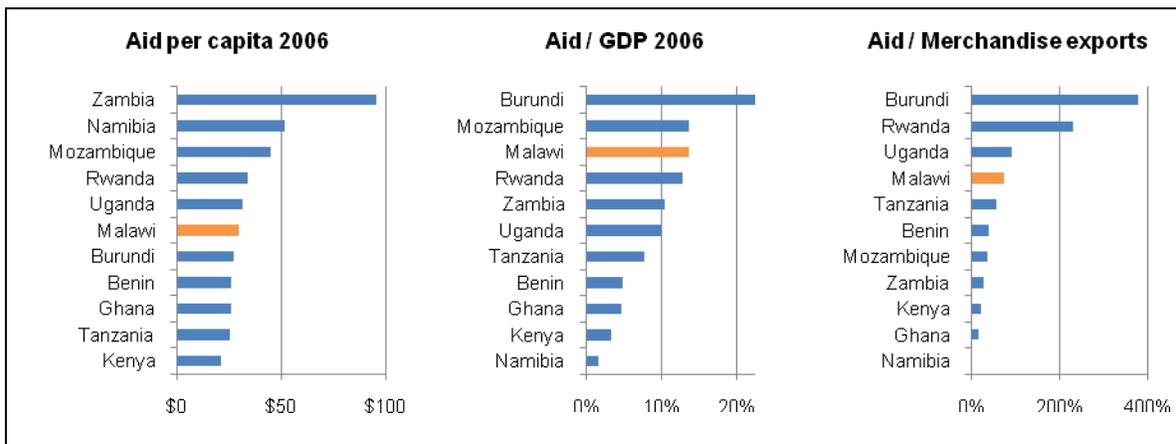
Source: IMF and World Bank staff estimates

The absorption of aid always requires an equivalent rise in import demand. This can be done either directly by the government deciding to import more (or by receiving aid in kind) or, in a floating exchange rate, by raising aggregate import demand through appreciation of the RER. In a fixed regime where there are shortages of foreign currency, the exchange rate may already be sufficiently overvalued to mask the effect of aid appreciation, in which case an aid inflow merely eases the shortage. If a government decides to import directly there will be no appreciation effect; but if the central bank sells aid foreign currency to the private sector then the real exchange rate will need to appreciate.

Other things being equal this appreciation will lower profitability in the export sector, however the net medium-term growth effect of aid critically depends on how the government spends the inflow. If aid facilitates an increase in productivity, then this will raise the real *equilibrium* exchange rate – the long-term rate at which the economy is competitive in international markets, achieves internal and external balance, and which defines whether the current rate is over or undervalued. In other words, for its duration an aid inflow will appreciate the real exchange rate, but if it finances growth in productivity this doesn't matter since the long-term equilibrium reference rate will also rise. Note that this equilibrium rate moves only with structural changes in productivity, and not with temporary improvements such as the productivity gains derived from the current fertilizer program. Adam and Bevin (2002) investigate the net effect of aid inflows on growth in Uganda using a CGE model, and conclude that the net growth effect is conditional on growth in productivity. An increase in aid which does not ease supply-side constraints – while generating growth through consumption – is likely to have a negative effect on competitiveness and hence growth.

Cross-country data from the Development Assistance Committee of the OECD reveals that Malawi's use of aid is comparable to that of its peers. In 2006, aid per capita was \$29, aid as a proportion of GDP was 13.6%, and aid as a ratio of merchandise exports stood at 74%. Since the size of aid inflows relative to the external sector indicates the likely strength of the appreciation effect, this ratio puts Malawi among countries such as Uganda and Tanzania where the question of overvaluation due to aid has been sufficiently serious to provoke study (Asmah & Levin 2008, Adam & Bevin 2002).

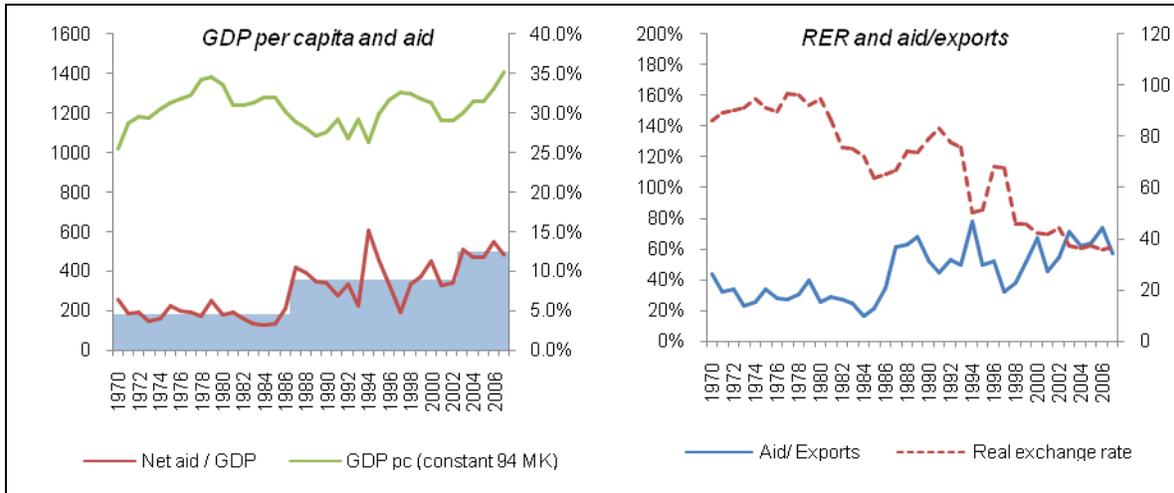
Figure 22: Malawian aid in context



Sources: DAC: total net ODA disbursements, IMF: GDP and exports

Aid as a percentage of GDP has risen steadily in Malawi and, since 1970, can be classified into three periods: 1970-86 averaging 4.6%; 1987-2002 averaging 9.0% although there is high volatility in this period due to inflation accounting; and since 2003 averaging 12.4% of GDP. The level of aid has no consistent correlation with GDP per capita - in fact the two series are nearly perfectly orthogonal – and the aid surge in 1987 coincides with a bottoming out of the 1980s decline in incomes.

Figure 23: Effects of aid on growth and competitiveness



Sources: DAC, IMF, NSO and World Bank staff estimates

However, expressed as a proportion of exports aid nearly doubles between the period 1970-86 (29%) and 1987-2007 (56%). The transition between these two levels is associated with an appreciation of the real exchange rate which persisted until 1994. This can be seen in Figure 23 which shows the long-term depreciating trend of the RER since 1980 with a temporary appreciation coinciding with the step change in aid/exports in 1986. This is consistent with aid applying upward pressure on the RER in proportion to its size relative to exports, and this effect being eventually counterbalanced by longer term depreciation from factors such as progress toward trade and exchange liberalization, and changes in trade prices.

One of factors mitigating the effects of appreciation is the proportion of government expenditures directly spent on imports. Although no record of total government imports currently exists, in 2008/09 the fertilizer subsidy program alone was estimated at 4.6% of GDP or approximately one third of aid inflows. Only a small component of this program was actually supported by aid, but aid inflows created the fiscal space which enabled implementation of the program and thus the net effect on import demand is as through it were directly financed. Additionally the high proportion of project aid (about 75%) over budget aid is also likely to have increased the direct import component of government expenditure.

Table 3: Composition of expenditures

Percentage of GDP	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Aid inflow to the budget	4.3%	4.2%	8.2%	10.5%	12.8%	14.4%	12.3%	
Total expenditures	22.4%	18.3%	23.0%	22.4%	28.2%	29.6%	33.7%	36.1%
Current Expenditures	16.7%	15.1%	19.0%	17.8%	22.2%	23.8%	28.1%	29.1%
Fertilizer program					1.7%	1.9%	2.7%	4.6%
Capital Expenditures	5.8%	3.2%	4.0%	4.6%	5.9%	5.8%	5.6%	7.0%
Gross fixed capital formation	3.9%	3.1%	3.7%	4.3%	5.2%	5.2%	5.4%	5.0%

Source: IMF, Public Finance National Reports, Government of Malawi Budget Documents

Yet the persistently low level of public investment implies that aid is not sufficiently financing supply-side improvements to increase productivity. Whereas aid rose by 4.1% of GDP between 2003/04 and 2007/07, figures from the Ministry of Finance state that gross fixed capital formation only rose by 1.7%. Similarly in aggregate, public investment only amounts to around 40% of aid inflows. This implies that in excess of 60% of aid (since some investment will have been domestically funded) is used for recurrent or consumption spending – greatly limiting its ability to increase productivity.

The data is consistent with the theoretical prediction that aid exerts some appreciation effect on the currency caused by the need to increase private import demand, but this is mitigated by direct imports of the government's fertilizer program, and probably by other aid funded projects with high import components. It is thus unlikely that aid strongly constrains growth through competitiveness effects, but because of the small proportion of aid allocated to supply-side investment, it is also having limited positive effects on productivity. Although Malawi currently uses aid for social development the data presented suggests that this aid only weakly supports growth. This is a missed opportunity likely to prolong low levels of output and income, and dependence on external financing.

Does Malawi Have a Syndrome?

The analysis of Malawi's growth dynamics reveals the following:

1. Growth is primarily driven by the domestic multiplier from export revenues.
2. Devaluation of the real exchange rate has had a strong beneficial effect on growth.
3. Growth has fed mainly into the non-tradeable service sectors and there has been very limited diversification into new export sectors or domestic ISI. This is despite evidence of strong consumption demand from imports.
4. Macroeconomic instability 1995-2003 dampened investment and prevented growth transmission out of agriculture.
5. Import elasticities reveal a low marginal propensity to invest.
6. Relatively high aid flows have been absorbed into a large current account deficit (14% GDP).

The lack of response from ISI or new export sectors in the face of booming consumer imports and low reserves of foreign exchange strongly implies that the exchange rate is still overvalued. Despite dramatic improvements in the variable since 1980, it seems that there is still further to go. The source of this overvaluation cannot all be attributed to foreign exchange income. Although by law a managed float, the exchange rate remains de-facto a fixed regime with step devaluations. Malawi persistently faces shortages of foreign exchange indicating that the overvaluation is at least partly due to the management of the fixed peg and may be influenced by reasons of welfare and political economy. An overvalued exchange rate lowers the price of key goods such as fuel and fertilizer and provides the urban populations more access to consumer imports.

From this analysis the economy could be characterized by the syndrome “*High-value monocrop export economy with overvalued exchange rate*”. This syndrome is a variant on Dutch Disease with the distinction that overvaluation is due as much to policy as to export revenues from the booming sector. In such a case we would expect to see the following symptoms:

- GDP is highly sensitive to crop export revenue, and crop price.
- Over-valuation of the exchange rate undermines the competitiveness of non-monocrop sectors.
- Growth occurs only in non-traded service sectors without import competition.
- There is low growth in import substituting industrialization because of competition from imports.
- There is difficulty in developing new export industries due to the high profitability of the monocrop.

These symptoms are demonstrably present in Malawi, and the economy has responded rapidly to improvements in the real exchange rate. The state of the current account, high growth in consumer imports and the weak growth of ISI manufacturing are strong indications that further carefully managed devaluations of the real exchange rate would have beneficial effect.

III. HRV CONSTRAINTS MATRIX

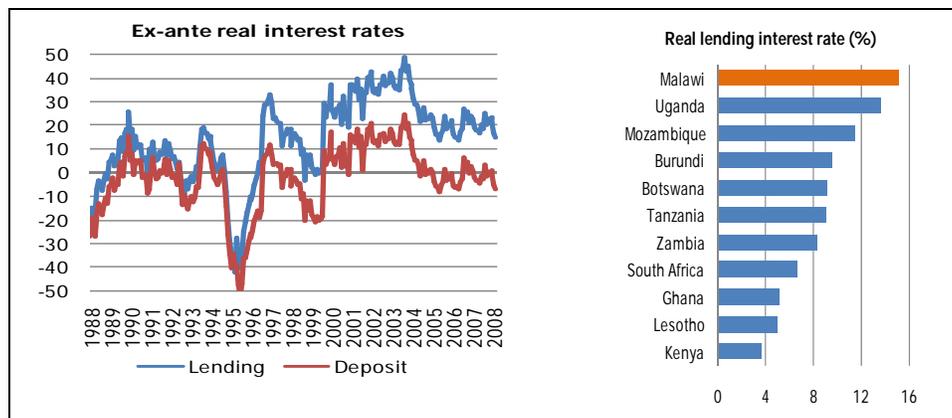
Although Malawi’s recent growth has been strong, the lack of investment in tradeable sectors, and smallholder productivity (particularly irrigation and livestock) raises questions of its sustainability and robustness. In addition to the exchange rate, it is clear that other constraints operate which deter investment in external or domestic industries. The following section uses the HRV constraints matrix presented earlier to further analyze the causes of low investment and entrepreneurship in Malawi. We discuss in turn whether investment is constrained by finance, complementary factors, government failure or market failure.

E. IS GROWTH CONSTRAINED BY FINANCE?

The banking sector has undergone substantial reforms since the 1980s with foreign investors entering the market from 1994. Deregulation has increased the number of banks from two in 1994 to nine in 2008. Despite this, in the ICA survey (WB, 2006) businesses quote “cost of finance” and “access to finance” as the top two most severe constraints after macroeconomic stability. Furthermore informal firms report that “access to finance” is their *most* serious constraint. While real lending interest rates have been

decreasing with improvements in the fiscal position since 2004, interest rates and nominal spreads still remain very high compared to peers.

Figure 24: Real lending and deposit interest rates



Source: International Financial Statistics, IMF

Since reform, private investment has shown some elasticity to the real lending rate (although as already discussed the data is patchy): private investment collapsed during the high inflation and high interest rates of 1995-2003, and NSO data suggests a strong recovery associated with lower interest rates from 2004.

For the informal sector which includes rural smallholders, access to finance is reported as the most important constraint to growth¹². In 2004, 14% of rural households had access to a loan but only 4% from a formal financial institution (IHS, 2005). Rural households have an exceptionally low asset base – only 26% of own a bed, 2% own an oxcart (ibid) – which greatly impedes self-financed investment. The PVA (WB, 2006) argues that illiquidity prevents investment, since farmers revert to traditional crop varieties using minimal inputs. The authors perform a regression into the determinants of yield efficiency and conclude that liquidity considerations through credit or assets have the strongest effect of all variables on the yields of both maize and tobacco¹³. Similarly a regression performed on the determinants of commercial cropping, found that liquidity factors were also strongly associated with the decision to grow cash crops¹⁴. The significance of the smallholder liquidity constraint is illustrated by the substantial supply response created by the Input Subsidy Program since 2006.

Savings Supply

Do high interest rates result from a shortage of savings? Real deposit rates have hovered around zero since 2004 indicating that banks have made little effort to attract savings.

¹² 84% of informal firms reported access to finance as a serious obstacle to growth (ICA, WB, 2006)

¹³ p179, Malawi PVA Volume II, World Bank, 2006

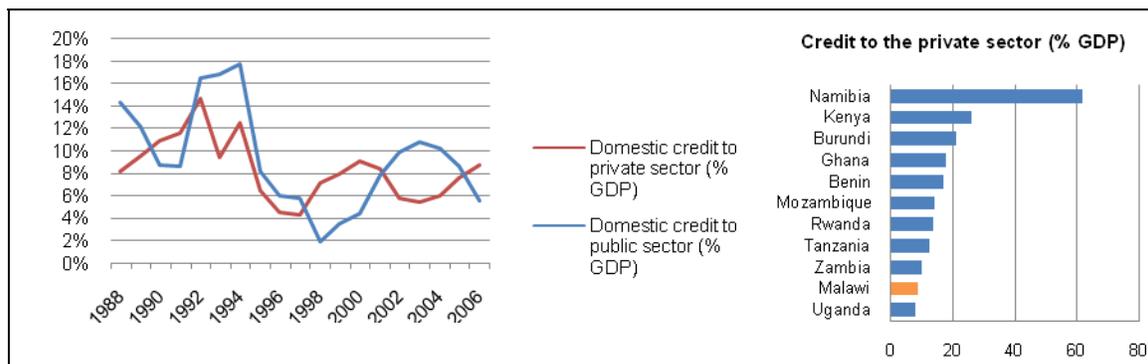
¹⁴ P209, ibid

Additionally growth is weakly correlated with the current account deficit ($R^2=0.055$) signaling a weak output response to external savings. These findings imply that formal sector investment is unlikely to be constrained by the supply of savings.

Financial Intermediation

It follows that high interest rates must therefore be due to poor financial intermediation. Malawi has a shallow financial sector compared to peers indicated by low levels of credit to the private sector (9% of GDP in 2006) which has shown modest improvement since 2003 as public borrowing reduced.

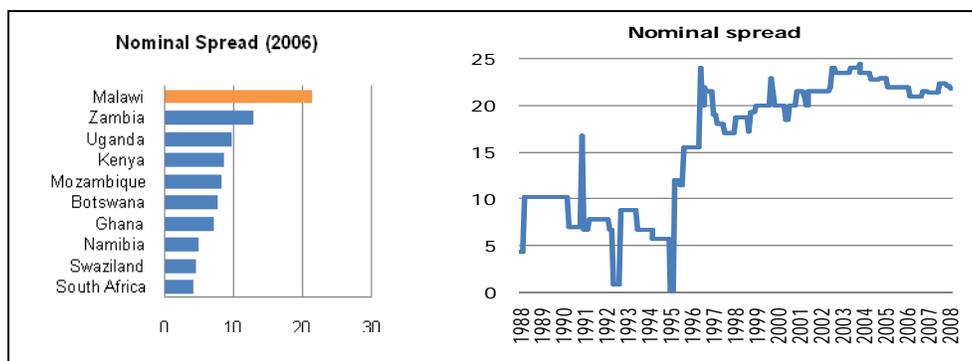
Figure 25: Credit to the private and public sectors



Source: WDI, comparative figures are for 2006

Nominal spreads (lending rate minus deposit rate) are extremely high at over 20%, the highest of comparators, and only improving slowly.

Figure 26: Interest rate spread (lending minus deposit rates)



Source: IFS

Although spreads have improved recently due to lower reserve requirement and improvements in loan quality, they have remained high due to overhead costs, and not because of a lack of competition (FSAP, 2007). Overhead costs are in turn driven by the size of financial institutions which prevent economies of scale, and by the low relative productivity of bank employees. According to the FSAP, bank employees are paid well (with an average dollar wage 3.5 greater than that of bank staff in Uganda) but perform poorly against regional averages in terms of interest income per employee or loan/

deposit accounts per employee. Despite this, bank profits have been extremely high largely due to non-interest income from the foreign exchange business¹⁵.

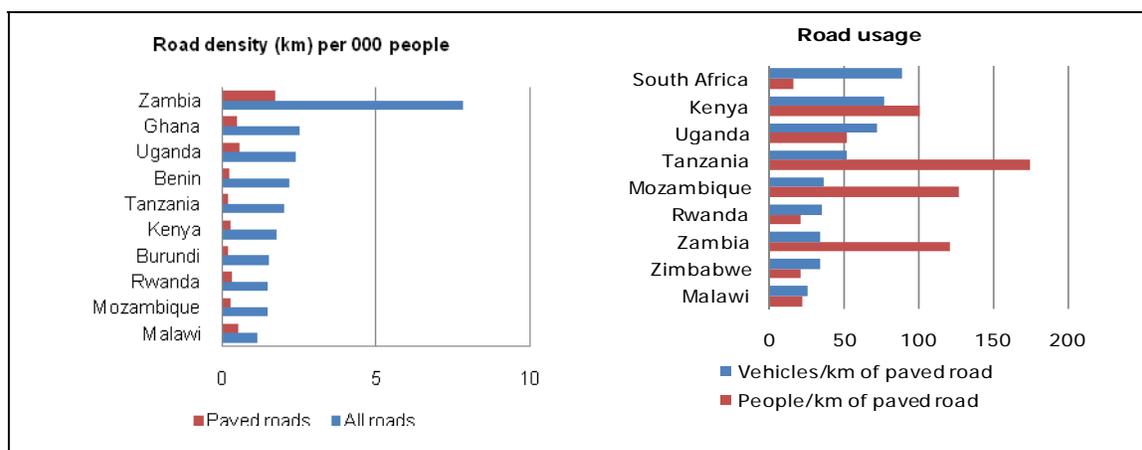
The rise in the number of banks, recent product innovations and the extension of the ATM network should all help to improve access and eventually the cost of finance. However the poor performance in managing overheads together with the limited reach of the financial system into rural areas strongly suggests that weak financial intermediation currently constrains to growth. The high cost and low relative productivity of staff may also signal a general bottleneck in the availability of skills.

F. IS GROWTH CONSTRAINED BY A LACK OF COMPLEMENTARY FACTORS?

Domestic Road Network

Relative to the country's area, Malawi compares favorably with its peers in the size of its road network in both paved and unpaved roads. Paved road density per capita is also relatively high, but road density per capita for all roads is at the bottom of the comparator table. The topography of Malawi - being around 3.5 times longer from North to South than from East to West – means that a smaller road network is required per unit of area in order to connect population centers than a country more regular in shape.

Figure 27: Road density and road usage



Source: WDI

The road network has the lowest use by vehicles per kilometer than any of its peers and is currently in reasonable condition. According to the Ministry of Economic Planning and Development, 95% of paved roads and 65% of unpaved roads are currently in good or fair condition¹⁶. Although the low density of total roads per capita signals room for

¹⁵ Return on average assets (ROAA) reached 6.4% in 2006 making Malawian banks some of the most profitable in the world. Banks seem to benefit from cartel rents in the foreign exchange market (FSAP, 2007)

¹⁶ Ministry of Economic Planning and Development, Annual Economic Report, 2008

improvement, it is unlikely that the domestic road network is currently a binding constraint to growth. However, as discussed later in the chapter on spatial dimensions to growth, the road investments likely to have the highest impact on agricultural growth are feeder roads in areas with high agronomic potential and only moderate connectivity to major cities.

Import-Export Infrastructure

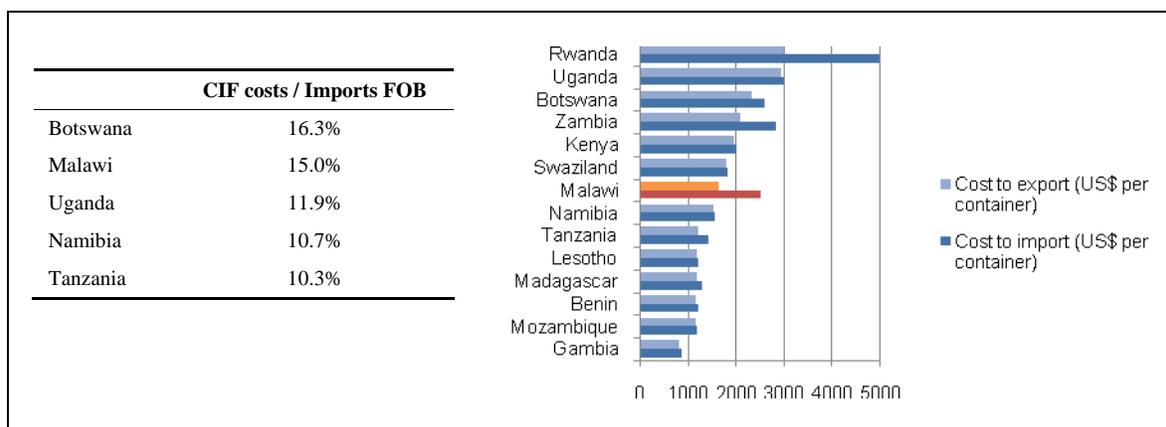
The areas immediately adjacent to Malawi in neighboring countries have relatively low populations - Eastern Zambia and North-Western Mozambique – resulting in limited potential for regional trade with direct neighbors. As a result most imports and exports require international shipping giving Malawi a dependence on transit countries for infrastructure, procedures and the logistics performance of foreign ports.

In the absence of a comprehensive transport study, it is difficult to obtain reliable data on the cost of trade transport and hence establish whether transport infrastructure currently constrains growth – either for the export sector or for import intensive industries for the domestic market. Faye et al (2004) estimated that total transport costs as a proportion of exports were as high as 55% making Malawi an exceptional outlier even among landlocked countries. Taken at face value, this data would imply that weak trade infrastructure was a binding constraint on growth, and that investment was likely to respond strongly to improvements in regional infrastructure.

Yet other sources do not corroborate these findings. Firstly using 2006 IFS data, the cost of transport and insurance as a proportion of imports¹⁷ puts Malawi among comparators at about 15%. Secondly the Doing Business Indicators also rank Malawi as comparable to peers for the cost of importing/ exporting a twenty foot container. The DBI data also shows a significant premium on importing caused by the trade deficit, since the number of import journeys outnumbers export journeys. Thirdly anecdotal evidence from the main commodity exporters put transport costs at between five and ten percent of export value (see Trade Facilitation and Transport chapter).

¹⁷ That is (imports (CIF) – imports (FOB)) / imports (FOB)

Figure 28: Comparative costs of trade transport



Source: CIF/FOB: 2006 IFS, Malawi figures from NSO; Container trade costs DBI, World Bank 2008

It is thus unlikely that, in the aggregate, the cost of trade transport is a binding constraint to investment. However a significant proportion of Malawi's exports are shipped via feeder ports in Mozambique subjecting them to long delays. The railway route to Nacala is principally used to export sugar and import fertilizer and includes a damaged 77km stretch which takes up to eight hours to pass and is often closed in heavy rains.

Table 4: Routes to the sea

Port	Distance	Shipment cost	Duration
Beira	948 km	100-150 \$/t	3 days transit by road – subject to delays
Nacala	989 km	80 \$/t	10 days transit by rail – subject to extreme delays
Durban	2,323 km	300 \$/t	Time-sensitive products

Source: MEPD 2008, World Bank staff estimates

The rail link to Beira has not been repaired since the Mozambican war, and transit procedures can often add excessive delays of up to 15 days to shipments. Additionally Beira is a shallow water port requiring container ships to anchor offshore serviced by smaller shuttle vessels. Beira is also nearing its current throughput capacity as export production in Mozambique continues to expand.

Malawi thus has access to cheap transport for robust non-time critical export cargoes such as tobacco and sugar at a cost of high risk of delays and inventory losses in switching transport. Transport for time-sensitive or environment-sensitive goods is significantly more expensive. Textile exports to South Africa are charged at \$5,000 per forty foot container¹⁸ – higher than the average export cost of any comparator country in the 2008 DBI data.

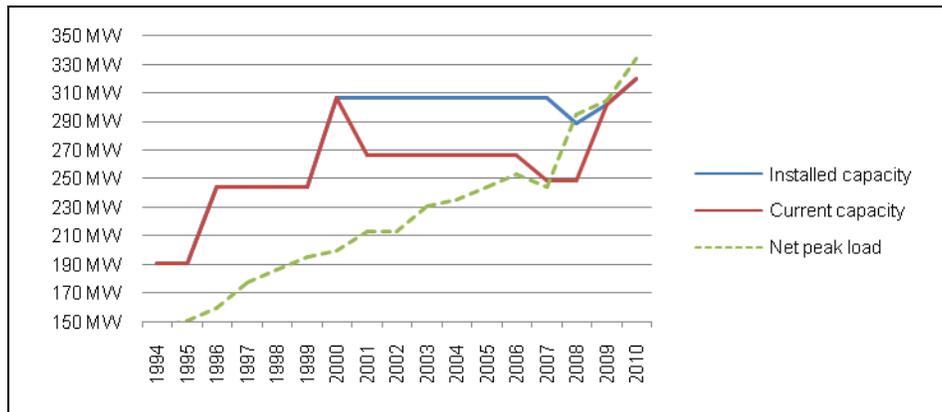
¹⁸ See trade facilitation and transport chapter

While evidence is not yet sufficient, it is possible then that trade transport costs for time-sensitive exports is currently abnormally high for Malawi and that this is a constraint to export-sector growth. If not currently binding, it is highly likely to become so imminently, as Beira and Dar approach the limits of their throughput. Either way, it is clear that it is extremely important for Malawi to ensure that it has rapid and cost-effective access to efficient ports able to handle its trade flows in the medium term. The guarantee of such access is likely to require coordinated regional investment and the establishment of a common and efficiently implemented transit regime.

Power Infrastructure

Current energy generation is at full capacity in Malawi. Whilst the immediate pressure for power has been temporarily improved by repairing a broken power plant at Tedzani, net peak load already exceeds installed capacity resulting in extensive load shedding. These outages are expected to become more severe as demand is forecasted to accelerate sharply after 2010. Malawi generates nearly all of its grid-power by hydroelectric stations and has a current generating capacity of 263 megawatts. The Tedzani scheme is scheduled to be reintroduced by the end of 2008 restoring national supply to the installed capacity of 283 megawatts.

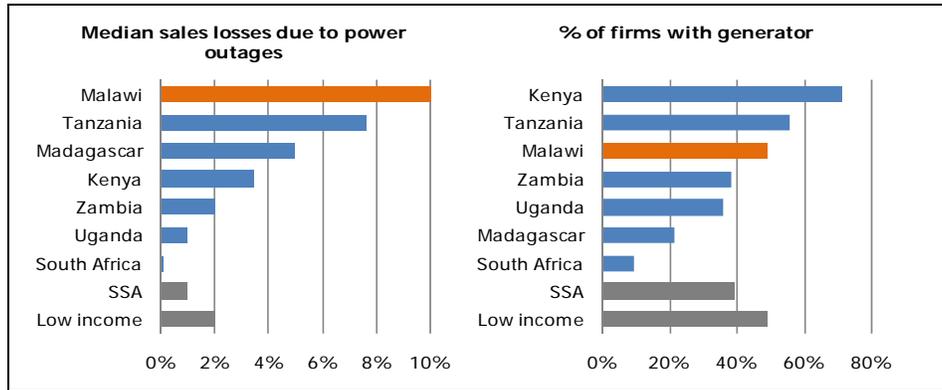
Figure 29: Projection of peak demand and generating capacity



Source: ESCOM, 2008

The lack of generating margin above peak load is already having significant impact on businesses. Power outages are estimated to be responsible for median sales losses of 10% across Malawi, significantly higher than the SSA average of 1%. For those firms without a generator, around 50% of Malawian firms, median sales losses are even higher at an estimated 20%.

Figure 30: Sales losses due to power outages and firms with generators



Source: Malawi Investment Climate Assessment, 2006

Quality of electricity supply was cited as the fourth most serious obstacle to growth by firms in the ICA (World Bank, 2006) and as the primary obstacle given by the 2008 Malawi business climate survey conducted by the Malawian Chamber of Commerce. Additionally there have been specific investment decisions negatively influenced by electricity supply. Inconsistent quality of supply was cited by cigarette manufacturer BAT for moving its operation out of Malawi; the proposed extraction of titanium heavy sands from the lake was cancelled for the same reason; and similarly several potential textile investments were never realized. Power outages damage product quality in the dairy industry, require extensive cleaning of equipment in the plastics industry, and result in high losses in thread spinning (where consistent power is required to produce even width of threads). Firms go to expensive lengths to get around the constraint. Paladin, a mining company in the process of commissioning the uranium mine at Kayelekera, is using diesel generators at a operating cost greatly higher than the industrial electricity tariff.

The state electricity company is currently unable to provide a reliable source of power to businesses resulting in significant losses and deterring investment in power sensitive industry. The lack of reliable power supply significantly lowers social returns and hence is likely to be a binding constraint to growth.

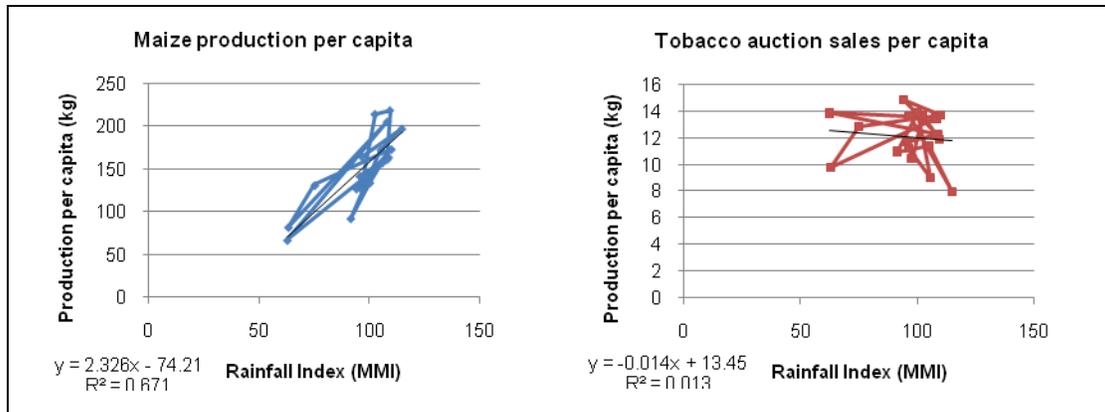
Irrigation and Rainfall

The vast majority of agricultural production is rain-fed. Historically Malawi has experienced serious droughts (1992, 1994, 1997, 2002, 2005) and floods, both of which have impeded agricultural productivity, damaging both agricultural land and crops. This rainfall variability is thought to have intensified risk-averse behavior by farmers and investors in agricultural industries and services, limiting diversification into other cash crops.

How much does rainfall contribute to economic growth? Although a total drought clearly collapses all agriculture (and hence GDP) the data suggests that different rainfall requirements of different crops probably diversifies the economy's overall sensitivity to a

single rainfall pattern. The Malawi Maize Index (MMI) is a measure of rainfall tuned to the specific requirements of the maize crop. In Figure 31, the MMI correlates positively and closely with maize production per capita ($R^2=67\%$) however this index exhibits near zero correlation to the per capita tobacco harvest. Rainfall – as expressed by the MMI – is critical to food security but transmits limited volatility through to growth. Using data from 1990 to 2008 growth in GDP per capita regressed against MMI had an R^2 coefficient of 19%.

Figure 31: Rainfall and crop production



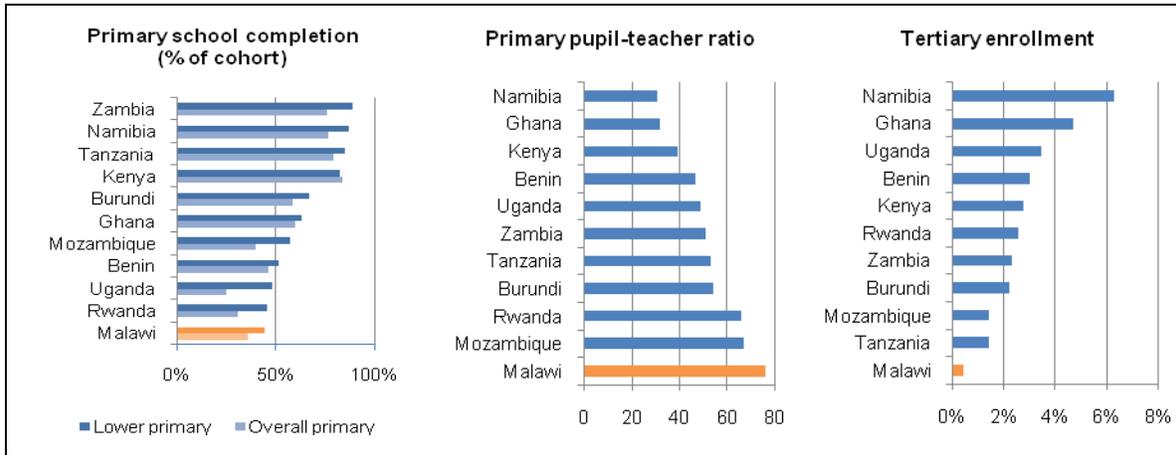
Source: Ministry of Agriculture, Tobacco Control Commission, Malawi Meteorological Service

Nevertheless the effect of rainfall on food security has not provoked much investment in irrigation. Irrigation hedges against rainfall variability and raises productivity but allowing an additional cropping season(s) yet only 20% of potentially irrigable land is irrigated. The intensification of small-scale agriculture will inevitably require investment in irrigation (treadle or petrol pumps) since food security for an expanding population are conditional on raising productivity in agriculture. However irrigation in itself is unlikely to be a binding constraint on growth. Rather the lack of irrigation is more likely to be a symptom of general low investment prevented by other constraints such as weak human capital, rural illiquidity or low profitability due to inefficiencies in the marketing chain.

Human Capital

Primary and secondary education has been one of the top priorities for the government over recent years, and working alongside donors, significant steps forward have been made in school building, introducing new curricula and expanding Teacher Training Colleges. Yet primary education remains highly stressed in Malawi. The introduction of Universal Primary Education in 1994 caused an immediate 43% jump in enrolment without corresponding expansion of teachers or classrooms. As a result the ratio of teachers to pupils is the lowest of comparators at 1:76; and classrooms to pupils at 1:107 (Malawi Education Statistics, 2006). Less than half of children complete their first four years in school, which is also the lowest among comparators although overall completion rates are slightly higher than those of Uganda and Rwanda. Secondary enrolment is comparable to peers, but tertiary enrolment per capita is by far the weakest of all comparator countries.

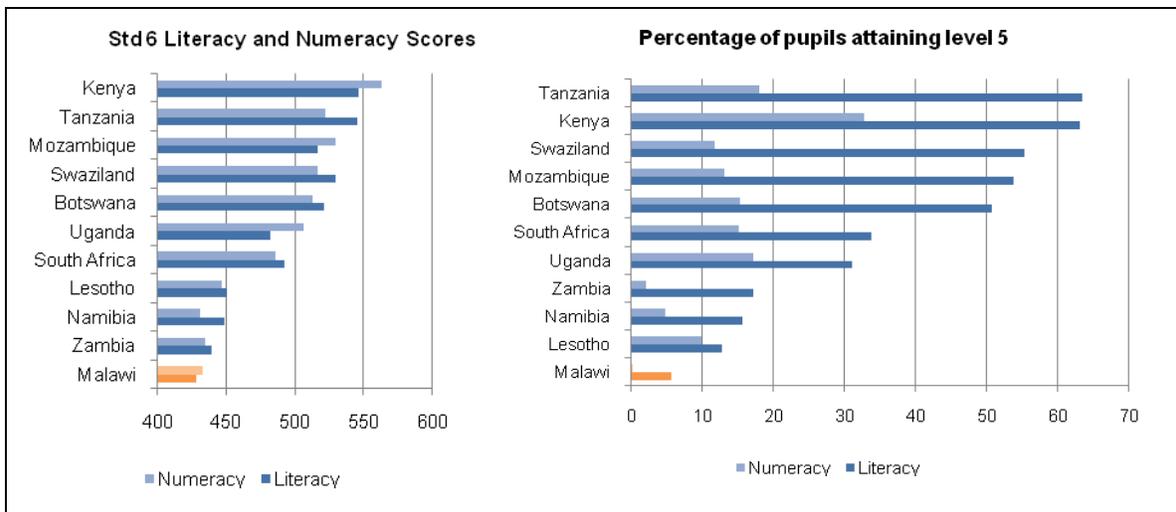
Figure 32: Education ratios



Source: WDI

Does this weak performance constrain growth, or is it just a symptom of underdevelopment? In addition to low enrolment, the quality of education is also very poor. The Southern and East African Consortium for Monitoring Educational Quality (SACMEQ) has undertaken large-scale¹⁹ standardized tests for standard 6 pupils across the region. Figure 33 show Malawi’s performance in numeracy and literacy. Malawi scores lowest of its peer group in both the average scores which are rebased to a mean of 500 and standard deviation of 100, and for the percentage of pupils attaining “level 5” or above in the tests. Level 5 is defined by SACMEQ as “competent numeracy” and “inferential reading” for literacy. In this second chart, the percentage of children attaining “competent numeracy” was 0.2% - too low to be visible on the chart.

Figure 33: Primary education quality

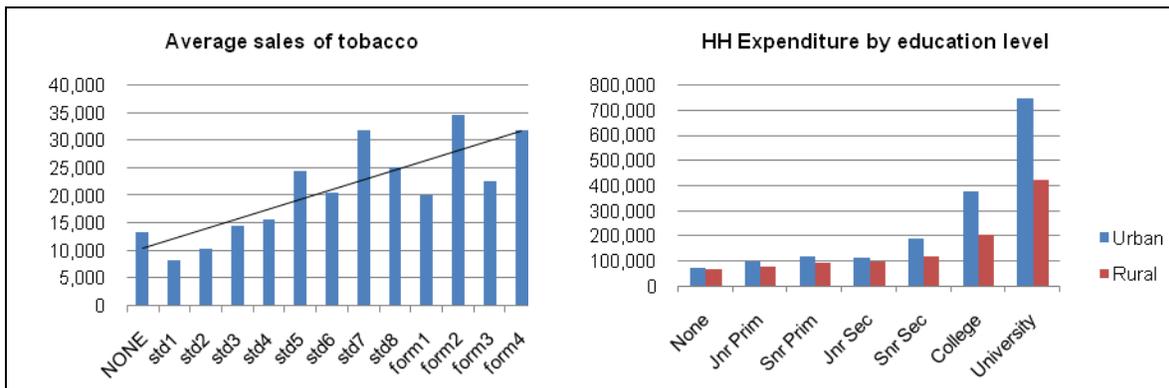


Source: SACMEQ II, 2005

¹⁹ SACMEQ II administered tests to 2333 standard 6 students in Malawi in 2002.

This extremely poor performance signals that the educational system is likely to be part of the cause as well as a symptom of low development. There is some direct evidence that education is constraining growth. Data from the IHS (NSO, 2005) shows that household tobacco income is strongly correlated with the educational level of the household head, conforming the findings of the PVA that better educated farmers are able to understand the risks and farming practices of cash-cropping²⁰. The same dataset reveals that household expenditure is strongly associated with the education level achieved by the head of a household.

Figure 34: The economic returns to education



Source: IHS, 2005

The ICA (World Bank, 2006) ranks shortage of skilled workers as the eighth most serious obstacle to growth after macro-instability, finance, power, tax, and crime. Other indirect evidence includes the high proportions of formal sector businesses that have non-Malawians in key technical, managerial or ownership posts; and as already discussed low productivity and high salaries in the financial sector relative to comparator countries signal artificially high returns to business skills.

This data signals that there is a strong probability that the poor quality and access to education currently constrains growth in Malawi, and an even greater probability that it will become a constraint in the medium term. Either way, given the long lead times of educational reform, it is critical that government and donors intensify their efforts to improve quality and access particularly of primary and tertiary education.

Land

Malawi has a high population density which results in small land plots and a deterioration of soil fertility from overuse. However comparator countries face similar circumstances, and Malawi still has more than double the arable land per capita of Asian countries such as Vietnam. Arable land per capita is comparable to peers at a fifth of a hectare, and

²⁰ Poverty and trade in agriculture commodities, Malawi PVA Volume II, World Bank, 2006

Malawi's land expansion has been the second fastest among comparators averaging 2.2% per year between 1980 and 2005.

Table 5: Land in comparator countries

	Arable land per capita (hectares)	Total land per capita (hectares)
Zambia	0.46	6.36
Namibia	0.40	40.2
Benin	0.32	1.26
Tanzania	0.24	2.24
Mozambique	0.21	3.75
Malawi	0.20	0.69
Uganda	0.19	0.66
Kenya	0.15	1.56
Rwanda	0.13	0.26
Burundi	0.12	0.31
Vietnam	0.08	0.36
Bangladesh	0.05	0.08

Source: WDI, 2006

Additionally some land is lying fallow as households are only cultivating about 80% of their plots. The IHS (2005) reported that on average household plots were about 1.2ha of which 1ha was cultivated. The PVA (World Bank, 2006) further concludes that the relationship between household wealth and land holding size is not very strong indicating that availability of land is not an immediate binding constraint on smallholder incomes²¹. This is confirmed by the experience of Asian countries which surmounted the problems of population density through irrigation and technology. Even after the expansion of arable area ceased, the intensification of smallholder farming has provided the underlying driver of diversified growth.

Much greater reserves of unutilized land still exist in the estate sector. A 1998 study estimated that 45% of the 1.1 million hectares of estate land was not under cultivation²². Low government rents have encouraged the retention of this land for speculation. Furthermore Malawi has made significant progress in developing a land policy – yet to be enacted into law - which brings all ownership under a single land tenure arrangement. The short-term land rental market is extremely active and expropriation of land has not been, or perceived to be a problem for investors (ICA, 2006). Although the regularization of land tenure and the resettlement of idle estate lands is a priority, it is unlikely that access to land is currently a constraint to growth.

²¹ Agricultural growth and productivity in Malawi, , Malawi PVA Volume II, World Bank, 2006

²² *ibid*

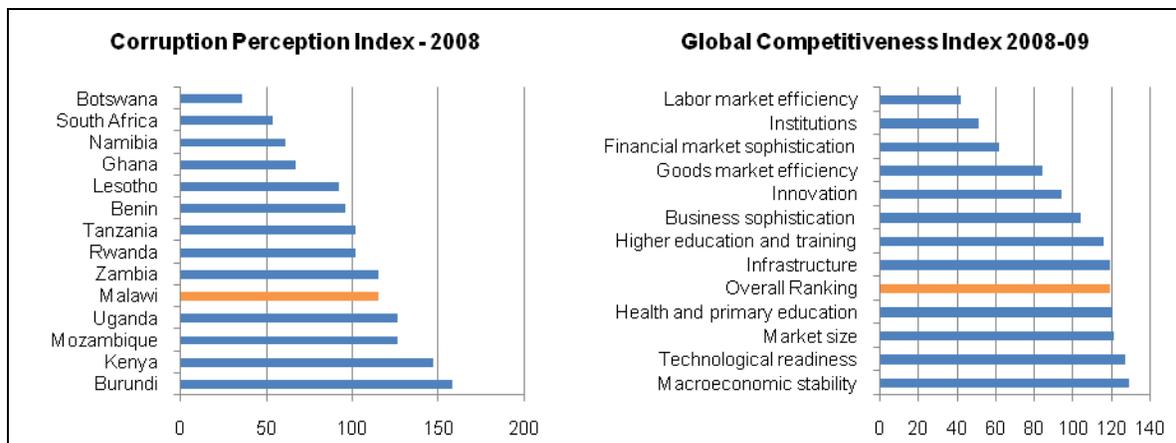
G. IS GROWTH CONSTRAINED BY GOVERNMENT OR MARKET FAILURE?

After 2004, as already discussed, the government made excellent progress in establishing price-stability and fiscal balance. Inflation fell from over eighty percent to under ten, and Malawi's fiscal position has improved to under 4% of GDP. The overvaluation of the exchange rate however, is likely to continue to operate as a binding constraint to growth for the tradeable sector and domestic manufacturing that competes with exports. At its current level, the real exchange rate prevents the appropriation of social returns by acting as a tax on exports and a subsidy on imports. Additionally the practice of step devaluations creates uncertainty for exporters who postpone the repatriation of foreign exchange if they perceive that a devaluation is imminent. This creates additional shortages of foreign exchange and artificially amplifies the foreign exchange effect of the devaluation.

Ex-ante Risks

Is growth constrained by ex-ante risks – that is, the perception by an investor that they will not be able to appropriate returns? Despite the progress in price stability, investor perception of macroeconomic risk persists. The ICA (World Bank, 2006) ranks it as the most severe obstacle to growth; and it contributes the weakest score to Malawi's Global Competitiveness Index (World Economic Forum, 2008). However, Malawi has no history of expropriations, scores relatively well on corruption indicators and is perceived as having high institutional quality when benchmarked against peers. The country ranks 119th out of 134 on the Global Competitiveness Index, but its institutions are ranked 51st. Entrepreneurs and business owners mention state predation but relative to the level of the general business environment it is unlikely to be a deterrent to investment.

Figure 35: Ex-ante risks to investment



Source: Transparency International 2008, World Economic Forum

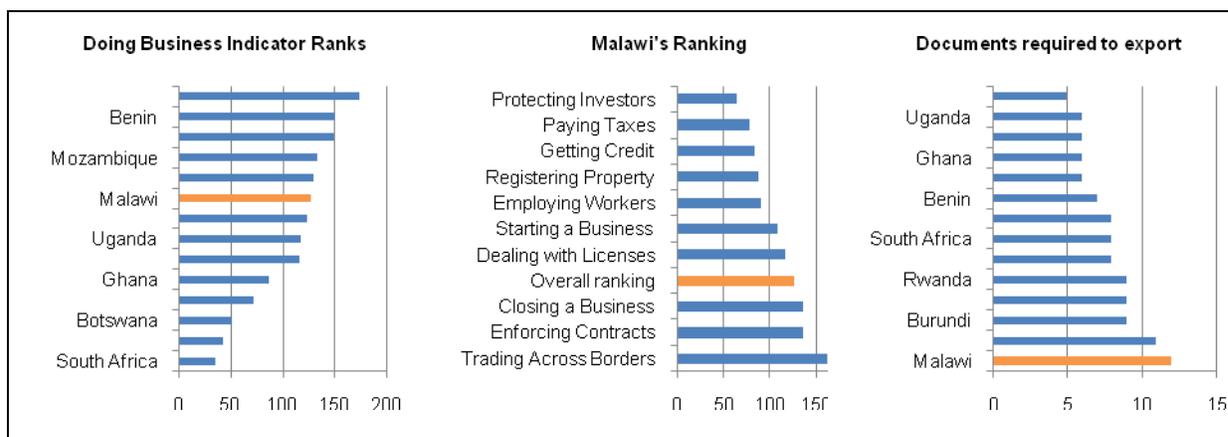
A stronger case for ex-ante risk exists in the expectation of government price setting in agricultural produce and input markets. The government has set minimum prices on tobacco and cotton, fixed buying and selling prices on maize, imposed export bans on soya and maize, and supported association pricing in paprika and chilies. Representatives

of both buyers and producers in the tobacco industry have voiced support that minimum pricing at a cautious level can hedge producer risk and consequently ensure a better supply. However the arbitrary and unilateral form of other interventions strongly discourages investment and is likely to have raised barriers to entry in those industries. The high fertilizer mark-up in Malawi compared to other countries is a possible confirmation of the effect of ex-ante risks.

Microeconomic Environment

The Doing Business Indicators (World Bank, 2008) show that Malawi does not have an unexpectedly poor business environment. Malawi ranks in the middle of the comparator table for the general score on ease of doing business, and has relatively strong scores on taxes, employment regulations, and registrations/ licensing. The elements that perform weakest are cross-border trading, contract enforcement and business closure. Cross border trading scores poorly particularly because of the number of documents that are required to export. The full DBI tables are presented in the appendix.

Figure 36: Microeconomic environment



Source: DBI, World Bank 2008

Similarly the World Governance Indicators (Kaufmann, 2008) also show that, given its level of income per capita, Malawi scores reasonably on all dimensions, particularly: voice and accountability, rule of law, regulatory quality and political stability. The survey indicators do not signal that microeconomic risks are binding constraints to growth. With the exceptions of arbitrary intervention in agricultural markets and the scope to streamline trade procedures, Malawi performs well against peers in its institutional and policy environment.

Market Failure

We have established that growth in Malawi is driven by agricultural exports, the majority of which are produced by smallholders. And the real domestic price – often signaled by the price in the previous season - is a primary driver of the production response. It follows therefore that an increase in farm-gate prices achieved through efficiencies in

input or product marketing chains will also stimulate growth by creating a production response.

Is there market failure in agricultural input and product chains? An analysis of the efficiency of agricultural value chains is presented in later chapters but outline results indicate that several market failures artificially lower smallholder profits. Firstly, prices of fertilizer are higher in Malawi than Zambia or Mozambique. This is partly explained by higher external transport costs, and poor timing in procurement arrangements, but it is also due to higher dealer mark-up – estimated at 16% in Malawi compared to 5% in Zambia and less in Mozambique. Although it is not clear whether this is because of monopoly power or the ex-ante risk of government intervention preventing market entry, the high mark-up inhibits a growth response.

Secondly large efficiency improvements are likely in product marketing chains. The tobacco marketing process, being the dominant export, is a particular example of this. Most tobacco is sold at auction using the floors run by Auction Holdings Ltd (AHL). Smallholders pay transporters to bring their tobacco bails to an auction floor, which on arrival can wait for over three weeks on the back of a lorry before it clears the queue. Alternatively bails are deposited in a TAMA (Tobacco Association of Malawi) depot and transported later. This protracted process results in significant losses to the grower. The transporter charges not only for transport but also for the de-facto warehousing service that the truck provides; those directing the queue have ample opportunities for rent seeking; and bails left in depots are prone to theft (partial or total) or switching of the crop. As a result the shadow price of avoiding the auction queues is high. Producers will often sell tobacco at a huge discount to intermediate traders who take their place in the auction process. Alternatively many growers prefer to export their crop informally to Mozambique or Zambia which have rural markets run by buyers. Many of these operate contract farming, but Malawian growers often prefer to receive immediate payment at contract farming prices (with the cost of inputs deducted) than wait and sell on the auction floor in Malawi.

Thirdly the spatial location of market centers has a strong impact on production response. Tobacco production clusters around the auction outlets of Lilongwe, Kasungu and Limbe, and despite high agronomic potential elsewhere, the IHS data (NSO, 2005) reveals that cropping intensity rapidly trails off with travel time to market centers. The spatial dimensions to growth are discussed in a later chapter, but the clustering of export crop smallholders around market centers is also seen for sugar, tea and cotton.

Because of the demonstrated supply response to farm gate prices, improving efficiencies in the value chain or in reducing travel times to product markets will feed directly into growth. Although more work is required to establish the marketing chains with potential for improvements, there are strong signals that inefficiencies in tobacco marketing results in high additional costs to growers from transporters, traders and risks from rent seeking and theft.

IV. CONCLUSIONS

Malawi is an export-led economy. Despite changes in the structure of agricultural production, and liberalization of prices, exchange and finance, a long standing relationship persists between export income and overall GDP. The driver of the economy has been real domestic revenue from exports which has created growth by stimulating non-tradeable services, and to a limited extent import substituting industrialization. Malawi has faced chronic deterioration in its terms of trade since the 1970s but has recovered largely due to improvements in the real exchange rate and more recently the tobacco price. The economy has proved highly sensitive to movements in both these variables since improvements (a) cause an immediate rise in real domestic export revenue which multiply through the rest of the economy; and (b) incentivize a production expansion by increasing tradeable returns.

However there are strong signs that despite progress the real exchange rate is still overvalued. Recent strong growth in the demand for consumer imports has failed to stimulate much of a response from domestic manufacturing. There has been extremely poor progress in diversifying out of the traditional exports of tobacco, sugar and tea. There are widespread and persistent shortages of foreign exchange, low reserves and the current account has a higher deficit than any comparator economy. Malawi is in effect running a fixed exchange rate system artificially overvalued not just from revenues from the booming tobacco sector, or aid which finances the capital account, but from government policy that incentivizes importing at the expense of exporting.

1. Growth is primarily driven by the domestic multiplier from export revenues.
2. Improvements in the real exchange rate since 1980 have been strongly beneficial to growth.
3. Growth transmission has run from agriculture to non-tradeable services and only minimally to domestic manufacturing. This is despite strong demand for consumer imports.
4. Thus the exchange rate is still overvalued leading to a strong disincentive to invest in the tradeable sector or in import-substituting industrialization.
5. A macroeconomic winter 1995-2003 suppressed investment through high inflation and interest rates, which prevented growth transmission out of agriculture.
6. Malawi's large current account deficit (14% GDP) is financed by aid.

Aid inflows are substantial relative to the size of the external sector and have probably contributed to exchange rate appreciation. This effect has been mitigated by the increase in direct public-sector imports particularly from the fertilizer subsidy. But aid has had a limited effect on long-term productivity since it predominantly finances consumption and recurrent expenditure. Expenditure data from the Ministry of Finance indicates that less

than 40 percent of aid is used for investment. Without financing increases in productivity, aid risks doing long-term damage to growth by appreciating the currency and creating disincentives in the export sector. Because of the centrality of the export sector to Malawi's economy and its sensitivity to the real exchange rate, it is vital that the use of aid is realigned to support export-led growth.

The most binding constraint on the economy is thus the real exchange rate which can only be ameliorated by a careful managed devaluation to ensure that price stability is maintained. In addition, the analysis further identifies other constraints using the HRV framework which are binding on marginal investment in Malawi:

Financial Intermediation *Binding.* High overheads have created high real lending rates which currently constrain investment. Very limited access to formal finance for smallholders reduces the production response of rural farmers to price signals.

Power *Binding.* The lack of reliable power source significantly lowers social returns, and deters new investments in manufacturing and mining. The lack of rural power additionally exacerbates deforestation.

Education *Binding or imminently binding.* Extremely weak performance in quality and access, and evidence of high returns to primary education from cash cropping and tertiary from formal sector employment. Moderate signals of skills shortages from business surveys. The long lead time of reforms suggest that the quality of primary education in Malawi should be addressed with urgency.

Export value chains *Binding.* An increase in farm-gate prices achieved through efficiencies in input or product marketing chains stimulates growth by increasing the production response *and* the domestic multiplier. Efficiency improvements are probable from regional infrastructure improvements, administrative barriers to trade, and the domestic input and marketing chains (particularly tobacco).

Micro policy *Secondary.* Government policy facing the firm generally performs well against peers with the exception of administrative barriers to trade and the unpredictability of interventions in agricultural prices. Price interventions are likely to have raised ex-ante risk, creating monopoly rents and in turn raising the cost of inputs to farmers.

REFERENCES

- Adam, C. & Bevan, D., “Uganda: aid, public expenditure, and Dutch disease”, University of Oxford, 2002
- Aiyar, S., Berg A., & Hussain, M., “The Macroeconomic Management of Increased Aid: Policy Lessons from Recent Experience”, UNU-WIDER, Research Paper No. 2008/79, 2008.
- Asmah, E. & Levin, J., “Aid-Financed Public Investments and the Dutch disease: Evidence from Tanzania”, Swedish Business School at Örebro University, Working Paper No 3, 2008.
- Chimombo et al., “The SACMEQ II Project in Malawi: A Study of the Conditions of Schooling and the Quality of Education.”, SACMEQ, Harare, Zimbabwe, 2005.
- Faye, M. et al, “Challenges facing landlocked developing countries”, Journal of Human Development, Vol 5, No 1, March 2004.
- Frankel, J et al, “South Africa: Macroeconomic Challenges after a Decade of Success”, John F. Kennedy School of Government - Harvard University, Faculty Research Working Papers Series, RWP07-021, April 2007.
- Harrigan, J., “Malawi, Aid and Power: The World Bank and Policy Based Lending.” vol. 2 Case Studies”, London: Routledge, 1991.
- Harrigan, J., “U-Turns and Full Circles: Two Decades of Agricultural Reform in Malawi 1981–2000”, World Development, Elsevier, 2003.
- Hausmann, Rodrik, Velasco, “Growth Diagnostics”, March 2005
- Hausmann, R., “Growth diagnostics in practice I.”, presentation to the Kennedy School Executive Program on development economics, April 2007.
- Kaufmann, D. et al, “Governance Matters VII: Aggregate and Individual Governance Indicators, 1996-2007”, World Bank, June 2008.
- Klinger, B., “Growth Diagnostics Methodology in Malawi and beyond”, Center for International Development at Harvard University, Dec 2007.

- Kydd J., Christiansen, R., “Structural change in Malawi since independence: consequences of a development strategy based on large scale agriculture”, World Development, Elsevier, 1982.
- IMF, “Malawi - IMF Country Report No. 08/3”, IMF, January 2008
- IMF, World Bank, “Financial Sector Assessment Program Malawi. Banking Sector: The path to a deeper and more inclusive system”, IMF, November 2007
- Ministry of Economic Planning and Development, “Annual Economic Report 2008”, Government of Malawi, 2008
- Millennium Challenge Account - Malawi, “Analysis of Constraints to Growth – Republic of Malawi”, Presentation, November 2008.
- Mathisen, J., “Estimation of the equilibrium real exchange rate for Malawi”, IMF Working Paper, WP/03/104, May 2003.
- National Statistical Office, “Integrated Household Survey”, Malawi, 2005
- Rajan, R. & Subramanian A., “What Undermines Aid’s Impact on Growth?” IMF Working Paper No. 05/26, International Monetary Fund, Washington, June 2005.
- Whitworth, A., “Malawi’s recent fiscal performance and prospects”, DFID Malawi, 2005.
- World Bank, “Malawi Investment Climate Assessment”, Etude Economique Conseil, Canada Inc, June 2006
- World Bank, “Malawi Poverty and Vulnerability Assessment, Investing in Our Future. Volume II: Detailed Background Papers”, June 2006.

APPENDIX A – DOING BUSINESS INDICATORS

	Kenya	Zambia	Uganda	Malawi	Tanzania	Mozam bique
Ease of Doing Business Rank	72	116	118	127	130	134
Starting a business	112	82	114	108	95	125
Procedures (number)	12	6	18	10	12	10
Time (days)	44	33	28	37	29	29
Cost (% of income per capita)	46.1	30.5	92	188.7	47.1	21.6
Min. capital (% of income per capita)	0	2.2	0	0	0	115.8
Dealing with licenses	9	148	81	117	170	147
Procedures (number)	10	17	16	21	21	17
Time (days)	100	254	143	213	308	361
Cost (% of income per capita)	58.8	1518	811.8	189.2	2365.5	705
Employing workers	66	121	11	90	151	162
Difficulty of Hiring Index	33	33	0	56	89	83
Rigidity of Hours Index	0	40	0	0	40	60
Difficulty of Firing Index	30	30	10	20	60	20
Rigidity of Employment Index	21	34	3	25	63	54
Nonwage labor cost (% of salary)	4	9	10	1	16	4
Firing costs (weeks of wages)	47	178	13	84	32	143
Registering property	114	125	163	87	160	126
Procedures (number)	8	6	13	6	10	8
Time (days)	64	70	227	88	119	42
Cost (% of property value)	4.2	9.6	4.6	3.3	5.3	8.1
Getting Credit	13	97	158	84	115	97
Legal Rights Index	8	6	3	7	5	3
Credit Information Index	4	0	0	0	0	3
Public registry coverage (% adults)	0	0	0	0	0	0.9
Private bureau coverage (% adults)	1.5	0	0	0	0	0
Protecting investors	83	64	122	64	83	33
Disclosure Index	3	3	2	4	3	5
Director Liability Index	2	6	5	7	4	4
Shareholder Suits Index	10	7	5	5	8	9
Investor Protection Index	5	5.3	4	5.3	5	6
Paying Taxes	154	30	55	78	104	72
Payments (number)	41	37	33	30	48	37
Time (hours)	432	132	237	370	172	230
Profit tax (%)	32.5	1.7	15.7	30.4	20.2	27.7
Labor tax and contributions (%)	6.8	10.4	11.3	1.1	18	4.5
Other taxes (%)	11.6	4	5.3	0.7	6.1	2.1
Total tax rate (% profit)	50.9	16.1	32.3	32.2	44.3	34.3
Trading across borders	148	160	141	161	100	140
Documents for export (number)	9	8	6	12	5	8
Time for export (days)	29	53	39	45	24	27
Cost to export (US\$ per container)	1955	2098	2940	1623	1212	1155
Documents for import (number)	8	11	7	10	7	10
Time for import (days)	37	64	37	54	30	38
Cost to import (US\$ per container)	1995	2840	2990	2500	1425	1185
Enforcing contracts	107	86	119	135	35	138
Procedures (number)	44	35	38	42	38	31
Time (days)	465	471	535	432	462	1010
Cost (% of debt)	26.7	38.7	44.9	142.4	14.3	142.5
Closing a business	76	84	48	135	109	134
Time (years)	4.5	2.7	2.2	2.6	3	5
Cost (% of estate)	22	9	30	30	22	9
Recovery rate (cents on the dollar)	31	28.4	41	13.2	20.5	13.9

Source: *Doing Business Indicators, 2008*