The Role of Burley Tobacco in Selected African Economies and the Expected Impact of a Decline in the Crop's Production

Assessing Direct and Indirect Effects of Reducing Demand from Cigarette Manufacturers for Burley Produced in Five African Economies

November 2010

Tobacco growing in Southern and Eastern Africa is extensive, and provides sustenance for millions of Africans, yet the sector is under threat. The World Health Organisation's Framework Convention on Tobacco Control (WHO FCTC) Articles 9 & 10 guidelines recommend a prohibition on the use of a large number of ingredients that are used in the manufacturing of tobacco products. Ingredients are necessary to manufacture traditional blended products, including cigarettes, which contain Burley, Oriental and Virginia tobaccos. If the parties to the FCTC implement the proposed ingredient-ban, the commercialisation of traditional blended tobacco products will become impossible and therefore demand for Burley will be substantially reduced. This report examines tobacco production in Southern and Eastern Africa, focusing particularly on Burley growing African countries in the region. The report details the range and scale of tobacco growing and its contribution to selected economies in the region. It then scopes the potential impact that a drop in the demand for Burley would have on a select number of African tobacco growing counties. The report then draws a number of conclusions emerging from the analysis and scenarios developed within the body of the report.
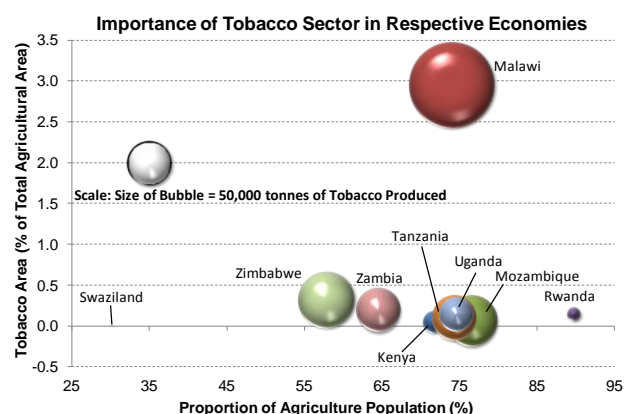
We have used both a qualitative and quantitative approach, including econometric modelling. Overall, results indicate that at least 3.6 million people in the selected countries discussed in this report, plus in four others (Tanzania, Kenya, Rwanda, Swaziland), are directly dependent on tobacco production for their livelihoods while a minimum of 12 million people are directly and indirectly impacted by developments in the countries' tobacco sectors. While the influence of burley on these Africans varies from one country to the next, it cannot be doubted that a notable decline in demand for their burley crop will have negative effects on most of the economies. In particular, Malawi, Zimbabwe and Mozambique are vulnerable to shocks in their economic fabric if burley tobacco turns into a less popular commodity on the international stage. The successful introduction of substitute crops is seen as a challenge due to a lack of resources and the inability to compete in world markets. The political implications of this are uncertain, though are expected to lag the negative economic effects. For the purposes of this summary document, the key findings with regard to each country have been included, with five of the country assessments summarised and included.

Please note: This document is a condensed summary of a much more comprehensive document to be published. The full report contains detailed assessments of nine African countries as opposed to the summarised findings of five countries provided here. The expanded document includes data tables relevant to each country, offering detailed figures on macroeconomic and tobacco variables where available. A section devoted to explaining the econometric models referred to in this summary is also enclosed in the original document.

Introduction

The full study assesses the likely impact that a sharp reduction in the *global* demand for burley tobacco will have on nine African economies: Kenya, Malawi, Mozambique, Rwanda, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe. Each analysis will focus on determining:

❑ The role of agriculture in the economy
❑ The number of people directly and indirectly influenced by tobacco production
❑ The size of the burley crop compared to total tobacco output
❑ The likely impact which a shock to burley production would have on fiscal and foreign exchange revenues
❑ The implications of a shock in production to the regional economy.

Importance of Tobacco Sector in Respective Economies

Scale: Size of Bubble = 50,000 tonnes of Tobacco Produced

Countries covered in this report:

Malawi – Burley tobacco represents 85% - 90% of Malawi's tobacco crop, with the country – seen as the most tobacco dependent economy in the world – deriving 45% of its foreign exchange earnings from tobacco over the past decade. Seven out of ten Malawian workers are directly or indirectly employed by the country's tobacco farming, and that 65% - 95% of rural household income is linked to the crop. The sector contributes up to 30% of GDP and 25% of government revenues. It is undeniable that a decline in external demand for Malawi's burley produce will have significant and wide-ranging effects on the Malawian economy and its impoverished population.

Mozambique - We estimate that the contribution burley tobacco made to the Mozambican economy was slightly larger than 1.5% of GDP last year. Even though this this figure seems rather small, a drastic decline in burley tobacco output would have a *noticeable* decline in GDP growth that is likely to extend over the short- to medium-term. More concerning is the fact that in excess of 200,000 people (or about 1% of the entire Mozambican population) may find that their incomes are supplemented in some way by the cultivation of burley tobacco; which means that a large decline in the international demand for burley tobacco would have a substantial social impact on the country.

Zimbabwe – Tobacco exports, along with mining and tourism, will be the key drivers of any manner of economic recovery in Zimbabwe from 2010 onwards. Historically, there has been a strong correlation between the country's tobacco production and changes in GDP, which is expected to continue over the long-term. The direct dependency on tobacco would range from 5% to 10% of the population, with burley production accounting for up to 10% of total tobacco produce. Any external shocks to the tobacco industry would further hamper the country's economic recovery as well as the health of the rural economy.

Zambia - Tobacco has become an important cash crop to the Zambian economy, accounting for around 3% of GDP. Burley tobacco, in turn, accounts for approximately 35% of the tobacco industry. A shock to burley output would affect around 10,000 farmers directly and an estimated 430,000 people indirectly.

Uganda - Burley tobacco makes a contribution of around 0.5% to Uganda's GDP. In the absence of any other changes, a 100% decline in burley tobacco production will reduce Uganda's tobacco exports by between $24.4m and $33.2m, which is equivalent to approximately 1.41% of total exports. Any changes that affect the production of burley tobacco in Uganda will have a significant effect on roughly 300,000 people, which is equivalent to around 0.9% of the total population. The number of people that will be directly affected is estimated at 187,200, or 0.56% of the entire population.

Country Impact

Malawi

Seven out of ten Malawian workers directly or indirectly employed in the tobacco sector

Agriculture - The country's cash crops include tobacco, tea and cotton, with Malawi being one of the world's largest producers of burley tobacco and the largest exporter of burley. The soft commodity has been cultivated in the country since 1889, with the majority of production still coming from large commercial estates in the central region around Lilongwe. Smaller operations are located in the central and northern regions. Indeed, **the country has in part depended on some form of tobacco export for most of the past century.** According to the Food and Agricultural Organisation (FAO): *"Given Malawi's predominantly agricultural economy, limited resource base, and slow growth in the national economy and government revenue*, ***tobacco production has a major role in national economic growth, employment and income of rural households and government."*** It is quite possible that Malawi is the world's most tobacco dependent economy.

Over the past decade, burley tobacco has represented 85% - 90% of Malawi's total tobacco crop. During the 2007/08 season, some 86.9% of production was burley while during 2008/09 this number equalled 88.3%. This figure varies from one season to the next based on climatic conditions, though there is little reason to believe that the ratio will decline in the future due to domestic factors. Smallholders currently produce the majority of burley output due to the crop's low input costs in particular and its ability to be rain fed (as opposed to irrigated). Prior to the 1990s, estate farming was the dominant player in tobacco production, though over the past 20 years political reforms had instituted policies aimed at supporting improved

Tobacco Output

Source: FAO

smallholder income and food security, thereby allotting much more government financing to farmers and increasing their ability to farm tobacco. At present, the government continues to heavily subsidise fertiliser and seeds used in the country, with data from the Agriculture Research & Extension Trust (ARET) showing that the cost of seeds, chemicals and fertilisers represented 38% of burley production costs during 2008. (A decline in the 2010 crop resulted from a cutback in fertiliser subsidies, adverse weather conditions and lower prices offered by the government, as well as farmers again opting to plant more cotton.) It was also seen as a strategy to boost the non-farm rural economy, which also created a greater dependence of non-urban areas on farm output. During 1997 – 2003 some two-thirds of tobacco was grown by smallholders. The income generated from these practices is generally spent on building materials, clothing, farm inputs and the setup of small businesses. A study by the Institute of Development Policy and Management (IOB) at the University of Antwerp, and published during 2009 in the *Journal of Modern African Studies*, found that **little research has been done into the way in which smallholders spend their tobacco income. This would have to be surveyed at a microeconomic level. At the start of the previous decade, the FAO measured the contribution of tobacco revenues as a percentage of total rural household income as 65% - 95%, with 30% - 70% of cash income spent on food.**
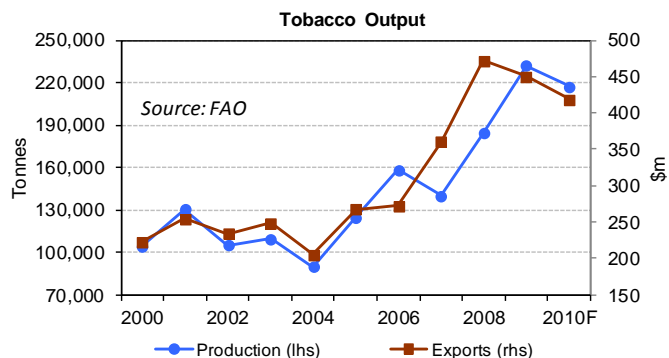
GDP - There are numerous figures that can be listed to indicate the importance of the tobacco sector to the Malawian economy. These include:

Contributions to GDP, 2009 (%)

❑ **Tobacco farming represents around 25% - 30% of GDP and 80% of the agricultural part of GDP. It is the single largest and most lucrative industry for the country;**
❑ **Seven out of 10 Malawian workers are either directly or indirectly employed by the sector.** The ministry of finance indicated during 2000 that at the time the industry employed around 15% of the population in tobacco production, grading and processing. It is believed that rural labourers represent around 75% of the total labour force;

Sources: FAO, EIU

❑ **Income earned on tobacco exports has averaged 45% of foreign exchange earnings over the past decade.** This is much lower than the often cited figure of 70%, which has little statistical foundations in present day Malawi. The lower estimate is supported by data from the Reserve Bank of Malawi (RBM) as well as the World Bank's International Financial Statistics (IFS) facility. This money is used by all sectors of the economy to finance imports into the landlocked economy. Without this substantial inflow of foreign earnings, the economy's ability to finance imports would be severely impeded;
❑ **Tobacco's contribution to fiscal revenues currently stands at around 25% versus** 17% some ten years ago. Seeing as tobacco is the primary foreign currency earner and a driver of overall consumer spending, it is not unreasonable for the commodity's contribution to the fiscus to be so substantial.
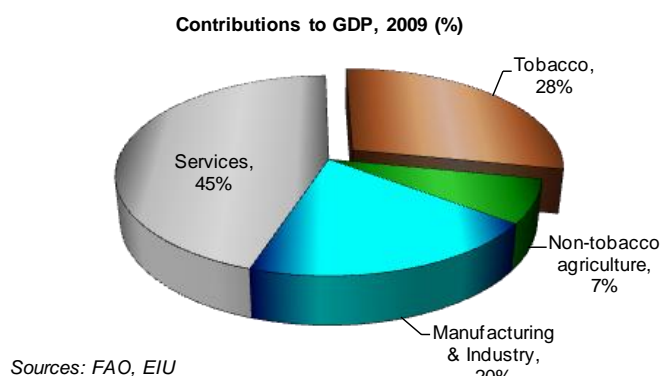
Employment – Beyond broad economic data and statistics, tobacco production is intricately linked to the socio-economic well-being of the average Malawian. **Based on the assumption that it takes a full smallholder family (e.g. a husband and wife) to toil one hectare of tobacco land, a total acreage of 170,000 hectares last year could involve a direct dependency of more than a million people last year,** depending on what is viewed as the average size of a rural household. (Definitive survey data is lacking). Basically, with two adults involved in working one hectare, a dependency of up to four children would result in a direct dependency of around a million Malawians on the country's annual tobacco crop. Beyond that, economic activity linked to transportation, sales of farm inputs, services rendered to farmers, as well as consumer goods and food items required by the farmers all contribute to indirect employment linked to tobacco. From there, third-round dependency is generated by the need for urban centres to manufacture goods congruent with consumer demand, traders needing to transport goods to and from farming areas, etc. **All factors considered, the usual adage that seven out of ten Malawians are directly and indirectly linked to tobacco production is**

not a far-fetched idea. While it cannot be proven due to a lack of population and economic survey data, it is very easy to see that more than half the country's population would feel the negative effects of a shock to the tobacco output.

Forex revenues - Over the past decade tobacco has represented 52% of Malawi's exports (range = 50% to 63%), while its second largest export – tea – has only contributed around 7.5% to exports. This makes it an important contributor to the country's foreign exchange income as well as its foreign currency reserves. According to the IMF, Malawi *"needs a sizeable reserve cushion"*. Its high dependence on agriculture and foreign aid make it vulnerable to exogenous shocks, such as poor weather or diminished donor flows. In addition, the concentration on tobacco exports produces pronounced seasonal volatility in foreign exchange flows, complicating monetary and exchange policy management. However, the country held an

Foreign exchange earnings

Sources: EIU, FAO

$m

1,200 / 1,000 / 800 / 600 / 400 / 200 / 0

2000   2002   2004   2006   2008   2010F

■ Foreign investment income   ■ Service receipts
■ Non-tobacco exports   ■ Tobacco exports

average of only $180m in foreign currency over the past decade. This was enough for an average import cover of only 2.2 months over the past 10 years and 1.5 months during the past five years, both of which were noticeably lower than an IMF-recommended level of three months. The measure of import cover is an insightful number as it illustrates the availability of foreign money to the government and private sector as a means to pay for imported goods and services. For a landlocked country, where trade via logistical channels in other countries is vital to its survival, this becomes even more important. It is therefore **undeniable that tobacco exports is a crucial contributor to the country's ability to import goods and services, both by way of making capital available as well as the currency needed to transact.**
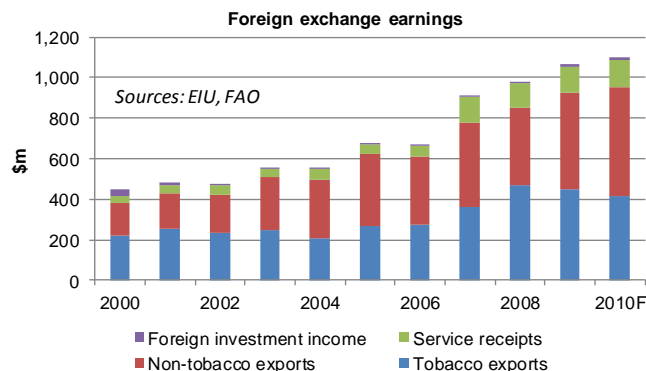
Empirical findings - Based on macroeconomic data for Malawi during 1980 – 2010, three econometric models - a structural VAR and two hybrid Cobb-Douglas functions (supply and demand side) – were run in order to generate empirical evidence for our concern with Malawi's dependence on tobacco revenues. According to our findings, which pass all relevant statistical robustness tests:

❑ **The main contributors to fluctuations in the country's GDP are the value added by the important agricultural sector.** This immediately supports the view that Malawi is highly dependent on both commercial and subsistence agriculture for its economic growth prospects. Consumption expenditure is also an influential factor, which in itself is linked to household income as a function of tobacco revenues;

❑ The supply side production function indicated that the GDP elasticity for changes in exports of tobacco has a coefficient of 0.24.   Therefore, with all other factors held constant, **a one percentage point change in tobacco exports will result in a 0.24% change in real GDP.** Due to the large role that tobacco exports play in generating money to finance secondary and tertiary sector activity, this significant relationship comes as no surprise. When separating tobacco and non-tobacco exports, the estimation indicates that the economy is more sensitive to fluctuations in tobacco-exports compared to other sources of foreign currency;

❑ The demand-side production function elasticities were in line with each component's contribution to GDP.   The elasticity for tobacco exports were 0.12, implying that this component of the economy directly contributes around 12% of real GDP;

❑ **This demand-side function is of a co-integrated nature, implying that a long-run equilibrium relationship exists between tobacco exports and real GDP.** Given the facts discussed above, it is not surprising that this was found, and again supports the assertion that up to seven out of ten Malawians are dependent on tobacco farming;

❑ The demand-side function was stable as indicated by the short-run dynamics, showing that after a shock to the economy, movement will be toward equilibrium. However, tobacco exports show some stickiness to adjust to equilibrium, and will only do so at a slow pace. This indicates that a severe shock – or decline – to tobacco exports in any given year will lead to a notable destabilisation of the economy in the following few years, and that **it will take Malawi several decades to recover from such a one-time shock.**

Regional issues - If Malawi were to suffer a sudden decline in demand for its tobacco, it would be logical for farmers to search for alternative cash crops. The country already sees cotton as an alternative to tobacco on a small scale, with several thousands of farmers rotating their crops depending on the expected price and weather conditions in the near-term. However, from a pure macroeconomic perspective, the country has too little infrastructure, policy support, government assistance and labour education to suddenly and significantly rely on successful production of this crop. **To quote the FAO (2003):** *"The challenge facing Malawi, however, is to identify and develop alternatives to tobacco production. While alternatives do exist, lack of resources and lack of ability to compete in world markets, coupled with underdeveloped domestic markets for many agricultural crops, make adjustment difficult. Shortage of capital for investment in the development of other sectors, lack of entrepreneurs, and poorly developed transport, storage and information infrastructure all contribute to the difficulties in adjusting."* If this inability to adjust is assumed, many thousands of Malawians might have to look abroad for employment. Zimbabwe would be a good option based on its much smaller dependence on burley tobacco production, though the reality is that the country has its own challenges
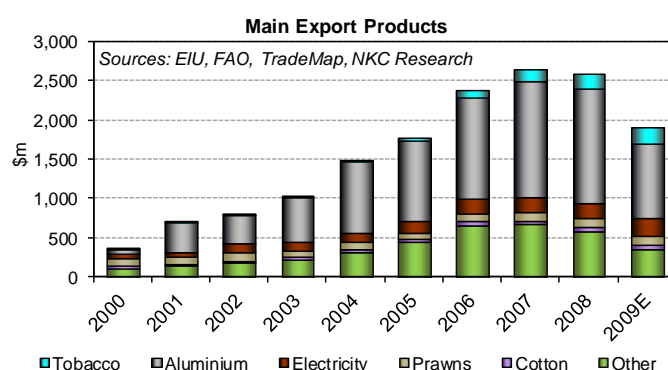
that would make this unviable. Another alternative would be for Malawians to trek south to Africa's largest economy. **South Africa has long been a refuge for the continent's economic refugees, and this is certain to be a factor in the Malawian psyche when searching for a new source of economic life. South Africa, as Malawi's main trading partner, will also feel some impact from a reduced volume of trade with the landlocked country.** Lower export revenues will make Malawi unable to import the amount of goods and services it has become accustomed to in recent years. Last year, South Africa exported around $400m in goods and services to Malawi – around 0.6% of total exports.

Donors - Malawi's donors are few in volume compared to that of its neighbours, though they have in the past few years contributed around 40% of government revenues. **The government of Malawi has historically had a fragile relationship with its donors, and continues to have challenges to securing sufficient donor aid in future.** Elsewhere, any major decline in tobacco output cannot be compensated for by domestic lending and broadening the local tax base – the development of both these sources is simply too low.
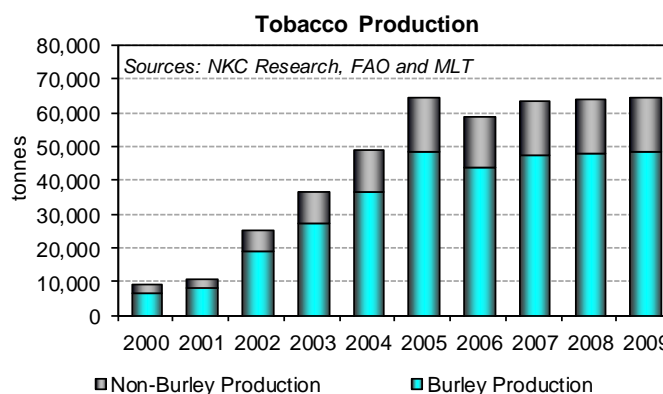
Mozambique

Tobacco has become the most important export farm crop

Roughly three quarters of the Mozambican population is directly involved in agricultural-related activities. **Of Mozambique's main cash crops, tobacco has become increasingly important in terms of its contribution to the country's total exports** over the last decade. Specifically, **we estimate tobacco exports rose from merely $120,000 (or 0.03% of total exports) in 2000 to roughly $200m (or 10.5% of total exports) in 2009.**[1] It should be noted that even though agriculture plays a somewhat moderate role in terms of overall exports, this sector nevertheless has a strong impact on rural incomes, while its contribution to poverty reduction can also not be overstated. This is because Mozambique's agricultural sector is strongly bipolar, split between an 'agriculture population' of 17.5 million – which produces 95% of agricultural GDP – and a very small number of commercial farmers producing the remaining 5%, according to the country's Ministry of Agriculture. Though it was not possible to calculate the *exact* contribution of tobacco-related activities to GDP, we opted to use the value of tobacco exported in 2009 as a proportion of that year's estimated nominal GDP as a ballpark figure. This was calculated to be 1.98%; however, it should be mentioned that this number is seen as a 'conservative' estimate since the tobacco sector contributes more to GDP than merely the produce that is exported. In other words, the value tobacco added to agriculture via the cultivation of the commodity, as well as to industry, is not taken into account; we therefore believe that **the *actual* contribution tobacco made to the Mozambican economy may well be slightly larger than 2% of GDP.** Either way, the tobacco industry appears to have contributed a fairly sizeable amount to overall GDP last year.
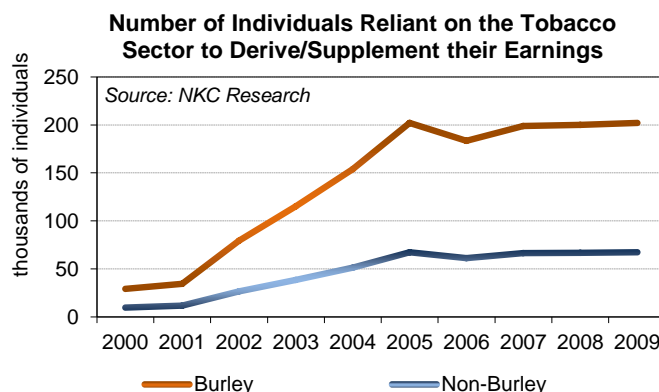
Tobacco production in Mozambique has grown very rapidly over the last 13 years from merely 1,500 tonnes in the 1997 season to an estimated 65,000 tonnes last year. Not surprisingly, the Mozambican Ministry of Agriculture stated that *"the impact of this rapid expansion of the tobacco sector on rural smallholder household incomes and economic growth has been dramatic."* In 2005, the Ministry of Agriculture released a statistical review of the Mozambican tobacco and cotton sectors, which estimated that burley tobacco represents about 75% of total tobacco output. Even though updated statistics on this ratio could not be obtained, we derived from the production figures announced by Mozambique Leaf Tobacco (MLT) that **the burley variety constituted *at least* 70% of the total volume of tobacco produced in Mozambique during 2007-09.**

The figure on the lower right hand side of the previous page shows the evolution of tobacco production in Mozambique (assuming burley production remained at a constant 75% of total tobacco output).

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[1] The tobacco export figure for 2009 – as depicted in the 'main export products' chart – is interpolated from production figures that were based on company data – most notably Mozambique Leaf Tobacco (MLT) – which is seen as one of the country's largest producers of tobacco.

The most recent (August 16th to September 15th 2010) *Africa Research Bulletin* – which also concurs with data obtained from FAOSTAT – indicates that this cash crop generally occupied between 30,000 and 35,000 hectares last year. This figure represents about 0.1% of the total 'agricultural area' of Mozambique. [2] According to the official survey mentioned above (i.e. the 2005 statistical review of the Mozambican tobacco and cotton sectors), the mean total area occupied by a tobacco smallholder was about 3.1 hectares. As such, by extending our assumption that burley tobacco represents 75% of the acreage devoted to tobacco, it seems likely that **around 8,500 growers were occupied with the production of burley tobacco in 2009.** [3] In addition, the survey also suggested that **each of the tobacco growers on average employed 3.3 permanent workers.** Taking this into account, we believe that **a total of around 34,400 individuals' livelihoods (or about 0.15% of all Mozambicans)** *directly* **depended on growing burley tobacco in 2008.** Finally, the agricultural survey also added that the average smallholder household for tobacco growers included six members. As such, **we estimate that more than 200,000 people (or 1% of the population) may find that their incomes are supplemented in some way by the cultivation of burley tobacco.** [4] [Note that these figures do not take into account the factory workers (or their dependents) that are involved in processing the tobacco leaves]. These figures also concur with the figures that MLT supports around 120,000 tobacco farmers – who are primarily located in the areas of Tete, in the central Zambezia and in the northern Niassa provinces.

Number of Individuals Reliant on the Tobacco Sector to Derive/Supplement their Earnings


Source: NKC Research

Regional - Mozambicans do not have many options in searching for work abroad. While the more educated part of the population could opt for employment in Portugal or elsewhere in Europe, the average burley tobacco farmer would have to look for employment in neighbouring countries. **South Africa remains the primary destination for economic migrants, and is the likely destination for Mozambicans who might be unable to continue their trade as farmers.** This would increase population inflows into the country's Gauteng and Mpumalanga provinces, which would **put pressure on their labour markets and social service delivery**.

Zimbabwe

Tobacco and mining exports to power economic recovery

Agriculture – Zimbabwe's farms produce cotton, tobacco, maize, wheat, coffee and sugar. Only about 10% of the country's previous 4,000 commercial farmers are still operational due to a plethora of issues plaguing the sector in recent years, including land expropriation, labour shortages, government oppression and political violence, a shortage of inputs, as well as a significant fall in domestic demand. The Zimbabwe Tobacco Association (ZTA) said during January this year that it is quite sceptical about the outlook for the sector during 2010. However, **by early September, the final tobacco output number was put at 122,000 tonnes, which was more than double the number seen in 2009**, while the ZTA expects a figure of 140,000 tonnes next year.

Zimbabwe Tobacco Exports

Sources: EIU, FAO
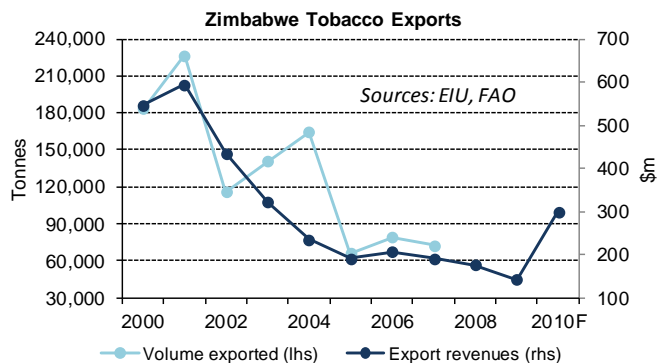
The large jump in production heralded a new era in Zimbabwean tobacco production. Tobacco has over the past decade played a declining role in the country's exports and foreign currency earnings due to the severe contraction in the country's agricultural sector. Leaf exports declined from more than 30% of total export revenues in 2001-02 to around 12% in 2008-09. However, given that tobacco remains one of the last few farm outputs that can be commercially produced within Zimbabwe's challenging business environment, it last year contributed around 26% of GDP, according to the TIMB. Looking ahead, it is widely believed that **tobacco exports, along with mining and tourism,**

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[2] 'Agricultural area' refers to the area of arable land that is currently under cultivation.
[3] Since the tobacco production figures have been very consistent since 2004, we feel that it is realistic to use statistics from the official agricultural survey (conducted in 2005) to infer these statistics.
[4] **Please note:** The number of people estimated to be dependent on tobacco in 2009 was inferred from our statistics on the acreage devoted to the growing of tobacco, while the historical numbers (as depicted in the accompanying graph) were estimated from tobacco output.

will be the key drivers of any manner of economic recovery in Zimbabwe from 2010 onwards. This year's crop will be around 115% larger than seen in 2009, while we believe that exports could amount to $300m. This could contribute up to a third of GDP during 2010, according to the TIMB, from a figure of 26% last year.

Employment – News reports during August and September cited a figure of 51,000 smallholder operations being registered as tobacco growers and sellers during 2010, according to the ZTA, as well as 130 commercial farmers. There is no way of estimating how many smallholders are unregistered – some of whom might opt to smuggle their produce to Mozambique due to the inability to access auction floors. The 51,000 figure should therefore be seen as a minimum estimate for small-scale producers. Last year, the country's total tobacco acreage reached 53,000 hectares, which would be the relevant number to compare to this year's registered growers list given the seasonal system of planting (in 2009) and harvesting (early in 2010). This implies an average acreage of just over one hectare per smallholding, which is in line with estimates seen elsewhere in the region. Based on the belief that it takes on average two adults to work these farms, a minimum of 100,000 people are dependent on small-scale tobacco farming for their employment. Reliable estimates about average household size is not available for the country, though it is not unreasonable to think that five or more children and elder Zimbabweans are presently dependent on the labour of adult farmers. (The figure of five dependents is seen elsewhere in the region, and cannot really be refuted due to a lack of data). As a result, we believe that **at least 600,000 Zimbabweans are directly dependent on tobacco production for their livelihoods, while around 55,000 of these are dependent on burley growing.**
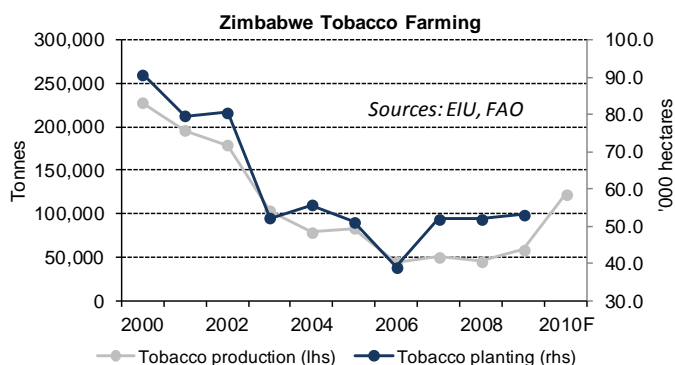
The direct dependency on tobacco would range from 5% to 10% of the population, depending on who is believed about how many Zimbabweans remain within the country's borders. We favour a figure closer to 10% based on the belief that Zimbabwe currently has about seven million residents, while a larger ratio would apply to rural areas where tobacco farming could be the mainstay of the local economy. It is therefore safe to argue that **any decline in tobacco production would have a notable impact on the rural economy**, and could result in the livelihoods of tens of thousands of Zimbabweans disappearing. **A decline in burley production would have significant adverse effects on 1% of the population** – which in the case of Zimbabwe will add to its long list of economic challenges.

Forex revenues - During 2000-09 Zimbabwe's export revenues halved in value due to declining local economic output and deteriorating political ties with, especially, non-African governments. **Tobacco accounted for 50% of agricultural exports during 2008-09,** a figure recently attributed to the Zimbabwean government by the AFP. **During 2010 we expect total tobacco exports to reach at least $300m. This will contribute up to 20% of total exports, with gold and platinum accounting for another 25%.** At roughly 9% of total tobacco production, **burley will produce just short of 2% in export revenues.** Looking at 2011 and beyond, total exports should continue to recover from last year's lows. If the situation regarding agricultural property rights does not deteriorate further, the tobacco crop is certain to continue growing. We believe that a goal of production reaching 140,000 tonnes tobacco next year is quite possible, which could be valued at $400m as part of some $1.9bn in total exports. In general, there is little denying that Zimbabwe will in the short- to medium-term be heavily reliant on foreign currency revenues to help rebuild the economy – there is not enough capital domestically while some two years after the unity government was formed, little external financial support has materialised.

Regional – According to the Zimbabwe Leaf Tobacco Company, worker literacy in the tobacco sector is high, offering an undated figure of 80% believed to be several years old. This implies that these workers might be more suited than other farm hands in the region to shifting from one industry to another when searching for employment. This is one of the reasons behind an estimated three to four million Zimbabweans fleeing to South Africa over the past decade in search of a better life. It is a default choice for those Zimbabweans faced with economic hardship, and **it can be quite reasonably assumed that should Zimbabwe's tobacco output decline due to a reduced demand for burley output, Zimbabwe will see thousands more people flock to Africa's largest economy as so-called economic refugees.**

Tobacco industry thrives on the back of influx of Zimbabwean farmers

Largely as a result of an influx of Zimbabwean farmers, tobacco has become an important cash crop to the Zambian economy. In fact, according to the country's deputy minister of agriculture, Allan Mbewe, **tobacco accounts for at least 3% of GDP.**

According to the *Post Newspaper Zambia*, 430,000 people are indirectly dependent on tobacco farming. Meanwhile, according to the International Tobacco Growers Association (ITGA), **31,000 people were directly involved in tobacco farming in 2009, of which 10,000 were involved in burley tobacco farming.** Tobacco farming has been responsible for a fair amount of job creation in recent years, with the total number of tobacco growers increasing from 18,500 in 2007 to 22,700 in 2008 and 31,000 in 2009. According to the previous two ITGA annual reports, burley production accounted for around 15,000 tonnes of the total 30,900 tonnes of tobacco produced in 2008 and 12,000 tonnes of the total 26,500 tonnes of tobacco produced last year. Thus, **burley accounted for between 45% and 49% of total tobacco production over the past two years.**[5]

Share in total goods exports (%, 2005-09 average)

Source: Trade Map

Using the ITGA's data, **the value of burley production increased from $5.44m in 2007 to $27m in 2008, before declining to $21.6m in 2009. On this basis, burley tobacco accounted for an estimated 11% of the tobacco industry in 2007, 38% of the industry in 2008 and 35% of the industry in 2009.**
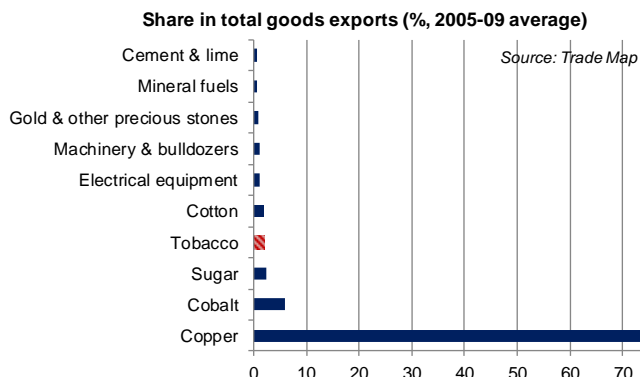
Burley production, 2007-09			
	2007	2008	2009
Area planted (ha)	6,728	12,000	12,000
Number of farmers	9,000	12,000	10,000
Average growers' price ($/kg)	1.0	1.8	1.8
Average export price ($/kg)	2.5	2.5	3.5
Production (tonnes)	5,382	15,002.4	12,000
Exports (tonnes)	5,382	15,002.4	12,000
Source: ITGA Annual Reports			

Tobacco Exports - According to Trade Map, total tobacco exports averaged $73.4m p.a. between 2004 and 2009, as shown in the graph below on the right.
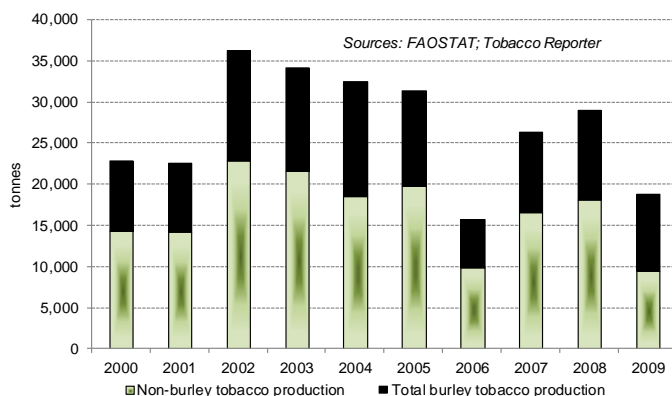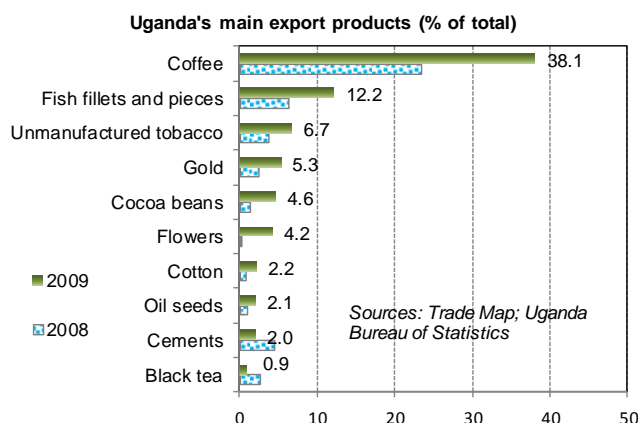

Source: ITGA

Source: Trade Map

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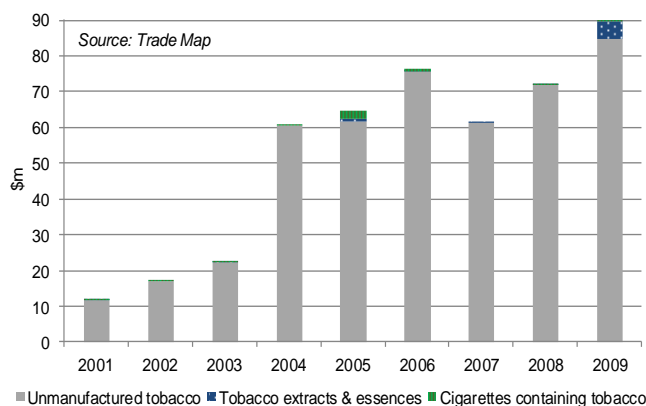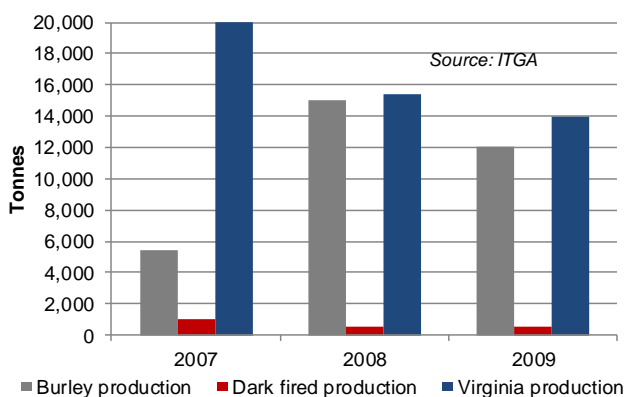
[5] In 2007, burley production accounted for a mere 20.4% of total tobacco production, though this was a particularly bad year for the crop.

Tobacco demand dependent on sales of Kenyan cigarettes

The agricultural sector accounts for around 22% of GDP and is an important source of employment. The sector also makes a significant contribution to export receipts. Tobacco is an important export product, accounting for between 3% and 8% of total export revenues. Uganda's tobacco is considered to be of a very high quality by international standards. According to national accounts estimates from the Uganda Bureau of Statistics (UBS), **tobacco made a 1.1% contribution to GDP in 2009**.

Estimates of the proportion of burley in total tobacco production range between 37.3% and 50%. Over the last five years, Uganda has produced an average of 24,295 tonnes of tobacco p.a. According to figures from *Trade Map*, Uganda's total tobacco exports – having declined to a low point of just $27m (2.8% of total exports) in 2006 – rebounded in the subsequent three years. The majority of Uganda's tobacco leaf is exported to cigarette manufacturers in other countries. The biggest importers of Uganda's tobacco are, in descending order according to *Trade Map* figures for 2009, Kenya (67.8% of total), South Africa (12.6%), and the Netherlands (3.9%).

According to UBS, **in 2005 there were 79,141 tobacco crops with an average plot size of 0.23 ha**. Tobacco farms in Uganda are concentrated in three areas, namely Arua in the north, Hoima in the central/western parts of the country, and Rukungiri in the south. *IPP Media* in an August 2010 article stated that **76,810 farmers currently produce tobacco in Uganda alone, 36,000 of which grow burley tobacco**. This is consistent with UBS figures on the number of tobacco plots. According to Premium Consulting Limited, **an estimated 600,000 people in Uganda (1.8% of the total population of some 33.4 million) are directly or indirectly dependent on the tobacco sector**.

Uganda's main export products (% of total)

Product	%
Coffee	38.1
Fish fillets and pieces	12.2
Unmanufactured tobacco	6.7
Gold	5.3
Cocoa beans	4.6
Flowers	4.2
Cotton	2.2
Oil seeds	2.1
Cements	2.0
Black tea	0.9

■ 2009 □ 2008

Sources: Trade Map; Uganda Bureau of Statistics

Sources: FAOSTAT; Tobacco Reporter

(Chart: tonnes, 2000–2009) — □ Non-burley tobacco production ■ Total burley tobacco production

The most pronounced and direct impact of the ban on Uganda's macro-economy would be a reduction in export earnings. In the absence of *any* other changes, **a 100% decline in burley tobacco production will reduce Uganda's tobacco exports by between $24.4m and $33.2m, which is equivalent to approximately 1.41% of total exports**. In the absence of any behavioural changes, this could result in a reduction of GDP by 22 bps *from the export channel alone*. In other words, this does not take into account farmers' loss of income and what effects this will have on spending levels in the economy. Any changes that **affect the production of burley tobacco in Uganda will have a significant effect on up to 300,000 people, which is equivalent to around 0.9% of the total population**.

The tobacco industry makes a significant contribution to the Ugandan **government's tax revenue**. According to *AllAfrica.com*, total taxes paid to the government by one of the leading tobacco manufacturers in the country amounted to Ush56bn ($27.59m) in 2009, which is equivalent to **1.2% of last year's total government revenue**. The government said that it **loses around $100m (approximately 4.3% of total government revenue in 2009) in tax revenue due to tobacco smuggling each year, while tobacco firms are estimated to lose some $3m p.a. The tobacco industry is therefore even more important for Uganda than official statistics would suggest**. It is likely that if the WHO decides to ban the use of ingredients in tobacco production, there would be a **substantial increase in illicit trade**, leading to even larger losses for the government, taxpayers, and the domestic tobacco industry.

Kenya received some two thirds of Uganda's total tobacco exports. **If the WHO's ban on ingredients is implemented, it will therefore have a significant impact on the regional trade profile,** with Kenya's tobacco *manufacturing* sector to be affected considerably. There is also bound to be a knock-on effect in Uganda and its neighbours if burley tobacco farmers have to switch to other cash crops. **For example, if the 36,000 burley-tobacco farmers in Uganda all decide to switch to cotton (for argument's sake), it will lead to increased competition in that sector, and thereby *possibly* affecting average revenues per farmer.** Finally, if burley tobacco farmers decide to migrate to neighbouring countries, it will increase the competition for employment in those countries.

Foreign aid has traditionally accounted for approximately 30% of the Ugandan government's budget revenues. Major donors include the US, Sweden, Netherlands, Norway, Germany, and Ireland. The World Bank recently said after granting the Ugandan government $100m for its 2010/11 budget that it remains concerned "*over the slow progress on important governance reforms and growing corruption challenges*". The budget support is less than in previous years, which is a reflection of the Bank's concern over the above-mentioned issues. Donors are also worried about the coming elections, with some development partners only willing to announce budget support for the coming years once the government has proved that it has made substantive progress with structural reforms, and if elections prove to be free, fair, and credible. **In this environment, it is thus unlikely that donors would be willing to increase aid to Uganda significantly** in the event of tobacco-related revenue losses for the government and/or income losses for burley tobacco farmers.

Empirical Findings: Monte Carlo Simulations

Malawi

We have estimated that tobacco was likely to have contributed around 25% - 30% of GDP in Malawi during 2009. Assuming that burley production constitutes 85% of overall tobacco production – i.e. contributes 21% - 25.5% of GDP - we can develop a model with Monte Carlo simulations with 1,000 repetitions. This will allow scenarios to be produced based on a decline in burley production, which will then be compared to a baseline outlook for the next few years based on no change to demand for burley. **The four scenarios include varying declines of burley production and its impact on overall economic growth.** Scenario 1 assumes a 10% decline in burley output, while scenarios two, three and four factor in a decline of 30%, 50% and 85%, respectively. This allows for some argument around the idea that burley production will partly be replaced by other crops or that other international buyers could be secured for the leaves.

From the output of our simulation model depicted in the charts below, it is clear that a decline in burley tobacco output will have a *noticeable* decline in GDP growth for Malawi. This is likely to extend over the short- to medium-term, and even towards the longer-term where large shocks are incorporated.

Malawi Real GDP Growth Scenarios

- ❑ Scenario 1 – 10% decline in burley production: GDP growth of 6.5% or more over the past four years will decline to 3.8% - 4.5% in the next few years. This illustrates the severity, which even a small decline in tobacco production will have on the country's medium-term growth performance.
- ❑ Scenario 2 – 30% decline in burley production: The Malawian economy will contract during 2011-12 and register below-par readings for several years thereafter.
- ❑ Scenario 3 – 50% decline in burley production: A sharp decline in tobacco farming activity will see the country's GDP contract by 10.6% - 13.2% during 2011-12 if the burley crop is halved.
- ❑ Scenario 4 – 85% decline in burley production (almost all burley): In a worst-case scenario, the Malawian economy will contract by around 20% next year if there is no demand for its burley tobacco.
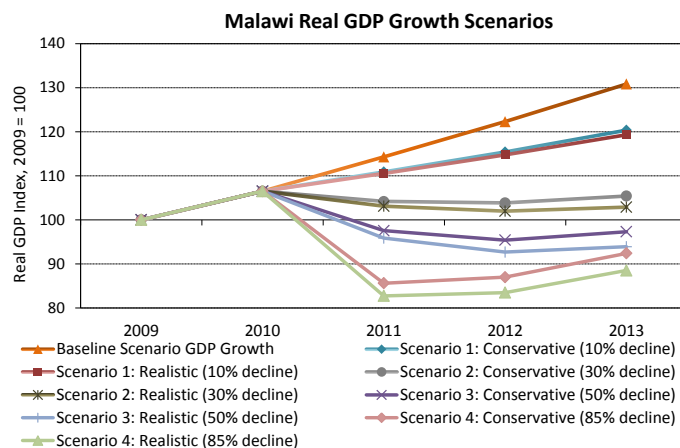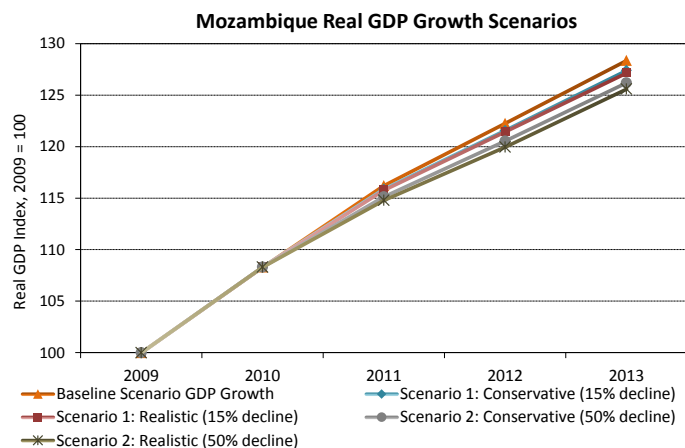
Mozambique

In the section relating to Mozambique, we estimated that tobacco was likely to have contributed slightly more than 2% to the overall GDP of Mozambique last year. Assuming once again that the burley variety represented about 75% of the value tobacco contributed to GDP – i.e. we assume the burley variety contributes about 1.5% to the total GDP of Mozambique – we can incorporate a macroeconomic model with Monte Carlo simulations with 1,000 repetitions. We will use this to derive our estimates for the likely impact on Mozambique's economic growth rate for: scenario 1) a 'gradual' 15% decline in annual production of burley tobacco, and scenario 2) a more 'drastic' 50% annual decline in the cultivation of the burley tobacco variety. Each of these scenarios will be compared relative to our baseline expectation for Mozambican growth, while the simulations will also include 'conservative' (i.e. burley tobacco contributes exactly 1.5% to overall GDP) and 'realistic' (i.e. burley tobacco contributes *between* 1.5% and 2.5% to overall GDP – *as per* our simulation model). In the first scenario, Mozambique's GDP growth rate is expected to decline by about 0.3 to 0.4 percentage points for the conservative and realistic scenarios respectively in 2011. The rest of the scenarios from our simulation model are tabled below. From the output of our simulation model, it is clear that **a decline in burley tobacco output will have a *noticeable* decline in GDP growth for Mozambique that is likely to extend over the short- to medium-term.**

Though the slowdown in growth does not appear to be especially dramatic, one should note:

❑ First, **even a *slight* deceleration in growth has a long-term base effect on both the country's overall nominal GDP as well as GDP per capita.**

❑ Second, from the statistics that were outlined above, it should again be emphasised that **even though export crops (or more specifically, burley tobacco) only play a fairly small role in terms of the value it adds to Mozambique's overall formal economy, this sector nevertheless has a strong impact on rural incomes.** In addition, the sector's contribution to poverty reduction can also not be overstated. For example, from our analysis that ranged from household surveys to macroeconomic estimates, we estimate that **more than 200,000 people (or about 1% of the entire population) may find that their incomes are supplemented in some way by the cultivation of burley tobacco.**

Mozambique Real GDP Growth Scenarios

Legend:
- Baseline Scenario GDP Growth
- Scenario 1: Realistic (15% decline)
- Scenario 2: Realistic (50% decline)
- Scenario 1: Conservative (15% decline)
- Scenario 2: Conservative (50% decline)

Y-axis: Real GDP Index, 2009 = 100

In addition to the simulation model outlined above, three other models – namely a structural VAR as well as two hybrid Cobb-Douglas production functions (both supply- and demand-side) – were fitted to the data. We found that the main contributors to explain historic fluctuations in the GDP of Mozambique were the value added by the agricultural sector and total exports. The latter can be explained by the fact that Mozambican exports have recorded phenomenal growth by increasing from 8% as a proportion of GDP in 2000 to 18% of GDP last year. In addition, we believe that the link between fluctuations in GDP and agriculture may be explained by the latter's sensitivity to weather-related phenomena. On the other hand, the supply-side production function indicated that the GDP elasticity for changes in exports of tobacco has an elasticity coefficient of about 0.02%. **This implies that, *ceteris paribus*, for a 1% change in tobacco exports, GDP will change by about 0.02%.** In addition, the demand-side production function elasticities were in-line with each component's contribution to GDP. The elasticity for tobacco exports were 0.007% with a 92% confidence level. This function is also cointegrated, meaning a long-run equilibrium relationship exists between these variables. Finally, the latter function was also found to be stable as indicated by the short-run dynamics – showing that after a shock to the economy, movement will eventually be toward equilibrium. However, tobacco exports show some stickiness to adjust to equilibrium, and tobacco exports will move back to equilibrium at a slow pace if it were to experience a shock. Overall, we may conclude that the tobacco sector constitutes a small, yet significant part of the macro economy of Mozambique.

Zimbabwe

Three econometric models - a structural VAR and two hybrid Cobb-Douglas functions (supply and demand side) were fitted to Zimbabwe's macroeconomic data. Results from the VAR show that the main contributor to fluctuations in the GDP of Zimbabwe is the value added by the agricultural sector as well as total exports. This is not surprising given the country's recent history, where the farming sector more than halved in size and helped plunge the country into a decade long recession. Another finding is that manufacturing production and tobacco exports have in the past been a significant contributor to government revenues. However, no macroeconomic variables were found to influence tobacco exports, which is realistic considering that the significant decline in tobacco output during 2003-08 and the perceived recovery during 2009-10 were linked to political factors. The supply side production Cob-Douglas function indicated that the GDP elasticity for changes in exports of tobacco has a 0.38 coefficient. Therefore, with all other factors held constant, each 1% change in tobacco exports will result in a 0.38% change in GDP. Put differently, **a 1% decline in tobacco production during 1980 – 2009 resulted in a 0.38% decline in the size of the Zimbabwean economy.** The demand side production function elasticities were in line with each component's contribution to GDP, with the elasticity for tobacco exports being 0.06%. This function was cointegrated, meaning that **a long-run equilibrium relationship exists between these variables of GDP growth and tobacco.** Looking forward, analysts agree that this will continue to be the case for Zimbabwe. The demand-side function was stable as indicated by the short-run dynamics, showing that after a shock to the economy, movement will eventually be toward equilibrium over the medium- to long-term.

A more detailed empirical assessment of how a change in tobacco production will influence GDP growth levels is not viable for Zimbabwe considering the nature of its macroeconomic data. Given the drastic changes seen in the country during the decade ending 2008 – including immeasurable hyperinflation and a near halving of GDP – as well as the far better performance during 2009-10, these numbers do not lend themselves to accurate econometric analysis.

Monte Carlo Simulations: Malawi and Mozambique

Output of Simulation Models (GDP Growth Index, 2009=100)					
Scenario	2009	2010	2011	2012	2013
Baseline Scenario GDP Growth					
Malawi	100	106.5	114.3	122.3	130.8
Mozambique	100	108.3	116.2	122.2	128.4
Scenario 1: Conservative					
Malawi	100	106.5	110.9	115.4	120.4
Mozambique	100	108.3	115.9	121.6	127.4
Scenario 1: Realistic					
Malawi	100	106.5	110.5	114.7	119.3
Mozambique	100	108.3	115.8	121.4	127.2
Scenario 2: Conservative					
Malawi	100	106.5	104.2	103.8	105.4
Mozambique	100	108.3	115.1	120.5	126.2
Scenario 2: Realistic					
Malawi	100	106.5	103.1	102.0	102.9
Mozambique	100	108.3	114.8	120.0	125.6
Scenario 3: Conservative					
Malawi	100	106.5	97.6	95.4	97.3
Scenario 3: Realistic					
Malawi	100	106.5	95.9	92.7	93.9
Scenario 4: Conservative					
Malawi	100	106.5	85.6	87.0	92.4
Scenario 4: Realistic					
Malawi	100	106.5	82.8	83.5	88.5

Political Implications

The political implications of a decline in burley production are going to lag the economic implications by several months - if not longer - due to the considerable number of unknown factors. The most important of these factors are the following:

❑   Will the *de facto* ban on using burley in cigarettes be a phased-in process or outright?
❑   Will the producers of burley in developing countries be given help and aid to develop other crops as replacements earning roughly the same in foreign exchange?
❑   Will the affected countries themselves see the writing on the wall and begin to find alternate crops?
❑   Will the developed countries imposing the ban offer any financial compensation, and if so for how long?
❑   Will the burley producers turn to other markets in Asia where demand is growing?

Until there is greater clarity on these issues in general it would be difficult to assess the likely political impact on an individual country basis, as many of the above issues are likely to be resolved on an ad-hoc rather than group basis. What is possible to speculate is that in the event of a series of worse-case combinations of the above bulleted issues, such as an outright immediate ban, little or no assistance for alternative crops, no financial support and China imposing a ban on ingredients, then obviously the political implications would be severe. The higher the contribution of any specific country's burley crop to foreign exchange earnings and to GDP, the more severe the political fallout. Higher unemployment, increased poverty, less state welfare support and associated issues are all indicators of overall political stability. Obviously, if these turn strongly negative then the overall impact on the political environment is likely to be negative.

In an extreme case, political and social unrest is possible, and certainly governments would come under intense pressure to compensate not only the farmers and others directly concerned with production but the wider population. We need to see specific impacts and factor in the above bulleted points before anything concrete with regard to overall political stability could be assessed.

Findings

Overall, results indicate that at least 3.6 million people in the selected countries discussed in this report, plus in four others (Tanzania, Kenya, Rwanda, Swaziland), are directly dependent on tobacco production for their livelihoods while a minimum of 12 million people are directly and indirectly impacted by developments in the countries' tobacco sectors. Admittedly, the number of people dependent on burley tobacco is lower that the stated minimum of 12 million, due to the presence of Virginia tobacco as well, and furthermore varies from one country to the next. However, it would only be logical to assume that the entire tobacco industry – markets, logistical channels, traders and exports – will be affected by a lower output in burley. As a result, it is safe to say that millions of Africans will be affected in varying degrees by a decline in international demand for burley. The direct impact on each country from a decline in burley production varies according to the role which the crop plays in the agricultural sector, exports and the overall economy. *Still,* a broad finding is that even where a country's burley production is small in comparison to other crops and commodity exports, a shock to most countries' burley output will have significant effects on the economy and in particular on rural areas. This includes lower economic growth, a decline in foreign currency revenues, lower fiscal income, potential migration to neighbouring countries, as well as lower food security, amongst others. The scope of this study is insufficient to determine the regional and household impacts of such a development, though gives a clear enough warning to decision makers that this issue should not be ignored.

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