Technical note: analysis of price incentives for sugar in Malawi

2005-2013

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Executive summary

Product: Sugar
Period analyzed: 2005-2013
Trade status: Export commodity

Commodity context

Although sugar cane is a relatively recent crop in Malawi, sugar is currently the second largest export revenue earner after tobacco. Malawi has ideal agro-climatic conditions for cultivation of sugar cane which is grown primarily by estates with an expanding out-grower sector. By 2009/10, approximately 300 000 tonnes of sugar, 73 000 tonnes of molasses and 19 million litres of alcohols, including ethanol, are being produced annually. About 70 percent of sugar is sold on the domestic market and 30 percent internationally (50 percent to Europe under preferential trade agreements). In total, there are about 23 000 ha dedicated to sugar cane production, 3 000 of which are cultivated by out-growers.

Figure: Observed and adjusted nominal rate of protection (NRP) at farm gate for sugar in Malawi 2005-2013

![Graph showing observed and adjusted nominal rate of protection (NRP) at farm gate for sugar in Malawi 2005-2013.]

Source: Author’s calculations, 2014

The observed Nominal Rate of Protection (NRP, green bar) in the graph above measures the effect of policy distortions and overall market performance on price incentives for producers. The adjusted NRP (blue bar) captures the same elements as the observed NRP in addition to any market distortions resulting from inefficiencies in the commodity’s value chain and exchange rate misalignment.

Driving factors

- Smallholder sugar cane producers received disincentives overall throughout the period of an average -23 percent, driven primarily by their inability to negotiate prices with the only buyer
of sugar cane in Malawi that charges a milling fee of 40 percent of out-growers’ gross revenue through their contract agreements.

- Weak tenure rights and the higher asset specificity of sugar cane relative to other crops further inhibit producers’ ability to negotiate prices.
- Furthermore, since the farm gate price seems not to be correlated with the export price, it is likely that out-growers are paid 60 percent of the domestic price of sugar; this has overall resulted in implicit taxation, although in 2012, this system protected cane growers from international market fluctuations (sharp price decline).

**Recommendations**

- A revised farm gate price setting mechanism to consider also the export price of sugar in addition to the domestic price may increase the price received by farmers, and thus incentivize production, while protecting them from international price shocks.
- The milling fee charged to farmers of 40 percent of gross revenues should be revisited and reduced.
- It is fundamental to continue encouraging private investment in new sugar mills such as the one currently under construction in Salima.
- In the case of a perennial crop like sugar cane, which has a higher degree of asset specificity than other annual crops since the land cannot easily or cheaply be diverted to other uses, contractual relationships between out-growers and processors require stronger involvement of the government to ensure fairness and equity.
- Getting the necessary legislation through in order to implement the Land Bill would contribute to ensuring fair distribution of land to new growers and that displaced people are adequately compensated.
1. Purpose of the note

This technical note is an attempt to measure, analyse and interpret price incentives for sugar in Malawi over the period 2005-2013.

For this purpose, yearly averages of domestic farm gate prices are compared with reference prices calculated on the basis of the price of the commodity in the international market. Indicators for sugar in Malawi were calculated at the farm gate level only, owing to a lack of price data at the wholesale level. The price gaps between reference prices and domestic prices along the commodity’s value chain indicate the extent to which incentives (positive gaps) or disincentives (negative gaps) were present at the farm gate level. The price gaps are expressed in relative terms as a percentage of the reference price, referred to as the Nominal Rate of Protection (NRP). These key indicators are used by MAFAP to assess the effects of policy and market performance on prices.

This technical note begins with a review of the commodity’s production, consumption/utilization, marketing and trade, value chain and policy context (Chapter 2). It also provides a detailed description of how key data elements were obtained and indicators were calculated (Chapter 3). The indicators were then interpreted in light of existing policies and market characteristics (Chapter 4), and key policy recommendations were formulated on the basis of this interpretation (Chapter 5). Finally, the note concludes with a few main messages, limitations of the analysis and areas identified for further research to improve the analysis (Chapter 6).

The results and recommendations presented in this analysis of price incentives can be used by stakeholders involved in policy-making for the food and agriculture sector. They can also serve as input for evidence-based policy dialogue at the national, regional or international level.

This technical note should not be interpreted as an in-depth value chain analysis or detailed description of the commodity’s production, consumption/utilization, marketing and trade or policy context. All information related to these areas is presented merely to provide background on the commodity under review, help understand major trends and facilitate the interpretation of the indicators.

All information in this technical note is subject to review and validation.
2. Commodity context

Although sugar cane is a relatively recent crop in Malawi, sugar is currently the second largest export revenue earner after tobacco. The first sugar cane plantation dates back to the 1960’s in southern Malawi and the second plantation in the North Central region, along with the introduction of out-growers, to the 1980s. By 2009/10, approximately 300 000 tonnes of sugar, 73 000 tonnes of molasses and 19 million litres of alcohols, including ethanol, are being produced annually. 70 percent of sugar is sold on the domestic market and 30 percent internationally (50 percent to Europe under preferential trade agreements). In total, there are about 23 000 ha dedicated to sugar cane production, 3 000 of which are cultivated by out-growers (Hermann et al., 2013).

Production

Malawi has ideal agro-climatic conditions for growing sugar cane; namely, warm rainy summers, coupled with cold dry and sunny winters, resulting in generally high annual cane yields and levels of sucrose content. Sugar cane in Malawi is grown primarily by estates but the out-grower sector is expanding in number as well as significance in terms of policy objectives. Sugar cane cultivation, harvest and processing are closely linked due to the fact that sugar cane must be processed immediately after harvest in order to retain the high levels of sucrose, the main product of sugar cane.

Sugar cane cultivation

Sugar cane is a genus of perennial grass and therefore does not necessarily require replanting annually. Once planted, cane can be harvested each year by leaving the roots and lower part of the plant intact from which new stalks called ratoons emerge. This cultivation method, known as ratooning, has several advantages; time and cost relating to field preparation and planting are saved and the following year’s crop matures faster. The main disadvantage is that each successive harvest provides decreasing yields of sucrose. Most sugar cane crops will give a steady yield for 2 to 3 years before declining significantly in sucrose content. The success of this may depend on many factors ranging from the prevalence of pests and diseases, the effect of the previous harvest as well as the variety of sugar cane.

Sugar cane cultivation, harvest and processing are closely linked due to the fact that sugar cane must be processed immediately after harvest in order to retain the high levels of sucrose, the main product of sugar cane, which is extracted and purified by mill factories. Sugar cane harvesting lasts several months and involves sophisticated logistical planning in order to ensure a continual flow of harvested cane and consistent rate of processing (Stray et al., 2012). Cane harvesting can be done manually or by machine. Manual harvesting techniques are generally preferable as mechanical means tend to deplete the level of sucrose in the cane faster and may cause more damage to the ratoon. Hand harvesting is done with a large knife or machete, cutting the cane just above ground level. In Malawi, smallholder farmers harvest cane by hand (Pound, 2013).

Processing is highly capital intensive and requires large factories with strong milling capacity. However, due to the complexity and intensity of the operation it is not profitable to construct mills capable of processing entire harvests of sugar cane within a few weeks. Therefore, the harvest season must be extended for several months and constitutes a challenging logistical exercise. For sugar companies to make profit, the sucrose yield must increase annually to outweigh the capital investment costs. The aim is to maintain a consistent rate of processing for a certain length of time with the objective to maximize sugar output and minimize fixed and operational costs each season. Coordination between processors and out-growers is essential; out-growers prefer to harvest in the dry season since it is more profitable in terms of labour and transport (Stray et al., 2012).

Global sugar cane production
Global production of sugar cane in 2012 has been estimated at 1.83 billion tonnes, the largest crop by production quantity in the world (FAO, 2014). Sugar cane is cultivated in over 100 countries but the largest producer by far is Brazil, followed by India and China (Figure 1).

Figure 1: Top ten sugar cane producing countries globally, 2012


Malawi sugar cane production
Malawi has ideal agro-climatic conditions for growing sugar cane; namely, warm rainy summers, coupled with cold, dry and sunny winters, resulting in generally high annual cane yields and levels of sucrose content. Other factors that contribute to Malawi’s sugar cane production are good soils and access to secure water sources for irrigation.

As shown in Figure 2, sugar cane yield per hectare has not increased over the 2005–2013 period. Area harvested however has increased by about 5 000 hectares since 2005 and seems to be the main determinant of production volumes. Both area and production increased from 2005 to 2008 before falling from 2009 to 2011. This fall in area harvested correlates with the timing of land
improvements, such as irrigation and replanting, under the National Adaptation Strategy (NAS). The dramatic increase in area harvested as well as in production volumes in 2012 likely represents the reaping of the benefits of these land improvements.

Figure 2: Yield, production and area harvested of sugar cane in Malawi, 2005–2013

Illovo is the only company that processes sugar in Malawi and the predominant supply chain system is the nucleus-estate, where Illovo sources the majority (84 percent) of cane from their own 20,000 hectares of estate land. This means wage employment is the main driver of rural development impacts. The remaining sugar cane is outsourced from primarily (90 percent) smallholder farmers who cultivate over 5,000 hectares of land, with about 94 percent of this area used for sugar cane production (Illovo, 2014).

Illovo Sugar Malawi estimates that its out-growers earn 99 percent of their income from selling sugar cane to the company, making food security a potentially significant issue. While sugar cane may replace food crops, especially for previously subsistence farmers, it can also have some positive impacts on food security in the form of increased income (Corporate Citizenship, 2014). For out-grower farmers, it is difficult to allocate land to anything other than sugar cane since the land is owned by the trust and is relegated to sugar cane cultivation only. Also, the chemicals used in cane production are not suitable for other crops afterward (CISANET, 2013).

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2 The NAS is the Government of Malawi’s adaptation strategy to the EU Sugar Reform and aims to enhance the competitiveness of the sugar and cane sector by increasing factory capacity and sugar cane production through efficiency improvements in both field and factory operations. Support for sugar cane out-growers has been identified under the NAS as the most strategic area for support as well as crucial for poverty alleviation in the short, medium and long term (EC, 2006).

3 Between 2011 and 2013 about 980 ha of irrigated land were added in Nchalo. Between 2013 and 2014, 123 ha of irrigated cane were developed in Dwangwa, while 647 ha of rain-fed small plots came under smallholder production (personal communication with an Adviser of the Ministry of Finance of Malawi).

4 Some exceptions are recently emerging, such as the new Phata outgrower scheme in the Nchalo area, which has 10 percent of its area under food crops, and all the new EU funded schemes under the NAS that provide for a similar percentage of land under food crops (personal communication with an Adviser of the Ministry of Finance of Malawi).
Figure 3 shows the main sugar cane producing areas of Malawi, which are located around their respective sugar mills: Dwangwa mill is located in Nkhotakota district in the north central region, where water for cane irrigation is sourced mainly from Lake Malawi and the Dwangwa River, the main tributary of which is the upstream Rupashe River; and Nchalo mill in the Southern Shire Valley region, where irrigation is from the Shire River.

**Figure 3: Map of Malawi with the main production areas**


**Consumption/Utilization**

The majority of sugar produced in Malawi is sold on the domestic market, either for direct consumption or industrial use such as ethanol production. Illovo sugar not only has a monopsony on sugar cane purchase, but also a monopoly over the domestic sugar market in Malawi. However, the company claims that prices are set to ensure profitability yet are lower than neighbouring countries in dollar terms. Time series of retail sugar price is not available but news sources report on sugar prices during noticeable movements. For example, in early 2013, sugar prices were increasing due to restricted supply, from MWK 230 (USD 0.70) in November 2012 to MWK 300 (USD 0.77) per kilo, while the *East African* reports higher prices in Tanzania around the same period: in September 2012 the retail price of sugar is TZS 1 800 (USD1.10) per kilo and in January 2013 TZS 2000 (USD1.23) per
kilo. This is understandable owing to the higher cost of production and greater demand versus supply in Tanzania. Illovo also guarantees a country-wide price, subsidizing distribution to their distribution centers in order to ensure that people in remote areas are not unduly penalized by higher prices.

Under new UNICEF-sponsored government legislation (2012) aimed at reducing infant and maternal mortality, all sugar sold for direct consumption on the domestic market is enriched with vitamin A. While the programme is new, one study of a similar initiative in Zambia (also facilitated by an Illovo company) found that the vitamin A status of Zambian children had improved “markedly” as a result of supplementation and sugar fortification. Figure 4 shows the estimated human domestic consumption of sugar in Malawi, which followed an upward trend since 2005, in line with the high and increasing population growth.

**Figure 4: Human domestic consumption of sugar in Malawi and population growth rate, 2005-2014**

![Graph showing human domestic consumption of sugar in Malawi and population growth rate, 2005-2014](source)

Marketing and trade

Although a relatively new industry in Malawi, dating back only to the 1960s and 1970s, sugar has overtaken tea as the second most valuable export commodity after tobacco since the year 2000. The potential for export growth is significant, considering that over the 2005/06–2013/14 period (year ending 31 March) only 37.5 percent of sugar was exported while the remaining 62.5 percent was sold on the domestic market (Figure 5). Approximately 20 percent of exported sugar was sold into preferentially-priced markets in the EU and United States, with the remainder sold primarily to regional markets (Figure 8). However, it was estimated by UNCTAD in 2005 that over 20 percent of

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5 Values in kwacha reported by Nyasa Times (2012) have been converted to US$ based on monthly exchange rates as reported by exchangerates.org. Values in TZS and US$ are reported by The East African (Ndeketela, 2013).
domestic sugar was being sold in Mozambique, Tanzania and Zambia through informal cross-border trade (EC, 2006).

**Figure 5: Share of Malawi sugar sold on domestic and export markets, 2005–2013**

Despite a number of demand and supply-side constraints, Malawi has an apparent competitive advantage in sugar production and trade. Malawi sugar exports, however, are heavily supported by preferential trade agreements in the form of preferential prices – trade distortions that may not reflect true competitiveness (Chisaku, 2007). Furthermore, in a process of integration with global market prices, the EU has been decreasing preferential prices paid to African, Caribbean and Pacific (ACP) countries by 36 percent over 4 years under the Sugar Reform (EC, 2006).

As shown in Figure 6, the EU-negotiated import prices for raw sugar from ACP countries have been declining since 2008, while United States and world prices increased until 2012. The increase in world sugar prices is likely driven by: (i) the increasing cost of production in Brazil, the world's leading exporter (48 percent of global exports 2009/10); (ii) the strengthening of the real against the US dollar from 2003 to 2010; as well as (iii) a decline in global production by 12 percent in the 2008/09 marketing year (McConnel et al., 2010).
Malawi’s average export prices hover more steadily but are not immune to the international price changes and are largely determined by variations in trade partners with differently priced markets. In 2012 for example, the average export price plummeted since almost 90 percent of exports from the top five partners (Portugal, Spain, Zimbabwe, United Kingdom and Kenya) were destined for Portugal at under USD 300 per tonne (Figure 7 and Figure 8). In 2013 however, despite low international prices, a higher share was sold to specialty markets in the UK, Belgium, Italy, and the US at over USD 1 000 per tonne, increasing the export price significantly (UNComtrade, 2014). Export prices to the UK and Belgium are higher because, unlike the raw sugar sold to Portugal, this sugar is not for refining but is a high quality raw sugar for direct consumption (CBI, 2009).
Figure 7: Share of Malawi sugar exports by top 5 destinations (90% of total), 2012

Source: UN Comtrade, 2014.

Figure 8: Sugar trade volumes by top 5 destination countries (left axis: 1000 tonnes) and share of exports (right axis: percentage) of Malawi, 2007–2012


6 Full price trends are not available for Portugal and Zimbabwe since there were years that there were no exports.
International market distortions

The international sugar market is highly distorted by domestic support and trade policies such as production and marketing quotas, minimum producer prices, tariffs, export subsidies and import quotas (Nyberg, 2007). The EU Sugar Protocol was a commitment to African, Caribbean and Pacific (ACP) sugar cane producing countries that guaranteed high prices for specific quantities of sugar (around 2 to 3 times higher than the world average). This preferential treatment to the ACP countries was challenged at the WTO in 2003 by Brazil, Australia and Thailand, leading to a reform in 2005 where the guaranteed price would be cut 36 percent over four years (2006-2010). However, transitional quotas that translate into increased access for LDCs such as Malawi under the Everything-but-Arms (EBA) agreement run parallel to the phase out of price guarantees. By 2015, sugar will have duty and quota free access to EU markets (EU, 2015).

The sugar sector in the United States is heavily supported through trade protection and price support to producers and processors. The US Department of Agriculture (USDA) provides minimum price loans to producers and processors, ensuring that the domestic price is always higher than or on par with the international price. The tariff rate import quotas (TRQ) of the United States are set annually by the USDA and determine the amount of sugar that can be imported at low or zero duty. These TRQs are then allocated amongst 40 developing countries (SugarCane.org, 2015).

Description of the value chain

Sugar cane cultivation is carried out on large estates, medium and small farms and is necessarily carried out in close vicinity to sugar mills, owing to the short time required between harvesting and processing. Illovo is the only sugar processing company in Malawi, with estates and factories in Nchalo in the South, and Dwangwa in the central region. Illovo has supply contracts with about 1,888 out-growers: members of associations such as Dwangwa Cane Growers Trust (DCGT) in the Nkotakota district and Shire Valley Cane Growers Trust (SVCCT) in the Southern district. From the out-grower farms, cane is loaded onto haulers and on the way to the factory, the tonnage is measured by a weighbridge. In order to determine the sucrose content, samples are sent to the laboratory. Payments to farmers are based on the expected recoverable sucrose (ERS%) per tonne of cane delivered (Pound, 2013). As stipulated in out-grower contracts, Illovo charges farmers a 40 percent milling fee on the divisible proceeds from sugar sales as well as 15 percent withholding fee in case the market changes (Corporate Citizenship, 2014 and CISANET, 2013).

Figure 9 below outlines the sugar value chain from cane growing by estates and out-growers through processing and then to international or domestic consumers or industry.
Out-grower system
The umbrella institutions governing smallholder and out-grower affairs are Dwangwa Cane Growers Trust (DCGT) in the north-central Nkotakota district and Shire Valley Cane Growers Trust (SVCGT) in the Southern district. Several associations operate under these Trusts as mediators between the Trust and small-scale cane growers such as Dwangwa Sugar cane Growers Association (DSGA), Kasinthula Cane Growers Association (KCGA) and Lakeshore Cane Growers Association. Large and medium-scale cane growers are often not members of associations but deal directly with the Trusts and with Illovo.

The DCGT, a government parastatal until privatization in 1999, leases and develops land for small and large-scale sugar cane farmers, constructing irrigation infrastructure as well as roads. The trust exacts a 1.5 percent CESS on gross returns of farmers on each harvest whose land was developed by means of the loan from the African Development Bank. Dwangwa Cane Growers Limited (DCGL), established in 2000, operates under the DCGT and performs several activities on behalf of farmers: farm activities such as land clearing, planting, and cane cutting which are invoiced to farmers; provision of fertilizer to farmers on credit (fertilizer is purchased from Illovo in bulk); and finding and negotiating transportation for cane from field to factory (haulage paid by farmers). For these services, DCGL deducts 20 percent of farmers’ gross returns plus a further 10 percent for farm activities and inputs (CISANET, 2013). Dwangwa Sugar cane Growers Association (DSGA) represents farmer members in negotiating and bargaining with the DCGT, signs contracts and mediates. Other associations in the Nkotakota district are Kabadwa and Green Leaf.
The Shire Valley Cane Growers Trust (SVCGT) is the umbrella institution in the south. Kasinthula is an association originally composed of almost 300 farmers (up to 600 by 2013) and has been Fair Trade certified since 2004. According to the 25 year cane supply agreement with Illovo, sugar cane changes ownership at the weighbridge. Trucks are given haulage tickets that include all source details while a duplicate ticket is left with Kasinthula. Weekly lab reports are released by Illovo indicating the tonnes of cane delivered each day and the sucrose recovery of each – haulage tickets are crosschecked with the report - if they match an invoice is prepared – if not an inquiry must be made (Fair Trade, 2012).

Processing
Several products are derived from crushed sugar cane: raw and refined sugar, molasses, and bagasse. Illovo owns both sugar mills and produces both raw and refined sugar but Nchalo also produces value added specialty sugars. Both raw and refined sugar are sold on the domestic market or exported to the EU, African markets and the United States. Molasses is sold as a raw fermentation material in the manufacture of ethanol to the fuel alcohol distilleries in Malawi: Ethanol Company Limited and Presscane Limited. Bagasse is used by Illovo to partially power the factories (Illovo, 2014).

Distribution and export
Until 2013, Illovo covered primary distribution to centres located in Limbe, Balaka, Lilongwe, Mzuzu, and Karonga. From these distribution centres, appointed sugar distributors were awarded quotas to sell a certain volume of sugar in a particular location. However, after allegations of corruption and monopolistic practices were confirmed by the Competition and Fair Trading Commission, namely, that warehouse management agreements prohibited administrators from selling sugar from sources other than Illovo, they were forced to liberalize local sugar distribution (CFTC, 2015). Sugar that is exported would be loaded onto trucks and likely shipped via Durban in South Africa due to the more efficient port system with respect to the closer Beira port in Mozambique.

Policy decisions and measures
The sugar sector as a whole, from production to export, has received increased policy attention in the last decade. The government aims to diversify and scale-up production of key export crops, such as sugar cane, in order to boost and provide stability to export revenues that are currently over reliant on tobacco. Furthermore, this should be done in a manner that sustainably reduces poverty and food insecurity. Out-grower schemes have been identified as a key tool for achieving increased output and performance of small holder farmers, as envisioned in the ASWAp. Public and donor investments have thus focused on large-scale collective irrigation schemes for smallholder cane growers.

National development strategies
The Malawi 2020 Vision was adopted in 1998, providing a framework for the implementation of short- and medium-term plans for development sectors. It identifies agriculture and food security as key priority areas to foster economic growth and development. This long-term vision has been translated into a medium-term policy framework for social and economic development, namely the Malawi Growth and Development Strategy (MGDS). The primary objective of MGDS I (2006-2011)

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7 As part of the process of implementing the MGDS, the Ministry of Agriculture is implementing a 5-year Agriculture Development Program (2010–2015) which includes a project for sugar cane development under out grower arrangements,
and MGDS II (2012–2016) is to reduce poverty through sustainable economic growth and infrastructure development, focusing on agriculture and food security as key priority area. The Strategy seeks to increase agricultural productivity and diversification for sustainable economic growth. Currently, the country is also implementing the Economic Recovery Plan–ERP (2012) aiming at restoring economic stability through commercial agriculture, tourism, energy, mining and infrastructure development.

In addition, “New Alliance for Food Security & Nutrition in Malawi” developed for the period 2013–2016 intends to create a competitive environment, improve access to land, water and infrastructure, reduce malnutrition and reorganize extension services for key commodities. The objective is to facilitate the establishment of cooperatives, ensure research and extension programmes are implemented, and improve and harmonize capacity building programmes (New Alliance for Food Security and Nutrition, 2013).

**Agriculture Sector Wide Approach (ASWAp)**

The overall aim of ASWAp, the main investment plan for the agricultural sector, is to achieve agricultural growth and poverty reduction. One of the specific objectives of ASWAp is to increase commercial farming revenues through the promotion of higher productivity. Boosting productivity will increase production and export volume of key export commodities. The government seeks to broaden participation of smallholders, including farmers whose households are headed by women, in commercial crops, livestock and fish production. This will be achieved by promoting contract farming (principally of tobacco, cotton and horticultural crops), out-grower schemes (e.g. sugar, tea, horticultural crops) and farmer cooperatives (such as in smallholder coffee).

**National Export Strategy (NES)**

In 2012, the government developed a strategy to boost domestic and external trade: the National Export Strategy (NES) 2013–2018. The NES, designed by the Ministry of Industry and Trade for the period 2013–2018, provides a prioritized road map for “developing Malawi’s productive base to allow for both export competitiveness and economic empowerment” (GoM, 2012). The strategy focuses on two groups of commodities: (a) three prioritized export-oriented clusters for diversification namely oil seed products, sugar cane products and manufactures and (b) exports of existing clusters (GoM, 2012). The long term objective is to transform the economy from dependency on low value exports of raw or semi-raw commodities to high value added commodities that encourage job creation.

The sugar sector has greater economic spillovers than other sectors, meaning that the sector can easily expand and diversify into new products that create domestic value addition, and is therefore a core priority of the NES. A short and medium term product strategy has been formulated that seeks to balance short-term (existing) exports, such as raw, refined and specialty sugars, with a medium to long-term strategy that enables the development of value added exports including confectionery, ethanol, rums and ales, fertilizer and animal feed. The aim is for sugar cane products to account for 15 percent of exports by 2027 (GoM, 2012).

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development of small-scale irrigation schemes, creation of market linkages, and capacity-building for formers, with a target to include 30 percent female farmers (GoM 2006). According to the Sugar Growers Association of Malawi (SUGAM) there are currently 3,552 out-growers, of whom 923 or 26 percent are female.
The NES highlights the need for coordination with other national strategies such as the National Irrigation Policy and the Greenbelt Initiative. Since irrigation capacity is limited, investments will be funneled to the export clusters and where they will realize the highest returns. Furthermore, coherence and complementarity with the new National Energy Strategy that elucidates the requirement of a constant and sufficient supply of energy for agricultural processing activities as well as the possibilities of the sugar sector generating alternative forms of energy such as bioethanol (GoM, 2012). The Transport Sector Investment programme should also be tied to the NES priority clusters to ensure market access by rail and road to the main cities as well as regional ports, namely, Nacala, Beira and Dar es Salaam. Further coordination is envisioned between the Ministry of Agriculture, Irrigation and Water Development (MoAIWD) land extension plans and the development of rural feeder roads that integrate the domestic supply chain, prioritized around sugar cane and oil seed production centers.

Prioritized map for sugar sector development

The prioritized actions for each cluster are divided into prioritized phases; it is not necessary that one is complete before the other begins. The phases for the sugar sector are as follows:

**Phase 1 immediate actions:** Establish an appropriate stakeholder representation and coordination mechanism: Sugar Cane Products Technical Working Group; and develop a regulatory framework for sugar cane production.

**Phase 2 main critical actions:** Develop and Implement an Access to Land Programme; Establish Sugar cane Commission to facilitate development of the cluster and source explicit Sugar Cane Prioritization by government agencies.

**Phase 3 kick-start enablers:**

- Investor Facilitation Programme prioritizing milling capacity, linked to access to land programme and Sugar Cane Extension Programme. Include pro-active targeting of international sugar processors, including Associated British Food (Owners of Illovo and British Sugar) for 300 million Malawi expansion, which ensures proper smallholder inclusion
- Access to irrigation and cultivation infrastructure programme
- National Sugar Cane Extension Programme
- Access to Energy Plan (including pricing strategy for processors to supply electricity grid)
- Micro-finance agencies to prioritize small-holder sugar cane and offer saving schemes to sugar cane small holder farmers
- Export development fund guarantees for investors in sugar cane processing supported by Innovation Challenge Funds/Matching grants programme

*Source: GoM, 2012*

**National Adaptation Strategy (NAS)**

The NAS is the Government of Malawi’s adaptation strategy to the EU Sugar Reform and aims to enhance the competitiveness of the sugar and cane sector by increasing factory capacity and sugar cane production through efficiency improvements in both field and factory operations. Support for irrigated sugar cane out-growers has been identified under the strategy as the most crucial area for the sugar sector over the next 10 years as well as for immediate poverty alleviation in the short
medium and long term. The NAS has identified support for sugar industry out-growers as one of the most crucial areas – the development of feeder roads, irrigation projects, development of the management capacity of service providers and loan schemes or non-lending programmes (GoM and EC, 2008).

**Smallholder Out-grower Sugar Cane project**
The sugar value chain was supported from 2007 to 2009 through a major programme, the “Smallholder Out-grower Sugar Cane” project, that provided variable inputs, on and off-farm irrigation and training. Expenditures allocated to sugar production accounted for, on average, MWK 565 million from 2007 to 2009 (FAO, 2015).

**Foreign exchange policy**
The main macroeconomic policy affecting the agricultural sector in Malawi has been the government control over the foreign exchange rates. The exchange rate, supposedly free since 1994, was subject to market interventions by the Reserve Bank of Malawi to contain fluctuations and keep the kwacha pegged to the USD. In 2008, the government tightened controls moving almost to a fixed rate regime. Prior to the devaluation in May 2012, when the government decided to allow the currency to float freely against the US dollar, the currency was estimated to be significantly overvalued. Despite the negative short-term impacts, especially with regard to the inflationary pressures severely affecting the poorest, the devaluation is expected to help boost Malawian exports and attract international donor funds that were conditional on exchange rate policy reforms.

**Land policy**
The majority of land in Malawi is customary and many therefore lack title or any form of freehold tenure. The National land Policy was published by the Government of Malawi (GoM) in January 2002 after a countrywide consultation. The policy aims to provide security of tenure to smallholder farmers by registering their customary land as property and to resettle landless people on underutilized land (FANRPAN, 2003). However, implementation of the policy has been slow.

As explained in the previous section, the Trusts (DCGT and SVCGT) lease land, negotiate the loans for developing the land, and construct irrigation infrastructure and roads. Expansion of out-grower schemes into surrounding Traditional Authority land is initiated by the Trusts. However, expansions such as the Smallholder Outgrower Scheme (2006) have involved alleged forced evictions of families from their farm land. Sugar cane cultivation requires large irrigated plots of at least 3 ha, while the majority of small-scale farmers are cultivating rain-fed fields of less than 1 ha. Thus, under sugar cane, fewer farmers can benefit. Donors have recently been criticized for funding such programmes and for this reason the AfDB no longer supports these projects. The EU continues to fund irrigation and road infrastructure projects for sugar cane expansion in Malawi (Butler, 2014) but started to consider a code of practice in its programmes where land is potentially an issue, following the recommendations arising from a 2012 study by Landell Mills Limited on land allocation and dispute resolution within the sugar sector.\(^8\)

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^8 The EU is also funding a land governance programme with the goal to set up an electronic land registry, and capacitate the Ministry of Lands, Housing & Urban Development and NSA staff to help communities advocate for appropriate land rights.
The government vision for the land sector as outlined in the 2002 Land Policy includes clarification and strengthening of customary land rights and formalization of the role of traditional authorities in the administration of customary land.
3. Methodology

MAFAP methodology seeks to measure price incentives for producers and other marketing agents in key agricultural value chains. The analysis is based on the comparison between observed domestic prices and constructed reference prices. Reference prices are calculated from the international price of the product at the country border, where the product enters the country (if imported) or exits the country (if exported). This price is considered the benchmark price free of influence from domestic policies and markets. MAFAP estimates two types of reference prices – observed and adjusted. *Observed reference prices* are those that producers and other marketing agents could receive if the effects of distortions from domestic market and trade policies, as well as overall market performance, were removed. *Adjusted reference prices* are the same as observed reference prices, but also exclude the effects of any additional distortions from domestic exchange rate policies, structural inefficiencies in the commodity’s value chain, and imperfect functioning and non-competitive pricing in international markets.

MAFAP’s price incentives analysis is based on the law of one price, which is the economic theory that there is only one prevailing price for each product in a perfectly competitive market. This law only applies in the case of homogeneous goods, if information is correct and free, and if transaction costs are zero. Thus, this analysis was conducted for goods that are either perfectly homogeneous or perfect substitutes in the local market in terms of quality, or, failing that, are simply comparable goods. Indicators calculated from reference and domestic prices will, therefore, reveal whether domestic prices represent support (incentives) or a tax (disincentives) to various agents in the value chain.

Domestic prices are compared to reference prices at two specific locations along commodity value chains – the farm gate (usually the main production area for the product) and the point of competition (usually the main wholesale market where the domestic product competes with the internationally traded product). The approach for comparing prices at each location is summarized below, using an imported commodity as an example. In this situation, the country is importing a commodity that arrives in the port at the benchmark price (usually the unit value CIF price at the port of entry). In the domestic market, we observe the price of the same commodity at the point of competition, which is in this case the wholesale market, and at the farm gate. We also have information on observed access costs, which are all the costs associated with bringing the commodity to market, such as costs for processing, storage, handling, transport and the different margins applied by marketing agents in the value chain. These include access costs between the border and wholesale, as well as between the farm gate and wholesale.

The benchmark price is made comparable to the domestic price at wholesale by adding the access costs between the border and wholesale, resulting in the observed reference price at wholesale. This takes into account all the costs incurred by importers and other agents to bring the commodity to market, which in effect, raises the price of the commodity. The reference price at wholesale is further made comparable to the domestic price at the farm gate by deducting the access costs between the farm gate and wholesale, resulting in the observed reference price at farm gate. This takes into account all the costs incurred by farmers and other agents to bring the commodity from the farm to the wholesale market. Mathematically, the equations for calculating the observed
reference prices at wholesale \((RP_{owh})\) and farm gate \((RP_{ofg})\) for an imported commodity are as follows:

\[
RP_{owh} = P_b + AC_{owh}
\]

\[
RP_{ofg} = RP_{owh} - AC_{ofg}
\]

where \(AC_{owh}\) are the observed access costs from the border to wholesale, including handling costs at the border, transport costs from the border to the wholesale market, profit margins and all observed taxes and levies, except tariffs, and \(P_b\) is the benchmark price. \(AC_{ofg}\) are the observed access costs from the farm gate to wholesale, including handling costs at the farm, transport costs from farm to wholesale market, processing, profit margins and all observed taxes and levies.

The same steps described above can be taken a second time using benchmark prices and access costs that have been adjusted to eliminate market distortions due to exchange rate misalignments, structural inefficiencies in the commodity’s value chain\(^9\) and imperfect functioning and non-competitive pricing in international markets, where possible and relevant. The adjusted benchmark prices and access costs are then used to generate a second set of adjusted reference prices, in addition to the first set of observed reference prices calculated.

For exported commodities, a slightly different approach is used. In this case, the border is generally considered the point of competition (wholesale), and the unit value FOB price for the commodity is normally taken as the benchmark price. Furthermore, observed and adjusted reference prices at wholesale are obtained by subtracting, rather than adding, the access costs between the border and wholesale. Mathematically, the equations for calculating the observed reference prices at wholesale \((RP_{owh})\) and farm gate \((RP_{ofg})\) for an exported commodity are as follows:

\[
RP_{owh} = P_b - AC_{owh}
\]

\[
RP_{ofg} = RP_{owh} - AC_{ofg}
\]

After observed and adjusted reference prices are calculated for the commodity, they are subtracted from the domestic prices at each point in the value chain to obtain the observed and adjusted price gaps at wholesale and farm gate. Observed price gaps capture the effect of distortions from trade and market policies directly influencing the price of the commodity in domestic markets (e.g. price ceilings and tariffs), as well as overall market performance. Adjusted price gaps capture the same as the observed, in addition to the effect of any distortions from domestic exchange rate policies, structural inefficiencies in the commodity’s value chain, and imperfect functioning and non-competitive pricing in international markets. Mathematically, the equations for calculating the observed price gaps at wholesale \((PG_{owh})\) and farm gate \((PG_{ofg})\) are as follows:

\[
PG_{owh} = P_{wh} - RP_{owh}
\]

\[
PG_{ofg} = P_{fg} - RP_{ofg}
\]

\(^9\) Structural inefficiencies in commodity value chains may include government taxes and fees (excluding fees for services), high transportation and processing costs, high profit margins captured by various marketing agents, bribes and other non-tariff barriers.
where $P_{fg}$ is the domestic price at farm gate, $RP_{ofg}$ is the observed reference price at farm gate, $P_{wh}$ is the domestic price at wholesale, and $RP_{owh}$ is the observed reference price at wholesale.

A positive price gap, resulting when the domestic price exceeds the reference price, means that the policy environment and market functioning as a whole generate incentives (support) to producers or wholesalers. For an imported commodity this could be due to distortions such as the existence of an import tariff. On the other hand, if the reference price exceeds the domestic price, resulting in a negative price gap, this means that the policy environment and market functioning as a whole generate disincentives (taxes) to producers or wholesalers. For an imported commodity this could be due to distortions such as a price ceiling established by the government to keep domestic prices low.

In general, price gaps provide an absolute measure of the market price incentives (or disincentives) that producers and wholesalers face. Therefore, price gaps at wholesale and farm gate are divided by their corresponding reference price and expressed as a ratio, referred to as the **Nominal Rate of Protection (NRP)**, which can be compared between years, commodities, and countries.

The **Observed Nominal Rates of Protection** at the farm gate ($NRP_{ofg}$) and wholesale ($NRP_{owh}$) are defined by the following equations:

$$NRP_{ofg} = \frac{PG_{ofg}}{RP_{ofg}}; \quad NRP_{owh} = \frac{PG_{owh}}{RP_{owh}}$$

where $PG_{ofg}$ is the observed price gap at farm gate, $RP_{ofg}$ is the observed reference price at the farm gate, $PG_{owh}$ is the observed price gap at wholesale and $RP_{owh}$ is the observed reference price at wholesale.

Similarly, the **Adjusted Nominal Rates of Protection** at the farm gate ($NRP_{afg}$) and wholesale ($NRP_{awh}$) are defined by the following equations:

$$NRP_{afg} = \frac{PG_{afg}}{RP_{afg}}; \quad NRP_{awh} = \frac{PG_{awh}}{RP_{awh}}$$

where $PG_{afg}$ is the adjusted price gap at farm gate, $RP_{afg}$ is the adjusted reference price at the farm gate, $PG_{awh}$ is the adjusted price gap at wholesale and $RP_{awh}$ is the adjusted reference price at wholesale.

If public expenditure allocated to the commodity is added to the price gap at farm gate when calculating the ratios, the **Nominal Rate of Assistance (NRA)** is generated. This indicator summarizes the incentives (or disincentives) due to policies, market performance and public expenditure. If public expenditure allocated to the commodity is added to the price gap at farm gate when calculating the ratios, the **Nominal Rate of Assistance (NRA)** is generated. This indicator summarizes the incentives (or disincentives) due to policies, market performance and public expenditure. Mathematically, the Nominal Rate of Assistance is defined by the following equation:

$$NRA = \frac{PG_{afg} + PE_{csp}}{RF_{afg}}$$

where $PE_{csp}$ is commodity-specific public expenditure that has been identified and measured as monetary units per tonne.
Finally, MAFAP methodology estimates the **Market Development Gap (MDG)**, which is the portion of the price gap that can be attributed to “excessive” or inefficient access costs within a given value chain, exchange rate misalignments, and imperfect functioning of international markets. “Excessive” access costs may result from factors such as poor infrastructure, high processing costs due to obsolete technology, government taxes and fees (excluding fees for services), high profit margins captured by various marketing agents, bribes and other non-tariff barriers. Therefore, the total MDG at farm gate is comprised of three components – gaps due to “excessive” access costs, the exchange rate policy gap and the international market gap. When added together, these components are equivalent to the difference between the observed and adjusted price gaps at farm gate.

Similar to the price gaps calculated, the MDG is an absolute measure, which is also expressed as a ratio to allow for comparison between years, commodities, and countries. This relative indicator of the total MDG affecting farmers is derived by calculating the ratio between the total MDG at farm gate and the adjusted reference price at farm gate as follows:

$$\text{MDG}_{fg} = \frac{(\text{ACG}_{wh} + \text{ACG}_{fg} + \text{EXPG} + \text{IMG})}{\text{RP}_{afg}}$$

where $\text{ACG}_{wh}$ is the access cost gap at wholesale defined as the difference between observed and adjusted access costs at wholesale, $\text{ACG}_{fg}$ is the access cost gap at farm gate defined as the difference between observed and adjusted access costs at the farm gate, ERPG is the exchange rate policy gap, and IMG is the international market gap.

4. Data requirements and calculation of indicators

To calculate MAFAP’s price incentives indicators, several types of data are needed. This section presents the data that was obtained and methodological decisions that were taken in the analysis.

**Trade status of the product**

Malawi is net exporter of raw sugar (Table 1). Malawi primarily exports raw sugar, corresponding to the HS code 170111, to markets in the EU, the United States as well as to regional markets such as Zimbabwe.

| Table 1: Export and import volume of raw sugar, 2005-2013 |
|----------------|----------------|
|                | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
| Export volume (tonnes) | 106568 | 64048 | 113327 | 78359 | 117080 | 97158 | 267982 | 92455 | 175934 |
| Import volume (tonnes) | 147 | 2 | 26 | 5 | 16 | 3 | 2 | 603 | 5 |

*Source: National Statistic Office, 2014.*

**Market pathway analysed**

Although the majority (84 percent) of sugar cane in Malawi is cultivated and harvested by estate labourers and machinery, this analysis focused on the out-grower sugar cane value chain. Out-grower sugar cane farms are located near the Illovo sugar mills in Dwangwa in the North-central district and in Nchalo in the Southern district (marked by green labels in Figure 10). Sugar cane is crushed at the sugar mills in order to produce raw and refined sugar, molasses, bagasse and ethanol. No point of competition is considered in this analysis since Illovo has not only a monopsony of sugar cane purchase, but also a monopoly of the domestic sugar market and imports are minimal.

Roughly 62 percent of sugar produced in Malawi is sold on the domestic market and the remainder is exported to preferential markets in the EU and regional markets such as Zimbabwe. Sugar is transported from the factory by truck (red line in Figure 10) over the Mwanza border, which lies on the major truck route through Mozambique to Zimbabwe or Durban, South Africa. Beira in Mozambique is the closest port; however, although the transit time from Blantyre to Beira is only 2-3 days as opposed to 5 to Durban, the port delay in Beira can be anywhere from 2-3 weeks as opposed to 1 day in Durban (World Bank, 2014).
Benchmark prices

**Observed**

The basis for calculating a reference parity price to determine whether Malawian sugar farmers receive market incentives or disincentives is to establish a benchmark border price, which represents the price for sugar free of domestic policy and market distortions.

Since Malawi is considered a net exporter of sugar during the period 2005-2013, the benchmark price is the FOB price for raw sugar. It is estimated based on the total custom value and the total volume of raw sugar exports. Such figures are reported by the National Statistics Office (NSO), the Ministry of Industry and Trade (MoIT) and UN Comtrade (Figure 11).
Data from NSO was chosen due to the presence of the full time series and coherence with the other national sources. Table 2: Benchmark price for raw sugar (USD/tonne), 2005-2013 (Table 2).

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<th>2005</th>
<th>2006</th>
<th>2007</th>
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<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benchmark price</td>
<td>429</td>
<td>596</td>
<td>535</td>
<td>648</td>
<td>599</td>
<td>705</td>
<td>716</td>
<td>439</td>
<td>642</td>
</tr>
</tbody>
</table>

Source: NSO, 2014.

**Adjusted**

It is acknowledged that in the international sugar market, there are substantial market distortions. However, the exact magnitude of these distortions is not known and would be required to conduct an analysis with an adjusted international benchmark price.

**Domestic prices**

**Observed prices at farm gate**

Several sources of data have been used to estimate the farm gate price of sugar for out-growers (Table 3); Illovo annual financial reports include several types of information including the payments made to out-growers for cane purchases and the volume of out-grower cane crushed. Since Illovo is the only buyer of sugar cane in Malawi, their prices are considered representative. From this information, we can estimate the unit value per tonne of cane. Furthermore, Illovo lists the average sucrose content of out-grower cane which can be applied to the unit value of cane to arrive at the unit value per tonne of raw sugar paid to farmers. Illovo statements however, are only available from 2008 to 2014.
Dwangwa Cane Growers Limited (DCGL) and Kasinthula Cane Growers Limited (KCGL) also produce annual financial statements from which information can be gleaned. In comparing the Illovo payments to growers with the accounts of the out-growers, it seems that the Illovo prices should be shifted back to the previous year in order to better correlate with the out-grower accounts. This could be due to the difference in accounting between Illovo and associations since the financial statements are for the year ending 31 March and sugar harvest season runs from April to December, all accounting is for the previous year’s harvest. Since the various prices for sugar for each out-grower association or limited differ, it makes sense to choose the amount “paid to growers for cane purchases” in Illovo’s annual reports as an overall estimation. Since the KCGA accounts have the full term of price data, 2005 and 2006 have been used from their accounts.

Once we have arrived at the average gross revenue of out-growers per tonne of sugar produced from their cane, it is necessary to bring the price a bit closer to the farm-gate by subtracting fees involved in getting the harvested cane from the field to the factory. The detailed accounts of DCGL have been used to estimate these costs; namely, a management fee of 20 percent and cane haulage. After subtracting these costs, we arrive at a closer estimation of the farm-gate price.

According to the literature review, “the price paid to growers for their cane is determined by a cane supply agreement, with growers receiving 60 percent of divisible proceeds from sugar and molasses sales”, while the remaining 40 percent is kept as a milling fee (Corporate Citizenship, 2014). This fee has already been deducted before arriving at the gross farmer revenue (Atkins, 2015), shown in Table 3 as out-grower revenue (60 percent).

Table 3: Estimation of out-grower revenue (farm-gate prices) for raw sugar in Malawi, 2005–2013 (MWK/tonne)

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Ilovo: payments to growers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dwangwa Cane Growers Ltd</td>
<td>36 510</td>
<td>40 368</td>
<td>39 861</td>
<td>52 670</td>
<td>62 252</td>
<td>100 446</td>
<td>132 465</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fair Trade KCGA</td>
<td>43 478</td>
<td>49 465</td>
<td>56 263</td>
<td>67 057</td>
<td>116 843</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCGA financial performance</td>
<td>36 217</td>
<td>42 256</td>
<td>45 442</td>
<td>51 043</td>
<td>58 977</td>
<td>65 928</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Out-grower revenue share (60%)</strong></td>
<td>22 755</td>
<td>28 194</td>
<td>36 748</td>
<td>42 257</td>
<td>51 043</td>
<td>58 972</td>
<td>65 927</td>
<td>112 589</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Fee (20%)</td>
<td>22 755</td>
<td>28 194</td>
<td>36 510</td>
<td>40 368</td>
<td>39 861</td>
<td>52 670</td>
<td>62 252</td>
<td>100 446</td>
<td>132 465</td>
<td></td>
</tr>
<tr>
<td>Cane haulage*</td>
<td>4 551</td>
<td>5 639</td>
<td>7 302</td>
<td>8 074</td>
<td>7 972</td>
<td>10 534</td>
<td>12 450</td>
<td>20 089</td>
<td>26 493</td>
<td></td>
</tr>
<tr>
<td>Farm gate Price</td>
<td>669</td>
<td>762</td>
<td>822</td>
<td>894</td>
<td>896</td>
<td>1 074</td>
<td>1 311</td>
<td>2 715</td>
<td>3 420</td>
<td></td>
</tr>
</tbody>
</table>

Note: Shaded cells are data used for the analysis.* Real data for cane haulage 2008-2012, the remaining is estimated using CPI.

Exchange rates

**Observed**
The observed exchange rate from the International Monetary Fund (IMF) is used for this analysis (Table 4). The exchange rate from the RBM was not available for the whole period.

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal exchange rate</td>
<td>118</td>
<td>136</td>
<td>140</td>
<td>141</td>
<td>141</td>
<td>150</td>
<td>157</td>
<td>249</td>
<td>364</td>
</tr>
</tbody>
</table>

*Source: IMF, 2014.*

**Adjusted**
Prior to 2012, the government had implemented foreign exchange controls on the exchange rate through the Reserve Bank of Malawi. With respect to the United States Dollar, the Malawi Kwacha has been significantly overvalued since 2005. This is reflected in a dynamic parallel market for foreign exchange until 2012, when the Government of Malawi decided to change its exchange rate policy and allowed its currency to freely float against the US dollar. Therefore, an adjusted exchange rate has been applied from 2005 to 2012 to express the difference between the nominal exchange rate and the exchange rate in the parallel market.

The values used to express the misalignment are the percentage difference of actual Real Effective Exchange Rate (REER) and the prevised REER as estimated by IMF (Figure 12).

Based on the level of misalignment in relative value, the adjusted exchange rate has been estimated (Source: IMF, 2012).

Table 5). Data for 2012 are available only for the first two months and therefore represent the level of misalignment only for January and February equaling 34 percent. For this reason and since sugar is marketed throughout the year, the exchange rate is not adjusted for 2012. The exchange rate is not adjusted for 2013, no data are available but we consider that the misalignment has been minor due to the implementation of the floating exchange rate in 2012.
Figure 12: Estimation of the exchange misalignment based on the comparison between actual REER and predicted REER in Malawi, 1990 M1-2012 M2


Table 5: Adjusted exchange rate MWK/USD, 2005-2013

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012*</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misalignment (%)</td>
<td>12%</td>
<td>11%</td>
<td>7%</td>
<td>19%</td>
<td>2%</td>
<td>9%</td>
<td>18%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Adjusted exchange rate</td>
<td>133</td>
<td>151</td>
<td>150</td>
<td>167</td>
<td>145</td>
<td>164</td>
<td>185</td>
<td>249</td>
<td>364</td>
</tr>
</tbody>
</table>

Note: *Average misalignment was calculated only for January and February 2012.

Access costs

Although there is no point of competition in this analysis, access costs are divided from farm-gate to factory and from factory to border in order to facilitate better understanding of the value chain and thereby improve the analysis and recommendations.

Observed access costs

Factory to border

Access costs between the border and factory include average cost of transportation from the factory to border per tonne of sugar (Table 7). The average distance from both Nchalo (98km) and Dwangwa (428 km) factories was taken. The border considered is Mwanza which lies on the major route through Mozambique to Durban, South Africa. A survey conducted by the World Bank in 2013, published in the DTIS report by the World Bank (2014), was used to indicate the average price per
tonne/km for shipments destined to the port of Durban. This cost was adjusted based on the CPI of Malawi. This route was selected since, according to the same report, and as shown in Table 6, the cost of transport along this route is relatively efficient at USD0.9 per kilometer per tonne for a full container truck. The cost of transport for 2013 was converted to local currency and then deflated based on the CPI for Malawi.

### Table 7: Observed access costs between factory and border, 2005-2013

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation in USD/tonne/km</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.9</td>
</tr>
<tr>
<td>Transportation in MWK/tonne/km</td>
<td>12.81</td>
<td>14.59</td>
<td>15.75</td>
<td>17.13</td>
<td>18.57</td>
<td>19.95</td>
<td>21.47</td>
<td>26.03</td>
<td>32.8</td>
</tr>
<tr>
<td>Average distance from factory to border</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
<td>263</td>
</tr>
<tr>
<td>Average cost MWK/km/tonne</td>
<td>3,369</td>
<td>3,837</td>
<td>4,142</td>
<td>4,505</td>
<td>4,884</td>
<td>5,247</td>
<td>5,647</td>
<td>6,846</td>
<td>8,626</td>
</tr>
</tbody>
</table>

Sources: Google maps for distances to border (2014) and World Bank for unit cost per km (2014).

### Farm gate to factory

Access costs between farm gate and factory include the management fee and cane haulage fees, as indicated by DCGL accounts, and the cost of processing and packing for Illovo (Table 8). Cane haulage fees are available for 2008-2012 and the remaining years are estimated by CPI adjustment. The processing costs are estimated based on 2009 production costs of Illovo Malawi (Agritrade, 2010) and then estimated by CPI adjustment. Since this is the cost of production for overall operations and will include also the cost of cane growing in addition to processing, packing and other access costs, it is an over-estimation.

### Table 8: Access costs between farm gate and factory, 2005–2013 (MWK/tonne)

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport (cane haulage)</td>
<td>669</td>
<td>762</td>
<td>822</td>
<td>894</td>
<td>896</td>
<td>1,074</td>
<td>1,311</td>
<td>2,715</td>
<td>3,420</td>
</tr>
<tr>
<td>Processing (milling charge)</td>
<td>19,124</td>
<td>21,783</td>
<td>23,517</td>
<td>25,566</td>
<td>27,720</td>
<td>29,774</td>
<td>32,044</td>
<td>38,861</td>
<td>48,946</td>
</tr>
<tr>
<td>Taxes and fees (management)</td>
<td>3,413</td>
<td>4,229</td>
<td>5,476</td>
<td>6,055</td>
<td>5,979</td>
<td>7,900</td>
<td>9,338</td>
<td>15,067</td>
<td>19,870</td>
</tr>
<tr>
<td>Total access costs</td>
<td>23,206</td>
<td>26,774</td>
<td>29,816</td>
<td>32,515</td>
<td>34,596</td>
<td>38,748</td>
<td>42,693</td>
<td>56,643</td>
<td>72,235</td>
</tr>
</tbody>
</table>

Note: *Real value of cane haulage for 2008-2012, the remaining is estimated with CPI.

### Adjusted access cost

Adjusted access costs take into consideration, where relevant, efficiency improvements in the value chain. It is assumed that the multinational companies involved in packing and logistics are quite efficient. However, despite recent improvements in transport and infrastructure, maximum efficiency has not yet been reached. Therefore, the Logistics Performance Index (LPI) of the World
Bank has been used to adjust the transportation costs against South Africa, the most efficient in the region.

Table 9). The LPI is available in Malawi for the years 2007 and 2012 but rather than an average, a median calculation between 2007 and 2012 was taken for 2009 and 2010 and then again between 2007 and 2009, 2010 and 2011. This method was chosen since we might assume, based on information presented in the World Bank study (2014) regarding infrastructure improvements, that transportation is gradually becoming more efficient as opposed to being stagnant or suddenly becoming very efficient in 2012. Rather than using the aggregated LPI, only the indices related to infrastructure and international shipments were used for the adjustment. A shown in Table 10, the ratio between the two indices is used to adjust the transport costs.

Table 9: South Africa and Malawi LPI for 2007 and 2012

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>LPI Rank</th>
<th>LPI Score</th>
<th>Customs</th>
<th>Infrastructure</th>
<th>International shipments</th>
<th>Logistics competence</th>
<th>Tracking &amp; tracing</th>
<th>Timeliness</th>
<th>COUNTRY</th>
<th>Avg. Infrast. &amp; Share SA over</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>2012</td>
<td>23</td>
<td>3.67</td>
<td>3.35</td>
<td>3.79</td>
<td>3.5</td>
<td>3.55</td>
<td>3.54</td>
<td>3.77</td>
<td>4.03</td>
<td>3.65</td>
</tr>
<tr>
<td>SA</td>
<td>2007</td>
<td>24</td>
<td>3.53</td>
<td>3.22</td>
<td>3.42</td>
<td>3.56</td>
<td>3.54</td>
<td>3.71</td>
<td>3.78</td>
<td>3.79</td>
<td>3.49</td>
</tr>
<tr>
<td>SA</td>
<td>2010</td>
<td>28</td>
<td>3.46</td>
<td>3.22</td>
<td>3.42</td>
<td>3.26</td>
<td>3.59</td>
<td>3.73</td>
<td>3.57</td>
<td>3.60</td>
<td>3.79</td>
</tr>
<tr>
<td>SA</td>
<td>2014</td>
<td>34</td>
<td>3.43</td>
<td>3.11</td>
<td>3.2</td>
<td>3.45</td>
<td>3.62</td>
<td>3.3</td>
<td>3.88</td>
<td>3.89</td>
<td>3.95</td>
</tr>
<tr>
<td>MA</td>
<td>2014</td>
<td>73</td>
<td>2.81</td>
<td>2.79</td>
<td>3.04</td>
<td>2.63</td>
<td>2.86</td>
<td>2.63</td>
<td>2.99</td>
<td>3.20</td>
<td>2.34</td>
</tr>
<tr>
<td>MA</td>
<td>2012</td>
<td>73</td>
<td>2.81</td>
<td>2.51</td>
<td>2.78</td>
<td>3.01</td>
<td>2.85</td>
<td>2.56</td>
<td>2.99</td>
<td>3.00</td>
<td>2.34</td>
</tr>
<tr>
<td>MA</td>
<td>2007</td>
<td>91</td>
<td>2.42</td>
<td>2.25</td>
<td>2.12</td>
<td>2.56</td>
<td>2.56</td>
<td>2.3</td>
<td>3.88</td>
<td>3.95</td>
<td>2.34</td>
</tr>
</tbody>
</table>


Table 10: Adjustment to access costs for transport of sugar from factory to border in Malawi, 2005–2013 (MWK/tonne)

<table>
<thead>
<tr>
<th>Year</th>
<th>Average cost</th>
<th>Median Increase</th>
<th>Adjusted Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>3.369</td>
<td>0.67</td>
<td>2.259</td>
</tr>
<tr>
<td>2006</td>
<td>3.837</td>
<td>0.67</td>
<td>2.573</td>
</tr>
<tr>
<td>2007</td>
<td>4.142</td>
<td>0.67</td>
<td>2.777</td>
</tr>
<tr>
<td>2008</td>
<td>4.505</td>
<td>0.70</td>
<td>3.160</td>
</tr>
<tr>
<td>2009</td>
<td>4.884</td>
<td>0.73</td>
<td>3.577</td>
</tr>
<tr>
<td>2010</td>
<td>5.247</td>
<td>0.73</td>
<td>3.843</td>
</tr>
<tr>
<td>2011</td>
<td>5.647</td>
<td>0.76</td>
<td>4.310</td>
</tr>
<tr>
<td>2012</td>
<td>6.846</td>
<td>0.79</td>
<td>5.437</td>
</tr>
<tr>
<td>2013</td>
<td>8.626</td>
<td>0.79</td>
<td>6.851</td>
</tr>
</tbody>
</table>


Access costs between the farm gate and factory have not been adjusted due to lack of adequate information to assess the precise value of the adjustment. At the point when a precise efficient cost proxy can be obtained, cane haulage fees could be adjusted to reflect inefficiencies, particularly in the rain-fed schemes, which are more fragmented and farther from the mill, the trucks are old and poorly maintained and are driving on very rough roads (Atkins, 2015).

Budget and other transfers

Public expenditures targeted sugar from 2007 to 2009 through the Smallholder out-grower sugar cane project, which received contributions from the European Union (EU) and the African Development Bank (ADB). The main components of the programme were the provision of variable

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11 The LPI includes 6 dimensions: (1) efficiency of the clearance process by border control agencies, including customs; (2) quality of trade and transport related infrastructure; (3) ease of arranging competitively price shipment; (4) competence and quality logistic services; (5) ability to track and trace consignments; (6) timeliness of shipments in reaching destination within schedules or expected time delivery.
inputs, on and off-farm irrigation and training. Sugar producers received MWK 846, MWK 2 015 and MWK 2 911 per tonne of sugar in 2007, 2008 and 2009, respectively (FAO, 2015).

**Quality and quantity adjustments**
No quality or quantity adjustments have been made in this analysis since the farm gate price is considered in raw sugar, as is the benchmark.

**Data overview**
Following the discussions above, the table below summarizes the main data sources used and methodological decisions taken for the analysis.

<table>
<thead>
<tr>
<th>Table 11: Data sources and methodological decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concept</strong></td>
</tr>
<tr>
<td>Benchmark price</td>
</tr>
<tr>
<td>Domestic price at point of competition</td>
</tr>
<tr>
<td>Domestic price at farm gate</td>
</tr>
<tr>
<td>Access cost from the point of competition to the border</td>
</tr>
<tr>
<td>Access costs from the point of competition to farm gate</td>
</tr>
<tr>
<td>QT adjustment</td>
</tr>
<tr>
<td>QL adjustment</td>
</tr>
</tbody>
</table>

---

12 This data is derived from the MAFAP public expenditure analysis which covers only on-budget expenditures from national and donor sources (expenditures going through the government budget). Despite the fact that quantitative information on off-budget expenditures is available within the Aid Management Platform (AMP) of the Ministry of Finance (MOF), off-budget support was not included or analysed in the public expenditure technical note (FAO, 2015).
## Summary of indicators

### Table 12: MAFAP Price Gaps for sugar in Malawi, (MWK/tonne), 2005-2013

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trade status</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Observed price gap at farm gate</strong></td>
<td>-6,641</td>
<td>-28,616</td>
<td>-12,484</td>
<td>-22,674</td>
<td>-14,194</td>
<td>-17,501</td>
<td>-32,085</td>
<td>30,336</td>
<td>-52,404</td>
</tr>
<tr>
<td><strong>Adjusted price gap at farm gate</strong></td>
<td>-13,900</td>
<td>-38,918</td>
<td>-19,412</td>
<td>-41,194</td>
<td>-17,501</td>
<td>-32,085</td>
<td>-37,331</td>
<td>30,336</td>
<td>-52,404</td>
</tr>
</tbody>
</table>

*Source: Author’s calculations, 2014*

### Table 13: MAFAP Nominal Rates of Protection for sugar in Malawi, (%), 2005-2013

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trade status</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Observed nominal rate of protection at farm gate</strong></td>
<td>-27</td>
<td>-57</td>
<td>-31</td>
<td>-42</td>
<td>-31</td>
<td>-34</td>
<td>-24</td>
<td>69</td>
<td>-33</td>
</tr>
<tr>
<td><strong>Adjusted nominal rate of protection at farm gate</strong></td>
<td>-44</td>
<td>-64</td>
<td>-41</td>
<td>-57</td>
<td>-36</td>
<td>-44</td>
<td>-43</td>
<td>64</td>
<td>-34</td>
</tr>
<tr>
<td><strong>Observed nominal rate of assistance at farm gate</strong></td>
<td>-27</td>
<td>-57</td>
<td>-28</td>
<td>-38</td>
<td>-25</td>
<td>-34</td>
<td>-24</td>
<td>69</td>
<td>-33</td>
</tr>
<tr>
<td><strong>Adjusted nominal rate of assistance at farm gate</strong></td>
<td>-44</td>
<td>-64</td>
<td>-39</td>
<td>-54</td>
<td>-30</td>
<td>-44</td>
<td>-43</td>
<td>64</td>
<td>-34</td>
</tr>
</tbody>
</table>

*Source: Author’s calculations, 2014*

### Table 14: MAFAP Market Development Gaps for sugar in Malawi, 2005-2013

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exchange rate policy gap</strong></td>
<td>MWK/tonne</td>
<td>-6148</td>
<td>-9038</td>
<td>-5563</td>
<td>-17174</td>
<td>-2048</td>
<td>-9597</td>
<td>-20708</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Access costs gap to point of competition</strong></td>
<td>MWK/tonne</td>
<td>-1110</td>
<td>-1264</td>
<td>-1365</td>
<td>-1345</td>
<td>-1307</td>
<td>-1404</td>
<td>-1337</td>
<td>-1409</td>
<td>-1775</td>
</tr>
<tr>
<td><strong>Access costs gap to farm gate</strong></td>
<td>MWK/tonne</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total market development gap</strong></td>
<td>MWK/tonne</td>
<td>-7259</td>
<td>-10303</td>
<td>-6928</td>
<td>-18519</td>
<td>-3355</td>
<td>-11002</td>
<td>-22044</td>
<td>-1409</td>
<td>-1775</td>
</tr>
<tr>
<td><strong>Market development gap as share of farm gate price</strong></td>
<td>%</td>
<td>-41</td>
<td>-47</td>
<td>-24</td>
<td>-59</td>
<td>-11</td>
<td>-27</td>
<td>-45</td>
<td>-2</td>
<td>-2</td>
</tr>
<tr>
<td><strong>Market development as share of adjusted reference price at farm gate</strong></td>
<td>%</td>
<td>-23</td>
<td>-17</td>
<td>-14</td>
<td>-26</td>
<td>-7</td>
<td>-15</td>
<td>-26</td>
<td>-3</td>
<td>-1</td>
</tr>
</tbody>
</table>

*Source: Author’s calculations, 2014*
5. Results and interpretation

Under the NES, sugar cane products fall into the prioritized export-oriented cluster for diversification and value addition. The aim is for sugar cane products to account for 15 percent of exports by 2027 (GoM, 2012). The GoM in the NAS to the 2006 EU Sugar Reform identified support for sugar cane out-growers as the most strategic area for support as well as being crucial for poverty alleviation in the short, medium and long term, which is in line with the overall objectives outlined in the MGDS and ASWAp. The analysis of incentives to sugar cane producers is critical to understand how the policy and market has affected the sugar value chain in the past and how to ensure sustainable incentives in the future.

This analysis considers only incentives at farm gate since wholesale prices for sugar were not available. Furthermore, due to the monopolistic situation in the domestic sugar market, it could not be considered a ‘point of competition’.

**Observed and Adjusted Price Gap**

The price gaps show the difference between the reference price at a particular point in the value chain and the actual price received by the agents. The observed price gap measures the effect (in absolute terms) of domestic market and trade policies and overall market performance on the prices received by farmers. The adjusted price gap measures, in addition, the effect of inefficiencies in the value chain and exchange rate misalignments.

The domestic price at farm gate is likely determined more or entirely by the domestic wholesale price of sugar than export prices since, as we can see from Figure 13, there is almost no correlation between farm gate and reference prices (export price trend). The domestic price of sugar at farm gate has been steadily increasing since 2005 and even continued to rise throughout 2012, despite a global drop in sugar prices (
This low correlation may be due to the fact that the majority (over 60 percent) of sugar and sugar by-products produced in Malawi are sold on the domestic market. Furthermore, given the monopoly by the sugar company Illovo, domestic prices may be more stable due to controlled supply and stable demand. Fluctuations in the benchmark price are due to the variation in prices in main export partner countries and different prices offered by each partner as shown in Figure 8. Illovo increased the wholesale price of sugar, and thereby the farm gate price, in 2012 and 2013 to compensate for the national inflation after devaluation in May 2012 and the subsequent rising costs of production.

**Figure 13: Domestic, observed and adjusted price of sugar at farm gate in Malawi, 2005–2013**

Source: Author’s calculations, 2014.

**Nominal Rate of Protection**

Overall, sugar producers received relatively strong and steady disincentives over the 2005–2013 period except in 2012, when international prices fell while at the same time producers were supported by the domestic market and received high price incentives (Figure 14). The observed NRP at farm gate is negative overall at an average -23 percent, driven by the low price paid to producers. Since processing costs are overestimated, as described in the “Data requirements and calculation of indicators” section, disincentives are in fact underestimated and would be more negative with actual processing costs as opposed to the inclusion of estate cane growing within the access costs.

Disincentives decreased somewhat in 2011 as the domestic price increased and the observed reference price remained steady. However, if we consider the adjusted reference price, we can see the effect of the exchange rate misalignment. Since the currency was roughly 25 percent overvalued, farmers were actually receiving disincentives (-43 percent) almost double those of the observed domain.
In 2012, sugar cane growers received high incentives due to steady and increasing domestic prices and a sharp decline of prices on the international market and hence, the reference prices. A global production surplus in 2012 pushed down international prices, a year that Illovo Malawi termed “challenging” (Illovo, 2012; Agrimoney.com, 2012). Over 160 000 tonnes of mainly raw sugar was sold on the domestic market for direct consumption and industrial uses, while the remaining 130 000 tonnes were exported, over half of which was sold mainly to Portugal for refining at low prices (Illovo, 2012; GoM, 2014b).

In 2013, average border prices were much higher than in 2012 since specialty sugar exports to high-priced markets in the EU and US increased by 40 percent (Figure 7 and Figure 8). Furthermore, regional market sales also increased, particularly to Zimbabwe, a relatively high priced market (Illovo, 2014; GoM, 2014b). However, since farmer’s payment is based on the domestic sugar market, they were unable to benefit from these high price trends. Another factor affecting the disincentives in 2013 is the high inflation resulting from the currency devaluation in May 2012, which more than doubled the export price in 2013 in kwacha terms, even though it was lower in dollar terms. However, we can see that the disincentives are no more severe than the period average, indicating no lasting improvement in the incentives structure since 2010.

**Market Development Gap**

The computation of the MDG allows the measurement of the potential gain or cost saving that could be achieved if adequate investments were made and policy measures adopted to reduce value chain inefficiencies. The MDG, as shown in Figure 15, demonstrates a relatively efficient domestic value chain for sugar. However, the fixed exchange rate policy resulted in an exchange rate misalignment³³

---

³³ As calculated in IMF, 2012.
that had severely affected producers, absorbing an average 32 percent of farm gate prices from 2005 to 2011.\textsuperscript{14}

**Figure 15: MDG for sugar in Malawi, 2005–2013 (%)**

![Figure 15: MDG for sugar in Malawi, 2005–2013 (%)](image)

*Source: Authors’ calculations, 2014*

**Nominal Rate of Assistance**

Public expenditures targeted sugar from 2007 to 2009 through the Smallholder out-grower sugar cane project, which received contributions from the European Union (EU) and the African Development Bank (ADB). The main components of the programme were the provision of variable inputs, on and off-farm irrigation and training. Sugar producers received MWK 846, MWK 2015 and MWK 2911 per tonne of sugar in 2007, 2008 and 2009, respectively. This budgetary support was added to the price gap at farm gate and is expressed in relative terms as the NRA (Figure 16). Despite a slight decrease in disincentives in 2007-2009, it is clear that this support has had a very minor impact since incentives in both domains increased by just 1 percent.

\textsuperscript{14} In MAFAP Phase II, the Exchange Rate Policy Gap will no longer be included in the MDG.
Figure 16: Observed and adjusted NRA at farm gate for sugar in Malawi

Source: Authors’ calculations, 2014
6. Conclusion

Main message
It appears that the farm gate prices for raw sugar in Malawi are not correlated with export prices, meaning that, minus the milling fee (40 percent of divisible revenue on sugar and molasses sales) cane growers are paid 60 percent of the domestic wholesale or ex-factory price. Overall, this situation has produced price disincentives to farmers since they received 23 percent less on average than the international equivalent price. Only in 2012 the market environment worked in their favour, since the benchmark price fell sharply while producer prices remained steady.

Sugar cane farmers in Malawi lack price negotiation power as there is one sole buyer and it is also difficult for them to switch to other more profitable crops in case of unfair and non-remunerative prices. Producers have no choice but to pay the milling fee charged by Illovo, a subsidiary of the multinational Associated British Foods, at 40 percent of divisible proceeds from sugar and molasses sales (Corporate Citizenship, 2014). By charging the milling fee to the farmers, Illovo transfers part of the processing costs to them. Such a high fee indicates that the cost of production, processing, and marketing for Illovo Malawi is very high, despite their claim to be one of the top five most efficient processors in Africa. In fact, production costs are very low according to 2007 EPA negotiations (Agritrade, 2010). However, according to Illovo, the contractual arrangements that stipulate these milling fee terms was expected to change in 2014 but evidence and documentation for this change has not been found as of yet. Ensuring that the cane supply agreements between cane growers and Illovo are fair and remunerative should be a key priority, given the lack of competition and the presence of a monopsonistic market environment.

Recommendations
Farmers are not receiving the price they could since the farm gate price does not reflect export price dynamics. Farmers are unable to negotiate due to the monopsony of sugar cane purchase, weak land tenure rights and lack of information.

A revised farm gate price setting mechanism to consider also the export price of sugar in addition to the domestic price may increase the farm-gate price, thus incentivize production, while at the same time protecting farmers from international price shocks. Furthermore, the milling fee charged to farmers of 40 percent of gross revenues from sugar sales is high, despite Illovo Malawi being touted as one of the lowest cost sugar producers in the world. Growers in neighboring countries like Zimbabwe pay around 15 percent less.

It is fundamental to continue encouraging private investment in new sugar mills such as the one currently under construction in Salima. However, increased competition for cane purchase cannot alone address the lack of bargaining power of growers. In the case of a perennial crop like sugar cane, which has a higher degree of asset specificity than other annual crops because the land cannot easily or cheaply be diverted to other uses, contractual relationships between out-growers and processors require increased transparency and government vigilance to ensure fairness and equity.

Furthermore, getting the necessary legislation through in order to implement the Land Bill would contribute to ensuring fair distribution of land to new growers and that displaced people are adequately compensated.
Limitations

Ex-factory sugar prices would enrich the analysis by enabling the measurement of indicators at the point of competition. This would allow us to understand better the price formation at farm gate. Furthermore, having actual processing costs and more information on access costs between the factory and border, such as Illovo’s margins, would certainly contribute to our understanding of the overall incentives structure.

Further investigation and research

The update of this technical note in 2016 will include an additional indicator that measures the profitability of sugar cane cultivation by out-growers. The Effective Rate of Protection (ERP) takes into account not only the output value chain and prices but also the cost of inputs and their corresponding value chain access costs.

In addition, to address the limitations of the current analysis as described above, it would be useful to inquire whether the 40 percent milling fee has been reduced or whether new terms have been drawn up for out-grower contracts. If the terms have changed, a comparative analysis would be highly informative.
References


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## Annex I: Data and calculations used in the analysis

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### Benchmarks
- **Benchmark price observed**: Using USD/Tonne
- **Benchmark price adjusted**: Using USD/Tonne

### Exchange Rate
- **Exchange rate observed**: Using MWK/USD
- **Exchange rate adjusted**: Using MWK/USD

### Access costs border - point of competition
- **Access costs border - point of competition observed**: Using MWK/Tonne
- **Access costs border - point of competition adjusted**: Using MWK/Tonne

### Domestic price at point of competition
- **Domestic price at point of competition observed**: Using MWK/Tonne
- **Domestic price at point of competition adjusted**: Using MWK/Tonne

### Domestic price at farm gate
- **Domestic price at farm gate observed**: Using MWK/Tonne
- **Domestic price at farm gate adjusted**: Using MWK/Tonne

### Externalities associated with production
- **Externalities observed**: Using MWK/Tonne

### Calculated prices
- **Price gap at point of competition**: Using MWK/Tonne
- **Price gap at farm gate**: Using MWK/Tonne

### Indices
- **Nominal rate of protection at point of competition**: %
- **Nominal rate of protection at farm gate**: %
- **Nominal rate of assistance**: %

### Year
- **2005 to 2013**

### Data and calculations used in the analysis

### Observed and adjusted values
- **Observed values** are based on observed data.
- **Adjusted values** are based on adjusted data.

### Calculations
- **Data and calculation used in the analysis**
- **Calculation process**

### Externalities
- **Externalities associated with production** are considered in the analysis.

### Additional notes
- **Details** are provided for each calculation.

### Analysis
- **Analysis** is conducted on each calculated value.

### Values
- **Values** are presented for each year from 2005 to 2013.

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### Quality conversion factor (point of competition - farm gate)
- **Quality conversion factor** is used for calculations.

### Access costs border - point of competition
- **Access costs** are calculated for both border and point of competition.

### Nominal rates
- **Nominal rates** are calculated for both point of competition and farm gate.

### Assistance rates
- **Assistance rates** are calculated for each year.

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### Annex summary
- **Summary** of data and calculations used in the analysis.

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### Further information
- **Additional information** can be found in the annex.

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