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Technical note: Analysis of price incentives for tea in Malawi 2005–2013

September 2014

Monitoring and Analysing Food and Agricultural Policies (MAFAP)

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This technical note was prepared by Alethia Cameron of FAO and Fydess Mkomba of CARD and with support and contributions from Federica Angelucci, Hélène Gourichon, Christian Derlagen and Cristian Morales of FAO.

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CONTENTS

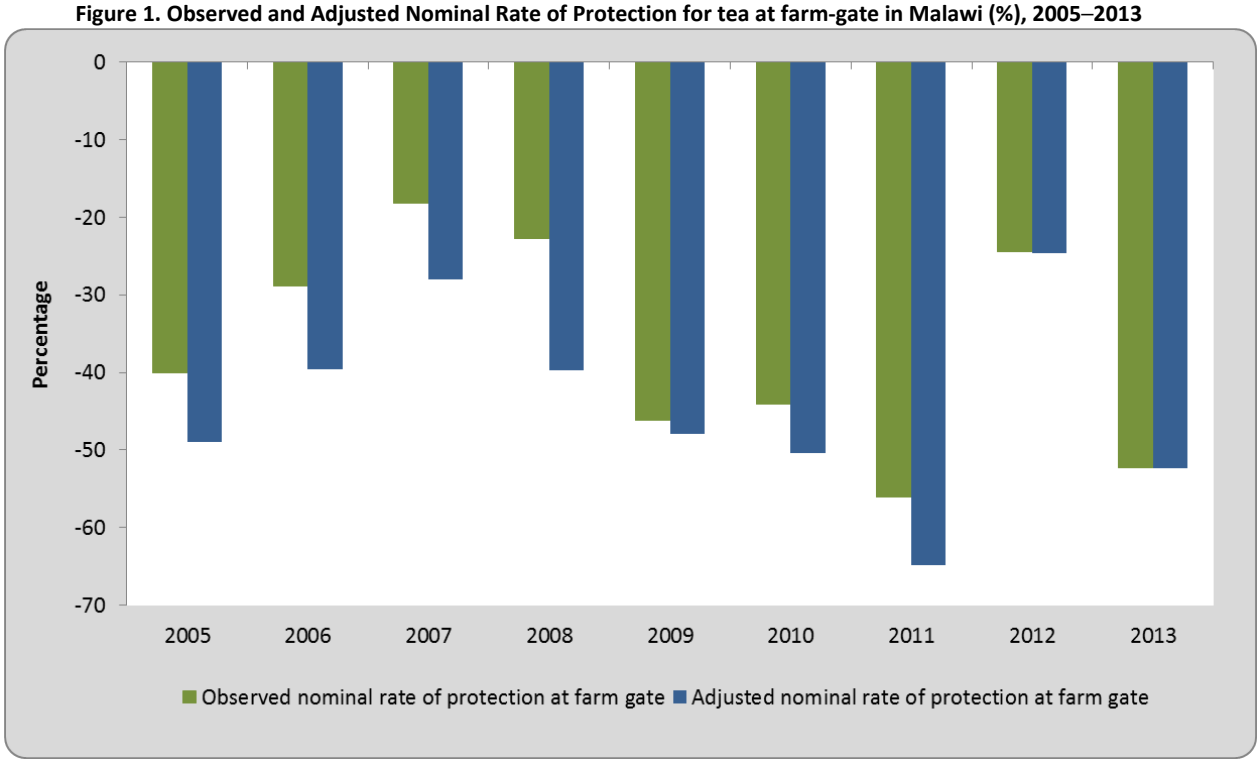
SUMMARY OF THE NOTE

Product: Tea
Period analysed: 2005 to 2013
Trade status: Export Commodity

COMMODITY CONTEXT

- The tea industry in Malawi dates back to 1891, when plants were brought from the Royal Botanical Gardens in Britain. Malawi is the second largest tea producer and exporter in Africa after Kenya. Tea ranks third in terms of export value after tobacco and sugar.
- Black tea dominates the Malawi tea industry and is mainly exported to end markets in Europe, Asia and North America, the majority passing first through South Africa. Malawi produces medium grade teas which have a color and brightness that is a key factor in blending, in fact, most is blended with leading British tea brands.
- Tea production is dominated by estates (around 93 percent) with roughly 11,500 smallholder farmers producing the other 8 percent (Pound, 2013).
- Two thirds of tea produced is sold directly to the buyer. The remainder is sold at the Limbe Auction in Blantyre. There are only two active tea brokers in Malawi and a limited number of buyers involved in both direct and auction sales.
- Producer prices are determined by means of a pricing model which includes base prices reflecting the cost of production and bonuses based on the auction price.
- The tea sub-sector has limited direct policy support from the government and most investment in the sector and services such as input credit, extension services and rural development in tea producing areas are provided by estates as well as Fair Trade premiums.

Figure 1. Observed and Adjusted Nominal Rate of Protection for tea at farm-gate in Malawi (%), 2005–2013



Source: MAFAP, 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 tea producers receive price disincentives to production accounting for an average -37 percent over the 2005–2013 period. The main driver of these high disincentives is the low price of green leaf fixed through the price model.
- The base price reflects the cost of production and includes the cost of labour and inputs. Since the cost of labour comprises the majority of this cost and is paid at just over the official minimum wage, by default the price is low. Moreover, the bonuses reflect the level and trends of the price at auction, while the majority of tea is sold through direct sales where different price dynamics prevail. This impedes the price transmission between export price and producer price.
- Exchange rate misalignment due to the fixed exchange rate policy has resulted in additional price disincentives to producers representing an average -11 percent of the producer price over the 2005–2013 period.

RECOMMENDATIONS

The following recommendations could be explored to gain a better understanding of the tea value chain and to ensure that smallholder tea producers do not receive price disincentives. In this way, they can not only continue but expand and improve small-scale tea production in Malawi.

- Identifying prices and grades for various teas sold through auction and direct sale. Analysing the structure of price incentives for tea marketed through each pathway by considering each point of competition, namely, the auction and the factory gate (in the case of direct sale).
- By analysing the level of incentives at the point of competition, it will be possible to identify and disaggregate inefficiencies in the value chain.
- Reconsidering the price model and exploring possibilities to implement a price model which better reflects price dynamics prevailing in the overall export market.
- Sustaining exchange rate policies which avert exchange rate misalignment.
- Improving the data collection and market information in the tea value chain.
- Explore opportunities offered by the newly established International Tea Producers' Forum.

PURPOSE OF THE NOTE

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

For this purpose, yearly averages of domestic farm gate and wholesale prices are compared with reference prices calculated on the basis of the price of the commodity in the international market. 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 and wholesale 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.

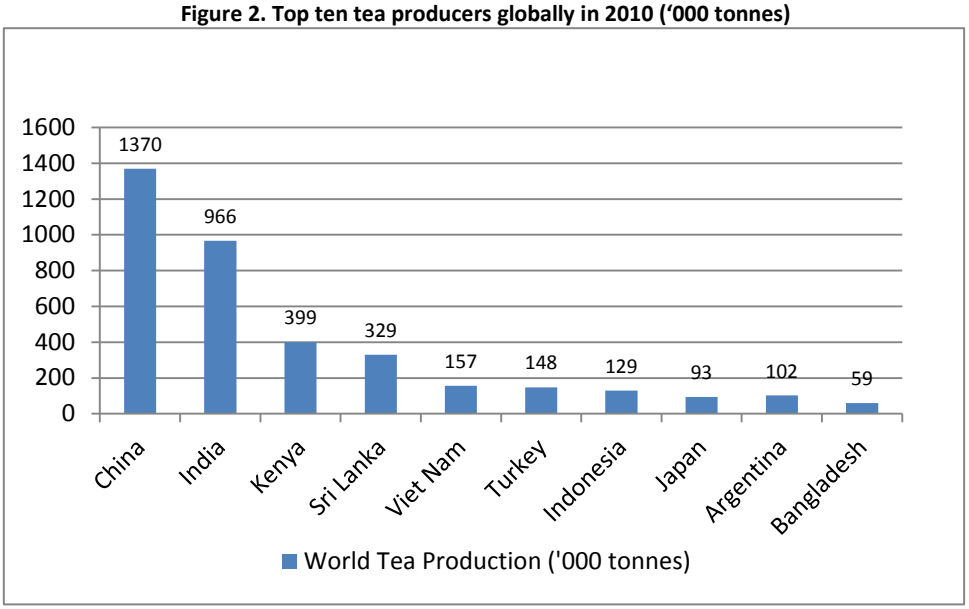
1. COMMODITY CONTEXT

Malawi has been growing tea on a commercial scale for over a century, dating back to the 1880s. In terms of export value, Malawi is the 13th largest tea producer in the world and the second largest producer in Africa after Kenya. In 2011, Malawi exported 46,000 tonnes of tea, valued at US$86.3 million (FAOSTAT, 2014). In 2012, export volume fell to 41,835 but since value increased, export earnings only fell by US$0.3 million (UN Comtrade, 2013). Tea is one of top five agricultural export commodities in terms of volume and ranks 3rd in terms of export value after tobacco and sugar. For smallholder farmers, tea is an important cash crop (together with tobacco, pineapple and sugar cane) for income and therefore food security. Tea farmers rely on estates to process their green leaf into made tea and the majority operate under an out-grower contract scheme. The estates are also a major provider of employment during the high season and recently of infrastructure, schools and healthcare for workers and communities around the estates as well as inputs and credit for smallholder producers through the out-grower contract arrangements.

PRODUCTION

Tea is produced in over 35 countries worldwide but is mainly concentrated in China with 35 percent of total production, followed by India and Kenya with 25 and 8 percent, respectively (Figure 2).

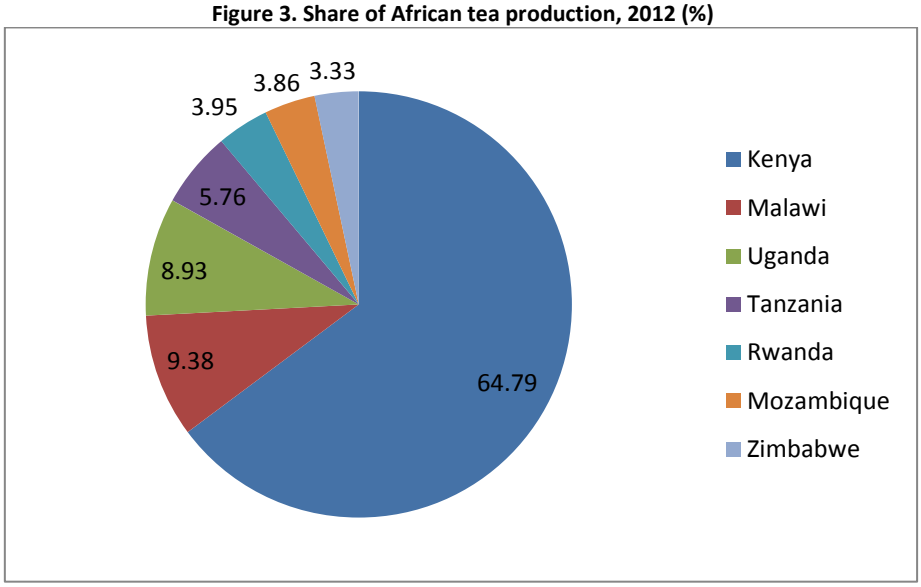
Figure 2. Top ten tea producers globally in 2010 ('000 tonnes)



Source: **ITC, 2010**

Africa produces black tea primarily and is dominated by Kenya with 65 percent of total production, followed by Malawi with about 10 percent and then Uganda with almost 9 percent.

Figure 3. Share of African tea production, 2012 (%)



Source: FAOSTAT, 2014

Malawi tea cultivation areas are concentrated primarily in Mulange (9,335.68 hectares) and Thyolo (8,816.11 hectares) districts in the southeast, with a smaller concentration in the northern Nkhatabay district (648.40 hectares) at Kawaladzi (Chirwa, 2005). These areas (Figure 4) are characterized as having good agro-ecological conditions for tea, such as nutrient rich soils, good rainfall exceeding 1,200mm per year during the rainy season and high elevation of 600-3000 meters above sea level (TRFCA, 2014).

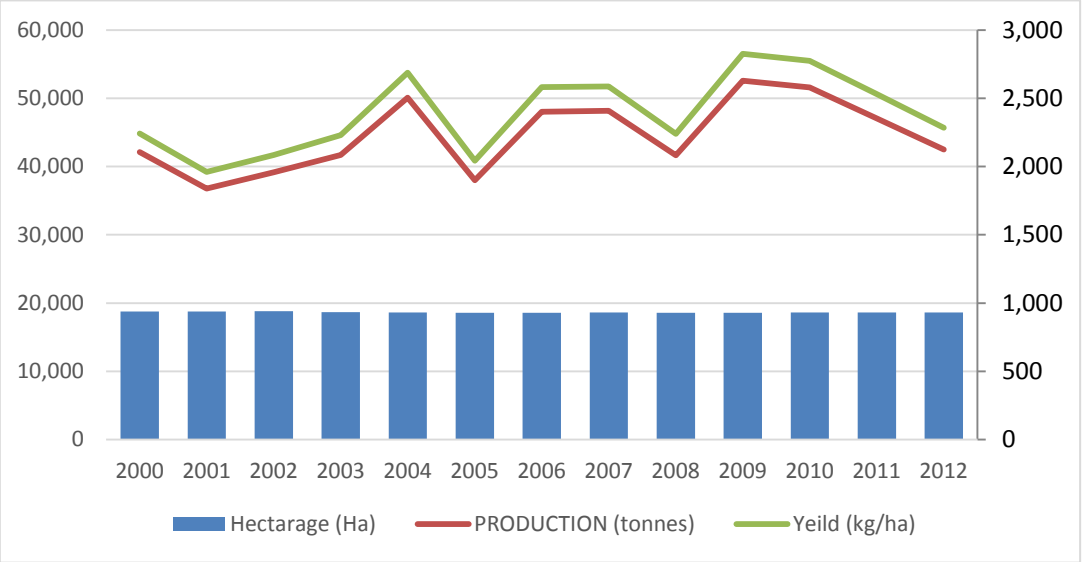
Figure 4. Map of main tea producing areas in Malawi

Source: MAFAP, 2014

There are two distinct seasons for tea production: the rainy season from December to April and the dry season from May to November. The rainy season accounts for over 80 percent of production since tea bushes are growing fast and require more frequent plucking. The concentration of the majority of overall tea production in just a few months has a major impact on the productivity of the sector and the quality of the tea produced. In the dry season, higher quality teas are produced since growers and tea pluckers pay closer attention to best practices and manufacturers have excess processing capacity and can process the green leaf immediately (TRFCA, 2014).

The area planted has changed little over the past twenty years, generally remaining within the range of 18,500 to 19,000 hectares (Figure 5). However, current data shows that there have been wide variations in terms of tea yields with the highest in 2009 (2.8 ton/ha) and lowest in 2005 (2.0 ton/ha). The variations arise because of unpredictable weather patterns, most recently induced by climate change, thereby making tea growing difficult during certain periods. As shown in Figure 5, production and yield follow the same linear trend since the area under tea cultivation remains relatively steady. Tea cultivation in Malawi is mainly rain fed and irrigation is only carried out on estates in Mulanje district where water is available. Recently, there have been new, improved higher yielding varieties that have been introduced by the tea research foundation (research arm of the Tea Association of Malawi) to mitigate this challenge.

Figure 5. Production (left axis: tonnes), yield (right axis: kg/ha) and area planted (left axis: ha) for tea in Malawi, 2005–2013



Source: Data from TAM, 2014

Tea production in Malawi is largely dominated by large commercial estates, accounting for around 93 percent of production, while the remainder is grown by about 11,500 smallholder farmers who share 15 percent of the area under tea cultivation (Pound, 2013 and Malawi CARER, 2008). There are two main smallholder out-grower associations: Sukambizi Association Trust (SAT) and Eastern Out-growers Trust (EOT). Membership has increased since 2009 from 3,500 to 5,000 at EOT and 5,545 to 6,750 at SAT. Increase in membership is mainly due to division of tea gardens through inheritance, leaving the average plot size for smallholders at about 0.25 hectares. Dedication of new land to tea requires time and financial investment since it takes 4 to 5 years for seedlings to grow into commercially viable bushes. Furthermore, during this time, they require pruning, fertilizer and regular watering.

Both SAT and EOT are Fairtrade certified; premiums for tea purchased under Fairtrade terms are used to support tea production of smallholders in several ways: fertilizers are provided free of charge or subsidized, extension and training as well as the establishment of nurseries and the provision of high quality seedlings at subsidized prices. Estates conduct soil and leaf analysis at the smallholder block level and recommend fertilizer based on this as well as anticipated yield. The cost of specialized tea fertilizer (25:5:10:4 NPKS) is high, so often the recommended application rates are low (Pound, 2013).

Tea is the primary source of income for all members of EOT and SAT but most grow other cash crops such as pineapple and sugar cane in order to supplement their income. Since smallholder production is highly dependent on rainfall, 80 percent of tea is produced over about 5 months during the lean season (maize growing season). Leaves are plucked (first two leaves and bud) on a regular 11-day cycle from December to June. Two issues arise from this: one is that food is more expensive during these months, limiting the amount farmers can buy with tea income; the other is that it leads to inefficient use of factory processing capacity since estates are processing high volumes of their own production during these months as well. In other ways tea is an ideal crop since once established, can provide income for up to 100 years and there is minimal risk of total crop failure.

Although smallholders produce less than 7 percent of made tea, it is thought that the future of Malawi's tea sector depends on the growth of smallholders. This is largely due to the inability of estate production and land to be expanded any further. Currently, productivity of smallholders is about half that of estates due to low bush density of smallholders (6-8,000 plants/ha) as opposed to estates (15,000 plants/ha), sub-optimal fertilizer use, less frequent plucking lack of irrigation and time to weed fields regularly (Pound, 2013). These challenges represent an opportunity to increase smallholder yields and productivity.

Estate Production

Tea cultivation by estates constitutes 93 percent of production and estates employ over 50,000 workers during high season. The wage rate of tea pluckers is determined by the Tea Association of Malawi and seems to be set just above the official minimum wage. The pay is based on a piece-rate system whereby a quota is set for the number of kilograms of green leaf to be plucked each day, which may vary by region. In absolute terms, the price paid per kilogram of green leaf, and hence, the earnings of tea pluckers in Malawi are very low and below the World Bank extreme poverty line. However, in relation to others in Malawi, tea wages are reasonable. Additional benefits of tea workers in Malawi relate to housing, healthcare and education as well as bonuses for exceeding the plucking quota (OXFAM, 2013).

CONSUMPTION/UTILIZATION

The majority of tea produced in Malawi is exported. Usually, domestic tea consumption is in the form of a simple beverage made by mixing hot water, sugar and blended tea leaves. Only 1 percent of tea produced is consumed locally (Pound, 2013).

MARKETING AND TRADE

Historically, the majority of tea was exported to the UK but over the last decade, this amount has halved, replaced by the United States, Pakistan and other European markets. The other half of tea exports are sent primarily to South Africa and Kenya, where they are re-exported. Tea from Malawi is

relatively free of pesticides and has good characteristics for blending, namely the bright coppery colour and strong brisk taste. Although tea is processed and basically a finished product when it is exported from the producing country, blending and packing is the most lucrative step in the tea value chain yet most of producing countries such as Malawi do not have the capital required for marketing tea for the consumer market. Over 99 percent of Malawi tea exports are processed black tea in bulk packages exceeding 3kg (ITC, 2012).

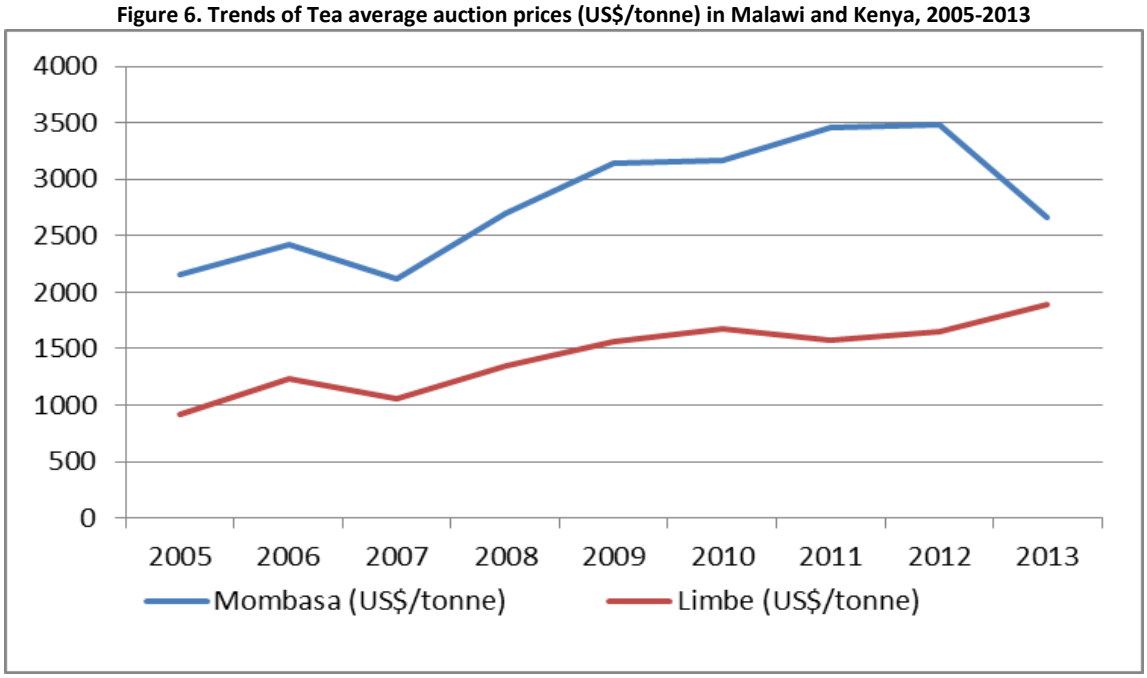
Global Market

International tea trade is dominated by very few multinational companies, namely Unilever, Tata Tea, Van Rees and James Finlay and the supply chain has a strong vertical integration including these and other multinationals such as Mcleod Russel and John Kells on the production and processing side and Twinings on the blending and packing side. Roughly 70 percent of all tea is sold through auctions before exporting to consuming countries for blending and packing. This stage of the value chain is by far the most lucrative and generally takes place in the importing country. Most producing countries sell bulk processed tea, which although is 'ready to drink' is not packed and branded and receives a price one sixth its potential value (Grooseman, 2011).

International tea prices have been kept artificially low by a persistent oversupply fuelled by fierce competition between producing countries for market share. Global production has continually increased despite severe droughts in Kenya, India and Sri Lanka. International tea prices were actually lower in 2000-2005 than ever and in fact half of tea prices in the 1980s if corrected for inflation. Since the cost of production has risen, especially in the last decade, the long-term profitability of the tea industry is becoming threatened (Grooseman, 2011).

The recent increase in demand and reduced supply due to drought has led to an estimated 0.8 percent growth in consumption over production from 2005 to 2009, making prices 30 percent higher in 2009 than the year before (Figure 6). Although prices fell temporarily due to improved rains, drought in Kenya drove prices up again in 2011 (Grooseman, 2011). Perhaps in response to high tea prices of 2009 to 2012 and due to good weather, global tea output increased substantially in 2013. Kenya's output rose 17 percent, increasing sales volumes but forcing prices sharply downward (Ananthanarayanan, 2014).

Figure 6. Trends of Tea average auction prices (US$/tonne) in Malawi and Kenya, 2005-2013



Source: IMF, Reserve Bank of Malawi, 2013

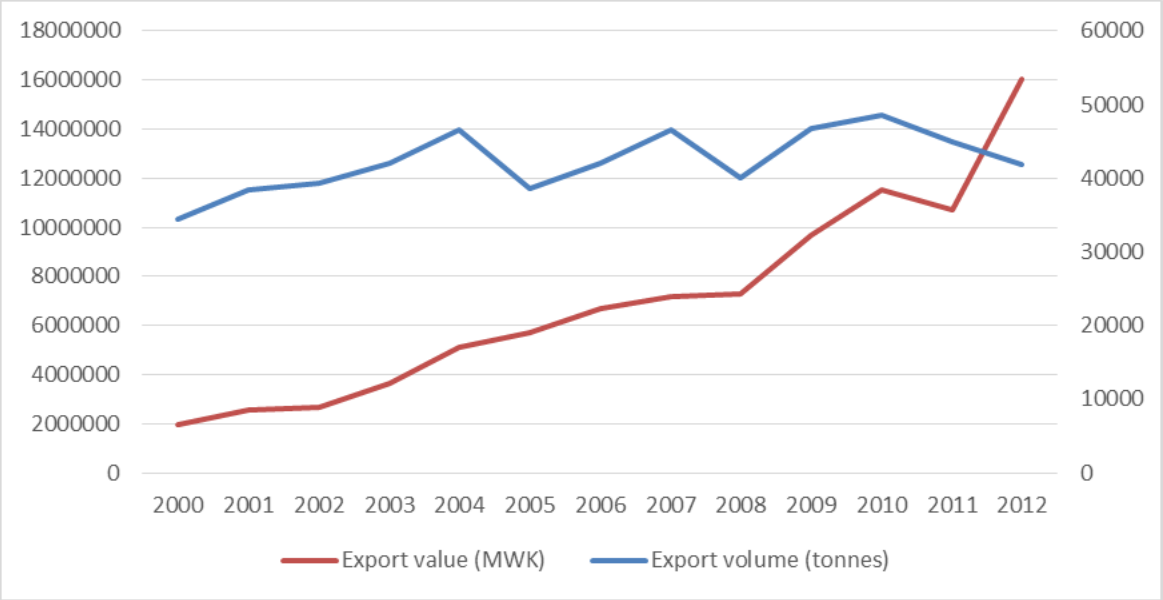
Domestic Market

Malawi prices follow a similar trend to Kenya due to generally similar climatic and market conditions (Figure 6). In 2012, Malawi and Kenya as well as India and Sri Lanka faced adverse weather conditions and therefore saw higher prices at auction that year (Amalawi, 2014).

Malawi tea prices are largely determined by both international and domestic supply where years of good harvest represent low prices that year or even the next if the surplus carries over. In 2008, prices increased by 20 percent due to a fall in production to 41,639 tonnes from 48,141 tonnes in 2007. Whereas prices in Kenya remained relatively stable from 2009 to 2010 due to the financial crisis, demand for Malawi tea rose, possibly due to the lower price of Malawi versus Kenya tea (Banda, 2009).

In 2010, Malawi's top grades of tea, particularly 'pekoe fannings' (PF1) were in high demand, bringing up the overall auction price (Jomo, 2010). As shown in Figure 7, values in MWK terms increase more dramatically than in US$ terms as shown in Figure 6, particularly in 2012. Revenue increased 50 percent in 2012 from 2011 in MWK terms but did not increase significantly in dollar terms due to the devaluation of the kwacha from MWK 168 to MWK 250 per US$ in May 2012 (RBM, 2012).

Figure 7. Trends of tea export volume (left axis: tonnes) and value (right axis: MWK) in Malawi, 2005–2012

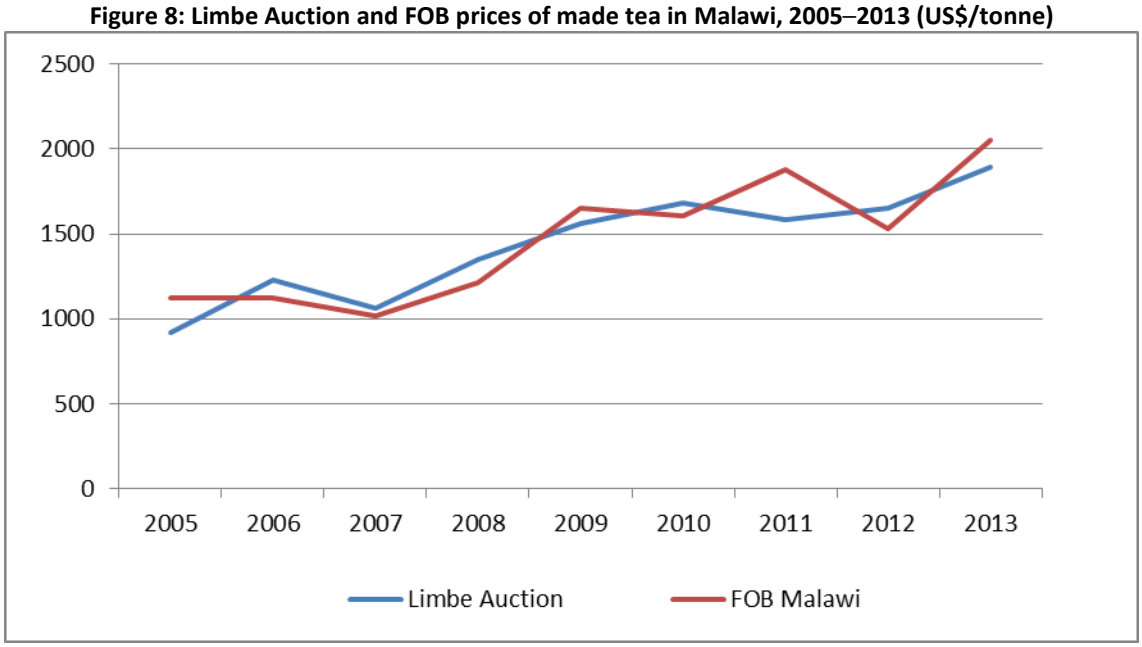


Source: TAML, 2014

Tea prices increased in 2013 but auction volumes and thus overall earnings fell according to the RBM, possibly due to outstanding direct contract sales from 2012, unmet due to low output (Amalawi, 2013).

About one third of tea over the period 2005–2012 was sold through auction, the remainder is sold directly to buyers (RBM, 2013) (Figure 9). The auction helps to attract higher prices for good grades and high quality tea. As shown in Figure 8, the auction price is higher than the average FOB price of total tea exported in 5 of the 8 years under review.

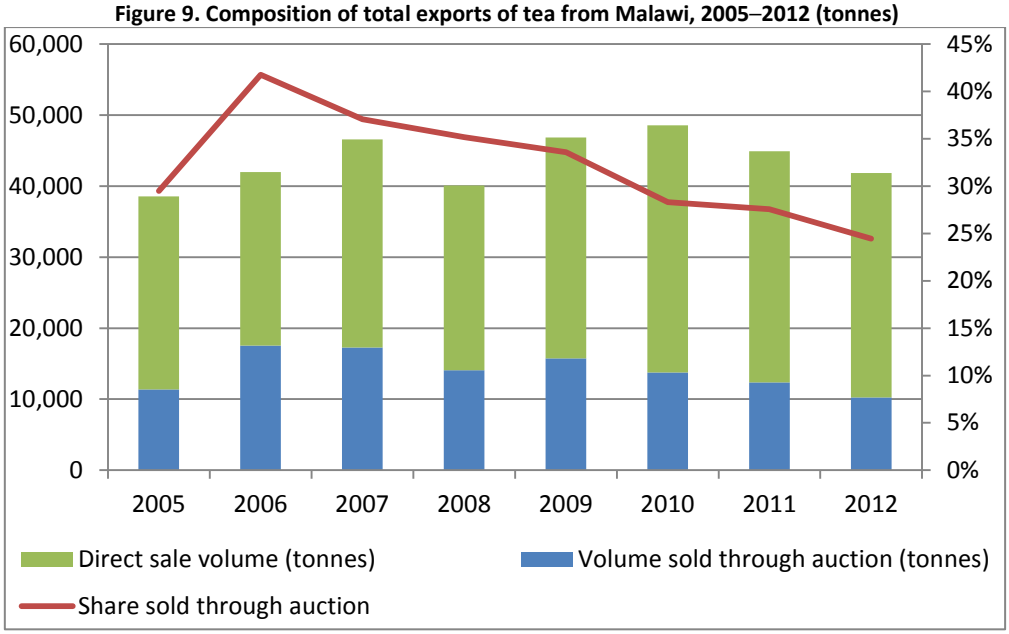
Figure 8: Limbe Auction and FOB prices of made tea in Malawi, 2005–2013 (US$/tonne)



Source: NSO and RBM price data, 2014

The majority of the estates rely on direct sales of their crop, either as multinational producers and exporters themselves or through one of the two tea brokers in Malawi, [1] who help connect sellers to international buyers at a commission of normally 1.5 percent from the seller and 0.5 percent from the buyer (Agar, 2002). Brokers also play a major role in auction sales by distributing tea samples to buyers before the auction.

Figure 9. Composition of total exports of tea from Malawi, 2005–2012 (tonnes)



Sources: RBM, 2013 and TAML, 2014

In some instances, Malawian estates transport tea to the Mombasa tea auction in Kenya, one of the largest in the world, in order to attract more buyers. Buyers are attracted to Mombasa because tea is easily shipped immediately to the port after auction whilst from Malawi, shipments may be delayed for some days at Beira, Mozambique or require transport through the port of Durban, South Africa (TAM, 2014).

Data presented in Table 1 clearly indicate that Malawi sellers do not get better rates for selling through Mombasa, where Malawi tea is poorly priced, selling for about 50 percent higher at Limbe Auction. In Africa, Kenya's tea has highest value at around US$3/kg. Burundi & Rwanda's tea also commands a high price. The Lowest price paid is for Mozambican tea at just 99 US cents/kg, 1/3 of the Kenyan tea price.

[1] Tea Brokers Central Africa and Tea and Commodity Brokers Ltd.

Table 1. Tea prices on the Mombasa tea exchange, 2011-2012 (US$/kg)

Tea prices on the Mombasa tea exchange, US $/kg			
Country	Jan-Mar 2011 (ave)	Jan-Mar 2012 (ave)	% change
Kenya	3.04	2.95	-3
Burundi	2.96	2.76	-6.8
Rwanda	2.95	2.73	-7.5
Madagascar	2.17	1.81	-16.6
DRC	2.09	1.74	-16.7
Uganda	1.87	1.68	-10.2
Tanzania	1.6	1.29	-19.4
Malawi	1.42	1.11	-21.8
Mozambique	1.37	0.99	-27.7

Sources: International Tea Committee, Ecobank Research

Tea prices discussed thus far relate to the price of 'made tea', or processed tea and so concern agents in the value chain from post-factory to export. The price of pre-processed tea or 'green leaf' tea adheres to a valuation system separate from the general supply and demand price determination mechanism. Furthermore, tea picker wages and out-grower green leaf prices are not the same. As mentioned previously, the income of tea pickers is based on a wage rate system. Green leaf prices for out-growers will be discussed below.

Out-grower Green Leaf Tea Pricing

The green leaf pricing model in Malawi is rather sophisticated and involves a national pricing committee made up equally of processors and farmers who meet every 6 months to determine the base and bonus price of green leaf. The committee uses an agreed cost of production and processing (COPP) formula which is normally updated during the period of consideration. Estates and out-growers are required to openly share their cost of production and processing (COPP) whereby an average COPP is determined for the entire estate sector and an average CoP for all farmers. Smaller, less efficient estate factories will bring the average costs up slightly for estates and more distant out-growers will bring up average costs for farmers.

The base price is the COP for tea farmers. The 'profit' which is the difference between the updated COPP of estate processors and realized Limbe Auction weighted average price is shared equally (50:50) between farmers and processors. This profit share constitutes the bonus payment per kilo of green leaf. The process and calculations are verified by a reputable Audit firm and the MoAFS acts as observer to the pricing committee (TAM, 2014; FTF, 2010).

The MoAFS oversees this committee and the formula and calculations for pricing is reviewed by an external and independent auditing firm. Auction prices are used to calculate bonuses even though they are slightly higher on average than direct sales, increasing the profit share of smallholders, since using direct sales would be more difficult and less transparent.

Since only one third of tea is sold through auction, estates feel that this bonus system is not reflective of the actual price received for most of the tea sold. However, the use of the auction price is the most transparent method. There is a process underway that will incorporate a price incentive

for higher quality leaf provided by smallholder farmers that is reflective of the prices for different grades of tea sold at auction (Pound, 2013).

Although prices have increased, farmers feel they should be paid more for green leaf to compensate for increasing input costs and currency devaluation. Unfortunately, very few farmers keep records of farm costs so there is not sufficient evidence to support the claim, nor the price increase. On the other hand, estates lament that prices barely cover the cost of processing (Pound, 2013).

In 2013, a landmark was achieved among tea producing countries to mitigate low prices and oversupply through the formation of the International Tea Producers Forum. Founding members; Sri Lanka, India, Kenya, Indonesia, Rwanda and Malawi, who account for over 50 percent of world tea production, will initially focus on knowledge sharing and boosting demand. Future initiatives could include supply controls. Ensuring high quality standards and stable prices are expected to improve smallholder producer livelihoods (BBC, 2013).

DESCRIPTION OF THE VALUE CHAIN

The tea value chain in Malawi (Figure 10) begins in the tea gardens of smallholder farmers or on the estate plantations. Estate tea is produced on a large scale and is generally of a lower quality than smallholder tea. Estates make up 93 percent of total production and the majority is sold directly to buyers in large volumes. In this analysis we will focus primarily on the smallholder value chain although they are not entirely distinct post-processing; some of the smallholder tea may be sold at auction and other smallholder tea may be combined with estate produced tea and sold directly to foreign buyers. On the other hand, estates will produce some high quality teas that will be sold at auction, while the rest is sold directly.

Smallholder Value Chain

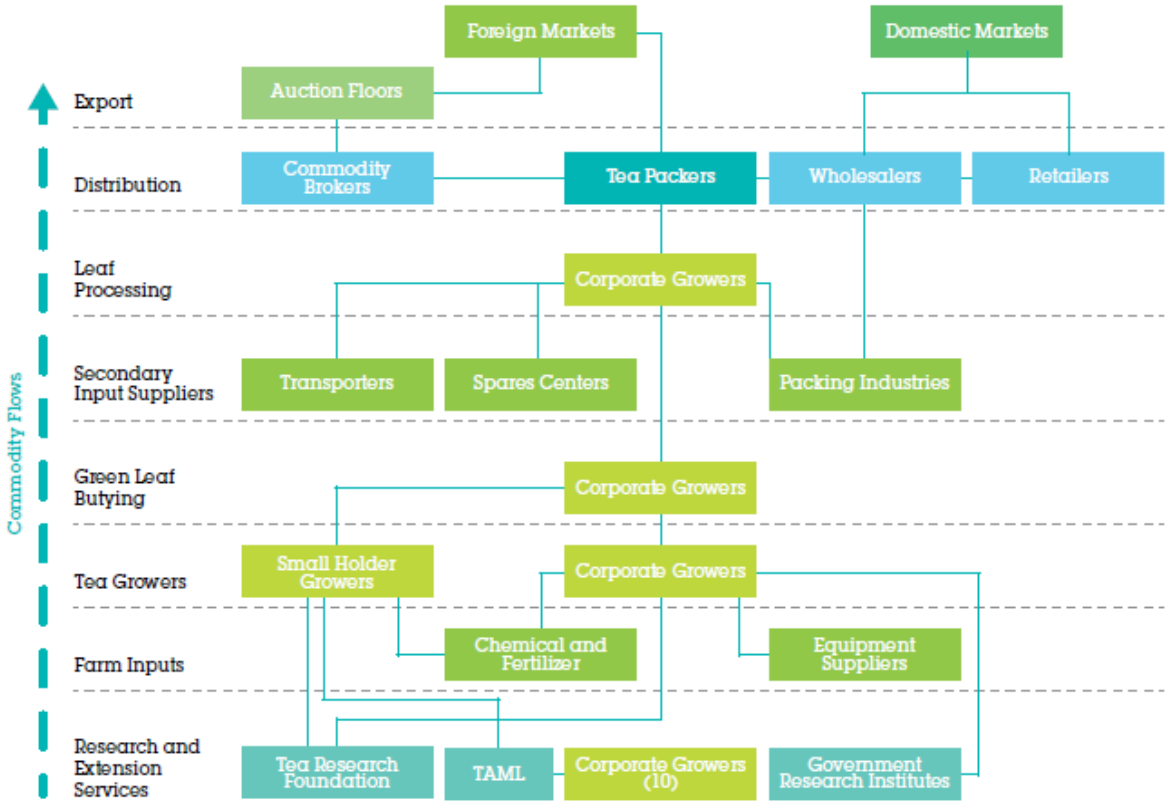
Smallholders are organized into blocks within the National Smallholder Tea Development Committee (NSTDC) which was formed in 2003. The NSTDC, composed of 12 members, represents small-scale tea producers in Milange and Thyolo districts in discussions or negotiations with TAML and with the government (Pound & Phiri, 2009).

Through the NSTDC, tea farmers negotiate out-grower contracts with estates to buy green leaf at designated points and at scheduled times. Tea leaves must be processed immediately after plucking (within 12 hours is optimal) otherwise they spoil. The leaf is weighed at the collection point and checked that it meets the agreed specifications and then is transported to the factory. Furthermore, estates provide fertilizers on credit and extension support to farmers. Provision of inputs such as tea specific fertilizer and seedlings follow the same path, with estates simply making deductions from monthly payments to farmers (Pound & Phiri, 2009).

Most smallholder tea farmers in Malawi are members of either SAT or EOT out-grower organizations, aligned with Lujeri and Eastern Produce estates, respectively. Both of these organizations have been Fairtrade certified since 2008. For every kilo of made tea sold under Fairtrade terms, US$ 50 cents is put toward community development or projects that support tea farmers. The premiums are not paid directly to farmers as cash income but subsidized inputs are significant. Farmers receive free or subsidized tea fertilizer, access to community nurseries that sell subsidized, high quality and fast growing tea seedlings, and in some cases small-scale irrigation works (Pound, 2013).

The share of tea produced by SAT smallholders sold on Fair Trade terms increased from 41 percent in 2009 to 77 percent in 2010 before falling to 66 percent in 2011. That means that SAT smallholders received US$ 644,000 in 2010 and US$ 551,055 in 2011. For EOT, the share decreased from 48 percent in 2009 to 34 percent in 2011 but a new contract is expected to recover these shares (Pound, 2013).

Figure 10: Malawi Tea Value Chain



Source: USAID, 2006. Credit demand and supply study of Malawi's tea sector. USAID, Washington and Pound, 2013.

Processed Tea ('made tea')

Processing involves withering, drying, cutting, curing and grading. There are 11 international companies in Malawi who own the 44 estates and 21 processing factories (Chirwa, 2005). Eastern Produce owns 21, almost half of all the estates in Malawi. The estates process green leaf from their own fields as well as that of smallholder farmers with whom they are connected through out-grower contracts. Previously, smallholders sold their tea to the state-owned company STECO in Mulange but due to inability to pay farmers on time and other management issues, the factory has been closed down.

There are two market pathways for processed tea. About one third up to one half of made tea is sold through Limbe auction in Blantyre (Agar & Chiligo, 2008). Once the green leaf has been processed into made tea, processors send samples of 4-5kg to brokers who taste, price and produce a catalogue of available tea and circulate it to potential buyers. The buyers then bid for the tea at auction in the following weeks. At Limbe, tea auctions are held weekly in the high season and fortnightly in the dry

season. Once the tea has been purchased, the processor is required to deposit the specified quantities to warehouses for export.

The remainder of the tea produced in Malawi is sold directly to the buyer, usually in high volumes of lower grades. Brokers also play a role in direct sales through facilitating transactions and finding buyers at a commission of 1.5 percent to the seller and 0.5 percent to the buyer (Agar, 2002). The teas that are sold through the auction are generally of a higher grade, since this is a way to expose quality teas to new buyers. The price of tea at auction is higher than tea sold directly, likely due to the higher quality and the increased access costs involved. However, estates often prefer direct sales since they receive payment upfront.

Although there are 30 registered tea and coffee merchants in Malawi, there are five active buyers including Unilever and Lysons Tetley but only 2 main buyers: James Finley and Van Rees, accounting for over 70 percent of auction purchases. These companies act as agents for other multinational buyers, sourcing tea directly from estates or buying at auction on behalf of their clients. Beyond these activities, they also take care of storage and warehousing, blending and packing as well as logistics for overseas clients. Only a minimal number of small to medium scale Malawi-owned enterprises and a small proportion of other foreign–owned companies and multinationals account for the remaining balance (MNES, 2012).

POLICY DECISIONS AND MEASURES

In Malawi, the tea sector is free from government intervention and is self-regulated under the Tea Association of Malawi (TAML). There are no direct tea related policies but many agricultural and trade policies affect the sector indirectly.

National strategies

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, thereby increasing production and export volumes of key export commodities including tea. To achieve this objective, the strategy planned to promote out-grower schemes as well as provide improved technology to enhance output quality.

More specifically to the tea sector, ASWAp objectives include; the provision of clonal tea bushes for smallholders in the equivalent of 100 ha by 2015, to increase the unit value of tea exports by promoting quality through compliance to varieties and grading and to increase total volumes of tea exported from 44, 000 to 60, 000 tonnes by 2015.

National Export Strategy (NES)

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 environment” (NES, 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 which includes tea (NES, 2012).

Tea is not a top priority in the NES but remains an important export earning commodity. The strategy highlights the need for stakeholders to develop a competitiveness strategy that focuses on improved plucking, investing in nurseries, and composting. Furthermore, stakeholders are encouraged to collaborate in the implementation of branding initiatives such as Fair Trade. Finally, increased dialogue between government and exporters regarding export remittances and capital flight are required to ensure an equitable outcome (NES, 2012).

Internal trade

Regulation and promotion of competition

To ensure a proper functioning and competitive market, the Competition and Fair Trading Commission (CFTC) has been established under the Competition and Fair Trading Act of 1998. Its role is to investigate and prohibit anti-competitive and unfair trading practices. However, the CFTC activities are constrained by a lack of resources and independence.

Foreign trade

Acquiring an export license for agricultural commodities in Malawi can take anywhere from a few weeks to one month or more (ITC, 2012). Food security is the main justification for the requirement of such a license; however, the license is also required for non-essential food products like tea.

There is a long tradition of customer relations between tea exporters in Malawi with clients in Britain and Africa. Amongst partners from newer and smaller markets such as Asian and Near Eastern, have found export licensing procedures to have delayed exports substantially. According to an International Trade Centre survey, the major obstacle facing companies wishing to obtain an export license was related to unpredictable delays and not any quantitative restriction. This delay is due to lengthy bureaucratic procedures as the MoAFS deals with applications individually and each license must have the Minister of Industry and Trade's approval. This process is sharply contrasting to tobacco export licenses, which are handled by the Tobacco Control Commission (TCC) and are processed in a matter of minutes (ITC, 2012).

There is an import tax on tea which was increased to 25 percent in July 2009, the rationale for which is not entirely clear (ITC, 2012).

Production support measures

Farm Input Subsidy Programme (FISP)

Input subsidies have been an important feature of Malawi's agricultural sector for decades, until they were largely abolished in the 1990s. Following the Malawi food crisis of 2005 however, a large-scale input subsidy programme was re-introduced during the 2005/06 crop season to tackle some of the key constraints to increased production faced by Malawian small-scale farmers, including low yields and high costs of inputs. Although the main focus of the FISP was the subsidization of fertilizers for maize, other crops were included at certain times over the years such as tobacco. Coffee and tea farmers were promised subsidies before the 2009 election but come the 2009/10 growing season, did not receive them (Chinsinga, 2014).

Support to the smallholder tea sector

The smallholder sector dates back to 1966 when Malawi received independence and it was decided that commercial crops in Malawi should no longer be dominated by large or foreign companies. In 1967, the government formed The Smallholder Tea Authority (STA) under the Ministry of Agriculture with financing from the British Common wealth Development Cooperation (CDC) to develop and promote smallholder farmer tea production. Registered farmers received support through extension services and subsidized inputs such as seedlings and fertilizers. The Malawi Tea Company (MATECO) was established in 1974 to purchase and process smallholder tea (SOMO, 2008).

The project remained highly political and the intended beneficiaries lost their enthusiasm. STA and MATECO were dissolved by the government and the Smallholder Tea Growers Trust (STGT) and Smallholder Tea Company (STECO) were established in their stead. STECO faced issues paying farmers and began to accumulate debt. In 2006, the factory was closed and sold by the government to a private investor. Smallholders have since been working in close partnership with estates, the most prominent in terms of smallholder out-grower contracts being Lujeri, Eastern Produce and Makandi (SOMO, 2008).

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's 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 $\left(RP_{ofg}\right)$ 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[2] 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 $\left(RP_{ofg}\right)$ 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 $\left(PG_{ofg}\right)$ are as follows:

$$PG_{owh} = P_{wh} - RP_{owh}$$

[2] 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.

$$PG_{ofg} = P_{fg} - RP_{ofg}$$

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:

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

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:

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

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.[3] Mathematically, the Nominal Rate of Assistance is defined by the following equation:

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

[3] The NRA indicator was not calculated for any of the commodities analyzed because of insufficient data on public expenditure. However, it will be developed in the forthcoming reports, as the public expenditure analysis is improved and better data are made available.

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:

$$MDG_{fg} = \frac{(ACG_{wh}+ACG_{fg}+EXPG+IMG)}{RP_{afg}}$$

where ACG_{wh} is the access cost gap at wholesale defined as the difference between observed and adjusted access costs at wholesale, 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.

A more detailed description of the methodology applied in this analysis is available on MAFAP's website at www.fao.org/in-action/mafap/en/.

2. 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

As shown in Table 2, Malawi was a net exporter of tea from 2005 to 2012, exporting an average 95 percent of production and this remains the case for 2013. Therefore, tea is treated as an export commodity in this analysis of price incentives to production.

Table 2. Tea production and exports in Malawi, 2000–2012 (tonnes)

	2005	2006	2007	2008	2009	2010	2011	2012
Production ('000 tonnes)	37,978	48,010	48,141	41,639	52,558	51,591	47,056	42,490
Export ('000 tonnes)	38,545	41,962	46,585	40,068	46,836	48,579	44,893	41,834
Domestic Consumption	-567	6048	1556	1571	5722	3012	2163	656
Share Exported	101.49	87.40	96.77	96.23	89.11	94.16	95.40	98.46

Source: TAML, 2014

MARKET PATHWAY ANALYSED

The market pathway analysed is from the smallholder out-growers to export, whether through auction or directly to buyers. The main tea producing areas in Malawi are Mulanje and Thyolo in the southern region and to a lesser extent Nkhatabay in the northern region. All tea will pass through Blantyre since this is where the auction and major buyers are located before being shipped primarily to the port of Durban, South Africa. Other major export ports are Beira, Mozambique and Mombasa, Kenya although transport to Mombasa presents a prohibitive cost relative to the price of Malawi tea in Kenya.

No point of competition has been considered in this analysis. The auction level has not been taken as the point of competition for two reasons; firstly, as shown in Table 3, it is not representative of the majority of tea sold since only one third of total export volume flows through the auction floors.

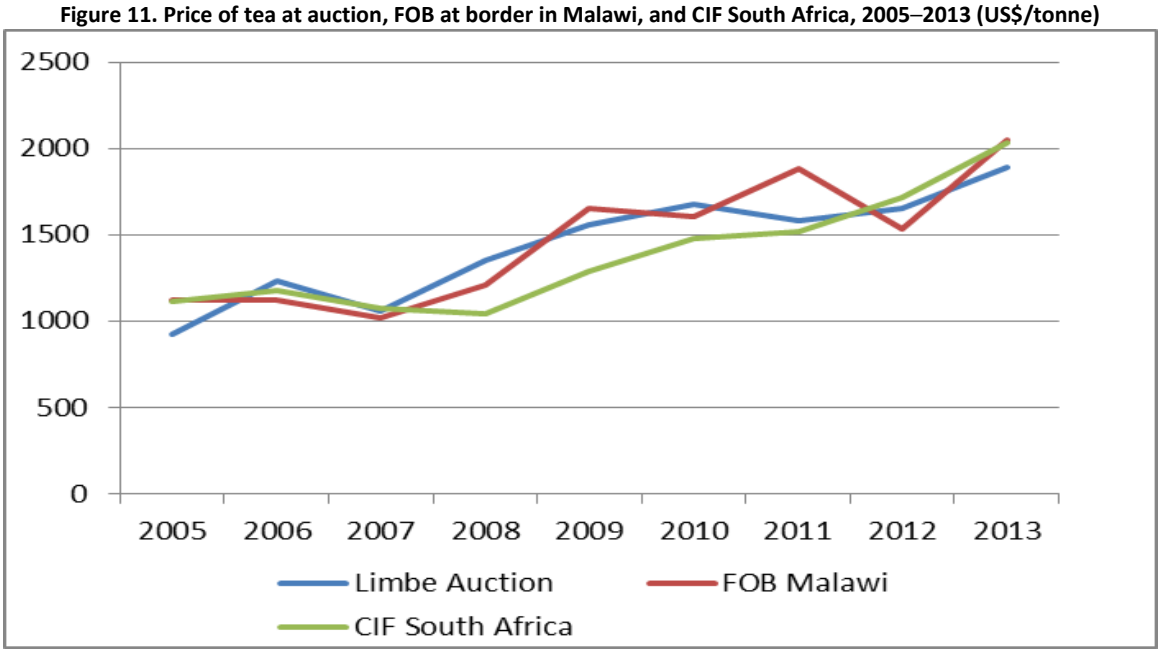
Table 3: Calculations of direct vs auction sales of tea in Malawi, 2005–2012

	2005	2006	2007	2008	2009	2010	2011	2012
Total value auction (MWK million)	1,239	2,933	2,563	2,673	3,463	3,476	3,061	4,206
Real Exchange rate	118	136	140	141	141	150	157	249
Total value auction (US$ millions)	10	22	18	19	25	23	20	17
Value of auction (US$)	10,462,782	21,561,824	18,309,157	19,024,685	24,534,072	23,101,052	19,557,813	16,885,988
Unit price at Limbe auction (US$/tonne)	920	1,230	1,060	1,350	1,560	1,680	1,580	1,650
Estimation of volume sold auction (tonnes)	11,373	17,530	17,273	14,092	15,727	13,751	12,378	10,234
Total export volume	38,545	41,962	46,585	40,068	46,836	48,579	44,893	41,834
Estimation of volume direct sale (tonnes)	27,172	24,432	29,312	25,976	31,109	34,828	32,515	31,600
Share of tea sold through auction on total value of export	0.30	0.42	0.37	0.35	0.34	0.28	0.28	0.24
Share sold direct on total value of export	0.70	0.58	0.63	0.65	0.66	0.72	0.72	0.76

Sources: RBM, 2013 and TAML, 2014

Secondly, as shown in Figure 11, the auction price is often higher than the average FOB price, indicating that there is a significant quality difference between auctioned tea and tea sold directly. Factory gate prices were not available to be taken as the price at point of competition.

Figure 11. Price of tea at auction, FOB at border in Malawi, and CIF South Africa, 2005–2013 (US$/tonne)



Source: Author's construction based on NSO and RBM price data

Since the FOB price includes both direct and auction sales, the average export price is brought down, bringing it below the auction price in most years. For this reason, it is not possible to use the auction price as the point of competition in the analysis. Furthermore, due to lack of data on factory gate and direct sale prices, it was not possible to conduct an analysis at the point of competition at all.

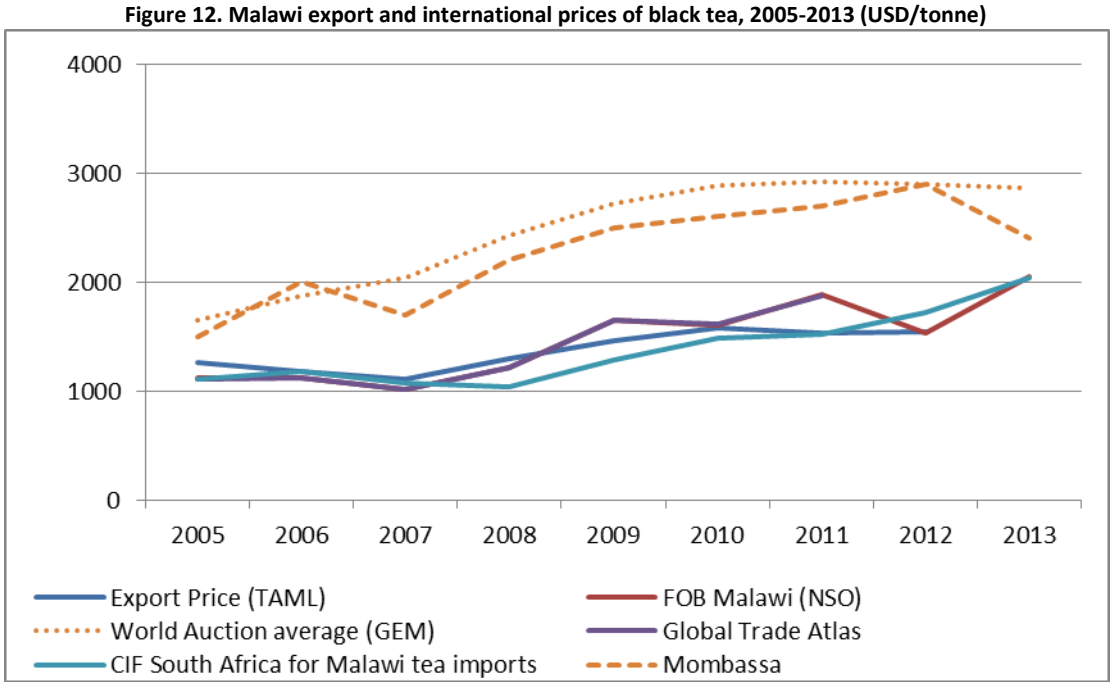
BENCHMARK PRICES

Observed

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

Since Malawi is considered a net exporter of tea during the period 2005-2013, the benchmark price is the FOB price for black tea. The export price represents the average price of all grades of black tea exported from Malawi. It is estimated based on the total custom value and the total volume of exports. Various national and international sources such as the Tea Association of Malawi (TAML), the National Statistics Office (NSO) and the Global Trade Atlas record export volume and value, from which an average annual price can be calculated. Prices presented below correspond to the HS code 09024000- Black tea fermented/Partly fermented, flavoured or not, in packing of >=3Kg, which represents the type of tea mainly traded (NSO, 2014).

Figure 12. Malawi export and international prices of black tea, 2005-2013 (USD/tonne)



Source: TAM, NSO, GTA, 2014

This CIF price for Malawi tea imports to South Africa was considered an optional benchmark but the price was lower than the Malawi FOB price in several years.

There are slight discrepancies across national sources but data from NSO was selected for this analysis. Indeed, NSO reports data based on export volume and value which are recorded by the Malawi Revenue Authority (MRA) at customs.

Adjusted

No adjustment to the benchmark price is made. Despite the likely presence of global market distortions due to the very limited number of players in the international value chain, there is not sufficient information available on the exact level of distortions in order to conduct analysis on an adjusted international benchmark.

DOMESTIC PRICES

Only the domestic price at farm-gate is used in this analysis. However, the auction price remains an important aspect of the farm-gate price since it is used to construct the bonuses that farmers receive for green leaf. The auction price will thus be referred to throughout the analysis in relation to the farm-gate price as well as in comparison to the export price.

Price at point of competition

No price at point of competition is used in the analysis as explained in the 'MARKET PATHWAY ANALYSED' section above.

Farm-gate price

This analysis takes into account the prices paid to tea farmers through negotiations at the National Tea Pricing Committee and thus includes bonus pay-outs based on auction sales and does not reflect the prices received by estate employed tea pickers.

Farm gate prices of green leaf tea as presented in Table 4 have been compiled using several data sources. The first is a study on Contract Farming in Malawi (Agar & Chiligo, 2008), which includes base and bonus prices from 2005 to 2008. The base prices for 2009 to 2011 have been estimated based on the CoP of tea growers as outlined in Agar & Chiligo (2008) (see Table 5). The base price of green leaf for 2012 was reported in a Fair Trade impact study (Pound, 2013) as MWK 32.50, rightly doubled in relation to 2011 in order to compensate farmers for the inflated currency after devaluation in May 2012. Since the currency was still freely floating against the US dollar in 2013, and since the base price is calculated in US dollars, then converted to kwacha at the official exchange rate, we can assume that the cost of production has not changed significantly since mid-2012 and use the official exchange rate to acquire the base price for 2013.

Table 4. Green leaf tea prices in Malawi, 2005–2013 (MWK/kg)

Green leaf prices

Year		2005	2006	2007	2008	2009	2010	2011	2012	2013
Price(Mk/kg)		10.25	11.3	12.3	13.75	14.04	13.90	13.93	32.50	47.54
Bonus	Jan to June	2.2	3.79	1.73	5.5	5.3	7.73	5.2	5.34	13.26
Bonus	July to Dec	1.5	3.88	2.47	na	7.77	6.6	8.53	18.99	5.47
Annual average bonus		1.85	3.84	2.10	5.50	6.54	7.17	6.87	12.17	9.37
Overall price (Mk/kg)		**12.1**	**15.135**	**14.4**	**19.25**	**21**	**21.07**	**20.80**	**44.67**	**56.91**
MK/tonne green leaf		**12100**	**15135**	**14400**	**19250**	**20570**	**21069**	**20796**	**44665**	**56905**
MWK/tonne made tea		56265	70378	66960	89513	95652	97969	96703	207692	264608
USD/tonne made tea		475.13	517.43	478.43	637.00	677.58	651.01	617.85	833.75	726.13
MWK/USD (nom)		118	136	140	141	141	150	157	249	364

Agar & Chiligo, 2008 | Constructe based on CPI adjusted CoP | Fair Trade, 2013

Tea Association of Malawi Secretariat - Clement Thindwa

Sources: Author's calculations based on Agar & Chiligo (2008), Pound (2013) and TAML, 2014

Bonus prices for 2009 to 2013 are from TAML. Bonuses are paid on top of the base price per kilo and change bi-annually. Therefore, we have taken the average annual bonus. These were added to the base prices and then, to make the farm gate price comparable with the export price, the price was multiplied by 4.65 in order to arrive at the equivalent price of made tea, as is done in the TAML formula.

Base price estimation

The price of green leaf tea is determined by a National Tea pricing committee made up equally of Estates and members of the National Smallholder Tea Development Committee (NSTDC). This committee meets annually to decide the base price of green leaf, the minimum amount paid to farmers per kilogram. The base price of green leaf is the cost of production ('CoP tea growing') for farmers, found in the fourth line of Table 5, the majority of which represents the cost of labour.

Therefore, the base prices for 2009, 2010 and 2011 have been estimated using the cost of production for farmers in 2007 and are adjusted using the CPI indicated by the IMF. The CPI is used since the cost of production is supposed to increase at approximatively the same rate. Then, to arrive at the price of green leaf, the price is divided by 4.65, which is the amount of green leaf required to produce 1 kilogram of made tea. The final amount is paid to farmers in Malawi kwacha, using the official exchange rate.

Table 5. Calculation of base price for green leaf based on CoP for smallholder tea growers, 2005–2013

Access Costs from Production to Wholesale - US$ cents / Kg of Made Tea

Year	2005	2006	2007	2008
Transport/logistics to factory (US cents)		5.50	6.90	
Factory Processing costs (US Cents)		19.00	23.40	
Overhead, Transport to BT, Marketing (US cents)		18.50	20.60	
CoP tea growing (labour and fertilizers etc.)		38.50	43.00	

US$/kilo made t	2006	2007
	0.05	0.07
	0.19	0.23
	0.19	0.20
CoP tea	0.39	0.43
MWK/US	136.02	139.98

MWK/kg

2006	2007
6.80	9.80
25.84	32.20
25.84	28.00
53.05	60.19

Cost of Production for tea growing MWK/kg

Year	2005	2006	2007	2008	2009	2010	2011
CoP tea growing	46.68	53.05	60.19	3148.01	3148.01	3148.01	3148.01
CPI ratio	0.88	1	1.00	1.09	1.08	1.07	1.08
CoP tea growing	46.68	53.05	60.19	65.43	65.26	64.65	64.78
Base Price = CoP/4.65	10.04	11.41	12.94	14.07	14.04	13.90	13.93

Source: Author's calculations, 2014, based on CoP of 2006 and 2007 from Agar & Chiligo, 2008

The CoP is available for the years 2006 and 2007. Although we are only missing prices for 2009 to 2011, values have been estimated for the preceding and following years to ensure that estimations are accurate and corroborate with prices reported for the years 2005 to 2008.

It should also be noted here that the COP of estates, shown in the first three lines of Table 5, is used to calculate the bonuses paid on top of the base price per kilo to farmers. The bonus is calculated based on the price of tea received at the auction (weighted by volume and grade), where profits are split 50:50 between producers and processors. This formula would begin at the weighted average price of the tea at auction, minus the COPP which includes transport, processing and overhead. The profit share of farmers must be divided by 4.65 to reflect the green leaf equivalent.

The cost of production formula on both the producer and processor side is done in US dollars and reflects the cost of made tea.

There is no difference in the price of green leaf paid to farmers for tea sold under Fair Trade terms. The premiums from Fair Trade sales are used instead for community development projects as well as extension and inputs.

EXCHANGE RATES

In MAFAP analyses, the observed exchange rate is used to convert the reference price into local currency.

Observed

The observed exchange rate from the International Monetary Fund (IMF) is used for this analysis (Table 6). The exchange rate from the RBM was not available for the whole period.

Table 6. Nominal exchange rate USD/MWK, 2005-2013

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
Nominal exchange rate	118	136	140	141	141	150	157	249	364

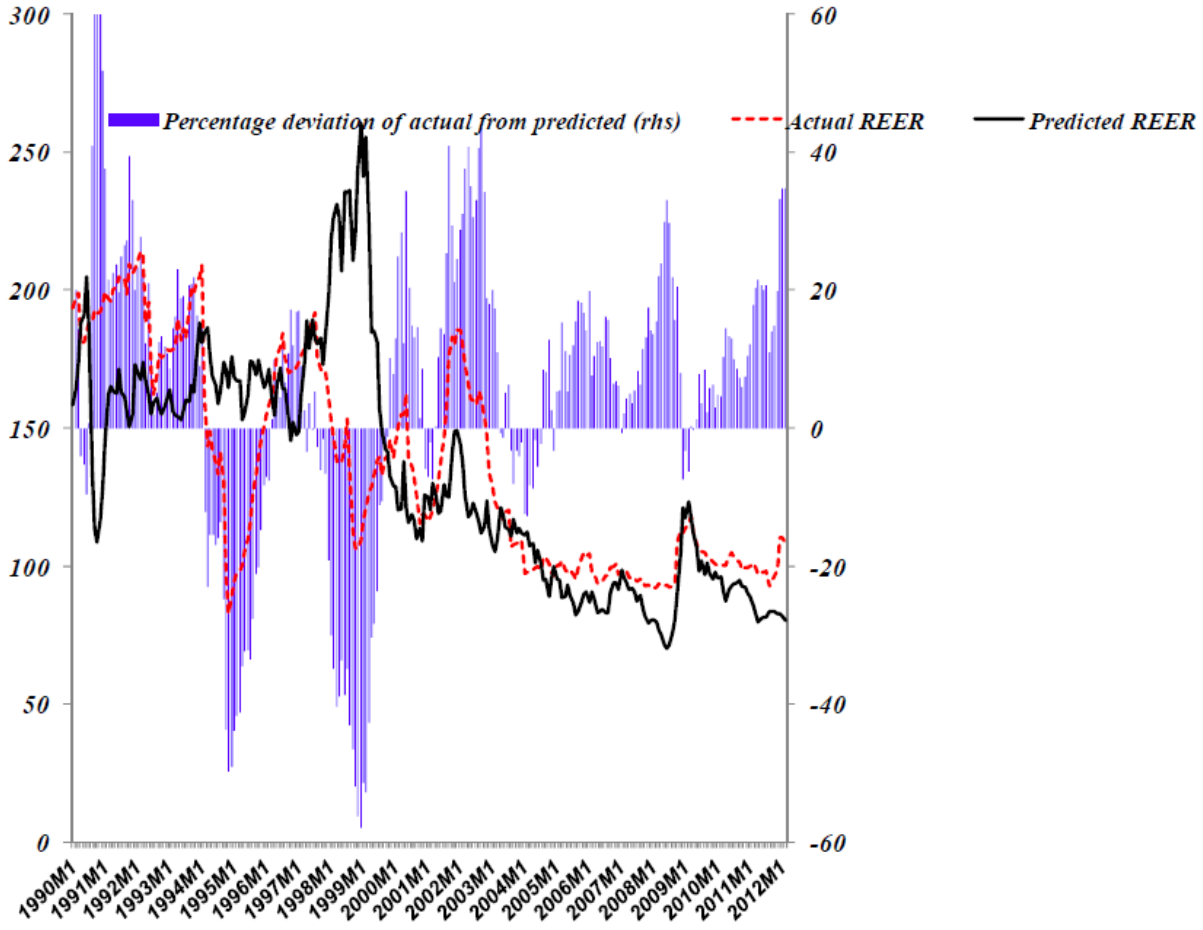
Source: IMF, 2014

Adjusted

Prior to 2012, the government had implemented foreign exchange controls on exchange rates through the Reserve Bank of Malawi between the Malawian Kwacha and the United State Dollar. The Malawi Kwacha has been significantly overvalued since 2005. This is reflected in a dynamic parallel market for foreign exchange until May 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 13).

Figure 13. Estimation of the exchange misalignment based on the comparison between actual REER and predicted REER in Malawi, 1990 M1- 2012M2



Source: IMF, 2012

The adjusted exchange rate has been estimated based on the level of misalignment in relative value (Table 7). Data for 2012 are available only for the first two months and therefore represent the level of misalignment only for January and February. Although the currency started to float in mid-2012, tea is marketed throughout the year and thus the adjusted exchange rate is not applied in 2012. The exchange rate is not adjusted for 2013 either; no data is available but we consider that the misalignment has been minor due to the implementation of the floating exchange rate in 2012.

Table 7. Adjusted exchange rate USD/MWK, 2005-2013

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
Misalignment (%)	12%	11%	7%	19%	2%	9%	18%	0%	0%
Adjusted exchange rate	133	151	150	167	145	164	185	249	364

Source: IMF, 2012 and MAFAP, 2014

The literature review confirms this level of misalignment, it has been estimated that, by late 2010, the kwacha was overvalued by 10-20 percent (IFPRI, 2013).

ACCESS COSTS

In this analysis, access costs refer to all the costs associated with bringing the commodity from the farm gate to the Malawi border. These costs mainly include transportation, processing, storage, and marketing.

Observed

Observed access costs are the costs incurred to bring a commodity from one point in the value chain to another as currently prevailing in the country.

Access costs have been provided by Eastern Produce, the largest estate company in Malawi, and thus are considered representative of the sector. Since estates are multinational companies producing for the export market, all accounting is done in US dollars. For the purpose of the analysis, these costs have been converted into Malawi kwacha at the official exchange rate.

Table 8. Access costs from farm gate to border for made tea (MWK/tonne), 2005–2013

Cost of Made Tea EASTERN PRODUCE										
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Processing and Handling	**USD/TON**	**156**	**191**	**209**	**186**	**190**	**212**	**228**	**208**	**258**
	MK/TON	**18,522**	**25,970**	**29,196**	**26,084**	**26,779**	**31,920**	**35,612**	**51,764**	**94,128**
Nominal Exchange Rate	RBM	118.42	136.02	139.98	140.53	141.17	150.49	156.53	249.11	364.41
	USD/tonne	**13**	**15**	**14**	**14**	**17**	**21**	**21**	**15**	**24**
Tansport cost field to factory	US$ per kg	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
	USD/TON	12.85	14.90	13.77	13.74	16.83	21.31	21.27	15.23	24.14
	MK/kg	2	2	2	2	2	3	3	4	9
		118.42	136.02	139.98	140.53	141.17	150.49	156.53	249.11	364.41
	MK/TON	**1,522**	**2,026**	**1,928**	**1,931**	**2,376**	**3,207**	**3,329**	**3,795**	**8,796**
Marketing from factory to buyer and transport to Blantrye		2005	2006	2007	2008	2009	2010	2011	2012	2013
	US$ per kg	0.14	0.18	0.19	0.17	0.17	0.19	0.21	0.19	0.23
	USD/tonne	**143.56**	**176.03**	**194.80**	**171.88**	**172.86**	**190.79**	**206.24**	**192.56**	**234.16**
	MK/kg	17	24	27	24	24	29	32	48	85
		118.42	136.02	139.98	140.53	141.17	150.49	156.53	249.11	364.41
	MWK/tonne	**17000**	**23944**	**27268**	**24153**	**24402**	**28713**	**32283**	**47969**	**85332**

Source: Eastern Produce Malawi, 2014

Access costs presented in Table 8 are in the format of the CoP formula used by TAML to calculate the bonuses paid to farmers.

Transportation between Blantyre and the Malawi border are considered, either at Mwanza or Muloza, both of which lie on major truck routes through Mozambique to Durban, South Africa. This route was selected since trade data indicates that a large majority of tea is exported to South Africa, likely destined for re-export from the port of Durban. Costs are taken from Blantyre as this is where the auction and main buyers' warehouses are located. According to the DTIS report by the WB (2014) and as shown in Table 9, the cost of transport along this route is relatively efficient at US$ 0.9 per kilometer per tonne for a full container truck. The cost of transport for 2013 provided by the WB report (2014) was converted to local currency and then deflated based on the CPI for Malawi.

The report also confirms the rationale for export through Durban as opposed to the closer port at Beira in Mozambique. 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.

Table 9. Transport Cost from Blantyre

	2005	2006	2007	2008	2009	2010	2011	2012	2013
US$/tonne/km to Durban									**0.09**
Real exchange rate	118	136	140	141	141	150	157	249	364
MWK/tonne/km	12.81	14.59	15.75	17.13	18.57	19.95	21.47	26.03	32.80
CPI	0.39	0.45	0.48	0.52	0.57	0.61	0.65	0.79	1.00
KM to MAL-MOZ border	100	100	100	100	100	100	100	100	100
MWK/tonne to border	**1,281**	**1,459**	**1,575**	**1,713**	**1,857**	**1,995**	**2,147**	**2,603**	**3,280**

Source: MAFAP based on WB, 2014

Also included in the access costs for this segment of the value chain is the cost of a phytosanitary certificate at 500 MWK. For large shipments, certificates must be applied for in advance at the Plant Health Inspection Office (WB, 2014).

If tea is passing through the auction for sale, a broker is required to grade, price and catalogue the tea before the auction. For these services, a commission is charged to the seller but we do not have recent information on this fee. According to a 2002 study (Agar), there is a broker fee of about 0.5 percent to the buyer on some direct tea sales; however, it is impossible to know the total value of these sales for which this fee was applied.

Adjusted

Adjusted access costs take into consideration, where relevant, efficiency improvements in the value chain. Access costs have been adjusted only between Blantyre and the border segment of the value chain.

The processing and handling costs in Malawi are roughly on par with those in Kenya at 12 and 13 percent of auction price in 2010, respectively. The cost of transporting the green leaf to the factory is not significant as the factories are very close to the tea plantations and smallholder tea gardens. The cost of marketing the tea from the factory to the buyer is not treated as a margin but as a necessary service due to the expertise and networks of brokers / agents.

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. 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 that, based on information presented in the WB study (2014) regarding infrastructure improvements, that transportation is gradually becoming more efficient as opposed to being stagnant or suddenly becoming very efficient in 2012.

Table 10. LPI South Africa and Malawi

Country	Year	LPI Rank	LPI Score	Customs	Infrastructure	International shipments	Logistics c	Tracking & tracing	Timeliness	Avg. Infrast. & Intl. Ship.	Share SA over MA
South Africa	2012	23	3.67	3.35	3.79	3.5	3.56	3.83	4.03	3.645	
South Africa	2007	24	3.53	3.22	3.42	3.56	3.54	3.71	3.78	3.49	
South Africa	2010	28	3.46	3.22	3.42	3.26	3.59	3.73	3.57		
South Africa	2014	34	3.43	3.11	3.2	3.45	3.62	3.3	3.88		
Malawi	2014	73	2.81	2.79	3.04	2.63	2.86	2.63	2.99		
Malawi	2012	73	2.81	2.51	2.78	3.01	2.85	2.56	3.09	2.895	0.794239
Malawi	2007	91	2.42	2.25	2.12	2.56	2.56	2	3	2.34	0.670487

Source: WB, 2014

Rather than using the aggregated LPI, only the indices related to infrastructure and International shipments were used for the adjustment.

Table 11. Adjusted transport costs from Blantyre (MAL) to border (MOZ), 2005–2013 (MWK/tonne)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
MWK/tonne to border	1,281	1,459	1,575	1,713	1,857	1,995	2,147	2,603	3,280
Median Increase	0.67	0.67	0.67	0.70	0.73	0.73	0.76	0.79	0.79
Adjusted transport cost	859	978	1,056	1,201	1,360	1,461	1,639	2,068	2,605

Source: MAFAP based on WB, 2014

BUDGET AND OTHER TRANSFERS

No transfers have been considered in this analysis because there is no input subsidy programme for tea.

QUALITY AND QUANTITY ADJUSTMENTS

No quantity or quality adjustments have been made, since the quantity conversion has already been accounted for in the analysis. The farm-gate price is reflected in made tea, meaning that the green leaf price has already been multiplied by 4.65.

DATA OVERVIEW

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

Table 12. Data sources and methodological decisions

		Description	
Concept		***Observed***	***Adjusted***
Benchmark price		*Annual average FOB unit value of Black tea based on export volume and value as reported by the NSO*	*N.A.*
Domestic price at point of competition		*No price at point of competition; Limbe Auction price is not representative of the average since the tea is of different quality*	*N.A.*
Domestic price at farm gate		*Attained from various data sources such as the 2008 study by Agar & Chiligo, Fair Trade Study (Pound, 2013), TAML and author's own calculations based on CoP and CPI*	*N.A.*
Exchange rate		*Nominal exchange rate Source: IMF, 2014*	*Adjusted exchange rate calculated using the exchange rate misalignment Source: IMF (2012)*
Access cost from the point of competition to the border		*Cost of transport from Blantyre to Mozambique-Malawi borders of Muloza or Mwanza from WB 2014 study. Cost of Phytosanitary certificate (WB, 2014)*	*Adjusted based on LPI (WB, 2014) of Malawi and South Africa.*
Access costs from the point of competition to farm gate		*Eastern Produce Estates has provided access costs for transportation, marketing and processing/handling*	*No Adjustments*
QT adjustment	Bor-PoC		
	PoC –FG	*N.A.*	*N.A.*
QL adjustment	Bor- PoC	*N.A.*	*N.A.*
	PoC –FG	*N.A.*	*N.A.*

The data used for this analysis is summarized below.

Figure 14. Data used for the analysis of price incentives for tea producer in Malawi, 2005-2013 (MWK/tonne)

	Year	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*
	trade status	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*	*x*
DATA	*Symbol*									
Benchmark Price		1,121	1,123	1,017	1,211	1,654	1,606	1,879	1,532	2,049
Observed	$P_{b(int\$)}$									
Adjusted	P_{ba}									
Exchange Rate		118	136	140	141	141	150	157	249	364
Observed	ER_o	133	151	150	167	145	164	185	249	364
Adjusted	ER_a									
Access costs border - wholesale										
Observed	AC_{owh}									
Adjusted	AC_{awh}									
Domestic price at wholesale	P_{dwh}									
Access costs wholesale - farm gate										
Observed	AC_{ofg}	38,826	53,899	60,467	54,382	55,915	66,334	73,870	106,631	192,037
Adjusted	AC_{afg}	38,403	53,418	59,948	53,870	55,418	65,801	73,362	106,095	191,362
Farm gate price	P_{dfg}	56,265	70,378	66,960	89,513	95,652	97,969	96,703	207,692	264,608
Externalities associated with production	E									

Source: MAFAP, 2014

SUMMARY OF INDICATORS

Table 13. MAFAP Price Gaps for tea in Malawi (MWK/tonne), 2005-2013

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Trade status for the year	x	x	x	x	x	x	x	x	x
Observed price gap at farm gate	-37,632	-28,522	-14,958	-26,339	-81,898	-77,355	-123,523	-67,220	-290,170
Adjusted price gap at farm gate	-54,133	-46,048	-26,062	-58,945	-88,045	-99,740	-178,350	-67,756	-290,845

Source: MAFAP, 2014

Table 14. MAFAP Nominal Rates of Protection and Assistance for tea in Malawi, (%), 2005-2013

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Trade status for the year	x	x	x	x	x	x	x	x	x
Observed NRP at farm gate	-40%	-29%	-18%	-23%	-46%	-44%	-56%	-24%	-52%
Adjusted NRP at farm gate	-49%	-40%	-28%	-40%	-48%	-50%	-65%	-25%	-52%

Source: MAFAP, 2014

Table 15: MAFAP Market Development Gaps for tea in Malawi (%, MWK/tonne), 2005-2013

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Trade status for the year	x	x	x	x	x	x	x	x	x
Access costs gap to farm gate (ACGfg)	-422	-481	-519	-511	-497	-534	-508	-536	-675
Total Market development Gap	-16,501	-17,526	-11,104	-32,606	-6,147	-22,385	-54,827	-536	-675
Exchange rate policy gap (EXRP)	-16,079	-17,045	-10,585	-32,094	-5,650	-21,851	-54,319	0	0
Market development gap as share of farm gate price	-29	-25	-16	-36	-6	-23	-57	0	-1
Market development as share of adjusted reference price at farm gate	-15	-15	-12	-22	-3	-11	-20	0	0

Source: MAFAP, 2014

3. RESULTS AND INTERPRETATION

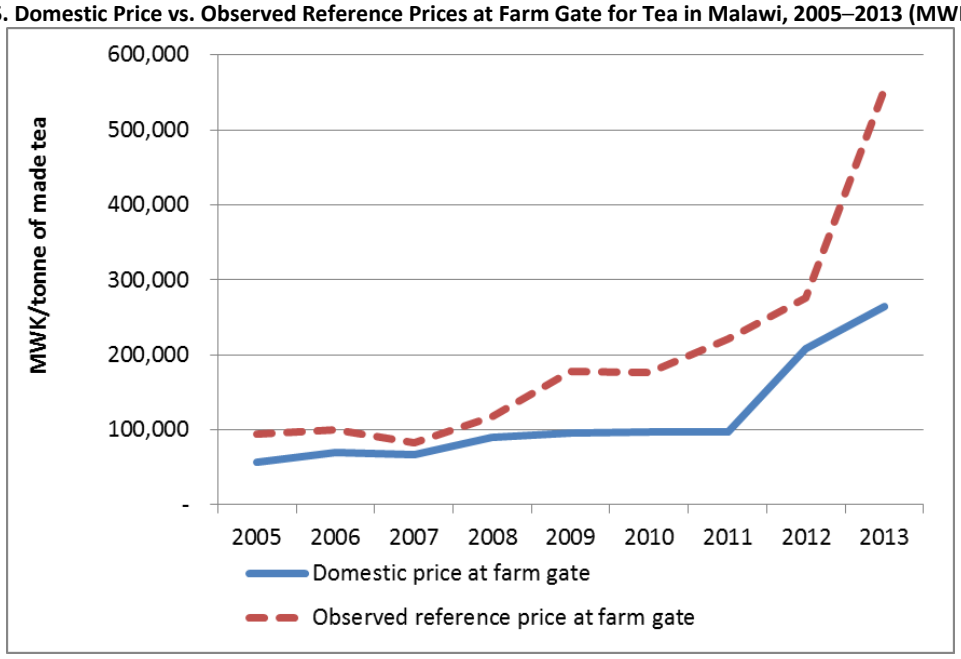
Analysing the level of price incentives to production for smallholder tea growers in Malawi is key to understanding the effects of the policy and market environment. One of the objectives of the Agriculture Sector Wide Approach (ASWAP) is to increase smallholder tea productivity and value through the promotion of out-grower schemes and improved technologies. It is considered that there is little room for expansion of the estate sector and that any growth in the industry will emerge from the smallholder sub-sector. For these reasons, indicators were calculated to assess the price incentives and disincentives for smallholder tea producers.

Observed Price Gap and Observed Nominal Rate of Protection

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.

Figure 15 shows the linear trend of the actual domestic price at farm gate and the observed reference price at farm-gate which is the benchmark price in local currency minus the access costs involved in bringing tea from the field to the border. The reference price corresponds to the price that producer would have received in the absence of price distortion. The difference between these lines is represented in relative value in the NRP graph (Figure 16).

Figure 15. Domestic Price vs. Observed Reference Prices at Farm Gate for Tea in Malawi, 2005–2013 (MWK/tonne)



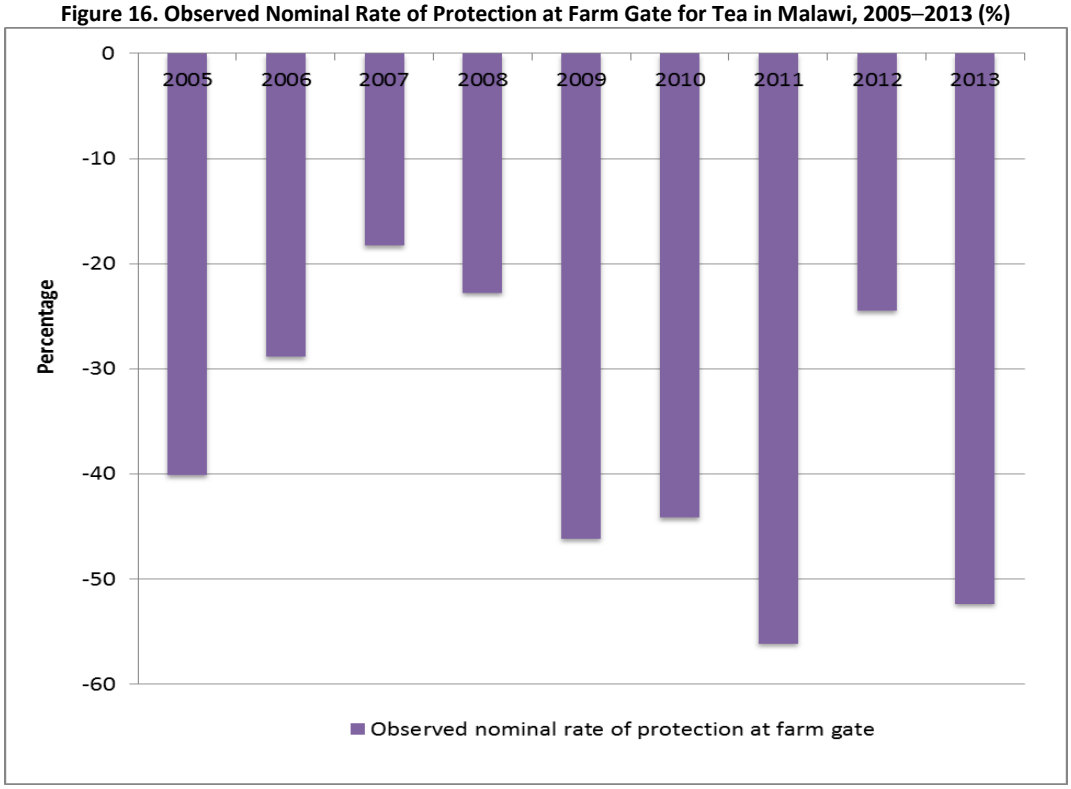
Source: MAFAP, 2014

If more data were available on access costs between the buyer and the border, the price gaps would certainly narrow although, it is difficult to estimate by how much. Access costs included are transport from Blantyre to the Malawi border and phytosanitary certification. Storage and warehousing costs, machinery and loading etc. have not been accounted for but are most certainly present.

Overall, we can see that farmers are receiving a much lower price than they could receive in the absence of policy and market distortions. Price gap analysis in the observed domain indicates that over the 2005–2013 period, tea farmers received an average 83,068[4] MWK less than they could have received under a more enabling overall domestic market and policy environment. In 2013, farmers could have received over 550,000 MWK per tonne of made tea, when instead, they actually received just over half that, at 264,608 MWK.

The Nominal Rate of Protection (NRP) allows for the expression of the price gap in relative terms to facilitate comparison across year, commodities and country. On average, farmers received -37 percent price disincentives to produce in the observed domain (Figure 16).

Figure 16. Observed Nominal Rate of Protection at Farm Gate for Tea in Malawi, 2005–2013 (%)



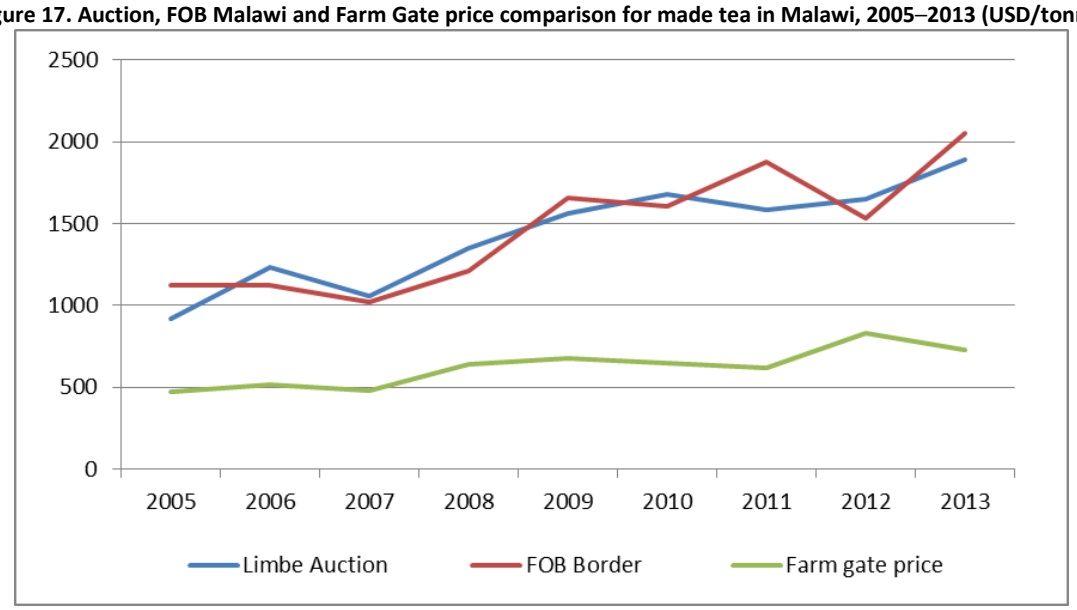
Source: MAFAP, 2014

Since 2007, the export price of tea has been increasing more rapidly than the price paid for green leaf to farmers (Figure 17) resulting in growing disincentives to production from 2007 to 2011 (Figure 16).

Producer prices increased only incrementally until 2012, when after the devaluation of the kwacha, farmers received a higher base price in kwacha terms to compensate them for inflation. Moreover, they received higher bonuses since the price at Limbe Auction increased and was higher than the FOB price, allowing for a reduction of disincentives reaching -24 percent (Figure 16),

[4] Simple average, the volume of production is not taken into account here.

Figure 17. Auction, FOB Malawi and Farm Gate price comparison for made tea in Malawi, 2005–2013 (USD/tonne)



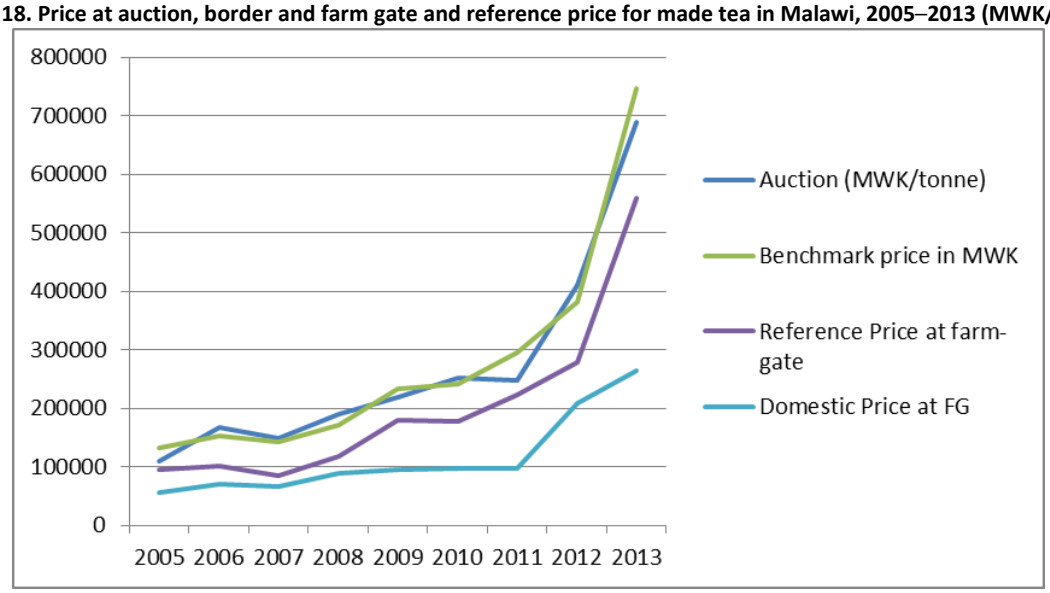
Source: RBM *Source:* (2014), NSO (2014)

However, in 2013, although the base price of green leaf increased with the implementation of the floating exchange rate and the average auction price increased, the bonuses declined in 2013. This decline is likely due to lower volumes of high grade tea sold at auction due to outstanding contractual obligations for direct sales of 2012, coupled with lower prices at auction relative to the border price.

Since producer prices are calculated based on the auction prices, the level of incentives and disincentives follow the same trend. In comparing Figure 16 and Figure 17, years in which the auction price is noticeably lower than the border price (2005, 2011 and 2013), we see the highest disincentives to producers. Indeed, prices paid to producers are determined consistently with the price negotiated at auction from which costs between production and auction are deducted. In years where the price of tea at auction is higher than the FOB price, coupled with high volumes of tea sold through auction (2006–2008), farmers receive less disincentive. This is because, due to the bonus mechanism, tea producers are rewarded for high volumes and prices at auction.

The risk of fluctuations in the auction market are shared between estates and farmers, however, this market is not representative of the majority of tea exported. Indeed, one of the main reasons of the strong disincentive situation that farmer face is the functioning of the price model. Indeed, the base price mechanism does not reflect the market dynamic of the commodity itself but in fact, the cost of inputs to production such as labour and fertilizers which therefore become the main determining factor in price formation. The cost of production is undoubtedly low since the cost of labour in Malawi, namely the minimum wage is one of the lowest in the world and is far below a living wage. Therefore, the base price is maintained at an artificially low level.

Figure 18. Price at auction, border and farm gate and reference price for made tea in Malawi, 2005–2013 (MWK/tonne)



Source: MAFAP, 2014

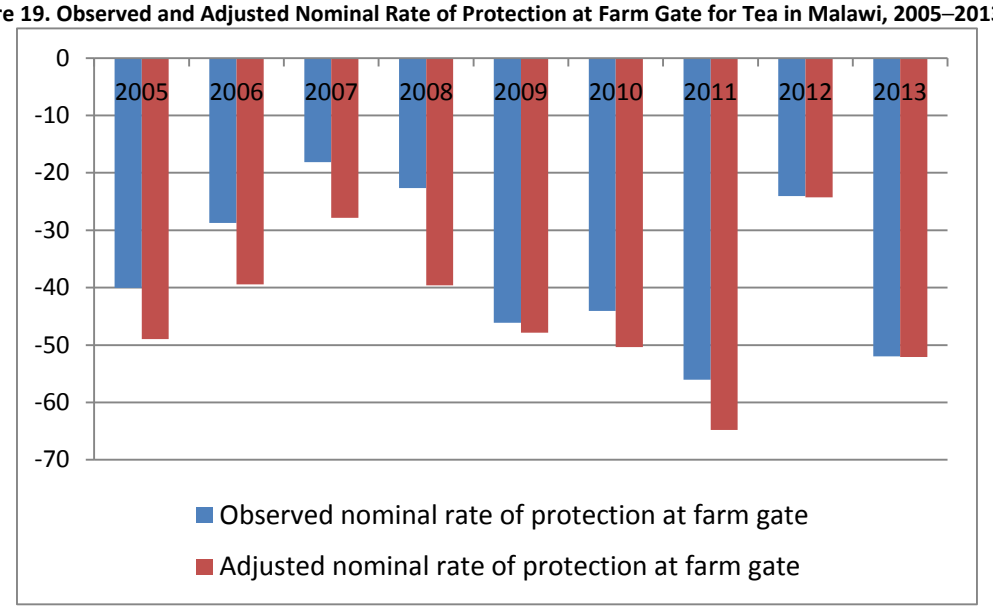
Farm gate prices have been increasing steadily since 2005 due to the bonus system negotiated between the NSTDC and TAML. The bonus system ensures that the price trends between auction and farm gate follow a similar pattern until 2013 (Figure 18). The bonus fixation mechanism increases price transmission between international and producer prices yet has failed to give adequate incentive to farmers. Indeed, since tea exported through direct sales does not follow the same trend as in auction, the price fixation mechanism does not allow the reflection of the export price or direct sales market. This means that the price model is not fully compatible with direct sales marketing system and impedes the price transmission.

Adjusted Price Gap and Nominal Rate of Protection

In addition to measuring the effect of the market performance and policy environment, the MAFAP methodology estimates additional price disincentives due to the excessive access costs and exchange rate policy. Thereby, the Market Development Gap measures the costs that these inefficiencies in domestic value chain represent for producers. In the absence of exchange rate misalignment and inefficiencies in the value chain, tea farmers could have received 292,846 MWK[5] (Adjusted Price Gap) more than they actually received on average over the 2005–2013 period. In other words, producers received -44 percent disincentives on average during the period in the adjusted domain (Figure 19).

[5] Simple average, the volume of production is not taken into account here.

Figure 19. Observed and Adjusted Nominal Rate of Protection at Farm Gate for Tea in Malawi, 2005–2013 (%)

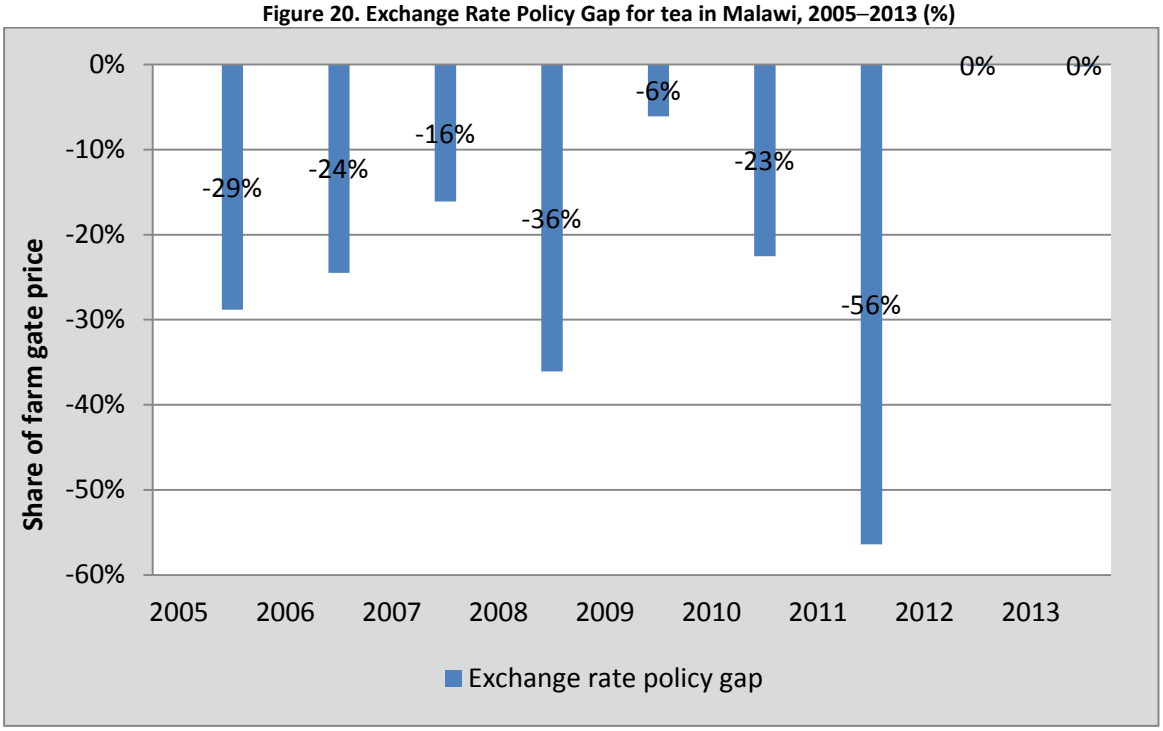


Source: MAFAP, 2014

The Market Development and Exchange Rate Policy Gap

In this analysis, the MDG is almost entirely composed of the exchange rate policy gap, the access cost gap (inefficiencies) representing a share too small to consider significant. Therefore, here only the exchange rate policy gap will be discussed. The exchange rate policy in place until 2012 resulted in exchange rate misalignment creating additional disincentives to producers. Thereby, farmers received an average 21 percent less than they could have without an overvalued exchange rate.

Figure 20. Exchange Rate Policy Gap for tea in Malawi, 2005–2013 (%)



Source: MAFAP, 2014

The overvaluation of the currency from 2005 to 2011 represented major opportunity costs for tea producers in Malawi. Since tea is an export crop and the value chain is dominated by multinational

corporations, all negotiations, sales and accounting are conducted in US dollars. Also the price mechanism for calculating the bonuses and base price of green leaf is in US dollars. The share of auction profit received by the estates is in US dollars and therefore not affected by the exchange rate misalignment in 2005–2011, whereas the profit received by smallholders is converted into kwacha.

RECOMMENDATIONS

The following recommendations could be explored in order to better understand the value chain functioning and ensure that smallholder tea producers are given adequate incentive to expand and improve small-scale tea production and quality in Malawi as stated in the Agriculture Sector Wide Approach.

To better understand the level of incentives and disincentives at point of competition and farm gate, there is a need to systematically collect data. Identifying prices and grades for various teas sold through auction and direct sale, the export price of each grade, as well as producer prices will be necessary to conduct a thorough analysis of each market pathway. By analysing each point of competition, namely, the auction and the factory gate (in the case of direct sale), it will be possible to make meaningful comparisons of each market system as well as to disaggregate inefficiencies in the value chain.

The new three-band pricing system being developed by TAML and the NSTDC will affect the level of incentive and disincentive for both producers and actors at the point of competition. Therefore, it will be valuable to conduct further MAFAP analysis once this pricing system is in place to determine the impact on the level of incentives at both farm gate and point of competition.

The price fixation mechanism should ensure price transmission between export price and producer price by means of the bonus calculation. Indeed, the bonus reflects the value of sale at auction. However, the analysis shows that this price fixation mechanism is not fully compatible with overall export marketing system. Indeed, tea exported through direct sales does not follow the same level and same trend as auction sales, creating a price gap.

Sustaining exchange rate policies which avert exchange rate misalignment would ensure that producers are not facing any further disadvantage.

4. CONCLUSION

MAIN MESSAGE

The overall domestic market and policy environment create disincentives of -39 percent on average to producers throughout the entire period under review. Further disincentives at the farm gate were felt particularly during the years of currency misalignment (2005–2011). Maintaining the floating exchange rate is essential to ensure producer prices reflect the price prevailing in the export market.

Price transmission to the farm gate is impeded by a base price for green leaf that is constructed on the cost of labour and inputs as opposed to the actual value of the commodity as determined by domestic or international supply and demand. While the bonus system is implemented to improve price transmission, it reflects essentially the price trend at auction, while the majority (70 percent) of tea is sold directly. Therefore, producers do not receive prices reflective of the overall market, where different price dynamics prevail, impeding price transmission between export and producer price.

Despite high disincentives, tea producers appreciate the crop since it is a source of income during the lean season, is low maintenance and so does not require much labour in terms of pruning and fertilizer application. In comparison to other crops in Malawi, tea can be quite profitable. Tea production has a low elasticity of supply since the shrub is already established and lasts for almost a century, there is little reason to remove it and plant something else as with annual crops such as maize or tobacco.

LIMITATIONS

Further information on the following elements would ensure a more representative analysis:

- Full sets of data on base and bonus prices paid to producers
- Factory gate and direct sale volumes and prices by grade
- Access costs information for both market paths of the tea value chain: from the factory gate to the border for tea marketed through direct sale and access costs for tea marketed through the auction process.
- Access to accounting and baseline data used in determination of producer prices
- If more data were available on access costs between the buyer and the border, the price gaps would certainly narrow although, it is difficult to estimate by how much. Storage and warehousing costs, machinery and loading etc. have not been accounted for but are most certainly present. Further disaggregation of access costs between the farm gate and point of competition would benefit any future analysis.

FURTHER INVESTIGATION AND RESEARCH

The following analyses would complement the price incentives analysis:

- Understanding better the price determination mechanism at auction level and export level;
- Identifying the input costs that are deducted from the price that producers received for their production;
- Comparing the tea with the tobacco marketing structure since marketing tobacco through auction is mandatory;

- Following the developments of the International Tea Producers' Forum and assessing the impact on the domestic market.

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ANNEX I: Data and calculations used in the analysis

Name of product	Tea	Country	Malawi	Point of Competition	NA
International currency	USD	Local currency	MKW		

DATA		Unit	Symbol	Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
				trade status	x	x	x	x	x	x	x	x	x
				food security	n	n	n	n	n	n	n	n	n
Benchmark price													
	Observed	USD/Tonne	$P_{b(int\$)}$		1,121	1,123	1,017	1,211	1,654	1,606	1,879	1,532	2,049
	Adjusted	USD/Tonne	P_{ba}										
Exchange rate													
	Observed	MKW/USD	ER_o		118	136	140	141	141	150	157	249	364
	Adjusted	MKW/USD	ER_a		133	151	150	167	145	164	185	249	364
Access costs border - point of competition													
	Observed	MKW/Tonne	ACo_{wh}		1,781	1,959	2,075	2,213	2,357	2,495	2,647	3,103	3,780
	Adjusted	MKW/Tonne	ACa_{wh}		1,359	1,478	1,556	1,701	1,860	1,961	2,139	2,568	3,105
Domestic price at point of competition		MKW/Tonne	P_{dwh}										
Access costs point of competition - farm gate													
	Observed	MKW/Tonne	ACo_{fg}		37,044	51,939	58,392	52,169	53,558	63,840	71,223	103,527	188,257
	Adjusted	MKW/Tonne	ACa_{fg}		37,044	51,939	58,392	52,169	53,558	63,840	71,223	103,527	188,257
Domestic price at farm gate		MKW/Tonne	P_{dfg}		56,265	70,378	66,960	89,513	95,652	97,969	96,703	207,692	264,608

CALCULATED PRICES		Unit	Symbol	2005	2006	2007	2008	2009	2010	2011	2012	2013
Benchmark price in local currency												
	Observed	MKW/Tonne	$P_{b(loc\$)}$	132,722	152,798	142,385	170,233	233,464	241,658	294,096	381,543	746,815
	Adjusted	MKW/Tonne	$P_{b(loc\$)a}$	148,801	169,843	152,971	202,327	239,114	263,509	348,415	381,543	746,815
Reference price at point of competition												
	Observed	MKW/Tonne	RPo_{wh}	130,941	150,839	140,310	168,020	231,107	239,164	291,449	378,439	743,035
	Adjusted	MKW/Tonne	RPa_{wh}	147,442	168,365	151,414	200,626	237,254	261,548	346,276	378,975	743,710
Reference price at farm gate												
	Observed	MKW/Tonne	RPo_{fg}	93,897	98,899	81,918	115,852	177,550	175,324	220,226	274,912	554,778
	Adjusted	MKW/Tonne	RPa_{fg}	110,398	116,425	93,022	148,457	183,697	197,709	275,053	275,448	555,453

INDICATORS	Unit	Symbol	2005	2006	2007	2008	2009	2010	2011	2012	2013
Price gap at point of competition											
Observed	MKW/Tonne	PGo_{wh}	-130,941	-150,839	-140,310	-168,020	-231,107	-239,164	-291,449	-378,439	-743,035
Adjusted	MKW/Tonne	PGa_{wh}	-147,442	-168,365	-151,414	-200,626	-237,254	-261,548	-346,276	-378,975	-743,710
Price gap at farm gate											
Observed	MKW/Tonne	PGo_{fg}	-37,632	-28,522	-14,958	-26,339	-81,898	-77,355	-123,523	-67,220	-290,170
Adjusted	MKW/Tonne	PGa_{fg}	-54,133	-46,048	-26,062	-58,945	-88,045	-99,740	-178,350	-67,756	-290,845
Nominal rate of protection at point of competition											
Observed	%	$NRPo_{wh}$	-100%	-100%	-100%	-100%	-100%	-100%	-100%	-100%	-100%
Adjusted	%	$NRPa_{wh}$	-100%	-100%	-100%	-100%	-100%	-100%	-100%	-100%	-100%
Nominal rate of protection at farm gate											
Observed	%	$NRPo_{fg}$	-40%	-29%	-18%	-23%	-46%	-44%	-56%	-24%	-52%
Adjusted	%	$NRPa_{fg}$	-49%	-40%	-28%	-40%	-48%	-50%	-65%	-25%	-52%
Nominal rate of assistance											
Observed	%	NRAo	-40%	-29%	-18%	-23%	-46%	-44%	-56%	-24%	-52%
Adjusted	%	NRAa	-49%	-40%	-28%	-40%	-48%	-50%	-65%	-25%	-52%

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