



# MAFAP SPAANA

Monitoring African Food and Agricultural Policies  
Suivi des politiques agricoles et alimentaires en Afrique

## **ANALYSIS OF INCENTIVES AND DISINCENTIVES FOR WHEAT IN THE UNITED REPUBLIC OF TANZANIA**

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JANUARY 2013



This technical note is a product of the Monitoring African Food and Agricultural Policies project (MAFAP). It is a technical document intended primarily for internal use as background for the eventual MAFAP Country Report. This technical note may be updated as new data becomes available.

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For more information: <http://www.fao.org/mafap>

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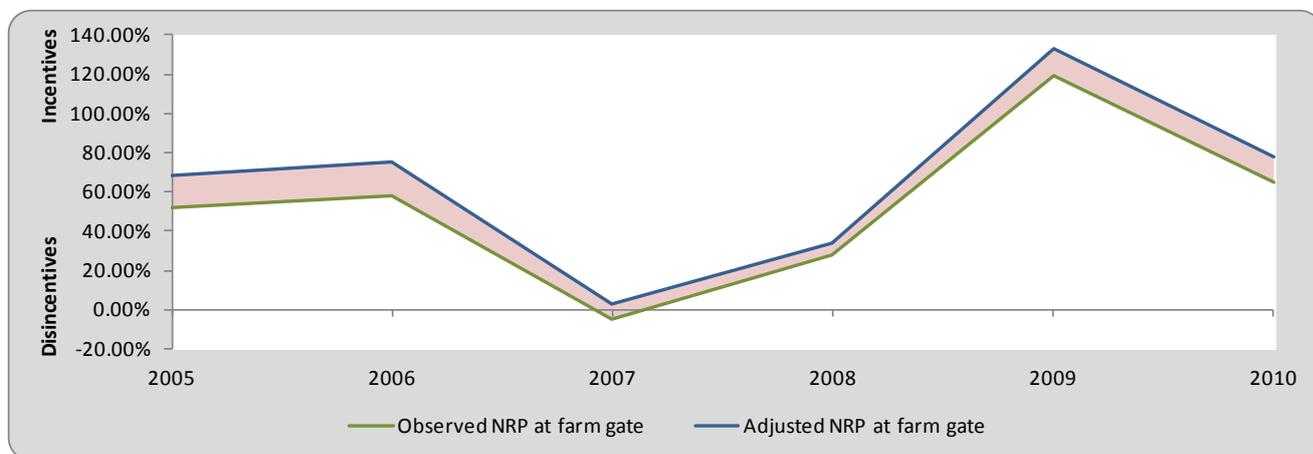
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## SUMMARY OF THE NOTE

Product: Wheat  
Period analyzed: 2006 – 2010  
Trade status: Imported throughout the period

- Wheat production in The United Republic of Tanzania (URT) is not a priority crop for the agriculture sector development, however it accounts for close to 30 percent of total agricultural imports with an average import bill of over 150 million USD per year.
- Approximately 90 000 ha are devoted to wheat production mainly in the south of the country and its production never accounts for more than 20 percent of total domestic consumption. Wheat is the fourth most important staple in the diet of Tanzanians.
- The United Republic of Tanzania has a 35 percent ad valorem tariff for wheat imports which has been waived to 10 percent since 2007.



The observed Nominal Rate of Protection (NRP, green line) indicates that wheat producers in URT have had significant price incentives throughout the period. The adjusted NRP (blue line) captures the effects of market inefficiencies on farmers. The area in red shows the additional protection that these inefficiencies represent for producers:

- Our results show that disincentives are related to trade policy but also beyond it. Moreover, attempts to reduce tariff protection were only temporally successful as domestic prices peaked again as of 2009.
- As The United Republic of Tanzania is a minor wheat producer this situation penalizes consumers at the cost of importers which are making significant profits on wheat.

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## 1. PURPOSE OF THE NOTE

This technical note aims to describe the market incentives and disincentives for wheat producers in The United Republic of Tanzania. The note is a technical document and serves as input for the MAFAP Country Report.

For this purpose, yearly averages of 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 the reference prices and the prices along the value chain indicate to which extent incentives (positive gaps) or disincentives (negative gaps) are present at the farm-gate and wholesale level. In relative terms, the price gaps are expressed as Nominal Rates of Protection (NRP). These key indicators are used by MAFAP to highlight the effects of policy and market development gaps on prices.

The note starts with a brief review of the commodity's production and consumption as well as trade and policies affecting the commodity. It also provides a detailed description of how the key components of the price analysis have been obtained. Using this data, the MAFAP indicators are then calculated and interpreted in light of existing policies and market characteristics. The analysis is commodity and country specific and covers the period 2005-2010. The indicators have been calculated using available data from different sources for this period and are described in Chapter 3.

The outcomes of this analysis can be used by those stakeholders involved in policy-making for the food and agricultural sector. They can also serve as input for evidence-based policy dialogue at the country or regional level.

This technical note is not to be interpreted as an analysis of the value chain or detailed description of production, consumption or trade patterns. 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. Additionally, all information is preliminary and still subject to review and validation.

## 2. COMMODITY CONTEXT

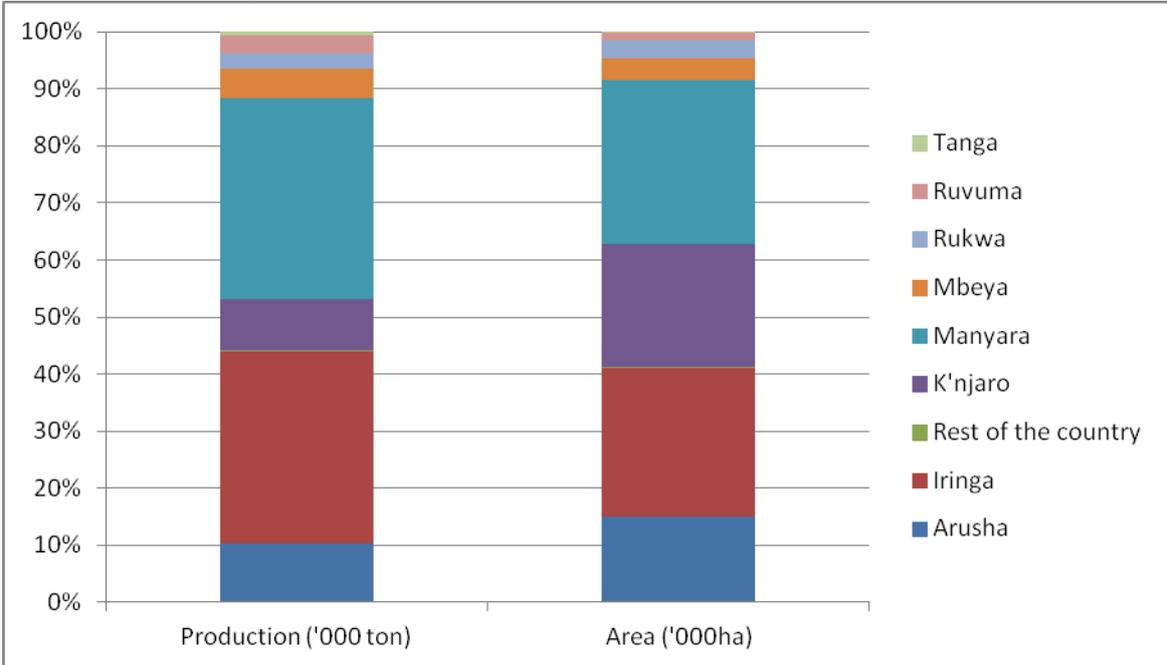
Wheat production in URT is not a priority crop for the agriculture sector development. There are no production or marketing subsidies in wheat industry. The sector’s development and operations are mainly dominated by the private sector-large commercial farms and millers. Hence small holder engagement in wheat production is very small and scattered. Farms which were owned by the government through National Food Company (NAFCO) were privatized during liberalization era. Direct incentives for production and market development are almost absent with the exception of a common external tariff at the EAC level, where wheat is a sensitive item and thus has a 35 percent ad valorem protection at the border.

Research and breeding activities in National Agriculture Research Stations (NARS) on wheat is very scarce leading to low availability of improved seeds to small holder farmers. However, URT has a potential of producing more than 164 000 tonnes of wheat annually if there are purposive policy efforts in improving crop husbandry, trade and marketing.

### PRODUCTION

Figure 1 shows that over 90 percent of wheat produced in URT comes from Arusha, Iringa, Mbeya, Kilimanjaro and Manyara regions. Three of the regions are located on the northern part of URT – Kilimanjaro, Arusha and Manyara - and the rest are located on the Southern Highlands. While wheat production in the southern highlands is predominantly small scale, production in the northern highlands is mainly in large scale farms. Level of wheat mechanization can be grouped into three modes of production: large-scale mechanized, small- to medium-scale mechanized, and hand-tool production.

**Figure 1: Distribution of wheat production in Tanzania (2005-10)**

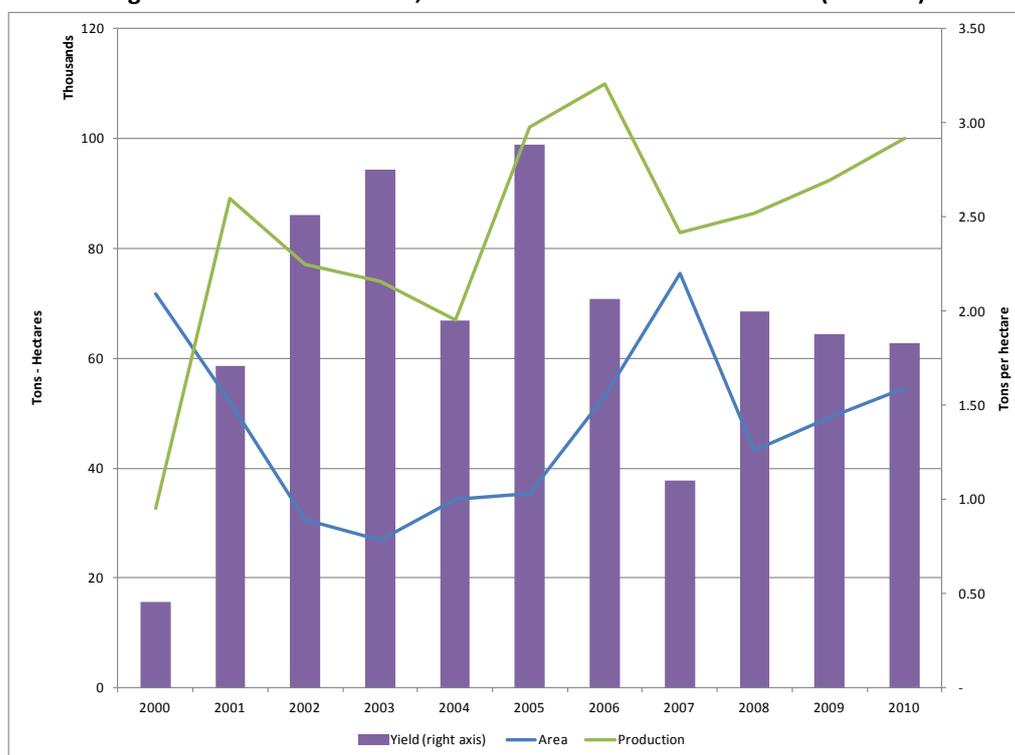


Source: MAFSC and own elaboration

Wheat production and harvested area between 2000 and 2010 has been fluctuating in similar pattern as shown in Figure 2. Area under wheat production has been gradually increasing from 2005

and reached its historical peak in 2007. The increase in area was accompanied by a very sharp decline in yields which resulted in reductions on area to period averages as of 2008.

**Figure 2: Wheat Production, Area Harvest and Yield in Tanzania (2000-10)**



Source: FAOSTAT

## CONSUMPTION/UTILIZATION

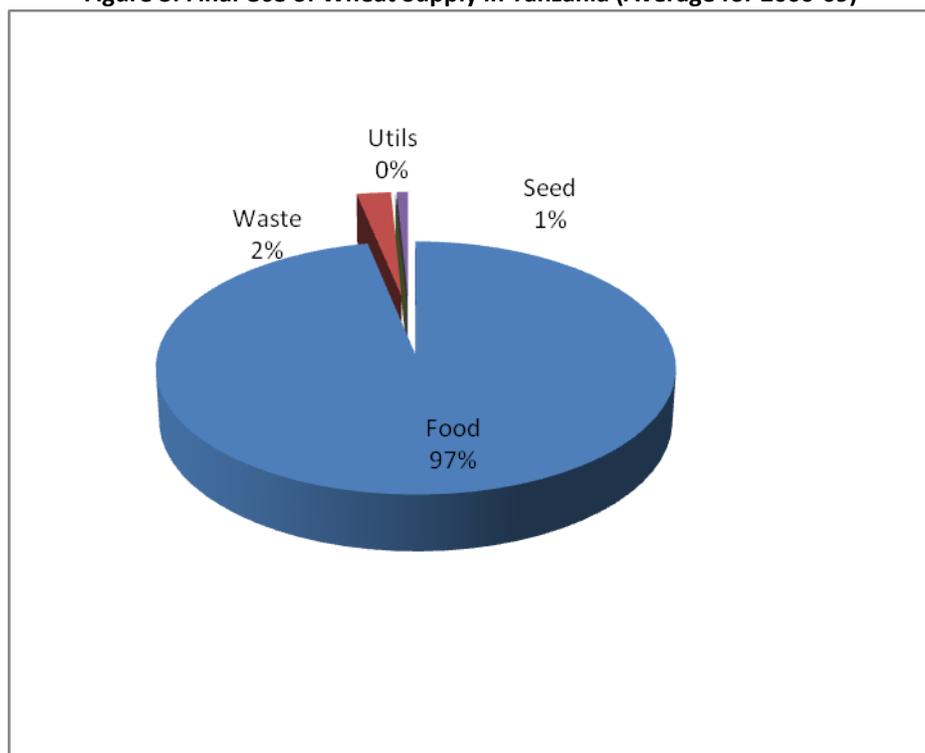
As shown in the Food Balance Sheet for wheat, the main destination of the commodity in URT is food by 97 percent and 2 percent is wasted while 1 percent is recycled as seed. URT imports significant amounts of wheat, part of which is re-exported to neighboring countries.

**Table 1: Food Balance Sheet for wheat in Tanzania**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Production (TONNE)	32700	89000	77000	74000	67000	10200	110000	82800	86400	92400
Import (TONNE)	30660	39713	40045	49874	62332	48640	656647	82230	46773	897005
	7	3	2	8	3	6		0	5	
Stock Variations (TONNE)	10757	-133	-261	533	11	-31	-	-49969	15500	-
							105000		0	200000
Export (TONNE)	78808	81351	27709	16868	19677	12909	53589	20885	10227	39812
				6	9			3	7	
Domestic Supply (TONNE)	27125	40464	44948	40459	49355	57546	608058	64627	60685	749593
	6	9	2	5	4	5		8	8	
Seed (TONNE)	5212	3067	2689	3438	3537	5322	7537	3200	3500	3700
Waste (TONNE)	6833	9416	9341	11332	13670	11540	15004	17926	13870	18374
Food (TONNE)	25920	39216	43745	38982	47634	55860	585506	62515	58948	727519
	8	6	0	3	6	0		2	5	
Other Utils	3	0	2	2	2	3	11	0	3	0

Source: FAOSTAT

**Figure 3: Final Use of Wheat Supply in Tanzania (Average for 2000-09)**



Source: FAOSTAT

Wheat consumption in URT is ranked fourth after maize, cassava and rice. Average caloric intake of wheat between 2002 and 2007 was one fifth of that of maize (see Table 2). Wheat is mainly consumed in the form of wheat flour, which is both intermediate and as final product. Wheat consumption is higher in urban areas (83 percent) than in rural areas (17 percent) (Kilima, 2006). Wheat milling industry is denominated by AZAM followed by AZANIA Company both located in Dar es Salaam. These companies supply wheat products to consumers in East and Central Africa.

The price of wheat products (bread, chapatti, cakes and buns) has increased in recent years due to rising world prices, as local wheat production (about 100 000 tonnes/year) cannot meet local demand and large scale imports are required. A 500 g loaf of bread that has sold at 500 Tanzanian shillings (TZS) for the past four years has been selling for 700 and 800 TZS since March 2008. Similarly for chapatti which was sold at 100 TZS now is 300 TZS. While these products comprise an important part of the urban diet, high prices have led to declines in demand that are likely to reduce the incomes of women whose income is derived from selling these products.

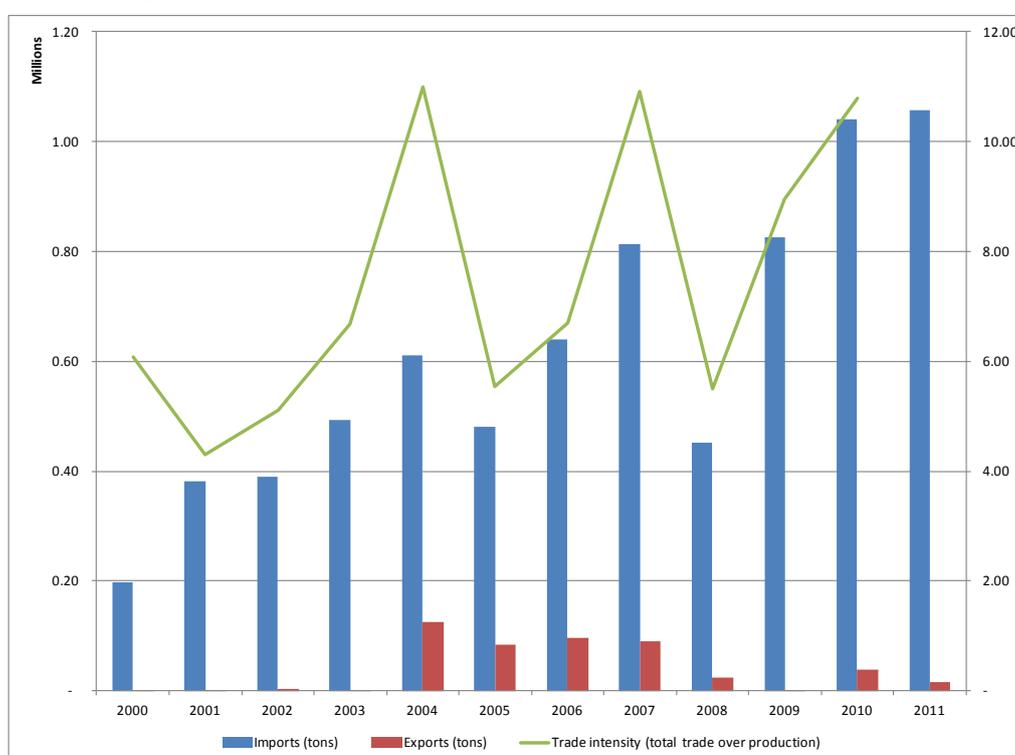
Crops	2002	2003	2004	2005	2006	2007	Average
Maize	627.03	598.81	532.22	519.02	524.31	522.39	553.96
Cassava	196.77	215.28	172.76	216.06	215.69	234.89	208.57
Rice	179.04	203.69	206.02	207.01	211.1	194.39	200.21
<b>Wheat</b>	<b>92.42</b>	<b>80.21</b>	<b>95.4</b>	<b>108.91</b>	<b>111.69</b>	<b>123.34</b>	<b>102.00</b>
Sweet Potatoes	79.93	34.36	98.88	90.63	86.97	80.03	78.47
Sorghum	50.27	34.77	60.11	65.45	62.28	84.67	59.59
Plantains	29.78	27.22	27.73	27.38	26.62	25.88	27.43
Potatoes	16.09	15.17	28.5	27.71	23.79	22.87	22.35

Source: FAOSTAT

## MARKETING AND TRADE

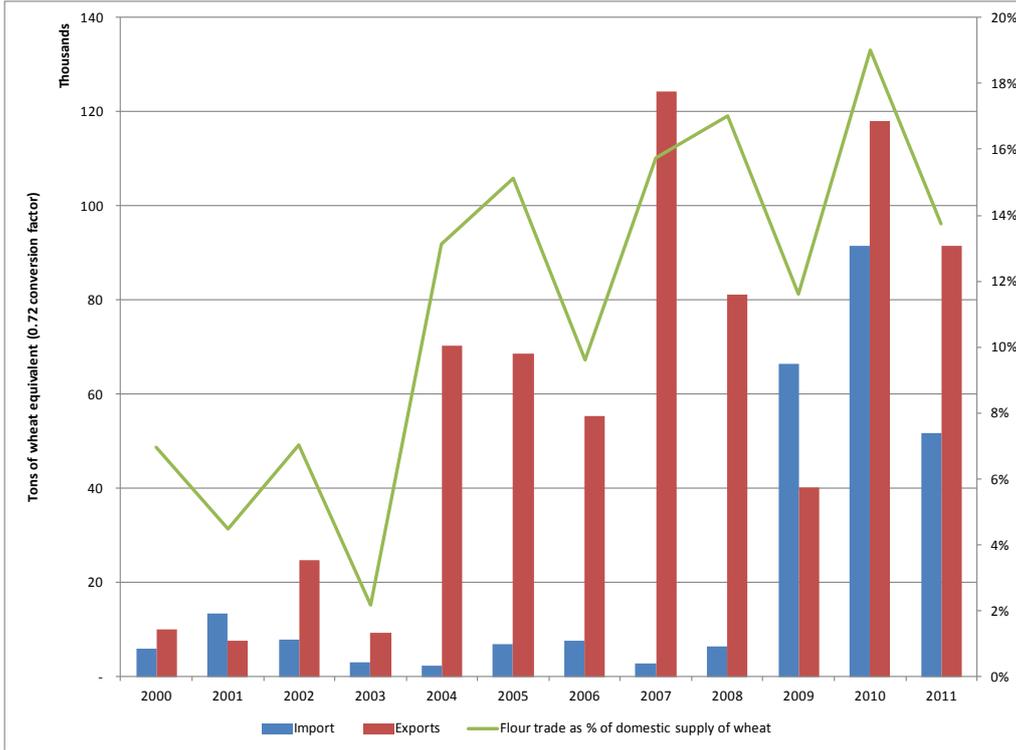
Using UNCOMTRADE database we can identify trade patterns for wheat and meslin (HS 1001) and wheat and meslin flour (HS 1101). While for wheat URT is a net importer with traded amounts over six times the domestic production. Moreover, most of wheat exports from URT are recorded as re-exports. Trade in flour shows a net exporter position for the country most of the period, with volumes of trade in flour accounting for 15 percent of domestic supply of wheat and wheat flour exports accounting for a non-negligible amount of total domestic supply of wheat plus wheat flour imports (8 percent from 2000 to 2010 and 11 percent during the study period). Moreover, with the exception of 2005, when re-exports amounted for 86 percent of total exports, re-exports are negligible (below 1 percent of total exports).

Figure 4: Imports and exports of wheat (HS1001) in Tanzania (2000-10)



Source: COMTRADE

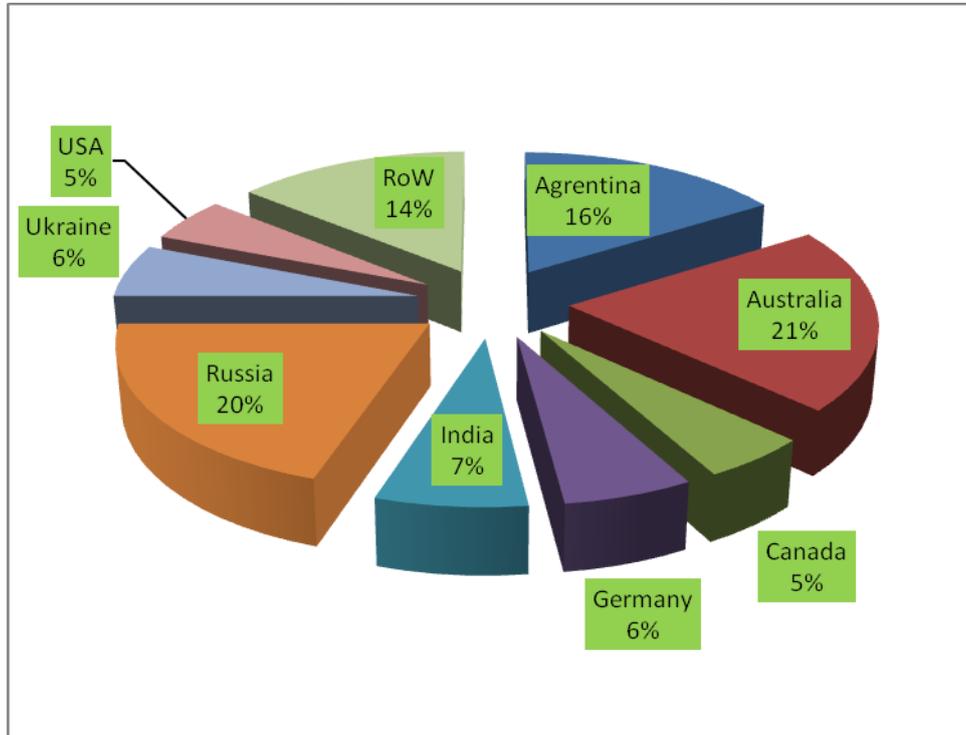
**Figure 5: Imports and exports of wheat flour (HS1101) in Tanzania (2000-10)**



Source: COMTRADE

Regarding the origin of wheat imports, Australia, Russia and Argentina are the main origin. In terms of imports by continent, Europe leads South America followed by North America, Asia and Middle East. URT imports very small amount of wheat from other African countries as shown in Figure 6.

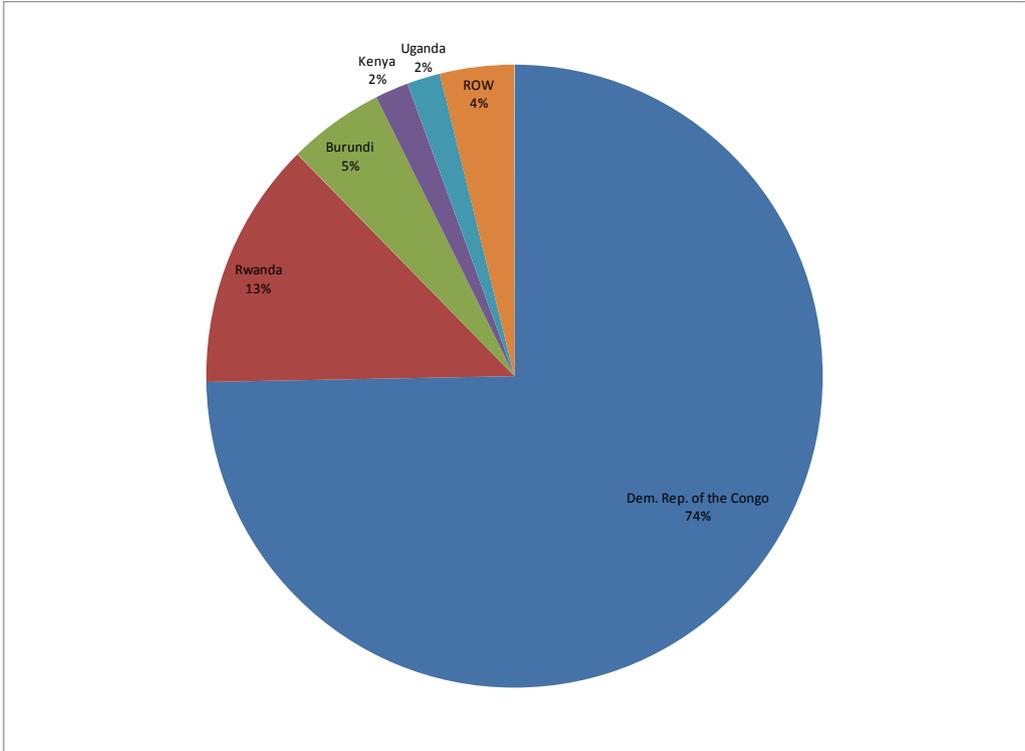
**Figure 6: Wheat Imports to Tanzania according to origin (2000-10)**



Source: COMTRADE

As far as wheat flour is concerned, the main export destinations are in the region, with DRC (=?) accounting for over 75 percent of total exports and the rest being shipped to the other East African Community partners.

**Figure 7: Wheat flour exports to Tanzania according to destination (2000-10)**

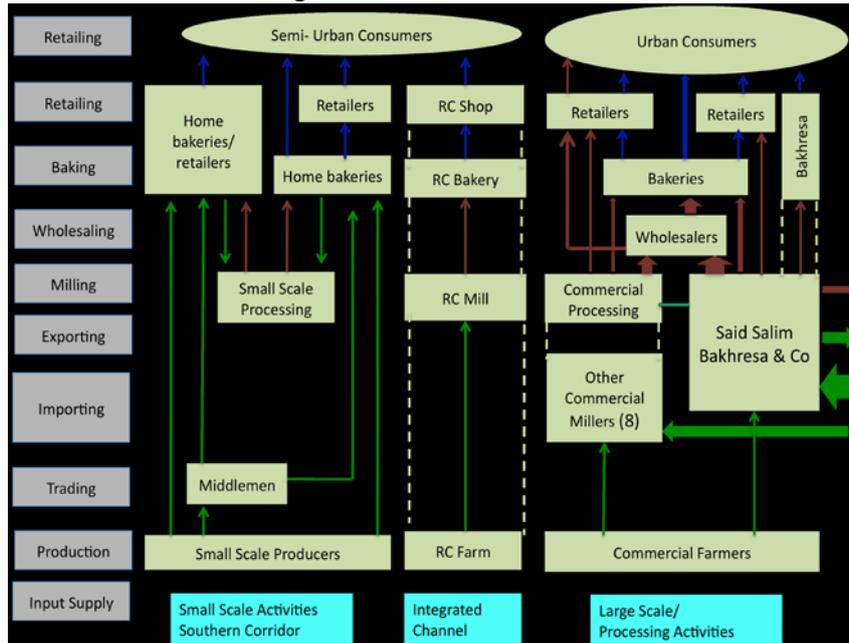


Source: COMTRADE

**DESCRIPTION OF THE VALUE CHAIN AND PROCESSING**

Wheat before reaching urban or rural consumers follows one of three independent supply chains as shown in Figure 8. The first supply chain is small scale farming along the Southern Corridor, second used to be Regional Cooperative (RC) farms which do no longer exist and third is large scale activities. Each of the system operates independently from the farm to the final consumers. Bakheresa Ltd is the dominant player in the large scale operations by having multiple functions along the supply and value addition chain followed by Azania and Mohamedi Interprises Limited. Large commercial farmers and companies supply wheat to large milling companies such as Bakheresa. However, due to low domestic wheat production, Bakheresa also imports wheat from different world markets to feed its milling industry which in turn exports various wheat products to East and Central Africa. Exports also include bakeries products which are also distributed within URT through a number of retail outlets. The small scale chain encompasses middlemen, small scale milling and home bakeries who can also act as retail shops for final products.

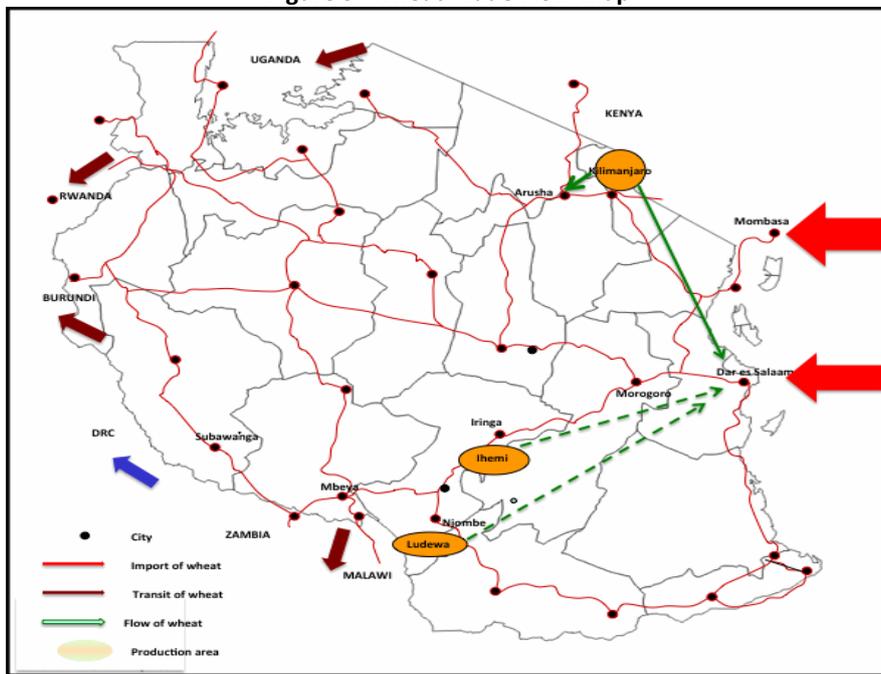
**Figure 8: Wheat Value Chain**



Source: SACGOT, 2012

The flow of wheat in URT is depicted in Figure 9. Raw wheat imports enter the country via Mombasa and Dar es Salaam ports. From there it is transported by road (if imported via Mombasa) to Dar es Salaam or Arusha regions to milling companies for processing. Local wheat production is scattered in few regions such as Kilimanjaro, Iringa-Ihemi and Ludewa. Raw wheat from Iringa is also transported to Dar es Salaam to milling companies and also to informal bakeries and confectioneries around the country.

**Figure 9: Wheat Trade Flow Map**

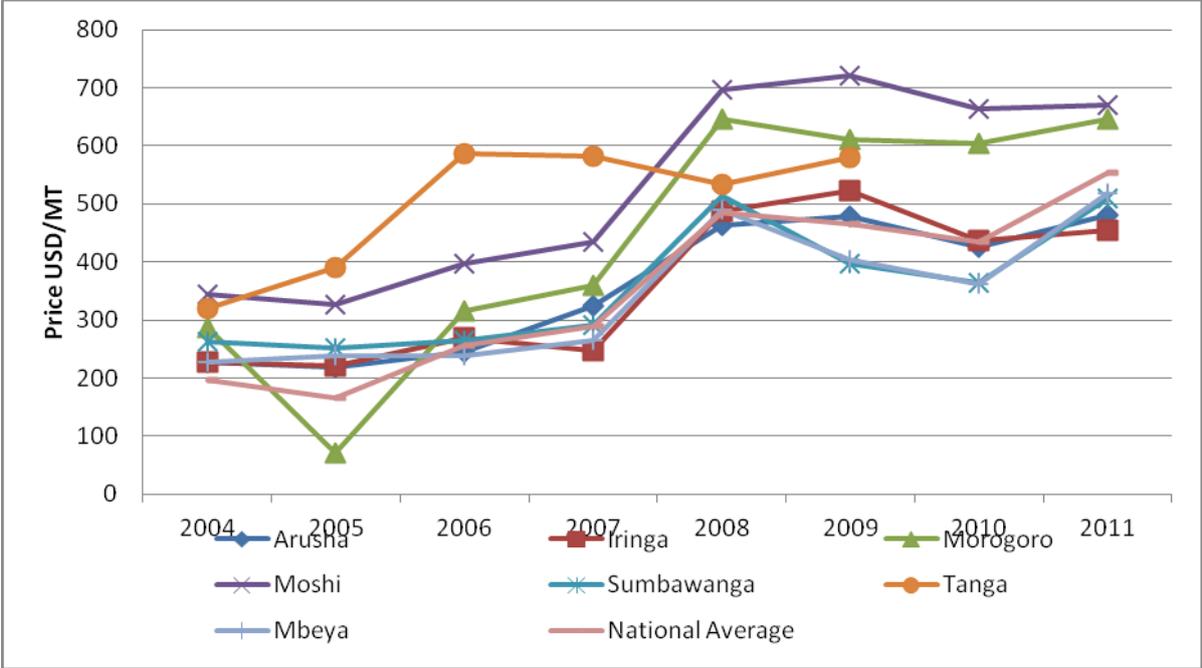


Source: SACGOT, 2012

Wholesale prices in URT are shown in Figure 10. Prices have been increasing over this period and the pattern of prices is similar irrespective of the market considered. The highest wheat prices are

reported for Tanga and Moshi. Both markets are close to the Kenyan border and prices are higher due to the impact of demand from this country where wheat prices are higher. All regions with low prices were due to relatively high level of production such as Iringa and Sumbawanga regions (Figure 1). Border towns such as Sumbawanga have potential to trade with Malawi and Zambia but wheat trade is very low as maize is the dominant traded crop.

**Figure 10: Wheat Prices at Selected Wholesale Markets in Tanzania**



Source: own calculation using Techno serve data

**POLICY DECISIONS AND MEASURES**

Despite the fact that wheat accounts for only 4 percent of the per capita calorie intake, its economic importance cannot be ignored for two reasons. First, most wheat consumed in URT is imported implying that price shocks in wheat exporting countries might have significant impacts on the foreign reserves. Second, effective wheat demand is in urban areas where population growth is high and wheat demand is bound to increase as the population grows.

Wheat trade and marketing activities in URT have gone through many changes. Prior to agricultural market reforms, the state controlled markets curtailed the role of private traders through restrictions on quantity handled and procurement rights at the farm-level. The aim of these policies was to ensure self sufficiency in food. Roads blocks were established along major trade routes to minimize inter-regional trade as one of the measures to reinforce the policy. By 1991 all trade distortive policies were lifted after the adoption of reforms prescribed by International Monetary Fund(IMF).

This reforms lead to active participation of private traders and investors in wheat sector (World Bank, 1994). However, local trade is still affected by a number of Non Tariff Barriers (NTB) which includes numerous weighbridges, and bribes to police inspection at border points.

As far as external protection is concerned, wheat is considered as a sensitive item under the EAC Common External Tariff. Both hard wheat and other wheat under HS Codes 10019020 and 10019090 have a zero tariff for EAC members and a 35 percent tariff for the rest of the world (MFN) (EAC CET

various years). However, since 1<sup>st</sup> July 2007 the CET has been reduced to 10 percent in URT and Uganda (Legal Notice EAC/10/2007), since 1<sup>st</sup> July 2009 the CET in Uganda and Rwanda is waived while URT maintains it at 10 percent for one more year and Kenya reduces the CET to 25 percent (Legal Notice EAC/7/2009). In 2010 the CET is changed again (Legal Notice EAC/12/2010) and Rwanda waives it totally while URT, Uganda and Kenya keep it at 10 percent.

**Table 3: Wheat tariff in the East African Community, 2005-2010 (% ad valorem)**

	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Tanzania	35	35	10	10	10	10
Uganda	35	35	10	10	0	10
Kenya	35	35	35	35	25	10
Rwanda	35	35	35	35	0	0

Source: East African Gazette

Wheat flour in turn has a CET of 60 percent in order to promote the development of the milling industry and no specific waiver has been in place during the period 2005-2010.

### 3. DATA REQUIREMENTS, DESCRIPTION AND INDICATORS CALCULATION

To calculate the indicators needed to estimate incentives or disincentives to production (NRP, NRA) as well as the Market Development Gaps (MDGs), several types of data are needed. They were collected and are presented and explained hereafter. Analysis for price incentive and disincentive for wheat in URT is done for the period 2005-2010.

#### TRADE STATUS OF THE PRODUCTS

As shown above, URT is a net importer of wheat. We consider the point of competition takes place at the wholesale market for wheat in Dar es Salaam for years when URT is a net importer, as local processors can either buy local wheat or revert to imported one.

#### BENCHMARK PRICES

As wheat is an import during the whole period the benchmark, price is the CIF price for wheat imports to URT. Using the COMTRADE data base, we have calculated unit values for HS 1001 wheat and meslin as reflected in Table 4. As it can be seen, prices have been steadily growing since 2005 with a sharp slide in 2007 and 2008 when import prices increased by nearly 50 percent each year. Since then prices lowered but remained above the time trend previous to 2007.

**Table 4: Import unit values (USD per tonne) for imports of wheat (HS 1001 Wheat and Meslin) in Tanzania 2005-10**

	2005	2006	2007	2008	2009	2010
Imported volume (metric tonnes)	480 450	640 212	813 512	452 124	826 272	1 039 811
Price (USD per metric tonne)	180	188	287	402	253	281
% change from year before		4.7%	52.6%	40.2%	-37.1%	10.8%
% change from 2005		4.7%	59.9%	124.2%	41.1%	56.4%

Source: COMTRADE and own elaboration

#### EXCHANGE RATES

Exchange rates for URT have been taken from the IMF data source and summarized in Table 5. Yearly averages have been calculated using monthly data. There is no intervention on foreign currency markets in URT as the currency floats freely and therefore no adjusted exchange rate is considered in the analysis.

**Table 5: Exchange Rate TZS/USD**

	2005	2006	2007	2008	2009	2010
Exchange rate (yearly average of monthly data)	1 129	1 252	1 245	1 196	1 320	1 409

Source: IMF

#### OBSERVED DOMESTIC PRICES

The analysis we want to undertake requires two different domestic prices, those at the point of competition between imports and domestic product and that at the farm gate. The point of competition has been set at Dar es Salaam and for this MTI reports monthly average prices for wheat at wholesale level as reported in Table 6. For the price at the farm gate we have used the average wholesale price in the major producing areas (Iringa, Mbeya and Maynara).

**Table 6: Domestic wholesale prices for wheat (TZS per tonne) in point of competition and producing areas**

	2005	2006	2007	2008	2009	2010
Dar es Salaam (point of competition)	383 357 <sup>+</sup>	470 000	512 521	606 785	782 492	855 708
Producing areas (assumed farm gate)	262 797	322 192	329 255	593 861	645 157	608 122

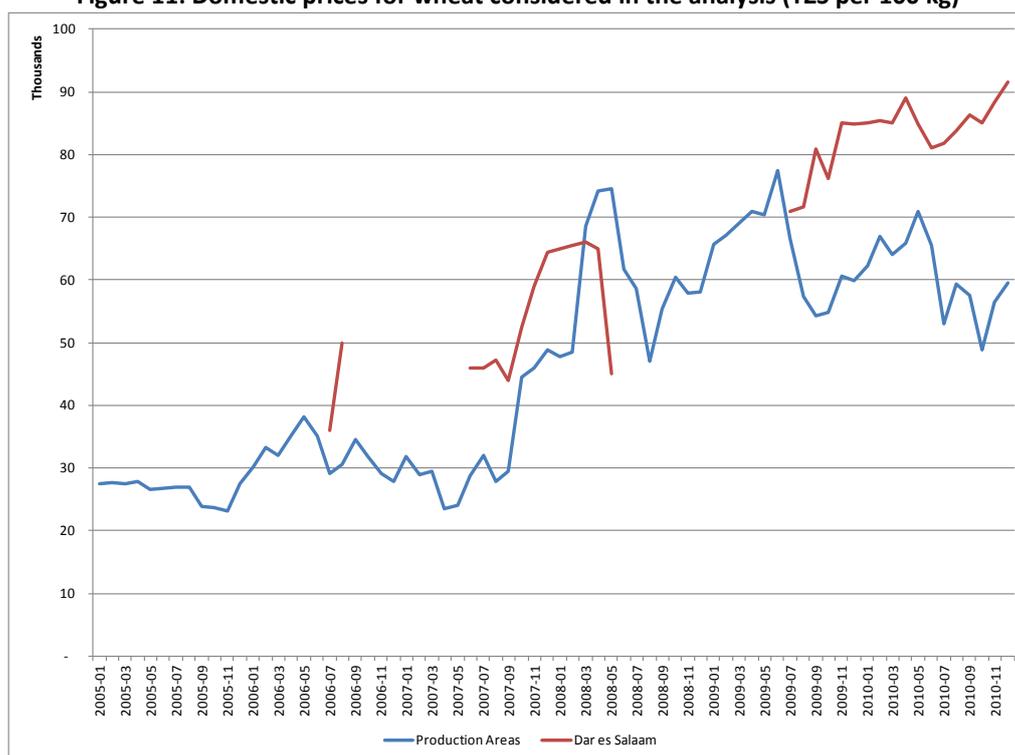
+ calculated price

Source: MTI

As we do not have data available for Dar es Salaam in 2005, we have used a calculated price for that year multiplying the price in the producing areas by the ratio between the price in Dar and the price in the producing areas for 2006.

Figure 11 compares the two prices on a monthly basis. Two things can be concluded from the analysis of the price series. First, the price series at the point of competition is quite patchy. Second, the price relationship between both points in the value chain is consistent with the assumption made (*i.e.* excess production that is sent to deficit areas with higher prices). Last, both series seem to move independently, even when the lack of a comprehensive and long price series for Dar does not allow confirming this.

**Figure 11: Domestic prices for wheat considered in the analysis (TZS per 100 kg)**



Source: MTI

## ACCESS COSTS

### BORDER TO POINT OF COMPETITION.

#### OBSERVED

For the whole period URT is a net importer of wheat from destinations which assume that the point of entry is Dar es Salaam port. Therefore the costs for this part of the value chain include costs of

landing at the port of Dar es Salaam and importer margins. Access costs from port to wholesale are reported by Temu et al. (2010) which identify up to 123 USD per tonne as non-tariff requirements for importation<sup>1</sup>. Although these costs refer to maize we can consider that they can be applied to all cereals. These costs are summarized in Table 7 and revised with additional information obtained from more up to date sources.

**Table 7: Main import charges at the Dar es Salaam port (early and mid 2000's)**

Item	Description	Charge	Update
Pre-inspection charges	Pre-inspection by TISCAN a private company mandated by TRA	Destination inspection processing fees (1.2% of FOB)	
Phytosanitary charges	Post entry plant quarantine station inspection	15 USD per consignment	
Port wharfage fees	Paid to Tanzania Harbours Authority for goods while docked or leaving port	1.5% of CIF	
Tally fee	Payable to the shipping company	USD 1 per tonne	
TFCB booking fees	Tanzania central freight bureau fee for enforcing fair freight charges for exports and imports	2.5 % of CIF or FOB	Currently under SUMATRA (Surface and Marine Transports Authority) and set at 0.3 USD per tonne <sup>2</sup> . Included
Clearing agents fees	Documentation fees	78.43 USD per consignment (estimated)	Caps set by SUMATRA Bill of lading 45 USD Delivery order 45 USD
	Agent fees	% of value of goods	List of approved shipping agents includes over 30 companies.
Loading and unloading	Re-bagging, transport, silo charges etc.	USD 20 per tonne	
Health and food safety standards	Tanzania Food and Drugs Authority Permit	TZS 1 000 for testing fees	Assumed to be per tonne

Source: Temu et al. (2010) and own elaboration

In order to verify the validity of the Surface and Marine Transport Regulatory Authority (SUMATRA) declared fees for bulk imports we have calculated the ratio of total revenues of SUMATRA related to imports and total value of imports<sup>3</sup>. This generates a fee of 0.60 TZS per USD in 2007 [0.46 (2008) and 0.88 (2009)]. Considering the CIF unit value prices for those years (even when for 2007 and 2009 imports are too limited to have representative CIF prices for Maize) we see that the fee levied to Maize would be between 0.1 and 0.4 USD per tonne which is in the range of the declared fees. Therefore we consider that the SUMATRA import fee of 0.3 USD per tonne seems to be applied.

For some of these components, *i.e.* those reported as per consignment, we need to make some assumption about the average size of the import consignment in order to obtain a per tonne cost of access costs from the border to the point of competition. Even when maize is normally imported as bulk we can consider a minimum consignment size of 20 tonnes (*i.e.* one container). Taking into

<sup>1</sup> Although the year is not specified, it seems the figures are for the early 2000s, as they reference a tariff structure that was in place from 2000 to 2003.

<sup>2</sup> As reported for dry bulk <http://www.sumatra.or.tz/index.php?option=content&task=view&id=37&Itemid=2>

<sup>3</sup> Aggregated trade volume is not available, nor the disaggregation of SUMATRA revenue by type of goods.

account these considerations the final components of observed access costs from border to point of competition in USD per tonne are shown in Table 8.

**Table 8: Components of the observed access costs from border to point of competition considered in the analysis when Tanzania is an importer of wheat through Dar es Salaam**

Item	Value (USD per tonne)	Reference year	Notes
Pre-inspection charges	1.2% of FOB 0.9% of CIF	N.A.	Approximated for imports from original data (referred to FOB) using the FOB to CIF ratio of world exports to declared to Tanzania and world imports declared by Tanzania for 2005 and 2006 <sup>4</sup> .
Phytosanitary charges	0.75 USD per tonne	2003	Assuming an average shipment of 20 tonnes
Port wharfage fees	1.5% of CIF	2003	For export years applied to FOB
Tally fee	1 USD per tonne	2003	
TFCB booking fees	0.3 USD per tonne	2010	
Clearing agents fees	2.25 USD per tonne	2010	Only bill of lading (imports) or Delivery order (exports) and assuming an average shipment of 20 tonnes
	2% of CIF	N.A.	Estimate of normal fees due to sufficient competition in Dar
Loading and unloading	20 USD per tonne	2003	
Health and food safety standards	1 000 TZS per tonne	2003	

Source: Temu et al. (2010) and own elaboration

Costs not referred to percentage of the import values have been adjusted for inflation using the Tanzania CPI and those expressed in USD transformed to local currency using the average exchange rate for the year.

In addition we consider a 10 percent profit by importers on purchase price (CIF price) and obtain the following access costs from border to wholesale when URT is a net exporter reflected in the following Table 9.

**Table 9: Observed access costs from border to point of competition when Tanzania is an importer of wheat through Dar es Salaam port**

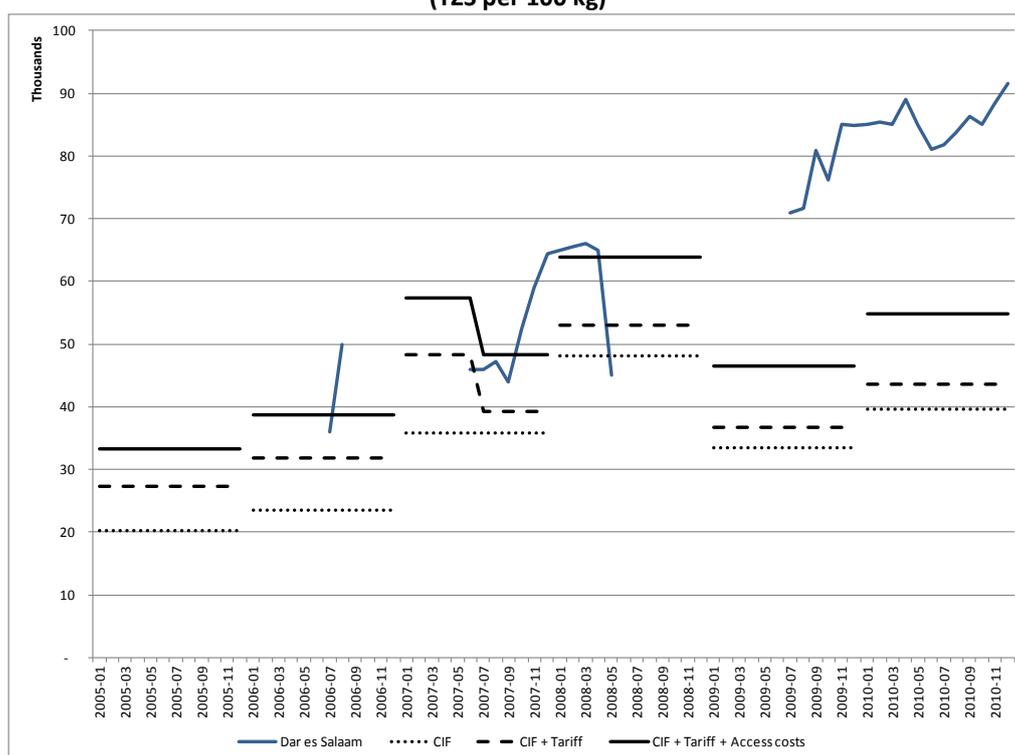
	2005	2006	2007	2008	2009	2010
Access costs from Port to point of competition (TZS per tonne)	59 110	69 299	90 617	109 119	97 177	112 404

Source: own elaboration as described above

Figure 12 compares wholesale prices in Dar with CIF prices plus access costs both with (import parity price) and without tariff (reference price). As it can be seen the domestic price is higher than those prices showing a price structure that would justify trade for wheat.

<sup>4</sup> For all other years trade data is too inconsistent to be used (*i.e.* FOB price higher than CIF price or volumes differing by more than one order of magnitude).

**Figure 12: Wholesale prices in Tanzania, reference price and cost of imports with tariff for wheat (TZS per 100 kg)**



Source: MTI (wholesale prices), UN COMTRADE (CIF prices), WITS (tariffs) and IMF (exchange rates)

### ADJUSTED

In this section of the access costs we can consider the inefficiencies associated with the port of Dar es Salaam and a lower margin for importers. The rest components of the access costs remain the same.

- [1] **Inefficiencies in the port of Dar es Salaam:** instead of the data reported by Temu et al. (2010) we use the average costs and charges reported by the World Bank in their review of Africa’s transport infrastructure (World Bank, 2011). The World Bank estimates that bulk dry handling costs averaged 4.5 USD per tonne in 2006 while our estimate for 2003 is 20 USD per tonne for loading and unloading. The World Bank estimate is near the average of all ports surveyed in Africa (4.3 USD per tonne) and marginally higher than costs in middle income African countries (3.8 USD per tonne).
- [2] **Importer margins:** we consider a 5 percent over CIF price instead of the 10 percent of the observed domain.

The adjusted access costs from border to point of competition are presented in Table 10.

**Table 10: Adjusted access costs from border to point of competition when Tanzania is an importer of wheat through Dar es Salaam port**

	2005	2006	2007	2008	2009	2010
Access costs from Port to point of competition (TZS per tonne)	28 873	33 620	47 302	58 084	47 082	54 791

*Source: own elaboration as described above*

## FARM GATE TO POINT OF COMPETITION

### OBSERVED

Two items are considered in the calculation of access costs from farm gate to the point of competition. As the farm gate price used is already a wholesale price we include a traders' 10 percent margin over purchase price of wheat together with transport costs from production areas to Dar es Salaam. An average distance of 500 km is used with a cost per km and tonne of transport of 170 TZS as reported by NFRA for purchases made in the southern highlands in 2011. The unit cost of transport has been deflated using the CPI for obtaining a unit transport cost for the period 2005-2010.

### ADJUSTED

The only difference between observed and adjusted costs is the reduction of traders' margin from 10 percent to 5 percent.

Access cost from farm gate to point of competition, observed and adjusted, used for the analysis is reflected in Table 11.

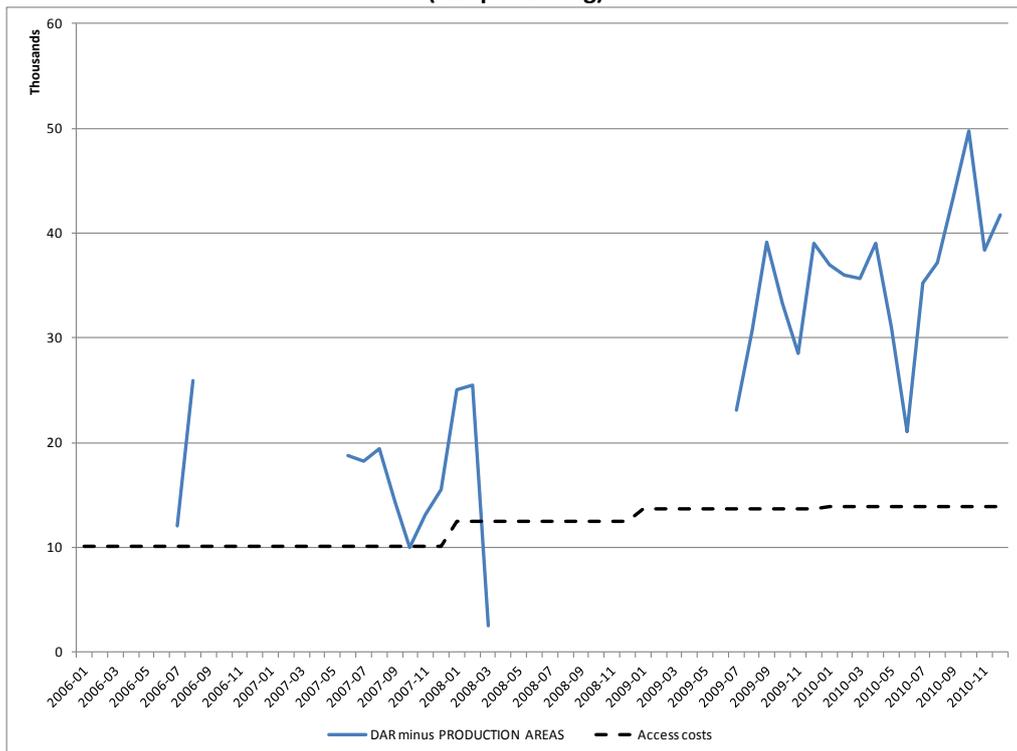
**Table 11: Observed and adjusted access costs from farm gate to point of competition (TZS per tonne)**

	2005	2006	2007	2008	2009	2010
Observed	88 495	101 211	101 540	125 315	137 278	138 477
Adjusted	75 355	85 102	85 077	95 622	105 020	108 071

*Source: own elaboration as described above*

As it can be seen in Figure 13 the relationship between price differentials between production areas and Dar es Salaam and the access costs considered also show a cost structure that would allow for domestic trade in wheat.

**Figure 13: Wheat price differential between Dar es Salaam and production areas versus access costs (TZS per 100 kg)**



Source: MTI and own elaboration

## EXTERNALITIES

There are no estimates on externalities in the wheat value chain in URT.

## BUDGET AND OTHER TRANSFERS

Although we are aware of the existence of direct budget transfers to the smallholders producers as a result of subsidies for agricultural inputs, no specific data on expenditures targeted towards wheat production are currently available.

## QUALITY AND QUANTITY ADJUSTMENTS

We have not performed any quantity or quality adjustments as the data for the imported product and the domestic one refer to the same product.

## SUMMARY TABLE FOR DATA DESCRIPTION

Following the discussions above, here is a summary of the main sources and methodological decisions taken for the analysis of price incentives and disincentives for wheat in URT.

**Table 12: Summary of the description of the data used in the estimation of policy indicators for beef in Uganda**

<i>Concept</i>		<i>Description</i>	
		<i>Observed</i>	<i>Adjusted</i>
Benchmark price		▪ <i>Unit value of wheat imports as reported in UN COMTRADE for HS1001</i>	N.A.
Domestic price at point of competition		▪ <i>Annual average wholesale price for Dar es Salaam</i>	N.A.
Domestic price at farm gate		▪ <i>Annual average wholesale price in producing areas (Iringa, Mbeya, Maynara)</i>	N.A.
Exchange rate		▪ <i>Annual average of exchange rate as reported by IMF</i>	N.A.
Access cost to point of competition		▪ <i>Observed import costs at port of Dar es Salaam plus 10% margin over CIF price</i>	▪ <i>As observed but with handling costs as reported by World Bank (i.e. 4.5 USD (2006) per tonne of dry bulk versus 20 USD (2000) per tonne of dry bulk) and 5% margin instead of 10%.</i>
Access costs to farm gate		▪ <i>10% margin on purchase price of wheat plus transport and handling costs using NFRA reported per km and tonne multiplied by average distance from production areas to Dar.</i>	▪ <i>AS observed by considering a 5% margin over purchase price.</i>
QT adjustment	Bor-Wh		N.A.
	Wh-FG	N.A.	N.A.
QL adjustment	Bor-Wh	N.A.	N.A.
	Wh-FG	N.A.	N.A.

The data used for the analysis is summarized in the following table.

**Table 13: Data used in the analysis of MAFAP policy indicators**

		Year	2005	2006	2007	2008	2009	2010
		trade status	<i>m</i>	<i>m</i>	<i>m</i>	<i>m</i>	<i>m</i>	<i>x</i>
<b>DATA</b>	<i>Unit</i>	<i>Symbol</i>						
Benchmark Price								
Observed	USD/TONNE	$P_{b(int\$)}$	180	188	287	402	253	281
Adjusted	USD/TONNE	$P_{ba}$						
Exchange Rate								
Observed	TZS/USD	$ER_o$	1 129	1 252	1 245	1 196	1 320	1 409
Adjusted	TZS/USD	$ER_a$						
Access costs border - point of competition								
Observed	TZS/TONNE	$AC_{owh}$	59 110	69 299	90 617	109 119	97 177	112 404
Adjusted	TZS/TONNE	$AC_{awh}$	28 873	33 620	47 302	58 084	47 082	54 791
Domestic price at point of competition	TZS/TONNE	$P_{dwh}$	383 357	470 000	512 521	606 785	782 492	855 708
Access costs point of competition - farm gate								
Observed	TZS/TONNE	$AC_{ofg}$	88 495	101 211	101 540	125 315	137 278	138 477
Adjusted	TZS/TONNE	$AC_{afg}$	75 355	85 102	85 077	95 622	105 020	108 071
Farm gate price	TZS/TONNE	$P_{dfg}$	262 797	322 192	329 255	593 861	645 157	608 122
Externalities associated with production	TZS/TONNE	$E$						
Budget and other product related transfers	TZS/TONNE	$BOT$						
Quantity conversion factor (border - point of competition)	Fraction	$QT_{wh}$						
Quality conversion factor (border - point of competition)	Fraction	$QL_{wh}$						
Quality conversion factor (point of competition – farm gate)	Fraction	$QT_{fg}$						
Quality conversion factor (point of competition – farm gate)	Fraction	$QL_{fg}$						

## CALCULATION OF THE INDICATORS

The indicators and the calculation methodology used is described in Box 1. A detailed description of the calculations and data requirements is available in the MAFAP project website.

### Box 1: MAFAP Methodology and policy indicators

#### *Calculation of the policy indicators*

MAFAP analysis uses four measures of market price incentives or disincentives. *First*, are the two observed nominal rates of protection one each at the wholesale and farm level. These compare observed prices to reference prices free from domestic policy interventions.

Reference prices are calculated from a benchmark price such as an import or export price expressed in local currency and brought to the wholesale and farm levels with adjustments for quality, shrinkage and loss, and market access costs.

The observed **Nominal Rates of Protection - observed (NRPo)** is the price gap between the domestic market price and the “observed” reference price divided by the reference price at both the farm and wholesale levels:

$$PG_{ofg} = P_{fg} - RPO_{ofg}; \quad NRPO_{ofg} = \frac{P_{fg} - RPO_{ofg}}{RPO_{ofg}}$$

$$PG_{owh} = P_{wh} - RPO_{owh}; \quad NRPO_{owh} = \frac{P_{wh} - RPO_{owh}}{RPO_{owh}}$$

The  $NRPO_{ofg}$  captures all trade and domestic policies, as well as other factors which impact on the incentive or disincentive for the farmer. The  $NRPO_{owh}$  helps identify where incentives and disincentives may be distributed in the commodity market chain.

*Second* are the **Nominal Rates of Protection - adjusted (NRPa)** at both the wholesale and farm levels. The reference prices for these calculations are adjusted to eliminate distortions that are specific market supply change in developing countries. In particular MAFAP allows incorporating into the analysis distortions caused by market power, overvalued exchange rates, extraordinary levies and charges and excessive marketing costs. The equations to estimate the adjusted rates of protection, however, follow the same general pattern:

$$PG_{afg} = P_{fg} - RPA_{afg}; \quad NRPA_{afg} = \frac{P_{fg} - RPA_{afg}}{RPA_{afg}}$$

$$PG_{awh} = P_{wh} - RPA_{awh}; \quad NRPA_{awh} = \frac{P_{wh} - RPA_{awh}}{RPA_{awh}}$$

Comparison of the observed and adjusted rates of protection makes it possible to explain the incentives and disincentives due to market development gaps in developing country supply chains.

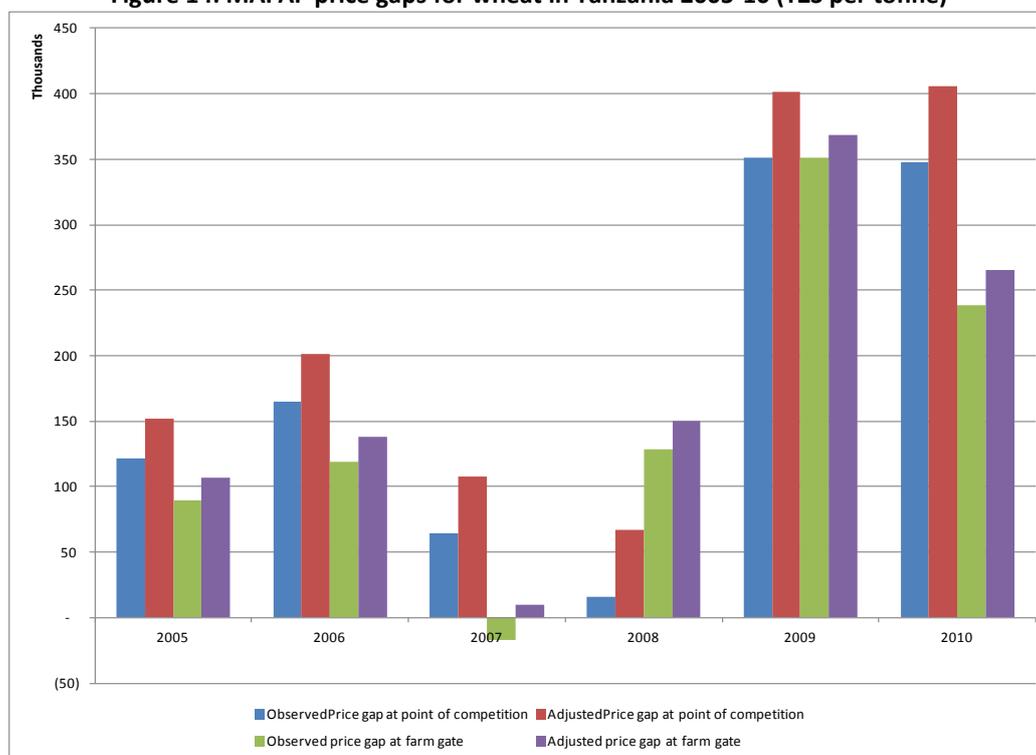
With the data described above, we obtain the price gaps summarized in Table 14, nominal rates of protection in Table 15 and Market Development Gaps in Table 16. Data is reported for 2005-10.

**Table 14: MAFAP price gaps for wheat in Tanzania 2005-10 (TZS per tonne)**

	2005	2006	2007	2008	2009	2010
Observed price gap at wholesale	121 547	165 268	64 553	16 247	350 853	347 637
Adjusted price gap at wholesale	151 784	200 948	107 868	67 282	400 949	405 250
Observed price gap at farm gate	89 482	118 672	(17 173)	128 637	350 796	238 529
Adjusted price gap at farm gate	106 579	138 241	9 679	149 979	368 634	265 736

Source: own calculations using data as described above

**Figure 14: MAFAP price gaps for wheat in Tanzania 2005-10 (TZS per tonne)**



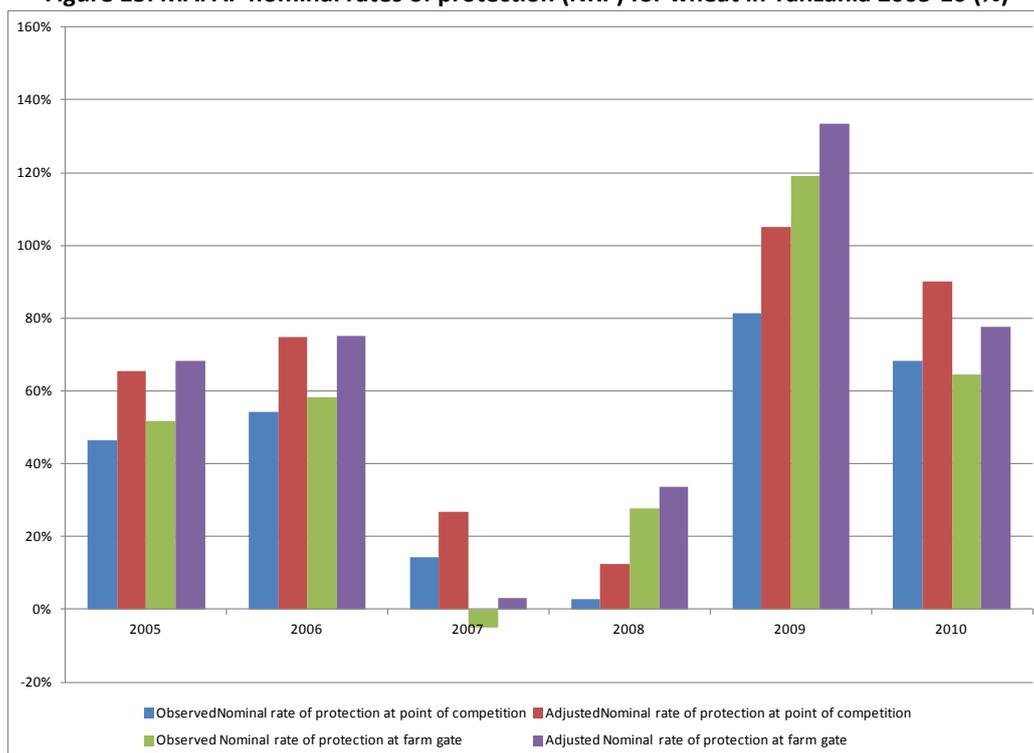
Source: own calculations using data as described above

**Table 15: MAFAP nominal rates of protection (NRP) for wheat in Tanzania 2005-10 (%)**

	2005	2006	2007	2008	2009	2010
Observed price gap at wholesale	46%	54%	14%	3%	81%	68%
Adjusted price gap at wholesale	66%	75%	27%	12%	105%	90%
Observed price gap at farm gate	52%	58%	-5%	28%	119%	65%
Adjusted price gap at farm gate	68%	75%	3%	34%	133%	78%

Source: own calculations using data as described above

**Figure 15: MAFAP nominal rates of protection (NRP) for wheat in Tanzania 2005-10 (%)**



Source: own calculations using data as described above

**Table 16: MAFAP Market Development Gaps for wheat in Tanzania (TZS per tonne)**

	2005	2006	2007	2008	2009	2010
International markets gap	-	-	-	-	-	-
Exchange policy gap	-	-	-	-	-	-
Access costs gap to point of competition	30 236.7	35 679.3	43 314.7	51 035.2	50 095.7	57 613.1
Access costs gap to farm gate	(13 139.8)	(16 109.6)	(16 462.8)	(29 693.0)	(32 257.8)	(30 406.1)

Source: own calculations using data as described above

#### 4. INTERPRETATION OF INDICATORS

The results obtained for wheat in URT show that there is high level of protection for wheat producers and traders in URT during the whole period. The protection is significantly higher than the CET for wheat

(35 percent) and remains even when the CET has been lowered to 10 percent since 2007. Taking into account the relationship between the rate of incentives at farm gate and at point of competition and the evolution of trade policy we can distinguish three periods.

Before the food price hike of 2007 (*i.e.* from 2005 to 2006) price in URT reflected the effect of the common external tariff and some additional incentives to local traders due to non-perfect price transmission of international prices to the domestic market. This is more important taking into account that URT was importing over 6 times more wheat than that domestically produced. Even with the tariff in place, if there were more competition in the import market, domestic prices for wheat could have been nearly 15 percent lower. Price gaps were higher at the point of competition than at the farm gate level, thus showing that consumers were penalized to a bigger extent than farmers benefited with the difference being captured by traders.

During 2007 and 2008, as international prices for wheat rose sharply, URT lowered the CET for wheat to 10 percent. This had an immediate reflection on the level of protection for domestic production which decreased sharply. While in 2007 farmers saw their prices reduced more than consumers, in 2008 they benefited from a lower level of imports, increasing the level of domestic supply to overall consumption. Notwithstanding the reduction of the protection to domestic production, the rate of protection has always been higher than the tariff.

The last period covers 2009 and 2010 when the tariff was maintained at the reduced level of 10 percent but where domestic prices kept increasing despite the reduction in international prices. This leads to a very high level of protection which in 2009 benefited more farmers and in 2010 went back to the same pattern as in the first period. Some point out to the exports of wheat flour to neighboring countries as a potential outlet for the imports of wheat at lower tariffs, however formal exports of flour, even when increasing account for less than 10 percent of total wheat imports.

As far as the adjusted domain is concerned, during the whole period excessive margins by importers are generating a protection which is higher than the negative effect that excessive margins by local traders have on domestic prices.

Apart from the influence of tariffs on imported wheat, higher wheat prices are contributed by increasing access costs for wheat imports at Dar es Salaam port and transport costs from Iringa to Dar es Salaam which is the largest consumption area in URT. In addition, URT Port is congested, with a 14-18 percent annual increase in cargo, which has not been matched by investment to handle the increased cargo.

Ports inefficiencies due to lack of adequate equipments, berthing spaces and number of existing non tariff barriers (such as administrative procedures) contribute to high transaction costs not captured by this study.

It is estimated that between three and four days are being lost at Dar es Salaam port causing

importers to incur surcharges by shipping lines of USD 12.5 per day and 40 ft container (TradeMark SA, 2012). Moreover, the estimates of importing goods in the Port of Dar by the Doing business initiative reports a cost of imports of over 130 USD per tonne when our estimates are only 55 percent on average of this amount. With this alternative costs, the measurement of incentives would be significantly reduced, but remain above the CET for wheat except for 2007 and 2008. However EAC champions implementing one-stop documentation centers Community Based Systems (CBS) model to ensure information flow between ports and customs along corridors to speed up clearance of containerized cargo.

## **5. CONCLUSIONS AND RECOMMENDATIONS**

### **MAIN MESSAGE**

Even when URT has taken measures to reduce domestic prices of wheat the impact of these measures has been limited. Domestic wheat prices remain higher than their international equivalents and thus there is a clear transfer from consumers to traders and to lesser extent producers.

### **PRELIMINARY RECOMMENDATIONS**

The Government of URT should ease import procedures for wheat as there is still a high degree of market power in wheat imports that allows traders to charge prices well above the import parity price.

While excessive port and import costs can account for most of the price differences identified, even if the highest cost estimate of imports are considered, protection is well above the prevailing tariff.

Considering wheat as one of the commodities for production expansion as its relative price to maize is very convenient. Even when price incentives have been significant during the study period there has been no increase in domestic production. According to the Sealian Agricultural Research Institute (SARI, no date) this could be due to lack access by medium and small scale farmers to new varieties and growing the old varieties which often succumb to new diseases or disease races and drought. Additional investment on R+D for Wheat is needed if the production of the crop is to be increased in the country.

### **LIMITATIONS**

The domestic price at farm gate is not available, thus the impacts on farmers are contingent on them receiving as similar price to that reported in wholesale markets in producing areas.

### **FURTHER INVESTIGATION AND RESEARCH**

It would be desirable to get a more updated estimate of costs of imports via the port of Dar es Salaam to better understand the surge on price gaps during 2009 and 2010.

It would be desirable to undertake this analysis distinguishing between different marketing channels (cooperatives versus private traders) in order to see whether incentives differ between them.

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## **ANNEX I: Methodology Used**

A guide to the methodology used by MAFAP can be downloaded from the MAFAP website or by clicking [here](#).

## ANNEX II: Data and calculations used in the analysis

DATA				Year	2005	2006	2007	2008	2009	2010	Notes
		Unit	Symbol	trade status	m	m	m	m	m	m	
<b>Benchmark Price</b>											
1	Observed	US\$/TON	P <sub>CIF(mS)</sub>		180	188	287	402	253	281	CIF Price FROM COMTRADE
1b	Adjusted	US\$/TON	P <sub>ba</sub>								
<b>Exchange Rate</b>											
2	Observed	Tshs/US\$	ER <sub>o</sub>		1,129	1,252	1,245	1,196	1,320	1,409	IMF
2b	Adjusted	Tshs/US\$	ER <sub>a</sub>								
<b>Access costs border - point of competition</b>											
3	Observed	Tshs/TON	AC <sub>o,wh</sub>		59,110	69,299	90,617	109,119	97,177	112,404	MTI DAR
3b	Adjusted	Tshs/TON	AC <sub>a,wh</sub>		28,873	33,620	47,302	58,084	47,082	54,791	
<b>Domestic price at point of competition</b>											
4		Tshs/TON	P <sub>a,wh</sub>		383,357	470,000	512,521	606,785	782,492	855,708	
<b>Access costs point of competition - farm gate</b>											
5	Observed	Tshs/TON	AC <sub>o,fg</sub>		88,495	101,211	101,540	125,315	137,278	138,477	TECHNOSERVE IRINGA/MBEYA/MFA
5b	Adjusted	Tshs/TON	AC <sub>a,fg</sub>		75,355	85,102	85,077	95,622	105,020	108,071	
<b>Farm gate price</b>											
6		Tshs/TON	P <sub>o,fg</sub>		262,797	322,192	329,255	593,861	645,157	608,122	
<b>Externalities associated with production</b>											
7		Tshs/TON	E								
<b>Budget and other product related transfers</b>											
8		Tshs/TON	BOT								
<b>Quantity conversion factor (border - point of competition)</b>											
		Fraction	QT <sub>wh</sub>								
<b>Quality conversion factor (border - point of competition)</b>											
		Fraction	QL <sub>wh</sub>								
<b>Quantity conversion factor (point of competition - farm gate)</b>											
		Fraction	QT <sub>fg</sub>								
<b>Quality conversion factor (point of competition - farm gate)</b>											
		Fraction	QL <sub>fg</sub>								
<b>CALCULATED PRICES</b>											
<b>Benchmark price in local currency</b>											
9	Observed	Tshs/TON	P <sub>b(locS)</sub>		202,699	235,432	357,351	481,419	334,461	395,667	[1]*[2]
10	Adjusted	Tshs/TON	P <sub>b(loc\$)a</sub>		202,699	235,432	357,351	481,419	334,461	395,667	[1]*[2]
<b>Reference Price at point of competition</b>											
11	Observed	Tshs/TON	RP <sub>o,wh</sub>		261,809	304,732	447,968	590,538	431,638	508,070	[9]+[3]
12	Adjusted	Tshs/TON	RP <sub>a,wh</sub>		231,573	269,052	404,654	539,503	381,543	450,457	[10]+[3b]
<b>Reference Price at Farm Gate</b>											
13	Observed	Tshs/TON	RP <sub>o,fg</sub>		173,314	203,520	346,429	465,224	294,360	369,593	[11]-[5b]
14	Adjusted	Tshs/TON	RP <sub>a,fg</sub>		156,218	183,951	319,577	443,881	276,522	342,386	[12]-[5b]
<b>INDICATORS</b>											
<b>Price gap at point of competition</b>											
15	Observed	Tshs/TON	PG <sub>o,wh</sub>		121,547	165,268	64,553	16,247	350,853	347,637	[4]-[11]
16	Adjusted	Tshs/TON	PG <sub>a,wh</sub>		151,784	200,948	107,868	67,282	400,949	405,250	[4]-[12]
<b>Price gap at farm gate</b>											
17	Observed	Tshs/TON	PG <sub>o,fg</sub>		89,482	118,672	(17,173)	128,637	350,796	238,529	[6]-[13]
18	Adjusted	Tshs/TON	PG <sub>a,fg</sub>		106,579	138,241	9,679	149,979	368,634	265,736	[6]-[14]
<b>Nominal rate of protection at point of competition</b>											
19	Observed	%	NRP <sub>o,wh</sub>		46%	54%	14%	3%	81%	68%	[15]/[11]
20	Adjusted	%	NRP <sub>a,wh</sub>		66%	75%	27%	12%	105%	90%	[16]/[12]
<b>Nominal rate of protection at farm gate</b>											
21	Observed	%	NRP <sub>o,fg</sub>		52%	58%	-5%	28%	119%	65%	[17]/[13]
22	Adjusted	%	NRP <sub>a,fg</sub>		68%	75%	3%	34%	133%	78%	[18]/[14]
<b>Nominal rate of assistance</b>											
23	Observed	%	NRA <sub>o</sub>		52%	58%	-5%	28%	119%	65%	(((17)+[8])/[13])
24	Adjusted	%	NRA <sub>a</sub>		68%	75%	3%	34%	133%	78%	(((18)+[8])/[14])
<b>Decomposition of PWAfg</b>											
25		Tshs/TON	IRG		-	-	-	-	-	-	-
26		Tshs/TON	ERPG		-	-	-	-	-	-	-
27		Tshs/TON	ACC <sub>wh</sub>		30,237	35,679	43,315	51,035	50,096	57,613	[3]-[3b]
28		Tshs/TON	ACC <sub>fg</sub>		(13,140)	(16,110)	(16,463)	(29,693)	(32,258)	(30,406)	[5b]-[5]
29		Tshs/TON	EG		-	-	-	-	-	-	-



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