



MAFAP SPAANA

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

ANALYSIS OF INCENTIVES AND DISINCENTIVES FOR COTTON IN THE UNITED REPUBLIC OF TANZANIA

JANUARY 2013



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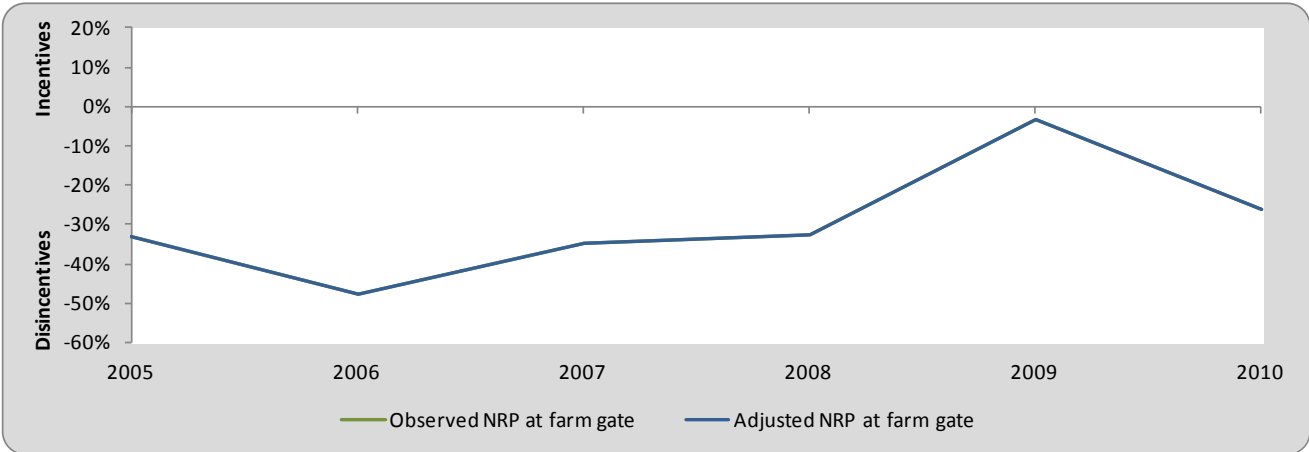
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SUMMARY OF THE NOTE

Product: Seed cotton
 Period analyzed: 2005 – 2010
 Trade status: Export in all years

- Cotton is Tanzania’s largest export crop after coffee. It contributes to 24 percent of total agricultural exports and 4 percent of total exports.
- On average 400 000 ha are dedicated to cotton growing with very low yields despite an increase of 50 percent in the last 15 years.
- While the ginning sector in The United Republic of Tanzania (URT) is competitive, the ginning ratio in URT is quite low.
- This means that farmers receive a high share of the lint price, however the share of lint price perceived by farmers is reduced significantly when profits from cotton seed are considered.
- URT exports cotton lint and, to a lesser extent, cotton seed and cotton seed cake, and imports cotton oil. Most of the exports of cotton lint are to the Far East, while all other products are traded in the East African Region.
- The cotton sector is regulated by the Tanzanian Cotton Board and heavily taxed.



The analysis undertaken shows no difference between observed and adjusted nominal rates of protection as observed data is considered free of the effects of excessive market power and informal costs.

- Our results show that cotton farmers are heavily taxed in URT. This taxation is mainly due to government and TCB interventions.
- The disincentives to farmers are higher than the subsidies put in as of 2009.
- In addition, the low Ginning Outrun ratio of the ginning industry also penalizes farmers as they cannot get the price they should if better technologies were available.

Actions to be taken to reduce disincentives could include 1) carrying out a review of existing taxes, duties and levies; and 2) improving the ginning infrastructure and technologies.

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1. PURPOSE OF THE NOTE

This technical note aims to describe the market incentives and disincentives for cotton 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 farm gate and wholesale level. In relative terms, the price gaps are expressed as Nominal Rates of Protection. 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 production, consumption, trade and policies affecting the commodity and then provides a detailed description of how the key components of the price analysis have been obtained. The MAFAP indicators are then calculated with these data and interpreted in the light of existing policies and market characteristics. The analysis that has been carried out 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 Part 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 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.

All information is preliminary and still subject to review and validation.

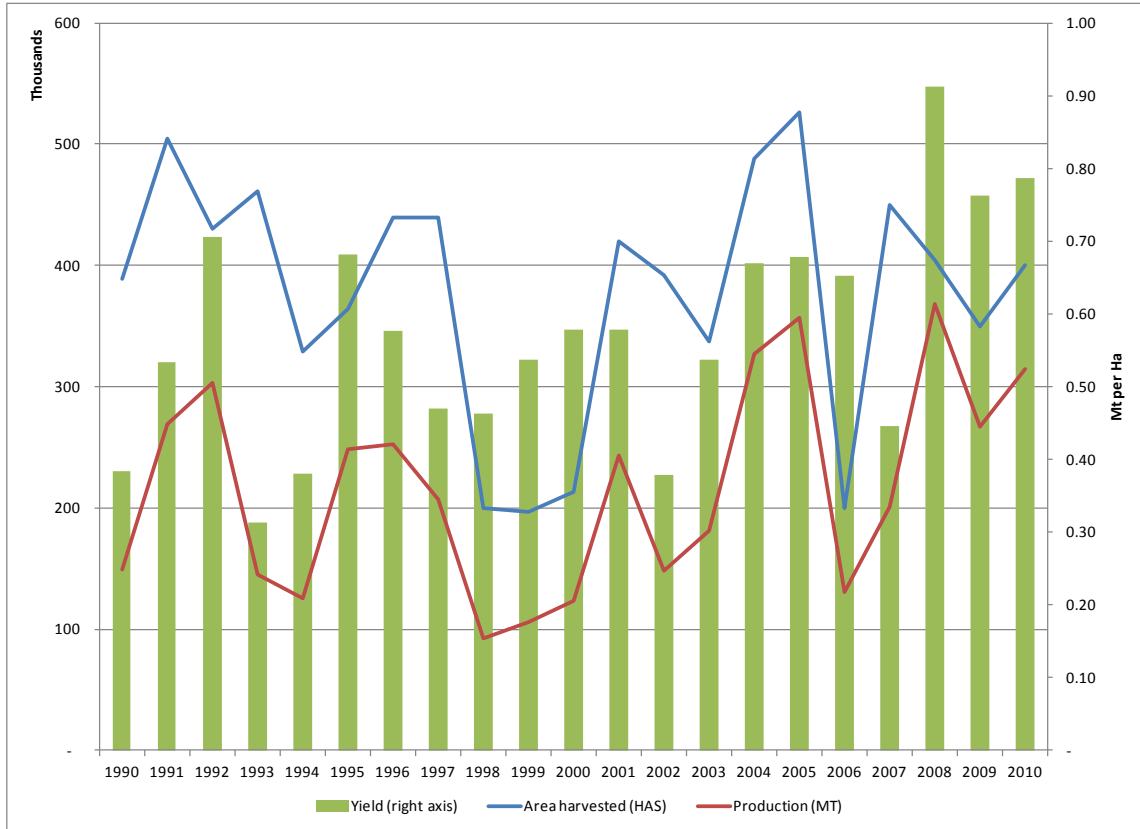
2. COMMODITY CONTEXT

Cotton is Tanzania's largest export crop after coffee. Most of cotton produced by smallholder farmers is exported, contributing around 24 percent and 4 percent of total agricultural and all exports respectively. As cotton production is very labour intensive, it provides employment to 500 000 rural households and is the source for both direct and indirect benefits to more than 40 percent of the Tanzanian livelihood. Before the liberalization of the sector in 1994, cotton marketing and trade were handled by cooperative unions and the Tanzanian Cotton Board. Inefficiencies within cooperatives and unions led to collapse and the government reinstated the cotton board to regulate the cotton sub sector. A radical shift in cotton policy came with the Cotton Act of 1994, when the government formally eliminated the monopoly held by the board and the cooperative unions and allowed competition in cotton marketing and ginning. By 1996/1997 all cotton was purchased by private companies and producer share rose from 41 to more than 51 percent of export price. However, even after the reform, the deterioration of cotton seed and cotton lint quality, the low absorption of local cotton lint in apparel and textile industries and the low investment in weaving and yarning industries remain as significant challenges for the sector. The second Cotton Sector Development Strategy (CSD II) adopted in year 2010/11 intends to address these challenges by working with other stakeholders. Some of the measures taken include introduction of contract cotton farming and a specific industrial strategy for the development of textile and garment industries to process cotton fiber and yarn locally.

PRODUCTION

Although subject to significant yearly shifts, URT has had an average of close to 400 000 ha under cotton production during the last 20 years. Production, while following the same trend as area, has steadily increased as yields improved, from a five-year average of 0.46 tonnes per ha in 1990-1994 to 0.69 tonnes per ha in 2005-2009.

Figure 1: Raw cotton production, harvested area and yield in Tanzania (1990-2010)



Source: FAOSTAT

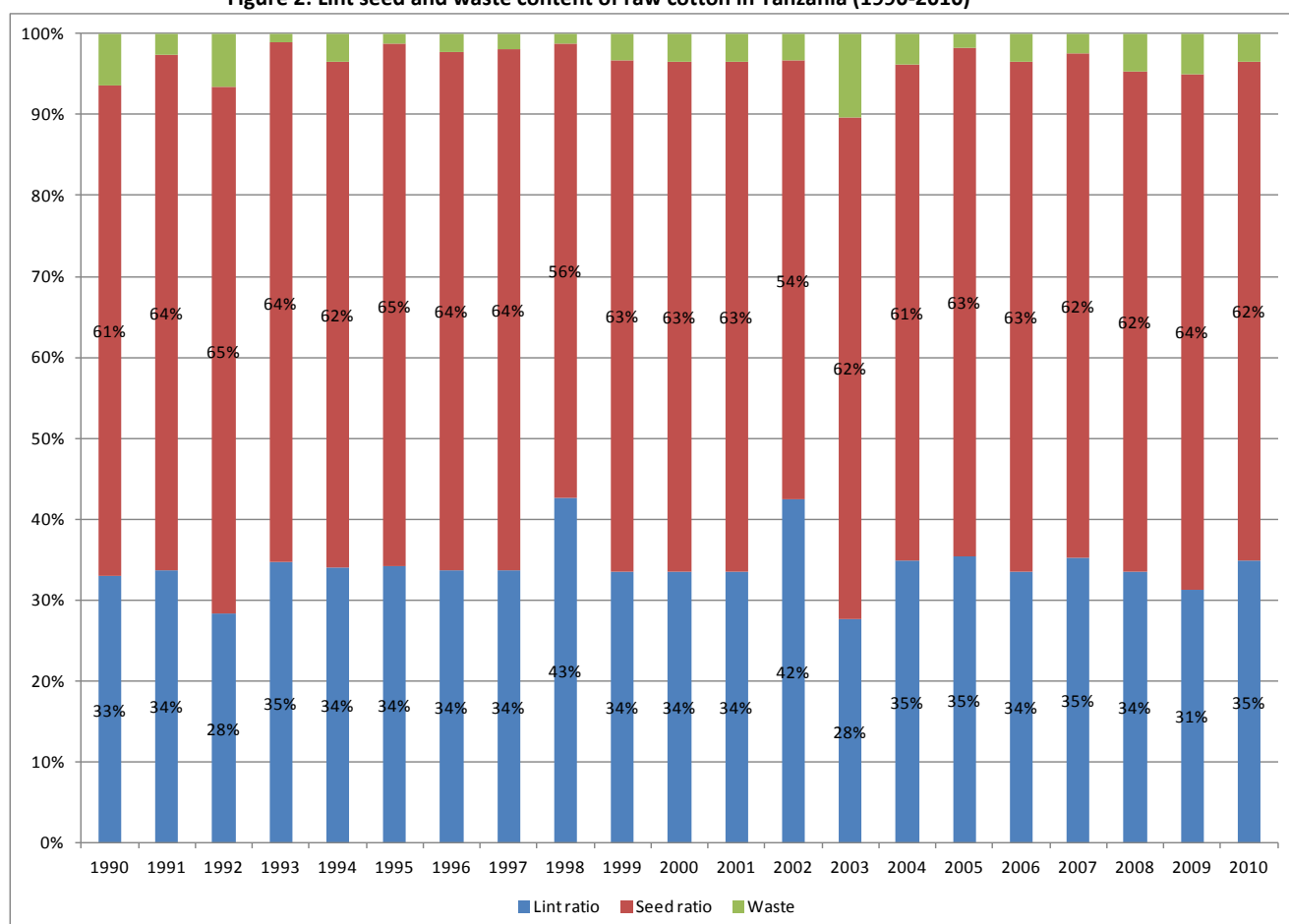
Raw cotton is processed at ginneries to obtain cotton lint and cotton seed. Table 1 shows the production data for these two commodities together with the lint ginning outturn (GOT) and the implicit seed and waste contents of raw cotton. The GOT is more or less stable at 34 percent with a seed content of 62 percent and an average waste of 4 percent (Figure 2). Cotton seed is further processed into cakes for animal feed and oil for human consumption.

Table 1: Raw cotton, cotton lint and cotton seed production in Tanzania (1990-2010)

Year	Cotton lint production (Tonne)	Cotton Seed production (Tonne)	Seed cotton production (Tonne)
1990	49 221	90 298	149 141
1991	90 717	170 852	268 730
1992	85 784	197 234	303 200
1993	50 142	92 952	144 700
1994	42 695	78 232	125 300
1995	84 782	160 143	248 200
1996	85 187	161 845	252 800
1997	69 636	133 000	206 600
1998	39 500	52 100	92 700
1999	35 470	66 654	105 600
2000	41 374	77 742	123 400
2001	81 450	153 090	243 000
2002	63 000	80 500	148 500
2003	50 000	112 096	180 800
2004	114 000	200 000	326 680
2005	126 228	225 000	357 260
2006	43 770	82 270	130 587
2007	70 773	125 000	200 662
2008	123 600	228 000	368 697
2009	83 700	170 000	267 004
2010	110 000	194 000	315 000

Source: FAOSTAT

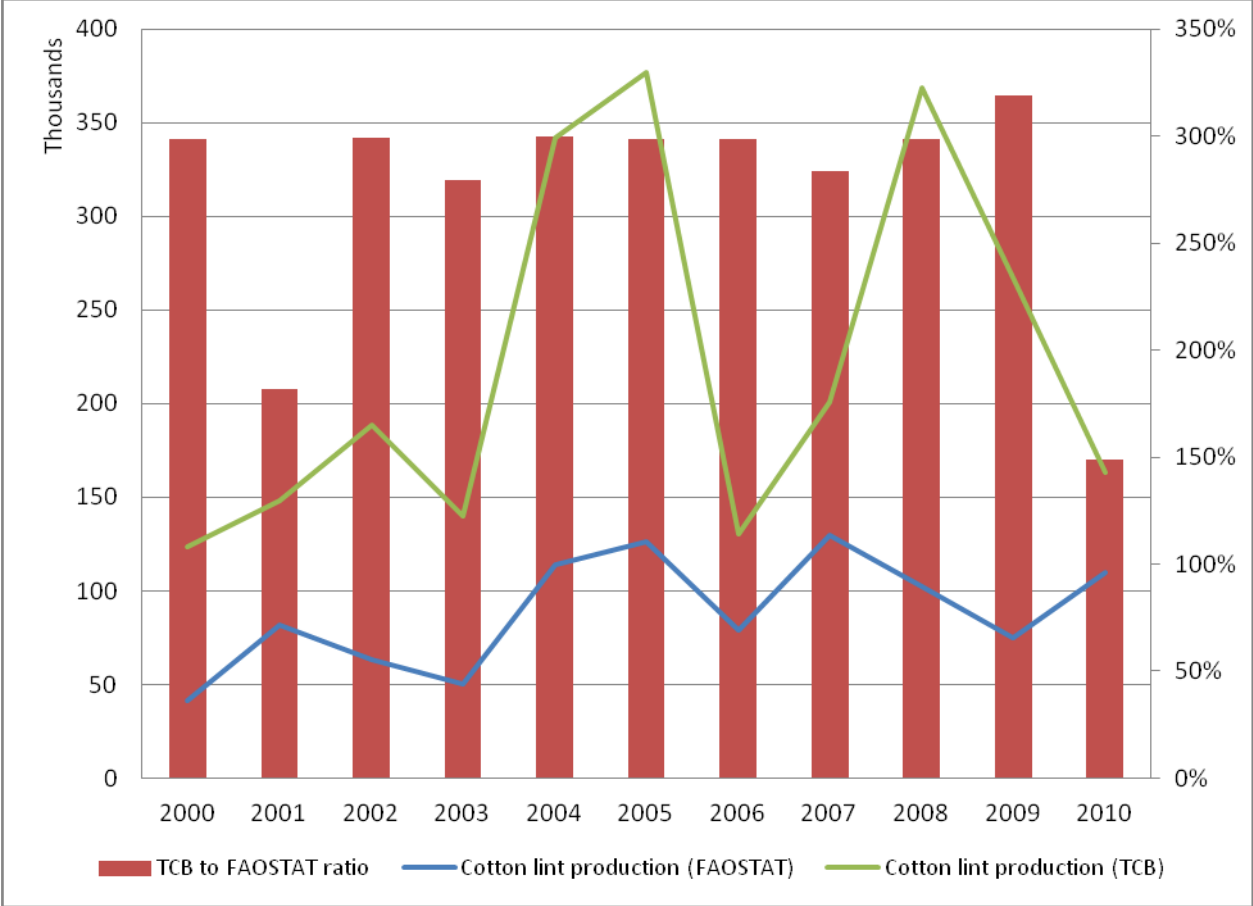
Figure 2: Lint seed and waste content of raw cotton in Tanzania (1990-2010)



Source: FAOSTAT

An alternative source for lint and seed production in URT is provided by the Tanzania Cotton Board (TCB) (Figure 3). It is important to note that the total cotton seed and lint production in the country as reported by TCB differs with FAO. According to TCB, the production of cotton lint for the 2005–2010 period is twice more than that reported by FAO. In this regard, we have used FAO data which is standardized.

Figure 3: Production Quantity for Cotton Lint in Tanzania according to available sources (2000 – 2010) in tonne



Sources: FAO and TCB

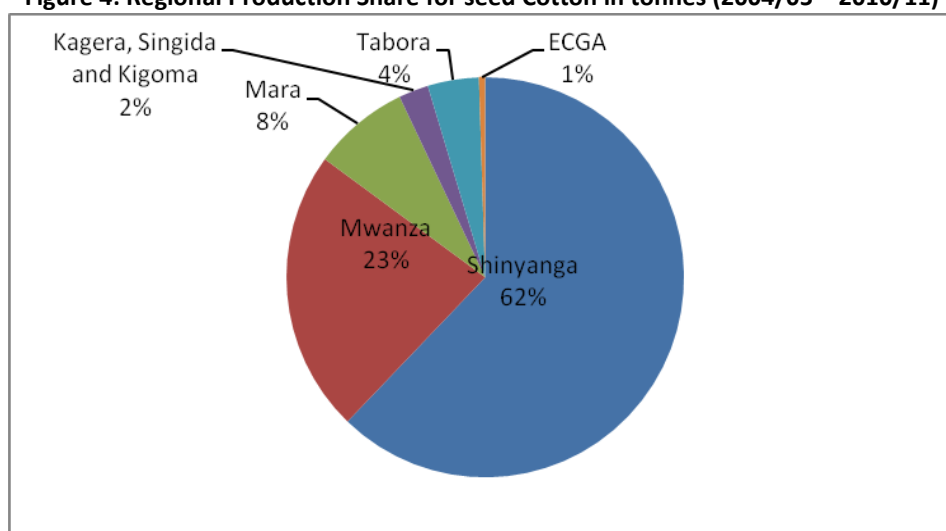
Cotton is currently grown in several regions of the country but more predominantly in the western zone (Table 2) where farmers are able to receive an average income of USD 226 per acre (TCB, 2010). FAO data is not disaggregated by regions while TCB data is. Based on this data, 13 out of 23 regions produce cotton in the country (Table 2). A vast majority of the production (over 99 percent) is concentrated in the western cotton growing area (WCGA). For the period from production season 2004/05 to 2010/11, Shinyanga produced 62 percent of total seed cotton in the country, followed by Mwanza (23 percent), Mara (8 percent), Tabora (4 percent); and Kagera, Kigoma and Singida (jointly 2 percent). All these regions are in the WCGA while the whole ECGA (comprising Manyara, Morogoro, Kilimanjaro Coast, Tanga and Iringa) covers a maximum of 1 percent of total production (Figure 4). The normal production pathway of cotton in URT is shown in Figure 5. Production takes place in the lake area (Mwanza and Shinyanga) and then after ginning it is sent towards Dar es Salaam for processing or export.

Table 2: Regional Production Trend for Tanzanian Seed Cotton in Tonnes

Zone	Region	Production Season						
		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
West	Shinyanga	204 626	234 193	82 740	128 285	220 808	174 162	105 143
	Mwanza	90 974	91 871	29 087	41 814	74 744	59 637	33 669
	Mara	24 128	28 288	4 734	13 081	53 282	10 986	10 705
	Kagera	7 091	14 197	1 992	4 257	2 559	4 700	1 827
	Tabora	10 560	5 089	9 997	11 698	13 451	15 650	10 737
	Kigoma	542	697	208	238	412	294	47
	Singida	481	484	507	581	1 641	1 336	753
WCGA		338 402	374 819	129 265	199 954	366 897	266 765	162 882
Percent WCGA		99.1	99.5	99	99.6	99.6	99.9	99.6
East	Manyara	829	781	404	540	898	172	490
	Morogoro	1 948	875	852	98	299	33	73
	Kilimanjaro	26	6	11	23	84	6	33
	Coast	190	45	12	48	83	19	28
	Tanga	140	58	41		157	5	11
	Iringa	54	7	0	1	23	4	1
ECGA		3 187	1 772	1 320	710	1 544	239	636
Percent EGA		0.9	0.5	1	0.4	0.4	0.09	0.4
TOTAL		341 589	376 591	130 585	200 664	368 441	267 004	163 518

Source: TCB

Figure 4: Regional Production Share for seed Cotton in tonnes (2004/05 – 2010/11)



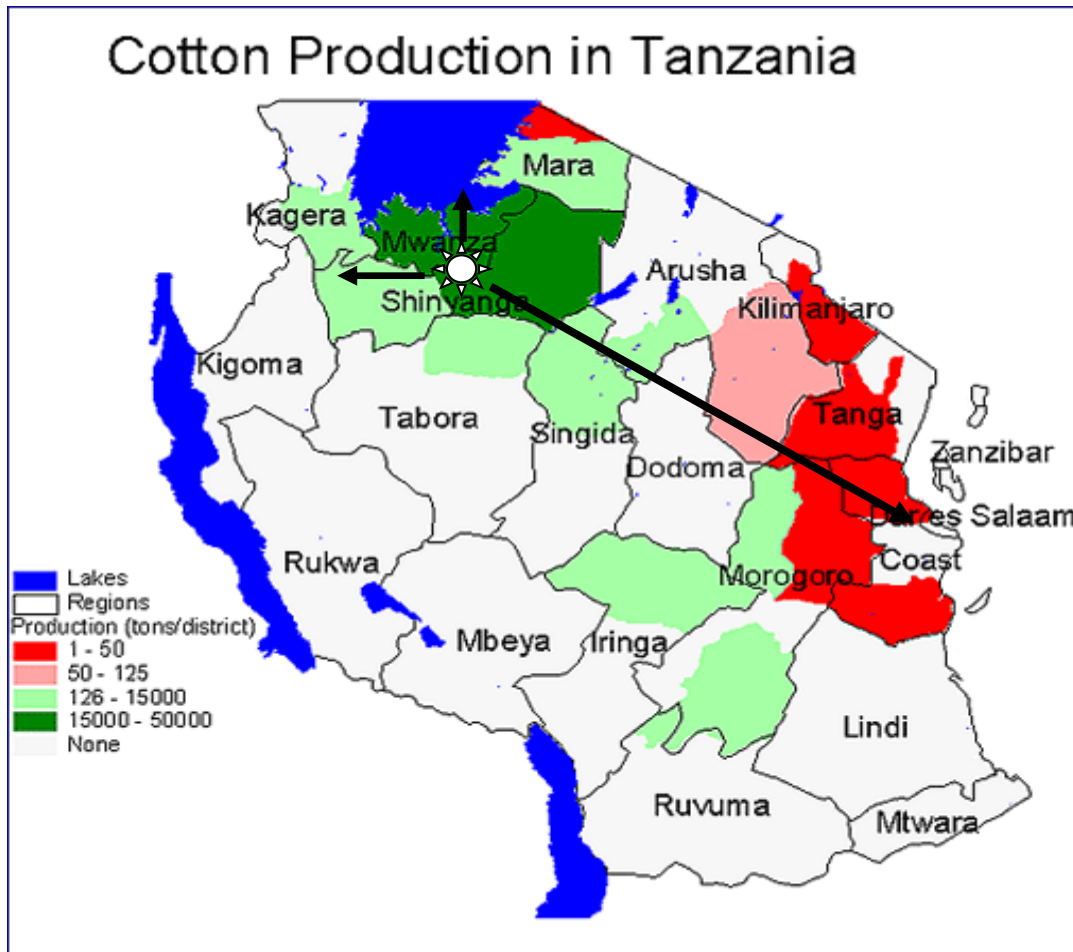
Sources: TCB and Authors Calculations

Cotton in URT is mainly grown on small scale farms with an average farm size that ranges from 0.2 – 2.0 ha, with production yields of 560 to 750 kg of seed cotton per ha but with huge potential for higher productivity. Main drawback factors include relying on rain-fed growing conditions, use of low yield seeds, insufficient use of fertilizer and chemicals (Bursi *et al.* 2008).

URT also has a potential for the production of organic cotton due to its largely unspoiled soil and unpolluted environment. Demand for organic cotton is growing fast with several US and European retailers and brand-owners targeting minimum 5 percent organic content. According to “Textile Exchange”, URT produced 2 635 tonnes of organic seed cotton in the 2009/10 season which represents only a 0.97 percent of total production. Nonetheless, this places the country in 5th position in the ranking of the world’s leading organic cotton producers. However, it’s not clear if organic seed cotton production is captured in the regular cotton sub-sector and production statistics.

Hand-hoe is the most commonly used instrument in cotton farming with some animal traction for soil preparation as well as during planting and in subsequent weeding. The Tanzania Cotton Association (TCA) has supported farmers in the use of tractors which contributed to the employment of modern farming techniques. UK 91 seed has been used in the WCGA since 1991 which was developed by Ukiriguru Agriculture Research Center. This seed is more uniform, has a slightly higher ginning out - turn of 0.38 and is very drought resistant compared to other varieties. Other new varieties UK 08 and UKM 08 have also been released recently by this center. In addition, Mkombozi seed (ALAI 90) developed by Ilonga Agricultural Centre was released in 2002 and is adapted to the agro ecological conditions of the ECGA.

Figure 5: Seed Cotton Production Regions in Tanzania



Source: TCB and Authors elaboration

Seed cotton production starts with planting which usually begins in December for the uni-modal areas of the western part of the country with harvesting in late June and marketing beginning in July. As for Eastern portion of the country, planting begins between February and March and harvesting starts later in August and lasts until October (Table 3). Tanzanian cotton is handpicked and this implies that it is generally sold with a premium price in world markets (TCB, 2010).

Table 3: Seed Cotton Production Calendars for Tanzania

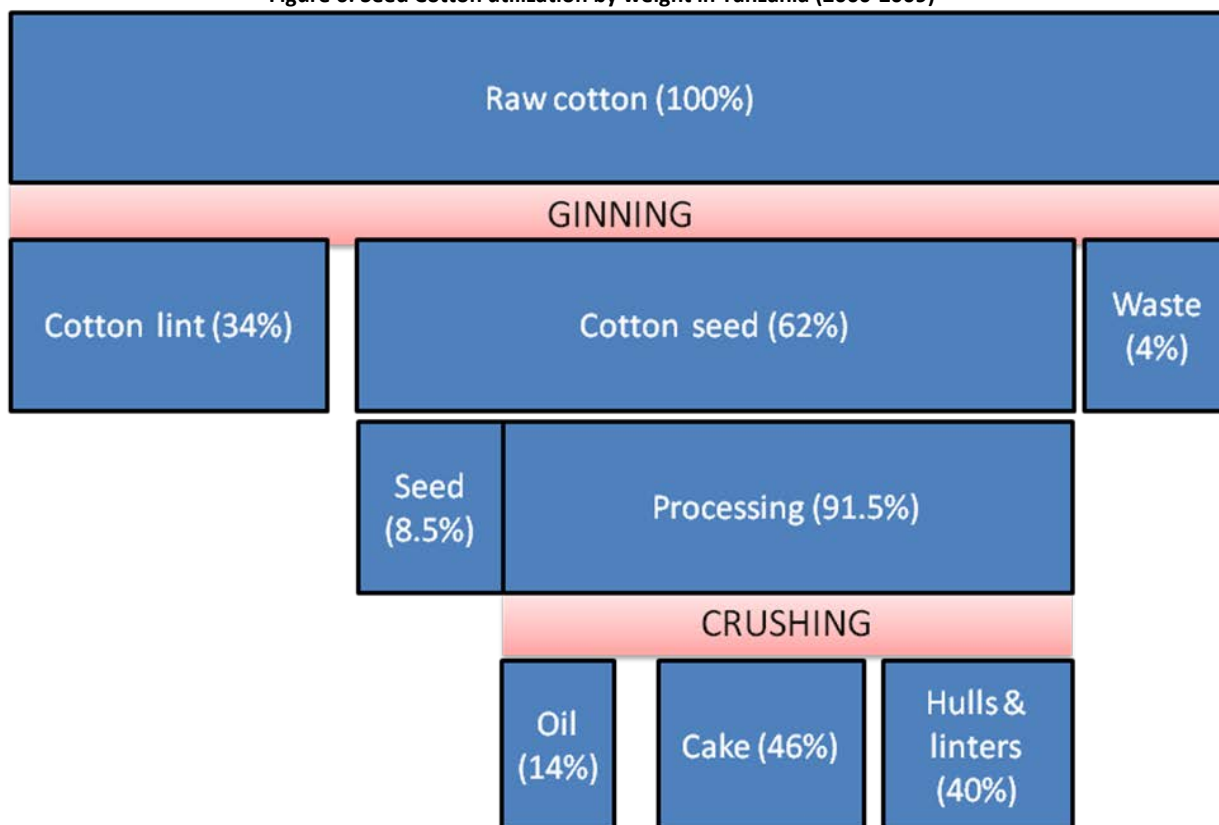
Activity	Month												
	Jan	Feb	Mar	Apr	Ma	Ju	Jul	Aug	Sep	Oct	Nov	Dec	
For Kilimanjaro Tanga Coast and Morogoro Regions (ECGA)													
Land preparation													
Planting													
Weeding													
Pruning													
Herbicides application													
Harvesting													
Marketing													
Uprooting and burning of cotton residues													
For Western cotton zone Iringa and Manyara regions (WCGA)													
Land preparation													
Planting													
Weeding													
Pruning													
Herbicides application													
Harvesting													
Marketing													
Uprooting and burning of cotton residues													

Source: TCB

CONSUMPTION/UTILIZATION

Seed cotton is consumed exclusively by local ginners that separate the fiber from the seed to produce cotton lint. The lint then goes to the local textile industry mainly through the spinners that transform the fiber into yarn, while the seed is typically used for planting (8 percent) or for oil and animal feed production (Figure 6).

Figure 6: Seed Cotton utilization by weight in Tanzania (2000-2009)



Source: Own elaboration with FAOSTAT FBS data for shares

Tanzanian ginning industry is characterized as a competitive system where competition is allowed for the purchase of seed cotton and many firms are available to buy the product (Poulton and Tschirley, 2009).

In URT, over 30 ginneries exist and the top five account only for 40 percent of total seed cotton purchases and those top five typically change from year to year. This structure is as close as any African cotton sector, has got to the competitive “ideal” and pays reasonably attractive prices to producers despite high local taxes and transport costs. However, the market structure also presents significant challenges in relation to seed supply, quality control and seasonal credit (Poulton and Maro, 2009).

Tanzania crushing industry is characterized by a large number of producers which is increasing. In 2006, Gergely and Poulton (2009) report at least 13 crushing plants which had increased to 20 by 2009 (Baffes, 2010). Crushing companies produce both oil and meal. Cotton oil is sold locally while meal is transported elsewhere in the country. Cotton oil production only accounts for 8 percent of total vegetable oils production and 60 percent of consumption is covered by palm oil which is imported at 0 percent duty¹.

Tanzania textile industry was developed in the 1970s and since then there has been a fluctuation in the level of consumption of total lint production by local textile and garment industry. Forty years after the launch of the textile and apparel industry in URT is still in the early stages of development hence considered as infant industry. For example, there are only three firms that make knit fabrics

¹ Refined palm oil has a 25% CET. however, there is no enforcement capacity to distinguish between refined and non-refined palm oil imports.

(mainly from cotton lint) and two of these have very small capacity (TCB, 2010). According to TCB, this industry produces much of “traditional” fabrics (known as *kanga kitenge kikoi and shuka*) which are mainly consumed by Tanzanians and also exported to other countries in Central and Eastern Africa (Table 4); which means there is still some potential to expand the processing capacity in URT to tap the existing market opportunities at regional level. On the basis of TCB and EUROSTAT data from 2000, URT has been leading in East Africa in terms of exporting textiles and apparel to the European Union. URT is also the 4th in exporting textiles to Eastern and Southern African countries.

Table 4: Inventory of lint processors in Tanzania by type of activities

	ACTIVITIES PERFORMED										Jobs
	Spin	weave	knit	K-K-K	bed linen	blanket	bed nets	thread	clothes	made-up	
New Tabora Textiles	•										245
Jambo Spinning Mills	•										<150
Namera / Nida	•	•		•	•						>1 700
21 st Century Textiles	•	•		•	•						1 300
Afritex	•	•		•							<1 000
New Mbeya Textiles	•	•		•	•						775
Mwanza Textiles	•	•		•	•						1 100
Urafiki (TZ-China Friend.)	•	•		•	•						1 200
Karibu Textile Mills				•							>600
African Pride Textile Mills				•							150
Sunflag Tanzania	•	•	•	•	•		•	•	•		<1 900
Morogoro Canvas Mills	•	•								•	1 300
21 st Century Sisal	•	•								•	±400
A to Z Textile Mills			•				•		•		±7 500
Ellen Knitwear			•						•		<100
Kilimanjaro Blanket Corp.						•					100
Blanket & Textile Manu.						•					<100
Kibotrade									•		45
Mazava Fabric & Production									•		600

Note: K-K-K = *kanga kitenge kikoi*

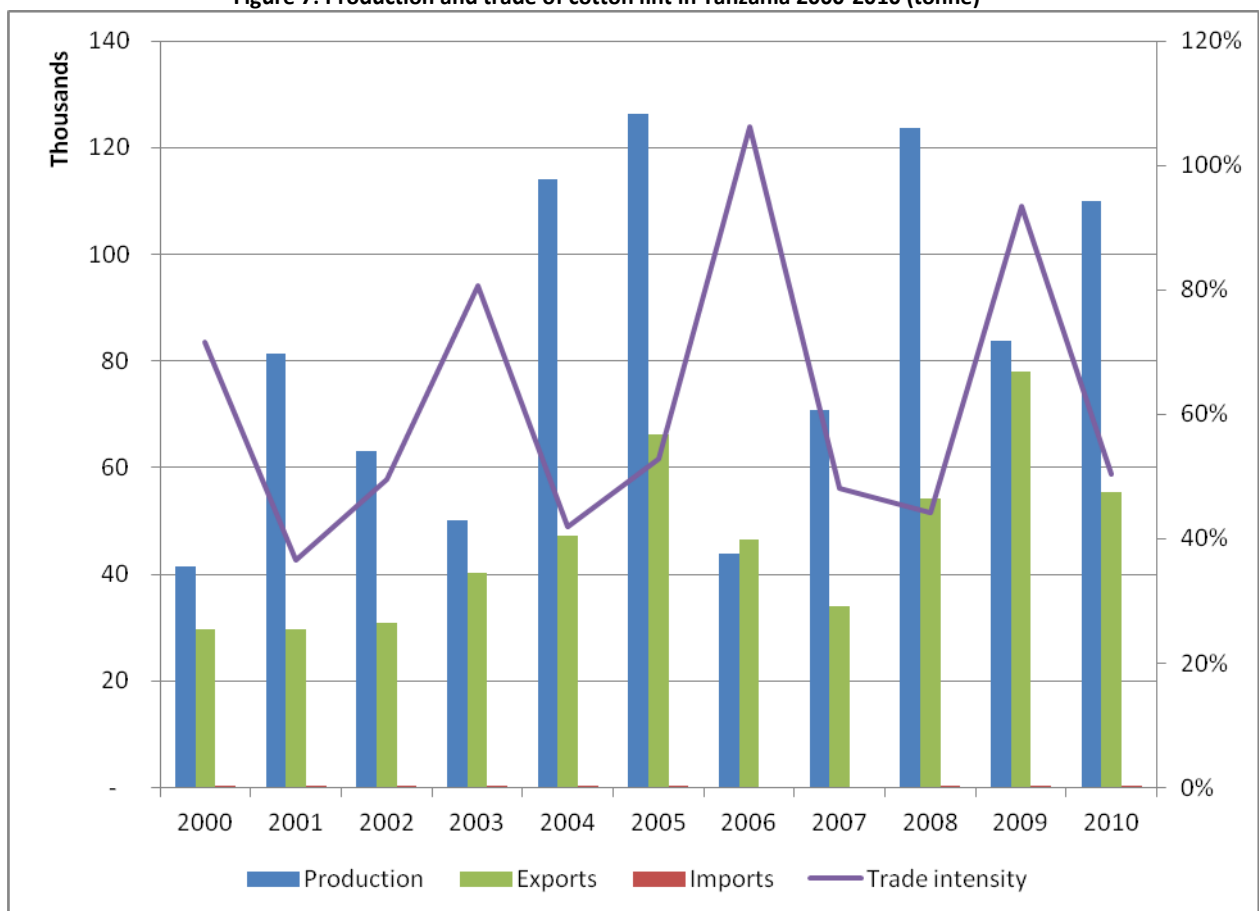
Source: TCB for 2010

MARKETING AND TRADE

According to the commodity balance of FAOSTAT during the period 2000-2009 out of the four products that can be derived from seed cotton (lint, seed, cake and oil) URT is net exporter for lint, seed and seed cake and imports cotton seed oil (Figures 7 to 10). Lint is mostly exported with a 5 year average of exports close to 70 percent during 2005-2010 from 56 percent for the period 2000-2004.

As far as cotton seed cake is concerned, again export markets are the main destination of domestic production, with the share of exports to production increasing from 40 percent in 2000-2004 to 64 percent in 2005-2010. Most of these exports go to Kenya, Uganda and South Africa. Seed and oil are much less directed to international trade.

Figure 7: Production and trade of cotton lint in Tanzania 2000-2010 (tonne)



Note: Trade intensity is defined as total trade over domestic production

Source: FAOSTAT and UN Comtrade

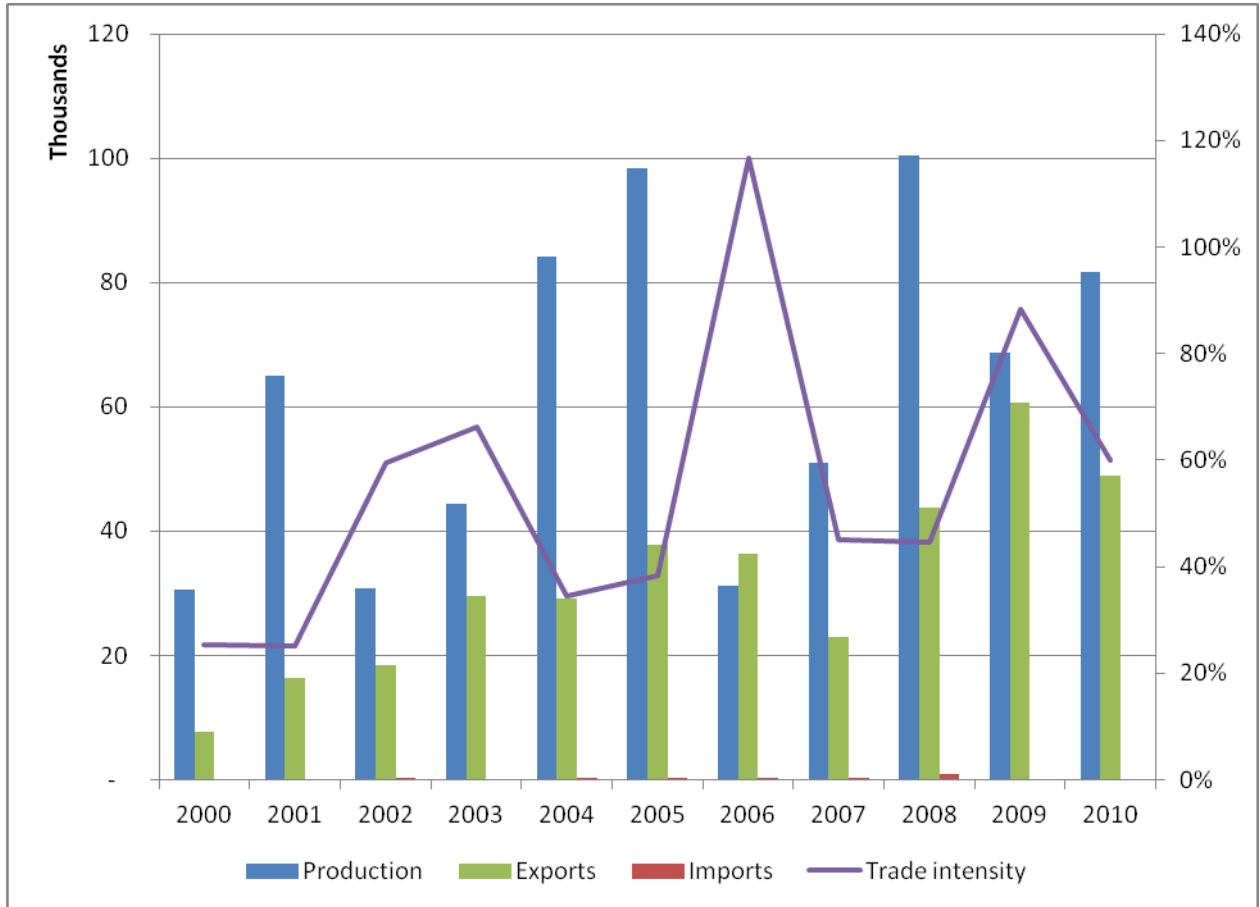
Figure 8: Production and trade of cotton seed in Tanzania 2000-2010 (tonne)



Note: Trade intensity is defined as total trade over domestic production

Source: FAOSTAT and UN Comtrade

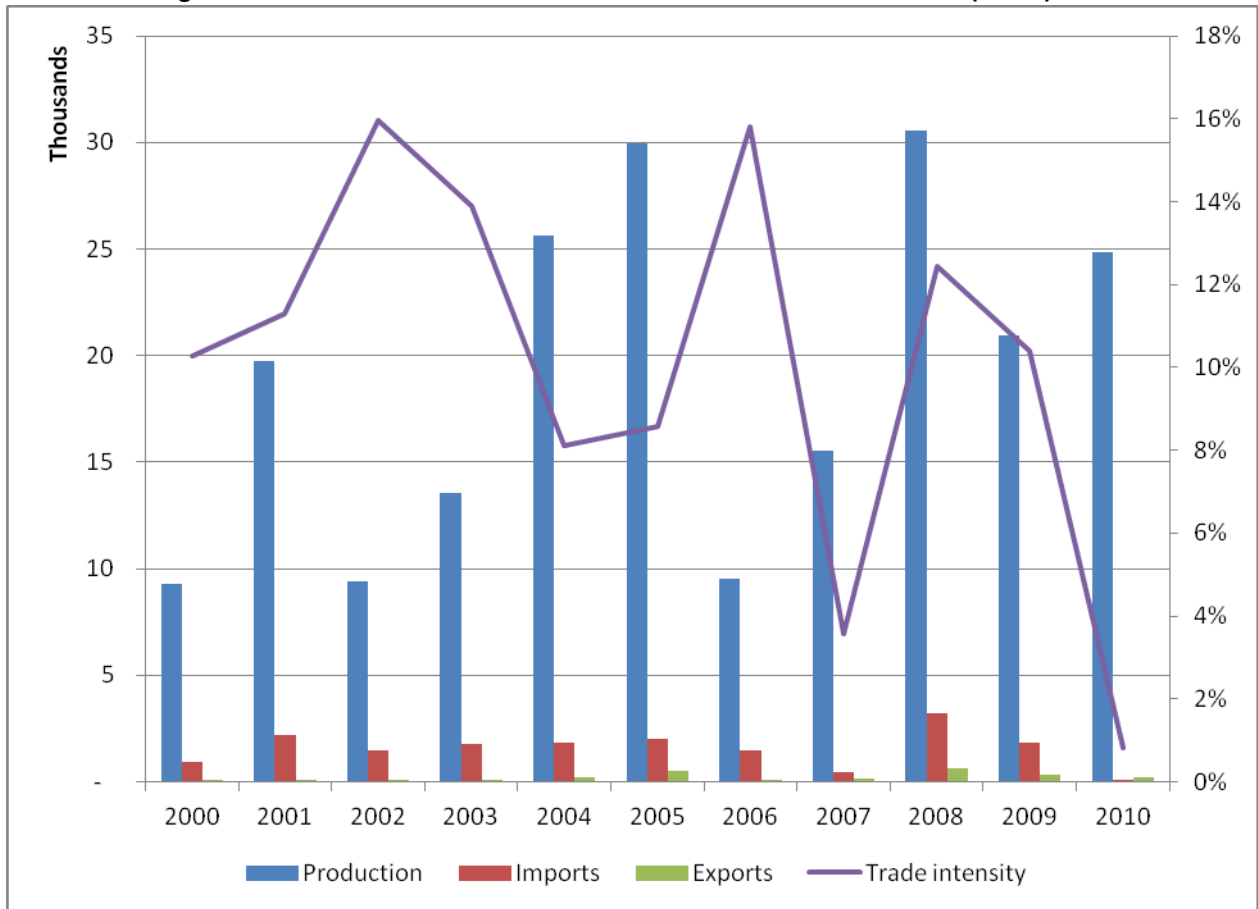
Figure 9 : Production and trade of cotton seed cake in Tanzania 2000-2010 (tonne)



Note: Trade intensity is defined as total trade over domestic production

Source: FAOSTAT and UN Comtrade

Figure 10: Production and trade of cotton seed oil in Tanzania 2000-2010 (tonne)



Note: Trade intensity is defined as total trade over domestic production

Source: FAOSTAT and UN Comtrade

Tanzanian cotton in 2010 represented about 4 percent and 5 percent of total world cotton imports and exports respectively. Tanzanian cotton is sold on type and type classification is made in relationship mainly to staple length. The basic selling grade is Gany and is regulated by the International Cotton Association (ICA) and the TCB. Table 5 shows seven grades for classifying Tanzania cotton in the market. However, import and export data from TCB doesn't categorize prices and corresponding grades. Moreover, grading has disappeared in practice at the first point of purchase and different grades are ginned together, with the loss of potential for obtaining higher prices (Estur, 2008).

Table 5: Comparison of Tanzania grades with the Universal grades

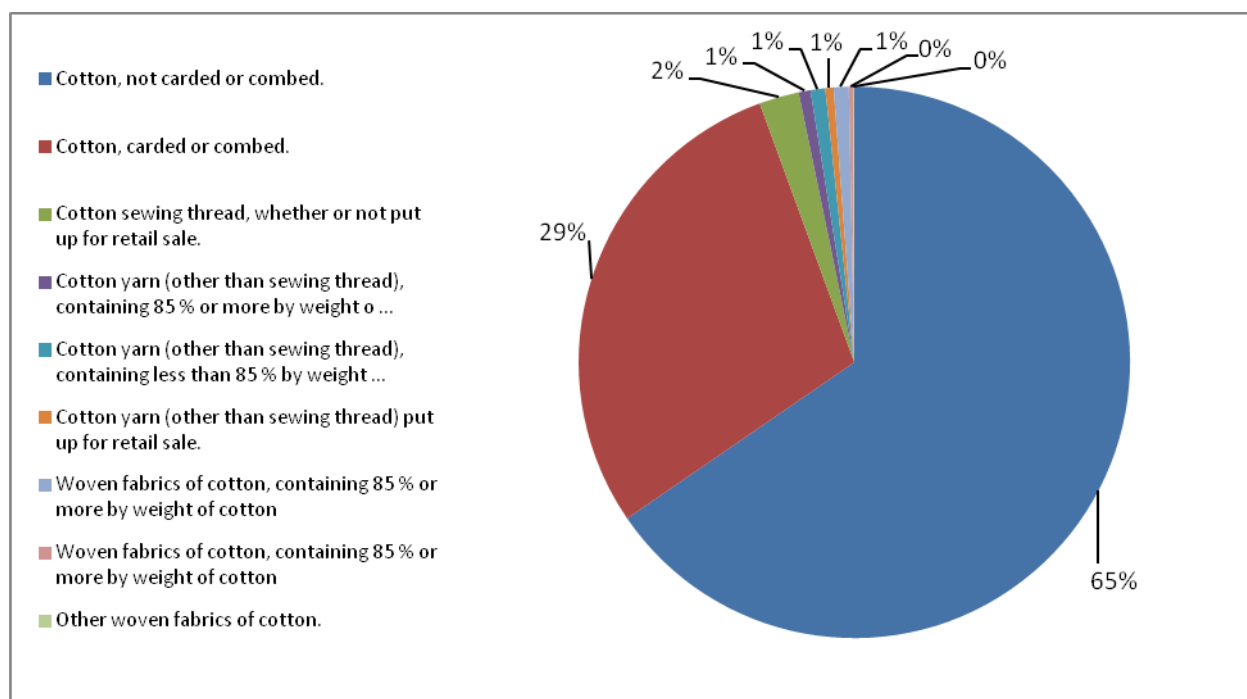
Tanzanian Grades	Universal Grades	Share in total crop		Remarks
		2009/10	2010/11*	
Tang	Good middling	1.4	0	Physical
Gany + ½	Strict middling	31.7	2.4	Physical
Gany	Middling	39.7	46.8	Physical (basis)
Gany - ¼	Strict low middling	20.8	34.86	Descriptive
Gany - ½	Low middling	4.8	13.41	Physical
Gany - ¾	Strict Good Ordinary	0.4	2.49	Descriptive
Yika	Good Ordinary	0.3	0.47	Physical
Under grade (UG)	Below grade (BG)	0.9	0.08	No grade

Source: TCB

*Estimates

Cotton can be exported in different forms, the most basic being lint resulting from ginning of seed cotton together with cotton seed. If further processed through spinning, yarns are obtained which is used by textile industry to produce fabric and apparel. Figure 11 shows that from 2005 to 2010, 94 percent of cotton fiber product exports from URT correspond to the least processed items (cotton not carded 65 percent; or carded 29 percent). Products that need further processing (yarns or fabrics) are traded in very small quantities. This suggests that URT does not make full use of its domestic production mainly due to low quality of the cotton lint produced capacity underutilization and low development in garment manufacturing industry (Baffes, 2002; ESRF, 2008). Therefore there is a need to unlock some of the key supply-side constraints to stimulate domestic textile industry to thrive to take advantage of the exports market opportunities. Taking all this into account, the product which will be considered for further analysis is cotton lint identified with uncarded cotton as reported in trade statistics under code HS 5201. In order to avoid underreporting of reference prices, the value of cotton seed will also be taken into account using quality adjustment factors.

Figure 11: Cotton products trade by weight (2005-2010)



Source: UN Comtrade

Comparing the two data sources for trade (FAOSTAT and UN Comtrade) between 2005 and 2010 (Table 6), we can see that the image they give of Tanzania's trade is consistent. It has trade surpluses for the studied period and insignificance difference observed only for 2005–2006. As UN Comtrade provides a longer time series, we will use this source in our analysis.

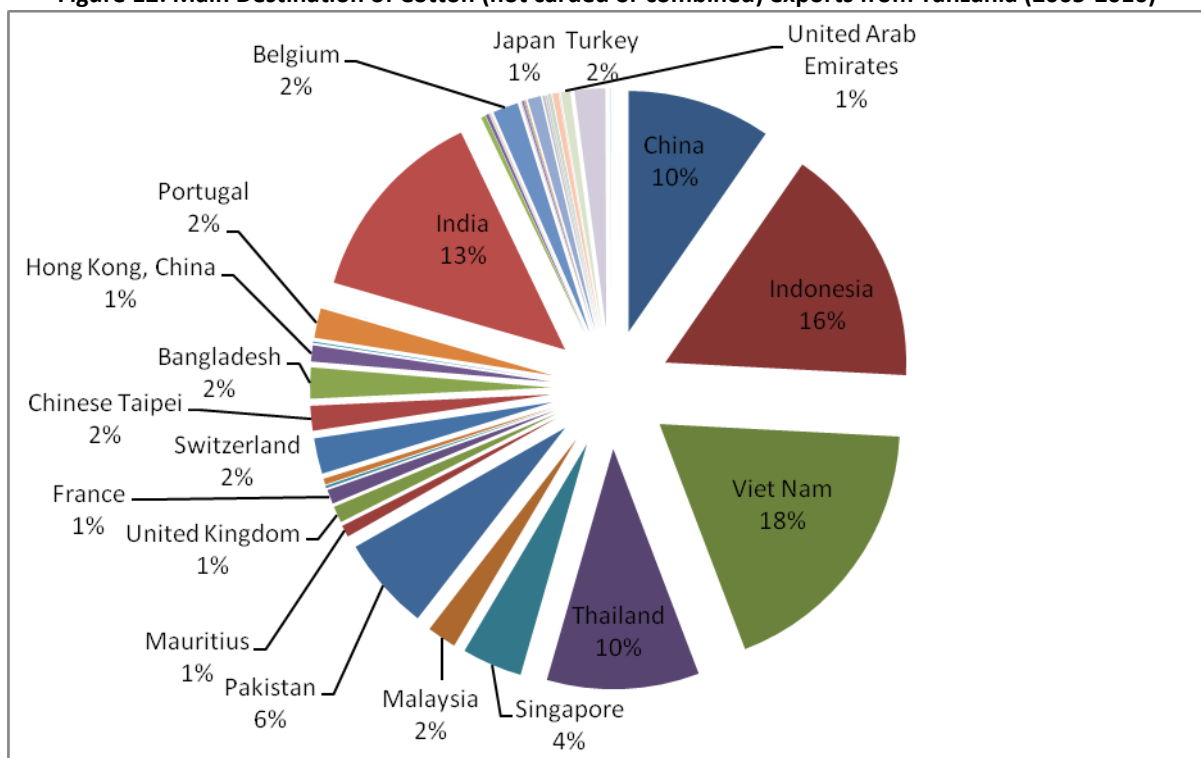
Table 6: Comparison of data sources for Cotton Lint Trade in Tanzania (2005-2010)

Cotton Lint (FAOSTAT)	2005	2006	2007	2008	2009	2010
Import Qt (tonne)	248	0	0	438	114	13
Export Qt (tonne)	66 330	46 512	33 999	54 116	78 029	55305
Net trade	66 082	46 512	33 999	53 678	77 915	55292
Import (USD 1000)	260	0	0	934	148	15
Export (USD 1000)	68 158	45 931	40 403	80 893	89 038	72428
Net trade (USD 1000)	67 898	45 931	40 403	79 959	88 890	72413
Implicit value exports (USD/tonne)	1027.6	987.5	1188.4	1494.8	1141.1	1309.6
Implicit value imports (USD/tonne)	1048.4	0	0	2132.4	1298.2	1153.8
Cotton not carded or combed (UN Comtrade)						
Import Qt (tonne)	248	28	0	438	114	13
Export Qt (tonne)	65 058	46 512	33 999	54 116	78 029	55 305
Net trade	64 810	46 484	33 999	53 678	77 915	55 292
Import (USD 1000)	276	11	0	934	148	15
Export (USD 1000)	68 221	46 503	40 403	80 893	89 038	72 428
Net trade (USD 1000)	67 945	46 492	40 403	79 959	88 890	72 413
Implicit value exports (USD/tonne)	1048.6	999.8	1188.4	1494.8	1141.1	1309.6
Implicit value imports (USD/tonne)	1112.9	392.9	0	2132.4	1298.2	1153.8

Sources: FAOSTAT and ITC calculations based on UN Comtrade statistics

The main trade partners of URT are presented in Figure 12 which shows that the main region of destination for the cotton lint is Asia with a balanced distribution between Viet Nam, Indonesia and India, and lower level of trade with China, Thailand and Pakistan and other countries.

Figure 12: Main Destination of Cotton (not carded or combined) exports from Tanzania (2005-2010)



Source: ITC calculations based on UN Comtrade statistics

Part of domestic production of lint apart from being exported is consumed as raw materials by existing local spinning and textile firms. Almost all farmers in the country used to sell seed cotton to nearby buyers and ginners. Most of these seed cotton buyers are located in the WCGA of the country (Figure 5). According to TCB, cotton buyers have established their offices in Mwanza and Shinyanga regions while only few of them are located in Mara and Dar es Salaam.

Furthermore, the level and coverage of buyers operations differ with respect to financial capacity, the better financial position the buyer, the larger the area where the buyer can carry out purchase operations. The TCB used to monitor and control their operations. For example, in case of violation of the agreed rules and regulations i.e. area of operations etc., TCB has the authority to suspend activities of defaulted buyers. For example, Table 7 shows punishments to ginners in 2009/2010 due to violation of ginning and marketing related activities. These fines relate mostly to ginning activities rather than to violation of areas of purchase.

Table 7: Punishment for Offenders

Ginnery	Punishment	Offence	Fine
Badugu Ginning	License suspended	Poor ginning	1 300 000 Tsh
Fresho Inv. Ltd	License suspended	Mixed grades	1 000 USD
Afrisian - Shinyanga	License suspended	Mixed grades	-
NGS Inv. Co. Ltd	License suspended	Contamination	1 000 USD

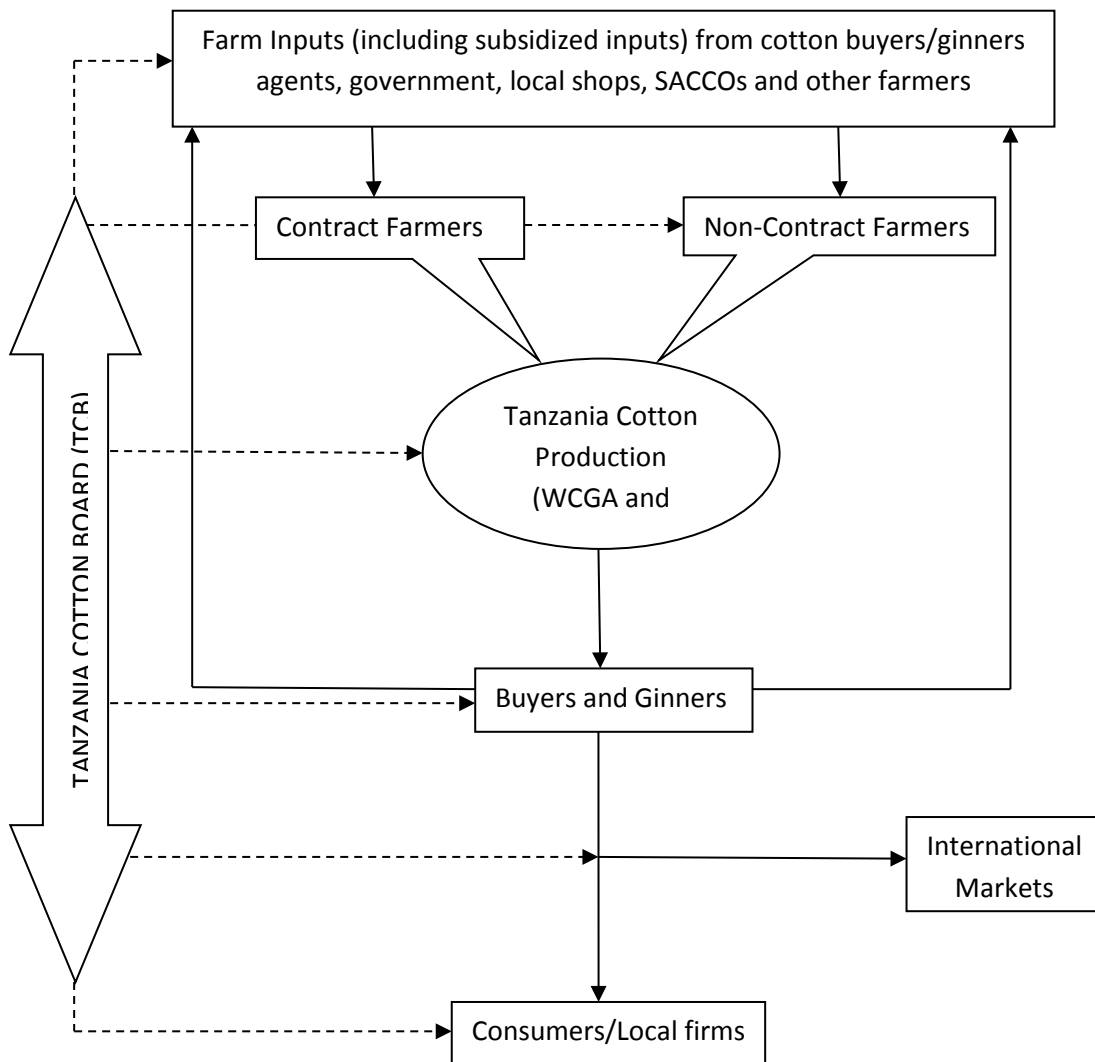
Source: TCB, 2010

DESCRIPTION OF THE VALUE CHAIN AND PROCESSING

As shown in Figure 13, TCB is the regulator for the cotton subsector in the country from production to export. After cotton policy reforms in 1990s, there are two modes of cotton production; contract and non contract production system. Before reforms, seed cotton was produced with government support through-farm inputs subsidy with a condition of selling to primary cooperatives. Contract farming was introduced recently in 2007 in WCGA. Farmers entered eagerly into the contract with ginneries as they provide farm inputs on credit with an agreement to recover inputs expenses after sale of cotton lint. TCB oversees the contract performance to protect the interest of both parts. Subsequent the presence of contract farming system in place TCB also used to provide farm inputs subsidy to seed cotton producers regardless whether they were on contract or not.

At the farm gate, there are two channels for farmer to sell their seed cotton; ginneries and independent buyers. Both set up points of collection where harvested seed cotton is inspected and weighed before being packed into bales. The main challenge facing cotton value chain is contamination of the seed cotton after harvest. This is done purposely by farmers to gain extra weight which translates into more money per kg of actual cotton sold. Seed cotton sold to ginneries is processed to separate seeds from lint. Most of local ginneries process the seed into oil and feed cake. Once packed, the cotton lint is transported to the port of Dar es Salaam to be either exported or sold to local textile mills.

Figure 13: Value Chain of Tanzanian Cotton Lint



Source: Authors based on Tanzania cotton industry

In URT, two systems of ginning are practiced; the modern roller ginning and older saw ginning system. According to Busi *et al.* (2008) private individuals who have the financial resources (personal or through their access to credit from financial institutions) dominate the ginning industry of the country and are usually considered as viable economically. For example, in 2008 a total of 60 ginners were registered with TCB of which 14 were saw ginneries and 46 were roller ginneries with a total ginning capacity of 3 958 bales per day/shift.

It should be noted however that most ginners in URT started operation back in the 1950s and some of them are fragile due to wear and tear. However, more than 17 new ginners were built, 16 in WCGA and one in ECGA, as results of the 1990s cotton sub sector reforms.

From a total of 60 registered ginners in the country 50 percent operate throughout the production season (Busi *et al.* 2008). Table 8 shows a total of 41 ginneries were inspected and permitted to operate in 2009/10 buying season (TCB Annual Report 2010).

Table 8: Ginneries Inspected and Permitted to Operate in the 2009/10 Buying Season

Number of Ginner	Type
24	Double Rollers
17	Saw Gins

Source: TCB Annual Report 2010

POLICY DECISIONS AND MEASURE

The Tanzania Cotton Board

Tanzania cotton sector has been subject to several reforms since the 1990s which include institutional marketing and trade policies. Institutional reforms which were done as part of these changes include enactment of cotton industry legislation in 2001. The cotton board was established under the Cotton Industry Act No. 2 of 2001. The Act came into effect on 2004 as per Government Notice No. 180 of the same year as amended by Miscellaneous Act No. 20 of 2009. Section 5 (1) of the Act stipulates all functions of the Board i.e. regulation, promotion, monitoring, advisory, coordination, protection, facilitation and representation of stakeholders in the cotton sub sector.

In addition, TCB also emphasizes cotton producers to organize themselves collectively in cooperatives or farmers associations in order to empower them to access resources information and markets. The cotton production and market information system "Pamba Net" [www.pambanet.com] and TCB website were later launched as part of making market information accessible to all stakeholders.

During the six seasons prior to the reforms of the 1990s, the average grower's share was 41 percent of the cotton export price. In the wake of reforms, price controls were relaxed and indicative prices were announced instead of prices at which cotton was purchased and share of producer's price increased to 51 percent.

This was the result of the radical change which came with the Cotton Act of 1994 where the government eliminated the monopoly held by the Cotton Board and the Unions and allowed competition in cotton marketing and ginning (Baffes, 2002). However, the down side effect of the reform was the escalation of input prices by 25 percent in annual nominal terms (Kabissa and Myaka 2000).

The cotton board works by using Corporate Strategic Plans (CSP) to facilitate activities of the Board and currently the board is implementing the second CSP. CSP II is operationalized by the Cotton Industry Implementation Plan (CIIP) which is the stakeholders' joint plan of action to implement the Cotton Sector Strategy.

CIIP interprets the goals, objectivities and targets of CSDS II into quantifiable programmes, projects and activities; and their related estimated costs; to be implemented over the five year period of CSDS II. The goals of CSP II are as shown below.

Goals	Measures
Raising the quality of seed cotton to international standards	Increase number of seed cotton inspectors and regulators by 50 percent
Doubling productivity from 750 kg/ ha of seed cotton (260 kg/ha of lint) in 2008/09 to 1 500 kg/ha (520 kg/ha of lint) in 2014/15	Improved seed cotton farming in the existing 450 000 ha; and expand improved farming to an additional 50 000 ha
Doubling production of bales from 685 000 bales of seed cotton (126 000 tonnes of lint cotton) in 2008/09 to 1 500 000 bales (260 000 tonnes of lint cotton) in 2014/15	Increasing the proportion of cotton lint consumed by the domestic textiles industry from 30 percent in 2008/09 to 90 percent in 2014/15 by increasing domestic spinning weaving and textile milling

TCB is implementing a programme in collaboration with Tanzania Gatsby Charitable Trust (TGT) to multiply enough cotton seeds. The Agriculture Research Institute Ukiriguru produced 24 tonnes of improved seed varieties in 2009/10 season. Moreover, the programme supports cotton conservation farming through contract farming and the establishment of Farmer's Business Groups (FBGs) in the lake Zone with the support of Technoserve.

The cotton sector is heavily taxed in URT (Baffes *et al.* 2010). Taxation in cotton sector was administered centrally by the Prime Minister's Office in consultation with the Ministry of Agriculture, Food Security and Cooperatives and the Cotton Board before the reforms in the 1980s. The structure of taxation includes a host of taxes, levies and fees administered at both district and central government levels. Study on the tax structure in 1998/99 by the Government of The United Republic of Tanzania found that the tax burden on cotton was more than 13 percent of the producer price, distributed between district (7,7 percent) and central (5.1 percent) taxes.

On top of that, the cotton sector has other fees, such as Cotton Development Fund fee and fees payable to cooperative unions and primary societies, that when included in the equation can raise tax burden over 20 percent of the producer price (URT 1999a; 1999b). Cotton taxes during the 2000s remained high (Poulton and Maro, 2009) with taxing basis both fixed (i.e. 20 Tzsh per kg of seed cotton as contribution to the Cotton Development Fund) and variable (i.e. 5 percent of seed cotton price as District Levy) components.

Based on new income tax act of 2004, Tanzanian government eliminated withholding tax into cash crops such as cotton, sugarcane, etc. Recently, TCB used to collaborate with other stakeholders within the cotton subsector to set seed cotton price on annual bases. According to TCB Second Corporate strategic Plan (2010/11 – 2012/13) high commodity taxes and utility tariffs have been reported to be among existing challenges which affect operations of the cotton sector in URT.

Following trade liberalization, smallholder producers were observed to be increasingly exposed to price uncertainties. Thus apart from requiring assurance for accessing inputs and new technologies, smallholders need safety nets due to exposure to competitive markets. The government established

a cotton price subsidy and inputs subsidy programs under the TCB, starting as of the 2009/2010 growing season. During the 2008/2009 season, the TCB used a total of 1.2 billion TzSh to subsidize insecticides to farmers (an average subsidy of 4 390 TzSh per tonne of seed cotton) while in the 2009/2010 season the TCB paid a price support subsidy of 80 000 TzSh per tonne of seed cotton (TCB 2010; TCB 2011).

As far as trade policy is concerned, URT is a member of the East African Community (EAC), the Southern African Development Community (SADC) and the World Trade Organization (WTO). URT has withdrawn from COMESA in 2000, however, the debate of rejoining keeps on. Multiple regional membership of the country tends to affect its tariff structure (Tables 9 to 12). As it can be seen in the tables below, there is no protection for cotton lint with the policy objective of promoting the development of the textile industry while oil, seed and seedcake are protected by an external tariff of 10 percent which is increased to 25 percent for refined cotton seed oil to support domestic refining. However, most imported oils are declared as raw whether refined or not. The major competitor for cotton oil (palm oil) faces a 0 percent CET for imports in raw form which increases to 35 percent for refined palm oil.

Table 9: Ad valorem Tariff Structure (in %) for Tanzania Cotton Lint (HS 5201; 5202 & 5203)

Product	1993	1997	1998	2000	2003	2005	2006	2007	2008	2009	2010
HS 52.01 Cotton not carded or combed	10	20	20	5	0	0	0	0	0	0	0
			0 ¹								
HS 52.02 Cotton waste	20	30	30	25	20	0	0	0	0	0	0
			6 ¹		0 ²						
HS 52.03 Cotton carded or combed	20	20	30	25	20	0	0	0	0	0	0
			6 ¹		0 ²						

1: For COMESA countries; 2: For EAC countries

Sources: WITS and EAC CET

Table 10: Ad valorem Tariff Structure (in %) for Tanzania Cotton oil (HS 151221 & 151229)

Product	1993	1997	1998	2000	2003	2005	2006	2007	2008	2009	2010
HS 15.12.21 Cotton-seed oil crude	20	25	0	30	30	10	10	10	10	10	10
					2 ²	0 ²	0 ²	0 ²	0 ²	0 ²	0 ²
HS 15.12.29 Cotton-seed or fractions simply refined	20	25	25	45	45	25	25	25	25	25	25
			6 ¹		5 ²	0 ²	0 ²	0 ²	0 ²	0 ²	0 ²

1: For COMESA countries; 2: For EAC countries

Sources: WITS and EAC CET

Table 11: Ad valorem Tariff Structure (in %) for Tanzania Cotton seed (HS 120720)

Product	1993	1997	1998	2000	2003	2005	2006	2007	2008	2009	2010
HS 12.07.20 Cotton seeds	20	30	30	25	25	10	10	10	10	10	10
			6 ¹		5 ²	0 ^{1,2}	0 ^{1,2}	0 ^{1,2}	0 ²	0 ²	0 ²

1: For COMESA countries; 2: For EAC countries; 3: For SADC countries

Sources: WITS and EAC CET

Table 12: Ad valorem Tariff Structure (in %) for Tanzania Cotton seed cake (HS 230610)

Product	1993	1997	1998	2000	2003	2005	2006	2007	2008	2009	2010
HS 23.06.10 Oil-cake resulting from the extraction of cotton seeds	20	30	30	40	35	10	10	10	10	10	10
			6 ¹		3 ²	0 ²	0 ^{2,3}	0 ^{2,3} 5 ⁴	0 ²	0 ²	0 ²

1: For COMESA countries; 2: For EAC countries; 3: For South Africa; 4: For SADC countries

Sources: WITS and EAC CET

In addition, textile products have a border protection from 10 percent to 50 percent depending on the product.

3. DATA REQUIREMENTS DESCRIPTION AND CALCULATION OF INDICATORS

The analysis of price incentives/disincentives is carried out for the period of 2005-2010 and aims at estimating price gaps and rates of protection at point of competition and farm-gate levels. Following the above review the analysis considers that the point of competition takes place at the border (Dar es Salaam port) and URT is a net exporter of cotton lint for the whole period of the analysis.

TRADE STATUS OF THE PRODUCTS

As mentioned above, URT is a net exporter of cotton lint, seed and seed cake and a net importer of cotton oil. A comprehensive analysis needs to combine the revenues that are obtained for all the products (seed, lint, seed cake and seed oil) although we do not have domestic prices of some of the products (cotton oil and cotton seed cake). Therefore we will consider only two products (lint and seed) for which URT is a net exporter.

Table 13: Net trade (X-M) and trade intensity (in brackets) of selected cotton products for Tanzania

	2005	2006	2007	2008	2009	2010
Cotton Seed	2 644(1%)	3 204(4%)	3 868 (3%)	857 (0%)	11 786 (7%)	4 102 (2%)
Cotton Lint	66 082 (53%)	46 512 (106%)	33 999 (48%)	53 678 (44%)	77 915 (93%)	55 292 (50%)

Source: FAOSTAT and COMTRADE

BENCHMARK PRICES

As URT is a net exporter of seed and lint, benchmark prices are taken as FOB prices of reported exports. For seeds the only data available is that of unit values from COMTRADE. For lint we have two data sources: unit values from COMTRADE and prices declared by TCB. As far as COMTRADE data is concerned, we have prices for both carded and not carded cotton (HS 52.01 and HS 52.03). In theory, unit values for carded cotton should be higher than those for not-carded cotton as there is additional processing involved, however the unit values series for Tanzanian exports do not reflect this trend (see Table 14) probably due to coding issues and misclassification of trade flows. Therefore we have selected the average unit value of Tanzanian exports for not carded or combed cotton. The Tanzanian Cotton Board (TCB) reports also a price for cotton which they refer to as "World Market Price for Tanzanian Cotton". The values reported are much lower than those in COMTRADE (ranging from 14 percent to 54 percent depending on the year and unit value considered). It seems that this price could be a USD price per seed cotton equivalent, however we have not been able to confirm this and therefore we use the implicit FOB unit value of HS 52.01 as benchmark price for cotton lint.

Table 14: Implicit FOB unit values for cotton lint exports in Tanzania (USD/tonne)

	2005	2006	2007	2008	2009	2010
HS 52.01 Cotton not carded or combed	1 017	1 000	1 188	1 495	1 141	1 310
HS 52.03 Cotton carded or combed	841	1 924	941	1 032	984	1 038

Source: COMTRADE

EXCHANGE RATES

Exchange rates for URT have been taken from the IMF data source and summarized in Table 15. 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 15: Exchange Rate TzSh/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

We need two domestic prices for the analysis; farm gate and point of competition. Farm gate prices are obtained from the National Bureau of Statistics (NBS) and reflect the price paid by the ginners to farmers for harvested cotton. The ginners then transport the raw cotton to their plants for processing. The price at the point of competition is the cotton lint price in Dar es Salaam as reported by TCB. Both prices are reflected in Table 16.

Table 16: Seed cotton farm gate and cotton lint ex-ginnery prices used for the analysis

	2005	2006	2007	2008	2009	2010
Lint price Dar (TzSh per tonne of lint) – TCB [I]	374 805	346 776	509 221	741 712	648 272	731 411
Farm gate prices (Tzsh per tonne of raw cotton) – NBS [II]	249 494	219 083	351 101	449 813	480 593	472 282
Price Ratio seed cotton to cotton lint [II / (I*GOT)]	1.89	1.89	1.96	1.81	2.36	1.85

Sources: TCB & NBS

As it can be seen, these prices mean that ginners would be selling at a loss if their only activity would be producing cotton lint. However there is a functioning market for cotton seed in URT which is crushed into oil and meal. Baffes (2010) provides estimates of cotton seed prices for 2006-2009 based on a sample of 10 crushers. Using the CPI for URT we have obtained prices for 2005 and 2010. Taking into consideration the income from selling the cotton seed, the price ratio of seed cotton to cotton lint and cotton seed is still greater than one.

Table 17: Cotton seed prices in Tanzania

	2005	2006	2007	2008	2009	2010
III Cotton seed prices (TzSh per tonne)	116 549	125 000	200 833	235 625	175 000	185 850
Price Ratio seed cotton to cotton lint & cotton seed [II / ((I*GOT) + (III * (1-GOT)))]	1.20	1.10	1.14	1.11	1.48	1.25

Source: Baffes (2010)

Most available literature (i.e. Poutlon and Maro, 2009; Gergeley, 2010) shows that the ratio of producer seed cotton price to lint and cotton seed price is high (around 60 percent) but the values we get considering the cotton lint price reported by TCB are not plausible. These only become plausible if the cotton lint price reported by TCB refers to seed cotton units and not cotton lint ones. Therefore the domestic price at point of competition (i.e. cotton lint in Dar es Salaam) has been transformed into cotton lint units using the GOT ratio of 0.42. The final values used are reflected in Table 18.

Table 18: Seed cotton farm gate and cotton lint ex-ginnery prices used for the analysis

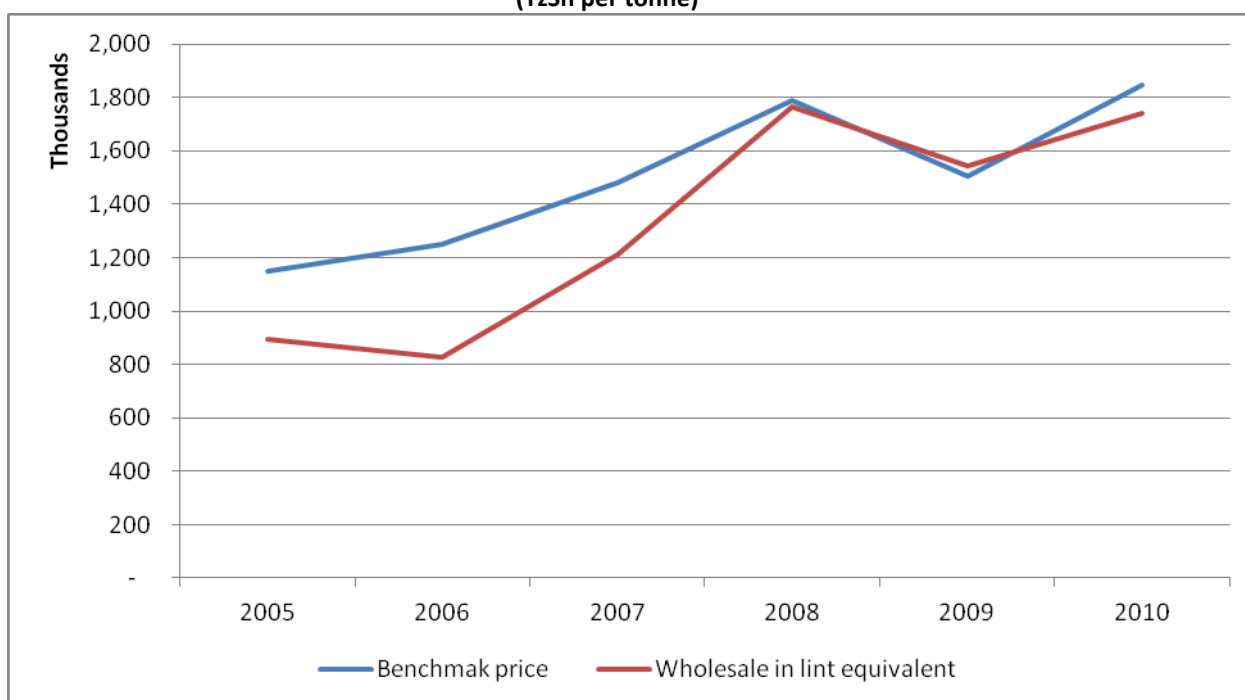
	2005	2006	2007	2008	2009	2010
Lint price FOT (TzSh per tonne of cotton lint) – TCB*	892 392	825 658	1 212 432	1 765 981	1 543 505	1 741 455
Farm gate prices (Tzsh per tonne of raw cotton) – NBS [II]	249 494	219 083	351 101	449 813	480 593	472 282
Price Ratio seed cotton to cotton lint [II / I*GOT]	0.67	0.63	0.69	0.61	0.74	0.65
III Cotton seed prices (TzSh per tonne)	116 549	125 000	200 833	235 625	175 000	185 850
Price Ratio seed cotton to cotton lint & cotton seed [II / (I *GOT)+ (III * (1-GOT))]	0.56	0.52	0.56	0.51	0.64	0.56

*considering that original data from Table 17 refers to seed cotton equivalent and using a 0.42 GOT.

Sources: TCB; NBS & Baffes (2010)

While this assumption makes sense when considering the price ration of seed cotton to lint, we need to confirm that it does for export prices (actual FOB price of exports). Figure 14 compares the wholesale price of lint in Dar (considering that the data provided by TCB is in raw cotton equivalent) with the benchmark price. As it can be seen, the price relationship between both prices is very close and thus we can consider that this price is a wholesale price in Dar prior to the export process.

Figure 14: FOB unit values of cotton lint exports and wholesale price of cotton lint in Tanzania (TzSh per tonne)



Sources: TCB and COMTRADE

ACCESS COSTS

We have two different sets of access costs.

From the farm gate to the point of competition

We consider the ginning costs, the value of seed, a margin on the price of purchase of the raw cotton and the transport from the ginnery to Dar es Salaam. All these costs are referred to in relationship to a ton of seed cotton.

- A. **Ginning costs.** The International Cotton Advisory Council (ICAC) provides every three years a review of cotton costs in the world (ICAC, various years). The review provides data for 2007 and 2010 and the ginning costs for URT are reflected on Table 19.

Table 19: Ginning costs in Tanzania (in TzSh per kg of seed cotton)

	2007	2010
Transport to ginning factory	33.0	50
Ginning including bagging	67.5	68.4
Classing/grading	15	15
TOTAL	115.5	133.4

Original units have been converted to seed of cotton using the year specific cotton lint to cotton seed ratio as reported by ICAC.

Source: ICAC (various years)

The figures available for 2007 and 2010 have been estimated for the rest of the years using a corrected ginnery CPI.² The costs used in the analysis are presented in Table 20.

- B. **Value of seed.** As mentioned above, there is a well-established market for seed in URT both for oil and meal. While ideally we should construct a reference price for seed based on benchmark prices for both products, as there is no data on processing costs to calculate reference prices, *we have deducted the value of seed from the access costs* assuming there are no incentives or disincentives in the seed value chain. Cotton seed price data is available from Baffes (2010) for the period 2006-2009 based on a sample of 10 crushers. We have calculated yearly averages and obtained estimates for 2005 and 2010 by using the CPI. In order to obtain the value of seed in seed cotton units we have multiplied the price by one minus the GOT. The value of seed used in the analysis is presented in Table 20.
- C. **Transport costs from ginnery to point of competition.** As mentioned, the point of competition has been assumed to be in Dar es Salaam where cotton lint can either be sold or exported and for which we have a domestic price. According to Poulton and Maro (2009) transport to Dar from the producing areas stands at 15 000 TzSh per 200 kg cotton ling bale or 75 000 TzSh per cotton lint tonne³. We consider that this data point is providing data for 2008 and have obtained cost estimates for the rest of the period using the overall CPI. As our farm gate domestic price is in seed cotton units, the transport cost has been converted into seed cotton units using the GOT described below. The costs used in the analysis are presented in Table 20.
- D. **Margins.** We have added a 10 percent margin on the purchase of seed cotton to the costs of ginning to take into account the normal profit of the ginnery. All other access cost components already include the margins.

Total access cost from farm gate to point of competition is calculated as ginning costs plus transport plus margins minus seed value resulting as follows.

² The evolution of ginning costs between 2007 and 2010 did not follow the trend of the general CPI; while ginning costs increased by 15 percent the overall CPI increased by 31 percent. Therefore, in order to avoid translating overall inflation to the costs of ginning we estimated a ginning CPI based on the ratio of ginning inflation to overall inflation for the period 2005-2010.

³ Considering an average distance from producing areas to Dar of 981 km the cost per tonne and km stands at 76.5 TzSh (0.06 USD). This figure is significantly lower than other estimates of transport costs for agricultural products (i.e. 0.11 USD per tonne and km of Maize).

**Table 20: Access costs from farm gate to point of competition for cotton in Tanzania
(in TzSH per kg of seed cotton)**

	2005	2006	2007	2008	2009	2010
Total ginning costs	109 462	112 882	115 500	122 000	129 249	133 400
Value of seed	67 598	72 500	116 483	136 663	101 500	107 793
Transport cost from Ginnery to Dar	24 885	26 689	28 564	31 500	35 325	37 515
10 Percent of seed cotton purchase price	24 949	21 908	35 110	44 981	48 059	47 211
Total Access cost from Farm Gate to Point of competition (I-II+III+IV)	91 698	88 979	62 691	61 819	111 133	110 332

Source: Baffes (2010), Poulton and Maro (2009), ICAC various years and own elaboration

From the point of competition to the border

The domestic price at point of competition reflects the wholesale price in Dar, therefore the costs from point of competition to the border only cover the warehousing and port charges. Poulton and Maro (2009) report an average cost of 50 000 TzSh per tonne of cotton lint. This figure has been calculated for the rest of the study period using the CPI and the access costs from wholesale to border are reflected in Table 21.

**Table 21: Access costs from point of competition to border for cotton in Tanzania
(in TzSH per kg of seed cotton)**

	2005	2006	2007	2008	2009	2010
Warehousing and port charges	39 499	42 364	45 340	50 000	56 071	59 548

Source: Poulton and Maro (2009) and own elaboration

QUALITY AND QUANTITY ADJUSTMENTS

As our reference price is for cotton lint and our domestic price at the farm gate is for raw cotton we have considered a GOT ratio of 0.42 which is the industry average for the world.

BUDGET AND OTHER TRANSFERS

As mentioned in the policy section, we consider that in 2009 a transfer of 4 390 TzSh per tonne of seed cotton was made to farmers for the purchase of insecticides and in 2010 a price support transfer of 80 000 TzSh per tonne of seed cotton was paid.

Summary table for data description in MAFAP technical notes

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

Concept		Description	
		Observed	Adjusted
Benchmark price		▪ FOB unit values from COMTRADE for HS52.01	
Domestic price at point of competition		▪ Wholesale price as reported by TCB transformed into cotton lint equivalent using a GOT of 42%.	
Domestic price at farm gate		▪ FG price for raw cotton as reported by NBS	
Exchange rate		▪ IMF data base yearly average based on monthly data	
Access cost to point of competition		▪ Export cost as reported by Poulton and Maro (2009).	
Access costs to farm gate		▪ Ginning costs as reported by ICAC; plus transport cost from ginnery to Dar es Salaam (Poulton and Maro 2009), plus 10% margin over seed cotton farm gate price minus value of seed (Baffes, 2010).	
QT adjustment	Bor-Wh		
	Wh-FG		
QL adjustment	Bor-Wh		
	Wh-FG	▪ 0.42 average ginning out run value	

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

		Year	2005	2006	2007	2008	2009	2010
		trade status	x	x	x	x	x	x
DATA	<i>Unit</i>	<i>Symbol</i>						
Benchmark Price								
<i>Observed</i>	USD/TONNE	$P_{b(ints)}$	1 017	1 000	1 188	1 495	1 141	1 310
<i>Adjusted</i>	USD/TONNE	P_{ba}						
Exchange Rate								
<i>Observed</i>	TzSh/USD	ER_o	1 129	1 252	1 245	1 196	1 320	1 409
<i>Adjusted</i>	TzSh/USD	ER_a						
Access costs border - point of competition								
<i>Observed</i>	TzSh/TONNE	ACO_{wh}	39 499	42 364	45 340	50 000	56 071	59 548
<i>Adjusted</i>	TzSh/TONNE	ACa_{wh}						
Domestic price at point of competition	TzSh/TONNE	P_{dwh}	892 392	825 658	1 212 432	1 765 981	1 543 505	1 741 455
Access costs point of competition - farm gate								
<i>Observed</i>	TzSh/TONNE	ACO_{fg}	91 698	88 979	62 691	61 819	111 133	110 332
<i>Adjusted</i>	TzSh/TONNE	ACa_{fg}						
Farm gate price	TzSh/TONNE	P_{dfg}	249 494	219 083	351 101	449 813	480 593	472 105
Externalities associated with production	TzSh/TONNE	E						
Budget and other product related transfers	TzSh/TONNE	BOT					4 390	80 000
Quantity conversion factor (border - point of competition)	Fraction	QT_{wh}						
Quality conversion factor (border - point of competition)	Fraction	QL_{wh}						
Quantity conversion factor (point of competition – farm gate)	Fraction	QT_{fg}	0.42	0.42	0.42	0.42	0.42	0.42
Quality conversion factor (point of competition – farm gate)	Fraction	QL_{fg}						
		NOTES						

CALCULATION OF INDICATORS

The indicators and the calculation methodology used are described in Box 1. A detailed description of the calculations and data requirements is available on the MAFAP website or by clicking [here](#).

Box 1: MAFAP 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 **Nominal Rates of Protection - observed (NRPo)** is the price gap between the domestic market price and the reference price divided by the reference price at both the farm and wholesale levels:

$$NRPo_{fs} = (P_{fs} - RPo_{fs}) / RPo_{fs}; \quad NRPo_{wh} = (P_{wh} - RPo_{wh}) / RPo_{wh};$$

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

Second are the **Nominal Rates of Protection - adjusted (NRPa)** in which the reference prices are adjusted to eliminate distortions found in developing country market supply chains. The equations to estimate the adjusted rates of protection however follow the same general pattern:

$$NRPa_{fs} = (P_{fs} - RPa_{fs}) / RPa_{fs}; \quad NRPa_{wh} = (P_{wh} - RPa_{wh}) / RPa_{wh};$$

MAFAP analyzes market development gaps caused by market power exchange rate misalignments and excessive domestic market costs which added to the NRPo generate the NRPa indicators. Comparison of the different rates of protection identifies where market development gaps can be found and reduced.

Thus Nominal Rates of Protection - observed (NRPo) was used in the analysis whereby Nominal Rates of Protection - adjusted (NRPa) was not used as we have not identified any additional market development gaps to those captured in the observed domain.

Table 22: MAFAP indicators and price gaps for Cotton in Tanzania 2005 – 2010 (TZSh per tonne)

	2005	2006	2007	2008	2009	2010
Trade status for the year	x	x	x	x	x	X
Observed price gap at wholesale	(216 230)	(383 879)	(221 336)	27 498	93 103	(45 141)
Adjusted price gap at wholesale	(216 230)	(383 879)	(221 336)	27 498	93 103	(45 141)
Observed price gap at farm gate	(124 430)	(199 943)	(188 390)	(218 532)	(17 443)	(167 933)
Adjusted price gap at farm gate	(124 430)	(199 943)	(188 390)	(218 532)	(17 443)	(167 933)

Source: Own calculations using data as described above

Figure 15: MAFAP price gaps for cotton in Tanzania 2005-2010 (Tzsh per tonne)

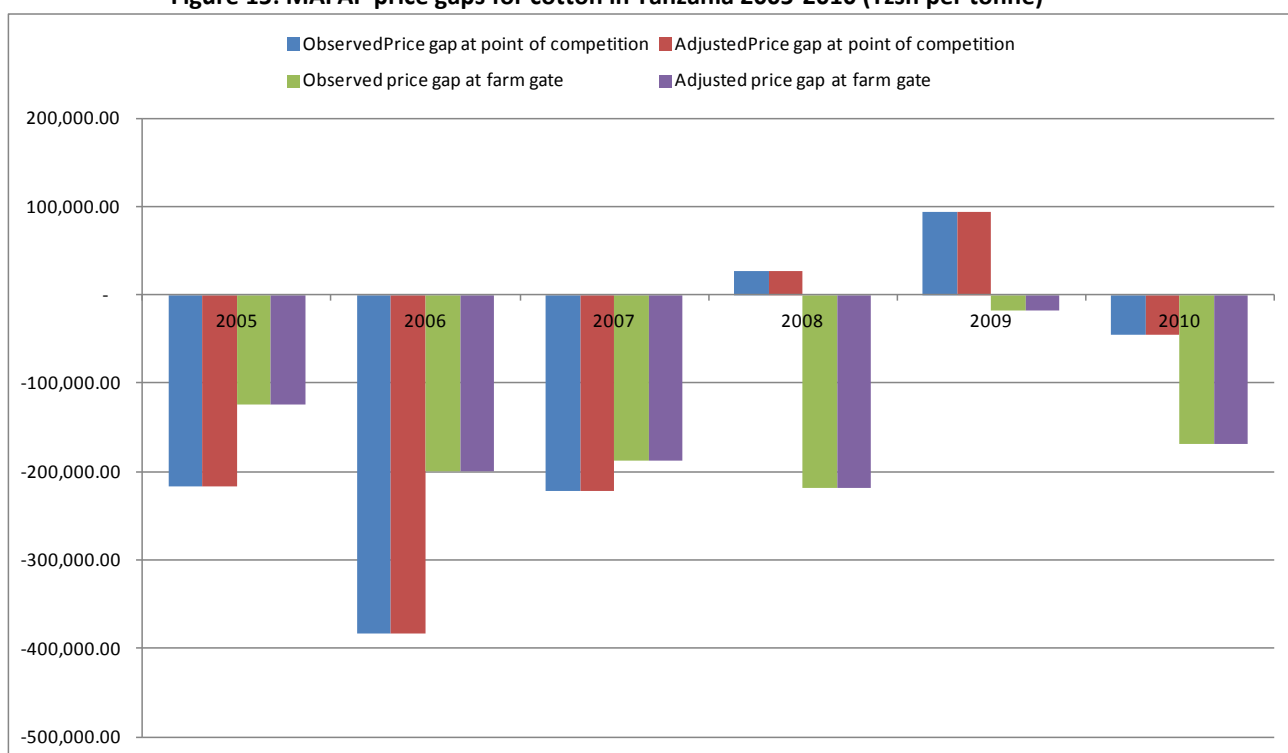
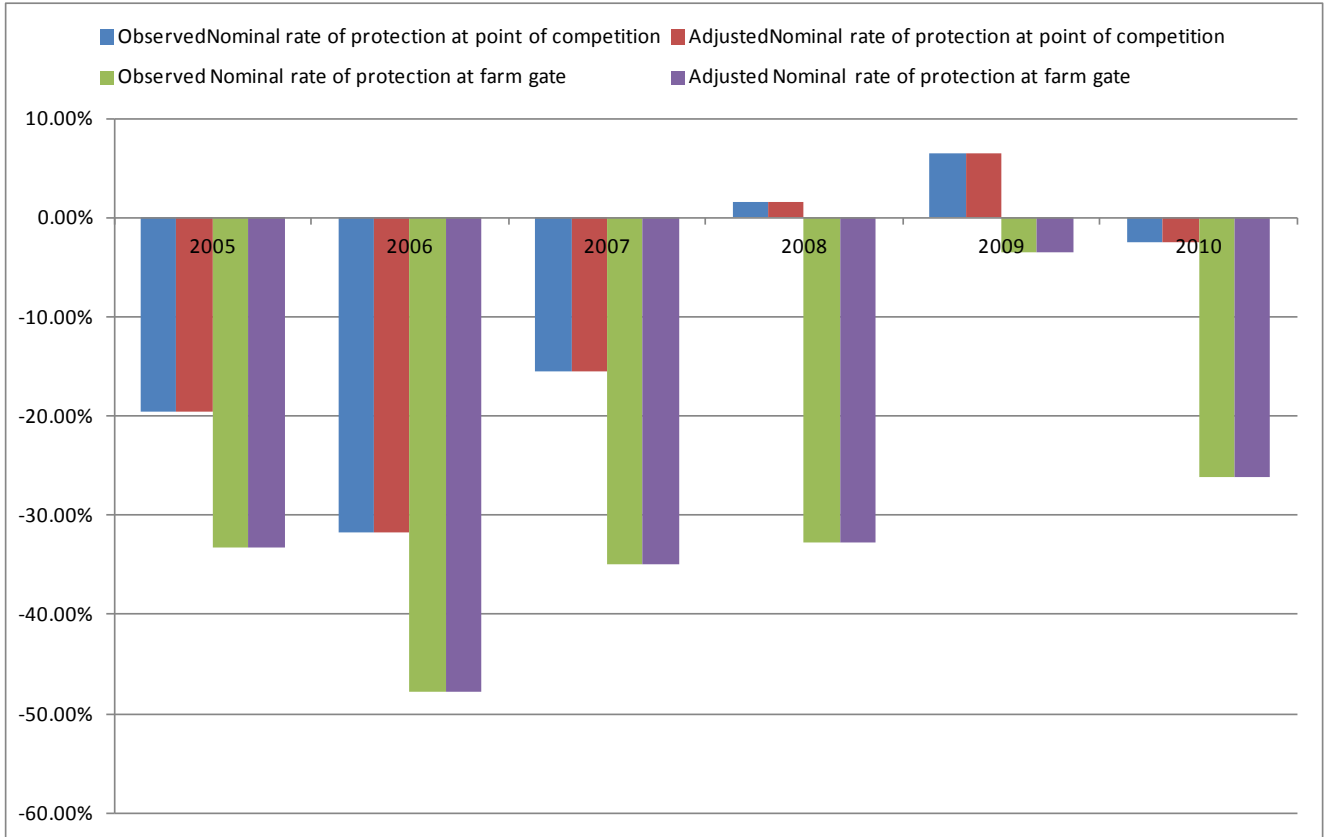


Table 23: MAFAP nominal rates of protection (NRP) for Cotton in Tanzania 2006-2010 (%)

	2005	2006	2007	2008	2009	2010
Trade status for the year	x	x	x	x	x	X
Observed NRP at point of competition	-19.5%	-31.7%	-15.4%	1.6%	6.4%	-2.5%
Adjusted NRP at point of competition	-19.5%	-31.7%	-15.4%	1.6%	6.4%	-2.5%
Observed NRP at farm gate	-33.3%	-47.7%	-34.9%	-32.7%	-3.5%	-26.2%
Adjusted NRP at farm gate	-33.3%	-47.7%	-34.9%	-32.7%	-3.5%	-26.2%

Source: Own calculations using data as described above

Figure 16: MAFAP nominal rates of protection for cotton in Tanzania 2005-2010 (Tzsh per tonne)



4. INTERPRETATION OF THE INDICATORS

As it can be seen from the results presented above there is a clear disincentive for farmers growing cotton in URT. This disincentive is mainly related to the taxes and levies existing in the Tanzanian cotton market. Although we do not have exact data on these for the study period, estimates from Poulton and Maro (2009) show that these can be over 40 000 TzSh per tonne. Our results show that during the study period the disincentives are even higher than the estimated levies. This additional disincentive might be due to the use of a Ginning Out Turn ratio of 0.42 when the observed ginning outrun ratio is closer to 0.35. If this GOT is considered then the disincentives are close to these levies reported by Poulton and Maro. However we consider that the low ginning ratio is also another source of disincentive for farmers, which could get better prices if GOT of the ginnery sector in URT was improved.

Even when the Government of The United Republic of Tanzania, via the TCB, provides support to farmers directly either as input subsidies (for insecticides in 2009) or as price support (80 000 Tzsh per tonne in 2010), the amount of this support is lower than the disincentives and the Nominal Rates of Assistance remain negative when computed for those years. Thus, even when the cotton system in Tanzania has been presented as an example of competition, TCB, government intervention and outdated ginning capacity actually results in farmers being taxed or discouraged significantly.

Due to the nature of the point of competition used in the analysis we cannot identify whether the disincentive is faced mainly by farmers or ginneries. Obtaining the price at the gate of the ginnery would allow to further analyze this. The price at point of competition is the reported export price by the TCB and the disincentive at this level is mainly due to the low GOT factories in Tanzania. Thus with our data we cannot conclude whether the farmers are capable of passing through the taxation in the sector to ginneries.

Disincentives to farmers during the last years of the period under investigation have been reduced significantly in particular in 2009 and then have increased again after 2010. 2009 was a year when production was low in URT (see Figure 1) and competition between ginneries assured better prices for farmers. As soon as production peaked again in 2010, the disincentive structure went back to the period's average and the TCB promoted a direct payment to farmers to compensate for the low prices perceived by farmers.

5. PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

MAIN MESSAGE

The organization of the cotton sector in URT taxes cotton farmers on average 30 percent thus limiting the investment capacity of farmers. This taxation is directly imposed by the government to the sector via different levies from regional and central administration together with cost imposed by the functioning of the different agents in the value chain.

The low ginning out turn ratio of the ginning sector further penalizes farmers as the quantity of lint produced by ginners per tonne of seed cotton is lower than it could be. If the analysis is made considering the actual Ginning Out Turn ratio the disincentives to farmers are much lower, approximately 10 percent points of the negative NRP are due to the technical inefficiencies in the ginning industry.

PRELIMINARY RECOMMENDATIONS

Modernization of the ginneries in URT should be a policy objective. The current Cotton Industry Implementation Plan should also include in its objectives the ginning industry and not only farmers and textile industry.

Instead of subsidizing farmers, the Government of The United Republic of Tanzania should consider reducing the tax burden on cotton production as a more efficient way of remunerating cotton growers.

LIMITATIONS

There is no cotton price ex factory available to see how the disincentives are split between farmers and ginners. Our point of competition is a constructed one and therefore the indicators at the point of competition cannot be discussed.

FURTHER INVESTIGATION AND RESEARCH

It would be desirable to see whether the different cotton farmers (contract farmers and non-contract farmers) face different incentive structures.

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6. ANNEX I: Methodology Used

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

7. ANNEX II: Key strategies and programs in the Agricultural Sector

In the last decade The United Republic of Tanzania (URT) has moved to support its agriculture in a more systematic way using a sector-wide (Ag-SWAP) approach. In 2001 the Agricultural Sector Development Strategy was formulated basically as an implementing framework for the Agricultural and Livestock Policy of 1997. However, recently after formation of Ministry of Livestock and Fisheries Development livestock was removed from this policy. Due to these institutional changes there are two policies; National Agricultural Policy and National Livestock Policy.

The formulation of the ASDS process was closely coordinated among the Agricultural Sector Lead Ministries (ASLMs) and the Development Partners. The ASDS was operationalized into the Agricultural Sector Development Programme (ASDP) in 2006. ASDP serves as a tool of the government and stakeholders for coordinating and monitoring agricultural development in the country. Development activities at national level are based on the strategic plans of the ASLMs while activities at District level are implemented by Local Government Authorities (LGAs) based on District Agricultural Development Plans (DADPs).

In Zanzibar, the Agriculture Strategic Plan (ASP) is the ongoing initiative since 2002 which was reviewed in 2004, 2008 and 2011. The ASP is implemented by the Ministry of Agriculture and Natural Resources (MANR). Similar to ASDP, ASP is an instrument for guiding public and private efforts to meet broadly shared sector objectives to realize agreed inputs and outputs. The ASDP has two major components, namely:

- A local component directing funds to Local Government Authorities (LGAs) for investments in infrastructure (including irrigation and marketing) or productive activities, agricultural services (primarily public and private agricultural extension and LGA based research activities) and capacity building and empowerment for farmer groups local government and the private sector; and
- A national component which finances agricultural research and extension service activities, development of irrigation policy and national level infrastructure, policy development and planning, capacity building for food security and nutrition interventions, market development activities and programme coordination. The National component also provides technical guidelines to implementation of local component activities.

Within this framework 75 percent of the resources to support the sector are allocated to the local level and 25 percent to the national level. The ASP programmes and projects that are implemented by MANR and cover a wide range of programme areas in crop livestock and fisheries, forest conservation, irrigation and infrastructure and cross cutting issues.

There are also a number of sub-sector programmes and projects that are being implemented within the ASDP framework. They cover livestock, fisheries, irrigation, mechanization, seeds, cooperatives, small and medium enterprises, trade, food and nutrition, agricultural marketing, land environment, forest water, micro-finance investment, promotion and industry. These include stand alone projects such as: Participatory Agricultural Development and Empowerment Project (PADEP), District Agricultural Sector Investment Project (DASIP), Agricultural Marketing Systems Development Programme (AMSDP), Rural Financial Services Project (RFSP) and Marine and Coastal Environment

Management Project (MACEMP). The Agricultural Services Support Programme (ASSP) is a sub-sector programme implemented within the framework of ASDP in Zanzibar.

In an effort to promote greater growth of the Agricultural sector. URT signed the Compact for the Comprehensive Africa Agriculture Development Programme on the 8th of July 2010. The CAADP Compact provides an opportunity for URT to further strengthen its agricultural development efforts towards achieving greater impact on the country's economy and food security. In 2011 URT approved its Agriculture and Food Security Investment Plan (TAFSIP) which has been formulated to support the implementation of the CAADP Compact.

Public efforts to support the sector are also being complimented by a number of local and international NGOs that are working in agriculture implementing innovative projects targeted mainly at smallholder farmers. Farmers' organizations are also increasingly becoming important players in supporting efforts to improve the situation of small-scale farmers. Apart from cooperatives there is a growing presence of farmer associations that serve as advocacy groups. These include the Agricultural Council of Tanzania (ACT), National Network of Farmers Groups (MVIWATA) and Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA). There has also been a gradual improvement of the investment climate leading to a notable increase of private investment throughout the agricultural value chain: farming processing and marketing. This pace is far from satisfactory and more efforts are needed to promote a more conducive environment for investment. On the other hand, Kilimo Kwanza a joint initiative of the public and the private sector has been able to galvanize support from both parties in favour of increased investments towards a "green revolution" in the agricultural sector.

The 10 pillars of Kilimo Kwanza build on and amplify ongoing efforts under existing programs. Kilimo Kwanza has already inspired a number of initiatives by the private sector. An example is the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) designed to spearhead public and private sector initiatives to promote investment along an agricultural growth corridor model in line with the URT. The agricultural sector undergoes annual joint implementation reviews and yearly Agricultural Sector Reviews and public expenditure reviews (ASR/PER) which allow stakeholders to assess performance of the sector and notably the main programme the ASDP.

These reviews have shown that in the course of implementing the ASDP/ASP notable achievements have been registered. Production and productivity has increased due to an expansion of area under irrigation, livestock, dipping tanks, water infrastructure, feeder roads and development and adoption of improved production technologies. However, more effort is needed particularly to encourage the private sector to invest in irrigation infrastructure, provide extension and research services and establish contract farming and out-grower schemes that will benefit small-scale farmers.

TAFSIP is designed to avoid past mistakes and build on successful development initiatives. Foremost amongst the lessons learned from previous experience is the importance of managing and harmonizing all sectoral development initiatives in a large and diverse agricultural sector with complex institutional structures and financing arrangements. The Agriculture Sector Development Programme (ASDP/ASP) represents an attempt to implement a sector-wide development programme which is beginning to bear fruit after five years of implementation but only accounts for about half of public investment in the sector, does not incorporate a number of substantial internationally funded programmes and has not been very successful in engaging the private sector. Thus TAFSIP must

become an overarching coordination mechanism for harmonizing investment decisions and implementation modalities (procedures, targets, indicators, work plans, reporting and M&E).

8. ANNEX II: Data and calculations used in the analysis

DATA	Unit	Symbol	Year trade status	2005	2006	2007	2008	2009	2010	Notes
				x	x	x	x	x	x	
Benchmark Price										
1	Observed	USD/TON	P _{0(ri)}	1,017	1,000	1,188	1,495	1,141	1,310	FOB Price
1b	Adjusted	USD/TON	P _{0a}							
Exchange Rate										
2	Observed	TzSh/USD	ER ₀	1,129	1,252	1,245	1,196	1,320	1,409	
2b	Adjusted	TzSh/USD	ER _a							
Access costs border - point of competition										
3	Observed	TzSh/TON	AC _{0wh}	39,499	42,364	45,340	50,000	56,071	59,548	WB export costs
3b	Adjusted	TzSh/TON	AC _{awh}							
4	Observed	TzSh/TON	P _{0wh}	892,392	825,658	1,212,432	1,765,981	1,543,505	1,741,455	wholesale converted to lint equal
4b	Adjusted	TzSh/TON	P _{awh}							
Access costs point of competition - farm gate										
5	Observed	TzSh/TON	AC _{0fg}	91,698	88,979	62,691	61,819	111,133	110,332	ICAC + WB + 10% margin
5b	Adjusted	TzSh/TON	AC _{afg}							
6	Observed	TzSh/TON	P _{0fg}	249,494	219,083	351,101	449,813	480,593	472,105	NBS
6b	Adjusted	TzSh/TON	P _{afg}							
7	Observed	TzSh/TON	E							From PE Analysis
7b	Adjusted	TzSh/TON	E							
8	Observed	TzSh/TON	BOT					4,390.00	80,000.00	
8b	Adjusted	TzSh/TON	BOT							
9	Observed	Fraction	QT _{wh}							
9b	Adjusted	Fraction	QT _{wh}							
10	Observed	Fraction	QL _{wh}							
10b	Adjusted	Fraction	QL _{wh}							
11	Observed	Fraction	QT _{fg}	0.42	0.42	0.42	0.42	0.42	0.42	
11b	Adjusted	Fraction	QT _{fg}							
12	Observed	Fraction	QL _{fg}							
12b	Adjusted	Fraction	QL _{fg}							
CALCULATED PRICES										
	Unit	Symbol		2005	2006	2007	2008	2009	2010	Formula
Benchmark price in local currency										
9	Observed	TzSh/TON	P _{0(oc)}	1,148,122	1,251,900	1,479,108	1,788,483	1,506,474	1,846,144	[1]*[2]
10	Adjusted	TzSh/TON	P _{0(oc)a}	1,148,122	1,251,900	1,479,108	1,788,483	1,506,474	1,846,144	[1]*[2]
Reference Price at point of competition										
11	Observed	TzSh/TON	RP _{0wh}	1,108,622	1,209,536	1,433,768	1,738,483	1,450,403	1,786,596	[9]-[3]
12	Adjusted	TzSh/TON	RP _{awh}	1,108,622	1,209,536	1,433,768	1,738,483	1,450,403	1,786,596	[10]-[3]
Reference Price at Farm Gate										
13	Observed	TzSh/TON	RP _{0fg}	373,924	419,026	539,492	668,344	498,036	640,038	(((11)*[QTfg])-[5])
14	Adjusted	TzSh/TON	RP _{afg}	373,924	419,026	539,492	668,344	498,036	640,038	(((12)*[QTfg])-[5])
INDICATORS										
	Unit	Symbol		2006	2007	2008	2009	2010	Formula	
Price gap at point of competition										
15	Observed	TzSh/TON	PG _{0wh}	(216,230)	(383,879)	(221,336)	27,498	93,103	(45,141)	[4]-[11]
16	Adjusted	TzSh/TON	PG _{awh}	(216,230)	(383,879)	(221,336)	27,498	93,103	(45,141)	[4]-[12]
Price gap at farm gate										
17	Observed	TzSh/TON	PG _{0fg}	(124,430)	(199,943)	(188,390)	(218,532)	(17,443)	(167,933)	[6]-[13]
18	Adjusted	TzSh/TON	PG _{afg}	(124,430)	(199,943)	(188,390)	(218,532)	(17,443)	(167,933)	[6]-[14]
Nominal rate of protection at point of competition										
19	Observed	%	NRP _{0wh}	-19.5%	-31.7%	-15.4%	1.6%	6.4%	-2.5%	[15]/[11]
20	Adjusted	%	NRP _{awh}	-19.5%	-31.7%	-15.4%	1.6%	6.4%	-2.5%	[16]/[12]
Nominal rate of protection at farm gate										
21	Observed	%	NRP _{0fg}	-33.3%	-47.7%	-34.9%	-32.7%	-3.5%	-26.2%	[17]/[13]
22	Adjusted	%	NRP _{afg}	-33.3%	-47.7%	-34.9%	-32.7%	-3.5%	-26.2%	[18]/[14]
Nominal rate of assistance										
23	Observed	%	NRA ₀	-33.3%	-47.7%	-34.9%	-32.7%	-2.6%	-13.7%	(((17)+[8])/[13])
24	Adjusted	%	NRA _a	-33.3%	-47.7%	-34.9%	-32.7%	-2.6%	-13.7%	(((18)+[8])/[14])
Decomposition of PWAfg										
	Unit	Symbol		2005	2006	2007	2008	2009	2010	Formula
25	TzSh/TON	IRG		-	-	-	-	-	-	-
26	TzSh/TON	ERPG		-	-	-	-	-	-	-
27	TzSh/TON	ACC _{wh}		-	-	-	-	-	-	-
28	TzSh/TON	ACC _{fg}		-	-	-	-	-	-	-
29	TzSh/TON	EG		-	-	-	-	-	-	-



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