

Tanzania's Cotton Sector: Reforms, Constraints and Challenges

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This article contributes to the liberalisation debate in Africa by assessing the policy reforms in the Tanzanian cotton sector, the outcome of which has been mixed. The grower's share in the fob price has increased; the growers receive payments promptly; the ginning capacity has increased considerably. However, supply response did not take place; the input distribution system collapsed, while the mixing of cotton varieties constitutes a threat to the viability of the sector. The co-operative unions figure prominently in the sector, although for all practical purposes they are bankrupt enterprises. Taxation is excessive, the tax code is complicated and tax evasion is pervasive. The cotton board and the ministries still over-regulate the sector. The quality of statistics remains poor.

1 Introduction

Many sub-Saharan Africa countries reformed their commodity sectors during the 1990s. For the most part, the reforms meant the elimination or reduction of the monopoly powers of the crop boards, which used to handle most marketing and trade aspects of the commodity sectors in question. By most accounts, the outcome of these reforms has been mixed. The share of fob prices received by producers has increased and growers receive payments promptly. In some cases supply response has taken place. However, the quantity and quality of public services such as research and extension have declined. The functioning of input markets has deteriorated and in some case collapsed as soon as the provision of credit and the crop boards' monopoly power were delinked (see, for example, Akiyama et al., 2003; Shepherd and Farolfi, 1999). This article offers a quantitative assessment of the policy reforms in the Tanzanian cotton sector.¹

Compared with its neighbours, Tanzania's post-reform performance is not all that impressive. Baffes (2001), for example, who examined the post-liberalisation performance of the cotton sectors in Tanzania, Uganda, and Zimbabwe, found that

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1. Cotton is Tanzania's largest export crop after coffee. It contributes \$90 million to export earnings and provides employment for about half a million rural households.

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while Uganda and Zimbabwe performed relatively well, Tanzania did not. A similar conclusion was reached earlier by Leathers and Kähkönen (1998) who undertook a comparison between Tanzania and Zambia. After the reforms, the quality of cotton reportedly declined (Shepherd and Farolfi, 1999); the use of purchased inputs, especially chemicals, fell sharply (Gibbon, 1999). One reason behind Tanzania's poor post-reform performance in the cotton (and other) sectors is that the reforms did not go far enough (see, for example, Cooksey, 2003 who looked at the case of maize, tobacco, and coffee).

Before the 1990s the Cotton Board and the co-operative unions handled all marketing services for the industry, including the provision of inputs. In reforms introduced in 1990 the Cotton Board provided fee-based services to the co-operative unions instead of buying the cotton itself. In 1992 price controls were relaxed, and indicative prices were announced instead of prices at which cotton was purchased. The biggest change came with the Cotton Act of 1994, when the government eliminated the monopoly held by the Cotton Board and the unions and allowed competition in cotton marketing and ginning.

As will be shown later, the outcome of the reforms has been, at best, mixed. The cotton grower's share in the fob price is at least 10 percentage points higher compared with what it was prior to the reforms, not a bad outcome considering that in 1995 world cotton prices averaged \$2.13 per kg, while in 2001 and 2002 they averaged \$1.04 and \$1.02 per kg, respectively. Cotton growers receive payment promptly, which is also a considerable improvement; prior to the reforms payments were received with one to two years delay which, combined with inflation rates in the order of 20%, meant that the money received by the growers was halved in real terms. Ginning capacity has increased enormously (probably more than it should have); all cotton now can be (and to a great extent is) processed at private facilities and there is therefore no need to rely on the co-operative unions. Finally, the quality of cotton has allegedly declined, but this is not supported by the data.

These achievements, however, must be set against a number of shortcomings. Supply response did not take place. The input distribution system practically collapsed. The mixing of cotton varieties constitutes a considerable threat to the viability of the sector. The co-operative unions appear to figure prominently in the sector, although for all practical purposes they are bankrupt enterprises. Taxation is excessive, the tax code is very complicated and there is strong evidence of tax avoidance and/or evasion. The sector is over-regulated by the Board and the ministries. The quality of statistics is poor.

The remainder of this article elaborates on these aspects of the reforms by relying on quantitative analysis as much as the data permit. Specifically, the next section puts the current picture into context by taking a brief look at the history of the industry. The following section summarises the policy developments since 1990 and examines their effect on the growers' share of export prices, and on the supply response, credit provision, input use, the quality of the cotton, ginning capacity, and research. The fourth section looks at the constraints and challenges the sector is currently facing, specifically, taxation, regulation, and the quality of statistics, before a final section.

2 A brief history of the cotton industry in Tanzania

Cotton was introduced to Tanganyika at the turn of the twentieth century by German settlers as a plantation crop (Gibbon, 1998). During the 1920s new efforts focused on smallholder production, first in Eastern and later in Western Tanganyika. Production of cotton on a commercial scale started at Ukiriguru, south of Lake Victoria, following the construction of the railway line from Tabora to Mwanza in 1928. Because the first cotton varieties (imported from the United States) were not suited to local growing conditions, yields were low. Local research during the 1930s led to the development of a pest-resistant variety. Cotton output, especially in Western Tanganyika, rose considerably with the release of these local varieties, along with better organisation of the sector following the establishment of the Tanganyika Lint and Seed Marketing Board in 1956.² By 1966, the country's cotton output was 80,000 tons, or 0.75% of the world production of 10.7 million tons.

A turning point came in the 1960s following the spread of the co-operative movement and the deterioration of relations between ginneries owners and cotton growers. Several hundred primary societies had sprung up, and the groups began handling crop purchasing. Soon, they formed co-operative unions and began building ginneries, training staff, and taking over ginneries and cotton oil mills from foreign owners. The conditions of sale or transfer of the ginneries are not clear, however. A government report put it as follows:

Until the early 1960s, the ownership and management of ginneries in Tanzania remained in the hands of the private sector. Although, due to competing forces basically from primary societies and co-operative unions on the procurement and marketing of cotton, the private entrepreneurs were compelled to sell their ginneries to them. By 1968, almost all ginneries were bought by the co-operative unions, thus not only controlling the ginning but also the sale of cotton in the country. Throughout the 1970s and 1980s, there has not been much change on the ownership of the ginneries until the 1990s when government initiated the trade liberalisation. (Government of Tanzania, 1999b: 13)

By 1968 the unions and the Cotton Board had effectively been handed a monopsony in cotton seed buying and a monopoly in cotton lint selling. Not surprisingly, they soon became large bureaucracies and failed to pay adequate attention to the needs of the sector. The unions were employing an estimated 1,800 permanent staff and 7,000 casual labourers. The Nyanza Co-operative Union alone, with its 13 ginneries, employed 776 permanent ginneries staff and 3,000 labourers; the Shinyanga Region Co-operative Union employed 560 permanent staff and 2,000 labourers (*ibid.*). The large union bureaucracies along with the poor policy choices by the Cotton Board had a detrimental effect on the sector (see, for example, Dercon, 1993).

In an attempt to correct the inefficiencies and the poor management, the government abolished the unions in 1976 and turned over cotton marketing to the Tanzanian Cotton Authority, the successor of the Lint and Seed Marketing Board. The government set the prices paid to farmers, establishing uniform national prices for an entire season. This marketing structure also failed, and the co-operative unions were reinstated between 1980 and 1984. The unions and primary societies acted as agents for

2. Before 1956 Tanzanian cotton was marketed by the Uganda Lint Marketing Board.

the Tanzanian Cotton Marketing Board, the renamed Tanzania Cotton Authority. The primary societies stored and sold the cotton to the co-operative unions at a fixed price, and the unions processed the seed cotton for a fixed margin. The Cotton Board managed all domestic and international sales. Despite the restructuring, most of the unions accumulated huge debts and managed to survive only through government subsidies and

Box 1: Co-operative Unions and the Private Sector – Perceptions and Reality

Co-operative union members and government officials are sceptical of the private sector's involvement in marketing and trade activities in Tanzania. Their views reflect, at least in part, 30 years of experimentation with central planning. Consider the following interview with a high-ranking co-operative union official.

When asked for his views on private sector involvement in cotton marketing, he replied: 'The problem with the private traders is that you cannot control them! The World Bank should support cotton to be produced. It should support the co-operative unions and forget about the private sector.' This thinking echoed the Arusha Declaration some 34 years earlier: 'The way to build and maintain socialism is to ensure that the major means of production are under the control and ownership of the Peasants and Workers themselves through their Government and their Co-operatives' (quoted in World Bank, 1977: Annex VI, p.47).

When asked what kind of assistance would be needed to overcome the difficulties the co-operative union faced, he replied: 'I need finance. If I am given enough finance, I could do better.' Though unstated, implicit in this response was the assumption that the loan would not be at market rates or, if a history of debt accumulation by the unions and eventual forgiveness is any guide, would not be repaid at all. Most co-operative unions have difficulty in obtaining bank loans because they lack creditworthiness, not because the banks lack funds or are unwilling to lend. Since liberalisation of the banking sector, obtaining finance has not been a problem for creditworthy borrowers. The manager of a union-owned cotton oil mill, currently leased to an entrepreneur, noted that there had been no difficulty in obtaining a \$340,000 loan to purchase the factory and another \$300,000 loan to rehabilitate it – a 5-year loan at 12% interest from a private bank.

When asked about the union's achievements prior to the reforms, the official replied: 'We built all this infrastructure!' 'All this infrastructure' is now insolvent and up for liquidation (a cotton oil mill), run-down or underutilised (several ginneries), or abandoned (two 2,000-hectare cotton farms).

The problems with the co-operative unions were vividly described by Gibbon (1999: 135): 'Internal corruption, inefficiency, maintenance of loss-making non-core activities, ... over-manning, under-qualified management and outdated and poorly maintained plant ... remain largely uncorrected.' This description is similar to that of a government review (1999b: 14), which reported: 'A study ... on the quality of ginnery manpower working in ginneries owned by the co-operative unions found that: most of the staff were over 45 years of age; 90 percent of them were unqualified for their posts; most ginnery managers had no formal management training; above 80 percent of the ginnery workers did not meet the required minimum qualifications and their promotions were based on experience without undergoing any further formal training.' Netherlands Development Co-operation (1994: 335) reached remarkably similar conclusions: 'Studies in 1989 and 1992 judged that financial management of the [unions] was very weak, and revealed that both the Nyanza Co-operative Union and Shirecu were insolvent. They listed serious shortcomings in accountancy practices, revealed high marketing costs, and unrecoverable bank overdrafts. In addition they mentioned that the virtual absence of members' equity had made the unions become wholly financed by government, chiefly through bank overdrafts.'

More recently, *Cotton Outlook* (28 October 2002, p. 9) reported: 'Noteworthy of the [2002/2003 production] figures is the small quantity attributed to each of the two major co-operative unions. Purchases by SHIRECU and NCU are estimated at 2,648 and 1,348 tonnes, respectively. A local press report has referred to the huge debts with which NCU is burdened. The article mentions a figure of over 7 billion shillings (roughly US \$7,000,000), of which 4.5 billion (US \$4,500,000) are owed to the National Bank of Commerce.'

Source: Author's interview, 9 November 2001.

donor support (see Box 1). Both production and yields suffered. Of African cotton-producing countries, only Uganda had lower yields than Tanzania.

The post-1960 history of the cotton sector is vividly summarised in an evaluation report by Netherlands Development Co-operation (1994: 319, 321):

A striking characteristic of the cotton sector in Tanzania has been its institutional instability during the past forty years. Far-reaching institutional reforms have regularly been imposed. The history of cotton sector institutions shows an almost constant struggle among four forces: cotton growing farmers, co-operatives, private ginnery owners and the state bureaucracy. In addition, the ruling political party became involved in the struggle when it attempted to shape cotton sector institutions along ideological lines in the transition towards a socialist economy ... In fact, co-operatives became part of the political structure, and a network of bureaucrats, party officials and co-operative leaders cultivated their interests, usually to the detriment of the growers.

Five years after the unions were fully reinstated it became clear that policy reforms were the only feasible solution.

3 Developments since 1990

The first steps towards cotton reform were taken in 1989/90, when the government launched the Agricultural Adjustment Programme. The programme transferred ownership of seed cotton from the Cotton Board to the co-operative unions, and the board was converted into a fee-based marketing service for final sales and input purchases. Price controls on cotton were gradually relaxed. Starting in 1991/2, the government announced only indicative, not fixed, prices. The co-operative unions were free to determine their own producer prices for the following season. However, in order to maintain their market shares they chose to offer uniform prices throughout the country.

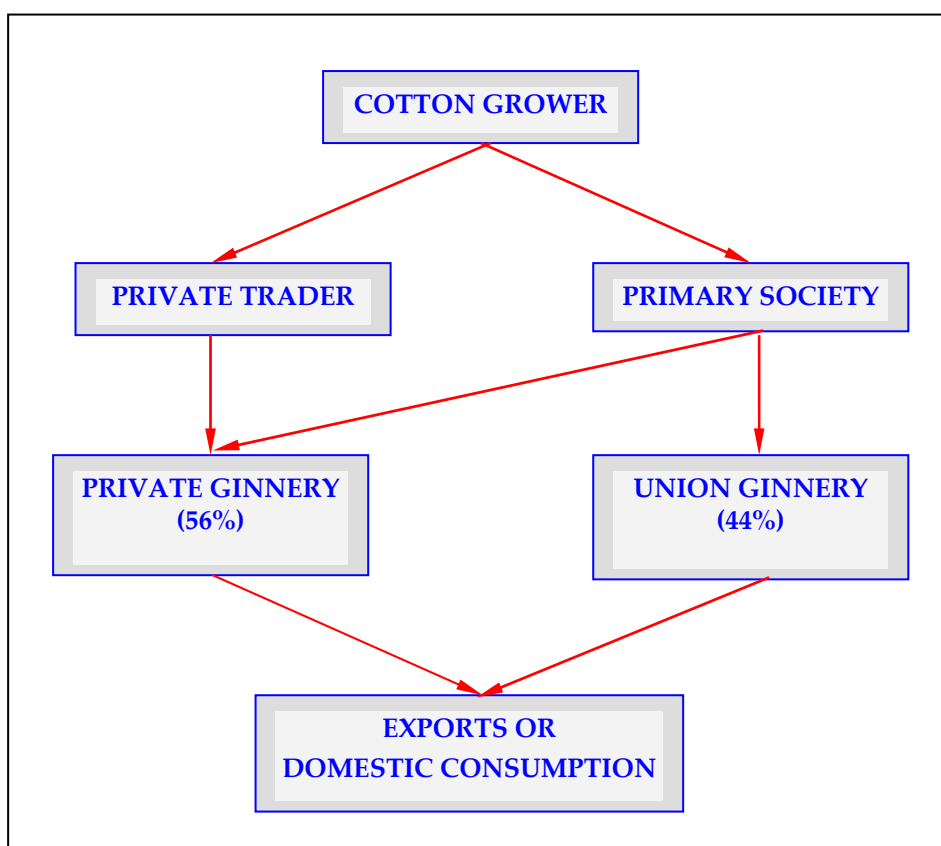
The largest reforms came with the Cotton Act of 1994, when the government formally eliminated the monopoly held by the Cotton Board and the co-operative unions and allowed competition in marketing and ginning (see Table 1 for a summary description of all institutions involved in the cotton sector). At the time there were 14 regional co-operative unions licensed to trade cotton. In 1994/5 some 22 private companies started trading cotton, and 8 new private ginneries were constructed. This opened up another marketing channel, especially in Western Tanzania. In Eastern Tanzania, where production was low and some farmers had no buyers, the Tanzanian Cotton Lint and Seed Board (the new name of the Tanzania Cotton Marketing Board as of 1995) acted as buyer of last resort (see Figure 1 for a summary description of the post-1994 marketing structure).

By 1996/7 private businesses were purchasing almost half of all cotton. Private traders and ginneries were able to capture a considerable share of the market because they offered higher prices than the co-operative unions and paid promptly. Some private ginneries also engaged in contract farming, providing inputs (seeds and occasionally fertiliser) to producers who agreed to supply cotton in return. The ginneries and

Table 1: Principal institutions involved in the cotton sector

Institution	Entity	Main functions and responsibilities
Ministry of Agriculture and Food Security	Government	Supervises the sector. Acts as liaison between the sector and the legislature and provides legal and policy guidelines. Collects and disseminates statistics.
Ministry of Co-operatives	Government	Oversees and regulates the co-operative unions. Provides policy guidance and an operational framework geared to restructuring the co-operatives to operate on an independent, voluntary, and economically viable basis and to develop into centres for providing and disseminating agricultural inputs, implements, technologies, and information.
Ukiriguru Research Station	Government	Established during the early 1930s and currently under the Ministry of Agriculture and Food Security. Conducts research on cotton-related matters, especially releasing new varieties and advising producers on recommended chemical use. In 1991, successfully released the UK91 variety, which is supposed to replace UK81 and UK87.
Tanzania Cotton Lint and Seed Board	Statutory body	Formed in 1995, effectively took over the activities of the Tanzanian Cotton Marketing Board. Its current responsibilities include advising the government on policy and strategies for developing the cotton industry; promoting development of the industry; licensing of persons engaged in the marketing and processing of cotton and cotton products; regulating for the control and eradication of cotton pests and diseases; and promoting and regulating the quality of cotton during marketing and export.
Primary societies	Private sector	Village-level associations of farmers. Often act as agents of cotton buyers. Responsible for distributing seed and other inputs to farmers. Engage in a number of other commercial and non-commercial activities.
Co-operative unions	Private sector	Associations of primary societies that often buy and gin cotton in their own facilities. Compete with private traders. Supposed to be private entities as of 1991.
Cotton Apex Organisation	Private sector	Created in 1996, membership consists of all co-operative unions involved in marketing and ginning cotton. Promotes the interests of its members.
Tanzania Cotton Association	Private sector	Established in 1998, membership consists of cotton buyers, ginners, and exporters. Aims to encourage and maintain sustainable growth of the cotton industry, promote and protect the interests of those connected with it, and advise the government on matters related to the cotton industry.

Sources: Government of Tanzania (2000); Tanzania Cotton Association (n.d.); and author's interviews.

Figure 1: Post-1994 cotton marketing chain in Tanzania

Note: The numbers in parentheses are approximate marketing shares for the 1999/2000 season.

Source: Author's interviews.

producers usually established a minimum price at planting time, but the price could be adjusted if the market price was higher during the harvest.³

3.1 Growers receive higher share of export prices but pay more for inputs

A principal argument for policy reform was the enormous gap between world prices and the prices received by the cotton growers. During the six seasons prior to the reforms, the average grower's share was 41% of the cotton export price (see Table 2 and Figure 2). In the six seasons after the reform, the share was 51%. Payments were made more promptly as well. Before the reforms growers often had to wait as long as two years for

3. On some occasions, however, private traders delayed payments to farmers, prompting the Ministry of Agriculture to issue a directive in July 1996 to revoke buying licences if payments were not made up-front (Shepherd and Farolfi, 1999).

payment. With inflation running at 20-30% a year, as noted earlier, the value of their payments was halved by the delay.

Table 2: Prices received by cotton growers, 1988/89-2000/01

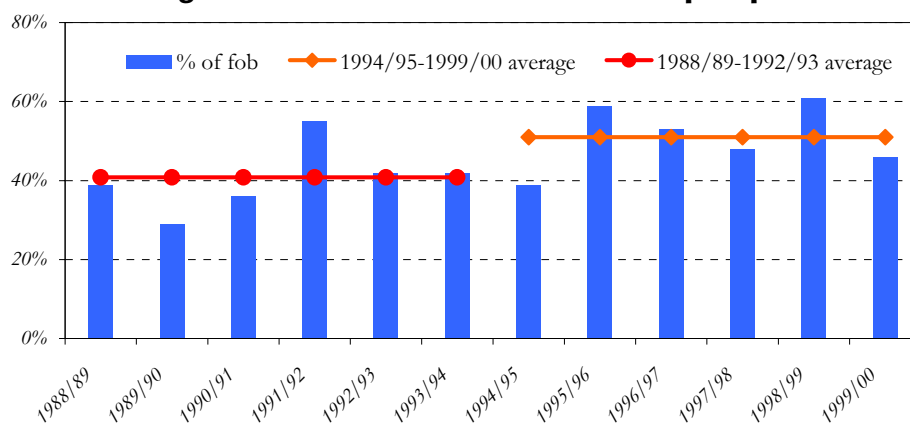
Year ^b	Exchange rate (Tsh/\$)	A Index (\$/kg)	Lint price		Seed ^a (Tsh/kg)	Producer price	
			Export (\$/kg)	(Tsh/kg)		Lint (Tsh/kg)	Share (%)
1988/89	121	1.43	1.43	173	22	67	39
1989/90	174	1.80	1.65	288	28	84	29
1990/91	207	1.84	1.66	343	41	123	36
1991/92	263	1.41	1.44	379	70	210	55
1992/93	351	1.29	1.22	429	60	180	42
1993/94	487	1.52	1.17	570	80	240	42
1994/95	539	2.02	1.69	911	120	359	39
1995/96	560	1.90	1.88	1053	207	619	59
1996/97	600	1.73	1.59	954	170	509	53
1997/98	650	1.63	1.72	1118	180	539	48
1998/99	750	1.33	1.22	915	185	554	61
1999/2000	800	1.16	0.99	792	123	368	46
2000/01	820	1.28	-	-	185	554	-

Notes: - is not available; a) converted to lint equivalent using a ginning outturn ratio of 0.334; b) refers to marketing years (July/August).

Sources: Government of Tanzania (1999b: 10, Table 5); Kabissa and Myaka (2000); and author's calculations.

The reforms also meant that input prices increased considerably, primarily a reflection of the removal of input subsidies. The average cost of pesticides, for instance, rose from 1,600 Tanzanian shillings (Tsh) a kg in 1993/4 to Tsh 5,000 in 1998/9, implying a more than 25% annual increase in nominal terms (Kabissa and Myaka, 2000).

Figure 2: Producer's share of cotton export price



Source: Government of Tanzania (1999b)

3.2 Supply response has been limited

A lack of reliable data makes it difficult to analyse the impact of the reforms on supply, but a simple comparison before and after the reforms using International Cotton Advisory Committee data indicates that cotton output doubled (from 43,000 to 94,000 tons) in the year following the reforms, before gradually dropping back to pre-reform levels. Output averaged 64,800 tons in the five seasons before the reforms and 66,400 tons in the five seasons after the reforms, a very moderate increase. But other data sources throw even this modest increase into doubt. Three different sources show no supply response after the 1994/5 policy changes, which is consistent with the large reduction in input use and the mixing of cotton varieties that took place after the reforms.

Different data sources aside, there is considerable variability in cotton production in Tanzania, where cotton is very price-responsive. A joint study undertaken by the World Bank, the government and IFPRI (1999) found that cotton's short-run supply elasticity is unity, implying that its price variability is fully translated into supply variability. This reflects the flexibility of farmers in switching back and forth between cotton and food crops.

3.3 Credit provision collapsed and input use declined

Once input supply (mainly chemicals and seeds) and credit for purchasing inputs were no longer integrated into a single cotton marketing channel, the use of inputs declined sharply. Loss of the single marketing channel pushed up the costs of marketing chemicals and led to a collapse in their supply and distribution. And most farmers could not purchase chemicals at market prices either because they could not afford credit (due to high interest rates) or because credit was denied (due to the high probability of default).

At least two credit provision schemes have been initiated to boost input use. In 1995 the government set up the Agricultural Input Trust Fund to stimulate private trader involvement in input supply and to finance purchases by the co-operative unions (Gibbon, 1999). The fund provided credit at subsidised rates. Although some unions and private traders used the fund in 1995 and 1996, low credit recovery led to the fund's demise in 1997.

In a second attempt, the Cotton Board established the Cotton Development Fund during the 1999/2000 marketing season. A 3% levy on cotton exports is paid into a trust fund used to finance purchases of cotton seed (1.35%), chemicals (1.15%), and research and development (0.5%).⁴ The inputs are distributed to registered cotton producers at below market prices, with the fund making up the difference. The fund is a forced savings mechanism; no subsidy is involved. During its first season of operation, the fund paid about 75% of the price of inputs, and producers 25%. In interviews industry representatives alleged that corruption was pervasive in the distribution chain and that substantial quantities of chemicals were diverted to the free market.

4. The contribution to the Cotton Development Fund for the 2002/3 season was set at 10 Tsh per kg, according to *Cotton Outlook* (28 June 2002). With a price of 140 Tsh per kg for seed cotton, it would imply a 7.1% contribution.

A note should be made with respect to credit recovery and defaults. While it is technically correct to argue that the input supply system was functioning well prior to the reforms as judged by the low growers' default rates, most unions dealing with sales and distribution of inputs were declared insolvent and on several occasions had to be rescued using public funds. In reality, therefore, the credit system did not collapse. The default was shifted from the co-operative unions (which were rescued with public funds) to the cotton growers (who were not rescued).

Similar problems plagued seed distribution. Until the 1997/8 cotton season, seed distribution was handled by the unions and primary societies, which were required to retain about a tenth of the seed for free distribution, while the rest was milled for oil. Once private traders took over, the quality of seeds deteriorated and growers received far less than the required 10% of seeds. After the reforms at least eight new oil mills were built in Western Tanzania, increasing the region's milling capacity by almost 50%. This intensified competition for seed, which is why traders distributed far less than the legally required 10% to growers.

3.4 Quality of cotton may have declined

Quality deterioration is a complex issue, but there appears to be agreement that the quality of cotton deteriorated after the reforms (TCLSB, 2002; Government of Tanzania, 1999a; Shepherd and Farolfi, 1999). Among a host of reasons (see Table 3), four stand out. First, as already mentioned, input use declined considerably. In extensive field studies during the 1997/8 season, Gibbon (1999) reported that procurement of insecticides by co-operatives fell from 0.34-0.5 million litres during 1993/4-1995/6 to about 0.23 million litres in 1996/7 and 72,000 litres in 1997/8.⁵ Second, zoning was abandoned. Under zoning, seed for planting would come from seed cotton ginned in a designated ginnery, in an attempt to keep pests and diseases from moving from one area to another. The construction of new ginneries and the fierce competition among new traders led to the abandonment of zoning, thus accelerating the transmission of diseases. Third, following the reforms, the two cotton varieties (UK87 with UK82) developed for use in the Lake and Southern zones became mixed.⁶ And fourth, El Niño and La Niña caused considerable damage to cotton crops during the 1997/8 and 1998/9 seasons.

The effects of two other factors sometimes put forward as causes of the decline in quality – the opening of new ginneries and the mixing of grades – are more ambiguous. While at least half the new private ginneries are of the saw type, which reportedly produces lower quality cotton, the other new roller-type ginneries produce higher quality cotton, so there should have been little net effect on quality. The effect of mixing grades is also unclear. Before the reforms, cotton was marketed as either AR (high) or BR (low) grade. Following the reforms, competition among new traders and excess ginning capacity led to the abandonment of grade separation. The fact that grading has not returned more than eight years after the reforms, however, implies that the market did not attach a significant premium to grade separation.

5. These numbers imply that most cotton growers spray at most once. Prior to the reforms growers commonly sprayed two or three times. To achieve maximum yields, the research station recommends spraying six times, which is not necessarily optimal from an economic point of view.

6. UK stands for Ukiriguru, 77 and 82 for 1977 and 1982, the years of release of the respective varieties.

Table 3: Quality deterioration after 1994/95: reasons and qualifications

Reasons	How they may have affected quality
Declining input use	Caused by removal of input price subsidies, mainly on chemicals. Any quality decline due to reduced input use reflects relative prices and hence market forces.
Abandonment of zoning	Prior to reforms cotton could be sold only to ginneries in a designated zone. Following the reforms, as cotton prices rose in the late 1990s, fierce competition and overcapacity in ginning caused abandonment of zoning, leading to a mixing of seeds and ultimately reducing cotton quality.
Mixing of UK77 and UK82 varieties	Prior to reforms, different varieties of cotton were produced in the lake and southern areas, each developed for the specific agroclimatic conditions of the area. Following the reforms the two varieties were mixed, reducing quality.
Presence of El Niño/La Niña	Exogenous shocks, recurring every five to six years, reportedly affected the quality of cotton during the 1997/98 and 1998/99 seasons.
Construction of new ginneries	Some of the newly constructed small ginneries are of the saw type, which reportedly produce cotton of lower quality. Some of the ginneries used second-hand equipment. New large ginneries of the roller type produce higher quality cotton.
Mixing of high (AR) and low (BR) cotton grades	Apart from the effects of lack of experience of new private traders in the first few years, the fact that grading did not return implies that the market did not attached a significant premium to it (i.e. the costs of grading outweigh the losses of mixing the grades.)
Premium declined slightly	In the seven seasons prior to the reforms Tanzanian cotton averaged a 10% premium over the A Index. In the seven seasons after the reforms it averaged an 8.8% premium.
Reduced storage time	Since the reforms, cotton traders and exporters have shortened the time cotton is kept in storage, slowing its deterioration.
Increased share of exports	Because more cotton is exported since the collapse of the textile industry, it may appear that the overall quality of exported cotton has declined. In fact, cotton of lower quality that might have been consumed domestically has just shifted destination.

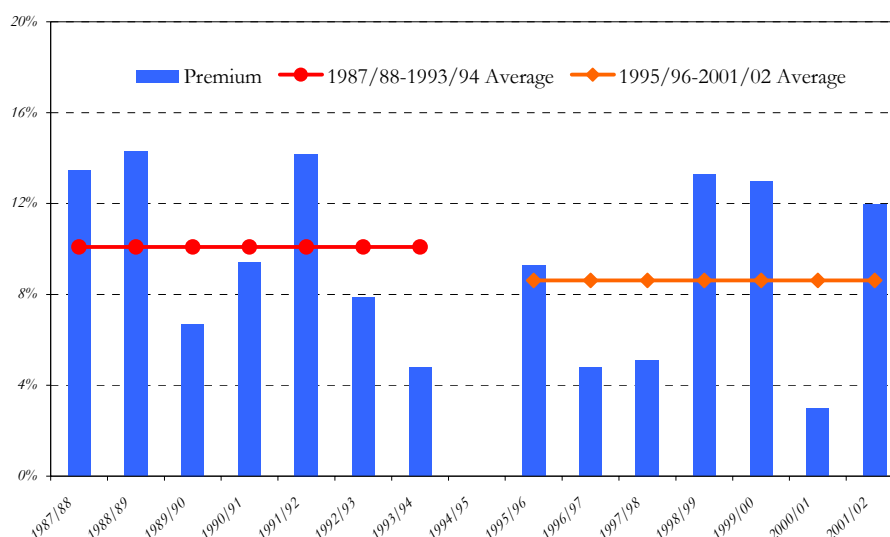
Sources: Government of Tanzania (1999a); Gibbon (1999); Shepherd and Farolfi (1999); and author's interviews.

There are also at least two factors pointing to an increase in quality. First, prior to the reforms, cotton had to wait in storage for as long as a year before it was sold. Since the reforms cotton sales have been expedited, as evidenced by the shorter period of trading in Northern Europe, falling from an average of 36 weeks between 1984/5 and 1993/4 to 14 weeks following the reforms. Interviews with local industry representatives corroborated the increased speed of sales. Second, prior to the reforms a

large share of cotton went to the domestic textile industry. Although not documented, it is likely that lower quality cotton was consumed domestically, while higher quality cotton was exported.⁷ Since the reforms, most cotton is exported. So, although the quality of exported cotton may have declined on average, it does not necessarily follow that the quality of all cotton has declined.

One quantifiable measure of cotton quality is the premium that Tanzanian cotton commands over the Cotlook A Index and its Franc Zone component (see Appendix for the definition and calculation of the A Index). In the seven seasons prior to the reforms, Tanzania's premia averaged 10% over the A Index and 10.5% over the Franc Zone quotations. In the seven seasons after the reforms, the premia fell to 8.8% and 7.9% – the 1994/5 season is not reported because Tanzanian cotton was not traded in sufficient volumes in Northern Europe that season (see Figure 3). Extending the pre-reform period to 1984/5 gives an average premium of 10.6% over both the A Index and Franc Zone quotations (Table 4). Regardless of the period used, the premia declined very little, which is consistent with only a small decline in quality.

Figure 3: Tanzania's premium over the A Index



Source: *Cotton Outlook*

It is worth contrasting these numbers with the findings of the recent Cotton Sector Development Strategy of the Tanzania Cotton Lint and Seed Board (TCLSB, 2002: 7):

Tanzania was one of the biggest producers of roller ginned cotton (30%) for which it earned a premium of up to 6 U.S. cents per pound. Another premium of 7 US cents per pound was achieved due to its cleanliness as it is hand picked. Both premiums

7. This follows the logic that lower quality products are consumed close to the production point, while quality rises the further away the consumer centre. That, of course, assumes that both cotton and textiles are priced at marginal cost. For an exposition of this see the 'Shipping the Good Apples Out' section in Silberberg (1978: 345).

have now been lost but are achievable if corrections are instituted in its handling. Until 1993, another 2 cents per kg premium would also be achievable if cotton was delivered to the market in the third quarter of the year. The sad story to date is that Tanzania's cotton has lost all these premiums and it is actually discounted some 10 cents per pound due to the decline in its quality.

Table 4: Tanzania's cotton premium over the A Index and Franc Zone, 1984/5-2001/2

Year	Number of weeks ^a	Quotation (\$ per kg) ^b			Premium (%)	
		A Index	Franc zone	Tanzania	A Index	Franc Zone
1984/5	35	1.58	na	1.78	12.8	na
1985/86	52	1.08	1.08	1.23	14.3	14.2
1986/87	52	1.37	1.40	1.49	9.0	7.4
1987/88	27	1.71	1.72	1.94	14.4	13.0
1988/89	34	1.33	1.34	1.52	14.4	13.9
1989/90	22	1.79	1.77	1.91	6.7	7.8
1990/91	27	1.81	1.80	1.98	8.9	9.8
1991/92	29	1.34	1.39	1.53	13.6	14.3
1992/93	52	1.27	1.25	1.37	7.8	10.1
1993/94	39	1.47	1.47	1.54	4.4	4.7
1994/95	0	na	na	na	na	na
1995/96	24	1.94	1.97	2.12	9.3	7.7
1996/97	15	1.67	1.67	1.75	4.8	4.7
1997/98	9	1.76	1.71	1.85	4.9	8.3
1998/99	13	1.43	1.47	1.62	13.4	9.8
1999/2000	14	1.08	1.10	1.22	13.6	11.2
2000/01	12	1.35	1.34	1.39	3.5	3.8
2001/02	11	0.92	0.94	1.03	12.3	10.0
<i>Average</i>						
1984-94	37	1.48	1.47	1.63	10.6	10.6
1987-94	33	1.53	1.53	1.68	10.0	10.5
1995-2002	14	1.45	1.46	1.57	8.8	7.9

Notes: na indicates not applicable; a) number of weeks Tanzanian cotton was traded in Northern Europe in large volumes; b) calculated for number of weeks reported in first column.

Sources: *Cotton Outlook* and author's calculations.

Between 1984/5 and 1994/5 the Tanzanian component of the A Index averaged \$1.63 per kg while the A Index averaged \$1.48 per kg, implying a premium of 15 US cents. According to the Board's analysis, prior to 1993 Tanzania enjoyed a premium of 13 [=6+7] US cents per pound, equivalent to 29 cents per kg. Between 1995/6 and 2001/2 the Tanzanian component of the A Index averaged \$1.57 per kg, while the A Index averaged \$1.45 per kg, implying a premium of 12 US cents. The Board study,

however, cites a 10 cent discount per pound, equivalent to 22 cents per kg. To summarise, while the Board's study claims that Tanzania's cotton went from a 29 cent premium to a 22 cent discount per kg – a 51 cent differential – the data reported in Table 4 indicate that it went from a 15 cent premium to a 12 cent premium – only a 3 cent differential.

The claim that market liberalisation jeopardises export crop quality has often been made in many different contexts. Gilbert and Tollens (2002: 29) examined Cameroonian cocoa exports using monthly data from 1988 to 2001, analysing the import unit values of cocoa imports into the European Union before and after reforms in 1994. They found no evidence of any significant quality problems arising from the market reforms. Furthermore, they concluded that 'government does not need to regulate in order to ensure a normal commercial outcome ... [and] concerns about export quality should not be an issue in the continuing African market liberalisation debate'.

3.5 Ginning capacity increased and marketing improved

Before the reforms there were 34 ginneries in Tanzania, 31 of the roller type. During the first three years of the reforms, 17 new private ginneries were built (Table 5). The new ginneries (8 of them of the saw type) were built either because the co-operative unions refused to allow private traders to gin their cotton on a contract basis, according to Shepherd and Farolfi (1999), or because the charges were prohibitive, according to a government report (1999b). The new private ginneries added some 16,967 tons of monthly capacity to the existing 19,148 tons of union capacity in the Western cotton-growing area. Capacity utilisation was low in both the private and the union ginneries: 9,983 tons or 59% for the private ginneries and 6,471 tons or 34% for the union ginneries.

Table 5: Post-reform ginning capacity in the Lake Zone (tons per month)

Region	No. of ginneries		Rated capacity		Actual capacity		Capacity ratio ^a	
	Union	Private	Union	Private	Union	Private	Union	Private
Mwanza	11	7	9,557	5,681	3,387	3,375	0.35	0.59
Shinyanga	7	6	7,350	6,907	2,357	4,235	0.32	0.61
Mara	3	4	2,242	4,679	727	2,372	0.38	0.54
Total	21	17	19,148	16,967	6,471	9,983	0.34	0.59

Note: a) ratio of actual to rated capacity.

Sources: Government of Tanzania (1999a: Annex 7, p.32). Original data from the Tanzania Cotton Lint and Seed Board (reported in bales).

During the second year of the reforms, the private sector took over more than a quarter of cotton marketing and as of 1997/8 the Board withdrew completely from cotton marketing (Table 6). The private sector markets almost two-thirds of the cotton, and the unions the rest. Entry by private traders was not problem-free. In the early years of the reforms cotton marketing was disrupted in many areas. Traders in remote areas, especially in the Eastern cotton-growing area, paid very little for cotton, in part because

the farmers were unaware of market prices and in part because of high transport costs. These problems have been rare in recent seasons.

Table 6: Post-reform cotton marketing shares, 1994/5-1998/9

Year	Unions		Private Traders		Cotton Board		Total Tons
	Tons	Share (%)	Tons	Share (%)	Tons	Share (%)	
1994/5 ^a	103,981	85	11,009	9	7,340	6	122,330
1995/6	162,161	70	61,841	27	6,455	3	230,457
1996/7 ^a	150,254	60	89,813	35	12,076	5	252,143
1997/8	90,174	43	116,906	56	1,075	1	208,155
1998/9	58,754	44	74,778	56	0	0	133,532

Note: a) data for these seasons exclude the Eastern Cotton Growing Area.

Sources: Government of Tanzania (1999a: 11, Table 6). Original data from Tanzania Cotton Lint and Seed Board.

3.6 The research station released a superior cotton variety

The Ukiriguru research station, under the Ministry of Agriculture and Food Security, conducts nearly all cotton research for the Western cotton-growing area. (Research for the Eastern cotton-growing area is carried out at the Ilonga research station in Morogoro; the station has released two important varieties, IL74 and IL85.) The Ukiriguru station developed and released two cotton varieties, UK77 for use in the northern zone (Kagera, Mara, and Mwanza) and UK82 for the southern zone (Shinyanga and Tabora). Because the varieties were developed for the specific agroclimatic conditions of each zone, cotton yields declined when the two varieties were mixed following the 1994 reforms.

Three years before the reforms the Ukiriguru station released a new cotton variety, UK91, which research data and interviews with local researchers suggest is superior to both UK77 and UK82 releases and could result in higher yields. However, achieving the higher yields requires the multiplication and release of enough UK91 to replace the older varieties and to forestall mixing with existing varieties. That, in turn, will require a concerted effort by the Cotton Board, the Ministry of Agriculture and Food Security, and the Tanzanian Cotton Association.⁸

8. Another important development that may have affected the demand side of the cotton industry was the discontinuation of support to the domestic textile industry and its eventual collapse. Tanzania's textile industry got its start in the early 1970s as part of the government's efforts to industrialise the economy. Domestic and donor-financed investment helped a number of textile mills begin operation, and by the 1980s there were more than 30 mills with an annual capacity of almost 50,000 tons of yarn. More than 80% of mill capacity was under state ownership or control. At its peak the industry absorbed about a third of domestic cotton production. Though appearing successful, the textile industry was kept alive only through government protection and subsidies (Government of Tanzania, 1999b: 5). Once government support came to an end, the industry was unable to survive international competition, and all but three textile mills went out of business.

4 Constraints and challenges

Despite the achievements to date, several issues still need to be addressed. The tax code could be simplified, and taxes lowered. The state's involvement in the sector could be reduced in most areas, with the exception of seed multiplication. Better data are needed, along with better dissemination of information.

4.1 Taxes are too high – and they are not being paid

Before the reforms, cotton sector taxes were administered centrally by the Prime Minister's Office in consultation with the Ministry of Agriculture and the Cotton Board. Now cotton, like all other export crops, is subject to a host of taxes, levies, and fees administered at both district and central government levels.

A government study of the tax structure in 1998/9 (Government of Tanzania, 1999b) found that the tax burden on cotton was more than 13% of the producer price (7.7% for district taxes and 5.1% for central taxes). Local taxes include a produce assessment and education fund tax; central taxes include a Cotton Board application fee, export licence fee, ginning licence fee, Cotton Board fee, stamp duty, withholding tax, and export duty, for a total of 24.43 Tsh per kg, based on a producer price of 185 Tsh per kg (Table 7). And there are still other fees, including the Cotton Development Fund fee and fees payable to the co-operative unions and primary societies. When all fees and taxes are accounted for, the tax burden exceeds 20% of the price received by producers.

Table 7: Composition of taxes on cotton, 1997/8 and 1998/9

Tax	Tsh per kg		% of producer price	
	1997/8	1998/9	1997/8	1998/9
Export price	309.00	236.00	na	na
Producer price	202.00	185.00	na	na
<i>Local taxes</i>	10.10	14.20	5.00	7.68
District produce cess	6.20	9.20	3.07	4.97
Education fund	3.90	5.00	1.93	2.70
<i>Central taxes</i>	18.37	10.23	8.70	5.10
Board application and licence fee	0.14	0.14	0.07	0.08
Export licence (\$2,000, flat fee)	0.43	0.43	0.21	0.23
Ginning licence (\$1,000, flat fee)	0.22	0.22	0.11	0.12
Board fee (0.8% of export price)	1.54	1.89	0.76	1.02
Stamp duty (1.2% of export price)	3.70	2.83	1.83	1.53
Withholding tax (2% of export price)	6.17	4.72	3.05	2.55
Export duty (2% of export price)	6.17	na	3.05	na
Total taxes ^a	28.47	24.43	14.09	13.20

Notes: na indicates not applicable; a) does not include the Crop Development Fund or union and primary society fees.

Source: Government of Tanzania (1998 and 1999a) and author's calculations.

In addition to these direct taxes on cotton, there are sector-specific or economy-wide distortions that impose an even larger burden on the sector. These costs have increased enormously in the past decade. Another government report (2000) found that nominal protection rates in the sector increased from -17.9% for 1986-9 to -69.0% for 1990-93 and -67.7% for 1994-9, with the negative sign indicating taxation of the sector. Most of the outflow of resources was a result of direct interventions.⁹

While the taxes and other levies are high, numerous studies claim that the full amounts are not being paid:

- 'There seems to be some skepticism among Unions and private buyers whether everyone is paying the required levies and cesses' (Akiyama and Larson, 1995: 5).
- 'Unless they were systematically under-declaring their seed cotton purchases and/or otherwise avoiding taxation – they were entailing losses' (Gibbon, 1999: 144).
- 'The data on exports as given by various private export firms are unrealistic and in most cases they are understated to avoid some levies and taxes imposed by various authorities' (Government of Tanzania, 1999b: 25).
- 'Oppressive tax enforcement, harassment of taxpayers, and discontent with public service delivery seem to increase tax resistance and may explain widespread tax evasion' (Fjeldstad and Semboja, 2001: 2059).
- 'Most importantly, lack of transparency and accountability with regard to how such taxes are utilized by concerned authorities has been irksome. As a result of taxes accounting for up to 20% of farm-gate price, there has been rampant underreporting of purchases or even more mundane ways of tax evasion have been crafted' (TCLSB, 2002: 13).

Although it is difficult to quantify these claims, that they come from such diverse sources adds considerable weight to the conclusion that tax avoidance or evasion is widespread.

4.2 The Cotton Board has too many roles – and too much power

The Cotton Board has several roles. It regulates the industry, inspects the quality of lint and other by-products, announces indicative prices, and collects and disseminates statistics.

The Board is supposed to certify the quality of seed cotton collected at all buying posts and to inspect the variety and quality of lint at the ginneries. A lack of adequate resources severely limits these inspections, however. In practice, ginneries send samples to the Board from each bale of cotton ginned, and the Board simply informs ginneries if samples are deficient. Cotton is seldom inspected at buying posts. In order to be more

9. The nominal rate of protection or taxation provides a comprehensive measure of the incentives or disincentives to a particular sector from sector- and economy-wide policies, including agricultural marketing and pricing policies, exchange-rate policies, import duties on manufactures, and explicit taxes on exports. The direct effects come primarily from pricing policies and include the direct and implicit taxes on export crops and the monopsonistic behaviour that widens the gap between producer and export prices. The indirect effects come mainly from the impact of trade and macroeconomic policies.

effective, the Cotton Board has hired a private company (funded by the Cotton Development Fund) which has placed inspectors at every ginnery in order to monitor the quality of cotton since the 2000/01 season. These inspectors were given the right to 'reject' cotton. Not only is it not clear what 'rejection' means, but the quality control scheme appears not to be functional at all. Corruption also appears to have been a major problem. Interviews with ginning staff indicated that quality inspectors would 'accept' or 'reject' cotton on the basis of whether a side-payment of the equivalent of US\$30 per truckload had been made.

By statute the Board is supposed to 'ensure free competition, fair trade, and to set and monitor indicative prices as established by market forces' (TCLSB, 2002: 25). For example, for the 2002/3 season, the Board, along with the Tanzania Cotton Association, announced that the minimum price to be paid to farmers would be 140 Tsh per kg. However, this is a dangerous practice. If the prevailing price is above the 'indicative' price, the announcement motivates traders to collude and refuse to pay more than the indicative price. On the other hand, if the prevailing price is much lower than the indicative price, farmers may view the indicative price as a guaranteed price and refuse to sell their cotton at the prevailing price.

The power of the Board also appears to be excessive. According to the 2001 Cotton Industry Act, '[The Board is entitled] to do anything or enter into any transaction which in the opinion of the Board is calculated to facilitate the proper and efficient carrying out of its activities and the proper exercise of its functions under the provision of this Act' (TCLSB, 2002: 25). The Cotton Board should withdraw from interventions in the quality and price of cotton, which ought to be the sole responsibility of the private sector. The Board's involvement in these practices simply adds one more unnecessary layer of bureaucracy. Instead, the Board should focus on a few core activities, including the collection and dissemination of statistical data and seed multiplication.

4.3 Data quality is unacceptable

The poor quality of data is a major concern, as the government acknowledged in its review (1999a):

The [cotton] industry is also facing the problem of discrepancies of its data. Data from various sources on the same issue has been quite different. The sources of information on cotton usually are Customs, the Bank of Tanzania, the Ministry of Agriculture and Co-operatives, and the TCLSB. The differences in the data could be eradicated or narrowed down through regular reconciliation by those institutions mentioned above.

Table 8 gives a sense of the data problems. It reports four sets of data on cotton production between the 1986/7 and 1998/9 seasons: one from the International Cotton Advisory Committee (ICAC) and three from the government's cotton sector review (1999a: 19, Table 10, which draws from TCLSB, 2002: 32, Annex 1, which lists no source; and the Annex 4 table Cotton Production since 1922, also from TCLSB). The deviations between the three sets of government data and the ICAC figures are revealing. For the 1992/3 season, for example, the government data on page 32 of the report are 118% higher than the ICAC figures and the data from Annex 4 are 101% higher. Trying to gauge the degree of supply response by comparing pre- and post-1994

averages would yield results ranging from a 15% reduction (Annex 4 data), through reductions of 8% (page 19 data) and 4% (page 32 data), to an 8% increase (ICAC data).

Table 8: Cotton production according to various sources, 1986/7-1998/9

Year ^a	Production (tons)			ICAC	% over ICAC		
	Government of Tanzania				p.19	p.32	Annex 4 ^b
	p.19	p.32	Annex 4 ^b				
1986/7	37,662	73,743	67,553	72,000	-48	2	-6
1987/8	48,605	86,290	79,610	85,000	-43	2	-6
1988/9	72,562	65,154	54,177	64,000	13	2	15
1989/90	48,137	62,101	35,504	38,000	27	63	-7
1990/1	45,740	47,952	48,688	51,000	-10	-6	-5
1991/2	71,414	90,770	85,500	106,000	-33	-14	-19
1992/3	62,054	104,816	96,372	48,000	29	118	101
1993/4	67,761	50,234	45,666	43,000	58	17	6
1994/5	38,968	42,650	40,431	94,000	-59	-55	-57
1995/6	55,956	75,194	82,756	84,000	-33	-10	-1
1996/7	69,617	85,147	86,931	66,000	5	29	32
1997/8	60,938	68,411	62,301	45,000	35	52	38
1998/9	36,200	45,404	36,453	55,000	-34	-17	-34
Average							
1986-94	56,742	72,633	64,134	63,375	-10	15	1
1994-9	52,366	63,336	61,775	68,800	-24	-8	-10

Notes: a) refers to marketing years, which begin on 1 July for Tanzania and 1 August for the International Cotton Advisory Committee (ICAC); b) production in bales was converted to tons using a 181 kg per bale conversion factor.

Sources: Government of Tanzania (1999b) and International Cotton Advisory Committee.

5 Conclusion

In some respects the cotton sector reforms have been successful. Producers receive a higher share of export prices, and they receive payments on time. Ginning capacity has increased enormously. Cotton moves more quickly through the marketing chain. And while there are many reports of a deterioration in quality, there is no evidence, apart from the mixing of cotton varieties, that anything but market forces is behind the small change.

But many areas still need attention if the sector is to reach its full potential. Taxes should be reduced substantially, the tax code simplified, taxes consolidated and rationalised, and tax rates made uniform across all exports. This more equitable distribution of the tax burden should help to induce a supply response. Lowering taxes should improve compliance and boost tax revenues.

The Cotton Board should withdraw from activities such as quality monitoring and announcing indicative prices. Instead, it should assume full responsibility for collecting and disseminating accurate statistics. That information would help to guide government policy and private sector investment decisions. Finally, seed multiplication of the UK91

variety is another area where the Cotton Board (along with the research station) should focus its energy.

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Appendix: The Cotlook A and B Indices

The Cotlook A Index – the barometer of the cotton market, considered the world price of cotton – is the average of the 5 lowest quotations of 16 styles of cotton (Middling 1-3/32'') traded in North European ports from the following origins: Australia, Brazil, China, Francophone Africa, Greece, India, Mexico, Pakistan, Paraguay, Spain, Syria, Tanzania, Turkey, the United States, and Uzbekistan. The Cotlook B Index is the average of the three lowest quotations of eight styles of coarser grades of cotton from Argentina, Brazil, China, India, Pakistan, Turkey, the United States, and Uzbekistan.

The indices are compiled daily by Cotton Outlook, a private company in Liverpool. Staff collect quotations by interviewing cotton traders and merchants in Northern Europe, and they also look at other market developments likely to affect cotton prices. These offering prices and the day's indices are published at about 2:30 p.m. UK time.

The prices are expressed in US cents per pound, cif Northern Europe, cash against documents on arrival of vessel, including profit and agent's commission. When a particular cotton growth is not offered in large volume, the quotation is still reported, but it is not eligible to participate in the index. The index is based on the three or five least expensive quotations because quotations reflect offering prices, not the level at which business has been arranged, so a buyer would normally expect to succeed with bids that are slightly lower than quoted.

The quotations represent nearby delivery, normally between two and four months. A dual quotation is reported when information on supply conditions of the next cotton season is readily available: one for nearby delivery and one for forward delivery. For example, quotations on 12 July 2001 refer to July/August 2001 delivery (nearby) and

October 2001 to May 2002 delivery (forward). Table A1 depicts the composition of the Cotlook A and B Indices for three randomly selected dates: 12 July (nearby and forward delivery), 30 August (nearby delivery), and 18 October 2001 (nearby delivery).

Table A1: Composition of the Cotlook A and B Indices (US cents per pound)

Origin	12 July 2001 (nearby)	12 July 2001 (forward)	30 August 2001 (nearby)	18 October 2001 (nearby)
Australia	50.00	52.25	51.50	44.25
Brazil	46.50	46.00 ^a	43.00 ^a	nq
China	nq	nq	nq	nq
Africa, Franc Zone	47.00 ^a	45.50 ^a	43.25	38.00 ^a
Greece	44.00 ^a	44.75 ^a	42.00 ^a	35.25 ^a
India	nq	nq	nq	nq
Mexico	nq	nq	nq	nq
Pakistan	nq	nq	nq	nq
Paraguay	45.00 ^a	nq	nq	nq
Spain	49.50	46.00 ^a	43.00 ^a	38.25 ^a
Syria	47.00 ^a	46.50	42.00 ^a	36.00 ^a
Tanzania	nq	49.00	47.00	nq
Turkey	nq	nq	nq	nq
US (California/Arizona)	50.50	53.75	50.50	42.25
US (Memphis/Eastern)	52.00	53.00	49.75	40.50
Uzbekistan	47.00 ^a	45.50 ^a	42.50 ^a	36.00 ^a
<i>A Index</i>	46.00	45.55	42.50	36.70
Argentina	45.50 ^b	nq	nq	nq
Brazil	nq	43.50 ^b	40.50 ^b	37.00
China	nq	nq	nq	nq
India	nq	nq	nq	nq
Pakistan	nq	44.50 ^b	41.50	33.50 ^b
Turkey	nq	nq	nq	nq
US (Orleans/Texas)	43.00 ^b	45.00	41.25 ^b	34.00 ^b
Uzbekistan	45.00 ^b	44.00 ^b	41.00 ^b	34.50 ^b
<i>B Index</i>	44.50	44.00	40.90	34.00

Notes: nq is no quotation is available from this origin that week; a) one of the five least expensive; b) one of the three least expensive.

Source: *Cotton Outlook*, 13 July, 31 August and 19 October 2001 issues.