MONITORING AFRICAN FOOD AND AGRICULTURAL POLICIES (MAFAP)

REVIEW OF FOOD AND AGRICULTURAL POLICIES IN THE UNITED REPUBLIC OF TANZANIA 2005-2011

COUNTRY REPORT

JULY 2013

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Monitoring African Food and Agricultural Policies

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Suggested citation:

MAFAP (2013). Review of food and agricultural policies in the United Republic of Tanzania. MAFAP Country Report Series, FAO, Rome, Italy.

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Acronyms

ACT	Agricultural Council of Tanzania
ADB	African Development Bank
AFSP	Accelerated Food Security Project
AGITF	Agricultural Inputs Trust Fund
AMSDP	Agricultural Marketing Systems Development Programme
ASDP	Agricultural Sector Development Programme
ASDS	Agricultural Sector Development Strategy
ASLM	Agricultural Sector Lead Ministries
BOT	Bank of Tanzania
CAADP	Comprehensive Africa Agriculture Development Programme
CBO	Community-Based Organization
CBT	Cashewnut Board of Tanzania
CET	Common External Tariff (EAC)
CIF	Cost, Insurance, Freight
COMESA	Common Market for Eastern and Southern Africa
CSO	Civil Society Organization
DASIP	District Agriculture Sector Investment Project
DFID	Department for International Development
DPI	Development Performance Indicator
EAC	East African Community
EAGC	Eastern Africa Grain Council
EIU	Economist Intelligence Unit
ESRF	Economic and Social Research Foundation
EU	European Union
FOB	Free On Board
FRA	Global Forest Resources Assessment (FAO)
FYDP	Five-Year Development Plan
GDP	Gross Domestic Product
GIEWS	Global Information and Early Warning System of the Food and Agricultural Organization of the UN
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IMF	International Monetary Fund
LEAT	Lawyers' Environmental Action Team
LGA	Local Government Authority
MACEMP	Marine and Coastal Environment Management Project
MAFAP	Monitoring African Food and Agricultural Policies
MAFC	Ministry of Agriculture, Food Security and Cooperatives
MDG	Market Development Gap
MEVT	Ministry of Education and Vocational Training
MFN	Most-Favoured Nation
MKUKUTA	National Strategy for Growth and Reduction of Poverty

MLFD	Ministry of Livestock and Fisheries Development
MoF	Ministry of Finance and Economic Affairs
MRAF	Medium-Term Expenditure Framework
MTI	Ministry of Trade and Industry
NAIVS	National Agricultural Input Voucher Scheme
NBS	National Bureau of Statistics
NFRA	National Food Reserve Agency
NPS	National Panel Survey
NRA	Nominal Rate of Assistance
NRP	Nominal Rate of P
OECD	Organisation for Economic Co-operation and Development
PADEP	Participatory Agricultural Development and Empowerment Project
PMO-RALF	Prime Minister's Office – Regional Administration and Local Government
PRS	Poverty Reduction Strategy
RESAKSS	Regional Strategic Analysis and Knowledge Support Systems
R&D	Research and Development
RFSP	Rural Financial Services Programme
RLDC	Rural Livelihood Development Company
RPFB	Rolling Plan and Forward Budget
SACCO	Savings And Credit Cooperative
SADC	Southern African Development Community
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SBT	Sugar Board of Tanzania
SUMATRA	Surface and Maritime Transport Regulatory Authority of Tanzania
TAFSIP	Tanzania Agriculture and Food Security Investment Plan
TCfB	Tanzania Coffee Board
TCtB	Tanzania Cotton Board
TDV	Tanzania Development Vision
TFNC	Tanzania Food and Nutrition Centre
UDSM	University of Dar es Salaam
UN	United Nations
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
URT	United Republic of Tanzania
USAID	United States Agency for International Development
VAT	Value-Added Tax
WCGA	Western Cotton Growing Area
WDI	World Development Indicator
WHO	World Health Organization
WRS	Warehouse Receipt System
WTO	World Trade Organization

Acknowledgements

This report is a product of a joint and collaborative work involving many people and institutions within FAO, OECD and partners in the United Republic of Tanzania from the Economic and Social Research Foundation (ESRF) and the Ministry of Agriculture, Food Security and Cooperatives (MAFC). This preparation of the report was coordinated by Jesús Barreiro-Hurlé (FAO).

Part 1 was drafted by Hoseana Lunogelo (ESRF), Agnese Bazzucchi (FAO) and Sunae Kim (FAO). It was compiled and revised by Jesús Barreiro-Hurle (FAO). Alban Mas Aparisi (FAO) undertook a final revision of the section and provided valuable comments.

Part 2 was compiled and revised by Jesús Barreiro-Hurle (FAO). Price incentives and disincentives analysis is based on a series of commodity specific technical notes which were drafted by Solomon Baregu (ESRF), Festo Maro (ESRF), Lutengano Mwinuka (U. of Dodoma), Nganga M. Nkonya (MAFC), and Jesús Barreiro-Hurle (FAO). The analysis of public expenditure was undertaken by Joanna Ilicic-Komorowska (OECD) with the support of Jesús Barreiro-Hurle (FAO), Happy Pascal (MAFC) and Festo Maro (ESRF). The MAFAP secretariat team at FAO and the PSE Advisory Group at OECD provided valuable inputs for the drafting of these notes. The Ministry of Trade and Industry, the Ministry of Finance, the National Bureau of Statistics, the Tanzania Cotton Board, the Cashew Board of Tanzania, the Tanzania Coffee Board and the Sugar Board of Tanzania were instrumental in facilitating the access to the underlying data used in the analysis. In addition, Helen Gourichon (FAO) and Luis Monroy (FAO) contributed to the drafting of the policy coherence section. Preliminary results of this part were presented in Dar es Salaam to a meeting of the Agricultural Sector Working Group in November 2012 and their feedback incorporated into this final version. Jean Balie (FAO) and Federica Angelucci (FAO) revised this section providing additional and relevant inputs.

Part 3 was drafted Jesús Barreiro Hurle (FAO), with contributions of Festo Maro (ESRF) and Solomon Baregu (ESRF) under the guidance of Hoseana Lunogelo (ESRF). Mohamed Ahmed (FAO), Seth Meyer (FAO) and Piero Conforti (FAO) revised this section providing additional and relevant inputs. Special thanks goes to the GIEWS team at FAO for providing access to the price data used for the analysis.

The OECD PSE Advisory group revised an earlier draft of the report providing very useful insights that have improved overall readability and accuracy of policy evaluation.

A final draft of the report was presented to the MAFC Management on June 2013. Following the presentation detailed feedback was provided to the drafting team.The incorporation of these feedback was instrumental on the quality and comprehensiveness of the final version of the report.

The full report was revised by Jane Shaw and Maria Giannini for language, layout and proofing. The executive summary was revised by Robert Brinkman.

Special thanks are given to Diana Tempelman (FAO Representative to the URT) and Dr. Emmanuel Achayo (Director of Policy and Planning at the MAFC) for their overall support and commitment to facilitate the work.

ORGANIZATION AND PARTNERS

The MAFAP project in the United Republic of Tanzania is implemented in collaboration with the Ministry of Agriculture, Food Security and Cooperatives (MAFC) and the Economic and Social Research Foundation (ESRF). Staff from these two institutions are involved in the calculation of the indicators and are expected to continue updating this analysis in a regular basis with the support of the MAFAP secretariat. MAFC plays an active role in putting forward MAFAP results as inputs to different forums where agricultural policy is discussed.

EXECUTIVE SUMMARY

This report presents findings from the first agricultural policy review conducted by the Monitoring African Food and Agricultural Policies (MAFAP) project in the United Republic of Tanzania. The report reviews key economic issues and the main policy decisions affecting the agricultural sector. In particular, it focuses on price incentives and disincentives faced by farmers and consumers of nine agricultural commodities which make up a significant part of agricultural production, imports, exports and diet. It also presents a detailed analysis of the composition and level of public expenditure to support the agricultural sector. The periods analysed were 2005 to 2010 for commodities and 2006 to 2011 for public expenditure. Finally, it reviews the impact of the maize export ban on farmers and consumers.

The report offers results based on using MAFAP's rigorous methodology for measuring the effects of agricultural and food policies, as well as public spending, on agriculture and rural development. Its findings and recommendations are expected to support the dialogue on agricultural and food policies in the United Republic of Tanzania. The MAFAP project in the United Republic of Tanzania is implemented in collaboration with the Ministry of Agriculture, Food Security and Cooperatives (MAFC) and the Economic and Social Research Foundation (ESRF).

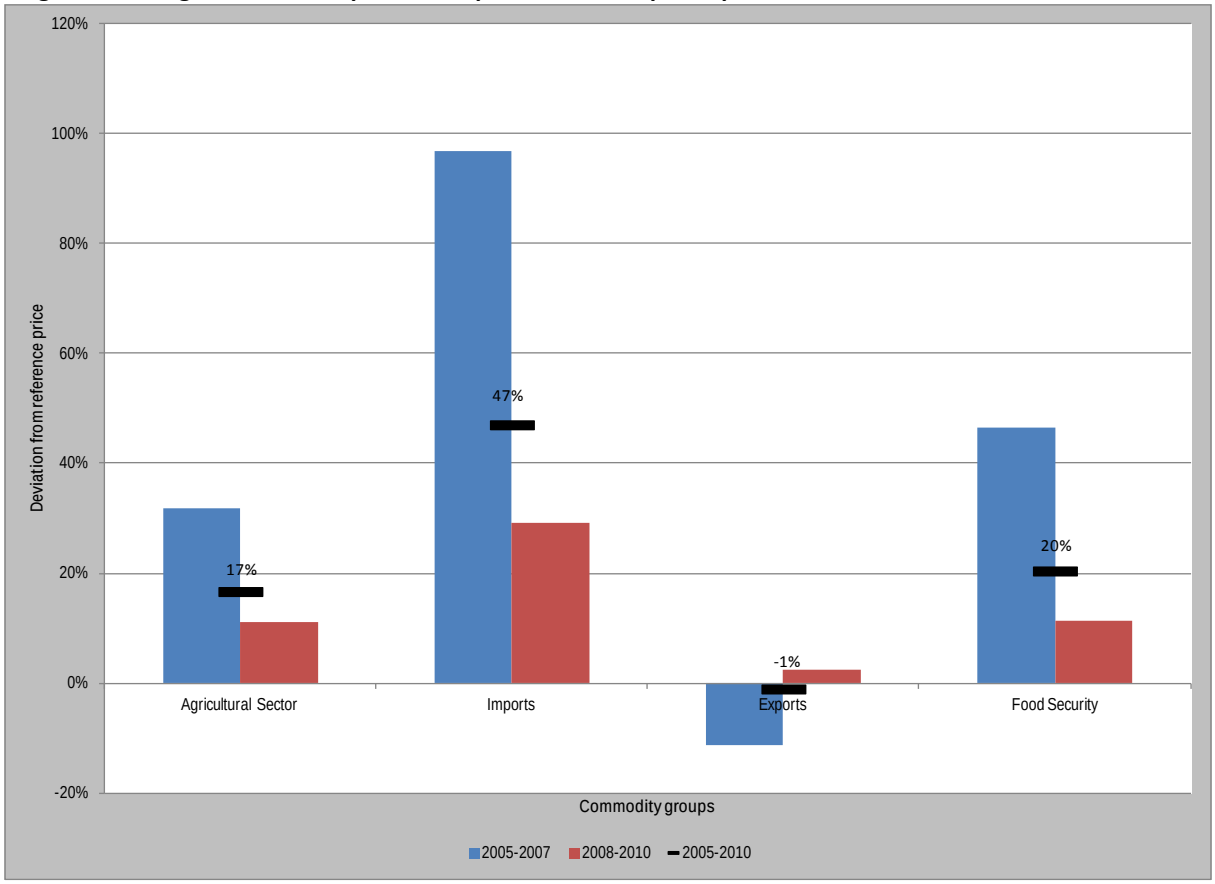
Key Findings

- **About 75 percent of the population of the United Republic of Tanzania is employed in agriculture, but productivity is among the lowest in sub-Saharan Africa.** Low productivity is mostly due to over-reliance on unpredictable natural precipitation, use of manual labour to work the land, the limited use of improved seed and fertilizer, and low-productivity indigenous animal breeds. Agriculture, which in the past ten years has been growing at the rate of about 4.2 percent annually, makes up a quarter of the URT's gross national domestic product, and about 34 percent of foreign exchange earnings.

- **Despite progress made in adopting a more coordinated sectoral approach with initiatives such as Kilimo Kwanza and the Agricultural Sector Development Strategy (ASDS), agricultural policies in Tanzania are still implemented through a myriad of programs and projects.** Government decisions on trade, especially those relating to tariffs, are numerous and sometimes contradict other policy objectives. While markets have been liberalized to a great extent, indicative prices persist for several commodities. Indeed, the government intervenes directly through the National Food Reserve Authority. Furthermore, commodity boards play a significant role for specific commodities (mainly export products but also sugar). The agricultural sector is still subject to export taxes and high local taxation; and ad-hoc interventions such as tariff waivers and export bans are frequent. Moreover, the lack of transport and storage infrastructure impedes market integration and processing plants are largely obsolete.

- **Producers in the URT benefited from price incentives, although these decreased from 2005 to 2010. Policies and market performance keep prices high for consumers but low for producers of export commodities.**

Figure i. Average deviation of producers' prices from the prices producers would receive in world markets



Note. The bars show the percentage of deviation of producers' prices from the prices producers would receive in world markets (reference price). Imports include rice, sugar, wheat and cow milk; exports include cotton, coffee, cashew nuts and pulses; food security crops include maize, sugar, wheat, rice and beans.
Source: MAFAP

- **This trend for decreasing incentives masks a contradictory situation: producers of imported commodities received price incentives while producers of exported commodities received disincentives.** Producers of exported commodities received lower prices than they could have obtained because of policies, traders' high market power and inefficient processing facilities. Moreover, some commodities were protected at the wholesale (processed) level but penalized at farmgate (raw) level. This has had a negative impact on food security by making food less affordable and scarcer.

- **Most of the incentives for imported commodities were due to trade policies, while disincentives for export commodities related to taxes and inefficient processing industries.** In addition, some of the protection for imported goods offered by trade policies was eroded by excessive marketing costs along the value chain.

- **Farmers producing commodities which the URT imports to cover domestic consumption received incentives.** The common external tariff which the URT applies to imports from outside the East African Community (EAC) helps keep prices higher for producers. The only exception is sugar, whose producers face strong disincentives. For all imported commodities,

protection at the farmgate was eroded by high transport and marketing costs due to a lack of market integration and inefficiencies in the value chain.

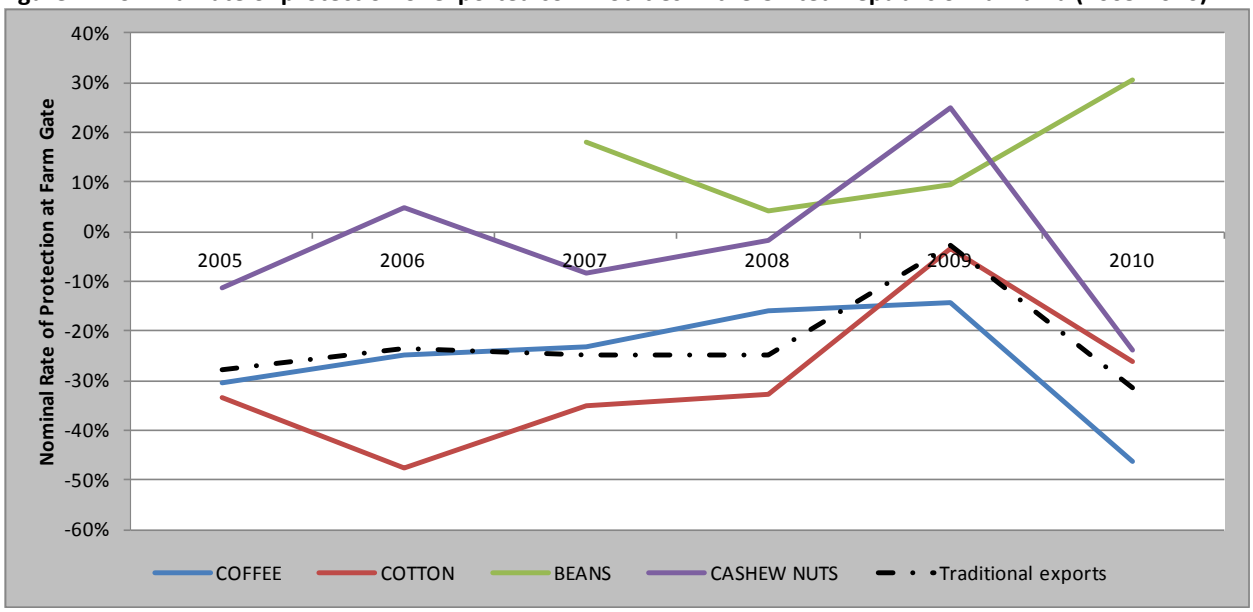
- **Sugarcane growers did not benefit from protection offered by tariffs and did not seem to be affected by changes in trade policy.** Inefficient sugar mills kept prices lower than they could have been for sugar farmers. The government should consider removing the sugar import tariff, as it keeps sugar prices high without benefiting farmers. Investments in making sugar mills more efficient should be facilitated so that processors will be able to pay sugarcane producers more.

- **The reduction of incentives for imported products reflects the impact of tariff waivers and increased self-sufficiency ratios for rice.** In response to the 2008 high food price crisis, the URT partially waived tariffs for wheat and sugar. This measure was not as effective as expected since domestic wheat and sugar prices remained higher than international benchmark prices. Rice farmers received more incentives than rice wholesalers. However, this situation was reversed after the rice sector was liberalized in 2007.

- **Farmers producing export commodities would have obtained higher prices in a policy-free environment and with better market performance.** Factors which kept producers' prices low included taxes on cotton, cashew nuts; poorly functioning value chains for coffee, and cashew nuts; and inefficiencies in the cotton processing sector.

- **From 2005 to 2010, producers of pulses received higher prices but producers of traditional exports were penalized.** Average domestic prices for pulses were higher than export prices. This would usually be considered as an incentive for producers, however, in this specific case, a lack of storage facilities forced traders to export pulses when prices were low. Producers thus missed the opportunity to benefit from higher non seasonal prices in domestic markets.

Figure ii. Nominal rate of protection of exported commodities in the United Republic of Tanzania (2005-2010)



Note: Traditional export crops include coffee, cotton and cashew nuts

Source: MAFAP

- **Producers of commodities important for food security received relatively higher prices, but consumers also paid higher prices.** Incentives made food less affordable for consumers and

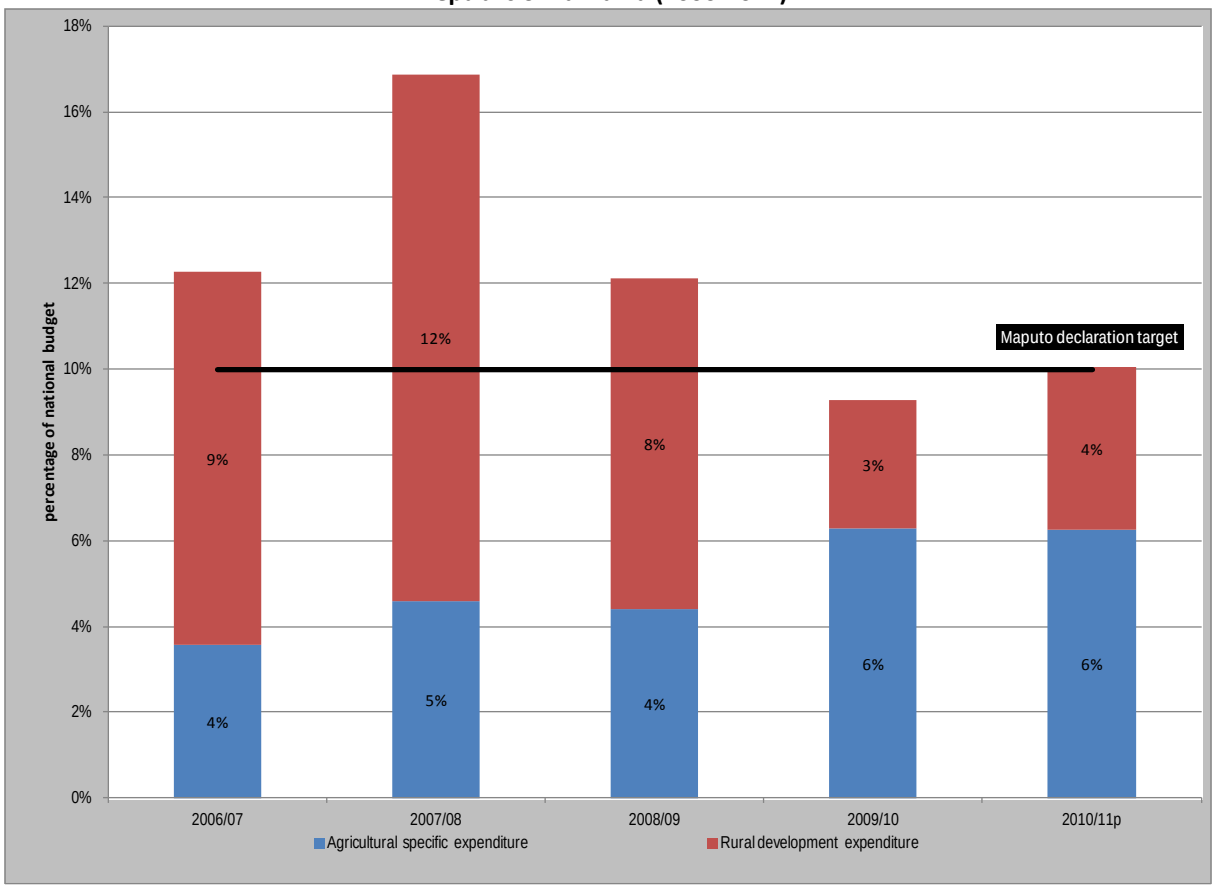
overall analysis shows a conflicting impact on food security. On one hand, farmers received support and were thus more likely to increase investments and production. This has been most apparent for rice, where the URT has gone from being an importing country to a net exporter. However, incentives for other commodities have not had a positive impact on domestic food availability.

- **Excessive marketing costs reduced the benefits of protection and kept producers' prices for all commodities lower than what they could have been.** However, in general, policies and the lack of functioning markets create more disincentives than excessive marketing costs.

- **Public expenditure to support agriculture has been declining.** While the total approved budget for the agricultural sector grew by 53 percent in nominal terms from 2007 to 2011, in relative terms it declined from almost 13 percent of total government spending in 2007 to about 9 percent in 2011. Actual spending grew at a slower pace and, in relative terms, decreased significantly in this period. Although public spending was above the Maputo Declaration target from 2007 to 2009, it has since remained below the target.

- **The composition of public spending has shifted from rural development to agriculture-specific expenditure.** In the first half of the period studied, rural development accounted for 72 percent of total expenditure. During the second half of the period, it declined to 45 percent.

Figure iii. Level and distribution of public expenditure to support the agricultural sector in the United Republic of Tanzania (2006-2011)



Source: MAFAP

- **Agriculture-specific support has shifted from general sector support to payments to farmers and other agents in the agricultural sector.** General sector support (training, extension, and research and development) accounted for over 60 percent of expenditure in the first half of the period analyzed. However, from 2009 onwards, there was an increased focus on payments to producers via input subsidies. General sector support declined to less than 50 percent. This increasing use of direct transfers to producers has led to fewer extension services and less support for storage facilities, marketing and infrastructure.

- **Expenditures on rural development accounted for about 55 percent of overall support to the food and agriculture sector.** Most of this was spent on rural infrastructure, including rural roads, water infrastructure, sanitation and energy. Considerably less was spent on rural health and education.

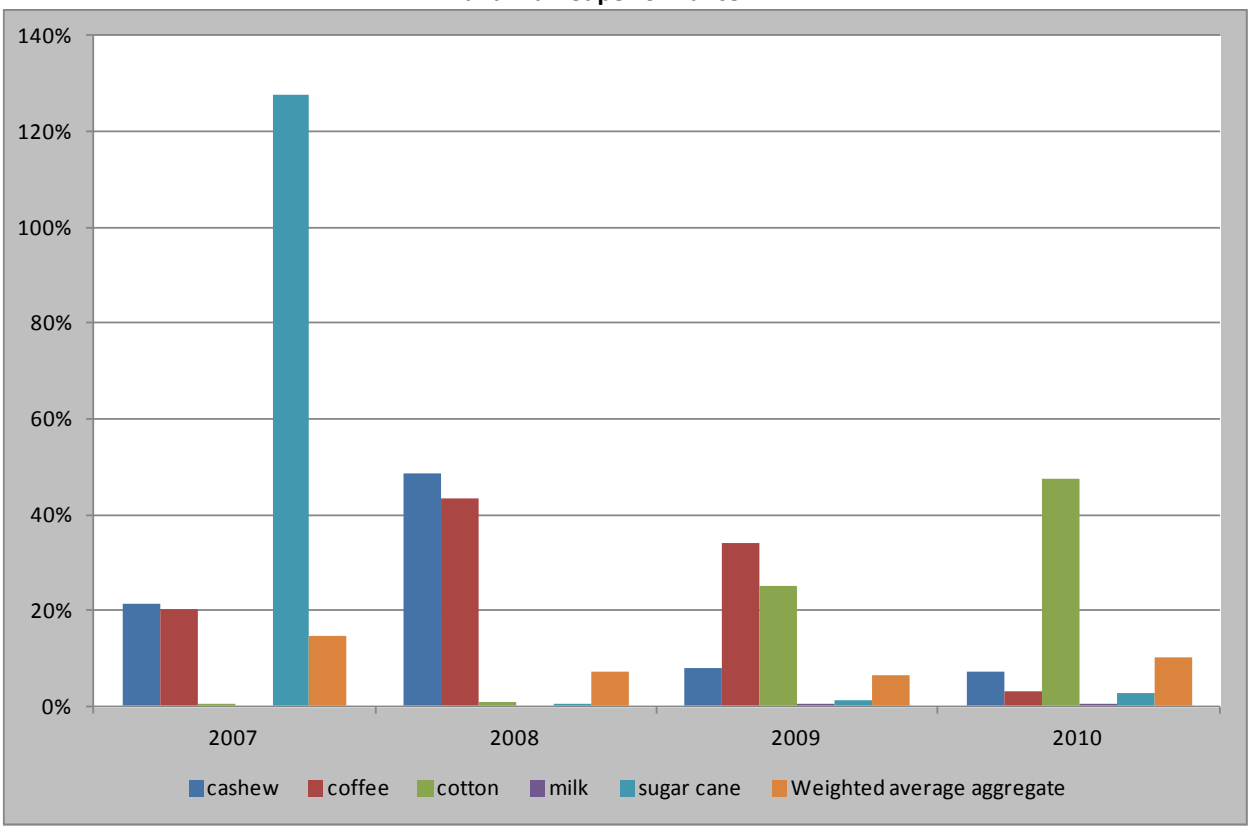
- **Most public spending was on public services, investments in infrastructure, training, extension services and research.** However, spending on input subsidies for agricultural producers, in particular on subsidies for variable inputs, has been rapidly increasing.

- **Only four percent of public expenditure in the agricultural sector was targeted towards specific commodities.** 50 percent of total expenditure was not targeted to any specific commodity or group of commodities. The remaining 47 percent was split evenly between maize and rice (mainly on fertilizer subsidies) and generic commodity groups.
- **Close to 25 per cent of the budget was allocated to policy administration costs.** The increased share of administration costs after 2008/09 may be partially explained by the reallocation of funds, as part of an overall financial crisis management plan. These funds had been previously allocated for supporting the agricultural sector (policy transfers). Moreover, the rates of actual spending to budget allocation in Tanzania suffered a significant fall between 2008 and 2010. Spending rates were lower for policy transfers compared to administrative spending.

- **At least 50 percent of public expenditure on the food and agriculture sector in the URT came from donor contributions.** However, there was a diminishing trend in the role of foreign aid during the period analysed. External aid made up 44 percent of the agriculture-specific budget and 64 percent of the rural development budget. Donor and government priorities in allocating public funds are closely aligned.

- **Policies and market performance had a much greater impact on specific commodities than public expenditure.** Indeed, even including both commodity specific and non-targeted support, public expenditure compensated for only about 15 percent of disincentives measured via price gaps.

Figure iv. Ratio of public expenditure to support specific commodities to disincentives resulting from policy and market performance



Note: The bars show the ratio of public expenditure on each commodity to the price gap between observed and reference prices

Source: MAFAP

- **The maize export ban was introduced to reduce prices and to ensure food security. However, this study shows that these objectives were only partially achieved.** Informal exports surged when export bans were in place and reduced the ban's expected impact - ie. that of reducing the price of food because of increased food availability. However, the export ban did little to improve the poor integration of domestic markets. Thus, even when more produce remained in the country, areas with a food deficit did not have easy access to the surplus food available. The export ban limited the profits of farmers in the Southern Highlands, while it seemed to promote more trade in the western and northern parts of the country.

- **If the URT is to realize its full potential for becoming the bread basket of East Africa, other policy instruments should be considered.** In order to mitigate the impact of consumer price surges when unexpected spikes in export demand occur, subsidized food programmes should be better targeted or substituted by cash transfers.

Conclusions

- **The URT should consider adopting less volatile trade policies. This could include deciding whether import tariffs are needed or not and moving definitively away from export bans**. **Public expenditure should focus more on infrastructure aimed at improving markets (roads, storage, market information systems, etc.).** Initiatives such as the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) appear to be a step in the right direction. The draft of the Agricultural Sector Development Strategy (ASDP II) is a unique opportunity for aligning public investment with policies aimed at increasing agricultural output and productivity, while reducing hunger and poverty.

- **The impact of policies and poor market performance kept the URT from adequately meeting its food security objectives.**

- **Except for rice and wheat, farmers received lower prices than what they would have obtained without domestic policies and with better performing value chains.** Producers of all other commodities received disincentives, thus limiting farmers' potential for increasing investments and production volume.

- **While lower producers' prices might imply that food is more affordable for consumers, most of the price disincentives are related to classic export crops, which are not part of the normal Tanzanian diet.** At the wholesale level (i.e. the level closest to purchase by consumers), most food security commodities, except for maize, had positive price gaps. Thus, the cost of the average Tanzanian diet is higher than it would be in the absence of policies and with better performing markets.

- **Contradictory trade policy actions (such as tariffs versus waivers) generate uncertainty for producers and penalize export-oriented commodities.** Poor market performance and inefficient processing plants reduce the farmgate prices of food crops, without reducing consumer prices. Public expenditure should focus on marketing, storage and processing. Disincentives can be minimized or eliminated in all of these crucial areas. Finally, there appears to be significant room for improving policy coherence in the URT.

- **The government of the URT has delineated policy measures aimed at reducing investment and access costs.** Measures aimed at reducing the level of disincentives for farmers include the declared commitment to abandon export bans, the move towards eliminating district taxes for agricultural products, and the SAGCOT approach.

Introduction

The Monitoring African Food and Agricultural Policies (MAFAP) project aims to help African policy-makers and development partners ensure that policies and investments in agriculture and rural development focus on improving productivity in agriculture, sustainable use of natural resources and strengthening food security.

From this perspective, the project has conducted a thorough analysis of agricultural and food policies based on the results of analyses of the structure, level and composition of public spending and of the incentives and disincentives faced by different actors in the United Republic of Tanzania's (URT's) main agricultural sectors.

This report is the first review of policies under the MAFAP project. It draws on ten technical notes providing detailed and innovative analyses of nine commodities that are important for production, trade and food security in the URT. These commodities also absorb a large share of government expenditure and aid. The technical notes, which constitute the full results of the MAFAP project, are available at www.mafap.org/urt.

This review will be updated periodically as part of biennial country reporting, identifying key developments in the sector.

The main objective of this review is to support dialogue on food and agricultural policies in the URT among principal decision-makers and development partners. The report outlines concrete results achieved through the implementation of a rigorous methodology for measuring the effects on agriculture and rural development of agricultural and food policies and public spending. While this approach is not new, its systematic application to a specific period and selection of commodities is innovative. The report aims to shed new light on the rural and agriculture sector in the URT to inform and guide decision-makers and prompt them to support the institutionalization of this type of work in the country. MAFAP seeks to clarify and inform debate on policy reform, but not to promote or influence specific reforms or adjustments which have been designed outside the country. Such developments must be endogenous and based on dialogue on government policies among stakeholders in the country.

This report does not claim to be an exhaustive presentation of either methods or viewpoints. It is therefore important that the policy dialogue it engenders be supplemented by contributions from the institutional actors who can provide valuable observations on the situation regarding agricultural and food policies in the URT.

The report has three main parts:

[1] The first part offers a description and analysis of the context of government policy in the URT, notably through selected development performance indicators (DPIs). It also describes the main government policy decisions in the field of food and agriculture in the country.
[2] The second part constitutes the core of the report. First it presents the incentives and disincentives to production observed for the nine main commodities studied. Then it provides an

in-depth study of the level, composition and efficiency of public expenditure and aid, before exploring and discussing the coherence of government policy.

[3] The third part deals with a topic of specific national interest to the URT, selected in collaboration by the MAFAP Secretariat, the Economic and Social Research Foundation (ESRF) and the Ministry of Agriculture, Food Security and Cooperatives (MAFC). This year, this part focuses on a detailed analysis of the maize markets in the URT, considering the impact of trade restrictive measures, which have been common in the last decade. It aims to provide additional arguments for supporting the liberalization efforts currently under way in the URT.

The general conclusion summarizes the main results and findings from application of the methodology and analysis, and offers recommendations for enhanced policy dialogue. The concluding paragraph highlights lessons learned from implementing the first phase of the MAFAP project in the URT in terms of strengths, weaknesses, opportunities and challenges for the sustainability of periodic monitoring and analysis of agricultural and food policies.

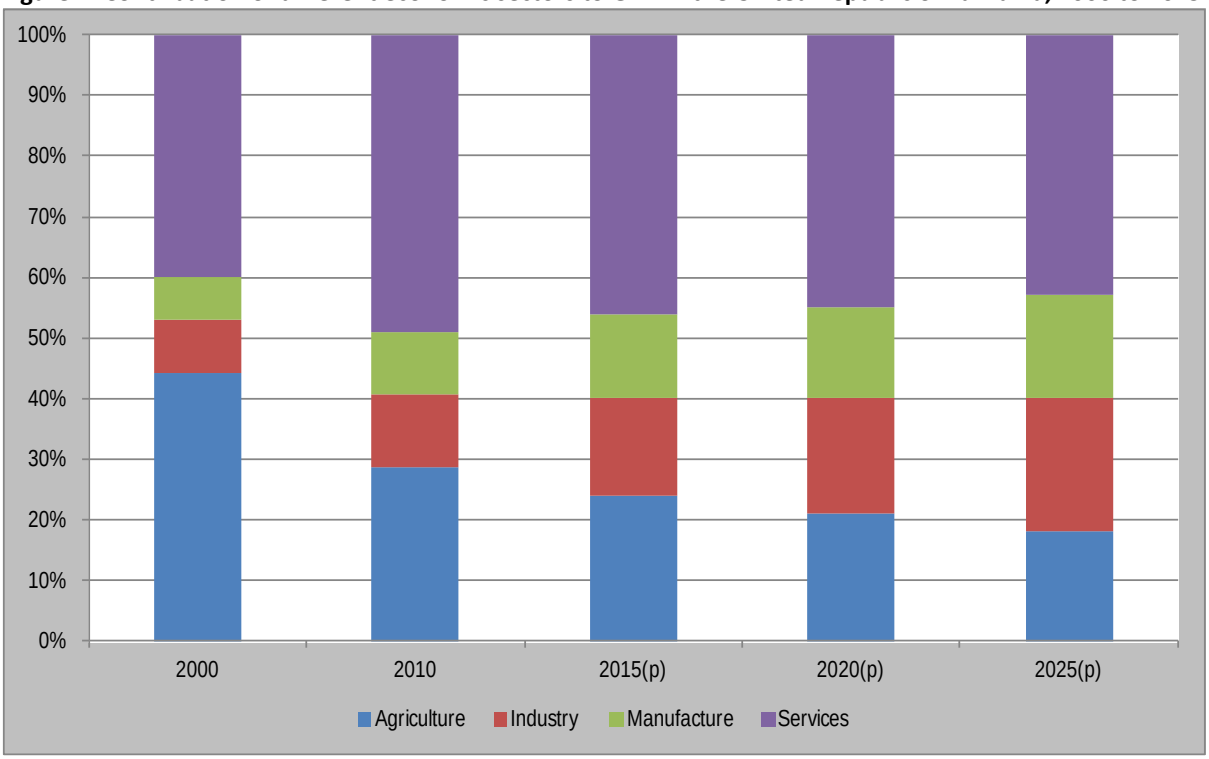
Part 1. CONTEXT OF FOOD SECURITY AND AGRICULTURAL POLICIES

This section presents and analyses the DPIs common to all countries covered by the MAFAP project. The decision to use a common group of indicators aimed to facilitate comparisons between countries and to identify developments within individual countries over time (Table 1).

1. United Republic of Tanzania in brief

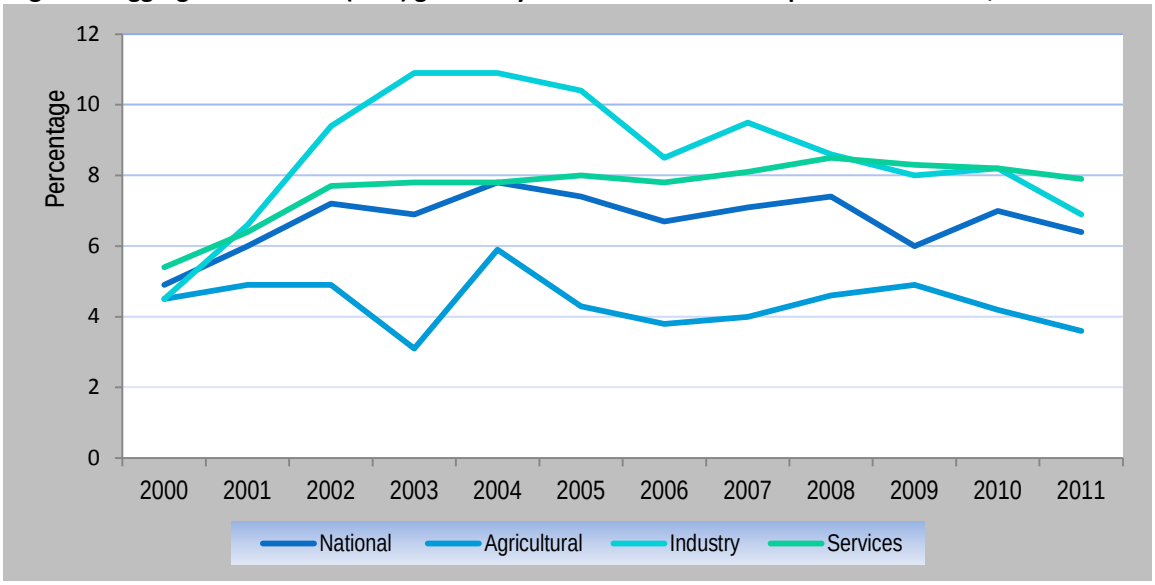
The economy of the United Republic of Tanzania (URT) is predominantly rural-based, with relatively low levels of manufacturing and value addition of the commodities produced. The weight of the agriculture sector in total gross domestic product (GDP) (Figure 1) decreased from 50 percent in 2000 to 28 percent in 2010, and is forecast to decline further to 18 percent by 2025 (Government of the URT, 2010a). However, the sector's role in providing employment is forecast to remain close to 50 percent until 2025. During the period 2001–2012, growth of the economy averaged 6.6 percent, with peaks of 7.8 percent in 2004/05 and 7.4 percent in 2008/09 (Figure 2). The services and industry sectors exhibited stronger growth rates compared with agriculture, whose growth averaged 4.2 percent per annum, with a high of 5.9 percent in 2003/04 and a low of 3.1 percent in 2002/03.

Figure 1: Contribution of different economic sectors to GDP in the United Republic of Tanzania, 2000 to 2025



(p) = projection.
Source: Government of the URT, 201

Figure 2: Aggregate economic (GDP) growth by sector in the United Republic of Tanzania, 2000 to 2011



Source: Government of URT, 2009a.

Over the last decade, the URT's economy has been resilient to shocks such as the financial crisis of 2008, and is expected to remain buoyant, with GDP forecast to grow by 6.8 percent in 2012 and 7.1 percent in 2013 – well above the regional averages (OECD/ADB, 2012). Services, industry and construction continue to be the driving forces.

Exports – which received a boost during the crisis, as demand for gold in world markets continued to rise – are expected to perform well, with growth forecast at 10.9 percent in 2012 and 9.7 percent in 2013 (OECD/ADB, 2012). The URT continues to consolidate gains from rigorous trade reforms that began in the 1990s and resulted in a more liberalized trade regime. Restrictions on imports have been removed, except for those that are necessary for health or security reasons; export and import procedures have been simplified; and the State monopoly on the export of traditional cash crops has ended. Internal trade restrictions have also been removed, and price controls have been eliminated on most products apart from oil. Trade with non-Western economic partners, particularly China, continues to grow.

The URT is a member country of both the East African Community (EAC) and the Southern African Development Community (SADC). It is implementing the EAC Common Market Protocol, which became operational in July 2010; is involved in negotiations on EAC monetary union; and plays an important role in the establishment of a common market for SADC Member States.

The Bank of Tanzania (BOT) continues to implement monetary policy in support of the government's macroeconomic objective of maintaining single-digit inflation. However, inflation rose from 6.5 percent in 2010 to 12.7 percent in 2011, driven mainly by food and fuel prices; the rate recorded in 2011 was the highest for a decade (OECD/ADB, 2012). In pursuit of monetary policy objectives, BOT has deployed a mix of instruments, including the sale of government securities, foreign exchange operations, repurchase agreements and stand-by facilities. Monetary policy performance appeared to be on track (as of December 2011) (OECD/ADB, 2012).

Food inflation in particular increased consistently throughout 2011, surpassing 20 percent by the end of the year as a result of a combination of factors: infrastructure was inadequate to enable regions

generating food surpluses to supply those suffering from food shortages; rising fuel prices pushed up transport costs; and food shortages in neighbouring countries increased the demand in domestic food markets, while depreciation of the Tanzanian shilling, coupled with rising global prices for fuel and other inputs, led to imported inflation. To keep inflation in check, the government decided to remove a number of fuel taxes and levies in the 2011/12 budget (approved in June) – this move should ease pressure on domestic fuel prices (OECD/ADB, 2012).

During much of 2011, the government was under growing pressure as economic hardship, corruption allegations and calls for constitutional reform continued to dominate national politics, and there have been threats of organized nationwide demonstrations for change (OECD/ADB 2012).

Table 1: Development and performance indicators (DPIs) in the United Republic of Tanzania

Domain	No.	Indicator	Latest available statistics for the United Republic of Tanzania	Reference for Africa	Reference for the world
1. Macroeconomic performance	**DPI 1**	Share of agricultural value added/GDP (WBI)	28% (2011)	13.29% (2009) (sub-Saharan Africa) (WDI)	2.76% (2009) (WDI)
	DPI 2	Growth rate of agricultural GDP (WBI)	7% (2010)	4.35% (2010) (sub-Saharan Africa)	2.74% (2010)
2. Performance of the agriculture and rural sector	**DPI 3**	Share of agricultural/total land area (WDI)	40% (2009)		
	DPI 4	Share of agricultural/total exports, in value (FAOSTAT)	9% (2009)	8.78% (2009)	7.56% (2009)
	DPI 5	Share of agricultural/total imports, in value (FAOSTAT)	34% (2009)	13.08% (2009)	7.75% (2009)
	DPI 6	Share of small farms, < 5 ha (MAFC)	90% of the country's food (2010)		
3. **Input market and constraints for sector development and performance**	**DPI 7**	Fertilizer use, kg/ha of arable land (WDI)	8.7 (2009)	10.46 (2009) (sub-Saharan Africa)	122.13 (2009)
	DPI 8	Share of farms with a tractor; tractors/100 km^2 of arable land (World Bank Report) (General Census of Agriculture 2004)	23.3% (2002)		
	DPI 9	Average doing business index score for the extent of credit information, and average legal rights index score (WBI)	0 out of 6 credit index 7 out of 10 legal rights (2012)	n.a.	n.a.
	DPI 10	Share of paved roads/total road network (WBI)	8.7% (2009)	18.3% (2004) (sub-Saharan Africa)	45.02% (2004)
4. Environment and agriculture	**DPI 11**	Share of grassland/total area (FAOSTAT)	27%	30.62% (2009)	25.81% (2009)
	DPI 12	Deforestation rate (FAO FRA)	-1.16% (2005–2010)	0.5% (2005–2010)	0.14% (2005–2010)
5. **Demography**	**DPI 13**	Average population growth rate (WBI)	3.02% (2011)	2.5% (2011) (sub-Saharan Africa) (WDI)	1.15% (2011) (WDI)
	DPI 14	Birth and mortality rates (WHO)	Births: 41.2/1 000; mortalities: 12.09/1 000 (2011)	Births: 37.44/1 000; mortalities 12.55/1 000 (2010)	Births: 19.59/1 000; mortalities; 8.18/1 000 (2010)
	DPI 15	Fertility rate (WDI)	5.53 births/woman (2011)	4.94 births/woman (2010)	2.46 births/woman (2010)
6. **Poverty, inequality and employment**	**DPI 16**	Share of population living below the poverty line, < US$1.25 PPP per day (WBI)	68% (2007)	47.5% (sub-Saharan Africa)	n.a.
	DPI 17	Per capita gross national income (constant $PPP 2005) (UNDP)	US$1 237 (2009)	US$1 966 (2011) (sub-Saharan Africa)	US$10 082 (2011)

	DPI 18	Gini coefficient (UNDP)	37.6 (2007)		
	DPI 19	Unemployment rate (NBS)	10.7% (2012)		
7. Migration and urbanization trends	**DPI 20**	Share of rural population to the total population (WDI)	73% (2012)	62.6% (2010) (sub-Saharan Africa)	49.3% (2010)
	DPI 21	Growth of urban population (WDI)	4.7% (2011)	3.87% (2010) (sub-Saharan Africa)	2.00% (2010)
	DPI 22	Net migration rate (UNPD)	-0.53% (2011)	-0.7 (2005–2010)	n.a.
8. **Food security and socio-sanitary conditions**	**DPI 23**	Human Development Index (UNDP)	0.466 (2011)	0.463 (2011) (sub-Saharan Africa)	0.682 (2011)
	DPI 24	Rates of child mortality (WHO)	107.9/1 000 (2009)	129 (2009)	58 (2009)
	DPI 25	Rate of assisted births (WHO)	48.9% (2010)	47.7% (2005–2009) (sub-Saharan Africa)	76.4% (2005–2009)
	DPI 26	Prevalence of undernutrition (FAO)	38.8% (2010-2012)	26.8% (2010-2012)	12.5% (2010-2012)
9. Education and gender	**DPI 27**	Gross enrolment rate in primary school (WBI)	102.2% (2010)	99.86% (2009) (sub-Saharan Africa)	107.11% (2009)
	DPI 28	Adult literacy rate (WBI)	73.2% (2010)	61.6% (2005–2010)	80.9% (2005–2010)
	DPI 29	Index of gender inequality (UNDP)	0.590 (2011)	0.610 (2011)	0.492 (2011)
	DPI 30	Economic activity rate of women (UNDP)	86% (2006)	Women: 62.9%; men: 81.2% (2009)	Women: 51.5%; men: 78.0% (2009)

FAO = Food and Agriculture Organization of the UN

FRA = Global Forest Resources Assessment.

UNDP = United Nations Development Programme.

WBI = World Bank Indicators.

WDI = World Development Indicators.

WHO = World Health Organization.

2. Geographical context

The United Republic of Tanzania is located in the eastern part of Africa between longitude 290 and 410 east and latitude 10 and 120 south. It borders the Indian Ocean to the east, Uganda and Kenya to the north, Burundi, Rwanda and the Democratic Republic of Congo to the west, and Mozambique, Zambia and Malawi to the south. Its total land area is 945 087 km^2. Agricultural land accounts for about 40.1 percent of the total land area (Government of the URT, 2008).

Figure 3: Map of the United Republic of Tanzania

Source: www.ezilon.com

The climate of the URT is defined by its topography of inland lakes, its vegetation types and its proximity to the Indian Ocean (Devisscher, 2010). The diversity of topographical and other factors means that average rainfall varies between 200 to 2 000 mm per annum. Most of the country receives less than 1 000 mm, except the highlands and parts of the extreme south and west, where 1 400 to 2 000 mm can be expected. In the central arid areas, average rainfall is 200 to 600 mm (FAO,

2006). Wet season rainfall averages 50 to 200 mm per month, but differs among regions and reaches about 300 mm per month in the wettest parts (Vice President's Office, 2007). Table 2 shows the seasons in the main zones.

Table 2: Seasons in the United Republic of Tanzania

Months	Wind direction	Season	Zone		
			North	Central	South
December to March	Northeast	*Kasaki*	Dry	Dry	Wet
March to May	Variable	*Masika*	Wet	Wet	Wet
June to September	Southeast	*Kusi*	Dry	Dry	Dry
October to November	Northeast	*Vuli*	Wet	Wet	Wet

Source: FAO, 2006

The great range of altitudes for agriculture means great diversity of cropping systems, from coconut groves on the coast to cool-area crops such as pyrethrum and wheat elsewhere. The URT can be classified into five zones (FAO, 2006):

[1] Afro-alpine, with 1 percent of total area: Afro-alpine moorland and grassland or barren land above the forest line; of limited use and potential except as water catchment and for tourism.

[2] Humid to dry sub-humid, with 9 percent of total area: Forest-derived grasslands and bush with potential for forestry or intensive agriculture, including pyrethrum, coffee and tea; natural grassland responds to intensive management and less than 1 ha can support one stock unit.

[3] Dry sub-humid to semi-arid, with 30 percent of total area: Variable cover of moist woodland, bush or savannah without potential for forestry – trees are mostly Brachystegia or Combretum; high agricultural potential with large areas under extensive grazing of less than 2 ha per stock unit; regular burning may be necessary.

[4] Semi-arid, with 30 percent of total area: Marginal potential for crops, limited to sisal or quick-maturing cereals; natural vegetation of Acacia-Themeda association, but also including dry Brachystegia woodland; potentially productive grazing of less than 4 ha per stock unit, limited by bush encroachment, leached soils, inadequate water and tsetse fly infestation.

[5] Arid, with 30 percent of total area: Unsuitable for agriculture, except in parts with fertile soils and run-on rainfall; pastures typically dominated by Commiphora, Acacia and perennial grasses such as *Cenchrus ciliaris* and *Chloris* spp.; more than 4 ha per stock unit, and wildlife is important; burning requires care but can be highly effective for bush control.

Administratively, the Tanzanian mainland is divided into 26 regions (Figure 3), with more than 130 administrative councils (municipal, town and district). Each district is subdivided into divisions, wards, villages and hamlets (*Vitongoji/Mitaa*). Each region is headed politically by a Regional Commissioner, while districts each have a District Commissioner. The head of the civil service at the regional level is the Regional Administrative Secretary, while districts have District Administrative Secretaries. The

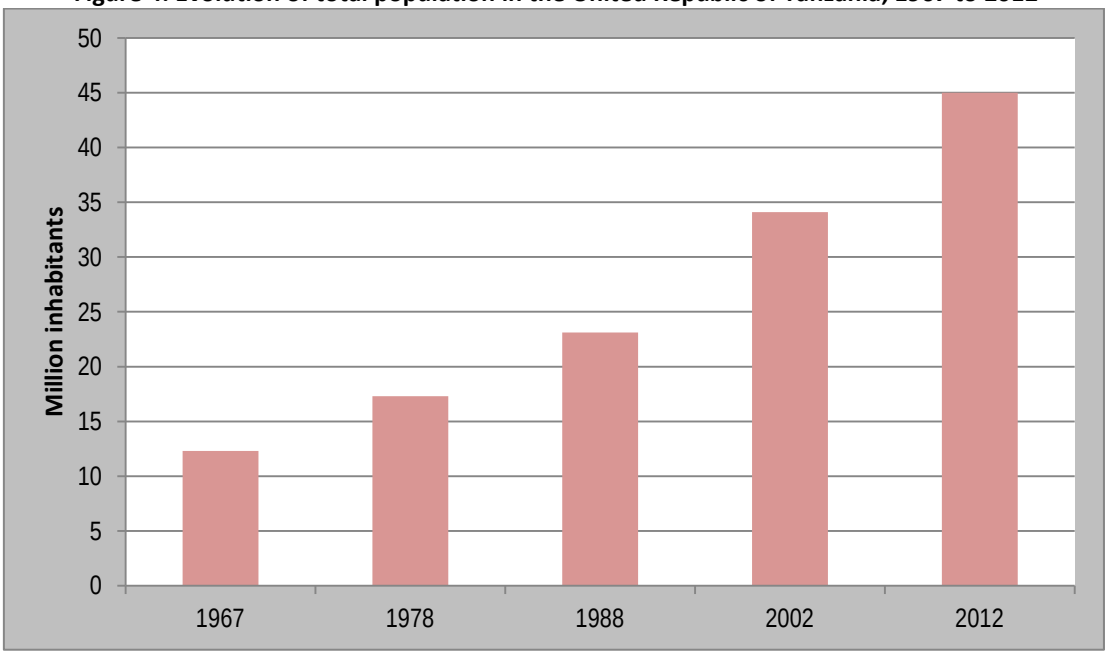
regional administration aims to offer a multi-skilled technical resource to support local development initiatives in exploiting locally identified opportunities, and linking central government ministries, departments and agencies and development partners to local government authorities (LGAs).

3. Socio-economic aspects

Population

The United Republic of Tanzania has undertaken four population and housing censuses since achieving independence in 1961. The first census, conducted in 1967, reported a total population of 12.3 million; in the 2002 census, this figure had almost tripled to 34.4 million (Figure 4).

Figure 4: Evolution of total population in the United Republic of Tanzania, 1967 to 2012



Sources: NBS, various years.

The projection for the total population of the URT in 2012 is 45 million. The country is still sparsely populated, with high and increasing density in small areas (urban areas around Lake Victoria and in the Southern Highlands). In 1967, the average population density was 14 people/km^2; this figure had increased significantly to 39 people/km^2 in 2002 and is projected to reach 47 people/km^2 in 2012. This population growth results from high fertility rates and declining mortality levels. The population of the URT remains predominantly rural despite an increase in the proportion of urban residents over time, from 6 percent in 1967 to 23 percent in 2002; the 2012 projection is 26 percent (NBS, 2010). Life expectancy at birth increased from 42 years in 1967 to 51 years in 2002, and is currently projected at 58 years. This increase can be explained by improvements in health and the global standard of living in the country, which have reduced infant and maternal mortality rates. Analysis of the data gathered for the 2012 census will provide updated figures for most of these population data, including current demographic and population dynamics data.

Poverty, inequality and employment

Between 2001 and 2007, the incidence of income poverty did not change significantly despite the sustained GDP growth rate of more than 6 percent for the whole of the first decade of this century (Government of the URT, 2010b). Table 3 presents the incidence of poverty in mainland United Republic of Tanzania between 2001 and 2007, showing that 36 percent of Tanzanians were poor in 2001 compared with 34 percent in 2007 – a decline of only 2 percent. Income poverty (basic needs

and food poverty) varied among geographical areas, with rural areas containing 83.4 percent of the poor in 2007 compared with 87 percent in 2000/01; households engaging in farming, livestock keeping, fishing and forestry are the poorest. The change in rural per capita income was small because annual rural growth (using growth of the agriculture sector as a proxy) was about 4.5 percent, while national population growth was 2.9 percent.

Table 3: Incidence of poverty in mainland United Republic of Tanzania: headcount poverty index, 2001 and 2007 (percentages)

	Year	Dar es Salaam	Other urban areas	Rural areas	Mainland United Republic of Tanzania
Food poverty					
	2001	7.5	13.2	20.4	18.7
	2007	7.4	12.9	18.4	16.6
Basic needs					
	2001	17.6	25.8	38.7	35.7
	2007	16.4	24.1	37.6	33.6

Source: NBS, 2007.

Based on National Panel Surveys undertaken in the URT in 2008/2009 and 2010/2011, the Gini coefficient for income distribution inequality evolved from 0.36 to 0.37 (Table 4), which means that the level of income inequality remained constant over the 2008–2011 period. Inequality is higher in urban than rural areas. Dar es Salaam and other urban areas in mainland URT have higher inequality, while rural areas in mainland URT and Zanzibar display lower inequality.

Table 4: Gini coefficient for the United Republic of Tanzania, 2008/2009 (NPS1) and 2010/2011 (NPS2)

	NPS1	NPS2
United Republic of Tanzania	**0.36**	**0.37**
Rural	0.31	0.31
Urban	0.37	0.36
Mainland	*0.36*	*0.37*
Dar es Salaam	0.34	0.33
Other Urban	0.35	0.35
Rural	0.31	0.31
Zanzibar	*0.32*	*0.31*

NPS = National Panel Survey.
Source: NBS, 2012.

Although the annual jobs created – about 630 000 – match the labour force growth in the country, unemployment remains a priority issue, particularly because most employment creation has been in small informal businesses, which typically have low earnings and productivity (Government of the URT, 2009b; 2010b). Moreover, the high rates of agricultural employment probably masks high levels of underemployment. The quality of jobs created is an important factor in explaining the stagnation of poverty levels. According to the Integrated Labour Force Survey (NBS, 2006a), unemployment among youth aged 18 to 34 years is a particular issue and stood at 13.4 percent in 2006. It was higher

among female youth, at about 15.4 percent, compared with 14.3 percent for male youth. Generally, the unemployment rate is higher among females than males, except in rural areas.

Migration and urbanization

Net urban migration accounted for only 0.6 percent of the urban population in mainland United Republic of Tanzania in 2002. However, this low net migration rate conceals a much higher turnover, with almost 389 000 individuals moving to or from urban areas, accounting for about 5.3 percent of the urban population in mainland URT. Another 2.6 percent of the urban population moved among urban centres. Although urban-to-urban migratory flows do not result in an increase or change in the composition of the urban population as a whole, they signal a high level of geographic mobility within the urban space (World Bank, 2008).

Urbanization gives a powerful impetus to the break-up of traditional social structures and leads to readjustments in ways of life and forms of social organization to harmonize with modern requirements. Rapid urbanization leads to unplanned and unsurveyed settlement and the deterioration of social and other services. The rapid growth of cities and towns puts ever-increasing pressure on the urban infrastructure of the URT (transport, housing, water and sanitation, and energy).

Table 5 presents figures from the 2002 Population and Housing Census showing the percentage distribution of people living in rural and urban areas in 2002. According to the data, 77.4 percent of people lived in rural areas. Except for Dar es Salam and Arusha, all regions reported less than 30 percent of their populations living in urban areas.

Table 5: Regional distribution of population between rural and urban areas in mainland United Republic of Tanzania, 2002

Region	Population			Percentage	
	Total	Rural	Urban	Rural	Urban
United Republic of Tanzania	33 461 849	25 907 011	7 554 838	77.4	22.6
Dodoma	1 692 025	1 478 782	213 243	87.4	12.6
Arusha	1 288 088	884 491	403 597	68.7	31.3
Kilimanjaro	1 376 702	1 088 611	288 091	79.1	20.9
Tanga	1 636 280	1 335 084	301 196	81.6	18.4
Morogoro	1 753 362	1 279 513	473 849	73.0	27.0
Pwani	885 017	698 156	186 861	78.9	21.1
Dar es Salaam	2 487 288	151 233	2 336 055	6.1	93 9
Linidi	787 624	661 228	126 396	84.0	16.0
Mtwara	1 124 481	895 942	228 539	79.7	20.3
Ruvuma	1 113 715	944 045	169 670	84.8	15.2
Iringa	1 490 892	1 234 560	256 332	82.8	17.2
Mbeya	2 063 328	1 642 183	421 145	79.6	20.4
Singida	1 086 748	938 081	148 667	86.3	13.7
Tabora	1 710 465	1 490 581	219 884	87.1	12.9
Rukwa	1 136 354	936 232	200 122	82.4	17.6
Kigoma	1 674 047	1 471 240	202 807	87.9	12.1
Shinyanga	2 796 630	2 540 578	256 052	90.8	9.2
Kagera	2 028 157	1 901 407	126 750	93.8	6.2
Mwanza	2 929 644	2 328 387	601 257	79.5	20.5
Mara	1 373 397	1 109 791	253 606	81.4	18.6
Manyara	1 037 605	896 886	140 719	86.4	13.6

Source: NBS, 2009.

Education and gender

Cluster II of the National Strategy for Growth and Reduction of Poverty (MKUKUTA), launched in 2005, includes gender-specific education and training goals: equitable access to quality primary and secondary education for boys and girls; universal literacy among men and women; and expansion of higher, technical and vocational education. The United Republic of Tanzania's literacy rate remains low, at 72.5 percent of the population over 15 years of age in 2007 (Table 6).

Table 6: Literacy among population over 15 years in the United Republic of Tanzania, by residence and gender (percentages)

	2000/01				2007			
	Total	Dar es Salaam	Other urban	Rural	Total	Dar es Salaam	Other urban	Rural
Male	79.6	94.3	91.5	76.1	79.5	94.6	91.5	74.7
Female	64.0	88.3	81.0	58.8	66.1	87.7	80.9	59.5
Total	71.4	91.3	85.8	66.9	72.5	91.0	85.8	66.8

Source: Household Budget Survey 2007 in NBS, 2009.

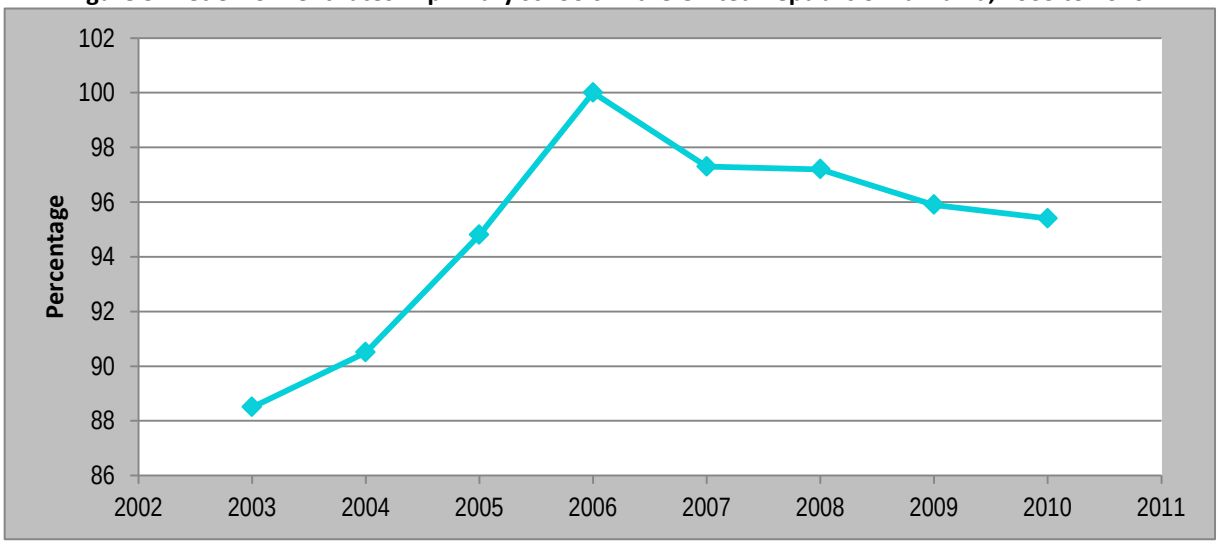
Literacy rates are much lower among the rural population than among urban residents, and the gender gap is also greater in rural than urban areas. Literacy is especially low among rural women, at 60 percent. Total enrolment across all integrated community-based adult education programmes – providing functional literacy, post-literacy, new curricula and centres for special needs – totals only 1.28 million people.

Increases in literacy are likely to be driven by a steady increase in children's access to schooling. In 2010, well over one-third (37 percent) of children were enrolled in pre-primary education, and the proportion of children starting pre-primary at the requisite age had increased significantly from the early 2000s, owing to intense government promotion programmes. Most children have access to government pre-primary schools, where enrolments rose from 805 000 in 2008 to 851 000 in 2009. Non-governmental provision grew very fast from a low base, but then fell back from more than 68 000 children enrolled in 2008 to 45 000 in 2009 (MEVT, 2009: 2).

Introduction of the Primary Education Development Programme in 2001/02 has had a positive impact on primary school enrolment; net primary enrolment increased from 88.5 percent in 2003 to 100 percent in 2006 (Figure 5). Since then, net enrolment has fallen slightly, to 95.4 percent in 2010 (MEVT, 2011).

The proportion of girls in total enrolled pupils in government schools decreases throughout the education cycle. In 2009, girls accounted for 44.6 percent of enrolments in Form 1, dropping to 35 percent in Form 6 (MEVT, 2011). These rates were 10 percent higher in private schools for the same year.

Figure 5: Net enrolment rates in primary schools in the United Republic of Tanzania, 2003 to 2010



Source: MVET, 2011.

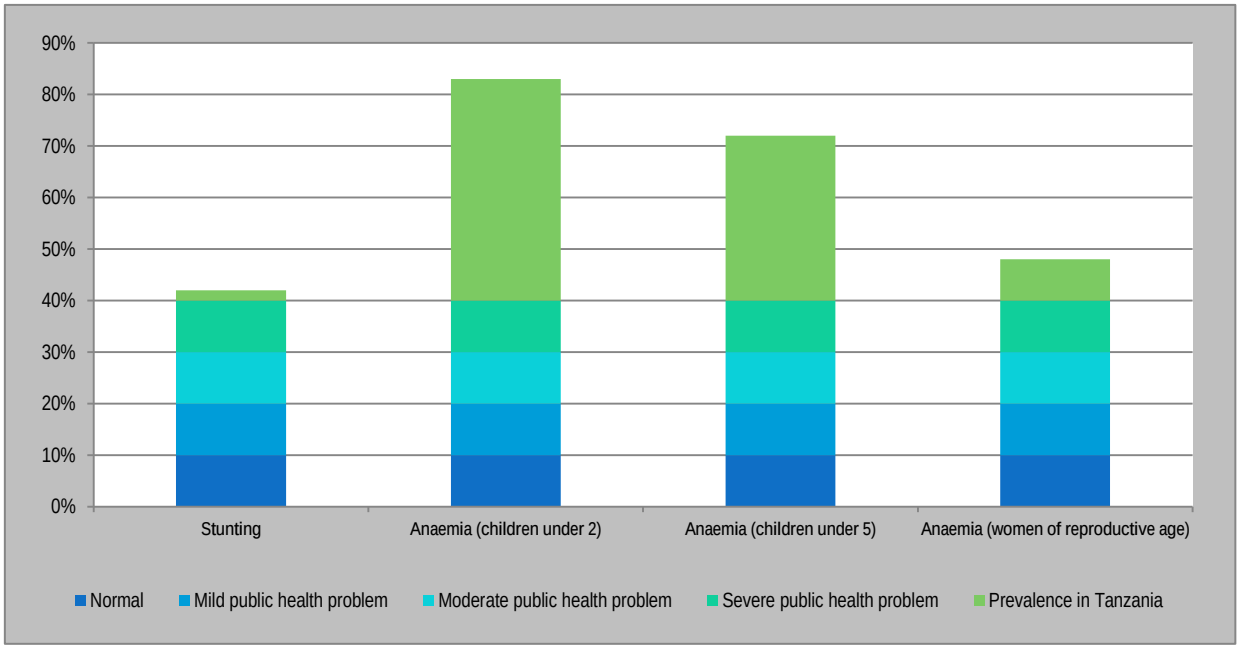
Although the trend at the primary school level is towards gender parity in enrolment, with net enrolment rates for boys and girls now being almost equal, gender disparities become visible later on, and a school pre-entry programme for women and girls with lower qualifications has been designed to equilibrate the balance. Affirmative action has led to increased enrolment of female students at the University of Dar es Salaam (UDSM), from 27 percent in 2001/02 to 38 percent in 2005/06. Gender equity among the academic staff remains low however, with women accounting for only 17 percent of UDSM staff and 10 percent of associate professors.

Food security and health

The main health and nutrition challenges faced by the United Republic of Tanzania are related to undernourishment rather than overnutrition, with high rates of protein-energy deficiency, iron-deficiency anaemia, iodine deficiency disorders and vitamin A deficiency (Figure 6). These conditions affect in particular children under five years of age, and pregnant women.

Nutrient excess disorders affecting the country are fluorosis in northern, northwestern and central parts of mainland URT, and increasing incidences of overweight, obesity and diet-related non-communicable diseases, especially among the urban elite and business sections of the community as they emulate unhealthy food habits and life styles of Western culture (TFNC, 1993). According to the 1999 Tanzania Reproductive and Child Health Survey (NBS, 2000), 5 percent of children under five were wasted, 44 percent were stunted and 29 percent were underweight. A national survey on vitamin A conducted in 1997 showed that 24.2 percent of children under five were vitamin-A deficient (Government of the URT, 2010a).

Figure 6: Main health and nutrition problems in the United Republic of Tanzania, 2010



Source: NBS, 2010.

Studies indicate that malnutrition results directly from inadequate dietary intake and infectious diseases caused by food insecurity at the household, village, community and national levels. In the URT, food insecurity is mainly caused by problems related to food production, harvesting, preservation, processing, distribution, preparation and use. Other factors may include inadequate maternal and child care, poor access to health services, and an unhealthy environment. Lack of knowledge and poverty are at the root of all these problems because of their direct impact on the capacity of individuals, households and communities to meet their needs for health, nutrition and a prolonged life (Government of the URT, 1992).

Nutrition indicators for children under five have shown some signs of improvement in recent years. Stunting, underweight and wasting rates among children aged 0 to 59 months declined from 44, 29.5 and 5.3 percent respectively in 1999, to 42, 16 and 3.8 percent in 2010 (Table 7). Anaemia was also

highly prevalent among under-fives, with 72 percent of all children aged 6 to 59 months. The main causes of anaemia are nutrition deficiency, intestinal worms and malaria (Government of the URT, 2010b).

Table 7: Indicators of child malnutrition in the United Republic of Tanzania, 1999, 2005 and 2010

Year	Stunting (height-for-age below 2 SD)	Underweight (weight-for-age below 2 SD)	Wasting (weight-for-height below 2 SD)
1999	44.0%	29.5%	5.3%
2005	38.0%	21.9%	3.7%
2010	42.0%	16%	3.8%

Source: Government of the URT, 2010b.

The 2010 Tanzania Demographic and Health Survey also indicated that the nutrition status of adolescent girls and women is still alarming (NBS, 2010). About one-third of women aged 15 to 49 years were iron-, vitamin A- and iodine-deficient, two-thirds were anaemic, and one-tenth were undernourished; data for overnutrition are not available (Table 8).

Table 8: Health challenges for children and women in the United Republic of Tanzania, 2010

Children under 5 years	%	Women	%
Stunting	42	Low body mass index	11
Underweight	16	Iodine deficiency	36
Anaemia	72	Anaemia	40
Iron deficiency	35	Iron deficiency	30
Vitamin A deficiency	33	Vitamin A deficiency	37

Source: NBS, 2010.

The URT is making great strides in reducing maternal and child mortality, but has demonstrated slower progress in reducing neonatal deaths. Each year, 51 000 newborns die, placing the URT among the top five countries in sub-Saharan Africa for newborn deaths. These deaths represent 29 percent of all child deaths in the URT.

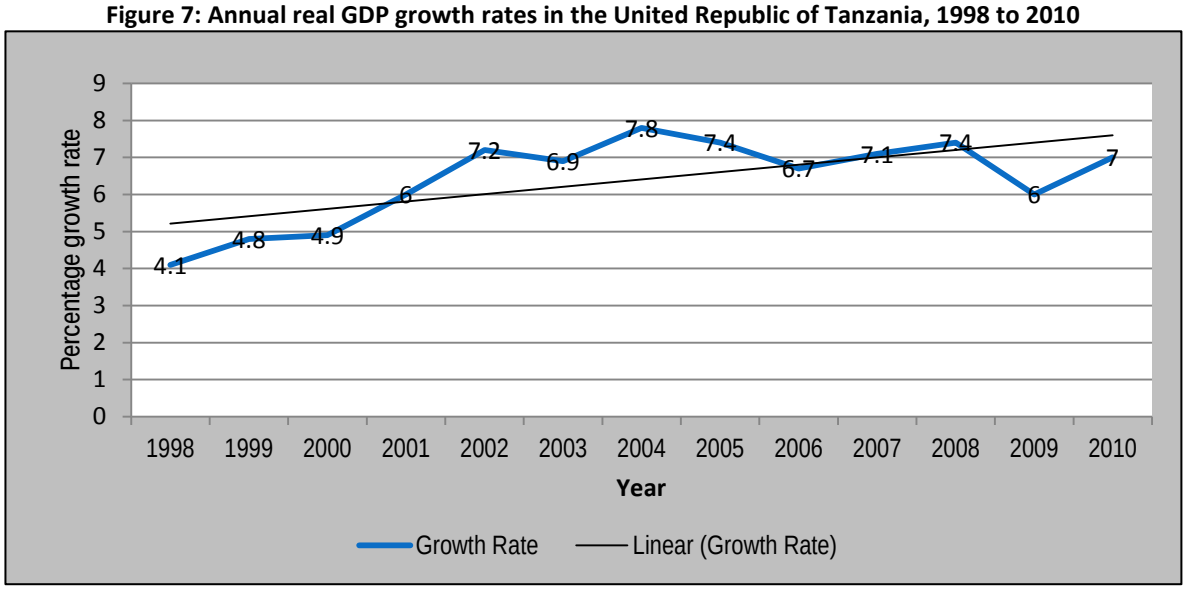
Maternal health is a key component of the National Package of Essential Reproductive and Child Health Interventions, which focuses on improving the quality of life for women and children (Government of URT, 2008). In spite of the good coverage of health facilities, not all the services are provided to scale, and maternal, newborn and child mortalities remain a major public health challenge in the URT (NBS, 2010).

In addition to the immense burden of neonatal death, between 8 000 and 13 000 Tanzanian women die each year because of pregnancy-related causes – an average of 24 women a day. The use of diverse methodologies makes it difficult to determine trends in maternal mortality accurately, but the URT clearly remains among the ten countries with the most maternal deaths in Africa (NBS, 2010).

4. Macroeconomic performance

Between 1993 and 2009, the United Republic of Tanzania radically changed its growth path and sectoral contributions to GDP. After economic growth rates of less than 4 percent until 1996, real growth rates steadily increased until 2008, reaching more than 7 percent, before slowing down to 6 percent in 2009, mainly owing to the effects of the global financial crisis according to recent reports (Figure 7). However, the upward trend returned in 2010, when growth reached 6.8 percent, before experiencing a downwards move to 6.4 percent in 2011, when shortage of rains led to a power crisis in the country in 2010/11. On average, the Tanzanian economy has grown by about 5.5 percent per year for the last 15 years, and by about 7 percent for the last ten years(Government of the URT, 2011b).

Figure 7: Annual real GDP growth rates in the United Republic of Tanzania, 1998 to 2010



Source: Author's calculations based on data from BOT, 2012b.

The relatively high growth rate of recent years is the result of economic and financial reforms and prudent monetary and fiscal policies, all of which promoted domestic and foreign investment. However, this achievement may be eroded by the ongoing power crisis in the URT, the current drought, and the oil crisis caused by political instability in the major oil producing countries.

Real GDP growth remained buoyant during 2011, despite energy rationing, which affected manufacturing and trade activities. Real GDP grew by 6.4 percent compared with a projected level of 6.0 percent. Most of this GDP growth came from trade and repairs (18.2 percent), transport and communications (13.8 percent), agriculture (12.6 percent), manufacturing (11.8 percent), construction (9.8 percent) and real estate (10.3 percent). Financial intermediation registered a strong growth of 10.7 percent, but its contribution to total GDP growth was only 3.3 percent because of its small size relative to other activities. Growth in financial intermediation was associated with ongoing financial sector reforms and increased competition in the provision of insurance services (BOT, 2012a).

The quarterly growth of sectors indicated in Table 9 demonstrates the effects of power rationing, with 2011 quarterly growth estimates lower than those for 2010. Other factors mentioned by local experts include drought which affected the agriculture sector.

Table 9: Quarterly GDP growth in the United Republic of Tanzania, 2006 to 2011 (percentages)

Quarter	2006	2007	2008	2009	2010	2011
First	9.8	4.5	7.1	5.6	7.7	5.8
Second	8.9	5.8	7.1	5.6	7.7	6.7
Third	5.7	7.2	8.9	3.8	7.2	6.4
Four	2.9	11.3	6.3	5.7	6.7	6.5

Source: BOT, 2012b.

The contributions of the four main economic sectors to GDP do not match Tanzania Development Vision (TDV) 2025 targets (Government of URT, 1999a). The GDP shares of both the industry and manufacture sectors are considered too low to enable transformation to a modern sector through attraction of the rural labour reserve, which currently stands at 75 percent, and scaling up of sector capacity to accommodate the labour freed from agriculture (Table 10).

Table 10: Planned sectoral contributions to GDP for the medium and long terms in the United Republic of Tanzania, 2010 to 2025

Sector	Baseline	Current status	Targets		
	2000	**2010**	**2015**	**2020**	**2025**
Agriculture (% of GDP)	50.0	28.0	24.0	21.0	18.0
Industry (% of GDP)	10.0	12.0	16.0	19.0	22.0
Manufacture (% of GDP)	8.0	10.0	14.0	15.0	17.0
Services (% of GDP)	45.0	48.0	46.0	45.0	43.0
Employment in agriculture (% of total)	74.6	74.6	65.0	55.0	41.2

Source: Government of the URT, 20111b.

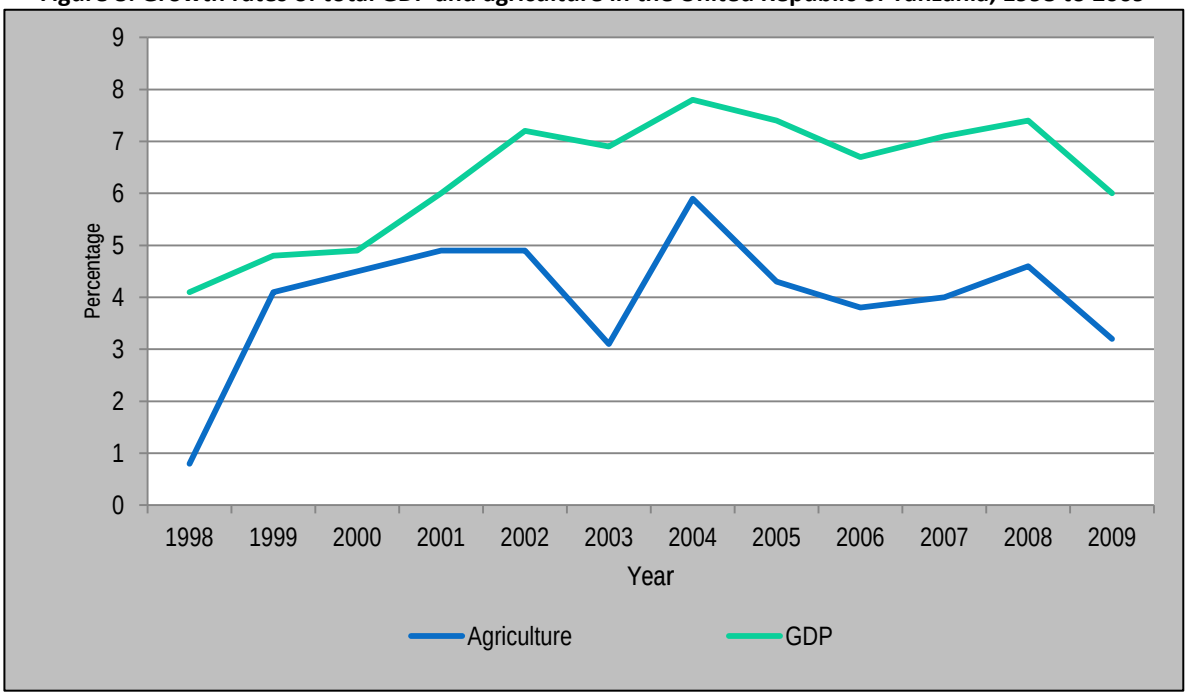
For the service sector, the TDV 2025 review recommends that the GDP share improves for the first five years (2011 to 2015), and thereafter declines slightly (Government of the URT, 2011b). According to the rationale behind TDV 2025, improvements in agricultural productivity will trigger some labour force shedding from the sector, most of which is expected to be absorbed by an expanding industrial sector.

Performance of agricultural and rural development

About 75 percent of the population of the United Republic of Tanzania is still employed in agriculture, where the level of productivity is among the lowest in sub-Saharan Africa. This low productivity is mostly the result of overreliance on unpredictable natural precipitation, the use of manual labour in land preparation, very low usage of improved seeds and fertilizer, small farm size, and low productivity of indigenous animal breeds. From 1998 to 2009, agriculture grew by about 4.2 percent per year, contributing about a quarter of national GDP and about 34 percent of foreign exchange earnings.

Over the period 1998–2009, the growth rate of the agriculture sector fluctuated from 0.8 percent in 1998 to 5.9 percent in 2004 (Figure 8), while GDP growth fluctuated from 4.1 percent in 1998 to 7.8 percent in 2004. The agriculture sector has persistently registered a lower growth rate than the industry and service sectors. While agriculture grew by an average of 4 percent between 1998 and 2009, the industry and service sectors grew by averages of 8.3 and 7 percent respectively during the same period.

Figure 8: Growth rates of total GDP and agriculture in the United Republic of Tanzania, 1998 to 2009

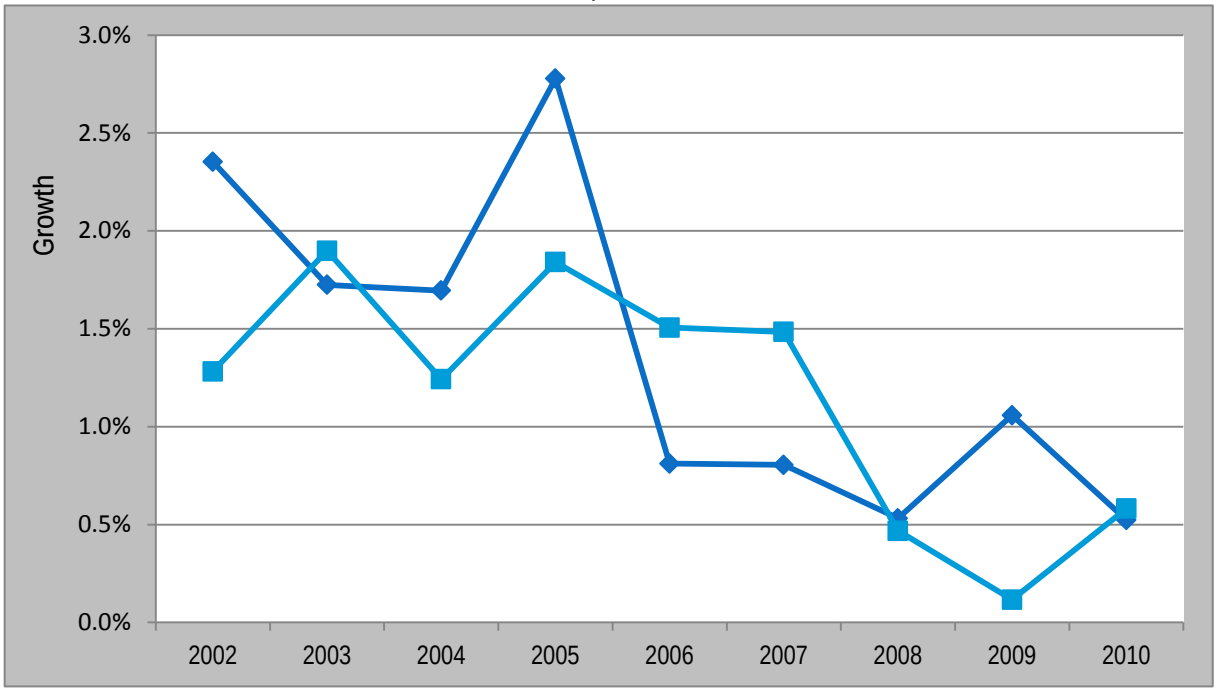


Source: BOT, 2012b.

To a large extent, the GDP growth rate has been determined by growth rates in the service and industry sectors. From this pattern of economic growth, it is obvious that one of the main reasons why economic growth in the URT has not been associated with poverty reduction, especially in rural areas, is that the agriculture sector has been growing more slowly than other major sectors. Therefore, growth of the agriculture sector does not substantially influence GDP growth, as it did in the 1970s and 1980s, when it contributed about 50 percent of total GDP.

In addition to providing informal employment to most rural dwellers, agriculture has high potential for creating formal jobs – through its forward and backward linkages to agroprocessing, consumption and export and its provision of raw materials to industries – and as a market for manufactured goods. The livestock sector can also be leveraged to contribute to jobs and poverty reduction. However, average annual increases in the populations of cattle and of sheep and goats have been declining (Figure 9), with cattle increasing by an average of 1.4 percent and sheep and goats by 1.2 percent; these growth rates are less than half that of the human population.

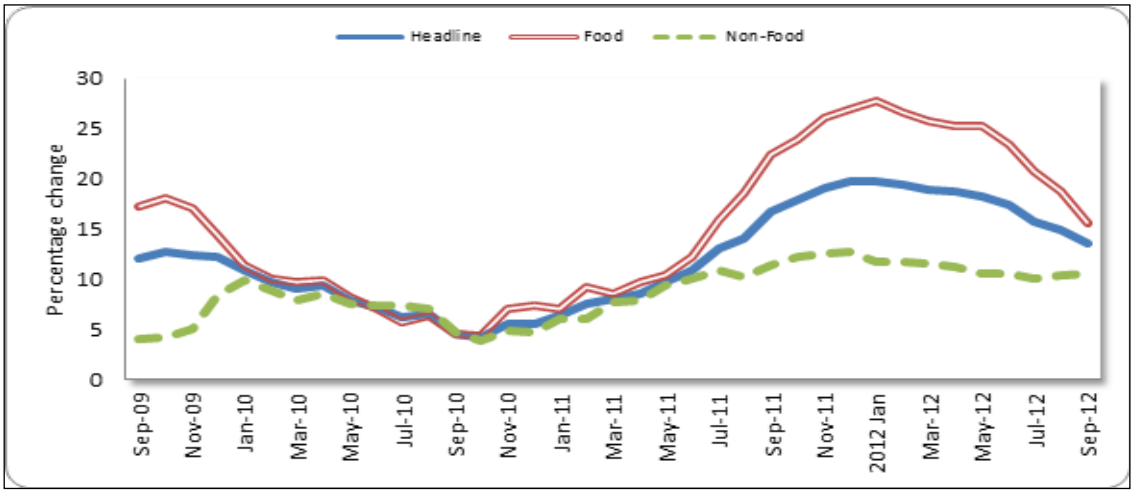
Figure 9: Growth rates of cattle (red line) and sheep and goat (blue line) populations in the United Republic of Tanzania, 2002 to 2010



Source: MAFC, 2011a.

The inflation rate dropped to less than 5 percent during the early 2000s but started to rise gradually in 2005, worsening in 2009 with the onset of the global financial crisis and reaching a record high of 19 percent in mid-2011 (Figure 10). Inflation is one of the major macroeconomic imbalances in the URT.

Figure 10: Annual headline, food and non-food inflation in the United Republic of Tanzania, 2009 to 2012



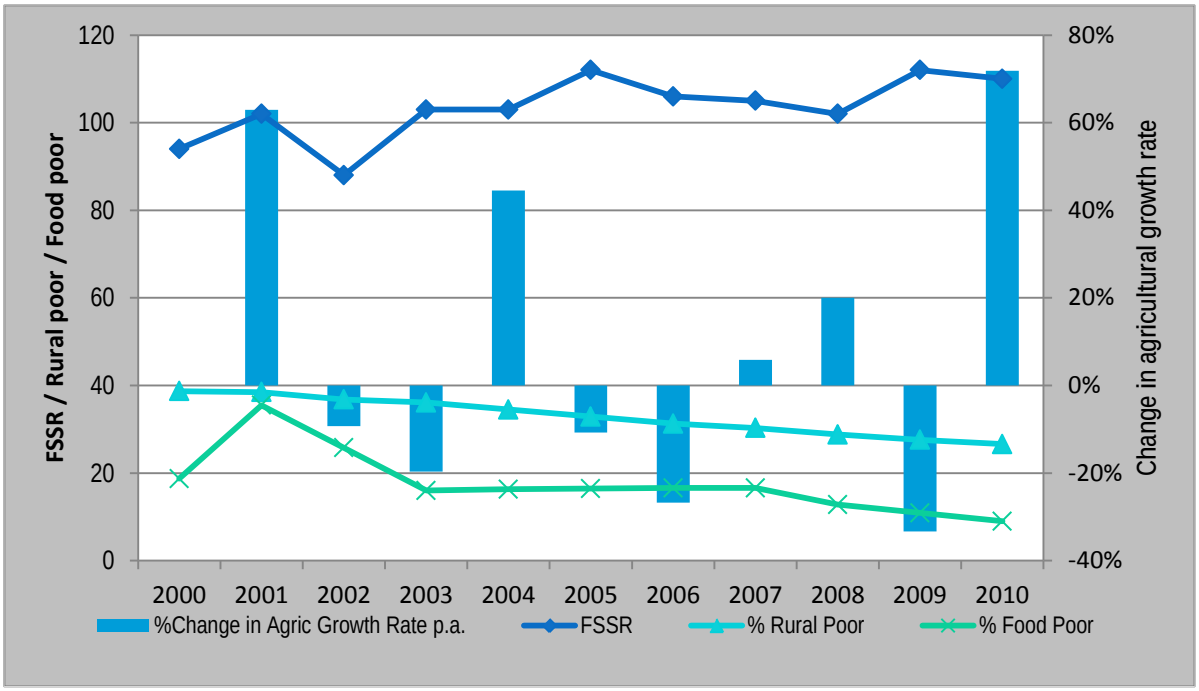
Source: BOT, 2012a.

The rise was exacerbated by drought-instigated food shortages in neighbouring countries; electricity supply shortfalls, which increased production costs as producers shifted to using generators; and increases in petroleum prices, which raised the import bill and production costs. The increasing food and overall inflation have affected agriculture by reducing farmers' access to inputs, land and other basic needs, thus frustrating efforts to reduce poverty. In addition, while the cost of living has been pushed up, the incomes of most farmers have not been increasing commensurately. The relief on

food price pressure in mid-2011 appears to have been temporary, as the situation failed to stabilize and return to single-digit inflation in 2012. Post-harvest retail prices in mid-2012 were almost double those that prevailed in the same period of 2011.

The agriculture sector has persistently registered lower growth than other sectors, thus affecting its contribution to poverty reduction in the country. However, the sector has managed to produce between 5 and 19 percent more than the normal national food requirements for basic cereals and steadily, albeit slowly, reduced the percentage of food insecure and rural poor (Figure 11). Increased food production is also an important element in providing employment opportunities for urban youths in the food away from home sector. This sector is rapidly developing in the main urban centers and is based mainly in the processing and selling of domestically produced food.

Figure 11: Trends in the food self-sufficiency ratio and poverty indicators in the United Republic of Tanzania, 2000 to 2010



FSSR = food self-sufficiency ratio.

Source: MAFC, 2011b.

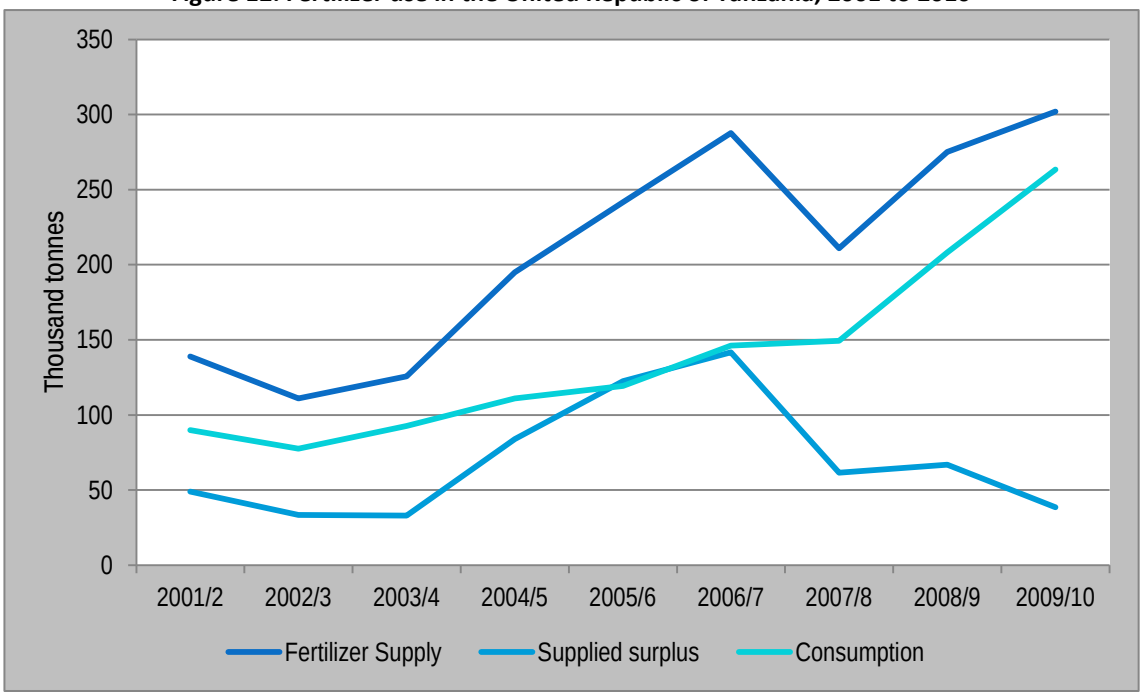
Input market and major constraints to production

One of the major constraints to rural development and agricultural growth is the low productivity of land and labour (Government of the URT, 2011a). Key factors affecting agricultural productivity are: i) low public expenditure on agricultural research and development (R&D); ii) inadequate agricultural financing; iii) poor production techniques; iv) underdeveloped markets, market infrastructure and farm-level value addition; and v) poor rural infrastructure, including rural roads, telecommunications and electricity.

Tanzanian farmers only use 9 kg of fertilizer per hectare, compared with an average of 16 kg/ha for SADC countries; Malawi uses 27 kg/ha and China 279 kg/ha. In spite of these low levels of application, however, the Tanzanian market has failed to absorb all the fertilizer stocks supplied by

traders, recording surpluses of between 15 and 30 percent during the 2007/8 to 2009/10 seasons. The annual supply of improved seeds is around 12 000 tonnes, or 10 percent of total estimated requirements of 120 000 tonnes per year (MAFC, 2011b). However, even this small supply is not fully absorbed, and 6 percent remains with stockists. These figures indicate that traders release more fertilizer and seed stocks than farmers buy, perhaps because of delayed deliveries of stock, farmers' unforeseen inability to purchase the stock they order, or overestimation of farmers' effective demand. More effort is needed to improve seed and fertilizer distribution and ensure that they are sold at affordable prices. There has been a sharp increase in supplies, combined with a narrowing of the gap between supplies and purchases since 2007/08, when the government increased funding for its input voucher system, suggesting that this system has been useful in enhancing input absorption by farmers.

Figure 12: Fertilizer use in the United Republic of Tanzania, 2001 to 2010



Source: MAFC, 2011b.

In 2009/10, there were more than 15 000 tractors in the country, but only 63 percent were operational. The number of tractors in use during 2010/11 increased by 7 percent, reaching 8 556 compared with 7 998 in 2009/10. Power tillers in use increased from 42 percent in 2009/10 to 66 percent in 2010/11. The annual demand for new tractors is approximately 1 800 units, but fewer than 400 tractors (22.2 percent of demand) are sold. The impact of the trend for increased tractor use has not been assessed, but it has clearly not resulted in reductions in the price of cereals. It is possible that most of the increased machinery use is for non-food commercial crops.

The URT has a total of about 7.1 million ha of high- (2.3 million ha) and medium-potential land (4.8 million ha), supported by rivers, lakes, wetlands and aquifers. Of the 2.3 million ha classified as high-potential, only 345 690 ha had improved irrigation infrastructure in 2011, accounting for only 1.2 percent of the total land with irrigation potential (Government of the URT, 2011b). The pace of irrigation development is slow, and even if it were doubled to 40 000 ha/year, it would take 38 years to provide irrigation infrastructure to the available high-potential land (MAFC, 2012). Regarding the

productivity of irrigated farms, the average paddy yield in irrigated areas is about 2.3 tonnes/ha, compared with about 1.8 tonnes/ha in adjacent non-irrigated areas (IFAD, no date).

Environment and agriculture

An estimated 55 percent of the land in the United Republic of Tanzania could be used for agriculture, and more than 51 percent for pasture. However, only about 23 percent of the agricultural land is cultivated, and the practice of shifting cultivation causes deforestation and land degradation on pastoral land. Despite the implementation of new land laws during the last decade, most Tanzanians have yet to realize the full potential benefits of the new land laws in terms of increased access to land or improved management of communal land. In both rural and urban areas, most occupancy rights have not been registered, and small landholdings rarely, if ever, can be used as collateral for borrowing or property for commercial investment. Moreover, access to large tracts of land with clear title is a serious problem for investors in commercial agriculture (USAID, no date).

Lake Manyara basin, gold mine areas, the Usangu wetlands and the Ngorongoro Conservation Area have been the most affected by inadequate control and poorland management (Government of URT, 1999b). The main cause of these problems is the lack of proper instruments for enforcing legislation, policies, procedures, guidelines and by-laws by the central government and local authorities. The environmental management mandates of central and local institutions are also reported to be very weak, conflicting and confusing, leading to difficulties in enforcing laws and implementing environmental management plans.

The URT is one of the few countries in Africa that still has extensive wildlife resources, and protected areas account for about 25 percent of its total land area (Nshala, 1999). Protected areas comprise national parks, game reserves, game-controlled areas and the Ngorongoro Conservation Area. Unfortunately, the communities living around these protected areas do not benefit from the wildlife industry (Government of URT, 1999b); instead they live in uncertain conditions facing persistent attacks and crop destruction by wild animals. This situation has resulted in an antagonistic relationship between the wildlife authorities and local people – with local communities resorting to activities such as poaching to benefit from the wildlife and other natural resources – and is a direct result of the exclusion of local communities from wildlife management.

Human activities on land have impacts that include deforestation, soil erosion, overgrazing, degradation of water resources and loss of biodiversity. All of these weaknesses in natural resource use have resulted in land degradation. Poor agricultural practices such as shifting cultivation and the lack of crop rotation, conservation methods, agricultural technology and land husbandry techniques exacerbate the problem. Liviga (1999) contends that the localized effects of overstocking have caused serious degradation in areas such as Shinyanga and Mbulu where livestock units exceed the carrying capacity of land resources. This situation is seen as an indicator of low capacity to enforce the laws, by-laws, procedures and instruments for ensuring sound environmental management systems among the newly decentralized institutions at the local level.

5. Agricultural policy framework

Following two previous visions for achieving independence and socio-economic liberation, the United Republic of Tanzania developed TDV 2025 to guide long-term development. Zanzibar has also developed its own long-term Vision 2020. TDV 2025 aims to achieve high-quality livelihoods, good governance and economic growth, and acknowledges agriculture as the backbone of the economy. It also highlights the role of the private sector in attaining a modernized, commercial, highly productive and profitable agriculture sector.

At the national level, there are two medium-term strategies for implementing TDV 2025: the National Strategy for Growth and Reduction of Poverty 2005/6–2009/10 (MKUKUTA I) and 2010/11-2014/15 (MKUKUTA II); and the Tanzania Five-Year Development Plan (FYDP) 2011/12–2015/16 (Figure 13).

Figure 13: Policy framework for agriculture and food security in the United Republic of Tanzania

	Mainland URT			Zanzibar
Long-term	**Tanzania Development Vision (TDV) 2025**			**Vision 2020**
Medium-term	National Strategy for Growth and Reduction of Poverty (MKUKUTA I) 2005/6–2009/10	MKUKUTA II 2010/11–2014/15	Five-Year Development Plan (FYDP) 2011/12–2015/16	Zanzibar Strategy for Growth and Reduction of Poverty
Sector-level	Agricultural Sector Development Strategy (ASDS) 2001			
Private investment framework	*Kilimo Kwanza* (Agriculture First) 2009			Agricultural Transformation Initiative
	Agricultural Sector Development Programme (ASDP) 2006–2012/13			Agriculture Strategic Plan 2002–2011 (revised in 2004 and 2008)
	Participatory Agricultural Development and Empowerment Project (PADEP)			Agricultural Service Support Programme
	District Agriculture Sector Investment Project (DASIP)			
	Agricultural Marketing Systems Development Programme (AMSDP)			
	Rural Financial Services Programme (RFSP)			
	Marine and Coastal Environment Management Project (MACEMP)			
Comprehensive Africa Agriculture Development Programme (CAADP) financing mechanism and framework	Tanzania Agriculture and Food Security Investment Plan (TAFSIP) 2011/12–2020/21			

Source: Author's elaboration.

The MKUKUTA strategy outlines three clusters of activities for TDV 2025: i) growth and reduction of income poverty; ii) social services and well-being; and iii) good governance. The contribution of the agriculture sector focuses on the first cluster – growth and reduction of income poverty – and defines five priority areas for driving growth in agriculture (Table 11).

FYDP 2011/12–2015/16 was developed to reflect the global economic crisis and national capacity for managing such shocks. The implementation review of TDV 2025 states that agriculture's potential

contribution to national development has not been sufficiently explored (President's Office, Planning Commission, 2011). Delineating key functions and strategies to generate the momentum for economic growth, the plan considers agriculture as one of five key priority areas for which strategic interventions are needed (Table 11).

Table 11: Agriculture sector objectives and targets from national medium-term strategies in the United Republic of Tanzania

	MKUKUTA I (2005/6–2009/10)	**MKUKUTA II** (2010/11–2014/15)	**FYDP** (2011/12–2015/16)
Objectives/ priorities	• Increased productivity and profitability • Increased sustainable off-farm income-generating activities • Secured and facilitated marketing of agricultural products	• Supportive physical infrastructure • Water and irrigation infrastructure • Financial and extension services; incentives to promote investments, knowledge and information • Value-addition activities (agroprocessing, livestock and fish processing, and mechanization) • Trade/export development services	• Expansion/improvement of irrigation agriculture • Availability of scientific production methodologies (research, training, extension services) • Promotion of agroprocessing and value-addition activities • Availability and utilization of modern agricultural inputs and mechanization • Climate-compatible agriculture
Selected key targets	• Increased agricultural growth from 5% in 2002/03 to 10% by 2010 • Increased growth of livestock subsector from 2.7% in 2000/01 to 9% by 2010 • Increased food crop production from 9 million tonnes in 2003/04 to 12 million tonnes in 2010 • Strategic grain reserve of at least 4 months of national food requirement • Reduced proportion of rural population (men and women) below basic-needs poverty line from 38.6% in 2000/01 to 24% in 2010 • Reduced proportion of rural food-poor (men and women) from 27% in 2000/01 to 14% by 2010	• Increased agricultural growth in real terms from 2.7% in 2009 to 6.0% by 2015 • Increased growth of livestock subsector from 2.3% in 2009 to 4.5% by 2015 • Increased area under irrigation from 370 000 ha in 2009 to 1 million ha by 2015 (irrigation farming supplying 25% of domestic food demand by 2015)	• Average agricultural growth at least 6% • Increased growth of overall livestock sector from 2.7% to 5% by 2016 • Increased food self-sufficiency for cereals and legumes from 104% to 120% by 2015 • Increased irrigated area from 330 000 ha to 1 million ha by 2015/16 • Increased agricultural labour productivity from TSh 212 671 to TSh 345 724 by 2015/16 • Increased value addition for local agricultural producers from 30% to 50% by 2015/16 • Increased annual agricultural foreign exchange earnings from US$700 million to US$1 500 million by 2015/16

Source: Authors' elaboration.

The Agricultural Sector Development Strategy (ASDS) was adopted in 2001 to support the realization of TDV 2025 and achieve the sectoral policy objectives of MKUKUTA. The strategic objectives of ASDS are to: i) create an enabling and favourable environment for improving productivity and profitability in the agriculture sector; and ii) increase farm incomes to reduce rural poverty and ensure household food security.

To serve these objectives five strategic areas are identified: i) strengthening the institutional framework for agricultural development; ii) creating a favourable environment for commercial

activities; iii) enhancing public–private roles in strengthening supporting services; iv) facilitating marketing efficiency for inputs and outputs; and v) mainstreaming planning for agricultural development in other sectors. ASDS is the main policy framework for agriculture and is accompanied by a set of subsectoral policies, including (ESRF, 2010):

- the Cooperative Development Policy, established in 1997 and reviewed in 2002, to create an enabling environment for cooperatives to operate efficiently in the liberalized economy;
- the National Livestock Policy of 2006;
- the Agricultural Marketing Policy of 2008;
- the National Irrigation Policy of 2010;
- the National Agricultural Policy of 2011;
- the Horticultural Development Strategy 2012–2021.

ASDS is implemented through the Agricultural Sector Development Programme (ASDP), a sector-wide investment programme launched in 2006. The main objective of ASDP is to increase productivity, profitability and farm incomes by: i) facilitating farmers' access to and use of agricultural knowledge, technologies, marketing systems and infrastructure; and ii) promoting private sector investment in agriculture, based on an improved regulatory and policy environment.

ASDP has five key operational components: i) policy, regulatory and institutional arrangements; ii) agricultural services – research, advisory and technical services, and training; iii) public investment; iv) private sector development, market development and agriculture finance; and v) cross-cutting and cross-sectoral issues, such as gender mainstreaming and implementation of land acts. ASDP is implemented at the national level, accounting for 25 percent of its total funds, and the local level, with 75 percent of its funds distributed by LGAs. The national-level component is supported by the agriculture sector lead ministries (ASLM)[1] and focuses on agricultural research and extension services; capacity building for food security and nutrition interventions; irrigation development and national-level infrastructure; policy development and planning; and market development and programme coordination. The local-level component leads activities on agricultural services, primarily public and private agricultural extension and LGA-based research, capacity development and empowerment of farmers' groups, LGAs and the private sector; and investments in local infrastructure and productive activities. The Ministry of Agriculture, Food Security and Cooperatives (MAFC) has drafted a second ASDP for the period 2013–2020.

For agricultural investment, *Kilimo Kwanza* (Agriculture First) – a public–private plan launched in 2009 by the Tanzania National Business Council – aims to achieve a green revolution and boost private sector participation by increasing concessionary lending to agriculture, empowering agricultural cooperatives, creating commodity exchanges, removing market barriers to agricultural

[1] The Ministry of Agriculture, Food Security and Cooperatives (MAFC); the Ministry of Livestock and Fisheries Development; the Ministry of Industry, Trade and Marketing; the Ministry of Water and Irrigation; and the Prime Minister's Office – Regional Administration and Local Government (PMO-RALG).

commodities, enhancing trade integration, promoting public–private partnerships for investment in agriculture-related infrastructure and agricultural services delivery, improving access to and use of agricultural knowledge and technologies, and accelerating land reform.

Several programmes are in line with the government's increased emphasis on food markets and mainstreaming of agriculture-related interventions across ministries. For instance, to boost financial institutional development under *Kilimo Kwanza*, the Tanzania Agricultural Development Bank was established, and the Tanzania Investment Bank has helped to increase the budgetary allocation for agriculture by promoting concessionary lending to agriculture. Other measures include strengthening the role of the National Food Reserve Agency (NFRA); calling for the maintenance of food stocks for 6 to 12 months, to ensure market stability; discouraging exports of raw materials; government procurement of local products; encouraging local processing; and input subsidies.

Following the URT's signing of the compact for implementation of the African Union's Comprehensive Africa Agriculture Development Programme (CAADP) in July 2010, the Tanzania Agriculture and Food Security Investment Plan (TAFSIP) (Government of the URT, 2011b) was launched in November 2011 to achieve the CAADP target of 6 percent annual growth in agricultural GDP. TAFSIP aims to be the financing mechanism and framework for ASDP.

Other projects, developed under the ASDP framework include:

- the Accelerated Food Security Project (AFSP), supporting the government's efforts to achieve greater food security by increasing food production and productivity;
- the government's National Agricultural Input Voucher Scheme (NAIVS), providing input subsidies for seeds and fertilizer;
- the Participatory Agricultural Development and Empowerment Project (PADEP), providing grants to communities and farmers' groups for investment in agricultural development project activities focusing primarily on improving soil fertility and land management, adopting sustainable agricultural technologies and increasing efficiency in inputs and outputs marketing;
- the Tanzania Social Action Fund of the President's Office, supporting the implementation of projects related to food security, education, roads, water, health, training and environment;
- the Rural Energy Fund, implemented by the Ministry of Energy and Minerals with investments in rural roads from the Ministry of Works;
- other smaller projects addressing a wide range of agriculture-related areas such as livestock and fisheries development, mechanization, development of irrigation infrastructure, development of marketing infrastructure, development of agricultural cooperatives, development of agriculture-related small and medium enterprises, development of rural financial services, facilitation of trade, and improvement of food security and nutrition.

The latest commitment for agricultural policy in the URT regards the G8 New Alliance for Food Security and Nutrition, which the URT joined in September 2012 to increase private investment in agriculture, achieve sustainable food security and reduce poverty, particularly by accelerating TAFSIP implementation.

The Southern Agricultural Growth Corridor of Tanzania (SAGCOT), initiated in 2010 as an international public–private partnership, also aims to promote private investment, particularly in increasing agricultural productivity and developing commercial agriculture in the Southern Corridor. SAGCOT is expected to deliver major benefits for food security, poverty reduction and resilience to climate change, and could be characterized as an investment mobilization initiative, rather than an agricultural policy framework. SAGCOT's corridor approach is based on clusters of commercial farms and agribusinesses in areas with high agricultural potential and access to supporting infrastructure. An average farm size of 2 ha is preferred, fostering close cooperation with small-scale farmers. This initiative has received great attention from the development community, and its success in delivering on expectations will be key to extension of the growth corridor approach to other parts of Africa. SAGCOT is seen as an excellent way of promoting food security in Africa and at the global level.

Selected agriculture-related laws

Numerous laws affect the agriculture sector (Box 1). Since the mid-2000s, the only major changes to the institutional legislative framework that governs or is related to agriculture and investment are some new acts such as the National Public–Private Partnership Policy, the Plant Breeders Act, the Cereals and Other Produce Act and the Fertilizers Act.

Box 1: Main agricultural laws in the United Republic of Tanzania

Area relevant to agriculture	Law(s)
Customs	EAC Protocol, 2005
	EAC Customs Management Act, 2004
	Customs Tariff Act, 1976
	Excise Tariff Ordinance, Chapter 332
	Finance Act, 1999
Services	EAC Common Market Protocol, 2010
Taxation	Value-Added Tax Act, 1997
Import/export control	Import Control Ordinance
	Export Control Act, Chapter 293
	Foreign Exchange Act, 1992
	Anti-dumping and Countervailing Measures Act, 2004
Technical barriers to trade	Standards Act, 2009
Sanitary and phytosanitary measures	Food, Drugs and Cosmetics Act, 2003
	Animal Disease Act, 2003
	Veterinary Act, 2003
	Plant Protection Act, 1997
Investment	Mainland Tanzania Investment Act, 1997
	Export Processing Zones Act, 2002 (amended in 2006 and 2011)
	Zanzibar Investment Promotion and Protection Act, 2004
	Zanzibar Free Economic Zones Acts, 1992 (amended in April 1997)
Agriculture	Food Security Act, 1991
	Agricultural Products (Control of Movement) Act, 1996
	Cashew Nut Industry Act, 2009
	Cereals and Other Produce Act, 2009
	Meat Industry Act, 2006
	Hides, Skins and Leather Trade Act, 2008
	Animal Welfare Act, 2008
	Livestock Identification, Registration and Traceability Act, 2010
	Fisheries Act, 2003
	Deep Sea Fishing Authority (Amendment) Act, 2007
Others	Land Act, 2001

Source: WTO, 2012 and own elaboration based on data provided by the MAFC Legal Unit.

The overall objective of agricultural and agricultural related laws is to contribute to the overall development of the sector by:

a. ensuring the quality of agricultural products, increased productivity and boost farmer income;
b. enabling the provision of services to farmers including improved farming techniques, access to inputs and pest and disease control; and
c. coordinating the production, marketing and trade of agricultural products.

The following sections describe the main characteristics of the different agricultural and agricultural related acts based on the input provided by the Legal Unit at the MAFC.

The current Tanzania Land Act came into force in 2001, and it consists of The Land Act No. 4 of 1999, and The Village Land Act No. 5 of 1999[2]. These acts specify three categories of land in Tanzania;

- Reserved Land: These are conservation areas, for example game and forest reserves, and national parks. This category occupies about 40 per cent of the total land area.
- Village Land: The Village Land Act recognizes the rights of villages to land held collectively by village residents under customary law. Village land can include communal land and land that has been individualized. Villages have rights to the land that their residents have traditionally used and that are considered within the ambit of village land under customary principles, including grazing land, fallow land and unoccupied land. Villages can demarcate their land, register their rights and obtain certificates evidencing their rights. As of 2009, 10,397 villages were registered, and 753 had obtained certificates (Deinenger and Byerlee, 2011).
- General Land: It consists of all land which is not Village or Reserved Land.

It is important to note that the 1999 Land Acts place overall ownership of all land with the President of the United Republic of Tanzania – as Trustee of the People. Another new development states that "customary land rights of occupancy are legally equivalent to any deemed or granted right of occupancy". The government is also implementing the Strategic Plan for Implementing the Land Acts (SPILL) which was finished in which contained a 10 year action plan with an overall budget of 300 billion TSh of which 1 percent would come from public funds (Hundsbaek-Pedersen, 2010). SPILL pilot projects are being implemented in several districts to roll out the administration of the new land acts together with awareness campaigning. The projects were funded by the EU (2005-2008) and the World Bank (2006-2010). In addition the government also put in place the Property and Business Formalisation Programme (better known by its Swahili acronym MKURABITA) with the purpose of improving access to credit by the formalisation of property rights. The process of entitlement of land was designed as to allow farmers to be able to use their titles as collateral when asking for credit to banking institutions. This has not been widely achieved due to the limitations on

[2] Besides the land acts, numerous laws and policies also influence how land is governed in Tanzania. According to Hundsbaek-Pedersen (2010) these include the Land Use Planning Act (2007); the Investment Act (1997); the Law of Marriage Act (1971) and the Land Acquisition Act (1967).

transferability and since the withdrawal of the Norwegian financial support the program has lost part of its initial pace (Hundsbaek-Pedersen, 2010).

According to USAID (no date) greater efforts to register individual property rights, to apply laws regarding communal grazing lands, forests and natural resource reserves and parks, and to involve local authorities in land and mineral rights decisions could increase transparency of reforms as well as improve tenure security and reduce unsustainable practices. In Tanzania, where land rights are firmly vested with villages, less than 50,000 ha were transferred to investors between January 2004 and June 2009 (Deinenger and Byerlee, 2011).

The Food Security Act (1991) amended by the Cereals and Other Products Act (2009) is enforced by the Directorate of Food Security at the MAFC. It includes a mechanism for coordinating the production, provision of information regarding food security and specific procedures to deal with food shortages. The act also foresees the establishment of a Cereasls and Other Products Regulatory Authority which should be in charge of the regulation of international trade in food products. With the modifications included in the Cereals and Other Produce Act (2009) new Board was created and vested with significant powers to intervene in rice and maize markets. The board falls under the supervision of the Crop Development Department at the MAFSC. The new Board is empowered to: i) facilitate research on cereals, ii) facilitate the offer of extension services to growers and dealers, iii) facilitate the development of agricultural input services, iv) disseminate information, including market information, v) promote production, processing and storage, vi) promote appropriate technologies, vii) assist with the formation of farmers organizations. Importantly, the Board is further empowered to carry out commercial operations, to buy and sell cereals, to import and export cereals, to process them, to provide warehousing services, to clean, dry, weigh, grade and package and to perform other commercial functions which the Minister approves which aid the development of trade in cereals. To achieve its ends, the Board may build or purchase equipment and buildings, establish market centres and/or provide training. The Act further creates a set of zone councils whose responsibly it will be to act as a liaison with local farmer groups, develop local market information services and further act as a consultative forum in which local farmers and traders can discuss and resolve their differences.

The Act also creates a new regulatory authority—the Cereal and Other Produce Regulatory Authority. The Act empowers this authority to: i) develop and enforce sustainable agronomical standards for products, processing and marketing, ii) ensure fair and competitive trade and set indicative market prices, iii) collect, refine and disseminate data, iv) license persons engaged in marketing and processing cereals, v) register growers, dealers and processors, vi) inspect premises in which cereals are stored and processed, and vii) regulate and control the collection, movement, marketing, transportation, importation and exportation and supply of cereals. These are sweeping powers, which depending on how they are implemented may be used either to enhance private sector investment and development of the maize or rice subsectors, or alternatively, can discourage further private investment and private sector lead development. So far we have found no evidence of the performance of the board, however how it will use the powers assigned to them seem to be one of the key issues for the development of the maize sub-sector in the future (Match Maker Associates, 2010).

The cereal board is still not functioning (May 2012). According to the Department of Food Security at the MAFC it should be act as a private commercial agent in the cereals market (maize, sorghum and rice mainly) substituting individual traders. However it seems that there will be budget allocations for the board in 2012/2013 to allow them start functioning with a target volume of purchases of 150.000 tons. Moreover, the Board has inherited the milling assets of the former National Milling Corporation in Arusha and Iringa.

The Seeds Act (2003) regulates the production and trade of all varieties of agricultural seeds including the necessary provisions for quality assurance. The law is implemented by the Crop Development Department at MAFC and the Tanzania Official Seed Certification Institute (TOSCI). It lays down the procedures for dealing with seeds and includes a register of authorized producers and dealers.

The Plant Breeders Act (2012) regulates the protection of new varieties of plants in order to promote plant-breeding activities that will stimulate, facilitate and improve agricultural research in the country through grant and regulation of plant breeders' rights, establishment of a plant breeders' rights office and entrusting with the office functions of granting plant breeders' rights. Witjh this law the URT expects to boost the domestic production of hybrid seed which is currently 90 per cent imported.

The Fertilizer Act (2009) provides for the regulation and control of the quality of fertilizer, either domestically produced or imported. It establishes the Tanzania Fertilizer Regulatory Authority (TFRA) which is responsible for the coordination of manufacture, trade, distribution, sale and use of fertilizers. Any agent involved in the fertilizer business must be registered at TFRA and dealers must be obtain a license from TFRA. Additional supportive legislation was developed as the Public–Private Partnership Act of 2010, with further implementing regulations developed in June 2011. Also related to fertilizer the Agricultural Input Trust Fund Act (1994) regulates the provision of inputs to farmers by the government.

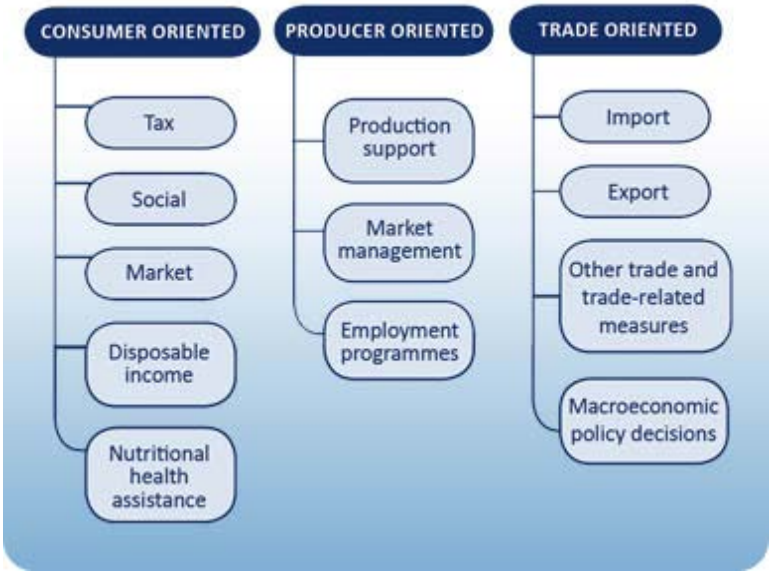
The Tropical Pesticides Research Institute Act (1979) regulates research on pesticides for the purpose of ensuring their quality. The mission of the Institute is to enhance high quality pests and pesticides research, training and services in human, animal, plant and ecosystem hygiene, health and safety in order to contribute to food security and an increase in market access and share of agricultural and natural resource products as an economic incentive for sustainable development.

Eight commodities have acts establishing and regulating the commodity specific board. These include cashew nuts, coffee, cotton, pytherym, sugar, tobacco, tea and sisal. The original acts enacted were amended by the overall Cereals and Other Products Act (2009) mentioned above. Each board is established for the purpose of managing the specific industry including production and marketing of the respective crops.

Recent policy decisions

In recent years, The United Republic of Tanzania has also implemented several policy measures for agricultural development. The most important of these are outlined in the following paragraphs following the typology developed by FAO's Food and Agricultural Policy Decision Analysis tool (Figure 14).

Figure 14: Food and Agricultural Policy Decision Analysis classification of food and agricultural policies



Source: www.fao.org/economic/fapda/fapda-home/policy-classification/en/

Consumer-oriented policies

Stock and price control: The Government of the United Republic of Tanzania stabilizes the food supply by purchasing food staples in surplus areas and selling them at subsidized prices in deficit regions. In 2008, the Strategic Grain Reserve, which was affiliated to the Food Security Department at the Ministry of Agriculture and Food Security, became the independent National Food Reserve Agency (NFRA).

NFRA operates 90 to 120 buying centres, where maize is directly purchased from farmers or warehouses. Most of these centres are in the surplus areas of the Southern Highlands, but their location is subject to annual change, depending on the quality and quantity of the maize produced. This purchasing system creates incentives for increased production through guaranteed purchases at fixed floor prices that are about 10 percent higher than market prices. Revising the available evidence of interventions by the NFRA we have not been able to identify a clear trend of price stabilization and safety nets interventions. Rather both seems to have been applied even simultaneously. Between July and September 2009, a total of 64 545 tonnes of maize and 272 tonnes of sorghum were purchased through NFRA to maintain stocks, and a total of 84 057 tonnes of maize, including carry-over stock, were distributed to deficit areas. In 2010, NFRA was expected to purchase 73 672 tonnes of maize while 126 915 tones was transferred from the Southern Highlands to drought-affected areas. In 2011, in response to drought-related food shortages, it was decided to continue purchasing food crops, and TSh 17.6 billion was allocated for the purchase of 200 000 tonnes of maize from farmers, starting on 1 August 2011. The competitive price of TSh 350/kg was set to discourage cross-border smuggling. When domestic production is insufficient to meet demand, private companies import maize via tenders, as NFRA has no mandate for importing from markets in other countries.

By August 2009, 780 000 people had benefited from government grain distributions. In July 2007, reserve grains were released to the market for sale at TSh 50/kg, which was less than the market price. Subsidized food distribution aimed to reach 400 000 people in 2008. As of 28 April 2008, a total of 1 083 tonnes of maize and 193 tonnes of sorghum had been distributed. Following NFRA's release of portions of its stock in November 2008 and July 2009, to reduce food prices in areas where prices rose sharply, in August 2009 the government announced a policy of maintaining stock levels sufficient for six months to one year of demand, to ensure market stability. This level is in line with the EAC Food Security Action Plan 2010–2015, which proposes food and financial reserves for the regional level and recommends that each member country hold food and feed reserves for at least six months by 2015.

Taxation: High taxation, of almost 20 percent of the sale price, has been identified as an obstacle to crop exports. In addition, there are local taxes, which vary by district. Taxes on crops were reduced to a maximum of 5 percent in July 2008. The value-added tax (VAT) rate on coffee was cut from 20 to 18 percent during the fiscal year 2009/10, while VAT exemption on processed locally grown tea and coffee was removed, in line with the rules applied to other processed agricultural products, which are taxable. Currently only unprocessed agricultural products are exempted from VAT.

Producer-oriented policies

Support to storage and marketing: In 2007, the warehouse receipt system (WRS) was introduced to enable farmers to store their produce in warehouses and sell it when prices are higher. The scheme is implemented through primary cooperatives, farmers' organizations or savings and credit cooperatives (SACCOs). Participating farmers are paid a percentage of the produce price (50 or 70 percent), from which the prices of inputs for the following season are deducted. After storage and sale at auction by the warehouse manager, the farmer is paid the remaining percentage plus any extra gains (less interest and administration costs). The system has been applied for cashew nuts and rice (WTO, 2012).

Producer subsidies: Although general fertilizer subsidies were removed in the early 1990s, as part of liberalization reforms, the United Republic of Tanzania restored subsidies for the transport of fertilizers in 2003/04, and for maize and sorghum seeds in 2005 (WTO, 2012). Then, in response to the food and fertilizer price increases in 2008, the government launched AFSP, which aims to boost food production and productivity in targeted areas, as the URT's agricultural input intensity is among the lowest in the region. A pilot input subsidy programme was launched in 2008, and was expanded into the National Agricultural Input Voucher Scheme (NAIVS) in 2009. This input voucher scheme was planned with US$300 million over three years, of which US$160 million was financed by the World Bank. The initial design of NAIVS focused on six crops: maize and paddy, supported by the provision of fertilizer and improved seeds; and tea, coffee, cotton and cashew nuts, supported with agrochemicals and seedlings. This initial targeting has since been expanded to cover sorghum, sunflower, cotton, cashew nuts, coffee and tea. There are seven eligibility criteria for NAIVS: i) being a full-time farmer residing in the village; ii) cultivating less than 1 ha of maize or rice; iii) using the subsidized inputs for maize or rice; iv) agreeing to serve as an example of the use of good agricultural practices; v) being willing and able to take part in co-financing; vi) being a female-headed household (priority); and vii) not having used inputs for the past five years (priority).

The vouchers distributed provide a 50 percent subsidy on a 100-kg package of fertilizer (urea for nitrogen, and diammonium phosphate for the nutrient phosphorus pentoxide) and 10 kg of improved maize or rice seeds. The scheme was first introduced in 11 regions in 2008, and expanded to 20 regions in 2009 (FAO, 2012). A total of 737 000 farmers benefited, compared with a target of 700 000, giving a success rate of 105.3 percent. In addition, fertilizers were exempted from VAT in June 2009, and duty on farm-level inputs such as fertilizers, insecticides, pesticides and herbicides had already been removed in July 2008.

Under the voucher scheme, in 2009 a total of 7 180 tonnes of improved seed (6 488 tonnes of hybrid maize and 692 tonnes of open-pollinated maize varieties) were distributed in 11 regions. The seeds supplied increased from 10 500 tonnes in 2005 to 16 150 tonnes in 2010, which was still far behind the estimated demand of 120 000 tonnes. Research institutions produced a total of 172.72 tonnes of breeder seeds, including seeds for 39 newly improved crop varieties, and the Agricultural Seed Agency was established to support private sector seed production.

In the budget of 2009/10, the government released a financial rescue package for traditional exports, including cotton, to compensate for the losses incurred by agricultural cooperatives and private companies during 2008/09. By the end of December 2009, a total of TSh 19.9 billion of the Tsh 28.6 billion requested by 35 cotton buyers had been disbursed.

The government has also provided support to increase mechanization. Mechanization is one of the main approaches to modernization of the agriculture sector, as indicated in medium-term development plans such as MKUKUTA II and FYDP. Through ASDP, 65 tractors, 1 972 power tillers, 1 321 ploughs and 1 908 processing machines have been procured through cost sharing arrangements that require beneficiary farmers to contribute 20 percent of the total costs of acquiring the equipment. District agricultural development programmes supported by LGAs have also benefited farmers through a cost sharing mechanism for the purchase and distribution of 166 power tillers, 49 tractors and 81 ox ploughs. The Medium-Term Budget Plan for 2010/2011 reports that during 2009 a total of 472 tractors, 495 power tillers and 62 194 animal-drawn implements were distributed throughout the URT. In the last quarter of 2009, 75 tractors and 11 power tillers were procured through the Agricultural Inputs Trust Fund (AGITF) credit arrangement, and a total of 355 tractors and 1 344 power tillers were imported. In July 2008, to encourage use of the machinery distributed through these various arrangements, annual motor vehicle licence fees were reduced, with full exemption for tractors used for agricultural purposes. In November of the same year, the government allocated TSh 17.5 billion to subsidize fuel prices.

Access to credit: The government has disbursed TSh 22 billion to the Tanzania Investment Bank, to provide an agriculture financing window. By April 2011, TSh 13.8 billion of this total had been distributed to 381 agricultural projects. This loan facility supports the procurement of tractors, small hand-operated power tillers, irrigation equipment, livestock, commercial vehicles and other farm implements such as tractor-trailers and storage equipment. It is to be developed into an agricultural development bank; during the 2010/11 financial year, US$500 million was allocated to establish the Tanzania Agricultural Development Bank.

AGITF provides smallholder farmers and agri-input dealers/stockists with loans at concessional rates of 8 percent, to be repaid in seven years; market rates are usually between 15 and 20 percent on

loans for the purchase of inputs and equipment (DFID, 2011). The loans are provided in collaboration with LGAs and microfinance institutions. In 2009/10, AGITF provided loans worth TSh 7.42 billion. SACCOs and other credit associations have also increased the availability of small loans for farmers. However, the conditions imposed are sometimes too stringent for small-scale farmers. For instance, access to AGITF requires borrowers to present a registration certificate for collateral of land or a house, but the low percentage of land registered and the lack of established property rights hinders or slows banks' granting of loans.

Investments in land and water: The United Republic of Tanzania has a vast estimated area of 29.4 million ha suitable for irrigation, but only 330 000 ha is currently under irrigation. Irrigation is one of the main objectives of ASDP. Following drafting of the National Irrigation Policy and Strategy in 2007, six irrigation schemes were financed in Mombo (Korogwe), Nduguti (Shinyanga Vijijini), Mwamapuli (Igunga), Mwega (Kilosa), Mbuyuni (Mbarali) and Nakahuga (Songea Vijijini), to increase the productivity of rice farming. After these measures, it was estimated that the area under irrigation had increased from 289 245 ha in 2007 to 310 745 ha in June 2009. The mid-term budget review estimated that this had resulted in production increases for paddy rice, from 2 to 5 tonnes/ha, and tomatoes, from 5 to 18 tonnes/ha, in Igomelo irrigation scheme (Mbarali); for maize, from 1.5 to 4 tonnes/ha, in Mombo irrigation scheme (Korogwe); and for onions, from 13 to 26 tonnes/ha, in Mangola irrigation scheme (Karatu). Between June and December 2009, the area under irrigation increased from 310 745 to 322 945 ha.

To increase production, it was decided that government-owned land would be utilized for agricultural production from December 2009. By the end of 2009, 753 villages (less than 10 per cent of total registered villages) had been issued with certificates of village land, and 14 017 certificates of customary rights of occupancy had also been issued. In the same year, Lindi Region completed the identification of land for crop farming, livestock farming and other purposes.

Tax exemptions and reductions: To reduce production costs, in the 2009/10 financial year, VAT exemptions on farm services such as land preparation, cultivation, planting and harvesting were proposed, in addition to existing VAT exemptions on agricultural implements and fertilizers. In 2010, registered farmers and cooperatives were exempted from VAT on goods and services needed for developing infrastructure such as irrigation canals, feeder roads and storage facilities. To promote investment in the diary subsector and improve the income of individual farmers, in the 2010/11 financial year, the government introduced VAT exemptions on machines and equipment used for the collection, transportation and processing of milk products. In 2009, it announced VAT exemptions on heat-insulated milk cooling tanks and aluminium jerry cans for milk storage and collection in the dairy industry, to improve the quality of milk.

Trade-oriented policies

Import measures: The United Republic of Tanzania is a member of the EAC and applies the Common External Tariff (CET) (EAC, 2007) on imports from outside the EAC, and reduced or zero tariffs on imports from the other four member countries (Kenya, Uganda, Rwanda and Burundi). It also applies reduced tariffs on some commodities from members of SADC and/or the Common Market for Eastern and Southern Africa (COMESA). Tariffs on the main imported commodities are quite high as

these are considered sensitive items and are thus included in Schedule 2 of the CET. Table 12 reflects the prevailing tariffs for the main export commodities studied in Part 2 of this report.

Table 12: EAC CET rates for imported commodities used in the MAFAP analysis of the United Republic of Tanzania (percentages)

Product		Tariff regime		2005	2006	2007	2008	2009	2010
Fresh milk and milk powder		MFN duties (applied)		60					
		EAC	Kenya	25	20	15	10	5	0
			Uganda	0					
Maize		MFN duties (applied)		50					
		EAC		0					
Rice		MFN duties (applied)							
		EAC		0					
Sugar	Refined	MFN		35					
		EAC		0					
	Raw	MFN							
		EAC		0					

MFN = most-favoured nation.
Sources: EAC, 2007; WITS, 2012.

However, in the face of food shortages, the government has temporarily waived import duties on maize, in accordance with the provisions of the EAC Customs Union Protocol, repeating the waivers adopted in July 2007 and January 2008. Import duties on other cereals were also removed from the beginning of 2008 until June 2008, and again in November 2008. When wheat production did not meet demand, the import tariff on wheat was applied at the rate of 10 percent from July 2009, while the CET remained at 35 percent. Specific and general tariff waivers for sugar were granted during the 2005–2010 period. More details on each tariff waiver is provided in Part 2 in the discussion of incentives and disincentives for individual commodities.

Export measures: In 2011**,** the Government of the United Republic of Tanzania was the only government in east Africa that still banned exports, albeit temporarily (World Bank, 2009). The ban has been imposed and lifted several times during the study period. Part 3 of this report provides a more detailed discussion of the maize export ban and its implications for the URT.

As export bans are difficult to enforce in the URT, because of the high rate of informal cross-border trade to neighbouring countries, the government announced that it would focus on expanding irrigated land to 1 million ha by 2015 and that the export ban would be removed once NFRA had built up sufficient stocks.

Although the 2 percent levy on crop exports has been abolished, and exports are zero-rated for VAT, an export tax of either 15 percent or US$160/tonne is still applied to cashew nuts, to discourage the export of raw nuts and promote local value addition. Under the amended Export Levy Act of June 2012, export taxes on raw hides and skins were increased from 20 to 90 percent or TSh 900/kg, whichever is higher. These export taxes are designed to encourage local processing and value-added exports (WTO, 2012).

Agriculture sector budget process

In early 1980s the Government of the United Republic of Tanzania started to implement economic structural reforms under the Structural Adjustment Programme. As in most other developing countries, these reforms evolved to include political, sectoral and governance spheres. Aiming to boost economic growth, rule of law and economic liberalization, they had an impact on budgetary planning and implementation, thereby necessitating budgetary reforms. The budgetary process is dynamic for coping with resource mobilization, planning and expenditures, and a previous initiative, the Rolling Plan and Forward Budget (RPFB), introduced in 1992/93, sought to strengthen linkages between development planning and the budget process. Although the Ministry of Finance and Economic Affairs (MoF) credits RPFB with introducing multi-year budgeting linked to a macro-fiscal framework, in practice the plan had several limitations and was not a participatory process.

Some of these limitations regarded the resource envelope and resource allocations, which were frequently overridden during subsequent preparation of the budget. The budgeting process itself was hampered by the institutional separation of responsibility for planning the development budget (by the Planning Commission) and the recurrent budget (by MoF). Because the Planning Commission led the RPFB exercise, RPFB was perceived as focusing primarily on the development budget and consequently failing to contribute to better prioritization of recurrent pending.

The new budgetary process is highly decentralized and uses the Medium-Term Expenditure Framework (MTEF) as a tool for planning and monitoring budget outcomes. The MTEF entails planning for a three-year period. It links the budget process to the Poverty Reduction Strategy (PRS) and is aligned with performance budgeting, with cash management systems making quarterly allocations to the priorities and sectors identified in the PRS. Sectoral strategies focus on priority areas for the financial year, reflecting funding constraints. Mainstreaming of the PRS into the MTEF has facilitated the practice of directing higher expenditure shares towards priority sectors. The sequence of activities in the MTEF process is:

- formulation of the Budget Guideline Committee;
- preparation of revenue and expenditure estimates;
- final preparation of the budget;
- budget implementation;
- monitoring and control.

MoF coordinates the budget planning cycle. The Annual Finance Act empowers the Minister of Finance to mobilize funds to finance the budget by imposing taxes, levies, fees and charges. The Annual Appropriation Act allows the Minister to draw money from the Consolidated Fund and to allocate or reallocate it to the activities of ministries, regions, councils and government agencies.

In the URT, the government financial year runs from 1 July to 30 June. The budgeting cycle usually starts with a review of macroeconomic targets, setting revenue and expenditure ceilings. This phase is facilitated by the Budget Guideline Committee, which issues an annual budget guideline. The committee is composed of officers from the Ministries of Finance and Economic Affairs, the President's Office – Planning Commission, the Prime Minister's Office – Regional Administration and Local Government (PMO-RALG) and the President's Office – Public Service Management. The approved version of the budget guideline is submitted to the Inter-Ministerial Technical Committee.

Based on macroeconomic reviews and other development indicators indicated in the macroeconomic performance review, an overall framework is formulated to guide budget planning. The government sets objectives and budget priorities to be achieved in each of the three years of the MTEF.

At this stage, the ministries – including the Ministry of Agriculture – draft their requests for resources from the budget. This allows the wider participation of other stakeholders in the budgetary planning process. At local government levels, citizens participate through the Opportunity and Obstacles for Development mechanism, while the public expenditure review provides an avenue for the participation of development partners, academic institutions, political parties, civil society organizations (CSOs) and community-based organizations (CBOs). The public expenditure review informs MAFC on important areas for increased budget allocations over the next financial year.

ASDP is the main framework for agriculture activities, and the government has agreed to spend 10 percent of the national budget on agriculture sector development under the CAADP framework. The programme financing arrangement has five windows: the District Agricultural Development Grant; the District Irrigation Development Fund; the National Irrigation Development Fund; the Agricultural Extension Block Grant; and the Discretionary Capacity Building Grant. ASDF implementation arrangements include institutional as well as financial management arrangements.

A multi-donor basket fund for ASDP was initiated in 2006 to support national activities via an agreed expenditure programme for the agriculture sector lead ministries, with district- and village-level activities supported by performance-based grants channelled through PMO-RALG. The government, together with development partners and the World Bank, implements the Local Government Capital Development Grant system, which provides discretionary development funds to local authorities, and will over time become the mechanism through which all development funds are transferred to LGAs. The system's broad objectives are to enhance the delivery and management capabilities, productive efficiencies and financial sustainability of LGAs, and to improve the accessibility of communities.

District Agricultural Development Grants are meant to support participatory and community projects/interventions focusing on agriculture at the decentralized district level. Projects funded by these grants can be community- and/or group-owned and should be informed by Opportunities and Obstacles to Development exercises, which are consultative and involve a wide range of stakeholders, to ensure institutional and gender representation. The interventions funded are expected to contribute to addressing food insecurity by increasing production and productivity, thereby reducing hunger and poverty. They must consider the availability of and access to productive resources (seeds, extension/advice services, agrochemicals, farming implements), infrastructure (irrigation, rural roads, electricity, market structures), value-addition facilities and marketing systems. These issues are among the main motivators for small- and large-scale producers to continue in farming.

Grants from central government are released monthly, bimonthly and quarterly, depending on the plans submitted by the LGA concerned. Seventy-five percent of ASDP allocations are transferred to the local level, and the remaining 25 percent is retained at the national level to cover overhead costs and national-level interventions. However, there is a mismatch in the release of funds, with

investment funds being released during the first quarter of the year while capacity building and extension grants are released later. Of the 75 percent of ASDP funds received by LGAs, at least 80 to 85 percent is expected to support community projects through District Agriculture Development Grants, Agricultural Capacity Building Grants and Agricultural Extension Block Grants. In practice, District Agricultural Development Grants receive more than 65 percent of the total funds, and the other two types of grant share the remaining 35 percent.

Recurrent expenditure flows from the government exchequer system into the accounts of the sector ministries and is then spent on activities (World Bank, 2010). Recurrent expenditure for LGAs bypasses the national ministries and is directed to PMO-RALG for release to the districts.

Donor finance is deposited in the ASDP basket fund account and then disbursed into the government exchequer system. Development partners make quarterly deposits into the basket fund account. Funds are then allocated to the respective ministries on the basis of conditions, which include the presentation of cash flow forecasts, approved annual work plans and budgets, and satisfactory quarterly financial statements. The release of funds for the first quarter is triggered by presentation of a satisfactory progress report for the previous year's third quarter and an interim financial report. Subsequent quarterly disbursements are conditional on submission of the previous quarter's interim financial report and a cash flow forecast for approved work plans. Funds can be drawn from the account by submitting to the Treasury a written approval from the Basket Fund Steering Committee. Transfers of funds from the ASDP basket to counterpart implementing agencies are also subject to approval of the Basket Fund Steering Committee.

ASDP funds for LGAs are transferred from the Treasury (once it has obtained funds from the basket fund account) to PMO-RALG, and then through regional offices to the District General Fund account, before reaching the District Agricultural Development Planning accounts, from where funds for community projects at the village level are transferred to the village accounts.

For development projects outside the ASDP basket, such as PADEP, AFSP and DASIP, funds are released to the MAFC special project accounts, subject to the submission of cash flow projections in withdrawal applications based on the annual work plan and budget.

Part 2: THE EFFECTS OF AGRICULTURAL AND FOOD POLICIES, PUBLIC EXPENDITURE AND AID

To attain their development objectives, governments use policies to change the rules governing the economy as a whole (macroeconomic policy) or the rules governing a particular economic sector (sector policies), to guide and modify the behaviour and decisions of agents operating in the economy. These changes can be brought about by establishing a legal framework (e.g., food quality or safety norms, property rights) to which economic agents must adhere or run the risk of legal prosecution or fines. Another approach is through institutional reform, or providing incentives or disincentives to certain types of behaviour via price and trade policies, input and output marketing policies, social policies (income transfers, safety nets, social security schemes) and finance policies. However, price incentives and disincentives do not arise from explicit policy actions alone; in many cases, markets do not function as they are supposed to because there is no integration among different sub-markets within a country owing to excessive transport costs, there is asymmetry among agents regarding price, or some agents have excessive market power. Incentives measured in this report therefore include the effects of explicit policies, market development gaps and interactions between the two.

Public expenditure can be used to make goods and services available to the food and agriculture sector, to support the implementation of government policies and to facilitate the achievement of development objectives. For example, public expenditure may provide public goods through public investment in infrastructure, or private benefits such as subsidies or income transfers.

To monitor government actions and to ensure that they are consistent with and contribute to development objectives, it is therefore essential that the authorities be fully informed regarding the incentives or disincentives that the policies they implement may provide to the economy, and regarding the consistency, efficacy and adequacy of the ways in which they spend their public resources.

The following are some of the key questions that governments need to consider:

- Do the policies in place and overall market functioning provide incentives for production, processing and marketing in key food and agricultural value chains, or do they penalize them?
- In the most strategic value chains, who benefits from the policies in place – producers, processors, traders or consumers?
- Which policies should be changed so that the incentive structure in the food and agriculture sector comes closer into line with government objectives?
- Is public expenditure spent in ways that address the key issues faced by the food and agriculture sector? For example, what is the most efficient way to improve farmer incomes – through an input subsidy or investment in a road? Does public investment focus on key investment needs?
- Are policy incentives and public expenditure coherent or do they sometimes send out contradictory signals to the economy, resulting in wastage of precious public resources?
- Are public resources spent efficiently, or is an excessive share of them used for administrative costs?

The analysis presented in the report is related primarily to domestic policies. Producers and consumers are also affected by policies in other countries and regions. For example, producers of exported agricultural commodities from Tanzania are penalized by import tariffs in destination countries and producers of imported commodities are penalized by subsidized exports by third countries. In this sense, the fact that the recommendations provided refer to domestic policies does not imply that there is no impact of international policies on incentives and disincentives to Tanzanian farmers and consumers nor that reform is not needed in the international policy arena.

Although this report refers to incentives and disincentives in the United Republic of Tanzania (URT), most of the analysis is based on data and information for mainland URT. In the future, specific analyses of relevant commodities, policies and value chain performance in Zanzibar should be carried out.

6. Incentives, disincentives and market development gaps

Box 2 provides a summary of the main results of the analysis regarding incentives, disincentives and market development gaps.

Box 2: Summary of results regarding incentives, disincentives and market development gaps in the United Republic of Tanzania

Overall, producers in the United Republic of Tanzania have been incentivized during the study period, although the level of incentives has declined. It can therefore be concluded that the policy environment and market performance lead farmers to obtain higher prices than they would in the absence of policies and with well-functioning markets.

However, this trend masks a dual situation. Producers of commodities that are imported into the URT are incentivized, while producers of export-oriented commodities are penalized. The results also show that some commodities are protected at the wholesale (processed) level and penalized at the farmgate (raw) level.

This duality is also detected in the relative roles of policy and market performance in the incentives and disincentives identified. While most incentives for imported commodities relate to trade policy, disincentives for export commodities relate to both explicit taxes and inefficiencies in the processing industry. In addition, part of the protection for imported goods granted by trade policy is eroded by excessive marketing costs along the value chain.

Farmers producing commodities that the URT needs to import to cover domestic consumption are generally incentivized. These incentives are related to the Common External Tariff (CET) that the URT applies to imports from outside the Eastern African Community (EAC). The only exception is sugar, whose producers face strong disincentives. In addition, for all imported commodities, protection levels are eroded towards the farmgate, because of poor market integration and inefficiencies in the value chain.

Farmers producing export commodities in the URT are generally disincentivized, meaning that the policy environment and market performance lead them to obtain lower prices than they could in a policy-free environment with better market performance. These disincentives are related to taxation of commodities (cotton, cashew nuts), bad functioning of the value chain (coffee, cashew nuts) and inefficiencies in the processing sector (cotton). Contrary to the producers of classic export crops, pulse producers have positive indicators, meaning that average domestic prices are higher than export-parity prices. While this situation would generally be considered an incentive for producers, in this case it reflects bad functioning of the value chain, where lack of storage facilities means that exporters miss the opportunity of benefiting from higher prices in domestic markets while consumers pay higher prices.

For thinly traded products, the incentives and disincentives to maize producing farmers are very volatile. For this commodity, a mix of variable policy decisions (trade restrictions, subsidized sales), and lack of market integration in the URT due to excessive transport costs generate disincentives to farmers. Overall, farmers obtain lower prices than would be attainable in the absence of policy and with better market performance.

The general pattern for incentives and disincentives in the URT applies to the producers of commodities that represent a significant share of the Tanzanian diet. From a consumer perspective, these incentives lead to increased food bills, reducing affordability. Thus the results show a conflicting impact on food security. Incentivized farmers are likely to invest more, hence increasing their production, as has been most visible for rice, for which the URT has gone from being an importing country to a net exporter. For other commodities, however, incentives do not seem to have a positive impact on domestic food availability.

Commodity selection

For this report, price incentives and disincentives for nine commodities have been analysed. These commodities were selected from a systematic review of agricultural production, agricultural trade and average diet in the United Republic of Tanzania (Barreiro-Hurle, 2011a). The following criteria were used:

(i) contribution to food security;
(ii) contribution to the food import bill;
(iii) contribution to export revenue;
(iv) contribution to the value of agricultural production.

The Monitoring African Food and Agricultural Policies (project) aims to analyse commodities that represent at least 70 percent of the total value of agricultural production, of agricultural trade and of the diet in the country. Owing to the URT's diverse agricultural production structure, 12 commodities are needed to reach this threshold. In addition, with the exception of cotton and rice, major imports and exports are not among the most important commodities as their shares of total production are low. The diet in the URT is also quite varied. To satisfy all the selection criteria, an initial list of 19 commodities was proposed.

To ensure a set of indicators that allows comparisons across African countries, in each country, the MAFAP project also analyses six agricultural products that represent significant shares of total agricultural production value within Africa as a whole (Barreiro-Hurle, 2011b). No additional commodity had to be added to the URT list, which already included these six commodities.

The list of 19 commodities was shortened based on data availability, commercialization level of the commodity, policy interest shown by the Ministry of Agriculture, Food Security and Cooperatives (MAFC), and size of domestic agricultural production. Nine commodities have already been analysed (Table 13), and analysis of another four (tea, cassava, livestock, sorghum/millet) is under way. Special attention will be paid to analysing livestock, for which a policy brief is to be prepared. The nine analysed commodities represent 36 percent of total agricultural production, 47 percent of total agricultural exports, 44 percent of total agricultural imports, and 55 percent of total calorie intake. Table 13 identifies the major commodities that would need to be studied to reach the 70 percent thresholds set by the MAFAP methodology. Additional efforts will be made to include these commodities in future analyses.

Table 13: Commodities studied and their coverage of agricultural production, agricultural trade and diet in the United Republic of Tanzania, 2005 to 2010

Commodity	Share of production value	Share of export value	Share of import value	Share of Kcal intake*
Cashew nuts	1.2	6.7	0.0	[a] 0.2
Coffee	0.8	14.1	0.0	0.0
Cow milk	7.3	[b] 0.0	[b] 0.6	2.6
Maize	[c] 6.5	0.8	2.9	24.3
Pulses	[e] 10.6	[f] 7.5	[f] 0.7	8.5
Rice	5.2	n.d.	n.d.	9.1
Cotton[g]	2.9	14.5	0.1	n.a.
Sugar	[h] 1.2	1.6	8.6	4.0
Wheat	0.2	1.4	31.4	5.9
Total	**35.9**	**46.6**	**44.3**	**54.8**
Under study				
Cassava	*8.2*	*0.0*	*0.0*	*10.5*
Livestock	*12.0*	*[d] 0.1*	*[d] 0.6*	*1.6*
Sorghum/millet	*2.4*	*0.1*	*0.2*	*3.8*
Tea	*0.5*	*6.3*	*0.0*	*0.0*
Additional commodities needed to reach MAFAP thresholds				
Bananas	*12.7*	*0.0*	*0.0*	*4.0*
Palm oil	*0.0*	*1.6*	*27.3*	*3.3*
Tobacco	*1.3*	*17.6*	*1.1*	*n.a.*

* Diet figures from 2009 Food Balance Sheet.

n.d. = no data available; n.a. = not applicable.

[a] tree nuts; [b] including fresh, condensed and evaporated milk; [c] including green maize; [d] including cattle, cattle meat, boneless cattle meat, and dried, smoked and salted beef; [e] including beans, chick peas, cow peas, peas, pigeon peas and pulses nes; [f] including beans, chick peas, peas and pulses nes; [g] including cotton lint and cotton seed; [h] sugar cane.

Source: FAOSTAT, 2013.

The selected food and agricultural commodities are classified according to their trade status: import, export or non-/thinly traded. A commodity is considered non-traded when less than the equivalent of 2.5 percent of the total volume of its domestic production is traded (internationally); commodities that reach this 2.5 threshold are considered "exports" or "imports" depending on whether the country is a net exporter or a net importer. This report presents the commodities selected in each category, along with an aggregated list of commodities for analysis of incentives/disincentives.

The nine commodities analysed fall into the four groupings shown in Table 14, which form the basis for the analysis of price incentives in this section. Detailed analyses of seven commodities are available as technical notes from the MAFAP Web site.[3] Technical notes for the remaining three commodities and analyses of those listed as under study in Table 13 will be available in the near future.

Table 14: Commodity groupings used in the analysis of price incentives and disincentives in the United Republic of Tanzania

Imported	Exported	Thinly traded	Food security
Dairy	**Cashew nuts**	**Maize**	**Maize**
Rice	**Cotton**		Pulses
Sugar	**Coffee**		**Rice**
Wheat	Pulses		**Sugar**
			Wheat

Commodities in bold are those for which technical notes are available on the MAFAP Web site.

Source: Authors' elaboration.

Highlights of the methodology

The MAFAP methodology seeks to measure market price incentives and disincentives to producers and other agents in commodity markets. The analysis is based on comparisons between observed domestic prices and reference prices. Reference prices are calculated using the prices of the product in the international market, which are considered as benchmark prices, free of the influence of domestic policies and markets. The methodology estimates two types of reference price: observed and adjusted. Observed reference prices are those that would prevail in the presence of distortions from national policy measures (except tariffs and other trade measures) and deficiencies in the structure and functioning of domestic value chains; adjusted reference prices are those that would prevail in the absence of these distortions.

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

Observed domestic prices are compared with reference prices at two specific locations along the commodity value chain – the farmgate and the point of competition, where domestic products compete with identical products at world market prices. The approach for comparing prices at each

[3] www.fao.org/mafap

location is summarized in Figure 15, using an imported commodity as an example. In the situation illustrated in Figure 15, the country is importing a commodity that arrives in the port at benchmark price P_b, which is usually the unit value CIF price at the port of entry. In the domestic market, the price of the same commodity is observed at the point of competition, P_{wh} (usually the observed price at wholesale), and at the farmgate, P_{fg}. Analysis also draws on information about observed access costs, which are all the costs associated with bringing the commodity to market, including marketing costs between the border and the point of competition, AC_{owh}, and between the farmgate and the point of competition, AC_{ofg}.

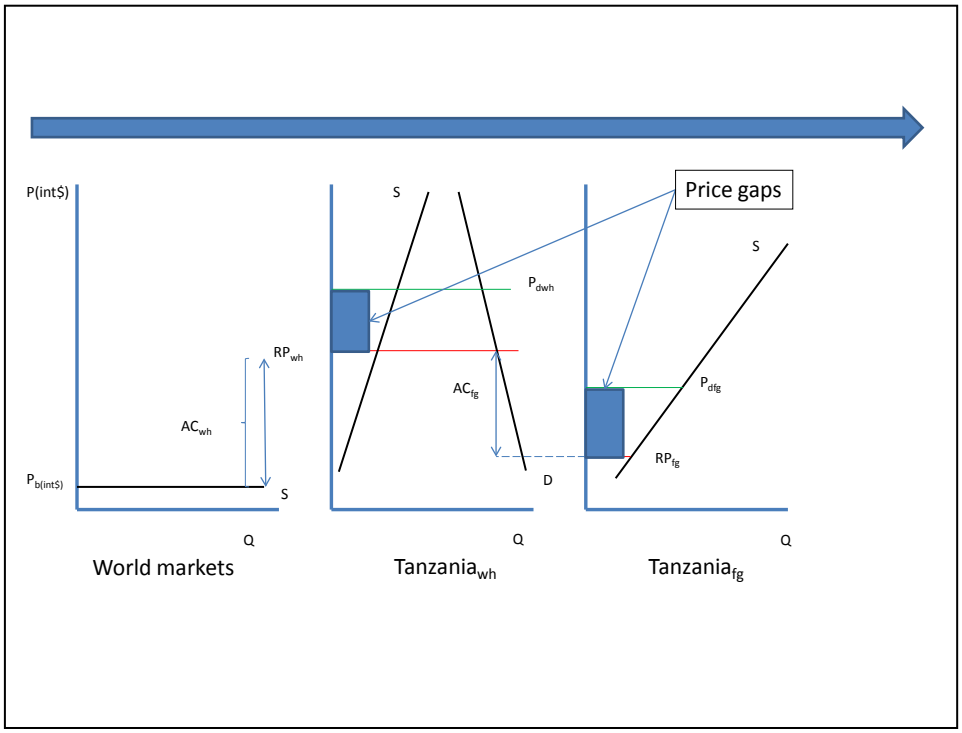
As illustrated in Figure 15, the benchmark price can be compared with the observed domestic price at the point of competition by adding the access costs between the border and the point of competition, resulting in the observed reference price at the point of competition, RP_{owh}. This takes into account all the costs an importer would need to bear to bring the commodity to market; in effect, these costs raise the price of the commodity. The reference price at the point of competition is made comparable with the observed domestic price at the farmgate by deducting the access costs between the farmgate and the point of competition, resulting in the observed reference price at the farmgate, RP_{ofg}. This price takes into account all the costs incurred by farmers and other agents in bringing the commodity from the farm to the wholesale market. Mathematically, the equations for calculating the observed reference prices at the point of competition (RP_{owh}) and the farmgate $\left(RP_{ofg}\right)$ for an imported commodity are as follows:

$$RP_{owh} = P_b + AC_{owh}$$

$$RP_{ofg} = RP_{owh} - AC_{ofg}$$

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

Figure 15: The MAFAP methodology for price incentive and disincentive analysis



This graphical representation is for an imported commodity.
Source: Authors' elaboration.

The steps illustrated in Figure 15 can be conducted a second time using benchmark prices and access costs that have been adjusted to eliminate market distortions due to exchange rate misalignments, imperfect functioning and non-competitive pricing in international markets and inefficiencies along domestic value chains,[4] where possible and relevant. The adjusted benchmark prices and access costs are then used to generate a second set of *adjusted* reference prices in addition to the first set of *observed* reference prices calculated.

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

$$RP_{owh} = P_b - AC_{owh}$$

$$RP_{ofg} = RP_{owh} - AC_{ofg}$$

After observed and adjusted reference prices are calculated for the commodity, they are subtracted from the domestic price at each point in the value chain to obtain the observed and adjusted price gaps at wholesale and the farmgate. Observed price gaps capture the effect of trade policy measures

[4] Inefficiencies along domestic value chains may include government taxes and fees (excluding fees for services), high transportation and processing costs, and high profit margins captured by various marketing agents.

that directly influence the price of the commodity in domestic markets (e.g., subsidies and tariffs) and actual market performance; adjusted price gaps capture the effects of distortions resulting from market functioning and government policy measures influencing domestic prices. Mathematically, the equations for calculating the observed price gaps at the point of competition (PG_{owh}) and the farmgate $\left(PG_{ofg}\right)$ are as follows:

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

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

where P_{fg} is the observed domestic price at the farmgate, RP_{ofg} is the observed reference price at the farmgate, P_{wh} is the observed domestic price at wholesale, and $\mathrm{RP_{owh}}$ is the observed reference price at wholesale.

A positive price gap, resulting when the observed domestic price exceeds the reference price, means that the policy environment and market functioning as a whole generate incentives (support) to producers or wholesalers. For an import, this result could be due to distortions, such as the existence of a tariff or excessive access costs between the border and the point of competition. On the other hand, if the reference price exceeds the observed domestic price, resulting in a negative price gap, it means that the policy environment and market functioning as a whole generate disincentives (taxes) to producers or wholesalers. Again, for an import, this result could be due to distortions, such as subsidized sales by the government to keep domestic prices low.

In general, price gaps provide an absolute measure of the market price incentives (or disincentives) that producers and wholesalers face. Therefore, price gaps at wholesale and the farmgate are divided by their corresponding reference price and expressed as a ratio, referred to as the nominal rate of protection (NRP), which can be compared across commodities and countries. The observed NRPs at the farmgate (NRP_{ofg}) and point of competition (NRP_{owh}) are defined by the following equations:

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

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

where PG_{ofg} is the observed price gap at the farmgate, RP_{ofg} is the observed reference price at the farmgate, $PG_{owh}$is the observed price gap at wholesale, and RP_{owh} is the observed reference price at wholesale. Similarly, the adjusted NRPs at the farmgate (NRP_{afg}) and wholesale (NRP_{awh}) are defined by the following equations:

$$NRP_{afg} = \frac{PG_{afg}}{RF_{afg}}$$

$$NRP_{awh} = \frac{PG_{awh}}{RF_{awh}}$$

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

If public expenditure allocated to any of the commodities analysed is added to the price gaps at the farmgate when calculating the ratios, the nominal rate of assistance (NRA) is generated. This indicator summarizes the incentives (or disincentives) due to policies, market performance and public expenditure and takes the following expression:

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

Where PE_{csp} is commodity-specific public expenditure measured as monetary units per tonne.

The MAFAP methodology also estimates the market development gap (MDG), which is the portion of the price gap that can be attributed to excessive or inefficient access costs within a given value chain, exchange rate misalignments, and imperfect functioning of international markets. Excessive access costs may result from such factors as poor infrastructure, high processing costs due to obsolete technology, government taxes and fees (excluding fees for services), high profit margins captured by various marketing agents, illegal bribes and other non-tariff barriers. Therefore, the total MDG at the farmgate has three components: gaps due to excessive access costs, the exchange rate gap, and the international market gap. When added together, these components are equivalent to the difference between the observed and adjusted price gaps at the farmgate.

Similar to the other price gaps calculated, the MDG is an absolute measure, which is expressed as a ratio to allow comparisons across commodities and countries. A relative indicator of the total MDG affecting farmers is derived by calculating the ratio between the total MDG at the farmgate and the adjusted reference price at the farmgate, as follows:

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

where IMG is the international market gap, ERPG is the exchange rate gap, ACG_{wh} is the access cost gap at the point of competition (defined as the difference between the observed and adjusted access costs at the point of competition), and ACG_{fg} is the access cost gap at the farmgate (defined as the difference between the observed and adjusted access costs at the farmgate).

MAFAP provides indicators (NRPs, NRAs and MDGs) at both the commodity and aggregate levels to create a more general picture. Farm gate-level indicators for commodities are aggregated into relevant product groups to enable the presentation of results for the agriculture sector as a whole or according to the trade status of the products analysed and their importance to food security. Aggregate indicators are calculated as weighted averages based on each commodity's relative contribution to the total value of agricultural production. Mathematically, the formula for constructing aggregate indicators for product groups is as follows:

$$NRP_g = \frac{\sum_{i=1}^{i=n} NRP_i * PROD_i * RP_{fgi}}{\sum_{i=1}^{i=n} PROD_i * RP_{fgi}}$$

where NRP_g is the aggregated NRP for a subset of n commodities, NRP_i is the NRP for the commodity, $PROD_i$ is the volume of production in tonnes (or any other unit) of the commodity and RP_{fgi} is the reference price of the commodity at the farm gate.[5]

A more detailed description of the methodology applied in this analysis is available on the MAFAP Web site.[6]

To demonstrate how the methodology has been applied to the analysis of price incentives and disincentives in the United Republic of Tanzania, the following subsections briefly discuss the main options taken for calculating MAFAP indicators for the commodities studied.

Marketing channels

Because of the lack of reliable representative farmgate prices, the vast size of the United Republic of Tanzania, the lack of homogeneous access costs throughout the country and the evidence of non-integrated markets (Asche, Gjølberg and Guttormsen, 2012), the analysis had to identify a representative marketing route that includes an area (or areas) of production and a point of competition. The area of production selected is the one with the largest share of domestic production for the commodity concerned. The point of competition is the largest market close to the border through which international trade takes place. It is assumed that domestic and imported products are traded at the same price in this market.[7] For some commodities (mainly those thinly traded), the selected production area and point of competition change from year to year, depending on the net trade position and the main trade partners. Details of the marketing corridors selected and analysed are available in the technical notes for each of the products studied. The different approaches used are reflected in Table 15.

[5] The same formula also applies for aggregated NRAs and MDGs, though NRP_i would be NRA_i and MDG_i, respectively.

[6] www.fao.org / mafap-documents

[7] Taking into account quality and quantity adjustment factors if applicable.

Table 15: Marketing channel assumptions used in the analysis of price incentives and disincentives in the United Republic of Tanzania

Marketing channel	Commodities
Farmgate: Country average Point of competition: Countrywide auction/wholesale Benchmark: FOB export price at port of departure of goods	Cashew nuts Coffee Cotton
Farm gate: Area-specific wholesale price Point of competition: Wholesale price at main market close to border Benchmark: CIF import/FOB export price at port of entrance/exit of goods	Maize Pulses Rice Wheat
Farm gate: Farmgate price of three main processing plants Point of competition: Wholesale price at main market close to border Benchmark: CIF import price at port of entrance of goods	Sugar cane
Farm gate: No data Point of competition: Wholesale price at main market close to border Benchmark: CIF import price at port of entrance of goods	Milk

Source: Authors' elaboration based on commodity-specific technical notes.

Observed prices and reference prices

Domestic prices: Two domestic prices are needed for the analysis: a farmgate price and a price at the point of competition. As no specific farmgate prices per region are available for most commodities, farmgate prices are approximated using the wholesale prices in the respective areas. This means that the analysis of incentives or disincentives does not take into account the possible impacts of policies and/or performance of markets between regional wholesale markets and the farmgate. These factors normally include transport from the farmgate to the markets and local taxes (cess). The structure of rural transport and the local taxation of agricultural commodity movements in the United Republic of Tanzania decrease the level of incentives (or increase the level of disincentives), so the farmgate estimates should be considered as the upper bounds of incentives and the lower bounds of disincentives. Farmgate prices are provided by the commodity-specific boards for cashew, coffee, cotton and sugar.

Wholesale prices are obtained as yearly averages from monthly data monitored by the Ministry of Trade and Industry (MTI). For some commodities (cashew nuts and coffee), data from the auction where the commodity is traded before export (provided by the commodity board) are used.

The options considered for domestic prices in the analysis are summarized in Table 16, which shows that for some commodities, different approaches were used for different years, because of

inconsistent data availability. The impacts of these changes are taken into account when the results are presented.

Table 16: Methodological options and data sources for domestic prices used in the United Republic of Tanzania analysis

	Option	Data source	Commodity
Farmgate price	National average farmgate price	CBT NBS SBT TCfB	Cashew nuts Cotton Coffee Sugar Cane
	Wholesale price in main producing area	MTI	Pulses Maize Rice Wheat
	Not available		Maize (2005) Milk
Price at point of competition	Wholesale in Dar es Salaam	MTI TCtB	Cotton Maize (2006–2008) Milk Pulses Rice (2005–2009) Wheat
	Wholesale price in market closest to destination country	MTI	Rice (2010) Maize (2005; 2009–2010)
	Retail price minus retail margins	SBT	Sugar
	Auction price	CBT TCfB	Cashew nuts (2008–2011) Coffee
	Not available		Cashew nuts (2005–2007)

CBT = Cashewnut Board of Tanzania; NBS = National Bureau of Statistics; SBT = Sugar Board of Tanzania; TCfB = Tanzania Coffee Board; TCtB = Tanzania Cotton Board.

Source: Authors' elaboration based on commodity-specific technical notes.

Benchmark prices: The benchmark prices are the annual unit values of imports or exports of individual commodities reported in United Nations (UN) trade statistics (UNcomtrade).[8] In some cases, when trade volumes are low and unit prices abnormally high (low), such as for maize and rice, import or export prices are constructed using the price prevailing in the destination market for exports (capital cities of neighbouring countries) minus the access costs from the border of the United Republic of Tanzania to the destination market. Table 17 shows the commodities and years to which each option has been applied; again these differences are taken into account when discussing the results by comparing across commodities or across years for a single commodity.

Table 17: Methodological options and data sources for benchmark prices used in the United Republic of Tanzania analysis

Option	Data source	Commodities
Unit export or import value for all destination (origin) countries of exports (imports)	UNcomtrade	Cashew nuts Coffee Cotton Maize (2006; 2008) Milk Pulses Rice (2005–2009) Sugar Wheat
Unit export or import value for a selection of destination (origin) countries of exports (imports)	UNcomtrade	Maize (2010)
Wholesale price in major export market minus access costs to the URT border	EAGC	Maize (2005; 2009) Rice (2010)

EAGC = Eastern Africa Grain Council.

Source: Authors' elaboration based on commodity-specific technical notes.

Reference prices: Starting from benchmark prices – which in theory show market equilibrium in the absence of domestic policies, market interventions or impacts of market performance – the challenge is to identify reference prices that reflect the absence of policies, market interventions and market performance impacts at specific points along the value chain. This requires data on access costs, which are defined as all the costs involved in taking the commodity from one point in the value chain to another. These costs should include all aspects related to market access, such as processing, storage, handling, transport and the different margins applied by economic agents. Two main sets of access costs need to be estimated in the MAFAP methodology: those related to taking the

[8] http://comtrade.un.org/

commodity from the border to the point of competition, and those related to taking the commodity from the point of competition to the farmgate.

Access costs between the farmgate and the point of competition: These costs are calculated as the sum of all the components incurred in taking the commodity from the farmgate to the wholesale market. They include trader margins, other agents' fees, transport, loading and unloading, and processing if relevant. Data are obtained from literature review and key informants on the different value chains, and margins are considered to be 10 percent of the value of the purchased commodity (i.e., of the farmgate price). In the absence of adequate data, access costs can be calculated as the difference between wholesale prices and producer prices. The gap between these two prices is considered to reflect the real functioning of the chain when all explicit taxes are excluded. In other words, this value is the expression of policies, level of infrastructure development, competitiveness of actors, and actors' conditions of market power in influencing access costs. In addition, when the commodity produced by farmers is different from the commodity traded at the wholesale level (e.g., sugar cane versus sugar, and seed cotton versus cotton lint), both commodities are expressed in farmgate product units to ease comparison. A detailed explanation of the access costs for each commodity can be found in the technical notes; the access cost components considered for each commodity are summarized in Table 18.

Table 18: Access cost components from the farmgate to the point of competition in the United Republic of Tanzania

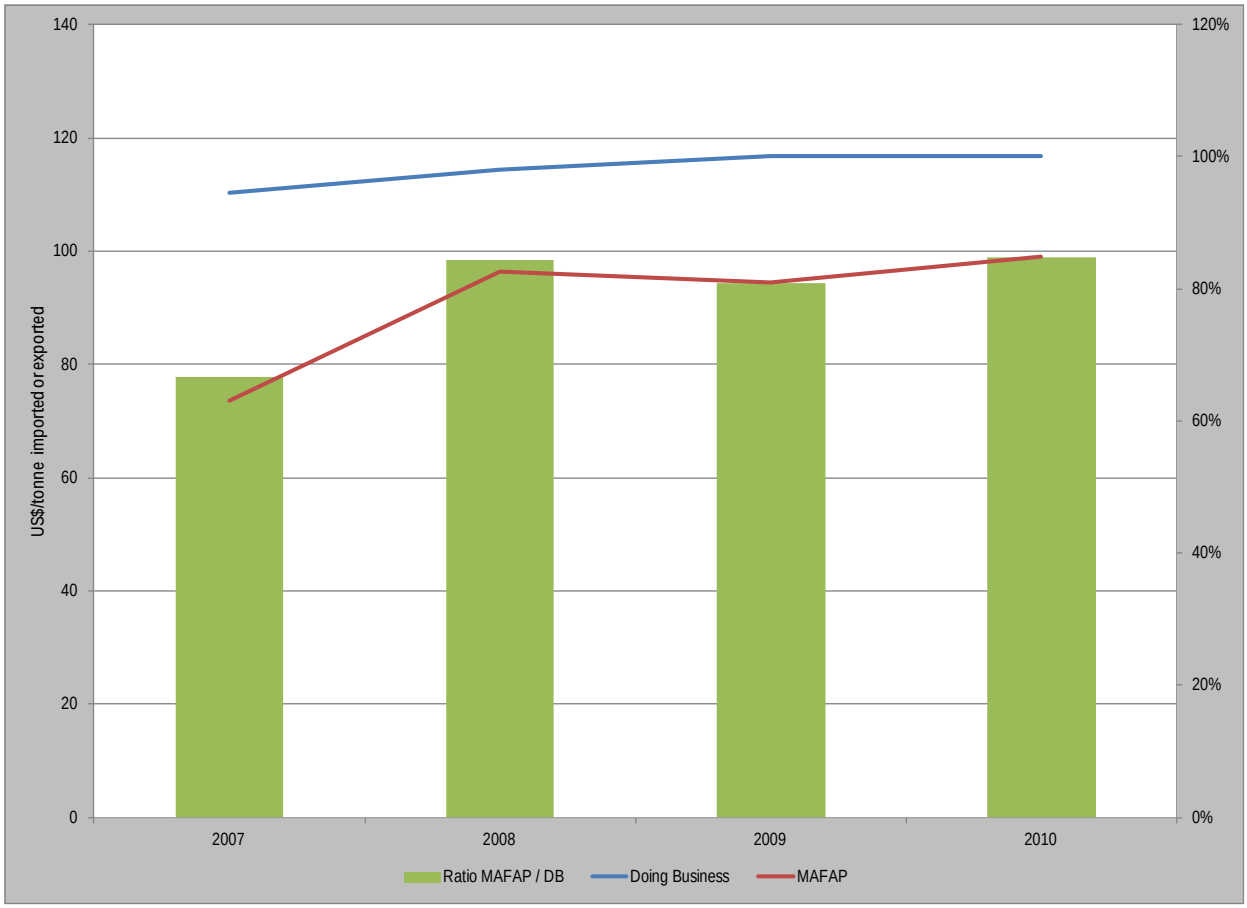
Access cost component	Commodities
Transport, handling and margins	Maize Pulses Rice Wheat
Transport, handling, processing and margins	Cotton Milk Sugar
Transport, handling, processing, agents' fees and margins	Cashew nuts Coffee

Source: Authors' elaboration based on commodity-specific technical notes.

Access costs between the point of competition and the border: These costs cover all import or export procedures, transport and handling, agents' fees, trader margins, and additional processing if relevant. Again, trader margins are estimated at 10 percent of the value of the purchased commodity (i.e., of the wholesale price for exports and the CIF price for imports). Data are taken from literature review and cross-checked with estimates of the cost of cross-border trade from the Doing Business

project.[9] For the period 2006–2010, the estimates calculated for this study are only marginally lower than those reported by the Doing Business project, so can be considered as correctly capturing the costs of export and import in the United Republic of Tanzania (Figure 16).

Figure 16: Comparison of costs of cross-border trade in the United Republic of Tanzania calculated by the Doing Business and MAFAP projects



Averages for exports and imports are calculated from Doing Business, and averages for all commodities traded via Dar es Salaam (seven) are calculated from MAFAP technical notes.

Source: Authors' elaboration based on commodity-specific technical notes and Doing Business database.

The components of access costs from the border to the point of competition considered depend on the trade path. In the URT trade can follow two main paths: by ship from or to the port of Dar es Salaam (or Mtwara);[10] or by road to or from neighbouring countries. The components of access

[9] The Doing Business project, implemented by the International Finance Corporation of the World Bank Group, provides objective measures of business regulations for local firms in 185 economies, including the URT. Among the domains it assesses is cross-border trade, including estimates of import and export costs based on the fees levied on a twenty-foot equivalent unit in United States dollars. All the fees associated with completing the procedures to export or import the goods are taken into account, including costs for documents, administrative fees for customs clearance and inspections, customs broker fees, port-related charges and inland transport costs. These costs do not include customs tariffs and duties or costs related to sea transport. Only official costs are recorded. For more information see www.doingbusiness.org.

[10] Cashew nuts are exported from Mtwara port.

costs differ between these two paths, as there are no port and handling costs when imports (exports) come from (are sent to) a neighbouring country. Table 19 shows the components considered in each trade path.

Table 19: Access cost components for the trade paths in the United Republic of Tanzania

Access cost component	Port of Dar es Salaam	Neighbouring countries
Preinspection fee	☑	☑
Phytosanitary charges	☑	☑
Port wharf age fees	☑	
Tally fee	☑	
SUMATRA fee	☑	
Documentation fee	☑	☑
Clearing agent fee	☑	
Loading and unloading	☑	
Health and food standards fee	☑	☑
Transport from wholesale market to border		☑
Commodities for which this route is considered		
	Cashew nuts Cotton Coffee Maize (2006–2008) Milk Pulses Rice (2005–2009) Sugar Wheat	Maize (2005; 2009–2010) Rice (2010)

Source: Authors' elaboration from Temu, Manyama and Temu, 2010 data.

The adjusted domain

Of the four concepts that can be revised to obtain adjusted values (benchmark prices, exchange rates, access costs from border to point of competition and from point of competition to the farm gate) this report only considers adjusted values for two of them: access costs from the border to the point of competition and access costs from the point of competition to the farm gate.

No explicit exchange rate policy exists in the URT and thus the observed exchange rate reflects the equilibrium in the free foreign exchange market. In addition there is no commodity for which benchmark prices are assumed to be distorted by the inefficiencies in the international markets.

***Adjusted access costs*:** For the analysis of some products, adjusted data on access costs to the point of competition and the producer have been used. Adjusted access costs take into account better-functioning markets. To generate access costs that reflect efficient value chains, the following adjustments have been made were applicable:

- Profit margins have been reduced from 10 to 5 percent of the commodity purchase price.
- Local taxes (i.e., local or district cess) have been eliminated.
- Commodity board fees have been eliminated.
- Transport costs have been reduced to the lowest estimate for each section, from any information source.

Tables 20 and 21 summarize the two sets of indicators that the MAFAP project can generate (price gaps and NRPs) for the nine commodities analysed:

- The indicators constructed using observed prices and access costs (observed price gaps and observed NRPs) give an absolute representation of the effects of policy initiatives and overall market performance in the country.
- The indicators constructed using adjusted costs (adjusted price gaps and adjusted NRPs) take into account other sources of price distortions, in particular access costs.

Table 20: Observed and adjusted price gaps in the United Republic of Tanzania, 2005 to 2010 (TSh/tonne)

Product	Indicators	2005	2006	2007	2008	2009	2010
Cashew nuts	Observed price gap at wholesale	n.a.	n.a.	n.a.	-18 613	-60 502	-162 310
	Adjusted price gap at wholesale	n.a.	n.a.	n.a.	-38 448	-85 052	-190 139
	Observed price gap at the farmgate	-78 964	30 993	-55 665	-11 779	134 832	-219 310
	Adjusted price gap at the farmgate	-124 908	-20 206	-104 385	-92 615	42 782	-317 139
Coffee	Observed price gap at wholesale	-429 586	-189 538	-414 044	95 576	-51 459	-210 478
	Adjusted price gap at wholesale	-457 217	-230 350	-456 930	49 049	-96 383	-279 035
	Observed price gap at the farmgate	-251 716	-319 097	-347 814	-231 991	-193 650	-1 230
	Adjusted price gap at the farmgate	-336 535	-455 762	-505 914	-399 834	-353 992	-1 442
Cow milk	Observed price gap at wholesale	n.d.	n.d.	57 854	162 944	46 712	89 022
	Adjusted price gap at wholesale	n.d.	n.d.	82 153	181 097	72 525	112 853
	Observed price gap at the farmgate	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	Adjusted price gap at the farmgate	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Maize	Observed price gap at wholesale	19 382	-54 327	52 488	-19 388	1 533	-64 588
	Adjusted price gap at wholesale	13 024	-30 420	27 041	7 576	-8 122	-36 381
	Observed price gap at the farmgate	n.d.	-89 613	28 010	-72 663	13 031	-2 620
	Adjusted price gap at the farmgate	n.d.	-65 705	2 563	-45 698	-3 869	-27 272
Pulses	Observed price gap at wholesale	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	Adjusted price gap at wholesale	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	Observed price gap at the farmgate	n.d.	n.d.	53 951	18 015	54 075	164 428
	Adjusted price gap at the farmgate	n.d.	n.d.	10 951	-30 806	-10 678	90 708
Rice	Observed price gap at wholesale	266 426	409 667	333 986	315 630	372 218	-10 871
	Adjusted price gap at wholesale	282 508	428 793	354 343	337 202	414 990	-29 059
	Observed price gap at the farmgate	280 499	465 852	285 202	249 138	310 547	1 142
	Adjusted price gap at the farmgate	264 997	451 106	269 307	230 731	308 486	-22 740
Cotton	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 the farmgate	-124 430	-199 943	-188 390	-218 532	-17 443	-167 933
	Adjusted price gap at the farmgate	-124 430	-199 943	-188 390	-218 532	-17 443	-167 933
Sugar/sugar cane	Observed price gap at wholesale	109 841	9 969	233 596	273 387	227 084	139 810
	Adjusted price gap at wholesale	148 423	58 119	281 540	325 992	291 237	217 333
	Observed price gap at the farmgate	-1 735	-11 842	-121	-5 669	-14 058	-14 094
	Adjusted price gap at the farmgate	1 051	-8 189	3 152	-2 095	-9 395	-8 803
Wheat	Observed price gap at wholesale	121 547	165 268	64 553	16 247	350 853	347 637
	Adjusted price gap at wholesale	151 784	200 948	107 868	67 282	400 949	405 250
	Observed price gap at the farmgate	89 482	118 672	-17 173	128 637	350 796	238 529
	Adjusted price gap at the farmgate	106 579	138 241	9 679	149 979	368 634	265 736

n.a. = not applicable; n.d. = no data available.

Sources: Commodity-specific technical notes.

Table 21: Observed and adjusted nominal rates of protection in the United Republic of Tanzania, 2005 to 2010

Product	Indicators	2005	2006	2007	2008	2009	2010
Cashew nuts	Observed NRP to wholesaler	n.a.	n.a.	n.a.	-2%	-7%	-13%
	Adjusted NRP to wholesaler	n.a.	n.a.	n.a.	-4%	-10%	-15%
	Observed NRP to producer	-11%	5%	-8%	-2%	25%	-24%
	Adjusted NRP to producer	-17%	-3%	-15%	-13%	7%	-31%
Coffee	Observed NRP to wholesaler	-24%	-8%	-16%	4%	-2%	-5%
	Adjusted NRP to wholesaler	-25%	-9%	-17%	2%	-4%	-7%
	Observed NRP to producer	-31%	-25%	-23%	-16%	-14%	-46%
	Adjusted NRP to producer	-37%	-32%	-31%	-25%	-23%	-50%
Cow milk	Observed NRP to wholesaler	n.d.	n.d.	16%	66%	13%	28%
	Adjusted NRP to wholesaler	n.d.	n.d.	25%	80%	22%	38%
	Observed NRP to producer	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	Adjusted NRP to producer	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Maize	Observed NRP to wholesaler	12%	-18%	35%	-5%	0%	-15%
	Adjusted NRP to wholesaler	8%	-11%	16%	2%	-2%	-9%
	Observed NRP to producer	n.d.	-31%	20%	-21%	4%	-1%
	Adjusted NRP to producer	n.d.	-25%	2%	-14%	-1%	-10%
Pulses	Observed NRP to wholesaler	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	Adjusted NRP to wholesaler	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
	Observed NRP to producer	n.d.	n.d.	18%	4%	9%	30%
	Adjusted NRP to producer	n.d.	n.d.	3%	-7%	-2%	15%
Rice	Observed NRP to wholesaler	90%	126%	82%	47%	50%	-1%
	Adjusted NRP to wholesaler	101%	140%	91%	52%	59%	-3%
	Observed NRP to producer	174%	269%	113%	51%	57%	0%
	Adjusted NRP to producer	150%	240%	100%	45%	57%	-3%
Cotton	Observed NRP to wholesaler	-20%	-32%	-15%	2%	6%	-3%
	Adjusted NRP to wholesaler	-20%	-32%	-15%	2%	6%	-3%
	Observed NRP to producer	-33%	-48%	-35%	-33%	-4%	-26%
	Adjusted NRP to producer	-33%	-48%	-35%	-33%	-4%	-26%
Sugar/sugar cane	Observed NRP to wholesaler	24%	2%	42%	44%	30%	15%
	Adjusted NRP to wholesaler	36%	11%	56%	57%	42%	25%
	Observed NRP to producer	-7%	-34%	0%	-14%	-29%	-22%
	Adjusted NRP to producer	5%	-26%	12%	-6%	-21%	-15%
Wheat	Observed NRP to wholesaler	46%	54%	14%	3%	81%	68%
	Adjusted NRP to wholesaler	66%	75%	27%	12%	105%	90%
	Observed NRP to producer	52%	58%	-5%	28%	119%	65%
	Adjusted NRP to producer	68%	75%	3%	34%	133%	78%

n.a. = not applicable; n.d. = no data available.

Sources: Commodity-specific technical notes.

Commodity-specific public expenditure is identified for five of the ten commodities analysed (cashew nuts, coffee, cotton, milk and sugar) for the years 2007 to 2010. NRAs incorporating the public expenditure dimension are also calculated for these five commodities (Table 22), but not for the others as lack of data meant that NRP and NRA for these commodities would coincide. From these calculations it can be concluded that commodity-specific support via public expenditure is generally dwarfed by the incentives or disincentives derived from policies and market performance. On average, public expenditure support for individual commodities represents less than 10 percent of the disincentives that result from policies and market performance (Figure 17). All commodities except milk have disincentives, so commodity-specific public expenditure is not capable of offsetting disincentives from policies and market performance. However, this conclusion should be taken with care, because these commodities may be receiving additional support via public expenditure in the form of non-targeted support, which accounts for most public expenditure in support of agriculture in the URT.

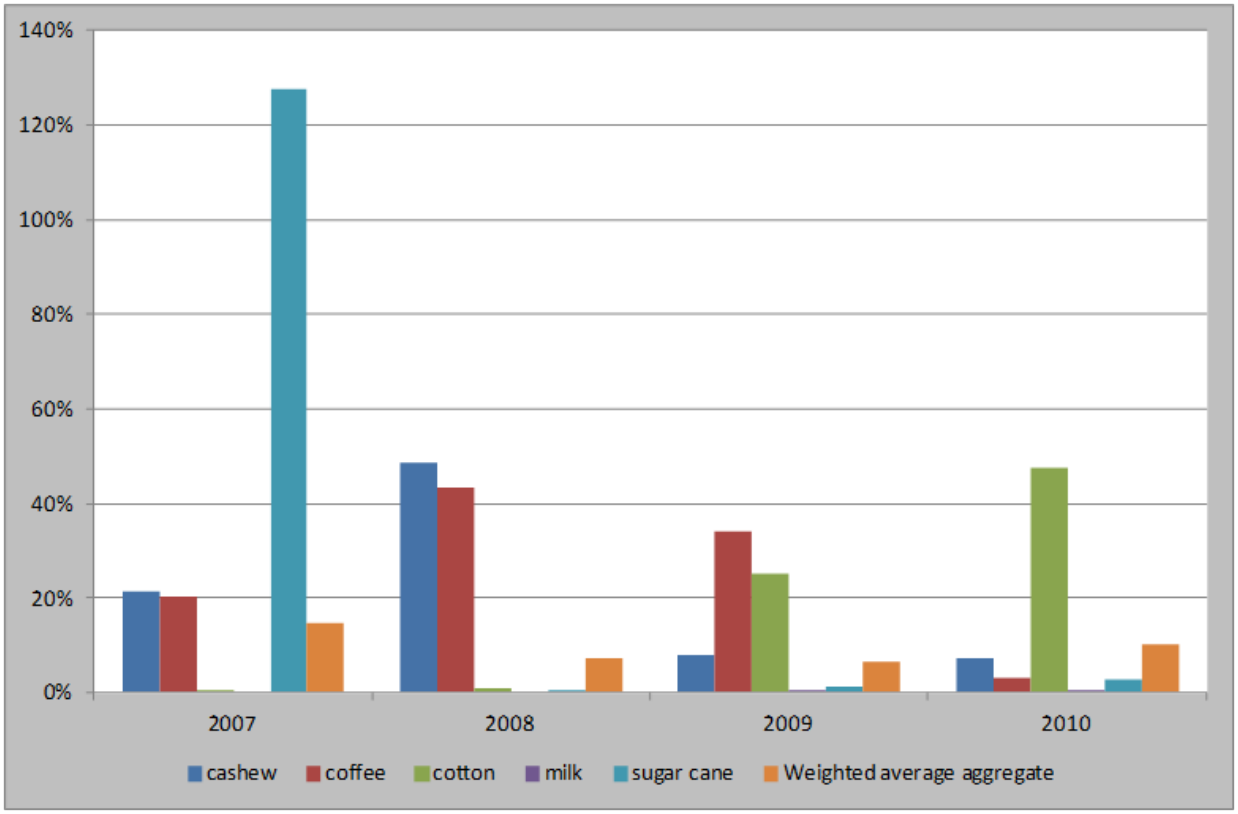
Table 22: Observed and adjusted nominal rates of assistance to producers in the United Republic of Tanzania, 2005 to 2010

Product	Indicators	2005	2006	2007	2008	2009	2010
Cashew nuts	Observed NRA to producer	-11%	5%	-7%	-1%	27%	-22%
	Adjusted NRA to producer	-17%	-3%	-13%	-12%	9%	-30%
Coffee	Observed NRA to producer	-31%	-25%	-18%	-9%	-9%	-45%
	Adjusted NRA to producer	-37%	-32%	-26%	-19%	-19%	-49%
Cotton	Observed NRA to producer	-33%	-48%	-35%	-33%	-3%	-14%
	Adjusted NRA to producer	-33%	-48%	-35%	-33%	-3%	-14%
Milk	Observed NRA to producer	n.d.	n.d.	16%	66%	13%	28%
	Adjusted NRA to producer	n.d.	n.d.	25%	80%	22%	38%
Sugar cane	Observed NRA to producer	-7%	-34%	0%	-14%	-28%	-22%
	Adjusted NRA to producer	5%	-26%	12%	-6%	-21%	-14%

n.a. = not applicable; n.d. = no data available.

Sources: Commodity-specific technical notes.

Figure 17: Ratio of commodity-specific public expenditure support to disincentives resulting from policy and market performance in the United Republic of Tanzania, 2007 to 2010



Sources: Commodity-specific and public expenditure technical notes.

Caveats and limitations

Uncertainty about data quality is a limit to analytical work. Although efforts have been made to minimize errors by submitting the data collected to local experts, errors cannot be totally avoided. Efforts to improve data quality continue, and new data will be incorporated into the MAFAP technical notes and indicator database. The project is advocating for increased investments in reliable national statistical systems, which would provide great benefits for informed policy decisions.

MAFAP project indicators and interpretation

It is important to note that a significant part of the period analysed (2005–2010) was particularly turbulent, with challenges to market fundamentals and drastic changes in price trends. These events made it more difficult to carry out the analysis and determine the causes of incentives and disincentives.

Leading indicators in the MAFAP project

The headline indicators promoted by the project for monitoring price incentives and disincentives are the NRPs for:

- the agriculture sector as a whole (NRP_{agsec});
- imported products (NRP_{imp});
- exported products (NRP_{exp});
- non- or thinly traded products (NRP_{not}).

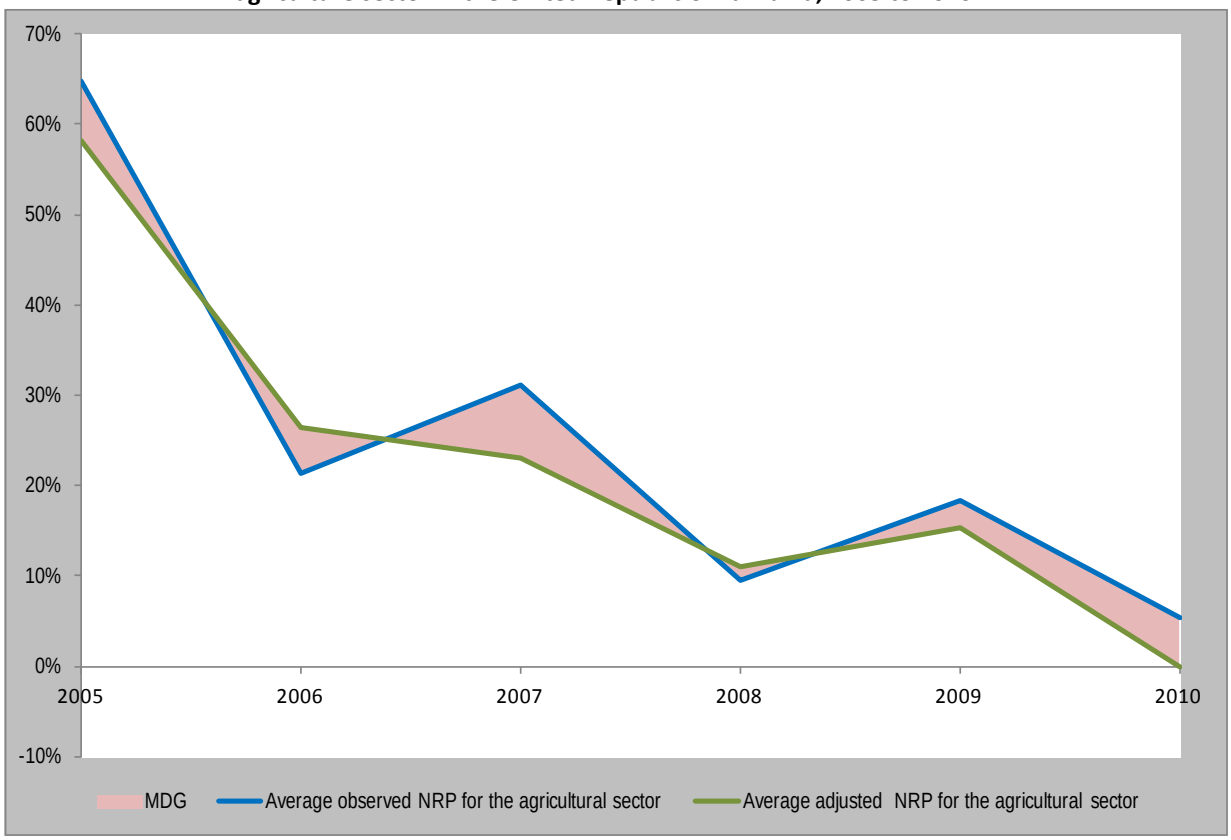
It should not be forgotten that the indicators for these categories are based on the analysis of commodities that represent only a percentage of total agricultural production under each category (Table 13). When the additional commodities have been analysed, these results might vary.

Agriculture sector indicators: Figure 18 presents the results for the agriculture sector as a whole.[11] Results of the analysis show that producers in the United Republic of Tanzania have overall been incentivized during the study period, but the level of incentives has declined. It can therefore be concluded that the policy environment and market performance lead farmers to receive higher prices than they would in the absence of policies and with well-functioning markets. However, this trend masks a dual situation, in line with the findings of Anderson and Masters (2009): producers of commodities that are imported into the URT are incentivized, while producers of export-oriented commodities are penalized. The analysis results add some details to this overall situation, with some commodities being protected at the wholesale (processed) level but penalized at the farmgate (raw) level. The analysis also distinguishes between policy-induced and market performance-related incentives and disincentives. While most incentives for imported commodities relate to trade policy, disincentives for export commodities relate to both explicit taxes and inefficiencies in the processing industry. In addition, part of the protection that imported commodities derive from trade policy is eroded by excessive marketing costs along the value chain.

Thus, although the pattern of domestic prices aligning with international markets classifies the URT as a country where distortions to agricultural production are being reduced, commodity-specific results show that there are still significant distortions to agricultural incentives in the country. Moreover, coherence analysis shows that the structure of incentives and disincentives does not fully reflect policy priorities.

[11] Based on results from the nine commodities analysed as representing the agriculture sector.

Figure 18: Average observed and adjusted nominal rates of protection and market development gaps for the agriculture sector in the United Republic of Tanzania, 2005 to 2010



Commodities included are cashew nuts, coffee, cotton, rice, sugar and wheat for the whole period; maize since 2006; and milk and pulses since 2007.

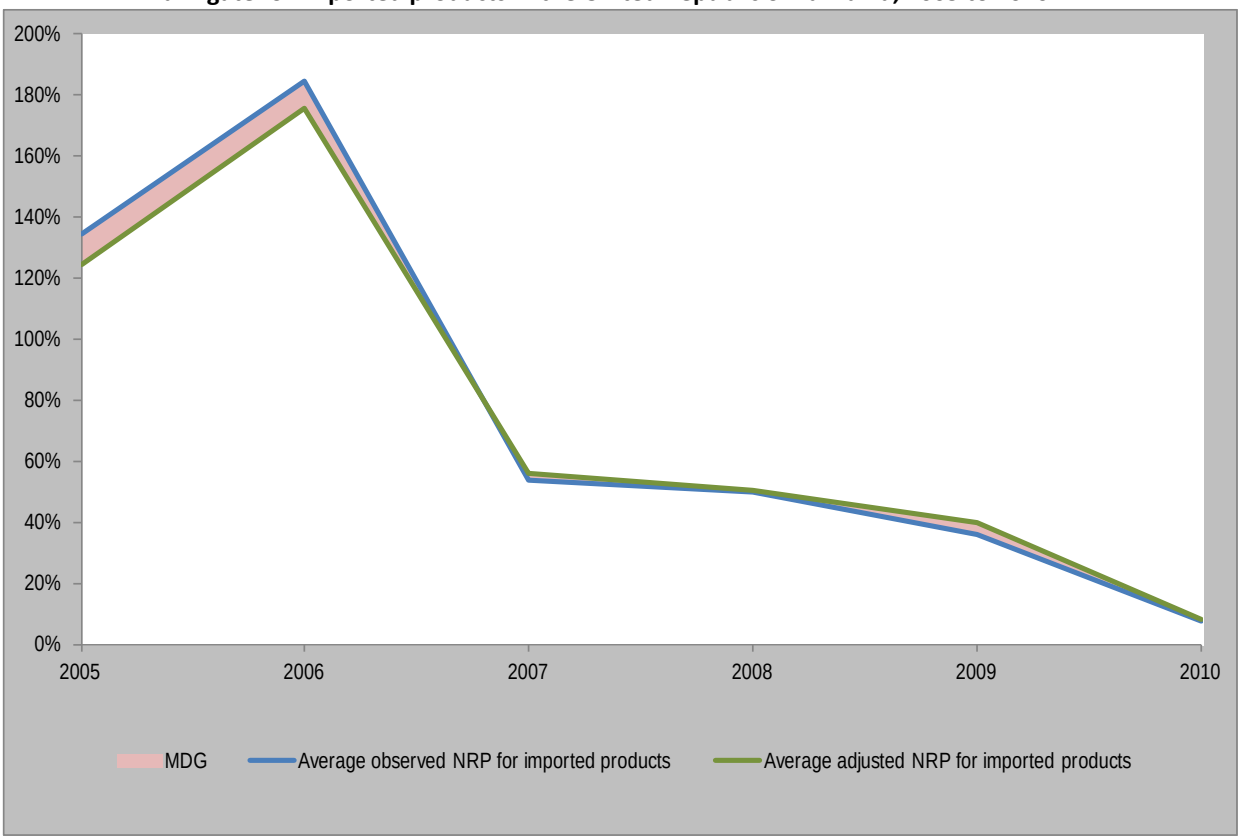
Source: Authors' elaboration.

The results for each commodity are discussed in the following subsections, presented as aggregates for each of the three trade-related categories used in the project: imported, exports, and thinly traded. A final subsection focuses on food security and discusses the price incentives and disincentives for commodities that represent a significant part of the diet in the URT.

Indicators for imports

As shown in Figure 19, farmers producing commodities that the United Republic of Tanzania needs to import to cover domestic consumption are generally incentivized. These incentives are related to the CET that the URT applies to imports from outside the EAC. The only exception is sugar, where producers face strong disincentives. These incentives however mean that consumers of these commodities are penalized as they need to pay higher prices for them.

Figure 19: Average observed and adjusted nominal rates of protection and market development gaps at the farmgate for imported products in the United Republic of Tanzania, 2005 to 2010



Commodities included are rice, sugar cane and wheat for the whole period; and milk since 2007.
Sources: Commodity-specific technical notes.

The decreasing trend in protection during the studied period is due to three main issues:

- Milk is included in calculation of the aggregate from 2007, and the average level of protection for milk is much lower than that for other products.
- Tariffs for wheat and sugar were partially waived from 2008, so their impact on domestic prices has decreased.
- In 2010, the URT became a net exporter of rice, so domestic prices have aligned with international prices.

Even when the overall picture for imported commodities suggests reduced distortions and the alignment of domestic prices with those prevailing in international markets, there are differences across commodities. Some farmers (sugar cane) receive significant disincentives, while a poorly developed value chain prevents other farmers (milk) from benefiting from the protection. Most important, for all imported commodities, protection levels are eroded towards the farmgate because of lack of market integration and inefficiencies in the value chain.

Rice

Rice is the second most important food and cash crop in the United Republic of Tanzania after maize. It is also a major source of employment and income for many farming households (ACT, 2010). Most rice is produced by small-scale farmers, with marketing dominated by intermediaries and traders (Kilima, 2006). Rice productivity in the URT is lower than in most neighbouring countries and is one of the lowest in the world. The Tanzanian rice market is liberalized and consumers have the option of

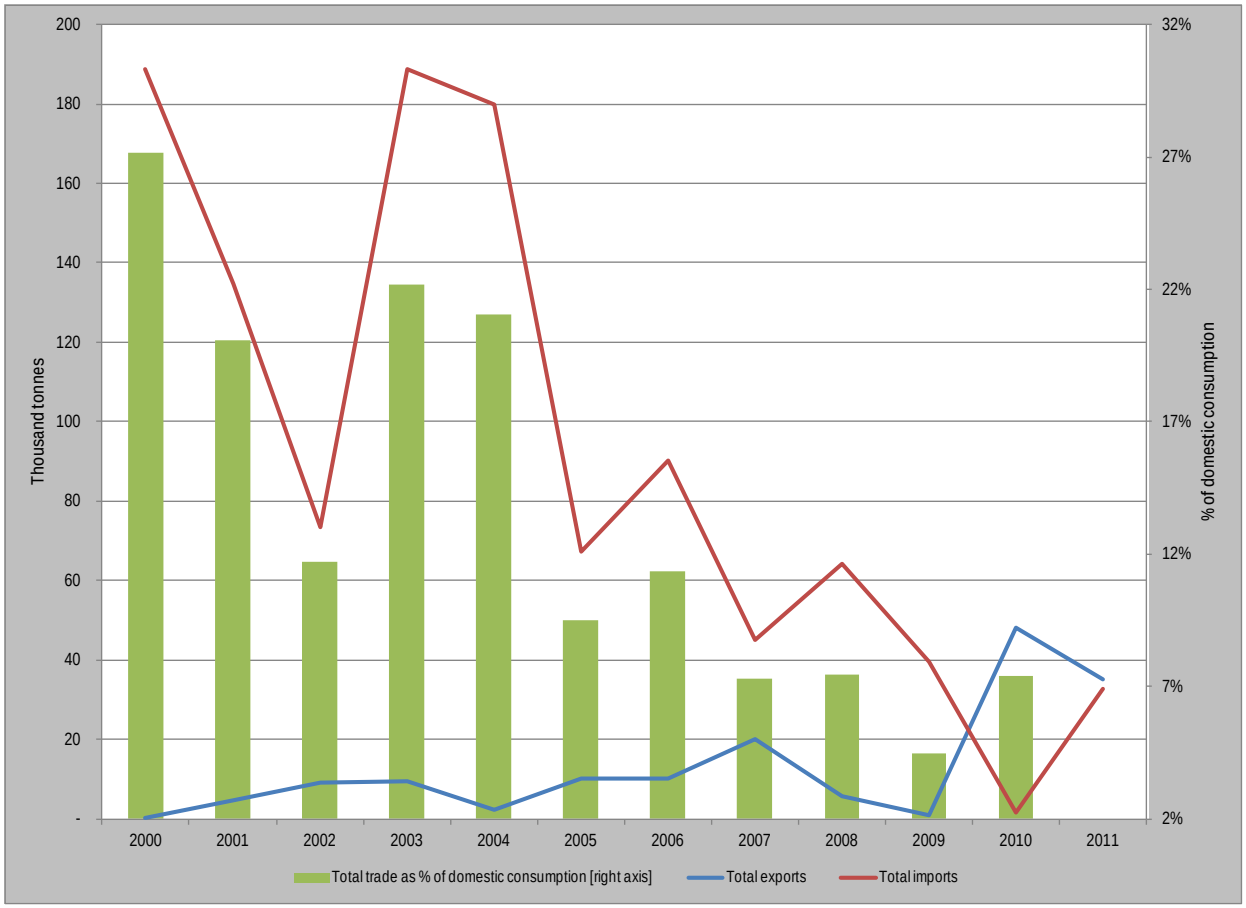
purchasing rice imported from other countries. The National Rice Sector Development Strategy therefore aims to transform the existing subsistence-dominated rice sector into a commercially viable production system (MAFC, 2009).

Production: Rice production uses 18 percent of cultivated land and is located mainly in northern parts of the country. Among agricultural households, 17 percent grow rice (Government of URT, 2007). Nearly all rice (99 percent) is grown by smallholder farmers using traditional seed varieties. Paddy rice production has been increasing since 2000, mainly through the expansion of total land planted rather than increased yields, except for in the 2005–2007 period, when upscaling of a fertilizer subsidy programme – the National Agriculture Input Voucher Scheme (NAIVS) – raised yields and production significantly. However, yields decreased in 2008 and 2009, and the total area allocated to rice production increased again, as many cotton producers switched to rice production after experiencing significant losses because of declining world prices (Ngailo, Kaswamila and Senkoro, 2007). The lack of land suitable for rice production and the insufficient knowledge of new producers partly explain the substantial decline in yields and the stagnant growth in rice production that occurred between 2007 and 2009, despite NAIVS. In 2010, total rice production fell as yields recovered only slightly and the land allocated to rice production dropped to average figures for the decade.

Consumption/utilization: The Food Balance Sheet for paddy rice indicates that 90 percent of rice produced is used for food, 5 percent is wasted and another 5 percent is used as seed (FAOSTAT, 2012). The amount of paddy rice available for consumption fluctuated between 28 and 29 kg per capita from 2000 to 2007, and rice is the third most important crop in terms of daily calories consumed per capita. As rice is generally more expensive than maize and other staple foods, it is more important in the diets of high- and middle-income consumers in both urban and rural areas.

Trade: Rice is an important commercial crop among farming households: 42 percent of rice production is marketed compared with 28 percent of maize and just 18 percent of sorghum (Government of URT, 2007). Most of the rice traded in the United Republic of Tanzania is milled and broken, so has undergone some kind of processing. Far lower quantities of paddy and husked (brown) – unprocessed – rice is traded. The URT has been a net importer of rice since 2000, with the exception of 2010. The total volume of imported rice has steadily decreased, showing how the URT is moving towards self-sufficiency in rice (Figure 20). The share of imports in total consumption has followed the same trend.

Figure 20: Volume of rice trade and share of trade in domestic consumption in the United Republic of Tanzania, 2000 to 2010



Consumption calculated as apparent consumption (Y + M - X). Paddy and husked rice converted to milled equivalents using conversion ratios of 0.65 and 0.80, respectively.

Source: UNcomtrade.

Most of the URT's rice imports come from East Asia. Imports from developed countries have played an important role in some years (mainly during the period leading up to the food price crisis), with imports from mainly Japan and the United States of America probably in the form of food aid. For exports, the URT is mainly a regional player, exporting nearly 80 percent of its surplus to EAC countries and most of the rest to other African countries such as Malawi, the Democratic Republic of the Congo and Zambia.

Value chain performance: In general, rice marketing in the United Republic Tanzania of has three main supply channels (Minot, 2010a):

(1) traditional rice producers;
(2) irrigated rice farmers/traders;
(3) larger irrigated rice farmers/traders.

The first and second supply channels are generally long and involve many actors before the crop reaches its final consumers; the third channel has a shorter value chain with millers and brokers playing a central role in the trading process. Usually, after paddy has been harvested, it is sold to local traders, who either trade it as paddy in regional markets (there are more than 20 wholesale markets across the country) or send it to mills for processing. The milled rice is then sold wholesale

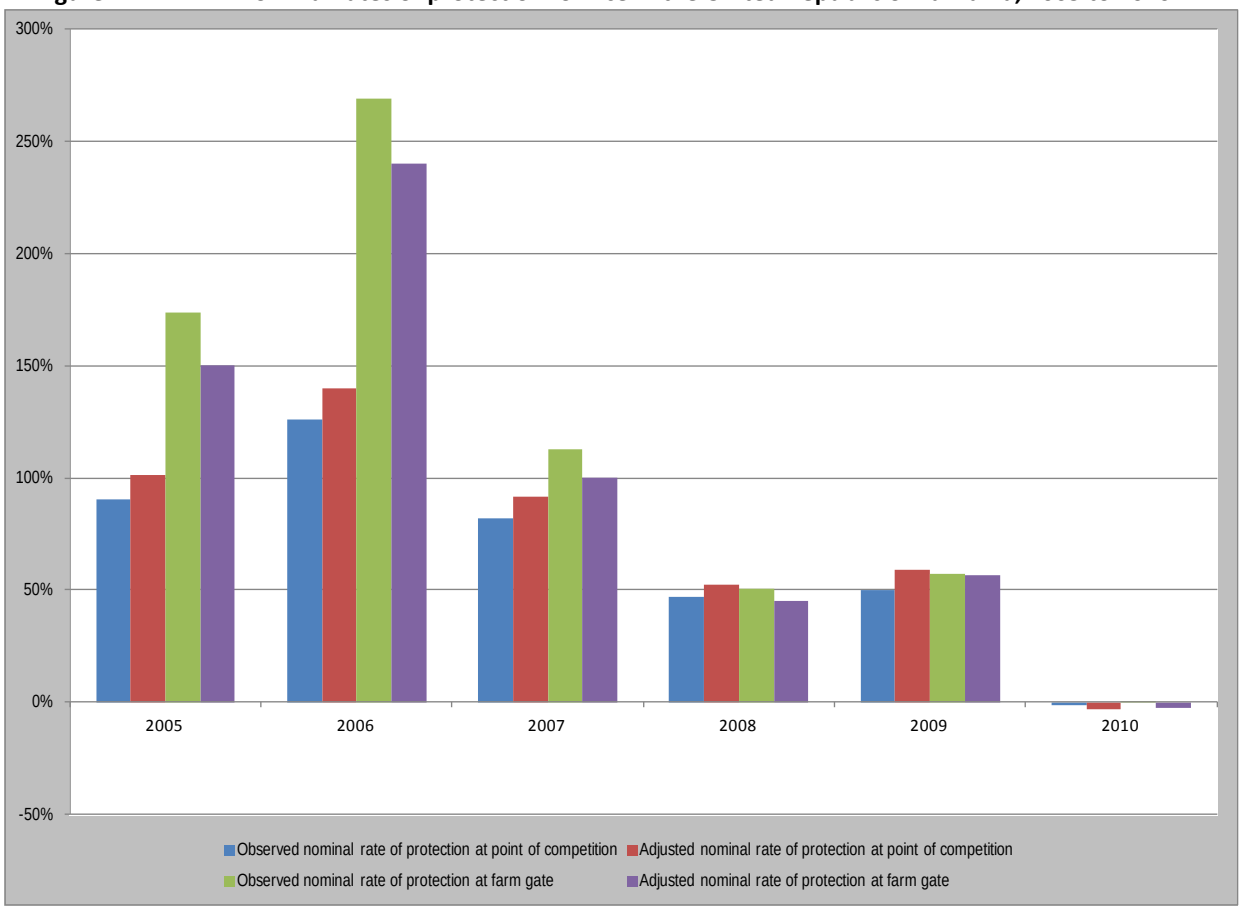
to traders from local markets/shops, while paddy might be sold to larger millers who export processed rice.

Long supply chains combined with deficient transport networks have contributed to high marketing margins (Eskola, 2005), which have a strong influence on consumer prices and the profitability of rice production, processing, marketing/distribution and retail. High transport costs affect both the internal and export trade of agricultural crops. Local prices are higher than international market prices because of these inefficiencies in the supply chain, and the application of tariffs (Minot, 2010b).

Imported rice and rice provided under the Food Aid Counterpart fund follow a different path into the market: 50 percent is distributed through wholesalers, 30 percent through the distribution systems of traders or importers, and 20 percent through retail shops (MAFC and FAO, 2008).

MAFAP indicators and interpretation: The United Republic of Tanzania follows a policy of protecting rice farmers by applying a relatively high tariff (75 percent or US$200/tonne) on imports from outside the EAC. This translates into positive NRPs during years when the URT is a net importer (Figure 21), and is coherent with concerns that cheap imports generate unfair competition for farmers. However, while until 2006 most protection was passed through to producing areas, in 2007 the level of incentives was drastically reduced, and protection at the wholesale level became higher than that at the farmgate (Figure 22).

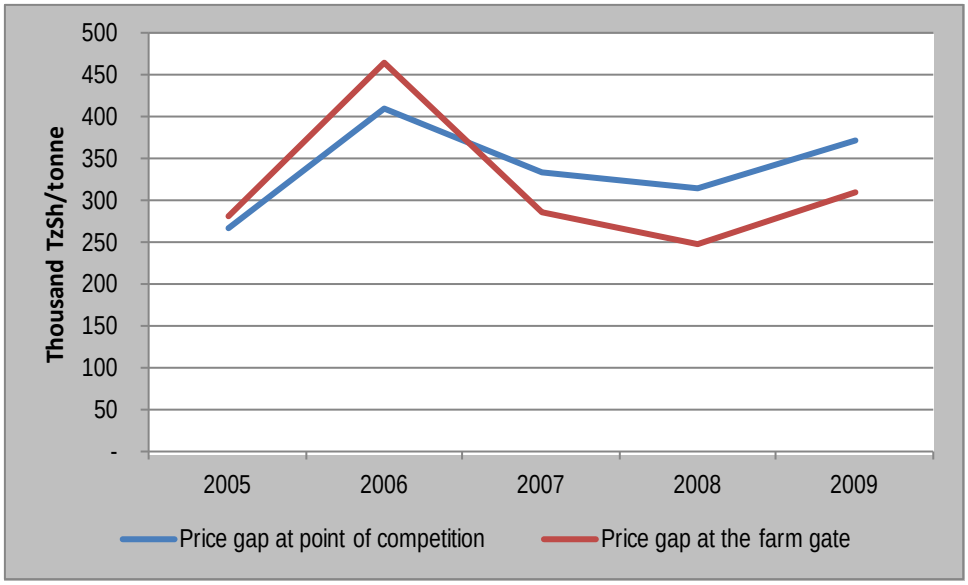
Figure 21: MAFAP nominal rates of protection for rice in the United Republic of Tanzania, 2005 to 2010



Source: Authors' elaboration.

This change in the distribution of incentives along the value chain coincided with liberalization of the rice market, which led to increased market power for traders (i.e., from calculations it can be assumed that margins rose to well above 10 percent) or excessive costs in the value chain (increased production versus limited storage capacity and increasing access costs). There is also evidence that bad functioning of the value chain (with too many intermediaries, high transport costs, asymmetric distribution of information, and lack of storage capacity for farmers) limits protection to farmers and translates into disincentives. Together with other measures such as the input subsidy, protection has enabled an increase in overall rice production in the URT, resulting in the country becoming a rice exporter in the region. In 2010, when the URT was a net rice exporter, there was a slight disincentive to farmers, which was most likely linked to the existence of an export ban.

Figure 22: Trends in wholesale and farmgate price gaps for rice in the United Republic of Tanzania , 2005 to 2009



Source: Authors' elaboration.

Main message: Incentives for rice in the United Republic of Tanzania decreased between 2005 and 2010. This is a normal trend for a country moving towards self-sufficiency. However a salient finding is that while the level of incentives used to be higher for farmers than for wholesalers in consumption areas, following liberalization of the rice market in 2007, this balance has changed and protection is now higher in consumption areas. Import tariffs in the URT prevent cheap imports and result in effective price premiums for farmers, but the cost to consumers is quite high. Furthermore, in 2010, when the URT became a net exporter, the export ban prevented farmers from receiving higher prices. If the change in trade status from net rice importer to net exporter becomes permanent it would therefore be advisable to start removing tariffs. Yields remain below average for the region, so without protection Tanzanian rice is unlikely to be competitive in international markets if prices return to their historical levels. The rice sector needs a supporting environment that leads to additional investment at the farm level, to increase yields and lower production costs. In addition, protection to farmers could be increased without affecting consumer prices if market access was improved. Farm gate prices could increase by up to ten per cent if the value chain was more efficient without increasing consumer prices. Alternatively, consumer prices could be reduced by up to 6 per cent. Domestic demand could then be covered at lower prices, thus benefiting consumers, or

surpluses exported to neighbouring countries with higher prices for farmers when prices in those markets are more rewarding.

Sugar cane

Sugar cane is an important commercial crop in the United Republic of Tanzania, and is transformed into sugar at plants throughout the country. Most sugar cane is grown by contract growers and smallholders in estates owned by sugar processing factories. The Tanzanian sugar industry has an important socio-economic impact in generating employment and economic activity. It provides direct employment to about 14 000 people, and is an outlet for the produce of more than 30 000 farming households. Considering an average of two to three economically active adults per farming household, it therefore provides secondary employment to more than 80 000 people. Cane farmers' total annual earnings are about TSh 4 billion (approximately US$2.7 million). Activities related to the sugar industry provide about TSh 12.3 billion of tax revenue – 1.7 percent of the total.

Production: From 2005 to 2010, sugar cane production in the United Republic of Tanzania increased in area and production, but yields fluctuated. Cane production increased by 17 percent, from 2.3 million tonnes in 2005 to 2.7 million tonnes in 2010, while the area under cane production increased by 15 percent, from 20 000 to 23 000 ha. This implies that most production increases are due to area expansion, with yields remaining at about 120 tonnes/ha. Sugar cane production in the URT is concentrated in three regions – Morogoro, Kagera and Kilimanjaro – in the centre and north of the country, which accounted for 71 percent of total production for the period under study. In these regions, farmers have a reliable market and obtain input loans from buyers, most of which are sugar factories close to sugar growers' farms, thus providing a key production incentive.

Consumption/utilization: The sugar industry is one of the largest agroprocessing industries in the United Republic of Tanzania. It contributes approximately 35 percent of gross output from the food manufacturing sector, and 7 to 10 percent of total manufacturing value-added. Four companies are involved in raw sugar production: Kilombero Sugar Company (KSC) and Mtibwa Sugar Estate (MSE) in Morogoro Region; Tanganyika Planting Company (TPC) in Kilimanjaro Region; and Kagera Sugar Limited (KSL) in Kagera Region. KSC processes nearly 50 percent of total sugar cane, with MSE and TPC processing approximately 20 percent each and KSL the remaining 10 percent. The companies are under the control of domestic capital, except for KSC, which is owned by the South African corporation Illovo.

The URT's level of sugar self-sufficiency is about 75 percent. In 2009/10, total sugar consumption was 377 313 tonnes, of which 23 percent was for industrial use (in sectors such as carbonated drinks, pharmaceuticals and bakeries) and the remaining 77 percent was consumed directly. To manage the sugar supply in the URT, the government has increased sugar imports and imposed a ban on sugar exports to neighbouring countries. The country's porous borders and ports pose a critical challenge to the local sugar industry. Smuggling not only creates shortages in the local market but also imposes huge losses of tax revenue to the government. For example, in 2011, the government had to engage security services to block illegal exports of sugar to neighbouring countries because acute shortages were pushing sugar prices to extraordinarily high levels.

Trade and marketing: The United Republic of Tanzania is a net importer of sugar. Over the study period, annual exports ranged from 10 000 to 65 000 tonnes, and imports from 60 000 to 185 000 tonnes. The URT exports sugar to the European Union (EU) as a way of utilizing its preferential quota

allocated through initiatives such as the African Caribbean Pacific Sugar Protocol and Everything But Arms. The vast majority of sugar imports are declared as sugar for industrial use (or pure sucrose), as most exemptions from sugar import tariffs are given to industries using the sugar as an input for food production. Most of the URT's sugar exports are raw cane sugar. Throughout the study period, the URT was a net importer of sugar for industrial use and raw cane sugar, and a net exporter (albeit of reduced quantities) of sugar with added flavouring or colouring.

Value chain performance: Sugar cane is produced by estates and outgrowers and sold to sugar factories in eastern, northern and northwestern United Republic of Tanzania. These factories then sell the sugar to local sellers or exporters. Local wholesalers market sugar to retailers, while exporters find regional or global markets. All internal and international sugar marketing is regulated by the Sugar Board of Tanzania (SBT). As locally produced sugar is insufficient for direct and industrial local consumption, there are import inlets throughout the country.

When sugar cane was first bought from smallholder farmers in 1962, prices fluctuated according to the cane's sucrose level, which was measured in laboratories. Since then, various remuneration systems have been developed. Following contract renegotiations in 1999 and 2000, in 2001 sugar mills agreed to fix prices at the 9 percent sucrose level, to mitigate the variability of farmers' incomes; given the fertility of the area, this level was thought to be achievable for all farmers. Price fixing was seen as a good incentive for smallholder farmers to grow more cane and a solution to the measurement problem. However, processing units have significant market power, and the prices that some factories pay to farmers are lower than the production unit costs. This low pay is ascribed to the monopoly situation created by laws that prohibit the construction of additional sugar factories within 80 km of existing ones and the obligation for farmers to sell to the nearest factory at prices dictated by the factory. Farmers also face delays in payments; although contract farming requires payment within 40 days of delivery, payment often takes three to four months. As farmers generally borrow money from credit cooperative societies, these delays lead to losses through increased interest payments. This situation is assumed to have discouraged farmers from growing sugar cane, leading to a decline in sugar production from 246 to 179 tonnes in 2011.

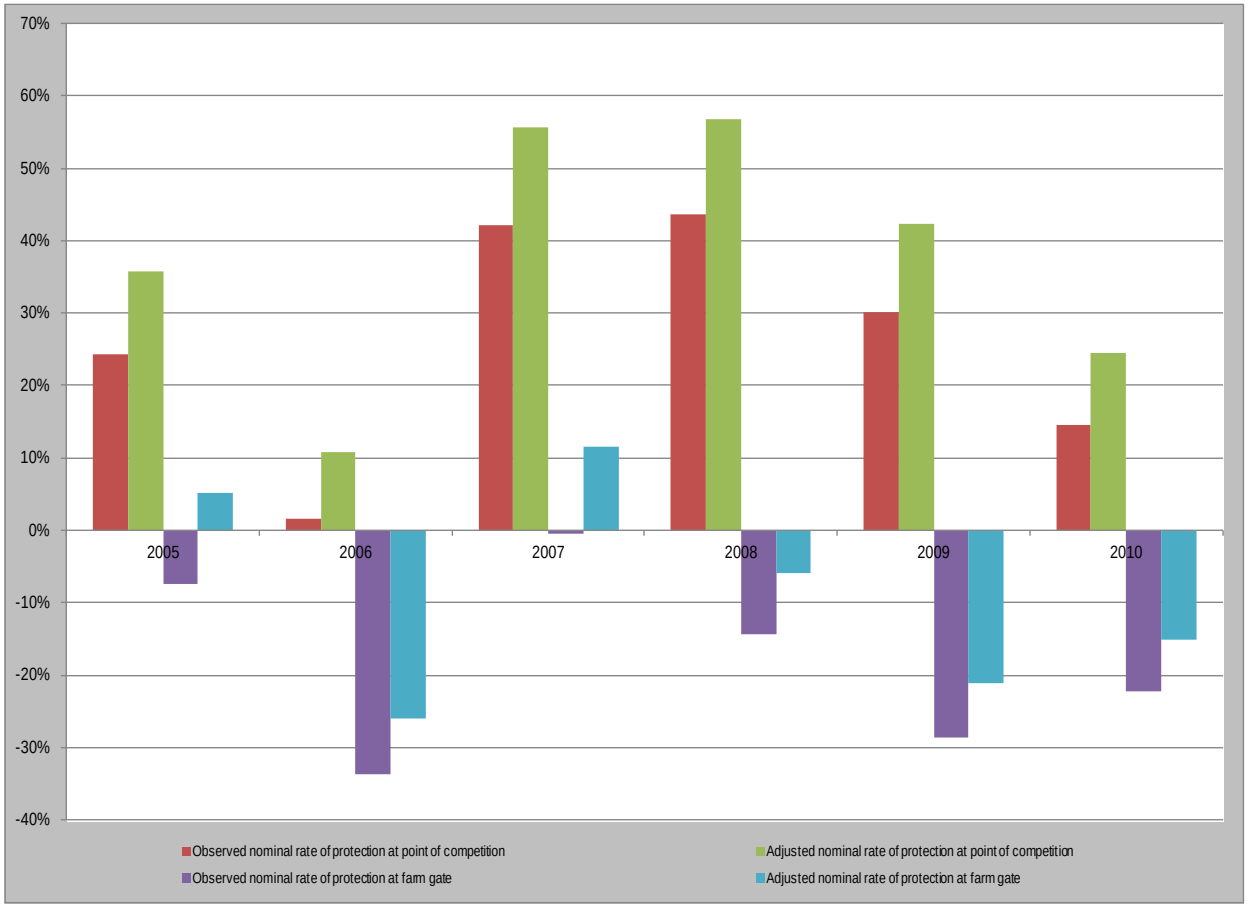
Processing costs at sugar mills in the URT are not publicly available, but data from one of the four main mills show that costs are more than twice as high as those in other countries in the region (NAMC, 2004; Mitchell, 2004), showing a clear relative inefficiency of processing units in the URT.

MAFAP indicators and interpretation: As shown in Figure 23, policy and value chain inefficiencies have diverse impacts on the Tanzanian sugar market. While at the point of competition the border policy (i.e., the tariff of 100 percent or US$200/tonne) results in domestic prices being higher than reference prices, sugar cane farmers receive prices that are significantly lower than the reference price. The study results confirm the intuition of Morrissey and Leyaro (2007), who suspected that processors retain a larger proportion of the producer subsidy[12] than sugar cane farmers do. Since 2008, the level of protection at the wholesale level has been decreasing, because of tariff exemptions for sugar imports, particularly in 2010 when exemptions were granted for all types of sugar. In 2007, the disincentives to farmers were lower because the low domestic production of sugar created

[12] The concept of producer subsidy in the work of Morrissey and Leyaro is similar to that of incentives in the MAFAP framework.

competition for raw sugar among mills and important quantities of raw cane were exported and imported.

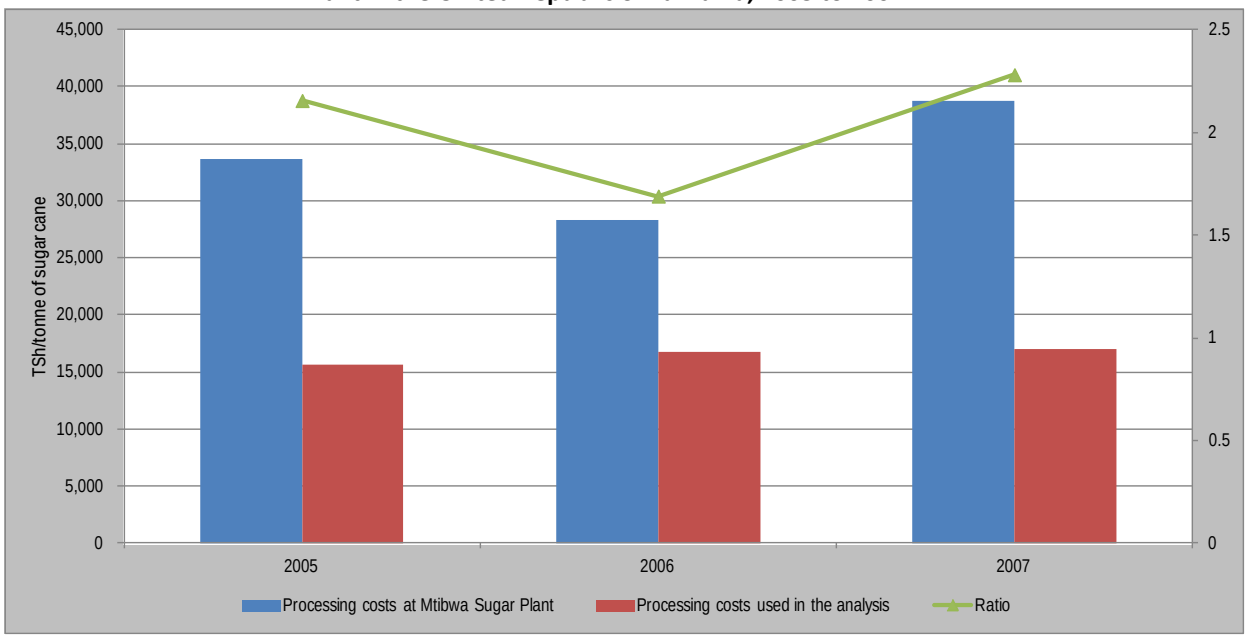
Figure 23: MAFAP nominal rates of protection for sugar (wholesale) and sugar cane (farmgate) in the United Republic of Tanzania 2005-2010



Source: Authors' elaboration.

Several policy and market functioning aspects explain this divergence between incentives at the wholesale and farmgate levels. First, the taxes on domestic sugar cane marketing (about TSh 120/tonne) explain only part of the situation, as the disincentives to farmers are far greater than local government taxation. Farmers face significant disincentives from either very high profits for the local sugar industry or high processing costs – it is not clear which. The processing cost data from a single sugar mill are far higher than those used to construct the reference price (Figure 24). Calculating the incentive indicators from these processing cost data for the years they are available shows that farmers as well as the industry benefit from the incentives provided by the tariff. It can therefore be suspected that the main source of disincentives for sugar cane growers arises from high sugar processing costs.

Figure 24: Comparison of sugar processing costs used in the analysis and those reported by the Mtibwa Sugar Plant in the United Republic of Tanzania, 2005 to 2007



Source: Authors' elaboration.

Main message: The effects of trade policy (i.e., the sugar import tariff) are reflected in the prices that consumers pay for sugar in the United Republic of Tanzania, which are higher than international prices. However, farmers do not benefit from this border protection and seem to be disconnected from changes in trade policy; they also face disincentives from the low efficiency of sugar mills. As a consequence, the current trade policy does not benefit farmers as much as a more efficient sugar industry would. The government should therefore consider removing the sugar import tariff, which would require the removal of sugar from the sensitive items list for the EAC CET. The government should also revise the investment environment for the sugar sector, to allow companies to increase their efficiency and thus to pay higher prices to sugar cane producers.

Wheat

Wheat is not a priority crop for agriculture sector development in the United Republic of Tanzania, and there are no production or marketing subsidies for wheat. The wheat sector's development and operations are dominated by large private sector commercial farms and millers; smallholder engagement in wheat production is very small-scale and scattered. Farms that were owned by the government through the National Food Company were privatized during the liberalization era. Direct incentives for production and market development are almost absent, with the exception of the EAC CET, for which wheat is a sensitive item with a 35 percent *ad valorem* tariff at the border. The scarcity of wheat research and breeding activities at national agriculture research stations has resulted in low availability of improved seeds for smallholder farmers. However, the URT has the potential to produce more than 164 000 tonnes of wheat a year, if policy efforts are directed towards improving crop husbandry, trade and marketing. Although wheat accounts for six percent of per capita calorie intake, it is economically important for two reasons: i) most wheat consumed in the URT is imported, implying that price shocks in wheat exporting countries may have significant impacts on foreign exchange reserves; and ii) effective wheat demand is concentrated in urban areas with high population growth, and is bound to increase as the population grows.

Production: Between 2000 and 2010, the wheat harvested area fluctuated from a maximum of 75 000 ha to a minimum of 30 000 ha, averaging approximately 50 000 ha – less than 1 percent of the United Republic of Tanzania's total agricultural area. With average yields of about 2 tonnes/ha, total production is approximately 100 000 tonnes, representing a mere 0.2 percent of total agricultural output. More than 90 percent of domestic wheat production comes from Arusha, Kilimanjaro and Manyara regions in the north, and Iringa and Mbeya regions in the Southern Highlands. While wheat production in the Southern Highlands is predominantly small scale, most production in the north is on large-scale farms. Wheat production can be classified into three production modes: large-scale mechanized; small- to medium-scale mechanized; and hand-tool production.

Consumption/utilization: According to FAOSTAT Food Balance Sheets, nearly 100 percent of total wheat production is consumed as food in the United Republic of Tanzania. In terms of calorie intake, wheat ranks fourth in the Tanzanian diet, after maize, cassava and rice. Between 2002 and 2007, the average calorie intake from wheat was one-fifth that from maize. Wheat is consumed mainly in the form of wheat flour, which is both an intermediate and a final product. Wheat consumption is higher in urban areas (accounting for 83 percent of the total) than rural areas (17 percent) (Kilima, 2006). The wheat milling industry is dominated by the AZAM and AZANIA companies in Dar es Salaam, which supply wheat products to consumers in both URT and neighbouring countries in East and Central Africa.

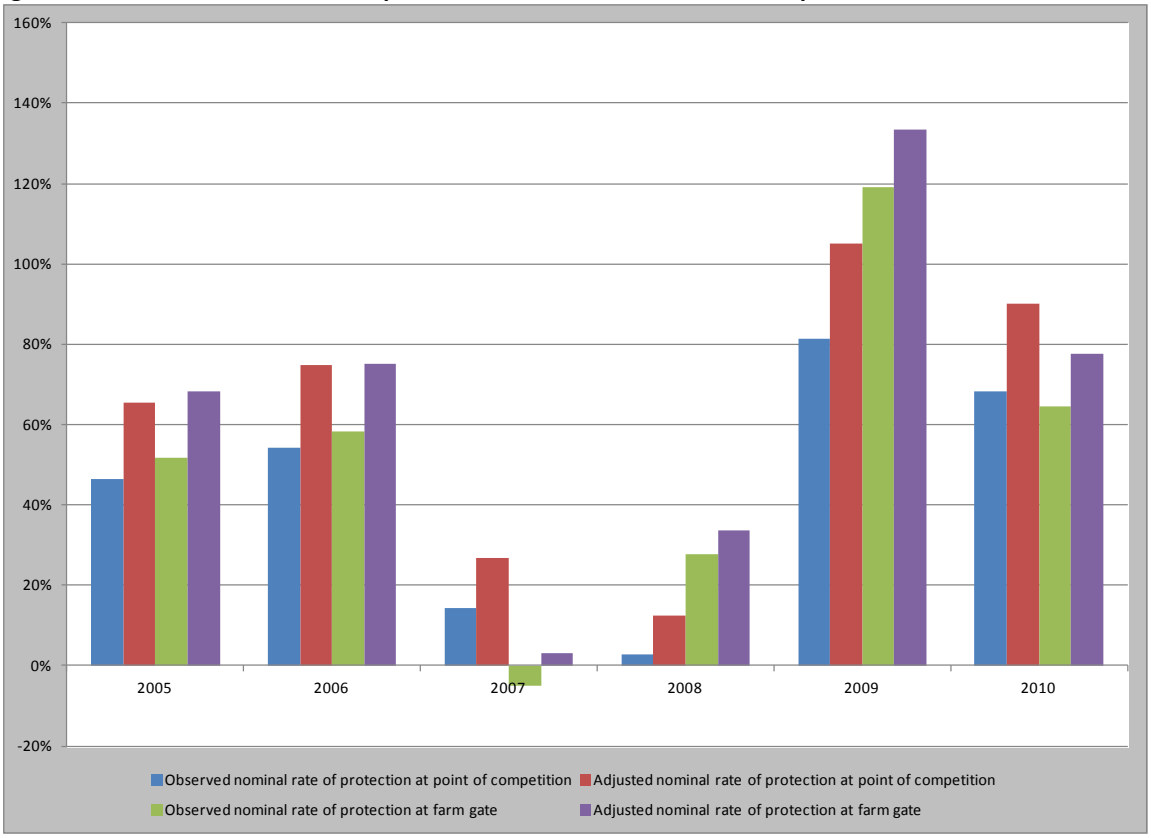
Trade and marketing: The United Republic of Tanzania is a net importer of wheat, with amounts traded being more than six times domestic production. Most wheat exports from the URT are recorded as re-exports. Wheat imports account for nearly 30 percent of total agricultural imports, generating an import bill of close to US$150 million a year. The 35 percent *ad valorem* tariff (EAC CET) was reduced to 10 percent in 2007. In contrast, the URT has been a net exporter of wheat flour during most of the period; volumes traded account for 15 percent of the domestic wheat supply and a non-negligible share of total domestic wheat supply plus wheat flour imports (8 percent from 2000 to 2010 and 11 percent during the 2005–2010 study period). Re-exports are negligible, at less than 1 percent of total exports, apart from in 2005, when they accounted for 86 percent. Thus the wheat processing industry in the URT shows a clear export orientation. Australia, the Russian Federation and Argentina are the main sources of imports, with very small amounts sourced from other African countries. The main export destinations for wheat flour are neighbouring countries, with the Democratic Republic of the Congo accounting for more than 75 percent of the total and the rest going to other EAC partners.

Value chain performance: Before reaching urban or rural consumers, wheat follows one of two independent marketing channels: from small-scale farming along the Southern Corridor, or from large-scale activities. Each system operates independently from the farm to final consumers. Bakheresa Ltd is the dominant player among large-scale operations, because of its multiple functions along the supply and value-addition chain. It is followed by Azania and Mohamedi Enterprises Limited. Large commercial farmers and companies supply wheat to large milling companies such as Bakheresa. However, owing to the low domestic wheat production, Bakheresa imports wheat from world markets; it exports various wheat products to East and Central Africa, including bakery products, which are also distributed through retail outlets in the United Republic of Tanzania. Bakheresa's small-scale chain encompasses intermediaries, small-scale millers and home bakeries, which also sell final products via retail trade.

Raw wheat imports enter the country via Mombasa and Dar es Salaam ports. From there they are transported by road to milling companies in Dar es Salaam or Arusha regions for processing Over the study period, prices increased, with similar price patterns in all the markets considered. The highest wheat prices are reported for Tanga and Moshi, close to the Kenyan border. Prices are higher here because of demand from Kenya, where wheat prices are high. All regions with low prices, such as Iringa and Sumbawanga, show relatively high levels of production. Border towns such as Sumbawanga have the potential to trade with Malawi and Zambia, but wheat trade is very low and maize is the dominant traded crop.

MAFAP indicators and interpretation: The results obtained for wheat in the United Republic of Tanzania show a high level of protection for wheat producers and traders throughout the study period (Figure 25). Protection is significantly higher than the CET for wheat (35 percent), even though the CET has been reduced to 10 percent since 2007.

Figure 25: MAFAP nominal rates of protection for wheat in the United Republic of Tanzania, 2005 to 2010



Source: Authors' elaboration.

Regarding the relationship between the incentive rates at the farmgate and the point of competition and the evolution of trade policy, three periods can be distinguished (Figure 26): before the food price hike of 2007; 2007 and 2008; and 2009 and 2010.

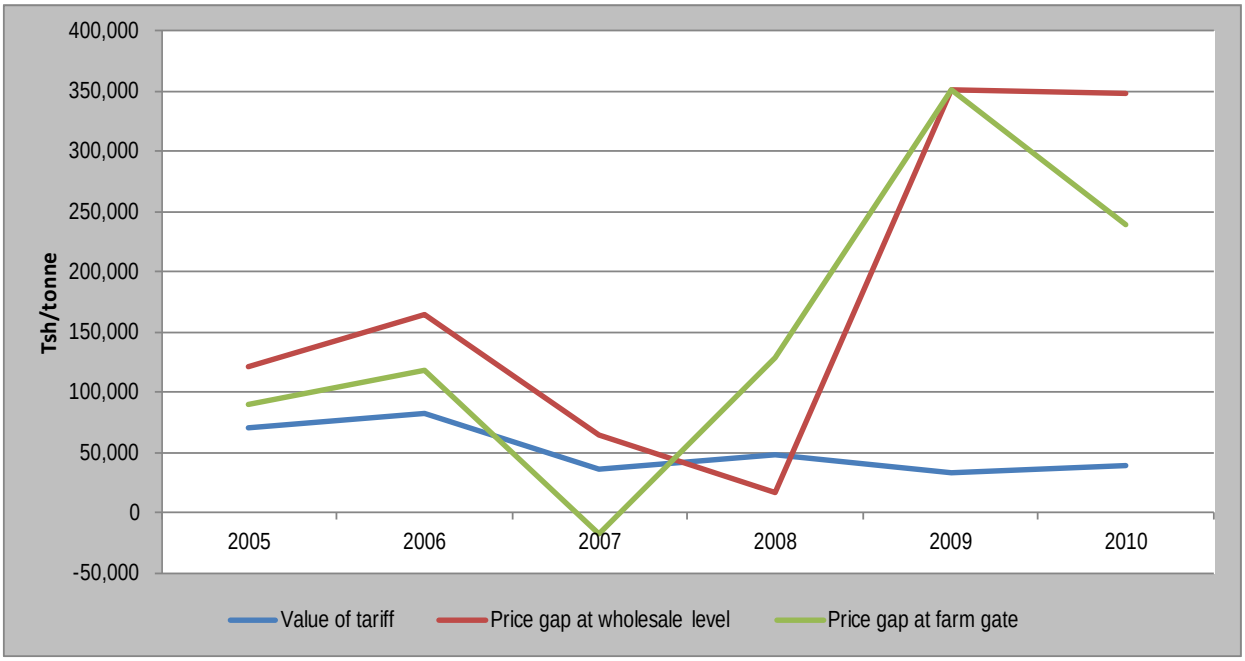
Before the food price hike of 2007 prices in the URT reflected the CET and some additional incentives to local traders resulting from imperfect price transmission of international prices to the domestic market. These incentives were particularly important as the URT was importing more than six times as much wheat as it produced domestically. However, even with the tariff in place, more competition in the import market could have made domestic prices for wheat nearly 15 percent

lower than they were. Price gaps were higher at the point of competition than the farmgate, showing that consumers were more penalized than farmers were protected, and traders captured most of the price difference.

In 2007 and 2008, as international prices for wheat rose sharply, the URT lowered the CET for wheat to 10 percent. This had the immediate effect of sharply decreasing the level of protection for domestic production. While in 2007 farmers saw their prices fall more than consumers did, in 2008 farmers benefited from lower imports, increasing the share of domestic supply in overall consumption. Despite the reduction of protection for domestic production, the protection rate has remained higher than the tariff because of the excessive access costs from the border to the point of competition.

In the third period (2009 and 2010), the tariff was maintained at the reduced level of 10 percent, but domestic prices continued to increase despite reduced international prices. This led to a very high level of protection, which in 2009 benefited farmers more than wholesalers. In 2010 the distribution of incentives between farmers and wholesalers returned to the pre-2007 pattern. Some experts point to exports of wheat flour to neighbouring countries as a potential outlet for the imports of wheat at lower tariffs. However, although formal exports of flour have increased, they account for less than 10 percent of total wheat imports.

Figure 26: Comparison of tariff values and price gaps for wheat at wholesale and the farmgate in the United Republic of Tanzania, 2005 to 2010



Sources: Authors' elaboration based on MTI, UNcomtrade and EAC CET statistics.

Main message: Although the United Republic of Tanzania has taken measures to reduce domestic prices of wheat, the impact of these measures has been limited. Domestic wheat prices remain higher than their international equivalents and thus there are clear transfers from consumers to traders and, to a lesser extent, producers. The government should ease import procedures for wheat because the high degree of market power in wheat imports allows traders to charge prices that are well above the import parity price. Additional competition in the import market for wheat or bulk

procurement of wheat could reduce the cost of imports and therefore price consumers have to pay for wheat.

Wheat is one of the commodities for which increased production could be expected, because of both its high price relative to maize and its high incentives. Even when price incentives were significant during the study period, domestic production has not increased. According to the Sealian Agricultural Research Institute (SARI, no date) this could be because medium- and small-scale farmers lack access to new varieties and grow old varieties that often succumb to new diseases, disease outbreaks or drought. Additional investments in wheat research and development (R&D) are needed if wheat production is to be increased in the URT.

Milk

The United Republic of Tanzania has a wide range of livestock resources, including an estimated 21.3 million cattle, of which 680 000 are dairy cattle with the capacity to produce a total of 1.6 billion litres a year. The livestock industry accounts for 3.8 percent of gross domestic product (GDP), with the dairy subsector contributing 30 percent of livestock output (TAMPA, 2011). Most of the livestock population are of indigenous breeds, and the most abundant livestock type is cattle. Despite their ability to survive in harsh environmental conditions, indigenous cattle have lower productivity than improved cattle. The dairy industry is reported to be an important component of the livestock sector, with great potential for improving people's living standards through cow milk consumption and sales of cow milk products (Njombe *et al.,* 2011). Although the dairy sector is not fully commercialized, it employs more than 2 million households and more than 100 000 intermediaries involved in milk processing and marketing. Dairy production also provides small-scale farmers with a regular cash income that can be several times greater than the income from many other types of on- and off-farm enterprise. Given the potential of the livestock sector, particularly the dairy subsector, to reduce poverty, the Ministry of Livestock and Fisheries Development (MLFD) formulated a Livestock Development Strategy in 2010, which identifies four key strategic priority areas for intervention (MLFD, 2010), including the improvement of financial services and incentives for the private sector's participation in production, processing and marketing of livestock and livestock products. The long-term objective of the National Livestock Policy is to encourage the development of a commercially oriented, efficient and internationally competitive dairy industry (TAMPA, 2011; MLFD, 2010).

Production: In the United Republic of Tanzania, the dairy industry contributes one-third of total livestock sector value. The country is not self-sufficient in milk and milk products, despite the large cattle population and the presence of processing industries. Only 3.2 percent of the available cattle population produces milk, mainly from crossbreeds of Friesian, Jersey and Ayrshire cattle with the Tanzania shorthorn zebu. From 2005 to 2010, the average growth rate of dairy animals (head) and production (tonnes) remained unchanged, at 3.6 percent, with yields remaining more or less stable after a significant increase from 2000 to 2005. Milk from indigenous and improved cattle types represented 64.5 and 35.4 percent of total milk production respectively for the 2005–2010 period. In the same period, the average increase in milk production from indigenous cattle was smaller than that from improved cattle, at 1.6 percent/year for indigenous compared with 7 percent for improved. According to Njombe *et al.* (2011), improved cattle can produce more than four times as much milk per lactation than indigenous cattle.

Consumption/utilization: Fresh and fermented liquid milk dominates dairy consumption in the United Republic of Tanzania, which has a narrower range of dairy products than other African countries (Omore *et al.,* 2009). At 41 litres per annum, national per capita milk consumption is lower than the FAO recommended level of 200 litres. From 2000 to 2010, more cow milk products were produced than equivalent products from other dairy animals, which are mainly goats. According to FAOSTAT, whole, fresh cow milk accounts for 92 percent of total milk production in the URT, and whole, fresh goat milk for the remainder. Most of the cow milk produced in the country is consumed in rural areas. The cattle population is concentrated in areas far from potential markets, where animal feed is available and cattle husbandry is favoured. According to RLDC (2009), cow milk consumption in livestock keeping communities can exceed 100 litres per annum. However, the domestic market is relatively narrow compared with the human population, despite initiatives for expanding and developing a sustainable domestic market for cow milk products and encouraging more investment in milk processing. Most cow milk is consumed without any processing, either on-farm (29.5 percent) or via sales by informal hawkers (67.0 percent), with only 3.5 percent being processed (RLDC, 2010). The situation regarding packaged milk is of particular interest: household survey data for 2007 (NBS, 2007) show that national consumption of packaged milk is very low, even in urban areas, at only 0.078 percent of the population. The highest level is in Dar es Salaam Urban, where 1.148 percent of survey respondents reported consuming packaged milk.

Trade and marketing: In the United Republic of Tanzania, milk trade represents only a small share of total milk production but significant shares of off-farm consumption and inputs for processing. On average, only 3.5 percent of domestic milk production is marketed, and nearly one-third of processed milk consumption is covered by imports. Even when informal off-farm marketing is considered, nearly 10 percent of total milk consumption outside the farm is imported (RLDC, 2009). Both fresh milk and milk powder are imported, but milk powder represents nearly 80 percent of total milk imports in liquid milk equivalents during the study period. Most milk imports come from outside the EAC, although there are reduced import tariffs for Kenya and Uganda.

Value chain performance: Smallholder farmers have a prominent role in milk production in the United Republic of Tanzania, and most smallholder milk producers keep indigenous cattle types. Cow milk producers have links to milk collection centres, which are in turn connected to markets in periurban and urban areas, especially where farmers produce surplus cow milk above local market requirements. MLFD reports that the surplus milk produced by these farmers is marketed in different ways depending on the production system, location and quantity.

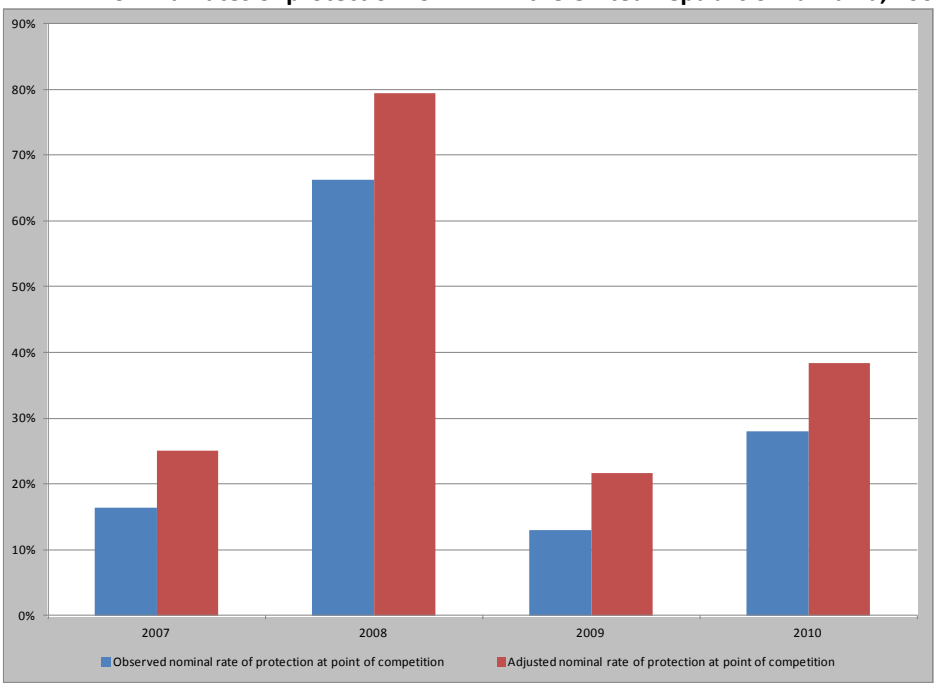
Dairy value chain studies reveal that 10 percent of the raw milk produced is marketed, although only 2 percent of this milk trade is formal. According to Kurwijila (2010), in the commercial sector, which accounts for 30 percent of milk production, the milk market shares are 86.1 percent to neighbours, 5.3 percent to local markets, 4.6 percent to traders at the farm, and 1.4 percent to processing factories. On-farm milk consumption has followed a decreasing trend since 2005. For instance, Dillmann and Ijumba (2011) report that most fresh cow milk in the URT is marketed through traditional channels (67 percent), while 30 percent is consumed on-farm and 3 percent is marketed through formal channels.

The URT has a total of 62 milk processing plants with varying potential and actual processing capacities; less than 25 percent of potential processing capacity is being used. Currently, the major

processing regions are Mara, Tanga, Arusha and Iringa. Nationwide, an estimated 41 million litres of cow milk a year is processed into pasteurized milk, ultra-high temperature (UHT) milk, cultured milk, ghee, butter, cheese and cream, and sold on the domestic market. However, Tanzanian processing plants face far higher costs than those in other regions of Africa (Fussi, 2010). It is therefore challenging for local dairy enterprises to produce high-quality milk products cost-effectively, to increase the competitiveness of the URT's dairy industry domestically and in the region (RLDC, 2009).

MAFAP indicators and interpretation: Indicators for milk have to be treated with caution for two main reasons: data are available for only the years 2007 to 2010; and, despite their efforts, the authors have been unable to obtain reliable farmgate price data, so the analysis is of only the wholesale level. These gaps are mainly the result of the dual structure of the milk market, with most production not reaching formal markets and being consumed on-farm or sold to local consumers. As shown in Figure 27, there were incentives to milk producers in the United Republic of Tanzania throughout the study period, reflecting import tariffs, which were always more than 50 percent.[13] The level of incentives is driven mainly by benchmark prices, which have fluctuated significantly while domestic prices have remained nearly stable.[14]

Figure 27: MAFAP nominal rates of protection for milk in the United Republic of Tanzania, 2007 to 2010



Source: Authors' elaboration.

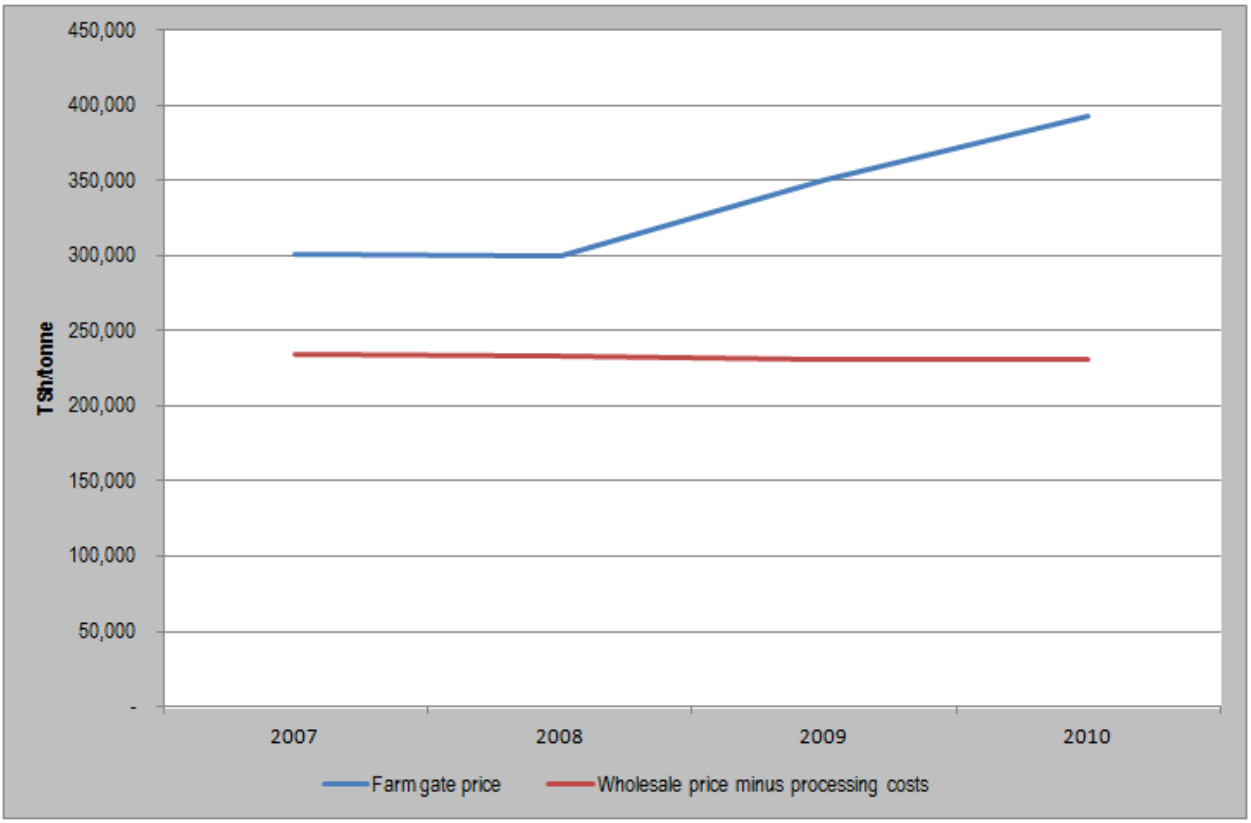
To understand whether or not this protection reaches farmers, two analyses can be made. First, the reference price calculated for the wholesale level can be compared with the farmgate price reported by the National Bureau of Statistics (NBS), assuming that this price is a proxy for the price that farmers obtain on the informal market. The MAFAP analysis shows that farmers receive incentives,

[13] Although Kenya and Uganda have reduced tariffs on milk imports into the URT, the weight of these imports in total imports is small.

[14] For the 2006–2010 period, the coefficient of variation for domestic prices was zero, while that for benchmark prices was 0.31.

albeit much lower ones than those reported for the wholesale level, implying that the tariff promotes market segregation and leads to consumers paying higher prices for milk even in the informal market. Milk processing costs in the URT are reported to be 67 percent higher than those in neighbouring countries such as Kenya (RLDC, 2010). Figure 28 shows that to sell at the reported wholesale prices (i.e., wholesale prices minus processing costs), processing plants could pay milk producers only 40 percent of the reported farmgate prices, so the inefficiencies of the dairy industry (high costs and underutilization) provide disincentives to milk producers selling to processing companies.

Figure 28: Farmgate and implicit prices paid by processors to farmers for milk in the United Republic of Tanzania, 2007 to 2010



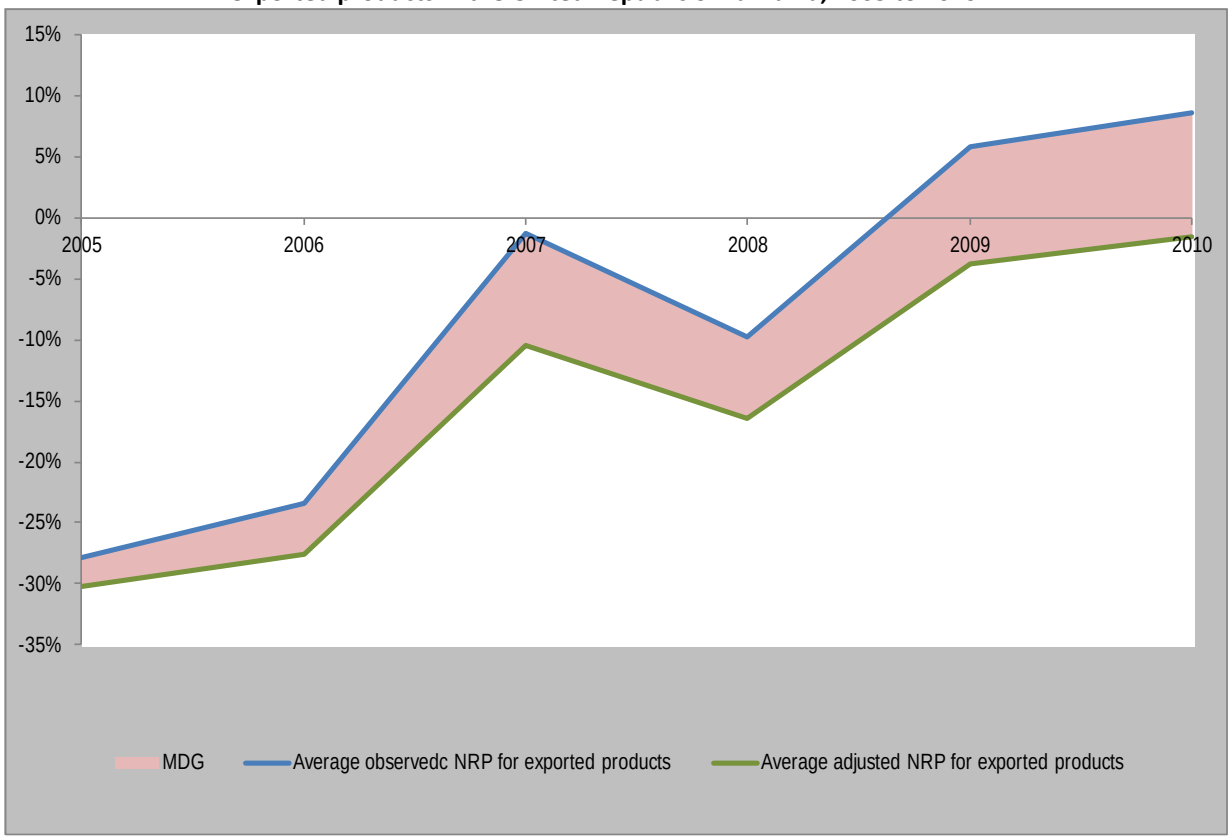
The implicit price paid by processors is calculated as the wholesale price minus processing costs.
Sources: Authors' elaboration using NBS, Links Tanzania and Dillmann and Ijumba, 2011 data.

Main message: Milk traders are protected by the external tariff, leading to consumers paying higher prices for milk than those prevailing in international markets. However, this protection affects only a small share of total milk production; most of the market is disconnected from international markets. Farmers in the informal market also obtain higher than international prices, although price differences are far smaller. The protection therefore provides incentives to milk producers at the cost of consumers in local markets. If more milk production were processed and marketed via more formal channels, the processing industry would have to pay lower prices to farmers because of its high processing costs. To avoid the collapse of farmgate prices for milk, the government should therefore promote the establishment of a more commercial dairy sector accompanied by improvements in milk processing efficiency.

Indicators for exports

As shown in Figure 29, farmers producing export commodities in the United Republic of Tanzania are generally disincentivized, meaning that the policy environment together with market performance lead them to get lower prices than they could obtain in a policy-free environment with better market performance. These disincentives are related to taxation of commodities (cotton, cashew nuts), bad functioning of the value chain (coffee, cashew nuts) and inefficiencies in the processing sector (cotton).

Figure 29: Average observed and adjusted nominal rates of protection and market development gaps for exported products in the United Republic of Tanzania, 2005 to 2010



Commodities included are coffee, cotton and cashew nuts for the whole period; and pulses since 2007.

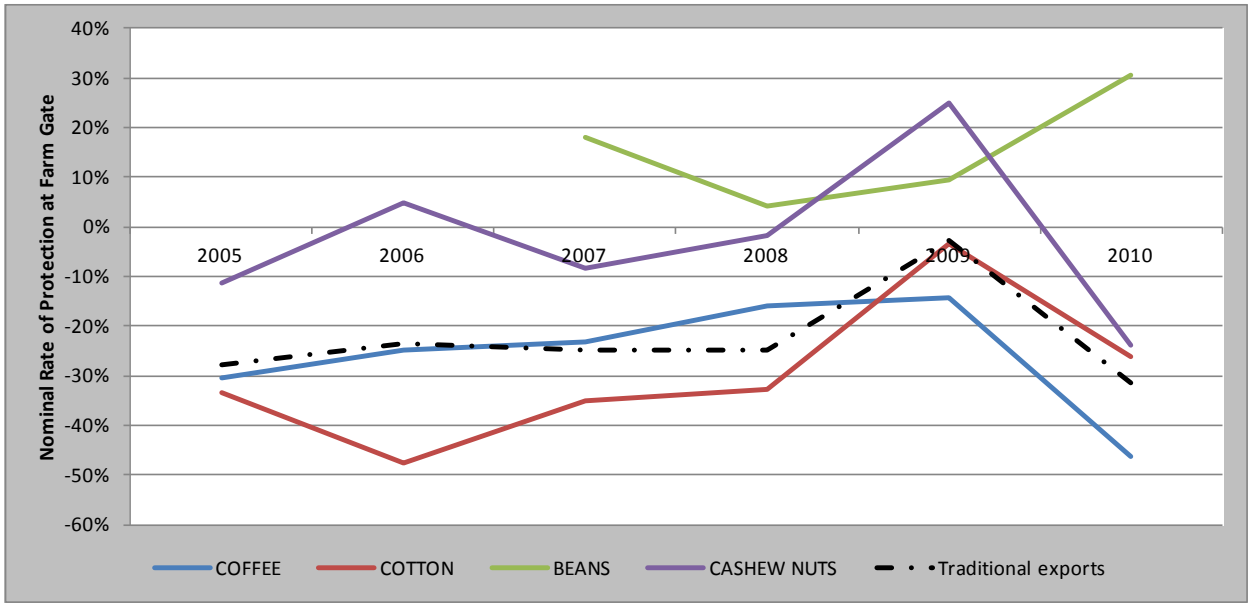
Source: Authors' elaboration.

Although Figure 29 shows a decrease in the level of disincentives during the study period, this does not imply that there has been a shift towards an export-friendly environment. Since 2007, beans represent nearly 50 percent of the aggregate.[15] Pulse producers have positive indicators, meaning that average prices are higher than export prices. In general, this situation would be considered as incentivizing producers, but in this case it shows bad functioning of the value chain. Figure 30 shows the evolution of the NRPs for each of the four commodities considered. Although the levels of disincentives for the three traditional export crops (coffee, cotton and cashew nuts) declined in 2009, the trend throughout the study period is for persistent disincentives. In addition, excessive access

[15] Aggregates are based on production value weighted by reference prices. Beans represent more than 50 percent of the value of all the exported commodities considered.

costs and local taxation mean that the adjusted domain shows an increasing level of disincentives throughout the period.

Figure 30: Farmgate nominal rates of protection for export commodities in the United Republic of Tanzania, 2005 to 2010



The traditional export aggregate covers coffee, cotton and cashew nuts.

Source: Authors' elaboration.

Coffee

Coffee is the second most important agricultural export commodity in the United Republic of Tanzania, after tobacco. It accounted for 14 percent of agricultural exports in the 2004–2009 period (FAOSTAT) and 4 percent of total exports during 2004–2011 (UNcomtrade). More than 90 percent of coffee is produced by smallholder farmers. The coffee industry provides direct income to more than 80 000 households and livelihoods for more than 2.5 million Tanzanians (MAFC, 2010).

However, low world prices during the late 1990s and early 2000s have forced many local producers to substitute coffee with maize or rice as a source of household income, leading to the stagnation of local coffee production. In response to these changes, since the early 2000s, the government has collaborated with the private sector to implement measures for revamping the coffee sector. As part of the Agricultural Sector Development Programme (ASDP), the government has launched the Coffee Industry Development Strategy 2011–2016, which aims to increase coffee production from 50 000 to 80 000 tonnes, and to improve the quality of outputs by increasing the share of premium coffee production from 35 to 70 percent of total production by 2016.

Production: The United Republic of Tanzania has abundant arable land suitable for producing high-quality Arabica and Robusta coffee. The country's three main coffee producing areas are the Northern Highlands, the Southern Highlands and the Western Lake Zone. In recent years, coffee production has increased in the southern part of the country, but production in the north, where higher-quality coffee is typically grown, has been decreasing. Arabica is the main coffee variety.

Robusta production is much smaller, although it showed a peak in 2008/09 after reforms in the subsector, including the improvement of Robusta varieties. Cooperatives struggle to sell high-end, premium coffee because of the presence of multinational companies at Tanzanian coffee auctions. These companies use the "buy-back" system, whereby they purchase coffee beans directly from local farmers, carry out primary processing and then buy them back at low prices at auction.

The coffee industry faces several challenges, including lack of access to irrigation, a large number of older coffee trees, and highly volatile coffee prices, which cause dramatic fluctuations in coffee production, which is extremely price elastic. Production also suffers from the poor agricultural practices adopted by many smallholder producers, limited access to credit, lack of adequate farming inputs, and low use of inputs. However, despite these major constraints, Tanzanian coffee production is expected to increase as a result of recent market conditions and the introduction of pest- and disease-resistant coffee varieties.

Consumption/utilization: Annual per capita coffee consumption in the United Republic of Tanzania is 0.06 kg; and only 4.2 percent of the country's total coffee production is consumed domestically. Since 2003, the total quantity of coffee consumed by the domestic market has gradually declined (FAOSTAT). The Coffee Industry Development Strategy does not explicitly address the expansion of domestic coffee consumption, but instead assumes that increases in coffee consumption will be proportionate to increases in GDP. However, encouraging and promoting domestic coffee consumption could be a strategy for increasing the bargaining power of local producers, with the domestic market providing an alternative to the export market and farmers able to sell coffee at reasonable prices to local consumers.

Trade and marketing: Nearly all the coffee produced in the United Republic of Tanzania is exported as green coffee with no roasting process in the country. From 2005 to 2010, Europe accounted for about 70 percent of the country's total coffee exports, followed by Asia with 18.2 percent. North America, which means the United States of America in this case, accounted for 7.8 percent. Most coffee exports go though the Moshi auction, with a minor share following a direct export path.

Value chain performance: The first stage of primary processing is carried out by producers at the farm level. This involves hand-picking red cherries and pulping on the same day, washing, fermenting, drying and packaging. Before selling, farmers grade their coffee according to the grades established by the Tanzania Coffee Board (TCfB).

After primary processing, farmers transport their produce through private buyers or primary cooperatives to curing factories for secondary processing. These curing factories are operated and managed by cooperatives and a few private estate mills. At this stage, the coffee is sampled, tested and blended with other coffee, based on instructions from TCfB. After quality assessment, samples are transported to the Moshi coffee auction, located in the Kilimanjaro Region of northern United Republic of Tanzania. Following auction, the coffee is transported from regional warehouses to the port of Dar es Salaam for export. Four main purchasers account for more than 70 percent of total volume traded through the Moshi coffee auction (Promar Consulting, 2011)

Producer organizations that offer high-quality or certified organic coffee and meet the requirements of the 2003 coffee regulations are eligible to make direct exports, and their coffee does not have to pass through the Moshi auction. These organizations accounted for an average of 16 percent of

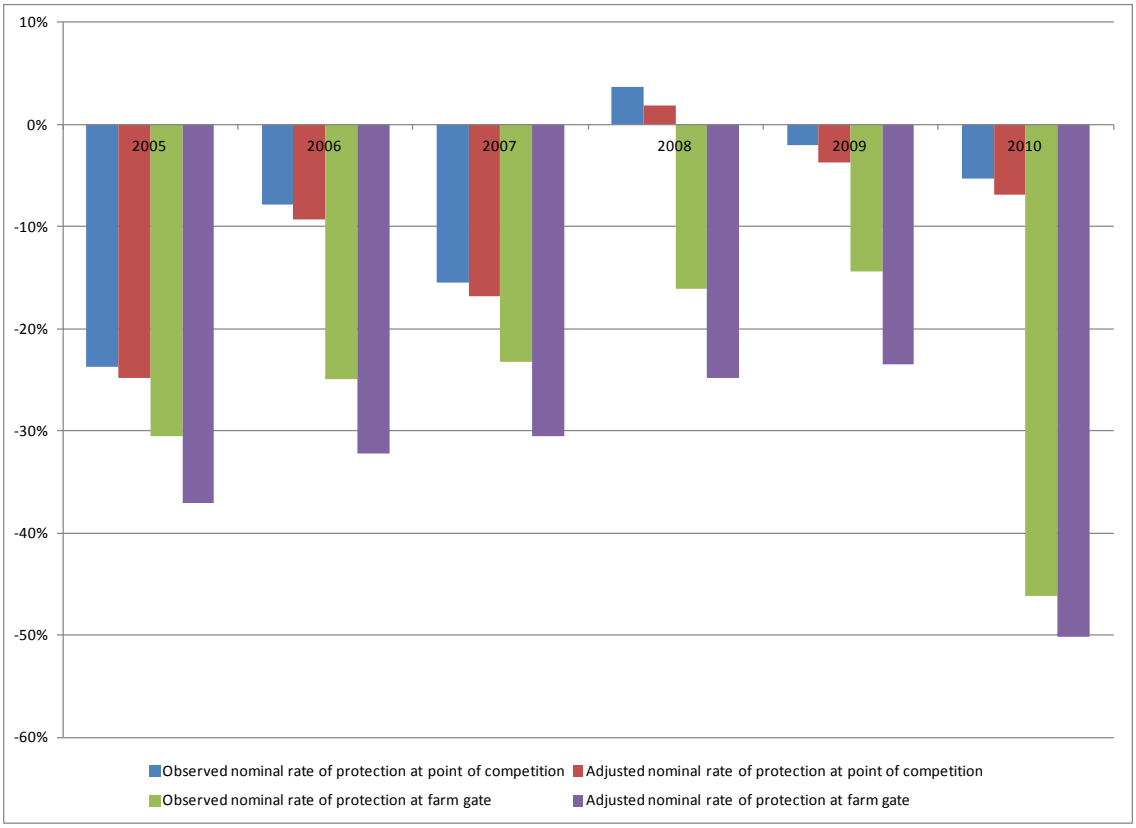
export volume between 2005 and 2010. If a producer organization's coffee does not meet the regulations' requirements, it has to pass through the auction system for grading and sale according to its established grade.

According to Ponte (2004), in 1994 there was shift in control of the coffee trade from cooperatives and/or marketing boards. This monopolistic system ensured that the coffee for the domestic market remained in "local" (mostly Tanzanian or African) hands up to auction. At the export level, smaller (mostly Asian-owned) Tanzanian export companies competed with Kenya-based exporters and the subsidiaries of multinational corporations. Adoption of the 1993 Crop Boards Act marked a profound change in the regulatory framework of Tanzanian coffee marketing, and in the 1994/95 season domestic trade was opened to private traders and processors. However, TCfB retains numerous regulatory powers, including issuing licences and running coffee auctions, allowing domestic traders to buy coffee at only authorized buying posts. TCfB does not permit farmgate buying, although this rule is not observed in some parts of the country, nor does it allow the movement of coffee from one area (southern, northern, western) to another. Liberalization of the coffee market in the URT has yielded mixed results. On one hand farmers are paid cash on delivery and receive a higher proportion of the export price than in the pre-liberalization period. On the other hand input credit schemes have collapsed, the volume of coffee exports has not improved, and there are strong indications that coffee quality has deteriorated because farmers are paid a fixed price regardless of quality. The most important effect of liberalization is foreign companies' dramatic capture of the Tanzanian coffee market at all levels (domestic trade, processing and export) except farming, where 95 percent of coffee is still produced by smallholders. However, the true degree of liberalization is questionable, as all coffee from private buyers and any other entity must be sold through the Moshi auction run by TCfB or through direct export contracts approved by TCfB. In addition, different licensing requirements are imposed at almost every level of the value chain.

Private buyers seeking to operate in the URT have to select their locations well in advance and apply to the District Executive Director to have their selection endorsed by the local committee. After completion of this process, TCfB issues the buyer with a buying licence valid for the following year. Coffee buyers have to apply for additional annual licences to engage in other aspects of the coffee trade.

MAFAP indicators and interpretation: The United Republic of Tanzania is a net exporter of coffee. The main coffee commodity traded is unroasted, un-decaffeinated coffee, which is the commodity studied for this analysis. The results presented in Figure 31 indicate that farmers and, to a lesser extent, wholesalers face disincentives for production, as NRPs have been generally negative since 2005 (with the exception of the NRP for the point of competition in 2008). NRPs at the farmgate have remained more or less stable, apart from a significant increase in 2010, when international price increases were only partly transferred to domestic prices. As no export taxes are levied on coffee in the URT, the negative price gaps can be explained by general market development gaps (e.g., lack of price transmission) or malfunctioning of the value chain – the excessive access costs between the farmgate and the border. The access cost gaps from the farmgate to the point of competition are much larger than those from the border to the point of competition. Disincentives are higher when international prices rise, highlighting the lost market opportunities for coffee farmers. Regarding the adjusted domain (adjusted NRPs), the TCfB levy and Tanzania Coffee Research Institute fees represent a minor disincentive compared with other issues.

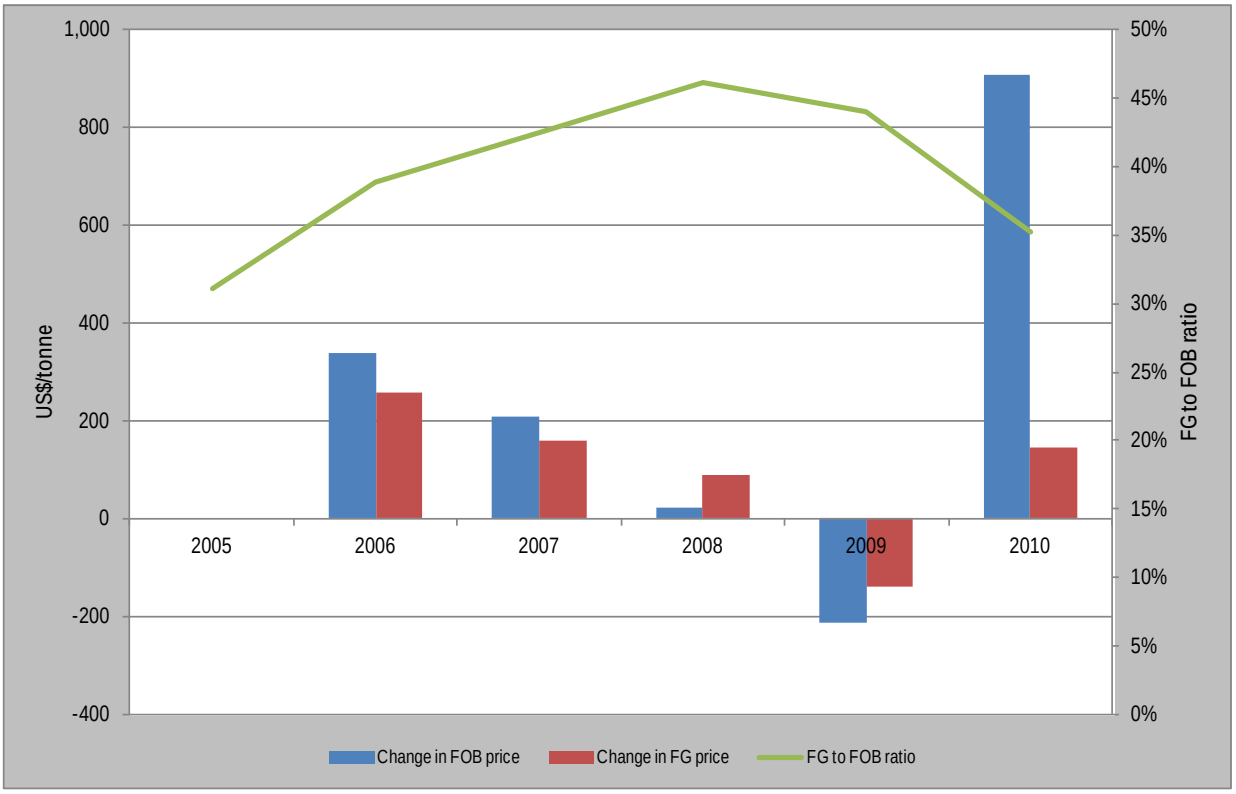
Figure 31: MAFAP nominal rates of protection for coffee in the United Republic of Tanzania, 2005 to 2010



Source: Authors' elaboration.

Main message: Although FOB prices have been increasing steadily since 2005, the ratio of the farmgate price to the FOB price has remained stable, at about 40 percent (Figure 32). Based on the available access cost data, this means that farmers are not fully realizing the benefits they could expect from increasing coffee prices. Farmgate prices are increasing more slowly than international prices, while the variation in access costs is not sufficient to explain this lack of price transmission. As no explicit trade policies are in place, the NRPs identified are related to overall MDGs. This situation could be attributed to the pricing system of the value chain and the administration burden imposed by TCfB, which increases transaction costs in the value chain and limits new entrants. The system protects farmers when prices are low, but limits their capacity to benefit from high prices. To some extent, trade liberalization has helped improve the sector, but little is being done to ensure that small-scale farmers receive the prices they could obtain.

Figure 32: Changes in FOB and farm-gate prices for coffee in the United Republic of Tanzania, 2005 to 2010



Sources: Authors' elaboration from UNcomtrade and TCfB data.

The Tanzania Coffee Research Institute fee is of minimal importance compared with the disincentives created by the functioning of the auction system. Other inefficiencies in the value chain also play a role, including levies and charges for membership of TCfB.

The burden of disincentives in the value chain lies on farmers, probably because of the market power of exporters, which have maintained a dominant position in spite of government efforts to introduce more competition in the auction system with the one-licence initiative. The government should therefore enforce the one licence system more forcefully, as major multinational companies still control coffee auctions, which leads to farmers receiving a low share of the export price. Even in the best years, farmers get only 46 percent of the export price, and still face a disincentive of nearly US$200/tonne when all access costs are considered. Facilitating the entrance of new players into the coffee auction could break the current dominance of Tanzanian coffee exports by four big companies.

Cotton

Cotton and coffee rank equally as the second largest agricultural exports from the United Republic of Tanzania. Most of the cotton produced by smallholder farmers is exported, contributing about 24 percent of agricultural and 4 percent of total exports. As cotton production is very labour-intensive, it provides a source of direct and/or indirect income to more than 40 percent of total Tanzanian livelihoods. The government's Cotton Act of 1994 eliminated the monopoly of the Tanzania Cotton Board (TCtB) and the cooperative unions, and allowed competition in cotton marketing and ginning to boost production. However, deteriorating cotton seed and lint quality, low absorption of local cotton lint in the apparel and textile industries, and low investment in the weaving and yarning industries remain significant challenges for the sector.

The second Cotton Sector Development Strategy adopted in 2010/11 addresses these challenges by working with other stakeholders. Measures taken include the introduction of contract cotton farming and a specific strategy for developing the textile and garment industries to process cotton fibre and yarn locally.

Production: Although subject to significant yearly shifts, the area under seed cotton production in the United Republic of Tanzania has averaged nearly 400 000 ha for the last 20 years. Production has steadily increased as yields improve, from an average of 0.46 tonnes/ha from 1990 to 1994, to 0.69 tonnes/ha in 2005 to 2009. Seed cotton is processed at ginneries to obtain cotton lint and cotton seed. Between 1990 and 2010, lint outputs were more or less stable, accounting for 34 percent of total raw cotton production, with a seed content of 62 percent and an average waste of 4 percent (FAOSTAT).

Although 13 of the country's 23 regions produce seed cotton, the vast majority of production (more than 99 percent) is concentrated in the western cotton growing area (WCGA). Most seed cotton is grown on small-scale farms with huge potential for increasing productivity. Main drawback factors include reliance on rainfed growing conditions, use of low-yielding seeds, and insufficient use of fertilizer and chemicals (Bursi *et al.,* 2008).

The hand-hoe is the most commonly used instrument in cotton farming, with some animal traction for soil preparation and during planting and weeding. The Tanzania Cotton Association promotes farmers' use of tractors, which has contributed to the adoption of modern farming techniques. Improved seeds, developed by Ukiriguru Agriculture Research Centre, have been used in the WCGA since 1991. These seeds are more uniform, have a slightly higher ginning out-turn, and are far more drought-resistant than other varieties.

The URT has potential for producing organic cotton because of its largely unspoiled soil and unpolluted environment. The demand for organic cotton is growing fast, but in the 2009/10 season organic cotton represented only 0.97 percent of total production. Nonetheless, the URT ranks fifth among the world's organic cotton producers.

Consumption/utilization: Seed cotton is used as an input exclusively by local ginneries, which separate the fibre from the seed to produce cotton lint and cotton seed. The Tanzanian ginning industry is characterized as competitive; there is competition for the purchase of seed cotton and many firms are available to buy the product (Poulton and Tschirley, 2009). There are more than 30 ginneries, with the top five alone accounting for 40 percent of total seed cotton purchases. This structure is as close as any African cotton sector has got to the competitive ideal, and allows the payment of reasonably attractive prices to producers, despite high local taxes and transport costs. However, the market structure also presents significant challenges regarding seed supply, quality control and seasonal credit (Poulton and Maro, 2009). The lint goes to the local textile industry, mainly via spinners that transform the fibre into yarn; the seed is typically used for planting, as oil for human consumption, or for animal feed. Cotton oil is sold locally, while the meal is transported to other parts of the country. Cotton oil accounts for only 8 percent of total vegetable oil production in the United Republic of Tanzania.

According to TCtB, the textile industry produces traditional fabrics, which are mainly sold in the URT and also exported to other countries in Central and East Africa; there is potential for expanding processing capacity to tap market opportunities at the regional level.

Marketing and trade: The United Republic of Tanzania is a net exporter of cotton lint, cotton seed and cotton seed cake; it imports cotton seed oil. Cotton processing in the URT is not very developed, with 94 percent of exported cotton fibre products being of the least processed items: cotton not carded with 65 percent; and carded cotton with 29 percent. Products that involve further processing (yarns or fabrics) are traded in very small quantities. This suggests that the country does not make full use of its domestic production, mainly because of the low quality of the cotton lint produced, capacity underutilization and low development in the garment manufacturing industry (Baffes, 2010). The main destination for Tanzanian cotton lint is Asia. Part of lint production is consumed as raw materials for local spinning and textile firms located in the WCGA.

Value chain performance: TCtB is the regulator for the cotton sector, from production to export. There are two modes of cotton production: contract and non-contract. Contract farming was introduced in 2007 in the WCGA. Farmers enter into contracts with ginneries, which provide farm inputs on credit and recover input expenses after the sale of cotton lint. TCtB oversees contract performance to protect the interests of both parts. TCtB also provides farm input subsidies to seed cotton producers, whether under contract or not.

Both contract and non-contract producers set up collection points where harvested seed cotton is inspected and weighed before being packed into bales. The main challenge facing the cotton value chain is post-harvest contamination of seed cotton by farmers seeking to increase the weight of their cotton, which translates into more money per kilogram of cotton produced. The seed cotton sold to ginneries is processed to separate the seeds from the lint. Most local ginneries then process the seed into oil and animal feed cake. The cotton lint is packed and transported to the port of Dar es Salaam for export or sale to local textile mills.

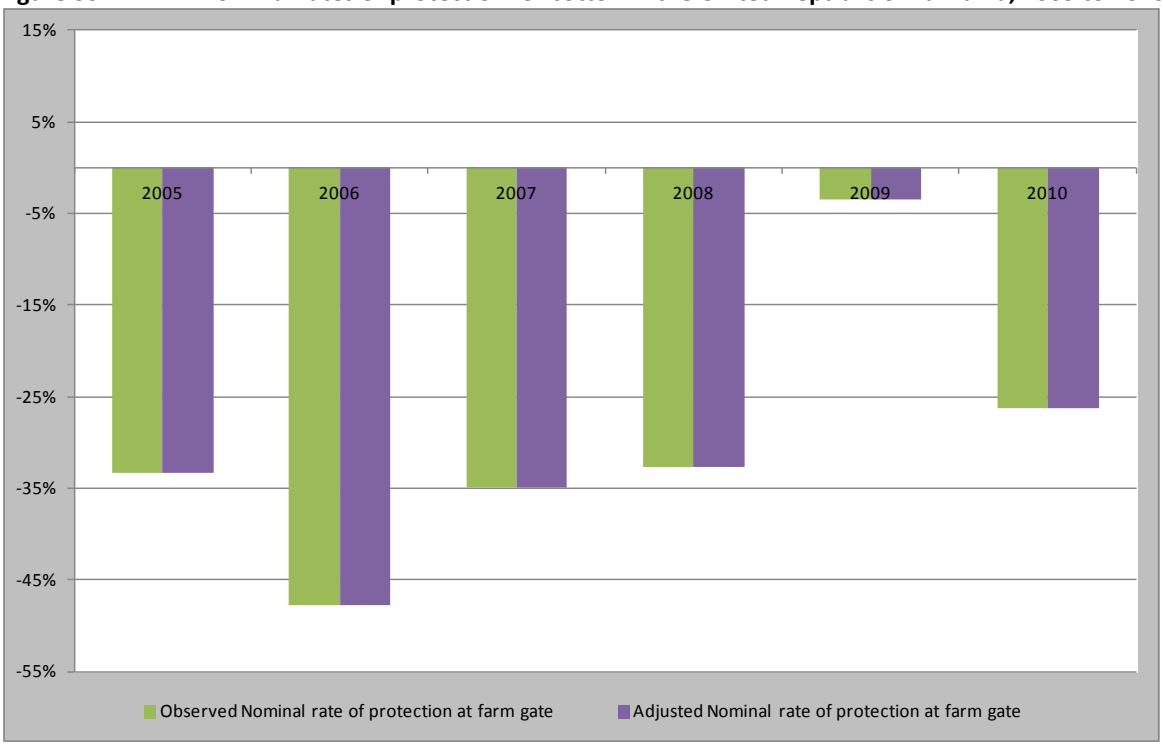
Two systems of ginning are practised: modern roller ginning, and the older saw ginning system. In 2008, a total of 60 ginneries were registered with TCtB, of which 14 were saw ginneries and 46 roller ginneries, with a total ginning capacity of 3 958 bales/day or shift. It should be noted that most ginneries in the United Republic of Tanzania started operation in the 1950s, and some have become fragile because of wear and tear. However, more than 17 new ones have been built – 16 in the WCGA and one in the eastern cotton growing area – since the 1990s cotton sector reforms. Of the 60 registered ginneries, only 50 percent operate throughout the production season (Bursi *et al.,* 2008).

The cotton sector is heavily taxed in the URT (Baffes, Tschirley and Gergely, 2009). Before the reforms of the 1980s, taxation of the cotton sector was administered centrally by the Prime Minister's Office in consultation with MAFC and TCtB. Taxation includes taxes, levies and fees administered at both the district and the central government levels.

MAFAP indicators and interpretation: The analysis of incentives to seed cotton growers is based on benchmark prices for cotton lint, for which the United Republic of Tanzania is a net exporter, and assumes that cotton seed attracts no incentives or disincentives. Only farmgate prices have been analysed, as there are no reliable price data for intermediate stages (e.g., ex-ginnery). The point of

competition is the border, where cotton lint from the URT has to compete with other suppliers to world markets. As shown in Figure 33, there is a clear disincentive for farmers to grow seed cotton in the URT; this disincentive was significantly reduced in 2009 before increasing again from 2010. In 2009, production was low and competition among ginners assured better prices for farmers. As soon as production peaked again in 2010, the disincentive structure returned to its average levels for the period, and TCtB promoted direct payments to farmers to compensate for the low prices.

Figure 33: MAFAP nominal rates of protection for cotton in the United Republic of Tanzania, 2005 to 2010



Source: Authors' elaboration.

Part of this disincentive is related to taxes and levies in the Tanzanian cotton market, which can exceed TSh 40 000/tonne (Poulton and Maro, 2009). Analysis results show that during the study period the disincentives were even higher than the estimated levies, but these results might be due to the analysis's use of a ginning outturn ratio of 0.42, while the observed ginning outrun ratio is closer to 0.35. However, this low ginning ratio is also a source of disincentive to farmers, who could get better prices if the ginning outturn ratio in the URT was improved. As shown in Figure 34, in most of the years studied, the impact of lower efficiency of the ginning industry was greater than the taxes on cotton. The impact of ginning inefficiency is calculated as the difference in price differentials and access costs between the farmgate and the border,[16] using FAOSTAT estimates of the ginning outturn ratio and the world standard of 0.42.

[16] The analysis considers the differences between the price gaps at two points of the value chain (the border and the farmgate) and the calculated access costs, including tax. The ginning outturn ratio influences these differences in two main ways: i) the benchmark price for cotton lint is multiplied by the ratio to make it comparable with the farmgate price of seed cotton; and ii) the ratio affects the quantity of seed that needs to be used to calculate access costs. These two results are compared to identify the disincentives due to ginning inefficiency.

Figure 34: Comparison of disincentives due to ginning inefficiency and taxation of seed cotton in the United Republic of Tanzania, 2005 to 2010

Source: Authors' elaboration

Even when the government, via TCtB, provides direct support to farmers – as either input subsidies (for insecticides in 2009) or price support (of TSh80 000/tonne in 2010) – the support remains lower than the disincentives, and the NRAs computed for these years are negative. Thus, even when the Tanzanian cotton system is presented as an example of competitiveness, TCtB and government intervention, and outdated ginning capacity result in farmers being significantly taxed or discouraged.

Main message: Farmers in the cotton sector are taxed at an average of 30 percent, which limits their investment capacity. This taxation is the result of direct imposition by the government via levies from the regional and central administration, together with the costs imposed by the functioning of the different agents in the value chain. Rather than 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.

The low ginning outturn ratio further penalizes farmers, as the quantity of lint produced by ginners per tonne of seed cotton is lower than it could be. Modernization of ginneries should be a policy objective in the URT. The Cotton Industry Implementation Plan should include the ginning industry among its targets, and not only farmers and the textile industry.

Cashew nuts

Cashew nuts represent a small portion of agricultural production in the United Republic of Tanzania both in terms of cultivated area and production. Production is mainly in southern coastal regions and most is exported, making cashew nuts one of the URT's main agricultural exports, following tobacco, coffee and cotton, representing an average of 10 percent of total agricultural exports. Cashew nut exports are subject to export tax. In 2008, a warehouse receipt system (WRS) was put in place, meaning that all cashew production has to be sold via cooperatives at auctions managed by the Cashewnut Board of Tanzania (CBT).

Production: Since the early 1990s, the United Republic of Tanzania has devoted approximately 100 000 ha to cashew nut production, with an average annual production of 100 000 tonnes. The area under cashew nut increased consistently from 1961, to reach a maximum of 240 000 ha in 1973. Cashew nut production tripled during this first decade of independence (from 50 000 to 150 000 tonnes), because the additional cashew area planted took ten years to reach first harvest. The increase in production is also attributed to a stable institutional environment with private trading and strong cooperative unions. Following this peak, the planted area declined to a minimum of 35 000 ha in 1990, because of forced villagization, which moved farmers from their farms, and other factors such as inefficiencies in the marketing system (Mitchell and Baregu, 2012). In addition, all cooperative unions were replaced by centrally controlled crop authorities. Since then, area and production have recovered, but are still fall far from the maximums reached in the 1970s. The last peak in production, mainly related to increased yields, is partly attributed to farmer–buyer contracts and the WRS, which assure farmers of fixed prices at the beginning of the cropping season.

Consumption/utilization: Most of the cashew nuts produced in the United Republic of Tanzania are exported; domestic consumption represents only a marginal share and processing is also limited. However, cashew nuts are consumed as a primary food item in the villages where they are produced, when prices are low relative to other food items. According to production and export data, and assuming that all the production not exported is processed for domestic consumption, since 2005, an average of only 12 percent of total production has been processed, with an estimated maximum of 30 000 tonnes in 2012 and a minimum of less than 5 000 tonnes in 2011.

Annual processing capacity for cashew nuts in the URT is 136 700 tonnes at 25 plants, ranging in capacity from 300 to 12 000 tonnes each (UNIDO, 2011). However, in the 2009/10 season only nine of these plants were operational, with a total annual capacity of 42 800 tonnes, of which – according to calculations for the analysis – only 20 percent was utilized. Since the collapse of mechanical processing in the 1980s, manual processing developed in India has been adopted, but without government support it is not competitive with processing in India or Viet Nam. The URT exports about 80 percent of its raw cashew nuts. In 2009, about 7 000 workers were engaged in manual shelling and peeling of approximately 20 000 tonnes of raw nuts (Mitchell and Baregu, 2012).

Marketing and trade: The main destination for exports is India, where raw cashew nuts are shelled for export or used in other food products. India is the world's main processor of cashew nuts, with a competitive processing industry and a policy environment that fosters imports of raw cashews while protecting the internal market for processed ones by imposing a significant import tariff and value-added tax (VAT) (Mitchell and Baregu, 2012).

Value chain performance: Marketing of raw cashew nuts in the United Republic of Tanzania has changed over the years, and has included direct sales from farmers to traders and delivery of raw nuts to the primary societies for marketing. Primary societies were the sole marketers of farmers' cashew nuts from independence until 1991, when marketing was liberalized and farmers were allowed to sell to any buyer. Marketing changed again in 2007, when the private sector was no longer allowed to buy directly from farmers or primary societies and all raw cashew nuts had to be marketed through primary societies and cooperative unions at auction. Following introduction of the WRS, producers sell either in domestic markets or for export, the latter being the most important market.

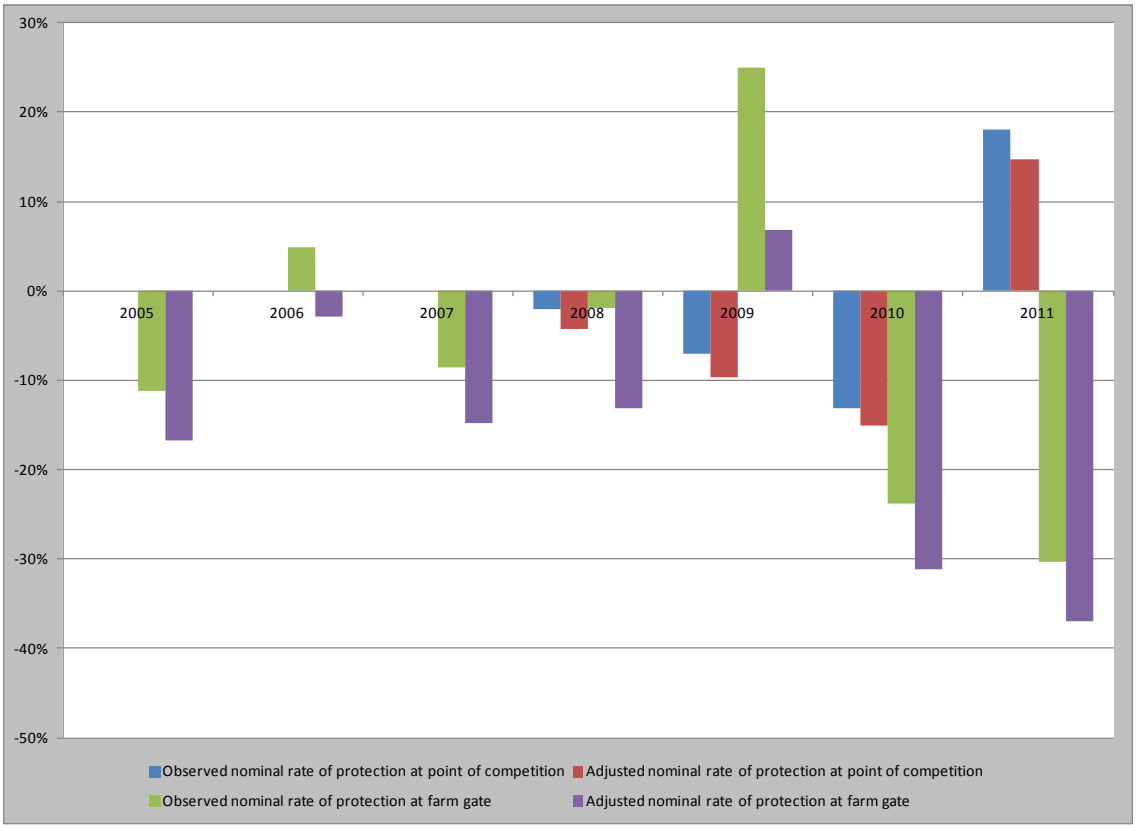
When selling to primary cooperatives, farmers receive a first payment, which the cooperative normally finances with credit. The cooperatives then sell to buyers via auctions, charging a fee for their services. Cooperatives are supposed to use the income from these fees to build, upgrade and maintain storage facilities and, eventually, to provide additional services – input procurement, investment in irrigation, etc. However, irrigation is not currently used for cashew production (UNIDO, 2011).

Buyers process the nuts (i.e., shelling and peeling) or export them directly. The power of exporters is limited by the concentration of purchasers in India, where two main buyers account for most purchases of raw cashew nuts (UNIDO, 2011). Olam Tanzania Limited, located in Mtwara, is currently the largest Tanzanian cashew processor, with several plants which amount to a total capacity of 25 000 tonnes per annum. Other large-scale processors are the Export Trading Company (in Tunduru) and Mohammed Enterprise (in Dar es Salaam). They have capacity for processing a maximum of 5 000 tonnes per annum. Jumbo Nut (in Dar es salaam) and Perfect Cashew Nut (in Masasi) are medium-scale, processing up to 3 000 tonnes per annum.

MAFAP indicators and interpretation: Indicators in the cashew sector have been calculated for the farmgate during the whole period, and for the point of competition (auction prices as reported by CBT) since the WRS was established in 2008. The results reported in Figure 35 show that cashew nut producers faced consistent disincentives throughout the study period. Three clear points emerge.

First, the export tax of 10 percent until 2010 and 15 percent from 2011 onwards reduces the prices for cooperatives (at auction) and farmers (at the farmgate). Before introduction of the WRS, in years when disincentives were transmitted along the value chain, the full tax was not passed to farmers and wholesalers, but disincentives have been higher than the export tax since introduction of the WRS.

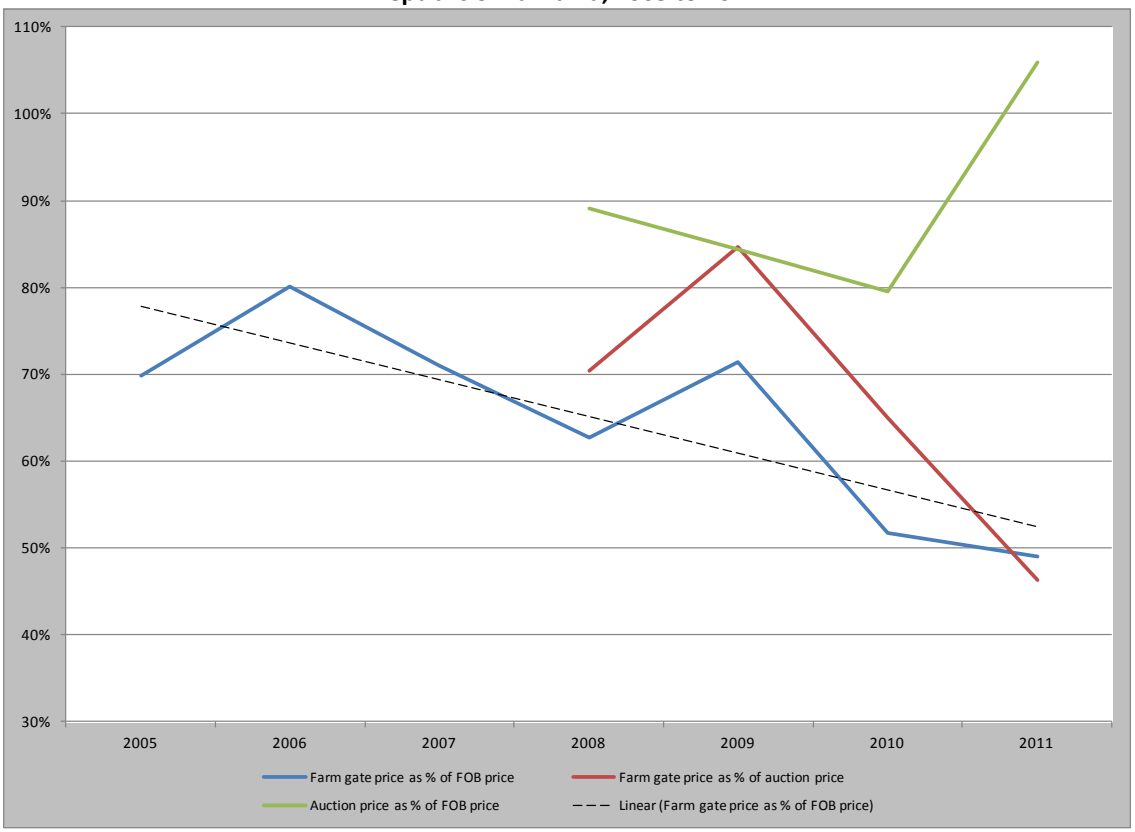
Figure 35: MAFAP nominal rates of protection for cashew nuts in the United Republic of Tanzania, 2005 to 2011



Source: Authors' elaboration.

The second point is that introduction of the WRS has led to increased disincentives for farmers and wholesalers. This is a striking finding as lack of storage has been identified as one of the major drivers of farmer disincentives. The WRS led to increased production and raising prices for farmers. However, the divergence between the farm gate price and the potential price that could be obtained in absence of policies and with a better functioning value chain increased. This can be partly explained by the increase in the export tax, but this only happened in 2011. The main reason for disincentives increasing as of 2008 could be that the indicators were constructed using different access costs. However, Figure 36 shows that the farmgate price's share in export prices is decreasing, so the system does not seem to benefit farmers as much as it could, even in periods of increased benchmark prices. Prices at auction seem to follow the evolution of export prices more closely, however. The problem that led to introduction of the WRS – the large number of intermediaries leading to low farmgate prices (UNIDO, 2011) – seems to remain even when intermediaries are eliminated from the chain.

Figure 36: Shares of FOB price represented by farm-gate and auction prices for cashew nuts in the United Republic of Tanzania, 2005 to 2011

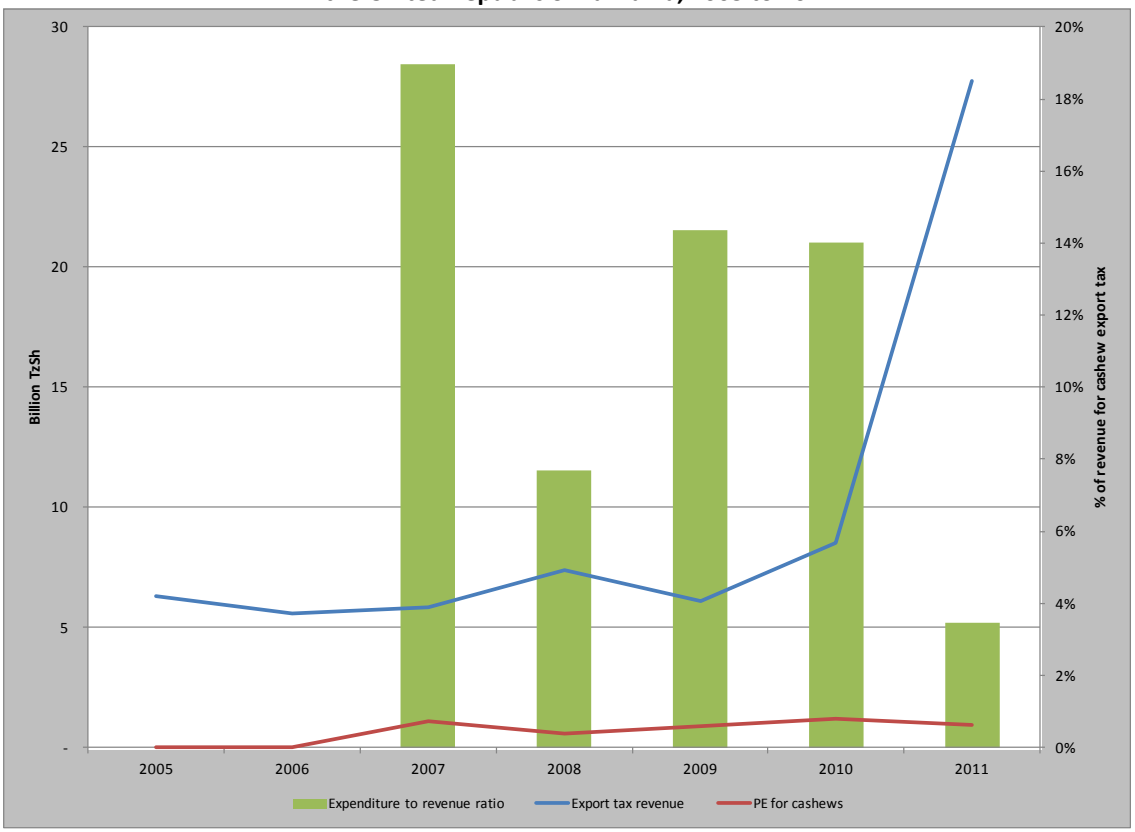


Sources: Authors' elaboration using NBS and CBT data.

Third, the increase in export tax in 2011, which had the objective of promoting processing inside the country, led to increased disincentives for farmers without delivering the expected results. Although a year may be too short a period to evaluate this measure, figures for 2011 and 2012 show that shelled cashew nuts' share in total cashew exports has decreased.

Comparison of the income generated by export tax with the level of public expenditure for the cashew sector (Ilicic-Komorowska, Maro and Pascal 2012), illustrated in Figure 37, shows that only a small part of the total revenue from export tax is channelled back into the sector (an average of less than 10 percent). Although only 35 percent of the total revenue is transferred to the Treasury, the share of this transfer that reverts to the cashew nut sector is still less than 25 percent. In addition, 36 percent of total revenues are used as input subsidies (55 percent of the share not transferred to the Treasury), so in the most optimistic case less than 50 percent of the revenue generated by the export levy goes back to farmers.

Figure 37: Revenues from the cashew export tax and public expenditure allocated to the cashew nut sector in the United Republic of Tanzania, 2005 to 2011



Sources: Authors' calculations from Ilicic-Komorowska, Maro and Pascal (2012) and CBT data.

Main message: Cashew nut growers in the United Republic of Tanzania are disincentivized, as they are receiving lower prices than they would in the absence of policy measures and with well-functioning value chains. The main driving force of these disincentives is the export tax on raw cashews. The shift towards centralized auctions and a WRS, despite increasing production and farm gate prices for farmers, has increased the level of disincentives. Rather than moving farmgate prices closer to export prices, it seems that the WRS has induced higher transaction costs. The increase in export tax from 10 to 15 percent of the FOB value to promote in-country processing has had limited effectiveness in the first two years of implementation. Moreover, the revenue generated by the export tax on cashew nuts reverts only marginally to the sector.

The government could consider reducing the export tax and monitoring the evolution of indicators to see whether farmers obtain higher prices, which could lead to more investment in cashew nut production and facilitate increased processing inside the country. The government should consider alternative policy instruments to promote cashew nut processing in the URT. CBT should provide additional support to the WRS, to ensure that it delivers the expected results.

Pulses

Production: During the period 2005–2010, pulses were grown on approximately 1.5 million ha, accounting for 15 percent of total arable land in the United Republic of Tanzania. At average yields of less than 1 tonne/ha, approximately 1 million tonnes of pulses are produced, representing approximately 10 percent of total agricultural output in value from 2005 to 2010. Within the pulses sector, most production falls into the category of beans. Pulse production is concentrated in two areas, with approximately 30 percent in the Southern Highlands, and another 30 percent in the

northwest of the country. In the Southern Highlands most of the pulses produced are beans, while in the north of the country pigeon peas and chickpeas predominate.

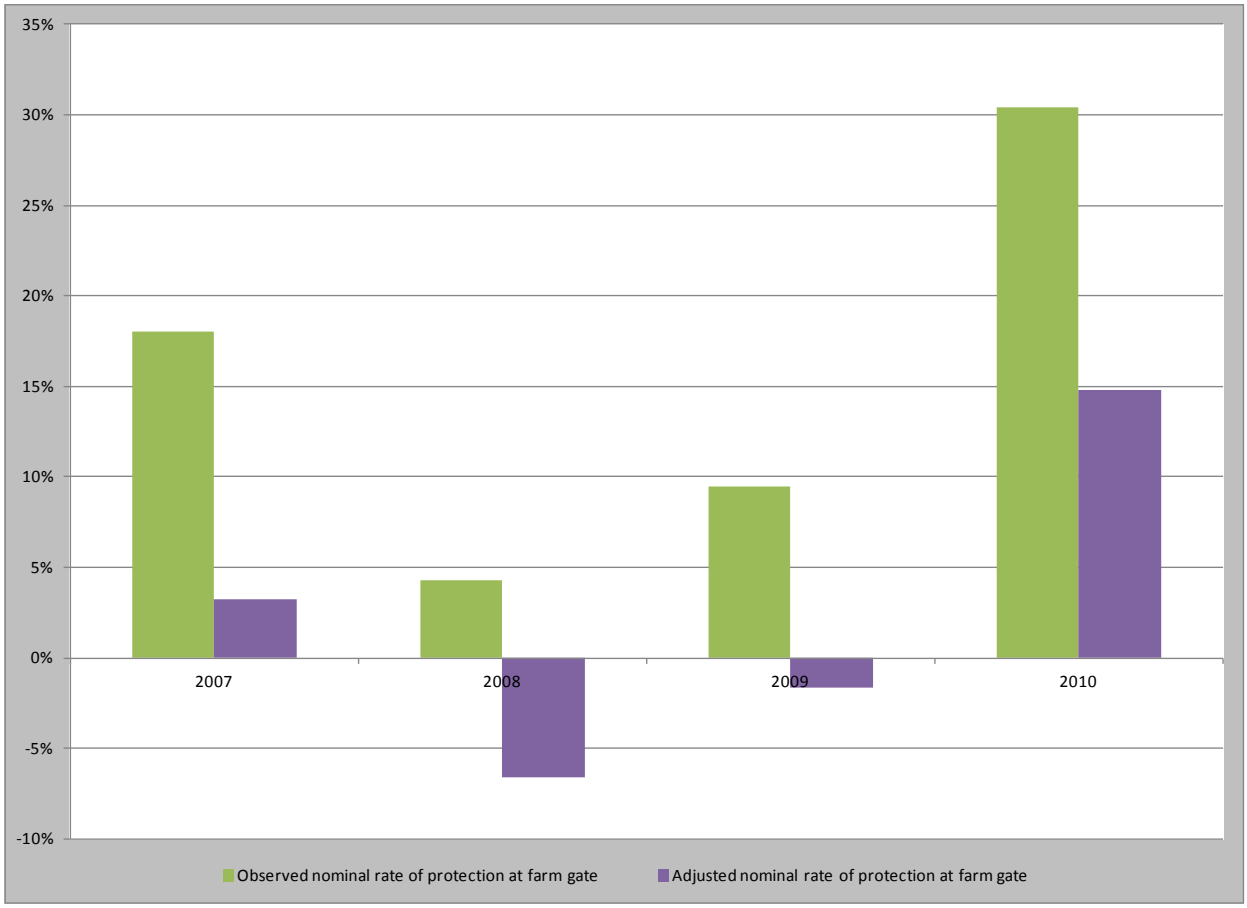
Consumption/utilization: Pulses are an important part of the diet of rural and urban dwellers in the United Republic of Tanzania, with an estimated consumption rate of 14 kg/person/year. Pulses are a relatively inexpensive alternative source of protein compared with animal or fish products (Mishili *et al.,* 2009). National pulse consumption was calculated by adding imports to domestic supply and subtracting exports. The pulse consumption pattern is stable, at less than 1 million tonnes per year with a peak in 2006 (933 000 tonnes) and a minimum in 2008 (820 000 tonnes). Bean consumption increased from 572 000 tonnes in 2005 to 705 000 tonnes in 2009.

Marketing and trade: The United Republic of Tanzania was a net exporter of pulses throughout the study period, with internationally traded volumes representing more than 10 percent of total domestic consumption. Pulses can therefore be considered an export with significant traded volumes for the URT. Over the 2005–2010 period, pea exports represented up to 90 percent of total pea production in some years, and averaged 50 percent, while bean exports accounted for an average of only 1.5 percent of bean production. More than 80 percent of pulse exports are directed to India – for all products and years.

Value chain performance: Domestic trade in the United Republic of Tanzania is based mainly on long-term personal relationships, which are seen as the only functional way of trading given the absence of adequate market information and the weak legal framework for enforcing contracts. The supply chain from the producer to the final consumer is therefore long and follows various routes. Pulses flow from the northern zone to the regional market centres of Arusha and Moshi, from where they move northwards to Nairobi, through Namanga border point. Other stocks flow to Mombasa (via Taveta), Tanga, Dar es Salaam and Zanzibar. Most farmers (92.1 percent) produce dry pulses for local markets, while only 7.9 percent produce for the export market.

MAFAP indicators and interpretation: The analysis of incentives and disincentives for pulses in the United Republic of Tanzania is based on the prices available for peas, which are the most traded pulse crop. Because of limited data availability, indicators have been calculated for only the farmgate level. The results presented in Figure 38 show that during the study period pea producers have been incentivized, as the prices paid in the country were higher than those received at export markets. The same results hold when the analysis uses data for beans, which are the most widely produced pulse in the URT. As bean prices at the point of competition are available, it is also possible to see that incentives are also present at the wholesale level, showing that the prevailing prices paid by consumers are also higher than those received by exporters.

Figure 38: MAFAP nominal rates of protection for peas in the United Republic of Tanzania, 2007 to 2010

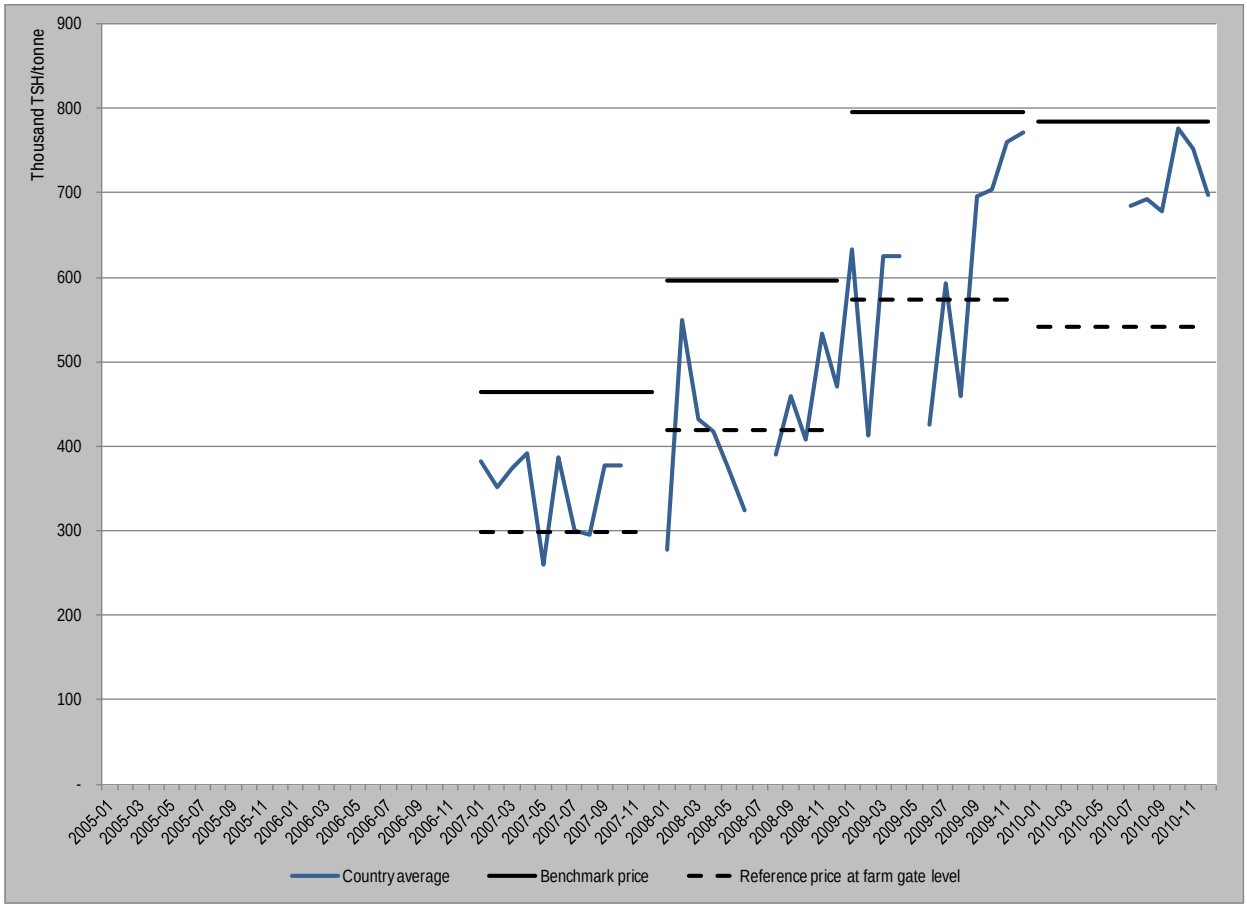


Source: Authors' elaboration.

This situation implies that exporters face losses. However, as shown in Figure 39, the overall incentives identified by the indicators mask the seasonality of results, with exports in 2007, 2008 and 2009 showing a theoretically sound situation[17] for at least part of the year. This is not the case for 2010, for which domestic price data are missing for the harvest months when prices are lowest.

[17] A theoretically sound situation is one in which farmgate prices are equal to or lower than the reference price for the farmgate level. In such a situation the market works as expected, with actors along the value chain being able to purchase the commodity and transfer it to the next point in the value chain covering all costs.

Figure 39: Price comparisons for peas in the United Republic of Tanzania, 2005 to 2010



Sources: UNcomtrade for FOB price; International Monetary Fund (IMF) for exchange rate; MTI for domestic prices; and MAFAP for reference price.

Main message: Based on analysis of the bean and pea markets in the United Republic of Tanzania, it can be concluded that – overall – farmers obtain higher prices than those in international markets. However, this apparent incentive to producers hides a situation in which lack of storage facilities forces farmers to sell at low prices (post-harvest), resulting in prices in later periods of the season that are higher than those obtained from export. Basically, these results show that the URT faces high domestic prices for pulses, putting additional pressure on net food buyers.

In this situation two strategies could be followed: i) increasing the linkages among different markets in the country could allow consumers to purchase pulses at lower prices and traders to obtain larger profits from the domestic market than from exports – particularly with beans, where price gaps are higher; and ii) increasing farmers' storage capacity would allow them to capture higher prices in domestic markets.

Indicators for thinly traded products

This category includes only one of the commodities analysed – maize. However, some of the commodities currently under analysis (cassava, sorghum and livestock) also fall under this category, and analyses of them, individually and as a group, will be provided in the future.

Maize[18]

Maize was the United Republic of Tanzania's fifth agricultural commodity by value of production for the period 2005–2010, accounting for 7.5 percent of total production value. It also represented nearly 5 percent of total agricultural imports for the same period, and was the main source of dietary energy, accounting for 25 percent of total caloric intake (FAOSTAT, 2010). Maize is considered the most important food crop in the URT, covering 45 percent of total arable land and generating nearly 50 percent of rural cash income, with an average of US$100 per maize producing household in 2008 (USAID, 2010). In the past two decades, the URT has ranked among the top 25 maize producing countries in the world, dropping out of this list only three times, in 1986, 1997 and 2003.

Production: The United Republic of Tanzania produces mainly white maize. Area planted to maize peaked in 2003, at nearly 3.5 million ha, and has since stabilized at about 2.5 million ha. Production is also more or less stable, at about 3.5 million tonnes, while yields fluctuate from 1 to 1.5 tonnes/ha, down from an average of nearly 2.5 tonnes/ha in 2000–2002. In the 2005–2010 period, maize accounted for more than 70 percent of domestic cereal production. According to MAFC, more than 20 regions in the URT produce maize. The southern regions of Iringa, Rukwa, Ruvuma and Mbeya account for more than 35 percent of total production; the Southern Highlands produce a maize surplus, while there are deficits in the Northern Highlands, Dar es Salaam and central regions.

Of the approximately 3 million households in the URT, 65 percent grow maize. Most of these producers are poor smallholder farmers, with an average of 1.2 ha each, relying on traditional methods of cultivation under a rainfed regime (USAID, 2010; Nazir *et al.,* 2010). Approximately 30 percent of all households sold surplus maize in 2009 (NBS, 2009).

Consumption/utilization: According to FAOSTAT commodity balances, most of the maize produced in the United Republic of Tanzania goes to food consumption, with average waste of 10 percent. Feed represents 17 percent of total production. Maize food availability per capita has been decreasing steadily since 2000, from 70 kg/person/year to 60 kg in 2007, mainly because of the increased use of maize for feed. Maize is the main staple food and is consumed by most households in both rural and urban areas. Maize seed is usually processed into flour and mixed with water to make porridge or *ugali* (stiff porridge). Maize consumption is also increasing because the school feeding programme uses maize porridge or *ugali* as the main component of the meals provided to primary school students. The programme offers three meals from morning to evening and reaches more than 1 064 primary schools across the country.

Marketing and trade: Although it is commonly believed that the United Republic of Tanzania is a major maize exporter, official data show that maize was a major agricultural import from 2004 to 2008. From 2000 to 2009, trade intensity (defined as total trade over production) averaged 4 percent, although there has been a decreasing trend since 2006, making trade very thin. This need to import maize seems to contradict the widely held view that the URT could be one of the breadbaskets of East Africa, with the production potential to feed deficit neighbouring areas. During the 2005–2010 period, more than 70 percent of maize imports came from the United States of America and Mexico, with only a minority coming from partners in the EAC (12 percent from Uganda and Kenya).

Nearly 45 percent of maize exports go to Kenya, and more than 55 percent to other EAC countries, but the URT imposed export bans on maize throughout much of the study period. The government

[18] A more detailed presentation of the maize market in the URT can be found in Part 3 of the report.

normally imposes these bans in response to a bad harvest or price peaks, to avoid the diversion of maize to Kenya, where prices are significantly higher. Export bans generate uncertainty for economic agents (and it is not always clear whether they are in place or not), have impacts on investments and reduce price incentives at the farmgate (World Bank, 2009).

Informal trade seems to be significant for maize in the URT. Although no official statistics exist, an idea of the magnitude of informal trade can be obtained from comparison of the maize trade data reported by the URT and Kenya. The discrepancy between the URT's declared exports and Kenya's declared imports is neither consistent nor systematic: in some years, the URT reports more exports to Kenya (2008 and 2005), while in others Kenya reports more imports from the URT (2010, 2009 and 2007). This situation is not reflected in the net trade position of maize in the URT, as the country was a net importer in 2008 and a net exporter in 2005. The importance of unrecorded trade seems to be increasing, with estimates for 2011 showing that actual trade might be more than 50 times higher than reported trade (Stryker, 2012).

Value chain performance: Maize production in the United Republic of Tanzania is mainly in the Southern Highlands, which sends production surpluses to Dar es Salaam and, to a lesser extent, Zambia, Malawi and the Democratic Republic of the Congo. A second major producing area is in the north of the country, from where surpluses go to Kenya, mainly via informal trade. The main markets for Tanzanian maize are Dar es Salaam (and by extension Zanzibar and Comoros), the Mtwara-Linid Region (southeast), northern cities such as Arusha and Moshi and via export to EAC partners. The main trading market is Dar es Salaam, which is the only market where brokerage between millers and traders takes place (SAGCOT, 2010).

Approximately 40 percent of total maize production is marketed. Three main types of agent in the value chain purchase maize from farmers: private traders, the Cereals Board and Other Produce Board, and the National Food Reserve Agency (NFRA). Taking into account the marketed and production volumes and the purchase data available from NFRA and the Cereals and Other Produce Board, the role of public interventions in the market remains low, at less than 10 percent of apparent consumption. However, this role can be significant when compared with marketed volumes. The maize marketing system is characterized by a very large number of small traders operating from both the main production centres and major urban areas. Produce from the farm is taken to primary markets (i.e., large markets in producing areas) directly by the farmer or by intermediaries who purchase the maize at the farm. Marketing channels are characterized by slow brokerage services in village, district and national urban markets (Match Maker Associates, 2010).

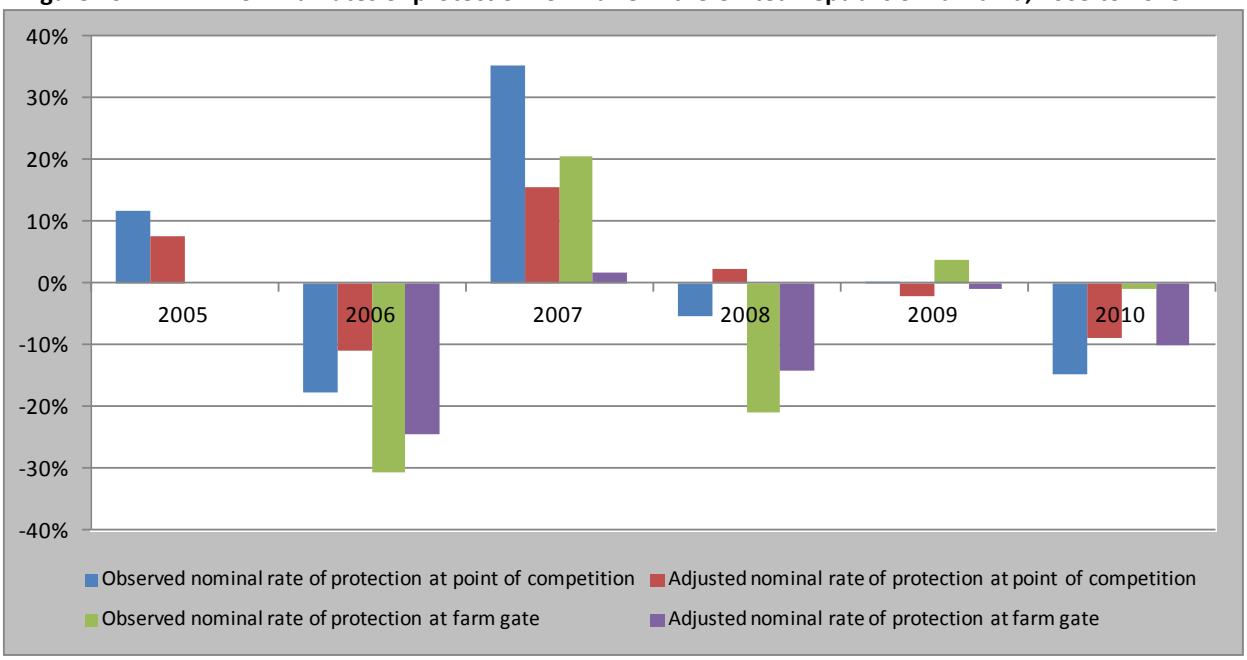
Market margins are generally quite high, implying inefficiencies in supply chains. Prices vary greatly between seasons (during harvest and periods of scarcity), post-harvest losses are quite significant, and productivity levels are low. Several price transmission analyses of maize in the URT suggest that domestic maize markets were not integrated with international markets in the 2003–2007 period (Minot, 2010b), while other sources suggest that internal markets were integrated during the period 2000–2008 (Ihle and von Cramon-Taubadel, 2010).

MAFAP indicators and interpretation: Results are reported for the farmgate level for the period 2006–2010 and for the wholesale level for 2005–2010 (Figure 40). Results need to be treated with caution as the lack of market integration for maize in the United Republic of Tanzania (World Bank, 2009) makes aggregate figures, such as those provided here, unrepresentative for all areas. Additional disaggregated analysis of incentives and disincentives by production area is provided in Part 3. With the exception of 2007, farmers faced disincentives for growing maize in the study

period. This means that the price they obtained for their product was less than they would have received in the absence of policy and with better market performance. This situation is the result of explicit policy decisions and the lack of market integration for maize. In years when the URT was a net importer of maize (2006, 2008 and 2010), in spite of the 50-percent tariff on maize imports from outside the EAC, domestic prices were below reference prices. This situation can be attributed to subsidized maize sales by NFRA. Analysis by Nyange and Wobst (2005) shows that markets respond differently to food reserve interventions, trade and regional production, depending on their nature. While procurement increases maize prices in production areas, this effect is reversed when the stock is released; in other words, NFRA support to producers is only temporary during procurement. Therefore in years when the URT was a net importer, disincentives were mainly related to NFRA releases, suggesting that affordable prices for net buying households are the main policy objective. Alternative ways of supporting vulnerable households that would be less distorting for maize markets – such as cash-based programmes – have been proposed (Christensen and Cochrane, 2012) and should be considered. As the net importing position of the URT could mask illegal exports to overcome export bans, the analysis results support the view of other studies (Diao, Mabiso and Kennedy, 2012) that these trade restrictive measure have a negative impact.

In addition, high access costs represent a barrier to free trade as they raise the cost of imported maize. Simplifying import procedures and reducing other marketing costs would increase the competitiveness of imported maize and, given current domestic prices, reduce producers' disincentives. Both wholesalers and producers currently receive less support (more disincentives) than they would under more efficient import procedures. On the other hand, measures to reduce access costs between production zones and wholesale markets are likely to improve incentives to producers by increasing the competitiveness of domestic maize in the long run, as domestic prices adjust to world prices.

Figure 40: MAFAP nominal rates of protection for maize in the United Republic of Tanzania, 2005 to 2010



Source: Authors' elaboration.

In years when the URT was a net exporter of maize (2005, 2007 and 2009), the export ban had a negative impact on the prices received by farmers – in 2009 mostly in the northern highlands.

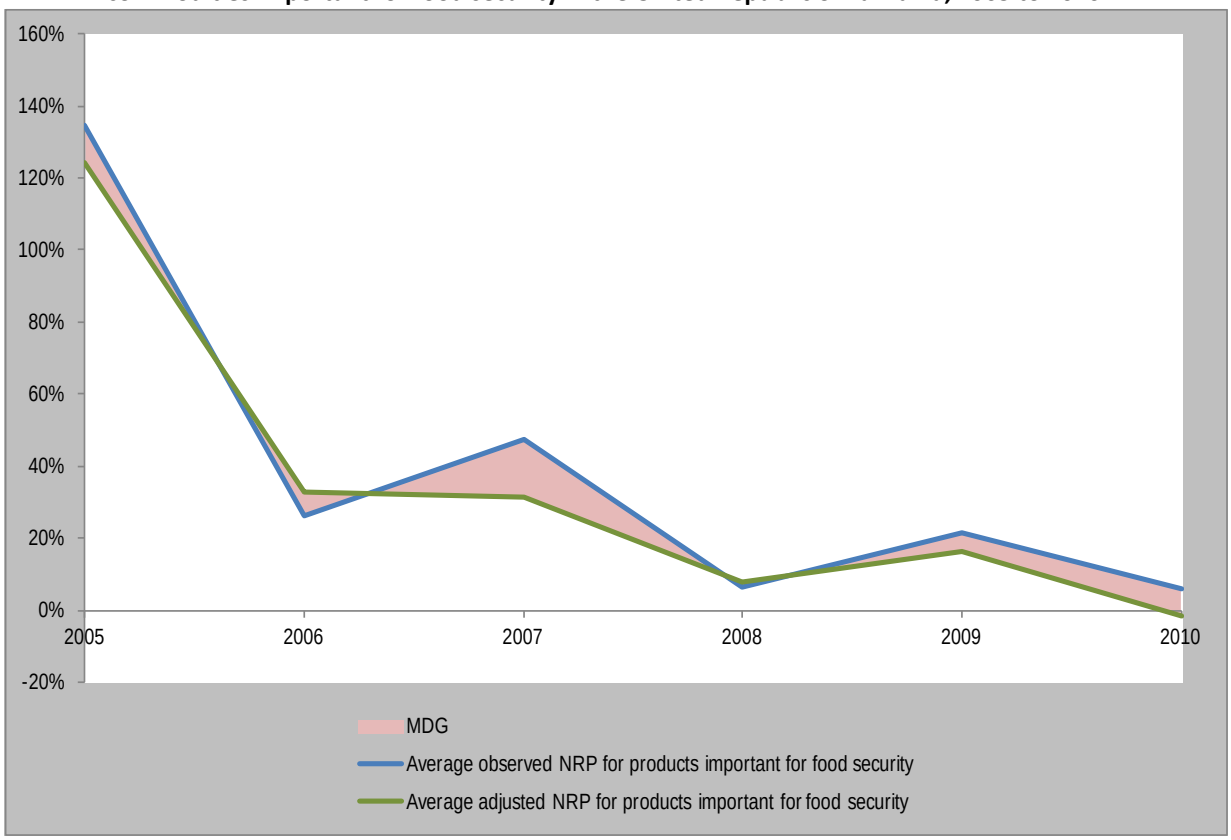
Analysis results do not reflect this finding as they are based on a benchmark price from outside the region, owing to the low reported trade volumes. Assuming that Kenya is the destination of illegal exports, the export ban would generate significant disincentives to farmers in the region. In 2005, the export ban led to prices in the URT being higher than they would be in the absence of policy measures. This means that the export ban gave a wrong signal to traders who thought prices in Kenya would be higher and increased informal exports. This reduced domestic supply and resulted in maize prices in northern producer areas of the URT higher than those that could be obtained in Kenya. As no farmgate price is available for 2005, it is unclear whether this higher price observed in wholesale markets was also received by farmers. The situation in 2007 seems different, with lack of storage capacity leading to exports when prices are low and resulting in higher domestic prices in the country. More detailed information on export and production data (i.e., monthly data) would enable verification of this hypothesis.

Main message: Incentives and disincentives to maize producing farmers are very volatile. The disincentives for this commodity are explained by the mix of variable policy decisions (trade restrictions, subsidized sales) and the lack of market integration in the United Republic of Tanzania due to excessive transport costs. Overall, farmers are getting lower prices than would be attainable in the absence of policy and with better market performance. Trade restrictions should be lifted as they provide wrong signals to traders and depress prices for farmers. Food affordability concerns for specific consumer groups should be addressed by a less distorting measure than subsidized sales. Market integration should be fostered with more investments in storage and transport infrastructure.

Indicators for commodities important for food security

As shown in Figure 41, overall, producers of commodities representing a significant share of the diet in the United Republic of Tanzania had diminishing incentives throughout the study period. These reductions are the result of trade policy for imported products (rice, wheat), lack of market integration and storage (pulses) and a volatile policy environment (maize). For consumers, declining incentives lead to increased food bills, reducing the affordability of food. Analysis results therefore show how incentives have conflicting impacts on food security. Incentives for farmers can foster increased investment and production, as is particularly visible for rice, in which the URT has gone from being an importing country to a net exporter. For other commodities, however, incentives do not seem to have a positive impact on domestic food availability, and incentives for producers translate into reduced affordability for consumers. Domestic prices are higher than those that would prevail in the absence of policy interventions and with functioning markets. This situation is aggravated in the sugar cane sector, where growers face disincentives and the import tariff makes wholesale prices higher than they would be in the absence of policy .

Figure 41: Average observed and adjusted nominal rates of protection and market development gaps for commodities important for food security in the United Republic of Tanzania, 2005 to 2010

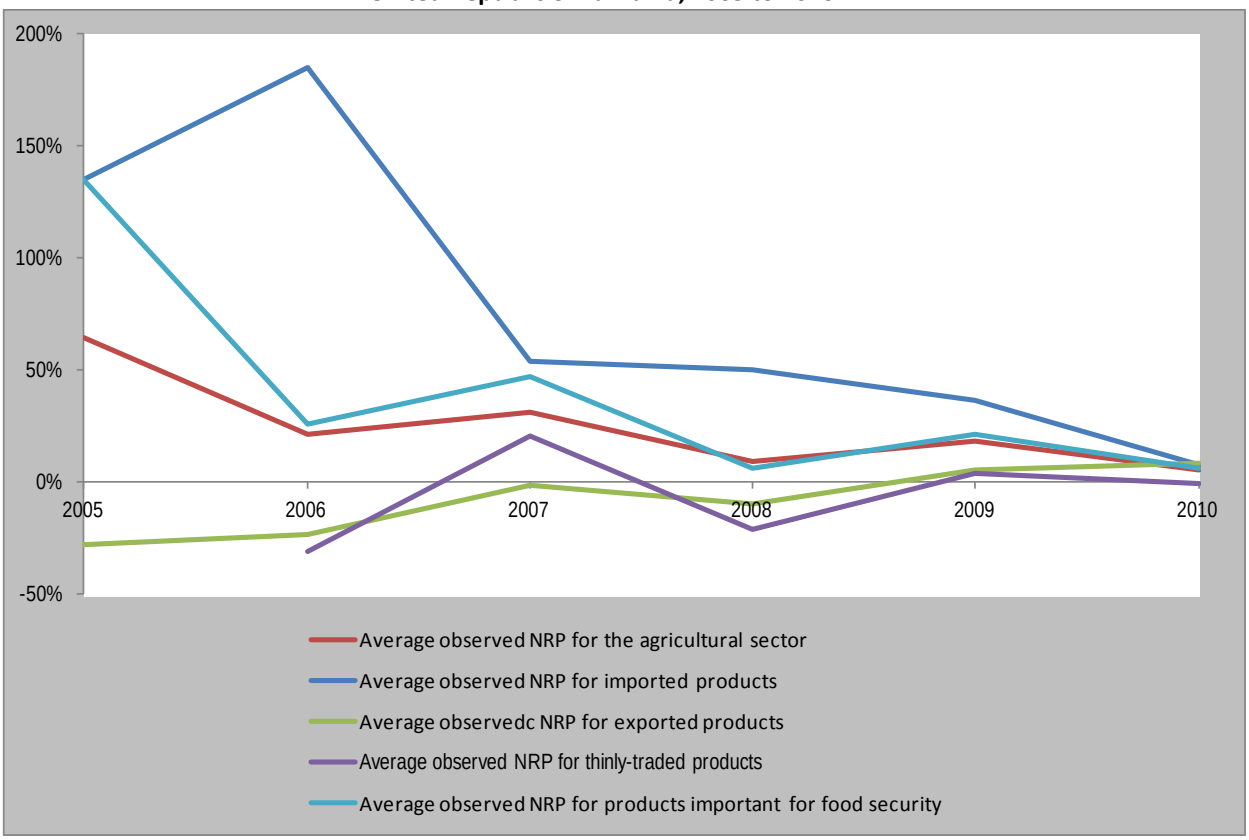


Commodities included are sugar, wheat and rice for the whole period; maize since 2006; and pulses since 2007.
Source: Authors' elaboration.

Conclusions

There is a clear dichotomy in the MAFAP analysis results between commodities for which the United Republic of Tanzania is a net importer (milk, rice, sugar and wheat) and those for which it is a net exporter (cashew nuts, coffee, cotton and pulses) (Figure 42). While policies provide incentives to producers of import products, export products face disincentives resulting from policies, traders' market power, and processing inefficiencies. Levels of incentives and disincentives have been declining. For imports, this decline is due mainly to the move to rice exporter status since 2010, which has brought prices in the URT closer into line with international prices. In addition, the URT partially waived tariffs on imported commodities in 2008, although this measure has been less effective than expected as domestic prices have remained higher than benchmark prices. The situation for exports masks a difference between classic exports (cashew nuts, coffee and cotton), which remain penalized, and pulse exports, which are affected by a lack of storage capacities, leading to the collapse of domestic prices at harvest time, when it becomes profitable to export, and price peaks to above export prices later in the season. Results for thinly traded commodities oscillate between incentives and disincentives owing to policy and market volatility.

Figure 42: Observed nominal rates of protection for the agriculture sector and by commodity group in the United Republic of Tanzania, 2005 to 2010



Commodities in each group are listed in Table 14.

Source: Authors' elaboration.

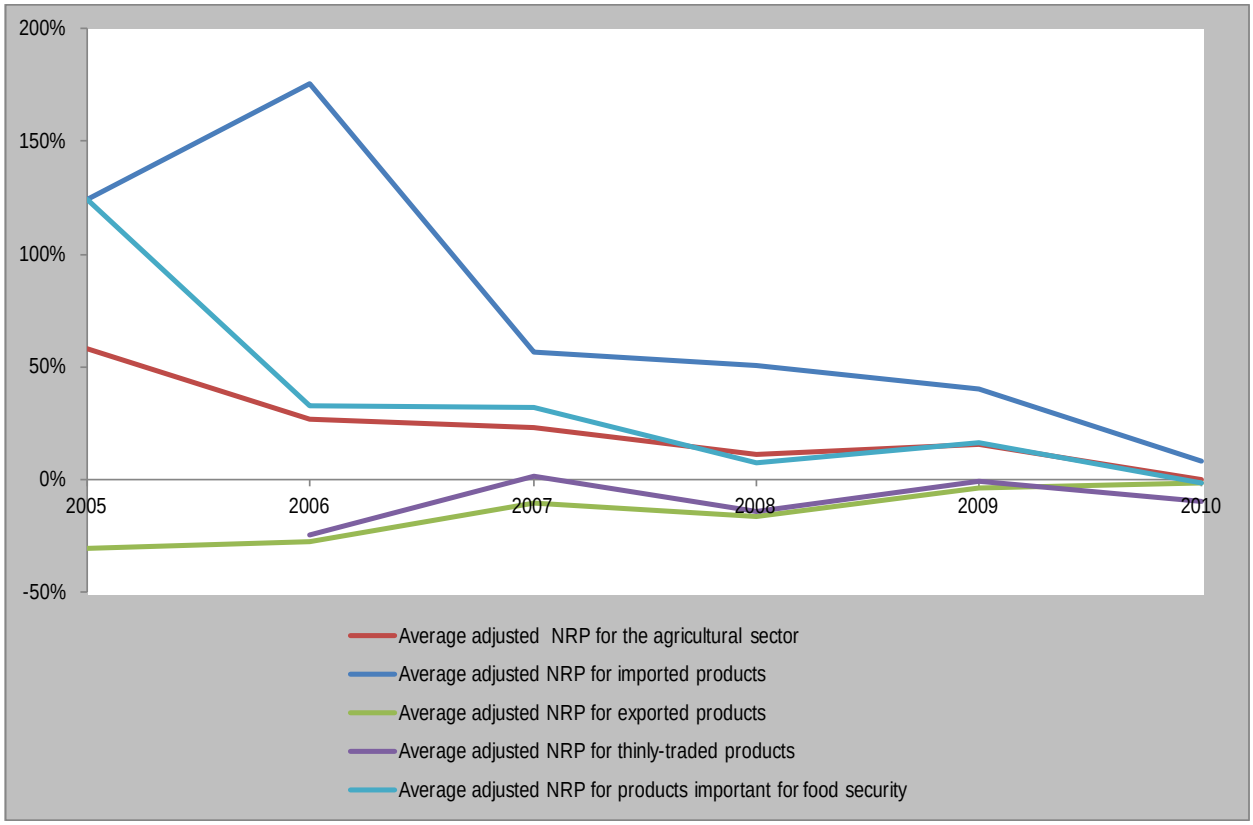
The limited data available did not allow identification of the MDG for each domain. Differences between observed and adjusted indicators (Figures 42 and 43) are the result of lower margins along the value chain (5 versus 10 percent of the purchase price), lower costs for import and export procedures, lower transport costs, and the removal of local taxes.[19] The average MDG represents an additional disincentive of 7 percent for export commodities, an additional incentive of 2 percent for imported commodities,[20] and an additional disincentive of 2 percent for thinly traded products. For commodities that represent a significant share of the Tanzanian diet, MDGs imply that farmers face an additional 3 percent disincentive. However, in general, the impacts of MDGs in the URT are smaller than the impacts of policy and market performance incentives or disincentives in the observed domains. As incentives or disincentives for a commodity are reduced, the weight of the

[19] Local taxes are levied from the farmgate to the wholesale market. In the analysis, the farmgate prices for rice, maize, wheat and pulses are approximated from wholesale prices in the main producing areas, while for milk only wholesale indicators are calculated, so the impact of local taxes is considered for only the other four commodities.

[20] Calculation of the MDG for imports implies identifying additional incentives to imported products. If the access costs from the border to the point of competition are excessive, the reference prices at the point of competition will be higher than the adjusted ones. When adjusted (lower) access costs are considered, the divergence between the domestic price and the reference price increases, thus the incentive measured by NRP also increases.

MDG increases. However, as discussed previously, other issues that could be considered part of the MDG drive a significant part of the observed indicators.

Figure 43: Adjusted nominal rates of protection for the agriculture sector and by commodity group in the United Republic of Tanzania, 2005 to 2010



Commodities in each group are listed in Table 14.

Source: Authors' elaboration.

7. Public expenditure and aid

Box 3 provides a summary of the analysis results regarding public expenditure and aid.

Box 3: Summary of results regarding public expenditure and aid in the United Republic of Tanzania

In the United Republic of Tanzania, between 2007 and 2011, although the approved budget for the agriculture sector grew by 53 percent in nominal terms, in relative terms agricultural budget allocations declined from almost 13 percent of total government spending to about 9 percent. Actual spending grew more slowly, and decreased significantly in relative terms. Thus, although total expenditure surpassed the 2003 Maputo Declaration target during the period 2007–2009 it has remained below that level since then.

Agriculture-specific expenditures account for an average of almost 45 percent of total expenditures in support of food and agriculture sector development. Their importance in overall agricultural support grew from about 29 percent in 2007 to 64 percent in 2011. In terms of spending levels, agriculture-specific expenditures more than doubled over the period analysed, while agriculture-supportive expenditures decreased significantly.

During the period of analysis agriculture-specific support has shifted from general support to payments to agents. General support expenditure accounted for more than 60 percent of all agriculture-specific expenditure in the first half of the period analysed; however increased focus on payments to producers via input subsidies meant that this share declined to less than 50 percent in the second half of the period. The increase in direct transfers to producers has led to decreases in key areas such as extension services and general infrastructure for the sector, such as storage facilities and marketing infrastructure.

Agriculture-supportive expenditures account for an average of about 55 percent of overall support to the food and agriculture sector in the URT. However, their relative importance in total support to agriculture has decreased over time. Among these expenditures, by far the largest are for rural infrastructure, including roads, water and sanitation and energy. Their relative importance in total agriculture-supportive expenditures has not changed over time. Far less expenditure is devoted to rural health or rural education.

Overall, most public expenditures are directed to the provision of public services and investments, with a relatively strong focus on infrastructure but also on training, extension services and research. However, spending on input subsidies for agricultural producers is growing rapidly, particularly subsidies for variable inputs.

Only 4 percent of public expenditure for the agriculture sector is targeted to commodities: nearly half of this amount targets commodities in general rather than any specific commodity or group of commodities; approximately one-quarter is directed to maize and rice (mainly via the fertilizer subsidy); and the remaining quarter goes to very broad commodity groups.

A large share of expenditure is allocated to policy administration costs. The increased share of administration costs after 2008/09 may be partially explained by the reallocation of funds for policy transfers to manage the financial crisis, but administration costs have increased substantially throughout the period analysed. Moreover, the rates of actual spending to budget allocation are low, with policy transfers having even lower rates than administration costs.

On average, donor spending accounts for at least 50 percent of overall public expenditure in support of the food and agriculture sector in the URT. However, the role of foreign aid followed a diminishing trend over the period analysed. External aid contributed 44 percent of total agriculture-specific expenditure and 64 percent of agriculture-supportive expenditure. Donor and government priorities for allocating public expenditure are fairly well aligned with each other.

Introduction

The government policy levers likely to influence agricultural development are not restricted to policy measures affecting prices (taxes, quotas etc.). The government can also use the budget as a tool for allocating spending to various sectors of agricultural development. This section of the report seeks to improve understanding of public expenditure in the United Republic of Tanzania. The aim is to provide policy-makers and development stakeholders with fuller knowledge of public spending, especially its breakdown, and to respond to often unanswered questions regarding which development and sector activities receive the most support, the share of aid in total expenditure, administration costs, and actual levels of disbursement.

The analysis covers the whole of government expenditure and development aid for the agriculture sector in the URT: projects, programmes and administration costs, as documented by the Ministry of Finance and Economic Affairs (MoF). Data was obtained from revising the budget books published each year by the Ministry of Finance and Economic Affairs (MoFEA, several years). For each fiscal year the data for all expenditure related to agriculture and rural development was identified and classified according to the MAFAP methodology.

The analysis goes beyond the more common analyses of public expenditure in support of agriculture by also considering expenditure by other ministries – such as the Ministry of Energy and Minerals, the Ministry of Education and Vocational Training, the Ministry of Health and Social Welfare, the Ministry of Infrastructure Development and the Ministry of Natural Resources and Tourism – and other budget items in support of any programme or project related to agriculture and/or rural development.

The analysis uses concepts, terminology and definitions described in the MAFAP methodology for measuring public expenditures in support of food and agriculture sector development. Some of the most important of these definitions are provided in Box 4, while Annex I provides a brief summary of the main concepts. Readers seeking more details about the methodology are invited to refer to Komorowska (2010).

Box 4: Definitions of terminology used in the MAFAP analysis

Public expenditures in support of food and agriculture sector development: All the public expenditures that are undertaken in support of food and agriculture sector development financed from the national budget, either central or regional government, regardless of the ministry implementing the policy; and from external aid, provided through either local governments or specific projects conducted by international organization or non-governmental organizations. They are composed of agriculture-specific expenditures and agriculture-supportive expenditures.

Agriculture-specific expenditures: All the public expenditure measures that generate monetary transfers to agricultural agents (producers, consumers, input suppliers, trades, processors and transporters) or the sector as a whole (e.g., in the form of research, extension services, etc.).

Agriculture-supportive expenditures: Public expenditure measures that are not strictly specific to the agriculture sector, but that have a strong influence on agricultural development, such as rural education, rural health and rural infrastructure (energy, water and sanitation, roads, etc.).

Support to individual commodities: Public expenditures that directly target specific individual commodities such as rice or cotton.

Support to groups of commodities: Public expenditures that directly target specific groups of commodities such as crops or livestock.

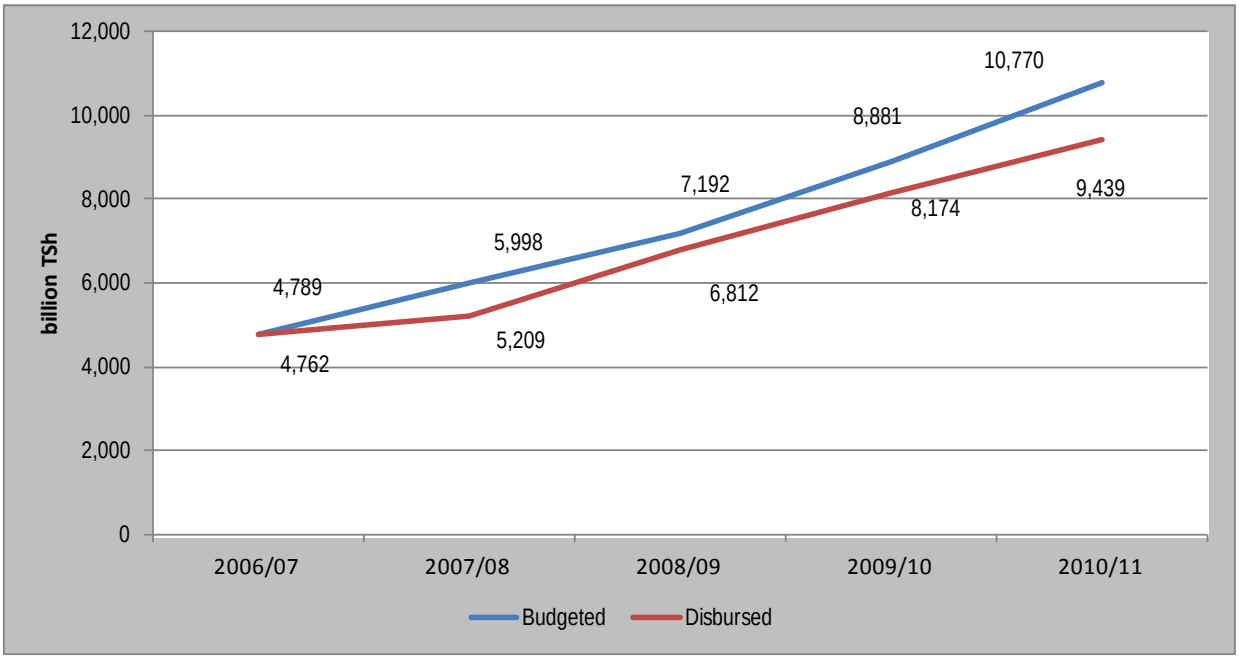
Support to all commodities: Public expenditures that do not target specific individual or groups of commodities, but that benefit any food and agricultural activity.

General trends in public expenditure

Analysis of the total budget approved for the United Republic of Tanzania reveals an almost constant upward trend over the period 2006–2011 (Figure 44). During this period, the country's budget saw an overall increase of 31 percent, rising from TSh 4 788 billion in the 2006/07 financial year to TSh 10 770 billion in 2010/11. Similar trends are observed in levels of actual disbursements, although there was a increasing gap between the approved budget and actual disbursements, from 1 percent in 2006/07 to nearly 12 percent in 2010/11.[21] Taking into account inflation in the URT, which has been increasing in recent years, the budget in constant terms saw a decrease in 2010/11 (Figure 45)

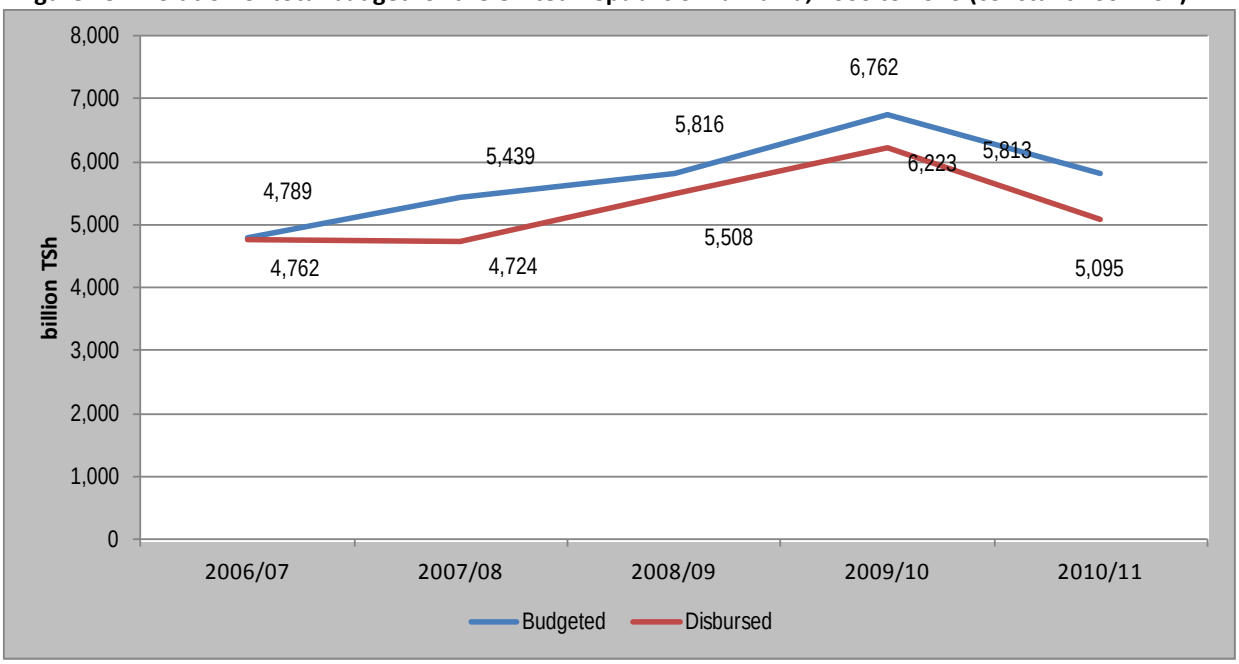
[21] Data for financial year 2010/11 were provisional at the time of writing, so the disbursement rate could rise. In 2009/10 this rate was 92 percent.

Figure 44: Evolution of total budget for the United Republic of Tanzania, 2006/07 to 2010/11 (current TSh)



Source: Authors' elaboration based on MoF (several years).

Figure 45: Evolution of total budget for the United Republic of Tanzania, 2006 to 2010 (constant 2007 TSh)



Sources: Authors' elaboration based on MoF (several years) and IMF (consumer price index) data.

General trends in public spending in support of agriculture

The total approved budget[22] in support of the agricultural and food sector grew by 53 percent in nominal terms from 2006/07 to 2010/11, reaching TSh 944.5 billion (Table 23). The peak of budget allocations occurred in the 2009/10 financial year, with TSh 1 198.9 billion allocated to support agriculture. Total actual spending has grown more slowly, increasing by 30 percent from 2006/07 to 2010/11, to reach TSh 728 billion, although the highest actual spending value falls in the 2007/08 financial year, with TSh 878.4 billion spent.

Table 23: Total public expenditures in support of the food and agriculture sector in the United Republic of Tanzania, 2006/07 to 2010/11

	2006/07	2007/08	2008/09	2009/10	2010/11[p]	% change 2006/07–2010/11
	billion TSh					
Budget allocation	616.0	891.7	1 143.3	1 198.9	944.5	53
Actual spending	584.5	878.4	825.1	759.3	728.0	30
Exchange rate[1] (TSh per US$)	1 245	1 196	1 320	1 409	1 572	

[1] Exchange rates are the annual averages for the calendar years 2007 to 2011.

Sources: Authors' calculations based on MAFAP public expenditure database for the URT and WDI, 2012.

In the African context public expenditure is support of agriculture has gained significant attention due to the Maputo Declaration. The Maputo Declaration refers to the Declaration on Agriculture and Food Security in Africa adopted during the African Union Summit held in Maputo from the 10th to the 12th of July 2003. , Maputo, Mozambique. In this declaration it is stated that "*We, the Heads of State and Government of the African Union (AU), assembled in Maputo at the Second Ordinary Session of the Assembly, 10 to 12 July, 2003 (…) agree to adopt sound policies for agricultural and rural development, and commit ourselves to allocating at least 10% of national budgetary resources for their implementation within five years*".

There is no consensus as to what has to be counted when measuring the achievement of this target. From a strict reading of the text of the declaration one can see that rural development is one of the policies to which 10 per cent of the national budget resources should be allocated. This implicitly considers the wide definition of the agriculture and food sector used for classifying public expenditure under MAFAP.

[22] Total agricultural expenditures (budget allocations and actual spending) include policy transfers in support of agriculture and policy administration costs, funded from both national resources and foreign aid.

However, most ot the documents of the Comprehensive Africa Agriculture Development Programme (CAADP) seem to have narrowed the scope of this commitment to a narrow understanding of agriculture. For example when describing the goal of CAADP its webpage states

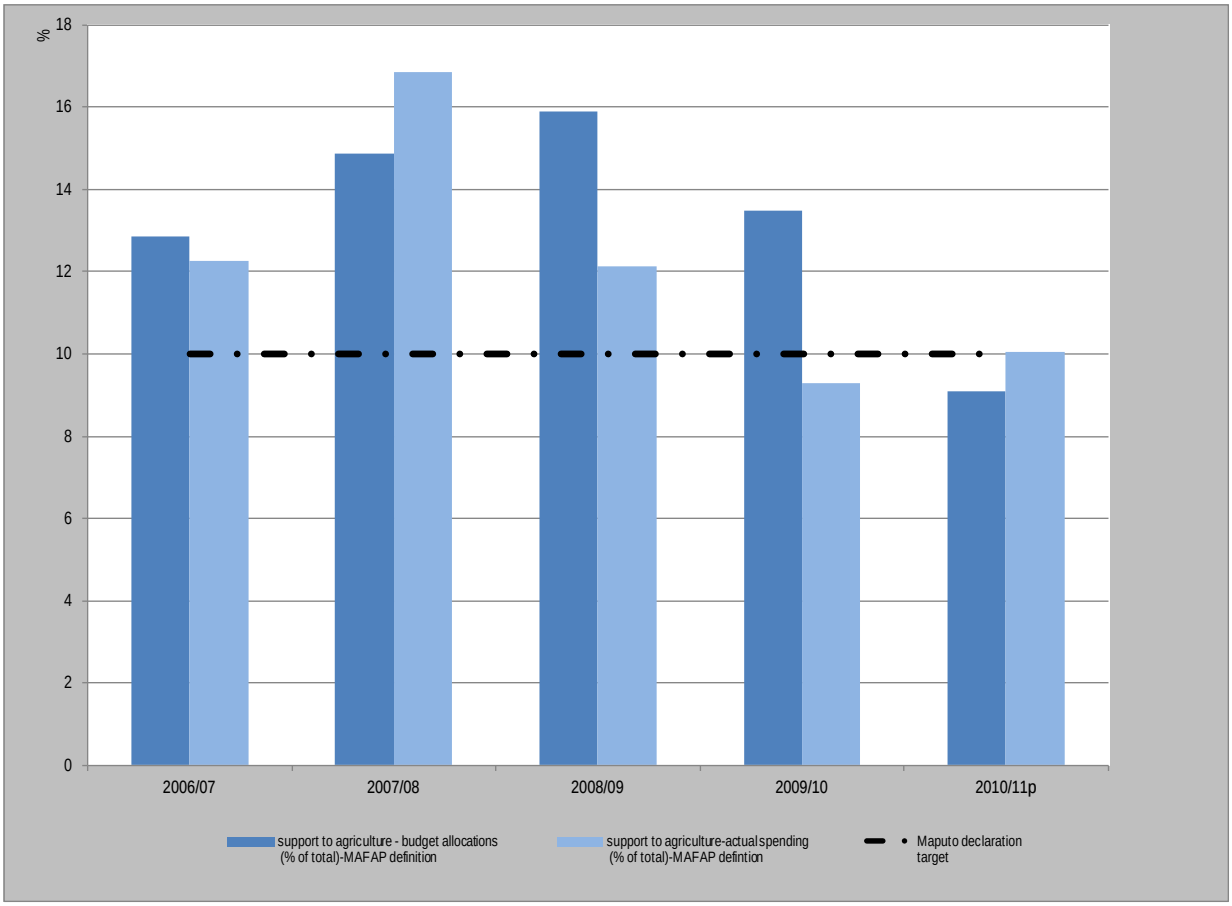
> "Overall, CAADP's goal is to eliminate hunger and reduce poverty through agriculture. To do this, African governments have agreed to *increase public investment in agriculture* by a minimum of 10 per cent of their national budgets and to raise agricultural productivity by at least 6 per cent"
>
> *Source:* http://www.nepad-caadp.net/about-caadp.php

The CAADP Implemention Guide also takes this approach towards understanding the Maputo Declaration when it states that: "*Within this context, CAADP's specific objective is to support country-driven agricultural development strategies and programmes by: establishing clear commitment to deliver on specific targets, including investing 10% of national budgets in the agricultural sector*..." (CAADP, 2010: page 4). Different definitions of this restricted approach are being used by other initiatives such as RESAKSS and the World Bank when measuring public expenditure in Africa.

In this sense one of the added values of the analysis undertaken by MAFAP is that it allows to monitor the achievement of the Maputo target under different assumptions. Below we discuss the progress towards this target using the two assumptions; that proposed by the MAFAP project and that assumed by CAADP.

MAFAP as a project considers that measuring against the Maputo Target should include ALL categories reflected in Annex I. Following this approach budget allocations in support of the agricultural and food sector declined from almost 13 percent of total government spending in 2006/07 to about 9 percent in 2010/11 (Figure 46a). Actual spending in relative terms also decreased significantly in the period analysed. The highest shares of expenditures in support of the agricultural and food sector with regards to total budget expenditures occur in the 2007/08 financial year both in terms of both budget allocations and actual spending, which reached 15 and 17 percent respectively. Since then, the importance of agriculture in total government expenditures has been constantly decreasing.

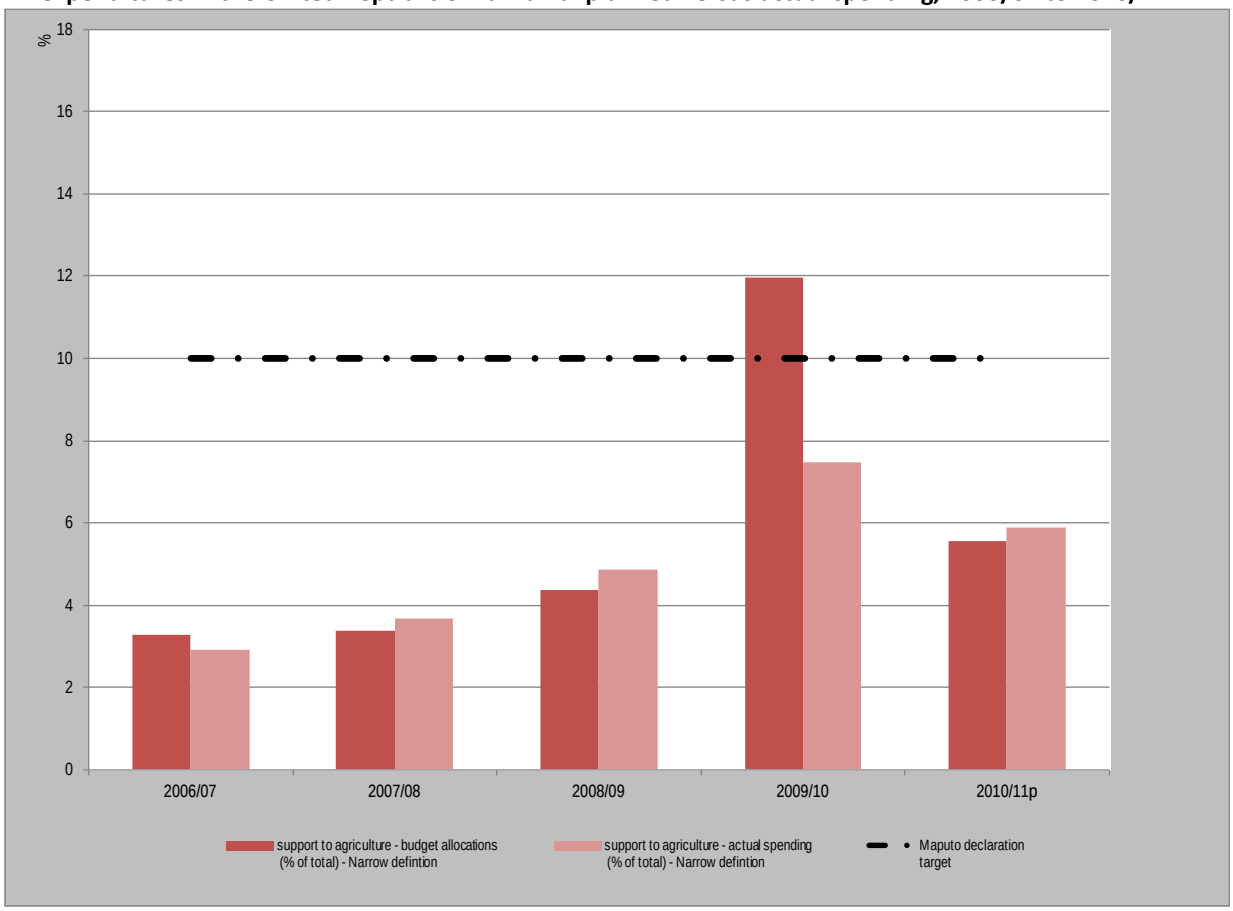
Figure 46a: Public expenditures in support to the food, agriculture and rural development sector as shares of total government expenditures in the United Republic of Tanzania: planned versus actual spending, 2006/07 to 2010/11



Source: Authors' calculations based on MAFAP public expenditure database for the URT.

If we want to measure the achievement of the Maputo Target using the approach followed by CAADP then only Category I (agriculture specific policies) of the MAFAP pulbic expenditure classification should be used. Under this approach during the study period expenditure levels in the United Republic of Tanzania fell below the Maputo Declaration targets for both budgeted amounts and actual expenditure, except for budgeted amounts in 2009/10 (figure 46b). The difference between results using the MAFAP definition of support to the agriculture sector and those using the traditional definition shows a declining trend, mainly due to decreased allocations to agriculture-supportive policies (Figure 47).

Figure 46b: Public expenditures in support to the agriculture sector as shares of total government expenditures in the United Republic of Tanzania: planned versus actual spending, 2006/07 to 2010/11



Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Table 24: Public expenditures in support of the food and agriculture sector in the United Republic of Tanzania: actual spending, 2006/07 to 2010/11

billion TSh

	2006/07	2007/08	2008/09	2009/10	2010/1
I. Agriculture-specific policies	161.0	224.1	272.0	425.8	506.1
I.1. Payments to agents in the agrofood	54.5	67.7	126.0	240.9	211.2
I.1.1. Payments to producers	49.6	62.6	122.8	236.8	207.9
A. Payments based on output	0.0	0.0	0.0	0.0	0.0
B. Input subsidies	44.7	62.3	120.3	229.6	207.4
B1. Variable inputs	32.1	41.6	81.9	197.6	181.0
B2. Capital	11.9	15.8	22.6	21.4	18.9
B3. On-farm services	0.6	5.0	15.7	10.7	7.5
C. Income support	0.0	0.0	0.0	0.0	0.0
D. Other	5.0	0.2	2.6	7.2	0.5
I.1.2. Payments to consumers	0.0	0.0	0.0	0.0	0.0
E. Food aid	0.0	0.0	0.0	0.0	0.0
F. Cash transfers	0.0	0.0	0.0	0.0	0.0
G. School feeding programmes	0.0	0.0	0.0	0.0	0.0
H. Other	0.0	0.0	0.0	0.0	0.0
I.1.3. Payments to input suppliers	0.0	0.0	0.0	0.0	0.0
I.1.4. Payments to processors	4.8	5.1	3.2	4.1	3.3
I.1.5. Payments to traders	0.0	0.0	0.0	0.0	0.0
I.1.6. Payments to transporters	0.0	0.0	0.0	0.0	0.0
I.2. General sector support	106.5	156.4	146.0	184.9	294.9
I. Agricultural research	18.7	38.8	48.9	54.2	59.0
J. Technical assistance	0.0	0.0	0.0	0.0	0.0
K. Training	28.8	59.9	44.7	57.4	171.1
L. Extension	15.1	24.4	22.2	21.8	19.8
M. Inspection (veterinary/plant)	0.7	0.4	1.2	2.7	2.3
N. Infrastructure	1.3	3.2	4.8	4.1	3.6
O. Storage/public stockholding	25.1	6.7	0.8	1.0	0.8
P. Marketing	6.2	11.0	13.6	9.0	7.3
R. Other	10.6	12.0	9.7	34.7	31.0
II. Agriculture-supportive policies	392.9	598.9	473.9	204.4	307.2
S. Rural education	115.3	90.0	42.7	29.1	34.2
T. Rural health	50.0	68.1	130.9	67.4	90.5
U. Rural infrastructure	227.3	439.5	299.2	106.6	180.8
U1. Roads	125.7	289.7	245.6	28.3	124.9
U2. Water and sanitation	34.8	104.8	49.1	24.3	24.4
U3 Energy	66.8	45.1	4.5	52.0	31.3
U4 Other	0.0	0.0	0.0	2.0	0.3
V. Other	0.4	1.4	1.1	1.4	1.6
III. Total expenditures in support of the	553.9	823.1	746.0	630.2	813.3

See Annex I for definitions of categories and Annex II for specific programs and projects included in each category.

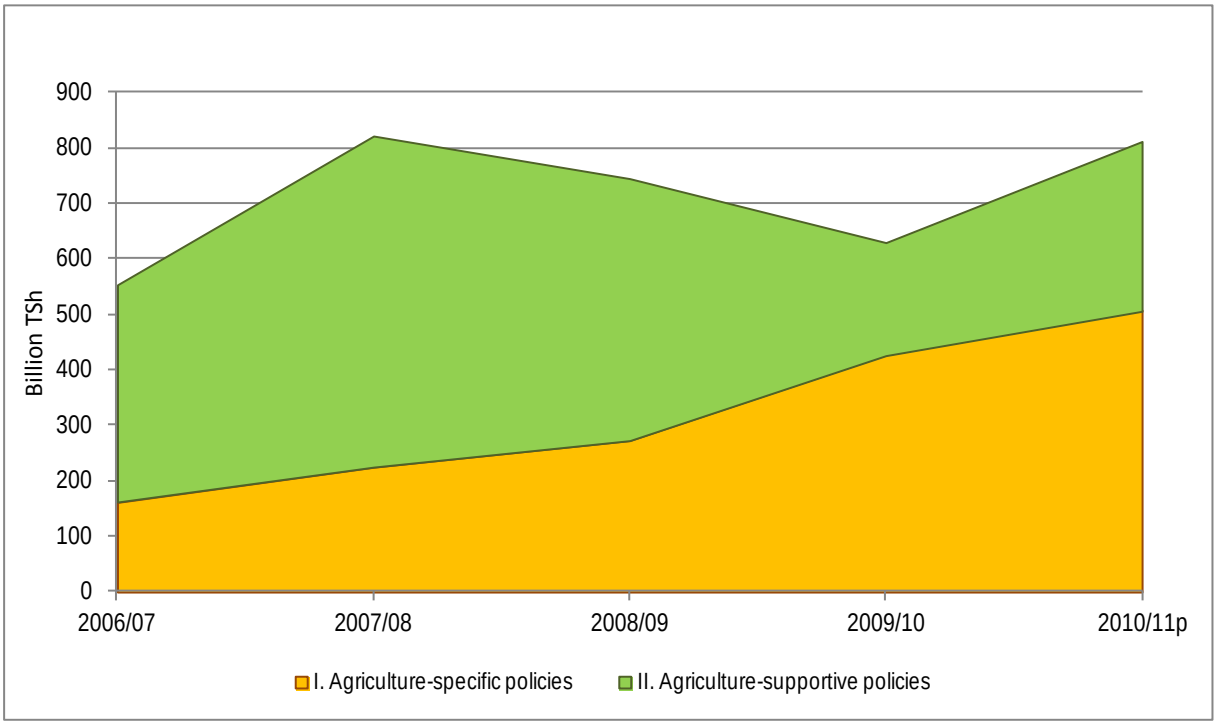
Composition of public expenditures in support of the food and agriculture sector

Data collected at the country level allow good disaggregation of the expenditures funded from national resources and foreign aid and allocated to the agriculture sector. About 170 projects and

programmes have been identified and classified into the MAFAP categories outlined in the project methodology (Balie *et al.,* 2010). The data collected cover the period 2006/07 to 2010/11, but for many of the expenditure measures there were no data on actual spending for the most recent year. In such cases, estimation methods have been applied provisionally, until the most recent data are obtained.[23] The results are shown in Table 24. Annex II provides a detailed description of each of the projects and programmes that have been classified for each category.

Agriculture-specific expenditures account for an average of almost 45 percent of expenditures in support of food and agriculture sector development. Their importance in overall agricultural support grew from about 29 percent in 2006/07 to 64 percent in 2010/11. In terms of spending level, agriculture-specific expenditures more than doubled over the period analysed, while agriculture-supportive expenditures decreased significantly (Figure 47).

Figure 47: Composition of expenditures in support of the food and agriculture sector in the United Republic of Tanzania: actual spending, 2006/07 to 2010/11



P = provisional.

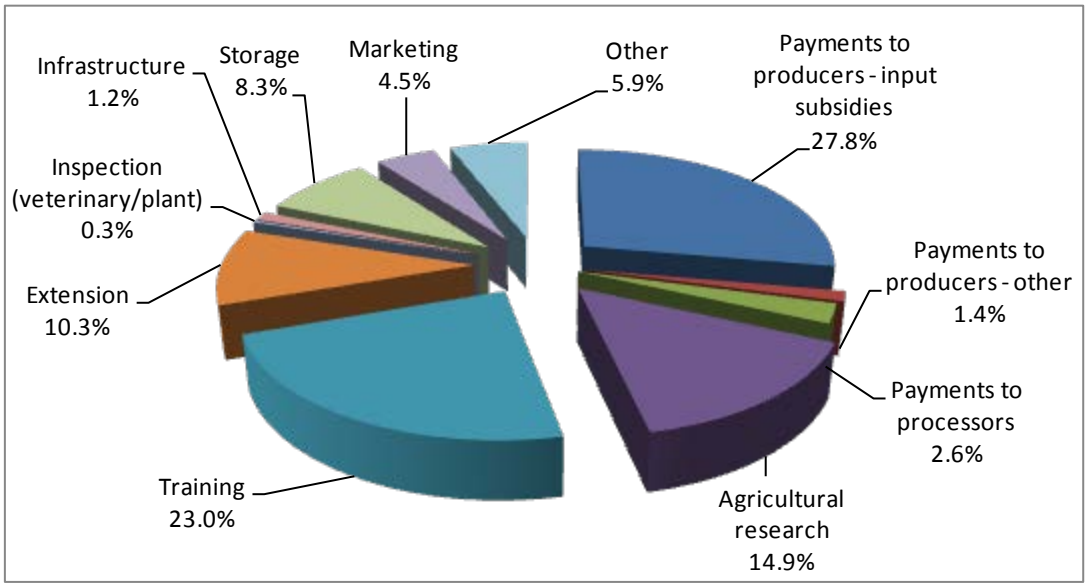
Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Among agriculture-specific expenditure measures, about 60 percent were in the general sector support category. In the first part of the period analysed – 2006/07 to 2007/08 – the largest share of these expenditures fell into the training category (Figure 48). Other important categories included agriculture research, extension and storage. Far less was spent on marketing (including related infrastructure), infrastructure and inspection. There were no expenditures on technical assistance. In the second part of the period analysed – 2008/09 to 2010/11 – the composition of general sector support was slightly different (Figure 49). Expenditures on training, research, inspection, infrastructure and marketing accounted for similar proportions of agriculture-specific spending.

[23] The full database is available on request.

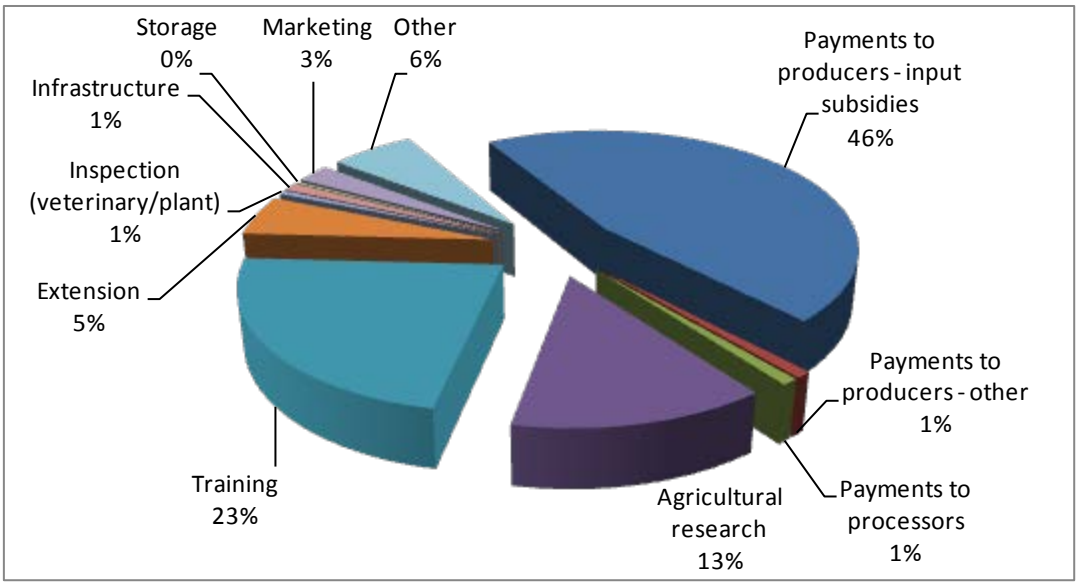
However, extension services accounted for a smaller share of agriculture-specific spending, while expenditures on storage became almost insignificant.

Figure 48: Composition of agriculture-specific spending in the United Republic of Tanzania, averages for 2006/07 to 2007/08



Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Figure 49: Composition of agriculture-specific spending in the United Republic of Tanzania, averages for 2008/09 to 2010/11



Source: Authors' calculations based on MAFAP public expenditure database for the URT.

On average, payments to agents in the agrofood sector accounted for the remaining 40 percent of agriculture-specific expenditures (Figures 48 and 49). Within this category, most expenditures were payments to producers in the form of input subsidies, particularly for variable inputs, and their importance increased over time, mostly because of implementation of NAIVS.

Despite the importance given to irrigation in ASDP and in the Tanzania Agriculture and Food Security Investment Plan (TAFSIP), public resources devoted to irrigation are a very minor part of total expenditure. Irrigation expenditures fall into categories B2 (for on-farm investments) and N (for off-farm investments) (Table 24). Even if these two categories covered only irrigation-related investments, the total expenditure for them never exceeded 5 percent of total expenditure over the period analysed, and fell far below the TSh 474 billion envisaged in ASDP as reported in Table 5 of the Government Programme Document.[24] This low level of investment in irrigation means that of the 22 million ha identified as suitable for irrigation, only 1 percent has been developed.

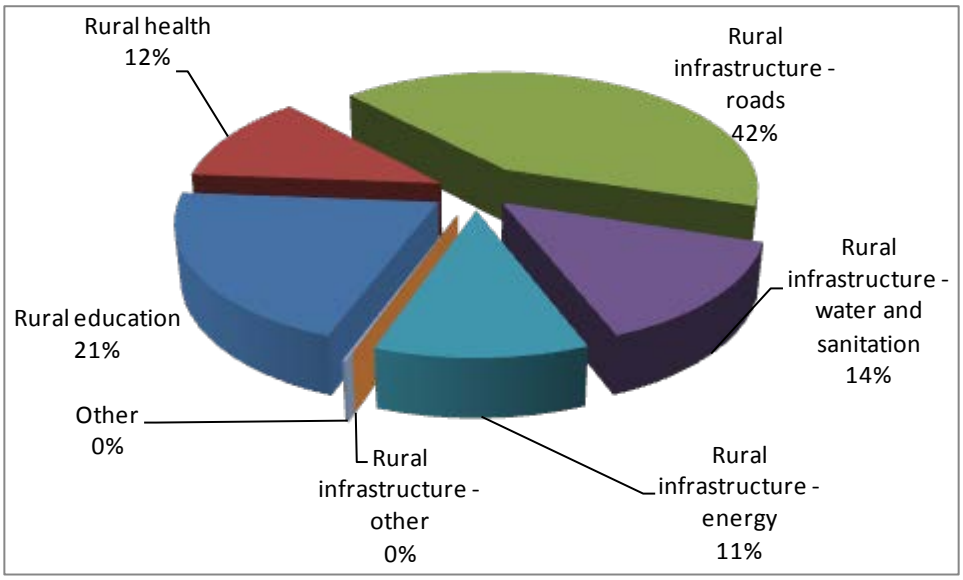
There were also some expenditures on other support to producers, but these accounted for a very small proportion of agriculture-specific spending, as did other payments to agents in the agrofood sector, which included payments to processors. The importance of these two categories did not change over time. There were no direct payments to consumers, traders, transporters or input suppliers.[25]

Agriculture-specific expenditures are complemented by agriculture-supportive expenditures, which account for an average of about 55 percent of overall support to the food and agriculture sector in the United Republic of Tanzania, although their relative importance in total support to agriculture has decreased over time. By far the largest of these expenditures during the period analysed were for rural infrastructure, particularly roads, but also water and sanitation, and energy (Figures 50 and 51). Their relative importance in agriculture-supportive expenditures has not changed over time. In total, more than two-thirds of agriculture-supportive expenditures went to rural infrastructure, with the rest being directed to rural health and rural education. The importance of these two categories has changed over time, with rural education accounting for a larger share of agriculture-supportive spending in the first part of the analysed period, and rural health dominating in the second.

24 http://www.agriculture.go.tz/publications/english%20docs/ASDP%20FINAL%2025%2005%2006%20(2).pdf

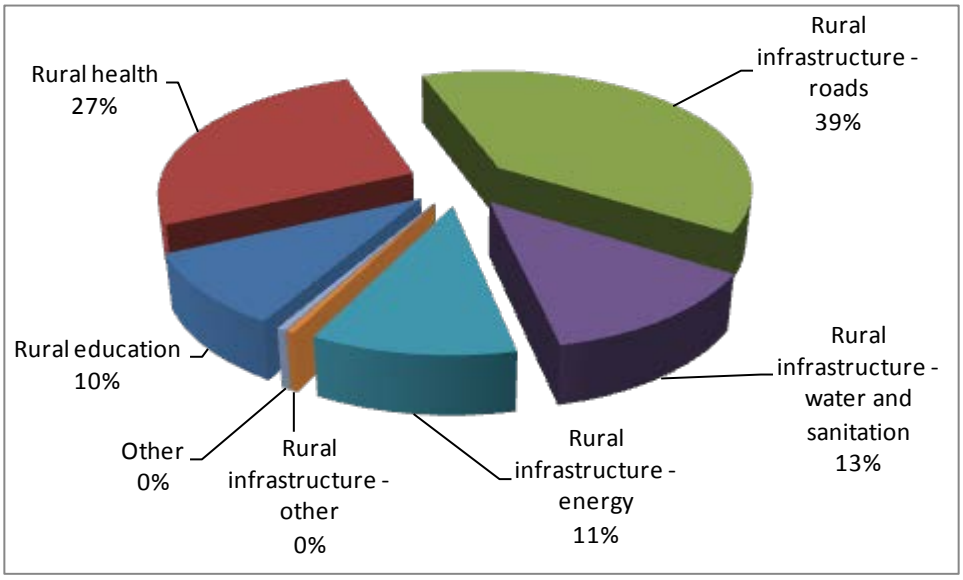
25 This conclusion is based on data collected from the budget books. However, additional projects – such as school feeding programmes supported by the World Food Programme – could fall into these categories, particularly payments to consumers. The MAFAP project is attempting to collect data from these missing projects, although their expenditures are expected to be relatively small compared with those already captured from the database, so would not change significantly the relative importance of spending categories, nor the overall conclusions.

Figure 50: Composition of agriculture-supportive spending in the United Republic of Tanzania, averages for 2006/07 to 2007/08



Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Figure 51: Composition of agriculture-supportive spending in the United Republic of Tanzania, averages for 2008/09 to 2010/11



Source: Authors' calculations based on MAFAP public expenditure database for the URT.

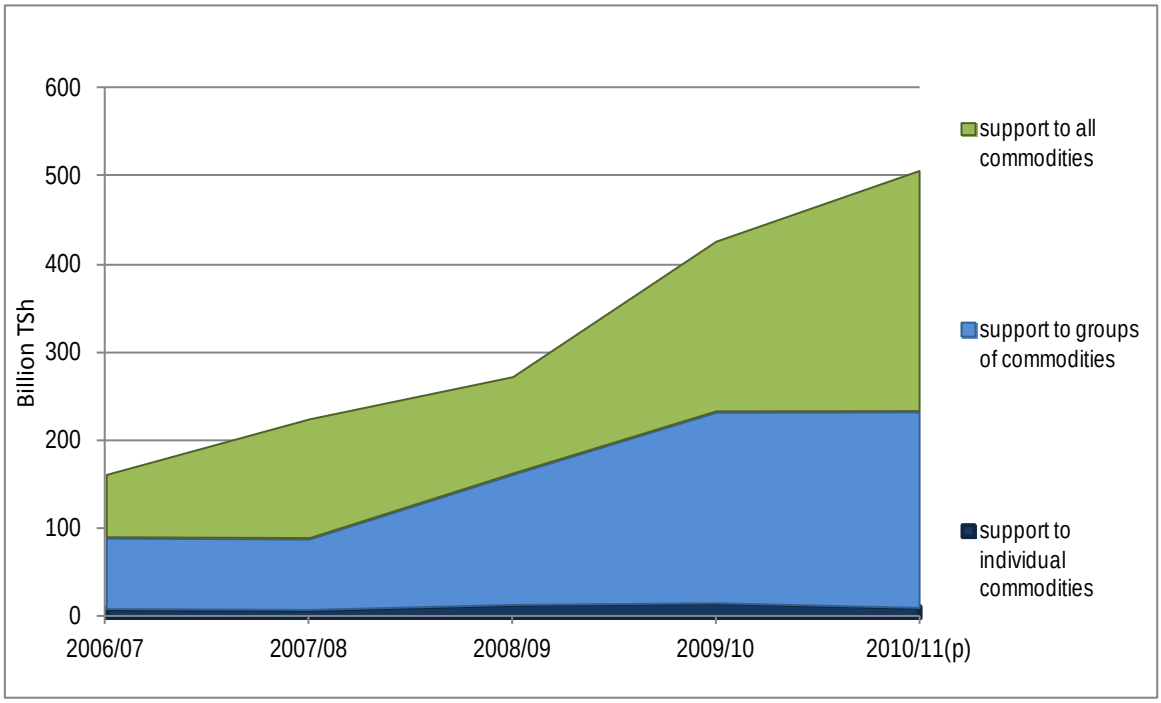
Agriculture-specific expenditures can also be disaggregated into the commodities they are intended to support.[26] Each agriculture-specific expenditure measure is attributed to a category depending on whether it supports an individual commodity (e.g., cashew nuts at the Naliendele Agricultural Research Institute), a group of commodities (e.g., crops under AFSP) or all commodities (e.g., under the Participatory Agricultural Development and Empowerment Project [PADEP]).

[26] Agriculture-supportive expenditures, by definition, are not intended to support the production of any particular commodity so are not considered as specific to agricultural commodities.

The large number of commodities supported through these expenditures include fish, coffee, tea, cashew nuts, tobacco, sisal, sugar, pyrethrum, maize, rice, livestock products and apiculture products. Expenditures in support of all commodities (49 percent of total agriculture-specific measures) and in support of groups of commodities (47 percent) were by far the most important categories throughout the period analysed (Figure 52). Support to individual commodities accounted for only a small proportion of agriculture-specific spending (4 percent).

Among expenditures in support of individual commodities, the biggest average shares targeted fish, coffee and tea, followed by cashew nuts, tobacco, cotton, sugar, pyrethrum, sisal and dairy (Figure 53a). Among expenditures in support of groups of commodities, the largest shares were absorbed by maize, rice and all crops, followed by livestock products, forestry and apiculture, cereals, forestry, apiculture, cotton and coffee, and horticulture (Figure 53b).

Figure 52: Agriculture-specific spending in support of commodities in the United Republic of Tanzania, 2006/07 to 2010/11

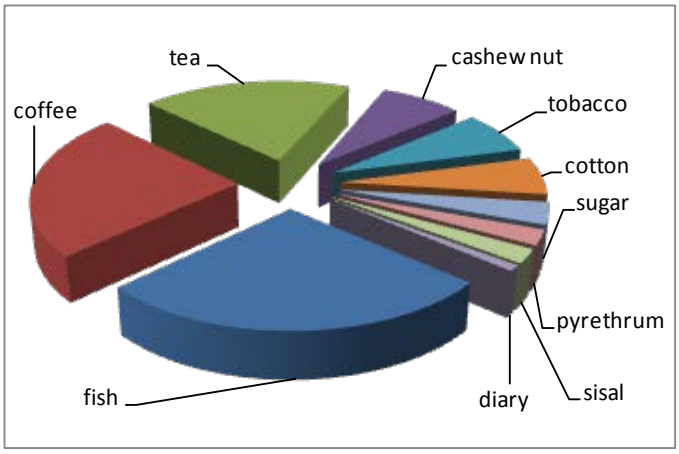


P = provisional.

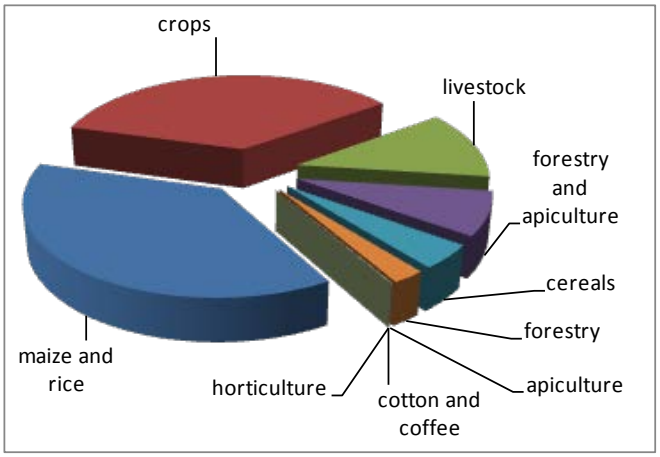
Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Figure 53: Support to individual and groups of commodities in the United Republic of Tanzania, averages for 2006/07 to 2010/11

53a. Individual commodities (4 percent of agriculture-specific spending)



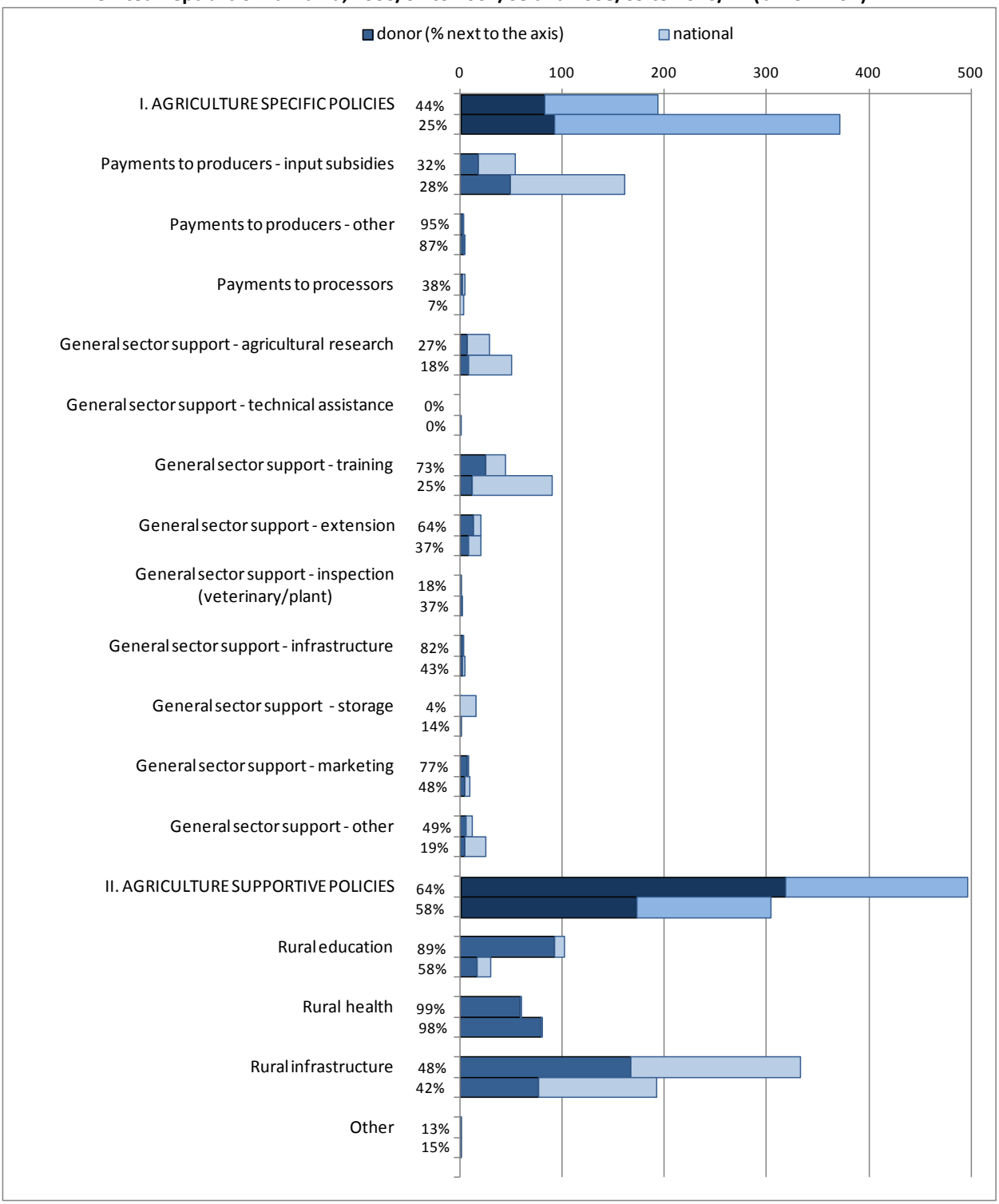
53b. Groups of commodities (47 percent of agriculture-specific spending)



Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Overall, most public expenditures are directed to providing public services and investments, with a relatively strong focus on infrastructure, but also on training, extension services and research. However, there is rapidly growing spending on input subsidies to agricultural producers, particularly for variable inputs.

Figure 54: Average shares of aid in public expenditures in support of the food and agriculture sector in the United Republic of Tanzania, 2006/07 to 2007/08 and 2008/09 to 2010/11 (billion TzSh)



Upper bars correspond to 2006/07–2007/08 averages; lower bars to 2008/09–20010/11 averages.

Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Role of aid in agriculture-related public expenditures

Donor aid to the Government of the United Republic of Tanzania seems to be consistent with the government's overall areas of spending, although there are some differences in priorities. On average, from 2006/07 to 2007/08, donor spending accounted for about 60 percent of overall public expenditures in support of the food and agriculture sector in the URT. However, it should be noted that this might be an underestimate of actual donor support, as the data sources used did not identify donor support channelled via general budget support.[27] External aid contributes 44 percent of agriculture-specific expenditure and 64 percent of agriculture-supportive expenditure (Figure 54). In the 2008/09 to 2010/11 period, the share of donor support decreased, to only about 40 percent of total spending in support of food and agriculture sector development. The contribution to agriculture-specific expenditures dropped to about 25 percent, while donor aid to agriculture-supportive expenditures represented 58 percent of the total.

The contribution of aid differs among categories. In agriculture-specific expenditures, donors contributed the largest proportions of total spending for other payments to producers, marketing, infrastructure, training, and extension services throughout the study period. In terms of donor spending levels, training and input subsidies to agricultural producers received the highest proportions, in both the first and second parts of the period. Among agriculture-supportive measures, the highest share of donor support was directed to rural health, which is the most donor-supported category overall and is almost entirely financed from donor funds.

Technical assistance is the only category of spending that did not receive any donor support.

Analysis of public expenditures

Despite the increased emphasis on agriculture sector development, sector growth in the United Republic of Tanzania falls below the target of 6 percent recommended by CAADP. The observed patterns of public expenditures in support of food and agriculture development suggest that these expenditures do not contribute to sector growth in an optimal way, for a number of reasons.

First, the trends in overall level of public expenditures in support of food and agriculture sector development in the URT are of concern. Despite the government's efforts to mainstream development of the agriculture sector, agriculture's share in the total government budget has been falling since 2007/08 and is currently below the Maputo Declaration target.

Second, the composition of public expenditures in support of agriculture could be improved – the composition of expenditures is at least as important as the total level. There may be trade-offs between spending in different categories (e.g., spending on rural infrastructure versus offering subsidies for seed and fertilizer), and complementarities (e.g., between spending on extension services and spending on the development of infrastructure to enable farmers to get their output to market). From the analysis presented, there seem to be imbalances among categories of spending. High investments in rural infrastructure and extension services provision can bring benefits via lower

[27] For example, although the input subsidy component is financed mainly by general budget support provided by the World Bank, the budget books consider this support as national.

transaction costs and improved access to markets for farmers. High support to rural development can provide off-farm employment opportunities in the future, while expenditures on research, training and extension services can help farmers improve their productivity and adopt more environmentally friendly production methods. Spending in these latter three categories has the greatest chances of bringing positive outcomes in terms of agricultural growth and poverty reduction in the long run.[28] On the other hand, there are relatively few investments in the construction of markets (based on projects placed in the marketing category), very few in feeder roads (based on projects placed in the agriculture-specific infrastructure category) and no expenditures on storage. There is also very little expenditure on veterinary/inspection services, which are necessary for pest and disease control efforts at the farm level.

Budgeted expenditure for the provision of subsidies for variable inputs has expanded rapidly, growing sixfold between 2006/07 and 2009/10. Although it decreased in 2010/11, it remained more than three times higher than it was at the beginning of the period analysed. Input subsidies may be an important policy instrument for stabilizing the incomes of producers in developing countries in the short run, but they should not compromise the allocation of resources to categories of spending that improve incomes over the long run (for a in-depth discussion, see OECD; 2012 and Brooks and Wiggins, 2010). According to the World Bank (2010), while the recent increases in spending on some inputs, such as NAIVS, are justifiable – because NAIVS is a well-designed, smart input subsidy that is market-based, promotes the private sector and induces supply response in the short-run – input provisions should be temporary and phased out as planned, particularly as they may compromise the increased allocations that are clearly needed for the provision of core public goods, including agricultural research, extension services, veterinary and inspection services and agriculture-specific infrastructure such as feeder roads.

Third, data collected for the MAFAP project demonstrate that the rates of actual spending to budget allocation in the URT are low, as reported in Table 25. Actual spending may vary significantly from budgeted amounts, particularly in developing countries where budgets depend largely on donor disbursements and cash budget system are operated, as in the URT. This variation may have several causes:

- Budget allocations may misjudge the true requirements.
- Budget allocations may be readjusted during the fiscal year.
- Fund releases may be delayed or not occur at all if there are unforeseen calls on available funds.

Budget execution has been far worse for policy transfers than for administration costs. Administration costs are financed mainly from the recurrent budget and are expected to have a better disbursement rate. In the URT, actual spending on policy administration costs has been almost equal to budgeted amounts, except for in the two most recent years. In this period, the disbursement rate was more than 100 percent, suggesting that more money was spent on policy administration costs than initially envisaged in the budget. This may occur if substantial budget

[28] Several recent studies conclude that investments in agricultural R&D bring far better outcomes in terms of agricultural growth and poverty reduction. See FAO (2012b) for an overview of studies that compare the impacts of different types of agricultural expenditure and investment.

revisions are made during the fiscal year and additional money is allocated to administration, for example, for the recruitment of ministry staff.

The budget execution of policy transfers is, on average, much lower than that of policy administration costs. Although the disbursement rate was very good in the two first years of the period analysed, it decreased significantly from 2008/09. The main explanation for these results is the unanticipated impact of the global financial crisis, which required budget reallocations – mainly from MAFC – to the Treasury's emergency support for commercial banks. Other important reasons include delays in meeting the requirements for donor fund releases (particularly to ASDP), problems with project implementation related to technical difficulties in procurement procedures, and untimely fund releases to local government authorities (LGAs) (World Bank, 2010). Budget execution rates seem to have reverted to previous high levels, a pre-requisite to increase the efficiency of expenditures in support of food and agriculture sector development.

Table 25: Budget allocations versus actual spending in the United Republic of Tanzania, 2006/07 to 2010/11 (billion TSh)

	2006/07	2007/08	2008/09	2009/10	2010/11[p]
Total agricultural budget[1]					
Budgeted amount	616.0	891.7	1143.3	1198.9	980.1
Actual spending	584.5	878.4	825.1	759.3	947.2
Actual as share of budgeted (%)	95	99	72	63	97
Policy transfers					
Budgeted amount	585.1	832.4	1063.7	1085.3	862.5
Actual spending	553.9	823.1	746.0	630.2	813.3
Actual as a share of budgeted (%)	95	99	70	58	94
Administration costs					
Budgeted amount	30.9	59.3	79.6	113.6	117.6
Actual spending	30.6	55.4	79.1	129.1	133.9
Actual as share of budgeted (%)	99	93	99	114	114

[1] Total agricultural budget includes policy transfers in support of agriculture and policy administration costs; p = provisional estimate.

Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Fourth, a large share of the funds is allocated to policy administration costs and, based on MAFC and MLDF calculations, there seems to be an imbalance between the shares of these costs and of policy

transfers in total expenditures, particularly for the most recent years (Table 26).[29] The increased share of administration costs after 2008/09 may be partially explained by the reallocation of funds devoted to policy transfers for managing the financial crisis, as already mentioned. However, the increases in administration have been substantial over the period analysed. Although the World Bank (2010) reports significant improvements to the agricultural wage bill in the most recent year, further efforts are needed to balance the policy administration costs and the policy transfers.

Table 26: Shares of policy transfers and administration costs in public expenditures of MAFC and MLFD, 2006/07 to 2010/11 (percentages)

	2006/07	2007/08	2008/09	2009/10	2010/11[p]
Administration costs	16	17	26	33	25
Policy transfers	84	83	74	67	75
Total agricultural budget	100	100	100	100	100

p = provisional estimate.

Source: Authors' calculations based on MAFAP public expenditure database for the URT.

Actions to address these issues will be crucial for improving the performance of expenditures in support of food and agriculture sector development. However, whether or not such actions are translated into improved agricultural growth will depend on additional growth factors that are not fully derived from public spending.

[29] The projects and programmes included in the analysis involve several ministries. It is not possible to identify all the policy administration costs related to projects and programmes managed by ministries that work mainly on non-agricultural matters because these costs cover several sectors, and the "agricultural" share in them cannot be clearly identified (Komorowska, 2010). To ensure comparisons of only like with like in calculating the shares of policy transfers and administration costs in the total budget, the spending of only MAFC and MLFD was considered.

8. Coherence between incentives and government spending

Introduction

The results of the MAFAP analysis of the rural and agriculture sector in the United Republic of Tanzania must be put into perspective in terms of the government objectives expressed in the agricultural policies reviewed in part 1 of this report. These objectives are set within large policy frameworks, and the analysis considers agricultural policies as being the series of decisions and policy measures aimed at being consistent with the overall objectives.

The real risk of inconsistency lies in the proliferation of policies, projects and programmes that are subsequently cancelled and are not prioritized (GDPRD, 2011). In the URT, as in other countries, despite progress in developing a coherent and coordinated sectoral approach through *Kilimo Kwanza* and ASDS, agricultural policy consists of a maze of programmes and projects, including government decisions on trade, especially relating to tariffs.

It should also be remembered that agricultural policy is not the exclusive domain of government. Donors and other development partners also have an influence on policy decisions, dictated by their own agendas and interests. In the URT, at least 60 percent of expenditure for agriculture comes from foreign aid.

Therefore, the main questions in addressing policy coherence are:

i). What are the main strategies determined by the government?

ii). What are the major policy decisions and measures (programmes/projects, taxes/exemptions)? Are these decisions consistent with the stated objectives?

iii). Have the adopted measures and policy decisions had an impact or achieved the expected effects, and have they met the objectives?

Government's main objectives

No single reference document presents a clear and simple outline of the Government of the United Republic of Tanzania's objectives and priorities regarding agricultural and food policies (see chapter 4). It is therefore necessary to generate an analysis from existing documents. The overall objective of the URT's national strategy for growth and poverty reduction in 2005–2010 has three pillars for agricultural development:

1) increased productivity and profitability;
2) increased sustainable off-farm income-generating activities;
3) secured and facilitated marketing of agricultural products.

In turn, ASDP aspires to: i) improve farmers' access to and use of agricultural knowledge, technologies, marketing systems and infrastructure; and ii) promote private sector investment in agriculture, based on an improved regulatory and policy environment.

The overall objectives against which the analysis results have to be assessed can therefore be considered as covering two aspects of food security: increasing food availability (pillars 1 and 3); and increasing food accessibility (pillar 2).

Factors driving the value chains

A number of driving factors have been identified for the different commodities and commodity groups presented in chapter 5. These are summarized in Table 27, together with the MAFAP results regarding price incentives and disincentives and public expenditure.

Table 27: MAFAP coherence matrix for the United Republic of Tanzania

Commodity or commodity group	Incentives/disincentives *What are the price incentives/disincentives for producers? What are the costs/gains that market inefficiencies represent for producers?*	Driving factors *What are the key factors or issues that drive incentives/disincentives for production?*	Policy *What policy measures and objectives are related to these driving factors?*	Public expenditure *How does public spending address these driving factors?*
All products	Average observed NRP: 17% Average adjusted NRP: 14% MDG: -2%	• NFRA interventions distributing cheap staples to vulnerable households • Tariff structure for key imports partly waived during the period of high food prices • Inefficiencies in main processing industries (sugar, cotton) • Excessive transport costs in the country and lack of market integration between surplus and deficit areas • High import costs at port of Dar es Salaam and import licence rents • Lack of storage capacity for staples • Taxation of specific commodities • Marketing arrangements for some commodities where farmers have less bargaining power than traders	• ASDS (2001) main strategic objectives: (1) Creating an enabling and favourable environment for improved productivity and profitability in the agriculture sector (2) Increasing farm incomes to reduce income poverty and improve household food security by improving farmers' access to and use of knowledge, technologies, marketing systems and infrastructure (3) Promoting private investments based on an improved regulatory and policy environment • Main priority investment areas identified in subsector strategies: i) infrastructure; ii) irrigation; iii) mechanization; iv) R&D; v) farm inputs; and vi) renewable natural resources • Most relevant programmes: (1) ASDP (2006) (2) AFSP and NAIVS (3) PADEP (4) Tanzania Social Action Fund (5) DASIP	• Increase in agricultural actual expenditure from 2006 to 2011: 30%, reaching TSh 728 billion • Agricultural actual expenditure in total government expenditure for the period: 11.7% (decreasing trend) • Increase of funding to input subsidies over other services • Expenditure on agriculture-specific policies: 44% of total agricultural expenditure: o 39% input subsidies o 31% training and extension o 14% research o 3% marketing o 2% storage o 1% inspection o 1% infrastructure o 1% payment to processors o 8% others • Expenditure on

	• General measures: (1) 50% subsidies to fertilizers through NAIVS (2) Deferment of VAT payment on capital goods defined in the tariff book (July 2007) (3) Reduced licence fees and exempted annual fees on motor vehicles and tractors used for agriculture (July 2008) (4) Zero rate duty on all farm implements (fertilizers, herbicides, pesticides, etc.) (July 2008) (5) Reduction of crop tax to maximum 5 percent of production value (July 2008) (6) TSh 17.5 billion to support the price of fuel (November 2008) (7) Establishment of a specific social security fund for farmers (2009) (8) Facilitation of farmers' access to credit and promotion of rural financing institutions through recapitalization of Tanzania Investment Bank; establishment of Tanzania Agriculture Development Bank (with US$500 million); and the Vision Tanzania Fund (2009) (9) Establishment of Zonal Agricultural Research and Development Funds (2008/2009) (10) General VAT reduction from 20 to 18 percent (July 2009) (11) Improved access to quality seed, through technical assistance and extension to produce quality-declared seeds (2007); promulgation of the Seed Act	agriculture-supportive policies: 56% of total agricultural expenditure: o 41% rural roads o 19% rural health o 15% rural education o 13% water and sanitation o 11% rural energy • Supportive expenditure composition remained unchanged throughout the period • Expenditure targeting specific commodities or groups of commodities: 52% of agriculture-specific expenditure

			(2009) to avoid the sale of fake seeds; and empowerment of the Tanzania Official Seed Certification Institute as the national regulator (December 2009) (12) Establishment of the National Agriculture and Cooperatives Commission (NACC), the National Irrigation Agency and the Ministerial Planning Coordination Committee (2009) (13) Establishment of market data/information centres (2010); agricultural resource centres for the provision of inputs (2010); and the agricultural price stabilization mechanism (2010)	
Imports	Average observed NRP: 47% Average adjusted NRP: 48% MDG: 1%	• Import tariffs for all commodities • Excessive marketing costs within country • Rents associated with import licensing	• Loosening of food import tariffs and duties • Increased restrictions on food exports • Zero-rate VAT on locally produced sacks for packing imported bulk agricultural products (July 2008) • Promotion of local products through "Buy Tanzanian" campaign, starting with government procurement (July 2007)	
Wheat	Average observed NRP:51% Average adjusted NRP: 62% MDG: 8%	• Incentives related to trade policy with high external tariff • Exports of processed wheat (flour) to neighbouring countries when tariff lowered, keeping prices high in the country • Low productivity of wheat preventing extension of production, with high domestic prices	• Zero tariff for EAC countries and 35% tariff for imports from outside EAC • Tariffs waived to 10% since 2007	• Expenditure targeting crops: 17% of total agriculture-specific expenditure in: o Input subsidies (variable inputs, seeds and capital) o Research, training and extension o Storage/public stockholding

				o Marketing • Expenditure targeting cereals: 2% of total agriculture-specific expenditure in: (1) Research training and extension (2) Strategic grain reserve
Sugar cane	Average observed NRP: -20% Average adjusted NRP: -18% MDG: 11%	• Inefficiencies in the sugar milling industry and/or excessive power of sugar mills • Farmers not benefiting from the tariff protection • Consumers heavily taxed, even with the government's ad hoc changes to the tariff policy for sugar • Variation and unpredictability of the tariffs.	• Government elimination of withholding tax on cash crops, based on Income Tax Act of 2004 • Annual sugar export and import quotas set by SBT • Import license fee of US$10/tonne of sugar • Sugar levy to SBT of US$2.75/tonne sold • CET of 100% – 35% for unrefined sugar; government mandate to vary tariffs between 0 and 25%	• Expenditure targeting crops: 17% of agriculture-specific expenditure in: o Input subsidies (variable inputs, seeds and capital) o Research, training and extension o Marketing • Sugar targeted by 0.15% of agriculture-specific expenditure in research, extension, training and marketing
Rice	Average observed NRP: 68% Average adjusted NRP: 62% MDG: -4%	• Protection during the period leading to increased production and URT becoming a net exporter of rice • Export competitiveness not assured when international market prices fall to "normal" levels • Part of protection caused by trader inefficiencies in the port of Dar and captured, due to excessive marketing costs • The URT's status as a net exporter causing farmers to miss some potential gains of export markets because of trade restrictions (export ban)	• 2008 National Rice Development Strategy towards commercially viable production. Short-term (1–3 years) strategies: (1) Increasing production and productivity of rice in selected irrigation schemes (2) Reducing production and post-harvest losses (3) Increasing availability of and access to agricultural inputs (improved seeds, fertilizers, pesticides and appropriate farm machinery) (4) Rehabilitation of old and development of new irrigation	• Expenditure targeting crops: 17% of agriculture-specific expenditure in: o Input subsidies (variable inputs, seeds and capital) o Research, training and extension o Storage/public stockholding o Marketing • Expenditure targeting maize and rice: 18% of agriculture-specific expenditure in subsidies to variable inputs

			schemes • Import tariffs of: (1) 75% or US$200/tonne to non-EAC (2) 0% to COMESA and EAC (3) 25–10% to SADC (South Africa only 5% in 2005–2007) • Export ban in place • Producers exempted from VAT and other local taxes • Local trade taxes to other agents in the value chain • Financing of 6 irrigation schemes specifically for rice producers (July 2007)	• Expenditure targeting cereals: 2% of agriculture-specific expenditure in: o Research training and extension o Strategic grain reserve
Milk	Average observed NRP: 28% Average adjusted NRP: 38% MDG: -8%	• Import tariff of 35% on fresh milk and milk powder • Very low marketing of milk production • Low efficiency of domestic dairies limiting prices that can be paid to farmers • Low quality of domestic compared with imported milk	• Exemption of stamp duty for livestock products (July 2008) • Tax exemption for aluminium and heat-insulated implements for milk storage and collection (July 2009) • Registration and Traceability Act (2010); establishment of the National Livestock Identification, Registration and Traceability System • Amendment of the VAT Act (CAP 148) exempting machines and equipment used for collection, transportation and processing of milk products from VAT (2010)	• Expenditure targeting livestock: 5.7% of agriculture-specific expenditure in: o Input subsidies (capital and on-farm services) o Research, training and extension o Inspection o Infrastructure o Marketing • Dairy individually targeted by 0.04% of agriculture-specific expenditure in research, extension and marketing
Exports	Average observed NRP: -1% Average adjusted NRP: -9% MDG: -8%		• Removal of requirement to mark “For export only” on exported excisable products (July 2007) • Government elimination of withholding tax on cash crops, based on Income Tax Act of 2004	• Expenditure targeting crops: 17% of agriculture-specific expenditure

Cotton	Average observed NRP: -28% Average adjusted NRP: -28% MDG: -0%	• Government and TCtB interventions in form of taxes and levies in the cotton market • Subsidies put in place in 2009, but disincentives higher • Low efficiency of ginning mills penalizing farmers with lower prices than if better technologies were available • Years of lower disincentives (2009, 2010) explained by reduced seed cotton production, increasing competition among ginneries	• Objectives of industry strategic plans: i) achieve international quality standards; and ii) double productivity and textile production • TCtB established by Cotton Industry Act No. 2 of 2001 (effective on 2004, amended in 2009) • TCtB price and input subsidy programme since 2008/09 • Government compensation to cotton and coffee buyers selling at a loss in 2008/09 • Market information accessible via Internet • Promotion of contract farming • 0% import tariff on cotton lint • 0–10% import tariff on cotton seed • 10–50% import tariff on textile products	• Expenditure targeting cotton and coffee: 0.01% of agriculture-specific expenditure in marketing • Cotton individually targeted by 0.26 percent of agriculture-specific expenditure in research, extension, training and subsidies on variable inputs • Transfer of TSh4 390/tonne of seed cotton to farmers for purchase of insecticides in 2009; TCtB paid price support transfer of TSh80 000/tonne of seed cotton in 2010
Coffee	Average observed NRP: -27% Average adjusted NRP: -34% MDG: -9%	• Farmers more penalized by functioning of the export value chain and export administration costs than by local taxation • District cess on farmers	• First specific action promoting the coffee industry, Tanzania Coffee Industry Development Strategy 2011–2016, aiming to: i) increase production; ii) improve quality; iii) improve the business environment; iv) increase farmer incomes and price premiums; and v) increase value addition throughout the coffee value chain • Abolishment of VAT exemption on locally grown processed tea and coffee (July 2009) • KILICAFE's financial services linkage • Introduction of WRS (2007) • Subsidies on agricultural inputs since 2004	• Expenditure targeting cotton and coffee: 0.01% of agriculture-specific expenditure in marketing • Coffee individually targeted by 1% of agriculture-specific expenditure in research, extension, training and marketing
Pulses	Average observed NRP: 17% Average adjusted NRP: 4% MDG: -11%	• Lack of storage forcing farmers to sell after harvest; production exported • High transport and marketing costs limiting market integration	• No specific policy for pulses in the URT	• Low expenditure in storage limiting capacity to benefit from domestic prices *vis à vis* export markets

Cashew nuts	Average observed NRP: -5% Average adjusted NRP: -14% MDG: -9%	• Export tax on raw cashew • Introduction of WRS in 2007 • Excessive port costs, district cess and margins along the value chain, reinforcing disincentives • Small return of export tax to the sector	• Export tax on raw cashew of 10% of FOB (15% in 2011), of which 35% to the Treasury; rest returns to the sector minus 5% for local authorities • Centralization of marketing in 2007 through primary societies and cooperative unions for export through auction • Local taxes of about 5% of farm-gate price	• Cashew individually targeted by 0.31% of agriculture-specific expenditure, mainly to the Naliendele Institute and CBT
Thinly traded **Maize**	Average observed NRP: -9% Average adjusted NRP: -10% MDG: -2%	• NFRA's release of subsidized maize • Excessive marketing costs along the value chain • Erratic trade policy • Lack of storage capacity	• Government more interested in keeping maize prices low than ensuring more remunerative prices for farmers (1) NFRA releases of food stocks at lower than market prices (July 2007; March 2008; July 2009) (2) More resources allocated to NFRA to regulate food crop prices (2009) (3) Maintenance food stocks for 6 months to 1 year to support market stability (August 2009) • Frequent trade measures to support food security; CET of 50% on imports from non-EAC countries; 0% for EAC countries. (1) Waiver of maize import duties (July 2007); zero import duty on maize until May 2008 (2) Intermittent bans on maize exports (2004, 2006, 2008, 2011); lifted (2006, 2007, 2010) • Local trade taxation • Introduction of Cereals and Other Produce Act, Cereals and Other Produce Board and Cereals and Other Produce Regulatory Authority, facing delays in becoming operative	• Expenditure targeting crops: 17% of agriculture-specific expenditure in: o Input subsidies (variable inputs, seeds and capital) o Research, training and extension o Storage/public stockholding o Marketing • Expenditure targeting maize and rice: 18% of agriculture-specific expenditure in subsidies to variable inputs • Expenditure targeting cereals: 2% of agriculture-specific expenditure in: o Research training and extension o Strategic grain reserve

Assessing the effects of major decisions and policy measures based on the results of the MAFAP analysis

This section assesses the coherence between public expenditure decisions and the measures implemented under policies, and their effects in terms of the price incentives and disincentives observed by the MAFAP project analysis. The aim is to identify situations where policies complement each other and those where they seem to contradict or compete with each other. Conflicting policies can result in inconsistent messages, which are difficult to understand and implement for operators, especially producers. MAFAP seeks to assess whether or not government declarations translate into real support for all or at least some producers by combining support prices and government spending in favour of producers.

However, it is not possible to cover all government objectives and to measure the performance of policies in all areas with the MAFAP methodology. For example, the methodology is not fit to assess policy coherence with objectives such as improved plant protection, animal health or seed quality; support to livestock through improved animal genetics and animal health; mobilization of water resources; or even job creation. This report therefore focuses on objectives for which the MAFAP approach and methodology can be used to assess performance and consistency in selected areas of agricultural and food policies.

As already mentioned, two main objectives seem to underlie the overall policy framework for the agriculture sector in the United Republic of Tanzania. In the food availability domain, it can be seen that – apart from in the rice and wheat sectors – the overall policy environment and, to a greater extent, the functioning of the value chains result in lower prices for farmers than could be expected in the absence of domestic policies and with better-performing value chains. Rice can be seen as a success story, with increased protection leading to higher production, making the URT a surplus country for rice production, but this result should be interpreted with care. First, most of the increased production is due to area rather than yield increases. Yields remain below the average for East Africa, and exports from the URT might no longer be competitive when international prices return to their pre-crisis levels. In the case of wheat, incentives have not resulted in increased yields or areas, suggesting that the URT may not be well suited to producing wheat. All the other commodities analysed show disincentives, which prevent farmers from obtaining higher prices for their output and limit their investments. This situation could promote food accessibility, by making domestic food prices lower than those prevailing in international markets, but most of the disincentives relate to classic export crops (coffee, cotton, cashew nuts), which are not part of the normal diet of Tanzanian citizens. At the wholesale level (i.e., the level closest to consumer purchases), most food security commodities apart from maize show positive price gaps, so the cost to consumers of the average diet is higher than it would be in the absence of policies and with better-performing markets.

To address these objectives more effectively, specific recommendations have been made for each commodity. In general these recommendations call for a move towards a less volatile trade policy, ideally by deciding whether or not import tariffs are needed and moving definitively away from export bans, while increasing investment in the infrastructure that facilitates market functioning (roads, storage, market information systems, etc.). Initiatives such as SAGCOT seem to point in this direction, and the drafting of ASDP II provides an excellent opportunity to align public investment

with the policy environment to deliver the expected growth of agricultural output, increased productivity and reduced hunger and poverty.

Such policies as export taxes on cashew nuts and tariffs on sugar are not benefiting farmers. Other tariffs are not fully transmitted to producers because of excessive access costs; even when explicit policies play a role in a commodity, access costs remain a major issue driving incentives and disincentives in the URT (Mugenyi, 2012). Regarding international trade, the URT is responsible for 50 of the 80 non-tariff barriers within the EAC (*Financial Times*, 2012). For example, in maize trade with its EAC partners, URT had custom clearance costs of US$10/tonne until 2012 (*The Citizen*, 2012).

The inefficiency of import procedures at the port of Dar es Salaam is well known, with scandals related to the Tanzania Ports Authority appearing regularly in the press. The result is that of all the ports evaluated by Gwilliam (2011), the costs at Dar es Salaam are significantly higher than the continental averages and close to the highest in the continent (Table 28). Tariff removals therefore lead to lower prices inside the country, but are not as effective as they could be in lowering prices because of the excessive costs of import procedures.

Table 28: Average port costs and charges in Africa, 2011 (US$ per unit)

Port	Container cargo handling charge per TEU	General cargo handling charge per tonne	Bulk dry handling charge per tonne	Bulk liquid handling charge per tonne
Dar es Salaam	275.0	13.5	4.5	3.5
Most expensive	340	17	8.0	4.0
Cheapest	67.5	5.5	1.4	0.4
Average				
Africa	191.7	9.9	4.3	1.9
Low-income fragile	210	10.1	4.9	3.3
Low-income non-	172.8	9.8	4.0	1.8

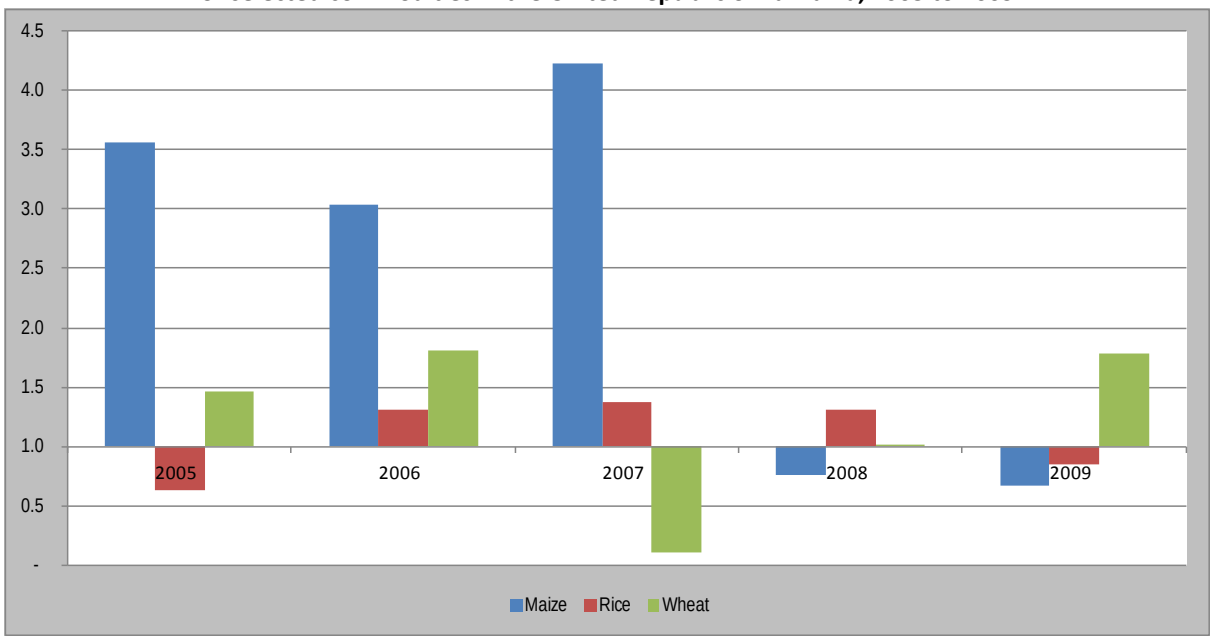
TEU = twenty-foot equivalent unit.

Source: Authors' elaboration using Gwilliam, 2011 data.

Regarding internal trade, several studies have noted the lack of market integration for staple crops (World Bank, 2009; Minot, 2010a; Asche, Gjølberg and Guttormsen, 2012). Analysis results (Figure 55) show that for non-processed crops in 11 out of 14 year-crop data pairs, access costs are lower than price differentials between markets,[30] leading to higher prices at the wholesale level and lower prices to farmers. There is therefore potential for further arbitrage, which is prevented by excessive costs from two main sources: transport costs, and cost of doing business. In addition, lack of storage capacity may create bias in analysis based on yearly data. The following paragraphs discuss each aspect of excessive access costs individually.

[30] Considering the price differentials between the wholesale level and the farmgate for maize, rice and wheat.

Figure 55: Ratios between access costs from the farmgate to the point of competition and price differentials for selected commodities in the United Republic of Tanzania, 2005 to 2009



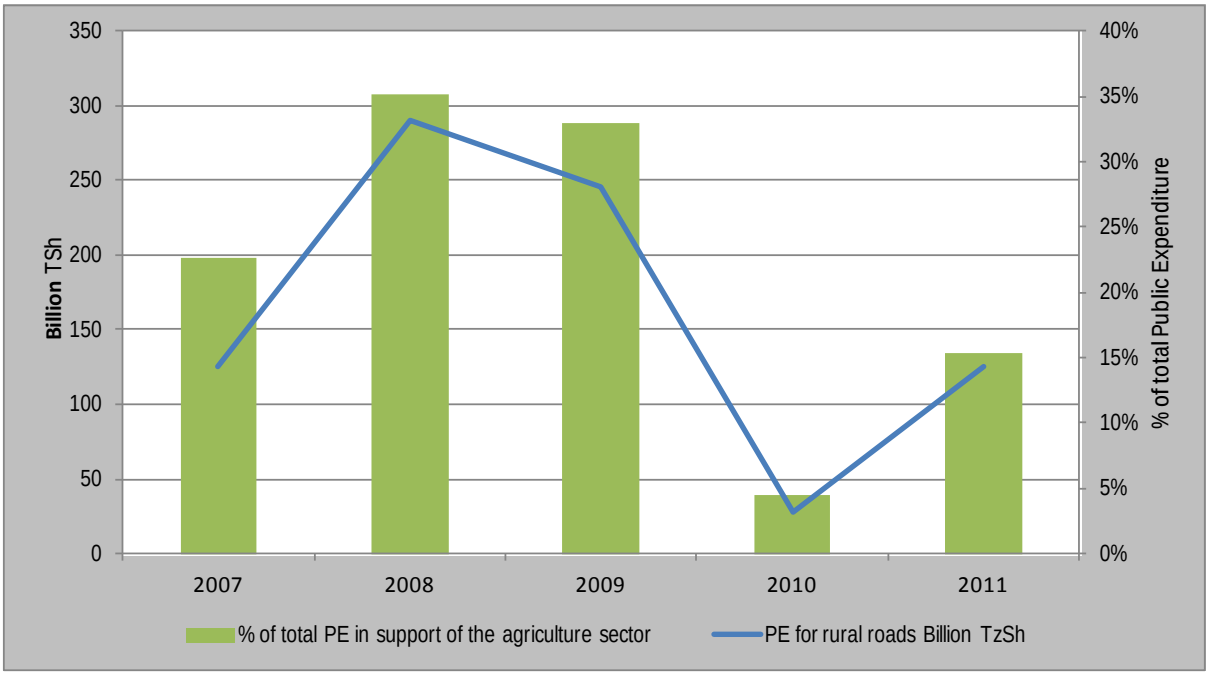
Source: Authors' elaboration using MAFAP technical notes for selected commodities in the URT.

For domestic transport, at least six different certificates are required of every commercial vehicle carrying goods in the URT, and almost all of these certificates require annual renewal from different offices, thus increasing transport costs and creating opportunities for corruption at roadblocks (Booz Allen Hamilton, 2010). However, although rent-seeking by licensing agents increases costs, the costs of delays are usually far more significant. Although transport costs remain high, logistics in the URT have improved relative to other countries, with the country ranking 88th out of 155 countries on the International Logistics Performance Index in 2012, up from 95th in 2010, making it fifth among the low-income countries, after Benin, Malawi, Madagascar and the Niger (Arvis et al, 2012). However, improvements seem to have slowed down since 2010 after a significant increase of performance from 2007 and 2010.

As shown by MAFAP development performance indicator 10 (DPI 10) (Table 1), less than 10 percent of the URT's total roads are paved, and nearly 80 percent of the rural population has inadequate access to road networks. Among countries in the region, only Rwanda and Uganda have fewer paved roads. In addition to poor road conditions, roadblocks and weighing stations constitute the most common cause of transport delays. As well as legitimate controls, trucks are often stopped by bribe-seeking police officers; transport professionals report that a truck can be stopped 10 to 15 times on the road from Dar es Salaam to Iringa, with the bribe requested at each stop ranging from US$2 to US$4. The Agricultural Council of Tanzania (ACT) argues that farmers are still forced to pay produce levies at roadblocks across the country before they can reach urban markets (*Daily News*, 2012).

While reinforcing rule of law in the transport sector remains a government priority, results of public expenditure analysis show a significant drop in investments in rural roads between 2007 and 2011 (Figure 56). Additional investments are needed in rural roads if market access is to become an effective business avenue for smallholders. The principles behind the SAGCOT initiative are well aligned with achieving this end, but general infrastructure for all areas of the country lags behind.

Figure 56: Public investments in rural roads in the United Republic of Tanzania, 2007 to 2011



PE = public expenditure.

Source: Authors' elaboration based on MAFAP public expenditure database for the URT.

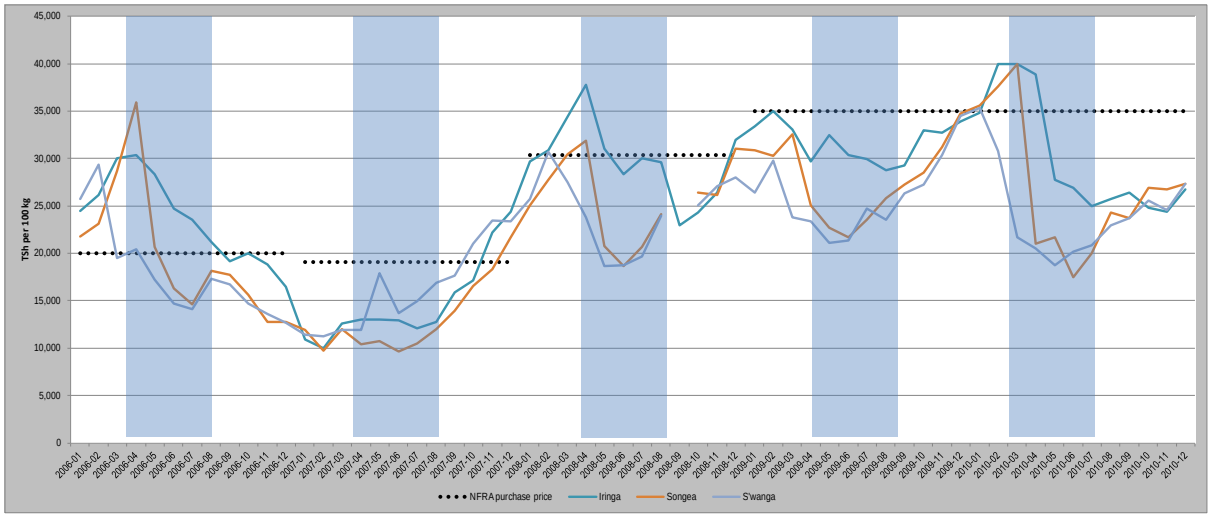
However, marketing costs are not related to transport and handling alone, but also to the ease of doing business. In this area, the URT ranks 113th out of 185 countries in the Doing Business Index for starting a business in 2013 (World Bank and International Finance Corporation, 2013). To start a business an entrepreneur needs to complete nine procedures, which require 26 days and cost an average of 28 percent of national per capita annual income. Some agricultural businesses also have to obtain additional permits and licences for specific activities. Primary agricultural businesses are exempt from general business licence requirements, but all agricultural businesses engaged in value addition, including trading, packaging and processing, must hold an annually renewable general business licence. Several institutions are involved in issuing these licences, so licensing procedures for agribusinesses are long, particularly because of weak capacities, poor coordination between central and local government authorities, and lack of awareness among applicants. For instance, district authorities may take up to three months to issue general business licences to local businesses; and businesses that require licences from LGAs must also be licensed at the central level, while the information collected from businesses by central authorities is not made available to LGAs. Although MAFC is committed to removing legal obstacles and streamlining administrative registration rules and approval procedures – particularly by developing performance charters for agencies administering business regulations – these intentions have yet to be put into practice (OECD, 2013).

The lack of adequate infrastructure, understood in a broad sense such as to include transport, storage, energy, communications and others, hinders private investment in agriculture and reduces the competitiveness of agricultural supply chains. Because of poor infrastructure development, the URT ranks 120th out of 144 countries in the 2012–2013 Global Competitiveness Report, against 104th out of 139 countries in the 2009–2010 report. Poor infrastructure is cited as one of the main factors behind declining performance, and the URT ranks 132nd out of 144 countries for infrastructure (World Economic Forum, 2012).

Last, the lack of storage facilities forces farmers and small traders to sell their produce close to harvest periods when prices are lower, preventing them from benefiting from higher prices later in the season. Even NFRA has limited storage capacities.[31]

NFRA is a semi-autonomous body reporting to the Permanent Secretary of MAFC and linked to the Department of Food Security. According to MAFC, NFRA has a dual mandate: i) ensuring that food is available for distribution to the vulnerable; and ii) intervening in the market (purchasing or selling) to stabilize prices. Regarding the first mandate, NFRA purchases grains, principally maize, in surplus areas for distribution during times of shortage. In response to Disaster Management Department directives, NFRA sells the grain for TSh 380/kg to the Prime Minister's Office and local authorities, which then release it to the market at subsidized prices. Regarding the stabilization of market prices, there seems to be some confusion about the roles of different agents in setting prices and quantities. The normal procedure envisages MAFC establishing the quantities to be purchased and NFRA fixing the annual floor prices, which are based on production costs (from MAFC statistics) plus a margin of 5 percent. In practice, the Minister announces the purchasing price for maize during his or her annual budget speech in August. This price is normally higher than the price that NFRA would calculate using the cost plus margin formula, and is often above the wholesale price in the areas where NFRA purchases, particularly during the harvest season (Figure 57). Since 2010, NRFA also sells maize to private millers at lower than domestic market prices (TSh 39 000 per 100 kg). These sales are mandated by MAFC and aim to reduce maize flour prices; most are made to small millers in Dar es Salaam. However, anecdotal evidence suggests that the releases have little if any impact on maize flour prices, and the system is to be revised to give regional commissioners the authority to approve the millers to which subsidized maize can be sold. The underlying rationale is that regional commissioners would licence only millers that sell maize flour at low prices.

Figure 57: NFRA purchase prices and wholesale prices in the main maize surplus areas in the United Republic of Tanzania, 2006 to 2010



Shaded areas represent harvest season in uni-modal production areas

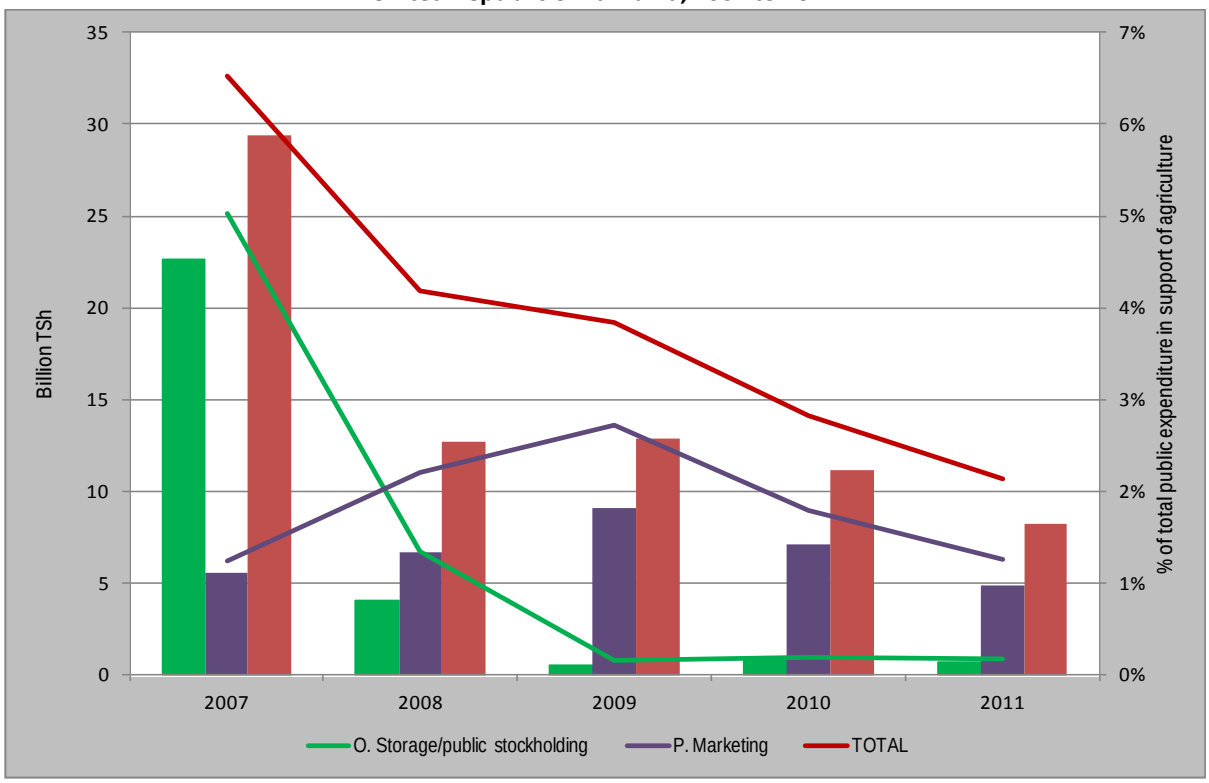
Sources: Budget speeches (several years) and MTI.

[31] According to OECD (2013), NFRA has evaluated the costs of building additional storage facilities. Analysis of public expenditure in future years will allow monitoring of whether or not these plans are being implemented.

Good logistics and transportation systems are critical to building efficient agricultural value chains, particularly because most products cannot easily be preserved in tropical climates. The URT's lack of storage facilities and poor road network generate considerable losses for both producers and traders, resulting in low returns and reducing the competitiveness of agricultural supply chains. Most agricultural goods are currently stored at markets in baskets or bags on the ground. They may therefore deteriorate before being sold on to retailers and final customers, thus hindering traders' time arbitrage. Overall, post-harvest losses are estimated at 35 percent (Booth Allen Hamilton, 2010): 13 percent for rice, 26 percent for cassava, 42 percent for tomatoes, and 50 percent for fruits/vegetables (OECD, 2013).

Public expenditure analysis also shows that marketing and storage facilities are not receiving sufficient funds. As shown in Figure 58, support for these two key aspects – which include processing facilities – declined during the study period. However, most of this apparent decline results from the lack of information on distribution of the NFRA budget across different activities, which leads to NFRA expenditure being classified as "others" in the MAFAP database. When the expenditure of NFRA is counted as being related to storage,[32] expenditure on marketing and storage remains more or less constant, albeit at very low levels.

Figure 58: Trends in public expenditure in support of storage and public stockholding and marketing in the United Republic of Tanzania, 2007 to 2011



Source: Authors' elaboration based on MAFAP public expenditure database for the URT.

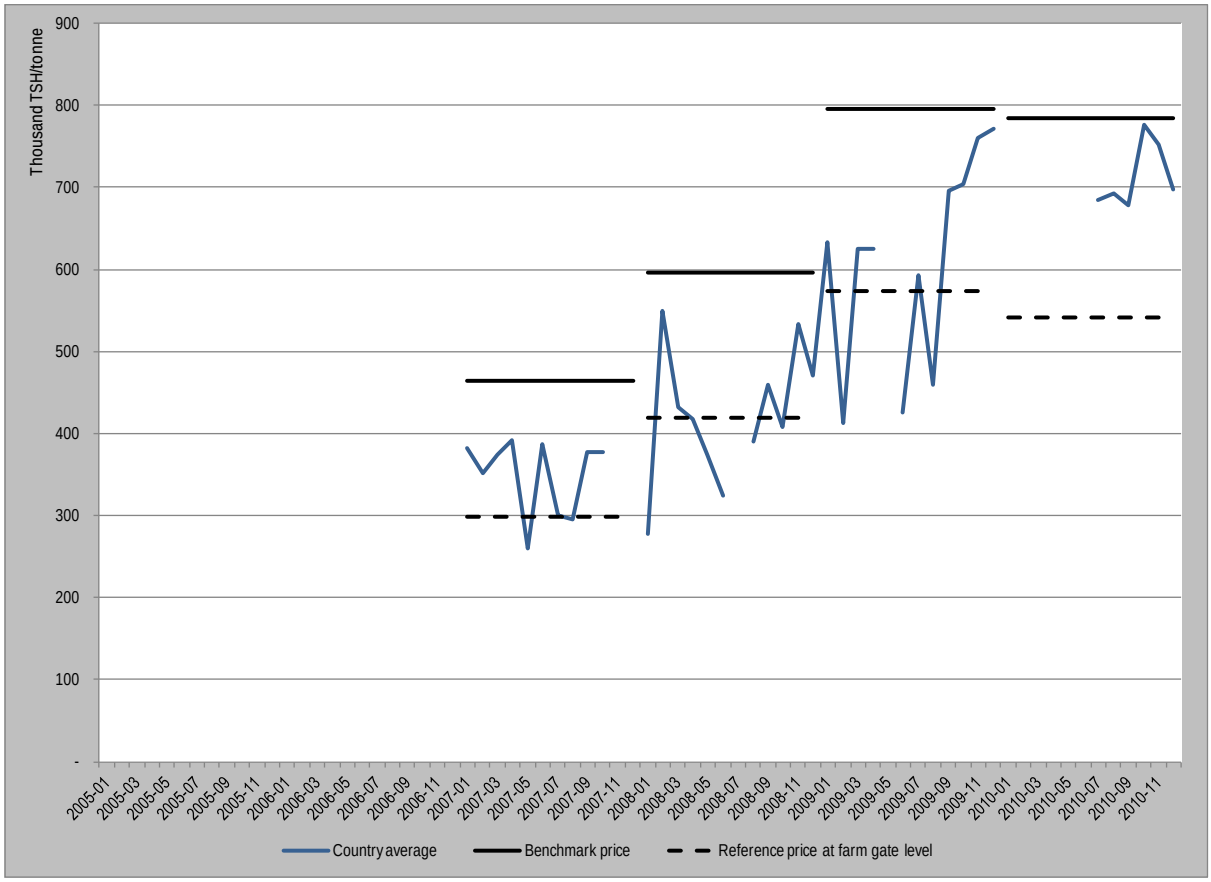
The government has pursued several initiatives to improve transportation systems. The integrated road project aims to open up transport networks, particularly rural roads in key agricultural areas.

[32] The expenditures of the Strategic Gran Reserve (NFRA's predecessor) were classified as "storage/public stockholding".

The Marketing Infrastructure Value Addition and Rural Finance Programme, funded from a US$64 million loan approved by the concessional window of the African Development Bank (ADB), will be coordinated by the Prime Minister's Office from 2012/13, and targets 500 000 poor households. It aims to improve rural market infrastructure based on a comprehensive needs assessment and the use of public–private partnerships; and to encourage value addition and enhance smallholders' access to finance by increasing the outreach of formal and informal financial institutions and improving the legal and policy framework for rural microfinance.

Analysis results emphasize the importance of storage and marketing in functioning of the value chain, the incentives and disincentives faced by farmers, and the increased prices that consumers have to pay for food. The lack of storage facilities gives seasonality an increased impact on prices, as can clearly be seen when analysing the pulses sector. Figure 59 shows the annual average export price (FOB value) for peas, the reference price for peas at the farmgate level and the farmgate price received by farmers, approximated from wholesale prices. The pattern of price relationships shows that during the harvest period domestic prices fall below the reference price – i.e., farmers face disincentives as they are getting lower prices than they could get with better-performing marketing systems – and outside the harvest period prices are higher. Outside the harvest period, very few farmers can sell peas, as they cannot store them, so the domestic price reflects the cost of purchasing peas for consumers. MAFAP indicators are calculated as yearly averages; as no data on volumes per month are available for calculating weighted averages, the analysis results show incentives for farmers. However, in the pea market in the URT, farmers face disincentives during net selling periods, while during net buying periods, food prices are higher than they would be if marketing and storage were more developed.

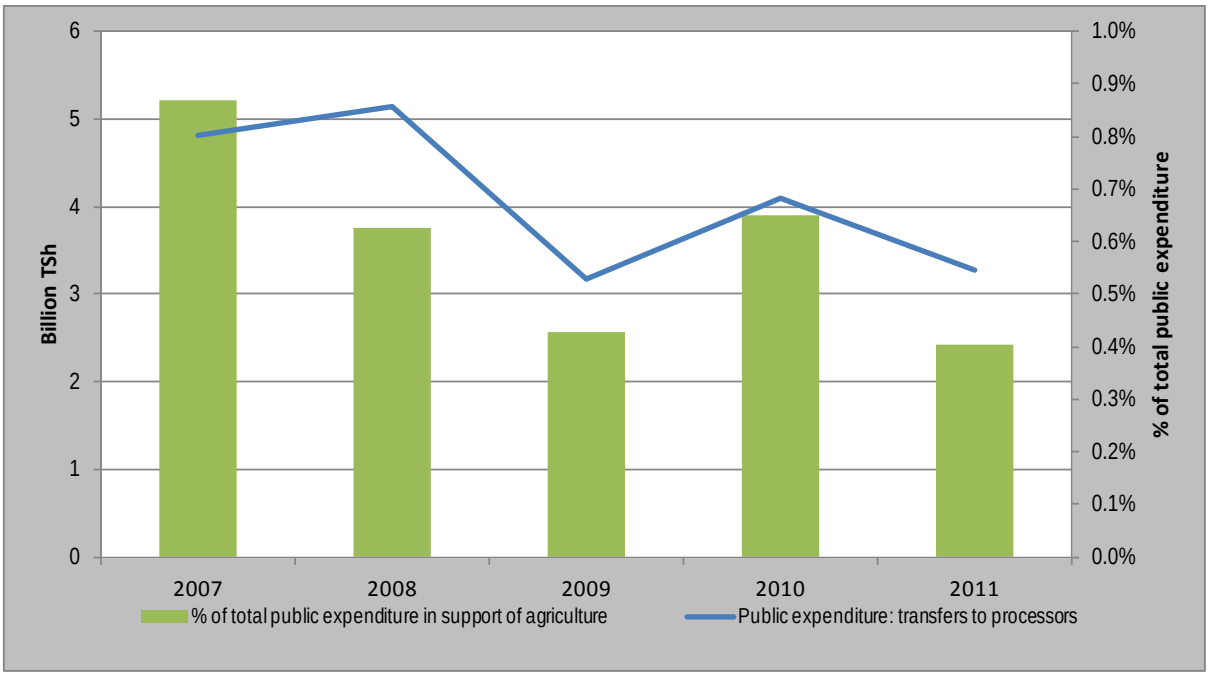
Figure 59: Price comparison for peas in the United Republic of Tanzania, 2005 to 2011



Sources: UNcomtrade for FOB prices; IMF for exchange rates; MTI for domestic prices; and MAFAP for reference prices.

For the two main processed commodities analysed (cotton and sugar), the processing industry faces very high costs related to old and inefficient capital stock. The same occurs with cashew nuts, where the export tax on raw nut exports does not seem to foster investments in processing plants and the plants in place cannot function at full capacity; and with milk processing, for which costs are much higher than in neighbouring countries. While the SAGCOT initiative is an excellent example of promoting investments in the agriculture sector to increase processing and productivity, the analysis of public expenditure shows that investments in enhancing processing have been very limited (less than 1 percent of total public expenditure) and are decreasing in time, with a 16 percent decrease from 2007/09 to 2010/11 (Figure 60).

Figure 60: Trends in public expenditure as transfers to processors in the United Republic of Tanzania, 2007 to 2011



Source: Authors' elaboration based on MAFAP public expenditure database for the URT.

Conclusion on policy coherence

As discussed in the previous section, the analysis results show a contradictory situation regarding policy objectives and the actual impacts of policy measures and market performance. With regards to trade policy, contradictory actions (i.e., tariffs versus waivers) generate uncertainty for producers and tax export-oriented commodities. Moreover, market performance and processing of capital stock prevent farmers from benefiting as much as they could from food prices. Public expenditure does not seem to focus on the areas that the analysis identifies as the most crucial in generating disincentives (i.e., marketing, storage, processing), although the Government of the United Republic of Tanzania seems to have taken policy measures to reduce investment and access costs. The abandonment of export bans, the move towards eliminating district taxation for agricultural products, and the concept behind SAGCOT are all measures that will reduce the level of disincentives to farmers.

If these measures continue and are implemented as planned, the results in years to come should show lower disincentives for farmers and better policy coherence. The URT has a unique occasion to improve its agricultural policies with support from development partners. In the future, MAFAP should be able to provide evidence of how the URT has taken advantage of this opportunity.

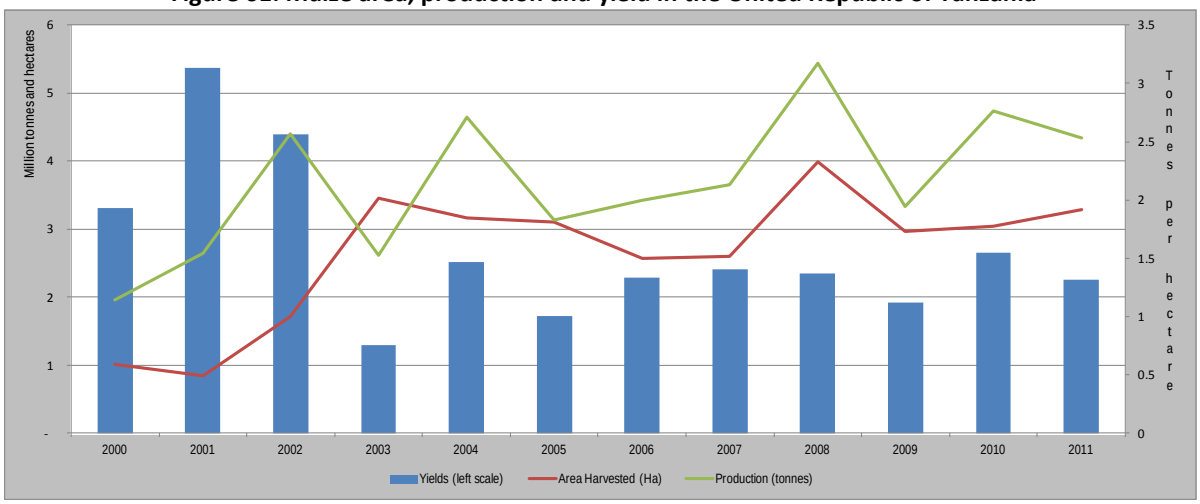
Part 3. A REVIEW OF THE IMPACT OF THE MAIZE EXPORT BAN IN THE UNITED REPUBLIC OF TANZANIA

This review provides an in-depth study of the impact of the maize export ban on farmers' production incentives and disincentives. Building on the results reported in the maize technical note (Barreiro-Hurle, 2012), this section is structured as follows. First, it provides a summary snapshot of the importance of maize in the agricultural sector of the United Republic of Tanzania (URT). Second, it reviews the different studies that have dealt with market integration in East Africa and in the URT to identify how maize markets function. Third, it provides a structured analysis of the findings of existing analysis focusing on the maize export ban for the URT, and, finally, it provides additional evidence of the impact of the export ban based on price comparisons. The results further support the new move of the Government of the United Republic of Tanzania to abandon export restrictive measures officially (EFEEDLINK, 2012; Daily News, 2012a), and highlight the importance of providing policy stability in this area as contradictory messages still remain (The Citizen, 2011; Daily News, 2012b).

Maize in the United Republic of Tanzania

Maize was the fifth largest agricultural commodity in the URT by value of production during the period 2005–2011, accounting for 7.5 percent of total production value. Moreover, it represents close to 5 percent of total value of agricultural imports in the URT for the same period and is the main source of dietary energy accounting for 25 percent of total caloric intake (FAOSTAT, 2010). Though not as high in value terms compared with other commodities, maize is considered the most important food crop, generating close to 50 percent of rural income, an average of USD 100 per maize-producing household in 2008 (USAID, 2010), and is grown by more than 50 percent of Tanzanian farmers. In the past two decades, the URT has ranked among the top 25 maize- producing countries in the world, dropping out of the list only three times, in 1986, 1997 and 2003. Production has reportedly increased from 2 million tonnes in 2000 to over 4 million tonnes in 2011, with yields moving towards 1.5 tonnes per hectare (Figure 61). However, these data are currently put into doubt (Stryker, 2012). Using projections based on household consumption figures, the estimated production of maize in the URT could be closer to 6 million tonnes, and consistently above 5 million tonnes since the start of this century.

Figure 61: Maize area, production and yield in the United Republic of Tanzania



Source: FAOSTAT.

Maize is produced throughout most the country (in all 21 mainland regions), covering 26 percent of arable land in the URT (2005–2010). Maize is grown on about 41 percent of the cultivated land during the *masika* (main) season and 47 percent of the cultivated land during the *vuli* (second) season. The *vuli* season (October–December) contributes approximately 15 percent of the total annual maize production, with Mara, Arusha, Kilimanjaro, Tanga, Morogoro, Mbeya, Coast, Kagera, Kigoma and Mwanza regions having two agricultural seasons per year (*vuli* and *masika* seasons). The remaining maize production is from the unimodal and bimodal *masika* long, rainy seasons.

Maize market efficiency increased in the 1990s following the trade liberalization reforms in the country, which began in the 1980s. Thus, maize producers benefited significantly with the sharp increase of the maize produce price. Transportation costs (TCs) [33] in the URT exceed those in other East African Community (EAC) partners. TCs average USD 6.4 per tonne from farmgate to primary markets, USD 27 per tonne from primary markets to secondary markets, and USD 41.51 per tonne from secondary markets to wholesale markets. They accounted for 60 percent, 78.7 percent and 91 percent of the costs of the first, second and third stages of marketing, respectively (World Bank, 2009). TCs for farmers increase owing to the informal fees farmers pay to avoid delays, overload charges and other problems. On average, Tanzanian farmers pay ten informal fees per year in the full maize supply-chain process, more than the Kenyan (eight bribes) and Ugandan (four bribes) farmers. An average of seven bribes from Tanzanian farmers occurs at roadblocks and three at weighbridges (World Bank, 2009). Nationwide, local taxes on maize commercialization account for around 4.3 percent of marketing costs. However, this percentage varies as each locality has its own tax rate.

Most of the maize produced by rural households is for subsistence use, although the marketed share seems to be increasing since the liberalization of markets. For instance, in the early 1990s it was estimated that 25 percent of the maize produced was traded. This reflects an increase of 5 percentage points from the 1983/84 estimate of 20 percent. Current estimates put the percentage of

[33] Transportation costs (TCs) account for most of the commercialization cost in the supply chain because most maize farmers do not own their transportation vehicles but rent them (70 percent of small-scale farmers, 100 percent of medium-scale farmers and 67 percent of large-scale farmers) (World Bank, 2009).

marketed share at 40 percent (MAFC, 2010). Three main agents act in the value chain and purchase maize from farmers: private traders, the Cereals Board (created in 2009) and the National Food Reserve Agency (NFRA), formerly known as the Strategic Grain Reserve (SGN). Taking into account the marketed and production volumes and the data available for purchases from NFRA and the Cereals Board, the role of public interventions in the market has remained below 10 percent of apparent marketed consumption.

The maize marketing system is characterized by a very large number of small traders operating both from the main centres of production and from the major urban areas. Produce from the farm is taken to primary markets (i.e. big markets in producing areas) directly by farmers, or by intermediaries who purchase the maize at the farm. Marketing channels are characterized by lengthy brokerage services dominating at village, district and national urban markets (Match Maker Associated, 2010). The market margins are generally quite high, suggesting inefficiencies in supply chains. Prices vary greatly between seasons (during harvesting and periods of scarcity). In addition, post-harvest losses are quite significant and productivity levels are low.

In the United Republic of Tanzania, there is an important role to be played by storage facilities to stabilize prices in the harvesting season and to allow farmers to store maize when supply is high, thus preventing sharp falls in prices during the seasons of plenty. According to Nazir *et al*. (2010), by the end of 2008 only 50 percent of small-scale maize farms used storage facilities, while 100 percent of large-scale farms did so. Storage costs are counted as costs of commercialization and are assumed to be the same for both small- and large-holder farmers. Storage costs account for 7.5 percent of the total marketing costs during the initial farmgate to primary market stage, 3.4 percent during the primary to secondary market stage, and 0.2 percent during the secondary to wholesale market stage. Because of the low investment in storage facilities, post-harvest storage losses account for USD 19.9 and USD 10.8 per tonne for small- and large-holder farmers, respectively. These values constitute 44.2 percent and 24 percent of the costs associated with the farmgate-primary and the primary-secondary marketing costs, respectively.

In addition to the export restrictions, which will be discussed at length below, three main policy measures affect maize markets in the URT: import tariffs, food security policy and input subsidies. As far as trade policy is concerned, the URT applies the East African Community Common External Tariff (EACCET) of 50 percent to maize imports and 0 percent for EAC member countries. Maize imports originate mainly from outside the EAC; thus, it is expected that in years when the URT is a net importer, this policy would generate price incentives. In July 2003, the Government passed a bill enabling protective measure to prevent imports of so-called cheap substandard products. This can be considered a de facto import ban, which was removed in 2008. However, trade measures in the country seem to be very unstable as during the high food prices crisis, the URT suspended the import tariff for maize from July 2007 to May 2008 and again in November 2008.

Regarding food security, the NFRA is mandated to intervene directly in the maize market. The NFRA is a semi-autonomous body that reports to the Permanent Secretary of the Ministry of Agriculture Food Security and Cooperatives (MAFC) and is linked to the Department of Food Security. According to the MAFC, it has a dual mandate: i) assuring that there is food available to be distributed to the vulnerable; and ii) intervening in the market (purchasing or selling) to stabilize prices. Regarding the first mandate, the NFRA purchases grains, principally maize, in surplus areas for distribution during

times of shortage. In response to the Disaster Management Department directives, the NFRA sells grain to beneficiaries at subsidized prices. Through these interventions, the Tanzanian Government seeks to stabilize food supply. The recipients are identified by local authorities (village executive officers), who decide if a household can pay for the food or receive it free. The NFRA aims to procure and store emergency food stock of up to 150 000 tonnes, which should suffice in addressing a food disaster for a three-month period, regarded as enough time to order and secure food imports from abroad.

A major policy affecting maize production is the fertilizer subsidy (Mbwele and Pius, 2010). The subsidy was introduced in 2003 just for the Southern Highlands region, and then extended to the entire country in 2004. In 2008, the programme was transformed into a smart subsidy using vouchers for targeting eligible beneficiaries under the name of NAIVS (National Agricultural Input Voucher Scheme), which subsidized 50 percent of the fertilizer and seed costs to selected farmers in 11 regions, expanding to 20 regions in 2009. The NAIVS programme represents a quantitative leap in the amount of resources devoted to this policy measure, representing the single most important area of the MAFC budget allocation (MAFC, 2010). According to the Monitoring African Food and Agricultural Policies (MAFAP) analysis on public expenditure, subsidies to variable inputs accounted for 33 percent of total public expenditure directed to the agricultural sector during the 2006–2010 period, reaching a peak of 46 percent in 2009 (Ilicic-Komorwoska, Maro and Pascal, 2012).

Finally, as regards market regulations, traders wishing to embark on regulated international trade for maize need to obtain import and export permits from the Department of Food Security at MAFC and the Ministry of Industry and Trade; and phytosanitary certificates and customs documentation involving at least four ministries (MAFC, Ministry of Industry and Trade, Ministry of East African Cooperation and Ministry of Finance). Even though the official position regarding these procedures is that they take no time and are granted in an automatic manner, Christensen and Cochrane (2012) report that they still prevent major traders from engaging in maize-related activities.

Maize market integration in the United Republic of Tanzania[34]

The United Republic of Tanzania is a large country with low levels of infrastructure stock; thus, the law of one price for agricultural markets cannot be taken for granted. The issue of market integration has been extensively studied both within the URT, between the URT and global markets, and between the EAC member countries.

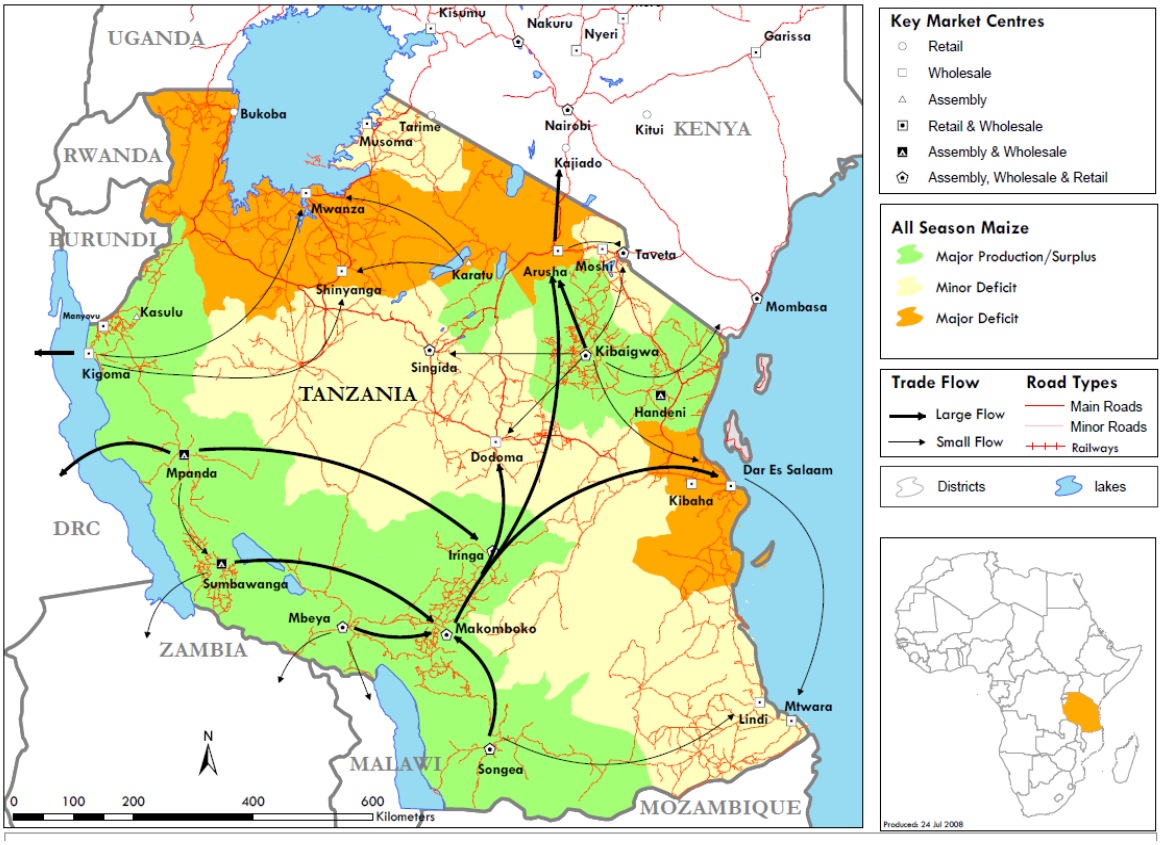
Internal market integration in the United Republic of Tanzania.

Maize trade within the URT follows three main routes (Figure 62). With regard to the internal movement of maize , surplus from the production area in the Southern Highlands is assembled in

[34] In this section, market integration and price transmission are used as equivalents; however, as Barret and Li (2002) point out, market integration refers to tradability of products between spatially distinct markets irrespective of the existence or absence of spatial equilibrium, and price transmission identifies competitive market equilibrium irrespective of whether physical trade flows exist between markets.

Makambako-Iringa and then shipped either to Dar es Salaam or to Kenya. Smaller amounts flow from the western part of the country towards the lake area. The other two main routes relate to international trade. The main destination of maize exports from the URT is Kenya. When price differentials are high, maize from the Southern Highlands flows via Arusha towards Kenya; when these differentials are smaller, production from the Manyara area is exported to Kenya. During peak deficit periods in Kenya, transit of maize through the URT-Kenya border can reach 1 000 tonnes per day (Mashindano, Bamwenda and Hangi, 2012). Smaller amounts flow to the Democratic Republic of the Congo (DRC), Burundi and Rwanda from Kigoma and towards Malawi and Zambia from the Southern Highlands.

Figure 62: Production and market flows of maize in the United Republic of Tanzania.



Source: www.fews.net

Regarding price transmission studies focusing on maize market integration within the URT, Van Campenhout (2007) found that during the 1990s the level of market integration improved significantly. However, there was an increase of spatial price dispersion in the early 2000s (Sarris and Mantzou, 2005). The World Bank (2009) reports that maize markets in the URT are the least integrated in the EAC. The deficit areas of Dar es Salaam and Arusha[35] have similar price levels and move together, while the surplus areas have lower prices and have a looser relationship. The integration between production areas is only moderate, or weak, with very slow price transmission, implying that it takes many months for price signals in one market to be incorporated into prices in other markets. The strongest rate of price adjustment within the URT is found to be lower than the

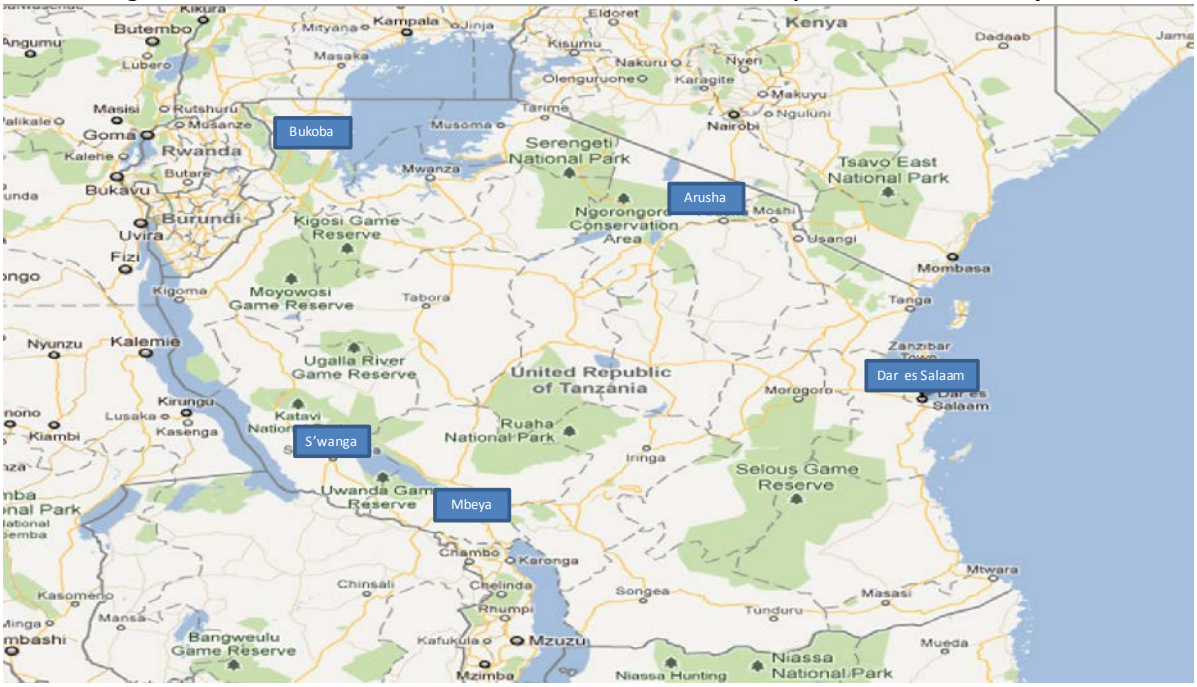
[35] Arusha is considered a deficit area because of the impact of demand from Kenya.

weakest for Kenya. Notwithstanding this increased price dispersion, the five most important maize markets in the URT share a long-run equilibrium; however, short-term disruptions allow for long periods of time where the markets are not in equilibrium (Ilhe and von Cramon-Taubadel, 2010). Ilhe, von Cramon-Taubadel and Zorya (2011) also report that not only price transmission within the URT is much lower than within markets in Uganda or Kenya, but that also domestic market integration in the URT is lower than that between markets in Uganda and Kenya (i.e. with a border crossing). This is mostly because the main producing areas are physically isolated from the main consumption areas owing to poor transport infrastructure. For stocks of maize to move from Mbeya to Arusha, for example, trucks have to pass through Morogoro and Chalinze route, some 400 km more compared with the ideal route between Iringa, Dodoma and Babati.

Overall, market integration studies show that the URT still lacks a single maize market, and even in traditional surplus areas such as Iringa there are low levels of market participation and sales are low in frequency and high in volume, thus missing opportunities for better prices (Mkenda and Van Campenhout, 2011).

This lack of domestic market integration is reflected in the trends of domestic maize prices in the country between 2006 and 2012. To illustrate this, the evolution of maize prices in five main markets in the URT was plotted. Dar es Salaam is selected as the main consumption area, Arusha as the market where competition with demand for imports from Kenya is most prominent, Mbeya and Sumbawanga as the main producing areas in the Southern Highlands, and Bukoba as the closest market for exports to Burundi and Rwanda (Figure 63).

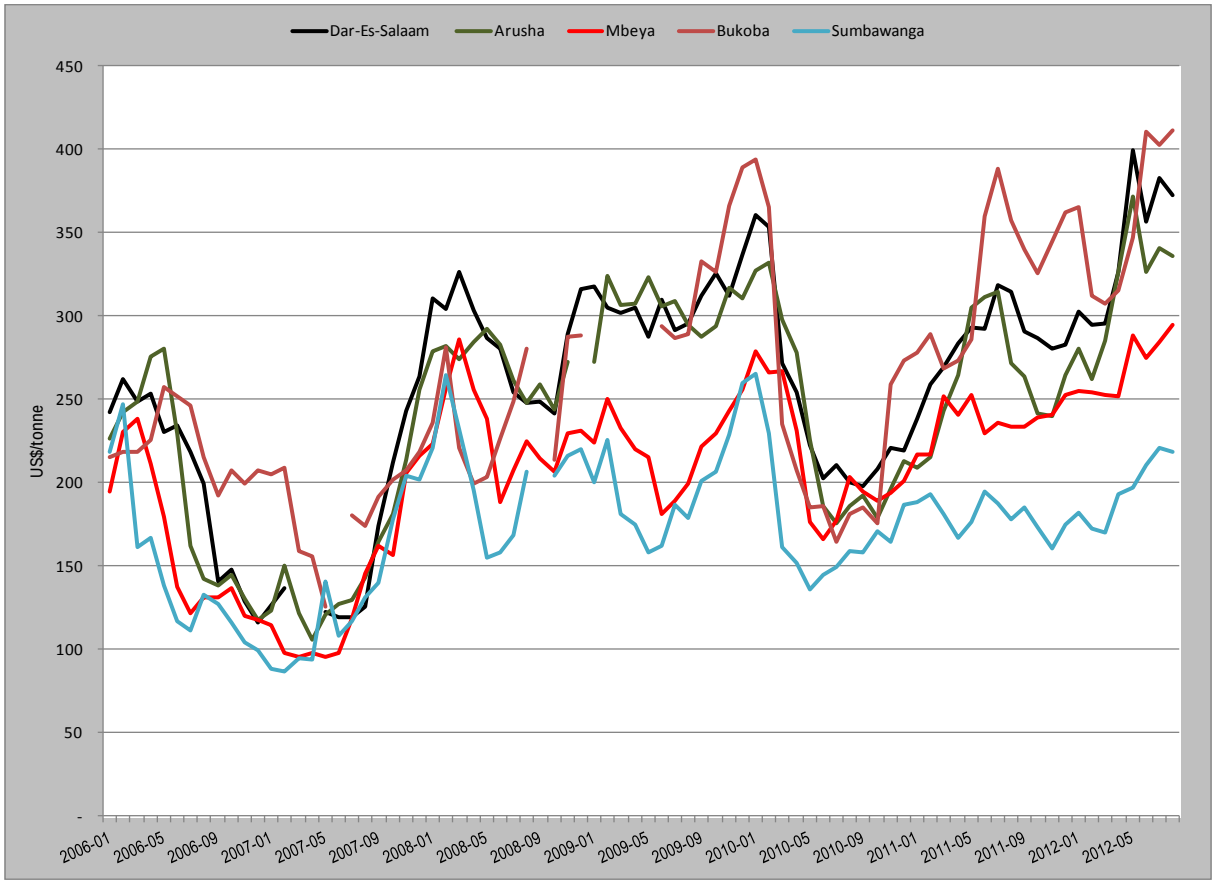
Figure 63: Location of the wholesale markets for which maize prices have been analysed



Source: Authors' elaboration

Figure 64 shows the trends of maize prices for the five markets. The prices in the two main producing areas (Mbeya and Sumbawanga) seem to be closely correlated; the same holds for Arusha and Dar es Salaam, with Bukoba following a more independent path. However, this simple inspection of price trends also supports discarding the notion of a single national market for maize in the URT.

Figure 64: Maize prices in five selected wholesale markets in the United Republic of Tanzania, 2006-2012



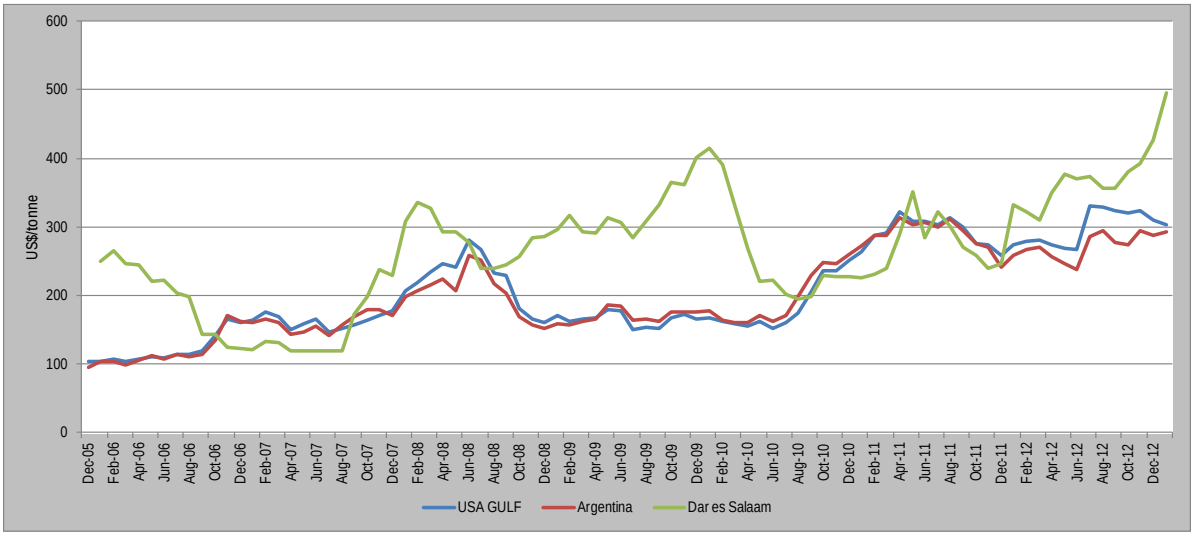
Source: Authors' elaboration using MTI data.

Market integration between the world and the United Republic of Tanzania.

Integration of maize markets in the URT with world markets is limited. Minot (2010a) finds that out of eight markets analysed only Arusha seems to have a long-term relationship with world markets, a relationship that is caused mainly by the integration of Arusha with Kenyan markets, which are in turn integrated with international markets. Sarris and Mantzou (2005) also conclude that there seemed to be no evidence of a co-integration relationship between any domestic price in the URT and any international price.

Figure 65 compares the monthly maize prices in Dar es Salaam and the two main international export prices (Argentina and the United States of America) using data reported in FAO's Global Information and Early Warning System on Food and Agriculture (GIEWS). As shown, prices in Dar es Salaam follow trends that are mostly unrelated to the prices in major exporting areas. This is particularly so during the period between 2008 and 2010 and from 2011 onwards.

Figure 65: Maize prices in selected international markets and Dar es Salaam, 2005–2012

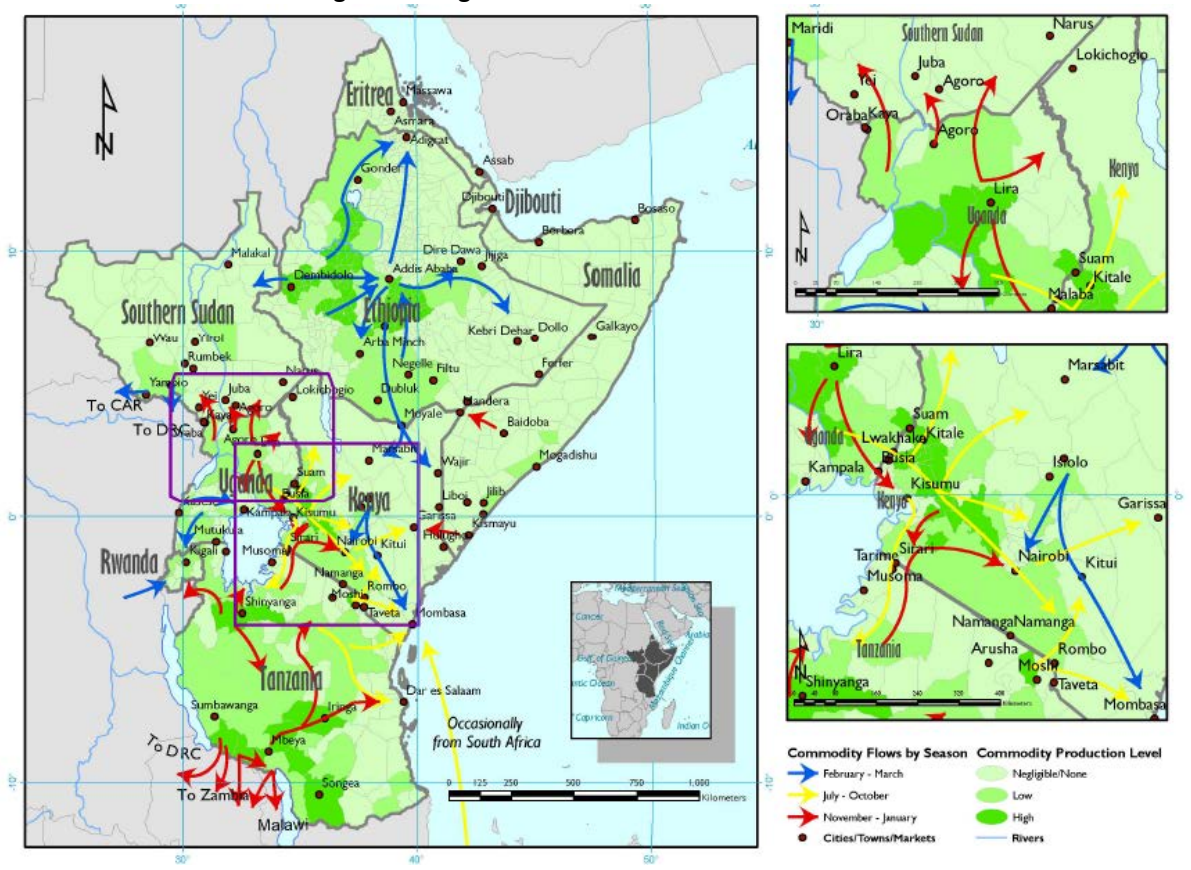


Source: USDA for USA Gulf, IGC for Argentina and RATIN for Dar es Salaam as reported by FAO GIEWS.

Regional market integration in the East African Community.

Maize is the most widely traded commodity in East Africa. As depicted in Figure 66, Kenya is the main importer of maize in the region, attracting production from Uganda and the URT. In fact, deficit markets in Kenya act as the main driving force for surplus production in neighbouring countries (World Bank, 2009). In addition, Uganda also exports a share of its surplus towards South Sudan.

Figure 66: Regional markets for maize in East Africa



Source: www.fews.net

Notwithstanding the importance of the maize trade, market integration remains weak. The World Bank (2009) also highlights the existence of long-run equilibrium relationships for maize markets between Kenya and the URT; however, once that a shock disrupts the long-run equilibrium is broken, the adjustment pace for the URT is much weaker than that of Kenya. The effect of a border between two EAC countries in reducing long-term elasticities of maize more than doubles when the border involves the URT. Basically, the effect of trading across the border of the URT has the same effect as increasing the distance between markets inside the country by 420 km.

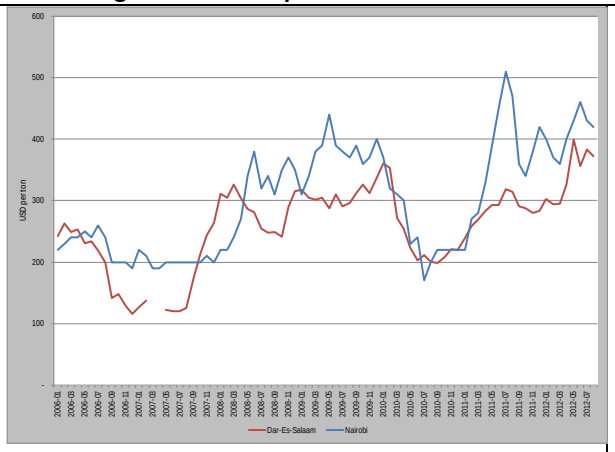
These same results are corroborated by Ilhe, von Cramon-Taubadel and Zorya (2011). In their model, they consider that market integration is affected by transaction costs (i.e. MAFAP market access costs); the quality of infrastructure, trade-related institutions and policies; and the costs of border crossing. These are approximated by distance, country specific dummies and border-crossing dummies. When regressing market integration against these variables, they conclude that even when distance plays a significant role in price transmission (i.e. the longer the distance between markets, the lower the price transmission), crossing borders also has an impact on market integration. A general border impact is identified; however, not all borders play the same role in restricting price transmission. The border between Kenya and the URT significantly reduces market integration, while the border between Kenya and Uganda has no effect. No test is done for the border between Uganda and the URT; however, the fact that the URT still charges USD 10 per tonne of maize (USD 200 per truck) as a fee when crossing the border between both countries (The Citizen, 2012) would seem to weaken market integration here also.

Less attention has been paid to integration with other neighbouring countries, such as Burundi, the Democratic Republic of the Congo, Malawi, Mozambique, Rwanda or Zambia. However, worse infrastructure in route to those countries would suggest that the border effect of the URT also prevents higher degrees of integration.

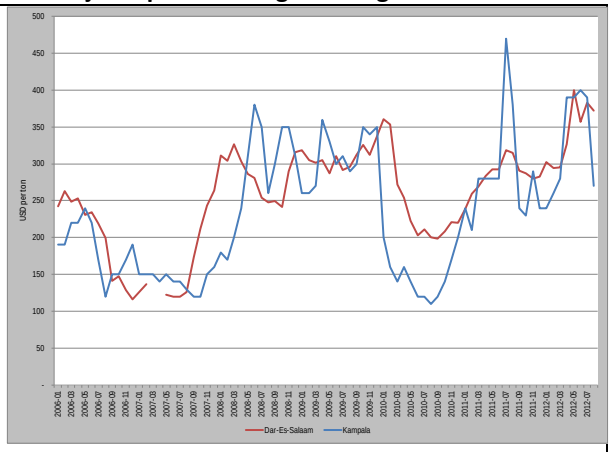
Plotting the monthly prices of maize in Dar es Salaam versus the main markets in the neighbouring countries (Figure 67) shows that market integration, at best, happens during specific periods of time. For example, with Nairobi, correlation seems to break at 2008, resumes in 2010 and breaks again in 2011. The same appears to happen, even when they are not the exact same periods, with Kigali, Lilongwe and Zambia. Prices in Dar es Salaam and Kampala look much more correlated. However, the period of high maize prices seems to last longer in Dar es Salaam than in Kampala. Lastly, Bujumbura and Dar es Salaam seem to be the least correlated markets in this analysis.

In conclusion, maize markets in the URT do not seem to be integrated within the country, nor integrated with its neighbours and international markets. The lack of integration has been associated with high transaction costs inside the country (Kweka, 2006), while the lack of integration with neighbouring countries is related with high non-tariff barriers and erratic trade policy (Cadot and Gourdon, 2012). Against this background, how the maize export trade ban has affected maize farmers and consumers in the URT will be assessed.

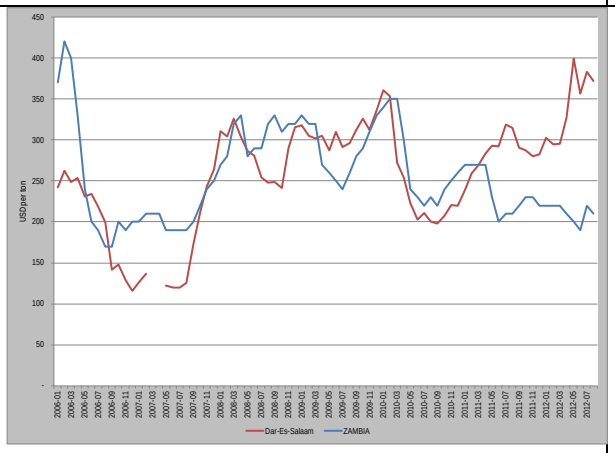
Figure 67: Maize prices trends in Dar es Salaam and major capitals of neighbouring countries



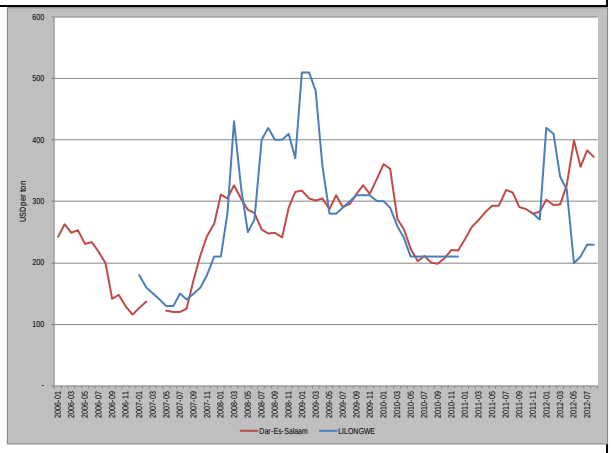
Dar es Salaam versus Nairobi



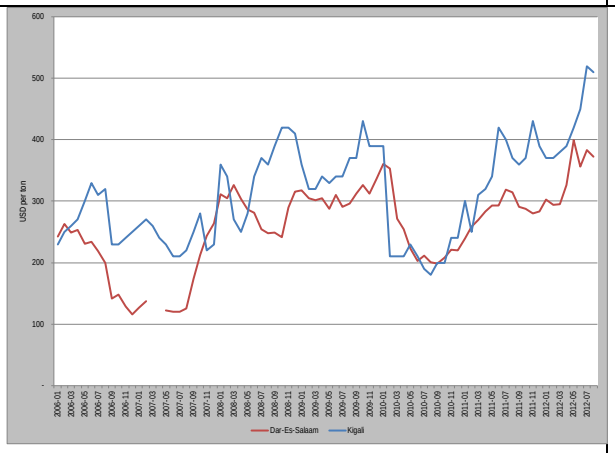
Dar es Salaam versus Kampala



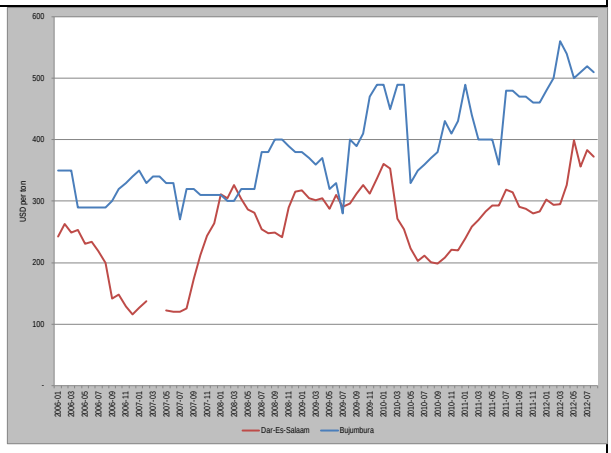
Dar es Salaam versus Zambia (national average)



Dar es Salaam versus Lilongwe



Dar es Salaam versus Kigali



Dar es Salaam versus Bujumbura

Source: Authors' elaboration using MTI and FAO GIEWS price data.

Impacts of the export ban: a review of the literature

The United Republic of Tanzania has resorted to trade restrictive measures with respect to maize; this makes the URT the only country in East Africa that formally restricts trade (World Bank, 2009). Export bans are called when production falls or when prices are high in order to assure food security in the country. Different arguments have been given in favour of the export ban, including food security (to prevent food leaving the country when there are shortages in some areas) and price stabilization. The latter refers to the practice of imposing a ban before harvests to prevent farmers from selling their crops at very low prices due to the lack of information on destination prices. Bans are lifted after harvests when farmers can obtain higher prices knowing the market conditions in Dar es Salaam or in other countries. The bluntest statement supporting the export ban is that maize cannot be flowing towards neighbouring countries while areas in the URT are facing food shortages. The export ban also affects movement of maize within the country, as traders have to demonstrate that maize being transported is not intended for export. Therefore, the export ban is expected to:

i) increase food availability in the country, most importantly in food-deficit areas;
ii) limit price hikes; and
iii) reduce volatility.

In turn, lower output prices result in lower incentives to farmers to produce greater output, which in the long run also hurts net maize buyers, as maize output is kept below its potential (World Bank, 2009). The export ban has been part of the history of the URT during the last decade. Table 29 shows that in the past eight years the ban has been enacted and lifted at least ten times. This is an example of policy volatility; it has also generated a situation whereby there is no certainty to agents in the value chain regarding whether the ban is in place or not. As Stryker (2012) notes, the ban sometimes excludes some regions and sometimes does not. Moreover, delays in transmitting the implementing orders to border posts and agencies involved in trade control means that official announcements do not immediately liberalize or restrict trade.

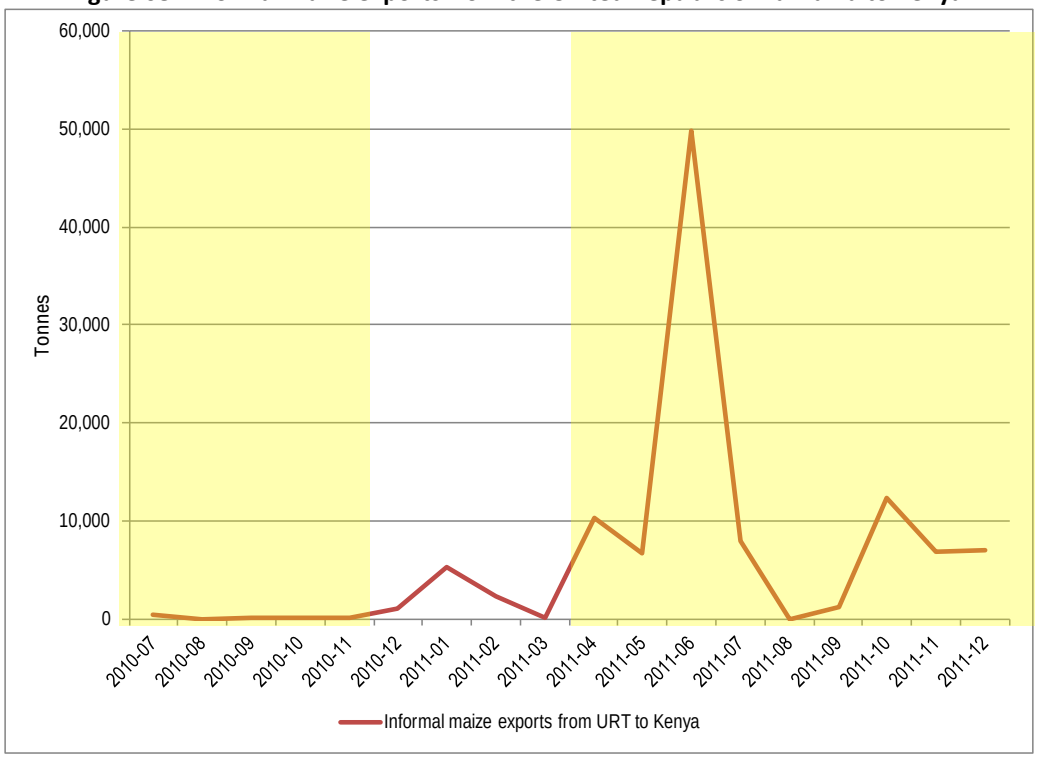
Table 29: Chronology of export restrictions events in the United Republic of Tanzania, 2004–2013

Date	Event
2004	Withdrawal of all maize export permits given to traders and the suspension of issuing new ones
January 2006	Export ban lifted for two months
March 2006	Export ban reintroduced
January 2007	Export ban lifted
January 2008	Export ban reintroduced
May 2008	Export ban lifted
January 2009	Export ban reintroduced
October 2010 (or April 2010)	Export ban lifted
May 2011	Export ban reintroduced
January 2012	Export ban lifted

Source: World Bank (2009), FAPDA and Stryker (2012).

Theoretically, an export ban acts as an infinite export tax. Of course, enforcement of the ban is never complete, and significant informal trade occurs and has been recorded with more or less continuity in time by the Famine Early Warning System of USAID and the Eastern African Grain Council (EAGC). A recent review by Stryker (2012) shows that informal trade happens irrespective of the presence of a ban; however, it increases significantly during ban periods. Figure 68 shows the trends of informal maize exports from the URT to Kenya during the period July 2010 to December 2011 using the data by Stryker (2012). Informal trade includes both the difference between exports reported by the URT and imports reported by Kenya and estimates of informal trade via "panya" [36] routes provided by the sources mentioned above. Formal trade (i.e. exports reported by the URT) remains below the 500 tonnes per month figure during the whole period. As shown, a first impact of the export ban is a surge in informal trade with Kenya. The difference in volumes of informal exports is significant at the 5 percent level, while formal trade does not seem to vary (Table 30).

Figure 68: Informal maize exports from the United Republic of Tanzania to Kenya



Note: shaded areas show periods in which the export ban was in place.
Source: Stryker (2012) and Authors' elaboration

[36] "Panya" means mouse in Swahili; and "panya" routes refer to ungazetted border-crossing routes.

Table 30: Comparison of average informal maize exports from the URT to Kenya during export ban and non-export ban periods, July 2010 to December 2011

Type of exports	Average exports (tonnes per month)		T-value for means	p-value	Conclusion
	Ban	No ban			
Formal	48	108	–1.10	0.350	No significant change
Informal	10 240	1 433	1.89	0.049	Significant increase

Note: See Table 29 to identify periods of export ban considered.
Source: Authors' elaboration using data from Stryker (2012).

The theoretical impacts of an export ban on domestic prices are twofold (Minot, 2010b). First, export bans should lower prices in production areas and be more volatile owing to additional supply being available to meet local demand. In addition, prices in deficit areas should also remain lower. Gillson (2011) notes that many countries have tried to insulate their domestic markets from the volatility on international markets by putting exports bans on export products when prices increased in order to maintain internal prices lower than international prices.

Evaluating the impact of export bans in Zambia, Dorosh, Dradri and Haggblade (2007) used a simplified partial equilibrium model to show that when harvests are below average export bans make prices grow five times more than when trade is allowed. When harvests are above average, export restrictions make maize prices fall twice as much as if exports were allowed.

In the case of the URT, Diao, Mabiso and Kennedy (2012) use a Computable General Equilibrium model to simulate the impact of the export ban, comparing a scenario where the ban remains in place until 2017 with another where the ban is lifted in 2012. Because of the low share of maize in total food expenditure, export bans have a limited impact on the overall food price index. Taking into account the high domestic transport costs and the evidence mentioned above regarding the lack of domestic market integration, maize prices fall significantly in surplus areas. However, that decrease is not totally transmitted to deficit areas; price reductions in those areas range between 46 percent and 29 percent depending on the pair of markets analysed. Economy-wide impacts lead to a situation where wealthier urban households are the ultimate beneficiaries of the measure. Moreover, the lower maize prices, as a result of the ban, generate a drop in production growth of approximately 20 percent over the long run. This result is further supported by the findings of Chapoto and Jayne (2010), who conclude that countries that have pursued food price stabilization and food-security objectives via direct state operations have lagged behind the regional average of production growth.

A less sophisticated analysis was used by the World Bank (2009) to assess whether the export ban has an impact on market integration and prices using margins between the major export markets and prices in the URT. Gross margins are estimated as the absolute price differences between markets. Using data from 2000 to 2008, margins are compared during ban and no-ban periods for three pairs of markets: Nairobi and Dar es Salaam; Nairobi and Mbeya; and Nairobi and Arusha. The price differences were significantly higher during ban periods than during non-ban periods for Nairobi and Dar es Salaam and for Nairobi and Mbeya, but insignificant between Nairobi and Arusha. The fact that no impact is detected between Nairobi and Arusha is because the ban is not effective in this area owing to the porous border and the significant profit potential associated with an average price difference of USD 70 between Nairobi and Arusha. This situation also existed in 2009, with a price

gap of over USD 72 between those two markets (Barreiro-Hurle, 2012), while marketing costs have been estimated at USD 40 (Short, 2012).

Thus, the World Bank (2009) concludes that the export ban has a stronger impact on farmers from the Southern Highlands, who bear the additional transaction costs related to the illegal movement of maize within the country (over 1 000 km) in addition to the informal border crossing.

Additional measures of the impact of the maize export ban

As far as price volatility is concerned, the coefficient of variation of wholesale prices for maize in the main markets for which the MTI reports prices have been compared for the period 2006–2012. Results reported in Table 31 are consistent with the theoretical assumptions put forward by Minot (2010b). As shown, volatility in producing areas (Iringa, Mbeya and Sumbawanga) increases during the ban periods. However, at an aggregate level, volatility is reduced for the whole country.

Table 31: Volatility of maize prices in different markets of the URT during export ban and non-export ban periods, 2006–2012

Market	Unconditional coefficient of variation		Impact of the ban on the coefficient of variation
	Export ban periods	Non-export ban periods	
Arusha	0.40	0.26	Increase
Babati	0.46	0.27	Increase
Bukoba	0.40	0.33	Increase
Dar es Salaam	0.40	0.25	Increase
Dodoma	0.41	0.23	Increase
Iringa*	0.35	0.19	Increase
Kigoma*	0.18	0.22	Decrease
Lindi	0.28	0.33	Decrease
Mbeya*	0.38	0.25	Increase
Morogoro	0.34	0.25	Increase
Moshi	0.42	0.25	Increase
Mtwara	0.26	0.29	Decrease
Musoma	0.31	0.31	No change
Shinyanga	0.33	0.24	Increase
Singida	0.36	0.25	Increase
Sumbawanga*	0.29	0.24	Increase
Tabora	0.29	0.25	Increase
Tanga	0.39	0.30	Increase
URT	**0.31**	**0.32**	**Decrease**

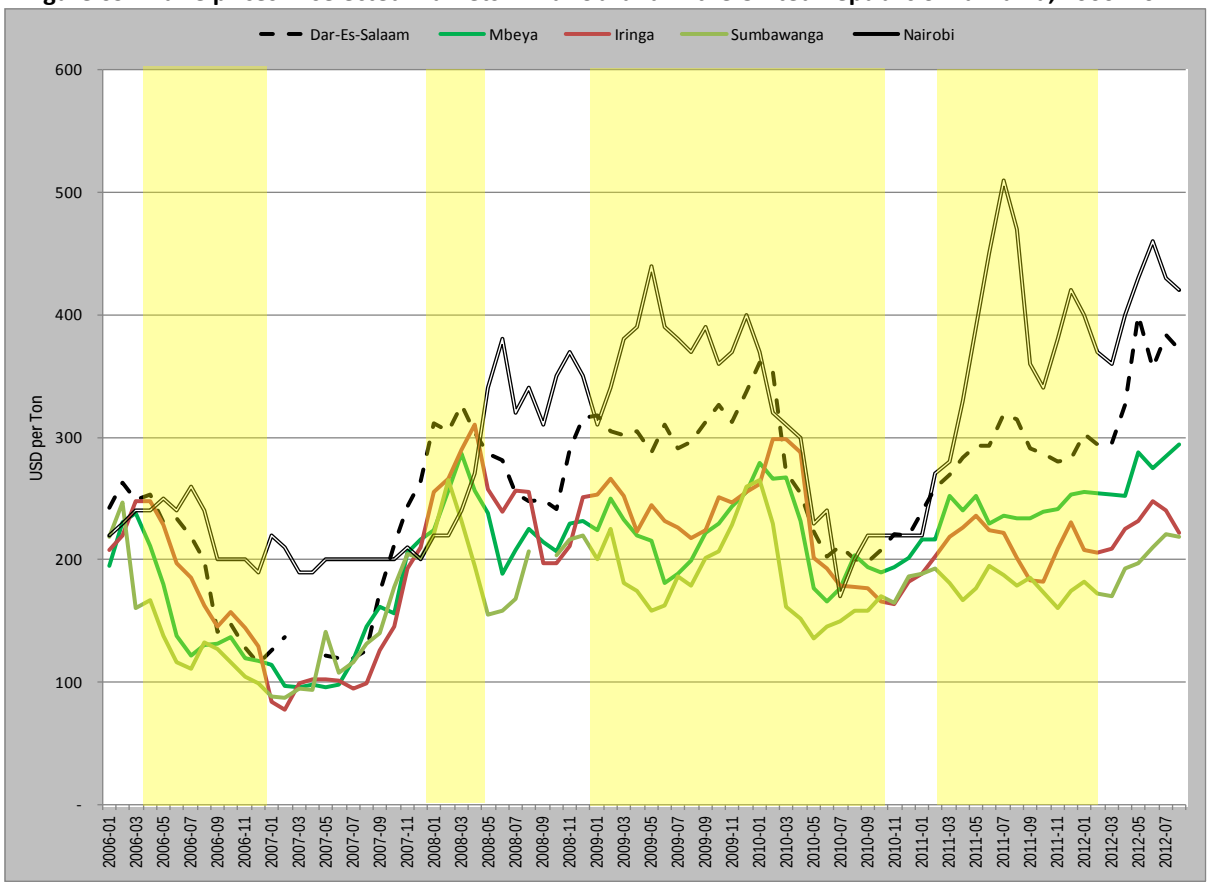
* Refers to major maize surplus areas.

Note: See Table 29 for periods of export ban considered. Coefficient of variation calculated as standard deviation of prices divided by average price for each period.

Source: Authors' elaboration using data from MTI.

As far as price levels are concerned, there is no counterfactual that would allow to see how prices would have evolved in the absence of the export ban. However, how the prices in the URT evolved compared with the regional hub market of Nairobi can be assessed. As shown in Figure 69, prices during the ban in 2006 started falling earlier than those in Nairobi. During the 2008 ban, prices stopped rising and did not resume the upward trend even when the ban was lifted. The long ban period in 2009–2010 kept prices in the URT below those in Nairobi. Finally, the ban in 2011 partly mitigated the price rise that occurred in Nairobi. From this visual inspection, it cannot be concluded whether the ban actually maintained prices in the URT lower than in the absence of the ban; however, it seems that it was partially successful. During the period when the export ban was in place, moreover, there were also substantial releases of maize from the National Food Reserve Agency (NFRA)[37]; thus, the impact of the export ban from that of the releases of the NFRA cannot be isolated, as both tend to depress domestic prices.

Figure 69: Maize prices in selected markets in Nairobi and in the United Republic of Tanzania, 2006–2012



Note: Shaded areas show periods during which the export ban was in place.

Source: MTI and GIEWS FAO.

A more formal analysis can be made comparing prices in domestic markets with those in areas where exports would normally flow following the approach by the World Bank (2009). This is done in a two-step approach; first examining the impact of the export ban on domestic markets and then for

[37] The NFRA released over 150 000 tonnes in 2005–2006 and in 2009–2010, the highest volumes of the entire period for which data are available on NFRA operations (1999–2011).

regional trade. Domestic margins are analysed comparing margins calculated as price differences between Dar es Salaam and five other markets (see Figures 62 and 63):

i) three in the Southern Highlands (Iringa, Mbeya and Sumbawanga);
ii) one on the border with Kenya (Arusha); and
iii) one on the border with the Democratic Republic of the Congo and Rwanda (Kigoma).

The results are presented in Table 32. As it can be seen for prices in main producer areas, the export ban significantly increases the price difference with respect to Dar es Salaam for two out of the three markets, while there is no impact for the third market (Iringa). Makambako in Iringa is an assembly area for maize from Mbeya and Sumbawanga and is closer to Dar es Salaam. Thus, the ban is lowering the maize price in surplus areas with respect to what would be expected in the absence of the ban. The results for the other two markets show that there is no impact of the ban on price relationships between Dar es Salaam and Arusha, while producer prices in Kigoma increased, highlighting the lack of domestic integration within the URT as surplus productions in the Southern Highlands were not mobilized to decrease price spikes in the lake area of the country. Indeed, additional analysis shows that the price differences between Kigoma and the Southern Highlands significantly increased during the export ban periods.

Table 32: Comparison of average margins for maize in periods with and without the export ban for select markets in the United Republic of Tanzania (2006–2012)

Markets	Average price differences		T-value for means	p-value	Conclusion
	Ban	No ban			
DSM – MBE	55.41	42.08	1.88	0.032	Decreased producer prices
DSM – SUM	92.17	69.81	2.07	0.022	Decreased producer prices
DSM – IRI	43.91	56.65	1.47	0.073	No change
DSM – ARU	10.66	11.69	0.21	0.417	No change
DSM – KIG	-17.79	-34.74	1.76	0.042	Increased producer prices

DSM: Dar es Salaam; MBE: Mbeya; SUM: Sumbawanga; IRI: Iringa; ARU: Arusha; KIG: Kigoma
Note: See Table 29 to identify periods of export ban considered.
Source: Authors' elaboration using wholesale prices from MTI.

The second step of the analysis is done comparing prices in border areas with those in the closest export markets. For this analysis, the following market pairs were considered:

i) Dar es Salaam versus all major markets in neighbouring countries (Kenya–Nairobi; Uganda–Kampala; the Democratic Republic of the Congo–Bunia and Kisangali, Rwanda–Kigali, Burundi–Bujumbura; Zambia–national average; and Malawi–Lilongwe and Mzuzu);
ii) Arusha versus Kenya (Nairobi);
iii) Bukoba versus Uganda (Kampala); Rwanda (Kigali) and Burdundi (Bujumbura);
iv) Kigoma versus Rwanda (Kigali) and Burdundi (Bujumbura); and
v) Mbeya versus Zambia (national average) and Malawi (Lilongwe and Mzuzu).

Table 33 reports the results. The most consistent result is that the Southern Highlands region is the most affected by the export ban. First, the price margins between Mbeya and the countries to the south surge when the export ban is in place. Moreover, most of the surplus from those regions goes either legally to Dar es Salaam, which also increases the price difference with Mbeya (see Table 32), or informally to Nairobi (see Figure 66). The price differential with Nairobi increases, but not significantly. Thus, the ban also curtails opportunities for maize producers to receive higher prices to the south. Moreover, prices in Dar es Salaam seem not to be totally isolated from price spikes when the ban is in place as price differences with neighbouring countries are reduced during the ban period. This, however, might be due to the policies those countries have in place to control prices (i.e. market interventions).

Table 33: Comparison of average margins for maize in periods with and without the export ban for select markets in the United Republic of Tanzania and neighbouring countries (2006–2012)

Markets	Average price differences		T-value for means	p-value	Conclusion
	Ban	No ban			
DSM – NBO	44.65	43.54	0.09	0.465	No change
DSM – KAM	-32.02	-6.76	1.76	0.041	Increase
DSM – BUN	194.22	259.52	1.91	0.031	Decrease
DSM – KIS	29.37	110.06	2.50	0.008	Decrease
DSM – KIGA	42.20	71.12	2.21	0.015	Decrease
DSM – BUJ	107.31	153.84	3.21	0.001	Decrease
DSM – ZAM	-7.58	3.84	0.67	0.254	No change
DSM – LIL	12.43	12.46	0.00	0.500	No change
DSM – MZU	28.57	- 51.60	4.43	0.001	Increase
ARU – NBO	44.38	71.95	2.32	0.002	Decrease
BUK – KAM	29.72	-48.23	3.65	0.001	Decrease
BUK – KIGA	103.72	31.49	4.03	0.001	Increase
BUK – BUJ	145.27	144.91	0.02	0.500	No change
KIG – KIGA	37.55	140.80	2.78	0.004	Decrease
KIG – BUJ	79.11	254.23	5.47	0.001	Decrease
MBE – ZAM	77.41	12.36	6.13	0.001	Increase
MBE – LIL	88.65	32.17	2.86	0.003	Increase
MBE – MZU	79.26	0.65	5.09	0.001	Increase
MBE – NBO	100.17	86.53	0.99	0.175	No change

DSM: Dar es Salaam; MBE: Mbeya; KIG: Kigoma; BUK: Bukoba; ARU: Arusha; NBO: Nairobi; BUN: Bunia; KIS: Kisangali; KIGA: Kigali; BUJ: Bujumbura: ZAM: Zambia; LIL: Linlongwe; MZU: Mzuzu.

Note: See Table 29 to identify periods of export ban considered.

Source: Authors' elaboration using wholesale prices from MTI and FAO GIEWS.

Margins between Arusha and Nairobi are lower during the ban, highlighting the role of informal exports mentioned above. It seems that during the ban more informal exports take place and arbitrage the price differences between those two markets. The same seems to happen with the western markets of Kigoma and Bukoba where price differences fall during export ban periods.

The theoretical impacts associated with an export ban should also be captured in the price incentives and disincentives indicators calculated by MAFAP. In this sense, with well-functioning markets and no other additional policies in place, disincentives to farmers would be reflected in negative nominal rates of protection. This would mean that farmers would be getting lower prices than those attainable in the absence of policy interventions. Because of the limited formal trade, the analysis that MAFAP does regarding incentives and disincentives faces additional challenges. Benchmark prices used to calculate incentives are not very informative in this case and the official or reported trade position of the country may not represent the actual trade flows. Moreover, yearly averages, which are constructed without taking into account volumes marketed, partially mask incentives and disincentives. Indeed, during some parts of the year (mainly when farmers are selling their maize) domestic prices are lower[38] and the methodology would identify disincentives as occurring; however, as there is a lack of storage capacity, domestic prices surge the further we move away from harvest, leading to higher domestic average prices that mask the disincentives.

The MAFAP indicators for the 2006–2010 period are reflected in Table 34. Several things seem to be inconsistent:

i) The net trade position of maize for the URT based on official data from the UN Comtrade or the Tanzania Revenue Authority does not seem to relate to the export ban. In fact, the trade ban was in place during 2006 (March to December), 2008 (January to May), 2009 (whole year) and 2010 (January to October), and the trade statistics show the URT as a net importer in 2006, 2008 and 2010.
ii) The general situation of disincentives holds for years when the URT is considered an importer. This means that the export ban depresses domestic prices making imports too expensive for the domestic market. Importers thus face losses or, if imports are made directly by the state, sell at subsidized prices.
iii) When the URT is a net exporter and there is an export ban (i.e. 2009), the MAFAP analysis partially captures the negative impact of it. The data for 2007 show how the lack of domestic integration leads to exports receiving prices below those in other areas of the country, further highlighting the problem of seasonality.

Table 34: MAFAP nominal rates of protection (NRP) for maize in the United Republic of Tanzania, 2006–2010

	2006	2007	2008	2009	2010
Trade status for the year	**m**	**x**	**m**	**x**	**m**
Observed NRP at farmgate (%)	-14.2	20.5	-20.9	3.7	-0.9
Adjusted NRP at farmgate (%)	-6.6	1.6	-14.2	-1.0	-9.9

Source: Barreiro-Hurle (2012).

[38] During the period 2006–2011, prices during harvest in wholesale markets in producing areas were significantly lower than those in non-harvest periods, except for 2007. Price differences ranged from 20 percent to 5 percent.

In addition, the URT has implemented a large-scale input subsidy since 2008, which might compensate for some of these disincentives. Thus, the impact of the export ban is reflected in the data; however, it is not as straightforward as it might seem. Seasonality, lack of market integration and other policies in place confound their effects.

Conclusions

This section has reviewed the existing literature on market integration for maize in East Africa and the impact of the trade restrictive measures that have been commonplace in the maize policy mix of the United Republic of Tanzania. The findings can be summarized in three main messages:

i) *Informal exports surge when export bans are in place.* Thus, expected impacts in terms of lowering prices because of higher food availability are muted owing to this leakage.
ii) *The export ban does not enhance the domestic market linkages inside the URT.* Thus, even when some additional production could remain in the country compared with the situation in the absence of the ban, the food deficit areas do not access the excess production in the market.
iii) *For the Southern Highlands, the export ban limits the profits of farmers*; in the west and the north part of the country it seems to promote more trade.

The export ban is affecting prices for farmers. As Karfakis and Rapsomanikis (2009) show, high margins reduce the area over which food is marketed, often insulating regions and households from price signals, and increase its cost. This reduction in price information may result in inefficient outcomes. Probably, a common manifestation of high margins is that it worsens export opportunities. However, in the URT, markets close to borders do not suffer impacts from the export ban (i.e. Arusha–Nairobi); thus, it seems that marketing costs in the domestic market are more affected than those related to border crossings.

The export ban is introduced to lower prices and assure food security. The results show that these are at best partially achieved. Other research reviewed show that long-term impacts are far from beneficial to consumers and farmers alike. Thus, if the United Republic of Tanzania is to realize its potential as a bread basket for East Africa, other policy instruments should be considered, in particular to avoid low prices discouraging farmers from investing on productivity increases (Christensen and Cochrane, 2012). In turn, by suppressing farm output growth, consumers do not benefit from reduced prices. Currently, productivity trends for maize in the URT have been reported to be declining even in spite of the fertilizer subsidy (Druilhe and Barreiro-Hurle, 2012).

As stated by Jayne (2012), the most important message to sub-Saharan African governments is, to manage price volatility they should make their role in markets more predictable. Export bans by definition are ad hoc measures; therefore, they should be avoided at all costs. The review of the empirical evidence regarding their impact on maize farmers in the URT show that they also lead to lower prices for farmers and higher prices for consumers, therefore not contributing to any of the dimensions of food security. As long as costs of exporting are lower than those of marketing within the country, export bans will only generate incentives for illegal exports, keeping farmgate prices low.

Finally, although it is technically recommended that opening marketing for maize for the long-term benefits of producers who are likely to gain from the wider market, there are still required some specific policy instruments to mitigate the impact of consumer price surges when there is an unexpected sudden rise in export demands that drain most of the locally produced maize. It is also important to address the question of share of the producer to the final consumer prices in local urban markets and in external markets so that there is no excessive gains to intermediaries.

Part4. CONCLUSIONS AND RECOMMENDATIONS

The United Republic of Tanzania in its Development Vision 2025 is committed to achieve high quality livelihood, good governance and economic growth. This document acknowledges agriculture as the backbone of the economy and highlights the role of the private sector in attaining a 'modernized, commercial, highly productive and profitable' agricultural sector.

Between 1993 and 2009, the United Republic of Tanzania has radically changed its growth path and its sectoral contribution to the national income (GDP). While the economy was growing at rates below 4 percent until 1996, real growth rates steadily increased until 2008, reaching above 7 percent, before slowing down while remaining above 6 percent from 2009 to 2011. On average, the Tanzanian economy has been growing at around 5.5 percent per year over the last 15 years, with an acceleration of the growth rate to 7 percent on average per year during the last 10 years. The agricultural sector has persistently registered a lower growth rate compared to other industry and service sectors. While agriculture has been growing at an average of 4 percent between 1998 and 2009, industry and service sectors have been growing at an average of 8.3 and 7 percent respectively during the same period. Even when the agricultural sector has persistently registered a lower growth rate compared to other sectors it has managed to produce between 5 and 19 percent above the normal national food requirements for basic cereals.

In this context, it is essential to ensure that the agricultural and food policies and expenditures provide clear signals to support decisions by producers that are consistent with national policy goals. It is also essential to measure the consistency between the objectives of these policies, the measures being adopted and their resulting effects. For this, this report has analyzed the incentives to producers resulting from policies and market development gaps via price analysis and the level and composition of public expenditure in support to agriculture. In addition, the results of this two analysis is combined to assess policy coherence.

Incentives, disincentives and market development gaps

Policy incentives, disincentives and market development gap are measured and analyzed for nine agricultural products (cashew nuts, coffee, cow milk, maize, pulses rice, cotton, sugar and wheat), representing 36 percent of the total value of agricultural production, 47 percent of the value of exports, 44 percent of the imports and 55 percent of the caloric intake in the country. These products are grouped into four categories:

- Exported: cashew nuts, coffee, cotton and pulses;
- imported: cow milk, rice, sugar and wheat;
- thinly traded: maize, and;
- key products for food security: maize, pulses, rice, sugar and wheat.

MAFAP indicators are based on the comparison between domestic prices at farmgate and wholesale and the reference prices, which are estimated by using the price of the product in the international markets. Reference prices are those that producers would obtain in the absence of national policies affecting the price levels and deficiencies in the structure and the functioning of the product's

domestic value chain. These indicators are estimated at two levels: an observed and adjusted level. In the observed level, the reference prices measures the price that producers or traders of the commodity would receive in the world market of the commodity given the existing marketing costs, margins and any taxes. In the adjusted level of MAFAP indicators, the reference prices are adjusted to eliminate any distortions found in the market supply chain (for example, taxes or levies and excessive profit margins of economic agents). In other words, the observed indicators measure the level of incentives and disincentives given the existing functioning of the value chain and government policy on commodity transactions while the adjusted indicators measure the level of incentives and disincentives in absence of any distortions caused by market agents (such as monopoly power) or government policy (such as taxes).

Overall producers in URT have been incentivized during the study period, although the level of incentives has been declining. In the 2005-2007 triennium the nominal rate of protection stood at 32 percent and it was reduced to 11 percent during the next three years (2008-2010). Thus we can conclude that policy environment and market performance lead farmers to receive higher prices than those that would exist in absence of policies and with well functioning markets.

This trend masks a dual situation in the URT. Producers of commodities which are imported into URT are incentivized while producer of export oriented commodities are penalized. Moreover, our results show that while some commodities are protected at wholesale (processed) level they are penalized at farm gate (raw) level. This duality is also detected for the relative role of policy induced and market performance in the identified incentives and disincentives. While for imported commodities most of the incentives relate to trade policy, for export commodities disincentives relate both to explicit taxes and inefficiencies of the processing industry. In addition, we see how part of the protection for imported goods granted by trade policy is eroded due to excessive marketing costs along the value chain.

Farmers producing commodities which URT imports to cover domestic consumption are in general incentivized. On average the nominal rate of protection for imports stood at 47 percent but there has been a clear downward trend, with incentives in the 2005-2007 period standing at 97 percent while in the 2008-2010 period they had plunged to 29 percent. These incentives are related to the common external tariff which the URT applies to imports coming from outside the Eastern African Community (EAC). However, for all imported commodities, protection levels are eroded as we move towards the farm gate due to lack of market integration and inefficiencies in the value chain.

Incentives for rice in the URT have decreased in the last five years. This is a normal trend when the country moves towards self-sufficiency. However a salient finding is that the level of incentives used to be higher for farmers than for wholesalers in consumption areas, and following liberalization of the rice market in 2007, this balance changed and now protection is higher in consumption areas. Import tariffs in place in the United Republic of Tanzania prevent cheap imports and do result in effective price premiums for farmers but the cost for consumers is quite high. Despite the shift towards an export position for rice, yields remain below the region's average, therefore, it is probable that without protection Tanzanian rice would not be competitive in international markets if prices return to their historical levels. The rice sector needs a supporting environment that leads to additional investment at farm level so as to increase yields and lower production costs.

Trade policy is also reflected in the additional price that consumers need to pay for sugar in URT. Farmers however are not benefiting from this border protection and seem to be disconnected from changes in trade policy. Moreover, farmers are penalized by the low efficiency of the sugar mills. As a consequence, the current trade policy does not benefit farmers as much as a more efficient sugar industry would. Therefore, the government should consider removing the sugar import tariff, something that would require that sugar is taken away of the Sensitive Items list of the EAC Common External Tariff. In addition, the government of the United Republic of Tanzania should revise the investment environment in the sugar sector so as to allow companies to increase their efficiency and thus allow paying higher prices to sugar cane producers.

Domestic wheat prices remain higher than their international equivalents and thus there is a clear transfer from consumers to traders and to lesser extent producers even when Tanzania has taken measures to reduce domestic prices of wheat. The Government of Tanzania should ease import procedures for wheat as there is still a high degree of market power in wheat imports that allows traders to charge prices well above the import parity price. While excessive port and import costs can account for most of the price difference identified, even if the highest cost estimate of imports are considered, protection is well above the prevailing tariff. Even when price incentives have been significant during the study period there has been no increase in domestic production. Additional investment on research and development for wheat is needed if the production of the crop is to be increased in the country.

Milk traders are protected by the existence of the external tariff, leading to consumers paying higher prices for milk than those prevailing in international markets. However, this protection only affects a small share of total milk production, the rest of the market is mainly disconnected from international markets. Farmers in the informal market also get higher prices, although the price difference is much smaller, therefore some of the protection also leads to incentives to milk producers at the cost of consumers in local markets. If more milk production were to be processed and marketed in a more formal way, the processing industry could only pay lower prices to farmers due to high processing costs. Therefore if the government does not want to see milk farm gate prices collapsing movements towards a more commercial dairy sector should be accompanied by improvements in milk processing efficiency.

Farmers producing export commodities in URT are in general disincentivized, meaning that the policy environment together with the market performance leads then to get lower prices than those they could obtain in a policy free environment and with better market performances. These disincentives are related to taxation of the commodities (cotton, cashew nuts), bad functioning of the value chain (coffee, cashew nuts) and inefficiencies in the processing sector (cotton). Contrary to classic export crops, pulses producers have positive indicators meaning that domestic prices are on average higher than export parity prices. While in general this would be considered an incentive for producers, in this specific case it shows a bad functioning of the value chain, where lack of storage facilities means exporters are missing the opportunity to benefit from higher prices in domestic markets and consumers paying higher prices.

Coffee farmers have been receiving disincentives ranging from 15 percent to 50 percent during the period of analysis. As there are no explicit trade policies in place, the disincentives identified are related to overall market development gaps. It could be attributed to the pricing system of the value

chain and the administrative burden imposed by the Tanzania Coffee Board which both increases transaction costs in the value chain and limit new entrants. The system protects farmers when prices are low, but, it actually limits their capacity to benefit from high prices. Trade liberalization has to some extent helped improve the sector, although, not much is being done to ensure that small-scale farmers are receiving the amount they could potentially obtain. Therefore, the government should further enforce the one license system as it is still clear that major multinationals control the auction and this makes farmers receive a low share of the export price. Even in the best years farmers only get 46 percent of the export price and, when all access costs are included, still face a disincentive of nearly 200 USD per ton. Moreover, facilitating the entrance of new players to the coffee auction could break the current dominance by four big companies in exports of Tanzanian coffee.

Cotton farmers also have faced disincentives throughout the whole period of analysis. The organization of the cotton sector 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. 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. 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. 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.

Cashew nut growers in the United Republic of Tanzania are disincentivized, thus they are receiving a lower price than that they would in the absence of policy measures and well functioning value chains. The main driving force of the disincentives is the export tax on raw cashews. The shift towards a centralized auction and warehouse receipt system has increased the disincentives to farmers. Rather than getting farm gate prices closer to the export prices it seems the WRS has induced higher transaction costs. The increase of the export tax from 10% to 15% of FOB value to promote in country processing has had limited effectiveness in the first two years of implementation. The government of URT could consider reducing the export tax and monitor the evolution of the indicators to see whether farmers get higher prices. This could lead to more investment in the production of cashew nuts. At the same time if the objective of increasing processing inside the country is to be achieved. The government should consider alternative policy instruments to promote the processing of cashew nuts in Tanzania. Last, the CBT should provide additional support to the warehouse receipt system functioning to assure it delivers the expected results.

Contrary to the traditional export commodities discussed above, we observe that overall farmers producing pulses in Tanzania face higher prices than those in international markets. This apparent incentive to producers hides a situation where lack of storage makes farmers sell at low prices (post harvest) which later result in prices during non-harvest periods that are higher than those they are made when exporting. Basically these results show that Tanzania is facing higher domestic prices thus putting additional pressure on net food buyers. In this situation two strategies could be sought. First, increasing the linkages between the different markets in the country could allow consumers to purchase pulses at lower prices and traders to make more money selling in the domestic markets than with exports. This is particularly acute in the case of beans where price gaps are higher. Second,

increasing the storage capacity of farmers would allow them to capture higher prices in domestic markets

As far as thinly traded products are concerned we see that incentives and disincentives to maize producing farmers are very volatile. For this commodity, a mix of variable policy decisions (trade restrictions, subsidized sales) and lack of market integration in the country due to excessive transport costs generate disincentives to farmers. Overall farmers are getting lower prices than those that would be attainable in the absence of policy and with better market performance.

The general pattern for incentives and disincentives detected in URT applies to producers of commodities representing a significant share of the diet in URT. From a consumer perspective, these incentives lead to increased food bills, reducing affordability. Thus our results show a conflicting impact on food security. On one side, farmers are incentivized thus likely to invest more and hence increase their production. This has been most visible for rice, where URT has gone from being an importing country to a net exporter. However for the rest of the commodities these incentives do not seem to have a positive impact on domestic food availability. Moreover, these incentives for producers imply that Domestic prices are higher than those that would prevail without policy interventions and functioning markets.

Public expenditure and aid

Despite total approved budget in the sector grew by 53 percent, in nominal terms, from 2007 to 2011, in relative terms, the agricultural budget allocations have declined from almost 13 percent of total government spending in 2007 to about 9 percent in 2011. Actual spending has grown at a slower pace and in relative terms has also decreased significantly in the analysed period. Thus while surpassing the 2003 Maputo Declaration target during the period 2007-2009 it has remained below since then.

Agriculture-specific expenditures account, on average, for almost 45 percent of expenditures in support of food and agriculture sector development. Their importance in overall agricultural support grew from about 29% in 2007 to 64 percent in 2011. In terms of the level of spending, agriculture-specific expenditures more than doubled over the analysed period, while agriculture-supportive expenditures decreased significantly.

Agricultural specific support has shifted from general support to payments to agents. While the latter accounted for over 60 percent of all this category of expenditure in the first half of the analyzed period, increased focus on payments to producers via input subsidies meant that in the second half of the period analyzed its weight was reduced to less than 50 percent. This increase of direct transfers to producers has led to a decrease on extension services and general infrastructure for the sector such as storage facilities, marketing and infrastructure. Surprisingly, this happened while expenditure in training increased more than offsetting the decrease in extension services. Additional efforts to clarify the nature of the programmes identified for these two categories is needed.

The agriculture-specific expenditures are complemented by agriculture-supportive expenditures which, on average, accounted for about 55 percent of the overall support to food and agriculture sector in Tanzania. However, their relative importance in the total support to agriculture has

decreased over time. Among these expenditures, by far the largest were on rural infrastructure, including rural roads, rural water and sanitation and rural energy. Their relative importance in the agriculture supportive expenditures did not change over time. Much less was devoted to rural health or rural education.

Overall, most public expenditures are aimed at the provision of public services and investments, with a relatively strong focus on infrastructure, but also on training, extension services and research. However, there is a rapidly growing spending on input subsidies to agricultural producers, particularly subsidies to variable inputs.

Only a minority (four percent) of public expenditure for the agricultural sector is commodity specific, nearly half of the public expenditure is not targeted to any specific commodity or group of commodities. Approximately one fourth is focused on maize and rice (mainly the fertilizer subsidy) while the remaining fourth goes to very broad commodity groups.

A large part of funds is allocated to policy administration costs. The increased share of administration costs after 2008/09 may be partially explained by the reallocation of funds devoted to policy transfers due to financial crisis management, as mentioned above, however, they have substantially increased over the analysed period. Moreover, the rates of actual spending to budget allocation in Tanzania are low, and even lower for policy transfers than in case of administrative costs.

On average, donor spending accounted for at least 50 percent of overall public expenditures in support of the food and agriculture sector in Tanzania. However, the role of foreign aid has seen a diminishing trend during the period. In terms of composition external aid contributed to 44 percent of agriculture-specific measures and to 64 percent of agriculture supportive measures. Donor and government priorities in allocating public expenditure are quite aligned.

Coherence of agricultural and food policies

Two main objectives seem to be underlying in the overall policy framework for the agricultural sector in the United Republic of Tanzania: increasing food availability and food accessibility. As far as the food availability domain we can see that with the exception of rice and wheat in general the overall policy environment and, to a greater extent, the functioning of the value chains result in lower prices for farmers than those that could be expected in absence of domestic policies and with better performing value chains. Rice can be seen as a success story in Tanzania where increased protection has led to higher production and making the URT a surplus country in terms of rice production, however this should be taken with care. First, most of the increased production is due to area increase and not yields. Yields remain below the average in east Africa and when international prices return to their pre crisis levels exports from Tanzania might no longer be competitive. In the case of wheat, incentives have not resulted in increased yields or areas, thus showing that maybe the URT is not best suited to produce wheat. All other commodities show disincentives in our analysis, thus not allowing farmers to get higher prices for their output and limiting investment. This could mean that food accessibility would be promoted, as domestic food prices would be below those prevailing in international markets. However, most of the disincentives relate to classic export crops (coffee, cotton, cashew nuts) which are not part of the normal diet of Tanzanian citizens. At wholesale level (i.e. the level closest to consumers purchase) most of the food security commodities show positive

price gaps with the exception of maize, thus the cost to consumers of the average diet is higher than it would be in absence of policies and with better performing markets.

To better address these objectives specific recommendations have been mentioned for each commodity but in general this could be resumed in moving towards a less volatile trade policy (ideally deciding whether import tariffs are needed or not and moving definitively away from export bans) and more investment in infrastructure that facilitates market functioning (i.e. roads, storage, market information systems, etc.). Initiatives such as SAGCOT seem to point towards this direction, the draft of the ASDP II is a unique opportunity to align public investment and policy environment to deliver the expected growth of agricultural output, increased productivity and reduced hunger and poverty.

As shown in the discussion above, the results of our analysis show a contradictory story regarding policy objectives and actual impacts of policy measures and market performance. With regards to trade policy, contradictory actions (i.e. tariff versus waivers) generate uncertainty for producers and tax export oriented commodities. Moreover, market performance and processing capital stock does lower prices to farmers. Public expenditure fails to address this issues as it does not seem to focus on the areas which we identify as most crucial in generating these disincentives (i.e. marketing, storage, processing). Nevertheless, the government of URT seems to have taken policy measures to reduce investment costs and reduce access costs. The abandonment of export bans, the move towards eliminating district taxation for agricultural products, the concept behind SAGCOT are all measures that will reduce the level of disincentives for farmers.

If these measures persist in time and are implemented as planned results in years to come should show lower disincentives for farmers showing better policy coherence. The URT has a unique occasion to improve its agricultural policies with support from Development Partners. We hope that in the future MAFAP will provide evidence of how the URT has taken advantage of this opportunity.

REFERENCES

Agricultural Council of Tanzania (ACT) 2010. *Value chain analysis of rice and maize in selected districts in Tanzania*. Final Report. Dar es Salaam.

Anderson, K. & Masters, W.A., eds. 2009. *Distortions to agricultural incentives in Africa*. Washington, DC, World Bank.

Arvis, J.-F., Mustra, M.A., Ojala, L., Shepherd, B. & Saslavsky, D. 2012. *Connecting to compete 2012. Trade logistics in the global economy. The Logistics Performance Index and its indicators*. Washington, DC, World Bank.

Asche, F., Gjølberg, O. & Guttormsen, A. 2012. Testing the central market hypothesis: a multivariate analysis of Tanzanian sorghum markets. *Agricultural Economics*, 43(1): 115–123.

Baffes, J. 2010. *Markets for cotton by products: global trends and implications for African cotton producers.* Policy Research Working Paper No. WPS5355. Washington, DC, World Bank.

Baffes, J., Tschirley, D. & Gergely, N. 2009. Pricing systems and prices paid to growers. *In* D. Tschirley, C. Poulton and P. Labaste, eds. *Organization and performance of cotton sectors in Africa,* pp. 65–72. Washington, DC, World Bank.

Balie, J., Morales, C., Conforti, P., Bellú. L., Maetz, M., Tortora, P. and Komorowska, J. 2010. MAFAP project methodology concept paper. Technical Notes Series, MAFAP, FAO, Rome.

Bank of Tanzania (BOT). 2012a. *Monetary Policy Statement 2012/2013*. Dar es Salaam.

Bank of Tanzania (BOT). 2012b. *Quarterly Report 2012.* Dar es Salaam.

Barreiro-Hurlé, J. 2011a. Product selection for price incentives and disincentives calculations in Tanzania. MAFAP Technical Notes Series, FAO, Rome.

Barreiro-Hurlé, J. 2011b. Regional and Africa wide considerations on product selection for price incentives and disincentives calculations. MAFAP Technical Notes Series, FAO, Rome.

Barreiro-Hurle, J. 2012. *Draft analysis of incentives and disincentives for maize in the United Republic of Tanzania*. Technical Notes Series, MAFAP. Rome, FAO .

Barrett, C.B. & Li, J.R. 2002. Distinguishing between equilibrium and integration in spatial price analysis. *American Journal of Agricultural Economics*, 84: 292–307.

Booz Allen Hamilton. 2010. *Commercial, legal and institutional reform in Tanzania's agricultural sector*. USAID, Business Climate Legal and Institutional Reform (BizCLIR) project. Washington, DC, USAID.

Brooks, J. & Wiggins, S. 2010. The use of input subsidies in developing countries. Presented at the Global Forum on Agriculture, Paris, 29–30 November 2010. OECD.

Bursi, M., Lyaro, S., Matto, W. & Conrad, H. 2008. *Cotton market development strategy for central Tanzania.* Proposal submitted to RLDC Board. Dodoma, RLDC.

CAADP. 2010. Accelerating *CAADP Country Implementation. A Guide for Implementors*. NEPAD, South Africa.

Cadot, O. & Gourdon, J. 2012. *Assessing the price raising impact of non-tariff measures in Africa*. Africa Trade Policy Notes No. 29. Washington DC, USA, World Bank.

Chapoto, A. & Jayne, T.S. 2010. *Maize price instability in Eastern and Southern Africa: the impact of trade barriers and market integration*. Paper presented at the COMESA policy seminar "Food price variability: causes, consequences and policy options", 25–26 January, Maputo, Mozambique.

Christensen, C. & Cochrane, N. 2012. *Strengthening Tanzania's safety net: alternative program and policy options to support food security*. Report to the USAID Feed the Future SERA policy project, Dar es Salaam, Tanzania.

Daily News. 2012. Farmers should reach markets smoothly. Editorial 8 May 2012.

Daily News. 2012a. *ESRF lauds lifting of export ban on maize*. 29 February 2012. Available online at http://in2eastafrica.net/tanzania-esrf-lauds-lifting-of-export-ban-on-maize/.

Daily News. 2012b. *Export maize through prescribed routes only – PM warns*. 12 February 2012. Available online at http://dailynews.co.tz/index.php/local-news/1802-export-maize-through-prescribed-routes-only-pm-warns.

Deininger, K. & Byerlee D. 2011. Rising global interest in farmland. Can it yield sustainable and equitable benefits? The World Bank. Washinton DC.

Devisscher, T. 2010. *Ecosystem-based adaptation in Tanzania: the role of ecosystems for human well-being and climate adaptation*. Ecosystems report for the Economics of Climate Change in Tanzania Project. London, UKAID Development Partners Group. http://economics-of-cc-in-tanzania.org/images/DFIDTanzania_Report_Ecosystems_2_v2.pdf

DFID. 2011. *Lessons and case stories from RIU Tanzania*. Research Into Use Programme (RIU): sharing lessons to enable innovation in agriculture. London, Department for International Development (DFID).

Diao, X., Mabiso, A. & Kennedy, A. 2012. *Economy-wide impact of maize export ban on agricultural growth and household welfare in Tanzania – a dynamic CGE model analysis*. Report to USAID Feed the Future SERA policy project. Dar es Salaam.

Dillman, A. & Ijumba, M. 2011. *Dairy value chain*. Dar es Salaam, Small and Medium Enterprise Competetiveness Facility (SCF).

Dorosh, P.A., Dradri, S. & Haggblade, S. 2007. *Alternative instruments for ensuring food security and price stability in Zambia*. Food Security Collaborative Working Paper 54488, Michigan State University, Department of Agricultural, Food and Resource Economics. Michigan, USA.

Druilhe, Z. & Barreiro-Hurle, J. 2012. *Fertilizer subsidies in sub-Saharan Africa*. ESA Working Paper 12–04, Rome, FAO.

East African Community (EAC). 2007. *Common External Tariff 2007 Version*. Arusha, URT.

Economist Intelligence Unit (EIU). 2011. *Country report Tanzania, August 2011*. London, Economist Intelligence Unit (EIU).

Economic and Social Research Foundation (ESRF). 2010. Agriculture sector review and public expenditures review 2010/2011. Report submitted to the Ministry of Agriculture, Food Security and

Cooperatives of the United Republic of Tanzania, November 2010. Economic and Social Research Foundation (ESRF). (unpublished)

Economic and Social Research Foundation (ESRF). 2012. Infrastructural requirements for a modern and commercial agricultural sector. Draft report prepared for the President's Office, Planning Commission. Dar es Salaam. (unpublished)

EFEEDLINK. 2012. *Tanzania to remove periodic bans on corn, rice exports*. 25 June 2012. Available online at http://www.efeedlink.com/contents/06-25-2012/ae266d31-78d9-4c70-b856-5cafeaeb35ae-d005.html

Eskola, E. 2005. *Agricultural marketing and supply chain management in Tanzania: a case study*. Working Paper No 16. ESRF study on globalization and East Africa economies. Dar es Salaam, Economic and Social Research Foundation (ESRF).

FAO. 2006. Country pasture/forage resource profiles. FAO Agriculture and Consumer Protection Department. Rome.

FAO. 2006. Políticas Públicas Desarrollo Rural en América Latina y el Caribe: El papel del gasto público. The Regional FAO Office for Latin America and the Caribbean, Santiago, Chile.

FAO. 2008. Food security statistics. FAO Statistics Division. Rome.

FAO. 2012. *Fertilizer subsidies in sub-Saharan Africa*, Z. Druilhe and J. Barreiro-Hurle. ESA Working Paper No. 12-04. Rome. http://www.fao.org/docrep/016/ap077e/ap077e.pdf

FAO. 2012. *The State of Food and Agriculture 2012: Investing in agriculture for a better future*. Rome.

FAOSTAT. 2010, 2012, 2013. Food Balance Sheets. Rome. http://faostat.fao.org/site/368/default.aspx#ancor

Financial Times. 2012. Doing business in Tanzania. Financial Times Special Report. Friday 7 December 2012.

Fussi, J.I. 2010. *Strategies to increase milk deliveries to the Tanzanian milk processing industry: A case of ASAS Dairies Ltd in Iringa district*. Wageningen, Netherlands, Larenstein University of Applied Sciences. (research project)

Gillson, I. 2011. *Non-tariff barriers to Sub-Saharan African trade in food staples: opening regional markets to promote food security and price stabilization*. Washington DC, USA, World Bank.

Global Donor Platform for Rural Development (GDPRD) 2011. *Policy coherence for agriculture and rural development*. Bonn, Germany, Global Donor Platform for Rural Development (GDPRD).

Government of URT. 1992. *Health and Nutrition Policy 1992.* Dar es Salaam.

Government of URT. 1997. *Agricultural and Livestock Policy 1997*. Dar es Salaam, Ministry of Agriculture and Cooperatives.

Government of URT. 1999a. *The Tanzania Development Vision 2025*. Dar es Salaam.

Government of URT. 1999b. Legal and Institutional Mandates for Environmental Management in Tanzania. Report presented to the Vice President's Office, Institutional and Legal Framework for Environmental Management Project.

Government of URT. 2001. *Agricultural Sector Development Strategy*. Dar es Salaam, Ministry of Agriculture and Food Security and Ministry of Cooperatives and Marketing.

Government of URT. 2003. *Agricultural Sector Development Programme*. Dar es Salaam.

Government of URT. 2007. *National Sample Census of Agriculture, 2002–2003*. Dar es Salaam.

Government of URT. 2008. *Millennium Development Goals report: Midway evaluation 2000–2008.* Dar es Salaam.

Government of URT. 2009a. *Guidelines for the preparation of Medium Term Plan and Budget Framework for 2009/10–2011/12.* Ministry of Finance and Economic Affairs. Dar es Salaam.

Government of URT. 2009b. *Poverty and Human Development Report 2009.* Dar es Salaam, Research and Analysis Working Group.

Government of URT. 2010a. *Economic Survey 2009.* Dar es Salaam, Ministry of Finance and Economic Affairs.

Government of URT. 2010b. *National Strategy for Growth and Reduction of Poverty II (NSGRP II).* Dar es Salaam, Ministry of Finance and Economic Affairs.

Government of URT. 2011a. *ASDP Performance Report 2009/10*. Dar es Salaam.

Government of URT. 2011b. *Tanzania Agriculture and Food Security Investment Plan (TAFSIP).* Dar es Salaam.

Gwilliam, K. 2011. *Africa's transport infrastructure. Mainstreaming maintenance and management*. Washington, DC, World Bank.

Hundsbaek-Pedersen, R. 2010. Tanzania's land law reform: the implementation challenge. DIIS working Paper 2010:37, DIIS, Copenhagen.

Ihle, R. & von Cramon-Taubadel, S. 2010. Semi-parametric evidence of the nature of price transmission in Tanzanian maize markets. Paper presented at the Joint Annual Meeting of the Agricultural and Applied Economics Association, the Canadian Agricultural Economics Society and the Western Agricultural Economics, Association, 25–27 July 2010, Denver, Colorado, USA.

Ilhe, R., von Cramon-Taubadel, S. & Zorya, S. 2011. *Measuring the integration of staple food markets in sub-Saharan Africa: heterogeneous infrastructure and cross border trade in the East African Community*. CESifo Economic Studies Conference on Measuring Economic Integration, 18–19 February, Munich, Germany.

Ilicic-Komorowska, J., Maro, F. & Pascal H. 2012. Public expenditures in support of food and agriculture development in the United Republic of Tanzania, 2006/07-2010/11: A preliminary assessment. MAFAP Technical Notes Series, FAO, Rome.

International Fund for Agricultural Development (IFAD). no date. *United Republic of Tanzania: Participation in irrigation rewards farmers.* Innowat Case Study. Rome, International Fund for Agricultural Development (IFAD). http://www.ifad.org/english/water/innowat/cases/tanzania.htm

International Food Policy Research Institute (IFPRI). 2010. *Global Hunger Index*. Washington, DC, International Food Policy Research Institute (IFPRI).

Jayne T.S. 2012. Managing food price instability in East and Southern Africa. *Global Food Security,* 1: 143–149.

Karfakis, P. & Rapsomanikis, G. 2009. *Margins across time and space: threshold co-integration and spatial pricing applications to commodity markets in Tanzania*. CSAE Conference 2009, 22–24 March, Oxford.

Kilima, F.T.M. 2006. *Are price changes in the world market transmitted to markets in less developed countries? A case study of sugar, cotton, wheat, and rice in Tanzania*. IIIS Discussion Paper No. 160. Dublin, Insitute for International Integration Studies (IIIS).

Komorowska, J. 2010. A proposed methodology for measuring government expenditures in support of food and agriculture sector development and application in the case of Uganda. MAFAP Technical Notes Series, FAO, Rome.

Kurwijila, L.R. 2010. An overview of the dairy industry in Tanzania: Situation, challenges and expectations. In *Proceedings of the Agricultural Council of Tanzania (ACT) Dairy Stakeholders Forum,* held at Mkonge Hotel, 10 December 2010. Tanga, URT.

Kweka, J. 2006. *Trade policy and transport costs in Tanzania*. CREDIT Research Paper No. 06/10. The Centre for Research in Economic Development and International Trade, University of Nottingham, UK.

Liviga, A.J. 1999. Decentralized authority and capacity for environmental management. Draft report to the Institutional and Legal Framework for Environmental Management Project. (unpublished)

Match Maker Associates. 2010. *Value chain analysis of rice and maize in selected districts in Tanzania. Volume I: Introduction, context analysis and recommended way forward.* Commissioned by ACT. Dar es Salaam, ACT.

Mashindano, O., Bamwenda, G. & Hangi, M. 2012. *The climate change – trade – food security interface in Tanzania: desktop research findings*. Presentation at the 1st Tanzania National Reference Group Meeting, PACT EAC project, CUTS International, GRC, Dar es Salaam, Tanzania.

Mbwele, A. & Pius, D. 2010. *Study on the implementation and management of fertilizer subsidy in Tanzania*. Background report prepared for the NPCA policy study on best practices and policy options for implementing fertilizer subsidy programs successfully in sub-Saharan Africa. Accra, Ghana, FAO.

Ministry of Agriculture, Food Secutiry and Cooperative (MAFC). 2009. *National Rice Development Strategy*. Dar es Salaam.

Ministry of Agriculture Food Security and Cooperatives (MAFC). 2010. *Agriculture Sector Review and Public Expenditure Review 2010/2011*. Dar es Salaam, Tanzania.

Ministry of Agriculture, Food Secutiry and Cooperative (MAFC). 2010. *Tanzania Coffee Industry Development Strategy 2011–2016*. Dar es Salaam.

Ministry of Agriculture, Food Security and Cooperatives (MAFC). 2011a. *Tanzania country report on the Millennium Development Goals 2010.* Dar es Salaam.

Ministry of Agriculture, Food Security and Cooperatives (MAFC). 2011b. *Trends and outlook report on key agriculture and rural development indicators in Tanzania*. Dar es Salaam.

Ministry of Agriculture, Food Security and Cooperatives (MAFC). 2012. *Assessment of the achievements of the agricultural sector development program (ASDP). Returns to irrigation development.* Dar es Salaam. (unpublished).

Ministry of Agriculture, Food Secutiry and Cooperative (MAFC) and FAO. 2008. *Agricultural sector reforms in Tanzania. Perspectives from within*. Dar es Salaam.

Ministry of Education and Vocational Training (MEVT). 2009, 2011, 2012. Statistics for the education sector. Dar es Salaam, Ministry of Education and Vocational Training (MEVT).

Ministry of Finance (2007). Budget for fiscal year 2006/2007. Quarterly budget execution report for fiscal quarter IV and annual July 2006 – June 2007. Dar es Salaam.

Ministry of Finance and Economic Affairs (2008). Budget for fiscal year 2007/08. April-June 2008 and full year budget performance. Dar es Salaam.

Ministry of Finance and Economic Affairs (2009). Budget for fiscal year 2008/09. April-June 2009 and full year budget performance. Dar es Salaam.

Ministry of Finance and Economic Affairs (2010). Budget for fiscal year 2009/10. April-June 2010 and full year budget performance. Dar es Salaam.

Ministry of Finance and Economic Affairs (2011). Budget for fiscal year 2010/11. April-June 2011. Full year budget performance and economic review. Dar es Salaam.

Ministry of Finance and Economic Affairs. (various years). Volume II Estimates of Public Expenditure Consolidated Fund Services (Section I) and Supply votes (Ministerial),

Ministry of Finance and Economic Affairs. (various years). Volume II Estimates of Public Expenditure Consolidated Fund Services (Section II) and Supply votes (Regional).

Ministry of Finance and Economic Affairs. (various years). Volume IV – Public expenditure Estimates –Development Programmes (Part A) Ministerial and Regional Development Programmes.

Ministry of Finance and Economic Affairs. (various years). Volume IV – Public expenditure Estimates –Development Programmes (Part B) District Councils.

Ministry of Livestock and Fisheries Development (MLFD). 2010. *Livestock Development Strategy.* Dar es Salaam.

Minot, N. 2010a. Staple food prices in Tanzania. Presented at the COMESA policy seminar on Food Price Variability: Causes, Consequence, and Policy Options. 25–26 January 2010, Maputo.

Minot, N. 2010b. Transmission of world food price changes to African markets and its effect on household welfare. Presented at the COMESA policy seminar on Food Price Variability: Causes, Consequences, and Policy Options, 25–26 January, Maputo.

Mishili, F.J., Temu, A.A., Fulton, J. & Lowenber-DeBoer, J. 2009. *Consumer preferences as drivers of the common bean trade in Tanzania: a marketing perspective*. Working Paper No. 09-02. West Lafayette, Indiana, USA, Purdue University, Department of Agricultural Economics.

Mitchel, D. 2004. *Sugar policies: opportunity for change*. Policy Research Working Paper No. 3222. Washington, DC, World Bank.

Mitchell, D. & Baregu, M. 2012. The Tanzania cashew sector: why market reforms were not sustained. *In* M.A. Aksoy, ed. *African agricultural reforms: The role of consensus and institutions*. Washington, DC, World Bank.

Mkenda, B.K. & Van Campenhout, B. 2011. *Estimating transaction costs in Tanzanian supply chains*. Working paper 11/0898, November. London, UK , International Growth Centre.

Morrissey, O. & Leyaro, V. 2007. *Distortions to agricultural incentives in Tanzania*. Agricultural Distortions Working Paper No. 52. Washington, DC, World Bank.

Mugenyi, F. 2012. Marketing barriers with focus of maize, rice and oilseeds in Tanzania. Presented at the National Agriculture Policy Forum: Unleashing Potential Markets for Exporting Agricultural Products in Tanzania, 8 May 2012, Dar es Salaam.

Msambichaka, L.A. & Naho, A. 1995. Agricultural sector performance under SAP in Tanzania: Promising or frustrating situation? *In* L.A. Msambichaka, A.A.L. Kilindo and G.D. Mjema, eds. *Beyond structural adjustment program in Tanzania: successes, failures and new perspectives,* pp. 29–68. Dar es Salaam, Economic Research Bureau, University of Dar es Salaam.

National Agricultural Marketing Council of South Africa (NAMC) 2004. *Food Price Monitoring Committee final report*. Pretoria, National Agricultural Marketing Council (South Africa) (NAMC).

National Bureau of Statistics (NBS). 2000. *Tanzania Reproductive and Child Health Survey 1999.* Dar es Salaam, National Bureau of Statistics (NBS).

National Bureau of Statistics (NBS).2002. *Household Budget Survey*. Dar es Salaam.

National Bureau of Statistics (NBS).2005. *Tanzania Demographic and Health Survey 2004–2005*. Dar es Salaam.

National Bureau of Statistics (NBS).2006a. *Integrated Labour Force Survey 2007*. Dar es Salaam.

National Bureau of Statistics (NBS). 2006b. *Population Census. Regional and District Projections. Vol. XII*. Dar es Salaam.

National Bureau of Statistics (NBS).2007. *Household Budget Survey*. Dar es Salaam.

National Bureau of Statistics (NBS).2009. *Basic facts and figures in human settlements 2009.* Dar es Salaam.

National Bureau of Statistics (NBS). 2009. *National Panel Survey 2008–2009.* Dar es Salaam.

National Bureau of Statistics (NBS).2010. *Demographic and Health Survey 2010.* Dar es Salaam.

National Bureau of Statistics (NBS).2012. *Tanzania National Panel Survey Report 2010–2011*. Dar es Salaam.

Nazir, Z., Bastian, G., Wang, X., Armenta, G., Thompson, C. & Stone, C. 2010. *Food security in Tanzania: enabling environment, opportunities and constraints*. New York, Capstone Workshop, School of International and Public Affairs, Columbia University.

Ngailo, J.A., Kaswamila, A.L. & Senkoro, C.J. 2007. *Rice production in the Maswa District, Tanzania and its contribution to poverty alleviation*. Research Report No. 07.1. Dar es Salaam, Research on Poverty Alleviation (REPOA).

Njombe, A.P, Msanga, Y., Mbwambo, N. & Makembe, N. 2011. The Tanzania dairy industry: status, opportunities and prospects. Presented to the 7th African Dairy Conference and Exhibition, MovenPick Palm Hotel, 25–27 May 2011, Dar es Salaam.

Nshala, R. 1999. *Granting hunting blocks in Tanzania: The need for reform*. LEAT Policy Brief No. 5. Dar es Salaam, LEAT.

Nyange, D. & Wobst, P. 2005. *Effects of strategic grain reserve, trade and regional production on maize price volatility in Tanzania: An ARCH model analysis*. , Bonn, Germany, Centre for Development Research, University of Bonn. (PASAD project paper)

Organization of Economic Cooperation and Development (OECD). 2008. OECD's Producer Support Estimate and Related Indicators of Agricultural Support. Concepts, Calculations, Interpretation and Use (The PSE Manual). OECD, Paris

Organization of Economic Cooperation and Development (OECD). 2012. *Agricultural policies for poverty reduction*. Paris.

Organization of Economic Cooperation and Development (OECD). 2013. *Investment policy review for the United Republic of Tanzania*. Paris.

Organization for Economic Cooperation and Development – African Development Bank (OECD/ADB). 2008. *African Economic Outlook 2008*. Paris, Organisation for Economic Co-operation and Development (OECD) and African Development Bank (AFD).

Organization for Economic Cooperation and Development – African Development Bank (OECD/ADB). 2012. *African Economic Outlook 2012*. Paris, OECD.

Omore, A., Staal, S.J., Wanyoike, F., Osafo, E.L.K., Kurwijila, L., Barton, D., Mdoe, N., Nurah, G. & Aning, G. 2009. *Market mechanisms and efficiency in urban dairy products markets in Ghana and Tanzania*. Research Report No. 19. Nairobi, International Livestock Research Institute.

Ponte, S. 2004. The politics of ownership: Tanzanian coffee policy in the age of liberal reformism. *African Affairs,* 103(413): 615–633.

Poulton, C. & Maro, W. 2009. *The cotton sector of Tanzania*. Africa Region Working Paper Series No. 127. Washington, DC, World Bank.

Poulton, C. & Tschirley, D. 2009. A typology of African cotton sectors. *In* D. Tschirley, C. Poulton and P. Labaste, eds. *Organization and performance of cotton sectors in Africa: learning from Experience,* pp. 45–64. Washington, DC, World Bank.

President's Office, Planning Commission. 2011. *The Tanzania Five-Year Development Plan 2011/12–2015/16: Unleashing Tanzania's latent growth potentials*. Dar es Salaam.

Promar Consulting. 2011. *High Value Agriculture Study: The African coffee industry and Japan's trade and aid —supporting the Tanzanian and Ethiopian coffee industries and their export promotion*. Tokyo, Ministry of Agriculture, Forestry and Fisheries of Japan, and Promar Consulting.

Rural Livelihood Development Company (RLDC). 2009. *Dairy sub sector development strategy*. Dar es Salaam, Rural Livelihood Development Company (RLDC).

Rural Livelihood Development Company (RLDC). 2010. *Survey on dairy products market in Tanzania*. Dar es Salaam.

Sarris, A. & Mantzou, E. 2005. *Linkages between domestic and international maize markets, and market based strategies for hedging maize import price risks in Tanzania*. FAO Commodity and Trade Policy Research Working Paper No. 14. Rome, FAO.

Saelian Agricultural Research Institute (SARI). no date. *Wheat and barley research in Tanzania*. Sealian Agricultural Research Institute (SARI) www.erails.net/TZ/sari/sari/crop-research-programme/wheatandbarley-research/

Short, C. 2012. *Preliminary analysis of incentives and disincentives for maize in Kenya*. Technical Notes Series, MAFAP. Rome, FAO.

Southern Agricultural Growth Corridor of Tanzania (SAGCOT). 2010. *Southern Agricultural Growth Corridor of Tanzania. Appendix IV: Value chain and market analysis*. Dar es Salaam.

Stryker, D. 2012. *Study on policy options for increasing Tanzania exports of maize and rice*. Report to the USAID Feed the Future SERA policy project. Dar es Salaam, Tanzania.

Tanzania Food and Nutrition Centre (TFNC). 1993. *Nutrition-relevant actions in Tanzania*, F.P. Kavishe and S.S. Mushi. Dar es Salaam, Tanzania Food and Nutrition Centre (TFNC).

Tanzania Milk Processors Association (TAMPA) 2011. *Harmonization of regulatory framework in the dairy sector. Policy brief*. Dar es Salaam, Tanzania Milk Processors Association (TAMPA).

Temu, A.E., Manyama, A. & Temu, A.A. 2010. Maize trade and policy interventions in Tanzania. *In* A. Sarris and J. Morrison, eds. *Food security in Africa. Market and trade policy for staple foods in Eastern and Southern Africa*, pp. 317–353. Rome, FAO and Cheltenham, UK, Edward Elgar.

The Citizen. 2011. *Food export ban "here to stay"*. 20 August 2011. Available online at http://www.thecitizen.co.tz/sunday-citizen/40-sunday-citizen-news/13968-food-export-ban-here-to-stay.html.

The Citizen. 2012. *One more step towards union of African states*. 19 March 2012. Available online At http://thecitizen.co.tz/editorial-analysis/-/20779-one-more-step-towards-union-of-african-states.

The Citizen. 2012. *One more step towards union of African states*.19 March 2012.

United Nations Industrial Development Organization (UNIDO). 2011. *Tanzania's cashew value chain: a diagnostic*. African Agribusiness and Agro-Industries Development Initiative. Vienna, United Nations Industrial and Development Organization (UNIDO) and Dar es Salaam, Ministry of Industry and Trade.

USAID. 2010. *Staple foods value chain analysis. Country report Tanzania*. Washington, DC, United States Agency for International Development (USAID), Competetiveness and Trade Expansion Program (COMPETE).

USAID. No date. Tanzania property rights and resource government profile.

Van Campenhout, B. 2007. Modeling trends in food market integration: method and an application to Tanzanian maize markets. *Food policy,* 32: 112–127.

Vice President's Office (VPO). 2007. *United Republic of Tanzania National Adaptation Programme of Action (NAPA).* Dar es Salaam, Division of Environment.

WDI. 2012. World Bank World Development Indicators database. http://data.worldbank.org/data-catalog/world-development-indicators

WITS. 2012. World Integrated Trade Solutions. World Bank.

World Bank. 2008. The urban transition in Tanzania. Washington, DC.

World Bank. 2009. *Eastern Africa: A study of the regional maize market and marketing costs*. Report No. 49831-AFR. Washington, DC, Agriculture and Rural Development Unit.

World Bank. 2010. *Rapid budget analysis for annual review 2010/11 in the United Republic of Tanzania agriculture sector*. Dar es Salaam. (unpublished).

World Bank (WB). 2012. *Africa can help feed Africa: removing barriers to regional trade in food staples*. Poverty Reduction and Economic Management Africa Region, Report No. 66500-AFR. Washington DC, USA.

World Bank & International Finance Corporation. 2013. *Doing Business 2013. Smarter regulations for small and medium-size enterprises*. Washington, DC.

World Economic Forum. 2012. *The Global Competitiveness Report 2012–2013*. Davos, Switzerland.

World Trade Organization (WTO). 2012. *Trade policy review: East African Community (EAC)*, Annex 4 Tanzania. Geneva, World Trade Organization (WTO), Trade Policy Review Body.

Annex I. SUMMARY OF MAIN METHODOLOGICAL CONCEPTS USED IN THE PUBLIC EXPENDITURE ANALYSIS.

Main concepts

The methodology proposes to capture all public expenditures that are undertaken in support of food and agriculture sector development. That includes expenditures from the national budget, either central or regional government, regardless of the ministry that implements the policy, and external aid, provided either through local governments or specific projects conducted by international organisation or NGOs.

The primary focus is on the food and agriculture sector, however, for some countries forestry and fisheries may be an important part of rural activity and are also included in the scope of the project.

We seek to capture all public expenditures in the rural areas, such as rural infrastructure, rural education and rural health, as they may also have an important role in agriculture's sector development, even if they are not specific to the sector.

Expenditure measures generate explicit or implicit monetary transfers to supported individuals or groups. We consider all those expenditure measures that generate explicit or implicit monetary transfers in support of food and agriculture sector development. These measures are divided into two main categories of expenditures: agricultural-specific expenditures and agricultural supportive expenditures. Agricultural-specific expenditures include those measures that generate monetary transfers to agricultural agents or sector as a whole. The agents, or the sector as a whole, must be the only, or the principal recipient of the transfers generated by the expenditure measure. Agriculture supportive measures should include measures that are not strictly specific to agriculture sector, but that have strong influence on agricultural sector development such as investments in rural development. All the measures that comply with these criteria are considered, regardless their nature, objectives or perceived economic impacts.

Further, general expenditure measures available throughout the entire economy are not considered, even if they generate monetary transfers to agricultural sector.

Finally, the expenditure measures are considered and classified according to the way in which they are implemented and not on the basis of their objectives or economic impacts.

Classification and disaggregation

Many expenditures of greatest relevance to agricultural development, in terms of their ability to expand the production frontier, may not be specific to agriculture, but could fall into other categories. Moreover, support can be provided in several different ways. Support to agricultural producers may be provided via reduced input prices (e.g. a fertiliser subsidy), cost sharing for fixed capital (e.g. machinery), revenue foregone by the government (tax concession), reimbursement of

taxes or charges or services in kind (e.g. delivery of extension services). Agriculture-specific support to the sector more generally may be provided via spending on agricultural education, research, marketing of agricultural goods, irrigation etc. Some policies, which benefit agriculture, may be even more general, such as expenditures on rural infrastructure, rural education or rural health. Although the latter are not sector specific, they may be sector supportive.

In order to capture all public expenditures in support of the food and agriculture sector, the following breakdown is proposed.

1. A broad distinction between policies that are: agriculture-specific, agriculture supportive and non-agricultural expenditures.
2. Within the agriculture-specific category, a distinction between support to producers and other agents in the value chain, and general sector support. The agents in the value chain include farmers (producers), input suppliers, processors, consumers, traders and transporters.

The detailed classification of support follows the OECD's principle of classifying policies according to their economic characteristics i.e. the way they are implemented, which provides the basis for further policy analysis (OECD, 2008). The particular categories, however, should be designed to reflect the types of policies applied in African countries. Likewise, the categories proposed in the box below have been elaborated based on the experience of various agencies, including FAO (e.g. FAO, 2006), working on public expenditures in developing countries (for a comprehensive overview, see Balie et al., 2010). Further, drawing on the OECD's experience, the classification proposed aims at distinguishing, to the extent possible, policies providing private goods as opposed to public goods, given their different economic effects.

Proposed classification of public expenditures in support of the food and agriculture sector

I. Agriculture-specific policies – monetary transfers that are specific to agriculture sector i.e. agriculture is the only, or major, beneficiary of a given expenditure measure

I.1. Payments to the agents in the agro-food sector – monetary transfers to the agents of agro-food sector **individually**

I.1.1. Payments to producers – monetary transfers to individual agricultural producers (farmers)

A. Production subsidies based on outputs – monetary transfers to agricultural producers that are based on current output of a specific agricultural commodity

B. Input subsidies – monetary transfers to agricultural producers that are based on on-farm use of inputs:

- **variable inputs** (seeds, fertiliser, energy, credit, other) – monetary transfers reducing the on-farm cost of a specific variable input or a mix of variable inputs
- **capital** (machinery and equipment, on-farm irrigation, other basic on-farm infrastructure) – monetary transfers reducing the on-farm investment cost of farm buildings, equipment, plantations, irrigation, drainage and soil improvements
- **on-farm services** (pest and disease control/veterinary services, on-farm training, technical assistance, extension etc., other) – monetary transfers reducing the cost of technical assistance and training provided to individual farmers

C. Income support – monetary transfers to agricultural producers based on their level of income

D. Other – monetary transfers to agricultural producers individually for which there is insufficient information to allocate them into above listed categories

I.1.2. Payments to consumers – monetary transfers to final consumers of agricultural commodities individually in form of:

E. food aid – monetary transfers to final consumers reducing the cost of food

F. cash transfers – monetary transfers to final consumers to increase their food consumption expenditure

G. school feeding programmes – monetary transfers to final consumers providing free or reduced-cost food in schools

H. other – monetary transfers to final consumers individually for which there is insufficient information to allocate them into above listed categories

I.1.3. Payments to input suppliers – monetary transfers to agricultural inputs suppliers individually

I.1.4. Payments to processors – monetary transfers to agricultural commodities processors individually

I.1.5. Payments to traders – monetary transfers to agricultural traders individually

I.1.6. Payments to transporters – monetary transfers to agricultural commodities transporters individually

1.2. General sector support – public expenditures generating monetary transfers to the agro-food sector agents **collectively**

I. Agricultural research – public expenditures financing research activities improving agricultural production

J. Technical assistance – public expenditures financing technical assistance agricultural sector agents collectively

K. Training – public expenditures financing agricultural training

L. Extension/technology transfer – public expenditures financing provision of extension services

M. Inspection (veterinary/plant) – public expenditures payments financing control of quality and safety of food, agricultural inputs and the environment

N. Infrastructure (roads, non-farm irrigation infrastructure, other) – public expenditures financing off-farm collective infrastructure

O. Storage/public stockholding – public expenditures financing public storage of agro-food products

P. Marketing – public expenditures financing assistance in marketing of agro-food products

R. Other – other transfers to the agro-food agents collectively for which there is insufficient information to allocate them into above listed categories

II. Agriculture supportive policies – public expenditures that are not specific to agriculture, but which have a strong influence on agricultural sector development

S. Rural education – public expenditures on education in rural areas

T. Rural health – public expenditures on health services in rural areas

U. Rural infrastructure (rural roads, rural water, rural energy and other) – public expenditures on rural infrastructure

V. Other – other public expenditures on rural areas benefiting agricultural sector development for which there is insufficient information to allocate them into above listed categories

For more details on MAFAP methodology on measurement of public expenditures in support of food and agriculture sector development, see **www.fao.org/mafap**.

Annex II. PROJECTS AND PROGRAMMES INCLUDE IN EACH OF THE CATEGORIES OF PUBLIC EXPENDITURE.

List of measures and implementing government bodies included in the analysis of public expenditure in support of the agricultural sector and rural development.

The final version of the report will provide further information identifying in which category(ies) each measure has been considered.

As a first approach, measures in italics and red font refer to those which are included in the rural development expenditure (*Category II. Agriculture supportive policies*).

Table Annex II.1. RECURRENT BUDGET	
Measure	**Implementing Government Body**
Contingencies non-emergency (subvote 2001)	Treasury
Prison farms (subvote 4003)	MHA-prison services
Administration and General (subvote 1001)	MAFSC
Finance and accounts (subvote 1002)	MAFSC
Policy and planning (subvote 1003)	MAFSC
Agriculture Training Institute (subvote 1004)	MAFSC
Internal audit unit (subvote 1005)	MAFSC
Procurement management unit (subvote 1006)	MAFSC
Infromation, education and commucation (subvote 1007)	MAFSC
Legal unit (sub vote 1008)	MAFSC
Management information unit (sub vote 1009)	MAFSC
Environment management unit (subvote 1010)	MAFSC
crop development (subvote 2001)	MAFSC
Agricultural mechanisation (subvote 2002)	MAFSC
Agricultural land use planning and management (subvote 2003)	MAFSC
Plant breeders'unit (subvote 2004)	MAFSC
Research development (subvote 3001)	MAFSC
Cooperative development (subvote 4001)	MAFSC
National food secuirity (subvote 5001)	MAFSC
Strategic grain reserve (subvote 5002)	MAFSC
Commodity market development (subvote 4002)	MITM
Directorate of irrigation and technical (subvote 2004)	MWI
Rural water supply (subvote 4001)	*MWI*
Drilling and dam construction agency (subvote 6001)	MWI
Science and technology (subvote 3003)	MCST
Forestry and beekeeping (subvote 3001)	*MNRT*
Fisheries (subvote 3002)	*MNRT*
Administration and General (subvote 1001)	MLDF
Finance and accounts(subvote 1002)	MLDF

Policy and planning (subvote 1003)	MLDF
Livestock research and training institute (subvote 1004)	MLDF
Information, communication and education (subvote 1005)	MLDF
National livestock institute - MPWAPWA (subvote 1006)	MLDF
Internal audit unit (subvote 1007)	MLDF
Procurement management unit (subvote 1008)	MLDF
Legal services unit (subvote 1009)	MLDF
Veterinary services (subvite 7001)	MLDF
Livestock identification, registration a (subvote 7002)	MLDF
Pastoral system development (subvote 7003)	MLDF
Central veterinary laboratories (subvote 7004)	MLDF
Animal production (subvote 8001)	MLDF
Fisheries development division (subvote 9001)	MLDF
Acquaculture development division (subvote 9002)	MLDF
Government subvetions to internal institutions and parastatals	
Agricultural council of Tanzania	MAFSC
Tanzania Official Seed Certification Institute	MAFSC
Tanzania Fetilizer Regulatory Authority	MAFSC
Tanzania Sisal Board	MAFSC
Tanzania Sugar Board	MAFSC
Tanzania Pyrethrum Board	MAFSC
Tanzania Tea Board	MAFSC
Tanzania Coffee Board	MAFSC
Tanzania Tobacco Board	MAFSC
Tanzania Cachewnut Board	MAFSC
Tanzania Cotton Board	MAFSC
Tanzania Cereal Board	MAFSC
Agricultural seed agency (asa)	MAFSC
Tanzania smallholder Tea Dev. Agency	MAFSC
Horticulture development council	MAFSC
Agriculture input trust fund	MAFSC
National sugar training institute	MAFSC
Tobacco research institute - torita	MAFSC
Tanzania coffee reseach institute	MAFSC
Tea Research Institute of Tanzania	MAFSC
Naliendele cashewnut research institute	MAFSC
Ukiliguru Cotton Research centre	MAFSC
Kibaha sugar research centre	MAFSC
Agricultural research institute- mlingano	MAFSC
Tanzania pesticides research institute	MAFSC
National food security agency	MAFSC
Centre for Agri.Mech. And Rural Tech. (CAMARTEC)	MITM
Small Industries Development organisation (SIDO)	MITM
Tanzania warehouse licensing Board	MITM
Sokoine University of Agriculture (SUA)	MEVT

University of Dar es Salaam - agriculture	MEVT
Moshi University college Co-op and Business - agriculture	MEVT
Tanzania Food and Drugs Authority (TFDA)	*MHSW*
Tanzania Food and Nutrition centre	MHSW
Rural electrification agency	*MEM*
Tanzania forestry research institute	*MNRT*
Forest training institute	*MNRT*
Beekeeping training Institute	*MNRT*
Tanzania tree seed	*MNRT*
Tanzania fisheries research institute	*MLDF*
Tanzania diary board	MLDF
Tanzania meat board	MLDF

Table Annex II.2. DEVELOPMENT BUDGET	
Measure	**Implementing Government Body**
Small enterpreneurs loan facilities (self)	Treasury
National income generation programme (nigp)	Treasury
Cooperative reform and modernisation programme	CDC
Tasaf	PO
Lake Tanganyika Environment management programme	*V-PO*
Agriculutral markets system development programme (ASMDP)	PMO
Rural financial services programmes	PMO
Tanzania Multi- Sectoral AIDS project (TMAP)	MAFSC
Public sector Reform Programme II (PSRP ii)	MAFSC
Public sector Reform Programme II (PSRP ii)	MAFSC
Agriculture Sector programme support	MAFSC
Agriculture sector development programme (asdp)	MAFSC, PMO-RALG, MWI, MITM, MLDF
District agriculture sector investment programme (dasip)	MAFSC
Public sector Reform Programme II (PSRP ii)	MAFSC
Enviroment Management Act (EMA) - implementation support programme	MAFSC, PMO-RALG, MLDF, V-PO
Participatory agricultural development empowerment project (padep)	MAFSC
Special programme for food security	MAFSC
Cleaner integral utilisation of sisal waste project	*MAFSC*
Accelerated food security project	MAFSC
Comprehensive agriculture development lower Rufiji	MAFSC
Lake Victoria enviroment management project	MAFSC
Agriculture land use planning and manage	MAFSC
Soil and water conservation	MAFSC
Tanzania tea research	MAFSC
Agriculture training institute	MAFSC
Stabex coffee	MAFSC
Cooperative Reform and Modernisation programme	MAFSC

Tanzania mini Tiger plan 2020	*MITM*
Epz development	*MITM*
BEST project	*MITM*
Rural micro, small and medium Enterprises	MITM
Improvement of Cotton/ coffee marketing	MITM
Legal sector reform programme	*MITM*
Rehabilitation of schools and colleges	*MEVT*
Unicef support to education	*MEVT*
Primary education development programme	*MEVT*
Improvement of primary education	*MEVT*
Provision of Secondary Education	*MEVT*
Secondary Education Development programme (SEDP)	*MEVT*
Implementation of BEST programme	*MLHSSD*
Village demarcation and ground photo	*MLHSSD*
Expansion and rehabilitation of rural water supply	*MWI*
Borehole drilling and dams construction	*MWI*
Rehabilitation of rural water	*MWI*
Rural water supply and sanitation	*MWI*
Rehabilitation of rural water	*MWI*
Management support to lgas	*MWI*
Tunduma-Sumbawanga Road construction	*MF*
Namtumbo-Songea Road construction	*MF*
Peramiho-Mbinga Road construction	*MF*
Tanga-Horohoro Road construction	*MF*
Zanzibar rural roads-construction	*MF*
Health sector development programme	*MHSW*
HIV / AIDS Control programme	*MHSW*
Tanzania food and nutrition centre	*MHSW*
TB/Leprosy control Programme	*MHSW*
Tanzania food and drugs authority	MHSW
Rural water suppy and sanitation programme	*PMO-RALG*
Village travel and Transport programme	*PMO-RALG*
Primary Education development programme (PEDP)	*PMO-RALG*
Participatory forest management	*PMO-RALG*
Land management programme	*PMO-RALG*
Primary Health service Development programme	*PMO-RALG*
District Health infrastructure	*PMO-RALG*
Rural energy services	*MEM*
Rural electrification	*MEM*
Rural Energy Agency and rural energy fund	*MEM*
Rural pv- market (Barrier removal)	*MEM*
Rural electrification projects (spanish phase iiic)	*MEM*
Wayleave villages electrical scheme	*MEM*
ERT (village Electrification)	*MEM*
Forest policy implementation support	*MNRT*

Marketing of bee products	*MNRT*
Participatory forest management	*MNRT*
Support to forest national programme	*MNRT*
National forest resource monitoring and assessment (NAFORMA)	*MNRT*
UNDP support programme	*MNRT*
Rural roads (Subvote 7001)	*MID/MW*
Transport infrastructure division (subvote 2005)	*MID/MW*
Tanzania Meteorological Agency (TMA) radar	MID/MW
Roads division	*MID/MW*
Public sector reform programme	MLDF
Tanzania Multi- Sectoral HIV/AIDS project (TMAP)	MLDF
Livestock disease control	MLDF
National diary and rangeland development	MLDF
Marine and coast Enviroment management project (MACEMP)	*MLDF*
UNDP support programme	MLDF

CONTACTS

www.fao.org/mafap
mafap@fao.org

FAO Headquarters
Viale delle Terme di Caracalla
00153 Rome, Italy

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