
Chapter 5

Impact of Mali's food and agricultural policies: an assessment of public expenditure and incentives to production from 2005 to 2010*

Alban MAS APARISI¹, Jean BALIÉ¹, Fatoumata DIALLO², Joanna KOMOROWSKA³, Naman KEITA²

* Correct citation: Aparisi , A., J. Balie, F. Diallo, J. Komorowska, and N. Keita (2013), ***Impact of Mali's food and agricultural policies: an assessment of public expenditure and incentives to production from 2005 to 2010***, In: *Rebuilding West Africa's Food Potential*, A. Elbehri (ed.), FAO/IFAD.

¹ Food and Agriculture Organization (FAO)

² Institute of Rural Economics (IER)

³ Organisation for Economic Co-operation and Development

Table of Contents

1. Introduction	153
2. Context of food security and agriculture in Mali	154
3. An analysis of Mali's public expenditure: composition and volume	156
3.1 General trends in public expenditure in support of agriculture in Mali	156
3.2 Composition of public expenditure in support of agricultural and food sector in Mali	157
3.3 Role of aid in public expenditure on agriculture in Mali	162
3.4 Main messages on public expenditure	164
4. Price policy analysis: incentives and market development gaps along Mali's main value chains	166
4.1 MAFAP methodology overview	166
4.2 Defining pathways, collecting and estimating access costs and prices	167
4.3 Caveats and limitations about the methodology	169
4.4 MAFAP's aggregated indicators on incentives, disincentives and market development gaps in Mali	169
5. Assessing agricultural policy coherence in Mali from 2005 to 2010: three case studies	174
5.1 Policy coherence in the MAFAP analysis	174
5.2 The case of rice: contradictory objectives result in apparent incoherence	176
5.3 The case of livestock: lack of support despite a strong potential in the value chain	178
5.4 The case of millet and sorghum: short-term coherence but uncertainty in the long run	180
6. Conclusion	183
7. References	184

1. Introduction

During the past decade, economic growth in Africa has been relatively strong overall, with per capita income growing, on average, by almost 5 percent per year (MAFAP, 2010). Yet the agricultural sector has not fared as well. Africa has been a net food-importing region; net imports of cereals, in particular, grew by over 50 percent between 1995 and 2007, from 30 million tonnes to 46 million tonnes (MAFAP, 2010). Unless fundamental policy changes are made and resources used more effectively, cereal imports could grow to over 60 million tonnes in the next decade (MAFAP, 2010).

To attain specific development objectives, governments use policies to change the rules governing the economy as a whole (macro-economic policies), or those governing a particular economic sector (sector policies), in order to guide and modify the behaviour and decisions of agents operating in the economy. One way this can be done is by establishing a legal framework (e.g. food quality or safety norms, or property rights) by which economic agents must abide or run the risk of legal prosecution or fines. Another approach is 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.

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. This expenditure may include the provision of public goods through public investment in infrastructure or provide private benefits, such as subsidies or income transfers. The Heads of State of the African Union have committed to the Maputo Declaration of 2003, stating that they would commit to the allocate at least 10 percent of their resources to agriculture and rural development policy implementation within five years. However, this has put the emphasis on the amount of public expenditure going to agricultural and rural development rather than on its appropriate composition, which is crucial for attaining policy consistency and efficiency.

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

Some of the key questions that governments need to consider include the following:

- Do the policies in place provide incentives for production, processing and marketing in key food and agricultural value chains?
- Who, in the most strategic value chains, 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 is more closely aligned with government objectives?
- Is public expenditure used in a way that addresses the key issues faced by the food and agriculture sector? (e.g. which is the most efficient way to improve farmer incomes: an input subsidy or investment in a road?) Is public investment focusing on key investment needs?
- Are policy incentives and public expenditure consistent or do they, in some cases, provide contradictory signals to the economy, resulting in wastage of precious public resources?
- Are public resources spent efficiently, or is an excessive share used to cover administrative costs?

Having insights to answer these questions is all the more important as governments are establishing multiple short-term agricultural and rural policies in many countries of the world as a reaction to the food crisis of 2008 and the present price surge (see Maetz et al., 2011).

This chapter seeks to provide some answers about the coherence and effects of agricultural policies, taking the example of Mali and building on the first results of the Monitoring African Food and Agriculture Policies (MAFAP) project of the United Nations Food and Agriculture Organization (FAO). The MAFAP project is currently being implemented in ten African countries, working with national institutions to undertake work based on an innovative methodology that measures the effects of food and agricultural policies through a two-pronged approach.

First, public expenditures are being examined, including the very nature of activities being implemented and funded partially or totally through the public budget. This enables a better understanding of the composition of public expenditure: commodities being supported, type of activities, beneficiaries and so on.

Second, the MAFAP analysis considers the way the government provides incentives and disincentives through price policies to different agents in the main value chains. To do this, the MAFAP methodology entails a comparison of reference prices (usually international prices) with observed wholesale and producer prices to determine whether the value chain actors get the prices they should get, that is whether observed prices are distorted by agricultural and rural policies.

These two approaches, when combined, offer a rich understanding of the actual effects of agricultural and rural policies implemented by African governments. This allows decision-makers and development stakeholders to assess the coherence of these policies and to conclude whether the various policy measures are consistently implemented and whether they actually reach the stated and/or desired government objectives.

This chapter will present preliminary results from the MAFAP analysis in Mali for the period 2005-2010. After a brief review of the food and agricultural context of Mali (Part 1), the paper will provide a full set of results from the MAFAP public expenditure analysis in the country (Part 2). The methodology for the incentives/disincentives analysis will then be briefly summarized, followed by aggregated results of incentives and disincentives received by producers and wholesalers for eight key value chains (millet, sorghum, maize, rice, cotton, livestock, cow milk and groundnuts), as well as market development gaps (Part 3). The final part will combine the two approaches to examine Mali's agricultural and rural policy coherence, taking four products as examples: rice, livestock, sorghum and millet.

2. Context of food security and agriculture in Mali

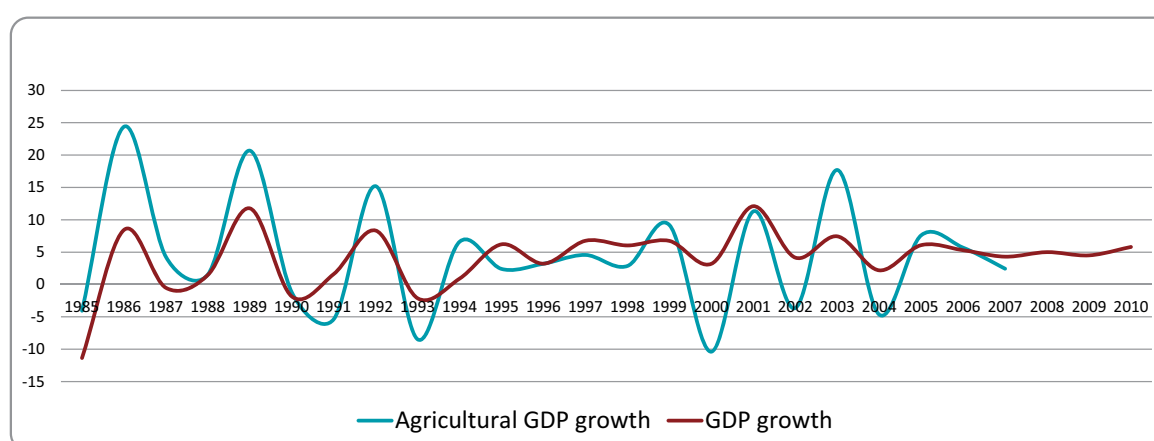
The Malian agricultural sector is dominated by small family farms (68 percent). The sector grew by 4.9 percent in 2010 (World Bank, 2012), and contributed 37 percent to gross domestic product (GDP) in 2008. However, growth of the agricultural sector is subject to high annual variations and even negative years, with disparities between different sub-sectors (see Figure 1 and Table 1).

The agricultural trade balance of Mali has been in deficit since 1976 and this period was marked by continual growth in the value of agricultural imports (except in 2003-2004 and 2006-2007). Grains,

including rice and wheat, account for 80 to 95 percent of the value of total agricultural imports. Cotton accounts for 92 to 97 percent of the total agricultural exports, but its value has declined steadily since 2003. The cotton sub-sector has long been characterized by the fact that the value added has been largely distributed among the various actors of the value chain resulting in interesting spill over effects in terms of income generation. However, it has been facing a prolonged crisis.

Other sub-sectors show significant potential, including livestock, which could be better structured to become a huge economic driver in the country. In the vegetable and fruit sub-sectors, crops such as onions/shallots and mango also offer opportunities for diversification of production. In addition, good water availability, thanks to the Niger and Senegal rivers, offers the prospect of more intensive agricultural production. Encouraging progress is already registered for rice and maize, which have shown yield increases in recent years. These are positive advances towards diversification of agricultural income which has been heavily based on the cotton sector up to now.

Figure 1. Annual growth in agricultural and total GDP in Mali, in %, 1985-2010



Source: World Bank, 2012

Table 1. GDP of the primary subsectors in Mali, in % of total primary sector GDP, 2005-2010

	2005	2006	2007	2008	2009	2010
Agricultural GDP	58	60	59	64	64	66
Livestock GDP	26	25	26	23	23	22
Forestry GDP	14	13	13	11	11	11
Fishery GDP	2	2	2	2	2	2
Primary sector GDP	100	100	100	100	100	100

Source: INSTAT, 2011

Most agricultural value chains, however, encounter significant obstacles to investment, production, processing and marketing. The state has an important role to play, especially in relation to access to inputs that are seldom used – e.g. 3.04 kg fertilizer/ha cultivated (World Bank, 2012) – and often difficult to obtain. The government has been investing heavily in this area through input subsidies, which have increased steadily since 2008, reaching 36 billion FCFA in 2012 (MAFAP, 2012).

Transport infrastructure – for example, only 24.5 percent of roads over the country are paved (World Bank, 2012) – still appears insufficient to enable most small producers to increase their income. Improved performance of the agricultural sector also requires more capacity building and strengthening of producer organizations, which still lack resources and skills to support the farmers and develop the sector sufficiently.

The agricultural GDP has been growing mainly through the expansion of cultivated areas, which results in increased environmental risk, including land degradation, deforestation (6.2 percent between 2005 and 2010), and low resilience to natural disasters (FAO GFRA, 2010).

The dynamic economic growth (approximately 5 percent per year) of the country over the past ten years is probably related to the high rate of population growth, a staggering 3.6 percent per year between 1998 and 2009 (World Bank, 2012). The average income per capita in purchasing power parity (PPP) stood at USD1 030 in 2010 (World Bank, 2012). Although the average per capita income almost doubled and poverty has decreased by 12 percent since 2000, Mali remains one of the world's poorest countries, with 43.6 percent of the population living on less than a dollar a day in 2010 (See Table 2).

Table 2. Population living below the national poverty line (USD 0.95) and below USD 1.25/day in Mali, in %, 2001-2010

	2001	2006	2010
Share of population living with less than USD 0.95/day (INSTAT)	55.6	47.4	43.6
Share of population living with less than USD 1.25/day (World Bank)	25.8	18.8	16.4

Source: INSTAT, 2011, cited by Bourdet, Dabitaou and Dembele, (2011) and World Bank (2012).

Faced with the reality of a population in precarious living conditions and largely dependent on the growth of the rural economy, it appears essential for the government to have a solid information base for its policy choices and directions for the socio-economic development of rural areas and agriculture in particular.

3. An analysis of Mali's public expenditure: composition and volume

3.1 General trends in public expenditure in support of agriculture in Mali

The total approved budget for the sector increased by 72 percent, in nominal terms, from 2004 to 2010, reaching 198 billion FCFA (Table 3).

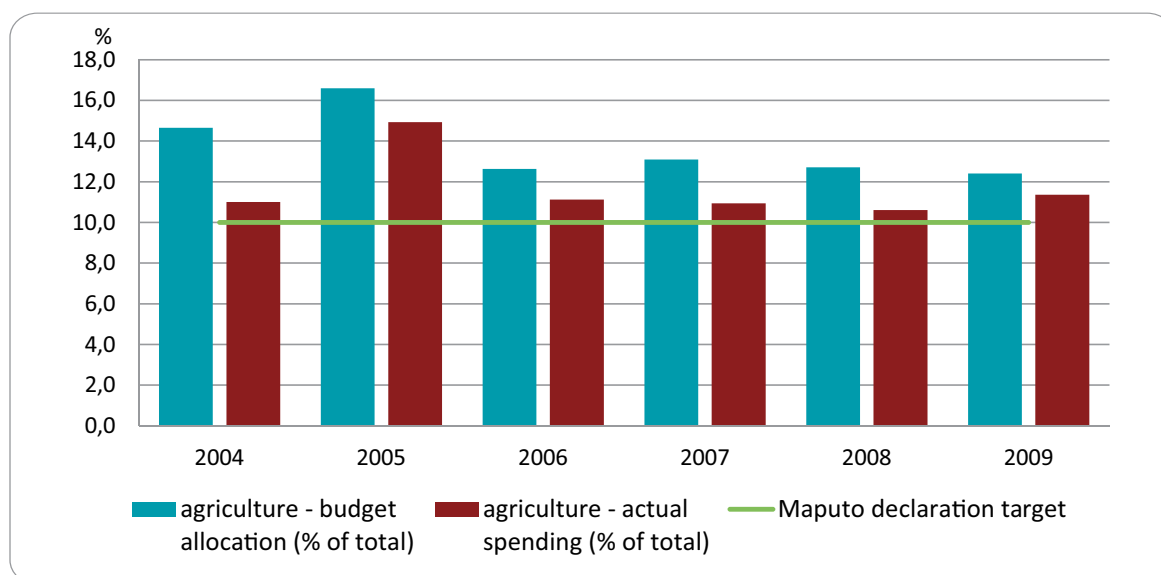
Table 3. Total and agricultural expenditure in Mali: budget allocations and actual spending, in %, 2004-2010

	2004	2005	2006	2007	2008	2009	2010	
	billion FCFA							
Budget allocation	115.3	141.2	118.2	130.2	134.2	143.2	198.0	72%
Actual spending	72.6	117.1	95.3	96.9	94.8	117.1	132.3	82%

Source: Authors, based on CPS and MEF (2011).

Total actual spending has grown even more: it increased by 82 percent from 2004 to 2010, reaching 132.3 billion FCFA. In relative terms, however, the agricultural budget allocations have declined from almost 15 percent of total government spending in 2004 to about 12 percent in 2009, while actual spending was at a similar level of 11 percent in 2004 and 2009 (Figure 2)¹.

Figure 2. Agriculture in total government expenditure in Mali: planned and actual spending, 2004-2009 %



Source: Authors, based on CPS and MEF (2011).

Although, in relative terms, the trends show the importance of agriculture in the total government budget declining slightly, the current level of spending meets the Comprehensive Africa Agriculture Development Program (CAADP) recommendation of allocating 10 percent of the overall budget to agriculture and rural development (including national resources and aid), as expressed in the 2003 Maputo Declaration.

3.2 Composition of public expenditure in support of agricultural and food sector in Mali

Data collected at country level allow for a good disaggregation of expenditure, funded from national resources and foreign aid, which is allocated to the agricultural sector. About 100 projects and programs were identified and grouped according to the MAFAP classification, as outlined in the project methodology (MAFAP, 2010). Collected data covered the 2006 to 2010 period. However, for some of the expenditure, data on policy measures were missing for the most recent year. In such cases, estimation methods were provisionally applied, until the most recent data can be obtained from the country. The results are shown in Table 4.

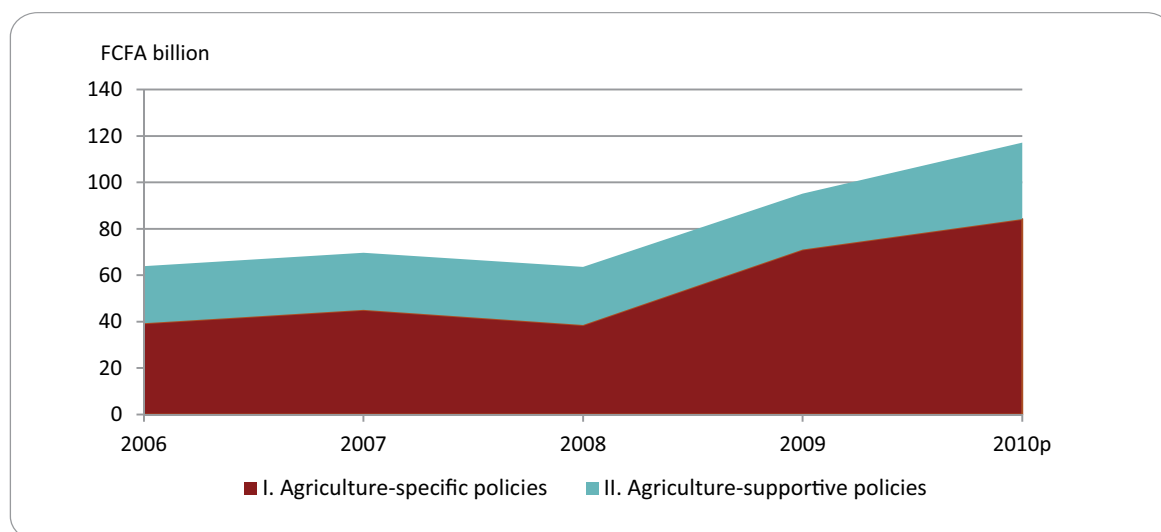
Agriculture-specific expenditure accounts, on average, for almost 70 percent of expenditure in support of food and agriculture development. The level of this expenditure in overall agricultural support increased from about 60 percent in 2006 to 80 percent in 2010. In terms of the level of spending, the agriculture-specific expenditure almost doubled over the analysed period, while agriculture-supportive expenditures increased only slightly (Figure 3).

¹At the time this paper was drafted, data on the total government budget were not available for 2010.

Table 4. Public expenditure in support of food and agriculture in Mali (actual spending) in billion FCFA, 2006-2010

	FCFA billion				
	2006	2007	2008	2009	2010
I. Agriculture-specific policies	39.3	45.1	38.6	71.1	84.2
I.1. Payments to agents in the agri-food sector	17.8	19.4	17.2	26.3	30.0
I.1.1. Payments to producers	16.6	17.4	15.6	23.9	27.1
A. Payments based on output	0.0	0.0	0.0	0.0	0.0
B. Input subsidies	16.3	17.0	15.2	23.5	26.7
<i>B1. variable inputs</i>	0.9	2.4	1.7	4.5	5.2
<i>B2. capital</i>	15.0	14.5	13.4	19.0	21.2
<i>B3. on-farm services</i>	0.4	0.1	0.1	0.1	0.3
C. Income support	0.3	0.4	0.4	0.4	0.4
D. Other	0.0	0.0	0.0	0.0	0.0
I.1.2. Payments to consumers	0.6	0.9	0.5	0.8	0.7
E. Food aid	0.5	0.7	0.4	0.6	0.6
F. Cash transfers	0.1	0.2	0.1	0.2	0.2
G. School feeding programs	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	0.6	1.0	1.1	1.6	2.2
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	21.6	25.7	21.4	44.8	54.2
I. Agricultural research	0.2	0.5	0.6	3.0	3.2
J. Technical assistance	0.1	0.7	0.6	3.2	3.9
K. Training	3.0	4.2	2.5	7.3	9.7
L. Extension	0.1	0.7	0.5	1.1	1.4
M. Inspection (veterinary/plant)	1.7	2.6	2.7	5.2	6.1
N. Infrastructure	11.4	10.6	9.3	14.0	13.2
<i>N1. roads</i>	1.0	2.2	2.2	3.5	3.0
<i>N2. irrigation water</i>	7.7	5.9	5.1	7.7	9.1
<i>N3. other</i>	2.7	2.5	1.9	2.8	1.2
O. Storage/public stockholding	2.8	2.8	2.3	2.4	2.6
P. Marketing	1.3	3.3	2.6	7.6	13.1
R. Other	0.9	0.3	0.4	0.9	1.0
II. Agriculture-supportive policies	24.6	24.6	25.0	24.1	32.9
S. Rural education	3.2	3.0	2.4	1.8	2.2
T. Rural health	4.8	2.8	2.6	2.5	2.6
U. Rural infrastructure	11.1	9.7	9.0	10.7	15.2
<i>U1. roads</i>	9.4	8.6	8.5	10.4	13.6
<i>U2. water and sanitation</i>	0.7	0.4	0.3	0.2	1.6
<i>U3. energy</i>	0.7	0.6	0.3	0.1	0.1
<i>U4. other</i>	0.3	0.1	0.0	0.0	0.0
V. Other	5.4	9.1	11.0	9.1	12.9
III. Total expenditure in support of the food and agriculture sector	63.9	69.7	63.6	95.2	117.1

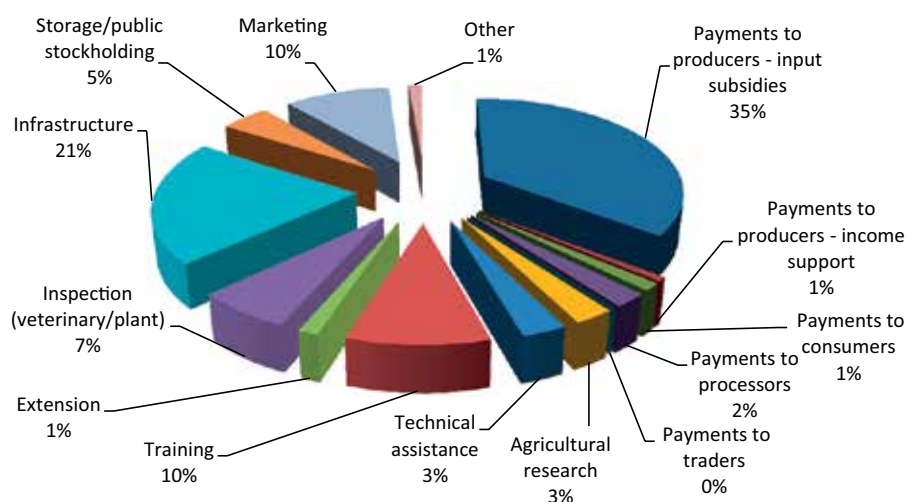
Source: Authors, based on budgetary data collected by Institut d'Economie Rurale in Mali for the MAFAP project. ^p - provisional estimate.

Figure 3. Composition of public expenditure in support of agriculture in Mali, in billion FCFA, 2006-2010

Source: Authors, based on budgetary data collected by Institute of Rural Economy in Mali for the MAFAP project.

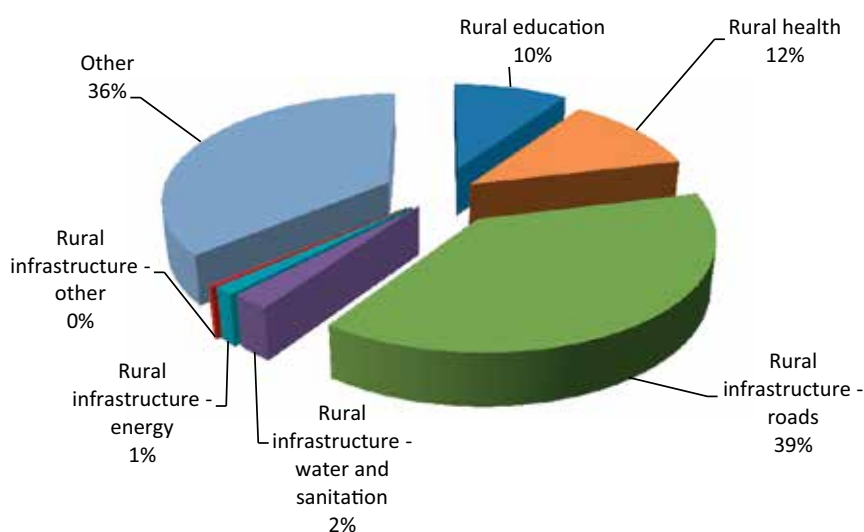
Among agriculture-specific expenditure measures, about 60 percent are in the category of general sector support (Figure 4). Most of this expenditure falls into the infrastructure category, with the largest investments in irrigation/water and feeder roads. Other significant expenditure supports training, inspection, storage (including investments in related infrastructure) and marketing (including investments in construction of markets). These expenditure shares did not change significantly throughout the analysed period. Agricultural research, technical assistance and extension services account for only a small proportion of agriculture-specific spending; however, their shares of this expenditure increased in the second half of the period analysed.

Payments to agents in the agri-food sector account for the remaining 40 percent of agriculture-specific expenditure. Within this category, the majority of expenditure consists of payments to producers in the form of input subsidies, particularly subsidies for capital formation (including support for purchasing machinery and equipment, investments in irrigation and access to credit), as well as for variable inputs and on-farm services. There is also some expenditure for income support to producers, but this accounts for a very small proportion of agriculture-specific spending. Other payments to agents in the agri-food sector include payments to consumers (mostly in the form of food aid and cash transfers), payments to processors and payments to traders, but those also account for a very small proportion of agriculture-specific spending. There are no payments to transporters or suppliers of inputs.

Figure 4. Composition of agriculture-specific spending in Mali, in %, average 2006-2010

Source: Authors, based on budgetary data collected by Institute of Rural Economy in Mali for the MAFAP project.

The agriculture-specific expenditure is complemented by agriculture-supportive expenditure which accounts, on average, for about 30 percent of overall support to the food and agriculture sector in Mali. Among agriculture-supportive measures, by far the largest expenditure is on rural infrastructure, and most of that constitutes investments in rural roads (Figure 5). There is relatively little investment in rural water and sanitation or rural energy; however, there is significant expenditure on rural health and education. These proportions remained almost constant throughout the period analysed. It is important to note, however, that about a third of agriculture-supportive spending falls into the "other" category. This latter category combines all the agriculture-supportive measures for which there was not enough information to be classified into the aforementioned categories. Ideally, additional information should be collected to identify the appropriate spending categories for those measures. This could potentially show a significant change in the relative importance of the categories within the agriculture-supportive measures.

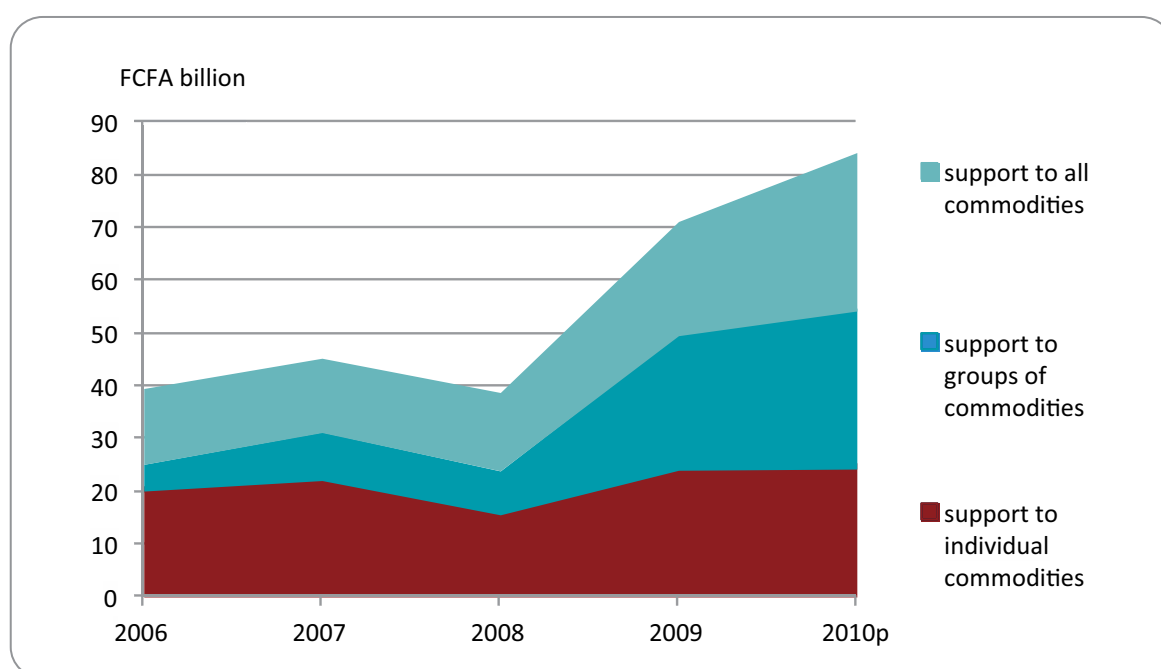
Figure 5. Composition of agriculture-supportive spending in Mali, in %, average 2006-2010

Source: Authors, based on budgetary data collected by Institute of Rural Economy in Mali for the MAFAP project.

Agriculture-specific expenditures can also be broken down according to the commodities which they intend to support.² Each expenditure measure within that category has been attributed an appropriate commodity, depending on whether it supports an individual commodity (e.g. rice for *l'Initiative Riz* in its initial stage – which was then extended to other cereals, including wheat and maize), a group of commodities (e.g. fruit and vegetables, fish and livestock for Program de Compétitivité et de Diversification Agricole (PCDA) or all commodities (e.g. construction of non-specialized markets).

Generally a large number of commodities are supported through these expenditures, including rice, maize, cotton, millet, sorghum, onions/shallots, sesame, shea, fruit and vegetables, livestock and livestock products. In 2006, most of these expenditures were in support of production of all commodities, followed by almost equally high expenditures in support of individual commodities, while very little was spent on groups of commodities (Figure 6). The latter category of support has increased significantly over the period analysed, however, and currently support to groups of commodities accounts for about one-third of all agriculture-specific spending. The remaining two-thirds are distributed almost equally between support to individual commodities and groups of commodities.

Figure 6. Agriculture-specific spending in Mali: support to commodities, in billion FCFA, 2006-2010



Source: Authors, based on budgetary data collected by Institute of Rural Economy in Mali for the MAFAP project. ^p - provisional estimate.

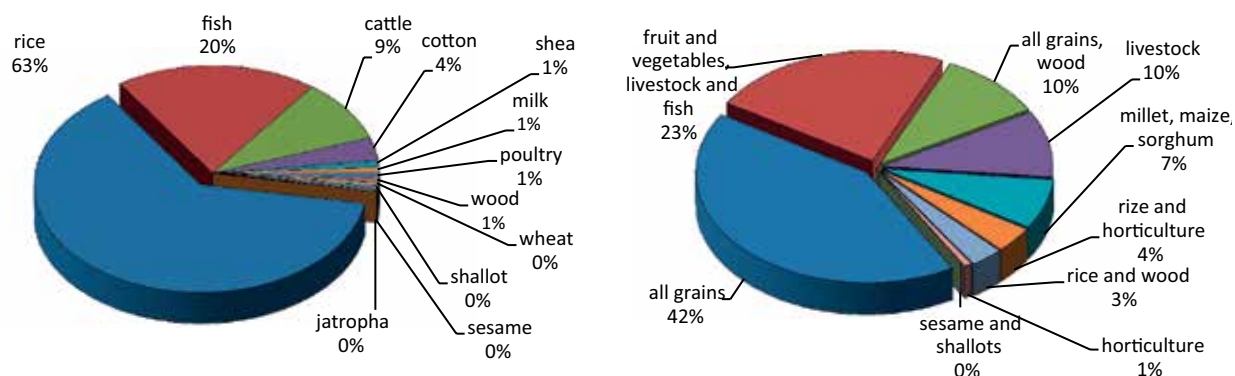
By far the largest share of expenditure in support of individual commodities goes to rice, followed by fish, cattle and cotton (Figure 7, left panel). Support to both rice and fish is provided principally through on-farm capital investments in irrigation and equipment, and through infrastructure development, but also through training, storage and marketing (particularly in the case of fish). Among expenditures made in support of groups of commodities, the biggest share goes to all grains, followed by fruit and vegetables, the livestock and fish group, the all grains and wood group, the livestock group and the millet, maize and sorghum group (Figure 7, right panel). As with individual commodity support, support

²Agriculture-supportive expenditures, by definition, are not intended to support production of any particular commodity and hence are considered not specific to production of agricultural commodities.

to the groups of commodities is provided principally via investments in on-farm capital, infrastructure, marketing and training (and extension in the case of livestock products).

Overall, most public expenditure is aimed at the provision of public services and investment, with a strong focus on infrastructure, both agriculture-specific and agriculture-supportive. These expenditures primarily support grains – particularly rice – but also livestock and livestock products.

Figure 7. Support to individual and groups of commodities in Mali, in %, average 2006-2010



Source: Authors, based on budgetary data collected by Institute of Rural Economy in Mali for the MAFAP project.

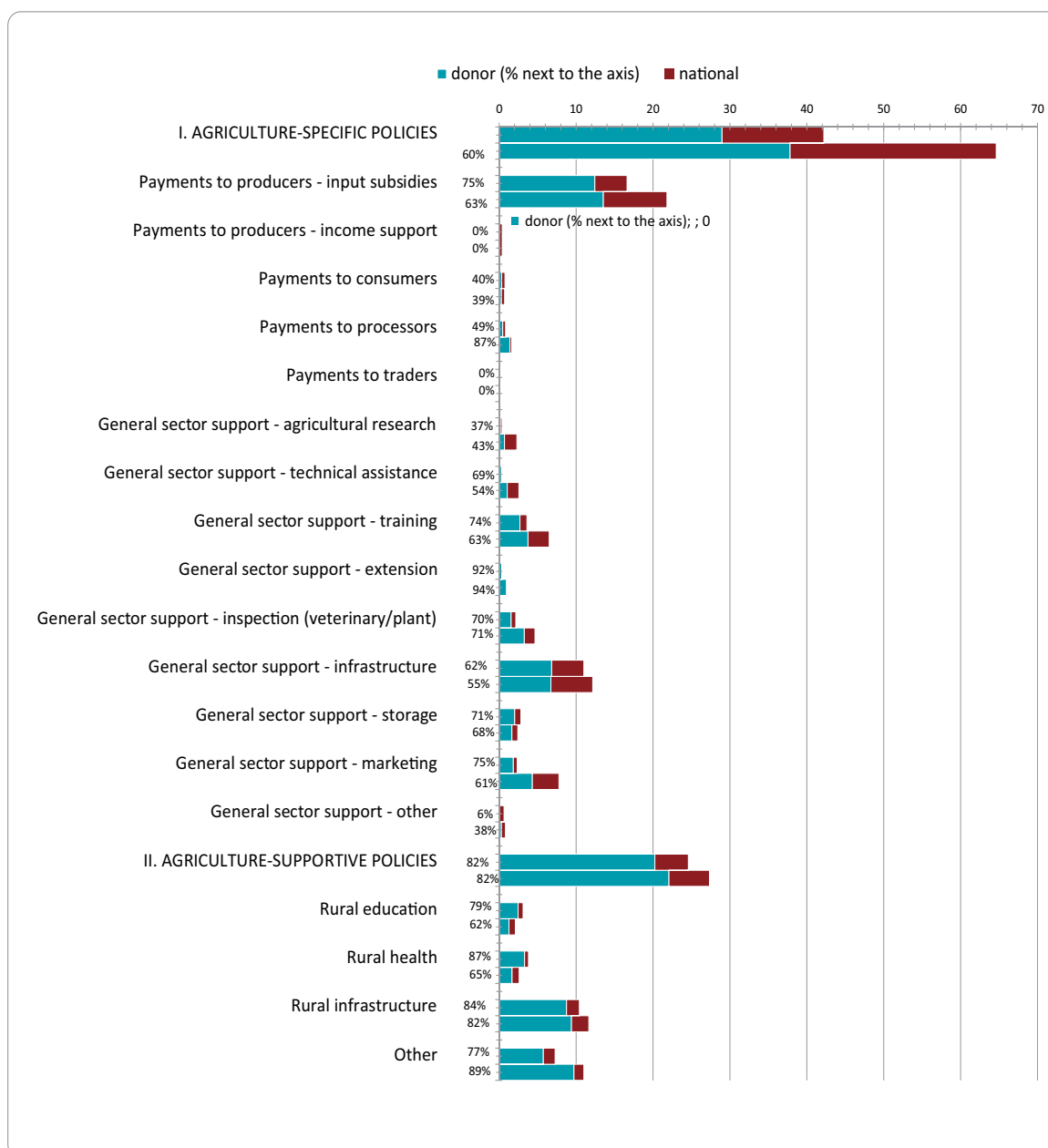
3.3 Role of aid in public expenditure on agriculture in Mali

Aid from donors to the government of Mali seems to be consistent with the government's overall objectives, although there are some minor differences in priorities. On average, donor spending accounts for as much as 70 percent of overall public expenditure in support of the food and agriculture sector in Mali. External aid contributes to 64 percent of agriculture-specific measures and 82 percent of agriculture-supportive measures (Figure 8).

Within each of the main categories, the contribution of aid differs. For agriculture-specific expenditure, in terms of proportion of total spending, donors contribute the most to extension, payments to processors, inspection, storage, input subsidies, training, marketing and infrastructure. In terms of the level of spending, input subsidies and infrastructure receive the highest support.

Among agriculture-supportive measures, all categories receive almost equally high levels of aid, while the highest amount of donor support goes to rural infrastructure. The most supported expenditure category is input subsidies. However, if all infrastructure expenditure (agriculture-specific and agriculture-supportive) were combined, there would be a much higher share of aid directed towards rural infrastructure. Among all spending categories, income support and payments to traders are the only two categories that do not receive any external support.

Figure 8. Average shares of total aid in spending in Mali, in billion FCFA, 2006-10



Source: Authors, based on budgetary data collected by Institute of Rural Economy in Mali for the MAFAP project.

3.4 Main messages on public expenditure

Although the level of public expenditure to support food and agriculture development in Mali is above the level of the Maputo Declaration target, it does not translate into a stable agriculture growth objective as set by CAADP.³ Similarly, the study of the Economic Community of West African States (ECOWAS), the Republic of Mali and the African Union (ECOWAS, *République du Mali and African Union*, 2006) concluded that the elasticity of agricultural growth with respect to public expenditure in support of Mali's food and agriculture is low, falling below the average for sub-Saharan Africa. This may be the case for a number of reasons.

Firstly, there is still scope for improvement in the composition of public expenditure in support of agriculture. The composition of public expenditure is just as, if not more, important than its total level. There may be trade-offs between spending in different categories (for example, spending on rural infrastructure versus subsidies for seed and fertilizer), and there may be complementarities (for example, between spending on extension services and the development of infrastructure that would enable farmers to transport their output to market). The overall observed pattern of spending is consistent with government objectives regarding most public expenditure aimed at the provision of public services and investment. However, there seems to be an imbalance between particular categories of spending. High levels of investment in infrastructure can bring benefits via lower transaction costs and improved farmer access to markets. High levels of support to rural development can provide off-farm employment opportunities, while training services can help farmers to improve productivity. There is also an important share of support for on-farm capital formation, particularly credit and production equipment. However, a large amount of spending is dedicated to variable input subsidies, while much less is being spent on research and extension services.⁴ Fan and Zhang (2008) have estimated that, of all the public expenditure measures they analysed, agricultural extension and research produce the highest returns in terms of agricultural productivity and poverty reduction. Similarly, several other recent studies concluded that investments in agricultural research and development produce much better outcomes in terms of agricultural growth and poverty reduction (SOFA, 2012⁵). Allocating more resources to those two spending categories may produce better outcomes than the ones currently achieved, particularly when accompanied by high investment in infrastructure.

Secondly, a large share of funds is allocated to policy administration costs (Table 5), and there seems to be an imbalance in total expenditure between the share of these costs and the share of policy transfers.⁶ Further, an important share of administration costs is dedicated to wages, while only a small proportion is given over to operational costs. This may exert significant constraints on the effectiveness of certain expenditures. For example, extension services or training can only be provided in an effective manner if extension or training officers have sufficient resources for travelling to communities where services are needed.

³ The 10 percent of budget allocation to agriculture and rural development agreed under the Maputo Declaration was established as a means to achieve the 6 percent of growth in the agricultural sector. Although over the last five years the average agricultural growth in Mali has exceeded 6 percent, the annual growth rates varied substantially over that time, often falling far below the 6 percent target.

⁴ Although inputs subsidies may be an important policy instrument to stabilize incomes of producers in developing countries over the short term, allocation of public resources should be adjusted to include those categories of spending that will improve the incomes over the long term (for an in-depth discussion, see OECD, 2012, and Brooks and Wiggins, 2010).

⁵ See State of Food and Agriculture (SOFA, 2012) for an overview of studies comparing the impacts of different types of agricultural expenditures and investments.

⁶ Total policy administration costs may be slightly overestimated as they are calculated as a difference between the total budget to Rural Development Sector minus policy transfers and hence may include elements which would not be included if detailed data were available – for example, some of expenditures related to policies supporting protection of biodiversity, such as wild animal protection in natural parks. This overestimation is believed to be insignificant for the results.

Table 5. Share of policy transfers and administration costs in total public expenditure, in %, 2004- 2010

	2004	2005	2006	2007	2008	2009	2010
Administration costs	n.a.	n.a.	26	26	26	21	20
Policy transfers	n.a.	n.a.	74	74	74	79	80
Total agricultural budget	n.a.	n.a.	100	100	100	100	100

Source: Authors, based on budgetary data collected by Institut d'Economie Rurale in Mali for the MAFAP project and CPS (2011).

Thirdly, actual spending deviates significantly from allocated funds. Although the rate of disbursement of allocated funds has improved in the period analysed, it is still at a somewhat low level (Table 6). Further, the rate of disbursement of funds allocated to policy administration costs was generally much higher than that of policy transfers to the sector (except in 2009 and 2010).

Only two-thirds of the funds allocated to projects and programs in support of the sector were actually spent; this was mainly because of delays in the release of funds allocated to relevant ministries.

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Table 6. Budget allocations versus actual spending in Mali, in billion FCFA and %, 2004-2010

	2004	2005	2006	2007	2008	2009	2010 ^p
Total agricultural budget*							
budgeted amount (billion FCFA)	115	141	118	130	134	143	198
actual spending (billion FCFA)	73	117	96	97	95	118	132
<i>actual spending as a share of budget (%)</i>	63	83	81	75	71	82	83
Policy transfers							
budgeted amount (billion FCFA)	n.a.	n.a.	87	96	100	114	158
actual spending (billion FCFA)	n.a.	n.a.	64	70	64	95	117
<i>actual spending as a share of budget (%)</i>	n.a.	n.a.	73	72	64	84	74
Administration costs							
budgeted amount (billion FCFA)	n.a.	n.a.	31	34	34	29	40
actual spending (billion FCFA)	n.a.	n.a.	32	28	31	23	15
<i>actual spending as a share of budget (%)</i>	n.a.	n.a.	104	82	91	76	38

*Total agricultural budget includes policy transfers in support of agriculture and policy administration costs.

p - provisional estimate

Source: Authors, based on budgetary data collected by Institut d'Economie Rurale in Mali for the MAFAP project and CPS (2011).

Fourthly, aid accounts for more than two-thirds of public expenditure in support of food and agriculture development. Although donor priorities seem to be generally aligned with those of the government, the question remains whether such large amounts of funding from external resources can be maintained, which raises doubts about the sustainability of programs and projects currently in place. The future adoption of a sector-wide approach to budget planning that integrates all stakeholders, including the donor community, coupled with implementation of the medium-term expenditure framework, should help to address those issues and also improve overall budget planning and resource allocation.

Finally, whether or not addressing these problems will be reflected in improved agricultural growth will also depend on other growth factors, which are not fully dependent on public expenditure.

4. Price policy analysis: incentives and market development gaps along Mali's main value chains

4.1 MAFAP methodology overview

The MAFAP methodology sheds light on incentives and disincentives to production received by various actors within the country's main value chains. This section gives a brief account of the methodology used to calculate the indicators for measuring incentives and disincentives at farmgate and wholesale levels. A detailed explanation of the methodology is available from the MAFAP project site at www.fao.org/mafap-documents.

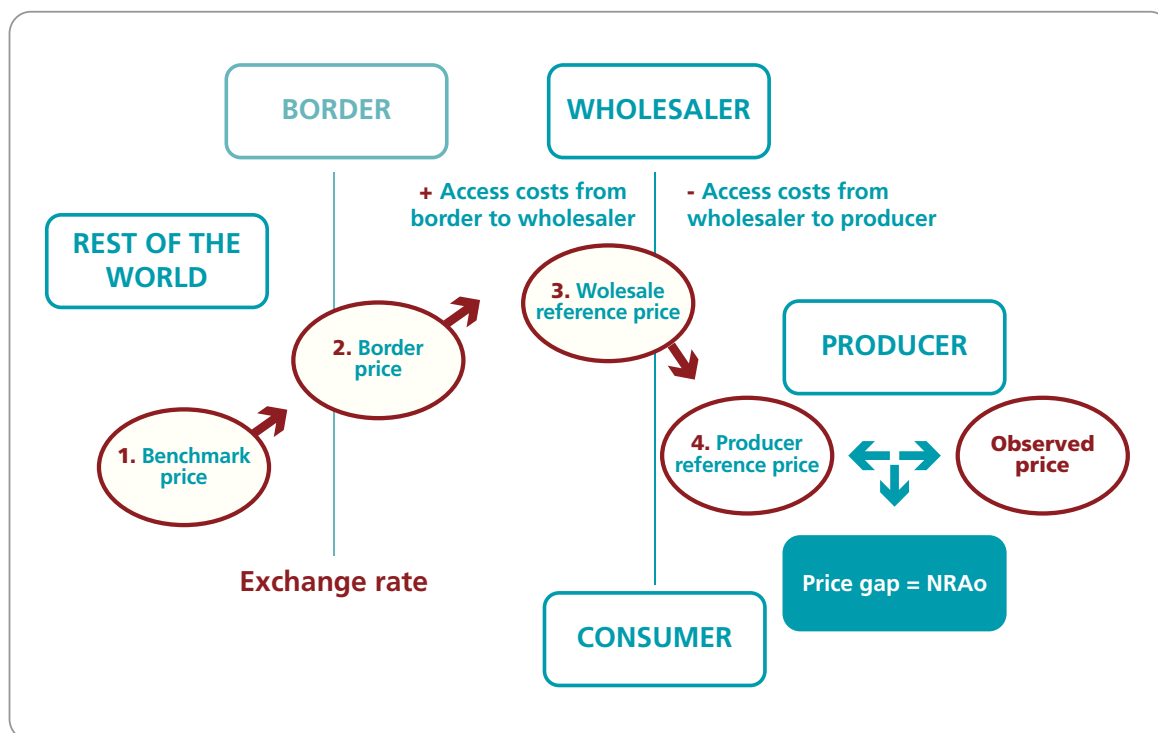
The core of the MAFAP analysis lies in the comparison between domestic market prices (observed prices) and reference prices free from domestic policy interventions. Reference prices are calculated from a benchmark price, which is the international or regional price of the product. This price is then converted into a border price, using the exchange rate if needed, and then brought to the wholesale and farm levels by adjusting for quality, shrinkage, loss, and market access costs. Figure 9 provides a simplified visualization of how incentives are determined with the MAFAP methodology, using the example of an import product. Note that incentives for wholesalers are also calculated.

If observed prices are higher than reference prices, the political environment generates support to producers (incentives) and if observed prices are lower than the reference prices, the political environment does not support those actors (disincentives).

The Nominal Rates of Protection - observed (NRPo) are the ratios expressing the price gap between the domestic market price (observed price) and the reference price. There are two NRPos: at the wholesale and producer (farmgate) level. NRPOfg capture all trade and domestic policies, inefficiencies along the product's value chain and other factors affecting incentives or disincentives for the farmer. NRPOwh help identify where incentives and disincentives may be distributed along the commodity market chain.

The Nominal Rates of Protection - adjusted (NRPa) – one at the wholesale level and one at the farm level – are the same as NRPo except the reference prices are adjusted to eliminate any distortions found in the market supply chain (e.g. extraordinarily high transport costs, taxes/levies or excessive profit margins of economic agents).

Figure 9. Simplified presentation of the MAFAP methodology for incentives calculation, for an import product



Source: Authors

The Market Development Gaps (MDGs) are also calculated: these are caused by market power, exchange rate misalignments, and excessive market access costs which, when quantified and used to adjust the NRPo, generate the NRPa indicators. For the moment, MDGs are calculated as the difference between NRPo and NRPa. The concept of the MDG, as defined in the context of the MAFAP project, takes the analysis a little deeper in assessing the extent of access costs. The measurement of MDGs makes it possible to estimate the share that can be considered “excessive” in access costs and transactions within a given value chain. These excessive costs may result from factors such as poor infrastructure or high processing costs due to obsolete technology, or from high costs due to post-harvest losses. Excessive costs can be considered implicit disincentives insofar as they could, for example, be reduced by appropriate investments and better governance. One major methodological question that remains is the extent to which these costs can be accurately singled out and identified.

4.2 Defining pathways, collecting and estimating access costs and prices

- Pathways

Pathways for all products analysed with the MAFAP methodology were determined using the most representative production, wholesale and competition area for each product, based on volume produced/traded and on the existence of an actual trade corridor.

- Prices

Producer prices were determined from statistics of the Observatory of Agricultural Markets (OMA), except in the case of milk, where prices were determined from a MAFAP survey, since OMA does not collect milk prices.

Prices at the wholesale level were determined from statistics obtained from either the OMA or the West-African Market Information Systems Network (RESIMAO).

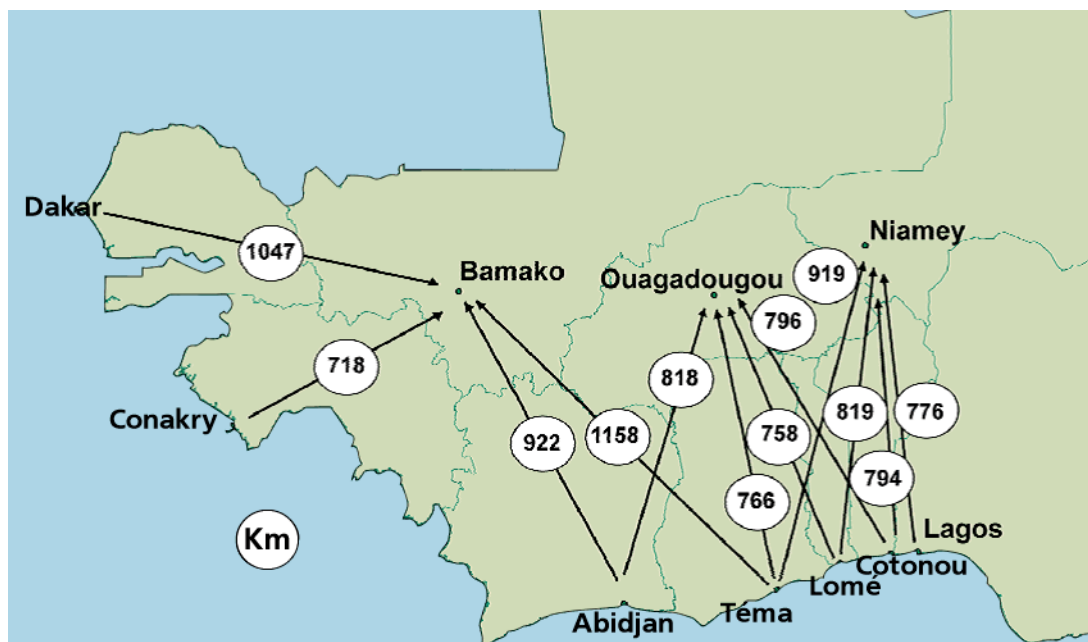
Prices on international markets, whether cost insurance and freight (CIF) or freight on board (FOB) were obtained from various sources depending on the product.

- Observed access costs

Observed access costs were collected by MAFAP project's local technical team.

Wholesale - farmgate access costs: In principle, observed access costs between the farm and the wholesale market are calculated as the sum of all the access costs incurred to move the products from one place to another (transportation costs, various fees for services such as handling charges, the gross margin, transaction costs, expenses and illegal passage along existing corridors, etc.). However, in case data are insufficient or of poor quality, these access costs can be estimated as the difference between wholesale prices and producer prices. In the latter case, the gap between the two prices is considered to reflect the real functioning of the value chain when all explicit taxes are excluded. In other words, this value is the expression of the level of infrastructure development, the competitiveness of actors and the conditions of market power.

Figure 10. Trading corridors serving landlocked Mali, Burkina Faso, Niger



Source: Diallo and Steeve, 2009

Wholesale - border access costs: For this segment wholesale-border, observed access costs are always calculated as the sum of various costs incurred to move a product from the wholesale market to the border and vice versa. In the case of a landlocked country such as Mali, the port which is the origin of imports and the shipping point for exports represents the border. The ports that have been considered here are Abidjan (Ivory Coast) and Dakar (Senegal) because they are the closest. Figure 10 shows the main commercial corridors. For the specific case of thinly traded products, access costs were calculated from/to areas located near the Mali border, to reflect that trade flows largely correspond to cross-border trade.

- Adjusted access costs

For some products, adjusted data to calculate access costs were also considered to reflect efficient value chains. The following adjustments have been performed:

- Providing estimates of efficient transportation costs and reasonable profit margins by systematically choosing the lowest cost for each section (farm gate - wholesale and wholesale - border);
- Deducting illegal taxes on roads for each segment of the highway.

Because reliable data were not always available, certain access cost dimensions, such as efficiency resulting from a better functioning of the sector, increased competition and reduced waiting times for crossing boundaries have not been adjusted. As a result, adjusted costs tend to be higher than they should be in a perfectly efficient market situation. It follows that adjusted reference prices do not totally reflect those of a perfectly competitive market.

4.3 Caveats and limitations about the methodology

Firstly, every effort has been made to check the quality of data collected with local experts. Additional efforts have been made to encourage partners to invest in reliable national and regional statistical systems for better informed policy decisions. Frequent updates of the RESIMAO database, especially for regional wholesale prices, would greatly benefit MAFAP-like analytical work. In addition, importers and exporters in Mali systematically underestimate volumes in order to pay less tax on heavily traded products. The lack of customs data reliability brings uncertainty to the analysis because it directly affects the accuracy of results based on domestic and international price comparisons.

Secondly, our data come from localized areas of production. For example, we considered the area of Loulouni, in the Sikasso region, for maize and the area of the *Office du Niger*, in the Segou region, for rice. These represent the main production areas in Mali for those products but other production areas may face different situations in terms of access costs or prices, which would yield different results.

Thirdly, our methodology uses annual averages which do not allow us to analyse variations in prices due to seasonality or even variations in quality during the production season.

Finally, in order to have a complete picture of policy impacts on farmers, it would be necessary to undertake a deeper analysis of production costs, margins and the structure of producers' incomes.

4.4 MAFAP's aggregated indicators on incentives, disincentives and market development gaps in Mali

Before presenting the indicators, it is important to emphasize that a significant part of the period analysed (2005-2010) was particularly turbulent, when market fundamentals were challenged and price trends experienced drastic changes. As a consequence, determining the causes for incentives and disincentives was more difficult.

Moreover, the interpretations referring to the agricultural sector as a whole actually refer to the group of products that were included in the MAFAP analysis. These products account for 65 percent of the value of the average production (2005-2009)⁷ and include : rice (13.5 percent), beef (12.5 percent), millet (10.3 percent), cotton fiber (7.5 percent), groundnuts (7.1 percent), sorghum (5.6 percent), maize (4.7 percent), and cow's milk (3.4 percent).

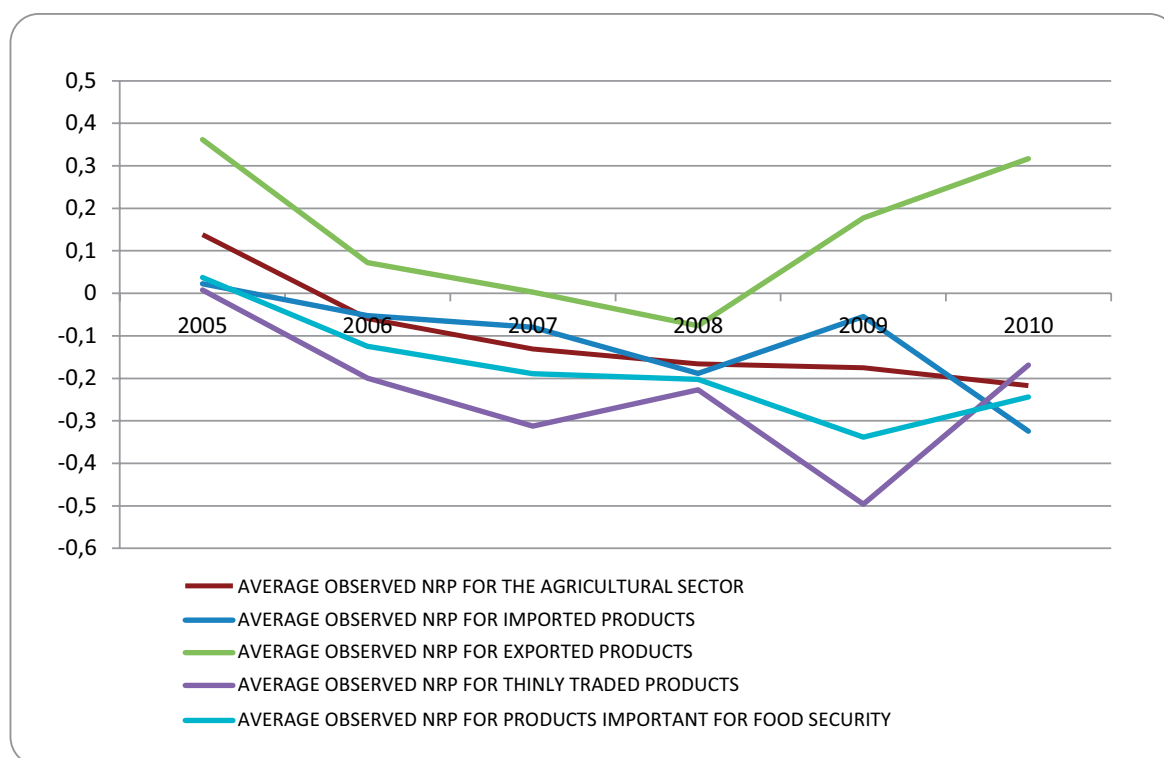
⁷ Average production value in 1000 constant US dollars, 2005-2009 and 1999-2001.

These indicators are aggregated by sector and product group. The aggregation is weighted to reflect the weight of each product relative to total production value.

The headline indicators selected are:

- the nominal rate of protection for imported products (NRP_{imp})
- the nominal rate of protection for exported products (NRP_{exp})
- the nominal rate of protection for non- or thinly traded products (NRP_{not})
- the nominal rate of protection for products essential to food security (NR Pfs) as defined in the selection of products
- market development gaps for all three product categories and for the agricultural sector as a whole (MDG_{imp} , MDG_{exp} , MDG_{not} , and MDG_{sag}), although in fact this only refers to the eight products analysed.

Figure 11. Observed nominal rate of protection (NRPo) by product group and for the sector, in %, 2005-2010



Source: Authors

Figure 11 reveals that policies in place have various impacts depending on the product categories that were analysed:

- category of exported products: cotton, beef and groundnuts
- category of imported products: rice, milk
- category of thinly traded products: maize, sorghum, millet
- category of key products for food security: maize, sorghum, millet, rice, groundnuts

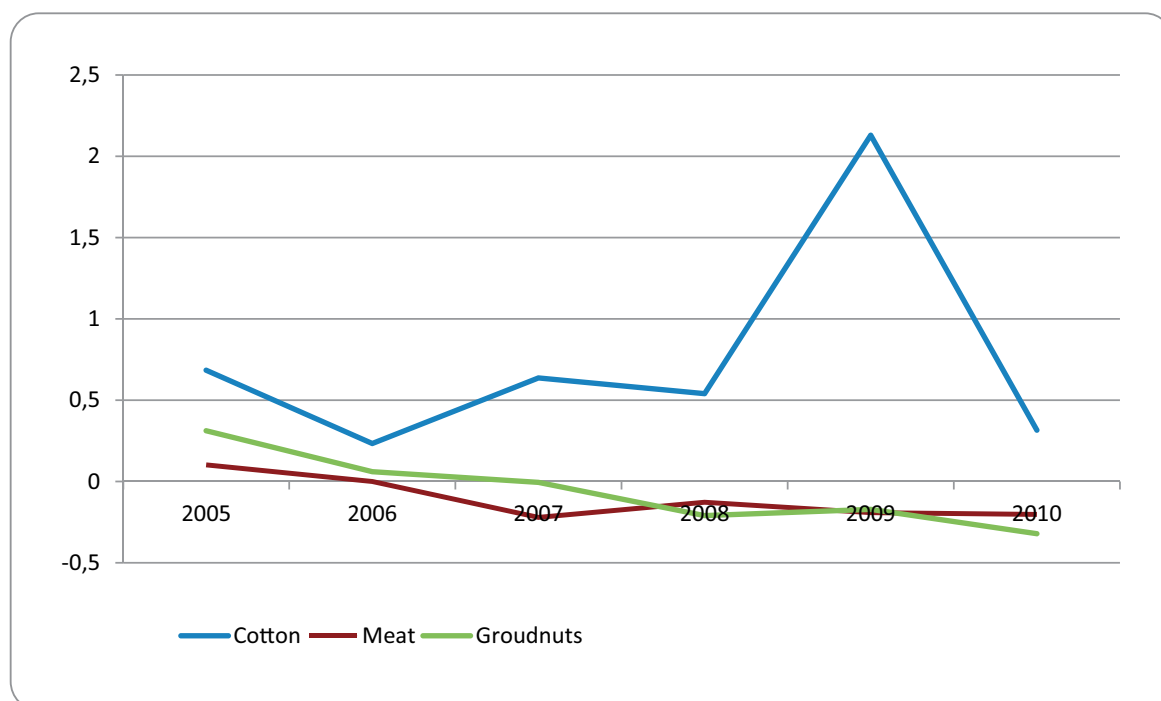
It is important to note that the category of key products for food security cuts across the other three categories. It thus enables a more horizontal reading of policy effects.

In terms of incentives and disincentives, there are two main product groups. On the one hand, export commodities benefit from strong overall incentives, with an average of 19 percent over the study

period. On the other hand, imports, thinly traded products and products related to food security have generally received disincentives at average levels of -16 percent, -24 percent and -21 percent, respectively. The group of exported products shown in Figure 11 is not homogeneous. Cotton has more importance among these products and this commodity alone has a large impact on the group's incentives. In fact, groundnut and beef production were generally at a disadvantage during the study period, with averages of -5 percent and 9 percent, respectively.

Moreover, results from group analysis should not mislead the reader into thinking there is a coherent policy for exports, which is far from the case in Mali. The government has not adopted specific policy measures supporting groundnuts or beef, and this is reflected in the negative NRPs for producers of both products (see Figure 12 below).

Figure 12. Comparison of nominal rates of protection (NRPs) at producer level for exported products, in %, 2005-2010.



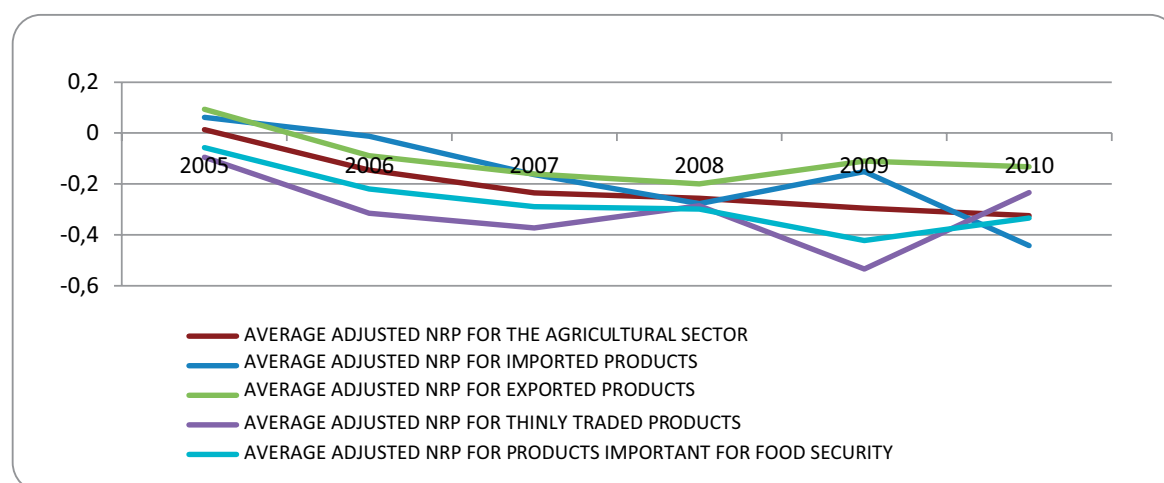
Source: Authors

Levels of incentives and disincentives have remained relatively stable over the study period, with the exception of changes in levels of incentives linked to very significant price movements during the food price crisis of 2008-2009.

During the 2008-2009 food price crisis, incentives became stronger in the category of exported products while disincentives came close to zero for imports. However, disincentives have worsened for thinly traded products and products related to food security. This can be explained by the implementation of government policies favorable to certain import products, such as rice for urban consumers, an approach that clearly did not encourage producers. Similarly, the rise in international cotton prices, concomitant with a price increase for most agricultural products, particularly staples, has benefited exporters. However, export restrictions on commodities, particularly through non-tariff measures or even export bans, have negatively affected those who sought to profit from higher prices in neighbouring countries for groundnuts, maize, millet and sorghum.

The year 2010 saw a return to levels of incentives and disincentives that had prevailed before the crisis, although overall imports recorded lower levels of disincentives and exports experienced significantly higher levels of incentives. This again suggests that the government of Mali has an interventionist agricultural policy that is focused primarily on imports, mainly of rice, on the one hand, and on exports, principally cotton, on the other.

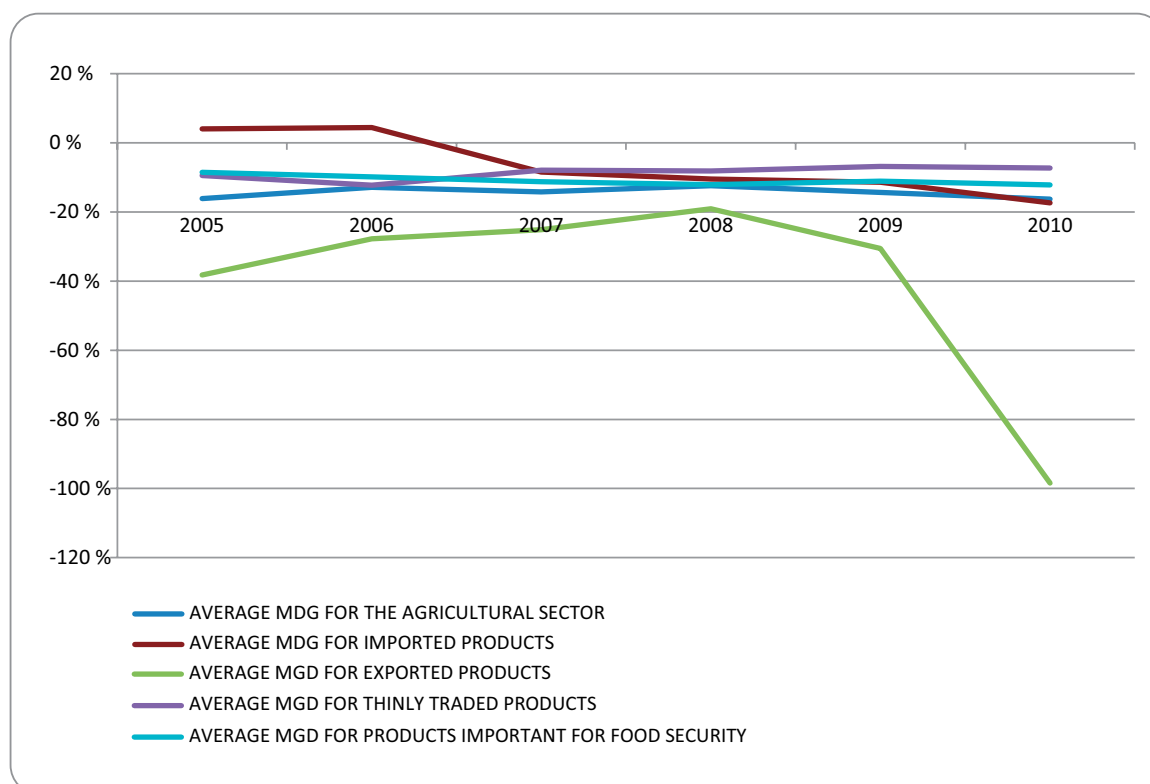
Figure 13. Adjusted nominal rate of protection (NRPa) by product group and for the sector, in %, 2005-2010



Source: Authors

Figure 13, reporting changes in the NRPa, shows several interesting facts when compared to Figure 12.

- The agricultural sector received stronger disincentives. The evolution of the curve indicates an increasing rate of disincentives, which plummeted from 1 percent in 2005 to -32 percent in 2010. In fact, the NRPa for the sector is negative for the entire period, with an average rate of 25 percent, while the NRPO was only -14 percent. This highlights the effect of additional disincentives related to market inefficiencies, such as excessive access costs for all products.
- The gap narrowed between NRPs of the different categories of products. The highest NRPa, for exported products, rose to 9 percent in 2005, due to the heavy impact of cotton's strong incentives. The maximum NRPO was 36 percent, also in 2005 for exported products. The minimum NRPa was for thinly traded products in 2009, and stood at -53 percent in that year. The minimum NRPO stood at -50 percent for the same product category and the same year. This tightening makes sense given that the adjusted data correspond to more efficient markets, which tends to mitigate excessive or unjustified cost differences between value chains.
- Disincentives increased for thinly traded products and products related to food security. This seems consistent with the national context, because these products are subject to hardly any form of specific policy support while absorbing the brunt of inefficiencies due to excessive market access costs, as the government seeks to restrict their export.

Figure 14. Market development gaps (MDG) by product, in %, 2005-2010

Source: Authors

Figure 14 shows the evolution of MDGs, which constitute another flagship group of indicators for the MAFAP project (see definition and modes of interpretation described above). There are three major product groups in terms of MDGs: imports, exports and a group composed of thinly traded products and products related to food security.

Exports reveal important negative market development gaps, on average more than two times those of imported products. This is due to the importance of cotton, with an average MDG of -33 percent over the period. Livestock and groundnut have respective average MDGs of -7 percent and -11 percent. Cotton's important MDG, despite it receiving strong incentives, shows that incentives do not necessarily mean there are no market inefficiencies. In the case of cotton, it is clear that governmental policies give incentives to producers even though the value chain itself is inefficient.

Globally, it is clear that MDGs reduce the level of incentives and increase that of disincentives. It should also be noted that cotton and cattle both experience negative in MDGs, despite having opposite situations in terms of incentives and disincentives. This means that MDGs are not, as might be expected, correlated to the effects of explicit policies and affect all categories of products regardless of their status in terms of incentives and disincentives.

Such findings suggest that these differences are primarily explained by the combination of market structure and the conditions of competition, processing technologies and market power wielded by certain actors.

The import substitution products (milk and rice) are the only category of products with positive MDGs for about a third of the study period (2005-2006). These MDGs then become negative, as for other

products. This is due to the fact that MDGs take into account the overvalued domestic currency from 2007 which makes imports more competitive. It can also be noted that there is a natural protection due to the structure of access costs, which makes imports very costly and thus allows producers to benefit from higher prices.

Thinly traded products and key products for food security have higher MDGs, with an average of -8 percent, a figure that is stable over the period studied and that corresponds to limited competitiveness, which is understandable for products that are generally thinly traded.

MDG indicators can be used by the government and other development actors to spot sectors plagued by structural weaknesses, such as "excessive" access costs. These sectors may need adequate investment to reduce transport costs, for example, or require stronger governance because of illicit taxes and bribes levied on trade corridors. MDG indicators offer a quantitative assessment of constraints stemming from the underdevelopment of markets; the MDG relates to the farmgate reference price and thus allows estimation of the share of that price that would be captured by the producer if these constraints were lifted.

5. Assessing agricultural policy coherence in Mali from 2005 to 2010: three case studies

5.1 Policy coherence in the MAFAP analysis

The results of the MAFAP analysis have been used to assess the level of policy coherence in the food and agricultural sector. In Mali, policy objectives are set within large policy frameworks. In this analysis, agricultural policies are considered as an array of decisions and measures aimed at achieving the overall objectives. Programs and projects are usually used to implement policies and are found at the end of the policy process continuum (Figure 15).

Figure 15. Simplified representation of the policy process



Source: Authors

A study on agricultural policy coherence of the Global Donors Platform for Agricultural and Rural Development (Wiggins *et al.*, 2011) showed that the main risk of inconsistency lies in the proliferation of policies, projects and programs that are subsequently cancelled and not prioritized. Indeed, in Mali, as in other countries, it can be observed that, despite progress towards a coherent and coordinated

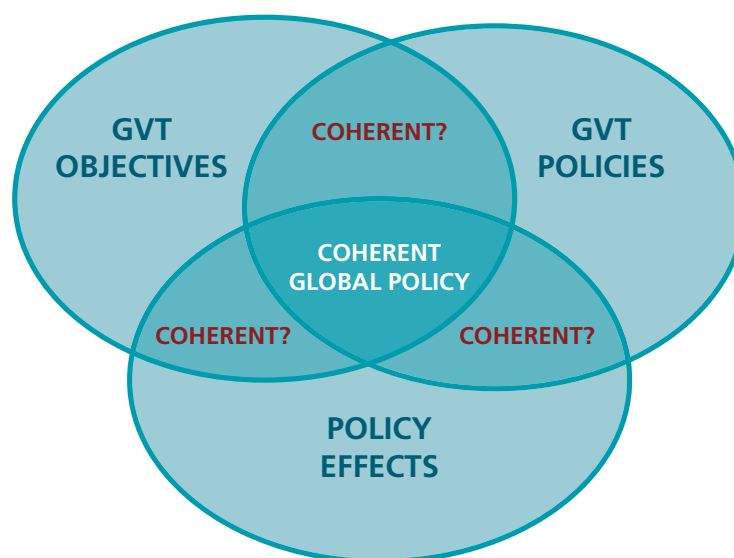
sectoral approach, agricultural policy consists of a maze of programs and projects. Included in this category are government decisions on trade, especially those relating to tariffs, and government budgetary decisions, i.e. public expenditure.

It should also be remembered that agricultural policy is not the exclusive domain of the government. Donors and other development partners also have an influence on policy decisions, dictated by their own agendas and interests. In Mali, 70 percent of expenditure for agriculture comes from foreign aid.

Therefore, the main questions in addressing the issue of policy coherence are:

- a. What are the main government objectives?
- b. What are the main policy decisions and measures (e.g. tax exemptions, bans, tariffs)? Are these decisions consistent with the stated objectives?
- c. Have these measures had an impact, have they achieved their expected effects, and have they met the government's objectives?

Figure 16. Logical framework for MAFAP's policy coherence analysis



Source: Authors

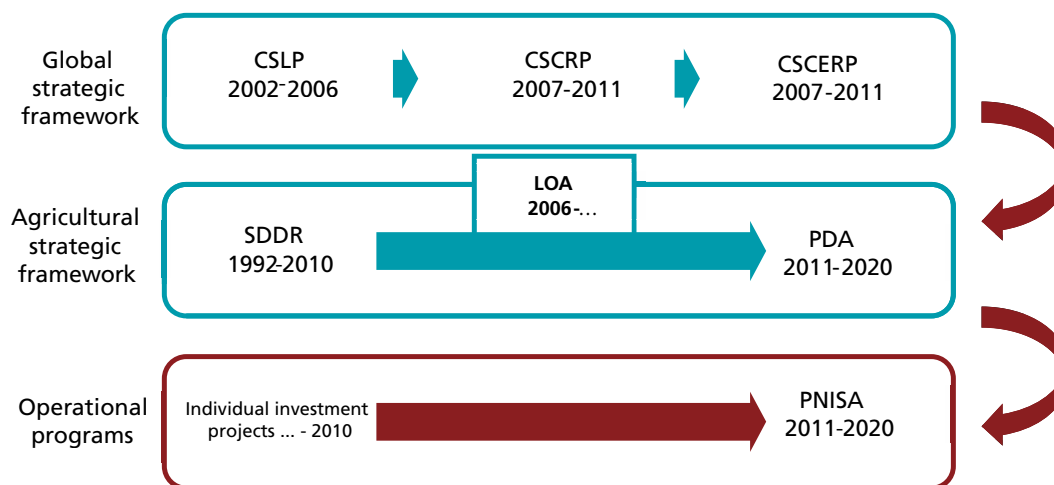
The following section will provide some answers to these questions, taking three products (rice, livestock and millet/sorghum) as examples.

It is important to note that there is not a single reference document in Mali that presents a clear and simple outline of the government's objectives and priorities regarding agricultural and food policies. Four strategic frameworks relating to the agricultural and rural sector over the period 2005-2010 were reviewed to determine the government's stated global objectives. These frameworks are as follows:

- The Agricultural and Rural Sector (SRA) part of the Strategic Framework for Growth and Poverty Reduction (CSCR)
- The Agricultural Orientation Law (LOA)
- The Master Plan for Rural Development (SDDR)
- The draft Agricultural Development Policy (PDA)

The way these frameworks are related can be summed up in a visual representation (see Figure 17).

Figure 17. Visual representation of Mali's main policy and operational frameworks



Source: Authors

All relevant policy measures were also analysed for each commodity, to explain the incentives and disincentives to production. Project and programs related to the agricultural and rural sector and included in the state budget were all examined in the public expenditure analysis (see part 2 : An analysis of Mali's public expenditure: composition and volume).

5.2 The case of rice: contradictory objectives result in apparent incoherence

Rice is considered a strategic food product in Mali; it is therefore the object of special attention in terms of both public policy (policies) and policy issues (politics). Rice is seen as the main staple, with potential for achieving food security, improving farmers' incomes and meeting growing urban demand at a reasonable cost. The recent food price crises have revived the colonial era project to make Mali not only a country durably self-sufficient in rice but also a rice exporter, at least in West Africa (Roy, 2010). In this context, policy objectives relating to rice are numerous and sometimes contradictory.

Rice has received enormous attention from the Mali government and donors alike over the period studied. A profusion of projects and programs focusing on rice exist in the country, with this commodity receiving a staggering 63 percent of total public expenditure allocated to specific agricultural products, making it the leading product in terms of public expenditure. A large share of public expenditure in support of rice comes from the Rice Initiative. This policy was implemented in 2008 as a response to the food crisis and is still ongoing. The Rice Initiative provides rice farmers with seeds and fertilizer at about 50 percent of their market price. The state also provides credit facilities (for power tillers, threshers, pumps) and support and advice to producers. The initiative was extended to other cereals after 2009. The government spent more than 7.3 billion FCFA to support fertilizers in 2008/2009, allocated overwhelmingly to rice (Ministère de l'Agriculture, 2009). The government had a budgeted expenditure of 6.4 billion FCFA in 2009/2010 to subsidize fertilizers with the Rice Initiative (Ministère de l'Agriculture, 2010). Moreover, the government has been heavily investing in irrigation and roads, much of this spending being linked to the development of the rice crop. In total, 21 percent of agriculture-specific state spending was spent on agricultural infrastructure.

Despite taking important steps to boost production from 2005 to 2010, the government also adopted contradictory price policies over the same period. These short-term policies were established in reaction

to the 2008 food crisis. In order to satisfy consumers, especially urban consumers, the government waived taxes and duties on imports of rice from March 2008 to December 2009, on condition that importers agreed to sell their rice at or below a ceiling price (Table 7). Rice sales from domestic stocks in food-insecure areas have been another measure to improve food security.

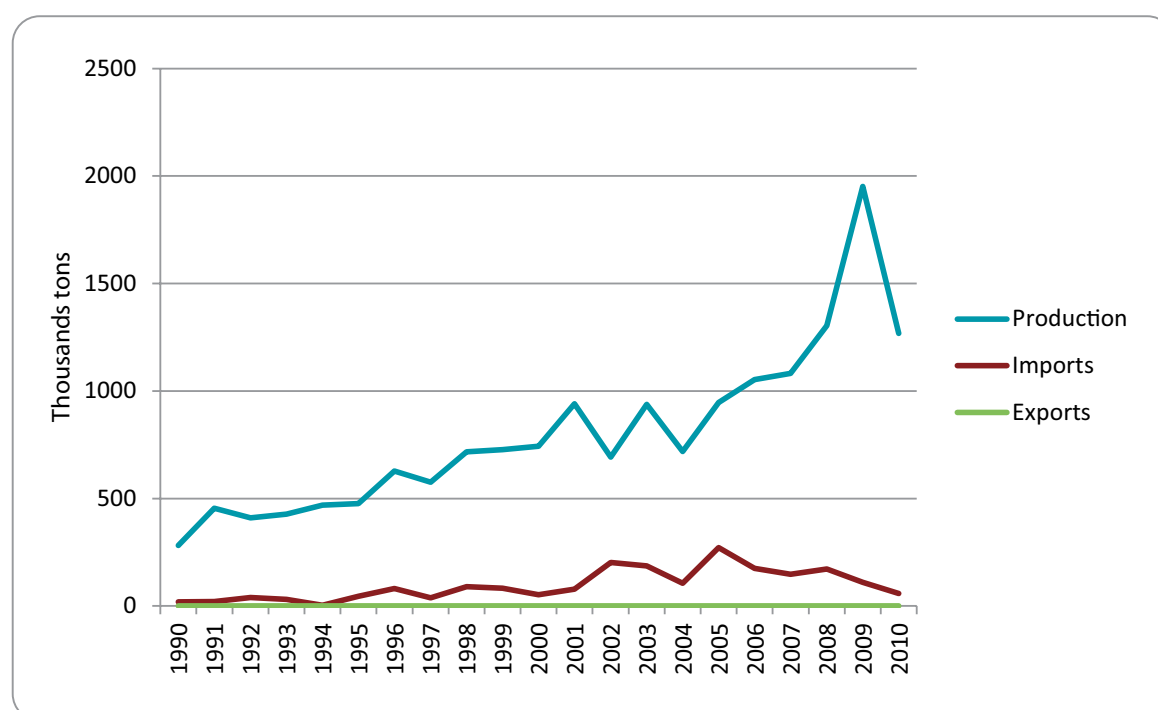
Table 7. Wholesale and retail ceiling prices for rice in Mali, FCFA/tonne and FCFA/kg, 2008-2009

Price	2008	2009
Wholesale (FCFA/tonne)	300,000	280,000
Retail (FCFA/kg)	310	300

Source: INSTAT, 2011, cited by Bourdet, Dabitaou and Dembele, (2011) and World Bank (2012).

Overall, the policy environment has allowed Mali to increase its rice production over the period studied. Production more than doubled between 2005 and 2009, although it did drop sharply in 2010. However, the increase in production began in 2005, well before the adoption of the Rice Initiative (see Figure 18).

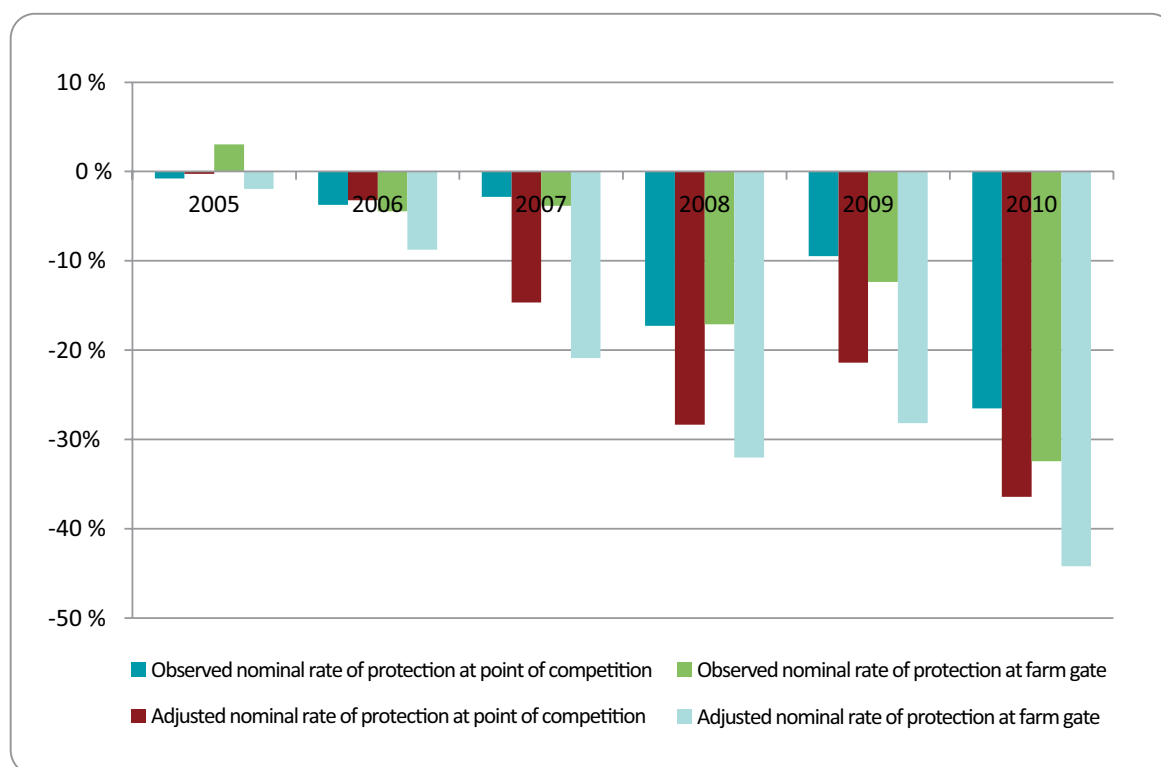
Figure 18. Rice production, imports and exports in Mali from 1980 to 2010



Source: Authors, from FAOSTAT and CPS, 2010

Despite the increase in production, the incentives and disincentives to production received by producers over the period lead to questions about sustainability of the Rice Initiative. Both producers and wholesalers received strong disincentives over the period studied, which means they did not benefit from the opportunities arising from the international price spike during those years (Figure 19). These disincentives can partially be explained by the government's price policies (tax exemption and price ceilings), although these measures mostly benefited a handful of large rice importers in the country (Diakite and Kone, 2010) who have prevented fluid transmission of high international prices up to the farmer level. Further explanations include the government's decision to set low prices for rice and to distribute free food.

Figure 19. Observed and adjusted NRP to rice wholesalers and producers in Mali, 2005-2010



Source: Authors

Furthermore, the amounts credited to the Rice Initiative – for example 25 398 billion FCFA for the year 2009/10 (compared with 117 billion FCFA spent in total in Mali for the rural and agriculture sector) – lead one to question the program's sustainability, especially when it comes to inputs (fertilizer, seeds) and loans for equipment.

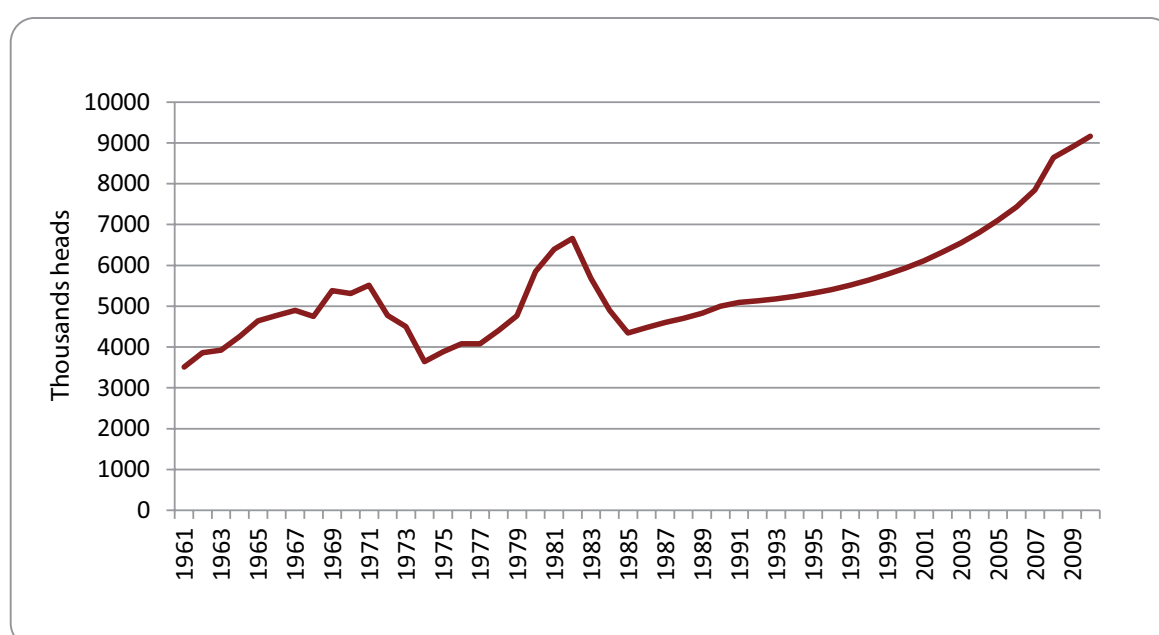
The Malian government has made considerable efforts to support rice production through public expenditures, with an encouraging increase in production volume. However, it appears that consumer oriented policies adopted from 2008 onwards have penalized producers and wholesalers who did not get the prices they should have received. More transparency may be needed in order to allow different actors along the value chain to adjust to the government's priorities. In addition, there are risks that the heavy investment in input subsidies will not result in long term benefits for rice production.

5.3 The case of livestock: lack of support despite a strong potential in the value chain

Livestock, and meat in particular, are included in the explicit objectives of the SDDR. However, other decisions for the sector have also been taken, such as the adoption of the new national policy on live stock in 2004. Moreover, the creation of the *Direction Nationale des Productions et Industries Animales* (DNPIA) to replace the *Office Malien du Bétail et de la Viande* (OMBEVI) reflects the government's desire to boost the livestock sector and to build capacity, while diversifying the approach to livestock production. In addition to these institutional approaches, breeding has benefited from an array of projects and programs focusing particularly on animal health, breeding, marketing and slaughter, such as *Programme d'Appui au Développement de l'Élevage dans le Sahel Occidental* (PADES0).

The study results show that government efforts to boost livestock are real, though they are insufficient given the potential of the sector. Livestock indeed received 9 percent of public expenditure allocated to specific products in Mali from 2005 to 2010. The objectives of the SDDR have been taken into account; several projects included activities related to animal health, infrastructure development and genetic improvement of herds. Although various policy documents describe animal feed as critical to increase livestock quality, this element has been neglected, with the exception of bourgou pasture production. More importantly, the state does not appear to have sought to stimulate better structuring of the sector in order to harness the significant potential represented by livestock exports. Livestock is the third most important export commodity for Mali, which is one of the biggest cattle producers in West Africa with more than nine million heads. Yet only live animals are exported because the lack of infrastructure (especially slaughterhouses and freezing facilities) makes it impossible to develop a meat value chain.

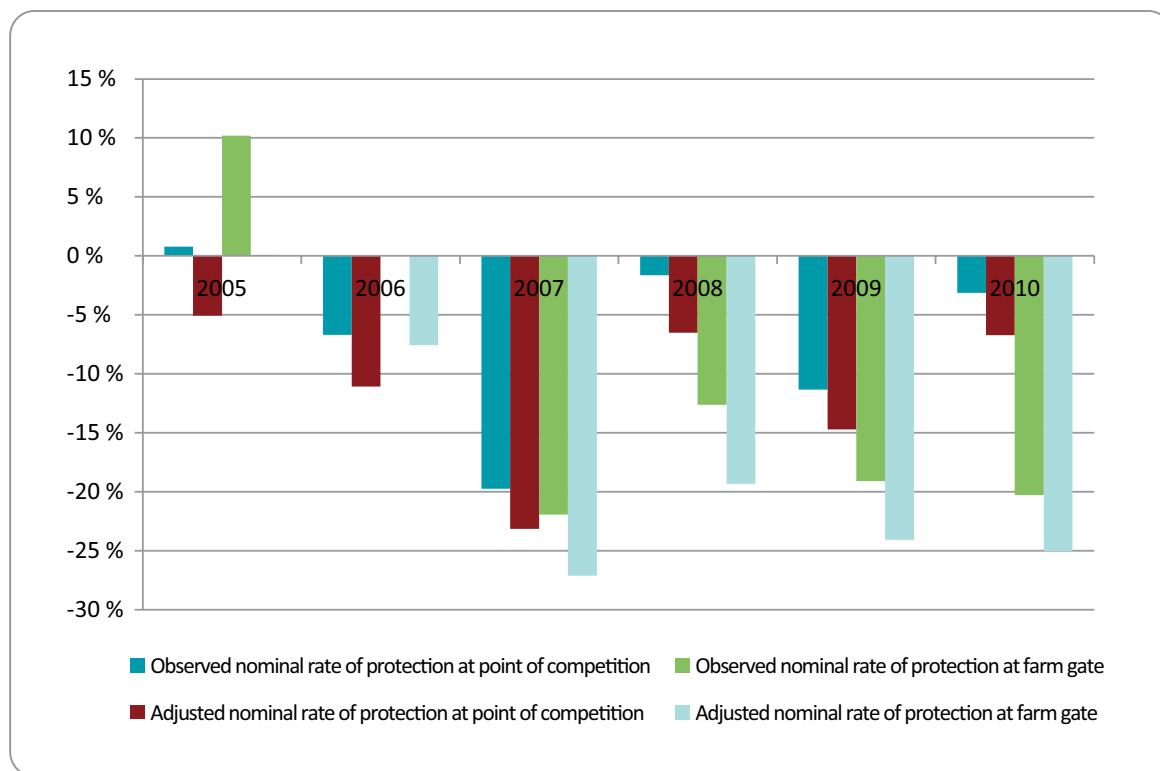
Figure 20. Cattle production in Mali, thousands of heads, 1961-2010



Source: FAOSTAT, 2012

The global lack of structure in the livestock value chain has not allowed either producers or wholesalers to receive the best prices, and they were therefore effectively penalized during the period 2005-2010. Producers received average disincentives of -9 percent and wholesalers received around -8 percent: the prices they received were far lower than livestock prices in the neighboring Ivory Coast. The poor structuring of the livestock value chain is primarily demonstrated in excessive access costs, i.e. high numbers of intermediaries, illicit taxes, and insufficient animal feed resulting in animal weight loss. There is a need for more policy support to improve infrastructure (roads, markets) and to improve the value chain's efficiency beyond production, i.e. to have fewer intermediaries and illicit taxes, and more support to cattle traders and processors.

Figure 21. Observed and adjusted NRP to cattle wholesalers and producers in Mali, 2005-2010



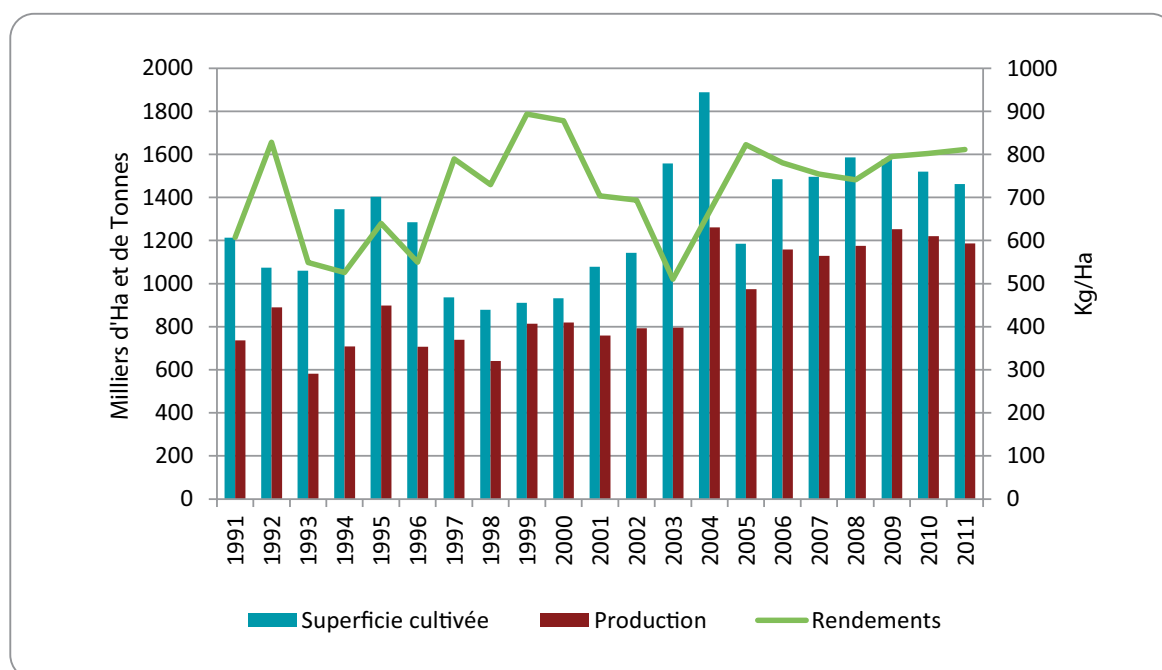
Source: Authors

5.4 The case of millet and sorghum: short-term coherence but uncertainty in the long run

In Mali as in many other countries, millet and sorghum are consumers' substitutes. These products are thinly traded, while the methodology in this study is better suited to analyse products traded on competitive international markets. Therefore, this analysis provides only partial insights into the market situations of millet and sorghum, and into incentives or disincentives faced by the agents in these two value chains.

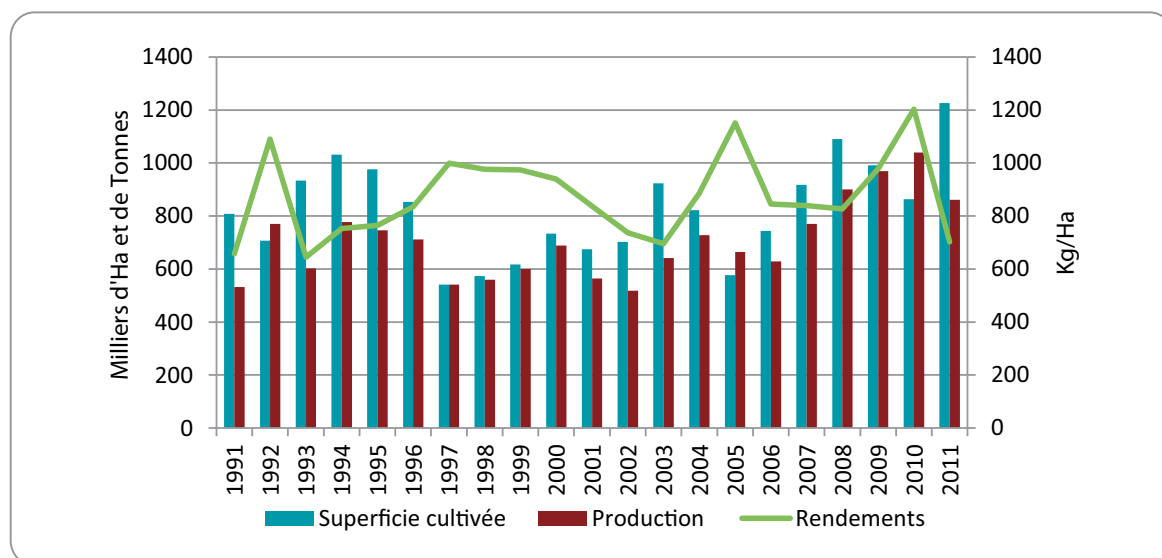
In Mali, government support to produce millet and sorghum is primarily intended to increase production for food security, or even food sovereignty, as included in the LOA. Millet and sorghum benefited from light input subsidies during the 2009/2010 crop year, after they were included in the Rice Initiative. However, this insufficient support did not result in incentives to producers and wholesalers in 2010, and producers and wholesalers were penalized during the whole period studied. Globally, the government does little to encourage the intensification of sorghum and millet production – despite the fact that some research activities to improve sorghum and millet varieties exist. As a consequence of the lack of policy support for intensification, yields remain low and the production volume increase mostly comes from cultivated area extension (see Figure 22 and Figure 23). Indeed, the public expenditure analysis revealed no sorghum or millet-specific project but rather research activities that appear in different budget lines, although programs targeting coarse grains (including maize) represented 7 percent of agricultural-specific public expenditure for groups of products. Furthermore, the state spent only 5 percent of agricultural-specific public expenditure for storage and public stockholding, which is very low considering the importance of such infrastructure for millet and sorghum marketing.

Figure 22. Millet cultivated area, production and yields in Mali, 1991-2011



Source: Authors, from CPS, 2010

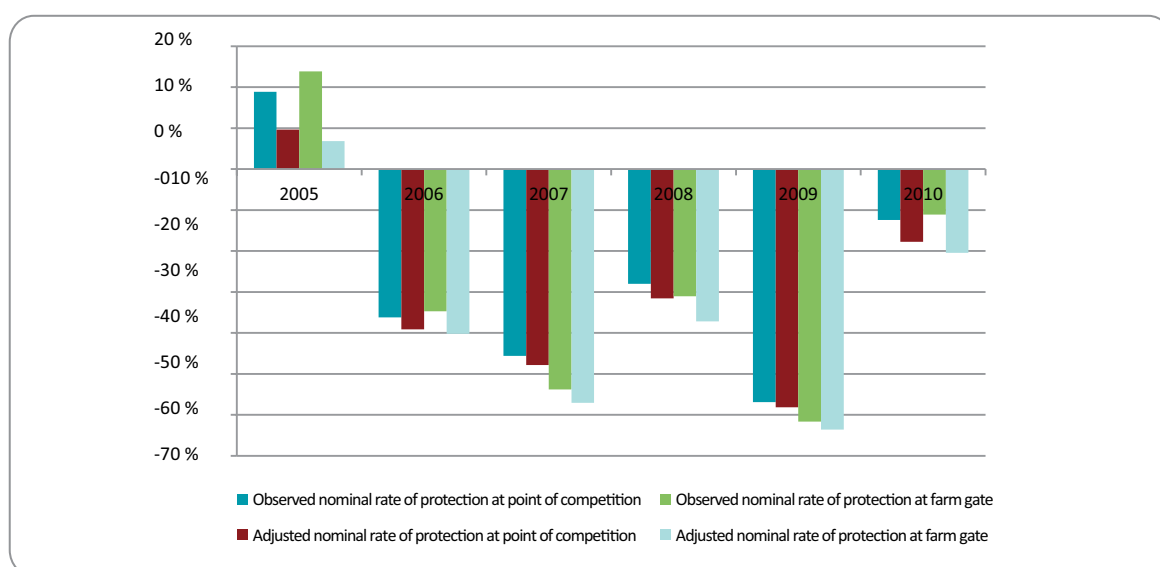
Figure 23. Sorghum cultivated area, production and yields in Mali, 1991-2011



Source: Authors, from CPS, 2010

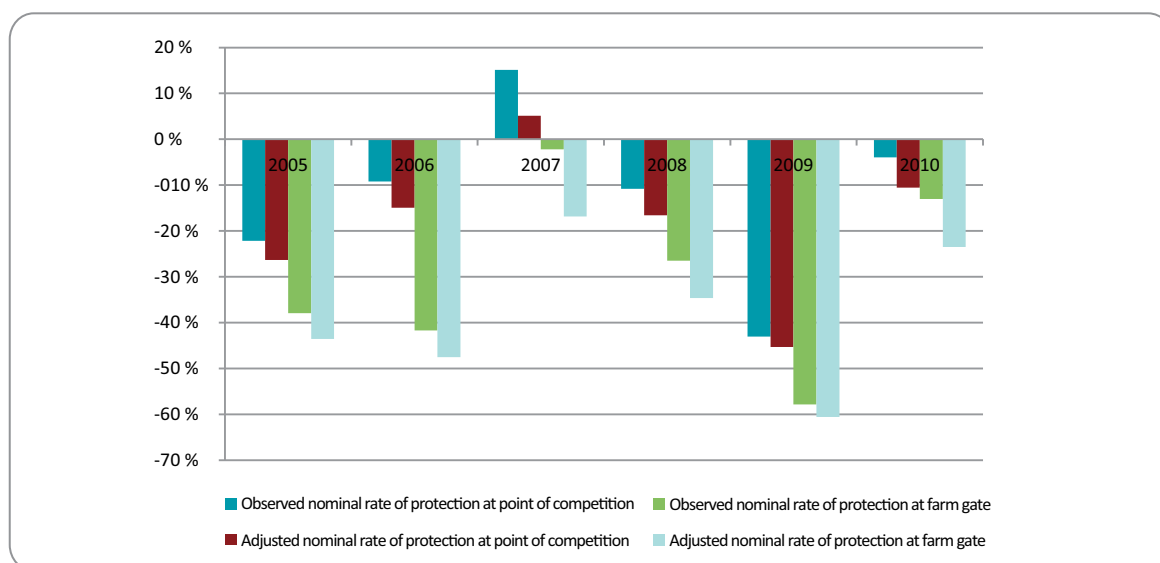
The government has not shown strong interest in supporting trading of these commodities on the domestic market. Moreover, authorities have discouraged formal exports of staple products to neighbouring countries through a variety of non-tariff barriers (NTB) as a way to ensure food security in the country. The cost of these NTBs is estimated at 10 FCFA/sack of grain (Dembele and Boughton, 2010). These measures have generated disincentives to producers and wholesalers, but have enabled the government to achieve its implicit objective of limiting foreign trade in millet and sorghum. It is doubtful, however, that this policy will help to achieve long-term food sovereignty in Mali, staple consumption being highly related to incentives for production. With producers receiving, on average, -32 percent disincentives for sorghum and -27 percent for millet for the period 2005-2010, prospects are not encouraging for the intensification of production that would be required to meet the ever-growing demand in the country.

Figure 24. Observed and adjusted NRP to millet wholesalers and producers in Mali, 2005-2010



Source: Authors

Figure 25. Observed and adjusted NRP to sorghum wholesalers and producers in Mali, 2005-2010



Source: Authors

6. Conclusion

Despite the fact that African governments committed to increase their spending for agricultural and rural development in 2003, and adopted various agricultural policies in reaction to the 2008 food crisis, they generally recognize that they have insufficient data about the effects of these policy decisions.

This chapter presents results obtained in Mali that allow policy analysts to assess quantitatively the effects of policies influencing both price levels and public expenditure in terms of incentives or disincentives to production.

The results shed light on whether the government succeeded in addressing the development gaps in the most important value chains in the country from 2005 to 2010, and whether the policy environment has generated incentives to production within those value chains. Most importantly, the MAFAP analysis reveals whether the government has achieved coherence in its agricultural and rural policies.

Taking four commodities as examples (rice, livestock, millet and sorghum), this chapter shows that there has been a certain degree of incoherence between official policy objectives, measures that have been implemented and their effects. The rice value chain illustrates this lack of policy coherence. Public expenditure overwhelmingly supported rice, which received 63 percent of the product-based agricultural-specific spending from 2005 to 2010. The bulk of this expenditure consisted of input subsidies through the Rice Initiative, as well as heavy spending in irrigation infrastructure. However, because of policy measures influencing price levels, such as import tax exemptions and price ceilings, the Malian government actually penalized producers and wholesalers, who did not benefit as they should have from high international prices. On the contrary, to a large extent it is the consumer category that has benefited from the recent measures adopted by the government.

This analysis thus highlights the need for decision-makers and development partners to better understand the effects and impacts of agricultural and food policies, through adequate policy monitoring and analysis. The type of analysis provided by MAFAP should be institutionalized and internalized at country level, with appropriate capacity-building, so as to ensure its continuity and sustainability. This in turn will lead to more transparent and evidence based decision making for food and agricultural policies in African countries.

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