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Groupement Européen d'Intérêt Economique

European Commission
DG Agriculture and Rural Development
FRAMEWORK CONTRACT N° 30-CE-0309243/00-66
Evaluation of CAP measures applied to the starch, sugar and cotton sectors

EVALUATION OF CAP MEASURES APPLIED TO THE SUGAR SECTOR

Final Report

December 2011

This evaluation was conducted by the European Economic Interest Grouping:

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Disclaimer: this evaluation study has been financed by the European Commission. The conclusions, and opinions presented in this report reflect the opinion of the consultant and do not necessarily reflect the opinion of the Commission.

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ASSUC	Association of sugar traders of the European Union
Av.	Average
AWU	Annual Work Unit
CAP	Common Agricultural Policy
CEETTAR	European organisation of agricultural and rural contractors
CEFS	Comité Européen des Fabricants de Sucre
CGB	Confédération générale des planteurs de betteraves
CIBE	Confederation of European Beet Growers
CIUS	European Sugar Users Organisation
CMO	Common Market Organisation
CNDP	Complementary National Direct Payment
CS	Case Study
CV	Coefficient of variation
DOM	French Overseas Departments
EBA	"Everything But Arms" Initiative
EC	European Community
EPA	Economic Partnership Agreement
EQ	Evaluation Question
EU	European Union
FADN	Farm Accountancy Data Network
FNVA	Farm Net Value Added
FTR	Full-time refiner
GAEC	Good Agricultural and Environmental Conditions
ha	Hectare
HFCS	High Fructose Corn Syrup
IPPC	Integrated Pollution Prevention and Control
ISO	International Sugar Organisation
LDC	Least Developed Country
MFF	Multiannual Financial Framework
n/av	Not available
n/ap	Not appropriate
Nb	Number
NRP	National Restructuring Programme
NVA	Net Value Added
RD	Rural Development
SAPS	Single Area Payment Scheme
SD	Standard deviation
SPS	Single Payment Scheme
TSN	Traditional supply needs
UAA	Utilised Agricultural Area
US	United States
USDA	United States Department of Agriculture
WTO	World Trade Organisation

Codes used for Member States[1]	
BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	The Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	The United Kingdom
EU-15	The 15 Member States entered before 2004
EU-25	The 25 Member States entered before 2007
EU-27	The whole 27 Member States in 2011

[1] As recommended in the Interinstitutional style guide, the abbreviations used are the ISO codes (International organisation for standardisation), except for EL and the United Kingdom, for which EL and UK are used (instead of GR and GB).

1 INTRODUCTION

1.1 CONTEXT OF THE EVALUATION AND OBJECTIVE

In November 2005, the Council reached agreement on a wide-ranging reform of the common market organisation for sugar. This reform brought the sugar regime, which had remained largely unchanged for almost 40 years, in line with the rest of the reformed Common Agricultural Policy. The reform has been operational since 1 July 2006, starting with a four-year transition period.

The objective of the evaluation is to conduct the ex post evaluation of the effects of the 2006 sugar CMO reform. The previous evaluation had been undertaken in 2000.

The evaluation examines the effects of the measures applied after the reform at different stages of the supply chain (farming sector, manufacturers and refiners). It assesses measures in terms of:

- Effectiveness, defined as the extent to which objectives pursued are achieved
- Efficiency, defined as the best relationship between resources employed and results achieved, in pursuing a given objective through an intervention
- Relevance, defined as the extent to which the intervention's objectives are pertinent to the needs, problems and issues of the sugar sector
- Coherence, defined as the extent to which the intervention does not contradict other interventions with similar objectives.

The evaluation also takes into account unintended effects and deadweight effects of the measures.

The analysis of the effect of the reform on end-users and the issue of price transmission along the supply chain were excluded from the scope of this revaluation. A specific study on price transmission, conducted by the Commission, is foreseen in the near future.

1.2 DELIMITATION OF THE EVALUATION

The instruments covered by the evaluation are defined in the following regulations:

- Council Regulation n°318/2006 (later integrated into Council Regulation n°1234/2007):
- Council Regulation n°320/2006 (sugar restructuring scheme):
- Direct payment schemes under Council Regulation n°1782/2003 (replaced by Council Regulation n°73/2009), as far as they are used by the beneficiaries in the sugar sector

The evaluation covers the 27 Member States of the EU, but focuses on 6 of them, namely FI, FR, DE, IT, PL and UK.

The evaluation deals with the effects of the measures implemented in July 2006. But in order to highlight the transitional effects, the post-reform results (2006 - 2010) are compared to a pre-reform period (most often 2001-2005).

The field of analysis in the evaluation is restricted to products covered by the Sugar CMO as defined in the EC regulation 318/2006. This includes distinct categories of sugar products based on the different technical processes: *white sugars, raw sugars, isoglucose and inulin syrup.*

1.3 OVERALL APPROACH TO THE EVALUATION

The report is structured in three parts:

- A theoretical analysis of the measures studied, as of other measures applied to the sugar sector to define intervention logic of the measures and formulae the assumptions on the different subjects of the evaluation questions.
- Descriptive chapters which provides back ground elements over the period since 2001
- The answer to the 12 evaluation questions, by analysing the necessary data, establishing a sound judgement and drawing conclusions.

At the level of each Question, the answer is based on the crossing of different approaches:

- The theoretical analysis used for formulating the hypothesis of impact of the measures.
- A quantitative empirical assessment based on standard descriptive statistical approaches to database available (Eurostat, FADN, CEFS, etc).
- A qualitative empirical analysis of information collected in the bibliography and from operators and/or managing authorities in charge of the measures. This participative approach is needed for properly interpreting the quantitative results and identifying external factors. In this evaluation, it was implemented during the Case Studies.

1.4 EVALUATION TOOLS AND LIMITS

The evaluation was conducted between December 2010 and November 2011. The consultants located in six Member States (FR, IT, DE, FI, UK and PL) undertook, in each of these countries as well as PT and BE, face to face interviews with the authorities in charge of the sector, the European/national/local representatives bodies of growers, machinery contractors and the processing sector, with a large sample of sugar, refining and isoglucose companies, and with 60 beet growers.

The information collected via operator interviews is necessary for get a good understanding of drivers and operators logic of action. Besides this qualitative data, the evaluation relies on bibliographical research and quantitative analysis of several data bases:

- Databases on Eurostat: Farm structure survey (FSS), annual agricultural information and Comext;
- DG Agri data on sugar price monitoring, budget expenditures, etc.;
- FADN data;
- Private information: CEFS and CIBE data, as data communicated by the manufacturers themselves (especially on the restructuring plans);
- Data from the Member States on the regulation implementation, especially on the restructuring scheme; data from national or local statistics.

The main limitations are:

- Some data are considered very sensitive by operators and have not, or partially, been made available. This includes information concerning the costs of production; sugar companies' restructuring plan, refiners' business plan and national report on the restructuring fund;
- The use of FADN data was limited:
    - the latest data available covered 2008 (2007 for IT), which is too short to analyze the final impact of the reform at farm level;
    - As beets represent less than 1/3 of the farms areas, an approach based on cropping systems was applied. Very specific samples were built and results cannot be extrapolated.

2 EMPIRICAL ANALYSIS

2.1 CAP MEASURES APPLIED TO THE SUGAR SECTOR

The Sugar CMO was set up in 1968. Since then several adjustments have been adopted, in response to regular EU enlargement, but until 2006 they never affected its main instruments. The first major reform of the CMO was adopted in 2006 (Council Regulation (EC) 318/2006). This section presents the specific instruments applied to the sugar sector, the change of their role and importance.

2.1.1 SUGAR CMO BEFORE THE 2006 REFORM

Before 2006, the Sugar CMO (Council Regulation (EC) 1260/2001) mainly intended to ensure a fair income to Community growers (producing raw material processed into sugar) and to ensure self-supply of the Community market. These objectives were met by means of strong protection of the Community market via high custom duties. The sugar producers (processing the agricultural raw material into sugar) in turn committed themselves to produce at a level close to the Community needs. The Community production was thus strictly restrained by quotas. An intervention system protected the price from market disruption, but it was seldom applied. The cost of exporting quota sugar (difference between the world market and community prices) was financed by export refunds through levies on sugar manufacturers credited to the Community budget. Out-of-quota production had to be exported at the world market prices but without benefiting from export refunds – otherwise it was either submitted to high levies or considered as quota production of the next campaign.

This policy resulted in a higher price level in the Community market that had to be borne by the EU consumers. This high price level enabled the growers and the manufacturers to finance the budgetary expenditure of the CMO.

2.1.2 THE 2006 REFORM OF THE CAP MEASURES APPLIED TO SUGAR

2.1.2.1 Objectives and principles

Several reasons led to reform of the Sugar CMO in 2006 (CEC, 2003):

- Firstly, greater coherence between the sugar policy and the new CAP framework set in 2003 was to be ensured.
- Secondly, the EU import concessions awarded, in 2001, to the Least Developed Countries (LDC) through the Everything But Arms initiative (EBA): these agreements progressively opened the EU market to imports from LDC with no duties. Given the high sugar price at the EU level, this was expected to generate substantial import flows, and the EU sugar market and producing sector could have faced imbalance and severe disruption.
- Lastly, at the WTO level, export subsidy commitments of the EU resulting from the Uruguay Round in 2005, as interpreted following the outcome of the legal actions against the EU sugar regime (see Box 1) as well as the on-going negotiations under the Doha Development Agenda.

In this context, **the main objectives of the reform** were:

- to bring the Community system of sugar production and trading in line with the international requirements, in reducing EU subsidised exports;
- to stabilise the market in the new international context, via a decrease in the EU domestic price that prevents massive import flows, and to reduce EU production under quota;
- to ensure future competitiveness of the sugar sector (both at agricultural and industrial levels) via a deep restructuring of the sector;
- to guarantee supply of EU markets for consumers and sugar end-using industries at a reasonable price;
- to ensure a fair standard of living for the agricultural communities within the sugar sector;
- and to avoid potential negative social and environmental impacts of the reform.

The reform sought to meet these main objectives by means of:

- a profound revision of the market management tools
- a restructuring scheme based on a self-financing mechanism (see below), encouraging non-viable sugar producers to renounce their quotas and financing measures avoiding negative social and environmental impacts
- the compensation of the effects of the reform on the farm income with a decoupled payment.

The reform was implemented in two steps: a transition period was set between 2006 and 2010, during which the sugar reference prices were reduced. This was to be followed by a consolidation period: most measures regulating the EU sugar market[2] were established until marketing year 2014/15 inclusive.

During the first two years of the scheme, much less quota was renounced than expected. The restructuring scheme was then modified to make it more attractive (Regulation (EC) 1261/2007, to be applied in 2008/2009) and reach the production reduction target of 6 million tonnes. These modifications of the reform are presented along the different chapters and referred to as the "reform of the reform".

Box 1: The WTO ruling (European Court of Auditors, 2010) (EC, 2005)

As a result of the Uruguay Round of WTO negotiations, the European Community committed itself to reduce export subsidies by 36% and subsidised quantities by 21% over an implementation period, 1995-2000. In its schedule of concessions, the EU considered that its out-of-quota sugar exports are not subsidised and calculated its reference subsidised exports net of its imports, thus estimated in the last year of the implementation period at 1.277 million tonnes. After the enlargement of the EU in 1995 by AT, FI and SE this commitment was consolidated to include the commitments of the new Member States. EU-15 sugar export subsidies commitment was consolidated at 1.273 million tonnes. Following the enlargement of May 2004, the EU-25 sugar export subsidies commitment is estimated at 1.374 million tonnes. EU-27 sugar export subsidies commitments are yet to be assessed.

In 2002, the major sugar exporters Australia, Brazil and Thailand requested the WTO to re-examine the export subsidies provided by the EC in the framework of its sugar CMO. As a result, the Appellate Body concluded that C sugar was cross-subsidised and had to be integrated into the subsidised export limit, together with the exports in quantities corresponding to ACP imports. As a result, the EU exceeded its export subsidy reduction commitments and was found in breach of the WTO Agreement on Agriculture. It had to further decrease its subsidised exports. This decrease was included in the 2006 CMO, and 2006/2007 was the first year to be fully subject to the new export limits.

Following the ruling by the Panel, the WTO limit for subsidised sugar exports is 1.374 million tonnes. The EU may allow exports of out-of-quota sugar in excess of this WTO commitment provided the EU can demonstrate that these exports are not subsidised. (Please see 2.1.2.2.3 exports section)

[2] reference price, minimum beet price, quota, production charge, carry forward, private storage and withdrawal schemes

2.1.2.2 The new Sugar CMO

Today the sector is regulated by the measures established in the 2006 sugar CMO (Council Regulation n°318/2006, integrated on 1 October 2008, in the Unique CMO Council Regulation n°1234/2007[3]).

2.1.2.2.1 Market management instruments

Following the reform, the importance of the market management tools was reduced. In particular, the intervention system (Art. 11, Art. 13 and Art.18) was maintained only up through the 2009/2010, at a very low level (the value of the intervention price in a particular marketing year was set at 80% of the sugar reference price of the following marketing year).

However, several market instruments were defined (or maintained) in order to stabilize the sugar market balance and insure that market prices stay above a reference price. These instruments include:

Price management instruments

To the reach the main objectives of the reform, the EU sugar prices were diminished gradually to get closer to the world price. The reference prices were cut by 36 percent in two steps (2008/09 and 2009/10). The minimum price for quota sugar beet was also gradually reduced over the 4 years of the reform (cf. Table 1).

The contractual obligation between the sugar producers and the sugar beet growers was maintained. A price monitoring system was introduced for the proper operation of the market management instruments.

Table 1: Reference prices and minimum price to growers (in €/t)

	2006/07	2007/08	2008/09	2009/10 to 2014/15
Reference price for white sugar	631.9	631.9	542.0	404.4
Reference price for raw sugar	496.8	496.8	448.8	335.2
Minimum price to growers per tonne of beet	32.86	29.78	27.83	26.29

Source: EC Regulation

Quota system: quota and out-of-quota sugar management

The quota system has been maintained until the end of the 2014/2015 marketing year, but with major changes:

- A and B quotas were merged into a single quota.
- The overall quota was not decreased (Art.56), but it was expected to decrease via voluntary quota renunciation by the sugar producers. This was to be the outcome of both the sugar reference price decrease and the restructuring scheme (described below). Although Member States with high sugar production costs would have preferred a linear quota reduction, the voluntary quota renunciation was the option chosen because it was expected to improve the competitiveness of the sector.
- The voluntary quota renunciation was also supposed to be boosted by a potential compulsory and linear cut in the quota to be applied in 2010 if the quota renounced was too low to meet a market balance (Art.59.2.). The calculation of the final quota cut was introduced in 2007 (“reform of the reform”). Its level was to be adjusted to national quota renunciation levels. Neither in Regulations 318/2006 nor 320/2006 (temporary restructuring scheme) does a quantitative objective for quota reduction appear. However, estimations of the quota decrease needed to reach a production level that would preserve market balance were made, and the goal was set at 6 million tonnes.

[3] All articles will refer to this regulation unless indicated differently

- In order to ensure a smooth changeover, additional quotas (Art.8 of Council Regulation (EC) n°318/2006) were made available to any sugar undertaking by 30 September 2007, against a levy of 730 €/t and under a limit set for each Member State (1 100 000 tonnes at the EU level for sugar distributed among Member States mostly according to a grid favouring competitive regions, i.e. linked to C sugar production). Additional quotas were to give the opportunity for the most efficient producers to increase their production quota.
- The production in excess of quota is submitted to a dissuasive surplus amount (Art. 64) of 500 €/t if it is not:
  - Sold for industrial uses (Art.62). Industrial use is the transformation of isoglucose, inulin syrup or sugar into products such as alcohol, bioethanol, live yeast, or certain chemical or pharmaceutical products. The list of authorized outlets has been increased compared to before the reform, and this should expand the outlets of out-of-sugar in the Community internal market and avoid penalising the sugar producers of out-of-quota production, which are supposed to be efficient sugar producers.
  - Exported within quantitative limits in accordance with the international trade commitments, by December 31 of the following marketing year, under an export licence and without export refund,
  - Carried forward (Art. 63), i.e. stored by the sugar producers and included in the quota production of the next campaign.
  - Used for the specific supply regime for the outermost regions by 31 December of the following marketing year.
- From 2007/2008, a production charge (Art.51) replaced the former levies. The production charge is levied on the quota held by undertakings during each marketing year. It amounts 12 €/t for sugar and inulin syrup and 6 €/t for isoglucose. Sugar and inulin syrup undertakings may require growers or chicory suppliers to bear up to 50% of the production charge concerned. The amount levied is credited to the Community budget to contribute to preserve budget neutrality of the reform throughout the whole period of Multiannual Financial Framework (MFF) 2007-2013: decrease in the market expenditures, increase in the direct aid, decrease in the production levy and increase in the production charge were cumulated together in order to arrive at budget neutrality over 2007-2013.
- Member States keep the possibility to transfer quotas from one undertaking to another under certain conditions (Art.60). The aim of this measure was to improve the new shaping of the industry, but it has not been used by the Member States during restructuring phase (before 2010).

At the end of 2009/10, the result of the scheme was a cumulated reduction of 5.8 million tonnes in the EU quota. The Commission announced that the expected results of the restructuring process were met; therefore the compulsory quota cut was not applied in 2010.

For inulin syrups, the quotas were voluntarily renounced by the inulin manufacturers in 2006/07 (first year of the restructuring operation).

For isoglucose, which selling price is dependent on the sugar market price, the reform could greatly modify the market equilibrium between sugar and isoglucose, as the price of isoglucose raw material (wheat and maize) is not concerned by the reform. To counterbalance these effects, additional quotas have been allocated to the current beneficiaries of isoglucose quotas. The EU quota was increased with an additional quota by 100 000 tonnes a year during the first three marketing years of the reform (so the total available additional quota reached 300 000 tonnes). It did not concern BG and RO, which benefited from an increase of 11 045 t and 1 966 t respectively in each of the marketing years 2007/08 and 2008/09. The quotas were allocated to plants in proportion to their previous quota.

In IT, LT and SE, operators were allowed to request a supplementary isoglucose quota against a payment of 730 Euros €/t, but no such request was made.

Other supply management instruments that include:

- **Withdrawal** (Art. 52): beyond a certain production level and given the import volumes, the European Commission may decide that part of the production under quotas is "withdrawn" from the market. Two types of withdrawal are possible. The first was defined in 2006: the withdrawal is defined as percentage of the quota production and is determined by 31 October. The quantities withdrawn are to be stored by the sugar manufacturers at their own costs. The withdrawn sugar is to be treated as the first quantities produced under quota the following marketing year, or, under certain conditions, considered as surplus sugar available to become industrial raw material, or temporary quota production available to be exported. The second type of withdrawal is the possibility of preventive withdrawal. The decision is then taken by 16 March, before beets are planted. Preventive withdrawal was decided by the Council in 2006 for the first campaign following the reform to help the reform process (945 426 tonnes at EU level). After that, preventive withdrawal was established as a standard market instruments. It was applied once in 2007/08 (1 400 143 tonnes).
- A measure that finances **voluntary private storage** (Art. 31 and Art. 32) when the Community price decreases. Aid for private storage can be granted to quota holders when the price falls under a trigger level set at a very low level[4]. This measure was never applied up to 2010.
- A **disturbance clause**[5] (Art. 187) allowing the Commission to take the necessary measures respecting the Community international commitments, in case of disturbance or threat of disturbance of certain markets. This clause was activated twice in March 2011 for sugar, in order to improve the availability of supply in the Union sugar market: (1) it set zero €/tonne as the surplus levy on 500 000 tonnes of sugar and 26 000 tonnes of isoglucose[6], (2) import duties were suspended on 300 000 tonnes of raw or refined sugar for a six month period[7]. It was activated again in June[8], to allow an additional 200 000 tonnes imports at zero import duty between July 1st. and September 30th. A second measure will allow the submission of applications for further sugar imports at reduced import duties via import tenders.
- Import arrangements (see below).

2.1.2.2.2 Production refunds

Although – under this new CMO – the domestic price should decrease and access to the industrial sugar should be easier, EU sugar end-users may not have access to industrial sugar at equivalent conditions to those on the world market. Production refunds were therefore maintained, but since the reform they have not been used.

2.1.2.2.3 Import and export arrangements

Import

[4] It can be applied either at Community level when the Community prices fall below 85% of the reference price and are likely to remain at this level for two months, or at Member State level when the local market price would possibly fall below 80% of the reference price.
[5] This clause covers the following sectors: cereals, rice, sugar and milk and milk products
[6] Commission regulation 222/2011
[7] Commission regulation 302/2011
[8] Commission regulation 589/2011

The **import duties** were maintained at the level applied before the reform (419 €/t for white sugar and 339 €/t for raw sugar). The Commission can also set additional duties under specific circumstances as defined in the management of imports article (Art. 141). .

Due to this high duty level, imports are made only from countries within **preferential agreements** with lower or no duties (Art. 144). These agreements existed before the 2006 reform, but major changes were introduced as an outcome of the WTO requirement and are described in Box 1.

In 2009 the access conditions to the EU market were:

- For LDC within the Everything but Arms Initiative (Council Regulation 732/2008 for the period from 1 January 2009 to 31 December 2011): quota free (since 1 October 2009) and duty free access
- For ACP countries which were not LDC and which had initialled an Economic Partnership agreement (EPA): duty free within a limit up to 2014/15
- Other agreements defined reduced tariff quotas with India, western Balkan countries and some countries that were traditional trading partners of new Member States (quota CXL)
- For the rest of the world, MFN import duties were applied.

Besides, in order to ensure that end-using industries can obtain sugar supply at terms comparable to the ones prevailing on the world market, the Commission has the possibility to allow **duty-free imports of sugar and isoglucose for industrial uses** (Art. 142). It was used by the Commission on at a level of 200 000 tonnes in 2006/2007 and 400 000 tonnes from 2008/09 onward. The level to which these quotas were used is presented in the table below.

Table 2: Industrial import quota available and allocated (t)

	Quota available	Allocated
2006/2007	200 000	20 194
2007/2008	0	0
2008/2009	400 000	179 474
2009/2010	400 000	7 860
2010/2011 (ongoing)	400 000	2 144

Source: DG Agri

The **traditional supply need of sugar for refining** (Art. 153) existing before the reform was maintained during the first three years of the reform, in order to ensure correct provisioning of full-time refiners. Full-time refiners were guaranteed duty free access to raw sugar up to the limit of 2 324 735 tonnes.

Finally, Art.141 lies down that imports made at a price lower than the trigger price communicated to the World Trade Organisation may be subject to an additional import duty.

Exports

According to the new CMO, out-of-quota sugar can be exported within the quantitative limits to be established by the Commission in accordance with EU's export subsidy commitments under WTO law as interpreted in the WTO ruling (maximum 1 374 million tonnes, unless exceptional conditions occur). These limits were set as follow:

Table 3: Export quota for out-of-quota sugar and isoglucose, 2007/08-2009/10 (t)

Marketing years	Sugar export quota	Isoglucose export quota
2006/2007		
2007/2008		
2008/2009	950 000	50 000
2009/2010	1 350 000 + 500 000**	50 000
2010/2011	1 350 000 (March 2011)	50 000

* from 1st August to 30th September **Commission regulation 94/2010
Source: EC regulation

In February 2010, the Commission allowed additional 500 000 tonnes of out-of-quota sugar exports. The situation on the world market at that time was exceptional because of world production lower than consumption, which gave rise to a price increase, while the EU harvest was very good. An in-depth analysis of these exceptional economic conditions at the time, and in

particular the evolution of production costs and market prices, showed that the out-of-quota sugar exports could not be considered subsidised. Therefore it was possible to fix an additional quantitative limit in respect of marketing year 2009/10. The possibility to grant **refunds on exports** to third countries in order to cover the difference between world market prices and Community prices was not abolished (Art. 162 and 164). However, from September 25, 2008, they were suspended and therefore are no longer available[9].*

[9] See Commission Regulation 947/2008 and 948/2008 respectively

Box 2: EU preferential agreements[10]

The fixed import duty deters non preferential imports. Nevertheless, several special trade agreements have been signed between the EU and some countries or groups of countries to allow preferential access. These agreements have changed, especially after WTO disputes.

The Sugar Protocol: since 1975, the EU held a preferential market-access arrangement for sugar with 20 ACP[11] countries. The Sugar Protocol (SP) providing for these preferences (originally annexed to the Lomé Agreement signed in 1975 and in 2000 attached to the Cotonou Agreement) guaranteed ACP signatories duty-free access for their exports of sugar to the EU market within limits of quotas amounting to a total of 1.3 million tonnes. These guaranteed quantities were paid at least the EU reference price for raw sugar. The arrangement was not affected by the 2006 reform but had to be reviewed to comply with World Trade Organization (WTO) rules. In 2007, in Council Decision 2007/627/EC, the EC formally notified the Sugar Protocol signatories that the Protocol was to be ended from 1 October 2009. From this date, exports of sugar to the EU from former SP countries are made under three possible import regimes:

- The European Partnership Agreement (EPA) regime for signatories who are not LDC (see below);
- The EBA Initiative for LDC (see below).
- The normal regime under EU Generalised System of Preferences (GSP): exports of sugar to the EU under the GSP regime are submitted to the payment of an import duty of 339 €/t of raw sugar. On top of this regular tariff, an additional duty may be applied under a special safeguard clause whose amount depends on the level of the world market price.

Special Preferential Sugar was established in 1995 and included in the CMO in 2001. If refineries could not source sufficient quantities via the Sugar Protocol, a tariff quota at zero duty for raw cane sugar for refining originating from the ACP Sugar Protocol States and India. They were paid at least 85% of the Sugar Protocol import prices.

Economic Partnership Agreements (EPAs) take the form of free trade agreements (FTAs) between the EU and seven ACP geographical regions (CARIFORUM, Pacific, Western Africa, Central Africa, Eastern African Community, Eastern and Southern Africa, Southern Africa Regional Development Community). EPAs are asymmetrical agreements: the EU grants duty free quota access to the products originating in ACP countries (with a transition period for sugar) while ACPs offer progressive liberalisation of trade and can exclude products from liberalisation. Negotiations of the EPAs were due to be completed by late December 2007. The first comprehensive EPA was signed in October 2008 with the CARIFORUM (Caribbean Forum of ACP States), and interim agreements have been initialled and/or signed with the six other regions. As far as sugar is concerned, exports to the EU under the EPA regime became duty-free and quota-free from 1 October 2009, but during a transitional period, which extends from the marketing year 2009/10 to 2014/15, duty-free access from ACP non LDC countries may be suspended when two conditions are met simultaneously:

- Imports originating from ACP states that are not LDCs exceed a given threshold of 1.6 million tonnes;
- Imports originating from all ACP countries, LDCs included, exceed 3.5 million tonnes.

Until September 2012, in order to benefit from the EPA import regime, and therefore escape payment of the import duty, importers must purchase sugar at a price not lower that 90% of the sugar reference price on a CIF basis (i.e. 301.68 €/t).

"**Everything but arms**" (EBA) Initiative: this was adopted on 26 February 2001 by the EU's General Affairs Council as an amendment to the EU's GSP and came into force on 5 March 2001. It grants quota-free duty-free access to the EU market to all products, except arms, produced in LDCs. However, during a transitional period, quotas were maintained under the EBA for three sensitive products including sugar. Quotas on exports of sugar under the EBA increased by 15% yearly until 1 October 2009, when they were fully removed

Until September 2012, as for EPA, under the EBA import regime, importers must purchase sugar at a price not lower than 90% of the sugar reference price on a CIF basis.

The agreement with India. An agreement similar to the Sugar Protocol existed between the EU and India for a quota of 10 000 tonnes. It was included in the CXL concession sugar.

CXL Concession sugar: adopted in 1995, it concerned the traditional trading partners of the New Member States. It grants a reduced tariff (98 €/t) on limited quantities for raw sugar imported mostly from Brazil and Cuba and since 2009 duty-free access for 10 000 t of raw sugar from India.

From 2009 it also includes quantities resulting from compensatory adjustments following the accession of BG and RO to the EU.

'**Balkans' initiative**: The 'Balkans Initiative': adopted in 2000, initially granted duty and quota free access to the EU market for nearly all agricultural products, including sugar, originating from the Western Balkans. Later however tariff quotas were introduced for the eligible sugar products originating in Croatia, Serbia, Albania, Bosnia and Herzegovina and the former Yugoslav Republic of Macedonia.

2.1.2.3 The temporary scheme for the restructuring of the sugar industry in the Community

[10] Based on ADE (2009) and EU regulations
[11] Barbados, Belize, Côte d'Ivoire, Fiji, Guyana, Mauritius, India, Jamaica, Kenya, Madagascar, Malawi, Uganda, Democratic Republic of the Congo, Saint Kitts and Nevis, Surinam, Swaziland, Tanzania, Trinidad and Tobago, Zambia, Zimbabwe

The previous CMO maintained production throughout the Community, even in areas not well suited to growing sugar beet or in high-cost sugar factories. A deep restructuring of the sector was expected along with the reform, as a result of, one the one hand, the price cut that should first affect the high-cost factories, and, on the other, of a restructuring scheme (defined in Council Regulation (EC) 320/2006) that gave financial incentives for leaving the sector to sugar firms and growers that would not be viable under the new market conditions. However, in 2007, due to the low level of the overall EU quota renunciation achieved, a set of measures was adopted hereafter entitled the "reform of the reform" in order to increase attractiveness of the scheme.

Financing the restructuring fund

The scheme was financed via a levy on quotas held by operators: during the first three marketing years of the reform, the sugar manufacturers had indeed to pay a temporary restructuring amount per tonne of quota to finance the restructuring fund (Art. 11). This was possible due to the fact that the sugar reference price did not decrease during the first two marketing years after the reform (2006/07 and 2007/08) while the beet minimum price decreased from the year one. Isoglucose producers were also contributors and beneficiaries of the fund. Only refiners did not contribute to the fund.

Table 4: Temporary restructuring amount (€/t of quota held) and reference price net of restructuring amount

	2006/07	2007/08	2008/09	2009/10 to 2014/15
Temporary restructuring amount (€/t of quota held) for sugar	126.4	173.8	113.3	
Reference price net of restructuring amount	506	458	429	404
Minimum price to growers per tonne of beet	32.86	29.78	27.83	26.29
Temporary restructuring amount (€/t of quota held) for isoglucose	63.2	86.9	56.65	

Source: EC regulation

Four types of measures of the restructuring fund

Four types of measures were financed by this restructuring fund:

- **Restructuring aid** to sugar producers who renounced quotas (Art. 8 to Art. 49): during the first four years of the reform, sugar producers who gave up their quotas were eligible for aid, ranging from 255 €/t for companies that gave up part of their quota to 730 €/t for those that gave up part of their quota and fully dismantle their production facilities. These amounts were reduced in two steps starting from 2008/09, by about 15% for each time to encourage quick restructuring. The fund amounted to a **total of 6.2 billion Euros**.

Table 5: Restructuring aid (€/tonne of quota renounced)

% of quota renounced:	Unconditionally	Partial dismantling	Full dismantling
2006/07	255.5	547.5	730
2007/08	255.5	547.5	730
2008/09	218.75	468.75	635
2009/10	182	390	520

Source: EC regulation

At least 10% of this aid had to be transferred to sugar beet growers and machinery contractors affected by quota renunciations. This level of transfer was to be decided at Member State level. The fact that this percentage was not clearly set was considered to be one of the reasons explaining the limited progress of the reform after the two first years of implementation. In 2007, "the reform of the reform" set this percentage at 10%. In addition, during this revision of the reform:

- Sugar beet growers were given a greater role in the restructuring. Starting from 2008/09 all sugar beet growers could apply directly to the restructuring fund. In order not to destabilise sugar undertakings, the quotas reduction generated by this so-called "growers' initiatives" was limited to 10% of the quota allocated to each

sugar producer. If a manufacturer renounced a larger quantity than that of the growers, it "took over" the growers' initiative.

- To encourage growers to renounce their delivery rights, a top-up payment of 237.5 €/t of sugar was granted to them for the 2008/2009 and 2009/2010 campaigns (if the application was submitted by 31 January 2008). This aid also applied retroactively to growers who took part in the scheme in the previous campaigns.
- A further incentive for the manufacturers to reduce their quotas was introduced; the companies that decided to give up part of their quota in 2008/09 at least equal to the 2007/2008 withdrawal percentage (i.e. 13.5% in Member States where quota reduction had not passed 50% at that time) were exempted from paying the full restructuring amount to be paid for 2007/2008 for the withdrawn quantities.

- **Diversification and additional diversification aid** (Art. 6 and 7 of EC n°320/2006) aimed at encouraging the development of alternatives in regions affected by the restructuring of the sugar sector. The additional diversification aid increased the level of the diversification aid when the regions renounced more than 50% of their quotas.

  The aid for diversification was granted on the basis of national restructuring programmes set by the Member States. The aid amount depended on the marketing year for which the quota was renounced and the percentage of quota renounced in the Member State.

Table 6: Aid for diversification (€/tonne)

	Basic diversification aid	Additional aid for diversification		
% of quota renounced:	**Less than 50%**	**Over 50%**	**Over 75%**	**100%**
2006/07	109.5	164.25	191.62	219.00
2007/08	109.5	164.25	191.62	219.00
2008/09	93.80	140.70	164.15	187.60
2009/10	78.00	117.00	136.50	156.00

Source: EC regulation EC

The measures supported in this framework should either correspond to measures envisaged under Axis 1 and Axis 3 of the Rural Development Regulation or be in conformity with the criteria set out in Article 87(3) of the Treaty. This article refers to aids granted by States. Article 87(3) refers to what aid is "*compatible with the common market:*

(a) aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment;
(b) aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State;
(c) aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest;
(d) aid to promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Community to an extent that is contrary to the common interest;
(e) such other categories of aid as may be specified by decision of the Council acting by a qualified majority on a proposal from the Commission."

- **Transitional aid to full-time refiners**: this aimed at allowing "*them to adapt to the restructuring of the sugar industry in the Community*" (Art.8 of Council Regulation (EC) n°320/2006). The aid was granted on the basis of a business plan approved by the Member State. An amount of 150 million Euros was available for the total of the four years following the reform. This amount was divided among Member States as described in the table below.

Table 7: Ceiling for the transitional aid to full-time refiners (million €)

UK	PT	FI	FR	SI
94.3	24.4	5	24.8	1.5

Source: EC regulation

- **Transitional aid to AT and SE** (Art.9 of Council Regulation (EC) n°320/2006). An envelope of 9 and 5 million Euros respectively was made available for these two Member States. In AT, the aid was intended for investments in collection centres of sugar beet and other logistical infrastructure needed as a consequence of restructuring. In SE it was for the direct or indirect benefit of sugar beet growers in Gotland and Öland giving up sugar production.

2.1.2.4 Direct payments

2.1.2.4.1 Integration of the sugar component into the Single Payment Scheme

As a consequence of reduced market support, income support for farmers is increased through the Single Payment Scheme (SPS), defined in Council Regulation (EC) 1782/2003. Council Regulation (EC) 319/2006 modified the Regulation 1782/2003 to include the sugar beet, cane and chicory payments component.

Single Payment Scheme

Sugar beet, cane and chicory growers have access to the single payment scheme if they have benefited from market support in a representative period, to be determined by Member States.

The calculation of the reference amount was also to be determined by Member States on the basis of objective and non-discriminatory criteria[12].

At the national level, amounts coming from the sugar sector were included in the national SPS ceilings. Each Member State determines the payment entitlements linked to the sugar reform, according to the criteria used for the reference amount.

There are three SPS models to calculate and allot the payment entitlements, and the integration of the sugar component depends on the model chosen:

- Under the historical model, Member States set the value of the entitlement on the basis of an individual reference for each farmer.
- Under the regional model, Member States define regions, and the value of the payments is established for each region. In each region, the payment entitlements for each farm have the same value.
- Under the hybrid model, the payment may comprise both components. The hybrid model is either static (it does not evolve) or dynamic (the proportion of the payment calculated using the historical and the regional models changes over time).

In New Member States: SAPS and the Separate sugar payment

In new Member States applying SAPS, beet growers receive a **single area payment** and possible **Complementary National Direct Payments**. As in the old Member States, the national ceilings for decoupled payments were increased in order to take account of the sugar component.
The new Member States applying SAPS may decide:

- to integrate completely the “sugar component” in the SAPS: the beet growers benefiting then from the SAPS and CNDPs (when applied)
- to integrate part or the totality of the sugar component into a **separate sugar payment** which is a decoupled support granted to sugar beet growers (Article 143a and b of council regulation (EC) 1782/2003). The percentage of the sugar integrated in the separate sugar

[12] such as: the quantities of sugar beet, cane or chicory covered by delivery contracts concluded in accordance with EC regulation; the quantities of sugar or inulin syrup produced in accordance with the CMO; or the average number of hectares under sugar beet, cane or chicory used for the production of sugar or inulin syrup and covered by delivery contracts

payment can be modified annually by 31 March. Since 2006, seven Member States have already used this possibility (PL, CZ, BG, RO, LT, SK and LV).

-Set-aside payment and energy-crops aid

Sugar beet qualified for set-aside payments, when cultivated as a non-food crop up to the CAP Health Check (i.e. 2007). It also qualified for the energy crop aid of € 45/ha provided under the 2003 CAP when cultivated for bioethanol production. This increases the outlets for production out of the quota.

2.1.2.4.2 Transitional community aid for beet growers

In regions that reduced their quota by at least 50% community aid shall be granted to sugar beet growers. This aid aims at buffering the effects of the restructuring process.

The aid shall be granted for a maximum of five consecutive years from the marketing year in which the threshold of 50% has been reached, but no later than for the marketing year 2013/2014.

2.1.2.4.3 State aid (art. 36)

According to Preamble (35) of the 2006 CMO, *in Member States with a significant reduction of sugar quota, sugar beet producers will face particularly severe adaptation problems. In such cases, the transitional Community aid to sugar beet growers will not suffice to fully address the beet growers' difficulties.*

Therefore Member States which reduce their sugar quota by more than 50% may grant temporary State aid during the period for which the transitional aid for beet growers is being paid. Special provisions are provided for, in the regulation, for IT: the support *shall not exceed a total of EUR 11 per marketing year per tonne of sugar beet to be granted to sugar beet growers and for the transport of sugar beet?*

FI (without being submitted to the condition of 50% quota renunciation level) *may grant aid up to 350 €/ha per marketing year to sugar beet growers* because of its particular geographical and climatic conditions.

2.2 IMPLEMENTATION OF THE CAP MEASURES IN THE MEMBER STATES

2.2.1 RENUNCIATION AND ADDITIONAL PRODUCTION QUOTA

The sugar quotas established in the regulation have been modified as follows. Data presented in the tables below take into account additional quotas and quota renunciations.

Table 8: Sugar quota by Member States (tonnes of white sugar equivalent) and changes since the reform (%)

		Quotas for 2005/06*	Phase 1		Phase 2		Total additional quotas	Total renunciation 2005/06-2009/10		Renunciation phase 1 taking into account add. quotas	Renunciation phase2 taking into account add. quotas
			Quotas for 2006/07	Quotas for 2007/08	Quotas for 2008/09	Quotas for 2009/10		Without considering add quotas	Taking into account add. quotas		
			After additional quotas and abandonment								
		(1)	(2)	(3)	(4)	(5)	(6)	(5-(1+6))/ (1+6)	(5-1)/1	[(3-1)/1]	[(5-3)/5]
E-15	FR [1]	3 768 991	4 120 686	4 120 686	3 437 031	3 437 031	351 695	-17%	-9%	9%	-17%
	DE	3 416 896	3 655 456	3 655 456	2 898 256	2 898 256	238 560	-21%	-15%	7%	-21%
	UK	1 138 627	1 221 474	1 221 474	1 056 474	1 056 474	82 847	-14%	-7%	7%	-14%
	NL	864 560	876 560	931 435	804 888	804 888	66 875	-14%	-7%	8%	-14%
	BE	819 812	862 077	882 301	676 235	676 235	62 489	-23%	-18%	8%	-23%
	ES	996 961	903 843	887 164	630 586	498 480	0	-50%	-50%	-11%	-44%
	IT	1 557 443	778 706	753 846	508 379	508 379	0	-67%	-67%	-52%	-33%
	DK	420 746	420 746	452 466	372 383	372 383	31 720	-18%	-11%	8%	-18%
	SE	368 262	325 700	343 422	293 186	293 186	17 722	-24%	-20%	-7%	-15%
	AT	387 326	405 812	405 812	351 027	351 027	18 486	-14%	-9%	5%	-14%
	EL	317 502	317 502	158 702	158 702	158 702	0	-50%	-50%	-50%	0%
	FI	146 087	146 087	90 000	80 999	80 999	0	-45%	-45%	-38%	-10%
	PT [2]	79 671	44 453	24 953	9 953	9 953	0	-88%	-88%	-69%	-60%
	IE	199 260	0	0	0	0	0	-100%	-100%	-100%	
New MS	PL	1 671 926	1 771 389	1 772 477	1 405 608	1 405 608	100 551	-21%	-16%	6%	-21%
	CZ	454 862	469 299	372 459	372 459	372 459	20 070	-22%	-18%	-18%	0%
	SK	207 432	210 164	145 904	112 320	112 320	8 605	-48%	-46%	-30%	-23%
	RO			109 164	104 689	104 689	0	-4%			-4%
	HU	401 684	406 684	298 591	105 420	105 420	5 000	-74%	-74%	-26%	-65%
	LT	103 010	103 010	111 010	90 252	90 252	8 000	-19%	-12%	8%	-19%
	LV	66 505	66 505	0	0	0	0	-100%	-100%	-100%	
	SI	52 973	52 973	0	0	0	0	-100%	-100%	-100%	
	BG			4 752	0	0	0	-100%			-100%
	EU-15	14 482 145	14 079 102	13 927 717	11 278 100	11 145 994	870 394	-27%	-23%	-4%	-20%
	EU-25	17 440 537	17 159 126	16 628 157	13 364 158	13 232 052	1 012 620	-28%	-24%	-5%	-20%
	EU-27			16 742 073	13 468 847	13 336 741	1 012 620	-25%			-20%

[1] French overseas departments included
[2] As from 2008/09, sugar production is realized exclusively in the autonomous community of Azores
*as set in regulation 318/2006 of February 2006
** For RO, BG and EU-27, % of renunciation calculated from 2007/08 to 2009/10
Source: DG Agri and regulation

Table 9: Sugar quota renunciation at EU level (tonnes)

2006/07	2007/08	2008/2009	2009-10	TOTAL
1 148 896	676 103	3 273 226	132 106	5 230 331

Source: DG Agri

According to quota changes, Member States can be classified into three groups:

- **Group 1**: Member States where quota were **reduced by 100%** in phase 1 (IE, LV, SI, BG). They were among the smallest producers of sugar.
- **Group 2**: Member States where **quotas decreased in phase 1 or both phases 1 and 2** (ES, SE, FI, SK, HU, CZ and GR).
- **Group 3**: Member States where **quotas increased in phase 1** and **decreased in phase 2**. Most of them belong to the "sugar belt" where beet agricultural yields are the highest (FR, DE, UK, NL, PL, BE, DK, AT, LT).

During the first two years of the reform (**phase 1**, before the reform of the reform), only 1.8 million tonnes of quotas were renounced at the EU-25 level[13] (by ES, IT, SE, EL, FI, PT, IE, CZ, SK, HU, LV and SI). After the reform of the reform (**phase 2**), all Member States did contribute to the quota decrease, and additional 3.4 million tonnes were renounced.

Table 10: Isoglucose quota by Member State (tonnes of dry matter)

		Quotas for 2005/06	Quotas for 2006/07	Quotas for 2007/08	Quotas for 2008/09	Quotas for 2009/10	Total additional quotas	% of renunciation*
			After additional quotas and abandonment					
		(1)				(2)	(3)	(2-(1+3)) /(1+3)*
EU-15	**FR**	19 846	23 755	0	0	0	7 818	-100%
	DE	35 389	42 360	49 330	56 638	56 638	21 249	0%
	UK	27 237	32 602	37 967	43 592	0	16 355	-100%
	NL	9 099	10 891	12 684	0	0	5 464	-100%
	BE	71 592	85 694	99 796	114 580	114 580	42 988	0%
	ES	82 579	98 845	110 111	123 423	53 810	48 844	-59%
	IT	20 302	24 301	28 300	32 493	32 493	12 191	0%
	EL	12 893	15 433	17 973	0	0	7 743	-100%
	FI	11 872	14 210	16 548	0	0	7 128	-100%
	PT	9 917	11 870	13 823	12 500	12 500	5 954	-21%
New MS	**PL**	26 781	32 056	37 331	42 861	42 861	16 080	0%
	SK	42 547	50 928	59 308	68 095	68 095	25 548	0%
	RO			13 913	15 879	0	3 932	-100%
	HU	137 627	164 736	191 845	220 266	220 266	82 639	0%
	BG			78 153	89 198	89 198	22 090	-11%
	EU - 15	300 726	359 961	386 532	383 226	270 021	175 733	-43%
	EU - 25	507 681	607 680	675 016	714 448	601 243	299 999	-26%
	EU - 27			767 082	819 525	690 441	326 021	-37%

Quotas mentioned in these regulations take into account the additional quotas (Art 9.1 and 9.2 of Reg. 318/2006) and abandonment quotas (Reg. 320/2006) occurring each marketing year. * For RO, BG and EU-27, % of renunciation calculated from 2007/08 to 2009/10

Source: DG Agri and regulation

The EU-15 total level of isoglucose quota renunciation is relatively higher than the sugar one. Isoglucose production was totally abandoned in FR, UK, NL, EL, FI and RO. Inulin quotas (320 718 tonnes) were abandoned in the first year of the reform, in all three producing Member States.

[13] Calculation: 16 628 157 – (17 440 537 + 1 012 620) = -1 824 99

2.2.2 BUDGETARY EXPENDITURE

In the first part, we present budgetary expenditure for the market measures in the sugar sector. In the second part, we focus on the restructuring fund. Expenditures are presented per budget year[14].

2.2.2.1 EU market measures expenditure

Table 11: Expenditure breakdown for EU-15, EU-25 and EU-27 (million €)

	EU-15				EU-25		EU-27			
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Export refunds for sugar and isoglucose	1 008	1 168	1 021	988	1 081	1 117	509	501	179	10
Production refunds for chemical industry	134	157	200	239	270	215	24	0	0	0
Refunds on non-Annex 1 products (sugar)	n.av.	n.av.	n.av.	137	141	124	88	96	60	17
Reimbursement of storage costs	281	17	0	0	0	0	-87	-27	-32	0
Adjustment aid for the refining industry	59	40	36	37	40	34	5	n.ap.	n.ap.	n.ap.
Measures for the disposal of raw sugar	16	14	20	20	29	20	4	0	0	0
Other	- 1	0	0	-6	232	134	0	1	0	0
Total EU	**1 497**	**1 396**	**1 277**	**1 408**	**1 793**	**1 645**	**543**	**572**	**208**	**27**

For 2006 onwards, discrepancies with the total for chapter 020502 as presented in the Annexes accompanying the 3rd financial report from the Commission to the European Parliament and the Council are due to the addition of refunds on non annex 1 products (sugar).

2010 expenditure is not yet definitive as the financial report for the EAGF has not yet been adopted by the Commission

Source: DG Agri

Before the reform, the total market measure expenditure was stable, at around 1 500 million Euros a year. With the change in market measures, especially the phasing out of the refund system, the amount of subsidies specific to sugar disappeared (in the table, the remaining expenditure for sugar market measures - 27 million Euros - are only residual payments for export refund applied previously).

Before the reform, export refunds for sugar and isoglucose were the main market expenditure item: it represented 71% of the sum of expenditure over 2001-2006. They were suspended at the end of 2008; therefore this expenditure is gradually disappearing. Refunds on non-annex 1 products related to sugar have also been highly reduced since 2007. Production refunds that represented 13% of the expenditure over the period 2001-2006 have not been used since the reform. The adjustment aid for the refiners importing and refining preferential sugar represented a small percentage of the total market measure expenditure (3%) before the reform. It no longer exists.

2.2.2.2 Market measure expenditure per Member State

Table 12: Total expenditure of the sugar scheme for some Member State and EU (million €)

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
FR	357	412	373	282	364	209	131	112	42	3
BE	281	236	205	254	254	224	78	115	43	9
DE	237	179	164	205	269	121	65	55	23	1
GB	187	178	184	239	230	273	79	16	25	1
IT	143	118	155	63	69	193	-28	17	-17	12
DK	86	74	52	87	97	66	49	52	16	0
ES	62	48	24	63	53	75	1	0	1	0
EU-15	**1497**	**1396**	**1277**	**1408**	**1609**	**1435**	**474**	**472**	**183**	**27**
EU-25					**1793**	**1645**	**543**	**579**	**213**	**28**
EU-27							**543**	**572**	**208**	**27**

Source: DG Agri

[14] The financial year for the EAGF lasts from 16 October until 15 October of the following year.

Sugar producers located in FR, UK, DE and BE have been the main users of the support scheme. These four Member States represented 65% of the expenditure over 2001-2010. The first three are the main EU producers (without taking into account PL), and BE is a large exporting Member State (through its port installations).

2.2.2.3 Community aid for beet growers

Table 13: Expenditure of the transitional Community aid by Member State (million €)

	2007	2008	2009	2010	Sum	%
ES	n.ap.	n.ap.	n.ap.	24.3	24.3	20%
GR	n.ap.	2.6	4.0	6.9	13.5	11%
IT	17.2	21.4	18.3	20.4	77.3	65%
PT	n.ap.	1.2	0.5	0.1	1.8	1%
SI	2.2	0.0	0.0	0.0	2.2	2%
Total	19.3	25.2	22.9	51.6	119.0	100%
% of total by year	16%	21%	19%	43%	100%	

Source: DG Agri

The timing of allocation of this aid is coherent with the pace of each member States quota renunciation.

2.2.2.4 Budgetary expenditure of the restructuring fund

Breakdown of the fund by measure

The restructuring fund has been financed through temporary restructuring amounts paid by the sugar producers. The payment of the levy was facilitated for sugar producers who chose to stay in the sector because the reform planned for the reference price to be reduced two years after the sugar beet minimum price first reduction. Therefore, during the first two years of the reform, and after as well, the manufacturers had an extra margin to finance the restructuring fund (cf. Chapter 2.1.2.3). The total assigned revenue collected by the fund amounted 6 228 million €.

The next table presents the breakdown of the expenditure of the restructuring fund. The execution of the fund is not completely finished; some payments are still expected for 2011 and 2012 for the diversification and additional diversification measures. The fund will cease to exist in September 2012.

Table 14: Expenditure breakdown by restructuring measure from 2007 to 2010, EU-27 (million € and %)

	million €					%				
	2007	2008	2009	2010	Sum	2007	2008	2009	2010	Sum
Restructuring aid	399	788	2 961	154	4 302	72	61	98	1	83%
Retroactive payment*	n.ap.	428	3	n.ap	431		33	0		8%
Transitional. aid to full time refiners	132	16	n.ap	n.ap	147	24	1			3%
Add aid for diversification	21	23	2	60	105	4	2	0	60	2%
Aid for diversification	0	26	47	115	188	0	2	2	37	4%
Trans. aid to Austria and Sweden	0	4	4	2	10	0	0	0	2	0%
Total EU-27	**551**	**1 284**	**3 018**	**330**	**5 184**	11%	25%	58%	6%	100%

*Retroactive payments were granted to sugar manufacturers that benefitted from the restructuring aid in the first two years of the reform to compensate for the difference in amounts they would have received if they had abandoned their quotas under the conditions applicable in the 2008/2009 marketing year.

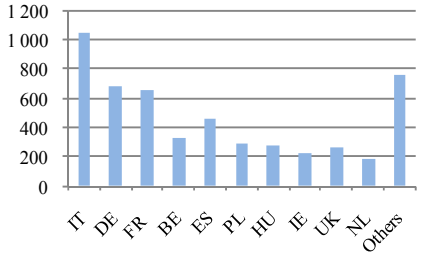
Source: DG Agri

The main measure has been, by far, the restructuring aid (83% of the total restructuring fund has been dedicated to the restructuring aid and 8% to retroactive payments). Most of these payments were made during the first three years of the reform, whereas the diversification measures are financed mainly starting as from 2010.

Indeed, the restructuring aid for every application period *was paid in two instalments: 40% in June of the marketing year for which the quota are renounced, and 60% in February of the following marketing year.* Therefore the payments were made partly the marketing year of the quota renunciation and partly the following marketing year. Then, high restructuring aid payments in 2008 correspond to the quota renounced in 2006/07 and 2007/08, and high payments in 2009 to quota renunciation in 2007/08 and 2008/09 (cf. Table 8 and Table 9).

Breakdown of the fund by Member State

Figure 1: Restructuring fund expenditure breakdown by Member State from 2007 to 2010 (million € and %)



	2007	2008	2009	2010	Sum	%
IT	227	526	226	76	1 055	20%
DE	0	0	660	27	688	13%
FR	18	43	575	18	654	13%
IE	45	107	178	4	334	6%
ES	27	69	230	134	460	9%
PL	0	0	287	8	295	6%
HU	0	46	214	10	270	5%
IE	79	150	1	0	229	4%
UK	92	0	142	23	256	5%
NL	18	43	116	5	182	4%
Others	46	301	388	25	760	15%
EU-15	**551**	**1 088**	**2 330**	**300**	**4 269**	**82%**
EU-27	**551**	**1 284**	**3 018**	**330**	**5 183**	**100%**

Source: DG Agri

46% of the total EU expenditure for the restructuring measures were made in three Member States: IT (20%), DE and FR (13% each one). The expenditures in BE, ES, PL, HU, IE, UK and NL represented between 4% and 9% each. In the other Member States, the expenditures represented 3% (for EL) or less of the restructuring fund expenditure.

Before the financial year 2008, the majority of the restructuring fund was allocated to operators settled in IT, IE and UK. In IT and IE, the majority of the restructuring fund was used for restructuring aid, whereas in the UK, the majority of the support was used for transitional aid for full-time refiners.

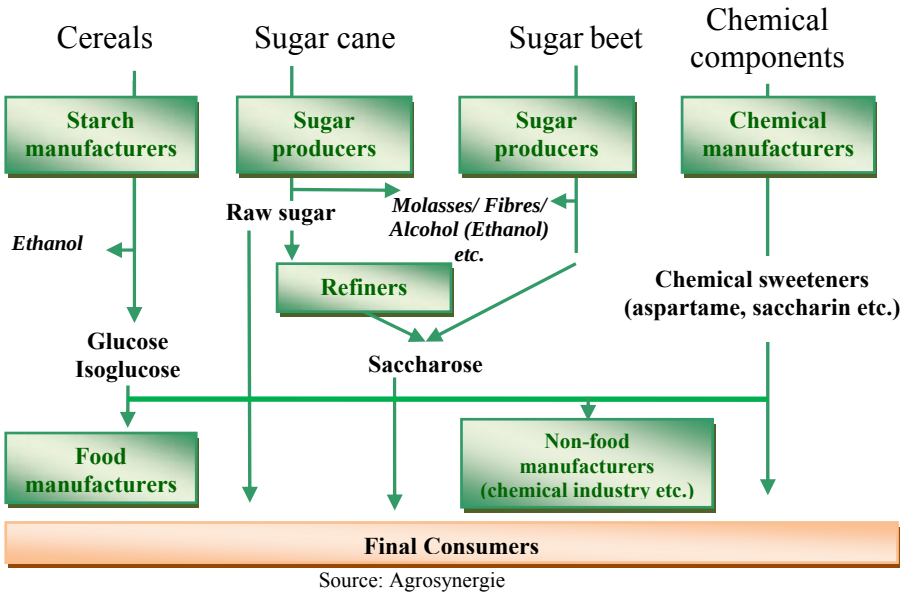
In 2009 (with the "second phase" of the reform), the restructuring fund was used in all Member States.

2.3 OVERVIEW ON THE WORLD MARKET

2.3.1 SWEETENER PRODUCTS AND MARKET

CMO sugar products are traded on the sweetener market, which includes sweeteners that are not covered by the Sugar CMO. Figure 2 illustrates the organisation of the sweetener supply chain.

Figure 2: Sweetener supply chains



Source: Agrosynergie

2.3.2 WORLD SUGAR MARKET BALANCE

Table 15: World sugar balance (in 000 tonnes, raw sugar equivalent)

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Production	137 174	148 473	142 276	140 320	150 404	166 297	166 277	150 643	157 994	166 958
Consumption	135 500	141 853	143 745	147 702	153 425	156 857	159 654	160 978	162 619	166 179
Surplus/deficit	1 674	6 620	-1 469	-7 382	-3 021	9 440	6 623	-10 335	-4 625	779
Import demand	43 363	45 178	45 231	47 994	48 692	48 897	48 295	48 144	53 776	50 422
Export availability	43 876	45 198	45 136	48 465	49 208	48 810	48 517	47 877	54 236	51 287
End Stock	61 913	68 513	67 139	59 286	55 424	64 951	71 352	61 284	56 199	56 159
Ratio stock/consumption	**0.46**	**0.48**	**0.47**	**0.40**	**0.36**	**0.41**	**0.45**	**0.38**	**0.35**	**0.34**

Source: International Sugar Organisation (2009)

World sugar production

World sugar production has developed significantly, driven by growing consumption. Sugar production grew by around 17% from 2001/02 to 2009/10 (2.1% per year). This growth is due to cane sugar development. Beet sugar production has remained relatively steady up to 2006 and thereafter decreased. Despite an overall growing trend, **world production shows significant yearly fluctuation mainly due to** the Indian production cycle in certain years exacerbated by **climatic conditions**. **The largest producers are Brazil, India and China. EU-27 covers** 10% of world sugar production in 2009/10, of which 16 million tonnes is obtained from sugar beet (FAOStat).

The USA is the world's low-cost producer of **isoglucose** because of the access to maize at world market prices and large plants which benefit from substantial economies of scale. In contrast, isoglucose has a limited market share in the EU sugar market (Mitchell, 2004) as a direct outcome of the quota system.

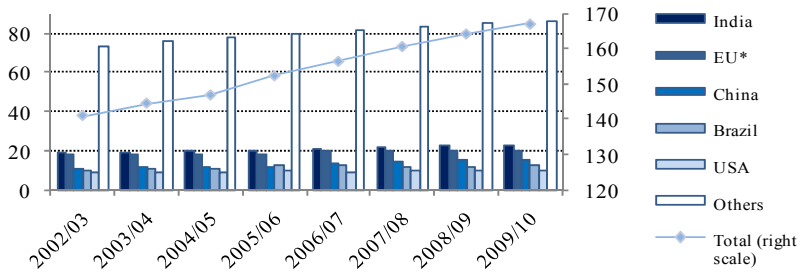
Furthermore**, cane sugar production is 5 times higher than that of beet sugar**. The share of beet sugar dropped from 36% in 1993/94 to 22% in 2009/10 (FO Licht in (CGB, 2011)). The **EU is the world's leader in beet sugar production**, reaching 71% of the world's production (in 2009/10, FAO Stat), whereas it produces very little cane sugar.

World sugar consumption

The world consumption of sugar has grown steadily in the past 10 years 2.8% per year (23% total). This rate is greater than the one of production.

Three factors are considered to be the drivers of world sugar consumption: population growth, income growth and prices (ISO, 2010). As a result, consumption growth rates across geographical regions are quite different. Since the late 1990's, the rate of growth of sugar consumption has been higher than the population growth rate, this trend only being reversed in 2009 (ISO, 2010).

Figure 3: Development of sugar consumption by geographical regions (million tonnes of raw sugar equivalent), 2002/03-2009/10



*EU: EU-15 up to 2003/2004 included, EU-25 from 2004/2005 to 2006/2007 included and EU-27 from 2007/2008 included

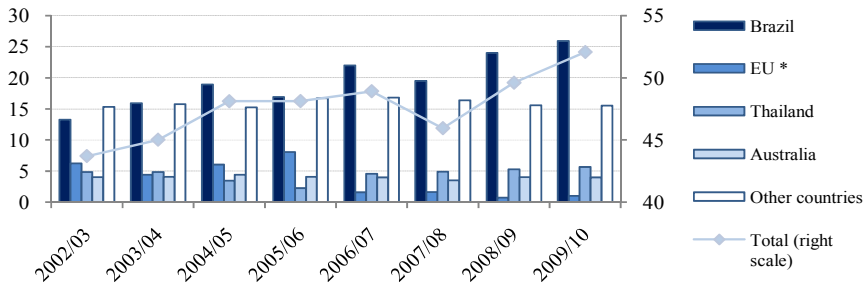
Source: ISO, world balance sheet

The group Asia & Oceania is the largest consumer continent with 39% of world consumption in 2009/10 (ISO). Without considering the consumption of other sweeteners, the **EU is the second world sugar consumer**, with an average of 19 million tonnes yearly (12%).

World Sugar exports

Although leading sugar-producing countries are also major consumers, sugar is a widely traded commodity.

Figure 4: Sugar exports (million tonnes of raw sugar equivalent), 2002/03-2009/10



*EU: EU-15 up to 2003/2004 included, EU-25 from 2004/2005 to 2006/2007 included and EU-27 from 2007/2008 included

Source: ISO (2009)

Sugar exports have followed a growing trend since 2001/02, from 43 to 52 million tonnes, **representing one third of the world sugar production**.

The leading exporter of sugar is by far Brazil: in 2009/10, it represented 50% of world sugar exports. Thailand and Australia follow with 11 and 8% of total sugar exports, respectively. The **EU used to be the second world exporter**, with an average of 6.2 million tonnes between 2002/03 and 2005/006. **Since the marketing year 2006/07, the community's sugar exports have plummeted** to a level of 1 million tonnes in 2009/10, representing 2% of world exports[15]. A particularity concerning EU exports is that they are mainly composed of white sugar, whereas the world exchanges are mainly raw sugar.

World Sugar imports

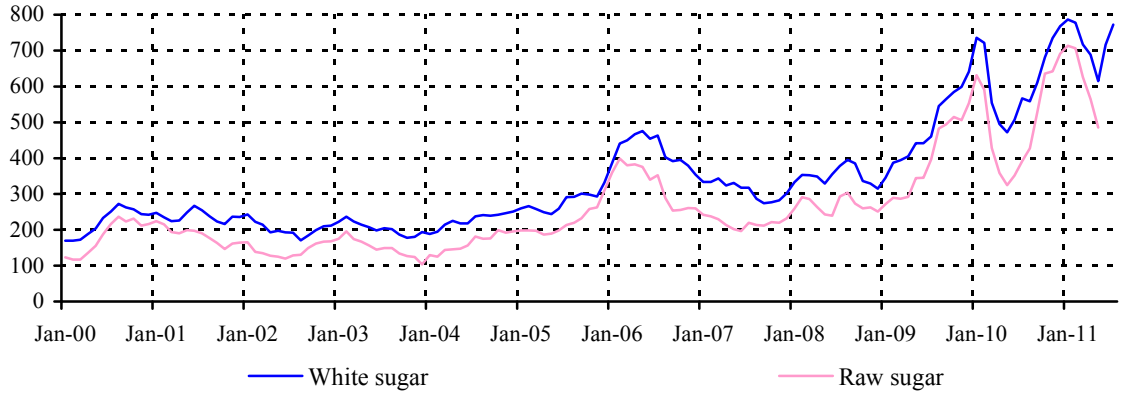
Up to 2006/07, Russia was the largest importer, with 7% to 11% of total import volumes of sugar. The EU has always been a significant importer as well, and volume imported steadily increased between 2003/04 and 2009/10.

Stocks

World sugar production fluctuations result in surplus or deficits which are covered by the existing stocks. 2003/04 to 2005/06 were campaigns with deficits, as well as 2008/09 and 2009/2010. These variations in stocks have an impact on the world sugar price.

2.3.3 WORLD SUGAR PRICES

Figure 5: World price of raw and white sugar, 2000-2011 (USD/t)



Source: **for white sugar:** Sugar on line; No 5 contract, London White Sugar, nearby future; **for raw sugar:** USDA (New York Board of Trade for raw sugar); Contract No. 11 nearby future

Sugar prices are volatile, for various reasons: the low price-demand elasticity, the sugar yield fluctuation combined with the fact that sugar producers have to make their production decisions long in advance (especially in the case of sugar cane production, which is a semi-perennial crop). On top of that, macro-economic factors such as oil price changes have recently affected the demand for sugar because it has become a raw material for bio-ethanol production.

When the CMO reform was prepared, the context was characterized with quite limited international price variations. Between 2000 and the end of 2005, raw sugar was exchanged on the international market at prices ranging from 104 and 309 USD/t and white sugar at prices ranging from 169 USD/t to 332 USD/t.

[15] DG Agri balance data presented in chapter 2.4.1, Table 16 are different from these ISO data.

Since 2005, prices have witnessed an increasing trend with very high price peaks: for raw sugar, 360 USD/t in January 2006 and 706 in January 2011; for white sugar, 387 USD/t in January 2006, 786 in January 2011. The declining stocks and the new demand for sugar for bioethanol production are the main reasons for this specific context (EC, 2009).

Therefore, the CMO reform was implemented in this very specific context of significant price fluctuations and an unprecedented high level of world sugar prices.

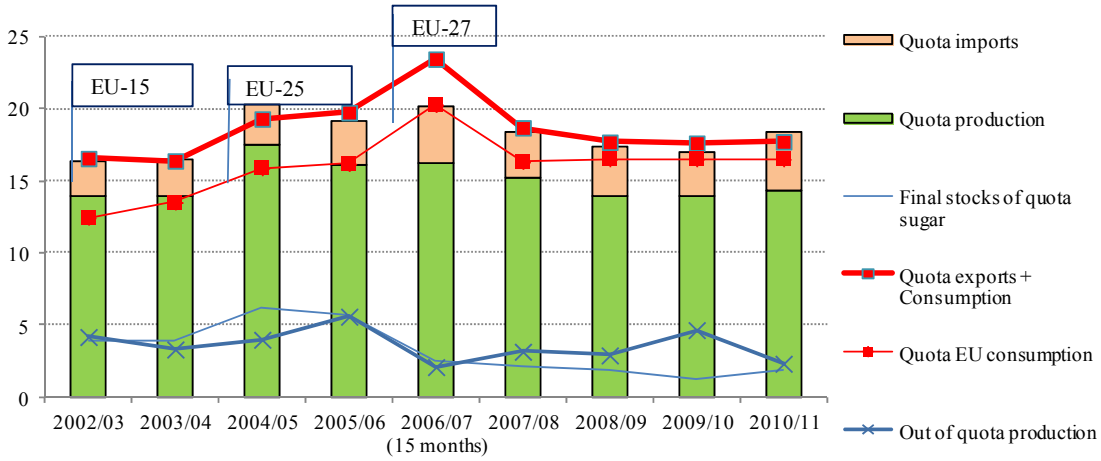
The figure also illustrates the significant correlation between raw and white sugar prices: white sugar price has always been slightly higher than raw sugar price.

2.4 DEVELOPMENT OF THE EU SUGAR AND ISOGLUCOSE MARKETS

2.4.1 EU MARKET BALANCE FOR SUGAR AND ISOGLUCOSE

The following Figure 6 and Table 16 present the EU sugar and isoglucose balance data.

Figure 6: EU sugar and isoglucose balance sheet, 2002/03 to 2010/11 (million tonnes of white sugar equivalent)



Source: Agrosynergie from DG Agri C5

Table 16: European sugar and isoglucose balance sheet (thousand tonnes of white sugar equivalent), 2002/03 to 2010/11

	EU-15				EU-25				EU-27									
	2002/03		2003/04		2004/05		2005/06		06/07 (15 months)		2007/08		2008/09		2009/10		10/11 (forecast)	
	Quota	Out of quota	Quota	Out of quota	Quota	Out of quota	Quota	Out of quota	Quota	Out of quota	Quota	Out of quota	Quota	Out of quota	Quota	Out of quota	Quota	Out of quota
AVAILABLE																		
Beginning stocks	**3 995**	**350**	**3 883**	**963**	**5 202**	**723**	**6 223**	**1 238**	**5 863**		**2 501**		**2 189**		**1 843**		**1 177**	
Production[16]	**13 892**	**4 187**	**13 965**	**3 320**	**17 508**	**3 989**	**16 138**	**5 596**	**16 185**	**2 098**	**15 160**	**3 162**	**13 906**	**2 909**	**13 956**	**4 663**	**14 313**	**2 333**
Imports	**2 449**		**2 503**		**2 746**		**3 046**		**3 957**	**20**	**3 205**		**3 432**	**179**	**2 996**	**8**	**4 097**	**54**
as such	1 960		1 934		2 230		2 308		3 152		2 626		2 885		2 499		3 570	
in processed products	489		570		516		738		805		580		547		497		528	
TOTAL AVAILABLE	**20 336**	**4 537**	**20 351**	**4 283**	**25 455**	**4 713**	**25 407**	**6 834**	**26 005**	**2 118**	**20 866**	**3 162**	**19 526**	**3 088**	**18 795**	**4 671**	**19 588**	**2 387**
OUTLET																		
Use in EU	**12 453**		**13 506**		**15 874**		**16 165**		**20 265**	**1 591**	**16 312**	**2 450**	**16 500**	**1 947**	**16 500**	**1 992**	**16 500**	**1 582**
of which food market	12 453		13 506		15 874		16 165		20 265		16 312		16 500		16 500		16 500	
of which Industrial use										872		962		710		646		650
of which alcohol/bioethanol										477		1 487		1 237		1 346		932
Exports	**4 100**	**2 655**	**2 881**	**2 219**	**3 422**	**2 449**	**3 573**	**5 843**	**3 178**	**2**	**2 366**	**16**	**1 183**	**728**	**1 118**	**2 115**	**1 217**	**700**
as such	3 168		2 029		2 600		2 680		1 947		1 402		254		100		40	
in processed products	843		852		821		893		1 232		964		928		1 018		1 177	
Final stock	**3 873**	**963**	**3 965**	**723**	**6 159**	**1 238**	**5 669**	**165**	**2 561**		**2 189**		**1 843**		**1 177**		**1 870**	
Carry forward		**918**		**1 236**		**918**		**826**		**525**		**696**		**413**		**564**		**106**
Total OUTLETS	**20 336**	**4 537**	**20 351**	**4 178**	**25 455**	**4 606**	**25 407**	**6 834**	**26 005**	**2 118**	**20 866**	**3 162**	**19 526**	**3 088**	**18 795**	**4 671**	**19 588**	**2 387**

Source: Agrosynergie from DG Agri C5

[16] Quota production includes fresh quota production and production carried over from previous year
Out-of-quota production includes fresh out-of-quota production minus production volumes carried over to the following year.

2.4.2 PRODUCTION BY MEMBER STATE

The following tables present production data[17] per Member States of sugar on one hand and isoglucose on the other.

2.4.2.1 Sugar

Table 17: Total sugar production by Member State (000 tonnes of white sugar equivalent)

	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	*Change 05/06-10/11*	*Change 07/08-10/11*	*Share in EU-27 in 10/11*
FR	4 065	4 704	4 293	4 217	4 328	4 372	4 688	4 367	4 928	4 657	*8%*	*-1%*	29%
DE	3 788	3 977	3 759	4 329	4 086	3 289	3 780	3 717	4 120	3 852	*-6%*	*2%*	24%
PL				2 001	2 047	1 677	1 875	1 358	1 646	1 516	*-26%*	*-19%*	9%
UK	1 297	1 359	1 383	1 359	1 263	1 124	1 080	1 192	1 320	1 261	*0%*	*17%*	8%
NL	953	1 023	1 073	1 022	991	913	842	919	974	888	*-10%*	*5%*	5%
BE	913	977	1 027	995	960	881	815	731	826	753	*-22%*	*-8%*	5%
ES	1 013	1 085	1 101	1 022	1 014	1 200	763	600	546	541	*-47%*	*-29%*	3%
IT	1 753	1 445	954	1 149	1 567	790	835	508	508	481	*-69%*	*-42%*	3%
AT	427	453	401	445	499	407	369	417	387	460	*-8%*	*25%*	3%
Others	1 704	1 653	1 596	2 997	3 192	2 341	1 878	1 815	2 102	1 858	*-42%*	*-1%*	11%
EU-15	**15 913**	**16 676**	**15 587**	**16 090**	**16 315**	**14 040**	**14 087**	**13 422**	**14 683**	**13 814**		***-4%***	85%
EU-25				**19 535**	**19 950**	**16 993**	**16 827**	**15 513**	**17 210**	**16 115**	***-19%***	***-4%***	
EU-27							**16 927**	**15 624**	**17 357**	**16 268**	***-15%***	***-2%***	

Source: Agrosynergie based on DG Agri

In the EU, the three largest producers are FR, DE and PL (before as well as after 2006). Together they represent 60% of the EU-27 production in 2010/11.

All Member States have produced less sugar in 2010/11 than in 2005/06, except FR. In ES, IT, EL, FI, PT (which keeps producing sugar only in the Azores), SK and HU, 2010/11 production is less than 35% of what it was in 2005/06. IE, LV and SI have completely stopped producing sugar.

2.4.2.2 Isoglucose

Table 18: Usable production of isoglucose by Member State (000 tonnes of isoglucose in dry matter and %)

	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	*Change 05/06-10/11*	*Change 07/08-10/11*	*Share in EU27 in 10/11*
HU				133	128	187	180	210	220	220	72%	22%	32%
BE	72	67	70	72	61	104	86	115	115	115	89%	34%	17%
BG				0	0	51	68	88	89	89	100%	31%	13%
SK				43	39	57	55	56	60	68	74%	24%	10%
DE	35	33	35	35	30	43	43	56	56	57	90%	33%	8%
ES	82	78	82	83	76	116	99	123	54	54	-29%	-45%	8%
Others	111	103	110	137	122	193	163	129	85	88	-28%	-46%	13%
EU-27							**693**	**777**	**679**	**690**			**100%**
EU-25				**501**	**455**	**689**	**615**	**678**	**590**	**601**	**32%**	**-2%**	**87%**
EU-15	**300**	**281**	**295**	**299**	**263**	**411**	**347**	**369**	**268**	**270**	**3%**	**-22%**	**39%**

Source: Agrosynergie based on DG Agri

EU isoglucose production is very limited compared to that of sugar: in 2010/11 isoglucose production is 4% of EU sugar + isoglucose production[18] because of quota constraint. There is almost no production of out-of-quota isoglucose (after the reform, it only occurred in 2006/07).

Isoglucose production increased previously to the reform because of EU enlargement. Since the reform, even though supplementary quotas were allocated, production in 2010/11 is close to that of 2006/07.

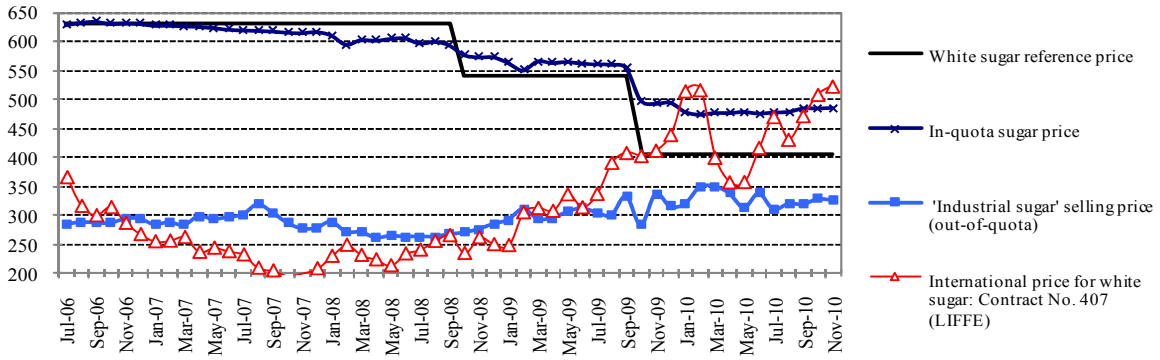
[17] Total production as defined in article 5 of regulation 314/2002: production of sugar beet during the campaign + carry forward from the previous year – carry forward to the next year. We cannot explain the discrepancies between these data and the EU balance.
[18] Since isoglucose has the same sweetening power as white sugar, figures are comparable.

Leading producers of isoglucose are HU, BE, BG, SK, DE and ES. All these producers except ES have increased their production since 2005/06. Some producers (FR, UK, NL, EL and FI) have completely stopped producing isoglucose.

2.4.3 EU SUGAR PRICES

The following figure presents the market price of sugar in the EU since the 2006 reform, based on EC price monitoring data established by Council Regulation n° 318/2006.

Figure 7: Sugar prices in the EU market, 2006-2010 (€/t)



Source: DG Agri[19] and USDA (international price for white sugar)

The EU white sugar price had always been significantly higher than the world white sugar price. In 2006, when the reform was implemented, it was more than double the world level. **The differential between both prices has tended to shrink and even reverse** since the reform because of both the exceptional rise in the world price starting from 2009, and a steady decrease in the EU sugar price driven by the two successive drops in the reference price (the EU price fell from 630 €/t in July 2006 to 486 €/t in November 2010).

In the 2009/10 campaign, as a result of the high world price and shortage of imports, the EU sugar price was significantly higher than the reference price.

The figure also clearly illustrates the segmentation of the EU sugar market, with a significantly lower price for industrial sugar (which has been a main outlet for out-of-quota production since the 2006 reform).

The industrial sugar price is close to the world price and fluctuates between 260 €/t and 350 €/t. The recent rise in world price did not lead to a significant increase in the EU industrial sugar price.

[19] 'Industrial sugar' purchase price is out-of-quota price, declared by yeast and chemical industries

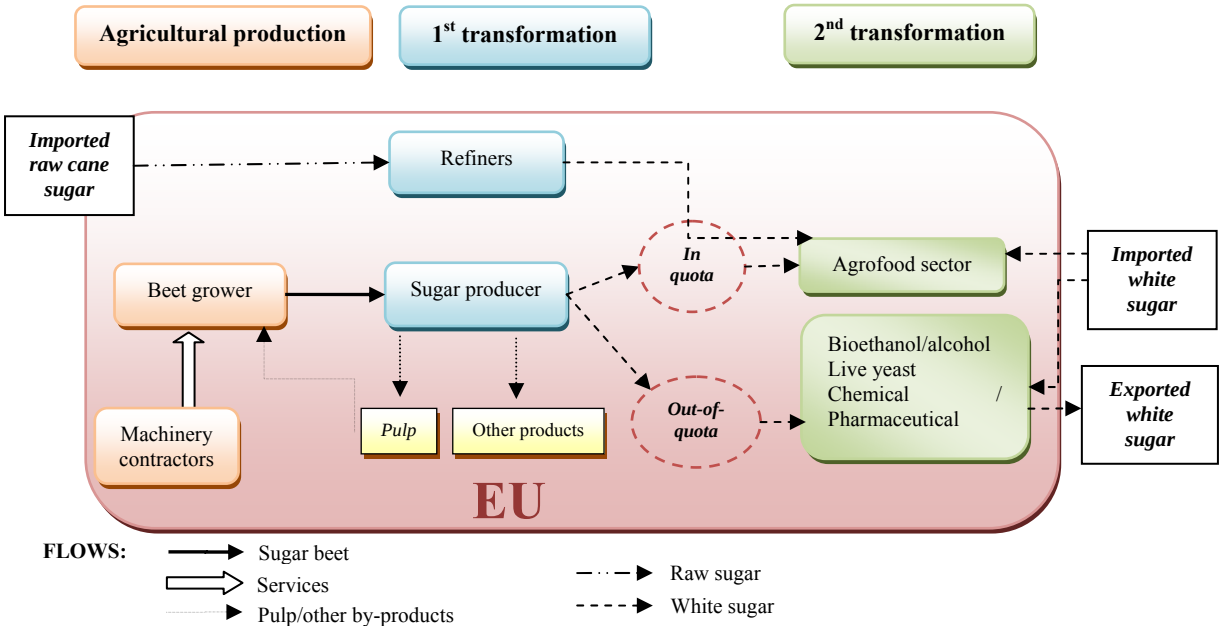
2.4.4 THE BEET SUGAR SUPPLY CHAIN

2.4.4.1 Organisation of the supply chain

Overall organisation[20]

The figure below illustrates the way the supply chain is organised.

Figure 8: Simplified organisation scheme of the beet sugar sector in the EU



Source: Agrosynergie based on bibliography and case studies

The EU beet sugar supply chain is characterised by **three distinct stages.**

At the agricultural stage, almost 255 000 farms produced sugar beets in the EU-27 (Farm structure survey 2007). Sugar beet areas should ideally be located in the vicinity of the sugar plants in order to optimize transport costs and avoid the deterioration of beets after harvesting. Growers deliver their production over 3 to 5 months, between September and January. Agreements within the trade define relationships between growers and sugar producers. For quota production, growers are tied to sugar producers by individual contracts (this is a requirement set out in the regulation) that define price and delivery conditions. For the sugar beets produced outside the quota, there may (or may not) be contracts too, depending on outlets and plant.

Sugar beet cultivation requires very specific equipment. The majority of growers have not invested in this equipment but work with service machinery contractors, who carry out activities such as seeding and harvesting the beets. Some growers have bought this equipment in association with other growers.

At the processing stage, sugar beets are processed by EU sugar producers. In 2010, there were 106 sugar factories owned by 24 sugar companies at the EU-27 level. However, the EU industrial sector is dominated by five groups: Südzucker, Tereos, Nordzucker, Pfeifer and Langen, Associated British Food. They own 70% of the EU sugar factories (Agrosynergie estimation) and have around 71% of the EU sugar quotas (CGB, 2010). These 5 groups own several subsidiaries in the EU and often outside the EU. Some of them are linked through joint investment in factories.

[20] The following description excludes the analysis of the EU cane sugar supply chain since it represented less than 2% of EU sugar production in 2009/10 (FR Agrimer, 2010), and most of the cane sugar is produced in outermost regions. Most of the cane production is covered by specific measures, outlined in the chapter on "Other drivers" and was evaluated in the evaluation of the POSEI measures in 2009 (Oréade-Breche, 2009).

Ten out of the 24 sugar companies are owned fully or partially by sugar beet growers, including 3 of the 5 largest companies. In terms of factories, 65 out of 106 are partially or totally owned by sugar beet growers.

Since the reform, some factories have also developed bio-ethanol activities, often in the vicinity of the beet plant.

The sugar producers are in competition with raw cane sugar refined in the EU. Before the reform, full-time refiners benefited from specific import conditions related to traditional use. Since the reform, sugar producers have developed new refining capacities as part of their strategy in the new context. This refining capacity can either be in the form of independent units or be added to beet processing plants (known as "concurrent refining", which aims at processing imported raw cane sugar using the beet processing facilities outside of the beet season). In addition, since the 2006 reform, end-users may also import raw cane sugar and have it refined in the EU. White sugar imports had been very limited until recently and cannot be considered a significant competitor to EU production yet.

With regard to consumption by end users, since the reform sugar has mainly been sold within the EU. In 2010/2011, exports cover 11% of the EU production (cf. Table 16). On the food market, sugar as such is sold in packaged form to retailers or in bulk to food industrial users.

Institutional organisation of the beet sugar sector

Operators in the sugar sector have set up unions or associations representing the interests of the different stakeholders of the supply chain. At the EU level, the main ones are **CIBE** (Confederation of European Beet Growers) for beet growers, **CEFS** (European Committee of Sugar Producers) for sugar producers and refiners. The **ASSUC** (Association of sugar traders of the EU) represents sugar trading companies. **CIUS** (European Sugar Users Organisation) represents the EU sugar-using food and beverage industries. **CEETTAR** (European organisation of agricultural and rural contractors) represents machinery contractors. Finally, a **European sugar refiners association** was created recently.

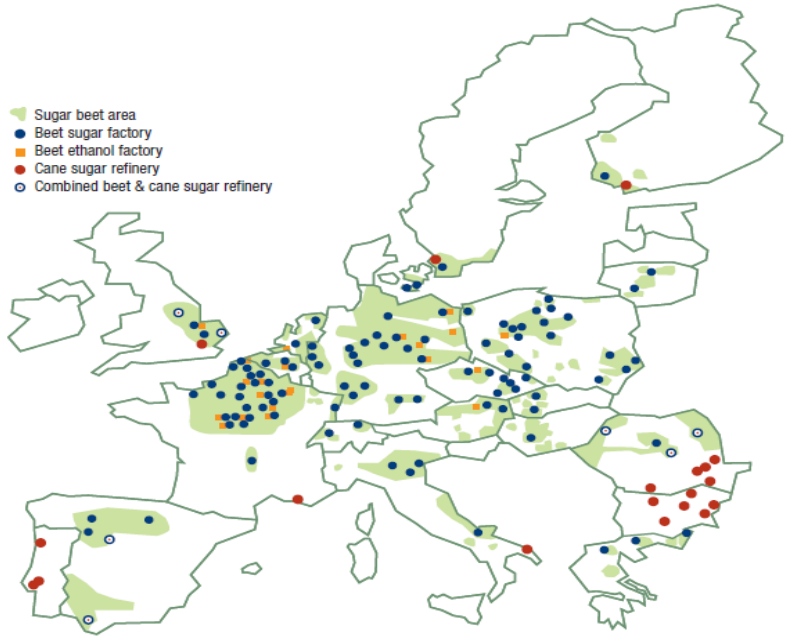
At the Member States level, several national associations of growers and manufacturers have also been set up.

2.4.4.2 The sugar beet agricultural sector

2.4.4.2.1 Areas and production regions

Sugar is considered to be strategic production. Historically, there was sugar production in every EU Member State except Luxemburg. In 2003, it was also spread over all EU-applicant countries (except EE and MT). We have already mentioned the Member States where production stopped. The map below shows the current location of beet production, beet processing units and raw cane sugar refineries. Beet production is concentrated in regions considered the most competitive for sugar production. These are located in a zone ranging from the UK, FR, BE, NL, DE to PL, generally referred to as the "beet belt."

Figure 9: Regions with sugar raw material crops and sugar manufacturers in the EU-27 in 2010

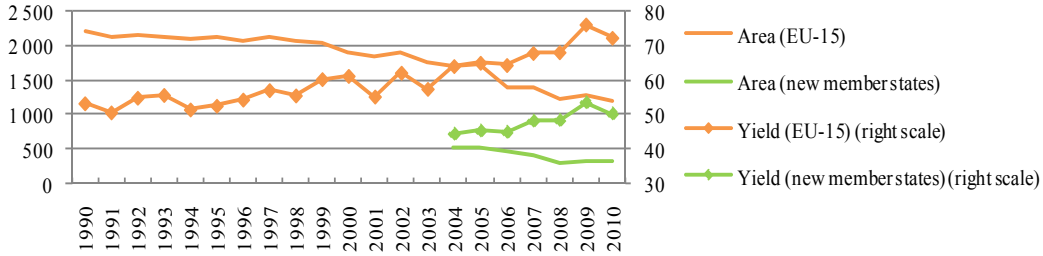


Source: CEFS, November 2010

Sugar beet area per Member State

Due to an increase in sugar beet yields associated with a quota-limited production, the sugar beet area has gradually decreased over the last decades (see Figure 10 below). In 20 years, the area halved in the EU-15, while at the same time the yields grew up 35%. The same trend is observed in the new Member States.

Figure 10: Long-term trends about sugar beet area (000 ha) and yields (t/ha) in the EU, 1990-2010

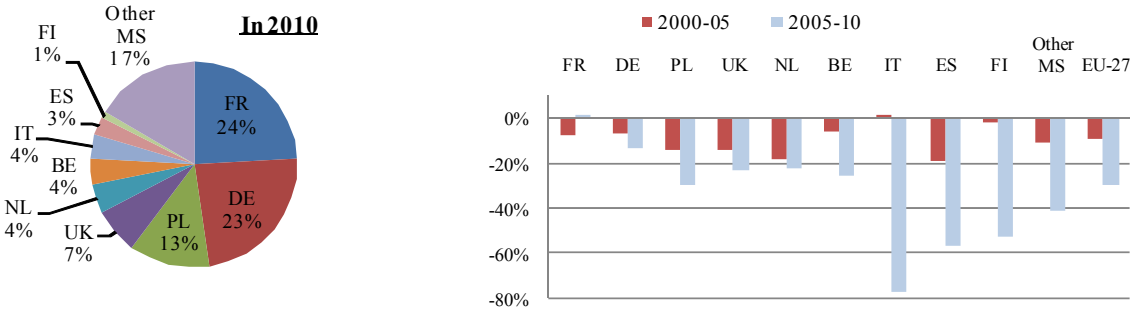


Note: Year N corresponds to marketing year N/N+1 as it refer to the year when the crop was sown.

Source: Eurostat

When comparing area variations before and after reform, it seems that the decline in sugar beet area accelerated after the reform in most Member States, except in FR (see Figure 11).

Figure 11: Sugar beet area distribution in the EU (on the left) and decrease in area before and after the reform (on the right)



Notes: For BE and the UK there is no data in 2010; the figure for 2009 is used.

Source: Agrosynergie based on Eurostat and national statistics BE

Concerning yields, FR is by far the most productive area. DE and PL, second and third greatest EU producers, have performances lower than the EU average. ES, which is not a large producer and is not located in the "beet belt", has the second best EU average over 2007-2010.

Table 19: Average yields (tonnes per hectare)

	Yield in sugar beets Average 2007 - 2010	Yield in sugar Average 2007-2009
FR	87.0	11.7
ES	78.3	12.0
BE	73.0	11.8
NL	73.2	12.4
DE	64.3	10.5
UK	64.2	11.1
IT	56.2	7.7
PL	50.3	8.2
FI	37.8	5.7
EU-27	66.1	10.5

Notes: IT: For 2008, the Eurostat data have been deleted because they were aberrant; EU: in 2010, Irish data are missing but are close to zero.

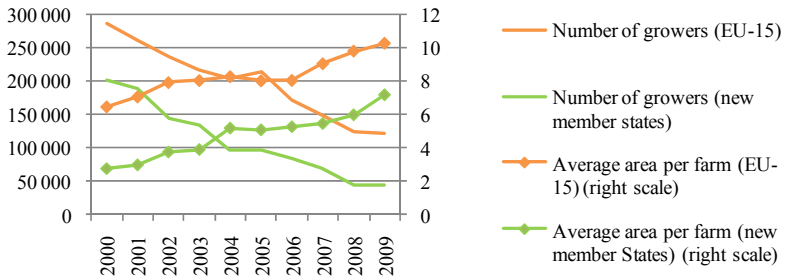
Source: Agrosynergie, based on Eurostat[21], national statistics UK and BE (sugar beet yields), and CEFS (white sugar yield)

2.4.4.2.2 Farm productive structure

Trend to farm concentration in the sugar beet sector

There is a long-term trend in agriculture towards decrease in the number of holdings and an increase in average area per farm. The sugar beet sector follows the same dynamic (see Figure 12).

Figure 12: Change in the number of sugar beet holdings and in average area per farm (ha), 1990-2009



Source: CIBE

[21] Eurostat does not require production data expressed in quantities of sugar beet of standard quality. Therefore, the figures may be heterogeneous, some Member States giving data for beets at 16% sugar content (as FR) and some giving data for all beets.

2.4.4.2.3 Crop rotation

The sugar beet varieties used in the sector are specific to sugar production. Sugar beet is always grown in rotation with other crops (Draycott, 2006). From an agronomic point of view, it should come back every 3-5 years, and as a good starter crop it is often cultivated in rotation with cereals. Short and long rotations have been observed in the Member States covered by case studies, for example, based on interviews with growers: Sugar beet/wheat/wheat or Sugar beet /wheat/field peas/wheat/barley

Farmer's rotation choice not only depends on agronomical and ecological constraints, but also on economic ones (the market demand, the proximity of production tools, investments in specific equipment, etc.) and the structure of the farm such as agriculture area utilised, the geographical distribution of fields, etc.

2.4.4.3 Sugar industry

As sugar is a commodity and a basic product without distinctive specificities, sugar companies must adopt a low-price strategy to differentiate themselves from their competitors. Therefore, although the sector has been managed with quotas and institutional prices, restructuring has long been occurring in the sector via the closure of sugar processing units, by increase in production capacity and factory mergers (Bologna University, 2003). As a result, the geographical landscape of the industry has changed continuously, both before and since reform.

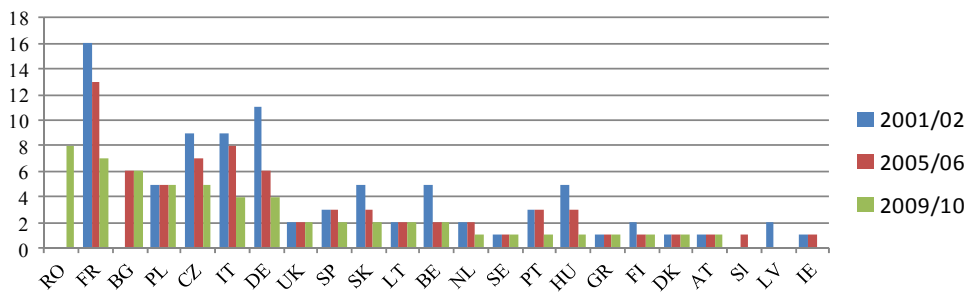
In 2005, Member States with the highest number of plants were PL, FR, DE, IT and ES.

In the EU-27, the number of plants has gone from 179 in 2005/06 to 106 plants (CEFS statistics)[22]. **These closures represent 41% of the EU-27 number of plants existing in 2005/06**. IT experienced the biggest reduction: only 4 plants out of 19 still exist today. In the five Member States where sugar production was the lowest (BG, IE, LV, PT and SI), sugar plants have disappeared completely. In comparison, in FR and DE, the percentage of processing plants that have closed down since the reform is relatively low (17% in FR, 23% in DE). Today, a few Member States concentrate most processing units: FR, 25, DE, 20, PL 18, and CZ, 7 (CEFS statistics, cf. Table 51).

Out of 25 full-time refiners registered by the EC, 9 are located in RO (three of them are owned by Agrana, subsidiary of Südzucker) and BG has 6 independent full-time refiners. With three units in PT, 72% of full-time refiners are concentrated in these three Member States.

In addition to the decrease in the number of sugar plants, the sector is also becoming more concentrated, with companies adopting offensive buyout strategies. This figure shows the number of sugar companies established in each Member States (i.e. number of companies that set up sugar processing units in these Member States) since 2001/02. In case of joint-ventures, the company is accounted for as a different entity from its parent company.

Figure 13: Number of companies (sugar or refinery) present by Member State



Source: CEFS (Comité Européen des Fabricants de Sucre)

[22] Court of Auditors (2010) states that by 2009, and as a result of there form, some 80 factories were closed

In most Member States, sugar production is now controlled by 1 or 2 companies. In the EU-15, 5 Member States had a monopolistic sugar production situation in 2001/02, as compared to 7 today. Only FR, DE, IT, PL, CZ, RO and BG still have between 4 to 7 different sugar companies established on their territory.

Today, the EU sugar sector is dominated by five EU multinational groups (Südzucker, Tereos, Nordzucker, Pfeifer & Langen, British Sugar). The groups can be distinguished by:

1. their expansion strategy, especially in / out of the EU: some companies are located exclusively in the EU or in geographic Europe; others established sugar processing units on other continents (in Brazil, Mozambique, China, etc.).
2. the level of vertical integration: 3[23] of the 5 main groups are "stock corporations" whose capital is partially or totally held by sugar beet growers themselves or through cooperatives of growers. The 2 others are not owned by growers. Several smaller sugar producers are traditional cooperatives of sugar beet growers.
3. their core business and diversification strategy:
   - Some groups are focussing exclusively on beet sugar production, while others are progressively switching to a business based on a wider range of raw materials, developing cane sugar refining or white sugar import from third countries.
   - Some groups are diversifying their production either towards:
     - new types of sugar end products (food products especially)
     - other types of products processed from sugar beets (ethanol). Investments in bioethanol plants have been increasing. The four biggest EU groups[24] all have recently developed bioethanol activities, based either on beet exclusively, or cereal exclusively, or both.
     - new types of activities out of the sugar sector.

2.4.5 THE ISOGLUCOSE SUPPLY CHAIN

At the agricultural level, isoglucose is produced from starch extracted from cereals. In the EU, starch manufacturers use either wheat or corn (or even barley or peas). No specific variety of wheat or corn is required. The availability of raw material and its ability for storage does not create the need for a special link between growers and manufacturers. Thus, growers generally sell their crop to an intermediate central buying agency, without direct relations with processing manufacturers.

At the industrial level, all producers extract starch from cereals and hydrolyse it to make sweeteners (among other starch-based products): the sweetening power depends on the degree of polymerisation, and the uses of these sweeteners depend on their chemical and physical properties. Not all industries produce isoglucose, which needs specific machinery to undergo hydrolysis through an enzymatic process. Because of EU regulation, isoglucose 42 is the only one produced in the EU.

At the consumption level, isoglucose is only consumed by industrial end-users. Due to its sweetening power equivalent to that of white sugar and to its liquid form, isoglucose is mainly used by the soft drink industry. However, its consumption is relatively low compared to the USA.

Isoglucose is one of a wide range of starch-based products. The plants are generally located in rural areas near the raw materials. Before the reform, isoglucose was produced by a limited number of companies: Cargill, Hungrana, Roquette, Tereos-Syral, Copam, Sucros Oy and Tate & Lyle. They owned 20 sites producing isoglucose across 15 Member States.

There are now 11 plants in 9 Member States and 6 companies (Sucros Oy has stopped producing isoglucose production).

[23] Südzucker, Nordzucker and Tereos
[24] Südzucker, Nordzucker, Tereos, British Sugar

Table 20: Number of isoglucose production sites by companies and location

	Before the Reform		2010	
	Number of sites	**Member States**	**Number of sites**	**Member States**
Cargill	5	DE, IT, ES, PL	4	DE, IT, PL
Copam	1	PT	1	PT
Hungrana	1	HU	1	HU
Roquette	4	ES, RO, IT, FR	2	ES, IT
Sucros Oy	1	FI	0	
Syral	3	ES, UK, BE	1	BE
Tate & Lyle	5	RO, GR, NL, BG, SK	2	BG, SK

Source: Agrosynergie

2.5 OTHER DRIVERS AFFECTING THE SUGAR SECTOR

The development of the sugar sector is not only affected by the measures evaluated but also by other drivers.

CAP measures applied to the starch sector[25] and the cereal CMO

Beet sugar competes with cereal starch for the production of sweeteners (isoglucose) and ethanol. As starch is produced in the EU mainly from cereals and starch potatoes, it has been historically administered by the CMO for cereals (except for isoglucose production). The significant difference between sugar beet and cereal is that cereal prices within the EU have been linked to world market variations for a longer time and to a greater extent than sugar prices. This also has to be related to the functioning and scales of these markets. Nevertheless, the 2006 reform of the sugar CMO should have contributed to reduce this difference. Regarding isoglucose, this leads to the remark that the raw material used is not managed through the same mechanisms as beet sugar.

Specific sugar regulation applying to outermost regions

Sugar is also produced in some European outermost regions (the Spanish Canary Islands, the Portuguese Azores and Madeira and French Overseas Departments), from sugar cane. These regions have benefited from several types of support, on one side to protect local production, on the other to support supply of these regions, through specific adjustments of the Sugar CMO and/or measures of the POSEI[26]. Besides, concerning the 2006 reform, the restructuring scheme of the sugar sector did not apply to outermost regions. Finally, the opening of the European market to regions concerned by EPAs does not apply to French outermost regions until 1 January 2018 (with a possible extension until 1 January 2028), so that an import duty can be applied to sugar from EPA countries[27]

The Rural Development Regulation

The 2006 reform, with the expected decrease in beet production and plant closure, raises an issue of alternative economic activities in rural areas, which are largely dealt with by the Rural Development Regulation (RDR) of the CAP. The diversification and additional diversification measures foreseen in the CMO are granted on the basis of programmes set by Member States for *measures which shall correspond to one or more of the measures envisaged under Axis 1 and Axis 3 of the RDR*[28], or in conformity with the objectives of the Treaty (cf. Chapter 2.1.2.3).

[25] For a detailed description of the measures applied to the starch sector see (Agrosynergie, 2010)
[26] Programmes d'options spécifiques pour l'éloignement et l'insularité designed to offset the handicap of distance between production zones and refineries located in Continental Europe.
[27] Article 3 Paragraph 5 of Council Regulation (EC) N°1528/2007
[28] In the current rural development programm (2007-2013) the measures proposed in the regulation are oriented around 3 thematic axes that all correspond to a core objective in the RD policy:
Axis 1: improving the competitiveness of agriculture and forestry
Axis 2: supporting land management and improving the environment
Axis 3: improving the quality of life and encouraging diversification of economic activities.
These axes are complemented by a "methodological" axis dedicated to the LEADER approach.

The coherence between the diversification measures and the RD is specifically analysed in Question 11.

EC Regulation concerning industrial installations

The Integrated Pollution Prevention and Control (IPPC) Directive[29] defines obligations with which industrial and agricultural activities with a high pollution potential must comply to prevent or reducing air, water and soil pollution, as well as the quantities of waste arising from industrial and agricultural installations, to ensure a high level of environmental protection..

The sugar processing units with a finished product production capacity greater than 300 tonnes per day are concerned by IPPC and have to follow the Best Available Techniques for Food, Drink and Milk Industry. It must be noted that application of IPPC regulation differs depending on the Member State.

Bioethanol market and regulation

The sugar sector must be analysed in the light of the development of the bio-fuel market bioethanol because (1) it is an opportunity for the European beet sector (as introduced in Chapter 2.4.1, 30% of bio-ethanol is produced from sugar beets), and (2) at EU and world level, the competition on raw materials.

Steady growth in volume

The world market of bioethanol is largely increasing thanks to national programmes to incorporate bioethanol in fuels. The United States and Brazil are the main players. The EU (with 6% of world production in 2010 – source: FO Licht in Cristal Union (2010)) is the 4th producer after China.

At the EU level, 2010 EU production of ethanol reached 64.74 million hl (2.3 times that of 2005), and the EU has to import to meet growing internal demand. However, the rate of deficit is decreasing. FR is the biggest producer of ethanol in EU, with an estimated production of 17.5 million hectolitres in 2009, i.e. 35.5% of the EU-27 production, ahead of DE (18%) and ES (12%) (source: CGB, 2011).

Table 21: European production of ethanol (000 hl)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Production	24 597	26 280	25 590	25 069	24 905	28 110	34 020	39 227	45 375	55 720	64 740

Source: CGB, 2011

In the future, growth trends should continue: ethanol incorporation rates have increased[30], but growth is linked to vehicles on the road being replaced by ethanol-compatible ones. Meanwhile, EU operators fear the risk of seeing Europe become the outlet of temporary surplus from the USA.

Changes in price

According to the Cristal Union annual report 2009/10 (Cristal Union, 2010), the EU price is linked to that of cereals, because of the high share of bioethanol coming from cereals. However, when EU prices increase due to an increase in wheat price, the increase is limited through competition from lower-priced imports from the Brazil and/or the USA[31].

Prices are nevertheless expected to increase in the EU market in the years to come (Cristal Union, 2010) because (a) USA and Brazilian availability of exports should decrease, (b) outlets are developing, and (c) experts predict an increase in world prices of raw materials (cereals and sugar).

EU processing capacity

[29] Council Directive 2008/1

[30] Biofuel has been largely promoted by the EU as a petroleum alternative, and four EC directives (Biofuels Directive 2003/30 of the European Parliament and of the Council, Energy Taxation Council Directive 2003/96/EC, Fuel Quality Directive 2009/30 of the European Parliament and of the Council, Renewable Energy Directive 2009/28 of the European Parliament and of the Council) have been published to support its development since 2003. Specifically, an indicative percentage was set for 2010 (incorporation rate of 5.75% of bioethanol into fuel), and this was increased to 10% of renewable energy in the transport sector in 2020. Beside the incorporation rate, a new kind of fuel, called "flex fuel" or E85 (composed of 85% ethanol and 15% oil), is participating in the increased demand. Until now, it has recorded only slight progress (Cristal Union, 2010), as it depends on the quantity of adapted vehicles. However, if the institutional support to this energy source is maintained, according to national action plans of EU members, perspective for growth in the sector should be significant: A forecast based on national action plans of 22 Member States out of 27, reported in the Cristal Union annual report 2009/10 (Cristal Union, 2010), shows that bioethanol consumption could grow from 48 million hli in 2010 to 123 million in 2020.

[31] In 2010/11, bioethanol coming from maize produced in the USA is competitive because it benefits from export refunds and reduced custom levies, as well as a favorable $ / € exchange rate.

Out of the 69 ethanol plants established in the EU-27, 14 process sugar juice into bioethanol (among which 3 are mix-plants that can produce bio fuel from cereals and sugar juice). The capacity of these 14 plants adds up to 2 111 million litres of fuel (i.e. 30% of the EU processing capacity). The advantage of mix-plants, which are able to process either cereals or sugar juice, is their flexibility that allows them to adapt to the most advantageous conditions of the market. However, the development of such plants increases uncertainties about the extent of use of sugar in the industry the coming years.

New bioethanol plants are under construction: among the 13 plants under construction referenced by ePure[32], none are designed to process sugar, but only cereals and waste (ePure, statistics, 2010).

[32] representative of the European renewable ethanol industry

3 THEORETICAL ANALYSIS AND INTERVENTION LOGIC

3.1 THEORETICAL ANALYSIS

Using a theory-based economic analysis, this section analyses the mechanisms behind the measures set after 2006 and their expected effects, and it compares them to the impacts expected in the regulations (described in the description of the regulation).

This section focuses only on: the main market management tools (the quota system and measures to achieve market balance) and direct aids to growers and to sugar producers (restructuring funds). Moreover, considering the evaluation questions, it considers the expected effects of the CAP measures on three levels: the sugar beet growers, the sugar producers and finally the EU sugar market balance. For these three levels, it analyses a counterfactual situation without any measures and a situation with the measures applied before and after the 2006 reform.

3.1.1 EXPECTED EFFECTS OF THE CAP MEASURES ON SUGAR BEET GROWERS

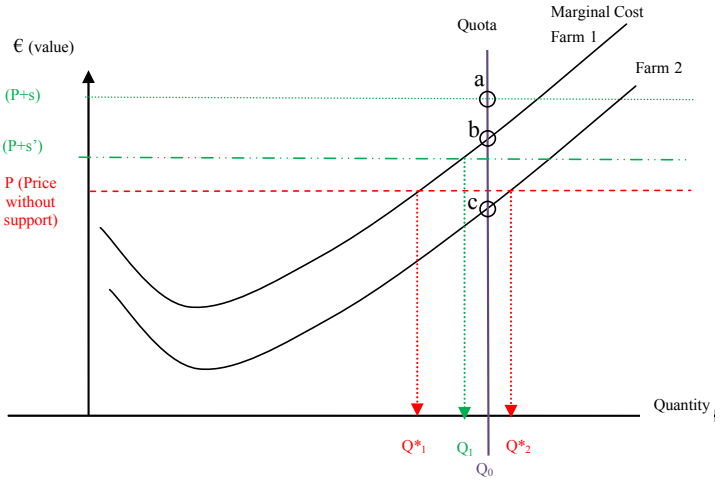
In this theoretical part, in an initial approach, we assume that farmers seek to maximize their profit under a set of constraints (limited land, capital and labour force). Here we consider that, with the quota system and the minimum price, the growers know relatively well what would be the profitability of sugar beet growing, and we disregard the risk linked to yield variation. We therefore consider in this initial approach a market with no risk, and we apply a static approach (the decisions of the growers do not modify the sugar beet price).

Taking into account that all EU sugar beet farms do not have the same efficiency, we consider two types of farms: Farm 1 is located in an area with lower productivity and higher cost structure than Farm 2.

For instance, Farm 1 reflects the case of small farms located in areas in which agronomic conditions are less favourable for sugar beet growing than the area where Farm 2 is located. The structure of Farm 1 restricts its capacity to adapt to technical progress that reduces cost.

The following figure illustrates the marginal cost curves. The vertical axis is the value of the cost of each farm, and the horizontal one is the yield of each farm.

Figure 14: Behaviour of sugar beet growers with quota and price support



Source: Agrosynergie

As generally recognised, the law of decreasing returns is well adapted to the agricultural sector. In virtue of this law, the marginal cost of production increases with production. The farmers produce up to the quantity for which marginal cost equals the marginal revenue.

Without any quota and price support, the marginal revenue equals the price per tonne of sugar beet. Farm 1 produces Q^*_1 and the farmer in a more adapted area produces a greater quantity (Q^*_2 on the graph) because its costs are lower. In the long term, Farm 1 will leave the sector because of its higher cost structures and limitation in adopting technical progress.

3.1.1.1 The situation before the 2006 reform

It can be simplified to a production quota (Q_0 on the graph) combined with a price support (P+s) generated by the high intervention price, the minimum price for sugar beet and high border protection. In order to simplify the graphic representation, we thus considered that only one quota is applied, but the conclusions would be similar if we had considered that two quotas, A and B, were applied. For quota sugar, the farmers are paid (P+s) (which equals or is above the sugar beet minimum price) and for out-of-quota sugar, they are paid at the market price level (price without the support on the graph, P)[33]. In this case, Farm 1 produces much more (up to Q_0) than without price support. Farm 2 produces quota sugar (Q_0) with the price (P+s) and out-of-quota-sugar (Q^*_2-Q_0) at the price P.

Effects on competitiveness

If the quota cannot be transferred from one farm to another, which was the case at least between Member States, then this scheme favours the development of production in high-cost farms. One may consider that, in the long term, it also restricts the development of the farms with lower cost structure. Indeed, if the quota had not been applied, Farm 2 could have adopted new technology and developed its production in order to further reduce its production cost. The scheme existing before 2006 therefore reduced the overall competitiveness of the sugar beet sector: the quota and the high level of price explained the maintenance of both types of farms. Given that quotas were set for each Member State, this reasoning is relevant among Member States and explains why, before 2006, sugar beet production was maintained even in countries with a low-efficiency sugar beet sector. Moreover, within a Member State, this system introduced rigidity in the system, since the farms "inheriting" a quota would not easily give it away, unless a "market of quotas" existed at least informally and the quota transfers were financially compensated.

Effects on farm income

The quota and price support generate a rent that supports the farm income. The rent net from costs can be represented by the line segment (ab) for Farm 1. It is higher for Farm 2 (ac) because of its more efficient production system. Therefore, the quotas guaranteed comfortable margin to efficient growers. If the quotas were not "inherited" by the farmers then the rent would be diminished by the fact that the farmers had to "pay" for quota acquisition.

If one takes into consideration the existence of risk, then this system also had an effect on income stabilisation. Indeed, the sugar sector is characterised by great price fluctuation. The minimum price significantly limits the risk of income fluctuation due to price fluctuation but not the one linked to yield fluctuation.

Effects on the supply behaviour of farmers

In principle, as a consequence the **production of quota**, sugar should be maintained even in less suited areas. **C sugar** should be produced only in areas and farms with such a low cost structure that they are competitive at the world price level (P on the graph). The previous description showed that out-of-quota production before the reform was significant in some Member States. However, several

[33] Out-of-quota sugar before 2006 had to be exported without export refunds, and thus at the world price, otherwise it was subject to heavy levies. It could be also carried forward, but in this case it was considered as quota sugar of the next year, and in our analysis it is not considered as the product of the studied year

studies[34] (including the ones quoted in the WTO panel report) showed that the cost levels would not allow production of sugar across the EU at world price. They showed that world price was not the driver of the out-of-quota production. Several acting together are mentioned in these studies, carried out before the 2006 reform to model potential impacts of the reform:

- The **existence of cross-subsidies between quota-sugar and out-of-quota** sugar through fixed production cost: this was the reason explaining why the WTO panel considered that exports of C-sugar were subsidised.

  From a theoretical point of view, cross-subsidisation is justified by the existence of quasi-fixed costs[35]. The production of C sugar may induce a lower total cost because fixed costs are covered by the quota rent and spread over a larger quantity. However, this happens only for certain levels of the marginal cost function and of prices: if the cost reduction and the (world and Community) prices are such that the profit from quota sugar compensates for the fact that C sugar is paid only the world price, then for maximizing its profit the sugar producing firm may produce a larger output than it would have produced if the quota sugar had not been subsidised. This situation would however mean that the firm has not properly calibrated its production structure (Bureau and *al.*, 2008) and that the quota production does not allow the firm to reach its breakeven point. This can be envisaged in the short term, given that many factors slow down the structural adaptation of firms.
  However, **at the farm level this cannot be the case in the long term**, where the equipment can be shared, external contractors can be used for decreasing fixed cost, and there are usually several alternative crops that could be cultivated. Therefore, at the farm level, the fixed cost should be relatively easily adjusted to the quotas, which were set long ago. **At the sugar producer level, this could nevertheless be valid** given that fixed costs are much higher, equipment is more specific, and is thus less liquid asset.
  In the case of farmers, it is therefore the sugar producers that would have induced production of C sugar beet. Indeed, in the sugar sector, farmers' and sugar producers' production decisions are linked because on the one hand sugar producers have to be supplied within a limited distance with a critical volume of beets, and on the other hand sugar beets have limited outlets other than sugar production.
- Out-of-quota production as an **insurance strategy** by risk-averse growers: because of yield fluctuation[36], producing out-of-quota sugar can be explained as a way to ensure that the quota rent is captured in case of poor yields. In this case, the incentive of producing out-of-quota sugar depends on the probability of bad harvest and the difference between the prices of sugar under quota and out-of-quota (Gohin and Bureau, 2006).
- In reality, the **carry-over** scheme should limit that this strategy results in over-shooting the quota. This risk management strategy could thus explain only a part of C sugar production.
- **Expectations concerning the reforms**: farmers and sugar producers could seek to build production reference in case the quotas would be reallocated or abolished and compensated on the basis of the past production (a mechanism commonly used in the CAP).
- **Discontinuity in land allocation**: This is an additional factor mentioned by Adenauer (2006) that could limit, at the farm level, the capacity of farmers to adjust production to exact quota.

Among these different reasons, obviously the one that can explain a structural and significant out-of-quota production is the foremost one, and therefore one generated by the sugar producer's behaviour.

3.1.1.2 The situation after the 2006 reform

It can be considered to be a situation where the quota is maintained at the same level but the price support reduced (to P+s' on Figure 14). When a farmer produces quota beets, he is paid P+s' and the market price (P) for out-of-quota beets. The price out-of-quota should remain close to the world price

[34] (Adenäuer, 2005), (Gohin,Bureau , 2006) (Commission of the European Communities, 2003)
[35] The cost is then composed of quasi-fixed cost and variable costs
[36] It must be underlined that the risk of yield variation is generated by the variation of the sugar beet yield per hectare, the sugar content per tonne of beets, and loss in yields related to storage after harvest and transport.

because out-of-quota cannot be freely sold (without paying a prohibitive tax of 500 €/t, i.e. almost the sugar reference price). It has to be sold to specific outlets, which were diversified compared to before the sugar reform: it can still be exported without refunds or carried forward, but it can also be sold as industrial sugar (in the chemical, pharmaceutical and fermentation industries). In order to guarantee that these industries have access to sugar at least at a level equivalent to world price (plus shipping cost), the Commission can suspend import duties on a quota of industrial sugar. Exports were, previously to the reform, the main outlets of out-of-quota sugar. However they have been since 2006 limited by the WTO decisions. The diversification of the outlets for out-of-quota sugar, after the 2006 reform, aimed thus at opening new outlets for the latter.

As a result, production in Farm 1 should decrease to Q_1 while the production in Farm 2 with lower cost structure should be the same. Therefore, the production should be reduced in Member States with high cost structure and be maintained in Member States with lower cost structure. Given that additional quotas could be bought-in by sugar producers, sugar beet growers (in our example Farm 2) could even expand their production if the sugar producers, whom they supply, bought new quotas.

Effect on competitiveness

In principle, one should thus conclude that the 2006 reform should enhance the competitiveness at the farm level, because more efficient farms are expected to maintain or develop their production, whereas less efficient ones should reduce their sugar beet production and in the long term abandon it. This was one of the expected impacts of the 2006 reform.

Considering the way the 2006 reform is implemented, this must nevertheless be nuanced. This conclusion is based on the assumption that the growers are the ones who decide to renounce to their quota. However, in the 2006 reform, the decision to renounce quotas laid mainly in the hands of the sugar producers. Indeed, if a factory closes, growers located in its supplying area would have to stop producing, even if their farms are low-cost farms. Indeed, the high transport cost of sugar beets greatly limits the opportunities for the farmers to supply another sugar producer. The contrary holds true in case of high-efficient sugar producers based in low-efficient sugar beet producing areas, who would decide to continue producing sugar. The "growers' initiative", introduced in 2007, gave the growers more possibilities to renounce their quotas even if the sugar producers did not do so. However, these possibilities were limited (see description of the regulation) and did not solve the cases of efficient farms supplying a factory that was closed.

Differences in efficiency levels between the manufacturer and agricultural sectors were highlighted in the Impact assessment made by the Commission in 2005 (Commission of the European Communities, 2005). Therefore, one may consider that the reform should have improved the effectiveness of the sector at the manufacturer level, but this may not be systematically the case at the agricultural level, in particular when low-efficient factories are located in highly productive agricultural regions. This is taken into consideration in the analysis of Question 2 (improvement in the competitiveness at the farm level).

If we take into consideration the other agricultural markets (and not only the sugar sector), then we must emphasise that the farmers (at least within the growers' initiative) base their production decision not only on the decrease in the sugar beet price but also on the relative profitability of the alternatives crops in their areas compared to sugar beet production.

Effect on farm income

The decrease in price support reduces the profitability of sugar beet growing. Moreover, it reduces the quota rent; it thus reduces the farm income. However, the farmers are partially compensated for the price decrease, via a decoupled payment (integrated into the SPS), should have reduced impact on farmers' supply behaviour. The objective of the regulation is to compensate for 64.2% of the price cut via a decoupled payment. Therefore, a decrease in farm income should be expected.

In terms of income stability, on the one hand the decoupled payment is a stable support not depending in the market; on the other, part of the income generated by the market is expected to fluctuate more than in the past (see the market equilibrium and effect of the reform on the prices). Therefore, the stabilisation effect of the decoupled payment depends greatly on its share within the total farm income.

Moreover, countries that gave up more than half of their quota were entitled to an additional coupled payment to farmers for a temporary period of 5 years.

Effects on the farm's supply behaviour

The fact that the sugar price support decreases should affect the production: it should induce a reduction of production in low-efficiency sugar producers and therefore in the areas from where they buy the beets. The production should develop in the areas where the factories are efficient and have acquired new quotas.

Overall, given the limitation on new quota allocation (both in terms of cost of the quota and number of tonnes equivalent), the total sugar beet production under quota is expected to decrease.

Concerning out-of-quota production, the figures presented in the description show that the production of out-of-quota sugar is still significant. Given that the quota rent was reduced after the reform (due to the decrease in reference price), at the sugar producer level cases of cross-subsidisation between quota and out-of-quota sugar should be more limited, but still possible. Because of this, out-of-quota sugar production could still be encouraged by some sugar producers, through attractive pricing policy, contractual clauses or quota allocation (see above). In addition, the fact that out-of-quota sugar can be sold as industrial sugar, including for bioethanol, is also a new potential driver of out-of-quota sugar production because this market is expanding. In this case the sugar price should be linked with energy price more than with the sugar market price. It could result in a specific pricing policy of sugar beet and contracts in order to favour out-of-quota beet production. This would have to be carefully studied in Question 1, given that it can be an important driver explaining the maintaining of sugar beet areas in some Member States.

The direct decoupled aid received by the farmers for compensating the decrease in sugar beet minimum price should not significantly modify their supply behaviour. The additional national coupled aid granted by the Member States that have given away more than half of their quota on the contrary should contribute to maintaining a certain area of sugar beets in these countries and ensure that the sugar beet production sector does not completely disappear.

3.1.2 EXPECTED EFFECTS ON THE SUGAR PRODUCERS' BEHAVIOUR

3.1.2.1 Before the 2006 reform

The analysis of the effects of the measures on the sugar beet growers' behaviour is to some extent also valid for sugar producers. Figure 14 could also apply to firms producing sugar, Firm 1 being less efficient than Firm 2.

In terms of competitiveness

*T*he quota system and high price of quota sugar induce a higher production of sugar by high-cost sugar producers and, in the long term, it limits the development of production by low-cost sugar producers. This scheme thus favours the maintenance of both types of sugar producers across the EU, impedes specialisation among Member States, and generates a segmentation of the national markets.

The scheme, existing before the 2006 reform, can thus be expected to have decreased the overall competitiveness of the EU sector. The quota and the high level of price can also be expected to have generated a rent and insured high margin especially for efficient sugar producers.

In terms of price-competitiveness, the sugar quota system existing before the 2006 reform is also expected to have had side-effects on the price. The quotas at the firm level limited the competition for market shares between the sugar producers. In addition, the fact that imports were limited to defined quantities at a price close to the EU price also impeded external competition. Finally, the quotas on inulin and isoglucose also limited potential substitution between sugar and other sweeteners. This limited competition generated a risk of "tacit collusion" that could result in an EU sugar price higher

than the intervention price. This phenomenon was indeed observed in the impact assessments made before the reform[37].

In terms of sugar producers' supply behaviour

The sugar quota system is expected to contribute to maintain the production in all the EU Member States.

Moreover, as explained in the previous paragraph, the scheme also induced in some specific cases the production of C sugar through cross-subsidisation of out-of-quota sugar by quota sugar. Depending on the marginal cost function of the sugar producers and the price levels (price of out-of-quota sugar and price of quota sugar), some firms were induced to produce C sugar, because the rent generated by the quota system covered their fixed cost. Except for land fragmentation, the other reasons driving out-of-quota production at farm level were also valid for the sugar producing firms: out-of-quota production could be seen as an insurance strategy or could be generated by expectations linked to reforms (see above). These various reasons resulted in the production of surplus compared to the needs of the market and increased the exports. The progressive EU enlargement that resulted in increased quota and import agreements also contributed to this situation.

Considering that quotas were also defined for other sweeteners, especially isoglucose, the quotas also created barriers to the development of these other sweeteners and thus affected the overall structure of the sweetener market. The number of isoglucose production units and level of production are low compared to other markets (such as the USA, see the Evaluation on the CAP measures applied to the starch sector[38]).

3.1.2.2 After the 2006 reform

As illustrated in Figure 14, the reduction of the sugar price (from P+s to P+s' on the graph) should result in quota abandonment by high-cost producers, while the low-cost sugar producers should maintain their production.

This adjustment could take time because the closure of factories generates direct costs linked with the dismantlement of the processing units, the redundancies, the eventual restructuring within the firm and compliance with national regulations on factory closure, etc.

Moreover, although the price decrease forces low-efficient units to stop, this decision may not be anticipated. During a short time period after the reform, the maintenance of too high a number of units could have generated significant surplus in the EU market in the context of the new commitment made by the EU at the WTO and LDC level (that were expected to lead to lower export flows and higher import flows).

For these reasons, three additional instruments were introduced:

- An incentive for quota abandonment was introduced via the restructuring scheme: it "rewarded" the firms that abandon quotas and aimed at covering the cost of quota abandonment and limiting potential negative social and environmental effects of the reform (see the regulation description).
- A "tax" per tonne of quota on the firms that maintain their quota (financing the restructuring fund). Given that both the sugar reference prices and the restructuring aid decreased over time, this should have favoured a rapid restructuring.
- The "final cut": if the quotas renounced were not sufficient and seemed to put at risk the equilibrium of the EU internal balance, the Commission could apply a linear reduction of the quota to all sugar producers.

These instruments should have therefore reduced the length of the restructuring process.

The decision of sugar producers to abandon their quotas (fully or partly) should therefore depend on:

[37] Universita degli Studi di Bologna. Concurrence et concentration dans le secteur agro-alimentaire, AGR 020747, 2003, 197p.
[38] Agroysnergie, Evaluation of the CAP measures applied to the starch sector, European Commission, 2010, p .343

- Estimation of profit in the context of the decreasing reference price, less the contribution to the restructuring fund, production levy and eventual amortization of investments needed to improve competitiveness in the new price context,
- Existing alternative industrial activities (reconversion to bioethanol production for instance),
- Estimation of costs of the dismantlement of units or quota reduction compared to the compensation offered by the restructuring fund.

Effects on competitiveness

Overall, the measures should favour a restructuring within the sector with: fewer units and a greater concentration allowing the firms to achieve greater economies of scale. The limited transfer possibilities between Member States had significant effects on the competitiveness of the sugar sector before the 2006 reform. More flexibility on transferring quotas could have limited these side-effects. This flexibility was not introduced by the reform; however, additional quotas were made available to firms willing to expand their quota production, in return for a "fee" per tonne of quota. This should have allowed efficient producers (for which the additional quota payment is less than the expected rent) to adapt their quota production to their capacity and achieve greater economies of scale.

This restructuring was thus expected to improve the sector's competitiveness. However, efficient units at the EU level may have closed for several reasons:

- The main sugar producing companies are multinational companies: they have invested out-of-EU, usually before the reform (see the description of the EU supply chain). The decrease in the reference price reduces the quota rent and likewise the margins of their EU sugar factories compared to their other factories. Although their EU units may be more profitable than those of their EU competitors, these companies may decide to close their EU units, taking into account their world-wide development.
- The restructuring scheme gives an incentive to all companies to abandon quota independently from their performance; therefore, this may have accelerated the above-mentioned phenomenon. The level of the aid for restructuring firms is thus an important factor to take into consideration because it should be sufficiently high to cover the cost of dismantlement of factories with low efficiency but should not encourage efficient factories to stop producing.
- This behaviour is also induced by the progressive opening of the EU market, especially to LDC countries, which should result in the long term in greater external competition within the EU market and easier access to the EU market for the subsidiaries of the multinational companies.

Several companies are owned fully or partially by sugar beet growers (see the description of the EU sector). This may have also affected their strategy during the reform, given that owners of the sugar units are also owners of the farms. In this case the strategies at the farm and industrial levels are more closely linked than in companies not owned at all by growers. Therefore, the ownership structure of the companies may affect their strategy, and this will have to be taken into account when analysing the restructuring process of the sugar producing sector.

Effects on the sugar producers' supply behaviour

The decrease in the reference price combined with the participation in the restructuring fund should generate quota abandonment and therefore a decrease in the EU quota sugar production.

Theoretically, this decrease should be greater in Member States with a less efficient sugar producing sector (with the limitations mentioned in the previous paragraph). Sugar production is thus expected to geographically concentrate in the most efficient Member States.

The equilibrium between the different sweeteners is expected to continue being disturbed after the reform by the maintenance of quotas for both types of products. The price decrease should also affect them, and to a greater extent the sub-sector with higher costs. The reform could have greater impact on the production of some sweeteners than on others due to this and the fact that specific restructuring aids for each sweetener were set.

Finally, the fact that sugar for ethanol has not been submitted to quota since the reform could also modify the supply behaviour of sugar producers in opening new outlets for out-of-quota sugar.

3.1.3 EXPECTED EFFECTS ON THE MARKET BALANCE

In the previous chapters, we already analysed the supply behaviour of the farmers and the sugar producers, but mainly with a static approach without taking into account the possible cumulated effects on the market balance and the prices. This is the objective of this last section.

Historically, the quota system was introduced in order to stabilise the internal sugar market and maintain the production in all the Member States. Indeed, a quota system combined with the intervention system and high border protection are market management tools that should heavily affect and stabilize the market balance.

Effects of the reform on market supply

Before the reform, the scheme should have resulted in regular supply of the market compared to a situation without quotas, where fluctuations are greater. This result was indeed achieved according to the studies[39] done previous to the reform.

However, in the sugar CMO, as explained in the previous part, the scheme favoured an overproduction compared to the needs of the EU market, which had to be exported, and this disturbed the world market.

After the reform, the measures are expected to generate a decrease in production (see above). The exports are also expected to decrease because a limit on export flows was defined. This should have several effects on the sugar market:

On the EU market:

- Surplus produced should be progressively reduced, but this should greatly depend on the results of the restructuring process.
- Internal flows between Member States should change significantly: before the reform, all Member States produced sugar, and regions with deficit imported sugar from regions with surplus and from import markets within preferential agreements. After the 2006 reform, the auto-sufficiency rate of the Member States is expected to decrease especially in less competitive regions, and overall the internal flows should decrease with greater flows from import markets as a result of the progressive opening of the market to LDC sugar production. The significance of import flows should greatly depend on the level of the EU price compared to the world price.
- The segmentation of the national markets will be maintained given that quotas are still set at national levels.
- The quotas for the other sweeteners will still limit (until 2014/2015) the market adjustments between the different types of sweeteners and especially impede the potential development of isoglucose (Dillen, Dries, Tollens, 2006[40]).
- The stability of the supply should be more difficult to reach, given that on the one hand the quota system with a reference price is maintained but on the other hand border protection is being progressively decreased (for LDC countries) and so imports, without quantity restriction, can supply the EU market. A set of market management tools (quota, withdrawal, private storage) and tools for regulating the imports (imports are followed up with import certificates, a quota on imports under the EBA was maintained until 1 October 2009 when it was removed, imports under EPA are submitted to a twin threshold up to 2014/2015) are applied to guarantee the regular supply of the market and avoid surplus that could destabilise the EU market.

[39] NEI, 2003
[40] Dillen K., Dries L., Tollens E.- The impact of the EU sugar reform on sugar and sugar substitute industries. Katolic Universiteit Leuven, Faculty of Applied Bioscience and Enginerring, 2006, 30 p.

The reform should also affect the world market: as a result of the 2006 reform and of international agreements made by the EU with LDCs and the WTO panel, the EU exports should decrease. Given that the EU was a major exporter of white sugar before the reform, this should offer new opportunities to sugar exporting countries. In addition, changes introduced after the reform should also affect the market of the countries, which historically export to the EU under the Cotonou agreement[41]. A specific compensation fund managed by Europeaid was set to offset the potential negative effects (see description of the regulation).

In terms of price

The sugar price at the EU level should decrease as a result of the decrease in the reference price. It should also be more sensitive to world market fluctuation given that imports should increase (however, imports within the agreements are still submitted to a price clause[42]).

The scheme should also affect price stability. Indeed, we must remember that the quota system was introduced with the objective of reducing price fluctuation that generated either too high prices or too low prices compared to sugar production cost. In this sector, the market was considered to be not able to bring the price closer to the cost. This market failure was explained by the specificities of the agricultural commodities characterised by market uncertainties due to production delays (as sugar producers and farmers have to decide to plant sugar beet one year in advance and cane sugar several years in advance, they thus take their production decision without knowing the exact price level of sugar), combined with yield variations due to climatic conditions, and low price-demand elasticity[43].

In a nutshell, if one year the production is low, this generates a significant price increase because of the low elasticity. This encourages producers to increase their production for the next producing campaign. If the yield was medium or even worse if it was good, this favours a surplus of production and generates a great decrease in price (again due to low elasticity). This cycle tends to recur for as long as the elasticity does not change (it could change if new products that can substitute for sugar develop, or if consumption habits change, or if the producers gain greater capacity to anticipate price fluctuation).

In this context, the quota system can be therefore considered to be a risk management tool whereby the EC bears the cost of the risk (the premium being paid in the system by taxpayers, consumers and producers). Some authors compare its advantages to the futures market, where the risks are borne by investors and the premium is paid by the producers (Boussard, 2008[44]).

Before the reform, the sugar measures should have indeed stabilised the price, given that the price is directly regulated by the intervention system; however, as explained below, it generated a higher price level even above the intervention price because of the risk of tacit collusion between producers.

After the reform, the sugar measures should still stabilise the price volatility because a reference price is maintained as well as market management tools. However the price stabilisation effect should be lower given that the reference price was decreased.

The dismantlement of the quota would thus raise the question of how to manage price fluctuation in the sugar market, and other key questions such as: the extent to which the EU could compete in a free-trade environment and the extent to which the market chain with a very concentrated sugar producing sector and very atomised sugar beet sector could achieve optimal price setting (without the existence of a minimum price and contractual obligations) etc.

[41] However this is behind the scope of this evaluation and was assessed during a specific study:
ADE. Study of the European Commission's co-operation with Sugar protocol countries: Assessment of the Accompanying measures for sugar Protocol countries (AMSP). EuropeAid, 2009.
See also: Zoungrana, L.K.- An analysis of the impact of the EU sugar policy reform on ACP countries: a quota market framework. Dissertation Doctor of philosophy, Agricultural Economics and Agribusiness, Louisiana State University, 2009, 85 p.

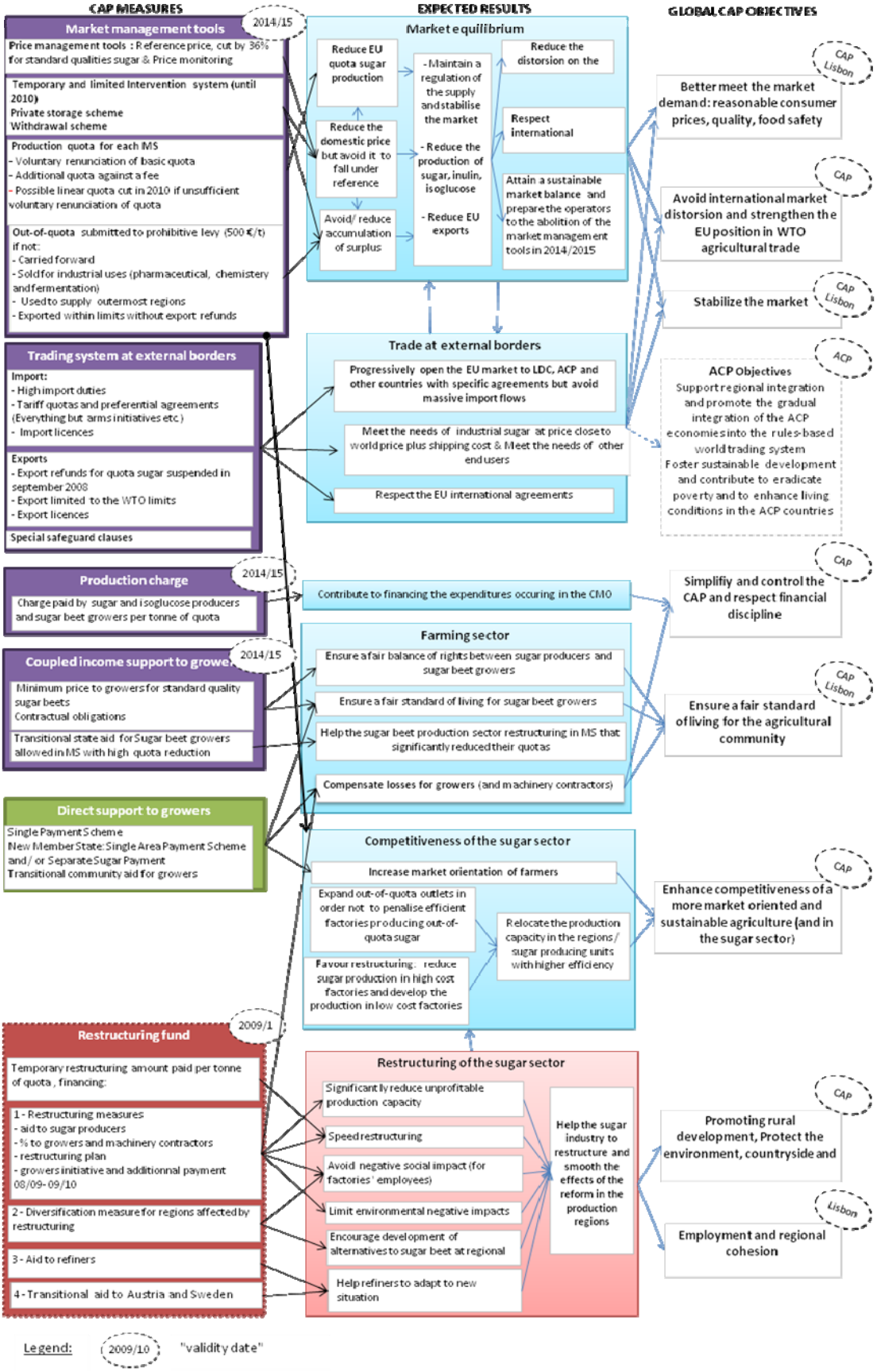
[42] Until September 2012 importers must purchase sugar at a price not lower than 90% of the sugar reference on CIF basis under the EBA or EPA agreements

[43] The demand does not change significantly whatever the price is. Low elasticity is typical of basic food product which have low substitution with other products

[44] Boussard J.M. *The future of the European sugar market: A case for quotas.* In: EAAE congress, Ghent, 26/08/2008, 4 p.

3.2 MODEL OF THE INTERVENTION LOGIC

Based on the description of the regulation and the theoretical analysis of the measures, we present the intervention logic of the regulations under review in this evaluation. The expected results are linked to global objectives for the agricultural sector as expressed in the Lisbon Treaty or more specific to the CAP or related to the ACP countries.


CAP MEASURES
EXPECTED RESULTS
GLOBAL CAP OBJECTIVES
Market management tools
2014/15
Price management tools : Reference price, cut by 36% for standard qualities sugar & Price monitoring
Temporary and limited Intervention system (until 2010)
Private storage scheme
Withdrawal scheme
Production quota for each MS
- Voluntary renunciation of basic quota
- Additional quota against a fee
- Possible linear quota cut in 2010 if unsufficient voluntary renunciation of quota
Out-of-quota submitted to prohibitive levy (500 €/t) if not:
- Carried forward
- Sold for industrial uses (pharmaceutical, chemistery and fermentation)
- Used to supply outermost regions
- Exported within limits without export refunds
Market equilibrium
Reduce EU quota sugar production
Reduce the domestic price but avoid it to fall under reference
Avoid/ reduce accumulation of surplus
- Maintain a regulation of the supply and stabilise the market
- Reduce the production of sugar, inulin, isoglucose
- Reduce EU exports
Reduce the distorsion on the
Respect international
Attain a sustainable market balance and prepare the operators to the abolition of the market management tools in 2014/2015
Better meet the market demand: reasonable consumer prices, quality, food safety
CAP Lisbon
Avoid international market distorsion and strengthen the EU position in WTO agricultural trade
CAP
Stabilize the market
CAP Lisbon
Trading system at external borders
Import:
- High import duties
- Tariff quotas and preferential agreements (Everything but arms initiatives etc.)
- Import licences
Exports
- Export refunds for quota sugar suspended in september 2008
- Export limited to the WTO limits
- Export licences
Special safeguard clauses
Trade at external borders
Progressively open the EU market to LDC, ACP and other countries with specific agreements but avoid massive import flows
Meet the needs of industrial sugar at price close to world price plus shipping cost & Meet the needs of other end users
Respect the EU international agreements
ACP
ACP Objectives
Support regional integration and promote the gradual integration of the ACP economies into the rules-based world trading system
Foster sustainable development and contribute to eradicate poverty and to enhance living conditions in the ACP countries
Production charge
2014/15
Charge paid by sugar and isoglucose producers and sugar beet growers per tonne of quota
Contribute to financing the expenditures occuring in the CMO
CAP
Simplifiy and control the CAP and respect financial discipline
Coupled income support to growe
2014/15
Minimum price to growers for standard quality sugar beets
Contractual obligations
Transitional state aid for Sugar beet growers allowed in MS with high quota reduction
Farming sector
Ensure a fair balance of rights between sugar producers and sugar beet growers
Ensure a fair standard of living for sugar beet growers
Help the sugar beet production sector restructuring in MS that significantly reduced their quotas
Compensate losses for growers (and machinery contractors)
CAP Lisbon
Ensure a fair standard of living for the agricultural community
Direct support to growers
Single Payment Scheme
New Member State: Single Area Payment Scheme and/ or Separate Sugar Payment
Transitional community aid for growers
Competitiveness of the sugar sector
Increase market orientation of farmers
Expand out-of-quota outlets in order not to penalise efficient factories producing out-of-quota sugar
Favour restructuring: reduce sugar production in high cost factories and develop the production in low cost factories
Relocate the production capacity in the regions / sugar producing units with higher efficiency
CAP
Enhance competitiveness of a more market oriented and sustainable agriculture (and in the sugar sector)
Restructuring fund
2009/1
Temporary restructuring amount paid per tonne of quota, financing:
1 - Restructuring measures
- aid to sugar producers
- % to growers and machinery contractors
- restructuring plan
- growers initiative and additionnal payment 08/09- 09/10
2 - Diversification measure for regions affected by restructuring
3 - Aid to refiners
4 - Transitional aid to Austria and Sweden
Restructuring of the sugar sector
Significantly reduce unprofitable production capacity
Speed restructuring
Avoid negative social impact (for factories' employees)
Limit environmental negative impacts
Encourage development of alternatives to sugar beet at regional
Help refiners to adapt to new situation
Help the sugar industry to restructure and smooth the effects of the reform in the production regions
CAP
Promoting rural development, Protect the environment, countryside and
Lisbon
Employment and regional cohesion
Legend:
2009/10
"validity date"

4 THEME 1: IMPACTS ON THE SUGAR BEET SECTOR

4.1 QUESTION 1: QUANTITY AND YIELDS, PRICES, GEOGRAPHICAL DISTRIBUTION, PRODUCTION STRUCTURES OF SUGAR BEETS

To what extent have the measures applied to the sugar sector affected the production of sugar beet in terms of quantity and yields, sugar beet prices, geographical distribution, production structures (number and size of farms)?

4.1.1 COMPREHENSION OF THE QUESTION

Before the 2006 reform, as explained in the theoretical analysis, the sugar CMO impeded geographical concentration of sugar production amongst the Member States that have the most efficient regions (combination of most efficient agricultural and industrial sectors). It favoured the maintenance of sugar beet production across the EU, even in ill-suited areas and farms, especially because the sugar quotas were set by Member States without transfer possibilities in a context of high guaranteed prices. The sugar CMO also resulted in structural overproduction of sugar compared to the needs of the EU market, and consequently in overproduction of sugar beets.

In order to meet its objectives, the **2006 reform** had to lead to a decrease in EU sugar production, and a restructuring the sugar sector to improve its competitiveness. Thus, the reform was expected to affect the whole EU sugar supply chain significantly, including the sugar beet sector. This evaluation question seeks to assess the specific effects of the reform on the sugar beet sector.

4.1.2 CRITERIA, INDICATORS AND DATA SOURCES

The answer to the Question is structured in four parts following this order: (1) Impacts on production quantities and yields, (2) Impacts on geographical distribution, (3) Impacts on production structures, and (4) Impacts on sugar beet prices. The analysis is presented along the following criteria and indicators.

Table 22: Criteria, indicators for the question 1

Criteria	Indicators
The sugar CMO reform has (or not) contributed to a decrease in sugar beet quantities	Before and after the 2006 reform per Member State: changes in total quantities of sugar beets
	Before and after the 2006 reform, change in and role of contractual agreements between farmers or their organisations and sugar manufacturers
	Before and after the 2006 reform, changes in sugar beet yields
	Point of view on main factors affecting quantities and yields over the last ten years and on the role of CAP measures for sugar
The sugar CMO reform has (or not) contributed to concentrating sugar beet production in the most efficient regions	Compared trends in sugar beet areas before (1990-2005) and after the reform (2005-2010), at the EU level
	Changes in the share of national sugar beet area in EU-27 area, by Member State, before (2005) and after the reform (2010)
	Changes in sugar beet areas, before and after the 2006 reform, within Member States, by region
	Opinion on the main factors affecting the change in the geographical location of sugar beet production between and within Member States (regional distribution and factories' supply areas), including factors external to the reform
The sugar CMO reform has contributed (or not) to modifying the farm structure	Before and after the 2006 reform, trends in the number of holdings producing sugar beet, by Member State, compared to trends in the number of farm holdings with all productions taken into account
	Before and after the 2006 reform, change in the average sugar beet area per farm
	Before and after the 2006 reform, change in the share of sugar beet in total UAA of farms

Criteria	Indicators
	producing beets by Member State
	Point of view of the operators on structural changes induced by the reform and on other factors affecting the structural changes in sugar beet sector
The sugar CMO reform has had (or not) an impact on sugar beet prices.	Quantitative and qualitative data on the change in price of quota sugar beets before and after the 2006 reform
	Quantitative and qualitative data on the change in price of out-of-quota sugar beets before and after the 2006 reform

The overall trends in total sugar beet quantities and yields at EU and Member State levels are analysed based on Eurostat data[45]. It must be underlined that Eurostat does not require production data to be expressed in quantities of sugar beet of standard quality. Therefore, the figures may be heterogeneous, some Member States giving data for beets at 16% sugar content (as FR) and some giving data for all kinds of beets. To offset the annual variations due to climatic conditions etc., we compare average quantities over periods of three years: 2003-2005 and 2008-2010. It was not possible to get reliable data distinguishing quota and out-of-quota sugar beet quantities; therefore, the trends in sugar quantities analysed in Question 4 from DG Agri data are referred to.

Quantitative data on the number of farms and the average sugar beet area per farm is taken from the Farm structure survey (FSS) in Eurostat but only covers the first phase of the reform because data end in 2007. To cover the second phase of the reform, CIBE's own estimations are analysed. To distinguish the specific effects of the reform from the long term trend, two methods are used: the pace of the decrease after the reform is first compared to the one before the reform, and then to the one concerning all farms.

To study farm specialisation, as it is not possible to use FSS data, we use the case study interviews and FADN data. We compare the characteristics of stopping and continuing farms in terms of share of sugar beet areas/output in total UAA/output (see Question 2 for details and limits of the analysis).

Data on the effective prices of quota sugar beets, which can differ from the EU minimum price, as well as data on out-of-quota beet prices come from national/local statistics and interviews, both obtained through the case studies[46]. As these data are barely comparable, results are presented separately for each Member State. Qualitative analysis is also made on the way prices are established between growers and manufacturers.

The results of the regional and company case studies are also used to explicit the drivers of yield, area, structure and price changes, including factors external to the reform.

4.1.3 THE REFORM HAS (OR NOT) CONTRIBUTED TO A DECREASE IN SUGAR BEET QUANTITIES

From our theoretical analysis (Chapter 3.1.1), we were able to assume that the sugar reform would lead to a decrease in sugar beet quantities intended for quota sugar. However, in FI and IT, the production decrease could have been limited by the coupled support to sugar beet growers (cf. Chapter 2.1.2.4.3). Concerning out-of-quota sugar beet production quantities, we assumed that they would vary following the switches in outlets induced by the reform, especially in low-cost regions/farms.

We also considered *a priori* that, in addition to the reform, several external drivers could have affected sugar beet quantities, besides the normal yield variation due to climatic conditions:

- technical progress: this generates an improvement in sugar yield per hectare
- contractual agreements between sugar producers and growers
- market conditions for sugar, alternative crops.

Sugar beet quantities produced each year depend on yields and sugar beet areas. The areas of sugar beet depend on the quantities of production growers are aiming at, and therefore the outlets of the sugar production. The dynamics and drivers of the downstream sector are extensively analysed in

[45] In Eurostat agricultural products statistics, year n refers to the harvest year, that is to say the campaign n/n+1 for sugar beet.
[46] No data from FADN are used because the available data from FADN do not refer to prices but to output. It is analysed in EQ2.

theme 2 (Chapter 5). Therefore, the rationale for most trends presented in the following paragraphs is explained there and is not repeated here. The analysis in this chapter focuses on the sugar beet sector, i.e. on the variations of sugar beet quantities, yields and areas, as well as the participation of the farmers in the reform via the restructuring scheme and the transitional coupled supports.

4.1.3.1 Impact on total sugar beet quantities

4.1.3.1.1 General effect of the reform

At the EU-27 level, the quantities of sugar beet decreased by 19% between before and after the reform (average volumes 2003-2005 and 2008-2010).

The three groups of Member States presented in the Chapter Description (Chapter 2.2.1) based on the level of quota renunciation can be distinguished, but with slight differences:

1. Member States where production has completely stopped: IE, continental PT[47], LV, SI, BG.
2. Member States that have experienced a significant decrease in their beet production in phase 1 or both phases 1 and 2: IT (-66%), ES (-43%), EL (-44%), SK (-43%), HU (-76%), FI (-50%), LT (-35%) and DK (-52%).
3. Member States where the sugar beet quantities have less significantly decreased, or not decreased at all. These are the Member States of the "beet belt" (with most suited pedo-climatic conditions for sugar beet growing): FR (+6%), DE (-4%), UK (-13%), PL (-19%), BE (-24%) and NL (-12%). AT (+9%) and CZ (-16%) could be considered as part of the 'beet belt'. There are also smaller producers: RO (+10%) and SE (-11%) (see Table 23, Table 17).

Table 23: Changes in beet quantities before/after the reform, distinguishing the reform of the reform

	Change av 2003/04-2005/06-av 2008/09-2010/11	**First phase of the reform;** Change av 2003/04-2005/06-av 2006/07-2007/08	**Second phase of the reform** Change av 2006/07-2007/08-av 2008/09 -2010/11
Member States where production has stopped (group 1)			
IE	-97.2%	-96.2%	-25.4%
PT	-91.2%	-49.8%	-82.6%
LV	-100%	-53.3%	-100.0%
SI	n/a	+16.4%	n/a
BG	-99.8%	+7.4%	-99.8%
Member States where production has significantly decreased (group 2)			
IT	-65.8%	-52.6%	-27.9%
ES	-43.3%	-19.7%	-29.4%
EL	-43.7%	-47.0%	6.3%
SK	-43.3%	-26.1%	-23.2%
HU	-75.9%	-27.5%	-66.8%
FI	-50.0%	-22.3%	-35.6%
LT	-35.0%	-15.1%	-23.4%
DK	-51.6%	-18.9%	-40.4%
Member States where production has less significantly decreased (group 3)			
FR	+6.2%	+3.7%	+2.4%
DE	-4.4%	-9.8%	+6%
UK	-13.1%	-21.6%	+10.8%
PL	-19.2%	-0.4%	-18.9%
BE	-24.3%	-8.3%	-17.4%
NL	-11.9%	-11.1%	-0.9%
AT	+9.2%	-9.3%	20.5%
CZ	-15.0%	-14.5%	-0.6%
RO	9.7%	+31.6%	-16.7%
SE	-11.2%	-9.3%	-2.1%
EU-15	-17.1%	-14.2%	-3.4%
EU-25	-19.4%	-13.5%	-6.8%
EU-27	-19.3%	-13,3%	-6,9%

IT: For 2008, the Eurostat data has been deleted because it is aberrant.
EU: in 2010, Irish data is missing but it is close to zero. From 2007 to 2010, SI =no longer has data, but quantity is likely null. The same holds for IE 2010 and LV 2009. In 2009, there are no data for BG.

Source: Agrosynergie, based on Eurostat data

[47] only the Azores region still grows sugar beets

The decrease and the differences between the groups are mostly due to the level and pace of quota renunciation and the development of out-of-quota production, which are analysed in Question 4, as well as the way the decisions of the manufacturing sector are conveyed to the growers (see Chapter 4.1.3.2). But other factors might also have contributed to these changes, to a lesser extent: yield variations (see also Chapter 4.1.3.3), State aids (see Chapter 4.1.4) and voluntary renunciation by growers.

4.1.3.1.2 Impact of the reform of the reform: grower's initiative and top up payment

In the Member States where sugar beet production did not decline much in the first phase, such as FR, PL and to a lesser extent DE[48], according to the case studies, the growers' initiative had no significant direct impact on sugar beet quantities renounced: the companies took over the growers' initiative by renouncing more than 10% of their respective quotas mainly because of the risk of the uncompensated quota cut (see Question 4). Sometimes it helped identify those growers who wanted to stop production and served as a basis for the negotiations. Besides, the top-up payments have constituted a real incentive for growers and encouraged them to renounce their delivery rights, although this is not the only factor (see Question 2, Chapter 4.2.3.1.4).

In the Member States where production fell significantly at the earliest stage of the reform such as IT, the second phase of the reform did not have any significant further impact on sugar beet quantities. However, in FI, the growers' initiative led the sugar manufacturer to renounce a second wave of quotas, slightly more than 10% (9 001t) of the national remaining quota (90 000 tonnes, see Table 8).

4.1.3.1.3 Impacts of the transitional Community and/or State aids

As presented in Chapter 2.1.2.4 and 2.2.2.3, in IT, ES, EL, SI and PT, beet growers did benefit from the transitional Community aid and (sometimes) State aids, as soon as the 50% quota renunciation rate was reached, i.e. in the first phase for IT, EL, SI and PT and in the second phase for ES. Measuring the impact of these supports on production volume is difficult. However the case studies do provide some information.

In **IT,** it seems that these supports may have contributed to limit the production decrease. Indeed, In Question 2, we show (based on an FADN data analysis[49]) that the national support did significantly improve the competiveness of the beet production with regards to alternative crops and therefore must have contributed to maintaining production at a higher level than what would have been reached without. Besides, the interviews reported that, for the marketing year 2011/12, Italian manufacturers had to offer higher prices to growers to take into consideration that the Community and State aids were over and ensure their supply. This tends to show that the aids encouraged growers to maintain sugar beet production, though it did not prevent the sugar producers from having difficulties in supplying their factories.

In **FI** there is a State aid due to specific climatic conditions, coupled with sugar beet areas (350€/ha). It is considered by the growers' representatives as a very important factor in compensating the price decrease caused by the reform. Thus it can be assumed that it contributed to maintaining sugar beet production.

[48] The case of the UK is peculiar: one may have expected the UK to be part of that group, considering the rate of quota renunciation (see EQ4) but, as explained earlier, the significant variations of out-of-quota beet production probably hid the impacts of the reform. As in other Member States, the growers' initiative was taken over by British Sugar. The top-up payment to growers was not mentioned in the interviews as a factor having encouraged farmers to stop growing sugar beets.

[49] Please refer to EQ2 for limits on the analysis.

4.1.3.2 Effects of contracting systems and agreements within the trade on sugar beet production and changes linked to the reform

The contracting system and/or the agreement within the trade constitute the basis on which the growers make their decisions. The EU sugar sector is historically very well organized, because of the mutual dependence of growers and sugar producers, and agreements have been ruling the business relationships for a long time.

According to the grower and manufacturer representatives met during the case studies, the agreements and the contracting system have not changed significantly because of the reform. Nevertheless, as the profitability of the sector has decreased, the negotiations have been tougher on elements like the retribution of pulp or transport.

4.1.3.3 The reform has (or not) contributed to changes in sugar beet production yields

Overall changes in sugar beet yields over 2000-2010

There is a long-term trend towards an increase in sugar beet production yields in the EU: over the last twenty years (1991-2010) the gain in yield averaged 1.1t/ha/year for the whole EU (source: Eurostat[50]). In FR (+12t/ha/year over the period 1991-2010) and DE (+8.7t/ha/year), the continued increasing yields was mentioned in the interviews as a specificity and a major strength of the sector.

Impact of the restructuring on sugar yields per hectare

Looking at the few years just before the reform, in the EU-15, the sugar production per hectare was increasing by 2.6% a year on average. After the reform, this improvement accelerated significantly: annual average + 7.4%. As a result, the net effect of the reform was an average increase in sugar production per hectare slightly under 5% per year.

Figure 15: EU development of sugar production per hectare before and after the reform (t/ha)

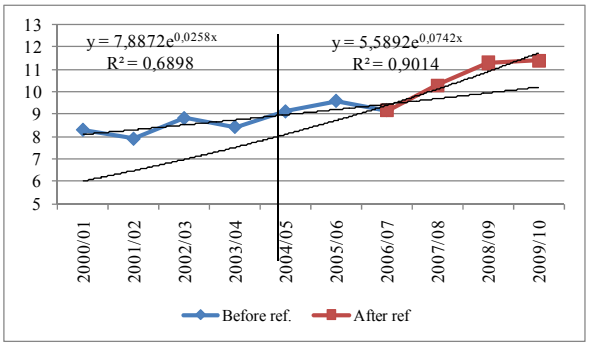
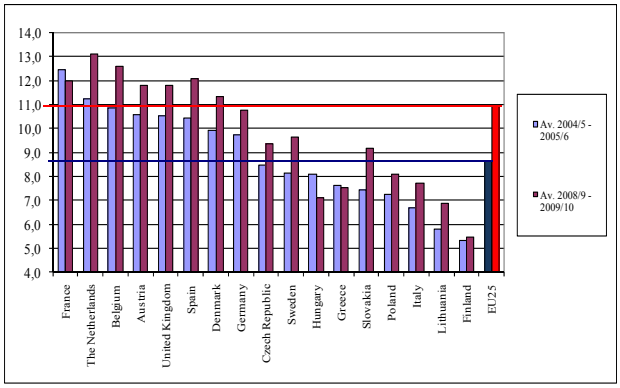


Figure 16: Average sugar production per hectare before and after the reform in the Member States that continued production (t/ha)



Source: from CEFS data

[50] It must be recalled that Eurostat does not require the Member States to give data on sugar beet quantities in beets at 16% or total beets. Therefore, the figures may be expressed in tonnes of beets and some others in tonnes of beets at 16%, depending on what is recorded in the national statistics. This is a strong limit to the analysis of the dataset (especially when comparing yields in different Member States). However, it does not interfere in the analysis of the changes over time.

All the Member States show an improvement after the reform, with the exception of HU and, less significantly, FR and EL. This improvement was quite significant except for FI, and particularly high in SK (over +23% between the two averages considered).

The qualitative analysis of the restructuring explains how the increase in yields is attribuable to the reform. According to the interviews in FR, DE, UK, PL and IT, the farms that continue sugar beet production after the reform are generally the ones with the highest yields. For economic reasons the least productive growers were the more interested in giving up beet production in a context of decreasing minimum price. Several companies did take advantage of the restructuring imposed by the reform to propose incentives for low-yielding growers (plus those located far from the factories) to stop growing sugar beets. This is backed up by the results of the FADN data analysis comparing two samples of farms: farms that continue beet growing- and farms that stopped (see Question 2 –Chapter 4.2.4.2[51]). The sample of farms giving up sugar beet production has on average significantly lower yields than farms still growing sugar beets in FR, the UK and IT.

On the other hand, in FR, several stakeholders also underlined that restructuring, by favouring a concentration of sugar beet around the factories (see next chapter) could hamper future yield increase because sugar beets come too often in crop rotations. Such a phenomenon is described as well in DE (Nordzucker interview), and FI (growers' interviews), but no investigation on actual yields has been done.

As a result, the reform led to a general improvement in sugar yields per ha because in a given area, where quota production had to be reduced, less performing farms abandoned production more than high performing ones.

4.1.4 THE REFORM HAS (OR NOT) CONTRIBUTED TO CONCENTRATING SUGAR BEET PRODUCTION IN THE MOST EFFICIENT REGIONS

The location of sugar beet farms depends on the existence of a sugar factory being located at a reasonable distance, given the high transport cost of sugar beets and the quick deterioration of the beet sugar content. At the outset of our analysis, we expected the geographical distribution of sugar beet production to be deeply modified by the sugar reform, at three levels:

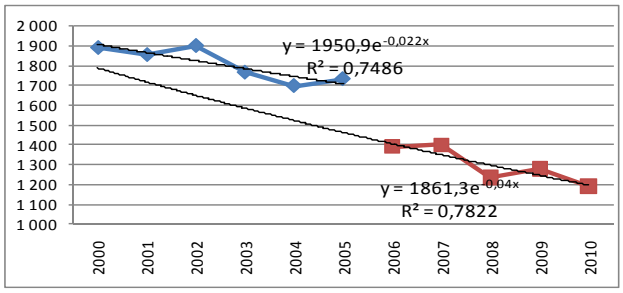
- At the EU level, we expected the areas to decrease, in line with quota reduction.
- We expected distribution of production among the Member States to change, because, as explained in the theoretical analysis, it was thought that decrease in the minimum price would encourage farmers located in low-efficiency areas, as well as low-efficiency sugar producers, to renounce sugar production and that production would develop in efficient areas (however, the coupled support in IT and in FI and other factors external to the reform, such as specific outlet developments or the global strategy of the sugar producing groups, may have affected geographical distribution).
- At the factory level, the shape of the supply area was thought to possibly have been affected

Change in areas

As presented in Figure 10, there is a long-term trend for decline in sugar beet areas due to the increase in production yields and production limitation by the quota system. With the increase in yield due to the reform, at constant volume, the area of beet are impacted symmetrically. To this, adds the impact of the reform on the volumes of production. Sugar beet areas data show that (1) the area has decreased significantly at the time of the reform (from around 1.7 million ha in the EU-15 for the campaigns preceding the reform and 1.4 to 1.2 million ha after) and that (2) the annual rate of diminution has almost doubled (2.2% decrease a year on average between 2000 and 2005, and 4% on average since 2006), in relation to the increase of the yield improvement rate.

[51] To know about the composition of both samples and the limits of the analysis, please refer to EQ3.

Figure 17: Trends about sugar beet area (000 ha) in the EU-15, before and after the reform



Source: Eurostat

Therefore, it seems that the reform globally sped up the long-term trend for reduction in sugar beet area. Nevertheless, the situation is actually quite different among Member States, those outside the "beet belt" having reduced sharply their area, unlike those situated within the "beet belt". Consequently the distribution of beet production and area among producing States and region has been impacted by the reform.

Change in the distribution of production among the Member States

The following table shows the change in the share of a selection of Member States on areas.

Table 24: Sugar beet areas in selected EU Member States and share in the total EU-27 area (1 000 ha)

	2000	2005	2007	2010	% in EU-27 2005	% in EU-27 2010	Variation
FR	410	379	394	381	17%	24%	+7%
DE	452	420	403	367	19%	23%	+4%
PL	333	286	247	200	13%	13%	0%
UK	173	148	125	125*	7%	7%	0%
NL	111	91	82	71	4%	5%	+1%
CZ	61	66	54	56	3%	4%	+1%
AT	43	44	42	45	2%	3%	+1%
BE**	91	86	83	63	4%	4%	0%
Sub-total	**1 674**	**1 520**	**1 430**	**1 297**	**69%**	**82%**	**+14%**
ES	125	102	74	44	5%	3%	-2%
BE	91	86	83	63*	4%	4%	0%
IT	249	253	86	58	11%	4%	-7%
FI	32	31	16	15	1%	1%	0%
EU27	**2 474**	**2 240**	**1 810**	**1 574**			

* 2009 data ** calculation

Sources: Eurostat, national statistics BE

As seen in Chapter 2.4.4.2.1, the sugar beet areas are concentrated in the "beet belt" (FR, DE, UK, CZ, AT, BE, NL and PL). Its share in the EU-27 area increased from 69% in 2005 to 82% in 2010. It is much faster than the long-term trend for geographical concentration. Indeed, between 1990 and 2005, the share of the beet-belt in the EU-27 area increased by 2% (so 0.13% each year) whereas between 2005 and 2010, it rose by 14% (3% each year). Following the reform, there was then an acceleration of the concentration of sugar beet areas and quantities in the Member States of the "beet belt", at the expense of peripheral regions with less favourable pedo-climatic conditions for beet growing. The same calculation in terms of quantities, show even greater concentration: the "beet belt" represented 74% of the EU production on average over 2003-2005 and rose up to 86% on average over 2008-2010.

This concentration process occurred mostly at the expense of IT, which represented 11% of the EU beet area in 2005 and only 4% in 2010. So IT lost 7% of its share in the EU-27 area in five years, whereas between 1990 and 2005 it had lost 1%. IT used to be a major producer of sugar beets, but the competitiveness of the sugar beet growing sector is hampered by low yields, a short growing period, and the need to irrigate. These characteristics also apply to ES, EL (where areas dropped following the reform) and PT (where production almost disappeared). FI is also characterised by low yields and a short growing period because of the climatic conditions.

However, both in IT and FI, the interviews note that the sugar beet areas decreased less than what could have been expected thanks to the coupled support established in the new CMO (which is supported by the results of the analysis in Question 2 of the impact of coupled support on the crop profitability).

Changes in the supply areas of the sugar factories

The optimization of the supply areas is part of the continuous improvement process sugar producers have been implementing to improve cost efficiency (in most Member States, transport costs are supported by sugar processors). Nevertheless, with the reform, in most cases, the closure of factories has impacted on the supply areas of the remaining factories, by on average increasing the supply distance (because part of the producers initially delivering to the factory that closed are now delivering to the remaining one which is further away).

Sugar manufacturers intended to limit the increase in the area of supply or reduce it in order to lower their costs. For that, they proposed financial incentives for growers located far away to renounce their sugar beet production (for example, Tereos, Cristal Union, Saint Louis Sucre, Nordzucker. British Sugar). In regions where there is a concentration of plants, this strategy was successful and allowed the area increase to be limited to a few km or even reduced (Tereos, British Sugar for instance).

4.1.5 THE REFORM HAS (OR NOT) HAD AN IMPACT ON SUGAR BEET FARMING STRUCTURES

From the theoretical analysis, we assumed that due to the reform, the structure of the reform should have changed depending on the characteristics of the farms stopping and continuing sugar beet production. In addition, we also assumed that the remaining farms would try to reduce their costs by increasing the average beet area per farm or by increasing their specialisation (given that the market price is still regulated and thus expected to be stable). These changes should be particularly visible in the Member States where significant amounts of quotas were renounced (cf. Chapter 2.2.1). However, many drivers also usually participate in structural changes: technical progress which usually favours farm concentration, market incentives, market chain structure.

As shown in the descriptive part, there is a long-term trend in the sugar beet sector, as in agriculture in general, towards the reduction in the number of holdings and the increase of average area per farm (cf. Figure 12). The question analysed here is to what extent the sugar reform accelerated (or not) the long term trend towards farm concentration (decline in farm number and increase in farm size) in the sugar beet sector.

Number of farms

Table 25: Trends in number of farms (variation in % per year), in the whole agricultural sector and in the sugar beet sector, before and after the reform

	Agricultural sector (FSS data)		Sugar beet sector (CIBE data)				
	Long-term trend	Recent trend	Trend before reform	Trend after reform			Acceleration due to reform
	1995-2005	2005-2007	2000-2005 (1)	2005-2009 (2)	2005-2007	2007-2009	Ratio (2)/(1)
FR	-2.9%*	-2.5%	-3.0%	-4.7%	-1.6%	-8.1%	1.6
DE	-3.1%	-1.7%	-2.9%	-7.2%	-7.0%	-8.6%	2.5
PL	7.0%**	2.3%	-6.8%**	-10.8%	-8.2%	-16.1%	1.6
UK	2.2%	-3.1%	-4.5%	-9.2%	-13.4%	-7.0%	2.0
NL	-2.8%	-1.6%	-3.8%	-8.6%	-5.8%	-13.0%	2.3
ES	-1.6%	-3.4%	-6.7%	-13.4%	-17.1%	-14.8%	2.0
BE	-2.7%	-1.4%	-1.5%	-10.2%	-4.6%	-17.4%	6.8
IT	-3.0%	-1.5%	-9.1%	-18.9%	-32.7%	-14.4%	2.1
HU	-3.8%**	0.4%	-1.7%**	-20.0%	-7.3%	-38.2%	11.8
SK	-2.3%**	1.6%	-5.6%**	-13.3%	-21.4%	-9.0%	2.4
EL	0.4%	-1.7%	-4.8%	-13.5%	-33.3%	19.1%	2.8
FI	-3.0%	-4.5%	-4.6%	-14.0%	-17.1%	-16.5%	3.0
EU-15	-1.2%	-1.6%	-5.1%	-10.8%	-14.8%	-9.6%	2.1
EU-27	Nap	-2.1%	-7.4%	-11.7%	-14.7%	-12.3%	1.6
12 NMS	Nap	-3.5%	-10.5%	-13.7%	-14.5%	-18.1%	1.3

*calculated on 2000-2005 because there are no data before 2000; ** calculated on 2003-2005 because there are no data before.

Source: FSS, Eurostat and CIBE

The CIBE data show that the number of sugar beet farms decreased faster after the reform (period 2005-2009) than before (2000-2005) at EU level (respectively -11.4% and -6% a year for the EU15 and -12.3%, -9.7% for the EU-12), as in all the Member States listed above[52]. Such a phenomenon is not observed in the agricultural sector as a whole (in the EU-15, the annual rate of decrease in the number of farms considering all sectors is below 2%).

The acceleration of the decline in the number of farms producing beet can be moderate or very sharp depending on Member States and the level of restructuring of the sector. In the EU-27, the rate after the reform is 1.6 times higher than the one before (2.1 in EU-15 and 1.3 in EU-12).

- In **FR** and **PL**[53] the acceleration was moderate. In FR, the impact of the reform is limited whereas in PL, there is indeed a strong structural change, but, as indicated by the statistics and stressed in the interviews, it began before the reform.
- On the other end of the scale, in **BE** and in **HU**, the decrease in the number of sugar beet farms was dramatically accelerated by the reform, especially in its second phase (in these Member States, the rates before reform were particularly low)
- For **all the other Member States**, the impact of the reform was significant: it doubled or tripled the number of farms that quit beet production annually. The impact was especially significant during the first years of the reform with, for example, annual rate of decrease reaching over 30% in **IT** and **EL**.

Average beet area per farm

Table 26: Trends in average beet area per farm in selected Member States (in ha/farm) and variation (in % per year),

	2000	2005	2007	2009	2000 – 2005 (1)	2005-2009 (2)	2005 - 2007	2007 - 2009	Ratio (2)/(1)
FR	11.0	12.3	12.7	14.3	+2.4%	+4.1%	+1.7%	+6.3%	1.7
DE	8.3	9.0	9.8	11.0	+1.7%	+5.5%	+4.4%	+6.1%	3.2
PL	2.9	3.8	3.7	4.8	+6.4%	+6.3%	-1.2%	+14.1%	1.0
UK	17.0	18.9	21.5	24.7	+2.2%	+7.6%	+6.9%	+7.3%	3.4
NL	5.8	5.9	6.0	7.1	+0.1%	+5.2%	+0.9%	+9.5%	71.0
BE	6.1	6.1	6.5	7.5	-0.2%	+5.9%	+4.0%	+7.1%	++
IT	3.5	6.3	6.5	6.4	+16.3%	+0.6%	+2.0%	-0.8%	--
ES	4.0	5.3	4.8	5.0	+6.7%	-1.2%	-4.8%	+2.7%	--
FI	10.7	13.5	10.5	14.6	+5.2%	+2.0%	-11.1%	+19.4%	0.4
SK	56.8	83.4	85.7	87.8	+9.4%	+1.3%	+1.4%	+1.2%	0.1
EL	2.3	2.5	2.5	3.1	+2.2%	+5.0%	-0.7%	+10.8%	2.3
HU	62.7	73.4	53.4	85.6	+3.4%	+4.2%	-13.6%	+30.2%	1.2
EU-15	6.5	8.0	9.0	10.3	+4.8%	+6.9%	+6.3%	+6.7%	1.5
EU-27	4.9	7.1	7.9	9.4	+8.9%	+8.2%	+5.7%	+9.6%	0.9
12 NMS	2.7	5.1	5.4	7.2	+17.2%	+10.4%	+3.8%	+15.9%	0.6

Source: Agrosynergie, based on CIBE[54] data

On average, at the EU level, before the reform the average beet area per farm was increasing at a rate of 8.9% in the EU-27 (4.8% in the EU-15 and 17.2% in the new Member States because of intensive restructuring process). After the reform, the annual rate did increase significantly in the EU-15, but also significantly slowed down in the new Member States (on average at EU-27 level, it only slightly moved from +8.9% a year before the reform to 8.2% after).

In **FR, DE, PL, UK, NL, BE, EL and HU** (beet-belt Member States, but not only) besides the acceleration of the decrease in farms producing beets after the reform, we see an acceleration of the concentration of production (increase in the area per farm). This means that (1) the farms that stopped were mostly the smallest ones and that (2) the sugar beet area cultivated by the growers that stopped was (partly) taken over by other growers. The case study interviews in FR, DE, PL and the UK all confirmed that the farms that stopped were the ones having the smallest areas of sugar beets[55].

[52] As a reminder sugar beet production has desapeared in Portugal (continental), Latvia, Slovenia Bulgaria, and IE
[53] As well as Austria and Romania.
[54] Some figures are different from the farm structure survey (Eurostat), especially for the UK, but these are in line with cases study results.
[55] though in some cases, mostly due to factory closures, some large growers gave up sugar beet production; this was reported for instance in Schleswig-Holstein, DE. It also seems that in FR a few growers with large sugar beet areas (and/or good yields, and/or short distance to the factory) stopped producing because of the restructuring aid and because they assumed they would be asked by the sugar producers to grow sugar beet again.

In **EL**, **HU, PL and FI**, after a net decrease in rates, the concentration process was particularly rapid between 2007 and 2009 (a kind of "wait and see" behaviour).

In **IT, ES and SK**, the concentration dynamics stopped with the reform.

The FADN data analysis carried out for the case study Member States over the period 2005-2008 shows that the farms that gave up sugar beet production had smaller sugar beet areas than the farms continuing sugar beet in FR, DE and the UK (cf. 4.2.4.2). In PL there are no significant differences between either samples. In IT, the sugar beet areas were similar in both samples but the farms that stopped have much smaller UAA.

Management of quota decrease at the level of the delivery rights to growers

Besides the straight consequence of quota decrease on quantities of beets produced, the way the quota renunciation was transferred to the farm level (selection of the growers which would have to renounce their delivery rights) may explain the changes observed in farm structure.

In the case the factory closing down left its suppliers without any site for delivering beets (or with exorbitant costs because the remaining factories are located too far away, (as the closure of York in the UK, factories in Incoronata, Cellano, Fermo, Castiglion Fiorentino, Forlimpopoli, Villasor, in IT, Aiserey in FR, Goslawice and Łapy in PL) all the growers generally stopped producing sugar beets. This does not have any impact on the structure of the remaining farms delivering to other factories.

In many cases, the closure of the factory did not prevent the growers from continuing to grow sugar beets because they could deliver their beets to another factory, at reasonable costs. In that case, the manufacturers had two options: base the renunciation on voluntary application, sometimes with incentives targeted at certain types of growers, and/or apply a linear cut in delivery rights of each grower.

Based on the interviews, we can highlight the following process.

First companies proposed voluntary renunciation with, possibly, incentives for growers located far away or in ill suited areas or with reduced farm size, etc. to give up. This led to a certain level of renunciation (sometimes sufficient to meet the level of quota renounced by the company). In the group of voluntaries, the proportion of least cost efficient farms (small quantities of beet, low yields, etc.) was high which induces changes in the structural features of the sector.

Then, if the level of renunciation was not sufficient to match the level needed, a linear cut in delivery rights was applied to all the growers. This linear cut in delivery rights of growers should not have induced changes in the structure of the sector except when it made some growers (the smallest) stop production.

Cases encountered during the field studies were quite diverse ranging from companies which did not need to apply a linear cut to companies where the voluntary renouncement only covered a few % of the volume reduction.

4.1.6 THE REFORM HAS (OR NOT) HAD AN IMPACT ON SUGAR BEET PRICES

4.1.6.1 Decrease in the prices of "quota beets"

The price of quota sugar beet has to comply with a minimum price list, depending on the sugar content and minimum standard quality, which is set in the regulation.

Before the reform, there were two minimum prices; one for A quota and one for B quota; therefore, depending on the respective shares in A and B quotas in the Member States, the average minimum prices may be different from one Member State to another. For instance, in 2005/06 it varied between 43.4€/t in DE and 46.7€/t in LT.

The 2006 reform had a direct impact on the price of quota sugar beets, as quota A and B were merged and the minimum price was progressively cut. Depending on the proportion of A and B quota in the

Member States, the decrease in minimum price varied between 39.4% (DE) and 43.7% (LT).Besides, the final price is in fact different from the minimum price list (see the box hereunder).

Box 3: Elements constituting the effective quota beet prices

. EU minimum price adjusted by price increases or reductions corresponding to deviations from the standard sugar content (16%)
. less production charge
. compensation for early / late deliveries
. in some cases, penalties for high soil content/impurities
. in some cases, special premiums: for quality, contract fulfilment
. in some cases, deduction for transport
. in some cases, premium for own transportation
. in some cases, premium for stockpile cover
. extra premium
In some cases, pulp allowance[56] is included in the price, e.g. in the UK.
Specific cases of cooperative manufacturers: the shareholders of Tereos may also receive interest from the shares, price complements paid for the amount of sugar beet delivered and based on the activity of Tereos FR (3€/t in 2009/10), and dividends, paid in proportion to the shares owned.

According to information given by the CIBE, and the case studies in most cases the price for quota sugar beet is the minimum price set in the EU regulation (and not more), adjusted by price increases or reductions corresponding to deviations from the standard sugar content.

Therefore the cut in the minimum price has generally been fully applied on effective beet prices. Concerning the other elements constituting the effective beet price, negotiations appear to have been "tougher" after the reform and some of these elements have been reviewed (pulp allowance, participation to transport costs, etc.).

A few exceptions with effective prices for quota beets above the minimum were identified in the case studies.

In **the UK** the cut in minimum price has not been fully applied because of rising cereal prices. The basis on which the price is calculated has changed. It is now calculated so as to cover farmers' costs (e.g. if fertiliser prices increase between seasons this will be reflected in full in the beet price paid) and allow a reasonable profit. Moreover, the payment for pulp has been incorporated into the price in order to give farmers more certainty, and the farmers also receive allowances for transport (up to 50 miles) and for late delivery. These changes took place as an indirect consequence of the reform to enable farmers to cope with the squeeze on profits and ensure British Sugar supply.

Table 27: Effective quota beet prices in the UK, compared to EU minimum prices, 2000-2008, €/t

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Effective price	44.7	49.0	42.8	44.9	45.0	47.1	35.2	30.1	30.6	33.7
EU minimum price	45.1	45.4	45.4	45.4	45.4	45.4	32.9	29.8	27.8	26.3

Note: the effective price is the average price per tonne including allowances adjusted to 16% sugar content. Some years, the effective price, calculated in Euros from pounds, is lower than the EU minimum price but this is likely due to the exchange rate £/€.

Source: Agrosynergie calculation based on NFU data (price), regulations (minimum price) and DG Agri data (annual average exchange rate)

In **IT**, for the marketing year 2011/2012, all the sugar manufacturers paid an extra premium of 3€/t of sugar beets to the growers to compensate for the end of the Community and state aids; this was possible thanks to high sugar prices. Moreover, Eridania Sadam (San Quirico factory) paid an extra 250€/ha to sustain its traditional supply area[57]. Another sugar producer, Minerbio, contributes to 50% of seed purchase.

[56] The pulp allowance is the compensation the sugar producers have to grant to growers, taking into account of the possibilities of selling the pulp concerned, in case the pulps are not returned to the growers.
[57] The premium is granted to "old" suppliers in the neighbouring regions for the part of the area exceeding 80% of the 2010 growing area, providing that the yields reach at least 7t/ha of sugar (same premium was granted in 2009 to growers who grow beets alternatively with other crops, i.e. not every year). The premium is also granted to "new" suppliers in the neighbouring regions for 20% of their sugar beet area.

4.1.6.2 Prices of "out-of-quota beets"

Prices for out-of-quota beets are set on the basis of free negotiations between growers and sugar processors. Before the 2006 reform, C sugar beets were exported without refund so their prices were correlated to world prices: according to the evaluation of the previous sugar CMO (NEI, 2000) they were equal to 60% of the world market prices for white sugar. However, as out-of-quota sugar is no longer commonly exported and has new outlets, the way its price is set has changed. The fact that the industrial sugar price stayed steady while world sugar price increased in 2009 supports this assumption (Figure 7).

This issue is particularly pertinent for FR and DE which are the major producers of out-of-quota sugar.

In both these countries (but also in PL and in the UK), because of the decrease in the profitability of beet (quota beet more specifically) and the increase in cereal prices (cereals and oilseeds are the main alternative to beet production), price level for out-of-quota production had to be increased to be attractive to growers. Several companies have directly tied the price of out-of-quota beet to the price of alternative crops and/or the price of the outlet (bioethanol, export). This was not the case before the reform, when, because of the very high profitability of quota beet production, growers might not always have been as market-driven regarding non quota beet.

In certain areas, prices for out-of-quota beets can even reach the price of quota production. This is made possible because of the high price on the EU market and on the export market.

Besides the level of price, the reform made the supplies more difficult because it reduced crop profitability. Since the reform, the production of out-of-quota beets seems to be more contractualised (this was reported in the company interviews with Tereos, Pfeifer and Langen, Südzucker and is probably also true for Nordzucker). Some companies operating in different regions apply different strategies: in regions where sugar beet production is less profitable, they try to propose a price in advance; in other regions, they prefer not to do so to reduce risks.

4.1.7 JUDGEMENT

Impact on quantities, yields and structure

The **measures introduced by the reform led to a decrease in sugar beet quantities,** on the whole in the EU: the average volume of beets produced in the EU-27 in 2008-2010 was 19% lower than the 2003-2005 average. This change is a direct consequence of the reform (quota renunciation, additional quotas), and of the dynamics of out-of-quota sugar production, which is linked to the new limitation on exports induced by the WTO panel.

The impact differs among Member States: (1) In Ireland, continental Portugal[58], Latvia, Slovenia and Bulgaria, sugar beet production has disappeared totally; (2) In Italy, Spain, Greece, Slovakia, Hungary, Finland, Lithuania and Denmark, production decreased dramatically (between 35% and 75%). And in the remaining States, mostly (but not exclusively) located in the "beet belt", production has decreased moderately (Germany, the United Kingdom, Poland, Belgium, the Netherlands, the Czech Republic and Sweden) or even increased (France, Austria and Romania).

Within the restructuring scheme, the renunciation of delivery rights by growers was carried out, whenever possible, on a voluntary basis. This has led a higher portion of low-yield growers to give up production (interviews and FADN data analysis). Indeed, growers made their choices to continue or not producing sugar beets according to economic calculation based on the decrease in the minimum price, the share of the restructuring aid for growers and possibly additional incentives provided by sugar companies to eliminate the least cost-efficient growers. When the level of voluntary renunciation did not meet the quantities needed (cases encountered during the field studies were quite diverse in this respect), manufacturers imposed a linear cut in delivery rights of all remaining growers (which does not contribute to changes in the characteristics of the delivering farms).

[58] only the Azores region still grows sugar beets

As a consequence, the structure of the growing sector was impacted. A comparison of pre- and post-reform trends in the number of farms growing beet and the average beet area per farm shows in all Member States an **acceleration of the pace of decline in the number of farms** after the reform: at the EU-27 level, the pace went from - 5.1% a year before the reform[59] to 10.8% after. In France, Germany, Poland, the United Kingdom, the Netherlands, Belgium, Greece and Hungary (mostly but not exclusively beet-belt Member States), this was associated with an increase in the average sugar beet area per farm, **reflecting a concentration of sugar beet areas in larger farms. In Italy, Spain and Slovakia, on the contrary, the concentration dynamics stopped with the reform.**

Because of these changes, yields have bettered and the annual improvement in yield has grown from an average of 2.6% before the reform to 7.4% after.

During the transition period, the decline in the number of farms was very sharp in some Member States. In Italy and Greece, each year between 2005/06 and 2007/08, one third of the farms abandoned beet production. On the other end of the scale, France and Poland were the least affected (the pace of decline was only 1.6 times higher after the reform than before). In France, this is explained by the low impact of the reform on production quantities. In Poland, the sugar sector was already undergoing a strong restructuring process before the reform.

Except in Finland, the **initiative given to growers to renounce delivery rights after the reform of the reform had no significant impacts on quantities renounced:** sugar manufacturers "took over" the initiative by renouncing more than 10% of the respective manufacturer quota. However, it eased the renunciation process.

In Italy, Spain, Greece and Portugal, the remaining beet production was supported by transitional coupled support. Based on FADN data analysis for Italy, this support has significantly improved the profitability of the crop with respect to alternative crops. According to interviews, it did contribute to maintain levels of production higher than would have been reached without it.

Geographical concentration

The changes in quantities led to further geographical concentration of sugar beet production in the "beet belt", where pedo-climatic conditions are the best suited for growing beets, while significant drop in beet quantities occurred mainly in **Italy and Spain**: the share of France, Germany, the United Kingdom, the Czech Republic, Austria, Belgium, the Netherlands and Poland in the EU-27 quantities increased from 74% in 2005 to 86% in 2010.

Supply area of manufacturers

For manufacturers, one of the consequences of closing a factory is that the average area of supply usually increases (because some of the producers initially delivering to the factory that closed are now delivering to another factory which is further away), reducing profitability. To limit this impact, some manufacturers proposed financial incentives for growers located far away to renounce their sugar beet production. This contributed to limit the radius increase to a few kilometers or even had it reduced.

Prices

As there is no comprehensive statistical information available on beet prices, the data were collected through the case studies, which in the end, were not sufficient to make a complete statistical analysis.

Nevertheless, according to this information and the interviews, **the progressive cut in the price of sugar beets intended for the quota was fully applied**. However, thanks to good price conditions in the world sugar market and in order to ensure supply (mostly because the profitability of beet with regard to alternative crops is not as high as it used to be), some sugar producers (in Italy and the United Kingdom) had to propose higher prices for quota beets. Next to this reason, in Italy in 2011/12, sugar producers offered higher prices for quota beet in an effort to compensate for the end of transitional Community and state aid to growers.

[59] Average 5 years before the reform

Prices for out-of-quota beets are set on the basis of free negotiations between growers and sugar processors. France and Germany are the main producing Member States. In both these countries (but also in Poland and in the United Kingdom), due to reduced profitability of quota beet and the increase in cereal prices**, the price level for out-of-quota production was increased in order to be attractive to growers**. In certain areas, it can even reach the price of quota production, while several companies have directly linked the price of out-of-quota beet to that of alternative crops and/or that of the outlet (bioethanol, export). This is made possible because of the high price on the EU market and on the export market.

4.2 QUESTION 2: MARKET ORIENTATION AND COMPETITIVENESS OF SUGAR BEET PRODUCING FARMERS

To what extent have the measures applied to the sugar sector contributed to increasing market orientation and competitiveness of sugar beet producing farmers?

4.2.1 COMPREHENSION OF THE QUESTION

One of the global objectives of the 2003 CAP reform was to reinforce the competitiveness and market responsiveness of sustainable agriculture. Specifically this means (1) to suppress market distortions caused by the previous regime, and (2) to restore an incentive structure defined by resource scarcity, technological conditions and consumer preferences. For meeting these objectives, the main tool of the CAP is the single payment, which operates as a decoupled payment; this means that it does not modify the crops' profitability and thus it should not directly affect the production choice of growers. Growers' decision should be more market oriented and their competitiveness improved (see theoretical analysis Chapter 3.1.1 and 3.1.2 for detail reasoning). This question aims to assess what are the impacts of the reform on these two points.

Market orientation

The 2006 Sugar CMO reform, with the restructuring scheme and the decrease in the beet minimum price should have contributed to reduce the CAP effect on the farm income attribuable to sugar beet. Besides, given that the 2003 CAP reform was applied to crops alternative to sugar beet, farmers should now base their choice of crops more on market signals than on CAP coupled support. Thus the **market orientation of growers should be enhanced**.

We should above all recall one important characteristic of the beet sector: there is no beet market per se, and produce exchanges between growers and manufacturer are regulated through delivery rights linked to sugar quotas held by the manufacturers and which must be paid at a minimum price. This secures factories' supply but can also limit growers' market orientation, as entering the sector requires the difficult acquisition of delivery rights.

Analysis of the changes in market orientation following the reform is made in two steps:

- First, we study the profitability of sugar beet relative to its main alternative crops, to identify the most profitable cropping system. Besides, we assess to what extent the CAP supports are distortive (modify the relative profitability). The changes in profitability of sugar beet after the reform compared with before the reform should lead to change in production decisions of growers. (Chapter 4.2.3.1)
- Second, we study the changes in cropping pattern following the reform, to observe what crops have replaced sugar beets when growers have stopped sugar beet production, or what has been replaced by sugar beet when growers have increased their production. (Chapter 4.2.3.2)

To conclude, we judge whether the observed change in cropping pattern are market-driven, in coherence with crops' relative profitability.

Competitiveness

Here, we do not compare the competitiveness of beet regarding sugar cane (external competitiveness), but focus on the changes in competitiveness within the EU beet farming sector (**internal competitiveness**). The competitiveness is improved if the net value added by the sector is greater after the reform than before.

In theory (see Chapter 3.1), if there were no support measures in the sugar sector or in the case of decoupled support, farmers with higher production costs and lower yield should progressively stop producing, whereas those who are more competitive should continue supplying the market.

The minimum price support could limit the competitiveness of the sector by maintaining in production growers with low efficiency. The reform of the sector and the restructuring scheme, by reducing coupled support to beet production should lead least efficient growers to renounce production and therefore improve competitiveness of the sector as a whole. However, the maintenance of a quota still limits this improvement by impeding the entering of new farmers and by keeping competitive ones from extending their activity to the optimal level.

Analysis of the changes in competitiveness following the reform is made in two steps:

- First, we study the changes in the components of competitiveness of sugar beet production
- Second, we study the changes in production structures of farms to assess to what extent the low-competitive farmers have left the sugar beet sector following the reform, while high-competitive ones have stayed.

Sugar beet farm adaptation to new market conditions could take place in the short term, given that growers may alter their cropping pattern yearly. However, **several factors not specific to the sugar sector** may slow down this adaptation: agro-ecological constraints, agronomic constraints, investment specialised equipment, etc.

4.2.2 CRITERIA, INDICATORS, DATA SOURCES AND LIMITS

The answer to question 2 is structured respecting the following criteria and indicators.

Table 28: Criteria, indicators for the question 2

Criteria	Indicators
MARKET ORIENTATION	
The 2006 reform has affected (or not) the relative profitability of sugar beet compared to alternative crops	Change in the profitability of sugar beet compared with alternative crops: - With and without coupled CAP payments - After the reform compared with before the reform
	Decrease rate of unit value which leads to the inversion of the relative profitability ratio.
	Factors that limit adjustment of farmers' decisions to market trends
The 2006 reform has affected (or not) to production decisions	Changes in cropping patterns following the reform
COMPETITIVENESS	
The 2006 reform has affected (or not) the components of sugar beet competitiveness	Change in (per hectare and/or AWU): - Sugar unit values, - Sugar beet output, - Sugar beet cropping system costs, - Sugar beet cropping system gross margin, - Sugar beet cropping system net value added.
	Factors affecting the change in sugar beet profitability (case study interviews)
The 2006 reform has affected (or not) the competitiveness by encouraging the least competitive farmers to stop producing sugar beets	Comparison of changes in average profitability and changes in areas at Member State level
	At member State level, for farms that develop/reduce/abandon their sugar beet productions and those who maintain/increase them: - General features: farm labour force (AWU) and total area (UAA), - Agronomic performance: yield. - Specialisation indicators: sugar beet area and share of sugar beet area in total area, sugar beet output per hectare.

The most relevant data source for these analyses is the EU Farm Accounting Data Network (FADN), a database that follows accounting data of more than 75 000 farms in the EU. However, it does not display analytical accounts; therefore, it does not display specific costs and net values added for sugar beet specifically, but only for cropping systems in which sugar beet is included. **Work is done on the six case study Member States**. The FADN results cannot be displayed when the sample contains less than 15 farms, due to private information protection.

The main limits to the FADN data analyses are the following:

- The FADN data used cover the period 2002 to 2008 (2007 for IT), which is too short to analyze the final impact of the reform at farm level. This is a strong limit to the results of this analysis.
- We selected specific and/or constant samples (see below); therefore FADN weighting coefficients cannot be applied to the farms selected in order to extrapolate results to the whole sugar beet growers' population. However, our aim is to identify main trends or characteristics, and not to quantify observations. So the non-use of weighting coefficients does not impact our results, but these are not statistically representative.
- As explained in the following, to be able to analyse the relative profitability of sugar beets, we had to select very specific farming systems. In the conclusions, we have to keep in mind the specificities of the selected samples.
- Unit value of sugar beet from FADN and prices presented in Question 1 comparison would be risky: as explained in Box 4 (p.64), the unit value is an average of quota and out-of-quota sugar beet prices (with a sugar content variable), including pulp allowance, premiums and other components.
- In data for IT, we were not able to identify clearly the transitional Community aid and the State aid. As the State aid was paid through the sugar producers, we assume that it is included in sugar beet output reported in the FADN. However, we do not identify the Community aid, so we in the analysis, we exclude this coupled payment (but we assume that it reinforced the effect of the State aid).

4.2.3 MARKET ORIENTATION

4.2.3.1 The 2006 reform has affected (or not) the relative profitability of sugar beet compared to alternative crops

4.2.3.1.1 Method

Approach

Given that sugar beet crops are rotated with other crops, usually farms producing sugar beets are not specialised in this production. However, as highlighted above, we are not able to identify the costs and the profitability of sugar beet in a whole farming system on the basis of FADN data[60]. Hence, we propose to use a **specific method based on the cropping systems**. In the analysis, we compare the crop profitability of two alternative cropping systems: one including sugar beet and crops with which sugar beet is usually rotated, and an alternative one with the same crops except sugar beet.

In the following, we call **relative profitability** of sugar beet the profitability of sugar beet compared with the profitability of alternative crops. The **cropping system net value added** (NVA) is the indicator used to show the changes in the relative profitability after the reform versus before the reform. It is calculated as:

NVA = (Total output – Intermediate Consumption – Depreciation) / (Labour*Total Farm Area)[61]
With Intermediate Consumption = Specific Costs + Farming Overheads

[60] On the basis of FADN data, two methods are usually applied to identify the costs and the profitability of a given crop. The first method is to select farms that have an output composed mainly of the studied crop output; then the specific costs of the farms can be regarded as the costs of the studied crop. The second approach is to apply a cost allocation model. However, sugar beets are usually rotated with other crops; therefore, there are only a few farms highly specialised in sugar beet production. Moreover, both solutions are based on the sugar beet output, but the latter is biased by the price support and has probably decreased since the reform because the minimum price has decreased. Therefore, in the case of sugar beets, neither of the two methods can be applied.

[61] FADN variables: (SE131-SE275-SE336) / (SE025*SE010)

To study the market orientation of growers, we should analyse the relative profitability of sugar beet and other crops **without any CAP support**. However, in the case of sugar beet there are a number of hurdles to removing the price support (see box below). Since we cannot calculate a theoretical unit value without support, we analyse:

- On the one hand, the relative profitability with sugar beet price support;
- On the other hand, the effects of the decrease in the unit value on the relative profitability (with sugar beet price support) of the sugar beet cropping system. The unit value represents the "real" price on which growers make decisions.

It allow us **(1)** to compare the effects of the fall in the minimum price before and after the reform, and **(2)** to identify the level of unit value beyond which the relative profitability (with price support) of beet - included cropping pattern and the alternative cropping pattern - is reversed, i.e. what we call the "break even unit value".

To compare the situations before the reform and after the reform, in the current CAP context, we also analyse the relative profitability **with coupled CAP payment** and, in the case of FI and IT, with **coupled national aid**. In this case, we include all coupled payments to the farmers: subsidies on crops, national aid and coupled payments linked to article 68 in IT.

Box 4: Price and unit value of sugar beet

To identify only the effect of the market on the profitability of sugar beet, we should estimate what would be the output of sugar beet without price support that interferes with markets signals. However, we faced three main difficulties.

- First, the level of the **sugar beet market price is unknown**. In fact, sugar beet market does not exist, the price of quota sugar beet is directly supported via the minimum price, and the out-of-quota prices vary according to the outlets and are probably cross-subsidised (see Question 1 and theoretical analysis).
- Second, FADN provides **unit values of sugar beet (and not prices)** whose composition is more complex than sugar beet price. They correspond to all beets whereas prices are defined for standard quality beets (16% sugar content). Moreover, they are likely to include the pulp allowance, price premiums for early and late deliveries, price decrease linked to high soil content for instance, and possible price supplement when the actual selling price of the sugar is above the reference price. Moreover, the composition of the unit value of sugar beet has been modified in some Member States to compensate partially the minimum price decrease (see Question 1). Furthermore, in IT, the unit value of sugar beets includes the State Aid because it was granted to the sugar manufacturers which then transferred it to the growers.
- Third, the **quota sugar beets are not recorded** in Member States such as FR or are not completely recorded (PL, DE, and UK), so it is not possible to distinguish between quota and out-of-quota sugar beet quantity for each farmer.

Nevertheless, we analyse the profitability of sugar beet using unit value (includes sugar beet price support) because we consider that production decisions of growers are based on this aggregated indicator of the sugar beet "real" price.

Sample BEET and sample ALTER

Here, the farming system of the farm is defined by the Farm Output composition. From the FADN data, we selected farms in a homogeneous and representative sugar beet farming system, which we call **sample BEET**. We applied the same rules for each Member State to identify sample BEET:

- Location of farms in the main sugar beet production regions,
- Exclusion of farms producing labour - and capital- intensive crops (fruit, vegetables, flowers and vineyards, and, whenever it is possible, grain maize and table potatoes),
- Exclusion of farms with starch potatoes whenever it is possible because there is a price support for this crop which may bias our analysis,
- Sugar beet area contribution to total farm area as high as possible [62,63],
- Exclusion of farms with livestock, because it might introduce a bias in the results affecting the fixed costs of the farm.

[62] Different thresholds have to be set in each Member State, in order to constitute a significant sample.
[63] It could have been better to select farms based on the sugar beet output contribution to the total output, but this contribution will change artificially during the period because of the decrease in the minimum price of sugar beet since the 2006 reform. In consequence, for each Member State, we selected sample 1 to represent approximately the upper quarter of the population having the largest share of total area in sugar beet.

Respecting the same principle, we selected one alternative system, which we call **sample ALTER**. We applied the following rules to select it:

- Location of the farms selected in regions where sugar beets are located,
- Similar composition of the farming system of sample BEET, but without sugar beet.

The size of the samples for each Member State is presented in the table below[64] and more details on samples are given in Box 5 (p.65):

Table 29: Sample size in studied member states by year (number of farms)[65]

	Sample BEET							Sample ALTER						
	2002	2003	2004	2005	2006	2007	2008	2002	2003	2004	2005	2006	2007	2008
FR	30	26	19	20	24	36	31	53	55	57	61	64	63	67
DE	53	40	39	26	19	30	31	16	17	18	18	22	21	30
PL	n/a	n/a	17	22	22	20	21	n/a	n/a	157	176	224	291	368
UK	27	28	24	26	17	19	18	98	119	96	86	73	68	75
IT	30	22	19	19	15	15	n/a	41	39	32	21	22	38	n/a
FI	16	15	15	18	17	15	<15	89	93	99	109	96	101	108

Source: Agrosynergie calculations from EU-FADN-DG AGRI L-3

Box 5: General features of sample BEET and sample ALTER in each Member State

The table below describes the total output composition of the two samples for each Member State; the alternatives crops are COP, except for FI where we are not able to exclude table potatoes.

Table 30: Total output composition of the two samples in each Member State (%)

	sample BEET			sample ALTER		
	Share of sugar beet output	Share of COP output	Share of table potatoes output	Share of sugar beet output	Share of COP output	Share of table potatoes output
FR	30 to 45%	45 to 60%	0%	0%	About 90%	0%
DE	40 to 55%	25 to 45%	0%	0%	65 to 75%	0%
PL	35 to 55%	40 to 65%	0%	0%	About 100%	0%
UK	35 to 55%	35 to 55%	0%	0%	85 to 90%	0%
IT	35 to 60%	30 to 50%	0%	0%	About 100%	0%
FI	45 to 65%	20 to 65%	0.5 to 1.5%	0%	80 to 85%	1.5 to 3.5%

Source: Agrosynergie calculations from EU-FADN-DG AGRI L-3

In terms of structural features:

- In each Member State, the average farm area varies from one year to another; but, on average the size of area is smaller in sample BEET than in sample ALTER, except for IT where they are equivalent.
- In FR, DE, and UK, the farming systems with sugar beet as the alternative cropping system have the same level of Annual Work Units[66] per hectare (AWU/ha). In PL, IT and FI, on average the AWU/ha is higher in sample BEET than in sample ALTER.

According to these observations, in FR, DE and UK, profitability determinants were analysed per hectares of total area, whereas in PL, IT and FI they were analysed in terms of area and labour as well.

4.2.3.1.2 Change in the share of coupled payments in the NVA (including price support and coupled support)

We begin by analysing the change in the share of coupled payment in the NVA, to estimate the **distortive importance of CAP support** on profitability and how it changed throughout the period studied. In fact, it makes it possible to take into account the impacts of the change in CAP support in the market orientation of farmers.

The table below presents the share of coupled payments in the NVA.

In all case study Member States expect PL[67], we observe that on average **sample BEET** appears "less distorted by coupled aids" than **sample ALTER,** because of the presence of sugar beet in the rotation,

[64] In a given sample, the farms selected are homogenous in terms of output composition but not necessarily in terms of area, economic size and labour force. Consequently, in order to make comparison possible, we calculated the results divided by the total area and/or over total labour force in the farm, according to each member state.

[65] In Finland, given the low number of farms producing sugar beets in the FADN sample, we cannot display results for year 2008. More details on samples are given in Box 5 (p.65).

[66] Full-time person equivalents

[67] In Poland, in 2004, coupled payments in sample 1 and in sample 2 represented 9% and 14%, respectively, of their NVA with coupled payments, and from 2005 there were no coupled payments. In the following we consider only the NVA without coupled payments in Poland.

which is not subject to direct coupled payments. Indeed, the table below shows that the coupled aid made the NVA positive before the reform in **sample ALTER** in FR, DE, UK, and IT.

Except in FI and in PL, the cut in coupled payments is significant from 2005 as a result of the **2003 CAP reform** in the two samples. Thus the distortion arising from coupled aid was less pronounced after 2005. For instance, **after the reform**, in DE and in UK, coupled payments represent less than 5% of the NVA in both samples.

In **FI**, the NVA of both types of farming system are on average negative throughout the period, even with coupled payments and national aid for sugar beet growers.

Table 31: Percentage of the coupled payment in the NVA with coupled aid per hectare (%)*[68]

		2002	2003	2004	2005	2006	2007	2008	Average 2002-2005	Average 2006-2008
FR	**Sample BEET**	54%	58%	60%	61%	26%	13%	15%	58%	18%
	Sample ALTER	98%	102%	95%	126%	104%	20%	26%	105%	50%
DE	**Sample BEET**	26%	23%	25%	0%	0%	0%	4%	19%	2%
	Sample ALTER	135%	105%	124%			0%	10%	121%	5%
PL	**Sample BEET**	n/a	n/a	9%	0%	0%	0%	0%	5%	0%
	Sample ALTER	n/a	n/a	14%	0%	0%	0%	0%	7%	0%
UK	**Sample BEET**	48%	49%	58%	1%	1%	0%	0%	39%	1%
	Sample ALTER	106%	103%	157%		7%	1%	1%	122%	3%
IT	**Sample BEET**	42%	67%	59%	7%		14%	n/a	33%	14%
	Sample ALTER	114%	174%	223%		54%	12%	n/a	223%	33%

*The ratio is not calculated if the NVA with coupled aid is negative or zero: for that reason, Finland is not included (see above)

Source: Agrosynergie calculations from EU-FADN-DG Agri L-3

4.2.3.1.3 Analysis of the profitability (with sugar beet price support)

In the following paragraphs, we observe the effects of the reform on the relative profitability (with price support) of cropping systems. We compare the NVA of sample BEET, which goes down with the decrease in the unit value of sugar beet, and with the NVA of sample ALTER, which remains constant whatever the unit value of sugar beet.

To take into account the distortion of coupled CAP support which impacts on the relative profitability, we analyse the situation **with and without any CAP support** (considering the methodological limits explained above):

- without CAP support reflects the role of the market without bias (including price support)
- with coupled payments is closer to the context in which growers make their production choices.

Relative profitability with sugar beet price support

The table below gives the NVA of each sample, with and without coupled aid to conclude if **with sugar beet price support**, the sugar beet farming system is more profitable than the alternative one[69].

With or without coupled payments, before the reform, in all case study Member States, sugar beet farming systems, with sugar beet price support, are more profitable than the alternative farming system. After the reform, it is still the case, except in IT. In **IT,** with the drop of the minimum price and the improvement in cereal prices, the sugar beet system is on average less profitable than the alternative one in 2006 and 2007. The national aid allows increasing on average by 110€/ha/AWU the NVA with direct coupled payments of **sample BEET**, but it is not sufficient to equalize the NVA with

[68] As described previously, IT implemented state aid from 2006 and over five years. It is shared by sugar industries and sugar beet growers. The National Aid is paid by the sugar industry and through the sugar beet price. The amount of the State Aid is fixed at 4€/t of sugar beet, but in fact the amount varied every year and according to the sugar industry. We were told that on average this price reached 5€/t in 2006 and 2007. To analyse the NVA without this national aid and estimate the importance of this payment in the profitability of sugar beet growers, we removed 5€/t from the unit value of sugar beet in order to compare the NVA without aid and the NVA with aid. This method presents a limit: the average amount is 5€ per tonne of 16% sugar beet while the unit value is by tonne of sugar beet produced. But, as we developed in the following, this approximation does not impact on our results.
As in other Member States, IT offered coupled payments until 2005 and then decreased them as a result of the 2003 CAP reform. Contrary to other Member States, IT implemented in 2006 the optional article 69 in favour of sugar beet and arable crop productions. Each payment represented 8% of the sector ceiling. In the following, "direct coupled payments" concerning IT designate both CAP subsidies on crops from 2002 and article 69 payments, but national aid is not included in this, in order to analyse its impacts separately.

[69] it corresponds to a 0% decrease in unit value of sugar beet

direct coupled payments of **sample ALTER**. Interviews of growers and growers' representatives confirmed the significant decrease in sugar beet profitability even though specific coupled supports were implemented.

However, **the gap between the profitability of sample BEET and sample ALTER has reduced between the two periods in all six Member States except IT**: considering coupled support, the difference in NVA (sample BEET-sample ALTER in the following table) went in FR from 227 to 149€/ha; in DE from 780 to 150€/ha, in PL from 269 to 141€/ha/AWU, in UK from 278 to 80€/ha, in IT from 586 to – 232€/ha/AWU, and in FI from 239 to 77€/ha/AWU. This diminution is due both to the diminution in sugar beet minimum price and to better cereal prices in 2007 and, to a lesser extent, in 2008.

Table 32: NVA, without and with coupled aid, before the reform compared to after the reform, in samples BEET and ALTER

	Units	Without coupled aid				With coupled aid*			
		Before the reform		After the reform		Before the reform		After the reform	
		sample BEET	sample ALTER	sample BEET	sample ALTER	sample BEET	sample ALTER	sample BEET	sample ALTER
FR	€/ha	212	-15	340	191	507	361	406	277
DE	€/ha	726	-54	551	129	906	202	558	130
PL	€/ha/AWU	315	46	245	104				
UK	€/ha	221	-57	308	228	397	193	309	231
IT	€/ha/AWU	236	-350	311	543	497	416	524	654
FI	€/ha/AWU	-460	-699	-644	-721	-182	-229	-490	-703

* includes all coupled payments to farmers: subsidies on crops, national aid for sugar beet (IT and FI) and coupled payments linked to article 68 in IT

Source: Agrosynergie calculations from EU-FADN-DG Agri L-3

The analysis of the FADN data shows that despite the falling off of the sugar beet support following the reform, the **sugar beet remains more profitable than alternative crops** for the more specialised growers, **except in IT**.

Relative profitability of sugar beet with estimated decrease in sugar beet price support

To assess the market sensibility of growers, we calculate what we call the break-even level of unit value: the share of decrease in unit value below which **profitability of beet system becomes lower than that of the alternative system**. Again we make this calculation with and without coupled support.

The results, **with coupled** aids:

- Confirm that, except in IT after the reform, the beet system is higher than the alternative system: break-even rates are positive.
- Show that in DE, PL, UK, the difference between both systems is lower after the reform than before (break-even points are lower after the reform than before). In FR, the rate remains 30%. Only in FI, has the break-even point increased between before and after the reform (from 5 to 25%), because of a very significant decrease in the profitability of the alternative system (cf. Table 32).
- Show that in FR, DE, and PL, after the reform, the sugar beet cropping system would remain more attractive than the alternative one in the case of a future cutback of the beet price or increase in cereal prices. Indeed, the break even rates are respectively 30%, 55% and 40%.
- Show that contrariwise, following the reform in UK, the break-even point is quite low: 15%. As a result, only a slight change in relative profitability, caused by lower sugar beet price (quota and out-of-quota), or better profitability of other crops, would lead to the reversion of the relative crop profitability.

Comparing the results with and without coupled support, the level of distortion to market signals due to the **coupled CAP aid** is visible (for instance, before the reform, in FR the threshold was reached by a cut of 50% in the unit value, whereas with coupled aid the threshold is only 30%). This distortion is always in favour of the alternative cropping system (breakeven rate is higher without coupled aid than with). But, as shown in the table above, since 2005, coupled payments have been strongly reduced and as a result, **the distortion of profitability** caused by coupled aid has slowed

down after the reform (except in FI, the difference between rates with and without aid is lower after the reform than before).

Table 33: Break-even rate of unit value equalizing NVA of samples BEET and ALTER

	Without coupled aid		With coupled aid	
	Before the reform	After the reform	Before the reform	After the reform
FR	50%	35%	30%	30%
DE	80%	55%	75%	55%
PL	60%	40%*	60%	40%*
UK	50%	15%	35%	15%
IT	60%	**	10%	**
FI	25%	10%	5%	25%***

*In PL, there is no coupled payment since 2005 in our samples **After the reform, sample ALTER is more profitable than sample BEET: the threshold unit value is higher than the unit value with price support. ***including adding national aid. Without it the value would be 2à%.

Source: Agrosynergie calculations from EU-FADN-DG Agri L-3

4.2.3.1.4 Opinions of stakeholders on the relative profitability of sugar beet

In this section, we compare the FADN data analysis to results of Case Study interviews, to further understand the change in relative profitability and identify factors which slow down or facilitate growers' capacity to adapt to changing market conditions.

According to stakeholders interviewed, in all Member States, before the reform, sugar beet was always favoured because thanks to high minimum prices and the quota system, it guaranteed a stable and high income. Now, with the diminution of the minimum price and the improving cereal prices, sugar beet has lost its outstanding position, and the profitability of sugar beets is closer to that of other crops. As a consequence, growers consider that market orientation has increased.

In UK, the extended length of the campaign following the 2006 reform reinforce this observation, and the interviews with growers show that all crops now have approximately the same level of profitability. That explains why the pricing policy of sugar producers for quota and out-of-quota sugar beets has changed since the reform: to ensure supply, prices are set above minimum price so as to cover farmers' costs (see Question 1). Moreover, payment for pulp is now incorporated into the price to give farmers more certainty about their income.

In FR, in DE and in PL, most growers pursue to fulfil their **delivery rights** in spite of the diminution of relative profitability, because contracted production allows a guaranteed income for several months ahead, not subject to market volatility, which is usually not the case for other products.

Interviews with growers in FR and in UK revealed that farmers had a large degree of **flexibility in the choice of replacement crops** in the event of a decline in sugar beet, whereas in IT, the flexibility of growers interviewed in Emilia Romagna is slowed down by agronomic constraints because sugar beet is essential in the crop rotation.

With regards to out-of-quota production, price of alternative crops (see Question 1) are taken into account at the time of price negotiations. Some companies have even proposed contracts with price linked to the prices of wheat and rapeseed (see Question 1).

4.2.3.2 The 2006 CMO reform affected (or not) production decisions of farmers

4.2.3.2.1 Method

Approach

The principle is to assess what growers' production decisions have been since the reform and whether they are coherent with market signals. We assume that the impacts of the 2006 reform on these decisions are reflected in **changes in farm cropping patterns**. The cropping pattern is defined as the share of each crop in the total area cultivated in a given farm. Hence, one can study whether a farmer producing sugar beet has switched to other crops (totally or partially) and conversely whether newcomers have joined the sugar beet sector.

Sample

In order to conduct this comparison of cropping patterns before and after the 2006 reform, we use a **constant sample**[70] of farms located in the regions producing sugar beet over 2005-2008 (or 2005-2007 for IT). This sample is divided in two:

- Sample STOP: farms where sugar beet production has been stopped or reduced.
- Sample PROD: farms where the sugar beet area has been maintained, increased, or started during the period.

The table below presents the number of farms split in these two different sub-samples, according to the evolution of the sugar beet areas. Because of crop rotation, in each farm slight changes in the cropping pattern were observed from one year to another. Therefore a threshold needed to be set in order to identify significant changes in the cropping pattern. A change of less than 5% in this cropping pattern was considered as not significant[71].

For FI, sample PROD contains less than 15 farms. Therefore, we could not analyse the cropping pattern for this sub-sample.

Table 34: Sample size (number of farms) for analysing changes in cropping pattern

	Period	Total sample size	Exit or area decrease (Sample STOP)	Area maintaining, increase or entry (sample PROD)
FR	2005-2008	556	101	455
DE	2005-2008	1000	205	795
PL	2005-2008	1702	705	997
UK	2005-2008	99	26	73
IT	2005-2007	555	417	138
FI	2005-2008	51	42	<15

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

4.2.3.2.2 Analysis of cropping pattern

Within Member States, there is no typical and widespread crop rotation system, but in most cases, sugar beets are mainly rotated with COP. In all Case Study Member States, except IT, potatoes are often included in the rotation, and in PL and DE, it is frequent to find fruit and vegetables also.

The next table presents changes in cropping pattern from 2005 to 2008 (or 2007 for IT) of the farms in the two FADN samples, STOP and PROD, in each Member State.

In samples STOP, we observe that the decrease in the share of sugar beet area is between 5.5% in DE and 20.5% in IT. It shows that the crops that replaced sugar beet are, in all six Cases Study Member States, arable crops, in all cases cereals, and then oilseed, and/or forage. It is explained by the increase in the cereal prices last years. Moreover, the same changes in cropping pattern are usually observed in the alternative sample of beet growers who maintained or increased their beet area (sample PROD), except in PL. For instance, in FR production of sugar beet (and dry pulses) was replaced by cereals (+6% of the share in area), especially wheat (+2.73%), and by oilseeds (+2.83%). In sample PROD, we see the same increase in the share of cereal area (+3.6%), and that of oilseeds (+2%), this time to the detriment of dry pulses and set aside.

The change in production decisions of growers of sample STOP as those of sample PROD increasing cereal and oilseed areas, whose prices increased during the last years, highlights the **better market orientation of growers** following the reform.

With regards to the changes in the share of sugar beet area in sample PROD, we observe than on average they are not significant (less than 1%), except in IT where it increases between 2005 and 2007 by about +6%. Sugar beet has replaced maize (-1.8%), oilseeds (-2.0%) and forage crops (-2.7%).

[70] It is composed of farms that cultivated sugar beet for at least one year during the period studied and that are present in the FADN database for several consecutive years without interruption. The objective is to study as many years as possible after the reform, especially 2006 and 2008 since these were years of highest quota renunciation.

[71] By consequence, sample STOP contains farms which share of sugar beet area have decrease more than 5% and sample CONT contains farms whose share of sugar beet area have decrease less than 5%, have been maintained or increase.

Table 35: Change in cropping pattern from 2005 to 2008 in each Member State (share of area of given crop/total farm area, %)*

	FR		DE		PL		UK		IT**		FI
	Sample STOP	Sample PROD	Sample STOP	Sample PROD	Sample STOP	Sample PROD	Sample STOP	Sample PROD	Sample STOP	Sample PROD	Sample STOP
Sugar beet	-6.7%		-5.6%		-11.6%		-12.2%		-20.5%	5.8%	-14.1%
Wheat	*2.7%*	*1.2%*	*2.8%*	*2.7%*	*2.5%*		*6.2%*	*5.0%*	*8.1%*	*3.0%*	*7.0%*
Maize	*2.9%*		*1.0%*						*6.0%*	*-1.8%*	
Barley	*1.2%*	*1.9%*		*1.3%*	*2.7%*	*1.0%*	*4.1%*		*1.0%*		
Rye			*2.1%*	*1.0%*							
Oat							*4.0%*				*2.7%*
Summer cereals						*-2.0%*					
Total cereals	6.9%	3.6%	7.6%	5.6%	6.7%	-1.2%	14.4%	4.7%	16.0%	1.3%	10.6%
Dry pulses	-2.3%	-3.3%					-3.4%	-2.6%			
Oilseeds	2.8%	2.0%			3.4%	2.5%		1.8%	2.4%	-2.0%	2.7%
Forage crops			3.8%	2.0%	1.4%		3.7%	1.2%	1.5%	-2.7%	2.2%
Agricultural fallows			-4.0%	-4.8%				3.4%			2.3%
Set aside		-1.8%		-2.9%			-7.0%	-7.5%			-3.5%
Other arable crops			-2.3%				4.3%				

Negative changes are highlighted in yellow, positive ones in blue.
*The table presents the results only for crops which relative share has changed more than 1%. ** Changes from 2005 to 2007

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

According to stakeholders' interviews, the production decisions of growers who have stopped the sugar beet production or have decreased the share of sugar beet in their cropping system differ in each Member State.

FR offers many alternative crops to sugar beets, and growers who stopped production interviewed in Picardie chose to develop different types of crops: COP, starch potatoes, forage crops, vegetables for processing, etc. Criteria for choosing these alternative crops were: maintenance of good agronomic crop rotation, low implementation costs, diversification in production with industrial outlets or a developed supply chain in the region, etc.

Growers interviewed in Rheinland-DE who stopped producing sugar beet or reduced their share of sugar beet areas replaced sugar beets with potatoes, COP or vegetables. The main reasons mentioned are that they are more profitable, they are well-adapted in terms of soil and climate, or need the same technical equipment.

According to growers and their representatives interviewed in Lubelskie, **PL**, there are two main types of sugar beet growers following two contrasting strategies of production in PL:

- Large farms using simplified crop rotation to reduce their costs.
- Small family farms using only manure on sugar beet area. In general they have wider crop rotation which reflects the fact that they seek various sources of income such as fruit production or vegetables. They differentiate their activities depending on the characteristics of demand on surrounding markets. Most of farmers who stopped belong to this category, and they switched mostly to cereals, rapeseed and vegetables.

In the case study regions in UK (Eastern England and Yorkshire, and Humberside region), according to growers' representatives and growers, growers have been forced to switch to other crops by factory closure and struggled to find another break crop that is effective from an agronomic viewpoint, profitable, and does not need specialised equipment. Most growers interviewed chose to develop oilseed rape and beans to replace sugar beet.

In Emilia Romagna, **IT**, there is no real alternative to sugar beet. Consequently, in zones where sugar beet production has declined, stakeholders begin to note some agronomic problems in the region.

In **FI**, the issue of alternative crops is particularly sensitive. According to the interviews beet was replaced by cereals and forage crops, or in some cases speciality crops which have better profitability. Cereals are the preferred option because they are easy to implement or to extend. Many growers concerned were elderly and/or already owned the adequate equipment. Some growers preferred investing in their farm and increased other work-intensive crops with higher profitability, such as small peas to be frozen.

4.2.4 COMPETITIVENESS OF SUGAR BEET GROWERS

4.2.4.1 The 2006 reform has affected (or not) the components of sugar beet competitiveness

The objective is to analyse how the **components of competitiveness** of the sugar beet farming systems evolved following the implementation of the 2006 CMO reform to conclude in terms. Improved competitiveness lies on the increase of the gross margin induced by improved production costs and/or productivity (yield). We studied several economic indicators (per hectare and/or per annual work unit) explaining changes in sugar beet competitiveness. As explained in Chapter 4.3.3.1, removing the price support from profitability indicators is difficult and we analyze indicators including minimum price support:

- The unit value of sugar beet: farmers' decisions to continue or not the production of sugar beet is based not only on minimum price, but also on out-of-quota contracts proposed by sugar producers, pulp valorisation, price complement and premiums, all included in the unit value.
- Changes in crop margin and NVA of cropping systems including beet, and their components: crop outputs[72] and production costs. We compare these changes to those of comparable cropping systems without beet.

Gross margin is calculated as:

Crop Gross Margin = Total crop output (sales + farm use + change in stocks) **– the crop specific cost** (seeds and plants + fertilisers + crop protection + other specific costs)[73]

Net value added is the core indicator of competitiveness. It is calculated as:

NVA = (Total output – total intermediate consumption (specific costs + farming overheads) **– depreciation) / (labour*total farm area)**[74]

The rationale is to understand how the beet competitiveness components change over time and to look for the items that were influenced by the reform or by market conditions. These results are confirmed through a comparison to the conclusions of the case studies.

For this analysis, we use the farming system with sugar beet as described previously (sample BEET). We compared the results obtained in sample BEET with those obtained in sample ALTER (alternative cropping pattern).

4.2.4.1.1 Changes in unit value of sugar beet (including price support)

The table below presents the **changes in unit value per tonne of sugar beet** in sample BEET (includes price support). We observe that the sugar beet unit value has plummeted on average since the reform compared with before the reform, as the minimum price declined. But, the diminution is between 21 and 29%, which is less than the 32% decrease on minimum price of beets at 16%, which had been implemented in 2008/09.

In **UK**, the unit value of sugar beet was maintained at an amount of about 35€/t after the reform. It is confirmed by the results of the case study where we were told that the company pricing policy has changed since the reform to maintain the better profitability of sugar beet compared with other crops. After the reform in **IT,** the unit value of sugar beet decreased in 2006 and 2007. This fall in unit value is slowed down by national support[75]. Moreover, to maintain their supplying in spite of the restructuration and the decrease in profitability of sugar beet, some sugar industries decided to implement special aids or premiums, e.g., by participating in half the cost of buying seeds or offering a

[72] Output = price * quantity
[73] FADN variable: (SE135-(SE285+SE295+SE300+SE305))/(SE025*SE010)
[74] FADN variables: (SE131-SE275-SE360)/(SE025*SE010) with SE175=SE281+SE336
[75] The national aid is about 5€/t of sugar beet at 16%.

fidelity premium of 3€/t of 16% sugar beet to traditional growers. In **DE**, according to growers' representatives, the compensation for pulp became an important determinant of the profitability of sugar beet after the reform, because it attenuated the impact of the minimum price drop on the unit value of sugar beet.

Another interesting point raised by interviewed stakeholders in **PL** is the impact of the exchange rate of Polish zloty vs. euro: it substantially affects the price of raw material[76]. This introduces uncertainty in the unit value and can play a role in the profitability of sugar beet production.

We observe a **variability of unit value among growers** (the variation rate changes from year to year in a range from 8 to 108%), explained by the share of out-of-quota production of each grower, their pulp valorisation, their price premiums or reduction, the out-of-quota price policy of the delivered factory, strict standards quality for the delivery of beets, etc.

Table 36: Unit value of sugar beet (€/t)

		2002	2003	2004	2005	2006	2007	2008	Average 2002-2005	Average 2006-2008	Change*
FR	**Mean**	29.72	37.36	35.67	31.18	29.24	22.70	24.33	33.48	25.42	-24.06%
	C.V.	*21%*	*17%*	*14%*	*25%*	*14%*	*13%*	*21%*			
DE	**Mean**	48.23	53.25	50.78	46.34	45.90	36.50	34.02	49.65	35.26	-28.98%
	C.V.	*9%*	*14%*	*10%*	*10%*	*12%*	*14%*	*12%*			
PL	**Mean**	n/a	n/a	40.22	40.30	34.03	29.36	29.20	40.26	31.69	-21.29%
	C.V.	*n/a*	*n/a*	*21%*	*19%*	*11%*	*19%*	*16%*			
UK	**Mean**	46.76	46.05	45.46	46.33	35.26	35.08	34.92	46.15	35.09	-23.97%
	C.V.	*17%*	*14%*	*12%*	*9%*	*12%*	*8%*	*11%*			
IT	**Mean**	44.39	72.90	58.13	44.22	38.73	46.40	n/a	54.91	42.56	-22.49%
	C.V.	*58%*	*108%*	*20%*	*16%*	*19%*	*61%*	*58%*			
FI	**Mean**	50.18	57.53	51.39	45.91	42.32	36.09		51.25	39.20	-23.51%
	C.V.	*21%*	*19%*	*11%*	*19%*	*16%*	*18%*				

*Change= [av.(2002-2005)-av.(2006-2008)]/av.(2002-2005)

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

4.2.4.1.2 Changes in crop outputs

The graphs below show the **changes in output** of the main crops in sample BEET and in sample ALTER, for each Member State. The analysis of the **sugar beet output** in the sample of farms including beet (sample BEET), shows that it has been reduced since the reform compared with before in all Member States (-17% on average in FR, -20% in DE), except in IT where it remained constant throughout 2003 and 2007. Indeed, in **IT,** the sugar beet output was in part supported by the national aid, included in the price of sugar beet paid by sugar industrials.

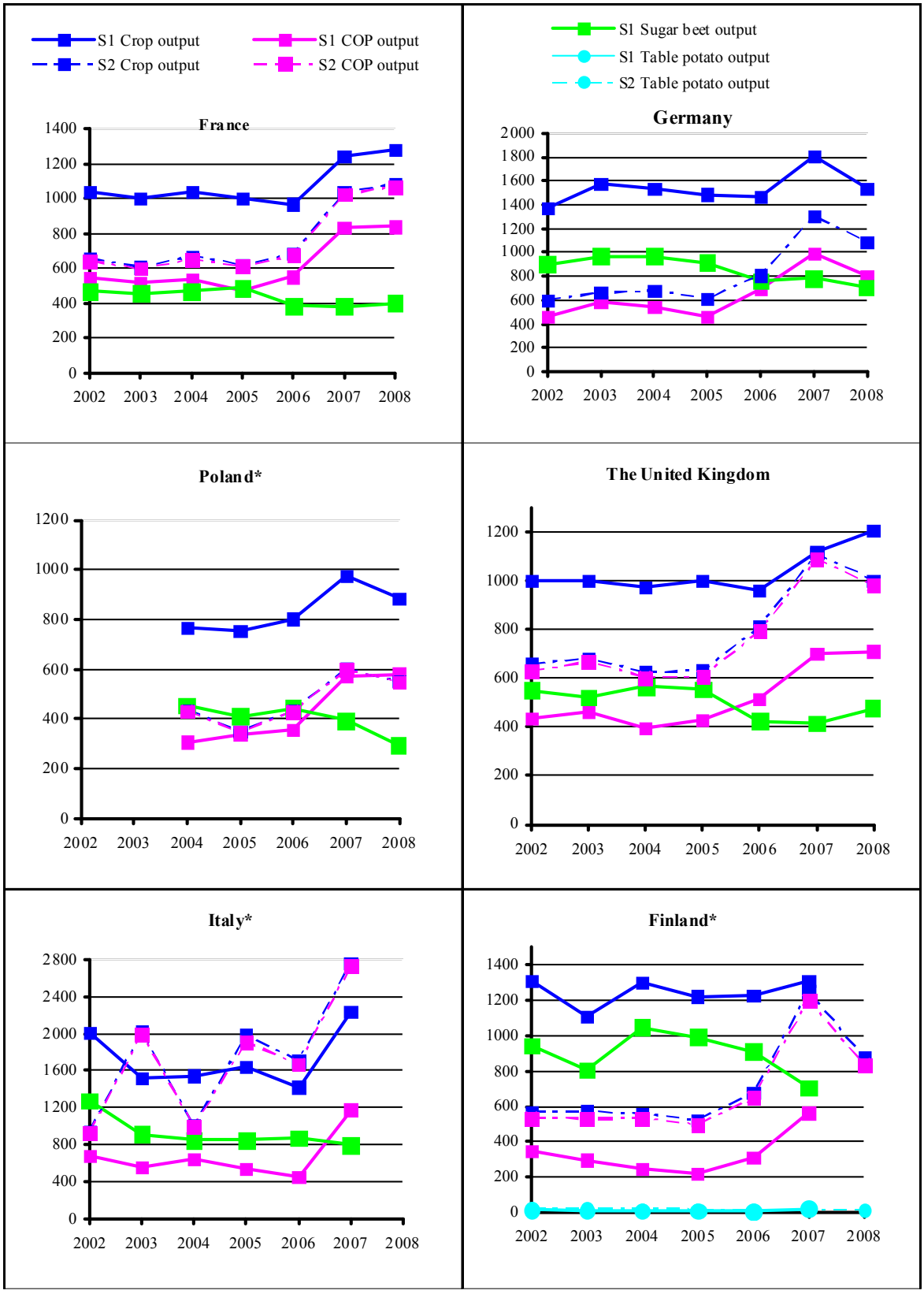
In **FR** and **DE,** it declined between 2005 and 2006 and was quite constant between 2006 and 2008. The maintenance of sugar beet output after 2006 has several causes: yield increase (on average +12% in sugar beet production in sample BEET in FR, see Chapter 4.1.3.3 on changes in sugar beet yields), increase in out-of-quota production, revalorisation of pulp allowance in DE.

In UK as in **FI**, we note a convergence of the crop output of the two samples, after the 2006 reform. Meanwhile, in **PL**, the sugar beet output is roughly equivalent to COP output from 2004 to 2006, and then, in 2007 and 2008, it is less than the COP output of sample BEET and sample ALTER. They are the consequences of the fall in sugar beet minimum price and better cereal prices

[76] For example, the exchange rate used for the calculation of minimum prices was 3.3747 PLN/€ in 2008, while it was 4.1584 PLN/€ in 2009.

Figure 18: Changes in crop output with sugar beet price support (€/ha) in sample BEET and sample ALTER

Note: S1 = Sample BEET - S2 = Sample ALTER



*Unit is €/ha/AWU

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

4.2.4.1.3 Changes in NVA, gross margin and production costs

The paragraphs below describe the changes in gross margin and NVA of the cropping pattern and some details of the cost structure, for samples BEET and ALTER, in the six Member States.

Crop gross margin

In all Member States, the FADN data analysis shows that **crop gross margin is positive** throughout the whole period: sugar beet growers are able to make a profit from sugar beet production. In most cases, the gross margin of sample BEET is higher than that of sample ALTER.

In the previous section (4.2.4.1.2), we noted that the sugar beet output have gone down in all Member States after the reform compared with before the reform, but the consequence on the profitability of the cropping systems are hidden by the **higher cereal prices** in 2006 and 2007. However, as emphasized in section 4.2.3.1.3, the relative profitability (including price support) of sugar beet cropping systems decreased following the reform.

Production costs

In **DE**, the **crop specific costs** increased on average by 45% after the reform in sample ALTER, while they increased by 25% in sample BEET. This difference is perhaps due to a diminution in sugar beet production cost, although growers' representatives highlighted the fact that growers always try to find opportunities for cost reduction in order to improve competitiveness. They have not observed an acceleration of this process since the reform.

In **FR**, we can observe the same: in sample ALTER, **crop specific costs** increased on average by 15% after the reform compared with before the reform, while they increased only by 10% in sample BEET. This difference may not be significant, but in some interviews with growers in Picardie, they explained that they had tried to reduce their production costs since the reform by limiting inputs, suppressing systematic chemical weeding, etc.

In **PL**, it is interesting to note that if the NVA in sample BEET followed the same trend as in sample ALTER. These changes are reinforced by the **changes in costs** in the two samples. Intermediate costs and depreciation are higher in sample BEET than in sample ALTER and they increase rapidly throughout the period after 2005. Both crop-specific costs and farming overheads increased by 35% on average after the reform in comparison to before, versus an increase of 25% on average in sample ALTER. For depreciation, the results are more uneven: it increased by 90% on average in sample BEET, while it increased only by 14% in sample ALTER. It seems realistic to impute this difference to sugar beet production. It is partially confirmed: interviewed growers had made **some investments** in specialised machinery since the reform because of the high cost of services and the consequent need to invest in their own equipment. Moreover, as emphasised in Question 1, growers in **PL** have had to face new or increasing costs since the reform, and they have **very high costs** (specific costs and overheads). Stakeholders consider that a large array of opportunities exists to improve the efficiency and thus competitiveness of production. In these conditions, we were told that most of the more competitive farmers have large farms and choose to be specialised in order to minimize their costs and to invest in specific equipment. These investments also allow them to provide services to other farmers.

In UK, the growers' interviews showed that there is very little scope for further reducing production costs, and that farm cost has not changed much. Moreover, growers who were forced to stop by the York factory closure would have preferred to continue production but the alternative offered by British Sugar to deliver to Wissington did not satisfy them for two main reasons:

- They could have quota to supply Wissington, but at a reduced level,
- British Sugar only subsidised the transport costs of taking beet to the factories up to 50 miles.

Consequently, most growers from the York area could not afford the increased and unsubsidised costs of supplying Wissington. At this point, most of them decided to give up growing sugar beet.

The growers' representatives emphasise that the growers that **remain are the best ones** and they are producing more.

IT was one of the main Member States producer of sugar beet, but the competitiveness of this sector is threaten by low yields, a short growing period, and the need to irrigate (see Question 1).

In **FI**, sample BEET is characterised by **high farming overheads** which have a negative impact on NVA. It is confirmed by the interviews with growers and their representatives: in particular. Moreover, they specified that this specific crop requires a lot of capital (for plant protection, seeds, etc.) and less competitive farmers could not continue growing beet after the reform. In addition to the lower income and prices, small producers have clearly suffered from relatively higher investment and overhead costs, and have stopped production. Those who continued had bigger farms with bigger areas, and almost "an ideological will" to continue as sugar beet growers.

4.2.4.2 The 2006 reform has affected (or not) the competitiveness by encouraging the least competitive farmers to stop producing sugar beets

This section focuses on the key hypothesis that drives the reform: at the farming sector level, the cut in the minimum price is expected to encourage high-cost growers to quit the sector and low-cost growers to maintain their production or develop it. The principle of the analysis presented here is in two steps:

- At EU level, comparing Case Study Member States' changes in national sugar beet areas and beet profitability. The strongest diminution in sugar beet areas should be observed in Member States where average sugar beet profitability is the lowest. We use the NVA with aid as proxy of the profitability (in sample BEET) and the trend in sugar beet area available in Question 1.
- An analysis at Member State level on the differences in characteristics between farmers who gave up sugar beet production and farmers who continued to identify whether growers that stopped were the least competitive ones.

4.2.4.2.1 Comparison between Member States

In the table below, at Member State level, **changes in sugar beet area** and **changes in profitability of the cropping systems including beet** follow the same trend, and roughly on the same order of magnitude. In fact, except for DE, we could class the Member States in the same order in terms of changes in NVA and in area: Member States where the changes in area were the smallest were those where the changes in profitability were the lowest.

DE is the exception because it had one of the lowest changes in area; the change in profitability is higher than in PL or in UK, yet lower than IT.

On the basis of this single analysis, we can conclude that the strongest diminution in sugar beet areas is observed in Member States where average sugar beet profitability is the lowest. However, this conclusion has to be considered with caution, because as developed previously, many determinants played a role in the NVA computed here.

Table 37: Change in NVA with coupled payments and national aid (€) compared with change in sugar beet area (1 000 ha) at Member State level

	Average NVA with coupled payment (€)			Area (1 000 ha)		
	Before the reform (av. 2002-05*)	After the reform (av. 2006-08**)	% Change	Before the reform (av. 2002-05*)	After the reform (av. 2006-08**)	% Change
FR	65 442	55 261	-16%	400.2	374.0	-7%
DE	61 153	42 288	-31%	441.4	376.5	-15%
PL	20 569	15 250	-26%	293.2	232.3	-21%
UK	52 897	39 954	-24%	158.4	124.9	-21%
IT	12 863	2 698	-79%	224.7	79.5	-65%
FI	2 037	-3 694	-281%	30.4	17.8	-41%

*Except for PL: 2004-2005

**Except for IT and FI: 2006-2007

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3 and Eurostat

4.2.4.2.2 Analysis at Member State level

We analyse proxies of competitiveness to identify some characteristics of farms which have stopped growing sugar beet (sample STOP) and of farms which have continued (sample CONT corresponds to sample PROD minus those who began sugar beet production after 2005[77]), computed before the reform (in 2005):

- General features: farm labour force (AWU) and total area (UAA),
- Agronomic performance: yield.
- Specialisation indicators: sugar beet area and share of sugar beet area in total area, sugar beet output per hectare.

In the following, we comment only on the relevant proxies which allow for identifying significant differences between the two populations.

France

In the table below, we observe that the farms of the two samples are very similar in terms of **total area cultivated**, but CONT is more specialised in sugar beet than STOP (on average, **sugar beet area** is about 13 ha corresponding to 10% of total area and about 9.5 ha corresponding to about 7.5% of total area, respectively). In addition, sample STOP contained more small growers than sample CONT: in sample STOP the median was 7 ha and the upper quartile was 10.3 ha, while in sample CONT, the median was 10.1 and the upper quartile was 17 hectares. On average the sugar beet **yields** of sample STOP were smaller than sample CONT (76 t/ha compared to 85 t/ha for sample CONT). **Unit values** of sugar beet are similar in both samples.

These characteristics lead to differences in **sugar beet gross product** and **contribution of sugar beet to the total farm output**:

- On average, farms in sample CONT had a sugar beet gross product half again as high as those in sample STOP.
- The share of sugar beet output was on average 16.5% in sample STOP and 22% in sample CONT and 50% of the farms in sample STOP had less than 11.5% of their output composed of sugar beet output, whereas the median was 19.5% in sample CONT.

In FR, according to these observations on the most specialised farms of the FADN data, our hypothesis is confirmed: on average the growers who have given up beet production were the smaller producers, with the lowest yields and the lowest share of income from sugar beet.

Table 38: General features and specialisation indicators

	Sample STOP					Sample CONT				
	Mean	S.D.	Median	25%	75%	Mean	S.D.	Median	25%	75%
AWU	1.75	0.86	1.60	1.00	2.08	1.97	1.07	2.00	1.00	2.49
Total UAA (ha)	131.2	83.5	123.0	71.6	167.6	134.8	69.9	120.7	80.0	171.8
Sugar beet area (ha)	9.4	12.4	7.0	3.0	10.3	13.1	10.8	10.1	5.7	17.0
Share of sugar beet area (%)	7.5%	5.6	5.5%	3.3%	11.0%	10.0%	5.8	9.1%	5.3%	13.4%
Yield (t/ha)	76.2	14.3	77.1	66.2	86.2	84.9	11.7	85.0	77.9	92.4
Unit value of sugar beet (€/t)	34.8	6.4	34.4	30.9	38.1	33.2	5.7	32.4	29.6	36.3
Sugar beet gross product (€)	25 996	41 579	16 843	7 969	26 097	36 729	32 745	28 242	16 068	45 845
Share of sugar beet output (%)	16.3%	14.0	11.4%	5.5%	23.6%	22.2%	14.2	19.3%	10.5%	31.2%

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

Germany

On average, the farms which left the sugar beet sector (STOP) seem a **little larger** than farms in sample CONT (the last quartile is much higher in STOP than in CONT), but the farm size does not statistically distinguish both groups. They also seem on average to be **less specialised** in sugar beet and less efficient:

[77] 448 farms in FR, 782 in Germany, 973 in Poland, 72 in the United Kingdom, and 109 in IT We cannot study Finland because there is no sample CONT to compare with the results of sample STOP.

- The **share of beet area** is 7.4% in sample STOP and 10.7% in sample CONT (and the median of sample STOP (4.5%) is about half of the median of sample CONT (9.3%)), leading to lower beet area in STOP than in CONT.
- **Yields** are a bit lower in STOP than CONT.

Unit values being similar, the output from beet was lower in STOP than in CONT (respectively 23 400€ and 35 900€ on average) and its contribution to the total output as well (respectively 10.5% and 17.5%).

In DE, the farmers who have stopped sugar beet production are on average larger farmers, but less specialised in beet growing, with smaller yields and therefore the lowest share of sugar beet output.

Table 39: General features and specialisation indicators

	Sample STOP					Sample CONT				
	Mean	S.D.	Median	25%	75%	Mean	S.D.	Median	25%	75%
AWU	5.25	13.39	2.00	1.40	3.08	3.97	8.58	1.69	1.29	2.50
Total UAA (ha)	273.2	550.2	94.8	59.6	188.6	213.3	440.0	83.8	50.8	144.6
Sugar beet area (ha)	8.9	10.3	5.3	3.0	10.1	12.3	14.1	7.7	4.0	15.3
Share of sugar beet area (%)	7.4%	10.3	4.5%	2.6%	9.2%	10.7%	14.1	9.3%	4.0%	15.3%
Yield (t/ha)	57.2	12.5	57.1	48.4	64.9	61.4	11.2	61.8	54.3	68.8
Unit value of sugar beet (€/t)	48.1	9.3	47.6	41.3	53.1	48.7	8.7	48.4	42.7	54.1
Sugar beet gross product (€)	23 398	26 891	13 598	7 951	27 695	35 878	38 126	23 160	11 844	46 900
Share of sugar beet output (%)	10.7%	11.3	6.9%	3.6%	12.5%	17.4%	14.4	12.9%	6.3%	25.0%

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

Poland

In PL, the differences between the two samples **were not very pronounced**. On average, the farms that stopped producing (STOP) are **smaller**, but **more specialised** in sugar beet in terms of area and share of output, and with somewhat lower yields. The unit value of sugar beet is roughly equivalent in the two samples but sugar beet gross output of sample STOP is three-quarters of what it is in sample CONT. However, the share of sugar beet in the total output is little higher in sample STOP than in sample CONT.

Case study interviews show that sugar beet production was **concentrated in regions** with the best soil and good climate conditions and sugar beet growers who continue are the most competitive.

Table 40: General features and specialisation indicators

	Sample STOP					Sample CONT				
	Mean	S.D.	Median	25%	75%	Mean	S.D.	Median	25%	75%
AWU	2.22	2.68	1.94	1.56	2.25	2.83	7.66	2.00	1.64	2.38
Total UAA (ha)	41.3	106.9	22.5	14.8	36.2	64	196	28.7	18.7	47.0
Sugar beet area (ha)	5.3	9.4	3.0	1.8	5.0	6.5	15.8	3.4	2.2	5.6
Share of sugar beet area (%)	15.2%	8.7	14.0%	8.6%	20.0%	12.8%	5.8	12.4%	8.9%	16.1%
Yield (t/ha)	41.8	8.5	41.9	36.8	46.6	43.8	9.0	43.7	38.1	49.7
Unit value of sugar beet (€/t)	42.1	7.9	42.9	37.9	47.4	42.5	9.7	42.9	38.2	47.3
Sugar beet gross product (€)	9 630	17 648	4 851	2 847	8 511	12 586	31 064	6 275	3 885	10 494
Share of sugar beet output (%)	22.2%	14.4	18.9%	11.1%	29.3%	19.4%	11.1	17.2%	11.8%	25.1%

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

United Kingdom

On average the **labour force** and the **total area** are much **smaller** in sample STOP than in sample CONT. Although the **share of area** in sample STOP was a little **larger** than in sample CONT, the area of sugar beet is much smaller in STOP; in sample STOP, on average growers had 15% of their total area in sugar beet (with a median equal to 15.5%), while in sample CONT the share of sugar beet area was 13% (with a median equal to 11.5%) and an average sugar beet area of 15.6 and 22.7 ha, respectively. Farms in group STOP are on average **less efficient** than the ones that stayed in production (55.3 tonnes/ha versus 60.5).

Therefore, the sugar beet gross product in sample STOP is about half that of sample CONT, even if the growers of sample STOP seemed to be as dependent as those of sample CONT: 27.5% of output in sugar beet versus 27.5% in sample CONT.

According to these observations, we conclude that farmers who stopped sugar beet production were on **average smaller farms with smallest sugar beet areas and lowest yields** (and therefore, the lowest sugar beet gross product).

Table 41: General features and specialisation indicators

	Sample STOP					Sample CONT				
	Mean	S.D.	Median	25%	75%	Mean	S.D.	Median	25%	75%
AWU	1.63	0.85	1.63	0.91	2.16	3.02	4.08	1.98	1.05	3.66
Total UAA (ha)	145.0	132.0	124.5	70.6	185.4	227.3	259.6	136.9	86.4	234.3
Sugar beet area (ha)	15.6	8.9	14.9	7.9	21.8	22.7	19.7	18.2	10.0	26.7
Share of sugar beet area (%)	15.0%	7.8	15.3%	8.6%	21.4%	13.0%	6.8	11.6%	7.9%	17.7%
Yield (t/ha)	55.3	10.3	54.6	47.9	64.1	60.5	9.4	60.7	53.8	67.2
Unit value of sugar beet (€/t)	43.2	7.4	43.3	36.3	49.4	44.4	4.9	43.9	40.2	48.3
Sugar beet gross product (€)	37 422	22 486	37 111	18 485	50 120	62 536	58 772	46 419	26 726	79 658
Share of sugar beet output (%)	28.9%	20.6	24.1%	13.5%	39.4%	27.5%	15.7	27.6%	15.9%	38.5%

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

Italy

The total area of farms in sample STOP was much smaller than in sample PROD (on average about 77.5 ha versus 105.5 ha) but they had very **equivalent sugar beet areas**. In consequence, sample STOP is **more specialised** in sugar beet than sample CONT; the share of sugar beet area was 24% in sample STOP while it was 19% in sample CONT. However, yields are lower in sample STOP than in sample CONT.

Otherwise, the two samples are very **equivalent in terms of unit value of sugar beet**, sugar beet gross product and share of sugar beet output.

This comparison shows that smaller total area and larger share of sugar beet area, coupled with lowest yields, characterise sample STOP.

Table 42: General features and specialisation indicators

	Sample STOP					Sample CONT				
	Mean	S.D.	Median	25%	75%	Mean	S.D.	Median	25%	75%
AWU	2.19	2.44	1.67	1.00	2.45	2.92	3.95	1.63	0.95	2.95
Total UAA (ha)	77.7	141.2	31.9	15.3	68.5	105.6	190.8	43.3	18	96
Sugar beet area (ha)	14.1	24.1	6.3	3.3	14.0	14.3	20.2	6.5	3.4	13.8
Share of sugar beet area (%)	23.9%	14.2	21.1%	14.1%	31.3%	19.2%	10.9	17.9%	12.2%	23.9%
Yield (t/ha)	54.1	18.2	52.6	43.3	65.8	59.5	16.2	60.3	48	70
Unit value of sugar beet (€/t)	47.1	30.0	44.0	39.9	49.6	47.8	32.0	44.7	40	50
Sugar beet gross product (€)	33 376	61 041	14 239	7 300	32 484	36 788	51 317	17 040	8 726	39 137
Share of sugar beet output (%)	29.3%	19.6	25.6%	13.8%	41.5%	28.4%	20	24.9%	10.5%	41.4%

Source: Agrosynergie calculation from EU-FADN-DG AGRI L-3

Finland

We cannot study FI basing on FADN data, because there is no sample PROD to compare with the results of sample STOP. However, according to Case Study results, in 2007 the linear cut in quota led the **less competitive to stop their production**; according to stakeholders, growers who maintained their production are **the more specialised with the better relative profitability**. That was further encouraged by the EC and national policy and the planned aid.

4.2.5 JUDGEMENT

In theory, decrease in price support and introduction of decoupled support, should enhance market orientation of growers. The restructuring may have modified competitiveness of beet production, provided that productivity (yields) and/or costs of production were affected.

The analysis is **based on the FADN data and results of the interviews with growers in the six case study Member States**. **There are three main limits to the analyses based on FADN data**. First, we are not able to capture the situation at the end of the reform period because data are available only until 2008. Second, in order to identify features of beet production, which is usually below 35% of the

farm's area, the most specialized farms were selected. This creates a certain bias, because the largest and thus probably the most efficient beet producers are represented. Third, results cannot be extrapolated to the overall beet growers' population (using weighting coefficients). Therefore, **no quantitative results can be given, only general qualitative conclusions.**

Market orientation

One important feature of beet sector is that exchanges between growers and manufacturers are regulated through delivery rights that are linked to quotas held by manufacturers. This arrangement secures factory supply but can also limit market orientation of growers because delivery rights limit their entry and exit in/from beet growing.

We used two approaches to analyse the changes in the **market orientation** of growers:

- In a first approach, profitability of two cropping patterns were compared; one included sugar beet and COP (cereals, oilseeds and protein crops), which are the traditional crops beet is rotated with, and the other included only COP. Hence, it allowed comparison of the changes in profitability (including price support) of sugar beet compared to COP following the reform and the distortive effect of CAP support.
- In a second approach, changes in cropping patterns of growers who stopped sugar beet production were analyzed and compared to changes made by growers who pursued beet production.

The first approach showed that:

- As a consequence of the lower beet minimum price in conjunction with the 2003 CAP reform, **the distortive effect on farm net added value has greatly decreased** (in production systems including beets, as in alternative systems). However, because delivery rights and the minimum price were maintained, the CAP measures still have a distortive effect.
- Sugar beet remains more profitable than alternative crops in all studied Member States with the exception of Italy, in spite of the increase in cereal prices. The FADN results and case study interviews both confirm that **production choices are now more linked to beet price level**: in several areas, such as the United Kingdom, sugar producers were facing difficulties in obtaining proper supply and had to adapt their pricing strategy taking into account prices of alternative crops and beet production costs, which was not the case before the reform. This is particularly, the case for out-of-quota sugar, but not only.

The second approach showed that in all six Case Study Member States, the crops that have replaced beet are COP and/or forage. Based on the FADN data analysis, we observed that sugar beet growers (those who abandoned sugar beet production as those who pursued it) chose to increase cereal and oilseed areas because of the increase in prices; this highlights improvement in **market orientation of growers** following the reform.

Based on these results, **we conclude that the CMO reform contributed to improving market orientation of beet growers, in line with the changes introduced in the other sectors by the 2003 CAP reform. Nevertheless, the maintenance of quotas and hence administrative minimum price limit this progress.**

Competitiveness

The analysis of competitiveness focused on the internal competitiveness, i.e. on the EU internal market. As part of the aid is included in the price and because it was not possible to estimate a theoretical market price, we were not able to compute the net value added without aid. Therefore, we first analysed some key components of competitiveness: sugar beet outputs, yields and production costs. Secondly, we compared the characteristics of growers who abandoned their beet production with those who continued growing beets to see whether low-competitive farmers have left the sector.
The impact of the decrease in the minimum beet price was lessened by several factors: changes in sugar producers' pricing policy, better yields and/or the development of out-of-quota production. However, the data do not show any decrease in production costs, which was also confirmed by interviewed growers, who claimed having little scope for cost reduction.

Furthermore, at the EU level, **the biggest reduction in sugar beet areas was observed in Member States, where average profitability has decreased the most (**result to be considered with caution, because many determinants played a role in the calculation of average profitability). **At the farm level, the FADN data showed (without statistical representativness) differences in structures of the farms that stopped or continued beet production**: in France, Germany, the United Kingdom and Italy, farmers who have continued to produce sugar beet have on average higher yields than those who have stopped. Moreover, as highlighted in Question 1, the case study interviews in France, Germany, Poland and the United Kingdom highlighted that the growers who have stopped sugar beet production were mostly those who had the smallest areas of sugar beets.

Notwithstanding the methodological limitations of the analysis, it can be concluded that the restructuring has led least efficient farms to renounce beet production. Therefore the competitiveness of the sugar beet sector was enhanced. However agronomic considerations and maintenance of delivery rights and price support limited further improvement in competitiveness.

4.3 QUESTION 3: FARMERS' INCOME

To what extent have the measures applied to the sugar sector contributed to maintaining / increasing the income of farmers?

4.3.1 COMPREHENSION OF THE QUESTION

The issue of ensuring a fair income to Community growers has been an objective since the implementation of the first sugar CMO in 1968. This was achieved by means of strong protection of the Community market (via custom duties) combined with the quota and intervention schemes. While preserving this core objective, the 2006 Sugar CMO revised the farmer's support scheme:

- The **minimum price** for sugar beet (within quotas) progressively decreased. As seen in Question 1, the fall in minimum price is the effective selling price for "quota" beets in most cases.
- This decline has been partially offset by the inclusion of an amount equivalent to about 64.2% of the fall in the minimum price in the **SPS**. In New Member States applying SAPS, beet growers receive a Single Area Payment and possibly CNDPs. (cf. 2.1.2.4.1).
- In regions that renounce more than 50% of their quotas, sugar beet growers are eligible for a **transitional community aid, and possibly State aids,** to buffer the effects of the restructuring process (cf. **2.1.2.4.3**).
- Growers might contribute up to 6 Euros/tonne of sugar to the production charge introduced in the new CMO.

The other measures of the restructuring fund (the restructuring aid and the diversification aid) were not designed to support farmer income as such. Therefore, this question is focused on impacts of SPS on the growers' income.

Sugar beets are rotated with other crops or in farms with livestock, therefore farmers' income is also affected by the changes in other factors than the 2006 reform, and in this case particularly in cereals market conditions and CAP 2003 reform.

4.3.2 CRITERIA, INDICATORS AND DATA SOURCES

Table 43: Criteria, indicators and data sources for Question 3

Criteria	Indicators
The 2006 reform affected (or not) farmers' income	Change in the level of income indicators per hectare before and after the reform: - Farm Net Income - Farm Net Income without decoupled payments - Total External Factors
	Other factors affecting income: weather conditions, world market price fluctuations, crop profitability, etc.

The answer is based on FADN data analysis completed with results of interviews with stakeholders.
The FADN database provides, at the farm level, the following economic indicators:
Farm net income[78]: it represents the remuneration to fixed factors of production of the family (work, land and capital) and the remuneration to the entrepreneur's risks. It includes all the aids received by the farm[79]. We also analyse the farm income without decoupled payment[80].

[78] SE420 = SE415- SE365 + SE405
[79] SE 605
[80] SE 420 – SE630

Total costs of external factors[81] indicates the total cost of inputs which are not the property of the grower (labour, land and capital),

We use sample BEET defined previously in Question 2 (section 4.2.3.1.1), in order to use the most specialized sample available to study the impact of the beet measures. The same limitations with regards to the FADN data described previously in Question 2 (section 4.2.2) are also applicable to this question. Particularly, as the samples are small, some changes from one year to the other could be induced by changes in the sample, and results should be considered with due caution. They are not statistically representative.

In order to compare income indicators from one farm to another, their level are presented per hectare. Family work units employed at the farms are constant over the period study. By consequence, changes in income per working units are the same as the change of income per farm, and are not detailed.

In terms of income stability, the SPS has in theory, a stabilising effect, since it is decoupled from production patterns. However, in sugar beet sector, the minimum price and the quota system have always contributed to guarantee a stable income to growers. Hence, the maintenance of the minimum price, the quotas, and the SPS are stabilizing factors for beet growers' revenue, given that on the other hand the end of the intervention system and the end of the Sugar Protocol are expected to result in greater price fluctuation of sugar (see theoretical analysis, Chapter 3.1.2 and Question 1 Chapter 4.1.6). By consequence, in the following, we do not analyse the stability effect of SPS.

The SPS model chosen by Member States (historical or hybrid) corresponds to different methods to calculate the value and number of entitlements per farm, and may result in different effects on farm income. In Member States with a SPS dynamic hybrid model as in DE, UK and FI, for farmers growing beets, the part of the amount related to beet will progressively decrease (for the equalizing of the payment entitlement between all farmers). In FR and IT, the SPS model is historical therefore the decoupled payment is modified only by modulation.

4.3.3 THE 2006 REFORM HAS (OR NOT) AFFECTED FARMERS' INCOME

4.3.3.1 Changes in income

The table below shows the changes in farm net income (FNI) and its components (in sample BEET). As the samples are small, some changes from one year to the other could be induced by changes in the sample. Results should be considered with due caution as they are not statistically representative.

On average, the FNI has increased since the reform compared with before, in all Member States except in **DE** and in **IT**. Hence, in **FR**, **PL**, UK, and **FI**, the FNI is higher after the reform by respectively +75%, +23%, +66%, and +20%.

This improvement in the FNI is the resultant of changes in CAP measures (for beets and for other crops), market prices and total external factors.

The **CAP support** within the FNI has evolved because of the CAP 2003 reform and the sugar CMO reform, which both resulted in a drop in coupled support compensated by the introduction of the SPS. Without decoupled payment, the FNI has gone down on average since the reform compared with before the reform: -34% in FR, -62% in DE, -21% in UK and from 211€/ha to -55€/ha in FI, and from 268€/ha to -81€/ha in IT

Moreover, as highlighted in section 4.2.4.1.2, following the sugar CMO reform, **sugar beet outputs** have decreased (decrease in beet price) whereas in 2007 and 2008, COP outputs skyrocketed because of high prices of cereals.

Furthermore, if the **total cost of external factors** is on average relatively constant in FR and in FI; so it did not impact on changes in income. In UK, the total cost of external factors has declined since 2004, allowing FNI per hectare to increase more. In **DE**, the high increase (about 30%) of external factors explains why the FNI has slightly fallen since the reform (-9%).

[81] SE 365

As observed previously in the section 4.2.4.1.2, FNI in sample BEET from **IT** is unstable from year to year. By consequence, on average the FNI was cut by half after the reform compared with before in spite the fact that the FNI in 2008 was one of the highest throughout the period. Moreover, the total external factors increased significantly between the two periods (on average 90%), which had a negative effect on the FNI. In 2006, the FNI without any support was very low. The decoupled payment, community and national aids helped to attenuate this drop but they were not sufficient to maintain the FNI of farmers growing beets.

Table 1: Income of sugar beet farming system in each Member State (€/ha)

Economic indicator	2002	2003	2004	2005	2006	2007	2008	Average 2002-05	Average 2006-08	% Change*
FR										
Farm net Income (FNI)	323	320	311	266	369	664	569	305	534	75%
Total cost of external factors	192	187	206	206	190	184	205	198	193	-3%
FNI without decoupled payment	323	320	311	265	53	330	217	305	200	-34%
DE										
Farm net Income (FNI)	669	830	685	699	735	890	351	721	659	-9%
Total cost of external factors	254	235	254	226	315	266	347	243	310	28%
FNI without decoupled payment	669	830	685	447	343	501	-90	658	251	-62%
PL										
Farm net Income (FNI)	n/av	n/av	603	273	418	548	645	438	537	23%
Total cost of external factors	n/av	n/av	53	46	45	43	46	50	44	-10%
FNI without decoupled payment	n/av	n/av	556	217	328	469	548	387	448	16%
UK										
Farm net Income (FNI)	330	316	203	287	353	497	569	284	473	66%
Total cost of external factors	150	158	174	157	148	134	118	160	133	-16%
FNI without decoupled payment	330	316	203	57	36	214	286	227	179	-21%
IT										
Farm net Income (FNI)	573	251	193	248	-135	451	n/av	316	158	-50%
Total cost of external factors	59	84	184	161	317	148	n/av	122	232	90%
FNI without decoupled payment	573	251	193	55	-393	230	n/av	268	-81	
FI										
Farm net Income (FNI)	174	208	265	202	144	365	n/av	212	255	20%
Total cost of external factors	140	137	100	92	114	141	n/av	117	127	9%
FNI without decoupled payment	174	208	265	199	-150	41	n/av	211	-55	

* The change is not calculated if the average economic indicators are negative or zero

Source: Agrosynergie calculations from EU-FADN-DG Agri L-3

4.3.3.2 Opinions of stakeholders on the impact of CMO reform on the sugar beet growers

The interviews of growers and their representatives in each Member State highlighted that all sugar beet growers estimated that in spite of the higher cereal prices their income have diminished since the reform compared with before the reform.

Causes and consequences of the income decline have to be differentiated according to the sugar beet grower types. For instance, in **FR** and in **FI**, we were told that **farmers who have stopped producing** have seen their income decrease because they have to find new profitable activities; whereas **farmers who have continued** have seen a drop in their income because of the decline in the minimum price. On the contrary in **DE**, growers' representatives estimated that for those who left the sugar beet sector, the CMO reform has been beneficial, because they earned more from other crops and benefited from the restructuring aid and, for some of them, from the diversification aid.

Based on our case studies, we are able to distinguish different effects of the reform depending on the type of farms. In **FR** in most of the biggest sugar beet farms, even if the relative income has significantly reduced, it has not led to stop the production, whereas in most of the smallest sugar beet farms, the relative income cut has led to stopping the production and taking up the restructuring aid. In **DE**, the impact was different depending on the type of production: for instance, we were told that farms with milk and sugar beet production suffered from price decrease more than farms with COP and sugar beet farming systems.

Growers' representatives of each Member State estimated that the **SPS compensates** for about 60% of the price cut in DE, 50% in UK and in FI, 40% in PL, and 35% in IT. **Currency devaluation** also

seemed to be a relevant factor in cushioning the drop in income in UK. According to case study interviews in FI, the income of farmers who continue to produce sugar beet has not changed because the losses of profit from sugar beet price decrease have been compensated by **other activities**, such as contracting and the new entrepreneurial activities.

4.3.4 JUDGEMENT

Beet production is always rotated with other crops and rarely represents more than a third of the farm area, even in the most specialized farms. Therefore, the income of beet growers is the result of changes in beet profitability, as well as of other production and decoupled support.

Between the periods of 2003-2005 and 2006-2008 the farm net income (FNI) [82] of farmers growing beet (the most specialized ones identified in the FADN sample) show an increase, with the exception of Italy, and to a lesser extent Germany. This increase is significant and accounts respectively +75%, +23%, +66%, and +20%[83] in France, Poland, the United Kingdom, and in Finland. The growing trend in income was strongly linked to the increase in cereal prices since 2005, which compensated for decrease in beet output.

When removing decoupled support, income indicators remain broadly positive. Nevertheless, in France, Germany, the United Kingdom and Finland, decoupled payments do represent a significant proportion of the growers' income (110% of the FNI in France on average and around 80% in Germany, the United Kingdom and Finland). The final impact of the reform on the revenue depends on the decoupling model chosen by the Member State: under the historical model, the impact is limited, as decoupled support represents on average 60% of the calculated loss in revenue induced by the decrease in the minimum price; in a dynamic hybrid model, after the phasing-in period, the change in revenue will be more significant, as the decoupled payment diminishes progressively to an entitlement level identical for all farmers (the phasing-in period ends in 2012 in the United Kingdom, in 2013 in Germany, and in 2019 in Finland).

[82] FNI represents the remuneration to fixed factors of production of the family (work, land and capital) and the remuneration to the entrepreneur's risks. It includes all the aids received by the farm.
[83] It should be noted that these figure do not have statistical representativeness because of limited size of samples and their specific characteristics.

5 THEME 2: IMPACTS ON THE SUGAR PRODUCERS

5.1 QUESTION 4: SUGAR AND ISOGLUCOSE PRODUCERS - QUANTITY, PRICES, GEOGRAPHICAL DISTRIBUTION AND PRODUCTION STRUCTURES

To what extent have the measures applied to the sugar sector affected sugar producers in terms of quantity (under quota and out-of-quota production), sugar prices (under quota and out-of-quota production), geographical distribution, and production structures (number and capacity of sugar factories)?

5.1.1 COMPREHENSION OF THE QUESTION

Before the 2006 reform, as explained in the theoretical analysis, the quota system contributed to maintaining the quota production in all Member States, limiting structural changes and preventing specialisation among Member States. Moreover, high internal prices of the Sugar CMO and the quota system contributed to making the EU sugar production higher than internal consumption, within and outside quotas. Besides, the CMO affected the overall sweetener market structure by setting quotas for sugar, isoglucose and inulin syrup.

In order to meet the objectives, **the reform** had to lead to a decrease in EU sugar production and a restructuring the sugar sector. Several changes were introduced in the CMO in order to modify the framework in which producers would operate:

- A decrease in the reference price in order to reduce the domestic price;
- A restructuring fund: the EC considered that the market management instruments alone could not achieve the required decrease in production and chose to encourage voluntary quota renunciation. Manufacturers renouncing their quotas received compensation aid from a restructuring fund, creating a financial incentive for giving up the quota and covering costs of restructuring and/or of closing down factories.
- New arrangements for out-of-quota production, which must now be carried forward and delivered as "industrial sugar", used for purposes of the special supply arrangements for the outermost regions, or exported (without refund).

Another significant factor impacting the sector at the time of the reform has been the ruling by the WTO Panel. This strongly limited exportable quantities, as subsidized exports were limited to 1.37 million tonnes (exports of quota sugar with refunds and exports of out-of-quota sugar were considered as subsidized exports).
Within this framework, operators made strategic moves, and in this Question we analyse the effectiveness of the new framework to achieve the objectives concerning production, price and restructuring.

5.1.2 CRITERIA, INDICATORS AND DATA SOURCES

The answer is structured into two parts (sugar and isoglucose) and four sub parts: (1) Effects on quota and out-of-quota quantities, (2) Effects on geographical distribution, (3) Effects on production structures and (4) Effects on sugar prices, according to the following criteria and indicators.

Table 44: Criteria, indicators and data sources for Question 4

Criteria	Indicators

Criteria	Indicators
BEET SUGAR	
The 2006 reform contributed (or not) to the decrease in the EU in-quota sugar production	Change before and after the 2006 reform of the in quota production level, at EU and Member State levels, use of additional quotas.
The 2006 reform contributed (or not) to the decrease in the out-of-quota sugar production	Change after the 2006 reform of the total out-of-quota production level, at EU and Member State levels and detail for industrial use, out-of-quota exports
	Point of view of operators on drivers of out-of-quota production and of the impact of the reform on out-of-quota production.
The 2006 reform has (or not) affected the geographical distribution of sugar production	Change before and after the reform of the share of EU production in each Member State
The 2006 reform has (or not) modified the production structures of the sugar sector	Change before and after the 2006 reform in the number of sugar factories and processing capacities
	Criteria of selecting factories closed within the reform
The 2006 reform has (or not) led to the decrease in sugar prices	Change before and after the 2006 reform in EU price level of sugar within quota, industrial sugar, world prices
	Change before and after the 2006 reform in inter-annual and intra-annual variability of price
ISOGLUCOSE	
The 2006 reform did (or not) affect the isoglucose production volumes.	Change in isoglucose quota at the EU level and at the Member State level, use of additional and supplementary quotas
	Stakeholders' point of view on main drivers for production level
The 2006 reform has (or not) had impacts on the location of isoglucose production	Change in the number of countries producing isoglucose and share of the first producer
The 2006 reform did (or not) modify the structure of the isoglucose sector	Average isoglucose production per plant per year
The 2006 reform has (or not) impacted EU isoglucose prices	Changes before and after the reform in EU isoglucose price and link with sugar prices and cereal prices

The analysis is based on quantitative data describing changes in the sugar sector from European databases, DG Agri datasets, national statistics and private data (ISO, CEFS etc.). To properly assess the specific effects of the reform, we compare the trends before and after the reform.

Qualitative information was collected during interviews conducted in the case studies in order to understand the impacts at regional and company levels of the measures under study and to analyse the external drivers.

When needed, quota and out-of-quota production are distinguished. One of the difficulties lies in the change in products covered by the CMO. Some production not covered by the CMO before the reform has been included in the authorized industrial outlets with the 2006 reform. In order to analyse comparable data, we estimate the production of products that used to be produced outside the CMO and were integrated into it in 2006 (bioethanol, alcohol, chemical, pharmaceutical products).

Concerning prices, data sources on prices are multiple. Since the reform, the EC price monitoring implemented since the reform is used. Before the reform there was no such price monitoring and proxy had to be found. Considering that out-of-quota was exported or carried forward, intra-EU exchange prices are used as proxy to estimate the **in-quota price**. Estimation was made through Comext[84], using export from EU-15, EU-25 or EU-27. One has to consider that this methodology's limits are mostly due to the fact that intra-EU flows might not be representative. For example, in 2005/06, Comext export quantities from EU-25 to EU-intra-25 represent only 21% of the EU-25 in-quota production. Nevertheless, considering that there is no drop in the price dataset (Comext and EC monitoring), one can consider that this methodology is relevant.

For out-of-quota production, as outlets are distinct before and after the reform, we do not compare prices.

Data source and approach are similar for **isoglucose**, except for prices, which are dependent on those of sugar.

[84] Using the code NC 1701 99 10, that corresponds to *white sugar, containing in dry state>= 99,5% sucrose (excl. flavoured or coloured).*

This analysis also takes into account the fact that policy change is one among the **many drivers** that may generate changes within the sugar sector: technical progress, the market chain structure, alternative activity, the context of the sugar world market, etc.

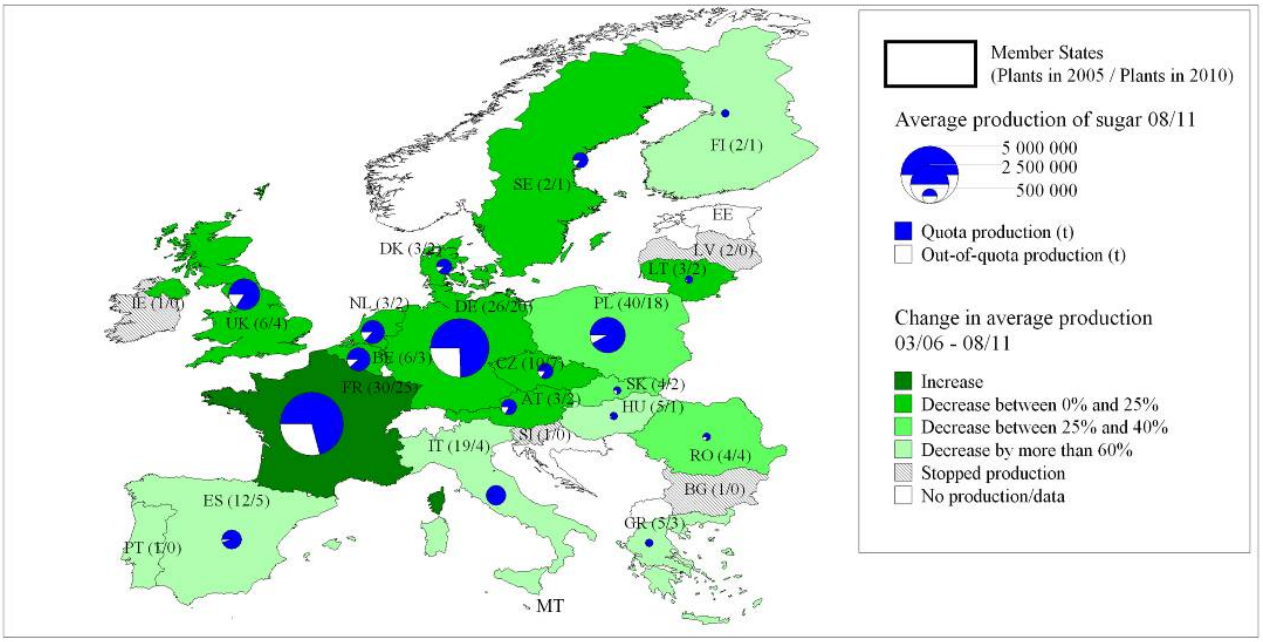
The analysis presents several limits:

- out-of-quota industrial use before the reform is estimated.
- Sugar price before the reform is estimated through Comext exchanges, which might not be thoroughly representatives of the market.
- Because no other data were available, isoglucose price are estimated through Prodcom dataset. Nevertheless, this dataset also includes fructose syrup.

5.1.3 EFFECTS ON SUGAR PRODUCTION IN TERMS OF QUANTITY

The following figure presents EU characteristics of sugar production by Member State. The next analysis gives the detail of the change that occurred after the reform, firstly for quota production and secondly for out-of-quota production.

Figure 19: Location and characteristics of EU sugar production after the reform



Source: Agrosynergie, based on DG Agri (production) and CGB

5.1.3.1 The 2006 reform contributed (or not) to the decrease in the EU in-quota sugar production

Quantities of quota sugar are directly linked to allocated quotas. To understand the trends in quota sugar quantities, we first analyze the impact of the reform on quota allocation, at Member States level.

5.1.3.1.1 Change in quota from 2006 to 2010 at EU and Member State level

The following table provides the detailed information on quotas allocated per Member States and their changes over time.

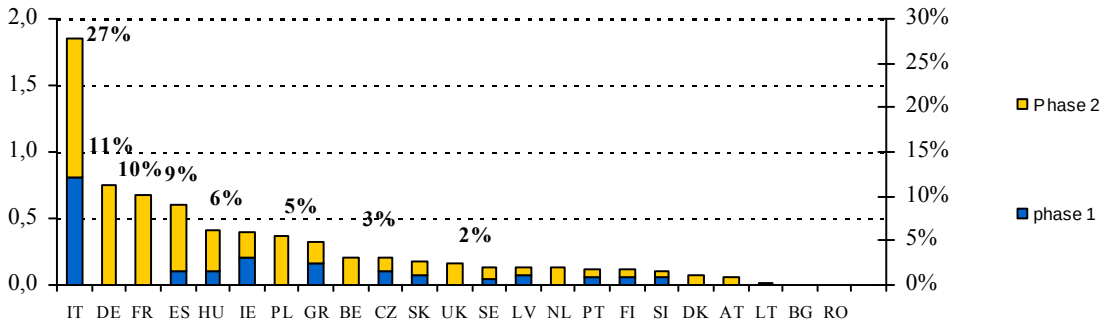
Table 45: Sugar quota by Member States (tonnes of white sugar equivalent) and changes since the reform (%)

		Quotas for 2005/06*	Phase 1		Phase 2		Total additional quotas	Total renunciation 2005/06-2009/10		Renunciation phase 1	Renunciation phase2
			Quotas for 2006/07	Quotas for 2007/08	Quotas for 2008/09	Quotas for 2009/10		Without considering add. quotas	Taking into account add. quotas	taking into account add. quotas	taking into account add. quotas
			After additional quotas and abandonment								
		(1)	(2)	(3)	(4)	(5)	(6)	(5-(1+6))/ (1+6)	(5-1)/1	[(3-1)/1]	[(5-3)/5]
E-15	FR [1]	3 768 991	4 120 686	4 120 686	3 437 031	3 437 031	351 695	-17%	-9%	9%	-17%
	DE	3 416 896	3 655 456	3 655 456	2 898 256	2 898 256	238 560	-21%	-15%	7%	-21%
	UK	1 138 627	1 221 474	1 221 474	1 056 474	1 056 474	82 847	-14%	-7%	7%	-14%
	NL	864 560	876 560	931 435	804 888	804 888	66 875	-14%	-7%	8%	-14%
	BE	819 812	862 077	882 301	676 235	676 235	62 489	-23%	-18%	8%	-23%
	ES	996 961	903 843	887 164	630 586	498 480	0	-50%	-50%	-11%	-44%
	IT	1 557 443	778 706	753 846	508 379	508 379	0	-67%	-67%	-52%	-33%
	DK	420 746	420 746	452 466	372 383	372 383	31 720	-18%	-11%	8%	-18%
	SE	368 262	325 700	343 422	293 186	293 186	17 722	-24%	-20%	-7%	-15%
	AT	387 326	405 812	405 812	351 027	351 027	18 486	-14%	-9%	5%	-14%
	EL	317 502	317 502	158 702	158 702	158 702	0	-50%	-50%	-50%	0%
	FI	146 087	146 087	90 000	80 999	80 999	0	-45%	-45%	-38%	-10%
	PT [2]	79 671	44 453	24 953	9 953	9 953	0	-88%	-88%	-69%	-60%
	IE	199 260	0	0	0	0	0	-100%	-100%	-100%	
New MS	PL	1 671 926	1 771 389	1 772 477	1 405 608	1 405 608	100 551	-21%	-16%	6%	-21%
	CZ	454 862	469 299	372 459	372 459	372 459	20 070	-22%	-18%	-18%	0%
	SK	207 432	210 164	145 904	112 320	112 320	8 605	-48%	-46%	-30%	-23%
	RO			109 164	104 689	104 689	0	-4%			-4%
	HU	401 684	406 684	298 591	105 420	105 420	5 000	-74%	-74%	-26%	-65%
	LT	103 010	103 010	111 010	90 252	90 252	8 000	-19%	-12%	8%	-19%
	LV	66 505	66 505	0	0	0	0	-100%	-100%	-100%	
	SI	52 973	52 973	0	0	0	0	-100%	-100%	-100%	
	BG			4 752	0	0	0	-100%			-100%
	EU-15	14 482 145	14 079 102	13 927 717	11 278 100	11 145 994	870 394	-27%	-23%	-4%	-20%
	EU-25	17 440 537	17 159 126	16 628 157	13 364 158	13 232 052	1 012 620	-28%	-24%	-5%	-20%
	EU-27			16 742 073	13 468 847	13 336 741	1 012 620	-25%			-20%

[1] French overseas departments included
[2] As from 2008/09, sugar production is realized exclusively in the autonomous community of Azores
*as set in regulation 318/2006 of February 2006
** For RO, BG and EU-27, % of renunciation calculated from 2007/08 to 2009/10
Source: DG Agri and regulation

All Member States have registered sugar quota reductions, which led to a decrease by 24% at the EU-25 level, from 17.4 million tonnes to 13.2. Quota changes have been distinct, according to Member State, and between Phase 1 and Phase 2 (cf. Figure 20).

Figure 20: Contribution per Member State to sugar quota renunciation and per phase (million tonnes)



%: contribution to the total EU quota decrease

Source: DG Agri

Phase 1 of the reform

After the first two years of implementation of the reform, 1.8 million tonnes of quotas had been renounced. According to the three groups presented in Chapter 2.2.1, we can detail:

Group 1: Sugar producers of IE, LV, SI, and BG renounced **100% of their quotas**. These Member States are located outside the sugar belt, in regions with low agricultural yield and the lowest production levels (less than 0.01% of the EU-25 production in 2005/06). Before the reform, those Member States had 1 or 2 companies operating:

- In IE, the multinational group Greencore withdrew from sugar production.
- In SI, the group Cosun decided to concentrate production in the NL and DE.
- In BG and LV, sugar producers were small private companies.

Group 2: This group composed of IT, ES, SE, FI, SK, HU, CZ, GR, PT is the one that mostly contributed to quota renunciation during the first two years consecutive to the 2006 reform. Sugar producers partly renounced their quotas at levels comprised between 7% (SE) and 69% (PT). In absolute values, IT is by far the largest contributor. In three countries, the level of renouncement is above 50%:

- In IT, 3 sugar producers (SFIR, Eridania Saddam and Italia Zuccheri - still existing today) closed 13 factories, renouncing quotas at the same time. Quota renunciations are linked to the strategy held by sugar producers wanting to increase their quota production to transfer part of the quotas of closed factories to remaining plants, thus decreasing production costs.
- In GR, HSI, which is the sole sugar company, closed 2 out of 5 existing factories.
- In PT, the Coruche plant (DAI group) renounced its quotas and became a full-time refiner.

In this group, SE, CZ, SK and HU bought additional quotas (cf. Chapter 2.2.1, Table 8).

Group 3: In FR, DE, UK, NL, PL, BE, DK, AT and LT, sugar producers did not renounce quotas in Phase 1. In these first campaigns of the reform, sugar producers operating in these countries decided not to renounce quotas (assuming that quota renunciation in other Member States would be sufficient to meet the target set for the EU). They even strategically decided to improve their market position by a purchase of additional quotas (see below), in coherence with the objective set in the regulation to increase competitiveness.

Out of the 1.1 million tonnes of additional quotas available, 1.012 million tonnes were subscribed to. Sugar producers located in the highest-producing Member States (FR, DE, UK and PL, cf. Table 17) bought 77% of these additional quotas. 60% were subscribed to in FR and DE, as early as October 2006. According to interviews, additional quotas were bought in order:

- to cover former C sugar production and replace the loss of export markets due to the WTO panel ruling[85];
- to keep or even increase market shares;
- to optimize production capacities or to increase quota production in the framework of extension of facilities and modernisation of the plant (in PL, KSC company), and more generally to make economies of scale to decrease fixed unitary costs.

Table 46: Additional quota for sugar (in tonnes of white sugar equivalent)

	2006/07	2007/08	Total	*Share of Member States / total bought add. quotas*	*Share of add. quota / Member States quota in Reg. 318/06*
FR[2]	351 695	0	351 695	*35%*	9,3%
DE	238 560	0	238 560	*24%*	7,0%
UK	82 847	0	82 847	*8%*	7,3%
NL	12 000	54 875	66 875	*7%*	7,7%
BE	42 265	20 224	62 489	*6%*	7,6%
DK	0	31 720	31 720	*3%*	7,5%
SE	0	17 722	17 722	*2%*	4,8%
AT	18 486	0	18 486	*2%*	4,8%
PL	99 463	1 088	100 551	*10%*	6,0%
CZ	14 437	5 633	20 070	*2%*	4,4%
SK	2 732	5 873	8 605	*1%*	4,1%
HU	5 000	0	5 000	*0%*	1,2%
LT	0	8 000	8 000	*1%*	7,8%
EU-15	745 853	124 541	870 394	*86%*	6,0%
EU-25	867 485	145 135	1 012 620	*100%*	5,8%
EU-27	867 485	145 135	1 012 620	*100%*	

Member States not mentioned have not had any additional quota.

Source: EC regulation (318/2006; 1585/2006; 247/2007)

[85] Additional quota allocation among Member States depended on the former C sugar production

At the **end of the second implementation year,** the level of quota renunciation reached (1.8 million tonnes) was not sufficient to expect the goal that had been set to be reached in 2010.

The reasons for such a low level of renunciation are multiple:

- Quota renounced by Group 1 represents only limited volumes
- Member States of Group 2 partially renounced their quotas. It can be assumed that the allocation of transitional community aid for growers and the state aid granted targeted at Member States that renounced at least 50% of their national quotas, limited the decrease in sugar production in those Member States (cf. Chapter 4.1.3.1.3).

Reform of the reform

Considering the unsatisfactory outcome of the process, the restructuring scheme was modified[86] in 2007 to make it more effective by: (1) introducing calculation rules for the compulsory and linear cut for quotas to be applied in 2010 in the event that the quota renunciations were too low, (2) giving a possibility to growers to apply directly to the restructuring fund, and (3) providing further financial incentives for growers and producers (top-up payment to growers and exemption from paying the temporary restructuring amount under certain conditions). These changes modified the quota renunciation dynamics: all the operators but one decided to participate in the restructuring scheme and to renounce quotas partly or totally, including in the Member States where no renunciation effort had been done so far (Group 3).

Group 2: In ES, SE, IT, EL, PT, CZ, SK, HU, and FI, sugar producers kept renouncing quotas during Phase 2, except in EL and CZ, where respectively 50% and 18% of quotas had already been renounced in Phase 1. IT renounced the highest volume of quotas, contributing overall to 27% of the EU quota decrease.

Group 3: Sugar producers in FR, DE, UK, NL, PL, BE, DK, AT, and LT abandoned significant quantities of quota in 2008/09 and 2009/10. In the highest-producing Member States (FR, DE, UK, NL, BE and PL), sugar producers renounced less than ¼ of their quotas. This decrease partly offset the additional quotas purchased: the difference in quotas between before and at the end of the 4 years of restructuring is on average 12% (Table 45). Even if national rate of quota abandonment was low compared to other States (< 23%) in DE, FR, PL, BE, UK, NL, they contributed together to more than 40% of EU quota decrease.

Concerning RO and BG, after their integration into the EU in 2007, Romanian producers renounced only 4% of quotas set in Reg. 318/06, whereas Bulgarian ones renounced all their quotas.

According to the interviews, quota renunciation is the result of the optimisation of all the following points:

- The **risk of quota cut** was clearly the main driver for companies operating in countries of Group 3 to enter the renunciation process: they chose to renounce quotas within the restructuring scheme to reduce the risk of the linear cut in 2010, which would have reduced their quotas without any compensation.
- The **top-up payment** of 237.5 €/t made the scheme much more acceptable to growers and therefore eased negotiations between sugar producers and growers.
- In FI and in PL, the **growers' initiative** encouraged the sugar producers to renounce quotas in order to keep control over renunciations (cf. Question 1, Chapter 4.1.3.1).
- The **exemption to pay the restructuring levies** on the quotas renounced for 2007/08 (13.5%) was also considered by operators
- The optimization of the companies' **production structure and network** (this is detailed in the Chapter 5.1.5)

[86] Council regulation n°1261/2007

At the end of Phase 2, 5.2[87]million tonnes of sugar quotas had been renounced. Moreover, 321 thousand tonnes of quotas of inulin syrup and 222 thousand tonnes of quotas of isoglucose had been renounced. The total renunciation amounted to 5.8 million tonnes, which was considered sufficient by the EC. IT by itself contributed to 27% of the effort. Quotas were abandoned or largely reduced in EU peripheral areas (southern EU-15 Member States - IT, PT, ES, GR, SI and LV); highest-producing Member States (Group 3) located in the sugar belt abandoned significant quantities of quotas after the reform of the reform, and in DE, FR, PL, BE, UK, NL contributed together to more than 40% of the EU decrease.

5.1.3.1.2 Change in quota sugar quantities

The effect of the reform on the quota sugar quantities is that of the reform on national quotas available: taking into account additional quotas, the production of sugar, inulin and isoglucose reduced by 5.8 million tonnes. During the restructuring process, preventive withdrawal has been used as a transitory measure to ensure market balance; therefore data on quota sugar production slightly differ from that of basic quotas. The following table summarizes, at EU-27 level, the changes in basic quotas, quota quantities and the ratio between both.

Table 47: Changes 2005/06 to 2010/11 in EU-27 sugar production under quota, basic quota (thousand tonnes) and ratio,

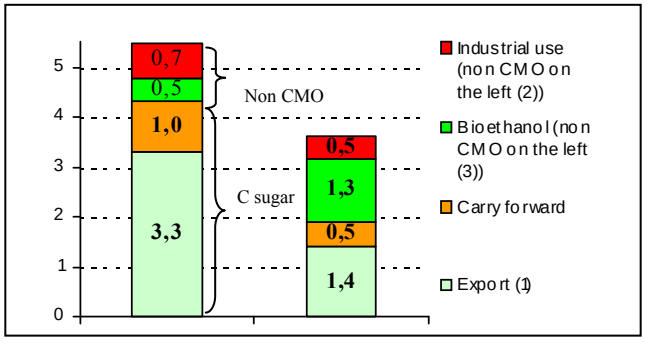
	2005/2006 (EU-25)	2006/07 (EU-25)	2007/08	2008/09	2009/10	2010/11 (forecast)
Production under quota [A]	**15 450**	**15 437**	**14 465**	**13 129**	**13 240**	**13 082**
Basic quota [B]	**17 441**	**17 159**	**16 742**	**13 469**	**13 337**	**13 337**
Ratio [A]/[B]	**89%**	**90%**	**86%**	**97%**	**99%**	**98%**

Source: DG Agri

5.1.3.2 The 2006 reform contributed (or not) to the decrease in the out-of-quota sugar production

The quantities of sugar produced outside the quotas (before the reform C sugar and estimated sugar produced outside the CMO, and out-of quota sugar afterwards) decreased from an average of 5.5million tonnes (average 2002/03-2005/06) to 3.7 after the reform (average 2008/09-2009/10).

Figure 21: Comparison of C / out-of-quota sugar consumption before / after the reform, in EU-25 (million tonnes of white sugar equivalent)



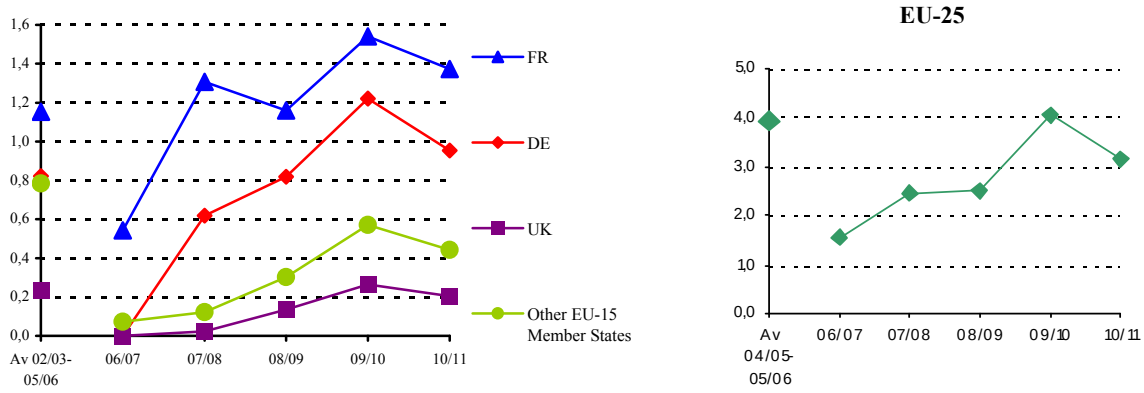
(1)From 2002 to 2005, the quantity of C sugar exported is the quantity of C sugar produced (stock variation is not taken into account);
(2) Source: EC (2003), which indicates pharmaceutical and chemical outlets for sugar outside the CMO at EU level in 2005. We consider that the outlet was stable from 02/03 to 05/06. Moreover, this figure is confirmed in ONIGC (2008);
(3) Figures for FR, main bioethanol from sugar beets producer in EU before the reform (CGB, 2011).
Source: DG Agri

The producers are only a few States: FR, DE and UK mostly (in 2009/10 75% of EU-25 total out-of-quota). The next figure presents trends of out-of-quota sugar production compared to the average C sugar production during 2002/03 to 2005/06 (excluding estimation bioethanol uses and other industrial

[87] At the EU-25 level:
[EU quotas set in Reg. 318/06] + [Additional quotas] – [Quotas set in Reg. 513/10 for 2010/2011 marketing year]
= 17 440 537 tonnes (EU-25) + 1 012 620 (EU-25) – 13 232 052 (EU-25)
= 5 221 105 tonnes
BG and RO respectively renounced 4 752 and 4 475 tonnes. Then, at the EU-27 level, the total quota renunciation amounted to 5 230 332 tonnes.

uses as done in the preceding figure). After a drop, the year of implementation of the reform, out-of-quota quantities increased again in the following campaigns.

Figure 22: C sugar average and out-of-quota volume per Member State producer and in EU-25 (million tonnes of white sugar equivalent)



Source: Agrosynergie, based on DG Agri

Before the reform, C sugar was either carried forward or exported without refunds. The limit on export induced by the ruling by the WTO Panel and the upcoming end of the sugar Protocol were translated in the new arrangements introduced for quantities produced out-of-quota. This modified heavily the rationale behind out-of-quota production for each ones of its possible outlets: industrial use, export and carry forward. In the following sections, to explain these changes, the development of industrial uses and export are considered. The analysis determines whether the decrease in quota combined with the limitations of exports have been compensated by an increase in out-of-quota sugar.

5.1.3.2.1 Industrial and bioethanol use

Before the 2006 reform, sugar for certain industrial uses (alcohol, including fuel and ethanol, rum or spreadable syrups and, since 2004, yeasts) were considered as not covered by the CMO. The reform integrated alcohol, bioethanol, live yeast or certain chemical or pharmaceutical products in the CMO as potential outlets for out-of-quota sugar.

The following table gives a reminder of the amount of white sugar equivalent engaged in bioethanol and other industrial outlets since 2006/07. In 2010/11, these outlets represent more than 2/3 of out-of-quota production. Right after the reform, in 2006/07, a first rise in the consumption of internal sugar for industrial uses occurred, compared to previous levels. After this first rise from 2006/07 to 2007/08, the out-of-quota volume for industrial uses became quite stable, at around 2 million tonnes a year. The proportion of bioethanol in total industrial uses changed from 36% in 2006/07 to 56% in 2010/11.

Table 48: Consumption of out-of-quota sugar for industrial uses (million tonnes of white sugar equivalent)

	06/07[a]	07/08	08/09	09/10	10/11[b]
Bioethanol	0.5	1.5	1.2	1.3	0.9
Other industrial outlets	0.9	1	0.7	0.6	0.7
Total industrial uses	1.4	2.5	1.9	1.9	1.6
Total out-of-quota	1.6	2.5	2.5	4.0	2.3

[a]campaign of 15 months, [b] Forecast
Source: DG Agri

Bioethanol

In the beginning of the 2000s, EU bioethanol production was very low. EU consumption was supplied by Brazil, which is the main bioethanol producer. In the EU, the only bioethanol producer was FR, which has benefited since 1992 from a tax exemption from the TIPP (domestic duty on petroleum

products). In 2005/06, 60% of French ethanol was produced from sugar beet, 16% from cereals and 24% from other raw materials (CGB, 2010).

The sugar CMO reform and the increase in the bioethanol demand in the fuel sector in general have been concomitant.

Between 2006/07 and 2007/08, consumption of beet for bioethanol uses increased by 0.9 million tonnes. FR and DE are the main producers of alcohol and bioethanol from sugar or beets. Tereos, the biggest European ethanol producer, invested in a bioethanol plant as early as in 2004 after French national tax scheme was favourably changed. Other operators (Cristal Union, Sudzucker, Nordic Sugar, Nordzucker) have also massively invested in bioethanol processing units driven by the need to valorise beet production that was previously exported as C sugar and that is now limited because of the new export limits. Moreover, the development of bioethanol is highly linked to decisions concerning energy policies that sustain sugar demand (see Chapter 2.5).

Other industrial uses (chemical and pharmaceutical)

Table 49: Consumption of out-of-quota sugar for industrial uses (million tonnes of white sugar equivalent)

	02/03	03/04	04/05	05/06	06/07[a]	07/08	08/09	09/10	10/11[b]
Other industrial outlets	0.4	0.5	0.6	0.5	0.9	1	0.7	0.6	0.7

[a] campaign of 15 months, [b] Forecast
Source: DG Agri and ONIGC (2008)

Industrial uses of sugar were relatively low and steady before the reform: In 2005/06, 0.5 million tonnes of sugar were used for other industrial uses, compared to an overall sugar production of 19.5 million tonnes.

Since the reform, they have remained quite steady around 0.6 million tonnes, except in 2007/08. This can be explained by the following:

- Industrial markets are mature at the EU level.
- Relationship between sugar producers and end users are on the long term (low speculation).
- Duty-free import for industrial uses had a low impact except in 2008/09, when 179 000 tonnes of industrial sugar were imported. In 2009/10 and in 2010/11, world prices have been higher than European prices (cf. Table 2). Since then, the world price is less attractive than the European price. Industrial imports were not used and the industrial use of sugar, whose demand does not fluctuate, remained steady.
- In the yeast sector, yeast producers' raw materials have changed in favour of sugar. Traditionally, yeast producers use molasses, either produced in the EU or imported from third countries. Since the reform, the availability of molasses in the EU has decreased (because of the decreased production and the increased demand in the bioethanol sector), leading yeast industries to use molasses imports or thick juice or out-of-quota sugar.

In a nutshell, sugar for industrial uses other than for bioethanol have been relatively steady since the reform and did not contribute to enhancing out-of-quota production after the reform.

5.1.3.2.2 Out-of-quota exports

The table below indicates the exports of out-of quota sugar from 2002/03 to 2010/11[88].

Table 50: EU sugar exports from 2002/03 to 2010/11 (million tonnes of white sugar equivalent)

	EU-15		EU-25			EU-27			
	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11*
C sugar/out-of-quota exports	2.6	2.2	2.4	5.8	0	0	0.7	2.1	0.7

* Forecast
Source: DG Agri

[88] The volume of C sugar exported corresponds to the amount of C / out-of-quota sugar produced + the variation of the C sugar stock – the C sugar carried forward the next year.

Before the reform, the average of exported C sugar was 3.3 million tonnes. Since the reform, and in normal circumstances, the WTO threshold limits subsidized sugar exports to 1.37 million tonnes. The EU out-of-quota sugar exports sharply decreased. The latter depend on:

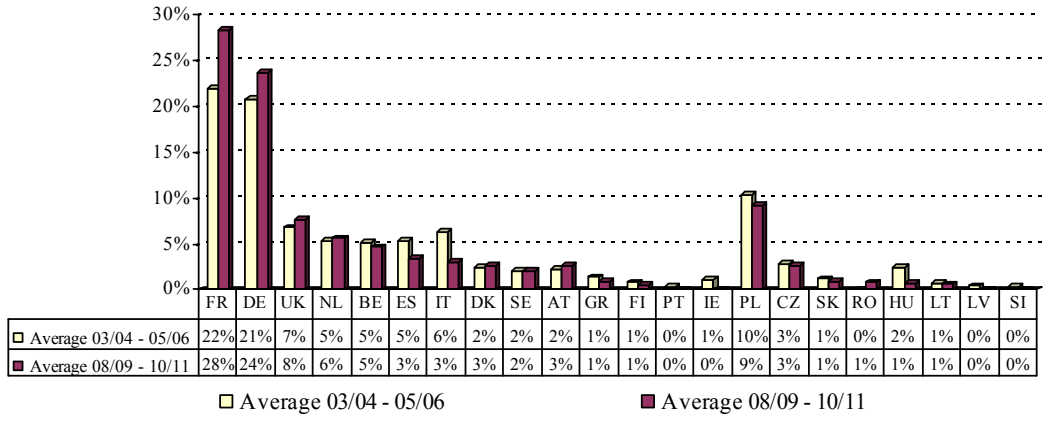
- Agricultural yields, and therefore needs for export to ensure equilibrium on the EU market balance (cf. Question 6).
- Market conditions, overall the relation between European and world price, which determine import and export flows.
- Industrial imports enabled and realized

In 2009/10, the export peak is explained by agricultural harvest and exceptional market conditions (world price above EU price). The Commission allowed additional 0.5 million tonnes of out-of-quota sugar exports because an analysis of the exceptional economic conditions at the time, and in particular the evolution of production costs and market prices, showed that the out-of-quota sugar exports could not be considered subsidised. Finally, export licences from 2008/09 were used for exporting sugar produced in 2009/10 (140 000 tonnes).
In a nutshell, sugar export is not a flexible outlet for selling high-range out-of-quota production.

5.1.4 THE 2006 REFORM HAS (OR NOT) AFFECTED THE GEOGRAPHICAL DISTRIBUTION OF SUGAR PRODUCTION

In the previous part, we detailed changes in production of quota and out-of-quotas in the different Member States. The next figure presents changes in each Member State's share of EU production, on average, comparing 2003/04-2005/06 to 2008/09-2010/11.

Figure 23: Share of EU production by Member State, average 2003/04-2005/06 and average 2008/09-2010/11 (%)



	FR	DE	UK	NL	BE	ES	IT	DK	SE	AT	GR	FI	PT	IE	PL	CZ	SK	RO	HU	LT	LV	SI
Average 03/04 - 05/06	22%	21%	7%	5%	5%	5%	6%	2%	2%	2%	1%	1%	0%	1%	10%	3%	1%	0%	2%	1%	0%	0%
Average 08/09 - 10/11	28%	24%	8%	6%	5%	3%	3%	3%	2%	3%	1%	1%	0%	0%	9%	3%	1%	1%	1%	1%	0%	0%

Source: Agrosynergie, based on DG Agri

Six Member States increased their share in EU total sugar production: FR, DE, UK, NL, DK, AT. They all belong to Group 3 and are located in the sugar belt, where agricultural conditions generate the highest yield of sugar beets. FR and DE produced 43% of EU production on average between 2003/04 and 2005/06, whereas they have produced 52% in the 2008/09-2010/11 period. The reform contributed to the concentration of the production within Member States:

- The measures applied to the sector led the lowest-producing Member States or Member States outside of the beet-belt to renounce high rates of their quotas, whereas the large producers renounced a lower share of their quotas.
- In addition, all the countries that increased their market share had bought additional quotas.

5.1.5 THE 2006 REFORM HAS (OR NOT) MODIFIED THE PRODUCTION STRUCTURES OF THE SUGAR SECTOR

The restructuring process is, in the sugar sector, a continuous process that has been going on for decades. Companies have been optimizing production facilities by closing down plants and concentrating production capacities in large units.

The reform was designed to reduce the production capacity at EU level. Sugar producers were also expected to optimize their production structure in order to be more cost effective in a context of reduced sugar prices (size of factories, campaign length, production capacity, labour force, etc.). The latter point is further analysed in the Question 7 as it concerns competitiveness. Here we present the changes in some structural characteristics of the industrial sector.

5.1.5.1 Number of sugar factories

Table 51: Change in the number of factories, per Member States, 2000/01-2009/10

	00/01	05/06	06/07	07/08	08/09	09/10	Change 2000/01-2005/06	Change 2005/06 -2009/10
AT	3	3	2	2	2	2	0	-1
BE	8	5	5	5	3	3	-3	-2
DK	3	3	3	2	2	2	0	-1
FI	2	2	2	1	1	1	0	-1
FR	35	30	30	30	25	25	-5	-5
DE	31	26	25	24	20	20	-5	-6
GR	5	5	5	3	3	3	0	-2
IE	2	1	2	0	0	0	-1	-1
IT	21	19	6	6	4	4	-2	-15
NL	5	3	3	3	2	2	-2	-1
PT	1	1	1	1	0	0	0	-1
ES	15	8	8	7	6	5	-7	-3
SE	3	2	1	1	1	1	-1	-1
UK	9	6	6	4	4	4	-3	-2
CZ	13	11	10	7	7	7	-2	-4
HU	7	5	5	4	1	1	-2	-4
LV	0	2	2	0	0	0	2	-2
LT	4	3	3	2	2	2	-1	-1
PL		40	31	29	19	18	-16	-22
SK		3	3	2	2	2	-2	-1
SI	0	0	1	0	0	0	1	-1
BG	0	1	1	0	0	0	1	-1
RO	0	0	0	5	4	4	0	4
EU-15	**143**	**114**	**99**	**89**	**73**	**72**	**-29**	**-42**
EU-25		**178**	**154**	**133**	**104**	**102**		**-76**
EU-27		**179**	**155**	**138**	**108**	**106**		**-73**
NEM		**65**	**56**	**49**	**35**	**34**		**-31**

Source: CEFS

In the EU-15, from 2000/01 to 2005/06, the number of factories decreased from 143 to 114, representing an average of 5.8 factories a year. Between 2005/06 and 2009/10, the number of factories decreased from 114 to 72 (10.5 factories a year). The average number of factories closed is therefore higher within the CMO reform framework, which is all the more significant, as the sector is more concentrated. However, looking at the trend before the reform and according to the interviews, most of the factories that closed within the scheme would have closed in the short or mid-term. The reform accelerated the process.

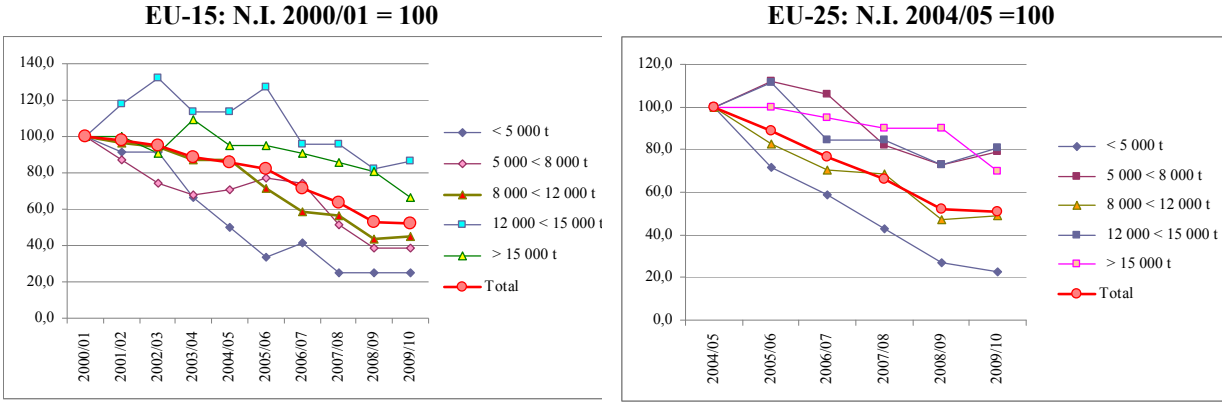
In New Member States, the decrease in the number of factories has been more pronounced (- 31 factories out of 65 in 2005/06). Out of the 31 factories closed 22 were Polish; Indeed, Polish factories are undergoing strong restructuring since entering the EU and/or the purchase by NordZucker of some of them.

5.1.5.2 Processing capacity

The processing capacity per factory has been affected by the reform.

The need to operate with larger structures able to explore economies of scale (see also Question 7) existed even before the reform was introduced[89]: **in the EU-15**, the majority of the more inefficient factories (with a capacity of less than 5 000 beet tonnes transformed daily) had, in fact, been closed before the reform. In the EU-15, the reform instead contributed to speeding up the closure of factories with a capacity of between 5 000-8 000 t/day and between 8 000-12 000 t/day (therefore, the medium-low and medium factory capacities). On the contrary, factories with a medium-high capacity (12 000-15 000 t/day) and high capacity (> 15 000 t) were subject to a less marked reduction. The dynamic is stronger **in the EU-25** because the very sharp fall in numbers after the reform particularly affected the smaller factories which were still heavily present, particularly in PL.

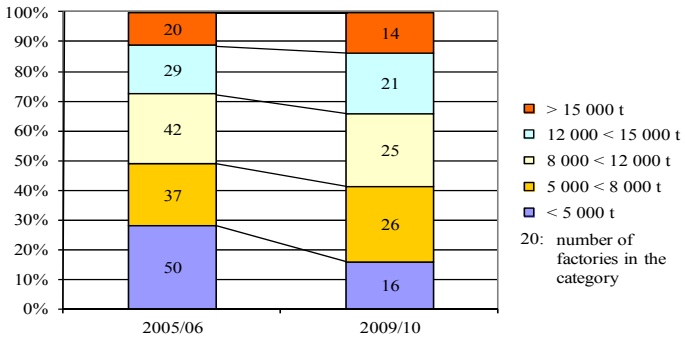
Figure 24: Development of factories in total and per processing capacity in terms of beet tonnage transformed daily



Source: from CEFS data

With regard to the EU-25, given these various dynamics in the processing capacity classes, after the transition period, the industry placed more focus on the factories with higher capacities (> 12 000 t/day), which went up from 28% to 34% in the number of factories, and less importance was given to factories with lower capacities (< 8 000 t/day) which had been rendered inefficient in the new institutional conditions (their occurrence changed from 49% to 41%).

Figure 25: Number and concentration of factories per processing capacity, EU-25, 2005/6 and 2009/10 average



Source: from CEFS data

It must be noted, however, that even factories of a higher production capacity were affected by closure. This shows that the capacity of the factories was not the only criteria used by industries in determining their closure.

This impacted the average production per factory (detailed in Question 7, Chapter 5.4.3.1.3.1).

[89] Please note that the processing capacity structure also depends on the length of the campaign which is between the (average) limits that increase from 65 to over 150 days depending on the geographical production context. In different contexts, therefore, with two plants of the same capacity, one can be efficient and the other inefficient.

5.1.5.3 Criteria of factory closures

Even if there has been a decrease in the number of smaller factories, several bigger factories were closed as well. Based on the interviews with sugar companies the following can be said on the drivers taken into account by the companies at the time of choosing which factory to close down, explaining the impact of the reform on the structure of the sector.

The decision process can be divided in two steps: first decide to enter the restructuring process or not, second when the decision to enter the process is taken, what level of quota renunciation and which companies to shut down.

Enter the restructuring process or not

We have already described the two waves of the restructuring process. Obviously, the initial reform framework made it attractive for smaller plants, located outside the beet-belt to close factories: this choice was driven by the decrease in the reference price and the maximization of the support (the aid was maximum for full dismantling of facilities on the first year of the reform). For the other companies, these were not sufficient drivers. With the reform of the reform, the risk of uncompensated final cut pushed all operators but one to participate in the restructuring process.

Implementation of quota renunciation

At the level of each company, the choice of factory closure was an optimization of the whole network of factories, based on a complex mix of financial, economic, technical and geographical considerations.

- The operational production costs of the factories were the first element taken into account. It usually led to closure of the smaller units, but also to larger units operating with high-cost energy (oil).
- Logistics issues were also a driver for several closures (location in towns limits expansion possibilities, creates higher transport costs because of traffic difficulties; location with regards to customers). The companies also seek to optimize their factories' network with regard to supply areas, in order to limit transport of beets.
- Agricultural yields of the supply zone were also in some case an indicator used to determine the selection of which factory to close.
- Finally, there was a calculation to maximize the CAP support: the idea was to match the quota held by the factory(ies) closed with a target the company has calculated to limit the cost in the case of uncompensated quota cut.

In most cases, this process was conducted privately by each operator. Only in IT did a national consultation set the base for the renunciation process. In agreement with companies, it was decided that 50% of national quotas were to be renounced. Therefore, it was decided to divide the 50% quota renouncement uniformly among the existing companies. Out of 19 factories established in IT, 50% of the quota corresponded to the closure of 13 factories. It was also decided that each company would keep a factory.

5.1.6 THE 2006 REFORM HAS (OR NOT) LED TO THE DECREASE IN SUGAR PRICES

5.1.6.1 In-quota sugar price levels

In-quota sugar price and reference price

The reform aimed at reducing the domestic price by decreasing the reference price. The table below presents the annual average in-quota sugar prices. The detail figure of monthly prices after the reform is presented in the Chapter 2.4.3.

Table 52: In-quota sugar prices (in €/t of white sugar equivalent)

		00/ 01	01/ 02	02/ 03	03/ 04	04/ 05	05/ 06	06/ 07	07/ 08	08/ 09	09/ 10	10/ 11[a]	*Slope [b] July 2000- June 2006*	*Slope [b] July 2006- March 2011*
Comext	EU-15	671	712	710	700	685	603	632	607	580	503	518	*-1.0*	*-2,8*
	EU-25	609	628	625	601	680	605	633	607	577	506	540	*0.3*	*-2,5*
	EU-27	603	626	618	596	667	598	632	605	576	509	545	*0.2*	*-2,4*
Price monitoring [A]								628	606	565	483	496		*-3.3*
Reference price [B]								632	632	541	404	404		*-5.5*
Ratio [A]/[B]								**0.99**	**0.96**	**1.04**	**1.19**	**1.23**		***0.6***

[a] partial (until March 2011 included); [b] slopes of the linear regression curves measured on monthly data.

Source: Agrosynergie, based on Comext data and EC price monitoring

From 2000/01 to 2005/06, EU-15 in-quota yearly average prices fluctuates between 603 €/t in 2005/06 and 712 €/t in 2001/02 without any particular trend.

Since the reform, one can distinguish three stages around the two drops in the reference price:

- **From the 2006 reform to October 2008**, before the first drop, the in-quota price was close to or slightly lower than the reference price (as indicated by the ratio in-quota sugar price over reference price of 0.99 in 2006/2007 and 0.96 in 2007/08, and see as well the Figure 7). According to interviews, the progressive implementation of the reform put the sector in a situation of over capacity (as long as the restructuring had not been completed) and therefore risks of oversupply, which gave end-users bargaining power to anticipate the reference price decrease.
- The **first drop of the reference price** occurred in October 2008, from 613.9 €/t to 541.5 €/t. The reference price became lower than the in-quota price (the ratio for 2008/09 is 1.04).
- **From October 2009**, with the second drop in reference price (down to 404.4 €/t) the EU in-quota sugar price did decrease abruptly between September and October 2009, but the new price level remained significantly higher than the reference price (ratio of 1.19 in 2009/10 and 1.23 for the first part of 2010/2011).This is an unexpected situation due to a relative shortage in the EU market. Essentially, extremely high world prices have led to less attractiveness of the European sugar market. It should also be noted that as from the 2009/10 campaign the reference price has been rather indicating "safety net level", no longer reflecting the EU market price.

In-quota sugar price and world price

The 2006 reform aimed at reducing the difference with the world price. The next table presents the ratio between the EU in-quota sugar price and world refined sugar prices.

Table 53: Annual average of in-quota sugar price and world refined sugar price (€/t of white sugar)

	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11**
Average in quota [A] EU*	671	712	710	700	680	605	628	606	565	483	496
Average world refined [B]	280	276	218	182	204	316	266	211	285	399	463
Ratio [A]/[B]	2.40	2.58	3.26	3.86	3.33	1.92	2.36	2.65	1.83	1.12	0.89

*EU-15 from 2000/01 to 2003/04, EU-25 from 2004/2005 to 2006/2007 and EU-27 from 2007/08 to 2010/2011. ** 2010/11 is not complete

Source: [A]: Comext until 2005/06 and DG Agri (price monitoring) after 2006/07 included; [B]: USDA (London prices)

Before the reform, the world price has always been much lower than the EU in-quota price (ratio of 2.4, to 3.9). The EU market measures that had been applied to the sugar sector had isolated the EU market from the world price influence. As a consequence prices were disconnected.

Since the reform, the European price decreased from 628€/t on average in 2006/07 to 483€/t on average in 2009/10. The modification of market measures adopted in 2006 contributed to such a decrease by decreasing the reference price. Nevertheless, the EU price level is higher than the reference price because of the high level of world sugar prices (cf. Figure 5).

As a consequence of both the increase in the world price and decrease in the EU in the reference price, **the in-quota sugar price became closer to the world price**.

The European price did not follow world price changes in 2010/11. According to interviews, this is mainly due to annual contracts between sugar producers and end users for in-quota sugar; in 2009/10, when contracts were established, no one could have foreseen such a high increase in the world sugar price in 2010/11. According to the same interviews, the EU prices are likely to increase when contracts with end users will be renewed at the beginning of the 2011calendar year.

5.1.6.2 Out-of-quota sugar price levels

The price of out-of-quota sugar is subject to the development of its specific outlets (industrial, bioethanol, export), independently from the in-quota price. Overall, it has increased very slightly between 2006 and 2011 (cf. Figure 7) whereas the in-quota price has decreased.

In the new CMO, the out-of-quota price should be connected to the world price, as (1) out-of-quota exports are allowed (within WTO limits for subsidised exports) and (2) the Commission can open industrial sugar quota imports, in order to put EU industrial production and imports from third countries on an equal footing. The following table presents changes in annual average of both prices.

Table 54: Yearly average of out-of-quota sugar prices and world prices (€/t)

	2006/ 07	2007/ 08	2008/ 09	2009/ 10	2010/ 11
Out-of-quota sugar price [A]	293	271	298	324	332
World price [B]	266	211	285	399	463
Ratio [A]/[B]	1.10	1.29	1.05	0.81	0.72

10/11 is not the definitive average as this marketing year is still going on.

Source: Agrosynergie, based on DG Agri and USDA

The ratio presented in the table above is higher than 1 from 2006/07 to 2008/09, and then lower than 1. This means that the world price was lower than the out-of-quota price between 2006/07 and 2008/09 and then became higher. The change occurred in March 2009, when the world price skyrocketed. The out-of-quota sugar price did not increase as much as the world price.

The change in the ratio reveals that out-of-quota price is not directly connected to the world price. Indeed, according to interviews, out-of-quota sugar contracts are yearly ones, which provide out-of-quota prices a relative stability compared to world prices.

5.1.6.3 In-quota sugar price variability

Theoretically, European prices should be more sensitive to world price fluctuations because of the changes in market measures (mostly the greater importance of imports, the end of the intervention system). Two analyses are carried out: **inter annual** fluctuation to compare the level of fluctuation on the world and the EU market, and the **intra-annual** fluctuation after reform of the in-quota price to study changes in variability on the EU market.

5.1.6.3.1 Inter annual fluctuations

The next table presents changes of the annual average price from one campaign to the following for world and EU in-quota prices.

Table 55: Inter annual variability (year n-1 compared to year n) of in-quota and world prices (%)

	2001/ 02	2002/ 03	2003/ 04	2004/ 05	2005/ 06	2006/ 07	2007/ 08	2008/ 09	2009/ 10	2010/ 11**
In-quota sugar*	6.0%	-0.3%	-1.3%	-2.9%	-11.0%	3.7%	-3.5%	-6.8%	-14.6%	2.8%
World sugar price	-1.4%	-21.0%	-16.7%	12.5%	54.8%	-16.0%	-20.6%	35.1%	40.1%	16.0%

* EU-15 from 2000/01 to 2003/04, EU-25 from 2004/2005 to 2006/2007 and EU-27 from 2007/08 to 2010/2011. ** 2010/11 is not complete (from October to May)

Source: Agrosynergie, based on Comext data and price monitoring

The variability of inter annual in-quota sugar prices has been lower than 14.6%. The world one has been as high as 54.8%. Except in 2001/02, the EU market has always undergone lower price fluctuations than the world ones, both before and after the reform.

Table 56: Inter annual variability (year n-1 compared to year n) of out-of-quota sugar and world prices (in %)

	2007/ 08	2008/ 09	2009/ 10	2010/ 11*
Out-of-quota sugar price	-7,6%	10,0%	8,7%	2,4%
World price	-20,6%	35,1%	40,1%	16,0%

* 2010/11 is not complete Source: Agrosynergie, based on Comext data and price monitoring

The same holds for out-of-quota sugar prices compared to world price: the inter annual out-of-quota sugar price changes have been lower than 10%, whereas world sugar price fluctuations have always been higher than 16%, even reaching 40% in 2009/10.

5.1.6.3.2 Intra-annual fluctuations

Here we focus on the change in variability of the EU price after the reform. Before the reform, the sugar measures should have stabilized the price, given that the price was regulated by the intervention system. After the reform, the sugar measures (added to the minimum price guaranteed to sugar imported from ex Sugar Protocol countries) should still stabilize price volatility because the reference price is maintained as are the market management tools (such as the minimum import price).

The graph on the left shows the pattern of EU average monthly prices and prices including their standard deviation (+ and -). The second graph shows the pattern of the standard deviation within a month and the exponential curve of regression.

Figure 26: Average EU quota price of white sugar and standrad deviation (€/t)

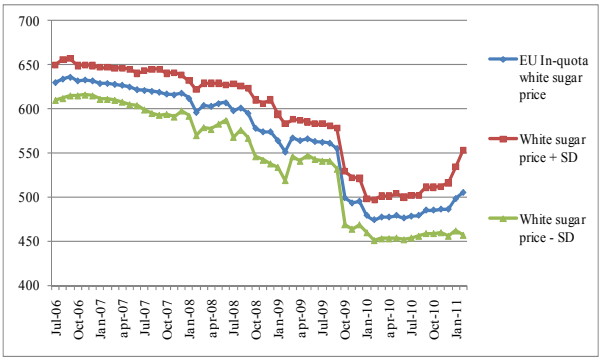
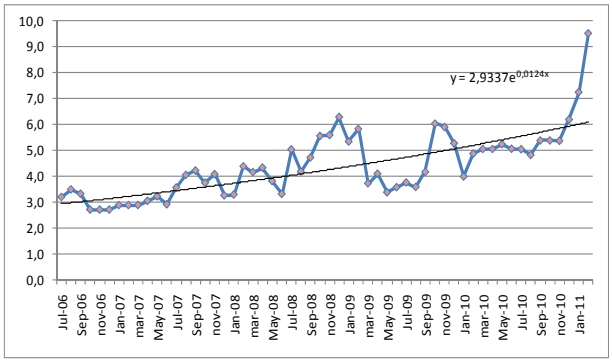


Figure 27: Evolution of the coefficient of variation of the monthly EU price (%)



Source: data from DG AGRI-C5

We can see that the range in which the average prices are placed is approximately 50 €/t.

The coefficient of variation tends to increase (and then explodes in the first few months of 2011). This means that the prices applied on the EU market are increasingly different and increasingly formed by companies. Variability of prices has increased significantly.

5.1.7 THE 2006 REFORM HAS (OR NOT) AFFECTED THE ISOGLUCOSE SECTOR

5.1.7.1 The reform has (or not) affected the isoglucose production volumes

5.1.7.1.1 Change in isoglucose quota

The reform introduced the possibility for isoglucose producers to benefit from free additional quotas[90], and purchase supplementary quotas in IT, LT and SE[91]. Isoglucose producers also benefited from transitional quotas for the marketing year 2006/07. Finally, new Member States benefited from quotas when they entered into the EU.

Table 57: Changes in isoglucose quotas: additional (Add), transitional (Trans) and quota abandonment (Aban), Quota at the end of marketing years (Q end) (in tonnes of dry matter)

	Basic 06/07	Add. 06/07	Trans 06/07	Aban 06/07	Q end 06/07*	Add. 07/08	Aban 07/08	Q end 07/08	Add. 08/09	Aban 08/09	Q end 08/09	Aban 09/10	Q end 09/10	Change 06/10**
FR	**19 846**	3 909	4 962	0	**23 755**	3 909	27 664	**0**	0	0		0	**0**	*-100%*
DE	**35 389**	6 971	8 847	0	**42 360**	6 971	0	**49 330**	7 308	0	**56 638**	0	**56 638**	*60%*
UK	**27 237**	5 365	6 809	0	**32 602**	5 365	0	**37 967**	5 625	0	**43 592**	43 592	**0**	*-100%*
NL	**9 099**	1 792	2 275	0	**10 891**	1 792	0	**12 684**	1 879	14 563	**0**	0	**0**	*-100%*
BE	**71 592**	14 102	17 898	0	**85 694**	14 102	0	**99 796**	14 784	0	**114 580**	0	**114 580**	*60%*
ES	**82 579**	16 266	20 645	0	**98 845**	16 266	5 000	**110 111**	16 312	3 000	**123 423**	69 613	**53 810**	*-35%*
IT	**20 302**	3 999	5 076	0	**24 301**	3 999	0	**28 300**	4 193	0	**32 493**	0	**32 493**	*60%*
EL	**12 893**	2 540	3 223	0	**15 433**	2 540	0	**17 973**	2 663	20 636	**0**	0	**0**	*-100%*
FI	**11 872**	2 338	2 968	0	**14 210**	2 338	0	**16 548**	2 452	19 000	**0**	0	**0**	*60%*
PT	**9 917**	1 953	2 479	0	**11 870**	1 953	0	**13 823**	2 048	3 371	**12 500**	0	**12 500**	*26%*
PL	**26 781**	5 275	6 695	0	**32 056**	5 275	0	**37 331**	5 530	0	**42 861**	0	**42 861**	*60%*
SK	**42 547**	8 381	10 637	0	**50 928**	8 381	0	**59 308**	8 786	0	**68 095**	0	**68 095**	*60%*
RO				0		1 966	0	**13 913**	1 966	0	**15 879**	15 879	**0**	*-100%*
HU	**137 627**	27 109	34 407	0	**164 736**	27 109	0	**191 845**	28 421	0	**220 266**	0	**220 266**	*60%*
BG				0		11 045	0	**78 153**	11 045	0	**89 198**	0	**89 198**	*60%*
EU-15	**300 726**	59 235		0	**359 961**	59 235	32 664	**386 532**	57 263	60 569	**383 226**	113 205	**270 021**	*-10%*
EU-25	**507 681**	100 000	126 921	0	**607 680**	100 000	32 664	**675 016**	100 000	60 569	**714 448**	113 205	**601 243**	*18%*
EU-27						113 011	32 664	**767 082**	113 011	60 569	**819 525**	129 084	**690 441**	

* Without transitional quota; ** Changes from 2007/08 to 2009/10 for RO, BG and EU-27

Source: Agrosynergie based on DG Agri

From 2006/07 to 2009/10, the quotas allocated changed from 300 726 tonnes to 270 021 tonnes in the EU-15, and from 507 681 to 601 243 tonnes in the EU-25. No isoglucose producer decided to buy supplementary quotas. And 222 317 tonnes of quotas were renounced.

As a result, the isoglucose quota went from 2.9% of the sugar quota at the beginning of the marketing year 2006/2007 to 4.5% in 2009/2010.

Strategies of isoglucose producers regarding whether to increase their production or not, renounce partly, totally, or not to quotas, have been diverse:

- In DE, BE, IT, FI, PL, SK, HU, BG, isoglucose production was increased, with producers seizing the opportunity of all the additional quotas available. That led to a 60% increase in national quotas.
- In ES and IT, producers partly renounced their quotas and/or the additional quotas.
- In FR, UK, NL, EL, RO, producers renounced 100% of the quotas, and there is no isoglucose production left.

The drivers for renouncing quotas (additional quotas or basic quotas) are diverse. According to the interviews with isoglucose producers, the main ones are:

- First of all, economic calculation: the expected loss in profitability because of the foreseen price decrease in sugar was considered by certain operators as too significant. Added to the possible negative margins of isoglucose, the low level of isoglucose quotas impeding economies of scale and some losses in other markets (yeasts – loss in volumes and values, cf. **Error! Reference source not found.**, glucose outlet) were a driving force in the abandonment of isoglucose production and dismantling of facilities.

[90] from 2006/2007 to 2008/2009 included, three free quotas of 100 000 tonnes. It did not concern BG and RO, which benefited from an increase by 11 045 t and 1 966 t respectively in each of the marketing years 2007/08 and 2008/09. The quotas were allocated to plants in proportion of their previous quota.

[91] 730 €/t, available for IT, LT and SE

- Technical constraints that enable an increase in production without any or with limited investments: only when production could be increased with limited investment did the producers use the additional quotas provided; if it could not, additional quotas were renounced within the reform scheme. The smallest production units or the ones suffering from important logistics drawbacks hampering long-term development were closed down.
- Competition with beet sugar, refined sugar and other isoglucose producers: the location of the isoglucose plant is therefore an important criterion as it corresponds to a certain price market. As a general rule, in regions with excess beet sugar production, prices were expected to be even lower than elsewhere. On the other hand, maintaining isoglucose production in sugar deficit areas has been a strategic decision for some operators, so as to benefit from higher prices and less competition.
- Production portfolio and the importance of isoglucose in this portfolio.
- Demand from the agro-food industry in a long-term perspective.
- Alternative project which could benefit from the restructuring aid provided by the quota renunciation, for example investment in bioethanol processing.

5.1.7.1.2 Change in isoglucose volumes

Out-of-quota production did not occur except in 2006/07 in SK, HU, UK, to a very low extent.

Therefore, the dynamics of isoglucose production are directly linked to the quota changes. According to the interviews, besides exceptional cases, companies did not invest in isoglucose facilities. When possible, already existing production capacities have been optimized to increase production volumes at the maximum possible (in line with additional quotas).

As a result, the ratio between quantities produced and quotas per Member State have increased from 94% in 2006/07 to 99% in 2009/10.

Box 6: The case of the yeast industry

According to the Association des Amidonniers et des Féculiers (AAF)[92], before the reform, more than 1 million tonnes of starch hydrolysates used to supply the fermentation industry. This sector has lost 600 000 tonnes of starch hydrolysates in market share between 2005 and 2009, among which 72 000 tonnes of isoglucose, as shown on the following table.

Table 58: Use of isoglucose in the fermentation sector (tonnes/year)

2006	2007	2008	2009	2010
95 950	4 000	3 800	2 900	23 200

Source: AAF

According to interviews with isoglucose operators, part of these losses (no estimation and data on industrial uses of sugar, Table 48, do not show significant increase) are connected to the sugar CMO reform: these volumes were replaced by industrial sugar. Indeed, the reform opened this outlet to out-of-quota production, whereas before the reform the C sugar was exported. Then, because the market price of out-of-quota is lower than market price of glucose, yeasts industries switched from glucose products to out-of-quota products.

Other reasons for the losses in market mentioned by AAF (not quantified either): increased use of thick juices (which are not reported in the monitoring of the sector), reduction of the market as clients moved outside the EU and improvement in productivity over time (through technical progress, it is now possible to produce more out of 1 kg of carbohydrates than in the past).

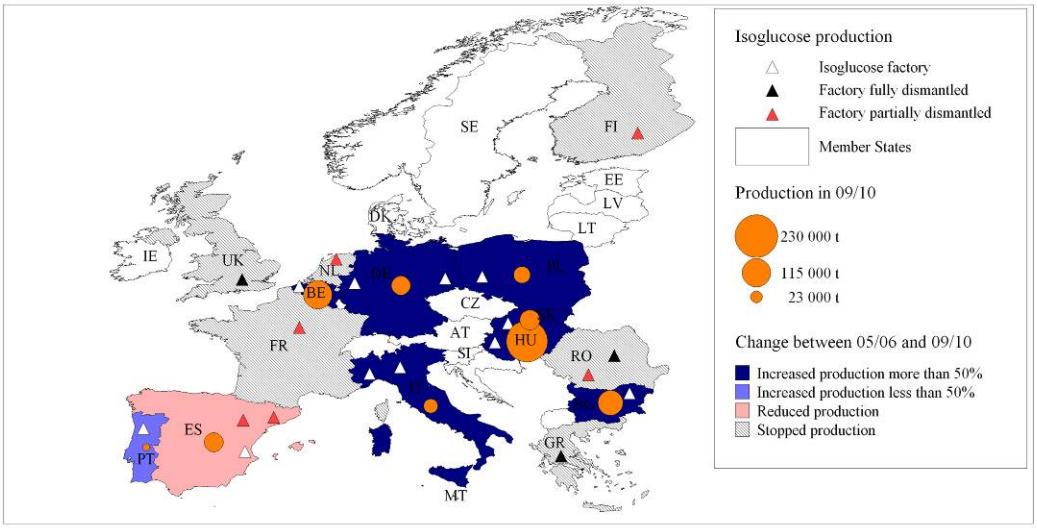
5.1.7.2 The 2006 reform has (or not) had impacts on the location of isoglucose production

As a result of these changes on quotas, the geographical distribution of production has significantly changed. At the beginning of the reform, isoglucose was produced in 15 Members States. After the reform, it reduced to 9. In 2005/06, the Member State producing the largest quantity of isoglucose was

[92] Based on industry statistics gathered by PWC mentioned in (AAF, 2010)

HU, with 25% of the EU-27 production being produced by a single company. In 2010/2011, Hungarian isoglucose production reached 32%.

Figure 28: Map of the isoglucose location and characteristics within the EU



Source: Agrosynergie

5.1.7.3 The 2006 reform did (or not) modify the structure of the isoglucose sector

Almost half of the isoglucose production units closed within the restructuring plan: before the reform, there were 20, and they decreased to 11 plants (nevertheless, the number of companies remained the same). Then isoglucose production became more concentrated, and the average process volume per site increased.

Table 59: Average isoglucose production per plant per year (tonnes of isoglucose in dry matter/year)

	2006/07	2007/08	2008/09	2009/10
EU-15	29 338	26 724	30 763	38 295
EU-25	40 659	38 411	45 194	59 001
EU-27		36 498	43 162	61 746

The average production per plant per year has been calculated dividing the total production by the number of plants.

Source: Agrosynergie based on DG Agri, case studies and literature

However, this increased production per plant is usually not due to investment, but to optimization of already existing production lines. All interviewees pointed out those processing lines are optimized according to the economic conditions and a product portfolio related to markets. Significant changes in the isoglucose production impact the whole equilibrium of the factory on all its starch products. Moreover, considering that the profitability of isoglucose decreased with the reform, and because quotas were limited and investments heavy, there has not been investment in the isoglucose sector (except in rare cases).

5.1.7.4 The 2006 reform has (or not) impacted EU isoglucose prices

To study the isoglucose prices, we used PRODCOM data. In this dataset, isoglucose figures are mixed with fructose ones.

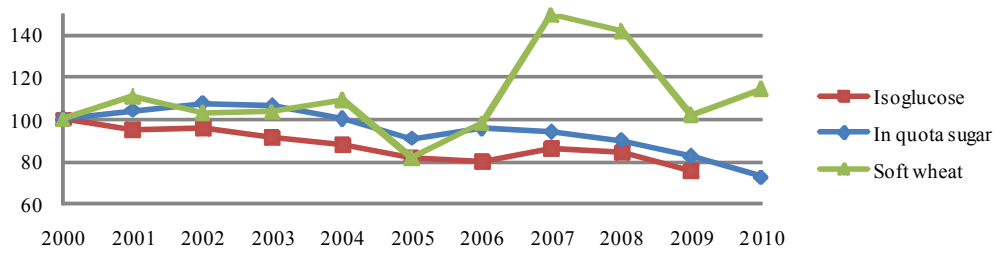
Table 60: Annual average prices of "isoglucose, fructose and fructose syrup", in-quota sugar and soft wheat prices for EU* since the reform (in €/t)

	EU-15				EU-25			EU-27			
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Isoglucose, fructose and fructose syrup prices[93] [A]	558	531	535	510	491	458	446	482	472	420	nc
In-quota sugar prices [B]	662	690	711	704	662	602	633	623	596	545	480
[A]/[B]	84%	77%	75%	72%	74%	76%	70%	77%	79%	77%	nav
Soft wheat price	156	173	161	162	170	127	153	233	221	160	179

* 2004/05 to 2006/07: EU-25 and 2007/08 to 2009/10: EU-27

Source: PRODCOM for isoglucose price, price monitoring and Comext for soft wheat and in-quota prices.

Figure 29: Index of price of isoglucose, fructose and fructose syrup, in-quota sugar and soft wheat (base 100=2000)



Source: Prodcom for isoglucose, DG Agri and Comext for in-quota sugar price and Comext for soft wheat price

As presented in Table 60, the average annual price of isoglucose, fructose and fructose syrup price is between 70% and 84% of that of sugar. According to interviews, the isoglucose price depends largely on the in-quota sugar price because both products are substitutable (for the most part). And indeed, they follow the same trend. Thus, the impact of the reform on the isoglucose price is the same as the impact on the quota sugar one (cf. Chapter 5.1.6).

Nevertheless, differently from the sugar sector, the price of raw materials does not depend on the sugar CMO and was not decreased according to the sugar price decrease (Figure 29). The isoglucose price is "squeezed" between the in-quota sugar price and the soft wheat price. Yet cereal price had been decreased with the 1992 CAP reform, and prices applicable in the EU are world prices.

5.1.8 JUDGEMENT

This question covered the impact of the reform on quantities, geographical location, structures and prices of sugar and isoglucose production, based on data and interviews with operators.

Impact of the reform on the sugar quotas and quantities produced under quotas

Quotas were reduced to a level very close to the initially established target. The renunciations reached 5.8 million tonnes, of which 5.2 million tonnes sugar quotas (quotas were 17 million tonnes before the reform). Quantities produced under quotas were therefore reduced in the same proportion.

During the first two marketing years, the framework established by the reform was not effective to reach the target. Indeed, at the end of 2007, only 1.8 million tonnes of quota had been renounced. It had been renounced by sugar producers located in low-producing Member States and/or outside the "beet belt".

Therefore, to be completely effective, the scheme was modified in 2007. For operators in the leading Member States producing sugar, which had not expected to participate in the renunciation effort, the risk of a final quota cut without any compensation became highly probable. Thus, they decided to renounce quotas. As a result:

- All sugar companies (but one) took part in the restructuring process.

[93] From the combined nomenclature code: 1702 30 10, 1702 40 10, 1702 60 10 and 1702 90 30

- **Quotas were largely reduced in the EU peripheral areas (Italy, Spain, Greece, and Slovenia), but production stopped in only five Member States (Ireland, Latvia, Slovenia, Bulgaria and continental Portugal).**
- **Member States located in the sugar belt (France, Germany, the United Kingdom, the Netherlands, Poland, Belgium, etc.), accounted for more than 40% of the decrease in the EU.**

All available additional quotas (1.0 million tonnes) were purchased at an early stage, reflecting strategic choices of sugar companies to compensate for export losses and to increase their market share in an effort to ensure competitiveness. These quotas were acquired in the regions where no restructuring effort was initially considered by operators.

Impact of the reform on quantities produced out of the quotas

Out-of-quota sugar is produced mainly in France, Germany and the United Kingdom (over 90% of total EU in 2009/10). **Because of the new export limits applying to subsidized sugar (1.37 million tonnes) induced by the WTO panel and the upcoming end of the Sugar Protocol, EU sugar companies had to reduce out-of-quota quantities produced.**

We estimated that the quantities produced outside quotas decreased by 1.8 million tonnes[94]. **Out-of-quota exports (replacing C sugar) were significantly reduced**[95] and were only partially compensated by demand from other outlets, mostly an **increase of 0.8 million tonnes of industrial sugar** produced for the bioethanol market[96] thanks to favourable energy policies.

Geographical distribution

The new situation characterised by the CMO reform and new export limitation induced by the WTO panel ruling contributed to **further concentration of production in the leading Member States**. France and Germany increased their share of production from 43% of EU production before the reform (2003/04-2005/06) to 52% on average in the 2008/09-2010/11 period. On the other hand, sugar **beet production has disappeared totally from five Member States** (Ireland, Latvia, Slovenia, Bulgaria and continental Portugal).

Structure of the sector

Decrease in the quotas by 5.2 million tonnes was accompanied by the decrease in the number of factories, from 179 in 2005/06 to 106 factories in 2009/10 at the EU-27 level, accounting for 41% of the factories operating in 2005/06.

Yet, **the restructuring of the sugar sector is an ongoing process which was accelerated by the reform** . In the EU-15, whereas 5.8 factories closed every year between 2000/01 and 2005/06, during the reform, 10.5 factories closed per year on average.

In the EU-15, the majority of the smallest factories had closed before the reform. Rather than these**, the reform contributed to speeding up factory closures with medium-low and medium capacities** (capacities between 5 000 and 12 000 tonne/day). In contrast, factories with a medium-high and high capacity (> 12 000 tonnes) were subject to less marked reduction. This is even more pronounced at EU-25 level because, after the reform, very sharp fall in numbers affected the smaller factories, of which there were still very many at the time of the reform, especially in Poland.

At the company level, factory closures were decided on in two steps. Firstly, producers needed to take the decision to renounce the quota. As previously stated, the scheme was an incentive for producers operating in the beet-belt only after the risk of an uncompensated final cut became high (in 2007 with the reform of the reform). The second step was the decision on which factory(ies) to dismantle. This was based on optimising the maximum CAP support available and minimising the risk of

[94] from an average of 5.5 million tonnes during the four campaigns preceding the reform (including C sugar and industrial sugar not included in the CMO) to 3.7 million tonnes after the reform (average 2008/09-2009/10)
[95] from an average of 3.3 million tonnes of C sugar to almost 0 in 2006/7 and 2007/08, 0.7 million in 2008/09, and 2.1 million tonnes in 2009/10
[96] +0.8 million tonnes between 2006/07 and 2009/10

uncompensated quota cuts while at the same time maintaining competitiveness. The respective factories were compared on the following main criteria: production costs mainly energy, logistics for beet and sugar, and costs of raw materials.

Price

Through the fall in the reference price, the reform contributed to a decrease of in-quota prices. However, since November 2009 (second drop in the reference price to 404 €/tonne), the EU price has remained significantly above the reference price because of an unexpected relative shortage on the EU market, essentially due to extremely high world prices. As a consequence, the gap between in-quota sugar price and the world price has greatly reduced.

Regarding out-of-quota outlets, the price has increased over the post-reform period, but not in the same proportion as the world price. This shows **some independence from the world market**.

The variability of in-quota sugar price remains lower than that of out-of-quota, just as it used to before the reform. Nevertheless, it has increased as a result of **the decrease in the reference price, giving operators latitude to adjust prices to increase competitiveness**.

Isoglucose

The reform has impacted isoglucose quotas, as it gave the opportunity to isoglucose producers to increase their quotas without fees. Depending on its profile (technical constraints, investment required, demand, overall activity, location and competition with beet sugar or imports), each company could decide (1) to increase its production thanks to the additional quotas or renounce to them, (2) to abandon isoglucose production totally or not.

In the EU-25, 0.30 million tonnes of quotas were distributed for free while 0.22 million tonnes of quotas were renounced. As a result, the isoglucose quota increased from 0.51 to 0.60 million tonnes. As there is almost no out-of-quota isoglucose produced, the EU production level is directly linked to the quantities of quota.

Even though changes in volumes are limited, the geographical distribution of the production has significantly changed: **whereas isoglucose was produced in 15 Member States before the reform, it is now concentrated in 9 Member States**.

Half of the isoglucose production units have been dismantled within the restructuring scheme because, (1) quotas were considered as insufficient to maintain cost-effective production in a context of low sugar prices, (2) profitability of isoglucose was impacted by the reform, as the raw material prices has not been reduced in line with the sugar reference price[97], (3) the restructuring fund was a source of immediate cash flow. **No investments were made to increase production capacities; only already existing production lines were optimized to integrate the additional quotas.** As a result, the average quantities processed per site have increased from an average of 41 000 tonnes to 59 000 tonnes of isoglucose in dry matter/year in the EU-25.

[97] yet cereal prices had been decreased following the 1992 CAP reform.

5.2 QUESTION 5: FULL-TIME REFINERS - QUANTITY, PRICES, GEOGRAPHICAL DISTRIBUTION AND PRODUCITON STRUCTURES

To what extent have the measures applied to the sugar sector affected the full-time refiners in terms of quantity, prices, geographical distribution, production structures (number and capacity of sugar refineries)?

5.2.1 COMPREHENSION OF THE QUESTION

The evaluation question suggests concentrating on the analysis on Full-Time Refineries. In this regard it is worth remembering that, before the reform, this definition was given to a limited group of companies (7) operating in an even more limited number of Member States (5). For these companies, the only activity was the refining of raw sugar, mainly imported from third countries (plus a limited quantity transferred from the French Overseas Departments) based on exclusive access to the quotas of preferential sugar (see Box 2).

→ This group of FTR existing before the reform is called **Traditional refineries**, and it is the only one having received a transitional aid[98] in order to give them the possibility to adapt their situation to the restructuring of the sugar industry.

With the 2006 reform the concept of FTR was extended to undertakings which in the 2004/5 campaign had refined at least 15 000 t of imported raw cane sugar. Moreover with the EU enlargement, refineries existing in BG and RO have been recognised as FTR as well as one refinery in PT following the renouncement of more than 50% of the sugar quota and one refinery in IT.

→ This group of companies are therefore **FTR new comers**. Therefore, the group of FTR comprises the Traditional FTR and the FTR new comers.

Finally, the reform has allowed (by limiting privileged access of FTR to import licences to the first three months of the marketing year) the access in the refining sector also of other companies (mainly sugar beet producers).

→ This group of companies are called **new comers no FTR**.

The increased complexity of the refining sector has therefore suggested extending the evaluation to the entire refining industry: FTR (Traditional and new comers) + New comers no FTR.

Once defined the field of analysis, it is important to remember that the reform has introduced in the Community refining system a higher level of liberalization of the institutional framework within which refineries operate. This introduction was progressive and during the first three years of the reform, supply of raw cane sugar was guaranteed. Moreover, other changes in the institutional and economic scenario (indirectly linked to the reform or independent of it) may have had an impact in the refining sector. In particular:

A. Changes linked directly with the reform, beginning of 2009/10:
   - the quotas under the Traditional supply needs[99] (TSN) of the refineries are no longer specifically allocated to each Member State but applied to the EU as a whole.
   - decrease in the reference price of cane raw sugar as well as of the guaranteed minimum price of raw sugar imported from ACP countries LDC (EBA initiative).
   - opening of the access to import licenses, even if maintaining a priority (first three months of the campaign) to the FTR up to the ceiling of 2.4 million tonnes (TSN of the FTR)
   - supply of raw cane sugar originating from Sugar Protocol countries for the refining industry guaranteed only during the three first years of the reform.

[98] The adjustment aid existing before the reform was abolished and a transitional aid was provided to FTRs (see chapter 2.1.2.3).
[99] "Presumed maximum needs" before the reform.

B. Changes linked also to other policies:

- elimination of the Sugar Protocol with ACP states and India[100] from the 2009/10 campaign, with the parallel elimination of a double obligation a) of the EU to buy sugar in the given quantities and b) of the signatory countries to provide these quantities[101].
- gradual introduction of access free of duties and of quotas for raw sugar EBA-EPA in accordance with a special safeguard mechanism which simultaneously sets a threshold of 3.5 million tonnes white sugar equivalent (for the total ACP) and 1.38 million tonnes (increasing) for ACP- non LDC countries.

C. Changes independent from the reform:

- Growth of the level and volatility of world prices of white sugar and of raw cane sugar.

In this context of wider liberalization in the refining sector, and considering the renouncement of a significant proportion of the sugar beet quota, it is possible to suppose that FTR and no FTR would have:

- developed the refining activity, through an increase of raw sugar imports, in order to maintain a balance between white sugar availability and consumption in the EU market.
- and thus, implemented investment actions aimed at the adaptation of the refining capacity to the new balance availability / consumption

Therefore, the analysis verifies these hypotheses to assess the role played by the changes on the institutional and economic scenario on:

- the structure of the refining industry (number and capacity) and on its geographical distribution;
- on EU supplies for refiners in terms of quantities and prices;

All this, distinguishing between the effects directly or indirectly attributable to the reform and the effects attributable to other drivers.

Finally, we formulate a judgement on the contribution of the transitional aid to the restructuring of the traditional refiners.

5.2.2 CRITERIA, INDICATORS AND DATA SOURCES

Table 61: Criteria, indicators for Question 5

Criteria	Indicators
The 2006 reform has led (or not) to changes on the structure of the refining industry (number and capacity) and on its geographical distribution	Changes before and after the 2006 reform on the number of traditional refineries, full-time refineries and sugar producers that have begun to refine imported sugar. Geographic distribution of plants pre- and post-reform.
	Changes after the 2006 reform in refining capacity of traditional refineries, full-time refineries and sugar producers that have begun to refine imported sugar. Geographic distribution of plants pre- and post-reform.
The 2006 reform has had (or not) an effect on EU supplies for refiners in terms of quantities and prices	Before and after the 2006 reform, raw sugar import trends (NC 17011110): EU-15, EU-25, EU-27 and by Member State
	Before and after the 2006 reform, ratio of raw sugar imports over maximum supply needs and traditional supply need (by Member State up to 2008/9, EU 2009/10 and simulated ratio by Member State in 2009/10)
	Limits, quantities and % applied for (by traditional refining Member State, 2006/7 – 2007/8 – 2008/9)
	Development of the coverage rate of imports by type of preferential agreement

[100] The Sugar Protocol was no longer compatible: a) with the WTO rules that prevent the granting of preferences to a country on the basis of criteria not recognized by the UN (external element), b) with the trade provisions of the Economic Partnership Agreements (EPA) and with the EBA initiative aimed at the full opening of EU market to ACP countries and LDCs (element linked to the EU trade policy), c) the progressive abolition of the intervention mechanism (element linked to sugar the reform).

[101] The ACP-India countries had the obligation to sell the quantities of sugar foreseen in quotas to the EU refineries. After the suppression of the Protocol, and within the framework of the EPA agreements, the ACP countries no longer have this obligation, and therefore are free to sell the sugar in the markets where economic conditions are more attractive.

Criteria	Indicators
	Comparison between: - development of guaranteed minimum Community prices for sugar imported from EPA-EBA countries - development of white sugar Community prices - development of raw sugar price imported from ACP
	Comparison between: - development of world price of raw sugar - development of EU-in quota white sugar price - development of raw sugar price imported from ACP
	Changes in exports of countries adhering to the former sugar protocol (as from 2009/10 campaign) in the EU market
	Strategic responses put in place by sector's undertakings
The transitional aid contributed (or not) to the restructuring of the refiners	Budget allocated to transitional aid by Member State
	Measures in refiners' business plan
	Measures implemented with transitional aid as well as schedule of implementation
	Point of view of refiners on effectiveness of transitional aid

To answer the evaluation question are used both the most recent statistical data and information (quantitative and above all qualitative) collected directly from sector operators during field missions and through suitable bibliographic searches on the Web. The gathering of information and primary data from operators proves to be particularly useful in this case as many of the changes in the sector have happened since the 2009/10 campaign (thus very recently) with the fall in the reference

With regard to data on foreign and intra-Community trading of raw cane sugar (NC 1701 11 10) the data source used is Comext. Global foreign trade data are broken down by regime: standard system and inward processing arrangements. Furthermore, data are collected by calendar year and campaign (in the latter case as a sum of monthly data from October of year n to September of year n+1).

With regard to world monthly prices, ICE Contract 11 nearby futures prices – New York Board of Trade – are used. These prices, expressed in US cent/lb, are converted into €/t based on the monthly USD/Euro exchange rate.

With regard to EU-in quota white sugar prices and raw sugar prices imported from ACP (monthly prices) the source is DG Agri C5.

With regards to tariff quotas, import licence applications and the coverage rate (from 2005/6 to 20010/11), the source is DG Agri D2.

5.2.3 THE 2006 REFORM HAS (OR NOT) LED TO CHANGES ON THE STRUCTURE OF THE REFINING INDUSTRY (NUMBER AND CAPACITY) AND ON ITS GEOGRAPHICAL DISTRIBUTION

5.2.3.1 Change in the structure of the refining industry

As is well known, prior to the reform, with the term "refinery", the CMO designated six plants specialising only in the refining of cane sugar imported from non-EU countries, located in four Member States (UK, FR, PT, FI). With the 2004 enlargement this group was expanded with the addition of a refining plant located in SI (which was later closed down). These seven traditional refineries benefited from the adjustment aid (29.2 €/t) before the reform and from the transitional aid during the reform implementation phase.

As already mentioned, with the 2006 reform, the concept of FTR was extended. Therefore, became FTRs:

- three undertakings located in ES (Azucarera de Guadalete, of the Ebro Puleva group, sold in 2008 to Associated British Foods[102]), in DK (Nykobing Sukkerrfabrik, of the Nordic Sugar group controlled by German Nordzucker) and in IT (SFIR built a new refinery at Brindisi[103]).
- one undertaking in FR, Sucreries et Raffineries d'Erstein (beet sugar and refining of imported sugar), acquired in 2007 by Cristal Union, was recognised as a full-time refinery.
- following the renunciation of more than 50% of the national sugar quota and 100% of the sugar quota of the undertakings concerned, in PT a 65 000 tonnes quota was recognised for DAI (part owned by Sfir). DAI (gradually) transformed into a refinery the sugar factory of Coruche.
- Finally, following the most recent EU enlargement, the six refineries of BG and the eight refineries of RO have been recognised as full-time refineries.

It should be noted that these new refineries granted the status of FTR were unable to benefit from transitional aid, not being traditional refineries[104].

Table 62:Refineries by Member State pre-reform, in 2009 and in 2011, divided into full-time and non-full-time refineries

		Before reform and last enlargementof EU	2009	2011
Full-time refiners	UK	Tate & Lyle	Thames refinery (Tate & Lyle)	Thames refinery (American Sugar Refining)
	PT	Alcantara refinerias açucares (Tate &Lyle)	Alcantara refinerias açucares (Tate &Lyle)	Sidul (American Sugar Refining)
		RAR	RAR	RAR
			DAI (Sfir + ED&Fman + others)	DAI (Sfir + ED&Fman + others)
	F	Saint Louis sucre (Sudzuker)	Saint Louis sucre Marseille (Sudzuker)	Saint Louis sucre Marseille (Sudzuker)
			Sucreries et raffineries d'Erstein (Cristal Union)	Sucreries et raffineries d'Erstein (Cristal Union)
		Raffinage Tereos Nantes (Tereos)	Raffinage Tereos Nantes (Tereos)	
	FI	Finsugar/Danisco	Suomen Sokeri Oy (Nordic Sugar)	Suomen Sokeri Oy (Nordic Sugar)
	SL	Tovarna sladkorja Ormoz (Sfir + others)		
	I		Raffineria di Brindisi (Sfir + ED&Fman)	Raffineria di Brindisi (Sfir + ED&Fman)
	DK		Nykobing Sukkerrfabrik (Nordik Sugar)	Nykobing Sukkerrfabrik (Nordik Sugar)
	ES		Azucarera de Guadalete (Ebro Puleva)	Azucarera de Guadalete (British sugar) Accor-Tereos Olmedo
	BG		Zahar Bio Devnenski zaharen zavod Burgasky zaharen zavod Bulgarska zahar 2002 Zaharen kombinat Plovdiv Zahar	Zahar Bio Devnenski zaharen zavod Burgasky zaharen zavod Bulgarska zahar 2002 Zaharen kombinat Plovdiv Zahar
	RO		Agrana Roman (Südzucker) Agrana Buzau (Südzucker) Agrana Tandarei (Südzucker) S.C. Zaharul Oradea (Pfeifer and Langen) S.C. Zaharul Liesti S.C. Lemarco Cristal S.C. Zahar Corabia S.C. Fabrica de Zahar Bod S.C. Zahar Calarasi	Agrana Roman (Südzucker) Agrana Buzau (Südzucker) Agrana Tandarei (Südzucker) S.C. Zaharul Oradea (Pfeifer and Langen) S.C. Zaharul Liesti S.C. Lemarco Cristal S.C. Zahar Corabia S.C. Fabrica de Zahar Bod S.C. Zahar Calarasi
No full-time reiners	PL			Nordzucker Chelmza Pfeiffer & Langen Glinojeck
	UK			British Sugar Newarc
	NL			Suiker Unie

Traditional refiners

Source: DG Agri, CS, interviews, bibliography

[102] The refinery of Guadalete, close to the port of Cadiz, was built on the site of the former sugar factory, closed down following the reform
[103] Italian legislation established that the quota of 100 000 tonnes should be refined in a southern region (to avoid physical and economic difficulties supplying users in southern IT following the closure of sugar factories in these regions), and was assigned to a single undertaking (Sfir). For this reason the refinery was built in Brindisi. However, due to delays in the building of the plant, the quota of 100 000 tonnes (valid until 2009) was never used. The factory started up production only in the final months of 2010.
[104]On the other hand, Azucarera di Guadalete and DAI, waiving the beet sugar quota, were able to make use of restructuring aid (35% of maximum amount), some of which was used to adapt plants for the refining of imported cane sugar.

Therefore, the distribution of plants over the Community territory has altered somewhat, with the appearance of refining structures in Member States where, prior to the reform, activity was non-existent (IT, ES, DK); growth in countries where structures were already in place (2 to 3 in PT); and closures in other countries (one in FR and in SI).

The changing institutional context (together with changing conditions in the world market) has led to some limited but significant changes:

- slight restructuring among the existing full-time refineries;
- development, by some sugar producers, of integrated raw sugar refining activity (as newcomers) using (mostly) existing facilities;
- further initiatives have been reported, which are included in the strategic development of some sugar producers though not operational yet.

Moreover, the removal of the system of strong protection which has for a long time guaranteed and kept unchanged the structure of European refining has had an effect on the composition of the sector. If we exclude the refineries of BG and RO (acquired as full-time refineries following the enlargement of the EU, but not directly linkable to the effects of the reform), the number of FTRs has gone from seven (pre-reform) to eleven (in 2011). However, of the seven traditional refineries surveyed prior to the reform, only five are still operational in 2011. So, six FTRs are newcomers. In addition to these FTRs, refining activity is getting under way at four beet sugar producing plants (off-crop refining[105]).

5.2.3.2 Changes in refining capacity

The most significant changes relate to the overall dimension of production capacity and its distribution. It should be noted on this point that production capacity expressed in tonnes/year depends on two dimensions: the hourly capacity (or daily capacity) of plants and the actual number of hours (or days) of activity during the course of the year. Annual production capacities given in the table below come from the declarations of refineries, and so should be taken (with due caution) as orders of magnitude estimated on the basis of an utilisation standard of the equipments.

Taking this warning into account, it may be seen that, with regard to FTRs, in EU-25:

- Prior to the reform, the production capacity can be estimated at about 1.9 million tonnes/year.
- In 2011, it can be estimated at around 3 million tonnes/year.
- Due to the reform, therefore, the increase in capacity of FTRs in the EU-25 may be estimated at 1.1 million tonnes (+58%).

In addition to this, off cropping refining capacity can be estimated at about 330 000 tonnes/year (and an additional 830-880 000 tonnes/year currently in design/execution phases).

Overall, therefore, in the near future (2013), total refining capacity in EU-25 could rise to about 4 200 000 tonnes/year, consequently to more than 4 700 000 tonnes including the refineries of BG and RO (for which changes are not envisaged compared with the situation at the time of EU accession)[106].

[105] Off crop: the ability to process sugar at times of the year when sugar beets are not normally processed

[106] These figures do not only include new installed capacity but also the best theoretical use of existing capacity, in particular in beet sugar producing plants. Total capacity will thus depend on the real conditions influencing raw material procurement policies and end product market policies.

Table 63: Refining capacity of EU-25 plants: Full-time refineries; newcomers; planned new refineries (tonnes of raw sugar

			Capacity		
			Befofe reform	2011	The future
Full time refiners	F	Saint Louis sucre Marseille	170 000	250 000	
		Sucreries et raffineries d'Erstein		60 000	
		Raffinage Tereos Nantes	120 000		
	ES	Accor-Tereos Olmedo		135 000	
		Azucarera de Guadalete		420 000	
	I	Sfir Raffineria di Brindisi		300 000	
	FL	Suomen Sokeri Oy	60 000	60 000	
	PT	Sidul	180 000	300 000	
		RAR	140 000	240 000	
		DAI		65 000	
	UK	Tate&Lyle - American Sugar Refining	1 200 000	1 200 000	
	SL	Tovarna sladkorja Ormoz	20 000		
	Total		**1 890 000**	**3 030 000**	
No full-time refiners	PL	Nordzucker Chelmza		14 000	
		Pfeiffer & Langen Glinojeck		180 000	
	UK	British Sugar Newarc		≈ 120 000	
	NL	Suiker Unie		20 000	
	Total			**334 000**	
Refinenes in project	I	CoProB + Pfeiffer & Langen Minerbio			150-200 000
	PL	Krajowa Spolka Cukrowa (KSC-Tereos)			≈ 400 000
	UK	British Sugar Cantley			230 000
		Ragus			50 000
	Total				**830 - 880 000**
Total before reform			**1 890 000**		
Total 2011				**3 364 000**	
Total 2011 + future					**4 194 - 4 244 000**

Traditional refineries

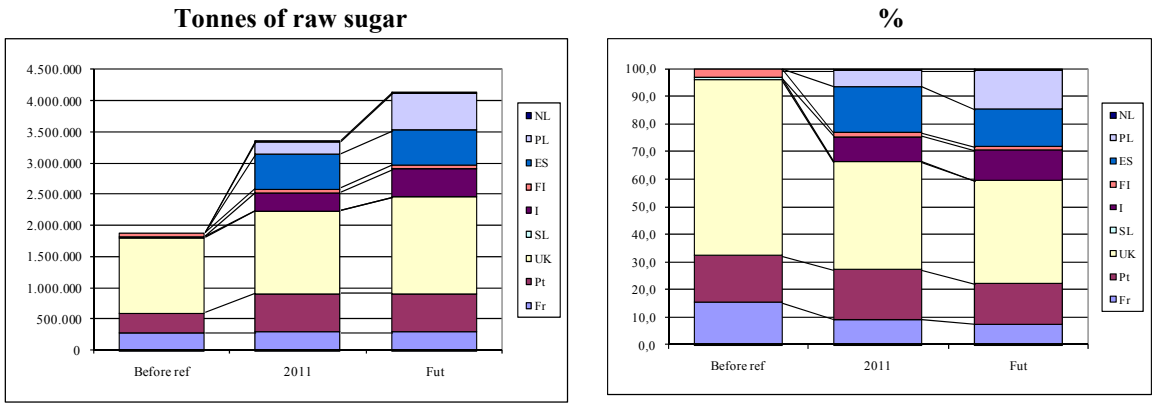
Source: CS, interviews, bibliography

With regard to the geographic distribution of capacity, some changes can also be seen. With reference only to full-time refineries:

- In FR refining capacity would slightly gone up, compared with the pre-reform situation (from 290 000 to 310 000 tonnes/year) due to the increase at the Marseilles factory of St Louis Sucre (and despite the closure of Tereos Nantes).
- In PT there has been a significant increase (from 320 000 to 605 000 tonnes/year), due to new DAI capacity, and to the increased capacity of Sidul and of RAR (investments undertaken using transitional aid).
- In SP an IT, there has been an *ex novo* capacity of 555 000 tonnes/year[107] and 300 000 tonnes/year respectively

In the graphs below, the changes in overall geographic distribution (full and non-full-time refineries) are given.

Figure 30:Development of refining capacity of EU-25 plants in total and by Member State



Source: CS, interviews, bibliography

[107] Following the closure of the Tereos refinery of Nantes (dismantled), ACOR has bought and reinstalled equipments in ES (and increased capacity).

5.2.4 THE 2006 REFORM HAS (OR NOT) HAD AN EFFECT ON EU SUPPLIES FOR REFINERS IN TERMS OF QUANTITIES AND PRICES

The volumes of sugar refined by EU refineries are supplied from third countries (and the French DOM). The volumes and origin of these supplies are dependant on the trade agreements and have been affected by the end of the Sugar Protocol and the CMO reform (through changes in market price).

In a more liberalized imports regime, refineries could have expected an increase in import flows, and an approach to the 3.5 million tonnes threshold (fixed for all ACP STATES), deemed to be compatible with a balanced Community market around a reference price of 404 €/tonne for white sugar. The scope is to analyse if these expectations, directly or indirectly created by the reform, have been realised and, on the contrary, which factors linked to the reform or independent to it could have had an influence on the development of supply flows.

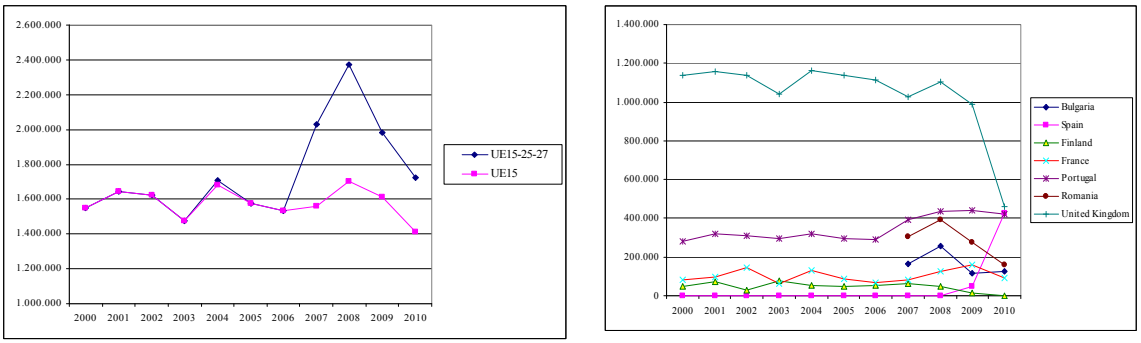
5.2.4.1 Change in raw sugar imports

The following figure presents data on total imports of sugar for refining[108] (NC 1701 11 10).

Furthermore, flows per Member States were calculated by summing together the quantities directly imported by single Member State and transfers from other Member States or towards other Member States (so as to avoid over or under estimation of annual volumes of raw sugar actually refined in the Member State considered).

Figure 31: Supply of raw sugar to refineries (NC 1701 11 10), tonnes of raw sugar

Total EU (tonnes) **By Member State (tonnes)**



Source: original Comext data

At a Community level, the non-EU supplies (excluding transfers from French Overseas Departments) regarding the EU-15 oscillated around a basically flat trend of about 1.6 million tonnes up to 2009 (see previous graph). Then, it declined, reaching an all-time low of 1.4 million tonnes in 2010 (-12.4% between 2009 and 2010).

At Member State levels trends varied, basically mirroring the events that have affected refining structures, as mentioned in the previous section. The supplies to the refineries in **BG** and **RO** fell over the same period by almost 30% and 63% respectively.

There has been a collapse (-58% between 2008 and 2010) in supplies to UK (according to interviewees, Tate&Lyle sold to ASR for this reason). On the other hand, there was a significant growth in absolute terms, from 0 to 427 000 tonnes, to the two new refineries in **ES**. It should be

[108] Does not include imports effected via inward processing arrangements. Indeed, imports effected using this system, while they may be of use to refiners (or to sugar producers) to improve their economic performance (increasing turnover and reducing average fixed costs per unit), are not actually used for internal consumption, and are not taken into consideration by the different preferential tariff quotas provided for by the external system of the sugar CMO.

stressed that, in 2010, a significant proportion of the supplies to refineries located in ES (about 44% of the total) came from raw sugar transfers from the UK and from FR[109].

In **PT**, the increase in 2007 and 2008, following the start-up of DAI, was kept basically unaltered in the two subsequent years. In the same way, but going in the opposite direction, the fall in supplies between 2008 and 2010 appears to have affected FR (-29%) following the closure of the Nantes refinery[110].

5.2.4.2 Coverage rates

The coverage rate is the ratio between quantities and a quota. The analysis of the coverage rates is done at two levels:

- the first level regards the Traditional Supply Needs: in this case the scope is to measure the distance between the Traditional Supply Needs and raw sugar imports, before and after the reform.
- the second level regards each type of preferential agreement concerning raw sugar imports: in this case, the coverage rate allows verifying the existence of any difficulty in raw sugar supply flows from the countries concerned by the different preferential agreements.

5.2.4.2.1 Coverage rate of Traditional Supply Need

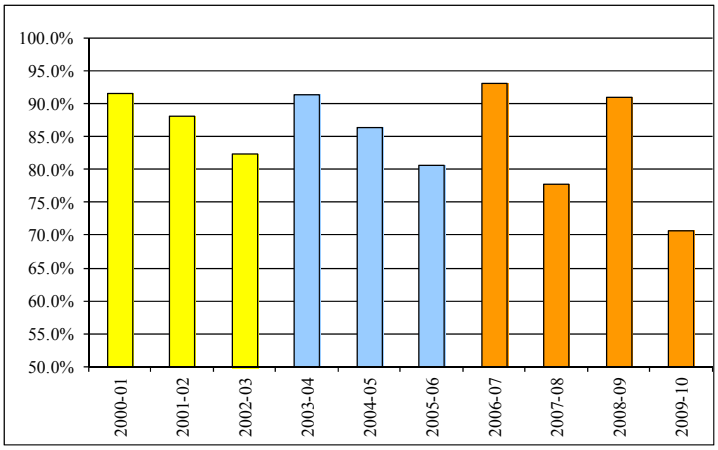
As already explained, extra quantities were given to IT (first 50 000 tonnes and then 100 000 tonnes) and to PT (65 000 tonnes). Starting with the 2009/10 campaign, TSNs by Member State were eliminated and replaced with a single Community TSN, fixed at 2 424 735t in white sugar equivalent.

The coverage rate of TSN is defined as follow: (supply flows of raw sugar * 0.97[111]) / TSN.

Community's total rate of coverage and that of FR are underestimated, since non-EU foreign trade data do not include flows of raw sugar from French Overseas Departments, and in intra-Community trade data these flows are not present for FR.

Taking these limitations into account, the rate of coverage of TSN at a Community level ranged from a minimum of 78% to a maximum of 93%, up to the 2008/09 campaign. In 2009/10 the rate fell to 71% as a result of the large drop in supply flows.

Figure 32: Rate of coverage of TSN of European Union (%)



Source: Regulations, processed from Comext data

[109] "British" sugar is probably simply cleared in the UK, but unloaded in Cadiz (we recall that the Guadalete refinery is owned by British Sugar). On the other hand, "French" sugar comes from French Overseas Departments (Reunion), where Tereos has interests in cane sugar production.
[110] With regard to FR, these are only supplies from non-EU countries, excluding transfers from French Overseas Departments.
[111] Comext statistics do not give the degree of polarisation of imported raw sugar, thus the calculation of white sugar equivalent may be done only by applying an average coefficient, confirmed by the Commission at 0.97.

5.2.4.2.2 Coverage rate by type of preferential agreement

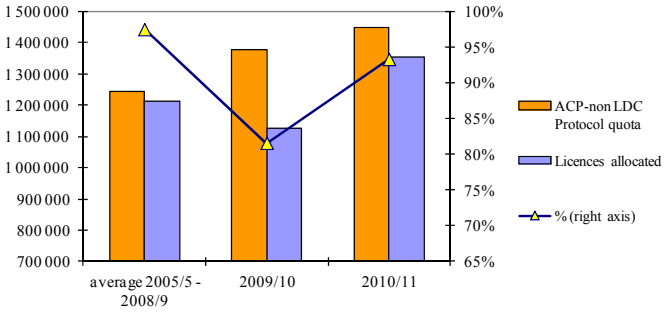
Previous chapters have highlighted the drop in overall supplies to EU refineries, in particular in the 2009/10 campaign. Data on import licence applications Under EPA-EBA agreements (Table 64) show that in 2010/11, imported quantities have partly recovered.

The Table 64 summarises tariff quotas, import licence applications and the degree of coverage of quotas in relation to the different types of preferential agreements that have come into force following the reform and other Community policies (Protocol with ACP states and India, CXL quota, EBA initiative, BG+RO quota, Economic Partnership Agreement and safeguard clause[112], cf. Box 2).

The coverage rate of applications was extremely high (100% or thereabouts) for all types of preferential agreements up to the 2008/09 campaign. With the 2009/10 and 2010/11 campaigns there has been a much lower, coverage rate in relation to thresholds set by the regulations, for the set of EPA-EBAs. Thus, EPA-EBAs countries represent the true critical point of the supply flows of the EU refineries. On the contrary supplies under CXL quota do not constitute a critical element. In 2010/11, the supplies from EPA-EBAs countries were higher than in 2009/10 and the coverage rate for all ACP countries (threshold of 3.5 million tonnes) went from 40% to 49%.

The calculation of the coverage rate for the ACP-non LDC countries of the previous sugar Protocol n°3 for campaigns up to and including 2008/09 and the coverage rate of the same countries for the campaigns 2009/10 and 2010/11 (based on the old agreed quantities of the sugar Protocol) shows the drop in the coverage rate in 2009/10 and its partial recovery in 20010/10.

Figure 33: Coverage rate for ACP-non LDC countries based on their agreed quota in the Sugar Protocol with ACP States and India (tonnes and, on the right scale, ratio licence/quota, in %)



Source: processed from DG Agri D.2 data

All this analysis is in contrast with refineries decisions of investment on new refinery capacity (of full-time refineries, both traditional and newcomers, and of non-full-time refineries), as mentioned in Chapter 5.2.3.2.

[112] It is recalled that the safeguard clause was introduced from the 2009/10 campaign to the 2014/15 campaign on imports from ACP countries signatories of an EPA, providing they are not LDCs. The safeguard makes it possible to reestablish the full tariff on original imports of EPA-non LDC countries when they exceed the level of 1.38 million tonnes in 2009/10; 1.45 million t in 2019/11; 1.60million t from 2011/12 to 2014/15, and simultaneously total imports from all ACP countries (LDC included) exceed the quota of 3.5 million t. The EPA-non LDC quota was also broken down into regional sub-quotas (Central Africa, Western Africa, Pacific, etc.) so as not to penalise the exporters of regions where the crop is harvested later.

Table 64:Preferential agreements for sugar imports: tariff quotas, import licence applications and coverage rate (t in equivalent white sugar; from 2005/06 to 20010/11)

		2005/06			2006/07			2007/08			2008/09			2009/10			2010/11		
Protocol n. 3 on ACP-India																			
Countries (3)	**Agreed quantities (1)**	**Delivery obligations**	**Allocated**	**% (2)**	**Delivery obligations**	**Allocated**	**% (2)**	**Delivery obligations**	**Allocated**	**% (2)**	**Delivery obligations**	**Allocated**	**% (2)**						
Barbados	32 097	32 638	31 453	96.4	33 234	32 626	98.2	27 464	26 524	96.6	25 491	25 491	100.0						
Belize	40 349	42 013	42 013	100.0	42 689	42 689	100.0	69 616	66 252	95.2	72 069	64 548	89.6						
Cote d'Ivoire	10 186	10 773	10 493	97.4	520	520	100.0	10 123	4 054	40.0	10 695	4 054	37.9						
Rep. of Congo	10 186	10 225	10 218	99.9							5 214		0.0						
Fiji	165 348	167 600	167 600	100.0	174 597	172 164	98.6	162 656	162 300	99.8	169 837	169 837	100.0						
Guyana	159 410	161 497	161 497	100.0	167 303	167 317	100.0	191 369	193 014	100.9	166 684	155 594	93.3						
India	10 000	10 781	10 567	98.0	10 208	10 208	100.0	10 000	10 000	100.0	10 485	10 485	100.0						
Jamaica	118 696	120 693	120 693	100.0	121 413	117 163	96.5	148 003	137 174	92.7	101 765	93 800	92.2						
Kenia	5 000	6 413	6 413	100.0	41	41	100.0	2 045	2 039	99.7	4 979	2 300	46.2						
Madagascar	10 760	14 217	11 875	83.5	6 050	6 905	114.1	6 250	6 249	100.0	10 767	10 767	100.0						
Malawi	20 824	22 510	22 739	101.0	27 983	28 170	100.7	24 368	21 878	89.8	44 331	33 144	74.8						
Mauritius	491 031	499 322	499 322	100.0	488 344	485 913	99.5	476 790	432 145	90.6	456 811	456 107	99.8						
Mozambique	6 000	7 391	7 391	100.0	10 488	10 488	100.0	5 966	6 000	100.6	22 518	21 800	96.8						
St Kitts and Nevis	15 591	785	785	100.0															
Swaziland	117 845	118 465	118 465	100.0	126 305	126 396	100.1	126 028	125 390	99.5	171 934	170 165	99.0						
Tanzania	10 186	10 299	10 186	98.9	10 270	10 270	100.0	9 672	9 668	100.0	12 266	21	0.2						
Trinidad&Tobago	43 751	40 000	33 109	82.8	23 500	23 704	100.9												
Zambia	7 215	8 471	8 471	100.0	12 085	11 131	92.1	11 865	6 228	52.5	25 323	8 211	32.4						
Zimbabwe	30 225	31 871	31 871	100.0	36 231	34 060	94.0	37 660	37 661	100.0	56 686	56 686	100.0						
Total	**1 304 700**	**1 315 964**	**1 305 161**	**99.2**	**1 291 261**	**1 279 765**	**99.1**	**1 319 875**	**1 246 576**	**94.4**	**1 367 855**	**1 283 010**	**93.8**						
CXL, EBA SPS, Transitionals mesures																			
		Quota	**Allocated**	**%**	**Quota**	**Allocated**	**%**	**Quota**	**Allocated**	**%**	**Quota**	**Allocated**	**%**	**Quota**	**Allocated**	**%**	**Quota**	**Allocated**	**%**
CXL	Brezil	23 930	23 930	100.0	47 630	47 630	100.0	34 054	34 054	100.0	34 054	34 054	100.0	334 054	288 754	86.4	334 054	334 054	100.0
	Cuba	58 969	58 916	99.9	73 711	73 711	100.0	58 967	58 967	100.0	78 969	78 969	100.0	68 969	68 967	100.0	68 969	68 967	100.0
	Australia				17 369	17 369	100.0	9 925	9 925	100.0	9 925	9 925	100.0	9 925	0	0.0	9 925	9 925	100.0
	Other	2 564	2 564	100.0	5 678	5 678	100.0	3 977	3 977	100.0	3 977	3 977	100.0	10 000	10 000	100.0	10 000	10 000	100.0
	Erga omnes													253 977	253 977	100.0	253 977	253 967	100.0
	Total	**85 463**	**85 410**	**99.9**	**144 388**	**144 388**	**100.0**	**106 923**	**106 923**	**100.0**	**126 925**	**126 925**	**100.0**	**422 948**	**367 721**	**86.9**	**422 948**	**422 946**	**100.0**
EBA		129 751	129 751	100.0	192 113	192 113	100.0	178 030	178 030	100.0	204 735	179 473	87.7						
SPS / complem.	India	10 000	10 000	100.0	22 000	22 000	100.0	20 000	0	0.0	10 000	0	0.0						
	Others (ACP)	150 224	145 245	96.7	312 025	312 025	100.0	266 597	266 597	100.0	127 547	44 924	35.2						
	Total	**160 224**	**155 245**	**96.9**	**334 025**	**334 025**	**100.0**	**286 597**	**266 597**	**93.0**	**137 547**	**44 924**	**32.7**						
Transit measures	Bulgaria				149 061	149 061	100.0	198 748	198 748	100.0	198 748	198 748	100.0						
	Romania				247 227	247 227	100.0	329 636	329 636	100.0	329 636	329 636	100.0						
	Total				**396 288**	**396 288**	**100.0**	**528 384**	**528 384**	**100.0**	**528 384**	**528 384**	**100.0**						
Preferential EPA-EBA Agreement sugar																			
														Thres (1)	Allocated	%	Thres (1)	Allocated	%
Non ACP														n.a	51 840.0		n.a	63 380.0	
ACP	**LDC**													n.a	290 733.0		n.a	365 735.0	
	Non -LDC	C.Africa												10 186		0.0	10 186		0.0
		W.Africa												10 186	47	0.5	10 186		0.0
		SADC												166 081	298 968	180.0	174 632	263 930	151.1
		EAC												12 908	410	3.2	13 572	14 959	110.2
		ESA												544 712	421 555	77.4	572 756	577 433	100.8
		Pacific												181 571	100 300	55.2	190 919	136 600	71.5
		Cariforum												454 357	304 782	67.1	477 749	360 297	75.4
TOTALS	ACP-non LDC													1 380 000	1 126 061	81.6	1 450 000	1 353 218	93.3
	ACP ALL													3 500 000	1 415 214	40.4	3 500 000	1 718 953	49.1
	ACP + non-ACP														1 467 054			1 782 333	

1) tonnes white sugar equivalent 2) %>100 possible according to art. 5 (3) of reg. 950/2006 (extra margin of 5% with a maximum of 5 000 tonnes.- added to delivery obligations 3) in bold, ACP-LDC countries

Source: DG Agri D.2 (update: 17/10/2011)

5.2.4.3 The role played by the ACP/LDC raw sugar Community minimum price

With the reference price decrease, the reform has led to a gradual decrease in the reference price of raw cane sugar for refining, and of the guaranteed minimum price[113]. For the 2006/7 and 2007/8 campaigns, the guaranteed minimum price to ACP exporters remained the same as that of years prior to the reform, namely 496.8 €/t. Starting from the 2009/10 campaign and up to the 2011/12 campaign included, new legislation requires that the guaranteed minimum price be at least 90% of the reference price. Subsequently, from the 2012/13 campaign onwards, the price will be completely free and detached from the reference price.

Accordingly, the accumulated decrease percentage of the guaranteed minimum price was zero for the first two campaigns after the reform, about 10% for 2008/9 and about 39% as from 2009/10.

Table 65:Minimum purchase price of ACP raw sugar (€/t)

	2004/5	2005/6	2006/7	2006/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Raw sugar intervention price	523,7	523,7									
Adjustment aid	29,2	29,2									
Adjustment aid *0,92	26,9	26,9									
Raw sugar reference price	-	-	496,8	496,8	448,8	335,2	335,2	335,2	335,2	335,2	335,2
Minimum raw sugar ACP/LDC price	496,8	496,8	496,8	496,8	448,8	301,7	301,7	301,7	Free	Free	Free

Source: Regulations

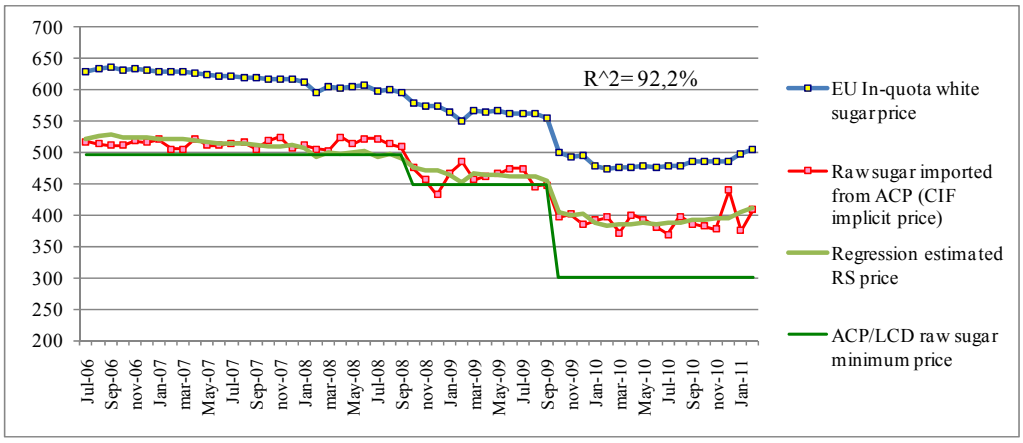
The graph below gives monthly average price trends for sugar imported from ACP countries (implicit CIF prices[114] calculated by DG Agri C5 based on Comext data), compared with the development of EU in-quota white sugar prices and with the "barrier" consisting of the minimum price guaranteed to ACP states[115].

The following observations can be proffered:

- Up to September 2009 (end of 2008/9 campaign) the implicit price of sugar imported from ACP states was basically in line with the guaranteed minimum price. The price paid by European refineries for ACP sugar was, consequently, in line with the minimum price.
- As from October 2009, the implicit import price is completely detached from the guaranteed minimum price: the average was 392 €/t and the difference amounted on average to 90 €/t (+29.9% higher than minimum price). The average price has even tended to rise since March 2010.
- The changes in the implicit price of sugar imported from ACP states are highly linked to the changes in the average price of EU-in quota white sugar[116]. Furthermore, the average price of white sugar was also basically in line with the reference price of white sugar up to the 2009/10 campaign, before evolving independently.

[113] It is recalled that the guaranteed minimum price is a CIF price, inclusive of the cost of transportation, which is paid by exporting firms.
[114] Implicit prices are calculated as a ratio of the value and the volume of imports. This is thus a calculated price, and not a true market price.
[115] The time series begins in July 2006, the start date of the obligation to record sugar prices set forth by the regulations.
[116] The linear regression analysis between the two time series shows a very high correlation (R^2 = 92.2%). The graph shows, in green, the curve of ACP prices estimated by the regression.

Figure 34:Monthly prices of white sugar, ACP raw sugar and expected prices of ACP sugar



Sources: processed DG Agri C5 data, regulations

5.2.4.4 Development of the world price of raw cane sugar in relation to Community price

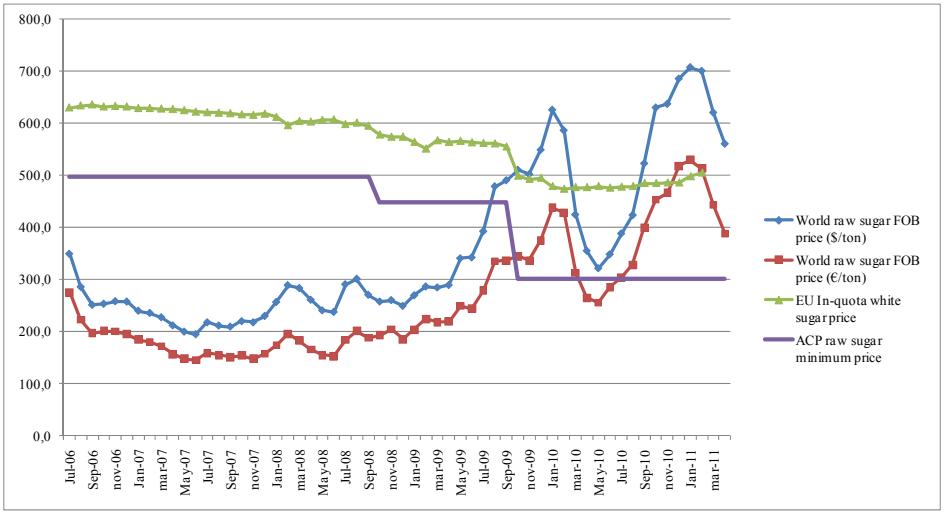
The fall in the guaranteed minimum price for raw cane sugar coincided with a strong hike in the world FOB price of raw cane sugar as from mid-2008. This price is expressed in US cent/lb. To be able to assess the role played by this price rise on the attractiveness of the EU market, it is also necessary to consider the change in the USD/Euro exchange rate.

It should also be noted that the world price relates to "spot" sales, which thus do not necessarily reflect the price of raw sugar under annual or longer-term contracts, the variations of which are naturally more modest.

Finally, the rise in the world price is an event that is independent from the reform, appearing to be linked more to the price trends of other global agricultural commodities (cereals, etc.) and non-agricultural commodities (oil, etc.).

The graph below gives world monthly price trends in USD/t and €/t based on exchange rate trends, as well as the changes in the EU-in quota white sugar price. The "barrier" of the guaranteed minimum price is also shown.

Figure 35:World monthly price trends for raw sugar to be refined, average price trends for EU-in quota white sugar, minimum price trends for ACP raw sugar (USD/tonne; €/tonne)



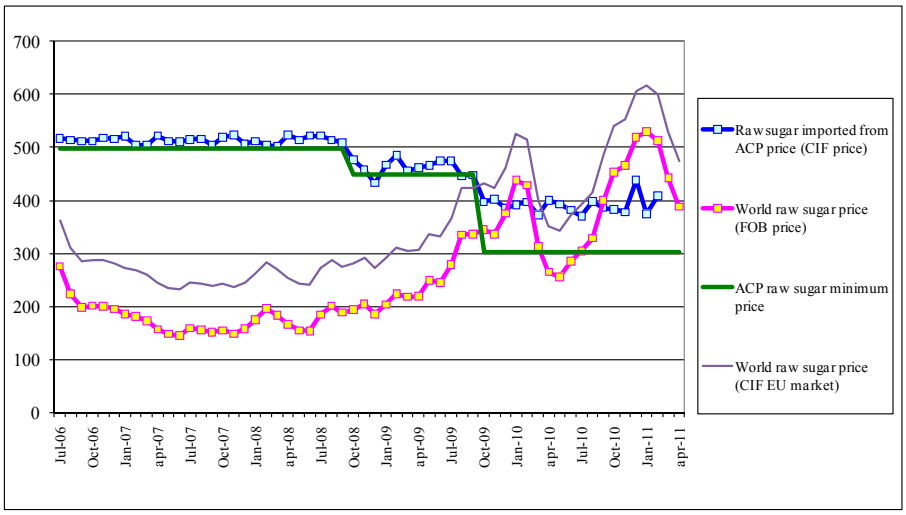
Sources: ICE Contract 11 nearby futures price – New York Board of Trade; DG Agri C5; Regulations

Generally speaking, exchange rate levels and oscillations made it possible to mitigate the explosion in world prices, especially in the more recent period. It may however be noted that:

- The difference between guaranteed minimum price and world price expressed in €/t exceeded, on average, 300 €/t up to September 2008. Then it fell to an average of about 200 €/t between October 2008 and September 2009, becoming negative by an average of minus 87 €/t in the period October 2009-April 2010, but with a drop of -230 €/t in January 2011. Being a FOB price, transport and insurance costs must also be considered, on the one hand reducing positive differences, but on the other considerably increasing negative differences.
- As from the 2009/10 campaign, world FOB prices for raw sugar have approached or even exceeded the average Community price of white sugar.

The graph below compares average implicit price trends for ACP imports (CIF price) with world FOB average price trends (both expressed in €/t). In this case we also converted the FOB price to CIF price by applying an average cost (freight + insurance) of 87 €/t[117], kept constant throughout the period analysed.

Figure 36: Development of monthly CIF prices of ACP raw sugar, the world FOB price and the minimum Community price for ACP sugar (€/tonne)



Sources: ICE Contract 11 nearby futures price-New York Board of Trade; DG Agri C5; Regulations

Bearing in mind the limits of applying an average transportation cost, it is noted that since the 2009/10 campaign the world "spot" price at the European frontier has exceeded, on average, about 81 €/t price of raw sugar imported from ACP countries (+20.7%).

As has been seen, the price of raw sugar imported from ACP countries is highly correlated to EU-in quota white sugar price, and thus represents the price that Community operators are willing to pay to retain an adequate difference between the two, such as to cover production costs.

It follows that, for some exporter countries, the Community market has become less attractive, thus they have found it more convenient to export raw sugar (spot contracts) to other neighbouring markets, also limiting freight costs as much as possible[118].

It should be noted here that in addition to being lower than the world spot price, the price of raw sugar imported from ACP countries is also much less volatile. This is due to the existence of

[117] This cost is calculated as an average of transportation costs from ACP countries to EU ports. The source of these costs is Table 8 of the draft report 'Safeguarding the benefits of the ACP-EU sugar protocol in the context of the EPA negotiations' (20 February 2007). They vary from a minimum of 60€/t (Barbados) to a maximum of 120 €/t (Tanzania)

[118] It should be stressed that both interviewed operators and available literature agree in indicating 20 US cent/lb (330€/t FOB at a rate of 0.748 USD/€) as the threshold above which for the companies of exporting countries it is more convenient to export in other non-EU countries rather than in the European Union. This threshold is however purely indicative since, as already mentioned, freight costs are very different among exporter countries.

annual/longer-term contracts in which the price is fixed. So it is upon the expiry of the contract that the price is re-negotiated taking world prices into account[119].

Finally, it should be stressed that very probably the price of raw sugar imported from ACP countries does not represent in an exhaustive manner the actual economic transaction between exporter firms and Community importer firms. Interviews conducted indicated that a system of agreements is spreading that entails, in addition to the price, the sharing (50%) of profits relating to the sale of refined sugar in the Community market. This appears to be a condition to guarantee (partly at least) supply volumes.

5.2.4.5 The role played by the end of the Sugar Protocol and its replacement with the Preferential EPA-EBA Agreement sugar

As already mentioned, the Sugar Protocol with ACP states has been substituted by the EPA-EBA agreement sugar.

The termination of the Sugar Protocol has also cancelled supply obligations and national quotas of sugar exports to the EU. This means that the Community market is no longer a constraint, but an opportunity to be explored depending on economic opportunities in the Community market and in other possible world markets. In other words, ACP exporter countries are free to decide, as has happened, to export in any market, where profit can be maximised.

The overall effect (taking account only of ACP states of the former Sugar Protocol) is consequently a general decline in supply flows of sugar to be refined (exports in 2010 are 28% lower than the average 2006-2008).

Table 66: Exports of countries adhering to the former sugar protocol (NC 1701 11 10) in the Community market (EU-15) (tonnes)

	Sugar to be refined (NC 17011110)				White sugar and others (NC 1701 - NC 17011110)				Total sugar (NC 1701)			
	Average 2006-08	2010	Δ	Δ%	Average 2006-08	2010	Δ	Δ%	Average 2006-08	2010	Δ	Δ%
Tot ACP-India	**1 412 946**	**1 015 064**	**-397 882**	**-28.2**	**182 613**	**393 392**	**210 779**	**115.4**	**1 595 559**	**1 408 456**	**-187 103**	**-11.7**
Fiji	200 957	100 189	-100 768	-50.1	0	0	0		200 957	100 189	-100 768	-50.1
Guyana	194 516	152 940	-41 576	-21.4	411	461	49	11.9	194 927	153 401	-41 526	-21.3
Jamaica	139 356	78 632	-60 724	-43.6	0	0	0		139 356	78 632	-60 724	-43.6
Mozambique	83 243	82 492	-751	-0.9	7	0	-7	-100	83 250	82 492	-758	-0.9
Mauritius	393 904	77 212	-316 692	-80.4	63 752	291 731	227 979	357.6	457 657	368 944	-88 713	-19.4
Swaziland	113 121	234 893	121 773	107.6	40 148	62 864	22 716	56.6	153 268	297 757	144 488	94.3
Zimbabwe	56 516	70 588	14 073	24.9	0	0	0		56 516	70 588	14 073	24.9
Others ACP-I	231 334	218 117	-13 217	-5.7	78 295	38 337	-39 958	-51	309 628	256 454	-53 174	-17.2

Source: Comext (October 2011)

As can be seen, behaviour is very uneven among the various countries: on the one hand, the collapse of exports of raw sugar to be refined from Mauritius and Fiji, on the other the doubling of exports from Swaziland and export growth from Zimbabwe. The decrease in raw sugar exports was only partly compensated by exports of white sugar and other types of sugar. This substitution concerns Mauritius and Swaziland. The reasons are explained below.

[119] Price volatility (and the degree of uncertainty) partly explains why some ACP countries have continued to maintain their supply commitments to Community undertakings in spite of more attractive prices in neighbouring markets.

5.2.4.6 Strategic responses implemented following the combined effects of the reform and the increase in world prices

The introduction of strategic changes on the part of production sectors of ACP countries and of Community undertakings has had an effect on the different behaviour of some of the ACP countries mentioned. It should be mentioned here that:

- Under the new scenario, some countries have decided to export refined sugar instead of raw sugar, or made plans to do so[120]. This is so for Mauritius, for example, where Mauritius Sugar Syndicate has entered into a partnership agreement with German group Südzucker for the supply (when fully operational) of 400 000 tonnes of white sugar in containers[121]. In the same way, Sudan company Kenana (in which the Sudan government has an equity interest) has entered into a joint venture (50-50) with Italian company Eridania-Sadam for the building of a new raw sugar refinery having a capacity of 500 000 tonnes. The start of production is scheduled for 2014, and the plant is designed to take capacity up to 1 000 000 tonnes. It is planned that 50% of refined sugar will be imported directly by Eridania-Sadam, destined for the EU market, while 50% will be for the market of northern and central Africa and the Middle East.
- The strategic alliance between British Sugar and Illovo sugar (both belonging to Associated British Foods) is behind the rise in exports from Swaziland to the Community market[122]. Similarly the construction of raw sugar plants in Mozambique and the full control of the production in Reunion Island from Tereos, are strategic for guarantee raw sugar flows to Tereos refining plants.
- In this period of difficulty regarding the supply of raw sugar to be refined, a critical factor has become the set of technical skills and established international relations that favour/enable the stipulation of supply contracts and ensure supply flows. In this sense, operators all agree in stressing, within the global scenario, the growing importance of the role played by major international brokers/traders[123]. It is thus no coincidence that strategic alliances have been developed between these actors and refineries. Some have been called upon to be part of the shareholding set-up of refining companies, and some major sugar producers (and refiners) have taken up equity interests in international brokers/traders[124].

[120] It is noted that, to offset the fall in the guaranteed minimum price, the governments of 18 countries of the former sugar protocol benefited from "accompanying measures" for a total of 1 284 million euros. These measures are designed to aid with the restructuring of the sugar sector and of their national economies made necessary in light of the EU reform. In some countries, Community funding has encouraged investments to reduce production costs, in others to convert raw sugar production into refined sugar production according to similar qualitative standards to those in place in the EU.

[121] It is noted that this operation has+++002B actually deprived Tate&Lyle of a significant portion of its supplies (together with Fiji and Jamaica), contributing to its sale to ASR. On the other hand, with this operation Südzucker has covered about half of the 870 000 tonnes of sugar quota abandoned following the reform.

[122] Illovo sugar operates in the Southern African Development Community-SADC (Malawi, Zambia, Swaziland, Tanzania, Mozambique). Illovo is also the supplier (in addition to British Sugar) of other European companies (i.e. Sfir)

[123] Basically, this means that in a context of scarce resources globally, competition among companies in the supply phase has exploded; a competitive edge (guarantee of supplies) is achieved by those who manage to actively involve professionals (international brokers and traders) that have consolidated relations with suppliers.

[124] The Italian Refinery of Brindisi for example is part owned by Sfir and trading company ED&Fman (50-50 stakes). ED&Fman itself has taken up an interest in Portuguese company Dai. On the other hand, Associated British Food, owner of British Sugar and Illovo, is also the part owner (42.5%) of Czarnikov group. In May 2011 German firm Sudzuker acquired a 25% interest in ED&Fman. All of this demonstrates the extent to which the European and world sugar industry is still in full ferment.

5.2.5 TRANSITIONAL AID HAS (OR NOT) CONTRIBUTED TO THE RESTRUCTURING OF THE REFINERS

The transitional aid to full-time refiners (cf. Chapter 2.1.2.3) was divided by Member State as follows.

Table 67: Transitional aid budget by Member State and transitional aid received declared by companies(€)

Member State	Budget (million €)	Full-time refiners	Amount of transitional aid (million €) received declared by companies
UK	94.3	Tate & Lyle – Thames refinery	92 , in 2006/7
PT	24.4	RAR	13.3
		Sidul	13.0
FI	5.0	Suomen Sokeri Oy (Nordic Sugar)	5.0
FR	24.8	Saint Louis Sucre Marseille	14.8
		Tereos Nantes	10.0
SI	1.5	Tovarna Sladkorja Ormoz	n. av.

Source: Budget - Council Regulation (EC) No 320/2006; Amount received - UK: Defra, PT: Company representatives, FR: Ministère de l'Agriculture

The aid was intended only to full-time refiners and thus it was paid to a very limited number of refiners (7 in total). According to art.8 of Regulation (EC) n° 320/2006, Member States would grant the aid on the basis of objective and non-discriminatory criteria. However, in three Member States (UK, FI and SI) there was only one traditional full-time refinery.

The aid was granted on the basis of a business plan approved by the Member State. The business plans developed by the traditional full-time refiners have not been made available by the companies nor national authorities or the Commission, with only one exception. They are considered sensitive documents. Therefore, the little information available was gathered through the interviews with traditional refiners' representatives and authorities. In particular:

- According to interviewees, **the UK** refinery chose to use the aid to improve cost-efficiency of the plant mindful of how the price cuts would increase competitive pressures on their operations. However according to Tate & Lyle representatives, even if they followed through everything that was in their business plan, it did not allow for the significant scale of volume reductions that the plant is now seeing. This means that not all the benefits of the aid have been realized. The total aid sum was more or less consistent with the investments they made.
- Concerning the **French** refineries[125]:
  - "Tereos Nantes" prepared a first business plan in 2007. In 2009, following an agreement with the national authorities, a second business plan was done, which planed the end of the refinery activities (the activities stopped the 31/7/2009) but the partial maintenance of the packaging activities. However beginning 2011, Tereos announced the closure of the packing activities too.
  - The other French refinery, Saint Louis Sucre Marseille, used all the aid to cover the operating costs of the campaigns 2006/2007 to 2009/2010. However an investment of 500 000 Euros was foreseen in the campaigns 2007/2008 and 2008/2009.

[125] There were three FTRs in FR, but only two benefited from the support. Erstein which is a beet sugar production site did not.

- The two **Portuguese** refineries chose actions aimed at increasing capacity and decreasing fixed costs. Their strategic plan was to make maximum use of installed capacity (however they now work at 65% of their capacity due to supply shortages).
  - For one of them, the actions of the business plan were:

    a) Contributions to operating costs and other provisions, mitigating negative impacts on margins due to the decrease in the reference price of white sugar: decrease in gross margin and increase in transportation cost;

    b) Investments on equipments; studies: productivity management; automatization of warehouse; strategic options for the future.
  - The other used the aid for: increasing raw sugar reception capacity (increased of about 3 times which allowed reducing port demurrage of ships); reduction of energy costs; investments on the silos (increased storage capacity), investments on the packaging areas.

The two refineries stated that the transitional aid has covered a significant proportion of the investments made on the plants but the total amount invested has been higher than the aid received. All measures foreseen in the business plans were implemented and the foreseen scheduling was respected.

- In its Business plan, the **Finnish** refinery outlined measures aimed at improving energy efficiency and organization streamlining. According to interviewees, the aid was necessary to balance the effects of the reform between the beet and cane sectors: the aid compensated somehow the weakened situation of the refinery.
- In **SI**, Tovarna Sladkorja Ormoz has stopped refining in 2007.

According to the interviews the transitional aid contributed both to mitigating negative impacts on margins by covering operating costs of the refineries and to the restructuring of the plants. Investments have been done mainly to be able to increase production in order to reduce fixed costs. However, all interviewees stated that at present, companies are not able to profit fully from the benefits of the aid because there is a lack of raw sugar to refine.

5.2.6 JUDGEMENT

The evaluation question has analysed the effects of the reform on the entire refinery sector (not only full-time refiners – FTR), separating the reform effects from exogenous effects, in particular the changes in trade agreements and market price development.
Under the previous scheme, refiners benefited from a strongly protected system. The new institutional framework established by the 2006 reform has enhanced competition in the European market between EU beet sugar and imports of raw or refined cane sugar. With a decrease in EU quota production, imported sugar (including raw sugar) was to gain market shares on the European market. A three year transition period and a transitional aid to the full-time refiners were implemented to prepare refiners for the new context.

Effects of the reform on the structure of the refining industry and on its geographical distribution

The removal of strong protection, which used to benefit the traditional FTRs has led to an increase in the number of FTR, that has gone from seven (before the reform) to eleven (in 2011). However, out of the seven traditional refineries, only five are still operational in 2011. Thus, six FTRs are newcomers.
These changes have also modified the geographical distribution within the EU, with the **appearance of refining structures in Member States, where the refining activity was non-existent prior to the reform (e.g. Denmark, Italy and Spain)**. On the contrary, in Slovenia the only refinery existing before the reform has been closed.

To adapt to the new post-reform institutional framework, in which sugar imports were expected to increase, **refineries have increased their production capacity. Indeed, in the EU-25, full-time refinery production capacity has in fact increased by 58%**[126].
Moreover, the abolition of the traditional supply needs (TSN) repartition by Member State and the opening of access to import licenses for operators other than FTRs have enabled **raw cane sugar refining activities to start up at four beet sugar producing plants** with a production capacity of around 330 000 tonnes/year. In a near future, another capacity increase of 830 000-880 000 tonnes/year is foreseen.
Therefore, we estimated that the overall refining capacity in the EU 27 will be around 4.7 million tonnes/year in 2013.

Effects of the reform on EU supplies for refiners in terms of quantities and prices

At the EU-15 level, **third countries' supplies of raw cane sugar to be refined**[127] **after the basically stable transition period reached an all-time low of 1.4 million tonnes in 2010**. At the Member State level the dynamics have been diverse and they have been translated into more or less accentuated structural changes.
This decrease of supplies prevented the Community TSN from being covered. The rate of coverage[128] went from an average of 82% in the period 2000/01-2008/09 to 67% in 2009/10[129]. **This was in contrast with refineries' choices to increase production capacity, the choices which derived from the drop in Community production of beet sugar following the reform and the greater liberalisation of imports regime**.
The dynamics influencing supply flows of raw sugar to EU refineries have been the result of combination of factors, in particular:

- a strong hike in the world FOB price of raw sugar since 2009/2010 (exogenous to the reform) has made the Community market appear less attractive for raw sugar imports (in particular from EPA-EBA[130] countries);
- the decrease in the Community guaranteed minimum price for raw sugar imported from EPA-EBA countries (factor linked to the reform) coincided with this strong hike in the world price, amplifying its impact;
- the termination of the Sugar Protocol (exogenous to the reform) and its substitution with the EPA, has cancelled supply obligations to the EU, leaving ACP exporter countries free to decide to export to any market, where profit can be maximized;
- some strategic responses following the reform implemented by European companies in ACP countries (e.g. Mauritius and Swaziland) to increase exports of white sugar instead of raw sugar.

In these new conditions, the attractiveness of the Community market for raw sugar exports depends on the price gap between the EU and other markets. In 2009/10 (and to a lesser extent in 2010/11), when the price conditions were not in favour of the European market, EPA-EBA countries have found more advantageous to export raw sugar to neighbouring markets rather than to the EU. This has led to a strong decrease in the coverage rate of imports from the former Sugar Protocol countries with a partial recovery in 2010/11.

[126] Estimation based on the declarations of refineries and on the basis of an utilisation standard of the equipments.
[127] excluding transfers from French Overseas Departments and excluding imports effected via inward processing arrangements
[128] Ratio between raw sugar imports and the quantities defined in regulation as the ones necessary to EU refineries: (supply flows of raw sugar * 0.92[128]) / TSN
[129] excluding transfers from French Overseas Departments
[130] Economic Partnership Agreement and Everything But Arms Agreement

Contribution of the transitional aid to the restructuring of full-time refiners

Finally, we have analysed the role of the transitional aid to FTR operating prior to the reform, established in order to give them the possibility to adapt to the future industry structure[131]. It is important to note that **limited information was gathered since the business plans attached to the support were not provided by authorities or operators.** The lack of data has prevented quantitative analysis.

According to the interviews, the transitional aid contributed both to lessening negative impacts on margins by covering operating costs of the refineries and to facilitate restructuring of the plants. Investments have been made, mainly to be able to increase production in order to reduce fixed costs. However, all interviewees stated that at present, companies are not able to fully benefit from these investments because there is a lack of raw sugar imports for refining.

[131] Refiners did not contribute to the restructuring fund, but benefited from it.

5.3 QUESTION 6: SUSTAINABLE MARKET BALANCE IN THE EU

To what extent have the measures applied to the sugar sector contributed to attaining a sustainable sugar market balance in the EU?

5.3.1 COMPREHENSION OF THE QUESTION

A market balance is defined here as stable equilibrium between EU production, imports, exports, and stocks on the one hand and consumption on the other. A sustainable market corresponds to a situation where the needs of the EU market are covered without facing risks of shortage or oversupply, or generating large price fluctuations, in the short and long term.

Attaining a sustainable market balance corresponds to two core objectives of the CAP: to guarantee supply of the EU markets for consumers and end-using industries at reasonable price and stabilise the market. In 2005, the upcoming changes in the trade arrangements with third countries and the ruling by the WTO Panel limiting EU subsidized exports were obvious drivers of possible market imbalance, which required a reform of the sugar regime.

The EU sugar market is twofold, with the agri-food sector on one side and the industrial uses on the other. These two segments are independent on the demand side and specific market measures apply to each of them.

Before the reform, the market balance was highly regulated: EU sugar production was restricted by quotas matching EU agro-food needs, the flow of imports was restricted to known volumes set in the Sugar Protocol with ACP states and India, and overproduction used to supply the industrial market or was exported. There was no risk of stocks accumulation, and prices were regulated.

Since the 2006 reform, the market balance is not as regulated:

- on the one hand, EU production remains limited by quotas, but these have been reduced to 13.2 million tonnes for the EU-25;
- on the other hand, because of the ruling by the WTO Panel, subsidised exports are limited to 1.37 million tonnes,
- and from 2009/10, the import flow (of white and raw sugar) from third countries is not guaranteed anymore and depends greatly on the price gap between the EU and other markets.

The EU quota and reference price were reduced to limit risks of oversupply. With a market price around the reference price (404 €tonnes), the increase in imports was expected to be limited and stabilize below the threshold of 3.5 million tonnes (established for imports from all ACP countries, LDCs included). Therefore, imports added to the EU quota production would meet EU agro-food demand (around 16 million tonnes). It must be also noted that attaining market balance was particularly sensitive during the first years of the reform implementation because the rate of voluntary quota renunciation was unknown.

Therefore the evaluation question assesses whether and how the measures contributed, along with strategic decision of economic actors, to reach market equilibrium.

This question also raises the issue of the market balance between the different types of sweeteners, especially isoglucose and sugar, which are both affected by quotas**.**

Finally, the question invites to look at intra-EU exchanges. Indeed, internal flows between Member States have been affected by the changes in the auto-sufficiency rate of the Member States (due to quota attrition), especially in regions where the restructuring of the sector was the most significant.

The market balance is largely influenced by multiple factors independent from the CMO, the most important one being the world price which impacts on the trade flows between the EU and third countries.

5.3.2 CRITERIA, INDICATORS AND DATA SOURCES

Criteria	Indicators
The measures set since the 2006 reform have allowed the EU (or not) to attain a sustainable market balance	Change in EU demand
	Change in the EU production
	Change in the EU exports and market measures
	Change in imports and market measures
	Change in stocks
	Change in price
The measures have contributed (or not) to improving the market balance between sugar and isoglucose	Change in quotas and operators point of view
The internal EU flows of sugar and isoglucose were affected by the 2006 reform	Change in the market balance at Member States level
	Change in internal exchange flows between Member States

The answer to this question requires the analysis of the market balance items: consumption, production, import, export and stock, as well as prices. The DG Agri EU balance sheet for sugar and isoglucose presents limitations as its structure has changed with the reform and the integration of the New Member States. Therefore other data is used:

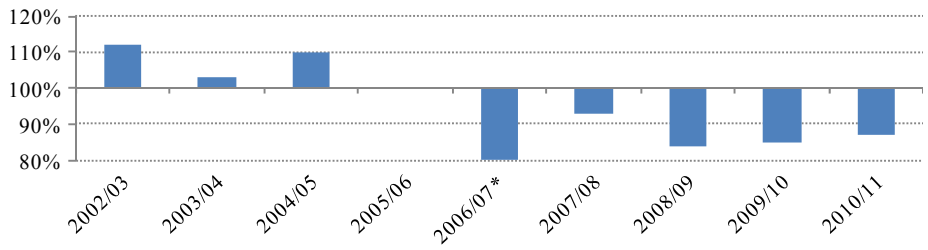
- ISO data to assess the trends in EU consumption.
- DG Agri annual data (based on communication from the Member States) for production
- Comext data for trade

Results from Question 4 and 5 are also used here, as well as the level of implementation of CMO measures which have been presented in the empirical analysis (Chapter 2.2).

5.3.3 THE MEASURES SET SINCE THE 2006 REFORM HAVE CONTRIBUTED (OR NOT) TO ATTAINING A SUSTAINABLE MARKET BALANCE

With the change in quota and the limitation in exports introduced following the ruling by the WTO Panel, the market equilibrium observed after the reform changed significantly: whereas the EU was a net exporter of sugar until 2005/06, it has become a net exporter since 2006/07. The coverage of EU needs for the food market (quota consumption) by EU quota production changes from an average of 106% (2002/03 to 2005/06) to an average of 85% (2006/07 to 2009/10).

Figure 37: Ratio EU quota production over quota consumption



* marketing year 2006/07 lasted 15 months

EU-15 from 2002/03 to 2004/05, EU-25 from 2005/06 to 2007/08, EU-27 from 2008/09 to 2010/11

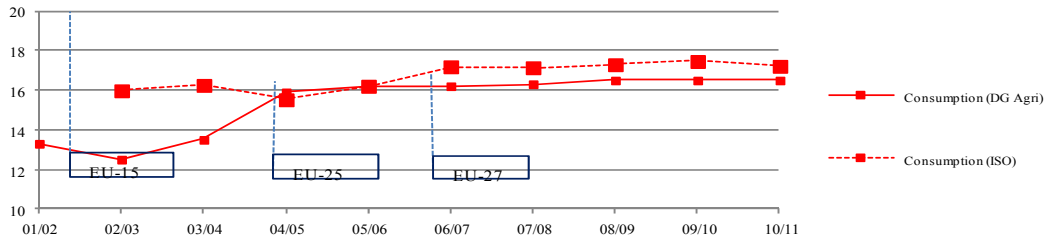
Source: Agrosynergie from DG Agri C5

5.3.3.1 Sweeteners and industrial sugar demand

5.3.3.1.1 Stable demand for sweeteners

ISO data presented below[132], along with DG Agri balance consumption item show a constant level of sweeteners consumption around 17 million tonnes[133]. Sugar is a basic staple food for which EU demand is stable and not sensitive to a decrease in price. The increase in the agri-food EU consumption since the reform is mainly due to EU enlargement.

Figure 38: EU sugar and isoglucose consumption, 2001/02-2010/11 (million tonnes of white sugar equivalent)



Since 2006/07 included, DG Agri consumption comprises exclusively food market. DG Agri data are progressively EU15, EU25 and EU27. ISO data are EU 25.

Source: Agrosynergie based on DG Agri and FO Licht

5.3.3.1.2 Development of industrial needs, especially of bioethanol industry

Whereas demand for food is stable, industrial uses have increased from 1.4 million tonnes in 2006/07 to 1.9 million tonnes in 2009/10 (cf. Question 4, Table 48). As analysed in the Question 4, the increase in out-of-quota consumption has been driven by the development of bioethanol production, (from 0.5 million tonnes in 2006/07 to 1.3 million tonnes in 2009/10).

5.3.3.2 Development of production and market measures impacting production

On the side of supply, the agro-food sector has to be supplied with in quota production and imports, whereas industrial and bioethanol demand are supplied with the out-of-quota production and industrial imports. The reform has had direct significant impacts on EU production. As detailed in Question 4, chapter 5.1.3.1.2:

- EU-25 production of quota sugar was reduced from 15.5 million tonnes in 2005/06, a year before the reform to 13.2 million tonnes of quotas in 2009/10 (cf. Table 47).
- C sugar production in the EU-25 before the reform averaged at 3.9 million tonnes (2004/05 - 2005/06). Out-of-quota production now covers industrial uses which were previously partly covered by quota production and partly produced outside the CMO, and new industrial outlets. The volume of out-of-quota production sharply decreased in 2006/07 while the implementation of the reform was taking place, and then almost recovered the level it had before the reform. In 2009/10, it reached a peak of 4.1 million tonnes, as a result of a campaign of high agricultural yields.

Several market measures have impacted on the level of EU production.

[132] Contain sugar for human consumption and other purposes.
[133] Consumption of isoglucose is limited by the quotas. Nevertheless, for the demand that cannot be satisfied with isoglucose is substituted by sugar. As a consequence, we can consider that the overall level of demand for both sugar and isoglucose from the agro-food sector would not change if there were no quotas. As a consequence, EU demand for sweeteners is stable over the period under study, and should remain so in the future.

Production for the food market

Preventive withdrawal. This measure contributes to maintaining the price on the Community market at a level close to the reference price by reducing quantities available. Among the two possible types of withdrawals, only preventive ones, decided in March preceding the marketing year, before sugar beets are planted, have been implemented.

In March 2006, the decision to withdraw preventively 945 426 tonnes may be considered as a transitional measure to ensure market balance for the first campaign of the reform before high level of quotas are renounced.

In March 2007, 1.4 million tonnes were withdrawn preventively, again to limit risk of oversupply. Indeed the decrease of the quota was not very significant at this stage of the reform. As a matter of fact, efforts of Member States to adapt production have been taken into account through modulation rate or exemption from withdrawal depending on countries.

In the following years, the sector restructuring resulted in a decrease of the production under quota and imports forecasted did not threaten the market balance, thus no withdrawal decision had to be taken again.

Carry forward. This measure existed in the previous CMO. It aims at smoothing production variability related to yields from one year to the other. Out-of-quota sugar is carried over and becomes quota sugar of the following campaign. No change in its use was highlighted by operators during the case studies. Nevertheless, it is noticeable that it should be close to zero in 2010/11 (see balance sheet, Table 16), because all EU production has been used.

Work under contract. In most Member States, quotas available are fulfilled. Nevertheless, after the restructuring of the sector, some companies have had difficulties finding supplies and could not fulfil their quotas with national beet production. This has been reported in IT and EL in the last campaigns. Work under contract with companies located in region with excess supplies is then used to fulfil the quotas. Another use of work under contract specific to FR, between the continental territory and its overseas territories, was also possible and impacted on production volumes (see box below).

Box 7: case of FR and Outer most regions

The increase in quota production in 2009/10 from 3.2 million tonnes to 3.4 is linked to the work under contract carried out for the French Outermost regions by metropolitan FR. In December 2009, because FR had an overproduction linked to the good agricultural campaign and because the DOM did not fulfil its quota, the ministry enabled Tereos, St Louis Sucre and Cristal Union benefit from 165 000 tonnes of quotas from the DOM. Such a measure increased quota production and limited the use of the carry forward mechanism.

Source: CGB (2010)

The other measures which could have a direct influence on volumes for the food market are the storage measures. However, they have not been used in such a way as to have any impact:

- Private storage measure has never been applied and will probably never be, given the low trigger level (85% of the reference price).
- Intervention was maintained up through the 2009/2010, but it has never been used. Again, the trigger price was very low. Remaining stocks from the period before the reform (1.36 million tonnes of white sugar equivalent at the end of 2005/06 (cf. Figure 41) have been sold progressively and have been nil since 2009/10. Because of European prices lower than the reference price (before 2007), and deteriorated quality, resale of intervention sugar has been difficult (CGB, 2009). As a result, the Commission has adopted measures to facilitate the selling of these stocks either to third countries (export with refund), for most deprived persons and for industrial uses[134]. Therefore these stocks have not impacted the supply on the agro-food market.

[134] EC regulation 38/2007 enabled BE, CZ, ES, IE, IT, HU, PL, SK and SE that grant export licence for intervention sugar (852 681tonnes). These export also received an export refund. Regulation 687/2009 closed this possibility.

Production for industrial uses

Concerning out-of-quota sugar, producers' decision is much more market-driven, in relation with, on the one side, profitability and competition of industrial sugar on the EU market (which is due to the imports quotas of industrial sugar), and on the other side, profitability of exports within the WTO limit. The trade measures are therefore important (see next Chapter).

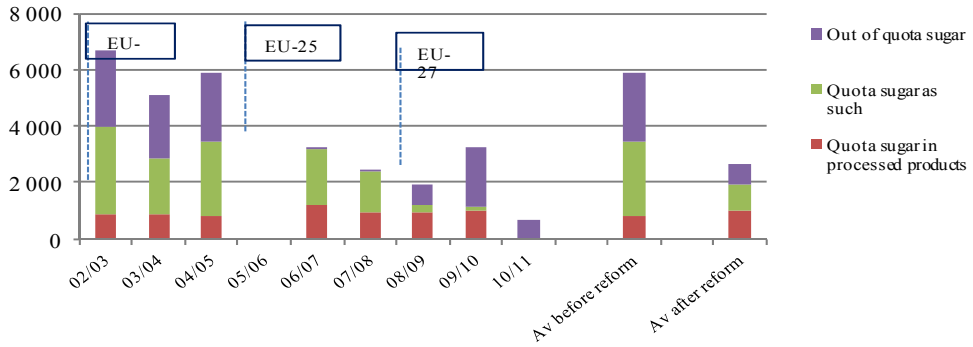
The exceptional measure authorizing producers to release 500 000 tonnes of out-of-quota sugar on the domestic market without levy implemented in April 2011 (cf. Chapter 2.1.2.2.1), did not impact the volume of production of neither quota nor out-of-quota sugar. It changed the use of the production in order to ease the tension on the food market. Quantities carried forward have been reduced in the same proportion. Nevertheless as the measure is exceptional, it was not taken into account in the planning of the production for the next campaign.

5.3.3.3 Trade with third countries and market measures impacting trade with third countries

5.3.3.3.1 Development of exports flows

As underlined by interviewees, the increase in the world demand is dynamic and structural. Indeed, the increase of sugar consumption per capita in developing countries is much higher than in developed countries (ISO, 2010). Exports could thus represent a possible outlet for EU sugar production.

Figure 39: EU sugar exports, 2002/03-2010/11 (thousand tonnes of white sugar equivalent)



Source: Agrosynergie, base on DG agri data

Previously to the reform, export was the outlet of C sugar, and large quantities of quota sugar were exported as well (benefiting from refunds). After the reform, EU exports fell significantly: from 5.9 million tonnes, on average[135], to 2.7[136] (respectively 5.0 million and 1.6 million, excluding sugar in processed products).

After the reform, part of the exports (subsidized exports) is subject to the WTO limit of 1.37 million tonnes. The development in the quantities exported results from the ruling by the WTO Panel, as well as the suspension of the export refunds and the decrease in quota production.

EC regulation 1476/2007 states that *given the continued existence of intervention stocks, it is appropriate to provide for the possibility to sell for industrial use sugar held by the intervention agencies.* According to the art.1, *the intervention agencies of* BE, CZ, IE, ES, IT, HU, SK, SE *shall offer for sale by standing invitation to tender for industrial use a maximum total quantity of 477 924 tonnes of sugar accepted into intervention and available for sale for industrial use.*
The remaining quantities were sold for the most deprived persons and the intervention stock has been nil since October 2009.

[135] Average 2002/03 to 2005/06

[136] Average 2006/07 to 2010/11

Quota exports

Before the reform, export refunds on quota sugar supported the profitability of exports.

After the reform, the WTO limit was used for quota sugar exports with refunds. With the suspension of the export refunds (in 2008/09), in quota exports are no longer subject to this limit but they are less profitable and their level has decreased sharply (cf. Table 16).

Out-of-quota exports

Before the reform, C sugar had to be exported, without refund.

In 2006/07 and 2007/08, there was no export of out-of-quota, as the WTO limit was used for quota sugar exports with refunds. As a consequence, the out-of-quota production was low (respectively 1.6 and 2.5 million tonnes) adapted to industrial needs but not more than that.

With the suspension of export refunds in September 2008, only out-of-quota sugar, is now subject to the WTO limit. As a result, from 2008/09 onwards, out-of-quota sugar exports increased (particularly in 2009/10 because of exceptional yield).

The opening of **export quotas** is made on an annual basis. Successive quotas are made available, within the WTO ceiling, depending on the volume of sugar produced in the EU and volumes needed on the industrial market. It allows the EU producers, for which exports are a large proportion of their economic activities, to be able to supply their traditional markets.

In 2008/09, 2009/10, 2010/11 and 2011/12, a first quantitative limit of 650 000 tonnes (and 50 000 tonnes for isoglucose) of export licences was made available by the EC. This volume was initially estimated to correspond to the market demand and existing opportunities on the export markets.

This initial slide was decided respectively in September 2008, April 2009, May 2010 and April 2011. In general, the decision on the initial slide is made around the sowing period of beet.

When the initial ceiling is reached, the EC may decide to grant an **additional quota**. Additional ceilings have thus been opened in August 2009 (300 000 tonnes of sugar), November 2009 (700 000 tonnes) and May 2011 (700 000 tonnes).

Besides the quota, the validity period of the export certificates also allows exports to be adjusted to the needs of the market. Some production of one campaign can be sold during the following one as export licences usually can be used within 3 months[137]. In 2009, the validity of export certificates for this campaign enabled to use 2009 export licences to export out-of-quota sugar during the marketing year 2009/10.

Finally the Commission might, under specific conditions allow **exports beyond the WTO ceiling**. It did so in February 2010. At the time the first two limits (650 000 + 700 000 tonnes) were fixed, exports of out-of-quota sugar could be considered as being subsidised because the average cost of production of sugar in the Union could have exceeded its selling price on the export market. But during the campaign, the global economic conditions changed significantly. In early January 2010, world market prices for white sugar more than doubled and reached approximately 500 €/tonne on the London commodity futures market. At the same time, the prices on the sugar market in the Union decreased in line with the institutional reference price. The selling price of the out-of-quota sugar on the world market is then above the average cost of sugar production in the Union. Therefore, as long as these conditions are valid, the Commission considered that export of out-of-quota sugar cannot be regarded as being subsidized and exports above the WTO limit could be made without violating the EU obligations. The Commission hence exceptionally decided to open an additional quota of 500 000 tonnes.

This exceptional measure allowed European producers to benefit from the world market situation and to respond to world demand. This exceptional export quota defined very strict limits on the use of export licenses that are only valid for one month, which was considered by the operators as

[137] Except for the additional ceiling of 500 000 tonnes for the marketing year 2009/10 which duration was 1 month only.

excessively limiting and penalizing. Nevertheless, this entire supplementary quota was used (DG Agri).

This reduced as well the use of carry forward, and limited stocks building in EU producers' facilities.

Regarding the export licence attribution system, limited to 50 000 tonnes per company per week, this system puts every company on an equal footing. It enables small exporters to get access to the necessary export licences whereas large exporters are limited by the system and face the risk of not getting enough licences for the volumes they need to export and/or having to wait for the opening up of a second lot of licences.

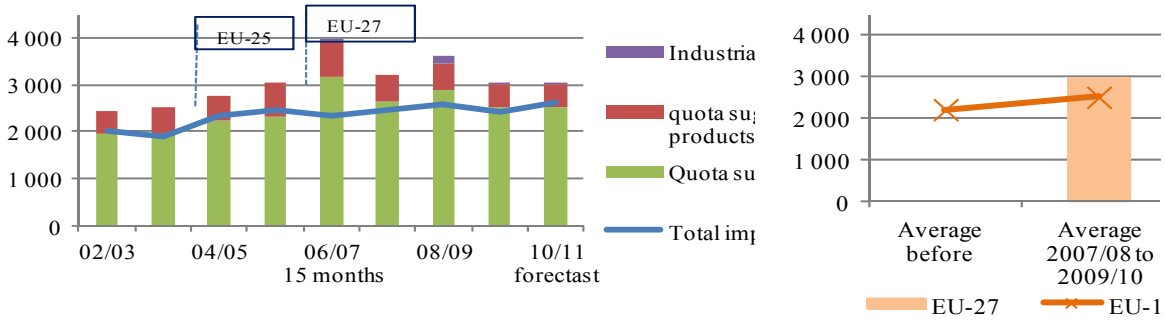
Export of intervention stocks

In 2006/07, the European Union had not reached the WTO threshold. The EC granted export licence for intervention stocks of sugar.

5.3.3.3.2 Development of import flows

As a consequence of the decrease in EU quotas, the contribution of imports in meeting demand has increased in the food sector. Due to high duty level, imports are made only from countries enjoying **preferential agreements,** with lower or no duties. The level of imports is linked to the difference between world price compared to EU price (cf. Question 5). Based on Comext data, sugar imports into the EU-15 from all origins are on average 13% higher after the reform (average 2007–2010) than before (average 2002–2006). This rise (92% of it) is mainly due to an increase in the average imports cane sugar not to be refined (NC 1701 11 90).

Figure 40: Total EU sugar imports, 2001/02-2010/11 (thousand tonnes of white sugar equivalent)



Comext data does not include processed products, it only gathers the following NC codes: 1701 11 10, 1701 11 90, 1701 12 10, 1701 12 90, 1701 91 00, 1701 99 10, 1701 99 90. Comext data correspond to calendar years (from January to December).

Source: Agrosynergie based on DG Agri for all data except for EU-15 total imports (Comext)

Finally, in 2008/09 and 2009/10, the level of import as such remained below the 3.5 million tonnes needed for supply needs to be covered[138].

[138] In the recitals of EC regulation 302/2011, the Commission which points out the low level of stock – the lowest since the reform – estimates at 1 million tonnes the sugar deficit cumulated in 2009/10 and 2010/11.

Preferential agreements

In the 2009/10 marketing year, the transition period for the application of the EBA agreement ended. This led to market-driven import flows. Given the price situation on the world market in 2009/10 and 2010/11, the EU market is less attractive in the current situation than before and:

- imports from ACP–LDCs of raw cane sugar to be refined were lower than expected (lower than the threshold of 3.5 million tonnes, and lower than in 2006-08[139]) during these two campaigns, creating stress in the market balance (cf. Question 5).
- imports of white sugar or refined sugar have increased compared to the situation before the reform; some ACP countries such as Mauritius or Swaziland have gone up in the sugar value chain by exporting white sugar instead of raw sugar.

Exceptional measures

Because the balance between availability and utilisation of sugar on the Union market is in deficit since 2009 (estimated at 1 million tonnes between 2008/09 and 2009/10), some exceptional measures have been taken by the EC in 2010/2011, to enhance imports:

- Suspension of the 98 €/tonne import duty on CXL imports since December 2010 to August 2011 for these countries to fulfil their import quota. However, the volumes concerned are not significant: in 2009/2010, only 87% of the quota had been allocated (deficit of 55 thousand tonnes), and in 2010/2011 already 100% of the quota is allocated.
- Later on, as the risk of undersupply in the end of the campaign remained significant, the EC decided to open duty free quotas: a first quota of 300 000 tonnes was made available from April 1st to September 30 2011[140], soon complemented by another quota of 200 000 t (from July 1st to September 30th)[141]
- Finally, during the last three months of the marketing year, a tender was opened for the import of sugar at reduced import duty (Regulation (EC) n°634/2011). Under this tender an additional quantity of 356 571 tonnes was accepted.

The effectiveness of these measures is not known yet.

Duty-free import quota for industrial uses

This possibility was used for the first time in 2006/07 at the request of non-food sugar-using industries who argued that they could not find available industrial sugars at acceptable price or quantity. Sugar producers did not agree with that position[142]. And in the end, out of the 200 000 tonnes of import quota allow by the Commission, only 20 000 have been used. The quota was not extended the following year.

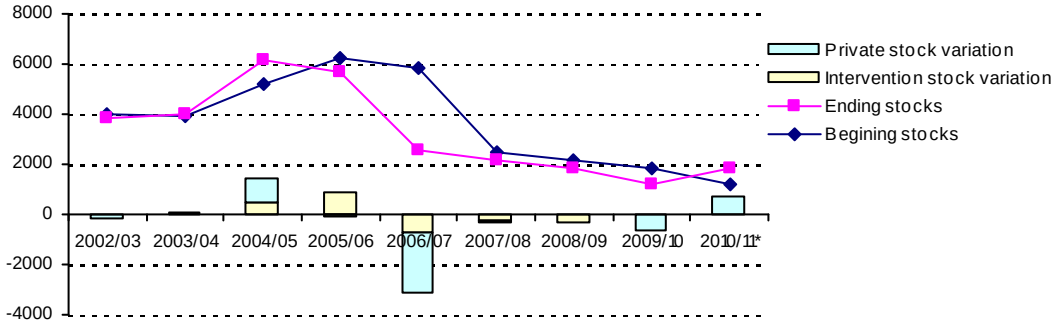
However from the 2008/09 campaign onwards, to balance the systematic opening of the export quotas, an import quota has been set at 400 000 tonnes. Although it has only slightly been used up to now, especially given the exceptional conditions of the two last campaigns, the main interest is to allow end-using industries to choose the origin of their sugar supply, and improve the link of the EU industrial market and the world market (this link is not direct as EU price has not developed as the world price).

[139] 2010 imports from third countries to the EU 15 of raw cane sugar to be refined have decreased from 1.6 million tonnes average in 2006/08 to 1.4 million tonnes in 2010 (Comext).
[140] EC regulation 302/2011
[141] EC regulation 589/2011
[142] "La betterave en 2008", CGB, 2007

5.3.3.4 Development of stocks

Stocks presented below are the stocks in July up to 2005/06 and the stocks at September 30 from 2006/07 onwards[143]. The later are mechanically lower than the former, and they should not be compared to one another.

Figure 41: EU-15/ EU-25 and EU-27 sugar and isoglucose stocks (thousand tonnes of white sugar equivalent)



Up to 2005/06; stocks in July, from 2006/07 onward, stocks in October. Data include both private and intervention stocks.
*forecast

Source: Agrosynergie based on DG Agri balance market

Between 2007/08 and 2009/10, the stock variation has been negative every year. In 2007/08 and 2008/09, intervention stocks decreased, while private stocks remained stable. In 2009/10, private stocks reduced significantly but recovered at the end of 2010/11.

Compared to its level at the end of 2006/07 (2.56 million tonnes, representing 16% of the annual consumption[144]), the level of stocks at the end of 2009/10 was significantly lower (1.18 million tonnes, representing 7% of annual consumption[145]). At the end of 2010/11, it is estimated that stocks increased back to 11% (1.9 million tonnes). The stock recovery in 2010/11 is possible thanks to the exceptional measure authorizing producers to release 500 000 tonnes of out-of-quota sugar on the domestic market without levy, implemented in April 2011. As a counter-effect, carry over should be extremely low at the end of the campaign (estimated at 44 thousand tonnes, which is around 500 000 tonnes lower than the level of the previous campaign).

5.3.3.5 Price

In the agro-food sector, EU prices are much more stable than world prices. Even though the price fluctuations have been increasing over the 2006-2011 period (cf. Question 4), buyers of white sugar in the EU market have not faced volatile prices so far.

Yet, the level of price increase in 2010/11 (significantly above the reference price) clearly shows tightness in the market. The reason for this is a lack of supply, which is due to the fact that imports do not compensate for the quota attrition. High international prices are the main driver for these levels of imports, as the EU market is less attractive than other markets.

[143] The change in date of recording ending stocks (from July to September) is due to the change in the timing of sugar marketing years (formerly July-June, currently October-September)
[144] 2.56 / (12/15)*20.3 million tonnes (quota consumption)
[145] 1.17/16.5 million tonnes (quota consumption) 0.35 / 18.9 million tonnes

5.3.4 THE MEASURES SET SINCE THE 2006 REFORM HAVE CONTRIBUTED (OR NOT) TO IMPROVING THE MARKET BALANCE BETWEEN SUGAR AND ISOGLUCOSE

Isoglucose production is limited by production quotas (out-of-quota isoglucose is not an option as trade with third countries is limited by transport constraints). The equilibrium between sugar and isoglucose is not market-driven. According to operators, isoglucose quotas are lower than the level the agro industrial sector would demand if these limits had not existed (AAC, 2005). Yet surprisingly 221 thousand tonnes of quotas were renounced during the reform.

As detailed in Question 4, the reform resulted in increase in the share of isoglucose in EU quotas: from 2.9% to 4.5%. This increase is the combination of sugar quota decrease and slight increase in isoglucose quota (from 508 thousand tonnes to 601 thousand). The share of isoglucose production after the reform could have been higher but 2/3 of the 300 000 tonnes of free additional quotas made available to isoglucose producers have been renounced in the process (more than 40% of the production level before the reform).

This shows that the expected profitability of these additional quantities (in the expected future market conditions with reduced sugar prices) was not attractive enough (compared to the restructuring aid). In any case, it did not motivate investment in further processing capacity.

5.3.5 THE INTERNAL EU FLOWS OF SUGAR AND ISOGLUCOSE HAVE BEEN AFFECTED (OR NOT) BY THE 2006 REFORM

Before the reform, the EU was an exporting region. On average, 2 million tonnes of sugar equivalent was overproduced per year (2003/04 -2005/06). However, this figure does not reflect the national disparities. In fact, only a dozen Member States were producing more than their national consumption, of which FR, DE and PL were the countries which most exceeded their consumption. As for other Member States, they were in sugar deficit.
With the reform, the flows of sugar between Member States have been modified.

Before the reform

The left graph shows that, except IT and ES, Member States in sugar deficit (BG, FI, PT, RO or the UK) imported raw sugar to be refined from third countries. ES and IT benefited from the proximity of exporting regions of beet sugar (FR and DE) to import directly white sugar.

As shown on the graph on the right, most Member States with surplus take the opportunity to trade on the world market (BE, FR, PL, DE and to a lesser extent the NL). FR and DE have a significant proportion of their exports sold off on the EU market.

Figure 42: Changes in imports of raw and white sugar for the main importing States, before and after the reform (1000 tonnes)

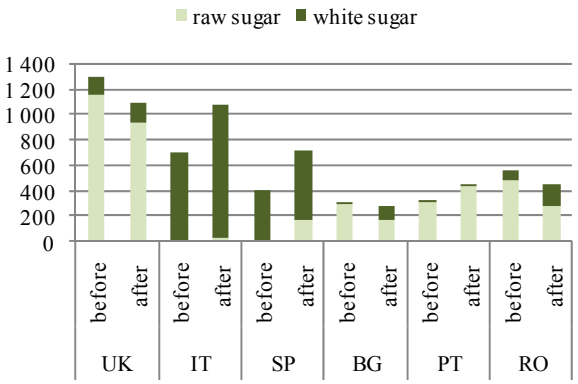
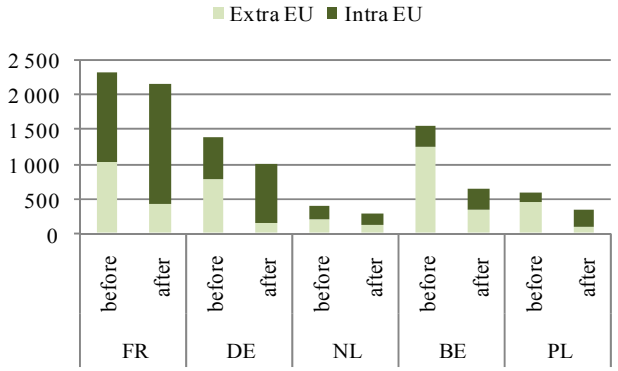


Figure 43: Changes in exports extra and intra-EU for main exporting States (1000 tonnes)



Before reform: average 2003/04-2005/06; after reform: average 2007/08-2009/10

Source: Agrosynergie based on Comext

After the reform

The reform enhanced a deficit situation in IT an EP, which subsequently increased imports of white sugar. The effects on the trade in raw sugar are developed in Question 5: decrease in UK refining activity and development of refining capacities in ES, PT. BG, and RO have decreased their supply in raw sugar in favour of white sugar from EU.

At the same time the Member States which traditionally exported sugar outside the EU have reorganized their trade strategy to focus on the EU market. The exports between Member States represented 40% of total exports before the reform and grew to 76% after.

Case of Isoglucose

Isoglucose represents 4.9% of the sugar CMO after the reform. So its exchange flows do not correspond to big quantities. Moreover for technical reasons, its transport is limited. The producing Member states can only trade with nearby countries. Therefore, the isoglucose flows in the EU market are essentially within EU boundaries.

Given the considerable restructuring in the isoglucose sector (see Question 4, Figure 28), flows have been modified: Members States which have reduced or stopped their production see their imports increase (FR, UK, NL, RO, GR), mainly coming from HU, SK, BG, IT and PL.

Figure 44: Change in imports of Member States that have reduced or stopped producing isoglucose (tonnes)

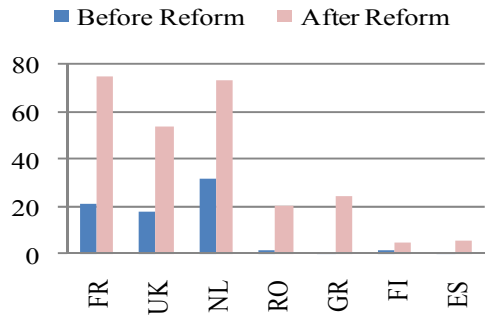
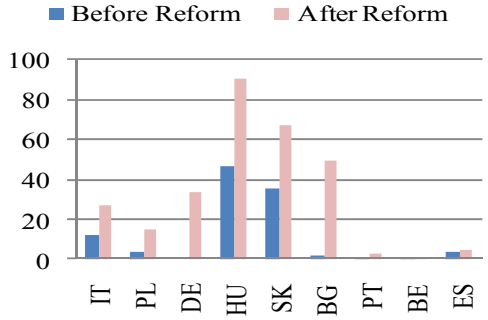


Figure 45: Change in exports of Member States that have continued producing isoglucose (tonnes)



Source: Agrosynergie based on DG Agri

5.3.6 JUDGEMENT

Attaining a sustainable market balance

A sustainable market balance is a situation in which the market needs are covered without facing risks of shortage or oversupply or without generating large price fluctuations.

Ensuring a sustainable market balance was one of the core issues of the CMO reform. Indeed, before the reform, the sugar market was highly regulated. But **in 2005, both the upcoming changes in the trade arrangements with third countries and the WTO Panel ruling limiting subsidized exports were obvious drivers of risk of market imbalance, and more specifically of oversupply.** The institutional framework was modified to limit this risk:

- the reference price was progressively reduced to 404 €/tonnes, with the expected effect of limiting import flows from all ACP countries (to a level which was estimated at the time of the reform to be around 3.5 million tonnes);
- the restructuring scheme encouraged quota renunciation (5.8 million tonnes of quota renounced, down to 13.2 million tonnes, lower than EU agro-food demand level);
- other market measures were established to ensure equilibrium on the industrial market;
- preventive withdrawal was used to ensure transition to the new market equilibrium.

Consequently, imports together with EU quota production would meet EU demand (of around 16 million tonnes).

However, as from 2009, an unprecedented high level of world sugar prices had significant impacts on the EU market balance. **In 2009/10 and 2010/11, imports flows needed to meeting demand for sugar did not occur**, as other markets were more attractive for exporting countries. The deficit, which cumulated in 2009/10 and 2010/11, was estimated at 1 million tonne.

As a consequence, the EU market price remained at much higher level than that of the reference price, and exceptional measures had to be taken by the Commission to ensure supply for the agro-food sector: producers were authorized to release 500 000 tonnes out-of-quota sugar onto the domestic market without triggering payment of the surplus levy, and import duties were reduced. **These measures have contributed to ease tensions on the market**, and stocks, which were at their lowest level at the end of 2009/10 (1.18 million tonnes in October 2010, 7% of the annual consumption compared 16% in October 2006/07), could be partly replenished by operators in 2010/11 (11% of annual consumption in October 2011).

Even though the CMO was designed to manage risks of oversupply, temporary solutions were implemented and contributed to ease the tension of undersupply which appeared in 2009/10 and 2010/11.

The market balance between sugar and isoglucose

As a result of sugar quota decrease and a slight increase in isoglucose quota, the share of isoglucose in the EU quotas has increased from 2.9% to 4.5%.

Even though isoglucose producers claim that isoglucose production is insufficient to meet demand, 221 000 tonnes of quotas were renounced during the reform. This shows that the profitability of the additional quotas provided free of charge expected under future market conditions with reduced sugar prices was not attractive enough and did not motivate investment to expand processing capacity.

Impact of the reform on intra-EU trade

With the reform and limits on exports induced by the WTO Panel, the EU has changed from being a net exporter to a net importer. As a consequence, intra-EU trade has gone from 40% of the total trade to 76% on average.

Only a dozen Member States are actually producing more sugar than they consume domestically. Because of the reform, these countries (with France and Germany having a dominant position) have reorganized their trade strategy focusing on the EU market.

Symmetrically, for the Member States where production was significantly or totally reduced, trade has increased significantly. Besides, as explained in Question 5, some Member States have also seen their refining capacities increased.

5.4 QUESTION 7: COMPETITIVENESS OF SUGAR PRODUCERS AND REFINERS

To what extent have the measures applied to the sugar sector contributed to maintaining / increasing the competitiveness of sugar producers and refiners?

5.4.1 COMPREHENSION OF THE QUESTION

A core objective of the 2006 reform is to improve the competitiveness of the sector. This Question seeks to assess whether this objective was met, and more specifically, to assess if and in what extend the reform has contributed to increase the competitiveness of producers of sugar from sugar beets and refiners.

The potential increase of industry competitiveness can be the effect (direct or indirect) of the reform through:

- the behaviour of firms, i.e. to all the initiatives taken to respond in an appropriate measure to critical factors of competitiveness as a result of the changed institutional framework.
- the changing of the force balance (internal and external to the production system) that influence and interact with the competitive structure of the sector[146].

From a technological, structural and economic point of view, the sugar production industry, like the refinement industry, is more similar to basic chemical industries than to the food industry itself[147]. The characteristics of interest to analyse the competitiveness of companies are the following:

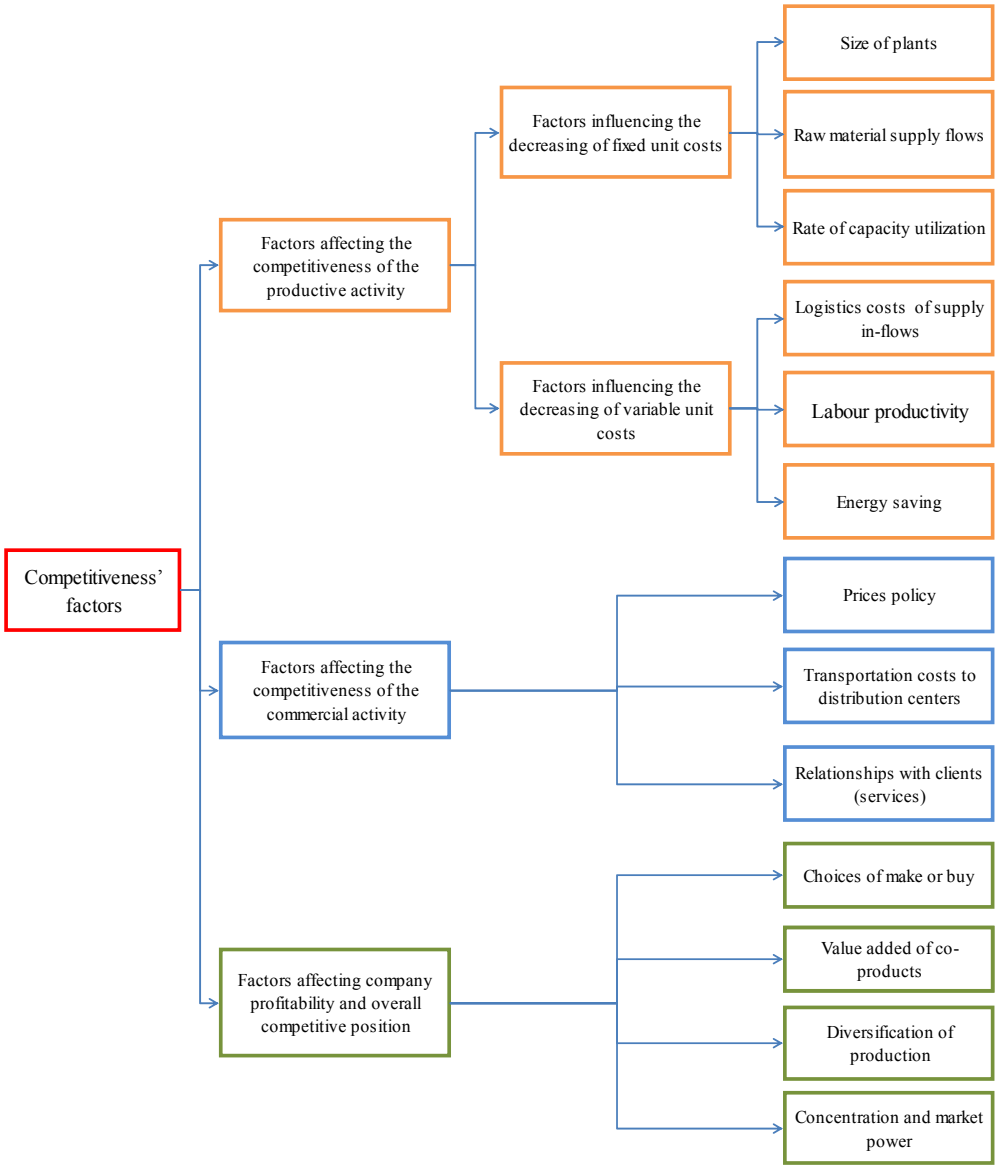
- The goods produced are not very differentiable. In the same market, the competition between companies is thus determined by cost positioning (when all other conditions are the same), determined by internal economies (production efficiency) and external economies (low-cost production factors); from the curve of experience; from economies of scope (reduction of cost per unit with the aim of jointly producing more goods within all or one phase of the production process).
- The presence of a very significant invested capital generates a high incidence of fixed costs and depreciation on the production cost structure.
- The ratio between turnover and invested capital is generally very low (T/IC near to 1 or even <1). The possibility to achieve significant Returns on Investments (ROI) is therefore linked to earning sufficiently high Returns on Sales (ROS)[148].
- When all other conditions are the same, while institutional prices (and internal market prices) are falling, the ROS tend to decrease. As a result, the reduction of production costs per unit is crucial, including both the variable costs per unit (particularly by increasing the productivity of production factors), and fixed costs per unit (by exploring economies of scale and the rate of factory use).
- The possibility to achieve significant ROIs is also linked to the degree of industry concentration and thus to the power of companies in the market[149].

[146] We are referring to the five competitive forces of M. Porter: The threat of the entry of new competitors; The threat of substitute products or services; The bargaining power of customers (buyers); The bargaining power of suppliers; The intensity of competitive rivalry.

[147] Chemical Industry and Similar: the companies' strategy is based on economies of scale; they develop in a competitive environment dominated by product, process and management standardisation. This is then linked to the high volume of products sold, which allows us to obtain economies of scale. Food Industries: the companies' strategy is based on competitive differentiation: the companies exploit all the potential of differentiability of their own supply, which is found in demand preferences. Each company offers products with different characteristics from their competitors.

[148] Please note the equation: ROI = ROS * T/IC.

Using these elements once again, we can set out the factors of competitiveness in the tree diagram below:



These factors can be grouped into three classes:

a- Factors that have an effect on the overall competitiveness of production activities: these include all factors that contribute to defining the cost position of companies, which is determined by more or less favourable conditions generated by the features of the external environment[150], and by internal conditions within the company which determine the efficiency levels[151].

b- Factors that have an effect on the competitiveness of trade activities: these include all factors that affect the competitiveness of the company compared to other companies in the industry on geographically different markets. So they are all the post-production factors which affect users' choice of suppliers (industries using sugar as an ingredient, large distribution chains for

[149] In literature regarding strategic marketing, it has been confirmed that there is a positive relationship between a company's market quota and ROI level. So, in theory, in a highly concentrated system, the ROI of the leading companies is higher compared to a distributed system.
[150] In particular, the conditions that determine the advantages/disadvantages of raw material production and other factors purchased by the companies (for example, the differentials of energy costs).
[151] For example, the capacity, rate of use of factories, labour productivity, etc.

end consumption, etc.). In the first instance, this would be the distance between suppliers and clients (costs of transportation), but also the organisation system for customer satisfaction[152] and comakership[153].

c- Factors which have an effect on the company's revenue and on its overall competitive position: in addition to the role played by factors a) and b) together, these include factors linked to system development (concentration of structures) and the strategies implemented by companies[154] (conduct, economies of scope).

In the answer to the question, we assess whether and to what extent the reform has led and / or stimulated and / or contributed to the changes and to the virtuous behaviour in relation to those three groups of factors of competitiveness.

Finally, we assess the effects of reform on the relative competitiveness between the two groups of companies operating in the same market (white sugar) but not in the same sector (sugar beet producers versus refiners of imported raw cane sugar).

5.4.2 CRITERIA, INDICATORS AND DATA SOURCES

Table 68: Criteria, indicators and data sources for Question 7

Criteria	Indicators
The reform impacted (or not) the factors that affected the competitiveness of the production activity of sugar producers and full-time refineries	**A. Sugar producers**
	Development of the potential unit margin of industries
	Factors influencing the decrease of unitary fixed costs: • Development of the total number of factories and by processing capacity • Plants concentration by processing capacity classes • Development of sugar average production by plant • Development of the average length of the campaign
	Effects of the reform on factors influencing the decrease of unitary variable costs • Development of sugar production per hectare • Development of the distance between agricultural areas of production and plants • Development of labour productivity • Development of energy price for industrial use
	Existence of out-of-quota production: ratio between sugar beet production and quotas: before (average 2001/2-2005/6) and after (average 2008/9-2009/10) the reform
	B. Full-time refineries
	Development of the potential unit margin of full-time refineries
	Development of the Return On Sales (ROS)
	Rate of the capacity of full-time refineries: before and after the reform
The reform has allowed (or not) to maintain equal the relative competitiveness between full-time refineries and sugar producers	Development of the ratio between sugar producers potential unit margin and FTRs potential unit margin
	Views on the changes on the import license and allocation system on full-time refineries competitiveness versus newcomers FT
The reform impacted (or not) the factors that affect the competitiveness of commercial activities of sugar producers and full-time refineries	Price policy: • Development of Community price of white Sugar, included standard deviation • Development of coefficient of variation of monthly Community price • Interviewees views
	Outgoing logistics costs: • Development of transfers of non-raw sugar among Member States • Interviewees views
	Relationship with clients: interviewees views

[152] Customer satisfaction is tied to the concept of product/service quality according to the client's expectations. This quality can further be defined in terms of perceived quality.
[153] Comakership is a partnership system that has the aim of reaching competitive advantages in the market for both partners. This partnership requires common investments in terms of knowledge, resources and finance.
[154] Activity diversification strategies (linked by a common denominator), co-product enhancement, etc.

Criteria	Indicators
The reform impacted (or not) the factors that affected the competitiveness of the production activity of sugar producers and full-time refineries	**A. Sugar producers**
	Development of the potential unit margin of industries
	Factors influencing the decrease of unitary fixed costs: • Development of the total number of factories and by processing capacity • Plants concentration by processing capacity classes • Development of sugar average production by plant • Development of the average length of the campaign
	Effects of the reform on factors influencing the decrease of unitary variable costs • Development of sugar production per hectare • Development of the distance between agricultural areas of production and plants • Development of labour productivity • Development of energy price for industrial use
	Existence of out-of-quota production: ratio between sugar beet production and quotas: before (average 2001/2-2005/6) and after (average 2008/9-2009/10) the reform
	B. Full-time refineries
	Development of the potential unit margin of full-time refineries
	Development of the Return On Sales (ROS)
	Rate of the capacity of full-time refineries: before and after the reform
The reform has allowed (or not) to maintain equal the relative competitiveness between full-time refineries and sugar producers	Development of the ratio between sugar producers potential unit margin and FTRs potential unit margin
	Views on the changes on the import license and allocation system on full-time refineries competitiveness versus newcomers FT
	Price policy: • Development of Community price of white Sugar, included standard deviation • Development of coefficient of variation of monthly Community price • Interviewees views
	Outgoing logistics costs: • Development of transfers of non-raw sugar among Member States • Interviewees views
The reform impacted (or not) on factors having an influence on company profitability and on the global competitive position	Analysis of "make or buy" choices (qualitative indicator)
	Effects of the reform on sector concentration and on market power: • HHI indicator, before and after the reform, at country system level • NIL 3 indicator, before and after the reform, at company level
	Qualitative indicator on co-products valorisation and production diversification strategies
The 2006 reform of the sugar CMO contributed (or not) to improving the overall competitiveness of the sugar sector	Porter five competitive forces analysis for the sugar/refining industry

The characteristics of the sector and the definition of the structure of the critical factors of competitiveness associated with it, was discussed and tested with some stakeholders during field visits. Interviews also allowed collecting specific information concerning the strategies and the actions put in place following the reform.

On the other hand, it has not been possible to obtain any useful information concerning the actual costs of production (information considered too sensitive to be disclosed)[155]. Therefore, to evaluate the role played by the reform on cost competitiveness, we used the quantitative information present in the literature[156] and we applied the elaborations on price conditions observed after the reform.

Again operators have not provided sufficient information regarding the prices on their markets. Therefore, the analysis for the formulation of a judgement was conducted on the basis of DG Agri quantitative data available (average prices and standard deviation).

[155] However, this is comprehensible because in an extremely fluid situation, where the structures on an EU level are still not definitive, production costs are an extremely sensitive figure for companies.
[156] Piano Bieticolo-Saccarifero, MIPAF, 2005.

In addition, only in the case of refineries, useful elements were taken from company balance sheets of some companies for computing of economic and financial indicators of the companies (Return on Sales and Return on Investments).

Concerning refineries, aspects that related to the marketing phase are similar to those of the sugar producers.

With regard to some factors that play a role on the average costs of production, we have made some elaborations based on CEFS data.

In addition, some indicators needed to feed the answer have been taken (and sometimes articulated) from the answers to previous questions, especially Question 1, Question 4 and Question 5.

The views of interviewees and information obtained through the case studies were used to analyse, particular aspects.

The methodology used for the computation of indicators is specified, where appropriate, in each of the relevant chapters.

5.4.3 THE REFORM IMPACTED (OR NOT) THE FACTORS THAT AFFECT THE COMPETITIVENESS OF THE PRODUCTION ACTIVITY OF SUGAR PRODUCER AND OF FULL-TIME REFINERIES ACTIVITIES

5.4.3.1 Competitiveness of sugar producers

5.4.3.1.1 Production costs and economies of scale for sugar producers

As already explained it was not possible to data on production costs, and even the producers' union (CEFS) limited itself to providing only indications of trend (percentage changes) but not absolute levels.

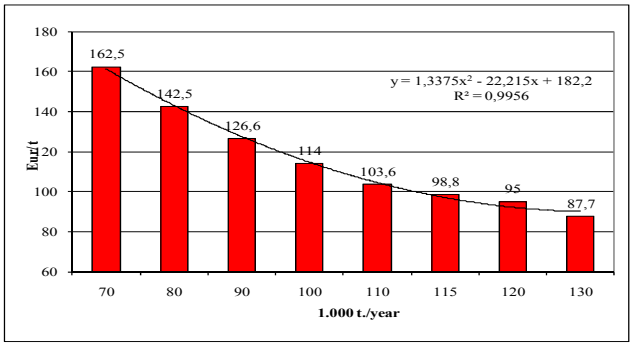
It was possible, however, to gather some information from a document prepared (based on data provided by Italian sugar industries) by the Italian Ministero delle Politiche agricole e forestali (2005). This quantitative information concerns the structure of production costs and how they change based on the production scale.

Table 69: IT: Industrial processing costs per unit, excluding sugar beet costs, for different scenarios of average production capacity per factory (Eur/t of loose white sugar)- situation and simulation of 2005[157]

	1 000 tons/ year of sugar							
	70	80	90	100	110	115	120	130
Variables costs	174,1	174,1	174,1	174,1	174,1	174,1	174,1	174,1
Fixed costs	127,2	111,5	99,1	89,2	81,1	77,4	74,3	68,6
Financial costs	5,8	5,8	5,8	5,8	5,8	5,8	5,8	5,8
Taxes	4,5	4,5	4,5	4,5	4,5	4,5	4,5	4,5
Depreciation	35,3	31	27,5	24,8	22,5	21,4	20,7	19,1
Home costs	23,4	23,4	23,4	23,4	23,4	23,4	23,4	23,4
Total costs	370,3	350,3	334,4	321,8	311,4	306,6	302,8	295,5
which:								
. Transport of beets	60,8	60,8	60,8	60,8	60,8	60,8	60,8	60,8
. Processing	309,5	289,5	273,6	261	250,6	245,8	242	234,7

Source: Ministero delle Politiche agricole e forestali, 2005

Figure 46: Economies of scale in the sugar production industry: development of the sum of fixed costs + depreciation according to production variation



Source: from sugar industry data, 2005

[157] Calculated from 2005 on the overall production of 1,332,339 tonnes in 19 plants existing in 2005. The production increase hypotheses per factory do not take into account the higher transportation costs of sugar beets following an increase in the average distance between production areas, the higher costs connected to investments and the eventual cost reduction of sites. It was estimated that for five million euro of cost savings for the site, there is a cost per unit decrease by approximately 4 €/t of sugar.

It is clear that the information provided regards the Italian sugar industry, but the size of the phenomenon is useful to be able to express a view on the reality of economies of scale.

Given the limits cited above, it would be useful to focus on some key points in the table:

- the high incidence of fixed costs on the total costs structure as well as the high incidence of depreciation confirm what we have previously stated regarding industry characteristics
- The relative high incidence of incoming logistics costs (approximately 61 Euro/t)
- The strong presence of economies of scale which have a parabolic function.

With regard to this last point, and in relation to all the factors that have a bearing on variable costs, the economies of scale regard the sum of fixed costs and depreciation. The following graph shows the curve of the economies of scale.

We can see that the cost given by the sum of these two components is nearly halved, passing from 70 000 to 130 000 t/year. However, the recovery of efficiency gradually decreases and we can then hypothesise that beyond a certain capacity, the cost levels tend to stabilise. As a result, it is in the first levels of capacity (from 70.000 tonnes/year to 100.000 tonnes/year) that it is possible to recover the most efficiency (and cost competitiveness).

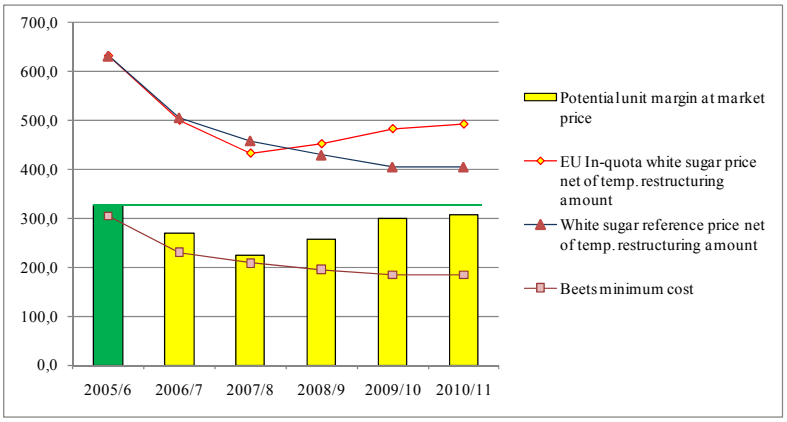
5.4.3.1.2 The effects of the decrease in institutional prices on the levels of cost competitiveness for sugar producers

We tried to assess the general impact of the decrease in institutional prices (reference price of white sugar and purchase price of sugar beets) on the development of the potential industrial unit margin.

The potential unit margin represents the level that the actual production costs must stay under in order for a factory to make a profit, therefore rendering the company competitive.

This is calculated as the difference between the average EU price of white sugar net of the temporary restructuring amount and the average EU purchase cost of the volumes of sugar beet required to produce a tonne of white sugar[158].

Figure 47: Development of the potential unit margin, from 2005/06 to 2010/11 (€/t white sugar)



Source: Data from DG Agri, regulations

[158] Regarding the period before the reform, we hypothesised that the average price of white sugar on the EU market coincided with the price of intervention; for the period after the reform, we used the average monthly EU price provided by DG Agri. The average prices for the campaigns from 2006/07 to 2010/11 have been estimated as the simple average of the corresponding monthly prices. Temporary restructuring amounts have been deduced from the reference price and the quota sugar price (126.4€/t in 2006/7; 173.8 €/t in 2007/8; 113.3 €/t in 2008/9) . The potential unit margin calculated is the one really perceived (on average) by sugar manufacturers.
The development of the market price in relation to the decrease in the price of reference was also compared (for a more detailed discussion on this point, please see EQ4, chapter Errore. L'origine riferimento non è stata trovata.).
The purchase cost of beets was calculated by multiplying (1) the minimum guaranteed price (in force in the different campaigns) for 16° quota beets by (2) 7.00 tonnes of beets, the quantity required to produce one tonne of white sugar. This coefficient was calculated based on the EU average quantities of beets purchased by the industries– source CEFS. In the event the value of the potential unit margins are sensitive to the value chosen for the coefficient. As a consequence, the results should be considered as indicative and taken with due caution.

Whereas the reference price was decreased by 36%, the average market price decreased only by 22.2%. On the other hand, the average purchase cost for beets decreased by 39.6%. As a consequence, the margin decrease was less than expected: it was contained under 6% between 2005/6 and 2010/11, and would have been 33% if the market prices had been aligned to the price of reference.

The lowest value for the potential unit margin is observed in 2007/08 (-32% with respect to 2005/6), which is linked to the highest value of the temporary restructuring amount in that marketing year. After 2007/08, the potential unit margins have increased because of the combined effect of the decrease in beet price and the increase of the selling price of white sugar.

5.4.3.1.3 Effects of the reform on factors that affect the decrease in fixed costs per unit

We intend to assess on what scale the companies operating in different producer Member States reacted to the stimuli given by the reform in regard to reducing fixed costs per unit, both in terms of **exploring economies of scale** and in terms of the **rate of use of the factories**. We will therefore revisit the following aspects which were already partially analysed in the response to Question 4:

- The effects of the reform on the composition of the capacity level production structure and its impact on the development of average production per factory.
- The effects of the reform on the duration of the processing campaign.

5.4.3.1.3.1 The effects of the reform on capacity levels and the development of average production per factory

The need to operate with larger structures able to explore economies of scale (in a way compatible with the characteristics of the raw material supply zones) existed even before the reform[159]: **in the EU-15**, the majority of the less efficient factories (with a capacity of less than 5 000 beet tonnes transformed daily) had in fact been closed before the reform. We have shown in Question 4 that the reform instead contributed to speeding up the closure of factories with a capacity between 5 000-8 000 t/day and between 8 000-12 000 t/day (therefore, the medium-low and medium factory capacities).

At the level of EU-25, the industry placed more focus on factories with higher capacities (> 12 000 t/day) that could best take advantage of the economies of scale (share increased from 28 to 34% of the number of factories), and less importance was given to factories with lower capacities (< 8 000 t/day) that had been rendered inefficient by the new institutional conditions (their share decreased from 49% to 41%).

It must be noted, however, that even factories with a higher production capacity were affected by closure. We have seen (Question 4, Chapter 5.1.5.3) that the capacity of the factories was not the only criterion used by industries in determining their closure.

On an EU level, this dynamic subsequently led to an increase in the average production per factory (EU-15 average from 121 000 to 165 000 t/year). Between 2006/07 and 2009/10, the average annual growth rate was 13.4%, although the actual effect was less than what it appears to be (before the reform, an improvement process was already underway with an annual average of 3.5%). The reform sparked off a much stronger acceleration in any case.

[159] Please note that the processing capacity structure also depends on the length of the campaign which is between the (average) limits that increase from 65 to over 150 days depending on the geographical production context. In different contexts, therefore, with two plants of the same capacity, one can be efficient and the other inefficient.

Figure 48: Development of EU average sugar production per factory before and after reform (t)

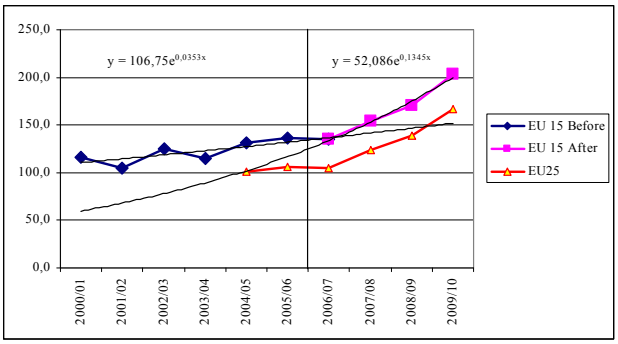
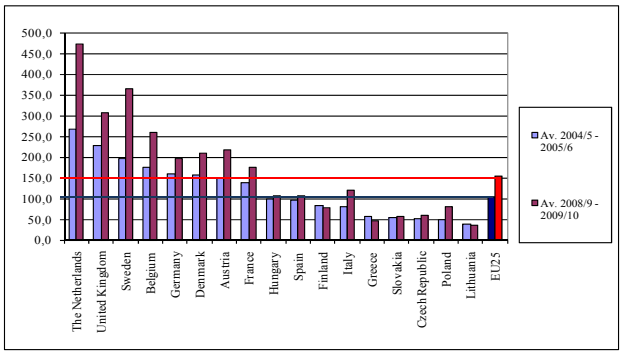


Figure 49: Average sugar production per factory before and after the reform in the Member States that continued production (t)



Source: from CEFS data

All the producing Member States that remained active recorded an improvement, with the exception of EL, FI and LT[160]. It should be noted that the more significant improvements were in Member States that were already placed in the group of the most competitive Member States in the EC impact assessment carried out in 2003 and updated in 2005 (EC, 2005). As a result, these Member States' industries (on average) further increased their competitive position. The situation in IT must be highlighted here; it improved its average production in factories by 47% (from 81 000 to 120 000 t), which is significant given that IT was placed in the "drastic" group.

5.4.3.1.3.2 Effects of the reform on the average duration of the campaign

The duration of the campaign is a variable largely linked to the environmental conditions of the sugar beet production zones (soil and climate characteristics, photoperiod, etc) which are therefore external to the strictly industrial system. This has a dual effect on industrial management efficiency and, thus, on its competitiveness. The first is the effect on fixed production costs (in inverse proportion to the duration of the campaign). The second is that, with equal annual sugar production, the factories operating in a production zone with a long campaign need a smaller daily capacity. This leads to lower investment costs which, in turn, lead to lower depreciation and maintenance costs.

On an EU level, the duration of the campaign remained more or less stable in the period prior to the reform and then significantly increased in the period following the reform. We can therefore deduce that the reform induced the industries:

- to abandon production in areas in which the campaign duration was lower, with a positive effect on the general competitiveness of the system;
- to develop organisational and logistics investment activities aimed at prolonging the campaign in zones/factories where the production chain continued[161].

[160] It should be noted that in the impact forecast, EL (-20% of average production per factory) was placed in the "drastic" class and Finland (-4%) and Lithuania (-6%) were placed in the "significant" class. All these Member States lost competitive capacity that was already difficult before the reform.

[161] For example, in the Minerbio plant, CoProB invested EUR 10 million in a flat pad sugar beet discharge system (never done before in IT) used in FR and Germany. It should be noted that, despite the undoubted cost advantages, (transportation/incoming logistics costs) the system was never implemented before the reform because it was connected to a sugar beet sampling system (RUPRO system) which was strongly opposed by agricultural producers in that it was seen to be penalising. The reform therefore led to a change in the workers' behaviour (agricultural and industrial) across the entire production chain

Figure 50: Development of the EU average length of the campaign

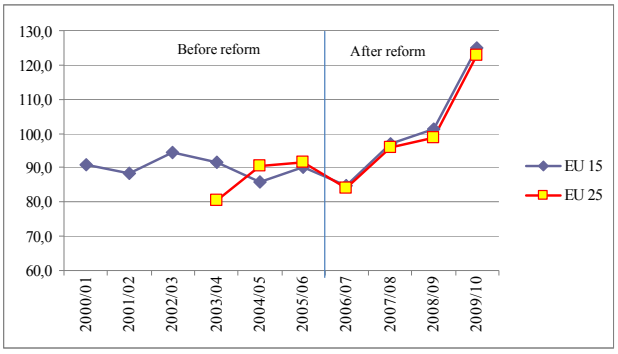
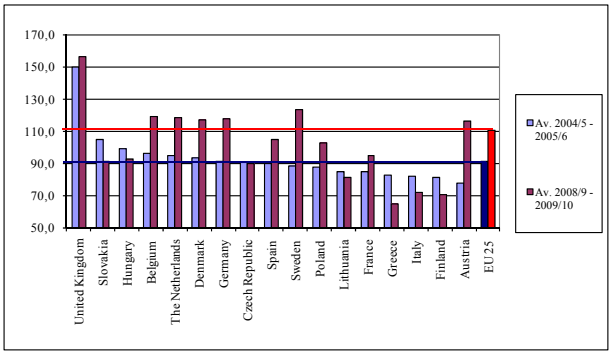


Figure 51: Length of the campaign before and after the reform in the Member States that continued production



Source: from CEFS data

However, only 11 Member States out of the 17 analysed improved their performances on average between the periods before and after the reform; among these, particularly AT (+ 50%) and SE (+ 39%). On the contrary, the others, such as EL (-21%) worsened their situation (probably also owing to climate conditions). It is clear that the UK was and remains by far the country with the longest campaign. As a result, UK British Sugar (only producer in the UK) has a clear competitive advantage over the industries operating in all other Member States.

These results have been confirmed by the stakeholders. Most undertakings have put in place actions to increase the length of the campaign (e.g. introduction of the thick juice campaign, etc.).

5.4.3.1.4 Effects of the reform on factors that affect the decrease in variable costs per unit

In this chapter, we aim to assess on what scale the companies operating in the various producer Member States reacted to the stimuli given by the reform in regard to reducing the (principal) variable costs per unit. More specifically, we focus on the effects of the reform on:

- incoming logistics costs (transportation and management of beets from the production zone to the factory);
- labour productivity, defined as the relationship between production and number of workers;
- and energy costs.

5.4.3.1.4.1 Effects of the reform on incoming logistics costs

The (variable) costs of incoming logistics can be traced back to the factors that have a bearing on the sugar beet transportation costs from the harvest zone to the factory. The effect of the transportation cost on variable costs depends on two main factors: the quantity of sugar that can be extracted from a tonne of transported sugar beets and the distance between the production and processing sites.

5.4.3.1.4.2 Sugar production per hectare

The sugar yield per hectare has an effect on incoming logistics costs because when the amount of sugar extracted remains the same, the volume of sugar beets to be transported is higher in zones that have a lower yield. This is due to two factors: the sugar beet yield per hectare and the sugar yield from the beets. In Question 1 (Chapter 4.1.3.3) we show that the reform accelerated significantly the annual improvement in sugar yields per ha (from + 2.6% a year on average in the EU 15 before the reform to 7.4%)

As a result, the net effect of the reform was an average increase in sugar production per hectare of little under 5% per year.

5.4.3.1.4.3 Distance between sugar beet production centres and factories.

In the economy of a sugar factory, the average radius of its production supply zone plays a key role[162] given the high volumes of raw material compared to the sugar that can be extracted from it.

Unfortunately there is no official statistical data on this topic and so the information analysed comes from the interviews we have conducted. The initial situation (before the reform) presented some very strong inconsistencies, with average radii for supply zones of approximately 20km in FR, 60km in NL and 80km in IT. Now, according to operators, after the reform, the average supply distance of sugar beets for the remaining production sites increased, mainly because the production zones of beets remained the same when the number of factories decreased, so enlarging the supply zone for the remaining factories.. However, in order to lower their costs, the companies did propose incentive, at the time of restructuring, for growers located far from the remaining plants to give up production (cf. Question 1 Chapter 4.1.4).

Overall, the positive effects of the reform on the sugar yield per hectare were more or less compensated by the negative effects on the average radii of factory supply zones. Therefore, we can deduce that with regard to incoming logistics costs, the reform played a neutral role.

5.4.3.1.4.4 Development of labour productivity

Labour productivity, represented by the volume produced per worker, is an indicator that is commonly used to assess the degree of production efficiency, and therefore competitiveness. In this instance, the total number of workers during the campaign (permanent workers + seasonal workers) is a good indicator.

Again in this case, the development of labour productivity shows an increase even before the reform (annual average +3.3% on EU-15 average) and a fast acceleration after the reform (+11% annual average). So the net effect directly or indirectly generated by the reform is significant.

Figure 52:EU: Development of productivity per employee before and after reform (t. white sugar/employee)

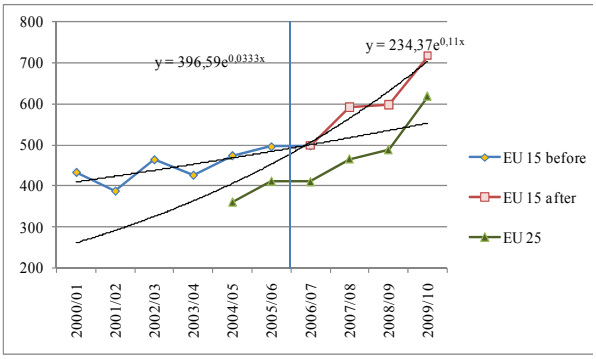
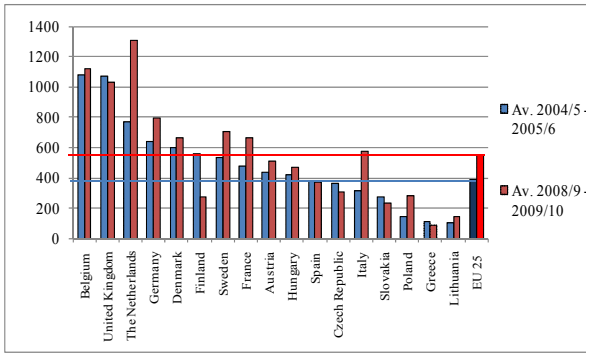


Figure 53:Productivity per employee before and after the reform in the Member States that continued production (tonnes of white sugar/employee)



Source: from CEFS data

We can see that on the EU average, the labour productivity growth rates are closely linked to average production growth rates per factory. As a result, the effects of the reform on the structural dynamics (with the abandonment of smaller and less efficient factories also in optimising labour) seem to have led to (average) improvements in labour productivity. Furthermore, the restructuring funds used for corporate purposes by companies who reduced their quota probably led to a rationalisation process for factories that remained in operation, together with the technology upgrading investments that were made after the reform by most companies that decided to continue production.

[162] The transportation costs can be estimated at 0.10 Euro/t per kilometre. With a yield of 16%, a distance of 20km generates a costs that can be estimated at 12 Euro per tonne of sugar, which increases to 50 €/t of sugar in the event of an 80km distance.

On a Member State level, we can see that:

- There is huge inconsistency between the Member States, both before and after the reform (over 10 times between BE and UK at the one end and EL and LT at the other).
- The improvement after the reform affected the industries in most Member States, but a consistent decline is observed in FI (-51%), in EL (-21%), in CZ (-16%) and in SK (-13%). At the opposite end, we see an increase in NL, which, after the reform, became the country with the highest overall labour productivity, but also (in relative terms) PL (+97%) and IT (+83%).

5.4.3.1.4.5 Development of energy costs

The sugar industry[163] is an industry that uses a lot of energy. As a result, the energy costs have a significant effect on the total production cost (for some operators interviewed, energy costs account for approximately 22% of total production costs). However, this effect heavily depends on the cost of energy in the different EU Member States and of its development. It is, therefore, clear that the existence of price differentials leads to competitive advantages/disadvantages that are independent from the degree of internal efficiency of industries.

At national level, general data on energy cost for industrial uses (Eurostat) show very significant differentials in costs, with the lower limit of FR compared to all other Member States[164] and the higher limit of IT. Furthermore, the gap (compared to FR) tends to grow in nearly all Member States.

Therefore the sugar producers that work in FR enjoy quite a solid (and growing) competitive advantage (owing to this situation) compared to other Member States, and particularly IT[165]. This advantage for FR (or heavy disadvantage for IT, and lesser so for sugar producers that operate in all other Member States) is regardless of their internal efficiency[166].

5.4.3.1.5 Out-of-quota and in-quota sugar production[167]

One indicator of competitiveness between sugar producers is out-of-quota production. This production is sustainable as long as:

- The price of the sugar in quota manages to cover all the company's fixed costs plus the variable costs of the sugar in quota
- The variable costs of sugar above quota are less than the sales price of the sugar above quota

Essentially, for these companies, the production of sugar above quota contributes to increasing the company's revenue.

The non standard (occasional) amount of the above quota sugar can therefore be used as a "proxy" of the degree of competitiveness of the companies (and the systems/country).

On the contrary, sugar production that does not reach the quota is indicative of a lack of competitiveness of the entire production chain (agriculture + industry) or one of its components.

The lack of sufficient data has not enabled us to work on a company level and so the analysis was conducted on a system/country level. For each Member State that has remained in production, we calculated:

[163] Sugar beet production and raw brown sugar refinement
[164] Only Bulgaria has a lower price than FR.

[166] To remove the advantages given by the low cost of energy, the producers that operate in other Member States (particularly in IT) should recover efficiency from other industrial costs. However, this possibility appears limited on the one hand by the state of technology and on the other by the fact that (according to the interviews we conducted) all the producers (even the French) have developed (are developing) more or less the same activities aimed at reducing energy costs (cogeneration, technology updating). As a result, it is very unlikely that the competitive differentials existing before the reform can be completely eliminated.
The fact remains, however, that, again according to the interviews conducted, the need to pull the production costs down after the reform has led to a stronger focus being put on energy saving.
[167] For more information on in quota and above quota production, please see QE4.

1. The difference between the average production of campaigns from 2000/01 to 2005/06 and the quota before the reform.
2. The difference between the average production of campaigns from 2008/09 to 2009/10 and the quota after the reform. This is because in the first two campaigns after the reform, the situation in 2006/07 and 2007/08 was not yet stable. In the quota after the reform, also the additional quotas purchased by the industries of some member states were taken into account[168].

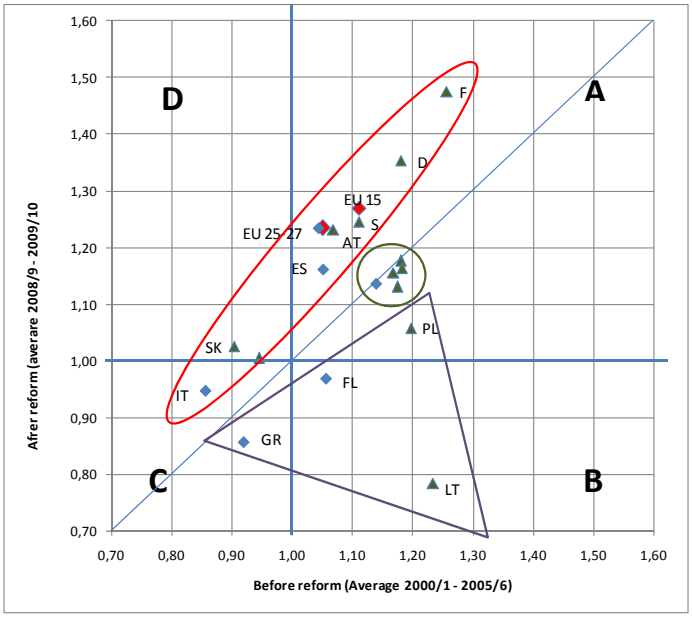
The results of the calculations were then distributed across the following map, where each Member State holds a definite position by the binomial of values of before and after the reform.

To interpret these results, please note that the map was divided into four quadrants, defined by the intersection of the axes that represent a value of the relationship between production/quota=1:

- In quadrant A, you will see the competitive Member States before and after the reform (relationship >1).
- In quadrant B, the Member States that were competitive before the reform (relationship >1), but not after (relationship < 1)
- In quadrant C, the non competitive Member States both before and after the reform (relationship <1)
- In quadrant D, the Member States that were not competitive before the reform (relationship <1), but became competitive afterwards (relationship >1)

Furthermore, the bisector that cuts across quadrants A and C separates the Member States that had improved upon their previous situation (above) and that had worsened (below).

Figure 54:Relationship between sugar production from sugar beets and quota before (average 2001/2-2005/6) and after (average 2008/9-2009/10) the reform, in the different producing Member States and in the EU



The Member States marked by a small triangle are those that purchased additional quotas

Source: from regulations and CEFS data

The results of the analysis show that:

- Some Member States that were already competitive before the reform that further improved their position by increasing their above quota production. In particular FR (17.4%), AT (15.3%), DE (14.7%), SE (12.2%), and also ES (10.4%)

[168] Please note that the additional quotas were mainly purchased by industries that operate in FR, Germany and Poland. In other MS, industries purchased additional quotes on a much lower scale (UK, BE, the Netherlands, Denmark, Austria, CZ, Sweden, Lithuania, Slovakia, Hungary)

- Some Member States that were already competitive before the reform (UK, NL, CZ, DK) have basically kept their position unchanged, with an above quota production of between 10% and 20%
- IT and EL were under the quota before the reform and remained so after the reform was implemented. However, IT improved its position, while EL became even less competitive. On the contrary, FI and LT, who were above quota before the reform, were under quota after the reform (both worsened their competitive position)
- On a EU level, due to the different dynamics of the Member States, there was a marked increase: for the EU-15 of over 14% (from 1.11 to 1.27) and for the EU-25 of over 17% (from 1.05 to 1.23)

Furthermore, we can observe that, regardless of the individual conditions existing before the reform, in the Member States in which the industries decided to continue to produce sugar from sugar beets:

- Eight Member States improved their position (ellipsis in the figure);
- Five Member States maintained their previous position (circle in the figure);
- Four Member States declined from their previous position (triangle in the figure).

5.4.3.1.6 Summary table concerning cost competitiveness

The effects resulting from the actions implemented by Community producers following the reform for reducing production costs are synthesised in the following table.

Table 70: Development total costs by cost positions 2009/10 vs. 2004/05

Cost item	**%**
Expenses for personnel	-18
Energy costs	19
Supplies used in manufacture	-25
Maintenance	-9
Specific costs for beet supply	1
Taxes and levies (without EU-levies)	16
Other expenses	4
Depreciation	-12
Financial costs	-40
Total costs	-11

Source: from CEFS data

These results show a decrease of the average production costs at EU level.

This efficiency improvement is also shown by the results regarding the factors that directly or indirectly influenced the average production costs. In the following summary table we have recorded the average values of EU-25 in reference to the two-year period 2004/05-2005/06 (situation before the reform) and 2008/09-2009/10 (situation after the reform of the reform) of Member states that decided to continue sugar production. In addition, we calculated the coefficient of variation for the same years[169].

Figure 55: Cost factors: averages and coefficients of variation before and after the reform (EU-25)

	Average			CV		
	Before ref.	After ref.	Δ%	Before ref.	After ref.	Δ
White sugar yield (t/ha)	8,7	11,0	26,6	23,1	23,9	0,8
Campaign length (days)	91,1	110,8	21,6	17,5	23,0	5,5
Volume per factory (t) (EU 15)	121	165	36,4	56,0	73,0	17,0
Productivity per labour unit (t/employee)	387	553	42,9	59,2	62,5	3,3

Source: data from various sources

[169] The coefficient of variation (CV) is defined as the ratio of the standard deviation to the mean or to the average (CV=σ / |μ|)*100. This is therefore a measurement of deviation around the average

With regard to the averages all the indicators show a net improvement, particularly the indicators linked to the efficiency of the more strictly industrial activities. Therefore, we can deduce that the reform contributed, directly or indirectly, to the overall increase in cost competitiveness of the European production system.

With regard to the coefficients of variation, these also demonstrate an increase since the reform compared to the situation before the reform. Therefore, we can deduce that, on average, the reform contributed to widening the gap of competitiveness that previously existed between the Member States.

5.4.3.2 Competitiveness of full-time refineries

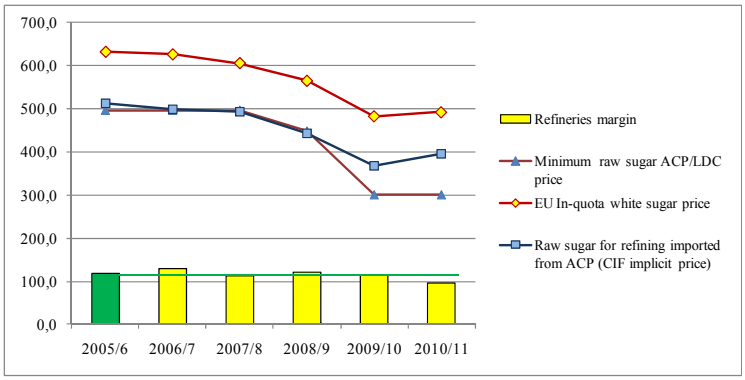
5.4.3.2.1 Effects of the reform and of changes in the world context on cost competitiveness levels of full-time refineries

Just as for beet sugar production, the potential unit margin was also calculated for the refining of imported cane sugar.

This margin is the result of the difference between the average Community price of white sugar and the CIF implicit price of raw sugar for refining (NC 1701 11 10) imported from ACP countries. In this case two prices per commercial year were calculated as a weighted mean of monthly prices for the periods from October (in the year n) to September (in the year n+1) of Comext data.

This is the margin within which industrial refining costs should be for companies to make a profit and thus be competitive (other conditions being equal).

Figure 56: Development of average potential unit margin, from 2005/06 to 2010/11 (€/t white sugar)



Source: Processed DG Agri – Comext data and Regulations

It may be seen from the graph that:

- the margin level is around 115 €/t, with a maximum in 2006/07 (128€/t) and a minimum in 2010/11 (96 €/t).
- the potential unit margin fell by about 19% comparing the pre-reform period (2005/06 in the graph) and 2010/11.

Just as in the case of sugar producers, for refining activity too it has not been possible to obtain data on actual industrial costs, which are a significant element for undertakings. Some respondents declared that these costs would be an average of around 90 €/t under normal conditions. Respect potential unit margins, this cost level should allow to realise a profit (under normal conditions).

However, the real point of interest is to verify whether and to what extent industrial production unit costs are actually greater or less than sale prices.

We were able to make some calculations using balance sheets (for the years 2007 to 2010) given to us by two full-time refineries.

For these firms, the Return on Sales (ROS) was calculated.

Figure 57: ROS trends for two full-time refineries (2007-2010)

	2007	2008	2009	2010
Refinery A	2,5	2,3	4,5	-6,8
Refinery B	-1,8	0,0	-4,5	-5,1

Source: Processed balance sheet data

As can be seen, the two situations are not the same: up until 2009 one undertaking had a positive ROS, with positive Net Income before interest and tax, while the values for the other undertakings were negative or close to zero. In 2010 the ROS reached very negative values for both undertakings (thus industrial costs + supply costs were greater than sales value).

This highlights the existence of a state of distress and that competitiveness of these undertakings has thus deteriorated. All undertakings interviewed during field missions fully confirmed this deterioration[170].

5.4.3.2.2 Effects on the capacity utilisation rate

In the refining sector, more so than in the sugar producing sector, the utilisation of capacity at the maximum possible technical levels is one of the key factors of competitiveness, since a large percentage of industrial costs (apart from the cost of raw sugar supplies) consists of fixed costs. The table below gives estimates, thanks to the aid of some of the operators interviewed, concerning the incidence of fixed costs with different capacity utilisation rates[171]. Putting the industrial margin (price of white sugar – cost of raw sugar supplies) at a base of 100, while capacity utilisation rates go from 95% to 60% of capacity, variable costs remain at about 48%, while fixed costs double from 36% to 72%. In the first case a positive net income of 16% is generated; in the second case net income is negative in the order of -20%[172].

Table 71: Incidence of fixed costs with changing of capacity utilisation rate

	Capacity utilisation rate	
	95%	60%
Industrial margin	100	100
Variable costs	48	48
Fixed costs	36	72
Net income	16	-20

Source: Agrosynergie estimates based on data declared by operators

The worsening of the economic and financial situation of FTRs noted in the paragraph above is thus chiefly the result of the deterioration in the utilisation rate of plants.

With regard to the EU-15, our calculations show that on average the utilisation rate went from about 85% in the pre-reform period to 48% in 2009/10.

This result is a consequence of the fall in supply flows (variation between average for the pre-reform period and 2009/10) and the increase in capacity (see Question 5). This result could be overestimated[173].

Interviewed refineries nevertheless all confirmed that they were currently operating at 60-65% of capacity, consequently well below the rates required to be competitive.

[170] The sale of Tate & Lyle (see EQ5), a listed company no longer able to satisfy the interests of its shareholders, is a good indicator of the state of economic and financial distress faced by FTRs. In the same way, the closure of the Tereos refinery in Nantes, located close to the large French area of beet sugar production.
[171] Estimates based on examples (market prices and supply costs), thus should be considered as indicative, and treated with due caution.
[172] Financial costs and taxes should also be deducted from Net Income.
[173] It should be recalled here that the rise in capacity was a strategic choice made by most FTRs following: changes to the CMO external part and expectations of a larger flow of raw sugar imports to be refined (zero or reduced customs duty) as a consequence of the fall in Community production of beet sugar (see EQ5). The estimated fall in the capacity utilisation rate, being an average value, also reflects the rise in total capacity due to the opening of new plants that are still in the start-up phase (e.g. Sfir). Accordingly, the "real" fall should be lower than the "calculated" value.

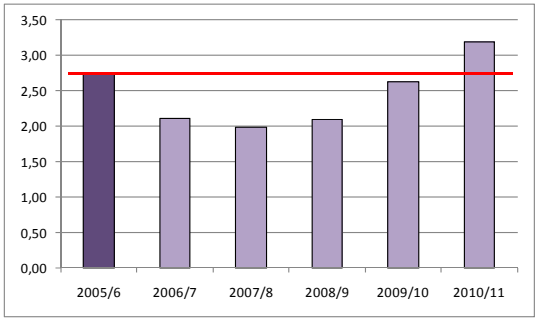
5.4.4 THE REFORM HAS ALLOWED (OR NOT) TO MAINTAIN EQUAL THE RELATIVE COMPETITIVENESS BETWEEN REFINERIES AND SUGAR PRODUCERS

The relative competitiveness between sugar producers and full-time refineries has been determined on the basis of two elements: a) development of the ratio between the potential unit margin of sugar producers and the potential unit margin of full-time refiners; b) the effects of changes to the import license granting system.

5.4.4.1 Development of ratio between the potential unit margin of sugar producers and the potential unit margin of full-time refiners

The levels of potential unit margins of sugar producers and refiners are determined by the institutional price. The ratio between both levels is an indicator of the relative competitiveness between the two industries.

Figure 58: Development of ratio between industrial margin of sugar producers and industrial margin of refiners



Source: Processed DG Agri data and regulations

The graph points to growth in the ratio from 2.7 before the reform to about 3.2 in 2010/11. This is the result of specific development in the post reform period: first it decreased down to 2 in 2007/8, because sugar producers needed to contribute to the restructuring fund, but afterwards this ratio recovered significantly.

Accordingly, looking at only the effect of different unit cost trends of raw material supplies (respectively for sugar producers and for refineries), we note a worsening of the relative competitiveness of sugar producers compared to sugar refineries in the first four years of the reform implementation, and a reverse situation in 2010/11. This is of course related to the increase in CIF import prices of raw sugar, which is influenced by the changes affecting the world market.

5.4.4.2 Effects of changes on the import license granting system

As already mentioned (Question 5), access of ACP countries to the Community market was traditionally guaranteed by the sugar Protocol. This was supplemented by a special preferential agreement and, since 2002, by access based on a quota system thanks to the EBA initiative. These agreements gave to raw sugar Community refiners privileged access to import licences. Privileged access indeed completely protected FTRs, which operated in a non-competitive setting.

The elimination of the Protocol in the 2009/10 campaign led to the opening up of access to import licences, even though FTRs retain priority access during the first three months of the campaign (from 1 October to 31 December). The question is thus whether and to what extent this change has played a role on the competitive balance between FTRs and newcomers non FTR.

The answer to this question is not simple within a context of rising refining capacities (including that of sugar producers entering the refining activity - see Question 5 - and of FTRs) and diminishing supplies. Above all it has not been possible to give a quantitative answer. From the information (and views) received from interviews with both sugar refineries and producers, it is in any case possible to give a qualitative response. According to certain operators:

- Access to licences reserved for FTRs for the first three months of the campaign could actually be a competitive advantage, because in this period the prices of raw sugar to be imported in annual contracts are fixed. In other months (spot contracts) uncertainty increases, since there is the danger of paying a relatively higher price of the imported product compared with a price established in sales contracts for refined sugar. Volumes negotiated in the first three months should thus enable FTRs to cover fixed costs (under normal supply conditions).
- For sugar factories, on the other hand, fixed costs are covered by the production of beet sugar, and access to import licences in the other nine months of the campaign makes it possible to raise the capacity utilisation rate of some plants (and thus to improve one's cost position) and to expand the market (and thus to increase one's market share). Accordingly, sugar refined in sugar factories is more competitive than that refined in refineries.
- In theory, if raw sugar were available in the quantities planned for, in the first three months FTRs could request licences for volumes needed for plants to operate all year round. Under normal conditions therefore, the exclusivity option for the first three months of the campaign is a key factor, even though in some exporter nations there is the problem of off-campaign production (and thus of the availability of raw sugar) in relation to the period October-December.
- Under current conditions of short supplies, the three-month access period is not sufficient, and in other months there is very strong competition among applicants (FTRs and others). The system is also selective, since in order to obtain import licences it is necessary to have the export certificates (contracts) of supplier countries. Not all operators are equally able to enter into these contracts; therefore a power asymmetry is generated in the new system.
- For this reason, and thanks to completely free access to licences, a portion of available licences is obtained by buyers and traders (these too newcomers); these licences are subsequently sold to companies (FTRs or sugar producers). According to certain operators met during the case studies, the new system would appear to have generated a speculative licence market, and consequently a more important role for these operators (see also Question 5). Nevertheless, no objective evidence could be found to support this statement.

5.4.5 THE REFORM IMPACTED (OR NOT) THE FACTORS THAT AFFECT THE COMPETITIVENESS OF COMMERCIAL ACTIVITIES OF SUGAR PRODUCERS AND FULL-TIME REFINERIES

Sugar is a commodity and so, in theory, the competitiveness of the companies plays on the cost position because the price is the same everywhere. As we are aware, this is true in a completely free system with perfect competitiveness. In reality, in an oligopolistic system such as the sugar industry (see Chapter 2.4.4.3 in the descriptive part), the companies can develop post production policies (such as applying different price policies) and/or benefit from certain competitive advantages in client relationships (for example, location advantages).

In this part, we intend to analyse the direct or indirect effects of the reform on factors after the production area, forming the trade area. More specifically, we focus on:

- the effects of the reform on the price policy
- the effects of the reform on outgoing logistics costs
- the effects of the reform on client relationship systems.

5.4.5.1 Effects of the reform on company price policies

In Question 4, Chapter 5.1.6 we saw that the average EU market price starting with the 2009/10 campaign was placed in a higher position than the price of reference, which shows more freedom compared to the previous period[174]. However, the industries interviewed proved to be rather reticent about prices, as they were with costs, and as a result, our assessment can only base itself on information made available by DG Agri which concerns the average EU price of white sugar and its standard deviation after the reform.

Figure 26 and Figure 27 show for quota sugar the pattern of EU average monthly prices and their standard deviation, and the pattern of the coefficient of variation and the exponential curve of regression.

The coefficient of variation tends to increase (and then explodes in the first few months of 2011). This means that the prices applied on the EU market are increasingly different and increasingly played by companies to gain competitiveness, most likely for the different cost positions achieved, but also as competitive strategies aimed at maintaining or purchasing market shares.

This is obviously permitted by the oligopolistic supply structure (the market is not perfectly competitive). Essentially, depending on the different situations in which they operate, companies can decide to apply different prices on different markets or even on the same market to different clients[175].

Subject to the overall company profitability, the companies can decide (at least for a certain period) to apply non remunerative prices if this enables them to work down the market shares of their competitors. In a highly unstable situation (like the one we are in now) this strategy basically represents an investment in the future of the company.

Box 8: Particular pricing policy on the Italian market

The Italian market is an interesting case that supports our assessment where, in theory, the price should be higher (given the logistics costs) than the prices applied in FR and DE. In reality, according to the operators, the prices of sugar transferred by FR and DE to the Italian market are 10% lower than the prices applied by the same industries on the French or German market. This phenomenon, although paradoxical, is simple: once the internal demand of these Member States has been satisfied, enabling all fixed costs to be covered, the sugar that is still available can be transferred for prices that exceed only the variable costs, even by a small amount (and therefore at a lower level). Even with prices that are lower than those applied in the respective Member States of origin, the French and German industries can still make positive profit margins.

[174] the development of the EU price of white sugar does not follow the world price trend (see chapter 2.4.3). Starting from the 2009/10 campaign, for some months, the EU price (slow development) was lower than the world price (highly volatile). According to the operators who were interviewed, this is because the white sugar purchased by large food and beverage industries is under annual contracts in which the price remains the same for the next 12 months. The EU price, in the short term, is only influenced by the world market for spot buys. These spot buys are generally made by small industries (particularly in the Member States in the East), in the hope of getting the lowest prices (trying to make different suppliers compete against one another). It should be noted that this behaviour was caused by the reform (price reduction). It is evident that the users who chose to spot buy white sugar (without contracts) found themselves in a critical situation between the end of 2010 and the start of 2011.Spot contracts are more of a problem for refineries. In this phase of the world market where prices are very high and procurement is very difficult (see QE5), the refineries are forced to work back-to-back to guarantee a profit margin, something that is impossible with annual contracts. So in this case, refineries are at a competitive disadvantage compared to sugar producers.

[175] The adoption of this price policy was confirmed by some operators during field missions

5.4.5.2 Effects of the reform on outgoing logistics costs

For the users (food industries, modern distribution chains, etc.) the choice of the individual sugar supplier is made (when all other conditions are the same) based on the minimisation of supply costs.

This cost is the price of sugar ex works plus the logistics costs (specifically transportation costs) from the production centre to the place of use[176].

This has two implications:

1. Both for sugar producers and for refineries, the location of production sites in relation to potential markets is a factor of competitiveness and its intensity depends on the distance[177]. A shorter distance from the production centre to the place of consumption gives less efficient industries more competitive margins in their own market.
2. For sugar using industries which do not have sugar producers close by, the supply cost may be considerably higher than the cost incurred by industries that do have sugar factories nearby. As a result, they can have a competitive disadvantage.

Following the abandonment (full or more than 50%) of the sugar production in some Member States, the geography of the production/consumption outlines changed after the reform (cf. Question 4 Chapter 5.1.3).

The table below shows the sugar transfers not for refinement (taken from the difference between NC 1701 and NC 1701 11 10) for some Member States that drastically reduced their quota, in full and from the other main producing Member States. This table shows the average volume in the years before the reform (2004-2005) and after the reform (2009-2010).

Table 72:Transfers of non-raw sugar by Member State - 2004/05 and 2009/10 averages (tonnes) (NC 1701, NC 1701 11 10)

		Av. 2004-05	Av. 2009-10	Δ
Ireland	Total	52.727	163 258	110 531
	UK	*27 289*	*125 543*	*98 254*
	France	*24 824*	*15 548*	*-9 276*
	Germany	*234*	*13 054*	*12 819*
Italy	Total	580 716	1 047 474	466 758
	Germany	*186 106*	*437 431*	*251 325*
	France	*223 001*	*403 545*	*180 544*
	UK	*68 720*	*134 392*	*65 672*
Finland	Total	15 526	58 288	42 762
	Germany	*119*	*21 802*	*21 683*
	Sweden	*1 689*	*29 975*	*28 285*
Hungary	Total	31 633	126 095	94 462
	Austria	*2 962*	*34 270*	*31 308*
	Germany	*4 218*	*27 448*	*23 230*
	Slovakia	*3 366*	*31 194*	*27 828*
Greece	Total	45 339	140 080	94 741
	Belgium	*5 736*	*63 905*	*58 170*
	France	*6 370*	*44 390*	*38 021*
	Denmark	*0*	*12 086*	*12 086*
Iberian market (PT+ES)	Total	362 142	393 164	31 022
	France	*253 473*	*308 916*	*55 443*
	Germany	*54 172*	*45 676*	*-8 496*
	Belgium	*16 091*	*6 605*	*-9 485*

Source: Comext

From the table, we can see that the higher transfers to IE, FI and HU actually came from other member states with quite limited distances. In the case of the Iberian market (ES and PT), there are more movements between these two Member States where the distances between production and

[176] The different contractual methods applied (cost of transportation borne by the producer or user) are, in the end, a purely accountancy aspect

[177] The cost of sugar transportation, estimated at approximately 0.10 €/t per km.

consumption centres are also just as limited. For all these Member States overall, the replacement of locally produced sugar with sugar transferred from producers in other Member States should not have significant effects on the outgoing logistics costs.

Given their position and geographic configuration, the case of EL, and IT even more so, is quite different. For the latter (increase of more than 470 000 tonnes of transfers), the distance between the production centres of supplying Member States and Central IT is over 1 000km[178].

Given this scenario we can say that:

- the increase in logistics costs required to serve the Italian market has generated additional costs on the entire system that the reform appears not to have taken into account.
- the remaining Italian producers enjoy an advantage of the transportation cost generated by approximately half of the distance from the French and German production areas (the distance between Emilia-Romagna and Central IT is 450km) and that can be estimated in around 40-50 €/tonne.

The increase in distance from the production centre to the places of consumption also has negative implications on customer satisfaction. In fact, according to some sugar producers who were interviewed and the user representatives (CIUS), customer satisfaction is helped when:

- The commercial relationships between suppliers and clients are strengthened over time.
- There is a relatively short distance between the supplier site and user site

This is because the closer the two sites are, the more easily the suppliers can react to the demand.

To this end, we can see that the food and beverage industries have created savings on their sugar storage facilities in order to implement "Just in Time" production systems. As a result, the management of logistics by sugar suppliers in line with the variations in the client supply demand (in quantity and quality depending on the delivery times required to respect the JiT) is an additional service also use as a competitive factor.

Finally, again according to some operators interviewed, before the reform, the critical area was production, but after the reform, this became commercialisation (the key factor became market management). This is demonstrated by the fact that some sugar producers did not have their own commercial structure, as it was rendered unnecessary by the existence of a high and guaranteed price. The product distribution for the demand was therefore entrusted to third parties (traders, agents, etc.) In the more competitive system generated by the reform, it became necessary for each producer to have its own sales organisation system to independently manage its client portfolio.

5.4.6 THE REFORM IMPACTED (OR NOT) FACTORS HAVING AN INFLUENCE ON COMPANY PROFITABILITY AND ON GLOBAL COMPETITIVE POSITION

5.4.6.1 Effect of the reform on make or buy choices[179]

In countries that have foregone a significant proportion of their quota and that have closed a relevant percentage of their factories, the reform has encouraged the adoption of “make or buy” strategies.

In the case in point, the waiving (of part) of the quota and the closure of (some) production plants has not resulted in the parallel abandonment of similar levels of sugar packaging/distribution activity. In other words, some companies have given up production, but at the same time have tried to maintained (as much as possible) the same market shares (and client portfolio) as those in place prior to the reform[180].

These companies have accordingly separated industrial activity from packaging/marketing activity, by establishing specific trading companies supplied in part by their own sugar production

[178] Consequently, the cost of transportation can be estimated at 100 €/t

[179] Make or buy means the choice made by an undertaking to make a product or service needed for a phase of production/sale internally or to buy it from a third party. This strategic choice defines the level of integration of activities (upstream and downstream) and determines cost structure, organisation and market positioning. The make option usually offers the advantage of ensuring direct control over the activity and the quality of the product/service. The buy option offers the advantage of having fewer fixed costs and thus less tied-up capital.

[180] Maintaining the client portfolio is considered as a key factor.

(possibly) and in part (to varying degrees) by purchases from other sugar producers. This has allowed them to remain in the sector, to maintain a sufficiently high turnover and to attain sufficiently interesting profit margins (taking consolidated balance sheets into account).

In some cases, trading companies have been created with mixed capital based on strategic alliances between sugar factories that have closed/reduced their production and the companies of other strong producing Member States[181]. Thus new trading companies bring together the competitive advantages of both elements: advantages regarding the availability of product volumes and industrial cost positions on the one hand; and advantages relating to proximity, market relations and management of the client portfolio on the other.

5.4.6.2 Effects of the reform on concentration in the sector and on market power

In literature on strategic marketing, it is argued that a sector's level of concentration is a key factor for the ability to use given competitive instruments and for the effectiveness of competitive actions carried out by undertakings. The degree of concentration is thus an indicator of the competitive position within the sector. Literature also cites the positive correlation (other conditions being equal) between the market share and ROI level.

It has not been possible to calculate the ROI for undertakings making up the competitive system prior to and after the reform. A judgement may thus only be expressed indirectly, by assuming that profitability has risen for undertakings that have seen an increase in their market shares, and vice versa.

The analysis was conducted on two levels:

1. the first at "processing country system" level (including all undertakings that developed activity exclusively or partially in each Member State in which production has continued). In this case used indicator is HHI.

> **HHI** is the Herfindahl-Hirshman Index, a commonly accepted measure of market concentration. The Index is used by antitrust policy in the USA. It is calculated by squaring the market share of each country-system competing in the EU 25 market and then summing the resulting numbers (base = 100 sugar production of EU-25 in 2005/6 and 2009/10). HHI< 1000: non-concentrated market structure; 1000< HHI<1800: moderately concentrated; HHI> 1800: very concentrated market structure

2. the second at company level (including all EU Member States where the undertaking has production plants[182]). In this case we used the NIL3 indicator.

> **Linda-NIL3**: Indicator of market power on mono-, duo- and oligopolistic markets. Developed by Remo Linda, taking into account the Commission's new antitrust policy
>
> The NIL3 index combines the production shares of the leading 3 competitors (again base = 100 sugar production of EU 25 in 2005/6 and 2009/10) with their mutual competitive ratios. The index represents not only the degree of concentration but also the relative competitive position within the sector.
>
> Taking X1, X2, X3 as the production share of the three leading undertakings[183], the NIL 3 index is calculated as:
>
> NIL3 = fC3*3L where C3 = X1+X2+X3; fC3= ((C3*100)^2)/10; 3L=((X1*2/(X2+X3))+((X1+X2)/X1*2))/2
>
> NIL3 < 500: relatively balanced oligopolistic structure; 500 < NIL3 < 1000: relatively unbalanced and

[181] Examples of these strategic alliances are Eridania Italia (trading company part owned by Eridania-Sadam and by Cristalco-Cristal Union), and Italia Zuccheri Commerciale (trading company part owned by CoProB-Italiana Zuccheri and by Pfeiffer & Langen). A previous case is that of Eridania Tate & Lyle (Sadam + Tate & Lyle), which ceased its operations after the sale of T&L to American company ASR.

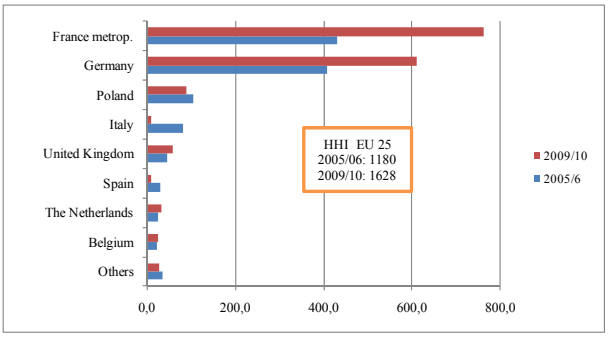
[182] Sudzucker (Germany, BE, FR, Poland, Austria, CZ, Slovakia, Hungary, Romania). Nordzucker+Nordic Sugar (Germany, Poland, Slovakia, Denmark, Finland, Sweden, Lithuania). British Sugar (UK, ES). Tereos (FR, CZ). Pfeiffer & Langen (Germany, Poland, Romania). Royal Cosun (Netherlands, Germany). Cristal Union (FR). KSC (Poland). Italia zuccheri/CoProB (IT). Eridania/Sadam (IT). Naturally European or non-European countries where some of the Companies have developed productive activities are not included.

concentrated oligopolistic structure; NIL3 > 1000: oligopolistic structure very close to duo-monopolization

Results show that, in terms of country system, HHI show quite a relevant growth in concentration (HHI went from 1180 to 1628 points). In particular, the analysis shows a further strengthening of the power of FR and DE in relation to all other country system.

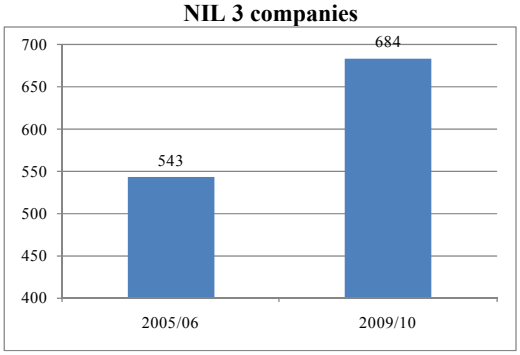
Figure 59: Changes in market concentration at country system level (HHI) and at company level (NIL3)

HHI countries



Source: Estimates based on CEFS data

NIL 3 companies



Source: Estimates based on data from CGB and undertakings

At company level, results show that, although there was a rise in concentration and in the relative competitive position in the sector, the structure remained within the same ranges as before the reform (NIL 3 from 543 to 684 points). The structure was and has remained in a situation of relatively unbalanced oligopoly[184], although this imbalance has risen somewhat since the reform[185].

Generally speaking, therefore, the profit margins of the sector leading companies should (in principle) have grown slightly since the reform.

5.4.6.3 Effects of the reform on co-products valorisation and production diversification strategies

Policies of valorisation of by-products of the sugar beets and of production diversification aim at increasing the global efficiency of the company and thus its profitability, independently from the sugar activity (production/marketing, etc.)

However by diversification we don't take into account new business areas totally disconnected from the activity in relation to the use of sugar beets (i.e. production of fresh/processed vegetables or processed products, etc.). These new business areas, even if developed by some companies[186] (after the reform, but also before) have no effect on the efficiency and competitiveness of sugar related activities[187].

The field missions allowed classifying in three main groups the diversification/valorisation of co-products lines adopted by companies:

1. Bioethanol production: in general bioethanol production starts from an intermediate phase of the sugar production process. The most significant initiatives have been implemented by some

[183] It should be noted that production shares of undertakings used to calculate the indicator were taken from available publications (annual CGB reports) and from estimates based on information from companies. The results of the analysis should therefore be treated with due caution.
[184] Oligopoly in which market power of the biggest three companies is unbalanced.
[185] Within this general situation one should consider the further strengthening of Südzucker's position, having already been the clear leader in the sector prior to the reform. There was also a strengthening of the relative competitive positions of British Sugar, Royal Cosun and Pfeiffer & Langen, together with a smaller growth for Tereos.
[186] British Sugar, SFIR, Nordzucker, Sudzucker, Pfeifer & Langen, etc.
[187] We remind that a large number of sugar producers are part of industrial groups already very diversified.

companies that operate in member States that have increased or maintained an out-of-quota production (Nordzucker, Sudzucker, Tereos, Cristal Union and British Sugar).

2. Production of renewable energy (electricity, biogas, etc.)[188]: This activity is derived from the utilization of by-products of the processing (pulps) as well as the use of residual biomass from the sugar production process (e.g. British Sugar and COPROB).
3. Other by-products valorisation/diversification actions: in this category are included other more or less innovative activities carried out from a co-product of sugar production industrial process or from co-products of the agricultural producers related to the industry: animal feed (British Sugar), fertilizing and feed products (Pfeifer & Langen), project for the production of bioplastics from molasses or from thick juice (COPROB)

5.4.7 THE 2006 REFORM OF THE SUGAR CMO CONTRIBUTED (OR NOT) TO IMPROVING THE OVERALL COMPETITIVENESS OF THE SUGAR SECTOR

Porter five forces analysis[189] for the sugar/refining industry

The model allows to identify the forces (and to study intensity and importance) operating in the economic context and that, interacting, have an influence on the competitive structure of the sector. Those competitive forces are:

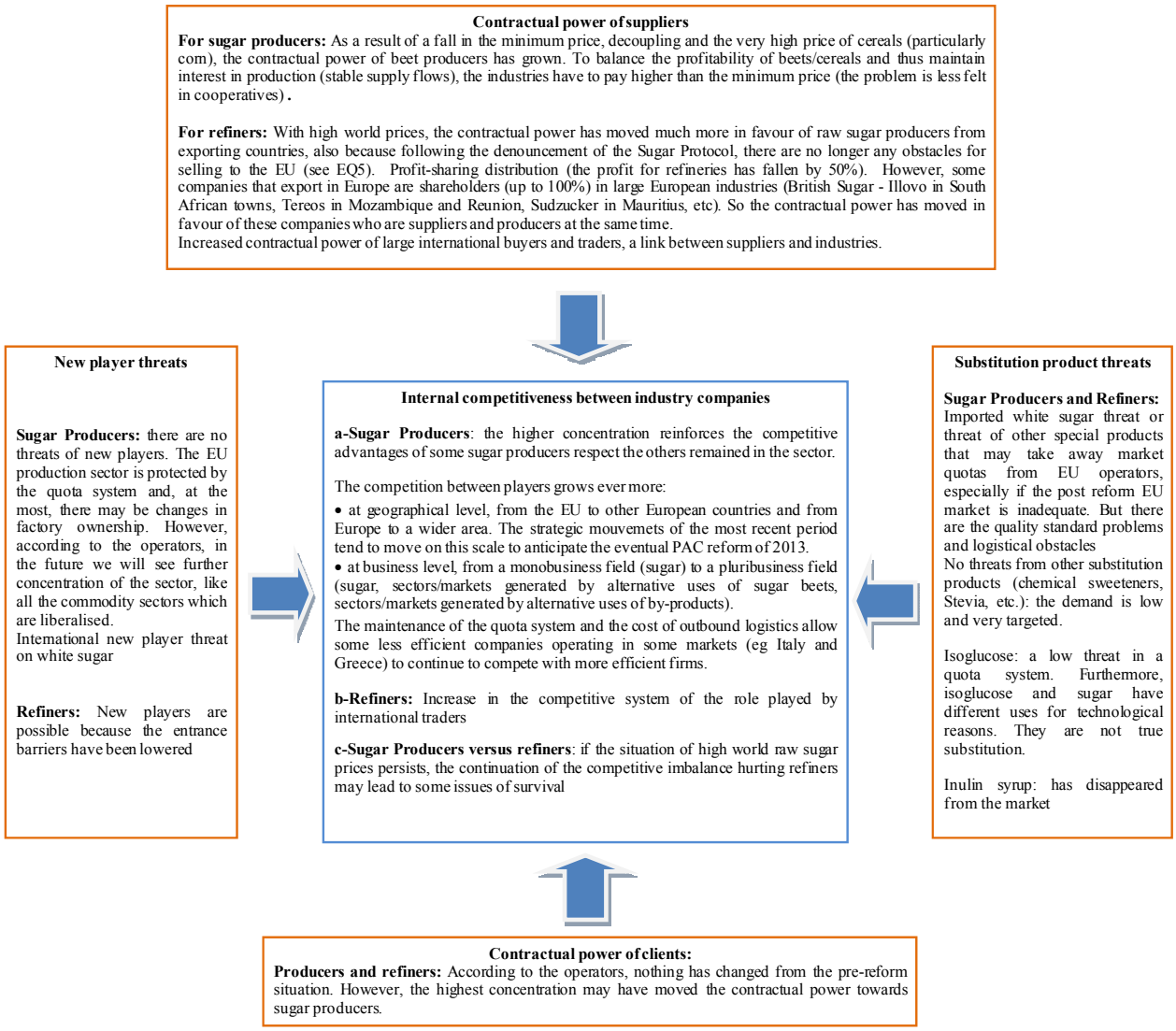
- The threat of the entry of new competitors
- The threat of substitute products or services
- The bargaining power of customers (buyers)
- The bargaining power of suppliers
- The intensity of competitive rivalry

The analytical frame of these forces has been designed by rationalizing all information received and results of the analysis illustrated in the previous paragraphs to present in a synthetic manner all the changes in the competitive system coming from the changes in the institutional framework.

[188] The energy production concerns also some refineries: i.e. SFIR produces energy from cogeneration from vegetable oils (34 megawatts), part of which is used for the refinery plant, and partly sold on the market. The coexistence of the two businesses in the same plant allows the company to share risks and to withstand adverse economic events in one of two activities .

[189] The five forces are: the threat of the entry of new competitors, the threat of substitute products or services, the bargaining power of customers (buyers), the bargaining power of suppliers, and the intensity of competitive rivalry.

Figure 60: Porter five forces analysis for the sugar/refining industry



Source: Agrosynergie

5.4.8 JUDGEMENT

This question analysed direct and indirect impacts of the reform, as well as of other drivers, on the competitiveness of sugar producers and refiners.

When possible, the analysis has been based on statistical data from different sources. However, operators did not agree to provide data (absolute values) on production costs, as this information was considered too sensitive in the current highly competitive market situation. The only available data came from a study on economies of scale in the Italian sector[190]. To estimate cost competitiveness, calculation was based on average values. As a consequence, the results from this analysis should be considered as indicative only; they give just an order of magnitude of the actual impacts and are to be considered with a due caution.

[190] Piano Bieticolo-Saccarifero, October 2005, Ministerio delle politiche agricole e forestali

Impacts on factors that affect, directly or indirectly, the competitiveness of production activities

Economies of scale are a key factor in achieving competitiveness in the sector. Impacts of the reform on fixed and variable production costs were analyzed.

Concerning sugar producers

The reform has stimulated improvements in the main factors of achieving competitiveness, although some of these were already improving– but at a lower speed – before the reform. They include increasing the average campaign length (improvement of the plant utilization rates) and labour productivity (reduction of unit costs). Also, sugar production per hectare has improved on average (due to reduced incoming logistics costs), which confirms that the abandonment of the production chains mainly has mainly taken place in the less suitable, and therefore less competitive agro-industrial areas.

The reform has accelerated closure of factories with medium-low and medium production capacity. This has led to an increase in average production per factory between the periods of 2004/05-2005/06 and 2008/09-2009/10 from 121 000 to 165 000 tonnes/year in the EU-15, with an improvement in overall efficiency of the industrial system thanks to the economies of scale.

This average improvement has not been equal between Member States. Indeed, the coefficient of variation[191] of each competitiveness factor has increased since the reform. Thus, the reform has contributed to increasing the competitiveness gap that existed among Member States before the reform. This is also confirmed by the changes in the geographical distribution of out-of-quota production.

The following table summarizes the main results regarding the direct and indirect impacts of the reform on the variables affecting cost competitiveness (average and coefficient of variation) for the EU-25.

	Average			Coefficient of variation		
	Before reform 2004/05-2005/06	After reform 2008/09-2009/10	Δ%	Before reform 2004/05-2005/06	After reform 2008/09-2009/10	Δ%
White sugar yield (t/ha)	8.7	11.0	26.6	23.1%	23.9%	0.8
Campaign length (days)	91.1	110.8	21.6	17.5%	23.0%	5.5
Volume per factory (t)	122	170	39.2	56.0%	73.0%	17.0
Productivity per labour unit (t/employee)	387	553	42.9	59.2%	62.5%	3.3

Source: data from various sources

Concerning full-time refineries

The utilization of capacity at maximum possible technical level is the key factor of competitiveness for full-time refiners, since a large proportion of production costs consists of fixed costs.

A combined effect of low supply flows of raw cane sugar (mostly in 2009/10, largely due to the price gap between EU and world markets) and the increase in production capacity (indirectly stimulated by refineries' expectations regarding what would happen after the reform) has led to a sharp deterioration in the capacity utilization rate. All interviewed refineries have confirmed that their current capacity utilization rate is 60-65%. We estimated that, at such a utilization level, fixed costs per unit are double than those at utilisation rate of 95%, and net income[192] is negative.

Indeed, the analysis based on the balance sheets of some FTRs from 2010 showed a strongly negative Return on Sales. FTR competitiveness has therefore worsened, and this was largely confirmed by the interviewees.

[191] Variability of the indicator values around the mean

[192] Thanks to the aid of some of the operators interviewed, it was estimated that when capacity utilisation rate is 60%, the industrial margin (price of white sugar – cost of raw sugar supplies) minus variable costs and fixed costs result in a negative net income.

Thus, in the new framework, the competitiveness of refiners is influenced by the market developments (mostly the price gap between EU and world markets), and in 2009/10 and 2010/11 some FTRs have not been competitive.

Concerning relative competitiveness between sugar producers and full-time refineries

The development of the ratio comparing "potential industrial margins[193]" of sugar producers and the FTRs showed: a) a loss of competitiveness of sugar producers with respect to refiners during the first four years of the reform, mainly due to their contribution to the restructuring fund during the first three post-reform campaigns; b) a loss of competitiveness of the refineries with respect to sugar producers in 2010/11, which is related to price increase for raw sugar imports due to elevated world market prices.

The effects of the changes in the license allocation system are not clear, as the present situation is strongly influenced by exogenous events (increase in world prices above EU price levels and fall of imports). However, the qualitative analysis has highlighted the increased role of international traders and buyers, as well as that of new refiners.

Impacts on factors that affect competitiveness of commercial activities of producers and refineries

The analysis has shown the oligopolistic nature of the competitive system of the sugar industry. Furthermore, the analysis revealed that:

- There is a wider differentiation of prices in the Community and companies increasingly use them to improve competitiveness (direct effect of the reform).
- Prices applied on the Community market by the sugar producers and refiners are becoming more differentiated and increasingly used by companies to improve competitiveness, probably depending on the different cost positions reached, but also in terms of competitive strategies aimed at maintaining or acquiring market shares.
- The shorter distance from the production centre to the place of consumption gives less efficient industries an advantage in their own market, compared to more efficient but more distant competitors. In some Member States, such as Greece and Italy, that have stopped a significant proportion of their sugar production, the internal demand has been met by transfers from other Member States, along with an increase in transport costs.

Impacts on factors influencing companies' profitability and global competitive position

Considering that the level of concentration could be taken as an indicator of the effectiveness of the measures fostering competitiveness which have been put in place by the companies, the analysis showed the following:

- at the country-system level, the Herfindahl-Hirshman Index[194] showed quite a relevant growth in concentration. In particular, the analysis showed the further strengthening of the power of France and Germany in relation to all other producing countries.
- at the company level, the Linda-NIL3 indicator[195] showed that although there was a rise in concentration and in the relative competitive position in the sector, the structure remained

[193] The potential unit margin represents the level that the actual production costs must stay under in order for a factory to make a profit, therefore rendering the company competitive.
For sugar producers, it is calculated as the difference between the average EU price of white sugar net of the temporary restructuring amount and the average EU purchase cost beets. For refiners, it is the result of the difference between the average EU price of white sugar and the CIF implicit price of raw sugar for refining (NC 1701 11 10) imported from ACP countries.

[194] Herfindahl-Hirshman Index is a commonly accepted measure of market concentration, used by antitrust policy in the USA and calculated by squaring the market share of each country-system competing in the EU 25 market and then summing the resulting numbers (base = 100 sugar production of EU-25 in 2005/6 and 2009/10). HHI< 1000: non-concentrated market structure; 1000< HHI<1800: moderately concentrated; HHI> 1800: very concentrated market structure

within the same ranges as before the reform. The structure was and has remained in a situation of relative unbalanced oligopoly[196] , although this imbalance has increased somewhat since the reform. Therefore, generally speaking, the profit margins of the sector's leading companies are likely to have grown slightly after the reform.

Under this framework, some companies that have totally or partially abandoned their quota have maintained their market shares and their client portfolio by maintaining a packing or distribution activity of sugar bought from other companies.
Other operators, among those who have continued sugar production, have developed diversification and/or valorisation of by-product strategies, thereby increasing their overall efficiency and thus profitability. This especially concerns bioethanol production, mostly in Member States that have increased or maintained out-of-quota production, production of renewable energy (electricity, biogas, etc.) and other actions to valorise/diversify by-products.

Porter's analytical framework of the competitive forces

The overall impact has been analyzed through Porter's analytical framework of the five competitive forces[197]. The framework makes it possible to map and analyze the importance of the forces acting on the economic environment, and, through their interactions, influence the attractiveness of the sector and its competitive structure.

The qualitative analysis showed that:

- The threat of entrance of new players and of product substitution is limited. However, new players, such as international white sugar exporters, could enter the Community market as for them it may have become less interesting to export raw sugar.
- Contractual power of suppliers (i.e. sugar beet producers and raw sugar suppliers) has increased compared to the pre-reform period. On the contrary, contractual power of clients does not seem to have changed.
- Concerning the sector's internal competitiveness, some of the remaining sugar producers have obtained a competitive advantage over others, due to increased concentration in the sector. Thus, competition among players continues to expand. This expansion is not only geographical – from an EU scale to one of Europe including non-EU countries and then from Europe to a wider area – but also at a business level, from mono-business activity in the sugar field to multi-business activities (sugar, sectors/markets generated by alternative uses of sugar beets, sectors/markets generated by alternative uses of by-products).

The maintenance of the quota system and the sugar transport cost allow some less efficient companies operating in some markets, e.g. Italy and Greece, to continue to compete with more efficient firms.

[195] Linda-NIL3 is an indicator of market power on mono-, duo- and oligopolistic markets, developed taking into account the Commission's new antitrust policy. It combines the production shares of the leading 3 competitors with their mutual competitive ratios. The index represents not only the degree of concentration but also the relative competitive position within the sector.
[196] Oligopoly in which market power of the biggest three companies is unbalanced
[197] The five forces are: The threat of entry of new competitors, the threat of substitute products or services, the bargaining power of customers (buyers), the bargaining power of suppliers, and the intensity of competitive rivalry.

6 THEME 3: SOCIAL AND ENVIRONMENTAL IMPACTS

Theme 3 deals with the effectiveness of the restructuring scheme in alleviating negative social and environmental impacts linked to the sugar sector restructuring.

6.1 QUESTION 8: AVOIDING NEGATIVE SOCIAL AND ENVIRONMENTAL CONSEQUENCES

To what extent have the measures applicable to the sugar sector prevented negative social and environmental consequences linked to the restructuring of sugar production?

6.1.1 COMPREHENSION OF THE QUESTION

Through the impacts on beet production and the closing of sugar plants, the reform has had negative **social impacts**: on the agricultural sector, on the manufacturing one, and on rural activities. "Accompanying measures" financed by the restructuring scheme were implemented to mitigate the negative impacts:

- The restructuring aid was granted to sugar manufacturers renouncing quotas, provided that they achieve the *restoring of the good environmental conditions of the factory site and the facilitation of redeployment of the workforce*. The regulation also states that *Member States may require the undertakings to make commitments which go beyond the statutory minimum requirements imposed by Community law*[198].
- Some of the restructuring aid had to be transferred to growers who had to give up production due to factory closure and to machinery contractors that have worked for these growers, in order to compensate for losses resulting from these closures[199].
- The aid for diversification was granted to Member States according to the amount of renounced quotas, to finance restructuring programmes at the national or regional level. These programmes were aimed at encouraging the development of alternatives to sugar beet and sugar production in rural areas heavily affected by restructuring[200].
- The full-time refiners received transitional aid to adapt to the new situation in the refining sector. This support was granted without any explicit objective related to social issues[201].

The question induces us to assess the effectiveness of these measures to limit the negative impacts that can be attributed to the reform, i.e. to see whether the social measures implemented went beyond what would have been done outside the frame of the restructuring scheme.

One of the objectives of the CAP is "*to protect the environment*". The reform may have had negative **environmental impacts** linked to factory dismantling, to the redistribution of production and the changes in crop rotations (simplification in particular). As no accompanying measures addressed the last two possible impacts, we focus on the environmental consequences of factory dismantling. We assess the way the accompanying measures of the reform did or not contribute to limit negative impacts and contributed to achieve better protection of the environment than what would have been achieved outside the framework of the restructuring scheme.

[198] Article 3, Point 3 and 4, §c of Council Regulation (EC) No 320/2006
[199] Article 3, Point 6 of Council Regulation (EC) No 320/2006
[200] Article 6 of Council Regulation (EC) No 320/2006
[201] Article 8 of Council Regulation (EC) No 320/2006

On both aspects (social and environment), there are three levels of analysis: the European regulation, the national implementation and the companies' level. The answer aims at identifying at each level, whether the negative social and environmental impacts of restructuring were addressed in a different way than what would have happened outside the scheme.

6.1.2 CRITERIA, INDICATORS AND DATA SOURCES

Table 73: Criteria, indicators and data sources for Question 8

Criteria	Indicators
The restructuring aid has (or not) contributed to limit negative consequences on employment.	In the sugar manufacturing sector: ➢ Change in employment following the reform ➢ Content of Council Regulation 320/2006 compared to existing rules ➢ Member State requirements compared to existing rules ➢ Measures implemented by the undertakings compared to existing rules
	In the agricultural sector: FADN results on the changes in annual work units
	In the machinery contracting sector: ➢ Share of the restructuring aid allocated to machinery contractors ➢ Role of the machinery contractors in the sugar beet industry ➢ Impact of the decrease in sugar beet production on the activities of machinery contractors: number of applications, opinions of the Unions
	In other sectors: interview results on the impact of the restructuring in the sugar sector on other socio-economic activities
The diversification measures have (or not) contributed to limit negative consequences on employment and economy development in affected areas	➢ Description of the measures: cf. Question 11 ➢ Opinion of the regional authorities on the effect of the diversification measures on employment and economy development
The transitional aid to full-time refiners has (or not) contributed to limit negative consequences on employment.	Results of Question 5
The measures have (or not) contributed to avoid negative environmental consequences of factory dismantling	➢ Content of Council Regulation 320/2006 compared to existing rules ➢ Member State requirements compared to existing rules ➢ Measures implemented by the undertakings compared to existing rules

There are two difficulties in the answer to this question:

- The counterfactual situation could not be described in detail: it is very diverse depending on Member States as national regulation and practices are diverse.
- Data is weak: insufficient monitoring and the issue of company privacy (confidential information included in sugar companies' restructuring plans and refineries' business plans) resulted in the data collection phase not being very effective. Therefore, the answer here is based on incomplete information and qualitative analysis.

For these two reasons, it was not possible to compare the social plans and environmental issues of closing down a factory within and outside the restructuring scheme.

Concerning the restructuring aid, the annual progress reports on the implementation of the restructuring measures communicated by the Member States to the European Commission[202] made available by the Commission were very limited: DE, NL, BE and AT on diversification, FR and IE for the whole scheme. This limited the data analysis and in particular hampered data cross-checking.

The information analysed comes from the companies' restructuring plans and progress reports as well as the results of controls carried out by the authorities, when they were made available. **It was possible to analyze social and environmental plans for ten sugar companies, and detail of the actions is available for six companies**. These are probably exemplary cases. To complete the

[202] Article 24, Commission Regulation (EC) No 968/2006

information collected, we carried out interviews with companies' representatives, local authorities in the regions affected, workers' unions and associations, etc., specifically on the social and environmental impacts of the restructuring and the accompanying measures. Despite these efforts, the data used remains incomplete and could not really be cross-checked.

Information on the requirements of national legislations (labour laws and environmental legislation) was not looked into in all the Case Study Member States. Specific insights are made for a few Member States. Interview results also provide information on the mitigation effect of the restructuring scheme.

Concerning data on the employment in the sugar manufacturing sector, the structural business statistics on Eurostat were not complete enough to carry out a thorough analysis. Therefore, we use data from the CEFS and from the companies' restructuring plans. Interview results are also used.

Concerning the share of aid allocated to machinery contractors, there is no monitoring of the support at the EU level. Data on the amount of aid and on the impact of the restructuring on the sector was collected mainly through a questionnaire sent to the unions by the CEETTAR (European organisation of agricultural and rural contractors). Eight unions replied to it, with mixed information. Data on the machinery contracting branch is taken from a working paper communicated by the CEETTAR (Klöcker E./CEETTAR, 2005). As no other data were found on the machinery contracting sector, no data cross-checking could be carried out.

The impacts on employment in the sugar beet sector cannot really be assessed, as there are no statistics available. FADN results on the number of annual work units in a sample of farms growing sugar beets are used.

Concerning the aid for diversification, the analysis is based on the national restructuring programmes and on the case study interviews. No monitoring data on the implementation of the national programmes allowing the description of the beneficiaries and the programme's results is available, either at the Commission level or at the national authorities' level in the Case Study Member States; in most cases the implementation data reported are the expenses by measure. More detailed analysis may be carried out once the programme implementation is over, i.e. by 30 September 2011[203]; it may be part of the final progress report due by the Member States to the Commission by 30 June 2012.

Concerning the transitional aid to full-time refiners, we refer to the results of Question 5; the limits of the data are presented there.

6.1.3 THE RESTRUCTURING AID HAS (OR NOT) CONTRIBUTED TO LIMIT NEGATIVE CONSEQUENCES ON EMPLOYMENT

6.1.3.1 In the sugar manufacturing sector

Impact of the reform on employment in the sugar manufacturing sector: job losses and redeployment

The reform led to the closure of 41% of the sugar factories (74 factories) active in 2005/06, doubling the pace of factory closures existing in the period before the reform (cf. Chapter 5.1.5).

CEFS data (cf. Table 74) show that the number of employees in the sugar processing industry during the beet campaign[204] decreased between 2005/06 and 2009/10 by around 44% (22 000 employees) in the EU-25[205]. According to literature (EFFAT, CEFS, 2011), it is generally

[203] Commission Regulation 968/2006
[204] i.e. regular + seasonal staff
[205] -35%, 11 000 employees in the EU-15

acknowledged in the sugar industry that the loss of one direct job gives rise to the loss of five indirect full-time or part-time jobs (transport, logistics, etc.).

Estimating the proper effect of the reform on employment is difficult, as some of the factories that have closed during the reform would have been shut down anyway during the same period, and some of the others would have closed down in the following years. Several approaches can be applied when giving indicative figures.

Box 9: Rough estimation of job losses attribuable to the reform

There are two possible ways to give a rough estimate of the job losses attributable to the reform (with regard to pre-reform trends).

- Firstly, considering that the reform doubled the pace of factory closures, we could consider as a rough estimation that 50% of job losses could be attributed to the reform, meaning around **10 000** in the EU 25[206].
- A second approach, at national level, comparing the changes in the rate of employment decrease between the period before and after the reform, leads to a more complex result. The rate has either increased or decreased depending on Member State.

- In the States where the loss of jobs accelerated after the reform (IT, FI, FR, DE, EL, NL, etc Table 74 States with *variation [B]-[A]* negative), we can consider that the extra job losses could be attributed to the reform. This means (by adding the negative values in the last column of the table) 1 546 job losses per year in the 10 Member States concerned, or **6 184** over the reform period.
- In the States where the loss of jobs slowed down, it is difficult to consider that the reform contributed to saving jobs. We thus need to look more closely at data, in particular for PL and UK:
    - In **PL**, because of a strong restructuring process begun before the reform (cf. Question 4) a dramatic drop in the number of employees is observed in the several years preceding the reform (-4 208 employees per year over 2003/04–2005/06). This pace slowed down, but we cannot estimate to what extent the reform impacted this.
    - In **the UK**, looking into detailed CEFS data, it appears that the number of employees in 2009/10 is, surprisingly, higher than it had been since 2000/01. According to the case study, the reform resulted rather in a concentration of production and processing in the core area of Eastern England than in a decrease (only 74 net job losses[207] in York). Moreover, British Sugar bought a significant amount of additional quotas, thereby maintaining activity and limiting job losses.

Table 74: Sugar processing industry employment "during" the beet processing campaign

	1999/2000	2005/06	2009/10	Average annual variation 1999/00-2005/06 [A]	Average annual variation 2005/06-2009/10 [B]	Variation [B]-[A]
FR	10 348	8 728	6 609	-270	-530	-260
CZ	1 436(a)	1 949	1 426(b)	103*	-131*	-233
EL	2 797	2 488	1 491	-52	-249	-198
DE	7 423	6 294	4 856	-188	-360	-171
IE	707	650	0	-10	-163	-153
IT	8 500	4230**	800	-712	-858	-146
HU	1875(a)	1101	227	-155*	-291	-137
FI	47	489	297	74	-48	-122
ES	4 150	2 720	1 450	-238	-318	-79
NL	1 629	1 180	721	-75	-115	-40
LT	1933(a)	1094	391	-168*	-176	-8
Sub total	40 845	30 923	18 268	-1690	-3237	-1546
AT	1 288	1 015	835	-46	-45	1
BE	1 095	810	646	-48	-41	7
SE	1 192	719	508	-79	-53	26
PT	654	246	156	-68	-23	46
SK	1266(a)	698	450	-114*	-62	52
DK	1 282	763	627	-87	-34	53
UK	2 249	1 284	1 435	-161	38	199
PL	21 948(c)	13 532	4 848	-4 208*	-2171	2037
LV	n.av.	n.av.	n.av.	n.av.	n.av.	n.av.
SI	n.av.	n.av.	n.av.	n.av.	n.av.	n.av.
BG	n.av.	350	0	n.av.	-88	n.av.
RO	n.av.	1 780	1 200	n.av.	-290	n.av.
EU-15	43 361	31 616	20 431	-1 958	-2796	-839
EU-25	71 819	49 990	27 773	-6 499	-5627	872

(a) 2000/01 (b) 2008/09 (c) 2003/04 *calculated according to (a), (b) and (c) ** CEFS data were modified, as they seemed erroneous.

Source: Agrosynergie, based on CEFS, 2010

[206] 4 500 in the EU15
[207] Lay off + preretirement

Based on CEFS data (see Box 9), a comparison of trends before and after the reform at national levels suggests a rough, indicative and high-case figure of job losses in the EU-25 attributable to the reform as being between 6 000 and 10 000 jobs.

Among the six companies for which data was provided (probably exemplary cases), 702 persons were affected by the restructuring: 46% of the employees were redeployed in the company; 32% benefitted from early-retirement measures; and 22% were laid off, most of the latter being helped in their job search through outplacement measures, including training, personal interviews, etc.
Redeployment can be considered as a low-impact measure from a socio-economic point of view because the jobs are preserved, though not always in the same region. As for the impact of early-retirement measures, even though at the individual level employees get compensation, at the local community level the jobs are lost for good. In the end, 22% of employees were laid off, constituting the main negative social impact related to factory closure. It is not possible to compare this rate to the one of factory closures in the period preceding the reform, due to lack of data; such a comparison would have helped in making conclusions regarding the impact of the accompanying measures.

Based on these results (CEFS data showing overall job losses and analysis of the 6 cases for which detailed information is available), we propose in the following table an order of magnitude of the direct impact of the reform on jobs, due to the acceleration of factory closure, in the EU-25 (excluding the impact in PL, which could not be estimated).
As stated previously, these data are an estimation of the jobs that would not have been lost during the transition period (2006-2010), had the pace of job losses remained the same as in the few years before reform. Nevertheless, it represents a high case of the reform's impact, as some of these jobs would probably have been lost after 2010.

Table 75: Rough estimation of impacts on jobs (number of jobs, %)

Jobs affected		Factory samples	Extrapolation
Jobs lost	6000 - 10 000 (CEFS)	32% early retirement	4 000 - 6 000
		22% laid off	2 000 - 4 000
Redeployment	5 000 - 9 000 (calculation)	46%redeployed	5 000 - 9 000
Total	11 000 - 19 000 (calculation)	100%	11 000 - 19 000

Source: calculation based on CEFS, 6 cases

Additional requirements set at the European Community level in the restructuring scheme regulation, compared to the existing legislation

Council Regulation (EC) No 320/2006 states that the restructuring aid is granted to undertakings carrying out a full or partial dismantling provided that they *facilitate the redeployment of the workforce*[208] and present a restructuring plan including *a social plan detailing the actions planned in particular with respect to re-training, redeployment and early retirement of the workforce concerned*[209]. Compared with Council Directive 98/59[210] concerning collective redundancies, which compels the employer to *begin consultations with the workers' representatives in good time with a view to reaching an agreement* (Article 1), Council Regulation 320/2006 concerning the restructuring scheme went a step further than the Directive concerning collective redundancies.

However, the restructuring scheme did not go beyond the requirements of the national labour laws. Yet, the labour market legislation is largely in the remit of the Member States, and it would have been difficult to provide for an EU-level solution going beyond applicable EU legal texts, among other reasons due to different national legal frameworks and economic conditions.

[208] Article 3, Points 3 and 4, § (c)
[209] Article 4, Point 3, § (f)
[210] Council Directive 98/59/EC of 20 July 1998 on the approximation of the laws of the Member States relating to collective redundancies.

Nevertheless, the Council regulation did not set up any criteria or procedures for the European Commission and Member States to accept or not the content of the social plans.

Additional requirements set by the Member States in the restructuring scheme, compared to the existing legislation

In line with the principle of subsidiarity, and because national rules may vary substantially across Member States, Member States were responsible for the implementation of the restructuring aid. Particularly, as stipulated in Council Regulation No 320/2006, *Member States may require the undertakings to make commitments which go beyond the statutory minimum requirements imposed by Community law*[211].

Among the case study Member States, only IT used this possibility to address the considerable negative impacts expected in the country, within a new Law (see the following Box).

Box 10: Additional requirements on social measures in IT (national Law No 81/2006)

The restructuring of the sugar sector was on a major scale, with 15 factories closed. Significant negative socio-economic impacts were then expected. Therefore, the authorities set additional requirements. According to the national Law 81/2006, sugar companies involved in a restructuring process were compelled to present a conversion plan for closed factories, as well as redevelopment projects of alternative economic activities in regions impacted by the restructuring. These plans and projects had to be approved by the Ministry of Agriculture, and also submitted to the regional and local authorities. The conversion / redevelopment projects are expected to need 777 permanent employees.
Furthermore, the full-time employees affected by the restructuring (1 800) obtained access to the Cassa Integrazione Guadagni Straordinaria – a special lay-off fund – and were granted an allowance of 1 000 Euros per month (per employee) by the State, in addition to compensation paid by the sugar companies over 24 months (there is a possibility to extend the measure for 12 months twice).

In the other Member States, based on the restructuring plans available (10 cases), the types of measures implemented are those referred to in the Community regulation, which are also those stipulated in the national Labour Laws (as far as we know):

- redeployment,
- outplacement, re-training (though it is not compulsory in all the Member States, e.g. not in FI) and external assistance,
- partial/early retirement, redundancies and pension advice,
- in some cases, financial support for business creation.

Additional measures implemented by the undertakings that were not compulsory

Social plans are drawn up for the most part between the producer and workers (and their unions). The analysis of the social plans (10 examples), as well as the interviews with company representatives, workers' unions and local authorities, reveals that in most cases the companies implemented few measures that were not compulsory and/or granted compensation amounts higher than what would have been provided outside the restructuring scheme.

In some cases, this partly resulted from negotiations carried out years ago between employees and companies – examples in FR and in DE show indeed that companies had group labour agreements that were more "protective" for the employees in the case of restructuring than was the collective labour agreement. It is worth highlighting that in 2003 the social dialogue committee for sugar adopted a Corporate Social Responsibility Code of Conduct (which came into force on 1 January, 2004). Established on a voluntary basis, this Code of Conduct covers eight minimum standards, one of which deals with restructuring[212]. According to the Commission, this code has been

[211] Article 3, point 3 and 4, § (c)
[212] Chapter 7 on Restructuring (http://www.eurosugar.org/en/csr_sommaire.html):
At the European level, within the framework of the European social dialogue, regular information, exchanges of views and, if necessary, joint action can be organised in relation to all issues, including those related to the Community policy and the Community legislations where they have economic and social effects for the sugar sector.

extensively applied in the context of the reform (European Court of Auditors, 2010). Nevertheless, this code (1) is voluntary and (2) does not apply specifically to the reform, even though the situation was particularly acute then.

Besides the existing sector's agreements, it seems based on the interviews that the allocation of a significant EU-subsidy to the sugar manufacturers had an influence during the negotiations for the social plans and led to increasing budgets for social plans, compared with what would have been done outside the frame of the restructuring scheme. The "extra budget" was allocated to increasing the budget of compulsory social measures – i.e. those required by the Labour Laws (redundancy pay, retraining cost, etc.) and/or to additional social measures.

These additional measures probably contributed to alleviating the impact of job cuts, by granting extra compensations, e.g. additional redundancy pay, indemnities for relocation expenses, or offering more services to the former employees to help them find a job, e.g. personal coaching (including psychologists) through a private consulting company.

In a nutshell, at the EU or national regulation level (except in IT), no further social obligations were added to the allocation of the restructuring aid. Therefore, the impact of the restructuring aid that could be identified through the interviews and in some restructuring plans is the improved negotiating power given to personnel representatives; this made it possible to reach higher compensation and sometimes additional accompanying measures than what would have been reached without. The importance of this difference could not be quantified. In IT, the specific requirements imposed by the national authorities should contribute to creating 777 jobs (replacing 4 out of 10 of the total direct job losses in the sugar sector).

6.1.3.2 In the agricultural sector – farmers

The reform induced many farmers to stop sugar beet production, but these farmers turned to other productions. Therefore, the impact on on-farm employment depends on what type of crops/activities they turned to.

It is possible that the switch of sugar beet to alternative crops, mainly cereals, caused changes in the farms' organisation. Cereals do not usually need as much work as sugar beet, so on-farm employment could be reduced in farms that switched from sugar beet to cereals. Nevertheless, it does highly depend on the farm organisation: in farms where the work units are mainly family, such a change is not likely to be visible, while on farms with employee(s) it could have had an impact. FADN data do not give any evidence of a change in beet farm employment.

6.1.3.3 In the sector of machinery contractors

It was the first time machinery contractors were beneficiaries of CAP support. The portion of restructuring aid transferred to machinery contractors aimed at compensating for losses resulting from the abandonment of sugar beet growing and in particular the loss of value of investments in specialised machinery.

The impact of the reform on the machinery contractors is difficult to evaluate, as there are no statistics either on the number of machinery contractors working in the sugar beet sector or on the employment in this sector.

This dialogue meets or exceeds the national and European legislation on information and consultation.
Since an open dialogue between management and employees is a pre-requisite for a climate of mutual respect and confidence, employees and their representatives will be regularly kept aware of the situation of the enterprise as well as informed and consulted on planned restructuring measures in due time.
In case of restructuring, as well as in the event of investments having a social impact as provided by the present Code of Conduct, the sugar industry acts in a socially responsible way.
Steps are taken to improve the employability of employees.

Share of the restructuring aid allocated to machinery contractors

The proportion of restructuring aid distributed between growers and machinery contracts varied depending on the Member State. In FR, PL, the UK and FI, this part of the aid was mainly allocated to the growers, the machinery contractors receiving between 0.9 and 1.7% of the aid, but these rates were much more significant in DE or IT (up to 7%). The negotiations to establish these rates gave rise to conflicts, several of which led machinery contractors associations to file a lawsuit against their national administration because they considered that the distribution rules of the aid did not comply with the regulation.

Table 76: Restructuring aid machinery contractors in the case study Member States

	FR	UK	DE	IT	PL	FI
Aid to machinery contractors (million €)	3.62	1.44	2.00	38.00	n/a	0.72
% of aid allocated to machinery contractors	0.9%	1.4%	4.4%	6% for 2006/07 and 2007/08 7% for 2009/10	1.0%	1.7% for 2007/08, 1% for 2008/09 and 2009/10

Source: National unions of machinery contractors, Defra for the % in the UK, AGEA for the % in IT, AMA for PL, Ministry of agriculture for FI

Activities of machinery contractors in the sugar beet sector

Qualitative data from the Unions, provided by the CEETTAR, indicated that in 2005, when the reform was being prepared, machinery contractors were involved at different stages of beet growing (Klöcker, E./CEETTAR, 2005):

- sowing: around 30% of the sugar beet areas were sown by machinery contractors, on average in the EU (it ranged from 25% in FR to 80% in NL),
- harvesting: 55% (DE) to 90% (NL) of the sugar beet areas are harvested by machinery contractors,
- a significant proportion of the machines used by the growers through cooperatives came from the machinery contractors,
- machinery contractors are know-how holders concerning the beet production techniques.

Moreover, machinery for sugar beet is sophisticated, specific to sugar beet and costly, representing significant investments for contractors. Therefore, the decrease in sugar beet areas is likely to have had an economic impact on these contractors.

Impact of the decrease in sugar beet production on the activities of machinery contractors

An indicator of the number of enterprises affected by the restructuring is the number of contractors that received aid. 240 enterprises received support in FR with amounts ranging between 180 and 350 000 Euros, 140 in DE (minimum estimation that only covers the members of the Union), 44 in the UK (for 107 applications), and around 500 in IT.

Between and within Member States, the impacts on the activities of machinery contractors varied depending on their location, some regions being more affected by the sugar restructuring than others. This was underlined in the interviews with authorities and Unions of machinery contractors in **FR** and **DE**. For example, the abandonment of sugar beet growing in the Bourgogne region (Aiserey factory) in FR or in Mecklenburg-Vorpommern (Güstrow factory) in DE, had a significant impact on machinery contractors, especially on the most specialised in beet harvesting. On the contrary, in Rheinland for instance (DE), machinery contractors could develop their beet activities because, in this specific area, beet growing increased. Similar examples can be found in other Member States, e.g. in DK. Moreover, the case study interviews also underlined that some beet growers have recently tended to use more and more machinery contractors, partly because of the increasing costs of new machines (which are more and more sophisticated).

In **IT**, to receive the restructuring aid, machinery contractors had to stop using the machines they received compensation for, except for energy crops. The aid to machinery contractors was then intended to make them leave the sugar beet sector.

6.1.3.4 Other sectors impacted

It has not been possible to quantify the impact of the restructuring in the sugar sector on the employment in other sectors. Nevertheless, it was quite clear according to the interviews that the closures of factories had an impact on the socio-economic life in the surrounding areas: haulage contractors, shopkeepers, cafés and restaurants, craftsmen, etc., were certainly affected by factory closure, more or less depending on the dynamism of the area concerned. As mentioned already, according to literature (EFFAT, CEFS, 2011), it is generally acknowledged in the sugar industry that the loss of one direct job gives rise to the loss of five indirect full-time or part-time jobs (transport, logistics, etc.). In Güstrow, in addition to the 99 employees of the sugar factory directly affected, 150 to 200 jobs were estimated to have been affected by the factory closure (source: Landtag MV Protokoll 5/26 S. 81).

6.1.4 THE DIVERSIFICATION MEASURES HAVE (OR NOT) CONTRIBUTED TO LIMIT NEGATIVE CONSEQUENCES ON EMPLOYMENT AND ECONOMY DEVELOPMENT IN AFFECTED AREAS

The measures implemented within the diversification aid are presented in Question 11. The diversification measures aimed at encouraging the development of existing activities and creating new activities in rural areas. We do not consider that the additional aid for diversification, generally granted to sugar beet growers or ex-beet growers would have any effects on employment – except in Andalucía. The little information available on the results of the diversification measures mainly comes from interviews. In some case study regions, according to the authorities, the diversification measures helped already existing sectors to be strengthened, and they accelerated the development of mature projects, hence probably contributing to maintain farmers' income and employment in rural areas, but to a limited extent.

6.1.5 THE TRANSITIONAL AID TO FULL-TIME REFINERS HAS (OR NOT) CONTRIBUTED TO LIMIT NEGATIVE CONSEQUENCES ON EMPLOYMENT

The transitional aid to full-time refiners existing prior to the reform aimed at allowing "*them to adapt to the restructuring of the sugar industry in the Community*". Seven full-time refiners were concerned by the aid, of which two stopped their activity after the reform. The role of the aid was studied in Question 5 (Chapter 5.2.5). According to the interviews, the transitional aid contributed both to mitigation of negative impacts on margins by covering operating costs of the refineries and to investments made mainly to increase production capacities. The aid could have then contributed to alleviate the impacts of the restructuring of the sugar industry on employment in the refining sector. However, the effects of the aid are partially masked by the current situation on the world market, i.e. the lack of raw sugar to refine.

6.1.6 THE MEASURES HAVE (OR NOT) CONTRIBUTED TO AVOID NEGATIVE ENVIRONMENTAL CONSEQUENCES OF FACTORY DISMANTLING

Sugar manufacturing is not considered to be a very damaging activity for the environment[213]. Concerning the cessation of activities, the authority representatives interviewed did not identify any source of significant environmental damage, except for pollutants which may have leached into the soil if not correctly managed (e.g. oil spills).

When closing down a sugar factory, the requirements, which the companies have to comply with (outside the restructuring scheme), are basically those resulting from the implementation of the IPPC Directive for the plants concerned (i.e. processing more than 300 t of sugar per day) and other requirements from national legislations for non IPPC factories. Within the restructuring scheme, the EU regulation did add up specific requirements.

Additional measures required by the EU regulation level

When applying for the restructuring aid for full dismantling, which was the main option taken, the undertakings had to:

- dismantle all the production facilities including the storage units. This is not required by the IPPC directive for the cessation of activity. The full dismantling of production facilities is therefore a direct impact of the restructuring scheme;
- restore the good environmental conditions of the factory site and comply with the existing environmental requirements. Thus, their application had to include *an environmental plan detailing the actions planned in particular to respect mandatory environmental obligations, especially concerning site remediation after factory dismantling*. This is very similar to the content of the IPPC Directive that stipulates that the Member States shall ensure that *the necessary measures are taken upon definitive cessation of activities to avoid any pollution risk and return the site of operation to a satisfactory state*. Nevertheless the Directive only concerns IPPC plants, while the requirements of the restructuring scheme concern all the factories applying for the aid.

Additional measures required by the Member States level

No Member State used the possibility offered by the Council regulation to set up requirements going beyond those imposed by Community law. The national legislations, in terms of cessation of industrial activities, resemble one another; they require site remediation when soil and water analysis results are considered not appropriate for the future use of the land under question.

Additional measures implemented voluntarily by the undertakings

Among the studied companies (6 cases), only one undertook to carry out measures beyond the requirements of the legislation, due to its corporate social responsibility engagement. In some other cases, the dismantling of the factory led the authorities, together with NGOs, to define biodiversity protection areas, as in Elsdorf in DE and in York in UK. However, it was not part of the restructuring plan; the initiative was taken by local environmental authorities or NGOs.

On the whole, the authorities did not consider the closure of sugar factories as a source of significant negative environmental impacts. Therefore, there was no major issue associated with the environmental measures of the restructuring plans. Their implementation was carried out in compliance with the compulsory requirements. Minor problems such as the discovery of asbestos

[213] Negative environmental impacts are focused on three critical points (Belgian union of sugar manufacturers (SUBEL), 2001): (i) waste water discharge/water abstraction; (ii) emissions of greenhouse gases (SO2, CO2) and particles (dust, Vanadium, Nickel), which depend on the type of combustible used (fuel, coal, natural combustible); (iii) industrial wastes (polluted combustible, waste oil, scrap iron).

occurred during the dismantling of factories, which compelled undertakings to take additional environmental measures. Only in one case was a lack of coherence reported between the EC regulation and the preservation of the environment: this concerned the filling up of waste water ponds, which is, according to the authorities in Nordrhein-Westfalen, detrimental for the environment because these ponds are valuable secondary biotopes.

By imposing the full dismantling of all the facilities to get the highest amount of aid, the restructuring scheme did go beyond what would have been applied outside the scheme. This measure can be considered as positive for landscape quality.

6.1.7 JUDGEMENT

To assess how the restructuring scheme helped avoid negative social and environmental impacts, we analysed to what extent the scheme made operators go beyond the minimum requirements. To do so, we first considered the EU regulation, then the national regulation and finally the implementation at the company level. The analysis has been limited by the lack of data due to insufficient monitoring and issues of companies' privacy. It was **limited to the case study Member States and only ten restructuring plans. Detailed reports about the actions carried out were available only for six of the latter. Furthermore, these plans could not be compared to plans implemented in the case of closures outside the scheme. Therefore, results should be treated with great caution.**

Social impacts

The closure of 41% of sugar factories inevitably led to considerable job losses. According to data collected by the Confederation of sugar producers (CEFS), employment in the sector decreased by 44%, from 50 000 employees in 2005/06 to 28 000 in 2009/10. A large proportion of these jobs, at least half of them, would have been lost during or after the same period even without the reform, as the restructuring process is an ongoing one in the sugar industry. **Nonetheless, the reform accelerated the job reductions.**

The cases for which data are available show a significant effort to maintain employment, as on average only 22% of the employees working in the factories that closed down were laid off, and 46% were redeployed in the companies.

Although the restructuring scheme addressed the issue of limiting negative social impacts, very limited requirements beyond national legal frameworks (and companies' corporate social responsibility commitment) were imposed on manufacturers.

- The **Council regulation** laying down the sugar restructuring scheme **did not set any requirements going beyond the national labour laws.** The labour market legislation is largely in the remit of the Member States and the conditions on national labour markets differ significantly, making it difficult to find a one-size-fits-all approach. Moreover, it did not set up any criteria or procedures for the assessment of the content of the social plans.
- Among the six case study Member States, only Italy used the possibility included in the Council regulation to impose further requirements on the undertakings and compelled them to present a conversion plan for closed factories as well as for redevelopment projects for alternative economic activities in regions impacted by the restructuring. This is intended to create 777 jobs when fully implemented.
- At the company level, with the exception of Italy, companies received the restructuring aid subject only to the **obligation of presenting** a social plan[214] to the authorities and to complying with their respective national labour market legislations. Based on the social

[214] Granting the restructuring aid to the sugar companies was conditioned by presentation to the authorities of a restructuring plan, including social plan detailing the actions planned in particular with respect to retraining, redeployment and early retirement of the workforce concerned.

plans available (6 cases) and on the case study interviews, it seems that some companies took additional measures that were not compulsory and granted higher compensation amounts to the employees affected. It is difficult to assess to what extent the restructuring aid contributed to this situation, but, according to the interviews, the existence of restructuring aid received by the undertakings weighed in the negotiations between the company and the employees.

Therefore, even though the results could not be properly evaluated on this point, our analysis showed that **the sugar restructuring scheme did not go beyond national labour legislation. As a consequence, the efficiency[215] of the measures could have been somewhat limited. Indeed, the social plans implemented within the scheme did not seem to be very different from those that would have been implemented outside of it.** But it is difficult to assess to what extent the restructuring aid contributed to compensating the employees affected beyond national labour legislation.

The employment in the agricultural sector does not appear to have been much affected. The reform induced many farmers to stop sugar beet production. These farmers turned to other productions. The social impact of this depends on the alternative crop that replaced beet and on the farm organisation. FADN data did not give any evidence of a change in beet farm employment.

Concerning the machinery contractors, **it is the first time that this branch has been taken into account in CAP regulations.** The regulation was not specific concerning the distribution of the aid between machinery contractors and growers, and it gave rise to **conflictual negotiations** between operators in several countries. The reduction in sugar quantities must have had an impact on machinery contractors' activity as they are an important operator in the sector. The extent of the impact naturally depends on the importance of the changes in the region were the machinery contractors are located. For example in France, 240 companies received CAP support, at least 140 in Germany, 44 in the United Kingdom, and around 500 in Italy.

Concerning the refining sector, the answer to question 5 showed that the transitional aid to full-time refiners contributed to reducing the negative impacts on margins and to restructuring the plants (making investments to increase production), hence probably favouring employment. But the lack of raw sugar on the world market greatly affected EU refiners and masked the effects of the aid.

The restructuring of the sugar sector is likely to have had other impacts on the rural life (loss of indirect jobs) that were not taken into account by the restructuring scheme, but they cannot really be assessed. The interviews with authorities show that in some cases the diversification aid contributed to the development of agro-food projects that were underway, but did not create new industries. Thus, it may have contributed, in some cases and to a small extent, to maintaining rural employment.

Environmental aspects

Regarding the consequences of factory dismantling on the environment, the Council regulation went beyond existing minimum obligations (basically the rules established by the IPPC Directive and the national legislation) by requiring a full dismantling of all the production facilities in order to benefit from the highest amount of restructuring aid. **Full dismantling most likely had a positive impact on landscape quality**. The regulation required all factories to restore good environmental conditions of the factory site. **It applied to all factories what is usually reserved to IPPC factories.**

[215] Efficiency is the best relationship between resources employed and results achieved in pursuing a given objective through an intervention..

Among the six case studies, n**o Member State used the possibility to impose further requirements** on the undertakings. According to the interviews, the undertakings complied with the regulation. Only one undertook to carry out measures beyond the requirements of the legislation, due to their corporate social responsibility engagement. **On the whole, the authorities did not consider the closure of sugar factories as a source of significant negative environmental impacts.**

7 THEME 4: EFFICIENCY, RELEVANCE AND COHERENCE

7.1 QUESTION 9: EFFICIENCY

To what extent have the measures applied to the sugar sector been efficient with respect to achieving their objectives?

7.1.1 COMPREHENSION OF THE QUESTION

Efficiency is defined as the "*best relationship between resources employed and results achieved in pursuing a given objective through an intervention".* In the previous chapters, we have covered the effectiveness of the measures. In this question, we should assess whether the costs attached to the management of the market and to the reform are reasonable with regards to the results.

Judging whether costs are reasonable requires benchmarks, which raises difficulties: reforms are a moment where policies' objectives are reviewed, making it difficult to compare post-reform efficiency to pre-reform efficiency. Indeed, there is no sector to which to compare the sugar CMO reform, as no similar case of restructuring has occurred. Moreover, the results of the reform – for instance on market orientation and competitiveness as well as costs and administrative burden – are hardly quantifiable.

In the case of sugar, there are different entities (producers, beet growers, taxpayers and users) bearing the costs of the measures and a large proportion of the costs are hidden costs:

- Under the previous CMO, the budgetary expenditure of the sector's management measures was essentially borne by operators through the production levy to finance export refunds, but actually indirectly (hidden costs) by sugar users who paid a price much higher than the world market price: around 700 Euros/tonnes on the EU market compared to 200-300 Euros/tonne on the world market (cf. Table 53). For instance, in 2006, the export refunds expenditure was 1 117 million Euros (out of a total of 1 645 million Euros of total expenditures, cf. Table 11). The other expenditures were supported by the taxpayer.
- The revision of the market measures resulted in the disappearance of budgetary expenditure (on average between 2001 and 2005, expenditures were 1 500 million Euros a year in the EU-15 - cf. Table 12[216]). During the transition period, the restructuring scheme generated specific costs, which were borne by the manufacturers through a restructuring amount set per tonne of quota. The budget of the fund amounted to 6.2 billion Euros, which is more or less compensated by the elimination of the expenditure for market measures (refunds and intervention).
- A production charge of 12€/t[217] (to be borne by sugar producers which might require to supplier to bear up to 50% of it) was introduced to ensure budget neutrality to the Community budget.Administrative costs of the management of the measures are borne by authorities and operators. They depend on the complexity of the measures and their management.

We analyse the changes in costs borne by the different entities and put them in perspective with the impacts of the reform assessed in the previous chapters.

[216] In the table, the remaining expenditure for sugar market measures (27 million Euros) are only residual payments for export refund applied previously.
[217] for sugar and inulin syrup and 6 €/t for isoglucose

7.1.2 CRITERIA, INDICATORS AND DATA SOURCES

The answer is structured per main objective of the new CMO. For the efficiency with regard to the objective of stabilising the market and better guaranteeing supply of EU market, the answer refers to the results of Questions 4 and 6. Concerning the efficiency in competitiveness, the analysis refers to results of Question 2, Question 3 and Question 7. Etc.

7.1.3 EFFICIENCY TO STABILISE THE MARKET AND GUARANTEE SUPPLY OF EU MARKET

Market prices

Sugar being a commodity, purchase price is the main satisfaction criterion for users. In this respect, the price on the EU market has decreased as a direct consequence of the reform and is now closer to the world price, which meanwhile increased to a significant extent (cf. Question 4).

This was achieved with a significant decrease in expenditure: market measures expenditure is now nil (cf. Table 11) i.e. direct costs supported by operators and tax-payers. Regarding costs relying on users (costs of the CMO hidden in the price of sugar), data presented in Question 4 show that the average EU market price has decreased with the reform. Therefore, we can say that, overall, the costs borne by the downstream sector are lower than before, which is positive in terms of efficiency. Yet, the evaluation did not cover the price transmission along the supply chain[218], so we cannot judge whether or not these costs have decreased in the end for final consumers. Such analysis would be necessary to make thorough conclusions on the efficiency of the reform with regard to final consumers.

Marketed quantities

Before the reform, the market balance was highly regulated: EU sugar production was restricted by quotas matching EU agro-food needs; the flow of imports was restricted to known volumes set in the Sugar Protocol with ACP states and India and other preferential trade agreements; and overproduction used to supply the industrial market or was exported. There was no risk of stocks accumulation, and prices were regulated. The costs of such a system were significant and mostly borne by operators - but actually by consumers, who paid high prices for sugar.

Since the 2006 reform, the market balance has not been as regulated as it used to be. The new framework, added to the progressive coming into force of the EPA and EBA arrangements, totally modified has put into competition EU refiners, EU beet sugar production and imports of white sugar. This should contribute to improve a balance between supply and demand as competition is increased and incentive/possibilities to overproduce reduced.

On the other hand, market management measures remain very important (because the CMO still relies on quotas) and the complexity of ensuring market balance is increased as supply is now relying on (more) market-driven imports and exports, which depend on multiple variables and over which there is little possible control.

The analysis in Question 6 shows that, in 2008 and 2009, in a context of high world prices, under the new framework (sugar CMO and EPA – EBA arrangements), the EU market was less attractive than other markets, and supply was insufficient to meet demand (1-million-tonne deficit over two years). In 2010, the Commission adopted exceptional measures to ensure that demand was adequately met and to compensate the previous deficit.

The changes in costs are:

[218] A specific study is being made on the subject.

- Direct budgetary expenditure of market management is now nil (see previous paragraph).
- Users' hidden support has been reduced overall, but further analysis is needed to say whether this impacted final consumers (see previous paragraph).
- Administrative costs may have increased, as the transition from the previous highly regulated quota system to the current one with more need for market monitoring and reactivity must have increased the complexity of the CMO management (yet no clear evidence of this is available). Furthermore, the example of the exceptional measures showed some inefficiency with regards to a less administered system; according to the operators interviewed, the timing of the administrative decision might not have been thoroughly in line with the reactivity the sugar market required.
- To this list should be added the cost of restructuring the sector which was necessary to adapt to the new context: contribution of sugar and isoglucose producers, which means indirectly that of consumers, as well as that of growers, as the minimum growers' price was reduced ahead of the reference price (cf. Table 1).

Fixed reference price

Agricultural commodity markets are characterised by their instability. Even though the current price level on the world market could not be forecasted when the reform was being designed, world market stability could not be considered as a feature of the sugar market[219].

Yet, the measures implemented in the CMO are based on a fixed reference price and a large set of quantitative management tools (production quotas, withdrawals, import quotas, industrial export quotas, etc.). The quantitative management of the sector is complex. The inefficiency highlighted regarding the exceptional measures (actions taken after two years of deficit, not totally adequate timing compared to market needs) raises the question of the relevance and efficiency of a fixed reference price in a fluctuating and less regulated market.

As a conclusion, the efficiency of the reform with regard to the objective of a stabilised market and guarantee supply of EU market seems good, as the results of the market measures are positive on the market balance overall and costs dropped significantly for operators and users (although the price transmission to end-users has not been assessed). Nevertheless, the current CMO, because of the quota system, requires significant monitoring, controls and intervention of the authorities in the management of the market, which means administrative costs (for authorities and operators).

7.1.4 EFFICIENCY TO ENHANCE COMPETITIVENESS AND BETTER MARKET ORIENTATION

Agricultural level

At the agricultural level, the decrease in minimum price and the restructuring aid indeed encouraged low-yield growers, who are, roughly speaking, the least efficient, to give up sugar beet production (Question 2). Furthermore, the SPS payment favoured a better market orientation for farmers. On the other hand, the quota system could also limit growers' market orientation because delivery rights hamper the entry and the exit of growers.

The costs of maintaining (least-efficient) growers before the reform can be linked to the market measures expenditure, which ensured a high level of market price and therefore the minimum grower price. With the reform, expenditure shifted from market measures to the restructuring fund with a limited existence, and to direct payments, which incited and compensated (least-efficient) growers to give up delivery rights.

[219] http://www.iamo.de/fileadmin/uploads/forum2011/Keynote_presentations/Schumacher_IAMO_Forum_2011

Therefore, the costs attached to the improvement in competitiveness and market orientation at the agricultural level could be considered as limited and therefore the measures efficient.

Industrial level

In the context of (1) a significantly lower reference price, (2) the removal of export refunds for quota sugar, and (3) reduced exports of out-of-quota sugar, the overall successful restructuring of the sector (closing down of factories and improvement made in the remaining ones) allowed sugar companies to remain competitive. However, the maintenance of a quota system and the sugar transport cost allow some less efficient companies operating in some markets (e.g. IT and EL) to continue to compete with more efficient firms (Question 7).

The main direct costs incurred to achieve these results were those of the restructuring:

- Budgetary expenditure for the EU related to restructuring is limited;
- The cost of the restructuring fund (directly borne by the operators) was compensated by the end of export refunds expenditure;
- (Hidden) costs for users have lessened along with the decrease in price (although the price transmission to end-users has not been assessed).

Therefore, the reform can be considered as efficient in enhancing competitiveness in the sugar sector.

Reflection on the two-step restructuring process

The improvement in competitiveness relies on the good outcome of the restructuring process. The reform had to be modified after two years of implementation, which certainly increased administrative costs of the reform. Reflecting on the reasons for the need to modify the reform mid-way is useful when rounding off the judgement on the efficiency of the CMO.

In the initial design of the restructuring scheme, the target and the term of the transition period were clearly established. The incentive (restructuring aid) was efficient in having the least efficient operators leave the sector (in IT, EL, FI, PT and IE, operators have renounced high quantities of their quotas and closed down factories – Question 4). Nevertheless, as analysed in the impact assessment update (COM(2005)263 final), in which the possible decrease in sugar production per Member State under different price scenarios was studied, to reach this target, some quota renunciation was going to be necessary in the most efficient producing regions as well (FR, DE, AT, UK, NL, PL).

The process of the reform showed that, for operators located in the latter regions, the incentive/threat balance established in 2006 was not effective, since they did not contribute to the quota renunciation effort in 2006/07 and 2007/08 (Question 4). Most probably the level of uncompensated quota cut in case the outcome of the reform would be insufficient was not clear enough (credible), and operators decided to wait for others, less efficient, to contribute, “hoping” they would not have to themselves (free rider behaviour). What’s more, they acquired additional quotas to increase their market shares (and compensate for the loss of export quantities).

The choice made by the management authorities in most Member States, except Italy, to restructure the sector on a voluntary basis was highly relevant with regard to the objective of improved competitiveness. Applying a linear quota cut from the start to all the operators would not have allowed improving competitiveness, as there would have been no adjustments to the economic features of the factories and/or markets. The reform of the reform was twofold: (1) it clarified the rules of the uncompensated final cut for the operators that would have least renounced quotas in case the target was not reached, and (2) it increased support to growers, shifting part of the compensation from manufacturers to the agricultural sector, and by, doing so, possibly reaching a better compensation balance between the industrial and agricultural sectors. According to the interviews, the effective driver for sugar producers to enter the scheme after the reform of the reform has been the increase in the risk of final cut. If the risk had been more important and real to

operators from the beginning, some time could have perhaps been spared in the restructuring process, and therefore the efficiency of the reform improved.

Yet, the reactivity of the Commission to modify the reform's framework after two years is one of the keys of success to the reform (and this approach could be kept for other cases to come).

7.1.5 EFFICIENCY TO ENSURE A FAIR STANDARD OF LIVING FOR THE AGRICULTURAL COMMUNITY

Before the reform, the minimum price ensured a fair standard of living for beet growers.

With the reform, the minimum price dropped (cf. Table 1), and a direct payment was introduced to partly compensate for the loss of income. On average, at national level, the compensation was 64.2%. This direct aid benefited every farmer who was growing beet at a given time, but these growers might not be growing beet anymore. And, in the regions with a hybrid dynamic decoupling model, it also could benefit other farmers as the payments are levelled out to an entitlement level identical for all farmers.

In Questions 2 and 3, the analysis showed that the beet output decreased after 2006. Nevertheless, because beet is rotated with other crops, because of the specific context of cereal prices, and because of the differences in decoupling models, the results are limited and do not clearly enable conclusions on the impact of the reform on growers' income. Therefore, we will not be able to make conclusions on efficiency, but shall reflect on the shifts in costs induced by the reform:

- Beet growers have lost revenue (minimum beet price decrease is only partly compensated, and some growers might bear up to 50% of the new production charge).
- The decrease in the minimum beet price benefited sugar manufacturers, which in turn (1) had to contribute to the restructuring fund and (2) have seen the market price decrease (in Chapter 5.4.3.1.2 we show that the decrease in price is less than that of the reference price: is by 22.2% instead of 36%).
- Taxpayers are not affected, as the production charge ensures budgetary neutrality. Support to the sector has shifted from market measures expenditures to direct support to growers' revenue.
- It could be assumed that sugar users and consumers contribute less to the growers' revenue, as sugar price has decreased (not assessed in the evaluation).

7.1.6 EFFICIENCY TO AVOID THE NEGATIVE SOCIAL AND ENVIRONMENTAL IMPACTS OF THE REFORM

As shown in Question 8, the main instrument implemented to avoid the negative social and environmental impacts of the reform was the restructuring aid. This aid had other objectives than avoiding negative environmental and social impacts of the reform. Mostly, it aimed at being an incentive to renounce quotas (to compensate for the economic impacts). This makes it difficult to report the costs related only to the objective of limiting environmental and social impacts.

Besides, the analysis conducted in Question 8 has not enabled conclusions on significant effects of the measures with regard to these objectives. For these two reasons, it is not possible to draw conclusions on the efficiency of the restructuring scheme with regard to avoiding the negative social and environmental impacts of the reform.

7.1.7 EFFICIENCY IN SIMPLIFYING THE CAP

Overall efficiency

The reform reduced the importance of market management measures: intervention system, production refunds and export refunds were suspended or removed. This contributes to simplifying the CAP and to limiting administrative work. On the other hand, the main market measures of the sugar CMO, the price management instruments and the quota system were maintained, and so was the administrative work related to these.

Moreover, because there is more flexibility in the market, the reform introduced new administrative work-load for the management of out-of quota production, withdrawal and the application of the exceptional measures.

A temporary set of measures was introduced by the reform within the restructuring scheme, generating extra complexity and extra work for both the management authorities (mainly because they had to make a lot of payments to the undertakings, the farmers and the machinery contractors) and the operators. In many cases, the authorities managed to deal with it by temporarily redeploying the workforce.

A specific point of efficiency was highlighted by the authorities; the possibility for the Member States to choose rural development measures for their diversification aid programmes (which widely occurred), was a successful way to implement the diversification measures without generating much extra administrative work.

In contrast, authorities reported that some points in the regulation were not clear and left room for interpretation. The following points were mentioned:

- the monitoring data on sugar quantities to be communicated to the Commission (according to Article 22, Point 3 of Commission Regulation No 952/2006) do not thoroughly encompass all the production, in particular a proportion of thick juice which is processed into bioethanol during the campaign cannot be included;
- the definition of the facilities that had to be removed in case of full dismantling was not agreed on by operators, even though the Commission clearly specified that storage facilities were included.

Finally, the production charge introduced to ensure budget neutrality of the reform is the only case in the CAP of direct contribution by operators to the general budget. This charge is a simple way of contributing to the general budget and therefore an efficient way to ensure budget neutrality on the income side of the EU-budget as sugar levies were abolished.

7.1.8 JUDGEMENT

Efficiency is the "*best relationship between resources employed and results achieved in pursuing a given objective through an intervention*". Judging whether costs are reasonable requires benchmarks, which do not exist in the case of the sugar CMO reform: comparing pre- to post-reform period is difficult as the objectives of the CMO have changed, and there are no other sectors where the same type of reform has been applied. Therefore, to provide a judgement on the efficiency of measures applied to the sugar sector, we can only draw qualitative reflections on the changes in direct and indirect costs borne by producers, growers, taxpayers, consumers, authorities and changes in who actually bears the costs, mainly growers, manufacturers, consumers, taxpayers. These reflections were put in perspective with the impacts of the reform assessed in the previous chapters.

Stabilised market and supply in the EU

The efficiency of the reform with respect to the objective of achieving a **stabilised market and a guaranteeing the availability of sugar supplies** seems good. Prices have decreased (although the price transmission to end-users has not been assessed), and in a context of high world prices and low imports, practical measures were implemented to ensure that demand was adequately met. Meanwhile, market measures expenditure was practically eliminated and the costs borne by sugar users were reduced.

Nevertheless, because of the quota system and the increased complexity of managing the market measures, the current CMO requires significant monitoring, controls and intervention by authorities. Furthermore, according to the operators interviewed, the administration's decision-making process may not always be quick enough to react on the rapid changes on the sugar market.

Competitiveness

On the whole, the reform was quite efficient in enhancing the competitiveness of the sugar sector, at both agricultural and industrial levels. At the agricultural level, the reform, by shifting from a price support to decoupled direct payments together with a restructuring scheme, resulted in increased competitiveness of the growers (the least efficient left) and a better market orientation. At the industrial level, the reform also encouraged low-efficiency manufacturers to stop producing, through lowering price support level and through an aid provided by the restructuring scheme. As a consequence, it contributed to increasing the overall competitiveness of the manufacturing sector, although low-efficient factories were still maintained because of the quota system and of the sugar transport cost. This was done at relatively low direct costs since expenditure shifted from market measures to the restructuring fund, which was limited in time, and to direct payments, which partly compensated the drop in farmers' income due to decrease in price support.

Improvement in competitiveness relies on the good outcome of the restructuring process. The initial design turned out not to be effective, as it was not attractive enough. The reactivity of the Commission in modifying the scheme after two years (increase of the risk of uncompensated quota cut and reallocation of the compensation in favour of the agricultural sector) is one of the keys of success to the reform.

Farm income

The results of the analysis on beet output changes are limited, mainly because the sugar beets are always rotated with other crops. Therefore, no conclusion on the efficiency of the reform towards the objective of ensuring fair grower income can be clearly drawn. However, the introduction of decoupled support partly compensated the decrease in the beet minimum price and limited sugar beet growers' loss of revenue. This was done with no additional costs for taxpayers or sugar buyers as the cost of the decoupled support was compensated by a decrease in market measures' expenditure.

Simplifying the CAP

The reform eliminated some market management measures: intervention system, production refunds, export refunds and production levies were suspended or removed. This contributed to simplifying the CAP and to limiting administrative work. On the other hand, the main market measures of the sugar CMO, the price management instruments and the quota system were maintained, and so was the administrative work related to these. Moreover, with a greater liberalisation of the sugar trade arrangements, the reform introduced new administrative work load for the management of quota and out-of quota production, withdrawal and the application of the exceptional measures.

The possibility for the Member States to choose rural development measures for their diversification aid programmes (which widely occurred), was a successful and efficient way to implement the diversification measures without generating much extra administrative work.

7.2 QUESTION 10: RELEVANCE WITH RESPECT TO THE NEEDS OF THE SUGAR SUPPLY CHAIN

To what extent have the objectives of the measures applied to the sugar sector been relevant with respect to the needs of the sugar supply chain?

7.2.1 COMPREHENSION OF THE QUESTION

The reform intended to comply with WTO commitments and EU international agreements, as well as to increase coherence of the measures applied in the sugar sector with the overall 2003 reform of the CAP. This question seeks to assess if the objectives of the measures implemented by the CMO reform were relevant with respect to the needs, problems and issues the sector was facing in 2005.

7.2.2 CRITERIA, INDICATORS AND DATA SOURCES

Therefore, we first identify what were the needs, issues and problems of the sugar sector, both in the agricultural and manufacturing sectors, in 2005 using the result of themes 1, 2, and 3. This is presented according to a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats).

The second step is to assess the extent to which the CAP measures have met these needs.

Then, the situation of the sugar sector is analysed to find out if the measures of the reform are still adapted to cover the issues the sector is facing in 2011.

7.2.3 THE CAP MEASURES ARE (OR NOT) RELEVANT TO THE NEEDS PROBLEMS AND ISSUES OF THE SUGAR CHAIN

7.2.3.1 SWOT analysis of the European sugar sector at the time of the reform

Table 77: SWOT analysis of the European sugar sector in 2005

STRENGTHS	WEAKNESSES
→ *Agricultural level* . **Pedo-climatic conditions** in Member States of the "beet belt": high yields (and quite steady yield, contrary to cane sugar) . Agronomical role: positive impact in **crop rotation** . Dynamic varietal research towards selection of varieties with high yields: has led to a **continuous improvement in yields** . **High skilled growers** . High **land efficiency for bioethanol** (compared to cereals and sugar cane) . **High profitability** of sugar beets and delivery rights guaranteed a good income to sugar beet growers . **Well organized** agricultural sector: o Farmers often belong to cooperatives with processing units and unions which favour good coordination with the processors o Strong link with the industrial sector through the interprofessional agreements → *Industrial level* . **Quality** of the supply and good coordination with the growers . Quality and diversity of the sugar produced (large range of products, for household or industry) . **Continuous restructuring effort** to improve cost efficiency → *Whole sector* . Sugar CMO provides **stable and profitable market** conditions for growers, sugar producers and refineries . **Trade agreements with ACP** countries guaranteed the volume imported and the price for refineries. Refiners' profitability lies on the gap in price between world and EU market. . End users have different source of sweeteners: beet sugar, cane sugar, isoglucose . High **purchasing power of consumers** . Trade arrangement limiting imports from third countries	→ *Agricultural level* . Pedo-climatic conditions in Member States of peripheral areas: short growing season, low yield, . Lack of crop alternatives (FI, IT) . There is **no market for beet**s as beets are not storable, and transport is costly → Dependency on one main outlet and buyer . Need of specific machinery → *Industrial Level* . Beet processors are **totally dependent on their supply area** . **Costs structure** is higher than in most third countries (and mostly Brazil): costs of raw material, energy, labour . The quota scheme **limited the development of the most-competitive** sugar and isoglucose producers . EU bioethanol sector is not well developed in 2005 and its development depends on public support . **Isoglucose quotas** are limiting economies of scale . **Refiners profitability** is totally related to regulation → *Whole sector* . **High mutual dependency** between growers and manufacturers . EU production **would not be competitive on the world market** without subsidies. . The sugar CMO **limited the restructuration of the sector** and contributed to maintain high costs production (production and refineries) . Sugar is a **staple food** product with limited differentiation possibilities and a low growth rate of the demand (except for bioethanol)
OPPORTUNITIES	**THREATS**
→ *Agricultural level* . Potential for further improvements in yields, and in the long term to increase the length of the campaign thanks to new varieties → *Industrial level* . Potential for **further improvement in competitiveness** (decreasing costs: campaign length, distance of supply, economies of scale, etc.) → *Whole sector* . Increasing demand for bioethanol . Competitiveness of biofuel with the increasing price for crude oil . Brazilian exports might decrease progressively . Low world price for imported sugar for refiners.	→ *Whole sector* . **Risk of unbalanced EU market**: . Termination of the sugar Protocol and its substitution with the Economic Partnership Agreements (EPA) . Ruling of the WTO Panel limiting EU sugar subsidised exports at 1.37 million tonnes . Instability of the sugar world market with high price volatility . **Competition of cereals** and other raw materials for supplying bioethanol industry . Development of alternative sweeteners, i.e. stevia.

Source: Case Studies

The issues listed above do not apply with the same emphasis in all the EU regions. Producers located in the sugar beet-belt (FR, DE, UK, PL, etc.) focus more strengths and opportunities than the one located in more peripheral areas. Besides, even in the sugar "beet belt", producers differ in their costs structure, techniques of production, level of optimization, room for improvement, etc.

7.2.3.2 Analyse of the relevance of the objectives and measures compared to the needs of the sector

The 2006 reform was implemented to provide a new frame to answer the needs arising from new constraints on trade: given the end of the Sugar Protocol and WTO restrictions on subsidized exports, the EU market might have faced an increasing risk of market imbalance.

To adapt the sugar CMO to this new context, the 2006 reform introduced a set of measures with a set of objectives presented in the intervention logic: see chapter 3.2, Model of the Intervention Logic). Let us look at the relevance of these objectives.

Avoid international market distortion and strengthen the EU position in WTO agricultural trade negotiations

The termination of the Sugar Protocol and its replacement with the Economic Partnership Agreements (EPA) **terminated obligations to supply the EU with raw sugar** and left ACP exporter countries free to decide to export to any market where profit can be maximized. This, as well as the decrease in exportable quantities after the ruling by the WTO Panel, was putting the market balance at high risk. These objectives were therefore **highly relevant** and have been thoroughly taken into account in the reform

Stabilise the market

For the same reasons, the future market balance was threatened in 2005. The change in export possibilities and the expected increase in imports, in relation to limited growth in demand (or possibilities of new outlet) jeopardized the highly regulated market equilibrium ensured so far by the CMO. Therefore the objective of maintaining a stable market is **highly relevant** for the sector.

The measures set by the reform to ensure the stability of the market were measures designed to avoid surplus: decrease in the EU market price (to limit import flows) and decrease the EU production under quotas through a significant dismantling of processing capacities (which is (almost) a non-reversible process). These measures have put the EU into a position of net importer. This strategy was relevant at the time the reform was set. But As analysed in questions 4 and 6, with the tensions on the world market since 2009, the EU market balance was, unexpectedly, in deficit during two campaigns. Exceptional measures were taken which contributed to ease the tension and ensure proper supply of the market.

Enhance competitiveness of a more market oriented and sustainable sugar sector

The previous CMO was highly regulated limiting competitiveness and market orientation:

- From **the sugar producers' side**, the SWOT analysis highlights the higher production costs in EU and the negative impact of the quota system on the structure of the processing sector and its market orientation (Question 7).
- From the **sugar beet growers' side**, the quota scheme and the minimum price guaranteed a rent to the growers and guaranteed a high profitability to sugar beet compared with other crops (Question 2).
- On **the refineries side** also the operators benefited from highly protecting institutional supply and market conditions which guaranteed each operator its level of activity and

margin and therefore did not require high skills in market orientation and cancelled all competition (Question 5).

Therefore enhancing the competitiveness and the market orientation of the sector could be considered as **a relevant objective**, for the sake of coherence with other agricultural sector and the long term sustainability of the sector.

To achieve more competitiveness, the 2006 reform set a restructuring scheme based on voluntary quotas renunciation, which (as analysed in Question 7) did accelerate the improvement on competitiveness factors, even though some measures have limited this impact. Indeed, all EU producers, including efficient ones, cut back their quotas and production was maintained in less competitive areas such as FI, (partly) because of the coupled support to growers in countries renouncing more than 50% of their quotas.

Some improvement on market orientation has been achieved with the reform, on the growers' side (see Question 3) as well as for the whole sector.

Better meet the market demand: reasonable consumer prices, quality, food security

Sugar is a staple product, basic source of energy for human consumption. Meet the market demand with adequate price, quality and security is a **highly relevant** objective.

The SWOT did not reveal, at the time of the reform, a need for more **quality or food security**. On the contrary, it underlined the capacity of the EU market to provide a sugar of high quality, in a large range of products, and above demand level.

Concerning price, the high market prices guaranteed to the sugar producers and refiners in the CMO had an impact on the consumer price. Even though this point has not been analysed in this evaluation, we can say that limiting the price level was a relevant objective of the reform.

With the reform, the consumer price on the food market should have been reduced because of the cut in reference price by 36%. This impact was not analyzed in the evaluation, but it would be interesting to do so.

The issue of **food security**. With the reform, the EU has significantly reduced its beet processing capacity and is now covering around 85% of its human consumption (through quota production). This change in positioning was based on the need to respect international commitments and ensure a balanced market. It is an important change, and the supply of the 15% needed from the world market is a new issue in the sector. The analysis in Question 6 shows that in 2008/09 and 2009/10, imports were lower than the needed level in the agrofood sector (shortage estimated at 1 million tonnes over two years) and required specific measures to be taken.

Ensure a fair standard of living for the agricultural community

Supporting growers' income is **relevant** for the sugar sector as it is for the agricultural sector as a whole. With the reform, revenue from beet production was expected to decrease, because of quota cuts and the decrease in the minimum price which was only partly compensated by a direct decoupled support. Some transitional supports were also provided (restructuring aid, in certain Member States Community and States aid). The individual level of support did depend on these supports and the decoupling model applied in each Member State. The FADN data analysis conducted in Question 3 in the 6 Case Study Member States, shows that the decrease in revenue due to the reform was not highly visible as the profitability of cereal has increased in the same time (let us remind that farmers growing beet, cannot grow beet on more than 1/3 of their arable land for agronomical constraint).

Promoting rural development

The restructuring of the sector did raise the issue of the impact of the closure of sugar plants on the rural economy surrounding the plant, all the more in regions where sugar production would disappear with the factory closure or the rate of quota renounced is high. So promoting rural

development was **relevant,** in affected areas. Diversification measures, for a large part modelled on the rural development scheme (Question 11) were set up to contribute to rural development in such areas. The proper evaluation of their impact was not possible.

7.2.3.3 Issues of the sugar sector not taken into account by the CAP measures

Overall the measures of the 2006 reform were relevant regarding the issues faced by the sector. Because the raw material of isoglucose producers is either maize or wheat, they were not affected by the decrease in minimum beet price and therefore, had the specific issue of loss of competitive advantage as the sugar price would decrease. The reform provided significant quantities of additional quotas (300 000 tonnes which represented 60% of EU production before the reform), free of charge, to compensate. The high level of renunciation (cf. Chapter 5.3.5) shows that the expected profitability of these additional quantities (in the expected future market conditions with reduced sugar prices) was not attractive enough (compared to the restructuring aid) and did not motivate investment in further processing capacity.

7.2.3.4 New issues emerging from the current international context

Now that the sugar sector has been reformed, the issues have changed from what they were in 2005:

- The decrease in reference price and a hike in cereal price from 2008 reduced the relative profitability of sugar beet crops on farms (Question 2), sometimes leading to difficulties of supply for producers.
- At the time of the reform, the traditional full-time refiners were enjoying a strong position totally dependent on the institutional framework. The reform significantly increased the competitive pressure on refiners (after a three-year transition period). Starting in 2009, the world price hike has negatively impacted import flows of sugar to be refined (cf. Question 5) and refiners have been experiencing considerable difficulties since then.
- The WTO restrictions on out-of-quota sugar exports prevent EU companies to take advantage of opportunities on the world market, and benefit from economies of scale when the production could be considered as much less subsidised as in the previous CMO.

7.2.4 JUDGEMENT

In this question we analyzed the relevance of the reform objectives with respect to the needs of the sugar supply chain at the time the reform. A swot analysis based on the answer to the previous questions and the case study results, has shown that **at the time of the reform, the main issues the sector was facing were:**

- The upcoming risks of unbalanced market
- **The low market orientation of the sector** induced by the previous CMO. This impacted the sector in several ways:
  - in the beet sugar production sector, maintaining high costs production structures;
  - preventing market-driven equilibrium between sugar and isoglucose;
  - maintaining refiners under a strongly protected system.

The analysis of each one of the objectives of the reform showed that they were relevant or highly relevant with regard to the needs of the sector.

Ensuring the respect of the WTO requirement and stabilising the market were of course objectives of utmost relevance. The new CMO was designed to face risks of oversupply. Yet, since 2009, in the context of low price gap between EU and world prices, the market has faced deficit. In 2010/11,

exceptional measures were taken which contributed to compensate low levels of imports and meet demand. Enhancing competitiveness and market orientation were also highly relevant objectives, as quotas, minimum price and intervention system limited them. The restructuring fund (and specifically the restructuring aid and the transitional aid to full-time refiners) was highly relevant considering the needs for operators to shut down production facilities and/or improve their competitiveness.

Because the former CMO led to a high market price, the objective of offering a reasonable price to consumers was relevant as well.

Protecting employment and promoting rural development were also, in a reform aiming at reducing quantities by 6 million tonnes, leading to the total disappearance of the activity in some areas, were also highly relevant. The restructuring fund (restructuring aid and diversification measure) was designed to support these objectives.

Then, ensuring a fair standard of living for farmers was also a relevant objective because growers' activity was affected by the reform (quota abandonment and growers minimum price decrease by 36% on average). This issue is of particular importance in areas where production was highly reduced and/or where alternatives are few and/or not highly remunerative. The decoupled support only partially compensated the loss in revenue, and the individual impact depends also on national decoupling scheme.

7.3 QUESTION 11: COHERENCE THE DIVERSIFICATION MEASURES WITH THE MEASURES APPLIED UNDER THE RURAL DEVELOPMENT POLICY

To what extent have the diversification measures applied under the sugar restructuring scheme been coherent with the measures applied under the rural development policy?

7.3.1 COMPREHENSION OF THE QUESTION

In order to avoid potential social and environmental effects of the 2006 reform, the reform set a restructuring scheme. Among other instruments, the scheme included an aid for diversification[220] targeting regions affected by the restructuring of the sugar sector, plus an additional aid for diversification in Member States where more than 50% of the national quota was renounced[221] (cf. Chapter Description regulation 2.1.2.3 for detail). It aimed at encouraging "*the development of alternatives*" in these regions. This support was granted on the basis of national restructuring programmes detailing the diversification measures to be undertaken.

To be eligible, measures had to either correspond to measures envisaged under Axes 1 and 3 of the rural development policy or be in conformity with objectives of economic development and remediation of serious economic disturbances, etc., as set out in Article 87(3) of the Treaty (cf. Description regulation, chapter 2.1.2.3)

The evaluation question seeks to analyse to what extent the diversification measures have been coherent with the measures applied under the rural development policy. Coherence is defined as *the extent to which the intervention does not contradict other interventions with similar objectives* (European Commission, 2005). The answer is done at two levels, the EU regulation level and in the national or regional implementation programmes, to identify the elements contributing to synergy between both schemes and to identify possible inconsistencies.

7.3.2 METHOD, CRITERIA AND INDICATORS AND DATA SOURCES

Table 78: Criteria, indicators and data sources for Question 11

Criteria	Indicators
The schemes have been (or not) coherent at EU regulation level	Based on Council regulations No320/2006 and 1698/2005, description and comparison of: . the objectives of the schemes, . their intervention logic
The implementation of the diversification aid at Member State level has been (or not) coherent with Rural Development Policy	Analysis of the geographical level of programming of restructuring programmes
	Analysis of the measures chosen in the restructuring programmes Identification of measures that are not similar to rural development measures and description of their objectives
	Description of the implementation of the additional aid for diversification in the Member States concerned
	Description of the management and criteria set to separate both funds
	Opinion of authorities and operators on the coherence between the diversification aid and the rural development policy

[220] The amount available to a Member State was established from between 109.5 €/t of quota renounced in the Member State for the 2006/07 campaign to 78 €/t for the 2009/10 campaign

[221] The additional aid could increase the above amount up to 200 %, depending on the sugar quotas renounced at Member State level.

The analysis is mainly based on the content of the national restructuring programmes and Council Regulation (EC) n°1698/2005 on support for rural development. The restructuring programmes, at the national level and in some Member States also at the regional level, were communicated by the DG Agri or directly downloaded from the websites of the Ministries of agriculture. Only the programme for LV is missing, but information has been found in the rural development programme.

Few annual progress reports on the implementation of the restructuring programmes communicated by the Member States to the European Commission[222] were made available by the Commission or the Member States (FR, DE, NL, BE and AT), which do not comprise much information about the results of the measures' implementation (the authorities usually do not break down the results per sector). Then, it was not possible to know what sector effectively benefited from the diversification aid (except in Member States where the aid was targeted to the sugar sector).

The opinions of stakeholders interviewed in the case study Member States are also used.

7.3.3 AT THE EU REGULATION LEVEL BOTH SCHEMES HAVE BEEN (OR NOT) COHERENT

The rural development policy aims at "*ensuring a sustainable development of rural areas*" (Recital 11 of the Council regulation (EC) n°1698/2005), by improving:

- the competitiveness of agriculture and forestry (Axis 1);
- the environment and the countryside (Axis 2);
- the quality of life in rural areas and the diversification of the rural economy (Axis 3).

Both schemes share the objective of promoting the development of economic activities in rural areas, in and outside the agricultural field. Moreover, in the (EC) Council regulation, the aid for diversification was not targeted to a specific sector or type of beneficiary, which is coherent with the rural development policy that concerns all rural areas and all operators within rural areas.
Moreover, both schemes are based on the same logic, which is to propose subsidies for the implementation of measures/investments described in national or regional programmes. The stakeholders are involved in the scheme on a voluntary basis. Furthermore, the diversification scheme is designed in a way so that the higher the restructuring, the higher the support. Nevertheless, the additional aid for diversification can be used to grant a direct aid to beet or ex-beet growers. This is not in line with the 2nd pillar intervention logic, but whether it is coherent or not with 2nd pillar will depend on the implementation.

Another difference between both schemes is that the sugar restructuring scheme is completely financed by EU funds whereas the rural development scheme is co-financed by the EU and the Member States. Besides, the sugar restructuring scheme targets regions affected by the sugar restructuring, whereas the rural development measures are meant for all rural areas.
Most of the diversification measures are taken from the rural development programmes. The option given for the diversification aid to support other types of measures is the only source of possible incoherence between both schemes. Indeed, the range of measures that comply with the objectives set out in Article 87(3) of the Treaty is quite wide (see Description of Regulation chapter 2.1.2.3), so the coherence with rural development policy mainly depends on their implementation.

The following section details implementation choices made at Member State level and assesses the coherence at this level.

[222] Article 24, Commission regulation (EC) n°968/2006

7.3.4 THE IMPLEMENTATION OF THE DIVERSIFICATION AID AT MEMBER STATE LEVEL HAS BEEN (OR NOT) COHERENT WITH RURAL DEVELOPMENT POLICY

Geographical programming level

The diversification aid was granted in almost all the Member States affected by sugar restructuring, except in the UK.

Both schemes are usually implemented at the same level: in FR, IT, ES, GR, a restructuring programme was first elaborated at the national level, and then adapted in the regions affected by sugar restructuring. In DE and BE, which are federal States, the programmes were directly defined at the regional level. On the contrary, there was one single programme covering the whole territory in PL and mainland FI (plus one for Åland, which has an autonomous status).

The fact that both programmes were worked out at the same level (regional or national) contributed to their coherence. This was enhanced by the fact that both types of programmes were based on territorial diagnoses identifying the issues and the needs of rural areas in the regions concerned. The schemes are all the more coherent when the Member States chose not to aim the support towards the sugar sector.

Selected measures

The following table presents the measures opened to the diversification support in all the Member States. In all the Member States, the measures chosen correspond to a selection of rural development measures in Axes 1 and 3, except in IE, where the only measure proposed does not come from the rural development scheme. IT and ES also elaborated additional measures not included in the rural development scheme.

Table 79: Diversification measures chosen in the Member States[223]

Member States	Measures from the national restructuring programmes	Targeted towards the sugar sector
FR	111, 121, 123, 124, 125, 311, 313, 323, 341	NO
DE-Nordrhein-Westfalen	114, 121, 123	NO
PL	121	YES (sugar beet growers or ex-growers)
	123	NO
IT	111, 123	NO
	121, 311	YES (sugar beet growers or ex-growers)
	Measures aimed at promoting agro-forestry activities for biomass production, as well as services for the development of the agro-food system, even at the experimental stage.	NO (Emilia-Romagna)
FI	111, 123, 124, 311	NO

[223] Codes and title of the rural development measures (source: EC Regulation):
111: Vocational training and information actions
121: Modernisation of agricultural holdings
123: Adding value to agricultural and forestry products
124: Cooperation for development of new products, processes and technologies in the agriculture and food sector and in the forestry sector
125: Improving and developing infrastructure related to the development and adaptation of agriculture and forestry
131: Helping farmers to adapt to demanding standards based on Community legislation
132: Supporting farmers who participate in food quality schemes
311: Diversification into non-agricultural activities
312: Support for business creation and development
313: Encouragement of tourism activities
321: Basic services for the economy and rural population
322: Village renewal and development
323: Conservation and upgrading of the rural heritage
341: Skills acquisition, animation and implementation

Member States	Measures from the national restructuring programmes	Targeted towards the sugar sector
	312	YES (sugar beet growers or ex-growers)
EL	111, 121, 131, 132	NO
SE	111, 121, 124, 311	n/av
BE - Wallonie	121	YES (sugar beet growers or ex-growers)
	123	NO
BE - Flanders	121	YES (sugar beet growers or ex-growers)
	123	YES (sugar manufacturers and processors)
	All measures of Axis 3	NO
SK	121, 125	n/av
Netherlands	111, 121, 123	YES
HU	121, 123, 312, 313, 322, 323	n/av
AT	123	YES
RO	123	NO
PT	123, 124, 125	NO
ES	111, 114, 121, 123, 124, 125, 131, 311, 312, 313, 321	YES (sugar beet growers or ex-growers)
	Other measures than RDP measures can be proposed at the regional level, providing that they respect the eligibility criteria established in Article 87 of the Treaty	Decided at the regional level
CZ	121, 123	n/av
BG	121, 123	n/av
DK	121	n/av
LT	111, 123, 322	n/av
SI	121, 311, 312	n/av
IE	No RDP measures Development of alternative crops (for selling or livestock feeding) on land previously used for sugar beet growing	YES
LV	321	n/av

Source: Agrosynergie based on national restructuring programmes; programme of the Land Nordrhein-Westfalen in DE; rural development programme of LV (sugar restructuring programme not available)

In most cases, the diversification measures having been chosen from the list of the rural development measures, the content of both types of programmes is obviously coherent and creates a synergy between both funds. This was underlined in all the case study interviews.

Some Member States selected a wide range of measures, FR and ES in particular, while others (PL, SK, CZ, BG, AT, RO, DK and LV) only took one or two measures.

In **IT**, in addition to rural development measures, the national restructuring programme stated that measures aiming to **promote agro-forestry activities for biomass production** as well as **services for the development of the agro-food sector** could be proposed as part of the regional restructuring programmes. Such measures were proposed in Emilia-Romagna in Regional Law n°28/1998. The eligible measures are those providing services for the development of the agro-food sector, including experimental measures, described in the aforementioned Law. The beneficiaries of the support include a wide range of organisations: universities, technical institutes, small and medium enterprises, experimental farms, etc. This support is consistent with the objective of "*facilitating the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest*" included in the Article 87(3) of the Treaty.

In **ES**[224]**,** the restructuring programme was implemented at the level of Autonomous communities. In Castilla-la-Mancha, only Measure 121 of the RDR was included[225]. In Andalucia[226] (area of Riconada-Sevilla) a very wide approach was adopted; the programme is based on four themes[227]

[224] Four out of seven plants closed within the restructuring scheme were occurred in Andalucía and two in Castilla-la-Mancha.
[225] *Orden de 08/06/2009*
[226] *Orden de 15/07/09*
[227] Extract from *Orden of the 15/07/09*:

1. Aid for improving the quality of life and for infrastructures that would make companies' lay out and development easier. It deals with (1) the creation of basic services that would dynamise rural areas, (2) the creation and development of

that can be for the most part covered by Axis 3 measures (312, 313, 321); nevertheless, the regulation specifies that if detailed measures did not fit in RDR measures, they can be implemented if they respect Article 87 of the Treaty.

Box 11: Particular case of the Irish restructuring programme

In **IE**, the only measure proposed was **to compensate for the cost of development of alternative uses of the land previously used for sugar beet growing**, with a per hectare subsidy (based on the quantities of sugar beet contracted by the former growers in 2004). The costs of diversification into crop and livestock enterprises (depending whether the crops are intended for selling or livestock feeding) were calculated mainly based on Teagasc data. These diversification measures did not benefit from funding under the Rural Development Programme 2000 – 2006 and, at the time the restructuring programme was built, they were not expected to qualify for funding under IE's Rural Development Programme 2007 – 2013. As requested by the regulation, the Irish restructuring programme includes a chapter dealing with the compliance of the selected measures with the eligibility criteria laid down in the Commission guidelines on State aid in the agricultural sector. It is explained that the diversification aid, through the measure proposed, assisted the Irish beet growers to diversify into alternative enterprises without over-compensating the loss of capital value and of future income. The latter point was verified by independent consultants (Indecon International Economic Consultants, 2006).

The measure proposed in the Irish restructuring programme, though not copied from the rural development programme, appear to be perfectly coherent with the rural development policy.

The two aforementioned measures, implemented respectively in IT and IE, though not part of the rural development programme, are coherent with it, as they aim at encouraging the development of economic activities through support to investments in research or studies.

Beneficiaries targeted

In FR and DE-Nordrhein-Westfalen, even though the measures were not targeted to any specific sector, priority was given to sugar beet growers (among other priority criteria).

In PL, IT, mainland FI and IE (among others), diversification measures were intended mainly or exclusively for operators affected by the restructuring of the sector, mostly to sugar beet growers who gave up, partially or completely, sugar beet production.

Proposing subsidies targeting one single production sector may seem to be a bit contradictory to the logic of the rural development policy. However, in the particular case of sugar restructuring, it could make sense without inconsistency because (i) the subsidised measures mainly target former beet growers or enterprises that used to work in the sugar sector but do not anymore, and (ii) they aimed at encouraging their diversification into other activities.

Implementation of the additional aid for diversification

In IT, EL, IE, PT, HU and SI, the additional aid for diversification was used as a direct payment to sugar beet growers that have, partially or completely, given up sugar beet production. This is not in line with the intervention logic of the rural development policy; it is a first-pillar kind of logic. But it does not contradict the impact of the rural development programmes.

In ES-Andalucía and in BG, the additional aid was allocated to diversification programmes.

infrastructures and equipment for companies and productive sectors, (3) Creation and development of other types of services that aim at improving both companies, and people life quality.

2. Aid for training for workers
3. Aid for initial investments of companies and for related employments
4. Aid to settle quality systems within firm's activities. This aid aims at covering consultant services in the field of quality systems

7.3.5 MANAGEMENT AND CRITERIA USED TO SEPARATE BOTH FUNDS

According to interviews with authorities, the risk of double support is very low, either because the same body manages both schemes (FR, DE-Nordrhein-Westfalen), or thanks to cross-check procedures (PL). More interesting is the separation line between both schemes.

In all the case study Member States, the restructuring fund was used mainly before the rural development fund (EAFDR). When the measures and the targeted beneficiaries were the same, as in FR and DE-Nordrhein-Westfalen for instance, the applications for the rural development were even suspended until the diversification fund was completely used.

When the diversification measures targeted a specific group, generally sugar beet growers, as in PL, IT, FI and IE, then these growers could not apply to the corresponding rural development measures.

7.3.5.1 Judgement

As defined by EU regulations, the diversification aid was coherent with the rural development policy. Both share the same objective, supporting the development of economic activities in rural areas, the diversification support being more focused on regions where alternatives to sugar beet growing and sugar processing were most needed. In their intervention logic also, both schemes are quite similar and coherent as they both include measures chosen by beneficiaries on a voluntary basis, even more so in that the measures for the diversification support could be directly chosen in the rural development programmes.

Two possible sources of incoherence can be noted at this level. First, the additional aid for diversification can be granted as a direct support to beet growers. This is a different approach than the 2nd pillar logic. Second, the measures supported can be chosen outside the rural development programme. The implementation determines, whether there is coherence or not:

- The analysis of the national restructuring programmes (and some regional programmes as well) showed that in all the Member States, except in Ireland, Spain and Italy, the diversification measures chosen were a copy of rural development measures, which obviously contributes to the coherence between both schemes. The way both funds are managed, including the criteria defined to separate the applications for both kinds of measures, are considered to be relevant and to avoid the risk of double-financing.
- In Ireland, Italy (Emilia-Romagna) and Spain (Andalucia), the measures proposed that are not part of the rural development programme are considered to be coherent, and even in synergy, with rural development policy. They aimed at encouraging the diversification of former beet growers into other agricultural activities or supporting services for the development of the agro-food sector, which is in line with the objectives of Axes 1 and 3 of the rural development policy.
- As for the additional aid for diversification, most Member States concerned – Italy, Ireland, Greece, Portugal, Hungary and Slovenia –used it as a direct payment to sugar beet growers that had, partially or completely, given up sugar beet production. This is not in line with the intervention logic of the rural development policy, but it does not induce undesired opposing effects with rural development programmes. In Spain-Andalucía and Bulgaria, the additional aid was allocated to the restructuring programme.

7.4 QUESTION 12: COHERENCE WITH THE PRINCIPLES OF THE 2003 REFORM OF THE CAP AND WITH OVERALL EU OBJECTIVES

To what extent have the measures applied to the sugar sector been coherent with the principles of the 2003 reform of the CAP, and with overall EU objectives?

7.4.1 COMPREHENSION OF THE QUESTION

This question focuses on the coherence of CAP measures applied to the sugar sector, in view of the 2003 CAP reform and with the global objectives of the EC Treaty, as highlighted in the Sustainable Development Strategy and in the Lisbon Strategy for Growth and Jobs.

The need for greater coherence between the sugar policy and the new CAP framework set in 2003 was one of the reasons why the CAP measures for the sugar sector were reformed in 2006.

The **intervention logic graph** on which common objectives (cf. Chapter 3.2) are highlighted already underlines the coherence of the specific objectives of the measures studied and the overall objectives of the CAP and the EU.

Here we propose a discussion from a larger perspective to judge whether the reform introduced changes in line with the main principles and objectives set for the EU and its agricultural policy.

7.4.2 CRITERIA, INDICATORS AND DATA SOURCES

The answer is structured in two parts: first on the CAP 2003 principles and the second on the objectives posted in the Lisbon Strategy.

7.4.3 COHERENCE WITH THE PRINCIPLES OF THE 2003 CAP REFORM

Principles

The 2003 CAP reform is the reform of "decoupling and simplification". It defined a new CAP intervention logic based on two pillars. The first pillar is composed of the single payment scheme[228] (direct aid to farmers' income decoupled from production decision or levels) and the unique CMO (market management tools). The second pillar concerns rural development measures. These two pillars are complementary and should together meet the CAP overall objectives defined in Article 33 of the Treaty. The major change of this reform does not lie so much in the evolution of its objectives, but rather in the instruments applied. The principles of the new instruments are:

- The decoupling principle: the previous direct aid schemes are replaced with a single payment. This single payment is fully decoupled, which means that the payment is not conditional on production of any specific product. It should therefore free the production decision of the farmers and avoid disturbing the market equilibrium within and outside the Community.

[228] established by Council Regulation 1782/2003, and since Health Check, in Council Regulation 73/2009

- The cross-compliance principle: the single payment is linked to compliance with basic standards for the environment, food safety, animal health welfare and good agricultural and environmental conditions.
- The modulation principle: this should achieve the objective of a better budget balance between the rural development policy and sustainable agriculture policy. A percentage of the single-aid payment is transferred to the budget of the rural development policy.

In the following paragraph we focus on the first instrument.

Coherence

The sugar CMO of 2001 was not in line with the 2003 CAP reform. When most of the other sectors had engaged in decoupling CAP support from decision making, the quota system in force in the sugar sector was not coherent. To improve coherence, a transition from the former CMO to a market organisation where operators' decision would be less distorted by public policies and more market-driven was necessary.

The 2006 reform operated a significant revision of the management tools of the sector: decrease in reference price, decrease in quota, and compensation of growers by the introduction of a decoupled payment. The transition towards a more market-oriented sector was engaged and the analysis made in this evaluation has shown that some positive results have been achieved:

- Increased market orientation at the agricultural level
- Increased competition in the sector (beet sugar manufacturers, refineries and imports of white sugar)

The framework of the restructuring scheme was successful in ensuring the changes needed, even though some limits were identified. The objectives of the transition period were clearly displayed from the beginning (quota decrease by 6 million tonnes to be achieved by 2010). Yet the instruments (balance of incentives and risk of uncompensated quota cut) were initially not adequately designed. The threat point was not clear enough (and/or too far away in time) for manufacturers (the most efficient sugar producers) to decide to contribute to the process. Further intervention from the authorities was needed (reform of the reform) to make the adjustments that led to the results known.

In 2010, the sugar management scheme was still not in coherence with the 2003 CAP, because production was still highly regulated by the quota system. This system mainly ensured protection regarding external competition from cane sugar imported from third countries (not assessed in this evaluation), as well as limits competition on the internal market between isoglucose and sugar.

The future step in reforming the sector's management scheme might be the further decoupling of the sector by the abandonment of the quota system (proposition of the Commission – October 2011), which would increase the coherence with the 2003 principles. Nevertheless this would raise the question of the transition to the new system, which would have to be supported by authorities (pace, accompanying measures, compensation of the negative impacts), and of the coherence with other objectives such as food security (acceptable level of dependency from third countries).

7.4.4 COHERENCE WITH THE PRINCIPLES OF THE LISBON STRATEGY

Principles

The original Lisbon Strategy was launched in 2000 as a response to the challenges of globalisation and ageing. The European Council defined the objective of the strategy for the EU "to become the most dynamic and competitive knowledge-based economy in the world by 2010 capable of sustainable economic growth with more and better jobs and greater social cohesion and respect for the environment". Underlying this was the realisation that, in order to enhance its standard of living

and sustain its unique social model, the EU needed to increase its productivity and competitiveness in the face of ever fiercer global competition, technological change and an ageing population.

Because it had become overly complex, the Strategy was re-launched in 2005 following a mid-term review and was focused on growth and jobs.

Coherence

Assessing the impact of the sugar CMO reform on growth and jobs is not straightforward.

The reform of the sugar CMO was motivated by the objective of improving coherence with the 2003 CAP principles, and the need to ensure sustainable market balance in a context which was going to change significantly with the WTO panel and the replacement of the Sugar Protocol by the EPA and EBA agreements.

The reform was therefore implemented so as to reduce EU production capacities (5.8 million tonnes of quota decrease out of 17 million). 41% of the factories manufacturing beets in 2005 were closed during the transition period, and a large proportion (possibly half) would have closed down anyway during the same period. The reform acted as an accelerator of the restructuring of the sector.

The analysis done in the previous Question show that the choices made for the restructuring scheme:

- contributed overall to improve the competitiveness of the sector;
- increased competition on the EU market between beet sugar, sugar refined in the EU and imports of white sugar;
- is driving the agricultural sector to be more market-oriented.

But, the analysis also showed that:

- With the accelerated closure of factories, jobs – which would have been maintained (longer) had the previous CMO been continued – have been lost during the transition period (a rough indicative estimation indicates between 6 000 and 10 000 jobs losses in the EU-25 except PL, directly linked to this acceleration of factories closure).
- Under the new management scheme (CMO and trade agreements and WTO ceiling on subsidized exports), the EU market is more open to external competition:
  - The new scheme increases competition on the EU market, but the WTO ceiling limits access to the international market for EU production.
  - Some operators (refiners) are in a difficult economic situation in 2010-2011 because of high world prices and competition from imports of white sugar.
  - Some European companies have implemented strategic responses of delocalization.

The central question is that of the ability for EU operators to compete with sugar produced from sugar cane and imported (raw or refined) into the EU. In a market with less regulation and more open to competition, this ability is necessary for European operators to grow and remain a source of employment in rural areas. Improving the sector's competitiveness, to which the reform contributed, is a positive contribution towards the objective of the Lisbon strategy.

7.4.5 JUDGEMENT

Coherence with the 2003 CAP reform

The 2003 CAP reform introduced the full decoupling of support to farmers. The sugar CMO with production quotas and relatively high minimum price was not in line with this principle, and market signals were highly distorted by the market measures. The reform operated a transition towards a more market-oriented sector. For that reason, the coherence with the 2003 CAP principle improved. Nevertheless, some coupled elements in the sugar sector remained, as quotas and reference price are still implemented.

Coherence with the principles of the Lisbon Strategy

The Lisbon Strategy as re-launched in 2005 is focused on growth and jobs. Assessing the impact of the sugar CMO reform on growth and jobs is not straightforward.

Because of the WTO panel ruling and the replacement of the sugar Protocol by EBA Initiative and EPA agreements, the EU had to reform its sugar regime, which entailed reduction of production. Production capacities were reduced: 5.8 million tonnes of quota decrease out of 17 million; 41% of the factories manufacturing beets in 2005 were closed during the transition period, of which possibly half would have closed down anyway. At the same time, the restructuring scheme contributed to improving the competitiveness of the sector, which in the long run is coherent with the Lisbon Strategy. Yet, in an EU market open to external competition, the crucial issue for remaining competitive and thereby ensuring growth and jobs is whether EU operators are able to compete with cane sugar imports. To answer this question, the competitiveness of the European production with regard to cane sugar is the central issue.

8 CONCLUSIONS

8.1 THE SUGAR BEET SECTOR

Quantities, yields, location and structure

As a direct impact of the quota reduction as well as of the new limitation on exports due to the WTO ruling, the average volume of beets produced in the EU-27 in 2008-2010 was 19% lower than that of 2003-2005.Within the restructuring scheme, the renunciation of delivery rights by growers was based, whenever possible, on a voluntary basis. This has encouraged low-yield growers to give up sugar beet production. As a consequence, the EU annual improvement in yields accelerated (from 2.6% to 7.4%), as did the trend of concentration of production in larger farms. This was true, not only in the beet-belt, but elsewhere as well. The average EU pace of decline in the number of farms doubled after the reform.

These changes in beet quantities, which were different among Member States, led to further geographical concentration of production in the beet belt, while significant drop in beet quantities occurred mainly in Italy and Spain.

In Italy, the transitional coupled support has significantly improved the profitability of the crop, and contributed to maintaining levels of production higher than would have been reached otherwise.

Sugar beet prices

As there is no comprehensive statistical information available on beet prices, the data were collected through the case studies, which in the end, were not sufficient to make a complete statistical analysis.

The progressive cut in the minimum price of quota beets was fully applied. However, in order to ensure supply and thanks to good price conditions in the world sugar market, some sugar producers (notably in Italy and the United Kingdom) offered higher prices to growers.

Due to reduced profitability of beet produced within quota and the increase in cereal prices, prices for out-of-quota beets were increased so as to be attractive to growers. Several companies have directly linked prices to the price of alternative crops and/or the price of the outlet (bioethanol, export).

Market orientation

The analysis of market orientation was based on the FADN data analysis and results of the interviews.

As a consequence of the lower minimum price, the distortive effect of CAP support on farm net added value has greatly decreased. However, because delivery rights and the minimum price were maintained, the CAP measures still have a distortive effect.

Several indicators confirmed that agricultural production choices are based more on the price of beet than before the reform; as a consequence, what we observed is that industrial sugar producers' pricing strategy is more linked to alternative crop prices and beet production costs (as in the United Kingdom, for example).

Internal competitiveness of the farming sector

The analysis of competitiveness was focused on the internal competitiveness of the sugar beet farming sector, i.e. on the EU internal market. As part of the aid is included in the price, it was not

possible to compute the net added value without aid. Therefore, we analysed key components of competitiveness (sugar beet outputs, yields and production costs) and the characteristics of growers who abandoned their beet production. The results are based on the FADN data analysis and interviews with growers and sugar producers. They should be considered with due caution as they are not statistically representative.

- The impact of the decrease in the minimum beet price has been lessened by changes in sugar producers' pricing policy, better yields, and/or the development of out-of-quota production. However, it seems that production costs were not reduced.
- Furthermore, at the EU level, the biggest reduction in sugar beet areas between before and after the reform was observed in Member States where average profitability has decreased the most (many factors may have caused this decrease). This should lead to an overall improvement in competitiveness in the sector.
- Finally, at the farm level, there is evidence that those farms which abandoned beet production were the ones with the lowest yields. In the sugar sector, according to interviews, low yields are usually linked to low efficiency, therefore the loss of these low yield farms could have contributed to improving the sector's competitiveness.

Notwithstanding that the data were not statistically representative, it can be concluded that the internal competitiveness of beet production has improved since the reform, mainly because it has led the least efficient growers to give up their production.

Income of farmers

Beet production is always rotated with other crops and rarely represents more than a third of the farm area, even in the most specialized farms. Therefore, the income of beet growers is the result of changes in beet profitability, as well as of other production and decoupled support.

Between the periods of 2003-2005 and 2006-2008 the farm net income (FNI) [229] of farmers growing beet (the most specialized ones identified in the FADN sample) show an increase, with the exception of Italy, and to a lesser extent Germany. This increase is significant and accounts respectively +75%, +23%, +66%, and +20%[230] in France, Poland, the United Kingdom, and in Finland. The growing trend in income was strongly linked to the increase in cereal prices since 2005, which compensated for decrease in beet output.

When removing decoupled support, income indicators remain broadly positive. Nevertheless, in France, Germany, the United Kingdom and Finland, decoupled payments do represent a significant proportion of the growers' income (110% of the FNI in France on average and around 80% in Germany, the United Kingdom and Finland). The final impact of the reform on income depends on the decoupling model chosen by the Member State: under the historical model, the impact is limited, as decoupled support represents on average 60% of the calculated loss in revenue induced by the decrease in the minimum price; in a dynamic hybrid model, after the phasing-in period, the change in revenue will be more significant, as the decoupled payment diminishes progressively to an entitlement level identical for all farmers (the phasing-in period ends in 2012 in the United Kingdom, in 2013 in Germany, and in 2019 in Finland).

[229] FNI represents the remuneration to fixed factors of production of the family (work, land and capital) and the remuneration to the entrepreneur's risks. It includes all the aids received by the farm.
[230] It should be noted that these figure do not have statistical representativeness because of limited size of samples and their specific characteristics.

8.2 THE SUGAR PRODUCERS

Quota renunciation

Quota renunciation almost attained the initially established target. The renunciations reached 5.8 million tonnes (down from 17 million tonnes of quotas before the reform).

However to be completely effective, the initial restructuring scheme had to be reformed after two years, in 2007. As a result:

- all sugar companies (but one) took part in the restructuring scheme;
- quotas were largely reduced in the EU peripheral areas (Italy, Spain, Greece, and Slovenia), and production stopped in five Member States (Ireland, Latvia, Slovenia, Bulgaria and continental Portugal);
- France, Germany, the United Kingdom, the Netherlands, Poland and Belgium, located in the beet-belt, accounted for more than 40% of the decrease in the EU. All available additional quotas (1.0 million tonnes) were purchased at an early stage, reflecting strategic choices of sugar companies to compensate for export losses and to increase their market shares in an effort to ensure competitiveness.

Out-of-quota production

Quantities produced outside quotas decreased on average by 1.8 million tonnes. Out-of-quota exports (replacing C sugar) were significantly reduced and were only partially compensated by an increase of demand from other outlets, mostly bio-ethanol production

Geographical distribution

The measures contributed to the concentration of production in the leading Member States: the market share of France and Germany increased from 43% of EU production to 52% on average.

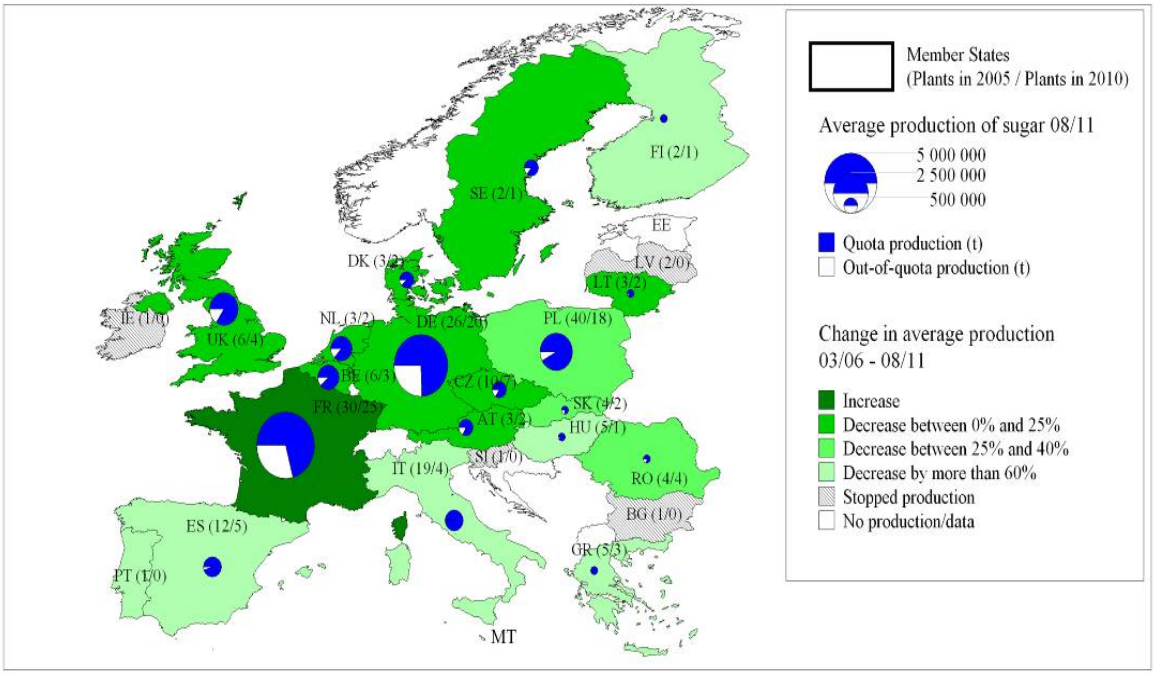
Structure of the sector

Reduction of the quotas was accompanied by a decrease in the number of factories, from 179 in 2005/06 to 106 in 2009/10 at the EU-27 level (down by 41% of the factories operating in 2005/06). Yet, the restructuring of the sector is an ongoing process which was accelerated by the reform: in the EU-15, 5.8 factories closed every year between 2000/01 and 2005/06, whereas 10.5 factories closed every year during the reform period.

In the EU-15, the reform contributed to speeding up the closure of factories with medium-low and medium capacities (5 000-12 000 t/day). In the new Members States, especially Poland, the reform particularly affected the smaller factories, still heavily present at the time of the reform.

At the company level, factory closures were decided on in two steps. Firstly, producers needed to take the decision to renounce the quota: those producers operating in the beet belt took this decision only after the risk of an uncompensated final cut became high (i.e. when the incentives introduced in 2007 by the 'reform of the reform' were implemented). Secondly, the decision as to which factory(ies) to dismantle was based on optimising the maximum CAP support available and minimising the risk of uncompensated quota cuts, while at the same time maintaining competitiveness. The respective factories were compared on the following main criteria: production costs mainly energy, logistics for beet and sugar, and costs of raw materials.

Location and characteristics of EU sugar production after the reform



Source: Agrosynergie, based on DG Agri (production) and CGB

Price

The reform contributed to a decrease in in-quota prices as a result of the fall in the reference price. However, since November 2009, the EU price has remained well above the reference price because of very high world prices. As a consequence, the gap between in-quota sugar price and the world price has greatly decreased. The variability of in-quota sugar price remains lower than that of out-of-quota, just as it used to before the reform. Nevertheless, in-quota sugar price variability has increased as a result of the decrease in the reference price, giving operators more freedom to adjust prices to the market situation.

8.3 THE ISOGLUCOSE SECTOR

The reform gave isoglucose producers the opportunity to increase their quotas without fees, as well as to renounce quotas. In the EU-25, 0.3 million tonnes of quotas were distributed for free while 0.2 million tonnes of quotas were renounced. As a result, the isoglucose quota increased from 0.5 to 0.6 million tonnes. Half of the existing isoglucose production units were dismantled within the restructuring scheme because, (1) quotas were considered by the operators as insufficient to maintain cost-effective production in a context of low sugar prices and high cereal prices, and (2) the restructuring fund was a source of immediate cash flow. No investments were made to increase production capacities; existing production lines were used at full capacity to integrate the additional quotas.

As a result:

- The average quantities processed per site have increased by 44% from an average of 41 000 tonnes to 59 000 tonnes of isoglucose in dry matter/year in the EU-25.
- In combination with quota decrease in the sugar sector, the share of isoglucose in EU quotas has increased from 2.9% to 4.5%

The geographical distribution of production has significantly changed: production is now concentrated in nine Member States, whereas before the reform isoglucose was produced in fifteen Member States.

8.4 REFINERS (FULL-TIME REFINERS AND OTHERS)

Under the previous CMO and the Sugar Protocol ACP-India, full-time refiners benefited from a strongly protected system based on their exclusive access to the quotas of preferential sugar that guaranteed supplies (traditional supply needs), at a guaranteed price for raw sugar. The new framework, resulting from the CMO reform and the progressive replacement of the Sugar Protocol by the Economic Partnership Agreements and Everything But Arms agreements (EPA – EBA), has enhanced competition in the European market between EU beet sugar and imports of raw or refined cane sugar. With decreased EU quota production, imported sugar (raw and/or white sugar) was expected to gain market shares. A three-year transition period (2006/07 to 2008/09) and transitional aid to full-time refiners were implemented to prepare refiners for the new context. Furthermore, refiners did not have to contribute to the restructuring fund.

Structure of the industry and geographical distribution

The removal of the strong protection, which used to benefit the traditional full-time refiners, has led to an increase in the number of full-time refiners, from seven before the reform to eleven in 2011, of which six are new full-time refiners.

This also modified the geographical distribution, with the appearance of refining structures in Member States where there was no activity before (e.g. Denmark, Italy and Spain).

To adapt to the new framework, in which sugar imports were expected to increase, refineries have increased their production capacity: in the EU-25, full-time refinery production capacity has in fact increased by 58%[231].

Moreover, the abolition of the repartition of the traditional supply needs by Member State and the opening up of access to import licenses to operators other than full-time refiners have enabled raw cane sugar refining activities to start up at four beet sugar producing plants, adding additional new capacities.

EU supplies in terms of quantities and prices

At the EU-15 level, third countries' supplies, after a basically stable transition period, reached an all-time low of 1.4 million tonnes in 2010. This drop prevented the Community's traditional supply needs from being covered. The rate of coverage[232] dropped from 82% in the period 2000/01-2008/09 to 67% in 2009/10[233].

This is the result of combination of factors, in particular:

- a strong hike in the world FOB price of raw sugar since 2009/2010 (exogenous to the reform) has made the Community market appear less attractive for raw sugar imports (in particular from EPA-EBA countries);
- at the same time, the Community-guaranteed minimum price for raw sugar imported from EPA-EBA countries was reduced, amplifying its impact;
- the termination of the Sugar Protocol, exogenous to the reform, and its replacement by the EPA has left ACP exporter countries free to decide to export to any market where profit can be maximized;

[231] Estimation based on the declarations of refineries and on the basis of an utilisation standard of the equipment.
[232] Ratio between raw sugar imports and the quantities defined in regulation as the ones necessary to EU refineries: (supply flows of raw sugar * 0.92[232]) / TSN
[233] excluding transfers from French Overseas Departments

- some strategic responses following the reform implemented by European companies in ACP countries (e.g. Mauritius and Swaziland) to increase exports of white sugar instead of raw sugar.

In these new conditions, the attractiveness of the Community market for raw sugar exports depends on the price gap between the EU and other markets. When the price conditions are not in favour of the European market (as happened in 2009/10 and to a lesser extent in 2010/11), producers from EPA-EBA countries might find it more advantageous to export to neighbouring markets rather than the EU. This has led to a decrease in the coverage rate of imports.

Contribution of the transitional aid to the restructuring of full-time refiners

Limited information was gathered through the interviews with refiners' representatives, and no data were provided by authorities.

According to the interviews, the transitional aid contributed both to lessening negative impacts on margins by covering operating costs of the refineries and to the restructuring of the plants (investments to increase production capacities and reduce fixed costs). However, all interviewees stated that, at present, companies are not able to fully benefit from these investments because there is a lack of raw sugar imports for refining.

8.5 MARKET BALANCE

EU market balance

Ensuring a sustainable market balance was one of the core issues of the reform. Before the reform, the market was highly regulated,. In 2005, both the upcoming changes in the trade arrangements with third countries and the new limit on subsidized exports following from the WTO Panel ruling were obvious drivers of risk of oversupply. The new measures implemented in the 2006 CMO aimed at limiting this risk.

However, as from 2009, an unprecedented high level of world sugar prices had significant impacts on the EU market balance. In 2009/10 and 2010/11, import flows needed to meeting demand for sugar did not occur, and the deficit which cumulated was estimated at 1 million tonnes. As a consequence, market price in the EU remained at a much higher level than that of the reference price, and stocks were at their lowest level at the end of 2009/10 (1.18 million tonnes, 7% of the annual consumption compared to 16% immediately after the reform).

Even though the CMO was designed to manage risks of oversupply, it has been possible to put forward temporary solutions to ease the tension of undersupply. And so, in 2011, exceptional measures (500 000 tonnes out-of-quota sugar release on the quota market and import duties reduction) were taken by the Commission to ease the tight situation, and stocks were partly replenished at the end of 2010/11 (11% of annual consumption).

Intra-EU flows

With the reform and limits on subsidised exports induced by the WTO Panel ruling, the EU has changed from being a net exporter to a net importer. Some Member States have reduced their production and five of them have even stopped all beet production. As a consequence, intra-EU trade -has increased significantly.

8.6 COMPETITIVENESS OF SUGAR PRODUCERS AND REFINERS

Improving competitiveness was a core objective of the reform. The sugar industry is capital intensive, and the goods produced were not very differentiated. Therefore, attaining economies of scale is a key issue in achieving competitiveness. The impact of the reform as well as other drivers were analysed at three levels. When possible, the analysis has been based on statistical data (from different sources). However, with regard to production costs, operators did not agree to provide data (absolute values), as the information was considered too sensitive.

Competitiveness of production activities

Sugar producers. The reform has stimulated improvements in the main factors of achieving competitiveness, although some of these were already improving – but at a lower speed – before the reform. They include: increasing the average campaign length (improvement of the plant utilization rates) and labour productivity (reduction of unit costs). Also, sugar production per hectare has on average improved (due to reduced incoming logistics costs). This confirms that the abandonment of the production chains has mainly taken place in the less suitable, and therefore less competitive, agro-industrial areas.

The reform has accelerated closure of factories with medium-low and medium production capacity. This has led to an increase in average production per factory in the EU-15 from 121 000 in 2004/05-2005/06 to 165 000 tonnes/year in 2008/09-2009/10.

This average improvement has not been equal between Member-States, however. Indeed, the coefficient of variation[234] of each competitiveness factor has increased since the reform. Thus, the reform has contributed to increasing the competitiveness gap that existed among Member States before the reform. This is also confirmed by the changes in the geographical distribution of out-of-quota production. The following table summarizes the main results regarding the (direct and indirect) impacts of the reform on the variables affecting cost competitiveness (average and coefficient of variation) in the EU-25.

	Average			Coefficient of variation		
	Before reform 2004/05-2005/06	After reform 2008/09-2009/10	Δ%	Before reform 2004/05-2005/06	After reform 2008/09-2009/10	Δ%
White sugar yield (t/ha)	8.7	11.0	26.6	23.1%	23.9%	0.8
Campaign length (days)	91.1	110.8	21.6	17.5%	23.0%	5.5
Volume per factory (t)	122	170	39.2	56.0%	73.0%	17.0
Productivity per labour unit (t/employee)	387	553	42.9	59.2%	62.5%	3.3

Source: data from various sources

Full-time refineries. Because of the combined effects of a decrease in supply flows of raw sugar and an increase in production capacity, the utilization rate of capacity has deteriorated to a level where some full-time refiners are less competitive.

Relative competitiveness between sugar producers and full-time refiners. Concerning relative competitiveness between sugar producers and full-time refineries, the ratio between the potential industrial margins[235] of sugar producers and of full-time refiners showed: a) a loss of competitiveness of sugar producers compared to refiners during the first four years of the reform, mainly because of the contribution to the restructuring fund by producers during the first three post-reform campaigns, and b) a loss of competitiveness of the refineries in 2010/11, which is related to price increase for raw sugar imports due to elevated world market prices.

[234] Variability of the indicators values around the mean has grown

[235] The potential unit margin represents the level that the actual production costs must stay under in order for a factory to make a profit, therefore rendering the company competitive. For sugar producers, it is calculated as the difference between the average EU price of white sugar net of the temporary restructuring amount and the average EU purchase cost beets. For refiners, it is the result of the difference between the average EU price of white sugar and the CIF implicit price of raw sugar for refining (NC 1701 11 10) imported from ACP countries.

Competitiveness of commercial activities

The analysis has shown the oligopolistic nature of the competitive system of the sugar industry. Furthermore, the analysis revealed that:

- There is a wider differentiation of prices applied in the Community and companies increasingly use them to improve competitiveness (direct effect of the reform).
- In some Member States that have stopped a considerable proportion of their sugar production (such as in Greece and Italy), the shorter distance from the production centre to the place of consumption gives less efficient industries an advantage in their own market, compared to more efficient but more distant competitors.

Companies' profitability and global competitive position

The analysis showed that the reform contributed to accelerating factory closures. The level of concentration could be taken as an indicator of the effectiveness of measures fostering competitiveness which have been put in place by the companies.

- At a country-system level, quite a relevant growth in concentration can be measured, in particular by the further strengthening of the power of France and Germany.
- At the company level, the structure was and has remained in a situation of relative unbalanced oligopoly236, but the profit margins of the sector's leading companies are likely to have grown slightly after the reform.

Under this framework, some companies that have totally or partially abandoned their quota have maintained their market shares (and client portfolio) by maintaining packing/distribution activity of sugar bought from other companies. Other operators, among those who have continued sugar production, have developed diversification and/or valorisation of by-products strategies, thereby increasing their overall efficiency and thus profitability.

8.7 PREVENTING NEGATIVE SOCIAL AND ENVIRONMENTAL IMPACTS

To assess the impacts of the restructuring scheme on avoiding negative social and environmental impacts, we analysed to what extent the scheme made operators go beyond the minimum requirements, considering first the EU regulation, then the national regulation and finally the implementation at the company level. The analysis has been limited by the lack of data due to insufficient monitoring and issues of companies' privacy. It was limited to the case study Member States[237] and only ten restructuring plans. Detailed reports about the actions carried out were available only for six of the latter. Furthermore, these plans could not be compared to plans implemented in the case of closures outside the scheme. Therefore, results should be treated with great caution.

Social impacts

The closure of 41% of sugar factories inevitably led to considerable job losses: according to the European Committee of Sugar Producers (CEFS) data, employment in the sector decreased by 44%, from 50 000 employees in 2005/06 to 28 000 in 2009/10. At least half of these jobs would have been lost during or after the same period even without the reform, as the restructuring process is an ongoing one in the sugar industry. Nonetheless, the reform accelerated the job reductions.

[236] Oligopoly in which market power of the biggest three companies is unbalanced.
[237] Italy, France, Finland, Germany, the United Kingdom and Poland.

The cases for which data are available show a significant effort to maintain employment, as on average only 22% of the employees working in the factories that closed down were laid off, 32% benefitted from early-retirement measures, and 46% were redeployed in the companies.

Although the Council regulation laying down the sugar restructuring scheme addressed the issue of limiting negative social impacts, very limited requirements beyond national legal frameworks (and companies' corporate social responsibility commitment) were imposed on manufacturers.

The Council regulation did not set any requirements going beyond the national labour laws. The labour market legislation is largely in the remit of the Member States and the conditions on national labour markets differ significantly, making it difficult to find a one-size-fits-all approach.

Among the six case study Member States, only Italy used the possibility, included in the Council regulation, to impose further requirements on the companies. Therefore, at the company level, except in Italy, companies received the restructuring aid subject only to the obligation of presenting a social plan[238] to the authorities and to complying with their respective national labour market legislations. Yet, according to the interviews, the existence of restructuring aid received by the companies weighed in the negotiations between the company and the employees. But it is difficult to assess to what extent the restructuring aid contributed to compensating the employees affected beyond national labour legislation.

Concerning the machinery contractors, they benefited for the first time from CAP support to compensate for the impact of the reform on their activity. The lack of fixed aid to be granted gave rise to conflictual negotiations in several countries. The reduction in sugar quantities must have had an impact on the activity of machinery contractors, as they are an important operator in the sector. The extent of the impact naturally depends on the extent of the changes in the region where the machinery contractors are located. For example, 240 companies in France received CAP support, at least 140 in Germany, 44 in the United Kingdom, and around 500 in Italy.

The impact of the diversification aid and transitional aid to refiners could not be assessed, due to lack of monitoring data.

Environmental aspects

Concerning the industrial level, the Council regulation went beyond existing minimum obligations (basically the IPPC Directive and the national legislation) by requiring a full dismantling of all the production facilities in order to benefit from the highest amount of restructuring aid. Full dismantling most likely had a positive impact on landscape quality. The regulation required all factories to restore good environmental conditions to the factory site. This applied to all factories and not just to IPPC factories, as had previously occurred.

Among the six case studies, no Member State used the possibility to impose further requirements. But, on the whole, the authorities did not consider the closure of sugar factories as a source of significant negative environmental impacts.

8.8 EFFICIENCY AND SIMPLIFICATION OF THE CAP

Efficiency

Efficiency is the "*best relationship between resources employed and results achieved in pursuing a given objective through an intervention*" Judging whether costs are reasonable requires benchmarks, which do not exist in the case of the sugar CMO reform (comparing pre- to post-reform period is difficult as the objectives of the CMO have changed, and there are no other sectors where the same type of reform has been applied). Therefore, to provide a judgement on the

[238] Granting the restructuring aid to the sugar companies was conditioned by presentation to the authorities of a restructuring plan, including social plan detailing the actions planned, in particular with respect to retraining, redeployment and early retirement of the workforce concerned.

efficiency of measures applied, we can only draw qualitative reflections on the changes in costs induced (direct, indirect, administrative, etc.) and changes in who actually bears the costs (mainly growers, manufacturers, consumers, taxpayers).

Under the previous CMO, most of the costs were borne by consumers through the high market prices.

Under the new CMO:

- The costs of the market measures were eliminated, as export refunds for sugar were suspended as from 2008 and intervention was abolished.
- The loss of farmers' income caused by decrease in minimum beet prices was partially compensated by introduction of decoupled support.
- The cost of the transition (restructuring fund) was 6.2 billion Euros. The fund was provisioned by sugar and isoglucose manufacturers, but the cost of it was in fact borne by consumers, since the sugar reference price was maintained at a high level during the first two years of the reform, while the minimum beet price decreased from the first year.

The efficiency of the reform with respect to the objective of achieving a stabilised market and a guaranteeing the availability of sugar supplies seems good:

- sugar prices have been reduced, nevertheless, in-quota sugar price variability has increased as a result of the decrease in the reference price, giving operators more freedom to adjust prices to the market situation;
- supply is ensured, even in a context of high world prices and low imports, practical measures were implemented to ensure that demand was adequately met.

Nevertheless, because of the quota system and the increased complexity of managing the market measures, the current CMO requires significant monitoring, controls and intervention by the authorities. Furthermore, according to the operators interviewed, the administration's decision-making process may not always be quick enough to react to the rapid changes in the sugar market.

Regarding improved competitiveness, on the whole the reform was quite efficient at both the agricultural and industrial levels. It relied on a carrot-and-stick approach for restructuring the sector. The reactivity of the Commission in modifying the scheme after two years (by increasing the risk of uncompensated linear quota cut and reallocation of the compensation in favour of the agricultural sector) is one of the keys to the reform's success.

Farm income was negatively impacted by the reform. The costs of partial compensation to growers' income loss was covered by a shift from the price support to the single payment scheme (partial shift from consumers to taxpayers), without additional costs.

Simplifying the CAP

In part, the reform contributed to simplifying the CAP, as it eliminated some market measures (intervention, production refunds and export refunds, production levies). Nevertheless, the price management instruments and the quota system were maintained. Thus, managing the market which is now more open to imports is complex and requires additional monitoring and decision-making from the authorities.

The possibility for the Member States to choose rural development measures for their diversification programmes, which widely occurred, was a successful and efficient way to implement the diversification measures without generating much extra administrative work.

8.9 RELEVANCE AND COHERENCE

Relevance of the objectives of the measures with regard to the needs of the sector

We analysed the relevance of the reform objectives with respect to the needs of the sector at the time the reform was applied. At that time, the main issues were the upcoming risks of an unbalanced market and the fact that the CMO did not make the sector very market-oriented.

The analysis of each one of the objectives of the reform showed that they were relevant or highly relevant with regard to the needs of the sector.

Coherence of the diversification aid with the rural development policy

The coherence of the diversification aid with the rural development policy was good, even when the measures for the diversification support were not directly chosen in the rural development programmes (in Ireland and Italy for example). Both share the same objective of supporting the development of economic activities in rural areas and the same intervention logic (offering measures chosen by beneficiaries on a voluntary basis).

The additional aid for diversification was granted in most eligible Member States (Italy, Ireland, Greece, Portugal, Hungary and Slovenia) as a direct payment to sugar beet growers that had, partially or completely, given up sugar beet production. This is not in line with the intervention logic of the rural development policy, but it does not create undesired effects.

Coherence with the 2003 CAP reform

The 2003 CAP reform introduced the full decoupling of support to farmers. The sugar CMO with production quotas and relatively high minimum price was not in line with this principle, and market signals were highly distorted by the market measures. The reform provided for a transition towards a more market-oriented sector. For that reason, the coherence with the 2003 CAP principle improved. Nevertheless, some coupled elements in the sugar sector remained, as quotas and reference price are still implemented.

Coherence with the principles of the Lisbon Strategy in favour of "growth and jobs"

The Lisbon Strategy as re-launched in 2005 is focused on growth and jobs. Because of the ruling by the WTO Panel and the Everything But Arms Initiative, the EU had to reform its sugar regime, which entailed reduction of its production capacities and accelerated job losses. At the same time, the restructuring scheme contributed to improving the competitiveness of the sector, which in the long run is coherent with the Lisbon Strategy. Yet, in an EU market open to external competition, the crucial issue for remaining competitive and thereby ensuring growth and jobs is whether EU operators are able to compete with cane sugar imports. To answer this question, the competitiveness of the European production with regard to cane sugar is the central issue.

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