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The common agricultural policy and the French, EU and global economies

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Abstract

The Common Agricultural Policy (CAP) and EU membership have undergone big changes under the 2003 reforms. This has changed the incentives faced by farmers in the EU and around the world. This study provides estimates of the contributions of the CAP to the farm and food sectors and of some of the costs associates with reallocating resources to these sectors. The study concentrates on the effects of direct payments, border protection and export subsidies (components of Pillar I funding) in 2007.

Despite attempts to cut the link between support and production, the CAP contributes to maintaining farm and food sectors up to 8 per cent larger in the EU than if the CAP did not exist.

The economic efficiency costs of allocating additional resources to the farm and food sectors amount to some €38 billion, with the EU15 supporting more than €34 billion in allocative efficiency costs. Although the costs of distortions in the new member states (NMS) is smaller, they are expected to increase as direct payments are phased in. Part of the costs suffered by the EU are compensated by an improvement in its terms of trade in the order of €17 billion, at the expense of the EU's trading partners. The benefits of the CAP are allocated very unevenly across the farm and food sectors, depending on the effective rate of protection that affects each operation. In France, allocative losses are estimated to exceed €3.5 billion.

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The views expressed in this paper are those of the authors only and do not necessarily reflect those of the Productivity Commission.

The estimates in this paper are probably lower bounds: they are static and do not account for any dynamic effect such as the lack of research into activities whose returns are made relatively lower by the CAP. The estimates also abstract from the fact that the CAP maintains marginal farms in production, thus reducing the productivity of the sector as a whole.

An alternative way of interpreting the results is that eliminating the parts of the CAP modelled is likely to increase the production potential of the EU by at least €38 billion. Further gains in the form of increased market access could be possible if liberalisation in the EU prompted other economies to liberalise their farm and food sectors.

The Common Agricultural Policy (CAP) has a multitude of facets and is in constant evolution. Successive reforms have effected many changes to the incentives that the French and EU rural sectors face and how the French, EU and global economies reacts to it. Since its inception, the CAP has evolved from a commodity-focussed program with very specific objectives, among which ensuring food security and supporting farm incomes in Europe, into a system of support mechanisms with very diverse objectives. In addition to changes in policy, membership of the EU itself has changed dramatically with successive enlargements, thus changing the place of agriculture in the EU. In 2008, a 'health check' was conducted to adjust the implementation of the 2003 reforms. Relatively recent developments of the CAP have included:

- the partial decoupling of direct payments, with flexibility across members, and
- the apparition of 'Pillar II'[2] payments for rural development, especially relevant among new member states.

These changes in policies and the changes in EU membership have affected how the CAP influences the French and EU rural sectors, the broader French and EU economies, global markets, and economies around the world. A complex policy such as the CAP has many different effects; for example:

- it involves income transfers (for example from taxpayers and consumers to the farm sector and to food processing)
- it modifies the structure of the EU economy — and of the French economy — (for example, by attracting or retaining resources in the rural sector, which otherwise would be employed somewhere else in the economy)
- it reallocates resources in economies outside the EU, as they adapt to world prices that are distorted by the CAP
- it involves some efficiency costs within in the EU and globally as resources are reallocated from their most efficient use in response to support prices.

2 The CAP is funded through two sources. Broadly speaking, pillar I funds market support and direct payments; pillar II funds rural development initiatives. Some blurring occurs between the objectives of the two pillars, and through 'modulation', some pillar I funding can be transformed into pillar II funding.

The purpose of this paper is to estimate the contribution and costs of the CAP to the French and EU economies and to the global economy. This contribution is estimated by modeling three main parts of the CAP, as it operated in 2007:

1. direct payments
2. export subsidies
3. import duties.

These three parts of the CAP contribute to the maintenance of support prices which apply to many agricultural products. Support prices reduce the variability of prices faced by the producers that benefit from them and push part of this variability onto world markets. Although this might be a large cost to the global economy, it cannot be quantified in this study.

Further, pillar II is not modeled, mainly because of lack of information: under these programs, rural development activities are co-funded by the EU and national governments. The total amount of funding is what determines economic behaviour, and the lack of information about national funding makes it difficult to assess the effect of Pillar II programs.

The remainder of this paper is organized as follows:

- Section 1 outlines a quantitative picture of the CAP
- Section 2 presents the effects of the CAP on the French economy
- Section 3 provides an analysis of the global effects of the CAP

1. The current CAP

The CAP often represents nearly half of the EU budget, providing support to a shrinking part of the EU's economy. It has undergone significant reforms since the early 1990s, with the aim of improving its market orientation (box 1.1). This chapter focuses on the policy framework which results mainly from the 2003 reforms.[3]

Notwithstanding major reforms in 2003, the CAP is continually evolving — while some of the 2003 reforms are yet to be fully implemented, new changes are being introduced. Adding to the complexity, EU members can use additional, national intervention tools that are applied within a common EU legal framework.

[3] The discussion is couched in terms of policies applied in the EU15 (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom) and in the new member states (NMS). A group of 10 new member states (NMS10) joined in 2004: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. Two more members (NMS2) joined in 2007: Bulgaria and Romania.

Structure of the CAP

Budgetary expenditure on the CAP is characterised by two 'pillars':

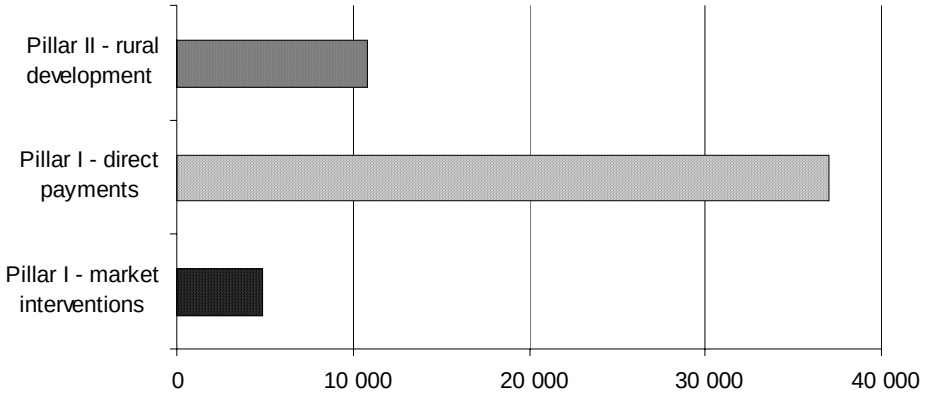
- Pillar I — market support mechanisms and direct payments, which are funded through the European Agricultural Guarantee Fund (EAGF)
- Pillar II — rural development initiatives, which are funded through the European Agricultural Fund for Rural Development (EAFRD).

In 2007, Pillar I funding represented around 80 per cent of the European budget devoted to the CAP, most of which was in the form of direct payments, with the remainder used to fund market interventions, including export subsidies (figure 1.1).

Box 1.1 Recent CAP milestones

- **1992** — The 'MacSharry' reforms reduced the level of market price support and introduced direct support. The MacSharry reforms included production limits to address surpluses, rural development measures with an environmental focus, and mandatory land set-aside.
- **2000** — The 'Agenda 2000' reforms reinforced the market-orientation and environmental focus of the CAP. Agenda 2000 included a comprehensive rural development policy, which built on earlier reforms, and further reductions in intervention prices, which were compensated by direct payments.
- **2003** — The 2003 reform was marked by decoupling direct payments from production to enable farmers to better respond to prevailing market conditions. It also strengthened rural development policy, including a reduction in direct payments — modulation — to fund an increase in rural development.
- **2008** — The 2008 'Health Check' introduces short-term adjustments in the European regulations (appendix table 1.15).

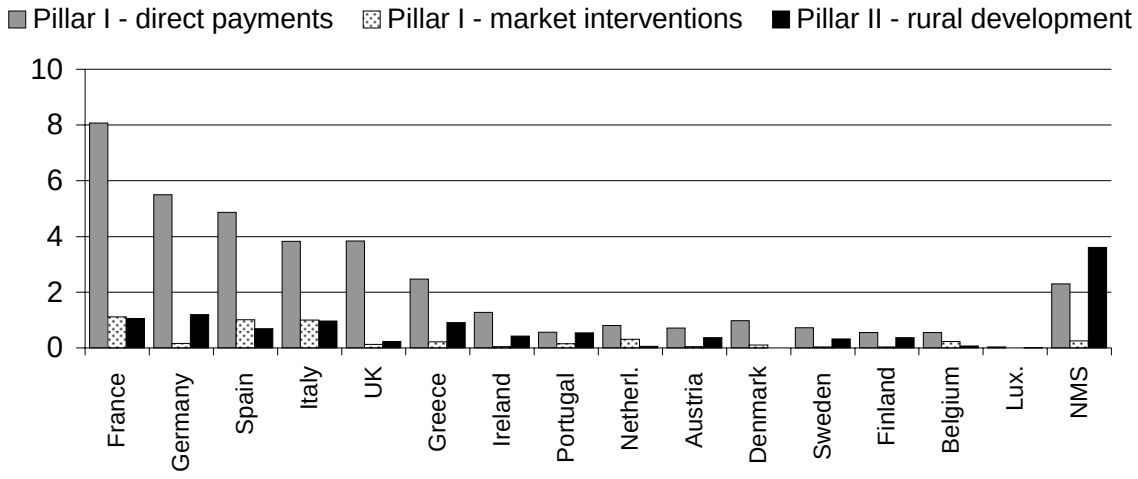
Figure 1.1 **European CAP expenditures by category of measures, 2007**
Million Euros



Data source: European Commission 2008a

EU members have more flexibility than ever to define measures and implement, monitor and source funding for policies. Spending between the first and second pillars varies greatly across member states (figures 1.2 and 1.3). The majority of expenditure is made up of direct payments for EU15 members — this is especially the case in France. Rural development (Pillar II) expenditure accounts for a larger share in the NMS.[4]

Figure 1.2 **European expenditures by member state: Pillar I and Pillar II**
Billion Euros, 2007

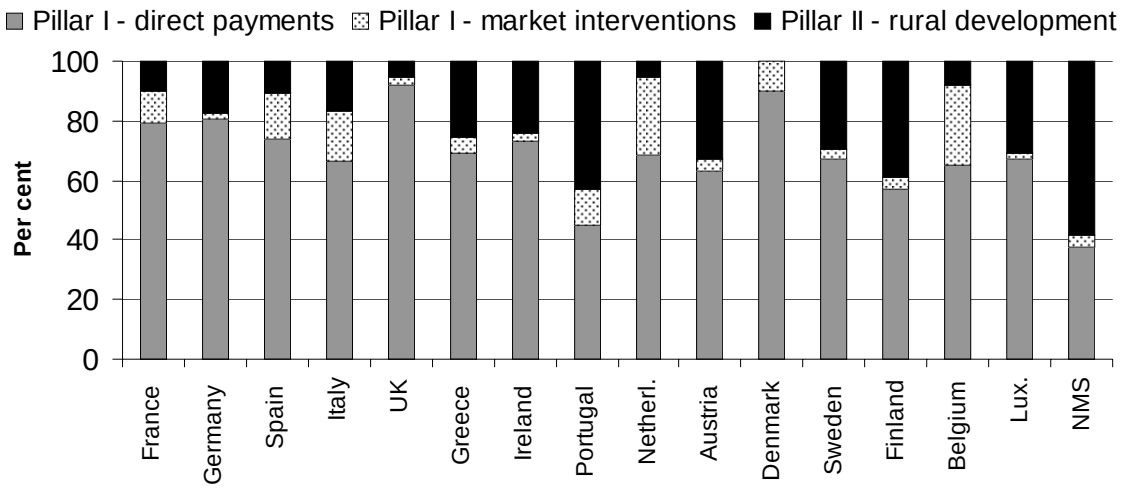


NMS: new member states.

Data source: European Commission 2008a

4 As discussed in box 1.2, the use of direct payments (Pillar I) is scheduled to increase in the NMS.

Figure 1.3 **European expenditures by member state: Pillar I and Pillar II**
Relative shares, 2007



NMS: new member states.

Data source: European Commission 2008a

The decreasing level of market support prices and compensating increase in direct payments is reflected in the small shares of market support in figures 1.2 and 1.3. The small share of market support expenditure is also a reflection of high commodity prices in 2007, which reduced or eliminates differences between support prices and world prices for some commodities.

Pillar I

Market support

The predominant market support mechanism is the price guarantee. The level of price guarantees has been reduced steadily since the 1990s. Nonetheless, price supports still exist for selected commodities and give rise to subsidies when storage is required, when commodities are sold on world markets at prices below the support price or when farmers are compensated for other interventions (such as destroying vines).

For a given support price, the value of export subsidies varies with changes in world prices. This affects the way that export subsidies are allocated across commodities.[5] For example, recently, the sugar and dairy sectors attracted roughly 75 per cent of the expenditures devoted to export subsidies (figure 1.4).

5 According to the WTO, export subsidies notified by the European Commission represent around 90 per cent of those notified by all WTO members (WTO 2007).

Market intervention can also be effected through production quotas which limit production (mainly for sugar and milk) and do not involve budget expenditures, and land set-aside programs (compulsory or voluntary) with budgetary expenditures that are integrated into direct payments.[6]

Direct Payments

Direct payments were designed to compensate farmers for reducing price guarantees since 1992. They were originally 'coupled' — that is, tied to either producing certain commodities or using certain inputs in the production process.

There have been efforts to break the link between income support and agricultural production -- that is, to 'decouple' support. Decoupled payments are designed to give farmers a guaranteed minimum level of income while avoiding market distortions.

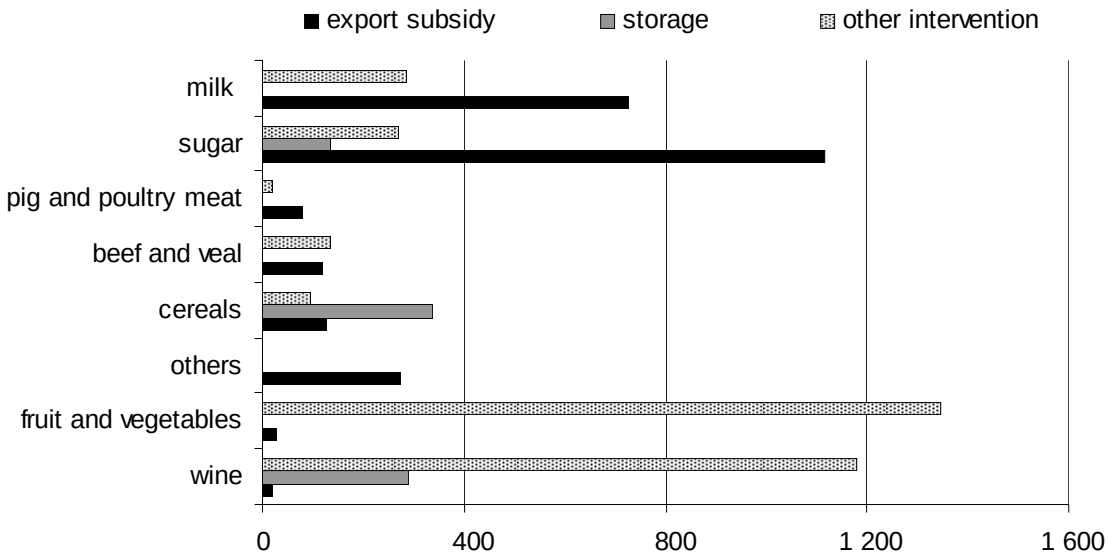
The 2003 reform[7] introduced the single payment scheme (SPS), where direct payments are not related to current production decisions (box 1.2). It also introduced 'cross-compliance', where payments are linked to farmers achieving certain environmental, animal welfare and quality standards.

6 Land set-aside was first introduced to prevent surpluses accumulating and was compulsory for large producers. Compulsory land set-aside was abolished under the Health Check in 2008 (see table 1.15).

7 For a detailed analysis of the 2003 CAP reforms, refer to OECD 2004.

Figure 1.4 **Expenditure by sector and type of market intervention measure[a]**

Million Euros, 2006

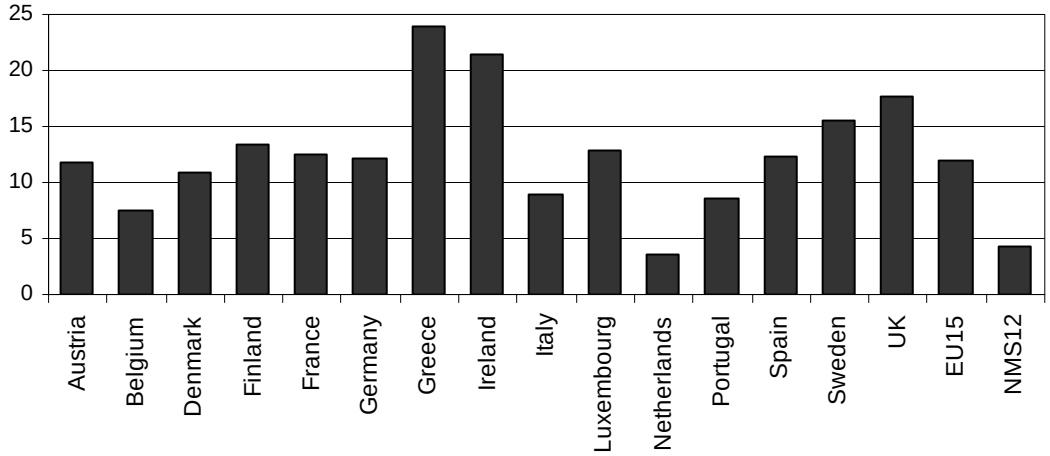


a 'Other intervention' includes funding for producer organisations in the fruit and vegetable sector and, in the wine sector, distilling surplus wine and destroying vines.

Data source: European Commission 2008b

Figure 1.5 **Direct payments as a share of agricultural outputs[a]**

Per cent, 200607



a Output of assisted sectors within agriculture

Data source: European Commission 2008a, Eurostat 2009

The value of direct payments, divided by the assisted value of agricultural output gives a measure of the relative level of assistance across EU members.[8] Subsidy rates are highly variable across the EU, exceeding 20 per cent in Greece and Ireland, and less than 5 per cent in the Netherlands and the NMS (figure 1.5).

Box 1.2 **The Single Payment Scheme**

The single payment scheme is designed to cut the link between income support and production decisions. There are two basic SPS models: (i) an historic model, in which entitlements are based on the amount of payments received per farm during a reference period (2000-2002), divided by the number of hectares in the reference year, and which generates a different payment for each farm; (ii) a regional model, in which a flat rate entitlement is paid, based on the total amount of payments received and the total number of eligible hectares in that region during the reference period.

In the historic approach, farmers who did not receive direct payments in the reference year are not eligible for the SPS, but entitlements are tradeable in most countries.

Static and dynamic hybrid models have also been implemented,. In the static version, the entitlements remain the same over time. In the dynamic version, a proportion of the entitlement is based on a historic reference period and decreases over time, and a flat rate element increases, until the full entitlement is based on a flat rate. The SPS model implemented most often is the historic model (table below).

The SPS was introduced in the 15 historic member states and 2 of the NMS (Slovenia and Malta); a transitory Single Area Payment Scheme (SAPS) is paid to the remaining 10 NMS. The SAPS is a uniform payment per hectare, up to a national ceiling. The payments are made from the European budget to the NMS once a phasing-in period is completed in 2013 (except Bulgaria and Romania, whose period ends in 2016).

SPS implementation models

Historic	*Regional*	*Static Hybrid*	*Dynamic Hybrid*
Austria	Malta	Denmark	Finland
Belgium	Slovenia	Luxembourg	Germany
France		Sweden	UK-England
Greece		UK-N.Ireland	
Ireland			
Italy			
Netherlands			
Portugal			
Spain			
UK-Scotland			
UK-Wales			

Source: European Commission, 2008c

8 The level of assisted output includes output of fruit and vegetables, even though this is not a highly supported sector. This measure is therefore a lower bound on the rate of assistance provided by direct payments.

Degree of decoupling

The concept of decoupling is difficult to define satisfactorily. To the extent that any support of a sector attracts resources in that sector, it may be argued that decoupling cannot exist, in the sense that it always affects farmers' cropping and resource allocation decisions. However, a weaker version of decoupling might be considered as an income support payment that does not affect the cropping mix chosen by a farmer. Although it might be conceivable conceptually, such a form of income support is difficult to implement in practice without affecting farmers' allocation decisions. Bearing this in mind, the following discussion argues that some degree of decoupling is being implemented.

Within the EU-wide framework which guides the implementation and management of direct payments, the 2003 reform provides member states with some flexibility in implementing the SPS, including in the degree of decoupling. Links between support and production remain in some countries.

- Members can maintain a proportion of product-specific direct support where they believe that moving to the SPS would result in production abandonment or severe market disturbances. The proportion allowed varies across commodities, with the option applying to cereals, beef, sheep, goats, olive oil and cotton.
- Member states may also grant 'additional payments' to specific types of farming which are considered important for the protection or enhancement of the environment, or for improving the quality and marketing of agricultural products. These additional payments can use up to 10 per cent of the funds available under national ceilings in the SPS.[9] Additional payments therefore reduce the funds available for basic SPS and product specific payments.

Where coupled subsidies remain, they are generally defined per hectare for commodities such as energy crops, durum wheat, protein crops, rice and nuts. [10] For livestock, payments are based on herd size.

In the 2007 financial year, around 20 per cent of direct payments made in the EU15 countries remained coupled to production, though this masks large differences in the degree across the EU15 (figure 1.6). Only Ireland, Luxembourg, Malta and the United Kingdom have fully decoupled their payments with the introduction of the SPS. Others have retained a sizeable proportion of coupled payments, including the Netherlands (though the amounts of direct payments are small), Portugal and Spain.[11]

9 Article 68 (previously Article 69) of Council Regulation (CE) 1782/2003

10 Energy crops are used in the production of biofuels and electric and thermal energy produced from biomass. The health check advocates complete decoupling by 2010 (see table 1.15).

11 See also appendix table 2.6 for additional detail on partial decoupling.

Of the payments that remain coupled, more than 50 per cent are allocated to the grains and beef sectors in the EU15 (table 1.1). This proportion is highly variable across members; for example, it exceeds 80 per cent in France, where 50 per cent of coupled support is allocated to grains.

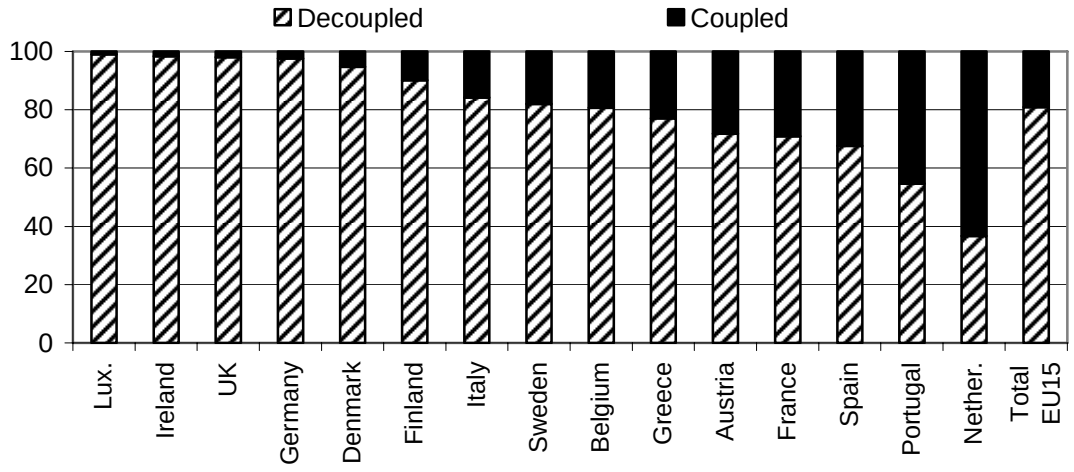
To the extent that direct payments have been decoupled, the effects of support from direct payments on the allocation of resources within agriculture have been reduced. However, decoupled payments still retain resources in agriculture by increasing returns to these resources when they are employed in this sector.[12]

The degree of any aggregate supply response depends on the mobility of factors of production. Where they are very mobile, there is a stronger resource reallocation away from other industries into farming. Where an input is either less mobile or in fixed supply, such as agricultural land, any potential aggregate supply response will be dampened, depending on the degree of substitutability of this input with other inputs – as is the case for land and fertilisers (Frandsen, Gersfelt, and Jensen, 2002).

It is sufficient for payments to be contingent on the recipient being involved in farming for the measure to have some effect on production patterns (OECD 2005). Whether there is an effect or not depends on whether the conditions are binding — if they are not, production decisions will not be affected by the SPS and if they are, the farmer will take action that would otherwise not be taken.

Figure 1.6 **Shares of coupled and decoupled payment**

Per cent, 2006-07



Data source: European Commission, 2008d

12 The effects of decoupling payments are difficult to ascertain. The OECD has a large body of analysis on the issue (see, for example, OECD 2001, 2005a and 2005b).

Table 1.1 **Allocation of coupled payments across commodities and programs[a]**

Per cent, 2006-07

	Aus	*Bel*	*Den*	*Fin*	*Fra*	*Ger*	*Grc*	*Ire*	*Ita*	*Lux*	*Net*	*Por*	*Spa*	*Swe*	*UK*	***EU15***
Cereals, oil seeds and protein	1.2	0.9	1.6	3.4	50.3	9.6	3.7	16.9	9.4	16.7	0.4	0.2	29.5	1.7	26.8	**27.3**
Beef	47.2	98.9	73.9	51.2	38.1	0.9	..	70.8	4.6	33.3	19.8	37.4	21.8	29.5	2.8	**27.2**
Sheep and goat			1.6	1.6	3.4		0.1	5.8	0.2			11.0	14.8		0.4	**5.3**
Dairy	50.0	..	..	..	..	..	4.2	0.6	0.1	0.0	75.5	25.6	..	62.3	..	**10.1**
Potato	1.4		19.5	7.8	0.7	43.1					4.2			2.6		**1.4**
Rice					0.4		2.2		17.1			4.4	3.2			**2.8**
Olive groves					0.0		2.3		-0.1			0.2	7.2			**1.9**
Tobacco					1.9	24.4	4.8		31.9			2.8	4.3			**5.4**
Hops	..				0.0	2.8										**..**
Nuts	..				0.1	0.1	0.9		2.7		..	1.7	4.2		..	**1.4**
Energy crops	0.3	0.2	3.4	1.4	0.7	19.1		5.8	0.0	50.0	0.0	0.0	0.6	1.6	14.8	**0.9**
Silkworms							0.1						..			**..**
Dried grapes							22.2					0.0	0.1			**1.8**
Bananas					3.3		0.1					1.0	2.9			**2.0**
Sugar beet and cane									3.1							**0.3**
Cotton							38.4						4.0			**4.1**
Country specific payments				34.6			18.7		31.1			3.8	6.6	2.3	55.2	**6.7**
POSEI [b]					1.1		2.7		0.0			11.8	0.9			**1.3**
Other					..		..						..			**..**
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	**100**

a Blank cells indicate no coupled payments **b** The POSEI measures target agriculture in the EU's remote regions, taking into account geographical and economic disadvantages. .. less than 0.05 per cent.

Source: European Commission 2008d

Box 1.3 **Economic effects of cross-compliance measures**

The 2003 reforms introduced the concept of cross-compliance. It makes direct payments conditional on farmers achieving certain environmental and animal welfare standards in production. These requirements aim to address social and environmental objectives, while providing income support to farmers. Importantly, cross-compliance requirements are already enshrined in existing legislation. Cross-compliance therefore aims to increase the effectiveness of enforcement of established laws (Van Tongeren 2008).

Regulations tend to increase unit costs for farmers. This shifts up the supply curve for farmers and, as a result, can increase prices and lower output.

They can also change production patterns, or induce change in production methods and commodity yields. The extent of these effects will depend on the nature of the requirement, the cost of compliance and the cost structure of production across commodities and regions — for example, animal welfare requirements will affect the livestock industry but less crop farmers, while limiting the use of pesticides will affect crop farmers more the livestock industry.

The impact of some regulations on the agricultural sector can also depend on the willingness of consumers to pay for the cost of meeting, for example, enhanced environmental and animal welfare standards.

Accurately measuring the cost of cross-compliance measures is difficult. In addition, where farmers implement cross-compliance practices, there may be significant positive externality benefits ensuing from that compliance, which are an important consideration in evaluating the net welfare impact of the measures, but which are inherently difficult to measure.

The overall effect of decoupling on both agricultural output and its composition must be determined empirically. Effects within an agricultural sector tend to be strongest in countries that maintain a high degree of coupled payments, such as France and Spain. An aggregate supply response is also likely, as resources shift into agriculture, away from industries where the marginal product of those resources may be higher.

Access to European markets

The European Union protects the agricultural sector with various import duties – ad valorem and specific tariffs, and tariff rate quotas. When measured in tariff equivalents, the border protection of agriculture and food processing is higher than that for manufacturing (table 1.2). In general, agricultural and food processing goods with the largest domestic presence in the European Union receive the highest rates of protection. For example, cereals have an average protection rate of 55 per cent, while those agricultural goods generally not produced in the European Union are subject to lower rates (see appendix table 1.16).

Table 1.2 **European Union applied MFN tariff rates[a]**
Per cent, 2006

Description	*Average tariff*	*Range*
Agriculture and hunting	12.4	0-167
Manufacture of food, beverage, tobacco	20.1	0-428
Manufacturing (excluding food processing)	3.8	0-51

a Trade weighted averages; they are smaller than simple averages.

Source: WTO European Trade Policy Review 2006

The EU grants preferential access to imports of agriculture and food from some areas. For example, average protection on imports from least developed countries is often between one and two per cent (largely as a consequence to the under the Everything But Arms agreement). There has also been some liberalisation through preferential trade agreements. Differences in rates of border protection can add to the costs of protection by distorting production patterns.

Of the import duties imposed on agricultural and food processing goods, a little over half are ad-valorem tariff rates. Another 30 per cent are specific tariffs. In addition, in 2006 the EU had 91 tariff quotas on agricultural products that were managed by the Commission through a licensing system (WTO 2007).

2 The effects of the CAP on the French economy

The French agricultural and food processing sector is one of the largest in the EU, representing about 5 per cent of the economy. All three aspects of the CAP modelled (direct payments, export subsidies and border protection) are at work in supporting various parts of French agriculture. At 8 billion euros, direct payments represent 15 per cent of the value of French agricultural output. About 30 per cent (a relatively high proportion) of these direct payments are estimated to be coupled.

The effects of the CAP in 2007 on the French economy are analysed in terms of the contribution of the three different parts modelled – direct payments, export subsidies and border protection – and the overall effects of the CAP. The effects of export subsidies are small and only identified separately where noticeable.

Broad sectoral results

The CAP reallocates resources across the French economy, increasing the size of the parts of the rural sector that are supported at the expense of sectors that are not supported, whether in the agricultural sector or in the broader economy.

Sectoral results are summarised in table 1.3. The combination of the elements of the CAP modelled increases returns to factors in the French crops and livestock sectors, contributing to a 7 per cent (€ 2.2billion) increase in the size of agricultural value added.[13] Similar effects are at work in increasing the size of French food processing by nearly 5 per cent (€ 3 billion).

Table 1.3 **Sectoral effects of the CAP, France**

Per cent

Element of the CAP	*Crops*	*Live-stock*	*Forest fish*	*Food proces*	*Manuf*	*Serv*	*Total*[a]
Direct payments	2.5	2.7	-1.1	0.6	-0.4	..	-0.1
Border protection	4.5	4.2	-0.5	3.9	-1.1	-0.1	-0.1
Total CAP	7.0	7.0	-1.6	4.9	-1.5	-0.1	-0.1

a Total represents the change in GDP calculated from the production side, that is, the weighted sum of the changes in sectoral value added, net of any changes in indirect taxes. .. less than 0.05 per cent

Source: Simulation results

Direct payments

Direct payments are made to large parts of the crops and livestock sectors. They reduce the cost of acquiring the output from these sectors, without decreasing the price received by producers, but thus increasing demand for these products. The corresponding sectors respond by increasing their output to meet the additional demand.

Relative to the EU15 as a whole, direct payments make a greater contribution to the size of agriculture in France: whereas direct payments accounted for less than 25 per cent of the total effect of the CAP in the EU15 (see section 3 below), it accounts for nearly 40 per cent of the effect on French agriculture. Because of this, the response of the agricultural sector is stronger in France (an increase in excess of 2.5 per cent, table 1.3) than on average in the EU15 (2-2.5 per cent, table 1.7)

The decrease in the cost of agricultural products reduces the costs of some of the main inputs into French food processing. This cost reduction allows French food processing to increase its activity by 0.6 per cent, or € 359 million.

[13] In this paper, the size or the activity of a sector is measured in terms of its value added or the values of its output or receipts. Given the structure of the model (output grows in the same proportion as value added), the results expressed in percentage changes are the same, but they are not when expressed in euros. The amounts expressed in euros apply to changes in value added.

Border protection

EU border protection increases the prices that protected French agricultural producers and food processors can charge, maintaining production in marginal conditions for some commodities. These sectors increase their output by about 4 per cent in response to border protection.

This effect is smaller for France than it is for the EU as a whole, because average border protection is somewhat lower for products that are produced in France relative to those produced in other members of the EU (table 1.4).

Table 1.4 **Estimated average border protection, selected agricultural and food product aggregates, France and EU**[a]

Per cent

	France	*EU*
Paddy rice	64.13	56.50
Wheat	4.33	18.03
Cereal grains nec	4.79	25.60
Vegetables, fruit, nuts	6.03	15.84
Oil seeds	0.00	0.07
Sugar cane, sugar beet	0.00	0.71
Plant-based fibers	0.00	0.00
Crops nec	4.17	7.59
Bovine cattle, sheep and goats, horses	1.29	0.51
Animal products nec	1.29	2.53
Bovine cattle, sheep and goat meat products	32.23	63.74
Meat products	24.38	27.62
Vegetable oils and fats	0.65	7.63
Dairy products	46.80	37.81
Processed rice	109.20	97.94
Sugar	87.39	127.32
Food products nec	5.29	8.11
Beverages and tobacco products	9.16	9.33

a Tariff equivalents weighted by imports. Although these rates are 2004 estimates, they are assumed to apply in 2007.

Source: GTAP database

Inter-sectoral effects

The resources required by the expansion of agriculture and food processing are attracted from the other parts of the French economy. The CAP reduces the size of manufacturing by 1.5 per cent and the large services sector contributes 0.1 per cent of its labour and capital to the sectors that benefit from the CAP. This represents a decrease in activity in these sectors in the order of € 7 billion. Border protection accounts for more than two thirds of this reallocation.

In addition, the CAP reduces the size of forestry, which competes directly for agricultural land with other rural activities. In France, the CAP reduces the area devoted to forestry by about 3.6 per cent. Since direct payments are targeted to on-farm activities (unlike border protection, which also targets off-farm food processing and affects many farm activities indirectly), they are the main contributors to the decline in forestry (-2.2 per cent).

Effects on French agriculture and food processing

The sectoral results presented above, as do most in this report suffer from some aggregation bias. The commodity aggregates include individual products with very different degrees of protection.

In table 1.5, results are presented for selected disaggregated activities in the French rural sector. The first striking feature of the results is the fact that practically all parts of the agricultural and food processing sectors benefit from one part or the other of the CAP.

Table 1.5 also illustrates to some extent the unequal effects of the direct payments and of border protection across rural activities. Among the activities presented, direct payments shift land and other resources out of vegetable, fruit and nuts and out of forestry, toward other primary and food processing activities. The effects across commodity aggregates vary dramatically depending on:

- The levels of direct payments relative to the sector's value added – with the fruit and vegetable sectors showing a decline of nearly 2 per cent as they compete with activities that receive direct payments – part of this decline is appears compensated by border protection, but further investigation will show that some parts of this sector do not benefit from the border protection effect.
- The levels of border protection – with the oil seeds sector about 4 per cent smaller due to its lack of border protection as it competes for resources with activities that benefit from border protection – though part of this effect is compensated by direct payments.

But these results still suffer from some aggregation bias. For example, the border protection that affects fruits and vegetables is very uneven. For example, bananas attract a high tariff (48 per cent) when the weighted average tariff on French imports of fruit and vegetables is 6 per cent. The tariff schedule is notoriously complex, with seasonal tariffs affecting many products and separate line items in this category identifying products according to their season, making detailed analysis particularly difficult and uncertain. Still, some detail can inform the degree of inequity that appears to affect different parts of the fruit and vegetable sector.

For example, the average tariff on imports of potatoes is very low (negligible). Potatoes account for 3 per cent of French agricultural production (11 per cent of fruit and vegetable output). Using model results for the aggregate fruit and vegetable sector and assumptions about the substitutability of imports for domestically produced potatoes, one can obtain a crude answer to the question of what is the effect of the CAP on potato production in France. Depending on assumptions about substitutability, it is likely that the potato sector in France is 8 to 17 per cent smaller than it would be if the CAP did not exist.[14]

Table 1.5 **Effects of the CAP on French sectoral outputs**

Per cent

	Direct payments	*Border protection*	*Total*[a]
Paddy rice	19.8	85.5	87.7
Wheat	7.6	8.6	15.8
Cereal grains n.e.c.	2.7	7.0	9.6
Vegetables, fruit, nuts	-1.7	4.5	3.1
Oil seeds	2.3	-4.2	-2.2
Sugar cane, sugar beet	0.9	11.9	14.8
Plant-based fibers	5.6	-0.5	5.0
Crops n.e.c.	5.3	2.5	7.5
Bovine cattle, sheep etc	4.3	10.3	14.6
Animal products n.e.c.	1.7	1.3	3.1
Raw milk	2.0	1.2	3.4
Forestry	-2.2	-1.4	-3.6
Bovine meat prods	4.4	39.9	45.3
Meat products n.e.c.	-0.8	10.4	10.3
Vegetable oils and fats	-2.5	2.3	0.2
Dairy products	0.0	6.5	7.7
Processed rice	-0.4	70.6	70.8
Sugar	1.1	39.7	47.7
Food products n.e.c.	0.7	1.0	1.9
Beverages and tobacco	0.1	0.3	0.4

a Total includes the combined effects of direct payments, border protection and export subsidies, only two of which are shown here, because the effects of export subsidies are small. Adding up the three components does not produce the total because of linearisation error.

Source: Simulation results

14 Assuming an elasticity of substitution of 2.5 to 3.5. This is probably very conservative. One might argue that imports and domestic potatoes are highly substitutable, which would be represented by higher elasticities. This could mean that potato farming is an order of magnitude smaller than it would be because of the CAP. A detailed model of the sector would be required to ascertain this order of magnitude.

Aggregate effects

As returns to labour, capital and land are changed by the CAP, these resources are reallocated across the French economy. This creates allocative efficiency losses in the order of € 3.9 billion.

The loss in allocative efficiency is partly compensated by terms of trade gains in the order of €1.9 billion. This gain in income is largely attributable to an improvement in the French terms of trade that is associated with the EU agricultural import duties: the duties reduce the world prices of French (agricultural) imports and increase the world prices of French (manufactured) exports.

Table 1.6 **Effects of the CAP on economic welfare and activity, France**

Contributions of the CAP to economic aggregates, 2007

Element of the CAP	*Gross Domestic Absorption*		*Gross Domestic Product*	
	Per cent	€ million	Per cent	€ million
Direct payments	-0.02	-350	-0.050	-933
Border protection	-0.10	-1891	-0.163	-3048
Total[a]	-0.10	-1965	-0.208	-3899

[a] Total includes the combined effects of direct payments, border protection and export subsidies, only two of which are shown here, because the effects of export subsidies are small. Adding up the three components does not produce the total because of linearisation error.

Source: Simulation results.

3. Global effects of the CAP

The combination of direct payments, export subsidies and import duties increases the size of agriculture in the EU and decreases its size in the rest of the world. This is associated with reallocations of activity and income transfers globally. This section provides a quantitative analysis of the many effects of the CAP through a discussion of model results.

The CAP reallocates resources across sectors within the EU and outside. Although the CAP is an integrated system, the effects of various parts of the CAP can be very different, and the whole, complex to interpret. For this reason, results in several tables in this section are split into 3 parts: the aggregate effect of the CAP (panel c), the contributions of direct payments (panel a) and of border protection (panel b).[15]

15 This analytical separation of the different parts of the CAP does not mean that the parts can be dissociated in a policy sense. The different components are part of an integrated policy, which cannot exist without all three components – though occasionally, world market conditions mean that some parts of the policy can be suspended, such as the tariffs on grains in 2008. The three different panels come from 3 different simulations: S1 (direct payments), S2 (tariffs), S4 (total CAP). The effects of export subsidies (S3) are not reported separately in most tables because they are small. The sum of the partial simulations S1+S2+S3 does not exactly add up to the total effect

Sectoral effects within the EU

The CAP increases agricultural value-added and receipts by about 8 per cent in the EU15, somewhat less in the NMS. It also increases food processing by nearly 6 per cent in the EU as a whole (table 1.3, panel c). The resources required for this come from the parts of the economy that are not supported by the CAP: manufacturing is therefore smaller (-1.1 to -1.3 per cent); so are services. But resources also come from forestry, which competes for agricultural land with the activities that benefit directly from the CAP, and is 3.4 per cent smaller in the EU15 than if the CAP did not exist (table 1.8).

As illustrated in section 2, with the French potato sector, it is likely that other parts of the EU agricultural sector, which do not benefit from direct payments or price supports (and border protection) are likely to be constrained by the CAP. The first way in which they are constrained is through the constraint on arable land, which is over allocated to activities that are supported by the CAP. Other ways include an increase in the cost of inputs. As was also mentioned in section 2, these effects are difficult to bring out and require a more detailed model than was used in this study.

Border protection and direct payments contribute in different ways to these results.

Table 1.7 **Effects of the CAP on sectoral outputs within the EU**

Per cent

Sector / CAP component and Region	*Crops*	*Live-stock*	*Forest fish*	*Food proces*	*Manuf*	*Serv*	*Total*[a]
a. Direct payments							
NMS12	-0.49	-1.98	0.95	-0.29	0.26	0.01	0.03
EU15	1.92	2.52	-0.95	0.76	-0.29	-0.05	-0.05
b. Agricultural tariffs							
NMS12	2.48	2.41	-0.77	5.56	-1.29	-0.20	0.04
EU15	6.23	4.93	-0.77	4.92	-1.02	-0.10	-0.03
c. Total CAP							
NMS12	1.97	0.64	0.09	5.61	-1.12	-0.19	0.07
EU15	8.09	7.64	-1.65	6.02	-1.35	-0.15	-0.07

[a] Total represents the change in GDP calculated from the production side, that is the weighted sum of the changes in sectoral value added, net of changes in indirect taxes.

Source: Simulation results

(S4) because of linearization error. However, the decomposition provides a good indication of the contribution of each element of the CAP to the total effect.

Border protection

The initial effect of border protection is to increase the cost of imports and expand the industries that benefit from this protection. This expansion occurs at the expense of other sectors in the economy, including any rural activities that do not benefit from the protection.

The main contributor to increasing agriculture and food processing value added in the EU is border protection. It has different effects on the agricultural sectors of the NMS and of the EU15 because of the different structures of production and of imports in both parts of the EU: protection rates are weighted toward protecting commodities that are produced more intensively in the EU15.[16] Border protection accounts for more than 50 per cent of the effects of the CAP in the EU15, and is also the main contributor to maintaining a large agricultural sector in the NMS.

Border protection contributes to increasing the size of cropping, livestock and food processing activities in the order of 2.5 to 6 per cent across the EU (table 1.3, panel b). In the EU as a whole, manufacturing contributes about 1 per cent of its resources to this increase and services about 0.1 per cent. In 2007, this represented a net transfer of value added to agriculture and food production in the order € 36.3 billion.

Direct payments

Direct payments create a wedge between production costs and the price paid by users of the supported commodities. The initial effects of this wedge are to decrease the price paid by consumers without reducing the price received by farmers, and to increase the size of the sectors that benefit from this form of support in the EU15.

Since direct payments are modelled as being applied only in the EU15, agricultural sectors only expand in the EU15, by around 2 per cent.[17] Food processors in the EU15 are the main users of some of the products whose costs are reduced by direct payments; this reduction in the cost of some of its inputs contributes to an expansion of food processing in the EU15 and a reduction in its world price.

Sectors that do not benefit from this form of support are smaller than they would be otherwise. This is the case of all non-supported activities, including resource-based activities, manufacturing and services in the EU15, as they supply the resources

16 Whether this is because protection was developed in this way or whether protection has influenced the structure of agriculture is not explained by the model. However, the model results which show that resources flow toward protected activities are consistent with the latter hypothesis that over time, border protection has grossly distorted the agricultural sector in the EU15.

17 To the extent that this is a simplification and that some direct payments are made in the NMS, these results may be somewhat overstated. However, although some direct payments are made in the NMS (see figure 1.5) their rate is much lower (less than half) than in most of the EU15 members.

required by the expansion of agriculture and food processing. In 2007, the resources transferred to the agricultural and food processing sectors in the EU15 represented some € 6.4 billion.

The cropping and livestock sectors in the NMS are smaller than otherwise because the expansion of EU15 agricultural output reduces the price of agricultural products in world markets; agriculture in the NMS responds by contracting. A relative shortage of local produce and a reduction in the world price of processed foods lead to a contraction of this sector. These contractions free up resources in the NMS, which in turn leads to the expansion of the other sectors in the NMS economy.

Effects on fruit and vegetables and forestry

Two rural sectors do not benefit from direct payments in the model: they are fruit and vegetable activities and forestry. However, as part of the CAP, fruit and vegetables benefit from some border protection. Both sectors compete for land with other agricultural activities.

Disaggregated results (table 1.5) show that border protection increases the size of the EU fruit and vegetable sector by about 5 per cent. Direct payments, which are only available to agriculture in the EU15 reduces the size of the EU15 fruit and vegetables sector by more than 1 per cent and increases the size of the corresponding sector in the NMS by 0.5 per cent (€ 47.7 million).

The CAP contributes to reducing the size of the forestry sector in the EU by more than 3 per cent, or € 641.6 million..

Table 1.8 **Effects of the CAP on EU rural sectors that do not benefit from direct payments**

Per cent

	Fruit vegetable	Forestry
a. Direct payments		
NMS12	0.49	1.12
EU15	-1.21	-1.70
b. Border protection		
NMS12	4.64	-0.96
EU15	6.66	-1.72
c. Total CAP		
NMS12	4.95	0.04
EU15	5.62	-3.35

Source: Simulation results.

Sectoral effects outside the EU

The effects of the CAP outside the EU are summarised in table 1.9. Some of these effects can be dramatic, with border protection reducing the size of herds in South America by about 12 per cent, and in Australia by about 3.5 per cent. The relatively high border protection and reduced market access affecting some processed foods results in decreases in the size of processed food in some regions by 4-5 per cent (table 1.5, panel b).

As direct payments contribute to reducing the world price of several commodities, the reaction of most cropping and livestock sectors is to reduce their activity. The largest such effect is on cropping and livestock activity in Australia and New Zealand (-0.6 per cent, or € 138 million, table 1.9, panel a).

Overall, the impact of the CAP outside the EU is to reallocate some sizable amount of resources away from agriculture and food processing, toward other parts of these economies. This reallocation of resources amounts to some € 38.5 million.

The effects of border protection and export subsidies are investigated further in the remainder of this section.

Table 1.9 **Effects of the CAP on sectoral outputs outside the EU**

Per cent

CAP component /Region	*Crops*	*Live-stock*	*Forest fish*	*Food proces*	*Manuf*	*Serv*	*Total*[a]
a. Direct payments							
Australia-NZ	-0.31	-1.07	0.21	-0.47	0.22	-0.01	..
East Asia	-0.11	-0.06	..	-0.11	0.04	..	0.01
Rest of Asia	-0.15	-0.46	0.05	-0.07	0.08	0.01	0.01
North America	-0.50	-0.34	0.14	-0.07	0.07	-0.01	0.01
Latin America	-0.73	-0.44	0.09	-0.15	0.19	0.01	0.03
Africa	-0.63	-0.48	0.25	-0.30	0.20	0.04	0.02
Rest of Europe	-0.33	-0.35	0.29	-0.41	0.10	0.01	..
b. Agricultural tariffs							
Australia-NZ	-0.19	-3.61	0.77	-3.53	0.97	0.01	-0.02
East Asia	-0.83	-0.27	-0.07	-0.92	0.16	0.02	0.02
Rest of Asia	-0.08	-0.50	-0.06	-4.45	1.15	0.14	0.19
North America	-1.73	-1.03	0.29	-0.88	0.19	0.01	..
Latin America	-2.25	-11.88	0.53	-4.14	2.39	0.06	0.27
Africa	-0.18	-2.14	-0.05	-5.21	0.74	-0.03	-0.19
Rest of Europe	-1.49	-1.46	0.38	-4.98	0.84	0.06	-0.03
c. Total CAP							
Australia-NZ	-0.49	-4.89	1.01	-4.30	1.28	0.01	-0.02
East Asia	-0.96	-0.39	-0.07	-1.10	0.20	0.02	0.02
Rest of Asia	-0.23	-1.07	-0.02	-5.01	1.32	0.15	0.21
North America	-2.30	-1.50	0.45	-1.07	0.28	..	0.01
Latin America	-2.78	-12.70	0.60	-4.51	2.64	0.06	0.30
Africa	-0.81	-2.93	0.18	-6.13	1.02	0.02	-0.19
Rest of Europe	-1.95	-1.94	0.68	-5.90	1.00	0.08	-0.04

[a] Total represents the change in GDP calculated from the production side, that is the weighted sum of the changes in sectoral value added, net of any changes in indirect taxes.

Source: Simulation results

Border protection

The average level of barriers faced by different exporters is summarised in table 1.10. Although the EU applies a unique tariff rate at the tariff line level, average barriers for broader commodity groups are affected by their composition. This gives rise to differences in the average tariff rates faced by different exporters to the EU. Given the pattern of its exports to the EU, Latin America faces the highest average barriers for the crop, livestock and food product types that it exports to the EU. Thus border protection from the EU results in the largest reallocation of resources in Latin America: the outputs of the crops, livestock and food processing sectors are reduced, and output of the manufacturing and services sectors increased by € 17.7 billion.

Table 1.10 **Average tariff rates on imports of agricultural and food products into the EU**[a]

Per cent

Exporting regions	*Crops*	*Livestock*	*Food process*	*Average*
Australia-NZ	4.36	0.37	16.62	11.89
East Asia	16.52	0.64	17.02	15.94
Rest of Asia	4.73	0.93	19.38	10.86
North America	9.55	1.82	16.17	11.93
Latin America	19.43	8.32	23.96	21.37
Africa	2.10	0.05	19.86	9.34
Rest of Europe	6.00	0.42	13.31	10.69
Total	10.94	1.75	18.76	14.62

a Trade weighted.

Source: Calculated from GTAP 7 database

The high tariffs in the food processing sector (well in excess of 10 per cent on average) leads to decreases in output in these sectors in the order of 5 per cent in many regions. The overall decrease in activity in this sector outside the EU is in the order of € 18 billion. The effects of tariff escalation are well illustrated with the results in Australia and New Zealand: although the border protection faced by livestock exporters is low relative to that faced by meat and dairy products, the high protection afforded these sectors have a flow-on impact upstream, reducing by more than 3.5 per cent the output of both the food processing and the livestock sectors in Australia and New Zealand.

Export subsidies

The EU subsidises exports of processed foods and, to a lesser extent, some agricultural products.[18] These subsidies are the difference between the world price at which a product is sold and the support price. The subsidy rates assumed in the modelling are listed in table 1.11. These subsidies apply to all EU exports of these products. Dairy products and sugar benefit from the highest rates: 5.64 and 25.97 per cent of the value of exports, respectively.

18 A possible alternative to export subsidies is to store surplus production. Storage is often thought to be a more expensive alternative than selling a product on the world market, and gives rise to explicit budgetary costs. Although some storage occurs, the cost of this option is not modeled, because of the lack of information.

Table 1.11 **EU export subsidy rates by commodity**

Per cent

Commodity	*Subsidy rate*
Cereal grains nec	2.11
Vegetables, fruit, nuts	0.13
Bovine meat products	2.30
Meat products nec	0.65
Dairy products	5.64
Processed rice	3.64
Sugar	25.97
Food products nec	0.52
Beverages and tobacco products	0.03

Source: Calculated from the GTAP 7 database

Export subsidies benefit importers of EU products by lowering the cost of purchasing them and expanding the EU's market. The effects of export subsidies on the EU's trading partners are a function of the amount of subsidy that they receive (table 1.12). Export subsidies total € 709 million, the direct cost to EU taxpayers. A large share of subsidies benefit consumers in regions that import large amounts of agricultural and food products from the EU: rest of Asia, Africa, rest of America and rest of Europe. The North American and Australia-NZ regions import much less EU agricultural and food products and consumers in these regions benefit little from the subsidy.

Table 1.12 **Export subsidies by destination region**

US$ million, per cent of value of exports

Importing region	*Crops*		*Food processing*	
	Value	Rate	Value	Rate
Australia-NZ	0.03	0.04	10.64	0.74
East Asia	0.97	0.13	123.93	1.10
Rest of Asia	1.92	0.23	237.79	3.61
North America	1.68	0.15	99.02	0.66
Latin America	0.32	0.10	53.03	1.56
Africa	1.15	0.06	186.26	2.68
Rest of Europe	6.74	0.17	246.65	1.68
Total	12.81	0.15	957.32	1.60

Source: Simulation results

With export subsidies reducing the cost to importers of procuring EU exports of agricultural and food products, the demand for EU exports of these goods expands, substituting for imports from other regions and for domestic production.[19] This

[19] Export subsidies are contingent on the level of price support and on world prices; they bridge the gap between the two. For a given price support, the export subsidy increases as the world price decreases, for example, in response to an unexpected increase in production outside the EU. As it increases, the export subsidy depresses world prices further, as the EU production arrives on the

accounts for the decline in agricultural and food production in non-EU regions and the corresponding rise in the outputs of other industries as resources are shifted away from agriculture and food processing and reemployed in manufacturing and services (table 1.13). Livestock activities in Australia and New Zealand are particularly exposed to reduction in world prices in bovine meat and dairy products. The relatively small effects observed for the African crops sector is related to the high prices that prevailed during the period and therefore the relatively low subsidies modelled. This effect could be larger when world prices are low.

Table 1.13 **Effects of export subsidies on world outputs**

Per cent

Importing regions	*Crops*	*Live-stock*	*Forest fish*	*Food process*	*Manuf*	*Serv*	*Total*
Australia-NZ	0.05	-0.60	0.15	-0.48	0.12	..	-0.01
East Asia	-0.01	-0.04	-0.01	-0.06	..	..	..
Rest of Asia	-0.01	-0.11	..	-0.24	0.02	0.01	-0.01
North America	-0.03	-0.13	0.01	-0.09	0.01	..	..
Latin America	-0.04	-0.16	0.01	-0.18	0.04	..	..
Africa	-0.02	-0.14	0.02	-0.35	0.05	0.01	-0.01
Rest of Europe	-0.09	-0.12	0.03	-0.43	0.05	0.01	-0.01

.. less than 0.005 per cent

Source: Simulation results

Aggregate effects of the CAP

The aggregate effects of the CAP are analysed in terms of their effects on economic activity (changes in real GDP[20]) and on economic welfare (changes in real GDA[21]). Since resources are held fixed in each country, changes in GDP are interpreted as changes in allocative efficiency. Changes in welfare are composed of changes in allocative efficiency and gains or losses due to changes in the terms of trade.

The allocative efficiency cost of the CAP to the EU exceeds €38 billion (table 1.14). This figure does not account for any of the costs of managing the diverse elements of the CAP, that is, the costs of managing the tariff, the quota systems, or the direct payments. Such administrative costs would have to be added to the costs of the CAP. In addition to these financial costs, there are additional allocative costs that are due to

already oversupplied world market. The effect shown here is only that of the export subsidy, isolated from that of any initial, unrelated decrease in world agricultural prices.

20 The measure of GDP used in this section is calculated at purchaser prices and therefore includes any changes in indirect taxes (including tariffs), whether exogenous or endogenous. This accounts for differences between changes in GDP reported in this section and the 'Total' columns, in the previous section, which exclude any effects of changes in indirect taxes.

21 As noted earlier, this measure of economic welfare cannot account for many of the externalities that the CAP might be able to produce.

the employment of resources in managing the CAP, when these resources could be used in other parts of the economy. These costs to the EU also constitute costs to the world as a whole, as a reallocation of resources would increase world GDP.

Table 1.14 also shows that in most regions outside the EU, the CAP increases GDP. This outcome is due to the CAP increasing the opportunities to export non-agricultural products to the EU to replace the output decline of EU sectors that gave up resources to the agricultural sector.

Border protection is mainly responsible for changing the terms of trade in favour of the EU. A standard result of an economy restricting its imports is that it reduces the world price of its imports and increases the world price of its exports. These effects are present in the model and the CAP produces for the EU a transfer from the rest of the world in the order of €17 billion. This transfer contributes to mitigating the large efficiency costs of the CAP to the EU economies.

Table 1.14 **Effects of the CAP on economic welfare and economic activity**

Per cent, € million in 2007 prices

Region	*Gross Domestic Absorption*		*Gross Domestic Product*	
	Per cent	Value	Per cent	Value
Australia-NZ	-0.19	-1352	..	28
East Asia	0.03	1803	0.01	651
Rest of Asia	-0.10	-1865	0.03	664
North America	-0.03	-3574	0.01	945
Latin America	-0.26	-6380	0.06	1429
Africa	-0.05	-410	0.01	115
Rest of Europe	-0.06	-1327	0.09	2042
NMS12	-0.32	-2882	-0.44	-3739
EU15	-0.16	-18666	-0.30	-34395
World	-0.08	-33037	-0.08	-33037

Source: Simulation results.

Conclusions and implications

This paper set out to estimate the contributions and costs of the CAP to the French, EU and global economies. This assessment was conducted using recent (2007) data on the CAP in a general equilibrium framework, in order to capture economy-wide effects.

Not all the CAP could be modelled; for example, there is not enough information to model the effects of Pillar II payments. By contrast, the effects of Pillar I were modelled. Pillar I accounted in 2007 for the bulk of EU budgetary expenditure on the CAP, and consisted mainly of direct payments was included, as well as the main policies that are used in support of price support programs (border protection and

export subsidies implied by differences between world prices and support prices – which were small in 2007).

The main results from this study call for the following remarks:

- Given the structure of assistance and the structure of the farm and food sectors in the various parts of the EU, assistance is strongest for farm and food activities in the EU15, to the detriment of agriculture in the NMS. However, the phasing-in of direct payments in the NMS is likely to change this and to help maintain a large, and in some parts inefficient, farm and food sector in parts of the NMS.
- Despite some 'decoupling', CAP assistance still biases production toward products and activities that benefit from strong assistance, either through direct payments or through border protection, to the detriment of other parts of the economy, including manufacturing and services, but also forestry and some fruit and vegetable crops which compete for land and do not benefit from assistance.
- The allocative efficiency cost within the EU of the CAP as modelled was in the order of € 38 billion in 2007. This was compensated in part by strong terms of trade gains to the EU, in which the policies increased the price of exports and decreased the price of imports, and contributed some € 17 billion to the EU at the expense of other economies.
- The French economy incurred the same types of allocative efficiency costs and terms of trade gains. The allocative costs incurred by the French economy exceeded € 3.5 billion. This was partly compensated by term of trade gains of € 1.9 billion.
- Some parts of the farm sector are hurt by direct payments that are allocated to other parts of the sector. For example, parts of the fruit and vegetable sector in the EU is hurt by direct payments. Border protection seems to compensate some of these effects, however, detailed analysis indicates that a significant part of farm land is likely to be diverted away from potato production. More detailed analyses of the structure of border protection is likely to show other examples of this type of effects of the CAP.

Globally, the CAP has relatively small effects on some agricultural sectors across the world. For example, Australian and South American beef production is smaller than it would be without the CAP, and so is the production of cereals in parts of Africa. On the other hand, as resources in the EU are diverted away from manufacturing, Asian manufacturing experts increase as they substitute for EU production.

This study has illustrated some of the net costs of the CAP, which accounts for more than 40 per cent of the EU budget. The study illustrates that the net losses measured could be avoided by avoiding the reallocation of resources toward parts of the agricultural sector. In addition, to net costs, the CAP involves a significant reallocation of income and resources across the EU and French economies.

Appendix – method

Modelling and estimating the effects of the CAP

This study uses the GTAP model to estimate the likely effects of the CAP on the French economy and globally (box 1.4). The effects of the CAP are analysed in terms of: (i) their effects on the French agricultural sector; (ii) their effects on other sectors of the French economy; (iii) their net effects on the economic wellbeing of the French population; (iv) their effects on the global economy. The strategy applied in modelling the CAP is summarised in box 1.5.

Box 1.4 The GTAP model and database

Given the interest in this study for the inter-sectoral effects and net aggregate effects of the CAP, we use a general equilibrium model of the economy. This paper uses the latest version of the GTAP model and database to model the effects of the CAP on the French economy. The model describes economic behaviour in all markets in the real economy:

- the producer sector, composed of farmers, food processors -- who are primarily affected by the CAP as producers and users of inputs -- as well as that of producers of other goods and services
- the household sector, which consumes agricultural and food products and all other goods and services, invests and saves, and supplies labour, capital and land to the rest of the economy.
- the government sector, which collects taxes and provides government services and income transfers

As a model of the real economy, the GTAP model excludes financial markets and any possible effects of monetary policy: the model provides projections of changes in relative prices.

In the implementation of the GTAP model used for this study, resources are assumed not to move across regional borders. In the model, regions can include national economies (eg the US, Australia, New Zealand and each EU member state) or regions (eg Rest of Europe). Therefore resources are 'almost confined' to national borders. This captures relatively short term adjustments (within, say, 5 years or less) including the reallocation of resources within the economies modelled.

The model is supported by a data structure which can be thought of as a set of input-output tables linked by world trade; the base year of the data is 2004. A set of parameters regulate the behaviour of the various parts of the model, that is the reactions to modelled changes in policies.

Model version 6.2 was used; it is documented in Hertel et al 1997, and is available at https://www.gtap.agecon.purdue.edu/models/current.asp. The database (GTAP version 7) is documented in Narayanan and Walmsley 2008.

The initial effect of the different parts of CAP support is to change the relative prices of supported products, reduce the cost of using inputs in the supported activities and increase the returns to factors employed in the supported activities. Production is reallocated across the world and resources are reallocated within the world's economies in response to these changes in relative returns. A measure of this reallocation is the change in sectoral outputs.

Since resources are assumed to be in fixed supply in each country, changes in real gross domestic product (GDP) can be used as a measure of efficiency gains or losses that are due to allocative changes. Changes in welfare are measured as changes real gross domestic absorption (GDA). The difference between changes in GDP and in GDA are accounted for by the effects of changes in the terms of trade, that is, changes in the price of a country's exports relative to the price of its imports.

Box 1.5 **Strategy for assessing the effects of the CAP**

The effects of the CAP are assessed by simulating its elimination. This creates a counterfactual which represents the global economy without the influence of the CAP, and against which to assess its contribution and effects on welfare, production and trade flows in the French economy and in the global economy.

The results provided in this report are interpreted as the contributions and costs that the CAP generates. Therefore, the signs on the results obtained from the simulations are reversed. Furthermore, where dollar amounts are reported, they represent 2007 projections based on 2007 values of GDP from the World Bank.

Despite the detailed analysis, one must bear in mind that quantitative modelling is limited to what can be measured and to the availability of data. As a consequence, due to the complexity of Pillar II, its complementarity with member state financing, and the lack of data on the member-country component (which affects the total amount of funding, which is likely to affect farmer behaviour), the effects of Pillar II were not modelled. Further, as Pillar I funding is being linked to cross-compliance measures which involve externalities that are difficult to evaluate (for example, adherence to environmental and animal welfare standards), it is difficult to assess the entire contribution of Pillar I to welfare in the EU, or in the world for that matter.

For ease of exposition, results are aggregated to broad regional and industry levels.

The strategy in this paper is to attempt to capture the effects of the CAP in 2007. For this reason, Pillar I data for 2007 have been used to shock the model instead of the assistance as represented in the original GTAP database which is based in 2004. In contrast to domestic support, export subsidies and import duties for 2007 are approximated by the rates found in the original GTAP database.

Finally, the implementation of the CAP and its effects are highly variable from year to year. For example, with the high food prices that prevailed in 2007, the role of price support was negligible. Conversely, with falling food prices in early 2009, the contribution of price support in 2009 would be higher than is illustrated in this paper.

Appendix tables

Table 1.15 **2008 CAP Health Check main issues and Council outcomes**

Issue	*Council outcome*
Set-aside	Abolish the requirement to leave 10% of arable lands fallow
Milk quotas	Increase quotas by 1% annually from 2009 to 2013 (milk quotas will be phased out by April 2015)
Decoupling	• Arable crops, olives and hops to be fully decoupled from 2010 • Seeds, beef and veal payments (except the suckler cow premium) to be decoupled by 2012
SPS model	Additional flexibility granted to member states distributing decoupled support under the historic model with funds to be distributed on a regional basis
SAPS	Extend the SAPS to 2013 (initially SAPS needed to be converted to the SPS by 2010-11
Cross compliance	• Simplify the requirements by withdrawing some irrelevant and redundant rules • Implement new requirements on landscape features and water management
article 68 (ex-69)	• Member states may use up to 10 per cent of their financial ceiling to grant measures to address disadvantages for farmers in certain regions specialising in dairy, beef, goat and sheep meat, and rice farming • Risk management measures broadened to include crop, animal and plant insurance and mutual funds for animal diseases and environmental incidents
Modulation	• Overall increase in modulation by 5 per cent distributed over four steps beginning in 2009, to reach 10 per cent by 2012 • Progressive modulation of 4 per cent for direct payments above 300,000 Euros
Intervention mechanisms	• Abolish intervention for pigmeat • Set at zero the intervention quantity for barley and sorghum • Introduce tendering for common wheat, butter and skim milk powder once threshold has been reached
Payment limitations	Apply either a minimum payment (100 Euros) or a minimum size of eligible area per holding (1 hectare) with the exception of Portugal, Hungary and Slovenia for which the minimum size remains at 0.3 hectares
Specific scheme	• Protein crops, rice and nuts will be decoupled by 1 January 2012 • Abolish the energy crop premium in 2010
Rural development	• Reinforce programmes in the fields of climate change, renewable energy, water management and biodiversity (funded with additional modulation) • Dairy and accompanying measures added as a new challenge

Source: European Commission 2009

Table 1.16 **Applied MFN tariffs on selected products, EU, 2006**

various commodities and classifications

Code	*Description*	*Number of lines*	*Average tariff (%)*	*Range (%)*	*Standard Deviation (%)*
HS2[a]					
9	Coffee, tea, mate and spices	42	3.1	0-12.5	4.3
10	Cereals	55	55.2	0-116.6	33.4
17	Sugar	47	27.3	0.1-163.8	32.8
24	Tobacco	30	19.7	5.2-74.9	20.8
51	Wool	70	4.0	0-8	3.1
52	Cotton	155	6.4	0-8	2.2
ISIC[a] Rev.2					
1	Agriculture, hunting, forestry & fishing	598	10.9	0-167.2	20.4
11	Agriculture and hunting	427	12.4	0-167.2	23.6
12	Forestry and logging	40	0.2	0-3.2	0.8
3	Manufacturing	9113	6.8	0-427.9	13.5
	Manufacturing (excl. food processing)	7359	3.8	0-50.9	3.8
	Manufacture of food, beverage, tobacco	1754	20.1	0-427.9	26.6
311	Food products	1419	22.1	0-427.9	27.7
3111	Meat products	301	25.3	0-427.9	38.7
3112	Dairy products	151	39.6	0-134.4	28.7
3113	Fruit and vegetable canning	392	21.1	0-300.8	25.2
3115	Manufacture of oil and fats	126	9.4	0-137.2	18.1
3118	Sugar products	11	39.2	0-84.6	36.9
3132	Manufacture of wines	108	9.1	0-105.9	16.0
314	Tobacco manufacturing	9	41.8	10-74.9	25.5

a Harmonized System (HS) of classification and International Standard Industrial Classification (ISIC).

Source: WTO 2007 European Communities Trade Policy Review, WT/TPR/S/177 February, Geneva

Table 1.17 **Partial decoupling: share of coupled payments by sector and EU member state, 2008**

Per cent

	Coupling maximum [a]	*Belgium*	*Denmark*	*Germany*	*Greece*	*Spain*	*France*	*Italy*	*Netherlands*	*Austria*	*Portugal*	*Slovenia*	*Finland*	*Sweden*
Livestock														
Sheep and goat	**50**		50			50	50				50	50	50	
Slaughter (calves)	**100**	100 [b]				100	100		100	100	100			
Beef option 1 [c]														
suckler cow premium	**100**	100				100	100			100	100			
slaughter (adults)	**40**					40	40			40	40			
Beef option 2														
slaughter (adults)	**100**								100					
special male premium	**75**		75									75	75	75
Crops														
Arable crops	**25**					25	25							
Hops	**25**			25			25			25		25		
Olive groves	**40**					6								
Seeds														
All species	**100**				100	100		100			100			
Certain species	**100**	100					100		100				100	

[a] In the French overseas departments, in the Azores and Madeira (Portugal), in the Canary (Spain), 100% of direct payments remain coupled; [b] Only North region (Flanders + Brussels); [c] Member states can choose one of the two options presented in this table for retaining coupled payments to beef; a 'suckler cow' is one belonging to a herd intended for rearing calves for meat production; the 'special male premium' is for holding male cows before either slaughter or export.

Source: European Commission, 2008c

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