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DISTRIBUTION OF AGRICULTURAL SUPPORT:

SELECTED FRENCH EVIDENCES

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ABSTRACT

This paper examines the French distribution of agricultural direct payments. It makes clear the institutional channels which aim at redistributing a past-price-policy support. Within the present European common framework, the Member States have the competency in partially retaining or altering the distribution of CAP payments. When setting up a post-2013 CAP, equity lingers a burning topic – with a growing number of actors from environmentalist to rural non-agricultural stakeholders.

Two case studies provide some evidence on the 1992-2012 French experience: a broad picture, then a specific one. They impose on themselves three sound assumptions: (i) reforming direct payment cannot be driven by equity considerations but public policy efficiency – especially when contemplating the diversity of French agriculture; (ii) distribution of support has to be considered in line with policy objectives – but remains frequently incoherent as illustrated with support to irrigating structures and quantitative water management; (iii) the partial redistribution of support which result from the 2008 CAP health check shows that France conservatism progressively declines since a re-legitimised CAP is a way to preserve direct payments.

France develops a hybrid historical model when attempting to renew with a strong first pillar mostly with targeted subsidies. It grants to first pillar a rural development dimension and magnifies related-responsibilities attributed to national authorities without bearing the co-funding principle. Hence it jeopardises the relevancy of CAP dichotomisation. This latter tends to exist only for historical and budgetary reasons and should be removed from 2013 – if considering that the rational (and related distribution) of European direct payments should shift from income to amenity support.

The mechanisms of the Common Agricultural Policy (CAP) have been significantly altered since the 1992 reform. Direct payment has been introduced as sector-based compensatory support for decreases in guaranteed prices. Supporting farm income has thus been the main objective of this instrument. By construction, it has induced partiality towards past supported commodities, and thus high yield territories. With the 2003 reform; the flexibility given to the national authorities in decoupling those subsidies has been creating further heterogeneous situations across commodities or production processes, between and within the Member States. The French option has been frozen the past distribution of support in order (i) to prevent income and wealth effects, (ii) to maintain specific type of production, and (iii) to avoid sudden land abandonment. When preparing the post-2013 CAP, the distribution of the main financial tool of the CAP has been carrying an explicit concern but is far from being a new issue.[1] By running against the public legitimacy of this policy, it jeopardizes the long-term preservation of these public payments – at least in their current composition.

The releases of nominative data on farm subsidies recipients have been shedding some light on a massive redistributive mechanism. Adopted in November 2005 by the European Commission, the European Transparency Initiative led to two waves of disclosures. In September 2008, beneficiaries of rural development measures were compulsory disclosed. In April 2009, those of market support and direct payments followed.[2]

Distribution of support has to be considered in view with policy objectives. Equity is an important factor to ensure that public support goes to holdings which need or deserve it. It is not a goal in itself but it is closely linked to the objective of the public policy implemented. On the one hand, if the objective is to support farm income, equity matters. Since decoupled payments are labelled within the European regulations with "*income support scheme for farmers*", equity is relevant as regards the Single Farm Payments (SFPs) distribution. On the other hand, if the objective is to pay for positive externality (or public goods / non-market commodities) generated by farm activities, equity matters less since the more externalities are provided, the more public support may be deserved. Breaking the linkage between the amount of support received and the market-commodity dimension which could result from present (and past) farming activity is however a prerequisite.

[1] On the farm income and support distribution issue, see Allanson and Hubbard (1999), Butault and Lerouvillois (1999), Butault, Chantreuil and Dupraz (2002), Chatellier, Colson and Daniel (2004).

[2] For a brief presentation of the legal actions for getting transparent and adequate information on farm subsidies in France, see Appendix 1.

The aim of this paper is to provide two case studies on the allocation of farm subsidies in France – main recipient of European direct payments.

First the institutional framework of direct payment redistribution is made clear. The implementation and management of decoupling provided a unique occasion to redistribute first pillar support. Given the flexibility inherent to the 2003 Luxembourg agreement, the responsibility of such decision has been let to the Member State appraisal. As a result, the distribution issue has been an upward Member State skill.

The second section of the chapter presents a broad picture of the French direct payments' distribution. In 2007, first year of partial decoupling achievement, 16.5% of French farm holdings received half of direct payments. There are several dimensions when studying the support allocation issue. The sector-based one is pointed out because it corresponds to the historical *raison d'être* of the support. In this context, French arable crop producers have been the main financial recipients of the direct payment mechanism – by being a crucial livestock production input, cattle breeder indirectly have also benefited from crop support. To illustrate how excessive can be the concentration of support, a focus on rice and banana support scheme is presented. Then, the 2008 CAP health check potential redistributive is enlightened along with the French options as regards new provisions implemented from 2010. The assumption of a French hybrid historical decoupling model and the premises of a strategy for the CAP beyond 2013 conclude the section.

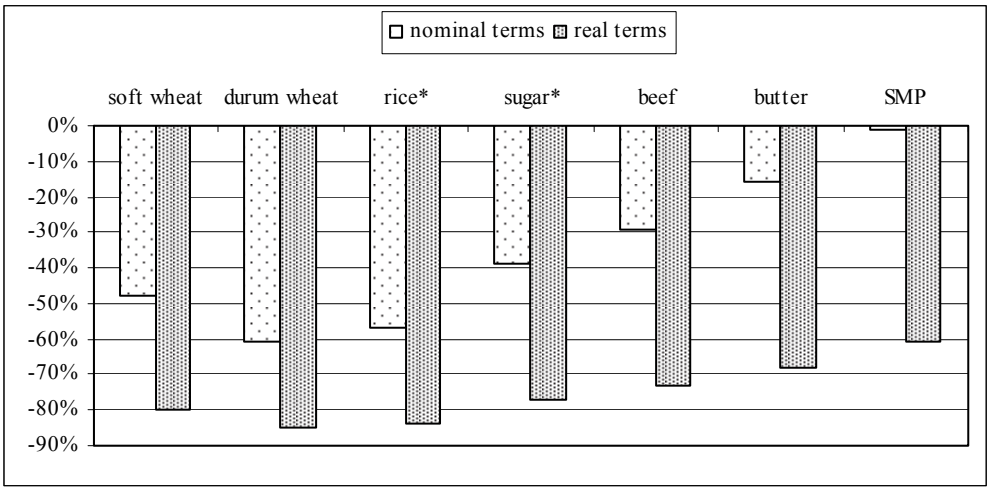
The third section put forward a detailed case study on direct payment veil as regards irrigation support. It quantifies the coupled and decoupled financial support provided to irrigating structures. Subsidies always have perverse effects – even for their beneficiaries – as best illustrated by the recurrent drought raging in localized part of France. We build a water restriction index based on original data in order to illustrate how the discrimination between dry and irrigated arable productions hurts territories suffering from drought. In 2005 – the last year before implementation of French decoupling – estimated irrigation grants amounted to more than 134 million euros. This support has been integrated within the French historical decoupling scheme – and thus been made permanent.

Then, the paper concludes with some reflections on the renewed political economy of direct payment distribution and rationale.

1. DIRECT PAYMENT DISTRIBUTION: AN INSTITUTIONAL APPROACH

In order to adapt an almost exclusive past price support to a more market-oriented and budgetary-monitored agricultural policy, the 1992 reform started to shift the main mechanism from guaranteed price to direct "compensatory" payment. Its implementation allows a theoretical targeting of farm support since policy makers are able to determine their amount (coupled or decoupled to market-price and production, static or dynamic) criteria (respecting cross-compliance or providing specific amenities), and timing (bounded or not). In this context, the 1992 reform initiated the progressive targeting of the European farm support.[3]

Figure 1.
CAP support price cumulative change in nominal and real terms
1991-2008, %



* 1992-2008
Source: European Commission, 2009.

Direct payments towards crop lands have been computed, by hectare, considering (i) national and regional average yields and (ii) scheduled price support decrease. Livestock direct premiums by head have been revalorised and/or created. The aim was to compensate the negative effect on farm incomes which may result from the decreases in price support as illustrated with Figure 1. The 1999, 2003 and 2008 reforms deepened this trend and decoupled – partially – direct payments from production and prices. Compensatory payments have been made "permanent" as they were not time-bounded and systematically provided to newcomers.

The historical price market policy has been benefiting to the largest and most intensive farm holdings. Indeed, the highest the volume of production, the highest the support was. As a result, distribution of support was discussed by policy makers when negotiating the 1992

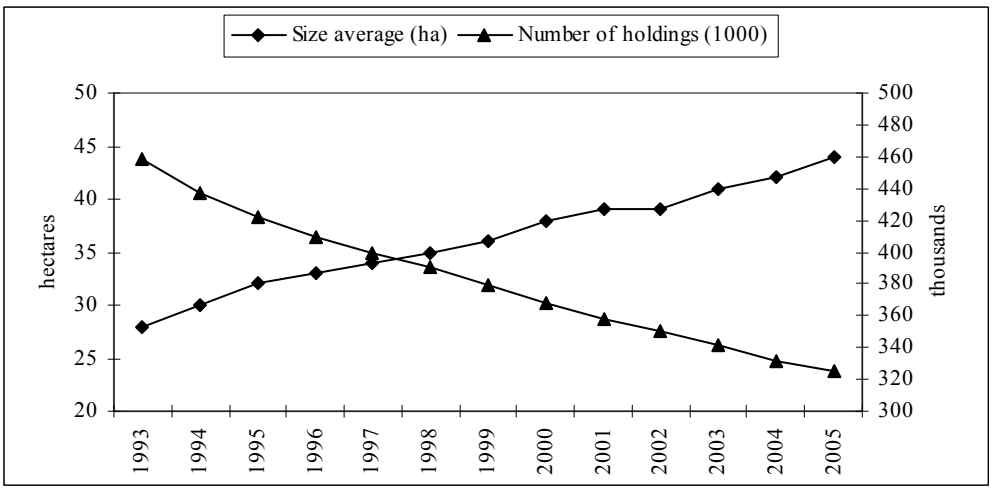
[3] On the effective targeting issue of agricultural policies, see Moreddu (2007).

reform as illustrated with Box 1. However it didn't lead to an effective mechanism able to counterbalance the concentration of support to few farm structures, sectors and geographic areas. The concentration of direct payment recipients stroke – and still strike – with the distribution of its cost – shared out among any taxpayers.

Box 1.
Reflections of the Commission on the income support inequity (1991)
Income support, which depends almost exclusively on price guarantees, is largely proportionate to the volume of production and therefore concentrates the greater part of support on the largest and the most intensive farms.
So, for example, 6% of cereals farms account for 50% of surface area in cereals and for 60% of production; 15% of dairy farms produce 50% of milk in the Community; 10% of beef farms have 50% of beef cattle.
The effect of this is that 80% of the support provided by FEOGA is devoted to 20% of farms which account also for the greater part of the land used in agriculture.
The existing system does not take adequate account of the incomes of the vast majority of small and medium size family farms.[4]

The agricultural sector faces dynamic economic forces which foster its adjustments. Economic growth and development have been reducing drastically the share of the agricultural sector in both GDP and total employment. Productivity gains have been faster in agriculture than in manufacturing (Martin and Mitra, 2001). They have been labour-saving and thus contributed to reduce agricultural employment and increase size holdings.

Figure 2.
Evolution of French size average and number of holdings for arable crops
1993-2005, hectares, thousand holdings



Source: Data from ONIC-ONIOL/SCEES-DPEI.

Figure 2 illustrates the evolution of French size average and number of holdings producing arable crops. On the one hand, the number of holdings dropped by roughly 30% between 1993

[4] European Commission, 1991. The Development and Future of the CAP, Reflection Paper, Communication of the Commission to the Council, COM(91) 100 final, Brussels, February 1.

and 2005. On the other hand, the average size of arable crop holdings increased by half during the same period. The concentration of factors of production – land and labour – is in line with the concentration of support.[5] This latter interacts with the concentration of capital. Because it provides a wealth and insurance effect, subsidies influence farmer's position to risk (Hennessy, 1998). The assumption of decreasing risk aversion tends to increase investments in capital. As a result, the agricultural sector owns up a concentration of land, labour and capital.

The 1992 reform did not limit direct payments for cereal, oilseeds and protein crops via restrictions on set-aside compensation as initially put forward by the Commission. Capping the total amount a farm may receive – though considered in the first proposals – was withdrawn on the final agreement. The leaving out from compulsory set-aside to small farm holdings – those producing up to the equivalent of 92 tonnes of cereals – had been however agreed. For the main livestock compensatory payments – i.e. special premium for male bovines and suckler cow premium – a stocking density rate criteria and a maximal number of heads had been approved.

The 1999 reform continued the compensation of guaranteed price decrease with direct payments. However, by contrast to the 1992 reform, compensation was partial in order to face overcompensation criticisms[6]. As a fact, a full compensation did not consider income increases from farm holdings' restructuring and entrepreneurial schemes, potential decrease in farm input prices or off-farm activity development.

Following the 2003 reform, the implementation and management of decoupling scheme provided a unique occasion to redistribute first pillar direct payments. Given the flexibility inherent to the Luxembourg agreement, the responsibility of such decision has been let to the Member State responsibility. A full historic model owned the ability to almost freeze the past distribution of support whereas a full regional model shuffled it within a determined territory (region).

Beyond the adopted model of decoupled support, Member State voluntary or compulsory tools aimed at redistributing direct payments. On a voluntary basis, first, SFP national

[5] In a parallel track, support creates an incentive for inefficient farmers to stay in the agricultural sector – and to continue or not to produce with decoupled subsidies. This trend may reduce the holding concentration. Also, the capitalisation of support into the land increases the price of lands and slows down structural adjustments. Increasing flexibility in labour, land and capital market may reduce the magnitude of such barriers.

[6] According to Garzon (2006), the increase of per-hectare payment next to wheat price reduction and of headage payment next to beef price reduction was reduced from 100% of the difference between the old and new price to respectively 50% and 80%. The milk price decrease has been compensated at 65% with a new measure coupled to quota size.

reserves may have been created by means of a linear percentage reduction in the holding reference amounts (up to 3% of all entitlement value) and the incorporation of non-attributed or 3-years-non-activated SFPs.

The objective of one national reserve is to grant additional decoupled payments to new farms or selected recipients. Awarding freely additional decoupled payments may be motivated by the absence of entitlements for farmers entering in the sector; for famers who inherited, leased-out or bought their lands during the reference period[7]; for those who have restructured their production or invested in their holding during or directly after the reference period. The national reserve can be temporary, i.e. it appears as a transitory tool to soft the transition from coupled to decoupled direct payment scheme – for instance in Germany or the United-Kingdom (UK) which plan to close the reserve once fully achieved their decoupling process. Those two countries share a liberal view as regards the regulation of SFP markets (Kroll, 2008). The national reserve can also be permanent, i.e. it is conceived as an intervention tool for administratively managing further entitlement transfers – as in most of the Member States.

Table 1.
Selected planned modalities of SFP national reserve management

	England	France	Germany	Italy	Netherl.	Portugal	Spain
Initial deduction	4.2%	2.2%	1%	3%***	0.25%	2%	3%
Max deduction from transfer							
without land	0%	30%*	0%	30%*	0%	10%	30%*
with land	0%	10%**	0%	10%**	0%	0%	10%**

* during the first three years of implementation: 50%, transfer to young farmer: 0%
** except. transfer of an entire holding: 3% (during the first three years: 5%), transfer to young farmer: 0%
*** Approximation from global data
Source: Kroll, 2008; Anciaux, 2005.

Second, the SFP tradability or transfer modalities may have a significant impact on the distribution of direct payments. Member States may decide that SFPs can be fully transferred or used within one specific territory, i.e. one *département* in France, one *Länder* in Gemany, one region in the UK[8] or Italy, the whole country in Portugal or the Netherlands. In case of SFP definitive transfer – with or without land – a part of the SFP value may be charged and transferred to the national reserve. Activating or not those restraints creates an administrative SFP market with a potential redistributive impact. Table 1 presents selected national situations and Table 2 focuses on the French entitlement charging.

[7] The reference period for computing entitlement values refers to the three year period: 2000-2001-2002.

[8] The UK defined 6 regions: England (moorland), England (handicapped areas), England (others), Northern Ireland, Scotland, and Wales.

Table 2.
SFP's entitlement charging in France from 2010

	Transfer with land			Transfer without land	
	UAA< *départemental* threshold	UAA>*départemental* threshold		Any transfer	Transfer of the whole holding
	Transfer of a fraction of the holding	Transfer of a fraction	Transfer of the whole holding		
Transfer of entitlement to any farmer	3%	10%	3%	30%	3%
Transfer of entitlement to a relative	0%	10%	0%	30%	0%
Transfer of entitlement to a new farmer	0%	10%	0%	30%	0%
Transfer of entitlement to a young farmer	0%	0%	0%	0%	0%

Note: The *départemental* (or sub-*départemental*) threshold refers to two plot units as defined by article L.312-5 of the French rural act.
A "relative" presents up to second generation family relationship i.e. the purchaser should be the wife/husband, sister/brother, mother/father, grandmother/grandfather of the transferor.
A "new farmer" has been starting a new agricultural business for 5 years
A "young farmer" has been newly entering the agricultural sector i.e. she/he was not running an agricultural business for the last 5 years.

Third, the 2003 reform introduced a stylised 'cross-compliance' regime where payments are linked to farmers achieving certain environmental, animal welfare and quality standards. Cross-compliance makes full payment conditional upon some standards established at national levels. They may potentially exclude some historical direct payment recipients.

Fourth, article 69[9] allowed the Member States to adopt sector-based reorientation by using up to 10% of national sector-based ceilings in order to grant corresponding sectors with additional payments for "*specific types of farming which are important for the protection or enhancement of the environment or for improving the quality and marketing of agricultural products*"[10].

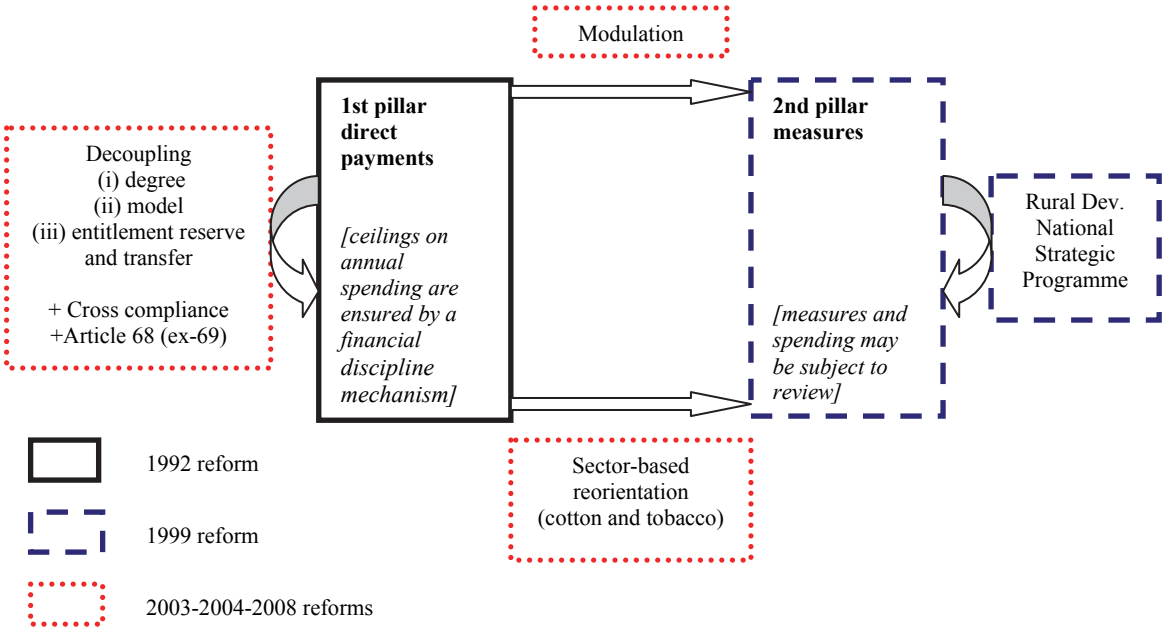
Two redistributive tools have been made compulsory in order to fund second pillar measures. First, the 2003 reform introduced a compulsory modulation which reduces all direct payments from the first pillar through a 5%uniformed flat rate from 2007. A 5 000 euro franchise (free of charge for every holding but creating a kind of low-threshold effect) exempts of any modulation farmers receiving less than 5 000 euros a year.

Second, compulsory sector-based financial transfers were agreed on April 2004 for tobacco and cotton regimes. They aim to reorient a share of sector-based direct payments (taking into account, as for decoupled payments, a 2000-2002 reference period) towards rural development programmes implemented in respective production areas.

[9] The 2008 CAP health check updated article 69 which became article 68 along with new modalities.
[10] Article 69, Council Regulation 1782/2003 of 29.09.2003.

Finally, the financial discipline mechanism – if activated – may potentially impact the distribution of direct payments. The 2003 CAP reform introduced this new tool in order to prevent any overspending in direct payments with reference to annual budgetary ceilings for the 2007-2013 period. In order to anticipate any overspending, the European Commission is able to propose reductions in EU15 direct payments.[11] Modalities of such cuts may consider differentiated rates of reduction.

Figure 3.
CAP support redistributive institutional framework



The 2008 CAP health check[12] adjusted the 2003 reform redistributive mechanisms. It decoupled further direct payments and allowed Member States implementing an historic model to move towards a more regional one, especially in view of the progressive integration of further sector into the decoupling scheme. Cross compliance standards have been amended. The health check increased annually compulsory modulation rate in order to reach 10% in 2012 whereas reduced with further 4% payments above 300,000 euros. It also introduced a 100 euros and 1 hectare minimum requirement for receiving direct payments. Article 68 replaced article 69 and provided more flexibility in its implementation. It increased the scope

[11] New Member States are excluded from financial discipline and modulation mechanisms during the direct payment *phasing in* period which ends in 2013, excepting for Bulgaria and Romania (2016).

[12] The CAP health check refers to a political agreement adopted on 20 November 2008 and three related regulations: Council Regulation (EC) 72/2009 of 19 January 2009 on modifications to the Common Agricultural Policy, Council Regulation (EC) 73/2009 of 19 January 2009 establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers, Council Regulation (EC) No 74/2009 of 19 January 2009 amending Regulation (EC) 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD)

of potential funded measures and split the historical-supported-sectors constraint as regards new funded expenditures. Finally, Member States have to review their rural development plans in order to consider "new challenges": climate change, renewable energy, water management, biodiversity and dairy restructuring measures.[13]

Figure 3 summarizes the institutional channels which aim at redistributing the past-price-policy support. Apart from compulsory modulation and cotton/tobacco sector-based reorientation, the implementation of measures which affect the distribution of CAP support depends from Member States decisions. Within a European common framework, they have the competency in partially retaining or altering the distribution of CAP payments. The two next sections provide one broad and one specific evidences of the French concentration of support.

2. SPECIALISATION AND CONCENTRATION OF SUPPORT: THE CASE OF MARKET-COMMODITY PRODUCTION

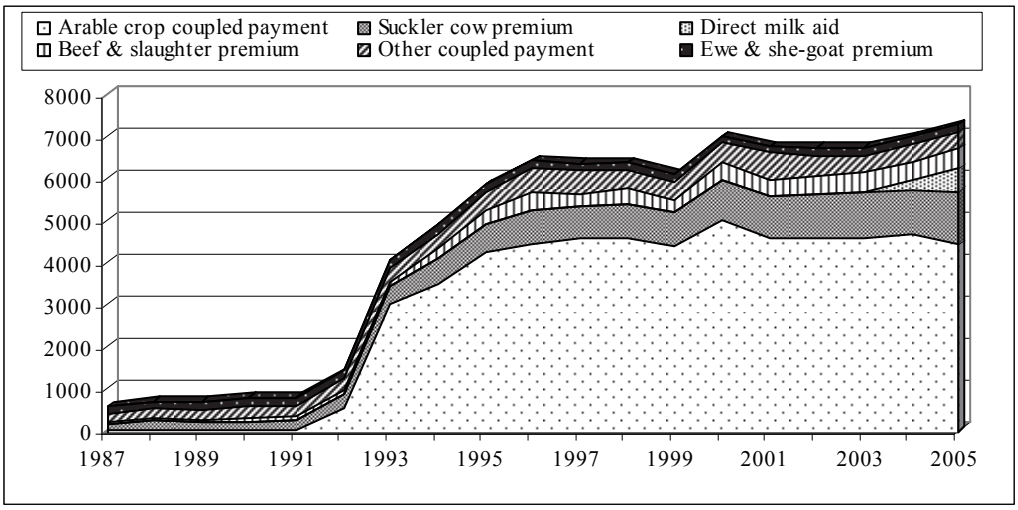
The question of inequity in French distribution has never been accurately challenged. There are several dimensions when studying the support allocation issue. The sector-based one is the most relevant since it corresponds to the historical *raison d'être* of the CAP in spite of progressive decoupling. This section provides a case study on territorial distribution of support in light with market-commodity production and CAP's pillar dichotomisation. It stresses the hybrid status of the French historical decoupling scheme.

2.1 THE MARKET-COMMODITY LEADING SUPPORT

French crop producers have been the main financial recipients of the direct payment mechanism. By being a crucial livestock production input, cattle breeder indirectly benefit from crop support. Figure 4 illustrates the evolution and breakdown of direct payments. On the eve of subsidies' partially decoupling, more than 60% of coupled payments were allocated to the arable crop sector.

[13] For a summary of the main outcomes of the CAP health check, see Appendix 2.

Figure 4.
French direct payment evolution and breakdown
1987-2005, million euros



Source: Data from French Ministry of Food, Agriculture and Fisheries.

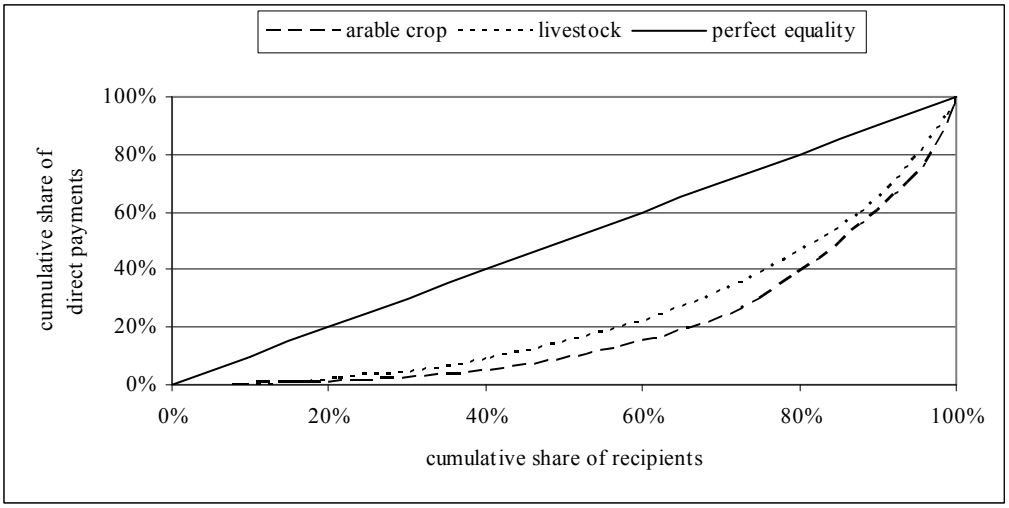
Coupled direct payments to arable crops were more concentrated than those for livestock. There was no efficient provision which contributed to limit their payment to farm holdings whereas additional support for extensive livestock production and ceilings for the main animal premium have been implemented (*cf. supra*). In 2005, the year before French decoupling implementation, 6% or arable crop producers received more than 50,000 euros a year but obtained more than 30% of total direct payment amount. By contrast, in the livestock sector, less than 1% of holdings received more than 50,000 euros a year and obtained roughly 6% of total direct payment amounts. Figure 5 illustrates this distribution in comparing Lorenz curves for both coupled payments.[14]

Per-hectare payments which followed the 1992 reform were computed on the basis of 1986-1991 local yields. Hence the *département* scale has been privileged. In a few cases *sub-département* scale has been settled on to reflect more thinly yield differences. These references could also discriminate irrigated land or irrigated corn in order to provide them higher compensatory payments. Thus, the "crop plan" (*plan céréales*) distinguished: (i) 38 *départements* or *sub-départements* with a single reference yield for all arable crops – there is no specific support as regards irrigation processes, (ii) 57 *départements* or *sub-départements* with differentiated reference yields for dry or irrigated arable crops, (iii) 12 *départements* or

[14] Lorenz curve represents graphically the inequality in direct payment distribution. The cumulated percentage of individual beneficiaries is plotted on the x-axis. The cumulated percentage of total direct payment is plotted in the y-axis. The 45° line drawn from the origin of the graph represents the line of perfect equity where the percentage of total amount of payment corresponds exactly to the percentage of beneficiaries, or where each farm gets the same amount of support. The more bowed the Lorenz curve from this line appears, the more inequitable the distribution of direct payments is.

sub-départements with differentiated reference yields for irrigated corn, dry and/or irrigated other arable crops. Appendix 3 presents the dispersion in crop yield references used in coupled direct payment computation.

Figure 5.
Lorenz curves for French direct payments to arable crop and livestock
2005, %



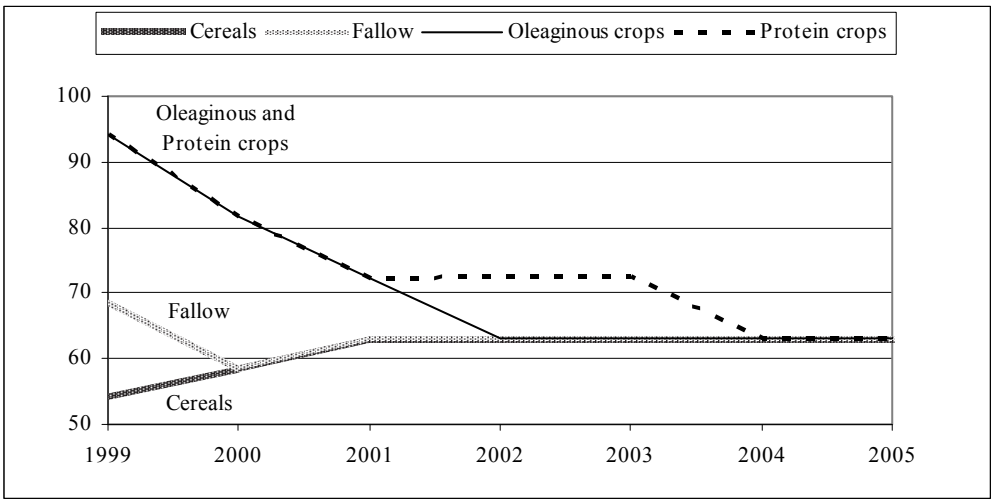
Source: Data from European Commission.

The final per-hectare subsidy by *department* (or sub-*département*) resulted from two third to *départmental* (or sub-*départemental*) theoretical yield and from one third to national theoretical yield. From October 1997 on, the share of local and national theoretical yields has been balanced – each contributing to half in the per-hectare subsidy computation. This change resulted from the establishment of a new – non-conservative – government in June 1997. Equity and territorial cohesion motivations led to an adjustment in direct payment computation formula.

The same government has been negotiating the 1999 reform. Agenda 2000 initiated a convergence of national rate of support for arable crops as illustrated in Figure 6. Guaranteed price for cereals have been decreased by 15% between 1999 and 2001, compensated with increase in direct payment rate. At the same time the national rates of support for arable crops have converged in line with the decoupling process. The rate of support for oleaginous and protein crops have been fallen towards the one for cereals in 2002 and 2004 respectively.[15]

[15] A specific per hectare subsidy coupled to protein crop production has been created in 2004 to compensate the decrease in compensatory payment rate.

Figure 6.
Convergences in the French national rate of support for arable crops
1999-2005, euros per tonne



Source: Data from French Ministry of Food, Agriculture and Fisheries.

Also, following the 1999 reform, France started to implement a voluntary modulation through individual rates of direct payment cuts. For their computation, French authorities considered three criteria through the addition of a flat and progressive rate: (i) labour force used on their holding, (ii) Standard Gross Margin (SGM) evolution of their holding and (iii) total amount of direct payment received (uniformity of treatment).[16] This mechanism aimed at financing a targeted contract for farmers (*Contrat Territorial d'Exploitation* or *CTE*) supporting rural development and environmental amenities within farm activities. French voluntary modulation stopped however in 2002 due to complex computation criteria (fostering farmers' criticisms), election of a conservative government close to farm lobbying and lack of concluded CTE. It was the last attempt by French authorities – prior to the 2008 CAP health check – in challenging the distribution of farm subsidies.

In this institutional context, one should bear in mind that farm holdings' ability of adjustment interferes the allocation of support. It results from both public policy and private changes. The latter is mostly the result of the former. First, the evolution of the CAP and the European trade policy tend to reorient farm production towards market signals. Second, because farmers are increasingly becoming entrepreneurs, they build up investment strategies which impact the public support they can claimed. Nevertheless, the French 2003 reform implementation has administratively frozen the support disparities between (historical) type and structure of productions on the one hand, geographic areas on the other hand.

[16] See Chatellier and Kleinhanss (2002).

Because direct payments reflect market considerations, France receives roughly one fifth of European total support. For economic, social and territorial reasons, France have been historically advocating for a resilient CAP.[17] This policy is applied to a very heterogeneous sector, where (very) large, medium, and (very) small farms coexist – a dimension that the CAP reforms have not taken into account.

Table 3.
Divergent correlations in CAP pillar support

	Single farm payments per AWU	Pillar I direct payments per AWU	Pillar II environmental and territorial payments per AWU
Share of holding larger than 100 ha, 2007	0.8208*** 0.8537*** ++++	0.8499*** 0.8703*** ++++	Non significant
Share of holding smaller than 20 ha, 2007	-0.6198*** -0.6467*** ---	-0.6666*** -0.6971*** ---	Non significant
Standard Gross Margin per AWU, 2007	0.8274*** 0.8560*** ++++	0.7669*** 0.7982*** ++++	-0.6445*** -0.5991*** ---
Income evolution 2006/07	0.5677*** 0.4200*** ++	0.5175*** 0.3714*** ++	-0.3334*** -0.3887*** --
Income evolution 1991/2006	0.5184*** 0.4926*** ++	0.5592*** 0.5413*** +++	Non significant

This table presents (i) Spearman and (ii) Pearson coefficients of correlation with (***) 1% significance level. They measure the strength of association between two variables – not the causality. Those indicators amount to (-1) in presence of perfect negative correlation, (0) in absence of any correlation, (1) in presence of a perfect positive correlation.
We use data at the French *département* level (92) which reflects the administrative level of French direct payment implementation. Data on all French (metropolitan) farm holdings are used (506,926) and not only professional holdings (335,233) in order to consider the broad spectrum of agricultural and rural actors. Pillar I support covers SFPs, arable crop payments, suckler cow premiums, slaughter premiums, ewe and/or she-goat premiums. Pillar II support covers compensatory allowances for natural handicaps, agri-environmental grass premiums, sustainable agriculture and territorial management contracts, other agri-environmental measures. We divide by *départemen*t the amount of subsidy with the AWU aims at taking into account the income support provided by the CAP.
Source: Data from French Ministry of Food, Agriculture and Fisheries data; Author's computations.

The distribution issue has been a growing concern among French stakeholders. In spite of marginal adjustments, France has always been privileged high productivity and large farm holdings. The distribution of direct payments reflects narrowly the one of SGM and then benefits large farms, often the richest ones (OECD, 2003). Spearman and Pearson coefficients[18] presented in Table 3 confirm the correlation between the amount either of SFPs

[17] See Fouilleux (2008).

[18] The same methodology has been handled by Trouvé and Berriet-Solliec (2008). They analyze the distribution of support from the second pillar of the CAP in view of the European objective of cohesion. Based in data from 56 European regions, they find that the second pillar does fail in reaching both inter and intraregional cohesion. They conclude that the increasing influence given to regions in implementing the CAP reinforces this

or direct payment sum per AWU[19] and the size of the holdings – positive for holdings larger than 100 hectares, negative for those smaller than 20 hectares. These correlations are non significant for second pillar of the CAP support. However, since this latter is not labelled as income support, equity matters less because the objective is to pay for positive externality (or public goods / non-market commodities).

The SGM determines the economic size of farm holdings. It is defined as the market value of output less the cost of variable input. Thus the SGM per AWU corresponds to the farm labor productivity. The correlations are highly positive and negative as regards first and second pillar subsidies respectively. Agri-environmental and territorial support benefits to *département* with low labor productivity since they target extensive production structure and less favored areas. The inverse occurs as regards SFPs and direct payment sum which favor areas with high productivity. It thus validates that – even decoupled from current production and price – first pillar support – with an income objective – tends to influences market-commodity output and market forces.

2.2 EVIDENCES FROM SECTORIAL BIASES

France has been adopting a conservative strategy as regards the 2003 reform implementation. First, by adopting an historical decoupling model and limiting the tradability of SFP entitlements, France deliberately froze direct payment distribution. Second, it used all the possibility of direct payment "re-coupling". Third, it did not activate an explicit support for *specific type of farming and quality production* (article 69) which would allow a partial reallocation of support on a sector-based basis.

In 2007, subsequently to the decoupling implementation, 16.5% of French farm holdings received half of direct payments. Data used are individual figures extracted by Farmsubsidy.org from a French Ministry of Food, Agriculture and Fisheries website which release individual farm support amounts. They cover 378,812 recipients of direct payments

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inconsistency. The originality of the present computation consists (i) in using data at the French *département* level which reflect the administrative level of French direct payment implementation and (ii) in considering decoupling support in France and latest CAP adjustments. Shucksmith, Thomson and Roberts (2005) evaluate the territorial impact of the CAP and rural development policy (EPSON project). They suggest that first pillar expenditures go to EU15 richer regions because of their large farms, location and farm type. They are inconsistent with economic cohesion objectives whereas second pillar of the CAP is more consistent with cohesion objectives within Member States, not between them.

[19] An Annual Work Unit (AWU) corresponds to the work performed by one person who is occupied within an agricultural holding on a full-time basis

from 92 French *départements*.[20] Gini index varies highly as regards *départements*.[21] It reflects the variety of French structures and rural areas on the one hand, specific commodity support on the other hand. National Gini index for direct payments averages 0.524 with a wide dispersion between *départements* as illustrated in Appendix 4. The national average of Gini index as regards rural development measures is approximately similar but with lower top values at the *départemental* level.

Geographical specialisation generates the territorial concentration of support. French authorities released in March 2006 the ten major recipients of arable crop subsidies for the 2004 year. In this ranking, four holdings produced rice and were located in the same *département*: Bouches-du-Rhône. The exhaustive disclosure of CAP recipients confirmed the massive amount of direct payments allocated to few large rice producers – they are almost all situated in Bouches-du-Rhône (Camargue). In 2007, 70% of French metropolitan rice production came from this *département*[22]. Together with Gard, they contributed to 98% of the French metropolitan production which benefit since 1998 from a Protected Geographical Indication (PGI): "riz de Camargue".

Table 4.
Coupled support framework for rice producers
euros, several marketing years

	Full price support	Partial price and production decoupling				
Marketing year	*previous to 1996-1997*	*1997-1998*	*1998-1999*	*1999-2004*	*2004-2005*	*2005-2012*
Intervention price (euro/tonne)	351.00	333.45	315.90	298.35	150	150
Coupled subsidy (euro/hectare)						
• Metropol. France	0	96.35	192.70	289.05	971.73	411.75
• French Guyana	0	131.80	263.60	395.40	1329.27	1329.27

Source: Data from French Ministry of Food, Agriculture and Fisheries; Author's computations.

Present direct payments result from past market support administered by a CMO for rice introduced in 1967. Intervention price have been decreasing since the 1997/1998 marketing year and compensated with direct payments to fixed area (maximum guaranteed area). The 2003 CAP reform partially decoupled those direct payments (58%) which have been integrated within the common SFP scheme. Thus from 2006 on, French-metropolitan rice

[20] Are excluded overseas *départements*, Seine-Saint-Denis, Val de Marne, Hauts-de-Seine and City of Paris.

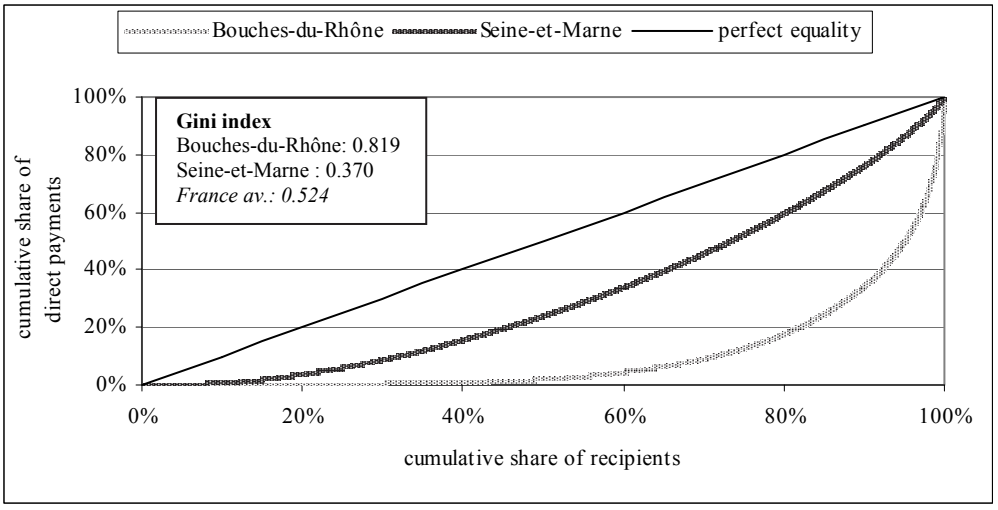
[21] Gini index is an indicator which aims at measuring income inequality within a population. An index of 0 means a perfect equality in direct payment distribution whereas a Gini index of 1 means a perfect inequality.

[22] Agreste Provence-Alpes-Côte d'Azur, Conjoncture, n°55, August 2008.

producers received SFPs (with or without any production) and rice-coupled subsidies (labelled as *specific measure for rice*). As an outcome of the CAP health check, remaining per hectare coupled payments shall be fully decoupled by 2012 but further coupled subsidies should be granted with article 68. Overseas production from French Guyana *département* is excluded from any decoupling.[23] Table 4 illustrates the decoupling dynamic for rice support.

Diversified territories present inevitably notable dispersion as regards direct payment distribution – being decoupled or not. Bouches-du-Rhône and Gard *départements* present a high Gini index, 0.819 and 0.726 respectively. By contrast, Seine-et-Marne – a *département* specialized in arable crops – offers the French lower Gini index which amounts 0.370. Figure 7 presents graphically this two extreme distribution cases. Geographical specialisation tends to make convergent either size and process production. Beyond historical privileged support to high productivity and arable crop, the diversity of French agriculture is the key motor of inequity in distribution of support.

Figure 7.
Lorenz curves for direct payments to *départemental* extreme Gini index
2007



Source: Individual data released by French Ministry of Food, Agriculture and Fisheries; then extracted by Farmsubsidy.org from https://www1.telepac.agriculture.gouv.fr; Author's calculations.

Two farm holdings producing rice in Guyane *département* receive 1.95 and 1.32 million euros respectively. These two huge amounts are paid in an outermost territory which benefits from a special status as regards CAP implementation. Direct payments are not decoupled and

[23] Before French metropolitan decoupling, the higher per hectare support in Guyana reflected higher yields.

excluded from the modulation mechanism. There are specific measures and fund – part of the POSEI[24] arrangement within the first pillar of the CAP.

In France, there are 37 farm-holding which receive more than one million a year in direct payments. Among them, 35 are in Martinique and Guadeloupe and produce banana. The banana regime – which experiences a high border protection – has been typically suffered from fierce critics from European trade partners. Reformed in 2006, it is pointed out in this paper due to the highest concentration level of subsidies' recipients. As presented in Appendixes 5 and 6, four fifth of direct payments benefit to 2% and 15% of farm holdings in Guadeloupe and Martinique respectively. Thus it is not unexpected that these two *départements* present sky-scraping Gini indexes, 0.959 and 0.813 respectively. The agricultural policy tends to substitute a social policy which benefits to few landowners through direct payment land capitalisation – not the roughly 10,000 workers which are employed in the outermost banana sector.[25] Those rents tend to increase the amount of resources devoted to the banana sector and run against the development of the outermost economy.

Reforming direct payment cannot be driven only by equity considerations but public policy efficiency. The diversity of French agriculture enlightens the inequity in distribution of support. This latter should be evaluated in view with policy objectives. By being compensatory payments, French coupled and decoupled direct payments are income support which result from past-market policy. The challenge is thus to progressively shift direct payment objectives from income to amenity support.

2.3. THE HYBRID STATUS OF THE FRENCH HISTORICAL DECOUPLING SCHEME

Since the 1992 CAP reform, few political decisions allowed a redistribution of French direct payments: (i) the 1997 rebalancing between national and *départemental* yields in subsidy computation and (ii) the 1999-2001 voluntary modulation are the only implementation of such plans. The choice of an historical decoupling model and related market entitlement constraints has almost frozen the French distribution of support in order (i) to prevent income and wealth effects, (ii) to maintain specific type of production, and (iii) to avoid sudden land abandonment.. However, from 2010, one may expect some shifts within the historical system.

[24] The POSEI (*Programme d'Options Spécifiques à l'Eloignement et l'Insularité*) arrangement aims at foster sustainable economic and social development of the overseas regions. In France, they include four *départements* : La Réunion, Guadeloupe, Martinique and Guyane.

[25] The number of workers employed in the banana sector is a broad statistic provided by the French Agency in charge of outermost agricultural development (ODEADOM).

Examining the French options as regards new provisions provided by the CAP health check tend to point up the premises of a strategy for the CAP beyond 2013. The CAP health check agreement deepened the 2003 reform. It settled a full decoupling for arable, hops, durum wheat, olive oil, energy crops payments (2010) and for beef and veal (except suckler cow), nuts, seeds and protein crops (2012). It provided *à la carte* reorientation tools for which voluntary implementation could start by 2010. They include articles which allow shifting funds within the first pillar of the CAP: Article 63 or the redistribution of support from further decoupling and article 68 or redistribution of up to 10% of national direct payment ceiling towards specific types of targeted measures. There is also a compulsory provision which aim at shifting funds from first to second pillars through a progressive increase up to 10% with one threshold: +4% for payments over 300,000 euros. Those new redistributive tools endow with further flexibilities in national and regional implementation.

France had to make up for 2003 reform implementation's lost opportunities. Three main reasons were behind this certitude. First, the legitimacy of a historical decoupling model was – and still is – rapidly declining. Tax-payers are increasingly reluctant to pay subsidies to large farmers based on increasingly faraway productions and yields. Farmers themselves put doubt on a support model which discriminates farm holdings and territories as regards past production processes and commodities. Despite the possible SFPs' grant to newcomers, their amounts are thoroughly incoherent with their needs and duties – or their entrepreneurship prospects. Citizens wonder the rationale of a massive sector-based redistribution mechanism, especially in period of economic crisis. Second, any partial decoupling of support deserved a renewed justification. Third, and consequential to the two previous points, French authorities had to demonstrate its ability to anticipate the expected 2013 CAP reform. Thus, adopting adjustments in the distribution of direct payments was indispensable to relax its conservatism stand.

French decision as regards CAP health check provision resulted from a wide decentralised debate which involved all stakeholders from French administration, farm and agribusiness sector, environmental, consumers and land owners organizations. The ministerial basis document for the French debate gave the apparent idea of the key offensive positions of France through the consolidation of the first pillar of the CAP.[26]

[26] Launched in September 2007, the "*Assises de l'Agriculture*" aimed to set up the French position during the CAP health and prepare a "new" policy beyond 2013. On November 14, 2007, an orientation document, agreeing on rehabilitated objectives for an appropriate farm policy, had been adopted. The challenges that this *primarily* economic policy has to face were described as demographic, environmental, energetic and territorial.

In February 2009, French authorities presented four objectives that the reorientation of direct payments would have to fulfil from 2010: (i) setting up new support for grass-based livestock and fodder; (ii) strengthening the rural economy and employment in the territories; (iii) setting up a risk management scheme; and (iv) promoting sustainable development. They four objectives would mobilise a total of roughly 1.6 billion euros of which 80% (1.280 billion euros) would be fund shifted within the first pillar of the CAP by means of articles 63 and 68[27] and 20% (321 million euros) would be transferred from the first towards the second pillar of the CAP by means of an increased rate of compulsory modulation.[28] The matrix presented in Table 5 presents the redistributive objectives linked to respective financial provisions. As a result 18.8% of French direct payments – supported by the European budget – are targeted in 2010 in view with the four new objectives.

The arable sector is the main contributor to this reorientation process. On the one hand, as presented in Table 6, because more than half of the amount resulting from the full decoupling of arable crop payments contribute to the setting up of new productive grassland SFPs (use of article 63). On the second hand, article 68's spending will require the charging of basic SFPs and suckler cow premium with a linear rate of 4.55%.

Objectives in this context were (i) to ensure independence and food security of the EU, (ii) to contribute to world food equilibrium, (iii) to preserve rural territorial harmony and (iv) to consider climate change and environmental issues. According to official French document, any CAP must respect at least the following principles: (i) European preference, (ii) markets stabilization, (iv) ambitious budget and (v) targeted measures for sustainable agriculture. Having set up these broad (and apparently non-negotiable) concepts, a debate on concrete instruments and methods of funding had been opened in Paris. From January 30 to February 11, 2008, a broad consultation in each French *département* has been initiated before establishing the official position of France on the health check and on the CAP beyond 2013 – whose European debate started under the French presidency of the EU with an Informal Council in Annecy in September 21-23.

[27] This amount considers 130 million euros of new support which will result from unspent direct payments. As a matter of fact, article 68 allows new spending without any further individual charging. In France they will they cover the establishment of a risk mutual fund (40 million euros, from 2011, objective iii) and a support for rotations of crops (90 million euros, only in 2010, objective iv).

[28] Since rural development measures are cofounded by member states, the increase amount devoted to the second pillar of the CAP will induce an increase of national spending. Hence the European and French budget will contribute to the extra 321 million euros with 221 and 100 million euros respectively.

Table 5.
Matrix on French redistributive options following the CAP health check

	First pillar		Second Pillar	Total amount
Tool Objective	**Use of Article 63** New subsidies for:	**Use of Article 68** New subsidies for:	**Use of Article 7** Further fund (by means of increased rate of modulation) for:	
(i) **setting up new support for grass-based livestock and fodder**	► productive grassland *707 million euros* ► fodder *30 million euros*		► agri-environmental grass premiums *240 million euros* *EU: 176 million euros* *FR: 64 million euros*	**977 million euros** *EU: 913 million euros* *FR: 64 million euros*
(ii) **strengthening the rural economy and employment in the territories:**	► potatoes and field vegetables *30 million euros*	► sheep and goats *135 million euros* ► milk in mountain areas *45 million euros* ► durum wheat in traditional areas *8 million euros* ► suckling calves *4.6 million euros*	► compensatory allowances for natural handicaps *42 million euros* *EU: 23 million euros* *FR: 19 million euros*	**264.6 million euros** *EU: 245.6 million euros* *FR: 19 million euros*
(iii) **setting up a risk management scheme**		► risk management tools *100 million euros*		**100 million euros** *EU: 100 million euros*
(iv) **promoting sustainable development**		► protein crops *40 million euros* ► maintenance of organic farming** *50 million euros*	► organic farming conversion *7 million euros* *EU: 4 million euros* *FR: 3 million euros* ► new challenges *32 million euros* *EU: 18 million euros* *FR: 14 million euros*	**129 million euros** *EU: 112 million euros* *FR: 17 million euros*
Total amount	**767 million euros**	**382.6 million euros***	**321 million euros** *EU: 221 million euros* *FR: 100 million euros*	**1,470.6 million euros** *EU: 1,370.6 million euros* *FR: 100 million euros*

*Article 68 allows new spending without any individual new charging. New supports result from unspent direct payments (130 million euros). They cover the establishment of a risk mutual fund (40 million euros, from 2011, objective iii) and a support for rotations of crops (90 million euros, only in 2010, objective iv). **From 2011, subsidies for organic farming conversion from the second pillar of the CAP should be funded by the first pillar (objective iv).
Source: Data from French Ministry of Food, Agriculture and Fisheries; Author's arrangement.

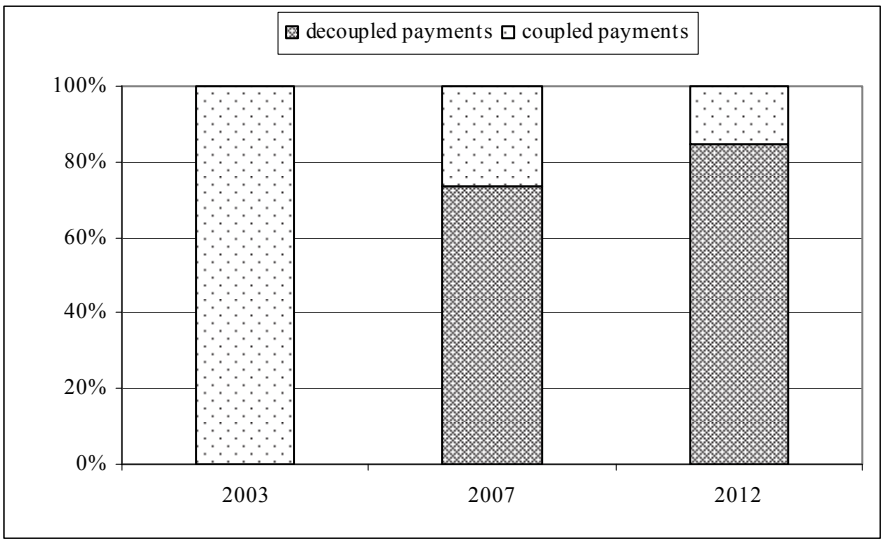
Table 6.
Charged and remained support from further French decoupling by sector (use of article 63)
2010, million euros, %

2010 decoupled subsidy	Initial amount	Charging Rate	Charged amount	Remained historical amount
Arable crop payment	1,154	55.5%	640	514
Suckler cow premium (25%)	183	50.8%	93	90
Slaughter premium	181	12.7%	23	158
Ewe and/or she-goat premium	86	12.7%	11	75
Total	1,604	47.8%	767	837

Source: Data from French Ministry of Food, Agriculture and Fisheries.

Roughly nine tenth of direct payments may be decoupled at the eve of an eventual 2013 reform. Figure 8 presents the progressive – and partial – decoupling of French direct payments. French authorities decided an original territorial and environmental re-coupling scheme. The use of articles 63 and 68 shows a shift of the budget towards grass-based livestock producers characterised by extensive, less-favoured area and/or environment friendly farm holdings. Most of new support is either coupled to environmental/extensive practices or specific territories. For the sheep and goat support, this coupling is indirect since its distribution tends to fellow a path similar to the one of agri-environmental – as demonstrated below.

Figure 8.
Progressive decoupling of French support to commercial agricultural production
2003, 2007, 2012, %



Source: Data from European Commission and French Ministry Food, Agriculture and Fisheries; Author's calculation.

French authorities decided to partially decouple suckler cow premium (25%) and anticipated the full decoupling of slaughter premium in 2010. Also, they fixed on to fully decouple the

she-goat premium with the setting up of a new coupled and more valued premium with the use of article 68. These decisions illustrate the environmental and territorial focus French authorities want to grant to first pillar subsidies. We use Pearson and Spearman coefficients of correlation in order to measure the strength of association between two variables – not the causality to provide evidence on this assertion.

Table 7.
Pillar consistency issue: the French case
2007

Pillar I **Pillar II**	SFP	Arable crop payment	Suckler cow premium	Slaughter premium	Ewe and/or she-goat premium	All direct payments
Environmental and territorial measures	-0.279*** -0.334*** --	-0.416*** -0.435*** --	0.498*** 0.446*** ++	Non sig. Non sig.	0.726*** 0.656*** +++	-0.184* -0.252** -

This table presents (i) Spearman and (ii) Pearson coefficients of correlation with (***) 1% significance level. They measure the strength of association between two variables – not the causality. Those indicators amount to (-1) in presence of perfect negative correlation, (0) in absence of any correlation, (1) in presence of a perfect positive correlation.
We use data at the French *département* level (92) which reflects the administrative level of French direct payment implementation. Data on all French (metropolitan) farm holdings are used (506,926) and not only professional holdings (335,233) in order to consider the broad spectrum of agricultural and rural actors. Pillar II support covers compensatory allowances for natural handicaps, agri-environmental grass premiums, sustainable agriculture and territorial management contracts, other agri-environmental measures. We divide by *départemen*t the amount of subsidy with the AWU aims at taking into account the income support provided by the CAP.
Source: Data from French Ministry of Food, Agriculture and Fisheries data; Author's computations.

Table 7 presents unequivocal results. The distribution of direct payments coupled to suckler cow on the one hand, ewe and/or she-goat premium on the other hand, fellow distribution paths similar to those of environmental and territorial measures.

The partial redistribution of support which results from the health check shows that France conservatism progressively declines. On this, two comments can be done.

First, a re-legitimised CAP is a way to preserve direct payments (and related budgetary flow). As a result, France develops a hybrid historical model when attempting to renew with a strong first pillar mostly through targeted subsidies and not common SFPs. Second, French authorities grant to first pillar a *rural development* dimension. They magnify related-responsibilities attributed to national authorities without bearing the co-funding principle. It jeopardises the relevancy of CAP dichotomisation. This latter tends to exist only for historical and budgetary reasons.

3. SUSTAINABILITY AND CONCENTRATION OF SUPPORT: THE CASE OF WATER QUANTITATIVE MANAGEMENT

This section examines the setting up and distribution of irrigation subsidies. It illustrates a public policy incoherency at a time of an expected persistent disequilibrium between water demand and supply. As a result, this case study also contributes to jeopardise the legitimacy and sustainability of French SFPs.

Water management has been acknowledged a new "rural development" challenge within the CAP health check. This section focuses on the quantity issue of water management, not on quality. Human pressures on limited water resources call for various actors' responsibilities and public policy coherence. France is facing a water problem and agriculture has a prime responsibility in it. Farm holdings use less than 15% of all water used in France, but return hardly half of it. As a result, agriculture is the largest French water consumer, with almost 50% of total water consumption as presented in Table 8 – rising to 80% during the summer (French Ministry of Ecology and Sustainable Development, 2005).[29] The CAP has been favouring intensive irrigated agriculture in France.

Table 8.
Quantities of used and consumed water by usage type
2001, million m^3, %

Uses	Power plant	Drinking water	Irrigation	Industry	Total
Volume of used water					
• in million m³	19,161	5,966	4,767	3,650	33,544
• % of total use	57.1%	17.8%	14.2%	10.9%	100.0%
Volume of restituted water					
• in million m³	17,890	4,534	1,989	3,395	27,808
• % of total restitution	64.3%	16.3%	7.2%	12.2%	100.0%
Volume of consumed water					
• in million m³	1,271	1,432	2,779	256	5,737
• % of total consumption	22.2%	25.0%	48.4%	4.5%	100.0%

Source : French Water Agencies - RNDE - IFEN, 2003.

The preamble of the directive establishing *a framework for Community action in the field of water policy*[30] underlined the necessity to integrate the protection and sustainable management of water in European policies. The CAP, thus, is directly affected with this

[29] A distinction needs to be made between "used" water (restituted after use) and "consumed" water (a definitive loss of the water resource).

[30] Directive 2000/60/EC of the European Parliament and of the Council, October 23 2000.

objective. Nevertheless, the French implementation of the 2003 reform did not rationalise the European funding in irrigation system. The decoupling model has been integrated to historical irrigating holdings extra SFPs. It has been thus financially valorising large scale production processes which create some uncertainty in view of sustainable development. Moreover, the 2006-2009 partial decoupling of direct payments have been maintaining discrimination between dry and irrigated arable productions.

3.1 IRRIGATION SUBSIDIES CARRYING OUT

France has been the European country with the largest annual increases in irrigated fields: 25,000 hectares per year between 1961 and 1980, 48,000 between 1980 and 1996, and 59,000 during the 1990's when the specific subsidies for irrigating land were set up (IEEP, 2000). Since irrigation ensures and increases arable crop yield, market support indirectly pushed irrigation resort. The computation of direct payments which resulted from the 1992 reform noticeably favoured irrigated fields. The French scheme introduced those higher yields in the direct payment computation through discrimination between dry and irrigated arable productions. Additional farm subsidies thus incited the irrigation process maintaining and expansion. These coupled subsidies introduced a bias between costs (initial investment, sustainable system maintenance) and benefits (yield assurance and increase, additional subsidies).

Irrigation grants could be high – up to 262 euros per hectare in the Hérault *département* – and they were on top of common direct payments. For instance, a crop farmer in the *département* of Vienne received less than 340 euros per non-irrigated hectare, but more than 530 euros per irrigated hectare – a 56% increase. Roughly 80% of grants paid for irrigating lands devoted to arable production were captured by corn producers – bearing in mind that France is the largest European corn producer and exporter.

The rise in irrigated scheme, in order to ensure and increase hectare yields and theoretically farm incomes, is connected with changes in the producing choices of crop type. Thus, in 1995, the share of irrigated land used for – non subsidised – market gardening, horticulture and orchards in the total irrigated land failed from 41% in 1975 to 27%. An opposite trend was observed for irrigated acreages of corn which represented 56.3% of the total irrigated land in 2000, against 43% in 1995 and 34.6% in 1975 (Rainelli and Vermersch, 1999). The production of corn is however not conditioned to a systematic irrigation since in 2005, 28.6% of French 2.9 million hectares of corn were irrigated. This ratio is greater than 50% in three

large production regions (Midi Pyrénées, Aquitaine and Poitou-Charentes), three large recipients of irrigation grants.

Estimating the total amount of irrigation grants can be done using data from French CAP payment agency[31] and peculiar theoretical yields included in the "crop plan" (*plan céréales*[32]) of each French *département*. For the whole of France, estimated irrigation grants amounted to more than 134 million euros in 2005 – the last year before implementation of French decoupling. This huge amount deserves four remarks.

First, this is an under-estimate of public support to irrigation structures because it does not consider measures from the national rural development plan. Irrigation systems and water storage benefit from second pillar of the CAP measures through support to farm holding modernisation, infrastructure and adding value to agricultural products (part the of "*improving competitiveness*" Axis 1). They may also benefit support from "*improving environment and supporting land management*" Axis 2.

Second, according a Report from the French Senate released in 2000, the agricultural sector contributes to 6.5% of the total receipts of the French Water Agencies – whereas the agricultural sector represents 48% of total water consumption. This implies that the price paid by farmers for their water consumption is clearly lower than the average water price in France. Farm holdings benefit therefore from a strong water price support. Revealing the price of water carries here as a crucial aspect. The relative low price paid by farmers for their water consumption in France is an unsustainable situation in the long run. Far from penalizing French farmers in international competition, a price policy may well reveal one of their decisive advantages (Le Vernoy, 2006).

Third, considering that 81.9% of subsidised fields were devoted to corn, irrigation grants benefited mainly to large holdings which was faming 95% of irrigated arable lands and represented roughly 80% of irrigating holdings.[33] Irrigation support thus contributes to

[31] We use data from ONIC-ONIOL. ONIC-ONIOL resulted from the merger in 1999 of the *Office national interprofessionnel des céréales* (ONIC) *and the Office national interprofessionnel des oléagineux, protéagineux et cultures textiles* (ONIOL) creating the largest public payment office for farm subsidies in Europe. In 2006, the *Fonds d'intervention et de regularisation du marché du sucre* (FIRS) merged with the two entities to create the *Office national interprofessionel des grandes cultures* (ONIGC). Then, following an impressive office restructuring, a single office – FranceAgriMer – has been substituting in 2009 the sector-based offices (ONIGC, Office de l'élevage, OFIMER, ONIPPAM and VINIFLHOR). A new structure – *Agence de services et de paiements* (ASP) – have been created to manage the totality of CAP payments being from the first or the second pillar, AUP and CNASEA respectively.

[32] See Appendix 3.

[33] ONIC-ONIOL made a distinction between small and large producers depending on their theoretical production (inferior or superior to 92 metric tons).

irrigation system mechanisation at large scale. It penalizes the rotation of cultivation with agri-environmental negative impacts (lose of organic matters, soil erosion) and threat the soil productivity – which runs against any sustainable productivity support objective. Also, awareness campaigns which aim at spreading a *reasoned* use of water tend to address smaller farm holdings than larger ones. Substantial invests of the latter require to make profitable large scale pomp and hose pipes – even to the detriment of long term farming.

Fourth, irrigation grants were highly geographically concentrated as the result of corn specialisation: 80% (109 million euros) went to 20 departments (13 came from only 3 regions), mainly located in the western part of central and southern France. Appendix 7 presents the 20 largest beneficiaries of irrigation subsidies.

3.2 THE IRRIGATION SUBSIDIES' "TRAP"

Subsidies always have perverse effects – even for their beneficiaries – as best illustrated by the recurrent drought raging in localized part of France. We build a water restriction index based on data from 2005 and 2006 in order to illustrate such a situation.

Table 9.
State of decrees restricting the use of water
2005, 2006

Decree restricting the use of water	Number of *départements* concerned		
	August 22, 2005	December 20, 2005	August 22, 2006
None	13	21	8
Planned measures	8	65	21
Effective limited measures	15	0	14
Effective strong measures	27	1	16
Total bans	29	5	33

*Data cover 92 French *départements*. Overseas *départements*, Seine-Saint-Denis,Val de Marne, Hauts-de-Seine and City-of-Paris are excluded.
*Based on the information provided by the Water Directorate of the French Ministry of Ecology and Sustainable Development, the following restriction index was set up by the author:
No decree (restriction index: 0).
Planned measures: Non-effective limitation measures on water use but measures have been planned in the long-run in case of necessity (restriction index: 0.5).
Effective limited measures: limitation measures on water use inferior or equal to 1 day per week or to 15% of the volume in at least one river-basin (restriction index: 1).
Effective strong measures: limitation measures on water use superior or equal to 1 day per week in at least one river-basin but inferior to 7 days per week (restriction index: 2).
Total bans: bans on water use in at least one river-basin (restriction index: 3).
Sources: Data from French Ministry of Food, Agriculture and Fisheries; Author's calculations.

On August 22, 2005, 71 *départements* were enforcing decrees restricting the use of water. Among them, 29 were implementing so-called "level 3" decrees imposing a ban on water use in at least one river-basin. Tables 9 and 10 illustrate the situation. The 20 largest beneficiaries of irrigation subsidies exhibited a restriction index roughly twice as high as that prevailing in

the 72 other *départements*. Observations from summer 2006 corroborated those from summer 2005. Thus, on August 22, 2006, the 8 largest recipient *départements* of irrigation subsidies set up a maximal restriction index while the index average for the 72 other *départements* decreased slightly.

Table 10.
The irrigation subsidies "trap"
2005, 2006

Rankings of largest beneficiaries of irrigation subsidies	Average of restriction index		
	August 22, 2005	December 20, 2005	August 22, 2006
4 largest beneficiary *départements*	2.75	1.12	3
8 largest beneficiary *départements*	2.87	1.75	3
12 largest beneficiary *départements*	2.83	1.33	2.92
20 largest beneficiary *départements*	2.60	1.12	2.7
72 other *départements*	1.50	0.37	1.41
the whole of France (92 *départements*)	1.74	0.54	1.69

Sources and notes: see Table 6.

Being drought not only a "summer phenomenon"; on December 20, 2005, only 6 *départements* still had at least one decree in force, with among them, 5 "level 3" decrees. All of them belonged to the 20 largest beneficiaries of irrigation subsidies. They showed a restriction index three times as high as that prevailing in the 72 other *departments*.

Water subsidies are also a trap for other economic sectors. For instance the severe problems faced by oyster producers of the Marennes-Oléron area are, for a large part, the result of lack of water from two rivers (the Seudre and the Charente) flowing in a region where irrigated fields have increased by tenfold between 1961 and 1996 – the largest ever increase in France (IEEP, 2000). At last, in addition to previous quantitative approach, water subsidies are a trap because CAP-driven intensive farming has a negative impact on the quality of water in many French regions, even if some measures are beginning to be implemented in order to decrease water pollution of agricultural origin.[34]

In sum, the more farmers are subsidised for irrigating, the more they suffer in time of drought. This latter being collective, the Public fund against farm calamities[35] rewarded indemnities amounting 238 million euros in 2005. In 2003, public compensation for drought raised 582 million euros while the same year 148 million euros of irrigation subsidies has been paid.[36]

[34] According to the European Commission (1999), "60% of European fields contain fertilizer and pesticides at dangerous levels for the quality of underground aquifers".

[35] *Fonds national de garantie contre les calamités agricoles* (FNGCA).

[36] Those considerable amounts of public drought allowance should incite public authorities to develop risk management instruments.

Subsidies become a trap for the recipients, a trap that the most recent CAP reform leaves almost untouched.

3.3 INTEGRATION OF IRRIGATION SUBSIDIES WITHIN THE DECOUPLING SCHEME

The historical decoupled payment scheme, implemented by French authorities in 2006, allows French farmers to keep up to 75% of irrigation subsidies granted during the past. The payment of SFPs is however not conditioned in maintaining an irrigated production structure. As regards statutory management requirements (European level cross compliance), they focus on water quality[37] and not quantitative as irrigation operations. As regards Good agricultural and environmental condition (GAEC) requirement (National level cross compliance), the only obligations for irrigating farm holding are (i) to be equipped with a counting mechanism able to assess the volume of water used and (ii) to own an administrative authorisation for using water.

More than 100 million euros of "irrigation SFPs" have been paid in 2006. The number and the value of SFPs are based on 2000-2001-2002 rotation of irrigated crops and 2002 support rates. This huge amount considers the 2.2% levy system applied to all direct payments when starting the decoupling scheme. It also considers the 4% modulation rate applied this year. Thus, with a 5% modulation rate applied in 2007-2009, "irrigation SFPs" amounted to roughly 100 million euros per year.

Table 11.
Recipients of "irrigation SFPs": the 20 largest départements
2006, million euros, %

*Départemen*t	Irrigation SFPs (euros)	Share of total (%)	*Département*	Irrigation SFPs (euros)	Share of total (%)
GERS	8,906,955	8.84%	ISERE	2,859,416	2.84%
LOT-ET-GARONNE	6,939,127	6.89%	LOIRET	2,745,530	2.72%
LANDES	6,688,389	6.64%	DORDOGNE	2,598,108	2.58%
CH.-MARITIME	5,981,838	5.94%	HAUTES-PYRENEES	2,579,114	2.56%
VIENNE	5,568,251	5.53%	TAM	2,436,891	2.42%
HAUTE-GARONNE	5,304,358	5.26%	DEUX-SEVRES	2,329,411	2.31%
TARN-ET-GARONNE	5,286,335	5.25%	EURE-ET-LOIR	2,140,666	2.12%
VENDEE	4,224,258	4.19%	PYRENEES-ATL.	1,905,063	1.89%
CHARENTE	3,999,897	3.97%	GIRONDE	1,740,148	1.73%
MAINE-ET-LOIRE	3,851,533	3.82%	OTHERS DEPT. (72)	19,188,417	19.04%
DROME	3,484,992	3.46%	FRANCE	100,758,697	100.00%

Source : Data from French Ministry of Food, Agriculture and Fisheries; Author's calculations.

[37] Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances (OJ L 20, 26.1.1980, p. 43); Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (OJ L 375, 31.12.1991, p. 1).

Those huge amounts of decoupled payments, unequivocally related to past irrigation process, are even underestimated for three reasons. First, in addition to 2000-2001-2002 historical references, a clause specifies that investments in irrigation equipment occurred between 2000 and May 15, 2006 permits the procurement of extra SFPs for farm whose irrigated acreage increases have been higher than 20% and 5 hectares. Those extra SFPs have thus to be added to previous results. In addition, they run against the URAA annex 2 as regards the eligibility of decoupled payments within the green box. Since the SFPs have not to be related to, or based on, the factors of production employed in any year after the 2000-2001-2002 reference period, those extra SFPs clearly jeopardise the whole European decoupling scheme. Second, our estimations are based on the decoupling of arable crop subsidies. The decoupling of tobacco subsidies (partial from 2006 and total from 2010) is not considered in spite of a common use of irrigation process. It should be highlighted that the reference basis for such decoupling is not the amount of hectares but the volume of subsidised tobacco – which is increased through an intensive irrigation. Third, since there is no information at farm level, modulation mechanism is applied to aggregated amount of subsidies without considering that only payments above 5,000 euros are subject to reductions.

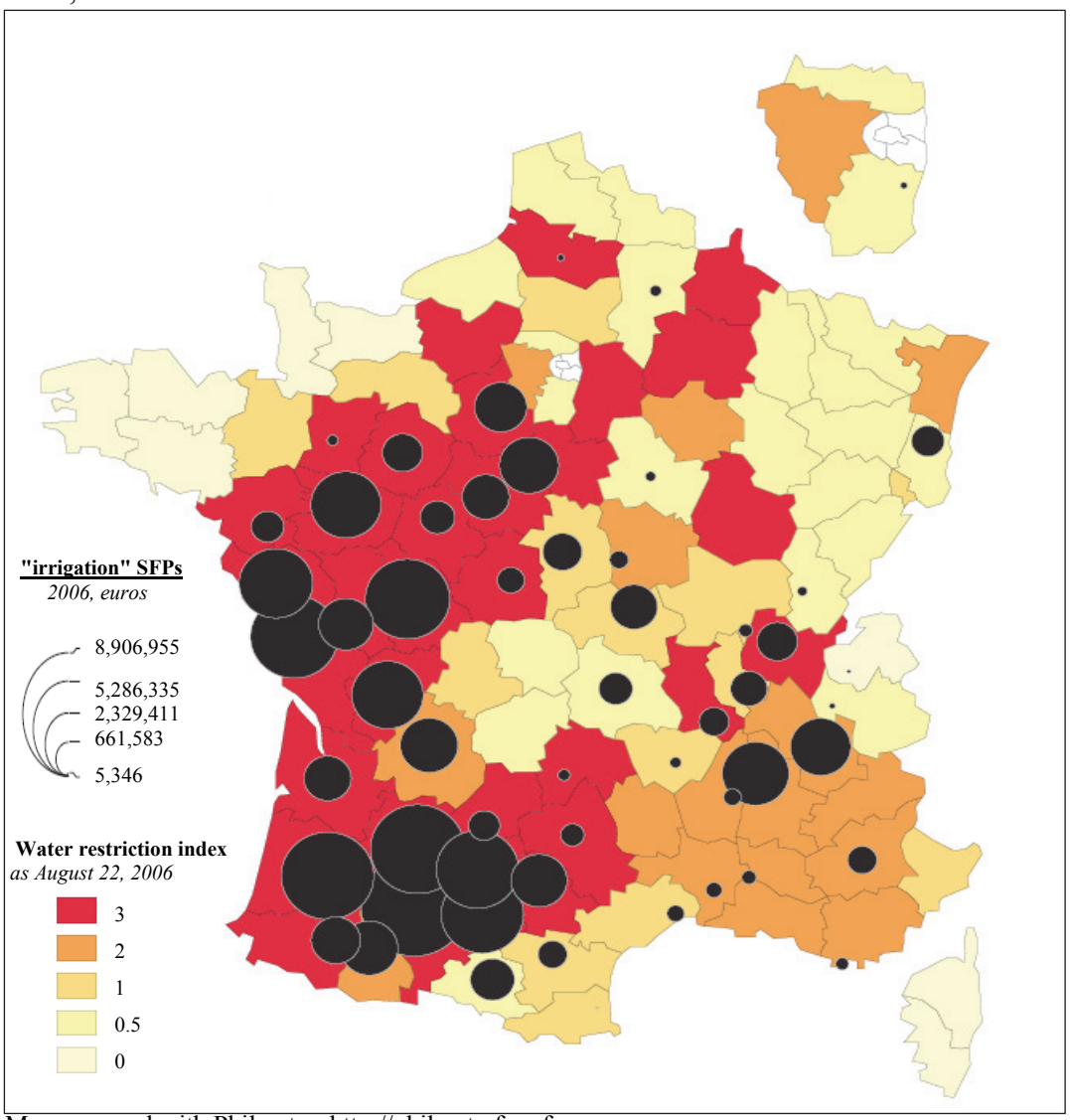
Table 8 presents the 20 largest recipient *département* of "irrigation SFPs" in 2006. Figure 9 put together the territorial distribution of "irrigation SFPs" and water restriction indexes. It illustrates a true public policy incoherency at a time of an expected persistent disequilibrium between water demand and supply. In addition, since subsidies to arable crops are partially decoupled, roughly 30 million euros of irrigation grants have been paid the same year. Those grants which are conditioned to an effective irrigation inhibit changes in irrigation processes and thus limit positive effects from decoupling. The full decoupling of arable crop subsidies and the modalities of integration within SFPs in 2010 may indirectly disfavour irrigating structures since they will conserve 44.5% of past coupled subsidies (*cf. supra*).[38]

"Water management" is one the new challenge follow-on the CAP health check. Rural development measures which improve (i) the efficiency in water using and (ii) the capacity in water may benefit from increased modulation funds and higher European co-funding rate. It is interesting to highlight that Polluter Pays Principle lies at the basis of the EU environmental policy. This increased public support to enhance a sustainable management of water tends to contradict this principle since subsidising a more efficient use of water has been preferable to

[38] Since implementation of French decoupling (2006), administrative data on coupled support to irrigating crops are no more available. As a result, micro-estimation of "irrigation SFPs" from 2010 would not be robust and thus are not provided in this paper.

taxing the reverse. Under the hypothesis that water is a public good, farm holdings should pay if they do not manage irrigation structures in a sustainable way. The same remark may be done as regards a cross compliance rationale considering a new GAEC requirement (already implemented in France) which makes compulsory the possession of an administrative authorisation as regards use of water for irrigation.

Figure 9.
"Irrigation" SFPs and drought
2006, euros



Map prepared with Philcarto : http://philcarto.free.fr
Sources: Data from French Ministry of Food, Agriculture and Fisheries, French Ministry of Ecology and Sustainable Development; Author's calculations.

As a conclusion of this case-study, the progressive dissolving of irrigation subsidies within a complex decoupling support makes even more vulnerable the rationale of support distribution.

4. CONCLUDING REMARKS: A RENEWED POLITICAL ECONOMY OF DIRECT PAYMENT RATIONAL AND DISTRIBUTION

Distribution of support has to be considered in line with policy objectives. The progressive decoupling of market-commodity direct payments goes in line with minor redistribution. From 2010 on, less than 20% of French direct payments – supported by the European budget – are targeted in view with recent policy objectives. Most of direct payments remain broad SFPs labelled within the European regulations with "*income support scheme for farmers*". It is a sector-based redistributive policy which suffers from weak income targeting (OECD, 2003). In addition, the scheme of a sector-based redistributive policy is still questionable. As a result, in spite of marginal adjustments resulting from the health check, equity lingers a burning topic deferred to national discretionary decisions.

The 1992 and 2003 market-oriented reforms resulted from resilient external pressure. As a result, the European Union benefits from an impressive scope as regards support concessions within the Doha round[39] .Then, a direct payment reform for the post 2013 period is pushed by internal considerations. They are in line with the 1997 Buckwell Report.[40] One should consider that the motivation of direct payments has to shift from income to amenity support. An income sector-based policy appears not relevant at the European level – as well as a policy which remunerate local amenities. It raises subsidiarity – and budgetary – issues which exacerbate national authority interests. These latter have to taking into account the widening number of stakeholders from environmental to rural non-agricultural civil society. They led to the constitution of broad-alliances or unexpected coalitions[41] on CAP reforms whereas farmers' trade unions appear divided with internal tensions and a declining number of adherents.[42] They emerge now as one of the interest group next to environmental, consumer or taxpayer groups. This new political environment is strengthened with the increasing political power devoted to the European Parliament which owns co-decision principle on CAP issues from 2010 on.

[39] On this point, see Jean, Josling and Laborde (2008).

[40] This Report (European Commission, 1997) made clear that the CAP has to continue to move away from sector-based policy which distorts agricultural commodity markets towards a territorially defined and integrated policy which remunerates public goods and amenities resulting from agricultural activities.

[41] For instance, an unexpected joint position paper on the future of the CAP from the European Landowners' Organization and Birdlife International has been released on January 2010; a proposal paper gathering together 15 French environmental and development NGOs (*Groupe PAC 2013*) has been published in February 2010.

[42] For instance, during the CAP health check negotiations, the FNSEA (the largest French farmer's trade union) has been divided between financial losers and winners i.e. crop and livestock producers.

The European direct payment scheme is at stake. On the one hand, the post-2013 scheme should appear as a further step within the reform dynamic introduced in 1992. On the other hand, it should materialize a new paradigm in direct payment rational, hence in direct payment distribution.

Appendix 1.
Transparency initiative as regards French farm support recipients

A1.1 Context

In 2005, GEM completed field inquiries in collaboration with *Confédération Paysanne*, second French farmer's trade union (19.6% of the January 2007 agricultural election) in order to estimate the subsidies granted to some French large farms. Since then GEM has been started to nurture a vigorous campaign on more transparency in France.

Between August 2005 and November 2006, 'i) 37 requests have been made to the French Ministry of Food, Agriculture and Fisheries and units under its supervision and (ii) 13 procedures to the French Committee of Access to Administrative Documents (CADA[43]) have be launched. Both for legal and political reasons, nominative and exhaustive divulgation of French farm subsidy data seemed inevitable while GEM produced a continuous flow of fresh information on farm subsidies by releasing tables on major beneficiaries from direct payments, irrigation subsidies and export refunds for dairy products.[44]

The *European Transparency Initiative* adopted by the European Commission in November 9, 2005, led to the adoption of a *European Transparency Initiative Green Paper*. On March 21, 2007, the European Commission published the results of the *European Transparency Initiative* consultation. It adopted a communication which established the follow up of the process. The European Commission also adopted a proposal for the Council amending Regulation on the Financing of the CAP in order to oblige Member States to release beneficiaries of EU funds.

On October 22-23, 2007, the Agriculture and Fisheries Council of the EU agreed on a draft Regulation amending the current Regulation on the financing of the CAP. It includes a compulsory ex-post publication of all recipients of community funds paid under the CAP. The transparency will cover expenses from October 16, 2007 for the European Agricultural Guarantee Fund (EAGF in charge of market measures and direct payments) and from July 1, 2007 for the European Agricultural Fund for Rural Development (EAFRD in charge of rural development measures). Member States will be responsible for such publication.

In November 26, 2007, the Council of the EU adopted the Regulation (EC) 1437/2007 amending the Regulation (EC)1290/2005 on the financing of the CAP. The Member States have to an ensure ex-post publication of the EAGF and EAFRD recipients and the amount

[43] The Law of 17 July 1978 gives everyone the right of access to documents that have been in the possession of public bodies. It guarantees the right of everyone, without condition of age or nationality, to access all administrative documents freely and free of charge. The only documents which are excluded are those which contain confidential information, such as national defence secrecy or information about a person's private life.
The CADA is an independent administrative authority in charge of ensuring the freedom of access to administrative documents. The CADA is not a jurisdiction:
(i) it give opinions on the communicable character of administrative documents that it addresses to the people who seized it and to the administrations which refused the communication,
(ii) it cannot be seized to get directly a document,
(iii) it can intervene only after a previous denial by the requested administration,
(iv) it advises administrative bodies on the communicable character of the documents they hold or on how to communicate them to the public,
(v) it intervenes for all the documents held by a State service, a local authority, a publicly-owned establishment or an organization in charge of the management of a public utility, whether this organization is public or private,
(vi) it must be seized before any appeal proceeding to the administrative court.

[44] For a policy brief on legal actions for getting transparent and adequate information on farm subsidies in France, see Nougaret (2007).

received per beneficiary under each of these Funds. The publication has to contain at least: (i) for the EAGF, the amount in direct payments and other expenditure incurred from October 16, 2007, (ii) for the EAFRD, the total amount of public founding per beneficiary incurred from January 1, 2007.

On March 18, 2008, the European Commission adopted the Regulation (EC) 259/2008 laying down rules for the publication of information on the beneficiaries of farm subsidies. Data have to be published, on a website set up by each Member State, by April 30 each year for the previous financial year. Publication has to include at least the name, the municipality and where available the postal code, the amount of (i) direct payments, (ii) other payments from the EAGF, and (iii) the amount of public funding from the EAFRD which includes both the European and national contribution. The Commission has to set up a website which includes links to Member States' websites.

Since September 30, 2008, a French governmental website[45] releases individual and nominative European amounts of aggregated rural development measures (second pillar of the CAP). Since April 30, 2009, the same French governmental website adds individual and nominative European amounts of market measures and direct payments (first pillar of the CAP).

A1.2 GEM contribution to the *European Transparency Initiative Green Paper*

August 25, 2006, by Pierre Boulanger and Patrick Messerlin

The *European Transparency Initiative* addresses the issue of disclosing the beneficiaries of EU funds under shared management. It constitutes thus a crucial step in the necessary reform of the Common Agricultural Policy (CAP) which still absorbs almost half of the EU budget and involves a growing number of beneficiaries since the 2004 EU enlargement.

Increasing CAP legitimacy and restoring a faltering trust is impossible in a Europe which would remain opaque. The need of transparency is so strong that even subsidy beneficiaries recognize it. The President of *Fédération Nationale des Syndicats d'Exploitants Agricoles* (FNSEA, the largest French farmers' trade union) called for "*full transparency*".[46] National and regional leaders of *Confédération Paysanne* (the second largest French farmers' union) published the detailed amounts of the farm subsidies they received.[47] The *Transparency Initiative* will contribute to go beyond such nice intentions and fragmented information.

By generating legitimacy, transparency helps to build better public policies. Systematic information on the beneficiaries of so complex subsidy schemes is needed for a thorough understanding of the European farm structures. It is a prerequisite for designing, during the European budget's 2008-2009 review, an economically sound CAP reform that will also meet social, territorial and environmental constraints. This is precisely with this goal in mind that GEM launched more than one year ago its research program "*CAP Efficiency, Equity and Transparency*".

Such research is even more necessary as many distortions generated by CAP are not fully captured by existing official data. For instance, in every French *département*, tight regulations are imposed on newcomers and on the sales and purchases of farm land. Such a

[45] https://www1.telepac.agriculture.gouv.fr

[46] Le Parisien Newspaper, November 4, 2005.

[47] Confédération paysanne, *Les vérités sur les aides à l'agriculture*, Press release, October 13 and November 2, 2005.

micromanagement favours vested interests and farmers skillful enough to build ownership structures allowing to bypass rural regulations. As a result, official data give a distorted idea of the situation of the French agriculture, especially of the real farms' size, a crucial efficiency parameter.

Lacking a European framework for providing data would maintain heterogeneous transparency situations, including within a given Member State. For instance, the French Ministry of Food, Agriculture and Fisheries released the names of the 2004 top 20 major beneficiaries of crop and livestock subsidies. Such discriminatory information makes an exhaustive disclosure legally inevitable. But the French authorities refuse to provide any additional information, even though the French *Commission d'Accès aux Documents Administratifs* (CADA) specified that regarding "*support paid for economic and cultural activities, or in order to improve the environment, independently of the personal situation of a natural person, […] the name of recipients of such support, being natural or legal persons, is not covered by the secret of private life, nor by business confidentiality. It works the same for the amount received, provided that the release of such amount does not enable the inference of information covered by the commercial and industrial secret such as turnover or investment figures. [CADA] notices that the support paid out […] is operating support which amount is not determined by the personal situation of the recipient. […] The list of beneficiaries of such support, associated with the global amount received by each recipient, is therefore available to anyone who requests the information according to the article 2 of the law of 17 July 1978*".[48]

The Ministry of Food, Agriculture and Fisheries justifies its opposition to more transparency by the fact that there is no centralized database giving, by farm, the amount paid by the various Agencies in charge of paying CAP subsidies. It argues that creating such a database would be costly. This argument is not acceptable. From December 2006, the Single Farm Payments (SFPs) will be paid by a single Agency. The creation of this latter is part of a process aiming at gathering French Agencies in charge of paying the first CAP pillar subsidies. Regarding the second CAP pillar support (rural development measures), the *Centre National pour l'Aménagement des Structures et des Exploitations Agricoles* (CNASEA) will be the only one in charge of their payment in France from next year on. Last but not least, an unique body will ensure the payment of all the CAP subsidies (first and second pillars) by January 1, 2013 at the latest.[49]

It is essential that all Member States publish under a common format the amount paid to each farm for all the measures under cf management (from the first and second CAP pillars). This obligation should be extended to national measures in order to guarantee a level playing field in European farm markets. Such information should allow the identification of natural and legal person for getting a thorough knowledge of the European current farm structures. Moreover, a sound rural development policy requires the release of recipients' localisation. Finally, all this information should be made available to any EU citizen through a single website endorsed by both the Commission and Member States.

Economic efficiency, public policies legitimacy, social justice, sustainable development, territorial harmony, all these aspects argue for the best possible transparency in farm subsidy management. It is an absolute prerequisite for a rigorous diagnosis leading to an appropriate reform to be designed during the European budget's 2008-2009 review.

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[48] CADA, *opinion n°20055081-FP*, January 19, 2006.

[49] See *Loi n°2006-11 du 5 janvier 2006 d'orientation agricole*, article 95.

Appendix 2.

2008 CAP health check main issues and outcomes

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 2010-2011
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% 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 eligiblearea 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, biodiversity, dairy restructuring (funded with additional modulation).

Source: European Commission, 2009.

Appendix 3.

Crop yield reference plan used in coupled direct payment computation by French *départements/sub-départements*

	Arable crop yields PLAN		**Specific corn yields PLAN**			
Départements, sub-départements, and *régions*	Dry crops	Irrigated crops	Irrigated corn	Dry corn	Dry crops except. corn	Irrigated crops except. corn
SEINE ET MARNE	65.4					
YVELINES	62.2					
ESSONNE	62.2	67.3				
SEINE ST DENIS	66.4					
VAL DE MARNE	63.9					
VAL D'OISE	65.4					
ILE DE FRANCE						
ARDENNES	62.2					
AUBE	65.0					
MARNE	66.0					
HAUTE MARNE	55.9					
CHAMPAGNE ARDENNES						
AISNE	66.2	79.9				
OISE	65.4					
SOMME	67.0	78.0				
PICARDIE						
EURE	64.1					
SEINE MARITIME	66.1					
HAUTE NORMANDIE						
CHER	56.7	71.0				
EURE ET LOIR	62.7	74.7				
INDRE	54.6	70.3				
INDRE ET LOIRE	55.8	71.2				
LOIR ET CHER	58.0	74.7				
LOIRET	58.9	70.8				
CENTRE						
CALVADOS	64.5					
MANCHE	57.1					
ORNE	59.7					
BASSE NORMANDIE						
COTE D'OR	56.4					
NIEVRE	55.4	68.7				
SAONE ET LOIRE A	46.7	67.0				
SAONE ET LOIRE B	54.1	67.0				
YONNE	59.7	67.2				
BOURGOGNE						
NORD	66.1					
PAS DE CALAIS	66.0					
NORD PAS DE CALAIS						
MEURTHE ET MOSELLE	56.4					
MEUSE	56.5					
MOSELLE	55.5					
VOSGES	52.6					
LORRAINE						
RHIN(BAS)			84.1	78.9	55.8	
RHIN (HAUT)			83.3	77.8	56.3	
ALSACE						
DOUBS A	54.8					
DOUBS B	51.7					
DOUBS C	45.0					

	Arable crop yields PLAN		**Specific corn yields PLAN**			
Départements, sub-départements, and *régions*	Dry crops	Irrigated crops	Irrigated corn	Dry corn	Dry crops except. corn	Irrigated crops except. corn
JURA A	45.0					
JURA B	56.2	69.3				
SAONE (HAUTE)	55.5					
BELFORT (TERRITOIRE)	53.4					
FRANCHE-COMTE						
LOIRE ATLANT.IQUE	52.5	77.2				
MAINE ET LOIRE	53.8	80.6				
MAYENNE	58.7	70.9				
SARTHE	56.4	70.9				
VENDEE	54.9	73.6				
PAYS DE LA LOIRE						
COTES D'ARMOR	58.9					
FINISTERE	55.6					
ILLE ET VILAINE	55.3					
MORBIHAN	55.9					
BRETAGNE						
CHARENTE	52.0	81.5				
CHARENTE MAR.ITIME	54.7	74.4				
DEUX SEVRES	53.3	75.6				
VIENNE	53.8	85.5				
POITOU CHARENTES						
DORDOGNE			78.7	56.9	49.1	68.1
GIRONDE A			85.9	58.7	49.3	
GIRONDE B	70.3					
LANDES			88.1	71.4	50.4	
LOT ET GARONNE	50.6	76.4				
PYRENEES ATL.			88.1	71.4	50.8	
AQUITAINE						
ARIEGE	47.1	76.0				
AVEYRON	47.2	69.0				
GARONNE (HAUTE)	48.7	76.3				
GERS	50.8	77.4				
LOT A	52.6	74.5				
LOT B	43.5	74.5				
PYRENEES (HAUTES)			87.4	66.4	45.7	
TARN	49.9	78.4				
TARN ET GARONNE	49.0	77.9				
MIDI PYRENEES						
CORREZE				79.4	45.5	
CREUSE	49.4					
VIENNE (HAUTE)	49.4					
LIMOUSIN						
AIN	55.8	75.6				
ARDECHE	44.8	73.2				
DROME	46.9	79.2				
ISERE	53.0	90.1				
LOIRE CHAMBONS	56.9	75.8				
LOIRE PLAINE	50.6	75.8				
LOIRE MONTAGNE	42.6	75.8				
RHONE	52.3	89.7				
SAVOIE			89.3	70.7	52.3	
HAUTE SAVOIE	53.2	72.6				
RHONE ALPES						
ALLIER A	55.9	82.2				
ALLIER B	49.1	82.2				

	Arable crop yields PLAN		**Specific corn yields PLAN**			
Départements, sub-départements, and *régions*	Dry crops	Irrigated crops	Irrigated corn	Dry corn	Dry crops except. corn	Irrigated crops except. corn
CANTAL	48.4	84.7				
HAUTE LOIRE A	57.1	67.2				
HAUTE LOIRE B	48.6	67.2				
HAUTE LOIRE C	42.7	67.2				
PUY DE DOME A	62.3	82.2				
PUY DE DOME B	45.5	74.7				
AUVERGNE						
AUDE A	46.6	71.4				
AUDE B	41.2	71.4				
GARD	44.5	75.3				
HERAULT	40.6	82.2				
LOZERE	43.6					
PYRENEES ORIENT.ALES	40.8	76.6				
LANGUEDOC ROUSSILLON						
ALPES DE HTE PROVENCE	43.0	81.7				
HAUTES ALPES				78.8	47.2	
ALPES MAR.	42.4					
BOUCHES DU RHONE				71.9	45.1	
VAR	40.8	79.0				
VAUCLUSE	46.5	74.7				
PROV-ALP-COTE D'AZUR						
CORSE DU SUD	38.8					
HAUTE CORSE				92.2	35.5	
CORSE						

Source : Data from French Ministry of Food, Agriculture and Fisheries.

Appendix 4.
Gini index for French metropolitan *départements* in 2007

PILLAR 1 DIRECT PAYMENTS	
VAR	0.819
BOUCHES-DU-RHONE	0.794
ALPES-MARITIMES	0.773
GARD	0.726
HERAULT	0.718
VAUCLUSE	0.711
GIRONDE	0.705
ALPES-DE-HAUTE-PROVENCE	0.616
ISERE	0.614
MANCHE	0.612
HAUTE-GARONNE	0.609
AUDE	0.608
DROME	0.606
DORDOGNE	0.599
PYRENEES-ORIENTALES	0.598
TERRITOIRE DE BELFORT	0.598
ARIEGE	0.589
SAVOIE	0.587
LOT-ET-GARONNE	0.587
BAS-RHIN	0.586
LANDES	0.582
VOSGES	0.573
ARDECHE	0.573
CALVADOS	0.570
HAUT-RHIN	0.570
CHARENTE	0.565
TARN-ET-GARONNE	0.565
ORNE	0.554
HAUTE-SAVOIE	0.553
AIN	0.550
CHARENTE-MARITIME	0.549
RHONE	0.548
LOT	0.543
PUY-DE-DOME	0.543
HAUTE-SAONE	0.538
TARN	0.537
LOIRE	0.535
HAUTES-ALPES	0.534
MOSELLE	0.533
SEINE-MARITIME	0.523
HAUTE-VIENNE	0.522
GERS	0.521
JURA	0.519
PYRENEES-ATLANTIQUES	0.512
MAYENNE	0.508
CREUSE	0.504
CORREZE	0.504
HAUTE-CORSE	0.502
NORD	0.501
DEUX-SEVRES	0.500
HAUTES-PYRENEES	0.495
ALLIER	0.493
INDRE	0.493
SARTHE	0.493

PILLAR 2 RURAL DEVELOPMENT MEASURES	
MEURTHE-ET-MOSELLE	0.675
GIRONDE	0.667
FINISTERE	0.630
LANDES	0.625
DORDOGNE	0.602
BAS-RHIN	0.598
YVELINES	0.595
ILLE-ET-VILAINE	0.591
AISNE	0.591
LOT-ET-GARONNE	0.587
MAINE-ET-LOIRE	0.583
VOSGES	0.580
VAR	0.580
CHARENTE	0.577
LOIRE-ATLANTIQUE	0.572
INDRE-ET-LOIRE	0.570
CHARENTE-MARITIME	0.560
ISERE	0.558
TERRITOIRE DE BELFORT	0.556
BOUCHES-DU-RHONE	0.554
HERAULT	0.552
MEUSE	0.548
ORNE	0.546
TARN-ET-GARONNE	0.545
COTES-D'ARMOR	0.544
GERS	0.543
MANCHE	0.542
SEINE-MARITIME	0.538
SARTHE	0.534
HAUTE-GARONNE	0.532
PAS-DE-CALAIS	0.531
LOIRET	0.526
HAUTE-MARNE	0.525
CALVADOS	0.524
MOSELLE	0.521
HAUTES-PYRENEES	0.519
EURE	0.517
TARN	0.516
AUBE	0.514
YONNE	0.512
DEUX-SEVRES	0.512
HAUTE-SAONE	0.509
MARNE	0.509
GARD	0.507
HAUTE-VIENNE	0.506
MORBIHAN	0.506
CHER	0.506
VIENNE	0.505
SAONE-ET-LOIRE	0.503
MAYENNE	0.503
PYRENEES-ATLANTIQUES	0.500
VENDEE	0.499
ARDENNES	0.498
HAUTE-SAVOIE	0.496

PILLAR 1 DIRECT PAYMENTS	
VIENNE	0.492
EURE	0.491
SAONE-ET-LOIRE	0.489
ILLE-ET-VILAINE	0.488
LOIRE-ATLANTIQUE	0.484
VAL-D'OISE	0.478
HAUTE-LOIRE	0.476
MAINE-ET-LOIRE	0.475
SOMME	0.474
INDRE-ET-LOIRE	0.471
CHER	0.463
CORSE-DU-SUD	0.462
LOIR-ET-CHER	0.459
ARDENNES	0.456
DOUBS	0.455
FINISTERE	0.455
PAS-DE-CALAIS	0.454
AISNE	0.453
NIEVRE	0.452
MORBIHAN	0.452
HAUTE-MARNE	0.450
COTE-D'OR	0.448
OISE	0.445
MEUSE	0.443
AVEYRON	0.441
COTES-D'ARMOR	0.441
LOZERE	0.440
YVELINES	0.435
CANTAL	0.435
VENDEE	0.433
MEURTHE-ET-MOSELLE	0.432
ESSONNE	0.429
AUBE	0.419
YONNE	0.414
EURE-ET-LOIR	0.412
LOIRET	0.406
MARNE	0.401
SEINE-ET-MARNE	0.370

PILLAR 2 RURAL DEVELOPMENT MEASURES	
SOMME	0.495
ESSONNE	0.492
CORREZE	0.490
LOIR-ET-CHER	0.489
VAUCLUSE	0.487
CREUSE	0.482
HAUT-RHIN	0.477
NORD	0.474
ARIEGE	0.474
DROME	0.474
AIN	0.472
PYRENEES-ORIENTALES	0.471
SEINE-ET-MARNE	0.471
SAVOIE	0.470
RHONE	0.465
NIEVRE	0.464
JURA	0.455
VAL-D'OISE	0.454
ALLIER	0.452
AUDE	0.451
INDRE	0.450
OISE	0.448
COTE-D'OR	0.443
ARDECHE	0.440
LOIRE	0.440
HAUTES-ALPES	0.428
ALPES-DE-HAUTE-PROVENCE	0.427
AVEYRON	0.418
HAUTE-LOIRE	0.416
ALPES-MARITIMES	0.415
LOT	0.413
EURE-ET-LOIR	0.412
LOZERE	0.404
PUY-DE-DOME	0.404
DOUBS	0.384
CANTAL	0.381

AVERAGE	**0.524**
MEDIAN	**0.504**
STANDARD VALUE	**0.088**
MAX	**0.819**
MIN	**0.370**

AVERAGE	**0.508**
MEDIANE	**0.506**
STANDARD VALUE	**0.062**
MAX	**0.675**
MIN	**0.381**

Source : Individual data released by French Ministry of Food, Agriculture and Fisheries; then extracted by Farmsubsidy.org from https://www1.telepac.agriculture.gouv.fr.and arranged by the author. They count for 378,812 recipients of direct payments (Pillar 1) and 133,839 recipients of rural development measures (Pillar 2) in 2007. They cover 92 French *départements* (are excluding: overseas *départements*, Seine-Saint-Denis, Val de Marne, Hauts-de-Seine and City of Paris. In addition, are excluded for rural development measures (Pillar 2) Corse-du-Sud and Haute-Corse; Author's calculations.

Appendix 5.

Farm holdings receiving more than one million euros a year in French outermost *départements*

2007, euros

Guyane : Rice farm holdings

#	Municipality	Direct payments
1	MANA	1,948,138
2	MANA	1,320,138

Source: French Ministry of Food, Agriculture and Fisheries.
https://www1.telepac.agriculture.gouv.fr

Guadeloupe : Banana farm holdings

#	Municipality	Direct payments
1	CAPESTERRE BELLE EAU	4,225,628
2	CAPESTERRE BELLE EAU	1,586,078
3	PETIT BOURG	1,023,593
4	CAPESTERRE BELLE EAU	1,003,577

Source: French Ministry of Food, Agriculture and Fisheries.
https://www1.telepac.agriculture.gouv.fr

Martinique : Banana farm holdings

#	Municipality	Direct payments
1	LAMENTIN	3,859,391
2	SAINT JOSEPH	3,518,134
3	GROS MORNE	2,005,423
4	LE LAMENTIN	1,803,759
5	TRINITE	1,709,206
6	BASSE POINTE	1,671,167
7	BASSE POINTE	1,520,715
8	BASSE POINTE	1,466,930
9	BASSE POINTE	1,445,015
10	LE FRANCOIS	1,440,266
11	MACOUBA	1,420,911
12	BASSE POINTE	1,387,312
13	SAINTE MARIE	1,331,556
14	LE LAMENTIN	1,305,234
15	BASSE POINTE	1,287,446
16	MACOUBA	1,278,801
17	MARIGOT	1,264,976
18	BASSE-POINTE	1,226,177
19	SAINT JOSEPH	1,178,685
20	MACOUBA	1,169,528
21	SAINTE-MARIE	1,155,123
22	LE LAMENTIN	1,144,190
23	LORRAIN	1,139,362
24	ST PIERRE	1,134,619
25	TRINITE	1,113,362
26	TRINITE	1,093,396
27	MARIGOT (LE)	1,092,310
28	LE LAMENTIN	1,083,643
29	LE LAMENTIN	1,079,298
30	FORT DE FRANCE	1,029,437
31	SAINT PIERRE	1,000,329

Source: French Ministry of Food, Agriculture and Fisheries.
https://www1.telepac.agriculture.gouv.fr

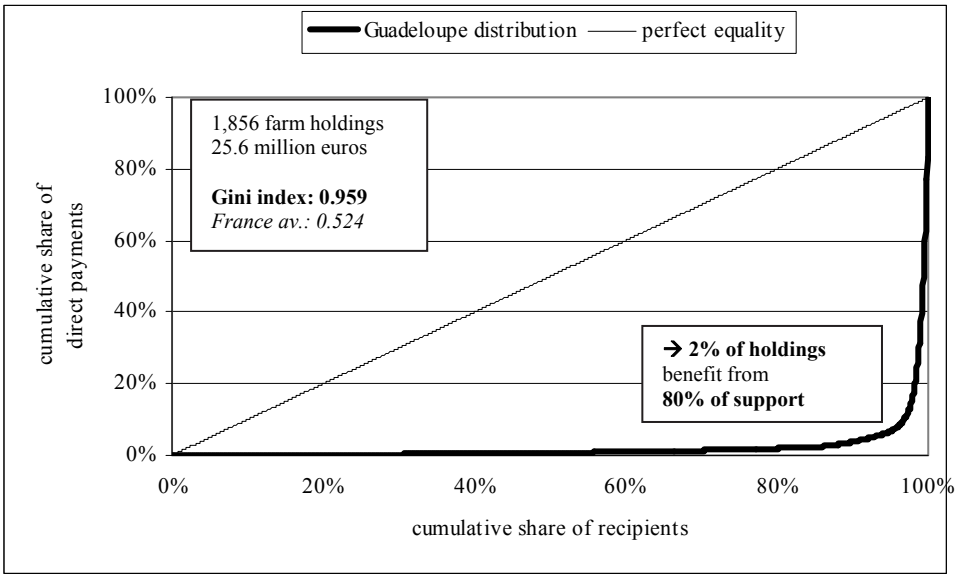
Basic statistics as regards Guadeloupe and Martinique

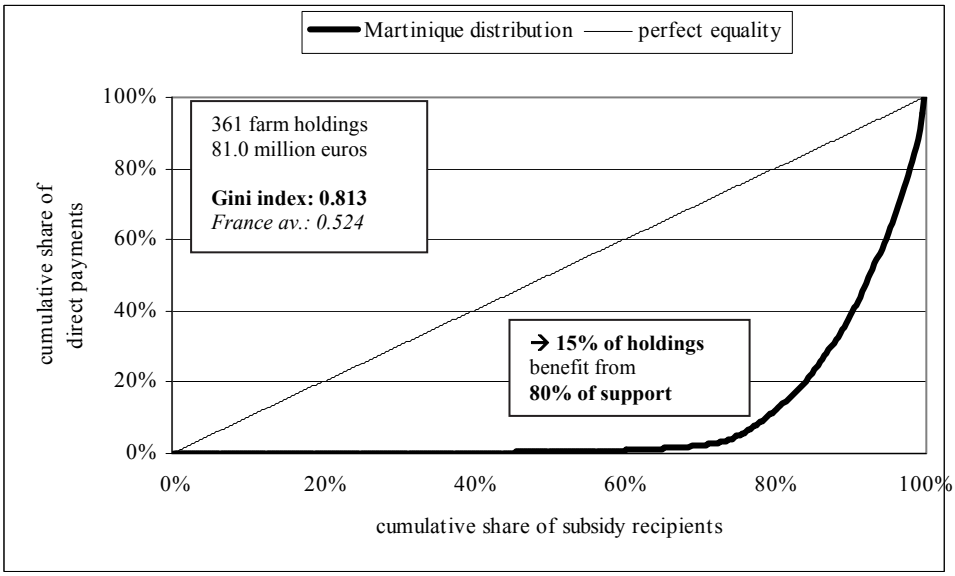
	SGM per AWU (2007)	SGM per AWU var. (2000-2007)	Unemploy. rate (2007, 3rd trim.)	Less-than-24-years-old unemployment rate (2007, 3rd trim.)	Number of banana holding var. (2000-2007)	Banana fields as a share of total UAA (2007)	Share of banana fields in mountain. areas (2006)
GUADELOUPE	11.0	13.9%	22.0%	55.7%	-50%	5.2%	45%
MARTINIQUE	13.4	19.6%	22.4%	52.5%	-40%	23.2%	20%
FRANCE met.	35.4	17.1%	7.9%	18.4%	ns	ns	ns

AWU: Annual Work Unit
SGM: Standard Gross Margin
UAA : Utilised Agricultural Area
Source: Data from French Ministry of Food, Agriculture and Fisheries, INSEE.

Appendix 6.

Lorenz curves for direct payments in Guadeloupe and Martinique
2007





Source: Individual data released by French Ministry of Food, Agriculture and Fisheries; then extracted by Farmsubsidy.org from https://www1.telepac.agriculture.gouv.fr; Author's calculations.

Appendix 7

Recipients of irrigation subsidies: the 20 largest *départements*

2005, euros

Départements	Irrigated fields – corn seed and ensilage (ha)	Irrigated arable land - corn seed and ensilage excluded (ha)	Irrigation subsidies – corn seed and ensilage (euros/ha)	Irrigation subsidies – corn seed and ensilage excluded (euros/ha)	Total irrigation subsidies paid (euros)	Shares of total irrigation subsidies paid (%)	State of decree restricting water use [b]		
							August 22, 2005	December 20, 2005	August 22, 2006
GERS	55,523	20,360	167.58	167.58	12,716,473	9.43%	3	0.5	3
LANDES	88,419	4	162.54	162.54	9,302,563	6.90%	3	3	3
LOT-ET-GARONNE	46,159	8,064	105.21	0	8,813,406	6.54%	3	0.5	3
HAUTE-GARONNE	26,318	15,603	173.88	173.88	7,289,223	5.41%	2	0.5	3
CHARENTE-MARITIME	40,786	17,701	124.11	124.11	7,258,822	5.38%	3	3	3
VIENNE	31,520	4,698	182.07	182.07	7,233,097	5.36%	3	3	3
TARN-ET-GARONNE	25,537	10,143	199.71	199.71	6,496,258	4.82%	3	0.5	3
MAINE-ET-LOIRE	27,694	4,285	185.85	185.85	5,399,334	4.00%	3	0.5	3
CHARENTE	24,454	3,531	168.84	168.84	5,201,012	3.86%	3	3	3
VENDEE	39,737	2,336	203.49	203.49	4,956,620	3.68%	3	0.5	3
DROME	17,739	5,066	117.81	117.81	4,640,589	3.44%	2	0.5	2
LOIRET	29,497	26,934	74.97	74.97	4,230,632	3.14%	3	0.5	3
ISERE	14,093	2,381	233.73	233.73	3,850,468	2.86%	2	0.5	2
HAUTES-PYRENEES	27,182	30	179.55	179.55	3,596,179	2.67%	2	0.5	2
DORDOGNE	23,786	1,817	137.34	119.7	3,484,264	2.58%	3	0.5	2
TAM	13,810	5,120	132.3	0	3,398,882	2.52%	2	0.5	3
PYRENEES-ATLANTIQUES	27,248	21	75.6	75.6	2,866,762	2.13%	1	0.5	3
EURE-ET-LOIR	19,319	17,739	140.49	140.49	2,801,585	2.08%	3	0.5	3
DEUX-SEVRES	16,226	3,633	105.21	0	2,789,991	2.07%	3	3	3
ALLIER	12,444	907	187.11	187.11	2,498,106	1.85%	2	0.5	1
OTHER DEPTS. (72)	223,631	33,820	65.83 [a]	62.52 [a]	25,999,087	19.28%	108	27	101.5
FRANCE	831,125	184,203	--	--	134,823,353	100.00%	160	49.5	155.5

*Data cover 92 French *départements*. Overseas *départements*, Seine-Saint-Denis, Val de Marne, Hauts-de-Seine and City-of-Paris are excluded.

[a] The two irrigation subsidies "corn seed and ensilage" and "corn seed and ensilage excluded" of the "Other *departments"* included in the table are the results of a simple average of the 72 *départemental* subsidies which have been used for subsidy estimates by *départements*.

[b] Based on the information provided by the Water Directorate of the French Ministry of Ecology and Sustainable Development, the following restriction index has been set up by the author:

No decree (restriction index: 0).

Planned measures: non-effective limitation measures on water use but measures have been planned in the long-run in case of necessity (restriction index: 0.5).

Effective limited measures: limitation measures on water use inferior or equal to 1 day per week or to 15% of the volume in at least one river-basin (restriction index: 1).

Effective strong measures: limitation measures on water use superior or equal to 1 day per week in at least one river-basin but inferior to 7 days per week (restriction index: 2).

Total bans: bans on water use in at least one river-basin (restriction index: 3).

Sources : French Ministry of Food, Agriculture and Fisheries; Author's calculations.

Bibliography

Allanson, P., Hubbard, L., 1999. On the comparative evaluation of agricultural income distribution in the European Union, European Review of Agricultural Economics, Vol.7, issue 1, pp 1-17.

Anciaux, J-P., 2005. Réforme de la PAC et DPU, Livre blanc, mission tripartite, Paris, May.

Boulanger, P., 2005. Les réalités de la distribution des subventions agricoles en France, GEM Working Paper, Sciences Po, Paris, November.

Boulanger, P., 2007. Subventions directes agricole et gestion quantitative des ressources en eau", GEM Policy Brief, Sciences Po, Paris, September.

Boulanger, P., 2008. Modulation of Direct Payments: A crossed analysis of incremental schemes, European Association of Agricultural Economists, 2008 Congress, Ghent, August 26-29.

Butault, J.P., Lerouvillois, P., 1999. La réforme de la PAC et l'inégalité des revenus agricoles dans l'Union Européenne : les premiers effets, Economie et Statistique, n° 329-330, pp. 73-86.

Butault, J.P., Chantreuil, F., Dupraz, P., 2002. Critères d'équité et répartition des aides directes, Economie Rurale, n°271, pp. 84-91.

Butault, J.P. (ed.), 2004. Les soutiens à l'agriculture. Théorie, histoire, mesure, INRA éditions, Mieux comprendre – Economie et Société, Paris.

Chatellier, V., Kleinhanss, W., 2002. Agenda 2000 et modulation des aides directes de la PAC en France et en Allemagne, Economie Rurale, n°268-269, March-June, pp. 159-173.

Chatellier, V., Colson, F., Daniel, K., 2004. Les aides directes aux exploitations européennes : l'inégale répartition des soutiens demeure, in Delorme, H., La politique agricole commune, anatomie d'une transformation, Presses de Sciences Po, pp. 269-297.

European Commission, 1997. Towards a Common Agricultural and Rural Policy for Europe, Report of an Expert Group (Buckwell Report), Brussels.

European Commission, 1999. Gestion durable et qualité de l'eau, Research General Directorate, RDT Info n°21, February.

European Commission, 2009. Health Check of the CAP: current situation, Commission proposal and Council outcome, DG Agriculture and Rural Development, Brussels, March.

European Commission, 2009. Why Do We Need a Common Agricultural Policy? DG Agriculture and Rural Development Discussion Paper, Brussels, December.

Fouilleux, E., 2008. Les politiques agricoles et alimentaires *in* Borras O. and Guiraudon V., Politiques publiques : La France dans la gouvernance européenne, Les Presses de Sciences Po, Paris.

French Ministry of Ecology and Sustainable Development, 2005. Communication en Conseil des Ministres sur le plan de gestion de la rareté de l'eau, Paris, October 26.

Garzon, I., 2006. Reforming the Common Agricultural Policy: History of a Paradigm, Palgrave Studies in European Union Politics, Palgrave Macmillan, Basingstoke & New York.

Hennessy, D., 1998. The Production Effects of Agricultural income Support Policies under Uncertainty, American Journal Of Agriculture, Vol. 80, issue 1, pp. 46-57.

IEEP, 2000. The environmental impacts of irrigation in the European Union, Rapport pour la Direction Générale de l'Environnement de la Commission européenne, March.

Jean, S., Josling, T., Laborde, D., 2008. Implications for the European Union of the May 2008 Draft Agricultural Modalities, International Centre for Trade and Sustainable Development, Geneva.

Josling, T., Tangermann, S., 2009. Agriculture: the Dog that didn't Bark?, Trade Implications of Policy Responses to the Crisis, Joint World Bank – CEPR Conference, Brussels, 26-27 May.

Kroll, J-C., 2008. The implementation of single payment schemes in European Union countries, Paper prepared for the 109th EAAE Seminar "The CAP after the Fishler reform: national implementations, impact assessment and the agenda for future reforms", Viterbo, November 20-21.

Le Vernoy, A., 2006. Investigating Virtual Water Hypothesis in the Euro-Mediterranean, GEM Policy Brief, Paris, May.

Martin, W., Mitra, D., 2001. Productivity Growth and Convergence in Agriculture versus Manufacturing, Economic Development and Cultural Change, January 2001, Vol.49 issue 2, pp. 403-422.

Moreddu, C., 2007. Effective Targeting of Agricultural Policies, Best Practices for Policy Design and Implementation, OECD Report, Directorate for Food, Agriculture and Fisheries, Paris.

Nougaret, G., 2007. Legal Framework Applicable to Publication of Direct Farm Subsidies in France, GEM Policy Brief, Paris, May.

OECD, 2003. Farm Household Income, Issues and Policy Responses, OECD Report, Directorate for Food, Agriculture and Fisheries, Paris.

Rainelli, P., Vermersch, D., 1999. Environmental Impacts of Agriculture Support : Cereal Irrigation in France, in Improving the Environment through reducing subsidies – Part III – Case studies, OECD, Paris, pp.47-78.

Sénat, 2000. Rapport d'information sur la réforme de la loi sur l'eau, 2000-2001 Ordinary Session, Paris.

Shucksmith, M., Thomson, K. J., Roberts, D. (Eds), 2005. The CAP and the regions: the territorial impact of the Common Agricultural Policy, ESPON Project 2.1.3: The Territorial Impact of the CAP and RDP, CABI Publishing.

Trouvé, A., Berriet-Solliec, M., 2008. 2nd pilier de la Politique Agricole Commune et régionalisation: vers plus de cohésion? Revue d'Economie Régionale et Urbaine, n°1, pp. 87-108.