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RESEARCH IN ECONOMICS AND RURAL
SOCIOLOGY

**The 2003 CAP reform and the single payment system:
Impacts of various implementation options at the French level**

Compared with previous reforms, the main innovation of the 2003 CAP reform is the inclusion of the single payment system: the main principle is to break the link between support to farm incomes and the act of agricultural production. However, this reform allows exemptions to this principle at the Member States' discretion. The objective of this article is to assess the consequences of the four implementation options of this new system on markets and incomes at the French level. Simulations show that unlike farm incomes, impacts on agricultural markets are relatively insensitive to these options. According to our simulations, the opportunity of introducing a single aid to forage areas instead of animal direct aid appears to be a possible compromise between the various stakes.

Purpose of the research

Only four years after the Agenda 2000 reform in June 2003, the European Union (EU) adopted a new reform of its common agricultural policy (CAP). In some ways, this new reform is in the same vein as the previous ones with new guaranteed price reductions compensated by direct aid. However, it introduced a new element, the single payment scheme (SPS), usually presented as the decoupling of direct aid but which must be differentiated from the decoupling such as defined in the agricultural agreement of the Uruguay Round or from the decoupling implemented by the United States since 1996. This new system will replace most of the direct aid granted annually within the framework of the Common Market Organization (CMO). Unlike the direct aid that it

replaces, this single payment is not connected with a particular production (with a few exceptions).

Given the risks posed by the SPS, notably in terms of agricultural abandonment and competition distortions between agricultural activities and farms, the reform grants flexibilities to Member States in the implementation of this instrument. First, some elements of the coupling may be maintained within well-defined limits. Second, SPS may be implemented at the farm or the regional level. Naturally, these new impacts will depend on the way Member States use these potentialities. The objective of this article is to assess the consequences of the various options of SPS implementation on the agricultural market (productions, trade and prices) and on farm incomes.

Methodology

The simulations presented in this article are performed with MEGAAF (the French agro-food equilibrium model). This model is a static calculable general equilibrium model (CGE) of the French economy already used several times to simulate the changing effects of agricultural policy (see Gohin 2003 for the most recent implementation). We underline here that this model is characterized by: i) a detailed representation of the main agricultural chains concerned by this reform, distinguishing both upstream and downstream sectors, ii) an explicit and complementary representation of agricultural policy tools (tools of trading, market control, domestic support,...), iii) a modelling of the mobility of the primary factors of production, allowing for instance the inclusion of land factor heterogeneity and iv) a flexible modelling of production technologies, notably substitutability between inputs, and household preferences. Further information may be found in Gohin (2002).

In any quantitative assessment of an economic policy, the definition of a situation of reference is fundamental. The state of markets depends on policy effects. Table 1 provides a few indicators of the situation of reference used to assess the Agenda 2000 reform of the CAP, notably the reform of the increase in the milk quota (1.5%), the reduction in intervention prices (15%) and the implementation of direct aid linked to the milk quota (25€/ton). On the other hand, the scenario of reference does not integrate new international constraints which could result from negotiations carried out within the framework of the millennium cycle.

This situation of reference is characterized by the following equilibriums: French exports on the world market always represent a major outlet for soft wheat (15.7%) and barley (19.6%). For barley, the differential between domestic price and world price is always significant (27% of the domestic price). On the beef meat market, domestic production is entirely sold on the EC market and

the domestic price is higher than the global one. Protective measures at entry are highly active. Milk production increases in parallel with the quota volume; the additional milk volume is mainly transformed into cheeses and other high value-added dairy products. The surplus of dairy products exported on the world market has fallen significantly, contributing to a rise in world prices, but these remain well below domestic prices (especially for butter).

In terms of agricultural activities, arable crop areas remain relatively stable, at 12.7% million ha. Conversely, the areas dedicated to forage production have fallen significantly and stand at 10.8% million ha. The aid levels per hectare differ according to activities: 358 euros/ha for arable crop areas, 283 euros/ha on average for areas used for livestock farming when compared with all the animal direct aid. Direct aid represents a large part of agricultural value added (VA) for arable cropping (56%) and for cattle farming (50%).

Impacts of various implementation options of the single payment scheme

From the situation of reference described above, we test four options of the SP implementation at French level. These four options rely on common assumptions for all the CAP instruments except direct aid (new 10% reduction in the butter intervention price, new compensation for that cut in prices, maintenance of farmlands set aside, maintenance of market access instruments and subsidized export possibilities, etc.) and do not take into account modulation and its redistribution.

Impacts of "historical aid"

The first option tested, subsequently called historical aid, corresponds to the case where the SP is defined at each farm level, when no coupling element is introduced and when national policy on administrative management of payment rights prevents any capitalization of this support in land (for example, the rights to produce milk which transit through the national reserve, unlike the rights which accompany land transactions).

This option leads to substantial adjustments on the land market, with a significant reduction in arable areas (5.1%) offset by an increase in forage areas (6%), representing another transfer of 650,000 ha (see table 2). It comes with a sharp fall in the value of land. Two main phenomena contribute to those results. On the one hand, in the situation of reference, direct aid to arable areas is higher than the equivalent direct aid to forage areas. On the other hand, the suppression of animal direct aid, notably the beef special premium (BSP) and the slaughter premium, reduces the incentives which, in turn, lead to an increase in cattle prices. This positive effect on prices sustains the value of forage areas. The combined effect of both these mechanisms is an increase in forage areas, notably meadows, exactly the opposite of the phenomenon observed for more than 30 years of putting arable land under grass.

Logically, the fall in arable areas goes hand in hand with drops in arable crop productions. The transfers of areas are first carried out on the least “productive” lands. For instance, domestic production of soft wheat has undergone a 3.1% decline (see table 3) for a reduction in surface areas of 5%.

The fall in domestic cereal production is almost entirely supported by a reduction in exports on world market (for instance, a 16.5% reduction in soft wheat exports). In other words, domestic demand for cereals is very steady. The same stability is observed in demand for oleaginous cattle-cakes, to the extent that this option leads to additional imports to compensate for the fall in domestic production, i.e. an increase in the French deficit in protein materials.

On the meat market, a relatively limited reduction in beef production is observed (1.6%), which can be partially credited to the observed increase in the production price (4.1%). At this stage, it is particularly important to emphasize that this increase in prices is only possible thanks to a community preference, impeding any additional imports. The opposite situation is observed for

sheep-goats where the fall in domestic production (6%) is offset by additional imports within tariff quotas unused in the reference situation 8.4%).

Domestic pork and poultry productions have increased slightly to meet the increase in domestic demand for these meats (respectively 0.6% and 0.5%). The rise in the production price (and consumption) of beef meat induces a transfer in final consumption between meats in favour of white meats.

Dairy product markets are little affected by this option. In particular, national milk production remains frozen at the milk quota level. The additional 10% fall in the intervention price of butter implies a 3% fall in the milk price, one that does not cancel out the unit income in the situation of reference. The main effects are a limited fall in butter production (1%), a sharp fall in subsidized butter exports (52.6%) and a slight increase in the domestic production of cheeses and other dairy products.

In terms of VA generated by the various agricultural activities, the suppression of the current direct aid naturally leads to a sharp drop. However, when historical aid is added to these VA generated by the act of producing, variations are clearly more limited. At this stage, we acknowledge that this addition is a little excessive insofar as historical aid does not depend on a common activity. We perform it anyway in order to simplify the comparison between the various options. Table 4 shows that the VA from arable cropping at national level goes down by 98 million euros, i.e. a 1.2% fall. Insofar as arable crop areas fall by 5.1%, the result is that the VA per hectare of arable crop, historical aid included, improves by 3.9%. The VA from dairy farming also improves by 83 million euros, i.e. a 1.7% rise. The major effect here is the increase in the cattle price because the fall in milk prices is just offset by the increase in “milk direct aid”. The highest increase is recorded by cattle activity with a gain of 108 million euros, or +2.7% at national level. At the agricultural sector level, a VA gain of 104 million euros is observed, i.e. 0.5%. Consequently, the VA

gains from other agricultural activities exceed the VA from arable crops.

At macro-economic level, it appears that the increase in agricultural VA does not prevent a drop in farm labour, with the number of hours worked in agriculture falling by 4.2% (table 5). The replacement of the current direct aid by a historical aid completely independent from the production activity reduces the incentives to produce, and therefore the use of inputs and primary factors of production, labour included. Budgetary expenses rise slightly because of an increase in the direct aid of the milk CMO; the fall in subsidies to exports of dairy products and cereals does not compensate for that rise. Lastly, this historical aid option results in an increase in global welfare (measured by equivalent variation) by 36 million euros. Consequently, the support for agricultural income becomes more efficient from an economic point of view.

Impacts of the “single premium” option

The second option tested, here called the single premium option, assumes the implementation of a single premium for the area at national level, always independent from the type of activity (no coupling). Additionally, we assume that there is no national policy aiming to regulate transfers of payment rights. In practice, we simulate a single premium for the area of 330 euros per hectare for the areas eligible except for compulsory fallow land.

Table 2 shows that this introduction of the single premium slightly modifies the area allocations compared with the previous option. The single premium brings a larger fall in arable crops (6.5% against 5.1%), and in parallel a sharper increase in forage areas (7.8% against 6%). The economic mechanism is the following. Not all the cultivated lands in France are of the same quality, and this is taken into account in the modelling (see above). Consequently, the single premium option grants the same direct aid to areas of different quality and hence different value. In relative value, a higher increase in lands of poorer quality than high

quality lands ensues, which is favourable to the former and unfavourable to the latter (for a more detailed presentation of this mechanism, see (Gohin et al., 1999). The value of arable areas is practically unchanged (slight fall, of 1.3%). However, the value of forage areas skyrockets (increase of 95.2%), so that in the final situation the two values are very close to each other.

The effects on markets are quantitatively identical to those obtained with the historical aid option; only the extent of the effect changes. The falls in domestic production and arable crop exports are sharper. Conversely, the fall in domestic cattle production is more limited (1.1% against 1.6%), and the cattle price increase is also smaller (2.8% against 4.1%).

The most remarkable effects of this option concern VA (single payment included). Arable crop activity falls by 699 million euros, or 8.7%. Unitary VA falls by 2.2%. These drops in VA are mainly attributable to the fall in direct aid from which this activity benefits in the reference situation. Conversely, the VA from cattle and dairy farming increase notably, by 453 million euros (11.4%) for the former and 254 million euros (+5.2%) for the latter. The same mechanisms come into play, but obviously in reverse. As regards VA in the agricultural sector, gains exceed losses: this indicator rises by 75 million euros (+0.4%). This gain is slightly lower than the one obtained with the historical aid option. This is mainly due to the increase in the domestic price of cattle which is more limited.

With this option, a fall in agricultural labour is still observed. Global welfare improves by 108 million euros, i.e. more than with the historical aid option in particular because consumers are less penalized by the increase in the cattle price. On the other hand, this better global gain comes with a significant redistribution of support between agricultural activities.

Impact of the “partial decoupling” option

The third option tested, called partial decoupling option here, uses the recoupling potentialities of certain direct aid: 25% for arable crops aid, 100% for the suckler cow premium, 40% for the slaughter premium and 50% for the sheep-goat premium. The remaining aid is implemented as in the historical aid option. This third option meets the need to keep the market regulation tools but does not strictly meet the current international criteria of decoupling because the support depends partly on the type of activities.

The partial decoupling option, like the previous two options, leads to a transfer of arable crops to forage areas. The extent of this effect is less pronounced: 2.7% drop in arable crops and 3.2% increase in forage areas, a transfer covering 345,000 hectares. As a consequence the coupling effect of arable crop direct aid overshadows the coupling effect of special direct aid for beef. This result is hardly surprising in that the SCP, a main direct aid for animals which is kept in this option, has relatively little effect on the market.

The effects on the market of this partial decoupling effect are still qualitatively identical to and of the same sign as those obtained with both previous options. For example, we always obtain a fall in domestic production of soft wheat but it does not reach more than 1.5%. On the world market, exports are also on the decline but significantly less (7.9% against 16.5% and 23.4% in the first two options). Conversely, the fall in domestic beef production is also more substantial (5.2%). So the effects of consumption transfers between various meats are bigger, benefiting off-soil activities and partly explaining the relative stability of domestic production of sheep-goats. The effects on the dairy markets are always the same.

The effects on VA of the different activities are between the effects obtained with the first two options. We still have a drop in VA in arable crops (212 million euros) which although higher than with the historical aid option (98 million euros), is less than with the single premium option (699 million euros). It is interesting to note that the VA

per hectare is practically unchanged (very slight increase, of 0.1%). Dairy farming activity increases by 86 million euros, a value very close to the value reached with the historical aid option. This result is not surprising either, since for this activity the majority of the direct aid is in the historical part, and only a small part of the SP remains. The cattle farming VA increases by 256 million euros, because this activity now keeps the benefit of the old coupled direct aid (notably, BSP). Globally, VA in the agriculture sector increases by 140 million euros. It is the highest increase between the three options analysed so far, a consequence of the highest rise in cattle prices.

Maintaining some of the direct aid coupled with activity leads to a limited fall in farm labour (2.6% fall) compared with the other two options. However, this option leads to a deterioration of global welfare (85 million euro fall from the equivalent deviation). This reflects a second rank situation where certain distortions are accentuated and even exceed the reductions in other distortions. In the present case, the main distortion which increases is that linked to the maintenance of the community preference for beef meat, which leads to a rationing of domestic demand (for further details, see Gohin, 2002). Let us add that with this option, the more limited falls in subsidized cereal exports contribute to this global welfare effect. Obviously, this loss of global welfare would disappear if the levels of trading instruments (market access, and competition in exports) had to be revised downward.

Impacts of the “forage premium” option

The last option tested, named the forage premium option here, keeps the possibility of converting all the animal direct aid into a single forage area premium, distinct from the single direct aid on arable crops. In practice, we simulate a single premium for forage area of 300 euros per hectare and we maintain the current direct aid to arable crops.

So the main difference between this option and the single premium one is of a different level of direct aid to areas, which becomes more favourable to

arable crop activity and correlatively less favourable to livestock farming. So the effects on market, products and land are similar to those observed in the single premium option but more favourable to arable crop activity. For instance, the area transfer stands at 700,000 hectares against 840,000 with the single premium option.

The global VA of arable crop activity falls again (341 million euros) but the VA per hectare of arable crop area improves by 1.1%. We note that the gain in VA in the agriculture sector is strictly identical to that of the single premium option. On the other hand, global welfare improves to a lesser extent (51 against 108 million euros) but remains positive.

Conclusion

The 2003 CAP reform gives the member States some room for manoeuvre to in the implementation of a new tool, the SPS single payment scheme. In this paper, four options were examined at the French level: historical aid, single premium, and partial decoupling and forage

premium. Generally speaking, it appears that these options have relatively few differentiated effects on agricultural markets. Whatever the option, arable crops and cattle productions are in decline, as are cereal exports. Off-soil productions progress slightly while the impacts on the markets of dairy products are limited.

However, the SPS implementation options have a substantial impact on the incomes (measured by VA) generated by the various agricultural activities but which are offset at the agricultural sector level. The historical aid option almost freezes incomes in the different agricultural activities, but the question of the legitimacy of SPS is raised. The single premium option is more efficient but induces major redistributions between activities and mainly supports land-owners. The partial decoupling option clearly limits these transfers but at the price of global inefficacy and a potential contestation at the CMO. According to these simulations, the forage premium option appears to be a potential compromise between all these powers.

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Table 1: Main characteristics of the situation of reference

Land market	Agricultural products markets	Weight of support
Arable land Areas ('000 ha) 12,783 Rent (€/ha) 424 Direct aid (€/ha) 358	Soft wheat Share of exported production 15.7% Gap World price/Domestic price 5.6% Barley Share of exported production 19.6% Gap World price/Domestic price 27%	Arable crops Amount of aid (Million euros) 4,577 Share of aid in value added 56%
Forage land Areas ('000 ha) 10,843 Rent (€/ha) 217 Direct aid (€/ha) 283	Beef meat Share of exported production 0% Gap World price/Domestic price 44% Butter Share of exported production 2% Gap World price/Domestic price 35%	Dairy farming Amount of aid (Million euros) 897 Share of support in value added 18% Cattle farming Amount of aid (Million euros) 1,999 Share of support in value added 50%
		Agricultural Budget Total direct aid (Million euros) 7,650 Agricultural expenses (Million euros) 8,080

Table 2: Impacts of various implementation options of the single payment scheme on the land market
(in % compared to the situation of reference)

	Historical aid	Single premium	Partial decoupling	Forage premium
Arable areas	-5.1	-6.5	-2.7	-5.5
Rent of arable areas	-72.4	-1.3	-57.1	+3.7
Forage areas	+6.0	+7.8	+3.2	+6.5
Rent of forage areas	-53.5	+95.2	-43.2	+83.7
Rent of agricultural areas	-66.8	+28.0	-53.2	+27.6

Table 3: Impacts of various implementation options of the single payment scheme on agrifood markets equilibriums (in % compared to the situation of reference)

	Historical aid	Single premium	Partial decoupling	Forage premium
Soft wheat				
Domestic production	-3.1	-4.1	-1.5	-3.4
Exports	-16.5	-23.4	-7.9	-19.1
Barley				
Domestic production	-4.5	-5.7	-2.6	-3.8
Exports	-16.1	-22.2	-8.4	-13.4
Livestock				
Domestic production	-1.6	-1.1	-2.1	-1.5
Domestic production price	+4.1	+2.8	+5.2	+3.7
Off-soil productions				
Pig domestic production	+0.6	+0.4	+0.8	+0.5
Poultry domestic production	+0.5	+0.4	+0.6	+0.5
Milk and dairy products				
Milk domestic production	0.0	0.0	0.0	0.0
Milk production price	-3.0	-2.9	-3.0	-3.0
Butter domestic production	-1.0	-1.0	-0.9	-1.0
Butter exports	-52.6	-54.8	-48.5	-53.3
Sheeps/Goats				
Domestic production	-6.0	-5.3	-0.3	-5.8
Imports	+8.4	+7.2	+1.6	+8.0

Table 4: Impacts of various implementation options of the single payment scheme on agricultural value added
(included single payment) (Difference in million euros and in % compared to the situation of reference)

	Historical aid	Single premium	Partial decoupling	Forage premium
Arable crops				
Difference in Mo euros	-98	-699	-212	-341
Difference in %	-1.2	-8.7	-2.6	-4.2
Dairy farming				
Difference in Mo euros	+83	+254	+86	+135
Difference in %	+1.7	+5.2	+1.8	+2.8
Cattle farming				
Difference in Mo euros	+108	+453	+256	+238
Difference in %	+2.7	+11.4	+6.4	+6.0
Agricultural sector				
Difference in Mo euros	+104	+75	+140	+75
Difference in %	+0.5	+0.4	+0.5	+0.4

Table 5: Macro-economic impacts of various implementation options of the single payment scheme
(Difference in million euros and in % compared to the situation of reference)

	<i>Historical aid</i>	<i>Single premium</i>	<i>Partial decoupling</i>	<i>Forage premium</i>
<i>Agricultural indicators</i>				
Agricultural value added	+0.5	+0.4	+0.5	+0.4
Number of worked hours in agriculture (%)	-4.2	-4.5	-2.6	-4.2
Land value (%)	-66.8	+28.0	-53.2	+27.6
<i>Public expenses</i>				
Total (Million euros)	+250	+250	+168	+208
<i>Economic welfare</i>				
Equivalent variation (Million euros)	+36	+108	-85	+51