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Delivering public goods in agriculture: the cost of green payments for Italian farms

DRAFT

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Delivering public goods in agriculture: the cost of green payments for Italian farms

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Abstract

The recent CAP reform proposes a green component of the first pillar of the CAP that remunerates farmers for the provision of environmental public goods, by conditioning the 30% of direct payments to specific requirements. The paper focuses on two of the greening obligations of the reform proposal: the diversification of crops and the establishment of the ecological focus areas. The paper, through FADN data, aims at quantifying the impact of these measures on the gross margin (GM) of farms specialized in arable crops in Italy.

The results show different impacts of the green payments on arable crops in Italy according to the characteristics of farms, their location and their economic and physical size, showing data the greening is an "horizontal measure" that does not take into adequate account the specific conditions where farmers operate and the different costs of providing public goods through agriculture.

Keywords: CAP reform in Italy, direct payments, CAP greening, arable crops

JEL classification: Q15, Q18

1. INTRODUCTION

The recent CAP reform proposes a regionalisation of the direct payments to be realised by 2019 and their break down into several components in the attempt to better target them to different objectives. For this purpose, the original single payment has been articulated into a base component that is acknowledged as a form of income support, a green component that remunerates environmental services, and other minor components that compensate specific conditions (young farmers, small farmers, farming in disadvantaged conditions).

Direct payments have been increasingly embodied in the overall income of EU farmers and their recent full decoupling have encouraged this kind of behaviour: direct payments have become a safe and stable income integration on which farmers can rely for their living standards independently from their farm activity. However, with the new reform proposal, such behaviour is to be questioned. In fact, the new articulation of direct payments aims at increasing the nature of direct payments as a remuneration for public goods and for added services supplied by farmers rather than just a mere income integration. This is particularly true for the green component, since the 30% of the total direct payments is conditioned to specific practices: diversification of crops for arable land, maintenance of permanent grassland, and 7% of total agricultural land out of production (ecological use). Such obligations need to be complied by all farmers according to their activities, and in case of disrespect, direct payments will be cut off accordingly.

The paper focuses on two of the greening obligations of the reform proposal: the diversification of crops and the "ecological focus areas" (EFA). More specifically, the paper aims at quantifying the impact of these measures on the gross margin of farms specialised in arable crops in Italy. The gross margin represents the difference between the value of the gross output and the specific operating costs, including public support, and it is crop-specific.

However, in this paper the simulations were carried out by excluding direct payments from the calculation of the gross margin, since the main objective of the analysis was "isolating" the effect of greening requirements from the general variation of support. More in details, the gross margin was calculated for twelve "representative" farms specialised in arable crops in a pre-reform scenario and then it was re-calculated in a post farm scenario, by taking into account the introduction of two greening measures: the introduction of the EFA on the 7% of the land and the introduction of new crops for the diversification rule. The difference between these two gross margins was then compared with the 30% of the new direct payments, which were calculated by taking into account the new amount of resources available for Italy and the regionalisation of direct payments. The difference between the two gross margins can be considered as a sort of proxy of the cost for the production of the environmental services supplied, while the 30% of the direct payments is the remuneration society is willing to pay for the production of that good. The main question is: do they fit? In other words, the exercise aims at assessing the impacts of the greening rules in terms of additional costs for the Italian arable farms and in terms of adequate remuneration for the production of environmental public goods.

2. THE GREENING OF DIRECT PAYMENTS

2.1 Description

The new CAP proposal (European Commission, 2011a) lays on two main principles: one is the acknowledgement of the need of a support to farmers' income in order to counterbalance instability and decline; the other is the remuneration of public goods produced in agriculture by farmers and supplied to the civil society. The articulation of direct payments in several components follows these principles, with the proposal of a base payment that provides direct support to farmers' income and the green payment that is conditioned to the production of public goods. According to the proposal, 30% of the total amount of resources devoted to direct payments in each member States is constrained to the fulfilment of three mandatory measures: to maintain on-farm permanent grassland; to diversify crops in order to improve biodiversity and to devote 7% of the UAA to "Ecological Focus Areas" (EFA) (including terraces, buffer strips, hedges, and set-aside areas). The only actors who would not be submitted to these constraints are organic producers and farmers who accept the simplified scheme ("small farmers" scheme).

The effort of greening direct payments is not new in the CAP: since Agenda 2000 there has been a major effort in justifying direct support and CAP in general as a sustainable policy able to improve environment and the synergic connection between agricultural activity and

environmental concerns (Ahner, 2001; European Commission, 1992; European Commission, 1996). This proposal goes into the same direction of the cross compliance of direct payments currently implemented, being, as it is at the moment, a non-contractual and mandatory measure. At the same time, large efforts towards a more effective greening of the CAP have been pursued within the second pillar with the agro-environmental measures, based, on the contrary, on a contractual and voluntary approach.

Behind the scheme of the new greening proposal it is possible to recognise the effort to reduce the mono-cropping specialisation that has been the result of years of productivism and industrialisation of agriculture and to pave the way to a new sustainable way to produce agricultural products and food (Schmid et al., 2012). To what extent the new proposal is the best way to achieve that, it is fully under discussion (Council of EU, 2012). The intention of the Commission is strengthening the role of agriculture in contributing to the objectives of Europe 2020 Strategy with some measures that are, generally speaking, not particularly heavy for farmers to comply with. On the other hand, they are mandatory and of a sanctionary nature, and for that reason they can be considered as a sort of super-conditionality (Matthews, 2011).

The maintenance of grassland is aimed at keeping the semi-natural habitats and extensive production systems. This is the easiest of the three measures in terms of accomplishment (it does not require any effort from the farmer), but of course can be rather unequal if one considers the different distribution of permanent grass in the EU and the actual environmental effects of its maintenance.

Crop diversification affects, according to the proposal, only arable crops and areas larger than 3 hectares. In this case, farmers need to grow at least 3 crops, each of them covering less than 70% and more than 5%. It is important to remark here that the measure is about diversification and not crop rotation, so that the expected effect is about biodiversity rather than nutritional issues of the land.

Finally, the EFA is probably the most consequential among the three measures in terms of effects of farm activities. All farms are submitted to the obligation of reaching the 7% as ecological area, independently of their specialisation. As a consequence, the effects will be very different according to the position of farms (mountains, plains), the specialisation (crops vs. permanent crops) and the farm size.

It has to be remarked that all the practises required for the green payments are somehow measurable, and 30% of the direct payment ceilings is a relatively high share of the total direct payments; however, in spite of these considerations, a series of weaknesses have been pointed out by many scholars and experts (Mahé, 2012). Some of these have to do with the theoretical aspects of the incentives to public goods and an adequate response of agriculture to these incentives; others have more to do with the specific measures proposed by the Commission.

2.2 The debate at the EU level

Greening direct payments is currently at the forefront of the European debate on the CAP 2014-2020. Indeed, the different public and private stakeholders are increasingly concerned

about the impacts of the proposed measures on the competitiveness of the farming systems across Europe.

According to the Assessment of the European Commission (2011b), the impact of greening measures on the income of European farms is relatively low, on average € 43 per hectare of potential eligible area. It is, however, recognised that such cost may vary widely according to the regions and farming systems, given the differences in land use and profitability as well as the specific situation of each farm. According to this assessment, at the EU-27 level, it is estimated that 29% of farms would have a cost between € 15 and € 30 per hectare, 4% would have cost higher that € 200 per hectare and about 21% of farms would have no costs.

Important concerns on the impact of greening have been expressed also by the main farmers' association (Copa-Cogeca, 2012) as well as the majority of the national ministries of agriculture of the Member States, in particular on the negative effects on the competitiveness of the EU agricultural sector. The main concerns are related to the reduction of farmers' production capacity, the increase of production costs and of the monitoring and enforcement costs due to the introduction of the three greening measures.

At the opposite end, environmental NGOs such as BirdLife and WWF believe that the greening measures do not go far enough, and they propose of replacing the crop diversification measure by a real crop rotation requirement, to increase the EFA to the 10% of the agricultural area at farm level and to include a more stringent definition of permanent grassland (BirdLife International, 2012).

Academics and researchers have also contributed to this debate, and there is a wide agreement that the strategy of green payments proposed by the European Commission could be largely improved.

The main critics of the greening in the scientific community are related to the environmental benefits that may derive of this type of super-cross compliance, since the common rules are applied to the all EU territory without reflecting the diverse characteristics of the different agro-ecosystem across Europe.

Westhoek *et al.* (2012), for example, show how the ecological focus area requirement is potentially the most effective measure in providing highly valued public goods, but that this effectiveness could be increased by tailoring these measures to local conditions and, above all, by stimulating the realisation of green infrastructures at territorial scale through coordination and cooperation. From this perspective Mahé (2012) proposes that the definition of ecological focus areas should not apply to farming units but rather to a spatial grid. He also proposes the possibility of exchanging entitlements and obligations in order to concentrate the ecological focus areas in some areas of high ecological value and with low fertility. This could result in obtaining a minimal amount of hedgerows and a connected network of ecological focus areas without removing too much fertile land from production.

Moreover, according to several authors, in some Member States the greening measures partially overlap with a number of Good Agricultural and Environmental Conditions (GAEC). Thus, specific payments would be introduced for some practices which already are required

without payment under cross compliance, where the Member States have the potential to be tailored more specifically to local conditions (Hart and Baldock, 2011). In order to increase the effectiveness of the greening measures it also requested a high flexibility in their implementation, to take account of locally specific issues and to allow flexible interpretation at the farm in a way that allows the stated outcomes of the measure to be achieved.

The need of an increasing flexibility of the measures is also recognised by the Groupe de Bruges (2012), which defines the current proposal "random, rigid, ill targeted and lack incentives for farmers to keep on improving their 'green' performance", by proposing a 'menu' of greening options from which Member States and farmers must choose a certain number.

From a perspective of policy effectiveness, some authors argue that the greening in its current form is not cost-effective, since it would increase the administrative burden of farmers and the implementation costs of national authorities (Roza and Selnes, 2012, p. 36). According to these authors this would be legitimised only by substantial environmental effects which currently do not seem fully documented.

Finally, the shortcomings of the greening of direct payments identified by Mahé (2012) are related to the low requirements in relation to existing practices (crop rotation and portion of utilised agricultural areas in ecological focus areas) and to the high cost of environmental bonuses due to their application methods (supplements to basic payment on all the utilised agricultural areas, without adjustment to shortfall).

2.3 The impact of greening on Italian agriculture

Few studies have emerged on the impact of the green payments on the Italian agriculture. A first assessment was carried out by Povellato and Longhitano (2011), who analysed the impact of greening by using the data of the Italian Institute of Statistics (Istat) survey on farms structure and production, referred to 2007. With regard to the impact of crop diversification on agricultural land, the results show that about 4.6 million hectares would be subjected to this measure of which 2 million of hectares are cultivated with only one or two crops, with more than 190,000 farms involved.

The European Commission in its economic impact assessment of greening estimates that the crop diversification measure would have heavy impacts for the Italian agriculture – as well as for the other Mediterranean countries – where farms are highly specialised and realise a high gross margin per hectare. Indeed, the European Commission (2011b) estimates that the costs of crops diversification are only € 3.6 per hectare of the potential eligible area for the EU-27 and of € 13.4 per hectare for Italy, the second highest value in the EU-27, after Cyprus.

With regard to impact of the maintenance of permanent grassland, Povellato and Longhitano (2011) show that in Italy the presence of this type of areas is concentrated in 185,000 farms, to which correspond almost 2 million hectares. At the same time, the European Commission (2011b) estimates that the highest costs of maintain permanent grasslands (average € 17/ha) are in Northern European countries for which maintain large areas of permanent grassland is economically challenging due to the pressure of substitution by fodder crops.

Indeed, the estimated costs to maintain permanent grassland in Italy are only € 2.0 per hectare of the potential eligible area.

With regard to the impact of crop diversification on farm income, a detailed analysis about Lombardy region was carried out by Pretolani (2012). The author estimated that at the regional level about the 30% of the utilised agricultural area will be subjected to the crop diversification, to which corresponds a loss of income for the regional farms of 5-10%.

De Vivo *et al.* (2012) have built different scenarios on the regionalisation of direct payments in Italy, distributing resources devoted to greening payments in 2019 according to the distribution of the current UAA among the Italian Regions. The outcome of these simulations will be used in carrying out our analysis in the next sessions.

Looking more specifically at the greening proposal, in many cases the measure that is deemed to have the most relevant impact on farms income is the introduction of the EFA, which would result in a drastic change in land use, especially for the most productive and fertile areas of the country.

Povellato (2012), through FADN data, has estimated that in case that the EFA would be really applied to the 7% of the agricultural area, for many farmers, corresponding to the 10.5% of the UAA, would be convenient to renounce to the direct payments instead that following this condition. The estimate was made by comparing the gross margin per hectare to the amount of direct payment received per hectare. Anyway, the data show a considerable variation amongst the different areas of the country and, above all, amongst the different types of crops. While the percentage of the UAA for what is convenient renounce to the direct payments as results of the introduction of the 7% of the EFA is very high for horticulture (87.4%) and consistent for permanent crops (32.4), it is quite low for arable crops (4.6%).

3. METHODOLOGY

The analysis on the economic impacts of the greening measures was based on the Italian FADN data base of 2008 and 2009 accounting years, using a sample of 2,521 farms specialised in arable crops[1] in five regions (Piemonte, Lombardia, Marche, Puglia and Basilicata). On the basis of these data (average 2008-2009), the structural characteristics of the Italian arable farms were identified for the different areas (mountain, hill and plain) of each region, both in terms of the average UAA and of the distribution of the different crops.

On the basis of the structural data available on the FADN data base, for each area a "representative" arable farm was built[2]. The size of each representative farm was calculated by using the average value of the UAA for each area, while the crop specialisation was identified on the basis of most frequent crops in the area (see table 1).

[1] According to FADN methodology, the farms specialised in arable crops (Type of Farming n. 13) comprises all farms where the production of arable crops contributes more than 2/3 of farm's total Standard Gross Margin. The Standard Gross Margin is used to determine the economic size of farms, which is expressed in terms of European Size Units (ESU).

[2] In the regions under studies three areas were excluded (mountain areas in Lombardia, plain area in Basilicata and Marche) since they were not represented in in the FADN database.

Table 1: The "representative" arable farms in the five regions under study

Region		Farm Size (ha)	Crops	Direct payments pre-reform (€/ha)
Piemonte				
	Mountain	3.0	(1) Maize (2) Lawn Polyphyte (3) Wheat	221
	Hill	21.2	(1) Maize (2) Barley (3) Wheat	257
	Plain	23.5	(1) Maize (2) Wheat (3) Barley	435
Lombardia				
	Hill	14.8	(1) Wheat (2) Maize (3) Barley	466
	Plain	20.5	(1) Maize (2) Wheat (3) Barley	501
Marche				
	Mountain	18.2	(1) Durum Wheat (2) Alfalfa (3) Wheat	412
	Hill	21.9	(1) Durum Wheat (2) Sunflower (3) Alfalfa	384
Puglia				
	Mountain	18.2	(1) Durum Wheat (2) Oats (3) Sunflower	396
	Hill	31.9	(1) Durum Wheat (2) Mixed grass crops (3) Oats	332
	Plain	38.5	(1) Durum Wheat (2) Barley (3) Sunflower	402
Basilicata				
	Mountain	9.1	(1) Durum Wheat (2) Oats (3) Mixed grass crops	269
	Plain	33.2	(1) Durum Wheat (2) Field beans (3) Oats	393

Source: FADN

In the pre-reform scenario, for each representative farm the agricultural area was calculated as the difference between the average UAA and the average of the unproductive land, and it was supposed that representative farms were entirely specialised in the most frequent crop (100% of farm area). The farm gross margin was calculated by using the gross production values and the specific costs for this crop. The direct payments were instead calculated by selecting, among the total amounts of the payments received by farmers, those payments related to arable crops. For them we calculated the average values between 2008 and 2009 and then we divided the values obtained for the UAA of each arable crop cultivated in the farm analysed.

The simulation regarding the post-reform scenario was deemed to show the impacts of two greening measures: the introduction of the EFA on the 7% of farm area and the crop diversification measure.

The impact of the EFA was calculated by reducing the area of each representative farm by the difference between the 7% of the UAA and the hectares of unproductive land, since it was assumed that each farm in the post-reform scenario would use the unproductive land present in the pre-reform scenario as part of the EFA.

With regard to the crop diversification measure, simulations were carried out by applying the minimum requirements of the greening proposal, since it was supposed that farmers aim at minimising the impact of this measure by keeping the most productive crop (or the one already grown) in the maximum allowed area. Thus, the new destinations of the whole agricultural area

were calculated by reducing the specialised crop to the 70% of the farm area and by adding two additional crops (crops 2 and 3 in table 1), which represent the 25% and 5% of the UAA. The order of the second and third crop was based on the value of the Gross Margin for each crop.

Table 2: Methodology overview

	Pre-Reform scenario	Post-Reform scenario
Sample	2.521 farms specialised in arable crops	
Areas	12 areas (mountain, hill and plain areas for 5 regions, see table 1)	
Utilised Agricultural Area	Average UAA of arable farms per each area	
Representative farm		
Crops diversification	One crop (1): the most cultivated arable crop in each area	Three crops: (1) 70% (2) 25% and (3) 5% of the UAA. The order of (2) and (3) is based on the crop Gross Margin
Ecological area	Average of unproductive land	7% of UAA (including the average of unproductive land)
Farm area	UAA - unproductive land	UAA - 7% of UAA (including the average of unproductive land)
Direct payments	FADN database	Estimates of regionalised direct payments (De Vivo, *et al.* 2012)
Gross margin	Gross margin of the main crop	Gross margin of crops (1) (2) and (3)

The data on direct payments for each representative farm were based on FADN data base for the pre-reform scenario and on the simulations carried out by De Vivo *et al.* (2012) on the regionalisation of direct payments in Italy as results of the 2013 CAP reform.

Finally, the impacts of greening (in terms of gross margin per hectare) was compared to the quota of direct payments that in the post-reform scenario should be conditioned to the respect of greening obligations (30%). This difference allows understanding whether this quota is effectively remunerating farmers for the additional costs deriving from the respect of the two greening measures analysed.

The results are presented by comparing the representative farms of each areas (mountain, hill and plain) for the different regions, since this classification was considered to most appropriate for emphasising the different impacts of the greening measures on the main arable crops production systems across Italy.

4. THE COST OF GREEN PAYMENTS FOR ITALIAN ARABLE FARMS

4.1 Background

The analysis of the impacts of greening on the farm gross margin was carried out for five regions (Piemonte, Lombardia, Marche, Puglia and Basilicata), in order to observe the effects of

the proposed measures in different arable farming systems across Italy. Table 3 shows the main structural features of the arable crops sector in the five selected regions.

Table 3: The arable crops sector in the five selected regions in 2010

Region	Number of farms specialised in arable crops	Arable crops area (ha)	Average UAA per farm (ha)
Piemonte	40,843	542,274	13.3
Lombardia	35,115	715,416	20.4
Marche	40,182	377,040	9.4
Puglia	91,264	651,518	7.1
Basilicata	35,137	315,138	9.0
Italy	834,650	7,014,892	8.4

Source: Istat (2011), 6th Agricultural Census

The selected regions are particularly relevant in the arable crop sector in Italy, since they concentrate almost one third (29%) of the Italian farms specialised in arable crops, equalling 37% of the arable crops area at the national level.

Nevertheless, the arable sector of these regions is quite different, with a strong differentiation between the Northern (Piemonte and Lombardia) and the Central and Southern regions (Marche, Puglia and Basilicata).

While in the Central and Southern regions the average size of crop farms is similar to the national average (8.4 ha), in Northern regions is considerably higher (13.3 ha in Piemonte region and 20.4 ha in Lombardia region).

With regard to the crop cultivated in the different areas, arable farms of Northern regions are highly specialized in maize production, in many cases cultivated as monoculture, while Central and Southern regions are characterized by more diversified and extensive farming systems, even though there are many areas strongly specialised in wheat production, with high level of intensification and productivity (notably in hill areas of Marche and in the hill and plain areas of Puglia).

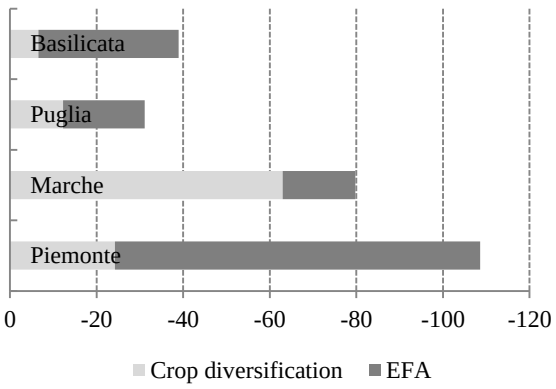
4.2 The impacts of greening on farm Gross Margin

The first objective of the analysis was evaluating the impacts of the greening measures on the gross margin of the farms specialised in arable crops. The results show that the impacts is negative in all the representative farms and for all the five regions under study, even though the decrease of the gross margin varies to a large extent according to the different regions and areas considered.

In mountain areas the decrease of gross margin per hectare ranks from 39 €/ha recorded in Basilicata to 109 €/ha in Piemonte. In the mountain area of Piemonte the higher impact of the greening is mainly due to the introduction of the EFAs, since the average UAA of the representative farm considered is considerably lower (3.0 ha) compared to those of the other regions. The relatively low impact of the crop diversification in Basilicata and Puglia is due to

fact that the gross margin of the two additional crops introduced is quite similar to the gross margin of the main crop.

Figure 1: Effects of the greening on gross margin (€/ha) for farms located in mountain areas



Source: own elaboration on FADN data

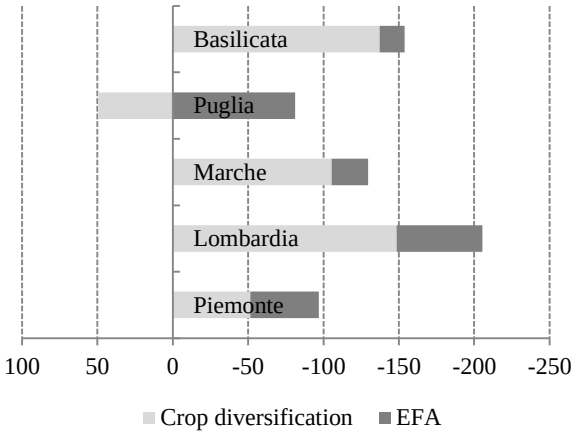
In the hill areas, on the opposite, arable farms in Piemonte seem less affected by the introduction of greening measures (-97 €/ha), while the reduction of gross margin is particularly high in Lombardia (-205 €/ha), Basilicata (-154 €/ha), and Marche (-130 €/ha). In these regions arable farms located in the hills are quite specialised (maize production in Lombardia and wheat in Marche and Basilicata) and the negative impacts on farms gross margin are mainly related to the introduction of the crops diversification. This measure, on the opposite, seems to have even a positive effect on arable farms of Puglia (+49 €/ha)[3], even though the joint effects of crop diversification and the introduction of the EFAs result in an overall reduction of the farm gross margin of 32 €/ha.

Finally, the data show that the most negatively affected by the greening measures are the arable farms located in the plains of Piemonte and Lombardia regions, with a decrease of the gross margin respectively equalling 288 €/ha and 303 €/ha.

The high reduction of farm gross margin in these areas is mainly due to the introduction of the crop diversification measure, since the related representative farms are strongly specialised in maize production, and the alternative crops which are included into the simulation (wheat and barley) do not have the same level of productivity (and of gross margin) of this crop.

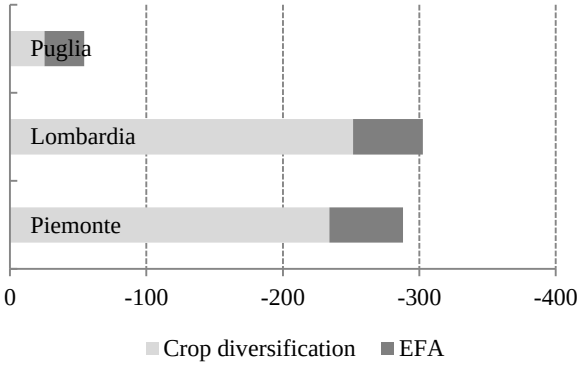
[3] The positive effects of crop diversification in hill areas of Puglia may be due to the characteristics of the related "representative" farm. Indeed, as described in section 3, in this simulation it is supposed that arable farms are fully specialised in the most frequent crop of each area. Nevertheless, it is likely that, in this area, in order to maximise the farm gross margin, "real" farms are already adopting diversification strategies.

Figure 2: Effects of the greening on gross margin (€/ha) for farms located in hill areas



Source: own elaboration on FADN data

Figure 3: Effects of the greening on gross margin (€/ha) for farms located in plain areas



Source: own elaboration on FADN data

4.3 The green payments and the remuneration of public goods

The CAP post 2013 as proposed by of the European Commission (2011a) would have a relevant impact on the economic performance of Italian arable farms also as a result of the redistribution of the direct payments.

According to the simulations carried out by De Vivo *et al.* (2012), the regionalisation of direct payments would involve a strong decrease of the direct payments per hectare for almost all the regions and areas under study. Indeed, an increase of the direct payments was observed only for arable farms located in mountain and hill areas of Piemonte (respectively +111 €/ha and +75 €/ha) and in the hill areas of Puglia (+38 €/ha).

In the remaining areas the amount of first pillar payments received by arable farms would decrease to a large extent, with a particularly high reduction for farms located in mountain areas

of Marche (-117 €/ha), in hill areas of Basilicata (-129 €/ha) and in plain areas of Piemonte (-104 €/ha).

Moreover, for these farms, the impact on farm income due to the regionalisation would be combined with the introduction of the greening measures which, as observed in the previous section, would determine a generalised reduction of gross margin per hectare.

From a policy perspective, it is interesting to analyse whether the quota of the regionalised direct payments that are conditioned to the greening obligations – which, according to the proposal of the European Commission, equal to 30% of the direct payment ceilings – are able to compensate farmers for the (usually negative) economic impact of such obligation.

This simulation was carried out by observing, for each representative farm, the difference between the green payments and the variation of gross margin (see tables 4, 5 and 6).

As it may be observed in the table 4, in mountain areas the green payments generally compensate the reduction of the farm gross margin.

In the hill areas, on the opposite, the quota of green payments in three regions (Lombardia, Marche and Basilicata) does not allow to cover the reduction of farm gross margin determined by the introduction of the greening obligations (see table 5). It may be also observed that the positive data of Piemonte and Puglia are mainly related to the increase of the total direct payments as a result of the regionalisation of direct payments.

Table 4: The green payments and the remuneration of public goods in mountain areas

Region	DP (€/ha)	GP (€/ha)	Δ GM (€/ha)	*GP+Δ GM* (€/ha)
Piemonte	332	100	-109	*-9*
Lombardia	-	-	-	-
Marche	296	89	-80	*9*
Puglia	371	111	-31	*80*
Basilicata	263	79	-39	*40*

Legend: DP: Direct Payments post-reform; GP: Green Payments (30% of DP);
Δ GM: Impacts of Greening on Gross Margin

Source: own elaboration on FADN data

Table 5: The green payments and the remuneration of public goods in hill areas

Region	DP (€/ha)	GP (€/ha)	Δ GM (€/ha)	*GP+Δ GM* (€/ha)
Piemonte	332	100	-97	*3*
Lombardia	447	134	-205	*-71*
Marche	296	89	-130	*-41*
Puglia	371	111	-32	*79*
Basilicata	263	79	-154	*-75*

Legend: DP: Direct Payments post-reform; GP: Green Payments (30% of DP);
Δ GM: Impacts of Greening on Gross Margin

Source: own elaboration on FADN data

Table 6 shows that for the arable farms located in the plains of northern regions the green payments cover only a small part of the reduction of gross margin, with a difference of 189 €/ha for Piedmont and of 169 €/ha for Lombardy.

Table 6: The green payments and the remuneration of public goods in plain areas

Region	DP (€/ha)	GP (€/ha)	Δ GM (€/ha)	*GP+Δ GM* (€/ha)
Piemonte	332	100	-288	*-189*
Lombardia	447	134	-303	*-169*
Marche	-	-	-	-
Puglia	371	111	-54	*57*
Basilicata	-	-	-	-

Legend: DP: Direct Payments post-reform; GP: Green Payments (30% of DP);
Δ GM: Impacts of Greening on Gross Margin

Source: own elaboration on FADN data

Finally, it is worth noting that, in the simulations, green payments were calculated as 30% of the total direct payments. However, the failure in meeting the requirements of the green payments might imply, in this reform scheme, even more than the 30% of the direct payments a farmer is entitled to. Indeed, according to the European Commission proposal, green payments will be financed through the 30% of the annual national ceiling but the proposed regulation requires farmers to meet the greening measures in order to be eligible for the whole set of payments.

5. CONCLUDING REMARKS

The process of greening the CAP is not new: it can be considered to have started with Agenda 2000 with the establishment of the two pillars of the CAP and is going on since then. With the new CAP proposal it involves more directly the direct payments than in the past, when cross compliance was the only link between the process of CAP greening and direct payments.

However, the discussion is still at its peak about the pros and cons of the proposal. On one side it can be pointed out that this version of greening imposes new and higher environmental standards on farms, and this goes into the direction of an effective orientation of policies towards the remuneration of public goods; on the other side, one could argue that a "horizontal" measure such as the proposed greening cannot be effective in enhancing and remunerating public goods in agriculture.

Our exercise aimed at evaluating the "cost" of greening as the capacity of the green component of the new direct payments to compensate the variation in gross margin due to the implementation of two of the greening measures: the crops diversification and the introduction of the EFA. We are aware of the limits of this approach, which does not consider other variables affecting the choices implemented by farmers in the farms; in spite of that, we consider that it

gives a good and realistic idea of what could happen in farms specialised in arable crops in different geographical and economic contexts.

The results of this analysis show a differentiated impact of the greening of direct payments according to the characteristics of farms, their location and their specialisation, with stronger impacts, in terms of farm gross margin, especially for the highly specialised farms in the plain areas. This confirms that green payments as they have been designed in the new CAP do not take into account the specific and local features, and the consequent different costs of production of the public goods in agriculture in the different areas.

Thus, these results strengthen the critic positions about the greening as being not enough selective and, what is more, not effectively rewarding pro-active behaviours among farmers. This type of approach is too similar to that of cross compliance to justify it as a new and different tool.

As shown in our analysis, the "cost" of greening is different from regions to regions, because public goods are different and their costs depend on many local conditions. The idea of addressing the greening of the CAP with a horizontal, standard approach does, in many ways, contravene many of the principles on which the new CAP and Europe 2020 rest: the importance of local factors, the interaction between these and the local actors, the importance of the natural endowments and the way they interact with human activities. These critiques are not related to general idea of greening the CAP, but rather on the contradictions that are emerging in the design of the greening requirements. Indeed, in their current form such required are more related to the amount and the distribution of direct payments rather than to the willingness and capacity of farmers in providing public goods and to the additional costs for farmers to adopt more sustainable practices.

The idea beyond the proposed regulation on the greening of the CAP is to ensure an easy and effective way to improve the environmental awareness of farming and to achieve some basic levels of production of public goods across Europe. However, the whole result seems not really reliable and need of a further and in-depth discussion. In fact, even the European Commission seems aware of this and it has recently proposed and informal review of the greening measures, by offering a larger flexibility to Member States (European Commission, 2012).

Finally, a broader question is related to general structure of the CAP proposal, which failed in integrating the cross-compliance approach with a more contractual approach, which could have ensured increasing synergies between the greening of the first pillar and agri-environmental measures in the second pillar. The lack of this integration can be spotted as the main missing points that need to be re-discussed in order to deliver better environmental, social and economic results under the new CAP.

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REFERENCES

Ahner (2001). Situation and Challeges for the CAP. AgraEurope 20th Anniversary Conference, Outlook 2001, London, March.

BirdLife International (2012). Reform proposals for the Common Agricultural Policy. BirdLife Europe Briefing,

COPA-COGECA (2012). The Common Agricultural Policy after 2013. The reaction of EU Farmers and Agri-Cooperatives to the Commission's Legislative Proposals, Brussels.

Council of EU (2012). Commission services Concept Paper on Greening, Inter-institutional File 2011/0280 (COD), Brussels, 11 May.

De Vivo, C., Henke, R. and Pupo D'Andrea, M.R. (2012, forthcoming). Prime valutazioni degli impatti della regionalizzazione della Pac 2014-2020. *Agriregionieuropa* 29.

European Commission (1992). Towards Sustainability – A European Community programme of Policy and action in Relation to the Environment and Sustainable development. COM (92) 23 final, Brussels.

European Commission (1996). Taking European Environmental Policy into the 21st Century, Brussels.

European Commission (2011a). Proposal for a Regulation of the European Parliament and of the Council establishing rules for direct payments to farmers under support schemes within the framework of the common agricultural policy. Brussels, 19.10.2011 COM(2011) 625 final/2 2011/0280 (COD).

European Commission (2011b). Impact Assessment. Common Agricultural Policy towards 2020. Annex 2: Greening the CAP, Commission Staff Working Paper, Brussels, February.

European Commission (2012). Concept paper – May 2012, Agricultural Council - Greening.

Groupe de Bruges (2012). Una PAC per il futuro. Perché abbiamo bisogno di una Pac migliore per affrontare le sfide per il futuro. *Agriregionieuropa* 28.

Hart, K., and Baldock, D. (2011). Greening the CAP: Delivering Environmental Outcomes through Pillar One. Institute for European Environmental Policy, London.

Mahé, L.P. (2012). Do the proposals for the CAP after 2013 herald a 'major' reform? Policy paper n. 53, Notre Europe.

Matthews, A. (2011). Sustainable Development of European Agriculture. European Parliament. CAP reform through Analytical lenses, Brussels, 19 December.

Povellato, A. (2012, furthcoming). Il dibattito sul greening e l'agricoltura italiana. *Agriregionieuropa* 29.

Povellato, A. and Longhitano, D. (2011). L'impatto del greening sull'agricoltura italiana. *L'Informatore Agrario* 46.

Pretolani, R. (2012). Impatti della riforma in Lombardia: sulle aziende, sui settori, greening e proposte. La Politica agricola comunitaria 2014-2020. Scenari di impatto in Italia e in Lombardia. Seminar at Regione Lombardia, january 30th, Milano.

Roza, P. and Selnes, T. (2012). Simplification of the CAP, Assessment of the European Commission's reform proposals. LEI report 2012-011.

Schmid, O., Padel, S. and Levidov, L. (2012). The Bio-Economy Concept and Knowledge Base in a Public Goods and farer Perspective. *Bio-Based and Applied Economics* 1: 47-63.

Westhoek H., van Zeijts, H., Witmer, M., van den Berg, M., Overmars, K., van der Esch, S., van der Bilt, W. (2012). Greening the CAP; An analysis of the effects of the European Commission's proposal for the Common Agricultural Policy. PBL Note. Netherlands Environmental Assessment Agency, The Hague.