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Is the Greening Instrument a Valid Precedent for the New Green Architecture of the CAP? The Case of Spain

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Abstract: The Common Agricultural Policy 2014–2020, set up in 2015 and extended until 31 December 2022, introduced a payment instrument called Greening. The aim of Greening was to encourage agricultural practices that are beneficial for the environment while also contributing to economic and territorial dynamism. The purpose of this article is to study the effect that Greening has had in Spain. We consider five difference-in-difference models, one for each of the variables proposed: ecological focus areas, permanent grasslands over utilised agricultural area, CO_2 emissions stemming from agricultural land use changes and the presence of woody crops, agricultural income, and affiliates of the special agricultural regime. The data used come from the Spanish Ministry of Agriculture, Fisheries, and Food, the Ministry for Inclusion, Social Security, and Migrations, and the Spanish Emissions Inventory System. For the diff-in diff estimations, we use Spain's regions as control and treatment units from 2011 to 2018, the aim being to provide observations ex ante Greening (2011–2014) and ex post (2015–2018). The results show that Greening had a limited impact, questioning its efficiency for meeting its goal, and that it is not a sound precedent for building the new green architecture of the CAP.

Keywords: greening; Spain; effects of greening; diff-in-diff

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1. Introduction

The Common Agricultural Policy (CAP) for the period 2014–2020, adopted in 2015 and extended until 2022, introduced a new instrument for direct support, Green Payment or Greening. This ties part of income support to compliance with practices generating positive environmental impacts on agriculture in accordance with Regulation (EU) No. 1307/2013 of the European Parliament and the Council, dated 17 December 2013. This Regulation, in its Chapter 3, Title III, established payment for agricultural practices that are beneficial for the climate and the environment while bearing in mind their multi-functional and systemic nature in economic and territorial areas as laid down in Art. 110, Section 2, of Regulation no. 1306/2013.

With this reform of the CAP, in order to become eligible for the Greening payment, farmers had to adopt certain agricultural practices that are beneficial for the climate and the environment and in line with the structure of their farms: (a) crop diversification; (b) dedication of 5% of the land to an ecological focus area; (c) maintenance of existing permanent grassland. However, farmers could be entitled to this direct aid, without any additional practices, provided: 1. They carry out organic farming, exclusively on farming units with a certain surface used for organic production; 2. they fall under the Small Farmers Scheme that was established at the start of the current CAP; or 3. they have permanent crops.

In the EU, the effects of the CAP on crop diversification seem to be fairly insignificant at EU level. In particular, the requirement for crop diversification in the framework of

Greening, one of the key instruments of the CAP for soil quality, had little influence because it affected only a small proportion of land and did not imply the adoption of crop rotation. Even so, this practice was seen to have positive effects in some member states, such as Spain, as explained in Section 1.1. Greening is contributing to lasting changes in farmers' practices regarding nitrogen-fixing crops. However, regarding the maintenance of crop residues, fertilisation, and compost application, few effects were found [1].

1.1. Environmental Practices in Spain

The data given in Table 1 show that in each crop year, the total number of farms with over 10 ha and obliged to diversify decreased from 177,158 in 2015 to 161,784 in 2019, but farms with four or more crops increased very significantly, thus differentiating the net effect of Greening from the previous conditionality [2]. Farms that in 2014 had one, two, or three types of crop accounted for 63% of the total but this figure decreased gradually up to 2019 when it reached 38%. Moreover, the number of farms with four or more crop types increased from 37% in 2014 to 62% in 2019 [2]. Table 1 shows the changes in farms by number of crops grown.

Table 1. Trends in farms by number of crops declared in Spain, with the aim of illustrating diversification for the purpose of becoming eligible for the annual Green Payment. An increase in farms with four or more types of crop was found. In Table 1 we give the number of farms instead of total surface area because this is the data published by the official source (MAPA, Spanish Ministry of Agriculture, Fisheries and Food, [2]. The total number of hectares involved is directly related to the number of farms.

Trends in Farms (Having over 10 ha)						
Number of Crops	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
1	24,175	10,302	8974	8322	8111	7831
2	44,596	21,249	19,709	17,743	17,367	16,700
3	42,382	45,011	42,239	40,098	38,140	37,380
4	30,915	45,232	45,233	44,038	42,681	41,653
5	17,555	27,692	28,148	28,365	28,388	27,597
6	9250	14,414	14,906	15,579	15,655	15,568
7	4381	7297	7473	7899	8000	7996
>8	3253	5961	6461	6738	7148	7059
Total	176,507	177,158	172,143	168,782	165,490	161,784

Source: https://www.fega.es/sites/default/files/5_annos_de_greening_2020.pdf (accessed on 12 April 2021).

Regarding ecological focus areas (EFA) in Spain, their number changed little over the last five crop years. Table 2 shows the data on EFAs declared by their owners, that is, farmers who applied for the basic payment and have more than 15 hectares of agricultural land. The main types of area used to meet the EFA requirement are: (a) minimum EFA established at 5% of agricultural land (column 4); (b) fallow land (column 5); and (c) areas growing nitrogen-fixing crops (column 6).

Regarding the maintenance of permanent grasslands, there was a slight rise after 2016, with the main increase in hectares being a sharp one in the initial crop year from 2015 to 2016 (Figure 1).

Table 2. EFAs according to data obtained from single applications in Spain, showing the area declared by owners on which another of the annual Green Payment practices, that is, an ecological focus area, could be adopted.

Crop Year	No. of Owners	Total Agricultural Land of Each Owner (ha)	5% Ecological Focus Area (ha)	Fallow Land (ha)	Nitrogen-Fixing Crops (ha)
2015	144,736	10,351,311.60	517,565.58	2,197,081.14	788,399.79
2016	142,149	10,494,838.20	524,741.91	2,222,031.22	781,766.17
2017	139,660	10,436,137.40	521,806.87	2,232,053.05	833,270.51
2018	137,198	10,409,498.60	520,508.03	2,252,822.29	871,079.80
2019	134,323	10,271,980.24	513,599.01	2,188,507.69	826,501.87

Source: https://www.fega.es/sites/default/files/5_annos_de_greening_2020.pdf (accessed on 23 January 2021). In each case, fallow land and areas under nitrogen-fixing crops are considered (the main types of area used to obtain eligibility for an EFA).

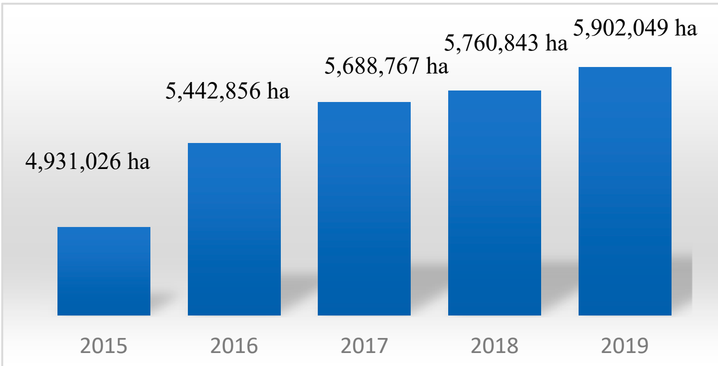

Figure 1. Trend in declared eligible area (ha) of grasslands from 2015 to 2019 in Spain. Maintaining permanent grasslands is another practice making farmers eligible for the Green Payment.Source: https://www.fega.es/sites/default/files/5_annos_de_greening_2020.pdf (accessed on 23 January 2021). The data provided on permanent grasslands are for net areas, that is, after the application of the grassland eligibility coefficient for farmers subject to the obligations of the Green Payment.

1.2. Effects of Greening

The Ministry of Agriculture report [2] stated that the application of Greening in Spain had led to marked changes since its adoption five years before; but some scientific papers contradict these findings [3,4]. Furthermore, the European Commission [1] found that the instruments and measures for sustainable land management did not have promising results and makes recommendations for improving the design and adoption of the new CAP, in fact, for the new proposed structure of the CAP 2023–2027 [5]. Regarding this proposal for the new green architecture, Spain is in favour of: (a) a reinforced conditionality model as a natural development of the current conditionality and Green Payment; (b) voluntary eco-schemes, to introduce incentives in the new environmental architecture so that farmers who wish to go beyond the required practices can receive greater support; and (c) an incentive approach; the challenge is to find balance and consistency between the environmental measures of the first pillar (EAGF) and the agri-environment-climate measures of the second column (EAFRD). To prepare a feasible proposal that would generate a significant change, it is necessary to first understand the complex environment of the policies and political and economic forces that are blocking any possible changes [6].

This research aims to quantify the effects of Greening in Spain using ex post data.

Many studies consider these effects prior to or over the exact period of Greening, e.g., studies for the United Kingdom [7], Ireland [8], and Italy [9], while others analyse its potential effects in different member states [10–12]. More recent research focuses on the real effects of greening measures: for Sweden [13] or for the region of Lombardy [14]. However, it is complicated to measure the total effect of Greening, because some of its measures may be combined with other environmental measures under the rural development pillar or conditionality. For this reason, this study uses diff-in-diff estimation because it allows us to gauge the effects of a new measure, Greening, even if it partially includes some practices from the previous programming period [15,16].

2. Materials and Methods

As already explained, we used diff-in-diff estimators because this technique finds the net effect of a new measure, in this case Greening. The diff-in-diff models estimate the response after application of any public policy process or measure. For this purpose, a control and treatment group were needed, in this case the Spanish regions (CCAA), and two time periods, one prior to the measure and the other after adoption of the measure. The model takes information on the effects of applying the measure and differentiates it from that occurring in the previous stage (even though some practices may partially take place at the same time, as with conditionality) [17].

2.1. Sample and Variables

In order to correctly apply the diff-in-diff model, it is necessary to have a database comprising information on both the target variables before and after application of the measure being assessed, as well as control and treatment units. The interval was selected in order to include two stages covered by Green Payment, each with the same number of years: ex ante (2011–2014) and ex post (2015–2018). In this case, the control units used were the regions (autonomous communities) of Spain. The statistics come from various sources: MAPA (Spanish Ministry of Agriculture, Fisheries, and Food), MISM (Ministry of Inclusion, Social Security, and Migrations) and the Spanish Emissions Inventory System.

When these evaluation processes are used, the main problem is to obtain the indicator or specific measures of prior behaviour and the subsequent responses of the groups. In addition, other factors may contribute to the final impact of the measure [17] but delimit the directionality of the effect of the instrument in question (Greening). Greening focuses directly on the environment but, since it is a tool forming part of the PAC, it might also indirectly affect economic and social aspects [17–20]. Therefore, in this study, in addition to estimating the direct effects of Greening on the environment, we also considered its indirect effects as part of a policy that aims to make the sector more resilient and to strengthen rural areas. The variables specified for this study and their descriptive statistics are given in the following table (Table 3).

Agricultural income was the indicator used to study the extent to which the position of farmers improved [20–23]. One reason for this could be that the ecological focus areas (EFA) indicator points to the greatest increase in income because it alters production levels and prices more, although crop diversification and grassland measures also change income [24]. Another indicator used was the number of workers affiliated to the Special Agricultural Regime. The Special Agricultural Regime within the General Regime for Social Security covers workers in agriculture, forestry or cattle-breeding or in related complementary or auxiliary roles. Because various analyses show that farming activity and the requirement for labour are positively correlated with more labour-intensive agri-environmental measures than traditional farming activities, and therefore encourage people to remain in rural areas [25–28].

Green Payment aims to improve and strengthen synergies between farming and the environment and/or climate change [29–33]. The variables of ecological focus area and permanent grasslands were chosen because they are two environmental practices that farmers can adopt to become eligible for Green Payment [20,24]. Regarding the practice of permanent grasslands, we used the ratio of permanent grasslands over utilized agricultural area (UAA), which is used by the Spanish Ministry of Agriculture to evaluate trends in the Greening balance [2]. Another of the indicators used was CO_2 emissions stemming from changes in agricultural land use and the presence of woody crops [34].

Table 3. Descriptive statistics for the variables used to estimate the diff-in-diff models.

Dependent Variables	**Source**	**Units and Type**	**Min.**	**Max.**	**Mean**	**Std. Dev.**
Agricultural income	MAPA	Millions of € Continuous	26.89	11,224.81	1478.002	2003.13
Affiliates, Special Agricultural Regime	MISM	Inhabitants Continuous	1.86	491,932.9	41,128.44	10,3471.7
Ecological focus areas	MAPA	Ha Continuous	6.54	284,346.9	38,019.89	67,547.19
Permanent grassland/UAA	MAPA	Ha Continuous	0.097821	5.634796	0.692801	0.939068
LULUCF emissions, adapted	Spanish emissions inventory system	Tn eq CO_2 Continuous	46.68	2544.388	684.35	697.17
Independent Variables	Frequency 0	Frequency 1				
Year (T)	76	76	Takes value "0" for year prior to Green Payment (2011–2014), and value "1" for years with Green Payment (2015–2018).			
Autonomous Community (P)	80	72	Takes value "0" if the Community receives Green Payment and value "1" otherwise.			
Impact (P × T)	80	72	This is the product of the above two variables.			

Source: Drawn up by the authors.

Finally, the z test with $p < 0.05$ indicates a change in the behaviour of the indicators in the two time intervals considered, 2011–2014 and 2015–2018, which is exactly when Greening was adopted (Table 4).

Table 4. The z test to measure the change in behaviour of the indicators from the first period (2011–2014) to the second (2015–2018).

Z Test, Ho: Diff = 0	**z**	**Diff = Mean(2011–2014) − Mean(2015–2018)**	
Agricultural income	-1.6×10^3	Ha: diff < 0 Pr(Z < z) = 0.0000	Ha: diff != 0 Pr(|Z| > |z|) = 0.0000
Affiliates of the Special Agricultural Regime	6.6×10^3	Ha: diff != 0 Pr(|Z| > |z|) = 0.0000	Ha: diff > 0 Pr(Z > z) = 0.0000
Ecological focus areas	-5.2×10^4	Ha: diff < 0 Pr(Z < z) = 0.0000	Ha: diff != 0 Pr(|Z| > |z|) = 0.0000
Permanent grassland/ UAA	1.3×10^5	Ha: diff != 0 Pr(|Z| > |z|) = 0.0000	Ha: diff > 0 Pr(Z > z) = 0.0000
LULUCF emissions, adapted	-3.4×10^2	Ha: diff < 0 Pr(Z < z) = 0.0000	Ha: diff != 0 Pr(|Z| > |z|) = 0.0000

2.2. Functional Form of the Model

The underlying econometric model was the one used by authors such as [14,32,33]:

$$Y^{\theta} = \beta_0 + \beta_1 \times P + \beta_2 \times T + \alpha \times (P \times T) + u$$

where Y^{θ} is the dependent variable that takes the values of agricultural income, affiliates, ecological focus areas, permanent grassland, and CO_2 emissions; α provides a measure of the impact of the Green Payment on the autonomous community (P) in terms of time (T). The β_0 value represents the average value of variable Y before Green Payment, that is, when the values of variable P and of time T are both zero, that is, the programme has not been implemented and we are at the start. The variable u is the random disturbance that follows a normal distribution of mean zero and constant variance, N (0, σ).

Finally, we used the STATA 15 economic software to obtain statistical and econometric results.

3. Results

After describing the variables, we estimated and validated the diff-in-diff models. One way of doing the estimations, $Y^{\theta} = \beta_0 + \beta_1 \times P + \beta_2 \times T + \alpha \times (P \times T) + u$, is by using ordinary least squares, as in the studies by [15,17].

Firstly, we had to determine the value of power θ on variable Y, because the variables P and T are discrete. The *p*-value associated with the LR test (Table 5) showed that the most suitable λ for agricultural income, permanent grassland, and CO_2 emissions was λ = 0. For the population and ecological focus areas variables, it was necessary to find out the appropriate power because the *p*-value associated with the theta powers (−1, 0, 1) was zero; the lhsonly models showed the significant power for the variables (Table 6) θ = 0.22 and θ = 0.11, respectively.

Table 5. LR statistics. Identification of the most appropriate transformation for each variable in the diff-in-diff models.

Model (lhsonly) Left-Hand-Side Box–Cox Model.	Ho	Restricted Log Likelihood	LR Statistic chi2	*p*-Value Prob > chi2
Agricultural income	theta = −1	−1270.2552	297.99	0.000
	theta = 0	−1122.2276	1.93	0.165 (1)
	theta = 1	−1225.9494	209.37	0.000
Affiliates, Special Agricultural Regime	theta = −1	−2401.1087	1517.72	0.000
	theta = 0	−1658.1185	31.74	0.000
	theta = 1	−1969.5078	654.52	0.000
Ecological focus areas	theta = −1	−2045.6416	1079.95	0.000
	theta = 0	−1511.9257	12.52	0.000
	theta = 1	−1704.4586	397.59	0.000
Permanent grassland/UAA	theta = −1	−85.064419	64.74	0.000
	theta = 0	−56.766419	8.14	0.004
	theta = 1	−177.01156	248.63	0.000
LULUCF emissions, adapted	theta = −1	−1106.8939	169.98	0.000
	theta = 0	−1022.3087	0.81	0.368 (1)
	theta = 1	−1083.1647	122.52	0.000

(1) Ho is confirmed.

Table 6. Lhsonly model, left hand side. Identification of significant powers.

Model(lhsonly) Left-Hand-Side Box–Cox Model	Power	Coeff.	Std Err.	z	P > z	Log Likelihood
Agricultural income	theta	0.0855878	0.0615002	1.39	0.164	−1121.262
Affiliates, Special Agricultural Regime	theta	0.1322807	0.024237	5.46	0.000 (1)	−1642.248
Ecological focus areas	theta	0.1166044	0.0340743	3.42	0.001 (1)	−1505.6652
Permanent grassland/UAA	theta	−0.2328827	0.0844487	−2.76	0.006 (1)	−52.69423
LULUCF emissions, adapted	theta	0.071377	0.0794359	0.90	0.369	−1021.904

(1) Ho is confirmed.

According to the results of the model (lhsonly), agricultural income and EFA do not need transformation, θ = 1 [35–37]; for affiliates to the Special Agricultural Regime, the figure was θ = 0.13, for the ratio of permanent grasslands θ = −0.23, and for LULUCF emissions, θ = 0. The estimation was performed using minimum squares with robust standard deviations in heteroscedasticity (Table 7).

Table 7. Estimation results for the diff-in-diff models.

	Agricultural Income	Affiliates Special Agricultural Regime	Ecological Focus Areas	Permanent Grassland/UAA	LULUCF Emissions, Adapted
Impact α	702.732 (1.843) **	0.0062381 (7.03) ***	27,916.8 (2.073) **	0.2689237 (1.70) **	1.085401 (2.299) **
Time β_2	−400.624 (−1.225)	−0.0062381 (−7.14) ***	−18,066.4 (−1.515)	0.2748973 (1.74) **	−0.9963054 (−1.19)
Constant	1337.28 (6.48) ***	0.0001472 (0.74)	29,827.2 (4.715) ***	−0.5061231 (−18.96) ***	5.91689 (41.64) ***
Specification error test (hatsq)					
Coefficient	3.35×10^{-10}	3.46×10^{-6}	1.16×10^{-11}	4×10^{-5}	1.40×10^{-7}
(t)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
P > ǀ t ǀ	1	1	1	1	1
F-Snedecor	17.49678	25.85	2.180550	2.83374	2.554449
Value p (of F)	0.0177807	0.00	0.116572	0.09354	(0.0889)
Degrees of freedom	(2, 133)	(2, 149)	(2, 149)	(2, 133)	(2, 133)
White heteroscedasticity test					
LM	1.30098	2.04864	2.53744	0.05	0.24
p = P(Chi-squared(2))	0.52179	(0.197899)	0.281191	0.8125	0.6275
Reciprocal condition number					
Cond.	3.221	10.00	9.918	9.396	9.926

Note. The *t*-statistics for the coefficient estimates are given in brackets: ** Denotes significance at the 5 percent level; *** Denotes significance at the 1 percent level.

F-Snedecor, with a *p*-value below 0.1, represents the global explanatory capacity of the model for the endogenous variable. These models had no multi-collinearity, as shown by the reciprocal condition number below 30, after eliminating the variable P from the model, because of the perfect multi-collinearity with the remaining exogenous variables. In addition, the White test, with a *p*-value above 0.05, showed the absence of heteroscedasticity, so the random disturbances maintained the same dispersion for all the observations. Student's *t* test showed that the estimated coefficient for the impact of payment α was significant and positive.

To interpret the results of the diff-in-diff estimators, we used eta-squared (Table 8) Cohen's d, Hedges's g, Glass's delta 1, Glass's delta 2, and point-biserial r (Table 9) [38–40]. According to eta-squared, the indicators that show the greatest difference between the period prior to Greening (2011–2014) and the period when Greening practices were active (2015–2018) were: EFA, permanent grassland/UAA, and adapted LULUCF emissions.

However, to find whether the size of the effect of the Green Payment was significant, we calculated Cohen's d, Hedges's g, Glass's delta, and point-biserial statistics. All the statistics were negative, which indicates that there was no difference between the Green Payment ex ante and the ex post periods.

Table 8. Size effect statistics. Eta-squared. Impact of Green Payment.

	Eta-Squared	Eta-Squared (%)
Agricultural income	0.0017785	0.1778%
Affiliates, Special Agricultural Regime	0.0010569	0.10569%
Ecological focus areas	0.0046584	0.465%
Permanent grassland/UAA	0.022263	2.2263%
LULUCF emissions adapted	0.0123697	1.2369%

Table 9. Size effect statistics. Significance of the impacts of Green Payment.

	Size Effect	Estimate
Agricultural Income	Cohen's d	−0.1564343
	Hedges's g	−0.1555569
	Glass's delta 1	−0.1874364
	Glass's delta 2	−0.1360496
	Point-biserial r	−0.0785214
Affiliates, Special Agricultural Regime	Cohen's d	−0.0105917
	Hedges's g	−0.0105386
	Glass's delta 1	−0.0106417
	Glass's delta 2	−0.0105368
	Point-biserial r	−0.0053236
Ecological focus areas	Cohen's d	−0.1656366
	Hedges's g	−0.1648068
	Glass's delta 1	−0.1995442
	Glass's delta 2	−0.1427681
	Point-biserial r	−0.082966
Permanent grassland/UAA	Cohen's d	−0.0616176
	Hedges's g	−0.0612719
	Glass's delta 1	−0.0594865
	Glass's delta 2	−0.0641509
	Point-biserial r	−0.03100095
LULUCF emissions adapted	Cohen's d	−0.1001834
	Hedges's g	−0.0996214
	Glass's delta 1	−0.1011371
	Glass's delta 2	−0.0991999
	Point-biserial r	−0.0503782

4. Discussion

In general, Green Payment has a low environmental effect [41,42]. From the eta-squared that was derived from the estimated models, it can be deduced that CO_2 emissions increased by 1.23%, ecological focus areas by 0.46%, and permanent grasslands/UAA by 2.22% over the period prior to the implementation of Green Payment. The latter indicator was the only one that showed a change before and after implementation of Green Payment, according to the Cohen's d, Hedges's g, Glass's delta, and point-biserial tests [4]. CO_2 emissions increased, unlike the scenarios presented by [20], who deduced that the Greening measures reduced emissions by 0.20%. The increase of 0.46% in ecological focus areas implies that the conditions applying to them lead to little probability of achieving the environmental goals of Green Payment [43]. Although we found an increase of 2.22% in permanent grasslands, other studies found growth between 0.5% and 3.7% [20].

Finally, the Green Payment shows a positive impact on agricultural income but does not mark relevant differences with the years before Green Payment was implemented. In fact, the variability that can be attributed to the new CAP is just 0.17%, which is one point less than the values obtained that estimated it at 1.29 [3], and is also below the figure of 0.9% estimated for the EU-28 [10,20]. For the ecological measures proposed by the European Parliament in 2010 and 2011, there was an estimated average drop in agricultural income of 2% [23]. Regarding affiliates to the Special Agricultural Regime, we did not find large changes, even though agri-environmental practices were reinforced. We did, however, find that the decreasing trend of previous years came to an end.

Some limitations of this approach are worth mentioning. Although diff-in-diff is a consistent and consolidated technique, it has certain methodological limitations: (a) policies may affect regions to different degrees; (b) there may be time lags between the adoption of a policy and the appearance of effects; (c) it may be difficult to measure the target variable, because of missing data; (d) other factors may affect the impact of policies [17]. However, it is consistently useful for inferring that Greening was a weak instrument, with a smaller impact in Spain than might have been expected for such a measure. Requirements for eligibility for this direct payment were very lax and were very easy to meet. Many farmers received it just for continuing to do what they were already doing, that is, working on farms smaller than 10 ha, growing permanent crops, or having organic areas. The structure of the CAP and the current aid system, which is linked to historical references to the 1992 and 2003 reforms, both focus on large farms. Furthermore, the simplification of conditions for small recipients, below 1250 euros per year as the basic payment, leaves small farmers with a much less relevant role (for environmental sustainability and from the social and economic points of view). This seems to contradict the data indicating that small farms are the majority and are at the centre of sustainable agricultural development [44].

Therefore, this instrument does not seem to have been sufficiently useful to serve as a foundation for the new green architecture. European agriculture therefore faces both a challenge and a great opportunity for setting out on a path towards true environmental stability, with new, different, and more efficient instruments and more ambitious goals.

5. Conclusions

Although we detected a change in the indicators used in this study between the two time intervals considered (2011–2014 and 2015–2018) at the same time as the Green Payment was adopted, the diff-in-diff estimators indicated that the environmental requirements for receiving direct aid from the current CAP had a very limited impact on the goal they pursue. Both the weakness of the requirements and their limited scope of application have led to a clear imbalance between the funds allocated to this purpose and the results achieved.

Regarding the establishment of the new green architecture of the CAP, the change towards new conditions for obtaining quantifiable results in order to generate entitlement to the new Green Payment seems to disregard the unsuccessful experience of implementation of this first stage of Green Payment (in terms of resources used versus results obtained). Unlike the current Green Payment, in the immediate future, some eco-scheme measures will be more likely to achieve positive results, and the CAP Strategic Plan in Spain might also achieve positive environmental impacts. The New Green Deal and the inclusion in it of agricultural regulation together with the generous Next Generation funds should amount to a real impetus in the fight against climate change.

Our analysis could be expanded in future research to include the environmental effects of the second pillar of the CAP, EAFRD, or agri-environmental aid or the promotion of organic farming, as well as other measures linked to conditionality or the lack of redistributive payment in Spain. Another line for future research would be the territorial effects of the CAP and their relevance for determining sub-sector production in each territory, instead of the global effects as in this case. Moreover, regional comparisons could be made or the 50 agricultural regions in Spain receiving the basic payment could be considered.

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