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ENVIRONMENTAL ISSUES OF AGRICULTURE: SOCIAL PERCEPTION ANALYSIS IN SOUTHERN SPAIN

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Abstract

Agriculture largely shapes the European ecosystems. Today the environmental social interest and the awareness that some farming practices destroy the natural environment is undeniable. Thus, the European decision maker's emphasis on integrating social demands within the Common Agricultural Policy becomes unquestionable. In this context, this paper analyses: *i)* the degree of social compliance with soil-erosion control from agriculture in Andalusia (southern Spain); *ii)* the degree of society's concern about its agriculture; and *iii)the* respondent's features that influence both perceptions.

Key words: Agriculture, Environment, Social Perception.
JEL Classification: Q18; D62; Q31.

I. INTRODUCTION

Farming modernization under the Common Agricultural Policy (CAP) upset the balance between farming and environment. At first, the European Union failed not to consider this activity as a contaminating agent. During the eighties, the environmental problems generated arose as one aspect of the CAP's crisis. Since the eighties, the citizens were also becoming progressively more concerned about conserving natural resources, and were demanding natural areas for leisure and new agricultural functions. The European decision makers were starting to give expression to environmental issues in the CAP's reforms (1992, 2000 and 2003)[1] through specific measures.

Despite these changes, from the social perspective, the CAP has been and remains the object of constant criticism because of the difficulty to properly integrate social preferences.

This paper examines: *i)* the degree of society's compliance with controlling soil erosion from agriculture in Andalusia (southern Spain); *ii)* the real degree of social concern about its agriculture; and *iii)* the respondent's characteristics which influence both perceptions.

In 2006, the agriculture of Andalusia, the study area, accounted 5% of Gross Domestic Product, at current prices, and 8.2% of employment (in Spain, 2.6% and 4.7%, respectively). Among the most important environmental problems is soil erosion, with the 70% of agricultural land classified with a medium-high erosion risk, with steep slopes [4].

II. DATA COLLECTION

Face-to-face interviews were conducted with 409[2] Andalusian citizens (+18 years). The sample has been a random stratified proportional methodology, using the population distribution [5]. The questionnaire, regarding knowledge, attitudes, and opinions about the Andalusian agriculture and the CAP, contained 33 questions and was performed between April and July 2007.

Citizens' opinions were measured with a five-point ordinal scale (ranging from 1= low, to 5= high). Ordered and dichotomous logistic regression models [6] were fitted (Table 1) to identify the polled features for: *Model I)* social perception of agriculture's fulfilment to control soil erosion; and *Model II)* the degree of social concern for agriculture.

[1] 1992 Reform [1], Agenda 2000 [2]; Mid-Term Review 2003 [3].

[2] Sampling error = 5%; Confidence Interval = 95%.

Table 1. Variables of the Logistic Regression Models.

Model I			Model II		
Dependent					
$EROSION_i$	1 = "bad performance" (scale values 1 or 2) 2 = "medium performance" (value 3) 3 = "good performance" (values 4 or 5)		$PREAGR_i$	0 = "low concern" (scale values 1, 2 or 3) 1= "high concern" (values 4 or 5)	
Independents					
SEX	0 = women 1 = men		AGE	From 1 = 18 - 32 years; to 4 = more 60 years	
STUDY	From 1 = no studies; to 4 = university studies		STUDY	From 1 = no studies; to 4 = university studies	
COAST	0 = coastal region 1 = non-coastal region		TYPE	Habitual residence	1 = rural 2 = urban 3 = metropolitan
VISITS	Visits rural areas (past year)	From 1 = no often; to 3 = very often	FAMIFAR	0 = no family farmers 1 = yes owns	
IMPECOF	Agriculture's importance for economic growth in Andalusia	From 1 = low; to 3 = high	IMPSOCFA	Agriculture's importance for maintaining population	From 1 = low; to 3 = high
MONEY	Preference in implementing the taxes	1 = food goods; 2 = environment; 3 = two alike	AGRIMON	Agriculture receives too much money	1 = disagree; 2 = indifference; 3 = agree
ACHOUTP	Farming produces safe and quality food	From 1 = very bad; to 5 = very good	AGRIBIGF	Large farmers are the main aids´ beneficiaries	
ACHPRICE	Farming produces at affordable prices		IMPACAP	Importance to be informed about Cap's	From 1 = not at all; to 5 = very high
ACHMPLO	Farming maintains and creates jobs				

III. SOCIAL PERCEPTION ABOUT CONTROLLING SOIL EROSION FROM AGRICULTURE

Some 37.1% were classified as "medium" in controlling soil erosion in their agriculture, 40.9% were "rather bad" and "bad", and only 22% were "rather good" and "good", the average being 2.72 and the standard deviation 0.967.

Model I results are shown in Table 2; non-significant variables have been excluded ($p \geq 0,05$).

Table 2. Model I "Social perception of the degree of agriculture compliance in soil-erosion control"

	B	S.D	P-Value
EROSION= 1	-0.961	0.365	0.008**
EROSION= 2	0.988	0.354	0.007*
COAST= 0	0.532	0.246	0.030**
VISITS= 1	0.452	0.243	0.048*
VISITS= 2	-0.212	0.347	0.541 n.s.
IMPECOF= 1	1.919	0.530	0.000*
IMPECOF= 2	-0.198	0.406	0.626 n.s.
MONEY= 1	0.214	0.246	0.384 n.s.
MONEY= 2	-1.233	0.376	0.001*
ACHVEOUTP= 1	-0.199	0.474	0.674 n.s.
ACHVEOUTP= 2	-0.519	0.251	0.039**
ACHVEPRICE= 1	-0.761	0.313	0.015**
ACHVEPRICE= 2	-0.276	0.300	0.356 n.s.
ACHVEMPLO= 1	-0.891	0.321	0.006*
ACHVEMPLO= 2	-0.334	0.265	0.208 n.s.
Rate of likelihood= 76.085; Nagelkerke's R^2 = 0.226. Significance: *1%; **5%. None: n. s.			

The analysis shows that in the coastal areas, residents are more likely to score high the dependant variables values'. It is worth noting that the Andalusian coast is rather flat orographically, and grows mainly greenhouse crops. Moreover, the service sector, particularly tourism, is so developed that citizens consider other problems, such as overcrowding and the degradation of beaches. Regarding rural visits, fewer visitors were likely to feel that agriculture manages erosion control well. This opinion is reasonable because more contact with rural areas enables a fuller understanding of the erosion problem.

Respondents, who stated that agriculture has little economic importance for Andalusia are more likely to have a "good" opinion on soil-erosion control, in comparison with those who perceive it as having the greatest economic importance. Presumably, these individuals distinguish more the territorial and environmental role of farming in the region. People, who prefer spending their taxes to the same extent for food production and rural environment, are less likely to say that agriculture has "good" erosion-control management. Therefore, resource allocation, in this case, could not be associated with citizens' judgment about this specific problem.

Finally, respondents who claim that agriculture is "medium" in producing healthy food, "bad" in providing affordable prices, or "bad" in maintaining and creating jobs, are less likely to think that this sector achieves "good" erosion control.

IV. ANDALUSIAN SOCIETY'S CONCERN ABOUT AGRICULTURE

A quarter of respondents expressed "very high" concern for agriculture, with 45% and 25.7% in "high" and "medium". Only 4.9% answered "low" or "not at all" for concern.

Model II results are presented in Table 3, without non-significant variables ($p \geq 0{,}05$).

Table 3. Model II "Andalusian society's agriculture concern".

	B	S.D.	P-Value	Odd ratio
AGE			0.002*	
AGE (1)	-1.67	0.433	0.003**	0.282
AGE (2)	-0.925	0.417	0.027**	0.396
AGE (3)	-0.012	0.497	0.981 n. s.	0.988
IMPSOCFAR			0.011**	
IMPSOCFAR (1)	0.388	0.498	0.436 n. s.	1.474
IMPSOCFAR (3)	0.806	0.269	0.003*	2.240
IMPPAC			0.001*	
IMPPAC (1)	-1.899	0.599	0.002*	0.150
IMPPAC (2)	-1.769	0.475	0.000*	0.171
IMPPAC (3)	-1.272	0.446	0.004*	0.280
IMPPAC (4)	-0.800	0.479	0.095 n. s.	0.449
AGRIMONEY			0.045**	
AGRIMONEY (1)	0.787	0.317	0.013**	2.197
AGRIMONEY (2)	0.494	0.351	0.159 n. s.	1.639
AGRIBIGFAR			0.013**	
AGRIBIGFAR (1)	0.927	0.378	0.014**	2.527
AGRIBIGFAR (2)	0.776	0.375	0.036**	2.173
Constant	2.292	0.559	0.000*	9.898

The respondents younger 46 years of age were associated with a lower likelihood to be concerned about agriculture than those older than 60 years. This concern at older ages may have a historical component, because of current generations have not experienced the lack food supply that took place mainly in the fifties.

People who believe the provision of such activity will be "high" in future employment generation for Andalusian are more concerned about farming, the odd ratio being 2.24.

The results for the variable "importance to be informed about CAP" were as expected. The respondents who answered "not at all", "low" or "medium" for importance were less likely to have a high agriculture concern than those who answered "very high", specifically, 85% and 72% less possibilities, respectively.

Respondents who were in "disagreement" that "agriculture receives too much money from the government" were more likely to have a high concern in comparison with those who were in "agreement", the odd ratio revealing that they had 2.19 more possibilities to be highly worried.

Finally, those who marked "disagree" or "indifferent" to the idea that "the large farmers are the

main beneficiaries of agricultural aid" were more likely to be highly worried about this activity, compared with ones who agreed with this idea. The odd ratios were 2.52 and 2.17, respectively.

V. CONCLUSIONS

We can state the existence of certain homogeneity in the Andalusian citizens' perceptions regarding their judgement about agriculture and environment.

The respondents felt that agriculture practises "bad" management of soil erosion control. This activity currently does not appear to fulfil the standards or social demands concerning this specific environmental non-market output, which could partly explain why citizens are strongly concerned about agriculture.

Although these results were not extrapolated to areas with different social and agrarian characteristics, to satisfy the demand for environmental functions, it is necessary to improve social vision in relation with agriculture and its environmental performance, considering that the society perceives this productive activity as a, whole, not as separate functional elements. This improvement could be possible by designing and developing alternative tools to identify and quantify social demand in the different segments of 21st-century agriculture, to be included in future Common Agricultural Policy and Rural-Development Policy.

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