THE EFFECTS OF CAP REFORM ON THE PERIURBAN AGRICULTURAL AREA IN THE PLAIN OF THE CITY OF ASSISI (CENTRAL ITALY)

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Abstract

In periurban areas agriculture can assume a multifunctional role that includes landscape conservation, sustainable resource management, biodiversity conservation, leisure activities, and can also maintain adequate conditions in densely populated areas for a safe and habitable environment.

This study investigates the effects of the introduction of single farm payment on the periurban agricultural area in the plain of the City of Assisi, an area with a strong landscape value. A survey was carried out to determine: changes in production, changes on farm incomes, structural adjustments, the level of multifunctionality of periurban agriculture. Moreover, a survey of 355 residents was made to assess their willingness to pay for some positive externalities of the agriculture in this area.

The results suggest the low-impact of reform on farms and the existence of a significant demand for environmental and social functions of the periurban agriculture of this region.

Key words: Periurban Agriculture; Cap Reform; Economic Valuation; Contingent Valuation; Assisi

JEL Code: Q10, Q18

Introduction

In periurban areas the role of agriculture has a strategic value in the balance and quality of the urban environment. This recognition is contained in the statement of the European Economic and Social Committee on the issue of "Periurban Agriculture" (EESC, Bruxelles, 2004), where, for the first time in an official document of the European Union, the periurban areas are described as complex territories that play an important economic, environmental and social role, especially considering their relationship of spatial proximity and mutual dependence with the city. In the document of the EESC the periurban areas may include less-favoured areas as defined by Article 20 of Council Regulation (EC) N. 1257/1999 on support for rural development, namely areas in difficulty affected by natural or environmental reasons. In this case, the farmers operating in these areas would be entitled to an additional indemnity proportionate to the natural or environmental bond where they are forced to operate.

Later, the EEC Regulation N. 1698/2005 to support rural development during the programming period 2007-2013, suggested a careful reflection about the characteristics of periurban areas, from rural activities that they are charged with to the socio-economic relationship existing in these areas. The perspective is to realise a strategy of action to create conditions for development linked to the principles of sustainability, with particular attention to the needs and demands through local participation. These concepts are repeated in the Community strategic guidelines for Rural Development (Council Decision, 2006/144/EC) and in the National Strategic Plan for Rural Development (MiPAF, 2007). Many regional Rural Development Programs (RDP) were set up that included periurban areas during the programming period 2007-2013 as areas in which to invest and develop. One example is the RDP of the Region of Umbria that has provided for "improvement and management of periurban areas" under the measures on "environmental protection in relation to agriculture, forestry, conservation of natural resources and animal welfare".

The complexity and the value of relationships in periurban areas, with particular reference to so-called "third generation" agriculture, can also be seen in some specific initiatives that have given rise to "networks of exchange of methodologies"[1]. In Italy, the work of the Italian Confederation of Farmers (CIA) should be mentioned. It, more than others, has pointed out to the scientific, political and administrative community as well as city-dwellers the issue of agricultural resources, environment and landscape around and within towns, from the point of view of the farmers themselves. In particular, the CIA drafted the "Charter on periurban Agriculture", that recognizes the agricultural areas have a role in

[1] Among these are: the Resource Center for Urban Agriculture and Forestry (RUAF), at the world level; the Peri-Urban European Regions Platform (PURPLE) and the European Federation of Metropolitan and Periurban Natural and Rural Spaces (Federnatur), at the European level; and "*Terres en Villes*" in France and the Institute for the Protection and Enhancement of Peri-urban Agriculture (ISTVAP) in Italy, at the national level; the Triangle Vert des Villes Maraîchères du Hurepoix and the Rural Park of south of Milan, at the local level.

the social, political and administrative fields. It tries to find a way to protect these areas with specific actions and specific rules for this type of agriculture, with the conviction that farms can play a major role in periurban areas, preventing them from suffering the negative influence and impact of urban centers .

Undoubtedly the future of periurban areas will be heavily influenced by the new common agricultural policy and planning measures adopted at the local level. Therefore, it is necessary to understand the genesis of the phenomena and the mid- and long-term effects in these areas of adequate governance and planning of the processes under way (Stolfi, 2004).

In particular, the new agricultural policy of the European Union has introduced three new principles that will certainly condition the future of periurban agricultural areas: decoupling, compulsory modulation (a transfer of resources from the first to the second Pillar) and cross-compliance. The impact will depend on the economic and social structure of the territory, as inherited from the recent past, and on the interaction of a combination of factors, including: market prices, alternative farming, job opportunities in other sectors, level of sensitivity of city-dwellers regarding the value of land and soil as a limited resource.

This article has a double aim: assess the effects of the Fischler reform on farms located in the periurban area between the city of Assisi and the two urban centers of Santa Maria degli Angeli and Bastia Umbra, highlighting the economic and productive dimension as well as the social and cultural role; analyze the community demand for landscaping and environmental services produced by local agriculture through the estimation of willingness to pay for positive externalities such as landscape conservation, maintenance of biodiversity and the use of recreation services. The results will be used to understand the extent to which periurban agriculture in the area can carry out and ensure, over time, the natural, environmental and landscape needs expressed by the population through the interventions of the common agricultural policy.

The article is divided into five parts. The second paragraph explains the methodology used to estimate the reform's effects on farms and citizens' willingness to pay. The third paragraph illustrates the socio-economic characteristics of the area. The fourth paragraph discusses the results obtained from the empirical application of Fischler's reform and from the contingent evaluation for the estimation of willingness to pay. In the fifth paragraph some final considerations are reported.

Methodology

The definition of periurban rural areas should not be a simple classification exercise, but functional to the definition of intervention strategies in relationship to potential threats and opportunities existing for agricultural activities (Branduini and Sangiorgi, 2004). Fleury and Donadieu (1997) argue that periurban agriculture, in a strict etymological sense, is

agriculture which is located on the outskirts of the city, whatever the nature of its production systems; and with the city, this agriculture can only have either a relationship due to spatial proximity, or have some functional mutual relationship.

If these functional relationships vary, they should change the type of periurban agriculture and the characteristics of spatial planning as a whole. The study of these functional relationships and the dynamics that they determine, in light of the intervention policies, must be accompanied by the analysis of characteristics of periurban agriculture and by the city-dwellers' perception of agriculture's role in their daily lives, both in a positive and negative way. Therefore, faced with new objectives of the common agricultural policy, we felt it was important to use a case study to understand the possible effects of the recent reform and reflect on how to target future interventions in the light of specific and territorially localized reality.

Starting from the conceptual model of adaptation of agriculture to urbanization, proposed by Heimlich and Brooks (1989) and taken from Pascucci (2008), we tried to understand how the farms have responded to market conditions and to the system of institutional rules aimed at growth control and maintenance of agricultural land. We then examined the business strategies adopted compared to the enterprise, the market positioning, family employment and heritage use. The aim was to classify different business types and to highlight the congruence with those proposed in the literature reviewed. For each enterprise typology identified the effects of Fischler's reform were analysed in terms of income and cultural adaptation, and the attention of entrepreneurs to the issues of environment and landscape present in the area.

The data used is from two different sources. The first source is data obtained from SIAN (National Agricultural Information System), found in the section on agricultural organizations, for the years 2005-2006 and 2007-2008. These concern information about farmers (age, sex, residence) and farms (form of land tenure, legal status, Total Agricultural Area (TAA), Utilised Agricultural Area (UAA), land use, single payment, modulation, the number of licenses required under the coupled payment regime, statements required by the rules of conditionality). The second source refers to data obtained by direct investigation through questionnaires to farms belonging to different types, selected with the help of professional organizations. Through direct investigation of 12 farmers we obtained information on the degree of business diversification (direct sales, recreation and tourism activities, educational activities, landscape management, production of alternative energies), on the type of non-rural employment of family members, on the benefits and the constraints of working in a periurban area and on behaviour towards urban surroundings.

Referring to the main externalities of periurban agriculture as defined by Pascucci (2007 and 2008) and to specific knowledge of periurban agriculture of the study area, a survey was planned about the demand of citizens for environmental and landscape services of local agriculture and their willingness to pay for positive externalities linked to agriculture. In

particular, the respondents were asked to state the importance of the multifunctional role of agriculture, giving a score ranging from 1 (less important) to 5 (more important) to the externalities reported in table 1. The technique that was used was contingent valuation (CV), with dichotomous choice format and it was applied to verify how much people agree to fund farmers, together with regional administration, so that they keep carrying out agriculture activity to guarantee the maintenance of landscape and rural environment of the area.

Through contingent valuation it is possible to suppose a hypothetical market in which, at certain conditions, citizens state their possibility to bear the cost of a tax increase, necessary to achieve the proposed event. In this case, the market is defined by the following elements: the goods is the landscape and agricultural space of the periurban area; the actors are, on the one hand, farmers who supply services that preserve and enhance the value of rural landscape, and on the other, the Region of Umbria, as the institution that manages landscape and environmental policies; the way of payment is a domestic tax; the welfare change is linked to the possibility of preventing blight of the rural periurban environment, for which it is asked to pay more taxes. The kind of procedure of WTP elicitation, called dichotomous choice, includes the following values: 20, 30, 40 e 50 Euro.

The bid amounts were set through a preliminary survey since they heavily influence the research results as the literature has shown (Cooper, 1993; Kannien, 1993). The analysis of the answers in this study follows the model of Hanemman (1984, 1989), which formulated a function of answer that could be led back to the concept of utility according to neoclassical theory of the consumer, supposing that utility of the consumer depends on both environmental good, under evaluation, and his own income. Since the bid listed by the interviewer was modest, compared to individual incomes, a linear model income was applied (Hanemann, 1984), that is simple to solve. Median WTP values, in the linear model, are estimated by a univariate model that has only one variable: the bid proposed. Following a parametric approach, a logit model was used to estimate WTP. Then an estimation of parameters was carried out through a logit model.

Table 1 - Main externalities attributed to periurban agriculture in the plain of Assisi

Positive externalities - environmental	*Positive externalities - socio-economic*
Mantaining open space	Leisure-time services
Landscape preserving	Agroturistic farms
Distance from city congestion	Educational services
Ground water protection	Health services
Soil conservation	Preserving small farms
Maintaining biodiversity	Maintaining occupation
Negative externalities - environmental	Mantaining rural buildings
Production of bad odors	Preserving farmer traditions
Seepage of pesticides, ferilizers	Contunation of olive-growing
Ground water salinization	Continuation of grape-vine growing
Tossic gas emissions	Improved axcess to food
Excessive water consumprion	

Source: adapted from Pascucci, 2007

The sample of residents, interviewed by questionnaire, from June to August 2008, is of 355 units. The interviews were carried out near the periurban agricultural area investigated and before starting the interview, each respondent was asked if he/she was a resident of Assisi or Bastia and if he/she was familiar with the area. These questions were regarded as fundamental for continuing the interview and they determined a higher level of involvement of respondents and also avoided the use of photos of the area.

Case study

The periurban rural area under consideration lies on the plain of the Umbrian valley, and it is part of the town of Assisi exactly between three cities: the city of Assisi, the only one located on a hill, Santa Maria degli Angeli, the most populous urban agglomeration of the municipality of Assisi and the city of Bastia, one of the Umbrian municipalities with the highest density of building. The resident population in the two municipalities is almost equivalent but the density is very different: the 25,300 residents of Assisi live in a large area (18,679 ha, 134 inhabitants per km^2) and of these, more than 7,000 live in the urban agglomeration of Santa Maria degli Angeli (with an estimated density of 600 inhabitants per km^2). The 21,400 residents of Bastia Umbra, however, live in an area of 2764 hectares (751 inhabitants per km^2).

In the Assisi territory, the countryside areas distant from the urban center of S. Maria degli Angeli show a diversified situation, with functions and processes once performed by family farming now turned into production activities by service enterprises. Composite agricultural activities are presently also connected to tourism, with a number of enterprises marketing different grades of rural life "experiences". Their quality is proportional to the level of conservation of traditional country territory and of eco-compatible agriculture forms.

Conversely, the countryside adjacent to the urban center of S. Maria degli Angeli is made up of farmland as well as former agricultural land, due to urban sprawl and the use of monoculture with heavy use of chemicals. It seems that the urban sprawl has been extended beyond the town border, forcing agricultural activity to consume land (in some cases even with permanent fencing) instead of generating a rural character. Moreover, the magnificent characteristic views of and from the city of Assisi together with the accessibility to urban services have attracted the attention of the wealthier population, who have moved there, leading to a strong increase in the price of rural homes and of the surrounding land.

During the years, the economic network has been strengthened through the growth in manufacturing and light industry businesses, located in the valley area in front of the city, in the urban agglomeration of S. Maria degli Angeli, whose historical center underwent a large expansion due to the strong limitations imposed by the Astengo Master Plan to the Assisi historical hill town area. Its growth, which made it the largest urban center of the

municipality, is also tied to the thrust given by a special 1957 law that envisaged fiscal advantages for industries that wished to settle in the Assisi territory.

The present-day local industry product range is very differentiated and it includes clothing factories, large prefabricated-building complexes, mechanical industries and printing businesses. Also craftsmen have contributed to the rediscovery and safeguard of the heritage asset of traditional arts which made its inhabitants renowned.

The tourism sector, connected to the religious and artistic centers of Assisi and S. Maria, is still the focus of the municipality's economy and the most remarkable strong asset for future development of these areas. The tourist presences, that reached one million in the Jubilee year 2000, are already 980,000 per year. The Assisi territory can surely be attractive not only for the peculiarity of its historical towns, but also for the high environmental quality of rural areas, both in valleys and on hillsides. The agricultural land under consideration does not show any negative aspects, usually common in periurban agricultural areas. It is therefore important to give attention to the quality of possible transformations since they would affect both the environmental-ecological and aesthetic-visual potential value that the two religious centers must not allow to be damaged. In this perspective the production of environmental value in periurban areas has a cultural-political connotation, raising the landscape and agricultural areas issues as an introduction to a new approach toward living space both inside and outside the city, with first focus placed on agricultural space.

Results and discussion of empirical application

Trend of agriculture to urbanisation: examination of conceptual model

In the 1960s, before the economic boom and modernization of agriculture, the rural area was organized according to a sharecropping economy. The many sharecropping families who lived on agriculture cultivated mainly at "*seminativo arborato*" (cereals and olives in the same field together), characterized by a high percentage of "*vite maritata*" (vine-grape cultivate with maple), and bred cattle both for meat and for work. One is reminded of this by the evocative image, photographed by Henri Desplanques, used as the cover of his famous book, "Campagne Umbre", published in 1969.

The economic development of the area and the end of sharecropping have meant a great depopulation of the countryside, an end of the property that belonged to the social classes of nobles and ecclesiastics, a progressive simplification of production activities with the disappearance of farming and the *seminativo arborato* and the gradual urbanization of the surroundings of the town of Santa Maria degli Angeli. Many of the new farms, born from the sharecropping farms, have suffered over time hereditary divisions that have further reduced their size. After the 1990s, the phenomenon of re-ruralisation meant the emergence of new farms of various sizes, owned both by wealthy merchants who have well diversified their

wealth investing in land and houses, and retired professionals who see it as a hobby mainly for olive-growing under the shade of the Basilica of Saint Francis.

From the census conducted through the website of SIAN and the information collected from the professional organizations we were able to photograph the current structure of agriculture in the area under investigation. In 2006 the farms were 119 and covered a total area of 1,262 hectares (TAA) of which 1,119 ha were agricultural cultivated surface (UAA). 57% of cultivated surface is owned by the farmers, 41% is rented, and the remaining 2% is declared as other ownership form. Almost all farms have a direct conduction (92%), and 63% are managed by males and 37% by females. Only 24 employers are less than 55 years old. In 2008 the total number of farms is reduced by only 2 units.

In 2006, the activities were: cereals (50% of TAA), with a prevalence of barley (14%), wheat (12%), corn (10%) and wheat (9%), sunflower (9%), forage (7%), olive groves (7%), proteic crop (3%), vineyards (2%), while the uncultivated surface is 9% of the SAT. This production involves the use of 9,440 days of work per year, equivalent to about 8.5 days per year per hectare of UAA, corresponding to 38 work units (without considering the seasonality of the work required).

For the whole area the value of gross production was estimated at 854,000 Euros on the basis of prices of the marketing year 2006/2007, while the value of single payment amounted to 316,000 Euros, equivalent to 27% of estimated total incomes. The data reflect a mainly rural reality, characterized by extensive agriculture, low-labour, with the presence of vineyards, now all specialised, and olive groves also in the plain. The production value is substantially lower, around 764 Euros /ha of UAA, given that we are also in the presence of irrigable land. To the value of agricultural production must be added the turnover for tourism activities of the 6 holiday farms (agroturisms) in the area and the marketing activities of the wines where they are sold.

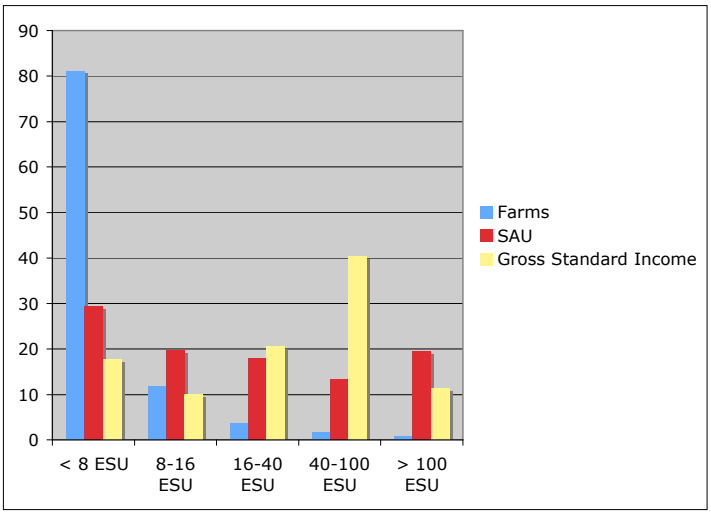
Faced with a moderate production value, a very high land value should be reported. While the value of bare land amounts to over 45 million Euros (40 thousand per hectare of UAA), that value may reach 56 million Euros when considering market values for fractions of a hectare (50 thousand per hectare of UAA). This means that the value of agricultural production does not exceed 2.1% of the value of land used to produce it. At the same time, however, this area has improved the quality of life of the inhabitants of neighbouring towns and has brought one million tourists every year that pass through this area to visit the city of Assisi.

Now we shall describe “who” and “how” maintains the agriculture in this area. We state first that the analysis was conducted on 111 compared to 119 farms surveyed, because the data of 8 enterprises were not complete. First of all, we felt it was important to estimate the economic size of companies using the standard regional gross income updated to 2002. Later, following the path traced by the many analytical works in literature, the farms surveyed

were divided according to their economic size in terms of ESU and grouped into five groups: under 8 ESU, between 8 and 16 ESU, between 16 ESU and 40, between 40 and 100 ESU and over 100 ESU. In agreement with Sotte (2006), we chose the two limits of ESU 8 and 16 that may be considered critical and representative of comparable incomes; the first match of Euro 9600 (Gross Standard Income) per year, and that is less than a pension income (12,039 Euros per year in 2001), while the second is equivalent to a gross monthly income of employees (Sotte, 2006). The author argues that farms that cannot exceed the threshold of 8 ESU, which defines "non-enterprise farms", can hardly be considered an "enterprise farms" and are designed with many likely to shrink and disappear in the medium term or be kept for only incidental functions. But, especially if you are projecting long-term, the farms between the two extremes, defined as "small enterprise" can be considered low and therefore more profitable "potential enterprise", which will become practical if their size is increased by extensions and integrative investments to beyond the second threshold (Sotte, 2006).

Figure 1 allows us to examine in detail the specific characteristics of the main groups obtained, highlighting the presence of a clear partition between 81% (91 farms) of "non-enterprise" and 19% (20 farms) "enterprise". The figure highlights how 81% of farms that have less than 8 ESU occupy 29.4% of UAA and produce 17.7% of Gross Standard Income. It is interesting when compared to two farms that are between 40 and 100 ESU and the only farm that exceeds 100 ESU, which carry out their activities on 32.9% of UAA and generate 51.6% of Gross Standard Income. The remaining 17 farms, ranging from 8 ESU to 40 ESU and representing 15.2% of farms, occupy 36.7% of UAA contributing to Gross Standard Income with 30%.

Figure 1 – Division of farm number, of UAA and of Gross Standard Income for classes of economic size



Farms of less than 8 ESU have a UAA average of 3.3 ha and produce an annual average Gross Standard Income of 2,709 Euros (only 225 Euros per month). In this group are

different sized farms that we thought it useful divide into 4 classes: less than 2 ha, between 2 and 5 ha, between 5 and 10 ha and more than 10 ha. First of all it is necessary to underline that more than half of the farms (48 to 91) belong to the first group (<2 ha), have a UAA average of 1.1 ha and produce a Gross Standard Income equal to 1,299 per year, equivalent to around 100 Euros per month.

In the second class (2-5 ha) are 24 farms that have an average area of 3.1 ha and produce 2,611 Euros of Gross Standard Income per year. In the third class are 13 farms that have an average usable area of 7.2 ha and produce 6,283 Euros of Gross Standard Income per year, amounting to 523 Euros per month and finally, only 5 farms that have an average surface of 14.9 ha and a Gross Standard Income of 7,418 Euros belong to the last class.

Most farms, therefore, have a very limited extent that justifies their belonging to the lower class of ESU; others are of significant size but they have undergone simplification or an actual decommissioning process, as they are managed by non-farmers who have inherited part of a family farm or who lived on their pensions. Often they are enterprises managed as a hobby and conserved for additional functions only in respect of family traditions and the culture of their grandparents.

Among thhese four farms differ for the management of many holiday farms, born because of the owner's wife's interest to insure her an occupation. These farms can be defined, according to Heimlich and Brooks (1989) as "adaptive".

During the direct interview, the owners of "non-enterprises farms" expressed the difficulties encountered in recent years in continuing their activities. Those who have not differentiated or diversified argue that in the next few years they will probably end up cultivating those few hectares of cereals, olive trees and grapes as the work is tiring and there is not an economic return to justify the intervention. The increase in prices of materials and the price fluctuation of outputs are not able to stand the risks of such fluctuations. The single-payment often constitutes an impediment to abandonment because, even if moderate, it guarantees a minimum income.

The farms between 8 and 16 ESU are in the class of small enterprise for economic size, but they have an average area of about 15 hectares. Almost all are managed by non-farmers emotionally linked to the land, who spend their free time there and who do not cancel the rent of neighbouring land of the property to expand productive capacity.

In the greatest dimensional classes there are 4 farms belonging to the 16-40 ESU class, 2 big farms in the 40-100 ESU class, and one very big with more than 100 ESU. This last one can be defined as "traditional" because managed by a full-time farmer with most of the activities being low-labour and with a great use of inputs and capital. This enterprise is able to diversify its services, operating under contract and with the interest and financial assets to increase investment in agriculture.

The medium and large farms account for all the interesting cases of "adaptive" enterprises that in 5 cases out of 6 are managed by farmers who have diversified their activities either in the commercial sector (opening of a store to sell inputs for agriculture), or in the field of mechanical (commission manufacturer) or recreational (2 holiday farms) services, or in the industrial sector (mill), while in one case there is a farm managed by an industrialist who wanted to invest part of his income in the wine sector.

In terms of manpower, it was estimated that only from large enterprises was there a greater use of a work unit (a work unit was estimated at 250 days per year).

As you know, the problem of generational turnover, already very strong in the agricultural sector in Europe, is particularly serious in Italy (Sotte *et al.*, 2005). As might be expected, the phenomenon of aging focuses strongly in the "non-enterprises farms", where 47% of farmers are more than 65 years old and 76% are over 55. But it is important to note also that the farmer-managers between 40 and 55 years are at the head of all farms of less than 8 ESU. The only farm greater than 100 ESU belongs to a farmer who is in the 65-80 year-old category. The farmers who are over 65 years old own the farms between 40 and 100 ESU.

The survey reveals that most probably when the new generational turnover happens the children of today's farmers, whether part-time or full-time, with farms inferior to 16 ESU, will not continue this work because they lived the difficulties encountered by their parents or because they have other interests and a less love of the countryside. Interestingly, however, this love is still strong in the memories of many of the present-day farmers .

The picture that emerges is of an agriculture that lives as a reflection of the city, but not from an economic point of view. Apart from the holiday farm and the investment in the wine sector, there are no other elements of diversification to service of the city, but only from the social point of view.

The social class that lives and works in the area interested in our study consists of very few farmers, many agricultural producers who cannot be defined as hobbyists, and a few industrialists loaned to agriculture. It is an agriculture that lives as a reflection of the city also because of the strong control by local institutions to preserve the beauty of the area that has been declared as an historic city of world heritage. This particular periurban rural area is considered a "buffer zone" in which restructuring can be done only with certain materials, no signs of any type may be mounted (even the sign indicating the "wine road" for the part located in the area), and no photovoltaic solar panels may be mounted.

The survey on functions recognized in periurban agriculture by farmers themselves (whether they be part-time or full-time), which took inspiration from the work of Branduini and Sangiorgi (2004) on a periurban area south of Milan, underlined especially those relating to the conservation of the landscape and the maintenance of open spaces between the environmental-landscaping, the recreational function linked to the presence of holiday farms and the productive function especially in relationship to the production of cereals and

proteinacenous for local industry (table 2). Environmental functions related to the conservation of biodiversity and soil conservation are not recognised. Only one farmer mentioned the custody of rural tradition to confirm the loss, among the farmers themselves, of a rural culture to be passed to new generations.

Table 2 - Functions attributed to periurban agriculture recognized from the farmers interviewed and the disadvantages and benefits expressed to operate in a periurban territory

Functions of peri-urban agriculture	Frequency of Answers	Work in a periurban area	Frequency of Answers
Enviromental-landscaping		*Benefits*	
Landscape preservation	10	Services offerd from the city	11
Maintainig open space	6	Convenience to the displacement	8
Mantaining rural buildings	4	Proximity to the market and to services	5
Recreational		High tourist flow	4
Agroturistic farms	8	Increase in land value	3
Riding-ground	2	*Disavantages*	
Productive		Master plan bonds	7
Production of cereals for the local industries	8	Low recognition of agriculture role	5
Production of proteacenous for the local industries	6	by others economics actors	
Development of grape-growing	3	High traffic/ low quiet	4
Contination of olive-growing for home consumptio	2	Control by the municipality	3
Educational		Precariousness	2
Continuation of rural tradition	1		

Source: direct survey to 12 farmers, 2008

The interviewed acknowledged some advantages of working in a periurban area, benefits mainly related to services offered by nearby urban centers, both social (educational and recreational), and from an economic point of view (the ease of reaching a destination, the presence of markets for the sale of products and the supplying of raw materials). No one detected the benefit derived from direct sales to consumers as this would involve a completely different organisation and incompatible with the reduction of labour, gradually in progress in the farms. Owners of holiday farms emphasize the advantage of being in an area with strong tourist vocation and who have purchased the land in the last ten years underlines the increase in land value of their farms. As for the disadvantages, the majority complained about the constraints imposed by the municipal land use plan and the low recognition of the role played by agriculture to protect the landscape from the other economic actors, especially hotel-keepers.

Effects of CAP reform

The crop system of the study area, described in the last paragraph, relative to the agricultural season 2005/2006, was considered the reference situation with regard to the effects of CAP reform was evaluated. Indeed, from 2005 CAP reform become effective for arable crops (cereals, oil crops), proteic crops, linseed and hemp, leguminous crops, (chick-

peas, lentils, vetches), and in 2006 for olive oil, that is, all the productions that are characteristic of the study area.

In this paragraph the effects of the reform are analysed both at the farm and territorial level, by considering the productive system in the season 2007/2008.

The analysis of crop systems shows that decoupled payment did not influence farmers' choices relative to the way of distributing factors of production and their business strategies; on the contrary, they appear to be influenced more by price variations, changing the production according to the signs the market gave them. This result is the same of Arfini's work (2008), regarding cereal and dairy farms situated in a rural area.

After analysing changes of UAA, farms were divided into two groups: the first one includes those farms that did not change their surface by selling or purchasing land or by increasing or decreasing the surface in rent (these farms will be indicated by expression in); the second one includes those farms that changed their surface, extending outside the periurban area investigated (these farms will be indicated with expression out).

In the first group (92% with respect to total) the decrease of UAA, on the whole, was not much (-5%), reducing also set-aside (less than 50%)[2]. The cultivation of olive plants, grape vines (less than 25%), fruit trees (more than 25%), sunflower and proteic pea (more than 75%) also decreased, while cultivation of alfalfa and maize (less than 50%), of soft wheat, broad beans, little broad beans (more than 75%) and of durum wheat (more than 100%) increased (table 3). These changes point out that the supposed abandonment of cultivated lands did not happen. There was also a progressive production simplification to cereals and alfalfa; in the context of leguminous crops, peas were replaced by broad beans and there was a drastic reduction of sunflowers, a limited decrease of olive growing, grape vines and fruit trees, due on the one hand to destruction of old vines, and on the other to abandonment of small olive growing and fruit trees.

The second group (8%), that includes farms of relevant economic dimensions, nearly doubled UAA; it decreased the surface of set-aside (less than 50%); olive growing (less than 25%) and other fruit trees (over 75%) and, at the same time, it increased the surface of grape vines, planting vines specialised for the production of quality wines.

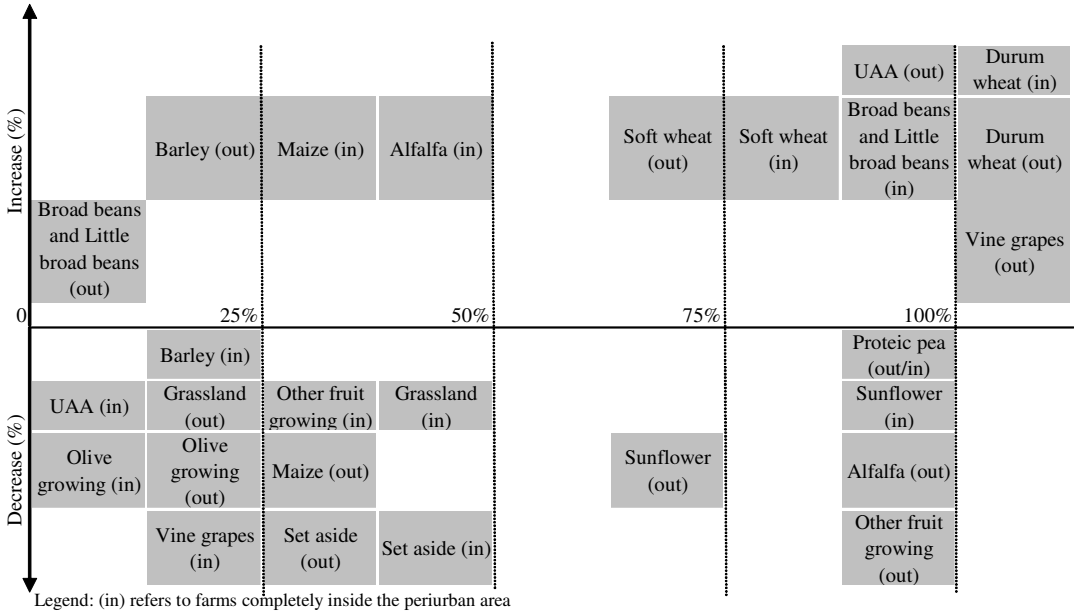
This group also decreased considerably the cultivation of sunflower and proteic pea (more than 75%), while, unlike the first one, it is worth to mentioning the reduction of maize (less than 50%) and alfalfa (more than 75%). The increase of soft and durum wheat is more than decoupled. These changes point out that in the area there are some dynamic farms that can invest in land capital by extending their own properties outside of the study area. Secondly, in these farms the following elements were identified: a sharp increase of soft and

[2] It is necessary to remember that for 2008 the duty of set-aside for the surfaces linked to (coupled) retirement titles is not in force.

durum wheat, decrease of sunflowers, specialisation of professional vine-growing, abandonment of fruit growing and domestic olive growing.

The direct survey pointed out that changes in crop systems were determined more by the trend of market prices than by changes in the support structure and by the introduction of some duties for the farmers, even though such duties seem not to have influenced the agriculture of the area. Referring to the new structure of payment, farmers perceive decoupled payment as an element of financial security by which they can react better to market changes, as the European Commission hoped in its proposal regarding the maintenance of decoupled payment (Borchardt, 2008).

Table 3 - Increase and decrease of share of arable land for several crops in the season 2007-2008 respect to season 2005-2006



Legend: (in) refers to farms completely inside the periurban area
(out) refers to farms that were expanded from 2006 to 2008 outside the periurban area

In particular, considering the value of single farm payment equal to 100 (equal to 316,000 Euros and to 27% of estimated total receipts), 14% regards supplementary payments according to art. 69: 11% of these were paid to farmers who had used certified seeds for durum, soft wheat and maize; 3% regards farmers who had adopted, at least, a two-year rotation. These payments prove a "virtous" behaviour of farmers with positive consequences toward food safety and the maintenance of land in good agronomic conditions. The payment is perceived as a financial security because it was able to cover 57% of production costs equal to the expenses for seeds, pesticides and tillage made by third parties, as indicated by balance sheet estimated using the average prices collected in the study area from July to September 2006. Considering the same balance sheet estimated using the average prices from July to September 2008, the value falls to 38% because of a steady increase of costs of procurement of raw materials.

Furthermore, the estimations show that single farm payment ranges from 300 to 370 Euro/ha of UAA in mid and large farms, though the highest values of 680 Euro/ha were found in some "non-enterprise" that have the entire surface planted with olive growing and the lowest value of 70 Euro/ha in some "non-enterprise" that are planted with forage. Instead, referring to days of work, in the mid and large farms the single farm payment is about 25-45 Euro per day, with highest values of 150 Euro per day in some "non-enterprise" that are cultivated with cereals, and with lowest values of 3 Euro per day in some "non-enterprise" with the surface entirely cultivated with olive growing.

Considering the trend of market prices, the period from January 2006 to September 2008 was characterized by a strong increase of selling prices of cereals that, under the single payment system, influenced greatly the choices of farmers toward that production. Very high quotations were verified from September 2007 to July 2008. The highest values were reported between January and March 2008 when durum wheat was quoted on average about 487 Euro/ton, soft wheat 277 Euro/ton and maize 260 Euro/ton. These values are higher by 96%, 123% and 238%, respectively, for maize, soft and durum wheat, if they are compared with the quotations of June and July of 2006. In this period farmers must also face the relevant increase of prices of productive factors; for example, seed and tillage have increased by 80% and chemical products, like pesticides by 50%.

Empirical application of the DAP

The main aim of the survey was to assess whether the periurban agriculture of Assisi, in other words the agriculture close to urban centres with the most inhabitants and industrial density, had a multifunctional role explicitly required by citizens. This role includes some social functions such as: maintaining the landscape, sustainable management of resources, preservation of biodiversity, usability of territory during free time, ability to maintain good living conditions, security and healthiness of the area and its urban system.

The questionnaire was administered directly to residents and was composed of five sections.

The first section presents the theme, the scope of the survey and the area under investigation. The second concerns the habits of the respondents regarding the use of the area for free-time activities, since in the area it is situated a green route. The fifth section regards the multifunctional role played by agriculture in the area and the economic scenario. In the last section, the respondent is requested to supply his/her socio-economic characteristics. The core of the interview is the economic scenario where the concept of periurban agriculture and its specific characteristics as a territory different from both urban centers and countryside is illustrated. Then, the factors that could threaten the maintaining of agriculture and its externalities are discussed. The financial aspect linked to the maintaining of the agriculture in the area was introduced underlining the reduction of financial resources for farmers, due to

the expansion of the EU, and their replacement with regional funds. The respondents were requested to contribute to the maintenance of agriculture in the periurban area by paying a household tax. A total of 355 residents were contacted: 48% of these were from Santa Maria degli Angeli, 37% from Bastia and 15% from Assisi. Over 65% of respondents lived in the city and of these, about 42% in residential zones; among residents who lived in the countryside, 55% were in the town centre, while the remaining 45% were in outlying houses. Most of the interviewees were used to using the green route, though with varying degrees of frequency. Indeed, the answers referring to family habits show a high level of its use; about 47% of the sample state high levels of frequency ("very often" and "often") referring to individual and family habits. This result probably overestimates the actual average level of use of the route from the town and is probably due to the location where the interviews were carried out. This result suggests a high level of involvement of interviewees toward the theme, and it is confirmed by the stated opinions regarding the beauty of the periurban landscape of the area and the perception of changes in the landscape itself during the last few years. The opinion about the landscape is on the whole very positive: 48% of respondents defined it "very beautiful" while 30% "beautiful". Positive judgements are more frequent among residents of Assisi and Santa Maria degli Angeli, compared to those of Bastia. However, satisfaction of this landscape is widespread among respondents, as there was a low percentage of negative ("not very beautiful") and an absence of totally negative answers ("not at all").

Regarding perception of change, 38% of the sample states that it has perceived changes in the landscape during the last few years; the 15% of respondents identify in the spreading of urbanization the main factor of change, while 12% in the rebuilding started after the earthquake of 1997. The modifications due directly to agricultural activity, that have been noticed more frequently, are: disappearance of sunflowers, increase in uncultivated land, grape vines for wine making, olive groves, and to a lesser degree, simplification of crop systems. It is worth considering that the spreading of restructuring of rural buildings and cottages was noted in the survey.

Table 5 - Types of changes in the plain of Assisi noticed by residents in the last few years

	number	%
Urbanization	20	15.03
Rebuilding after earthquake	17	13.00
Increase in uncultivated land	8	6.01
New grape vine and of wine and olive-growing areas	8	6.01
Loss of cultural identity of places	8	6.01
Desappearence of sunflawers	8	6.01
Ristructuring of cottages	7	5.03
Ristructuring of rural buildings	6	4.06
Semplification of crop systems	6	4.06
Decrease of cultivated land	4	3.01
Depopulation of countryside	4	3.01
Low maintenance of roads	3	2.03
Increased attention to roads and green areas	3	2.03
Increase of agroturisms	2	1.05
Other	27	20.06
Total	135	100

Considering the section of the questionnaire regarding multifunctionality of agriculture, table 6 indicates the importance of some positive and negative externalities attributed by respondents, giving a score ranging from 1 (not relevant) to 5 (very relevant). The most appreciated functions are preservation of landscape and open spaces; on the contrary, increase of food supply, the conservation of small farms and the contribution to the occupation are the least appreciated. The externalities that are perceived as the worst are: seepage of chemical substances, excessive water consumption and salinization of ground water.

Table 6 - Most important externalities attributed to periurban agriculture in the plain of Assisi

Positive externalities - environmental	Point	*Positive externalities - socio-economic*	Point
Landscape preserving	4.70	Agroturistic farms	4.50
Mantaining open space	4.50	Leisure-time services	4.40
Ground water protection	4.41	Contunation of olive-growing	4.30
Soil conservation	4.34	Continuation of grape-vine growing	4.30
Maintaining biodiversity	4.10	Mantaining rural buildings	4.10
Distance from city congestion	4.01	Health services	3.80
Negative externalities - environmental	Point	Preserving farmer traditions	3.50
Seepage of pesticides, ferilizers	4.84	Educational services	3.40
Excessive water consumprion	4.50	Maintaining occupation	3.40
Ground water salinization	4.47	Preserving small farms	3.20
Tossic gas emissions	1.94	Improved axcess to food	3.00
Production of bad odours	1.73		

Evaluation (points from 1=not relevant) to 5=very relevant)

The willingness of interviewees and their families to contribute to the financial support of agriculture of the area in order to use its externalities is assessed by a binomial logit model. Besides the variable of bids of money, other variables included in the model are those relative to perception of the landscape and the multifunctional role of agriculture and socio-economic characteristics, to identify which variables influence the probability of the respondent to agree with the request for payment. The model is estimated considering the frequency of positive answers after verifying that the frequencies decrease with the increasing of the bid. The respondents who were not willing to pay anything were asked to state the reason. The most frequent reasons regard: identification of public institutions (City, Region, State) as the subject responsible for the management of the problem, the perception of the importance of the problem and, in the end, economic reasons. Results of the best estimation according to capability of interpretation and level of significance are reported in tables 7 and 8.

Table 7 - Output logit estimation

	Coefficient	Error standard	P>z	Average value
Costant	-36.62	4.45		
Bid	-0.06	0.02	0.0139	35.27
FaInc	0.82	0.02	0.0002	24.29
Age	-0.43	0.16	0.0082	42.50
PoEst	0.96	0.03	0.0032	68.24
NeEst	1.83	0.22	0.000	17.52
Change	-0.95	0.5	0.0547	0.38
Number of observations: 355				
Log likelihood function: -67,91				
Pseudo R-squared:0,72				

Table 8 -Marginal effects
(calcolated according to average value of the covariates)

Parameters	Coefficient	Error standard	P>z
Costant	-9.00	1.05	0.000
Bid	-0.15	0.006	0.0137
FaInc	0.20	0.005	0.0002
Age	-0.11	0.40	0.0080
PoEst	0.023	0.008	0.003
NeEst	0.45	0.05	0.000
Change	-0.23	0.11	0.0431

Beyond the value of financial request of (bid), the variables that are significant, at least to 94.5% and with respect to the expectations, are family income (FaInc), the total appreciation of positive (PoExt) and negative (NeExt) externalities with a plus, the age of respondent (Age) and the perception of change (Change) with a minus.

In other words, the probability to accept the bid increases with the income of the family, with the capability to appreciate both the positive and negative effects of policy and the length of time during which a person could use the results of the policy financed. On the contrary, the perception of long-period changes harmful to the local landscape influence in a negative way the WTP. This result can be explained as if the negative change in landscape were attributed to a quality of the policy so unsatisfactory that the respondent is induced to deny financial support. The median value of WTP is 42.8 Euros. Multiplying this value for the number of residents in the urban zone close to the periurban area (equal to one-third of the population of the towns of Assisi and Bastia, 14,500 people), the annual social benefits from periurban agriculture can be estimated. This value is roughly 624,000 Euro.

Conclusions

The aim of this work is to understand how periurban agriculture of the study area can satisfy landscape, environmental and foods needs of people, through instruments of European Agricultural policy.

The demand of society for landscape and environmental services from local agriculture shows that the most appreciated functions are preservation of landscape and open spaces; on the contrary, increase of food supply, the conservation of small farms and the contribution to the occupation are the least appreciated. The externalities that are perceived as the worst are: seepage of chemical substances, excessive water consumption and salinization of ground water.

The survey regarding the functions of periurban agriculture recognized by the farmers themselves lead to the same result relative to landscape function. Farmers add to this function two other ones: the leisure function that is linked to the presence of agroturisms and the

productive function especially related to cereal and leguminous crops that are sold to local industry. On the contrary, environmental functions like maintaining biodiversity are not perceived. Therefore people seems to pay more attention to environmental problem, pointing out the risks associated with a type of agriculture that use too many chemical products and natural resources, while farmers does not attribute to themselves any kind of positive environmental function.

Agriculture of the area, composed by 91 “non-enterprise farms” and by 20 “enterprise farms”, was not much affected by CAP reform and single farm payment did not influence farmers’ choices relative to the way of distributing factors of production and their business strategies and farmers perceived decoupled payment as an element of financial security by which they can react better to market changes. Furthermore, single farm payment represents an instrument to avoid the abandonment of activity because, although they are limited, they ensure slight receipts.

The changes of production point out that the supposed abandonment of cultivated lands did not happen; secondly in this area that has already characterized by a simple agriculture, there was a further progressive productive simplification.

The combined effects of CAP reform and variation in market prices, both of products and inputs, have led variation in the income of farmers in different manner depending on the size of the farm and production decisions. These changes will not affect the future of agriculture in this area, but the ability to differentiate services (rather than production) and take a strategic role to improve the welfare of the urban community (residents and tourists), to renew a "dialogue" interrupted between urban and suburban areas, built and open spaces, daily and leisure.

So, what answers to government and planning are adequate processes in place?

It might link the single payment to the production of landscape/environment; seeking action adequate to create conditions for development, related to the principles of sustainability, and paying attention to the needs and demands through local participation.

The analysis showed that compared with a gross production of 854,000 euros, given polluting by the city-dwellers, are paid about 316.00 euros in prizes, while the estimated social benefits arising from the maintenance of the agricultural landscape and environment, would amount to 624,000 euros.

Then, resuming EESC proposal could assimilate the suburban areas to disadvantaged areas, but in this case, not to secure an additional allowance in proportion to the natural or environmental bond in which they operate, but for the functions of landscape and of maintenance of open spaces recognized by the population.

We underline, finally, that new Regional Rural Development Plan is a great occasion to activate initiatives involving private citizens and associations, enterprises and business

associations, together with public entities like institutions, regions, municipalities, and public-private joint aggregations based on objective protocol-agreements.

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