The impact of the Common Agricultural Policy on Cretan landscape and rural livelihood

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Abstract: *Greek agriculture has experienced important changes during the 20th century, moving from subsistence to commercial farming as a result of global agriculture changes associated with the integration of Greece into the European Economic Community (EEC) (now the European Union (EU)). The implementation of the Common Agricultural Policy (CAP) in Greece has had a profound impact on the Cretan countryside and the changes in agricultural practices have had several impacts on Cretan social and cultural landscapes. The productivist agricultural policy has led to intensification of farming with large amounts of capital invested in farming. Rural livelihoods have also been affected as the rural exodus led people (including farmers) to migrate to urban areas for employment. In recent years, the post-productivist approach to agriculture has encouraged a more sustainable approach to farming by adopting extensive farming as well as diversification. This study used a qualitative approach using in depth interviews with Cretan farmers to assess how rural livelihoods and landscape have been affected by agricultural policies. The results demonstrate that intensive farming practices have degraded the natural environment and have transformed the landscape. Remaining farmers and those who were unable to increase their farm size have had to diversify their businesses in order to survive financially. To conclude, the agricultural changes of the 20th century have not always been sustainable, however, much effort is being developed to ensure agriculture of the 21st Century is sustainable.*

Keywords*: agriculture, Common Agricultural Policy, cultural landscape, sustainability, multifunctionality, qualitative.*

Introduction

Agriculture in Europe has experienced multifaceted progress, the most notable features were intensive mechanisation and the large shift of labour from the farming sector. Labour was replaced by unprecedented injections of capital used to purchase machinery, chemicals, new crops and livestock (hybrid species) to increase food production (Hoggart *et al.*, 1995). Despite the transformation brought by agricultural modernisation, farming in the European Union (EU) in the past four decades has come under increasing pressure to survive as the profits from sales of agricultural commodities have fallen. Notwithstanding the substantial financial inputs from the EU's Common Agricultural Policy (CAP), farming businesses have been declining at a rapid rate. While productivist policies are associated with the intensification of agricultural production, commercialisation of agriculture and modernisation, the post productivist policies are more difficult to define (Mather *et al.*, 2006; Wilson, 2008). Post productivism relates to a move away from productivism and incorporates all of the emerging social demands associated with agriculture (Wilson, 2008, Robinson, 2004; Tilzey, and Potter, 2008). All the changes in agriculture have impacted the rural landscape (Almstedt *et al.*, 2014). Landscape is a social construct depicted as a possible new model for development that incorporates social, economic and environmental factors in space and time. Landscape is a developing concept that is related to the historical events of space, notwithstanding diverse level of integrity and continuing active roles in society and the economy. This paper aims to assess the impact of the Common Agricultural Policy on the landscape and the rural livelihood in Crete by comparing and contrasting the changes in the landscape and assessing the impact of the implementation of the CAP on rural livelihood in

the Chora Sphakia area. The paper reviews of the European productivist and post-productivist agricultural policies and argues that these policies have impacted differently in different region of rural Crete. In fact, while northern Crete has developed its rural activities by diversification to mass tourism, southern Crete has aimed to maintain its closeness to nature by adapting a more sustainable approach to farming.

A review of the Common Agricultural Policies and its implications for rural areas

One of the most important events from the 1950s, is the agricultural revolution experienced in Western European countries (Gervais *et al.*, 1965; Ilbery, 1998; Robinson, 2004). Among the multifaceted progress occurring at this time, the most notable changes were intensive mechanisation and the large shift of labour from the farming sector. 'Productivism' or the emphasis on state-sponsored support for high levels of output, as well as the growth of the research and development sector, which produced new farm technologies, industries to manufacture the inputs and educational programmes to provide farmers with the necessary skills to apply the inputs has led to a dualistic farming economy with the development of modern capitalist farms (commercial farms) and the maintenance of traditional farming (less capital-intensive and high-quality work) (Ilbery *et al.*, 1998; Robinson, 1993). From the 1960s, farmers in member states of the EEC (now EU) have been encouraged to increase the production of food and fibre via the Common Agricultural Policy (CAP) (Boulay, 2006). The objectives of the CAP, defined in Chapter 39 of the Treaty of Rome, included in particular a specific system of agricultural pricing for European countries (Bowler, 1985). The objectives were initially to enable the countries concerned to become self-sufficient in basic agricultural products (Bowler, 1985). The purpose of the objectives was to increase the efficiency of European agriculture through modernisation. This required a more professional type of farming; a specialisation by the different types of farms into products for which they were best suited, both from an agronomic and economic point of view. The accumulation of the productive capital on these farms made a continuous increase in productivity possible (Teulon, 2000). Whilst the CAP allowed great development in agriculture in terms of productivity, the important budgetary efforts were not sufficient to ensure both equal development as compared with industry or services for agriculture or to guarantee incomes for farmers. Besides, the intensive agricultural production led to environmental damages linked to the use of fertilisers and pesticides (Robinson, 2004; 2008). As a result a series of reforms including the Mansholt Plan followed a few years later by the MacSharry reform led to further modification of the European agriculture (Garzon, 2006). These reforms termed 'post productivism', referred to the reduction of food output, a progressive withdrawal of state subsidies, the production of food according to a competitive world market and also an emphasis on and growing interest relating to the environment (Hoggart *et al.*, 1995). In addition, these changes to the CAP included a wider range of measures aimed at reducing production and making farming more environmentally friendly. However, many farmers have not reduced production but rather have begun production in another area, often in non-traditional activities. As such, in order to maintain their income, farmers have had to introduce other gainful activities (OGAs) on their farms to maintain incomes (Boulay 2006; Boulay and Robinson, 2010; Evans and Ilbery, 1993). These diversified activities have sometimes involved the combination of farming with off-farm activity, and hence the term 'pluriactivity' and 'part-time farming' (Gasson, 1986).

The modification in policy in the early 1990s away from maximising production to one of supply constraint, environmental protection and diversification, presented challenges for all sections of the farming community, above all for those who were already in financial difficulty. As such by the late 1990s, the CAP was in search of more changes. These came

with Agenda 2000 which aimed to 'update the European Model of Agriculture' (European Commission, 1999). The aim of the European archetype of agriculture has not only became just to maximise production but to fulfil several functions, consisting of promoting economic and environmental development, as well as to protect the rural ways of life and countryside landscapes (Árnason, Shucksmith and Vergunst, 2009). The reformed CAP is a step towards supporting the wider rural economy rather than just agricultural production, and ensure that farmers are remunerated not only for what they generate but also for their general contribution to society.

Another significant change in agriculture transformation is the introduction of Agenda 2000, which encouraged each country to comply with the second pillar of the CAP or Rural Development Regulation (RDR) and present a Rural Development Plan (RDP). As part of RDR, member States are able to draw up their own programmes from a set of measures which means that what constitutes rural development still has the scope to vary, within this framework (Robinson, 2004). The modalities and mechanisms of contemporary European agricultural policy are thus changing and three new aspects are apparent: subsidiary the decentralisation of agricultural policy within the European Union; multifunctionality of agriculture and territoriality (Lowe, Buller and Ward, 2002; Robinson, 2004). Current tendencies in the development of the CAP suggest an increasing awareness of broader rural development issues. Rural development aims to improve the quality of life and economic welfare of people living in moderately remote and sparsely settled regions. Conventionally, rural development has focused on the exploitation of land natural resources such as agriculture and forestry. Strategies to rural development have considerably changed in the last 50 years and reveal the socio-political settings and the progression of development philosophy (Willis, 2011). Large scale development schemes are centred on economic growth and technological innovation. Rural development is also more people centred (bottom up) and seeks to understand and empower local people and their livelihood assets. However, it is crucial to evaluate the natural and human resources for rural development projects to be successful. From 1970s, 1980s, rural development started to embrace emerging ideas about sustainability (economic, social and environmental) and the basic need approach (Binns, Nixon and Nel, 2012). In an effort to integrate these ideas and embrace a more multidimensional view of rural poverty, many bilateral and multi-lateral aid agencies wanted to implement integrated rural development programmes (IRDP). The EU structural funds enable rural development activities to be developed and managed in several remote European rural areas.

Greek agriculture is characterised by small holdings and subsistence and extensive farming (Caraveli, 2000). In Chora Sphakia, the main economic activities rely on agriculture and tourism. While the number of farmers had decreased in Crete, the number of farmers still account for a large of the active population (Eurostat, 2012). Agriculture in Crete is traditional and Crete relies on exportation of crops grown under plastic such as cucumbers and tomatoes as well as olive oil and wine. In recent years, organic olive oil production has increased as a result of a growing market for organic products. The changes in agriculture have led Greece to focus on rural development in order to maintain rural livelihoods. In Greece, the Hellenic Ministry of Rural Development and Food manage Rural Development. In addition, a dedicated Managing Authority manage the rural development programme as defined by the National Strategy Plan (NSP) for Rural Development which is accredited by Paying Agency, the Hellenic Agricultural Payments Organisation (OPEKEPE), and is responsible for implementing the programme payments for all rural beneficiaries (Europa, 2017). In 2015, as part of the RDP, Greece received € 5.9 billion of public money available for the period 2014-2020 (Europa, 2017). The Greek RDP focuses predominantly on increasing farm feasibility and efficiency, keeping and increasing ecosystems and encouraging local development in rural areas. As part of the plan, farmers will get support to

place 10.3% of the Greek farmland under agreements to preserve biodiversity, 12.1% to develop water management and 10.7% to increase soil management and/or prevent soil erosion (Europa, 2017). The plan also provides financial support to 6 300 agricultural holdings and 23 900 young farmers for restructuring and modernisation of agriculture. Furthermore, the plan will encourage the development of short supply chain, local markets and promotional activities and agri-food businesses will receive financial aid towards investments in processing and marketing of agricultural products (Europa, 2017). Additionally, capital will be available for knowledge and innovation activities accounting for 6% of the planned public expenditure and it is anticipated that over 86 000 farmers and workers from rural businesses will benefit from training (Europa, 2017). In addition, the RDP in conjunction with LEADER Local Action Groups will also provide local development for nearly half of the country's rural population and improve access to basic amenities for approximately 10% of the rural population, including IT infrastructures (e.g. broadband internet). Besides, in an attempt to improve the coordination and synergies with the other European Structural & Investment Funds (ESIF), a Partnership Agreement which emphasizes the broad strategy for EU-funded structural investment has been signed with each Member State (Europa, 2017).

Rural space in Greece is experiencing a significant transformation (Naidoo and Pearce, 2016). During the last four decades, the former urban-rural contrast has been replaced by ever changing multifaceted spatial patterns. Rural areas are experiencing socio-economic changes resulting from a variety of factors including the international and new economic activities (primarily the service sector and tourism), as well as the shifting urban-rural relations and the application of national and European policies for the agricultural sector and for rural development. Furthermore, rural development is no longer solely reliant on the agricultural sector but the wider rural-urban dichotomy and the diversified rural economy (George and Georgios, 2017; Iliopoulous, Tsatsaris, and Stratakis, 2008). In Crete, agriculture was an important part of the economy until the 1970s. However, while farming and stock breeding are still prominent, because of the climate and the terrain of the island, there is a sharp decline in manufacturing and a vast growth on the services industry (mostly associated to tourism). This paper explores the role of the changing agricultural policies on the landscape and the rural economy.

Methodology

Over the years, geographers have articulated several methodologies to study the landscape. Landscapes are multifaceted socio-ecological structures resulting from and being a medium of the interaction between humans and nature (Westerink *et al.*, 2017). The three main approaches are Sauer's (1963) 'morphology of landscape' which presented landscape as a cultural object, as a product of human modification of nature. This was assessed through observational practices. Following the cultural turn in human geography in the 1980s, later approached addressed the wider social and political context in which cultural landscapes have been constituted and expressed (Jackson, 1989). Such approaches treat the landscapes as sites of iconography in which landscapes are symbolic of their link within historical and material processes, but also incorporate ideas about race, gender and morality. Phenomenology has also been used to examine the everyday lived experience of landscape (Ingold, 2000; Wylie, 2007) by developing a rekindled interest in the embodied practices of being in the world to explore how landscape can be perceived, performed and inhabited.

The study used a mixed qualitative method using in depth interviews with Cretan farmers and observations recording during the fieldtrip to access how rural livelihood and landscape have been affected by agricultural policies. For this pilot study, a convenience sampling method was used given that representativeness is not a primary concern with qualitative research studies. The research does not aim to provide a representative sample but a sample which is indicative of farming and rural livelihood in Crete. The research took place in Agios Nektarios, Sfakia. This has been selected as it has a long history of farming and a previous visit has showed that commercial farming has replaced subsistence farming and observations have revealed profound changes in the countryside from 1981. A total of five farmers were recruited using a snowball technique. The researcher has already got contacts with local, subsitence farmers from Sfakia. Other farmers were identified in situ.

A preliminary literature review enabled the researcher to identify key themes to be explored in depth during the interview: social impacts of the application of the CAP, ecological impact of the CAP, changes in the landscape and agricultural policies, demographic changes in rural areas and impacts of agricultural changes on rural livelyhood. The semi-structure approach allowed the participants to give their opinion but also reflect and develop their answer. Participants were invited by the researcher to participate in person at the interview, at which point they signed a consent form to confirm that they understood the aims, purpose and objectives of the research and agreed to participate as specified. The interviews took place in May 2017 in the region of Chora Sfakia. A total number of five participants took part in the qualitative project. The interviews were held at the farmers' house and lasted between 45 minutes and 75 minutes. The interviews were translated from Greek and transcribed verbatim. Using the constant comparative method (Glauser and Strauss, 1967), data was analysed using the NVIVO software package.

Results

The analysis of the results showed that Greece has witnessed important changes in its agriculture during the 20th century. Respondents clearly recalled Greek agriculture in the early 20th century and how it was primarily subsistence farming. Farmers explained that since its inception with the EU, Greek agriculture has been transformed to commercial farming and a lot of money was given to farmers. A couple of respondents argued that the amount of money provided by the EU was too generous and farmers at the time did not understand why so much support was provided. One of the respondent also argued that the money was spent on non-related agricultural business:

> *After the 80's, we were inducted into the European Union, they gave us handouts for our agriculture [..] They gave us money very quickly. We could not understand this and use it as we should have and we spent it all illogically (Interviewee 3)*

> *In different ways of misspending and not on agriculture (Interviewee 4)*

As agriculture moved from subsistence to commercial farming, large amount of capital were invested in order to modernise and make farming more productive while at the same time the price of agricultural food did not increase. As such, farms experienced a cost price squeeze and many farmers left the industry. The analysis showed that farmers commented on the reduction of the number of farmers in the area as incomes from farming declined and many farmers seek employment elsewhere. Many small farmers have had to leave their business, as they could not survive financially despite the financial aid from the EU. Farmers argued that the subsidies from the EU encouraged the intensification of farming as farmers

were receiving money according to the number of animal they had. Indeed, respondents argued that the numbers of sheep and goat herds have grown dramatically since the 1980s.

> *Nowadays there are thousands of sheep and goats as farmers receive subsidies per head, so they have increased the number of animal per farms and let them graze freely in the mountains, this is seen as free money (Interviewee 5)*

In the study area, there is a mix of small family farms and large commercial farms which have developed as a result of investment from the EU subsidies. Indeed, there is some suggestion that some farmers have developed their farms with the EU subsidies, and many other farmers have left farming to find employment in local factory or in the towns in northern Crete or mainland Greece. The observation data revealed that there is a spatial difference of the type of farming according to the geographical location of the farm. In fact, commercial farming and large-scale farms are located in the lowlands whereas smaller family farms have remained in the mountains. The lowlands show the main changes in agriculture and have been transformed in large superficies of olive plantations. With the subsidies, the olive production has developed and farmers have planted rows of new olive species trees. Respondents declared that this is a direct impact of the CAP policy as farmers were given subsidies to remove old species and plant new species:

> *The classic olive agriculture which existed in the area which as a basis had certain endemic species has to a large extent been destroyed due to some new species and cultivational practices of olive growing which are more acceptable for market sale. This, however creates more pressure on the environment because the new species to be more productive need more chemical fertilizers. The old balance in which the trees produced no longer exists. Many olive groves have been replaced by modern species of trees through the funding from the European union (Interviewee1)*

All participants agreed that the changes of agricultural policies and resulting practices in Crete have had several impacts on the social and environmental landscapes. Respondents argued that the promotion of farm production has resulted in increased levels of pollution in the areas but more importantly a decline of the local biodiversity. Respondents pointed out that many plants have been destroyed as a result of overgrazing as many farmers have increased their herd of sheep and goats as the subsidies were provided per animal head. Farmers have also been paid to uproot indigenous olive plants to replace them with more productive species which are less adapted to the local environment as some of the new olive varieties require the use of more water and water is a scarcity in South Crete:

> *Furthermore, a large European policy which has had a catalysing role on the agricultural sector is vineyard cultivation, replacing the old traditional types with newer species or complete removal. For example, they'd give monetary rewards to the farmers to uproot their old vines. This has had a horrifying effect as there are entire areas of the island which made a living only from selling grapes and wine from their vineyards. This brought down and entire basis of civilisation and society which in its essence, desertifed the area (Interviewee 1).*

The changes in Cretan agriculture have had an important impact on the environment and the respondents argued that the agricultural changes have 'destroyed' the local environment and modified profoundly the landscape. Farmers commented that the intensification of farming

has resulted in an increased number of greenhouses or plastic agriculture being used in farming as well as increasing amount of pesticides and fertilisers. The use of technology and the mechanisation of agriculture had also impacted the soil in the areas. The analysis of the data showed that changes in agricultural practices led to questioning the sustainability of the current agricultural system. Indeed, the respondents discussed the self-sufficiency of traditional agriculture pre-world war II and claimed it has been replaced by modern practices which do not support the small farming community from the area and affect negatively the environment. The new species planted require not only more chemical fertilisers but also more water in order to be more productive. Overgrazing and the change of species has been associated with a problem of desertification in the area whereas the development of the area had led to increased road network to be built, adding pressure to the existing fauna and flora. Farmers argued that the intensive farming practices have destroyed the natural environment and have had great impacts on the landscape:

> *Yes, of course, overgrazing, that's a problem. We can see that for some herbs where we have to go higher and higher up into the mountains where the sheep don't get and the goats especially. But mainly it's land degradation, it's conversion to agricultural areas which is the main threats to natural habitats (Interviewee 2).*

> *This, however creates more pressure on the environment because the new species to be more productive need more chemical fertilizers. The old balance in which the trees produced no longer exists. Many olive groves have been replaced by modern species of trees through the funding from the European Union (Interviewee 1).*

The majority of the respondents agreed that the social impacts associated with the changes in agriculture have highlighted the increased poverty in south Crete. These respondents therefore claimed that many farmers have welcomed the financial support from the EU as it contributed to a better standard of living. Respondents also observed that the agricultural changes in the study area led to a sharp decrease in the number of farmers. Respondents explained that many farmers have migrated to towns where the development of the region led to the creation of jobs in the manufacturing or tourism sectors. All respondents commented that as a result of rural exodus in the early 1990s, many houses are left derelict and entire villages have been abandoned. One of the major impact of the change of agricultural policy and the out-migration from the rural area is the disappearance of the community spirit that was once present in the area. The majority of the respondents recalled how in the yesteryear people lived as a community, helped each other and maintained the local culture and natural heritage. As a result of rural exodus and an increase of the number of tourists in the areas, that sense of community has almost disappeared. Respondents argued that farmers have become individualistic, the community is no longer close-knit and there is increased level of poverty and unhappiness in the area. A few of the farmers tend to recreate this community spirit by trying to maintain the folk culture from the area, which is a way to maintain the rural livelihood in the village:

> *It's very nice [Festival and religious events] and we still to keep this here in the village. It's very good (Interviewee 4).*

> *Yes, it's still going on. It's very traditional at least up here. Maybe it doesn't have the kind of voluptuousness anymore as it used to have. It's not like that anymore. I can see it has changed, it has changed a lot (Interviewee 2).*

The comment below illustrates the impacts of productivist policies to the rural landscape and how these impact have led policy makers to review and adapt the agricultural policy to ensure agriculture becomes more sustainable. The respondents argued that changes in agricultural policies have contributed to a divide among farmers. Some farmers aim to maintain the traditional farming practices and the community spirit and therefore these traditional farmers diversify their business to maintain their income to organic farms, horticultural farms or include other gainful activities related to tourism (B&B, tavern, etc.) as opposed to the commercial farmers who focus mainly their production on a mono-production. Respondents engaged in organic farming as they believe in this approach to farming and also the food products are sold at a higher price. For the respondents, farming is very important for life and it is essential to produce food of good quality. The majority of the farmers argued that the intensive farming of the 1960s to 1990s has resulted in a lot of chemicals entering the food chain which in turn has had great impacts on human health.

> *It [intensive agriculture] creates further pressure on the environment, not only from pollution that occurs from agricultural chemicals, fertilizers, the use of nylon which pollutes the environment, the overuse of wood and metals for building. This has been linked with increased health issues such as growing numbers of cancer (Interviewee 1).*

In terms of diversification, respondents were keen to oversee the transformation of the raw material into final products that they were able to sell as direct marketing on their farm. Most of the respondents grew olives, which were then transported to the local factory for transformation into olive oil and bottled and the farmers sold the products on their farms. One of the respondent's farm was located near a roadside so the respondent opened a stand by the roadside to advertise and sell the farm products mainly to tourists. The other respondents sold their products in the tavern or the café.

> *I invested in agritourism as I saw there was a demand for it. And in agriculture I invested in organic produce which I can sell for double the price (Interviewee 3).*

> *Of course, the change comes because the tourism comes. Now the start the people to think about the tourism so they building more. So the change from the last 40 years the change is a lot (Interviewee 4).*

Engaging in organic farming was a way of life for all respondents. All respondents were very close to nature and farming was a way of life. The notion of connectedness to nature is related to place identity. Within the farming community, closeness to nature enhance responsible behaviour and is important in rural areas not only for nature, landscape attachment and biodiversity but also for rural livelihood (Hernandez *et al*., 2010). Native respondents had really strong feeling about the farming community and deplored that it had changed so much since Greece joined the EU. Pre-EU, the farming community was close-knit and there was a lot of mutual aid. The life in the villages was less stressful, although one of the respondents argued it was living conditions were hard as there was no access to utilities such as electricity, water or central heating. Furthermore, the rural life was punctuated by transhumance. Over the summer months, the entire village migrated to the mountain village. The respondents argued that the injection of money into agriculture has damaged the farming community and impacted on rural livelihood. The respondents argued

that commercial farmers focus on their production and do not engage in any kind of mutual aid with other farmers nor do they participate in the rural life. Rural inhabitants have become more individualistic and the local culture is not as it was. Local cultural festival are maintained for the tourists as it is a way to maintain the culture but also provide activities for the tourists as the area does not have much in terms of attractions apart from the sea and walks in the nearby gorges. One of the respondents deplored that the agricultural regulations prevent more innovative project to be developed by farmers as it is very important for farmers to diversify to maintain a living income. The respondents also highlighted the spatial dimension of tourism in Crete and the importance to adapt to the tourist market, but also they want to prevent the negative impact on the environment associated with mass tourism. Indeed, tourism in north Crete is more adapted for mass tourism as access is easier compared to the south of Crete. However, south Crete offers a range of rural sceneries and biodiversity that attracts a specific type of tourists.

South Crete has benefited from a sunny location and the seaside to develop its tourism. However, one participant highlighted that as a result of increased tourism in the area, there has been an increase of pollution linked to the disposal of plastic bottles for example. This led to a sentiment of resentment as locals want to preserve the natural beauty of the area. Participants argued that it is crucial to maintain the natural beauty of the area if they want to maintain tourism in the area. Indeed, if the area is not perceived as attractive, then the tourism industry will decline and the area will recede into poverty.

Respondents explained that rural development is key in the area. Two third of the respondents commented that over the years, the landscape has changed to accommodate commercial farms and the development of tourism. Respondents said that Crete is easily accessible by planes and ferry, however, the local road network is limited and therefore may prevent the influx of tourists in the area. One respondent explained the role of History in the development of the region. He described that prior the civil war, many villages were up in the mountains. However, local inhabitants were coerced to move away from the highlands to the lowlands by the military as the local population was then easier to control. As such, there are large numbers of abandoned villages in the mountain areas. In addition, he explained that the lack of access to amenities such as access to water and electricity or transport resulted in people not returning to the mountain villages once the civil war ended as they had migrated to the lowlands and all the amenities and access had been made available. Respondents argued that there have been very little attempt to regenerate and re-develop the abandoned villages and the only few houses that are renovated are done by foreign people. However, as the cost of the regeneration of these accommodation is sometime high due to the cost of bringing water or electricity to the house, some work have been abandoned by new owners. Another problems is that if there is a high proportion of foreign investment in the area, this also has an impact on the rural livelihood as some of the new owners do not always integrate fully to the area. One of the respondent commented that drinking was a problem in south Crete and while the respondent has lived for over 20 years in the area, he and his family participate less to the local life because of this issue:

> *I have stopped going to the local festivals as Cretan people are drinking too much and I do not like this (Interviewee 5).*

Discussion

The results of the research emphasised the changes of the European agricultural landscapes resulting from the productivist policies as explained by Stoate (2001); Jongman

(2002) or Tscharntke *et al.* (2005). The research agreed with Klijn (2004) as it explained how the intensification of agriculture led to increased production due to the use of fertilisers, new species and mechanisation in agriculture as well as land consolidation. This intensification of agriculture was encouraged by the CAP and this has impacted negatively on the rural landscape. Indeed, since the inception of the CAP, the European rural landscape has experienced swift, fundamental and multi-directional changes. The changes, driven by productivist and post-productivist policies have happened in different part of the world at different scales and are a direct representation of the overall economic and social changes orchestrated by globalisation (Robinson, 2008; Wilson, 2008; van Berkel & Verburg, 2011).

The results highlighted the changes in financial support to agriculture as the CAP has changed its financial support (from production to income support) from the 1990s as described by Lowe, Buller and Ward (2002). Indeed, European agriculture has become more focused on the cost-efficiency of agriculture and this has resulted to a further modification of the rural landscapes but also further intensification of agriculture and modification of farm characteristics (Lefebvre, Espinosa and Paloma, 2012). The results also confirmed the changes of farm characteristics and explained the changes in farm revenue. While many farm sizes in Western Europe are continuously increasing, farm incomes have decreased because of the cost-price squeeze and as a result large number of farmers have left the business leading to many farm houses and farmland being abandoned (e.g., Kuemmerle *et al.*, 2008; Verburg *et al.*, 2010; Renwick *et al.*, 2013).

One of the key results was the impact of the intensification of agriculture on the environment. The analysis of the data confirmed previous studies by Tscharntke *et al.* (2005); Bauer, Wallner and Hunziker (2009) or Agnoletti (2007) that highlighted the impact on biodiversity on both the intensification of agriculture as well as changes in land use (abandonment, set-aside policies). As described by Agnoletti (2014), abandonment is a result of socio-economic changes associated with the globalisation of agriculture and related rural exodus. In many developed countries, abandonment has also been supported by agricultural policies such as the set-aside programmes which have promoted the loss of traditional farming systems to reduce surplus farm produce. In turns, these policies have had a major impact on the landscape. The rapid changes of agricultural policies and agricultural practices as well as cultural and economic pressure have greatly damaged not only the environment but also the social landscapes and rural livelihoods (Agnoletti, 2014). The commercialisation of agriculture has also deteriorated the varieties of traditional landscape as well as the associated historical biodiversity. It is therefore necessary to assess the threats, critics by challenging the rural landscape policies directives and research approaches that have negatively impacted on the conservation and management of natural landscapes. In recent years, UNESCO, FAO, CBD and IUCN have highlighted the role of agricultural landscape through regional directives and policies such as the European Landscape Convention and European Common Agricultural Policy 2014-2020 (Agnoletti, 2014).

The research also showed that the rural economy in Crete has changed as a result of switch from productivist to post productivist policies. The research confirms previous studies that the agriculture economy aims to produce foodstuff and raw material, however, the agricultural economy has diversified into cultural and recreational activities such as tourism which contribute to rural development of specific areas (Power 2010; de Groot *et al.*, 2010). The attractiveness of the landscape plays an important role for the establishment of tourism. In fact, Daniel *et al.*, (2012) argued that the landscape plays an important role in tourism as the demand for local products and the scenery can attract large number of people (as it is the case in Crete). The study also confirmed that rural spaces are no longer just a space for food production, they are now living spaces but also a space of consumption and

conservation which attract increasing number of people which led to a new issues of conflicts in the countryside (Buller, Wilson and Holl, 2017).

The results are consistent with other work as they showed that as a result of the spatio-temporal and structural changes in European rural areas, the transition from productivism to post-productivism has led to an increase of diversified activities in rural areas which have had an impact on the landscape (Wilson, 2008; Van Berkel and Verburg, 2011). While agriculture primary function is to produce food, its evolving practices are at the centre of food safety, environmental damage and climate change. However, the multifunctional dimension of agriculture also addresses the social issues linked to rural development such as the provision of services (de Groot, 2010). As such, multifunctionality is not only reflecting a diversified agriculture but also a change of rural spaces whether it is about the economy, the population and the landscape (Boulay and Robinson, 2010; Cairol *et al.*, 2009; Wilson, 2008). It is therefore important to include in rural research the spatial, social and environmental dimension of the territorial context as well as adopting an interdisciplinary approach to the study of rural landscapes (Marsden and Sonnino, 2008; van der Ploeg, 2009; Wilson, 2007; Domon, 2011).

Conclusion

The aim of the study was to identify the impacts of the changes of the European agricultural policies on the Cretan landscape. The study has identified that the Cretan landscape has been greatly modified since the inception of the CAP for Cretan agriculture. The results showed the damage on the environment following overgrazing as farmers increased the number of animal per herd in order to receive more subsidies. The secondary impact is that overgrazing has led to a decline of the biodiversity in the area. The study also extends our knowledge on the social and cultural impact of the transition of agriculture from productivism to post-productivism. Another impact of the move towards multifunctional agriculture is the modification of farmers' identity as farmers have not only a role as food producers but also 'stewards of the countryside'. This results in an increasing demand for interdisciplinary research for the sustainability of agriculture.

The research included a couple of limitations. One of the limitations of the research is the small number of participants and the other limitation was that the data was collected in Greek and the interviews were then transcribed by an interpreter. During the interview, at times, the interaction between the respondent and the interviewer was limited due to language barriers. The next step of the project is to analyse the changes in the landscape by comparing and contrasting photos of the Cretan landscape over time. Photographs have been collected and further data will be obtained from different secondary sources. The next step of the project will highlight the social and cultural role of sustainable and multifunctional agriculture. The next step of the project is also to work with farmers, locals and people from rural agencies to develop eco-tourism in the area by developing a sustainable tourism and maintaining the countryside. This would encourage farmers not only to produce quality food such as organic food but also farmers would be stewards of the countryside.

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