Multifunctional transition pathways: How are multi-stakeholder's influencing land management farm systems resilience?

Case study of Mediterranean agro-forestry systems in South Portugal.

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The changing role of agriculture is at the core of transition pathways in many rural areas. Productivism, post-productivism and multifunctionality have been targeted towards a possible conceptualization of the transition happening in rural areas. The factors of change, including productivist and post-productivist trends, are combined in various ways and have gone in quite diverse directions and intensities, in individual regions and localities. Even, in the same holding, productivist and post-productivist strategies can co-exist spatially, temporally, structurally, leading to a higher complexity in changing patterns. In south Portugal extensive landscapes, dominated by traditionally managed agro-forestry systems under a fuzzy land use pattern, multifunctionality at the farm level is indeed conducted by different stakeholders whose interests may or not converge: a multifunctional land management may indeed incorporate post-productivist and productivist agents. These stakeholders act under different levels of ownership, management and use, reflecting a particular land management dynamic, in which different interests may exist, from commercial production to a variety of other functions (hunting, bee-keeping, subsistence farming, etc.), influencing management at the farm level and its supposed transition trajectory. This multi-stakeholder dynamic is composed by the main land-manager (the one who takes the main decisions), sub land-managers (land-managers under the rules of the main land-manager), workers and users (locals or outsiders), whose interest and action within the holding may vary differently according to future (policy, market, etc.) trends, and therefore reflect more or less resilient systems. The goal of the proposed presentation is to describe the multi-stakeholder relations at the farm level, its spatial expression and the factors influencing the land management system resilience in face of the transition trends in place.

INTRODUCTION

Over the last decades, rural areas have gone through profound changes with possible transition trends all over Europe, like the increasing global competition in world markets, reorientation of the Common Agriculture Policy (CAP), higher standards for food production (Wilson, 2007), climate variability, deforestation/afforestation, soil degradation, technological innovation, rural development processes (Marsden & van der Ploeg, 2008), the growing urban influence (consequently hobby, educational farming and quality production) and the new demands for public goods and services (Mertz et al., 2005, Antrop, 2005; MacDonald et al., 2000; Surová and Pinto-Correia, 2008; Berkel and Verbug, 2010). The nature and possible reach of the changes in place might indicate that an ongoing transition process is indeed taking place in rural areas, and that could even represent the emergence of a new agricultural regime with much wider purposes, including the 'production' of nature and new spaces of leisure (Braun and Castree, 1998 *in* Wilson, 2007).

The attempt to conceptualize the changes happening in the rural areas, has focused very much in the multifunctionality (OECD, 2001; Durand and van Huylenbroeck; Pinto-Correia, 2010), productivism and post-productivism (Wilson, 2007) concepts, and also repesantization (van der

Ploeg, 2008), focusing not on the move from production but from its commercial nature. The multifunctional rural transition concept, incorporating morepost-productivism concerns within the still established and rooted productivim, points to the "radical re-ordering in the three basic purposes underlying human use of rural space, namely production, consumption and protection" (Holmes, 2006). Multifunctionality could indeed be useful "as a transitional process of agricultural/rural change embedded in a spectrum bounded by productivist and non-productivist actor space" (Wilson, 2007). Within transition, a concept vastly found in literature and entailing a complex understanding on how it could be used, many combinations may exist (Wilson, 2007) in terms of land management, suggesting that there is a spatial, temporal and structural co-existence of several processes of transition from productivism to post-productivism going on, reflecting differences in the landscape per se, in farm management and in the local and regional context. This temporal, structural and spatial non-linearity can be observed at the landscape level and among different farms and even within the same farm, when considering multiple stakeholders acting under different attitudes. Meaning that within a singular farm, areas can be managed by different people, whose attitudes and behaviors can determine a more or less productivist strategy.

The resilience concept, as also linked to transition, is a complex concept (Walker and Salt, 2006 *in* McManus *et al.*, 2012) being the transfer of an ecological term to other domains and applied in economic and social contexts, including rural environments (Allison and Hobbs, 2004 *in* McManus *et al.,* 2012). It can be defined as the ability to embrace change with a capacity to adapt (McManus et al., 2012), and therefore at the most basic level as the "ability to adapt" (Manyena, 2006 *in* Olwig, 2012), recognizing that people affected are not passive victims but capable agents (Olwig, 2012) as also the land managers in Mediterranean areas can be. Resilience applied to the farm systems, recognizing that change is always occurring, can also be defined as the ability of a system to absorb disturbance and still retain its basic function and structure (Walker and Salt, 2006 in McManus et al., 2012).

One significant trend developing along the several changes occurring in rural areas is the emergence of new ways of managing the land, no longer by the traditional farmers but by a multiplicity of other land managers, like part-time farmers, hobby-farmers, agro-tourism farms and others (Barros, 2003; Primdahl and Lone, 2011), with income from outside the production, and different concerns, particularly regarding the quality of the landscape. These land managers joint with the ones using the landscape, represent in the present article the 'multi-stakeholders' believed to greatly influence the land management farm systems resilience. Within the Mediterranean context, the agro-forestry systems like the *Montado* and the traditional Olive groves, give place to a complex land use pattern entailing some degree of fuzziness concerning either overlapping of land cover classes and boundaries in-between land cover classes (Barroso *et al.,* 2012). These are increasingly valued by society due to their potential for non-commodity functions such as recreation, hunting, environmental quality, landscape appreciation (Paquette and Domon, 2003; Pinto-Correia and Vos, 2004; Romero-Calcerrada and Perry, 2004), encouraging new ways of managing the land, combining production with other income sources and new strategies for farm survival (Marsden, 2003; van der Ploeg, 2008).

Within this Mediterranean valued systems and resultant landscape, there is indeed a multi-stakeholders network influencing each farm differently and along three main levels reflecting their relationships with the land: ownership, management and use - reflecting a particular land management dynamic, in which different interests may exist, from commercial production to a variety of other functions (hunting, bee-keeping, subsistence farming, etc.), influencing management at the farm level and its supposed transition trajectory. This multi-stakeholder

dynamic is composed by the main land-manager (the one who takes the main decisions), sub land-managers (land-managers under the rules of the main land-manager), workers and users (locals or outsiders), whose interest and action within the holding may vary differently according to future (policy, market, etc.) trends, and therefore reflect more or less resilient systems.

Studies regarding resilience and agriculture have mainly focus on climate change (Olwig, 2012), farmer's community engagement (McManus *et al.,* 2012), farming systems (profit, crop rotation, etc.) in variable environments (Rodriguez *et al.,* 2011) and multifunctionality of rural regions (Wilson, 2010). Resilience linked with a multi-stakeholder dynamic influencing land management at the farm level, as influenced themselves with global market, societal new demands and other transition trends, has been hardly addressed. In order to contribute to a more satisfactory conceptual frame of the transition possibly occurring in rural areas, more evidence is needed. And as changes may have their most direct expression in land use pattern as consequence of land management strategies, the farm/holding has been used as a first level in which changes can occur and therefore where changes can be analyzed. These strategies reflect how are land managers in a more recent and wider sense (traditional farmers, neo-rural part-time farmers, subsistence farmers, land managers renting the land to local farmers, etc.) adjusting to the global squeeze (van der Ploeg, 2008) in the sense of resisting, innovating, immobilizing more or less in their land management strategies. In other words, how are the land management systems resilience affected, by the multifunctional transition pathways in place and the multi-stakeholders dynamic? And what are the land manager characteristics, attitudes and motivations (plus combinations of different land managers profile) that converge to higher resilience management strategies? The goal of the proposed presentation is then to describe the multi-stakeholder relations at the farm level and the factors influencing the land management system resilience in face of the transition trends in place.

1. Methodology

1.1. Study areas

Two case-study areas in Alentejo (Southern Portugal) are presented as already going through some transition trends, in order to analyze the multi-stakeholders strategies in place.

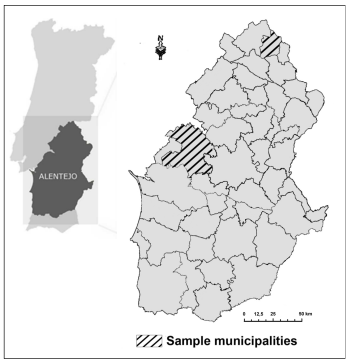

Fig. 1 – Study areas location in the Alentejo Region (Southern Portugal, Mediterranean Europe).

The two case study municipalities are dominated by extensive agro-silvo-pastoral systems (montado) and small-scale mosaic farming. The Montado (equivalent to the Spanish *Dehesa*) is a savanna like landscape of open oak woodland in a mosaic of patches with variable tree cover and shrub densities (Surova and Pinto-Correia, 2008). The small-scale mosaic, mostly located around urban centers, is composed by olive grooves, vegetable gardens, orchards and some small vineyards. Both systems represent highly valued landscapes in the European context, due to its high conservation value (Bugalho *et al.*, 2011) and also its support of multiple functions related with regional identity, recreation and aesthetic appreciation (Pinto-Correia *et al.*, 2011; Surova and Pinto-Correia, 2008). At the same time, specialization and progressive intensification in livestock production, or otherwise extreme reduction in land care and further abandonment, represent threats that these systems face in result of dominant productivist strategies and a lack of seeing other management

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options than production (Pinto-Correia, 1993, Rodrigo and Veiga 2009).

1.2. Sample and survey design

In order to understand the Multifunctional transition process in the study areas, dimensions were developed (Wilson, 2007), based in literature review and expert knowledge. A survey based on these dimensions was developed, to grasp the different stakeholders influencing land management at the farm level. Dimensions were developed under five main topics: 1. External factors (policies, neighbors, markets, associations, institutions); 2. Biophysical factors, farm and landscape framework (soil, slope, available water, farm structure and dimension, landscape character areas, etc.); 3. Internal factors/Attitudes (thoughts, beliefs and ideas - what the land manager thinks - Gorton *et al.,* 2008; Bagozzi, 1981 *in* Gorton *et al.,* 2008; Willock, 1999), including the socio-economical profile (age, education, childhood, etc.); 4. Decisions/Behaviors (all the practical issues or actions that manager decide for the holding, like farming techniques, etc. - what the land manager does); and 5. Externalities (the outcomes of the holding management - management impacts, products & services and the landscape the farm is creating). The 14 dimensions within each topic are showed in the figure below.

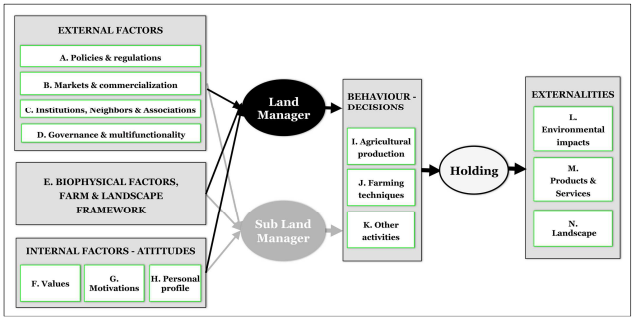

Fig. 2 – Multifunctional transition dimensions, based on Wilson's (2007) productivism and post-productivism dimensions, expert knowledge and literature .

Questions were formulated in order to position the manager within the multifunctional transition process and organized in 10 groups (1. Personal profile; 2. Holding profile 3. Pass and future 4. Farming techniques 5. Relations and local entity's; 6. Production and multifunctionality 7. Multi stakeholders 8. Subsidies and policies 9. Landscape and 10. Likert scale sentences).

In order to differentiate the different stakeholders, the main respondents are defined as the "land managers", taking decisions concerning the management of the land and the related resources. These are often the land owners who are also farmers, but there may be other combinations: land managers who are not the owner, when the owner is mainly absent; or land owners who take the decisions on management, but are not there in everyday practice, leaving the application of their decisions to employees or other managers. Land manager is considered here to be a more overarching concept, adapted to this particular farm structure and management tradition.

Sampling is will be stratified by holding area and nº holdings per parish, aiming a representative number of surveys in each study area (185 and 138 surveys are expected to be applied respectively in the municipalities of Montemor-o-Novo and Castelo de Vide).

Expected results

Considering that the multifunctional transition dimensions based survey, as described in the methodology section of this article, is still in progress, some expected results are presented based

on previous studies in the same case study areas. Table 1 below shows the land managers types already identified in these case study areas, their main characteristics, the function/activities promoted in the holding and the secondary land managers and the landscape users generally linked to each main land managers type.

Table 1 - Land Managers Types identified in Montemor and Castelo de Vide (Pinto-Correia *et al.,* 2012) & Castelo de Vide Municipality (ref. Mural), Landscape functions/Activities promoted in the holding, possible secondary land-managers for eah main land manager type and landscape users linked to each type.

Main land manager	Main characteristics	Landscape functions/activities promoted at the holding	Secondary land managers	Landscape users
Multifunctional Innovative	- Multifunctional and innovative oriented management - Small and medium size farms (0-20 ha) - High education level - Urban background - High (income from other professional activities) to low inputs of external capital - High to low dependence on farm income (when income is coming from other professional activities)	- Nature conservation - Environmental and Landscape Values - Organic/quality production - Recreation activities *Holding generally as living area for lifestyle goals	- Farming keepers employer	
Specialized Agri-Business	- Production oriented management with some diversification - Very large farms (>500 ha) - High education level - High inputs of external capital (investments) / High dependence on farm income (profit oriented)	- Livestock production - Touristic and associative hunting reserves *Generally not living in the holding - Living in the closest town or Lisbon	- Tenants – grazing undercover - Tenant – intensive production - Hunter reserve manager - Bee-keeper - Farm employee private vegetable garden	- Asparagus & mushroom pickers - Eco-tourists & other visitors - Hunters
Conventional Livestock	- Production oriented management - Medium and large size farms (20-500 ha) - Low education level - Typical farmers - Low inputs of external capital - High dependence on farm income	- Livestock production - Associative hunting reserves *Holding as living area because they always lives there/Living in the closest town because of family logistics	- Hunting Association management - Beekeeper	
Local subsistence	- Gardened oriented management for subsistence and time occupation - Small size farms (0-5 ha) - Low education level - Close to urban centers - High inputs of external capital (retirement pension) - Low dependence on farm income (self-consumption only)	- Vegetable gardens - Olive harvesting *Holding generally as living area because they always lives there	- no secondary land manager	- no other users
Quality living	- Quality living by Neo-rurals in mosaic landscape - High inputs of external capital (income from other professional activities or retirement pension) - Neo-rurals - High education level - Retired people and young people coming from urban areas - Low dependence on farm income	- Vegetable & ornamental plants gardens - Olive harvesting - Recreation activities *Holding generally as living area for life quality goals (chosen place to spend retirement or to live having a liberal job)	- Tenants – grazing undercover - Subsistence local farmers – vegetable garden and/or olive harvesting	- Visitors

Five main land managers types were identified – the *Multifunctional Innovative;* the Specialized Agri-business, the Conventional Livestock, the Local subsistence and the Quality Living.

Multifunctional Innovative – Land managers maintaining a traditional production system under a diversification perspective with high perspectives about future projects. They are generally developing a personal project and are therefore better qualified as land managers and not

traditional farmers. They have high concerns over the environment and public health (Organic/quality production), consuming what they produce orienting the land management in the farm towards their well-being and therefore as a lifestyle, but also selling in the local market and other stores. Most are full time land managers taking advantage of bee-keeping, nature conservation and also tourism and eco-tourism. They more often have employees, responsible for the farming (that can be sheep for grazing, vegetable garden, vineyards, olive groves and small orchards) or tourism activities, than secondary land managers, maintaining always high levels of ownership and management.

Specialized Agro-business - Business man (traditional family business or business society/corporation), promoting a production oriented management with some diversification (touristic hunting reserves, nature conservation, rural tourism, organic farming) but at the same time intensifying towards maximizing profit (sometimes managing intensive production forests, industrial pig production). This type represents the land managers who truly dedicate to strategic management and less to the farming activity itself. This last one, as well as hunting and bee-keeping, tend to be under their ownership but kept by secondary land managers (sometimes tenants) and/or other employees. These land managers tend to specialize very much focusing on one activity or even a component production within the farming activity (they can rent some areas like the pastures in the undercover of the montado and just take care of cork business).

Conventional Livestock- The majority of the local (rural background) and active farmers with a production oriented management focused on livestock production (mainly cows for meat). They are generally full-time farmers (owners or tenants) in medium and large size farms (20-500 ha) covered by montado. In this type there is a tendency for intensification of the montado, with the increase of livestock density with negative consequences to soil conservation and montado regeneration. They have no intentions of diversifying or investing in other functions besides production, but tend to allow or promote the most traditional activities such as associative hunting (in an indirect payment basis from a familiar local association, where most times there's no specific management besides predators control) and bee-keeping (generally also with indirect payment from a secondary land manager or less often managed by himself just for fun). Secondary land managers linked to the farming activity are rare within this type. Their perspective for the future is basically to maintain things as they are, with a strong pessimistic view over farming activity.

Local subsistence - Small farmers whose main income come from other activity not farming (services or retirement). Some own land, some rent and others use the land that some neighbors provide, usually neo-rurals, to maintain vegetable gardens, graze the olive grove undercover with their sheep in order to clean the holding from shrubs or even harvest the olive grove (land management through informal contract, providing the owner with indirect payments like some vegetables and a lamb). Within the retired, they keep a non-commercial farming because they farmed all their lives and see it as a way to complement their income and as a healthy occupation for their minds. As most of these are elderly farmers, their perspectives are to maintain farming in a survival strategy, focusing on the production of food (mainly horticulture, fruit trees, some sheep, poultry, etc.), with no capacity or interest for innovation or multifunctionality. Since they have small size farms, they don´t have secondary land managers in their holding, instead themselves are sometimes secondary managers of their neighbors.

Quality living – Land managers (and not farmers) as the majority also has the main professional activities in other areas, with few or none knowledge regarding the farming activity. Nevertheless when they do some farming activity, they promote organic farming, even if not certified, but just for own consumption, and sometimes when they have a large vineyard or olive grove they sell some wine and olive oil. Most of the times they informally grant their local neighbors (the local subsistence) or sometimes they employ one farmer keeper to manage the farming activity. These land managers value the landscape where they are, for its scenic and nature conservation richness. They all have defined and innovating ideas for the future but in different areas, from nature conservation aspects (regeneration of the Montado) to tourism possibilities and local commercialization dynamics. Because they manage larger areas than the previous ones, they are able to promote more functions (bee-keeping, tourism, etc.).

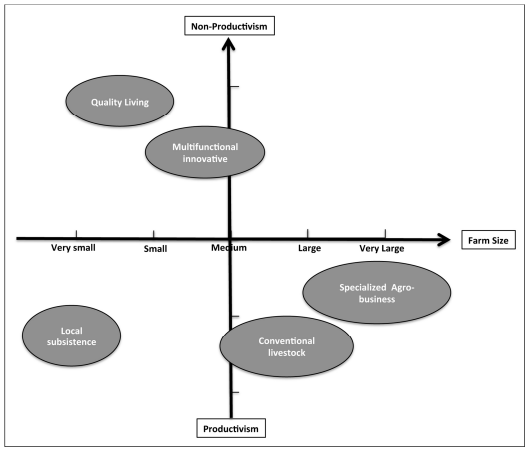

Fig. 3 – Location of the different land manager types identified within a non-productivism/productivism and farm size axis.

The types identified can be located along the non-productivism/productivism axis, where the 'quality living' and 'multifunctional innovative' are the most multifunctional and the 'local subsistence', the 'conventional livestock' and the 'specialized agro-business' are the more productivists. Both the 'quality living' and 'local subsistence' are less market oriented as they manage smaller farms and therefore less competitive.

Discussion

Considering the ownership and management levels, different conditions have been identified within each type presented. The land owner can differ very much: managing full time with no interest in non-agricultural activities; other times managing a non-agricultural activity like tourism or a touristic hunting reserve, renting the farming areas for others; or even managing a specific part of the agro-forest system, like the cork extraction (generally more profitable and less demanding in terms of time), renting the grazing areas in the undercover to others. Besides this mix of ownership levels, a parallel or complementary mix of management levels can also occur. Considering the management of the bee-keeping activity, the associative hunting reserves activity and the presence of subsistence vegetable gardens, these are generally activities promoted by secondary land managers (formal or informal tenants, employees, local hunting associations, and other people like neighbours or local acquaintances). The ownership level of each main land manager and associate secondary land managers can vary a lot. This is dependent on their time to dedicate to the holding: If the main land manager lives in the holding but does not have enough time to dedicate usually he or she will rent or provide areas for other to manage, or employ people to do so according to their ownership; if the main land manager does not live in the holding, he or she will have to delegate the holding activities to others as well.

Another important issue is the less to more post-productive land-manager profile, highlighting the owner focusing on productive activities to the owner only focusing on non-productive activities, which can generate conflicts with the secondary land managers in the holding.

The medium and large farms, where the farm area, mainly occupied by agro-forestry systems like the *montado*, give place to a number of different activities, agricultural or not. The ownership, management and use dynamics are therefore more relevant at this type of farms. Nevertheless all secondary land managers are limited, in some degree, to the owner's regulation power, applied by each main land manager in a distinctive way. For example usually the 'multifunctional innovative' don´t want secondary land-managers since they want to control almost everything in the farm in order to guarantee their quality standards, however when they have secondary land managers they want them to agree or act upon their beliefs in terms of nature conservation, soil mobilization, or others. Unlike the previous type, the specialized agro-business type, don´t intends to use such strong influence when renting the land to others or hire someone to handle some farming area, as long as it does not influence profit maximization. The conventional livestock type since they don´t aim to take advantage of other functions besides production, generally they don´t need secondary land managers, except for associative hunting or beekeeping but even in these cases there is no real managing and so there is no impact on their management. Finally regarding the quality living land managers, the regulation power of this type is not very strong since sometimes they have another activities and often not related with the holding and so they have to delegate the management to others. In this case mainly there is sometimes a conflict of interest because the main land manager thought is non-productivist and often the secondary land managers is productivist.

Conclusion

Evidence of the spatial temporal and structural coexistence and interplay of productivist and non-productivist strategies at the holding level underline that the multi-stakeholders dynamic is indeed relevant to understand the rural transition. With the aim to classify different land managers on a multifunctional spectrum, linking with the multi-stakeholders dynamic at holding level, existent land management options have been identified. These reflect the capacity of innovation or adaptation of land managers and how this capacity in association with different multi-stakeholders groups can contribute to the system resilience.

The multi-stakeholders dynamic in fuzzy agro-forestry Mediterranean systems, do not represent a new dynamic affecting this systems but rather it can be studied and enhanced, from a rural transition point of view, as a major potential towards the resilience of the systems itself. As changes are affecting these rural areas, its previous mode of multi-stakeholder dynamic might be also affected. Agro-forestry or mosaic systems within small and medium sized farms are specially threatened due to progressive aging of small scale traditional farmers who are now keeping their own as well as the farms of new comers with no farming knowledge or experience. On the other hand, the repeasentization scenario introduced by van der Ploeg (2008) could drive these areas towards a more generalized subsistence resistance across all the living community. Large properties dominated by the montado are still not competitive in a world market if focused solely on production as before and are therefore less threatened when incorporating a more multifunctional strategy in association with a multi-stakeholders dynamic.

References

Antrop, M. (2005) Why landscapes of the past are important for the future. Landscape and Urban Planning 70: 21-34.

Barros, V. C. (2003) Desenvolvimento Rural – Intervenção pública, 1996-2002. Lisboa, Terramar.

Barroso, F., Menezes., H., Pinto-Correia, T. (2010) Identifying land management typologies: Transition to multifunctionality in Mediterranean extensive farming systems. In: Darnhofer, I. and Grötzer M., *Proceedings* 9th European IFSA Symposium. Vienna 4-7 July 2010, BOKU, Vienna. 994-1003.

Barroso F., Pinto-Correia T., Ramos, I.L., Surová D., Menezes H. (2012) Dealing with landscape fuzziness in user preference studies: Photo-based questionnaires in the Mediterranean context. Landscape Urban Planning 104: 329-342.

Berkel D., Verbug, P. (2011) Sensitising rural policy: Assessing spatial variation in rural development options for Europe. Land Use Policy 28: 447-459.

Bugalho M., Caldeira M.C., Pereira J.S., Aronson J. and Pausas J. (2011) Mediterranean cork oak savannas require human use to sustain biodiversity and ecosystem services. Frontiers in Ecology and Environment 9(5): 278–286, doi:10.1890/100084.

Durand, G. & Van Huylenbroeck, G. (2003) Multifunctionality and rural development: a general framework. In: Durand, G. & Van Huylenbroeck, G. (eds.), Multifunctional agriculture: a new paradigm for European agriculture and rural development, Ashgate, Aldershot. pp. 1-16.

Gorton, M., Douarin, E., Davidova, S., Latruffe, L. (2008) Attitudes to agricultural policy and farming futures in the context of the CAP reform: A comparison of farmers in selected established and new Member States. Journal of Rural Studies 24: 322-336.

Holmes, J. (2006) Impulses towards a multifunctional transition in rural Australia: Gaps in the research agenda. Journal of Rural Studies 22: 142-160.

MacDonald, D., Crabtree, J.R., Wiesinger, G., Dax, T., Stamou, N., Fleury, P., Gutier- rez Lazpita, J., Gibon, A. (2000) Agricultural abandonment in mountain areas of Europe: environmental consequences and policy response. J. Environ. Manage. 59, 47–69.

McManus, P., Walmsley, J., Argent, N., Baum, S., Bourke, L., Martin, J., Pritchard, B., Sorensen, T. (2012) Rural Community and Rural Resilience: What is important to farmers in keeping their country towns alive? Journal of Rural Studies 28: 20-29.

Marsden T. (2003) The Condition of Rural Sustainability. Royal van Gorcum.

Marsden, T. and Van der Ploeg, J. D. (2008) Some final reflections on rural social and spatial theory. In: Van der Ploeg, J. D. and Marsden, T. (eds.) Unfolding Webs – The dynamics of regional rural development. 1st edition, Van Gorcum, Assen.

Menezes., H., Barroso, F., Pinto-Correia, T. (2010) How can we link farm management to amenity functions, through the landscape pattern? Application to a case study in Southern Portugal. In: Proceedings 9th European IFSA Symposium. Vienna 4-7 July 2010, BOKU, Vienna. pp. 1004-1013.

Mertz, O., Wadley, R.L. & Christensen, A. E. (2005).Local land use strategies in a globalizing world: Subsistence farming, cash crops and income diversification. Agricultural Systems 85: 209–215.

OCDE (2001) Multifunctionality: Towards na analytical framework.

Olwig, M. F. (2012) Multi-sited resilience: The mutual construction of “local” and “global” understandings and practices of adaptation and innovation. Applied Geography 33: 112-118.

Paquette, S. and G. Domon (2003) Changing ruralities, changing landscapes: exploring social recomposition using a multi-scale approach. Journal of Rural Studies 19: 425-444.

Pinto-Correia, T. (1993) Threatened landscape in Alenetejo, Portugal: the ‘montado’ and other ‘agro-silvo-pastoral’ systems. Landscape and Urban Planning, 24: 43-48.

Pinto-Correia, T. & Vos W. (2004) Multifunctionality in Mediterranean Landscapes – past and future. In: Jongman, R. H. G. (ed.), The New Dimension of the European Landscapes, Springer, Dordrecht. pp. 135-164.

Pinto-Correia T., Barroso F. and Menezes H. (2010) The changing role of farming in a peripheric South European area: the challenge of the landscape amenities demand. In: Wiggering H., Ende H.P., Knierim A. and Pintar M. and (Eds.), Innovations in European Rural Landscapes, Springer, Berlim-Heidelberg: 53-76.

Pinto-Correia, T., Menezes, H., Barroso, L. F. The landscape as an asset in Southern European fragile agricultural systems: contrasts and contradictions in land managers attitudes and practices. Landscape Research (in press).

Primdahl J. and Kristensen L. (2011). The farmer as a land manager: Management rles and change patterns in a Danish region. Geografisk Tidsskrift-Danish Journal of Geography 111(2): 107-116

Rodrigo I. and Veiga J.F. (2009). Portugal: Natural Ressources, Sustainability and Rural DEvelopment. In: Bruckmeier K. and Tovey H. (Eds.), Rural Sustainable Development in the Knowledge Society. Ashgate, England, pp. 203-222.

Rodrigueza, D., deVoilb, P., Powerb, B., Coxb, H., Crimpc, S., Meinked, H. (2011) The intrinsic plasticity of farm businesses and their resilience to change. An Australian example. Field Crops Research 124: 157-170.

Romero-Calcerrada, R. and G. L. W. Perry (2004) The role of land abandonment in landscape dynamics in the SPA 'Encinares del rio Alberche y Cofio, Central Spain, 1984-1999. Landscape and Urban Planning 66(4): 217-232.

Surová, D. and Pinto-Correia, T. (2008) Landscape preferences in the Cork Oak MontadoRegion of Alentejo, Southern Portugal: Searching for valuable landscape characteristics for diferente groups. Landscape Research 33-3: 311-330.

Van der Ploeg, J.D. (2008) The New peasantries. Struggles for Autonomy and Sustainability in an Era of Empire and Globalization. 1st edition, Earthscan. London, 356 pp.

Willock, J. (1999) Farmers" Attitudes, Objectives, Behaviors, and Personality Traits: The Edinburgh Study of Decision Making on Farms. Journal of Vocational Behavor, 54: 5–36.

Wilson G. A. (2007) Multifunctional Agriculture – A Transition Theory Perspective. CABI, Cromwell Press, Trowbridge.

Wilson, G. A. (2010) Multifunctional ‘quality’ and rural community resilience. Transactions of the Institute of British Geographers, Journal compilation, Royal Geographical Society.