Impact of Multifunctional Agriculture on Territorial Competitiveness: Theoretical Approach

Vilma Atkociuniene¹, Dovile Petruliene²

Aleksandras Stulginskis University, Lithuania

The topic of this paper remains actual and new as the interrelationship between multifunctional agriculture and territorial competitiveness has not yet been deeply analysed. Those observations prompted us to analyse the scientific problem of how multifunctional agriculture affects territorial competitiveness. The purpose of the study is to analyse a potential impact of multifunctional agriculture on territorial competitiveness. The key method applied in the paper is a comparative analysis of scientific literature, documents and reports. The article is structured as follows: the first section deals with the conception of multifunctional agriculture; the second section explores the territorial competitiveness background; the third section outlines the effect of multifunctional agriculture on territorial competitiveness by presenting the conceptual framework of the impact of multifunctional agriculture on territorial competitiveness and the final section provides the main conclusions.

Keywords: multifunctional agriculture, multiple functions of agriculture, territorial competitiveness, territory.

JEL Codes: O10, Q50, R10

Introduction

Multifunctional agriculture and territorial competitiveness are concepts that are broadly discussed in scientific, political and social areas. However each of them is considered separately. The notion that multifunctional agriculture does not only provide and fibre or produce commodity outputs but also performs additional functions and creates non-commodity outputs necessitates to analyse multifunctional agriculture in the territorial context and to study its potential effect on territorial competitiveness.

Research problem: how multifunctional agriculture affects territorial competitiveness.

Purpose of the research: to analyse a potential impact of multifunctional agriculture on territorial competitiveness.

Object of the research: the impact of multifunctional agriculture on territorial competitiveness.

1) Professor, Doctor of social (economics) science Vilma Atkociuniene
Fields of scientific interest: rural area competitiveness, the development of rural social infrastructure, local marketing, social partnership.
Mailing address: Business and Rural Development Management Institute, Faculty of Economics and management, Aleksandras Stulginskis University, Universiteto g. 10, LT-53361, Akademija, Kauno raj., Lietuva/Lithuania.
E-mail: vilma.atkociuniene@asu.com

2) Phd. Student Dovile Petruliene
Fields of scientific interest: territorial competitiveness, multifunctional agriculture, sustainable development, local marketing.
Mailing address: Business and Rural Development Management Institute, Faculty of Economics and management, Aleksandras Stulginskis University, Universiteto g. 10, LT-53361, Akademija, Kauno raj., Lietuva/Lithuania.
E-mail: dovile.petruliene@asu.com

Objectives:

1. to analyse the concepts of multifunctional agriculture and territorial competitiveness;
2. to identify the contribution of multifunctional agriculture towards territorial competitiveness;
3. to produce a logical framework of the impact of multifunctional agriculture on territorial competitiveness.

Methods of the research: a comparative analysis and synthesis of scientific literature and the methods of induction and deduction were used to investigate the theoretical aspect and characteristics of multifunctional agriculture and territorial competitiveness. We used graphical representations to produce a logical framework of the impact of multifunctional agriculture on territorial competitiveness.

Nature of the Concept of Multifunctional Agriculture

Cairol, et al. (2009) argued that the concept of multifunctionality has emerged as a result of a complex dynamics between different agendas:

1) the political liberalisation agenda focusing on the questions of the legitimacy of agricultural subsidies;
2) the economic agenda focusing on the new concepts such as joint production or the co-production of private and public goods;
3) the research agenda emphasising the modelling of interrelations between land use and environmental quality, together with increasing attention being paid to questions related to policy formulation and assessment.

Those agendas gave rise to different approaches towards the concept of multifunctional agriculture (Table 1).
The term of multifunctionality has a lot of different interpretations, which depend on the context. According to the approaches provided in Table 1, it may describe the main characteristics of multifunctional agriculture:

- multiple functions of agriculture: the main function (production of food and fibre) and additional functions;
- commodity and non-commodity outputs produced by agriculture;
- the fact that some of the non-commodity outputs exhibit the characteristics of externalities or public goods, where markets for these goods do not exist or function poorly;
- potential positive influence of agricultural policy on farmers decisions to perform multiple functions;
- multiple functions of agriculture depend on the type and size of a farm, farm strategies, the territorial context and the preferences of the society.

The central idea of multifunctionality is that agriculture and rural areas perform a range of functions for modern society in addition to providing food and fibre. There is a general consensus that multifunctional agriculture is territory-based. According to Cairolet, al. (2009), if we consider various functions of agricultural activities, such as environmental or economical, it becomes evident that their linkages go far beyond the farm level, involving up and down stream businesses and other non-agricultural sectors. The territory-based approach allows to link the different functions of agriculture with other functions in the territory and to reintegrate farming activity into the local economy (Knickel& Renting, 2000; Knickel et al., 2004). Knickel, Zemeckis and Tisenkopfs (2013) contrasted the mainstream capital-intensive and technology-driven model of agricultural modernisation with more incremental, socially embedded and localised forms of development. They highlighted the potential synergies between different modes of farm ‘modernisation’, resilience and sustainable rural development and explored a different future-oriented understanding of the term ‘modernisation’.

Most researches (Romstad et al., 2000; Miskolci, 2008; Fleskens et al., 2009;) focus on multiple agriculture functions and their interrelations with other local economic sectors. According to Romstad et al. (2000), multifunctional agriculture, in addition to traditional food and fibre production, has several other functions and social impacts. Environmental effects, amenity services, food security and food quality, and the viability of the rural area are a represent the essential components of multifunctional agriculture. The multiple functions of agriculture include products (goods or services, marketable or public) but also less tangible elements of rural development, such as social inclusion, cultural heritage and landscape value, which may not be easily disentangled. There are several ways to define the multiple functions of agriculture:

1. they are defined as ecosystem functions and follow an ecologist’s perspective emphasising the natural environment;
2. they are defined taking a broader, human-centred perspective including the social, cultural and institutional capital over and above the natural capital (Fleskens et al. 2009; Groenfeldt, 2009).
3. they are defined focusing on joint ness: the function of producing food or fibre should be linked directly to other functions, such as green or blue services (Herenga, et al., 2013).

However, it remains unclear what kind of activities should be included. Various scientists suggest different numbers of functions of multifunctional agriculture. Renting et. al. (2008) offered an extensive classification of multiple functions of agriculture: food production, in-

<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy-based</td>
<td>Highlights the policy impact on the development of multifunctional agriculture. The agricultural policy is the key driver of multifunctional agriculture.</td>
<td>Potter, Burney (2002); Hollander (2004); Potter, Tilzey (2005)</td>
</tr>
<tr>
<td>Economy-based</td>
<td>Focuses on commodity and non-commodity outputs of agriculture. The market is the key driver of multifunctional agriculture.</td>
<td>Vatn, 2002; Durand, Van Huylenbroek, 2003</td>
</tr>
<tr>
<td>Holistic</td>
<td>Emphasises changes in public attitudes toward agriculture. The preferences of the society are the key drivers of multifunctional agriculture.</td>
<td>Marsden, 2003; Clark, 2005; Wilson, 2007</td>
</tr>
<tr>
<td>Farm management</td>
<td>Analyses the processes of transition from traditional to multifunctional agriculture at the farm level. Farmer’s behaviour and multifunctional farm strategies are the key drivers of multifunctional agriculture.</td>
<td>Holmes, 2006; Wilson, 2007; Vandermeulen, 2008.</td>
</tr>
<tr>
<td>Territory-based</td>
<td>Focuses on multifunctional agriculture as an integrated local system. Functions offered by agriculture to other sectors are the key drivers of multifunctional agriculture.</td>
<td>Mollard, 2003; Durand, Van Huylenbroek et al., 2003; Wilson, 2007, Cairoi, 2009; Fleskens et al., 2009</td>
</tr>
</tbody>
</table>

Source: compiled by the authors.
cluding distinctive quality attributes of food products, provision of goods and services for non-food markets; environmental functions; cultural functions; social functions; ethical functions. Kallas et al. (2007) introduced three types of agriculture functions based on the OECD description: (1) production of food and fiber, (2) preservation of the rural environment and landscape, (3) contribution to the viability of rural areas and a balanced territorial development. Miskolci (2008) presented three different functions of agriculture: productive (production of food and fibre - market outputs), environmental (preservation of the rural environment and landscape – positive/negative externalities, non-market outputs), and socio-economic (contribution to the viability of rural areas and a balanced territorial development – positive/negative externalities, non-market outputs). Vaznonis (2009) put forward four groups of agriculture functions: production, territorial, social and environmental. Fleskens et al. (2009) presented the House of Functions, where they distinguished five function groups: ecological, productive, cultural, economic, and social. Other authors (Kola, Arivuori, 2004, Van Huylenbroeck et al., 2007) chose to follow the sustainability concept by distinguishing three groups of functions: economic, ecological and sociocultural.

Consistent with the above mentioned classifications of multiple functions of agriculture and with a focus on jointness, the authors of this paper classify multifunctional agriculture functions into two basic groups (Figure 1): 1) the primary function, which includes production functions related to commodity outputs of agriculture that are essential to ensure the competitiveness of the agricultural sector and 2) secondary functions that are provided in conjunction with the primary function and related to non-commodity outputs of agriculture. The non-commodity outputs exhibit the characteristics of externalities or public goods and can have both positive and negative effects on the territory.

![Fig. 1. Multiple functions of agriculture](source: compiled by the authors (Renting et. al., 2008, Kallas et al., 2007, Miskolci, 2008, Vaznonis, 2009, Fleskens et al., 2009, Kola, Arivuori, 2004, Van Huylenbroeck et al., 2007))

The secondary functions are classified into three groups, which incorporate dimensions of sustainable development. The key principle of multifunctional agriculture is that the secondary functions are performed concomitantly with the production of food and fibre. It is highly important to combine those primary and secondary functions to sustain the local economic system and to ensure the territorial competitiveness.

The paper is based on the territory-based approach and focuses attention on the functions provided by multifunctional agriculture to the whole territory. The territorial view allows to link the different functions of agriculture and agricultural land use with other functions of the territory and to reintegrate the farming activity into the local economy (Knickel& Renting, 2000; Knickel et al., 2004, Cairoli et al., 2009). The production of joint functions often requires a collective-systemic scale. The non-
commodity output outcomes produced by single farms only have a real value when this behaviour is shared in the local area. Schader et al. (2007) and Huber et al. (2007) stated that there were significant regional differences in the societal demand for the functions of agriculture: some regions attached more importance to production, others to recreation or to ecology. The demand, environmental circumstances and history will differ considerably from region to region (Groot et al., 2009). That is why the development of agriculture and its multiple functions is different between regions and this development can have notably different regional effects depending on the type of the region.

To summarise the concept of multifunctional agriculture, it is worth pointing out that multifunctional agriculture is highly important in the territorial context. The integration of different functions performed by multifunctional agriculture at a time and creation of commodity and non-commodity outputs that sustain the local system can make the territory more attractive for other economic activities and affects both the choice of allocating other economic activities (tourism, bioenergy, etc.) and the choice of residents to live or recreate in a particular territory.

Theoretical Background of Territorial Competitiveness

In order to analyse the relationship between multifunctional agriculture and territorial competitiveness, first it is worth exploring the concept of ‘competitiveness’ and the theoretical background of territorial competitiveness. Due to the complexity of the concept, a large number and variety of factors, and the complication of the process of competitiveness, the theory of competitiveness is one of the most confused and difficult to summarise fields of research (Snieska, Bruneckiene, 2009). Competitiveness can be analysed on three levels: business, industry and territory. There is not so much discussion among scientists in analysing competitiveness on business or industry level. Whereas, there is extensive discussion among scientists seeking to define, conceptualise and measure territorial competitiveness.

Political and scientific discussion on territorial competitiveness started in the period of globalisation characterized by an increasing complexity and density of global supply chains, internationalisation of finance, market and commerce through the opening of national borders and, chiefly due to the high accumulation of wealth in large multinational corporations and elites benefiting there from (Harvey, 2005). The interpretations of the concept of territorial competitiveness are rather broad. They depend on the context of analyses and the level of the territory. Territorial competitiveness can be analysed on different levels: nations, regions, cities or rural areas. Porter (1990) equated territorial competitiveness to productivity. Other scientists (Camagni, Capello (2005), Malecki (2006), Nieto (2011)) compared territorial competitiveness to territorial attractiveness with investment, skilled employees, technology and other mobile productive resources. There were scientists (Aiginger (2006); Blunc (2006); Reiljan et al. (2000)) who argued that the main objective of territorial competitiveness was to create welfare. Snieska and Bruneckiene (2009) defined regional competitiveness as the ability to use the factors of competitiveness to create a competitive position and to maintain it throughout other regions. Furthermore, they stated that competitiveness is a self-reinforcing process, where present factors (inputs) of competitiveness create future factors of competitiveness (outputs) and thereafter outputs develop into inputs for a new cycle of the competitiveness process (Snieska and Bruneckiene (2009)). Huggins, et al. (2013) suggested a three-factor regional competitiveness framework, which consists of input, output and outcome. In this framework, the competitiveness outputs are the direct results that yield from inputs, while competitiveness outcomes are the long-term result of competitiveness in the form of rising living standards characterized by falling unemployment and an increase in real incomes. That is why scientists (Wysokie ska, 2003; Bruneckiene, Ramanauskiene, 2005, Rutkauskas, 2008; Balkyte, Tvaronaviciene, 2010) agree that in order to ensure long-term territorial competitiveness it is worth involving not only economic but also social and environmental dimensions. Leader Observatory (1999) presented four dimensions of territorial competitiveness: social, environmental, economic and localisation in the global context:

- social competitiveness is the ability to take joint or combined action effectively by integrating different institutional levels;
- environmental competitiveness means the ability to value the surroundings, turning into distinctive elements of the territory, whilst at the same time guaranteeing the conservation and renewal of resources and heritage;
- economic competitiveness relates to the ability to create and retain a maximum added value in the area by strengthening links between sectors and by turning their combined resources into assets for enhancing the value and distinctiveness of their local products and services;
- in the global context, localisation is the ability to identify the area’s role as against other areas and the outside world in general in such a way as to develop a comprehensive territorial plan and to ensure its viability in a global context.

The authors of the paper suggest the following definition of territorial competitiveness: an ability of local actors to create conditions for attracting investment, skilled employees, technology and other mobile production resources and businesses in the territory that are capable of competing in the internal and external market.
Scientists agree that in order to better understand the concept of territorial competitiveness it is worth analysing its factors. Analysis of the main principles of territorial competitiveness factors can help to explore and better understand the impact of multifunctional agriculture on territorial competitiveness. Territorial competitiveness factors are analysed on the basis of the endogenous development theory, location theory, and theory of territorial capital. The followers of endogenous development theories endeavour to identify the genetic local conditions that determine the competitiveness of a local production system and ensure its persistence over time. They seek out the local factors that enable areas and the companies located therein to produce goods demanded on an international level with an absolute competitive advantage, to maintain that advantage over time by innovating, and to attract new resources from outside (Capello et al. (2011)).

The location theory (an industrial and residential location choice theory, which was introduced by Thünen, 1826) seeks to explain the distribution of activities in space, the aim being to identify the factors that influence the location of individual activities, the allocation of different portions of territory among different types of production, the dividing of a spatial market among producers, and the functional distribution of activities in space (Capello (2011)). Both attractiveness and local competitiveness depend on similar common factors, which are not only found in physical externalities, accessibility or environmental quality, but also in relational capital and the learning capacity expressed by the territory (Camagni, 2002). Atkociuniene (2009) introduced two types of factors of local competitive advantages: traditional and unique, and argued that it was totality of the unique factors (knowledge, creativity, networks) that determined the competitive position of the territory in the global economic space in the epoch of knowledge-based economy. Thus the localised processes of knowledge creation where people and businesses acquire new technologies and learn to trust each other by sharing and trading information are the key resources of territorial competitiveness (Viassone, 2009).

Camagni and Capello (2013) argued that the territorial competitive process is based on supply elements, such as quality and quantity of local resources, product and process innovation, technological advances, and local knowledge, which constitutes the territorial capital. Recent research indicates that initial competitive advantages are likely to be reinforced by the redistribution of the territorial capital. The territorial capital is a set of localised assets (more than a set of physical and nonphysical location factors) – natural, human, artificial, organizational, relational and cognitive – that constitute a competitive potential which is a real economic driving force of a given territory (Camagni, Capello (2013), Toth, 2011).

To summarize this chapter, it can be outlined that the main sources of territorial competitiveness are creating better conditions for business and residents and they increase and maintain the attractiveness for mobile resources and gain territorial acknowledgement and a competitive, sustainable and resilience position in the territorial market.

Multifunctional agriculture contribution to territorial competitiveness

The main focus of this paper is the impact of multifunctional agriculture on territorial competitiveness. Scientists (Marsden, Sonnino (2008), Cairoi, et al. (2009), Granvik et al. (2012) and others) mostly focus on the contribution of multifunctional agriculture to territorial development by researching how various functions of the agricultural sector in any given territory affect the sustainable economic development of that territory. However aspects suitable for analyzing the link between multifunctional agriculture and territorial competitiveness become evident. For instance, Mettepenningen, et al. (2011) argued that multifunctional agriculture unintentionally contributed to territorial (rural) competitiveness through creating the identity of a region (figure 2).

They argued that multifunctional agriculture, providing additional functions, contributes to the development of a territorial identity, which can increase the competitiveness not only of agriculture, but also of other sectors in an area (Mettepenningen, et al. (2011)).

Cairol et al. (2009) pointed out, that the jointness of production commodity and non-commodity outputs is expressed in multiplier effects in relation with small and medium enterprises and non-agricultural rural activities that contribute to the employment on the regional level.
and the maintenance of rural populations. It is obvious that the creation of common products enhances the territorial system and leads to territorial competitiveness.

According to the analysed scientific literature on multifunctional agriculture and territorial competitiveness, the impact of multifunctional agriculture on territorial competitiveness is shown in Figure 2. The interaction between multifunctional agriculture and territorial competitiveness can be analysed using a four-factor logical framework of the multifunctional agriculture impact on territorial competitiveness (Figure 3):

- the input is multifunctional agriculture, which uses factors of multifunctional agriculture to provide multiple functions and to create commodity and non-commodity outputs;
- the output is the external effects of multifunctional agriculture commodity and non-commodity outputs to the territory, including socio-cultural, environmental and economic functions;
- the outcome is the impact of multifunctional agriculture external effects on territorial economic activities, i.e. medium term results. Multifunctional agriculture can have a positive or/and negative impact on the economic activities in the territory. For example, a negative influence of agriculture on landscape also results in a negative influence on the image of the area, which leads to a negative effect on the tourism, real estate and other businesses.
- the impact is the territorial competitiveness, which is described as aggregate conditions for companies to be competitive in the internal and external market, i.e. long-term results of multifunctional agriculture.

![Logical framework of multifunctional agriculture impact on territorial competitiveness](image)

**Fig. 3.** Logical framework of multifunctional agriculture impact on territorial competitiveness

Source: compiled by the authors

The central element of the presented model (Figure 3) is the territory, where the process of competitiveness is organised. Bocher (2005) argues that the use of the term *territory* has been transformed: it is no longer used in the sense of administrative units, but in the sense of a region defined as a dynamic area of cooperation for actors which is formed due to the density of social relations between regional actors.

Camagni and Capello (2013) describe territories as systems and characterise them as:

- a system of localized externalities, both pecuniary and technological;
- a system of localised production activities, traditions, skills and know-how;
- a system of localized relationships, which enhances the productivity of local factors,
- a system of cultural elements and values which define local identities; they acquire an economic value whenever they either can be transformed into marketable products – goods, services and assets – or boost internal capability of exploitation of local potentials;
- a system of rules and practices defining a local governance model.

In this context, according to the above-mentioned characteristics of a territorial system, a territory is understood as a localised system of multiple actors and their cooperation meant to improve the conditions of the territory and achieve a competitive position among other territories. Labarthe (2009) argued that the integration of different functions at the farm level and transformation of non-commodity outputs into marketable commodities created a need for new technical knowledge among farmers. Whereas according Jordan and Warner (2010), advancing multifunctionality depends on social learning, which they define as participatory research by diverse stakeholders to manage specific agroecosystem. New knowledge emerges from partnerships through coordination of social learning among agricultural producers, scientists in a range of disciplines, professional consultants, public agency officials, and other parties possessing relevant knowledge (Warner, 2008). Partnerships incubate innovative practices and integrated approaches for diversifying commodity production and enhancing ecosystem services such as biodiversity conservation, watershed protection, amenity values, or carbon storage (Steyaert and Jiggins 2007). Regional differences, regarding the capacity of local actors (knowledge, skills, common values, attitudes, culture, tradition in civil engagement, pronounced local identity and quality of life) and quality of their, formal and informal, internal and external networks, can contribute considerably to the territorial competitiveness and to the explanation of differing development results under similar development conditions. In summary it can be said that to achieve a positive impact on territorial competitiveness, it is important to combine multiple functions of agriculture and to use its outputs collectively by involving all local actors.

Changes in the policy represent a reflection of the multifunctional agriculture impact on territorial competitiveness. Depending on the impact of multifunctional agriculture (negative or positive), regional, national or agricultural policy requires specific changes in order to mitigate the negative impact or boost the positive impact of multifunctional agriculture on territorial competitiveness.

In conclusion it can be said that agriculture is the one of economic activities in a particular territory, however due to its multifunctionality, it plays a very important role in defining the territorial competitiveness. Furthermore, the success of a territory depends on the capability of the territorial system to use the products of multifunctional agriculture and to create better conditions for other economic activities in a particular territory.

Conclusions

Multifunctional agriculture is highly important in the territorial context because apart from food and fibre production it provides a range of functions for modern. Multiple functions of agriculture are classified in to two basic groups: the primary function - production function - and the secondary function – social, economic and environmental. The latter group is very important in the contexts of territorial competitiveness, sustainability and place resilience.

Territorial competitiveness is defined as the ability of local actors to create conditions for increasing and maintaining the attractiveness of the territory for businesses, investment, skilled employees, technologies and other mobile productive resources that lead to territorial acknowledgement and competitive position. To achieve long-term territorial competitiveness, it is worth involving not only economic, but also social and environmental dimensions.

According to the analysed scientific literature, the contribution of multifunctional agriculture to territorial competitiveness were shown through the production of commodity and non-commodity products that create multiplier effects in relation with small and medium enterprises and non-agricultural rural activities and thus enhance the territorial system and lead to territorial competitiveness.

As a result of this research, a logical framework of the impact of multifunctional agriculture on territorial competitiveness was created. The logical framework was based on a four-factor logical framework: input, output, outcome and impact. It helped to identify the main factors and process of the multifunctional agriculture impact on territorial competitiveness. The central element of the logical framework was the territory, where the competitiveness process is organized. That leads to a notion that the impact of multifunctional agriculture depends on the local actors’ ability to use outputs of multifunctional agriculture and to create better conditions for other economic activities in the territory and thus to achieve long-term territorial competitiveness.

References

45. Miskolci, S. (2008). The Concept of Regional Governance in Different National Funding Programmes. Available at: www.regionenactiv...


