ECONOMIC IMPACTS OF LAND USE IN SELECTED COUNTRIES OF THE EUROPEAN UNION

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Abstract

The objectives of the present Common Agricultural Policy (a) to increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production, in particular labour; (b) and to thereby ensure a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture; (c) to stabilise markets; (d) to assure the availability of supplies; (e) to ensure that supplies reach consumers at reasonable prices, are more actual in countries than ever before. Differences in EU countries require further consideration and efforts to reduce economic impacts of land use differences. The European Union needs a reformed Common Agricultural Policy to answer the challenges of food, growth and jobs in rural areas of new member states and to tackle threats of landslide and soil erosion.

Key words: land use, differences in land use, economic accounts for agriculture

INTRODUCTION

The European Commission adopted proposals for a Soil Framework Directive under the Thematic Strategy for Soil Protection on September 22, 2006. The comprehensive strategy takes into account all the different functions that soils can perform, their variability and complexity, and the range of different degradation processes, while also considering socio-economic aspects. Hungary-Romania Cross-Border Co-operation Programme for 2007-2013 is based on the results and experiences of the past Interreg IIIA in Hungary and Phare CBC programmes in Romania (Domuţa 2005, 2006; Domuţa et al. 2006, 2008). The goal is to bring the people, communities and economic actors of the border area closer to each other in order to facilitate the joint development of the co-operation area, building upon the key strengths of the border region. The programme provides for two Priority Axes, such as (i) improvement of the key conditions of joint, sustainable development in the co-operation area, and (ii) strengthening social and economic cohesion of the border area, which reflect the main streams of cooperation. This means, that cross-border region of Hungary and Romania is ahead of the game and establishes firm bases for co-operation.

MATERIAL AND METHOD

Each year, the Commission Directorate-General for Agriculture and Rural Development publishes "Agriculture in the European Union - Statistical and Economic Information", which covers a wide range of subjects, such as the economic situation in agriculture, structures, trade, markets, financial aspects and rural development. Using the data of table 3.1.1 (Share of products in agricultural production), the output, added value, income and fixed capital formation in the agricultural sectors per utilized agricultural area have been calculated and evaluated for the period of 2000-2009. Selected countries include Germany, France, Hungary and Romania.

Table 1

Economic accounts for agriculture studied in this paper

Code	Output	Code	Description
1000	Cereals	19000	Total intermediate consumption
2000	Industrial crops	20000	Gross value added at basic prices
3000	Forage plants	21000	Fixed capital consumption
4000	Vegetables and horticultural products	22000	Net value added at basic prices
5000	Potatoes	23000	Compensation of employees
6000	Fruits	24000	Taxes on production
7000	Wine	25000	Subsidies on production
11100	Cattle	26000	Factor income
11200	Pigs	27000	Operating surplus
11400	Sheep and goats	28000	Rents to be paid
11500	Poultry	29000	Interest paid
12100	Milk	30000	Interest received
12200	Eggs	31000	Entrepreneurial income
10000	Crop output	32000	GFCF* in agricultural products
11000	Animals	33000	GFCF* in non-agricultural products
12000	Animal products	34000	Gross fixed capital formation (excluding vat)
15000	Agricultural services	35000	Net fixed capital formation (excluding vat)
17000	Secondary activities	*	*GFCF = Gross fixed capital formation*
18000	Total output		

RESULTS AND DISSCUSIONS

Within the Hungary-Romania Cross-Border Co-operation Programme for 2007-2013 the University of Debrecen and the University of Oradea are to elaborate a soil strategy for the Nyírség and Bihor Mts. region. Project partners expect that the strategy will support and strengthen national, regional and local soil policies and contribute to the competitiveness of the region by protecting and developing various soil functions. Project partners also expect to prevent cross-border problems with soil and to reduce the competition caused by cost differences. The

elaboration of the strategy includes the problems of erosion, deflation, compaction, water-deficiency, inland water-threat, problems induced by the usage of fertilizers, loss and substitution of soil organic matter, amelioration (bentonite, sewage sludge, fermented biogas). Using economic accounts for agriculture we also studied impact of land use on agricultural outputs and income formation.

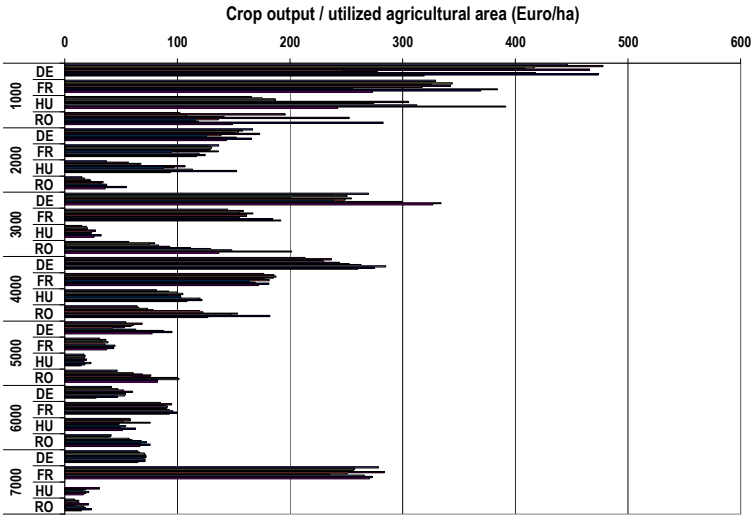

Figure 1: Crop output per utilized agricultural area between 2000-2009 (Euro/ha)

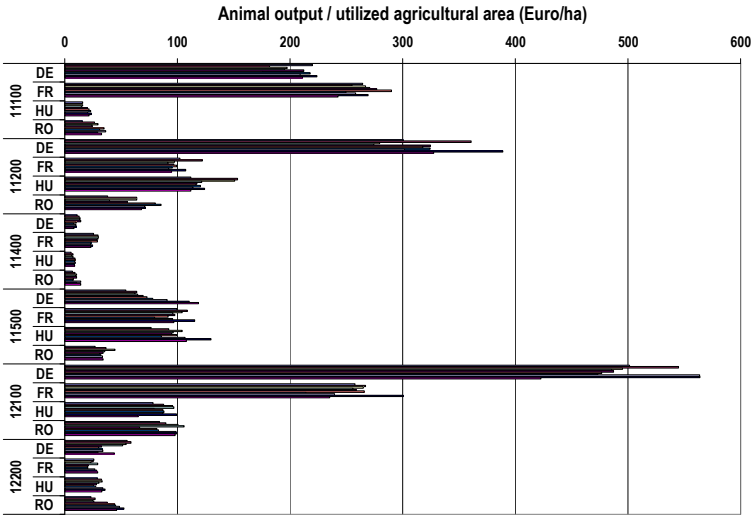

Figure 2: Animal output per utilized agricultural area between 2000 and 2009 (Euro/ha)

In the period studied, output of cereals per utilized agricultural area was highest in Germany 395 Euro/ha (Figure 1). The same value for industrial crops (153 Euro/ha), forage plants (266 Euro/ha), vegetables and horticultural products (249 Euro/ha) were also highest in Germany. Romania was first in potato production. France was first in production of fruit (92 Euro/ha), wine (260 Euro/ha) cattle (264 Euro/ha) and poultry (99 Euro/ha), while Germany was first in the production of pigs and milk (501 Euro/ha).

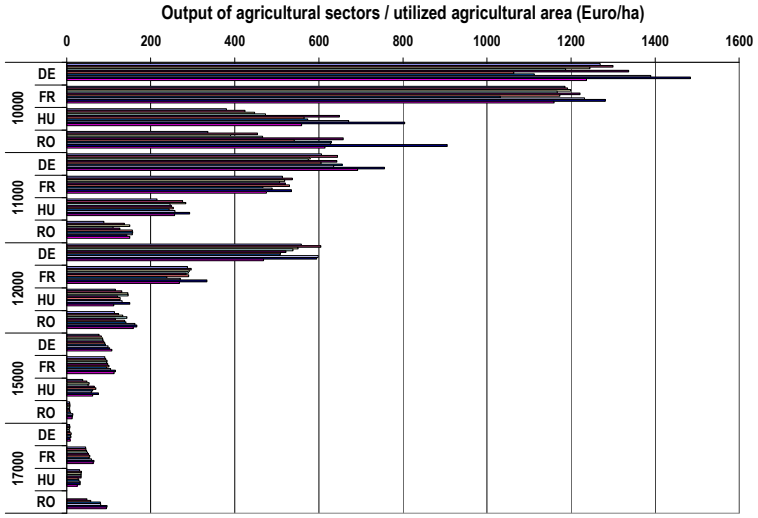

Figure 3: Output of agricultural sectors per utilized agricultural area (Euro/ha)

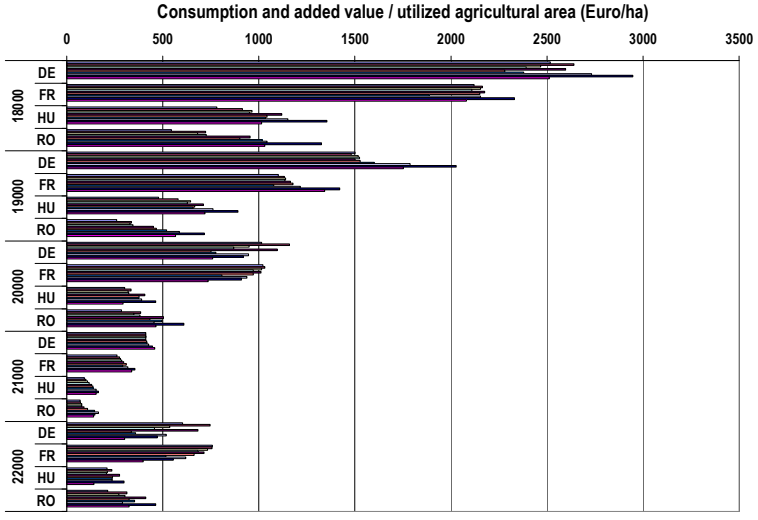

Figure 4: Consumption and added value per utilized agricultural area (Euro/ha)

Crop output (1262 Euro/ha), animal output (639 Euro/ha) and animal products per hectare (545 Euro/ha) were also highest in Germany (Figure 3). Total output of agriculture was 2546 Euro/ha in Germany, 2132 Euro/ha in France 1033 Euro/ha in Hungary and 895 Euro/ha in Romania. Gross (941 Euro/ha) and net (640 Euro/ha) added value at basic prices were highest in France (Figure 4). Total output of agriculture, gross and net added value were very low in Hungary and in Romania.

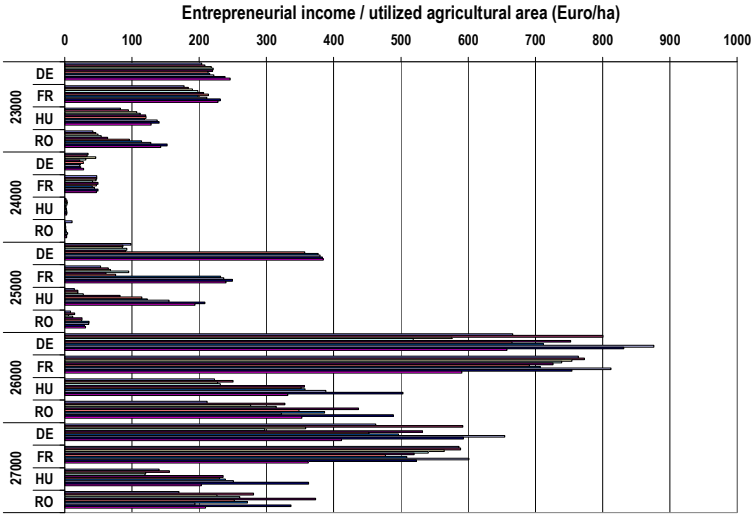

Figure 5: Entrepreneurial income per utilized agricultural area (Euro/ha)

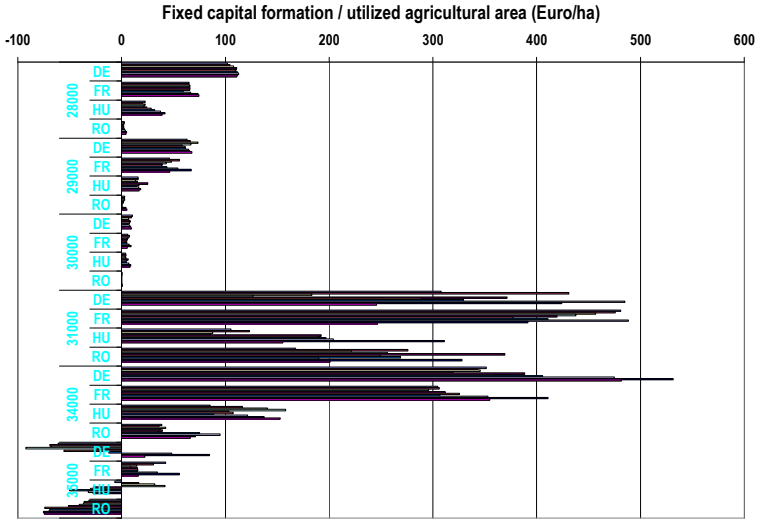

Figure 6: Fixed capital formation per utilized agricultural area (Euro/ha)

Compensation of employees increased very rapidly in Romania ($y = 13.661x + 13.885$; $R^2 = 0.9313$). In Germany it was lower than subsidies on production. Operating surplus or net income was 485 Euro/ha in Germany, 527 Euro/ha in France 206 Euro/ha in Hungary and 258 Euro/ha in Romania (Figure 5). As a results of higher rents and interest paid by farmers, entrepreneurial income was 319 Euro/ha in Germany, 419 Euro/ha in France 165 Euro/ha in Hungary and 253 Euro/ha in Romania (Figure 6). It is a big problem, which except for France net fixed capital formation was negative.

Soil is a partly-renewable resource, as it takes hundreds of years to produce a few centimetres of fertile layer. Soil degradation is accelerating in many regions of the European Union and it requires heavy investments to reverse the situation. Some threats are naturally occurring such as erosion by water or wind. Other soil problems are linked to industrial sites, mining, illegal or poorly managed landfills, sewage sludge, and certain agricultural practices. Some problems are linked to the sealing of soil for housing, roads and other infrastructural purposes, and the effects of floods and landslides. Soil degradation has a strong impact on other areas such as water, human health, climate change, nature and biodiversity protection, and food safety.

The proposal of project is to establish a common approach across the border, but it leaves national governments flexibility to implement the best approach in a way which fits local situations best. Public authorities will be required to undertake activities to tackle threats such as landslides, soil erosion, and sealing of soil wherever they occur, or threaten to occur. Soil Strategy for cross-border region provides a framework for soil protection of sandy soil and through better organic matter management it will contribute to handle the challenges set by climate change, but it also requires further investments from the European Union. Soil degradation was also identified as a pressure for water quality, but relevant information on organic matter decline, deflation and soil microbiological activities are still limited, although farmers receiving direct payments in the region are subjects to compulsory cross-compliance standards. The major threats to soil, as identified in the Thematic Strategy for Soil Protection, include erosion, decline of organic matter, compaction and loss of soil biodiversity.

CONCLUSIONS

The project entitled “Elaboration of a Sustainable Soil Strategy for the Nyírség and Bihor mountain region” is a good example of cross-border co-operation to enhance and realise EU politics. The goal of the project is to elaborate a sustainable soil strategy for two landscapes of different characteristics (hilly region and sandy plains), both with disadvantageous social and physical geographical background in accordance with Soil

Framework Directive, COM (2006:232) and Soil Thematic Strategy, COM (2006: 231).

The overall objective of the soil strategy is the protection and sustainable use of soil in Nyírség region, preserving its functions and preventing further soil degradation. Most important direct beneficiaries of the project are local farmers and their organisations which were involved already in the planning of the project. Indirect beneficiaries are those, who are living in the region and their local communities (Lazányi 2005a, 2005b, 2008). Furthermore both countries can be considered indirect beneficiaries, if the results of the project provide possibility to enhance the agricultural capacity of the area, as migration processes (depopulation) and social tensions among the inhabitants will decrease offering a sustainable way of livelihood on the long run.

While considering socio-economic aspects, the soil strategy for Nyírség and Bihor regions takes into account all the different functions that soils can perform, variability and complexity of soils in the region, and the range of different degradation processes. The overall objective is the protection of soil and preventing further soil degradation. Technological information is vital in terms of enabling farmers to achieve improved agricultural productivity, to make effective use of the natural resources, increase their income, and produce quality food that is safe, accessible and available to all. The study identifies, describes and evaluates reasons that directly or indirectly contribute to the mitigation of the soil threats and measures taken by the farmers of the Nyírség region under Cross Compliance (CC) to improve the soil management.

Despite the increasing soil degradation and its negative consequences on human health, natural ecosystems and climate change, as well as on rural economies, Hungary and Romania has limited resources for soil protection (Domuța and Brejea 2005; Hera et al, 2007; Brejea 2008). Through its various work programs and activities - like conferences, field demonstrations, and publications - scientists, administrators, policymakers and extension workers in the region are given not only the chance to share and exchange technological innovations in the field of agriculture, but also the opportunity to strengthen international technical cooperation with neighbouring countries. The impacts on soil are also regardless of borders especially in connection with surface, and subsurface waters. Soil is a natural resource of great importance in agriculture, especially because it provides crops with water, nutrients and rooting space.

Acknowledgments

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