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DIFFERENCES IN THE LAND RENT AMONG EU COUNTRIES

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Abstract

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The aim of the paper is to assess the differences in the influence of land rent on farm production efficiencies by region, farming type and LFA. In terms of the cost of rents there are significant differences among countries within the European Union. While in Estonia, the average land rent amounts to 14 EUR/ha, then it is almost 900 EUR/ha in the Netherlands (in 2009). High variability may be seen also at the share of rented land, which ranges from 17.4% to 96.1%. Along with the intensity of production, then these factors affect the efficiency of production. Significant differences in land rents and land rent/revenues ratio can be found not only across the EU, but there are also at the national level between farming specializations. Using dynamic shift share analysis is reviewed the development of land rent in the period 2004–2009 (the dynamic of land rents is explained by the European, proportional, national and differential influences).

land rent, land rent/revenues ratio, rented land, shift share analysis

Land rent is defined as a payment for using rented land for farming purposes in all states of the EU. Due to the previous developments, the share of rented land is almost doubled in the Czech Republic compared to the rest of the EU. 87% of total agricultural area is rented. The land rent is defined by the Act No. 229/191 Col., on Land as amended. It is set as 1% of the official price of agricultural land unless the owner and the leaseholder agree on different arrangement. The land rent in municipality territories with more than two businesses is significantly influenced by the supply and demand situation. Gradual increase in direct payments and an increase in prices of the most important marketable crops in 2007–2008 were the most important factors in the land rent increase. However, due to long-term contracts with fixed growth rate the land rent does not respond to market changes or annual price changes immediately. The land rent as a cost item influences the profitability of a farm as well as it is an expression of land owners and businesses interests.

MATERIAL AND METHODOLOGY

In most East-Central European countries land was privatized by restitution. Land was given back to former owners or their successors within certain limits of size. If the restitution of the original land was not possible for some reason, another land parcel of similar size and quality had to be given in replacement (Burger, 1998). In Czech Republic the restitution resulted in a severe fragmentation of ownership, sharply contrasting with the extreme land use concentration (about 5 percent of the farms use about 75 percent of the land) (Doucha, Divila, 2005; Voltr, 2000; Lošťák *et al.*, 1999). For the development of a real agricultural land market in all the East-Central European countries, settled land-tenure situations and profitable agricultural production conditions are needed. The latter depends on economic and agricultural growth, structural changes, development of trade networks and processing industries and higher domestic and foreign demand for agricultural products. The former depends on government decisions on removing the impediments to a free land market. Free market conditions could induce absentee

owners and retired people to sell land. At the same time, those who need land for cultivation could buy it. In this way also, hidden agreements on selling and buying could be legalized and registered. Abundance of land and depressed prices and rents would successively disappear with the turnover in land (Burger, 1998).

Huang *et al.* (2006) discussed the influence of non-production factors on land value and land rent. The explaining variables were the productivity of land, the size of the site, the distance from capitals, the urban-rural index, and the density of farms, income and inflation. They proved that the value of agricultural land increases with the land revenue, density of population and decreases with the size of the site, country character of the district and the distance from important city centres. The German example shows that land rents are increasing mainly in the western part of East Germany, where the demand for land is high (Doll *et al.,* 1994). Similar tendencies can be observed in the Austrian border area of Hungary. Free land markets would promote concentration and consolidation of land holdings.

Land prices depend on several factors in a market economy. One of the major factors is the land rent, according to the land rent theory, however actual rents are often influenced and lowered by government regulations. A more reliable determining factor is the net farm income, within the land rent being a part of it (Burger, 1998). Studies by Latruffe *et al.* (2008), Roberts *et al.* (2003), Lence and Mishra (2003), Barnard *et al.* (2001) deal with the influence of direct payments for rent. They had shown that support to farmers made in the form of direct payments, which are linked to either production or land, exerts a positive influence on agricultural land rents. According to Boinon *et al.* (2007) in the regions where the direct payments per hectare will decrease, it is probable that the demand for purchasing land will decrease and probably consequently the land value. The opposite phenomenon could be observed in the regions where the direct payments will increase. Kilian *et al.* (2012) corresponded to the question of whether the change in policy has any impact on land values and the degree of capitalization of support. As a result of decoupling, we can thus expect a high capitalization ratio into land values. Remaining high land prices may create a barrier for structural adjustment and to the entrance of new farmers and potentially hinder the competitiveness of European agriculture.

There is some theoretical and empirical evidence to suggest that the transformation from price policy to area payments results in a higher degree of capitalization of support into land values. Alston and James (2002) and Guyomard *et al.* (2004) show that a subsidy on the input factor land results in higher capitalization into land rental prices than does an output price support. The results provide empirical evidence that the impact of CAP direct payments on rental values varies according to the type of payment (Patton *et al.,* 2008). Decoupled less favoured area payment is fully capitalised into rental values. The single farm payment is decoupled from production but not from the land. Given the decoupled nature of the payment it is anticipated that input suppliers will capture little or none of the direct payments and thus, most or all of the direct payment will be capitalised into rental values.

Land is still regarded as the essential production resource in agriculture and has three unique features. Aggregated land supply is inflexible in the short term and insensitive to changing prices. When properly used, land cannot be used during the production process. However, in the long term, the total area of agricultural land can be changed or its quality can worsen due to improper use. Land is completely immobile. Land's indispensability in agricultural production may give it a high value, but immobility leads to less profitability. Land rent is sometimes not fully realised because land cannot be moved into sectors with higher profitability (Marks-Bielska, 2013).

The price of agricultural land with respect to the land rent manifests relatively important price inertia. This inertia in connection with a high growth rate of land rent results in the unrealistically high interest rate. Such situation is an evident advantage for land owners and is, on the contrary, a disadvantage for the tenants of the agricultural land (Střeleček *et al.,* 2010).

The aim of the paper is to assess the differences in the influence of land rent on farm production efficiencies by region, farming type and LFA.

A shift-share analysis was used as a tool to analyse the land rent dynamics for the first time by Dunn (1960) as a tool for analysing the dynamics of employment. It is usual to analyze the employment (Bielik, Rajčániová, 2008; Riguelle *et al.,* 2007; Blien, Wolf, 2002; Dinc, Haynes, 1999), the added value (Esteban, 2000), labour productivity (Maudos *et al.,* 2008) or other (Střeleček *et al.,* 2009) as an analysed variable. Berzeg (1978) and Knudsen (2000) based the analysis on the model of relative change analysis. The model is designed for decomposing from the point of sectors, regions and time. The total change of land rent for the *i*-sector and *r*-state is divided onto four components among which the additive relation applies:

$$x^r_{i1} - x^r_{i0} = e^r_i + p^r_i + n^r_i + d^r_i.$$

The first component (European) expresses the change in land rent in a state and a sector corresponding to the growth rate of an average land rent in EU-27. The proportional component expresses a change in land rent due to different dynamics in a sector and at a European level; similarly the national component expresses a change in land rent due to different dynamics in a state and at a European level. The differential component deals with such influence that is not expressed as the European, proportional or national component. It expresses the sector specifics in

a state. The above mentioned components are described as follows:

European component, $e_i^r = x_0^{ri} g^e$,

Proportional component, $p_i^r = x_0^{ri}(g^i - g^e)$,

National component, $n_i^r = x_0^{ri}(g^r - g^e)$,

Differential component, $d_i^r = x_0^{ri}[(g^{ri} - g^r) - (g^i - g^e)]$.

In these, x_0^{ri} stands for a land rent per 1 ha for an *i*-sector and *r*-state in the initial period. g^e stands for a relative change in an average land rent in the EU-27; g^i stands for a relative change of a land rent in an *i*-sector; g^r stands for a relative change of a land rent in an *r*-state and g^{ri} stands for a relative change in a land rent in an *i*-sector and *r*-state.

An land rent to revenue ratio (c) is expressed by three analytic indicators – a land rent per ha; the share of rented land and an intensity of production. Land rent per ha (l) [EUR/ha] is the share of land rent cost (FADN SE375) and the area of rented land (SE030); the share of rented land (s) is the ratio of rented land area and a total utilized agricultural area (SE025); the intensity of production (p) [EUR/ha] is the share of total output (SE131) and total utilized agricultural area,

$$c = l \times \frac{s}{p}.$$

Land rent in *r*-state is expressed as

$$c_r = l_r \times \frac{s_r}{p_r},$$

an average EU land rent is expressed as

$$c_E = l_E \times \frac{s_E}{p_E}.$$

By the above mentioned ratios it is possible to explain differences in national land rent to revenue ratio (c_r) from the European average (c_E),

$$\Delta c_r = c_r - c_E = \Delta c_r^l + \Delta c_r^s + \Delta c^p{}_r,$$

where

Δc_r^l .... stands for land rent to revenue ratio difference due to land rent per ha;

Δc_r^s .... stands for land rent to revenue ratio difference due to the share of rented land;

$\Delta c^p{}_r$ ... stands for land rent to revenue ratio difference due to production intensity.

The influence of analytic indicators to difference of land rent to revenue ratio is calculated by logarithm of indices method,

$$\Delta c_r^l = \frac{\ln\left(\frac{l_r}{l_E}\right)}{\ln\left(\frac{c_r}{c_E}\right)} \times \Delta c_r,$$

$$\Delta c_r^s = \frac{\ln\left(\frac{s_r}{s_E}\right)}{\ln\left(\frac{c_r}{c_E}\right)} \times \Delta c_r,$$

$$\Delta c_r^p = \frac{\ln\left(\frac{p_r}{p_E}\right)}{\ln\left(\frac{c_r}{c_E}\right)} \times \Delta c_r.$$

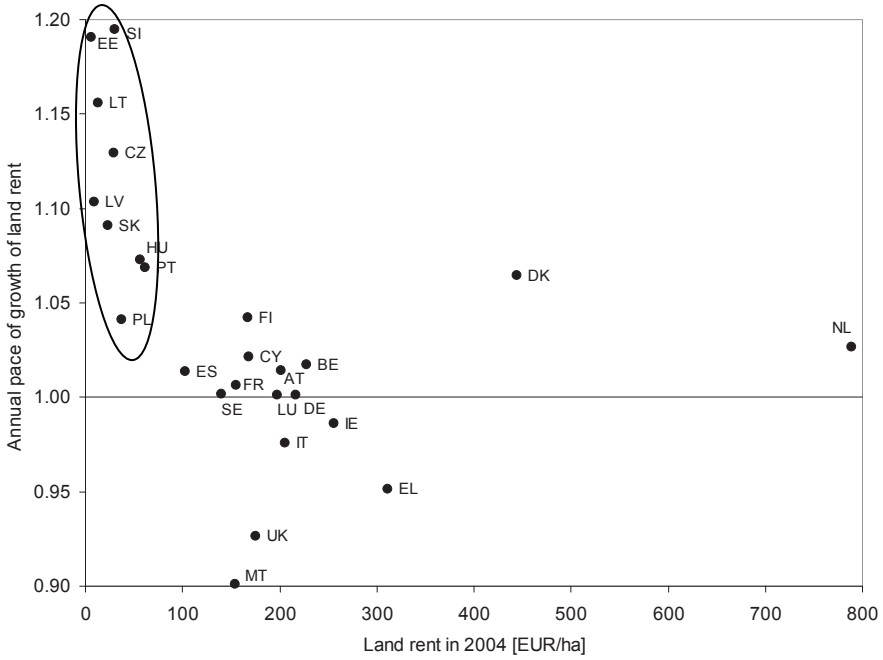
Calculations are based on the Farm Accountancy Data Network (FADN, 2012) database. The data of 2004–2009 were classified by the countries, LFA and prevailing production specialization.

RESULTS AND DISCUSSION

In the EU-27; the average rent of a hectare of rented land amounted to 145.6 EUR/ha in 2009. There are high variability among the states. Land rent ranged from 13.4 EUR/ha in Estonia to 899.5 EUR/ha in the Netherlands. The range coefficient therefore amounted to 67 with land rent range of 886 EUR/ha. The interval distribution of states by the land rent revealed a significant difference between old and new member states (Tab. I).

Land rent of new member states (NMS, with the exception of Cyprus) ranges up to 100 EUR/ha (with 55.8 EUR/ha as the average). On the other hand, within the EU-15 land rent below this ceiling occurred in Portugal only (with the average of 181.2 EUR/ha). Regarding the average growth rate since 2004 it is possible to assume that land rent of the NMS is supposed to match the EU-15. While land rent in old member states was almost stable from 2004 to 2009 (with the annual decrease by 0.3%), land rent of the NMS was growing by 10.3% (Fig. 1). With the exception of Malta, land rend was growing in every new member state with the most rapid growth in Slovenia (19.5% per year), Estonia (19.1% per year), Lithuania (15.6% per year) and the Czech Republic (13% per year) and the slowest growth in Cyprus (2% per year). Within the EU, land rent in the Czech Republic is last sixth one, but its average growth rate is the fourth in the EU, following Slovenia, Estonia and Lithuania.

In 2004, the average land rent per ha amounted to 155.5 EUR/ha in the EU-25. In 2009, it amounted to 145.6 EUR/ha in the EU-27. The decrease was also due to the EU enlargement by two states with below average land rent. To sum it up, the land rent was decreased by 6.4%. This decrease resulted into a negative European component for every state and sector. The most striking decrease seems to appear for high land rents in the initial period. Regarding states, the most importance of the European component appeared in the Netherlands (–50 EUR/ha) and Denmark (–28 EUR/ha). Regarding the sector, the most importance occurred for



1: *Relation of land rent and its average pace of growth*
Source: FADN, own calculations

I: *Land rent in EUR/ha*

< 50	Estonia (13.4); Latvia (15.7); Lithuania (27.9); Slovakia (36.2); Poland (45.1)
50–100	**Czech Republic (53.3)**; Romania (61.6); Bulgaria (69.6); Slovenia (73.1); Hungary (80.1); Portugal (85.1); Malta (91.2)
100–150	Spain (110.4); United Kingdom (119.7); Sweden (141.8); **EU-27 (145.6)**
150–200	France (159.7); Italy (181.6); Cyprus (187.5); Germany (190.5); Luxembourg (199.1)
200–250	Finland (205.1); Austria (215.7); Ireland (238.5); Greece (242.8); Belgium (248.6)
> 250	Denmark (623.4); Netherlands (899.5)

Source: FADN

horticulture (–53 EUR/ha). The influence of the proportional component was very strong for horticulture (252 EUR/ha) with an increase of land rent by 24% and for wine (135 EUR/ha). The influence is lower for other sectors with the most significant decrease for other permanent crops (–53 EUR/ha). The national component was the most significant influence for an increase of land rent in Denmark (213 EUR/ha) and the Netherlands (161 EUR/ha). Similarly for all NMS (with the exception of Malta) the influence of the national component was positive. Regarding low land per ha in 2004, its values are considerably low; e.g. 26 EUR/ha in the Czech Republic. Regarding the differential component, the greatest value was amounted by horticulture in the Czech Republic (4125 EUR/ha). Such increase is not possible to be explained by any influence of the previous components. For horticulture, a steep increase of land rent from 83 to 4304 EUR/ha occurred.

The share of land rent in production can be described by a cost to revenue ratio of land rent. In EU-27 it amounted in average 4.5%. Similarly as the land rent, land rent to revenue ratio covers a wide range of values as well. Calculated per 100 EUR of production the land rent ranges from 0.41 EUR to 9.05 EUR. Regarding the Pareto analysis, the land rent to revenue ratio is classified as the C category item. Its influence to a profit/loss is of only minor significance. Comparing the land rent (Tab. I) with the land rent to revenue ratio (Tab. II) revealed that the hypothesis presuming that states with high land rent are of high land rent to revenue ratio does not apply completely.

As stated above, the land rent to revenues ratio is under an influence of three factors – a land rent per ha, a share of rented land and production intensity. The influence of these factors differs within the EU. There is a direct relation of the land rent to revenues ratio and a land rent per hectare and the share of rented land. There is an indirect relation of the land rent to revenues ratio and production intensity.

Very low land rent per ha of all new member states of Central and Eastern European counties has a negative influence on the land rent to revenues ratio with the strongest influence in Slovakia (–0.067)

II: *Land rent/revenues ratio*

< 0.01	Malta (0.004)
0.01–0.02	Poland (0.011); Latvia (0.012); Slovenia (0.012); Estonia (0.015)
0.02–0.03	Italy (0.022); Portugal (0.026); Lithuania (0.028); Romania (0.029); Netherlands (0.029)
0.03–0.04	Cyprus (0.031); Spain (0.033); Austria (0.034); United Kingdom (0.039)
0.04–0.05	**Czech Republic (0.041)**; Belgium (0.044); **EU-27 (0.045)**; Finland (0.046); Denmark (0.047); Hungary (0.048); Ireland (0.05)
> 0.05	Greece (0.051); Slovakia (0.051); Luxembourg (0.057); Sweden (0.06); Germany (0.068); France (0.079); Bulgaria (0.091)

Source: FADN

III: *Share of rented land*

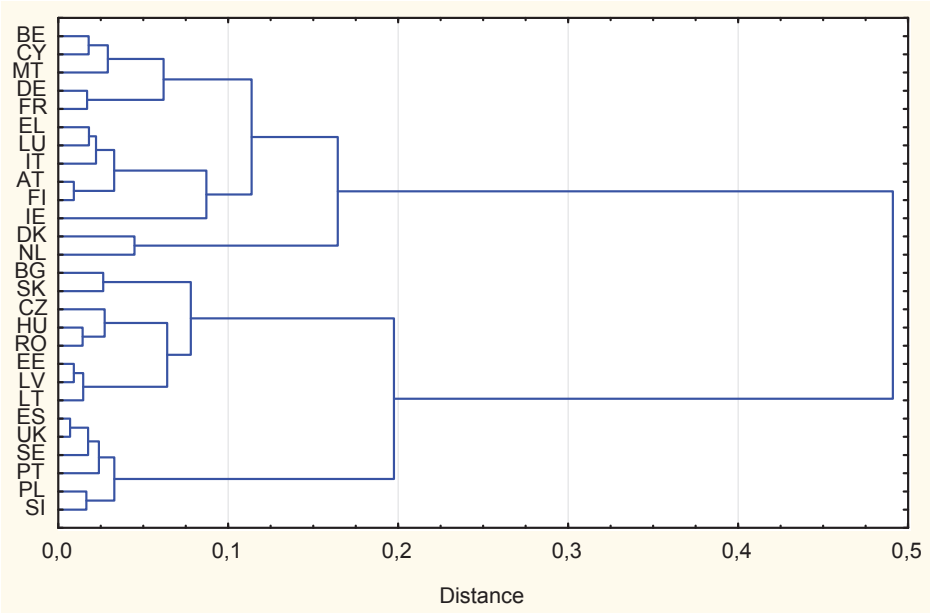
0–25 %	Ireland (17.4 %)
25–50 %	Denmark (26.7 %); Portugal (28.3 %); Poland (28.6 %); Austria (30.9 %); Slovenia (33.1 %); Finland (35.3 %); Spain (36.2 %); Italy (40 %); Netherlands (40.4 %); United Kingdom (43.1 %); Latvia (43.4 %); Romania (46.3 %); Luxembourg (49.9 %)
50–75 %	Greece (50.7 %); Sweden (52.9 %); **EU-27 (53.6 %)**; Lithuania (57.9 %); Estonia (59.7 %); Hungary (64.2 %); Cyprus (65.5 %); Germany (72.3 %); Belgium (74 %)
75–100 %	Malta (81 %); France (84.7 %); Bulgaria (85.3 %); **Czech Republic (85.6 %)**; Slovakia (96.1 %)

Source: FADN

IV: *Production intensity (in EUR/ha agricultural land)*

< 1 000	Estonia (542); Latvia (569); Lithuania (587); Bulgaria (656); Slovakia (682); Ireland (836); Portugal (927); Romania (990)
1 000–1 500	Hungary (1063); Czech Republic (1103); Poland (1200); Spain (1205); Sweden (1245); United Kingdom (1309)
1 500–2 000	Finland (1583); France (1715); EU-27 (1726); Luxembourg (1743); Austria (1948); Slovenia (1986)
2 000–2 500	Germany (2013); Greece (2428)
> 2 500	Italy (3327); Denmark (3535); Cyprus (3902); Belgium (4148); Netherlands (12339); Malta (18150)

Source: FADN



2: *Hierarchical tree plot of the EU states by factors influencing the land rent to revenue ratio*
Source: FADN, own calculations

and Estonia (–0.065). It is –0.044 in the Czech Republic. On the other hand, the Netherlands and Denmark with the highest land rent per ha in the EU revealed a positive influence of 0.067 in both states fully compensated by a favourable impact of other influences.

The average share of rented land in the EU-27 amounted to 54%. The most extreme values were revealed in France, Bulgaria, the Czech Republic and Slovakia (Tab. III) where almost all land was rented. It is therefore a cause of a significant influence on the land rent to revenues ratio 0.03 in Bulgaria; 0.028 in Slovakia and France and 0.02 in the Czech Republic. The negative influence of this factor to the land rent to revenue ratio was revealed in states with low share of rented land – with the greatest influence in Ireland (–0.053), Denmark (–0.032) and Austria (–0.022).

Production intensity (Tab. IV) had an indirect influence on the land rent to revenue ratio; increasing of production intensity caused decreasing of the land rent to revenue ratio. The strongest influence was revealed in the Netherlands (–0.072), Belgium (–0.039) and Denmark (–0.033). Low production intensity increased the land rent to revenue ratio, which applied in all NMS of Central and Eastern Europe. The most significant influence was revealed in Bulgaria (0.063). The Czech Republic reached up to 0.019. Within the original EU-15, similar low production intensity appeared in Portugal and Ireland.

Based on differences of the land rent to revenue ratio from the European average explained by the influence of land rent per ha, by the share of rented land and production intensity, the cluster analysis (the Ward's method, the Euclidean distance) aggregated farms into clusters with similar features regarding the above mentioned influence (Fig. 2).

Cluster 1 included the NMS (Cyprus and Malta) as well as the original states (Belgium, Germany, Greece, France, Ireland, Italy, Luxembourg, Austria and Finland). These states were of land rent per ha slightly above the average (180 EUR/ha) as well as the share of rented land (64%) and production intensity (2095 EUR/ha). These resulted into the above-average land rent to revenue ratio (0.055). The difference compared to the EU-27 average can be explained by the land rent per ha (0.0104), by the share of rented land (0.0091) and by production intensity (–0.0097).

Cluster 2 (Denmark and Netherlands) revealed very high land rent per ha (766 EUR/ha), low share of rented land (32.4%) and ridiculously high production intensity (7178 EUR/ha). These factors decreased the land rent to revenue ratio, which reached up to 0.035. The difference of –0.01 compared to the EU-27 average can be explained by the land rent per ha (0.066), by the share of rented land (–0.02) and by production intensity (–0.056).

Cluster 3 included mostly the NMS of Central and Eastern Europe (Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Romania and Slovakia). It revealed low land rent per ha (57 EUR/ha), the above-average share of rented land (63.4%) and production intensity of 51% of the EU-27 only (886 EUR/ha). Due to these factors the decrease of the land rent to revenues ratio was lower by 0.005 compared to the EU-27. It can be explained by land rent per ha (–0,0405). Other factors were due to an increase of the land rent to revenue ratio – the share of rented land (0.007) and low production intensity (0.0285).

Cluster 4 (Spain, Poland, Portugal, Sweden, Slovenia and United Kingdom) revealed above average values for all ratios. Land rent per ha reached up to 101 EUR/ha. The share of rented land was 34% and production intensity amounted to 1225 EUR/ha. That caused very low land rent to revenues ratio (0.03). The difference of –0.015 compared to the EU-27 average can be explained by low land rent per ha (–0.014), by the share of rented land (–0.014) and by low production intensity (0.013).

Land rent to revenue ratio according to the LFA is described in Tab. V. The land rent per ha was lower in the LFA. However, it occurred in low land rent to revenue ratio in mountain LFAs only. In the non-LFA the influence of higher land rent per ha and higher share of rented land was compensated by great production intensity. There is no great difference of land rent to revenue ratio comparing the LFA and the non-LFA in some countries. In the Czech Republic, Germany, Greece, Estonia, France, Ireland, Latvia, Romania, Great Britain, the land rent to revenue ratio in the LFA not mountain ranged between 80 and 120% of land rent to revenue ratio outside the LFA. Significant differences occurred in Portugal, with significantly higher land rent to revenue ratio of LFAs with the exception of mountains (2.8 times compared to mountain areas and 1.8 compared to the area outside the LFA). Similar situation was in Spain and Sweden. In

V: *Land rent to revenues ratio according to LFA in 2009*

Area	Land rent per ha of rented land [EUR/ha]	Share of rented land	Production intensity [EUR/ha]	Land rent/revenues ratio
LFA mountain	89.9	0.486	1639	0.0267
LFA not mountain	105.9	0.493	1099	0.0475
not in LFA	189.7	0.571	2257	0.0480
EU	145.6	0.536	1726	0.045

Source: FADN, own calculations

VI: *Land rent to revenues ratio according to type of farming in 2009*

Type of farming, TF8	Land rent per ha of rented land [EUR/ha]	Share of rented land	Production intensity [EUR/ha]	Land rent/revenues ratio
Fieldcrops	143.3	0.584	1053	0.080
Horticulture	1033.5	0.367	30726	0.012
Wine	885.8	0.298	5069	0.052
Other permanent crops	245.3	0.204	3023	0.017
Milk	160.7	0.545	2205	0.040
Other grazing livestock	81.3	0.528	892	0.048
Granivores	312.2	0.462	9300	0.016
Mixed	122.2	0.559	1477	0.046
EU	145.6	0.536	1726	0.045

Source: FADN, own calculation

some states (Bulgaria, Hungary, Lithuania, Austria, Poland, Sweden, Slovakia and Slovenia), the land rent to revenue ratio significantly increased in the direction from the LFA towards production areas.

Comparing the type of farming, farms in the EU aimed at arable farming revealed the highest land rent to revenue ratio (Tab. VI). The land rent per ha as well as the share of rented land was similar to the EU-27 average; however the low production intensity was of a negative influence. The land rent to revenue ratio close to the EU average was revealed in milk production, other grazing livestock a mixed production. In milk production, the positive influence of higher production intensity was revealed. In other grazing livestock the positive influence of land rent per ha and of the share of rented land was revealed. For mixed production, it was only the land rent per ha. On the contrary, the land rent to revenue ratio was well below the average in pig and poultry production, horticulture and other permanent crops, caused by high rents per ha, but this effect is compensated by the very high intensity of production. Similar trend were also seen in the viniculture.

The Czech Republic was significantly above the average with land rent to revenue ratio for farming in horticulture (0.05, the highest in the EU – high land rent per ha is not compensated by the intensity of production as in other states) and cattle and sheep (0.064 – low intensity of production was compensated by lower rent per hectare, but also had a higher share of rented land). Other farming types revealed the land rent to revenue ratio lower than average, the lowest in milk production (0.021, while the land rent was only 27 EUR/ha), where it reached only 53% of the EU average.

CONCLUSION

In terms of the cost of rents and rented land there are significant differences between countries within the European Union. Similarly, these differences can be found among types of production at the national level. Using the shift share analysis, the impact of four components to the dynamics of land rent in the period 2004–2009 was assessed. Due to the EU enlargement, a decrease of the land rent by 6.4% occurred in the period resulting into the negative European component in all state and production types, especially in states with high land rents in the initial period (the Netherlands, Denmark). The proportional component was very strong in horticulture and wine. The national component significantly influenced an increase of land rent in Denmark and in the Netherlands. All NMS with the exception of Malta had the national component with positive influence. However, its value was pretty low considering low land rent per ha in 2004.

The land rent to revenues ratio is influenced by three most important factors. There was a direct impact of a land rent per hectare and the share of rented land and an indirect impact of production intensity. Very low land rent per ha of all NMS negatively influenced the land rent to revenues ratio, with the most significant influence in Slovakia and Estonia. On the other hand, the influence was positive in the Netherlands and in Denmark, where the highest land rent per ha in the EU was revealed, fully compensated by an influence of other favourable factors. The average share of rented land in the EU-27 amounted to 54%. The most extreme values were revealed in France, Bulgaria, the Czech Republic and Slovakia where almost all land was rented. It is therefore a cause of a significant influence of the land rent to revenue ratio. The negative influence of this factor to the land rent to revenue ratio was revealed in states with low share of rented land – with the greatest influence in Ireland, Denmark and Austria. Increasing of production intensity caused decreasing of the land rent to revenue ratio. The strongest influence was revealed in the Netherlands, Belgium and Denmark. Low production intensity increased the land rent to revenues ratio, which applied in all NMS (the most significant in Bulgaria).

The land rent per ha according to LFA typology was lower in the LFA (both mountain and other). However, it occurred in low land rent to revenues ratio in the mountain areas only. In production areas outside the LFA, the influence of higher land

rent per ha and higher share of rented land was compensated by higher production intensity.

Comparing the type of farming, farms in the EU aimed at plant production with low production intensity revealed the highest land rent to revenues ratio. The land rent to revenues ratio close to the EU average was revealed in milk production, other grazing livestock a mixed production. In milk production, the positive influence of higher production intensity was revealed. In other grazing livestock the positive influence of land rent per ha and of the share of rented land was revealed. For mixed production, it was only the land rent per ha. On the contrary, the land rent to revenues ratio was well below the average in pig and poultry production, horticulture and other permanent crops, caused by high rents per ha, but this effect is compensated by the very high intensity of production. Similar trend were also seen in viniculture. In the Czech Republic, land rent to revenues ratio was significantly above the average in horticulture and livestock and sheep production. Other types of farming were below the average with the lowest in milk production.

Significant differences in the value of land rent and its influencing factors were decreasing during the observed period. So that, it is presumed that the land rent in the NMS will become more similar to the original EU-15.

SUMMARY

Land rent is defined as a payment for using rented land for farming purposes. Due to the previous developments, the share of rented land is almost doubled in the Czech Republic compared to the rest of the EU. In terms of the cost of rents and rented land there are significant differences between countries within the European Union. Together with production intensity these factors influence the efficiency of production. Similarly, these differences can be found among types of production at the national level.

In the EU-27; the average rent per hectare of rented land amounted to 145.6 EUR/ha in 2009. The interval distribution of states by the land rent revealed a significant difference between original and new member states. Regarding the average growth rate since 2004 it is possible to assume that land rent of the NMS is supposed to match the EU-15. A shift-share analysis was used as a tool to analyse its dynamics. Total change in land rent in a sector and in a state is divided onto four components. The European component stands for a change in land rent in a state and sector related to a land rent growth rate of the EU-27 average. The proportional component stands for a change in land rents due to different dynamics in a sector and at the European level; similarly, the national component stands for a change due to different dynamics in a state and at the European level. The differential component ranges to other influences not expressed in previous components. Due to the EU enlargement, a decrease of the land rent by 6.4% occurred in the period resulting into the negative European component in all state and production types, especially in states with high land rents in the initial period (the Netherlands, Denmark). The proportional component was very strong in horticulture and wine. For other types, influence was significantly lower, with the most significant decrease in other permanent crops production. The national component significantly influenced an increase of land rent in Denmark and in the Netherlands. The national component was of positive influence in all NMS except Malta. However, its value was pretty low considering low land rent per ha in 2004.

The land rent to revenues ratio is under an influence of three factors (a land rent per ha, a share of rented land and production intensity). The influence of these factors differs within the EU. There is a direct relation of the land rent to revenue ratio and a land rent per hectare and the share of rented land and an indirect relation between the land rent to revenues ratio and production intensity. Very low land rent per ha of all NMS negatively influenced the land rent to revenue ratio, with the most significant influence in Slovakia and Estonia. On the other hand, the influence was positive in the Netherlands and in Denmark, where the highest land rent per ha in the EU was revealed, fully compensated by an influence of other favourable factors. The average share of rented land in the EU-27 amounted to 54%. The most extreme values were revealed in France, Bulgaria, the Czech Republic and Slovakia where almost all land was rented. It is therefore a cause of a significant influence of the land rent to revenue ratio. The negative influence of this factor to the land rent to revenues ratio was revealed in states with low share of rented land – with the greatest influence in Ireland, Denmark and Austria. Increasing of production intensity caused decreasing of the land rent to revenues ratio. The strongest influence was revealed in the Benelux. Low production intensity increased the land rent to revenue ratio, which applied in all NMS (the most significant influence was revealed in Bulgaria). Regarding the original EU-15, similar situation occurred in Portugal and Ireland only.

The land rent per ha was lower in LFA (both types) compared to the non LFA. However, it occurred in low land rent to revenue ratio in the mountain areas only. In the non LFA the influence of higher land rent per ha and higher share of rented land was compensated by great production intensity.

Comparing the type of farming, farms in the EU aimed at plant production with low production intensity revealed the highest land rent to revenue ratio. The land rent to revenue ratio close to the EU average was revealed in milk production, other grazing livestock a mixed production. In milk production, the positive influence of higher production intensity was revealed. In other grazing livestock the positive influence of land rent per ha and of the share of rented land was revealed. For mixed production, it was only the land rent per ha. On the contrary, the land rent to revenue ratio was well below the average in pig and poultry production, horticulture and other permanent crops, caused by high rents per ha, but this effect is compensated by the very high intensity of production.

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