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Impact of land tenure on the participation in factor income in agriculture of Slovenia

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Abstract

The purpose of the article is to present agricultural land tenure in Slovenia and its impact on the division of the factor income into the part intended for the production factor of land and the improvement by the introduction of the rent statistics. The land, together with the labour force and capital, contributes to the income generation and it is one of the production factors that participate in the income division. The analyses so far have been based on the FADN data but the Slovenian analysis is based on data from the Economic Accounts for Agriculture (EAA), it uses different sources, and a different calculation approach. The calculation is based on the share of rented utilised agricultural area which amounts to about 30% of the total utilised area. Due to the availability of the data the rent value is calculated depending on the institutional sectors – for agricultural enterprises (the non-financial enterprise sector) and family farms (the household sector). In 2016 the average rent per ha of utilised agricultural area amounted to almost EUR 150 and the nominal value of rents paid in Slovenian agriculture to EUR 21 million. Slovenian share of rent in factor income for the period 2000–2016 is 3%, which is substantially lower than the European Union (EU-28) average of 8%. In 2016, the factor income per employee was around EUR 6,000; about 4% of this amount was contributed to the land in the form of rent value. The rest was contributed to the workforce and capital. The paper presents the results that could be helpful for the agricultural and land policy makers.

Keywords: agriculture, entrepreneurial account, factor income, land tenure, official statistics.

JEL classification: E25, Q15.
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Introduction

The research is based on official statistics data of the Economic Accounts for Agriculture (EAA) on rents, as one of the entrepreneurial income account items, for which the basic definitions and principles given in Eurostat publications European

system of accounts (ESA95), Eurostat (1996), and European system of accounts (ESA 2010), Eurostat (2013). The analysis was made on the rents data produced by Statistical Office of the Republic of Slovenia (SURS) for 2000-2016 and the EU-28 for 2005-2016.

The aim of the article is to present data sources, the methodology of the rent calculation in Slovenia, the influence of land tenure on the division of the factor income and the position of Slovenia in the European Union (EU) framework. The data on rented land are based on SURS's data sources and the sources of other institutions. Data on rented land, rents and values in Slovenia were analysed in the observed period from 2000 onwards, with full respect of the Eurostat methodology recommended by the European Commission documents, Eurostat (1996) and Eurostat (2013). Facing the challenges of the new methodology application, respecting all the experiences of other countries, the solution appropriate for Slovenia is offered.

The situation of rents in Slovenia is compared with the EU-28 average and the individual countries. The analysis presents the contribution of the EU-28 rent value by countries and the importance of land tenure in factor income of the specific countries. The division of factor income into production factors of capital, workforce and land based on the 2005-2016 average data that gives the impression of the importance and the influence of the specific factor on the factor income by countries. Rent value in factor income per employee in 2016 shows the importance of rent value that should be transferred to the owners of rented land. In some countries, the rent value is for the agricultural producers the cost burden that influences substantially the division of factor income.

Literature review

The calculation of rents for EAA purpose were only rents data available before introducing the Eurostat praxis of annual statistics in Slovenia. The basic principles of the national accounts are described in Eurostat (1996, 2000, 2013), and European Parliament (2004). With the start in cooperation in Eurostat's grant agreements, the situation on rent statistics in Slovenia was substantially improved, which is illustrated in Žaucer (2016, 2017).

As given in ESA 2010, Eurostat (2013), agricultural industry in the EAA reflects agricultural industry given in the central framework, with some modifications. The EAA put attention to production process and the resulting income. In ESA 2010, Eurostat (2013), there is a special article presenting process and the activities necessary for the rent statistics application, an issue very important for Eurostat to support the countries starting to publish annual statistics compiled.

The EAA involve production account, related to income account, a capital account and an entrepreneurial income account for agricultural production. The production account is the result of compiling for a series of agricultural products, and non-agricultural secondary activities. All data are expressed in current prices and in volume terms, as well. There are also three agricultural income indicators, as follows: first, index of the real income of factors in agriculture per annual work unit; second, index of real net agricultural entrepreneurial income per non-salaried annual work unit; and finally, net entrepreneurial income of agriculture.

As given in Eurostat (2013), agricultural accounts do not correspond fully to the situation in agriculture, since they may contain a supply and use of agricultural goods, with imports, final consumption of households, and impact of associated taxes and subsidies.

Articles that concerned agricultural rent values and relations of agricultural rents with the income usually based on the Farm Accountancy Data Networks (FADNs). data. Streleček et al. (2011) examined on FADN data the factors which influence the

land rent and the price land and how significant these factors were in relation to land rent in the EU member states in the 2005-2007 period. The data on rents were compared with the farm income. Intensity of production strongly influenced on land rent (except in the majority of the new EU member states where low influence of the production intensity on land rent was identified), while relation between land rent and farm income/total subsidies showed medium statistical dependence.

Another Czechian study (Lososova et al., 2013) examined the differences in the land rent among the EU countries based on the 2009 FADN data. The aim of the paper was to assess the difference of rent on farm production efficiencies by region, type and LFA. In terms of cost rents there are significant differences between countries within the EU as well as between farming specializations.

Rumanovska (2014) was trying to find correlation between the total area of utilized agricultural land and the share of rented agricultural land by agricultural holdings in Slovakia based on data from the Survey for agricultural holdings and on 2012 FADN data for self-employed small farmers. The findings of this analysis showed the weak statistical dependence for agricultural holdings, while for small self-employed farmers a moderate correlation was confirmed. By increasing of the rented agricultural areas the land rents also increase.

FADN data on rents are the input for EAA in many countries. This is not the case in Slovenia where the administrative data on rents are used in EAA.

Rents as a part of entrepreneurial income account

Basic data on agriculture and rented land in Slovenia

Detailed data on the structure of utilised agricultural area are submitted by agricultural census every decade and the Farm Structure Surveys (FSS) conducted by the Statistical Office of the Republic of Slovenia (SURS) every few years following Eurostat's legal data basis and methodological requirements.

The basis for comparing the total utilised agricultural area and the rented utilised agricultural area is the data of the agricultural census and farm structure surveys conducted in the years presented in Table 1. The utilised agricultural area of about 480,000 hectares in 2016 decreased by about 1% in comparison with 2000, but the movement of the data on utilised agricultural area between the farm structure survey years was different. Utilised agricultural area was increasing in the period from 2000 to 2007, while in 2010 it decreased by 3% and from this year it has an upward tendency.

The share of rented utilised agricultural area has a tendency of increasing; in 2016 about 142 hectares or 30% of utilised agricultural area was rented, which was about 22% increase in comparison with 2000. In the framework of the rented utilised agricultural area, the situation was different in the case of the rented land of household and the non-financial sector. The rented area of family farms increased in 2000-2016 from 87,000 hectares to 124,000 hectares or by about 43%, which is 26% of total utilised agricultural area.

Table 1 Basic data of agriculture, Slovenia

Item	2000	2003	2005	2007	2010	2013	2016
Number of agricultural holdings (AH)	86,467	77,149	77,175	75,340	74,646	72,377	69,902
Average utilised area per AH	5.6	6.3	6.3	6.5	6.4	6.6	6.9
Factor income per employee, EUR	2,545	2,844	4,594	5,309	5,232	5,009	5,956
Share of agriculture in GDP, %	1.9	1.5	1.6	1.2	1.1	1.1	1.2
Share of employment in agriculture, %	11.9	10.7	10.3	9.4	8.6	9.7	9.0
Hectares							
Utilised agricultural area	485,879	486,473	485,432	488,774	474,432	477,023	479,589
- Utilised agricultural area, rented	**116,275**	**125,812**	**123,866**	**125,004**	**136,361**	**139,566**	**141,620**
- family farms	87,001	100,377	99,768	102,028	112,101	119,526	124,375
- enterprises	29,274	25,435	24,098	22,976	24,260	20,040	17,245
Structure, %							
Utilised agricultural area	100.0	100.0	100.0	100.0	100.0	100.0	100.0
- Utilised agricultural area, rented	**23.9**	**25.9**	**25.5**	**25.6**	**28.7**	**29.3**	**29.5**
- family farms	17.9	20.6	20.6	20.9	23.6	25.1	25.9
- enterprises	6.0	5.2	5.0	4.7	5.1	4.2	3.6

Source: SURS, 2017a.

The situation in the enterprise sector was the opposite, in 2000, enterprises rented about 29,000 hectares or 6% of total utilised agricultural area, which decreased in 2016 to about 17,000 hectares, presented only 4 % of total utilised agricultural area.

Rent calculation value as an EAA item in Slovenia

The agricultural census and farm structure surveys data are the most important and exhaustive data sources that include the entire rented land. The only deficiency of these data sources is their unavailability on the annual basis. Due to the rent calculation for the Economic Accounts for Agriculture (EAA) on the annual basis, the additional and helpful data source is the data of the Farmland and Forest Fund of the Republic of Slovenia (FFFRS) on rented land and the average annual rent per hectare to be paid by natural persons and legal entities.

Due to the availability of the data, the rent value is calculated by the institutional sectors – for agricultural enterprises (non-financial enterprise sector) and family farms (household sector). The entire amount of the rented land is the same for all three years (depends on the availability of FSS or agricultural census data), whereas the sector structure of rented land varies according to the Farmland and Forest Fund data. The difference between the census or FSS data of about 50,000 hectares of rented land is assumed to be rented between the agricultural holdings.

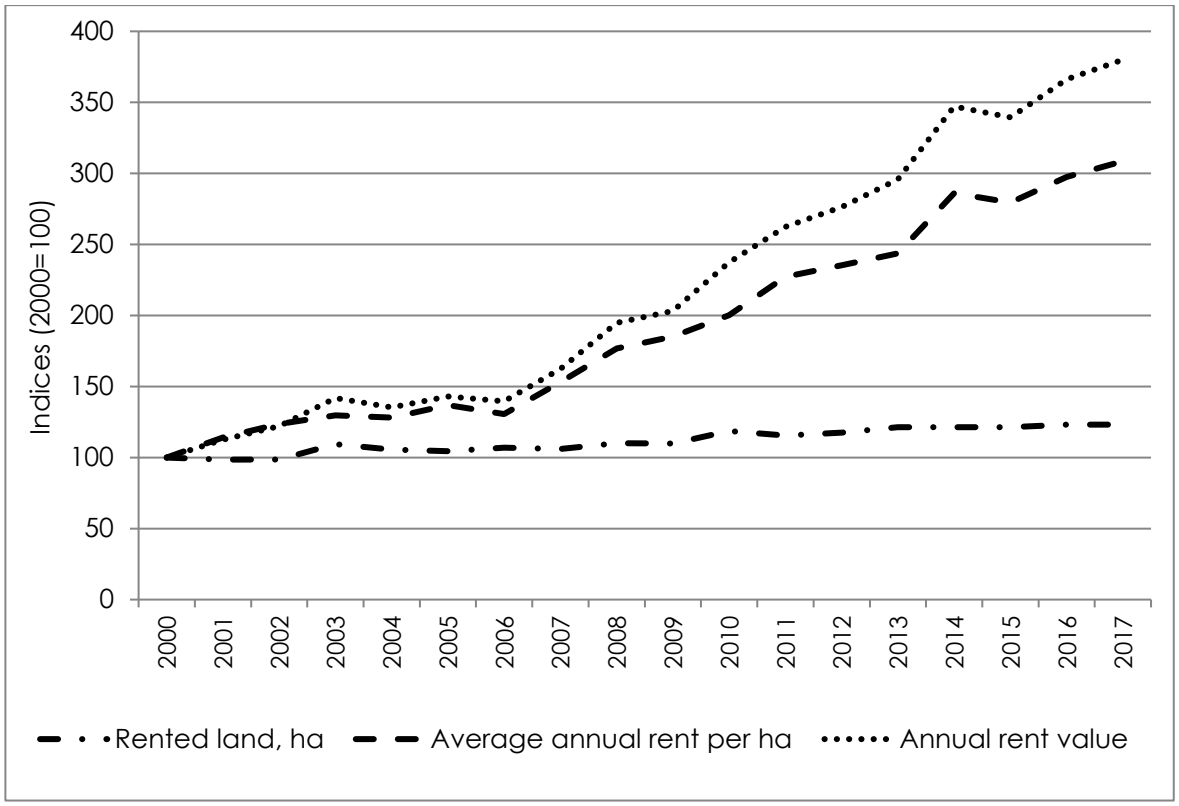

Figure 1 Indices of rented land quantities, average annual rents and rent values, Slovenia (2000=100)

Sources: Farmland and Forest Fund of RS, 2017; SURS, 2017a.

The nominal value of rents paid in Slovenian agriculture in 2016 was EUR 21 million, which is almost four times more than in 2000. The rented land increased in the observed period by 22% but the main influence on the increased rent value has the rents increase. In 2000 the average rent was EUR 50 per hectare, in 2010 the rent increased to EUR 99 per hectare. From 2011 on the rent increased from more than EUR 100 per hectare to almost EUR 150 per hectare in 2016. In comparison with the previous year, the rent decreased only in three years. In 2004, the rent decreased by 1%, in 2006 by 5% and in 2015 by 2% compared with the previous years. In all other years, the rents increased in comparison with the previous year. The largest rent increases were recorded in 2007 and in 2014, when the rent increased by 17% in comparison with the previous years (see Figure 1).

Slovenia in the framework of the rent situation in the EU-28

For presenting the price and quantities movements, the EAA data EU-28 Eurostat New Cronos database would be needed. Due to the unavailability of the entrepreneurial income account data at constant prices of the previous year, the data on rents by the EU-28 can be followed from 2005 on only by values.

In 2005, the rent value at the EU-28 level was about EUR 9 billion and in 2016 about EUR 13 billion, which is a value increase of about 40%, but within the EU the situation between the countries differs. The rent value in Bulgaria in 2016 exceeded ten times the rent value in 2005. The rent value increased greatly also in Estonia and Romania, where the 2016 rent value was four times higher than in 2005, and in Latvia and Lithuania, where the 2016 rent value was almost three times higher than in 2005. In some countries the rent value decreased drastically, e.g. in Poland by 40%, in Malta by 26% and in Spain by 22%. The rent value decreased in 2016 compared with 2005

also in Portugal by 7% and in Greece by 6%. Below the EU-28 average rent increased in Belgium, France, Croatia, Italy, Luxembourg, Austria, Finland and the United Kingdom. Slovenia is one of the countries where the rent value increased above the EU-28 average; the rent value increase in Slovenia in 2016 compared with 2005 was similar to the rent value increase in Slovakia and the Czech Republic.

Contribution of the countries to the EU-28 rent value

The calculated average rent share of the specific country for 2005-2016 compared with the EU-28 average rent total shows that the main part (21%) is contributed by Germany. In specific years, the share of rent compared with the EU-28 total differs from 19% to 23% with the tendency of increase from 2006 to 2016. The second country that contributes about 20% to the EU-28 rent total is France with the trend of decreasing of the rent share. Spain and Italy contribute about 11% to the EU-28 rent value. In both countries, the rent share in the EU-28 value is decreasing. Germany, France, Spain and Italy together contributed on average almost two thirds to the EU-28 rent value. Additional important shares are contributed by the Netherlands and the United Kingdom; 5% each to the EU-28 rent value, Greece 4%. Together with the above mentioned most important countries in rent value contribution, they represent almost 80% of the EU-28 total value. The remained 20% of the rent value was contributed by the other 21 countries. Slovenia contributed to the EU-28 rent value about 0.2%.

Participation of rent in factor income

Rent is one of the factors supporting the generation of factor income, dedicated for the payment of the rented land besides the costs of labour and capital.

In the EU-28 rents presented on average 8% of the factor income in the 2005-2016 period. The highest average share of rent in factor income in this period had Denmark (20%), followed by Luxemburg (18%), Sweden and Germany (16%). Above the EU average level was the rent value in Bulgaria, the Czech Republic, France, Hungary, the Netherlands, and Finland. Greece's, Austria's and Slovakia's average rent shares corresponded to the EU rent share in factor income. The shares of the average rent values of other countries were below the EU average. Rent presented on average only 1% of factor income in the 2005-2016 period in Malta and in Poland. Average rent share of Slovenia was 3% of factor income, which is the level of Cyprus and Latvia, as given in Figure 2.

The movement of the rent share in factor income was different according to the different countries. In 2016, Denmark had the highest share of rent in factor income, about 33%, from 2005 on the rent share increased by 20 percentage points. The shares of the rent value increased from 2005 to 2009, while from 2010 on the rent value was decreasing for three years. In 2014, the rent value increased by 9 percentage points compared with the previous year and in 2016 by 6 percentage points compared with 2015. Denmark had a specific situation in 2016 due to the negative entrepreneurial income.

Over 20% of factor income was divided to the rent in 2016 in Luxembourg, Sweden, Bulgaria and Germany. Slovenian share of the costs of the rented land in factor income was 4 % from 2012 onwards.

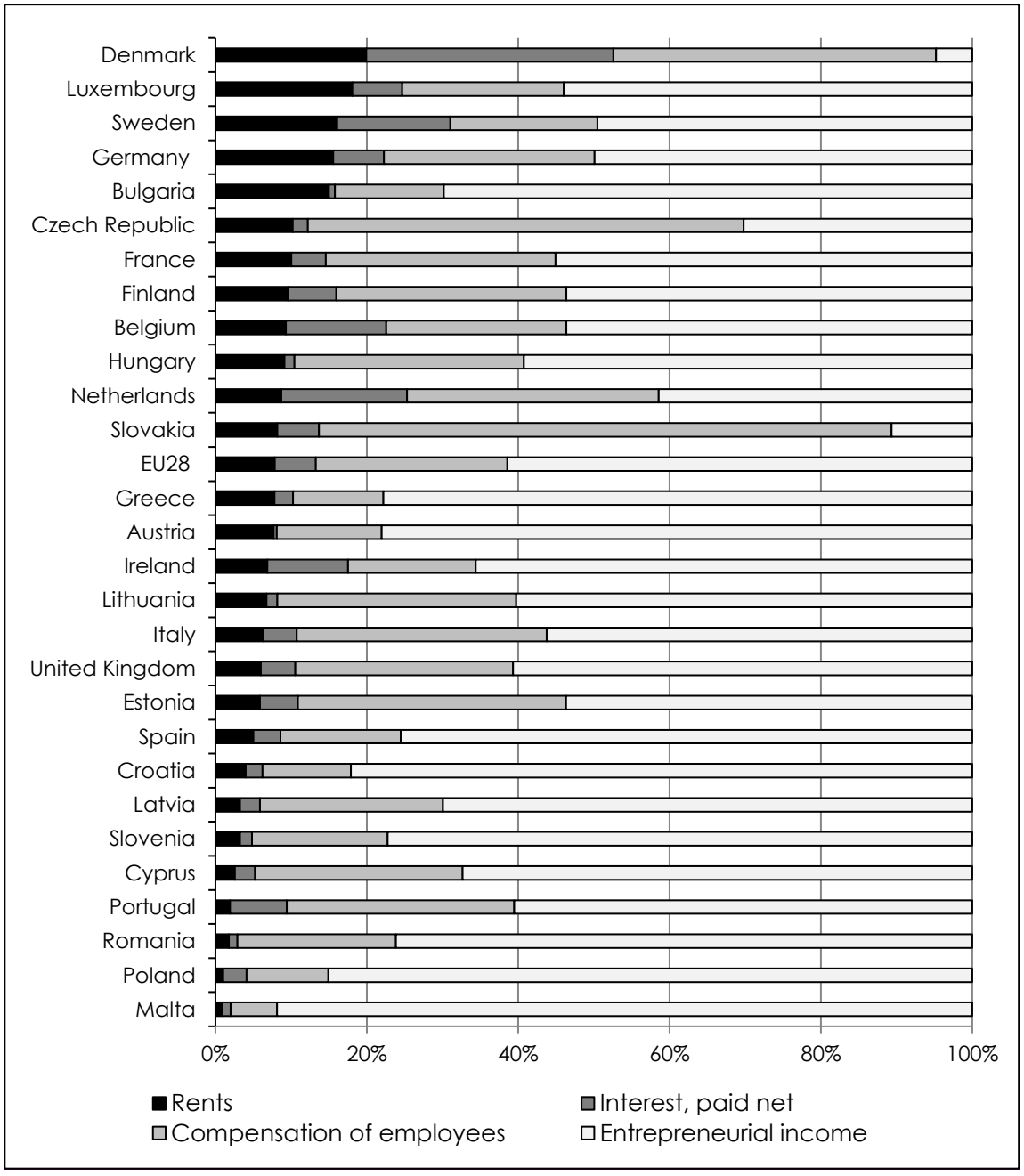

Figure 2 Division of factor income on production factors of land, capital and labour, average shares of the 2005-2016, EU-28, %

Sources: Eurostat, 2018a, SURS, 2017b.

Rent value in factor income per employee in agriculture in 2016

Average factor income in agriculture in the EU-28 in 2016 was about EUR 16,000 per employee. About 9% of this amount was dedicated for rent payment. The biggest amount of rent was paid by Denmark, EUR 9,000 or 33% of factor income. Denmark with the factor income of about EUR 28,000 per employee was also the only country that presented in 2016 negative entrepreneurial income in agriculture (see Figure 3).

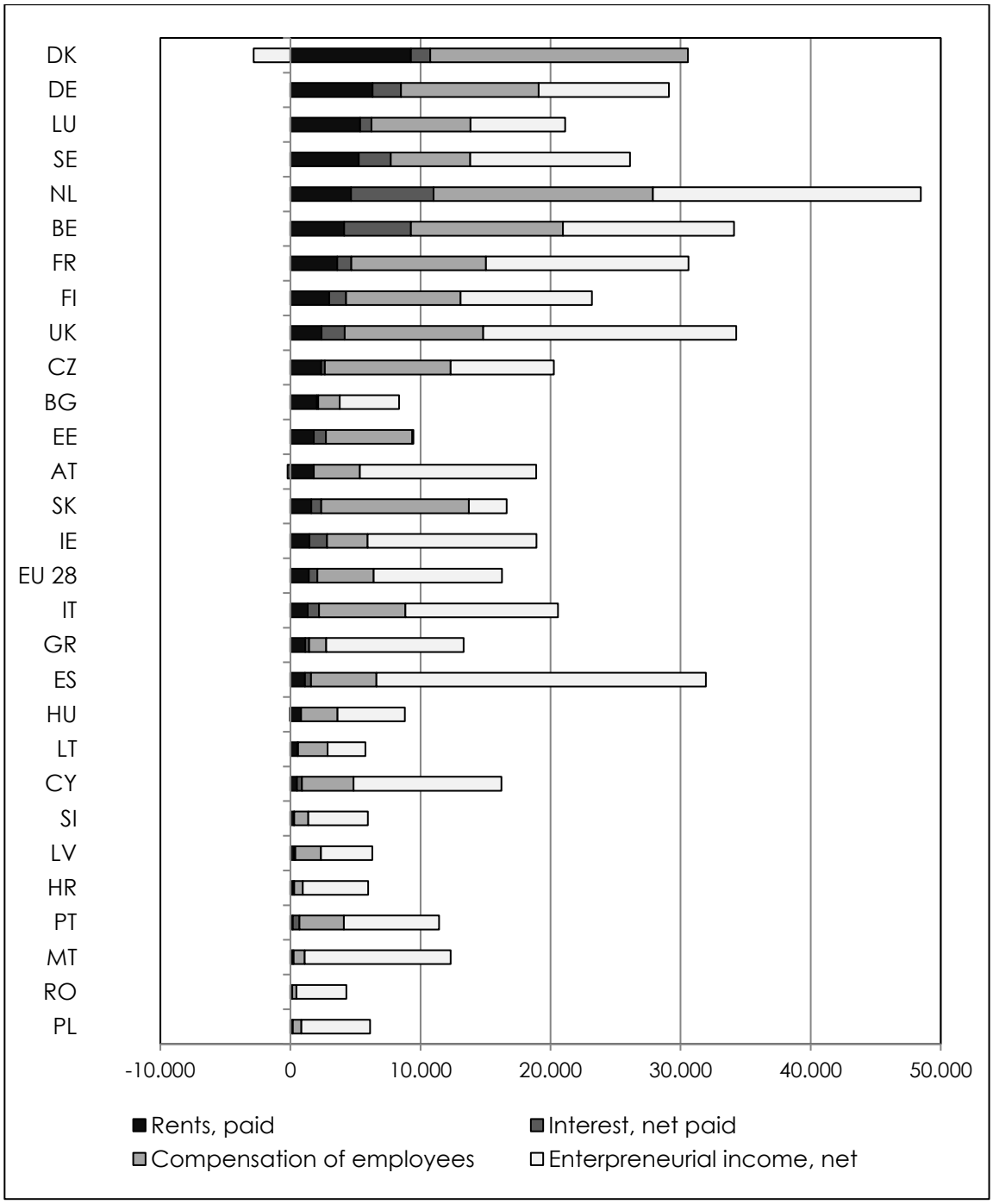

Figure 3 Rent value in factor income per employee, EUR, 2016, EU-28
Sources: Eurostat, 2018a, SURS, 2017b.

Factor income per employee in Germany was about EUR 30,000, about EUR 6,000 or 22% of amount was paid to the owners of rented land. Luxembourg factor income was about EUR 21,000 per employee, over EUR 5,000 or 25% was paid to the owners of rented land. An important part of factor income was paid in Luxembourg. The highest factor income of about EUR 50,000 per employee had the Netherlands; the share for the rented land was 10% or about EUR 5,000. Poland had less than 1% of the factor income per employee (about EUR 6,000), about EUR 31 was contributed to the rent. Slovenia with the factor income of about EUR 6,000 per employee contributed to the rent about 4% or EUR 260.

Annual rent statistics in Slovenia

There were no available statistics on agricultural land prices and rents in Slovenia before Eurostat's Grant Agreement 2013. The only available data on rents were the calculations of Economic Accounts for Agriculture (EAA) on the value of charged agricultural land rents based on land area rented and average agricultural land rent per hectare.

The general objective of the Eurostat's Grant Agreements 2013, 2015 and the continuation of work with grant 2016 were to set up the data collection system for agricultural land prices and rents by defined EU target methodology and cost-effectiveness, analysis of available administrative data sources and expert estimates (see Figure 4). The objects of observation were rents for 1 hectare of agricultural land (arable land and/or permanent grassland) rented in Slovenia for agricultural use. According to the methodological requirement, the rent did not include Value-Added Tax (VAT).

Types of agricultural land observed were arable land (only at Nomenclature of Territorial Units for Statistics's NUTS III level, which are defined in Eurostat, 2018b), permanent grassland (only at NUTS III level), and "arable land + permanent grassland" (at NUTS III and higher territorial levels).

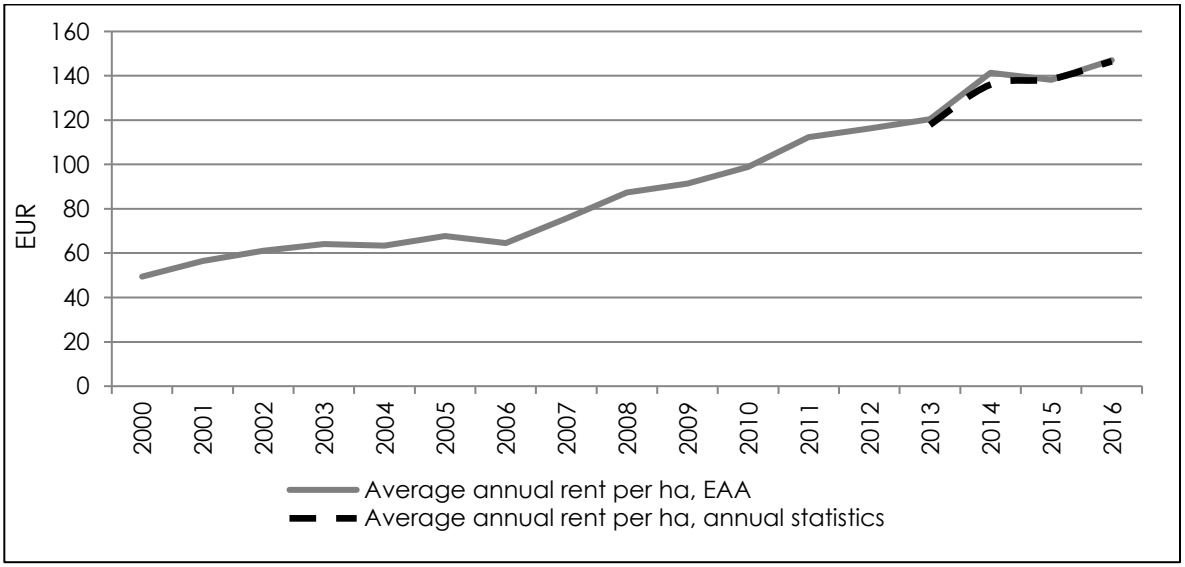

Figure 4 Average annual rent per hectare, EUR, Slovenia – the difference between the EAA data and annual statistics

Sources: Farmland and Forest Fund of RS, 2017; SURS, 2017a.

After the wide research of possible data sources on rents, it was established that the only possible data source for agricultural land rents is available data of the Farmland and Forest Fund of the Republic of Slovenia. Data in Excel file were collected from their internal database for the reference year (derived from their contracts) on parcels and parts of parcels given in rent (data by parcel + land use + type of person(s) renting).

Raw data were controlled by the completeness of data with the exclusion of inappropriate data, e.g. data records with no data on amount of rents (free rents), and by the size of agricultural land with the exclusion of the parcels and parts of the parcels up to 1,000 m^2.

Average annual rents for Slovenia were calculated for the parcels and parts of the parcels of at least 1,000 m^2. Regarding the NUTS levels, Eurostat (2018b), the methods

of calculating average annual rents at NUTS III level based on simple arithmetic mean of rents for m^2 of "arable land", "permanent grassland" and "arable land + permanent grassland", while the calculation of average annual rent at NUTS II level based on weighted arithmetic mean of average rents for 1 hectare of "arable land + permanent grassland" of statistical regions. In this calculation, data on the total rented area of agricultural land of statistical regions were used as weights. By further aggregation, average annual rent for Slovenia also based on weighted arithmetic mean of average rents for 1 hectare of "arable land + permanent grassland", with the appropriate weights for cohesion regions (i.e. data on the total rented area of agricultural land of cohesion regions). The deviation from the EU target methodology is the observation of agricultural land rents on the side of lessors instead of on the side of legal entities and natural persons renting the agricultural land.

The advantages of the administrative data were cost-effectiveness and less additional work in the data editing phase (detailed data received), while the disadvantages were that only a third of the rented agricultural land in Slovenia was covered by this source and that only rents paid to the Fund were monitored, while rents paid to other private owners were still uncovered and no automatic control for data on agricultural land rents within the statistical region could be established (different values for m^2 of agricultural land were possible). The data on rents are available from 2013 onwards at NUTS II and Slovenia.

Conclusion

Data on the total utilised agricultural area rented in Slovenia are limited to the agricultural census or Farm Structure Surveys that influence the quality of the annual calculation of rent value. The calculation of rent for 2000–2016 shows the rent value increase in Slovenia by three times based mainly on the rent per hectare increase, although the area of rented land in 2016 increased by 40% compared to 2000.

Due to the unavailability of the Eurostat EAA, data at constant prices only the rent values in the 2005-2016 period were analysed. The average EU-28 rent value increased in the twelve-year period by over 40%. The highest increased rent value was registered by Bulgaria, which in 2016 exceeded the rent value in 2005 by ten times. The countries with the markedly increased rent values were Romania, Estonia, Lithuania, and Latvia. The rent value in Slovenia in 2016 was more than double the 2005 value; the increase is similar in Slovakia and the Czech Republic. The rent value in 2016 decreased below the 2005 level in Poland, Malta, Spain, Portugal and Greece.

The participation of Germany, France, Italy and Spain exceeds two thirds of the EU-28 rent value. Together with the Netherlands, Greece and the United Kingdom they cover 78% of the EU-28 rent value. Other 21 countries presented the remaining 22% of the rent value in 2016; the Slovenian share was the same as the Croatian at 0.2% of the EU-28 rent value.

The average remuneration of rented land for the 2005-2016 period in the EU-28 was about 8% of factor income but the shares of rent in factor income by countries varies from 1% in Malta and Poland to 20% in Denmark. The Slovenian share of rent in factor income for this period is 3%, which is the same share as in Cyprus and Latvia and one percentage point lower than in Croatia.

Denmark has a specific position in the field of rents. The share of rents in factor income of agriculture increased significantly from 2005, when the rents presented 13% of factor income, to 33% in 2016. In 2016 in Denmark the factor income per employee was about EUR 28,000, about EUR 9,000 had to be paid to the owners of rented land. About EUR 20,000 was paid for the compensation of employees, about EUR 1,000 was paid for the interest, and entrepreneurial income was negative at about EUR 3,000.

Slovenia introduced the annual average rent statistics according to the Eurostat methodology in the framework of Grant Agreement 2013 and 2015 and continues the work with Grant Agreement 2016. According to the exhaustive research of the available data sources, it was established that the only appropriate available data source for the introduction of rent statistics is at this moment the Farmland and Forest Fund of the Republic of Slovenia. The disadvantage of this source is the deviation from the EU target methodology on the observation of agricultural land rents on the side of lessors instead of on the side of legal entities and natural persons renting the agricultural land. The data by cohesion regions are available from 2013 onwards; at the level of Slovenia minor differences between the EAA data on average rent per hectare and annual statistics on rents from 2013 to 2015 are shown, while in 2016 the rent per hectare was the same according to both calculations.

This research contributes to the agricultural and land policy with information on agricultural factor income division, statistics harmonization methodologies, respecting the Eurostat requirements, and shows its' pioneer application to the case of Slovenian agriculture rent statistics data, which might be useful to both scientific and professional needs. Limitation of the research has been shown to be a quite short-term period of investigation, which might be overcome in the further investigation of the authors.

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Irena Žaucer graduated from the Faculty of Economics of the University of Ljubljana in 1982. She has been employed at the Statistical Office of the Republic of Slovenia for almost thirty years. Her work on National Accounts started at the time of the introduction of the methodological transition from Social Product to the compilation of GDP. She cooperated with Eurostat as a leader of numerous statistical projects - the projects on exhaustiveness of the national accounts, compilation of Hidden economy, first estimation of the illegal activities in Slovenia. In the pre-accession period, she was a leader of the project on the Economic Accounts for Agriculture (EAA). She established the methodology for the forestry accounts according to the EAA/EAF Rev.1. The result of the managing of the project on the production of Small Units in Agriculture of Slovenia was the calculation of value added. Since the introduction of the EAA legal background in 2004, she has been responsible for the compilation of the EAA system, which has been the source for her analytical work in the past few years. With her extensive expertise in the field of accounts, she also helps to establish the systems of accounts in the Balkans and beyond. The author can be contacted at *irena.zaucer@gov.si.*

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