THE DISPERSION OF AGRICULTURAL AND RURAL DEVELOPMENT EU FUNDS ON A REGIONAL AND DISTRICT LEVEL IN HUNGARY

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Abstract: *A national objective was realised when Hungary joined the European Union based on the preliminary result of the referendum. Naturally, there were pros and cons about the accession and there were those who refused the European integration. Still the emotion was stronger that came from the future EU membership and the hope in terms of the agriculture that with the opportunities offered by the EU both the Hungarian agriculture and countryside would follow a development course. Because of the accession a lot of support forms as well as the EU institutions became available but considering the impacts there were no clear positions. Obviously, today we know what kind of objective, positive changes were brought by the accession for example in terms of infrastructural and machine supply, broadened market possibilities and income growth. Still we also experience the objective disadvantages such as the stronger competition and the mass expansion of multinational food-processing and trading companies. The scientific measurement and judgement of the developmental changes which are difficult to measure is still a subject of debate. We have done the concentration analysis for two budget periods 2004-2006 and 2007-2013 respectively. Between 2004-2006 the regional concentration is more balanced year by year than the district. In the district values even in this period we can already experience the fact that very few farmers receive a big amount of support. Between 2007-2013 there are no sharp differences in the case of concentration neither in the region nor in the district. The Lorenz curve shows a classic concentration distribution in the Southern Great Plain Region every year. The course of Lorenz curves is supported by the value of the concentration ratio which is the total share of the support of the three players receiving the biggest funds since the indicator has been hovering around the 10% average value in the region since 2006 while in the district we can experience values within a 36% and 17% average intervals. By evaluating the funds data of the Southern Great Plain Region and Sarkad district we can state that by 2013 the concentration has balanced out in both areas still we can experience a significant funds-concentration on the district level.*

1. Introduction

In the first half of the 20th century the state was primarily expressed through the tax system and the relationship between the different enterprises while from the second half of

the century the state funds have received a more emphasized role in Hungary. After Hungary's accession to the European Union the system of agricultural and rural development funds were regulated by the framework of the Common Agricultural and Rural Policy in which applicants could receive EU, national and co-financed funds. Among the certain support forms the direct payments and the support of the regional development programs were significant. On the basis of experiences of the past periods we can state that the direction of funding policy tends to point towards the less market – and trade – distorting funds and in terms of funding the Hungarian farmer society the accession has made a positive impact. The following figures show the point; while between 2002-2003 the agricultural and rural development funds were 210-220 billion HUF from 2004 on it reached around 400 billion on a national level (Kapronczai, 2011).

2. The examination of the distribution of the agricultural and rural development funds

For the examination of the funds-distribution we used the funding data of the Agricultural and Rural Development Office (ARDO) between 2004 and 2013. The available database provided different grouping possibilities in terms of funds. The demarcations for the funds were the following: *Total funds, EU funds, National funds, European Agricultural Guarantee Fund (EAGF), European Agricultural and Rural Development Funds (EARDF), Income supports, Investment and rural development funds.* To measure the regional and district concentration of the funds we chose the Southern Great Plain Region and the Sarkad district where different concentration measurement methods were applied. The Lorenz curves were originally used for measuring the income distribution where concentration was depicted in a single-unit square where the cumulated relative value amounts are shown in terms of cumulated relative frequency. If the certain units have the same share in the value amounts then the cumulated relative frequencies and the cumulated relative value amounts match. In this case a lack of concentration is shown and then the curve matches the diagonal of the unit square (Kovács, 2011; Elte 2005). The concentration ratio (CR) both in terms of calculating and data needs is the simpliest way to create a concentration metrics. The CR concentration ratio shows how the biggest unit of the plurality gets a share from the whole value amount. If the whole value amount belongs to the chosen unit then it takes up a maximum value, in case of consistent distribution it has a minimum value. In practice the visualization of the 3-5 highest value share of the total value amount is the most well-spread. Another definitive metrics of the concentration is the Hirschman-Herfindahl index. When calculating the index it correlates to the main diagonal of the Lorenz curves that is, it equals the sum of squares of the value amount of the certain units. It takes a maximum value in case of total concentration, in that case the value is 1 or if the share of all units is equal then it takes the minimum value of 1/n. Since the metrics take into account the number of the units therefore the distribution of value amount within 100 units   means a lower level of concentration than by examining 10 distributions (Hunyadi and Vita, 2008; Kerékgyártóné et al., 2001).

Results and Evaluation

By comparing the funding data of the Sarkad district and the Southern Great Plain Region the gradually increasing funding is well-depicted. The earmarked 400 billion HUF for 2004 couldn't be used because the Hungarian institutional system was not prepared enough so on a national level only 156 billion HUF reached the farmers consequently the majority of the Single Area Payment Scheme was transferred to 2005. This unpreparedness is reflected in the comparison of regional and district data since on a district level only 100 million HUF was paid out in 2004 and on the regional level 3,5 billion HUF (Figure 1.) From

2005 on the national payments were between 410 and 430 billion HUF which was about 1.5-2 billion on a district level and between 70 and 80 billion HUF on a regional level. We can generally say that in 2009 the subsidies rose sharply on a national level and it followed a similar method on a district level with a 2.3 billion HUF payment and on a regional level with a close to 120 billion HUF payment. Among the primary reasons of the national increase the sustained growth factors did not play a significant role but rather the early payments, the currency profit and the sugar subsidies. This also explains why the 2009 funding level could not be repeated since in 2010 the paid funds were decreased by 130 billion HUF. The data tell a different story though in the Sarkad district and the Southern Great Plain Region since the per capita funding is just slightly less than the 2009-value. Increase can be experienced in 2011 due primarily to the lower Single area payment deposits which on a district level did not even reach 1 billion HUF compared to previous year's 1.6 billion HUF. The outstanding growth both on a district and regional level was due to the fact that the majority of Single area payment funds of 2012 were paid in that year and the deposits of 2013 were also added to that sum.
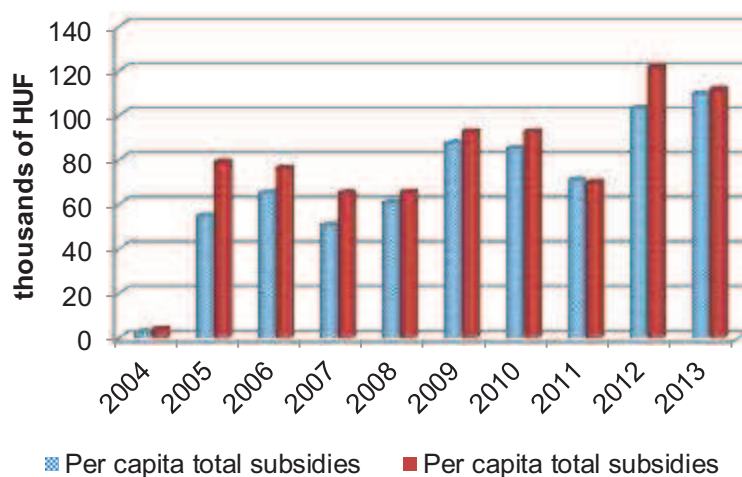

Figure 1: The per capita paid subsidies in the Southern Great Plain Region and the Sarkad district
Source: based on own measurements and ARDO data

On the whole we can say that on the basis of the Southern Great Plain Region and Sarkad district payment data that the level of per capita payments turned out to be similar and no drastic changes happened. Because of the agricultural aspect of the district and the significant role of agriculture there the level of support per capita is continuously reaching higher values compared to the total population. Obviously the low urbanisation level of the area even on a national level and the significance of agricultural activities among its population contribute to this result. On a regional level though among the population of several cities such as Kecskemét, Szeged, Békéscsaba participation in the industrial and tertiary sector is more characteristic and in their cases the agricultural and rural development funds are less prevailing.

If we look at the distribution of the paid subsidies in terms of their targets (Figure 2) it is clearly visible that since the EU accession the income support has a primary role in the Sarkad district and the share of Single Area Payment is the most significant. The rate of investment and the rural development subsidies started to increase mainly in the budget period of 2007-2013. It doubled from 2006 to 2007 reaching 160 million HUF which was on

the one hand due to the increase of the available amount of resources and on the other hand after the initial inexperience the growing willingness to apply. As a result of the process the amount of paid subsidies reached around 760 million HUF in 2012 in the area and the tendency was similar in 2013, as well.
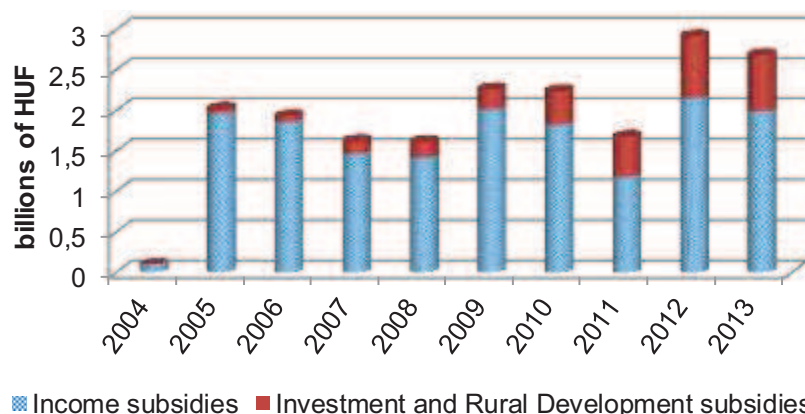

Figure 2: The distribution of paid subsidies based on their targets in the Sarkad district
Source: based on own measurements and ARDO data

To define the concentration of the subsidies we also made comparisons in terms of regional and district data. To illustrate the development of funds concentration after the EU accession we used Lorenz curves. In the analysis we examined two periods, the budget periods of 2004-06 and 2007-13 respectively. By comparing the single years of the 2004-06 budget period we experienced a much more balanced concentration on a regional level in terms of total funds than on the district level. In the case of regional funds concentration we can see a gradual increase year by year however we can state that the differences between the relative value amounts and the relative frequencies are much more balanced than the district values. The concentration values of the Sarkad district developed more differentially in this period. The reasons of the well-marked differences between the year of accession and the years 2005 and 2006 stem from the fact that because of the institutional unpreparedness (ARDO) and the deficiencies of the Integrated management and control system the payment of funds were delayed and only few people received funds. The process is clearly outlined on the figure since there is no outstanding difference between the relative frequencies and the value amounts. In 2005 and 2006 we can experience a high concentration difference as the curve moves away more from the diagonal of the unit square so we can sense that few funded receive big subsidies. The phenomena can be explained by the fact that the delayed subsidies of 2004 were paid in 2005 but this would not justify the great concentration difference of 2006 and the concentration developments of 2007-2013 (Figure 3-4).
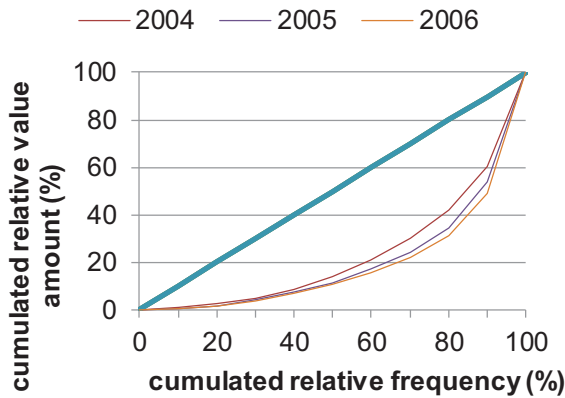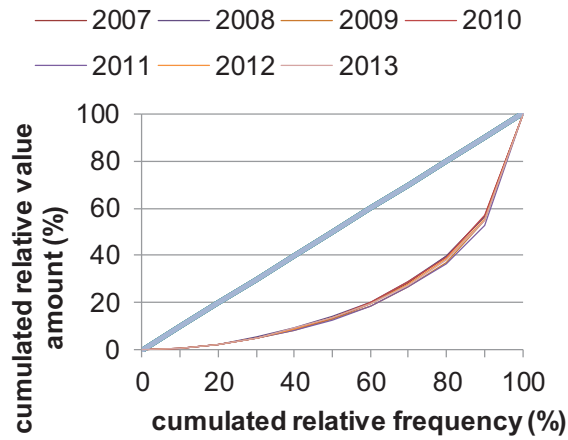
Figure 3: Funds concentration in the Southern Great Plain Region between 2004-2006
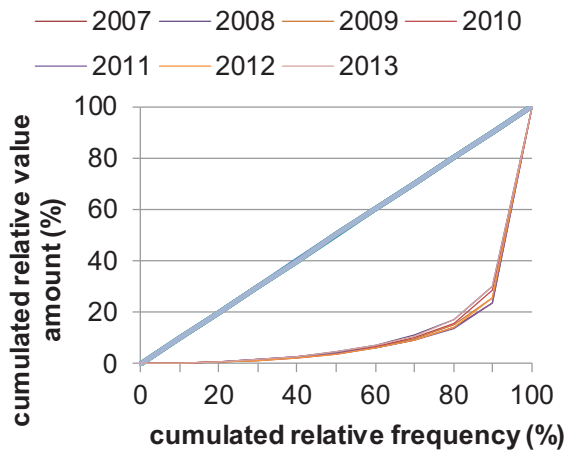*Source: own measurements on the basis of ARDO data*
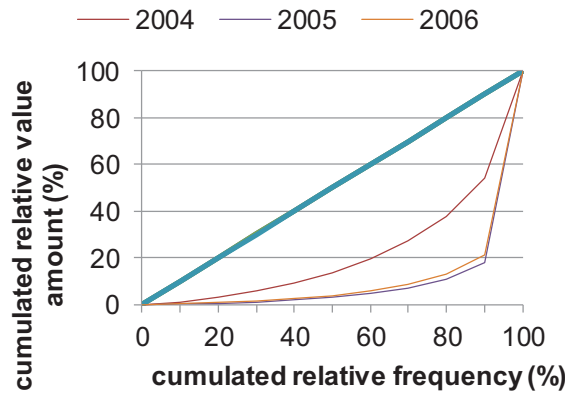
Figure 4: Funds concentration in the Sarkad district between 2004-2006
Source: own measurements on the basis of ARDO data

It is characteristic for the 2007-2013 period that there are no sharp concentration differences in terms of the certain years. The regional data show classic concentration dispersion (Figure 5) while on the district level (Figure 6) the high concentration remained for every single year moreover for the years 2001 and 2012 we witness a slight increase. We can state in terms of both levels that the curves show that the funds dispersion evened out.

Figure 5: Funds concentration in the Southern Great Plain Region between 2007-2013
Source: own measurements on the basis of ARDO data

Figure 6: Funds concentration in the Sarkad district between 2007-2013
Source: own measurements on the basis of ARDO data

The concentration differences between the certain NUTS levels are perceptible the simpliest way by the CR concentration ratio. In our research we matched the share of the total funds of the three biggest regional and district players (Table 1). The data of the table depicts that the share from the total funds of the three biggest funded players confirm the results of the Lorenz curves. On a regional level we experience that the amount of concentration ratio after the years of 2006, when the increase stopped continuously moves around 10%. By contrast the district numbers convey the concentration even in these figures. The highest concentration in 2005 was more than 36% and from 2007 on the share of the biggest players were 17%.

Table 1: The changes of CR concentration in each year (%)

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Southern Great Plain Region	CR1	3.53	5.75	7.39	6.22	4.60	6.08	5.02	4.93	5.49	4.71
	CR2	3.43	4.28	5.15	3.27	2.92	3.35	3.18	3.83	3.32	3.55
	CR3	2.50	3.47	3.14	3.12	2.77	2.98	2.93	3.31	3.06	3.21
Sarkad district	CR1	4.14	16.71	11.48	7.82	6.87	8.63	9.72	15.76	18.91	11.90
	CR2	3.21	12.29	10.49	3.82	3.25	3.03	2.36	4.32	2.00	2.16
	CR3	2.88	8.61	8.09	3.17	2.72	3.02	2.24	4.11	1.57	2.16

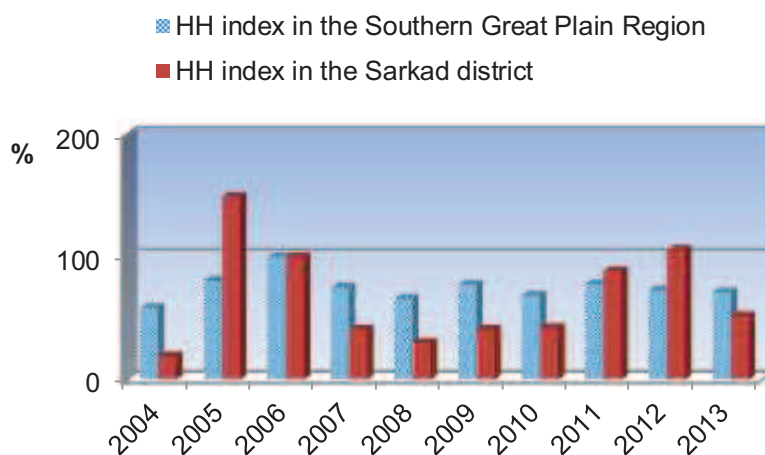*Source: own measurements on the basis of ARDO data*

In terms of the Hirschman-Herfindal index (HH index) or in another name the concentration index, the table does not serve as a comparison but only shows how the value of the index changed in each year. We cannot talk about a comparison in this case because I conducted different number of element research on a regional and district level which greatly defined the minimum of the index on each level. The change can be clearly traced though in the yearly values (Table 2).

Table 2: The development of Hirschmann-Herfindal index in each year in terms of funds utilisation

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Southern Great Plain Region	0.0101	0.0141	0.0174	0.0130	0.0115	0.0135	0.0119	0.0135	0.0127	0.0124
Sarkad district	0.0072	0.0567	0.0380	0.0155	0.0114	0.0154	0.0159	0.0337	0.0403	0.0197

Source: own measurements on the basis of ARDO data

We chose 2006 as a reference year (Figure 7) since in 2004 extremely few funds were paid while in 2005 extremely lot as they compensated for the lost amounts of 2004. In terms of 2006 we can talk about a balanced year so that is why this is the first year which is suitable for the comparison.

Figure 7: The extent of regional and district concentration change on the basis of HH

index (2006=100%)
Source: own measurements on the basis of ARDO data

On the basis of the HH index changes the result of the Lorenz curves are better outlined. Between 2004-2006 the regional concentration indexes continually rose while the district values reached their highest value in this period in 2005. In the 2007-2013 budget period the regional HH indexes show almost identical changes. In terms of district the changes compared to the reference year of 2006 are much bigger. On the basis of HH indexes we can state here also that despite the concentration growth of 2011 and 2012 the concentration of funds balanced out in this period.

5. Conclusions

Based on the analysis of the concentration data we can state that on a regional level the funds concentration balanced out by the end of 2013 and a similar process went under way on a district level. The regional funds concentration data are much lower on the basis of the Lorenz curves unit square diagonal and curves results. In terms of the Sarkad district, although the concentration gradually balanced out still the funds have reached the funded much more concentrated.

6. References

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