Péter HORVÁTH
Faculty of Economics, University of Debrecen, Debrecen, Hungary

THE ROLE OF DIRECT PAYMENTS IN REGIONAL SUBSIDY CONCENTRATION IN HUNGARY

Review Article

Keywords
Direct payments;
Concentration;
Lorenz curve;
Regional dimension;

JEL Classification
Q19; R00

Abstract

The Hungarian agricultural economy is considered a sector that is a significant part of the national economy. The share of Hungarian agriculture in GDP is currently 3-4%; however, if Hungarian agriculture ceased to exist, at the same time about 15% of GDP (agriculture, food industry, input-output sector, agricultural banking sector) would disappear. It should be noted that agriculture in developed – or moderately developed – societies can never again be a key sector, but it could become a successful one. Following the European Union accession, Hungary was able to benefit from a number of subsidy sources, of which direct agricultural subsidies play a decisive role. There is no better indication of the relevance of subsidies, as area-based direct payments are still a significant part of the annual profits of farmers in Hungary. In the course of the study, an answer was sought to the question of how the regional concentration of direct payments developed, and whether there are significant differences in concentration among individual settlements. The equalization of the regional concentration of direct subsidies is confirmed by the settlement-based concentration studies, since as of 2004 the measurement methods show a similar value, which proves that there are no outstanding subsidy values at the settlement level, the concentration is evenly distributed.

INTRODUCTION

The subsidisation system of the European Union has been studied by numerous domestic and international authors. Radnóczy (2004) explains that there are several forms of support in the European Union, the conceptual definition of which encounters a number of difficulties. In his view, "*subsidy shall mean all financial contributions and benefits provided by the Community or one of its financial resources to Member States or regions thereof, to specific industries, undertakings or certain groups of undertakings, and to individuals*". In the case of direct payments, a legal relationship is established directly between the Union and the beneficiary, in which case Community law applies. The EU glossary, edited by Hámori (2001), describes that direct payments are mainly area payments in crop production and head payments based on the number of livestock in animal husbandry in the European Union.

Following Hungary's accession to the European Union, the system of agricultural and rural development subsidies was regulated by the framework of the Common Agricultural and Rural Development Policy, in which the applicants could receive EU, national and co-financed subsidies. Direct payments and subsidies of rural development programs are decisive among the various forms of subsidisation. Based on the experience of recent periods, it can be stated that the direction of the subsidisation policy is increasingly towards less market- and trade-distorting subsidies, and that the accession to the European Union has had a positive effect on the support of the domestic business community. The above is supported by the fact that the amount of agricultural and rural development subsidies of 210-220 billion HUF between 2002 and 2003 increased to around 400 billion HUF at the national level as of 2004 (Kapronczai, 2011).

In 1962, the EEC Council decided to set up the European Agricultural Guidance and Guarantee Fund (EAGGF) to finance the Common Agricultural Policy, the Guarantee Section of which became an instrument of market policy, while the Guidance Section was used to finance agricultural structure and policy. As of 2007, the EAGGF ceased to exist in its former form, and the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD) were created. While the EAGF covers direct subsidies, export refunds and market intervention, the EAFRD finances rural development programs (Halmai, 2010).

Nothing indicates the legitimacy of the subsidies better, as currently 70-80 percent of the profits of farmers in Hungary come from EU subsidies, mainly from direct area-based subsidies (Népszava, 2018).

As a result of the reform of the Common Agricultural Policy (CAP), the system of direct payments has changed significantly since 2015. The changes have resulted in a system that is more responsive to the latest challenges, more environmentally conscious and that includes multiple new items. New challenges to the CAP, such as declining biodiversity, environmental protection, and a decreasing and aging farmer population, have all demanded the transformation of the system and the adaptation of EU agricultural policy to a changing environment (Nemzeti Agrárgazdasági Kamara, 2016).

In the EU budget cycle of 2014-2020, the total budget adopted by the European Union is 960 billion EUR, which is 3.4% lower than in the previous period. The CAP accounts for 38.9% of the total budget, 373 billion EUR. This is 3.5 percentage points lower than in the 2007-2013 financial period. The financial framework of CAP accounts for around 38% of the EU budget, or 0.4% of EU GDP. It can be stated that the Common Agricultural Policy, despite the shrinking budget, is the Community policy with the largest budget in the EU. Although strong budget attacks, mainly from net contributor countries, result in declining CAP budgets, the CAP is the oldest and most successful policy of the European Union, which will undoubtedly retain its position 2020 (Nemzeti Agrárgazdasági Kamara, 2016).

MATERIAL AND METHOD

To examine the regional use of direct subsidies, concentration analyses were performed among the settlements of the Southern Great Plain Region (Figure 1) receiving direct subsidies using the subsidy data of the Hungarian State Treasury. Different concentration measurement methods were used for the measurement process. The Lorenz curve was used to illustrate the development of subsidy concentrations after the accession to the European Union. In the analysis, three periods were examined: 2004-2006, 2007-2013 and 2014-2020 (in the last budget period, data were only available until 2019, as the year 2020 has not yet ended). The Lorenz curve was originally used to measure income distribution, plotting concentration in a unit-sided square where it displays cumulative relative sums as a function of cumulative relative frequencies. If each unit has the same share of the sum of values, the cumulative relative frequencies and the cumulative relative values of sum are the same. In this case, a lack of concentration is recorded and the curve coincides with the diagonal of the unit square (Kovács, 2011; ELTE, 2005).

One of the most commonly used indicators for measuring concentration is the CR ratio, which shows how the largest participants of the population share in the total value. In general, it can be said that the share of the three - twenty largest participants is usually used in this case to characterize the concentration (Tátrainé, 2006). Fenyves et al. (2016) carried out an analysis of the concentration of food businesses engaged in food retail activities.

The Hirschman-Herfindahl index (HH index) is also a popular indicator for measuring concentration. When calculating the index, the square of the market share of the companies operating in the market is added together, and the value thus obtained gives the degree of concentration. The value is 1 in the case of total concentration, and 1/n in the absence of concentration, where all units share equally in the total value. It is important to note that the more participants and/or the smaller the market shares, the lower the degree of concentration (Bacher et al., 2010; Tátrainé, 2006).

RESULTS

Examining the per capita subsidisation data of the Southern Great Plain Region, the increasing level of subsidy paid is observed in relation with income replacement subsidies. For rural development projects, this increase is seen in the period between the beginning and the end of each budget period (Figure 2). In the case of the income replacement subsidies, the Hungarian institutional system was not sufficiently prepared to draw on the almost 400 billion HUF planned for 2004 and therefore only 156 billion HUF was paid to farmers at the national level, as a result of which most of the area-based subsidies were postponed to 2005. This unpreparedness is also reflected in the regional data, as 3.5 billion HUF was paid in 2004. In general, subsidies increased sharply nationwide in 2009, which was similar in the region with nearly 120 billion in payments. The reasons for the national rise were not primarily sustained growth factors, but also advance payments, exchange rate gains, and sugar subsidies.

This also explains why the level of subsidisation in 2009 could not be repeated on a national level, as in 2010 the amount of subsidies paid decreased by more than 130 billion. However, the data indicates otherwise in the Southern Great Plain Region, as the total subsidy per capita is barely lower than in 2009. Decrease was experienced in 2011, mainly due to small advances in area-based payments. The outstanding increase in 2012 at the regional level was due to the fact that a significant part of the area-based payments in 2012 was paid in that year,

with the addition of advances of the year 2013. In the case of income replacement payments from the EAGF, the years 2016 and 2019 were the highest, as at that time the support per capita exceeded 90,000 HUF in the region.

Comparing each year of the 2004-2006 budget period, at the regional level, the curves are moving further and further away from the main diagonal of the unit square, which can be explained by increasing concentration, although overall the differences between relative values and relative frequencies are balanced (Figure 3).

For the 2007-2013 budget period, the regional data show a balanced concentration of direct payments, with minor differences over the years, but the Lorenz curves can be considered regular (Figure 4). Similar regularity can be observed in the 2014-2020 EU budget period, which was analysed until 2019 (Figure 5). Overall, it can be stated that in the last two budget periods the number of settlements and the amount of support received are in direct proportion, i.e. many settlements received a larger amount of support. This process was facilitated by various domestic land access programs, which promoted the growth and rejuvenation of the farming society.

Following the Lorenz curve, the CR concentration as well as the Hirschman-Herfindahl index were used to measure the concentration. It should be emphasized that the CR concentration in the present case shows the share of the three largest direct payment recipients in the total direct subsidies paid. Analysing the data in *Table 1*, it can be stated that the three largest beneficiaries received the largest share of all paid direct payments in 2006, with a share of almost 20%; this year the share of the largest beneficiary (CR1) also had the largest share with a proportion of more than 10%. It can also be said that since 2007 the average shares of CR1, CR2, CR3 have shown a trend of smaller fluctuations around 5%, 3% and 3% in terms of the development of the ratios.

The Hirschman-Herfindahl index represents the sum of the squares of the share of direct payment recipients in total direct payment each year. The analysis showed that the value of the indexes is largely determined by the shares of CR concentrations, which is supported by the fact that the annual change in concentration ratios also had an effect on the annual development of HH indexes. The index, which can be characterized by a numerical value between 0-1, takes its lowest value (0.01016) in 2004 and its highest value (0.02381) in 2006, which supports the Lorenz curve for the most concentrated (2006) year. If the change compared to the base year (2004) is examined, the years 2005, 2006 and 2011 show outstanding values, while the lowest changes concern the period between 2016 and 2019. Concentration measurement methods, therefore,

show well the changes in settlement values from the EU accession to the present day. Apart from the smaller fluctuations, the overall balance can be established.

CONCLUSIONS

The primary objective of the presented work was to analyse the regional concentration of financed direct payments.

To examine the distribution of direct payments, a concentration analysis was performed for three budget periods: 2004-2006, 2007-2013, and 2014-2019. Between 2004 and 2006, regional concentration levelled off year by year. Between 2007 and 2019, there are no sharp differences in concentration. The Lorenz curve shows a classical concentration distribution in the Southern Great Plain Region every year. The course of the Lorenz curves is supported by the value of the concentration ratio, as the indicator has been around a 10% average in the region since 2006. This is also confirmed by the development of HH indexes, which were affected by the annual change of concentration ratios.

Overall, it can be said that direct payments appear as compensated income replacement subsidies at municipal level since the accession to the European Union and there are no distorting phenomena at the level of individual settlements. This process was not interrupted by the system of the Common Agricultural Policy that was transformed in 2015, which proves that the settlements and thus the farmers were able to adapt to the new needs and conditions. The trends of recent years make it probable that no distortion of concentration can be expected in the budget period of 2021-2027 either, regardless of the direction and conditions under which domestic direct payments change.

REFERENCES

[1] Bacher, G., Boyta, Gy., Csépai, B., Remetei Filep, Zs., Szilágyi, P., Tóth, A. & Zavodnyik, J. (2010). Versenyjog [Competition law]. *Pázmány Péter Katolikus Egyetem Jog- és Államtudományi Kar,* Budapest, ISBN 978 963 308 017 7

[2] ELTE (2005). Területi egyenlőtlenségek. [Territorial inequalities]. ELTE Regionális Földrajzi Tanszék, Retrieved from http://geogr.elte.hu/REF/REF_Kiadvanyok/REF_RTT_11/RTT-11-03-teregyenlotlenseg.pdf

[3] Fenyves, V., Tarnóczi, T. & Bács, Z. (2016). Az Észak-Alföldi régió élelmiszer jellegű vegyes bolti kiskereskedelmi tevékenységet végző vállalkozásainak elemzése [Analysis of the enterprises of the Northern Great Plain region engaged in food-type mixed retail activities]. *Közép-Európai Közlemények*, 34(3) 165-183.

[4] Halmai, P. (2010). Közös Agrárpolitika. In: Kengyel. Á. (Eds.): Az Európai Unió közös politikái [Common policies of the European Union]. *Akadémiai Kiadó*, Budapest.

[5] Hámori, B. (Eds.) (2001). Európai Uniós Fogalomtár [European Union Glossary]. *Szaktudás Kiadó Ház*, Budapest.

[6] Kapronczai, I. (2011). A magyar agrárgazdaság napjainkban [The Hungarian agricultural economy today]. *Gazdálkodás,* 55(7), 615-628.

[7] Kovács, I. (2011). A jövedelemeloszlás és jövedelem-egyenlőtlenség a személyijövedelemadó-bevallási adatok tükrében [Income distribution and income inequality in the light of personal income tax return data]. *Statisztikai Szemle*, 89(3), 294-312.

[8] Nemzeti Agrárgazdasági Kamara (2016). A közvetlen támogatások – gazdálkodói kézikönyv [Direct Payments – A Handbbok for Farmers]. Retrieved from https://www.nak.hu/kiadvanyok/kiadvanyok/576-kozvetlen-tamogatasok-kezikonyv/file

[9] Népszava (2018). Apadó EU-s agrártámogatási források [Dwindling EU agricultural support resources]. Retrieved from https://nepszava.hu/1159002_apado-eu-s-agrartamogatasi-forrasok

[10] Radnóczy, Zs. (2004). Támogatások az Európai Unióban: a közösségi és a tagállami támogatások jogalapja, az összeegyeztethetőség és a jogvédelem kérdései [Grants in the European Union: legal basis for Community and Member State grants, compatibility and legal protection issues]. *Akadémiai Kiadó*, Budapest.

[11] Tátrainé, K. (2006). Statisztika [Statistics]. *Széchenyi István Egyetem*, Győr.
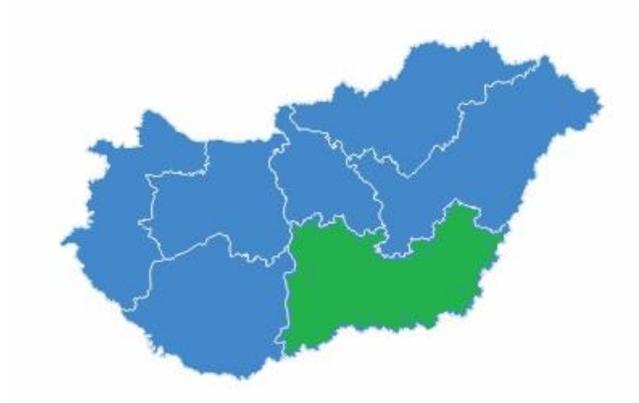
LIST OF FIGURES

Figure 1
Location of the Southern Great Plain Region in Hungary
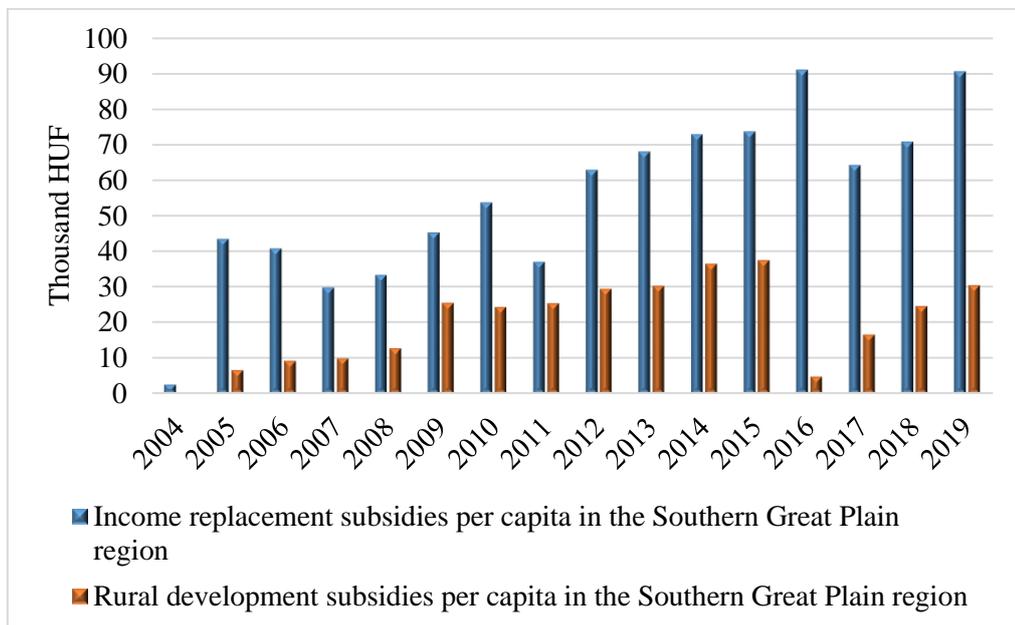*Source: Own editing*

Figure 2
Per capita income replacement and rural development subsidies in the Southern Great Plain Region
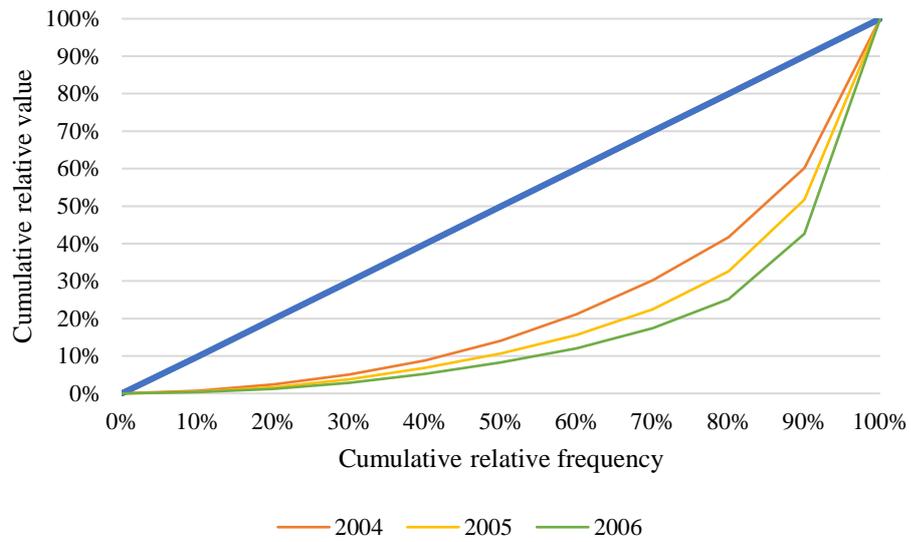*Source: Own editing based on the database of the Hungarian State Treasury*

Figure 3
Concentration of subsidies in the Southern Great Plain Region between 2004-2006
Source: Own editing based on the database of the Hungarian State Treasury

Figure 4
Concentration of subsidies in the Southern Great Plain Region between 2007-2013
Source: Own editing based on the database of the Hungarian State Treasury
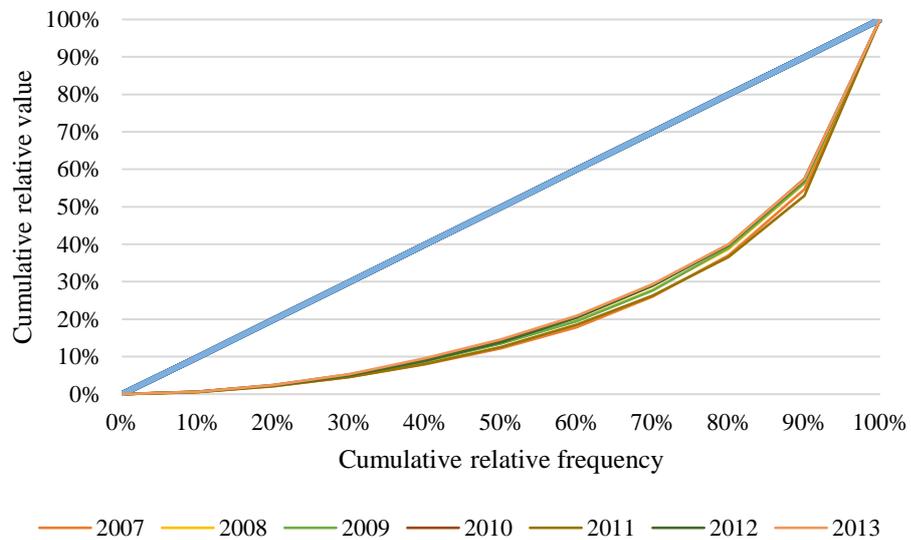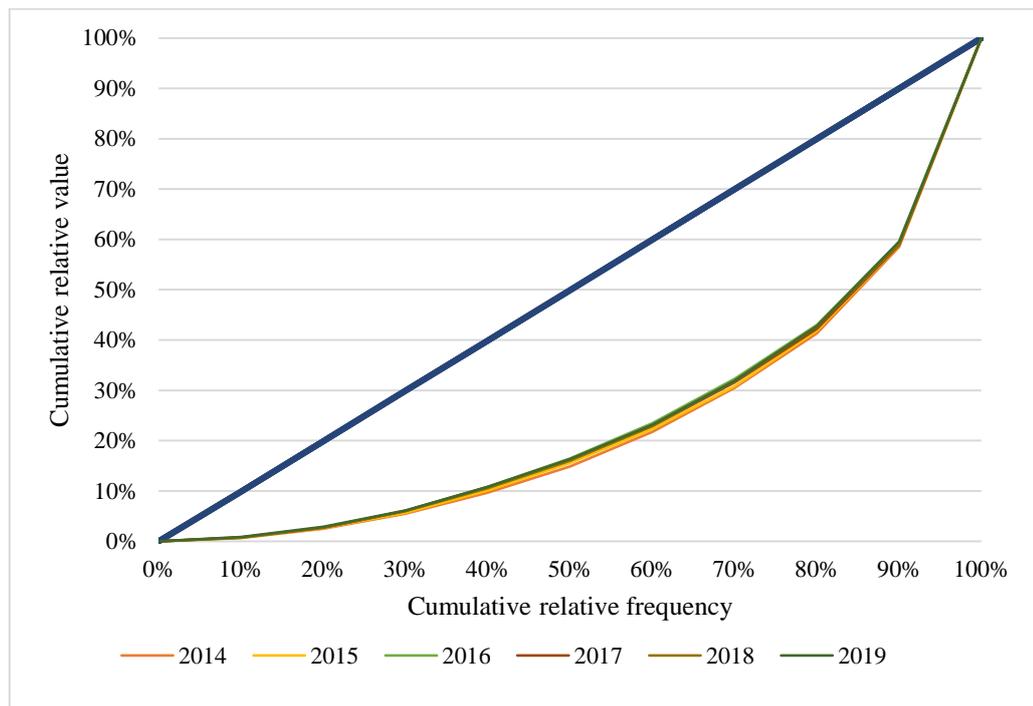
Figure 5
Concentration of subsidies in the Southern Great Plain Region between 2014-2019
Source: Own editing based on the database of the Hungarian State Treasury

LIST OF TABLES

Table 1
Development of CR concentration and the HH-index

YEAR	CR concentration				HH-index	
	CR1	CR2	CR3	Total	HH-index	Change
	(%)	(%)	(%)	(%)		(%)
2004	3.54%	3.44%	2.51%	9.49%	0.010158477	100%
2005	5.67%	4.81%	3.89%	14.37%	0.015185781	149%
2006	10.18%	4.91%	4.13%	19.22%	0.023807856	234%
2007	4.95%	3.72%	3.68%	12.36%	0.013142909	129%
2008	3.90%	3.06%	2.81%	9.77%	0.011195037	110%
2009	3.81%	3.52%	2.88%	10.21%	0.011478063	113%
2010	4.37%	3.05%	3.02%	10.44%	0.011405249	112%
2011	5.61%	3.59%	3.31%	12.51%	0.013991341	138%
2012	5.53%	3.17%	3.08%	11.78%	0.012167769	120%
2013	5.36%	3.41%	3.02%	11.79%	0.012082554	119%
2014	5.39%	3.00%	2.91%	11.31%	0.011587137	114%
2015	5.30%	2.91%	2.87%	11.07%	0.011326651	111%
2016	4.10%	2.96%	2.93%	9.99%	0.010527716	104%
2017	4.20%	3.44%	2.71%	10.35%	0.010791628	106%
2018	4.13%	3.16%	2.91%	10.20%	0.010744339	106%
2019	4.19%	3.33%	2.69%	10.20%	0.010668619	105%

Source: Own calculation