

Impact of Direct Supports on the Profitability of Selected Arable Plants and Vegetables in Hungary via Case Studies

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Summary

The 2003 CAP reform introduced direct support schemes, such as Single Payment Scheme (SPS) and the Single Area Payment System (SAPS) for European farmers in order to improve their competitiveness. Direct payments provide a safety net for farmers as a support of their incomes decoupled from the volume and type of production and stabilize their market revenues. This payment scheme gives farmers the free choice to produce according to the market demands.

All New Member States, such as Hungary, had the possibility to choose the SAPS as a simplified income support scheme for a transitional period with the aim of facilitating the implementation of direct payments. In our paper we analyze the effect of direct supports on selected arable crops and vegetables, and compare their impact on the profitability of two types of crops at farm level via several case studies in Hungary.

Key words: agriculture, EU, CAP, direct payments, SAPS, Hungary

1. Introduction

The reform of 2003 was a turning point for the evolution of the European Common Agricultural Policy. It has introduced radical changes in the revenue support system of farmers. The outcomes of this reform were influenced by several external and internal factors (Swinbank, Daughjerg 2006). One of these factors refers to the pressure of the WTO negotiations that lead to the decoupling farm supports. Other internal factors are the EU budget constraints, the enlargement of the EU with the Central and Eastern European countries and the transfer of budget funds from price and intervention supports to the rural development (Swinbank, Tranter, 2005).

The centrepiece of this reform was the new single farm payment scheme, decoupling a large share of CAP support from production (Swinnen, 2008). The new direct support schemes such as Single Payment Scheme (SPS) and the Single Area Payment System (SAPS) were introduced for European farmers with aim of improvement their competitiveness while direct payments provide a safety net for farmers as a support of their incomes decoupled from the volume and type of production and stabilize their market revenues according to the reasoning of European decision makers. This payment scheme gives farmers the free choice to produce according to the market demands.

All New Member States, such as Hungary, had the possibility to choose the SAPS (completed with “top-up” national payments¹) as a simplified income support scheme for a transitional period with the aim of facilitating the implementation of direct payments. Studies realized in NMS, underline that SAPS means higher and more predictable payment than the pre-access supports. The result of survey of farmers’ plan indicated that SAPS increases the willingness to stay in agriculture and to operate larger farms that might lead to greater land utilization and an increasing demand for land (Davidova, 2008). Other studies of NMS (Swinnen and Vranken, 2006) analyze the effect of direct payments on the land market that show the subsidies linked to land would go to land owners through increased land prices.

¹ complementary national direct payments (CNDP)

In our study we focus on the result of direct payments on the agricultural production. The objective of our paper is to analyze the effect of direct supports on selected arable crops and vegetables, and compare their impact on the profitability of two types of crops at farm level via several case studies in Hungary. The main question of our examination was: how SAPS contributes to the income of plant growers? Who are the real beneficiaries of the direct payment system in Hungary?

For the purposes of the study we used the data from the database of the Eurostat, the DG Agriculture and Rural Development of the European Commission (DG Agri), Hungarian Central Statistical Office (KSH), the Ministry of Rural Development of the Hungarian Government (VM), the FADN of Research Institute of Agricultural Economics (AKI) and support data from the Agriculture and Rural Development Agency (Hungarian paying agency – MVH) to reveal the general context of direct payments.

Furthermore, we studied and analyzed the legislative environment of Hungarian direct support scheme and legal titles of revenues of supports for rural development (EAFRD) what horticultural producers can use to enhance their competitiveness.

We evaluated the effect of direct supports on the farm level profitability in two case studies of family owned farms in Békés County that is one of the most important counties regarding the Hungarian arable crops and outdoor fruit and vegetable growing (it gave 10% of total wheat production of Hungary in 2012², and the most important outdoor tomato and onion producer³). One of the examined farms produces arable crops on 70 hectares; the other is specialized at vegetable growing on 30 hectares. We compared the profitability of three arable crops (wheat, corn and sunflower) and five vegetables (tomato, pepper, cabbage, carrot and onion) using available data from 2012 collected from these farms. For that purpose we collected and examined the costs (linked to the production, transformation, marketing and other variable costs according to the methodology of FADN), the amount of SAPS paid in 2012, yields, average prices, profits and losses, rate of SAPS on costs and on financial results.

Year 2012 has been selected, since it is a closed financial year, and all kinds of financial farm data were available for this year. Moreover, the level of direct payments was 90% (SAPS support level reached 100% in 2013) and this allowed us to evaluate the effect of SAPS on profitability. We examined the results of a given year, because the ratios of costs and incomes are more relevant than the year on year changes, whereas the latter is highly influenced by weather and market conditions.

2. SAPS in Hungary

As a result of implementation of CAP in NMS, the Hungarian farms get the same market support as EU-15 farms, but only received 25% of the equivalent amount of the EU-15 farms for direct payments at the time of accession in 2004. Among the explanation of this decision we can find several factors such as the budget constraints and the date of accession at the end of the budget period of 2000-2006. The EU prepared the EU-15 and NMS for the competition during a transitional period of 7 years and decreased the support gap progressively between new and old member states. Finally, we have to mention as well the derogations on the implementation of environmental issues and animal welfare rules and the liberalization of Hungarian land market (initially for 7 years then extended until 2014).

² Source: Hungarian Central Statistical Office (KSH)

³ Source: FruitVeb, Annual Report of Hungarian Fruit and Vegetable Sector, 2013

In addition to SAPS, NMS governments are allowed to complementary direct payments (top up) for an additional 30%, but the combined subsidies cannot be higher than 100%. The share of SAPS increased every year in linear way with 10% and reaches 100% by 2013 while the share of top up significantly diminished.

Table 1: SAPS payments in Hungary since the EU accession

Year	Total SAPS (Million EUR)	Number of supported farmers	Supported surface (ha)	Grant	
				EUR/ha	HUF*/ha
2005	316	203 400	4 875 082	70.22	17 992
2006	367	202 760	4 964 494	86.21	21 518
2007	447	197 980	5 000 349	102.29	24 421
2008	543	193 630	5 005 292	105.52	25 528
2009	683	185 140	4 950 146	132.83	31 429
2010	821	182 800	4 942 619	174.48	46 535
2011	954	178 300	4 975 722	198	58 073
2012	1 000	170 000	4 968 970	213.99	60 963
2013**	1 200		4 829 000	233	70 442

*current, depending on EUR/HUF ratio

**estimated data

Source: own calculation based on data from http://ec.europa.eu/agriculture/statistics/agricultural/index_en.htm, European Commission, Directorate-General for Agriculture and Rural Development, Hungarian Ministry of Rural Development (VM) and Agricultural and Rural Development Agency (MVH)

The results of our examination show that since the EU accession, 2004, the amount of SAPS increased from 70.22 EUR/ha (currently around 17 992 HUF) to 213.99 EUR/ha (60 963 HUF) in 2012 and to 233 EUR/ha [70 442 HUF] in 2013, when the support level reaches 100%) where the minimum size of eligible area is 1 ha for arable crops and 0.3 ha for vegetables, fruits and vineyards

Regarding the number farmers supported by SAPS, we can settle that it has been diminishing while the amount of support per hectare has been increasing. With the augmentation of SAPS envelope year by year granted by the EU to Hungary (from 316 million EUR in 2004 to 1 billion EUR in 2012), the number of farmers benefiting from support decreased with 17%. That means a concentration in the agricultural sector since there are a significant number of farmers, who had given up their activities. Other sources (Halmai, 2011, Buday-Sántha 2011) and database of the Hungarian Central Statistical Office (KSH, 2013) reinforce that since the EU accession the number of farmers in Hungary reduces progressively because of the lack of competence, social and age distortion or unfavourable farm structure. During this period, mainly the farmers under 10 ha abandoned the agriculture.

The SAPS is criticized from several aspects:

Farmers who operate concentrated and large farms are the most important beneficiaries of direct payments in Hungary. According to Potori et al (2013), only 1,06% (1 900) of SAPS beneficiaries had an agricultural area greater than 300 hectares, but these farms used 39% of the total eligible hectares in 2011. At the other end of the scale, the farms manage less than 10 hectares used less than 8.7% of the SAPS area.

Lack of real modulation for bigger farms: while SAPS does not permit to Member States to apply a differentiation of support paid per hectare to the benefit of little farmers and decreasing grant with the increase of farm size.

SAPS aimed to support farmers' income, but the regulation permits the payment to beneficiaries not involved in farming or agricultural activities represent a marginal level nevertheless they are land users (e.g. estate companies, airports or sport clubs like users of land classified as grassland). It is enough to operate the minimal cultivation of land and taking up the amounts of support.

In addition in Hungary, direct support was legally paid to (and supported the income of) public entities managing state land but not otherwise involved in farming. The state is the largest beneficiary of SAPS payments in Hungary (14 million EUR in 2010 for 82 000 ha of land⁴).

Another contradiction in the effect of SAPS aid: it is intended to support the individual income of farmers, but the aid is distributed to farms based on the area of parcels of land at their disposal and in many cases transferred to the land owners via land renting contracts and not to the real land users.

The objective of SAPS is to give free choice for farmers to harmonize their production with market demand, but the top up system has only a slight influence on the decision making of farmers (they produce what is supported). Therefore it cannot be considered as an entirely decoupled payment system from the production.

3. Land based supports linked to the horticulture

From the 25 EU income supports, horticultural plantations are subject of 10, and these cover the entire horticultural sector. The amount of support is different based on the cost per hectare of the given culture, activity (Table 2).

Top up supports are given by Hungary primarily for animal breeding, however, these were also available in case of some horticultural plants (nuts, berries, industrial tomato production, vegetable-fruit restructuring) or tobacco.

The majority of supports that can be obtained after horticultural plantations are the national agri-environmental (NAE) supports, these represent 37% of the entire amount of EAFRD (European Agricultural Fund for Rural Development) supports already paid. The main advantage of this support is that it can be applied for simultaneously with other SAPS support. NAE is a non-reimbursable support and is based on area or number of animals. Conditions for applying for this kind of support include additional environmental aspects beyond the requirements specified by „Good Agricultural Practice” and using the prescribed chemicals. None of the farms studied by us were able to obtain NAE support due to difficulties of application, hard to fulfil requirements, or additional expenses needed to fulfil prescribed conditions; therefore, these kinds of supports are not represented in our study.

⁴ Source: European Court of Auditors “The distribution of income aid to farmers in new Member States should be reconsidered” - EU Auditors, Press Release, ECA/12/48, Luxembourg, 27 November 2012

Table 2: SAPS and other land based income support paid for horticultural producers in 2012

	Measure	Total support (EUR)	Eligible area (ha)	Average support (EUR/ha)	Proportion of measures (%)*
	Total EAGF	1 222 602 020			100%
1	Direct payments (SAPS+top-up)	1 125 010 595			92%
2.	walnuts		6 757	200	0,11%
3.	dissociated support for fruits and vegetables	1 349 347	23 627	200	0,38%
4.	soft fruits (berries)	4 718 094	101	200	0,00%
5.	fruit, vegetable, tobacco restructuring	20 260	159 939	200	2,61%
	Total EAGRD	31 937 963	1 284 288		100%
6.	afforestation of agricultural land	620 352 301	85 200	200	2,74%
7.	Agro-environmental commitments	17 013 449	1 175 734	200	37,84%
8.	support for non-productive investments	234 779 776	8 539	200	0,27%
9.	modernization of horticultural plantations	1 705 205	9 988	200	0,32%
10.	modernization of fruit plantations	1 994 585	2 413	200	0,08%

285 HUF = 1 EUR

Source: own edition and calculation on the database of ARDA

(<http://mvh.gov.hu/portal/MVHPortal/default/mainmenu/eredmenyek>, downloaded: 2013.10.20.)

4. Area under cultivation in Hungary

68% of gross output of domestic plant production is provided by arable plant production (grains and industrial plants), 32% of gross output is provided by vegetable, fruit and grape production. Area of agricultural land attained 5 338 000 hectares in 2012. Between 2000 and 2012 the structure of agricultural output shifted towards plant production (Chart 1). The proportion of plant production (58%) exceeds that of the average of the member states of the European Union. Primarily the role of grains and industrial plants has grown, while the proportion of horticultural products, vegetables, potatoes, fruits, live animals and animal products decreased. Due to the changes in the output structure and more frequent weather extremities, annual output became highly volatile.⁵

⁵ Source: Hungarian Central Statistical Office (KSH), A mezőgazdaság szerepe a nemzetgazdaságban, 2013 július

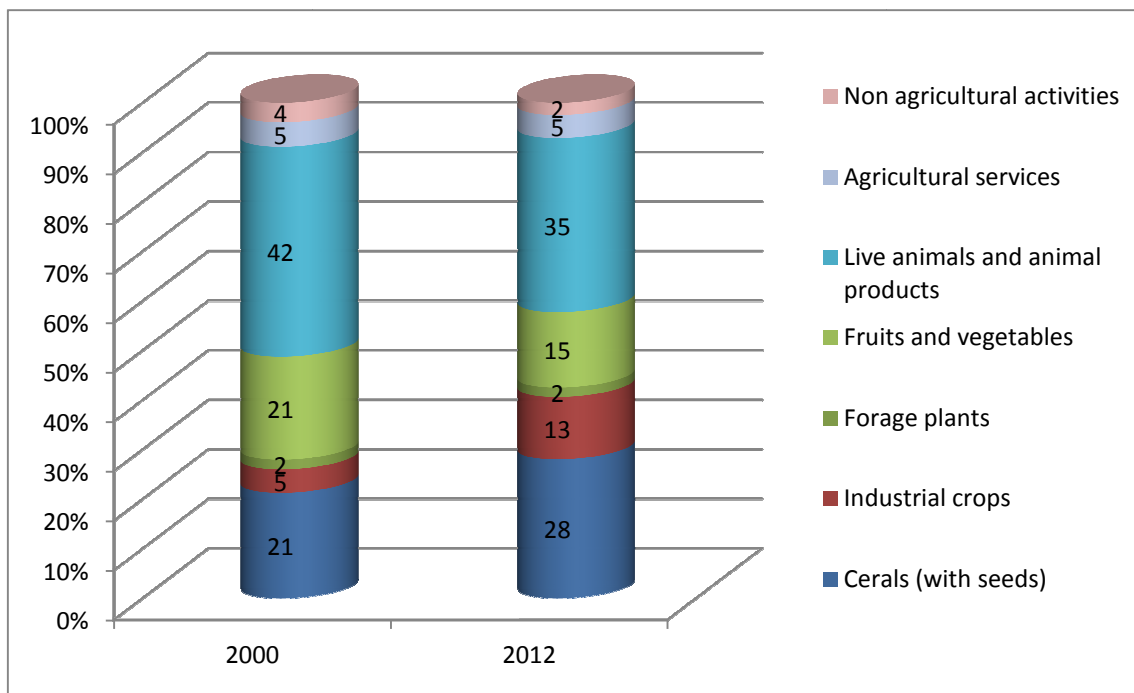


Chart 1: Structure of agricultural output in Hungary, source: own calculation on the database of the Hungarian Statistical Office (KSH), 2014 http://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_omr002a.html

It can be seen in Table 3 that in the last 5 years the area of arable land decreased by 4%, kitchen gardens by 14%, orchards by 6%, and grasslands by 25%. KSH data show an increase for grape vine area in 2009 and 2010, but it must be emphasized that this was the period when nearly 5 000 hectares of vineyards were set out from production with EU supports. KSH data undisputedly mark a decrease in the areas of horticultural plants in the past 4 years.

Table 3: Distribution and changes of agricultural land use in Hungary between 2008 and 2012 (2008=100%)

Sector	2009 %	2010 %	2011 %	2012 %
Arable land	99.97	95.99	95.99	96.02
Kitchen garden	100	84.81	84.81	84.60
Orchard	100.20	95.13	93.81	94.01
Vineyard	100.24	100.24	99.39	98.79
Grassland	99.45	75.52	75.15	75.15
Total:	99.89	92.28	92.18	92.20

Source: Own calculation on the data base of Hungarian Central Statistical Office (KSH)

5. Costs and results of arable crops and vegetable growing

We analyzed the proportion of SAPS compared to costs, revenues and financial results in case of both farms and each cultures in our study. The goal of our study was to determine what extent SAPS support contributed to the results of arable crops and vegetable cultures in the given farm.

Table 4. Costs and incomes of arable crops and vegetables (without VAT in 2012)

	Maize	Wheat	Sunflower seed	Pepper	Tomato	Cabbage	Vegetable - carrot	Onions
Total cost (EUR*/ha)	1 200	1 025	1 130	12 211	10 053	10 035	9 895	10 039
SAPS/costs	0.18	0.21	0.19	0.02	0.02	0.02	0.02	0.02
mean yield (t/ha)	4.5	5.5	3.3	69	75	80	59	65
average price (EUR/t)	228.1	228.1	421.1	210.5	168.4	150.9	210.5	189.5
mean revenue (EUR/ha)	1 026	1 254	1 389	14 526	12 632	12 070	12 421	12 316
result (EUR/ha)	-173.7**	229.8	259.6	2 315.8	2 578.9	2 035.1	2 526.3	2 277.2
2012 SAPS (EUR/ha)	213.99	213.99	213.99	213.99	213.99	213.99	213.99	213.99
SAPS/result	-1.23	0.93	0.82	0.09	0.08	0.11	0.08	0.09
average result (EUR/ha)	105			2 347				

*ratio: 285 HUF= 1 EUR

** Extreme drought in 2012 in Békés County rendered maize production unprofitable

Source: own calculation based on the costs, prices and yields of two examined farms of Békés County

The examined arable crops are the most important crops produced in Hungary (cereals gave 27%, industrial crops 12.5%, vegetables 7.6% of agricultural production value in 2012⁶). Their production technology and varieties are similar throughout the whole the territory of Hungary, and this gives us similar costs and results.

As shown in Table 4, annual production costs of GOP cultures were between 1 025 and 1 300 EUR (292 000 and 342 000 HUF), compared to the range of revenues between 1 026 – 1 389 EUR (295 500-396 000 HUF). As for the results, it can be seen, that on average, maize producers suffered a 49 500 HUF loss per hectare, while wheat and sunflower seed yielded 230 and 260 EUR/hectare (65 500 and 74 000 HUF/hectare) profit respectively. If we consider that the mean result of GOP production was 105 EUR/hectare (30 000 HUF/hectare), the amount of SAPS support is more than double of this.

In this respect, the 213.99 EUR/ha (60 963 HUF) means a high level of support for the production of arable crops. In case of farms involved our examination, this support attained 80-90% in comparison with the results of cereal (229.8 EUR/ha or 65 500 HUF/ha) or sunflower (259.6 EUR/ha or 74 000 HUF/ha) production and makes up approximately 20% of their production costs. The average revenues from the production of vegetables are tenfold compared to that of the arable crops, but their cost levels are tenfold as well; however,

⁶ Source: Hungarian Central Statistical Office (KSH), A mezőgazdaság szerepe a nemzetgazdaságban, 2013 július

farmers undertake higher market risk, higher investments and higher labour expenditure for vegetable production than arable crops. In the case of vegetables, SAPS support contributes only to 8-11% (depending on the vegetable crops) of incomes and 2% of their costs at examined farms.

As shown in Table 4, annual production costs of horticultural plants were between 9 895 and 12 211 EUR/hectare (2 820 000 and 3 480 000 HUF/hectare), compared to the range of revenues between 12 070 and 14 526 EUR/hectare (3 440 000 and 4 140 000 HUF/hectare). All results were positive, between 2 035 and 2 579 EUR/hectare (580 000 and 735 000 HUF/hectare). Compared to these results, the amount of SAPS in 2012 (213.99 EUR/hectare - 60 693 HUF/hectare) is insignificant, does not attain 10% of the profit.

Costs of the studied horticultural farm in 2012 were relatively high. However, it must be underlined that effects of extreme weather affect more profoundly the amount of inputs and volatility between years is more marked than in the case of arable crops. Production costs are also distributed in a wide range: depending on the technological level and cost efficiency of farms the difference can be 2-3-fold (Table 5). Additionally, costs also heavily depend on the technology used, mechanisation, and market objective (fresh consumption, industrial processing). Z. Kiss (2012) has shown that cost of tomato production show an increasing tendency, with the strongest growths attributed to plant protection, machinery work and fertilizers.

Similarly to costs, a significant volatility of sector results can be observed from one year to another. Due to extreme drought, the most important cost element in 2012 was irrigation, but cost of propagation material, seedlings and manual harvest were also of the same magnitude in the examined farms.

Table 5: Production costs and revenues of some arable and vegetable plants

Product	Average revenue of commercial farms (EUR/ha)		Production costs 2011 (EUR/ha)		Average result in the sector* (EUR/ha)	
	2010	2011	Min.	Max.	2010	2011
Wheat	562	608	447	753	186	393
Maize	763	778	584	962	383	650
Sunflower seed	597	657	490	838	166	481
Green pepper	5 328	7 767	5 173	10 187	2 275	3 599
Tomato	2 672	3 735	2 675	4 851	1 026	2 386
Cabbage	3 725	3 687	2 067	5 755	2 378	122 527

*with supports

1 EUR = 285 HUF

Source: own edition based on the FADN of AKI, 2012 (Béládi, Kertész, 2012)

Profitability of vegetable production shows a favourable state, but requires unbelievable efforts from producers. Also, risks are quite significant because the average cost of 13 333 EUR/year (3.8 million HUF/year) means a terrible menace, mainly because of volatile

markets. If market crisis sets in and the product cannot be sold, practically the entire assets of the producer may vanish.

Nowadays, the production of arable crops is becoming a profitable activity in Hungary due to the high level of direct support and the relatively low production costs, low level of necessary investments and low level of labour expenditure. These factors together grant considerable revenue for arable land users, while the European direct support schemes do not differentiate by income or cost levels by member states. While the same amount of direct payments is only a supplement for the revenue of farmers of the old member states, they provide considerable revenue for farmers of the NMS. As a consequence, production of arable crops can turn into profitable activity with the only aim of gaining supports. As a consequence, for the period of 2014-2020 in Hungary, the real agricultural farmers are the beneficiaries of direct payments, and specific rural development subsidies will be more important for the horticultural sectors that produce high value added products.

Conclusion

Introduction of CAP and direct supports was favourable mainly for the production of arable and industrial crops. Producers' decisions were fundamentally affected by the amount of SAPS supports which can contribute to the results of production in 2012 by 80-90%, depending on the type of crop. In case of vegetable production, the contribution of SAPS is only marginal, under 10%, therefore does not affect producers' decisions in a great extent. SAPS supports shift agricultural production towards the direction of arable crop production. Additionally, the advantages of economies of scale, mechanization, low investment costs and low level of employment, and lower production risk also support this direction. Rural development supports can help for horticultural sectors that employ more people and produce higher added value. This is also important because Hungary, in the framework of the new basic support scheme (BPS – Basic Payment Scheme) will extend SAPS payment scheme to 2020, which further favours large-scale producers (meanwhile governmental communication is about supporting small family farms producing high-quality products). Therefore, it is important that the rural development programme for 2014-2020 should elaborate a real rural development support and regulation system that is based on the strategic objectives of horticultural sectors and enhances competitiveness.

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