

IS SPECIALIZATION A WAY FOR SMALL FARMS IN CENTRAL AND EASTERN EUROPEAN COUNTRIES TO ADJUST?

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Abstract. The paper deals with specialization of small farms in the EU with particular respect to the EU-10 (Central and Eastern European) countries. It analyses the structure and growth of small farms in terms of types of specialization and their performance in production (Standard Output), labour (Agricultural Working Unit) and land use (Utilized Agricultural Area) between 2005 and 2013. The aim of the paper is to point out to what extent specialization can help small farms to survive. The paper underlines the main directions of specialization small farms have found to follow in different Central and Eastern European countries, thereby strengthening their chances of survival. It has been concluded that the growth and development of small, specialized farms has gone in different directions. Some types of small, specialized farms have achieved faster development and achieved better results in increasing efficiency than others. Analysis provides grounds to support the contention that small farms have found further specialization as path of development helping them to survive; but that the speed with which specialization has been achieved varies according to countries and according to farm types.

Key words: Small farms, SSFs, specialization, CEECs

JEL code: Q10, Q12

Introduction

The issue of small farms and their survival has always been one of the key questions for the EU and Member States' national policy-makers. This paper discusses the specialization of small farms in the EU-10 from 2005 to 2013. The definition of the term 'small farm' became a topic of discussion among researchers aiming to achieve a clearer understanding of this farm category. Hubbard gives a good background to this debate (Hubbard C, 2009). However, the performance and role of small and family farms is not always clearly interpreted. Small farms are family farms but family farms are not always small farms (Matthews A, 2011).

Two criteria are used for defining small farms by size in the EU. One is the size of land, although, different countries use different thresholds for small farms. Farms having less than 5 ha of Utilized Agricultural Area (UAA) are regarded as small farms in this paper. Small farms can also be categorized according to the economic size by the Standard Output (SO).

In literature, role, importance, development and policy aspects of small farms has been discussed (EP resolution, 2014; Davidova S, - Bailey A, 2014; Dwyer J, 2014; Davidova S, 2014). It was emphasized that small farms have to make changes in farming in order to have a successful adjustment concerning their possible integration into modern food chains (Forgacs, 2006; Csaki C, - Forgacs C, 2008; Gordon M. et al., 2014; Rabinowitz E, 2014). Social capital aspects of small farms were also investigated (Wolz A. et al.,

2010). Structural change of Semi-Subsistence Farms (SSFs) in 2004 NMSs was discussed from agricultural policy point of view (Erjavec E. et al., 2014). Roles and dynamics of small farms in rural development were focused in Romania (Popescu D-L, 2014). However, specialization aspects of small farms in the EU-10 in general have not yet received special attention since the EU Eastward Enlargement. This is the first time specialization of small farms in the EU-10 has been analysed in-depth and compared to that of the EU-17 and EU-27 between 2005-2013.

The question is: to what extent are small farms in the EU-10 able to further specialize in order to have a better chance of market survival?

The following hypotheses will be investigated:

- Hypothesis 1: Share of number of specialized small farms in the small farm category does not decline.
- Hypothesis 2: Specialization of small farms has regional characteristics.
- Hypothesis 3: Specialized small farms have higher growth in labour productivity than non-specialized small farms.
- Hypothesis 4: Increase of area productivity of specialized small farms exceeds that of non-specialized small farms.
- Hypothesis 5: Growth in production output of specialized small farms is higher than that of non-specialized small farms.
- Hypothesis 6: Specialization offers better grounds for small farms to survive.

1. Methodology

To have a deep insight into small farms' performance from specialization point of view EUROSTAT data set of 2005-2013 was used for analysis. Besides the structural development of specialized smallholdings their labour use (Agricultural Work Unit AWU), land use (UAA) and production (SO) were analysed. Dynamic analysis was used to provide insight into small farms development in 9* out of 10 specialized farm types.

2. Analysis of specialization of small farms

Number of small farms

In 2005 there were 8.6 million farms in the EU-10 of which 80.3% belonged to the small farm category. Within that category three out of ten belonged to specialized small farms. The number of farms as well as that of small farms have declined in all EU-10 countries significantly from 2005 to 2013 exceeding the decrease of number of specialized small farms (20.8%) that indicates specialized small farms have become more viable during the farm restructuring process but their number also started to decline in 5 CEECs after 2010 (Figure 1).

In Lithuania, Romania and Slovenia, the decline of small, specialized farms did not reach 5.5%. In all EU-10 countries, the number of specialized farms went back in each farm type but the relative share of number of specialized small farms within total small farms did not decline in any country. The increase in relative share was significant in the Czech Republic, Romania, Hungary, Latvia and Lithuania. Specialization of small farms in CEECs went to different directions mostly fitting to local traditions and the potential of possible comparative advantages.

In some specialized farm type, the number of small farms increased significantly, e.g. Bulgaria (horticulture indoor; fruit and citrus fruit), Estonia (horticulture outdoor; poultry), Latvia (cattle-rearing and fattening; poultry; cereals, oilseed and protein crops), Lithuania (cereals, oilseed and protein crops; poultry; horticulture outdoor), Hungary (cattle-rearing and fattening), Romania (cattle-rearing and fattening; vineyards; fruit

*The following specialized farm types give the basis for analysis: 1. Specialized in cereals, oilseed and protein crops. 2. Specialized in horticulture indoor. 3. Specialized in horticulture outdoor. 4. Specialized in vineyards. 5. Specialized in fruit and citrus fruit. 6. Specialized in dairy farming. 7. Specialized in cattle-rearing and fattening. 8. Specialized in pig production. 9 Specialized in poultry production.

and citrus fruit), Slovakia (cattle-rearing and fattening) and Slovenia (the number of specialized small farms declined only in two out of 9 special farm types).

The picture of specialization of small farms has not been uniformed in the EU-10, the direction of it has been changed over time. (E.g. the number of small, specialized pig farms increased by 33.7% from 2005 to 2010; however, within this group of farms a decline of 58.8% can be observed in 2013 as compared with 2005). Among the total number of small farms, the share of specialized small farms increased by 54.6% in the EU-10. In the Czech Republic, the number of specialized small farms has declined in all 9 farm types while in Slovakia it has declined in 8; however, their relative share has not been decreased in either of the two countries.

If we examine the concentration level of TOP-3 type of specialized farms, it can be seen to have slightly increased in the EU-10 from 2005 to 2013 with a drop in 5 countries and with an increase in the other 5 (Figure 2). In 2015 the highest concentration of specialized farms was achieved in Poland (91.2%), Lithuania (89.5%) and the Czech Republic (88%).

However, there has been change in composition of TOP-3 farm types in smallholdings (Table 1). In the EU-10 more than one small specialized farm in every three belongs to cereals, oilseed and protein crop farm type putting it into TOP-3 in 8 countries. In the EU-10 29.8% of small specialized farms run poultry farming with a share between 35-40% in Romania and Hungary.

At the other end of the spectrum, specialization in horticulture-indoor and that of outdoor and cattle-rearing and fattening are the least attractive options for small farms.

Land Use of Small Specialized Farms

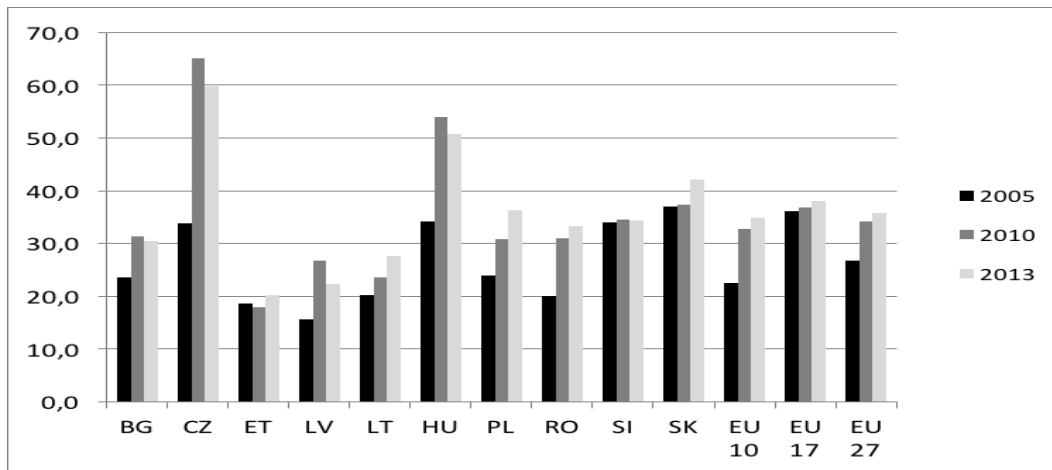
In 2005 small farms used 9.1 million ha of UAA in the EU-10 having a share of 61.5% of the total EU-27 this share maintained in 2013. 5.6 million UAA is cultivated by small farms in two countries (Romania and Poland). Land use of specialized small farms in the EU-10 amounted to 1.8 million ha in 2013, 12.5% more than in the EU-17, from 2.2 million ha in 2005.

The total land area used by specialized small farms went back by 14.8% in the EU-10 (21.8% in the EU-17) while the decline in case of small farms in total was two times higher (28.7%). Poland, with her mostly stabilized small farm structure is the only country in the EU-10 where UAA of small specialized farms increased

(7.3%). In the EU-10 UAA has been increased only in 2 types of specialized small farms as cattle-rearing and fattening (36.7%) and slightly in fruit and citrus fruit over the 9-year period. The highest decline in land use took place in specialized pig farms.

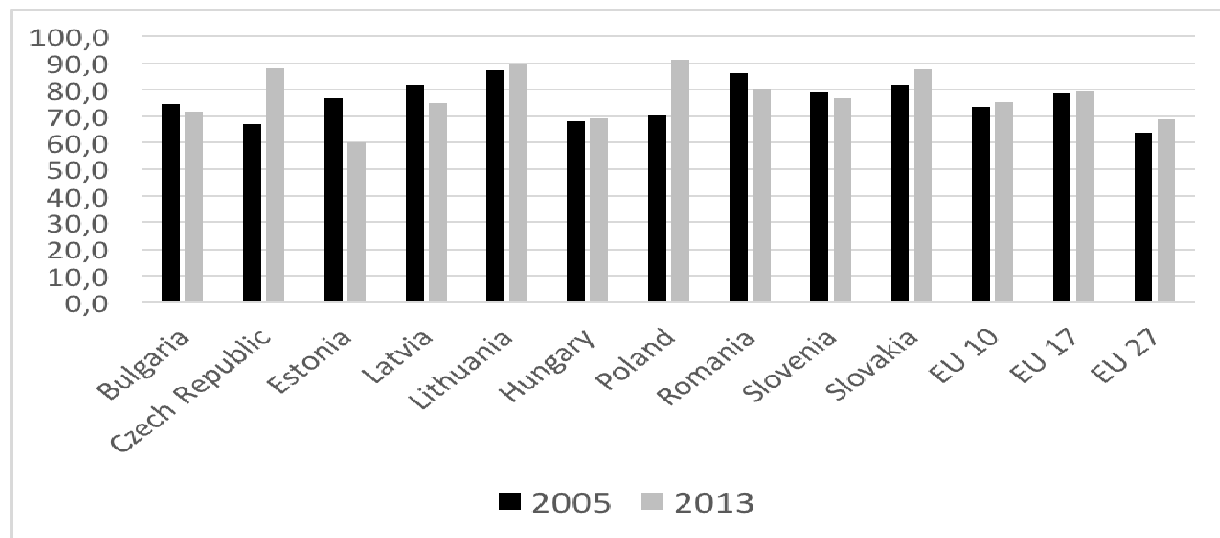
If we examine the dynamics of land use by farm type, controversial trends can be observed. The UAA of

small specialized cereals, oilseed and protein crops farms amounted to 58.2% of total specialized small farms' land in 2013 (50.8% in 2005) without there being any significant increase in farm average land use. The UAA of specialized farms increased in 7 countries, significantly in Lithuania (343.6%), Slovenia (94.4%), Latvia (64.9%) and Poland (63.6%).



Source: author's calculations based on the EUROSTAT data

Fig. 1. Share of small specialized farms within total small farms in EU10, %, 2005, 2010, 2013.



Source: author's calculations based on the EUROSTAT data

Fig. 2. Concentration level of TOP-3 type of small specialized farms in CEECs, %, 2005, 2013.

Table 1

Change in TOP-3 type of specialized small farms in the EU-10, 2005-2013.

Country	Stable (no change)	IN	OUT
BG	dairy, vineyards,	fruit	poultry
CZ	vineyards, cattle-rearing	fruit	dairy
ET	dairy, cereals	horticulture-outdoor	fruit
LV	dairy, cereals, fruit	no	no
LT	dairy, cereals	horticulture-outdoor	horticulture-indoor
HU	poultry, vineyards	cereals	pigs
PL	cereals, fruit, dairy	no	no
RO	cereals, poultry	vineyards	dairy
SI	cattle-rearing, vineyards	cereals	dairy
SK	Dairy	cereals, cattle-rearing	vineyards, pigs
EU 10	cereals, poultry, dairy	no	no
EU 17	fruit, vineyards, cereals	no	no
EU 27	cereals, poultry fruit	no	no

Source: author's calculations based on the EUROSTAT data

A strong decline in UAA took place in small farms specialized in cereals, oilseed and protein crops in Slovakia (29.8%) and Romania (65.6%) and, all 1660 specialized small farms of this type in Czech Republic in 2005 had totally disappeared by 2010.

In specialized poultry farms UAA went up in 5 countries significantly including all three Baltic states and declined also in 5 countries (sharply so in Czech Republic and Slovakia), thus indicating a certain regional character of specialization.

At the other end of the spectrum, the UAA of small specialized farms declined in all EU-10 in specialized dairy, in 7 countries in specialized pig farms and in 6 countries in specialized farms in cattle-rearing and fattening and horticulture indoor. The relative share of UAA of specialized small farms within small farms has increased in 8 CEECs with outstanding growth observable in the Czech Republic (86.4%) followed by Latvia, Lithuania and Poland. Specialized fruit and citrus fruit farms have also increased their relative share in all EU-10 countries. The number of specialized small farms in the EU-10 fell by 20.8%, thereby exceeding the decrease in their UAA.

The level of specialization was especially remarkable in the Baltics in poultry, in cereals, oilseed and protein crops, horticulture outdoor and to a less extent in fruit, pig and cattle-rearing and fattening farms. In Bulgaria, specialized small farms in horticulture (indoor and less extent in outdoor) and fruit production achieved

significant growth. Cereals, oilseed and protein crops farms increased their UAA in Hungary, Poland and Slovenia. Growth in UAA in Romania was achieved by specialized farms in vineyards, fruit and citrus fruit and cattle-rearing and fattening farms. The latter was also significant in Slovakia. UAA went down for all specialized farm types in the Czech Republic.

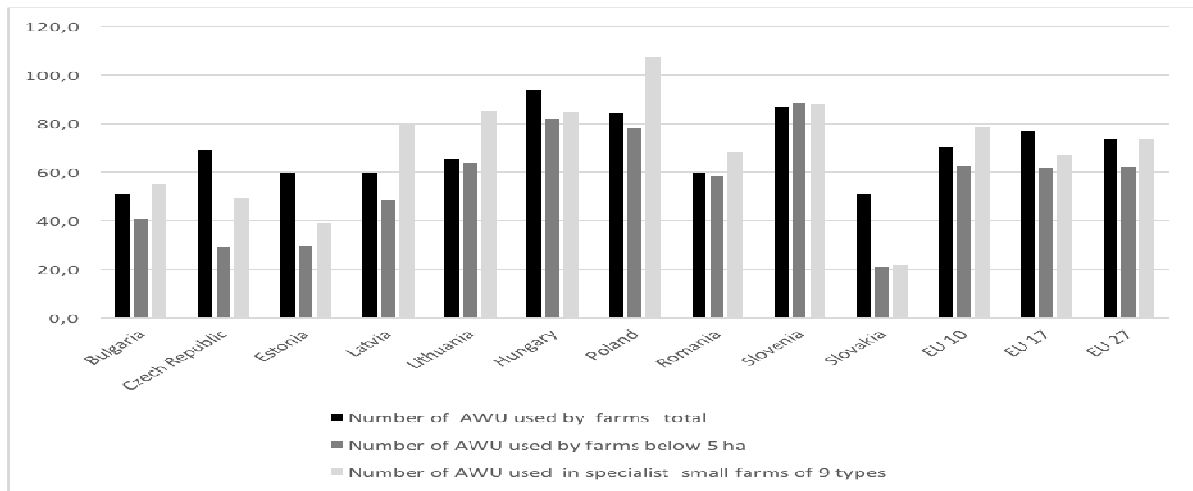
Labour Use in Specialized Small Farms

The Agricultural Working Unit (AWU) of small farms in the EU-10 amounted to 4.1 million in 2005 and went down by 37.5% in 2013. AWU of small specialized farms accounted for 1 million in 2005 decreased by 21%. Specialization of small farms offers jobs still for great number of people, decreasing to a lesser extent than can be observed with small farms overall. The AWU increased in three specialized farm categories as cereals, oilseed and protein crops, cattle-rearing and fattening and fruit and citrus fruit farms. However, a significant decline can be observed in the case of dairy and pig farms (Figure 3).

The picture of labour use is not homogeneous in the EU-10. Among the three most labour intensive farm type only cereals, oilseeds and protein crops farms could increase AWU (25.3%) with a peak in Lithuania and in Poland. In all CEECs a decline in AWU of specialized small farms took place both in specialized dairy and poultry farms; meanwhile, AWU in specialized cereals, oil seed and protein and fruit and citrus fruit

farms was increased in 6 countries. Specialized pig farms had a decrease in labour use in all EU-10. All

countries, apart from Poland, used less AWU in specialized small farms in 2013 as compared with 2005.



Source: author's calculations based on the EUROSTAT data

Fig. 3. Dynamics of labour (AWU) used in different farm categories in the EU-10, %, 2005-2013.

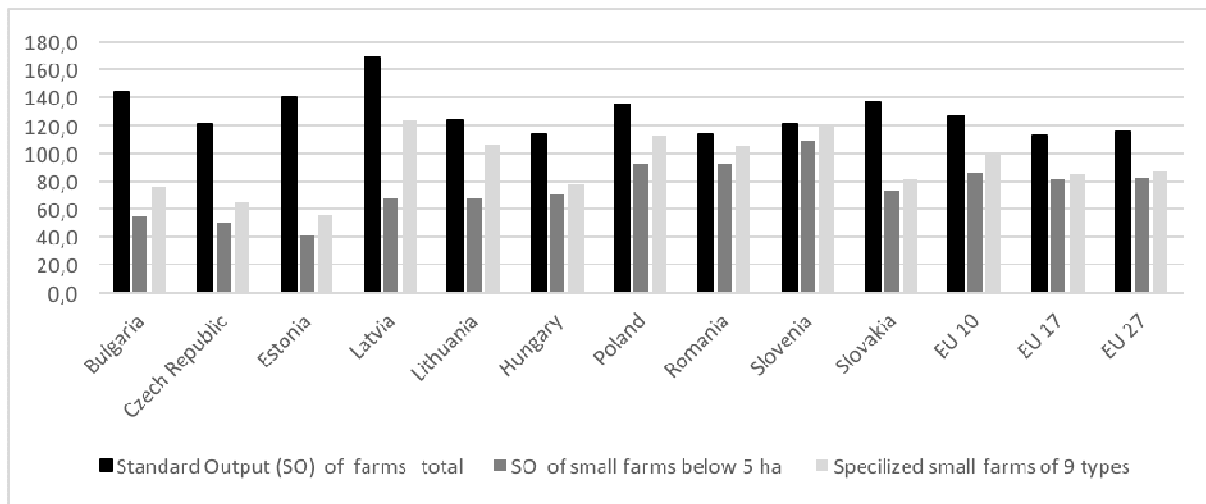
Production Potential of Small Specialized Farms

Farms in the EU-10 produced EURO 42.3 billion of SO in 2005 of which EURO 11.9 billion went to small farms. Small, specialized farms had SO of 3.4 billion EURO. In 2013 these figures were 53.6, 10.2 and 3.4 billion respectively. In the EU-10 the SO of farms in total went up by 26.7%, while that of small farms declined by 14%. The SO of specialized small farms went up by 0.8%; at the same time, the number of specialized small farms declined by 20.8%. However, the SO of small farms in the EU-17 in average declined by 18.3% (Figure 4). SO of small, specialized farms of the EU-10 increased in specialized farms of cattle-rearing and fattening, fruit and citrus fruit and cereals, oilseed and protein crops. The highest rate of decline took place with specialized pig and dairy farms.

As regards the dynamics: in the case of cattle-rearing and fattening, SO increased in 9 countries; in cereals, oilseed and protein crops and fruit and citrus fruit, it increased in 8 countries; and in poultry

specialist farms it increased in 6 countries. If we examine SO by farm type, an above 100% increase was achieved in cereals, oilseed and protein crops farms in 7 countries; in cattle-rearing and fattening farms it was achieved in 6 countries.

Growth of SO in specialized small farms in some countries was extraordinary high in cattle-rearing and fattening farms: Latvia (11130%), Hungary (352.3%) and Slovakia (240.9%). In Cereals, oilseed and protein crop small specialized farms SO increased in 8 countries most in Lithuania (636.2%), Poland (269%), Latvia (250%) and Slovenia (182.4%). As far as the relative share of SO is concerned the expansion of small, specialized farms grew by 17.2% in the EU-10 between 2005 and 2013. The increase can be observed across all countries with the Baltics and Bulgaria in the front line. Generally, specialized small farms have achieved high growth rate between 2005 and 2013 in the EU-10 doing a better performance in compare to non-specialized small farms.



Source: author's calculations based on the EUROSTAT data

Fig. 4. Dynamics of Standard Output (SO) in EU 10, %, 2005-2013.

Productivity and Efficiency of Small Specialist Farming

Average size of small, specialized farms by UAA in the EU-10 is below that of the EU-17 both in 2005 and 2013 (1.02 versus 1.8 and 1.1 versus 2.1 ha/farm respectively). On average, specialized cattle-rearing and fattening farms had the highest UAA over the 9-year period both in the EU-10 and EU-17. Among specialized farms, indoor horticulture has been the most labour intensive farm type across the EU-10 and

in the EU-17 for the entire period producing the highest per farm SO in the EU-10 and EU-17 in 2005 and, in the EU-10 in 2013. In the EU-10 specialized small farms increased labour use; the highest increase took place in specialized outdoor horticulture and fruit and citrus fruit farms, while in the EU-17 specialized poultry farms had growth in AWU.

Table 2

Dynamics of some farm indicators in the EU, %, 2005-2013.

	Group of countries	Total farms	Small farms below 5 ha	Specialized small farms of 9 types
Number of farms	EU10	72.3	70.1	79.2
	EU17	76.0	65.5	67.8
	EU27	73.8	68.7	75.2
AWU/UAA	EU10	68.2	87.6	92.7
	EU17	77.0	85.4	85.6
	EU27	73.0	86.8	90.0
SO/UAA	EU10	122.9	120.6	118.3
	EU17	113.3	112.3	109.1
	EU27	114.3	115.2	106.7
SO/AWU	EU10	180.1	137.6	127.7
	EU17	147.0	131.5	127.3
	EU27	156.6	132.8	118.6
SO/Farm	EU10	175.3	122.7	127.2
	EU17	148.6	124.8	125.9
	EU27	155.8	120.7	116.0

Source: author's calculations based on the EUROSTAT data

The dynamics of area productivity in all three farm categories of the EU-10 (total, small and specialized small farms) exceeded that of those of the EU-27 with increasing relative competitiveness showing only a little

difference between farm categories in the EU-10. Growth of labour productivity shows the same tendency with a higher amount of divergence in the EU-10 (Table 2). However, the dynamics of the total productivity of

specialized small farms of the EU-10 exceeded that of the EU-27, providing evidence that the growth of per farm SO of specialized small farms in the EU-10 helped slow down the decline of number of farms; in the meantime, these farms were able to increase their AWU relative to small farms and to all farms in general.

Conclusions

The decrease in number of small farms and of specialist small farms was higher in the EU-17 than in the EU-10 between 2005 and 2013. Based on this paper's analysis the original hypotheses were approved or rejected as follows:

- Hypothesis 1: Share of number of specialized small farms in small farms category does not decline. Approved.
- Hypothesis 2: Specialization of small farms has regional characteristics. Partly approved. In case of specialized poultry and pig farms it is approved but rejected in cereals, oilseeds and protein crops small farms.
- Hypothesis 3: Specialized small farms have higher growth in labour productivity than non-specialized small farms. Rejected.

- Hypothesis 4: Increase of area productivity of specialized small farms exceeds that of non-specialized small farms. Rejected.
- Hypothesis 5: Growth rate of production output of specialized small farms is higher than that of non-specialized small farms. Approved.
- Hypothesis 6: Specialization offers better ground for survival for small farms. Approved. Number of specialized small farms declined less when compared to that of small farms.

Small farms found further specialization as a means for survival in the EU-10 generally. A move towards a specialist orientation of small farms was in the frontline in Lithuania, Bulgaria and Romania, while the number of small, specialized farms declined in all 9 farm types in the Czech Republic and in 8 types in Slovakia. The CAP 2020 intends to increase support to small farms but how farms fare very much depends on how Member States will see value, role and further development of small farms.

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