

# **Analysis of the asset position of the Hungarian pig farming sector based on the data of the Farm Accountancy Data Network (FADN)**

## **Sertéstartó gazdaságok eszközellátottságának vizsgálata a Tesztüzemi Rendszer (FADN) adatai alapján**

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### **Abstract**

The goal of the study was the examination of the Hungarian pig sector with particular attention paid to the available assets, to the composition of the non-current assets, to the depreciation value, to the value of gross and net investments and to the value of various supports. It was found that the position of individual farms was more unfavorable; only from 2012 exceeded the value of their investments the value of depreciation, consequently these investments did not result in farm development. Corporate farms on the other hand were able to increase their investments - partly because they were more successful in utilizing the various support measures. Although individual farms had an increased value of investment in the last examined year, the statement above is still valid. Companies characteristically invested in high-value fixed assets, particularly in real estate property, while individual farms preferred intermediate assets, particularly machinery and breeding stock. The results of the study also show that farms keeping fewer pigs (below 50 livestock units) chose to increase the size of their breeding stock while reducing their real estate and machinery investment. In the case of medium size pig farms (livestock units 50-150) the situation were more diverse. In 2010 the biggest investment activity occurred in increasing the size of the breeding stock, in 2011 in real estate investment and from 2012 machinery investment had the biggest value. Farms having more than 150 livestock units purchased mainly breeding stock in the first two years, and invested in real estate property from 2012. The small and medium size pig farms realized negative net investment indicating a decreasing productive capacity and falling behind in terms of development. These farms were not able to replace their depreciated assets. In terms of developments only the big pig farms were successful having sufficient resources and successful partaking in the various support schemes. It is evident that farms with lower LSU hardly were able to invest in fixed assets.

Bigger pig farms did make some investments but further research is necessary to determine the nature of these; whether they contributed to innovation, helped realizing animal welfare measures, or rather increased the productive capacity.

**Keywords:** depreciation, fixed asset, investment, investment support, pig farming sector

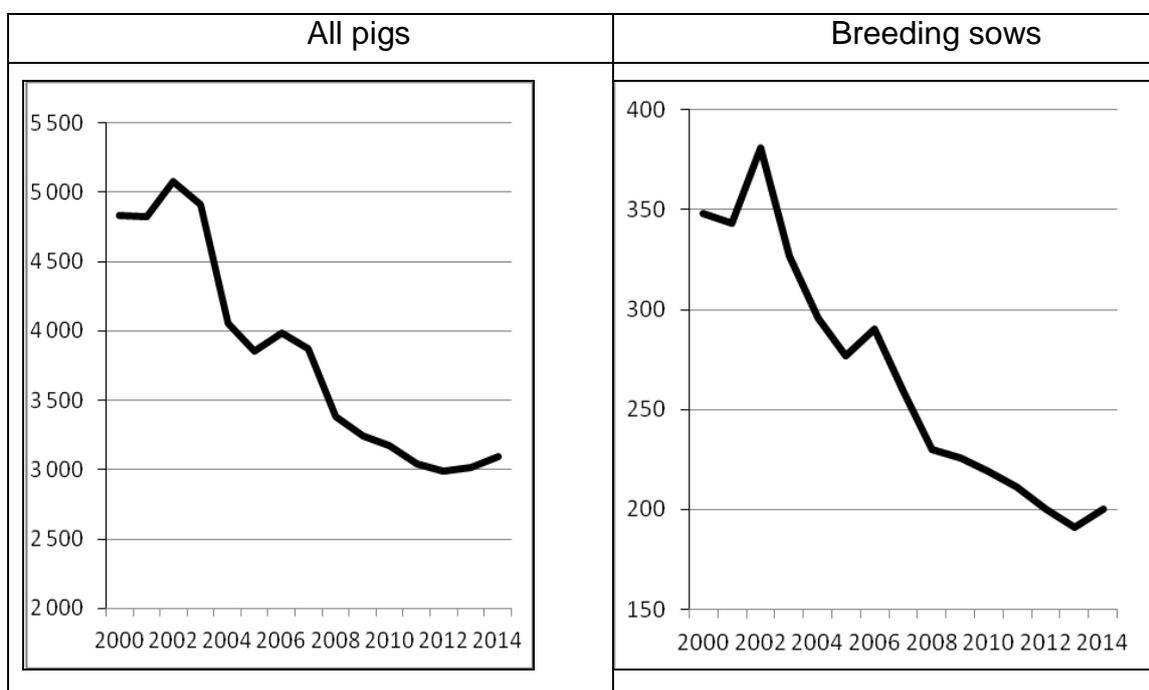
## Absztrakt

A tanulmány célja a hazai sertéstartás vizsgálata, különös tekintettel az gazdaságok eszközellátottságára, a tárgyi eszközök összetételére, az értékcsökkenés volumenére, a bruttó és a nettó beruházások és az igénybe vett támogatások nagyságára. A kutatás alapján megállapítható, hogy az egyéni gazdaságok kedvezőtlenebb helyzetben voltak, hiszen a beruházások értéke csak 2012-től haladta meg az értékcsökkenést, azaz a fejlesztést nem szolgálták. Ezzel szemben a gazdasági társaságok beruházási tevékenysége növekvő tendenciát mutat, mivel a támogatások nyújtotta lehetőségeket jobban ki tudták használni. Még akkor is igaz ez, ha figyelembe vesszük azt a tény, hogy a vizsgált időszak utolsó évében már az egyéni gazdaságoknál is emelkedett a beruházási támogatások igénybevétele. A társas gazdaságoknál az egy évet meghaladó, nagyobb volumenű ingatlanberuházások voltak a jellemzők, az egyéni gazdaságok pedig inkább a gép- és a tenyészállat-beszerzést részesítették előnyben. Az eredmények azt mutatták, hogy a vizsgált időszak alatt az 50 alatti számosállattal rendelkező sertéstartók a tenyészállat-állomány növelésére törekedtek, emellett csökkenő ingatlan- és gépberuházás volt jellemző rájuk. A közepeseknél (50–150 számosállat) a helyzet már nem volt ilyen egyértelmű, 2010-ben a tenyészállat-, 2011-ben az ingatlan-, 2012-től pedig a gépberuházások voltak a meghatározók. A 150 feletti számosállattal rendelkező gazdaságoknál az első két évben a tenyészállat-beszerzés, az utolsó két évben pedig az ingatlanfejlesztés dominált. A nettó beruházások értéke a kis és közepes vállalkozások esetében is negatív volt, fejlesztéseik elmaradtak, az eszközök folyamatosan elhasználódtak, pótlásuk nem valósult meg. A fejlesztések megvalósítására a vizsgált időszakban leginkább a „nagy” gazdaságoknak volt forrásuk, valamint a beruházási támogatások nyújtotta lehetőséget is egyértelműen ők tudták kihasználni. Megállapítást nyert, hogy az alacsony állatlétszámmal rendelkező vállalkozások esetében nem vagy csak alig beszélhetünk tárgyi eszköz-fejlesztésről. A nagyobb állatállományú sertéstartók már megvalósítottak ugyan beruházásokat, de az későbbi vizsgálat tárgyát képezhetné, hogy ezek a fejlesztések az innovációt, az állatjóléti előírások betartását vagy egyszerűen a kapacitásbővítést szolgálták inkább.

**Kulcsszavak:** beruházás, beruházási támogatások, értékcsökkenés, sertéságazat, tárgyi eszközök

## Introduction

The change of regime in Hungary brought major changes in the agricultural market trends. The accession of the country to the European Union meant further challenge and EU membership in the last 10 years greatly influenced the position of the Hungarian agriculture both in its potential and competitiveness (Kapronczai et al., 2014). One of the sectors experiencing the most serious loss is the pig sector in Hungary: in 2004 the pig population only slightly exceeded 4 million (compared to the 10 million pigs at 1984). The size of the breeding stock has been continuously decreasing since 1984 with sharp decline occurring after the change of regime. The EU accession did not change the course, the number of breeding sows and pigs continued to drop (Figure 1.), the territorial concentration strengthened. Due to the unfavorable demand situation and the consequent price impact the number of breeding sows and other pigs dropped below 3 million in 2013, which was 4 per cent lower than a year before (Földművelésügyi Minisztérium -Ministry of Agriculture, 2015). In parallel with the decline in animal number, the number of farms also decreased with app. 80 thousand (Csörnyei, 2015).



Source: Hungarian Central Statistical Office data

Figure 1. Change in the number of breeding sows and pigs in Hungary between 2000-2014 ('000 pcs)

Ábra 1. A sertés- és kocaállomány alakulása Magyarországon 2000 és 2014 között (ezer db)

After the change of regime market opportunities narrowed which led to a decline in pig export, while at the same time the market price rise had a negative effect on the domestic prices (Béládi and Kertész 2013; Ger and Gere, 2006). The shrinking

consumption probably resulted also from a much debated – and on the whole, not very well founded– marketing campaign that called pig meat unhealthy. Consumer preference turned toward chicken meat.

In a previous studies it was found that had the former trends continued in the following five years, further decrease in the number of pigs would have been forecasted (Hegedűsné, 2013). Government measure in the sector, however, led to a slight increase in animal number.

Because of increasing feed prices an average total cost rise of 10.5 % was detected between 2007-2011 – the lowest rise in the livestock sector. Producer price-rise lagged behind this ATC rise leading to negative results in pig farming. In 2011, however, the sector produced a substantial income improvement (Borbélyné et al. 2013).

The role of individual farms in pig farming continues to erode, 73 % of the slaughtering stock come from the companies. The Hungarian Central Statistical Office data show a serious drop of 22,8 % in pig number between 2004 (4062 thousand) and 2014 (3137 thousand). To improve the position of the sector the Hungarian Government accepted Government Decision 1323/2012 of 30 August 2012 on the development of the pig sector by introducing strategic measures. According to it the main objective of the program is realizing a significant increase in the pig population, however, to increase the output infrastructure development is essential. The most important problematic factors influencing the pig farming sector of Hungary can be listed as follows: Low income ratio, strong black market activity, insufficient integration, the shift-over between different farm types, pricing, marketing, changing consumer preference, manure management, outdated technology and feeding (Bartha, 2012; Benedek et al., 2012).

According to Lámfalusi et al. (2014), the effect of value added tax rate reduction on the intermediate stakeholders of the product chain is neutral. The impact of tax rate change can be examined rather on the level of consumers and on the central budget, but it has only a limited effect on the liquidity of farms entitled to tax reduction. The VAT reduction through lower consumer prices and increased demand can improve the position of the sector. The new development strategy aims to construct a system characterized by strong producer orientation, efficient lobbying and interest reconciliation, and increased innovation activity (Erdeiné et al., 2013). Integration networks can play an important role in financing production and spreading innovation. Farmers often face difficulties when – planning their developments - trying to find a trustworthy farm advisor who provides reliable information, and experience based advice (Bíró and Rácz, 2014). When examining the position of the pig farming sector one should also pay attention to the possible social relations: In regard to the livelihood of some people living in rural areas it should be noticed that it is strongly influenced by the growing or stagnating output of subsistence and market farming (Mészáros and Szabó, 2014). Through the development of the food-economy not only output quantities, efficiency and competitiveness can be improved but also the employment structure (Udovecz, 2014). Popp (2014) however argues that due to the low skills level of the rural population, their agricultural employment is not competitive. Agriculture cannot treat the employment problems of the rural areas, though in a smaller extent it can contribute to the creation of new places of

employment. Careful examination of the asset availability of pig farms is essential if one wants to define the position of the sector. Past tendencies and present situation can forecast the future prospects of these farms.

The main objective of this study is to examine the situation of the Hungarian pig farming sector with special attention paid to the asset availability, to the composition of non-current assets, to the depreciation value, to the value of gross and net investments, and supports. The research is based on the analyzation of accounting data, consequently it does not contain the examination of the quantity, quality and capacity relations of the asset. The starting hypothesis to be proved or disapproved was that in the various type of enterprises in the pig farming sector show significant differences in the indexes mentioned above.

## Material and methods

For testing the starting hypothesis data was collected from the database of the Hungarian Central Statistical Office (HSCO) and the Hungarian Research Institute HRIAE) of Agricultural Economics. Data was transformed into averages. The database of the HRIAE contains data of more than 1900 sample farms, that represents more than 106 thousand agricultural holdings over 4000 Standard Output. This size is equivalent to a pig farm having 18 fattened pigs. 44 pig farms were selected and they joined the system voluntarily in 2013 (33 individual farms and 11 corporate farms), representing altogether 1383 Hungarian pig farms (1183 individual and 200 corporate farms).

Economic analysis methods were applied. Asset availability between 2010-2013 was examined on two levels; e.g. by undertaking type and LSU size. Fixed asset value and composition, current asset value, depreciation, investment structure, gross and net investment value, investment support and scrapping off were examined. Gross investment is considered to be the amount of money which is invested to increase the fixed assets. Net investment is the increase in fixed assets less the value of scrapping off and depreciation (Net investment = Gross investment - scrapping off - depreciation).

Distribution coefficient was applied to describe the structure; dynamic coefficient was used to describe the changes.

## Results and discussion

### **Asset availability of the Hungarian pig farming sector by legal forms of farms**

According to the data of the Farm Structure Survey (FSS) in 2010 8.6 thousand corporate farms and 567 thousand individual farms pursued agricultural activity in Hungary. 54% of the companies was engaged solely in plant production, only 6% of them worked exclusively as livestock farms, and mixed farming featured the operation in 40% of these enterprises.

As for individual farms the above mentioned farming types represented as 49-22-29% respectively (Laczka, 2014). 72.8% of the farms utilized less than 1 ha

agricultural land (UAA) and their aggregate land utilization did not reach 2 per cent. On the other hand, 1.3% of the farms possessed 64% of the agricultural area.

It is evident that the average UAA per holding changed greatly in the last decade in Hungary, and was characterized by a significant drop in the case of corporate farms (from 510 ha to 368 ha) and an increase in the case of individual farms (from 22.5 ha to 27.4 ha) (Kapronczai, 2014). While the number of companies has not changed much, there is a sharp drop in the number of individual farms (Valkó-Kincses, 2014).

Since the EU accession a further drop can be detected in the number of livestock farms, many of them stopped operating (about 4000 farms) or shut down their livestock enterprises. The pig farming sector suffered the biggest loss, two-third of them stopped production (Kapronczai et al, 2014).

The number of pigs decreased by a yearly 188 thousand between 2000 and 2012 summing up a drop of 38.8% for the whole interval. The number of breeding sows suffered an even bigger fall of 43.1% (15 thousand per year). This decline in the breeding stock – if it is not the result of the improving performance – can indicate that more and more pigs to be fattened are imported rather than farrowed inland. Also, if there is a decline in domestic breeding stock production, farmers have to rely on import which means that the income from breeding will be lost from the sector, and the chances for securing domestic production from domestic breeding will decrease.

The size of livestock kept by the different types of agricultural holdings changed greatly. In the 1950's small farms had the majority of the livestock, between 1970-2000 approx. half of the production came from the small farms. Between 2010-2013 the role of small individual farms greatly decreased and 73.0% of the livestock was sold by companies. The number of pigs kept by individual farms dropped by 66.1% in the last ten years. Although pig farming companies also suffered loss, pig number fall was only 13% in their case. The share of individual farms in the total pig population thus fell from the former 48.6% to its present 27% level. According to experts the negative trend can be overcome by the parallel realization of several different goals, such as the production of safe and high quality Hungarian pig meat for the processing industry and for consumers, fight-off the black market, strengthening the competitiveness, and creating calculability.

Table 1. Averages of asset availability of Hungarian pig farms by legal forms of farms 2010-2013

Táblázat 1. A sertéstartó gazdaságok eszközellátottságának átlagadatai gazdálkodási forma szerint 2010–2013 között

Categories	Individual farms				Corporate farms			
	Thousand HUF/Livestock Unit				Thousand HUF/Livestock Unit			
	2010	2011	2012	2013	2010	2011	2012	2013
LSU/holding	21.2	20.3	19.9	22.4	707.1	775.9	687.3	926.3
Real estate property	751.2	659.8	586.2	656.5	143.2	164.5	275.0	330.2
Agricultural land	95.0	75.5	79.5	150.1	0.0	0.0	0.0	0.0
Buildings and structures	522.4	486.0	388.4	278.7	139.6	159.1	200.5	192.2
Machinery, equipment, vehicles	67.4	75.8	68.5	101.3	39.7	59.4	96.6	47.9
Current assets	337.0	415.1	507.2	338.1	235.0	295.0	336.8	350.3
inventory	116.3	154.7	175.1	147.6	142.5	166.9	203.4	185.9
Of this: livestock	67.7	93.6	86.6	76.5	111.9	106.0	117.0	125.2
Receivables, bonds, liquid assets	220.7	260.4	332.1	190.5	92.4	128.1	133.4	164.4
Gross investment	30.4	26.6	34.6	32.4	96.9	56.4	118.8	127.1
Of this: real estate property	10.7	11.8	16.2	2.9	17.3	7.7	30.0	52.7
Machinery, equipment, vehicles	1.9	8.5	12.1	20.4	6.3	19.6	19.3	10.3
Breeding stock	17.8	6.3	6.3	9.1	22.8	25.5	18.2	37.6
Investment in course of construction	0.0	0.0	0.0	0.0	50.5	3.6	51.3	26.5
Annual depreciation	33.2	33.5	23.8	23.9	35.6	44.6	38.7	39.8
Buildings	18.3	18.2	12.6	8.5	3.9	5.6	7.0	5.9
Machinery, equipment, vehicles	8.5	8.7	7.0	9.5	8.2	12.4	17.6	12.0
Disposal	19.2	20.0	5.5	2.9	38.1	16.3	25.1	10.1
Net investment	-22.0	-26.9	5.3	5.6	23.2	-4.5	55.0	77.2
Investment supports	1.3	1.5	5.5	6.4	10.2	2.3	1.6	8.2

Source: HRIAE-FADN data

The agricultural support mechanism of the EU based partly on the compensatory direct payments financed from the first pillar of the Common Agricultural Policy (CAP), while investments supports are generated in the rural development programs of the second pillar. A previous research (Hegedűsné-Ábel, 2015) shows that pig farms can finance these essential developments mostly from the claimed EU investment supports rather than from their income. The value of the net investment in the agriculture has been positive since the EU accession of the country (the only exception is 2006) meaning that some technological development occurred.

Livestock farm modernization (investment) supports were introduced in 2007. Such investments included the construction or improvement of permanent buildings, purchasing new machinery or equipment, etc. The aim of these supports was to enhance competitiveness, to improve product quality, and development occurred in different areas, such as manure management, as well as creating new enclosed housing space (e.g. stalls), extending the space capacity, or improve the quality of livestock farming and transport. Modernization contributes to feed management and feed quality, improves the procedures related to the production of animal products. These investments can improve the animal welfare and animal health status of farms, secure animal identification and product traceability, prevent the break out and spread of animal diseases. Investment value exceeding the value of depreciation was more prevailing in corporate farms, and it seems that - especially small - individual farms struggling with low profitability have been lagging behind in terms of technology development.

Asset availability data by the legal forms of pig farming between 2010-2013 are quoted in Table 1. The composition of assets shows the biggest differences in the pig farming sector. The underlying reason is the different structure of production. The investment demand of corporate farms is stronger as they have usually more animals and more up-to-date technology. The average pig number per holding grew approximately 35% in the sample farms between 2012-2013, the number of animals kept by corporate farms being almost 42 times higher than that of the individual farms. Corporate farms also have better opportunities in financing their operation and usually their employees are better trained. Due to the cumulative effect of these factors the position of individual farms is even more disadvantageous.

In the analyzed time period depreciation – because of the missed investments - led to the fall in the value of buildings and structures per LSU in the individual holdings. The growth in investment value in 2013 can be explained with two possible causes: either individual farms invested in landed property to expand their farming activity or bigger individual farms volunteered to become sample farms. Data protection of the sample farms makes it impossible to make sure which scenario occurred. Corporate farms managed to realize investment into real estate property, mainly building developments, exceeding the depreciation value, the seemingly declining per LSU value in 2013 is the result of the growing number of animals (+35%). As corporate farms have a higher average number of animals, the utilization of the available property is better than in the case of individual farms. The data also shows that farmers were able only to replace their machinery, equipment and vehicles in the first three years of the analyzed period and significant development (50%) took place only in 2013.

As for the inventory, its value per LSU does not really differ in the two legal forms. Generally, the two main components of the inventory are the livestock (49-60%) and the feed. In individual farms the value of receivables, bonds and liquid assets (and particularly receivables stock is high, farms often wait long months for their accounts to be settled, which forces farmers to apply for short term loans to cover their operation expenses) per LSU is much higher than in corporate farms, and it can be the source of serious problems in financing the operation of the undertaking.

In the agriculture there is no strong correlation between the amount of income and the intensity of investment due to the fact that investment decisions are almost always made on the ground of the available investment (modernization) supports.

The value of the gross investment in 2011 decreased less in privately operated farms than in corporate farms (41.8%) compared to 2010. The composition of the investment transformed in the examined time period. As for individual farms, investment into breeding stock and real estate marked year 2010, while investment into machinery or equipment was minimal. Since 2011 utilizing the available EU support schemes (farm modernization programs) these farms strengthened their fixed asset stock by investing into machinery and by further real estate investment, while breeding stock related investment fell back until 2013 when a slight increase took place.

Corporate farms invested strongly into their breeding stock in 2011, which exceeded the investment value of the real estate and machinery, equipment investment value, while in 2012 real estate investment had the greatest value of all. Individual farms preferred lower value investments to be constructed and installed within a year. Corporate farms on the other hand usually realized longer term investments. Between 2010-2013 claimed investment support value grew in the case of private farms while decreased in corporate farms. The latter ones were able to increase their investment support in 2013 (512%), but its value stayed yet below the 2010 level.

The economic importance of investments can be described with the *net investment measure*. Net investment in this study is calculated as gross investment less depreciation and scrapping off – or to put it another way: gross investment less replacement. A negative net investment means that the realized investment cannot replace the amortized assets. The pig farming sector seems to be in a more unfavorable position than the agricultural sector as a whole, since both individual holdings in 2010-2011 and corporate farms in 2011 produced negative net investment value. Especially individual holdings show a significant negative net investment value suggesting a considerable fallback in technological development.

The number of animals per holdings finally increased between 2010-2013 by 5.7% in the individual farms and by 31% in corporate farms, growth occurring only in 2013, while between 2010-2012 the number of animals declined.

Real estate property value grew 130.6 % in corporate farms, while individual farms suffered and overall loss, though they were able to increase the value of the agricultural land by 58%. Value of machinery increased more in individual farms (50%) than in corporate farms (20.7 %).

As for the composition of investments, the value of gross investment grew more dynamically (49.3%) in corporate farms with the greatest growth occurring in real-estate property value (204.6%). Both real estate and machinery related investments suggest a dynamic development in corporate farms. Machinery related development seems to slow down in 2013, compared to the 2012 value. Current-assets value grew 50% in the corporate farms between 2010-2013. Scrapping off, which has a significant impact on net investment value, decreased between 2010-2013 both in private and in corporate farms, almost halved in the latter and reduced to one-fourth in the former farm type.

Required grants for investment also differ in the two types of farms, claimed supports increasing 392.3 % in individual farms between 2010-2013, while corporate farms though were able to increase their support level in 2013 by 412.5 % after the hedge hopping between 2011-2012, but even with that rise their support level remained below its 2010 value. Individual farms have a more unfavorable position concerning the net investment value, as their investment activity was not sufficient to cover the depreciation value. On the whole, private farms proved to be more successful than corporate farms in three asset development area, such as their machinery stock, their investment into machinery and equipment, and the value of claimed investment support per LSU.

### **Asset availability of the Hungarian pig farming sector by size categories**

The FADN distinguishes three size categories concerning the number of animals expressed in livestock unit (LSU): below 50 LSU, 50-150 LSU and over 150 LSU on the farm. Table 2. shows that in the category of the smallest holdings average animal number is under 10 LSU, middle size farms have less than 100 LSU, while farms in the third category are close to 1000 LSU.

Small farms have the biggest, large farms (mainly corporate farms) have the smallest agricultural area and building value per LSU. Farms below 50 LSU and between 50-150 LSU suffered loss in value of buildings and structures, while farms having animals over 150 LSU realized development exceeding the value of depreciation (in the case of small holdings real estate investment fell from 4.2 HUF/LSU to 1.3 HUF/LSU). The value of machinery, equipment and vehicles changed a very similar way, however, in the last year of the research a considerable 117.5 per cent rise was detected.

Gross investment value in small holdings fell in the first three years, with a slight rise occurring in the last year, while bigger farms after the first year fall back experienced significant growth in gross investment value. In farms with less than 50 LSU investment in the breeding stock increased while real estate and machinery related investment decreased. As for medium-sized farms, their situation is not so simple: in the first year investments targeted at breeding stocks enlargement, in the second year real estate, and the in the third year mainly machinery related investments dominated. Farms over 150 LSU invested mostly into their breeding stocks in the first two years and into machinery in the last two years. In the last year breeding stock related investment rose again significantly, being one and a half time greater than in 2010. The length of the investment activity is also different; small and medium-sized farms preferred short term investment period, while large farms typically invested into greater than a year course of investments.

Table 2. Asset availability of pig farms of different economic size between 2010-2013

Táblázat 2. A sertéstartó gazdaságok eszközellátottságának adatai a gazdaság mérete szerint 2010–2013 között

Category	Below 50 LSU				50–150 LSU				Over 150 LSU			
	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013
	Thousand HUF/Livestock Unit											
Livestock Unit/holding	9.6	9.7	8.9	8.2	79.0	88.3	74.0	88.4	952.8	956.5	973.1	956.0
Real estate	1242.9	861.2	653.9	1260.2	372.3	769.7	701.3	210.2	153.9	162.8	282.2	332.4
Agricultural land	136.2	66.0	108.0	349.8	37.9	90.7	67.6	16.7	4.6	3.1	3.0	3.3
Buildings and structures	911.3	691.3	420.2	366.0	247.9	567.1	442.2	97.7	142.4	151.7	206.4	197.4
Machinery, equipment, vehicles	58.4	69.8	54.0	127.0	43.8	97.3	63.1	65.7	43.4	59.4	96.4	50.9
Current assets	452.3	608.2	721.9	442.1	317.0	374.7	515.5	445.3	230.3	286.7	328.6	342.5
Inventory	126.2	197.1	218.9	186.5	108.9	197.5	161.7	121.3	141.4	160.5	198.7	182.0
Of this: animals	66.3	119.4	72.8	77.3	56.0	110.2	100.6	89.7	111.4	102.4	115.6	121.7
Receivables, bonds, liquid assets	326.1	411.1	503.0	255.6	208.1	177.2	353.8	324.0	88.9	126.2	129.9	160.5
Gross investment	28.2	28.2	17.8	17.9	15.8	30.8	12.5	12.5	95.6	55.1	116.1	121.8
Of this: real estate	4.2	7.0	3.0	1.3	6.0	18.1	0.0	0.0	18.4	7.9	31.1	49.5
Machinery, equipment, vehicles	2.3	9.7	2.2	0.2	0.9	6.1	10.6	7.7	6.2	19.5	19.7	12.2
Breeding stock	30.9	11.5	12.6	16.4	8.9	6.6	1.9	4.8	22.3	24.3	17.1	35.4
Investment in course of construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.7	3.4	48.2	24.7
Annual depreciation	50.0	49.6	30.9	40.6	22.5	28.5	25.1	11.4	35.0	43.1	37.1	38.2
Buildings	32.1	29.4	16.4	13.2	9.6	10.4	15.0	3.1	3.9	5.6	6.9	6.0
Machinery, equipment, vehicles	6.8	8.0	6.3	14.2	7.4	14.8	7.7	6.6	8.5	11.9	17.0	11.7
Scrapping	30.8	40.8	7.8	3.7	6.9	13.1	7.4	2.5	37.1	15.5	23.5	9.6
Net investment	-52.6	-62.2	-20.9	-26.4	-13.6	-10.8	-20.0	-1.4	23.5	-3.5	55.5	74.0
Investment supports	0.0	0.7	0.0	0.0	3.0	3.9	0.0	0.0	9.9	2.2	2.6	8.5

Source: HRIAE – FADN data

Net investment value is negative in case of both of small and medium-sized farms, meaning that development is lagging behind, assets continue to depreciate and amortize, and replacement is not occurring as it should. In small farms depreciation of buildings is ten times higher than investment value, the ratio in case of machinery related depreciation and investment is 71 respectively. Medium-sized farms stopped investing into real estate between 2012-2013 but rather purchased machinery realizing an investment value exceeding depreciation in the last two years.

In the case of large farms real-estate investment featured the last two years, machinery related investment occurred mainly 2011-2012, while investing into breeding stock rose again after the significant fall back in 2012. In course constructions over a year are mostly can be found in large farms, proved also by the high investment value per livestock unit. Net investment remained positive except of year 2011, and in the last two years of the examined period this value showed a significant growth. All of this suggest, not surprisingly, that large farms more likely have sufficient resources to realize development and it is evident, even if there was a decline in it between 2011-2012, that these farms were also more successful in claiming investment supports.

Livestock number decreased (-14.6%) in the small farms throughout all the examined period (Table 3). In medium sized farms livestock number rather fluctuated There was a 11.8% increase in 2011, followed by a sharp fall back in 2012 and since 2012 livestock number is growing again. It was reassuring to detect that livestock number in 2013 was slightly higher than in 2011. As for large farms, livestock size did not change significantly in 2013 compared to 2010, after a rise in 2012 it returned to its former level.

Small farms increased most dynamically their landed property (156.8%) and machinery, equipment, vehicles stock (117.5%). Following the increase in machinery stock, depreciation also grew with 108.8%. Their gross investment value shows a decrease of almost 40 % in the examined period, while the decrease in annual depreciation was only 19.8%. The least fall back occurred in the investment into breeding stocks.

The position of small farms improved in 2012 compared to 2012. In 2012 only their inventory, in 2013 already five type of their assets showed increasing value.

Although medium sized farms also experienced growth not only the value of their livestock, but also in the value of their machinery, equipment, vehicles (50 %), of their current assets (40.2%) with the highest increase occurring in receivables (55.7%) in the category, the increase is lower than it was in the small holdings. Concerning all investments in this size category machinery development was the most important with an increase of 775.6 %, however it should be noted that they started with a very low value of below 1000 HUF per LSU in 2010. Gross investment decreased in this size category as well, but with a lesser extent than in the case of small farms.

Farms with more than 150 LSU show increasing value in all indicators, except arable land, investment supports and depreciation. The structure of investments shows the most significant area being real estate development (169%) and machinery, equipment and vehicles investment was also considerable (96.8 %).

Table 3. Asset availability changes in pig farms by farm-size

Táblázat 3. A sertéstartó gazdaságok eszközellátottságának változása a gazdaság mérete szerint

Category	Below 50	50–150	Over 150
	LSU	LSU	LSU
Thousand HUF/Livestock Unit			
2013/2010, %			
LSU, LSU/holding	85.4	111.9	100.3
Real estate	101.4	56.5	216.0
Agricultural land	256.8	57.4	84.0
Buildings and structures	40.2	39.4	138.6
Machinery, equipment, vehicles	217.5	150.0	117.3
Current assets	97.7	140.2	148.8
Inventory	147.8	111.4	128.7
Of this: animals	116.6	160.2	109.2
Receivables, bonds, liquid assets	78.4	155.7	180.5
Gross investment	63.5	79.1	127.4
Of this: real estate	31.0	0.0	269.0
Machinery, equipment, vehicles	8.7	855.6	196.8
Breeding stock	53.1	53.9	158.7
Investment in course of construction	–	–	–
Annual depreciation	81.2	50.7	109.1
Buildings	41.1	32.3	153.8
Machinery, equipment, vehicles	208.8	89.2	137.6
Scrapping	12.0	36.2	25.9
Net investment	50.2	10.3	314.9
Investment supports	–	–	85.9

Source: HRIAE - FADN data

## Conclusions

According to the results of the study focusing on the asset availability of the Hungarian pig farming sector the number of small holdings greatly exceeds that of the large farms while their average area, average pig and breeding sow number is much lower. The agricultural support mechanism of the EU based partly on the compensatory direct payments financed from the first pillar of the CAP, while

investments supports are generated in the rural development programs of the second pillar and the pig farming sector of Hungary needs technology development. The authors' previous research shows that pig farms can finance these essential developments mostly from the claimed EU investment supports rather than from their income. Huge differences can be however detected both in regard to ownership of farms (individual – private and corporate), or their size. Corporate farms and holdings having more than 150 LSU possess considerable advantage in financing development, which forecasts that the already existing falling behind in technology of small – mainly individual – farms will only increase. To reach the same level of technological development small farms need significantly higher per unit investment value. The initial hypotheses proved to be correct, the various type of enterprises in the pig farming sector show significant differences in the indexes examined in the study. Solution for the problems might be found in the horizontal and vertical integration, experiences show however that the necessary willingness is frequently missing due to lack of farmers' trust and concern.

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