

COMPETITIVENESS OF THE MAJOR TYPES OF AGRICULTURAL HOLDINGS IN GERMANY

Abstract

The paper presents findings of the research on competitiveness of agricultural holdings covered by FADN in Germany in 2004/2005 and 2012/2013. Their competitiveness was assessed with the use of the CI (Competitiveness Index), determined by the rate of income from an agricultural holding to opportunity costs of own factors of production, and the management income category which represents the difference between the income from an agricultural holding and opportunity costs of own factors of production. The competitiveness assessment takes account of the major types of agricultural holdings, their legal forms and regions. The research showed that 40-50% of the German farms covered by the research was able to develop, i.e. was competitive. The best were the results of farms targeted at crop production, followed by dairy farms, and the worst – pig and mixed holdings.

Introduction

Competitiveness is a comprehensive category referring to the assessment of interaction between companies, sectors, national and global economy, etc. It is determined by the following indices: market share, changes in productivity and economic efficiency (Latruffe, 2010). With respect to the two latter indices Depperu and Cerrato (2010) presented their own method of competitiveness measurement by stating: “Profitability is generally considered the most important measure of competitive success. Economic performance in the short term can be measured through profitability ratios. (...) Costs and productivity are good signals of competitiveness especially in case the industry is characterized by homogenous products.”. This method of competitiveness measurement complies with the views of the author.

Analyses included in this paper refer to the concept of competitiveness measurement suggested by Gallardo et al. (2001), which consists in determining the

ratio of farm income (net income – Farm Net Income, FNI) to the opportunity costs of own means of production at a farm. This method was first used in competitiveness analysis of German agricultural holdings covered by the national FADN system, taking into account the major types of farms in the last nine marketing years (2004/2005–2012/2013), which were marked by a considerable change in the Common Agricultural Policy (CAP) and prices influencing revenues and incomes from owned factors of production.

It was also considered to carry out similar research on competitiveness between other European Union (EU) Member States based on the European FADN system. However, no success in the field has been noted so far due to time restrictions in the model adjustment, and because of the equally important fact of significant underestimation of the FNI for German agriculture under the EU FADN system that would cause distortion of information about its competitiveness.

Methodology and database

The working hypothesis, made in the research, assumes that generating relevant income is necessary to cover the costs of use of own factors of production, funding of net investment (considering inflation) for growth and innovation at a given farm. Income is generated by entrepreneurs optimising their activity to adjust to the current and future economic and legal conditions, among which prices of products, means of production and systems of agriculture support from budget funds play the key role. If income is higher than the costs of factors of production, the entrepreneurs are able to compete and survive in the market. Otherwise, they can try to adjust to the changed conditions of farming or cease a given activity and use the factors of production in another manner.

The following formula is applied to measure competitiveness¹:

$$L_t = \sum_{i=0}^{\infty} \frac{E(R_{t+i})}{(1+r_{t+1})(1+r_{t+2})\dots(1+r_{t+i})}$$

where:

- CI_f – Competitiveness Index at a farm (f),
- FNI_f – Farm Net Income (f)²,
- OC – opportunity costs for own factors of production held at a farm: work of family members (w), own agricultural land (l) and own capital (c).

¹ Gallardo et al. (2001) define the index as the Global Competitive Index (GCI). But this term is misleading because such phrase was used in the Global Competitiveness Report, comparing competitiveness of different countries, but there a different definition of the term was used (http://de.wikipedia.org/wiki/Global_Competitiveness_Index). Thus, herein this was changed into “Competitiveness Index” using the formula of Gallardo et al.

² This formula may be also applied in case of other categories of income, e.g. FNVA (Farm Net Value Added), used mainly in FADN statistics of the European Commission. In such case the denominator has to be increased by the costs of external factors (paid employment, rents and interest rates).

The value of $CI \geq 1$ points to at least full coverage of the costs of factors of production, while $CI < 1$ demonstrates their incomplete coverage.

The analysis adopts further classification of the Competitiveness Index value which differentiates the following classes:

- $CI (-)$ value in case of negative FNI index ($CI1$)³,
- $0 \leq CI < 1$ partial coverage ($CI2$),
- $1 \leq CI < 2$ full coverage: 100% or more ($CI3$),
- $CI \geq 2$ coverage of 200% and more % ($CI4$).

The analysis used farm accountancy data covered by the national FADN system⁴ for the period from 2004/5 to 2012/13⁵. Farms are selected based on data from ca. 11 000 farms annually, which represent ca. 200 000 farms in Germany (Standard Output > EUR 25 000), excluding such types of farming as: horticulture, permanent crops and viticulture⁶. Types of farming and weighting coefficients are built on the Standard Output (SO) typology. All of the results presented below are weighted and added up at the sector level with the use of contribution ratio of individual types of farms.

The FNI index is taken directly from farm accountancy, while opportunity costs (OC) originate from the costs of external factors and are aggregated by regions (länder/federal states⁷) and major types of farming:

- OC_Land (opportunity costs of land) based on the rent on leased land,
- OC_Labour (opportunity costs of labour) based on the costs of labour of paid employees,
- OC_Capital (opportunity costs of capital) based on the interest rates (except for lands).

It should be mentioned that the value of the basic Competitiveness Index is affected by the legal form of an enterprise (farm)⁸, e.g. natural or legal person. It influences the value of the denominator, i.e. the amount of opportunity costs. Thus, the results differ not only by types of farming and regions but also depending on whether or not the case concerns enterprises of natural or legal persons; this is not a rule in the presented results, though. The results are aggregated at the level of a sector as the basis for distribution according to diverse categories of the Competitiveness Index (CI). Although the literature recommends to apply data from several years (Depperu and Cerrato, 2010), only annual values were calculated. It would also be possible to use weighted panel data, but

³ Abbreviation used in figures.

⁴ Testbetriebsnetz (test network) (<http://berichte.bmelv-statistik.de/BFB-0114001-2014.pdf>).

⁵ German FADN is based on marketing years from July to June.

⁶ The sample of farms initially covered ca. 10 200 farms, and by the end of the period – 9 400.

⁷ It is possible, in technical terms, to calculate the opportunity costs at the level of individual farms, but because of rounding errors it would result in considerable differences and atypical values. Therefore, adoption of average regional values seems a good solution.

⁸ From substantive perspective, family farms pursuing commodity production are enterprises in the legal form of “natural person”.

in such sample this would reduce the number of farms by ca. 40%, thus limiting the representativeness of the sample and, apart from that, it would partially exclude some portion of dynamic farms⁹.

The level of the FNI index and opportunity costs and the share of farms in different classes of the Competitiveness Index

The chapter starts off with a brief overview of some of the structural indices, and indices of incomes and opportunity costs broken down by individual categories of the Competitiveness Index, then it moves on to the presentation of detailed information depending on types of farming, regions and legal forms.

Structural and economic indices

Figure 1 shows the Utilised Agricultural Area (UAA), direct payments and aggregated incomes of farms by regions. The South and North regions each account for approximately one quarter of the UAA, the Central region – ca. 10%, and the East region – approximately one third. The sample covers ca. 15 million ha of UAA, i.e. nearly 90% of the total UAA.

Because of the impact of sample selection, the UAA greatly increases over time. Direct payments – having a significant effect on the level of incomes – are characterised by a distribution similar to that of UAA, which results from gradual implementation of decoupling through regional flat-rates. Increasingly higher direct payments in the first years result from the introduction of payments to milk and sugar beets, and a drop in the last years is caused by modulation and lower sample size.

Incomes (FNI) are highly differentiated – from EUR 6 billion in 2004/2005 to EUR 8.5 billion in 2007/2008 – because of dynamically growing prices of plant products and milk, then during the economic crisis, a decrease is noted to EUR 5.5 billion in 2008/2009, and from 2010/2011 to as far as 2012/2013 there is an upward trend recording the highest ever level of incomes of up to EUR 9 billion.

The highest value of income is in the North region, slightly lower in the South. The level of income in the Central region is definitely lower and it is somewhat lower in the East region.

Analysing the level of income in the western and eastern federal states (länder), it can be concluded that in the western länder the share of income is approximately similar to the share of UAA and direct payments, while in the eastern länder the share of income is considerably lower, but it has grown over the last year. The low share is the effect of dominance of agricultural holdings of legal persons with large share of paid employment and leased lands amounting to ca. 90%¹⁰.

⁹ Calculations on scenarios considering different possibilities of direct payments were also conducted, but this paper does not present results thereof.

¹⁰ It has to be mentioned that the FNI is not relevant for comparing incomes between West and East regions, which is why national FADN statistics are used, encompassing not only FNI but also labour costs per annual work unit (AWU).

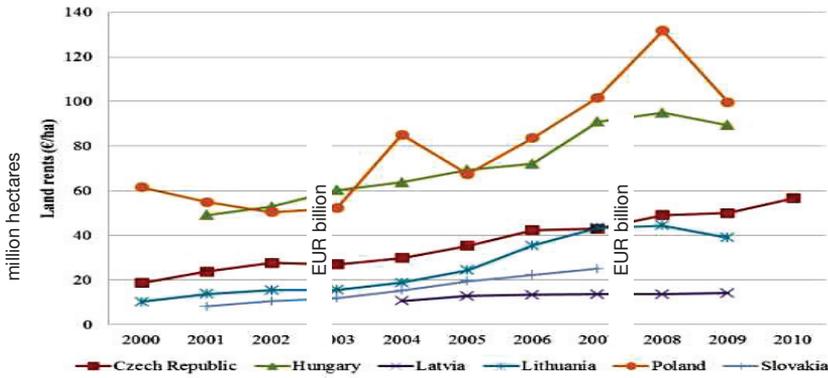


Fig. 1. Distribution of UAA, direct payments and incomes (FNI) by regions (represented in the sample)

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

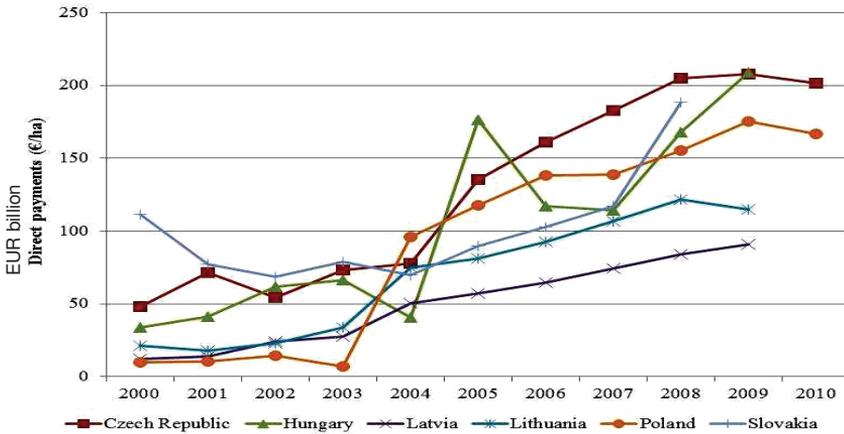


Fig. 2. Changes/distribution of the FNI index and the share of farms broken down by the Competitiveness Index classes against the entire sector

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

An analysis of the FNI, according to the aforementioned categories of the Competitiveness Index (Figure 2), should note that ca. 12% of farms incurs losses (CI < 1), with a slightly higher share in “bad” years and lower share in “good” years. The losses amount to ca. EUR 0.5 billion per year. This means that agricultural holdings are not able to cover own costs of factors of production or fund investments and thus are not able to survive in mid-term perspective. The FNI values in the category of the Competitiveness Index with partial coverage of costs of own factors of production (0 ≤ CI < 1) totals ca. EUR

1.5 billion. This category covers 40-50% of farms, which means that 50-60% of farms makes losses or is not able to fully cover the costs of using own factors of production. Some of them can survive if they accept the coverage level lower than opportunity costs, which is the case in several family farms. Older farmers may not agree to that given high transaction costs, but their successors may adopt different strategies of action.

Although in the aforementioned groups the level of total incomes is generally stable, in the case of the others it rather fluctuates and largely depends on price changes. This means that over three thirds of income in “bad” years is recorded for farms belonging to a category which is able to fully cover opportunity costs ($CI > 1$) reaching the level of three quarters in “good years”. The category $1 \leq CI < 2$ covers ca. 30% of farms and category > 2 encompasses ca. 15-20%. The figures show an uneven distribution of incomes and value of the Competitiveness Indices between agricultural holdings of different levels of income.

Even though, given the limited volume of the paper, it is not possible to describe the structural characteristics of farms by the CI classes, it is necessary to provide some basic information on the size of farms. The average area of a farm in the sample is ca. 70 ha of UAA. Agricultural holdings falling to the CI(1) category are smaller (45 ha of UAA), just like farms from the CI(2) group having the size of 55 ha. Farms in the CI(3) category use 70 ha, and the CI(4) – ca. 110 ha of UAA. In the two last-mentioned classes of farms, given the various compositions of partial samples depending on FNI, the area differed by ca. 10 ha of UAA.

Figure 3 demonstrates aggregated opportunity costs. Their amount ranges from EUR 5.5 billion to EUR 6.5 billion. The scope of their fluctuations is smaller than for incomes. The highest share in opportunity costs belongs to the CI(2) class farms, which means that opportunity costs are about double that of incomes. Growth in costs was caused rather by continually increasing labour costs than interest rates and land prices.

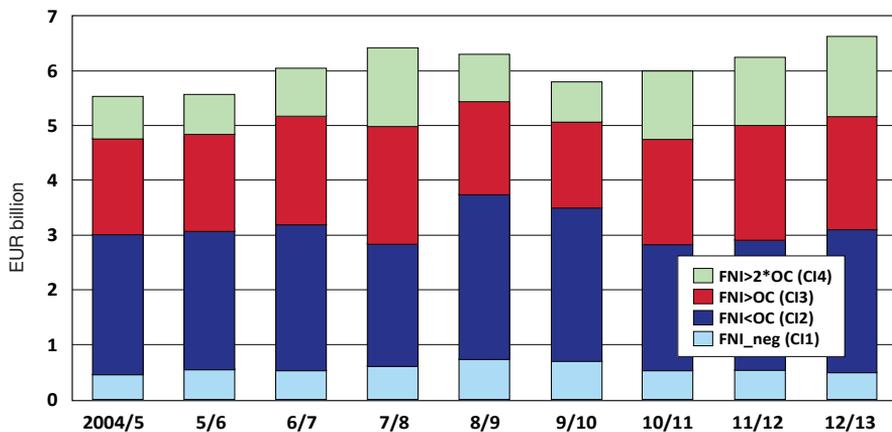


Fig. 3. Changes in opportunity costs of own factors of production for farms by the CI classes against the whole sector

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

Figure 4 presents aggregated FNI level and opportunity costs in different CI classes against the whole sector. In the case of the first CI(1) class the opportunity costs amounted to ca. EUR 0.6 billion and income (FNI) was negative and totalled ca. EUR –0.3 billion. In this class “management income”¹¹ was negative (loss) and amounted to ca. EUR 1 billion. However, its variability in the analysed period was rather low. In the CI(2) class, noting partial opportunity costs coverage, incomes (FNI) amounted to EUR 1.5 billion and constituted approximately two thirds of opportunity costs which stands for coverage to ca. 60% of opportunity costs. In this class the management income was also negative and stood at EUR –1.5 billion. In the CI(3) class, where $1 \leq CI < 2$, income (FNI) is within the range of EUR 2.4–3 billion, i.e. it is higher than opportunity costs by, respectively, EUR 1.7 billion and EUR 2.1 billion. In the CI(4) class, where $CI > 2$, the FNI level shows large variability within the range of EUR 2.2–4.6 billion. Aggregation at the sector level provides rather interesting information: opportunity costs demonstrated an upward trend to ca. EUR 6.7 billion and were close to the FNI level in the first years, but higher than income in 2008/2009 – the years of the economic crisis. In the remaining years, the FNI level was higher than opportunity costs showing a high variability. The FNI level was the highest in 2007/2008 and 2012/2013. Farms from the classes $0 < CI \leq 1$ and $CI > 2$ had the greatest impact on the scale of the competitiveness index (CI).

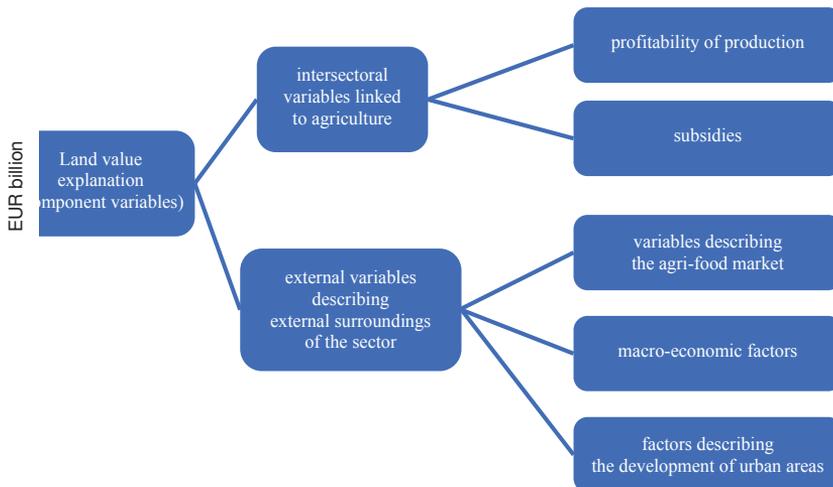


Fig. 4. Ratio of incomes to opportunity costs against the whole sector

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

¹¹ Management income represents the difference between the Farm Net Income (FNI) and opportunity costs of own means of production. It is the final measure of farming efficiency and competitiveness measure. In economics it is also referred to as the “entrepreneur’s profit”.

Competitiveness Index of farms depending on type of farming

This part of the paper presents the assessment of competitiveness of agricultural holdings taking account of the major types of farming. As compared to other analyses, the assessment of competitiveness uses also the category of management income (FNI less opportunity costs) in individual classes. In addition to the above, total values for all the classes were calculated, and positive value in the calculations represents presence of management income, thereby pointing to competitive abilities, and vice versa: negative value stands for lack of such abilities.

Figure 5 shows the results of farms **targeted at crop production**. This group, across the whole sector, covers also farms making losses. In total they amount to ca. EUR 0.2 billion in “bad” years and EUR 0.3 billion in “good” years. High negative values resulted from CAP reform and, consequently, a drop in the market prices of cereals similar to intervention prices in the first years. Pig price cycles may also have affected these since a significant part of pigs is produced at farms targeted at crop production. Along with a rise in prices in the market in 2007/2008, the levels of losses dropped; especially in 2012/2013 when they were the lowest. In the latter case, it also concerns the CI(2) class of farms, which notes a partial coverage of opportunity costs. In most of the years the difference between the FNI value and opportunity costs amounted to ca. EUR 0.2 billion. Only in the last year the value dropped to the level of EUR 0.1 billion. Management income for farms targeted at crop production and being fully able to compensate the opportunity costs within the range of 100–200% amounted to EUR 0.2 billion. The share of farms of this class was at a constant level. The part of farms being able to cover the opportunity costs at least twice, i.e. the CI(4) class, is the highest, but shows high variability.

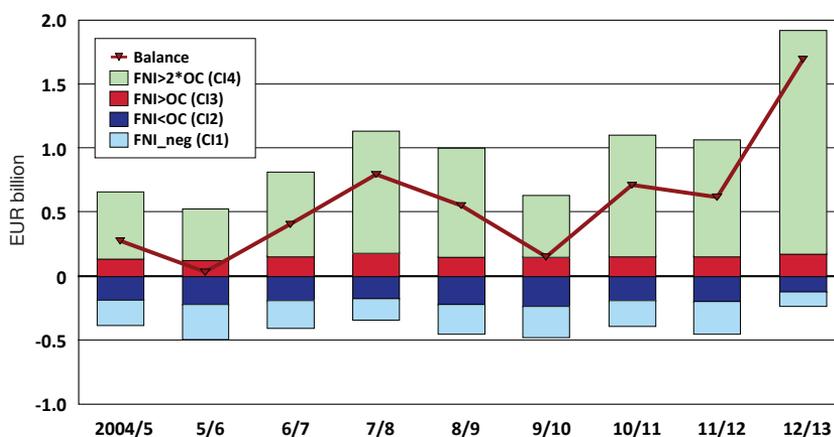


Fig. 5. Change in income (FNI) and management income (FNI less opportunity costs) for farms targeted at crop production (total)

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

The amount of management income ranged from EUR 0.4 billion in “bad” years to EUR 0.9 billion in the conditions of rapidly growing crop prices in 2007/2008 and 2008/2009, and also in 2010/2011 and 2011/2012 when it reached a maximum at the level of ca. EUR 1.7 billion in 2012/2013 – the most profitable year in the sector of crops. This means that a large part of farms targeted at crop production is competitive due to high market prices and larger surface of agricultural holdings. Management income over the entire period was positive, the lowest level was achieved in 2005/2006 and the highest in 2012/2013 when it amounted to EUR 1.7 billion.

Figure 6 presents the effects of **farms targeted at dairy production**. These give grounds for the following conclusions:

- The share of farms incurring losses is within the range of 5-10%. Management income at such farms was negative and amounted to EUR –0.1 billion in “good” years, but EUR –0.3 billion in the years of the economic crisis (2008/2009 and 2009/2010), when the dairy sector was among the most affected by the crisis along with the pig sector.
- Management income of the CI(2) class farms, noting partial coverage of opportunity costs, was negative. In “good” years (2007/2008 and 2011/2012) it amounted to ca. EUR –0.3 billion, and in “bad” years (2008/2009) it was almost twice lower.
- Management income of farms being able to fully (100%) offset opportunity costs ranged from ca. EUR 0.3 billion to EUR 0.4 billion per year and differed depending on economic conditions.
- Management income of farms being able to cover opportunity costs at least twice was dependent on market situation. In the first years, taking into account the dropping milk prices due to dairy market reform, this income was rather low, it deteriorated even further in the years of the economic crisis – 2008/2009 and 2009/2010. It achieved the highest level during the first boom in milk prices in 2007/2008 and reached ca. EUR 1.4 billion. As of 2011/2012, milk prices were growing but the costs of fodder and energy were also on the rise thus causing a decrease in incomes.

In general, management income of dairy farms in the first year of the analysis was positive (but low) and in the years of the economic crisis it was negative. In 2007/2008, because of high milk prices, it amounted to EUR 1.5 billion. From the above it follows that the economic effects, and thus competitiveness, were quite high but their variability was greater than for farms targeted at crop production.

Figure 7 shows results of farms targeted at pig and poultry production¹². In the CI(1) class of farms with negative income (FNI), management income was also negative and ranged from EUR –0.1 billion to EUR –0.2 billion. For the CI(2) class farms, noting partial coverage of opportunity costs, management income in 2007/2008 was highly negative, which was primarily influenced by very low prices of pigs and piglets, and growing costs of fodder during the boom

¹² The German FADN fails to isolate the poultry farms, which are included in this type of farming, but the findings concern primarily the pig sector.

in the crop prices. The case was quite different for farms being fully able to cover opportunity costs, i.e. the CI(3) class; management income for them was positive and ranged from EUR 0.08 billion to EUR 0.12 billion, and in the CI(4) class it ranged from EUR 0.1 billion to EUR 0.4 billion.

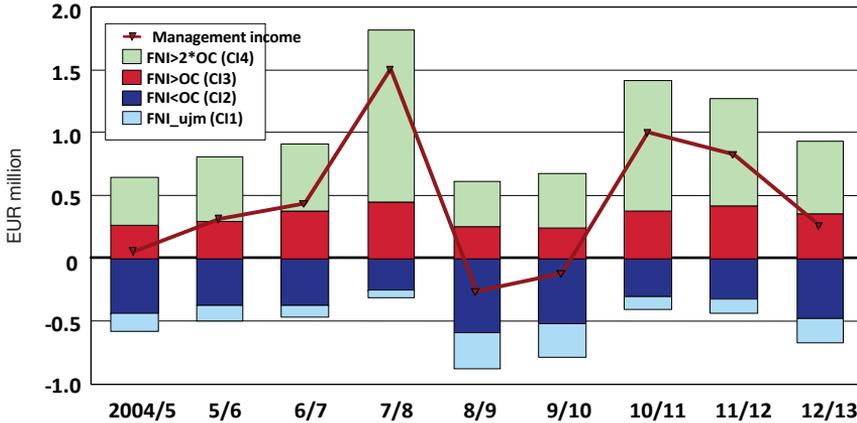


Fig. 6. Change in incomes (FNI) and management income for farms targeted at dairy production (total)

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

The ratio of positive to negative management income was ca. 3:1 in the best year (2012/2013) and only 1:3 in the worst year (2007/2008). The total management income in two out of nine years was positive, during three years it was slightly positive and quite good at the beginning and at the end of the period. The above shows that from the first boom in the crop prices in 2007/2008, the price situation of pigs and the prices of fodder had an immense impact on the competitiveness of pig farms.

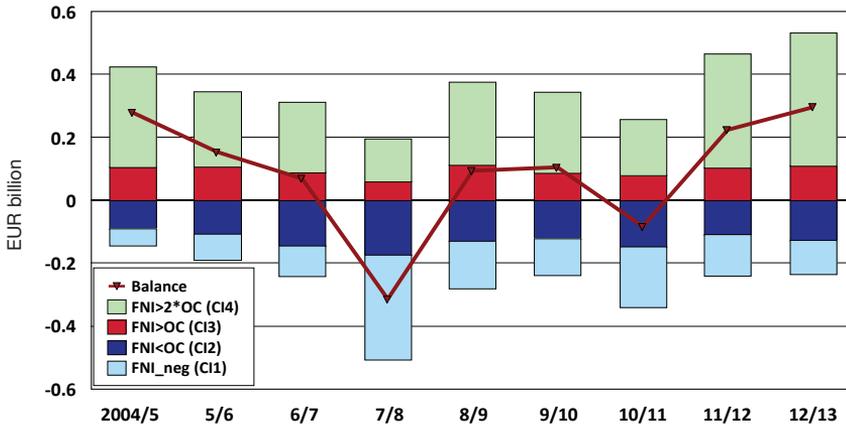


Fig. 7. Change in incomes (FNI) and management income for farms targeted at pig and poultry production (total)

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

Figure 8 presents the overall assessment of **all types of farming** considered (including other farms dealing with cattle production and mixed farms). Apart from the above-mentioned types of farming, management income from other farms dealing with cattle production was rather stable, but negative (EUR –0.5 billion) and for mixed farms – it was close to zero. Farms targeted at crop production demonstrate a positive management income over the entire period, and in the years of high prices of crops – high income. The pig sector in the years was negatively affected by the growing costs of fodder. The dairy sector is among the most important ones in Germany; its situation was quite good, but it showed high variability over time. The beef sector, represented by other farms dealing with cattle production, was in a difficult situation manifested in decreasing production, loss of income due to decoupling and decreasing demand in the countries of south-western EU and, finally, strong competition as regards lands used for production of raw materials for biogas.

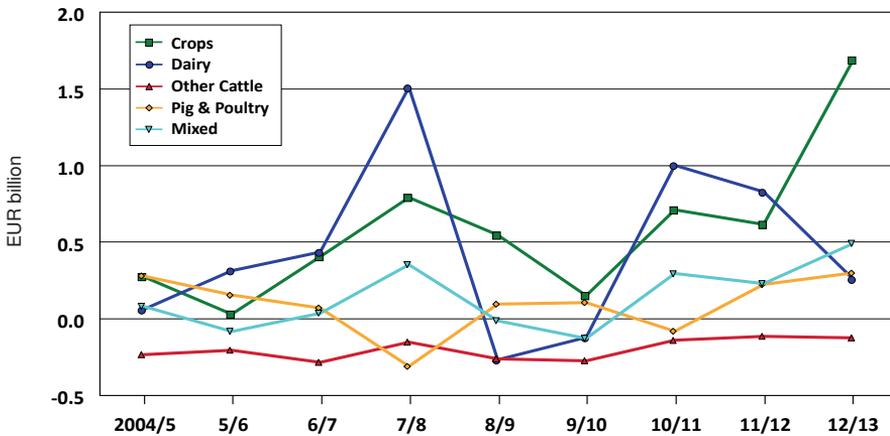


Fig. 8. Changes in management income broken down by types of farming

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

Management income broken down by regions

Figure 9 presents changes in management income aggregated for four regions. Throughout the period, the North region is characterised by positive management income showing an upward trend from EUR 0.4 billion to EUR 1.2 billion and a strong drop to the level of EUR 0.1 billion in the years of the economic crisis which was due to the situation in the dairy market, pig market and crop market that constituted the key production areas in the region. Management income and development of the Central region was rather stable, but its share in the FNI is quite low (horticulture and wine were excluded from the analysis). The South region is of key significance in the middle of the period with a negative management income in the first three years and also during the economic crisis. Management income in 2007/2008 and from 2010/2011 to 2012/2013

was positive due to high prices of milk and high share of milk in gross output. But then, the differences, as compared to the South, are also influenced by high share of beef production (other farms dealing with cattle production) and the structure of farms predominated by small and medium-sized farms having higher opportunity costs. In the first years of the analysis and in 2008/2010, the East region demonstrated a rather low or negative management income, a significant growth in 2007/2008 and 2008/2009, and a surge in 2012/13. These changes were the effect of the following factors:

- The structure of farms is dominated by large farms organised in legal forms of partnerships or enterprises of legal persons. The latter do not have a high share in own factors of production, given the high share of leased land and paid employment. Thus, they cover the costs of external factors.
- Rent for leased land is at a relatively low level – about a third or a half as compared to the West region, but the level has been growing greatly over the last years.
- Agricultural holdings are more oriented at crop production and less at cattle production. Crop sector is supported with high prices, but also largely by subsidised biogas production pursued at large farms.

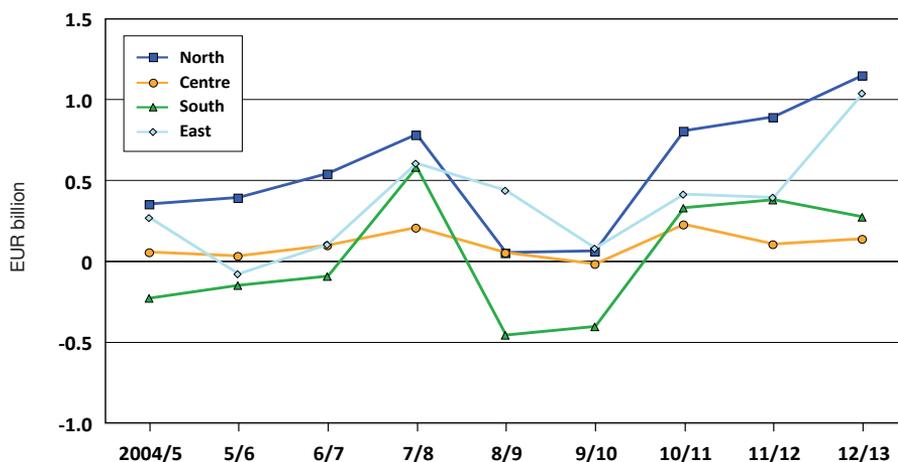


Fig. 9. Changes in management income broken down by regions

Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

Management income by legal forms, regions and types of farming

Because entities of legal persons are noted only in the East region (their small number in the West region was not considered in the FADN) differentiation into the East and West region makes sense for the assessment by legal forms. Figure 10 presents the results of farms from the East region. The results of family farms and partnerships are presented on the left side of the Figure. Farms targeted at crop production demonstrate a positive management income with an exceptional increase in the income in 2012/13. Over the seven years, farms targeted at dairy production also present a positive management income, but of rather low values.

Management income for farms of legal persons dealing with pig and poultry production and other farms dealing with cattle production was fairly low. In case of farms targeted at crop production, dairy production and mixed farms, management income was, in the first years, low or negative, which was typical for the group as of 2000. Management income for farms targeted at crop production and mixed farms reached a positive level in 2007/2008 and exceptionally good level in 2012/13, which follows mainly from high prices of arable crops. In case of farms targeted at dairy production changes were more stable and the management income was positive, except for 2005/2006 and 2009/2010.

Figure 11 presents the results of farms from the West region. Because the Central region is characterised by a slight share in income, results thereof were not interpreted, but trends noted therein were similar to those for the North region. In all regions, other farms dealing with cattle production were at a disadvantage because of the negative management income. Farms targeted at pig and poultry production in the North demonstrate a cyclical development of high variability – also on the plus side. Farms targeted at crop production are in the best situation in all regions, especially in the years of high prices. For farms targeted at dairy production, the developments are two-way: in the North region, they reach a positive management income, except for 2008/2009, and excellent results in 2007/2008 and 2010/2011.

The case in the South region is similar, but at a definitely lower level which results from a negative management income in the first years, i.e. the years of economic crisis, and in the last year. It was concluded that farms targeted at dairy production in the North, are in a better economic situation also as regards adjustment to the challenges involved in phasing out of milk quotas in 2015.

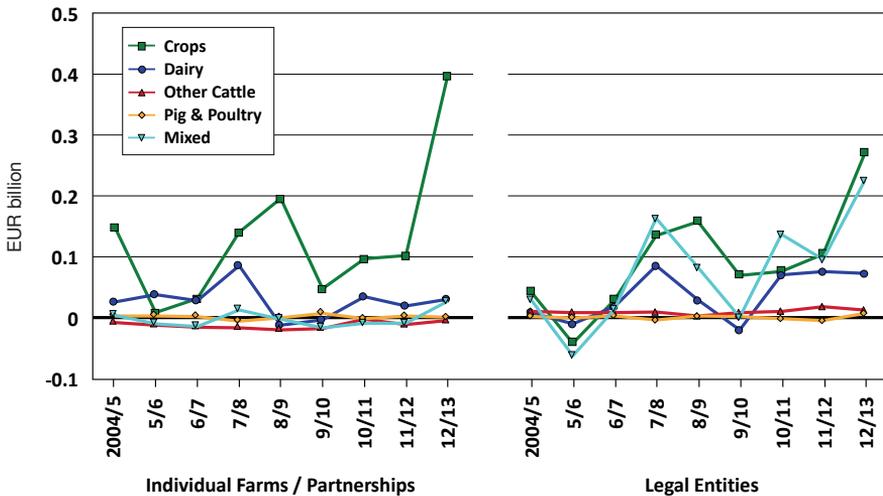


Fig. 10. Changes in management income broken down by legal forms in the East region
 Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

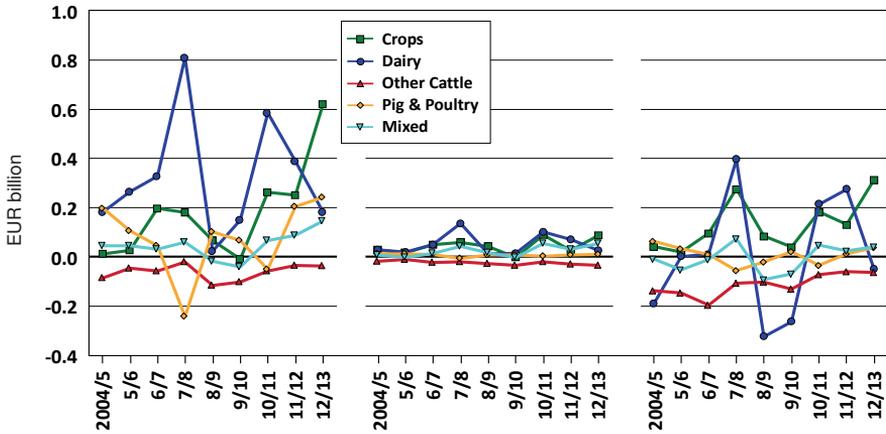


Fig. 11. Changes in management income broken down by types of farming in the West region
 Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

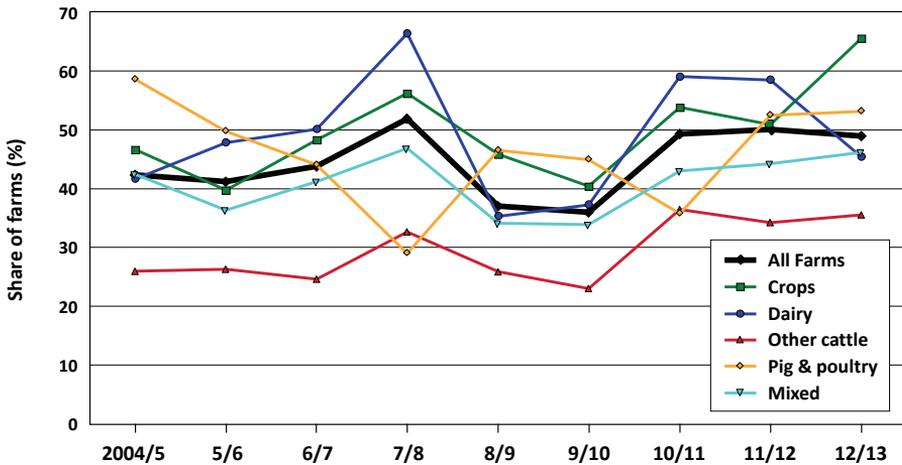


Fig. 12. The share of farms being able to fully cover opportunity costs
 Source: Thünen-Institute (TI-BW), Kleinhanss (2014).

Figure 12 demonstrates the share of the CI(3) and CI(4) farms being able to fully cover the costs of own factors of production. On average, 37-50% of all farms was able to compete. The results of mixed farms were slightly below the average. The worst situation was noted for the other farms dealing with cattle production, where farms being fully able to cover opportunity costs amounted to only 25-35%. Despite an improvement in the recent years, due to a growth in beef prices, there are symptoms that income will drop for this type of farming. For dairy farms, the share of farms able to compete was above or near the aver-

age, but with a high variability within the range from 35% to 65% depending on milk prices. Structural adjustments are necessary, in particular in the South region. Farms targeted at pig and poultry production demonstrate high fluctuations near the average with a share at the level of 30% in “bad” years and 60% in “good” years, which is conditional to prices and costs of fodder. The worst situation was noted for other farms targeted at crop production where only 40-50% is fully able to cover opportunity costs. In the boom years of 2007/2008 and 2012/2013, the share increased even to 55% and 65%. Although good results depend, above all, on the boom in the crop prices, execution of decoupled direct payments also plays a major part because the former animal premiums and subsidies to milk were shifted to lands using the regional flat-rates. Structural changes leading to setting-up larger farms constitute yet another factor thereof.

Conclusions

An answer to the main thesis of this paper – to what extent farmers are able to offset the opportunity costs of own factors of production against generated income – can be as follows:

- Incomes (FNI) were negative for ca. 10% of farms, hence these agricultural holdings were not able to cover opportunity costs with income and thus they will not survive in a long-term perspective. The share of this class of farms depends on the economic conditions, in particular on the level of prices, type of farming and structure of farms.
- For 40-50% of all agricultural holdings it is possible to cover the costs of own factors of production only partially. They have several options to choose from: (a) they may accept the compensation at a level which is lower than opportunity costs; (b) they may adjust their farms to make them more profitable; (c) they may cease a given activity and start to benefit from the resources in a different manner.
- On the other hand, for 40-50% of farms it is possible to fully cover the opportunity costs and thus to fund investments, i.e. farm’s development. Their share in income amounts from approximately two thirds to three quarters, which points to uneven distribution of incomes.

The conducted analysis gives interesting results as regards types of farming:

- Farms targeted at crop production demonstrate, in total, a positive management income throughout the examined period starting from a low level in 2004/2005 to 2006/2007, which was affected by growing prices of arable crop products. To some extent, they were also supported through execution of decoupled payments, including redistribution of former coupled animal premiums to the advantage of lands.
- For farms targeted at dairy production the share of negative FNI is rather low. A significant share (from 35% to 65%) of farms characterised by full coverage of opportunity costs immensely influenced their general positive assessment. Owing to structural benefits, farms in the North region fare better than those in the South.

- Mixed farms are characterised by similar changes, but at a lower level with a negative management income in the case of some years, but lower growth by the end of the examined period.
- Competitiveness of pig farms is highly varied depending on the pig price cycles and increasing costs of fodder resulting from surging prices of plant products. The share of farms being able to cover opportunity costs ranged from 30% to 60%. In the North region competitiveness of these farms was higher.
- Economic performance of other farms dealing with cattle production, primarily beef production, was rather weak. Only 25-40% was able to fully cover opportunity costs. Farms are negatively affected by losing premiums on account of decoupling of direct payments, growing costs of fodder and tough competition with strongly subsidised biogas production, especially in the South.

To sum up, it may be stated that the performance of farms targeted at crop production is better. In the cattle production sector, farms targeted at dairy production came off well. There are high fluctuations in the case of farms dealing with cattle production (dairy and with other cattle) and pig production. In order to improve the competitive position also as regards political changes, i.e. phasing out of milk quotas, it is necessary to introduce structural adjustments, especially for farms targeted at dairy production and other farms dealing with cattle production.

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