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The Livestock Production in Norway

Abstract. A problem of the Norwegian agricultural policy, a description of the current types of subsidies for livestock farming, financial situation of this holdings and ongoing changes in a livestock production in the years 2000 – 2015 is presented in this paper. The main aim of the publication is to characterize these changes in the considered period. There is not too many publications about the Norwegian agriculture and livestock production. The data from Statistiska Sentralbyrå (Statistics Norway) were used in the analysis. The results indicate the slight changes in the livestock production in Norwegian agriculture i.e. the slight decrease of number of holdings with livestock and generally the slight decrease of population of livestock.

Key words: livestock production, subsidies, agriculture in Norway

Introduction

This publication is about an agricultural production in Norway, particularly livestock farming. This study is a part of researches which have been conducted in a framework of "Scholarship and Training Fund Mobility Projects In Higher Education. Individual Training Programme For Staff Training Mobility" in Østfold University College in Norway. It is a continuation of published discussions devoted to the Norwegian agriculture and Norwegian agricultural policy.

The total agricultural and forest area is 80 124 km^2, that is a 26% of land of the mainland part of Norway. The agricultural area in use covers 9 859 km^2 (3,2% of land) of which fully cultivated is 8 103 km^2 (2,7% of land). It is sufficient to ensure the supply of the population of Norway (the number of persons registered as living in Norway is equal 5 223 256 persons per second quarter of 2016) in the meat, dairy product, vegetables and grain products to a certain extent (www.ssb.no, 2016; Kozioł-Kaczorek, 2016). The share of agriculture in GDP was only 1.6% in 2015. The agriculture share in employment was 1.8%. The agro-food export was only 0.8% of total export while the agro-food import was around 9.1% of total import (Hemmings, 2016).

The structure of agriculture in Norway is measured by numbers of holdings. In 2015 the total number of holdings was 41 846 and around 68% of it were holdings keeping domestic animals. The share of livestock in total agricultural production was around 71% (OECD, 2016).

The spatial distribution of holdings in generally and the spatial distribution of holdings specialised in livestock farming is presented on a map on the Figure 1.

The largest number of holdings is located in the small county of Rogaland in western Norway, county of Hedmark and county of Oppland in the central part of Norway. While the largest number of holdings with livestock production is located also in the small county of Rogaland in western Norway and county of Hedmark in the central part of Norway.

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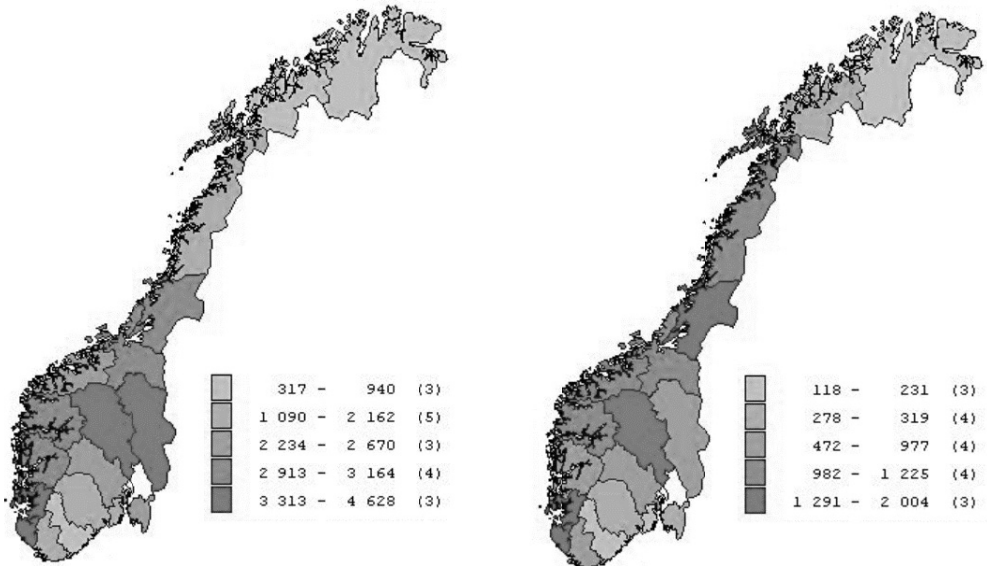

Fig. 1. The map of the spatial distribution holdings in generally (left map) and of the spatial distribution of holdings specialised in livestock farming (right map)

Source: Statistics Norway (www.sssb.no 2015).

The objective of the publication is to describe a background of the agricultural production in Norway. In particular, paper details structure of livestock farming in Norway, the situation in that sector of agriculture and also economic instruments that are the basis of Norwegian agricultural policy. It is important and also interesting because those aspects of human life and country reality are so different than in Poland.

The Norwegian agricultural policy

The agricultural production in Norway is strongly dependent on agricultural policy that is a major determinant of development of it. The agricultural policy is based on (among other) the White Paper No. 9 (2011 – 2012) "On Norwegian agriculture and food production" approved in April 2012. This document declares the most important aims and objectives of Norwegian agricultural policy: agricultural throughout all of Norway, creating more added-value, sustainable agriculture. Furthermore, the objective of Norwegian agricultural policy is also to ensure self-sufficiency and security in the field of agricultural production (especially food production). The problem is, that Norway is geographically large in relation to its population and has diverse habitats, many of which are rugged with harsh climates that present significant challenges for everyday life and economic activity, even with modern technology and conveniences. Much of arable farming is located in low-lying areas close to the main urban centres, while dairy farming is an important agricultural activity throughout the country. So, the Norwegian agricultural policy is realised in the rather unfavourable geographical and climatic conditions. It is a main reason for which the

Norwegian agricultural policy is still strongly state regulated through legislation and economic instruments (Kozioł-Kaczorek, 2016; Forbord et al., 2014; Dramstad et al., 2010). The key policy instruments supporting agriculture include domestic market regulation, budgetary payments, support measures, certain product price, welfare schemes and also border measures (OECD, 2016). The most important support for holdings comes via direct and indirect assistance for farmers. There is around one hundred individual mechanism. The key types of support comprises output-based support, transport subsidies, acreage-based payments and headage payments. The mentioned above core support mechanisms are augmented by a lot of other programmes that, for example, compensate farmers in the event of natural disasters or losses due to predators. Furthermore, farmers can also benefit from a special tax relief (OECD, 2016).

There are different kind of types of support for holdings with livestock. The first one is a output-based payments for certain meats, poultry and eggs. Another one type are transport subsidies i.e. various schemes supporting transport of meats or eggs. The next type are acreage-based payments. There are also headage payments for livestock i.e. payment per animal decreased with the number of animals for bovine animals, pigs, goats, hens, horses, rabbits and sheep. Another one are dairy-industry payment schemes. It is quota-limited price support. Comprises a structural income support and a regional payment per litre of milk for a limited output. It is "structural payment" based on numbers of animal. Further types of support are financial assistance with labour input and other national payment schemes include: organic farming support, natural disaster compensation, compensation programmes for losses due to predators and other losses. There are also regional environmental programme and income-tax deduction. Positive income balances are not taxed up to a maximum tax saving of NOK 44 900 (i.e. around EUR 4 900 at an exchange rate of 9.2) per farmer (Hemmings, 2016)

The basic information about the structure of livestock production are shortly described in this publication. Presented below results of analysis based on the data from Statistiska Sentralbyrå (Statistics Norway).

The changes in the Norwegian livestock production

The animal production in Norway covers certain meats (beef, mutton, pork, poultry), milk, butter and cheese and eggs, and fur skins. There is no fishes because the fishery is another branch of Norwegian economy and it does not belong to agriculture. The changes in the number of holdings keeping various kinds of domestic animals in the period from 2000 to 2015 are presented on the Figure 2. There are presented changes in number of holding keeping few main kinds of livestock i.e. cattle, cows (including dairy cows, beefs cows), pigs (including pigs for breeding, sows for breeding, boars for breeding and other pigs), hens, horses, sheep and goats.

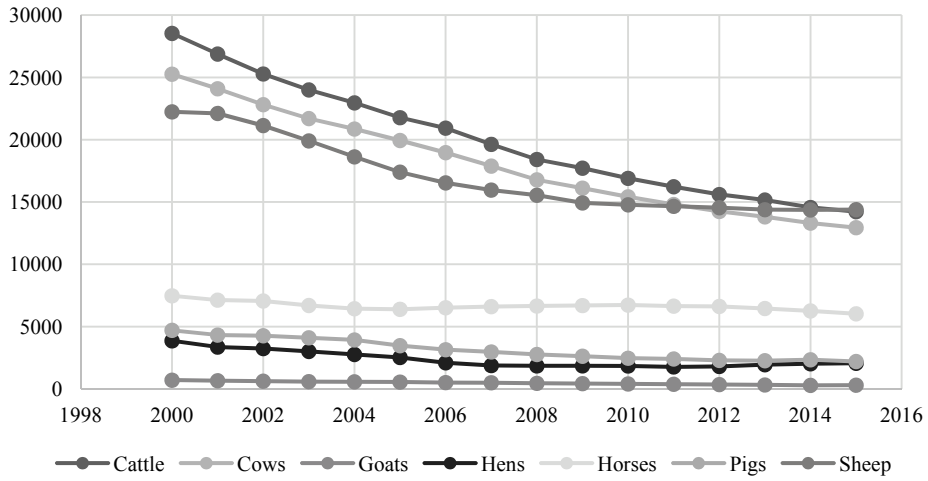

Fig. 2. The changes in the number of holdings keeping various kind of livestock

Source: own study based on Statistics Norway (www.sssb.no 2016).

Note that, the number of holdings specialised in livestock farming has systematically decreased during analysed period. Average annual rates of change of number of holdings in dependence on kind of livestock are presented in table 1.

Table 1. Average annual rates of change of number of holdings in dependence on kind of livestock

Livestock	Average annual rates of change
Cattle	-4,5%
Cows	-4,4%
Goats	-5,4%
Hens	-4,1%
Horses	-1,4%
Pigs	-4,9%
Sheep	-2,9%

Source: own calculations based on Statistics Norway (www.sssb.no 2016).

The biggest decline of number holdings is for holdings with goats (including also dairy goats). The lowest decline of number holdings is for holdings with horses. Almost the same decline of numbers holdings have holdings with cattle, cows, hens and pigs. This phenomenon is not confined to numbers of holdings livestock, the same situation is in general number of holdings and also size of agricultural area and cultivated area (Kozioł-Kaczorek, 2016).

Changes in the size of population of livestock in the analyzed period are shown on the Figure 3 and on the Figure 4. There are presented changes in number of horses, cattle, cows, goads and pigs on the Figure 3. Note that there are almost no changes in size of

populations. A slight decrease in the size of the population was observed for cattle, a slight increase in the size of the population was observed for hens.

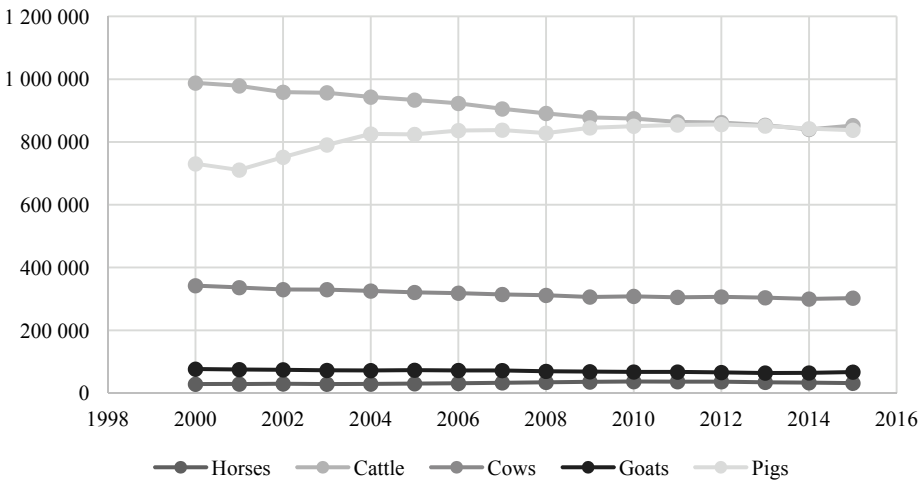

Fig. 3. The changes in the size of population of livestock (horses, cattle, cows, goats, pigs)

Source: own study based on Statistics Norway (www.sssb.no 2016).

The changes in size of population of hens and sheep are presented on the Figure 4. As is easily seen while the number of sheep remains almost unchanged, the number of hens increased steadily during this period.

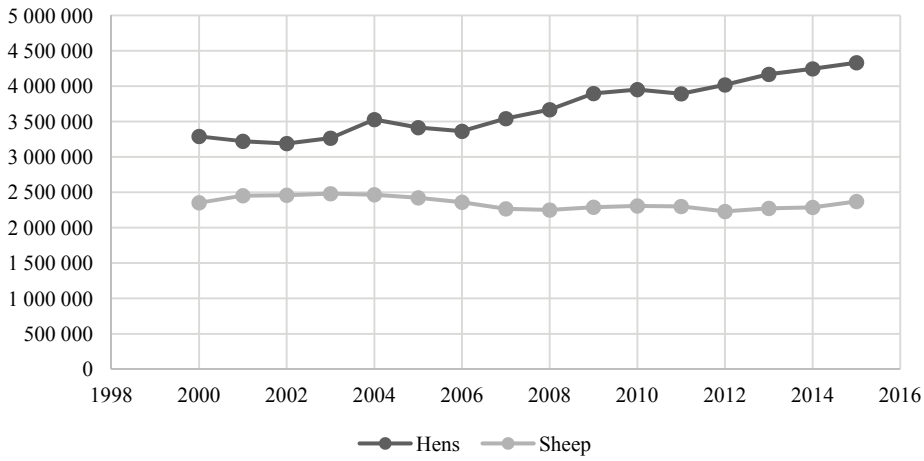

Fig. 4. The changes in the size of population of livestock (hens, sheep)

Source: own study based on Statistics Norway (www.sssb.no 2016).

Average annual rates of change of number of various kind of livestock are presented in Table 2. The increase in the size of the population of livestock is observed for horses, sheep, pigs and hens. The largest increase is observed for hens. The decrease in the size of the population is observed for cattle, cows, goats. The biggest decline of number of livestock is for cattle.

Table 2. Average annual rates of change of number of various kind of livestock

Livestock	Average annual rates of change
Horses	0,70%
Cattle	-0,98%
Cows	-0,82%
Sheep	0,05%
Goats	-0,87%
Pigs	0,92%
Hens	1,85%

Source: own calculations based on Statistics Norway (www.sssb.no 2016).

Financial situation of holdings with livestock will be described by entrepreneurial income form agriculture in 2014, and interest paid and debt for holders also in 2014. In both cases the holdings are grouped by type of farming: cattle – dairying, cattle – rearing and fattening, cattle – mixed, sheep, various grazing livestock, granivores, mixed livestock, mixed crops – livestock. The entrepreneurial income form agriculture in 2014 is presented in Table 3.

Table 3. The structure of the Norwegian holdings with livestock by the value of the agricultural income in 2014

Type of farming	Without positive income	1 - 49 999 NOK	50 000 - 99 999 NOK	100 000 - 249 999 NOK	250 000 - 399 999 NOK	400 000 and more NOK
Cattle - dairying	7%	4%	6%	21%	31%	32%
Cattle - rearing and fattening	32%	13%	18%	20%	11%	8%
Cattle - mixed	6%	2%	5%	17%	26%	44%
Sheep	35%	19%	19%	18%	6%	4%
Various grazing livestock	47%	14%	11%	13%	7%	7%
Granivores	10%	6%	8%	15%	18%	43%
Mixed livestock	14%	6%	7%	13%	16%	44%
Mixed crops - livestock	32%	14%	13%	13%	10%	19%

Source: Statistics Norway (www.sssb.no 2016).

Only around 6% of "cattle – mixed" farms and around 7% of "cattle – dairying" farms are the farms without positive income. The biggest proportion of farms without positive income was in group "various grazing livestock" farms. Therefore, it is most likely to finished the fiscal year without positive income from this type of livestock farm.

On the other side, around 44% of "cattle – mixed" farms, 44% of "mixed livestock" farms and 43% of "granivores" farms received at least the entrepreneurial income

of 400 000 NOK. The lowest proportion of farms with the entrepreneurial income of 400 000 NOK was in groups "sheep" farms, "various grazing livestock" farms and "cattle – rearing and fattening" farms. It is rather obvious that the entrepreneurial income depends on type of farm.

The interest paid and debt for holders in 2014 according to type of livestock farming are presented in the Table 4.

Table 4. The interest paid and debt for holders in 2014

Type of farming	Debt, total. NOK million	Debt per holder. NOK	Interest paid, total. NOK million	Interest paid per holder. NOK
Cattle - dairying	12 936	2 108 000	498	81 200
Cattle - rearing and fattening	6 666	1 784 000	265	70 800
Cattle - mixed	2 954	2 524 000	112	95 900
Sheep	10 562	1 113 000	430	45 300
Various grazing livestock	5 079	1 804 000	206	73 100
Granivores	10 685	4 855 000	415	188 600
Mixed livestock	2 740	4 910 000	111	199 400
Mixed crops - livestock	3 015	2 396 000	115	91 100

Source: Statistics Norway (www.sssb.no 2016).

The largest debt per owner is in group "mixed livestock" farms and in group "granivores". The debt per owner in these groups is at least twice higher than in the other groups. The largest total debt is in groups "cattle - dairying" farms, "sheep" and also in group "granivores". The total debt in these groups is also at least twice higher than in the other groups.

The lowest debt per owner is in group "sheep" farms, also in group "cattle – rearing and fattening" and in group "various grazing livestock". The lowest total debt is in groups "mixed livestock" farms, "cattle – mixed" farms and also in group "mixed crops – livestock" farms. The total debt in these groups is also at least twice higher than in the other groups.

Conclusions

Norway is a highly developed high economy and has the second highest GDP per capita in OECD region. Agricultural production constitutes only 1,5% of share of GDP and 1,8% of share in employment in the most recent years. The structure of farm area is dominated by small family farms with high cost of production. Some of them are also in remote locations operating under difficult conditions. These are main reasons for which the Norwegian livestock production is still strongly regulated by economic instruments. There is a lot of different kind of types of support for holdings with livestock as the output-based support, transport subsidies, acreage-based payments and headage payments.

With regard to decreased of number of livestock holdings, the situation is same as in the total number of holdings, and also size of agricultural area and cultivated area. During

last fifteen years can be noticed the decrease of number of agricultural holdings and the decrease of agricultural area.

But in regard to different types of livestock production, some of type of farm reported the increase of size population of livestock and the high entrepreneurial income form agriculture. Therefore agricultural policy objectives related to the provision of food seem to be carried out in the livestock sector.

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