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DEGREE OF ZOOTECHNICS – BAROMETER OF ECONOMIC DEVELOPMENT IN THE WORLD COUNTRIES

EMILIAN MERCE, CRISTIAN CĂLIN MERCE, IULIA MUREȘAN¹

Abstract. *The paper presents debates and analyses the causal relation between the level of economic development and the degree of development of the animal husbandry sector. There is a large variability in time and space at the level of the world's countries regarding this aspect. As a general trend it was observed in time an increase of the degree of development of the animal husbandry sector, with high differences among the countries being directly link to the level of development of each country. The sources of information used are the data base of FAO, world bank and EUROSTAT. There were collected data regarding the GDP per capita and the share of the value of animal husbandry production in the value of agricultural production. The data were analyzed for 14 countries from different geographical area. The main method of research and analysis was the index method. The influence of the economic development on the development of the degree of animal husbandry sector is revealed by using the regression and correlation method. The results prove that modern agriculture cannot exist in a rudimentary economy. The first step to the modernization of the agriculture consists in increasing the degree of development of the animal husbandry sector. at the same time the economic development level of a country is the consequence of development and uniform combination of the all branches of the economy (industry, transports, infrastructure, services etc.) all these determine the social structure of the country.*

Key words: *economic development, animal husbandry development, index, regression, correlation*

INTRODUCTION

The degree of development of the animal husbandry sector is the result of the general development of the country. From this point of view there is a large difference from one country to another and from period of time to other. The level of economic development is also correlated with the social structure of the country. Nowhere in the world during the time was evolution not observed a healthy economy or a significant level of development of the animal husbandry sector if the social structure is a primitive one (a lot of peasants). As a general trend it can be underlined the increase of the degree of animal husbandry sector development being correlated with the level of economic development, but with high difference from one country to another and one region to another. The development of animal husbandry sector can be considerate the first step for the vertical development for both micro and macroeconomic level. The degree of development of the zoothenics is barometer for standard of leaving among the different countries of the world (Merce E. et al, 2010). The logical consequence is the increase of economic efficiency and life quality. During the last six decades in Europe, the annual consumption of bred decrease from 200 kg per capita almost 70 kg per capita. In the meanwhile the annual consumption of meat increase from 30 kg per capita to more than 70 kg per capita.

The role of the animals in the nation life is representative from the beginnings. Each nation valorized more or less the natural condition where was established. From this point of view is very relevant the statement of Hippolyte Taine about the Nordic nations: “the rain made the grass, the grass made the cow, the cow made milk-cheese-butter, and all these together with the beer made the efficient Nordic man.” Hence the world's economic distribution based on the animal husbandry development sector is the result of the natural conditions, on one hand, and on the way the man knew how to take advantage of them, on the other hand. The economy of the countries with primitive social structure (many peasants) for sure is not performing from economic point of view, and the agriculture is a subsistence one.

MATERIAL AND METHOD

For a correct and fair research, the statistical data represents an important factor. The data base of FAO, WORLD BANK and EUROSTAT offer exact information about the degree of

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economic development and about the current situation of the animal husbandry sector. For the presents paper data about the GDP per capita and the share of the animal production value in the total agricultural production value were collected. The sample is represented by 14 countries from different part of the world.

The main method of analysis is represented by the indices method. The main indicators which reflect the current economic situation and the degree of development of the animal husbandry sector were analyzed with the help of regression and correlation.

RESULTS AND DISCUSSIONS

The analysis of the data at the level of the sample proves that there is a causality link between the economic development and degree of animal husbandry sector development. This a stochastic causal relationship influenced also by the random factors. Some exceptions, like the case of France, can be explained the economic and natural particularities which have deep roots in the history (table 1).

Table 1

The value of the total agricultural production, vegetable and animal production in the 14 countries

No.	Country	Sector	Mil. \$	%
1.	England	Vegetal	13700	43.6
		Animal	17727	56.4
		Total	31427	100.0
2.	Burundi	Vegetal	1928	92.4
		Animal	159	7.6
		Total	2087	100.0
3.	Cameron	Vegetal	9614	90.6
		Animal	996	9.4
		Total	10610	100.0
4.	Denmark	Vegetal	3230	30.8
		Animal	7244	69.2
		Total	10474	100.0
5.	Ethiopia	Vegetal	5232	65.2
		Animal	2792	14.8
		Total	8024	100.0
6.	France	Vegetal	48318	59.5
		Animal	32875	40.5
		Total	81193	100.0
7.	Ghana	Vegetal	12332	93.1
		Animal	916	6.9
		Total	13248	100.0
8.	Germany	Vegetal	26971	42.4
		Animal	36590	57.6
		Total	63561	100.0
9.	Nigeria	Vegetal	3029	63.4
		Animal	1748	36.6
		Total	4777	100.0
10.	Holland	Vegetal	6248	32.1
		Animal	13203	67.9
		Total	19451	100.0
11.	Poland	Vegetal	13693	50.5
		Animal	13403	49.5
		Total	27096	100.0
12.	Romania	Vegetal	15377	67.8
		Animal	7292	32.2
		Total	22669	100.0
13.	Spain	Vegetal	30739	65.6
		Animal	16140	34.4
		Total	46879	100.0
14.	Hungary	Vegetal	5886	65.5
		Animal	3107	34.5

No.	Country	Sector	Mil. \$	%
		Total	8993	100.0

Source: FAOSTAT | © FAO Statistics Division 2013 | 06 October 2013

For a numeric evaluation of the causality relation in Table 2 are presented the GDP per capita (thousand \$/capita) and the degree of development of the animal husbandry sector (%).

Table 2

Correlation between the economic development and the degree of development of the animal husbandry sector

Nr.	Country	GDP* thousands \$/capita - 2012 -	Degree of zootechnics development %
1.	Burundi	0.251	7.6
2.	Ethiopia	0.470	14.8
3.	Cameroon	1.151	9.4
4.	Nigeria	1.555	36.6
5.	Ghana	1.605	6.9
6.	Romania	7.943	32.2
7.	Hungary	12.622	34.5
8.	Poland	12.708	49.5
9.	Spain	29.195	34.4
10.	England	38.514	56.4
11.	France	39.772	40.5
12.	Germany	41.514	57.6
13.	Holland	46.054	67.9
14.	Denmark	56.210	69.2

Source: *The World Bank Group, 2013.10.06

Using the option regression from the data analysis package in Excel was obtaining the following parameters of the regression line and the correlation coefficient (table 3).

Table 3

Regression and correlation line

Regression line	Coefficients
a	17.92544
b	0.920501
Correlation coefficient	0.865415
Determination coefficient	0.748943
Standard error	11.22449
The sample volume	14

Regression line:

$$\bar{y}(x) = 17.92 + 0.92x$$

At every 1000\$ GDP per capita the degree of animal husbandry development increases approximately by 1 percent. The causality relation between the economic development level and the degree of development animal husbandry level can be represented also by graphic. The adjusted value of the regression line based on the variance of GDP per capita can be observed in Table 4.

Table 4

X	0	10	20	30	40	50	60	70
Y	17.92	27.12	36.32	45.52	54.72	63.92	73.12	82.32

The causality relation between the economic development level and degree of development of the animal husbandry sector can be observed in figure 1.

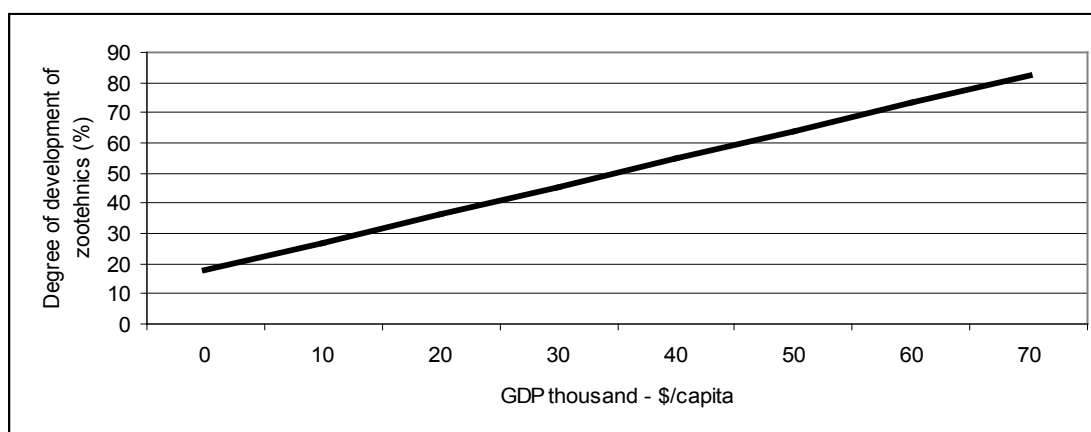


Fig. 1 – Evolution of the degree of zootechnics development based of the GDP per capita

The F test was use to find the significance of the correlation coefficient. It proves to be very significant (table 4).

Table 4

Variance	Degree of freedom	Sum of squares	Mean square	F	Significant F
Between groups	1	4510.162	4510.162	35.798	0.000064
Within groups	12	1511.871	125.989		
Total	13	6022.032			

The value of the correlation coefficient (0.8654) indicates an intense correlation, and the F test confirms that the correlation coefficient is very significant.

CONCLUSIONS

1. The results prove that modern agriculture cannot exist in a rudimentary economy. The first step to the modernization of the agriculture consists in increasing the degree of development of the animal husbandry sector.
2. At the same time the economic development level of a country is the consequence of development and uniform combination of the all branches of the economy (industry, transports, infrastructure, services etc.) All these determine the social structure of the country.
3. The economy of the countries with primitive social structure (many peasants) for sure is not performing from economic point of view, and the agriculture is a subsidence one.
4. There is not anywhere in the world performing countries with a high share of peasants in the society. A typical example in this sense is the case of England which in 1901 had only 9% of the population occupied in agriculture. Romania even after the Second World Wear, in 1947, had 80% peasants (Merce E., 2011).
5. The advantage of the develop countries of the world is not due only to the evolution from the latest decades. The causes of these gaps are old and can be localized by time in the Renaissance.
6. To reinforce this fact it can be mention the fact that the first Cadastral Register (Doomsday Book) in England was realized in 1086, while in Romania not even today exists one.

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