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CORRELATIONS AMONG THE RENEWABLE WATER RESOURCES AND AGRICULTURAL DEVELOPMENT IN SELECTED COUNTRIES

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ABSTRACT
In this study the main aim is to analyse that how one of the most important renewable natural resources, namely water resources can influence on the agricultural production and increasing the agricultural value added. The study uses Statistical Program for Social Sciences to analyse the correlations among seven economic variances, emphasizing correlations among renewable water resources and economic growth, agricultural development, increasing the cultivated areas and human developing trends in six countries, Russia, Ukraine, China, Brazil, Egypt and Turkey between 2010 and 2017.Very strong correlations are among percent of total country area cultivated, Gross Domestic Product, Agriculture, gross value added and Total ***internal*** *renewable water resources. While in Russia the Total internal renewable water resources increased, therefore the Agriculture, value added increased by 26,2%, which was about two times more than the average level of selected countries.GDP growth of China and Egypt could not ensure enough increase of agricultural value added for their population for researched period. Future scientific researches can focus on developing trends of the innovative technology to increase agricultural value added and also, the possible increase of knowledge and skill of farmers in selected countries.*

KEY WORDS: *Cultivated areas, GDP, Statistical program, Ukraine, Value added*

1. Introduction

In this study the main aim is to analyse that how the one of the most important renewable natural resources, namely the water resources can influence on the agricultural production and increasing the agricultural value added. The agricultural products are also renewable energy resources relevant to supply food for the human consumption and to feed animals as also food-resources for human consumption. The sustainability is relevant for either for remaining natural resources or for creating the adequate balance of cost-benefit ration at firm level to follow the competitiveness of the firms. Therefore, the agricultural production has an important role by using water resources for food supply and obtaining incomes to remain cost-benefit balance. The analyse uses international compares for six selected countries, namely Russia, Ukraine, China, Brazil, Egypt and Turkey in this economic fields. These sex countries have a wide-side experiences in field of renewable water resources for their economic and agricultural development, which could be useful for development of the other countries. Between 2010 and 2017, most of the EU countries have seen a growth in their GVA per AWU (Gross value added per Annual working unit). For the EU as a whole, GVA/AWU increased by 2,8% per year [1]. The tradability of rural non-farm sector goods can have different implications. In a general equilibrium perspective, productivity gains in the agricultural sector have a negative impact on the tradable non-farm sector. This is because agricultural products as well as rural non-farm non-tradable have a relatively inelastic demand for labour, whereas tradable goods have more elastic labour demand. If wages increase due to greater agricultural productivity, factories producing tradable goods, which are assumed to be operated by external producers, will move to escape the higher wages [2-3]

[13]. The list entry of *total renewable water resources* provides the long-term average water availability for a country in cubic kilometres from precipitation, groundwater recharge, and surface inflows from surrounding countries. Fresh and unpolluted water accounts for 0,003% of total water available globally [4].

2. Material and Methods

The study usesthe SPSS system as (Statistical Program for Social Sciences) to analyse the correlations among the seven economic variances, emphasizing the correlations among renewable water resources and economic growth, agricultural development, increasing the cultivated areas and human developing trends in six selected countries [12].

The study analyses seven economic variances, namely the most important renewable water resources, as Total ***internal*** renewable water resources per capita (m3/inhab/year) by the other short name InterWRCap5, theTotal renewable water resources per capita (m3/inhab/year) (TRenewWRCap6) and Dam capacity per capita (m3/inhab) (DamCapita7). There is a quite different between *InterWRCap5* and *TRenewWRCap6*, because the first means the all of the renewable amount of water coming only from inside one given country, and the second one is coming also from countries and beyond state borders additionally to inside water resources of one given country.

The other four economic variances are namely percent of total country area cultivated (TAreaCult1), Gross Domestic Product (GDP) (current US$)(GDPGrowth2), Agriculture, gross value added (% GDP) (AgrVaAd3) and the Human Development Index (HDI) [highest = 1] (-), (Minus) HDIndex4) in the period of *2008-2017, 2008-2012= 100, in percent (%)*. The international sources are coming from the FAO, 2018. AQUASTAT. The Minus sign for HDIndex4 is meaning, that this economic variance is correlating in inverse ratio to the other economic variances. This does mean negative value.

3. Literature Review

Agriculture also accounts for a significant fraction of the economic activity in the developing world, with some 25% of value added in poor countries coming from this sector. The sheer size of the agricultural sector implies that changes affecting agriculture have large aggregate effects. Thus, it seems reasonable that agricultural productivity growth should have significant effects on macro variables, including economic growth. But these effects can be complicated. The large size of the agricultural sector does not necessarily imply that it must be a leading sector for economic growth. In fact, agriculture in most developing countries has very low productivity relative to the rest of the economy. Expanding a low-productivity sector might not be unambiguously good for growth [5].
Farmers need for financial subsidies and credit to invest into their agricultural production, which last one also needs for adequate operating bank system for realising aim. This bank system is operating under the internal control. Naturally the convergence in central banking regulation is requested by the EU to create internationally unified bank system in Europe [6]. The successful economic conditions in Hungary is proved by some experts [9] and [10] in field of financial background of taxes and loan conditions.

Additionally, to the financial background of farming in order that the farmers can decrease the cost of production and their transaction cost, they are stimulated to strengthen their cooperation for *accessing cheaper inputs* and improving the agricultural productivity even in Kosovo [7] and [8]. The new technology should be used even in field of digital development trends for improving the agricultural sector [11].

4. Results and Discussion: The correlations of economic variances in six selected countries

The used data summarised in a table in order to follow the analysing process easily in case selected countries. In the Table-1 the GDPGrowth2 rate sharply decreases, which was resulted by decline of the other economic sectors, while the agricultural industry increased, because mainly in

Russia and Ukraine the other sector had positive influences on the development of the agricultural industry. So, the agricultural value added could averagely increase by 13,28% in the same time in selected countries. The average GDPGrowth2 in selected 6 countries has decreased by 12,58%, while the Agricultural value added (AgrVaAd3) increased for the period of 2008-2017 [2].

Countries	**TArea Cult1**	**GDPGro wth2**	**AgrVaAd 3**	**HDIndex 4**	**InterWR Cap5**	**TRenew WRCap6**	**DamCapi ta7**
Variances	**1**	**2**	**3**	**(Minus) 4**	**5**	**6**	**7**
Component	**1 (Line"X")**					**2 (Line"Y")**	
Brazil	10,1	-28	6,1	1,1	-4	-4,2	-4,2
China	10,8	28,2	-5,6	1,3	-2,5	-2,4	-1,2
Egypt	***1***	***20***	***0,4***	***0,4***	***-10***	***-10***	***-10***
Turkey	-0,3	-9	-3	0,6	-7,7	-7,7	-7,7
Russia	***2,8***	***-38,7***	***26,2***	***0,4***	***5,7***	***-0,4***	***-0,4***
Ukraine	0,8	-48	55,6	0,5	2,6	2,6	2
Average of 6	***4,2***	***-12,58***	***13,28***	***0,72***	***-2,65***	***-3,68***	***-3,58***
Variances	**1**	**2**	**3**	**(Minus) 4**	**5**	**6**	**7**

Table-1: The economic growth and the water use and supply in selected 6 countries of Europe, Asia, Africa and South-America in percent between 2008-2017
Source: [2] FAO, 2018. AQUASTAT Main Database, Food and Agriculture Organization of the United Nations (FAO). Website accessed on [26/04/2019 16:56]

TAreaCult1 =*percent of total country area cultivated*
GDPGrowth2 = *Gross Domestic Product (GDP) (current US$)*
AgrVaAd3 = *Agriculture, gross value added (% GDP)*
(Minus) HDIndex4 = *Human Development Index (HDI) [highest = 1] (-)*
InterWRCap5 = *Total **internal** renewable water resources per capita (m3/inhab/year)*
TRenewWRCap6 = *Total renewable water resources per capita (m3/inhab/year)*
DamCapita7 = *Dam capacity per capita (m3/inhab)*

		TAreaC ult1	GDPGro wth2	AgrVa Ad3	HDInd ex4	InterWRC ap5	TRenewWR Cap6	DamCap ita7
Correlat ion	TAreaCult1	1,000	**,921**	**,911**	**-,678**	**,727**	,066	-,112
	GDPGrowth 2	,921	1,000	**,992**	**-,642**	**,790**	,154	,069
	AgrVaAd3	,911	,992	1,000	**-,553**	**,712**	,244	,163
	HDIndex4	-,678	-,642	-,553	1,000	**-,802**	,277	,381
	InterWRCap 5	,727	,790	,712	-,802	1,000	-,367	-,460
	TRenewWR Cap6	,066	,154	,244	,277	-,367	1,000	**,923**
	DamCapita7	-,112	,069	,163	,381	-,460	,923	1,000

a. Thismatrix is notpositivedefinite.

Table-2: Correlation Matrix
Source: Owned calculation based on the SPSS statistical system based on [2] FAO, 2018. AQUASTAT Main Database, Food and Agriculture Organization of the United Nations (FAO). Website accessed on [26/04/2019 16:56]

In Russia, Ukraine, China, Brazil, Egypt and Turkey the correlations are different among GDP growth, agricultural value-added growth with using renewable water resources. The *Table-2* shows the correlations among the different seven economic variances and provides the measures of these correlations, which can be seen as average measure of the correlations concerning the 6 selected countries. Essentially these measures are average one among selected countries based on their economic variances as their economic characters. If the values of correlations among economic variances are over 0,800 by the other form in percent as 80% to 100%, the correlations are *very strong*. If the values of correlations among economic variances are over 0,600 by the other form in percent as 60% to 80%, the correlations *are strong*. If the values of correlations among economic variances are between 0,500 and 0,600 by the other form in percent as 50% to 60%, the correlations are *middle strong*. But if the values of correlations among economic variances are under 0,500 by the other form in percent as 50% to 40%, the correlations are *middle weak*. Under the level of values of correlations is not important for the statistical calculations of the SPSS (Statistical Program for Social Sciences).

From point of view of these ranges in theTable-2 the very strong correlationsare among percent of total country area cultivated (TAreaCult1), Gross Domestic Product (GDP) (current US$) (GDPGrowth2), Agriculture, gross value added (% GDP) (AgrVaAd3) and Total ***internal*** renewable water resources per capita (m3/inhab/year) by the other short name (InterWRCap5), which means that if one of these economic variances increase the other one also increase within these one. But also,Human Development Index (HDIndex4) is in inverse ratio to the other economic variances. The Human Development Index (HDIndex4) has strong correlations with country area cultivated (TAreaCult1), Gross Domestic Product (GDP) (current US$) (GDPGrowth2), Agriculture, gross value added (% GDP) (AgrVaAd3) and Total ***internal*** renewable water resources per capita (m3/inhab/year) (InterWRCap5) but in inverse to ratio of them, which means that when the Human Development Index (HDIndex4) increases the other variances decrease, or if the others increase the HMDindex4 decreases.

Also, very strong and strong correlations are between GDPGrowth2, Agriculture, gross value added (AgrVaAd3), Total ***internal*** renewable water resources per capita (m3/inhab/year) (InterWRCap5).

Also, very strong correlations are between the Agriculture, gross value added (% GDP) (AgrVaAd3) and Total ***internal*** renewable water resources per capita (m3/inhab/year) (InterWRCap5).

Also, there are very strong correlations between Total renewable water resources per capita (m3/inhab/year) (TRenewWRCap6) and Dam capacity per capita (m3/inhab) (DamCapita7).
This contradiction correlation is proofed by statistical basic data of Table-1, because the average GDPGrowth2 rate of selected 6 countries has decreased by 12,58%, while the InterWRCap5 (Total internal renewable water resources per capita, m3/inhab/year) even little but also decreasedby 2,65%, mostly it has been stagnated for the same time [2]. The considerable contradiction was between AgrVaAd3 and GDPGrowth2, because the marginal increase of the first one by 13,28% and the marginal decreasing level of the GDP growth by 12,58% at average level of six selected countries.

In ***Russia*** the total ***internal*** renewable water resources per capita has sharply increased by 5,7% as top level in all of the 6 selected countries for the same period. This is a normal and natural situation, because the area of the Russia Federation is quietly enough large, therefore even the long rivers start their flow and their delta river to outflow to the sea within Russia. This means as internal, as inside area of the country. Based on the water management in Russia, the country has implemented more drinking water withdraw from its rivers, comparably more than cases of the other selected countries. Also, Russia little decreased the total renewable water resources per capita coming from its other neighbouring countries, which could be resulted by the drought weather. Mostly neighbouring countries of Russia in Asia are lying in desert or drought areas. In any case this kind of water per capita and dam capacity per capita have decreased not considerably for this period.

While in Russia the Total internal renewable water resources per capita considerably increased by 5,7% comparably to the other selected countries, therefore the Agriculture, value added increased by 26,2%, which was about two times more than the average level of 6 selected countries, but mostly less than half of this result of Ukraine. In spite that the agricultural value added increased in Russia the

GDPGrowth2 rate dramatically decreased, which was the second lowest level of the GDPGrowth2 after Ukraine, where the decrease of GDP was by 48%. This shows that the economic growth has decreased and sharply declined in both of countries for the researched period. This economic fall avoided of decrease of the agricultural value added of Russia and Ukraine, because of more favourable Total internal renewable water resource per capita and less drought weather than in the other countries of the 6 one. Also, in Russia the population has sharply decreased since the beginning of the 1990s after the collapse of the former Soviet Union, therefore the water supply per capita could naturally increase.

In Ukraine the favourable geographic conditions made agricultural value added (AgrVaAd3) grow by 55,6% more than one of Russia, but this could not obstacle the dramatic fall of GDP in this country. Finally, the considerable increase of the AgrVaAd3 of Russia and Ukraine could not contribute to the GDPGrowth2 (Table-1; Figure-1; [2]).

In ***Russia Federation*** in spite that the Total internal renewable water resources per capita increased at the top level within the 6 selected countries and the total areas cultivated considerably increased by 2,8% after Brazil and China, the agricultural value added increased by 26,2% less than one of Ukraine in this period. Naturally this last result was important comparably to result of the 6 selected countries in the agricultural industry, which was higher by two times than one of 6 countries. In Russia the other economic industrial sectors were also developed, while in Ukraine less sectors were developed because of more luck of capital than in Russia Federation. These economic conditions of Russia were proofed by the less decline in GDPGrowth2 than in one of Ukraine by 48% in the same time, while the GDPGrowth2 was declining in Russia by 38,7% more than in 6 selected countries by 12,58%.

Generally, in Russia as the total area cultivated increases by 2,8%, as HDIndex4 increases to the level of value 0,4 in the same time, which also provides proof that these two economic variances are middle strongly correlating with each other [2]. In Russia Federation the total area cultivated increase has been more than the average increasing level of Ukraine, but the value of HDIndex4 in Russia was less than the average level value of the other countries. *This means that in Russia the extending area cultivated connected with more extensive methods for increasing agricultural production and agricultural value added* (AgrVaAd3). Mainly less use of mechanization and mechanical equipment was in Russia than in Ukraine, but half f the average level of selected countriesin field of increasing rate of agricultural value added, which was increase by 26,2% in Russia than by 55,6% in Ukraine. Naturally the total area cultivated can also increase by increasing irrigation, as intensive method for extending agricultural value added. In Russia the HDIndex4 was at level of 0,4 value, while in Ukraine this value was more at level of 0,5. This means that in Russia probably the standard of living was less level than in Ukraine, if it can be thought, that the other two elements of the HDI, namely long healthy-life and knowledgeable can be similarly for themselves of both of countries.

In ***Russia*** the *Total internal renewable water resources per capita considerably increased by 5,7%* comparably to the other selected countries, therefore the Agriculture, value added increased by 26,2%, which was about nine times more than the average level of 21 selected countries, but mostly less than half of this result of Ukraine. In spite that the agricultural value added increased in Russia the *GDPGrowth2 rate dramatically decreased*, which was the second lowest level of the GDPGrowth2 after Ukraine, where the decrease of GDP was by 48%. This shows that the economic growth has decreased and sharply declined in both of countries for the researched period. This *economic fall avoided of decrease of the agricultural value added* of Russia and Ukraine, because of more favourable Total internal renewable water resource per capita and less drought weather than in the other countries of the 21 one. Also, in Russia the population has sharply decreased since the beginning of the 1990s after the collapse of the former Soviet Union, therefore the water supply per capita could naturally increase.

Generally, in ***Russia*** as the *total area cultivated increases by 2,8%, as HDIndex4 increases to the lower level of value 0,4* in the same time, which also provides proof that these two economic variances are middle strongly correlating with each other. In the Table-2 this middle strong correlation

has 0,495 value [2]. In Russia Federation the total area cultivated increase has been more than the average increasing level of Ukraine, but the value of HDIndex4 was less than the average level value of the other countries. *This means that in Russia the extending the total area cultivated connected with more extensive methods for increasing agricultural production and agricultural value added* (AgrVaAd3), *while the HDIndex4 was at relatively lower level*. Mainly less use of mechanization and mechanical equipment was in Russia than in Ukraine and the selected countries, which can be followed in different data in field of increasing rate of agricultural value added, which was increase by 26,2% in Russia than by 55,6% in Ukraine, while in Ukraine total area cultivated only increased by 0,8% in the same period. Naturally the total area cultivated can also increase by increasing irrigation, as intensive method for extending agricultural value added, because of the *total internal renewable water resources per capita increased by 5,7% in Russia, while the GDP decreased*. But the total renewable water resources per capita little *decreased*, because the neighbouring countries of Russia mainly mostly are desert areas and the global warming can result in less water yields for the rivers coming from these countries.

In ***Ukraine*** the total internal renewable water resources, total renewable water resources per capita and dam capacity per capita increased by 2,0% and 2,6%, which have possible impact on the increase of the total area cultivated by 0,8% and increase of the agricultural value added increased by 55,6 by this cultivated land use. While in Ukraine there have been strong correlations among these five economic variances and these strong correlations stimulated the strong development of agricultural production, which resulted the highly level increase of the agricultural value added for the researched period (Table-2). The agricultural value added could sharply have increased for this period not only because of minimal increase of the total areas cultivated but the intensive mechanization improvement was realised in the agricultural industry. The central governmental agricultural policy in Ukraine focused on the advanced technological and technical development process in this sector in order to decrease the one-side food and agricultural dependence from the import. In Ukraine also the total areas cultivated has increased by 0,8% and the HDIndex4 also increased to the middle level of this economic variance, as 0,5 value, which both of values are not far from each other.

While these water resources averagely decreased *in the 6 countries* by 2,65% and 3,68%, also, the total area cultivated increased by 4,2% and therefore the agricultural value added considerably increased by 13,28%. Generally, in cases of the selected 6 countries the total internal renewable water resources per capita has strong correlations with total areas cultivated by 0,727, GDP growth by 0,790 and AgrVaAd3 – agricultural gross value added – by 0,712 and also in inverse ratio to HDIndex4 by 0,802 (Table-2) [2]. There are only strong contradiction and reversed correlations between GDPGrowth2 rate and agricultural value added and also between are GDPGrowth2 rate and Total internal renewable water resources per capita in cases of the 6 countries.

In ***Ukraine*** the total internal renewable water resources, total renewable *water resources per capita and dam capacity per capita increased by 2,0% and 2,6%,* which have possible impact on the little *increase of the total area cultivated by 0,8%* and *increase of the agricultural value added increased by 55,6* by this cultivated land use, while the *GDPGrowth2 rate decreased by 48%.* While in Ukraine there have been strong correlations among these five economic variances and these strong correlations stimulated the strong development of agricultural production, which resulted the highly level increase of the agricultural value added for the researched period. The agricultural value added could sharply have increased for this period not only because of minimal increase of the total areas cultivated but the intensive mechanization improvement was realised in the agricultural industry. The central governmental agricultural policy in Ukraine focused on the advanced technological and technical development process in this sector in order to decrease the one-side food and agricultural dependence from the import.

In Ukraine there are only strong contradiction and reversed correlations between GDPGrowth2 rate and agricultural value added and also between are GDPGrowth2 rate and Total internal renewable water resources per capita in cases of the 21 countries. Also, in selected 21 countries there are middle strong correlations between the total areas cultivated and HDIndex4

(Human Development Index (HDI) [highest = 1] (-), because the value of HDIndex4 is not far from the increase rate of total area cultivated. *In Ukraine also the total areas cultivated has increased by 0,8% and the HDIndex4 also little increased to the middle level of this economic variance, as 0,5 value,* which both of values are not far from each other.

In ***Turkey*** three kinds of the renewable water resources per capita sharply decreased by 7,7%, which could be realised by increasing trend of population accompanying with increasing time-length of the drought weather in Asia Minor. Also, the renewable water force dam capacity should be developed according to the covering the luck of energy and increasing population. The number of populations has increased from level of 74,6 million inhabitants in 2008 to 80,7 million one by the end of 2017. The population growth in Turkey has increased for this period very intensively accompanying with increasing the unemployment level about 20% for the same time. After Egypt in Turkey the decreasing trend of renewable water resources was the second biggest one within 6 countries.

In ***Brazil*** the renewable water resources decreased by between 4% and 4,2%. In Brazil the increasing trends of population also contributed to decrease the water resources per capita, but this was less measure than in Turkey and also, the rainfall was more in Brazil.

In Turkey in spite that the renewable water resources per capita sharply decreased the AgrVaAd3 (Agriculture value added) decreased but not as well as water resources per capita. This can be resulted by extending the irrigating system. But in Turkey the GDPGrowth2 decreased by 9%. This economic fall could be decreased by less investments therefore the less international wide-side competitive possibility for this country, which led to decreasing trends in the economic growth.

The worst geographical conditions were ***in Egypt***, which can be proofed by considerable decrease of the InterWRCap5 (Total internal renewable water resources per capita), TRenewWRCap6 (Total renewable water resources per capita) and DamCapita7 (Dam capacity per capita) by 10% during the same period, which this is the lowest level in selected 6 countries. Only several areas of Egypt are satisfactory for the agricultural production, mostly in several oasis and along valley of the Nile river. The global warming mostly could decrease the *water resources per capita* and the dramatic increase of population, which was 11,2%. The agricultural value added has only increased by 0,4%, which cannot ensure enough food and agricultural product supply for sharply increasing population, therefore the food balance can be very deficit based on the more food import.

China has reached the top level by *increasing the total country area cultivated by 10,8%* even more than the increasing trend of Brazil. Also, China researched the *top level of increasing to the level of 1,3% in field of HDIndex4*. This last one was very extreme increase in the international comparison. The *decreasing trend in field of agricultural value added was 5,6%,* which was well balanced by the *GDPGrowth2 rate, as extremely large increasing rate*. But the decrease of agricultural value-added shows that the population of rural and village areas are not at adequate standard of living, *therefore the HDIndex4 and its considerable increase does not mean considerable increase of standard of living for considerable part of population in Chine*. In spite that this negative favourable situation the increase of HDIndex4 includes real considerable positive results for healthy-life and the knowledgeable and better living conditions for most of population in urban areas and some rural areas.

5 Conclusions

The very strong correlations are among percent of total country area cultivated (TAreaCult1), Gross Domestic Product (GDPGrowth2), *Agriculture, gross value added* (AgrVaAd3) and *Total* ***internal*** *renewable water resources.*While in Russia the Total internal renewable water resources increased, therefore the Agriculture, value added increased by 26,2%, which was about two times more than the average level of 6 selected countries, but mostly less than half of this result of Ukraine.

In *Ukraine*the total internal renewable water resources, total renewable water resources and dam capacity increased, which have possible impact on the increase of the total area cultivated and

increase of the agricultural value added by this cultivated land use. While in Ukraine there have been strong correlations among these economic variances and these strong correlations stimulated the strong development of agricultural production, which resulted the highly level increase of the agricultural value added for the researched period.

The other four countries have less renewable water resources, therefore the agricultural value added partly decreased or little increased. This shows that the total area cultivated increase, even more than in cases of Ukraine and Russia Federal could not result considerable increase in yield of the agriculture as well as value added in other four countries. Also, the GDP growth of China and Egypt could not ensure enough increase of agricultural value added for their population for the researched period.

Future scientific researches can focus on developing trends of the innovative technology to increase agricultural value added and also, the possible increase of knowledge and skill of the farmers in selected six countries.

References

[1] AFI (Agricultural and factor income, 2017): DG Agriculture and Rural Development, Unit Farm Economics Tel: +32-2-29 91111 / E-mail: AGRI-C3@ec.europa.eu © European Union, 2018
Reproduction authorised provided the source is acknowledged [2]

[2] FAO (Food and Agriculture Organization, 2018). AQUASTAT data. https://www.indexmundi.com/facts/indicators/ER.H2O.INTR.PC/rankings

[3] LENTNER, CS., VASA, L., KOLOZSI,P. P., & ZÉMAN, Z. (2019). *New dimensions of internalcontrols in banking afterthe GFC,* ECONOMIC ANNALS-XXI 176 : 3-4 pp. 38-48. , 10 p. DOI ResearchGate publ. WoS Scopus

[4] GLEICK P, H., WOLFF, G. H., COOLEY, H., PALANIAPPAN, M., SAMULON, A., LEE, E., MORRISON, J.& KATZ, D. (2013). The World's Water 2006-2007: The Biennial Report on Freshwater Resources. Island Press, 05. MARCH, 2013. p. 392

[5] LENTNER, CS, NAGY, L., VASA, L.,& HEGEDÚS, SZ. (2019). *Sustainability and ControlIssues of the Financial Management of Local Governments – ThroughHungary'sExample,* VISEGRAD JOURNAL ON BIOECONOMY AND SUSTAINABLE DEVELOPMENT 8 : 1 pp. 18-26. , 9 p. (2019)

[6] LENTNER, Cs. (2018): Convergence in central banking regulation – what EU candidates in South -East Europa can learn from Hungarian experience. *JOR JahrbuchfürOstrecht*. Band 59. (2018) 2. Halbband. ISSN 0075-2746 pp. 383-398

[7] SHAQIRI, F. &TRENDOV, M. N. (2017):*Agricultural Subsidies' Effects on the agricultural productivity in Kosovo.* In: ACE 2017 6th International Conference: Actual Economy: Eurasian discourse on Global Challenges (2017) Paper: Session 1/Paper 7

[8] SHAQIRI, F. &TRENDOV, M. N. (2018): *Agricultural Subsidies' and Environmental Effects of agricultural productivity (the case of Kosovo)* INTERNATIONAL JOURNAL OF ECOLOGICAL ECONOMICS AND STATISTICS 39 : 1 pp. 54-63. , 10 p. (2018) WoS

[9] SZABÓ, L. & ZSARNÓCZAI, J. S. (2004): *Economic conditions of Hungarian agricultural producers in 1990s Agricultural Economics* (ZemedelskaEkonomika- Czech Republic). (0139-570X 1805-9295): 50, 2004 (6): 249-254.

[10] SZÉLES, ZS., ZÉMAN, Z. &ZSARNÓCZAI, J. S. (2014): Developing trends in Hungarian agricultural loans in term of 1995 and 2012. *Agricultural Economics* (ZemedelskaEkonomika-Czech Republic). 60, 2014 (7): 323-331.

[11] TRENDOV, M. N., VARAS, S. & ZENG, M. (2019): *Digital technologies in agriculture and rural areas – Status Report* Rome, Italy, Food and Agriculture Organization of the United Nations (FAO) (2019) , 140 p. ISBN: 9789251315460

[12] ZAGUMNY, M. (2001): The SPSS® Book: A Student Guide to the Statistical Package for the Social Sciences®ISBN-13: 978-0595189137. Writer Club Press, USA, p. 115

[13] ZSARNÓCZAI, J. S. & ZÉMAN, Z. (2019): Output value and productivity of agricultural industry in Central-East Europe *Agricultural Economics* (ZemedelskaEkonomika- Czech Republic). (0139-570X 1805-9295): 65, 2019 (4): 185-193.

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