I. THE CURRENT STATE OF THE WORLD ECONOMY AND INTERNATIONAL ECONOMIC RELATIONS

FORMATION OF AN EFFECTIVE ECONOMIC SYSTEM IN THE CONDITIONS OF INDUSTRY 4.0.

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Summary. The article discusses the correlation relationship between economic performance indicators. These indicators are primarily related to Industry 4.0. Based on the correlations between the indicators, recommendations were proposed in relation to the formation of an effective economic system.
Keywords: Industry 4.0; macroeconomic indicators; correlation.

In order to form an effective economic system of the country in the conditions of Industry 4.0, it is necessary, first of all, to analyze the economic systems of the leading countries, try to find their "balance" and implement it in relation to the studied country.

To do this, the correlations between the studied indicators were analyzed (Table 1). The table shows that the largest correlations with the GDP per capita of the leading countries in Industry 4.0 can be traced with the following indicators: exports of high technology (0.64), the number of patents for residents (0.70) and non-residents (0.66) in countries, the number of publications in scientific and technical journals (0.86), the number of R & D researchers (0.74). This indicates the following: that scientists in the studied group of countries are interested in the development and implementation of innovative products; the more money a country invests in the development of its scientific potential, the more GDP per capita in this country; countries invest in human resources, in the knowledge economy; the higher the high technology, the higher the GDP per capita.

Table 1

Correlation of economic indicators for the group of countries "Leaders" [1]

	Research and development costs, USD USA	Export of high technologies, USD USA	Exports of high technologies,% of total exports	GDP per capita, USD USA	Inflation,%	Alternative and nuclear energy,% of total energy use	Renewable electricity production,% of total electricity	Unemployment rate,%	Patents, residents, individuals	Patents, non-residents, persons	Publications in scientific journals, publications	Researchers, individuals
Research and development costs, USD USA	1,00	0,46	0,24	0,48	-0,42	-0,44	**0,63**	-0,48	**0,63**	**0,61**	**0,79**	**0,75**
Export of high technologies, USD USA	0,46	1,00	0,52	**0,64**	-0,31	0,59	**0,73**	-0,43	0,53	0,45	**0,70**	0,57
Exports of high technologies,% of total exports	0,24	0,52	1,00	-0,22	-0,41	-0,55	0,58	-0,34	0,40	0,32	0,44	0,41
GDP per capita, USD USA	0,48	**0,64**	0,22	1,00	-0,20	0,57	0,53	0,43	**0,70**	**0,66**	**0,86**	**0,74**
Inflation,%	-0,42	-0,31	-0,41	0,20	1,00	-0,30	-0,36	-0,37	-0,29	-0,26	-0,31	-0,31
Alternative and nuclear energy,% of total energy use	0,44	0,59	-0,55	0,57	-0,30	1,00	**0,70**	0,43	0,55	-0,43	**0,60**	0,54
Renewable electricity production,% of total electricity consumption	**0,63**	**0,73**	0,58	0,53	-0,36	**0,70**	1,00	-0,36	0,56	0,47	**0,60**	**0,61**
Unemployment rate,%	-0,48	-0,43	-0,34	0,43	-0,37	0,43	-0,36	1,00	0,50	0,37	0,52	-0,52
Patents, residents, individuals	**0,63**	0,53	0,40	**0,70**	-0,29	0,55	0,56	0,50	1,00	0,59	**0,73**	**0,65**
Patents, non-residents, persons	**0,61**	0,45	0,32	**0,66**	-0,26	-0,43	0,47	0,37	0,59	1,00	0,68	0,66
Publications in scientific journals, publications	**0,79**	**0,70**	0,44	**0,86**	-0,31	**0,60**	**0,60**	0,52	**0,73**	**0,68**	1,00	**0,83**
Researchers, individuals	**0,75**	0,57	0,41	**0,74**	-0,31	0,54	**0,61**	-0,52	**0,65**	**0,66**	**0,83**	1,00

It is worth noting the negative correlations. For example, we have a negative correlation between inflation and all the studied indicators, which indicates its negative impact on all these indicators. Therefore, countries should be interested in reducing inflation to its "natural" level. We have a similar situation with the unemployment rate, which also has a negative impact on the development of the country in terms of Industry 4.0.

The table also shows the relationship between research costs and the number of R&D researchers. Industry 4.0 is about the future, it is the introduction of new technologies and developments, so every country that wants to join it needs to take care of its human resources and not regret investing in it.

The Fourth Industrial Revolution is closely linked to the sustainable development of mankind. One of its principles is to ensure environmental stability and sustainability [2]. This means the prosperity of the natural systems on which life on Earth depends. Therefore, it is also necessary to take care of natural resources, which are exhaustible. We need to look for new ways to produce energy, increase the percentage of alternative energy use and renewable electricity production.

Therefore, to form an efficient economic system in Industry 4.0, it is advisable to increase investment in science and technology, create comfortable conditions for researchers and scientists, increase the share of high-tech exports and increase the percentage of alternative and renewable energy sources.

Bibliography

1. DataBank // The World Bank. - 2020. - URL: https://databank.worldbank.org/home (date of treatment 11/21/2020).
2. Sustainable Development Principles // Sustainable Environment. - 2018. - URL: https://www.sustainable-environment.org.uk/Principles/principles.php (date of treatment 11/21/2020).