

Scientometric indicators of science development

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Abstract

The article investigates the dynamics of scientific publications in the countries of the world for 20 years. The modern trends in the growth of the number of publications, positions of different countries of the world are described.

Keywords: science publications, globalization, research universities

The development of education and science is an important imperative for the development of countries in the modern world. An important characteristic of the development of science are indicators of volumes and dynamics of the number of scientific publications, as a whole, and in the cited publications. The well-known truth is that breakthrough development is only achieved by those countries that pay considerable attention to the system of science and education. And if education can boast some positive tendencies, then the situation in relation to science is not so optimistic. The transformation of strong positions into real competitive advantages requires focused efforts. In the modern world, the scientific recognition of the potential of each country is determined by the number of publications in science-editions.

The author summarizes the data on the dynamics of such publications, the statistics of which is led by the

international network SCIMAGO since 1996 [1]. The general trends and dynamics of publications in the most advanced countries are as follows (table 1). Some countries show an extremely high rate of increase in the number of quoted publications (China is growing 1531.1%, Malaysia - 2747.2%, Brazil - 678.6%, Iran - 5116.5%, etc.), which, of course, is a realization purposeful state policy of these countries. In 2017, the top ten leaders in science-edited publications were: USA (1 st place), China (2), Great Britain (3), Germany (4), India (5), Japan (6), France (7), Italy (8), Canada (9), Australia (10). Unfortunately, Ukraine is on the 46th place with a total of 11,119 publications and a Hirsch index of 225. Nevertheless, the analysis showed that there is a great potential in the domestic higher education for increasing publications, which is confirmed by their rapid growth in recent years.

TABLE 1 The total number of publications in science-editions in some countries of the world, 1997-2017 [1]

Countries	1997		2017		H index	%, 2017 до 1997
	number of publications	Rank	number of publications	Rank		
USA	347 079	1	626 403	1	2 077	180,5
China	33 222	8	508 654	2	712	1 531,1
United Kingdom	93 103	3	191 830	3	1 281	206,0
Germany	82 769	4	170 114	4	1 131	205,5
India	21 939	13	147 537	5	521	672,5
Japan	93 779	2	123 043	6	920	131,2
France	59 918	5	115 747	7	1 023	193,2
Italy	40 571	7	110 402	8	898	272,1
Canada	42 453	6	100 810	9	1 033	237,5
Australia	25 644	11	94 065	10	848	366,8
Russia	32 035	9	83 358	12	503	260,2
Korea	12 951	16	80 743	13	576	623,5
Brazil	10 860	21	73 697	14	489	678,6
Iran	1 063	51	54 388	16	257	5 116,5
Poland	11 964	18	44 692	18	479	373,6
Turkey	6 107	27	42 405	19	368	694,4
Sweden	17 953	14	39 976	20	778	222,7
Taiwan	11 573	19	32 181	22	702	278,1
Malaysia	1 130	49	31 043	23	249	2 747,2
Ukraine	6 112	26	11 119	46	225	181,9
Estonia	604	60	3 118	68	234	516,2
Latvia	507	65	2 188	75	142	431,6

A common feature of all successful governments (whose strategies were very diverse) was the fundamental recognition of the priority of the intellectual factors of breakthrough social development, which manifested not only in significant consideration and financing of the field of education and science, but also - in attracting the intellectual elite to the development of state policy and strategy. It seems that the recognition of the priority of the sphere of education and science and the real rise of their role in the development of the country can be represented on the state level as a sign of genuine reforms. The transformation of research universities into an important factor in the country's innovation development should be through the

mechanisms of program-targeted management, increased funding, expansion of autonomy and entrepreneurial functions in interaction with the real economy and business.

The strategic future of Ukraine depends on whether the government determines its key priority to strengthen the scientific potential of the country and create conditions for its effective use in the light of global trends. Key issues are: increasing the financing of education and science; increase of inflow of financial resources from entrepreneurial, non-profit and foreign sources; support of scientists, creation of conditions for realization of their potential; creation of powerful research universities as generators of innovation development.

References

[1] <https://www.scimagojr.com/countryrank.php>