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THE ORIGINS OF THE LOW INNOVATIVENESS OF THE POLISH ECONOMY AND THE DIRECTIONS OF DEVELOPMENT OF THE NATIONAL INNOVATION SYSTEM

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Purpose: The aim of the article is to determine the reasons for the low innovativeness of the Polish economy through the prism of cause-and-effect relationships between selected innovation indicators and to justify the priorities of the state's innovative policy.
Design/methodology/approach: In the process of preparing the article, desk research and statistical methods were used. As a result of the correlation analysis, it was found most important factors on innovativeness.
Findings: During the research, it was found that the key factors that determine the innovativeness of economy are the quality of human resources, which is derived from the quality of education, the level of development of civil society and culture. Innovativeness of economy must be analyzed in the context of the level of democracy in society, common culture level, the development of civil society. They determine the quality of education, elasticy on innovative policy and power distance, creation of pro-innovation attitudes of society and the social responsibility of government institutions. The system of innovation indicators used in the European Innovation Scoreboard requires adjustments as some of them do not affect innovation.
Originality/value: Research results show that Poland does not have an effective innovation system, and innovation policy activities are inconsistent, sporadic and non-systemic. Research into the causes of low innovation in the Polish economy based on the assessment of the correlation coefficients between indicators characterizing individual areas of the innovation cycle and the summary innovation index (SII) leads to the conclusion that it is necessary to create an effective and flexible innovation system based on the elimination of traditional innovation barriers for Poland. Priorities in innovation policy should be established based on the "profile" of the economy's innovation, which reflects the distance between the national economy and the EU innovation leaders in the cross-section of individual indicators used by Eurostat to calculate the general level of innovation (SII). The effectiveness of innovation policy depends primarily on ensuring the appropriate level of democracy, the development of civil society and pro-innovation models of social behavior. This is the basis for the creating the quality of education and higher education, creating conditions for supporting innovation activities (motivation, protection of property rights, financial support for innovators), shortening the power distance and the flexibility of the innovation system.
Keywords: innovations, behavioral factors, economic development.
Category of the paper: Research paper.

1. Introduction

The beginning of the 21st century is characterized by a growing interest in models of economic growth based on knowledge. One of the pillars of a knowledge-based economy is its innovativeness, i.e. the ability to quickly and effectively use new ideas in economic practice (The four…, 2022). The problem of increasing innovation is particularly important for the Polish economy, which, despite noticeable progress in this area (Defratyka, Morawski, 2021; Sawicka, 2024), is still, as 20 years ago, classified as one of the "emerging innovators" (European…, 2024). The reasons for the low innovativeness of the Polish economy are the subject of numerous studies, the authors of which focus mainly on the analysis of organizational and economic barriers to innovation. However, some sources draw attention to the need for a systemic approach to the problem of increasing innovation by creating an effective innovation system capable of implementing the appropriate innovation policy (Zachłowski, 2018; Lachowicz, 2021; Stryjek, 2015; Wiadek, 2017).

Despite some positive changes in the Polish innovation system, innovation policy is not able to ensure the achievement of the key goal, which is to shorten the distance between the innovativeness of the Polish economy and the EU average. It seems that the solution to the problem should be sought not so much in the national innovation system itself, but in its social, political and economic foundations, which determine behavioral models and pro-innovation attitudes of society (Oksanych, 2023).

2. Methods

The research results presented in this article are based on the use of desk research and statistical methods.

Based on an analytical review of sources and a critical analysis of scientific publications, it has been proven that it is necessary to create an effective national innovation system in Poland, aimed at developing and implementing an innovation policy. The choice of priorities for this policy must, on the one hand, take into account the experience of countries that are leaders in innovation, and on the other hand, take into account the unique national specificity in the studied area.

On the one hand, each economy has its own "profile" of innovation, determined by the state of resources and the efficiency of their use. Therefore, the same changes or actions introduced in these or other areas of the innovation strategy will bring noticeable effects for one economy, but will be less effective for another. This explains the unique, individual nature of the innovation growth strategy for each economy and the low effectiveness of attempts to imitate models proven in other conditions.

On the other hand, it seems logical that there are similar innovation profiles for certain groups of economies, distinguished in terms of the level of innovation. In the research process, statistical methods were used to reveal the cause-and-effect relationships between selected innovation factors and its overall level, especially correlation coefficients as a measure of the strength of these relationships. The assessment of the size of correlation coefficients allows to identify with sufficient probability those areas of the innovation system that have the greatest impact on the level of innovation in the economy for countries with a similar level of innovation. The values of the appropriate indicators for the selected country against the background of innovation leaders or the EU average will allow to determine the most "neuralgic" elements of the national innovation system and justify the choice of priorities for creating an effective innovation policy. The values of the correlation coefficients were calculated based on data from the European Commission Report "European Innovation Scoreboard 2023" (European..., 2024).

3. Source Analysis

Innovation, defined a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process) (Oslo Manual 2018, 2018), is becoming a key factor in economic development (Jasiński, 2018; Weresa, 2014; Wojnicka-Sycz, 2016). The innovativeness of the Polish economy compared to the EU average is quite low. A low level of innovation means not only a decrease in the competitiveness of the economy and a slowdown in the GDP growth rate, but also a threat of the occurrence of the "middle income trap" (Zaremba, 2018; Raszka, Smyk, 2020). Reading scientific publications on the studied issues shows a great interest of scientists, business representatives and government institutions in searching for "recipes" for a dynamic increase in the innovativeness of the Polish economy. The authors of many publications focus on explaining the barriers to low innovation and justify specific solutions for their removal. Over the past two decades, the government has taken numerous steps to support innovative activities. Despite the noticeable improvement in the situation, the distance between Poland and countries classified as "strong innovators" (not to mention innovation leaders) is still quite large. Most of the reasons for low innovation are related to the existence of barriers of an organizational-legal (institutional), economic and socio-cultural nature.

The most common organizational, legal and institutional barriers include:

- insufficient effectiveness of the relationship between science and business (Strategia…, 2016; Różański, 2018; Weresa, 2014; Narodowy System…, 2022);

- low effectiveness of state institutions in terms of stimulating innovation activity, support in the area of creating innovation infrastructure (Strategia…, 2016; Stawicka, 2017; Różański, 2018; Weresa, 2014; Orlowski, 2020; Stryjek, 2015);
- bureaucracy, administrative barriers, excess regulations in the area of innovation (Strategia…, 2016; Narodowy System…, 2022).

Among the economic barriers, researchers most often distinguish:

- low demand from Polish companies for innovative products (Strategia…, 2016);
- dominance of low and medium-low technology industries in the structure of the economy (Strategia…, 2016; Weresa, 2014), high level of monopolization, creating entry barriers for new companies (Strategia…, 2016);
- lack of knowledge of business and market realities among scientists (Stawicka, 2017; Myjek, 2018; Różański, 2018);
- problems with financing R&D (Weresa, 2014), personnel with appropriate qualifications (Różański, 2018; Narodowy System…, 2022). According to researchers, socio-behavioral barriers to the growth of innovation occur in the form of:
- lack of awareness and acceptance of pro-innovation attitudes on the part of society, low creativity and innovativeness of university graduates (Myjek, 2018);
- low level of knowledge and experience, lack of trust in the context of establishing cooperation, focusing on one's own needs, negative experiences of cooperation with scientists, risk aversion in business (Narodowy System, 2022);
- problems in the sphere of education, related to, among others, frequent general education rather than vocational education, as well as the mismatch of education programs to the requirements of the modern economy (Siuta-Tokarska, Borowiecki, 2017).

However, most researchers perceive innovation barriers through the prism of this or that criterion, when 'solving the problem of low innovation of the economy requires establishing cause-and-effect relationships covering the entire innovation activity and its conditions, because some of the barriers mentioned above are primary, the other part - secondary' (Oksanych, 2022).

The effectiveness of the state's innovation policy, the aim of which is to eliminate imperfections of market mechanisms regulating innovation processes, depends on the effectiveness of the national innovation system.

The analysis of the determinants of innovation leads to the conclusion that it is necessary to change the very concept of creating a national innovation system (Kamińska, 2017; Stryjek, 2015). The basis of such a concept is the assumption of the primary role of social and economic factors in relation to elements, tools and national innovation system.

Creating an effective innovation policy implemented by the national innovation system should be considered through the prism of its relations with the environment, because it is the environment that determines its priorities, structure and implementation mechanisms. The core of such a policy must be the assumption that "the driving force of technological progress in the

economy based on innovation is not the scientist/research team/R&D institution today, but the innovation-oriented entrepreneur" (Jasiński, 2018, p. 225). In a very simplified way, the relations of the national innovation system with the environment are reflected in the diagram presented in figure 1.

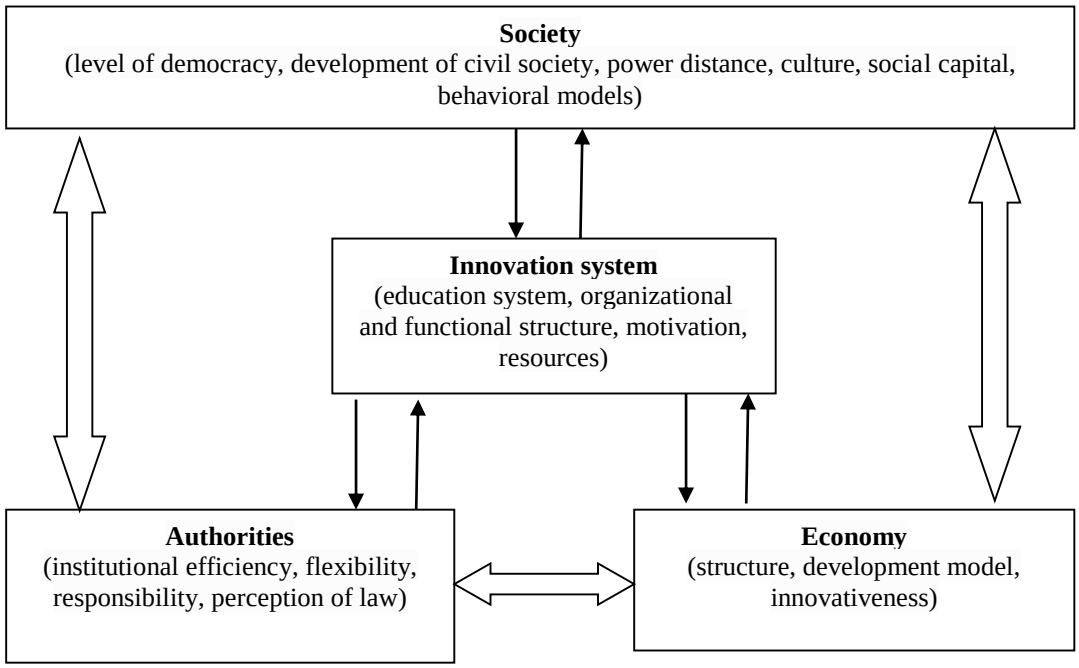

Figure 1. Simplified diagram of the relationship between the national innovation system and the environment.

Source: own study.

The key determinants of the national innovation system are society, authorities and economy, which in turn are closely interconnected. The level of democracy, development of civil society, power distance, culture, social capital, socially accepted models of behaviour determine the pro-innovation behaviour of the authorities, the perception of law, the effectiveness of the functioning of its institutions, ensure the flexibility and responsibility of the authorities to society. The generator of new ideas, which are the basis of innovation, is man, not the state. The task of the state institutions is to provide conditions friendly to innovation activity, above all to create an appropriate education system, ensuring not only access to knowledge, but also the development of skills to use it effectively. However, the quality of the education system (as well as other elements of the national innovation system) depends not only on the decisions of the authorities, but also on the attitudes of society, awareness of the continuous development of the entire system of acquiring, processing and effective use of knowledge. Knowledge requires continuous supplementation. Therefore, the education system must encompass not only schools and universities, but also life-long learning units.

The functioning of the national innovation system takes place in close relation with the economy. On the one hand, it supports the innovative activity of economic entities, on the other – it must flexibly respond to phenomena occurring in the economy, be able to meet the challenges of contemporary trends in global socio-economic development.

One of the key tasks of the national innovation system is to create and implement an effective innovation policy, which is determined by many factors. Therefore, its development is met with the necessity of choosing its appropriate concept, based on the identification of key priorities and directions of actions. It seems obvious that the priority directions are those that determine the level of innovation of the economy to the greatest extent.

In practice, various methods of measuring the innovativeness of the economy are used. Each of them has its advantages and disadvantages. In this study, an approach based on the European Innovation Scoreboard methodology was used. The choice is justified by the following arguments.

Firstly, the European Innovation Scoreboard methodology provides for the calculation of an integral synthetic innovation index (SII), recognised and used by Eurostat and the statistical offices of the member states as an objective measure of innovation.

Secondly, the calculation of the SII is based on taking into account the values of 28 indicators, representing 12 dimensions of innovation and grouped into 4 groups – Framework, Investments, Innovation Activities, Impacts, which makes up a fairly objective and representative statistical base, although the use of some of these indicators is controversial as their relationships with innovation are questionable (Jasiński, 2021).

If we compare the individual innovation indicators used by the EU to calculate the SII in the EIS reports for countries belonging to the same group in terms of the SII value (leaders, strong innovators, etc.), their values do not differ significantly for countries from the same group. The impact of the individual indicators that make up the SII differs significantly for the group of leaders and for the group of emerging innovators (table1). These factors, which are not very significant for leaders, have a large impact on the innovation of countries classified as emerging innovators and vice versa. Yes, for the countries that are leaders in innovation, the highest level of correlation with the SII indicator is shown by the indicators:

- international scientific co-publications (correlation coefficient 0.8838),
- broadband penetration (0.8123),
- public-private co-publications (0.9245),
- knowledge-intensive services exports (9614). For the countries belonging to the "Emerging innovators" group, the corresponding values are 0.8863, -0.773, 0.5309, 0.0157.

On the other hand, the most significant indicators in terms of their impact on SII for the "Emerging innovators" group of countries are:

- international scientific co-publications (0.8863),
- R&D expenditure in the public sector (0.9014),
- innovative SMEs colaborating with others (0.8415),

- - direct and indirect government support for business R&D (0.8337),
- - R&D expenditure in the business sector (0.8616),
- - innovation expenditures per person employed (0.8871),
- - PCT patent applications (0.8519),
- - resource productivity (0.8786).

Table1.
The values of the correlation coefficient between SII and individual innovation indicators of the European Innovation Scoreboard

		Code	Indicator	All UE countries	Emering innovators	Leaders
Framework condition	**Human resources**	1.1.1	New doctorate graduates	0,7840	0,8076	0,5907
		1.1.2	Population completed tertiary education	0,5984	0,0374	0,6990
		1.1.3	Lifelong learning	0,7199	0,5176	0,6463
	Attractive research system	1.2.1	International scientific co-publications	0,7760	0,8863	0,8838
		1.2.2	Scientific publications among top 10% most cited	0,8618	0,6482	0,7171
		1.2.3	Foreign doctorate students	0,6715	0,8035	0,6538
	Digitalization	1.3.1	Broadband penetration	0,4052	-0,773	0,8123
		1.3.2	Individuals with above basic overall digital skills	0,7311	0,6867	0,5390
Investments	**Finance and support**	2.1.1	R&D expenditure in the public sector	0,6837	0,9014	0,6704
		2.1.2	Venture capital investments	0,4445	0,5793	0,4425
		2.1.3	Direct and indirect government support for business R&D	0,3446	0,8337	-0,964
	Firm investments	2.2.1	R&D expenditure in the business sector	0,7380	0,8616	0,4849
		2.2.2	Non-R&D innovation expenditure	-0,1382	0,8219	-0,323
		2.2.3	Innovation expenditures per person employed	0,7124	0,8871	0,1896
	Use of information technologies	2.3.1	Enterprises providing ICT training	0,7226	0,7655	0,4420
		2.3.2	Employed ICT specialists	0,7557	0,6170	0,5277
Innovation activities	**Innovators**	3.1.1	SMEs with product innovations	0,5449	0,6397	0,5999
		3.1.2	SMEs with business process innovations	0,5970	0,8120	0,3390
	Linkages	3.2.1	Innovative SMEs collaborating with others	0,6877	0,8415	0,4075
		3.2.2	Public-private co-publications	0,7724	0,5309	0,9245
		3.2.3	Job-to-job mobility of Human Resources in S&T	0,1847	0,2541	0,0960
	Intellectual assets	3.3.1	PCT patent applications	0,7998	0,8519	0,6874
		3.3.2	Trademark applications	0,0823	0,0670	0,6422
		3.3.3	Design applications	0,2980	0,1922	0,3644
Impacts	**Employment impacts**	4.1.1.	Employment in knowledge-intensive activities	0,7323	0,8133	0,5632
		4.1.2	Employment in innovative enterprises	0,6786	0,8352	0,2547
	Sales effects	4.2.1.	Medium & high-tech product exports	0,0997	0,3446	-0,786
		4.2.2	Knowledge-intensive services exports	0,6939	0,0157	0,9614
		4.2.3	Sales of new-to-market and new-to-enterprise innovations	0,2961	0,7486	0,2083
	Environmental sustainability	4.3.1	Resource productivity	0,5134	0,8786	0,3563
		4.3.2	Air emissions in fine particulates in industry	-0,4586	-0,728	-0,830
		4.3.3	Development of environment-related technologies	0,3904	0,2528	0,0990

Source: own study based on (European Innovation…, 2024).

As indicated by the data presented in Table 1, for leaders the correlation of these indicators with SII is significantly lower (except for the "International scientific co-publications" indicator).

For innovation leaders the most significant areas in terms of innovation are activities aimed at acquiring, disseminating and using knowledge, as evidenced by the high correlation of the relevant indicators with SII (table 2).

Reading the values of the indicators that make up SII leads to the conclusion that the problems of increasing innovation for countries with low SII are similar.

It seems that explaining the essence of these problems is possible by analyzing the cause-effect relationships within the innovation cycle, which begins with the creation of a new idea and ends with commercialization of innovation. The evaluation of the indicated relationships can be performed by using various research methods. In the presented study, the method of measuring the correlation between indicators used to calculate the SII was used.

4. Results

Analysis of the data in Table 2 leads to the conclusion about quite close relations between the level of innovation of the economy and indicators characterizing the processes of acquiring, processing, transferring and using knowledge. This allows to confirm the thesis about the leading role of education and science in creating an innovative economy. However, the indicated processes should be perceived in the context of their relations with the environment. High quality of education, effective scientific and research activities and effective commercialization of innovations are not possible without appropriate socio-economic foundations - democracy, civil society, responsibility and high flexibility and efficiency of functioning of state institutes. The level of their development determines the creation of appropriate pro-innovative attitudes of society, which are a decisive factor in the growth of the innovativeness of the economy (Oksanych, 2024).

As can be seen from the data presented in Table 2, the strongest relationships occur between the indicators:

- "International scientific co-publications" – "Public-private co-publications" (correlation coefficient 0.94).
- "SMEs with product innovations" – "SMEs with business process innovations" (correlation coefficient 0.87).
- "Lifelong learning' – 'Employed ICT specialists' (correlation coefficient 0.76).
- "Lifelong learning' – 'Individuals with above basic overall digital skills' (correlation coefficient 0.76).

- "Lifelong learning' – 'International scientific co-publications' (correlation coefficient 0.74).
- "R&D expenditure in the public sector' – 'R&D expenditure in the business sector' (correlation coefficient 0.76).

Table 3 presents the values of the correlation coefficients between the innovation indicators and the summary innovation index SII for the group of countries classified as emerging innovators and the percentage values of these indicators for the Polish economy in relation to the EU average. The data presented in Table 3 allow us to explain which areas of innovation activity are the most important for Poland and what the distance is between Poland and the EU level in terms of these indicators.

Table 2.
The values of the correlation coefficient between selected innovation indicators of the European Innovation Scoreboard

Indicators	International scientific co-publications	Scientific publications among top 10% most cited	Foreign doctorate students	Individuals with above basic overall digital skills	R&D expenditure in the public sector	R&D expenditure in the business sector	Innovation expenditures per person employed	Employed ICT specialists	SMEs with business process innovations	Innovative SMEs collaborating with others	Public-private co-publications
New doctorate graduates	0,55	0,69	0,52	0,51	0,60	0,69	0,67	0,53	0,34	0,53	0,52
Population completed tertiary education	0,57	0,53	0,53	0,53	0,15	0,10	0,31	0,55	0,36	0,51	0,46
Lifelong learning	0,74	0,63	0,56	0,76	0,54	0,60	0,32	0,76	-0,18	0,34	0,78
International scientific co-publications	1	0,73	0,69	0,67	0,46	0,48	0,31	0,60	0,46	0,69	0,94
Scientific publications among top 10% most cited		1	0,69	0,69	0,48	0,56	0,53	0,63	0,39	0,60	0,70
Foreign doctorate students			1	0,58	0,25	0,37	0,30	0,69	0,11	0,27	0,64
Individuals with above basic overall digital skills				1	0,46	0,45	0,32	0,63	0,26	0,55	0,68
R&D expenditure in the public sector					1	0,76	0,54	0,38	0,55	0,40	0,56
R&D expenditure in the business sector						1	0,70	0,48	0,41	0,39	0,56
Innovation expenditures per person employed							1	0,49	0,55	0,42	0,32
Enterprises providing ICT training								0,61	0,49	0,56	0,65
Employed ICT specialists								1	0,24	0,40	0,60
SMEs with product innovations									0,87	0,67	0,45
SMEs with business process innovations									1	0,61	0,42
Innovative SMEs collaborating with others										1	0,65

Source: own study based on (European Innovation…, 2024).

In general, the data presented in Table 3 confirm the results presented in scientific publications on the need to strengthen cooperation between R&D units and business, between the private and public sectors in the field of innovation, internationalization of innovative activities. However, unlike earlier publications, the results presented in Tables 1-3 also reflect the quantitative dimension of the innovativeness of the economy and the problems that need to be solved in order to ensure its growth.

Table 3.

Correlation between innovation indicators and the summary innovation index SII for the "emerging innovators" group

		Code	Indicator	Correlation with SII	Poland to EU average level, %
Framework condition	**Human resources**	1.1.1	New doctorate graduates	0,8076	28,6
		1.1.2	Population completed tertiary education	0,0374	96,4
		1.1.3	Lifelong learning	0,5176	63,9
	Attractive research system	1.2.1	International scientific co-publications	0,8863	46,3
		1.2.2	Scientific publications among top 10% most cited	0,6482	55,6
		1.2.3	Foreign doctorate students	0,8035	44,4
	Digitalization	1.3.1	Broadband penetration	-0,773	89,2
		1.3.2	Individuals with above basic overall digital skills	0,6867	77,7
Investments	**Finance and support**	2.1.1	R&D expenditure in the public sector	0,9014	69,7
		2.1.2	Venture capital investments	0,5793	21,5
		2.1.3	Direct and indirect government support for business R&D	0,8337	83,3
	Firm investments	2.2.1	R&D expenditure in the business sector	0,8616	61,1
		2.2.2	Non-R&D innovation expenditure	0,8219	71,3
		2.2.3	Innovation expenditures per person employed	0,8871	41,8
	Use of information technologies	2.3.1	Enterprises providing ICT training	0,7655	110,3
		2.3.2	Employed ICT specialists	0,6170	78,3
Innovation activities	**Innovators**	3.1.1	SMEs with product innovations	0,6397	52,6
		3.1.2	SMEs with business process innovations	0,8120	61,3
	Linkages	3.2.1	Innovative SMEs collaborating with others	0,8415	57,3
		3.2.2	Public-private co-publications	0,5309	57,7
		3.2.3	Job-to-job mobility of Human Resources in S&T	0,2541	100,0
	Intellectual assets	3.3.1	PCT patent applications	0,8519	14,6
		3.3.2	Trademark applications	0,0670	88,3
		3.3.3	Design applications	0,1922	150,5
Impacts	**Employment impacts**	4.1.1.	Employment in knowledge-intensive activities	0,8133	76,6
		4.1.2	Employment in innovative enterprises	0,8352	71,7
	Sales effects	4.2.1.	Medium & high-tech product exports	0,3446	81,5
		4.2.2	Knowledge-intensive services exports	0,0157	77,2
		4.2.3	Sales of new-to-market and new-to-enterprise innovations	0,7486	57,1
	Environmental sustainability	4.3.1	Resource productivity	0,8786	60,9
		4.3.2	Air emissions in fine particulates in industry	-0,728	383,5
		4.3.3	Development of environment-related technologies	0,2528	50,0

Source: own study based on (European Innovation…, 2024).

The presented methodological approach, based on the assessment of correlations between indicators characterizing the impact of individual innovation factors, allows for the identification of innovation policy priorities and the assessment of the effectiveness of actions taken within its framework. In connection with this, the selection of the system of indicators that make up the integrated assessment of innovation is particularly important (in the case of the European Innovation Scoreboard, it is the SII). The analysis of correlation values has shown that some indicators do not always objectively reflect the impact of the relevant factor on the level of innovation in the economy. For example, the number of people with higher education per thousand inhabitants of the country seems to be a fairly important indicator characterizing the potential of human resources. However, it does not take into account the quality of education and what, despite knowledge, distinguishes the human resources of innovation leaders from outsiders - creativity, the ability to acquire knowledge and use it effectively, build cooperation networks, etc. Hence, the correlation of the "Population completed tertiary education" indicator with the SII for countries-innovation leaders is 0.699, for emerging innovators - 0.0374.

5. Discussion

The problem of creating an effective national innovation system, the task of which is to develop and implement an effective innovation policy, has two aspects - structural and functional. The structural aspect means searching for an answer to the question "what?", the functional aspect - to the questions "how" and "for what?". The structural aspect concerns the selection of elements of the innovation system (subjects, objects, tools of influence, resources), establishing relations between them and the flow of resources - intellectual, financial, material, information. The functional aspect explains the mechanism of functioning of the innovation system (rules, algorithms, protocols, procedures and mechanisms of action, cause-effect relations).

The effectiveness of the national innovation system is manifested by its ability to create and implement innovation policy, the result of which must be an increase in the innovativeness of the economy. Since it is determined by the interaction of many different factors, it is important to explain not only the impact of each of them on the level of innovation, but also the mutual relations between them.

Creating an effective innovation policy must be systemic and comprehensive. Systemicity means the need to take into account cause-effect relationships and feedback between elements of the national innovation system, taking into account the time factor. The latter means that the effects of actions taken within the innovation policy become visible over time, which is related to the implementation gap. The comprehensive nature of innovation policy results from the need to take into account not only the scope of actions related to innovation, but also a wide spectrum of socio-economic development, determining the conditions, sources and socio-

cultural context of creating the innovation potential of the economy and the effectiveness of its use. Knowledge-based economic growth, which is found in high innovativeness of the economy, is not possible without socio-cultural security and conditions that are conducive to this process. These means are the development of democracy, civil society, social information and innovation culture.

6. Results

Poland does not have an effective innovation system, and innovation policy activities are inconsistent, sporadic and systemless. Research into the causes of low innovation in the Polish economy based on the assessment of the correlation coefficients between indicators characterizing individual areas of the innovation cycle and the summary innovation index (SII) leads to the conclusion that it is necessary to create an effective and flexible innovation system based on the elimination of traditional innovation barriers for Poland. Priorities in innovation policy should be established based on the "profile" of the economy's innovation, which reflects the distance between the national economy and the EU innovation leaders in the cross-section of individual indicators used by Eurostat to calculate the general level of innovation (SII). It would be a mistake to distinguish the creation and implementation of innovation policy as an autonomous area of management of the socio-economic development process implemented by the national innovation system. It is part of this process and, on the one hand, it is determined by its level, and on the other hand, it influences it. The effectiveness of innovation policy depends primarily on ensuring the appropriate level of democracy, the development of civil society and pro-innovation models of social behavior. This is the basis for the quality of education and higher education, creating conditions for supporting innovative activities (motivation, protection of property rights, financial support for innovators), shortening the power distance and flexibility of the innovation system.

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