

Regulatory Policy: Bibliometric Analysis Using the VOSviewer Program

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Summary

Today the regulation of socio-economic development has been the subject of active scientific debate. The modern paradigm of regulatory policy in foreign countries involves a change in the role and strategy of the state, which determines the relevance of this topic. The aim of the article is to study the current state of regulatory policy research. The article is based on a bibliographic analysis of the study of regulatory policy. The study is based on the data search functions of the Scopus platform. It uses a set of VOSviewer program, online visualization of keywords in the titles of scientific journals and citations of publications. The study led to the conclusion that the number of publications that directly study the nature and features of regulatory policy is insignificant, but constantly growing. In our opinion, further research should determine the essence of regulatory policy as a separate category, a description of its features and factors of formation. It is also necessary to develop a common concept that governments should be actively involved in ensuring the quality of regulation, rather than responding to the shortcomings of regulation, which is evolving into regulatory governance.

Key words:

regulation, regulatory policy, bibliometric, VOSviewer program.

1. Introduction

Regulatory policy as a combined and systematic structure of the components of regulatory, monetary, budgetary and other links is an effective driver of economic growth and development, achieving social goals of any country in the world, the effectiveness of which reflects business is active in growth, employment, productivity and innovative changes based on a stable and effective regulatory framework. Regulatory policy determines the level of efficiency of the economy and society, shaping the conditions of business, government, citizens and society.

The development of the optimal model of the country's regulatory policy is today a modern international trend, the aim of which is to achieve high economic growth, public management and social development. As a result, such tasks shape new challenges, modern frontiers of scientific knowledge and the formation of relevant

theoretical concepts, starting with defining the nature and importance of regulatory policy.

Financial crises, frequent environmental catastrophes and pandemic economic conditions in 2020 have led to serious challenges and, as a result, increased requirements for the effectiveness of regulatory influence. The establishment of coercive legal security regimes is insufficient and unacceptable. Today, the priority is to create comfortable conditions for doing business, improve the quality of life of citizens, and increase the common good. Regulatory policy is implemented at the intersection of two planes – security and economic growth, the basis of which are the latest (convergent) management technologies.

Improving regulatory policy by identifying problematic issues in the regulatory field, the gradual development and implementation on this basis of a set of measures to improve it based on best international experience determines the need for bibliographic analysis of scientific and practical achievements in this field – improving the position in the rankings of universities – high rank of higher education in national or world rankings contribute to a significant increase in its competitiveness in the domestic and international educational services markets. Nowadays are becoming more popular the global rankings, which take into account parameters of university's activeness in social networks, in the Internet, the pace of updating the content of its official website, the dynamics of the number of website visitors, etc.

2. Literature Review

The emergence of attention to regulation is justified by the need and justification of government intervention in market processes. In the process of formation of the theory of regulation its origin is concentrated – the establishment of rules of conduct solely the only regulator of socio-economic relations based on coercive power – the state, including in the essence of regulatory policy.

Knut Wicksel described the government as a “benevolent despot” acting in the public interest, also

putting coercion at the heart of regulatory policy (Buchanan, 1992). This continued to be a key assumption for theories of public interest that originated with “market failures” (Bator Francis, 1958) and are the basis of state regulation. Despite the criticism, a significant conclusion of regulatory theories is the recognition of the state as a relatively more effective institution for dealing with market failures, problems of limited rationality of behavior of economic entities, unfavorable selection and moral hazard (Gonta, Shkarlet et al., 2016).

However, due to the low awareness of the regulator of information, weak incentives or ineffective control over its activities, regulation tends to “capture” (economic, political, cultural) by organized interest groups (producers, consumers, politicians). This has contributed to the development of research to explain the causes of regulatory failures by representatives of the Virginia School of Regulation. The researchers focused on collective actions of interest groups and competition between them, patterns of collective decision-making and the problem of choice, delegation of powers, selfish behavior of the regulator, differences in incentives, restrictions and democratization in political decision-making (Sander et al., 2017; Helmuth et al., 2000).

Regulation is accompanied by differences in the time of administrative and economic rationality. It is a question of low organizational adaptation of the regulator to economic and social environment, and also technological innovations as a consequence of inadequacy of developed and rules of conduct (Kosach et al., 2017). The surge in large-scale research in public policy and regulation since the late 1970s and 1980s caused by the study of the effect of deregulation and public sector reform. The idea of self-correction of markets and the need to reduce regulation to an absolute minimum, expressed by F. Hayek and M. Friedman, initiated the “conservative revolutions” or “conservative shift” – “Reaganomics” and “Thatcherism”. And the key role in this process, according to political scientists and historians, played the intellectual and political elite of the time (Harris et al., 1989; Derthick et al., 1985).

Since the mid-1990s a study of regulation based on the methodology of neo-institutional economic theory is being developed, according to which the basis for substantiation and implementation of state economic policy are external prerequisites for regulation – Institutions that must work “over” interests and “through” a set of institutions. There are frictions between institutions in the form of management costs and transaction costs (Coase, 1984). Formal rules, according to D. North, form different strategies of behavior of market participants, who, initially playing by the existing rules, eventually seek to change them, but with a delay in time. Modern research on the neo-institutional direction of the theory of regulation concerns transaction costs and

fulfillment of obligations (Levy et al., 2007).

Deregulation highlighted the problems of government intervention in a qualitatively different perspective - its productivity (Sander et al., 2017). This is not about modernizing state regulation, which requires improvement, but about regulatory reform, which involves a radical transformation of approaches to regulation through the search for and implementation of principles, norms, rules and procedural mechanisms for decision-making (Popelo, 2017; Shaposhnykov et al., 2019). At the same time, regulatory reforms implemented in countries are based on the principles that were described long before the implementation of reforms in the theoretical works of Dabla-Norris E. (2019), Keen M., Slemrod J. (2017) and Crandall W. (2021).

In practical terms, a new set of tasks is formed for the development of institutional mechanisms in terms of their optimal construction and efficiency. Regulatory reform began in part in response to companies' concerns about the significant costs of meeting compliance requirements and competitive pressures. At the same time, the global challenge to the need for reform is political uncertainty and a loss of confidence in traditional mechanisms of state regulation of business and society. Many countries have launched reforms after major economic crises and with the active support of international organizations such as the World Bank, the IMF, and the Organization for Economic Co-operation and Development.

3. Methodology and research methods.

The article uses general and special methods of scientific research. In particular, the study is based on the bibliometric method, which uses the advantages of modern computer engineering technologies, the huge advances in database management and statistics achieved over the past decade. The essence of this method is to reveal the current state, the history of scientific publications in a particular field of research using statistical tables and statistical images using VOSviewer program, which allowed to substantiate the main areas in which most research is conducted in the field of regulatory policy. a set of basic economic categories used in the implementation of such studies.

4. Results and Discussion

To date, the regulation of socio-economic development has been the subject of active scientific debate. The modern paradigm of regulatory policy in foreign countries involves a change in the role and strategy of the state - the transition from tactics to respond to change to ensure the quality of public economic policy. Such a statement is clearly complex. The task involves the

gradual development and implementation of a set of measures to reform the current regulatory system.

Analyzing the authors' publications in recent years, the trends of modernization of regulatory policy on the vectors and latest tools of public administration are noted, human resources policy, as well as the implementation of digital reform of public processes to ensure economic growth.

The researched publications on the regulatory policy of European countries provide an opportunity to identify the strengths of its optimization, in particular: the planning and gradual adoption and implementation of new

legislation, as well as the existence of a single center for decision-making in the field of regulatory influence.

The development of approaches to understanding the concept of "regulatory policy" has determined the integral interaction of the state and the business sector in the process of forming and establishing regulatory requirements for market conditions and control and supervisory procedures. The study of regulatory policy has received special attention among scholars in the XX-XXI century. Figure 1 shows the analysis of the dynamics of scientific papers indexed by the keywords "regulatory policy" in the titles of articles from 1969 to 2021 inclusive.

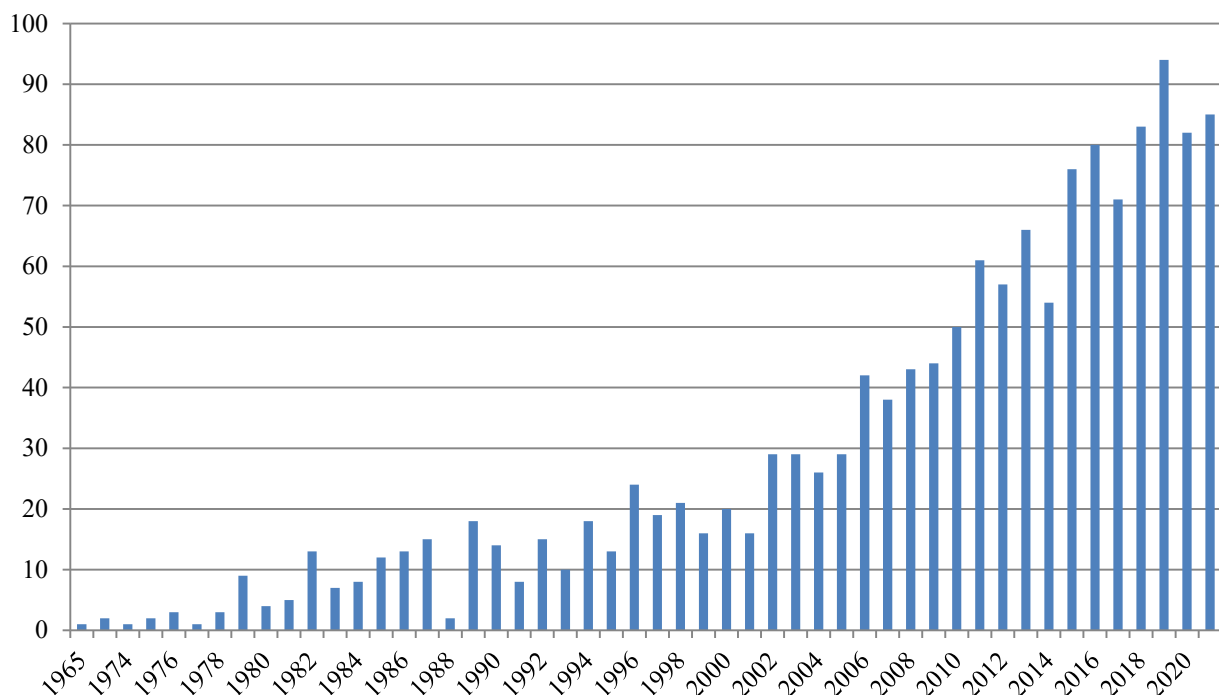


Fig. 1. The number of scientific publications in 1965-2021, in which titles the words “regulatory policy” is met

Source: compiled by the authors based on the analysis of the Scopus database

The data of Fig. 1 show that since the early 2000s, the number of scientific publications in the field of regulatory policy has been growing. The growth rate of such publications in this area is also high. If at the end of 2000 there were 16 such publications in the Scopus database, in 2006 - 42 works (growth rate is 162.5%), in 2018 - 94 publications (growth rate is 487.5%, which in absolute terms is an increase of 78 units), and in 2021 -

85 units of these works. Thus, the growth rate of scientific publications every five to ten years in the field of regulatory policy is increasing.

In bibliometrics, network connections are analyzed using citations, so it is necessary to review the number of citations. Fig. 2 presents an analysis of the dynamics of scientific papers indexed by the keywords “regulatory policy” in the titles of articles.

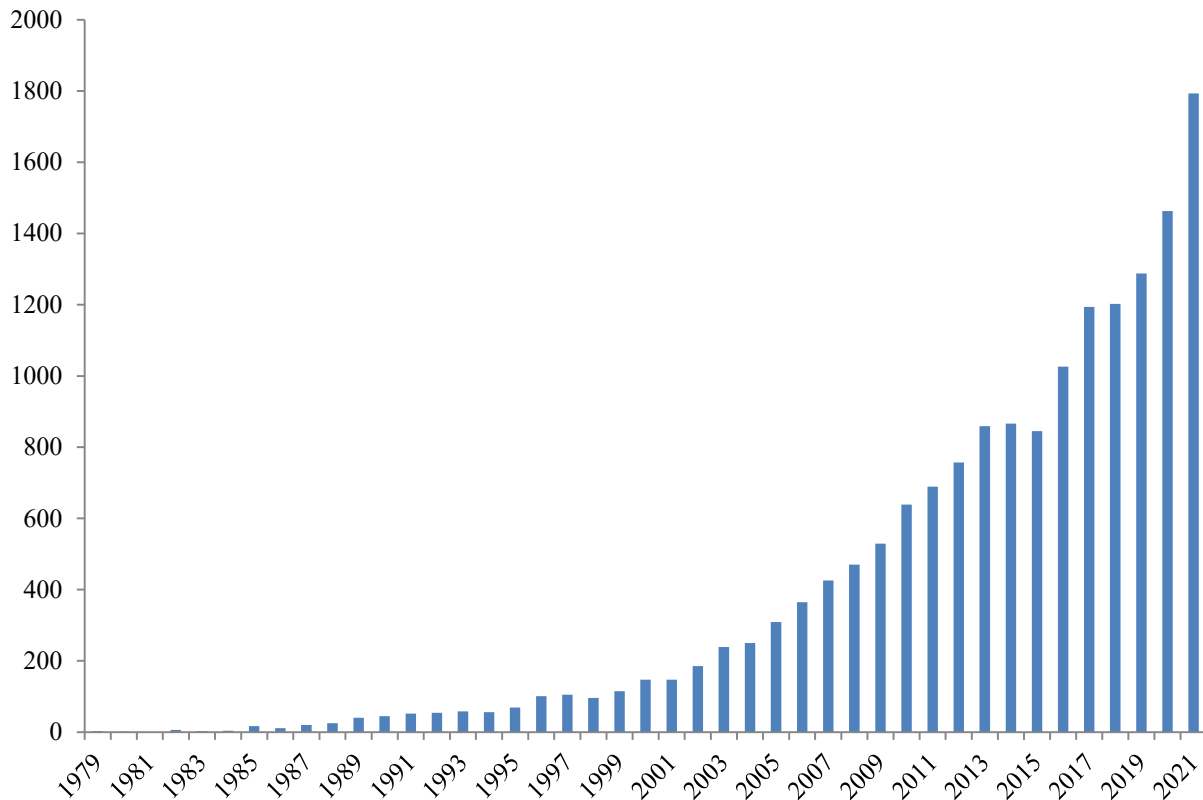


Fig. 2. The number of citations in 1979-2021, in which titles the words “regulatory policy” is met

Source: compiled by the authors based on the analysis of the Scopus database

The data in Fig. 2 show that the number of citations in which titles the words “regulatory policy” is met can be divided into three stages. From 1979 to 1995, citations ranged from 1 to 69. From 1996 to 2006, the number of citations ranged from 101 to 365. From 2007 to 2021, the number of citations increased rapidly and peaked in 2021 at 1773. For these 14 years, important documents appeared.

The Scopus database includes various journals and articles. Statistics on the authors' countries of affiliation can be used to understand in which countries researchers have made the greatest contribution to regulatory policy research. To make our research more reproducible, we add the search bar we used.

Examining the number of scientific publications in 1965-2021, in which titles the words “regulatory policy” is met, we made the following input parameters in VOSviewer:

(1) source term = article title; (2) type of analysis - “co-authorship”, unit of analysis - “countries”; (3) counting method - “full counting”; (4) ignore documents

co-authored by a large number of countries; (5) maximum number of countries per document: 25; (6) minimum number of documents of country: 10.

Fig. 3 shows the top 20 countries with the most articles, in which titles the word “regulatory policy” is met.

Analysis of Fig. 3 shows that the leading countries with the most articles, in which number of citations in the word “regulatory policy” is met are: United States, United Kingdom, Canada, Switzerland, Germany, France, Australia, China, Italy and Netherlands.

Researching the number of citations in 1979-2021, in which titles the word “regulatory policy” is met, we made the following input parameters in VOSviewer:

(1) source term = article title; (2) type of analysis - “citation”, unit of analysis - “countries”; (3) ignore documents co-authored by a large number of countries; (4) maximum number of countries per document: 25; (5) minimum number of documents of country: 10.

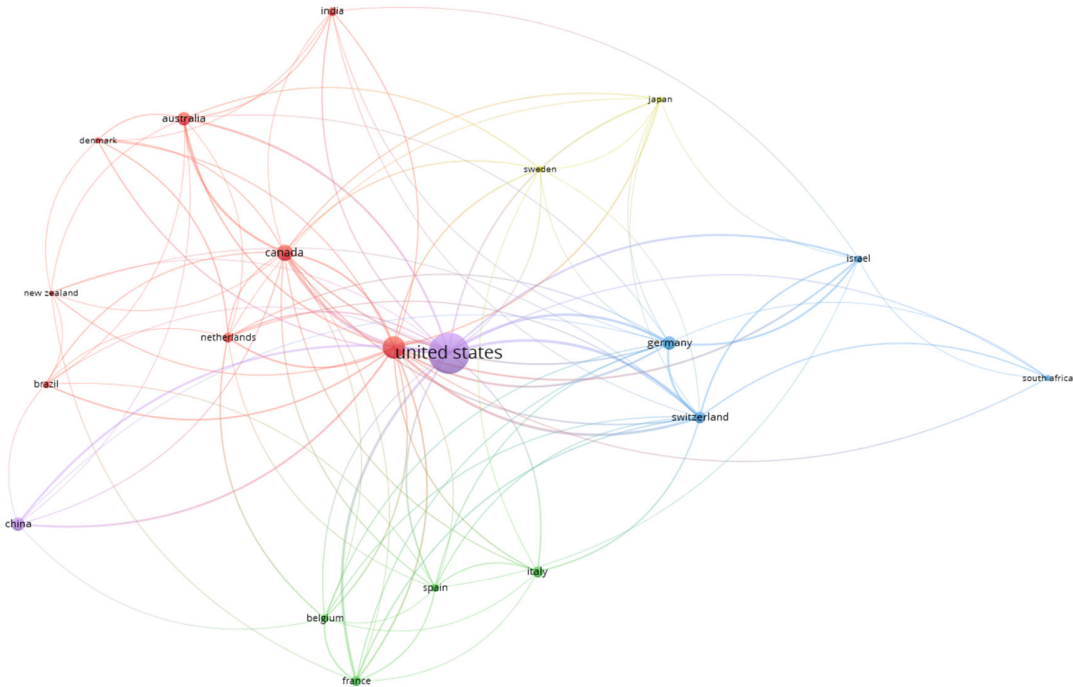


Fig. 3. Top 20 countries with the most articles, in which titles the word “regulatory policy” is met

Source: compiled by the author based on the analysis of the Scopus database and using the tools of the VOSviewer program

Fig. 4 demonstrate the top 20 countries with the most articles, in which the number of citations in the

word “regulatory policy” is met.

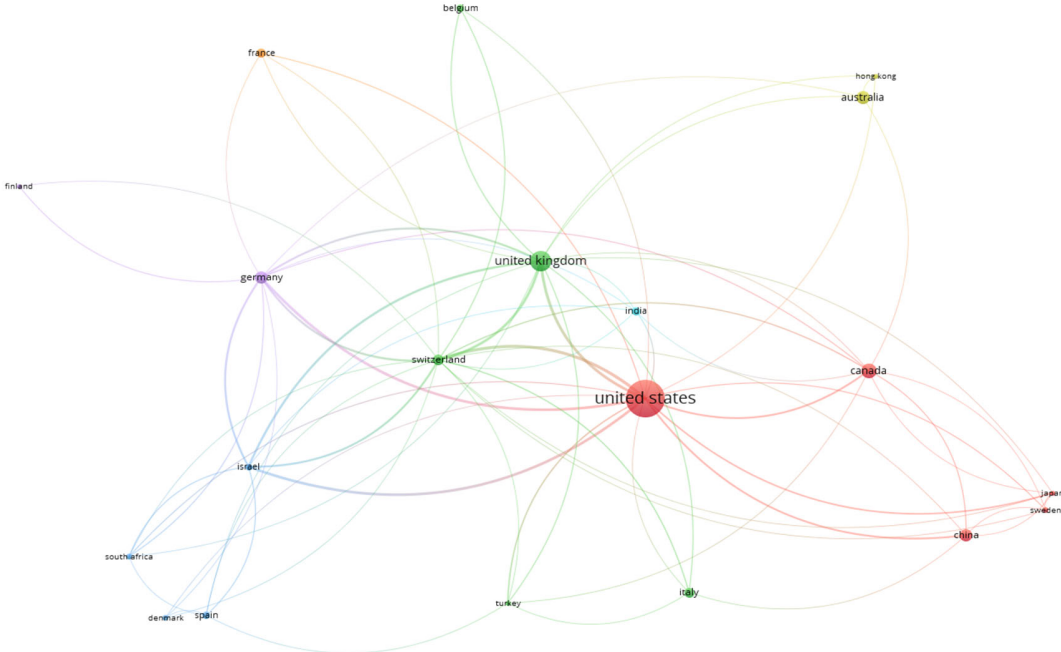


Fig. 4. Top 20 countries with the most articles, in which number of citations in the word “regulatory policy” is met

Source: compiled by the author based on the analysis of the Scopus database and using the tools of the VOSviewer program

Table 1. Number of publications by spheres of scientific research

№	Science	Number of publications
<i>Sphere of regulatory policy in general</i>		
1	Social Sciences	568
2	Medicine	286
3	Environmental Science	266
4	Economics, Econometrics and Finance	244
5	Engineering	192
6	Business, Management and Accounting	191
7	Computer Science	114
8	Pharmacology, Toxicology and Pharmaceutics	106
9	Energy	96
10	Biochemistry, Genetics and Molecular Biology	79
11	Agricultural and Biological Sciences	64
12	Nursing	38
13	Earth and Planetary Sciences	37
14	Arts and Humanities	34
15	Decision Sciences	31
16	Mathematics	30
17	Chemical Engineering	25
18	Immunology and Microbiology	17
19	Health Professions	14
20	Materials Science	14

Source: compiled by the authors based on the analysis of the Scopus database

Data analysis Table 1 shows that most scientific work by scientists in the field of regulatory policy was conducted within the following sciences: Social Sciences, Medicine, Environmental Science. Only in fourth place is Economics, Econometrics and Finance and in 6th place – Business, Management and Accounting. This situation makes it possible to understand that, in general, the issues of regulatory policy today relate primarily to improving the functioning of the social sphere. This situation is common for regulatory policy. In addition, Table 1 concludes that a significant number of scientific publications on regulatory policy have been written in the social sciences (568), medicine (286) and Environmental Science (266). Accordingly, the share of scientific publications studying regulatory policy in the total number of scientific papers in the fields of knowledge is: Economics, econometrics and finance - 16.8%; Business, management and accounting – 13.2%; Social sciences – 39.1%; Medicine – 18.3%; Environmental Science – 18.3%.

The outlined analysis also gives grounds to assert the existence of a small number of scientific works, within which the issues of regulatory policy in the countries would be studied more systematically and in-depth. However, there is a need to strengthen regulatory governance. The OECD's regulatory policy model is based on the fact that ensuring the quality of the "rules of the game" is a dynamic and ongoing role of government. Governments should be actively involved in ensuring the

quality of regulation, not responding to regulatory shortcomings. In developed countries, this concept is evolving into regulatory governance.

Regulatory governance should be based on the principles of democratic governance and involve a wider range of actors, including the legislature, the judiciary, the subnational and supranational levels of government, and private sector standard-setting activities. Effective regulatory management maximizes the impact of regulatory policy on the implementation of regulations that will have a positive impact on the economy and society and meet the main objectives of public policy. It provides an integrated approach to the deployment of regulatory institutions, tools and processes.

Trying to clearly classify any approach to management is a challenge. However, there are a number of strategic considerations for regulatory governance:

- political commitment. Effective regulatory policies need to be adopted at the highest political level, and their importance must be properly communicated to both government and lower levels of government;
- a strong link between a well-functioning central oversight body and an effective, comprehensive regulatory policy. Improving the quality of regulation often requires the division of specific responsibilities and powers to monitor, oversee and promote progress throughout government and to maintain coherence between the approaches of the various actors involved in the regulatory process;

– independent regulators are another key institution and can be seen as judges who follow the "rules of the game". Independent regulators are separate "agencies" at arm's length from the political system, with delegated powers to implement specific policies in a number of sectors. The main advantage of the institutional structure based on these institutions is that it protects market interventions from the interference of political and private interests. At the same time, independent regulators pose a significant challenge to the government's executive and parliamentary powers. They are a special form of institution in most OECD countries, not directly elected by citizens or governed by elected officials. Therefore, their institutional design and the development of their mandate require careful consideration;

– countries are interested in using government-wide approaches to policy development and implementation. Nationwide approaches are related to the desire to ensure horizontal and vertical coordination of government activities in order to improve policy coherence, better use of resources, as well as promotional synergies and innovation advice from many potential stakeholders of all resources. Such an approach can and should benefit from promoting a culture of regulatory quality. However, in many countries, administrations have not yet fully integrated regulatory quality objectives into their political processes or into government;

– the question of how OECD governments prepare for risk assessment and management through regulation to avoid reactive regulation and to promote better regulatory practices is of great importance for regulatory policy. The gap between the level of risk targeted by policymakers and the level that can be achieved through regulation is inevitable and needs to be clearly recognized and managed. The lessons of recent crises are that in the future, regulators will have to pay more attention to background risks and systemic risks, as well as build mechanisms to learn from past failures and setbacks;

– it is increasingly necessary to achieve regulatory influence beyond national borders. The financial crisis has drawn attention to this. Countries need to work together, not separately, to create a sustainable and effective regulatory environment. How to achieve closer international regulatory cooperation is a key challenge for future regulatory policy and governance.

Issues include the institutional architecture of international regulatory cooperation, the identification of important areas for cross-border cooperation, the role of private regulatory initiatives and standards of openness, consultation and communication between jurisdictions.

All this is connected with the awareness of the

importance of understanding regulatory policy, the possibility of using new knowledge in this area to prevent destructive, systematic economic crises, to identify their preconditions.

5. Conclusions

XXI century put forward many requirements and challenges in the field of regulation of socio-economic processes, which led to scientific and practical interest of professionals and the public. The realities of the time have radically changed the vector and instrumental and methodological approaches to regulatory policy and the mechanism of its implementation - from eliminating the negative consequences of inefficient public administration to creating conditions for quality socio-economic policy. Such a statement is obviously complicated.

The emergence and development of regulatory policy has been the focus of public administration for the past 40 years. The intensification of regulatory policy began as a deregulation in the 1970s and 1980s, as a result of increased business regulation, the suppression of entrepreneurship, and the reduction of innovation processes. Due to the intensification of competitive trends and the opening of state borders in the 1980s and 1990s, deregulation gained momentum and transformed into regulatory reform.

Regulatory policy involves the use and application of instruments of coherent and complementary influence in the form of strategic approaches and instruments of regulatory policy (regulatory impact assessment, search for regulatory alternatives, simplification of administrative procedures, financial and administrative transparency and post-analysis). The development of regulatory policy is characterized by differentiated scenarios, various spectrums of legal, political and cultural areas of public administration.

The use of analytical tools of the Scopus database allowed to analyze the publishing activities in the study of regulatory policy, to identify the main world centers where such research is conducted on the basis of publication activity and citations.

The analysis of scientific works for 1965-2021 gives grounds to assert the active development of research in the field of regulatory policy. The global financial crisis of 2007-2008 played an important role in increasing the interest of scientists in this topic. In addition, the article analyzes the scientific areas in which regulatory policy research is conducted, and finds that most of these publications are written in the field of social sciences (568), medicine (286) and Environmental Science (266), Economics, Econometrics and Finance (244) and Business, Management and Accounting (191).

Among the countries, this direction is mainly directed to the United States, United Kingdom, Canada, Switzerland, Germany, France, Australia, China, Italy and the Netherlands.

In our opinion, further research should determine the essence of regulatory policy as a separate category, a description of its features and factors of formation. It is also necessary to develop a common concept that governments should be actively involved in ensuring the quality of regulation, rather than responding to the shortcomings of regulation, which is evolving into regulatory governance.

It is logical that regulatory policy from a theoretical and methodological point of view is a very complex and multifaceted phenomenon, based on quality assurance, should achieve regulatory influence beyond national borders and form the institutional architecture of international regulatory cooperation, identifying important areas for cross-border private cooperation regulatory initiatives and standards of openness, consultation and communication between jurisdictions, and includes many other aspects that need new research today.

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