



**National Academy  
of Educational Sciences  
of Ukraine**



*To the 30th Anniversary of Ukraine's Independence*

# **NATIONAL REPORT ON THE STATE AND PROSPECTS OF EDUCATION DEVELOPMENT IN UKRAINE**



NATIONAL ACADEMY OF EDUCATIONAL SCIENCES OF UKRAINE

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**NATIONAL REPORT  
ON THE STATE AND PROSPECTS  
OF EDUCATION DEVELOPMENT  
IN UKRAINE**

*Edited by the President  
of NAES of Ukraine Vasyl Kremen*

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The publication provides a comprehensive analysis of the state and development of  
national education over the 30 years of Ukraine's independence, identifies current problems  
in education, ascertains the causes of their emergence, offers scientifically reasoned ways to  
modernise domestic education in the context of globalisation, European integration, innovative  
development, and national self-identification.

Designed for legislators, state officials, education institutions leaders, teaching and  
academic staff, the general public, all those who seek to increase the competitiveness of  
Ukrainian education in the context of civilisation changes.

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# INTRODUCTION

During 1991-2021 the largest humanitarian sphere of Ukraine — education — constantly played a crucial role in nation- and state-building in the context of becoming an independent sovereign country. At the same time, the state and society considered and supported education as a leading social institution with the primary responsibility for human's innovative development, formation of competitive human capital, and finally — the successful future of the Ukrainian nation.

Therefore, one of the first national legislative acts in 1991 was the Law of Ukraine «On Education», which regulated the educational sphere based on current and future interests of the Ukrainian people, and launched the development of a comprehensive system of educational legislation following new social relations established in the country.

The Presidential Decree on establishing the Academy of Educational Sciences of Ukraine in 1992 (since 2010, the National Academy of Educational Sciences of Ukraine under another Presidential Decree) was a milestone and significant event, which laid the foundation for reliable scientific and methodical support of education.

In 1992, with the broad participation of educators and researchers, the State National Programme «Education» («Ukraine of the 21st Century») was developed, discussed, and approved by the First All-Ukrainian Congress of Educators.

Adoption in 1996 of the Basic Law of Ukraine constitutionally consolidated the composition and structure of the national education system, defined the principles of its development. The Law of Ukraine «On Education» has been clarified accordingly.

In general, more than a third of 30 years of hard life and activity of independent Ukraine went to the standardisation of all major educational units, creating a set of educational laws of the first generation, in particular, special laws: «On Vocational and Technical Education» (1998), «On General Secondary Education» (1999), «On Out-of-School Education» (2000), «On Preschool Education» (2001), «On Higher Education» (2002).

At the same time, the beginning of the new millennium was marked by new challenges to humanity and, thus, national educational systems. The answers of the Ukrainian education were not delayed; they were considered in 2001 by the Second All-Ukrainian Congress of Educators and enshrined in the National Doctrine for Education Development agreed by educators and approved in 2002 by the Decree of the President of Ukraine. This promising document has not lost its relevance even now.

Civilisational changes, innovative type of progress, and its acceleration have put on the agenda the problems of human-centredness in education, continuous lifelong learning, in particular, actualised early childhood and adult education, strengthening scientific and methodical support of education.

Comprehensive globalisation has led to processes of international cooperation and, at the same time, intensified international competition for leadership. There were issues of equal access to quality education; increasing attention to assuring and improving educational quality; mutual recognition of academic achievements and qualifications; identification and development of key competences in lifelong learning; creation of competitive educational systems; use of information and communication technologies.



In this regard, the transition to new structures and content, 12-year complete general secondary education, its informatisation, consistent with progressive world and European practices, began in Ukraine in 2001. In the following years, with the participation of the National Academy of Educational Sciences of Ukraine researchers, the introduction of a competence-based approach, a paradigm of measurable quality, and effective mechanisms for assessing pupils' success were reasoned. In 2005, after a great deal of preparatory work, Ukraine joined the Bologna Process to create an attractive and competitive European Higher Education Area.

However, the country's educational progress has not always been adequate to the requirements of successful development. In 2010, the transition to 12-year general secondary education was unjustifiably halted (resumed only in 2017), which had a negative impact on the quality of education and the Human Development Index of Ukraine.

The revolutionary events of 2013-2014, the signing of the Association Agreement between Ukraine and the European Union, the constitutional consolidation of European and Euro-Atlantic integration, the mobilisation of Ukrainian society to counter Russian aggression again, as in the early 1990s, intensified attention to modernising educational sphere. In this regard, the innovative laws of Ukraine «On Higher Education» (2014), «On Education» (2017), «On Vocational Pre-Tertiary Education» (2019), «On Complete General Secondary Education» (2020) were adopted. Drafts laws «On Vocational Education», «On Adult Education» are being prepared. It is time to develop the Law of Ukraine «On Preschool Education». It should be noted that the innovative Law of Ukraine «On Scientific and Scientific and Technical Activity» (2015) created the preconditions for effective scientific support of various social spheres, including education.

The new generation of legislation is aimed at implementing an internationally agreed and acceptable optimal organisation of education; comprehensive European and global integration of national education; international recognition of educational degrees and qualifications; implementation of quality assurance systems at all levels of education, as well as competence-based approach; development and synergy usage of the benefits of formal, non-formal and informal education for continuous lifelong learning; dissemination of digital technologies in education; development of digital competences, crucial for distance learning, especially in crises such as the COVID-19 pandemic; and reliable scientific and methodical support of education.

The National Report on the State and Prospects of Education Development, dedicated to the 30th anniversary of Ukraine's independence, analyses the experience of national education system establishment and development, its achievements and untapped opportunities, unresolved issues, current strengths and weaknesses, the recommendations for further progress are given.

The National Report is a comprehensive analytical document prepared by the NAES of Ukraine researchers; it consists of an introduction, 18 chapters, conclusions with recommendations, annexes containing illustrative materials (diagrams, tables) describing the state, processes, trends of education development in Ukraine, Europe and the world for the 30 years.

The National Report will be useful for educators, researchers, managers, politicians, pupils, students and their parents, foreign experts, all those interested in the place and role of national education in the formation of a sovereign, self-sufficient, strong Ukraine, comprehensive development of its citizens and society as a whole.

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Educational Sciences of Ukraine,  
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Vasyl Kremen

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# 1. CREATION OF MODERN NATIONAL EDUCATION SYSTEM AS THE KEY TASK OF THE UKRAINIAN STATE: LESSONS OF THE THIRTY YEARS OF INDEPENDENCE

**Abstract.** The experience of countries that have successfully overcome economic and social problems by prioritising the development of the educational sphere has shown that such an approach is a powerful resource for state-building, economic and humanitarian growth. This fundamental educational resource has been adopted since establishing a new independent Ukraine, which has fully justified itself. After all, in modern conditions, it is getting the more and more obvious the fact that the principal capital of society is a person who can acquire new knowledge, competences, generate innovative ideas, focus on the future, consciously perceive, anticipate, design, and create it, find non-standard effective solutions in situations of uncertainty and variability. Based on these principles, society's expectations and attitudes towards all types and levels of education are being transformed and becoming fundamental in social development.

At the time of independence, the historical milestones of the creation of a modern national education system of Ukraine were mostly determined by the Constitution, Laws of Ukraine, and other acts of legislation that regulated the development of education for 30 years.

Over the 30 years, education was developed at each stage in terms of its impact and, at the same time, its decisive feedback on the following basic transformation processes:

- ratification of independence, sovereignty, and self-sufficiency of a large country — Ukraine;
- radical change, comprehensive democratisation of social relations and their enshrinement in the Basic Law, in particular in the field of education;
- transfer of the economy to market principles;
- unconditional European and Euro-Atlantic integration;
- acceleration of scientific and technological progress and intensification of global competition on an innovative basis;
- informatisation, digitalisation, intellectualisation of all spheres of life;
- growing social tensions due to Russian aggression and the COVID-19 pandemic, environmental danger;
- the decisive and unchanging role of human being, human potential, and capital in solving human development problems.

In this context, the first Law of Ukraine «On Education» (1991) became fundamental, which gave a start and guidelines for creating a holistic system of educational legislation of

independent Ukraine. At the same time, this basic law was amended in 1996 with the adoption of the Constitution of Ukraine.

In the process of building Ukrainian statehood in 1993, the Cabinet of Ministers of Ukraine approved the State National Programme «Education» («Ukraine of the 21st Century»), which was agreed before the First All-Ukrainian Congress of Educators in 1992. The programme recognised education as the most essential part of «education of conscious citizens of the Ukrainian state», and one of its tasks was «to develop national consciousness, love for the native land, the people, desire to work for the prosperity of the state, readiness to protect it». Moreover, the document provided for the development of relevant concepts and optimisation of the network of education institutions. In 1995, the President of Ukraine signed the Decree «On the Main Directions of Reforming Higher Education in Ukraine» that defines the guidelines for improving the efficiency of higher education, in particular the need to enhance the network of the institutions.

The first more than ten-year stage of educational reform was conceptually completed in 2002 by the adoption of a set of special educational Laws of Ukraine such as «On Vocational and Technical Education» (1998), «On General Secondary Education» (1999), «On Out-of-School Education» (2000), «On Preschool Education» (2001), and «On Higher Education» (2002). In 2001, the new content, structure, and duration of complete general secondary education began to transform. It considers the most fundamental educational achievement.

New challenges to humanity in global civilisational change marked the beginning of the third millennium. In this regard, the National Doctrine for Education Development was approved by the Second All-Ukrainian Congress of Educators in 2001, and adopted by the Decree of the President of Ukraine in 2002. The National Doctrine has not lost its relevance focusing on a person, their talents and abilities, educational needs. In particular, it is about «educating a personality who realises his or her belonging to the Ukrainian people, modern European civilisation, understand the realities and prospects of socio-cultural dynamics, prepared for life and work in a changing world» and «conscious patriot citizen». The National Doctrine drew attention to the figure of an educator. As a result, the State programme «A Teacher» was accepted in 2002.

The number of secondary legislation was significant for the development of education in this period, such as «On the Introduction of a 12-Point Scale for Assessing Pupils Achievement in General Secondary Education on a Competence-Based Approach» (Ministry of Education and Science of Ukraine, Academy of Educational Sciences of Ukraine, 2000), the Concept of Specialised Training (Ministry of Education and Science of Ukraine, 2003 and 2009), Regulations on General Education Institutions (Cabinet of Ministers of Ukraine, 2010). The innovative implementing more differentiated and accurate scale for assessing pupils' performance reduced the number of pupils who had to repeat study for the second year from 40 thousand to 5 thousand. The essential step in the reform was the development of external independent assessment in the early 2000s, which has been mandatory for entering higher education institutions since 2008.

At the governmental level, several state programmes were adopted for the informatisation of general secondary education institutions and the computerisation of rural schools for the period of 2001-2003; informatisation and computerisation of vocational education institutions for the period of 2004-2007; informatisation and computerisation of higher education institutions accreditation levels 1 and 2 for the period of 2005-2008; information and communication technologies in education and science for the period of 2006-2010; providing general secondary, vocational, and higher education institutions with modern technical means of teaching natural sciences, mathematics, and technology for the period of 2005-2011.

Nevertheless, in general, the period of 2010-2013 should be recognised as a period of stagnation and even a setback in educational reforms despite some progressive steps (adoption



in 2010 of the State Target Social Programme for the Development of Out-of-School Education for the period up to 2014 and in 2011 the State Target Social Programme for the Development of Preschool Education for the period up to 2017, applying information and communication technologies in the educational process of general secondary education institutions under the programme of «One Hundred Percent» (2011-2015), the adoption of the National Qualifications Framework (2011), the adoption of the National Strategy for Education in Ukraine for the period up to 2021). In 2010, the transition to 12-year general secondary education, which began in 2001, was unreasonably stopped. Furthermore, although Ukraine joined the Bologna Process in 2005 after extensive preliminary work, the national legislation on higher education was not timely brought into line with the European Higher Education Area norms announced in 2010. The problems of vocational education and training have intensified as well.

The revolutionary events of 2013-2014, the signing of the Association Agreement between Ukraine and the EU, the constitutional strengthening the policy of the European and Euro-Atlantic integration caused a corresponding modernisation of educational legislation. Higher education has proved to be the most sensitive to educational innovation in Europe and worldwide. The first law of the new generation was the Law of Ukraine «On Higher Education» (2014). It considers the concepts of the Bologna Process and the International Standard Classification of Education (2011; 2013).

This law paved the way for changes in other educational legislation, primarily the basic Law of Ukraine «On Education» (2017). The basic law consolidated and expanded the main provisions of the New Ukrainian School reform launched in 2016. The Concept of the New Ukrainian School provides for creating a school «which will be pleasant to study and will give pupils not only knowledge but the ability to use it in life». The Law of Ukraine «On Education» started a new transition to 12-year general secondary education, extended the competence approach to the entire educational sphere, created a system of internal and external quality assurance of education, regulated the peculiarities of state-public administration and partnership, creation of hub schools. Under conditions of decentralisation, hub schools should ensure equal access to quality education, especially in rural areas. A special article in the law specifies the role of the National Academy of Educational Sciences of Ukraine in the scientific and methodical support of education.

The Law of Ukraine «On Education» was supplemented by a special Law of Ukraine «On Complete General Secondary Education» in 2020.

The Law of Ukraine «On Vocational Pre-Tertiary Education» was adopted a year earlier, which identifies the status of technical schools, colleges, and parts of colleges, which are no longer higher education institutions. These institutions as higher education institutions with accreditation levels 1 and 2 did not prove beneficial. At the same time, they play a significant role in implementing field-specific secondary education.

Nowadays, the structure of education is regulated by new educational legislation and includes: preschool education, complete general secondary education (containing primary, basic secondary and field-specific secondary), out-of-school education, specialised education, vocational education and training, vocational pre-tertiary education, higher education, adult education including postgraduate education. This structure of education (formal, non-formal, and informal) allows a person to ensure the right for lifelong learning.

The National Strategy for Building a Safe and Healthy Educational Environment in the New Ukrainian School (Decree No. 195 of the President of Ukraine dated May 25, 2020) was developed in pursuance of the Decree No. 894 of the President of Ukraine «On Urgent Measures to Improve the Children's Health» (dated December 7, 2019) to ensure the health of participants in the

educational process. The strategy specifies the main directions of building such an environment according to the government decisions such as the Concept of the New Ukrainian School (2016), the Concept of Mental Health in Ukraine for the period up to 2030 (2017) and the National Action Plan on Non-Communicable Diseases to Achieve the Global Sustainable Development Goals (2018). The national strategy is based on the strategic documents of the World Health Organization, in particular the Global Strategy for Women's, Children's and Adolescents' Health for the period of 2016-2030 developed in support of the Sustainable Development Goals following the United Nations Convention on the Rights of the Child. The formation and application by pupils of competences for a healthy and safe life will contribute to achieving the global goals of sustainable development proclaimed by the United Nations General Assembly in 2015 and supported by Ukraine, in particular, by the Decree No. 722 of the President of Ukraine «On Sustainable Development Goals up to 2030» (dated September 30, 2019).

The most important event was the participation of Ukrainian pupils in the International Survey on the Quality of Education PISA-2018. The results showed the strengths and weaknesses of the domestic system of complete general secondary education. Generalisation and comprehension of the participation results in PISA-2018 became a new impetus to further modernisation of general secondary education, improving its content, updating educational, methodical, and logistical support, improving postgraduate pedagogical education, strengthening the educators' motivation to improve their skills, etc. For this reason, it was necessary to create a national online platform for digital literacy «Diia. Digital Education» by the Ministry of Digital Transformation of Ukraine in 2020.

Considering the lessons of PISA-2018, the concept for the Development of STEM Education in Ukraine up to 2027 was approved in August 2020. The concept's main purpose is to develop the key competences of citizens, training the modern generation, who can acquire knowledge, create, and apply advanced technologies. The concept is directed at modernisation and widespread implementation of science and mathematics education, establishing partnerships, in particular with research institutions to develop STEM education.

The 2020/21 academic year has been declared the year of mathematics education in Ukraine to ensure the right of equal access of Ukrainian schoolchildren to modern and high-quality mathematics education, formation of the appropriate level of mathematical competence taking into account the results of PISA-2018 (Decree No. 3 of the President of Ukraine, dated January 30, 2020).

The Advisory Council for the Development of the General Secondary Education System has been established under the President of Ukraine (Decree No. 55 of the President of Ukraine dated January 30, 2020).

In 2021, the Cabinet of Ministers of Ukraine approved a plan of measures to promote science and mathematics up to 2025. The decision should promote the formation of science and mathematics education as a fundamental basis for modern innovation, increasing the country's competitiveness.

According to the updated educational legislation, the Government in 2018 approved the new State Standard of Primary Education, which is effectively implemented, in particular, due to the developments of NAES of Ukraine researchers.

On September 30, 2020, the Cabinet of Ministers of Ukraine approved the State Standard of Basic Secondary Education, which creates conditions for continuing the New Ukrainian School reform in grades 5-9 since 2022. The document identifies key competences that pupils should master at the end of each of the two cycles — adaption (grades 5-6) and basic subject learning (grades 7-9), and cross-cutting skills.

On April 13, 2021, the Verkhovna Rada of Ukraine adopted, in the first reading, the draft law on improving the mechanisms for the formation of a network of lyceums for the introduction of quality specialised secondary education.

Modern legal acts aimed at modernising the education system are developed taking into account the fundamental documents for Ukraine, in particular, the Sustainable Development Goals of Ukraine up to 2030 (2019), the National Economic Strategy up to 2030 (2021), and the Human Development Strategy (2021).

Among the goals of sustainable development of Ukraine, attention is paid to: providing comprehensive and equitable quality education and opportunities for lifelong learning for all; expanding partnerships between public authorities, local governments, business, science, education and civil society organisations; achieving a high level of science, education and health; decentralisation and implementation of regional policy, which provides for a harmonious combination of national and regional interests; preservation of national cultural values and traditions. In implementing the tasks in current conditions, decentralisation is one of the key transformations in education.

Relevant for the further development of out-of-school education, national and patriotic, military and patriotic, and civic education are the Laws of Ukraine «On Youth and Children's Public Organisations» (2016), «On Recognition of the Scout Movement and Features of State Support of Scout Movement» (2019); decrees of the President of Ukraine «On the Strategy of National and Patriotic Education» (2019), «On Urgent Measures to Strengthen the State Status of the Ukrainian Language and Promote the Creation of a Single Cultural Space of Ukraine» (2018); resolutions of the Cabinet of Ministers of Ukraine «On Approval of the Concept of Support and Promotion of Children's Social Movement in Ukraine» (2018), «On Approval of the Action Plan for the Period of 2019-2022 to Implement the Concept of Support and Promotion of Children's Social Movement in Ukraine» (2019).

Over the 30-years, the activities of the NAES of Ukraine researchers, its research institutions were aimed at scientific and methodological reasoning, and scientific and methodical support for the development and implementation of state educational policy.

The difficult conditions of transformation of *preschool education*, related to the increasing challenges of demographic and economic spheres, have caused the search for effective ways to ensure the maximum coverage of preschool age children, the accessibility, and high quality of education for them.

The NAES of Ukraine researchers have reasoned the worth of preschool education, including education of children of early age as an initial stage in a person's lifelong learning.

The Concept of the Basic Component as a state standard was implemented to ensure preschool education quality. The new Basic Component of Preschool Education was developed under the scientific guidance of NAES of Ukraine and approved by the Ministry of Education and Science of Ukraine in 2021.

In 1996, the Constitution of Ukraine obliged the state to ensure access and free of charge to preschool education. Since the early 2000s, children's involvement in preschool education has significantly increased. Moreover, the requirement of compulsory coverage of senior preschool children with preschool education according to the standard of preschool education has become the norm. In addition, inclusive education in preschool education institutions has received scientific reasoning and practical dissemination.

The NAES of Ukraine researchers have prepared a significant amount of innovative scientific and methodical products to implement the state policy in preschool education. In particular,

these are the programmes of the pre-schoolers' development of «I am in the World» and «Sure Start», the programme of national and patriotic education of pre-schoolers «Ukraine is my Homeland», partial programmes «Education for Sustainable Development to Pre-Schoolers», «Learning to Live Together», «A Child from 2 to 7», «The World of Childhood», programmes for children with special educational needs.

The Concept of Education of Early and Preschool Children has become an important innovative product created by the NAES of Ukraine researchers in collaboration with the Subcommittee on Early Development and Preschool Education of the Verkhovna Rada Committee on Education, Science and Innovations. The concept aims to develop the primary level of lifelong learning in Ukraine.

*General secondary education* has undergone radical transformations and changes during the years of independence, determined by the ideas of building a democratic society and establishing a person as its highest value. Among the main achievements are the following:

- development and approval of methodological principles of general secondary education (child-centred approach, humanism, the national character of education, focus on personal development, democracy, the openness of education, de-politicisation of school, approval of partnership pedagogy, competence orientation of educational process), which are scientifically reasoned in a number of theoretical studies of the NAES of Ukraine researchers and experimentally tested in educational practice;
- legislative regulation for functioning and development of a holistic system of complete general secondary education on new principles (the laws of Ukraine «On Education» (1991; 1996; 2017), «On General Secondary Education» (1999), «On Complete General Secondary Education» (2020));
- constitutional enshrinement of the norm of compulsory complete general secondary education for all citizens of Ukraine and legislative regulation of its provision throughout life;
- rejection of a single unified school, development of a system of general secondary education institutions of various types and forms of ownership;
- formation of new content of general secondary education based on standardisation as a factor of educational quality and maintenance of the single educational space of the country and ensuring the possibility of education institutions to implement the idea of differentiation of education at the same time;
- development of the textbook industry, creation of a fund of domestic school textbooks of several generations, as well as providing comprehensive scientific and methodical support of the educational process, in particular, with using information and communication technologies, digital resource environments;
- legislative establishment of a 12-year period for complete general secondary education, which is in line with global and European trends;
- objectification of identifying the level of success of pupils and graduates of general secondary education institutions based on implementing a 12-point assessment scale and a system of external independent assessment;
- implementation of specialised training in academic and professional fields at the final stage of receiving a complete general secondary education;
- development of inclusive education for people with special needs and disabilities.



However, the problems of rural schools with small contingents of pupils and the creation of a network of institutions for effective implementing of specialised secondary education have not been still solved.

Another important direction of developing an educational system and related activity of the NAES of Ukraine researchers is to develop the scientific foundation, innovative methodical support of *out-of-school education*. Scientific and methodical achievements are aimed at the comprehensive development of children in out-of-school education, their key competences, creative and research skills, values (including environmental, civic, moral values), and pre-professional experience.

Despite the difficulties of socio-economic transformations, the state educational policy is focused on guaranteeing citizens' constitutional right to out-of-school education both in institutions of out-of-school education and in general secondary education, vocational education, and vocational pre-tertiary education institutions. Out-of-school education is carried out according to the Laws of Ukraine «On Education» (2017) and «On Out-of-School Education» (2000) with all made changes and additions.

Over the 30 years of Ukraine's independence, the NAES of Ukraine researchers made a significant contribution in developing the Concept of Out-of-School Education (1996), legislation on out-of-school education, «State Target Programme for Out-of-School Education Institutions» (2002-2008), «State Programme of Work with Gifted Youth» (2006-2010), «State Target Social Programme for the Development of Out-of-School Education up to 2014» as a result of a synergy of efforts of the NAES of Ukraine researchers, experts of the Ministry of Education and Sciences of Ukraine and other central executive bodies, pedagogical community.

Among the current problems are the unequal access to out-of-school education in cities and villages, different regions of the country, the general reduction of the network of out-of-school education institutions. It has a negative impact on the coverage of children and youth by out-of-school education.

Modern *vocational (vocational and technical) education* of Ukraine in the conditions of significant transformational changes is characterised by optimisation of its organisation by levels (primary, basic, higher), decentralisation of management, expansion of powers of local executive bodies and local governments, creation and increase of functions of regional councils of vocational education and training, diversification of funding sources, development of interaction with stakeholders in the public-private partnership, establishing systematic interaction of institutions with employers, the spread of innovative principles of organisation of the educational process, in particular, using dual education, and information and communication technologies.

At the same time, the fragmentation of vocational education institutions, lack of popularity and attractiveness of this education have not been overcome.

The draft law «On Vocational Education» is being developed in collaboration with the NAES of Ukraine researchers to bring this education in line with the modern requirements.

Over the 30 years of Ukraine's independence, *higher and vocational pre-tertiary education* were considered the most important social institutions responsible for the innovative progress of the country, its achievement of absolute sovereignty in a competitive world.

The current structure of higher education is in line with its organisation in developed countries, which is defined by UNESCO, the United Nations, the Bologna Process. This structure includes the following levels of higher education:

- the initial level (short cycle);
- the first (Bachelor's) level;



- the second (Master's) level;
- the third (educational and scientific / educational and creative) level;
- the scientific level (up to 2021).

The access to higher education institutions is implemented based on external independent assessment to ensure equal access to quality education.

In Ukraine, there are the following types of higher education institutions: university, academy, institute, college — a branch of the higher education institution or a structural component of a university, academy, or institute that provides educational activities related to higher education of the first and second levels.

Getting the higher education at each level involves the successful implementation of the relevant educational or scientific (up to 2021) programme, which is the basis for awarding the appropriate higher education degree: Junior Bachelor, Bachelor, Master, Doctor of Philosophy, Doctor of Sciences (up to 2021).

A system of internal and external quality assurance of education has been introduced according to the European Higher Education Area requirements in the domestic sphere of higher education, higher education institutions. Several measures are being taken to integrate Ukrainian higher education institutions into the European Research Area.

It should be noted that the state policy concerning higher education has not always been consistent and balanced. Such a quantitative increase in higher education has led to lower quality. Nowadays, the higher education institutions network is fragmented, duplicated and inadequately specialised, deconcentrated in resources. As a result, there is a lack of world-class universities, and global competitiveness of higher education quality in Ukraine.

According to the Decree No. 210 of the President of Ukraine «On Improving Higher Education» (dated June 3, 2020), the Strategy for the Development of Higher Education in Ukraine for a period of 2021-2031 is designed to eliminate the problems mentioned above.

In 2021, the President of Ukraine initiated the Presidential University project, which should be a breakthrough in new university quality. The project is carried out in collaboration with the NAES of Ukraine researchers.

After almost thirty years of functioning in the status of higher education institutions of accreditation levels 1 and 2, colleges, technical and vocational schools are classified as vocational pre-tertiary education by the Law of Ukraine «On Vocational Pre-Tertiary Education» (2019). This is more in line with the place and role of such institutions in the economy and society.

In the context of implementing the concept of lifelong learning in Ukraine, *adult education* as part of a holistic system of national education has recently become relevant. To effectively respond to this challenge, Ukrainian society should be aware of the value of adult education and its potential for each human's personal and professional growth. Therefore, the Concept of Adult Education was created, and the draft law «On Adult Education» is being developed in active collaboration with the NAES of Ukraine researchers.

Over the years of Ukraine's independence, the problem of providing education system with *teaching and academic staff* significantly improved. The university network of personnel training, their qualifications, and salaries have increased. Currently, more than 85 % of educators in general secondary education institutions have higher education: Specialist's or Master's degrees. More than 70 % of the Doctors of Philosophy and Doctors of Sciences have full-time jobs in higher education institutions.

At the same time, the problem of pre-service, in-service training, and retention of teaching staff has not been overcome yet. There is a chronic shortage of highly qualified educators due to

the disproportion in the training of educators in some regions and levels of education as well as in certain subjects (computer science, foreign languages), especially in rural areas. The teaching profession has not acquired the necessary prestige, and it is not attractive in terms of salary, which affects the quality of entrants to pedagogical specialties of universities. Besides, there are no conditions for the realisation of the educators' potential in the universities themselves because of excessive workload, uncompetitive salaries, weak learning, research, and information infrastructure.

The «Concept for the Development of Teacher Education» (2018) was created to partly overcome the staffing problem in education in cooperation with the NAES of Ukraine researchers, pedagogical universities' academic staff and experts of the Ministry of Education and Science of Ukraine.

In Ukraine, a system of *scientific and methodical psychological support for education* was created by the leading role of NAES of Ukraine and its institutes such as G.S. Kostiuk Institute of Psychology, the Institute for Social and Political Psychology, Mykola Yarmachenko Institute of Special Pedagogy and Psychology as well as the Ukrainian Scientific and Methodical Centre for Practical Psychology and Social Work. Today, domestic psychological science is able to provide a research-based solution to various problems of the subjects of educational space, both on the theoretical and practical levels.

Over 30 years, the NAES of Ukraine researchers have actively studied psychological problems of development of self-sufficient personality, personal self-consciousness, and civic orientation.

Today, psychological support of human development is focused on increasing emotional stability, eliminating psychological discomfort, burnout prevention and recovery of the subjects of the educational process. It is proved that emotional culture has a decisive influence on the success of interaction, understanding, promotes harmony in the school team.

In the context of globalisation, multi-vector contradictory informational influences, the recommendations on developing the younger generation's ability to critical thinking and creative thinking, decision-making during specific events, facts, and the ability to overcome the resistance to everything that does not meet moral norms, humanistic principles.

Humanistic behavioural models are proposed, providing mutual respect and mutual support of individual and collective subjects of interaction, their mutually enriching dialogues, polylogues.

The lack of communication and pedagogical components in teacher training, which slows down the humanisation of education, the personal orientation of the educational process, has been clarified.

Recently, a system of practical psychology has become an integral part of education; it is implemented in education institutions by professional practical psychologists, social educators, and methodologists. In particular, psychologists help to overcome the contradictions that arise from the requirements for teachers as leaders of the principles of democratisation and humanisation of education with insufficient demand for such qualifications in modern schools.

Ukraine has a system of monitoring and formation of socio-psychological understanding of reforms in education.

At each stage of its development and improvement, the national educational paradigm took into account the achievements of educational, pedagogical theory and practice, the success of psychological science. In particular, the result of understanding the educational reality based on the psychological content of the dialectical unity of learning and human development in the educational space was a change over several decades of traditional approach (providing

standardised knowledge, skills, abilities) to competence-based — developing a system (key, general and special) of competences, including the lifelong learning skills. A forward-looking strategy is an educational strategy based on the interconnected abilities to be flexible in the fast-growing flow of information and use it effectively.

Based on psychological research, a triad of «knowledge, skills, and abilities» is not the purpose of educational activity but developed competences as the abilities to act using the development of appropriate psychological mechanisms (needs, abilities).

*The modern national sphere of education is built in the context of the following psychological components:*

- development of the subject of studying in the learning process, formation of the ability to learn throughout life, understanding the leading importance of education for a human being, the priority of the pupil's position as an active subject, not just the object of pedagogical activity;
- humanisation of educational space as a precondition for the development of personal potential, guaranteeing the right to choose an individual path of a person's development, a source of opportunities for self-actualisation of personality;
- the priority forms of organisation of the educational process are dialogue and polylogue;
- formation in the education of the subject of activity which is able to be actively involved in the subject-subject interaction at all levels of social relations.

*Psychological and pedagogical warnings on the path towards creating a modern education system*

1. Modern Ukrainian society, in the process of its reform, including education, has faced many problems, among which are psychological ones. These problems have been caused by changes in the principles of organising people's life and activity. Under the influence of instability, the level of anxiety increases, «social neurosis», hidden (potential), and obvious (actual) tendencies to aggression are intensified. Loss of direction and prospects in life reduces a person's resilience, threatens personal and professional safety. As a result, the success of social transformations depends less on the efforts of politicians but on whether people will feel and understand these efforts as a matter of progressive transformation that will become a personal matter for each person. Consequently, there is a need to conduct an in-depth analysis of people's behaviour in society as well as to encourage lifestyles that are most conducive to personal and social development.

2. Standardisation, averaging, unification of education, and monopolisation of knowledge production block a person's self-realisation in the educational space, choosing a personal learning path.

3. Introducing entertainment elements into the educational space is often a counterproductive strategy that affirms a frivolous attitude towards learning.

4. Spreading of values and attitudes of consumerism (mass consumption) into the educational space needs special public attention due to danger of primitivism, devaluation of the values of quality competitive education, the culture of leadership.

5. The temptation to popularise science creates the risk of dominating the idea of its simplification, which leads to the devaluation of scientific knowledge, a dumbing down of the higher levels of education, raises questions about the legitimacy and professionalism of researchers and educators.

6. Virtual educational space and distance learning develop a new type of communication and a new style of thinking, which actualises the need for thorough psychological research.

7. Further development requires issues of change from conservative learning and approval of developmental learning, comprehensive and maximum development of personality in the educational process, clarification of psychological patterns of mastering generalised modes of action, jointly distributed learning activities, psychological support of learning with appropriate research tools.

8. The complex of fundamentally new psychological and pedagogical problems of education of children of early and preschool age, as well as adults of the third age, are worthy of special note.

9. One of the central tasks of domestic psychological science is to develop psychological assistance to a person, in particular therapeutic and counselling types of support. As a result of the complexity and contradictions of modern society, many people feel psychologically exhausted, unprotected, unable to cope with difficult life situations, set goals, and be successful. The development and improvement of methods and technologies for the psychological rehabilitation of children and adults affected by hostilities in the Anti-Terrorist Operation / Joint Forces Operation zones (the ATO/JFO zones) and difficult life circumstances should be continued.

10. There is a lack of theoretical understanding of professionalism and professional responsibility in the psychological sphere due to the rapid growth of demand for psychological services and the expansion of their practical use.

11. The effectiveness of education management requires consideration of psychological factors associated with the individual psychological characteristics of people and the peculiarities of interaction in social groups and organisations.

12. The significant achievement of combining psychological science with practical psychology is the establishment of psychological service in the education system of Ukraine, which has become an integral part of education but needs to be modernised in the context of decentralisation of government in the country.

It should be noted the following *faults and lessons* of the 30th anniversary:

- lack of proper continuity in implementing reforms in education, lack of consistency, and persistence of planned activities. In 2010, at the final stage (10th year of study) of the transition to a 12-year period of complete secondary education, the Verkhovna Rada of Ukraine unreasonably and contrary to European practice abolished it and resumed the 11-year school education, which negatively affected the educational quality and slowed down its development for more than a decade;
- slow creation of conditions for equal access to quality education, in particular, due to non-compliance with the time requirements of the training and material facilities of a significant part of general secondary education institutions, primarily in rural areas; inadequate educational network, especially in meeting the needs for specialised training; problems with highly qualified educators in education institutions, especially in rural areas, etc.;
- one-sided interpretation of the State Standard of General Secondary Education only as requirements for compulsory learning outcomes without standardisation of the essential conditions for their achievement;
- lack of objective systematic monitoring of the quality of education at all levels as a basis for adjusting the strategy and tactics of further development of the educational system;
- insufficient funding for the adopted state programmes for education reform and other steps for developing its specific components, which makes it impossible to implement them properly.

## 2. DYNAMICS OF PUBLIC OPINION ON THE STATE AND DEVELOPMENT OF EDUCATION

**Abstract.** An essential condition for successful transformations in education is their conscious support by the public. Therefore, strategic planning and practical implementation of state educational policy should be based on reliable knowledge of how it is treated by participants in the educational process and the general population.

A systematic study of public opinion shows that education belongs to the institutions that are the leaders of public trust — along with the church, volunteer associations, NGOs, the Armed Forces of Ukraine. About one-half of the adult population (47 %) more or less trusts national education, less than a third (29 %) do not trust it.

The people's confidence in the need to implement reforms to increase the competitiveness of national education in today's high-tech and the fast-paced world is also essential. At the same time, public opinion reflects the actual contradiction of the processes in education during the thirty years of Ukraine's independence. Public opinion on education itself is often contradictory, sometimes burdened by outdated prejudices and stereotypes. The vast majority approves some education reforms and innovations of the population (for example, the implementation of the external independent assessment procedure is supported by 53.2 % of citizens, and introducing the field-specific secondary education — by 67.3 %). While others, on the contrary, are wary or provoke resistance, particularly in the negative attitude of the majority of respondents (65.1 %) to the transition of general secondary education institutions to 12 years of study.

Such vigilance and rejection are explained primarily by the imperfection of informational and educational support of ongoing reforms by education authorities. Thus, the urgent task is to create an effective system in education for the study of public opinion and the formation of a society's readiness for radical changes in the educational process, which are prompted by the complex challenges of the modern world.

Public opinion, a concentrated expression of views, expectations, feelings, and attitudes of people, can be compared with a sensitive barometer that reflects the current situation and the course of events in all spheres of public life, domestic and foreign policy. However, it would be a mistake to reduce its role only to the existing status quo statement. Unlike authoritarian and totalitarian regimes, where public opinion exists mainly in covert forms and is doomed to silence, in a democratic state system, public opinion is called to be an effective political institution that significantly impacts social processes, decisions of government officials and legislators.

Unfortunately, in Ukrainian society, burdened by the legacy of the totalitarian past, this vocation of public opinion is still insufficiently understood. The turbulent course of political life in Ukraine naturally led to the almost sacralisation of public opinion in power. Over the past 15 years, this course has included two unprecedentedly significant active actions of the masses



(the Orange Revolution and the Revolution of Dignity), as well as a stunning for the political old generation victory of Volodymyr Zelenskyy in the 2019th presidential election, which was rightly called the «electoral revolution». However, the constant proclamation of public cooperation messages by public authorities still often results in the selective involvement of representatives of individual associations in public decision-making (programmes, development strategies, bills, regulations), and sometimes — is accompanied by almost complete neglect of preferences and consciousness aberrations of large social groups and society as a whole. Thus, the problem of systematic study and on-time consideration of public opinion, reflecting these processes, is gaining exceptional importance in Ukraine.

Firstly, this problem is acute in education because of the need for resolute implementation of long-overdue educational reforms. The support of the broadest sections of the population for these reforms should be sought. Secondly, it is the fact that education belongs to the spheres of public life that remain the most overlooked by such traditional institutions of tracking and shaping public opinion as leading sociological centres and the media. Although educational affairs and concerns affect the interests of the vast majority of Ukrainian families (about 60 % of citizens in representative mass surveys testify that there is at least one pupil or student in their families), the attention of traditional media and, moreover, the new media are attracted mainly by those problems in education that have a taste of scandal or conflict. The same applies to the leading sociological centres, where education issues are rarely included, mainly when their study is generously funded from extrabudgetary sources. Of course, this does not allow to reproduce a holistic picture of the education situation and leads to a secondary distortion of its perception by the general public. As a result, the authorities cannot form a good idea of what needs to be done to ensure that the civic position of social groups, one way or another involved in the educational process, contributes to its modernisation.

On the background of these institutions' removal from everyday educational life, the exception that compensates the lack of relevant empirical information is the monitoring of public opinion on education and steps to reform it. The Institute for Social and Political Psychology of NAES of Ukraine provided such monitoring in collaboration with the Ministry of Education and Science of Ukraine since 2000. On the one hand, they reflect the state and dynamics of education, its achievements, and «bottlenecks»; on the other — the problems of forming public opinion about these achievements and «bottlenecks», which is not always unmistakable which is natural. After all, the contradiction of the processes in education inevitably entails a certain contradiction of public opinion. Along with progressive views, justified grievances, and invectives, it also contains erroneous judgments, outdated stereotypes, and prejudices and sometimes responds simplistically to the challenges of the modern world. All this should be emphasised because, given the above, public opinion on education is formed in Ukraine mostly spontaneously, with a lack of dialogue and feedback from the initiators of reforms with the social strata they apply.

According to the monitoring data, Ukrainian society consistently demonstrates its commitment to improving national education through reforms and highly appreciates its indisputable achievements. One of such achievements, fully reflected in public opinion, is the success achieved at the systemic level during the years of state independence in overcoming corruption risks in education. If in 2006 (the first measurement of this indicator), 16.4 % of respondents admitted that they had to give bribes to teachers or lecturers during the year; in September 2018, only 5.6 % of respondents had to go through such a sad experience. According to Ukrainian citizens, no less significant is the reduction of corruption risks when entering higher education institutions (HEIs). The most convincing in this regard is that according to respondents

whose children or grandchildren entered the HEIs, the share of young men and women who obtained a higher education diploma and became students without bribes in recent years is over 70 %. That is almost twice as much as in 2008 when it was 38.9 %. Therefore, despite all the inertia of public opinion and its dependence on constantly forced notions of total corruption in all spheres of state and public life, it is increasingly growing confidence that corruption in higher education in Ukraine does not exist. If in 2006 such confidence was shared by only every tenth respondent (9.1 %), in 2019 — every third (32.2 %).

Anti-corruption successes in education are related mainly to the introduction of external independent assessment, which, according to respondents, is one of the essential assets of public education policy. If we do not consider the «adaptation period» of 2005-2012, when the external independent assessment underwent natural for the initial stage cycles of trial and error and caused the inevitable complaints in such cases, public support for this innovation consistently exceeds 50 percent. At the last survey time (2020), 53.2 % of citizens in general and 70.2 % of those who have pupils or students in their families were positive about the external independent assessment implementation.

Public opinion on the field-specific secondary education is always positive. Although it decreased somewhat in the mid-2000s when discussions about its introduction intensified, the share of this innovation approval usually remains at 65-75 %. As of September 2020, 67.3 % of respondents supported it, including 75.8 % of educators and 71.2 % of parents and other family members with pupils or students.

The public attitude to educational reforms is evidenced by the sense of satisfaction and friendliness with which usually, if not absolute, then at least a relative majority of Ukrainians encounter the emergence of reformist legislative initiatives in the educational space. Thus, in general, 38.2 % of respondents and 52.0 % of teachers positively perceived the new Law of Ukraine «On Education» adoption in 2017. Significantly fewer respondents — 28.3 % and 16.1 %, respectively, reacted negatively rather than positively. The most extensive support (much more significant than the law as a whole) was received first of all by its provisions concerning the practical orientation of the education content (83.0 %), transparency of school finances (79.1 %), orientation on the pupil (78.1 %), autonomy of education institutions (78.1 %), motivating teachers to continuous professional development (73.6 %), partnership pedagogy (72.1 %).

A positive effect on public opinion has the idea of elementary order, increasing the functional capacity of the domestic education field. Despite all the troubles and chronic lack of material resources, the Ukrainian educational system has left far behind the organisational chaos of the 1990s, working more clearly and coherently. Furthermore, society feels it. Not surprisingly, despite specific periods of decline, the share of respondents who are pretty positive or somewhat positive about the state of readiness for the next academic year of general secondary, vocational, and higher education institutions is growing dynamically. If in 2003 it was only 22.7 %, in 2014 it reached 57.4 %, and in 2019 — 61.6 %. Even in the difficult conditions in which the 2020/21 academic year began, more than 51 % of respondents (and among those whose families have pupils or students — about 63 %) positively assessed the readiness of education institutions to start the academic year. Moreover, the total number of negative evaluations, as a rule, does not exceed 20 %.

However, the monitoring highlighted many problematic aspects in the development and reform of national education. For example, educational innovations are most welcomed by

society at the level of ideas, and as their practical implementation, citizens become increasingly critical in their assessments. There are at least two explanations for this.

First, there are signs of general frustration with the actions of the country's political leadership, which no government team has been able to avoid. Public attitudes to education reforms are largely synchronised with attitudes toward the central government. It was observed in the «post-Maidan» period and is still observed today. In the autumn of 2019, when the society was still rising from the rapid change of power through the «electoral revolution», all sociological centres recorded an undefeated level of citizens' consent that the situation in Ukraine was developing in the right direction. Also, respondents held the same opinion on the development of education. At that time, the number of respondents who believed that the domestic education system was developing in the right direction (42.2 %) significantly exceeded the share of those who held the opposite opinion (26.3 %). When in 2020, on the wave of an inevitable disappointment with the new government's actions, the number of Ukrainians who doubt the correctness of the direction in which the country is developing began to grow, it again affected the estimates of the direction development chosen by domestic education. Negative assessments (38.6 %) outweighed positive ones (26.4 %).

Secondly, the formation of public opinion on educational reforms is significantly influenced by the persistence, purposefulness, and consistency of education authorities in implementing reforms, the ability to think and plan strategically, and not to be tempted to receive bonuses from cheap populism. In the history of independent Ukraine, a critical mass of episodes has accumulated, when the leaders of specific industries in favour of the newly elected government and immature public sentiments began to act «from scratch», thoughtlessly cancelling even quite understandable and appropriate reforms of their predecessors. An example of the far-reaching consequences that can be seen today is the situation, first with the introduction, then with the completely unjustified abolition, and finally with the return to the transition from general secondary education to a 12-year training period. These vicissitudes negatively affected public opinion. Currently, this aspect of education reform is perceived by society most critically; its support has stagnated in recent years at 15-18 %. Two-thirds of Ukrainian citizens (65.1 % as of September 2020) are still not ready to agree with the 12-year training period. Furthermore, which is especially unfortunate, 57.4 % of educators have a negative attitude towards it.

The introduction of a mandatory year of preschool education for five-year-old children, announced in 2010 without proper informational support, from the very beginning also became a subject to significant public opposition. Even then, it was perceived negatively by about 42 % of respondents, positively — only 28.7 %. Subsequently, the negative attitude towards this innovation spread, and in 2015 its carriers accounted for more than 54 %. Therefore, it is natural that the positive changes observed in recent years in the attitude of Ukrainians to preschool education for five years have not yet radically changed the ratio of its negative and positive assessments. As of September 2020, this ratio has only returned to the starting level: negative assessments were 41.1 %, positive — 27.9 %. Even among educators, the share of negative assessments remained significant — 32.3 % (positive assessments are 43.5 %).

The most painful blow to domestic education and, accordingly, to public opinion about its condition caused the COVID-19 pandemic. As a result of numerous miscalculations and chaotic decisions of the then leadership of the Ministry of Education and Science of Ukraine, slow response to the demands of the pedagogical community, the Ukrainian educational system in the spring of 2020 was generally unprepared for the forced transition to distance learning.

Applicants of all forms of education and their teachers and lecturers were often left without the necessary technological and methodical support. They then faced numerous difficulties that were not always possible to cope with. Therefore, only a quarter of Ukrainians (27.1 %) evaluate the education of pupils and students online to some extent positively, and more than half (55.7 %) — negatively, in particular, almost one in five (18.8 %) — unequivocally negative.

The managerial miscalculations of the educational leadership in the initial period of the corona crisis discredited distance learning as one of the educational options of the modern world and rejected public opinion about the condition and development of national education at least five years ago. If the share of citizens gradually increased in those who agree that during the years of Ukraine's independence, the domestic education system has undergone radical changes for the better, reaching in 2019 almost 22 %, in 2020 it decreased to 14.4 %, which approximately equal to the indicator for 2013 (13.4 %).

A similar trend can be seen in citizens' answers to the question, «How has the general educational level of the population of Ukraine changed during the years of independence?». In previous years, the share of those who in population's opinion has become more educated, although not very fast, but increased: in 2013 — 17.0 %; 2016 — 18.9 %; 2019 — 23.4 %. Yet, in 2020 this indicator fell to 14.2 %. However, the number of respondents who believe that the general educational level of Ukrainians has deteriorated has not changed significantly: 39.3 % in 2013 and 38.5 % in 2020. The rest think that the educational level has remained approximately the same, or find it difficult to the answer.

Without diminishing the shortcomings that occur in the organisation of education in Ukraine, it is still worth noting that the decline in the population's educational level is a global problem of the modern world, which is not avoided even by the most developed countries. According to the Programme for the International Assessment of Adult Competences (PIAAC) data (2019), 19.8 % of people aged 16 to 65 in the Organisation for Economic Co-operation and Development (OECD) have so-called functional illiteracy. It is manifested mainly in the inability to perceive, understand and distinguish semantic parts, even in simple texts. Another acute problem is the deepening of educational inequality, which is manifested in the growing gap between the level of education of different categories of the population — both globally and locally. Therefore, most states are doomed to continuous improvement of educational systems to maintain the appropriate pace of humanitarian, and scientific and technological development.

It is no coincidence that Ukrainian citizens are increasingly demanding the quality of education, critically assessing its level, which can provide the domestic educational sphere. The share of respondents who consider the quality of education in Ukraine as high has almost halved during 2016-2020 — from 8.8 % to 4.8 %. And although the number of respondents who consider the quality of national education as low has decreased slightly (from 30.5 % in 2016 to 27.0 % in 2020), this does not reduce the general scepticism of citizens about the quality of services offered by domestic education institutions. According to more than half of the respondents (50.4 %), the modern Ukrainian educational system provides an average quality of education, which is most likely true. After all, such estimates resonate with the results of international research. Thus, according to the rating of national education systems published by the authoritative non-governmental organisation «International Organization for the Right to Education and Freedom of Education» (OIDEL) (Geneva) in 2016, Ukraine ranked 63rd among 136 countries, which is in the middle of the list — behind Montenegro and before Ghana.



Thus, it is natural that access to quality educational services in Ukraine is quite acute. Only 5.5 % of respondents consider qualitative education quite accessible; 21.7 % are relatively accessible; 36.6 % are rather inaccessible; 22.7 % are entirely inaccessible. In other words, about 60 % of Ukrainians doubt the availability of qualitative education. And the number of such respondents has remained virtually unchanged over the past 5-7 years. However, during this time, the share of those who consider qualitative education completely inaccessible has decreased slightly (from 26.8 % in 2014 to 22.7 % in 2020). Therefore, measures aimed at radically improving the quality of education, which the National Economic Strategy provides for the period up to 2030 approved by the Cabinet of Ministers of Ukraine on March 3, 2021 (No. 179), where the task of monitoring for field-specific secondary and vocational education is set. The implementation of these measures should be accompanied by appropriate information support. Under such conditions, public opinion will promote their performance, gradually getting rid of the existing scepticism about the prospects for increasing the quality of national education.

At present, in a society burdened by the negative consequences of the corona crisis, there are doubts about the course of educational reforms. Answering the question «How do you evaluate the progress of reforming the education system in Ukraine?», 43.4 % of respondents said they did not have a definite opinion on this issue, choosing the alternative «difficult to answer», almost equal to the total number of respondents with positive and negative opinions (45.8 %). As a result, for the first time, public opinion on reforms was polarised not based on its approval or disapproval but based on the presence or absence of any formed position. An unpleasant symptom in the dynamics of public opinion on education is also the declining confidence of citizens that the educational system of Ukraine needs to be reformed in general. Although the vast majority of Ukrainians (64.6 %) still believe that education reforms are still required, this indicator is the lowest in the last five years, during which it remained at 72-76 %.

Anyway, no matter how critical evaluations of the condition and achievements of the national education system are spread among the most radical citizens, it still enjoys excellent trust in society. In Ukrainian realities, the trust in the national education system is incomparably more significant than other public institutions — public authorities, law enforcement agencies, political parties, etc. Since 2000, the education sector has generally had a positive balance of trust/distrust throughout the observation period. For a long time, only the church could boast of the highest levels of trust, and sometimes the Armed Forces of Ukraine approached them. The situation changed radically after the Revolution of Dignity and the beginning of military aggression in the east. The circle of public institutions with a positive balance of trust/distrust has significantly expanded — along with the church and the Armed Forces; it included volunteer associations and public organisations. But even under these conditions, the education sector retains its place among the leaders of public trust: to some extent, it is trusted by about half of the adult population (47 %), while less than a third (29 %) do not trust it. The final balance of trust/distrust is +18, which is not much less than similar indicators of the church and public organisations (+23).

The tendency of public trust in educators was clearly manifested in pandemic times. The «Socio-psychological Aspects of the COVID-19 Pandemic in Ukraine» survey, conducted online by the Institute for Social and Political Psychology of NAES of Ukraine in April-May 2020, recorded a significant and understandable deterioration of citizens' attitudes towards all central government bodies, as reported by about 42 % of respondents. In return, losing confidence in the upper echelons of power, people strengthened horizontal ties and circles of trust. And almost the only representatives of the conditional «power» who should be trusted by society were medical



and teaching staff. In the context of a nationwide lockdown last year, 44.5 % and 32.6 % of respondents, respectively, improved their attitude towards them.

The issue of trust in education authorities is somewhat more complicated. During the three decades of Ukraine's independence, education leaders and their teams repeatedly lost public trust. For example, after the Revolution of Dignity, on a wave of optimistic expectations of citizens to reform all spheres of public life, 58.3 % of teachers and 38.8 % of parents of school-age children trusted the Ministry of Education and Science of Ukraine. However, closer to the end of that Government's term (2018), teachers' trust in the relevant ministry fell to 39.0 %, and parents' — to 33.7 %. Therefore, it can be argued that in the «post-revolutionary» years, the leadership of the ministry, although changing, completed a cycle of public confidence declining, for which there were reasons. In this sense, the implementation of the New Ukrainian School concept is indicative. In 2017, most citizens (57.7 %) welcomed its appearance, but the excessive enthusiasm of education leaders for the outer side of the New Ukrainian School led to disappointment and dissatisfaction. The failure of the distance learning organisation by other heads of the ministry has deepened this trend. As a result, the trust was destroyed for both the previous ministerial teams and their successors, who now have to overcome this sad legacy.

Management miscalculations harm public opinion on the development and reform of education, not only in the organisation of the educational process but also in informing society about the goals, directions, and expected results of the reforms. As of 2020, only one in four Ukrainians considered themselves fully or somewhat informed about this. Thus, despite the significant intensification of educational efforts, education authorities still can't establish reliable communication with the general public. It is sometimes impossible to properly set it with educators responsible for the direct implementation of new projects.

In 2017, researchers of the National Academy of Educational Sciences of Ukraine, using the method of in-depth interviews of teachers, studied the results of the pilot implementation of the State Standard of Primary Education (approved by the Resolution No. 87 of the Cabinet of Ministers of Ukraine dated February 21, 2018). The study showed that information about the difficulties and problems of local implementing the state standard, which is raised by the administrative level to the industry's leadership, can be hidden, concealed, or embellished to create a more positive picture. The information in the opposite direction may be based on misconceptions about the actual, local situation and the educational process subjects' current needs and capabilities. Sometimes these data can even be deliberately ignored when making strategic decisions as insignificant, which can lead to additional resistance and misunderstanding and, as a result, covert sabotage of change. These conclusions were brought to that time leadership of the Ministry of Education and Science of Ukraine, but they were not properly considered.

Meanwhile, it is evident that such a double distortion of communication — from the bottom up and from the top down — leads to problems associated with the conscious distancing of educational subjects from educational reforms, the complete transfer of full responsibility for their results to the initiators of change. And this passive-negative position becomes a severe obstacle to education reform. It cannot be abolished at once by a voluntary decision; it can only be transformed in long-term evolution in the direction of greater tolerance for uncertainty and openness to change, which should be promoted in every possible way.

Thus, increasing the resource of adequate support for educational reforms in society is a crucial task of state educational policy, which requires much more attention to the study and formation of public opinion on education. These issues were raised in national reports on the state

and prospects of education, prepared by researchers of the National Academy of Educational Sciences of Ukraine for the 20th and 25th anniversary of our country's independence. However, there has been no fundamental approach of education authorities to systematic work with public opinion since then. Therefore, it is essential to raise them again.

The task of building the infrastructure necessary for the study and consideration of public opinion on education remains relevant. In the Ministry of Education and Science of Ukraine, regional and Kyiv city departments, and departments of education and science, it is expedient to create public relations units, as well as public opinion monitoring centres at the regional level (coordination and methodical support of their activities can be undertaken by NAES of Ukraine). These are to achieve targeted funding for relevant organisational, media, and research activities, to establish state and non-state funds to support them. Territorial communities should be actively involved in this process, which, as the policy of decentralisation is implemented in Ukraine, acquires more and more political weight and subjectivity.

It should be borne in mind that *taking into account public opinion is a complex and diverse process*. It can be done by *adjusting*:

a) *management decisions that differ sharply from public opinion on specific issues and/or cannot yet be successfully implemented due to lack of conditions for their implementation*. In particular, it is pretty justified to postpone at the legislative level until September 1, 2027, some measures to form an influential network of lyceums for field-specific secondary education, abolish the rule that their founders can only be city councils with more than 50 thousand people, settlement of issues of activity within the lyceums of structural subdivisions that can provide preschool and primary education, etc.;

b) *negative public opinion regarding decisions at the strategic level*. This is also understandable. After all, there are decisions which concession would mean nullifying the reform efforts. In this case, public opinion needs to be changed, purposefully shaping it, explaining to society the essence of the implemented reforms and the «benefit» they will receive from their implementation.

The best conditions for the purposeful formation of public opinion are at the preparation stage of management decisions. The public development process makes it possible to balance the views of different population segments in advance to neutralise negative social moods. However, in the realities of Ukraine, the most important decisions are made primarily in an emergency, when the right opportunity arises or when it is simply impossible not to make them. Therefore, it is necessary to form public opinion in pursuit, which is much more complicated but also not hopeless.

It is possible to allocate the main directions of formation the positive public opinion on actual problems of education development:

- media support of the process of implementation of educational innovations, which includes relevant information campaigns, social advertising, press conferences, announcements in news media, and special thematic TV and radio programmes;
- dissemination of successful education reform experience, promotion of its positive examples in the public space, providing the necessary scientific and methodical, organisational, and material and technical conditions;
- activities using forms and methods of so-called social intervention, interactive and other technologies (holding public meetings, public hearings, cooperation with NGOs on joint

action plans, promoting the creation of initiative groups and associations to support reforms, launching public educational campaigns direction, etc.).

A scientifically reasoned set of measures and technologies for forming positive public opinion on educational innovations has been developed at the Institute for Social and Political Psychology of NAES of Ukraine. As necessary structural elements, it included information (media), networking and action technologies, and technologies of reflexive management and cultural creativity. A special place among them is occupied by the author's modification of the method of public opinion enrichment proposed by the American researcher J. Fishkin, which can be considered both as a technology of its formation. The need to use this method is since traditional methods of surveying citizens (mass polls, interviews, etc.) are often characterised by low validity, because respondents, as shown above (recalling the level of public awareness on education reform), sometimes do not have a clear idea of the subject of research. Thus, it is expedient to «enrich» the «raw» public opinion first using specially organised discussions, and only then to study those images of innovations that can be formed in it.

This set of technologies was tested during the all-Ukrainian experiment on «Formation of Positive Public Opinion on Educational Innovations», which was carried out following the orders of the Ministry of Education and Science of Ukraine dated March 4, 2016 (No. 219), August 8, 2017 (No. 1128) and August 18, 2017 (No. 1197). The experimental work was attended by 55 general secondary education institutions from all regions of Ukraine, representatives of parents' communities, regional in-service teacher training institutions, a number of traditional and teacher training universities. The purpose of the experiment was to develop and implement a system of technologies for working with public opinion, focused on forming a positive attitude of teachers, pupils, parents, and the general public to educational innovations: the transition of general secondary education to a 12-year training period, its field-specific character, expanding practice of public-governmental education management. Participants of the experiment had the opportunity to form motivation, skills, and abilities to organise public events, discussions, and other forms of public discussion of educational innovations. The capacity of pedagogical teams and parent communities to manage education institutions has increased.

Participation in the experiment accelerated the positive changes in the perception of measures to reform general secondary education in all its participants (teachers, parents, upper school pupils). These measured included even the most controversial ones, those still exposed to misunderstanding and resistance in society (meaning the transition up to a 12-year training period). The application of the developed technologies in experimental education institutions significantly improved the attitude to these measures and changed for the better the balance of positive/negative opinions about the prospects of their implementation. Among the total number of participants in the experiment, the share of those who have a positive attitude towards educational innovations in general increased by more than 34 % (and thus reached 58.5 %), and the share of people with a negative-passive attitude decreased by more than 2.5 times — down to 4.2 %. The attitude towards specific innovations has also changed significantly. Thus, the number of respondents with a positive attitude towards the 12-year training period increased to 48.3 % and, more importantly, exceeded the number of those who have a negative attitude towards it (39.3 %). This effect was most pronounced among the teachers who participated in the experiment. Among them, before its beginning, 14.6 % had a positive opinion about the 12-year schooling, and at the end — 52.3 %. Such shifts have been achieved due to the orientation of technological solutions on experimental modelling of the space of opportunities to change the

position of participants in the educational process as objects of educational reform to the part of an active subject, equal participant, and co-author of reforms.

The analysis of the results of the all-Ukrainian experiment made it possible to outline the contours of the proposed comprehensive implementation system of socio-psychological support of the educational reforms carried out in Ukraine. As a sequential chain of elements of this system, it is expedient to outline:

- 1) conveying to the public and the direct addressees of a certain innovation the reliable information about it, about its goals, objectives and expected results, activation of interest in this innovation, creating a positive first impression of it;
- 2) involvement of target audiences in the innovation process, their practical entry into the innovation process;
- 3) establishing dialogue and other forms of feedback between the initiators and recipients of innovation, coordination, control, and correction of the dynamics of the image of innovation and the course of the innovation process in general;
- 4) the use of socio-psychological means of optimising the image of innovation in the minds of its recipients and overcoming resistance to innovative changes;
- 5) assessment of the effectiveness of the innovation process by all its subjects (by comparing the expected, obtained, and side effects).

The implementation of the proposed system becomes especially relevant today when the reform of general secondary education is moving to its most responsible and, in a sense, the most revolutionary stage, which involves radical changes in the principles of functioning of the field-specific school. Awareness of the inevitability of these extreme changes is a genuine concern in conservative segments of Ukrainian society. Already, local education authorities rightly say that the most complicated thing in the need for change is to convince parents, many of whom find it difficult to accept that their children will no longer finish the school they began to study, but will enter field-specific lyceums, possibly in another locality. Therefore, the task of conducting relevant in-depth informational and educational campaigns in advance comes to the fore. The researchers of the National Academy of Educational Sciences of Ukraine, who have experimentally tested experience forming a positive public opinion on education, are ready to join their scientific and methodical support.

**Conclusions.** Public opinion, sensitively reacting to changes in the state educational policy, clearly, though sometimes contradictorily, reflects the main achievements and losses in the development of national education during the years of state independence of Ukraine. A systematic study of citizens' opinions convincingly proves that Ukrainian society, in general, is firmly committed to improving national education through reforms and appreciates its indisputable achievements. First of all, we are talking about the updated legislation of Ukraine on education, the introduction of external independent assessment, prospects for field-specific secondary education, progress in overcoming corruption risks in the educational sphere. According to Ukrainian citizens, the level of functional capacity of general secondary, vocational (vocational and technical), and higher education institutions is increasing from year to year.

At the same time, the fact that educational innovations are most positively perceived by society at the level of ideas is empirically reliable. However, as they are put into practice, citizens become much more critical in their evaluations. These innovations are frustrated by the actions of education authorities, which sometimes lack the focus, perseverance, and consistency in implementing reforms and the ability to think and plan strategically.

The COVID-19 pandemic and the related transition of education institutions to distance learning in the spring of 2020 had a significantly negative impact on public assessments of the current state and prospects for the development of Ukrainian education. The managerial miscalculations of that time governance of the industry led to the breaking of a number of upward trends in public evaluations of the success of the educational reforms. These miscalculations discredited distance learning as one of the educational options of the modern world and rejected public opinion about education at least to the five-years-ago condition.

However, despite the losses in public opinion, the Ukrainian education sector enjoys great trust in society. Trust in it is incomparably more significant than in other public institutions — public authorities, law enforcement agencies, political parties, and so on. This potential for trust was evident in pandemic times when medical and teaching staff were almost the only representatives of the conditional «government», which, in the opinion of the citizens, should be trusted.

To ensure the broadest possible public support for educational reforms there should be established an effective system of studying and taking into account public opinion on education. Working with a public opinion should be seen as an integral part of public education policy. Carefully taking into account public opinion, it should be purposefully formed simultaneously, using appropriate approaches and technologies. A research-based set of such technologies has been developed at the National Academy of Educational Sciences of Ukraine. It was tested in an all-Ukrainian experiment, in which 55 secondary schools from all regions of Ukraine took part and can be recommended for broad implementation.



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### 3. EDUCATION MODERNISATION FACED BY THE SOCIETY'S INNOVATIVE PROGRESS CHALLENGES AND INFORMATION CIVILISATION DEVELOPMENT

**Abstract.** From the methodological point of view, innovation and tradition are the two natural and balanced fundamentals of education. Indeed, there is no progress without innovation, and without selecting progressive innovations and embedding them in tradition, there is no feasible progress. At the same time, innovation is associated with new information. Thus, inherently innovative progress implies a continuous accumulation of information, and education should ensure its meaningful inter- and intra-generational transmission. Changes that have been taking place in modern society, in particular, the increasing amount of information, objective demand, and development of effective ways and means (technologies) of its processing indicate the information civilisation shaping.

Under such circumstances, to enhance its mission, education as a socially organised transmitter of traditional, basic, and newly created information also needs continuous modernisation and innovative improvement.

The innovative birth of independent Ukraine, new social relations, and global changes have predetermined the corresponding innovations in national education.

Thirty-year experience of functioning and developing the national educational system in civilisational changes, the establishment of the lifelong learning concept, and the human-centredness concept prove the relevance of the educational innovations to be implemented in Ukraine.

Enhancing the role of *preschool and out-of-school education* in personal development, especially in early childhood:

- creating optimal conditions for the early educational development of the child from his or her birth to the age of three;
- updating the content and improving the quality of preschool and extracurricular education following contemporary needs and children's and parents' requirements;
- providing community-based preschool and out-of-school education accessible to all;
- creating an inclusive educational environment in preschool and out-of-school education institutions;
- increasing the social status of the teaching staff of preschool and out-of-school education institutions.

The current stage of the independent Ukrainian state difficult formation requires increasing the efficiency of *national, patriotic, military and patriotic, and civic education* in the educational system:

- providing efficient scientific and methodical support for national and patriotic, military and patriotic, and civic education of children and pupils and developing their national and cultural identity;
- updating the nationwide educational system of military and patriotic education;
- introducing innovative person-oriented technologies of national and patriotic education in the educational process;
- implementing scientific and methodical support, primarily in out-of-school education, children's and youth public organisations to develop a patriotic citizen.

The forced social distancing, mainly due to the COVID-19 pandemic, and digitalisation of education increased such risks as cyberbullying, the spread of dangerous flash mobs, destructive practices, etc. These phenomena predetermine the need to reorientate the educational process vectors, create optimal technologies and effective mechanisms of education in the digital space, understand the transformation of the principles and content of educational activities, and study their effectiveness. This requires the development of the concept for children and youth education in the digital space.

At the levels of *complete general (primary, basic, and field-specific) secondary education*, the innovative documents were the Concept of Implementing the State Educational Policy in General Secondary Education Reform «The New Ukrainian School» for the period up to 2029 and the Action Plan for 2017-2029 on its implementation, supported by the Government in 2016. The Concept aim is to introduce substantial and systematic reforms into the content of education aimed at developing 21st-century competences; to form a new school teacher with modern teaching methods and the ability to implement partnership pedagogy; to create a new system of education quality control, and a modern school management and administration system.

The New Ukrainian School concept is standardised with the new framework Law of Ukraine «On Education» (2017), which introduces 12-years schooling starting from 2018, as well as by a special Law of Ukraine «On Complete General Secondary Education».

Legally, schools are divided into primary ones (grades 1-4), gymnasias (grades 5-9), and lyceums (grades 10-12). Field-specific lyceums will have two orientations — the academic and professional ones. Academic lyceums provide for further studies in higher education institutions. Professional lyceums focus on the labour market and professional training, i.e., mastering a profession. Receiving a professional qualification does not limit the right to further studying, particularly in higher education institutions. After each level of secondary education (primary — basic secondary — field-specific secondary), state final assessment takes place, by which pupils are enrolled to the next level.

The law introduces the concept of territorial accessibility — each school should admit a child who resides in the area covered by that school. The right of a child from that area to attend a state or communal school is guaranteed. But if the parents wish, they can send their child to another school.

The problem of *innovative digitalisation of education* has become most acute in the sphere of general secondary education; it is due to a number of reasons.

First, it is the rapid development of the informational society, the urgent need to master digital competence, digital technologies, primarily in general secondary education institutions.

Second, these are the challenges of the global crises distancing people, namely the COVID-19 pandemic. For Ukraine, the temporary annexation of some territories with their population is one more challenge that requires distance learning. Thus, the new organisation, forms, and content of education in changed conditions, studying the positive experience of learning under the crisis phenomena both in Ukraine and abroad are in demand. The development of pedagogical technologies should be innovative and consider the present-day achievements of digital education and digital pedagogy.

Third, the current information and communication, digital technologies make it possible to realise efficiently personality-oriented teaching and perform other tasks of the modern Ukrainian school. Elements of distance learning are to be implemented into the school practice as mandatory on different levels of education. The processes of indirect pedagogical interaction become of particular importance. Learners require constant feedback from teachers and pedagogical monitoring. The teaching staff's responsibility for the learning process in the digital environment should be increased.

In general, during the years of independence, the Ukrainian system of complete general secondary education has covered a difficult way starting with its establishment as an independent national educational unit and ending with the building of a holistic social institution that ensures the inalienable right of citizens to education. This way is full of diverse processes including creative innovative steps, as the implementation of 12-year schooling following global tendencies of the social progress in 2001, and unpleasant derogations, as temporary cancelation of 12-year period of complete general secondary education in 2010.

As a component of the past Soviet system of education, the Ukrainian school at the beginning of the 1990s remained part of a unified and ideologically engaged school; it did not possess its own national core and required radical restructuring under new principles. In particular, it concerns creating a nationally adequate educational environment, modernising the education content, its filling with Ukrainian historical and cultural traditions, improving the quality, and updating the structure of schooling consistent with the best examples of global systems of education. As a result, we have witnessed: a gradual transition from 3- to 4-year primary school; digitalisation and computerisation of education; creation of the national textbooks industry; development of the secondary education institutions network, which corresponds to the educational and cultural requirements of multinational Ukrainian people; strengthening the schools' material and technical facilities, etc. The legislative initiatives and the state's support of educational reforms accompanied the mentioned processes.

The innovative process of the general secondary education content standardisation began in the late 1990s; it resulted in the governmental approval of state standards of primary general education (1991) and basic and complete general secondary education (2004). The education content standardisation is still in progress. The third generation of the State Standard of Primary Education was approved in 2018 and the State Standard of Basic Secondary Education in 2020 based on the New Ukrainian School concept. The work on the draft State Standard of Field-Specific Secondary Education has begun. The new standards are aimed at developing learners' key competences of the 21st century, which are provided by the Recommendation of the Council of the European Union (2018), based on personality-oriented, activity- and competence-based approaches to teaching and learning, corresponding to the European and global trends in education.

In 2008, the society welcomed the implementation of school graduates' external independent assessment, which was experimentally tested in the early 2000s, and recognition of its results while entering a higher education institution. Many experts recognised it to be one of the most

successful initiatives of the Ukrainian education system, which has already become a tradition. Nowadays, the majority of citizens trust the external independent assessment, and its support by society is growing.

The current stage of the general secondary education reforming includes its methodological reconstruction as a social institution that ensures the development of a person of new formation — creative, flexible, and innovative, able to act in innovative society and under the conditions of an innovative type of progress. At the same time, this new methodological reconstruction has caused some problems, among which are the following ones:

- ensuring the access to high-quality education regardless of residence (urban or rural areas) and economic conditions of a family (support for children with economically vulnerable backgrounds);
- extending the age limit for compulsory education towards preschool education (1 year) with the preservation of 12-year schooling. As evidenced by the PISA-2018 results, the children who attended preschool education institutions had better achievements;
- optimising the network of general secondary education institutions, namely creating separate multidisciplinary and single-field lyceums in complex with gymnasia, in particular, the scientific ones for the gifted children, that are able to provide learners with high-quality training;
- teacher training in traditional universities, especially for academic lyceums;
- digitalisation of learning environment, development of electronic learning resources, providing children with means of distance learning, availability of the Internet, especially in rural areas;
- creating conditions for inclusive education of children with special educational needs;
- educating children of national minorities and indigenous peoples, particularly in Ukrainian, learning the native language, preparing and publishing relevant teaching materials.

The innovative development of *vocational (vocational and technical) education* in modern conditions is primarily aimed at modernising legislation concerning: the improvement of structural and network organisation to consolidate the vocational (vocational and technical) education institutions; the expansion of their profile and implementation of multilevel training; the increase of management efficiency and financing; the education content standardisation using competence-based approach and considering dynamic changes on the labour market; the introduction of state-private partnership; the development of the pupils' digital, entrepreneur, career, and other competences of post-industrial society; the development and application of new forms (dual, distant, blended) and respective methods of the educational process organisation; the improvement of the image of vocational (vocational and technical) education.

Scientific and technological progress in informatisation has led to the powerful innovative processes of digitalisation in all spheres of society's activity. It objectively increases the complexity and flexibility of new technologies, the introduction of intellectual systems and closed technological processes into production, which, in its turn, affects the field of labour, changing its content and forms, and hence the training of Skilled Workers. Complex high co-investment technologies encourage the creation of integrated professions for different sectors of the economy, thus requiring new vocational competences of employees and the corresponding ability to provide them promptly.

The increasing complexity and intellectual character of labour require providing innovative enterprises with highly Skilled Workers with special vocational competences, and a wide range of qualities as critical thinking, creative abilities, being initiative, ready for changes in production,

etc. Developing those qualities in workers of different sectors of the economy will make it possible to transform ordinary performers into innovative workers.

In 2019, the innovative separation of *vocational pre-tertiary education* from the sphere of higher education took place. The education structure modernisation was connected with the demand to fill in the gap between working and higher education qualifications with intermediate vocational qualifications required by modern production. Dynamic changes in production demand increased interaction and integration of the vocational (vocational and technical) and vocational pre-tertiary education institutions, as well as digitalisation of the educational process, which will contribute to the training of highly qualified personnel, their timely retraining and renewal of vocational competences.

Modernisation of national *higher education* has been aimed at transforming this educational level into a driving force of society, ensuring its advanced sustainable development and innovative breakthrough in science and technology, production and economy, as well as socio-humanitarian spheres during the process of developing knowledge society and information society.

*Progressive innovative changes in higher education of independent Ukraine are as follows:*

- radical update of the educational legislation and regulatory framework for higher education to harmonise it with the European Higher Education Area;
- integration of the national higher education system into the European Higher Education Area, implementation of quality assurance measures following the European standards and recommendations and the European Commission project «Tuning Educational Structures in Europe», as well as the implementation of the 4th global sustainable development goal «Quality Education», and establishing the National Agency for Higher Education Quality Assurance;
- competence-based standardisation of higher education, democratisation, giving autonomy, and internationalisation of higher education institutions activities, transforming students into subjects of the educational process;
- introduction of a new mechanism for distributing state budget expenditures between higher education institutions based on their educational, research, and international activities indicators.

The prospects for updating higher education under the society's innovative progress and formation of information civilisation are transforming higher education into a key factor in achieving the UN Sustainable Development Goals by Ukraine and Ukrainian universities into globally competitive institutions.

*Further modernisation of the structure and content of higher education in the context of its missionary triad «education — research — innovations» requires:*

- optimisation of the network of higher education institutions by their consolidation, concentration of their resources and improvement of the national university ranking, development of other mechanisms for assessing the competitiveness of educational quality, and finally, the creation of world-class universities;
- ensuring compliance of the content of higher education with the current and strategic goals of the country; strengthening the knowledge intensity of educational content through the development of research-based learning, increasing its connection with the needs of the practice, and focus on the creation and implementation of innovations in the system «education — science — business»;



- updating educational curricula by strengthening their interdisciplinary character and advancement, compliance with the needs of educational services consumers; increasing the relevance, accessibility, and flexibility of educational content;
- creating conditions for the realisation of research and innovation potential of academic staff;
- creating the industry of innovative digital technologies and teaching aids;
- expanding the network of centres for collective use of the universities' research equipment.

An important educational innovation is the modernisation of the final educational level — *adult education* as a component of lifelong learning. The efficiency of this level of education is increasingly influencing the innovative development of the state at three levels: individual, institutional, and society. The individual level represents a set of positive changes, including improving health and well-being, increasing job satisfaction, expanding employment opportunities with decent pay, career growth, self-realisation. At the level of institutions (enterprises, institutions, organisations), there is increasing productivity, strengthening the employee responsibility for their performance, growing adaptability and creativity as to innovations in production, and improving the socio-psychological climate in firms, companies, and organisations. At the level of society, the age limits of labour activity extend, the economic activity of the population and their welfare increases, the economy grows, and the society as a whole progresses.

Innovative adult education contributes to overcoming information inequality in society, meeting the needs of developing computer, information, digital literacy of people lifelong.

Among the important innovations is designing *psychological mechanisms* for developing the subjectness of adults and other categories of the population in cyberspace, particularly in social media. Innovative are the conceptual bases of psychological analysis of the Internet resources functioning, which are aimed at developing intelligence and subjectness of an individual, and designing virtual spaces, including educational, for the purpose.

An effective way to develop a competitive and successful personality, starting from school, is to determine the structure of professional readiness for the modern and future information society requirements. In particular, based on the all-Ukrainian experiment «Psychological and Pedagogical Principles of Innovative Technologies of Personality Development», G.S. Kostiuk Institute of Psychology of NAES of Ukraine cleared up the structure of personal and professional readiness of young people for the challenges of today. The list of personal and professional qualities that should be actively developed in pupils during schooling and enhance further promotion of their effective training and successful socio-professional integration into the information society has been compiled. A system of innovative methods for diagnosing motivation to learning in the modern information society has also been worked out, and a model of technology for developing students' creative thinking has been suggested.

In addition, a system of distance learning courses has been created for intellectual development, formation of communicative competence and ability of conflict resolution, development of subjectness, and project thinking of all participants in the educational process.

Thus, the continuous modernisation of education in the face of challenges of an innovative society and the corresponding development of information civilisation is natural and ensures sustainable human development.

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## 4. EARLY CHILDHOOD AND PRESCHOOL EDUCATION: ACCESSIBILITY AND QUALITY UNDER NEW CONDITIONS

**Abstract.** Early childhood and preschool education (hereinafter «preschool education») is a valuable primary stage of continuous education laying the foundation for developing the child's personality for his or her further lifelong learning. Quality preschool education contributes to the child's harmonious formation, creative self-determination, and development.

During Ukraine's independence, our own approaches, models, and developments of preschool education have been formed. The coverage of children of the appropriate age with the mentioned educational level has increased, especially in cities. However, another one million children under the age of five are not covered by the primary stage of education; only every sixth or seventh child under the age of two attend a preschool education institution. At the same time, the concept of global lifelong learning highlights an important stage of early educational development from birth to the age of three. This requires rethinking of traditional preschool education and developing new methods and content appropriate to the child's age. The National Economic Strategy for the period up to 2030 emphasises that preschool education in Ukraine needs systemic changes due to the new public demand for the realisation of the right to access quality education. Implementing such a constitutional right is in line with the strategic directions of the early childhood and preschool education development: the early childhood educational development from birth; improving the network of preschool education institutions of the state, communal, and private forms of ownership; the implementation of state-public, state-private, parental partnership in assuring educational quality and its monitoring; creating conditions for the physical, mental, social and mental health of children; improving the professional competence and social status of teachers.

In the context of civilisational challenges, effective reform of preschool education, creating a holistic early childhood and preschool education system is possible only being research-based and with appropriate innovative scientific and methodical support taking into account the progressive world experience.

During the years of independence in Ukrainian society in the context of civilisational changes, there have been qualitative worldview transformations of understanding the uniqueness and self-worth of childhood, awareness of the leading role of education in the development of a personality. It has led to strong social demand for quality education not only at the level of complete general secondary and other higher levels of education, but also in preschool education, particularly from human birth. It has also intensified the search for effective ways and mechanisms to ensure the child's constitutional right to education.

Although preschool education and education in Ukraine as a whole developed often in unstable socio-economic and socio-political conditions, positive trends characterise it: functioning of a wide network of different types of preschool education institutions; modernisation of the content of education and the educational process based on humane pedagogy, taking into account modern principles of education; development and updating programme and methodical support following the requirements of the State Education Standard; creation of conditions in preschool education institutions for the development of children with special educational needs, in particular, development of organisational principles of inclusive groups activities, individual programmes for the gifted children and for children with mental and physical disabilities; conducting monitoring studies with the financial support of the UNICEF.

At the same time, the National Economic Strategy for the period up to 2030 identifies among the challenges in preschool education the need to: provide infrastructure for access to quality and inclusive educational services; modernise the content of preschool education; motivate the establishment and functioning of the private preschool education institutions.

The NAES of Ukraine researches showed that the preschool education's problem area is now wider. In the context of global development of education, its actualisation for all stages of life is necessary: ensuring the early development of the child from birth to three years, development of the network of state, communal, and private forms of ownership; introduction of state-public and state-private partnerships in the preschool education administration; motivation of parental partnership; ensuring the quality of preschool education and its monitoring; creating conditions for the physical, mental, social, and spiritual health of children; increasing the professional competence and social status of preschool education institutions' teaching staff as a condition of quality preschool education.

In economically developed countries, the first investment of the state in developing the human capital of the country is to support the early development of children from birth to three years. The first three years of life are crucial in the most intensive development of the whole child's body, which is determining for further development of a human at all stages of his or her life.

In Ukraine, since January 1, 1992, with the amendment of the Labour Code of Ukraine, opportunities have been created for parents to up-bring a child in a family environment: women can be on childcare leave until the age of three. In this regard, the Law of Ukraine «On Preschool Education» has been amended accordingly regarding the age of admission of a child to a preschool education institution. As a result of these changes, the network of early childhood groups began to shorten rapidly, as the family began to take care of upbringing and developing children from birth to three years old. Nowadays, only every sixth or seventh child under the age of two attends a preschool education institution. Due to the lack of a general and pedagogical culture of individual parents, the children's development level in the mentioned age group currently does not fully comply with generally accepted norms.

In particular, the problem is the premature, excessive, and inadequate use of various electronic devices by individual parents as a means of teaching and entertaining children, which makes children addicted to gadgets, complicates the adaptation to the real world. The development of children is artificially forced without taking into account the mental and physical age characteristics, which leads to their psychological exhaustion. The peculiarities of the pace of children's lives are not taken into account. There is no psychological and pedagogical patronage over the early age children's development. Thus, the problem of educating children from birth to the age of three needs attention from the state.

Despite the existence of different types of preschool education institutions in Ukraine, the problem of access to preschool education is acute. Today, the following trends remain stable: group congestion in cities; reduction of preschool education institutions in rural areas; financing preschool education from local budgets on a residual basis, accompanied by a reduction in financial standards for the maintenance of one child.

According to the State Statistics Service of Ukraine, at the end of 2020 in Ukraine there were 15.3 thousand (in urban areas — 6.1 thousand, rural — 9.2 thousand) preschool education institutions (legal entities) with about 1.2 million children (in cities — 884.7 thousand, in villages — 265.3 thousand). There is a tendency to reduce the network of preschool education institutions in rural areas and increase in urban ones. It is due to the population migration to large cities and the lack of funds to maintain institutions in the united territorial communities of rural areas.

More than 1.1 million (98 %) children are in state and communal institutions, and 22 thousand (2 %) children — in private and corporate institutions of the total number of children attending preschool education institutions. Also, there are 60 thousand children with special educational needs in the special purpose groups of preschool education institutions and 74 thousand children in inclusive groups.

During the years of Ukraine's independence, in parallel with the development of the state and communal system of preschool education, a private sector has emerged, which competes and complements it in providing educational services. The emergence of the private sector of preschool education is primarily due to the need to increase the number of children in preschool education. At the same time, the imperfection of regulatory support and the policy of a certain non-acceptance of private ownership have slowed down the development of this important sector.

*Therefore, there is a need to establish state-public and state-private partnerships in the preschool education administration.* Preschool education institutions are interested in cooperating with public organisations and research institutions under transparency and information openness. Reformation processes need to be closely linked with science to reason the modernisation of preschool education's mission, content, and organisational principles according to civilisation challenges, attract the capacity of civil society non-governmental institutions to support education on a state-public basis. There is also a need to review relevant international experience, master progressive practices, establish links with foreign research institutions that study the specifics of preschool education in the context of lifelong learning, and institutions that provide training and retraining of teaching staff.

*The motivation of parental partnership in preschool education is relevant* due to the priority influence of family relations on the early and preschool-age children's personal development. After all, both parents are responsible for the child's education, upbringing, and development, preservation of life, promotion of health, formation of a sense of human dignity, and a conscious attitude of a child to a healthy lifestyle. The rights and responsibilities of parents are determined by the Constitution of Ukraine, the Law of Ukraine «On Education». The child's education in a preschool education institution or other entity does not release parents from the obligation to care for, develop and educate a child. However, the practice of exercising pedagogical patronage over children who, for various reasons, do not attend a preschool education institution is largely lost. Nevertheless, patronage is of particular importance given the low level of parents' legal, medical, psychological, and pedagogical awareness on the specifics of supporting and developing early and preschool-age children.

The family is an important social institution and primary educational environment that plays a leading role in shaping the child's personality, ensuring its lifelong development. Given

this, many legislative and regulatory documents (Constitution of Ukraine, laws of Ukraine «On Preschool Education», «On Childhood Protection», «On Education», «On Complete General Secondary Education», «On Prevention and Counteraction to Domestic Violence», Family Code of Ukraine, the Concept of the New Ukrainian School, etc.) emphasise the need to actively use the educational potential of the modern Ukrainian family, strengthen the role of parents in developing a child's personality as a worthy member of society, ensuring youth preparation for future family life, conscientious fulfilment of parental responsibilities.

The crucial role of the family in early childhood and preschool education requires increasing the family educational potential, preparing parents for the effective implementation of educational and upbringing functions. Given this, it is advisable to create at maternity hospitals, as well as at preschool education institutions, schools or centres for responsible parenting, focused on psychological, pedagogical, social, and medical support of young families, socially vulnerable groups, those who do not fully possess up-to-date information about children's birth, comprehensive development and humanistic education. Such schools or centres should aim to provide informational, psychological, pedagogical, and correctional assistance to young families during pregnancy, prenatal and perinatal periods, early and preschool-age. The mentioned will qualitatively increase parental competence and introduce modern methods and forms of care and development of early and preschool-age children into family educational practice. The popularisation of joint responsibility of the state, community, family, teachers, etc., for the development of children will be a natural result.

Changing education goals, shifting the emphasis from the knowledge to competence-based approach determine a new vision of quality preschool education. It should correspond to the global educational trends, state requirements, socio-cultural values of the country, be able to meet the requirements and needs of Ukrainian society, and above all — every separate child.

Currently, following the Law of Ukraine «On Education», a system of internal and external quality assurance of preschool education is being developed, which includes tools, procedures, measures (standardisation, licensing, public accreditation, institutional audit, monitoring of educational activities quality, teachers' attestation and certification, public supervision (control)). All preschool education institutions, regardless of the type of ownership, should comply with the requirements for the level of development of a preschool-age child, defined by the State Standard of Preschool Education (Basic Component of Preschool Education).

*Equally important is addressing children's physical, mental, social, and spiritual health.* Statistics show that today almost 80 % of children have one or more diseases, only 15-20 % of children are born completely healthy, every third child has abnormalities in physical or mental development. The respiratory, digestive, cardiovascular, musculoskeletal, nervous, etc. diseases predominate in preschool and school-age children.

Leading Ukrainian and foreign researchers and practitioners believe that a child's health depends only 50 % on various external factors, namely: the willingness of parents to pass their child health in utero, and then develop the baby's health after birth. The other 50 % of a child's health depends on how he or she understands and realises what health and a healthy lifestyle are.

According to the National Doctrine for Education Development in Ukraine (2002), teachers and parents have a priority task — to educate children in a responsible attitude to their own health and the health of nearby people as to the highest individual and social value. At the same time, over the last decade, the problem of maintaining children's health in preschool education institutions has worsened. This was due to the following characteristic features of educational process intensification: the excessive fascination with the methods of intellectual development and computer literacy, the imbalance between physical, emotional, social, and intellectual



development, increased time of organised classes, their monotony, violation of the duration and quality of children's sleep, reduced outdoor exposure, lack time for free games and other activities of children.

*Today, despite the positive dynamics of change, the issue of raising the social status of preschool education institutions teaching staff remains open.* It causes a low level of their motivation to work with children and constant professional growth, preventing the success of the preschool education system modernising in Ukraine. There are conflicts between: unjustifiably low salaries of teachers and technical staff (the lowest in education, which is not highly paid at all) and a high level of expectations and requirements for them from society, parents; the profession is not prestigious, often its negative image, which is produced and maintained in the media space, the lack of widespread promotion among the population of the achievements of preschool education and the importance of solving educational problems of early and preschool childhood.

*At the same time, a necessary condition for qualitative changes in preschool education is to increase the professional competence of teachers and the level of staffing preschool education institutions with them.* According to the State Statistics Service of Ukraine, at the end of 2020, the number of actually occupied positions in preschool education institutions was: teaching staff — 141.6 thousand people, technical staff — 177.6 thousand people. Among the teaching staff, there were 44.3 thousand people (or 31.3 %) who had the educational (educational and qualification) level of «Junior Bachelor», «Junior Specialist»; with educational levels of «Bachelor», «Specialist», «Master» — 94.5 thousand people (66.7 %). Therefore, statistical data indicate the need to expand the training and retraining of preschool education teachers at higher educational levels, as well as the retention of highly qualified teaching staff in positions.

The new generation of preschool teachers should be ready to build an educational process in the preschool education institution, consistent with the principles of humanistic philosophy, psychology, and pedagogy. Modern preschool education requires developed reflective competences of an educator, which should be developed in higher education institutions and manifested in taking into account the age and individual specifics of children's development, organisational and content characteristics of the educational process in different groups of preschool education institutions.

The education of early and preschool-age children needs fundamental scientific support. In particular, the results of advanced research in medicine, pedagogy, and psychology are not fully implemented in the real practice of early and preschool children's life support and modern family functioning. The lack of effective mechanisms of interaction between science, government, business, and society complicates the solution of strategic issues and the implementation of effective policies in preschool education, development, and implementation of innovative technologies for early childhood and preschool education.

*The National Economic Strategy for the period up to 2030, approved by the Resolution No. 179 of the Cabinet of Ministers of Ukraine dated March 3, 2021, clearly defines the preschool education policy priorities.* Among them are: the creation of anti-discriminatory educational content, opening of additional places in preschool education institutions, adoption of a new version of the Law of Ukraine «On Preschool Education», approval of methodical recommendations on forming an internal system of education quality assurance in institutions, development of their network and differentiation by types, forms of ownership, the introduction of a new model of preschool education financing to expand its accessibility, approval of a typical programme for teachers' in-service training, introduction of institutional audit in preschool

education institutions, development of the modern, safe, inclusive, and comfortable educational environment.

The solution of these problems, and hence the implementation of tasks in preschool education, defined by the National Economic Strategy for the period up to 2030, will contribute to:

- the formation of the state educational policy of creating optimum conditions of life and development of early age children both in a family and in preschool education institution;
- the introduction of psychological and pedagogical patronage of early age children;
- the creation of a system of consulting and educational services for future and young parents;
- the creation of early development groups with a flexible work schedule;
- the introduction of tools for monitoring the quality of early educational development of children to identify existing gaps and potential opportunities;
- updating the content of preschool education in the context of the tasks of the New Ukrainian School and implementing models of the educational process based on the principles of priority of cognitive experience, partnership, intensification of personal efforts, personal involvement of each child, dialogue format of the educational process, etc.;
- the legislative regulation of private preschool education institutions activity, in particular in terms of creating appropriate sanitary and hygienic, psychological, and pedagogical conditions for the organisation of the educational environment, compliance with the Basic Component (State Standard) of Preschool Education, current programmes, and ensuring proper control / evaluation of education quality by relevant bodies, first of all, the State Service of Education Quality of Ukraine;
- the amendments to the Law of Ukraine «On Preschool Education», Budget Code of Ukraine in terms of providing expenditure for opening preschool education institutions or preschool departments in other education institutions;
- the diversification of mechanisms of dialogue functioning, managerial interaction of preschool education institutions administration with government structures, parent communities and boards of trustees, public associations, non-governmental organisations based on partnership in assistance and support to families of children with special educational needs, incomplete, and low-income families;
- providing charitable assistance in creating quality conditions for the functioning of preschool education institutions;
- the sequence of actions of the state and society to improve the image of the profession of educator by highlighting the achievements of preschool education; ensuring a decent salary for employees of preschool education institutions, in particular psychologists, social educators, speech therapists, not lower than for primary school teachers; implementation of social support for young professionals; providing social protection to the leaders of clubs working in preschool education institutions.

Implementing state policy in preschool education is impossible without appropriate scientific and methodical support. Over the last five years, researchers of the Institute of Problems on Education of the National Academy of Educational Sciences of Ukraine have conducted research aimed to create innovative programme, training and methodical, and technological support for preschool education. In particular, a number of programmes have been developed and implemented in the educational process. These are the programmes of the national and patriotic upbringing of preschool children «Ukraine Is My Homeland» (2016), the programmes of preschool children development «I Am in the World» (2019), the programme «Sure Start»

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(2018, 2019, 2020).), developed in collaboration with researchers from G.S. Kostiuk Institute of Psychology of NAES of Ukraine.

In preschool education regulations, the NAES of Ukraine researchers co-authored the updated State Standard of Preschool Education — the Basic Component of Preschool Education (2021), which focuses on the effectiveness of preschool education, including tracking the dynamics of personal achievements of senior preschool children. Researchers have joined the development of criteria for educational quality and a set of measures to achieve, improve and further develop it. These measures relate to the structure of preschool education, innovative methods of evaluating the results of educational services. The quality of preschool education and care should be based on the vision of how every child should learn and develop in society.

At the same time, to popularise and summarise the best experience of private preschool education institutions, particularly the education of early-age children, together with the Subcommittee on Early Development and Preschool Education of the Verkhovna Rada of Ukraine Committee on Education, Science and Innovations, the webinar «Ensuring the quality of early childhood and preschool education in a private sector: science and practice» was held. Based on its results, recommendations were prepared for the Ministry of Education and Science of Ukraine, Ministry of Social Policy of Ukraine, Ministry of Health of Ukraine on further multidimensional development of practice-oriented research to ensure the quality of early childhood and preschool education, in particular, in the private sector.

During the COVID-19 pandemic, the leading researchers of the Institute of Problems on Education of NAES of Ukraine realised a series of webinars for preschool education institutions' teaching staff, which contributed to the optimal overcoming the challenges facing preschool education. These are webinars: «Quarantine Guide: Children, Parents, Preschool Education Institutions», «Developing Senior Preschool Children's Social and Communicative Competence», «Harmonisation of Child-Parent Relationships: a Model of Child Freedom», «Graphic Organisers in Teaching Senior Preschool Children», etc. The mechanisms for overcoming the consequences of the COVID-19 pandemic in preschool education were characterised within the Methodological Seminar of NAES of Ukraine «Preschool Education in the Context of the Ideas of the New Ukrainian School», conducted by the Division of General Pedagogy and Philosophy of Education of NAES of Ukraine jointly with the Subcommittee on Early Development and Preschool Education of the Verkhovna Rada of Ukraine Committee on Education, Science and Innovations, Ministry of Education and Science of Ukraine, and All-Ukrainian Association of Preschool Education Workers.

The growth of educators' consciousness, the objective need to update the principles of humanisation of preschool education goals and objectives, optimising the modern child's life following the democratic principles of Ukrainian society actualise the problem of quality of the first in human's life level of education — early childhood and preschool education, which serves as a basis for further growth of a personality. So, the modernisation of preschool education is a strategic direction of the national education system development, realises its new values, and ensures the consistency and continuity of lifelong learning.

## 5. COMPLETE GENERAL SECONDARY EDUCATION AS THE BASIS FOR CONTINUOUS EDUCATION

**Abstract.** Complete general secondary education is of particular importance in the national system of continuous education for its extensive coverage of the educational process participants as well as broadness and relevance of the tasks facing it. Since independence, this educational sector has undergone dramatic transformation and changes, establishing itself as a democratic in nature and national in content social institution, ensuring the citizens' constitutional rights and duties regarding general secondary education.

In 2020/21 academic year, in Ukraine, 14.9 thousand general secondary education institutions (GSEI) functioned, where 4.2 million pupils studied, notably, 1.7 million acquired primary education, 1.9 million — basic secondary, and more than 625 thousand — field-specific secondary education. In GSEI, almost 440 thousand teachers worked.

At present, the respective legislative and regulatory framework for complete general secondary education functioning is established; the content, which is being updated following the society's needs and global educational trends, is specified through standardisation; models of the educational process designed to develop a set of competences in learners through their proactive independent activities in specifying and attaining learning objectives are being widely implemented; the national fund of native school textbooks is established and is being replenished through a competitive selection process; scientific and methodical resources and support for a learning process are being developed and improved. The work on ensuring equity of access to quality education for all citizens regardless of nationality, place of residence, social and economic status, creating a practical environment for designing and implementing one's own educational path based on person-oriented education and human-centredness in education is proceeding.

Meanwhile, the issue of achieving good quality of complete general secondary education due, in particular, to the deficient content, insufficient educational and equipment status, low quality of some books and shortage of highly qualified teaching staff remains a challenge. The problems of spatial accessibility to quality education for learners, the establishment of the relevant education network, and narrowing the gap between the general education levels in graduates of rural and urban schools are not resolved. Digitalisation of the education process, developing electronic educational resources, and improving teachers' digital competence requires significant improvement.

Complete general secondary education is the core sector in the system of continuous lifelong education, covering the longest period of formation and development of an individual in childhood.

Since independence, the Ukrainian school has established itself on new methodological principles, notably humanism and democracy, child-centredness, respect for human rights and freedoms, intolerance to offenses against honour and dignity, physical or mental violence, equity

of access to education without discrimination on any grounds, ensuring the quality of education, and accessibility for every citizen of all forms and types of educational services provided by the state. Focused targeting of education, its content, organisation of the educational process, didactic and methodical resources and support, approaches to evaluation of educational outcomes, in particular towards enhancing personal responsibility and virtue, was subjected to a profound transformation. This is legally stipulated by the Constitution of Ukraine, the adopted laws of Ukraine «On Education» (2017), «On Complete General Secondary Education» (2020) and other regulations.

A step forward to improve educational attainments of Ukrainian citizens is deemed to be a constitutionally enshrined provision on mandatory complete general secondary education for all its citizens (1996), as well as the statutory 12-year period for complete general secondary education (1999), which, however, was unreasonably cancelled in 2010. The latter has had a negative impact on the quality of secondary education and has actually slowed down its development for more than a decade. After all, one of the global developments in education is extending compulsory schooling. There are almost no countries in Europe where secondary education is completed in less than 12 years. With the enactment of the Law of Ukraine «On Education» (2017), which renewed the norm on a 12-year period for complete general secondary education, the situation is gradually improving.

Since independence, there was a move away from a standardised and uniform schooling. To create an environment for the advancement of learners' creative skills and talents, to meet their cognitive interests and educational needs, gymnasiums, lyceums, collegiums, etc. were established at the initiative of innovative teachers and the teaching staff. In general secondary education, an important achievement in implementing the learner-centred approach was the introduction of field-specific education at the final stage of its acquisition. A significant part of didactic and methodical resources and support therefore has been elaborated, and research on the sustainable models continues in educational practice.

The developmental growth of the national Ukrainian school was significantly impacted by the framework documents drafted with the active involvement of researchers of the National Academy of Educational Sciences of Ukraine and related research institutions. The Law of Ukraine «On Education» (1991) and, respectively, the Concept of General Secondary Education School of Ukraine (1991) are the first national legislative documents that specified the principles of school functioning in the new environment of establishing the independent Ukrainian state; the State National Programme «Education» (Ukraine of the 21st century) (1993); the Law of Ukraine «On General Secondary Education» (1999); the National Doctrine for Education Development (2002), as well as the Concept of Humanitarisation of General Secondary Education (1994); the Concept of General Secondary Education (12-year schooling) (2001), in which, based on previous experience of establishment of the Ukrainian school and strategic targets, the methodological foundations for reforming primary and general secondary education under 12-year schooling are set forth. The Concept of Field-Specific Education (drafted 2004, 2010, 2014); the Concept of General Secondary Education of Ukraine (2015), which provided the basic reference point for the New Ukrainian School concept (2016) defining the model of a school graduate as an integral, comprehensively developed individual, capable of critical thinking; a patriot with a proactive attitude acting according to moral and ethical principles, able to take critical decisions; an innovator, able to modify and shape the environment, develop the economy, compete in the labour market and adopt lifelong learning. The latter concept outlines the basic principles of transformation of general secondary education at the present stage of its reform.



The current modernisation of complete general secondary education is in line with the Action Plan for 2017-2029 aiming to introduce the Concept of Implementing the State Educational Policy in General Secondary Education Reform «The New Ukrainian School», approved by the government in 2017. The ongoing reform of the Ukrainian school is based on the following core components: 1) new content of education drawing upon the formation of competences essential for successful self-actualisation in the society; 2) a motivated teacher who enjoys creative freedom and professional development; 3) cross-curricular shaping of values; 4) decentralisation and effective management advancing school autonomy; 5) pedagogy aiming at fostering the partnership between a pupil, a teacher, and parents; 6) focus on pupil's needs and necessities in the educational process and child-centredness; 7) a new structure of the school, which enables learning the new content efficiently and acquiring competences for life; 8) fair allocation of public funds, which provides equal access for all children to quality education.

The reform of the Ukrainian school is focused on the revision of the content of education, its adjustment to the needs and necessities of a person who lives and acts in a modern, innovative, and globalised world, in the society of knowledge, high technologies, and rapid exchange of information. In accordance with this task, elaboration of new educational standards based on a competence-based approach to teaching and learning as a current trend in developing global educational systems is envisaged. As of today, the Cabinet of Ministers of Ukraine has developed and approved the State Standards for Primary (2018) and Basic Secondary Education (2020), elaborated and implemented standard educational programmes for grades 1-4 and 5-9, and started work on the draft State Standard for Field-Specific Secondary Education.

According to the current legislation, complete general secondary education is obtained at three levels: the first level — primary education (grades 1-4), the second level — basic secondary education (grades 5-9), the third level — field-specific secondary education (grades 10-12), which corresponds to the International Standard Classification of Education adopted by UNESCO in 2011. The legislation provides for the implementation of a gradual transition to 12-year schooling for receiving complete general secondary education: since 2018, primary schools have been working in line with the new standard; since 2022, general secondary education institutions of the second level (gymnasiums) adopt the new content of education; in 2027, the aforementioned shift to new standards is to take place in general secondary education institutions of the third level (academic and professional lyceums, and colleges).

As of September 1, 2020, there were 14.9 thousand general secondary education institutions (GSEI) in Ukraine, where more than 4.2 million pupils studied, specifically, 1.7 million learners obtained primary education, 1.9 million basic secondary education, and more than 625 thousand field-specific secondary education. In urban areas, there are 5.6 thousand GSEI, where almost 3 million pupils obtain education; in rural areas, there are 9.3 thousand institutions with more than 1.2 million learners. The majority of institutions (95.6 %) work in one shift, but more than 143 thousand pupils in 641 schools study in the second shift. In 2020, 345 thousand learners successfully completed the educational programme and obtained certificates of basic secondary education, 222 thousand pupils obtained complete general secondary education.

Meanwhile, the educational and equipment status of a large number of GSEI is insufficient to provide good quality education to learners. Classrooms are ill-equipped with educational tools and training facilities to efficiently implement educational programmes, the equipment is mainly outdated, and in some institutions, such classrooms are not available. At the beginning of the 2020/21 academic year, a quarter of GSEI from the first to the third levels lacked rooms for mathematics, physics (22 %), chemistry (31 %), biology (34 %), and geography (41 %).

In the 2020/21 academic year, almost 440 thousand teachers worked in GSEI, more than 250 thousand — in urban areas and about 188 thousand — in rural areas. The number of pupils per teacher in GSEI is 10 on average; in urban areas, this rate is 12, and in rural areas, it comprises a total of 6 people. This disparity is explained by the fact that in Ukraine most institutions in rural areas are small. It should be noted that there are unwelcome trends in staffing levels at GSEI. Thus, in 2016-2020, the average annual number of officially registered teacher vacancies was more than 13 thousand and it is growing every year in all regions of the country. The vacancy rate for computer science teachers increased from 7.3 % in 2015 to 17.1 % in 2020, for physics teachers — from 5.3 % to 7.2 %, for English teachers — from 5.3 % to 14.3 %. Teaching teams are not sufficiently replenished with new specialists. In 2017-2020, only about 20 % of the total number of graduates of teacher training universities went to work in GSEI. From year to year, this rate decreases, and young professionals tend not to work at school for a long time.

This situation is caused by a range of reasons, including a decrease in the prestige of the teaching profession in the state and society, low salaries of teaching staff compared to the average pay across the country, miscalculations in the formation and implementation of the state order for training of the aforementioned specialists. The priority actions to be taken in this area should be the following: actual classification of teaching profession as a high-salary job; the introduction of an effective system of progressive remuneration for pedagogues, which would depend on the level of professional skill and work results; establishment of an enabling environment, primarily in rural areas, that will foster successful activities of each teacher. It is also advisable to introduce a number of preferences and incentives for students who are trained in pedagogical specialties.

The abovementioned shortage of teachers inevitably affects the quality of education, which remains low. The results of the state final assessment of school leavers in the form of external independent assessment of recent years consistently indicate that in such subjects as the Ukrainian language and literature, and history of Ukraine almost half of the learners demonstrate elementary and average levels of knowledge, skills, and competences, and for mathematics this rate is approximately 60 %, which according to the 12-point scale assessment corresponds to grades 1-6. There is a significant gap in the results demonstrated by pupils from urban and rural schools. Thus, a comparison of the results of external independent assessment over the past five years in terms of «good» and «high» levels shows that the quality of preparation of graduates from urban schools exceeds that of rural ones by 10 % on average. This disparity is particularly significant regarding mathematics (up to 20 %).

Under the legislation, the language of the educational process in education institutions is the national one. Meanwhile, in Ukraine, an environment for implementation of the right of citizens to obtain education in their native language has been created. Individuals, who belong to indigenous people or national minorities of Ukraine, are guaranteed and provided the right to learn their own language at GSEI or at national cultural societies. This right is exercised by organising separate classes (groups) with instruction in the language of the ingenious people or national minority language of Ukraine along with the state language.

In the 2020/21 academic year, in the current network of GSEI (excluding special schools, notably boarding schools, and special classes), this right was implemented as follows: the large majority of pupils (95.9 %) study in Ukrainian; in Russian 130.7 thousand (3.1 %), in Hungarian — 17.6 thousand (0.4 %), in Romanian — 16.3 thousand (0.4 %), in Moldovan — 2.3 thousand (0.1 %), in Polish — 1.1 thousand (0.1 %), Slovak — 138 pupils, Crimean Tatar — 64, Bulgarian — 46 pupils.

The provision of the educational process has undergone significant changes. Models of learning and teaching aimed at acquiring the competences of the 21st century are being extensively implemented in the GSEI, in particular, regarding regular involvement of pupils in active educational and cognitive activities, independent research, intensive multilateral communication, exchanging of information, outcomes of activities and teamwork, and enhancement of critical thinking. The focus on developing competences as learners' universal abilities to successfully address various life situations, solve problems, make informed choices and decisions is deemed to be fundamentally new and progressive.

Meanwhile, the issue of the effective implementation of the concept of field-specific education at the final level of complete general secondary education remains problematic, both in terms of creating the respective educational and equipment status, and its effectiveness. In 2020, the results of external independent assessment showed that the level of subject competences of graduates of field-specific schools, gymnasiums, lyceums on average is not significantly higher than the level demonstrated by graduates of other GSEIs. In the current context, the existing legislative norm for separate functioning of lyceums as institutions providing field-specific secondary education cannot be fully implemented due to the impossibility to comply with specific legislative requirements for the establishment of a lyceum, and ensuring at least relative territorial accessibility of these institutions for learners, primarily in rural areas. To comprehensively address the issues of field-specific education from the year 2027 onwards, and given previous experience and the current state of implementation of the concept, it seems appropriate to adopt a respective state target programme envisaging sufficient financial support to create the required material and technical facilities, establish regular transportation for pupils over long distances, or provide them with the opportunity to stay in lyceum dormitories or boarding houses, which are actually few.

For the implementation of field-specific education, the potential of various types of education institutions and their associations (single-field complexes «gymnasium-lyceum», lyceum classes in basic education institutions, vocational education institutions, etc.) should be exploited more increasingly and efficiently. A valid means of expanding the opportunities for receiving field-specific education, particularly for pupils from rural areas, might be online teaching of some subjects and courses, which is advisable to introduce on a centralised basis across the country. No less relevant is the problem of structuring and selection of forms and methods to implement the content of field-specific training. It is vital and timely to adopt the up-to-date concept of field-specific training; to draft a state standard for field-specific secondary education; to elaborate standard educational programmes for various types of education institutions providing them; to develop educational and methodical resources and support to implement the content.

One of the primary objectives of modern general secondary education is discovering talents, giving psychological and pedagogical support to gifted children, and developing their abilities and talents. An effective system of work with gifted youth is established in the country. It comprises a wide range of areas of educational activities. Thus, the national education system provides for out-of-school and field-specific education in various areas. It is able to reveal and develop individual abilities of children in various fields: intellectual, performing arts, sports, technical, artistic, etc. Within this system, a special place belongs to the Junior Academy of Sciences (JAS) of Ukraine, which has territorial branches in all regions of the country. Such a structure ensures the arrangement and coordination of research activities of children and youth, creates an environment for their intellectual and creative development, and professional capacities. In 2020, there were more than 150 thousand pupils in JAS of Ukraine. To meet the interests, needs and necessities of children in research activities in various branches of science and technology, JAS of Ukraine established 12 scientific departments, which comprise 65 sections.

In cooperation with the Institute of the Gifted Child of the National Academy of Educational Sciences of Ukraine, this unique scientific centre develops new technologies and methods for working with gifted pupils, implements dozens of scientific and educational projects and events for gifted youth, for instance, «Open Educational Laboratory», all-Ukrainian summer scientific field-specific schools, Children's Academy «Futurum», exhibition-competition of youth innovative projects «The Future of Ukraine», etc.

Meaningful initiatives have been taken to digitalise the educational process. In due course, targeted state programmes aimed at supplying schools with computer equipment, connecting learners to the Internet, improving the information competence of the participants of the educational process had a positive impact in this respect. Nowadays, in 12.7 thousand (88.1 %) GSEI classrooms for computer and information technology skills are available with more than 21 thousand equipped computer classes comprising 202 thousand working stations. A significant amount of educational content has been elaborated. However, until now, the issues of providing all participants of the educational process with suitable computer equipment (57 % of computers were purchased more than five years ago), revising and replenishing the respective educational content and making it available on a unified computer-technological platform to support e-learning, giving access to all education institutions to high-speed internet (according to the Ministry of Digital Transformation of Ukraine, 40 % of schools lack Internet connection) remain to be areas of concern.

In the educational process, the potential of information and communication technologies regarding the enhancement of effectiveness is underexploited, which is due to a number of technical and methodical factors. Insufficient awareness of teachers about the available online educational resources, and low expertise in creating their own materials and using them methodically expediently has a negative impact. To improve the situation, it is required to actively develop high-quality educational content and put it on the only accessible computing platform, and to train each teacher, both currently employed and prospective, to design and provide the educational process based on pedagogically relevant computer support.

Actions intended to objectively identify the general education level of pupils and graduates of GSEI have become important. Since 2000/01, a 12-point scale for assessing pupils' academic achievements was introduced in schools. In 2008, in Ukraine, the external independent assessment system, tested in the early 2000s, aimed to define the level of preparation of GSEI graduates in certain subjects, became fully operational. It concurrently performs the functions of the State Final Assessment of graduates of general secondary education institutions of the third level, and entrance tests to higher education institutions.

The national educational system performance involves evaluating the outcomes of its functioning with the aid of various monitoring means, in particular through participation in international programmes for Educational Quality Assessment. The results of the monitoring surveys provide an opportunity to analyse the state of the Ukrainian system of general secondary education by matching it with the respective systems in other countries and comparing the progress of Ukrainian schools with global trends in the development of education. Since independence, Ukrainian schoolchildren have participated in the surveys three times, notably in 2007 and 2011 in the international programme for assessing the quality of science and mathematics education TIMSS (Trends International in Mathematics and Science Study), and in 2018, for the first time, in the international study of the quality of education PISA (Programme for International Student Assessment). According to TIMSS-2007 results, insufficient practical orientation of the content of school science and mathematics education was detected, a low level of development of pupils' skills to explain natural phenomena in everyday life and poor preparation of Ukrainian



schoolchildren to tests. Analysis of the results of TIMSS-2011 showed that school science and mathematics education is focused on the reproductive formation of knowledge, i.e., Ukrainian schoolchildren experienced significant difficulties while making comparison and classification tasks, as well as in articulating value judgments, experimental design, decision making on the implementation of the results, and comprehension of nature as an integral system.

The PISA-2018 monitoring focused on assessing the ability of 15-year-olds to apply the acquired knowledge and skills in life situations in three components, such as reading, mathematical, and Natural Science literacy proved that the results demonstrated by Ukrainian schoolchildren are lower than the average ones across the countries of the Organisation for Economic Co-operation and Development (OECD) in all areas under PISA survey, and they are inferior to the students of the same age from other countries in all components, especially in mathematical literacy. The average value of the results demonstrated by Ukrainian pupils in reading literacy is 466, which is 23 points less than average across the OECD countries, in mathematics 453 (39 points less), and 469 in natural science subjects (22 points less). This difference is close to the equivalent of one year of study. The indicators for Ukraine in comparison with such reference countries as Estonia, Poland, Hungary, and Belarus are lower in reading, mathematics, and natural science. For the mentioned countries the respective indicators are close to the average values across the OECD. However, Georgia and Moldova have lower values than Ukraine in all three subjects. Ukrainian pupils are ahead of Slovak learners in reading and science but they are weaker in mathematics. In Ukraine, there is a large proportion of learners whose level of reading, mathematical and Natural Science literacy is below basic, and a very small percentage of those who have reached the highest level of literacy in at least one of PISA branches. Thus, only 74.1 % of Ukrainian 15-year-olds reached the basic level in reading literacy, 64.0 % — in mathematical literacy, 73.6 % in natural science literacy.

So, over the years of independence, the national system of general secondary education has passed a challenging period of its formation and development as a humane, democratic and learner-centred institution, which is distinguished by its national character, acts as an important contributor in the revival of the nation, represents the centre of fostering a free, patriotic, self-sufficient personality and welcomes further modernisation.

In the process of reforming general secondary education on the principles of the New Ukrainian School concept, some *issues* arise, among which the following are deemed to be fundamental.

1. *Modernisation of the educational content* requires the completion of its standardisation, specifically, elaboration of a state standard of field-specific secondary education, which would meet the needs and necessities of learners studying in education institutions of various types, notably academic and professional lyceums, field-specific education institutions in various areas (scientific, art, sports and military), vocational (vocational and technical) education, vocational pre-tertiary education institutions, etc., as well as drafting the respective standard educational programmes, which address the specific nature of educational activities. Furthermore, it is essential to update educational and methodical literature (textbooks, training and methodical manuals, guides, and recommendations) and electronic educational resources with due regard for the competence-based principles and implementation of learner-centred and activity-based approaches to learning. Competitive selection, which is currently applied while forming the textbook fund, should be supported by market-based economic mechanisms to supply education institutions with educational literature. The system of criteria for expert evaluation of the manuscripts of prospective textbooks needs to be improved with a clear specification of the respective indicators that can be unambiguously measured, as well as provision of certified



training for qualified experts of textbooks, provision for preliminary approbation of a prospective textbook in the educational process as a mandatory stage of its analysis.

2. *Professional development and self-improvement of teachers* should be aimed at enhancing the quality of the educational process, advancing teachers' pedagogical skills, in particular regarding methods and technologies for forming key and subject competences in pupils, implementing an integrative approach to teaching, mastering tools and instruments for assessing pupils' learning outcomes on a competence basis, using blended learning in case of limited access to educational locations for pupils. Meanwhile, the state should reinforce the prestige of the teaching profession by establishing a proper environment for carrying out educational activities, providing teachers with academic freedoms in designing the content of education, selecting the forms and methods of teaching according to learners' educational needs.

3. *Optimisation of the existing network of general secondary education institutions*, especially in the case of field-specific secondary education, is to be implemented regarding the need to efficiently ensure citizens' access to good quality education, irrespective of their place of residence (urban or rural areas), and meet their educational needs with high-quality services. The legislation on the collaboration of communities in solving issues of combining efforts and financial resources for the transportation of children and teachers to the places of study, joint maintenance of education institutions, and support for children from economically vulnerable families' needs to be improved. The slogan «School for Preservation of the Community» should be changed to the opposite — «Community for the Development of a Child and School».

4. *Digitalisation of the educational process* is the calling of our time, since education beyond electronic communication, information retrieval and processing based on ICT and network technologies is becoming an anachronism. First and foremost, there is a need to develop high-quality electronic educational resources and create special information technology educational platforms, which will become available regardless of residence (urban or rural areas) for all participants in the educational process. Meanwhile, the computer facilities of education institutions need to be upgraded and replenished with modern mobile devices, new visualisation aids, and interactive tools. The availability of mobile communication devices and tablets to the majority of the population provides the background for extensive use of cloud information environments in the educational process, developing teachers' digital competence, and enhancing their information and communication culture.

## 6. EDUCATION OF PEOPLE WITH SPECIAL EDUCATIONAL NEEDS: FROM EQUAL RIGHTS TO EQUAL OPPORTUNITIES

**Abstract.** During the development of independent Ukraine, the attention is focused on the education of people with special educational needs, promoting personal development rights, and searching for effective strategies to implement the theoretical and practical foundations of equal access to quality education for such citizens, most of whom have disabilities. Currently, the education of children with special educational needs is one of the main priorities of modern educational reforms, which are defined by the laws of Ukraine «On Education», «On Complete General Secondary Education», the Concept of the New Ukrainian School, etc.

The approaches to receiving education for people with special educational needs have been fundamentally changed. Currently, such persons have the right to obtain education of the appropriate level in preschool and general secondary education institutions, in particular in special institutions (special schools, educational and rehabilitation centres), as well as in vocational education and training, vocational pre-tertiary and higher education institutions. In the 2020/21 academic year, 319 special education institutions with 42.3 thousand pupils operated in Ukraine.

The practice of integrating children with special educational needs into the general education space is spreading, and accordingly, research aimed at reasoning the scientific and theoretical, and scientific and methodical bases of inclusive education intensifies.

In the 2016/17 academic year, 4.2 thousand pupils studied in inclusive classes, and 2018/19 — 12.3 thousand. Since the beginning of the 2020/21 academic year, 25.1 thousand pupils started learning in inclusive classes. Therefore, the Ukrainian educational system faces the task: on the one hand, to ensure access to education for every child with special educational needs, choice of modes and education institutions, further receiving the desired level of education, provide correctional, rehabilitation, psychological and pedagogical support, and, on the other hand, to introduce innovative advanced technologies that meet the best European standards.

This chapter describes the key aspects of developing the education of people with special needs in Ukraine over the last thirty years. At the same time, a range of problematic issues related to psychological, pedagogical, correctional, and developmental support for this vulnerable category of Ukrainian citizens, and ways to solve them, are outlined.

Since independence, one of the priority areas of the state educational policy in Ukraine has been promoting the realisation of rights for personal development, equal access to quality education of citizens with special educational needs, a significant part of whom have disabilities.

Creating a legislative framework for supporting and implementing equal rights and opportunities for persons with disabilities has become a priority for Ukraine as a state that positions itself as a democratic European country.

In this context, the United Nations Convention on the Rights of the Child (1989) became the first official international document outlining the rights of children with disabilities, and which Ukraine ratified in 1991. As a result, a number of resolutions, decrees, concepts and laws have emerged that provide for the gradual integration of children with disabilities into the general education space.

The Ukrainian citizens right for education, including children with special educational needs, is enshrined in the laws of Ukraine «On Education» (1991, 1996), «On General Secondary Education» (1999), which define the right of all citizens for free education in state education institutions, regardless of their state of health, and provision of conditions for learning according to their abilities and interests. Also, the laws of Ukraine «On the Basics of Social Protection of Persons with Disabilities in Ukraine» (1991), «On State Social Standards and State Social Guarantees» (2000), «On Child Protection» (2001), «On Social Services» (2003), «On the Rehabilitation of Persons with Disabilities in Ukraine» (2006) regulate the provision of educational, medical, social services to persons with disabilities, in particular children with special needs.

The Concept of Early Social Rehabilitation of Children with Disabilities (2000), the Decree No. 900 of the President of Ukraine «On Priority Measures to Create Favourable Living Conditions for Persons with Disabilities» dated June 1, 2005, played an important role.

These legislative documents envisioned the creation of conditions for receiving high-quality education by such persons, namely: ensuring the availability and funding of various modes of education in state and communal institutions; forming a network of institutions capable of providing high-quality educational services; establishing preschool education institutions of different types, profiles, and forms of ownership; optimising the structure of general secondary and out-of-school education institutions for single-shift, specialised, external, distance learning.

There were changes in the state-centred educational system, which aimed to develop a personality according to certain standards with the subordination of their own interests to the state ones; its main feature was strict regulation of the educational process. A humanistic child-centred educational system replaced it, focused on the child's interests and meeting his or her personal needs.

For many years in Ukraine, most children with special needs obtained education in special institutions, which remained the traditional and leading form of education for them until recently. In the 1990s, the vision of the strategy for the development of the special education system was reduced to an alternative: to continue improving the existing system of special education for children with special needs, or to completely abandon the existing system and search for its fundamentally new basis and organisational structures, focusing on Western models.

On this background, in the late 1990s, special education institutions for children with special needs changed. Due to the reduction of the population, insufficient funding, some institutions were repurposed, others were reduced, and, as a result, the number of children with special needs who studied in traditional education institutions under the so-called spontaneous integration significantly increased.

In 1991-2000, the network of special schools and their occupancy rate decreased (in 1992, there were 409 such institutions in Ukraine, where 78 thousand pupils studied; in 2000 — 308 institutions with 69 thousand pupils).

At the same time, in 2001-2010, the traditional system of boarding schools was modernised. In particular, there were created conditions for attracting children with moderate intellectual disabilities and children with complex and combined developmental disabilities to special education institutions.

Nowadays in Ukraine there exists an extensive and differentiated network of education institutions, where children with special needs can obtain education (preschool education institutions of compensatory type, special institutions of general secondary education — special schools, and educational and rehabilitation centres, secondary education institutions with inclusive education, vocational, vocational pre-tertiary and higher education institutions).

Special education institutions for children with special educational needs implement programmes of primary, basic and field-specific secondary education compiled on the basis of the State Standard of Special Education. These educational hubs have significant achievements, proper material and technical facilities, professional personnel, appropriate conditions for providing qualified correctional and developmental assistance, organising professional training and recreation.

Education of persons with special educational needs in Ukraine is represented by the following types of special institutions:

- for children with hearing impairments;
- for children with visual impairments;
- for children with severe speech disorders;
- for children with musculoskeletal disorders;
- for children with intellectual disabilities.

In the 2020/21 academic year, 319 special education institutions with 42.3 thousand pupils operated in Ukraine.

In accordance with Ukraine's commitments, one of the strategic goals of the state policy in protection of the rights of persons with disabilities is to create a public environment of equal opportunities for such persons and their integration into public life, rethinking current educational and social services to create a support system that will ensure public activity and independence of persons with disabilities.

To comply with the Convention requirements, the State Target Programme «National Action Plan for the Implementation of the Convention on the Rights of Persons with Disabilities for the Period up to 2020», was approved by Resolution No. 706 of the Cabinet of Ministers of Ukraine dated August 1, 2012; it was aimed at promoting, protecting and ensuring human rights and fundamental freedoms of persons with disabilities in all spheres of public life, as well as forming a respectful attitude towards them in society.

Since 2009, to improve the functioning and innovative development of education, improve its quality and accessibility, integrate into the European educational space, Ukraine has adopted several draft laws aimed at ensuring respect for human/child rights, in particular the right to unhindered education by creating favourable conditions for all categories of children and young people, the introduction and dissemination of inclusive education, which can be considered as a separate educational area.

The Order No. 1482-r of the Cabinet of Ministers of Ukraine «On Approval of the Action Plan for the Introduction of Inclusive and Integrated Education in Secondary Education Institutions for the Period up to 2012» dated December 3, 2009, defines the methodical support of education institutions with inclusive groups and classes; the need to include courses on inclusive education in the teacher training curricula of higher education institutions. The Concept of Development of Inclusive Education in Ukraine (Order No. 912 of the Ministry of Education and Science, Youth and Sports of Ukraine dated October 1, 2010) states that «inclusive education is a comprehensive process of ensuring equal access to quality education for children with special educational needs by organising their education in secondary education institutions based on the use of personality-oriented teaching methods, taking into account the individual characteristics of educational activities of such children».

An important step in organising inclusive education was the adoption by the Cabinet of Ministers of Ukraine of Resolution No. 872 «On approval of the Procedure for Organising Inclusive Education in General Education Institutions» dated August 15, 2011, and inclusive classes began to be actively opened in education institutions.

At the same time, the regulatory framework continued to be improved. Decree No. 588 of the President of Ukraine «On Measures to Solve Urgent Problems of Persons with Disabilities» dated May 19, 2011, regulates the introduction of inclusive and integrated education of children with special needs in preschool and secondary education institutions; the creation of structural divisions in higher education and in-service teacher training institutions for scientific and methodical support of inclusive and integrated education of such persons.

The Order No. 1034 of the Ministry of Education and Science of Ukraine «On Approval of Measures for the Introduction of Inclusive Education in Preschool and General Secondary Education Institutions for the period up to 2015» dated July 23, 2013, provides the amendments to regional educational development programmes to introduce inclusive education in preschool and general secondary education institutions during 2013-2015; providing in-service training for teachers working with children with special educational needs in preschool and secondary education institutions; assuring organisation of systematic correctional and rehabilitation assistance to children with special needs who study in inclusive groups/classes by establishing cooperation between these institutions and educational and rehabilitation centres, and special education institutions; ensuring accessibility of institutions and transportation of children to the place of study if necessary; introduction of teacher assistant rates in the staffing tables of schools with inclusive classes; study of the academic discipline «Fundamentals of Inclusive Education» in all pre-service teacher training institutions.

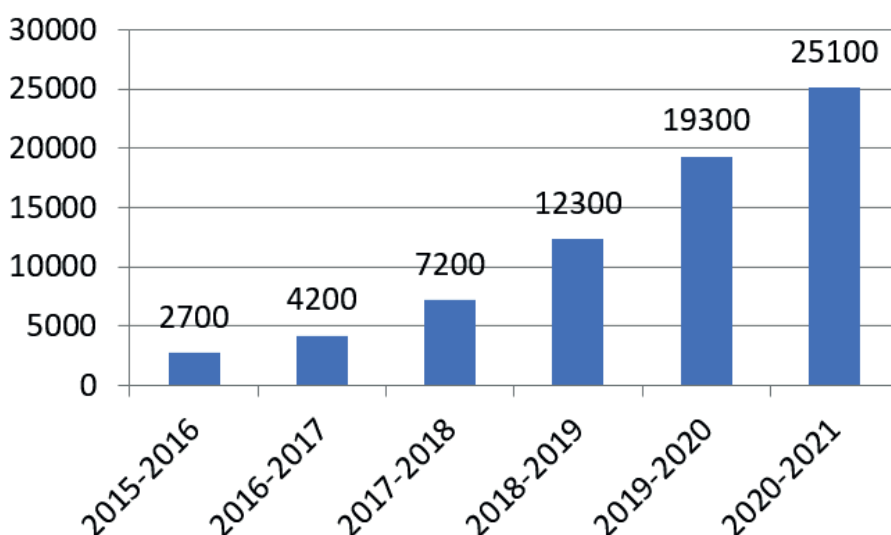
It should be noted that in recent years, Ukraine has adopted a number of legislative and regulatory acts regulating the specifics of the introduction of inclusive education, namely: the Concept of the New Ukrainian School (2016), the laws of Ukraine «On Education» (2017) and «On Some Amendments to the Laws of Ukraine Regarding Access of Persons with Special Educational Needs to Educational Services» (2018), the State Standard of Primary Education (2018), the Order No. 609 of the Ministry of Education and Science of Ukraine «On Approval of the Model Regulations on the Team of Psychological and Pedagogical Support of a Child with Special Educational Needs in General Secondary and Preschool Education Institutions» dated June 8, 2018, Order No. 414 of the Ministry of Education and Science of Ukraine «On Approval of the Standard List of Auxiliary Means for Training (Special Means of Correction of Psychophysical Development) of Persons with Special Educational Needs Studying in Education Institutions»



dated May 11, 2018, and a number of other resolutions, orders, letters and recommendations of the Ministry of Education and Science of Ukraine.

An important step in the development of inclusive education in Ukraine was the adoption in 2017 of the law of Ukraine «On Amendments to the Law of Ukraine «On Education» Concerning the Specifics of Access of Persons with Special Educational Needs to Educational Services». Therefore, children with special educational needs received the full right to education in all education institutions, including free of charge in state and communal institutions, regardless of the «established status of a person with a disability». Also, for this category of persons, it is possible to introduce distance and individual forms of training, get psychological and pedagogical, and developmental assistance, create inclusive and special groups (classes), provide for the arrangement of the educational environment in accordance with the needs, implement appropriate architectural designs, hire additional employees (tutors, correctional teachers, psychologists), adapt curricula and programmes, methods and forms of training, use special education resources, partnership with the public society, etc.

According to the Ministry of Education and Science of Ukraine, in the 2015/16 academic year, 2.7 thousand children with special educational needs, or 5.8 % studied in inclusive classes. As of January 1, 2020, 19.3 thousand pupils were taught in inclusive classes, and in the 2020/21 academic year, 25.1 thousand pupils with special educational needs started studying in such classes. The number of pupils with special needs who studied in inclusive classes by year is shown in Fig. 6.1.



**Fig. 6.1. Number of pupils with special educational needs who studied in inclusive classes**

At the beginning of 2020, there were 13.8 thousand inclusive classes operating in Ukraine, their number in 2021 increased to 18.7 thousand. With approval of the procedure for organising the activities of inclusive groups in preschool education institutions (Resolution No. 530 of the Cabinet of Ministers of Ukraine dated April 10, 2019) the number of such children in preschool education institutions has increased. So, as of January 1, 2020, 4.7 thousand children with special educational needs of preschool age obtained education in inclusive classes.

The Resolution No. 636 of the Cabinet of Ministers of Ukraine «On Approval of the Procedure for Organising Inclusive Education in Vocational (Vocational and Technical)

Education Institutions» dated July 10, 2019 regulated the organisational basis of inclusive education in vocational (vocational and technical) education institutions, regardless of the form of ownership and subordination, to ensure the right of persons with special educational needs to obtain a quality education, retraining, and in-service training, taking into account their needs and capabilities. In the 2019/20 academic year, 1.3 thousand such persons obtained education in vocational (vocational and technical) and higher education institutions.

An important step towards the development of inclusive education was the creation of a modern network of innovative institutions — inclusive resource centres, which replaced psychological, medical, and pedagogical consultations. The purpose of inclusive resource centre is to conduct a comprehensive assessment of child's development and determine their special educational needs based on modern diagnostic methods. The functions of these institutions largely coincide, however, the range of services provided by the centres is much broader.

At the same time, inclusive resource centres have important responsibilities, we are talking not only about diagnostics, but also about providing systematic support to each child, regardless of the education institution and form of education, as well as a system of methodical assistance to both parents and teachers, working at inclusive institutions.

Common values guide inclusive resource centres, and pupils can learn in different ways and at different rates, obtain high-quality education and additional educational services in the learning process.

According to the Ministry of Education and Science of Ukraine, as of May 2021, 633 inclusive resource centres have been established and operated in Ukraine. They are available in all regions of Ukraine, so children with special educational needs and their parents can obtain appropriate services at their place of residence.

Many changes related to the Concept of the New Ukrainian School and the implementation of new educational standards were introduced at the primary school level.

It is fundamentally important to update the educational content for children with special educational needs and introduce modern innovative technologies into the educational process, develop educational programmes according to a new structure in combination with methodical recommendations, textbooks, implement the principles of personality-oriented education aimed at developing pupils' competences that are vital for the individual's socialisation at the post-school stage (labour, creative, civil, legal, etc.).

At the same time, Mykola Yarmachenko Institute of Special Education and Psychology of the National Academy of Educational Sciences of Ukraine, together with the Ministry of Education and Science of Ukraine, systematically develops and updates at the state level the methodical support for both special schools and educational rehabilitation centres, as well as preschool education institutions, general secondary education institutions with an inclusive form of education, taking into account the correctional and developmental component. Indicative in this sense is the preparation of standard educational programmes, criteria for assessing the achievements of pupils with special educational needs, textbooks, particularly in Braille, and teaching aids for parents of such children, etc.

A significant step for optimising the educational sphere, including education for people with special needs, is the modernisation of management mechanisms in the state, the formation of a state-public management model.

The professional potential of personnel support for educational and rehabilitation work with children with disabilities is changing and consistently growing.

In the context of promoting the professional development of teachers of inclusive and special education institutions and specialists of inclusive resource centres, researchers of the Institute have developed modern programmes: «Innovative Technologies of Speech Modelling in Conditions of Psycholinguistic Deficit», «Modern Technologies of Psychological and Pedagogical Support for Children with Special Educational Needs», «Individual Learning Path of a Child with Special Educational Needs», «Psychological and Pedagogical Support for Children with Intellectual Disabilities in the New Ukrainian School», etc.

In the circumstances of a special academic year, due to the introduction of a quarantine regime in the country caused by the consequences of the COVID-19 pandemic, it is crucial to develop a remote model of psychological and pedagogical support for children with special needs and their families. In this context, materials of remote psychological and pedagogical support have been created, and relevant information is systematically provided to teachers, psychologists, and parents. A number of remote measures were introduced to train specialists to provide psychological assistance to families up-bringing these children, and an online course «Work of Primary School Teachers with Children with Special Educational Needs» was created. The course is designed for primary school teachers who master theoretical knowledge and practical skills in working in an inclusive class online.

Practitioners obtain tangible assistance in the context of professional growth based on the results of researchers' project activities. The social project «Psychological Support of Families of Preschool Children with Special Educational Needs in Conditions of Social Isolation» was launched, the purpose of which is to develop a holistic and proven system for providing psychological assistance to families of children with special needs of preschool age in crises.

It should be noted that the Ministry of Education and Science of Ukraine and local authorities are taking important measures to prepare the educational and material base of both special education institutions, educational and rehabilitation centres, and general secondary education institutions with inclusive education. The effectiveness of this work is determined by the availability of special-purpose technical means and devices in education institutions and methods of their application. Schools have classes for interactive educational, medical, correctional and compensatory technologies, professional self-determination, physical rehabilitation, and therapeutic physical culture.

*Key problems and ways to solve them.* Along with the positive changes that have taken place in the educational system over the past decade, there are unresolved problems.

In Ukraine, the system of continuing education of persons with special educational needs has not yet developed, and the continuity and consistency of education (preschool, complete general secondary, out-of-school, vocational (vocational and technical), vocational pre-tertiary, higher, postgraduate) is not ensured. A characteristic negative trend of our time is a certain spontaneity, haste, or even voluntarism in increasing the number of pupils covered by inclusive education, without simultaneously introducing special (adapted) programmes, teaching methods, and expanding the range of educational services.

One of the problems in education of children and youth with special educational needs is the lack of effective professional management in this area at the state level, in particular — the lack of preparation of teachers and teachers to work with persons of this category, lack of modern means of training and rehabilitation, limited funding for the production and purchase of special educational and methodical literature and visual didactic textbooks for children with special educational needs, in particular with sensory disorders.

In Ukraine, there is no legislative consolidation of control over the compliance of higher education institutions with the legislation regarding students with disabilities, in particular of the accessibility to the relevant infrastructure, educational and methodical support, which is an obstacle to the implementation of the right of such persons to obtain higher education.

The need to form a tolerant attitude towards people with special needs (inclusive education involves changing the attitude towards them).

There is a problem in the professional and pedagogical training of academic staff in the context of inclusive education (methodological seminars for teachers on the integration of pupils with special needs into the educational process).

It is substantial to design a data bank of the best pedagogical experience, results of theoretical and experimental research on special pedagogy and psychology, which will contribute to the identification of effective forms and effective strategies for working with children with special needs.

It is also advisable to establish a coordination centre to support, coordinate and monitor the state of the inclusive education system for people with special needs in higher education institutions.

To this day, some applicants with special needs do not obtain a high-quality education and are unable to meet their educational needs, and almost half of graduates experiences significant difficulties entering an independent life.

It is due to problems of both national and local origin. For example, there is no state statistics and a single categorical classifier of children with special educational needs; at an unsatisfactory level is the diagnosis of the development of such children; there is no licensed psychological and pedagogical tools for assessing the development of children, which makes it difficult to complete special and inclusive classes and groups, requires a revision of the list of professions for people with special educational needs, etc.

The problem of full coverage of special education and the necessary correctional, developmental and psychological support for children with complex and combined disorders, with autism spectrum disorders remains acute.

There is a problem of employment of graduates of special education institutions, since this process is not sufficiently controlled at the state level, job reservations are not provided, relevant data are not available, and so on.

It is necessary to introduce specialised training both at the level of special and inclusive institutions, and in separate classes (groups) based on personality-oriented and competence-based approaches.

The list of medical contraindications needs to be revised, which is a significant obstacle when choosing professions for people with special educational needs.

Special attention should be paid to creating a system of multidimensional assistance to parents of such children (psychological, pedagogical, social) based on research institutions, inclusive resource centres, and education institutions.

Considering the requirements of the time, the development and educational and methodical support of distance learning is urgent.

Consequently, the state educational policy of Ukraine is currently undergoing active reform following the requirements of the time, the influence of external and internal objective and subjective factors on the education sector. After all, educational policy is a component of the

internal policy of the state, a tool for ensuring fundamental rights and freedoms of the individual, increasing the pace of socio-economic, scientific and technological development, humanisation of society, and the level of culture of citizens.

It is worth noting that institutional changes in education and the introduction of inclusion are the core of changes in the education of children with special needs. But for children who cannot or do not want to study in an inclusive environment for various reasons, it is necessary to create the most appropriate educational conditions. This issue requires consolidation of efforts, in particular, the support of the pedagogical community, specialists, officials, parents, etc. It is crucial to focus the efforts of researchers, government bodies, and practitioners on developing effective models for integrating children and youth with disabilities into Ukrainian society.

The actual implementation of work in these areas will allow, on the one hand, to bring educational requirements closer to generally accepted educational standards, and on the other — to provide an opportunity for all children to obtain the desired level of education in conditions of a choice of the form of education and a type of education institution.



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## 7. OUT-OF-SCHOOL EDUCATION: ADDITIONAL OPPORTUNITIES FOR DEVELOPING A CHILD'S PERSONALITY

**Abstract.** Out-of-school education has unique importance for the holistic education system of Ukraine. There is a forceful environment of non-formal education for developing a child's personality in out-of-school education institutions. Moreover, out-of-school education is effectively and widely implemented in general secondary, vocational, vocational pre-tertiary education institutions by organising hobby clubs, classes, associations, extracurricular activities. This is especially proper for rural areas. Children have the opportunities to actively satisfy their cognitive interests, other their educational needs, and to develop their abilities and competences in out-of-school education.

The dynamism of innovative transformations characterises the current stage of development of out-of-school education. At the same time, it demonstrates a range of serious issues. Among the issues that require special attention are: unequal access to out-of-school education between urban and rural areas; tendency to reduce the number of out-of-school education institutions, which accompanies the reform of local self-government and decentralisation of authority; the digital transformation of out-of-school education does not meet social demands in line with modern realities.

The mentioned above requires the systematic modernisation of out-of-school education, its renewal by its essential role in lifelong learning, strengthening both state and scientific support.

Out-of-school education in Ukraine has undergone a difficult development path over the years of independence. Negative trends characterised the 1990s: funding for education has been greatly reduced that primarily affected out-of-school education. As a result, many out-of-school education institutions were closed, reprofiled, reorganised. In addition, the loss of educational facilities, ground areas, sports grounds, classrooms, and technical areas, predominantly urban and district institutions, and a shortage of educators with higher education. These negative phenomena were the outcomes of a systemic socio-economic, demographic, administrative crisis, and domestic policy.

At the same time, certain positive changes characterise this stage. Among them were: the Concept of Out-of-School Education approved in 1997, a new Regulations on Out-of-School Education Institution in 1998; the Research Laboratory of Out-of-School Institutions Activity was founded in 1996 as a part of the National Academy of Educational Sciences of Ukraine that allowed to start researches in a short time and to prepare important regulatory, scientific and methodical documents. The first «All-Ukrainian Review of Regional Programmes to Preserve and Develop Out-of-School Institutions» was carried out at the initiative of the NAES of Ukraine researchers in collaboration with the Ministry of Education and Science of Ukraine, which had a positive impact on the quality of out-of-school education in all regions of the country.

In the 2000s, there were trends in the recovery and development of a system of out-of-school education. To facilitate this process, the researchers of NAES of Ukraine and experts of the Ministry of Education and Science of Ukraine participated in developing the Law of Ukraine «On Out-of-School Education» (2000), the Resolutions of the Cabinet of Ministers of Ukraine «On Approval of the List of Types of Out-of-School Education Institutions and the Regulations on Out-of-School Education Institution» (2001), «On Improving the Organisation of Work on Education Children and Youth in Out-of-School Education Institutions» (2003) that became an important basis for the implementation of state policy in out-of-school education, its legal, organisational and educational principles.

During this period, out-of-school educational work was various in content and quality, acquired scientific reasoning and practical improvement. This made it possible to involve pupils individually and socially significant educational, cognitive, exploratory, research and creative activities and environmental work in their free time.

Nowadays, the state policy in out-of-school education is defined by the Laws of Ukraine «On Education», «On Out-of-School Education», «On Child Protection», «On Promoting Social Formation and Development of Youth in Ukraine», etc. Out-of-school education was significantly improved by changes and additions to the special Law of Ukraine «On Out-of-School Education» in 2020, in particular:

- a Scout direction of out-of-school education was included in Article 15 of the Law to enhance the capacity of studying children in out-of-school education institutions in various areas, which provides civic education of pupils under the guidance of Scout educators, Scout leaders by the Scout method and/or the Scout educational program;
- a new direction of out-of-school education was introduced — art, which ensures the acquisition by pupils of special artistic performing competences in the process of active artistic activity;
- the age limit of pupils of out-of-school education institutions was expanded (from 3 years old);
- the role of out-of-school education in terms of creating additional conditions for a person's self-determination, self-development, self-realisation, career guidance, formation of his or her social experience, values, moral qualities.

Out-of-school education institutions in Ukraine are functionally divided into complex (multidisciplinary) — palaces, houses, cultural and health centres, centres for children and youth's creativity, children's parks, etc., and specialised — centres and clubs of young technicians, naturalists, tourists, ecologists; music, art, choreography, sports schools; clubs for young sailors; schools of arts, cosmonautics, etc.

In Ukraine, according to the State Statistics Service, there are 1389 out-of-school education institutions (houses, centres, clubs of children's creativity, etc.) administrated by the Ministry of Education and Science of Ukraine. There are 73.7 thousand clubs (creative associations, studios, etc.) attended by nearly 1.2 million children. Almost 9.5 thousand of them are children with special needs; 8.2 thousand are orphans and children deprived of parental care; 41.7 thousand are children from low-income families. According to statistics, the largest number of children enrolled in out-of-school education institutions are pupils aged 8 to 11 (40 %), and the least number are pupils of 17-18 years old (3 %). 35.2 thousand educators work in out-of-school education institutions; it is the main place of employment of 21.8 thousand of them. 77 % of the teaching staff are women.

The system of out-of-school education, under the legislation, also includes hobby clubs, classes, cultural-educational, sports-health, research associations based on general secondary, vocational and vocational pre-tertiary education institutions.

According to the Ministry of Education and Science of Ukraine, the share of children followed by various forms of out-of-school education is 63.1 % of the total number of school-age children, excluding cultural and sports out-of-school education institutions and children and youth's sports schools administrated by the Ministry of Education and Science of Ukraine. Most children are covered by out-of-school education in Sumy, Kharkiv, Cherkasy, Kirovohrad, Poltava regions, and Kyiv.

The distribution of out-of-school education institutions by region is unequal. In particular, the Dnipropetrovsk region has the largest number of institutions (119), the Chernivtsi, Zakarpattia, and Luhansk regions have the least number of institutions (30, 29, and 24, respectively). The situation is related to the number of children and the implementation of state policy in out-of-school education at the local level.

The disparity in access to out-of-school education excites in urban and rural areas. About 91 % of children are educated in out-of-school education institutions in cities, only 9 % of children study in rural out-of-school education institutions.

Recently, the network of out-of-school education institutions has been optimised by merging small specialised centres. Last year, 14 institutions were reorganised and five were liquidated according to the decisions of local authorities.

Children in sparsely populated areas have become the most vulnerable. Local authorities do not offer them alternative options for receiving out-of-school education in the context of reduction of out-of-school education institutions and the absence of an appropriate institution. One of the reasons for this gap in the coverage of children with out-of-school education in urban and rural areas is the decentralisation reform, which is currently underway. The reform proposes a change on funding out-of-school education and local budgets have been responsible for it since 2015. This has led to uneven funding for out-of-school education in different regions and areas. Local governments view out-of-school education as a second-rate and force local authorities to take unpopular steps to optimise the out-of-school education institutions by eliminating them due to the lack of funding in local budgets, as well as experience in effective management of out-of-school education, lack of long-term vision and opportunities for its development, a rather narrow view of out-of-school education as a way of leisure, not as a potential resource for personal development and acquisition of key competences, human capital investments. Consequently, there is a question of providing a subvention from the State Budget to local budgets to ensure the realisation of children's right to out-of-school education. Nevertheless, 15 such institutions were founded in the last year in the united territorial communities, in particular in rural areas, where the importance of this type of education was understood.

The Law of Ukraine «On Out-of-School Education» (2000) states that a system of out-of-school education consists of both out-of-school education institutions and various foundations, organisations, associations, etc., irrespective of the form of ownership, subordination, and types. In particular, houses of culture and village clubs are the main centres of cultural life in rural areas. Their network in rural areas is more than 16 thousand institutions, 80 % of which are rural clubs. Houses of culture have different hobby clubs, most often are vocal, choreographic, theatrical, and art. They are often the only place for children's leisure and creative development.

The urgent social and educational challenge facing villages and small towns is the lack of qualified personnel. Low salary and lack of professional development in rural areas has not made it attractive for educators.

Most rural communities have faced the following problematic issues in the educational sphere:

- logistics to create a modern educational environment;
- staffing of hobby clubs, creative associations with qualified specialists;
- maintaining the balance of traditional areas of out-of-school education and development of modern educational activities (IT, STEM/STEAM-education, LEGO education, robotics).

As a result, children from rural areas do not have the opportunity for quality out-of-school education.

Given the previous, urgent measures should be taken:

- to bring the infrastructure of out-of-school education of rural territorial communities in line with the educational demands, needs, and interests of children;
- to develop a network of hobby clubs, classes, associations based on general secondary, vocational, vocational pre-tertiary education institutions;
- to create clusters of reference out-of-school education institutions in the structure of the educational district and integration of the network of hobby clubs in them;
- to improve a positive image of out-of-school education institutions and its hobby clubs in the local community;
- to develop the digital environment of out-of-school education institutions, expansion of online services for the provision of out-of-school education.

Modern out-of-school education is connected with general secondary education within the Concept of Implementing the State Educational Policy in General Secondary Education Reform «The New Ukrainian School» (2016). This is achieved through the introduction of a competence-based approach to learning in out-of-school education and the formation of soft skills needed for the 21st century; optimisation of communication, integration of educational processes and educational programmes of general secondary and out-of-school education institutions irrespective of the form of ownership, organisational and legal structure; a thorough process of education, which develops values and judgments that serve as the basis for a happy personal life and successful interaction in society.

Out-of-school education has no educational standards. The main principle of selecting its content is children's interests and parents' wishes. The social significance of out-of-school education curricula is ensured by a set of personal development goals such as general cultural, cognitive, creative, social, physical, and mental development.

Studies conducted by the researchers of the Institute of Problems on Education of NAES of Ukraine to clarify the state of methodical support in out-of-school education institutions made it possible to identify several significant problems.

Firstly, many programmes of different content and quality coexists in the educational practice of out-of-school education institutions.

Secondly, there is a different degree of readiness of educators to develop curricula, their understanding of a programme as an educational document.

Thirdly, educators-practitioners are unfamiliar with the necessary methods of analysis, evaluation, structuring, and presentation of information because their previous practical activities did not require it. At the same time, this problem is partially solved by organising and conducting licensed training courses for educators of out-of-school education institutions (for example, such work is carried out by the National Ecological and Naturalistic Centre for Pupil

Youth of Ministry of Education and Science of Ukraine in collaboration with the Institute of Problems on Education of NAES of Ukraine).

The COVID-19 pandemic has significantly affected out-of-school education in Ukraine, in particular in the transition to distance learning. After all, distance learning is not provided by legal documents, in particular, the terms for transfer to distance learning or creation of classes, groups with distance learning, etc. On the other hand, there is only an educational process using distance learning technologies. For this purpose, the teaching staff uses online platforms Zoom, Skype, Instagram, Google Hangouts, etc., including those recommended by the Ministry of Education and Science of Ukraine for lessons, consultations, meetings, and events of various levels (international, national, etc.).

On the other hand:

- the format of working of out-of-school education institutions is expanding;
- the range of out-of-school educational services is enriching;
- much of the work is computerised;
- the target audience of out-of-school education services automatically expands and grows due to the online lessons and consultations developed during the quarantine. Today, out-of-school education institutions can work online with pupils who have no physical ability to attend classes due to health or territorial inaccessibility;
- the transition to distance learning in out-of-school education leads to create more effective educational technologies for pupils to acquire soft skills — the ability to work with information, critical thinking and creative adaptability to change, cooperation, etc. which are essential for pupils' future success;
- out-of-school teachers can effectively use modern innovative teaching systems after the quarantine — blended learning, which combines Internet opportunities and traditional approaches to learning, and «flipped classroom», where learning of new material takes place at home. Still, practical implementation of tasks, exercises, research is carried out during classes in real-time, teachers are provided with individual consultations, etc. Educators create their video or audio material and short videos addressed to pupils in teaching a particular topic at the lesson;
- using elements of gamification in the out-of-school educational process, which increases pupils' interest and motivation, promotes emotional involvement and social interaction between peers, enhances their cognitive activity;
- out-of-school education institutions can achieve partially self-sustainability, and paid online educational services can become a permanent practice.

Although conducting events in the format of distance learning is forward-looking and successful, there are certain risks:

- not all directions of out-of-school education can fully transfer to distance learning, as many hobby clubs and other children's creative associations need classes in the institution, which has the necessary educational and methodical support and equipment;
- there is a question of social protection of pedagogical staff, preserving personnel potential of out-of-school education, proper funding, maintaining material supplies;
- pupils lose motivation for out-of-school education at a distance mode because in quarantine they work a lot on the school programme in online lessons and then do homework on the computer;



- lack of equal access to out-of-school education due to the so-called digital inequality, as not all homes have access to equipment and network, parents have different opportunities to help with learning, lack of general preparation for distance learning of all participants in the educational process;
- educators spend much more time preparing for lessons in terms of social distancing. Distance learning is different from face-to-face lessons, so teachers need to master the tools that help them organise children, motivate them, find appropriate ways to give feedback. There is a need to improve the methodology of the educational process using distance technologies to increase the quality of online learning;
- children of different ages need different approaches in organising online learning, so the organisation of the educational process for primary pupils' needs to adapt teaching methods and reduce the amount of educational material following the age-related capabilities of children;
- out-of-school education institutions cannot fully provide classes for preschool children in distance learning;
- lack of special support for children with special educational needs makes it impossible for them to fully socialise through out-of-school education, which plays an important role in the development and career guidance of such children;
- many educational hubs and cultural spaces made many courses and online lessons open to the public free of charge during the quarantine. Hence, the competitiveness of out-of-school education institutions decreased. Now out-of-school education institutions need to create new attractive educational products that can compete in the education market;
- teaching staff (especially the elderly) may decrease due to the inability to adapt to the new work format.

Furthermore, amendments to the Law of Ukraine «On Out-of-School Education» regulate the organisation of inclusive education. In particular, the organisation of learning of almost 9.5 thousand pupils with special educational needs in out-of-school education institutions includes: the provision of unobstructed access to buildings, structures, and premises under building codes, state standards, and regulations; principles of universal design in the educational process; smart adaptation (if necessary); appropriate material, technical, educational and methodical support, including information and communication technologies, educational and didactic equipment and materials, teaching aids (if necessary); availability of information in various forms (Braille, enlarged font, electronic format, etc.); individualisation of the educational process for pupils with special educational needs, in particular drawing up an individual development programme.

Therefore, special and inclusive groups and clubs for parents are created in out-of-school education institutions for children with special educational needs, and various projects are implemented.

In general, it should be noted the positive tendency of creating an inclusive environment in many out-of-school education institutions in Ukraine. At the same time, despite considerable experience, some issues of organising work with children with special educational needs remain unresolved today (creating a barrier-free environment, providing teaching assistants and other professionals, creating modern curricula, etc.). Only 710 out-of-school education institutions have unobstructed access to the 1st floor, seven institutions — to the 2nd floor, four institutions — to the 3rd floor. There is no unobstructed access to the 4th and subsequent floors in 34 out-of-school education institutions.

*The key issues that remain unresolved* are: the lack of out-of-school education institutions close to the child's place of residence or study; the imbalance between modern demands and needs of children and parents and the quality of educational services, their material and technical equipment; partial accessibility of the out-of-school education system for children with special educational needs; the financial inability of parents to use available paid educational services to realise their child's right to out-of-school education; the financial inability of communities to maintain out-of-school education institutions; the lack of a single information and communication space for potential pupils of out-of-school education, which would inform about opportunities and develop the public opinion of out-of-school education as a necessary educational section; low salary of educators and their motivation for professional development.

In addition, a serious problem is a weak network of hobby clubs, classes, associations based on general secondary, vocational, vocational pre-tertiary education institutions, especially in rural areas.

These *problems can be solved* by:

- strengthening the understanding of the responsibility of local executive bodies and local governments for compliance with the Law of Ukraine «On Out-of-School Education», preserving the infrastructure of out-of-school education, preventing the seizure of land, sports and wellness facilities and transfer equipment for rent;
- promoting in development and implementation of regional comprehensive programmes to strengthen the educational, developmental, material and technical facilities of out-of-school education institutions by improving their resource provision at the expense of local budgets;
- supporting in providing conditions for out-of-school education through various activities — foundation new out-of-school education institutions through the organisation of branches, organisation of hobby clubs, classes, associations based on general secondary, vocational, and vocational pre-tertiary education institutions, involvement of institutions located in other communities by contract;
- creating conditions for the full development of pupils with special educational needs, promoting the growth of creative pupil associations in rural areas;
- identifying of new economic models of resource provision of out-of-school education institutions, in particular within the framework of public-private partnership;
- improving the cooperation of public authorities and local governments with public associations, institutions, and organisations on the development of out-of-school education in terms of decentralisation of its management, financial, economic, and logistical support;
- updating of the current legislation, financial, economic, and legal foundations of activity of out-of-school education institutions;
- modernising of scientific and methodical support of out-of-school education, fostering the development, publication and implementation of modern scientific, theoretical and high-quality methodical support;
- developing and supporting innovative pedagogical technologies, research and experimental work, pedagogical design, aimed at creating effective models of out-of-school education institutions;
- media covering the problematic issues of out-of-school education to increase further its prestige and role in developing the personality of young citizens of Ukraine;
- creating digital ecosystems of out-of-school education institutions;

- professional training of educators in using information and communication (digital) technologies in the educational process.

To achieve these goals, the researchers of the National Academy of Educational Sciences of Ukraine conduct research and experiments at the all-Ukrainian level, which allows the creation of innovative pedagogical technologies, methodology, forms, and methods of children's education and their implementation in the out-of-school education institutions activities. In particular, the researchers of the Institute of Problems on Education of NAES of Ukraine have developed and put into practice new approaches to the organisation of educational activities of institutions of different directions and forms of ownership. Based on the research results, it was developed and implemented the following monographs «Theoretical and Methodical Bases of Ecological Education of Pupils of Grades 1-9 in Out-of-School Education Institutions», «Formation of Basic Competences of Pupils of Out-of-School Education Institutions in the Process of Cognitive and Practical Activity», «Formation of Value Orientations of the Educational Process in Out-of-School Education Institutions»; manuals «Socio-Pedagogical Foundations of Out-of-School Education Institutions in Modern Conditions», «Pedagogical Principles of Development of Creative Personality of Pupils in Out-of-School Education Institutions», «Formation of Pupils' Pre-Professional Experience in Out-of-School Education Institutions», «Organisational and Pedagogical Bases of Modern Out-of-School Education Institution», «Ecological Education of Pupils in the Process of Research Work», «Research Work of Pupils on Ecology in Out-of-School Education Institutions», «Ecological Education of Primary School Pupils in Out-of-School Education Institutions», «Ecological Education of Pupils of Grades 5-9 in Out-of-School Education Institutions», «Competence Approach in the Educational Process of Out-of-School Education Institution», «Value Orientation of the Educational Process in Out-of-School Education Institutions», etc.

Moreover, the researchers of the Institute of Problems on Education of NAES of Ukraine have recently developed and put into practice a multilevel and multidisciplinary content of out-of-school education, have created a number of curricula for out-of-school education: «Social Formation of a Person: Conscious Choice of Values and Priorities», «Educator's School», «Petrykivsky Painting», «Decorative and Applied Arts», «Wool Felting», «Vytynanka», «Weaving and Applique with Straws», «Folk Crafts of Ukraine», «Ceramics»; curriculum for the English language classes, etc. Curricula are recommended by the Ministry of Education and Science of Ukraine for use in out-of-school education institutions.

To implement the state policy in out-of-school education, the NAES of Ukraine researchers take an active part in the relevant working groups and commissions of the Ministry of Education and Science of Ukraine: on amending the Law of Ukraine «On Out-of-School Education»; on developing the criteria for the quality of educational services in the system of out-of-school education and the procedure for monitoring the quality of out-of-school education; on developing the draft standard educational programme of the out-of-school education institution; on implementing STEM education in Ukraine; scientific and methodical commission on out-of-school education of the Scientific and Methodical Council of the Ministry of Education and Science of Ukraine; in organising the all-Ukrainian competition of professional skills of educators of out-of-school education institutions «Source of Creativity» and the all-Ukrainian competition of manuscripts of educational literature for out-of-school education institutions; in organising the professional development training for educators of out-of-school education institutions of Ukraine (in collaboration with the National Ecological and Naturalistic Centre for Pupil Youth of Ministry of Education and Science of Ukraine).

Educational challenges caused by the COVID-19 pandemic have encouraged the researchers of the Institute of Problems on Education of NAES of Ukraine in collaboration with partners (National Ecological and Naturalistic Centre for Pupil Youth of Ministry of Education and Science of Ukraine, Centre of Technical Creativity and Career Orientation of School Youth of Darnytsia District of Kyiv, Centre of Scientific and Technical Creativity of Youth of Dniprovskiy District of Kyiv) to provide systematic guidance to educators of out-of-school education institutions how to organise the educational process in terms of social distancing. The problem of modernising the educational process in the COVID-19 pandemic, mechanisms of distance learning and adaptation of curricula in out-of-school education were covered during conferences, seminars, round tables, workshops and pedagogical councils, in particular: all-Ukrainian online conference «Effective Distance Teaching: from Theory to Practice»; online video conference «Out-of-School — the Choice of the Future», in the framework of the annual project «Pedagogical Search — ED Profi Ukraine»; workshop «Priority Areas of Work with Pupils and Teachers in Modern Out-of-School Education Institutions»; regular online meetings with directors of out-of-school education institutions, heads of departments of centres of children and youth.

Over the past 30 years of Ukraine's independence, out-of-school education has undergone an evolutionary path of development and establishment. Further progress may be systemic transformations following current social demands and scientific understanding of the unique impact of out-of-school education on developing the needs and interests of personality.

## 8. EDUCATION OF ACTIVE AND RESPONSIBLE PATRIOT CITIZENS OF UKRAINE

**Abstract.** Education of active and responsible patriot citizens is intended to give a new impetus to establish and hold the Ukrainian nation together, develop civil society in Ukraine, which involves the transformation of a person's moral and legal culture, construct national identity. Educational activities should contribute to the development of society based on the recognition of human beings as the highest value and the principles of humanism, freedom, the rule of law, social justice.

As a form of public consciousness, Ukrainian education and science have faced the mission of producing new meanings and values as the foundation for becoming a patriot citizen, who is ready to build a sovereign, independent, democratic, legal, social Ukrainian state, strengthen its national security, promote civil peace and harmony in society. There is an urgent need to educate patriot citizens of Ukraine, who are prepared for life with high national consciousness and who can build a civil society based on universal, European values.

*National and patriotic education as a priority of the state.* National and patriotic education is a strategic priority of state policy, which is a consolidating basis for the development of Ukrainian society. Its aims to construct national identity, to generalise the main idea of Ukrainian statehood and the people's desire for sovereignty and independence.

The geopolitical situation in Ukraine and the accompanying challenges (the need to defend its territorial integrity, sovereignty, and independence, consolidate society, protect national political, economic, and cultural interests) has increased public attention to the problems of education of the younger generation. In particular, the issues of national and patriotic education, its regulation, and scientific and methodical support are actualised.

The need to intensify attention to national and patriotic education is addressed in the Laws of Ukraine «On Education», «On Culture», «On the Legal Status and Honouring the Memory of Fighters for Ukraine's Independence in the 20th century», decrees of the President of Ukraine «On Priority Measures to Promote Strengthening National Unity and Consolidation of Ukrainian Society, Supporting Public Initiatives in This Area», «On Urgent Measures to Strengthen the State Status of the Ukrainian Language and Promote the Creation of a Single Cultural Space of Ukraine», «On the Strategy of National and Patriotic Education», Resolution of the Verkhovna Rada of Ukraine «On Honouring the Heroes of the Anti-Terrorist Operation and Improving National and Patriotic Education of Children and Youth», the Concept of Implementing the State Educational Policy in General Secondary Education Reform «The New Ukrainian School» for the period up to 2029 and other regulations.



For the first time in the history of independent Ukraine, the Order No. 1233 of the Government of Ukraine (dated October 9, 2020) approved the Concept of the National Target Social Programme of National and Patriotic Education for the period up to 2025, which defines the main priorities of national and patriotic education: development of Ukrainian civic identity; military and patriotic education; creation of the scientific and methodological, and methodical foundation of national and patriotic education; support and cooperation of state authorities and local governments with civil society institutions on national and patriotic education. More than 100 coordination councils on national and patriotic education at various administrative levels have been established and operate in Ukraine.

Among the negative factors of national and patriotic education of schoolchildren should be recognised the Russian information war with Ukraine — the historical facts are distorted, the authenticity of the Ukrainian language and culture and the very existence of the nation are denied; there is a struggle for the establishment of the Russian language as the second state language and the ousting of the Ukrainian language from the media; political technologies are used for artificial delimitation of the regions of Ukraine, conflict of interests with using the differences and deepening contradictions; nostalgia for the Soviet past is cultivated. On March 16, 2021, the survey showed the population's attitude to counteract Russia's aggressive actions. The majority of respondents (54.1 %) were convinced that the state should protect its citizens from the harmful effects of misinformation, 19.4 %, partially agreed with this opinion, 6.9 % partially disagreed, 10.1 %, answered «yes and no», 9.2 % did not decide the response, 2.1 % completely disagree. This survey was conducted by Info Sapiens commissioned by the School of Analytical Policy of the National University of «Kyiv-Mohyla Academy» within the Initiative for the Development of Analytical Centres in Ukraine implemented by the International Renaissance Foundation in partnership with the Open Society Initiative for Europe (OSIFE) with financial support of the Embassy of Sweden in Ukraine.

During 2014-2015, the National Academy of Educational Sciences of Ukraine researchers developed a number of important documents in national and patriotic education. Among them are: the Concept and Programme of Patriotic Education of Children and Pupils, «National Idea in Becoming a Patriot Citizen of Ukraine», the Concept of National and Patriotic Education of Children and Youth, the Concept of Developing the National and Cultural Identity among Adolescents in Secondary Schools, the Programme of Education «The New Ukrainian School in the Approach to Values», etc.

In 2016-2019, the staff of the Institute of Problems on Education of NAES of Ukraine conducted studies «Person-Oriented Technologies of Patriotic Education of Pupils in Public Associations», «Developing National and Cultural Identity among Adolescents in Secondary Schools». As a result, the pedagogical conditions for developing national and cultural identity were reasoned and implemented.

Therefore, an essential aspect of national and patriotic education is developing the national and cultural identity of children and youth as an essential condition for the consolidation of Ukrainian society, its security, and survival in the period of globalisation challenges. Developing the national and cultural identity contributes to establishing a patriot citizen of Ukraine, who is aware of his or her belonging to the Ukrainian people and who is involved in the country's destiny, its role in the world community. Moreover, the patriot

citizen is a bearer of Ukrainian culture, language, historical memory, culture and traditions. The patriot citizen is ready to defend and build Ukraine as a sovereign and independent state.

Military and patriotic education in response to today's demands. Ukrainian course towards Euro-Atlantic integration, reforming the Armed Forces of Ukraine following the NATO standards are factors that determine society's demand on the education of a patriotic citizen, a defender of Ukraine who is ready to defend the country.

In response to today's challenges, the National Security and Defence Council of Ukraine, Ministry of Defence of Ukraine, Ministry of Education and Science of Ukraine, Ministry of Youth and Sports of Ukraine, NAES of Ukraine, in particular the Institute of Problems on Education of NAES of Ukraine, developed and implemented several programme documents (strategies, concepts, programmes, projects on military and patriotic education of children and pupils) that formed the bases of regulatory, organisational, and methodical support of educating a patriot citizen, a defender of Ukraine.

Such regulatory documents carry out the regulatory support of military and patriotic education or its different aspects as the National Security Strategy of Ukraine, the Strategy of Military Security of Ukraine, the Concept of Pre-Conscription Training, and Military and Patriotic Education.

Organisational and methodical support of military and patriotic education of children and pupils in education institutions is implemented through: the Concept of Studying the Subject «Defence of Ukraine» in general secondary education (NAES of Ukraine, 2019); Curriculum on the Subject «Defence of Ukraine» (standard level, grades 10-11, Ministry of Education and Science of Ukraine, 2020); Curriculum on the Subject «Defence of Ukraine» (specialised level, grades 10-11, Ministry of Education and Science of Ukraine, 2020); the textbooks «Methodology of Developing the Upper School Pupils' Readiness to Defend the Homeland in Different Types of Education Institutions» and «Methodical Tools for Developing the Upper School Pupils' Readiness to Defend the Homeland» (NAES of Ukraine, 2019); methodical recommendations «Forms and Methods of Developing the Pupils' Readiness to Defend the Homeland» (NAES of Ukraine, 2019).

However, despite the presence of regulatory and methodical support, military and patriotic education has not yet become the highest priority of the state policy of Ukraine in modern conditions. It has not acquired the status of a holistic educational system with a clearly defined mechanism for the interaction of public authorities, local governments, research institutions, education institutions, civil society institutions with a separation of powers, duties, and areas of responsibility.

The subject «Defence of Ukraine» is the main educational subject on military and patriotic education in general secondary education institutions. It covers 105 hours (grades 10-11), and 18 hours covers training camps. At the same time, in the European Union, in particular, in France, the initial military training lasts about 300 hours a year. In England, the system of non-military training is largely staffed by officers, the junior command staff of the country's armed forces. Besides, more than 150 thousand pupils undergo annual training for military service.

The problem of providing specialists in teaching the subject «Defence of Ukraine» in general secondary education institutions remains unresolved. The vast majority of teachers in this subject are part-time teachers of the humanities and physical education. This causes

the problem of quality professional training (retraining) of educators of the subject. To solve this problem, it is necessary to involve patriotic military personnel with experience in the Armed Forces or other military organisations in teaching the subject «Defence of Ukraine» in general secondary education institutions, as well as the involvement of the soldiers who took part in the anti-terrorist operation and joint forces operation in Donetsk and Luhansk regions.

The indicator of citizens' readiness to defend their country is essential. According to a sociological survey conducted by the Ukrainian Centre for European Policy in 2020 («World Values Survey 2020 in Ukraine»), the number of Ukrainian citizens willing to defend their country increased by 16.6 % in 2020. The number of citizens who are not ready to protect their country decreased accordingly by 4.3 % compared to the poll on these indicators conducted in 2011.

The best international experience of the European Union and NATO member states is a forward-looking strategy in building a national system of military and patriotic education of youth. In particular, in France and Great Britain, the components of the national system of military and patriotic education in general secondary education institutions are the following: initial military training, military training at training camps, training through military games, campaigns, etc. Besides, all British universities, most polytechnics and colleges provide military training of junior officers for the country's armed forces, as well as military and patriotic education in state and public organisations (associations, hobby clubs, sports clubs, etc.).

The Institute of Problems on Education of NAES of Ukraine systematically studies the methods of developing the readiness to defend the Homeland among the upper school pupils in various types of education institutions, and military and patriotic education of pupils in ideological confrontation. The main scientific idea of these studies is based on a comprehensive and holistic approach to the development of modern conceptual foundations, scientific and methodical support for developing the upper school pupils' readiness to defend Ukraine in various types of education institutions. A number of scientific developments of the NAES of Ukraine researchers aim to solve this problem. The «Methodical recommendations for studying the subject «Defence of the Homeland» in the 2018/19 academic year» and the «Methodical recommendations for studying the subject «Defence of Ukraine» in the 2019/20 academic year» are implemented in general secondary education institutions.

*Civic education in the context of civilisation challenges.* Openness and readiness of social institutions for interaction and partnership is a central feature of a democratic civil society. At the same time, the relevance of civic education is due to the strengthening of global civilisational transformations that cause dynamic changes in the thinking, values, morals of the growing generation.

Therefore, the efforts of the state, society and pedagogical education and science in civic education should focus on the following aspects.

It is necessary to optimise intersectoral cooperation based on social partnership, in particular through involving the younger generation in the activities of youth and children's NGOs.

According to the study «Interest Rate Mechanism for Financing Civil Society Organisations in Ukraine — 2020» conducted by the Razumkov Centre Sociological Service

together with the Ilko Kucheriv Democratic Initiatives Foundation, Ukrainian citizens have low awareness of civil society organisations that solve the country's problems — only 15 % of respondents know about it. 44 % of them do not know about public and charitable organisations but want to know more about their activities. Citizens' involvement in the activities of NGOs is still low for the vast majority of Ukrainians. Only 4 % of respondents stated that they took an active part in such activities, another 13 % indicated that they seldom joined the activities of NGOs.

Furthermore, to develop civil society in Ukraine, there should be a meaningful and broad intersectoral interaction of partners that allows solving the complex problems facing the state.

Each sector (partner) introduces into the partnership those priorities, values and qualities that underlie its activities, multiplying them. Consequently, there are obvious benefits for all participants in social collaboration. Such a partnership contributes to the increase of cooperation between education institutions with parents, civil society institutions, cultural institutions, businesses, providing for responsible collaboration of various institutions and partners.

To implement this aspect, the researchers of the Institute of Problems on Education of NAES of Ukraine reasoned the types of models of the social partnership of education institutions, and youth and children's NGOs with different types of sectors (partners): 1) model of partnership with the public sector (public authorities and local governments); 2) model of partnership with education institutions of different types (preschool, general secondary, out-of-school, vocational, higher education institutions); 3) model of partnership with the commercial sector (business structures); 4) model of partnership with the public sector (public associations and organisations of different types: children's, youth NGOs, charitable organisations, professional associations); 5) model of partnership with mass media (press, radio, television, online media, social media).

According to the research conducted by the Institute of Problems on Education of NAES of Ukraine during 2019-2021, 96.6 % of educators of various types of education institutions and adult leaders of children's public associations interacted with multiple organisations and institutions: education institutions (79.3 %), public organisations (68.9 %), public authorities (62.0 %), charitable foundations (44.8 %), cultural institutions (55.1 %), business structures (24.1 %), etc. Consequently, there is a diverse and broad experience of social partnership with other organisations (companies) in education. Nevertheless, it is necessary to expand the field of social interaction with organisations of different types and to gain experience of joint activities that will be socially significant.

The youth and children's movement of Ukraine, whose educational potential is not fully used, can play an essential role in developing a patriot citizen. According to UNICEF, most children and young people in Ukraine are deprived of leisure (59 %). Almost one in three is deprived of access to utilities (30 %), and one in seven is deprived of a clean environment.

According to the State Statistics Service, 26 thousand public organisations are registered in Ukraine, including more than 1.3 thousand children's organisations.

Youth and children's associations are attracting more and more attention from society and the state, proving their ability to put effective social transformations into practice. According to the Information Bulletin «Sustainable Development Goals — 2020», the

national system of Sustainable Development Goals (SDGs) in Ukraine consists of 86 national objectives. One of them is to increase the efficiency of public authorities and local governments. According to the statistics, Ukraine ranks 104th in the Global Competitiveness Report ranking under the sub-index «Institutions (state and public institutions)», which is particular progress compared to previous years (130th place in 2015, 129th — in 2016, 118th — in 2017, 110th — in 2018).

Therefore, public children's organisations and associations are an essential and independent social institution in Ukrainian society, which can respond to the demands of society and today's challenges. Interaction with government agencies and institutions and social movements based on partnership makes them an effective partner of other social institutions in developing civil society and education of modern children.

The youth and children's movement of independent Ukraine has some historical experience and appropriate legal support for its functioning. The country has an appropriate legal framework that defines the legal basis for the establishment, rights, and guarantees of civil society institutions, including NGOs and associations (the Laws of Ukraine «On Youth and Children's NGOs», «On Public Associations», «On Charitable Activities and Charitable Organisations», «On Associations of Local Governments»).

These legislative documents regulate the peculiarities of youth and children's NGOs and associations based on the general principles of activity. In 2019, the Law of Ukraine «On Recognition of the Scout Movement and Peculiarities of State Support of the Scout Movement» was adopted, recognising the role of a separate direction of the public movement, particularly the Scout movement. The law recognises the historical contribution of the Scout movement to civic education of children and youth, the acquisition and formation of Ukrainian statehood. It establishes the principles of state policy to promote the development of this movement.

At the same time, many of the state measures provided in regulatory legal documents remain unrealised. This creates some problems and social escalation in developing youth and children's NGOs.

To solve these issues, the researchers of the Institute of Problems on Education of NAES of Ukraine initiated the creation of the Concept of Support and Promotion of the Development of Children's Public Movement in Ukraine. In 2016, the development of the Concept for state support for the development and support of children's organisations and associations as effective partners of the state had started in cooperation with the leading researchers of NAES of Ukraine, experts of the Ministry of Youth and Sports of Ukraine, Ministry of Education and Science of Ukraine, Ministry of Social Policy of Ukraine. Such cooperation has proved its effectiveness. In 2018, the Order of the Cabinet of Ministers of Ukraine «On Approval of the Concept of Support and Promotion of Children's Social Movement in Ukraine» was issued. In 2019, the Action Plan for 2019-2022 to implement the Concept was approved by the government decree.

Therefore, the social demand for national and patriotic, military and patriotic, and civic education is relevant. Its comprehension, updating, and implementation occur in two levels: regulatory, content and procedural.

Over the 30 years of Ukraine's independence, there was an update and rethinking of regulatory support of national and patriotic education of children and youth:



- the Strategy of national and patriotic education was approved, which is recognised as one of the priorities of the state and society for the development of national consciousness based on public-state (national) values (identity, freedom, unity of a nation, dignity), developing a sense of patriotism, respect for the Constitution, the laws of Ukraine, social activity and responsibility for the state and public affairs, readiness to perform the duty to protect independence and territorial integrity of Ukraine, acceptance of the European values;
- the Ukrainian laws were adopted aimed at recognising the participants in the struggle for independence, honouring their courage and heroism, affirming the ideals of freedom and democracy in Ukraine, preserving and conveying to present and future generations objective information about fateful events in Ukraine;
- the legislative acts were adopted, which determine the peculiarities of organisational and legal bases of formation and activity of youth and children’s NGOs and state guarantees of ensuring their activity;
- the Concept of Support and Promotion of Children’s Social Movement in Ukraine, and Action Plan to implement the Concept were approved to create conditions for further development of such movement, ensuring children’s right to association, participation in society, promoting the realisation of their intellectual, physical, creative potential;
- the documents were adopted aimed at taking measures to strengthen national unity and consolidate Ukrainian society, to identify key areas for improving pre-service training and military and patriotic education of youth (the Decision of the National Security and Defence Council of Ukraine «On Urgent Measures to Protect Ukraine and Strengthen Its Defence Capabilities»; the Decree of the President of Ukraine «On Priority Measures to Promote the Strengthening of National Unity and Consolidation of Ukrainian Society, Support for Public Initiatives in This Area»);
- the Decree of the President of Ukraine «On the Strategy of National and Patriotic Education» was issued;
- the Concept of National and Patriotic Education in the Education System of Ukraine was approved on July 29, 2019, which identifies the purpose of national and patriotic education of becoming a self-sufficient patriot citizen of Ukraine, humanist and democrat, who is ready to perform civic and constitutional duties, to inherit the spiritual and cultural heritage of the Ukrainian people achieving a high culture of relations;
- the Educational Programme «The New Ukrainian School in the Approach to Values» was developed, which outlines clear priorities in education of the children’s personalities with the key competences that will help them to become high moral, professionally successful, healthy and happy people.

*Content and procedural support for the education of active and responsible patriot citizens for the future of Ukraine* should be implemented in several aspects, in particular: establishing partnerships between social institutions involved in the education of the growing personality; providing the educational community with effective tools for educating modern children and allowing them to participate in decision-making and the life of society, etc. For that reason, the following points are relevant:

- development of effective forms of adult education with an emphasis not only on professional retraining but also on the development of socio-ethical skills, enhance

- knowledge (particularly in peacekeeping training), and formation of the social culture of mastering such knowledge;
- implementation of the best practices of formal and non-formal education aimed at peacekeeping training, taking into account the curricula of the cultural, historical, socio-economic, and political context of the country or region;
  - establishing effective education management, creating an effective model of public administration; promoting the growing demand of civil society activists for the acquisition of competences in peacekeeping; motivation of communications between the communities of the region and the country as a whole;
  - methodical support of updated training programmes on the subject «Defence of Ukraine» (standard level, specialised level, 2020) based on a competence approach; reasoning its theoretical and methodical principles, as well as psychological, pedagogical, and methodical conditions for developing key and subject competences among the upper school pupils in the process of studying the subject «Defence of Ukraine» under the Concept of the New Ukrainian School;
  - enriching the content of updated curricula on «Defence of Ukraine» with the history of the heroic struggle of participants in the revolutionary events in Ukraine in 2004, 2013-2014, the Heavenly Hundred Heroes, participants in the anti-terrorist operation and joint forces operation in Donetsk and Luhansk regions, resistance to occupation and the annexation of the Autonomous Republic of Crimea by the Russian Federation to develop among the upper school pupils the image of a patriot, a hero-defender of Ukraine, who is resistant to enemy propaganda and who is ready to defend his or her country with weapons in one's hands;
  - development of fundamental and applied research to find out new methodological approaches, principles and means of national and patriotic, military and patriotic, and civic education of children and youth relevant to the challenges of the time. These studies may strengthen the educational potential of the educational environment of secondary and out-of-school education institutions, public organisations in the conditions of ideological confrontation that developed as a result of the armed and information war against Ukraine;
  - developing a national system of military and patriotic education, which provides for the coverage of this process not only pre-conscription pupil youth but also students and people under the age of 45. This idea is enshrined in the provisions of the document «On the Strategy of Military Security of Ukraine» (approved by the Decree No. 121 of the President of Ukraine dated March 25, 2021) that states the need to create a strong territorial defence, which will increase the defence capabilities of the state, cohesion of society, military and patriotic education of citizens, giving the defence of Ukraine a national character and the readiness of the population to protect the state;
  - ensuring compliance with the provisions of the Strategy of Military Security of Ukraine on reasoning new models of military and patriotic education of pupils and students in general secondary and higher education institutions, as well as scientific and methodical support of military and patriotic education of children and youth in education institutions, state and public organisations (associations, hobby clubs, sports

clubs, etc.) based on the effective use of national traditions and contemporary world experience of the European Union and NATO;

- involvement of partner organisations to expand educational influences (partnership with the public sector, education institutions of various types, the commercial sector (business structures), the public sector, the media);
- using modern educational tools for working with children (situational role-playing, dramatization, travel game, quests, workshops, intellectual auctions, method of analysis of social situations, case studies, creating situations of success, ethical and Socratic conversations, discussions, disputes, «Open Space» technique, «The World Caf » method, charity projects, flash mobs, forums, Skype conferences, online communication, performances, masterclasses, guides, etc.). Forms and methods of work can be creatively supplemented and filled with content relevant to the age-related children's needs of moral and spiritual development, taking into account their individual characteristics.

Therefore, currently in Ukraine, there is a meaningful renewal of the process of national and patriotic, military and patriotic and civic education at all levels of education, the search for innovative methods, forms and technologies of education, development of a conscious patriot citizen. Coordination of the regulatory framework, its compliance with the requirements of civil society institutions, the implementation of these methodical and procedural aspects will be the guaranty to effective implementation of educational objectives.

## 9. VOCATIONAL EDUCATION AND TRAINING FOR THE NEEDS OF A PERSONALITY, ECONOMY, AND SOCIETY

**Abstract.** Ukraine's market economy requires competitive skilled workers who can obtain qualification within the system of vocational (vocational and technical) education and training, VET, 2nd — 4th levels of the NQF (hereinafter «vocational education»). The current of vocational education system is represented by an extensive network of institutions of various types, and forms of ownership. The years of Ukraine's independence have encouraged the tendency to reduce the network of VET education institutions and admission contingent.

Today, one can observe how the management of the vocational education system is being decentralised, vocational education institutions are being transferred to communal ownership and their autonomy is being expanded; public-private partnership is being developed; dual education is being implemented; training and practical, qualification centres and centres for vocational excellence are being established. The main issues of Ukraine's vocational education system are as follows: a significant reduction in the number of VET institutions, and even more so in the number of entrants; non-compliance of training quality with the growing requirements of employers; insufficient motivation of social partners to participate in the modernisation of VET; low status of the teaching profession and insufficient quality of teacher training.

Following the National Qualifications Framework, the years 2015-2021 have marked the development of professional and educational standards, the introduction of innovative forms to obtain vocational education; the expanded partnership between VET institutions and local executive bodies, self-government bodies and employers; the establishment of regional councils of vocational education; the implementation of project management technologies.

Innovative development of Ukraine's vocational education system largely depends on the following: immediate adoption of the Law of Ukraine «On Vocational Education»; updating the legal framework for dual education, as well as preferential taxation of employers involved in the training of skilled workers; introduction of new and effective mechanisms of payment for educational services and motivation towards learning (educational vouchers, grants, nominal scholarships); establishment of multilevel and multidisciplinary vocational colleges under territorial and sectoral principles; granting the status of vocational excellence centres to the leading education institutions; the implementation of total quality management (TQM) with subsequent certification of compliance with international standards (ISO).

Vocational education should be more concerned with meeting learners' / pupils' individual needs in terms of obtaining qualifications in demand in the labour market, preparing competitive specialists, and promoting continuous vocational development among enterprise staff.

*The current state of vocational education and training, VET in Ukraine.* Ukraine's vocational (vocational and technical) education and training (hereinafter «vocational education») system is being reformed today. It is represented by an extensive network of education institutions of various types, and forms of ownership. For thirty years, their number has almost halved (from 1285 in 1991 to 711 in 2020). The current vocational education system includes three vocational colleges, 157 higher vocational schools, seven higher art vocational schools, 90 vocational education centres, 312 vocational lyceums, a vocational art lyceum, 66 vocational schools, a vocational art school, a vocational school, 60 training centres in penitentiary institutions, as well as 13 institutions that are structural units of higher education institutions. These education institutions provide training for 430 vocational professions. Their staff consists of 34 thousand teachers, including more than 14 thousand Senior Masters and Masters of Vocational Training.

The number of entrants has decreased more than two and a half times (from 648 thousand in 1991 to 247 thousand in 2020). In 284 vocational education institutions, the number of pupils is less than 300. The number of pupils in 35 small institutions does not exceed 100. On the other hand, the number of pupils in vocational colleges amounts to more than 1000; that in higher vocational schools and vocational education centres, combined with other institutions, — 800-1300. Regarding the average occupancy of dormitories, they are only 39 % full. This indicator is the lowest in the Kirovohrad region (12 %); the highest in Kyiv (79 %), Rivne (78 %) and Volyn (68 %) regions.

In 2018, the adoption of the Law of Ukraine «On Amendments to Certain Laws of Ukraine on Access of People with Special Educational Needs to Educational Services» stimulated the creation of a comfortable educational environment, the provision of appropriate facilities, and the elaboration of curricula and syllabi, which allow one to put into action individual learning paths. Also, there was an increase in the number of pupils with special educational needs (from 1.7 thousand in 2018 to 4.6 thousand in 2020).

Since 2016, state authorities, local governments, and employers have been establishing innovative structural units (training and practical centres by sectors, career, and qualification centres). They aim to improve practical training in vocational education institutions, organise in-service training and internships for teachers and enterprise specialists involved in the educational process, reason the ways of enhancing curricula and developing instructional and methodical complexes of vocational training, introduce the latest production technologies into the educational process, organise seminars, workshops, training sessions, and other events. Between 2016 and 2021, 194 educational and practical centres were established at the state's expense and 180 ones — with the support of social partners.

The establishment of such centres increases the quality of vocational training and positively influences the employment opportunities of skilled workers in various sectors of the economy. According to the State Statistics Service of Ukraine, the main sectors of employment of vocational education institutions' graduates in 2020 were the following: industry (11 %), agriculture (4.5 %), transport (5.8 %), construction (4.1. %), trade and catering (7.5 %), housing and communal services (3.6 %). It should be noted that graduates are fully employed in 24 professions, including the integrated ones (electric and gas welder, oxygen cutter, vehicle driver, construction carpenter, maintenance fitter), which increases mobility and competitiveness in the labour market.

In Ukraine, 70 % of vocational education pupil obtain complete general secondary education, in addition to initial vocational training, under the educational standard, defined as obligatory for all education institutions. This approach provides vocational education pupil with equal access to general training, and the opportunity to continue their education in higher education institutions based on the results of external independent assessment. Every year, more



than 10 % of vocational education graduates become students of higher education institutions. However, such factors as insufficient funding, no centralised supply of necessary laboratory and presentation equipment and electronic tools for classrooms of natural sciences, mathematics and other subjects, negatively affect their facilities (20 % of demand). This situation worsens every year, decreasing the level of educational services in secondary education.

Since 2015, some elements of dual education have been incorporated into the educational process of vocational education institutions in Kyiv, Lviv and Zaporizhzhia. This allows one to strengthen relations with employers, reduce the cost of materials and utilities, increase financial revenues, improve training quality and boost employment up to 97 %. During the 2020-2021 academic year, some elements of dual education were introduced in 217 vocational education institutions with 12.4 thousand learners. Most learners were trained in the following professions: electric welder, cook, cook / confectioner, cook / cruise ship waiter, tailor, tailor / cutter. These professions are considered the most in-demand. It should be noted that vocational education institutions in the Lviv, Zaporizhzhia, Sumy, Odesa, Khmelnytskyi, Vinnytsia regions and the city of Kyiv largely promote the introduction of dual education.

Given the decentralisation of management, vocational education institutions are being transferred from the state form of ownership to the communal one, taking into account sectoral and regional characteristics of the labour market. In turn, this helps to improve funding, update the facilities, involve various stakeholders in modernising the content of vocational training and assure the quality of vocational education.

***The main results of vocational education and training, VET modernisation.*** To improve the national system of vocational education, the Ministry of Education and Science of Ukraine, with the researchers of the National Academy of Educational Sciences of Ukraine (NAES of Ukraine), has prepared and approved the Concept of state policy in vocational education, titled «Vocational (Vocational and Technical) Education Today» for the period up to 2027, and developed the Strategy for Development of Vocational (Vocational and Technical) Education for the period up to 2023. The Ministry is still working on the draft Law of Ukraine «On Vocational Education». In 2021, following the Decree of the President of Ukraine «On Priority Measures on the Development of Vocational (Vocational and Technical) Education» dated March 31, 2021, the Council for the Development of Vocational (Vocational and Technical) Education was established. It should act as an advisory body to unite the efforts of all stakeholders, modernise the industry and provide additional tools for quality training of Skilled Workers.

The modernisation of vocational education aims to improve its content following the dynamic technological changes in the economy; expand the training of skilled workers in complex integrated professions; apply a competence-based approach to developing 169 vocational and 561 educational standards under the requirements of the National Qualifications Framework; introduce flexible learning paths for receiving full and partial qualifications; focus general training courses on vocational specifics.

It was decided to begin the network optimisation 1) by merging small-scale vocational education institutions to create powerful multidisciplinary and multilevel vocational colleges, taking into account individual needs, and the needs of national and regional labour markets; 2) by establishing qualification centres, vocational excellence centres, career centres, educational and practical centres by industry with the use of the latest production technologies.

Emphasis is placed on the modernisation of resources available in vocational education institutions, taking into account the needs of national and regional labour markets. Also, it seems crucial to develop online platforms with instructional and methodical materials, SMART-complexes of training courses, software for communication among the participants in the

educational process in social networks, distance and blended learning technologies, and project-based activities. Furthermore, it is essential to create digital identities of vocational education pupils to record the acquired competences.

Recently, some efforts were made to improve vocational education institutions' management based on public-private partnerships. In particular, the powers and functions of local governments, and those of vocational education councils across regions, are being expanded; the pupil youth and adults are encouraged to engage in vocational education.

The Institute of Vocational Education and Training of NAES of Ukraine provides scientific and methodical support for developing vocational education. Notably, the Institute has created a scientific platform that is based on the following: close cooperation with institutions, educational-(scientific)-methodical centres (offices) of vocational education in regions, stakeholders interested in updating the vocational education system; communication with state authorities and local governments; promotion of international cooperation. This approach allows to introduce pedagogical innovations (concepts, models, methods, technologies). It should be noted that scientific, practical, educational, reference and other products prepared by the Institute's researchers can improve management of education institutions, enhance the quality of training, develop entrepreneurship and career competences, promote education internationalisation by studying and disseminating innovative experience of foreign countries, introduce project-based learning, strengthen teacher training, develop digital competences of the educational process participants, facilitate distance learning and dual education in terms of vocational education.

*Key issues of vocational education and training, VET and the reasons behind them. The quality of training in vocational education institutions does not fully meet employers' requirements.* According to the World Bank's survey «Skills for a Modern Ukraine», more than 58 % of employers surveyed in 2018 said that graduates from education institutions of various levels did not possess the necessary vocational knowledge and competences. Four out of ten companies in key sectors of the Ukrainian economy indicate a significant gap between the practical skills possessed by workers and the skills companies need to achieve business goals. The main reason for this is the vocational education system's conservatism, fragmentation, and resource deficiency. Dual education requires regular scientific and methodical support.

*Teachers and masters of vocational training lack modern skills.* This is the case for skills in using innovative pedagogical technologies, creating and applying SMART-complexes; career, entrepreneurship, energy conservation, health promotion, self-education, and other skills in demand of today's labour market. The reasons why teachers sometimes lack the required competences and qualifications lie in the use of outdated approaches to vocational psychopedagogical training, low technological and digital culture, the lack of educational self-management skills.

*The number of entrants to vocational education institutions has decreased significantly* (from 648 thousand in 1991 to 247 thousand in 2020). Since 2010, the number of 9th-grade graduates who continued their education in vocational education institutions has halved (from 100.5 thousand to 52.0 thousand). On the one hand, this is due to a decrease in the population of Ukraine by 10 million people (from 51.8 million in 1991 to 41.6 in 2021) (largely because of the loss of the population of the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions). On the other hand, there is a significant growth of the network of higher education institutions (from 149 to 281). In 2020, only 23 % of graduates from secondary schools (128 thousand out of 550 thousand) intended to obtain vocational education. This has led to increased demand for skilled workers and made it difficult to employ vocational education

graduates by profession, given that university graduates now often stand for their employment places, too (in 2020, 18.1 thousand CVs for vocational jobs (48.7 %), out of 37.2 thousand, were from university graduates; a thousand or 5.7 % — from people with incomplete degrees). To solve this problem, it is vital to achieve the optimal ratio between the number of vocational, vocational pre-tertiary and higher education institutions, and their entrants, as well as educational programmes, taking into account the needs of the country's economy and regions.

Insufficient attention is paid to the development of *public-private partnerships*. Besides, one can observe the weak motivation of social partners to participate in the modernisation of vocational training for enterprise staff. Thus, it is necessary to search for additional funding sources, introduce the best European practices of interaction between institutions and stakeholders, and promote teachers' professional and academic mobility.

*There are certain difficulties in implementing dual education.* In Ukraine, only some of its elements are used with the responsibility of mostly institutions, not employers. This requires appropriate amendments to legislation and regulations on the activities of vocational education institutions. Moreover, it is essential to develop new legal documents to divide the rights and responsibilities of all actors in this process clearly, and harmonise dual education with the European criteria.

The current vocational education system *lacks effective multilevel management* since managerial powers and functions are unevenly distributed. The establishment of vocational education councils across regions should facilitate the timely adoption of management decisions and their implementation at the regional/local levels. This is possible due to effective educational management.

Despite the adoption of the laws of Ukraine «On Education», «On Vocational Pre-Tertiary Education», «On Higher Education», «On Complete General Secondary Education», there is an urgent need to adopt the Law of Ukraine «On Vocational Education». This law will define modern approaches to management, principles, and limits of vocational education institutions' autonomy, public-private partnership mechanisms, funding sources. Importantly, it will motivate teachers towards continuous professional development and self-development and encourage employers to be actively involved in the modernisation of the vocational education system.

*Prospects for vocational education and training, VET development.* Below are the promising areas for modernising Ukraine's vocational education:

- updating legislative and regulatory support for vocational education development; establishing powerful institutions by unifying small-scale vocational education institutions under territorial and sectoral criteria, expanding their autonomy and economic independence; introducing technologies of marketing management and project-based management; granting the status of vocational excellence centres to the leading education institutions; introducing diversified models of financing institutions (multi-source financing, preferential taxation, educational vouchers, study loans, financing based on learning outcomes);
- developing public-private partnership (establishing innovative structures, such as clusters, hubs, technology parks, campuses of professions and qualifications); using different effective mechanisms to motivate employers to participate in the educational process; expanding functions of vocational education councils across regions; establishing independent advisory and consultative bodies responsible for institutions' management based on public-private partnership, including supervisory boards, advisory boards on specialties, advisory committees; promoting vocational education among young people and adults;

- creating the necessary conditions for skilled workers to complete secondary education by combining general and vocational training to develop key and general vocational competences, erudition, a scientific outlook and gain valuable professional experience;
- providing scientific and methodical support for developing and implementing profession-oriented curricula of field-specific secondary schools in vocational education institutions;
- legally regulating and improving curricula for Junior Bachelor in vocational education institutions to combine education with production and provide qualified specialists with primary positions in relevant professional fields;
- assuring vocational education quality (developing curricula by taking into account universal competences, civic values and respect for cultural diversity; building the content of education on a competence-based approach; promoting digitalisation and technologization of the educational process; creating a national online platform for communication among actors in vocational education on the issues of education quality assurance; implementing total quality management (TQM) with subsequent certification of compliance with international standards);
- creating an effective educational and cultural environment in vocational education institutions to develop socially active, responsible, and competitive skilled workers with active citizenship, high moral and ethical qualities, capable of self-realisation, self-improvement, and self-promotion;
- introducing the European Credit System for Vocational Education and Training (ECVET) and European Quality Assurance in Vocational Education and Training (EQAVET) to enhance the quality of vocational education and promote international mobility of learners and teachers of the vocational education institutions.

## 10. CONTEMPORARY VOCATIONAL PRE-TERTIARY EDUCATION AND HIGHER EDUCATION ARE THE PREREQUISITE OF UKRAINE'S COMPETITIVENESS

**Abstract.** Given rapid social progress and technologization, vocational pre-tertiary education (5th level of the NQF, VET qualifications) and higher education today determine Ukraine's competitiveness, independence, sovereignty, and self-sufficiency. In this regard, the country requires highly educated and competent professionals. It should be noted that Ukraine's educational sphere has been much focused on strengthening higher education system. Under the Law of Ukraine «On Education» (1991), colleges, technical schools, and schools acquired the status of higher education institutions (hereinafter «HEIs») of the state accreditation levels 1 and 2 and became entitled to train Junior Specialists and partly Bachelors based on general secondary education. Besides, the establishment of institutes, academies, universities of various forms of ownership, which had the state accreditation levels 3 and 4, was liberalised. It expanded access to higher education and enlarged the network of its institutions, especially of higher state accreditation levels.

However, the rapid growth in the number of HEIs, primarily universities, was not accompanied by adequate staffing, technological, information, financial and other support. In turn, it negatively affected the quality of education. The demographic factor was almost the only limiting factor for the insufficiently controlled expansion of the HEIs network under the conditions of a tolerant public attitude towards low quality and lack of competition for it: the presence of a sufficient number of entrants, who, in most cases, paid for tuition themselves. Consequently, higher education involved up to 73 % of young people of the corresponding age. Such quantitative growth increased the Human Development Index, as well as other global indices of Ukraine, even though it reduced the quality of the country's higher education.

Global university rankings made it possible to identify serious problems in the higher education system and the competitiveness of Ukrainian HEIs. After acquiring the status of HEIs, colleges, technical schools, and schools lost their priority focus on production. Moreover, due to a lack of entrants, a significant part of them were turned into «sources» which provided universities with applicants (after lower secondary education) for short training programmes. They were expected to obtain secondary education and higher education simultaneously, which is indeed unnatural.

Ukraine's joining the Bologna Process in 2005 and integrating into the European Higher Education Area (EHEA) highlighted the problems of national higher education system. They are primarily associated with the non-optimal structure and inefficiency of the higher education institutions network, which is now fragmented and scattered, excessively duplicated, inadequately profiled, and resource-deconcentrated. The legal basis for solving



these problems is created by the Laws of Ukraine «On Higher Education» (2014) and «On Vocational Pre-Tertiary Education» (2019). According to these documents, the two former levels of higher education are differentiated. At the same time, each of them should be refined under relevant specific criteria to ensure Ukraine's competitiveness. The Ukrainian Higher Education Development Strategy for 2021-2031, which is being developed under the President's Decree, should consider the above-mentioned aspects. It is also crucial to prepare an appropriate strategy for developing vocational pre-tertiary education.

*The current state of vocational pre-tertiary education in Ukraine.* An integral part of the Ukrainian educational system is vocational pre-tertiary education (5th level of the NQF, VET qualifications), which operates under the Law of Ukraine «On Vocational Pre-Tertiary Education» (2019). According to this law, since 2020, Ukrainian colleges, technical colleges and vocational schools have been providing vocational pre-tertiary education and preparing Junior Bachelors (5th level of the NQF, VET qualification). Thus, it has ceased legal uncertainty of this important component of education. After all, after enacting the Law of Ukraine «On Higher Education» in 2014, colleges, technical colleges and vocational schools practically were forced to rely on transitional regulatory documents.

From 1991 to 2014, and in the transition period until 2019, the current vocational pre-tertiary education served as a component of higher education, whose institutions (colleges, technical colleges, vocational schools) were at the state accreditation levels 1 and 2. They prepared Junior Bachelors and partly Bachelors, accepting mainly graduates from secondary schools. Besides, these institutions were expected to maintain their focus on production. Due to the economic downturn and mass entry of 11th-graders to universities, academies, institutes, the institutions of the state accreditation levels 1 and 2 prioritised mainly 9th-graders and thus strengthened their role as field-specific upper schools. Subsequently, they largely integrated with universities but weakened traditional links with enterprises.

For the thirty years of Ukraine's independence, the network of vocational pre-tertiary education institutions (colleges, technical colleges, vocational schools) has undergone significant changes. Their number decreased from 742 in 1990 to 338 in 2019; the number of entrants decreased even more: from 757 thousand to 173 thousand.

A significant reduction in the number of entrants to vocational pre-tertiary education institutions is associated both with a decrease in the number of graduates from secondary schools and with an increase in the number of HEIs, including the private ones. Also, HEIs have significantly weakened admission requirements to «deploy» the contingent of entrants, which has led to their significant outflow. Thus, the Ukrainian educational system has been affected by a certain imbalance, which has touched the quality and effectiveness of training.

Nowadays, vocational pre-tertiary education retains a range of positive characteristics, including the quality of education in certain fields of knowledge that is satisfactory for the labour market (Health, Veterinary Medicine, Information Technologies, Education / Pedagogy), as well as human resources and facilities.

Other key problems of vocational pre-tertiary education, in addition to the reduced network of its institutions, include their fragmentation, mostly low occupancy (511 students per institution in 2019), which requires their consolidation. The institutions with a small contingent (100-200 students) are at the greatest risk. In vocational (vocational and technical) education and vocational pre-tertiary education institutions, one can also observe certain duplication of

vocational training at such educational levels as Skilled Worker and Vocational Junior Bachelor. This confirms the need to combine them into a single, more powerful educational system.

***Prospects for the development of vocational pre-tertiary education.*** Further development of vocational pre-tertiary education is related to the following factors: the transition of Ukraine's economy to a new technological system; the spread of innovative high-tech systems; global economic and technological changes; European integration processes. To enhance the quality of vocational pre-tertiary education in Ukraine, it is essential to harmonise the Ukrainian system of education quality assurance with the European Quality Assurance in Vocational Education and Training (EQAVET); to expand teacher training in terms of vocational pre-tertiary education institutions; to implement total quality management (TQM) with subsequent certification of compliance with international standards; to conduct an external evaluation of quality of vocational pre-tertiary education by independent governmental or non-governmental organisations (agencies) approved by employers and relevant professional associations; to improve scientific and methodical support for education quality; to introduce the European Credit System for Vocational Education and Training (ECVET); to promote international mobility of students and teachers; to shape a positive image of vocational pre-tertiary education institutions; to strengthen participation in all-Ukrainian and international competitions of vocational skills (World Skills International); to increase the activity of colleges, technical colleges and vocational schools in social networks. Above all, it is essential to create a modern network of large-scale institutions, taking into account socio-economic, cultural and educational, demographic, territorial and other characteristics of regional development, and prognostic needs of the labour market; to provide students, who have not completed general secondary education, with access to relevant profession-oriented curricula of field-specific secondary education. In this regard, the development of vocational pre-tertiary education should be coordinated with that of various sectors of the economy, which will guarantee stable employment of graduates from vocational pre-tertiary education institutions. Moreover, it is necessary to create a unified system of vocational training of qualified personnel by integrating vocational pre-tertiary education and vocational (vocational and technical) education institutions.

***Higher education*** is an important driving sub-system of society that directly affects it and simultaneously depends on it. Therefore, an analysis of the current state and prospects of Ukraine's higher education should consider the following:

- a civilised, competitive environment, whose integral indicator is positive social selection, is required to ensure the competitiveness of the country and its higher education system;
- during the Fourth Industrial Revolution and the significant innovative progress, the actual role of higher education, despite its firm leadership core, is being neglected in the country whose economy and society are not focused on global development leaders, in particular in terms of supporting high-tech components of the economy;
- higher education as a social institution responds to students' demand for educational services, formed in society, and the need for quality education;
- as far as internal reserves of higher education are concerned, its competitiveness much relies on the necessary and sufficient concentration of its resources (personnel, material and technical, informational, financial, organisational);
- the predominantly extensive style of higher education growth during the country's independence has led to a lack of Ukrainian HEIs among top global universities and the weak influence of their graduates on GDP growth;

— the economy's low complexity that demotivates the sphere of higher education is reflected in the ranking of the 50 most popular professions in Ukraine, dominated by those that do not require higher education.

Ukraine *lacks a civilised, competitive environment* inhibits the motivation to pursue and obtain higher education of competitive quality. Despite systemic reforms in the context of the Bologna Process, the quality of higher education in most Ukrainian universities remains low.

Nevertheless, Ukraine's higher education retains a great overall university potential, focusing on key strategic areas of development in this field.

After all, 70 % of PhDs and DScs in Ukraine work in higher education; HEIs are annually financed for over UAH 40 billion; many of them have significantly updated their facilities. The main reason for the problems is the dispersion of these and other resources and the lack of concentration to generate a genuinely competitive quality of higher education. Currently, the network of HEIs is rather fragmented, excessively duplicated, inadequately specialised, resource-deconcentrated. Consequently, there is a chronic lack of financial and other resources for its maintenance.

Compared to 1990, the number of HEIs in 2019 increased from 149 to 281, while the average number of students decreased from 5.9 thousand to 4.5 thousand.

Thus, the strategy for higher education development in Ukraine should, first of all, lie in strengthening HEIs by identifying the most powerful and developed ones, as well as in consolidating less developed ones with their help. It is also advisable that most regions should have at least one powerful regional national university since it would unite the rest of HEIs in these cities.

University leaders as the key centres can be revealed by introducing and using the national rankings of HEIs. This approach does not require additional financial, human, and other resources. On the contrary, it will significantly increase the efficiency of their use, as recommended by the World Bank in its review of Ukraine in 2019.

However, a reliable national university rankings system, based on the principles of competitiveness, has not been introduced into Ukrainian practice, contrary to the best European and world experience. The accreditation of degree programmes, which has been actively performed by the National Agency for Higher Education Quality Assurance at the initial (basic) level since 2019, does not solve the problem of quality. Out of 1.4 thousand degree programmes reviewed between 2019 and 2020, only 33 of them (2 %) were denied accreditation.

The reduced number of top HEIs will strengthen the competitive selection of all participants in the educational process (students, teachers, managers). There will be no need to support students who are unable or unwilling to obtain quality higher education, and tolerate academic dishonesty and corruption. This will increase the share of resource-intensive scarce jobs.

According to the National Security and Defence Council of Ukraine, 57.5 % of the total number of graduates from universities, academies and institutes in 2019 have been educated in the least resource-intensive fields of knowledge, including: Management and Administration — 21.5 %, Education/ Pedagogy — 13.2 %, Law — 7.8 %, Social and Behavioural Sciences — 5.4 %, Culture and Arts — 2.7 %, Humanities — 2.4 %, Public Administration — 2.1 %, International Relations — 1.0 %, Journalism — 0.5 %. The prevalence of socio-humanitarian fields is also due to the relatively easier way, compared to natural and technological fields, to get a diploma of higher education as a formal pass to «social elevators».

It is quite difficult to improve the competitiveness of HEIs because of the lack of necessary conditions for professional productivity of qualified academic staff: the low prestige of the field,

uncompetitive salary; heavy study load; weak educational, research, information infrastructure; limited opportunities for professional development.

Such factors as the low prestige of scientific and pedagogical activities and the steady decline in the share of science funding do not motivate Ukrainian young people to engage in research activities. From 2010 to 2020, the number of PhD students in Ukraine, despite the increase in the duration of the study, decreased by 23.9 % and amounted to 26 thousand people, which is very small by the world standards. The number of admissions to PhD studies has decreased, too. The total number of DSc students in 2019 was less than one thousand. Low salaries, lack of social guarantees and opportunities to realise one's potential lead to the outflow of talented young people from Ukrainian HEIs and research institutions.

Thus, the *priority tasks* are the following:

- to develop a stable civilised competitive environment in the Ukrainian society and higher education, which should motivate one to enhance education quality;
- to create a system of mechanisms (related to accreditation, classification, framework, rankings, etc.) for assessing the quality of higher education, which are used in advanced regions and developed countries, as well as for informing society and all stakeholders about the real state of education quality;
- to promote the mechanisms of positive social selection through civilised competition in higher education, and in society as a whole.

It is competition and selection that should optimise the network of Ukrainian HEIs.

Ultimately, the model of interaction and development of the Ukrainian society and its higher education system should work productively. To accelerate such interaction, *it is important to launch positive changes in an internal institutional context of Ukrainian higher education.*

Therefore, it is necessary to:

- to continue reforming the system of Ukrainian higher education and bring it closer to the parameters and requirements of the European Higher Education Area, the European Research Area and other leading educational and research areas comprehensively (legally, structurally and thematically);
- to expand the autonomy of Ukrainian competitive HEIs;
- to create an effective model for forecasting educational and vocational qualifications in the labour market;
- to strengthen the competitiveness of admission to HEIs to select the best motivated and prepared entrants who can obtain higher education of high quality;
- to transform Ukrainian HEIs into effective centres for cultivating universal and European values;
- to promote the systems of objective electronic monitoring of higher education quality;
- to improve the metrics of university rankings and strengthen their prognostic function concerning objectivity, validity, reliability, clarity, and transparency;
- to introduce the mechanisms of effective distributed control in the management of HEIs, which should democratise their social environments, liberate the initiative of stakeholders and increase personal responsibility for the results, develop the potential of all participants in the educational process and thus the higher education system.

# 11. ADULT EDUCATION IS THE INTEGRAL COMPONENT OF LIFELONG EDUCATION

**Abstract.** The changes in Ukrainian society at the beginning of the 21st century have actualised adult education as an integral part of lifelong learning. The Law of Ukraine «On Education» (2017) includes Article 18 «On Adult Education». A draft Law of Ukraine «On Adult Education» has been prepared. The profession «Andragogue» (2018) was introduced into the National Classification of Occupations DK 003: 2010. The public organisations, in particular, the Ukrainian Association of Adult Education and the Ukrainian Association of Learning Cities have intensified their activities.

More attention is paid to solving the problem of social exclusion of certain categories of the population, including the implementation of various programmes of training, retraining, formation of new professional and social competences of the unemployed, temporarily displaced, migrants, the elderly, etc. The establishment of centres for the recognition of the results of non-formal and informal education has been initiated. In 2020, Ukraine participated for the first time in preparing the fifth UNESCO Global Report on Adult Education.

At the same time, the following issues are urgent: the need to adopt the Law of Ukraine «On Adult Education»; making changes and additions to the current legislation regulating in-service training, retraining, provision of additional educational services, state and public management of adult education, its financing; development of mechanisms to stimulate and encourage citizens to lifelong learning, as well as the participation of employers in employee training; increasing the investment attractiveness of adult education.

Dynamics of socio-economic and scientific-technological progress, demographic changes taking place in the world at the beginning of the 21st century, as well as innovative changes in the content and nature of work, the urgent need to develop key competences, ability to lifelong learning, increase of free time and expansion of the possibilities of its rational use have significantly strengthened the role of adult education in solving the basic problems of human life.

Modern adult education is becoming a universal resource of civilisation, which allows the development of each individual's potential, creating a synergistic effect of positive impact on social change. It promotes a higher level of social understanding, interaction and cooperation, reducing social tensions and conflicts. It plays an important role in professional development and in the individual development of a man, a community, and a society.

Ukraine's educational policy, reflecting national interests in adult education, is focused on internationalisation and global trends in its development. At the present stage of adult education development, its leading trend has been the implementation of a systematic approach, in particular, in performing a complex of tasks: firstly, the formation of readiness for adaptation in a rapidly



changing world, which requires continuous adult training in formal and non-formal education; secondly, the development and improvement of key competences, the demand for which has increased significantly in terms of technological progress, informatisation, and digitalisation of society, a dynamically changing business environment; thirdly, training and retraining of socially vulnerable groups, including the unemployed, migrants, the disabled, the elderly, the number of which is growing worldwide.

To some extent, the need to solve these problems prompted the preparation of the National Strategy for Barrier-Free Space in Ukraine for the period up to 2030 (2021). It emphasises that an adult will acquire new skills, relevant knowledge throughout life, if necessary, quickly change professions and remain competitive in the labour market. It goes about developing a flexible system of continuing adult education that responds to today's challenges of society in general and the demands of specific segments of the population in particular. Researchers estimated that the increase of the average duration of adult education by only one year in the long run results in 3.7 % economic growth and 6 % increase in per capita income.

Adult education and training often go beyond the socio-financial sphere, including training, retraining, or career promotion.

A holistic understanding of the fundamental role of adult education in modern society is possible provided it is comprehensively perceived as a system. There are different views on the system-forming component of the adult education system. In particular, these may be educational programmes, a network of adult education institutions, as well as relevant management bodies for adult education.

One of the crucial conditions for developing the adult education system is the level of its *legislative and regulatory support*. Developed countries of the world have extensive legislation adult education. Ukraine remains one of the few European countries that lacks comprehensive legislative support for adult education, which hampers its development. General legal approaches to adult education are set out in separate articles in the Constitution of Ukraine. Certain norms concerning adult education are contained in the Law of Ukraine «On Employment» (2013), aspects of adult education are regulated by the Law of Ukraine «On Professional Development of Employees» (2012).

Currently, there have been taken important steps in the Ukrainian state regarding the legislative provision of adult education. Firstly, the Law of Ukraine «On Education» (2017) includes article 18 «Adult Education», which defines that adult education is a component of lifelong learning and aims to realise the right of every adult to lifelong learning, taking into account his/her personal needs, priorities of social development, and economic needs, defines its forms (formal, informal, and informal). The components of adult education include postgraduate education, in-service training, professional training, and professional development of employees, as well as any other components provided by law, proposed by the subject of the educational activity or self-determined by the person. At the same time, non-formal education is enshrined at the legislative level as a separate type of education, along with formal and informal. Secondly, a draft Law of Ukraine «On Adult Education» (2020) was prepared, which provides for the establishment of basic legal, organisational, financial principles of adult education, creating conditions for effective cooperation between students, public authorities and local governments, civil society institutions, educational actors, employers, and other stakeholders to ensure the right of an adult to lifelong learning. The draft law contains sections and articles that provide

for the regulation of issues not previously included in the legislative field, including statistics and research in of adult education, etc.

*Modern management system.* The central executive body responsible for adult education is the Ministry of Education and Science of Ukraine. In 2016, a directorate of higher education and adult education was established within the Ministry of Education and Science of Ukraine (since 2020 — vocational pre-tertiary education, higher education). Within the structure of the Verkhovna Rada Committee on Education, Science and Innovation, there is a subcommittee on lifelong learning and out-of-school education. In 2021, the Adult Education Committee of the Public Council under the Ministry of Education and Science of Ukraine was established as a temporary advisory body.

*Adult education funding.* Adult education is financed from the state budget of Ukraine, as well as with the support of Ukrainian and foreign organisations and individuals. However, the expenditures on adult education are not protected, i.e., they can be reduced, and modern procedures and funding mechanisms do not provide equal opportunities for all subjects of educational activities that provide educational services for adults, regardless of ownership.

Along with the improvement of legal regulation and management of adult education, among other positive changes that took place during 2016-2021, it is advisable to highlight the following: introduction to the National Classification of Occupations DK 003: 2010 the profession «Andragogue» (2018); implementation of research on the problems of teaching different categories of the adult population, which contributed to the gradual formation of the andragogical research school; opening the first departments of andragogy in the higher education institutions of Ukraine, which are engaged in scientific analysis and theoretical reasoning of innovative technologies and methods of adult education; creation of centres for teachers' andragogical skill development on the basis of higher and postgraduate education institutions; introduction of new educational disciplines into the teacher training programmes, among which — «Andragogy», «Fundamentals of Andragogy», «Corrective Andragogy», etc. In 2020, Ukraine participated for the first time in preparing the fifth UNESCO Global Report on Adult Education.

Organisational and coordination, monitoring and research, scientific and methodical, educational (including training), educational and informational, encyclopaedic, expert, consulting, project, international activities on adult education are carried out by Ivan Ziaziun Institute of Pedagogical and Adult Education of the National Academy of Educational Sciences of Ukraine. In 2016-2021, under the guidance of the Institute's researchers, more than 20 theses on the issues of education of different categories of adults in the national and foreign educational space were defended. The Institute has introduced a unique educational and scientific programme in the field of knowledge «01 Education / Pedagogy» (specialty «011 «Educational, Pedagogical Sciences») on «Pedagogical and Adult Education in Ukraine and Worldwide» for PhD training. The Institute is the founder of the only in Ukraine collection of scientific works «Adult Education: Theory, Experience, Prospects», which is included in the List of Scientific Professional Publications of Ukraine in the field of pedagogical sciences.

*The current state of adult education. Problems of postgraduate education and ways to solve them.* Postgraduate education is an integral part of adult education. It provides continuous professional development of specialists in various fields according to the requirements of state educational policy, the employers and stakeholders' demands, and the educational services consumers' needs. The network of postgraduate education institutions is quite extensive.

In particular, according to article 60 of the Law of Ukraine «On Higher Education» postgraduate education is carried out by postgraduate education institutions or relevant structural units of higher education institutions and research institutions. Article 33 of this law states that the retraining and in-service training departments, institutes of postgraduate education are structural units of the higher education institutions. Teaching and academic staff improve their skills and undergo internships in Ukraine and abroad at least once every five years with the preservation of their average salary. Relevant expenditures for state and communal institutions are financed from the state budget. In some cases, the state budget allocates funds for in-service training in certain educational programmes. In particular, these are the following programmes by codes: 1201060 «In-service Training of Specialists in the Agro-Industrial Complex»; 2201250 «In-service Training of Teaching and Academic Staff, Managers and Specialists of Food, Processing Industry and Agro-Industrial Complex, Medical and Pharmaceutical Personnel»; 2501060 «In-service Training of Social Workers and Other Employees of the Social Protection System», etc.

Since the pre-service training of specialists in the higher education system is a stage of their professional development for almost five years, and the professional activity of specialists lasts for 30-40 years or more, postgraduate education provides an opportunity to acquire new competences considering the dynamics of demand for professionals in certain specialties.

The current trend in postgraduate education development is adopting a human-centred approach that considers the personal and professional needs of the educational process subjects. It contributes to the development of the professionals' ability to work in an innovative environment and master the methods of self-acquisition of competences that are necessary for the training of andragogues for postgraduate education. It supports the introduction of variable models of professional development, expanding their choices and more.

A special mission is performed by the system of in-service teacher training, the activities of which are aimed at the professional development of teaching and academic staff, and leaders of education institutions. The system includes: State Higher Education Institution «University of Educational Management» of the National Academy of Educational Sciences of Ukraine, which incorporates the Central Institute of Postgraduate Education, the Education and Scientific Institute of Management and Psychology, Bila Tserkva Institute of Continuous Professional Education, and 25 regional in-service teacher training institutions, as well as relevant structural units of universities.

The University ensures the continuity of education leaders' professional development at the Master's degree level, and in the in-service training. In addition, the University is the centre of educational and methodical, research, and scientific and methodical activities to define and implement public policy in postgraduate education. It promotes the introduction of ideas of andragogy, acmeology, pedagogical innovation.

During Ukraine's independence, in-service teacher training institutions overcame the Soviet ideological bias and moved to the integral provision of professional development for teachers, and scientific and methodical support of educational reforms. During the reform, the system of in-service training for teaching and academic staff has undergone significant changes. In accordance with the Resolution No. 800 of the Cabinet of Ministers of Ukraine «Procedure for Professional In-service Training of Teaching and Academic Staff» dated August 21, 2019, there were created the preconditions for diversification of the educational services market in postgraduate education and elimination of contradictions between formal (with educational

degrees and qualifications aimed at meeting the state, regional, branch demand, with financing of budgets of the corresponding levels) and *non-formal postgraduate education* (focused on satisfying participants' personal educational inquiries, is more flexible, dynamic, differentiated).

The peculiarities of modern in-service teacher training are the introduction of variable models of the educational process organisation, effective combination of formal, non-formal and informal self-education of adults, the development of international cooperation.

Modern strategic directions of PPE institutions aimed to implement the New Ukrainian School concept (2016). In order to support it, there has been developed the Procedure for Organising Primary School Teachers' Training to Work in the New Ukrainian School; Regulations on Teaching Staff Certification; special training programmes for trainers for primary school teachers and deputy principals of schools.

Since 2021, the main task of in-service teacher training has become improving the teachers' and managers' skills to implement the State Standard of Basic Secondary Education, approved by the Cabinet of Ministers of Ukraine dated September 30, 2020 (No. 898). For appropriate teachers' training following the Order No. 457 of the Ministry of Education and Science of Ukraine dated April 23, 2021, there was developed a Typical Programme of In-Service Training, distance learning courses, created the tools for assessing the results of in-service training on the basis of a competence-based approach and developing transferable skills (soft skills).

*Problems of postgraduate education and ways to solve them.* The system of postgraduate education, in particular in-service training, has not yet fully overcome the outdated approaches to the professional development of specialists in various fields, namely: excessive formalisation, insufficient continuity with higher education, insufficient consideration of students, employers and stakeholders' interests. It led to the lack of impact of the in-service training results on the quality of professional activity, certification and professional career of consumers of this educational service. To solve the problem, it is required to take into account a set of factors such as consistency of the main directions of state policy in postgraduate education, social demand, state, sectoral and regional demand, the stakeholders' requirements, personal requests; bringing learning closer to the needs of practice, focus on a specific result; continuity of professional development of specialists, etc. Another problem is limited access to postgraduate education for consumers of educational services, insufficient level of participants' digital skills for educational process in the conditions of quarantine. The solution to this problem is possible on the basis of inter-sectoral cooperation, in particular with the Ministry of Digital Transformation of Ukraine, involvement of postgraduate education institutions and participants in the educational process to the National Project for the Development of the Ukrainians' Digital Literacy «Diia» («Action»).

Non-formal adult education as a component of lifelong learning promotes the interaction of civil society, NGOs, executive bodies and formal education institutions, as well as the involvement of various social groups (including those who require special attention) and different age groups (from young adults to 60+ people category) who do not intend to get a new degree or a certain qualification.

In 2016-2021, Ukraine paid more attention to solving the problems of social inclusion of certain categories of the population, including the unemployed, temporarily displaced persons, migrants, the elderly and others. A separate category of adults for whom adult learning plays an important role are the unemployed, whose growth is one of the global trends. In this sense, Ukraine is no exception. According to the estimates of the Ukrainian Chamber of Commerce and Industry, the number of unemployed in 2021 was 2.5-2.8 million citizens (13.7-15.4 % of the



population) and is the highest figure for the last 15 years. As a result, *vocational training for the unemployed* is becoming an effective mechanism for solving the problem of unemployment. Training is carried out in higher, vocational pre-tertiary and vocational (vocational and technical) education institutions, in institutions of the State Employment Service, at enterprises, institutions and organisations directly on-the job place by employers. There are 11 centres in the structure of the State Employment Service, where the unemployed of different age and social categories are trained in a wide range of licensed professions and areas. In total, specialists are trained in 95 working professions and 240 special-purpose courses.

In recent years, the number of the unemployed who applied to employment centres for training has grown, and the cost of their training has also increased. In 2021 it is planned to use more than UAH 250 million for this.

*Education of adults with disabilities* is a common world practice. In Ukraine, the number of people with disabilities is growing every year (2.7 million dated for January 1, 2020), almost 80 % of them are young people of working age. Since the 2019- 2020 academic year, inclusive education has been introduced in vocational (vocational and technical), vocational pre-tertiary and higher education institutions, where more than 1.3 thousand students with special educational needs study.

Dated for January 1, 2020, in Ukraine there were 9 vocational rehabilitation centres for people with disabilities (five of state and four of communal form of ownership), in which, along with vocational rehabilitation, vocational training is carried out for a group of professions: computer operator, secretary, hairdresser, beekeeper, etc. The Ministry of Social Policy of Ukraine has signed a Memorandum with the Association «Information Technologies of Ukraine» and the public organisation «Prometheus» on free online training for the profession of IT specialist and further employment of people with disabilities.

*Education and training of the elderly.* In Ukraine, as in many developed countries of the world, the trend of increasing the number of elderly people has been established in recent decades. Today, one in five Ukrainians belongs to the older generation, which has given Ukraine a place in the ranking of the 30 «oldest» countries in the world. According to the national demographic forecast, by 2025, the share of people aged 60 and older will have reached 25 %. Therefore, the 60+ category of people needs a special support.

One of the key areas of the «Strategy of State Policy on Healthy and Active Longevity of the Population until 2022» (2018) is to involve the elderly in educational processes, to expand opportunities to acquire new professional and educational skills, as well as to ensure their active participation in social development, improvement of their life quality, protection of their rights.

In 2016-2019, more than 350 universities of the third age (as a social and pedagogical service) were functioning in the territorial centres of social services of Ukraine, where more than 30 thousand elderly people were trained. More than 50 % of students have secondary education, 47.6 % were with higher education. These figures indicate a high education level of the students who want to learn lifelong. Currently, we are witnessing the consolidation of the efforts of public authorities, public organisations, communities and business structures based on partnership to provide affordable, high-quality educational services.

*Education in penitentiary institutions as a global trend.* The constitutional right to education of citizens in places of imprisonment is provided by general secondary and vocational (vocational and technical) education institutions, which operate at 103 penitentiary institutions



and pre-trial detention centres. Such education contributes to further social adaptation, professional development, psychological stability, prevention of crime recidivism in the country. The legislation stipulates that those convicts who wish to improve their general education level, regardless of age, are provided with conditions for self-education and they are allowed to study in general education institutions of colonies. The convicts who do not have a working profession for which they can be employed in the colony allowed to be trained in vocational training courses.

In the 2019/20 academic year, 918 convicts obtained a complete general secondary education.

The quality of adult education services in *non-formal education* depends to a large extent on educational service providers. In European practice, these functions are mostly entrusted to adult education centres. Currently, a network of such centres as a component of non-formal education is developing in Ukraine. The expediency of their creation is primarily due to the urgent need to expand the scope of educational services for different adult categories. As non-formal education institutions, providers or associations of educational service providers, the adult education centres are centres of citizens' social integration. They help to master new social roles, promote personal and professional growth, as well as community development, strengthening their educational, socio and cultural potential.

In Ukraine, adult education centres are of private and communal forms of ownership, function as legal entities, associations, public associations, charitable organisations, etc.

Today in all regions of Ukraine there are educational centres for different adult categories, cooperating with other educational and cultural institutions for youth, adults and public organisations. The examples of such successful practices are the Centre for Adult Education on the basis of V.I. Vernadsky Taurida National University (Kyiv), the Centre for Lifelong Learning at the Sumy State University (Sumy), the Centre for Adult Education at the Communal Institution «Nikopol City School of Arts No. 1» (Nikopol), etc. The network of rural centres for adult education is expanding (Centre for Adult Education of Halytsyniv United Territorial Community (Mykolaiv region), NGO «Centre for Adult Education of Volokivsk United Territorial Community» (Chernivtsi region), etc.).

Traditionally, public organisations engaged in adult education in Ukraine were the Society «Znannia» (Knowledge) of Ukraine and the Society «Prosvita» (Enlightenment). Today, many other public organisations are active in Ukraine, which, with the support of donors, including the foreign ones, carry out active educational activities among various categories of the adult population.

*Self-education* is becoming widespread as an important component of continuous education and one of the main ways to implement informal learning. It is indisputable that self-education promotes personal and professional growth throughout life by meeting various cultural and educational needs. For self-education is a pronounced personality-oriented process, in today's knowledge society there is an increasing need for professionals with self-educational competence. Such competence embodies the readiness and ability of the individual to continuously carry out effective self-educational activities in the conditions of dynamic changes for social adaptation, professional self-improvement, spiritual development, etc.

Under these conditions, the demand for learning using open educational resources to meet the cultural and educational needs of different adult citizen categories. Among the Ukrainian projects, which are mostly non-profit, the Educational Hub of Kyiv, EdEra, Prometheus, VUM

online, WiseCow have become especially popular. For example, the Educational Hub of Kyiv as a separate division of the Communal Non-Profit Enterprise «Educational Agency of the City of Kyiv» of the Kyiv City State Administration provides free online courses on the educational platform, in particular in international SCORM-format. Their content is aimed at acquiring knowledge and practical skills of the 21st century. The target audience of the Educational Hub, in addition to young people, are active adults from Kyiv, educators, and civil clerks. A special category of adults are members of vulnerable groups. VUM online is one of the most successful distance platforms for civic education, focused on disseminating ideas and promoting the development of civil society in Ukraine through the formation of civic competences in self-education and self-development in non-formal and informal education, implementation of social action projects and more.

Adult education is one of the important activities of modern *libraries*. Currently, the functions of libraries have significantly expanded and, along with the provision of basic services, they become providers of non-formal education, the development of which is facilitated by socio and cultural events, cultural and educational projects, trainings, competitions, workshops aimed at adult education.

An important role in adult education is played by *documents* that reflect its state and development prospects. Such documents are the tools for implementing state regional policy, and their development is carried out taking into account the development strategies of cities, towns and villages, strategic development priorities of the regions. During 2016-2021, thematic subdivisions focused on adult education, postgraduate education appeared in the strategic documents on education development: subprogramme «Training of Specialists, Scientific, Scientific and Pedagogical and Working Personnel, In-Service Training and Retraining of Personnel by Regional Order» (City Comprehensive Target Programme «Education of Kyiv. 2019-2023» (2018), «Postgraduate Pedagogical Education» in the «Programme of Education Development of Lviv region for 2017-2020» (2017), strategic goals «Popularisation and Development of Lifelong Learning» in the «Sumy City Development Strategy 2030» (2019). To such strategic documents related to adult education, it is necessary to add the following city programmes «Adult Education in Nikopol for 2019-2021» (2018), comprehensive city programme «Development of Adult Education in Melitopol, Zaporizhzhia region for 2021-2025» (2021).

*European practice of development of learning cities and regions.* An important current trend is the inclusion of Ukrainian cities in the UNESCO Global Network of Learning Cities. Such cities make efficient use of resources in each of the activity areas, which are aimed at: promoting inclusive education on all levels from basic to higher education; revival of education in the family and the community as a whole; development of vocational training and on-the-job training; expanding the use of modern learning technologies; formation of lifelong learning culture. In Ukraine, the network of learning cities is gradually expanding. Dated for April 2021, Melitopol, Tokmak, Novoiavorivsk, Pavlograd, Nikopol, Sumy, Poltava, and Lviv are members of the UNESCO Global Network of Learning Cities. In 2019, Melitopol won the UNESCO award «Learning Cities», becoming one of the TOP-10 cities in the world that develop lifelong learning.

*Miscalculations and omissions.* Adult education in Ukraine has a number of problems that hinder its development. The National Report «Sustainable Development Goals: Ukraine» (2017) states that implementing the concept of continuous education requires increased participation of the population in educational programmes. Currently, the level of participation of the

population under the age of 70 in formal and non-formal education and training is almost 9 %, which is much lower than in developed countries of the world.

Ukraine still has outdated and inefficient mechanisms for managing and financing adult education, which cause inequality of opportunities for both educational service applicants and providers. Due attention is not paid to the purposeful implementation of state policy and coordination in adult education. There is no state statistics on adult education, which makes it impossible to analyse the dynamics of its development, in particular the number of applicants and providers of adult education. There is no systematic training of teachers working in adult education; there are no mechanisms for their social protection.

Among other factors that cause the imperfection of this system there are: the lack of a combination of linear increase of competences already acquired by an adult, and his/her constant development (updating) taking into account the requirements of the labour market, technical and technological progress; the emergence of a new imbalance due to contradictions in the development of higher education in Ukraine: the growing number of specialists with higher education and the inconsistency of the level of their training with the increased requirements of the labour market; the rapid growth of educational offers (increase in providers, variety of forms, etc.) without taking into account the needs of consumers of these services.

*These and other miscalculations and omissions are the result of the fact that many important issues have been ignored by public authorities and local governments.* These are sources of funding; mechanisms for recognising the results of non-formal and informal education; professionalisation of adult education; statistical information collection system; comprehensive study of the educational needs of different adult categories.

Financial investments are essential to ensure the quality of adult education. In many developed countries of the world, systematic financial support is provided to vulnerable population categories, including indigenous peoples, migrants, people with special needs, residents of rural and remote areas, etc. In Ukraine, information on the financing of adult education is very limited; there is no statistics on its financing.

1. There are no *official statistics* on adult education. There are no competent staff in public authorities and education management at various levels, there are no relevant structural subdivisions, and there is a lack of staff responsible for this area in the bodies and departments of education and science of region, city and district state administrations. These functions are partially performed by methodologists of scientific and methodical and training and methodical centres of vocational education and training in the regions.

2. In recent years, non-formal and informal education, recognition of learning outcomes obtained outside formal education, are factors that motivate to continue learning. The Association Agreement between Ukraine and the EU (2014) and the recommendations of the European Parliament and the Council of the EU (2008) emphasise the importance of creating a European qualifications system for lifelong learning. They acknowledge the European Qualifications Framework and qualifications quality assurance system, which makes it possible to recognise qualifications acquired, in particular, through *non-formal and informal education*.

Mechanisms for recognising non-formal and informal education have not been defined in Ukraine yet. At present, Ukraine pays attention to the problems of recognising the results of non-formal academic education. Relevant provisions are developed and implemented in higher

education institutions, approved by their Academic Councils, and determine the mechanisms for recognising learning outcomes obtained in the context of non-formal and informal education.

3. *Professionalisation of adult education.* Diversification of categories of adults who are actively involved in the adult education system, the growth of the total number of adults aged from 25 to 65 and older who participate in educational programmes of formal and non-formal education, necessitate the creation of a system of professional training of teachers to work with adults. In foreign countries, the priority of such training is given to the system of formal education, in particular its higher level at the Master's degree level.

In 2021, educational programmes for training andragogues in Ukraine are implemented only in three higher education institutions, including Master's Degree (educational and professional) programmes in the specialty «011 Educational, Pedagogical Sciences»: «Adult Education» (since 2017) at Yuriy Fedkovych Chernivtsi National University); «Tutor Technologies», «Fundamentals of Andragogy» (since 2019 at Donbass State Pedagogical University); educational programme «Higher School Pedagogy» (since 2015 at National Pedagogical Dragomanov University, which includes an additional specialisation «Andragogy», and since 2019 Master's degree programme «Andragogy. Adult Education» (specialty «011 Educational, Pedagogical Sciences») with the specialisation «Andragogy» and additional specialisations «Gerogogue», «Coach-mediator in adult education»). The statistical data analysis shows that the admission of students to these educational programmes is not growing. The current situation can be explained by the lack of awareness in modern Ukrainian society on the importance of adult education as a component of lifelong learning, the need to train teachers for adult education, and the lack of awareness of potential learners on the professional self-realisation of andragogues, weak motivation.

4. Among the miscalculations, there is a lack of comprehensive research to study the cultural and educational needs of different categories of adults. Some attempts to study the demand for educational services and create opportunities to meet them are made by various NGOs. But they are focused on partial aspects and do not provide an opportunity to analyse the problem comprehensively.

***Proposals for priority areas of adult education in Ukraine:***

- to provide legislative support for adult education, in particular, to adopt the Law of Ukraine «On Adult Education» and relevant legal documents, as well as to prepare proposals for amendments to existing legislation governing the opportunities for training, retraining, additional educational services, which is a mandatory component of the effectiveness of the adult education system;
- to reason the directions of the state policy in adult education, aimed at bringing it closer to the best European practices; to increase public investment in various forms of adult education, including retraining and in-service training in new professions, to introduce social adaptation educational forms for those citizens who lose their jobs or become functionally illiterate in a market economy;
- to create and implement legislative mechanisms for financing adult education from the state budget of Ukraine and local budgets, to ensure equal access of adult education providers to state funding on a competitive basis;
- to develop strategies for the development of adult education in the regions, taking into account their socio-economic, demographic, national, cultural and other factors and characteristics;

- to strengthen the stakeholders' partnership — representatives of local governments, education institutions, science, culture, social assistance, health care, business environment, public sector, NGOs (national, regional), communal institutions — agencies of city (town) development councils, etc., which will increase the competitiveness of citizens, individual communities and regions, the state as a whole, as well as to expand employment opportunities, professional self-realisation and continuous improvement of personality lifelong in accordance with individual interests and needs of the regional economy;
- to create appropriate conditions for the collection and publication of statistical information on the number of educational activity subjects in the system of adult education;
- to provide economic motivation for employers in various fields of their employees' professional development and to encourage investment in adult education;
- to create a Fund for Adult Education Development Support, the task of which is to promote the implementation of projects in adult education in priority areas; to provide scholarships, grants for training; to support the institutional development of adult education providers;
- to introduce free training programmes for various categories of adults with the use of bonuses and incentives, including scholarships, study vouchers, exemptions from tuition fees, granting paid study leave, etc.



## 12. TEACHING AND ACADEMIC STAFF: PROFESSIONAL TRAINING AND CREATING CONDITIONS FOR EFFECTIVE PERFORMANCE

**Abstract.** In Ukraine, there are 1.3 million educators (by the number of employees, it is the largest humanitarian sphere and the second largest after industry). 0.8 million (60 %) are teaching (pedagogical) and academic (scientific and pedagogical) staff. By education levels, they are distributed as follows: 142 thousand are employed in preschool education, 440 thousand work in general secondary education, 19 thousand provide professional services in out-of-school activities, 34 thousand perform the professional activity in vocational education, 22 thousand — in vocational pre-tertiary education, 135 thousand — in higher education, and 20 thousand work in postgraduate education. Their professional competence and qualification, working conditions, and social status directly impact the quality and prospects for the development of education, and, consequently, society as a whole. Over the years of independence, the qualitative composition of all teaching and academic staff categories has significantly improved. Currently, in preschool education, 67 % (24 % in 1990) of teachers have a Bachelor's or Master's (Specialist's) degree; in primary education, there are more than 86 % (56 % in 1990) of teachers with a Master's (Specialist's) degree; among subject teachers at the general secondary education level — 86-97 % (70-97 % in 1990). In 2015, the list of specialties in the field of knowledge «Education / Pedagogy» for the training of vocational pre-tertiary and higher education students was updated. Training in certain specialty of this field is one of the most popular with Ukrainian entrants. More than 70 % of the country's PhDs and DScs work in higher and vocational pre-tertiary education institutions at their primary place of employment. At the same time, the analysis of staff policy in education over the 30 years of Ukraine's independence, the state of teacher education show that there are unresolved personnel problems in the educational sphere. Given the number of people who study regularly (8.1 million in 2020), and taking into account the experience in developed countries, in Ukraine, there is a formal surplus of teaching and academic staff: the ratio of students and academic staff equals almost ten, which is significantly less, than, for example, on average in the countries of the Organisation for Economic Co-operation and Development. Among the reasons, there are a non-optimal network of education institutions, often their fragmentation and dispersion, and inadequate structural organisation. They complicate solving the problems of professional training and retention of a sufficient number of highly qualified staff, their selection and decent remuneration, and the provision of other social guarantees and working conditions. This, in turn, has a negative impact on the prestige and social status of teaching and academic activities, causes a gender imbalance in education, and inability to avoid the recruitment of low-skilled teachers.

The attempts to overcome personnel problems in education within the framework of sector-specific personnel policy have not led to the expected results, as it is prescribed, in particular, by the Law of Ukraine «On Education» (1991, 1996, 2017), the State National Programme «Education» (Ukraine of the 21st Century) (1993), the National Doctrine for Education Development (2002), and the State Programme «Teacher» (2002). The current Concept of Teacher Education Development (2018) does not consider the need to eliminate serious disparities in the network of education institutions in general, and in the structure and content of teaching and academic staff training in particular. Ultimately, this leads to a persistent deficit of professionally competent educators, their aging, a decrease in young people's interest in teaching and academic careers. Addressing a range of education staffing issues requires further improvement of education legislation and its consistent implementation.

Teaching (pedagogical) and academic (scientific and pedagogical) staff and their training are naturally central to the education sector, as they are called to professionally facilitate education. In addition, their key role in teacher training, and teaching and academic practices determines their foresight essence. So, their modernisation should be proactive (with a vision of a probable future) concerning the development of both education and society to serve as an effective social progress accelerator.

At the turn of the 1980-1990s, Ukraine had a certain system of selection, training, placement, and support of teaching and academic staff. Over the following three decades, this system resulted in generally improved skills of all the categories of educators.

Nowadays, 67 % of preschool teachers (24 % in 1990) have a Bachelor's or Master's (Specialist's) degree; among primary education teachers, there are more than 86 % (56 % in 1990) of those with a Master's (Specialist's) degree; among subject teachers at the general secondary education level — 86-97 % (70-97 % in 1990). More than 70 % of the country's PhDs and DScs work in higher and vocational pre-tertiary education institutions at their primary place of employment. However, over time, the world has become more globalised, changeable, innovative, and competitive, which has led to new challenges. At the same time, to effectively respond to them, a reduction of the demographic burden on the educational sphere of Ukraine and other opportunities has not been fully capitalised on.

About a threefold decrease in the total number of young people who study regularly (from 11.9 million to 8.1 million) over the last 30 years was not accompanied by an adequate reduction in the number of educators, teachers, and academic staff compensated for by improved staff quality. Their total number has decreased disproportionately little, leaving the children/educator, pupils/teacher, and students/academic staff ratio one and a half to two times lower than in many developed countries.

The general ratio of children and preschool teachers (8:1), pupils and secondary school teachers (10:1), students and vocational pre-tertiary and higher education staff (8:1) considerably differs from the norms of developed countries of the Organisation for Economic Co-operation and Development (OECD): in preschool and secondary education, the ratio is 14:1, in higher education, this figure is 16:1. The mentioned situation in Ukraine results in poor educational outcomes, low pupils' performance, in particular according to international surveys and comparisons, and weak university graduates' competitiveness. Moreover, it makes it difficult to solve the problems of quality training of the required number of highly qualified educators, their selection and proper remuneration, and the provision of other social guarantees and working conditions.

Among the reasons for staffing difficulties, we should note the fragmentation and dispersion of the network of institutions of all the education levels and many underfilled education institutions: from kindergartens and schools to vocational schools and universities.

The *qualification level of various categories* of educators has improved over the last 30 years but not always to a satisfactory level (not least due to the need for a large number of staff and a low prestige of the teaching profession). First of all, this is the case with teaching staff holding a Master's (Specialist's) degree. One of the reasons is outdated, inadequate approaches to education staffing. In particular, the key role of highly qualified teachers in early childhood, preschool, and primary education is still underestimated. In 2020, less than 70 % (and in rural areas — 59 %) of preschool teachers held Bachelor's, Master's or Specialist's degrees. There were 86 % (81 % in rural areas) of primary school teachers with a Master's or Specialist's degree (and 220 teachers, mostly in rural areas, had only general secondary education). Among teachers delivering classes in the elements of science, language, literature in basic and field-specific secondary education, there were 97 % of such highly qualified specialists, although 270 teachers had only general secondary education. Among music, fine arts, physical education, defence of the Fatherland (since 2020, defence of Ukraine) teachers, and labour training instructors, the corresponding figure was 86 %, whereas 350 of them obtained only general secondary education (hereinafter we refer to the data of statistical form No. 83 RVK). To put it into perspective, in Finland, which consistently occupies a leading position (ranked 11th in 2020) among 189 countries according to the Human Development Index (HDI), and where its graduates demonstrate some of the best learning outcomes, to be eligible to work as a teacher at education institutions a Master's degree is required. At the same time, symbolically, the concept of Finnish teacher education can be expressed in several keywords: «a teacher is a holder of a Master's degree» and «a teacher is the most prestigious profession».

In 1990-2020, in percentage points, there was a significant gap between urban and rural areas in the number of educators holding a Master's (Specialist's) degree. In the given period, this disparity in preschool education (including a Bachelor's level) slightly reduced (excluding a Bachelor's level from 12 % to 10 %); the same was true for primary school (from 13 % to 9 %).

As for subject teachers (elements of science, languages, literature), the difference in urban and rural teachers' qualifications at schools decreased from 2 % to 1 % but was not completely eliminated. For music, fine arts, physical education, defence of the Fatherland (Ukraine) teachers and labour training instructors, the difference in qualifications also went down during this time (from 15 % to 8 %), but was still significant. At the same time, in 2020, there were 847 (781 in 2015) teachers with only general secondary education employed at general secondary education institutions in Ukraine.

There also was a significant regional difference in the staffing of general secondary education institutions with teachers holding a Master's or Specialist's degree. For primary school teachers, this difference in 1990 and 2020 in percentage terms was 43 % and 21 %, respectively. In 2020, the qualification indicator differed significantly even in such territorially close regions as Ivano-Frankivsk (95 % of teachers were Master's or Specialist's degree holders), Chernivtsi (83 %), and Transcarpathia (74 %).

The fact of the Transcarpathian and Chernivtsi regions falling behind the Ivano-Frankivsk and Chernihiv (93 %) regions as well as the city of Kyiv (92 %) can be explained primarily by the fact that the latter two provide the necessary and sufficient training for primary school teachers with higher education at a Master's (Specialist's) level. In contrast, the former two regions fail to do this. A similar territorial difference due to the availability or absence of the appropriate training was seen among music, fine arts, physical education, defence of the Fatherland (Ukraine)

teachers and labour training instructors. In the Kyiv and Chernihiv region, these figures were 92 %, in the Sumy region— 91 %, whereas in the Chernivtsi region it amounted to 76 %, in the Zhytomyr region— 80 %, in the Transcarpathian region — 82 %. In general, the territorial variations between educational characteristics of this group of educators halved (from 29 % in 1990 to 15 % in 2020) but remained significant.

At the same time, the availability of training for teachers of the elements of science, languages and literature in each region, primarily at traditional and teacher training universities, caused less territorial differences in the share of such teachers with higher education at a Master's level: 4 % in 1990 and 3 % in 2020. However, this category of educators was characterised by different qualifications depending on the taught subject. It ranged from 93 % (computer science teachers) and 95 % (foreign language teachers) to 98 % (history, mathematics, physics, biology, and geography teachers) and 99 % (Ukrainian and Russian language, chemistry teachers).

The mentioned above indicates that graduates of higher education institutions mostly find employment in the regions where they study. It should be considered in forming a network of teacher training institutions and a state order for graduates, especially in the conditions of education management decentralisation. In addition, while graduates' geographical mobility is low, economic migration (outflow to other areas of economic activity), on the contrary, has recently become high. One of the negative consequences is the gradual aging of teaching and academic staff even when jobs are available.

In general, no school subject was 100 % delivered by teachers holding a Master's (Specialist's) degree. In addition, the actual quality of teacher education remains uncertain, as the national system of higher education quality assurance legally provided by the Laws of Ukraine «On Higher Education» (2014) and «On Education» (2017) is not yet fully established and functioning.

After all, the development of teacher training higher education standards based on the competence approach has not been completed; almost two-thirds of the required standards have not yet been approved. As a result, for the most part, the standards that determine the quality of training and their actual implementation are not properly identified in terms of content and are not provided with criteria and procedures.

According to the Unified State Electronic Database on Education, in 2021, more than 5.6 thousand Bachelor's and Master's degree study programmes and their modifications were offered in the field of knowledge «Education / Pedagogy». At the same time, in 2019-2020, the National Agency for Higher Education Quality Assurance decided on accreditation of 227 study programmes, of which 157 (69.2 %) were granted accreditation, 65 (28.6 %) received conditional (postponed) accreditation, 5 (2.2 %) were not accredited, and there were no programmes with the grade «exemplary».

The rapid global development of education in general, and its lowest level in particular, especially education for children of 2 years old and younger, as well as the highest doctoral and postdoctoral levels, the actualisation of priorities for the formation of key (general) and subject (special) human competences have caused a growing need to optimise not only the appropriate profiling of teaching and academic staff but also their methodological, and methodical and technological improvement. Nowadays, it becomes evident that the content of teaching and academic staff's education should include such harmonised basic training components as subject (proficiency in the subject); technological, in particular digital (mastering effective ways of teaching); psychological (ability to interact with pupils, comprehensive and deep understanding of their personalities); culturological (understanding the state and having a vision of trends in civilisation development, in the modern and probable future context of human existence). Preschool and primary education teachers, who deal with children who will have to live and



work in an innovative future environment radically different from the present one, need an exceptionally high level of proactive competence.

Over the period of Ukraine's independence, under the new standards of education, study programmes, and curricula, there has been a significant redistribution of subject teachers at general secondary education institutions. The share of Ukrainian (from 13 % to 15 %), foreign language (from 10 % to 16 %), and computer science (up to 5 %) teachers increased, whereas the number of mathematics (from 15 % to 11 %) and Russian language (from 15 % to 6 %) teachers went down. Among foreign language teachers, the share of those who teach English continues to increase (in 1970 — 51 %, in 1990 — 65 %, in 2020 — 83 %).

In 2020, 37.4 thousand teachers, mostly in rural areas, taught 3 or more subjects. At the same time, the number of educators and facilitators almost halved, which took place in increasing attention to moral, patriotic, civic, environmental, and other aspects of education. Instead, the role of such categories of workers, as practical psychologists, social teachers, assistants in inclusive groups, has grown.

The gender composition of teaching staff has significantly deteriorated. The share of males at general secondary education institutions decreased from 19 % in 1990 (24 % in 1971) to 13 % in 2020. It indicates the growing professional unattractiveness of the educational sphere for them. Such a situation is two to three times worse than at similar education institutions in prosperous countries, including the OECD.

In recent years, the share of educators of retirement age, who are often bearers of outdated experience, has been steadily increasing: their number at general secondary education institutions almost doubled over a relatively short period from 8 % in 1996 to 17 % in 2020. Mass staffing with retirement age professionals does not contribute to the modernisation of pedagogical technologies, in particular with the use of information and telecommunication systems, and the content of school education.

A reduction in the number of pupils associated with a significant decline (almost halving) and only a partial recovery of birth rates (793 thousand children in 1986; 376 thousand in 2001; about 300 thousand — in recent years, excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Lugansk regions) as well as an overall decrease in the country's population were not used to improve the teaching staff qualitative composition according to the above-mentioned characteristics. After all, such a situation necessitates reducing the required number of teachers.

Teacher staffing problems have not been solved despite shrinking the network of vocational (vocational and technical) education institutions over the last 30 years from 1246 to 711 (or 43 %) and multiple reductions in the number of pupils. There is a shortage of Senior Masters and Masters of Vocational Training, teachers of vocational and general subjects. A small number of institutions leaders and vocational subject teachers have a vocational (vocational and technical) qualification.

A complex problem is a professional orientation and an acceptance rate in teacher training specialties. Given the extensive growth of the national higher education, some teacher training institutions competing for students accept almost everyone who has a legal right to enter a higher education institution.

Some of the leading teacher training higher education institutions have also refocused on the traditional university model, even in the absence of a national or regional need for it. The tendency to transform successful teacher training institutions into mediocre traditional universities has been established. Such institutions are increasingly oriented to the general multi-



vector training of specialists for various needs of the economy, without qualified personnel, scientific schools, facilities and other professional infrastructure, traditions and experience. Such «universalisation» teacher training institutions has led to a decrease in the number of psychological and pedagogical disciplines, pedagogical internships, a reduction in the scientific potential of pedagogy departments, etc.

At the same time, the scale and stability of the labour market for teachers due to the strengthening of the role of education in modern society will determine the persistent demand for teachers, and hence the need for high-quality specialised teacher training universities.

Particular attention should be paid to teaching and academic staff of vocational pre-tertiary (formerly, institutions of accreditation levels 1 and 2) and higher (institutions of accreditation levels 3 and 4) education institutions. At the beginning of the 2020/21 academic year, 22.1 thousand (in 2015/16 — 28.7 thousand) teaching and academic staff worked at vocational pre-tertiary institutions. There were 19.7 thousand (89 %) teaching and 2.4 thousand (11 %) academic staff. At higher education institutions, there were 134.7 thousand (134.2 thousand in the 2015/16 academic year) teaching and academic staff. Of these, 23.6 thousand (18 %) were teaching professionals, and 111.1 thousand (82 %) were comprised of academic staff.

Among vocational pre-tertiary institutions teachers, there are 1.6 thousand (7.8 %) (1.1 thousand or 3.9 % in the 2015/16 academic year) Candidates of Sciences or PhDs, and 68 or 0.2 % (121 or 0.5 %, five years ago) Doctors of Sciences, as well as 654 (3.0 %) Associate Professors and 72 (0.3 %) Professors. The qualitative composition of higher education institutions staff is the following: 45 % of Candidates of Sciences or PhDs, 12.4 % of Doctors of Sciences, 31.0 % of Associate Professors and 9.5 % of Professors.

Further professional development potential of vocational pre-tertiary and higher education institutions professionals is small, albeit possible. After all, more than 70 % of Candidates of Sciences (PhDs) and Doctors of Sciences already have these institutions as their primary place of employment. There is a significant interregional and especially interdepartmental discrepancy in the quality of academic staff in terms of vocational pre-tertiary and higher education institutions staffing with Candidates of Sciences (PhD), Doctors of Sciences, Associate Professors and Professors.

The main forms of highly qualified academic staff training are PhD and DSc studies. However, there are quantitative (the number of students) and qualitative (efficiency) problems. In Ukraine in 2020, 25.7 thousand PhD students (29.4 thousand in 2010) studied in 408 PhD studies (530 in 2010), the majority of them (91 %, in 2010 — 85 %) — at higher education institutions. PhD students made up 2.2 % of all the categories of higher education students, which was significantly less than in developed countries.

According to the latest data, in 2019, there were 253 DSc studies (283 in 2015) with 1.1 thousand DSc students (1.8 thousand in 2015). In particular, at higher education institutions, these figures were 168 (66 %) and 0.9 thousand (84 %) respectively. A significant reduction in the number of DSc students is associated with a reduction in the duration of their training from 3 to 2 years. Compared to the number of such students in developed countries, there is a small quantity of them in Ukraine.

As for PhD and DSc studies in the higher education sector, the problem is that they often function at institutions where there are no research organisations, relevant research laboratories and centres with the necessary equipment. For example, in 2019, there were 133 research organisations (research units, sectors, etc.) functioning at 281 higher education institutions as compared to 226 (234 in 2015) PhD and 168 DSc study programmes.

The levels of managerial competence and qualifications of 33 thousand education institutions' leaders are crucial for the effective functioning of the education sector. To provide high-quality training for education system leaders, it is necessary to make greater use of opportunities for international cooperation, in particular under the European Union programmes, as well as subordinated institutions of the National Academy of Educational Sciences of Ukraine, in particular, State Higher Education Institution «University of Educational Management», on the basis of which a consortium was established encompassing 24 in-service teacher training institutions.

Salary levels cause systemic problems in education staffing. Despite occasional measures to increase educators' remuneration, it still lags significantly behind the average one in the economy (in 2020, it was 80 %) and in the country's industry (73 %). Out of the 26 types and subtypes of economic activity, the State Statistics Service of Ukraine provides data on the average salary, education in 2020 was ranked 19th.

In 2014, the salary level in education was 79 % of the average one in the economy (in 1990 — 72 %) and 69 % of the average level in the industry (in 1990 — 63 %). It does not comply with the legislation on education. In 1965, the average salary in education for the last time exceeded the average level for the national economy, ensuring the country's scientific and technological progress. Since then, there has been a tendency for salary levels in education to lag systematically.

The requirement for a further relative increase in education funding to raise educators' salaries does not solve the problem. After all, relatively much is spent on education in Ukraine. In 2020 it was as much as 6.5 % of GDP and was comparable with the world's best practices. Therefore, the resources of the state and society are essentially exhausted. The way out is in the rational use of funds, first of all in streamlining the network of education institutions and structural optimisation of the educational sphere, which will require fewer, but better-trained personnel.

In educators' training, it is necessary to restructure many higher and vocational pre-tertiary education institutions, aiming to provide all educational levels with teachers with quality higher education at a Master's (Specialist's) level. The autonomous primary school teacher training institutions should be kept (for a certain period) where it is currently impossible to do without them — in rural areas. On the other hand, such institutions are hardly needed in large cities, like Zaporizhzhia, Odesa, and Kharkiv. In addition, a Bachelor's degree can be temporarily considered an eligibility criterion for out-of-school education and educational work.

It is also essential to introduce promising models of teacher training used in the world's practice, namely:

- integrated Master's degree (formerly, Specialist's) with an early pedagogical specialisation (at teacher training universities, academies, institutes) and a thorough inclusive pedagogical internship during the learning process;
- two-cycle Bachelor's — Master's degree with a later pedagogical specialisation (at traditional universities) with the introduction of a pedagogical internship.

It is vital to have both models as complementary. Each has its advantages: the first one is effective in the case of integrated teacher training (for preschool, primary education), the second one is useful for teaching certain subjects and disciplines, especially in field-specific secondary education.

The development of educational and professional standards and qualifications on competence-based approach in the field of knowledge «Education / Pedagogy» should be completed; the educational process should be modernised based on learning through research,

expanding educational autonomy, and strengthening practical training at Bachelor's and Master's levels.

It is also necessary to ensure the flexibility and integration of study programmes and disciplines (training courses) of continuous teacher training (pre-service and in-service teacher training) by modulating and crediting, accreditation and certification, codification by education levels and fields of knowledge, specialties, and specialisations. After all, the teacher training system itself should be based on integrity, continuity, individual differentiation, and integrated coherence.

Timely professional training should be provided to all teaching and academic staff, including leaders, in particular, at vocational, vocational pre-tertiary, and higher education institutions. For professional development, we should make the most of the research and educational potential of the National Academy of Educational Sciences of Ukraine, its subordinated institutions, State Higher Education Institution «University of Educational Management», including the experience of the Institute of Higher Education of NAES of Ukraine in education leaders training and the achievements of Ivan Ziaziun Institute of Pedagogical and Adult Education of NAES of Ukraine in the development of a network of counselling centres.

To improve the training of academic staff with the highest qualification, the network of PhD and DSc studies should be reviewed, keeping and expanding them at higher education and research institutions with the appropriate conditions, recognised scientific and pedagogical schools, a developed infrastructure, well-established international cooperation, and carrying out significant and impactful research and innovative activities.

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## 13. PSYCHOLOGICAL SUPPORT FOR THE EDUCATION SYSTEM AS THE FACTOR OF PERSONAL AND SOCIAL DEVELOPMENT

**Abstract.** After achieving the state's independence, the basic and applied psychological science has been comprehensively developed in Ukraine to help solve various educational problems through psychological support in the form of diagnostic, corrective, counselling, and educational influences. In particular, the scientific attention focuses on the resources ensuring an individual's mental development during learning and full use of psychological science achievements in educational practice. Regularities (patterns) of mental development during educational activities are a key factor and basis for constructing the educational process. Individual's ability to independently determine their educational and developmental goals, focus on their interests and needs, build appropriate learning paths and educational space, take responsibility for their education has become more critical. Self-realisation and self-fulfilment in various activities and an individual's desire to unlock as much as possible their creative potential is significant trend in educational space development.

Currently, education in Ukraine is being exercised in psychologically difficult conditions such as accelerated social restructuring and intensified threats for security because of the hybrid war and the COVID-19 pandemic. It brings to the social forefront the issue of an individuals' psychological security as a necessity of preserving their adaptive capabilities to renew and increase life efforts during radical social transformations. The psychological support for learning should be strengthened because of such social changes as accelerated innovations of the national educational system, its increased openness to the global world, so that the national educational system has become the most important subsystem reproducing human potential in the 21st century.

Today, researchers from G.S. Kostiuk Institute of Psychology, Institute for Social and Political Psychology, Mykola Yarmachenko Institute of Special Pedagogy and Psychology, and Ukrainian Scientific and Methodical Centre for Practical Psychology and Social Work of NAES of Ukraine focus on implementing essential tasks facing Ukrainian education, providing systematic scientific and methodical support for practical psychologists and psychological services within the education system and all the educational process participants.

*The purpose of psychological support.* During all years of Ukraine's independence, psychological science has been searching for solutions to current educational problems of society through dedicated psychological support, carried out in the form of diagnostic, corrective, counselling, and educational influences.

Psychological support in the educational sphere aims to promote effective learning with means developed by the psychological science and practice and help increase educational space

participants' psychological culture and competence. Currently, emphasis has been shifted significantly toward increased attention to the resources supporting an individual's mental development during learning, and the need for full use of psychological science achievements in education has been highlighted.

Regularities (patterns) of an individual's mental development via education are a key factor and the base for constructing the educational process. Society needs individuals who can independently determine their educational and developmental goals, focus on their interests and needs, build appropriate learning paths and educational space, and take responsibility for their learning. Self-realisation and self-fulfilment during various activities, an individual's desire to unlock as much as possible their creative potential becomes an essential trend in educational space development. Such an approach ensures an individual's successful adaptation to social transformations, labour market conditions, civilisational and cultural changes.

Important tasks facing education in modern conditions can be achieved via consistent humanisation of the educational space, which includes:

- personal orientation of education, i.e., its goals, content, forms, and methods, should focus on a learner's personality, motivation, and harmonisation of their development. Moreover, a learner should be capable of self-development, self-determination, conscious behaviour, and their inner world is seen as unique and inimitable. It is crucial to take into account the objective laws of mental and personal development; to provide each age period with conditions maintaining and strengthening somatic and psychological health; to use a certain age-specific sensitivity for developmental purposes properly;
- democratisation of the education system, which means, first of all, relationships built between a learner (a pupil, a student) and a teacher (a lecturer) based on mutual respect, recognition of the right to one's own opinion, creative cooperation; introduction of democratic principles in the education institution management;
- promoted self-determination of an individual in the national and worldwide culture.

These requirements are applied to all levels of education.

Practical implementation of these main approaches to humanise education requires constant psychological support for relevant tasks put forward at the stage when educational goals and ways to achieve them are determined, and during the educational process.

*Analysis of key issues.* The main problems of psychological support for education are currently related to a set of factors centred around the current social challenges, such as the following:

1. The urgent need to change the educational process organisation due to the COVID-19 pandemic; suspension for visits to education institutions, transition to «home schooling», creation of a virtual educational space with related communications, a rapid transition to distance learning.

Before the beginning of 2020, distance learning was developed along with the improvements of informative and communicative technologies, such distance learning was formed gradually by taking into account the relevant research. However, the pandemic and quarantine caused a huge gap in this gradual process and evoked the educational crisis. Many teachers, learners, parents, and educators did not fully understand that distance learning needs informational and technological (for example, various platforms, such as Zoom, Google Meet, Moodle, etc.), and also psychological and pedagogical support.

Distance learning restructures the psychological structure of all educational subsystems: learners, teachers, their interactions, etc. The psychological and pedagogical aspects of teaching



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and academic staff activity are being changed significantly: the content, methods, forms, psychological mechanisms of learning are transformed.

The primary task of psychological support is to cover the whole range of psychological aspects of a learning organisation, including lessons, personal space, time, path, forms of pedagogical interaction (learner-teacher, learner-learner, parents-children, teacher-group, etc.) under conditions of distancing.

2. The technical support problems for distance and online learning, significant qualitative and quantitative differences of the informational field in different regions threaten to destroy the principle of equality in education.

Psychological support in this context is aimed at balancing, compensating for informational deficits, identifying an individual's adaptive resources and establishing the degree of their dependence on educational influences, helping apply a personal potential to an educational process, developing learners' abilities to self-determination, self-realisation, and self-fulfilment, build their learning paths, individual progress in the educational space, personal educational reality, create a personal sustainable educational style, an unique way to master various competences.

3. The emergence of new technologies for the virtual educational space, opportunities for rapid acquisition, verification, correction of information from around the world, the changes in the ways of knowledge obtaining due to the appearance of a large number of available and diverse information sources, recipients' attitudes to these sources and translator, interactions in the systems of teacher-learner, learner-parents.

In this case, psychological support means psychological analysis of new interactive forms used by learners and teachers, given the need to build a dialogue and establish communication with learners who are already accustomed to independent searches. Teachers are forced to select the educational content more carefully; they should also make significant efforts to present information, organise joint educational activities, and introduce new forms of educational interaction. Various audio and video tools, multimedia products, animation, e-learning courses, presentations, active models, and simulators are beginning to compete with the traditional lessons using textbooks actively. Different electronic, online tools, testing, and diagnostic programmes are successfully used during the control, verification, and evaluation of learning outcomes. Online learning can attract more participants compared to traditional classes, it enhances the effects of joint learning space, jointly fulfilled activities, encourages participants to work together, in a team, forms participants' subjectivity so that participants should master personal separate actions in the overall structure of educational activities.

4. The concepts of «continuous education», «lifelong education», and understanding of the core importance of education for human existence have been enrooted into the modern educational discourse.

Psychological support for education has the task to form the academic meanings and values and form an individual as a subject during learning. Learning is the basis of successful purposeful activities throughout life; psychological efforts should support the educational space participants of all ages.

5. The modern contradictory reality, full of unpredictable changes, puts forward new complex requirements to teachers; if teachers' personal resources are blocked (by environmental factors also) such teachers become inconsistent with requirements, their experiences are felt as unfavourable, leading to worsening of their health. Due to the high emotional tension of teaching work, heavy workload, professional burnout, teachers, as a professional group, have poor health, which deteriorates even more if service at school lasts for long years. Teachers' low

social and financial status, the general trend towards «aging» and feminisation of school, and instability, numerous stressful events in modern society aggravate teachers' fatigue and internal discomfort. However, the issue of teachers' occupational health is often left behind proper attention. Meanwhile, teachers' psychological distress develops an atmosphere of psychological and emotional discomfort at school, so learners' neurotic and psychosomatic manifestations also grow.

6. Crisis, traumatic phenomena in society negatively influence on the worldview of its citizens; they perceive the environment as extremely unstable and dangerous. Psychological and emotional, personal, somatic consequences of such influence are extremely strong in modern Ukrainian society.

In response to these challenges, a new direction has been added to psychological and pedagogical research projects of a high priority implemented by the National Academy of Educational Sciences of Ukraine — «The Psychology of National Security and Life Safety».

The researchers state that the country's current social, cultural, political, and economic crises, because of the continuing hostilities in the east, the COVID-19 pandemic, and the lack of measures to overcome them, affect all spheres of society, in particular, education. Thus, the key problems of the educational environment in the context of psychological support are: insufficient psychological and educational measures proposed for teachers, children, adolescents and their parents to deal with excessive stress, its manifestations in children and adults and to overcome anxiety, symptoms of post-traumatic stress disorder; the lack of appropriate effective measures that prevent psychological traumas, harmful post-stress conditions and maintain educational participants' mental health; shortage in educational programmes, special courses forming children's and adolescents' skills of mental hygiene; the lack of developed programmes, methodical recommendations that can be used as psychological support of educators, children, and adolescents in school, and the absence of a proper algorithm of their application.

7. Psychological examination is an essential component of educational support along with psychological prevention, correction, counselling, and psychological education. In the field of education, psychological examination help teachers understand a child's individuality, the peculiarities of age development, children's inherent interests and aptitudes and help monitor the dynamics of their development. In general, educational efficiency cannot be improved without proper information revealed via psychological examination.

The current practice of psychological examination has accumulated many questions about the quality of used methods, namely: which methods provide reliable information about certain psychological phenomena; what the psychological examining power of traditional and innovative methods is, how they should be used nowadays; the validity of used scientific interpretative approaches and obtained empirical indicators; the specifics of examining and consulting work with modern children, etc. At the same time, the problem of valid age norms and child development criteria is especially acute in the modern informational society.

In Ukraine, the task of psychological examinations is even more difficult because of the subordination of school psychologists to educational management; the ban on testing children without their parents' permission; absence of real plans for wide-scale examinations; inconsistency of psychologists' remuneration in education institutions with the complexity of their tasks; insufficient number of psychologists in education institutions.

***The priority directions and prospects of psychological support for education development.*** Considering the first reform years of the New Ukrainian School concept, and the need for rapid organisational changes in education, many empirical studies have been started based on new theoretical achievements to solve current social challenges. Additional attention should be

paid to psychological phenomenology that allows describing a personality's characteristics in educational realities when educational pseudo-values are being gradually devalued, and the values of cognition and self-realisation, self-actualisation in education and life are being affirmed instead.

Psychological science has received a historic chance to carry out research, empirical studies on personality psychology during rapid, radical changes in the educational space.

The ideas about the nature, content, and mechanisms of relations between mental development and learning have been changed significantly in modern pedagogical psychology. Successful psychological support for educational practice demands the organisation of longitudinal research projects with regular psychological examinations of modern children's mental processes in different regions of the country to clarify periods and criteria of mental development.

The humanistic, subject-subject paradigm of education, creating a safe educational environment, constructive interactions between participants in the educational process actualise the study on the psychology of interactions between participants, related phenomena and interactive forms — both constructive and destructive — to practically prevent destructive interactions. The problematic nature of interactions in all subsystems (teacher-learner, learner-learner, etc.) is a serious obstacle to full-fledged personal development and academic success. An efficient means, a resource preventing negative phenomena of interactions is psychological support aimed at joint educational, pedagogical activities, helping organise such activities, individual and group work in the educational process, and optimising executive and managerial actions in education. Engaging in interactions during various activities in different communities is a child's key skill in today's world.

All negative social trends appearing because of destructive interactions are reflected in education as an integral part of society. These negative trends are aggravated by increased external pressure on learners associated with their academic success. Behaviour, communicative styles, and learners' interactions with adults are becoming more relaxed, independent, provocative; learners seek to communicate with teachers from equal positions, so teachers need profound knowledge and skills of efficient interaction. Destructive interactions in education mean subject-subject contradictions appeared in professional and interpersonal relations of participants in the educational process. A negative emotional background characterises such interactions; they negatively influence the educational process and personality development during learning; therefore, academic results are inadequate, defective, or absent.

The performed psychological studies have confirmed that this problem requires attention, because the situation in the educational field largely determines further personality development. If pupils learn, accept such behavioural patterns as «an initiator of aggression», «a victim», «an outside observer», they continue to follow them throughout all life. Thanks to psychological support, significant steps have been taken to organise a socially safe educational space, to make interactions human in all education segments. In addition, the way to a legal solution for this problem has been outlined. The Law of Ukraine «On Amendments to Certain Legislative Acts of Ukraine on Combating Bullying (Harassment)» (2018) was adopted. At the same time, the Law of Ukraine «On Education» was supplemented with clauses on bullying, and the articles defining the rights and responsibilities of people involved in the educational process were amended accordingly.

The problems of psychological support for distance learning need special attention. During transfer to distance and/or blended learning, it is worth focusing on the distance learning advantages, for example, an individual approach as for learning content and time, independent

choice of the study period, in-depth learning in blended learning, but not on problems (the lack of «live» communications, inability for a teacher to work «face to face», the lack of instant feedback for learners' work, etc.).

The research projects implemented by researchers from G.S. Kostiuk Institute of Psychology of NAES of Ukraine focus on the theoretical analysis and experimental confirmation of main psychological factors influencing effective distance learning. These factors include appropriate digital competence, learners-teacher cooperation with various levels of learners' independence; learners' and teachers' motivation and interests; high-quality educational content, taking into account learners' needs; and the understanding the causes of their psychological comfort or discomfort. Courses can be either asynchronous or synchronous, allowing joint learning and specially designed interaction in small groups, applying media to manage learning and achieve other psychological and pedagogical goals. It is not about lesson videotaping by brilliant teachers but about designing and creating an interactive psychologically sound distance learning system.

In order to eliminate the negative critical, traumatic phenomena in society in general and in education in particular, it is necessary to introduce special programmes of psychological education for participants in the educational process (teachers, parents, children and adolescents) about:

- factors of excessive stress, its manifestations in children and adults, ways to overcome anxiety, symptoms of post-traumatic stress disorder;
- introduction of permanent measures of psychological prophylaxis against negative consequences of excessive or chronic stress factors in education: introduction into education of special anti-stress exercises, platforms for psychological and emotional relieve, opportunities for proper physical activities during breaks; specialised psychological care for children with distress;
- introduction of special school programmes and courses aimed at maintaining participants' mental and emotional health, which should focus on psychological prophylaxis and overcome negative consequences of excessive/chronic stress;
- development of methodical recommendations and practical manuals for specialists supporting psychologically educators, children and adolescents in the educational environment and their introduction into the educational process.

Research institutions of the National Academy of Educational Sciences of Ukraine of psychological profile perform the relevant activities.

Ukrainian researchers' recommendations on psychological support for education institutions that address security issues are developed on evidence-based methods and long-term monitoring studies on trends, dynamics of social changes and their social-psychological determinants, levels of social tension and public confidence in various social institutions, features of civic self-determination and a psychological and emotional climate in education institutions at the temporarily occupied territories in the Donetsk and Luhansk regions. The monitoring of the educational and information space at the Russia-occupied territories, conducted by the Institute for Social and Political Psychology of NAES Ukraine in 2017-2020, showed a significant share of ideological news messages aimed at forming a specific social anti-Ukrainian identity in children, adolescents, and young people, focused on the artificial confrontation of two conditional social groups: population living at the Russia-occupied Ukrainian territory and that living at the rest of Ukraine. These results provide grounds for a re-integrative strategy applied to the education system at the occupied territories after their liberation; they necessitate further monitoring of this information space, and reason psychological measures for media-informative rehabilitation of young people.

The analysed dynamics of large-group political and legal consciousness have allowed researchers to propose the concept of how to prevent and counteract negative psychological phenomena in the political and legal sphere related to the armed confrontation at the country east. The Institute's researchers have also developed a concept of injured people's socio-psychological rehabilitation, methods increasing their emotional resilience and restoring psychological hardiness resources; the content of training specialists in evidence-based and effective interventions is updated; the researchers proposed an education system for the general public, and practical recommendations for psychological assistance to overcome difficult social situations of hybrid war, forced migration, social and economic transformations of our transitional society.

In 2019, the State Award of Ukraine in science and technologies was awarded to the complex scientific work «Life and Psychological Security during Social Change», which reflected the main research results conducted at the Institute for Social and Political Psychology of NAES of Ukraine during 2000-2017.

As mentioned above, an important psychological factor in educational processes is conditions supporting teachers' mental health. G.S. Kostiuk Institute of Psychology of NAES of Ukraine proposed an integrative model revealing psychological support of teachers' professional health; such support should be aimed at reflecting and revising irrational attitudes and beliefs about pupils and inadequate forms of thinking, correcting teachers' behaviour, including their communicative styles, and developing their self-regulation and professionally acceptable behaviour, constructive individual styles of pedagogical interactions.

Psychological support for teachers should also be aimed at recognising the value and uniqueness of their personality, their right to freedom and to be respected, creating a safe atmosphere where they can express their feelings freely, acquire new experiences, understand their vocation, and find corresponding meanings, have freedom of choice and feel existential fulfilment. In-depth understanding of teachers as personalities and professionals, attention to them from the psychological science, and promotion of their professional health via necessary psychological support are closely interrelated with the humanised informational dialogues and creative educational environment.

To eliminate difficulties in the psychological examination of educational participants, it is advisable:

- to organise research on modern children's psychological features. In particular, large-scale examinations can reveal children's depressed states, decreased social adaptability, and propensity to deviant behaviour. Particular attention should be paid to the psychological aspects of their ability to distance learning;
- to withdraw the psychological service from the school administration subordination;
- to abolish the rule on parents' obligatory consent with the psychological examination of their children (it should be noted that school testing is mandatory in many Western countries and parents' refusal to test their children is not allowed). At the same time, a fundamentally important point should be emphasised: psychological examination cannot be discriminatory, violate individual rights, be used for dropout of children (during enrolment to school) or selection (during grouping);
- to organise actively examining studies based on modern neurobiotechnologies, to minimise a psychologist's subjectivity and to read respondents' subconscious reactions to audiovisual stimuli, in particular using a neurointerface — a device that connects the brain directly to the computer;



- to finance the development of modern high-quality psychological examining tools (to purchase necessary tests, translate, adapt and test them, etc.) and to use experts' intellectual potential during this work; to create centres (in particular, at G.S. Kostiuk Institute of Psychology of NAES of Ukraine), where psychologists will be able to receive for temporary use high-quality, certified examining materials and acquire practical skills in their use;
- to monitor how education institutions are staffed with psychologists, social pedagogues and to develop measures to improve the staffing situation; in particular, to increase the number of psychologists at schools and significantly increase their salary. In light of modern challenges (the rapid increase of psychological problems in children of all ages, the need to quickly overcome the negative psychological consequences of the pandemic, and digitalisation), this task obtains priority.

Psychological support for education mainly focuses on problem prevention, relieving education participants from suffering, traumas, other psychological dangers, mental or behavioural disorders, and negative consequences of adverse situations. In general, the development of psychological examining technologies and methods, and overcoming various educational problems are sufficient. At the same time, further psychological studies are needed for education to become more open and to transform it into an effective environment for human capital reproduction. These studies should be aimed at social forecasting and modelling the country's future, research on the psychology of human interactions with technological innovations (robots, artificial intelligence, etc.), networks of economic growth, information and digital transformations of public life, group psychological processes, and trajectories of personal development.

The considered directions of psychological support for educational processes should be used when educational content is developed with taking into account the modern social-cultural context and to preserve people's mental health; to form a personality who, in addition to programme knowledge and skills, is aware of the mental health value, identifies stressors and recognises signs of their impact on psychological, emotional or physical condition, can use psychological prophylaxis and overcome the harmful effects of excessive stress. It will enrich an individual's cognitive sphere, and develop their ability to independently responsible actions in the changing social conditions.

*Psychological service in education system reforming.* In 1991, a psychological service was organised in Ukrainian education. Its establishment and development over 30 years are one of the most successful educational reforms and the most significant contribution of national psychological science to pedagogical practice. The psychological service implements into educational practice the principles of humanism and child-centredness, individual and personal approaches to each learner, protects their physical, mental, and social health, and enhances the psychological culture of society as a whole.

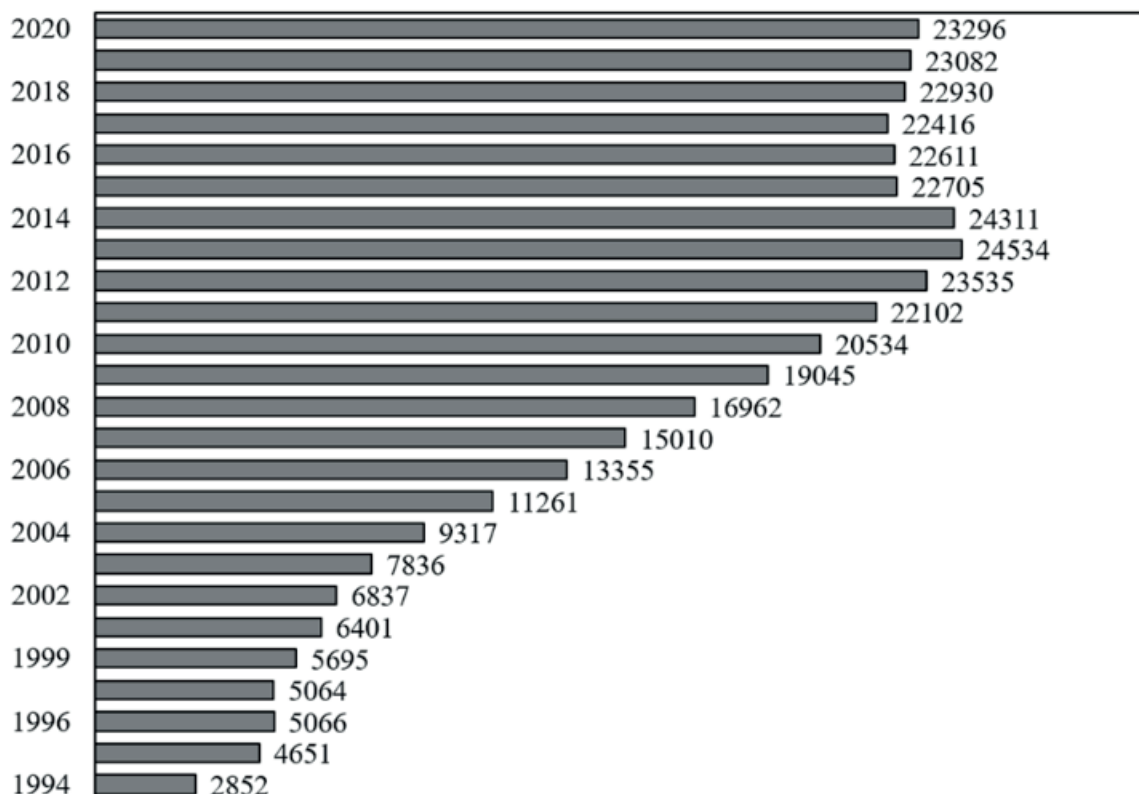
According to the Regulations on Psychological Service in the Education System of Ukraine, the relevant work is carried out by practical psychologists, social educators, methodologists, and directors (leaders) of educational and methodical offices/centres/laboratories. Psychological service employees are responsible for psychological assistance and socio-pedagogical support for all participants in the educational process in education institutions of all types and forms of ownership.

Since 1991, psychological service offices/centres/laboratories have been established in regional teacher-training universities, and positions of a methodologist-psychologist were introduced in regional/city methodical offices. A new subdivision has been organised at the Institute of Psychology — the Centre for Psychological Service, which provides organisational

and methodical guidance for psychological service organisation and development. The methodical structure of the psychological service was mainly established before 1994.

To improve the methodical guidance of the psychological service for the education system, a joint Order of the Ministry of Education and Science and the National Academy of Educational Sciences of Ukraine founded in 1998 the Ukrainian Scientific and Methodical Centre for Practical Psychology and Social Work. The Centre's researchers propose scientific and methodical support for psychological service specialists, psychological, medical, and pedagogical consultative centres and resources centres of inclusive education to improve their professional level. The latest developments of the Centre include the Strategy for Psychological Services Development in the Decentralised Educational Environment; the methodology for the organisation of civil society centres in education institutions based on decentralisation; the models of management and scientific-methodical support proposed by the psychological services at the levels of «education institution — territorial community», «territorial community — district», «district — region»; the social-psychological training programme of «Taking Care of Yourself»; the programme of distance learning for teaching staff «Methodical Support for the Educational Activity of Teaching Staff in Inclusive Education», etc. By 2021, the researchers prepared 12 innovative psychological and pedagogical developments.

Over the years, the number of psychological service employees increased from 2.9 thousand in 1994 to 23.3 thousand in 2020, which indicates the increased authority of these employees and understanding of the importance of their work by all educational participants and, especially, by education managers (see Fig. 13.1).



*Fig. 13.1. Dynamics of the number of psychological service employees (at the beginning of the year)*

Today, the psychological service is an extensive structure of educational-methodical centres/laboratories, including methodologists, practical psychologists, and social educators working with education institutions of all types from preschool to higher education.

According to the Ministry of Education and Science of Ukraine, in the 2020/21 academic year, the number of psychological service specialists was 23.7 thousand people; of whom 15.6 thousand were practical psychologists, 7.3 thousand were social educators and 873 people were methodologists. In the 2018/19 academic year, education institutions were staffed with practical psychologists only to 62.3 % of the actual need, social educators to 48.8 %. The average job vacancy occupation for psychological service was only 57.3 %.

The best staffed are the following types of education institutions: special education institutions, education institutions located in large cities, education institutions with the status of a gymnasium or lyceum, private and experimental education institutions. Traditionally, staffing is problematic for education institutions located in rural/mountainous areas, institutions with a small number of learners, out-of-school, vocational, vocational pre-tertiary, and higher education institutions.

It is worth noting that the psychological service today influences significantly on the educational sphere and, thus, ensures the implementation of educational reforms, promptly responds to social problems that arise in society in general, and in education in particular.

In the 2019/20 academic year, more than 5.7 million educational participants were covered by various types of psychological and socio-pedagogical examinations; almost 1.4 million people passed individual forms of examinations, namely: about 1.1 million learners, more than 114 thousand educators, and nearly 168 thousand parents; about 4.5 million people passed group forms, namely: more than 3.5 million learners, more than 425 thousand teachers, more than 500 thousand parents.

An important area of service employees' work is the prevention of negative developmental trends in a learner's personality and educational teams. Particular attention is paid to academic failure prevention, prevention of bad habits, and various addictions. In the 2019/20 academic year, individual preventive work was conducted with 500 thousand learners, almost 100 thousand teachers, and about 140 thousand parents or other legal representatives; group work was organised for more than 2 million learners, more than 300 thousand teachers, and more than 500 thousand parents.

Recently, much attention has been paid to preventing such negative phenomena as mobbing, bullying, and various types of violence in the educational environment. Practical psychologists and social educators received almost 69 thousand inquiries from educational participants to combat domestic violence during the last academic year. In particular, nearly 17 thousand appeals were received from parents, more than 18 thousand from teaching staff, more than 29 thousand from children, and more than 4 thousand from other stakeholders. Almost 97 thousand appeals were received in education institutions regarding the fight against bullying, in particular, more than 31 thousand appeals were from parents, more than 28 thousand ones were from teachers, children gave almost 30 thousand appeals and 7.5 thousand appeals were obtained from other stakeholders. All appeals received a proper response and were grounds for professional intervention.

Psychological service employees apply modern methods and technologies of social and psychological correction for learners' development, paying special attention to deviant and delinquent behaviour prevention. Individual correctional work covered more than 340 thousand learners, almost 24 thousand teachers, and about 28 thousand parents and other legal

representatives of learners; group work was organised for more than 1.2 million learners, more than 52 thousand teachers, and almost 98 thousand parents.

Psychological and socio-pedagogical counselling in today's conditions remains a priority for professionals. Individual and group forms of counselling covered about 5 million educational participants, of whom 2.7 million people attended the group counselling, 1.9 million people did it individually.

The aim of psychological education for all participants in the educational process is to form or improve psychological culture, to disseminate scientific psychological knowledge. This work covered more than 3 million learners, more than 700 thousand teachers, and almost 2 million parents.

At the same time, despite a large amount of work done, the issue of its quality improvement becomes even more acute. Thus, the psychological service can effectively implement important educational projects and provide proper coordination of joint efforts and high-quality scientific and methodical support. In particular, such programmes as «Family Conversation» (2011-2017), «Peaceful School» (2019 — onwards), and others were and are being implemented successfully.

The development of the psychological service has been significantly supported by large-scale training of psychologists in universities. In 1990, only 150 specialists in three countries graduated with degrees in Psychology; but now, 31.5 thousand students are studying Psychology (according to the National Agency for Higher Education Quality Assurance).

The achievement of Ukrainian scientific psychology significantly influences the work of psychological service specialists. Research on topical problems of social and pedagogical practice, the content, forms, and methods of professional training of practical psychologists has been intensified. The analysed research topics and defended dissertations show that about a third of them are dedicated to professionally significant features of future practical psychologists, the methods helping develop these features during university education or in-service training, practical psychologists' work with specific problems or specific categories of clients, the theoretical and methodical principles for applied psychological issues.

Thus, for 30 years of Ukraine's independence, a unique system of relations between psychological science, basic and applied psychology, and psychological and educational practice has been built as a result of the inspired and responsible work of Ukrainian psychologists.

# 14. DIGITALISATION OF EDUCATION IS THE IMPERATIVE OF ITS DEVELOPMENT

**Abstract.** The processes of Ukrainian society formation determine the continuous improvement of education, finding effective ways to improve the quality of the educational process, bringing it in line with modern and future needs of a man, society, economy, especially digital transformation and digitalisation of national education as a determining factor in its development. Solving the problems of digital transformation and digitalisation of education in Ukraine has a decisive impact on ensuring equal access to quality education throughout the general population lives, people of different ages, and educational needs. This primarily requires:

- creation of the Ukrainian segment of the open world information and digital, scientific, and educational space, its saturation with computer-based tools, national electronic educational resources;
- providing citizens with quality network access to educational services and electronic educational resources, which will overcome «digital inequality» in different regions of Ukraine, in urban and rural areas, will ensure «digital parity» of Ukraine among developed countries in the world;
- formation of digital literacy of the population and development of digital competences of educational process participants; development and modernisation of computer-oriented teaching methods, motivation of educational activity participants to the use of advanced information systems and digital technologies;
- development of integrated national policy, improvement of the legislative and regulatory framework for the digital transformation and digitalisation of education;
- overcoming the inconsistency of the composition and structure of the existing educational environment to create the necessary conditions for the full use and comprehensive implementation of technologies and forms of distance learning in global, national, and regional emergencies.

The effective development of education is possible under the condition of the systemic and comprehensive solution of these problems, the concentration of efforts of public authorities and local governments, the consolidation of the entire Ukrainian society around the tasks of digital transformation of education.

The starting positions and current achievements in the informatisation of education of independent Ukraine are primarily reflected in the system of educational and scientific legislation of 1991-2021, which at all stages was developed with the active participation of the NAES of Ukraine researchers, in particular: Laws of Ukraine «On Education» (1991, 1996, 2017), «On Scientific and Scientific and Technical Activity» (1991, 1998, 2015), «On Higher Education» (2002 and 2014), «On the Concept of the National Informatisation Program» (1998), «On National Informatisation Program» (1998), «On the Basic Principles of Information Society



Development in Ukraine for 2007- 2015»(2007); Order of the Cabinet of Ministers of Ukraine «On Approval of the Concept of Development of the Digital Economy and Society of Ukraine for 2018-2020 and Approval of the Action Plan for its Implementation» (2018); Resolution of the Cabinet of Ministers of Ukraine «On Approval of the National Economic Strategy for the Period up to 2030» (2021).

In general, the informatisation of educational and scientific spheres has reached the state of its thorough standardisation in the relevant laws in the last decade. Until 2007 the legal support of informatisation was carried out mainly through the issuance of bylaws.

Since the Law of Ukraine «On Education», adopted in May 1991, did not fully define all aspects of informatisation of education at the initial stage of Ukraine's independence, it was supplemented in terms of informatisation by the comprehensive programme of public education in Ukraine for the transition period (1991-1995), approved by the Ministry of Public Education of Ukraine in June 1991, as well as by the Main Directions of Informatisation of Public Education of Ukraine in 1991-1995 and measures for its implementation, approved by this Ministry in August 1991.

The consistent implementation of the provisions of regulations on the informatisation of education required increased attention to the informatisation of general secondary education, especially in rural areas, the acquisition of information competence by teachers, as well as distance education. In this regard, the NAES of Ukraine researchers prepared the Concept for the Development of Distance Education in Ukraine, approved by the Ministry of Education and Science of Ukraine in 2000, the Programme of Informatisation of General Education Institutions for 2001-2003, and the State Programme «Teacher».

A comparison of the State National Programme «Education» («Ukraine of the 21st Century») (1993), the National Doctrine for Education Development (2002), and the State Programme «Teacher» (2002) in terms of informatisation of education gives grounds for the following conclusions.

The mentioned programmes and Doctrine reflect the understanding that the informatisation of education is becoming an increasing imperative and priority of the development of society in general, and the individual and education in particular. The documents of 2002 are entirely based on the concepts of the information society, on distance learning, on the crucial role of teachers in the informatisation of education, on strengthening information communication. The National Doctrine for Education Development, and the State Programme «Teacher», which were adopted almost nine years after the approval of the State National Programme «Education» («Ukraine of the 21st century»), were naturally three times more saturated with information terminology and, for the first time, provided for the widespread introduction of distance learning.

Actualising the problem of informatisation of society, a human, and his or her education, the implementation of programmes and doctrine for education development led to the development of a Comprehensive Specialised State Programme «Information and Communication Technologies in Education and Science» for 2006-2010, approved by the Resolution No. 1153 of Cabinet of Ministers of Ukraine on December 7, 2005. The state programme in line with the Law of Ukraine «On Basic Principles of Information Society Development in Ukraine for 2007-2015» (2007), adopted two years later, summarised the theoretical and practical developments of that time, in particular, carried out by the NAES of Ukraine researchers, provided reliable systemic professional guidelines and legal grounds for further development of informatisation of education and introduction of information and communication technologies in the educational sphere of Ukraine.

The next three-year period of 2008-2010 was characterised by further theoretical and methodological research and practical implementation of legislation on informatisation of education. At this stage, the need for significant intensification and diversification of education informatisation and introduction of information and communication technologies in educational practice is theoretically reasoned and practically proved. In this regard, at the new stage of 2011-2018, taking into account the current challenges, important legal documents on informatisation were initiated and adopted, in particular, the Strategy for the Development of Education, the Concept of the New Ukrainian School.

In the new conditions, these documents cover a more comprehensive range of issues and give a new impetus to the informatisation of education. First of all, it concerns the development of information networks, sites, communications, and appropriate training of teachers, taking into account the trends of further strengthening the informatisation of public life.

The issue of informatisation occupies a prominent place in the Concept of Implementing the State Educational Policy in General Secondary Education Reform «The New Ukrainian School» for the period up to 2029, approved by the Government in December 2016, as well as the in the Concept of Digital Economy and Society of Ukraine for 2018-2020 and Action Plan for its Implementation in 2018.

As stated in the Concept of Development of Digital Economy and Society of Ukraine for 2018-2020, digitalisation of education is a modern stage of its informatisation and provides saturation of information and educational environment with electronic and digital devices, tools, systems, and electronic communication between them, which allows integrated interaction of virtual and physical, i.e., creates a cyber-physical educational space.

The nature of the accelerated intensification and diversification of informatisation of society with education, including in recent years, is also illustrated by the Roadmap for Ukraine's integration into European Research Area (ERA-UA) (2018).

During 2017-2021, the processes of digital transformation of the educational sphere are regulated by new legal documents, including decrees of the President of Ukraine «On Sustainable Development Goals of Ukraine until 2030», «On the Decision of the National Security and Defence Council of Ukraine of May 14 2021 «On the Human Development Strategy» (June 2, 2021 № 225), National Economic Strategy for the period up to 2030. The Laws of Ukraine «On Education» (2017), «On Complete General Secondary Education» (2020) define information and communication competences as key competences, and distance learning is one of the main ones.

Provisions on the National Educational Electronic Platform (2018), on the electronic textbook (2018), on Electronic Educational Resources (2019), the Concept of Development of the Science and Mathematical education (STEM-education) (2020), Description of the Framework of Digital Competences of Citizens of Ukraine (2021) are aimed at the development of e-learning, creation of e-educational resources and formation of digital competences of educational process participants. The Ministry of Digital Transformation of Ukraine (Project «Diia: Digital Education»), the Ministry of Social Policy of Ukraine, and numerous civil society organisations joined the formation and development of digital literacy of the population.

The successful introduction of digital technologies in a comprehensive educational practice was decisively influenced by the National Academy of Educational Sciences of Ukraine researches. In recent years, a number of conceptual innovative approaches, technologies, and techniques have been developed. Among them are: the development of information and digital learning environment of Ukrainian school; cloud-oriented systems of open science in teaching and professional development of teachers; use of digital technologies for the implementation of blended learning in general secondary education institutions; methodology of formation of

cloud-oriented educational and scientific environment of pedagogical education institution; methodology of pedagogical design of computer-oriented learning environment for natural sciences and mathematics in the field-specific school; development of information and communication competence of teachers in a cloud-based learning environment; formation of information and educational environment for upper school pupils based on technologies of electronic social networks; information and analytical support of pedagogical research on the basis of electronic open access systems; computer modelling of cognitive tasks for the formation of pupils' competences in natural and mathematical subjects; use of open electronic scientific and educational systems for the development of information and research competence of academic staff; designing the information and educational environment of vocational schools; features of formation of psychological culture of educators in the information society; media psychological means of prevention and overcoming the consequences of destructive information influences on children and youth; scientific and methodical support for the design and creation of information and communication technologies for diagnosing the talents of children and youth.

A significant amount of dissertation research in pedagogical sciences is devoted to the development of theoretical and methodological, and scientific and methodical problems of using information and communication technologies in education. In particular, 58 DSc and PhD dissertations were defended at the National Academy of Educational Sciences of Ukraine by the specialty «Information and Communication Technologies in Education».

The results of research on the construction and use of the computer-based educational environment, information and digital technologies for educational, scientific, and managerial purposes, as well as the latest digital means of educational activities and their implementation in educational practice are presented in Electronic Scientific Publication «Information Technology and Learning Tools» ([journal.iitta.gov.ua](http://journal.iitta.gov.ua)), which since 2015 has been included in the international citation database Web of Science Core Collection (Emerging Sources Citation Index) and assigned by the Ministry of Education and Science of Ukraine the category «A» in the field of knowledge «01 Education / Pedagogy» (Fig. 14.1 — 14.3). The Electronic Library of the National Academy of Educational Sciences of Ukraine ([lib.iitta.gov.ua](http://lib.iitta.gov.ua)) contains more than 24,7 thousand digital information resources based on the results of basic and applied research of the Academy's subordinate institutions (Figs. 14.4-14.7). These resources have been downloaded by users from many countries more than 8 million times.

The content of information education is being updated in the general secondary education institutions of Ukraine. In 2017, the Computer Science curriculum for primary school was updated, which strengthened the sections on the study of modern systems of work with graphics and media content. Model programmes in Computer Science have been created as an optional subject for grades 10-11. The programme of the standard level for the first time applied a modular approach, which made it possible to adapt the educational process in Computer Science to any field of study; a programme of teaching Computer Science for grades 10-11 (field-specific training) is developed. The model programme of the standard level is harmonised with the corresponding programme of the technological branch. The NAES of Ukraine researchers took part in creation of this programme as well in the development of and the corresponding textbooks; they participated in the elaboration of the course curricula for «Technical Creativity. Robotics» (grades 5-9) and the relevant programme of the course «Physics for the Curious» (grades 5-6), the use of which provides a full implementation of the STEM-approach in the educational process.

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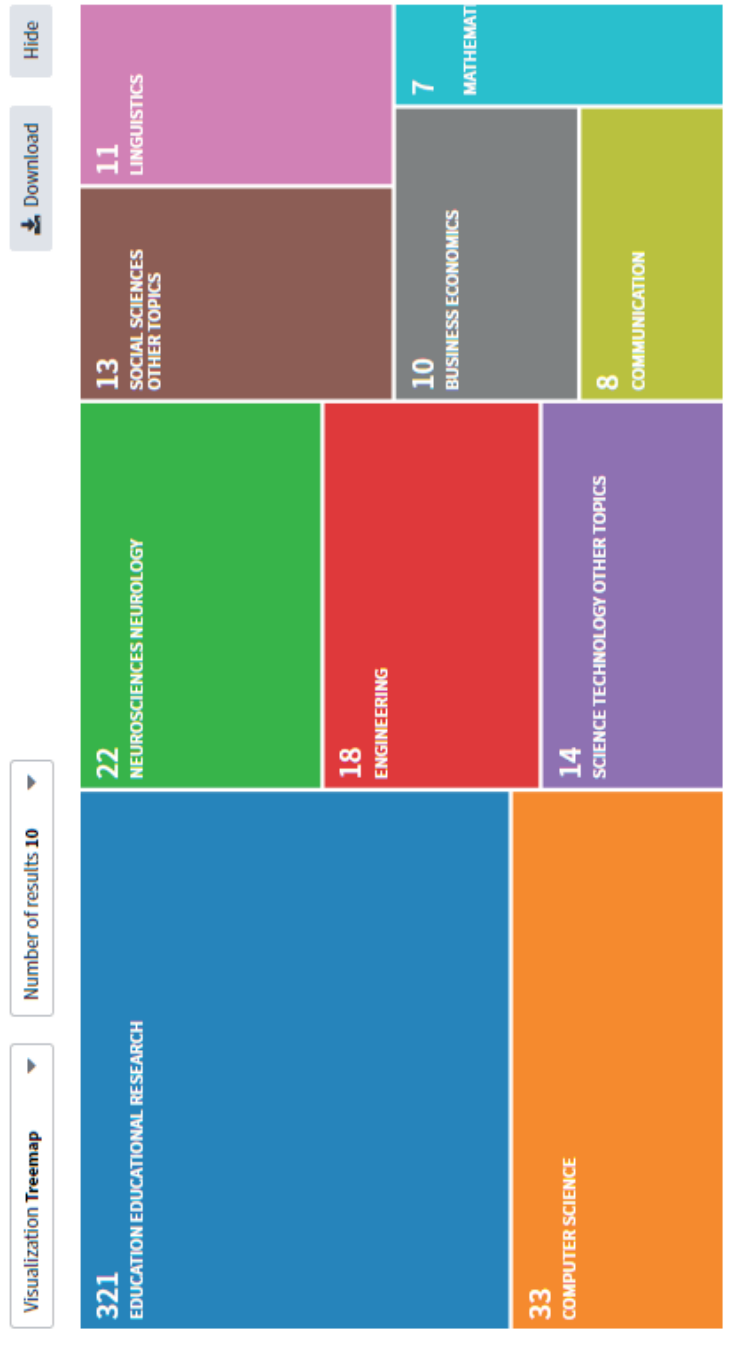


Fig. 14.1. Analysis of citing articles by areas in the journal «Information Technologies and Learning Tools»

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| Publication Years           |
| Databases                   |
| Document Types              |
| Authors                     |
| Authors - Arabic            |
| Authors - Chinese           |
| <b>Countries/Regions</b>    |
| Countries/Regions - Chinese |
| Source Titles               |
| Source Titles - Arabic      |

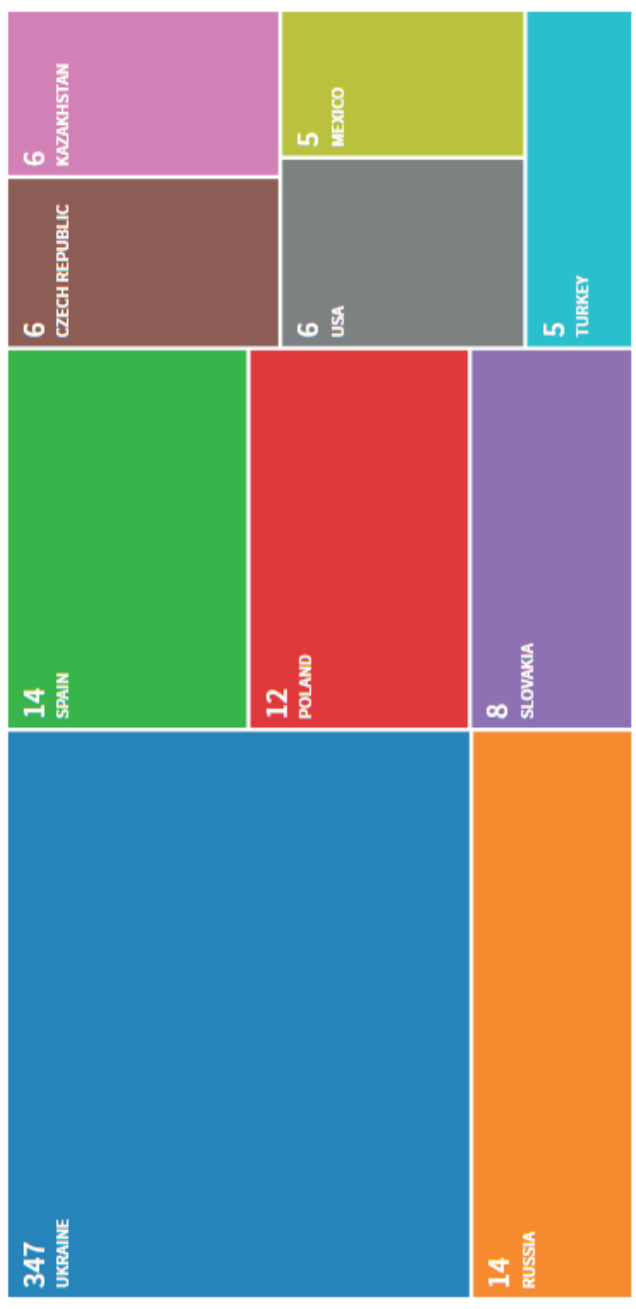


Fig. 14.2. Analysis of citing articles by countries in the journal «Information technologies and Learning Tools» during 2015-2020 (Top 10)



# Electronic Journal «Information Technologies and Learning Tools» and Learning Tools» - category «A», Web of Science Core Collection

| According to Google Analytics | Web site users      | Web site revision     |
|-------------------------------|---------------------|-----------------------|
| 2018                          | 22 000              | 312 000               |
| 2019                          | 35 000              | 296 000               |
| 2020                          | 27 000              | 203 000               |
| <b>As for 2021</b>            | <b>&gt; 105 000</b> | <b>&gt; 1 058 000</b> |

## Countries



Fig. 14.3. Monitoring the use of the journal «Information technologies and Learning Tools»



*Fig. 14.4. Electronic Library of the National Academy of Educational Sciences of Ukraine: number of resources and downloads for 2017-2021*

# Electronic Library of the NAES of Ukraine, 2016-2020

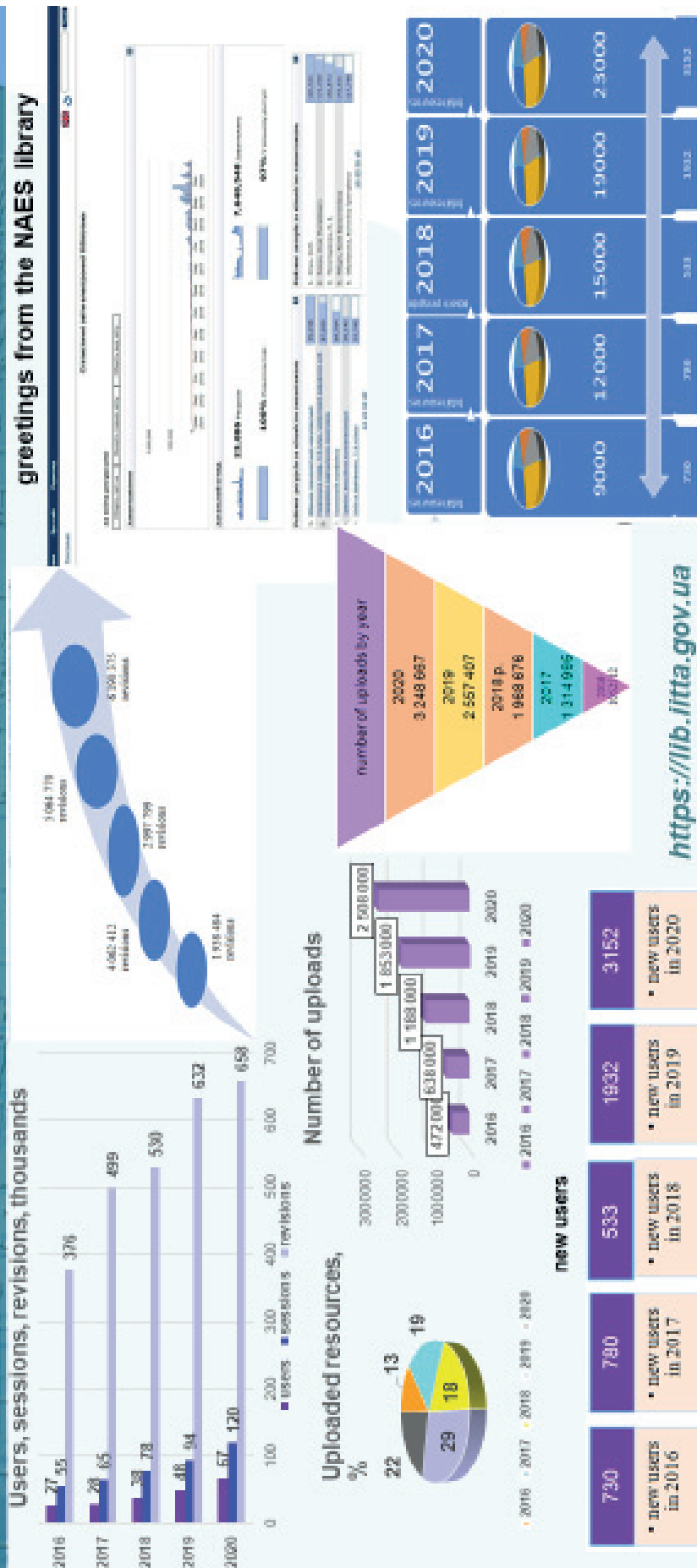
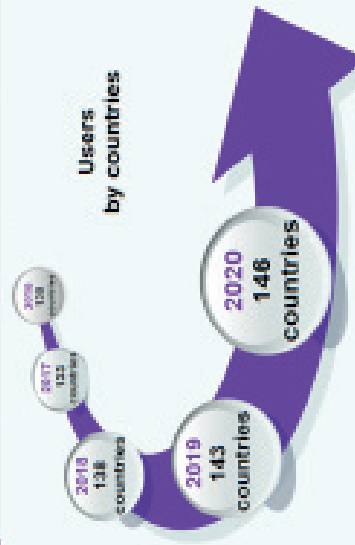


Fig. 14.5. Publication and use of resources of the NAES of Ukraine institutions in the Electronic Library for 2016-2020.

# Electronic Library of the NAES of Ukraine, 2016-2020

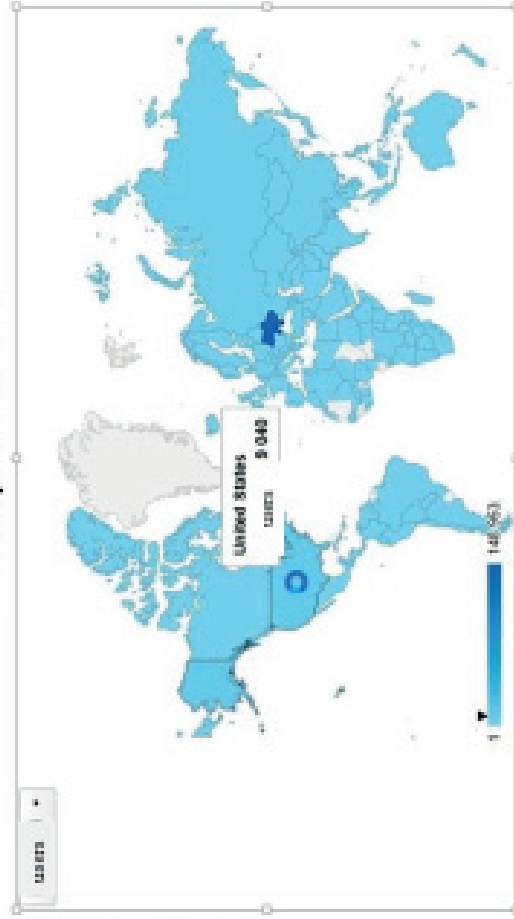
Users by countries

| Countries      | 2016 | 2017 | 2018 | 2019 | 2020 | 2016-2020 |
|----------------|------|------|------|------|------|-----------|
| USA            | 224  | 437  | 2360 | 1743 | 4276 | 9040      |
| Russia         | 436  | 654  | 614  | 667  | 649  | 3020      |
| India          | 150  | 228  | 293  | 250  | 348  | 1269      |
| Germany        | 94   | 224  | 222  | 257  | 319  | 1116      |
| Philippines    | 107  | 188  | 208  | 216  | 340  | 1059      |
| Poland         | 106  | 128  | 194  | 230  | 296  | 954       |
| Netherlands    | 104  | 324  | 148  | 94   | 274  | 944       |
| Kazakhstan     | 162  | 197  | 202  | 137  | 187  | 885       |
| China          | 402  | 125  | 82   | 101  | 137  | 847       |
| United Kingdom | 65   | 124  | 112  | 147  | 307  | 755       |



electronic library of the NAES of Ukraine - foreign scientific audience

user map 201116-2020



<https://lib.iitta.gov.ua>

Fig. 14.6. Monitoring of the website of the Electronic Library of the National Academy of Educational Sciences of Ukraine using the Google Analytics system for 2016-2020

## Repositories by Country

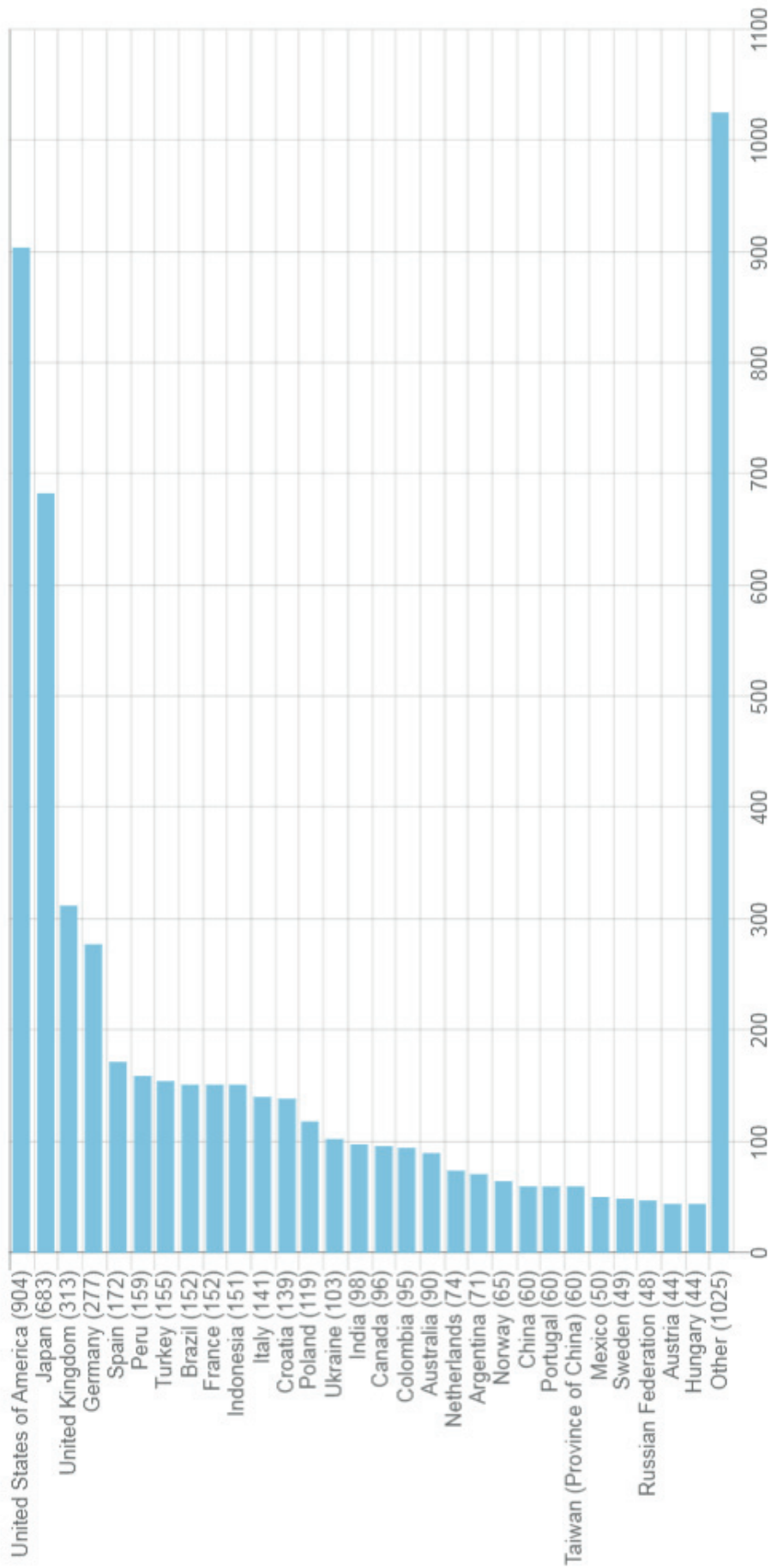


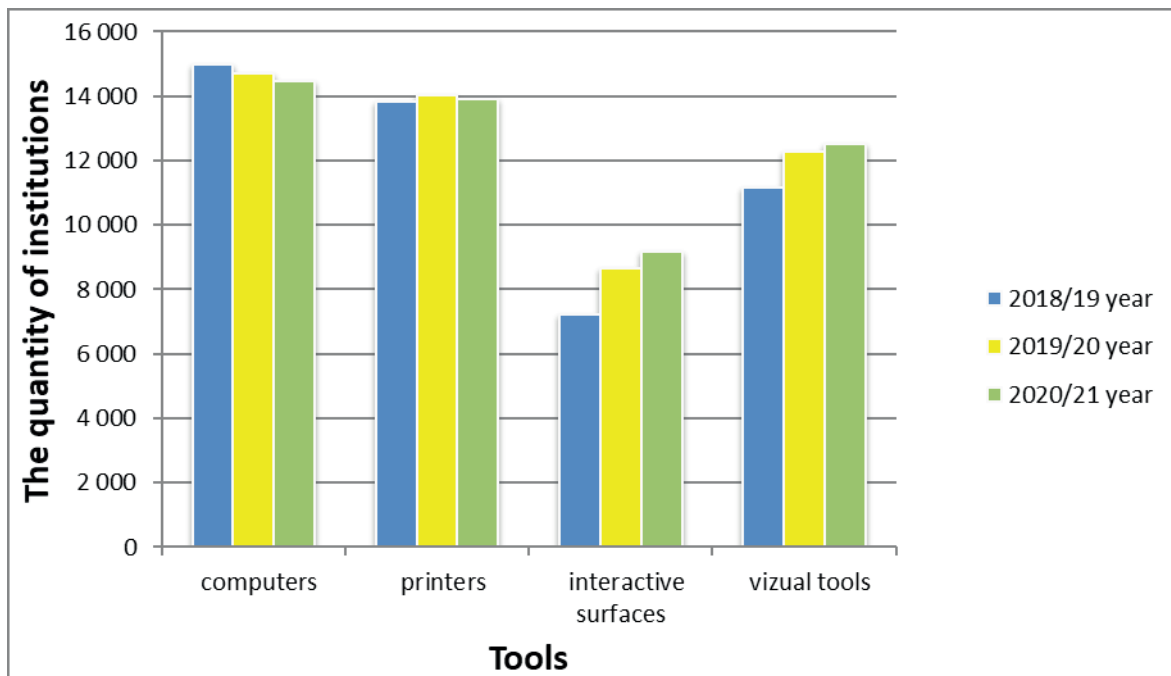
Fig. 14.7. International OpenDOAR Registry of Open Access Repositories by countries



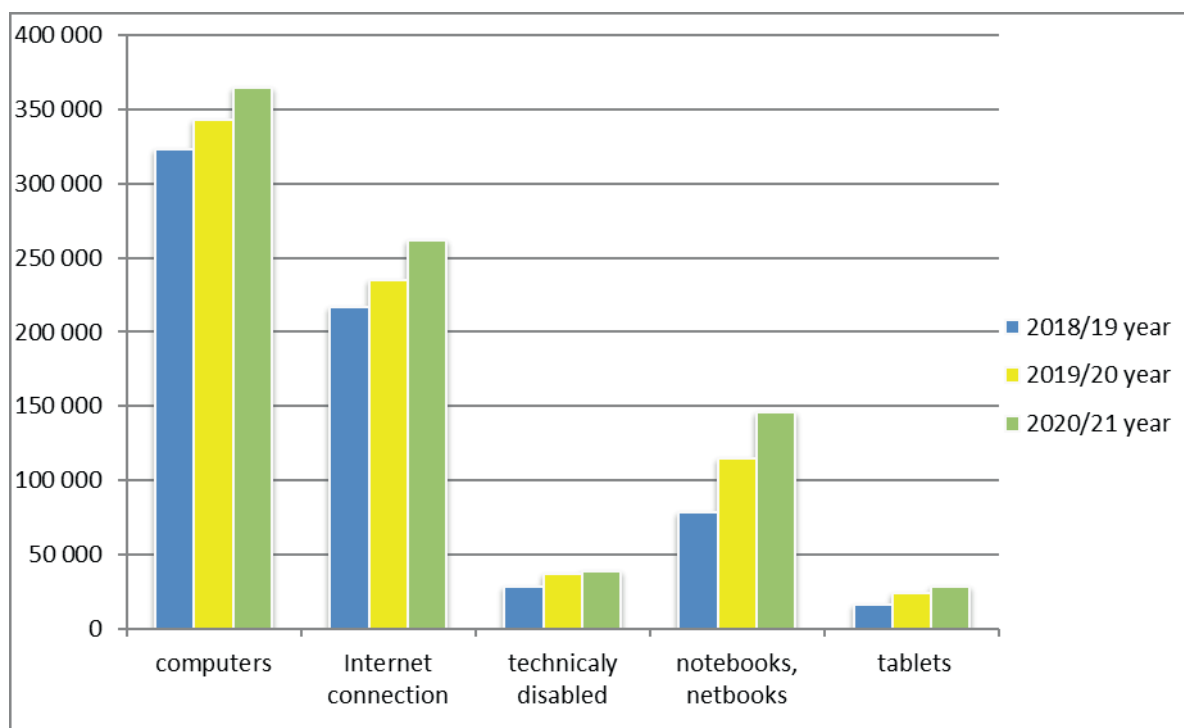
The introduction into educational practice of the results of scientific research of the NAES of Ukraine researchers, which provide for the systematic use of digital educational resources and services, takes place during many research and experimental works and projects of all-Ukrainian level, in particular: «Cloud Services in Education» (2014-2017), «Smart People» (2014-2017), «Variable Models of Computer-Oriented Learning Environment for Natural Sciences and Mathematics in a Secondary School» (2016-2019), «Technology of Teaching Primary School Pupils «Smart Kids» (2017-2022), «Electronic Textbook for General Secondary Education» (2018-2021), «Formation of Technological Competence of Pupils by Immersion in a Foreign Language Communication Environment in Conditions of the Informatised Educational Process» (2019-2023), etc.

According to the State Statistics Service of Ukraine, from 2018 to 2020, the number of general education institutions equipped by classes with interactive surfaces increased (respectively from 7.2 thousand to 9.2 thousand); by classes with visualisation tools increased from 11.2 thousand. up to 12.5 thousand) (Fig. 14.8). The number of computers increased (from 323 thousand to 365 thousand), of laptops and netbooks (from 78 thousand to 146 thousand), of tablets (from 16 thousand to 29 thousand) (Fig. 14.9).

However, the results of an all-Ukrainian survey of educators conducted by the Institute of Information Technologies and Learning Tools of the National Academy of Educational Sciences of Ukraine in 2020-2021 showed that the introduction of ICT and the use of digital tools in general secondary education are not effective. It is identified that the main problems are: limited access to digital learning devices, poor provision of high-speed Internet connection, inadequate management of access to IT infrastructure by education institutions. Teachers note the lack of skills in the digital environment and time to learn new tools and restructure the educational process, lack of qualified technical support.



**Fig. 14.8.** Number of general secondary education institutions equipped with computer equipment, classes with interactive surfaces and visualisation tools (by years)



**Fig. 14.9.** Number of computers, laptops, net books, tablets, and their connection to the Internet in general secondary education institutions (by years)

The issue of developing the digital literacy of teachers remains problematic. Among the surveyed teachers at the professional level, only 21.5 % own search engines; 47.1 % can assess the accuracy of information; 15.0 % can secure their digital devices and personal data. In digital communication, about 25 % of educators have a basic user level and need training. At the same time, 55.6 % of teachers at the basic user level can create multimedia content using various digital tools and environments. In the «Problem Solving» part, an average of 12.0 % of respondents have a professional level of users, which requires appropriate adjustments in the teachers’ professional development system.

According to the Ministry of Digital Transformation of Ukraine (2019), 53 % of Ukrainians have digital skills below the basic level, 47 % are interested in receiving them. In terms of the level of digital competences of citizens, Ukraine lags far behind Poland (65 %), Hungary (69 %), and Germany (78 %). At the same time, the level of mastering digital competences depends on age: Ukrainians aged 40-49 do not have sufficient digital skills; in the group of 60-70 years old such people are almost 85 %. Raising the level of digital literacy is becoming relevant given the growing digital threats. For example, 34 % of citizens have recently become victims of fraud on the Internet. The level of digital competences of civil servants, medical and pedagogical workers, and social specialists is low. Therefore, the transition to e-services should be accompanied by a large-scale educational campaign for such population categories.

Against the background of the COVID-19 pandemic, Ukraine, like the rest of the world, has gained experience in organising distance learning. UNESCO’s Policy Brief: Education in the Age of COVID-19 states that the pandemic has caused the largest failure in the history of education systems, affecting nearly 1.6 billion learners from more than 190 countries on all continents. The closure of schools and other education institutions has covered almost 94 % of the world’s pupil body. Moreover, in countries with low and below-average income levels, this figure is 99 %.

It was impossible to fully train teachers to transfer distance learning in pandemic conditions quickly. As a result, it was reduced to meetings, short webinars, recommendations, and instructions for working with various services and platforms, placed in free access on sites on the Internet. In Ukraine, for the preparation and conducting of lessons, teachers mainly use such resources as «Na Urok» — 74.4 %, author's lessons on YouTube — 75.8 %, «Vseosvita» — 64.6 %, «All-Ukrainian Online School» — 38.7 %, EdEra — 33.3 %, teachers' blogs — 28.4 %, open online lessons — 27.2 %, Learning.ua — 24.7 %, Prometheus — 19.85 %. At the same time, a significant number of schools used cloud services provided by Google and Microsoft to create educational environments and provide distance learning. The number of the LMS Moodle open learning management system users has significantly increased in higher education institutions.

Typical problems in the organisation of distance education in general secondary and higher education institutions in Ukraine are: the use of non-specialised tools for training (messengers, social networks, as well as applications that have significant limitations for training, including session duration, number of users, opportunities for group work, recording broadcasts, etc.); communication problems with Internet access, especially in rural areas; reluctance and neglect on the part of applicants with responsibilities for a responsible attitude to the educational process, low activity of pupils/students; lack of eye interaction; low level of digital competence; insufficient support from education institutions; load and stress; reducing the time of individual work of the academic staff with students, some of whom cannot fully master the theoretical and practical material and need academic staff support; insufficient use of automated means of assessing academic achievement.

In the conditions of quarantine measures of 2020-2021 NAES of Ukraine carried out scientific, and educational and methodical support for teachers. Training sessions, seminars, and webinars were organised for teachers from secondary and vocational (vocational and technical) education institutions, as well as for specialists from higher education institutions, in which more than 4.5 thousand people took part. To support teachers in a pandemic and increase their level of IT competence, to overcome the «digital barrier» there were conducted series of trainings and webinars, among which are: «Office 365 Marathon», «Problems and Prospects for the Development of the Primary School Environment Based on Smart Technology Kids», «Distance education: Checklist of Preparation», «All-Ukrainian Online Conference on Distance Learning of Education and Research Work in Education Institutions», «Computer Modelling in the Educational Process of General Secondary Education Institutions», «Design of Cloud-Oriented Methodical System of Preparing Teachers of Natural and Mathematical Subjects to Work in Scientific Lyceum», «Researchers of NAES of Ukraine to Ukrainian teachers», «Digital Competence of the Modern Teacher of the New Ukrainian School», etc. As part of the reform of the primary school, the Smart Academy was established, where 600 teachers had the opportunity to increase the level of IT competence and the use of electronic educational game resources, distance learning, use of digital services, and improving skills with digital equipment.

In 2021, the cooperation of the Institute of Information Technologies and Learning Tools of the National Academy of Educational Sciences of Ukraine with Microsoft Ukraine, and with the support of the Ministry of Education and Science of Ukraine, promoted a large-scale online training course on specialists.

Priority and perspective tasks of development of digital resources and informatisation of education are defined in the international documents: UNESCO recommendations on training and adult education (2015), on technical and vocational education and training (2015), in the Delhi Declaration on Inclusive ICT for People with Disabilities (2014), in the provisions of the European Strategy «Digital Agenda for Europe» until 2020. Several government initiatives at the

country level to design cloud computing services and technologies are reflected in the following documents: «Federal Strategy for Cloud Computing» (the USA, 2011), European Strategy «Unlocking the Capacity of Cloud Computing in Europe» (2012). In 2018, the EU adopted an Action Plan on Digital Learning, which outlined three priorities: the widespread use of digital technologies for teaching and learning; formation and development of digital competences and skills of digital transformation; improving education through data analysis and forecasting.

Further digital transformation of education depends on the objective conditions and current trends in the information society, which include:

- development of artificial intelligence, «machine learning», neural networks;
- ensuring the mobility of information and communication activities of users in the information space, further development of mobile-oriented tools and ICT access to electronic data;
- widespread introduction of blockchain technologies;
- development of cloud computing and virtualisation technology, corporate, public, and hybrid ICT infrastructures, as well as the introduction of fog technology, their calculations;
- development of telemedicine;
- development of new augmented reality functions and availability of equipment for virtual reality;
- broad introduction of chatbots and virtual assistants, accumulation and processing of significant amounts of digital data, formation and use of electronic information databases and systems, including electronic libraries and scientometric databases;
- development of user characteristics of the Internet of people, development of topology of broadband high-speed channels of electronic communications, systems of formation of ICT spaces of wireless access of users to electronic data;
- formation of the Internet of Things, development of its software and hardware, in particular microprocessor, and integration platforms to ensure the configuration, management, and monitoring of electronic devices using modern telecommunications technologies;
- development of robotics, robotic systems, including 3D printers and 3D scanners;
- development of the software production industry, in particular, the publication of electronic educational resources;
- ensuring the compatibility of ICT tools and ICT applications built on different software and hardware platforms;
- development of networks of ICT service providers, primarily cloud services, and networks of data processing centres;
- development of data protection systems in information systems and combating cybercrime.

Digital education in European countries is a key strategy in developing education systems. To assess the state of digital education in European countries in 2019, the educational network Eurydice conducted a study «Digital Education in European Schools». It states that digital education strategies have been developed and implemented under the rapid pace of digitalisation of society, the spread of information technology in all countries covered by the study (43 education systems, 27 EU member states inclusive). In almost half of the countries, digital education is included in government strategies, 18 have their own digital education strategy.

An important part of the revised European Reference Framework of Key Competences for Lifelong Learning (2018) is the digital competence that all EU citizens should have. The European Reference Framework for Digital Competences for Educators (DigCompEdu, 2017) offers an in-depth and usable reference model for the systematic promotion of digital competence. In

2021, Ukraine approved the Description of the framework of digital competences of citizens of Ukraine — a tool aimed at increasing the level of digital literacy and practical use of tools and services of IT technologies by specific target groups.

A necessary condition for the development of digital transformation and digitalisation of education is the implementation of scientific and methodical support of these processes, conducting promising psychological and pedagogical research based on the concept of cloud computing, principles of open science and education, digital humanities pedagogy and digital didactics, open information and digital resources, networks and systems. Current problems of using digital technologies to evaluate the effectiveness of pedagogical research and educational achievements, analysis of the effectiveness of educational systems need to be addressed; use of cloud-based open science systems in education institutions; designing a learning environment using augmented and virtual reality tools, especially in schools; design and technological support for the operation of the open Internet platform «Ukrainian Electronic Encyclopaedia of Education»; increasing the research capacity of Ukrainian universities in the context of the implementation of the concept of «Open Science»; design and development of methodical systems for the use of digital technologies in the training of informatisation of education and training and retraining of educators, methods of subject teaching and use of digital technologies of learners, including pupils and gifted children studying at the National Centre «Junior Academy of Sciences of Ukraine».

The introduction of adaptive learning systems is important, reflecting global trends in the development of computer-based teaching systems. Such systems use specialised software based on the research results on artificial intelligence and allow you to customise the educational system to meet the individual needs and abilities of participants in the educational process. Modern digital resources are used to ensure the continuity of the educational process that help teachers to visualise the content of training, ensure the organisation and conducting of laboratory and practical work in both synchronous and asynchronous remote modes. The issue of creating quality educational content, in particular with the use of virtual and augmented reality, remains important.

The Roadmap for Ukraine's Integration into the European Research Area (ERA-UA) identifies the exchange and transfer of scientific knowledge, the development of open science and open innovation as priorities. The introduction of the principles of Open Science in pedagogy makes it possible to increase the transparency and, consequently, the reproducibility of research. A common digital data infrastructure will lead to the reuse of research with maximum benefit for science, education and society; will stimulate data exchange; will strengthen the scientific component of the educational process and training of researchers; will lead to the structuring and creation of digital networks of research infrastructures that can be used for permanent and secure data storage; will create the need for long-term financing of these infrastructures.

The current stage of digital transformation of domestic education and science requires the widespread introduction of means of unification, standardisation and systematisation of the conceptual and terminological apparatus of pedagogical and psychological research. The development of electronic academic reference resources has a huge potential to support psychological and pedagogical research, as well as recommendations for their use in educational practice. In addition, there is a need to create an information and analytical, and search system — an electronic resource that is designed, maintained and developed in the global open information scientific and educational space and focused on the coverage of education, pedagogy and psychology. The creation of such an electronic educational encyclopaedia will have a powerful



effect on the formation, improvement of access and dynamic modernisation of the conceptual and terminological apparatus of pedagogy, psychology, and educational sciences.

Digitalisation of education should be carried out on the basis of scientific and technological progress, psychological and pedagogical science, the implementation of paradigms in educational systems, human-centredness and equal access to quality education, principles of open education, wide application in education of modern digital technologies, deepening of cooperation of education institutions, research institutions, and IT companies in providing quality education, the formation of effective economic mechanisms for the implementation and motivation of their joint activities.

## 15. EUROPEAN AND GLOBAL INTEGRATION IN THE AREA OF EDUCATION IS THE WAY TO IMPROVE EDUCATION QUALITY

**Abstract.** Globalisation, digitalisation, mobility, other challenges of common nature intensify international cooperation to build effective global education, increase the clarity, compatibility, and recognition of national education systems, promoting European and global integration. The EU's efforts since 2017 are aimed at creating a European education area by 2025. Its' creation is considered the quintessence of the European integration cooperation in education and is implemented in the areas of quality, inclusion, and gender equality, transformation into a green and digital society (including the economy), improving the training of educators. Since 1999, within the Bologna Process, the establishment of the European Higher Education Area has begun; it was launched in 2010. Ukraine is a participant in this process. Since 2000 the European Research Area has been developed within the framework of the Lisbon Strategy, and since 2010 under the Europe 2020 Strategy. In 2002, following the Copenhagen Process principles, the establishment of the European Vocational Education and Training Area was launched by analogy with the Bologna Process.

The formation of the European education area and its components based on Europeanisation is inextricably correlated with global integration of education, primarily aimed at improving its quality. The renewed vision of quality education is defined by the Sustainable Development Goals under the UN Agenda for Sustainable Development 2016-2030. Goal 4 focuses on ensuring fair and inclusive public quality education and lifelong learning opportunities for all.

Under globalisation, openness to world innovations, European aspirations of Ukraine, the integration of the national education into the European and world education areas is taking place. The synchronisation process transforms the ideas of quality and child-centredness, and in a broader context — human-centredness, into a conceptual framework of educational reforms in Ukraine. With the recognition of the Sustainable Development Goals 2030, the achievement of indicators of national education development within the framework of equal access to quality education based on integrity has started in Ukraine. The Association Agreement between Ukraine and the EU (2014) at the legislative level enshrined Ukraine's course towards European integration in education. Chapter 23 «Education, Training, and Youth» provides for the deepening of cooperation between the parties at the levels of secondary, vocational, higher education, distance, and lifelong learning in order to increase cooperation, implement reforms and improve quality. The updated legislation — the Laws of Ukraine «On Higher Education» (2014), «On Education» (2017), «On Vocational Pre-Tertiary Education» (2019), «On Complete General Secondary Education» (2020) — created a legal basis for integrating Ukrainian education into the

European and world educational space, synchronising key parameters with innovative standards that form education of high quality and integrity.

*European and world integration into education in the face of current challenges.* The ecological threat, demographic crisis, digital revolution under globalisation transformations of the 21st century, and the growth of the world's coherence actualise the integration of the world community's efforts to find an algorithm for overcoming problems and ensuring successful development. COVID-19 has exacerbated the problems of humanity, causing the stagnation of education. According to the UNESCO data, in 2020, as a result of the pandemic 1.5 billion or 89 % of all students in the world did not attend education institutions due to their closure.

The impact of the COVID-19 pandemic on education in Europe is no less devastating. According to the European Commission, the pandemic has transformed the established format of educational systems, affecting more than 100 million Europeans — students, teachers, university lecturers, education institutions leaders.

At the same time, the pandemic has become a powerful catalyst for the development of distance learning with the involvement of the latest digital technologies, the forceful integration potential of which is a determining factor in the progress of modern education at all levels. According to the analytical agency HolonIQ, the budget of distance learning in the global higher education market amounted to USD 36 billion out of a total of USD 2.2 trillion in 2019; in 2025, it is expected its increase to 74 billion and 2.5 trillion dollars. The popularity of online educational resources has significantly increased. The platform of mass open online courses (MOOC) had about 500 million visitors in June 2020, which is 2.5 times more than in January 2020.

The implementation of online education has become an additional challenge for countries regarding students' access to computers at home, connection to high-speed Internet, etc.

The common nature of the challenges intensifies international cooperation in developing effective education and training, promoting European and global integration. The EU Strategic Framework Programme «Education and Training 2020» (2009) plays a key role in the European integration. The Programme proclaims the primary goal of European integration — to support the further development of education and training systems in the Member States which are aimed at ensuring:

- the personal, social and professional fulfilment of all citizens;
- the sustainable economic prosperity and employability, whilst promoting democratic value, social cohesion, active citizenship, and intercultural dialogue.

The Programme addresses the following four strategic objectives:

- Make lifelong learning and mobility a reality;
- Improve the quality and efficiency of education and training;
- Promote equity, social cohesion, and active citizenship;
- Enhance creativity and innovation, including entrepreneurship, at all levels of education and training.

Benchmarks of achieving the planned are:

- at least 95 % of children should participate in early childhood education;

- fewer than 15 % of 15-year-olds should be under-skilled in reading, mathematics, and science;
- the rate of early leavers from education and training aged 18-24 should be below 10 %;
- at least 40 % of people aged 30-34 should have completed some form of higher education;
- at least 15 % of adults should participate in learning;
- at least 20 % of higher education graduates and 6 % of 18-34-year-olds with an initial vocational qualification should have spent some time studying or training abroad;
- the share of employed graduates (aged 20-34 with at least upper secondary education attainment and having left education 1-3 years ago) should be at least 82 %.

Given the rapidly changing context, the EU updated priorities in 2015, which include:

- Relevant and high-quality knowledge, skills, and competences developed throughout lifelong learning, focusing on learning outcomes for employability, innovation, active citizenship, and well-being;
- Inclusive education, equality, equity, non-discrimination, and the promotion of civic competences;
- Open and innovative education and training, including by fully embracing the digital era;
- Strong support for teachers, trainers, school leaders, and other educational staff;
- Transparency and recognition of skills and qualifications to facilitate learning and labour mobility;
- Sustainable investment, quality, and efficiency of education and training systems.

The EU efforts during 2016-2021 were determined by systemic, comprehensive, and multilevel principles, which allowed the productive movement to achieve the planned targets.

The Proposal for a Council Recommendation on High Quality Early Childhood Education and Care Systems (2018) and the EU Council Recommendation on High-Quality Early Childhood Education and Care Systems (2019) have contributed to the European integration at early childhood education. Affordable early childhood education is positioned as one of the principles of the European Pillar of Social Rights (2017), aiming to ensure the development of the European Community based on inclusion and justice. The EU's task is to develop a shared vision of quality early childhood education. The Quality Framework for Early Childhood Education and Care (2019), which defines the following quality parameters, has become a tool for synchronising the efforts of the Member States:

- *access*: accessibility and availability of facilities, educational services, and early childhood care services for all families; supporting participation, enhancing inclusion, and promoting diversity;
- *curriculum*: holistic, flexible, and involving cooperation and regular updating of content;
- *staff*: professional and well qualified; strong leadership, supportive working conditions;
- *governance and funding*: coordinated legislation and funding; responsibilities clear; collaboration encouraged; progress towards universal legal entitlement;
- *evaluation and monitoring*: regular and transparent; in the best interest of a child; effective use for policy development.

The skills concept forms a forward-looking vision for the development of European education in the documents: European Commission Communication «Investing in Europe's Youth» (2016), White Paper «The Future of Europe until 2025» (2017), European Pillar of Social Rights (2017), European Green Deal (2019). The European initiatives in the area of skills are: the updated European Reference Framework for Key Competences for Lifelong Learning (2018), the Agenda for Skills Development (2020), Action Plan for Digital Education (2020), Action Plan for Entrepreneurship Development 2020 (2020).

The European Reference Framework of Key Competences for Lifelong Learning is a powerful tool of European integration within the EU and other European countries, including Ukraine. The key competences for European citizens include literacy competence; multilingual competence; mathematical competence, and competence in science, technology, and engineering; digital competence; personal, social, and learning to learn competence; citizenship competence; entrepreneurial competence; cultural awareness, and expression competence. The competences are proclaimed as necessary for the successful development of a knowledge-based economy and social cohesion.

The EU recognises improving the quality of school education through the common European values as the educational policy priority in the framework of building the European education area by 2025. Cooperation between the EU Member States on mutual recognition of qualifications and learning outcomes abroad at higher and secondary education is viewed as an efficient integration tool. The Erasmus+ programme is working to develop high-quality school education, the added value of which is the education of a common European identity.

The current EU integration policy at the level of vocational education and training is determined by the Recommendation of the EU Council on Vocational Education and Training (VET) for sustainable competitiveness, social fairness, and resilience (2020). The flexibility to adapt to the needs of the labour market and provide the opportunities for quality training for young people and adults is recognised as the key idea of further developing vocational education and training. The European Vocational Education and Training Area is being formed within the provisions of the Copenhagen process (2002), by analogy with the Bologna Process on higher education (1999).

The Osnabrück Declaration (2020) sets benchmarks for further developing vocational education and training in the EU countries and their partners. It promotes vocational education and training as a mechanism for the revival of Europe after the COVID-19 pandemic and the transition to digital and green economies during 2021-2025 based on resilience, sustainability, lifelong learning culture.

The European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience (2020) suggests a five-year plan to support citizens and businesses to build the economy in the post-pandemic period. Skills Pact (2020) became the first flagship initiative of the European agenda on skills development to pool the collective efforts of stakeholders.

In higher education, the European Higher Education Area is being developed. The task of its establishment was proclaimed in 2010 under the Bologna Process principles (1999). Ukraine has been a member of EHEA since 2005. Higher education as a source of human progress is naturally seen in Europe from the future, primarily in view of the digital transformations accelerated by pandemic COVID-19 and a radical change in the labour market. It is expected that by 2025 the most demanded professionals will be those who, in addition to their professional competences, have acquired entrepreneurial competence, the ability to think critically and creatively, and the



ability of effective communication and stress resistance. To overcome the existing challenges (mismatch between the demands of the economy for the competences and qualifications, and their list and the quality provided by higher education; the gap of the qualifications acquired by different social groups especially representatives of disadvantaged groups, migrants, people with special needs; insufficient development of innovations for the European economy by higher education) and outline the perspectives for further development a Renewed EU Agenda for Higher Education (2017) was adopted. It defines the following four priorities for action:

- Tackling future skills mismatches and promoting excellence in skills development;
- Building inclusive and connected higher education systems;
- Ensuring higher education institutions contribute to innovation;
- Supporting effective and efficient higher education systems.

The concept of skills also leads to the development of the adult education sector. Currently, the basic guidelines are the provisions of the Council Recommendations on Upskilling Pathways: New Opportunities for Adults (2016) and the Council Conclusions on the implementation of these Recommendations (2019), suggesting an algorithm for acquiring and improving adult population skills, starting from basics (reading, writing, numbers) and digital competence.

Thus, the EU efforts aim to build the European Educational Area by 2025, which in times of pandemic is considered a part of the Recovery Plan for Europe after COVID-19 «NextGenerationEU». The creation of this space is believed to be the quintessence of European integration cooperation in education and training. It is planned to implement it as follows six areas: quality; inclusion and gender equality; transition to green and digital society and economy; training of educators, higher education, and geopolitical dimension.

An important format in forming the European Higher Education Area is the conferences of ministers responsible for higher education from the Bologna Process countries. During the last Ministerial Conference, held in Rome on November 19, 2020, the representatives from 49 countries approved the Roman Communiqué. This document identified the higher education priorities for the period over the next ten years, demonstrated a commitment to the fundamental values of higher education such as academic freedom, university autonomy, and the rule of law, and noted inclusiveness, innovation, and interconnectedness as the key principles for achieving the Sustainable Development Goals 2030.

The creation of the so-called «internal» European education area based on Europeanisation is inextricably linked with the global integration in education towards quality improvement. The renewed vision of quality education is determined by the Sustainable Development Goals 2030. Goal 4 orients humanity to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

***Ukraine's achievements on the way to the European and global integration in education.***

Under globalisation, openness to world innovations, and European aspirations, Ukraine is on the way to national education integration into the European and world education area. The synchronisation process turns the ideas of quality and child-centredness, human-centredness into a conceptual framework of educational reforms in Ukraine.

Ukraine has supported the Sustainable Development Goals 2030, adopting them to the national context. In Ukraine the Sustainable Development Goal 4 (SDG 4) focuses national education on the achievement of the following targets within the framework of equal access to quality education:

Target 4.1. Ensure free school education for children and youth.

Target 4.2. Ensure equal access to quality pre-primary development for all.

Target 4.3. Ensure equal access to affordable vocational education and training.

Target 4.4. Increase the number of people with relevant skills for financial success improve the quality of higher education and ensure its close connection with science.

Target 4.5. Eliminate all discrimination education increase prevalence among the population of knowledge and skills to get a decent job and business activities.

Target 4.6. Eliminate gender inequality among school teachers.

Target 4.7. Create modern conditions for instruction in schools, including inclusive ones based on innovative approaches.

The Association Agreement between Ukraine and the EU (2014) enshrined the course of Ukraine towards European integration. Chapter 23 «Education, Training, and Youth» regulates the development of cooperation between the parties at the levels of secondary, vocational, higher education, distance, and lifelong learning. The Laws of Ukraine «On Higher Education» (2014), «On Education» (2017), «On Vocational Pre-Tertiary Education» (2019), and «On Complete General Secondary Education» (2020) form the legislative basis of the European vector of the reforms.

The general secondary education reform «The New Ukrainian School» based on child-centredness and key competences has been implemented since 2018. The list of competences for graduates of general secondary education is synchronised with the European Reference Framework of Key Competences for Lifelong Learning.

In 2018, Ukraine participated for the first time in the International Student Assessment Programme PISA 2018, implemented by OECD. The programme aims to rank education systems in different countries by testing 15-year-old students.

The Government facilitates further European and global integration in vocational education and training. The following documents have been approved:

- the Procedure for Confirming the Results of Informal Vocational Training of Persons for Nonprofessional Occupations (2013);
- the Action Plan for the Implementation of the National Qualifications Framework for 2016-2020 (2017);
- the Concept of Training Specialists in the Dual Form of Education (2018).

The achievements in higher education are significant. National Qualifications Framework (NQF), with the active participation of NAES of Ukraine, was introduced in 2011 as a synthesis of two European frameworks — the European Qualifications Framework for Lifelong Learning (EQF LLL) and the Qualifications Framework for the European Higher Education Area (QF EHEA), taking into account the educational levels and qualifications in the International Standard Classification of Education (ISCED, 2011). The first version of the NQF provided definitions for each level of integrated competence (at the request of employers), four descriptors, and ten (0-9) qualification levels, with:

- declared compliance of 1-8 NQF levels with EQF LLL levels;
- to the eight levels of EQF LLL added 0 level, which corresponded to the zero level of ISCED, and 9 level, which corresponded to the highest national scientific qualification — the degree

of Doctor of Science, according to the concept of such a key instrument of the European Higher Education Area that are not identical to the common European framework.

After updating the EQF LLL (change of one descriptor) and QF EHEA (4 cycles), the question arose about the need to clarify the NQF. In addition, in 2019, amendments were made to the Law of Ukraine «On Education», which provided that the number of levels of the National Qualifications Framework should correspond to the number of levels of the EQF LLL. When implementing these changes, integral competence was removed from the NQF (for higher education, the relevant requirements were specified in the Law of Ukraine «On Higher Education»), and 0 and 9 qualification levels were removed.

As a result, since July 2020, the NQF contains eight levels that correspond to the EQF LLL levels, but have mostly lost compliance with the national qualifications system, in particular:

- qualifications of fundamentally different complexity of vocational pre-tertiary education (Vocational Junior Bachelor) and higher education (Junior Bachelor) simultaneously correspond to the 5th level;
- qualifications of the same fundamentally different complexity of the Doctor of Philosophy (PhD)/ Doctor of Arts/ Postdoctor/ Doctor Habilitated correspond to the 8th level at the same time.

For QF EHEA, NQF levels are compared as follows:

- Level 5 NQF — a short cycle of higher education (Junior Bachelor);
- Level 6 NQF — first (Bachelor);
- Level 7 NQF — second (Master);
- Level 8 NQF — third (Doctor of Philosophy).

NQF descriptors in the 2020 version, taking into account EQF LLL 2017 (three descriptors) and QF EHEA 2018 (five descriptors) — four: knowledge, skills, communication, responsibility, and autonomy.

According to the current versions of the laws of Ukraine «On Higher Education» and «On Vocational Pre-Tertiary Education» NQF is the basis for creating educational standards at the appropriate levels, which also contain mandatory requirements for educational programmes regarding competences and learning outcomes of graduates.

*European Credit Transfer and Accumulation System (ECTS)*. In 2014, the new Law of Ukraine «On Higher Education» took into account the basic principles of ECTS and defined for each level of higher education the normative amount of study load required to achieve the expected learning outcomes measured in ECTS credits. The annual workload is 60 ECTS credits, and one credit equals 30 hours. Later, the law and standards of higher education provided the possibility of crediting a certain number of results of previous studies and setting a maximum number of credits that can be credited according to these results.

In 2017, the use of the form of description of educational programmes recommended by the Ministry of Education and Science of Ukraine, agreed with the ECTS Users' Guide, was started.

In 2019, amendments to the law stipulated that higher education institutions should enter into a training agreement with all higher education applicants, not only those who obtain education at the expense of individuals and legal entities. In 2020, the Cabinet of Ministers of Ukraine approved a standard form of such an agreement.

**Fields of knowledge.** Since 2015, a new list of fields of knowledge (29) and specialties (121) has been introduced in Ukraine, for which higher education students are trained. The most popular among the applicants are the fields of knowledge: Education / Pedagogy, Culture and Arts, Humanities, Social and Behavioural Sciences, Management and Administration, Law, Information Technologies, Agricultural Sciences and Food, Health Care, Service Sector, Transport.

**Introduction of a competence-based and student-centred approach to higher education, modernisation of educational programmes.** In parallel with the approval of ECTS in the system of higher education in Ukraine, there was a revision of educational programmes: updating their content, improving the formulation of learning outcomes and building an adequate assessment system for them. This practice is summarised in the Guidelines for Developing Higher Education Standards, prepared with the participation of researchers of the National Academy of Educational Sciences of Ukraine and approved by Order of the Ministry of Education and Science of Ukraine in 2016.

**Diploma Supplement.** In 2009, the Order of the Ministry of Education and Science of Ukraine provided for the introduction of an application in a form corresponding to the European Diploma Supplement. Since 2014, the Law of Ukraine «On Higher Education» has regulated the mandatory and free of charge of the Supplement to the European diploma. In 2021, a new form of the Supplement was approved, corresponding to the form of the Supplement agreed in 2018 at the Paris Conference of Ministers Responsible for Higher Education in the European Higher Education Area countries.

**Quality Assurance in Higher Education.** During 2005-2020, Ukraine has shown significant progress in ensuring the quality of higher education. The Law of Ukraine «On Higher Education» (2014) provides for the establishment of a quality assurance system for higher education following the Standards and Recommendations for Quality Assurance in the European Higher Education Area (ESG 2005). According to the law, in 2015, the National Agency for Higher Education Quality Assurance (NAQA) was established. The first staff of the National Agency did not work, dissolved in 2017 under the amendments to the Law of Ukraine «On Higher Education» to from the composition of the National Agency. At the end of 2018, a new National Agency was formed through competitive selection, which in the first half of 2019 developed the necessary regulatory framework for the start of activities, and in the second half of the year began to accredit educational programmes in accordance with the law. Currently, the National Agency is implementing mass accreditation of educational programmes of higher education institutions (Order No. 977 of the Ministry of Education and Science of Ukraine dated July 11, 2019) — in 2019-2020, 1.4 thousand accreditations were conducted, and institutional accreditation is being prepared. Today it is evident that the updated ESGs of 2015 are more fully taken into account in Ukrainian legislation, first of all in the Law of Ukraine «On Higher Education» and in the Regulations on Accreditation of Educational Programmes (Order No. 977 of the MoES of Ukraine dated July 11, 2019). In addition, there are serious challenges to building an external quality assurance system for higher education in Ukraine:

- clarification of the status of the National Agency that should guarantee its independence in decision-making;
- creation of a regulatory framework for institutional accreditation provided by the Law, independent agencies for evaluation and quality assurance of higher education, awarding the degrees of Doctor of Philosophy and Doctor of Science.

One of the key problems in developing globally integrated and competitive higher education in Ukraine is the lack of national rating and classification mechanisms of educational quality, which are used by advanced regions and countries.

*Internationalisation of higher education.* The Law of Ukraine «On Higher Education» (2014) contains direct norms on applying the requirements and provisions of the ESG, EQF LLL, QF EHEA, ISCED, and other international documents on higher education. Resolution No. 579 of the Cabinet of Ministers of Ukraine «On Approval of the Regulations on the Implementation of the Right to Academic Mobility» dated August 12, 2015, establishes the organisation of academic mobility programmes for participants in the educational process of domestic higher education institutions (research institutions) in Ukraine or abroad and participants in the educational process of foreign higher education institutions (research institutions). International mobility remains a key tool for the internationalisation of higher education in Ukraine. According to the Bologna reports (2015, 2018, 2020), there are three key problems in Ukraine regarding the internationalisation of higher education: insufficient legal and financial support for the internationalisation of higher education in general and the introduction of international mobility as a key tool of the Bologna Process at national and institutional levels; financial barriers to mobility development; low level of foreign language proficiency by teachers and graduates.

Participation in programmes and projects of international organisations as UNDP, EU, European Training Foundation, World Bank, and British Council are effective tools for correlating national education with European and global innovative parameters. Participation of Ukraine in the EU programmes Erasmus+ for 2021-2027 and Horizon Europe for 2021-2027 is especially important.



## 16. SCIENTIFIC AND METHODOLOGICAL SUPPORT IS THE PRIMARY CONDITION FOR THE EDUCATION MODERNISATION

**Abstract.** All spheres of human activity, including education, in which, first of all, an innovative person, innovative human capital is developed, need systematic and consistent, necessary and sufficient scientific and methodical support to ensure sustainable social development. During the years of independence, the foundations of such support have been laid for the largest humanitarian sphere of Ukraine — education — despite the crisis phenomena. The National Academy of Educational Sciences of Ukraine, which was foresightedly established in 1992 by the Decree of the President of Ukraine, became the core of the relevant research organisations of Ukraine. In 2010, the Presidential Decree granted the academy a national status. In 2015, the Law of Ukraine «On Scientific and Scientific and Technical Activity» (Article 18) and in 2017, the Law of Ukraine «On Education» (Article 75) specified the tasks and functions of NAES of Ukraine.

At the same time, the acceleration of human progress on an innovative basis increases the requirements for scientific and methodical support of education, increasing its system character, efficiency, effectiveness.

According to the latest data, in Ukraine in 2019, there were 950 research organisations, 93 of them (9.8 %) carried out research and experimental developments in Social Sciences and Humanities, including 12 (1.3 %) in NAES of Ukraine. These organisations operated in unfavourable conditions to further reduce the share of GDP (in 2020, this share reached a historic low of 0.41 %) for research and development, reducing the share of researchers among the employed population, their low salaries. Although NAES of Ukraine shortened the research staff by 37 % and a part of its research institutions due to lack of funds in 2015-2016, the scientific potential of the academy has been preserved and even qualitatively improved. According to the share of researchers with PhD and DSc degrees, which in 2019 was 72.3 % (including 21.8 % of DScs) and in 2020 — 72.8 % (23, 6 %), NAES of Ukraine is superior to research organisations that carry out research and experimental developments in Social Sciences and Humanities (NACE code 72.2). In 2019, their similar averages were equal to 64.5 % (20.0 %). In 2021, all 12 research institutions of NAES of Ukraine successfully passed the certification. In addition, at the University of Education Management in 2020, 109 representatives of academic staff worked at their primary place of employment, 22 of them (20.2 %) DScs, and 65 (59.6 %) PhDs). The number of the NAES of Ukraine members as of January 1, 2021, was: 75 Full Members (Academicians) and 88 Corresponding Members. External institutions of the entire educational and research sphere of Ukraine represent almost three quarters of its members.

The NAES of Ukraine researchers played a key role in creating the national education system of independent Ukraine, developing basic and applied research, conducting

experiments in education, pedagogy, and psychology. This includes the development of innovative concepts for education modernisation, educational strategies, doctrine, legislation, standards, programmes, textbooks, manuals, new methods and technologies, including information and communication, and digital, the introduction of a competence-based approach, key competences, and the National Qualifications Framework for lifelong learning, holistic level, sectoral and orientating organisation of continuous education, in particular, based on the International Standard Classification of Education, integration into the world and European educational and research area, especially in European Education, Vocational Education and Training, Higher Education, and Research Areas, as well as the Open Science Space, implementation of international mechanisms for evaluation, assurance and improvement of educational quality, and participation in relevant programmes, projects, events, organisations. An important contribution has been made by the University of Education Management, other research institutions of NAES of Ukraine, which ensure in-service training of eight thousand leaders, teaching and academic staff of education institutions per year.

The leading role in ensuring the innovative development of Ukrainian society belongs to the spheres of education, research and development. The sphere of education develops an innovative person, innovative human capital; research and development create a systematic base of scientific knowledge and innovative developments for education.

Today, the importance of educational sciences, pedagogical and psychological theory, empiricism in education reforming, human potential development, and support of state and public efforts aimed at consolidation and European integration of the Ukrainian nation is undoubtedly growing. The tasks of systematic research and innovation support of all levels of continuous lifelong learning — preschool and out-of-school, primary, basic and field-specific secondary, vocational (vocational and technical), vocational pre-tertiary, higher, postgraduate, and adult education become particularly relevant. The network covers 33 thousand education institutions with 1.3 million employees carrying out educational activities, 8 million Ukrainian citizens regularly study in them. They require modern educational models, standards, programmes, textbooks, effective methods and technologies, monitoring assessments, scientific and methodical psychological and pedagogical expertise, reasoned draft laws, generalisation of the advanced world and European experience, theoretical and experimental pedagogy, digital didactics, theoretical and practical psychology in education.

To solve these and other important tasks it is necessary to implement significant changes in the content, goals, methods and technologies of the educational process, its material and technical facilities, the organisation of education in Ukraine, education institutions network, teacher training, and create decent conditions for their activities, which are defined by the updated educational and scientific legislation adopted in 2014-2020, in particular, the laws of Ukraine «On Higher Education» (2014), «On Scientific and Scientific and Technical Activity» (2015), «On Education» (2017), «On Vocational Pre-Tertiary Education» (2019) and «On Complete General Secondary Education» (2020). The aforementioned and development of new laws of Ukraine «On Preschool Education», «On Vocational Education», «On Adult Education», etc. requires modern scientific and methodical support for changes in education, which should be provided by the educational sciences, pedagogy and psychology. The key role in fulfilling these tasks belongs to research organisations working in Social Sciences and Humanities, especially to the National Academy of Educational Sciences of Ukraine (NAES of Ukraine) as the most

organised and concentrated centre of basic and applied research, and experimental developments in the country.

NAES of Ukraine was established in 1992 by the Decree of the President of Ukraine as a higher branch research institution in response to the challenges of national state-building. In 2010, it was granted a national status. For almost 30 years of its existence, NAES of Ukraine has demonstrated the ability under difficult socio-economic environments to create and unite powerful scientific schools to implement basic and applied research, experimental developments, and innovations. It confirmed the effectiveness of the «academic» pattern of branch science organisation for scientific and methodical support of holistic and comprehensive development of education, educational sciences, pedagogy and psychology.

NAES of Ukraine was founded in 1992 on the basis of the Institute of Pedagogy (1926), which this year celebrates its 95th anniversary, the Institute of Psychology (1945) and the Pedagogical Museum (1901), which marks now the 120th anniversary. NAES of Ukraine now has new subordinated institutions established during independence: Ivan Ziazun Institute of Pedagogical and Adult Education (1993), Mykola Yarmachenko Institute of Special Pedagogy and Psychology (1993), Institute for Social and Political Psychology (1996), Institute of Problems on Education (1996), Ukrainian Scientific and Methodical Centre of Applied Psychology and Social Work (1998), Institute of Higher Education (1999), Institute of Information Technologies and Learning Tools (1999), V.O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine (1999), Institute of Vocational Education and Training (2006), Institute of the Gifted Child (2007) and State Higher Education Institution «University of Educational Management» (whose history began in 1952). These education institutions provide systematic scientific and methodical support to all educational levels. The University of Education Management combines research and educational activities, which enables the approbation of models of higher and postgraduate education, the introduction of innovative, in particular digital, distance-learning technologies lifelong. Every year NAES of Ukraine, jointly with other research institutions, conducts in-service training of eight thousand teaching, academic staff and leaders of education institutions.

In 2021, all twelve research institutions successfully passed the certification, ten of them received the first category.

NAES of Ukraine gradually solves new for Ukrainian society problems of theory and practice of developing and content filling the national educational space of independent Ukraine.

With the active participation of NAES of Ukraine, the regulatory, theoretical and methodological, scientific and methodical foundation of the new national education system based on democracy and human-centredness has been created.

With the participation of the NAES of Ukraine researchers, the State National Programme «Education» («Ukraine of the 21st Century») was developed, agreed by the First All-Ukrainian Congress of Educators (1992), and approved by the Cabinet of Ministers of Ukraine in 1993; the National Doctrine for Education Development, was agreed by the Second All-Ukrainian Congress of Educators (2001), and approved by the Decree of the President of Ukraine in 2002. NAES of Ukraine played a significant role in creating and effectively implementing the system of national educational legislation, initially its first generation in 1991-2002, and then the modernised second generation in 2014-2020, preparation of decrees of the President of Ukraine and resolutions of the Cabinet of Ministers of Ukraine on education, pedagogy, and psychology.

The key input of the NAES of Ukraine researchers was in creating state standards of preschool, primary, basic and complete general secondary, vocational, and higher education, typical educational, training programmes and textbooks, electronic scientific and educational resources, guidelines for different levels of education. The academy provides psychological and

pedagogical support for the development of a person lifelong from birth to adulthood, paying special attention to reasoning the advancement of pedagogical and psychological sciences, scientific and methodical support of the entire educational sphere, including education of children with special needs, inclusive education, social pedagogical support for children and youth from particularly vulnerable categories of the population, etc. At the initiative of NAES of Ukraine, a study of the problems of practical psychology in the education system was initiated, and scientific and methodical support for this activity was provided. The academy initiates and organises scientific and methodical support for updating the methodology of education, modification of methods of constructing the holistic sphere of education, educational content, developing its innovative patterns, finding effective ways to manage the educational process based on new educational, information and communication, digital technologies; strengthening the health-preserving, environmental, socialising role of education in different environments — children, youth, family, etc.

For the first time in Ukraine, the NAES of Ukraine researchers prepared and published the Encyclopaedia of Education (2008) (significantly revised and supplemented edition is published this year), the White Book of National Education of Ukraine (2010), the thematic National Report «Education of Persons with Disabilities in Ukraine» (2010), National Report on the State and Prospects of Education Development in Ukraine (2011, 2016, the latest publication also in English), National Education Glossary: Higher Education (2011, 2014), National Education and Research Glossary (2019), etc.

The NAES of Ukraine researchers made a significant contribution to the development of all educational levels. In particular, in 2020, the most significant results include the following:

1. The scientific and methodical support for *updating the content and methods of preschool education* in Ukraine is provided; it is presented in the Concept of Early Childhood and Preschool Education, designed by the academy (jointly with the Subcommittee on Early Development and Preschool Education of the Verkhovna Rada of Ukraine Committee on Education, Science and Innovations), and the Basic Component of Preschool Education (State Standard of Preschool Education), which was prepared in partnership with the specialists of the Ministry of Education and Science of Ukraine and approved by the Order No. 33 of the Ministry of Education and Science of Ukraine dated January 12, 2021 (scientific supervisor — Corresponding Member of NAES of Ukraine Tamara Pirozhenko, G.S. Kostyuk Institute of Psychology of NAES of Ukraine).

2. *The scientific and methodical, and didactic support of the educational programme for grades 3-4* under the supervision of the Academician of NAES of Ukraine Oleksandra Savchenko was developed. More than 50 % of primary schools in Ukraine use this programme: 14 new textbooks for grade 3 in languages, mathematics, integrated course «I Explore the World» were created and published, in which the new content of education and innovative approaches were realised, methodical manuals on the organisation of the educational process in primary school were produced.

3. *New content and conceptual foundations of the basic part of the New Ukrainian School* were developed; it was embodied in the completion of a new State Standard of Basic Secondary Education, approved by the Cabinet of Ministers of Ukraine in September 2020. The innovative methods of competence-based teaching and learning Ukrainian language, Ukrainian literature, certain languages of national minorities, mathematics, history in general secondary education institutions were designed; 23 new textbooks in various subjects were prepared. According to the results of the all-Ukrainian competition and the choice of teachers, these textbooks received state funding, were published in the large number of copies and used in educational practice.



4. *The scientific and methodical support for further digitalisation of education and distance learning* was provided. In particular, the architecture and components of the adaptive intellectual information training system were developed, which provide personalisation of information interaction of the user with the system; the software tools that implement the functions of a personalised intellectual tutor were created. Researchers reasoned models of adaptive cloud-based system of training and professional development of general secondary education institutions' teachers, information and analytical support of pedagogical research based on electronic open access systems, as well as a conceptual model of computer modelling system, proposed a method of using this model to develop pupils' competences in natural sciences and mathematics; prepared and published a number of educational and methodical materials for distance and blended learning, in particular in the context of the COVID-19 pandemic; prepared an analytical report «The Response of the World Community to the Challenges of COVID-19 in Education (February-June 2020)».

5. *The scientific and methodical support for the transition of education of children with special educational needs to inclusive education* in terms of reforming the Ukrainian school was provided, in particular, educational and methodical support for children with cognitive disabilities under the competence-based approach; the modern models of training organisation, psychological support, and rehabilitation of children with cognitive impairments are proposed; the main directions of modernising the content of education of blind children and with visual impairments are defined. The principles of constructing diagnostic methods, the requirements for visual material of psychologists, as well as the organisation and conducting diagnostics for this category of children, are reasoned.

6. *The up-to-date concepts of vocational (vocational and technical) and vocational pre-tertiary education* are developed, in particular, the concept of designing and developing SMART-complexes for vocational education of agricultural, construction and engineering industries; designing the educational and production environment of the vocational (vocational and technical) education institution in terms of the dual form of education; assessing the quality of training in vocational pre-tertiary education institutions; the pedagogical system of qualified personnel training for entrepreneurial activity is designed.

7. *The strategies of higher education in the context of internationalisation are reasoned*, the approaches and indicators for assessing the effectiveness of Ukrainian universities are defined, proposed a system of mechanisms for assessing educational quality for national, sectoral and institutional levels is proposed, the mechanisms for enhancing financial autonomy of higher education institutions are presented; in particular, the criteria and indicators of the national ranking of higher education institutions, the formula distribution of expenditures between institutions, and the key performance indicators are defined. The mentioned research results were used in preparing the draft Strategy for the Development of Higher Education in Ukraine for 2021-2031, which is being developed under the Decree No. 210 of the President of Ukraine dated June 3, 2020.

8. *In partnership with the Ministry of Education and Science of Ukraine, a draft Law of Ukraine «On Adult Education»*, as well as training course «Professional Competence of Andragogues» are designed taking into account individual inquiries, educational needs of teachers in adult education, trends in adult education, and national and foreign curricula creation experience. The educational platform «Profosvita», an innovative digital learning environment for specialists' continuous professional development in formal, non-formal, and informal education, is designed.



9. *The theory and methods of psychological support of person in complex social circumstances* are created, in particular, concepts: the phenomenogenesis of group processes in complex social situations of hybrid warfare, forced migration of migrants, social and economic transformations of transitional society; creation of a common image of the future by ethnocultural groups in a situation of conflicting historical memory; protective behaviour of the group in the face of collective trauma and group informational traumas.

10. *The strategy of development of psychological service of education system under decentralisation was theoretically reasoned*, models of management and scientific and methodical maintenance of psychological service at levels «education institution — territorial community», «territorial community — district», «district — region» were offered.

Scientific, methodical and personnel potential of NAES of Ukraine provides pre-service and in-service training for teaching, academic staff, and leaders of education institutions.

The academy's researchers participate in international projects and activities of international organisations on education, pedagogy and psychology, initiate cooperation in the development of innovative programmes, preparation of scientific publications together with foreign partners.

In general, the activities of NAES of Ukraine aim to improve the educational sphere and its integration into European and world education. The NAES of Ukraine research results allow in the process of reforms to methodologically and methodically reorient education to the implementation of fundamental tasks related to civilisational changes and the need to develop:

- an innovative person in terms of the innovative type of progress;
- a globalist person in the context of globalisation;
- a digital person in the context of digitalisation of society;
- a patriotic person in connection with the intensification of competition in the world.

Human development, human capital, its quality and competitiveness will determine the progress of the Ukrainian state and society in the difficult conditions of the present and the future. Therefore, the educational sciences, pedagogy and psychology as fundamental to human development, the functioning of the educational space should be adequately organised and coordinated. The main role in this belongs to the National Academy of Educational Sciences of Ukraine as a self-governing research organisation focused on the holistic development of the individual, his or her education, upbringing.

However, in general, the state of educational, pedagogical and psychological sciences in Ukraine, as well as the scientific sphere in general, does not fully meet the existing social needs. First of all, it concerns resource provision. This is the share of GDP spent on research and development. In 2020, it reached a critical minimum in independent Ukraine — 0.41 %. The share of researchers among the working population is also declining, and their salaries are low. According to these indicators, Ukraine ranks last in Europe.

As for NAES of Ukraine, the expenditures for research are only 0.05 % of the total budget of the educational sphere, researchers' salaries are 1.5-1.8 times lower than the average salary in the city of Kyiv.

This leads to a forced reduction in the number of employees of NAES of Ukraine, the number of structural units; restrictions on the production of printed materials and reduced admission of PhD and DSc students; slowing down the pace of digitalisation of the main activity, renewal of obsolete and largely worn-out fleet of computer equipment, purchase of other facilities.

Low rates of integration into the European and world research and educational areas, low level of academic mobility of researchers for internships, training, in-service training, research are due to insufficient funding for scientific, and scientific and technical activities.

At the same time, the development of Ukraine, the desire of the state and society for profound systemic change, protection of state sovereignty, European choice and human dignity oblige to significantly improve the scientific and methodical support of the educational space of Ukraine. This necessitates the appropriate adjustment of the scientific policy of NAES of Ukraine, requires its further organisational development, a significant increase in efficiency and relevance, quality of research and experimental development, strengthening their real impact on the development of all levels of education, promoting national consolidation based on national and general civilisation values.

In order to strengthen the scientific and methodical support of the educational sphere, the following is urgent.

First. Guaranteeing sufficient and stable funding for the activities of NAES of Ukraine as a de facto leading research organisation in education, pedagogy and psychology. Increasing the share of funding for applied research and experimental developments, capital expenditures, especially for the purchase of equipment, experimental testing and implementation of developments, as well as increasing the competitiveness of researchers' salaries.

Second. Increasing the state order of NAES of Ukraine for the reproduction of personnel potential of researchers, Master's, PhD and DSc training, as well as in-service training of managers in education, pedagogy and psychology. Expansion on a self-sustaining basis of scientific and technical services, including consultations, training of teaching, academic staff, and leaders of education institutions on current issues of education modernisation in the context of European and world integration.

Third. For research institutions of NAES of Ukraine, other research organisations it is essential to create advanced (new for Ukraine and fundamentally new) technologies for education. It is important to increase applications for relevant protection documents on intellectual property rights, to increase the publishing activity and efficiency of researchers in education, pedagogy and psychology, to expand international cooperation, joint projects, internships, primarily under the programmes of cooperation with the EU «Erasmus+» for 2021-2027 and «Horizon Europe» for 2021-2027.

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## 17. INFORMATION AND LIBRARY PROVISION OF EDUCATION

**Abstract.** Over the years of independence, a system of information and library provision for education, its scientific and methodical support has developed in Ukraine. For the first time in history, a network of educational libraries has been created, and at present it unites more than 15 thousand libraries. It includes V.O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine, Communal Institution of the Lviv Regional Council «Lviv Regional Scientific and Pedagogical Library», Mykolaiv Scientific and Pedagogical Library, special libraries of research institutions of the National Academy of Educational Sciences of Ukraine, libraries of regional in-service teacher training, higher, vocational (vocational and technical) and general secondary education institutions, district (city) methodical offices (centres). The main goal of the network of educational libraries is to develop a single branch information resource, create a system of scientific and information support for education and science through the integration of information resources of educational libraries. The leading role in this process belongs to SSPL.

At the same time, the relevant problems of information and library provision of education and its scientific and methodical support remain: the imperfection of the regulatory support for the activities of libraries; the insufficient state funding for the effective operation and development of educational libraries; the lack of full-fledged procurement of library funds with new Ukrainian and foreign publications; the obsolescence of the material and technical facilities of most libraries; the insufficient pace of implementing information and communication technologies; the imperfect system of in-service training; the lack of highly qualified specialists, aging of personnel, the slowdown in the rate of renewal of teams by young workers, which is due to the low level of salaries and, as a consequence, the weak prestige of the profession in society.

To solve these problems, first of all, it is necessary: to provide educational libraries with information resources, appropriate material and technical means for the formation of an integrated branch information resource of Ukraine; to develop a regulatory framework for the activities of educational libraries (together with the Ministry of Education and Science of Ukraine); to intensify the introduction of modern information and communication technologies; to create a high-quality system of in-service training and internships, taking into account global digitalisation and integration into the international information space; to intensify international cooperation; to provide state support to young personnel and promote their creative growth.

The digitalisation of libraries, the provision of open access to printed and electronic documents, the formation of modern information resources, the introduction of new forms of work with a focus on the remote user change the qualitative essence of the traditional library and create opportunities for timely and full-fledged information and library support for the professional needs of teachers and researchers.

According to the global goals of sustainable development of Ukraine, libraries are the basic elements of the state's cultural, scientific, educational and information infrastructure. They play

a significant role in the steady development of a democratic civil society, respect for human rights and freedoms, and augmenting its human capital. Through their activities, libraries contribute to the development of information and linguistic culture of society, patriotic, legal, and environmental education, the formation of a sustainable interest in the study and understanding of the national history and culture, improving the quality of education, the formation of reading, thinking and educated nation, capable of practical embodying of the gained knowledge and experience in the development of independent Ukraine.

The activities of educational libraries for information and library provision of education, its scientific and methodical support are carried out following the priorities of the state educational policy, defined by strategic and programme documents, in particular, the decrees of the President of Ukraine «On the Sustainable Development Goals of Ukraine for the period up to 2030», «On Improvement of” замінити на “Improving Higher Education in Ukraine», «On the Advisory Council on Promoting the Development of the General Secondary Education System», «On Priority Measures for the Development of Vocational (Vocational and Technical) Education», the Programme of Activities of the Cabinet of Ministers of Ukraine, approved by the Government Resolution No. 471 dated June 12, 2020, the Action Plan for 2017-2029 on the Introduction of the Concept of Implementing the State Educational Policy in General Secondary Education Reform «The New Ukrainian School», the Laws of Ukraine «On Education», «On Higher Education», «On Complete General Secondary Education», «On Vocational Pre-Tertiary Education», «On Scientific and Scientific and Technical Activity», «On Libraries and Librarianship», Strategy for the Development of Librarianship for the period up to 2025 «Qualitative Changes in Libraries to Ensure Sustainable Development of Ukraine», National Economic Strategy for the period up to 2030, etc.

The leading role in the information and library support of education is played by V.O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine (hereinafter «SSPL») as a research institution on the issues of branch library science, bibliography, bibliology, information activities, pedagogical source study, biographistics and history of education; national branch book depository, a centre for information and library support of education, and as the main coordinating scientific and methodical centre of the network of educational libraries of the Ministry of Education and Science of Ukraine and the National Academy of Educational Sciences of Ukraine. The SSPL activities aim at improving the information and library support of education through the formation of a new socio-cultural image of the library, which is able to meet the modern needs of users effectively, has databases, provides free and multidimensional access to the world information networks and data banks based on the widespread use of the latest information and communication technologies, focusing on the integration of internal and external information resources to promote the informatisation and intellectualisation of society.

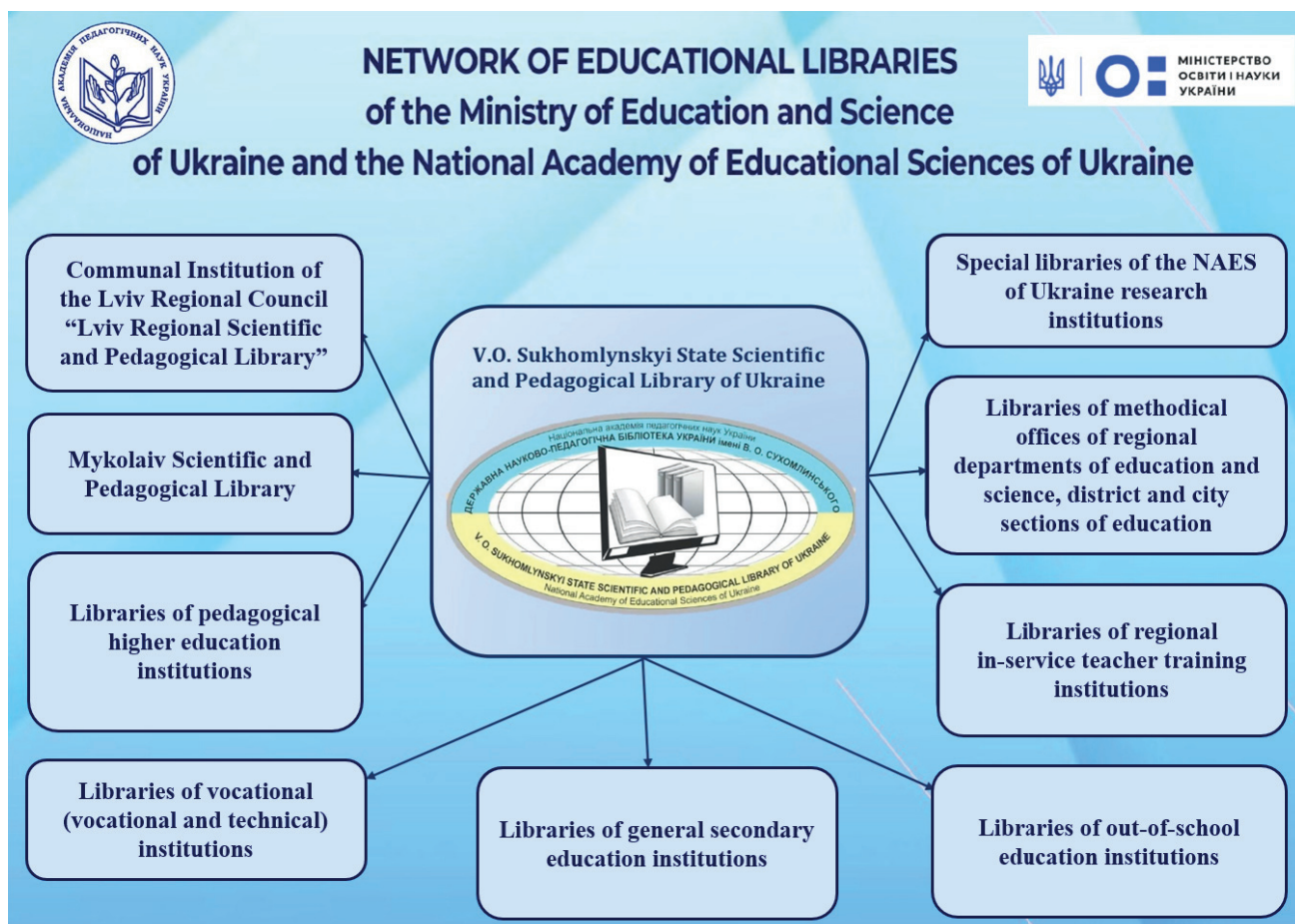
*The current state of information and library provision of education in Ukraine.* After gaining independence, there was a need in Ukraine to create a national network of educational libraries and a single scientific and methodical centre for their effective implementation of the information and educational mission, the introduction of innovative forms and methods of work. In 1999 V.O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine was established as part of the National Academy of Educational Sciences of Ukraine. This event became an important historical fact in developing state libraries and forming a system of information and library provision for domestic education and its scientific and methodical support.

In 2003, for the first time in the history of Ukraine, a branch network of libraries was created (Regulations on the Network of Educational Libraries of the Ministry of Education and Science of Ukraine and the National Academy of Educational Sciences of Ukraine, approved by the Order No. 334/31 of the Ministry of Education and Science of Ukraine and the National Academy of Educational Sciences of Ukraine dated May 30, 2003), now unites



more than 15 thousand educational libraries that have a common goal, objectives and present a holistically structured macrosystem. The network includes: SSPL, Communal Institution of the Lviv Regional Council «Lviv Regional Scientific and Pedagogical Library», Mykolaiv Scientific and Pedagogical Library, special libraries of research institutions of the National Academy of Educational Sciences of Ukraine, libraries of regional in-service teacher training, higher, vocational (vocational and technical) and general secondary education institutions, district (city) methodical offices (centres) (Fig. 17.1).

The main goal of this library network is to create conditions for high-quality information support for the professional needs of researchers and educators, the formation and disclosure of information resources of libraries as a component of the scientific and information infrastructure of the education sector in Ukraine.



**Fig. 17.1. Network of educational libraries of the Ministry of Education and Science of Ukraine and the National Academy of Educational Sciences of Ukraine**

The aggregate information resource of the network of educational libraries as of January 1, 2021 totalled about 295 million copies of documents. An important component of this resource is 230 thousand copies of rare and valuable publications, in particular, the SSPL fund contains more than 28 thousand documents that make up the national treasure of Ukraine.

Over the years of independence, in the context of the development of the knowledge society, digitalisation of all spheres of life, education reform, Ukraine’s integration into the



European educational and research space, there have been positive shifts in the information and library provision of education and science. At the same time, new challenges arose before educational libraries: a threat to national security in the context of Russia's information and military aggression, the global COVID-19 pandemic. It influenced the definition of new vectors for the development of libraries, reviewing conceptual provisions of the interaction of scientific information activities with research and educational ones.

Taking this into account, the SSPL researchers carried out a number of complex scientific studies of an interdisciplinary nature, the relevance of which is due to the need for information support for the processes of reforming, modernising, and improving the quality of education in Ukraine; search for innovative approaches to the formation of the branch library and information resources and ways to provide access to them; improvement of the system of scientific and informational support of the education sector.

The development of information technologies and changes in the priorities of the user's information needs induce educational libraries to generate their industry resources, to modernise the forms of scientific and information activities. On their sites, remote users can get free access to electronic catalogues, electronic libraries and depositories, bibliographic and factual databases, virtual book exhibitions, full-text documents, seminar materials, competitions, photo and video materials, and the like. In particular, the SSPL's web portal (dnpb.gov.ua), updated in 2016, is a web-oriented technological platform that is also accessible from mobile devices, informs about all areas of the institution's activities, presents its resources, innovative services, leads to an increase in efficiency and quality of scientific and informational support of the education sector and its scientific and methodical support. The introduction of ICT has led to an increase in remote users and virtual library visits. Statistics show that virtual visits (more than 1.3 billion) are almost eight times more numerous than traditional ones (more than 167 million).

At the same time, in the direction of computerisation and internetisation of information and library activities, Ukraine lags behind foreign libraries. Many educational libraries have not automated their processes yet or use unlicensed software products. Only such leading libraries as SSPL, Lviv Regional Scientific and Pedagogical Library of Ukraine, Mykolaiv Scientific and Pedagogical Library, higher education institutions libraries are a powerful component of the national information infrastructure today. Libraries of vocational (vocational and technical) and general secondary education institutions fail to achieve a similar level due to the lack of computer equipment, the absence and instability of the Internet connection, small staff, the insufficient level of knowledge and skills to develop and maintain both a separate website and update a separate webpage on the institution's website to which the library is subordinated.

The interaction of educational libraries takes place based on scientific and methodical support carried out by SSPL, has theoretical and practical significance for the development of library and information resources.

*The main achievements of information and library provision in education.* Among the main achievements are:

- creation and provision of access to the branch information resource on various media;
- development and implementation of the system of scientific and information support for education and science of Ukraine;
- development of pedagogical biography and biobibliography, which is implemented through the virtual information and bibliographic resource of SSPL «Outstanding Teachers of Ukraine and the World», its online projects «Reading Sukhomlynskyi Online», «Aphorisms of Sukhomlynskyi» (together with the Pedagogical Museum of Ukraine, V.O.

- Sukhomlynskyi Pedagogical Memorial Museum), «We Stand on the Shoulders of Our Predecessors: Outstanding Teachers-Anniversary Celebrants», «Sukhomlynskyi News»;
- provision of the development of Sukhomlynskyi studies as a new direction in pedagogy for the study of the life and creative heritage of V.O. Sukhomlynskyi, an outstanding Ukrainian teacher with the world recognition, the introduction of his ideas into educational practice on the basis of the reading room of V.O. Sukhomlynskyi SSPL;
  - provision of scientific and informational support of the state target programmes («Teacher», «State Target Programme for the Development of Vocational Education and Training», «State Target Social Programme for the Development of Preschool Education for the period up to 2017», etc.), concepts (Concept of Implementing the State Educational Policy in General Secondary Education Reform «The New Ukrainian School» for the period up to 2029); conducting the first lesson in general secondary education institutions; the functioning of libraries in the context of the COVID-19 pandemic, etc.;
  - creation and implementation of integral system of bibliographic publications in traditional and electronic forms (scientific and auxiliary, recommendatory);
  - launching electronic scientific periodical «Research and Educational studies» and the reference bulletin «Analytical Bulletin in Education and Science»;
  - provision of preservation, digitisation and study of rare editions on the basis of the rare book room-museum;
  - formation of the branch segment in the national abstract database «Ukrainian Science» and the Ukrainian abstract journal «Dzherelo»;
  - organisation of bibliometric audit of pedagogical science;
  - provision of access to remote users to information resources through the SSPL web portal and the sites of the leading libraries of the network;
  - creation of 26 electronic libraries of leading educational libraries;
  - development of the system of scientific, informational, cultural and educational events, in particular in the online format;
  - provision of various information services to remote users, carried out on the basis of cooperation, among which are the interlibrary subscription, electronic delivery of documents, virtual bibliographic reference, and the like;
  - creation of a partner hub on the basis of SSPL within the project of the Ministry of Digital Transformation of Ukraine «Action. Digital Education for the Implementation of Information and Consulting Activities to Improve the Media Literacy of Users of Educational Libraries»;
  - organisation of online access to foreign full-text and abstract scientific, technical, economic, and reference databases;
  - development of regulatory and instructive base to ensure the activities of the network of educational libraries of the Ministry of Education and Science of Ukraine and the National Academy of Educational Sciences of Ukraine;
  - provision of scientific, methodical, and informational support for the activities of the network of educational libraries of the Ministry of Education and Science of Ukraine and the National Academy of Educational Sciences of Ukraine for their adaptation to the requirements of modern society;
  - provision of replenishment of the digital content of the SSPL's methodical direction (online projects «Distance Self-Education of Librarians», «Library Studies Lecture Hall» and «Virtual Reading Room on Librarianship»);

- provision of methodical support to specialists of educational libraries for professional development through the preparation of relevant publications from the series «To Help Professional Self-Education of Employees of Educational Libraries»;
- introduction of the Universal Decimal Classification into the practice of libraries of education institutions;
- creation of a section of school libraries workers in the structure of the Ukrainian Library Association;
- establishment of cooperation between SSPL, research institutions, universities, educational libraries, public organisations of Ukraine and the world.

***Problems of information and library provision of education.*** There exists a number of problems that hinder the transformation of educational libraries and their further intensive development, which affects the quality of information and library provision of education and its scientific and methodical support. Among them are:

- underestimation of the role of libraries in social transformations and ensuring human rights and freedoms, which leads to ineffective realisation of the potential of libraries as social institutions;
- instability of the state policy in supporting education and science;
- imperfection of the regulatory framework for the activities of scientific institutions and libraries;
- insufficient level of the state funding for the implementation of effective activities and development of educational libraries;
- the lack of full-fledged procurement of library funds with new Ukrainian and foreign publications which reduces the level of users' access to information;
- lack of access at most educational libraries to the world information resources, in particular full-text electronic journals of leading European publishing houses: Elsevier, Springer, Kluwer Academic Press, and the like;
- the outdated material and technical facilities of the libraries: premises, equipment and technology do not meet modern requirements for serving users and preserving library funds, in particular rare and valuable publications;
- insufficient pace of introduction and, due to this, backwardness of information and communication technologies, which makes it difficult or impossible to perform production processes and service users at the modern level;
- no access to the World Wide Web in a significant number of educational libraries which reduces the level of communication and information support;
- the lack of technical and financial capabilities for the digitisation of library collections and the widespread introduction of the latest library information services;
- insufficient level of ICT proficiency of the majority of librarians and researchers that reduces the efficiency of informatisation of production processes, in particular in modern conditions of distance work and learning;
- a low level of knowledge of foreign languages which negatively affects international cooperation, the study and implementation of foreign experience and presentation of our own experience in the international scientific, educational and library spaces;
- an imperfect system of in-service education and training for researchers and librarians, in particular in the context of the widespread use of ICT, integration into the global information space;

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- a lack of highly qualified library and scientific specialists, aging of staff, a slowdown in the rate of renewal of teams with young employees due to low salaries and, as a result, insufficient prestige of the profession in society.

***Priorities for the development of information and library provision of education.*** To improve the system of information and library provision for the innovative development of education and its scientific and methodical support in Ukraine in the context of international integration processes, digitalisation of society, modern socio-political challenges caused by the COVID-19 global pandemic for the sustainable development of Ukraine, it is advisable to focus on solving the following tasks:

- accelerating the transformation of educational libraries into basic documentation and communication complexes of the global information environment;
- formation and provision of access to an integrated industry information resource on various media;
- modernisation, taking into account the current requirements of the subject of research to improve information and library provision of education and science;
- ensuring an appropriate response to the problems and crises caused by the global COVID-19 pandemic, carrying out an analysis of objectively pressing transformations, and providing sound recommendations to education and science;
- creation of a regulatory framework for the activities of educational libraries (together with the Ministry of Education and Science of Ukraine);
- improving the system of scientific and methodical support for the activities of the network of educational libraries in the context of implementing the state information and educational policy;
- procurement of funds of educational libraries with new domestic and foreign publications on various media;
- preservation, creation of digital content, study and popularisation of rare and valuable publications (book milestones) that make up the national heritage;
- providing access to the world's library and information resources;
- study and implementation of the European and world experience in the practice of educational libraries;
- activation of international cooperation with foreign education institutions, research, culture, and public organisations;
- introduction of modern ICT into production processes and service of users, and, first of all, remote users;
- development of the information potential of the web portal and websites of educational libraries, including their English-language versions;
- updating the material and technical facilities of libraries, including the provision of modern computer equipment, software, and Internet access;
- creation of an effective system of professional development and training of library and research workers;
- formation of a new generation of scientific and library specialists with the involvement of talented youth through the introduction of motivation mechanisms to improve work efficiency.

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## 18. EFFECTIVE FUNDING FOR EDUCATION IS THE GUARANTEE OF ITS DEVELOPMENT

**Abstract.** The analysis of education funding in Ukraine was carried out following the Methodology of National Education Accounts (UNESCO, 2016) and the Methodological Provisions on Drawing up Auxiliary (Satellite) Education Accounts in Ukraine for 2014-2019 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions by all levels of the International Standard Classification of Education (ISCED 2011) and all funding organisations.

It is noted that the total expenditure on education increased 2.2 times in this period, with the expenditure by the public sector — 2.3 times, by the private sector — 1.5 times. By the education levels, the largest growth in funding occurred in primary education (ISCED level 1) — 2.8 times, and basic secondary education (first stage of secondary education, ISCED level 2) — 2.7 times, the lowest growth occurred in higher education (5-8 levels of ISCED) — 1.7 times. The average cost of education per pupil/student by the ISCED levels also indicates an annual increase.

The indicators of public expenditure on education in Ukraine are compared with the indicators in a number of leading countries of the world and a certain assessment of their effectiveness in the global context. It is concluded that in Ukraine a significant increase in public expenditure on education as a percentage of Gross National Income in the coming years is unlikely. The key problems and the reasons for their occurrence are stated. The ways of eliminating difficulties and increasing efficiency of using the financial resources, directed by society on Ukraine's education development, are proposed.

In a modern market economy, the analysis of education funding is carried out primarily following the Methodology of National Education Accounts (UNESCO, 2016) and the Methodological Provisions for the Preparation of Auxiliary (Satellite) Education Accounts in Ukraine.

According to the Methodology of National Education Accounts, «the national education account should help to find answers to the following questions: how much does education cost; who is funding the education system; what funding is provided and what are the costs at the different education levels; what are the differences between the categories of education; what is the average amount of financial support and costs per pupil/student; who pays for what...».

*The analysis of education funding in Ukraine* was carried out for 2014-2019. The relevant data were formed based on statistical bulletins of the State Statistics Service of Ukraine «National Accounts of Education of Ukraine» of the respective years. The National Economic Strategy 2030 was taken into account when analysing the education funding, and drawing conclusions and recommendations.



In Ukraine, the general indicators of the dynamics of education funding in 2014-2019 indicate an annual increase in expenditure at all levels of the International Standard Classification of Education (ISCED 2011) (hereinafter «ISCED») and by all funding organisations.

Total expenditure increased from UAH 109.5 billion in 2014 to UAH 241.4 billion in 2019, or 2.2 times. By the education levels, the increase is as follows:

- Preschool education (Early childhood education, 0 ISCED level) — 2.4 times;
- Primary education (ISCED level 1) — 2.8 times;
- Basic secondary education (low secondary education, the first stage of secondary education — level 2 ISCED) — 2.7 times;
- Field-specific secondary education (upper secondary education, the second stage of secondary education — level 3 ISCED) — 2.3 times;
- Vocational education (post-secondary non-tertiary education — ISCED level 4) — 1.8 times;
- Higher education (Short-cycle tertiary education, Bachelor's, Master's or its equivalents — 5-7 ISCED levels) — 1.7 times;
- Higher education (PhD, DSc or its equivalents — 8 level ISCED) — 1.9 times.

Indicators of structural changes in education funding in Ukraine in 2014-2019 provide reasons for concluding that a certain advantage is given to the funding of preschool and general secondary education institutions. Accordingly, the share of funding is decreasing for vocational education (post-secondary non-tertiary education), higher education institutions, and PhD and DSc studies. Specific indicators of structural changes in the share of expenditure by the education levels are as follows:

- Preschool education (Early childhood education, ISCED 0) +1.1 %;
- Primary education (ISCED 1) +4.3 %;
- Basic secondary education (low secondary education, ISCED 2) +3.8 %;
- Field-specific secondary education (upper secondary education, ISCED 3) +0.2 %;
- Vocational education (post-secondary non-tertiary education, ISCED 4) -1.2 %;
- Higher education (Short-cycle tertiary education, Bachelor's, Master's or its equivalents) (ISCED 5-7) -8.0 %;
- PhD and DSc studies (ISCED 8) -0.1 %.

The redistribution of funding between education levels should be considered generally positive, as in previous years general secondary education was underfunded. For example, in Ukraine in 2010 the share of GDP directed to complete general secondary education and higher education was correlated as 1.2:1. In contrast, in the Organisation for Economic Co-operation and Development, the ratio is 1.4:1 favouring secondary education.

Indicators of the education funding dynamics in Ukraine in 2014-2019 to funding organisations are characterised by the following values:

- Public sector — an increase of 2.3 times, in particular, by the Government — an increase of 1.6 times (Ministry of Education and Science of Ukraine — an increase of 1.6 times);
- Regional, the city of Kyiv (local) budgets — an increase of 2.6 times;
- Non-governmental sector — an increase of 1.5 times, in particular, by private firms and corporations — an increase of 1.8 times; households — an increase of 1.5 times.

Indicators of changes in the share of education funding to the funding organisations are as follows:

- Public sector +4.5 %, in particular, by the Government -6.7 % (Ministry of Education and Science -5.6 %);
- Regional, the city of Kyiv (local) budgets +11.1 %;
- Non-governmental sector -4.5 %, in particular, by private firms and corporations -0.1 %, households -4.4 %.

In modern market economy relations, education institutions are a component of the complete set of all resident institutional units of the country's economy. They produce and provide not only services in the education sphere as a result of the primary type of their economic activity, but also the results (goods and services) of secondary (additional) economic activities produced and provided by them under the State Classification of Products and Services DK 016-2010 (SCPS) and which are included in the Gross National Income (GNI). When compiling annual satellite accounts of education by the State Statistics Service of Ukraine, additional activities within education institutions include: medical services, food services, administrative services (utilities, finance, business trips, construction and repair, as well as training-related activities concerning inventory and uniforms, transport services, textbooks and stationery, financial services, including public transfers, scholarships, subsidies, current transfers, capital transfers), and for higher education institutions it is also research and experimental developments.

Funding the development and provision of services in the education sphere in Ukraine is characterised by the following indicators.

The share of services in the education sphere in total services production by education institutions in 2019 amounted to 80.0 % against 80.5 % in 2014 (-0.5 %). At the same time in preschool education (Early childhood education, ISCED 0) — 71.5 and 68.2 % (+3.3 %), respectively; in primary education (ISCED 1) — 76.8 and 76.4 % (+0.4 %); in basic secondary education (low secondary education, ISCED 2) — 76.9 and 76.8 % (+0.1 %); in field-specific secondary education (upper secondary education, ISCED 3) — 76.7 and 76.3 % (+0.4 %); in vocational education (post-secondary non-tertiary education, ISCED 4) — 70.7 and 65.2 % (-5.5 %); in higher education (Short-cycle tertiary education, Bachelor's, Master's or its equivalents) (ISCED 5-7) — 90.9 and 91.6 % (-0.7 %); in PhD, DSc studies (ISCED 8) — 94.3 and 88.9 % (+5.4 %).

Preschool education (Early childhood education, ISCED 0). Expenditure increased from UAH 15.7 billion in 2014 to UAH 37.2 billion in 2019, or 2.4 times. Their share in total expenditure on education increased from 14.3 % in 2014 to 15.4 % in 2019 or by 1.1 %. The increase was mainly due to public sector expenditure, almost entirely due to regional and the city of Kyiv (local) budgets. Funds of the non-governmental sector at this level in 2019 amounted to UAH 1.2 billion or less than 3.2 % of the total.

Primary education (ISCED 1). Expenditure increased from UAH 17.8 billion in 2014 to UAH 49.5 billion in 2019, or 2.8 times. Their share in the total expenditure on education increased from 16.3 % in 2014 to 20.5 % in 2019 or by 4.3 %. These are the best growth rates among all levels of education. Such an increase, as in the level of ISCED 0, is provided by the costs of regional, the city of Kyiv (local) budgets. The weight of the private sector (households) at this level in 2019 amounted to UAH 1.5 billion or less than 0.6 %.

Basic secondary education (low secondary education, ISCED 2). Expenditure increased from UAH 19.8 billion in 2014 to UAH 52.9 billion in 2019, or 2.7 times. Their share in total expenditure on education increased from 18.1 % in 2014 to 21.9 % in 2019 or by 3.8 %. The increase was primarily due to increased expenditure for this purpose by regional and the city of Kyiv (local) budgets (+4.2 %). The share of the private sector (households) decreased by 0.3 %.

Field-specific secondary education (upper secondary education, ISCED 3). Expenditure increased from UAH 7.6 billion in 2014 to UAH 17.2 billion in 2019, or 2.3 times. Their share in total expenditure on education increased from 6.9 % in 2014 to 7.1 % in 2019 or by 0.2 %. The increase was due to the expenditure of the public sector's regional and the city of Kyiv (local) budgets. The share of expenditure of the private sector (households) changed a little (-0.1 %).

Vocational education (post-secondary non-tertiary education, ISCED 4). Expenditure increased from UAH 6.6 billion in 2014 to UAH 11.6 billion in 2019, or 1.8 times. Their share in total expenditure on education decreased from 6.0 % in 2014 to 4.8 % in 2019 or by 1.2 %. The decrease was due to the lack of growth in the private sector.

Higher education (Short-cycle tertiary education, Bachelor's, Master's or its equivalents) (ISCED 5-7). Expenditure increased from UAH 40.3 billion in 2014 to UAH 69.5 billion in 2019, or 1.7 times. Their share in total education expenditure decreased from 36.8 % in 2014 to 28.8 % in 2019 or by 8.0 %. PhD, DSc studies (ISCED 8). Expenditure increased from UAH 1.8 billion in 2014 to UAH 3.5 billion in 2019, or 1.9 times. Their share in total education expenditure decreased by 0.1 %.

Indicators of the dynamics of average costs per pupil/student in Ukraine in the 2014/15-2018/19 academic years show an annual increase at all levels of ISCED, namely:

- Preschool education (Early childhood education, ISCED 0) — 2.0 times;
- Primary education (ISCED 1) — 2.1 times;
- Basic secondary education (low secondary education, ISCED 2) — 2.2 times;
- Field-specific secondary education (upper secondary education, ISCED 3) — 2.3 times;
- Vocational education (post-secondary non-tertiary education, ISCED 4) — 2.4 times;
- Higher education (Short-cycle tertiary education, Bachelor's, Master's or its equivalents) (ISCED 5-7) — 1.6 times;
- PhD, DSc studies (ISCED 8) — 2.3 times.

According to the indicators of average costs per pupil/student in Ukraine according to ISCED levels in the 2018/19 academic year, the rating is as follows:

- 1 — PhD, DSc studies (ISCED 8) — UAH 145.8 thousand;
- 2 — Vocational education (post-secondary non-tertiary education, ISCED 4) — UAH 139.1 thousand;
- 3 — Higher education (Short-cycle tertiary education, Bachelor's, Master's or its equivalents) (ISCED 5-7) — UAH 45.7 thousand;
- 4 — Preschool education (Early childhood education, ISCED 0) — UAH 29.1 thousand;
- 5-7 — Primary education (ISCED 1) — UAH 28.7 thousand;
- 5-7 — Basic secondary education (low secondary education, ISCED 2) — UAH 28.7 thousand;
- 5-7 — Field-specific secondary education (upper secondary education, ISCED 3) — UAH 28.7 thousand.

First of all, the fact that the best indicators of dynamics have average costs per pupil/student at the level of ISCED 4 — vocational education, and the specific values of average costs per pupil/student at this level significantly exceed the corresponding indicators of other levels, yielding only the indicator at the level of ISCED 8 — PhD, DSc studies. It worth noting that the average costs per pupil/student at ISCED levels 5-7 in the 2014/15-2018/19 academic years are slightly different.

Indicators of public expenditure on education in Ukraine and some indicators that can be used to assess the effectiveness of public expenditure compared to the corresponding indicators of other countries in 2019 are as follows:

| Countries                   | Public expenditure on education (% of GDP) 2019 | Expected years of schooling* (years) 2019 | Mean years of schooling** (years) 2019 | Gross National Income (GNI) per capita*** (2017 PPP USD) 2019 |
|-----------------------------|---|---|--|---|
| Ukraine                     | 5.4   | 15.1                                      | 11.4                                   | 13.216  |
| Germany                     | 4.8   | 17.0                                      | 14.2                                   | 55.314  |
| United Kingdom              | 5.5   | 17.5                                      | 13.2                                   | 46.071  |
| Italy                       | 3.8   | 16.1                                      | 10.4                                   | 42.776  |
| Spain                       | 4.2   | 17.6                                      | 10.3                                   | 40.975  |
| Poland                      | 4.6   | 16.3                                      | 12.5                                   | 31.623  |
| Hungary                     | 4.7   | 15.2                                      | 12.0                                   | 31.329  |
| Romania                     | 4.8   | 14.3                                      | 11.1                                   | 29.497  |
| Belarus                     | 4.8   | 15.4                                      | 12.3                                   | 18.546  |
| Russian Federation          | 3.7   | 15.0                                      | 12.2                                   | 26.157  |
| United States               | 5.0   | 16.3                                      | 13.4                                   | 63.826  |
| Very high human development | 4.8   | 16.3                                      | 12.2                                   | 44.566  |

Note: The data are based on the indicators of the Human Development Report 2020. PPP — Purchasing Power Parity.

**\*Expected years of schooling:** Number of years of schooling that a child of school entrance age can expect to receive if prevailing patterns of age-specific enrolment rates persist throughout the child’s life.

**\*\*Mean years of schooling:** Average number of years of education received by people ages 25 and older, converted from education attainment levels using official durations of each level.

**\*\*\*Gross National Income (GNI) per capita:** Aggregate income of an economy generated by its production and its ownership of factors of production, less the incomes paid for the use of factors of production owned by the rest of the world, converted to international dollars using PPP rates, divided by midyear population.

According to the above data, an indicator of public expenditure on education in Ukraine — 5.4 % of GNI — is one of the highest among the countries across the world and higher than the average in the group of countries with very high human development (4.8 %).

Indicators of the expected average duration of teaching the school-age children (15.1) and the average number of years of teaching the adults (11.4) in Ukraine do not vary much from the corresponding averages in the group of countries with very high human development (16.3 and 12.2, respectively).

However, the GNI per capita is significantly lower in Ukraine (2017 PPP USD): 13.2 thousand versus 44.6 thousand in the group of countries with very high human development or 3.4 times lower; 55.3 thousand in Germany or 4.2 times lower; 46.1 thousand in the United Kingdom or 3.5 times lower; 63.8 thousand in the United States or 4.8 times lower.

One of the main factors of this discrepancy between the high values of indicators of public expenditure on education in Ukraine (% of GNI), the expected average duration of teaching the school-age children, the average number of years teaching the adults, and low GNI per capita in USD (in terms of purchasing power parity) is an unsatisfactory quality of services in the education sphere in Ukraine. It is evidenced in some way by the results of the international school education assessment PISA-2018 and the rank of higher education institutions of Ukraine in the world's leading university rankings.

The need to improve the education quality in Ukraine, especially at the levels of vocational education (ISCED 4) and higher education, including PhD, DSc studies (ISCED 5-8), has been emphasised in the National Economic Strategy 2030 (in particular, concerning lawyers, specialists in the mining industry, education, health).

The dynamic annual increase in funding of education in Ukraine in 2014-2019 at all education levels (ISCED levels) and by all funding organisations suggests that public institutions and non-governmental organisations see the educational sphere in Ukraine as an essential factor of human development.

Structural changes in the funding of education, including an increase in the share of expenditure on preschool education (ISCED 0), complete general secondary education (ISCED 1-3) and a decrease in the share of funding on vocational education (ISCED 4), higher education (ISCED 5-7), PhD, DSc studies (ISCED 8), are explained primarily by the processes of budget decentralisation, according to which the total budget of local governments increases faster and, as a result, expands their opportunities to increase funding of local education institutions.

There have been structural changes in the funding of education in Ukraine by sectors: the share of the private sector decreased from 14.9 % in 2014 to 10.4 % in 2019 (-4.5 %). Private firms and corporations decreased education funding from 0.8 % to 0.7 % or -0.1 %, and households decreased funding of education from 14.1 % to 9.7 % or -4.4 %.

Indicators of the dynamics of average expenditure per pupil/student at all levels of ISCED mainly correspond to the rate of increase in total funding in Ukraine.

Public expenditure on education in Ukraine in 2019 accounted for 5.4 % of GNI. It exceeded indicators of the United States (5.0 %), Germany (4.8 %), Romania (4.8 %), Belarus 4.8 %), Spain (4.8 %), Hungary (4.7 %), Italy (3.8 %), the Russian Federation (3.7 %) and groups of countries with very high human development in general (4.8 %). These data give reasons to conclude that an increase of this indicator is hardly possible in the coming years in Ukraine.

The value of the GNI per capita (2017 PPP USD) in Ukraine, which is many times lower than the corresponding indicators of the world's leading countries and Ukraine's neighbours, indicates that the actual average expenditure per pupil/student in Ukraine is many times lower than in these countries, despite the high rates of public expenditure on education in Ukraine as a percentage of GNI. It gives reasons to conclude that the increase in actual funding of education in Ukraine is possible primarily by increasing its GNI.

The current model of public funding of education in Ukraine does not meet the conceptual foundations of a modern market economy and is a significant obstacle to improving the efficiency of public funding allocated to the development of education. As in previous years, budget funds following the Budget Code of Ukraine are sent to education institutions for their «...full maintenance as budgetary institutions» (Article 2, paragraph 12), and not as payment for produced and provided education services in the education sphere to specific recipients under the requirements of education standards. The status of education institutions as «budgetary institutions» deprives them of the opportunity to expand institutional autonomy (including financial) and increase the efficiency of budget funds using.



In the coming years, the critical factors for improving the education funding in Ukraine should be measures to increase the efficiency of using expenditure on education and funding by the private sector, especially by firms and corporations.

The existing motivation for the opening and functioning of private preschool (early childhood education) institutions is insufficient to overcome the enrolment queue in these institutions.

The secondary education institutions network is inefficient and characterised by a number of understaffed schools with few learners. The network of vocational education institutions, which includes a number of small and narrow-field institutions, also needs to be optimised following the needs of regional (local) labour markets, and their material and technical facilities need to be significantly updated. The efficiency of management of these institutions is low. These shortcomings are also characteristic of the network of higher education institutions, which is fragmented and scattered, excessively duplicated, inadequately profiled, and resource-deconcentrated.

The mechanism of formation, placement, and funding of the state procurement for vocational education (ISCED 4), higher education (Short-cycle tertiary education, Bachelor's, Master's or its equivalents) (ISCED 5-7), PhD, DSc studies (ISCED 8), in-service training and professional development needs to be significantly improved.

The lack of a scientifically reasoned methodology for calculating the cost of a particular service in the education sphere to ISCED levels (full cycle of study; calendar year; academic year), education fields deprive the ability to analyse the efficiency of public funding using for education development.

*Prospects to improve the education funding in Ukraine* should be related to the implementation of the following measures:

- ensuring a full-fledged transition to a medium-term budget planning of education expenditure at the national and local levels in 2021-2022;
- increasing the share of education funding by the non-governmental sector of the economy, in particular, by private firms and corporations;
- increasing loans on higher education and in-service training of graduated professionals;
- introducing a balanced system of performance indicators of education institutions economic activity based on digitalisation of their activity to determine the efficiency of public funding using in the education sphere;
- implementing the transition from the model of funding «maintenance of education institutions» to the model of funding «education of a citizen of Ukraine» in public funding of education;
- legalising the ability of education institutions to carry out economic activities by legal determining the legal owner (founder) of the institution in one of the following organisational and legal forms (statuses): «budgetary institution», «non-profit organisation with market production», «non-profit organisation with non-market production», «non-financial corporation»;
- making amendments to the system of public procurement of the production and provision of services in the education sphere to identify public customers, especially central executive bodies, which are responsible for the formation and implementation of relevant public policy, regardless of whether they are in charge of education institutions, and introduction of the system of regional (local) procurement by the expenses of local budgets;
- introducing a system of public procurement of services in the education sphere following the Law of Ukraine «On Public Procurement» to prevent risks of corruption in the frame of the public and regional (local) procurement for production and provision of the services in the education sphere and distribution of budget expenditure among education institutions.

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## CONCLUSIONS AND RECOMMENDATIONS: A VISION FOR FUTURE

The thirty years' experience in building the national education system and providing its scientific and methodical support that involved direct and significant participation of researchers of the National Academy of Educational Sciences of Ukraine now enable us to present the following theoretically reasoned and practically proved conclusions and recommendations projected into the future.

### **Key directions for prospective development of education.**

1. In the long view, the education sector of every country, Europe and the world in general, including Ukraine, will be guided by such fundamental principles as:

- the leading role of education and its scientific and methodical support in terms of an innovative type of progress;
- lifelong education beginning at birth;
- anthropocentrism, the realisation of personal potential in education;
- a competence-based approach, focusing on key competences for lifelong learning;
- integration and synergy of formal, non-formal, and informal education;
- education quality assurance and enhancing, maintaining its competitiveness as the basis for the nation's success;
- development of European and global education and research areas, engaging in European and global integration for education and research;
- the nation-building mission of education.

2. *Early childhood and preschool education.* Over the thirty years of Ukraine's independence, society has developed a stronger awareness that early childhood and preschool education is an important primary component of continuous education. Hence, its accessibility and quality will be a sustainable priority for the state policy on education. Activities of the NAES of Ukraine researchers have focused on developing scientifically reasoned regulations for this starting stage of education, and on reasoning and popularising innovative approaches in early childhood and preschool education, continuing to form the basis of progressive changes at this level of education. This education level requires reforming with consideration of the need to realise the constitutional right of every child for access to high-quality and inclusive educational services from birth and later; updating the contents and methods of education; modernising governance and funding patterns; raising the social status and qualifications of educators.

The consolidated cooperation between researchers and practitioners in developing a new Law of Ukraine «On Preschool Education» definitely deserves permanent support.

3. *Complete general secondary education.* Over the years of independence, this main stage of education has passed a difficult way of establishment and development. Now it is considered the basic component of the national system of continuous education. It covers three main consecutive levels of education (primary, basic (low) secondary and field-specific (upper) secondary education), meets the International Standard Classification of Education. Transition to 12-year schooling which corresponds to the European and global practice, has become a

mandatory requirement and precondition for a successful life and personal development in today's globalised and competitive world. Among other indicators of the Human Development Index (HDI) calculated annually by the UN, the education of Ukrainian citizens appears as a significant contribution to the final score.

Throughout the thirty years, Ukrainian general secondary education has undergone several transformations. They include a structural reorganisation of primary, basic (low) and field-specific (upper) secondary education, the introduction of new types of institutions (primary school, gymnasium, lyceum), the standardisation of education contents, particularly, in line with the competence-based approach, informatisation, computerisation and digitalisation of the educational process, and provision of academic freedoms to education institutions and teachers to meet children's educational needs. In the meantime, this stage of education requires a series of problems to be solved in the long view to approach the world's best models of education systems.

*Firstly*, it is enhanced quality of complete general secondary education and ensuring children's access to it regardless of their place of residence (urban/rural), economic status of their families, disability or special needs, gender or ethnic background, religious denomination, and other characteristics of the citizen of Ukraine.

*Secondly*, it is the creation of required conditions and teachers' motivation for effective activity and professional development, staffing institutions with highly qualified educators (preferably with Master's degrees, in the long view). For this purpose, it is necessary to increase the prestige of the teaching profession and the teacher's social status, primarily by ensuring adequate salary, diversify ways of professional development, provide more academic freedom in designing educational content, choosing methods and forms of teaching, and organising the educational process.

*Thirdly*, it is essential to enhance the network of general secondary education institutions, bring it in line with citizens' educational needs and the necessity to ensure equal access to quality education, in particular, by addressing the issue of under-filled schools and schools with a non-optimal location.

*Fourthly*, the development of information society calls for wide implementation of information and communications technology into the educational process, and its digitalisation. It requires creating a corresponding educational environment, filling it with electronic educational resources and means, developing teachers' information culture and digital competence, and ensuring access to the Internet.

The abovementioned priorities require further strengthening the material and technical facilities of education institutions, improving mechanisms for administration of the general secondary education system, sufficient education funding, and efficient use of funds.

In the prospects, Ukraine's complete general secondary education should be comprehensively included in the European Education Area, the creation of which until 2025 was announced in 2017.

**4. Out-of-school education.** This stage of education has to reinforce its participation in the provision of additional educational services for children of a wide age range based on non-formal and informal education. At the same time, inequality of access to out-of-school education in urban and rural areas, modernisation of education contents following children's needs and demands, the introduction of educational innovations, particularly in the context of digitalisation of education, and online tools for distance learning remain to be the urgent issues of the day.

More effort should be taken to preserve and expand the network of out-of-school education institutions, as well as implement new management and multichannel funding patterns into their activities.

The development of out-of-school education in schools is also important, especially in rural areas.

**5. Education of active and responsible citizens-patriots.** The challenges that Ukraine is currently facing in defence of its sovereignty actualise problems of national and patriotic, military and patriotic, and civic education. It takes further research and development activities, generalisation of best practices, including those developed by the NAES of Ukraine researchers in forming national and cultural identity, educating active and responsible patriotic citizens, to facilitate the development of the civil society, the cohesion of the Ukrainian nation, and enhanced national defence capability.

At the same time, the sphere of national and patriotic, and military and patriotic education needs the modernisation of the relevant legislation.

**6. Vocational (vocational and technical) education.** Strategic goals of the state policy in this sphere should be as follows: forming a unified system of vocational (vocational and technical) education, developing its interaction and joining efforts with vocational pre-tertiary education; ensuring compliance of education content and quality with the labour market demands; increasing its attractiveness and reputation in the society, with due regard to creating conditions for continuous professional development of a person; ensuring effective governance at the national, regional (local) and institutional levels, with the participation of public authorities, local self-governing bodies, and associations of employers.

Modernisation of vocational (vocational and technical) education should be performed in the following areas: ensuring training of highly-qualified workers of complex integrated professions; refining statutory and regulatory provisions for receiving complete and partial qualifications; creating scientific and educational online platforms for realisation of individual learning paths for effective employment; facilitating enhanced digital competence of educators; developing public-private partnerships; creating appropriate conditions for motivating social partners to modernise and boost the innovation potential of this education component; implementing the best European practices in forming a network of powerful multilevel and multi-field vocational (vocational and technical) education institutions and their flexible interaction with stakeholders; preparing integration into the European Area of Vocational Education and Training.

**7. Vocational pre-tertiary education.** This newly created stage of education separated from higher education is now supposed to develop its own specific, profession-oriented, self-sufficient characteristics and a clearly-determined mission. Primarily, it concerns the integration of vocational pre-tertiary education institutions with modern production facilities, approximation and succession of training content in regard to vocational (vocational and technical) education institutions' activities, development of cooperation with such institutions, and extending respective training for Skilled Workers.

**8. Higher education.** Over the thirty years of Ukraine's independence, this stage of education has provided training for students, doctorates at the highest educational levels, while preserving powerful human resources, research, financial, and material and technical potential. At the same time, an inconsistent growth of the network of higher education institutions resulted in its fragmentation, dispersion, loss of resource concentration and caused a lack of quality compared to the level of university education provided by the advanced countries and the world's leading universities.

In the course of preparing and implementing the Higher Education Development Strategy of Ukraine for 2021-2031, the following should be envisaged:

- conducting objective monitoring of the state and quality of domestic higher education based on creating and using a complex of quality assessment mechanisms (related to accreditations, rankings, classifications, etc.), that are effectively employed by advanced countries;
- optimising (smart decreasing a number of higher education institutions) the network of higher education institutions that should be performed on the basis of a special state target programme to consolidate and merge them, create a resource base for realisation of university autonomy, and achieve a competitive university leadership;
- ensuring further integration into the European Higher Education Area and the European Research Area;
- developing a state programme for the creation of world-class universities in Ukraine to improve the competitiveness of Ukrainian higher education.

**9. *Adult education.*** The strategic task of creating integral and effective adult education in Ukraine as the final stage in the system of continuous lifelong education requires urgent formation and consistent implementation of the corresponding national policy. Necessary steps include creating socio-economic conditions for the activities of social institutions, adult education centres, and universities of the third age, recognising results of non-formal and informal education, conferring certain qualifications, etc. It is essential to accelerate the adoption of the Law of Ukraine «On Adult Education».

**10. *Staffing of education.*** Despite noticeable improvements in staffing, the system of education requires further refinement in the structure and content of teaching and academic staff training, as well as the creation of conditions for staff retention and effective activity. Unresolved issues include disproportions in staffing of various stages and levels of education, subject areas, territories, urban and rural areas with highly-qualified personnel, as well as lack of conditions for work and professional development.

The following should be recognised as top priority areas in achieving effective staffing for education:

- increasing the prestige of teaching and academic staff's activities, and the competitive salary;
- ensuring sustainable and systemic upgrade in qualifications for teaching and academic staff in all stages of education.

**11. *Psychological support for education.*** In this sphere, it is necessary to:

- conduct psychological research for personality development in education, and elaboration of respective theories, methods, and technologies;
- form scientific and methodical basis for the development of psychological culture in all participants of the educational process in terms of innovative type of progress, the establishment of the information society, and outspread of stressful situations;
- perform systemic socio-psychological monitoring to reveal the public perception of reforms in education, and shape people's constructive awareness and positive attitude to them;
- direct scientific psychological potential to deliver comprehensive aid to all persons affected by the aggressive actions of the Russian Federation and the subsequent military conflict, as well as to persons in hardships, particularly caused by the COVID-19 pandemic;
- focus on the balanced development of psychological foundations for introducing innovations and preserving traditions in education, particularly in regard to increasing the role of the



family in the education system, forming coherent community identities of children and youth in united territorial communities and while reintegrating currently occupied territories, etc.

**12. *Digitalisation of education.*** The key task in the modernisation of the education system is to develop digital competence for the lifelong learning of all participants of the educational process. Given this, it is crucial to create and implement information and digital learning resources and environments, digital educational technologies, and develop distance and blended learning. Substantive scientific and methodical support is essential for:

- research of fundamental and applied problems in using digital technologies in education, and psychological and pedagogical support in their development;
- introduction of modern computer-based information and educational systems based on closer cooperation between teacher training higher education institutions, research institutions of the National Academy of Educational Sciences of Ukraine and institutions of the National Academy of Sciences of Ukraine, leading field-specific universities, the Ministry of Digital Transformation of Ukraine and IT companies based on joint research projects;
- filling the open digital information and educational space of Ukraine with electronic educational resources and means, thus overcoming the «digital divide»;
- systemic and comprehensive development and enhancement of the integral national policy for application of digital technologies in education.

**13. *Information and library service support for education.*** With the development of information society, the role of the educational library network belonging to the Ministry of Education and Science of Ukraine, the National Academy of Educational Sciences of Ukraine and comprising over 15 thousand libraries, under the leading role of V.O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine, will only grow in its new quality as a network resource. To enhance the system of information and library service support for innovative development of education in Ukraine, against the background of global digitalisation and processes of international integration, the following tasks should be focused on:

- implementation of modern information, communication and digital technologies into production processes and user services, especially for remote users;
- updating the material and technical facilities of libraries, primarily in the part of supplying them with modern computer equipment and software;
- development of informational potential for web portals and websites of educational libraries, particularly their English versions;
- enhancement of integration processes in forming a sectoral information resource on various storage media, and ensuring free and multifaceted access to it;
- provision of access to foreign full-text and abstract databases of scientific, technical, economic and reference nature;
- guarantees of proper response to social issues and crisis developments, analysis of long-expected transformations, and provision of educators with information analysis content;
- creation of a regulatory framework for activities of educational libraries;
- enhancement of the system of scientific and methodical support for activities of the educational library network, in the context of implementing the national policy for information and education;

— exploration and introduction of European and global best practices in the work of educational libraries, further development of international cooperation.

14. *Global and European integration of Ukraine's education.* It should be primarily provided through wider participation in the implementation of projects and programmes of international cooperation, particularly the EU programmes: Erasmus+, Horizon Europe for 2021-2027. It also applies to Ukraine's implementation of the International Standard Classification of Education, in its 2011 (levels of education) and 2013 (fields of education and training) versions, participation in the world's leading university rankings and European accreditation systems. It is also important to ensure the entry of the national education into the European areas of education, vocational education and training, higher education and research, as well as develop this bilateral partnership fully.

15. *Education funding.* The following principles of education funding should be observed for effective financial support:

- the necessary and sufficient share of Gross National Income, channelled to the education sphere and its main stages;
- optimisation of the education institutions network, given the education accessibility and quality;
- competitive salary in education;
- granting progressive organisational and legal status for education institutions operating in a market economy environment.

16. *Scientific and methodical support for education.* The education sphere which is intended to facilitate innovative progress and unlock the potential of its main subject — a well-educated person — does require powerful scientific and methodical support for itself as well. The leading and legally defined role in this should be reserved for the National Academy of Educational Sciences of Ukraine, with the participation of the National Academy of Sciences of Ukraine and other branch academies of sciences of Ukraine, research institutions, higher education institutions, and professional associations of educators.

## BIBLIOGRAPHY

- 2015 Joint Report of the Council and the Commission on the implementation of the strategic framework for European cooperation in education and training (ET 2020) — New priorities for European cooperation in education and training. Brussels: C 417. Official Journal of the European Union. 2015, December 15. URL: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52015XG1215\(02\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52015XG1215(02))
- About actual in methodical activity: opinions and advice of experts : multimedia scientific and methodical complex / edited by T. M. Sorochan, V. V. Sydorenko. Kyiv : Ahrosvita, 2017. 728 p. (in Ukrainian)
- Academic Ranking of World Universities. URL: <https://www.shanghairanking.com/>
- Adaptive cloud-based system of training and professional development of teachers of general secondary education : monograph / Demianenko V. M. et al. ; edited by M. P. Shyshkina. Kyiv : Pedahohichna dumka, 2020. 183 p. URL: <https://lib.iitta.gov.ua/723245/> (in Ukrainian)
- Analysis of the activities of regional systems of vocational education / State Scientific Institution “Institute of Educational Analytics”, EU Programme “EU4Skills: Better Skills for Modern Ukraine”. Kyiv, 2020. URL: [http://opendata.iea.gov.ua/zpto\\_audit\\_2020](http://opendata.iea.gov.ua/zpto_audit_2020) (in Ukrainian)
- Annual report of the National Agency for Higher Education Quality Assurance for 2019 / edited by S. Kvit ; National Agency for Higher Education Quality Assurance. Kyiv, 2020. 244 p. URL: <https://naqa.gov.ua/wp-content/uploads/2020/02/Zvit-2020.pdf> (in Ukrainian)
- Annual report of the National Agency for Higher Education Quality Assurance / edited by S. Kvit, O. Yeremenko; National Agency for Higher Education Quality Assurance. Kyiv, 2021. 364 p. (in Ukrainian)
- Audit of the economy of Ukraine 2030 / Cabinet of Ministers of Ukraine. Kyiv, 2020. 123 p. URL: <https://nes2030.org.ua/docs/doc-audit.pdf> (in Ukrainian)
- Bekh I. D., Chorna K. O. The programme of Ukrainian patriotic education of children and young people / NAES of Ukraine, Institute of Problems on Education. Kyiv, 2014. 29 p. URL: <https://bit.ly/39PcpS2> (in Ukrainian)
- Berezivska L. D. Activities of the State Scientific and Pedagogical Library of Ukraine named after V. O. Sukhomlynskyi NAPS of Ukraine (1999–2019): achievements and prospects of development. Information support in the field of education and science: to the 20th anniversary of the State Scientific and Pedagogical Library of Ukraine named after V.O. Sukhomlynskyi : materials of international scientific and practical conference, Kyiv, 2019, November 7 / NAES of Ukraine, V. O. Sukhomlynskyi SSPL of Ukraine; editorial board: L. D. Berezivska (head), L. I. Straihorodska (deputy head), S. V. Lapaienko (executive editor) et al. Kyiv, 2019. P. 6—12. URL: [http://dnpg.gov.ua/wp-content/uploads/2019/12/abstracts\\_collection\\_2019.pdf](http://dnpg.gov.ua/wp-content/uploads/2019/12/abstracts_collection_2019.pdf) (in Ukrainian)
- Berezivska L. D. On the scientific and scientific and organizational activities of V. O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine for 2015-2019 and the prospects of its development. Herald of the National Academy of Educational Sciences of Ukraine. 2019. Vol. 1, Iss. 1. DOI: <https://doi.org/10.37472/2707-305X-2019-1-1-2-1> (in Ukrainian)

- Bykov V. Y., Shyshkina M. P. The conceptual basis of the university cloud-based learning and research environment formation and development in view of the open science priorities. *Information Technologies and Learning Tools*. 2018. Iss. 6 (68). P. 1—19. DOI: <https://doi.org/10.33407/itlt.v68i6.2609>
- Bykov V. Yu. Digital transformation of society and development of computer and technological platform for education and science of Ukraine. *Information and digital educational space of Ukraine: transformational processes and prospects of development : materials of the methodological seminar of NAES of Ukraine, Kyiv, 2019, April 4 / edited by V. H. Kremen, O. I. Liashenko. Kyiv, 2019. P. 20—26. URL: <https://lib.iitta.gov.ua/718707/> (in Ukrainian)*
- Bykov V., Spirin O., Pinchuk O. Modern tasks of digital transformation of education. *UNESCO Chair Journal “Lifelong Professional Education in the XXI Century” / Editor-in-Chief H. I. Sotska. Kyiv : Talkom, 2020. Iss. 1. P. 27—36. DOI: [https://doi.org/10.35387/ucj.1\(1\).2020.27-36](https://doi.org/10.35387/ucj.1(1).2020.27-36) (in Ukrainian)*
- Carretero S., Vuorikari R., Punie Y. *DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use. Luxembourg: Publications Office of the European Union. 2017. 48 p. <https://publications.jrc.ec.europa.eu/repository/handle/JRC106281>*
- Chepeleva N. V., Rudnytskaia S. Yu. *Discursive Technologies of Self-Designing Personality. Psycholinguistics : collection of scientific works. Series: Psychology. 2019. Iss. 25 (1). P. 363—383. URL: <https://psycholing-journal.com/index.php/journal/article/view/508> (in Russian)*
- Cherepovska N. I. *Media educational resources for the development of patriotism and critical thinking of young people : training and methodical manual / N. I. Cherepovska ; NAES of Ukraine, Institute for Social and Political Psychology. Kropyvnytskyi : Imeks-LTD, 2017. 156 c. URL: [https://ispp.org.ua/wp-content/uploads/2020/05/mediaosv\\_cherepovska.pdf](https://ispp.org.ua/wp-content/uploads/2020/05/mediaosv_cherepovska.pdf) (in Ukrainian)*
- Child safety on the Internet. *Protect children from online threats / Ministry and Committee of Digital Transformation of Ukraine. URL: <https://thedigital.gov.ua/projects/onlinesafety> (in Ukrainian)*
- Classification of institutional sectors of the economy. URL: [http://www.ukrstat.gov.ua/klasf/st\\_kls/op\\_kise\\_2016.htm](http://www.ukrstat.gov.ua/klasf/st_kls/op_kise_2016.htm) (in Ukrainian)
- Commission recommendation of 20 February 2013. *Investing in children: breaking the cycle of disadvantage (2013/112/EU). URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013H0112&from=EN>*
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: *of the Digital Education Action Plan / European Commission. Brussels, 2018. URL: <https://cutt.ly/nv5gGW7>*
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. *A Digital Agenda for Europe. 2010. 42 p. <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF>*
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. *Investing in Europe’s Youth. 2016. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52016DC0940>*

- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Establishing a European Pillar of Social Rights. 2017. URL: <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A52017DC0250>
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a Renewed EU Agenda for Higher Education. 2017. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2017%3A247%3AFIN&qid=1496304694958>
- Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. The European Green Deal. 2019. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN>
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Achieving the European Education Area by 2025. 2020. URL: <https://ec.europa.eu/education/sites/default/files/document-library-docs/communication-european-education-area.pdf>
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. European Skills Agenda for Sustainable Competitiveness, Social Fairness and Resilience. 2020. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0274>
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Digital Education Action Plan 2021-2027 Resetting Education and Training for The Digital Age. 2020. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0624>
- Communication from the commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Entrepreneurship 2020 Action Plan Reigniting the Entrepreneurial Spirit in Europe. 2020. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52012DC0795>
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Achieving the European Education Area By 2025. 2020. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0625>
- Community in the context of military conflict: psychological strategies of adaptation : collective monograph / L. M. Korobka, V. O. Vasiutynskiy, V. Yu. Vinkov et al. ; NAES of Ukraine, Institute for Social and Political Psychology. Kropyvnytskyi : Imeks-LTD, 2019. 286 p. URL: <https://bit.ly/3v7KZi9> (in Ukrainian)
- Computer modelling of cognitive tasks for the formation of students' competencies in natural and mathematical subjects : monograph / V. Yu. Bykov, S. H. Lytvynova, O. Yu. Burov et al. / edited by S. H. Lytvynova. Kyiv : Pedahohichna dumka, 2020. 213 p. URL: <https://lib.iitta.gov.ua/722871> (in Ukrainian)
- Council Conclusions of 12 May 2009 on A Strategic Framework for European Cooperation in Education and Training ('ET 2020'). Brussels: C. 119. Official Journal of the European Union. 2009, May 28. URL: [https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52009XG0528\(01\)](https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52009XG0528(01))
- Council Conclusions on the Implementation of the Council Recommendation on Upskilling Pathways: New Opportunities for Adults. Brussels: C 189. Official Journal of the



- European Union. 2019a, June 5. URL: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019XG0605\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019XG0605(01))
- Council Recommendation of 19 December 2016 on Upskilling Pathways: New Opportunities for Adults. Brussels: C 484. Official Journal of the European Union. 2016, December 19. URL: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOC\\_2016\\_484\\_R\\_0001](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AJOC_2016_484_R_0001)
- Council Recommendation of 22 May 2018 on Key Competences for Lifelong Learning. Brussels: C 189. Official Journal of the European Union. 2018, June 4. URL: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C\\_.2018.189.01.0001.01.ENG&toc=OJ:C:2018:189:TOC](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.189.01.0001.01.ENG&toc=OJ:C:2018:189:TOC)
- Council Recommendation of 22 May 2019 on High-Quality Early Childhood Education and Care Systems. Brussels: C 189. Official Journal of the European Union. 2019, June 5. URL: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C\\_.2019.189.01.0004.01.ENG](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2019.189.01.0004.01.ENG)
- Council Recommendation of 24 November 2020 on Vocational Education and Training (VET) for Sustainable Competitiveness, Social Fairness and Resilience. Brussels: C 417/01. Official Journal of the European Union. 2020, December 2. <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1606987593071&uri=CELEX%3A32020H1202%2801%29>
- Council Recommendation of 26 November 2018 on Promoting Automatic Mutual Recognition of Higher Education and Upper Secondary Education and Training Qualifications and the Outcomes of Learning Periods Abroad. Brussels: C 444. Official Journal of the European Union. 2018, December 10. URL: [https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1568891859235&uri=CELEX:32018H1210\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1568891859235&uri=CELEX:32018H1210(01))
- Council Recommendation on High-Quality Early Childhood Education and Care Systems. 2019. URL: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CONSIL:ST\\_9014\\_2019\\_INIT&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CONSIL:ST_9014_2019_INIT&from=EN)
- COVID-19 and Human Capital: Europe and Central Asia Economic Update / World Bank Group. Washington, DC : World Bank, 2020. 180 p. URL: <https://openknowledge.worldbank.org/bitstream/handle/10986/34518/9781464816437.pdf?sequence=4&isAllowed=y>
- COVID-19 school closures around the world will hit girls hardest. UNESCO. 2020. URL: <https://en.unesco.org/news/COVID-19-school-closures-around-world-will-hit-girls-hardest>
- Del Carpio X., Kupets O., Muller N., Olefir A. Skills for a Modern Ukraine. Directions in Development — Human Development. Washington, DC: World Bank, 2017. URL: <https://openknowledge.worldbank.org/handle/10986/25741>
- Demianenko V. M. The model for adaptive learning systems of open education information environment. Information Technologies and Learning Tools. Vol. 77, Iss. 3. P. 27—38. DOI: <https://doi.org/10.33407/itlt.v77i3.3603> (in Ukrainian)
- Description of the framework of digital competence for citizens of Ukraine (DigCompUA for Citizens 2.1). Ministry of Digital Transformation of Ukraine. 2021. 55 p. URL: <https://cutt.ly/gmF8z3z> (in Ukrainian)
- Development strategy of V. O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine for 2017-2026 / L. D. Berezivska, D. O. Zakatnov, L. I. Straihorodska et al. ; edited by L. D. Berezivska; V. O. Sukhomlynskyi SSPL of Ukraine. Kyiv, 2020. 28 p. URL: [https://dnpg.gov.ua/wp-content/uploads/2017/12/Development-strategy-2017-2026\\_ukr.pdf](https://dnpg.gov.ua/wp-content/uploads/2017/12/Development-strategy-2017-2026_ukr.pdf) (in Ukrainian)
- Digital Education at School in Europe : Eurydice report / European Commission. Luxembourg : Publications Office of the European Union, 2019. 156 p. URL: <https://cutt.ly/nvnKppT>

- Digital literacy of the population of Ukraine / Ministry of Digital Transformation of Ukraine. Kyiv, 2019. URL: [https://osvita.diia.gov.ua/uploads/0/585-cifrova\\_gramotnist\\_naselenna\\_ukraini\\_2019\\_compressed.pdf](https://osvita.diia.gov.ua/uploads/0/585-cifrova_gramotnist_naselenna_ukraini_2019_compressed.pdf) (in Ukrainian)
- Digital transformation of education and science: theory and practice : collection of scientific works / NAES of Ukraine, Institute of Information Technologies and Learning Tools. Kyiv : O. V. Yamchynskyi, 2019. 123 p. URL: <https://lib.iitta.gov.ua/718758/> (in Ukrainian)
- Digital transformation of open educational environments : collective monograph / edited by V. Yu. Bykov, O. P. Pinchuk ; NAES of Ukraine, Institute of Information Technologies and Learning Tools. Kyiv : O. V. Yamchynskyi, 2019. 186 p. URL: <https://lib.iitta.gov.ua/720740> (in Ukrainian)
- Discursive technologies of personality self-designing : monograph / N. V. Chepelieva et al. ; edited by N. V. Chepelieva ; NAES of Ukraine, G.S. Kostiuk Institute of Psychology. Kyiv, 2019. 170 p. URL: <http://lib.iitta.gov.ua/717132/> (in Ukrainian)
- Education and the pandemic: what Ukrainians think about distance learning and how they evaluate external assessment. Fond Demokratychni initsiatyvy im. Ilka Kucheriva : website. URL: <https://dif.org.ua/article/osvita-i-pandemiya-shcho-ukraintsi-dumayut-pro-distantsiynе-navchannya-ta-yak-otsynyuyut-zno> (in Ukrainian)
- Education in Ukraine: basic indicators: inform.-statist. newsletter of results of education in 2017/2018 / MoES of Ukraine, State Scientific Institution “Institute of Educational Analytics”. Kyiv, 2018. 210 p. URL: <https://mon.gov.ua/storage/app/media/nova-ukrainska-shkola/1serpkonf-informatsiyniy-byuletен.pdf> (in Ukrainian)
- Education in Ukraine: challenges and prospects / MoES of Ukraine, State Scientific Institution “Institute of Educational Analytics”. Kyiv, 2020. 293 p. URL: <https://mon.gov.ua/storage/app/media/zagalna%20serednya/serpneva-konferencia/2020/metod-zbirka-osvita-ta-covid-2020.pdf> (in Ukrainian)
- Education of people with disabilities in Ukraine: thematic national report. Chernivtsi: Bukrek, 2010. 436 p. (in Ukrainian)
- Educational reform: results and prospects. 20. Network of out-of-school education institutions. Portal of open data of the State Scientific Institution “Institute of Educational Analytics” : website. URL: <https://bit.ly/2OpMmtf> (in Ukrainian)
- European Higher Education Area (EHEA). URL: <https://www.ehea.info/>
- European Research Area (ERA). URL: [https://ec.europa.eu/info/research-and-innovation/strategy/strategy-2020-2024/our-digital-future/era\\_en](https://ec.europa.eu/info/research-and-innovation/strategy/strategy-2020-2024/our-digital-future/era_en)
- Fishkin J. S. The Voice of the People. Public Opinion and Democracy. New Haven : Yale University Press, 1995. 252 p.
- Freedom of Education Index. Worldwide Report 2016 on Freedom of Education, 2016. 382 p. URL: [http://www.oidel.org/doc/FEI\\_complet2.pdf](http://www.oidel.org/doc/FEI_complet2.pdf)
- Functional illiteracy and developmental dyslexia: looking for common roots. A systematic review / R. Vagvilgyi et. al. Journal of Cultural Cognitive Science. 2021. P. 1—22. DOI: <https://doi.org/10.1007/s41809-021-00074-9>
- General secondary and vocational education in Ukraine in 2020. State Statistics Service of Ukraine. URL: <http://www.ukrstat.gov.ua/> (in Ukrainian)
- General secondary education institutions (1990-2020). State Statistics Service of Ukraine. URL: <http://www.ukrstat.gov.ua/> (in Ukrainian)

- Global Report on Adult Learning and Education — GRALE. UNESCO Institute for Lifelong Learning. URL: <https://uil.unesco.org/adult-education/global-report>
- Higher education in Ukraine in 2019. Statistical information. State Statistics Service of Ukraine. URL: <http://www.ukrstat.gov.ua/> (in Ukrainian)
- HolonIQ. \$74B Online Degree Market in 2025, up from \$36B in 2019. 2020, May 1. URL: <https://www.holoniq.com/notes/74b-online-degree-market-in-2025-up-from-36b-in-2019/>
- HolonIQ. 2.5x Global MOOC Web Traffic. 2020, June 26. URL: <https://www.holoniq.com/notes/global-mooc-web-traffic-benchmarks/>
- Human Capital and Digital Skills in the Digital Economy and Society Index. European Commission. URL: <https://ec.europa.eu/digital-single-market/en/human-capital-and-digital-skills>
- Human Development Report 2020. United Nations Development Programme. URL: <http://hdr.undp.org/en/2020-report>
- Information and communication technologies in education : dictionary / NAES of Ukraine, Institute of Information Technologies and Learning Tools. Kyiv : Komprynt, 2019. 134 p. URL: <http://lib.iitta.gov.ua/718706> (in Ukrainian)
- International Organization for Standardization, ISO. URL: <https://www.iso.org/home.html>
- International Standard Classification of Education (ISCED 2011) / UNESCO Institute of Statistics. Canada, 2013. 89 p. URL: <http://uis.unesco.org/sites/default/files/documents/isced-2011-ru.pdf> (in Russian) (in Ukrainian)
- International Standard Classification of Education (ISCED-2011) / UNESCO Institute for statistics. Canada, 2012. 88 p. URL: <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>
- Internet in Schools / Ministry of Digital Transformation of Ukraine. URL: <https://broadband.gov.ua/school> (in Ukrainian)
- Internet Security. The survey results of Ukraine's residents aged 12 y.o. and older : analytical report / Kyiv International Institute of Sociology. Kyiv, 2021. URL: <https://bit.ly/36OOfFf> (in Ukrainian)
- Ivaniuk I. V., Ovcharuk O. V. The results of the online survey on the readiness and needs of teachers for the use of digital tools and ICT in the conditions of quarantine: 2021 : analytical report / NAES of Ukraine, Institute of Information Technologies and Learning Tools. URL: <https://lib.iitta.gov.ua/724564/> (in Ukrainian)
- Kokun O., Serdiuk L., Shamykh O. Personal characteristics supporting Paralympic athletes' self-realization in sports. *Journal of Human Sport and Exercise*. 2021. Vol. 16, No. 2. P. 435—444. DOI: <https://doi.org/10.14198/jhse.2021.162.17>
- Kremen V. H. *Philosophy of the National Idea: A Human. Education. Society*. Revised edition. Kyiv : Hramota, 2010. 576 p. (in Ukrainian)
- Kremen V. H. Problems of quality of Ukrainian education in the context of modern civilization changes. *Ukrainian Educational Journal*. 2015. Iss. 1. P. 8—15. URL: [http://nbuv.gov.ua/UJRN/ukrpj\\_2015\\_1\\_4](http://nbuv.gov.ua/UJRN/ukrpj_2015_1_4) (in Ukrainian)
- Kremen V. H., Liashenko O. I., Lokshyna O. I. General secondary education in Ukraine in the context of education in Europe: duration and structure : scientific and analytical report / NAES of Ukraine, Institute of Pedagogics of NAES of Ukraine. Kyiv : Pedahohichna dumka, 2020. 55 p. DOI: <https://doi.org/10.32405/978-966-644-555-4-2020-49> (in Ukrainian)

- Kremen V. H., Lugovyi, V. I. Saukh, P. Yu. Education and science — the basis of innovative human development. Herald of the National Academy of Educational Sciences of Ukraine. 2020. Vol. 2, Iss. 2. DOI: <https://doi.org/10.37472/2707-305X-2020-2-2-14-3> (in Ukrainian)
- Leading educational libraries in space and time: activity monitoring : statistical reference book / [O. L. Honcharenko, I. I. Khemchian ; edited by T. V. Dobko] ; NAES of Ukraine, V. O. Sukhomlynskyi SSPL of Ukraine. Kyiv, 2019. 141 p. URL: [https://dnpgov.ua/?download=1&kcccount=http://dnpgov.ua/wp-content/uploads/2019/06/Stat\\_zbirnyk\\_2019.pdf](https://dnpgov.ua/?download=1&kcccount=http://dnpgov.ua/wp-content/uploads/2019/06/Stat_zbirnyk_2019.pdf) (in Ukrainian)
- Lesson from the PISA-2018 : methodical recommendations / D. V. Vasylieva, M. V. Holovko, Yu. O. Zhuk et al. ; Institute of Pedagogics NAES of Ukraine. Kyiv : Pedahohichna dumka, 2020. 96 p. URL: <https://bit.ly/3dNNMIh> (in Ukrainian)
- Lokshyna O., Hlushko O., Dzhurylo A., Kravchenko S., Nikolska N., Tymenko M., Shparyk O. Global response to the challenges of COVID-19 in education (February-May, 2020) : analytical essay. Institute of Pedagogics of NAES of Ukraine, 2020. <https://lib.iitta.gov.ua/721241/> (in Ukrainian)
- Lugovyi V. Higher education in Ukraine: problems of quality. Osvita i suspilstvo. 2020. Iss. 10. P. 9. (in Ukrainian)
- Lugovyi V. Management of pedagogical staff training in the higher school system. Pislyadyplomna osvita v Ukrayini. 2013. Iss. 2. P. 6—9. (in Ukrainian)
- Lugovyi, V. I. The problem of educational quality in the strategy for the development of higher education in Ukraine. Herald of the National Academy of Educational Sciences of Ukraine, 2020. Vol. 2, Iss. 2. DOI: <https://doi.org/10.37472/2707-305X-2020-2-2-11-1> (in Ukrainian)
- Luparenko L. A., Spirin O. M. Experience of using “Open Journal Systems” software platform for information support of scientific and educational activity. Information Technologies and Learning Tools. Kyiv, 2017. Vol. 61, Iss. 5. P. 196—218. DOI: <https://doi.org/10.33407/itlt.v61i5.1910> (in Ukrainian)
- Maksymenko S. D., Kokun O. M. Principles of website design for professional psychological diagnosis in different specialties. Information Technologies and Learning Tools. 2019. Iss. 73(5). P. 284—292. DOI: <https://doi.org/10.33407/itlt.v73i5.2963>
- Mechanisms of civic and national self-identification: transformations of communicative practices : monograph / edited by I. V. Zhadan ; NAES of Ukraine, Institute for Social and Political Psychology. Kropyvnytskyi : Imeks-LTD, 2020. 192 p. URL: <https://lib.iitta.gov.ua/721062/> (in Ukrainian)
- Melnyk N. A. Scientific and methodological support of professional development of pedagogical employees of GCSE in the conditions of realizing the concept of the New Ukrainian School. Pisladyplomna osvita. 2018. Iss. 6. P. 29—32. (in Ukrainian)
- Methodical bases of development of SMART-complexes for preparation of skilled workers in establishments of professional (vocational and technical) education : methodical manual / M. A. Pryhodii et al. ; NAES of Ukraine, Institute of Vocational Education and Training. Zhytomyr : Polissia, 2019. 255 p. URL: <https://lib.iitta.gov.ua/720268/> (in Ukrainian)
- Methodical bases of professional training of skilled workers : methodical manual / V. A. Kruchek et al. ; NAES of Ukraine, Institute of Vocational Education and Training. Zhytomyr : Polissia, 2020. 274 p. URL: <https://lib.iitta.gov.ua/724247/> (in Ukrainian)
- Methodical bases of standardization of preparation of junior specialists in colleges and technical schools : methodical manual / A. A. Kalenskyi et al. ; NAES of Ukraine, Institute of



- Vocational Education and Training. Zhytomyr : Polissia, 2020. 192 p. URL: <https://lib.iitta.gov.ua/722244/> (in Ukrainian)
- Methodological provisions for compiling auxiliary (satellite) accounts of education in Ukraine. State Statistics Service of Ukraine. URL: [http://ukrstat.gov.ua/metaopus/2019/1\\_03\\_00\\_06\\_2019.htm](http://ukrstat.gov.ua/metaopus/2019/1_03_00_06_2019.htm) (in Ukrainian)
- Modern models of vocational education and training in the countries of the European Union: comparative experience: monograph / V. O. Radkevych, L. P. Pukhovska, O. V. Borodiienko et al.; NAES of Ukraine, Institute of Vocational Education and Training. Zhytomyr : Polissia, 2018. 223 p. URL: <https://lib.iitta.gov.ua/711545/> (in Ukrainian)
- Modern technologies of confectionery production : textbook / O. V. Haiduk et al. ; NAES of Ukraine, Institute of Vocational Education and Training. Zhytomyr : Polissia, 2020. 440 p. URL: <https://lib.iitta.gov.ua/723902/> (in Ukrainian)
- Modernization of the organization of the educational process in out-of-school education institutions : methodical manual / [A. E. Boiko, V. V. Verbytskyi, A. V. Korniienko, O. V. Lytovchenko ; edited by V. V. Machutskyi] ; NAES of Ukraine, Institute of Problems on Education. Kropyvnytskyi : Imeks-LTD, 2020. 223 p. URL: <http://lib.iitta.gov.ua/723075> (in Ukrainian)
- Modernization processes in education and society: psychotechnologies of support : [a monograph] / edited by P. D. Frolov ; NAES of Ukraine, Institute for Social and Political Psychology. Kirovohrad : Imeks-LTD, 2013. 312 c. (in Ukrainian)
- Muromets V. H. Scientific and methodological support for the formation of preventive educational environment of a secondary school. Teoretyko-metodychni problemy vykhovannia ditei ta uchniv. molodi : collection of scientific works / NAES of Ukraine, Institute of Problems on Education. Kyiv, 2012. Iss. 16, Book 2. P. 321—329. URL: <https://lib.iitta.gov.ua/2843/1/Muromec.pdf> (in Ukrainian)
- Naidonova L. A. Diagnostics of bullying and cyberbullying : methodical recommendations ; NAES of Ukraine, Institute for Social and Political Psychology. 2019. 94 p. URL: <http://mediaosvita.org.ua/book/diagnostyka-bulingu-tskuvannya-i-kiberbulingu-metodychni-rekomendatsiyi/> (in Ukrainian)
- NAQA. Information on self-assessment of the educational programme. Kyiv, 2020. URL: <https://naqa.gov.ua/wp-content/uploads/2020/01/SAR-form-.pdf> (in Ukrainian)
- Narrative practices of self-design : methodical recommendations / N. V. Chepelieva, O. V. Zazymko, O. M. Shylovska ; edited by N. V. Chepelieva / NAES of Ukraine, G.S. Kostiuk Institute of Psychology. Kyiv, 2019. 44 p. URL: <http://lib.iitta.gov.ua/717134/> (in Ukrainian)
- National and cultural identity in the formation of adolescents : monograph / K. O. Zhurba et al. ; NAES of Ukraine, Institute of Problems on Education. Kropyvnytskyi : IMEKS-LTD, 2019. 156 p. URL: <https://lib.iitta.gov.ua/718615/> (in Ukrainian)
- National report on the results of the international survey on the quality of education PISA-2018 / M. Mazorchuk, T. Vakulenko et al. ; MoES of Ukraine, Ukr. tsentr otsiniuvannia yakosti osvity. Kyiv, 2019. 439 p. URL: [http://pisa.testportal.gov.ua/wp-content/uploads/2019/12/PISA\\_2018\\_Report\\_UKR.pdf](http://pisa.testportal.gov.ua/wp-content/uploads/2019/12/PISA_2018_Report_UKR.pdf) (in Ukrainian)
- National report on the state and prospects of education development in Ukraine / NAES of Ukraine ; Editorial Board: V. H. Kremen (Head), V. I. Lugovyi (Deputy Head), A. M. Gurzhii (Deputy Head), O. Ya. Savchenko (Deputy Head) ; edited by V. H. Kremen. Kyiv : Pedahohichna dumka, 2016. 448 p. URL: <https://mon.gov.ua/storage/app/media/nrk/>



- Analitychni-materialy/7-natsionalna-dopovid-pro-stan-i-rozvitok-osviti-v-ukraini.pdf (in Ukrainian)
- National Repository of Academic Texts. URL: <http://nrat.ukrintei.ua/> (in Ukrainian)
- Negative psychological phenomena in the political and legal sphere in the context of military conflict : monograph / edited by V. M. Dukhnevych ; NAES of Ukraine, Institute for Social and Political Psychology. Kropyvnytskyi : Imeks-LTD, 2020. 188 p. URL: <https://ispp.org.ua/2020/10/15/monografiya-negativni-psixologichni-naslidki-u-politiko-pravovij-sferi-v-umovax-voyennogo-konfliktu/> (in Ukrainian)
- Newsletter: out-of-school educational institutions of state and communal ownership of the Ministry of Education and Science of Ukraine and private ownership (as of January 1, 2019 and January 1, 2020) / MoES of Ukraine, Department of Economics and Finance, State Scientific Institution “Institute of Educational Analytics”. Kyiv, 2020. 294 p. (in Ukrainian)
- Newsletter: out-of-school educational institutions of state and communal ownership of the Ministry of Education and Science of Ukraine and private ownership (as of January 1, 2018) / MoES of Ukraine, Department of Economics and Finance, State Scientific Institution “Institute of Educational Analytics”. Kyiv, 2018. 119 p. URL: <https://iea.gov.ua/wp-content/uploads/2020/06/Pozashkilni-navchalni-zakladi-derzh.-ta-komun.-formi-vlasnosti-MON-ta-privatnoyi-formi-vlasnosti-stanom-na-01.01.2017-ta-01.01.2018.pdf>
- Newsletter: out-of-school educational institutions of the Ministry of Education and Science of Ukraine (as of 01.01.2016 and 01.01.2017) / MoES of Ukraine, Department of Economics and Finance, State Scientific Institution “Institute of Educational Analytics”. Kyiv, 2017. 124 p. (in Ukrainian)
- Official report on conducting an external independent assessment of learning outcomes obtained on the basis of complete general secondary education in 2020 / Ukr. tseentr otsiniuvannia yakosti osvity. Kyiv, 2020. Vol. 1. 236 p. URL: [https://testportal.gov.ua/wp-content/uploads/2020/09/ZVIT-ZNO\\_2020-Tom\\_1\\_r.pdf](https://testportal.gov.ua/wp-content/uploads/2020/09/ZVIT-ZNO_2020-Tom_1_r.pdf) (in Ukrainian)
- Official report on conducting an external independent assessment of learning outcomes obtained on the basis of complete general secondary education in 2020 / Ukr. tseentr otsiniuvannia yakosti osvity. Kyiv, 2020. Vol. 2. 258 p. URL: [https://testportal.gov.ua/wp-content/uploads/2020/09/ZVIT-ZNO\\_2020-Tom\\_2.pdf](https://testportal.gov.ua/wp-content/uploads/2020/09/ZVIT-ZNO_2020-Tom_2.pdf) (in Ukrainian)
- On statistics concerning out-of-school education institutions : Letter No. 6/822-20 of MoES of Ukraine dated 2020, June 23. URL: [http://osvita.sm.gov.ua/images/2020/ACTS\\_2020/Lyst\\_MON\\_\\_stat\\_dani\\_pozashkillia.pdf](http://osvita.sm.gov.ua/images/2020/ACTS_2020/Lyst_MON__stat_dani_pozashkillia.pdf) (in Ukrainian)
- Open electronic scientific and educational systems in research : methodical manual / S. M. Ivanova, A. F. Dudko et al. ; edited by O. M. Spirin ; NAES of Ukraine, Institute of Information Technologies and Learning Tools. Kyiv : Pedahohichna dumka, 2020. 208 p. URL: <https://lib.iitta.gov.ua/722957/> (in Ukrainian)
- Organization of dual form of education in institutions of professional (vocational) education : practical manual / T.M. Herliand et al. ; edited by N. V. Kulalaieva ; NAES of Ukraine, Institute of Vocational Education and Training. Zhytomyr : Polissia, 2019. 304 p. (in Ukrainian)
- Osnabriick Declaration on Vocational Education and Training as an Enabler of Recovery and just Transitions to Digital and Green Economies. CEDEFOP. 2020. URL: [https://www.cedefop.europa.eu/files/osnabrueck\\_declaration\\_eu2020.pdf](https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf)
- Ostapenko O. I., Zubalii M. D., Tymchyk M. V. Methods of forming readiness of high school students in different types of educational institutions to defend the Fatherland : methodical

- manual / NAES of Ukraine, Institute of Problems on Education. Kropyvnytskyi : Imeks-LTD, 2019. 168 p. URL: <https://lib.iitta.gov.ua/717905/> (in Ukrainian)
- Panok V. H. The concept of psychological supporting the education reforms in the psychological service activities. Herald of the National Academy of Educational Sciences of Ukraine. 2020. Vol. 2, Iss. 1. DOI: <https://doi.org/10.37472/2707-305X-2020-2-1-9-1> (in Ukrainian)
- Personally oriented technologies of national-patriotic education of youth in public associations : methodical manual / [T. K. Okushko et al.]; NAES of Ukraine, Institute of Problems on Education. Kropyvnytskyi : Imeks-LTD, 2018. 198s. URL: <https://lib.iitta.gov.ua/711916/> (in Ukrainian)
- Pinchuk O. P., Lytvynova S. H., Burov O. Yu. Synthetic educational environment – a footpace to new education. Information Technologies and Learning Tools. 2017. Vol. 60, Iss. 4. P. 28—45. DOI: <https://doi.org/10.33407/itlt.v60i4.1831> (in Ukrainian)
- Pinchuk O. P., Sokolyuk O. M. Cognitive activity of students under conditions of digital transformation of learning environment. Information Technologies in Education. 2018. Iss. 3 (36). P. 71—81. DOI: <https://doi.org/10.14308/ite000675>
- Pometun O. I., Remekh T. O., Hupan N. M., Moroz P. V., Moroz I. V., Kryshmarel V. Yu., Maliyenko Yu. B., Matseikiv T. I. About the state of online teaching of history to students during the quarantine period in Ukraine (March-May 2020) : analytical note. Kyiv : Pedahohichna dumka, 2020. 26 p. URL: <https://lib.iitta.gov.ua/722287/> (in Ukrainian)
- Portal of open data of the State Scientific Institution “Institute of Educational Analytics”. URL: <http://opendata.iea.gov.ua/> (in Ukrainian)
- Project activity in the system of professional (vocational) education : practical manual. V. O. Radkevych, O. V. Borodiienko, L. P. Pukhovska, O. A. Samoilenko, O. P. Radkevych, N. V. Bazeliuk. Zhytomyr: “Polissia”, 2020. 236 p. URL: <https://bit.ly/3w9dQUP> (in Ukrainian)
- Proposal for a Council Recommendation on High Quality Early Childhood Education and Care Systems. 2018. URL: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0271>
- Psychological and pedagogical trainings in the system of counselling on the professional career of students of vocational schools : training manual / S. V. Aliexsieieva, I. A. Hrytsenok, D. O. Zakatnov et al. ; edited by D. O. Zakatnov ; NAES of Ukraine, Institute of Vocational Education and Training. Zhytomyr : Polissia, 2019. 200 p. URL: <https://lib.iitta.gov.ua/717525> (in Ukrainian)
- Psychological dimensions of personal interaction of subjects of educational space in the context of humanistic paradigm : monograph / edited by S. D. Maksymenko ; NAES of Ukraine, G.S. Kostiuk Institute of Psychology. Kyiv : Slovo, 2020. 220 p. URL: <https://lib.iitta.gov.ua/723176/> (in Ukrainian)
- Psychological service : textbook / V. H. Panok (Ed.), A. H. Obukhivska, V. D. Ostrova et al. Kyiv : Nika-Tsentr, 2016. 362 p. (in Ukrainian)
- Psychological technologies of interaction of subjects of educational space : methodical recommendations / edited by S. D. Maksymenko ; NAES of Ukraine, G.S. Kostiuk Institute of Psychology. Kyiv : Slovo, 2020. 48 p. URL: <https://lib.iitta.gov.ua/723087> (in Ukrainian)
- Psychophysiological support of professional self-realization of the specialist under the conditions of social and economic transformations : monograph / V. V. Klymenko et al. ; edited by O. M. Kokun ; NAES of Ukraine, G.S. Kostiuk Institute of Psychology. Kyiv, 2018. 298 p. URL : <http://lib.iitta.gov.ua/712848> (in Ukrainian)

- QS World University Ranking. URL: <https://www.topuniversities.com/university-rankings/world-university-rankings/>
- Quality assessment systems for vocational education and training in the countries of the European Union : monograph / V. O. Radkevych et al. ; NAES of Ukraine, Institute of Vocational Education and Training. Zhytomyr : Polissia, 2018. 216 p. URL: <https://lib.iitta.gov.ua/721252/> (in Ukrainian)
- Recommendation 200/C of the European Parliament and of the Council 111/01 “On the establishment of a European Qualifications Framework for lifelong learning” of 23 April. 2008 No. 994/988. Legislation of Ukraine : official web portal / Verkhovna Rada of Ukraine. Kyiv, 2008. URL: [https://zakon.rada.gov.ua/laws/show/994\\_988](https://zakon.rada.gov.ua/laws/show/994_988) (in Ukrainian)
- Recommendation CM/Rec(2011)12 of the Committee of Ministers to member states on children’s rights and social services friendly to children and families. URL: [https://search.coe.int/cm/Pages/result\\_details.aspx?ObjectID=09000016805afddf](https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=09000016805afddf)
- Recommendation concerning Technical and Vocational Education and Training (TVET), 2015. UNESCO Institute for Lifelong Learning. 2016. 16 p. URL: <https://unesdoc.unesco.org/ark:/48223/pf0000245178>
- Redecker C., Punie Y. European Framework for the Digital Competence of Educators: Dig CompEdu / European commission. Luxembourg: Publications Office of the European Union, 2017. 95 p. DOI: <https://doi.org/10.2760/159770>
- Register of professional standards. Ministry of Economic Development, Trade and Agriculture of Ukraine. Kyiv, 2021. URL: <https://www.me.gov.ua/Documents/Detail?lang=uk-UA&id=22469103-4e36-4d41-b1bf-288338b3c7fa&title=RestrProfesiinikhStandartiv> (in Ukrainian)
- Research Evidence on the Use of Learning Analytics : Implications for Education Policy / Ed. Riina Vuorikari, Jonatan Castaio Munoz; European Commission. Luxembourg: Publications Office of the European Union, 2016. 152 p. URL: <https://cutt.ly/dvnKwbn>
- Resolution adopted by the General Assembly on 25 September 2015. United Nations. 2015. URL: [https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E)
- Salaries of teachers in general secondary education institutions will increase during 2021. Ministry of Education and Science of Ukraine : official web portal. Kyiv, 2020. URL: <https://mon.gov.ua/ua/news/zarplati-pedagogichnih-pracivnikiv-u-zakladah-serednoyi-zagalnoyi-osviti-zbilshuvatimutsya-protyagom-2021-roku-mon> (in Ukrainian)
- Shatyrko L. O., Dziubko L. V. Security of educational space in the context of adaptive resources of schoolchildren. Educational space in the context of humanistic paradigm: the psychological priorities of modernity : collection of scientific works / edited by S. D. Maksymenko ; NAES of Ukraine, G.S. Kostyuk Institute of Psychology. Kyiv-Ottava, 2020. P. 59—72. URL: <http://lib.iitta.gov.ua/720332> (in Ukrainian)
- Sliusarevskyy M. M. Remote sensing of public consciousness as a prerequisite for an adequate response of the psychological community to the challenges of the COVID-19 pandemic. Dosvid perezhyvannia pandemii COVID-19: dystantsiini psykholohichni doslidzhennia, dystantsiina psykholohichna pidtrymka: materialy onlain-seminariv 23 kvitnia 2020 roku “Dosvid karantynu: dystantsiina psykholohichna dopomoha i pidtrymka” ta 15 travnia 2020 roku “Dystantsiini psykholohichni doslidzhennia v umovakh pandemii COVID-19 i karantynu” / edited by M. M. Sliusarevskyy, L. A. Naidonova, O. L. Voznesenska ; NAES of Ukraine, Institute for Social and Political Psychology, G.S. Kostyuk Institute of Psychology.

- Kyiv, 2020. P. 65—70. URL: [https://ispp.org.ua/wp-content/uploads/Static/dosvid\\_onlsem\\_23-04-20\\_and\\_15-05-20\\_ncov19.pdf](https://ispp.org.ua/wp-content/uploads/Static/dosvid_onlsem_23-04-20_and_15-05-20_ncov19.pdf) (in Ukrainian)
- Sliusarevskyy M. M., Humeniuk O. I., Dvornyk M. S., Chernysh L. P. The social situation in Ukraine: features of the reflection of transformational processes in public opinion (2014-2018) : directory. Kyiv : Talkom, 2019. 272 p. URL: <https://ispp.org.ua/wp-content/uploads/2020/10/SocialSituationDovidnik.pdf> (in Ukrainian)
- Sliusarevskyy M. Public opinion on education: preferences, contradictions and prospects for enrichment. *Dyrektor shkoly, litseiu, himnazii*. 2016. Iss. 4—6. P. 49—61. URL: [http://nbuv.gov.ua/UJRN/dslg\\_2016\\_4-6\\_8](http://nbuv.gov.ua/UJRN/dslg_2016_4-6_8) (in Ukrainian)
- Slyusarevskyy M. M. “Online-kolo”: the experience of psychological support and assistance to the population during the COVID-19. *Herald of the National Academy of Educational Sciences of Ukraine*. 2021. Vol. 2, Iss. 1. DOI: <https://doi.org/10.37472/2707-305X-2020-2-1-7-8> (in Ukrainian)
- Smulson M. L. Adult development in the modern transitive world. *Aktualni problemy psykholohii : collection of scientific works / NAES of Ukraine, G.S. Kostyuk Institute of Psychology*. Kyiv, 2019. Vol. 8, Iss. 10. P. 257—267. URL: <http://appsychology.org.ua/data/jrn/v8/i10/24.pdf> (in Ukrainian)
- Smulson M. L., Meshcheriakov D. S., Nazar M. M. Psychological fundamentals of internet resources designing for the adult’s subjectness development. *Technologies of Intellect Development*. 2020. Vol. 4, Iss. 3 (28). URL: <http://doi.org/10.31108/3.2020.4.3.1> (in Ukrainian)
- Socialization of children of the senior preschool age in the primary school : monograph / N. Havrysh, O. Reipolska et al. ; edited by O. Reipolska ; NAES of Ukraine, Institute of Problems on Education. *Kropyvnytskyi : Imeks-LTD*, 2018. 280 p. URL: <https://lib.iitta.gov.ua/711895/> (in Ukrainian)
- Standards and recommendations for quality assurance in the European Higher Education Area (ESG). Kyiv : TsS, 2015. 32 c. (in Ukrainian)
- State classification of products and services DK 016: 2010: Order No. 457 of Derzhspozhyvstandart of Ukraine dated 2010, October 11. *Legislation of Ukraine : official web portal / Verkhovna Rada of Ukraine*. Kyiv, 2010. URL: <https://zakon.rada.gov.ua/rada/show/v457p609-10/> (in Ukrainian)
- State Scientific Institution “Institute of Educational Analytics”. URL: <https://iea.gov.ua/> (in Ukrainian)
- State Statistics Service of Ukraine. Education. URL: <http://www.ukrstat.gov.ua/> (in Ukrainian)
- Statistical data. Out-of-school education in 2021. Ministry of Education and Science of Ukraine : official web portal. Kyiv, 2021. URL: <https://mon.gov.ua/ua/osvita/pozashkilna-osvita/statistichni-danni> (in Ukrainian)
- Sustainable Development Goals: Ukraine : national report / Ministry of Economic Development and Trade of Ukraine. Kyiv, 2017. 176 p. URL: <https://bit.ly/36megM0> (in Ukrainian)
- The concept of education of early and preschool children / V. A. Voronov et al. ; NAES of Ukraine. Kyiv : Ferenets V. B., 2020. 44 p. URL: <https://bit.ly/2E3xuLJ> (in Ukrainian)
- The European Credit system for Vocational Education and Training (ECVET). European Commission. URL: [https://ec.europa.eu/education/resources-and-tools/the-european-credit-system-for-vocational-education-and-training-ecvet\\_en](https://ec.europa.eu/education/resources-and-tools/the-european-credit-system-for-vocational-education-and-training-ecvet_en)



- The European Higher Education Area in 2020 : report on the implementation of the Bologna Process / MoES of Ukraine. Kyiv, 2020. 214 p. (in Ukrainian)
- The New Delhi Declaration on Inclusive ICTs for Persons with Disabilities: Making Empowerment a Reality. 2014. 5 p. <https://cutt.ly/YmF7k0D>
- The New Ukrainian School: conceptual principles of secondary school reform: approved by the decision of the board of the Ministry of Education and Science of Ukraine dated 2016, October 27. Kyiv, 2016. 40 p. URL: <https://bit.ly/3npPoec> (in Ukrainian)
- The population of Ukraine. Imperatives of demographic aging. Kyiv : ADEFUkraina, 2014. 288 p. (in Ukrainian)
- The results of the online survey “Teachers’ needs to improve the professional level of the use of digital tools and ICT in quarantine” : collected materials / edited by I. V. Ivaniuk, O. V. Ovcharuk ; NAES of Ukraine, Institute of Information Technologies and Learning Tools. Zhytomyr : Vyd-vo ZhDU imeni I. Franka, 2020. 61 p. URL: <https://lib.iitta.gov.ua/723120/> (in Ukrainian)
- The world of life and psychological security of the person in the conditions of social changes : abstract description of work / M. M. Sliusarevskyy et al. Kyiv : Talkom, 2020. 318 p. <https://ispp.org.ua/2020/11/17/monografiya-zhittyevij-svit-i-psixologichna-bezpeka-lyudini-v-umovax-suspilnix-zmin/> (in Ukrainian)
- Theory and practice of project training in vocational educational institutions : monograph / V. M. Anishchenko et al.; edited by N. V. Kulalaieva ; NAES of Ukraine, Institute of Vocational Education and Training. Kyiv, 2019. 208 p. URL: <https://lib.iitta.gov.ua/718498/> (in Ukrainian)
- Times Higher Education. World University Ranking. URL: <https://www.timeshighereducation.com/world-university-rankings>
- Training of future qualified personnel for entrepreneurial activity in the conditions of small business development: theory and practice : monograph. S. V. Aliksieieva, L. O. Bazyl, I. A. Hrytsenok, L. M. Iershova, D. O. Zakatnov, V. F. Orlov, H. V. Sokhatska: Zhytomyr “Polissia”. 2020. 237 p. URL: <https://bit.ly/3zoHQOz> (in Ukrainian)
- Training of pedagogical staff of vocational schools for the development and application of project technologies of vocational training: training course : training and methodical manual / V. M. Anishchenko et al. ; edited by H M. Romanova ; NAES of Ukraine, Institute of Vocational Education and Training. Kyiv, 2019. 158 p. URL: <https://lib.iitta.gov.ua/718065/> (in Ukrainian)
- Tytarenko T. M. Post-traumatic life formation: ways to achieve psychological well-being : monograph / NAES of Ukraine, Institute for Social and Political Psychology. Kropyvnytskyi : Imeks-LTD, 2020. 160 p. URL: <https://ispp.org.ua/2021/02/26/titarenko-t-m-monografiya-posttravmatichne-zhittyetvorennya-sposobi-dosyagnennya-psixologichnogo-blagopoluchchya-fragment/> (in Ukrainian)
- U21 Ranking of National Higher Education Systems. U21 Universitas. URL: <https://universitas21.com/network/u21-open-resources-and-publications/u21-rankings/u21-ranking-national-higher-education>
- Ukrainian Scientific and Methodical Centre for Practical Psychology and Social Work of the National Academy of Educational Sciences of Ukraine : website. URL: <http://psyua.com.ua> (in Ukrainian)
- UNESCO Global Network of Learning Cities. UNESCO Institute for Lifelong Learning. URL: <https://uil.unesco.org/lifelong-learning/learning-cities>



- UNESCO Recommendation on Adult Learning and Education, 2015. UNESCO Institute for Lifelong Learning. 2016. 17 p. URL: <https://unesdoc.unesco.org/ark:/48223/pf0000245179>
- White Paper on the Future of Europe Reflections and Scenarios for the EU27 by 2025. Publications Office of the EU. 2017. URL: <https://op.europa.eu/en/publication-detail/-/publication/ba81f70e-2b10-11e7-9412-01aa75ed71a1/language-en>
- V. O. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine: achievements and prospects (2015–2019): information reference book/ NAES of Ukraine, V. O. Sukhomlynskyi SSPL of Ukraine ; L. D. Berezivska, L. I. Straihorodska, S. M. Kravchenko et al. ; edited by L. D. Berezivska. Vinnytsia : TVORY, 2019. 204 p. URL: <https://lib.iitta.gov.ua/717211/>; <http://dnpb.gov.ua/ua/?ourpublications=21138> (in Ukrainian)
- Vocational (vocational and technical) and professional pre-higher education : informational and analytical materials / edited by V. O. Radkevych, L. M. Yershova ; NAES of Ukraine, Institute of Vocational education and Training. Zhytomyr : Polissia, 2019. 232 p. URL: <https://ivet.edu.ua/component/k2/item/925-profesiina-profesiinotekhnichna-ta-fakhova-peredvyshcha-osvita> (in Ukrainian)
- Worldskills International Skills Competition. URL: <http://www.worldskillsukraine.org/pro-konkurs/> (in Ukrainian)
- Zasenko V. V., Prokhorenko L. I. Inclusion: philosophy education for peace. Education for Peace = Edukacja dla pokoju : collection of scientific works : / Editorial Board: V. H. Kremen (Head) ; V. P. Kotsur, N. H. Nychkalo, F. Shlosek (Deputy Head). Kyiv : Yurka Liuchenka, 2019. Vol. 1. P. 109—119. URL: [http://ipood.com.ua/data/UAPLForum2019/volume\\_1\\_2019.pdf](http://ipood.com.ua/data/UAPLForum2019/volume_1_2019.pdf) (in Ukrainian)
- Zasenko V. V., Prokhorenko L. I. The New Ukrainian School is a strategy for the development of education for children with special needs. Nauka Edukacja Wychowanie I Praca. Warszawa-Siedlce, 2018. P. 149—158. (in Ukrainian)
- Zasenko V., Prokhorenko L. Educational development priorities for people with special needs in Ukraine. Education: Modern Discourses. 2018. Iss. 1. P. 161—166. DOI: <https://doi.org/10.32405/2617-3107-2018-1-15>

# LEGISLATIVE AND REGULATORY DOCUMENTS

*Constitution of Ukraine*. (1996, June 28). <https://zakon.rada.gov.ua/laws/show/254к/96-бп> (in Ukrainian)

## Laws of Ukraine

*Law of Ukraine “On Amendments to Certain Legislative Acts of Ukraine on Combating Bullying (Harassment)”*. (2018, December 18). <https://zakon.rada.gov.ua/laws/show/2657-19> (in Ukrainian)

*Law of Ukraine “On Associations of Local Governments”*. (2009, April 16). <https://zakon.rada.gov.ua/laws/show/1275-17> (in Ukrainian)

*Law of Ukraine “On Charitable Activities and Charitable Organisations”*. (2012, July 5). <https://zakon.rada.gov.ua/laws/show/5073-17> (in Ukrainian)

*Law of Ukraine “On Childhood Protection”*. (2001, April 26). <https://zakon.rada.gov.ua/laws/card/2402-14> (in Ukrainian)

*Law of Ukraine “On Complete General Secondary Education”*. (2020, January 16). <https://zakon.rada.gov.ua/laws/show/463-20> (in Ukrainian)

*Law of Ukraine “On Culture”*. (2010, December 14). <https://zakon.rada.gov.ua/laws/show/2778-17> (in Ukrainian)

*Law of Ukraine “On Education”*. (2017, September 5). <https://zakon.rada.gov.ua/laws/show/2145-19> (in Ukrainian)

*Law of Ukraine “On Employment”*. (2012, July 5). <https://zakon.rada.gov.ua/laws/show/5067-17> (in Ukrainian)

*Law of Ukraine “On Higher Education”*. (2004, July 1). <https://zakon.rada.gov.ua/laws/show/1556-18> (in Ukrainian)

*Law of Ukraine “On Libraries and Librarianship”*. (1995, January 27). <https://zakon.rada.gov.ua/laws/show/32/95-бп> (in Ukrainian)

*Law of Ukraine “On National Informatisation Programme”*. (1998, February 4). <https://zakon.rada.gov.ua/laws/card/74/98-бп> (in Ukrainian)

*Law of Ukraine “On Out-of-School Education”*. (2000, June 22). <https://zakon.rada.gov.ua/laws/show/1841-14> (in Ukrainian)

*Law of Ukraine “Preschool Education”*. (2001, July 11). <https://zakon.rada.gov.ua/laws/show/2628-14> (in Ukrainian)

*Law of Ukraine “On Prevention and Counteraction to Domestic Violence”*. (2017, December 7). <https://zakon.rada.gov.ua/laws/show/2229-19> (in Ukrainian)

- Law of Ukraine “On Professional Development of Employees”*. (2012, January 12). <https://zakon.rada.gov.ua/laws/show/4312-17> (in Ukrainian)
- Law of Ukraine “On Public Associations”*. (2012, March 22). <https://zakon.rada.gov.ua/laws/show/4572-17> (in Ukrainian)
- Law of Ukraine “On Public Procurement”*. (2015, December 25). <https://zakon.rada.gov.ua/laws/show/922-19> (in Ukrainian)
- Law of Ukraine “On Recognition of the Scout Movement and Features of State Support of Scout Movement”*. (2021, April 27). <https://zakon.rada.gov.ua/laws/show/385-20> (in Ukrainian)
- Law of Ukraine “On Scientific and Scientific and Technical Activity”*. (2015, November 26). <https://zakon.rada.gov.ua/laws/show/848-19> (in Ukrainian)
- Law of Ukraine “On Some Amendments to the Laws of Ukraine Regarding Access of Persons with Special Educational Needs to Educational Services”*. (2018, September 6). <https://zakon.rada.gov.ua/laws/show/2541-19> (in Ukrainian)
- Law of Ukraine “On State Social Standards and State Social Guarantees”*. (2000, October 5). <https://zakon.rada.gov.ua/laws/show/2017-14> (in Ukrainian)
- Law of Ukraine “On the Basic Principles of Information Society Development in Ukraine for 2007-2015”*. (2007, January 9). <https://zakon.rada.gov.ua/laws/card/537-16> (in Ukrainian)
- Law of Ukraine “On the Basic Principles of Youth Policy”*. (2019, December 17). <https://zakon.rada.gov.ua/laws/show/1414-20> (in Ukrainian)
- Law of Ukraine “On the Basics of Social Protection of Persons with Disabilities in Ukraine”*. (1991, March 21). <https://zakon.rada.gov.ua/laws/show/875-12> (in Ukrainian)
- Law of Ukraine “On the Concept of the National Informatisation Programme”*. (1998, February 4). <https://zakon.rada.gov.ua/laws/card/75/98-bp> (in Ukrainian)
- Law of Ukraine “On the Legal Status and Honouring the Memory of Fighters for Ukraine’s Independence in the 20th century”*. (2015, April 9). <https://zakon.rada.gov.ua/laws/show/314-19> (in Ukrainian)
- Law of Ukraine “On the Rehabilitation of Persons with Disabilities in Ukraine”*. (2005, October 6). <https://zakon.rada.gov.ua/laws/show/2961-15> (in Ukrainian)
- Law of Ukraine “On Vocational and Technical Education”*. (1998, February 10). <https://zakon.rada.gov.ua/laws/show/103/98-bp> (in Ukrainian)
- Law of Ukraine “On Vocational Pre-Tertiary Education”*. (2019, June 6). <https://zakon.rada.gov.ua/laws/show/2745-19> (in Ukrainian)

### **Codes, Conventions, Agreements**

*Agreement on Ukraine’s participation in the EU Framework Programme for Research and Innovation “Horizon 2020” (2014-2020) between the European Union and*

*Ukraine*. (2015, March 20). [https://zakon.rada.gov.ua/laws/show/984\\_018](https://zakon.rada.gov.ua/laws/show/984_018) (in Ukrainian)

*Association Agreement between Ukraine, of the one part, and the European Union, the European Atomic Energy Community, and its Member States, of the other part*. (2014, June 27). [https://zakon.rada.gov.ua/laws/show/984\\_011](https://zakon.rada.gov.ua/laws/show/984_011) (in Ukrainian)

*Budget Code of Ukraine*. (2010, July 8). <https://zakon.rada.gov.ua/laws/show/2456-17> (in Ukrainian)

*Family Code of Ukraine*. (2002, January 10). <https://zakon.rada.gov.ua/laws/show/2947-14> (in Ukrainian)

*Labour Code of Ukraine*. (1971, December 10). <https://zakon.rada.gov.ua/laws/show/322-08> (in Ukrainian)

United Nations. (1989, November 20). *Convention on the Rights of the Child*. [https://zakon.rada.gov.ua/laws/show/995\\_021](https://zakon.rada.gov.ua/laws/show/995_021) (in Ukrainian)

United Nations. (2006, December 13). *Convention on the Rights of Persons with Disabilities*. [http://zakon.rada.gov.ua/laws/show/995\\_g71](http://zakon.rada.gov.ua/laws/show/995_g71) (in Ukrainian)

#### **Decrees of the President of Ukraine**

President of Ukraine. (1992, March 4). *On Establishing the Academy of Educational Sciences of Ukraine* (124). <https://zakon.rada.gov.ua/laws/show/124/92> (in Ukrainian)

President of Ukraine. (1995, September 12). *On the Main Directions of Higher Education Reforming in Ukraine* (832/95). <https://zakon.rada.gov.ua/laws/show/832/95> (in Ukrainian)

President of Ukraine. (2002, April 17). *On the National Doctrine for Education Development* (347/2002). <https://zakon.rada.gov.ua/laws/show/347/2002> (in Ukrainian)

President of Ukraine. (2005, June 1). *On Priority Measures to Create Favourable Living Conditions for Persons with Disabilities* (900/2005). <https://zakon.rada.gov.ua/laws/show/900/2005> (in Ukrainian)

President of Ukraine. (2010, February 24). *On Granting the Academy of Educational Sciences of Ukraine a National Status* (259/2010). <https://zakon.rada.gov.ua/laws/show/259/2010> (in Ukrainian)

President of Ukraine. (2011, May 19). *On Measures to Solve Urgent Problems of Persons with Disabilities* (588/2011). <https://zakon.rada.gov.ua/laws/show/588/2011> (in Ukrainian)

President of Ukraine. (2013, June 25). *On the National Strategy for Education in Ukraine for the period up to 2021* (344/2013). <https://zakon.rada.gov.ua/laws/show/344/2013> (in Ukrainian)

President of Ukraine. (2016, December 1). *On Priority Measures to Promote the Strengthening of National Unity and Consolidation of Ukrainian Society, Support*



*for Public Initiatives in This Area* (534/2016). <https://zakon.rada.gov.ua/laws/show/534/2016> (in Ukrainian)

President of Ukraine. (2018, May 31). *On Urgent Measures to Strengthen the State Status of the Ukrainian Language and Promote the Creation of a Single Cultural Space of Ukraine* (156/2018). <https://zakon.rada.gov.ua/laws/show/156/2018> (in Ukrainian)

President of Ukraine. (2019, May 18). *On the Strategy of National and Patriotic Education* (286/2019). <https://zakon.rada.gov.ua/laws/show/286/2019> (in Ukrainian)

President of Ukraine. (2019, September 30). *On Sustainable Development Goals of Ukraine until 2030* (722/2019). <https://zakon.rada.gov.ua/laws/show/722/2019> (in Ukrainian)

President of Ukraine. (2019, December 7). *On Urgent Measures to Improve the Children's Health* (894/2019). <https://zakon.rada.gov.ua/laws/show/894/2019> (in Ukrainian)

President of Ukraine. (2020, January 13). *On Awarding the State Prizes of Ukraine in Science and Technology in 2019* (4/2020). <https://zakon.rada.gov.ua/laws/show/4/2020> (in Ukrainian)

President of Ukraine. (2020, January 30). *On Announcing the 2020/2021 Academic Year as the Year of Mathematics Education in Ukraine* (31/2020). <https://zakon.rada.gov.ua/laws/show/31/2020> (in Ukrainian)

President of Ukraine. (2020, May 25). *On the National Strategy for Building a Safe and Healthy Educational Environment in the New Ukrainian School* (195/2020). <https://zakon.rada.gov.ua/laws/show/195/2020> (in Ukrainian)

President of Ukraine. (2020, June 3). *On Improving Higher Education in Ukraine* (210/2020). <https://zakon.rada.gov.ua/laws/show/210/2020> (in Ukrainian)

President of Ukraine. (2021, February 16). *On Advisory Council for the Development of the General Secondary Education System* (55/2021). <https://zakon.rada.gov.ua/laws/show/55/2021> (in Ukrainian)

President of Ukraine. (2021, March 31). *On Priority Measures on the Development of Vocational (Vocational and Technical) Education* (130/2021). <https://zakon.rada.gov.ua/laws/show/130/2021> (in Ukrainian)

President of Ukraine. (2021, June 2). *On the Decision of the National Security and Defence Council of Ukraine of May 14 2021 "On the Human Development Strategy"* (225/2021). <https://zakon.rada.gov.ua/laws/show/225/2021> (in Ukrainian)

### **Resolutions of the Cabinet of Ministers of Ukraine**

Cabinet of Ministers of Ukraine. (1993, November 3). *On the State National Programme "Education" (Ukraine of the 21st Century)* (896). <https://zakon.rada.gov.ua/laws/show/896-93-п> (in Ukrainian)

Cabinet of Ministers of Ukraine. (1994, January 26). *On Approval of the Regulations on Out-of-School Education Institution* (45). <https://zakon.rada.gov.ua/laws/show/45-94-п> (in Ukrainian)



- Cabinet of Ministers of Ukraine. (2001, May 6). *On Approval of the Programme for Informatisation of General Secondary Education Institutions and the Computerisation of Rural Schools for the period of 2001-2003* (436). <https://zakon.rada.gov.ua/laws/show/436-2001-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2003, August 20). *On Approval of the State Programme of Informatisation and Computerisation of Vocational Education Institutions for the period of 2004-2007* (1300). <https://zakon.rada.gov.ua/rada/show/1300-2003-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2003, August 20). *On Improving the Organisation of Work on Education Children and Youth in Out-of-School Education Institutions* (1301). <https://zakon.rada.gov.ua/laws/show/1301-2003-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2004, July 13). *On Approval of the Complex Programme for Providing General Secondary, Vocational, and Higher Education Institutions with Modern Technical Means of Teaching Natural Sciences, Mathematics, and Technology for the period of 2005-2011* (905). <https://zakon.rada.gov.ua/laws/show/905-2004-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2005, December 7). *On Approval of the State Programme “Information and Communication Technologies in Education and Science” for 2006-2010* (1153). <https://zakon.rada.gov.ua/laws/show/1153-2005-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2010, August 27). *On Approval of the State Target Social Programme for the Development of Out-of-School Education for the period up to 2014* (785). <https://zakon.rada.gov.ua/laws/show/785-2010-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2011, August 15). *On Approval of the Procedure for Organising Inclusive Education in General Education Institutions* (872). <https://zakon.rada.gov.ua/laws/show/872-2011-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2013, May 15). *On Approval of the Procedure for Recognising the Results of Non-Formal Vocational Training by Professions* (340). <https://zakon.rada.gov.ua/laws/show/340-2013-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2015, April 29). *On Approval of the List of Fields of Knowledge and Specialties, for which Higher Education Students are Trained* (266). <https://zakon.rada.gov.ua/laws/show/266-2015-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2015, August 12). *On Approval of the Regulations on the Implementation of the Right to Academic Mobility* (579). <https://zakon.rada.gov.ua/laws/show/579-2015-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2017, July 12). *On Approval of the Regulations on Inclusive Resource Centres* (545). <https://zakon.rada.gov.ua/laws/show/545-2017-п> (in Ukrainian)

- Cabinet of Ministers of Ukraine. (2018, February 21). *On Approval of the State Standard of Primary Education* (87). <https://zakon.rada.gov.ua/laws/show/87-2018-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2019, April 10). *On Approval of the Procedure for Organizing the Activities of Inclusive Groups in Preschool Education Institutions* (530). <https://zakon.rada.gov.ua/laws/show/530-2019-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2019, August 21). *Some Issues of In-service Training of Teaching and Academic Staff* (800). <https://zakon.rada.gov.ua/laws/show/800-2019-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2019, December 24). *On Distribution of the State Budget Expenditures between Higher Education Institutions Based on their Educational, Research, and International Activities Indicators* (1146). <https://zakon.rada.gov.ua/laws/show/1146-2019-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2019, July 10). *On Approval of the Procedure for Organising Inclusive Education in Vocational (Vocational and Technical) Education Institutions* (636). <https://zakon.rada.gov.ua/laws/show/636-2019-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2020, June 12). *On Approval of the Programme of Activities of the Cabinet of Ministers of Ukraine* (471). <https://zakon.rada.gov.ua/laws/show/471-2020-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2020, September 30). *On Some Issues of the State Standards of Complete General Secondary Education* (898). <https://zakon.rada.gov.ua/laws/show/898-2020-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2021, June 30). *On Approval of the National Target Social Programme of National and Patriotic Education for the period up to 2025 and Making Amendments to Some Resolutions of the Cabinet of Ministers of Ukraine* (673). <https://zakon.rada.gov.ua/laws/show/673-2021-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2021, March 10). *Issues of the Unified State Digital Education Portal “Diiia. Digital Education”* (184). <https://zakon.rada.gov.ua/laws/show/184-2021-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2021, March 3). *On Approval of the National Economic Strategy for the period up to 2030* (179). <https://zakon.rada.gov.ua/laws/show/179-2021-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2021, March 3). *On Approval of the National Qualifications Framework* (1341). <https://zakon.rada.gov.ua/laws/show/1341-2011-п> (in Ukrainian)
- Cabinet of Ministers of Ukraine. (2021, September 22). *Some Issues of Qualification Centres Accreditation* (986). <https://zakon.rada.gov.ua/laws/show/986-2021-п> (in Ukrainian)

## Orders of the Cabinet of Ministers of Ukraine

Cabinet of Ministers of Ukraine. (2009, December 3). *On Approval of the Action Plan for the Introduction of Inclusive and Integrated Education in Secondary Education Institutions for the period up to 2012* (1482-r). <https://zakon.rada.gov.ua/laws/show/1482-2009-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2016, December 14). *On Approval of the Action Plan for Implementing the National Qualifications Framework for the period of 2016-2020* (1077-r). <https://zakon.rada.gov.ua/laws/show/1077-2016-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2016, December 14). *On Approval of the Concept of Implementing the State Educational Policy in General Secondary Education Reform “The New Ukrainian School”* (988-r). <https://zakon.rada.gov.ua/laws/show/988-2016-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2016, March 23). *On Approval of the Strategy for the Development of Librarianship for the period up to 2025 “Qualitative Changes in Libraries to Ensure Sustainable Development of Ukraine”* (219-r). <https://zakon.rada.gov.ua/laws/show/219-2016-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2017, December 13). *On Approval of the Action Plan for the period of 2017-2029 on Implementing the State Educational Policy in General Secondary Education Reform “The New Ukrainian School”* (903-r). <https://zakon.rada.gov.ua/laws/show/903-2017-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2017, December 27). *On Approval of the Concept of Mental Health in Ukraine for the period up to 2030* (1018-r). <https://zakon.rada.gov.ua/laws/show/1018-2017-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2018, April 11). *On Approval of the Concept of Support and Promotion of Children’s Social Movement in Ukraine* (281-r). <https://zakon.rada.gov.ua/laws/show/281-2018-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2018, January 11). *On Approval of the Strategy of State Policy on Healthy and Active Longevity of the Population until 2022* (10-r). <https://zakon.rada.gov.ua/laws/show/10-2018-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2018, January 17). *On Approval of the Concept of Digital Economy and Society of Ukraine for 2018-2020 and Action Plan for its Implementation* (67-r). <https://zakon.rada.gov.ua/laws/show/67-2018-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2018, July 26). *On Approval of the National Action Plan on Non-Communicable Diseases to Achieve Global Sustainable Development Goals* (530-r). <https://zakon.rada.gov.ua/laws/show/530-2018-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2018, September 19). *On Approval of the Concept of Training Specialists in the Dual Form of Education* (660-r). <https://zakon.rada.gov.ua/laws/show/660-2018-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2019, June 12). *On Approval of the Concept of State Policy in Vocational Education “Vocational (Vocational and Technical) Education*

*Today” for the period up to 2027 (419-r).* <https://zakon.rada.gov.ua/laws/show/419-2019-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2019, March 20). *On Approval of the Action Plan for the period of 2019-2022 on Implementing the Concept of Support and Promotion of the Development of Children’s Public Movement in Ukraine (171-r).* <https://zakon.rada.gov.ua/laws/show/171-2019-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2020, August 5). *On Approval of the Concept of Development of the Science and Mathematical Education (STEM-Education) (960-r).* <https://zakon.rada.gov.ua/laws/show/960-2020-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2020, June 25). *On Approval of the Action Plan for the Year of Mathematics Education in Ukraine in 2020-21 Academic Year (630-r).* <https://zakon.rada.gov.ua/laws/show/630-2020-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2020, October 9). *On Approval of the Concept of the National Target Social Programme of National and Patriotic Education for the period up to 2025 (1233-r).* <https://zakon.rada.gov.ua/laws/show/1233-2020-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2021, April 14). *On Approval of the Report on the Progress and Results of the Programme of Actions of the Cabinet of Ministers of Ukraine in 2020 (327-r).* <https://zakon.rada.gov.ua/laws/show/327-2021-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2021, April 14). *On Approval of the Action Plan to Promote Science and Mathematics up to 2025 (320-r).* <https://zakon.rada.gov.ua/laws/show/320-2021-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2021, April 14). *On Approval of the National Strategy for Barrier-Free Space in Ukraine for the period up to 2030 (366-r).* <https://zakon.rada.gov.ua/laws/show/366-2021-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2021, February 17). *Some Issues of Digital Transformation.* (365-r). <https://zakon.rada.gov.ua/laws/show/365-2021-p> (in Ukrainian)

Cabinet of Ministers of Ukraine. (2021, March 24). *On Approval of the Priority Action Plan of the Government for 2021 (276-r).* <https://zakon.rada.gov.ua/laws/show/276-2021-p> (in Ukrainian)

### **Ministry of Education and Science of Ukraine**

Ministry of Education and Science of Ukraine. (2021, February 10). *On Approval of the Roadmap for Ukraine’s Scientific and Innovative System Integration into the European Research Area (167).* <https://mon.gov.ua/storage/app/media/rizne/2021/02/12/edp-nakaz.pdf> (in Ukrainian)

Collegium of the Ministry of Education and Science of Ukraine. (2003, September 25). *Concept of Field-Specific Education in Upper School (10/12-2).* [https://zakon.rada.gov.ua/rada/show/v10\\_1290-03](https://zakon.rada.gov.ua/rada/show/v10_1290-03) (in Ukrainian)



- Ministry of Education and Science of Ukraine. (2000, December 20). *Concept for the Development of Distance Education in Ukraine*. <http://www.osvita.org.ua/distance/pravo/00.html> (in Ukrainian)
- Ministry of Education and Science of Ukraine, & Academy of Educational Sciences of Ukraine. (2000, September 4). *On the Introduction of a 12-Point Scale for Assessing Pupils Achievement in General Secondary Education on a Competence-Based Approach* (428/48). <https://zakon.rada.gov.ua/rada/show/v0428290-00> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2000, September 4). *On Approval of the Basic Component of Preschool Education (State Standard of Preschool Education) New Edition* (33). <https://bit.ly/39UTWUn> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2013, July 23). *On Approval of the Measures for the Introduction of Inclusive Education in Preschool and General Secondary Education Institutions for the period up to 2015* (1034). <https://zakon.rada.gov.ua/rada/show/v1034729-13> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2015, June 16). *On Approval of the Concept of National and Patriotic Education of Children and Youth, Measures on Realising the Concept of National and Patriotic Education of Children and Youth, and Methodical Recommendations on National and Patriotic Education in General Secondary Education Institutions* (641). <https://zakon.rada.gov.ua/rada/show/v0641729-15> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2013, October 21). *On Approval of the Concept of Field-Specific Education in Upper School* (1456). <https://mon.gov.ua/storage/app/media/npa/5a1fe82a9c95d.pdf> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2010, October 1). *On Approval of the Concept of Inclusive Education Development* (912). <https://mon.gov.ua/ua/npa/pro-zatverdzhennya-kontseptsii-rozvitkuinklyuzivnogo-navchannya> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2018, July 16). *On Approval of the Concept of Teacher Education Development* (776). <https://mon.gov.ua/ua/npa/pro-zatverdzhennya-koncepciyi-rozvitkupedagogichnoyi-osviti> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2009, September 11). *On Approval of the New Edition of Concept of Field-Specific Education in Upper School* (854). <https://zakon.rada.gov.ua/rada/show/v0854290-09> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2019, July 11). *On Approval of the Regulations on Accreditation of Educational Programmes, for which Higher Education Students are Trained* (977). <https://zakon.rada.gov.ua/laws/show/z0880-19> (in Ukrainian)
- Ministry of Education and Science of Ukraine. (2018, May 2). *On Approval of the Regulations on the Electronic Textbook* (440). <https://zakon.rada.gov.ua/laws/show/z0621-18> (in Ukrainian)



Ministry of Education and Science of Ukraine. (2012, October 1). *On Approval of the Regulations on the Electronic Educational Resources* (1060). <https://zakon.rada.gov.ua/laws/show/z1695-12> (in Ukrainian)

Ministry of Education and Science of Ukraine. (2018, May 22). *On Approval of the Regulations on the National Educational Electronic Platform* (523). <https://zakon.rada.gov.ua/laws/show/z0702-18> (in Ukrainian)

Ministry of Education and Science of Ukraine. (2018, May 22). *On Approval of the Regulations on Psychological Service in the Education System of Ukraine* (509). <https://zakon.rada.gov.ua/laws/show/z0885-18> (in Ukrainian)

Ministry of Education and Science of Ukraine. (2018, June 8). *On Approval of the Model Regulations on the Team of Psychological and Pedagogical Support of a Child with Special Educational Needs in General Secondary and Preschool Education Institutions* (609). <https://mon.gov.ua/ua/npa/pro-zatverdzhennya-primirnogopolozhennya-pro-komandu-psihologo-pedagogichnogoprovodu-ditini-z-osoblivimi-osvitnimi-potrebami-v-zakladi-zagalnoyi-serednoyi-tadoshkilnoyi-osviti> (in Ukrainian)

Ministry of Education and Science of Ukraine. (2021, April 23). *On Approval of the Typical Programmes of In-Service Teacher Training* (457). <https://bit.ly/2SRWxJi> (in Ukrainian)

Ministry of Education and Science of Ukraine. (2018, April 23). *On Approval of the Standard List of Auxiliary Means for Training (Special Means of Correction of Psychophysical Development) of Persons with Special Educational Needs Studying in Education Institutions* (414). <https://zakon.rada.gov.ua/laws/show/z0582-18> (in Ukrainian)

Ministry of Education and Science of Ukraine. (2020, May 19). *On Providing the Organisational and Methodical Recommendations for Learning with the Help of Distance Technologies in Out-of-School Education* (6/643-20). [http://osvita.sm.gov.ua/images/2020/ACTS\\_2020/6\\_643-20%20\\_%2019.05.2020.pdf](http://osvita.sm.gov.ua/images/2020/ACTS_2020/6_643-20%20_%2019.05.2020.pdf) (in Ukrainian)

Ministry of Education and Science of Ukraine. (2020, December 21). *Strategy for Development of Vocational (Vocational and Technical) Education for the period up to 2023* (12/2-3). <https://bit.ly/36ospbK> (in Ukrainian)

Collegium of the Ministry of Education and Science of Ukraine, & Presidium of the Academy of Educational Sciences of Ukraine. (2001, November 22). *On the Concept of General Secondary Education (12-Year Schooling)* (12/5-2). [https://zakon.rada.gov.ua/rada/show/v\\_5-2290-01](https://zakon.rada.gov.ua/rada/show/v_5-2290-01) (in Ukrainian)

### Draft Documents

Ministry of Education and Science of Ukraine. (2018). *Draft Law of Ukraine “On Vocational Education”*. <https://mon.gov.ua/ua/news/mon-proponuye-dogromadskogo-obgovorennya-proekt-zakonu-ukrayini-proprofesijnu-profesijno-tehnicnu-osvitu> (in Ukrainian)

Ministry of Education and Science of Ukraine. (2020). *Draft Law of Ukraine “On Adult Education”*. <https://mon.gov.ua/ua/news/mon-proponuye-dlyagromadskogo-obgovorennya-proyekt-zakonu-ukrayini-pro-osvitu-doroslih> (in Ukrainian)

Ministry of Education and Science of Ukraine. (2020). *Draft Strategy for Higher Education Development in Ukraine for 2021-2030*. <https://bit.ly/3ywlGIB> (in Ukrainian)

### Other Documents

State Committee of Ukraine for Technical Regulation and Consumer Policy. (2010, July 28). *National Classification of Ukraine. Classification of Occupations DK 003:2010 (327)*. <https://zakon.rada.gov.ua/rada/show/va327609-10> (in Ukrainian)

State Committee of Ukraine for Technical Regulation and Consumer Policy. (2010, October 11). *National Classification of Ukraine. Classification of Economic Activities DK 009:2010 (457)*. <https://zakon.rada.gov.ua/rada/show/vb457609-10> (in Ukrainian)

# ANNEXES

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## **Annex A (diagrams)**

1. EDUCATION AND HUMAN RESOURCE DEVELOPMENT: UKRAINE AND THE WORLD
2. DEMOGRAPHIC CHARACTERISTICS OF SOCIAL DEVELOPMENT OF UKRAINE
3. TOTAL NUMBER OF PERSONS WHO STUDY SYSTEMATICALLY
4. PRESCHOOL EDUCATION
5. COMPLETE GENERAL SECONDARY EDUCATION
6. EDUCATION OF PEOPLE WITH SPECIAL EDUCATIONAL NEEDS
7. OUT-OF-SCHOOL EDUCATION
8. VOCATIONAL (VOCATIONAL AND TECHNICAL) EDUCATION
9. VOCATIONAL PRE-TERTIARY AND HIGHER EDUCATION
10. PhD AND DSc STUDIES
11. EDUCATION PERSONNEL
12. PSYCHOLOGICAL SUPPORT FOR EDUCATION
13. DIGITALISATION OF EDUCATION
14. SCIENTIFIC AND METHODOLOGICAL SUPPORT OF EDUCATION
15. EDUCATION FUNDING
16. DEVELOPMENT OF MATERIAL AND TECHNICAL FACILITIES

# **1. EDUCATION AND HUMAN RESOURCE DEVELOPMENT: UKRAINE AND THE WORLD**



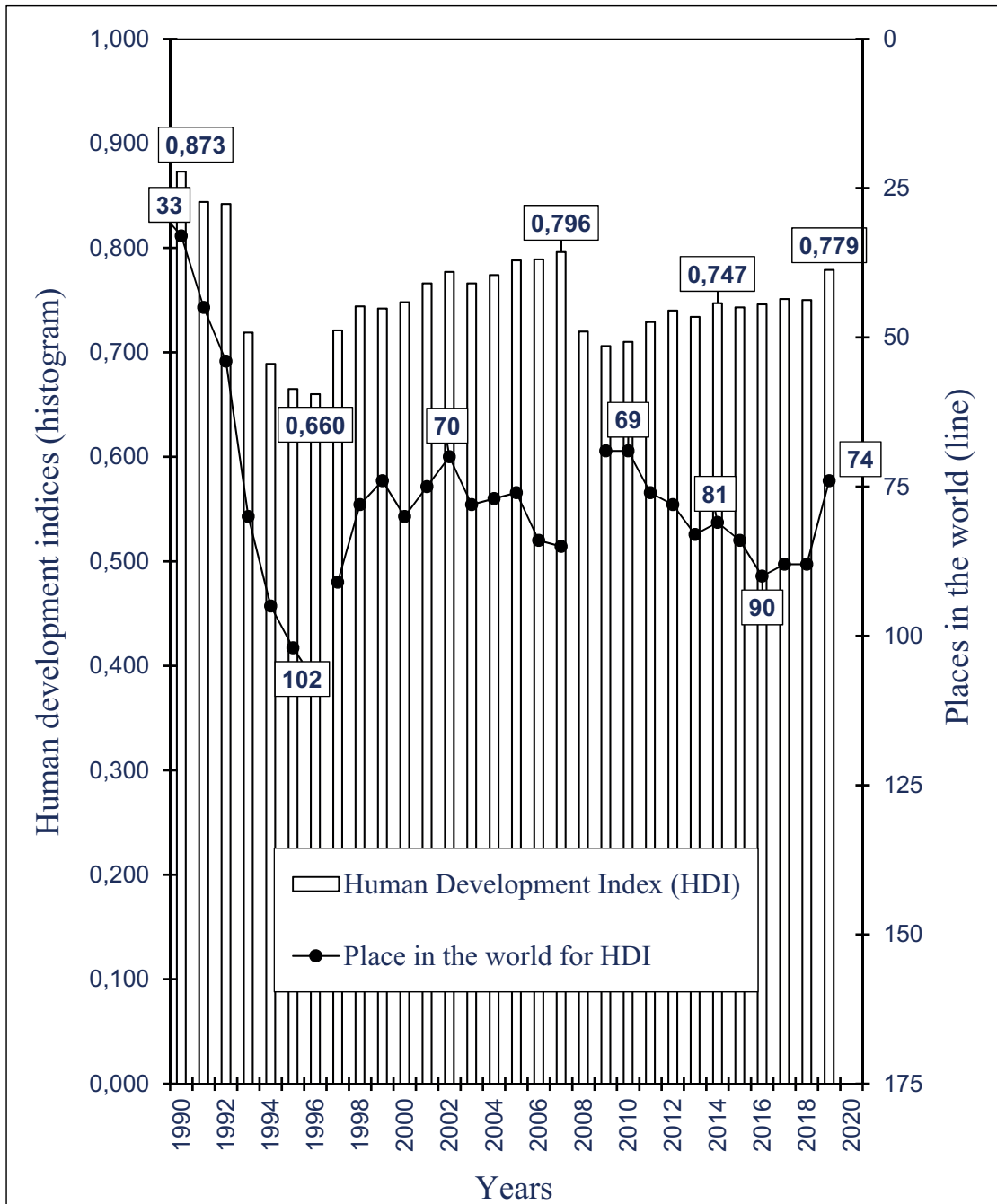


Fig. 1.1. The Human Development Index in Ukraine (1990 as part of the USSR) and its place in this indicator among the countries of the world (according to the annual reports on human development of the United Nations in the relevant years)

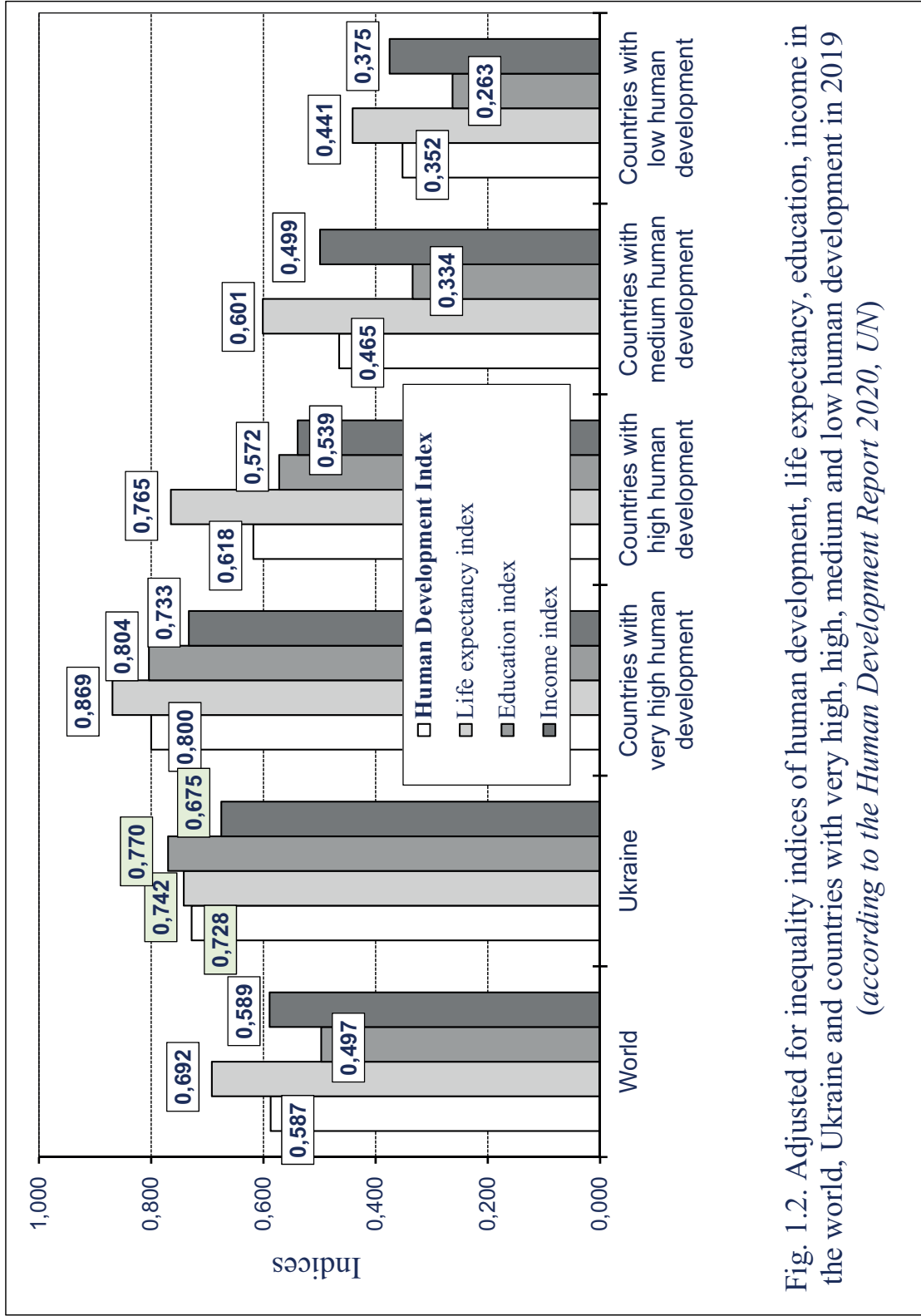


Fig. 1.2. Adjusted for inequality indices of human development, life expectancy, education, income in the world, Ukraine and countries with very high, high, medium and low human development in 2019 (according to the *Human Development Report 2020, UN*)

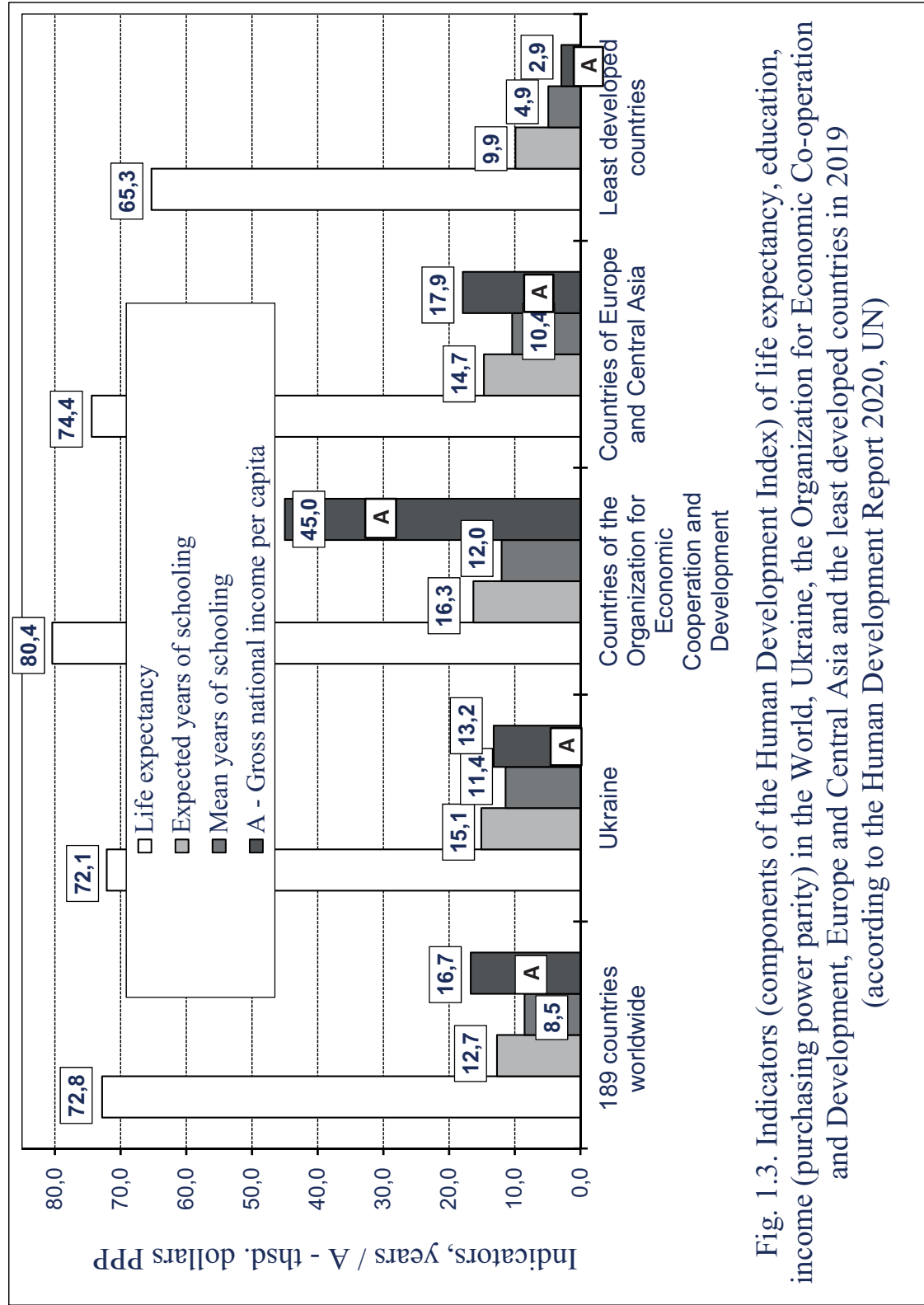


Fig. 1.3. Indicators (components of the Human Development Index) of life expectancy, education, income (purchasing power parity) in the World, Ukraine, the Organization for Economic Co-operation and Development, Europe and Central Asia and the least developed countries in 2019 (according to the Human Development Report 2020, UN)

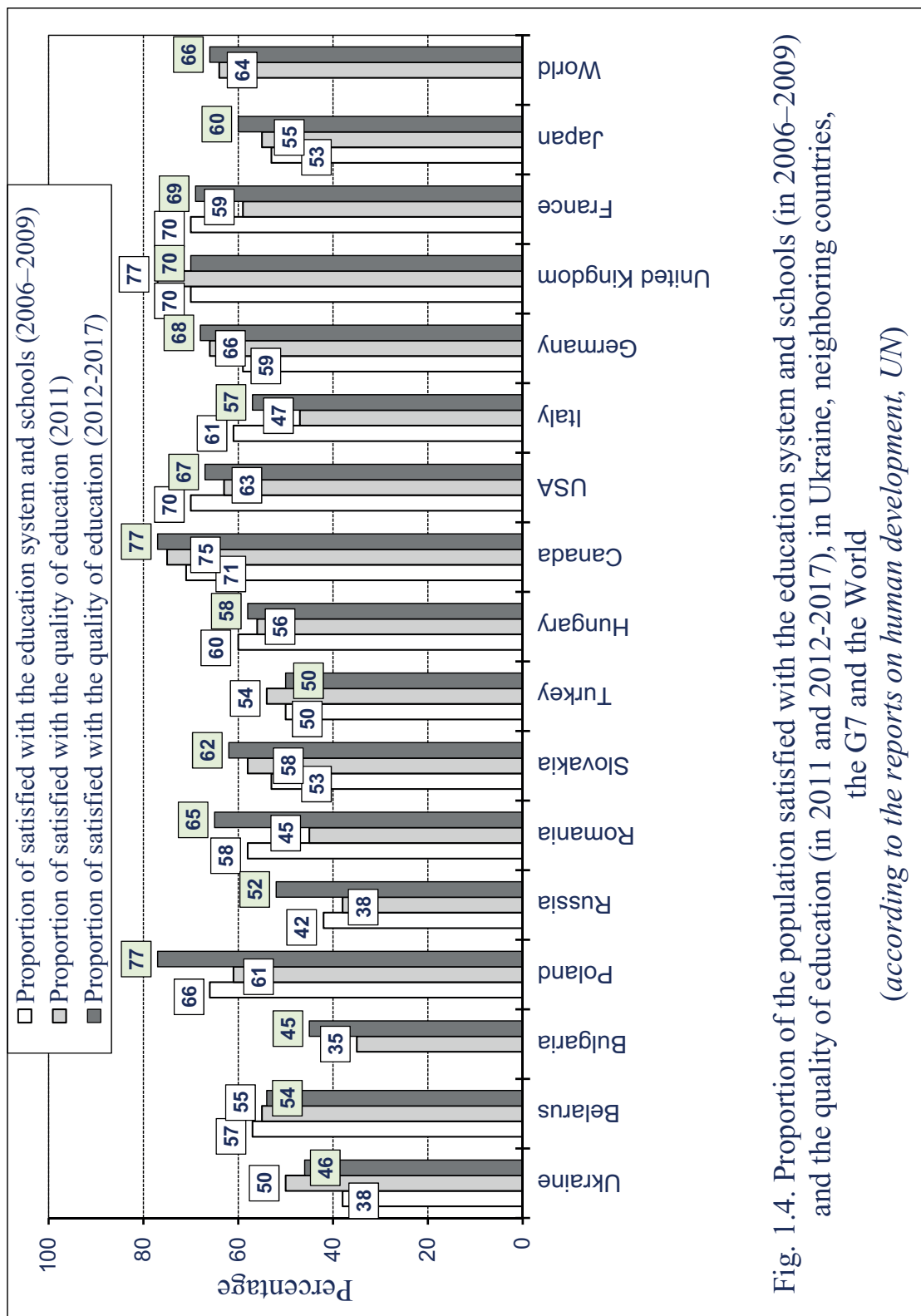


Fig. 1.4. Proportion of the population satisfied with the education system and schools (in 2006–2009) and the quality of education (in 2011 and 2012-2017), in Ukraine, neighboring countries, the G7 and the World  
(according to the reports on human development, UN)

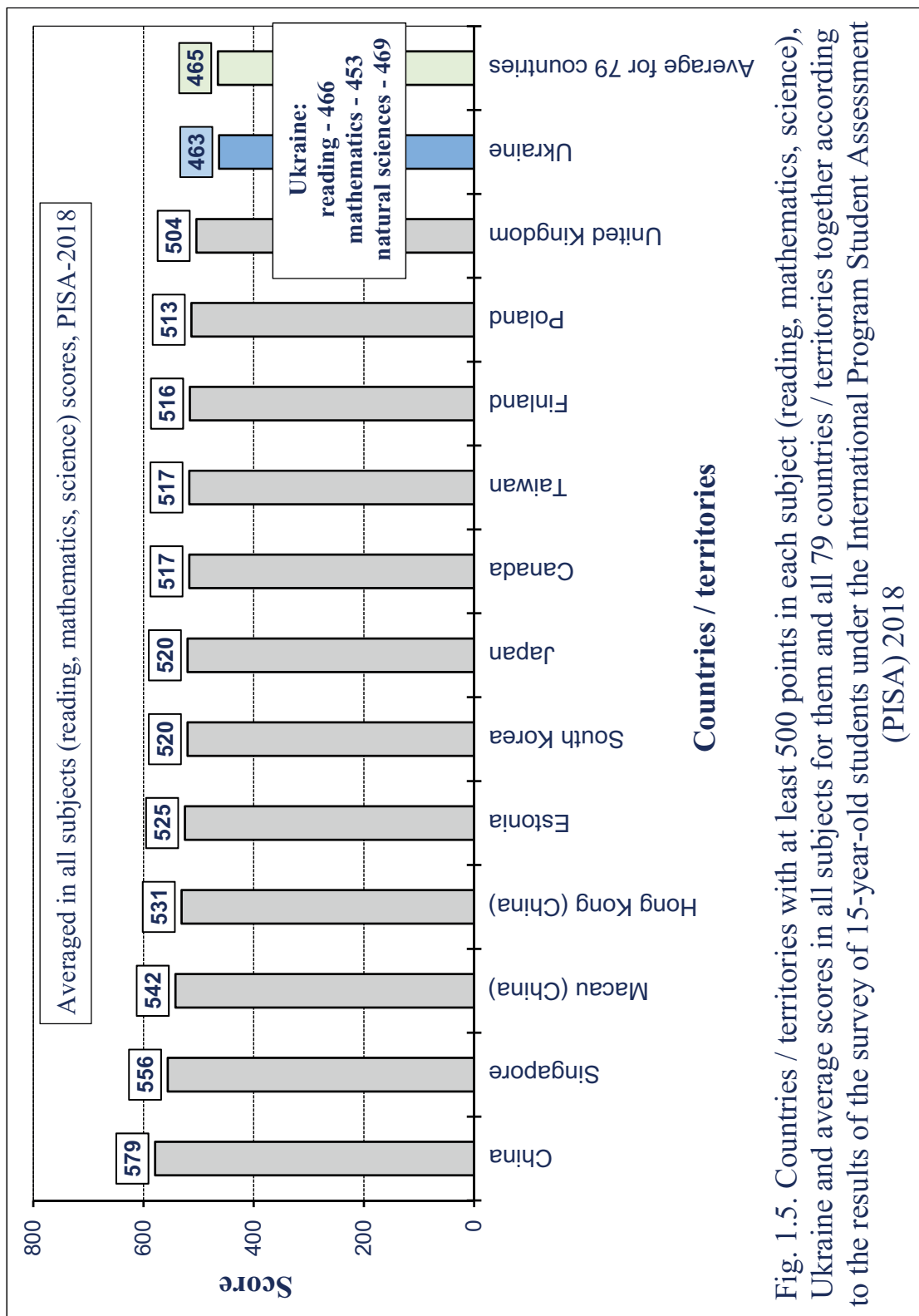


Fig. 1.5. Countries / territories with at least 500 points in each subject (reading, mathematics, science), Ukraine and average scores in all subjects for them and all 79 countries / territories together according to the results of the survey of 15-year-old students under the International Program Student Assessment (PISA) 2018



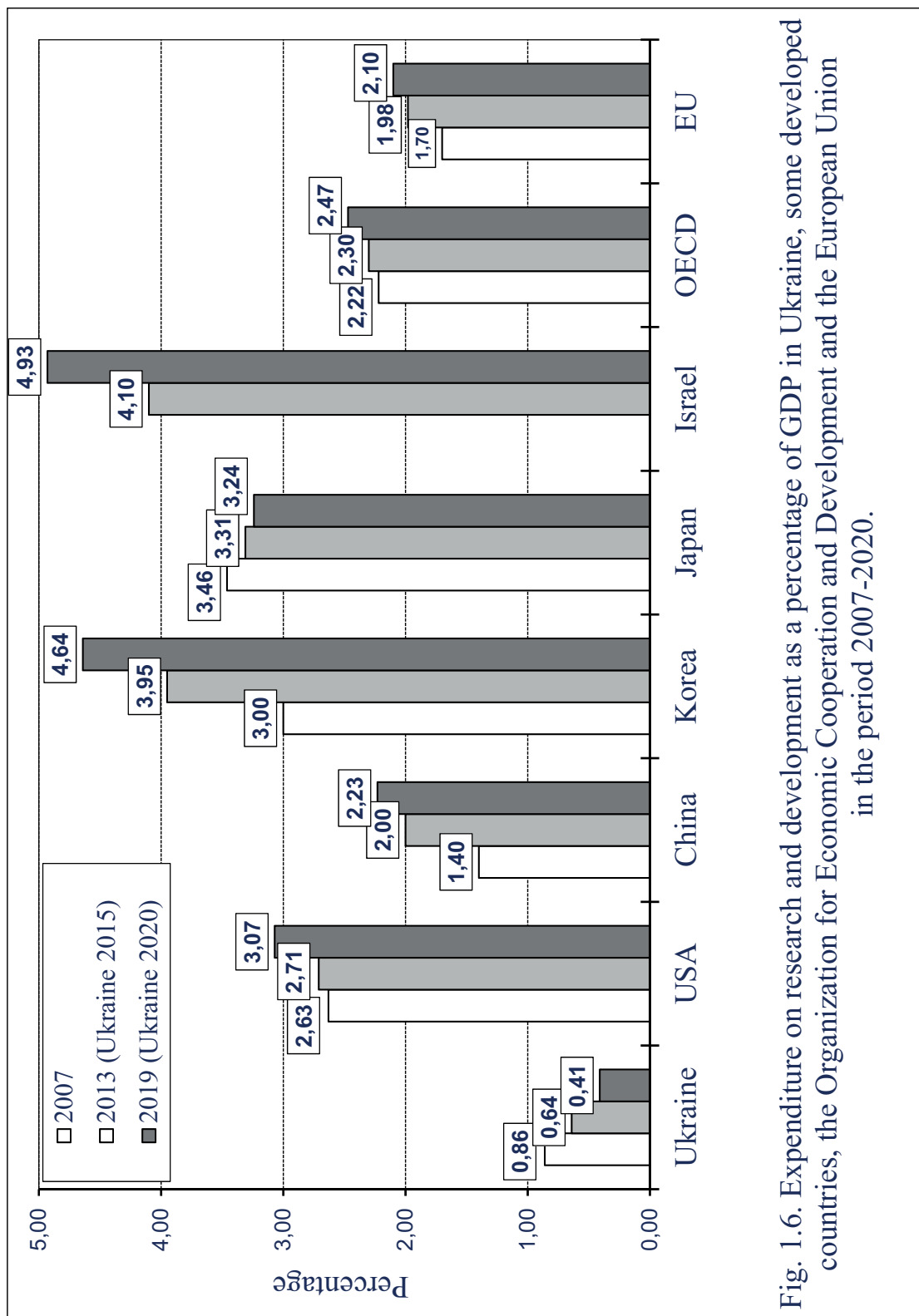


Fig. 1.6. Expenditure on research and development as a percentage of GDP in Ukraine, some developed countries, the Organization for Economic Cooperation and Development and the European Union in the period 2007-2020.

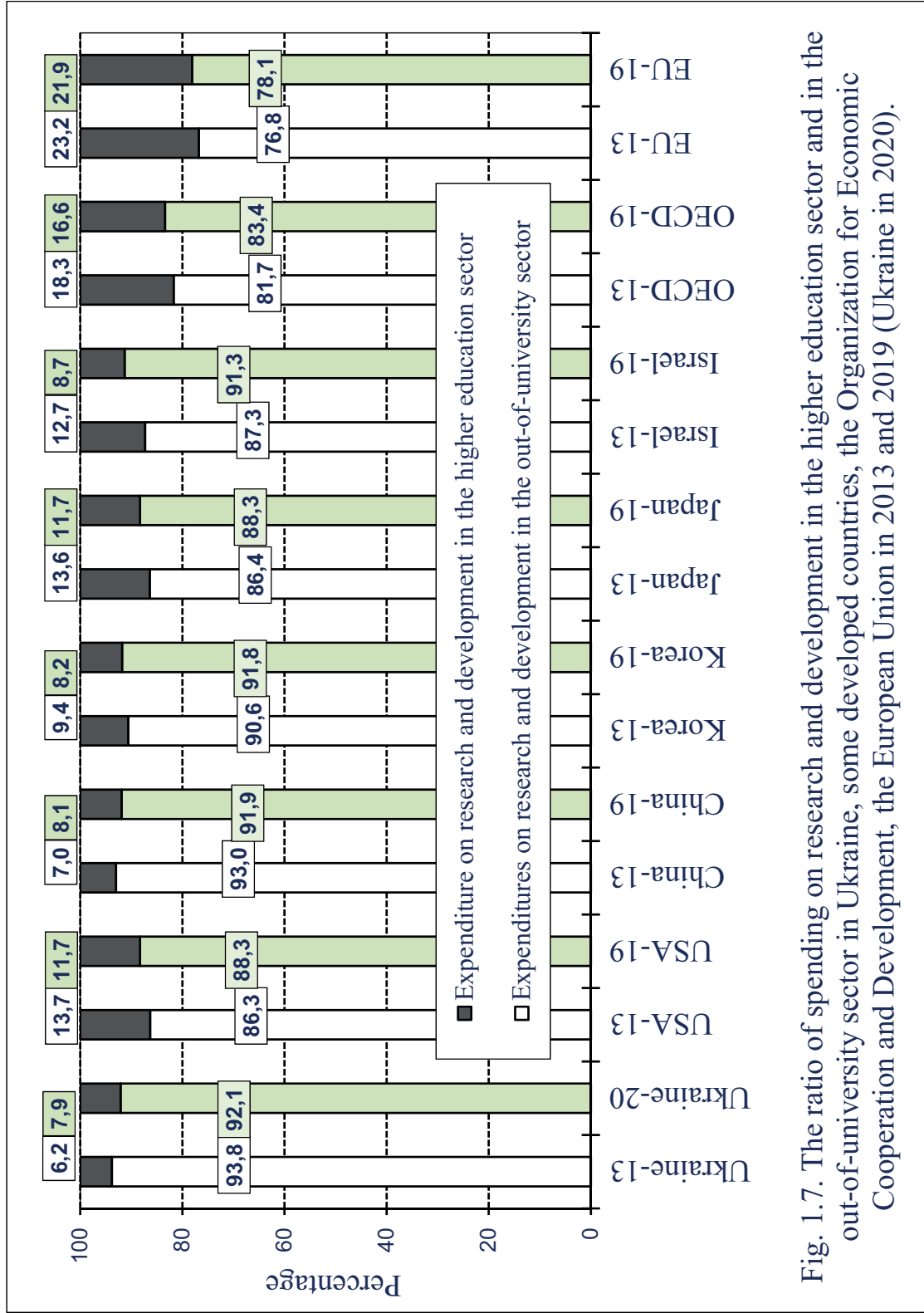


Fig. 1.7. The ratio of spending on research and development in the higher education sector and in the out-of-university sector in Ukraine, some developed countries, the Organization for Economic Cooperation and Development, the European Union in 2013 and 2019 (Ukraine in 2020).

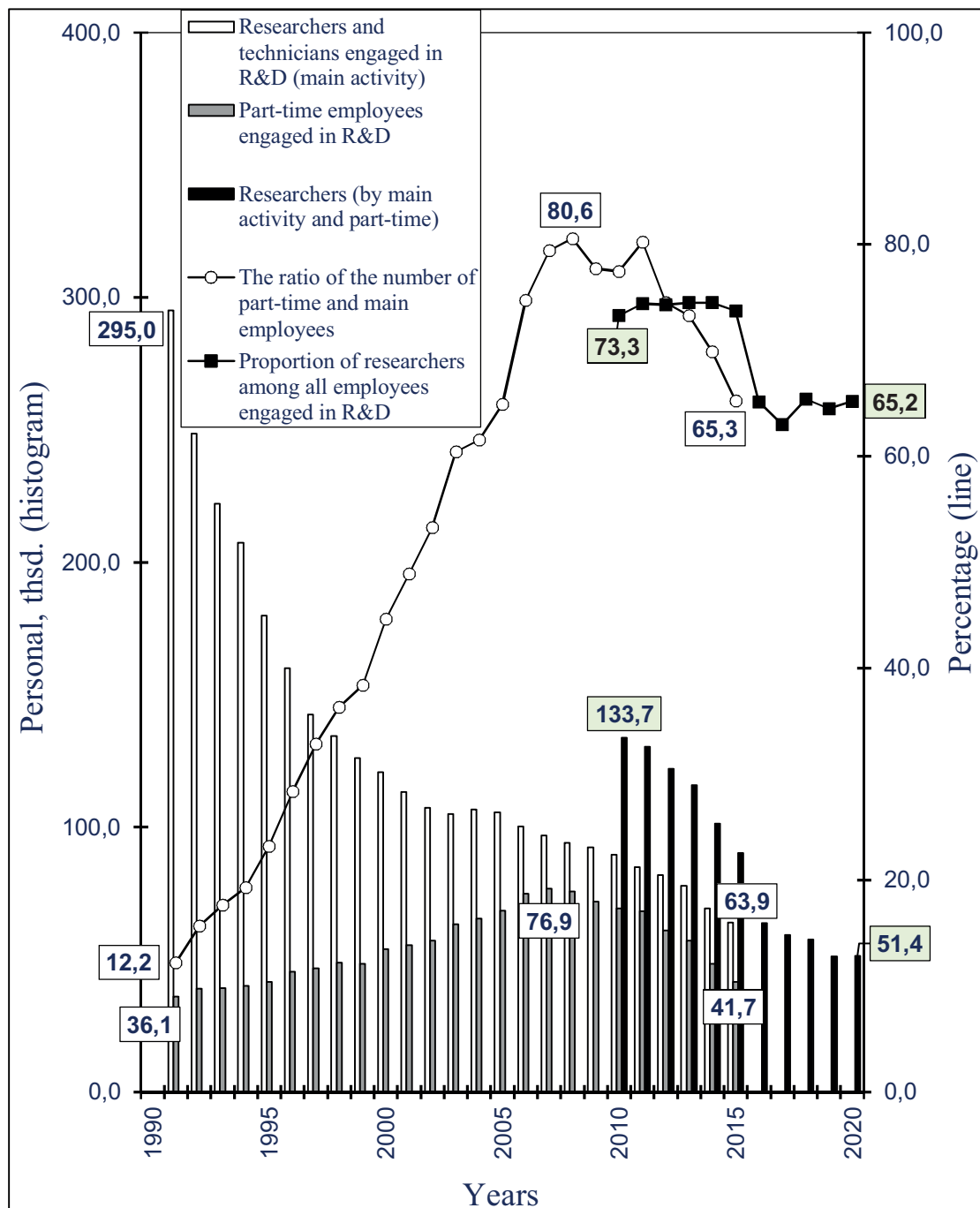
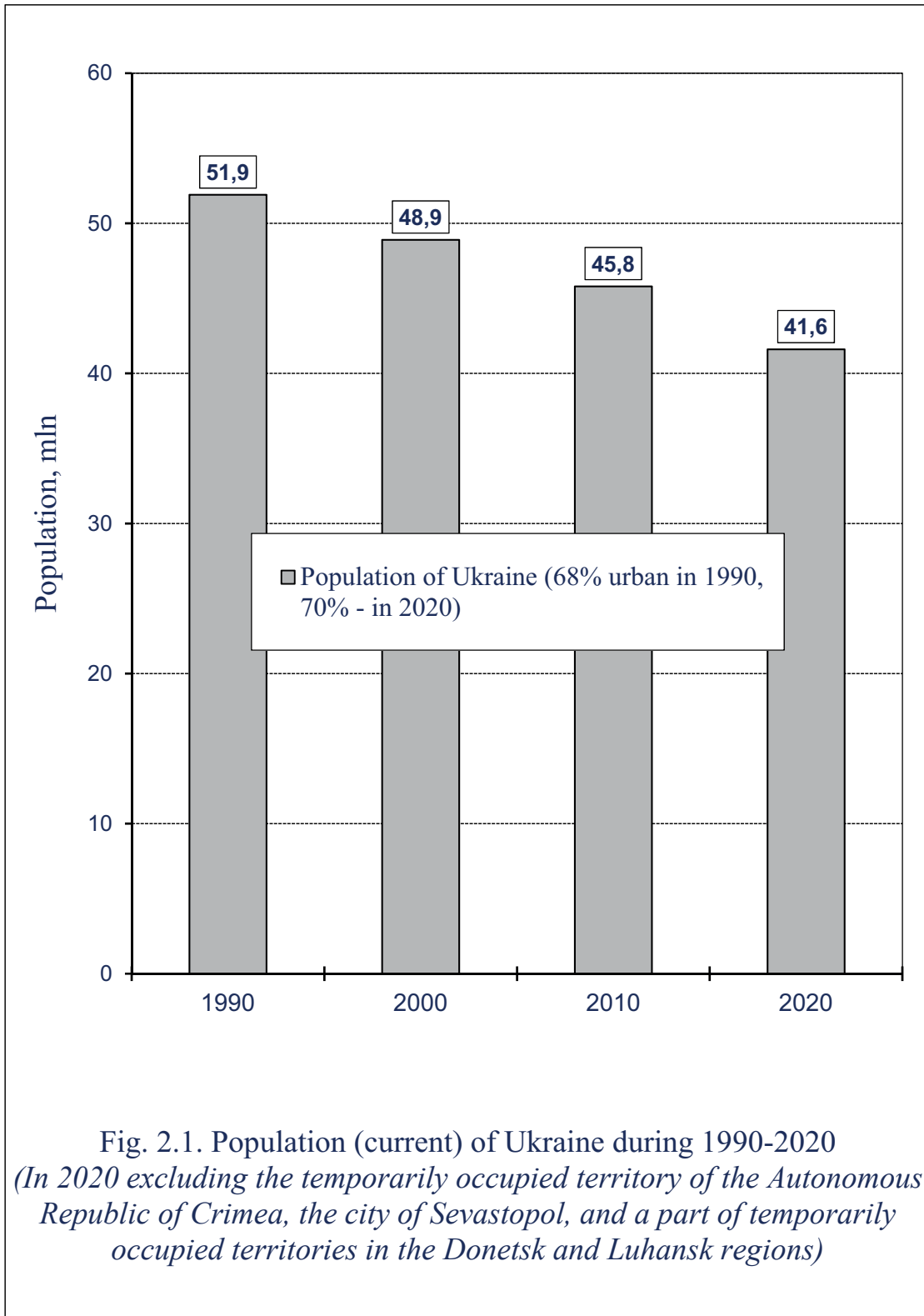


Fig. 1.8. Research and development (R&D) personal  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **2. DEMOGRAPHIC CHARACTERISTICS OF SOCIAL DEVELOPMENT OF UKRAINE**





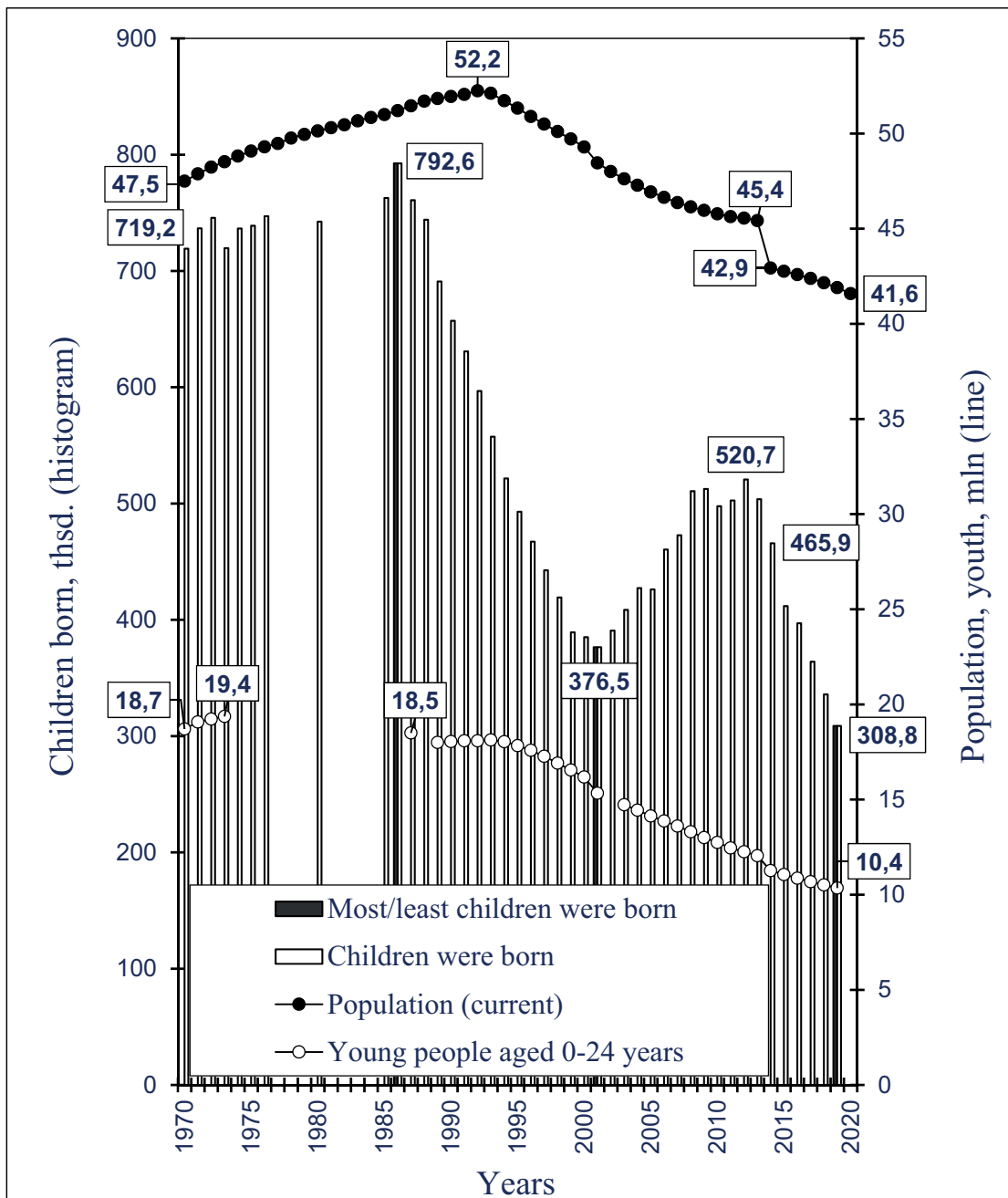
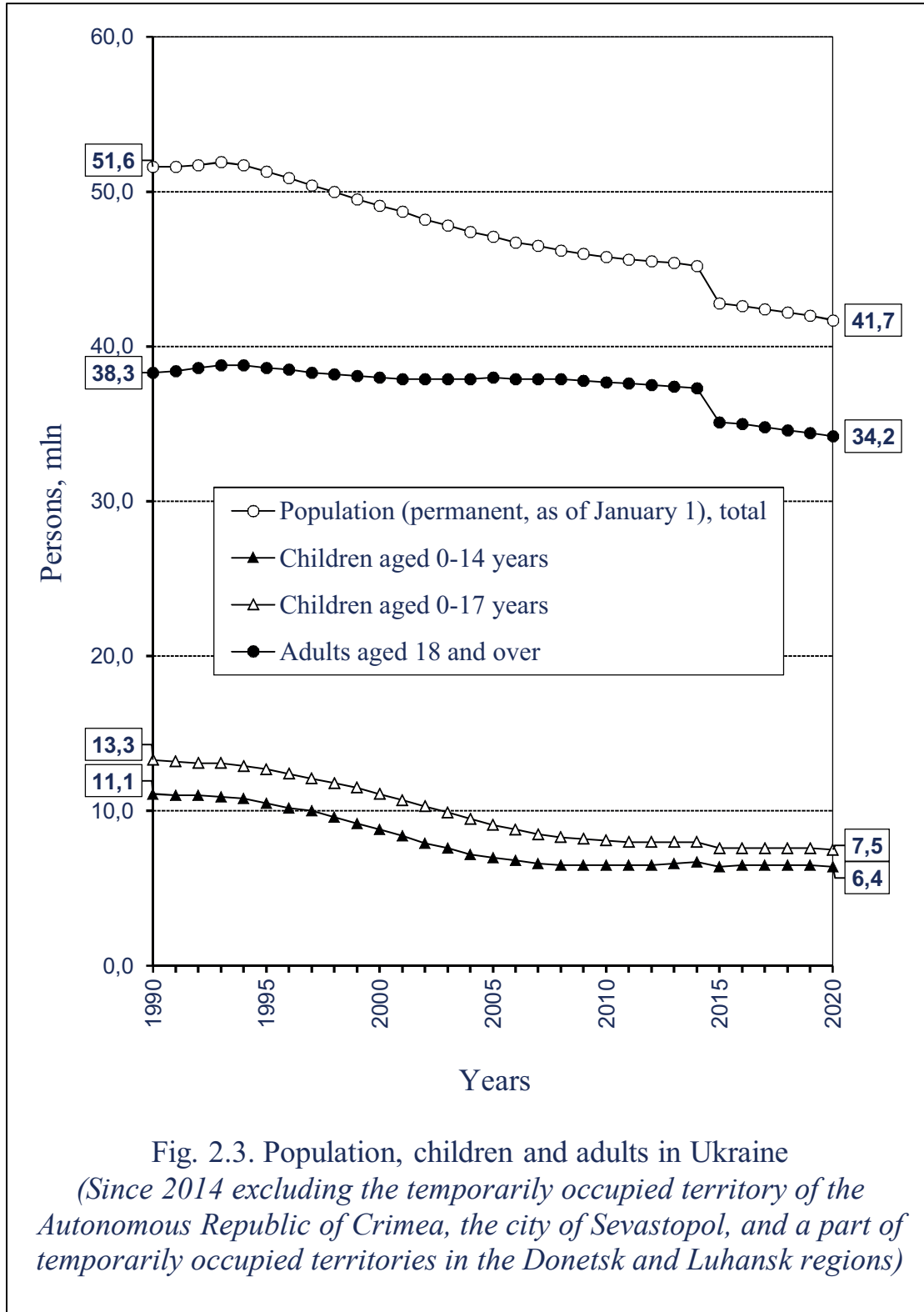


Fig. 2.2. Population, young people aged 0-24 years and children born in Ukraine in 1970-2020

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



### **3. TOTAL NUMBER OF PERSONS WHO STUDY SYSTEMATICALLY**

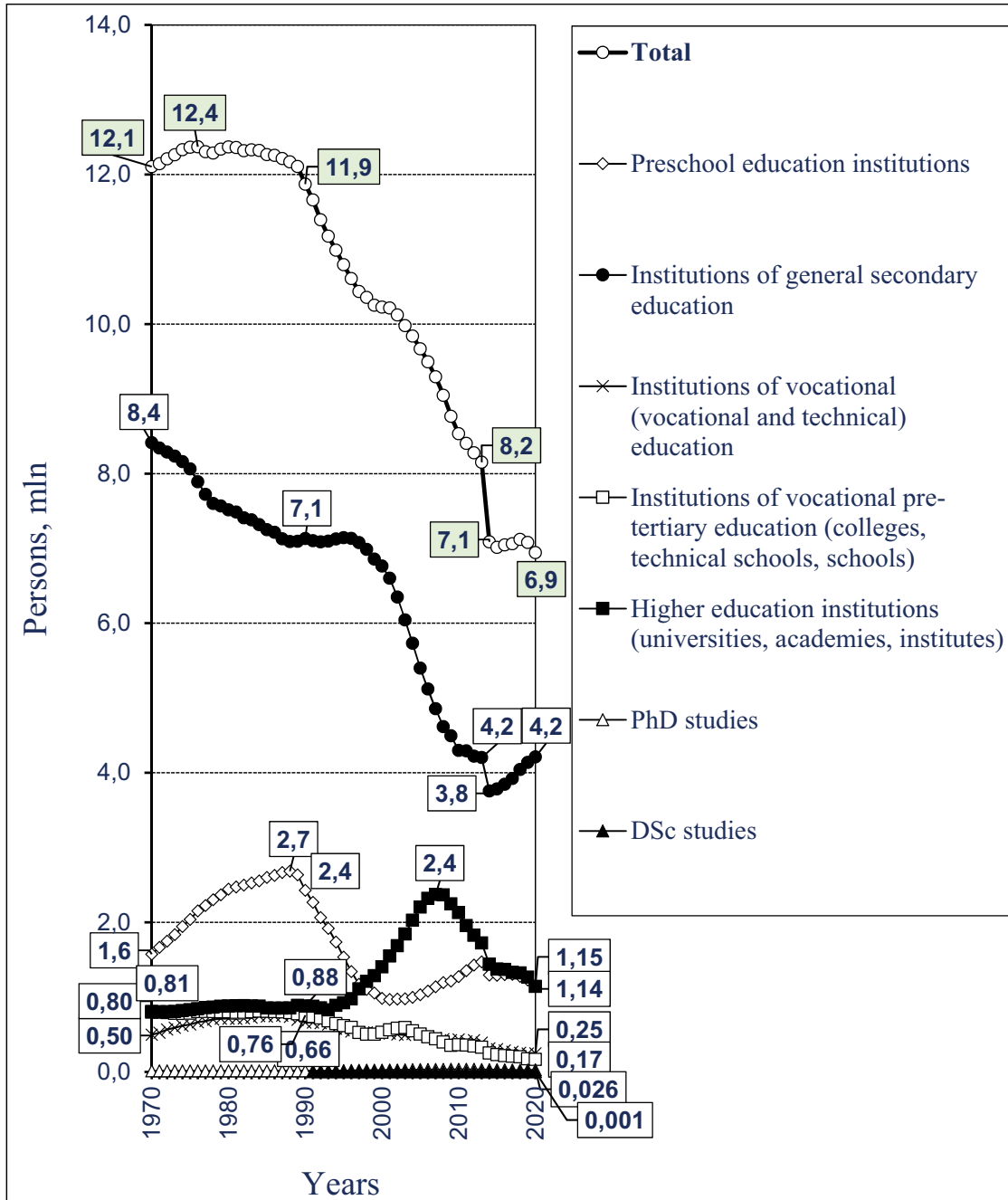


Fig. 3.1. The number of Ukraine's population that systematically studies (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

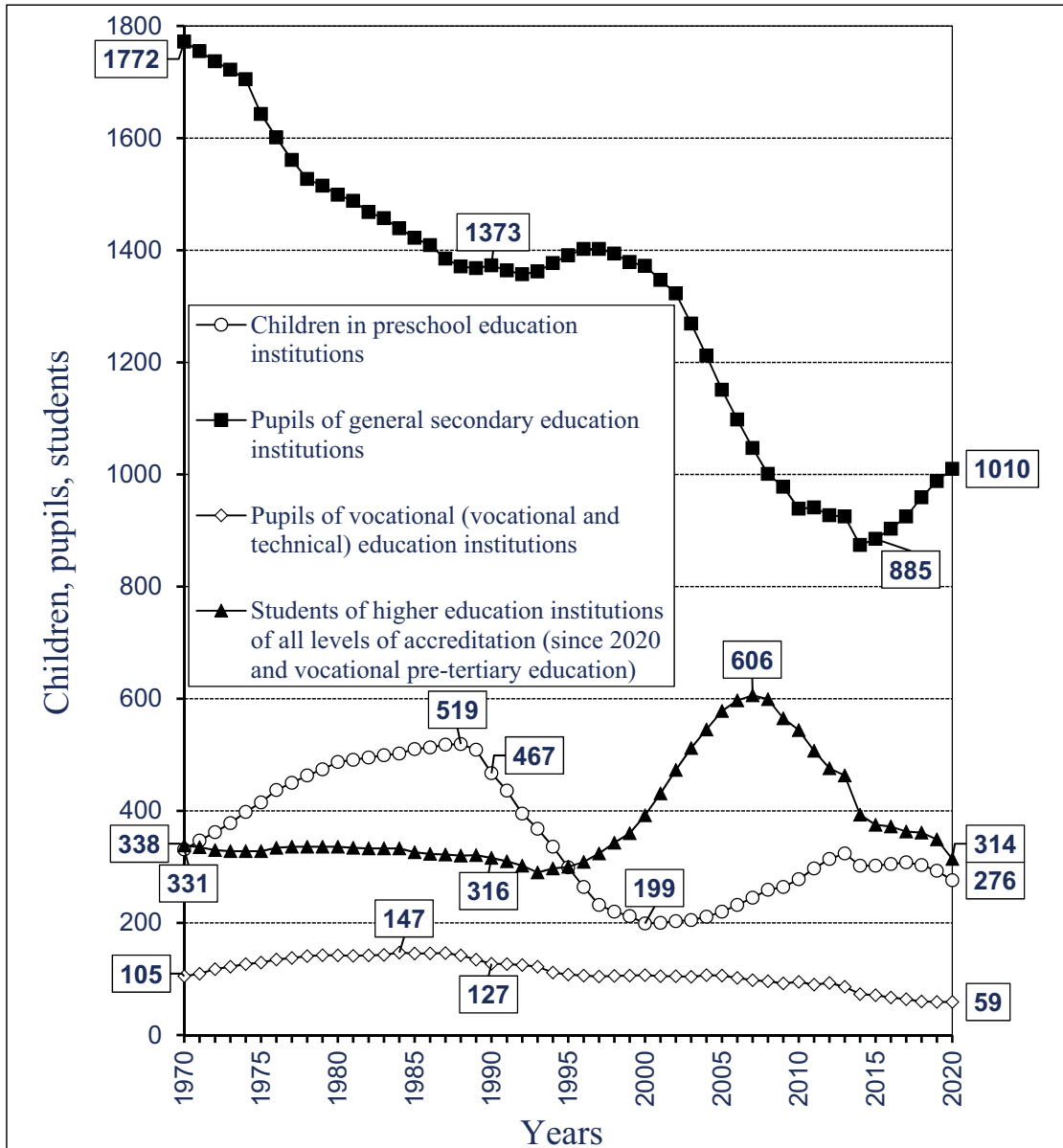


Fig. 3.2. Number of children in preschool education institutions, pupils of general secondary and vocational (vocational and technical) education, students of higher education institutions of all levels of accreditation (since 2020 and vocational pre-tertiary education) per 10 thousand population in Ukraine  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



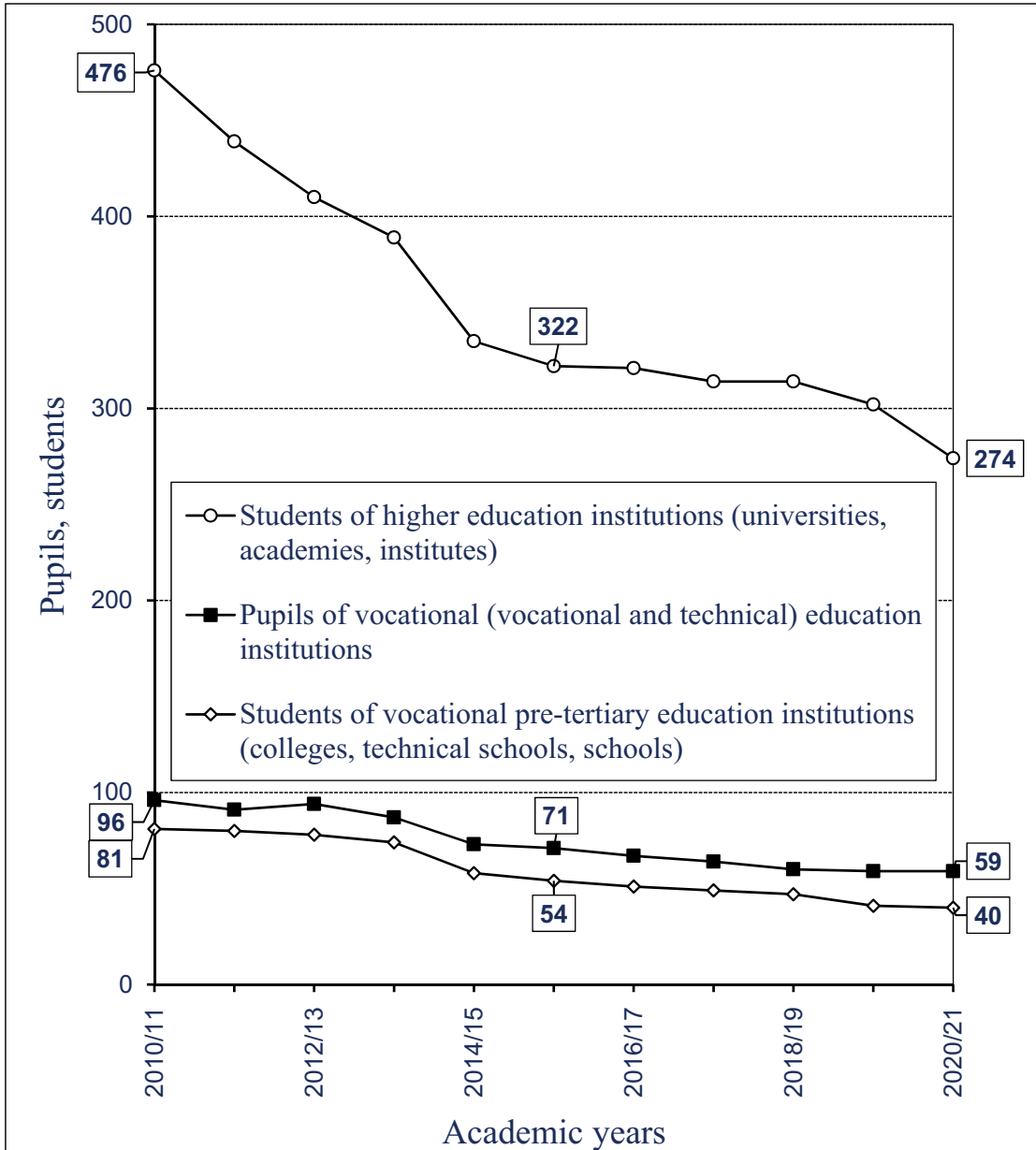


Fig. 3.3. Number of pupils of vocational (vocational and technical) education institutions and students of vocational pre-tertiary and higher education institutions per 10 thousand population in Ukraine in 2010/11-2020/21 academic years  
(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

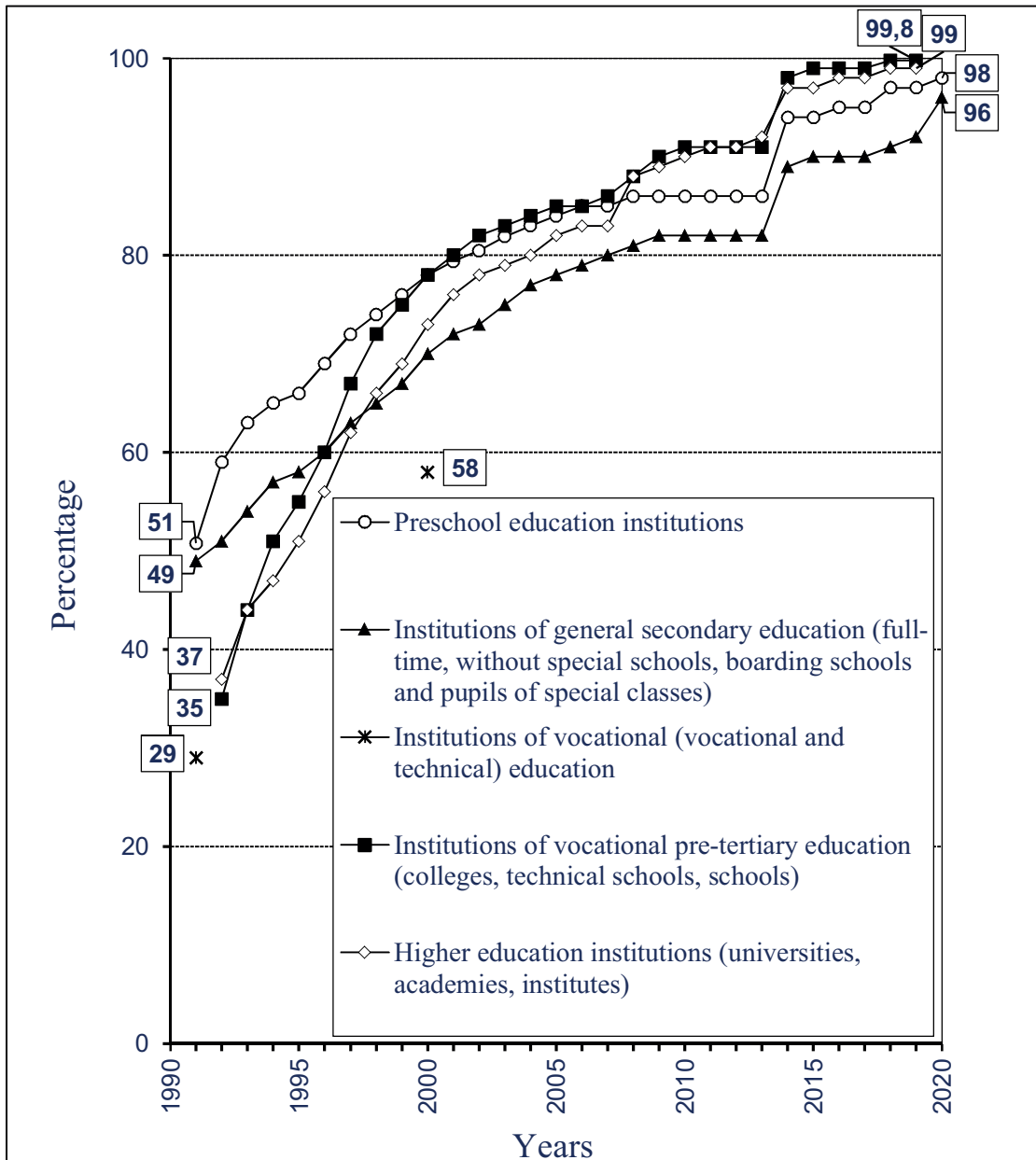


Fig. 3.4. Share of children in preschool education institutions, pupils of general secondary and vocational (vocational and technical) education institutions, students of vocational pre-tertiary and higher education institutions that study in Ukrainian language in Ukraine  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

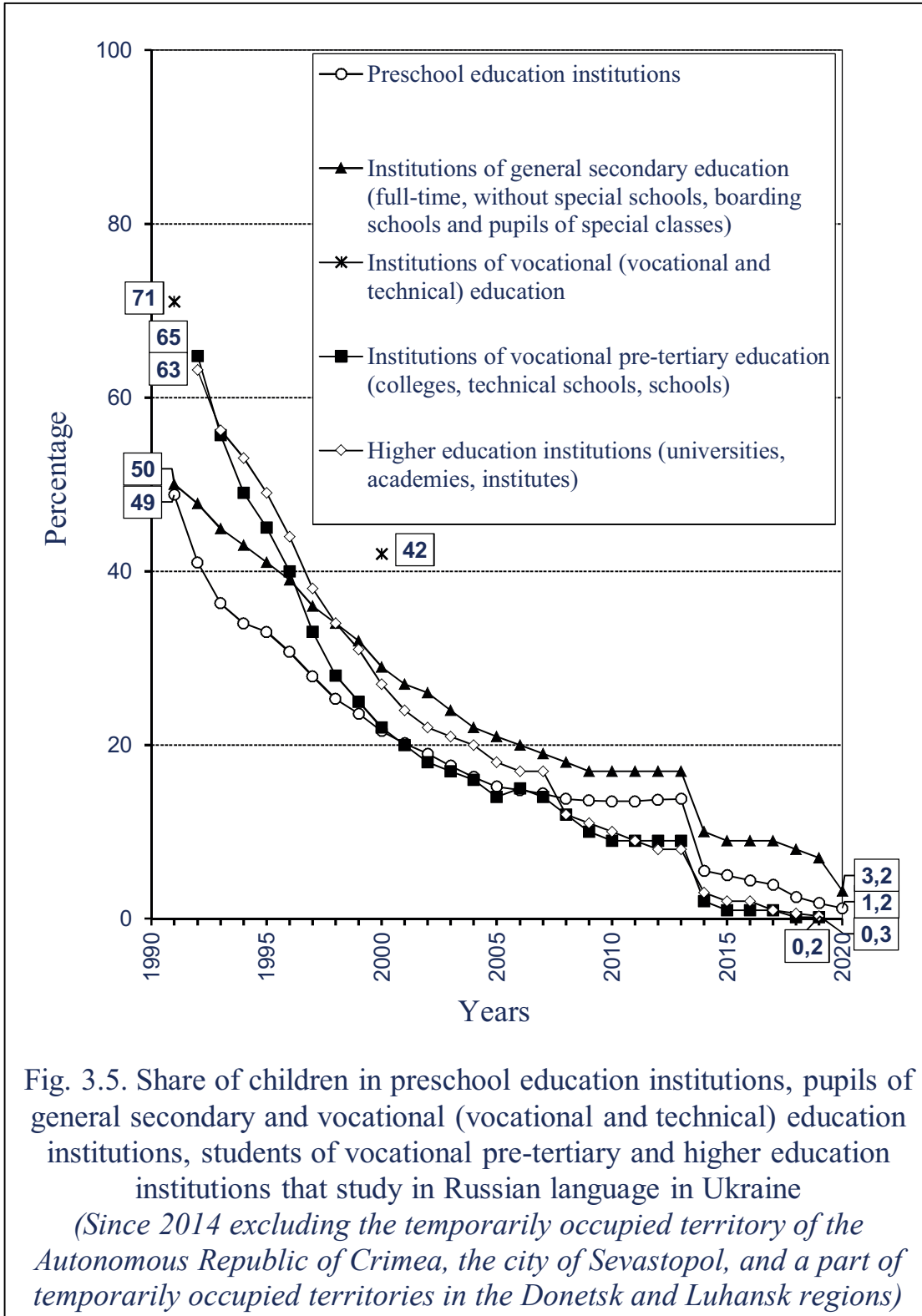


Fig. 3.5. Share of children in preschool education institutions, pupils of general secondary and vocational (vocational and technical) education institutions, students of vocational pre-tertiary and higher education institutions that study in Russian language in Ukraine  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

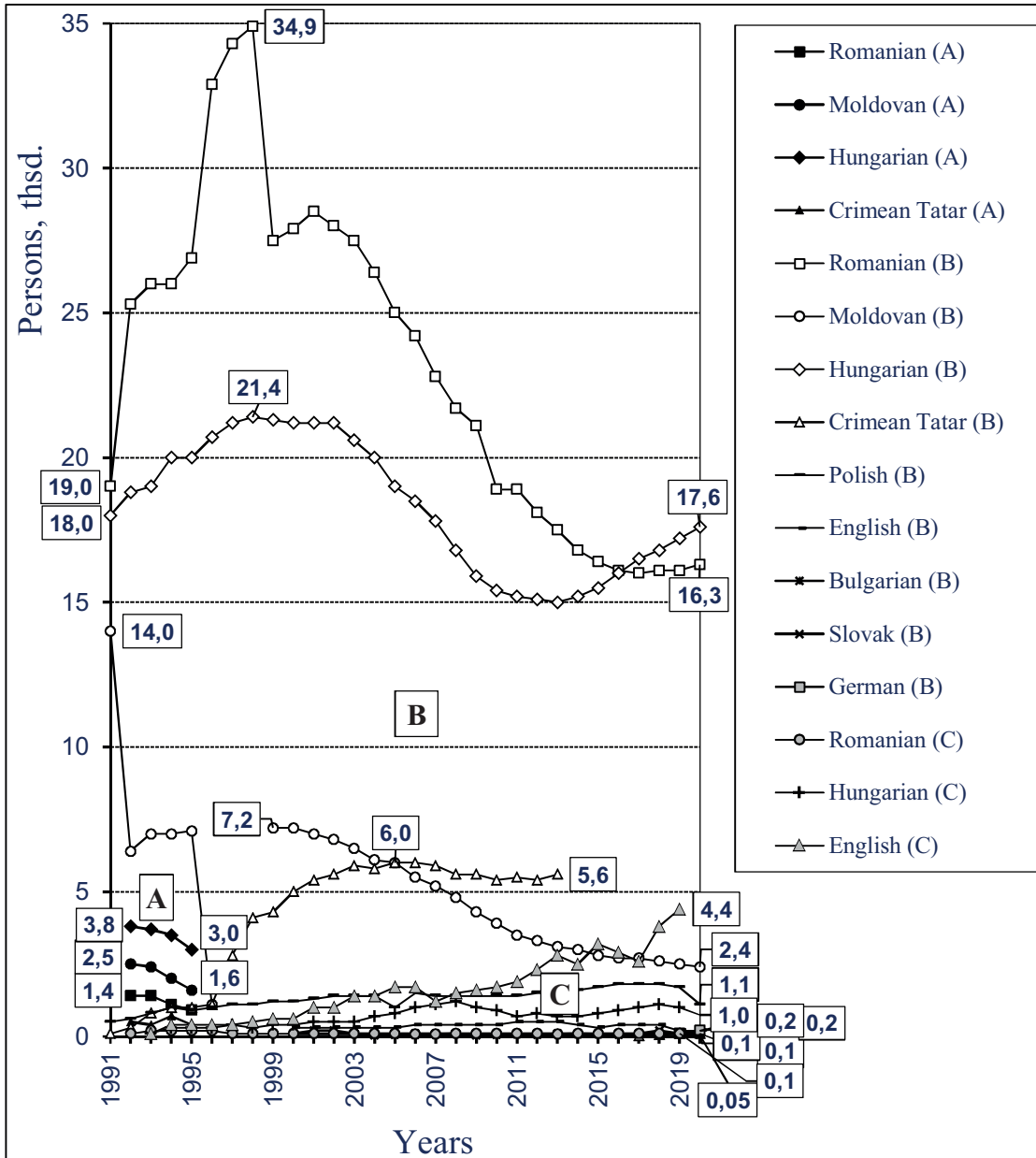


Fig. 3.6. Number of children, pupils, students studying in other (non-Ukrainian) languages (except Russian) in preschool (A - in 2020 total 9.1 thousand in different languages), general secondary (B) and vocational pre-tertiary and higher (C) education in Ukraine (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

## 4. PRESCHOOL EDUCATION



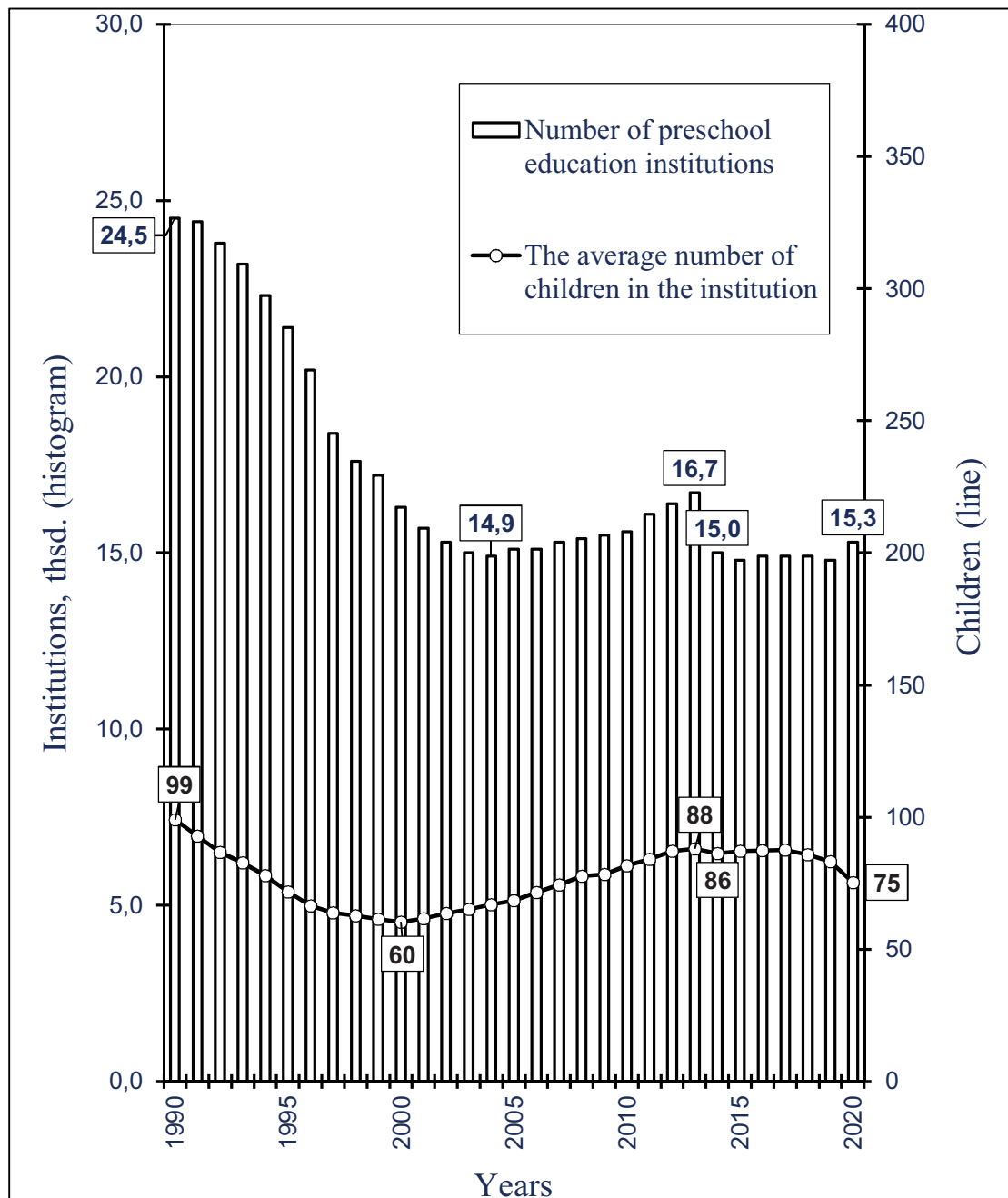


Fig. 4.1. The network of preschool education institutions in Ukraine and the average number of children in them  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

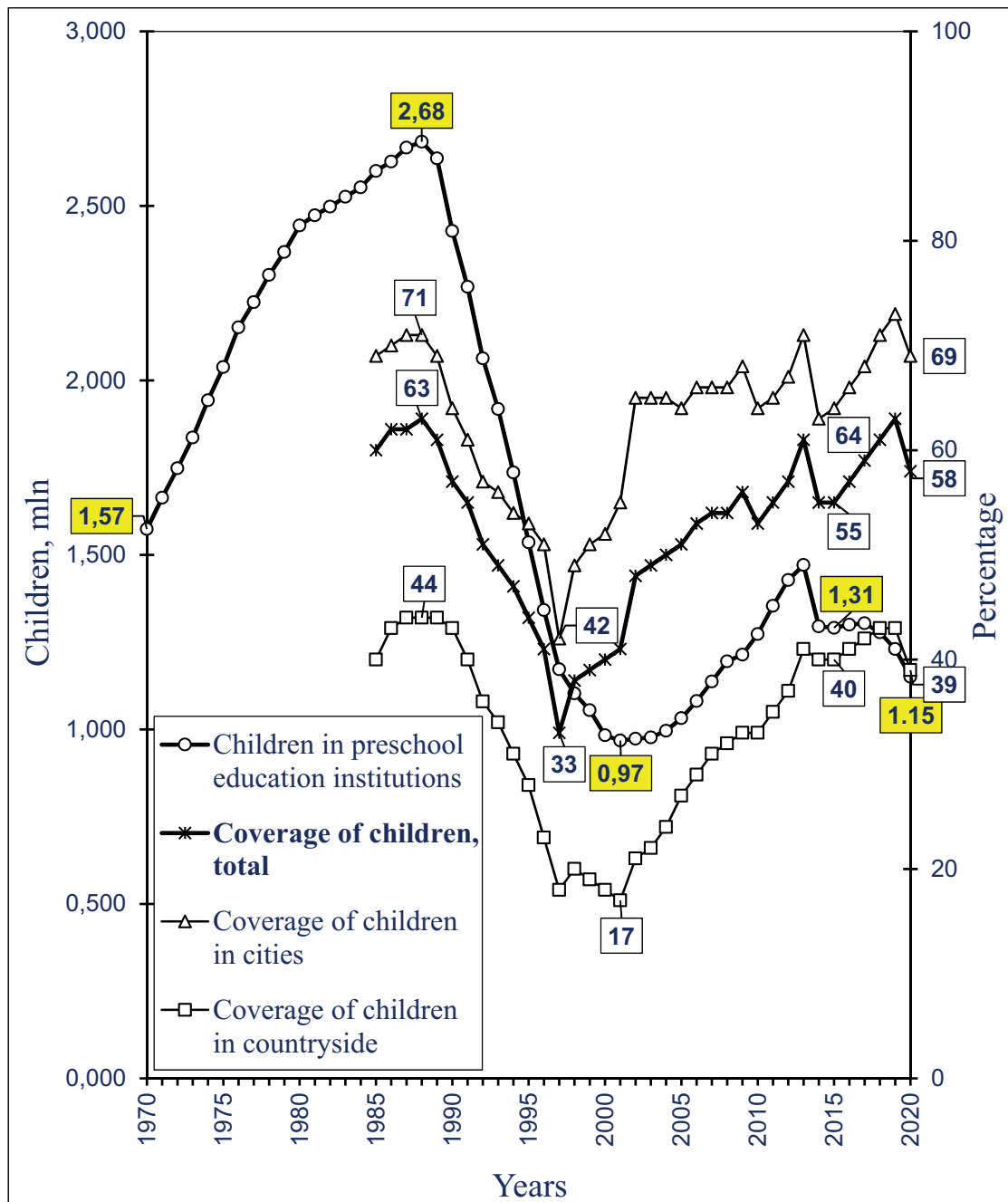


Fig. 4.2. Number of children in preschool education institutions of Ukraine and their share of all preschool children (coverage) (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

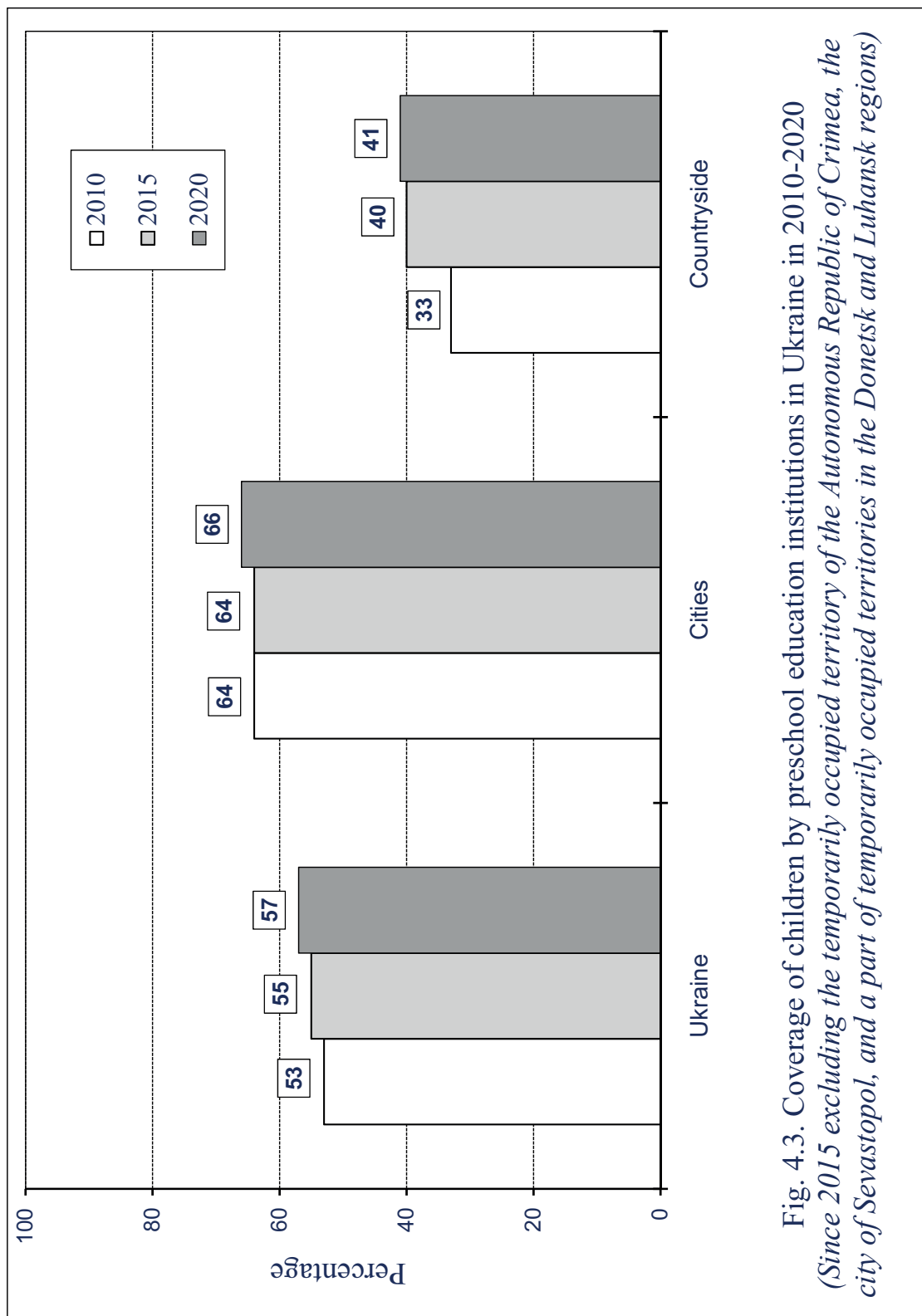


Fig. 4.3. Coverage of children by preschool education institutions in Ukraine in 2010-2020  
*(Since 2015 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

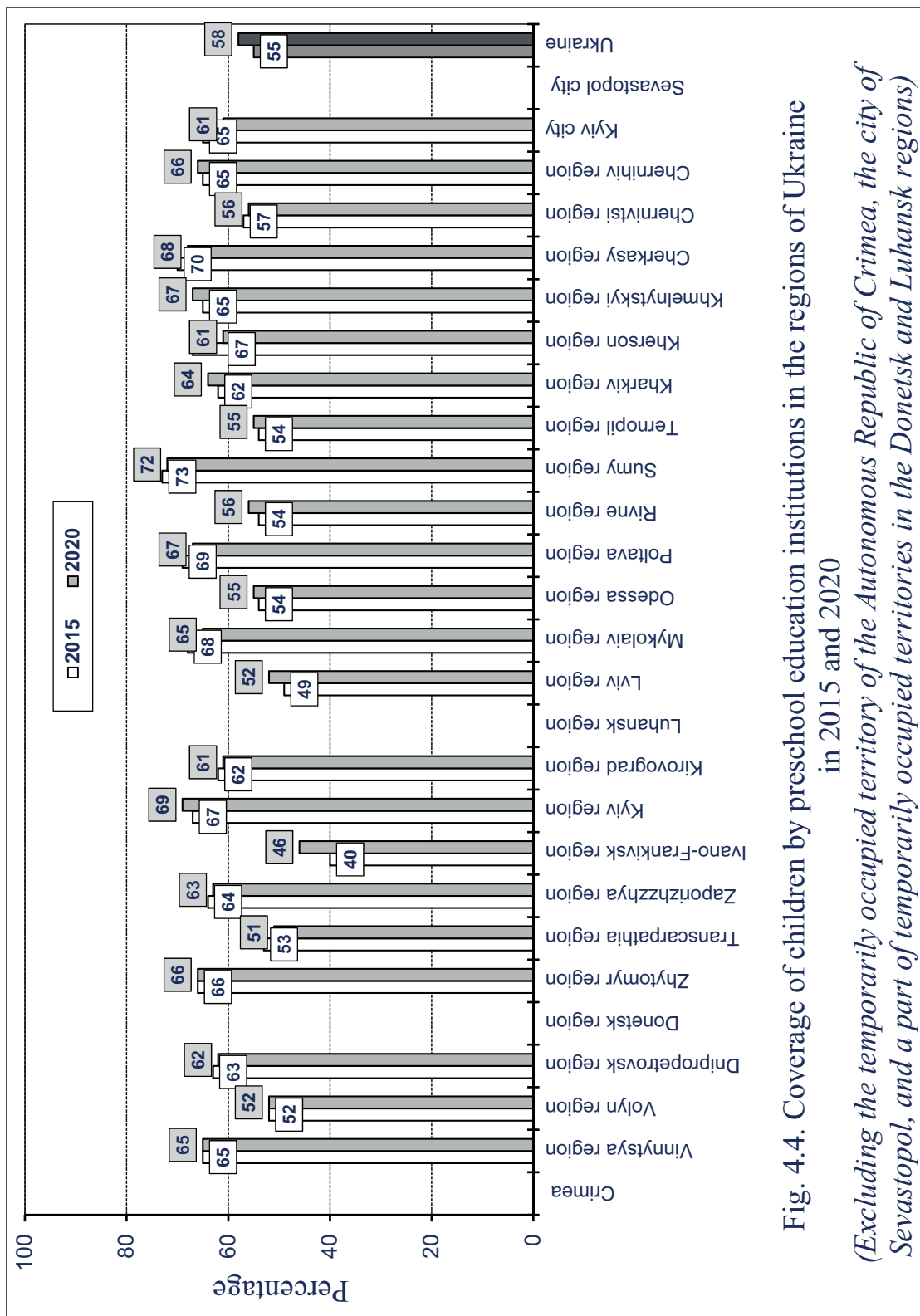


Fig. 4.4. Coverage of children by preschool education institutions in the regions of Ukraine in 2015 and 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

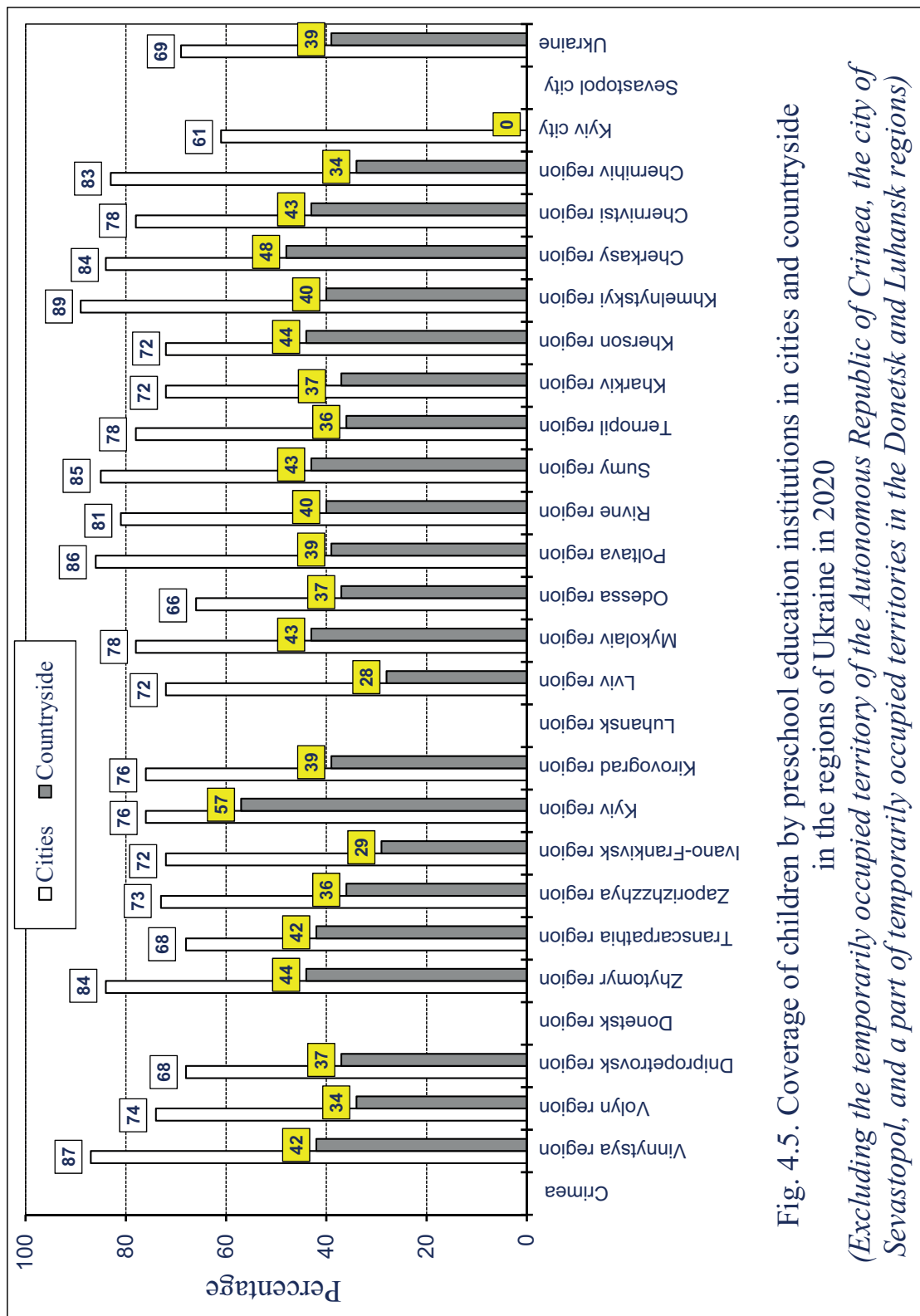


Fig. 4.5. Coverage of children by preschool education institutions in cities and countryside in the regions of Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



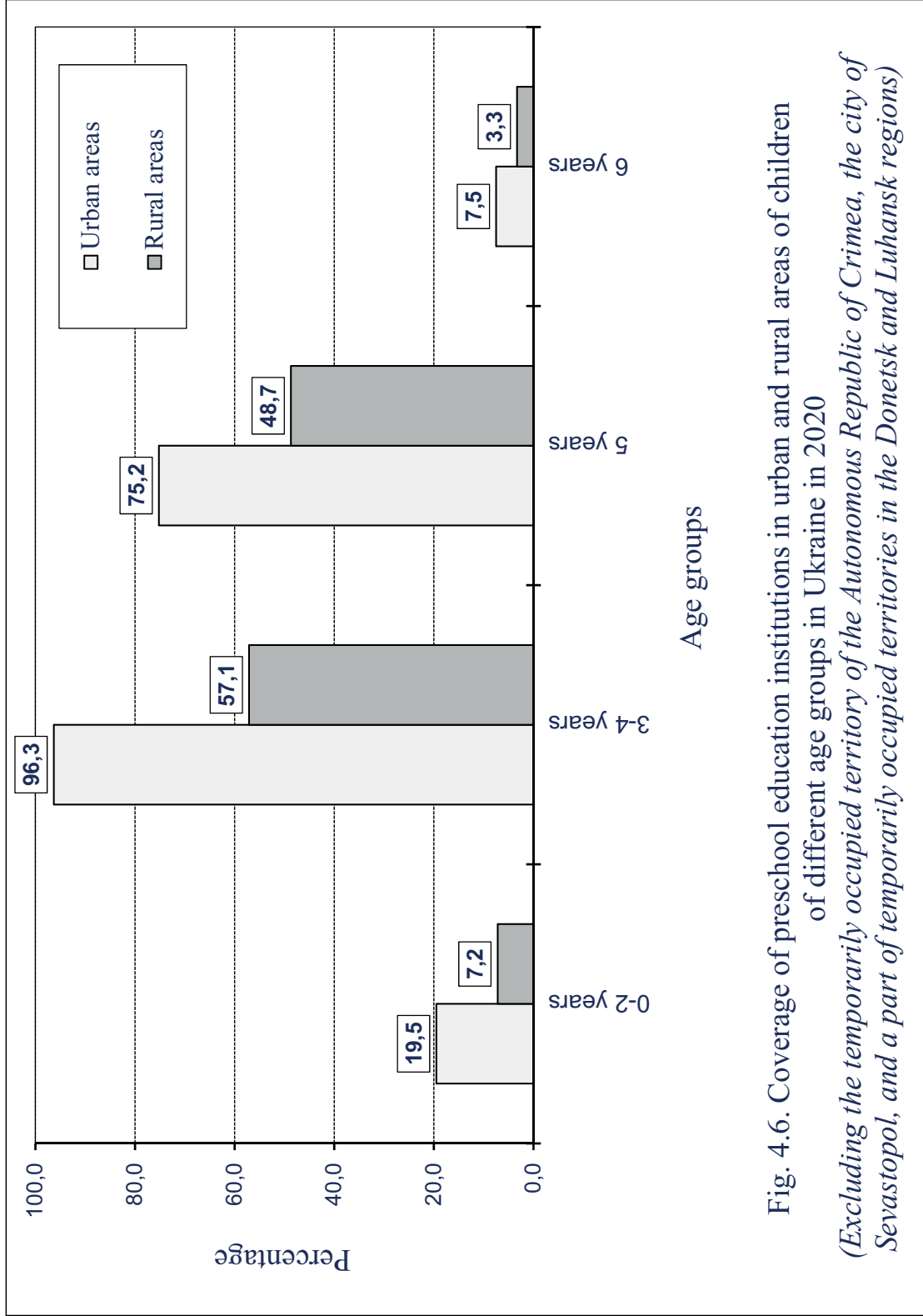


Fig. 4.6. Coverage of preschool education institutions in urban and rural areas of children of different age groups in Ukraine in 2020  
(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

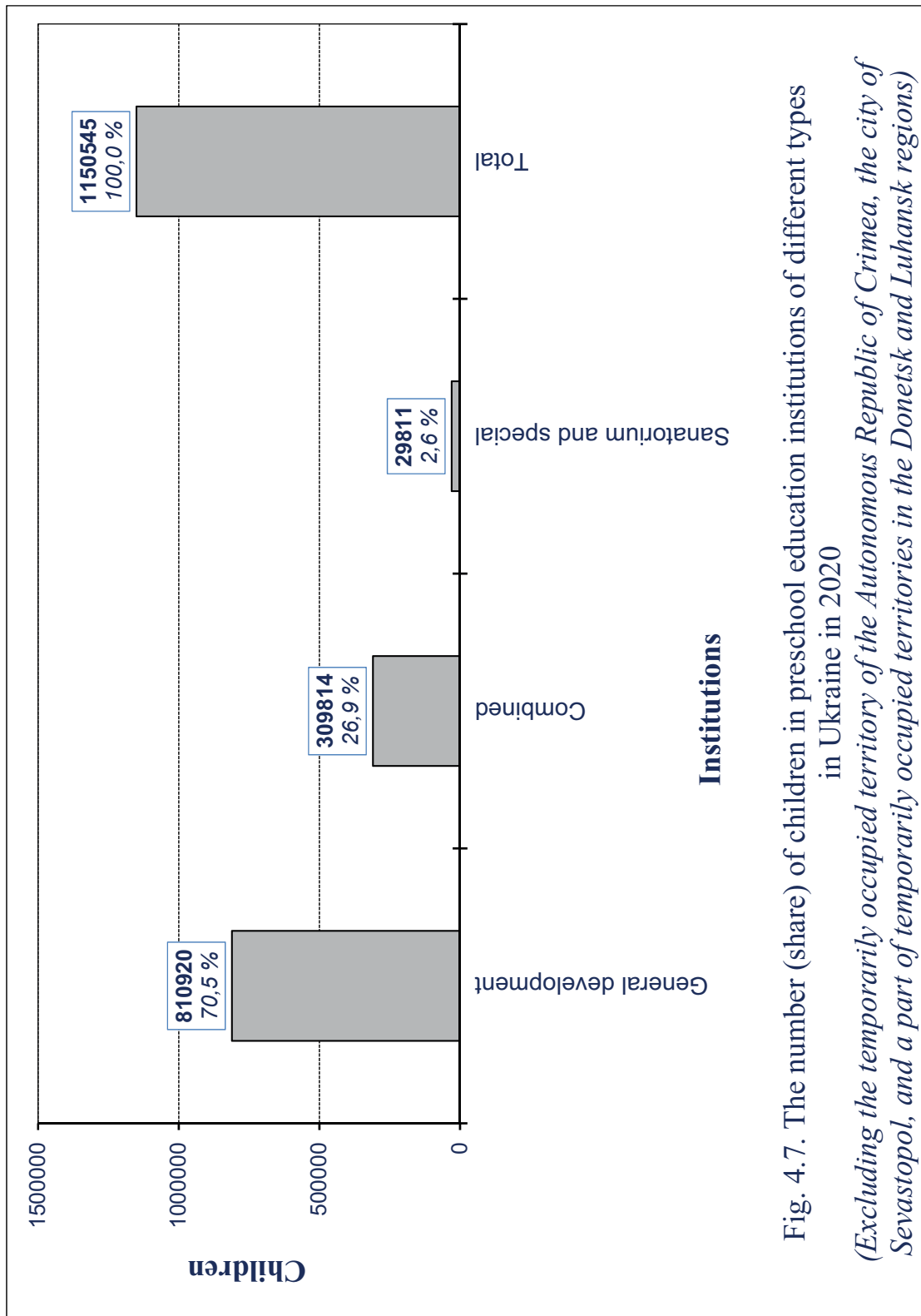


Fig. 4.7. The number (share) of children in preschool education institutions of different types in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

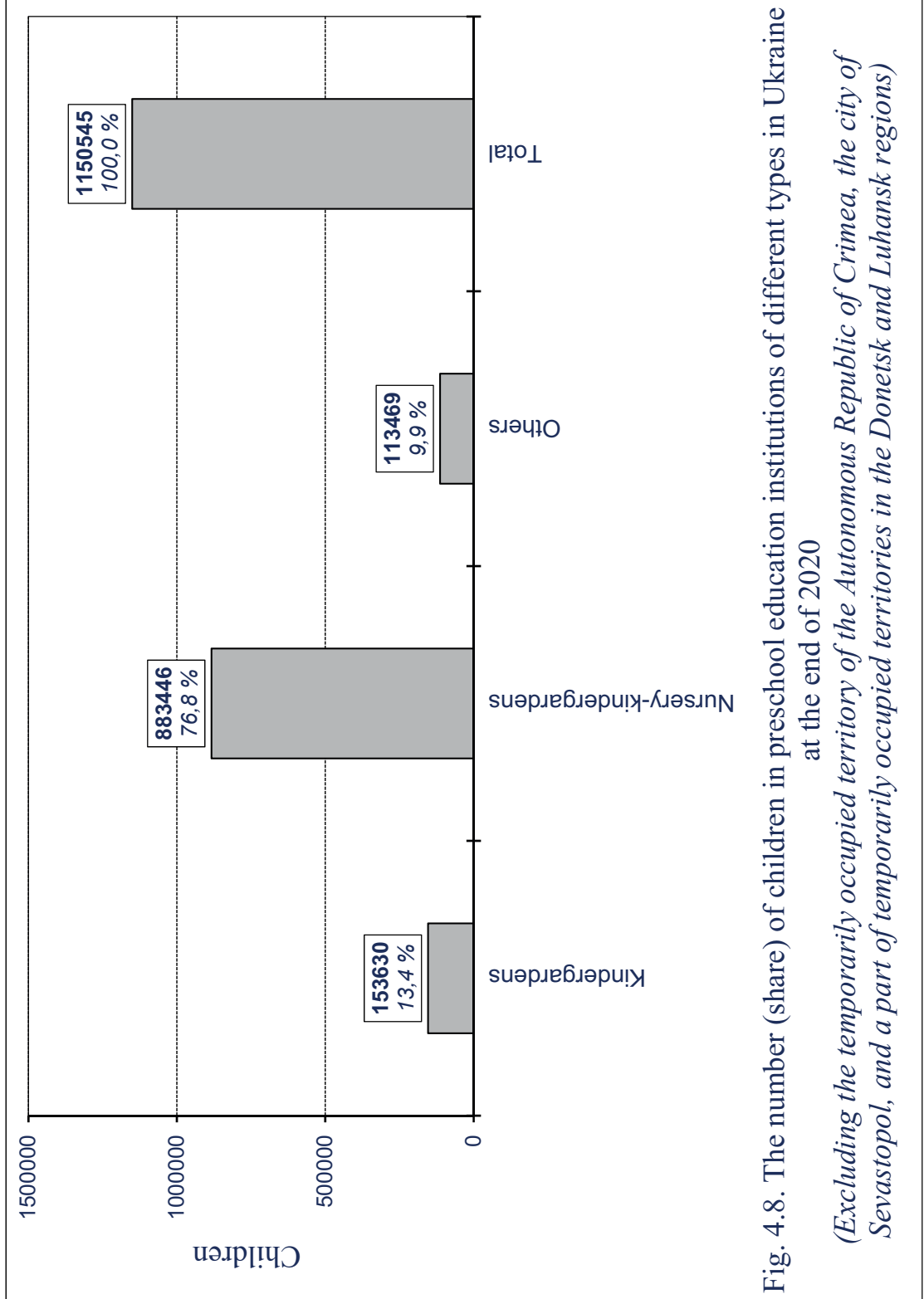
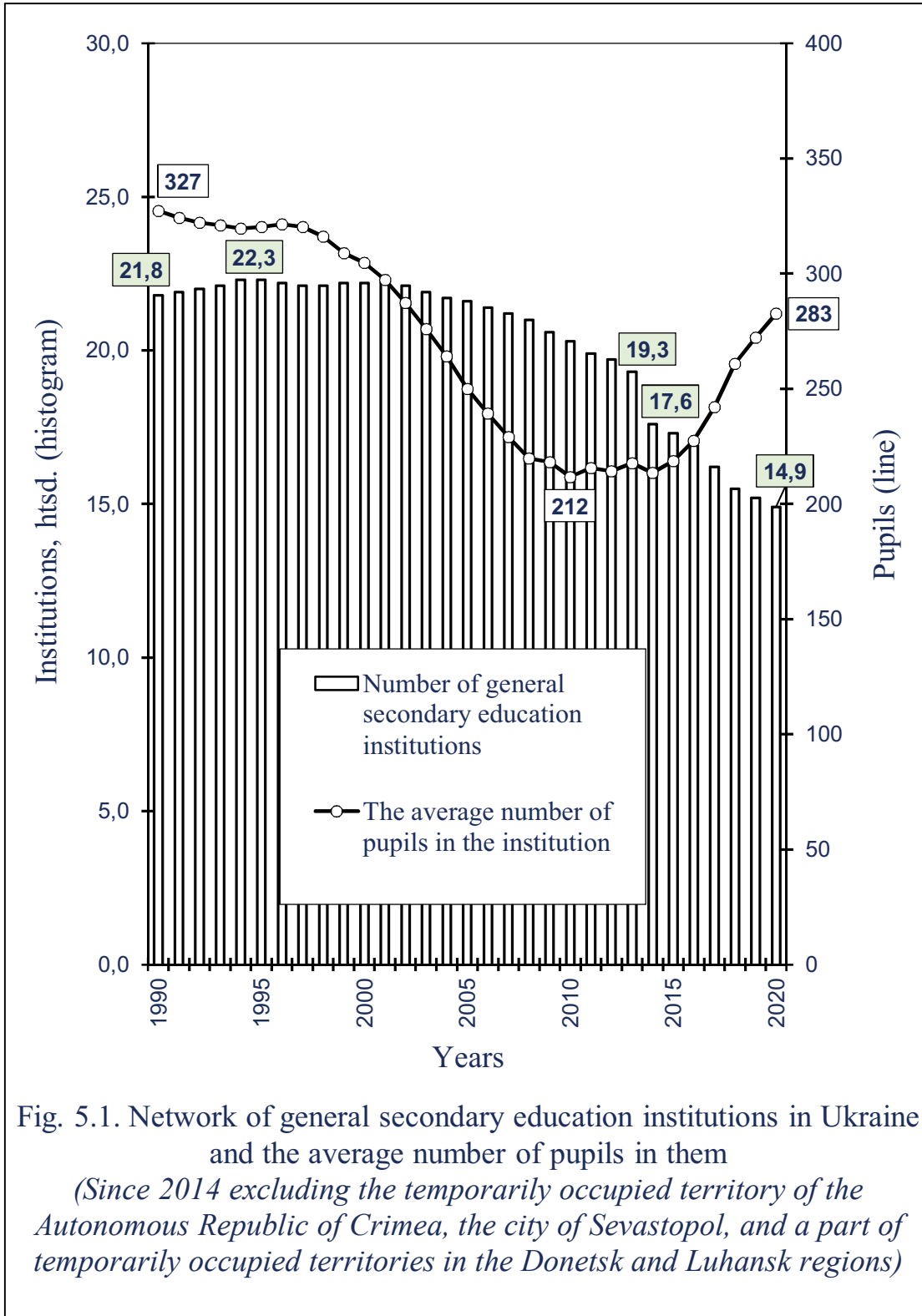


Fig. 4.8. The number (share) of children in preschool education institutions of different types in Ukraine at the end of 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **5. COMPLETE GENERAL SECONDARY EDUCATION**





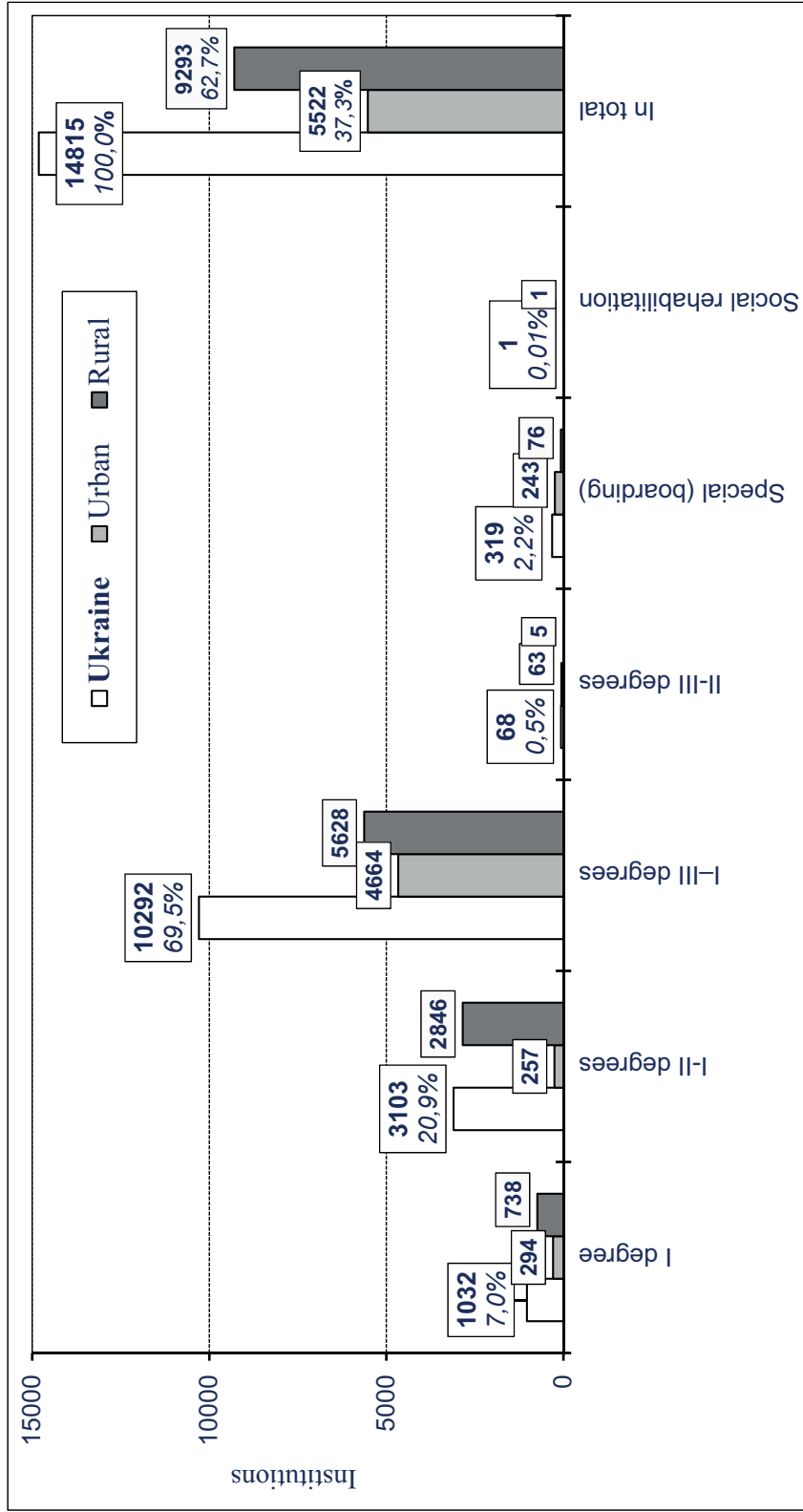


Fig. 5.2. Distribution of full-time general secondary education institutions (state, communal, private) of Ukraine by degrees and types at the beginning of the 2020/21 academic year  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

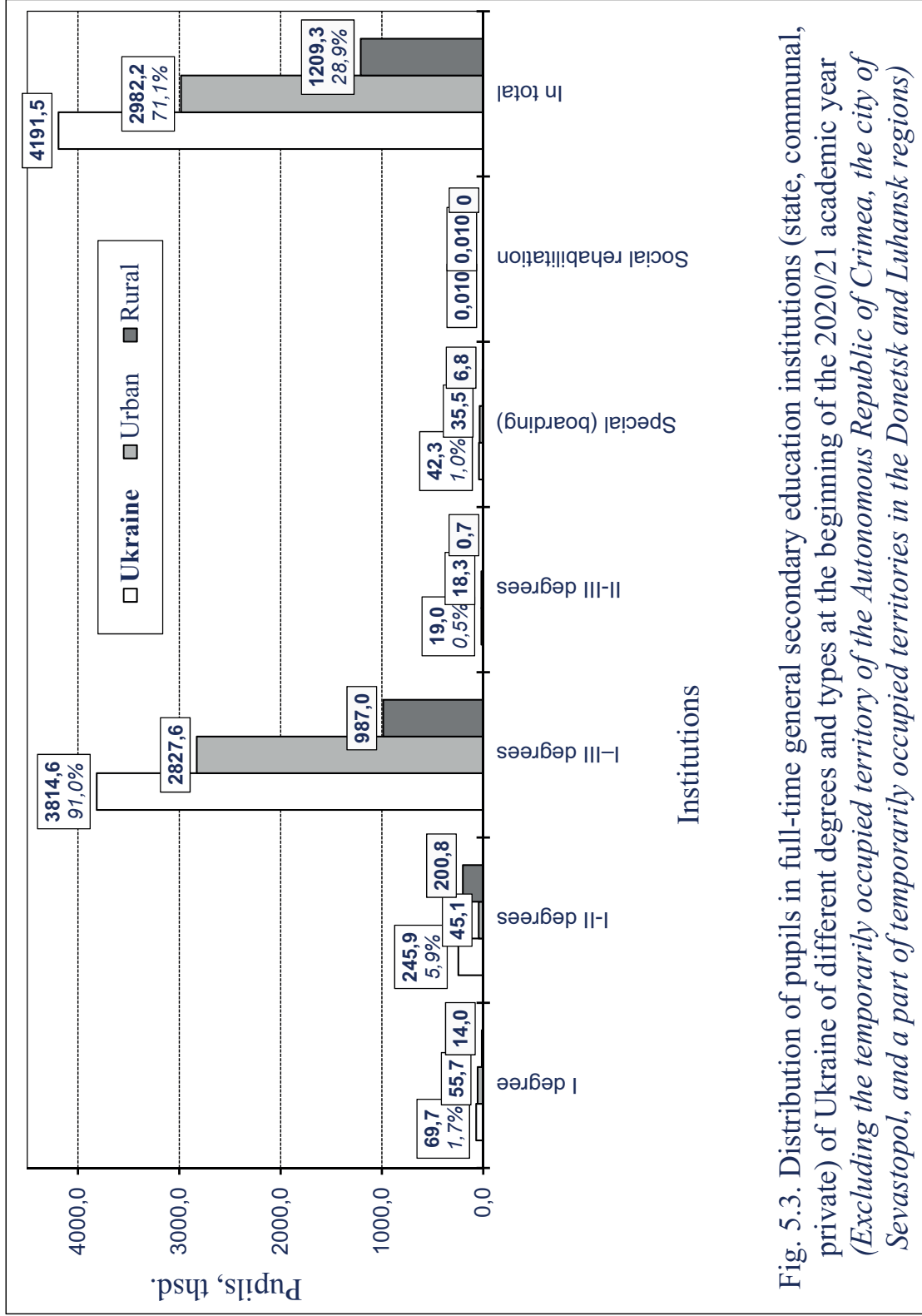


Fig. 5.3. Distribution of pupils in full-time general secondary education institutions (state, communal, private) of Ukraine of different degrees and types at the beginning of the 2020/21 academic year (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

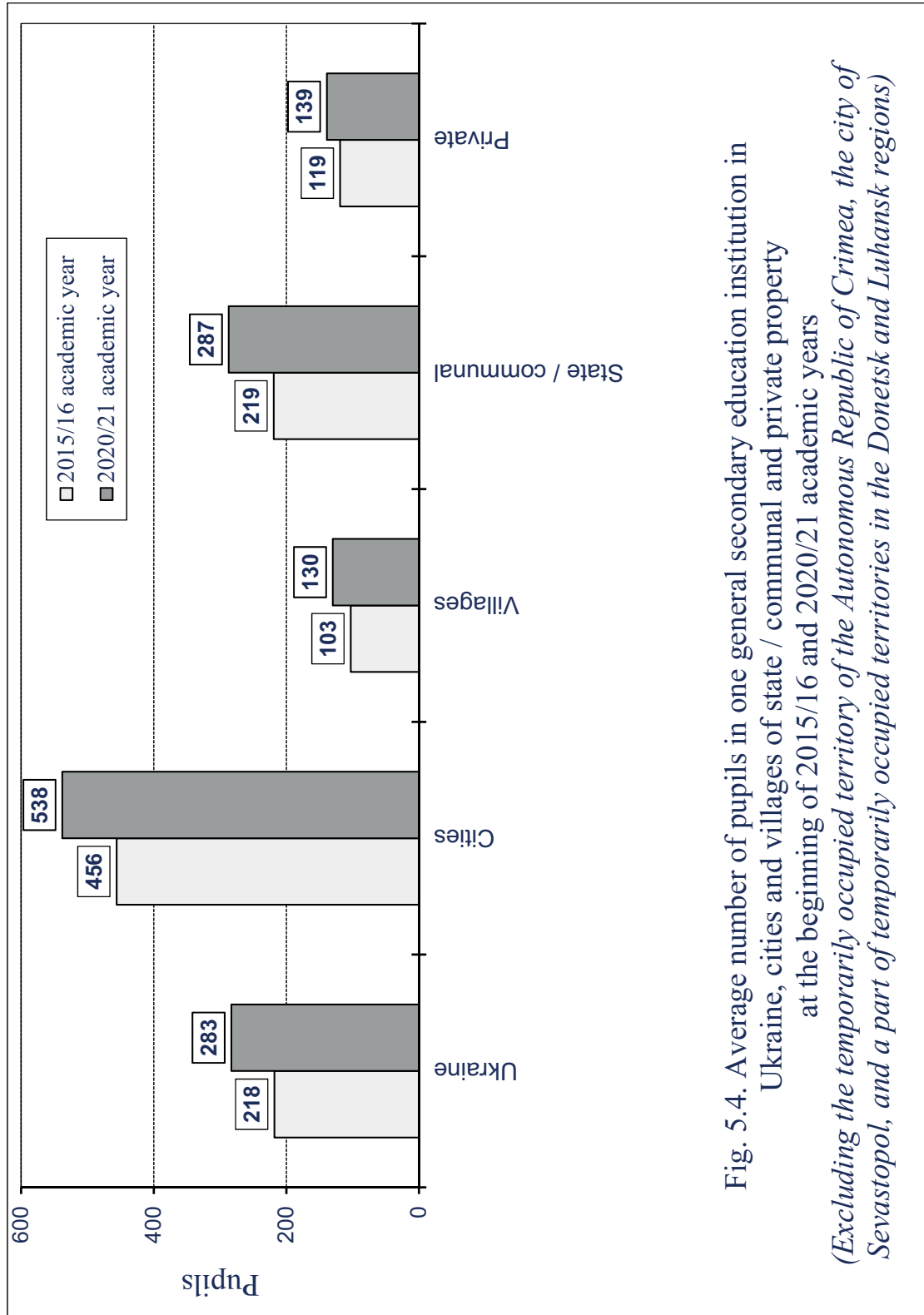


Fig. 5.4. Average number of pupils in one general secondary education institution in Ukraine, cities and villages of state / communal and private property at the beginning of 2015/16 and 2020/21 academic years  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

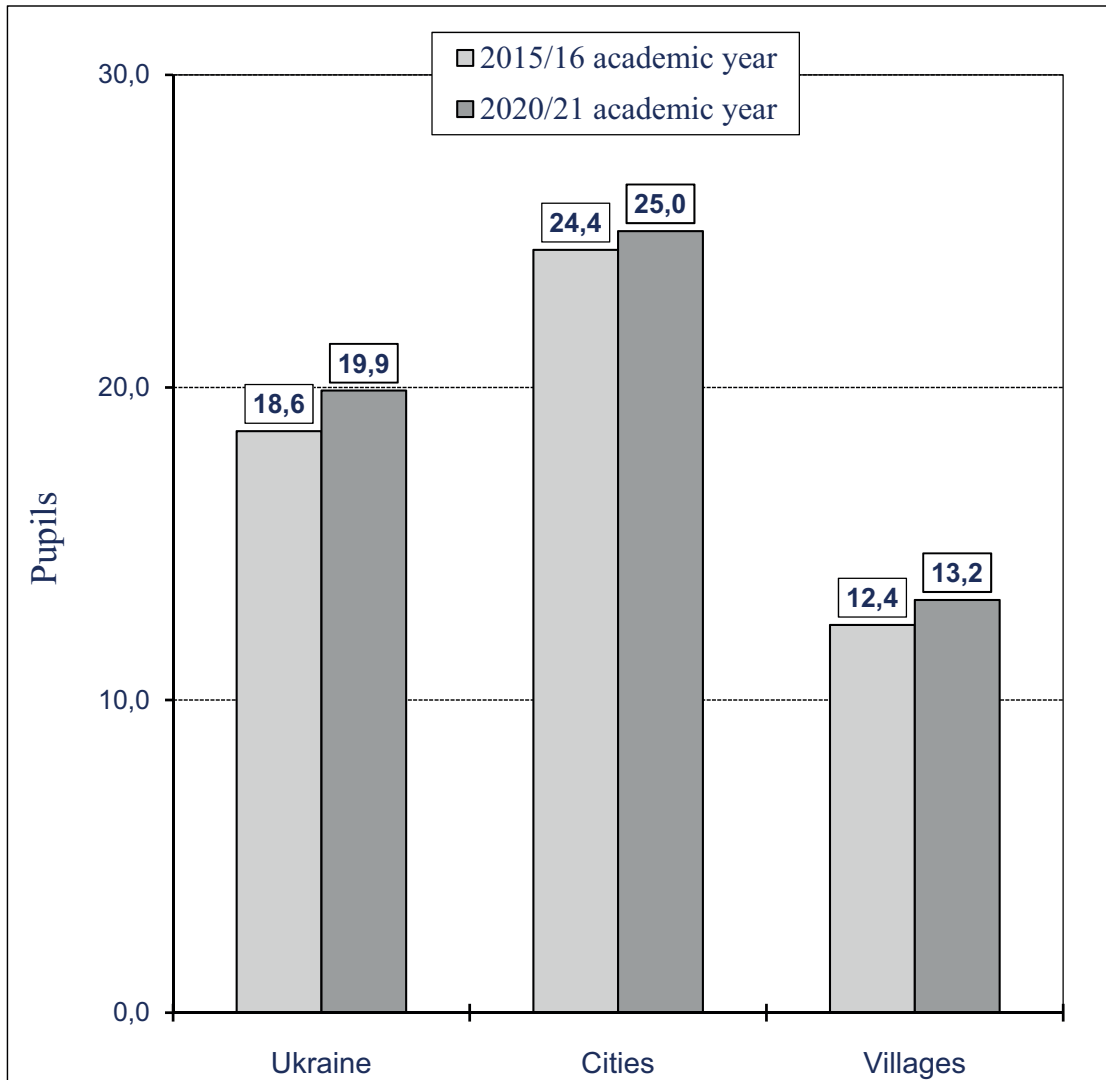


Fig. 5.5. The average number of pupils in one class of full-time general secondary education institutions in Ukraine, cities and villages (excluding special classes in general secondary institutions and classes in special institutions (boarding institutions)) at the beginning of the 2015/16 and 2020/21 academic years  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

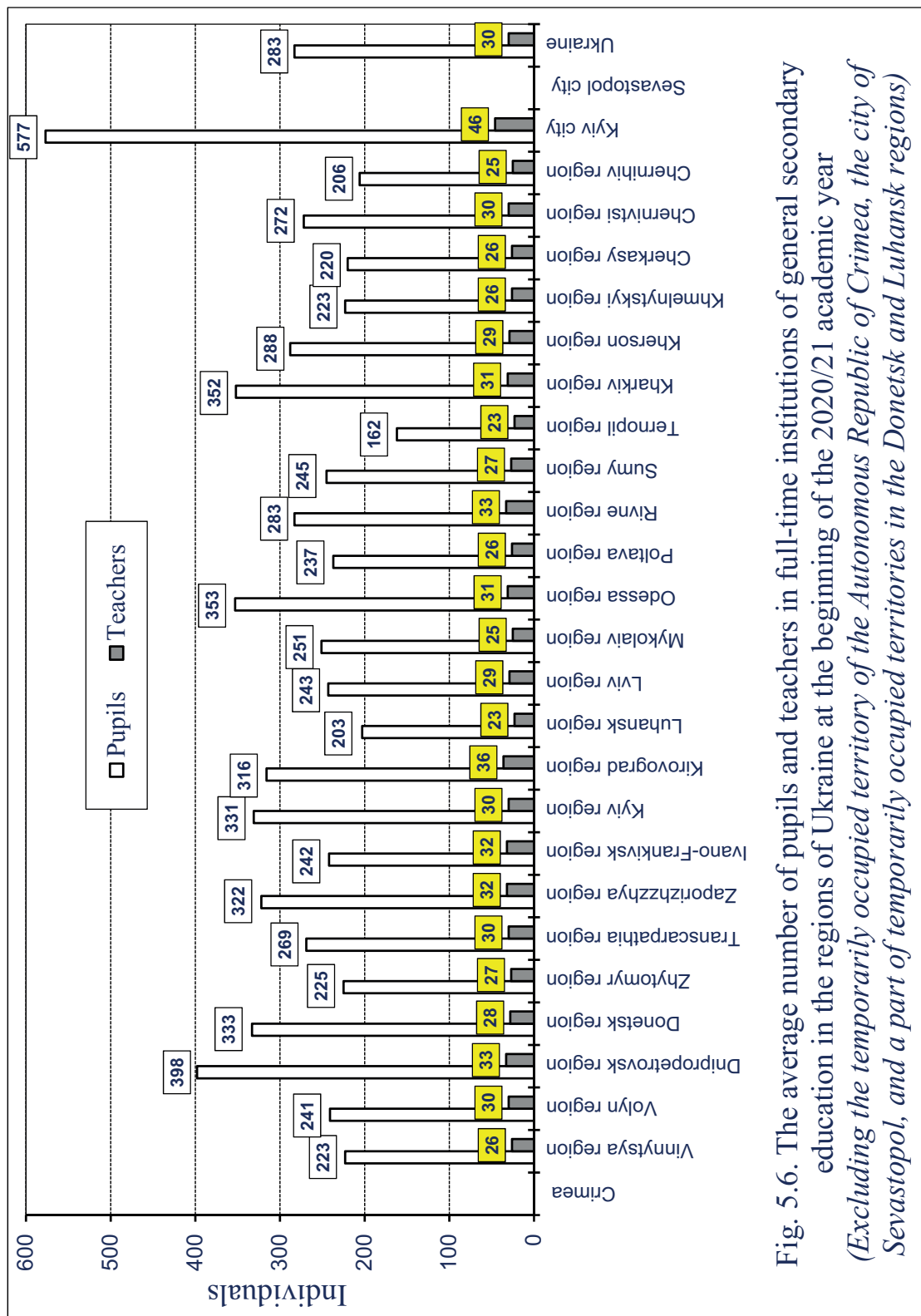


Fig. 5.6. The average number of pupils and teachers in full-time institutions of general secondary education in the regions of Ukraine at the beginning of the 2020/21 academic year (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)



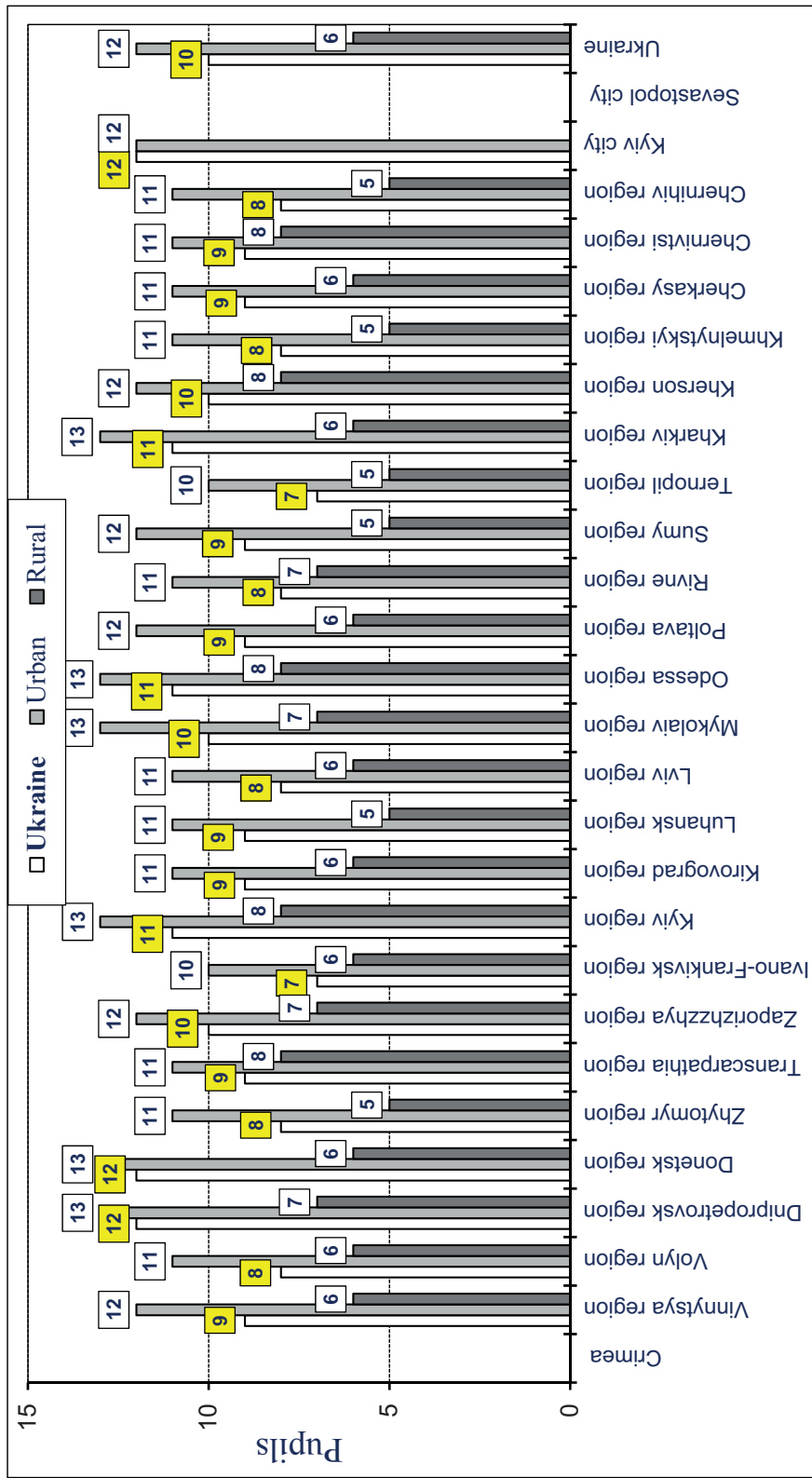


Fig. 5.7. The average number of pupils per teacher in full-time institutions of general secondary education in the regions of Ukraine, urban and rural areas at the beginning of the 2020/21 academic year (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

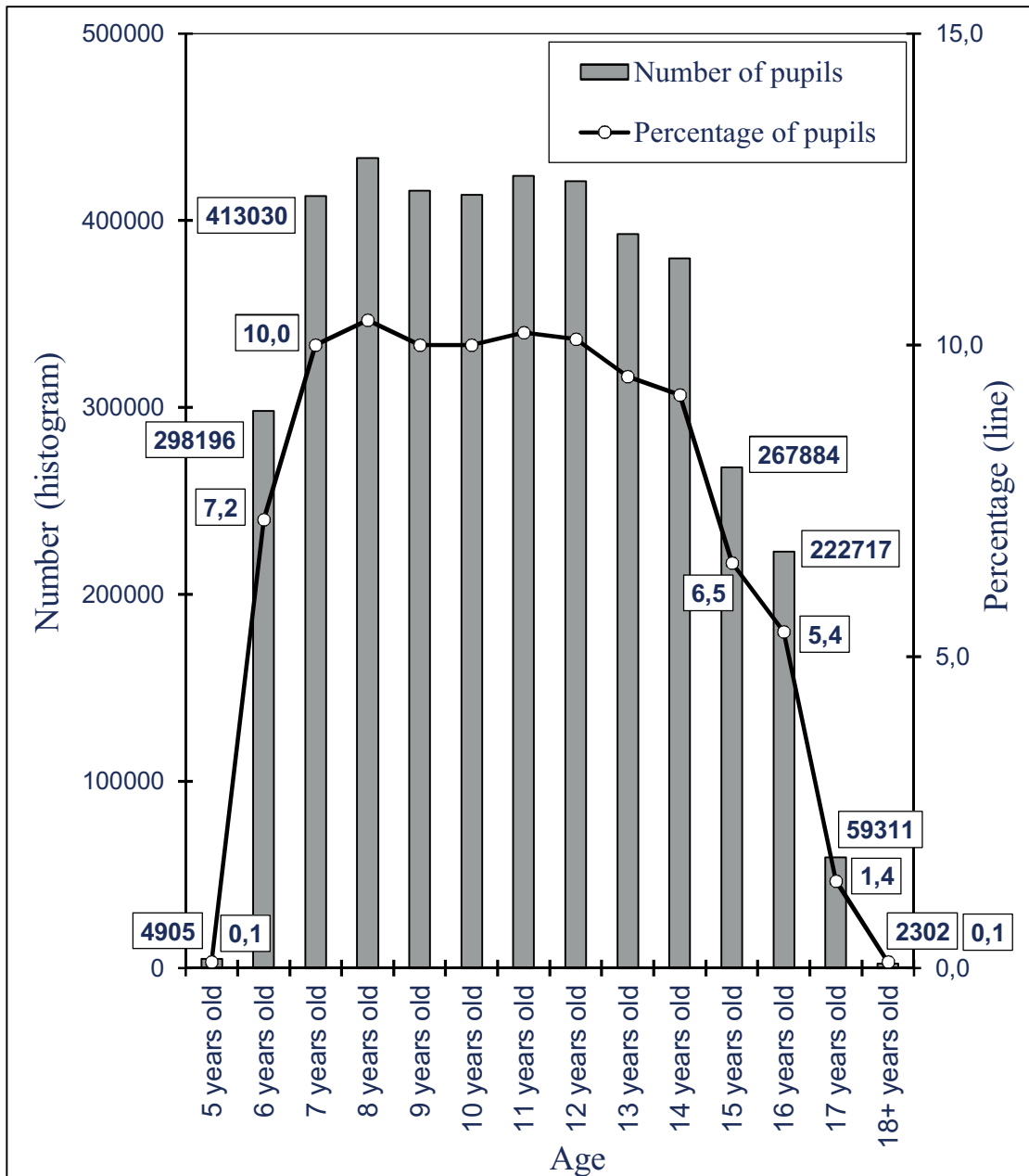


Fig. 5.8. Age composition (number and share) of pupils in full-time general secondary education institutions at the beginning of the 2020/21 academic year in Ukraine  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

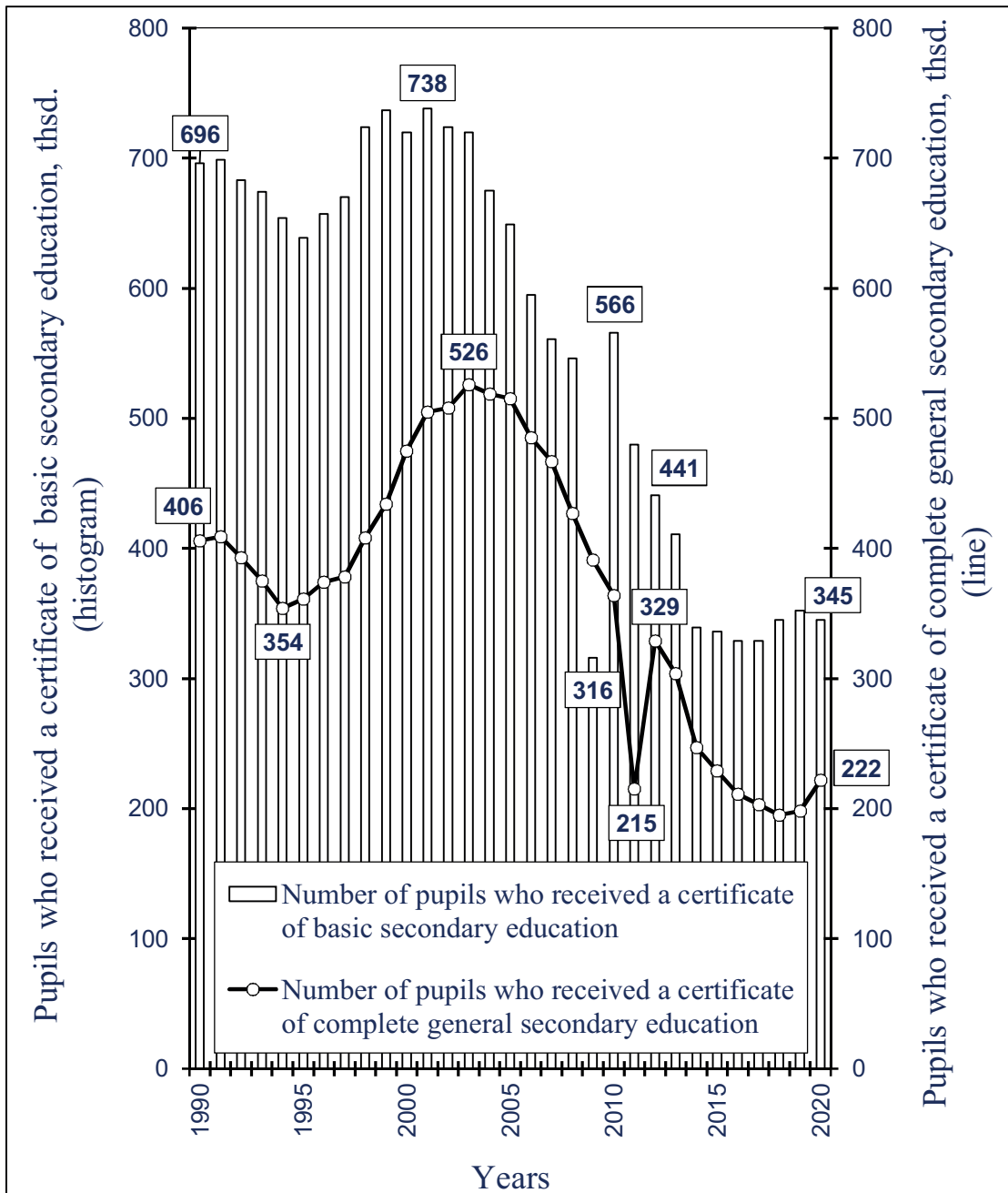


Fig. 5.9. Graduation of pupils from general secondary education institutions in Ukraine

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

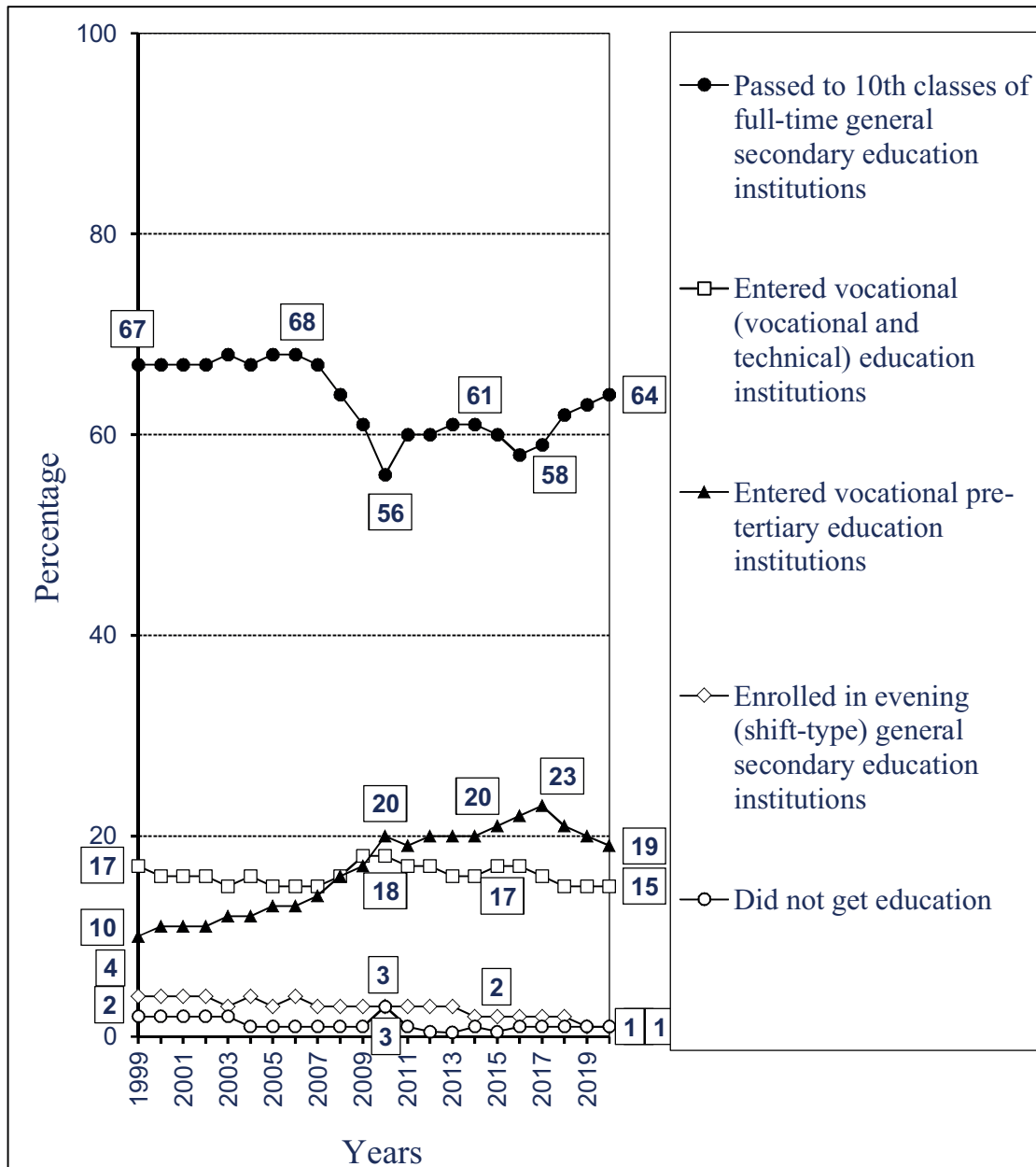


Fig. 5.10. Distribution of 9th grade graduates of general secondary education institutions by forms of further education in Ukraine (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

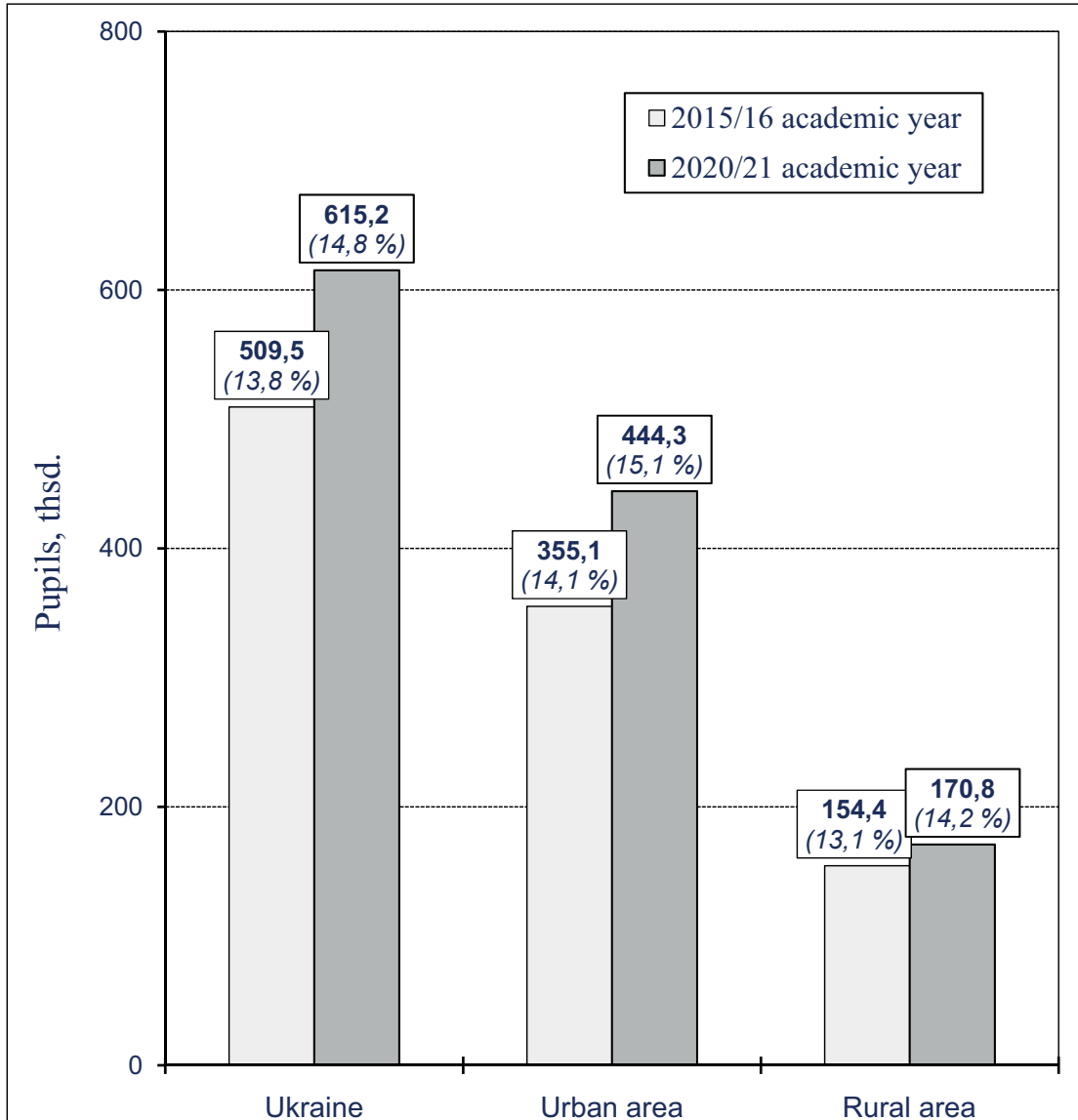


Fig. 5.11. Number (share) of pupils in groups of extended day full-time general secondary education institutions (excluding pupils of special education institutions (boarding institutions), pupils of special classes and 1st grades in preschool education institutions) at the beginning of 2015/16 and 2020/21 academic years in Ukraine (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)



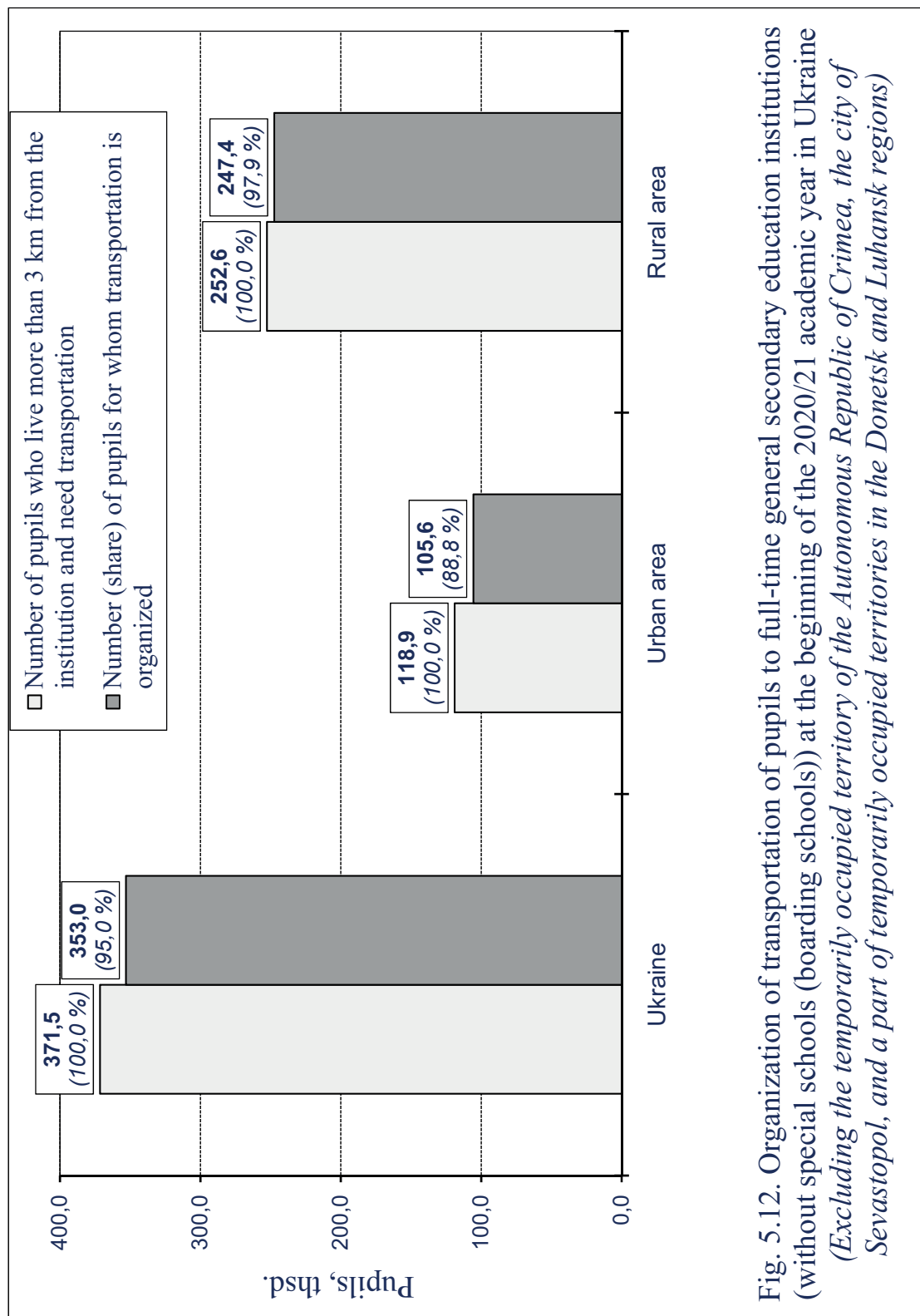


Fig. 5.12. Organization of transportation of pupils to full-time general secondary education institutions (without special schools (boarding schools)) at the beginning of the 2020/21 academic year in Ukraine (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

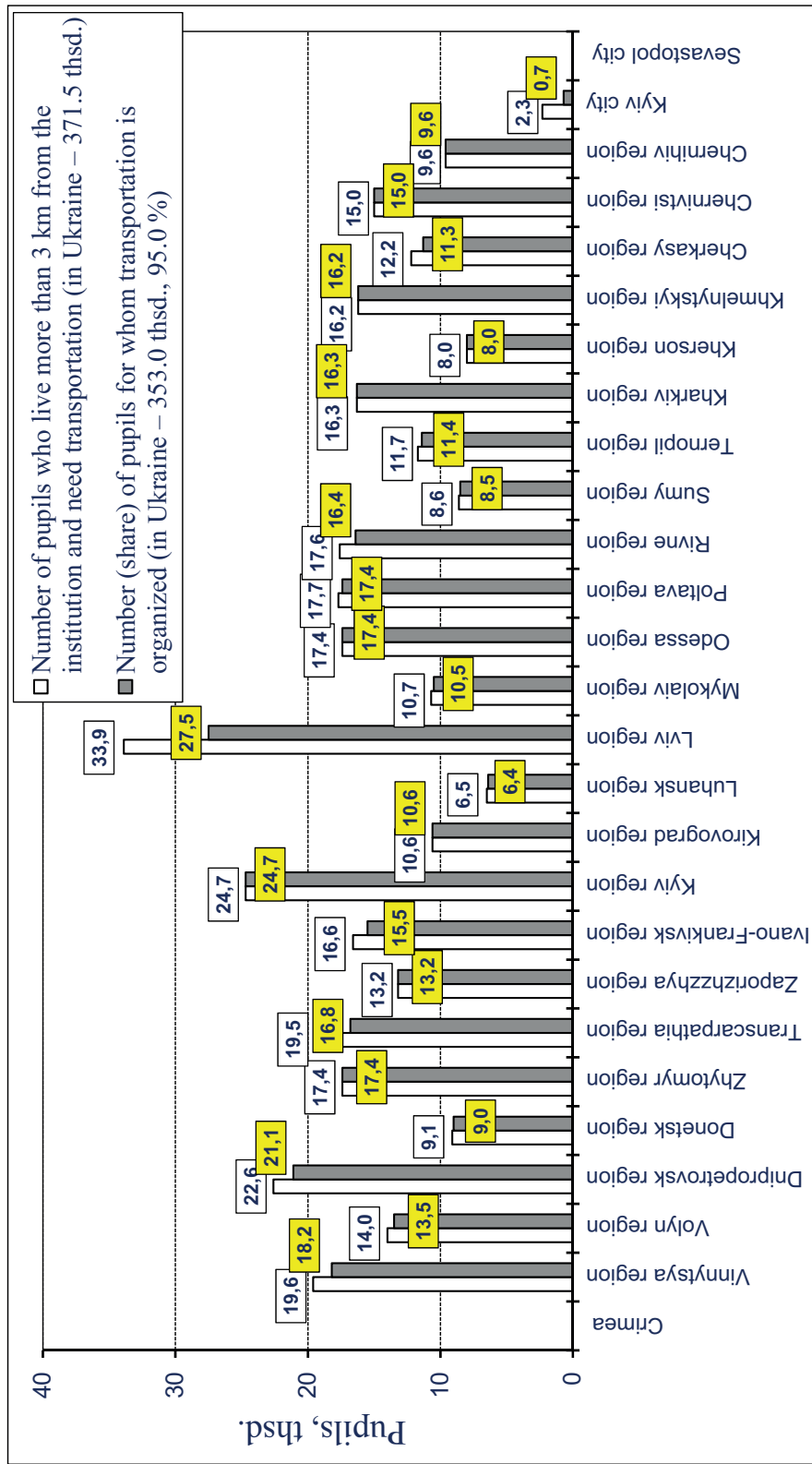
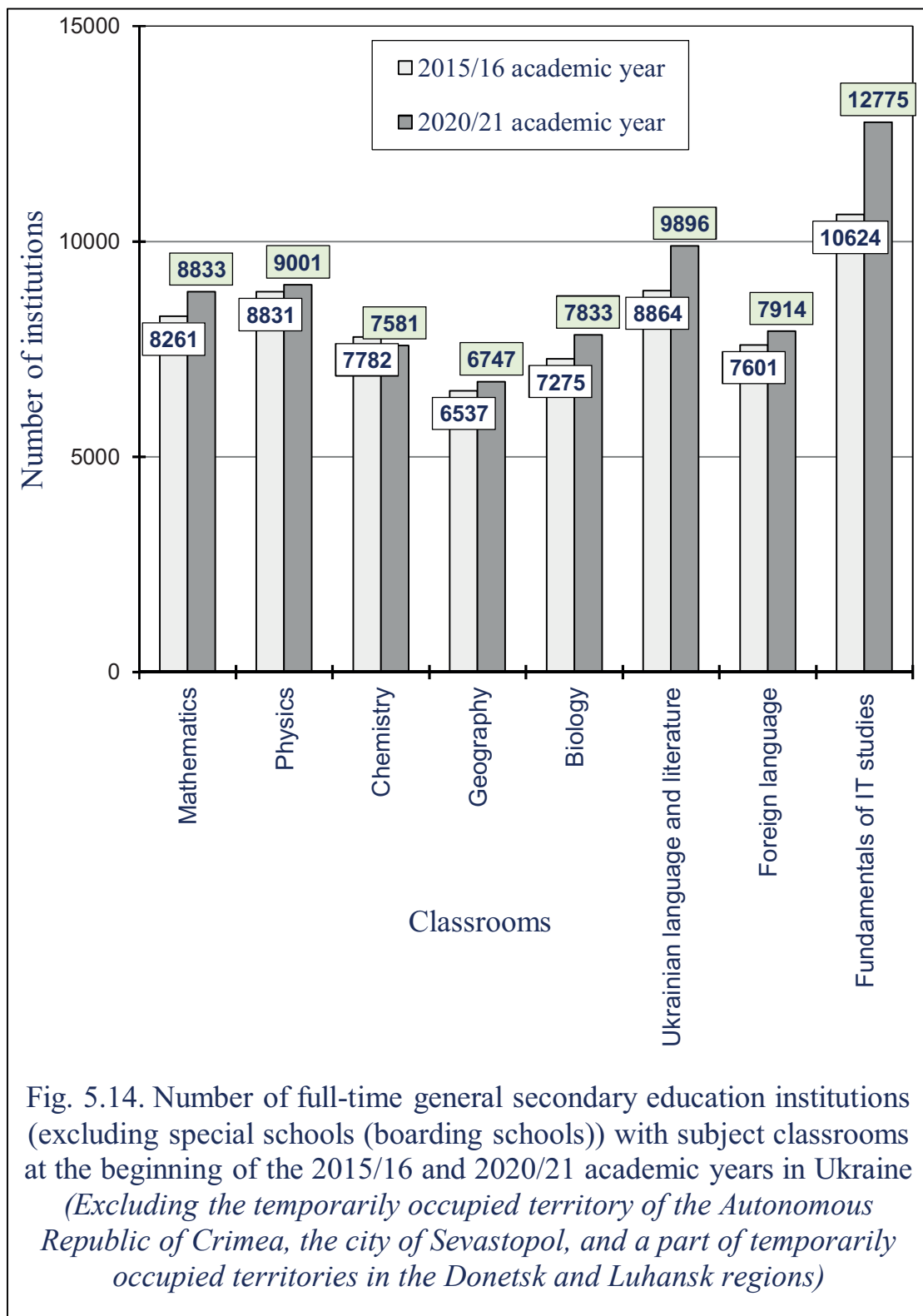
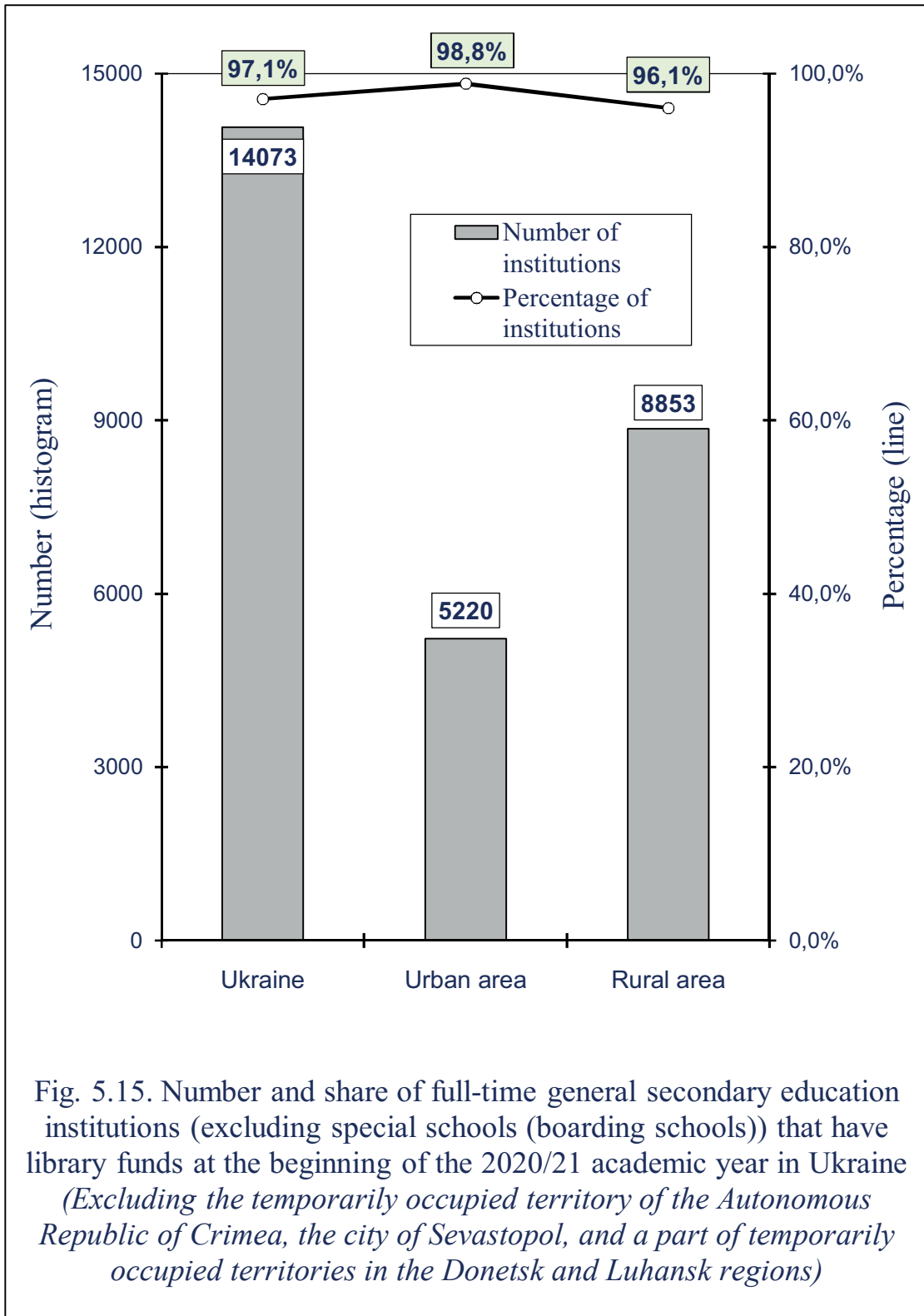


Fig. 5.13. Organization of transportation of pupils to full-time general secondary education institutions (without special schools (boarding schools)) at the beginning of the 2020/21 academic year in the regions of Ukraine  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*





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**6. EDUCATION OF PEOPLE  
WITH SPECIAL  
EDUCATIONAL NEEDS**



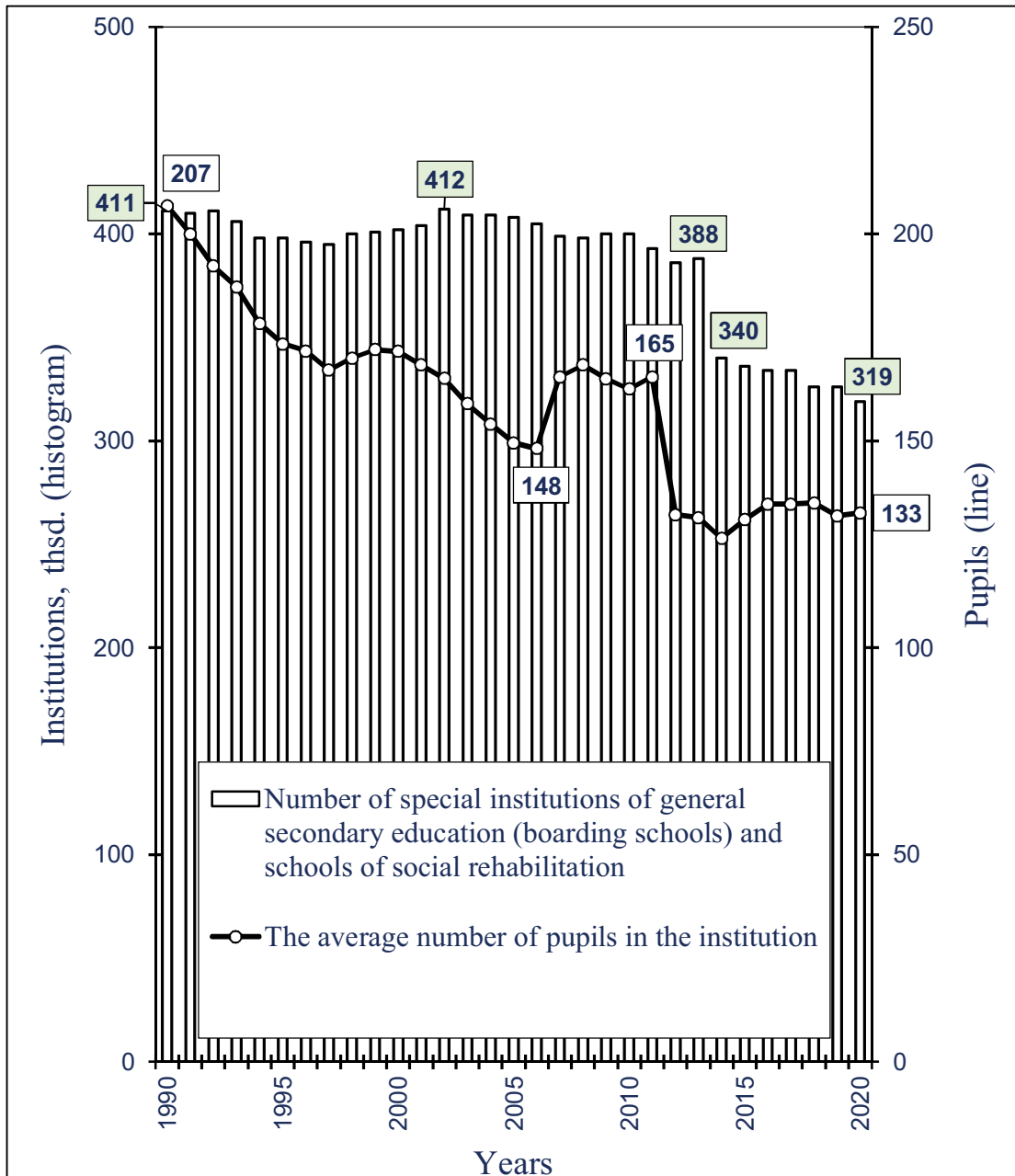


Fig. 6.1. Network of special institutions of general secondary education (boarding schools) and schools of social rehabilitation in Ukraine and the average number of pupils in them

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

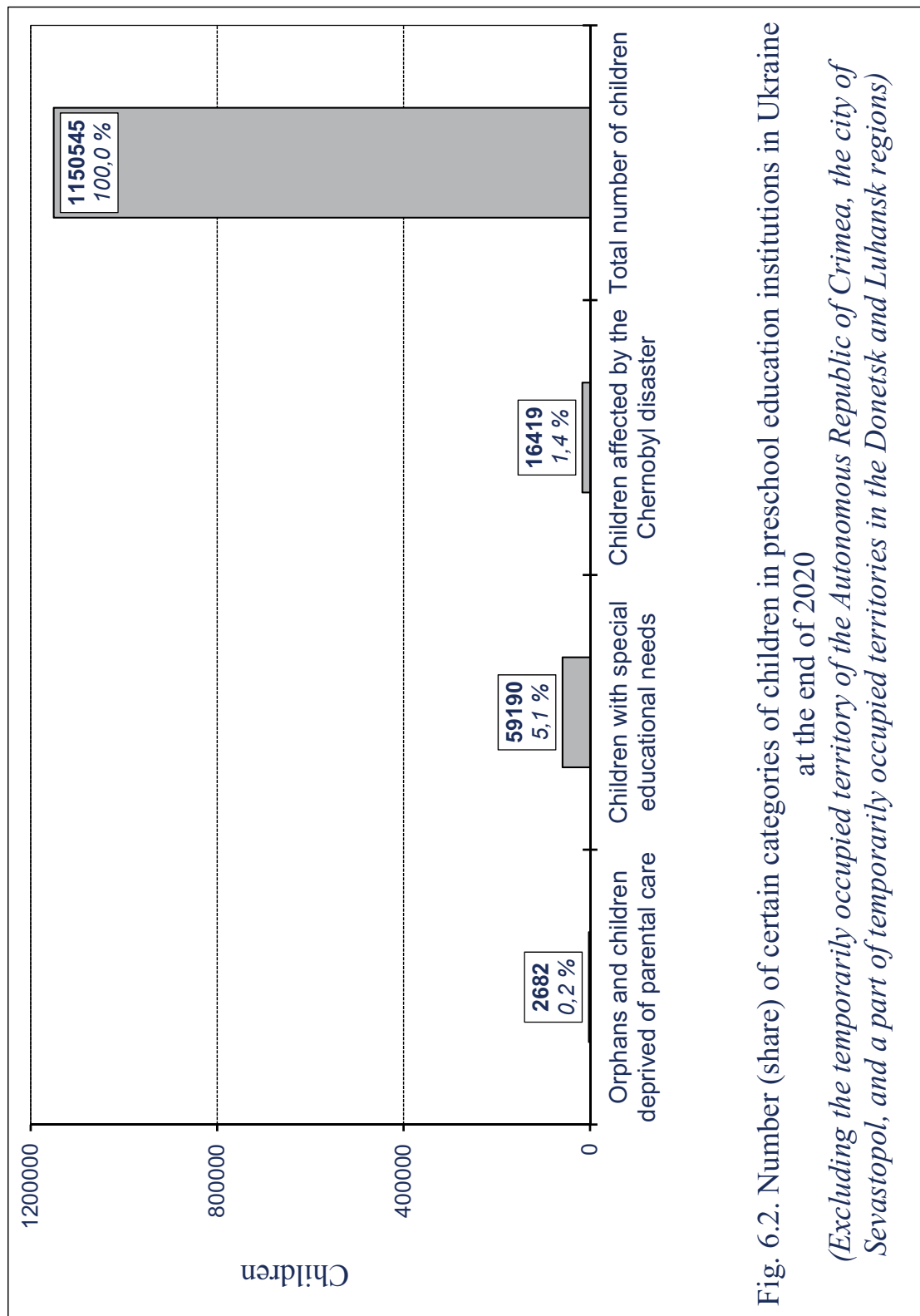


Fig. 6.2. Number (share) of certain categories of children in preschool education institutions in Ukraine at the end of 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

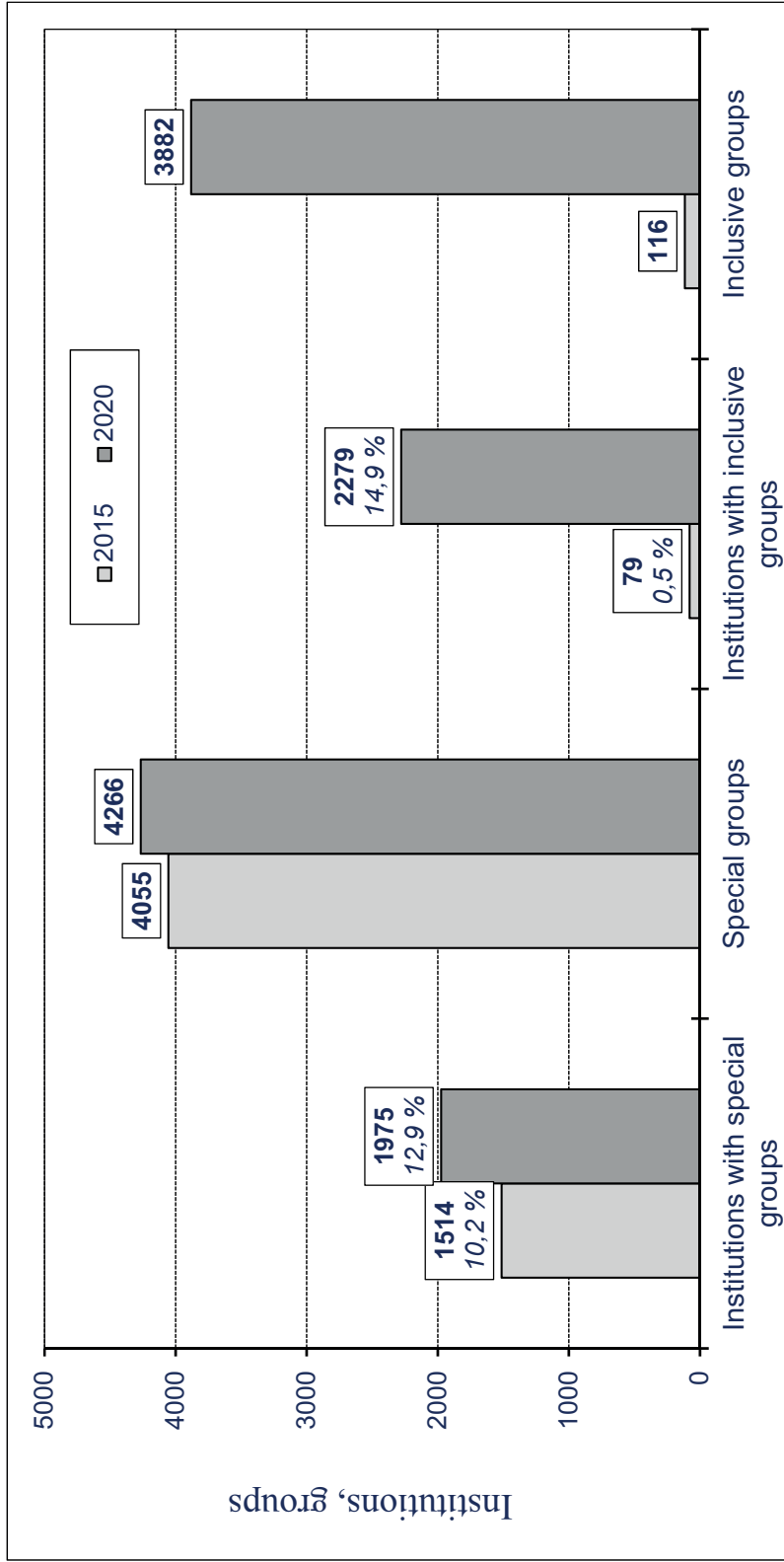


Fig. 6.3. The number (share) of preschool education institutions with special and inclusive groups and the number of such groups in Ukraine at the end of 2015 and 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

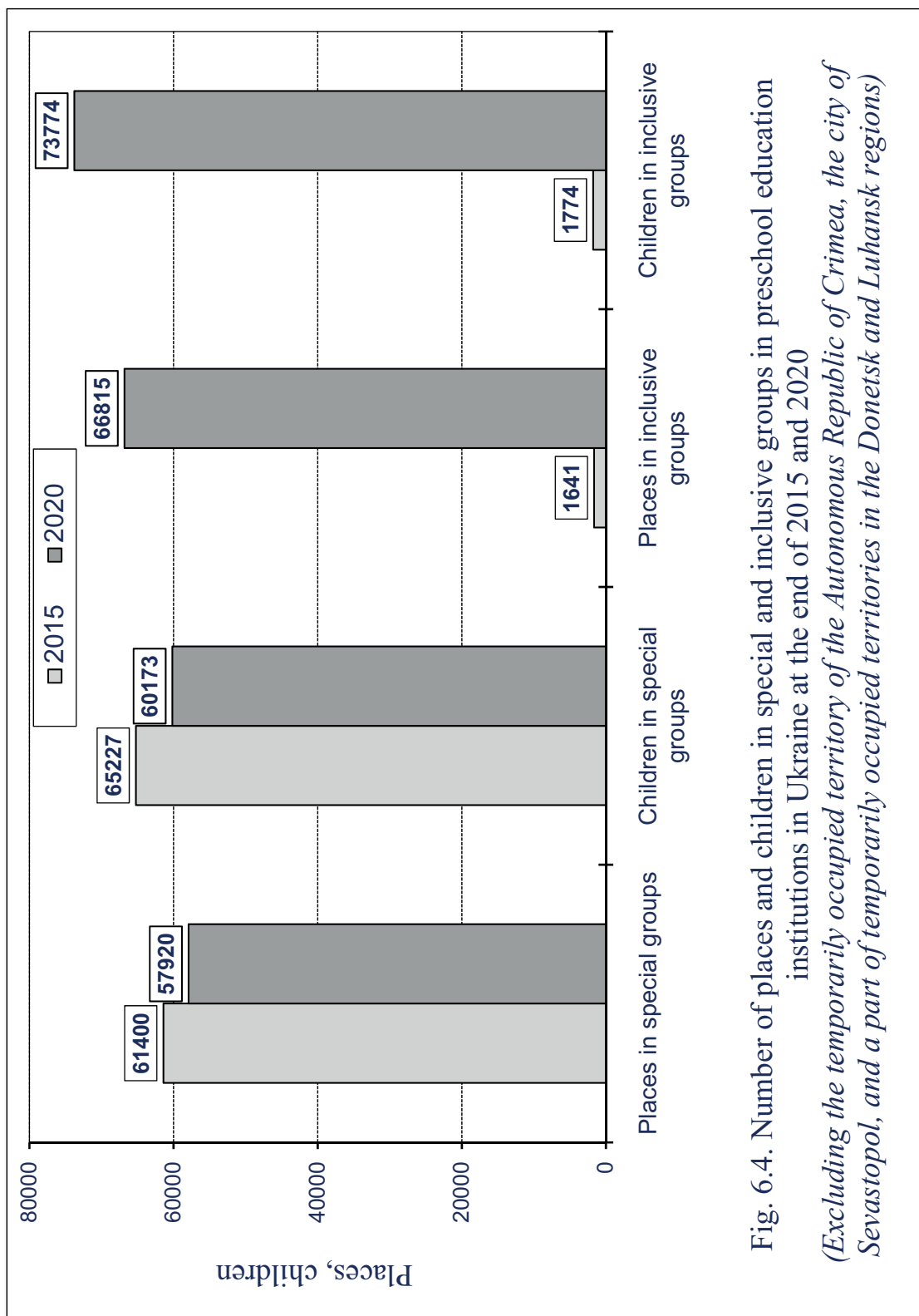


Fig. 6.4. Number of places and children in special and inclusive groups in preschool education institutions in Ukraine at the end of 2015 and 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

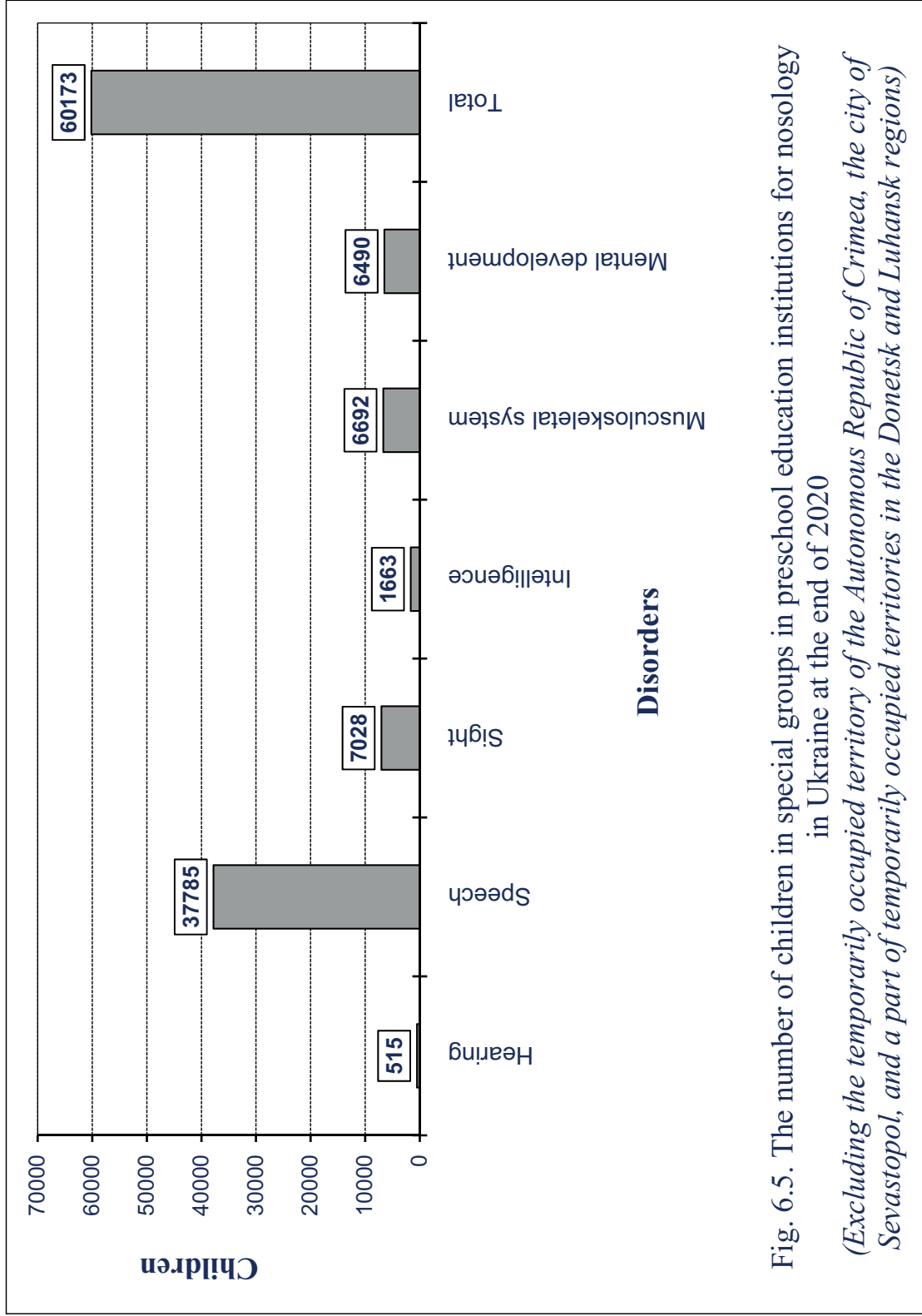


Fig. 6.5. The number of children in special groups in preschool education institutions for nosology in Ukraine at the end of 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

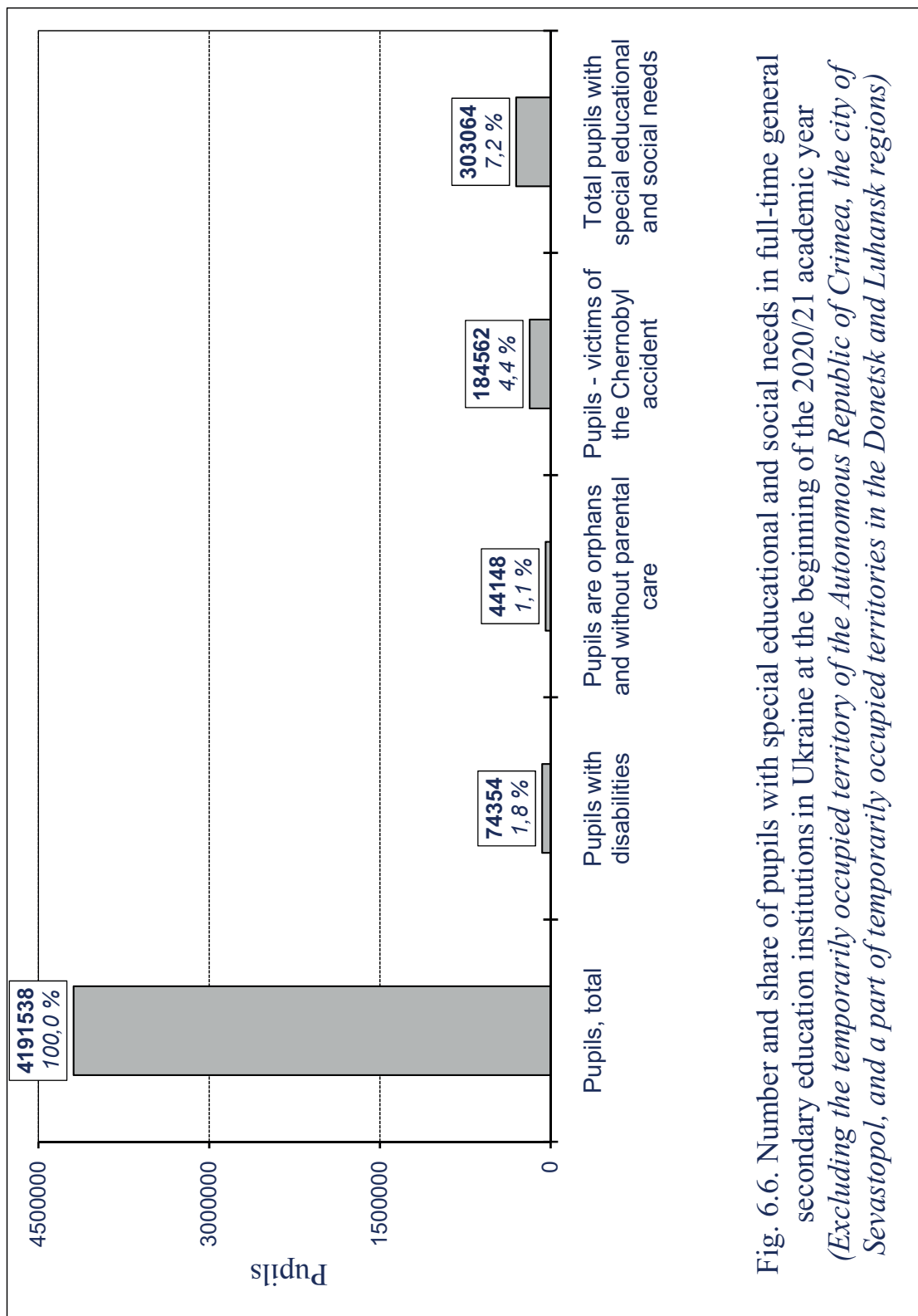


Fig. 6.6. Number and share of pupils with special educational and social needs in full-time general secondary education institutions in Ukraine at the beginning of the 2020/21 academic year (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)



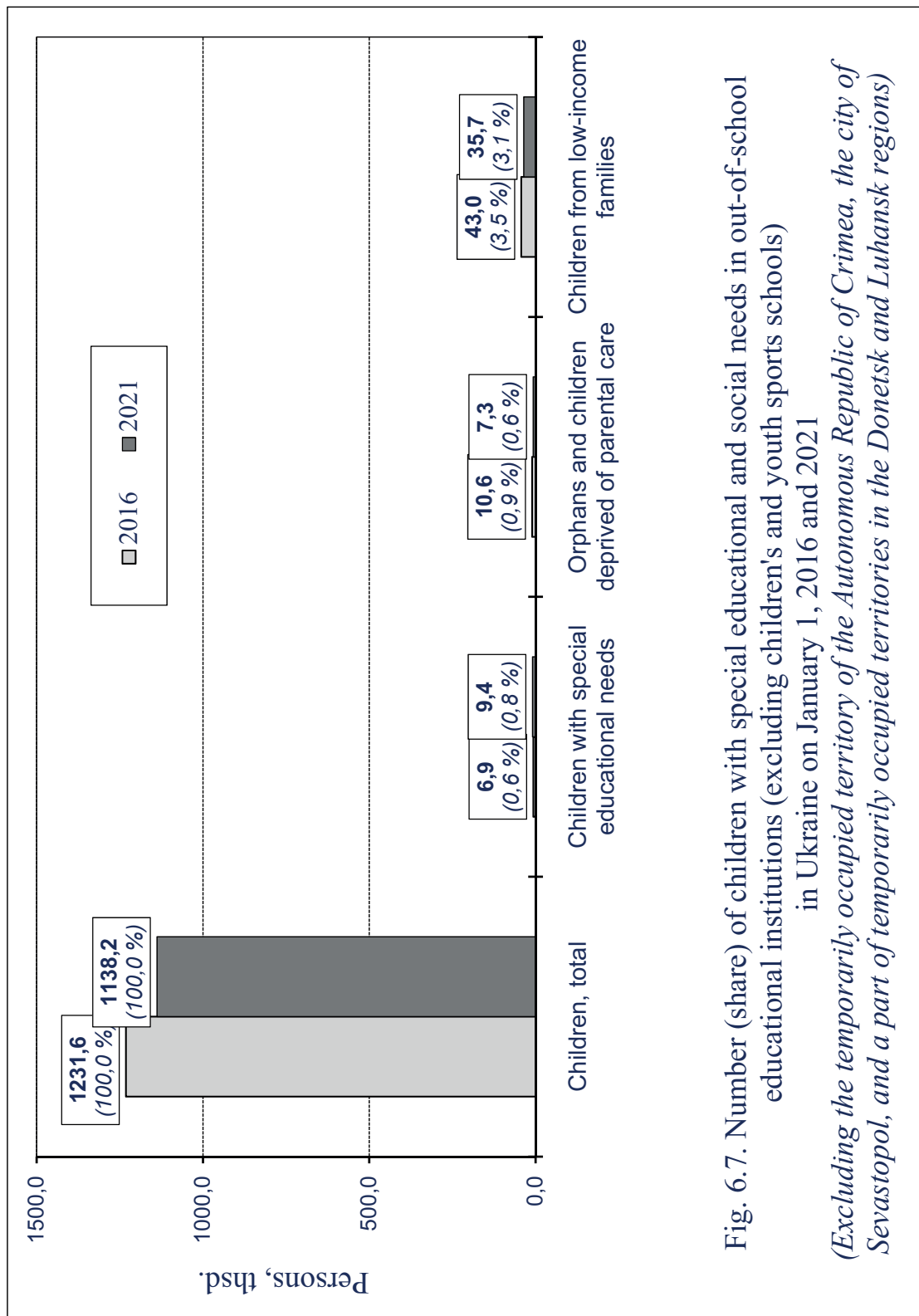


Fig. 6.7. Number (share) of children with special educational and social needs in out-of-school educational institutions (excluding children's and youth sports schools) in Ukraine on January 1, 2016 and 2021  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

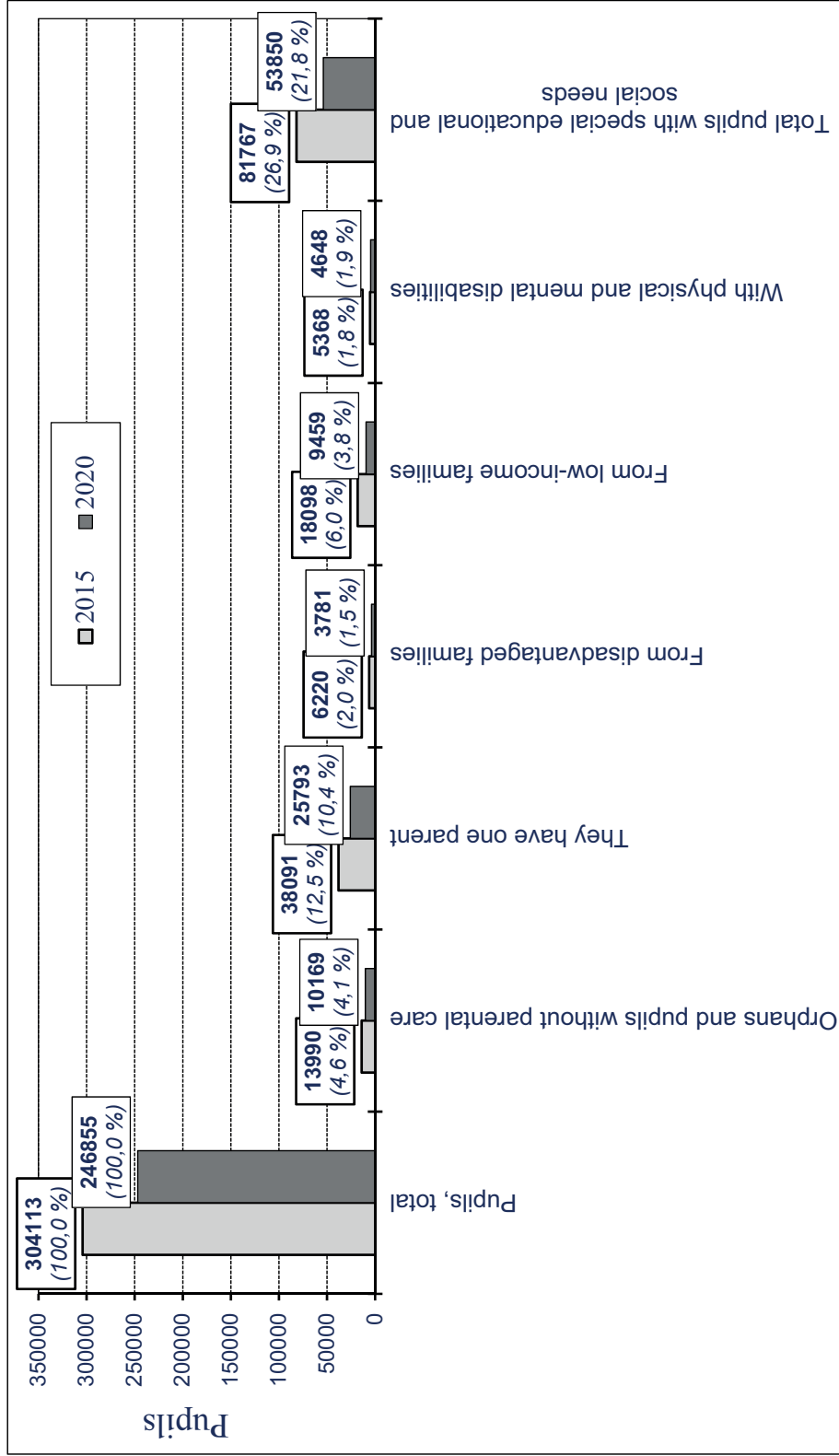


Fig. 6.8. Number and share of pupils with special educational and social needs in vocational (vocational and technical) education institutions of Ukraine in 2015 and 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

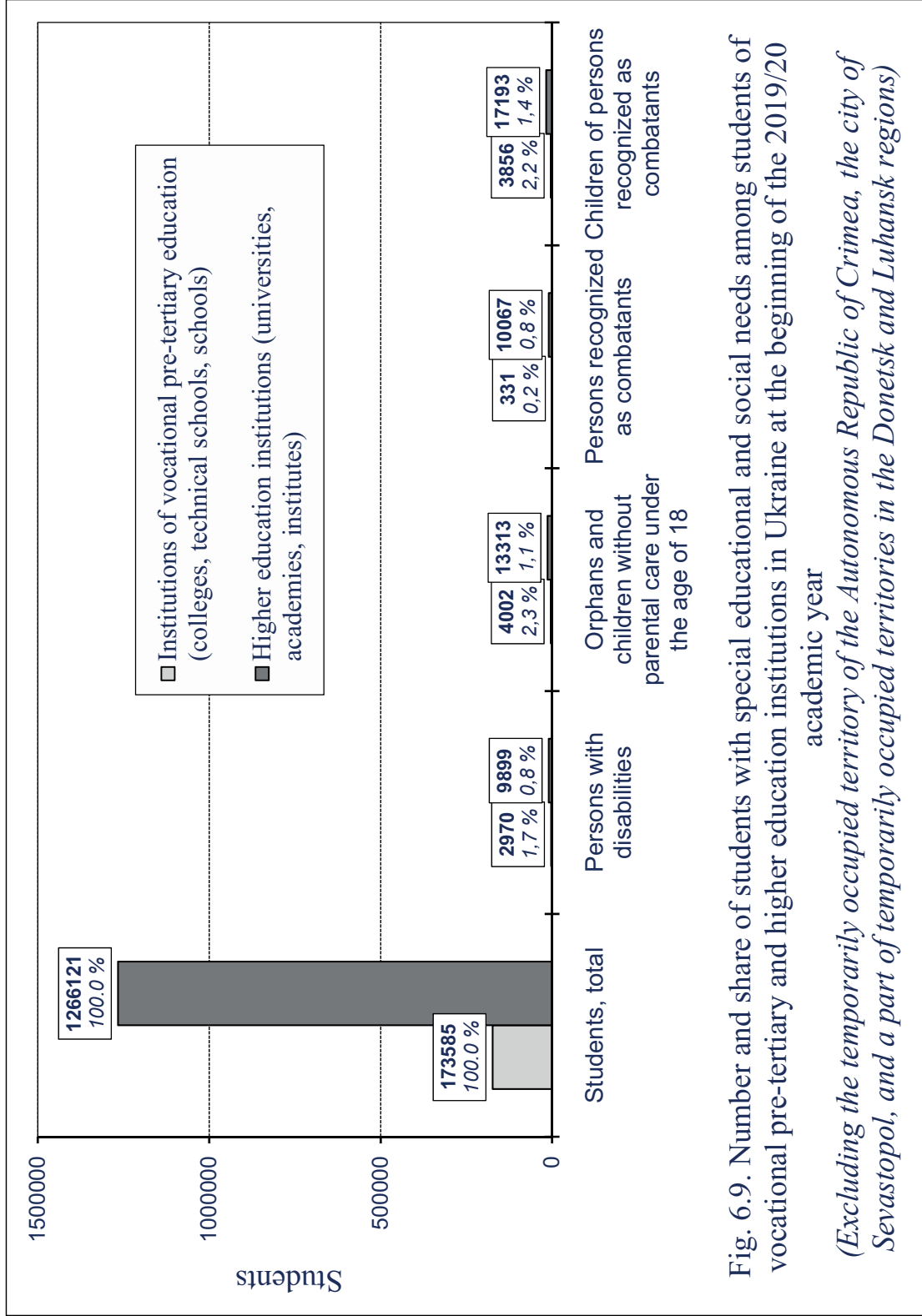


Fig. 6.9. Number and share of students with special educational and social needs among students of vocational pre-tertiary and higher education institutions in Ukraine at the beginning of the 2019/20 academic year

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## 7. OUT-OF-SCHOOL EDUCATION

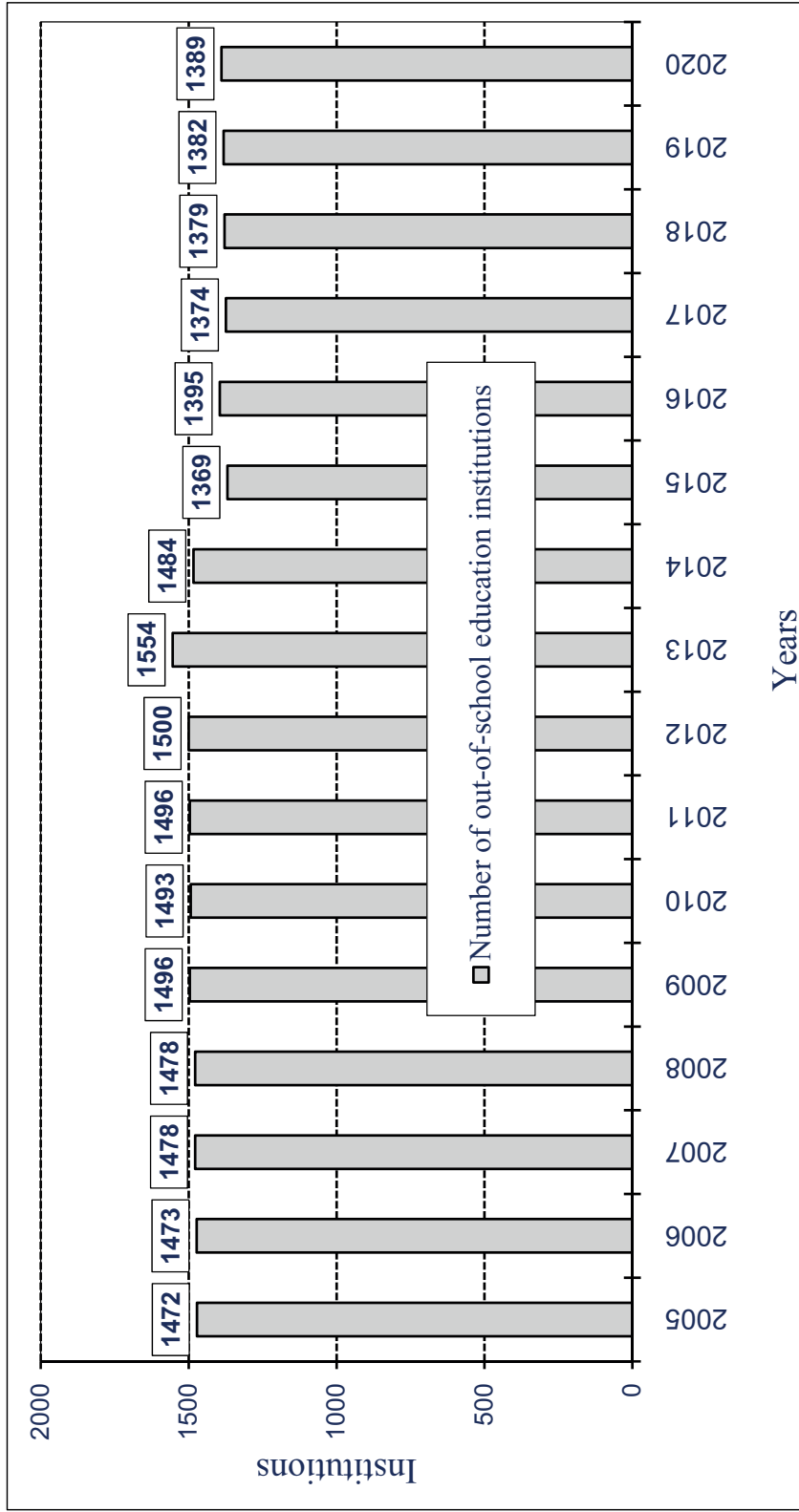


Fig. 7.1. Number of out-of-school education institutions (excluding children's and youth sports schools) of state, communal and private forms of ownership in Ukraine as of January 1 of the respective year

*(Since 2015 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

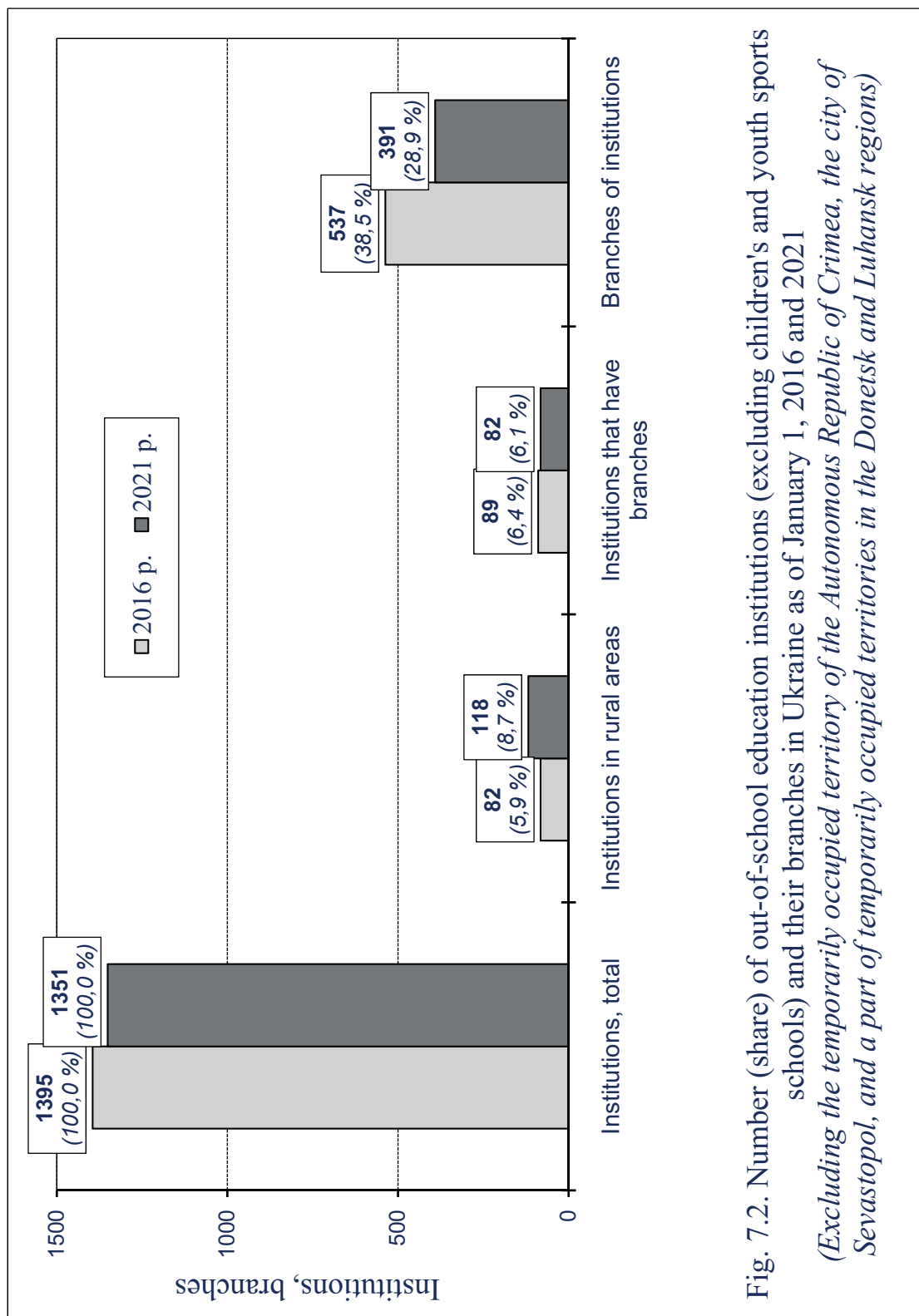


Fig. 7.2. Number (share) of out-of-school education institutions (excluding children's and youth sports schools) and their branches in Ukraine as of January 1, 2016 and 2021  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



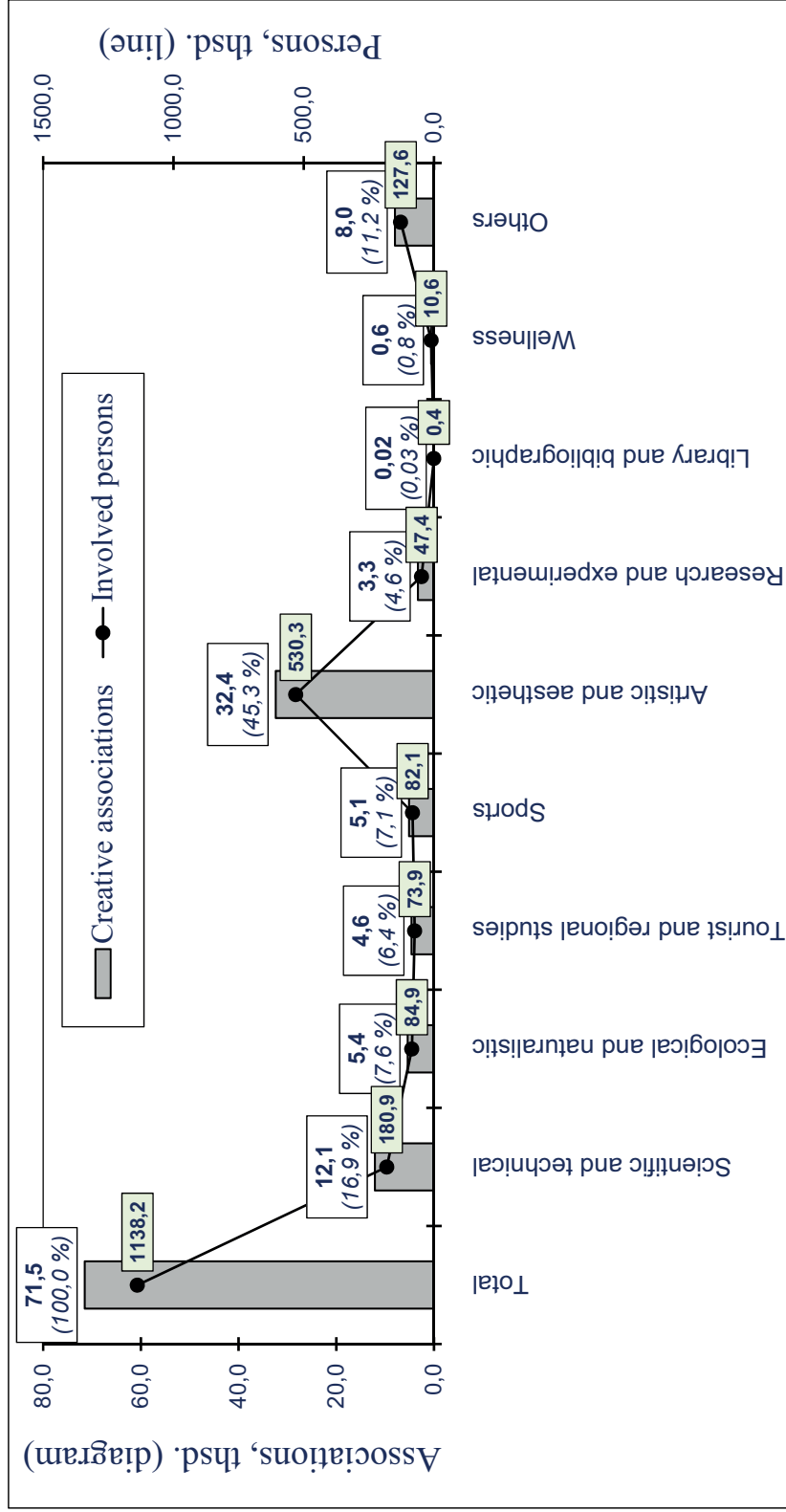


Fig. 7.3. The number and share of creative associations (clubs, sections, associations, etc.) and the persons involved in them in the areas of activity in out-of-school education institutions (excluding children's and youth sports schools) in Ukraine on January 1, 2021  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

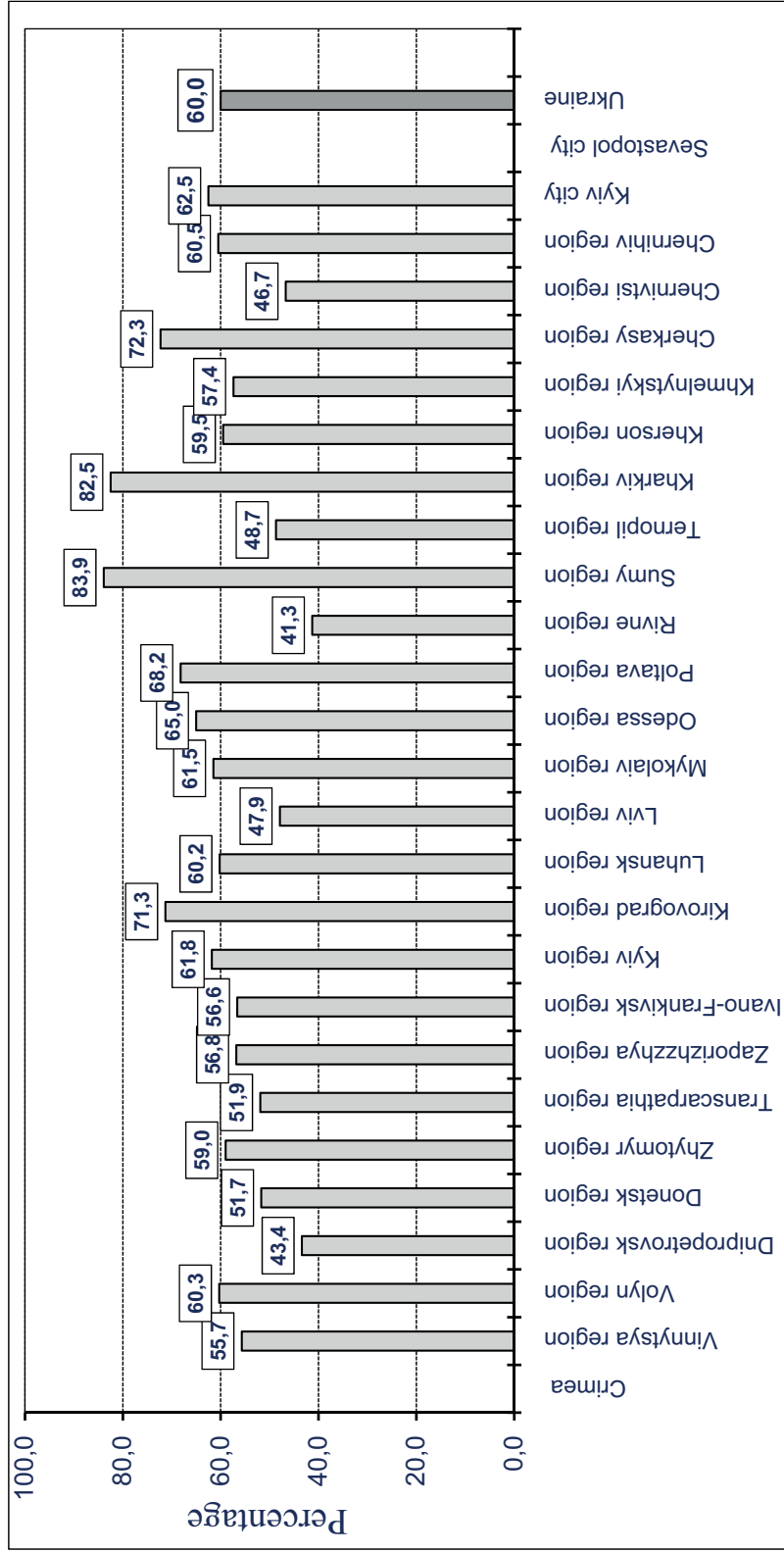


Fig. 7.4. The share of children covered by out-of-school education in out-of-school and general secondary education institutions in the total number of school-age children (excluding institutions of the Ministry of Culture, Ministry of Youth and Sports and children's and youth sports schools of the Ministry of Education and Science) in Ukraine on January 1, 2021  
 (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

## **8. VOCATIONAL (VOCATIONAL AND TECHNICAL) EDUCATION**

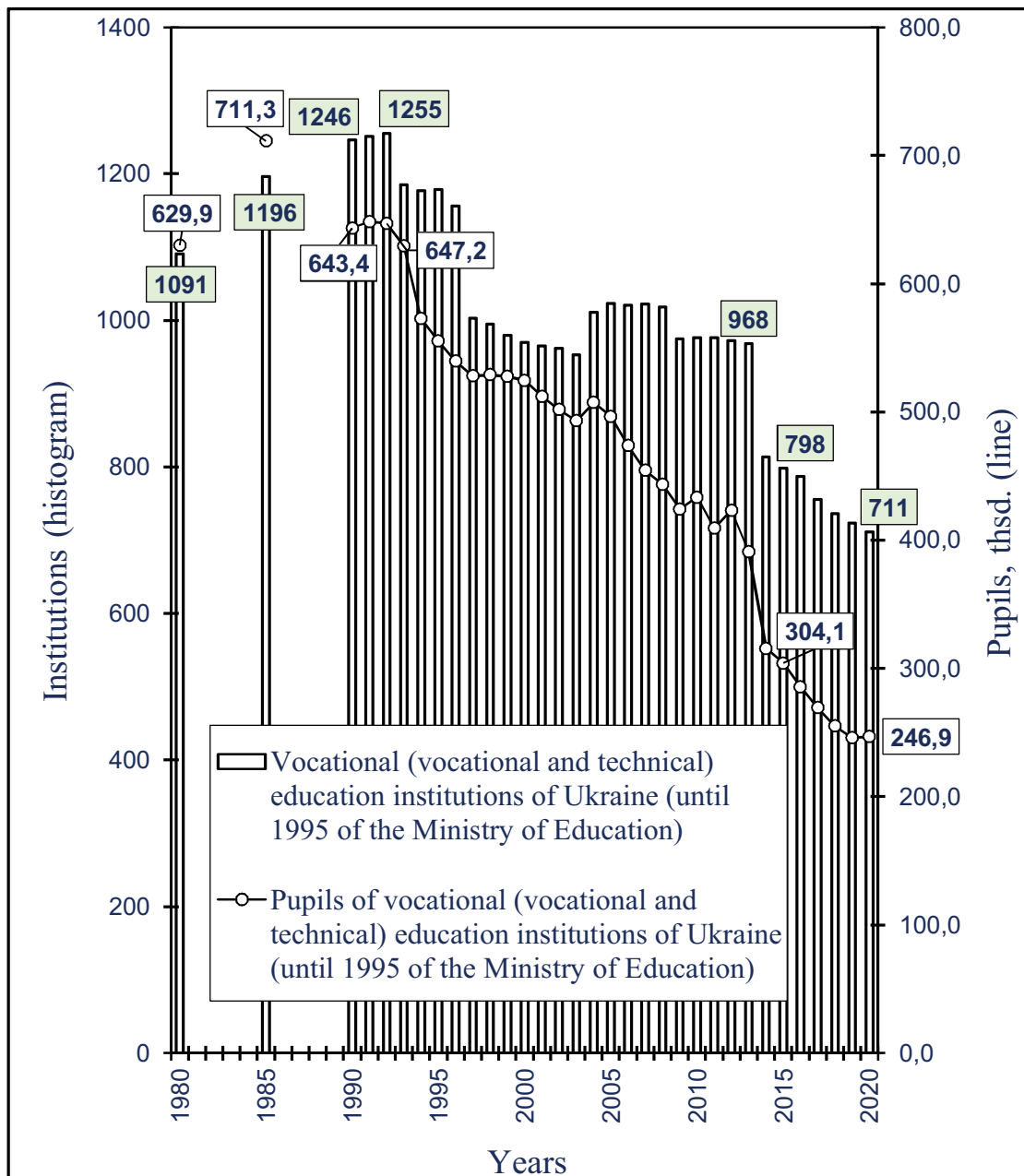


Fig. 8.1. Number of vocational (vocational and technical) education institutions in Ukraine (until 1995 of the Ministry of Education - more than 97 % of all institutions) and number of pupils in them (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

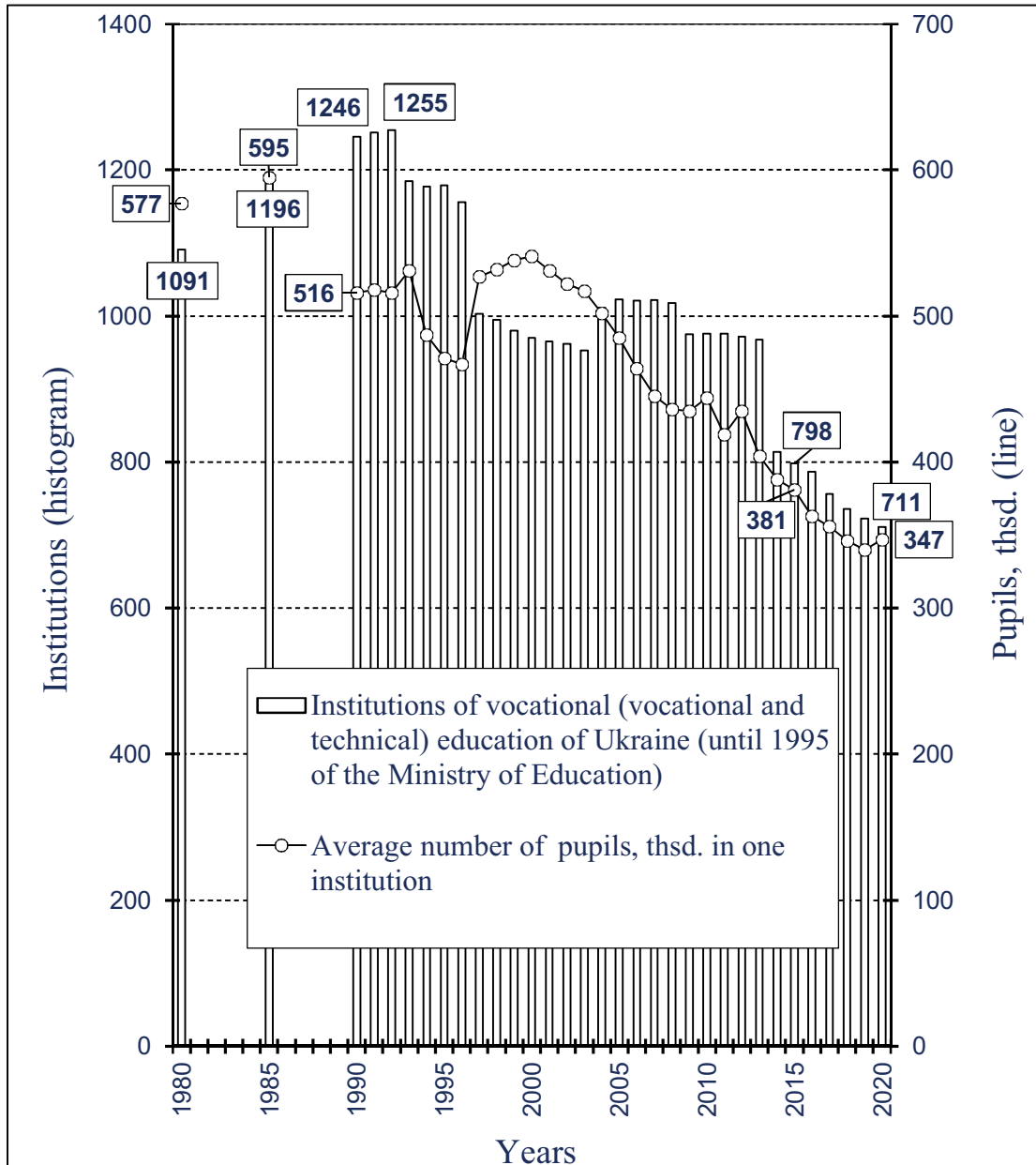


Fig. 8.2. Number of vocational (vocational and technical) education institutions in Ukraine (until 1995 of the Ministry of Education - more than 97 % of all institutions) and the average number of pupils in one institution

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

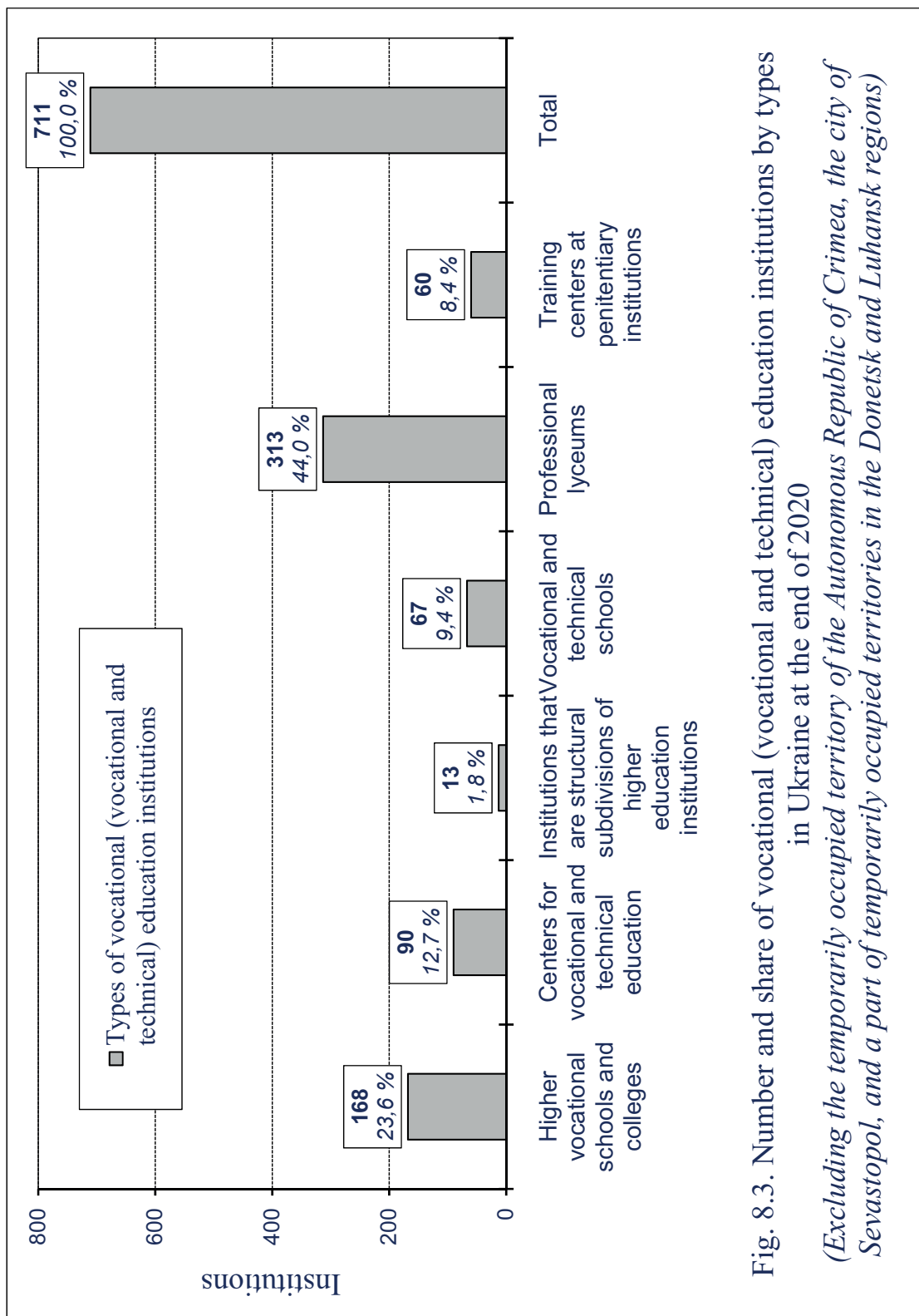


Fig. 8.3. Number and share of vocational (vocational and technical) education institutions by types in Ukraine at the end of 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



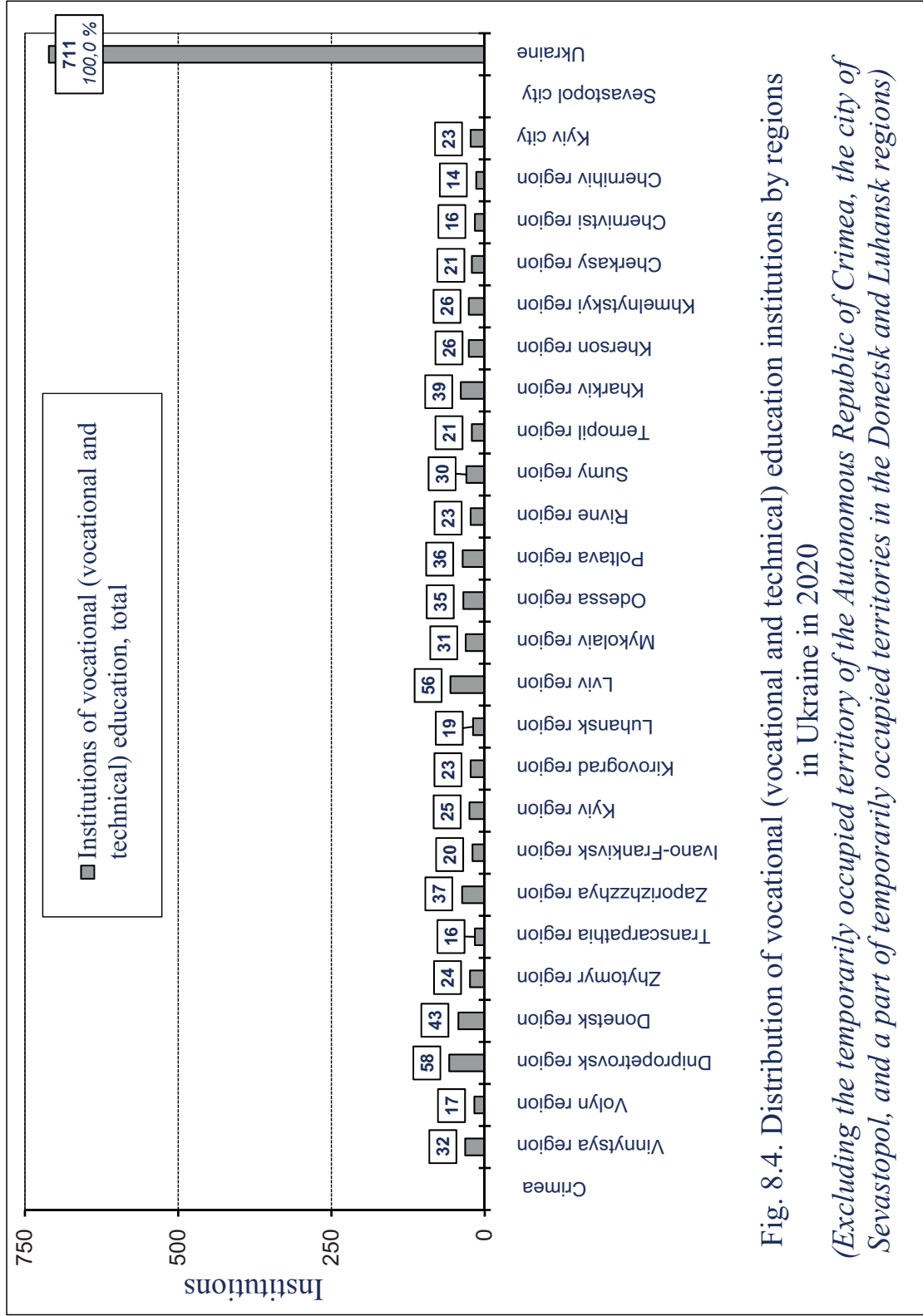


Fig. 8.4. Distribution of vocational (vocational and technical) education institutions by regions in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

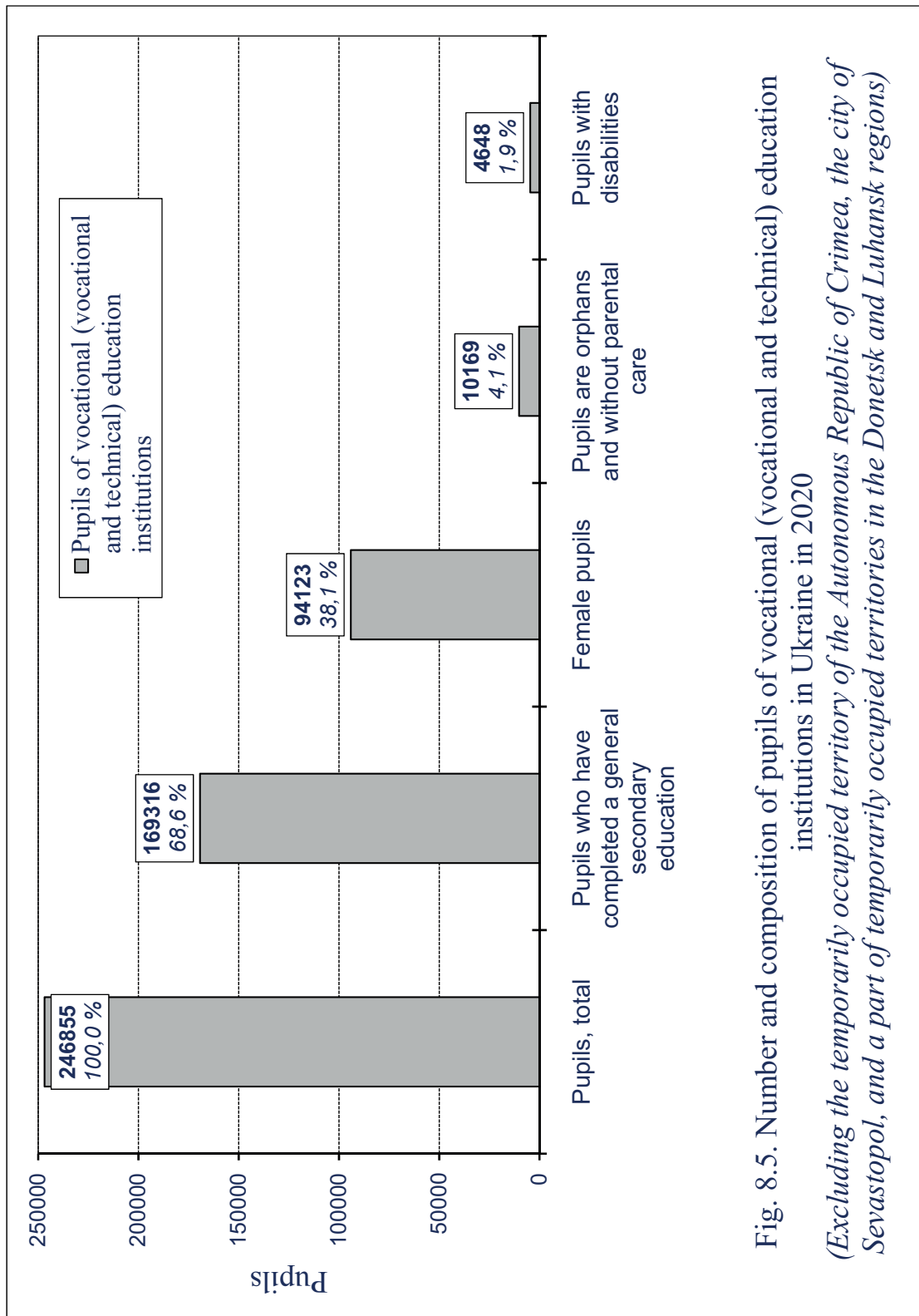


Fig. 8.5. Number and composition of pupils of vocational (vocational and technical) education institutions in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

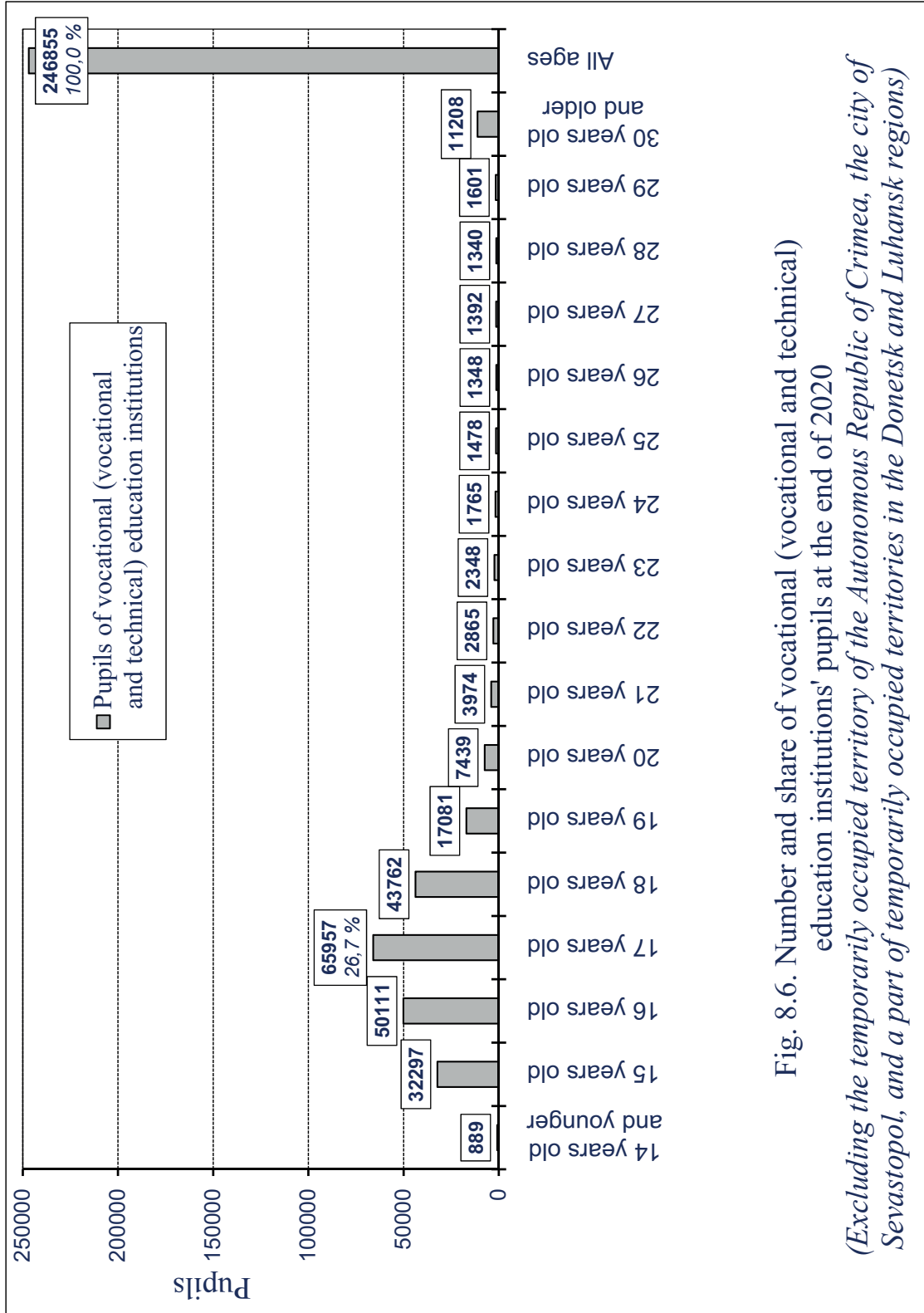


Fig. 8.6. Number and share of vocational (vocational and technical) education institutions' pupils at the end of 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

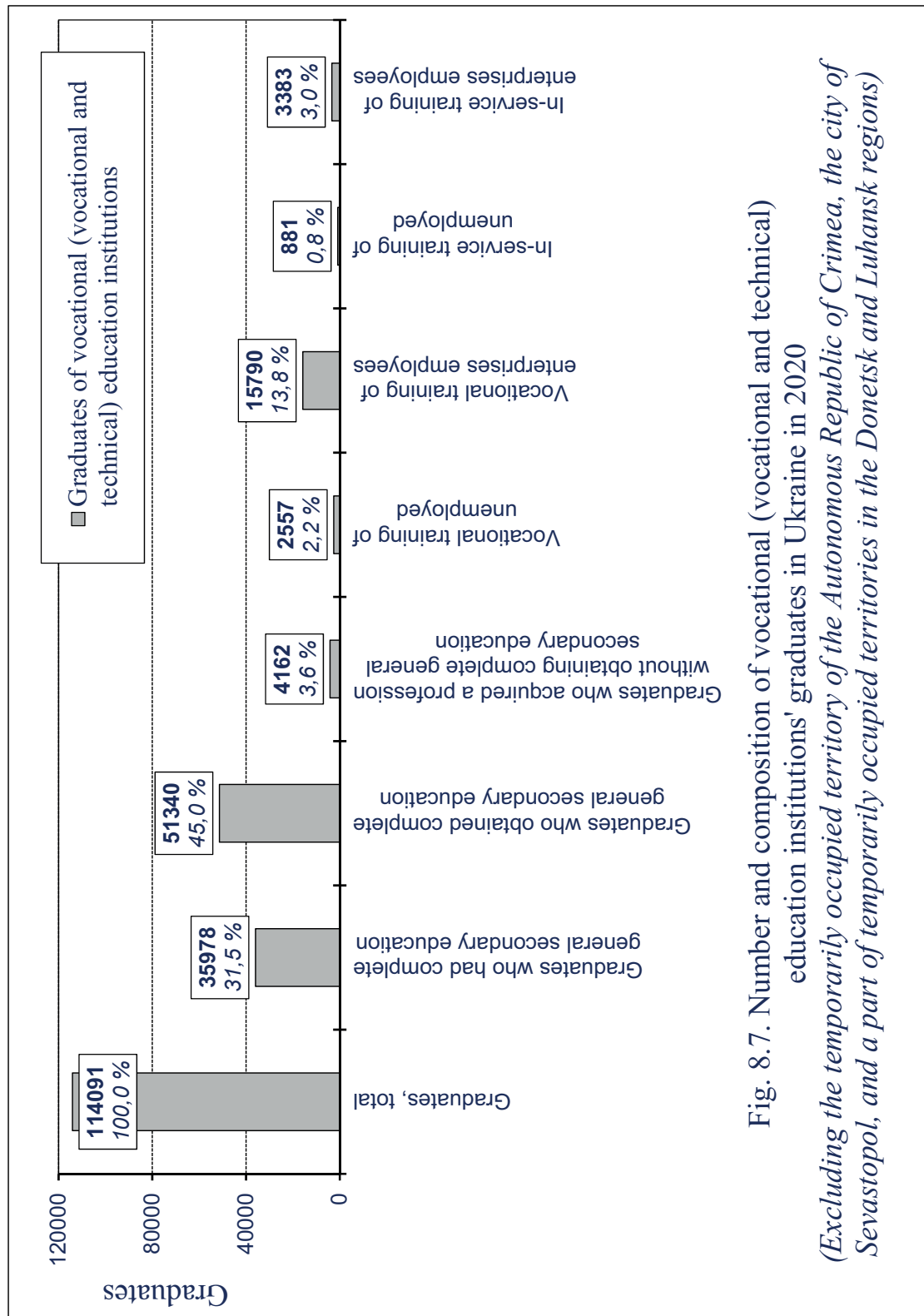


Fig. 8.7. Number and composition of vocational (vocational and technical) education institutions' graduates in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

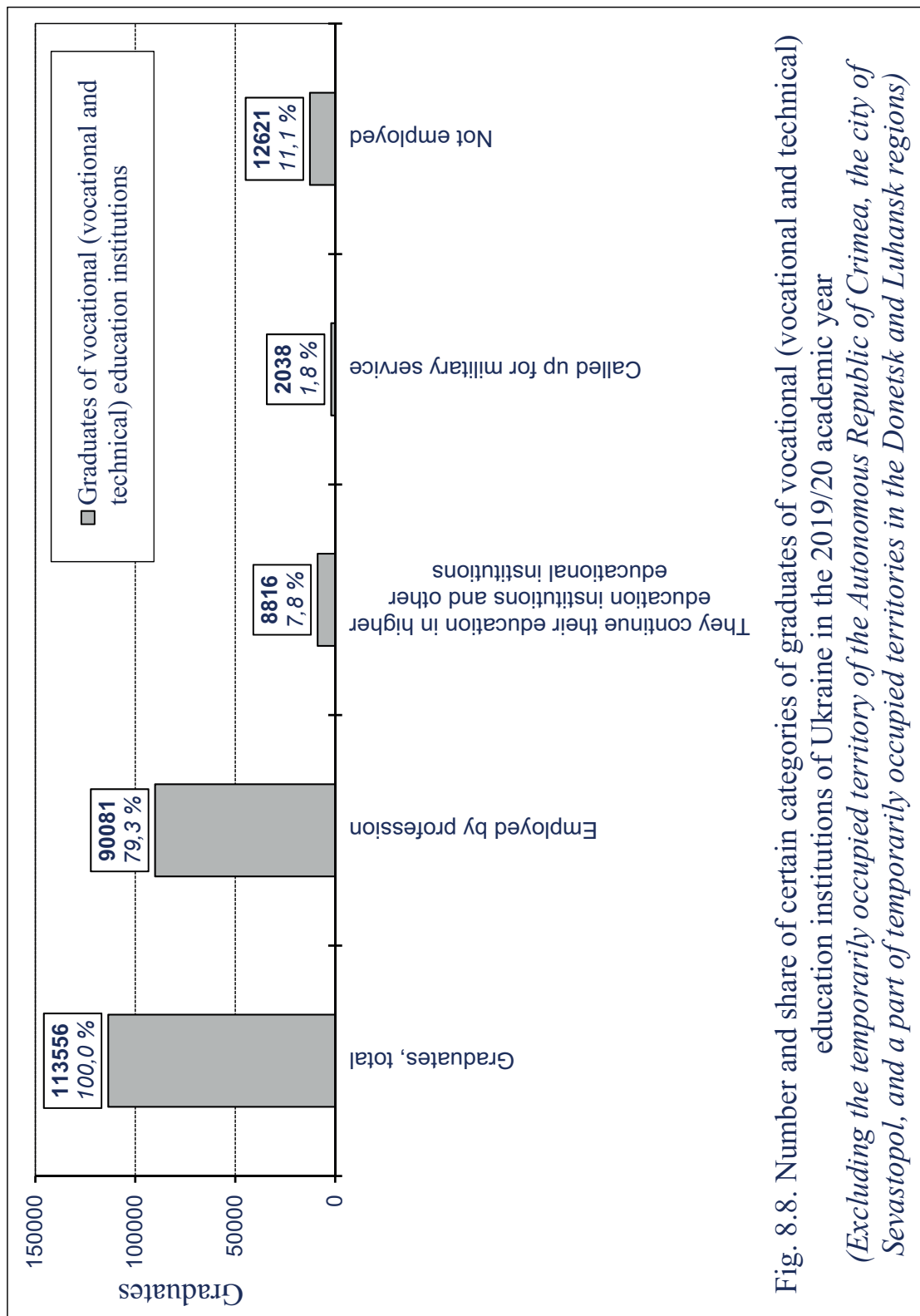
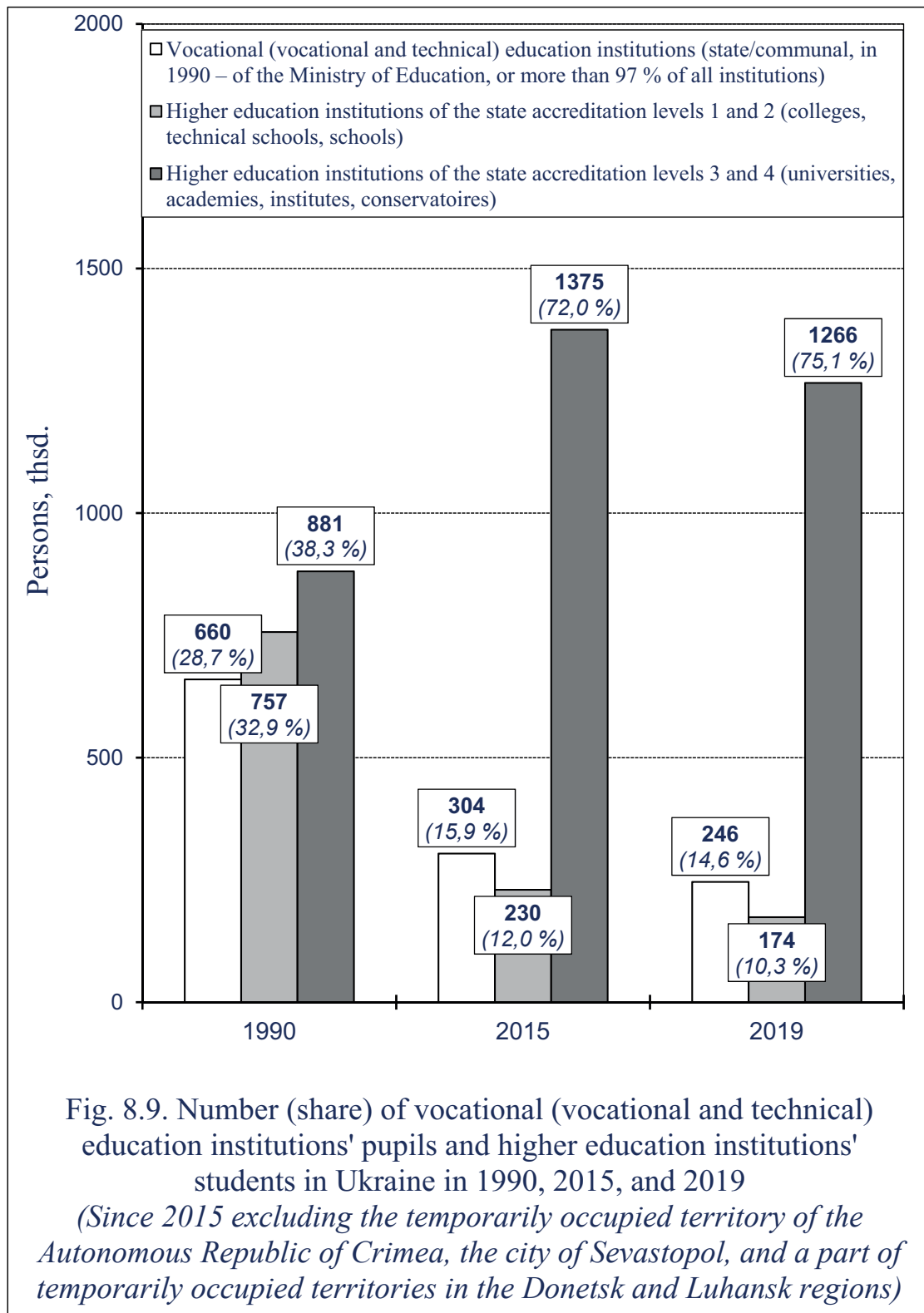


Fig. 8.8. Number and share of certain categories of graduates of vocational (vocational and technical) education institutions of Ukraine in the 2019/20 academic year  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*





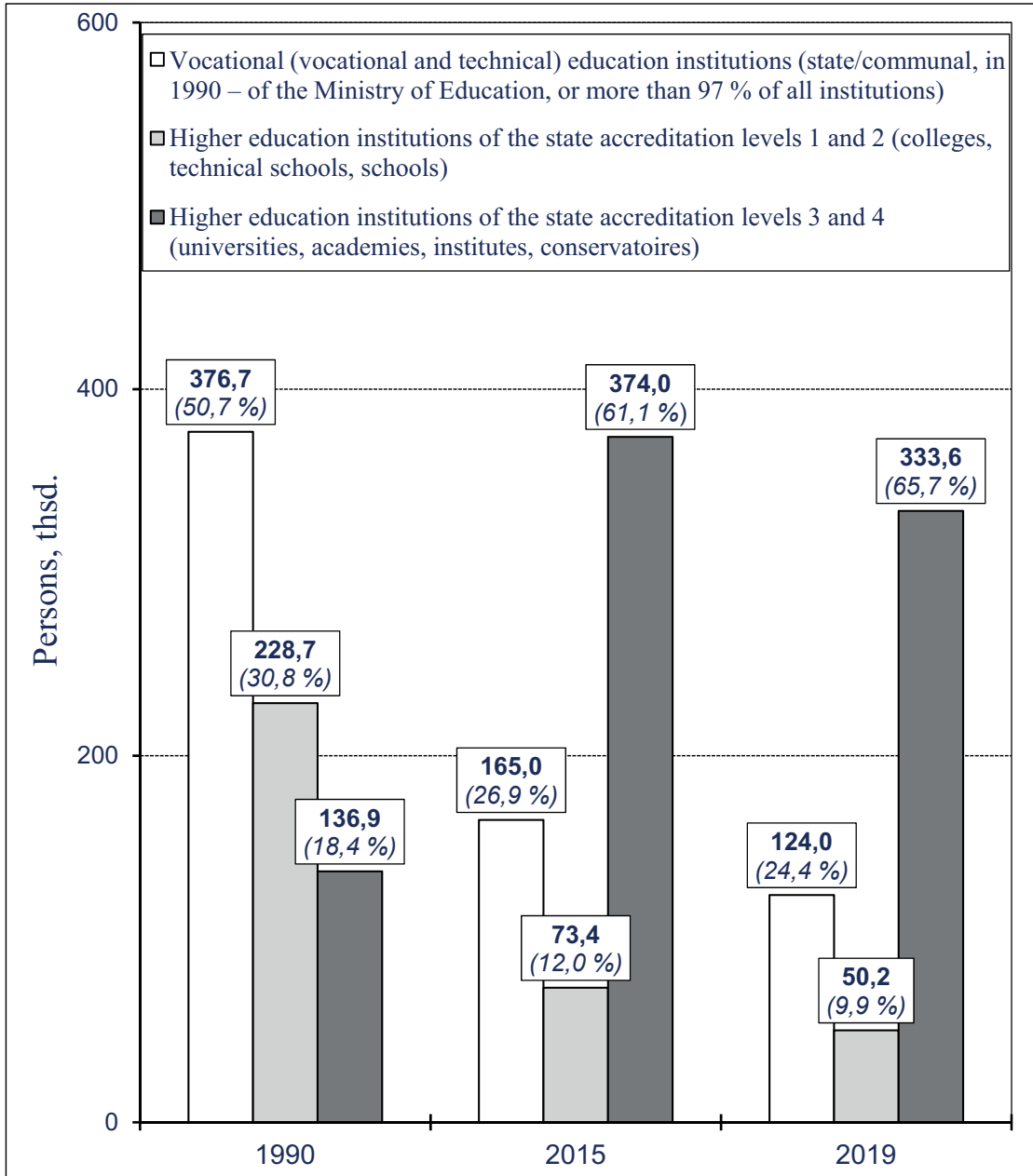


Fig. 8.10. Number (share) of vocational (vocational and technical) education and higher education institutions' graduates in Ukraine in 1990, 2015, and 2019

*(Since 2015 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **9. VOCATIONAL PRE-TERTIARY AND HIGHER EDUCATION**

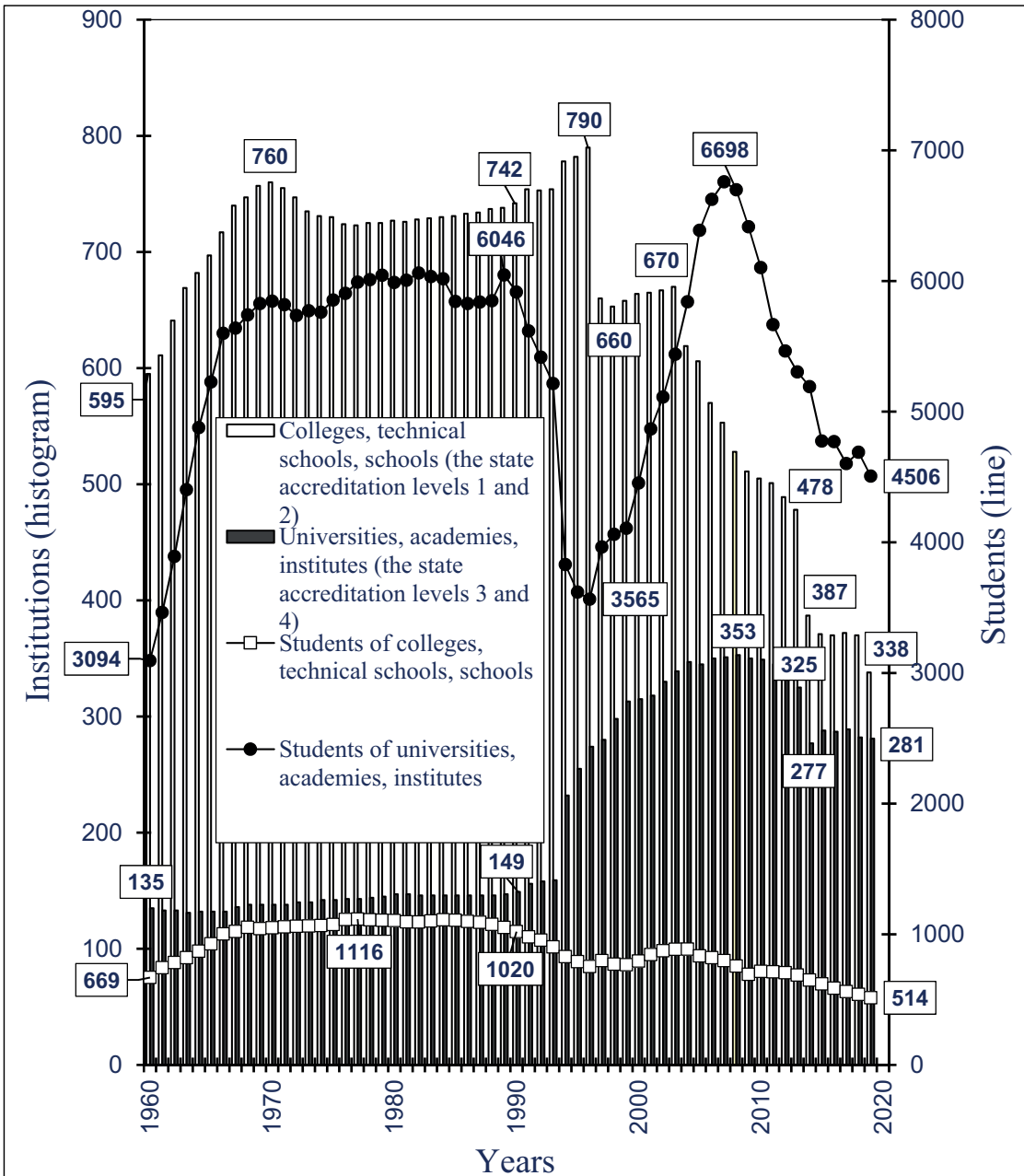


Fig. 9.1. Number of colleges, technical schools, schools (the state accreditation levels 1 and 2) and universities, academies, institutes (the state accreditation levels 3 and 4) in Ukraine and the average number of students in them

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of*

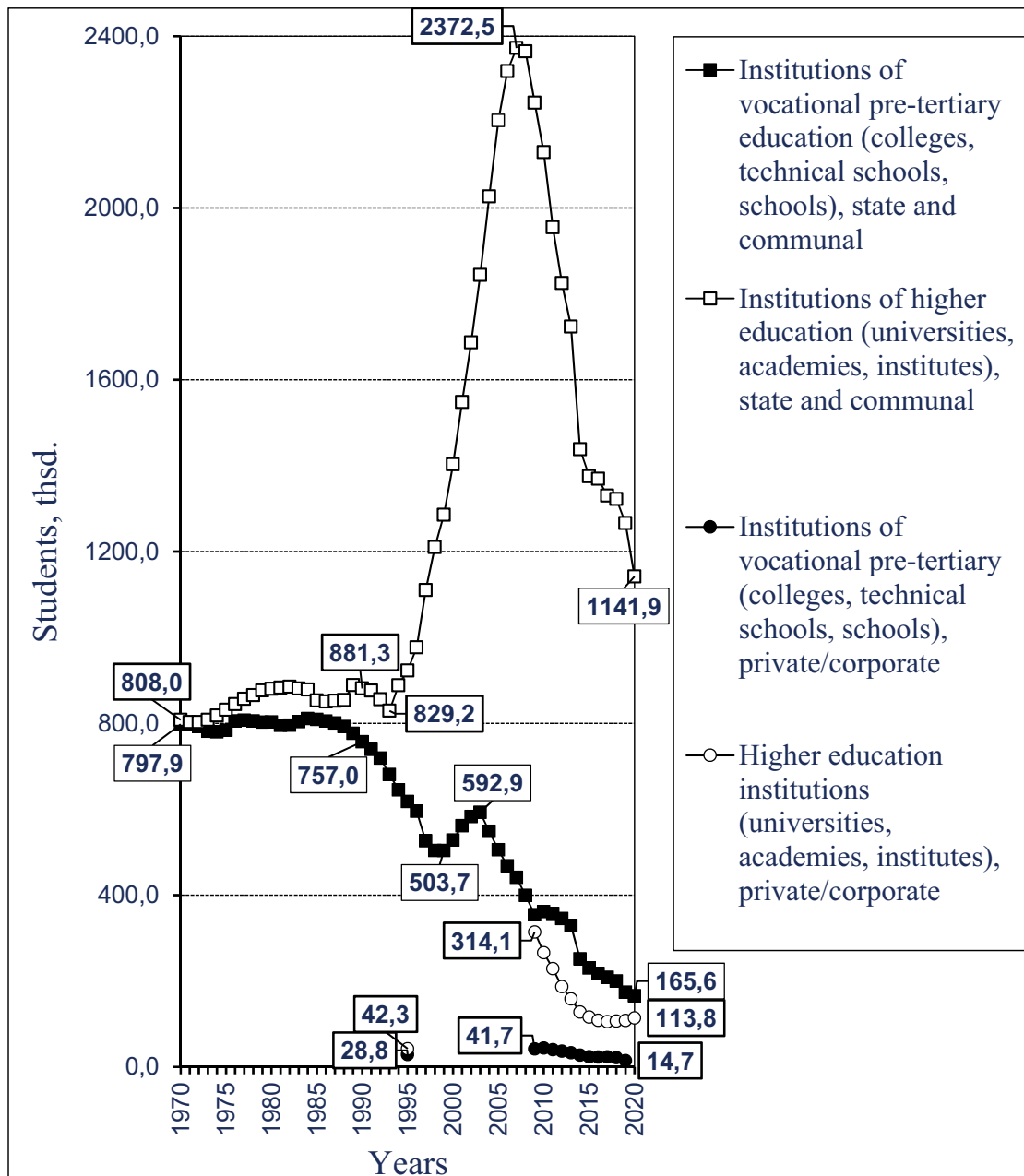


Fig. 9.2. Number of students of vocational pre-tertiary and higher education institutions of state and communal and private/corporate property in Ukraine

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

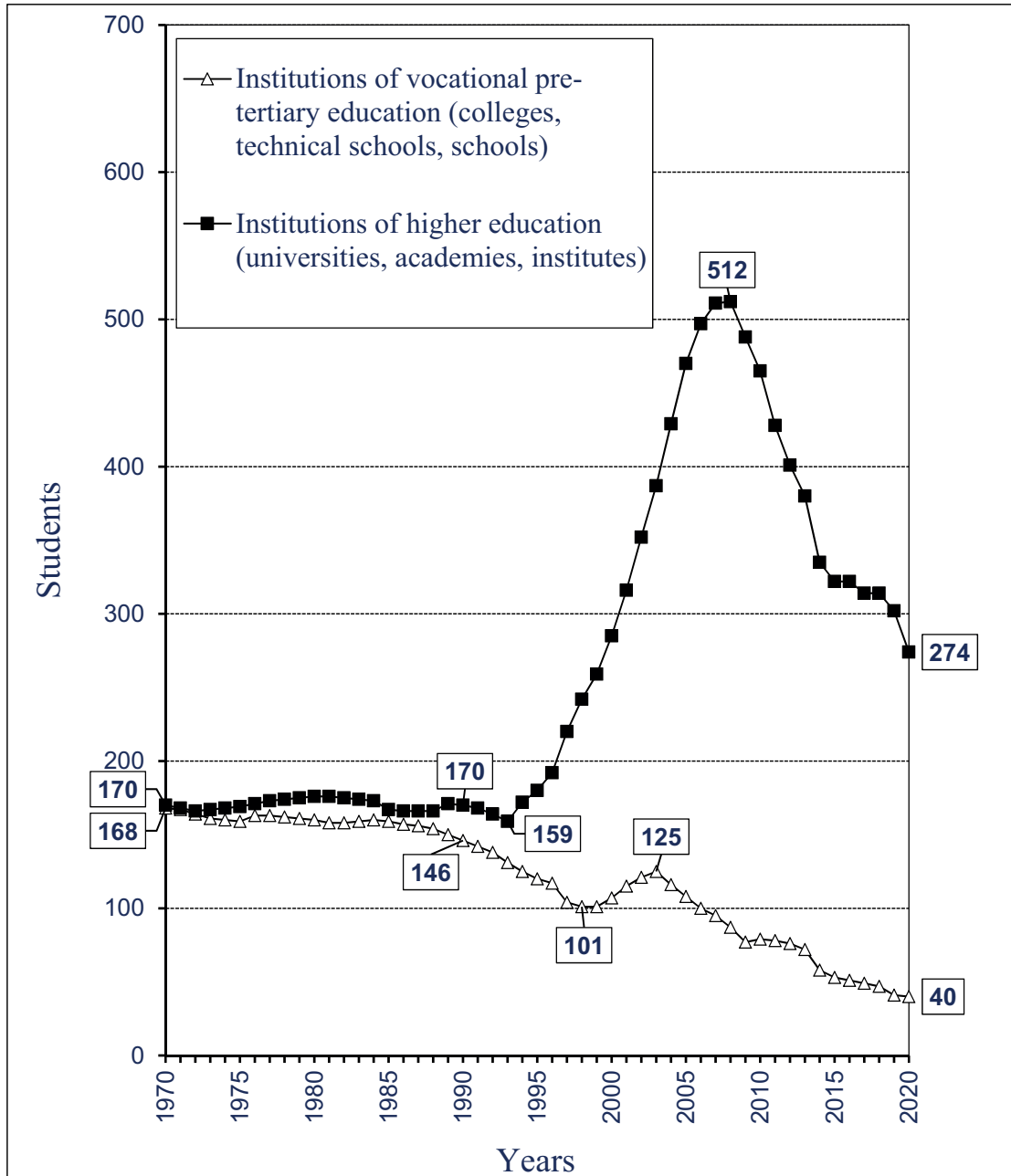


Fig. 9.3. Number of students of vocational pre-tertiary and higher education institutions per 10 thousand population in Ukraine  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

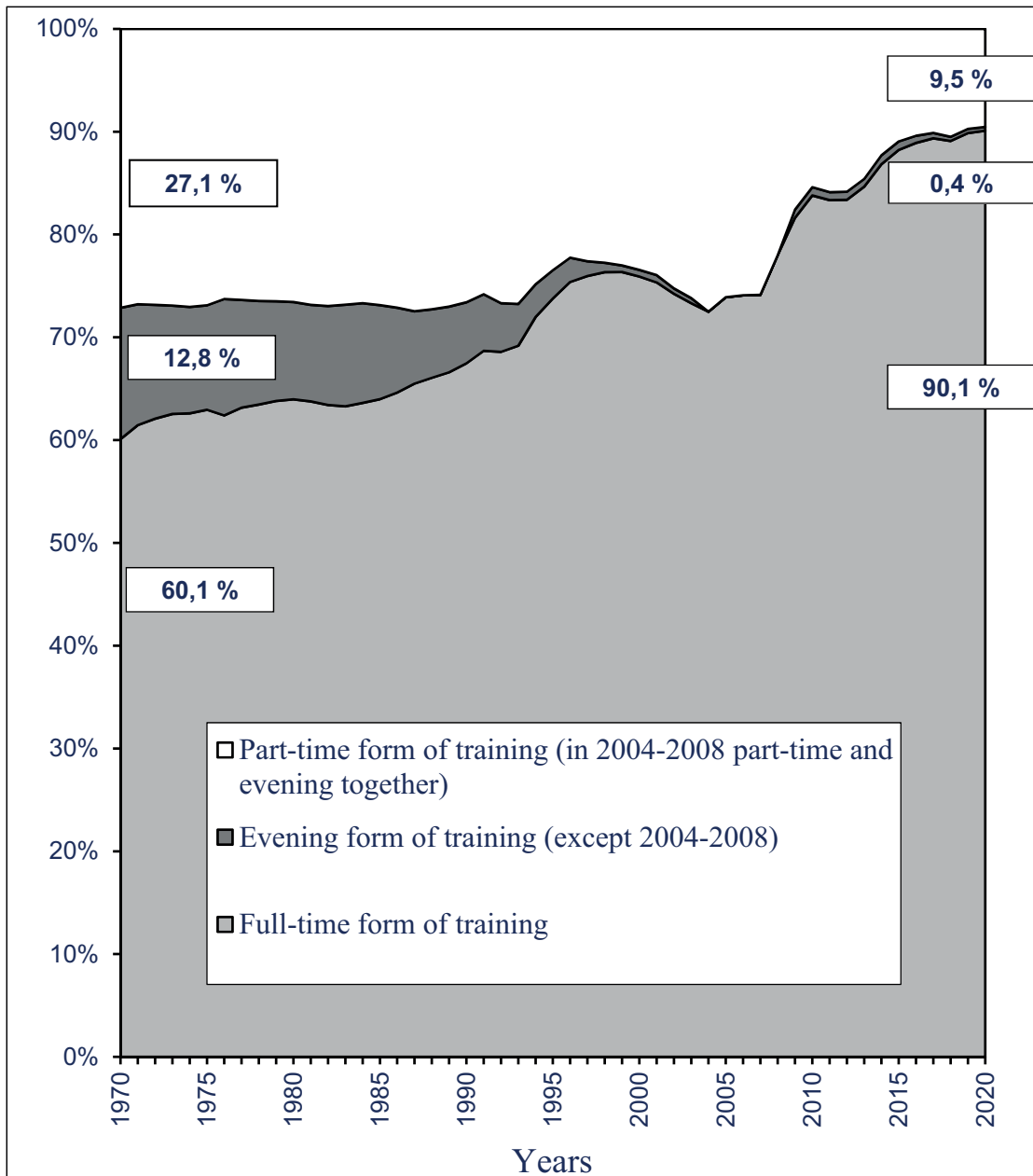


Fig. 9.4. Share of students of full-time, evening and part-time forms of training in institutions of vocational pre-tertiary education (colleges, technical schools, schools) in Ukraine

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



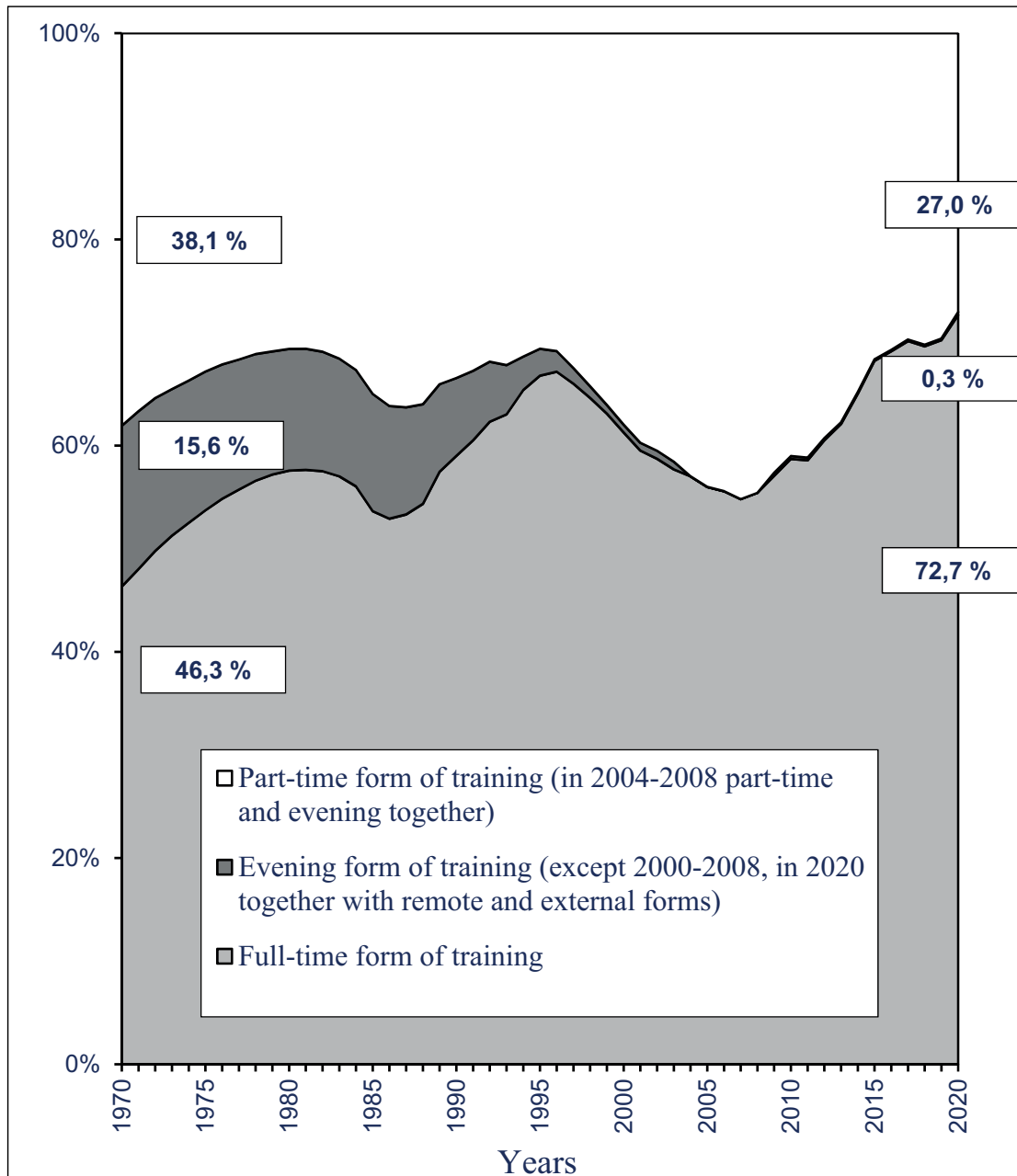


Fig. 9.5. Share of students of full-time, evening and part-time forms of training in institutions of higher education (universities, academies, institutes) in Ukraine

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

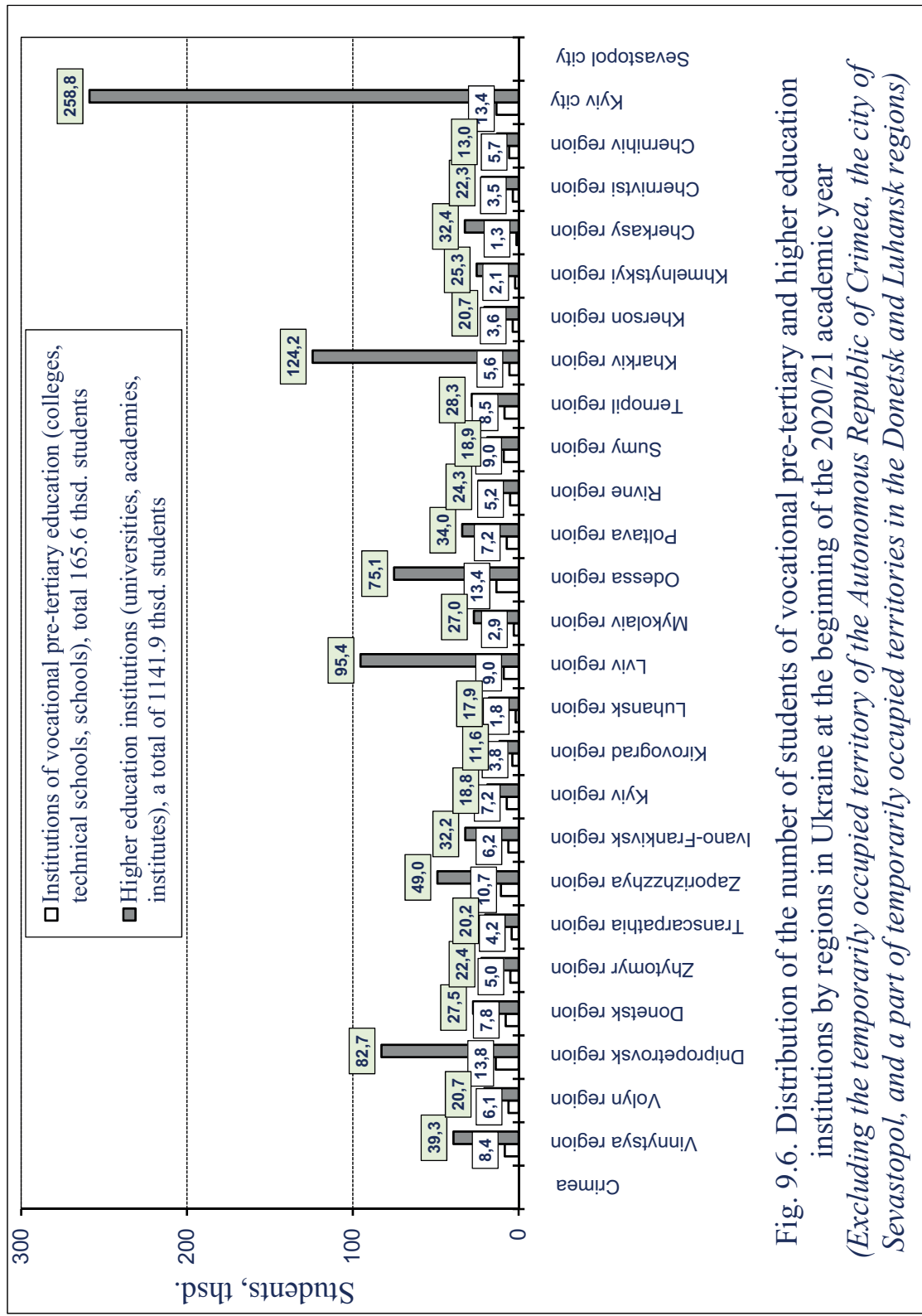


Fig. 9.6. Distribution of the number of students of vocational pre-tertiary and higher education institutions by regions in Ukraine at the beginning of the 2020/21 academic year (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

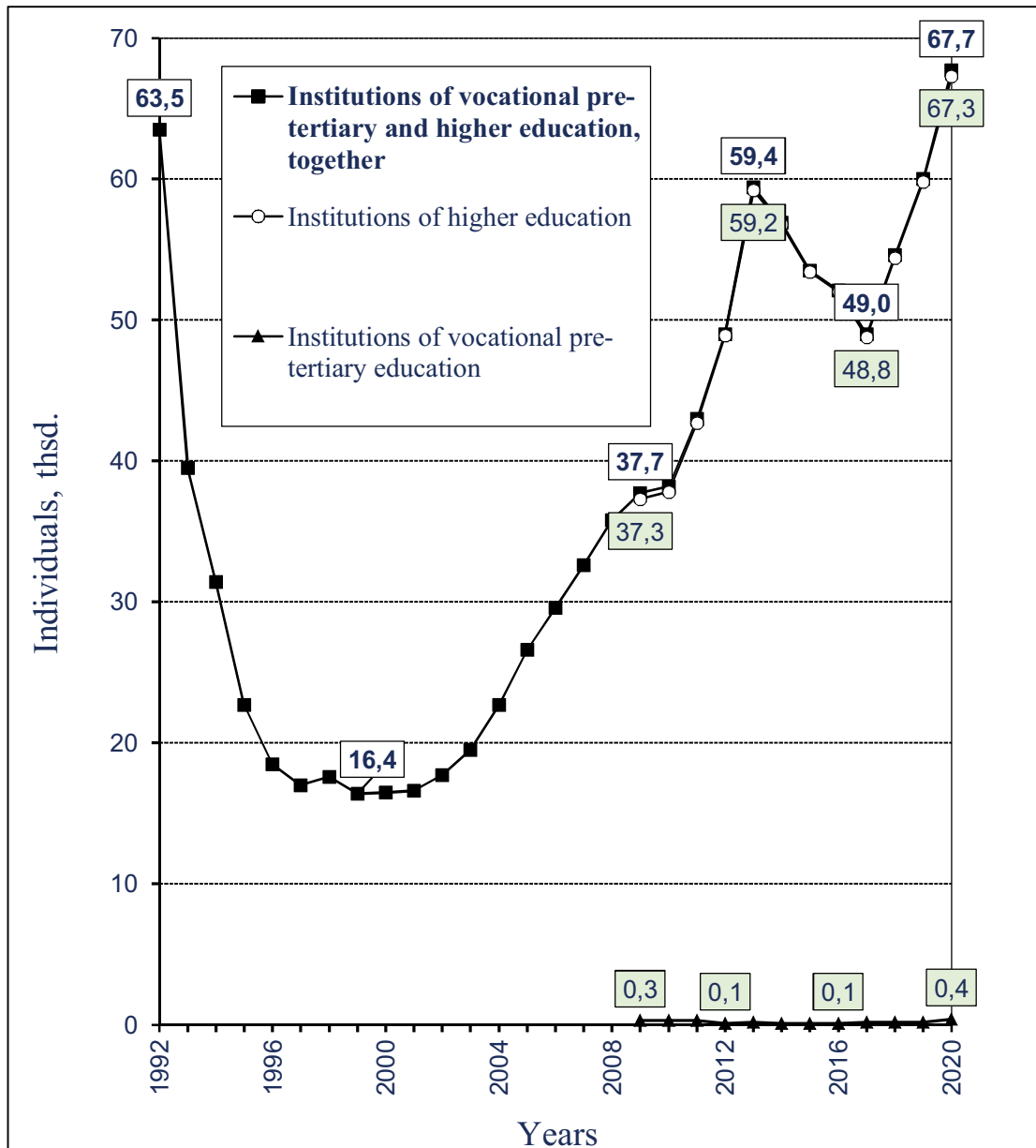


Fig. 9.7. The number of foreign citizens in institutions of vocational pre-tertiary education (colleges, technical schools, schools) and institutions of higher education (universities, academies, institutes) in Ukraine in 1992-2020.

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **10. PhD AND DSc STUDIES**

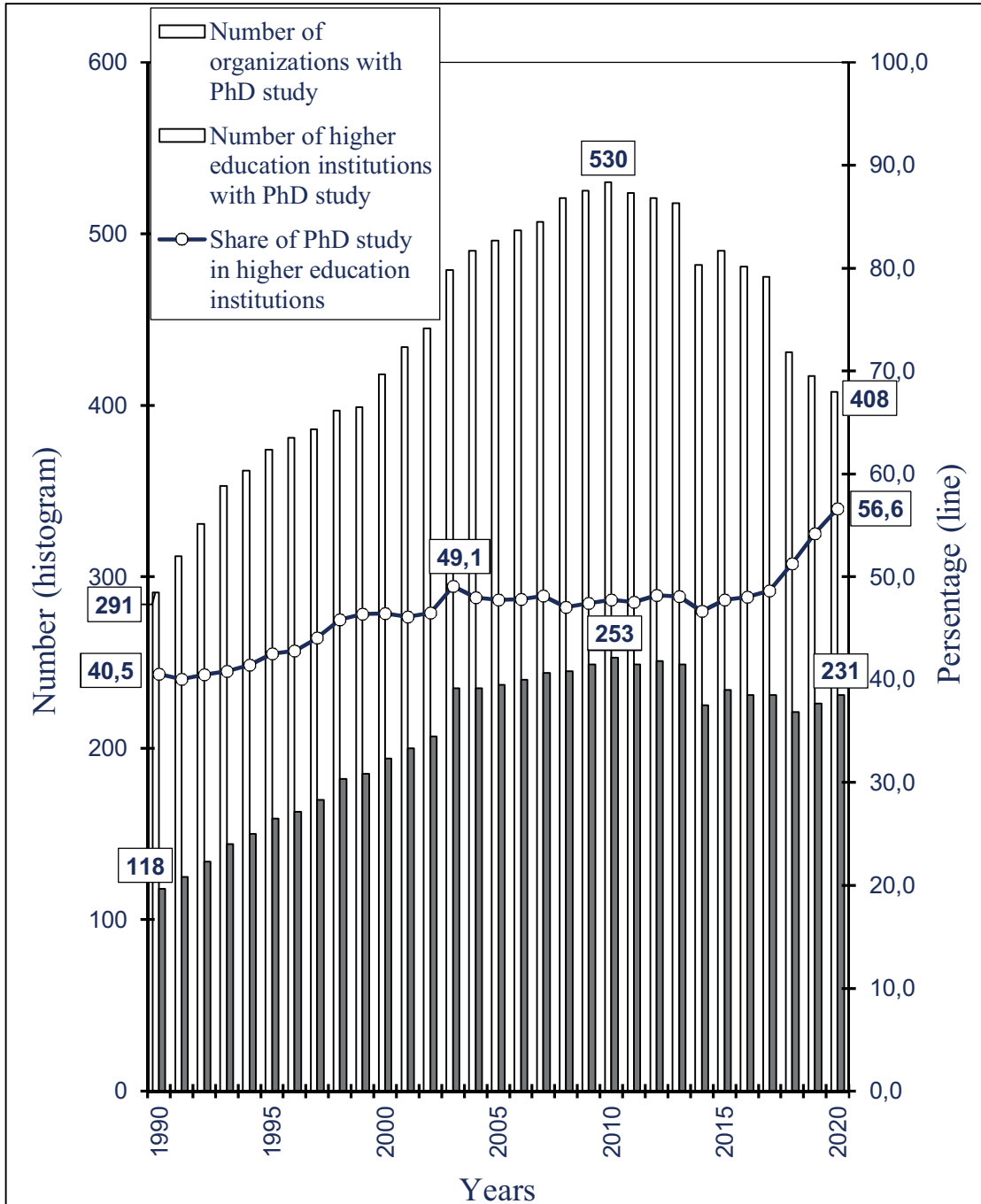


Fig. 10.1. The network of PhD study in Ukraine  
 (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

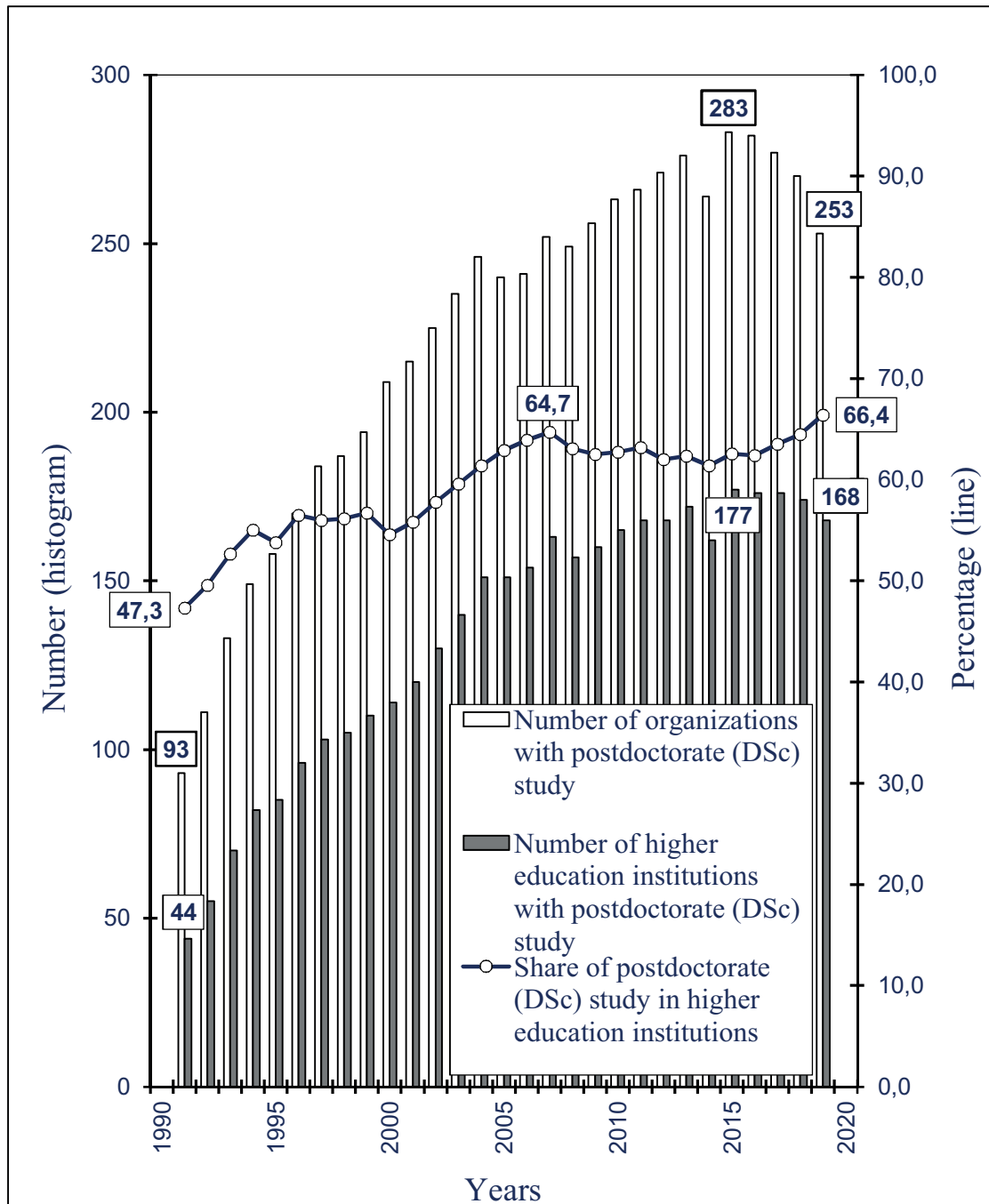


Fig. 10.2. The network of postdoctorate (DSc) study in Ukraine (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)



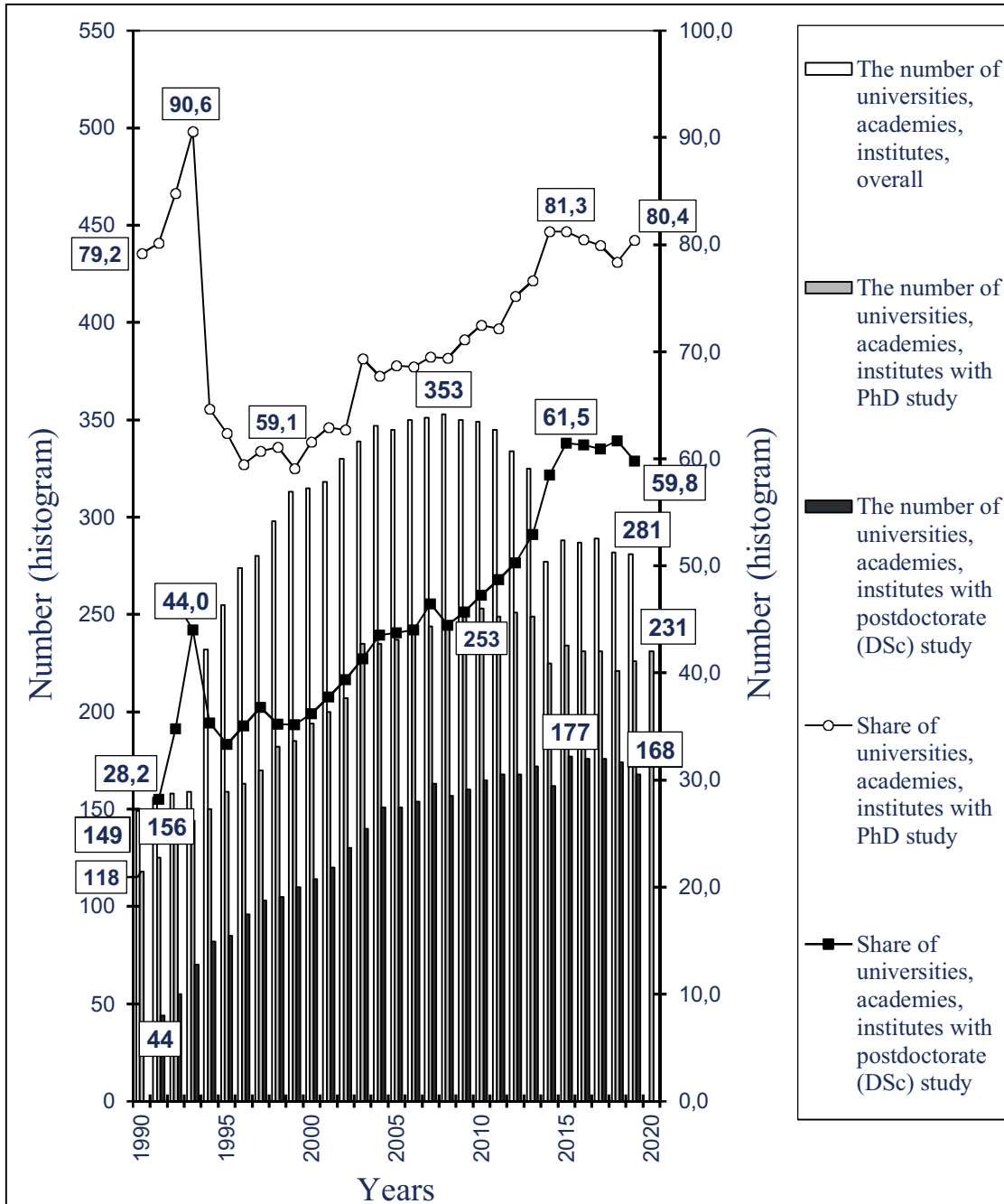


Fig. 10.3. The network of PhD and postdoctorate (DSc) studies in higher education institutions of Ukraine  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

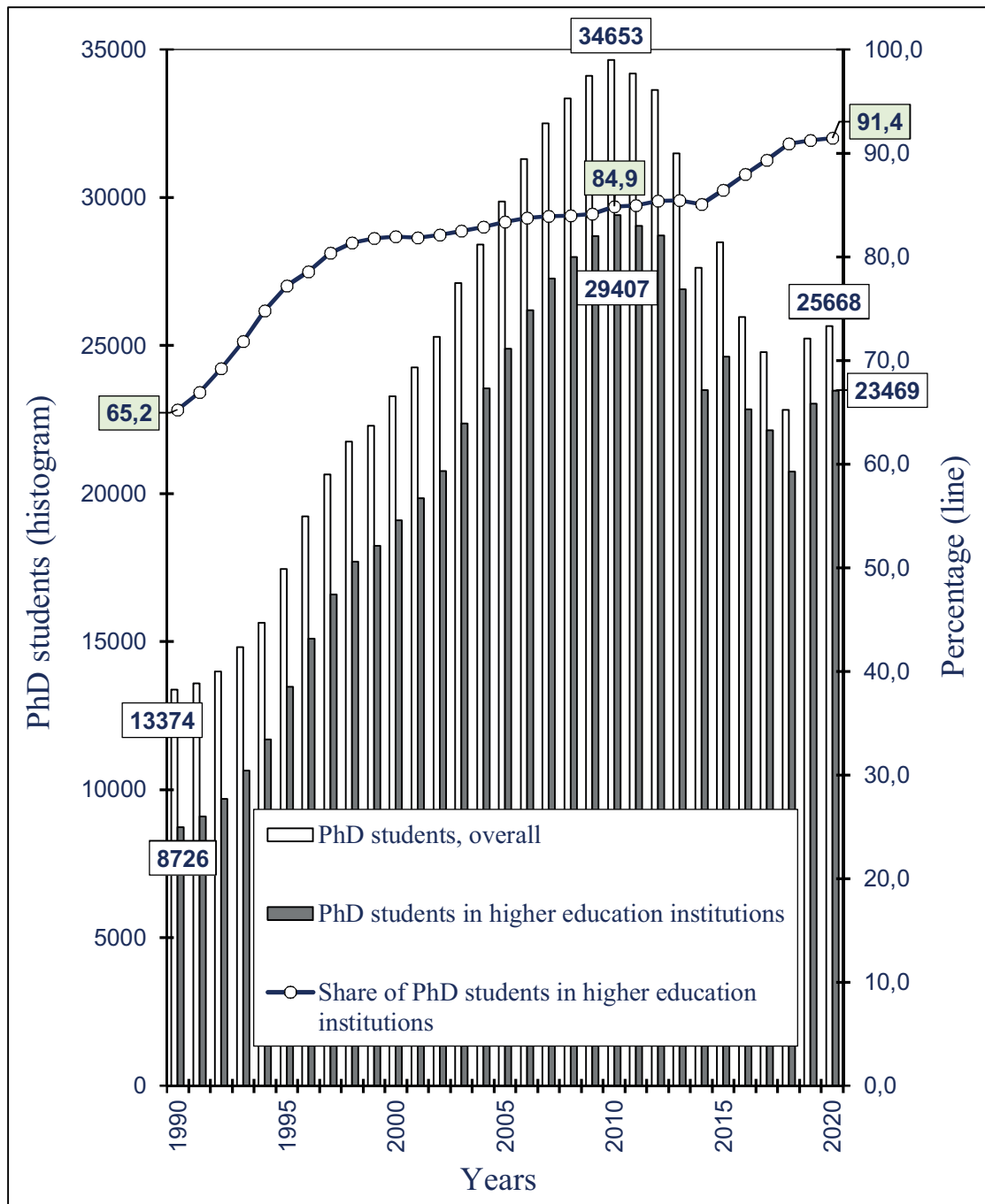


Fig. 10.4. The number of PhD students in Ukraine  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

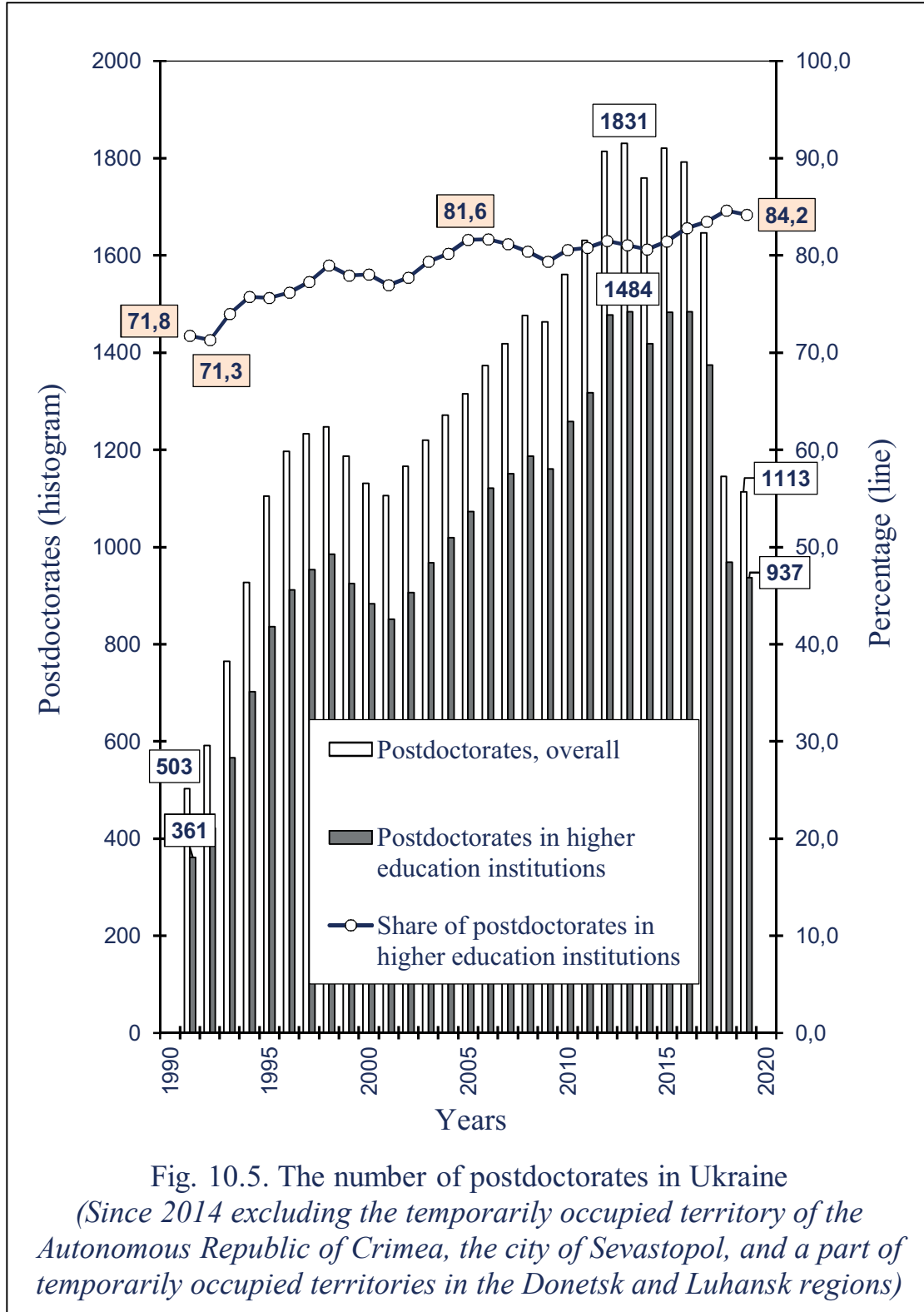


Fig. 10.5. The number of postdoctorates in Ukraine  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

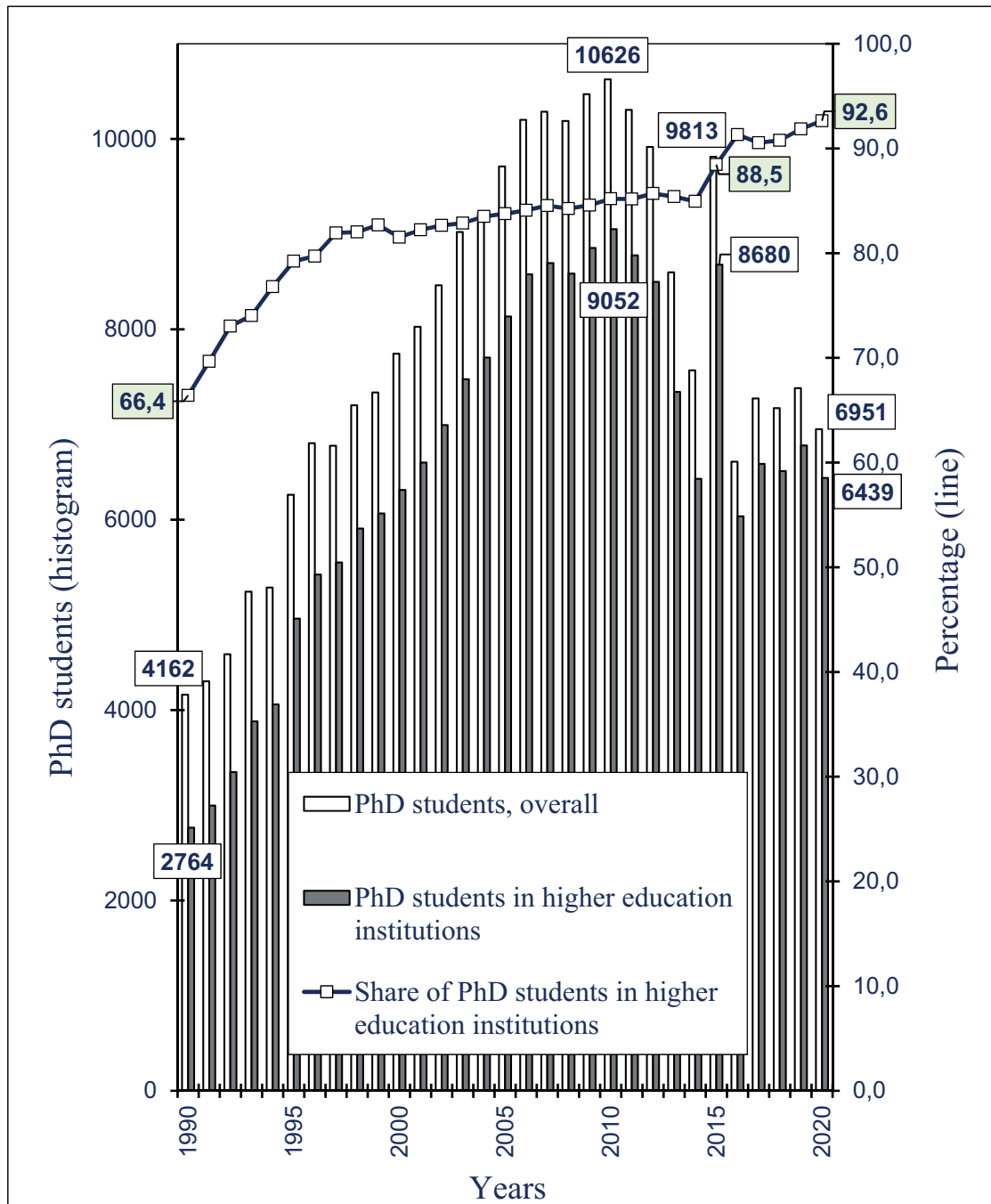


Fig. 10.6. Admission to the PhD study in Ukraine  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

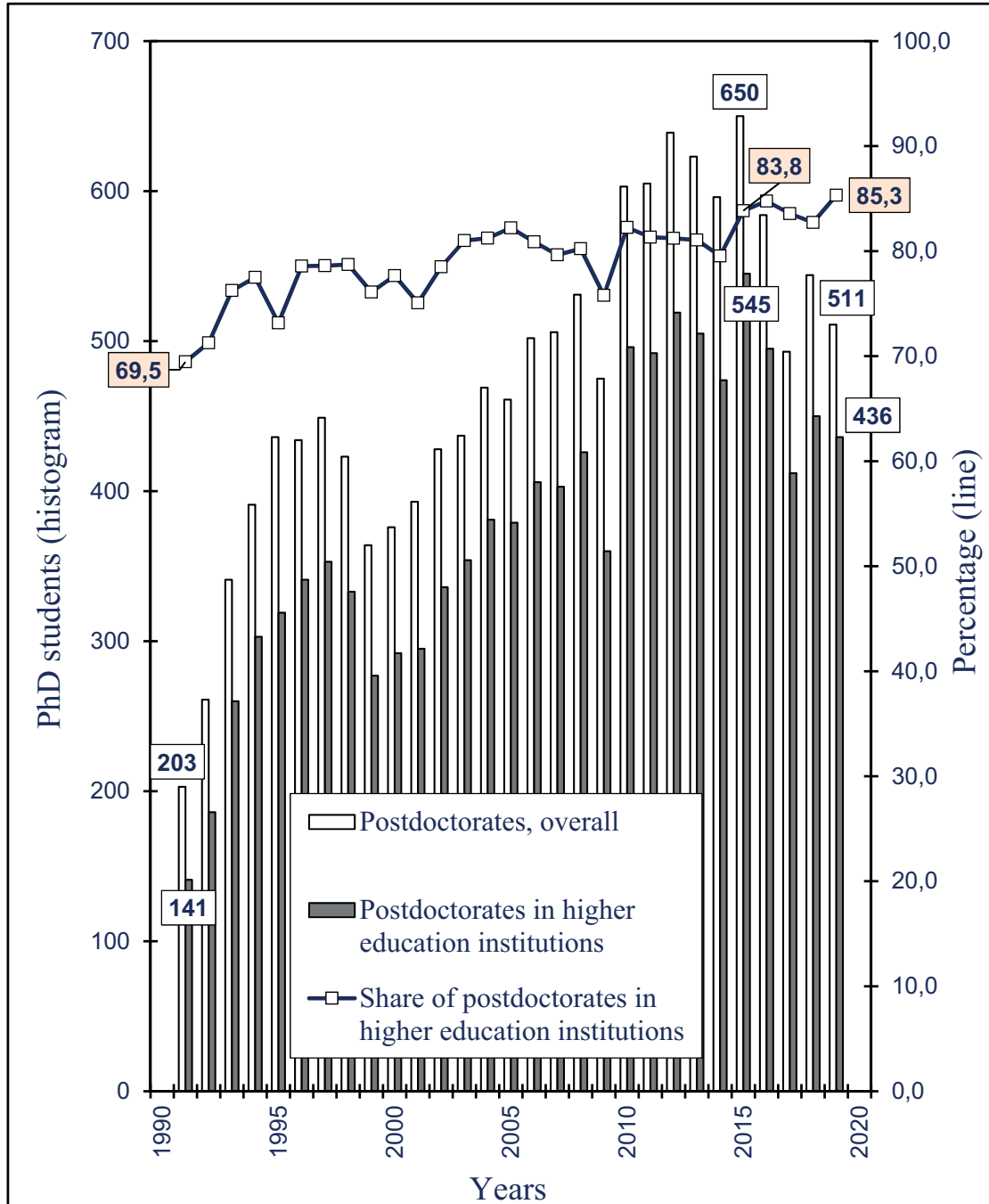


Fig. 10.7. Admission to the postdoctorate (DSc) study in Ukraine (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

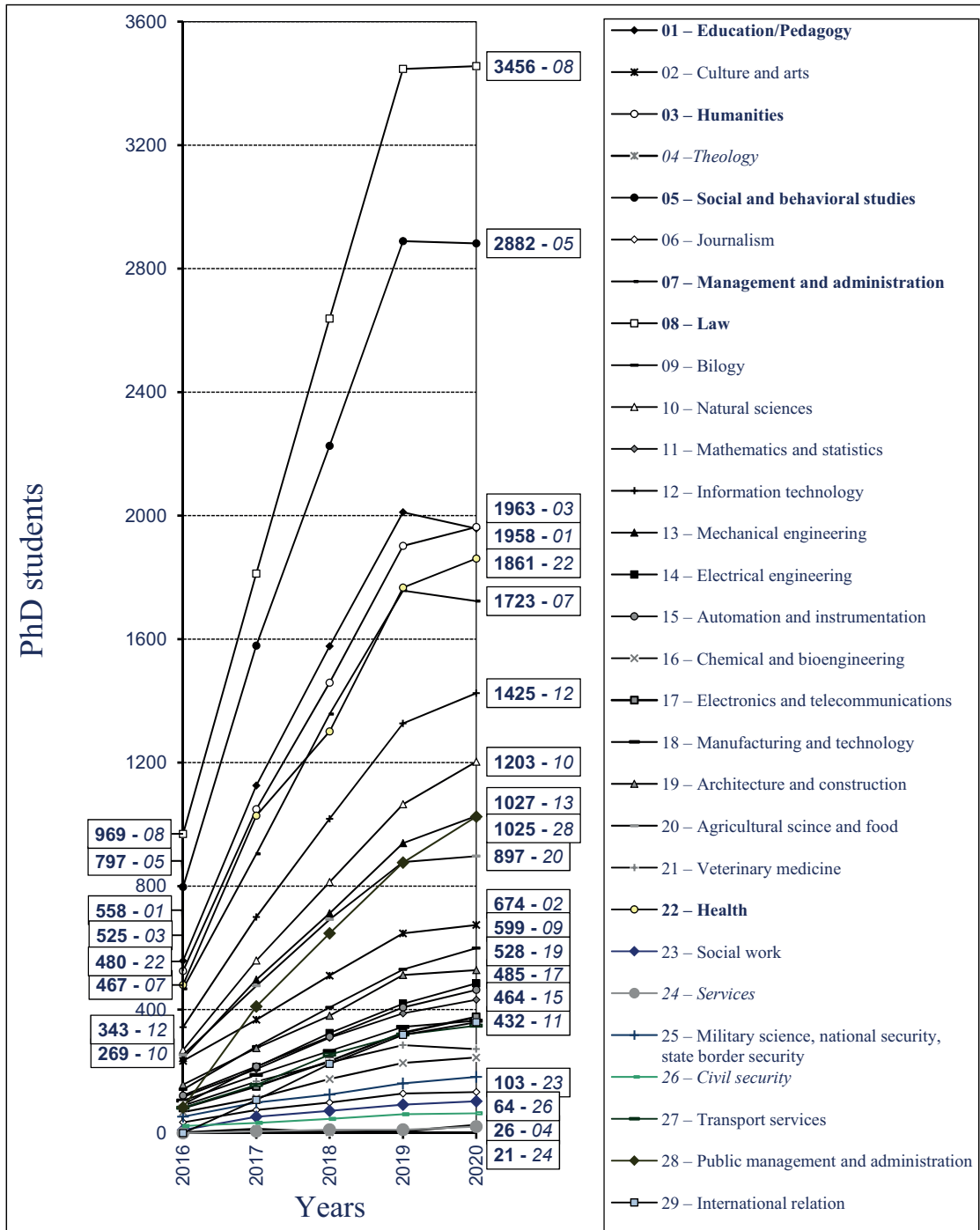
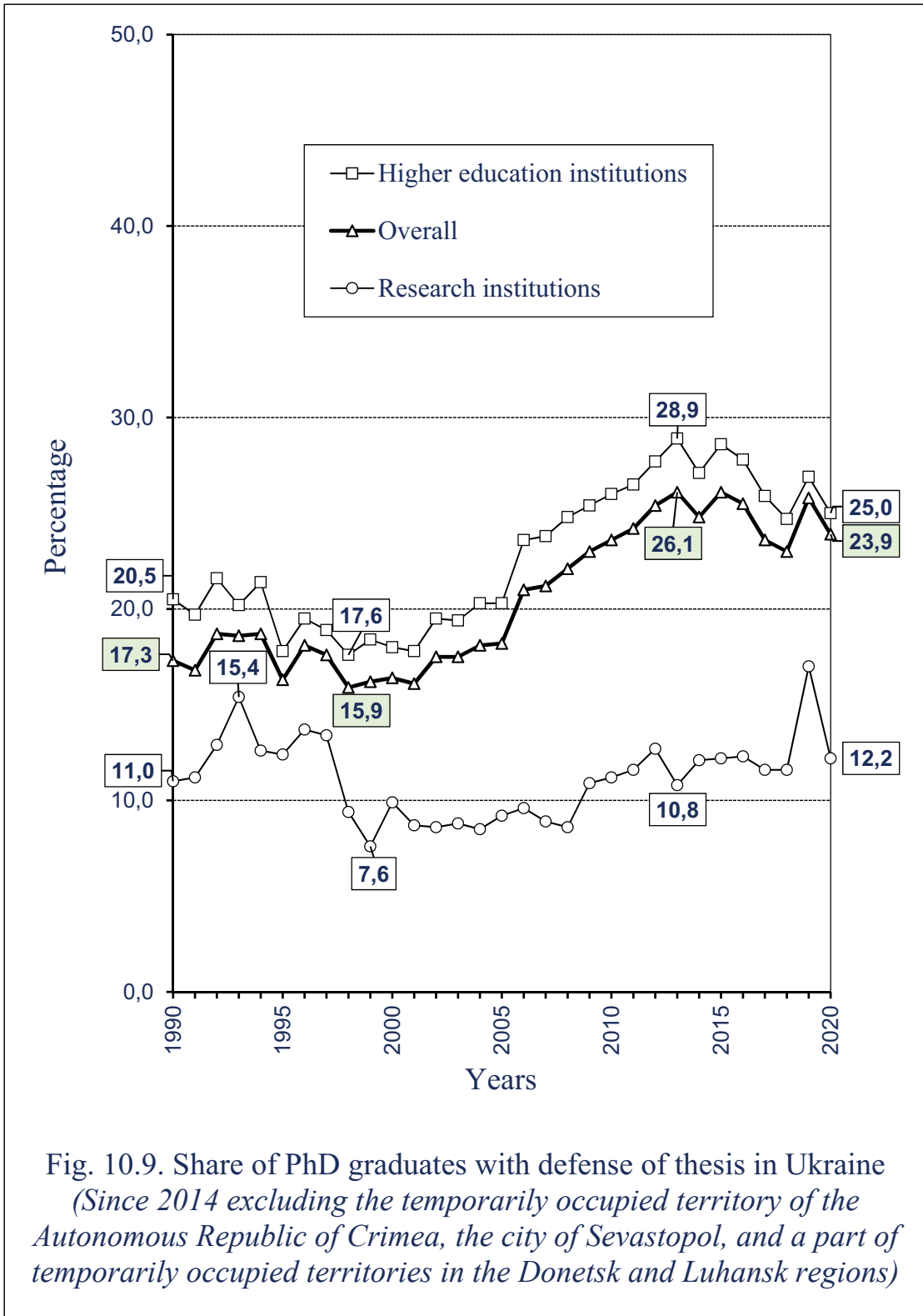


Fig. 10.8. Number of PhD students by fields of knowledge in Ukraine (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)





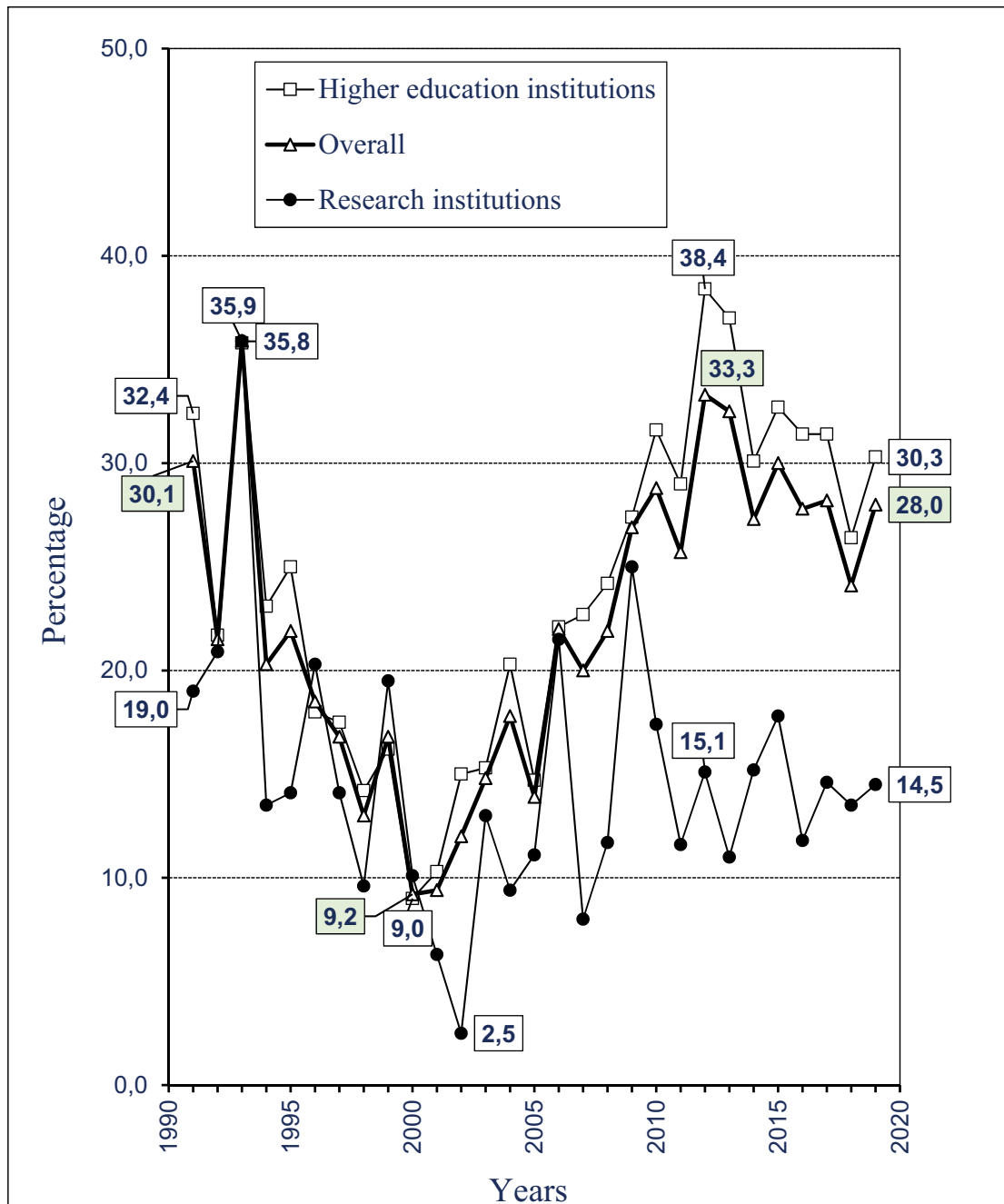


Fig. 10.10. Share of postdoctorate (DSc) graduates with defense of thesis in Ukraine

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## 11. EDUCATION PERSONNEL

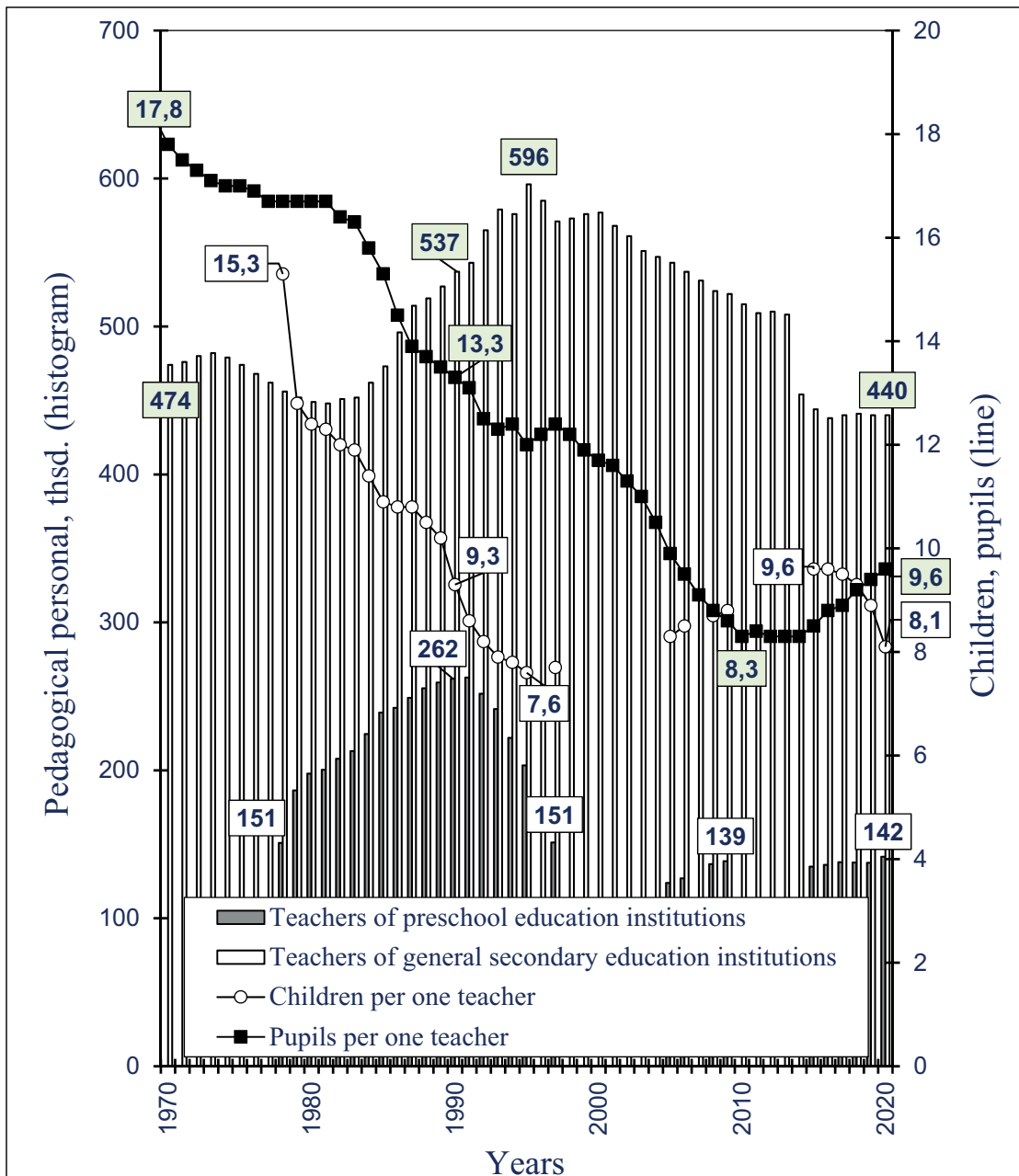


Fig. 11.1. The number of pedagogical staff in preschool and general secondary education institutions and the number of children, pupils per one teacher in Ukraine

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

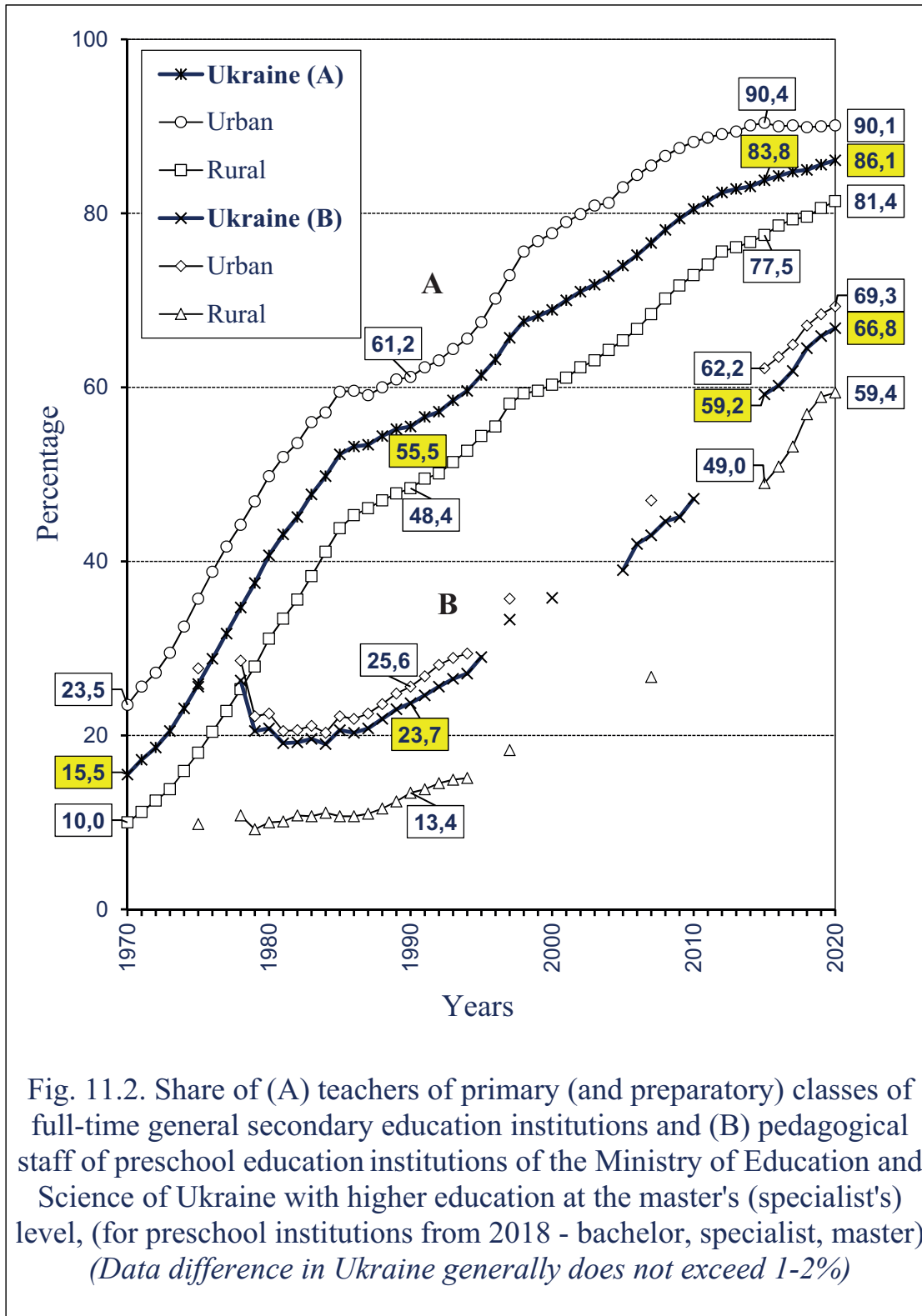


Fig. 11.2. Share of (A) teachers of primary (and preparatory) classes of full-time general secondary education institutions and (B) pedagogical staff of preschool education institutions of the Ministry of Education and Science of Ukraine with higher education at the master's (specialist's) level, (for preschool institutions from 2018 - bachelor, specialist, master) (Data difference in Ukraine generally does not exceed 1-2%)

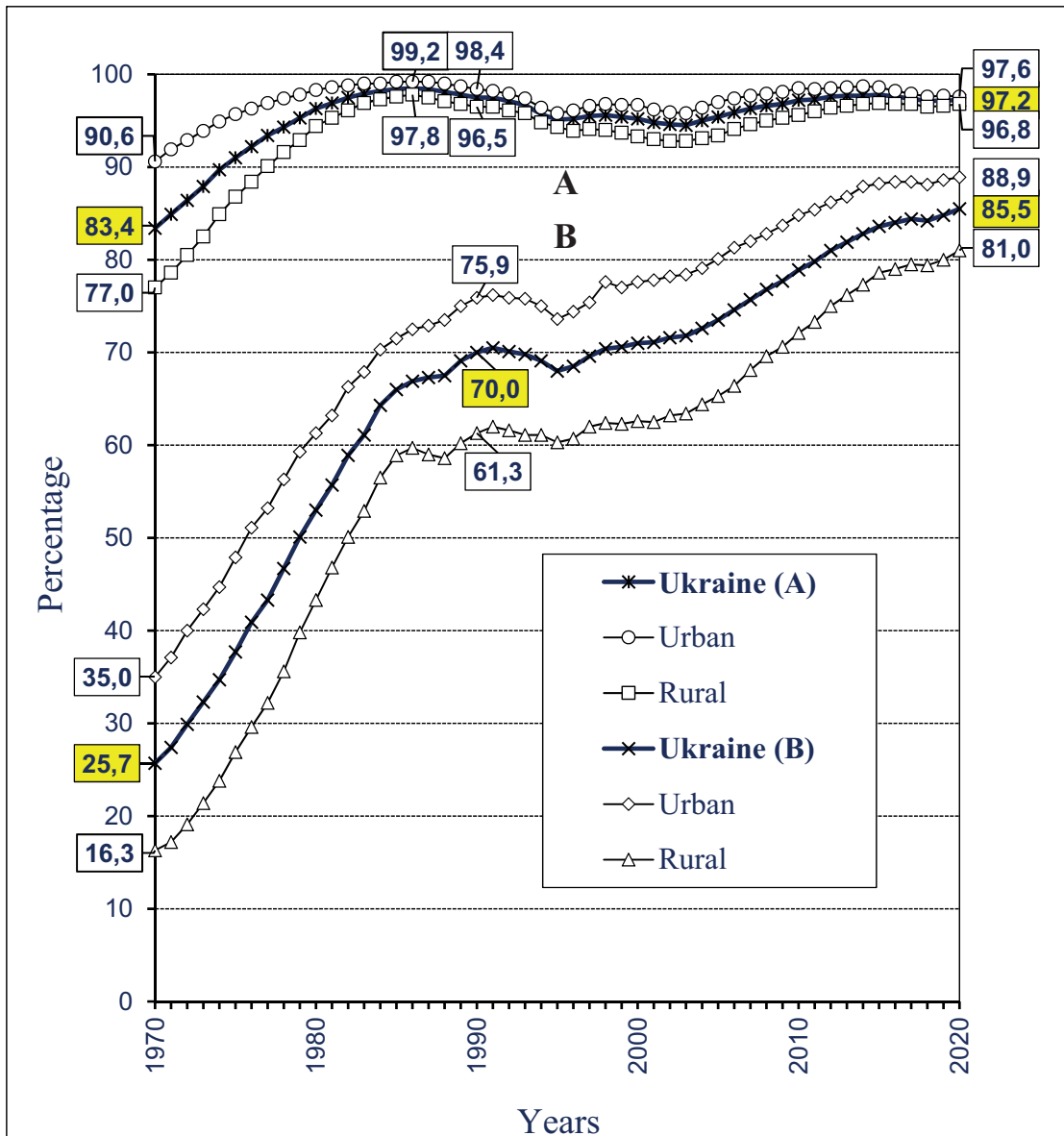


Fig. 11.3. The share of teachers with higher education at the master's (specialist's) level who teach certain subjects in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine: A - languages, literature, science foundations; B - music, fine arts, physical culture and defense of the Fatherland (since 2020 - defense of Ukraine), labor training  
(Data difference in Ukraine generally does not exceed 1-2%)



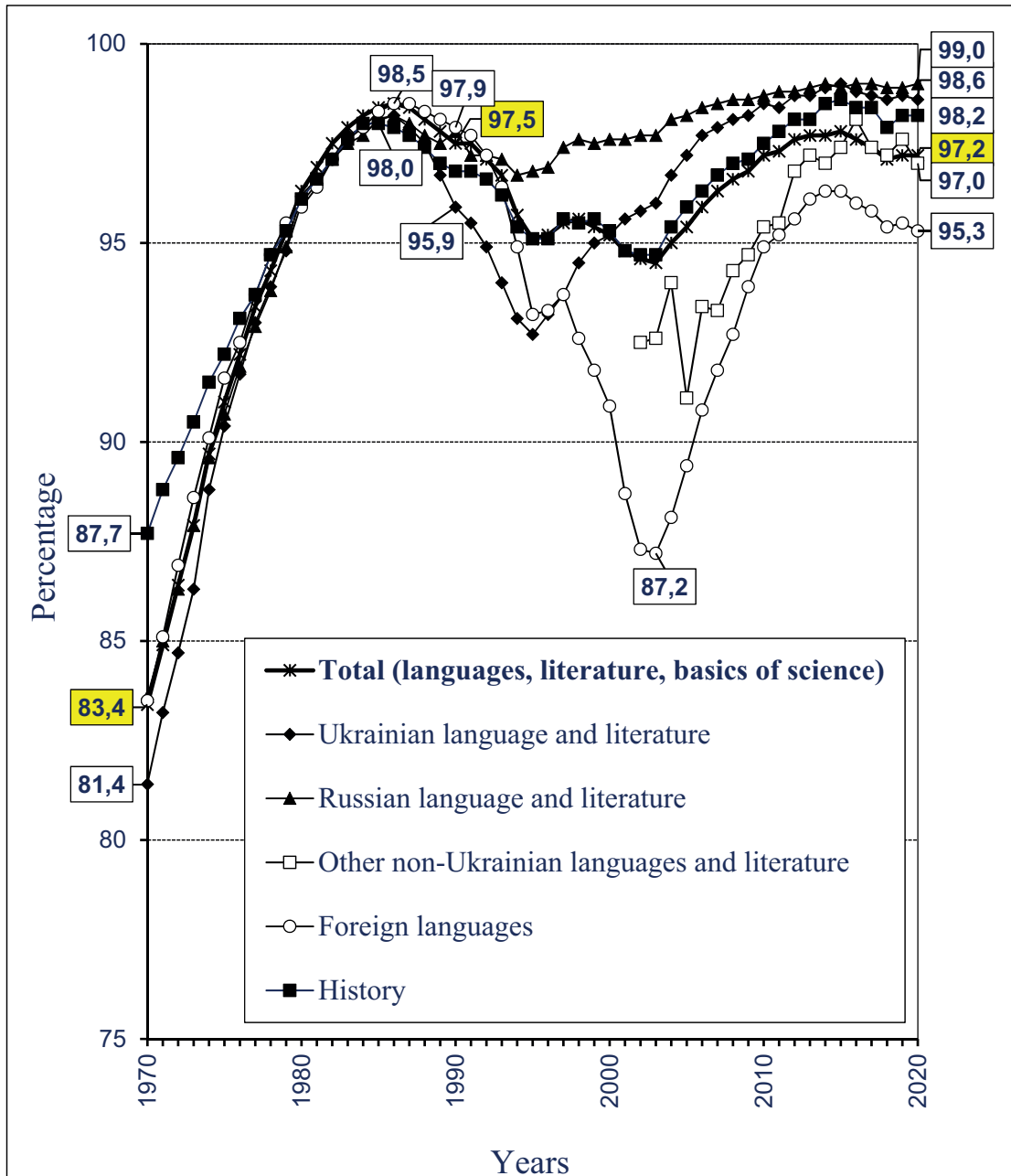


Fig. 11.4. The share of teachers with higher education at the master's (specialist's) level who teach certain subjects (languages, literature, history) in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine (Data difference in Ukraine generally does not exceed 1-2%)

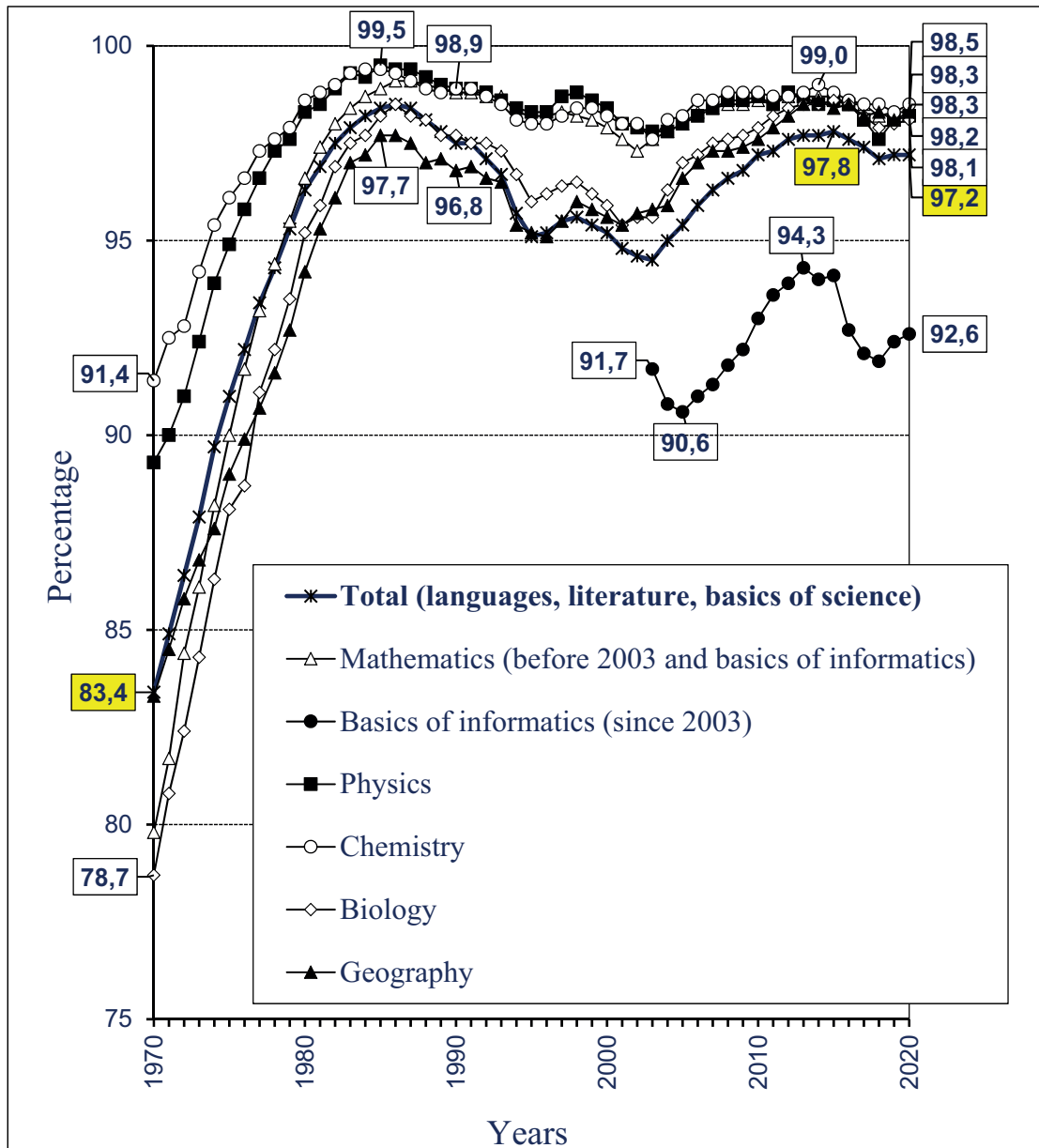


Fig. 11.5. Proportion of teachers with higher education at the master's (specialist's) level who teach certain subjects (mathematics, basics of informatics, natural sciences) in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine  
*(Data difference in Ukraine generally does not exceed 1-2%)*

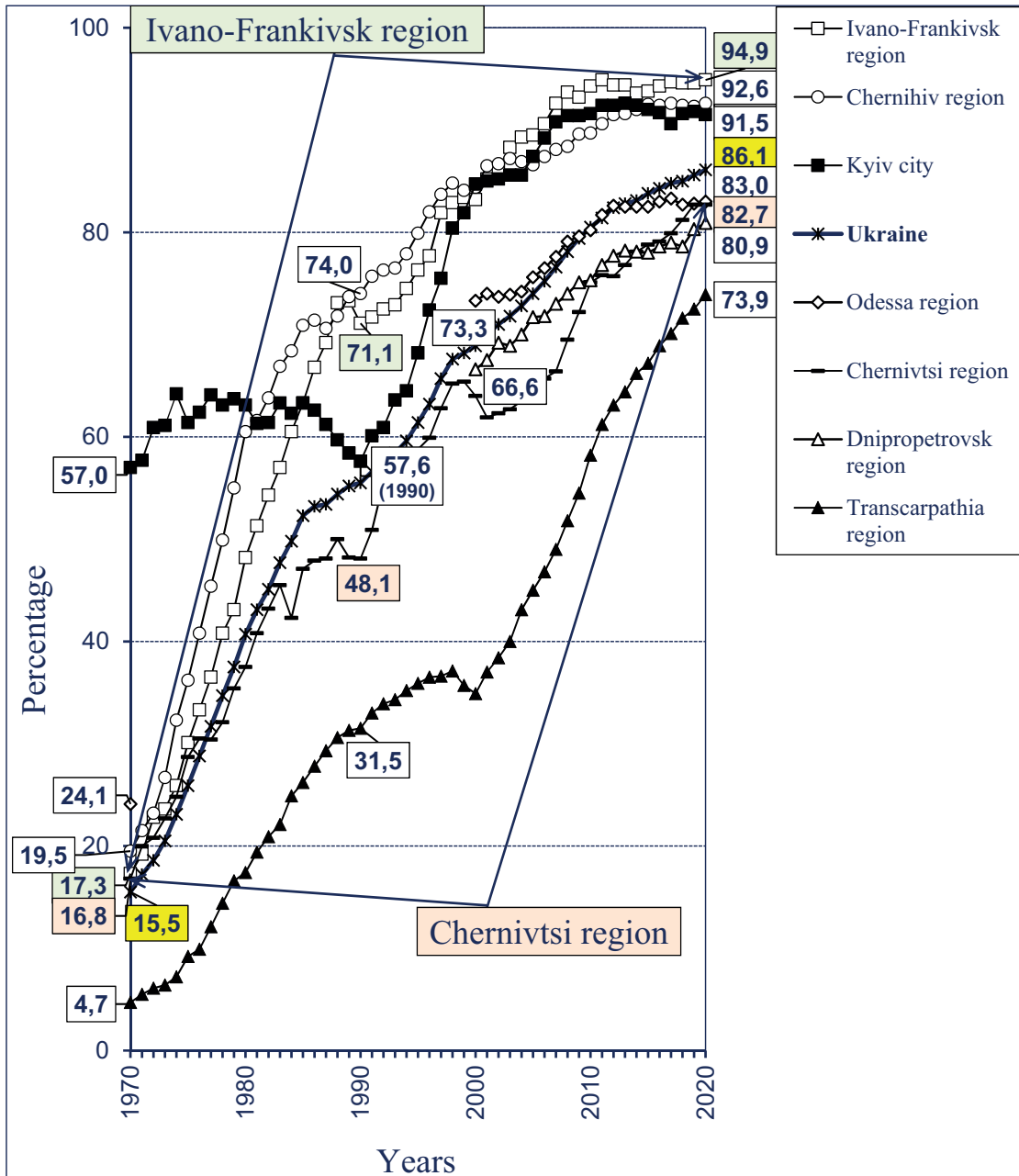


Fig. 11.6. The share of teachers of primary (and preparatory) classes with higher education at the master's (specialist's) level in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine in the regions and the city of Kyiv (Data difference in Ukraine generally does not exceed 1-2%)

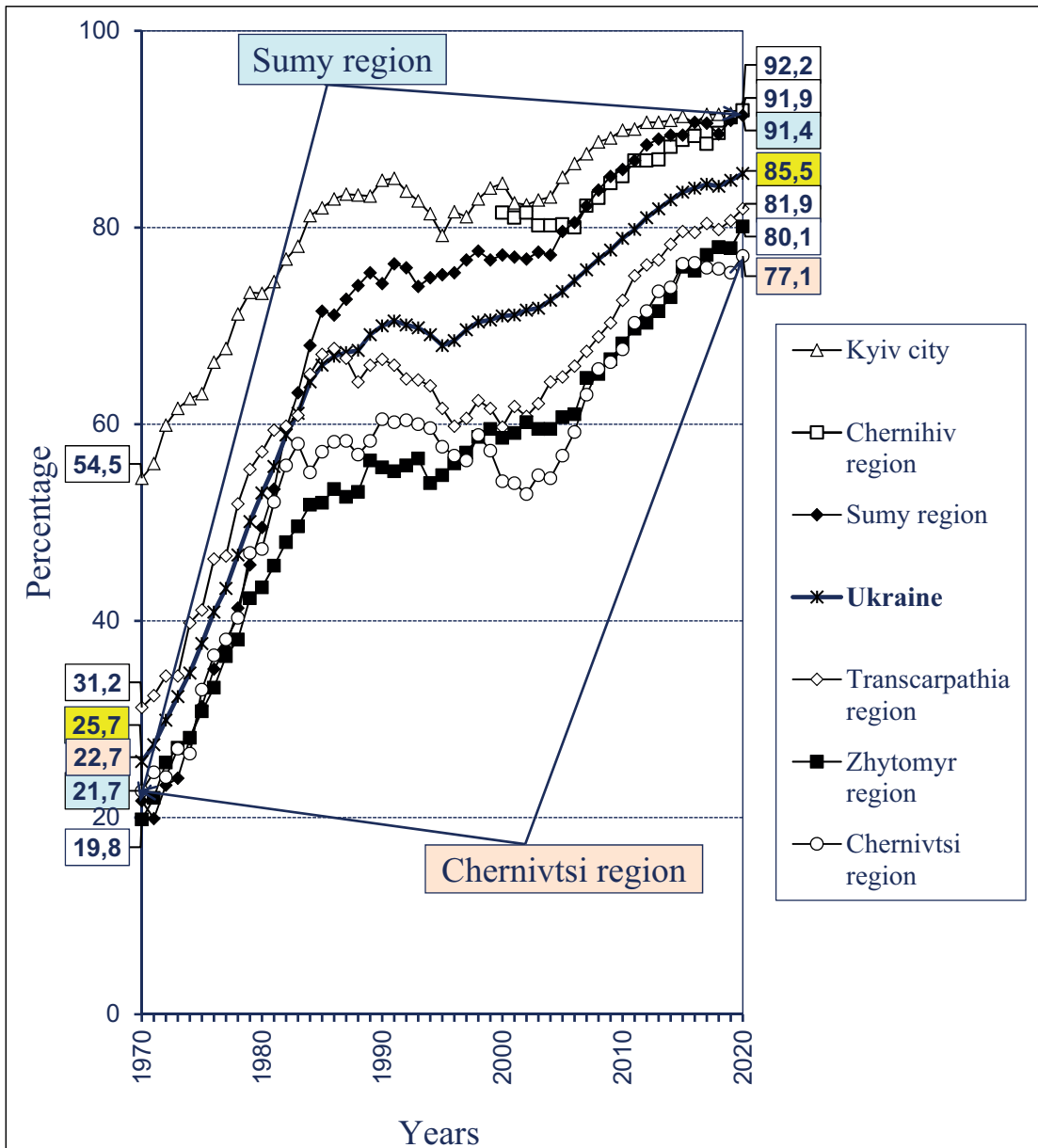


Fig. 11.7. Proportion of teachers with higher education at the master's (specialist's) level, who teach music, fine arts, physical culture and defense of the Fatherland (since 2020 - defense of Ukraine), labor training in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine, in regions and Kyiv (Data difference in Ukraine generally does not exceed 1-2%)

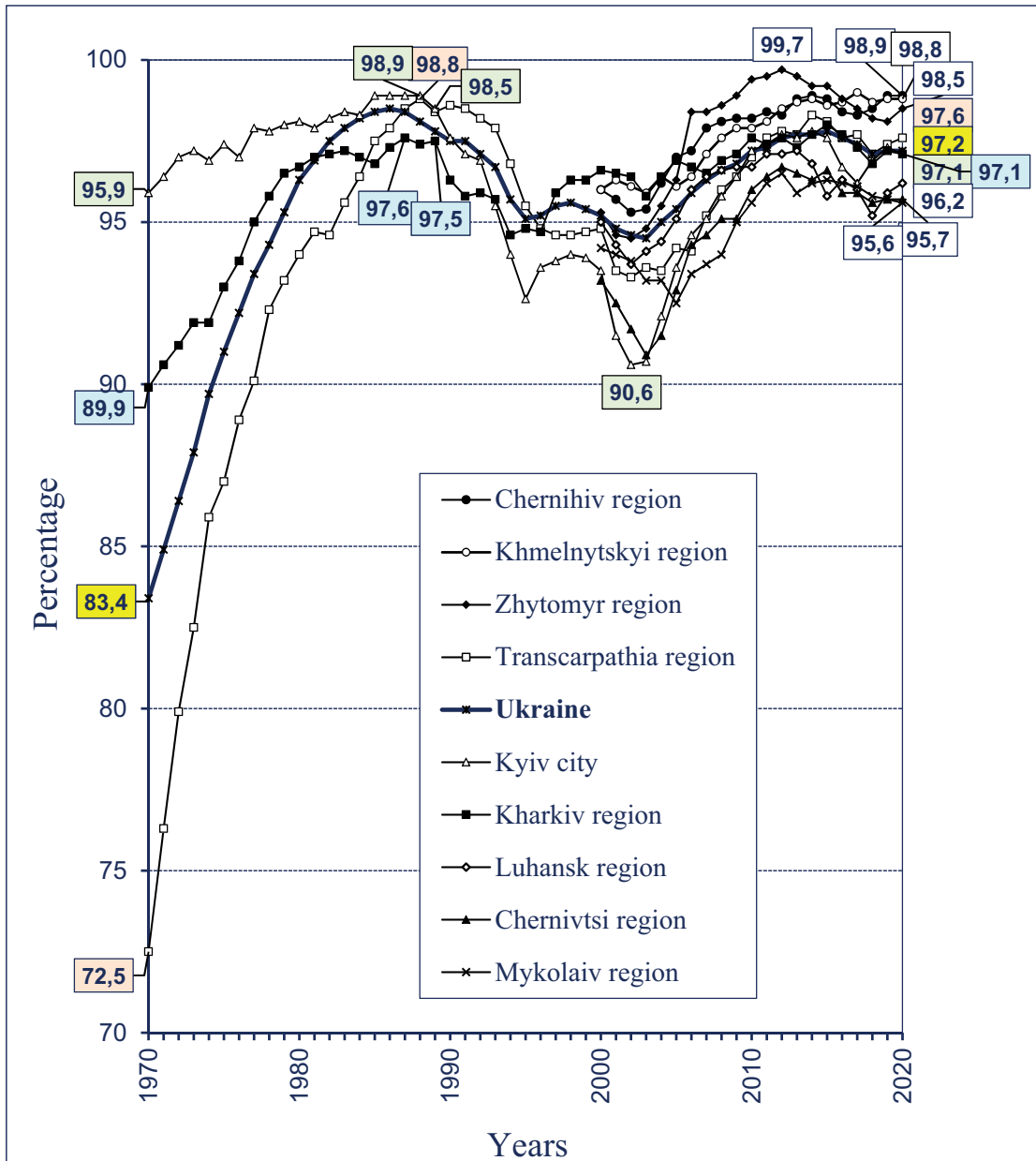


Fig. 11.8. The share of teachers with higher education at the master's (specialist's) level, who teach certain subjects (languages, literature, basics of science) in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine in the regions and the city of Kyiv  
*(Data difference in Ukraine generally does not exceed 1-2%)*

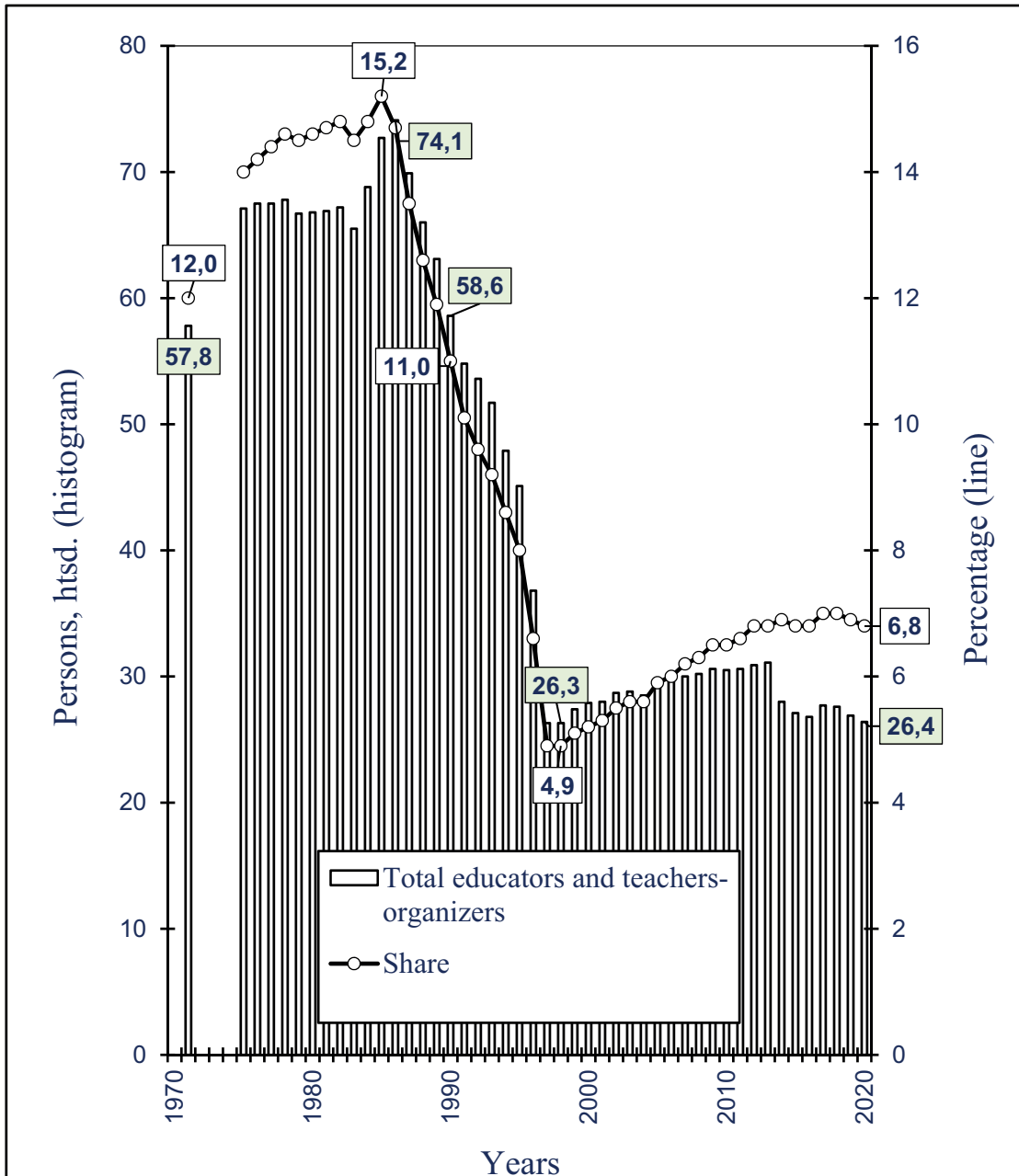


Fig. 11.9. The number of educators and teachers-organizers and their share among pedagogical personal in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine  
*(Data difference in Ukraine generally does not exceed 1-2%)*



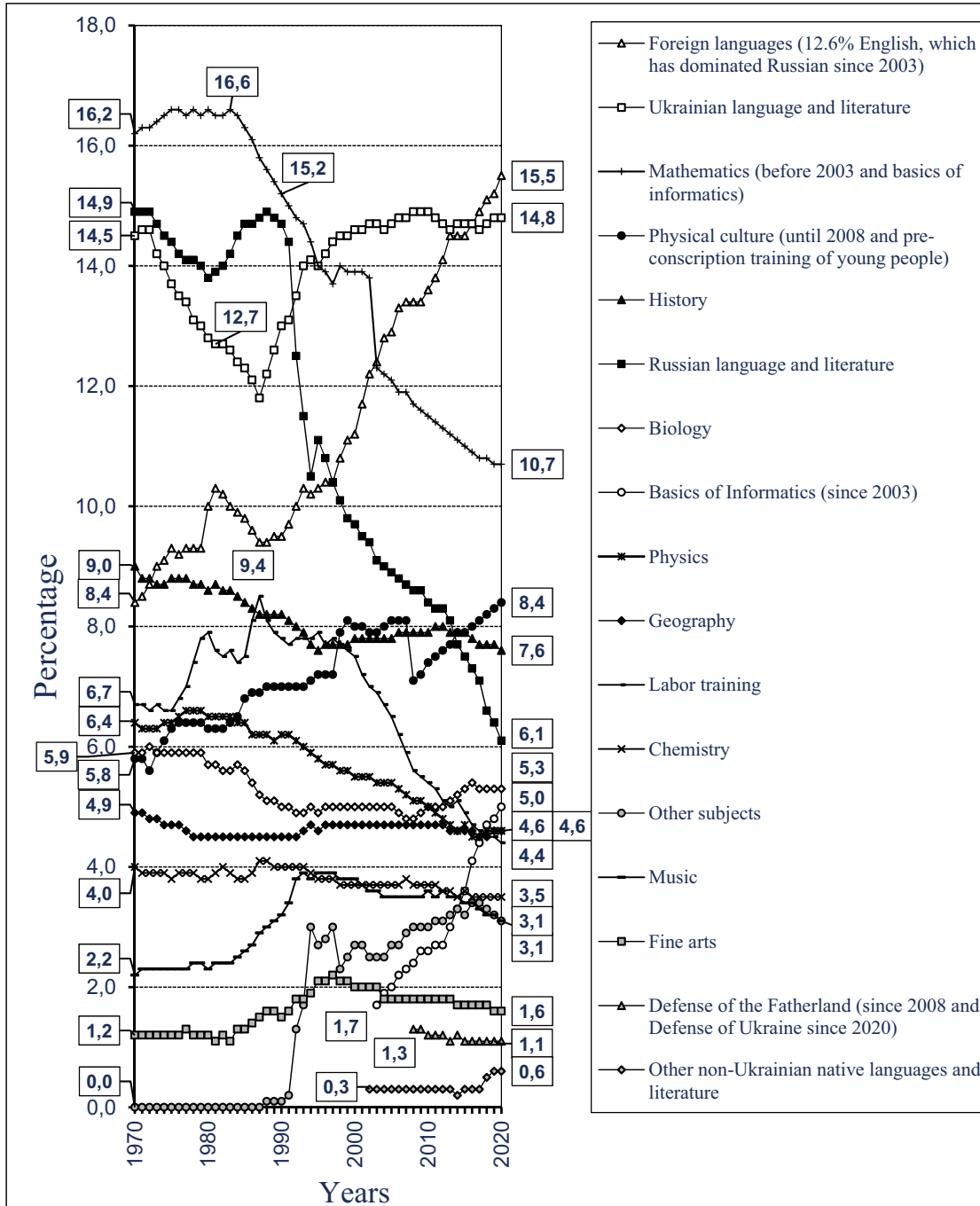


Fig. 11.10. The share of teachers who taught certain subjects in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine in 1970-2020  
*(Data difference in Ukraine generally does not exceed 1-2%)*

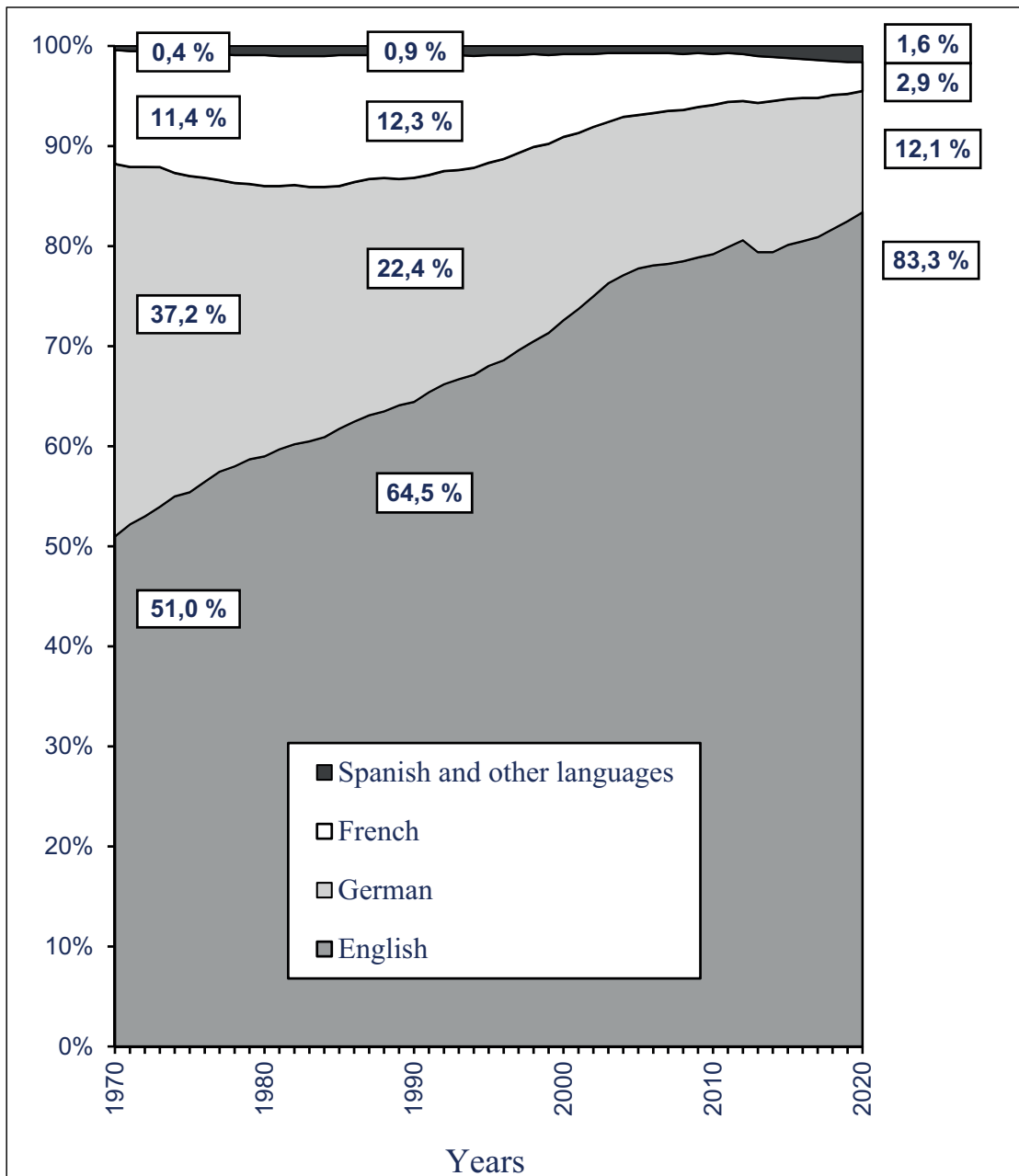


Fig. 11.11. Share of teachers of English, German, French, Spanish and other foreign languages in full-time general secondary education institutions of the Ministry of Education and Science of Ukraine  
(Data difference in Ukraine generally does not exceed 1-2%)

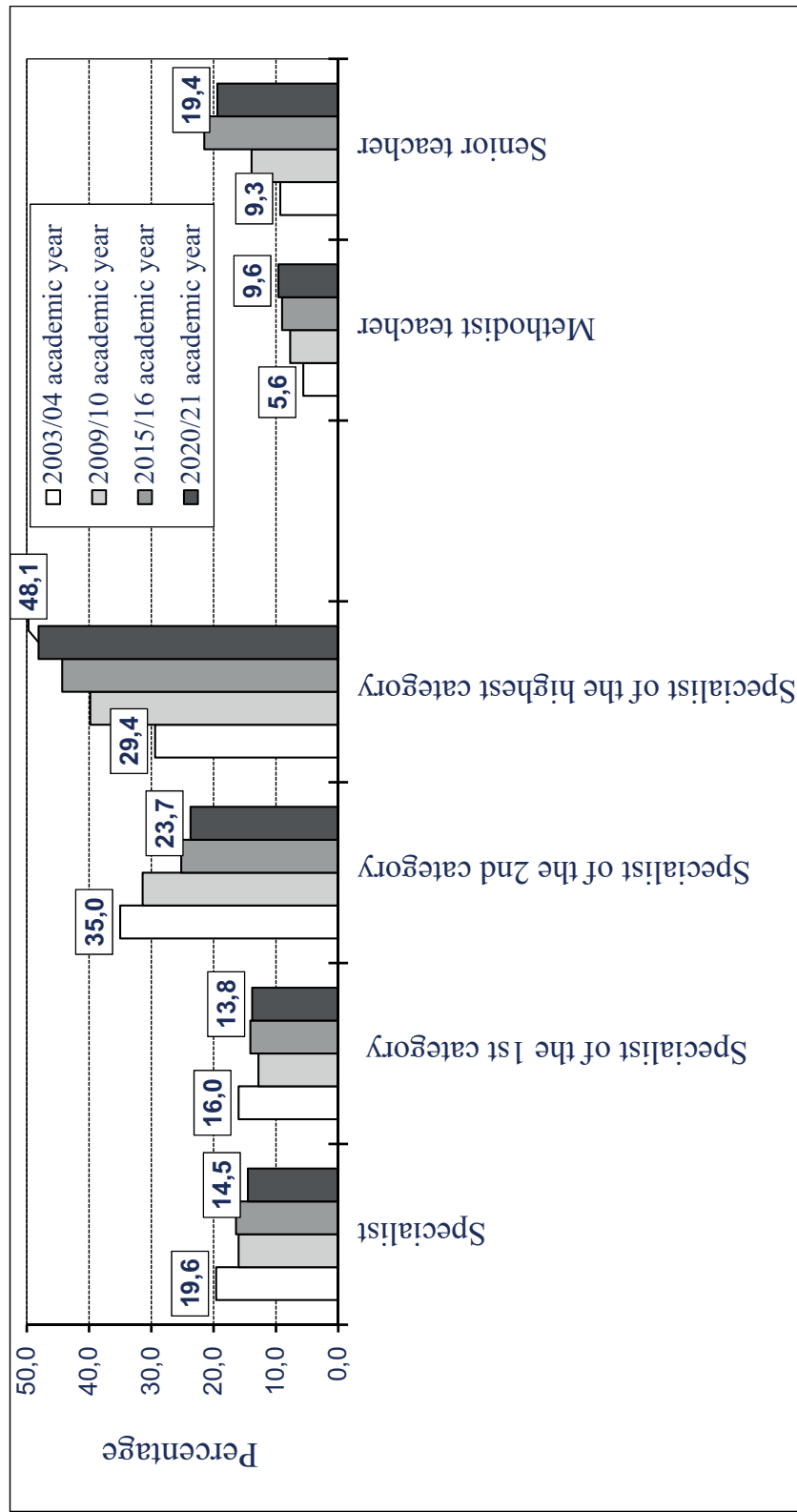


Fig. 11.12. Distribution of pedagogical staff of general secondary education institutions by qualification categories (relative distribution between specialists, masters) and pedagogical titles (shares of the total number of employees) in 2003/04, 2009/10, 2015/16 and 2020/21 academic years in Ukraine  
*(Since 2015/16 academic year excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

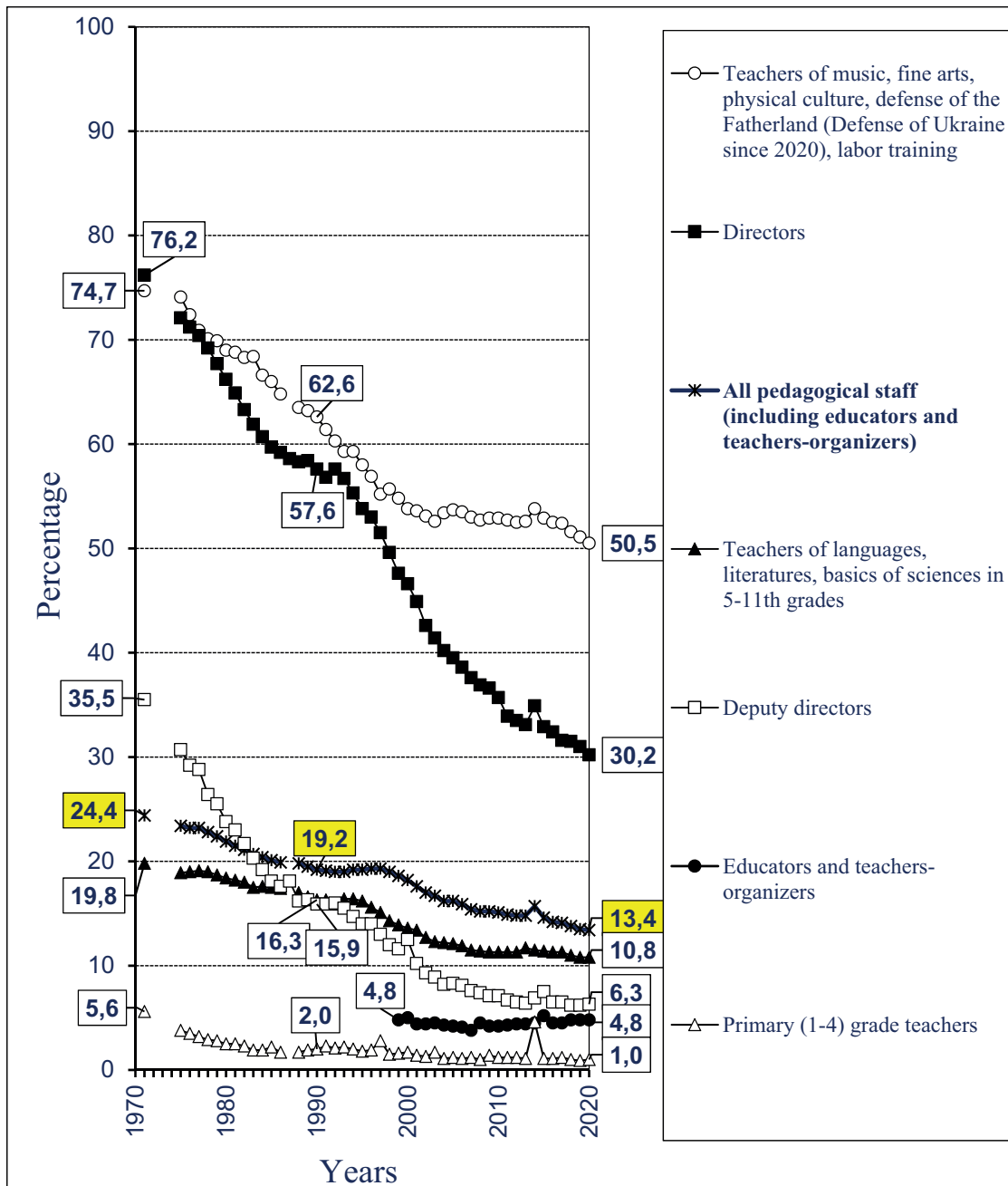
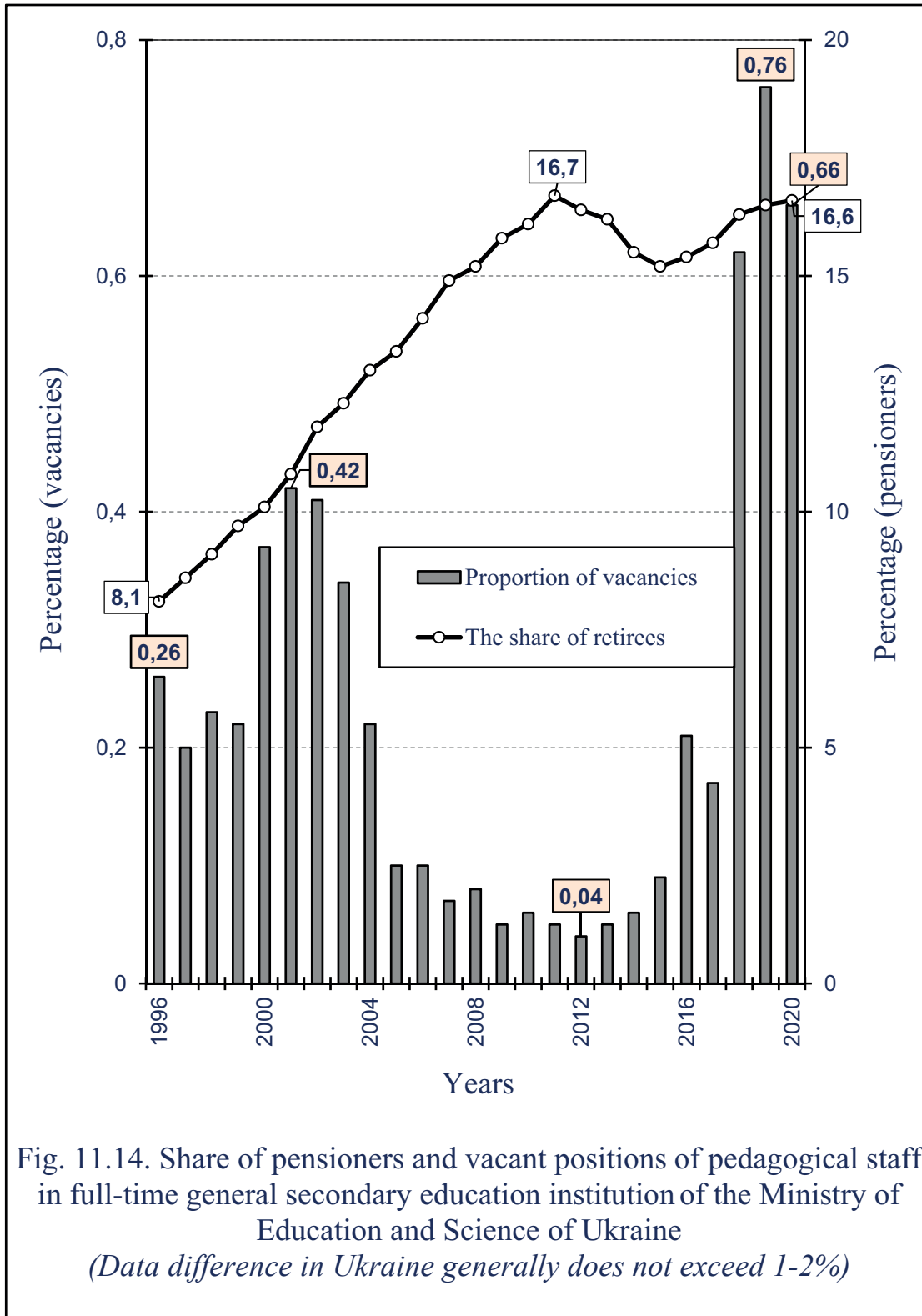


Fig. 11.13. The share of men among the pedagogical staff of full-time general secondary education institution of the Ministry of Education and Science of Ukraine  
*(Data difference in Ukraine generally does not exceed 1-2%)*



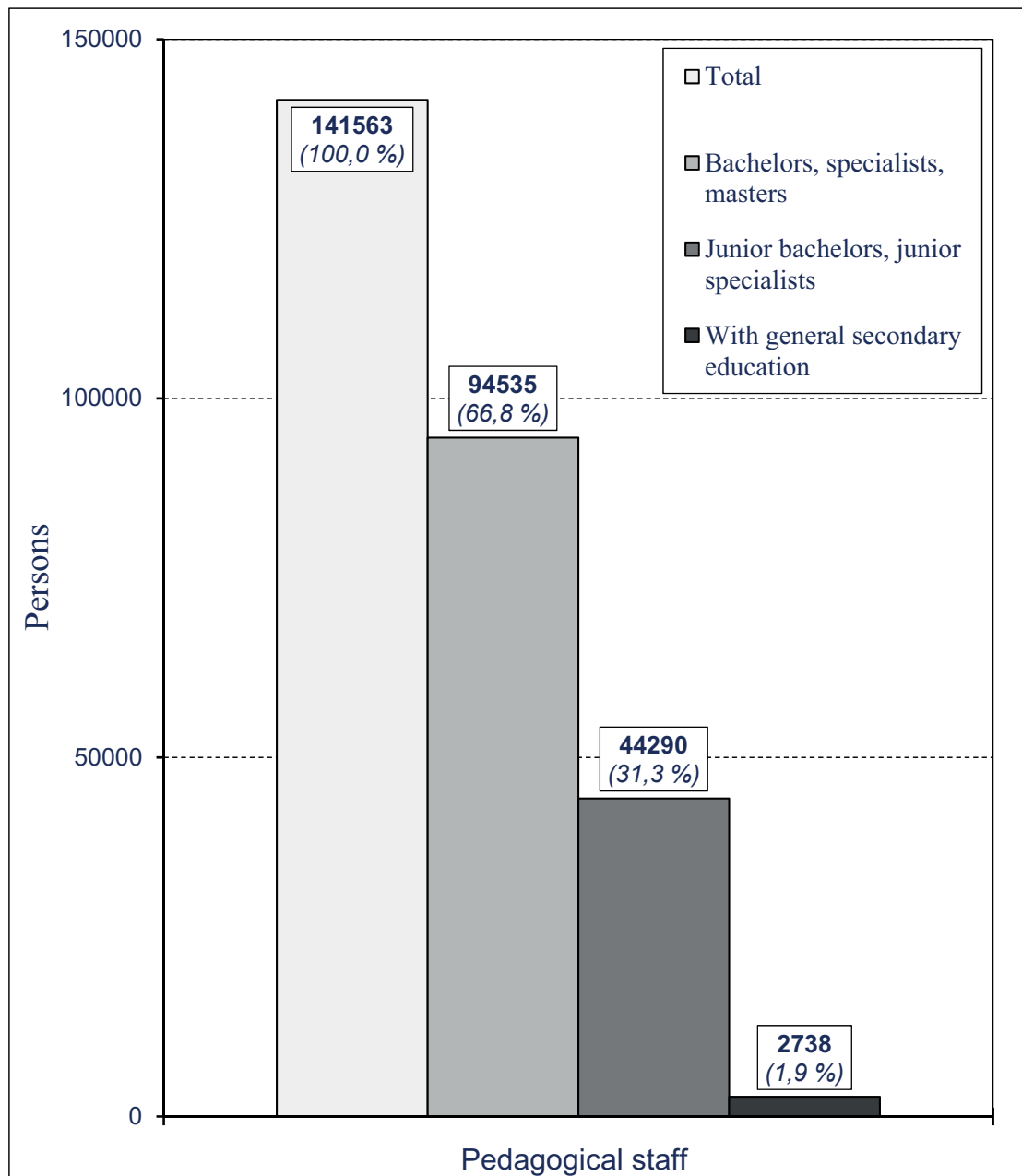


Fig. 11.15. Pedagogical staff of preschool education institutions in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



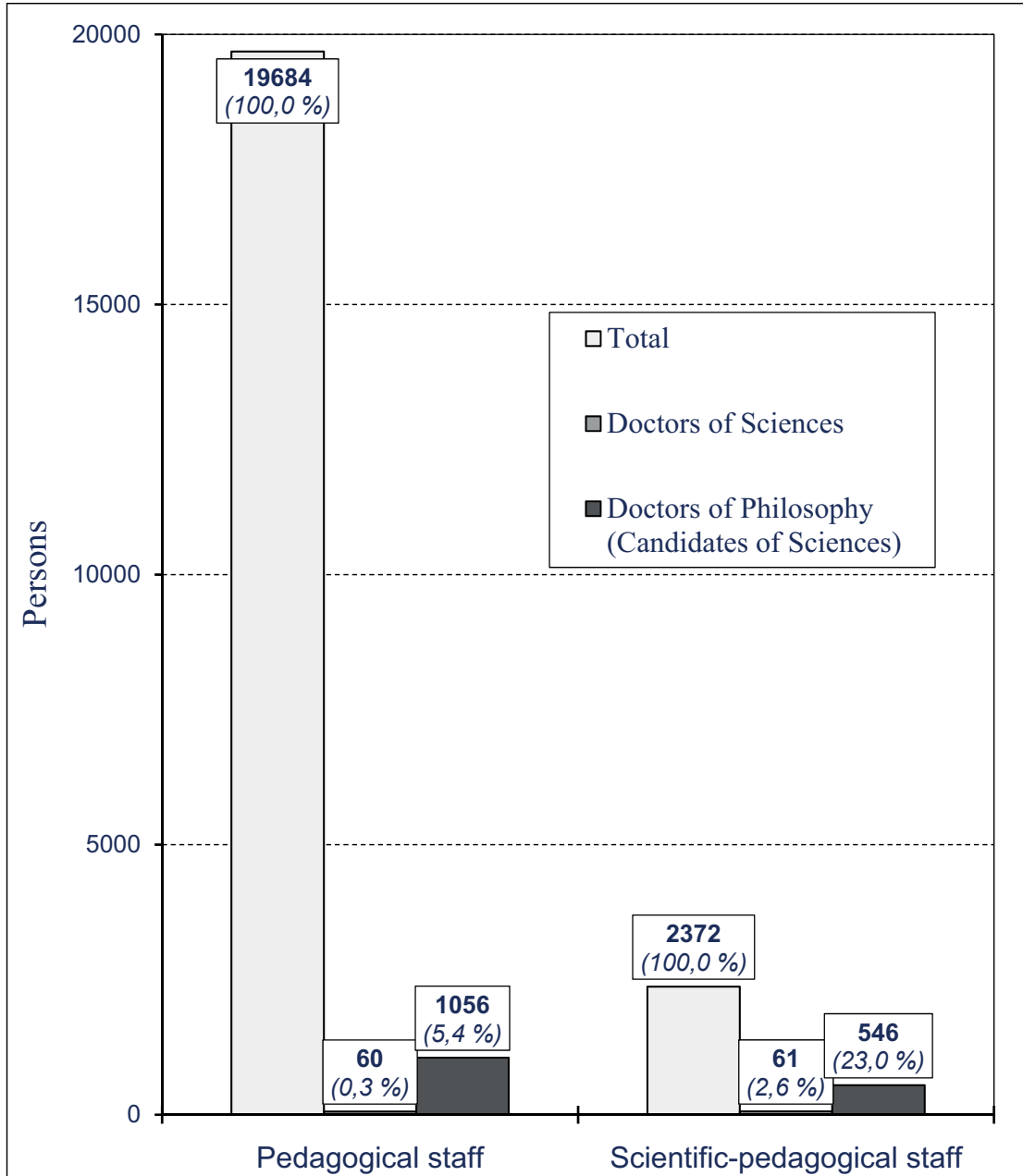


Fig. 11.16. Pedagogical and scientific-pedagogical staff of institutions of vocational pre-tertiary education in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

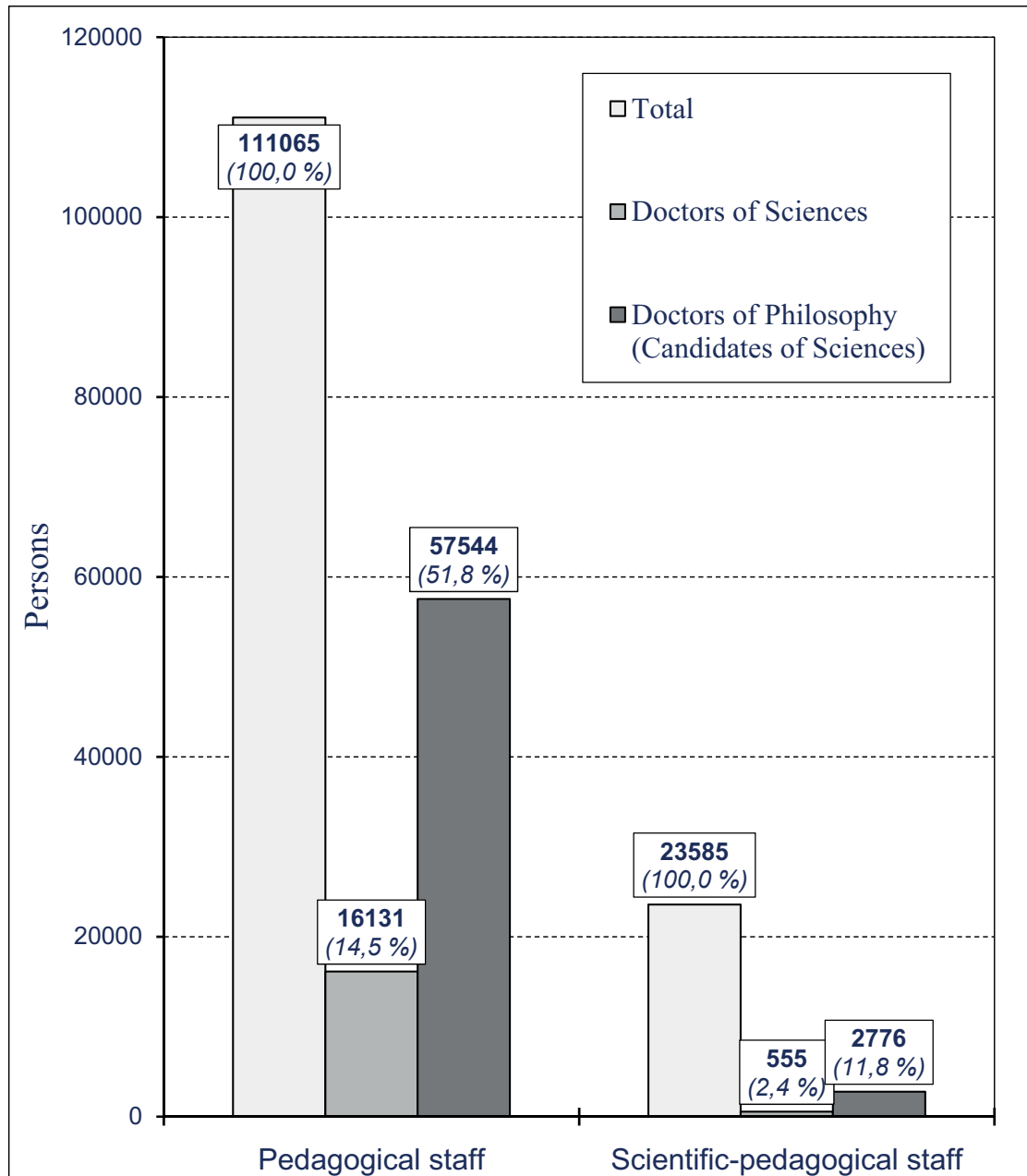


Fig. 11.17. Pedagogical and scientific-pedagogical staff of higher education institutions in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **12. PSYCHOLOGICAL SUPPORT FOR EDUCATION**

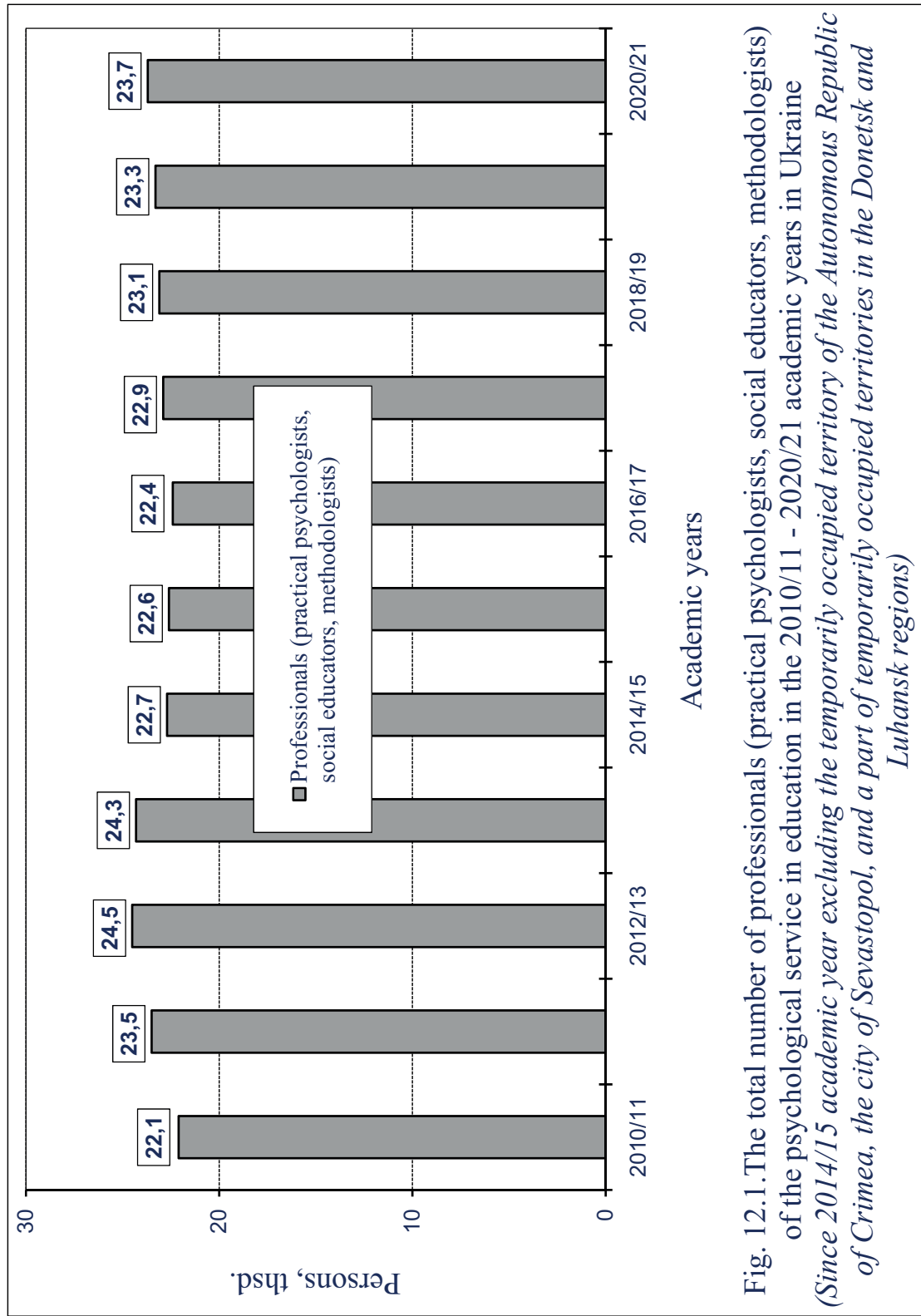


Fig. 12.1. The total number of professionals (practical psychologists, social educators, methodologists) of the psychological service in education in the 2010/11 - 2020/21 academic years in Ukraine (Since 2014/15 academic year excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

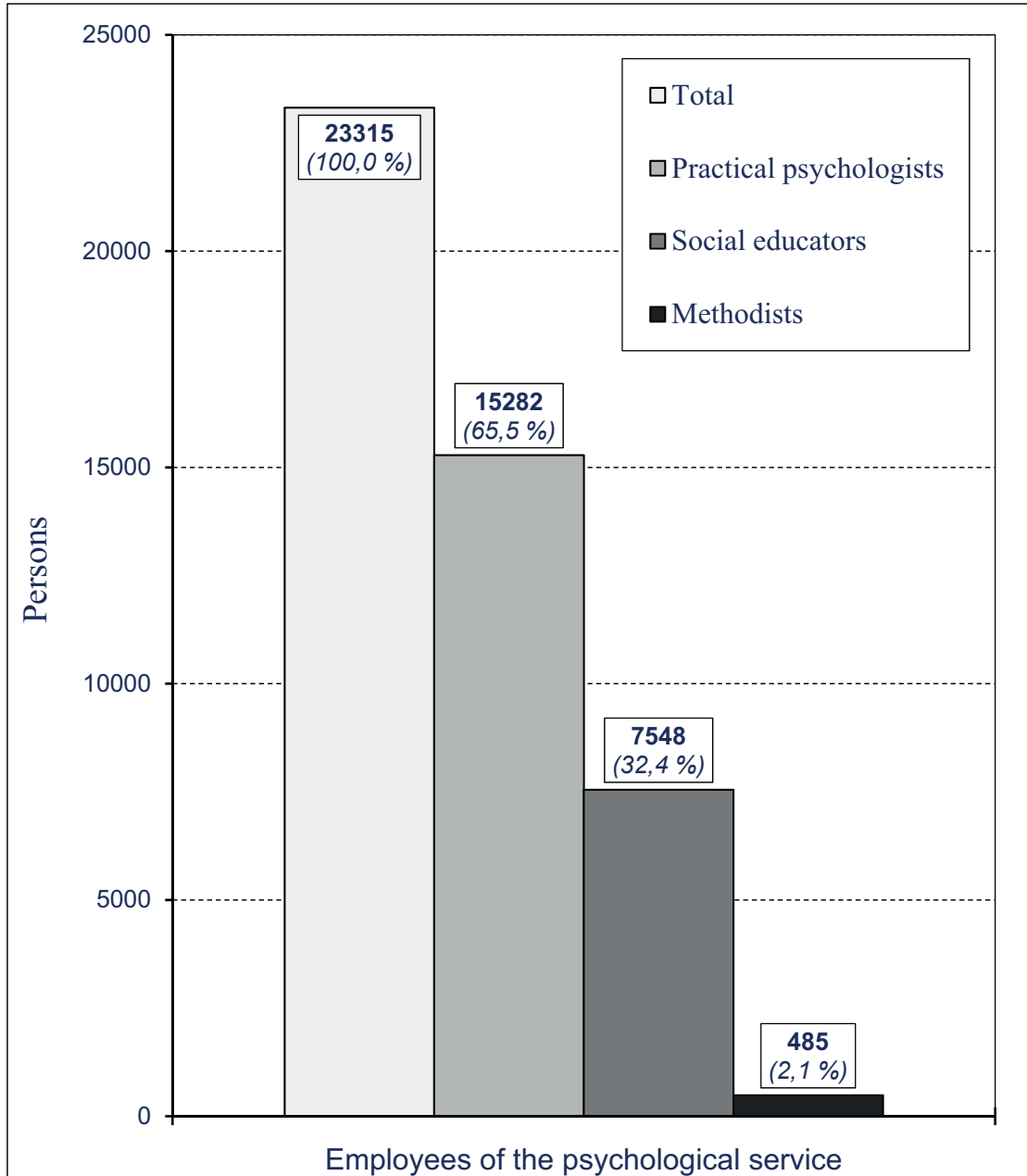
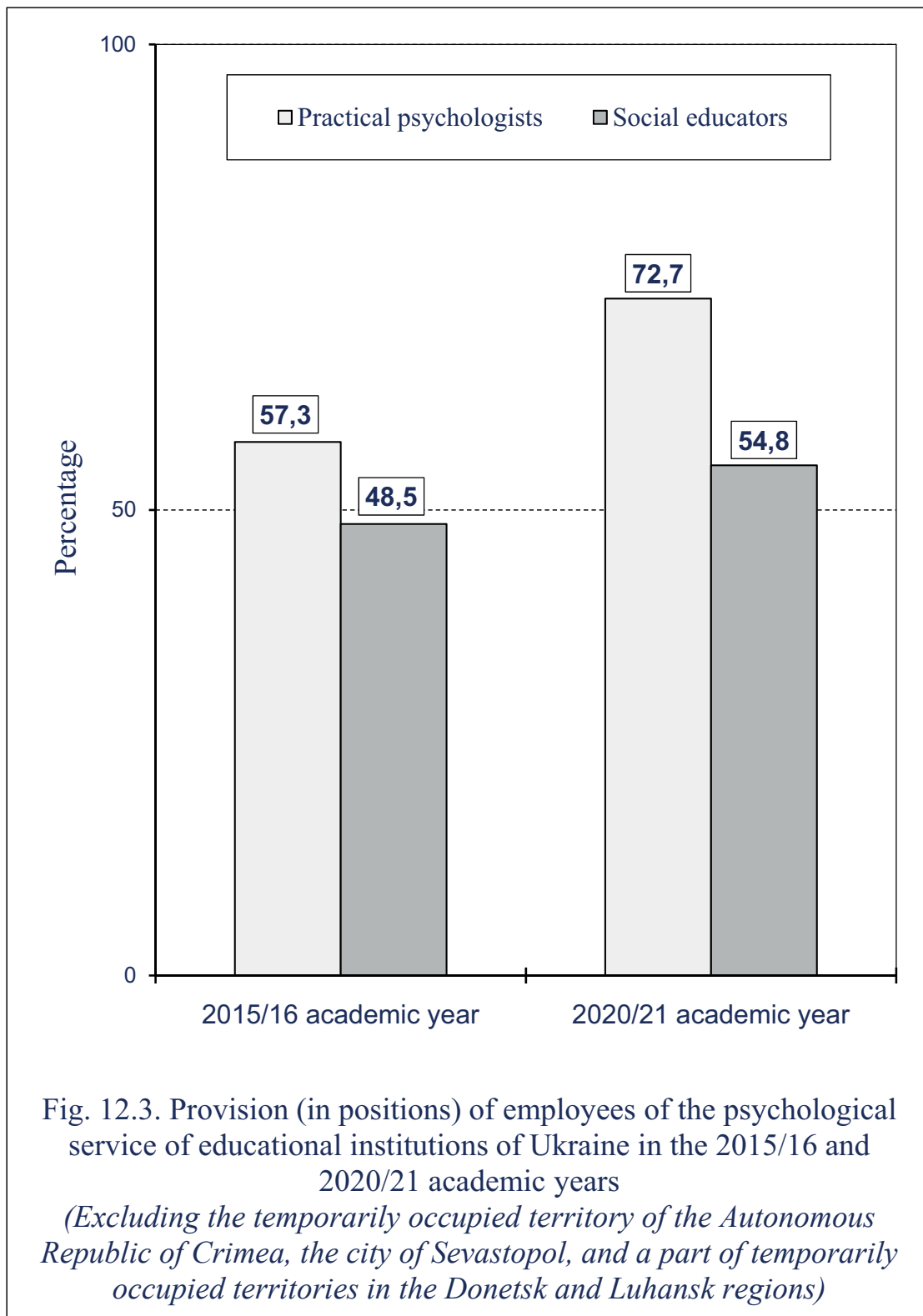


Fig. 12.2. Employees of the psychological service in the education system of Ukraine in the 2020/21 academic year (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)





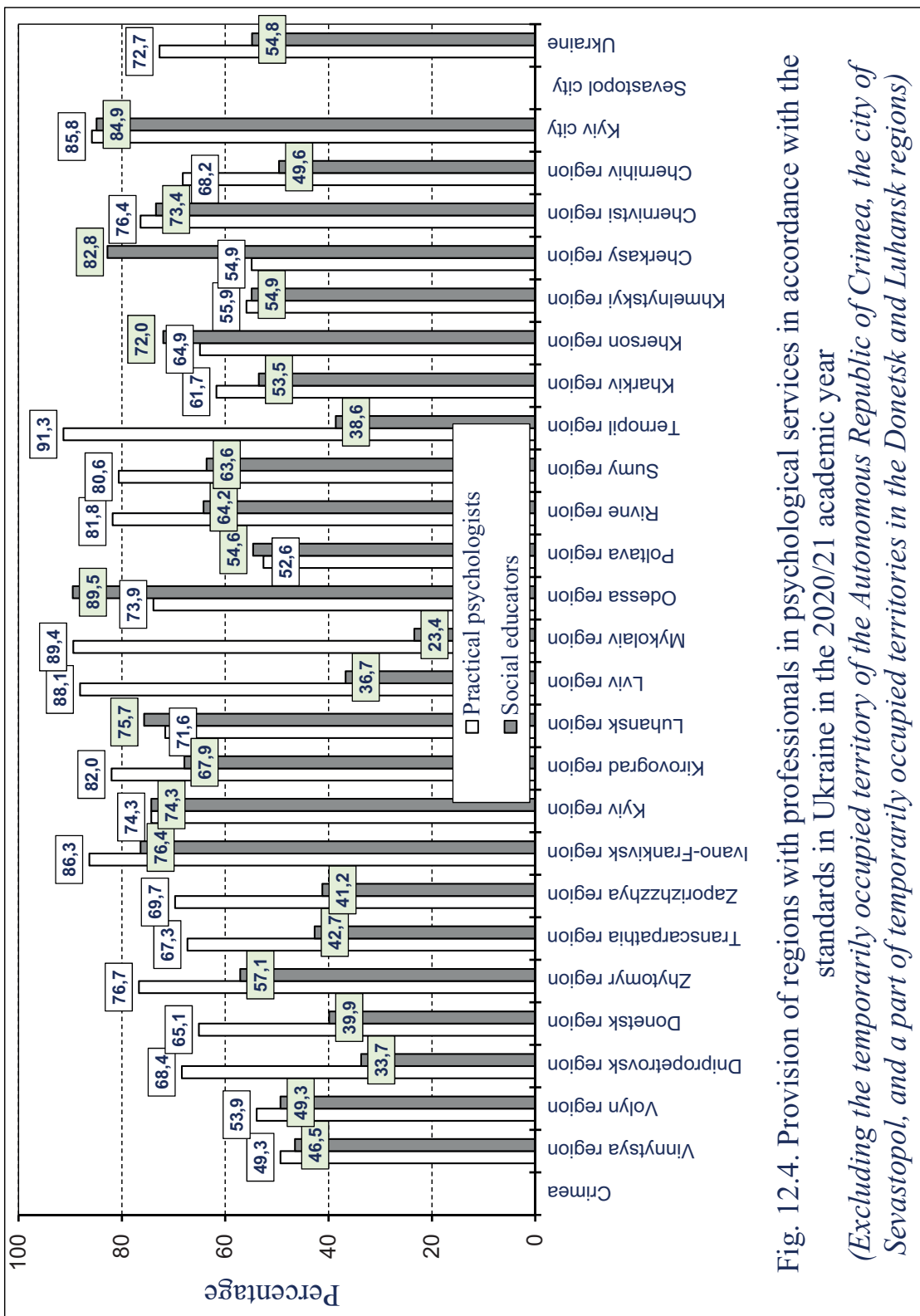


Fig. 12.4. Provision of regions with professionals in psychological services in accordance with the standards in Ukraine in the 2020/21 academic year  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

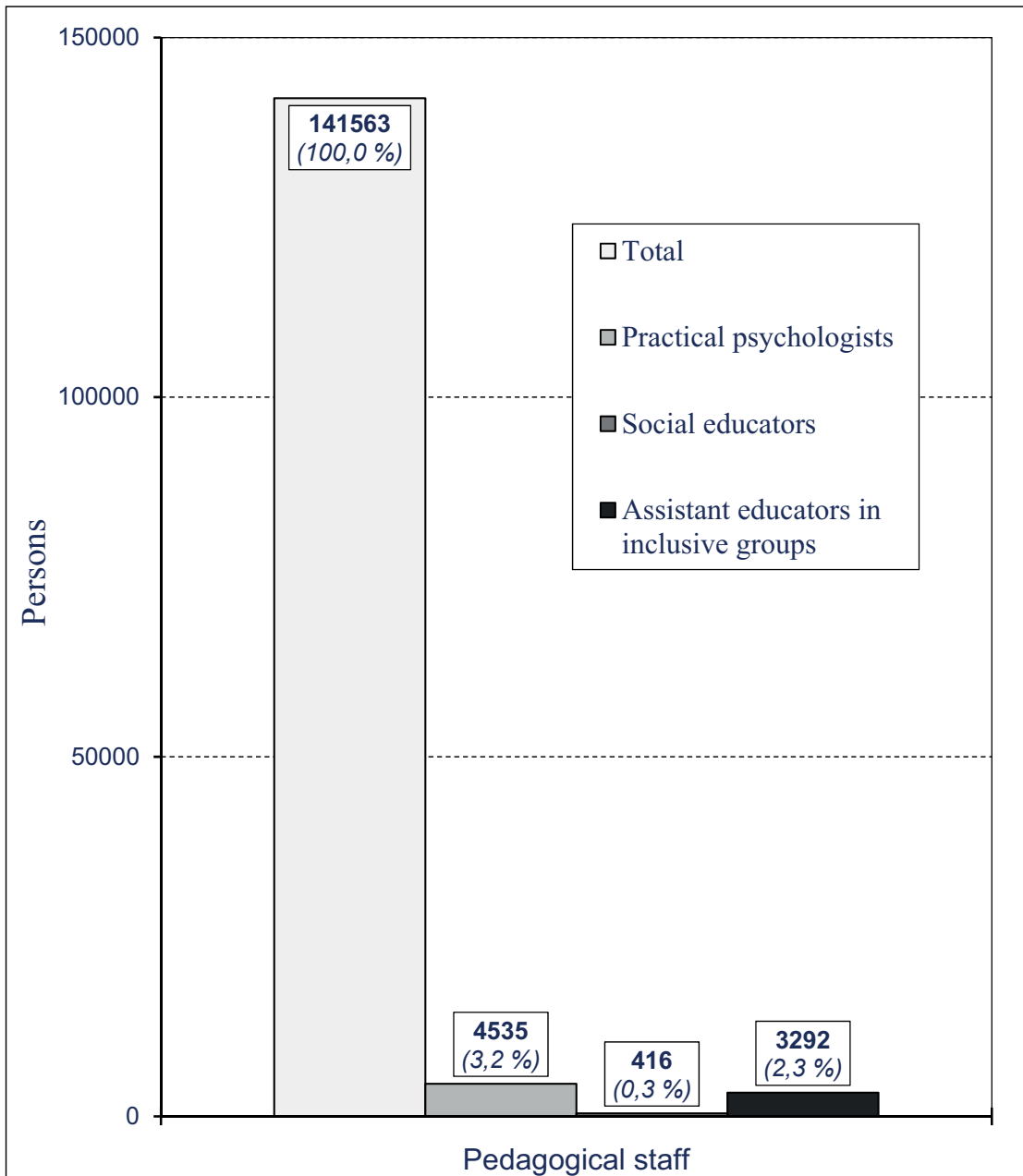


Fig. 12.5. Some categories of pedagogical staff of preschool education institutions in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

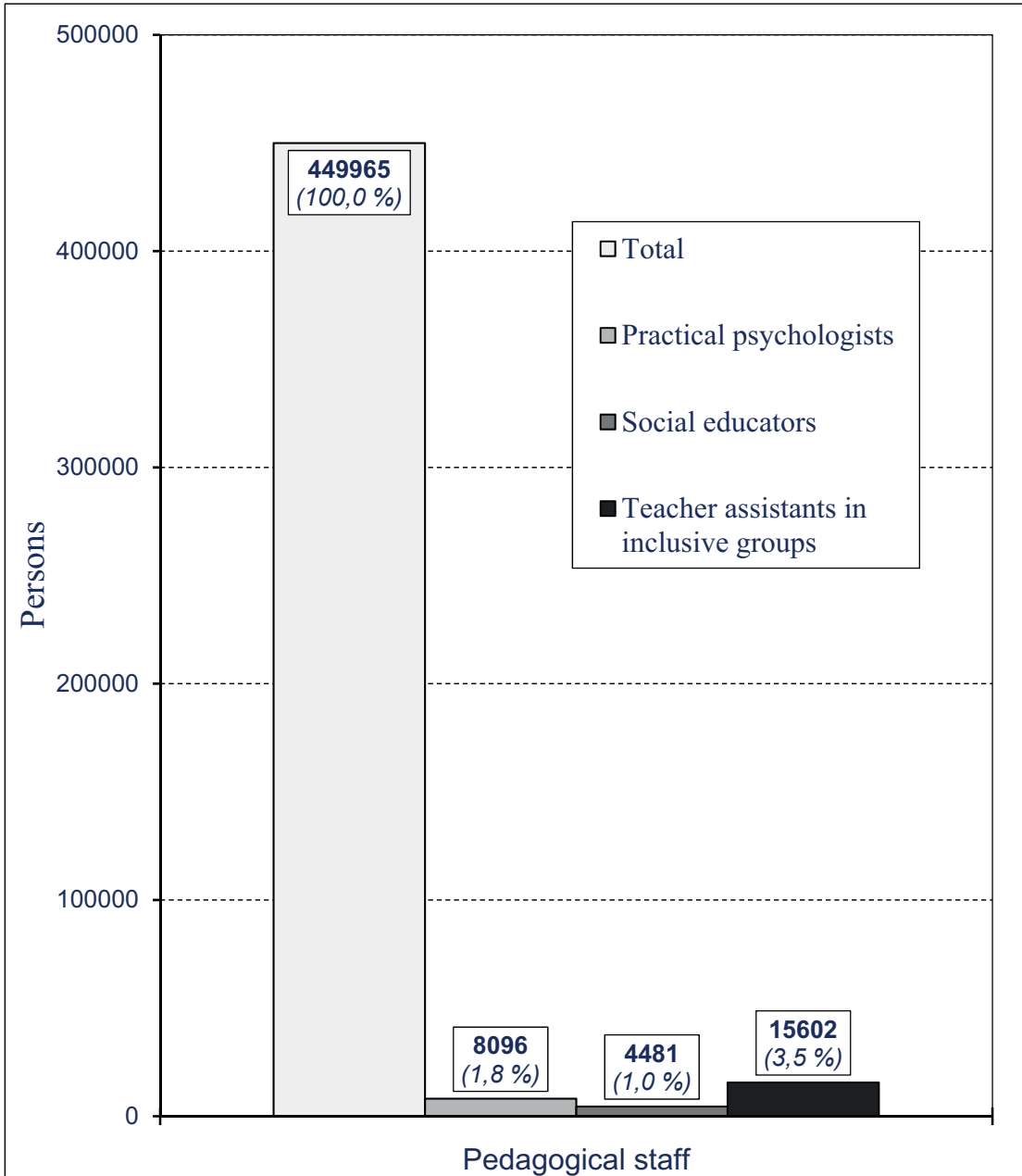


Fig. 12.6. Some categories of pedagogical staff of full-time general secondary education institutions in Ukraine in 2020  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **13. DIGITALISATION OF EDUCATION**

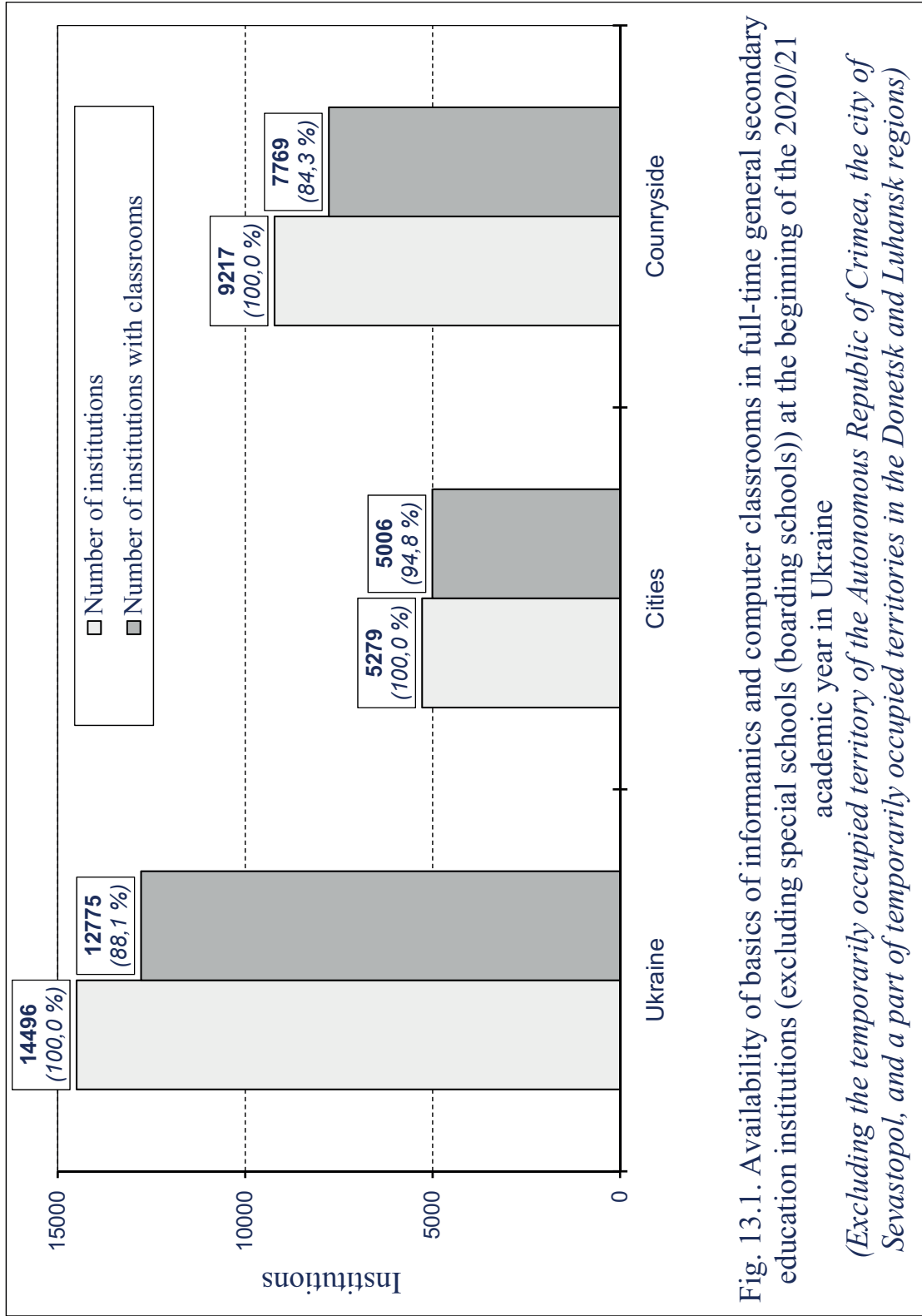


Fig. 13.1. Availability of basics of informatics and computer classrooms in full-time general secondary education institutions (excluding special schools (boarding schools)) at the beginning of the 2020/21 academic year in Ukraine  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

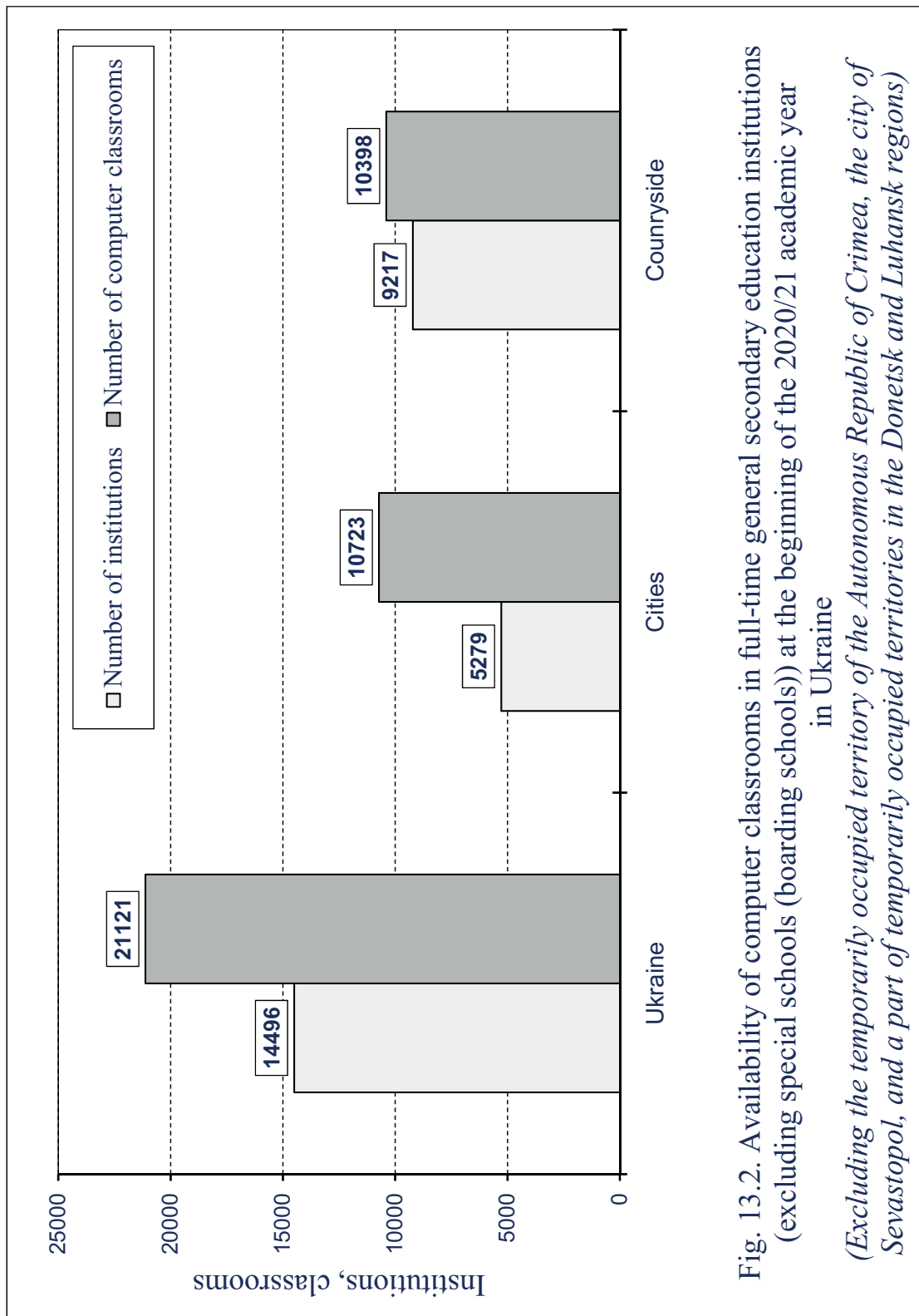


Fig. 13.2. Availability of computer classrooms in full-time general secondary education institutions (excluding special schools (boarding schools)) at the beginning of the 2020/21 academic year in Ukraine

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



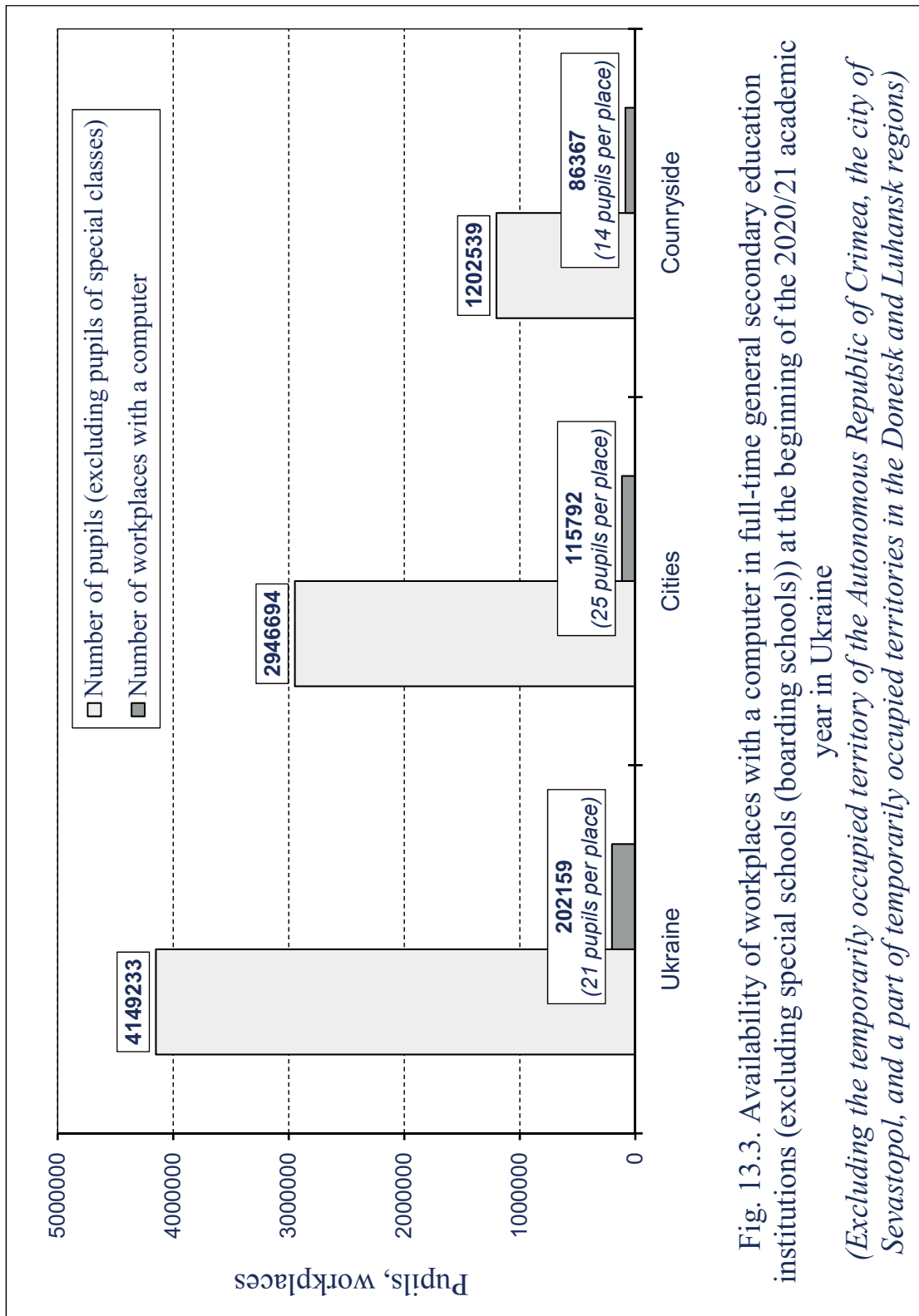


Fig. 13.3. Availability of workplaces with a computer in full-time general secondary education institutions (excluding special schools (boarding schools)) at the beginning of the 2020/21 academic year in Ukraine

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

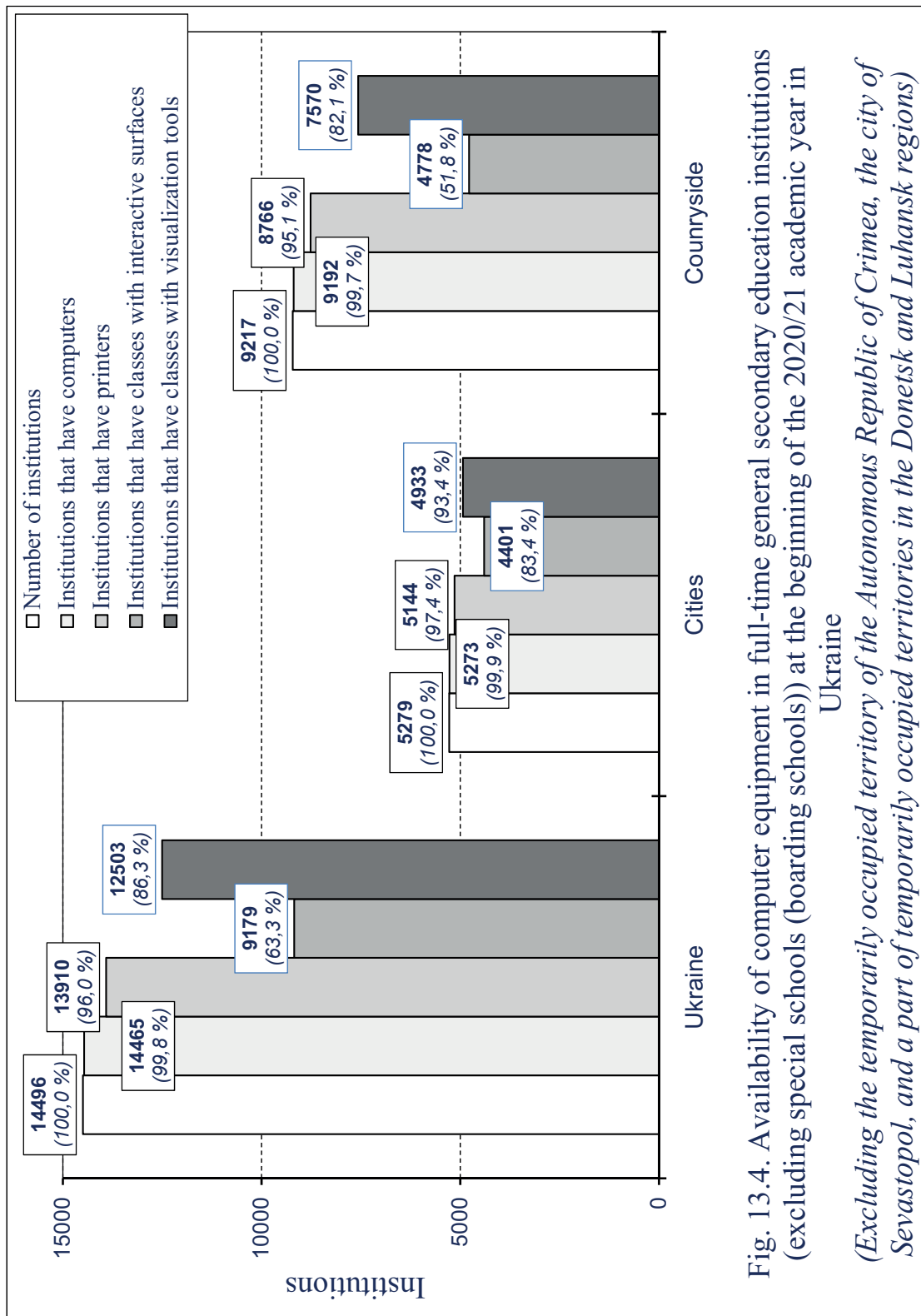


Fig. 13.4. Availability of computer equipment in full-time general secondary education institutions (excluding special schools (boarding schools)) at the beginning of the 2020/21 academic year in Ukraine

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

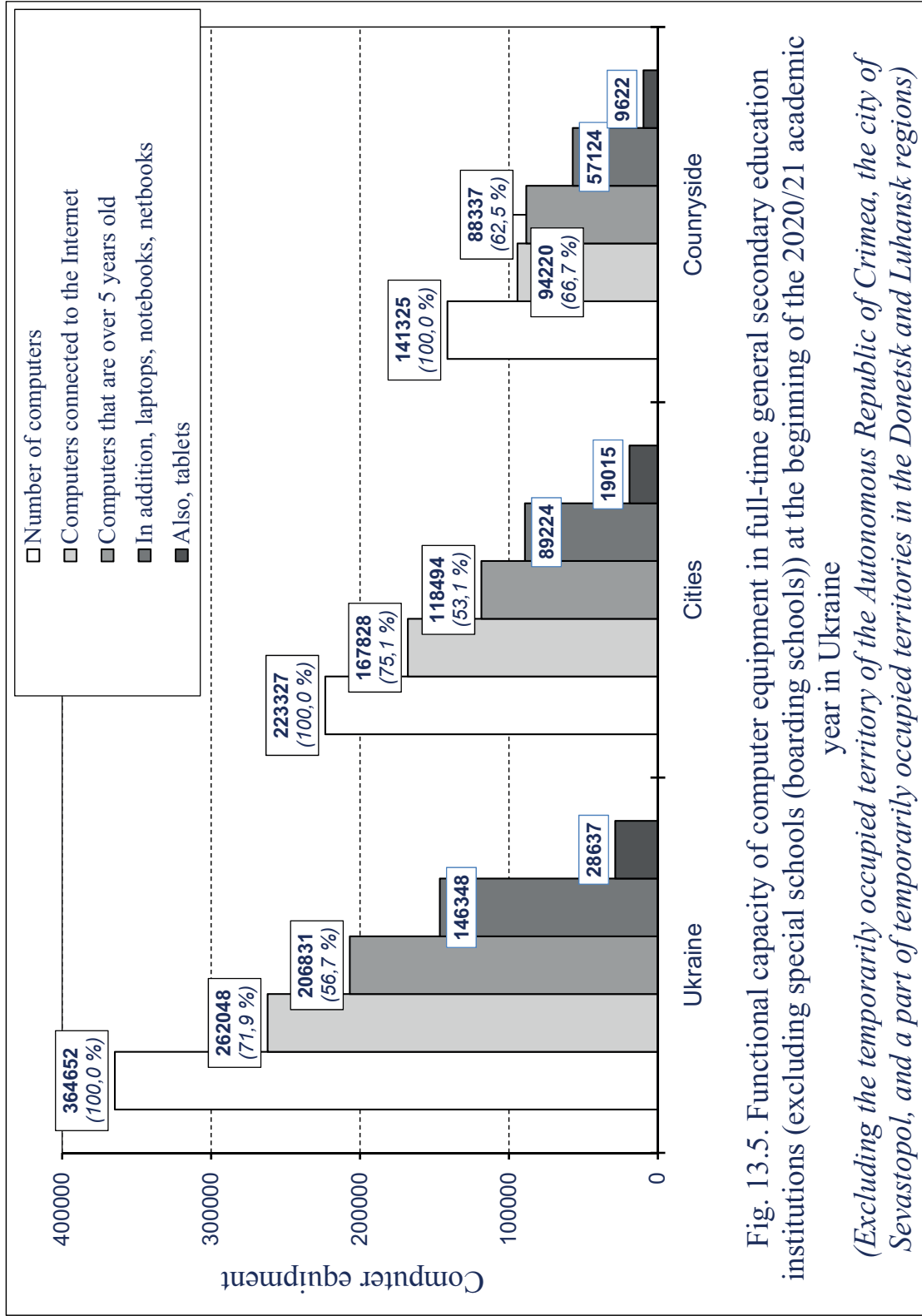


Fig. 13.5. Functional capacity of computer equipment in full-time general secondary education institutions (excluding special schools (boarding schools)) at the beginning of the 2020/21 academic year in Ukraine

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

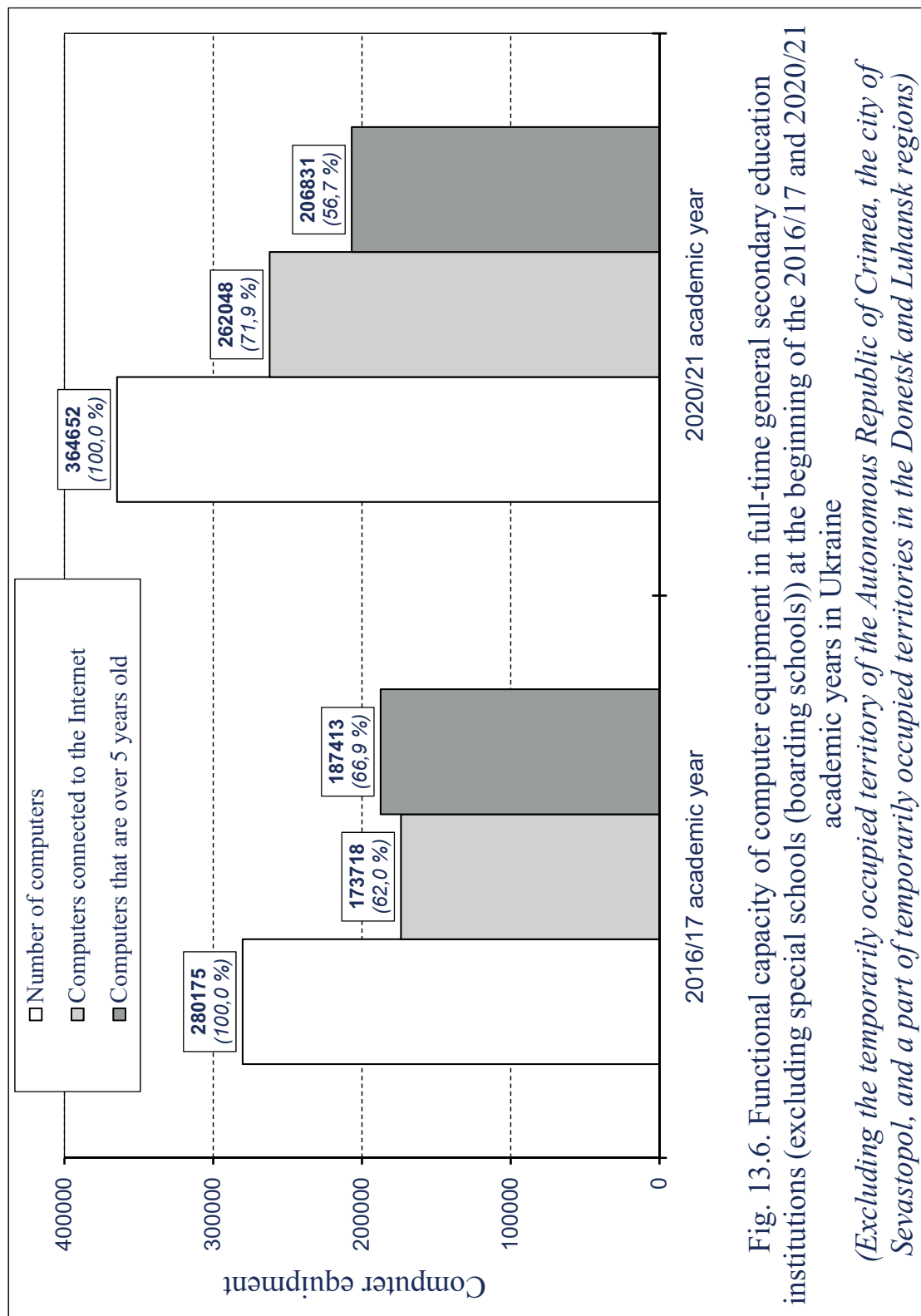


Fig. 13.6. Functional capacity of computer equipment in full-time general secondary education institutions (excluding special schools (boarding schools)) at the beginning of the 2016/17 and 2020/21 academic years in Ukraine  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **14. SCIENTIFIC AND METHODOLOGICAL SUPPORT OF EDUCATION**

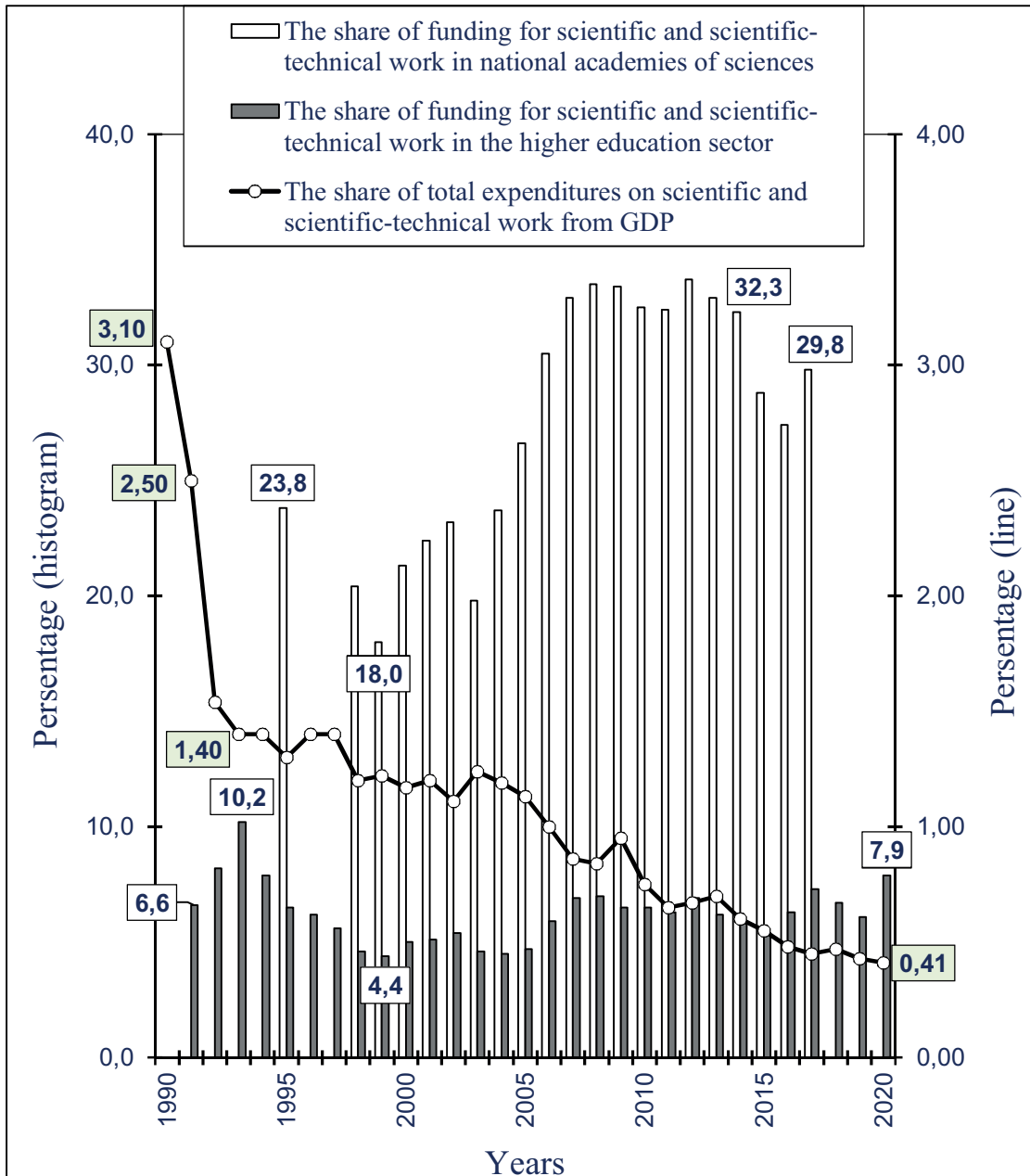


Fig. 14.1. The share of funding for scientific and scientific-technical work from GDP (line) and the share of national academies of sciences and the higher education sector in total funding (histograms) (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)



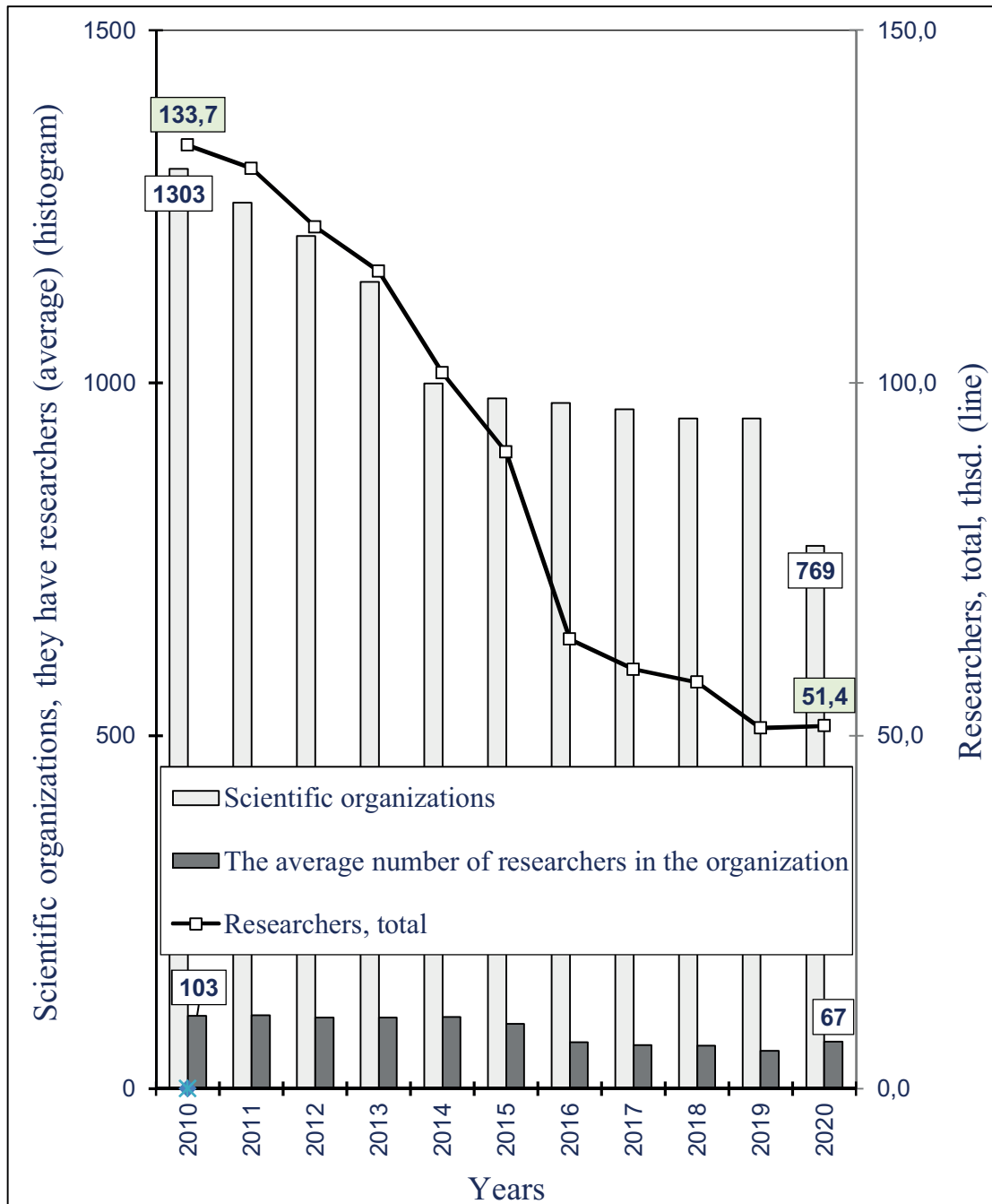


Fig. 14.2. Scientific organizations, researchers (total) and in one organization (on average) in Ukraine in 2010-2020.  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

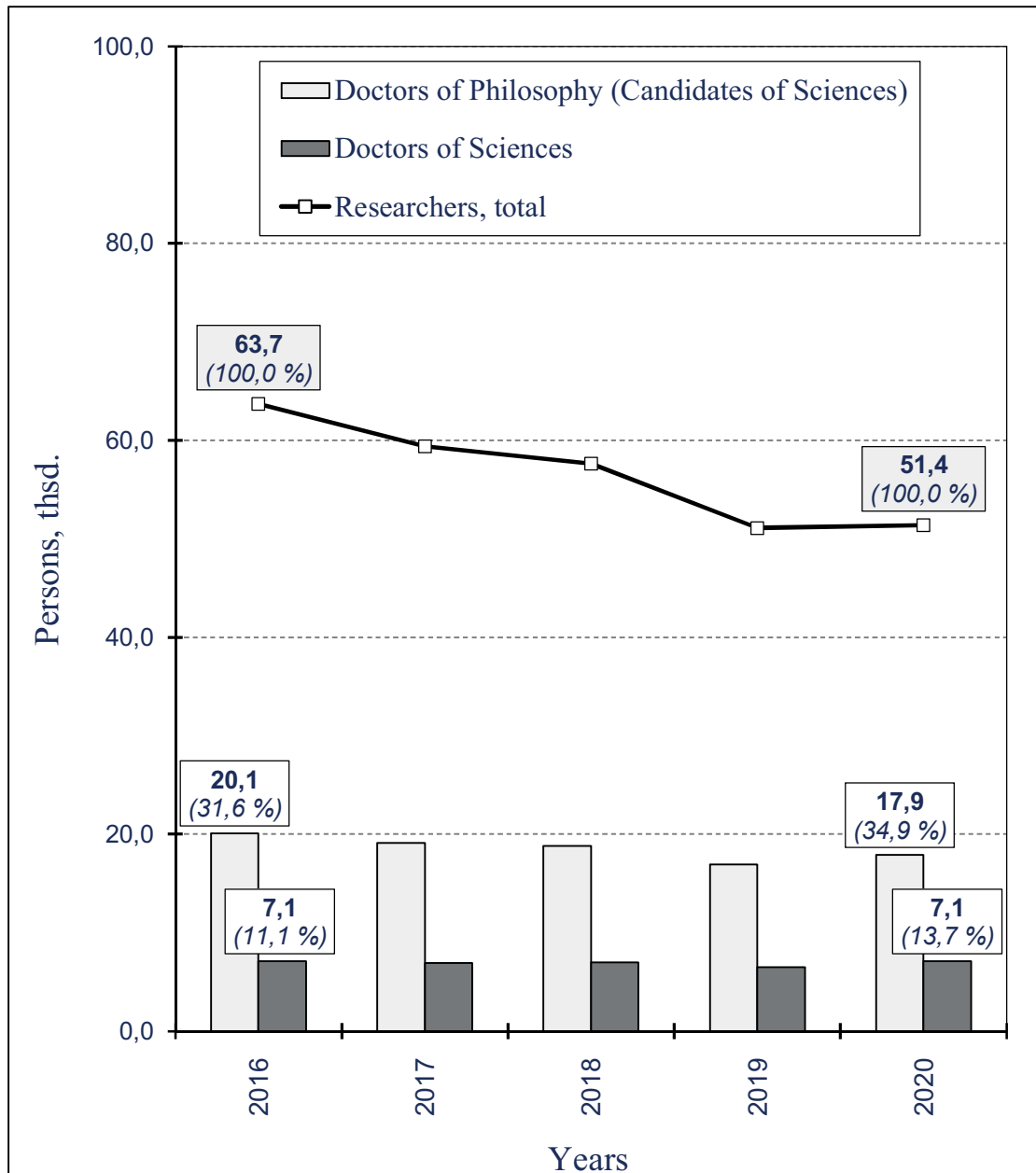
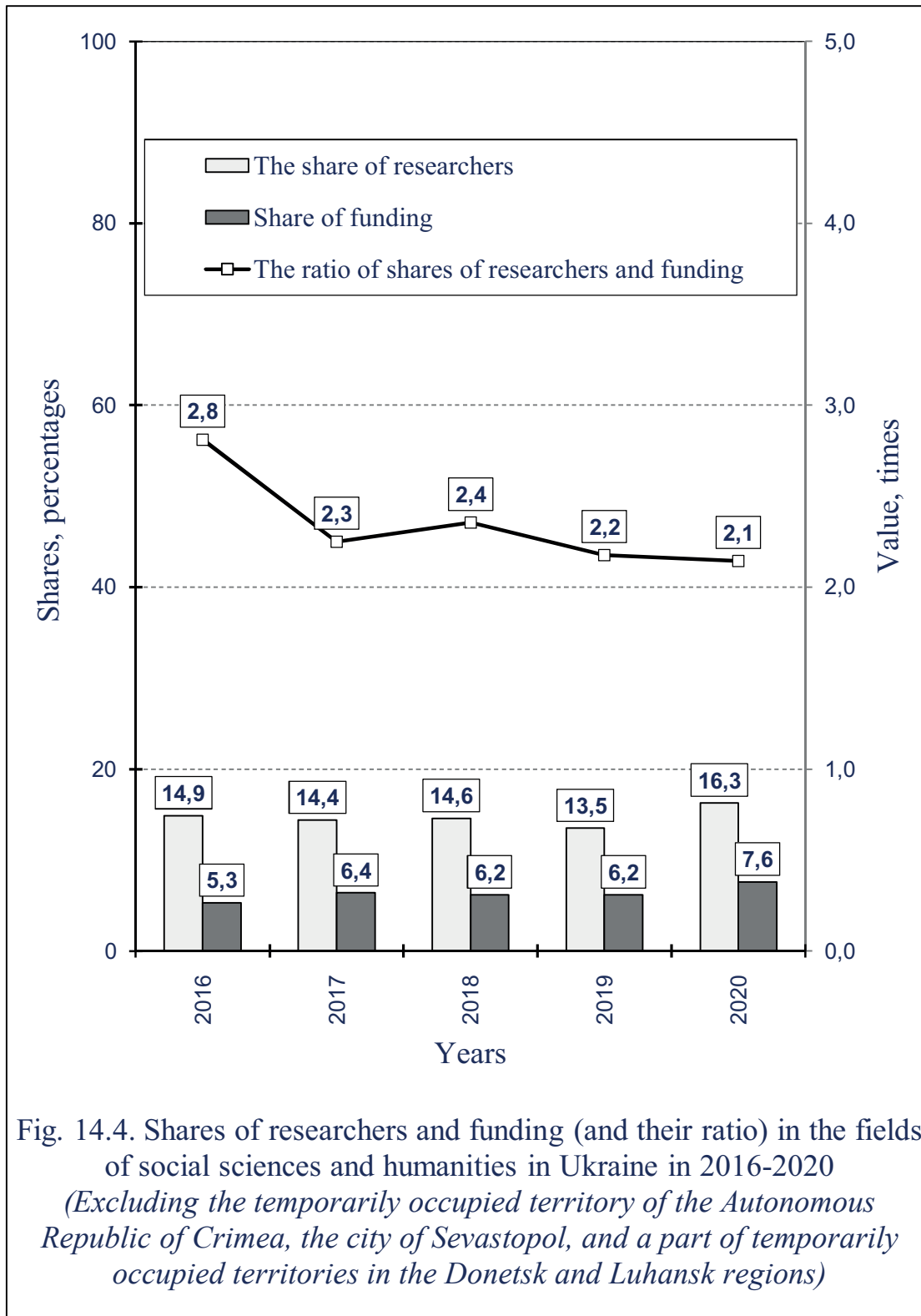


Fig. 14.3. Researchers and among them Doctors of Philosophy (Candidates of Sciences) and Doctors of Sciences in Ukraine in 2016-2020

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



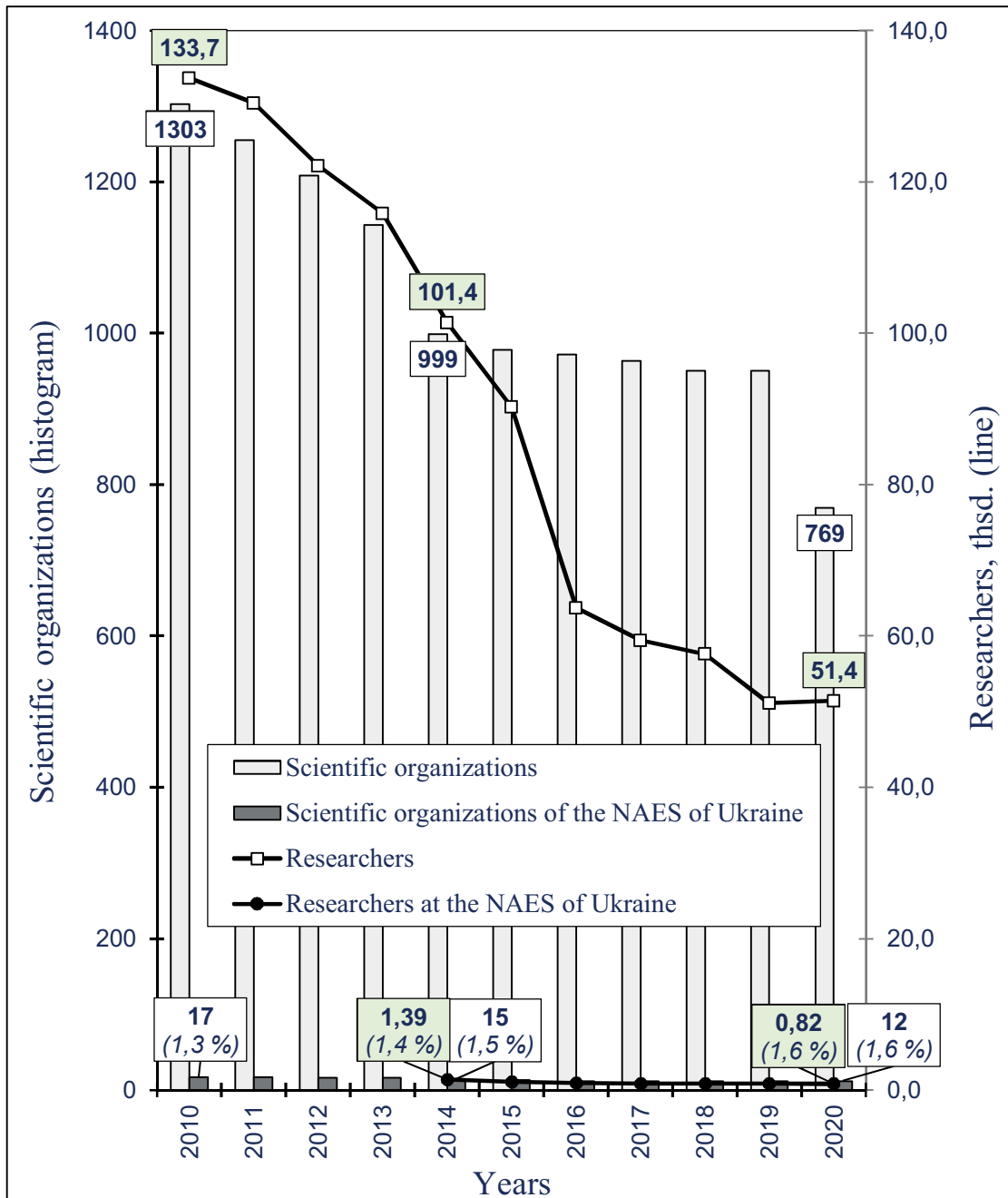
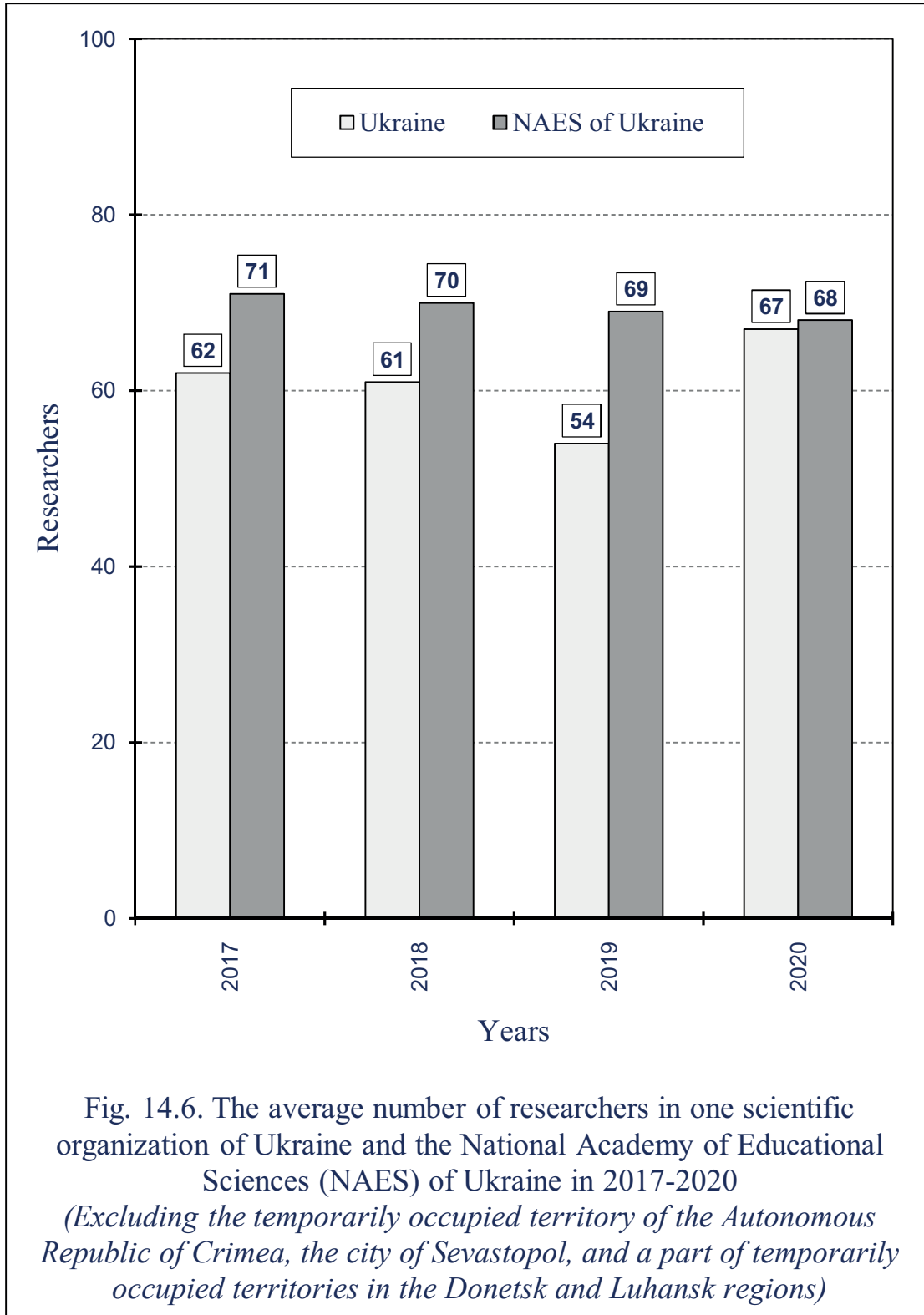


Fig. 14.5. Scientific organizations, researchers of Ukraine and National Academy of Educational Sciences (NAES) of Ukraine in 2010-2020. (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)



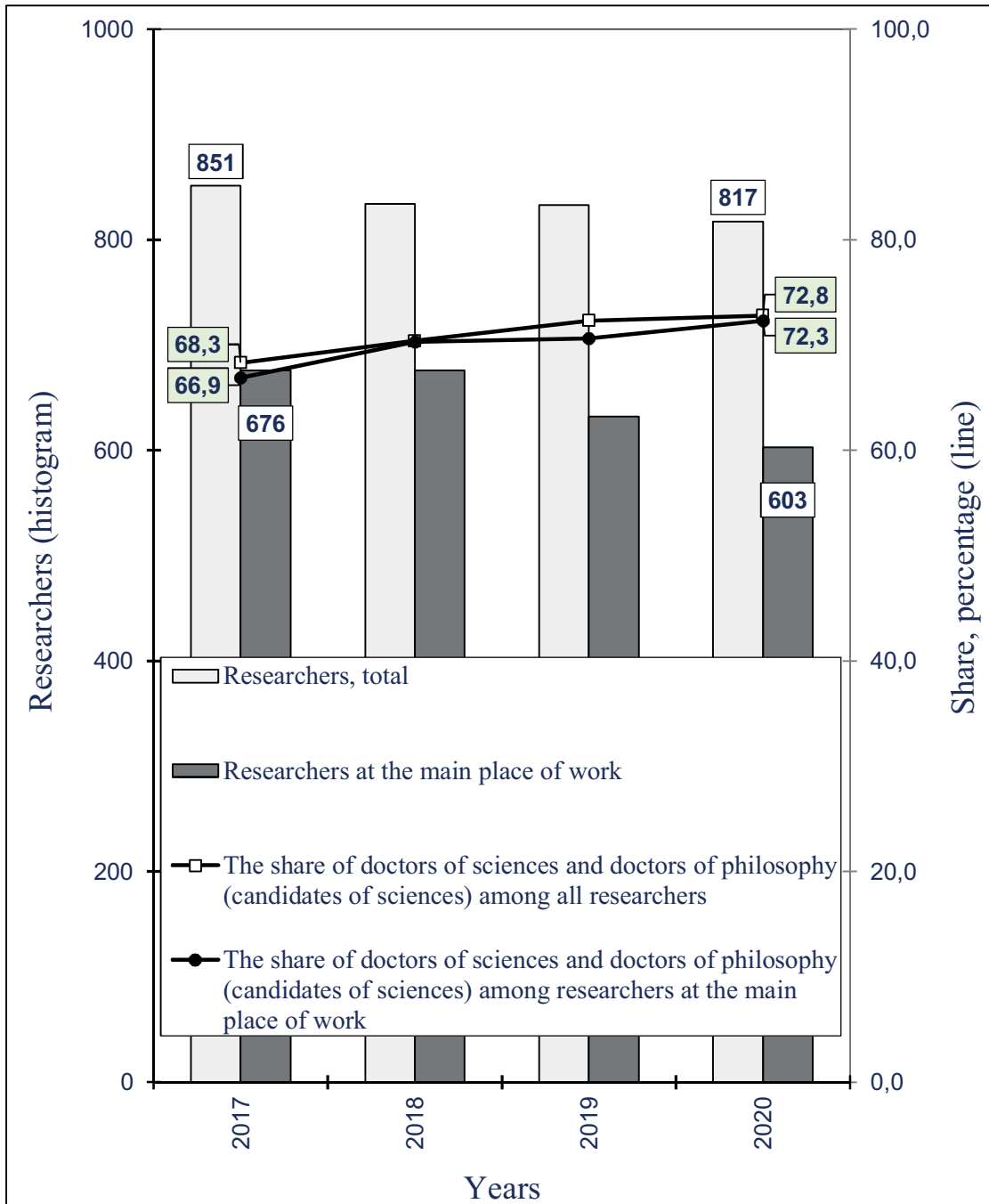
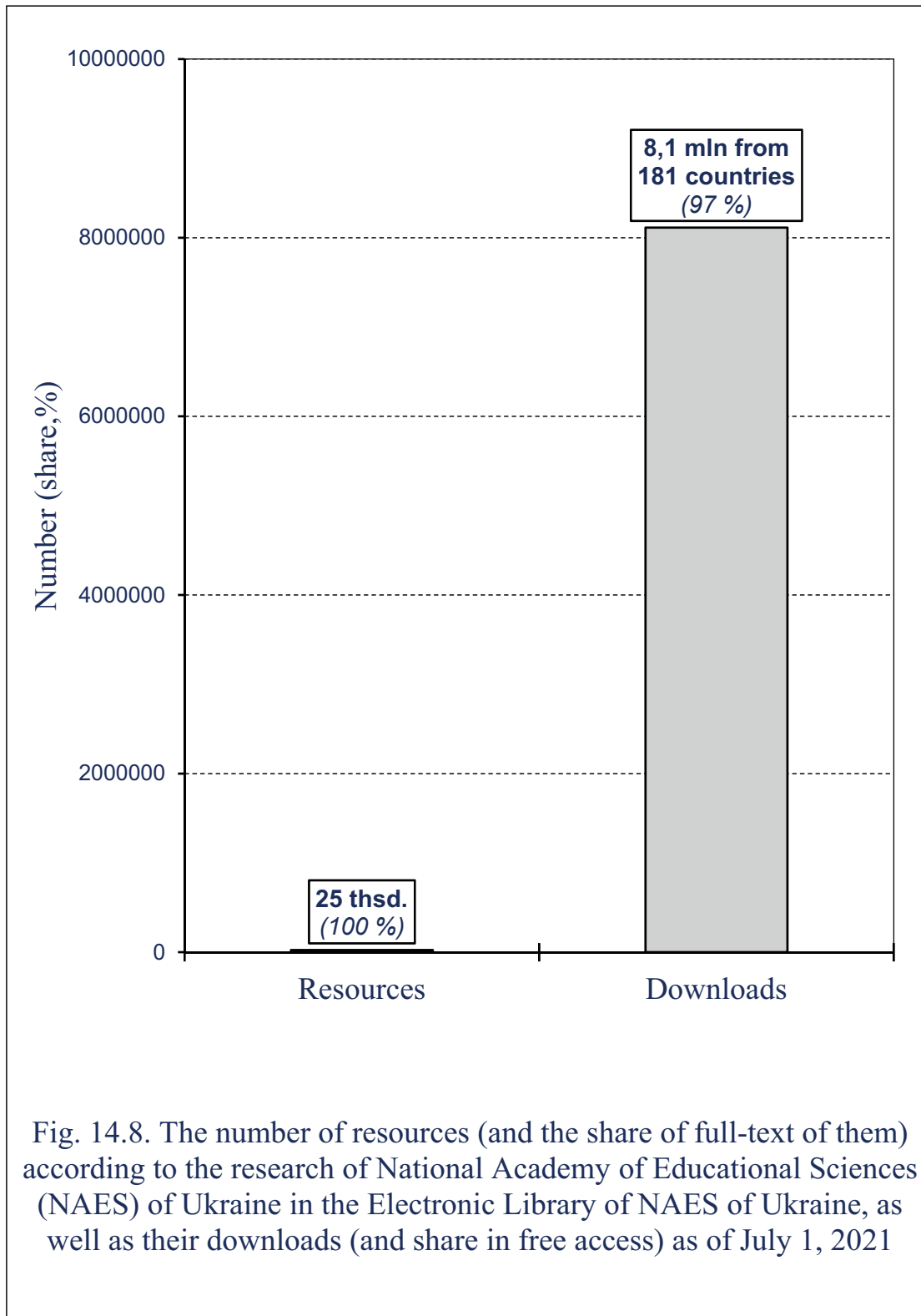


Fig. 14.7. Researchers of the National Academy of Educational Sciences of Ukraine and the share among them of doctors of sciences and doctors of philosophy (candidates of sciences) in 2017-2020.





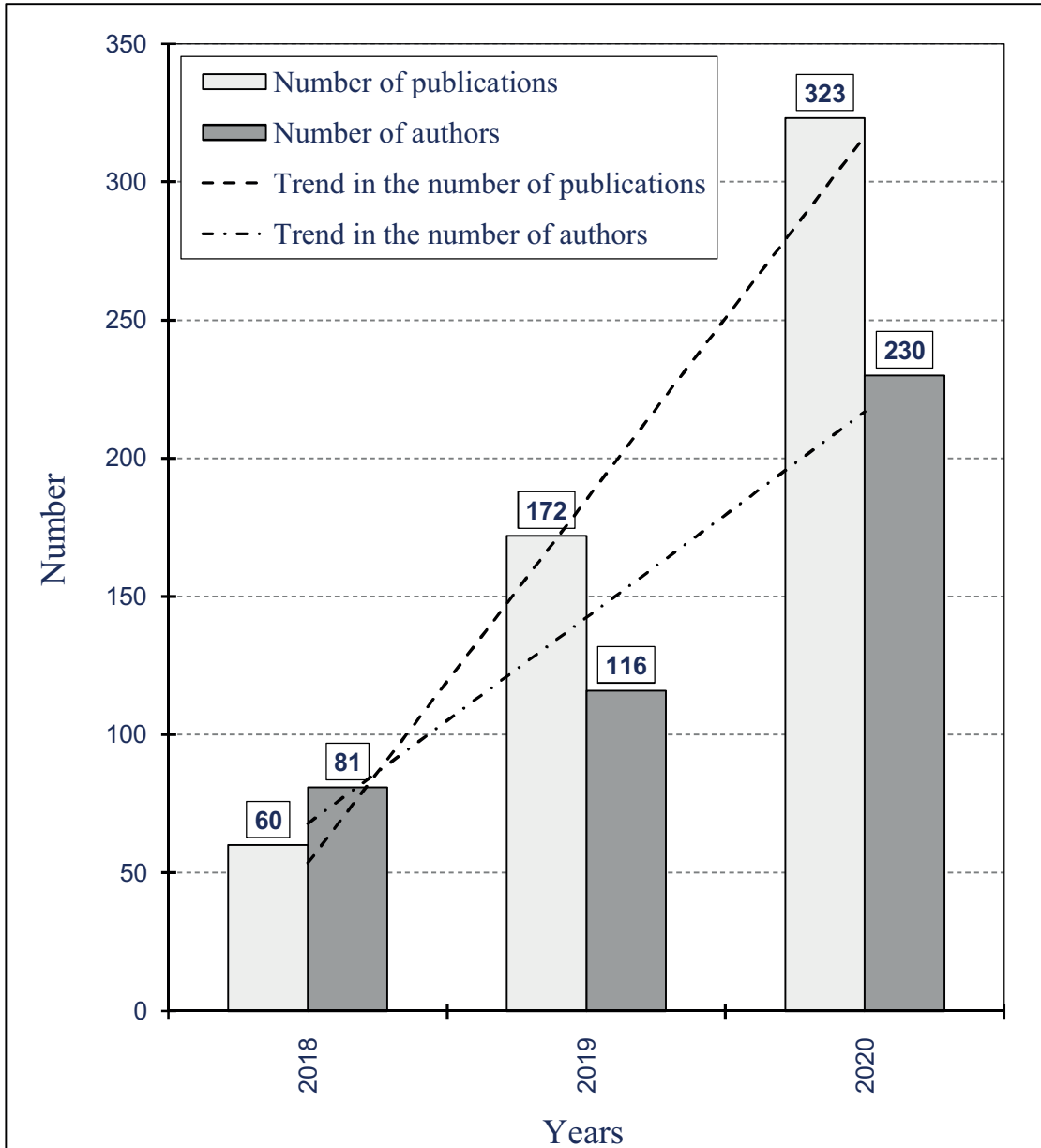


Fig. 14.9. The number of publications in issues indexed in the Web of Science Core Collection and / or Scopus, scientists and members of the National Academy of Educational Sciences of Ukraine, as well as the number of academic authors of these publications in 2018-2020. *(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## 15. EDUCATION FUNDING

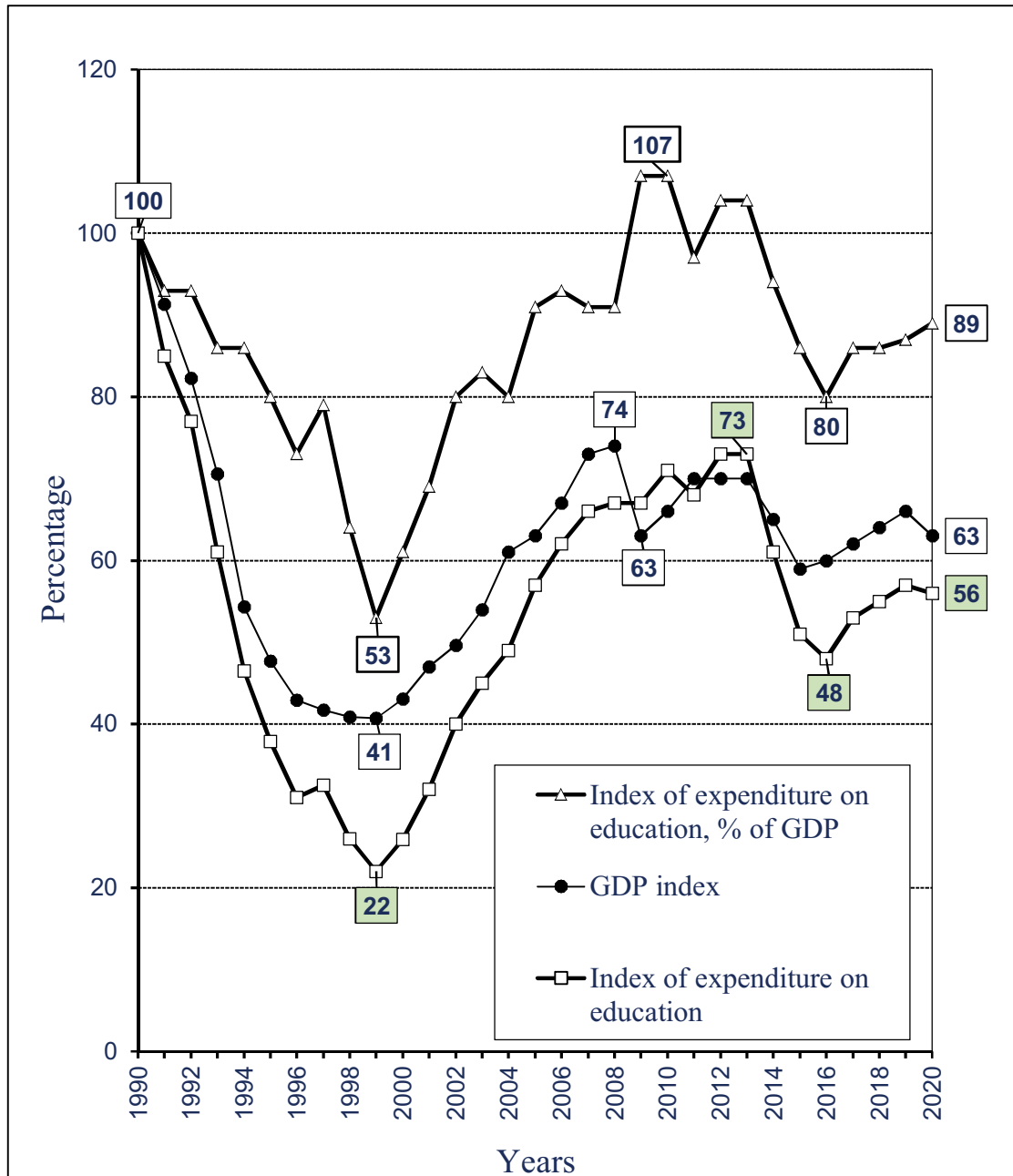


Fig. 15.1. Index of expenditure (public and private) on education in Ukraine in 1990-2020

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

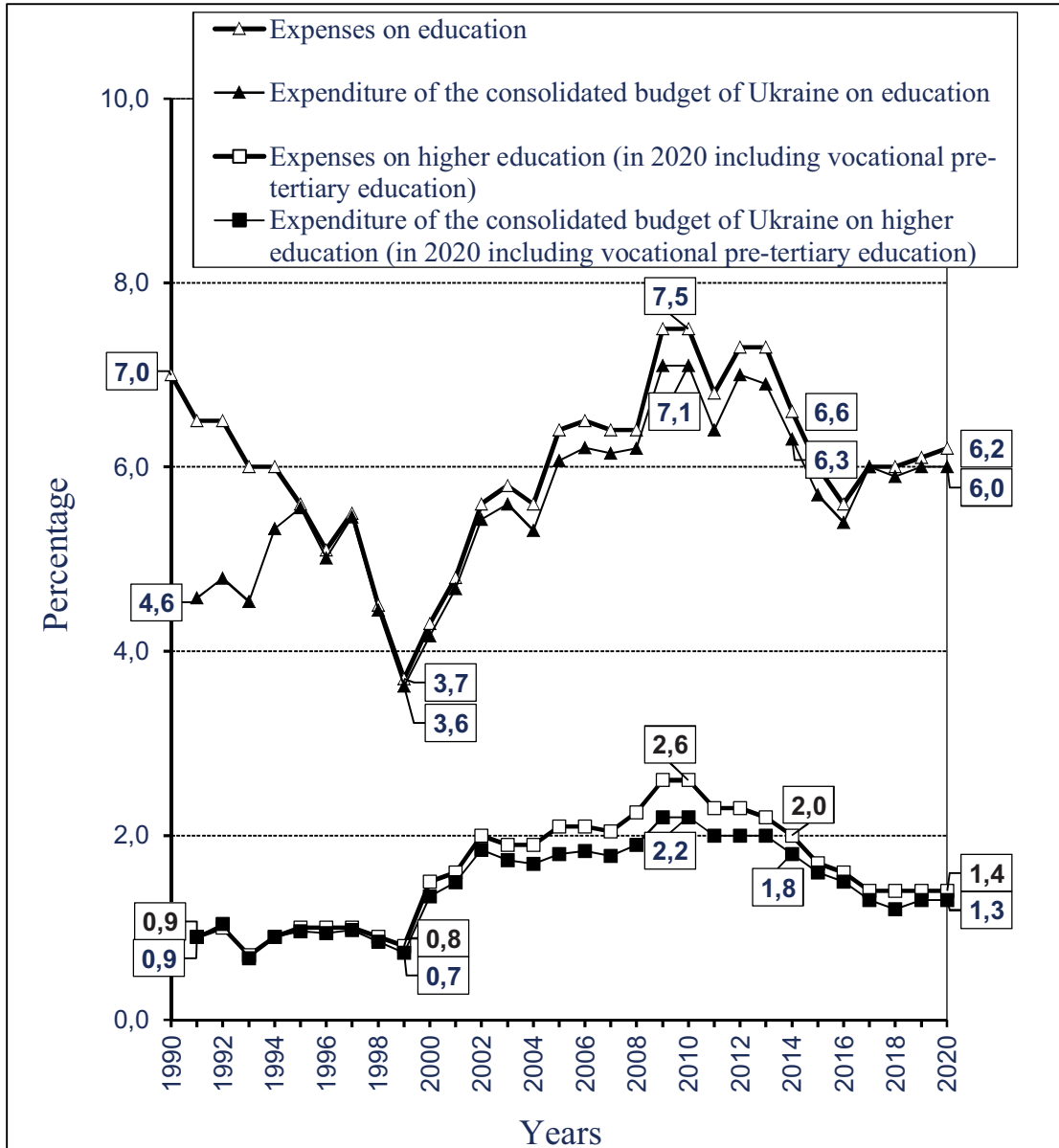


Fig. 15.2. Total (public and private) expenses and expenditure of the consolidated budget of Ukraine on education and higher education (in 2020 including vocational pre-tertiary education) in Ukraine in percent to GDP in 1990-2020

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

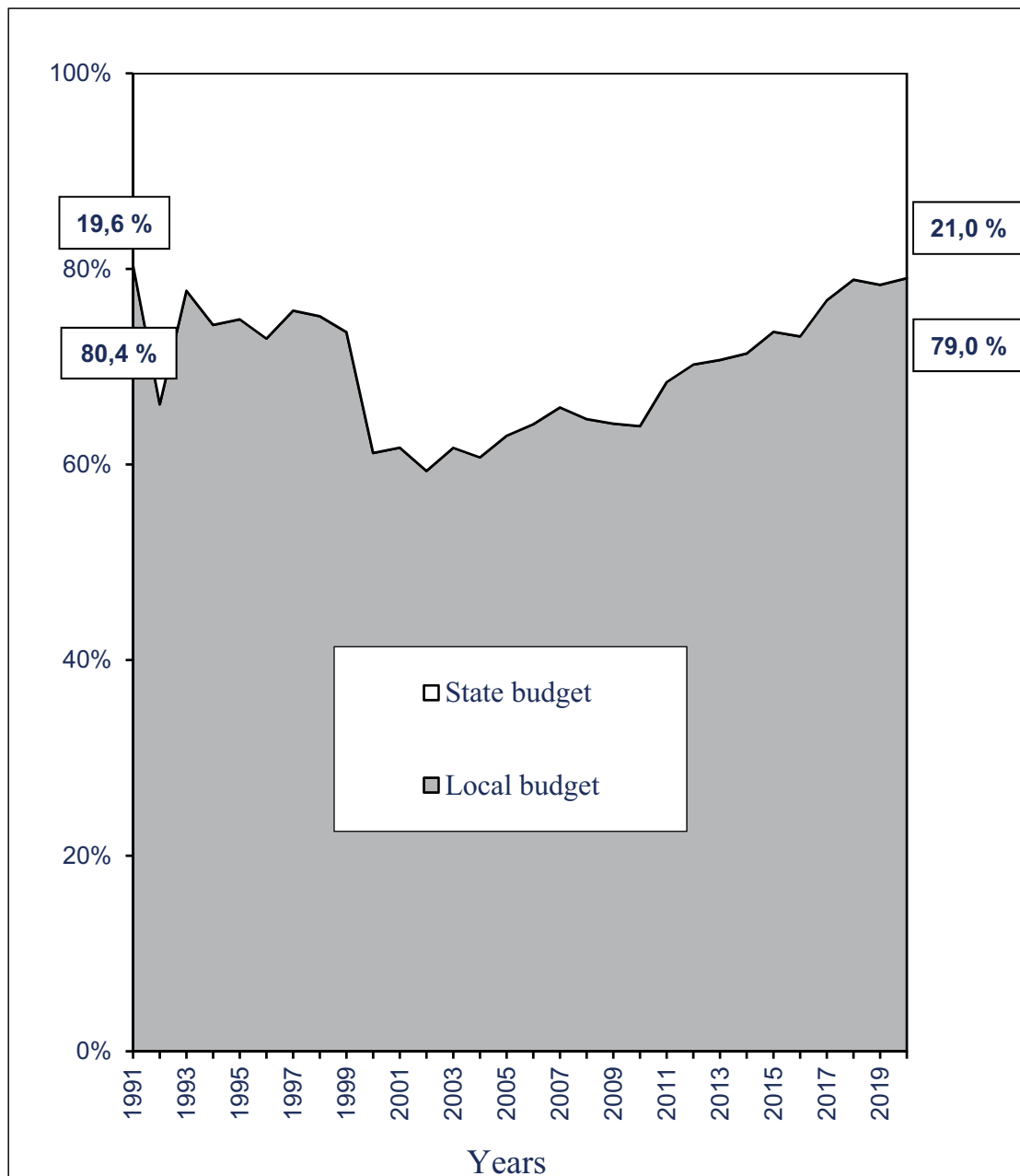


Fig. 15.3. Proportion of state and local budgets in consolidated budget of Ukraine with function 0900 "Education" in 1991-2020  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

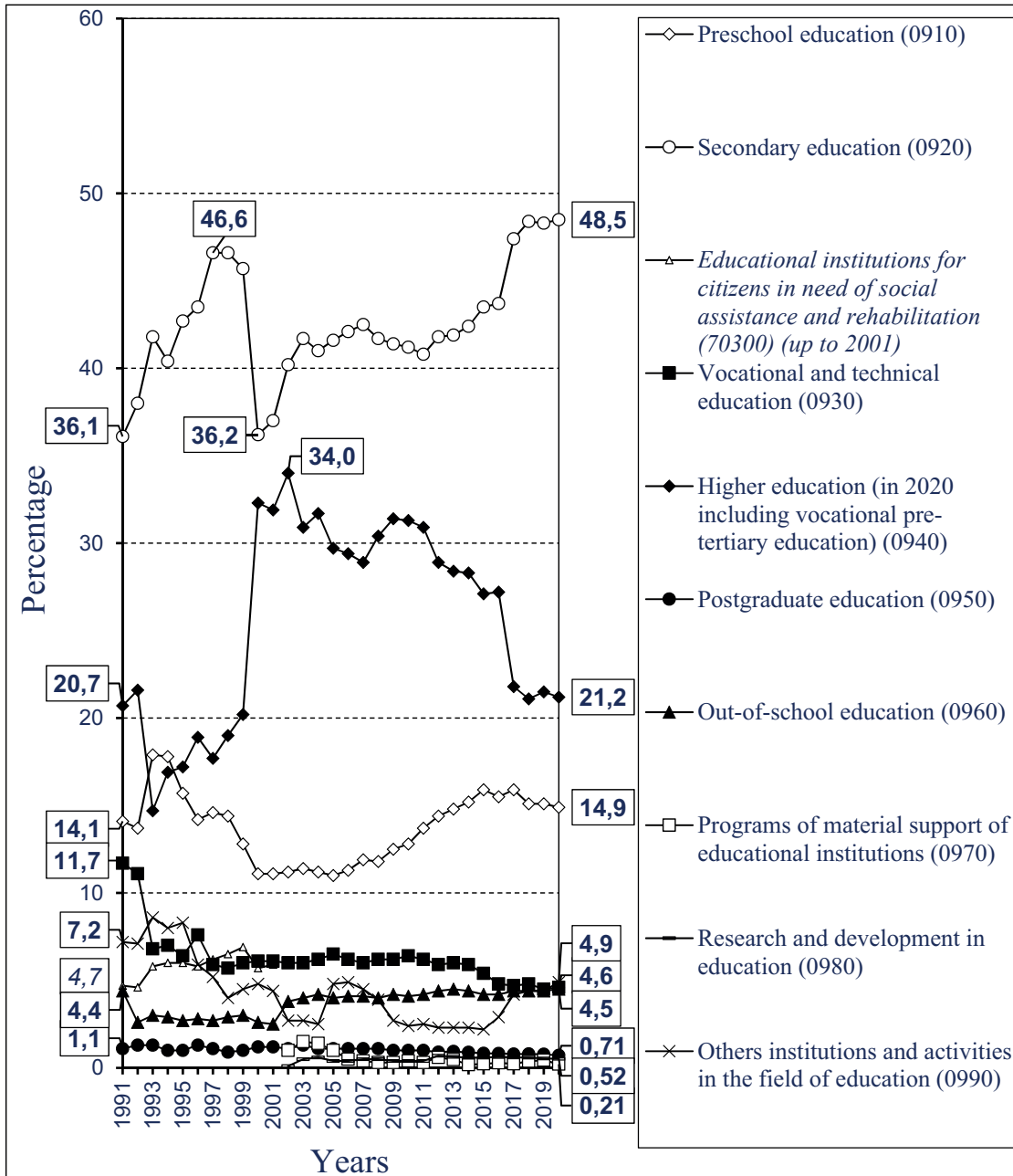


Fig. 15.4. Distribution of consolidated budget of Ukraine funding according to the functional budget classification codes of function 0900 "Education" in 1991-2020  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



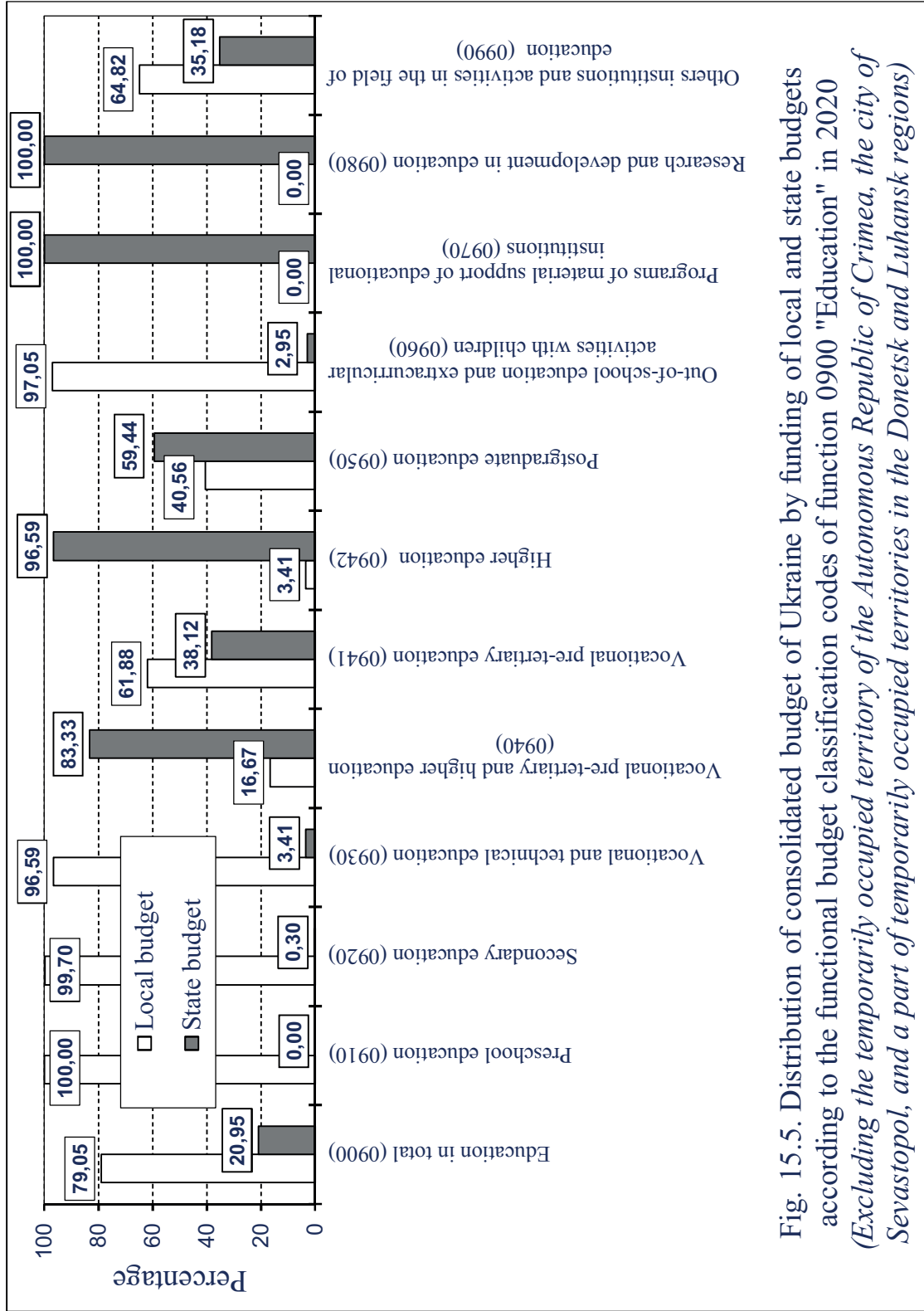


Fig. 15.5. Distribution of consolidated budget of Ukraine by funding of local and state budgets according to the functional budget classification codes of function 0900 "Education" in 2020 (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

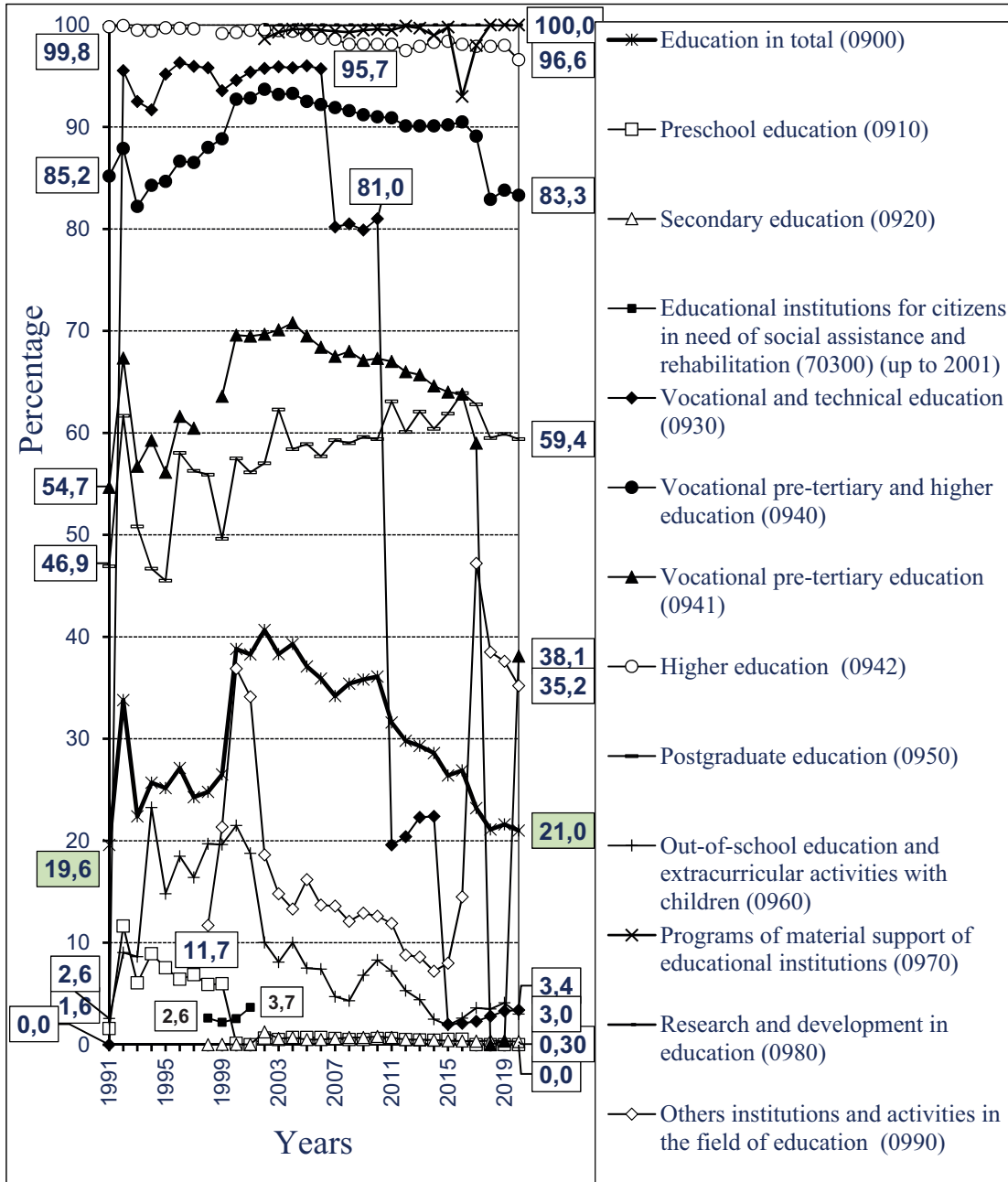


Fig. 15.6. Share of state budget in consolidated budget according to the functional budget classification codes of function 0900 "Education" in 1991-2020.

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

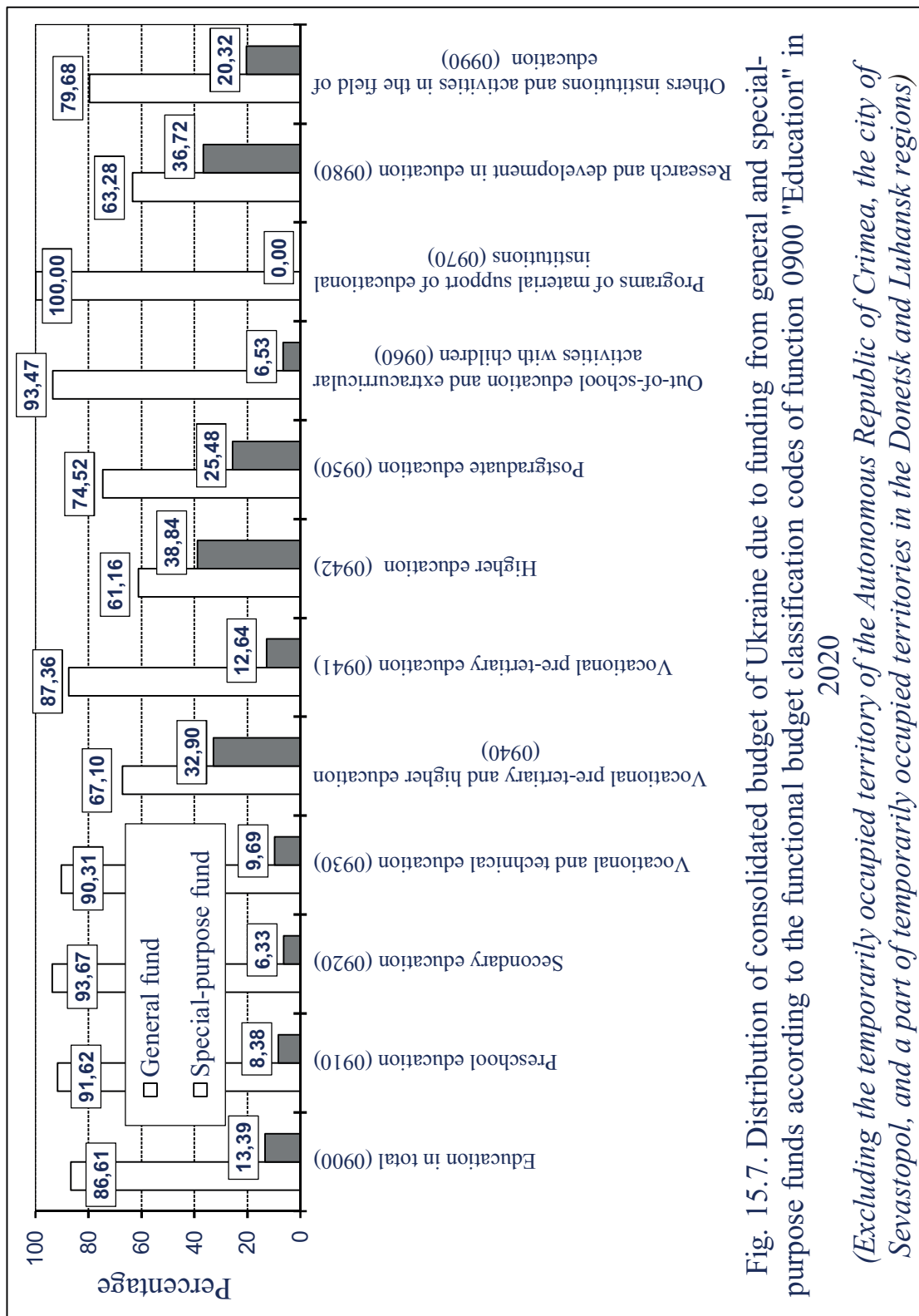


Fig. 15.7. Distribution of consolidated budget of Ukraine due to funding from general and special-purpose funds according to the functional budget classification codes of function 0900 "Education" in 2020

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

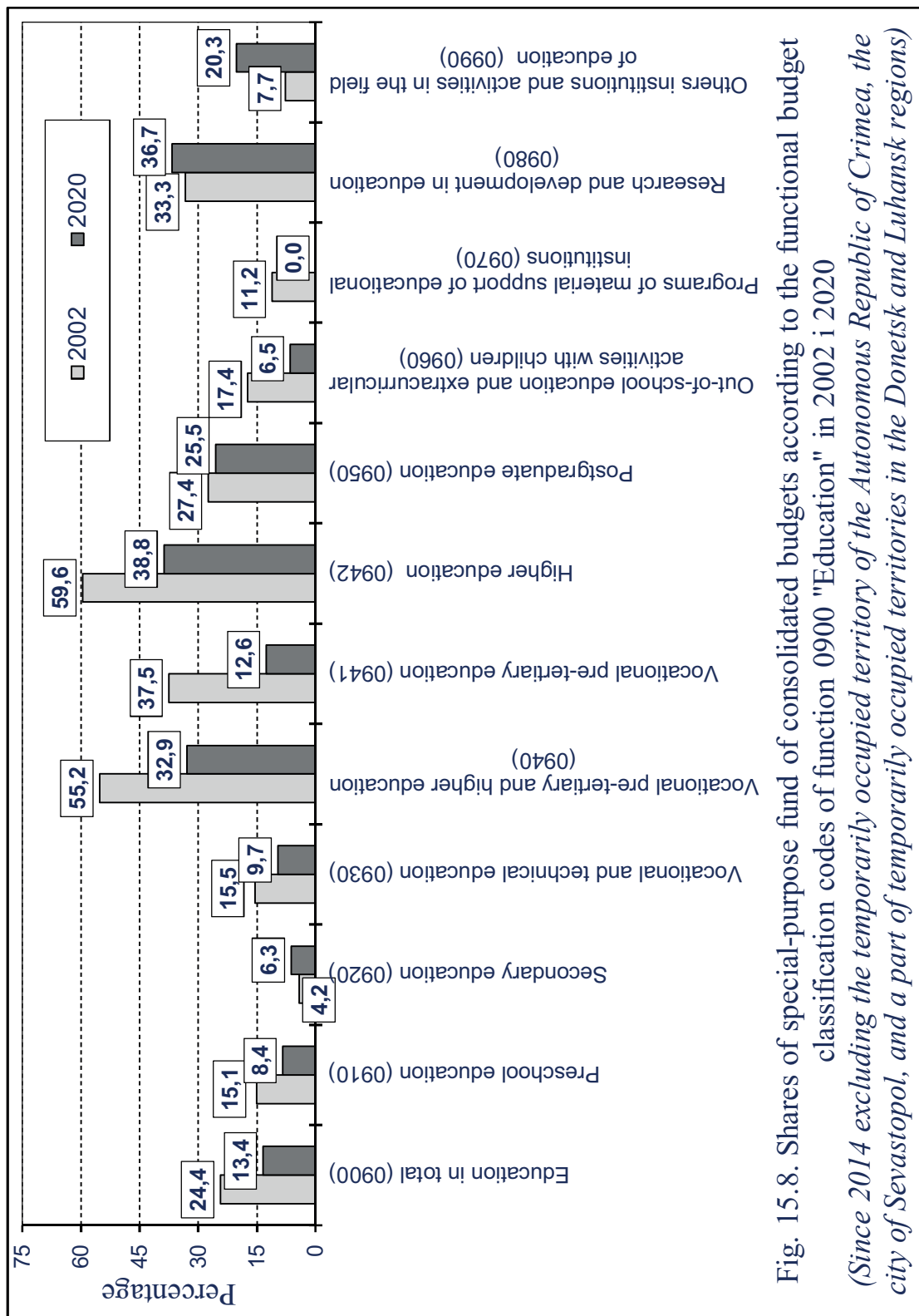


Fig. 15.8. Shares of special-purpose fund of consolidated budgets according to the functional budget classification codes of function 0900 "Education" in 2002 i 2020  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

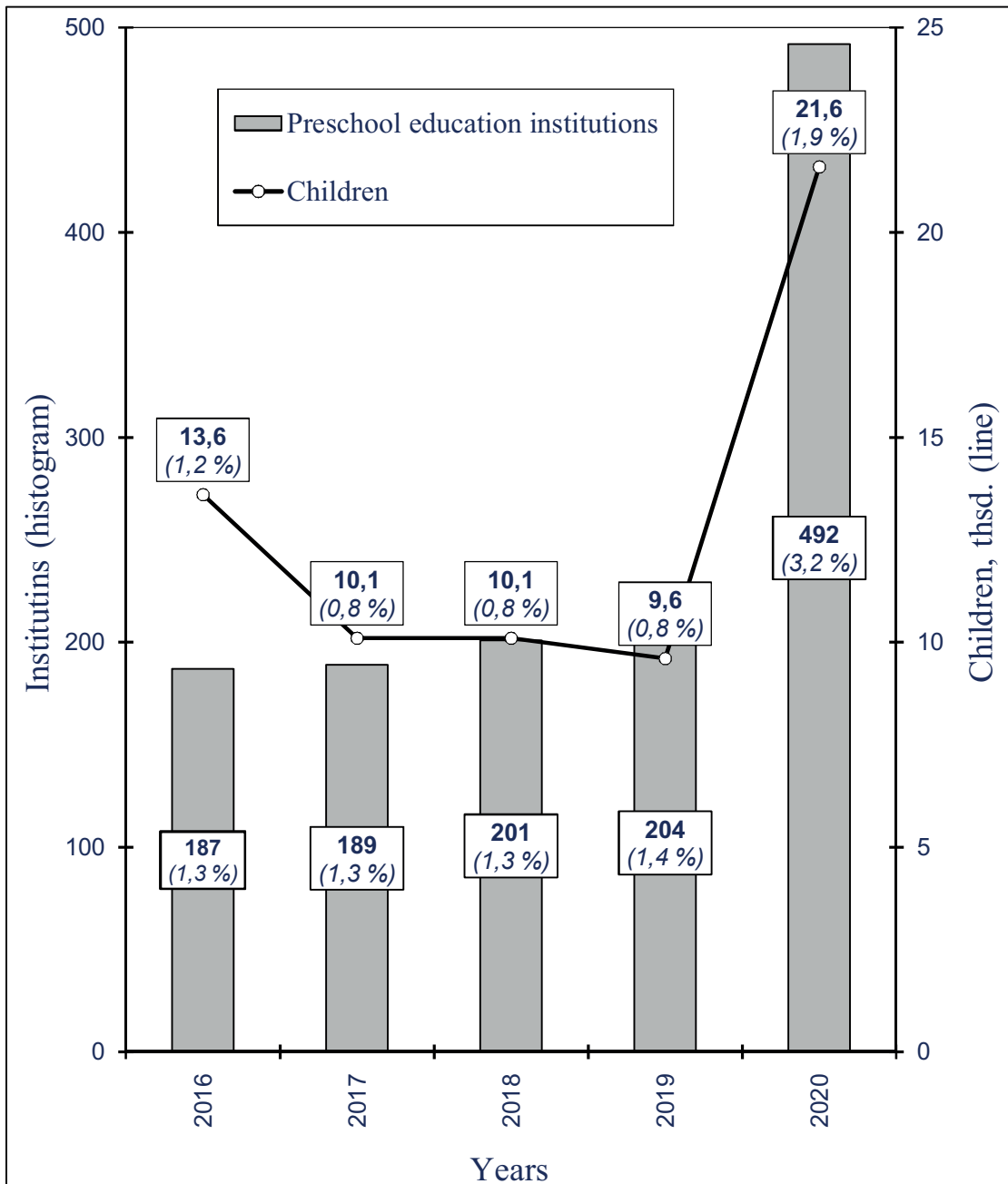


Fig. 15.9. Number of private/corporate preschool education institutions and number of children attending them in Ukraine in 2016-2020 (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

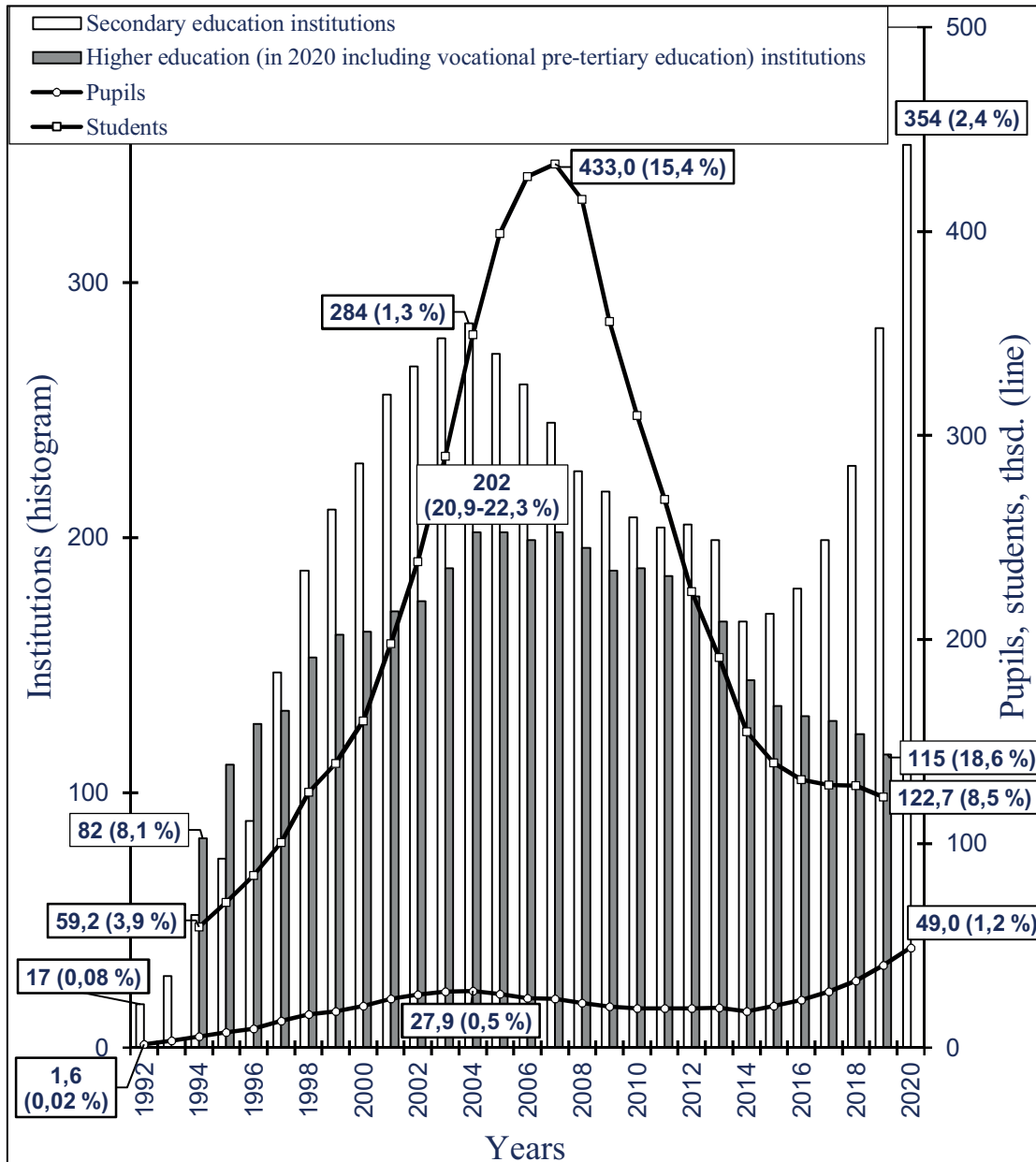


Fig. 15.10. Private segment of education (number of private/corporate secondary and higher education (in 2020 including vocational pre-tertiary education) institutions and number of pupils and students attending) in Ukraine in 1992-2020

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

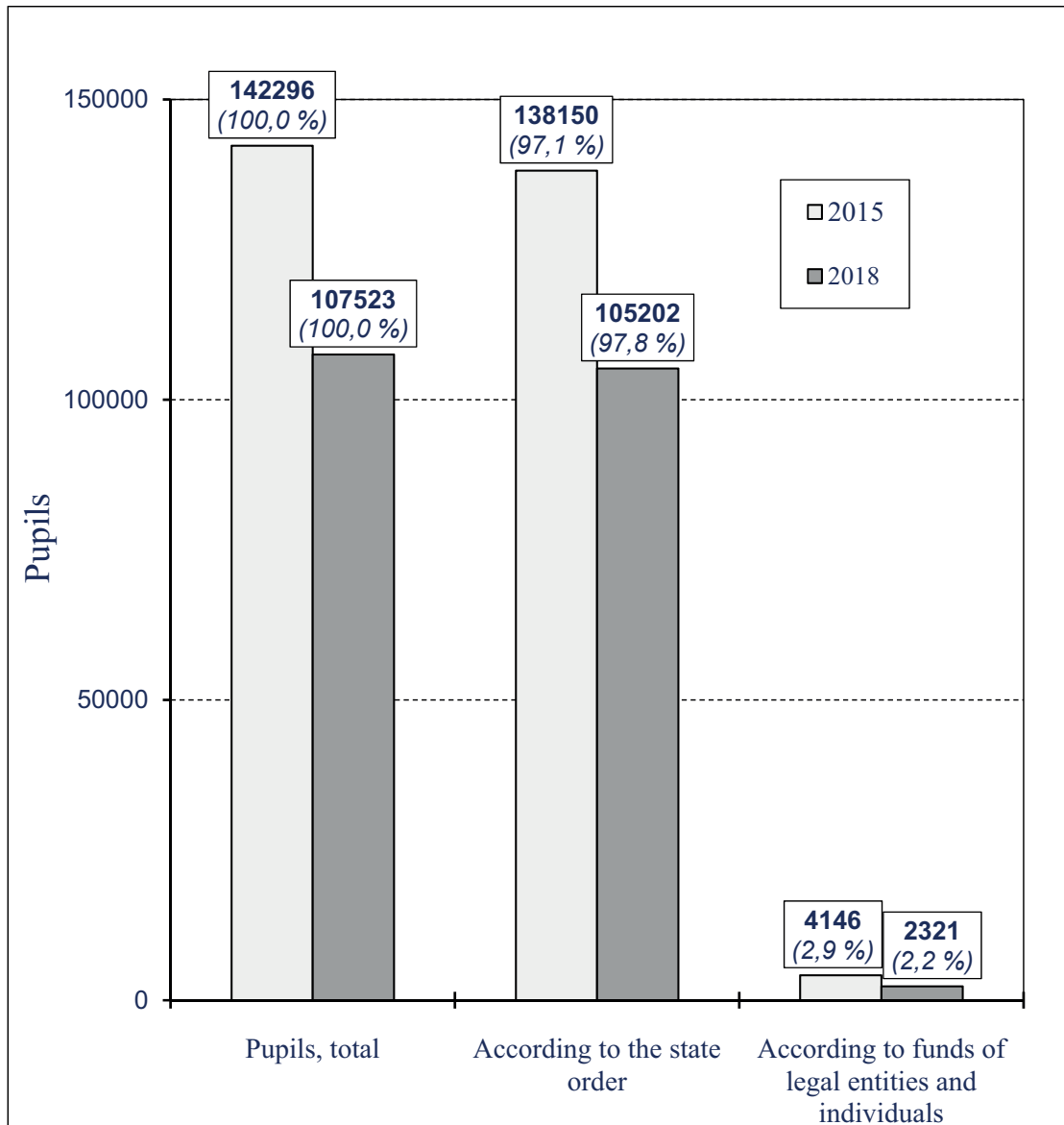


Fig. 15.11. Number and share of pupils in vocational (vocational and technical) education institutions from total number of school leavers, who were admitted for obtaining basic vocational education by sources of funding in Ukraine in 2015 and 2018  
*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*



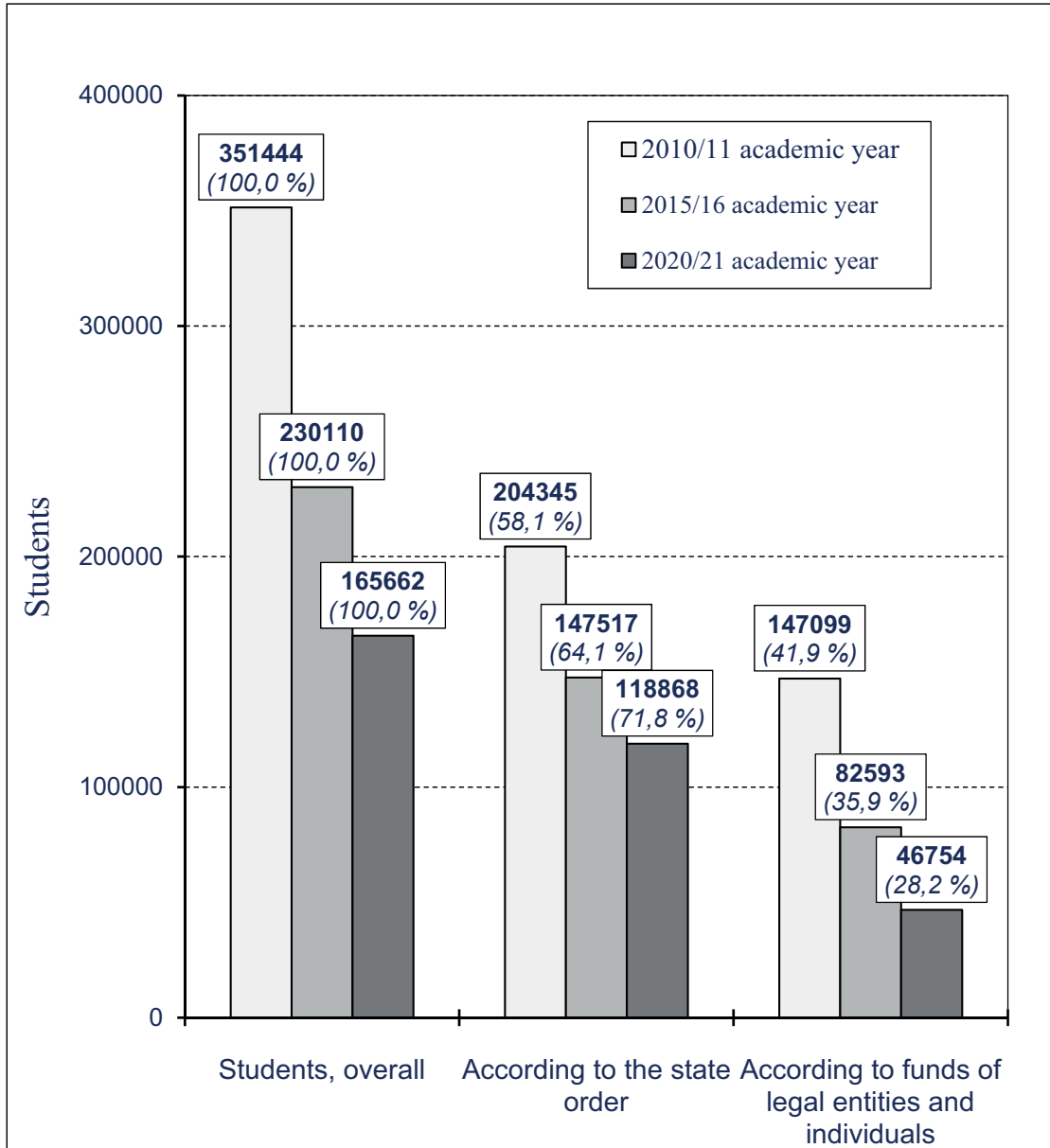


Fig. 15.12. Number and share of students of vocational pre-tertiary education institutions (colleges, technical schools, schools) by sources of funding for training in Ukraine at the beginning of 2010/11-2020/21 academic years  
*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

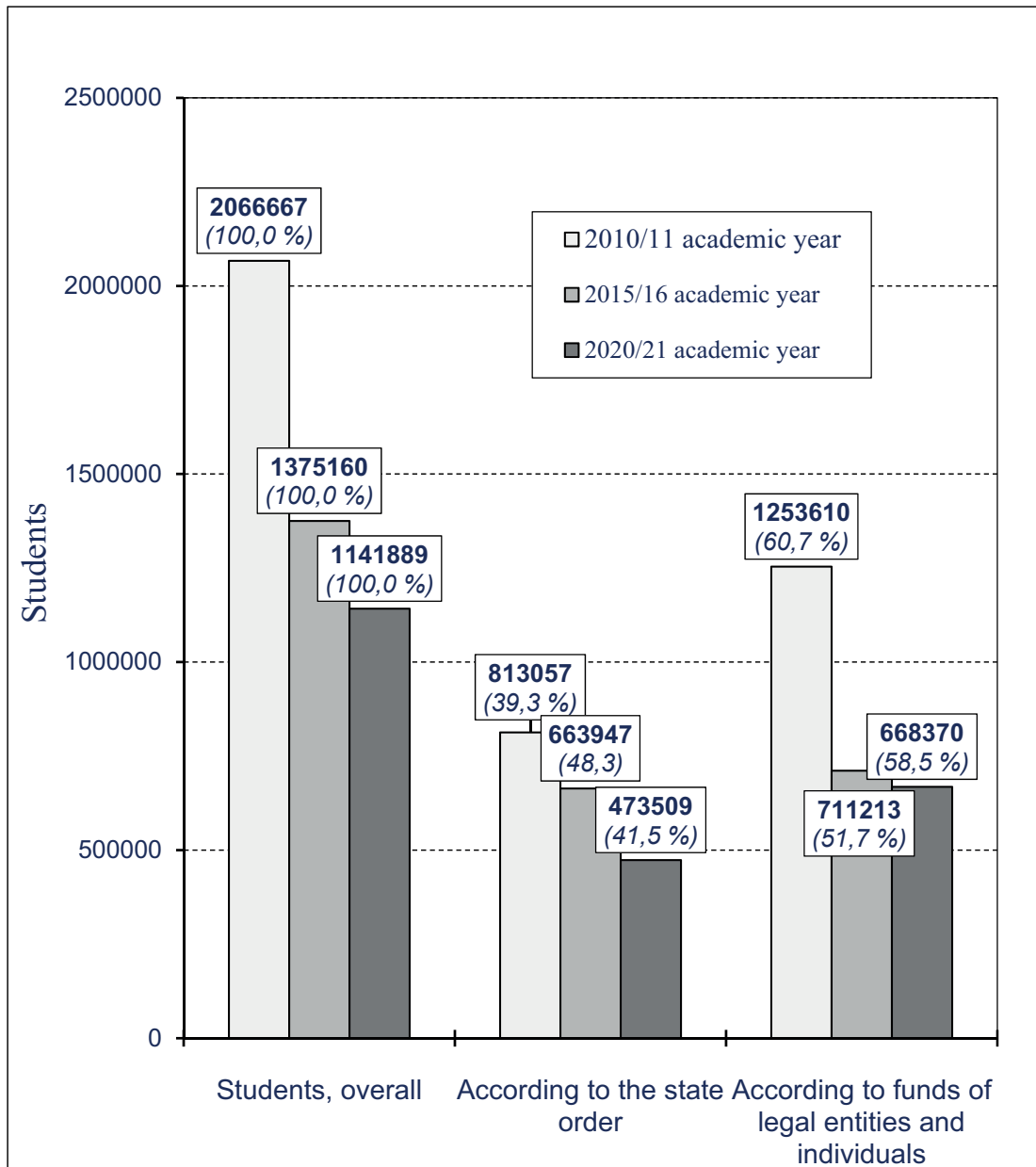


Fig. 15.13. Number and share of students of higher education institutions (universities, academies, institutes) by sources of funding for training in Ukraine at the beginning of 2010/11-2020/21 academic years (Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

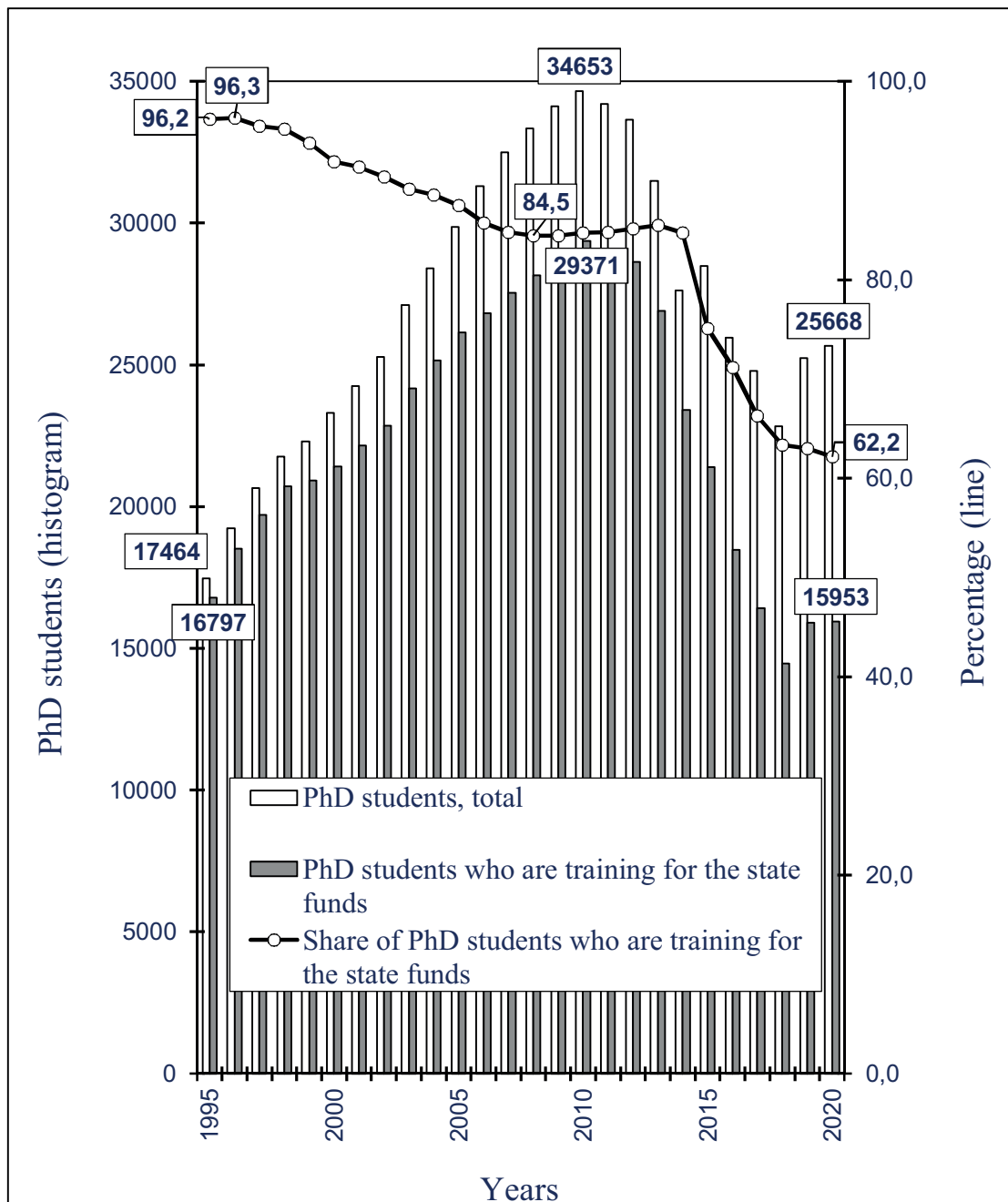


Fig. 15.14. Allocation of PhD students by sources of funding in Ukraine in 1995-2020

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

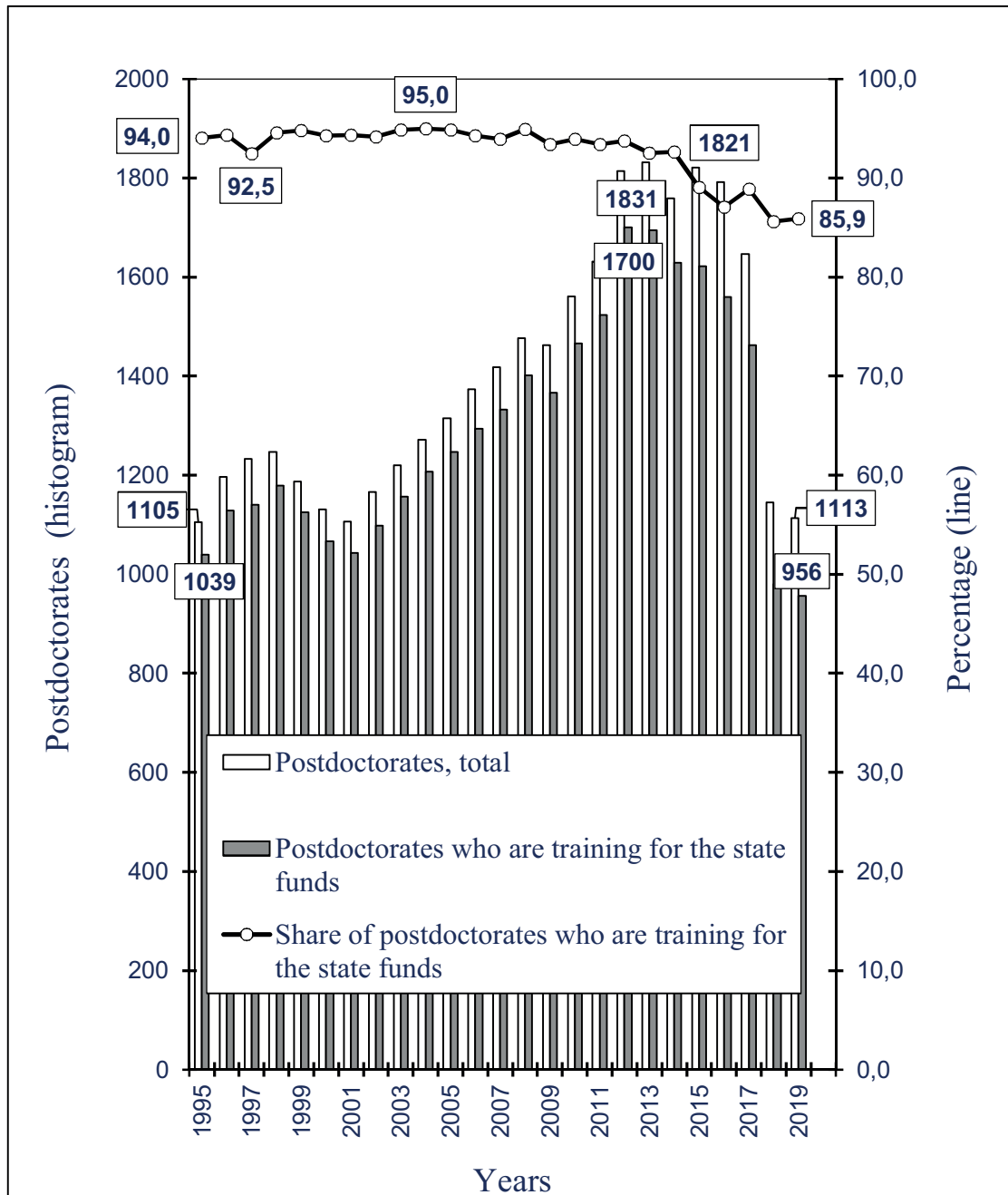


Fig. 15.15. Allocation of postdoctorates by sources of funding in Ukraine in 1995-2019

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

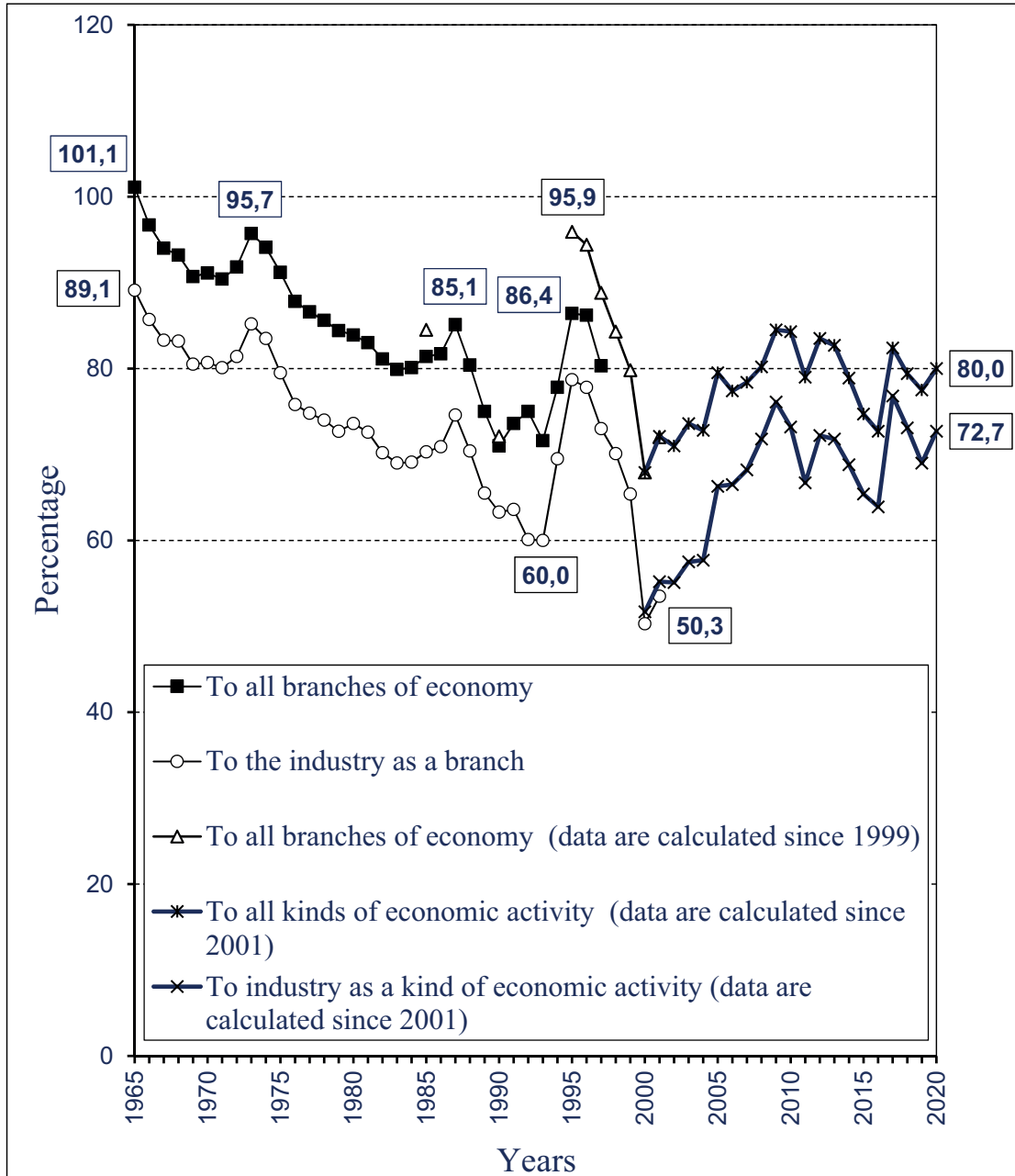
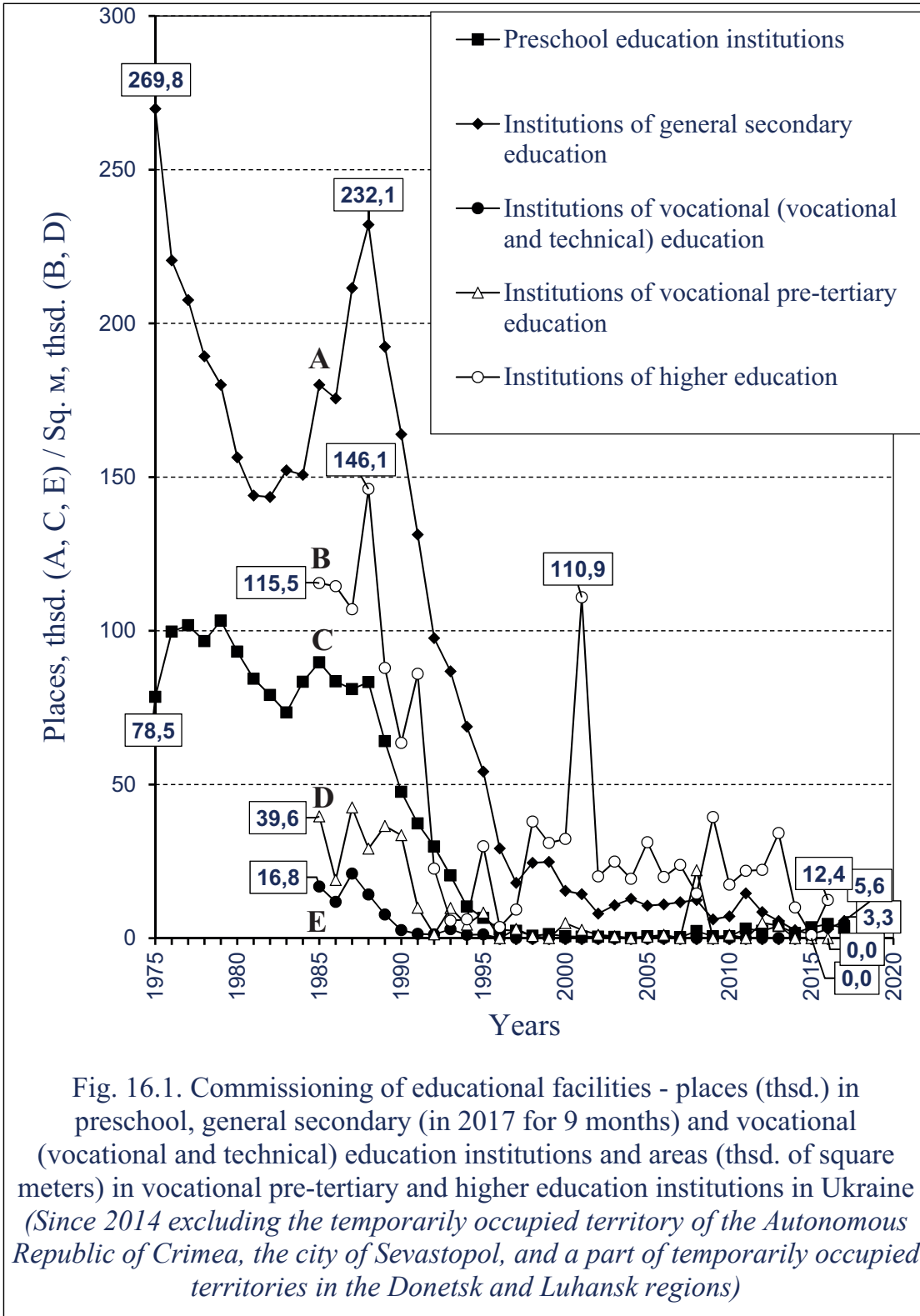


Fig. 15.16. Wages by form of economic activity (branch of economy) “Education” in percent and salaries in economy in general and by form (branch) of “Manufacturing” in 1965-2020

*(Since 2014 excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **16. DEVELOPMENT OF MATERIAL AND TECHNICAL FACILITIES**





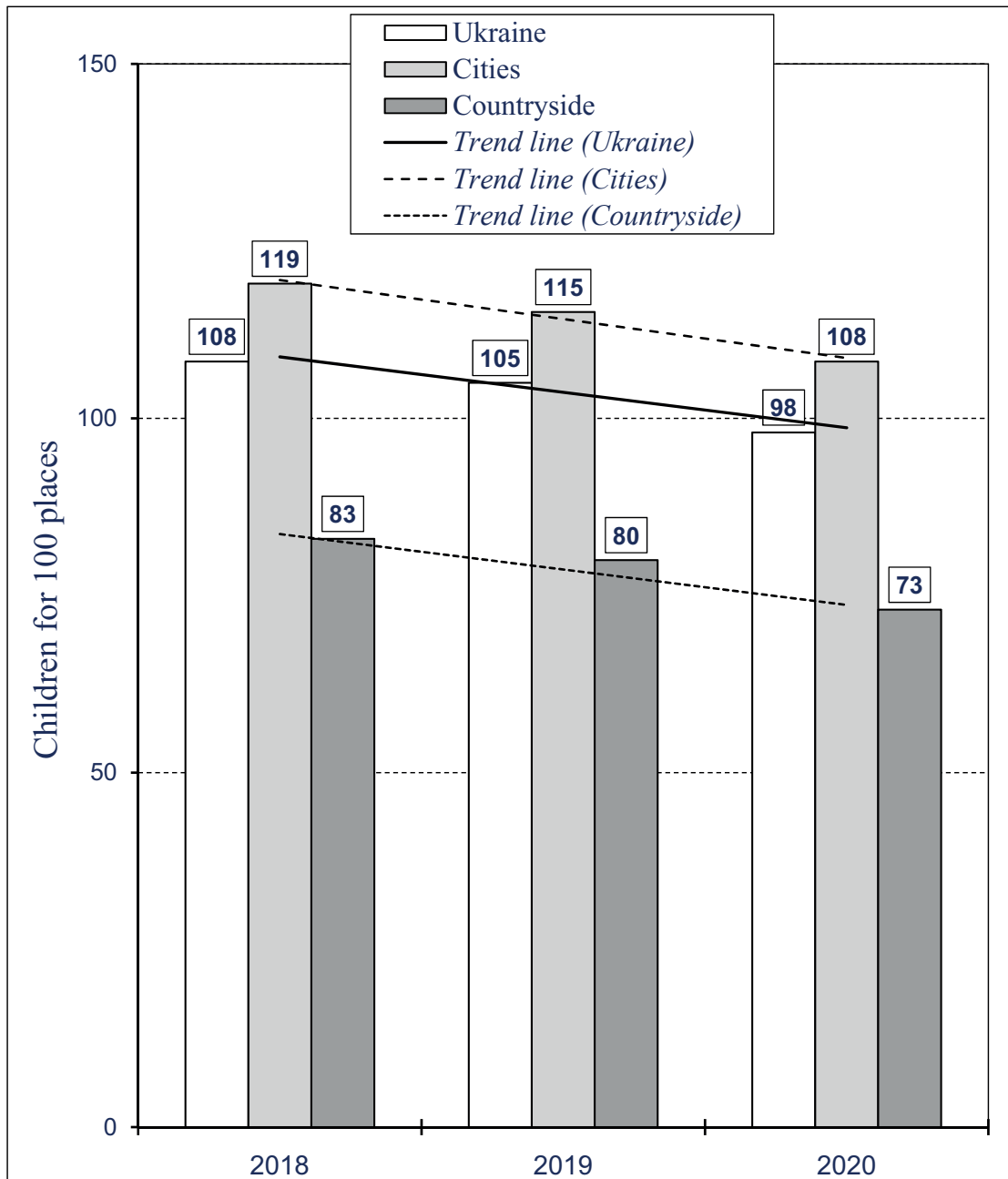


Fig. 16.2. Occupancy of preschool education institutions (number of children per 100 places) in Ukraine at the end of 2018, 2019, 2020 (Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)

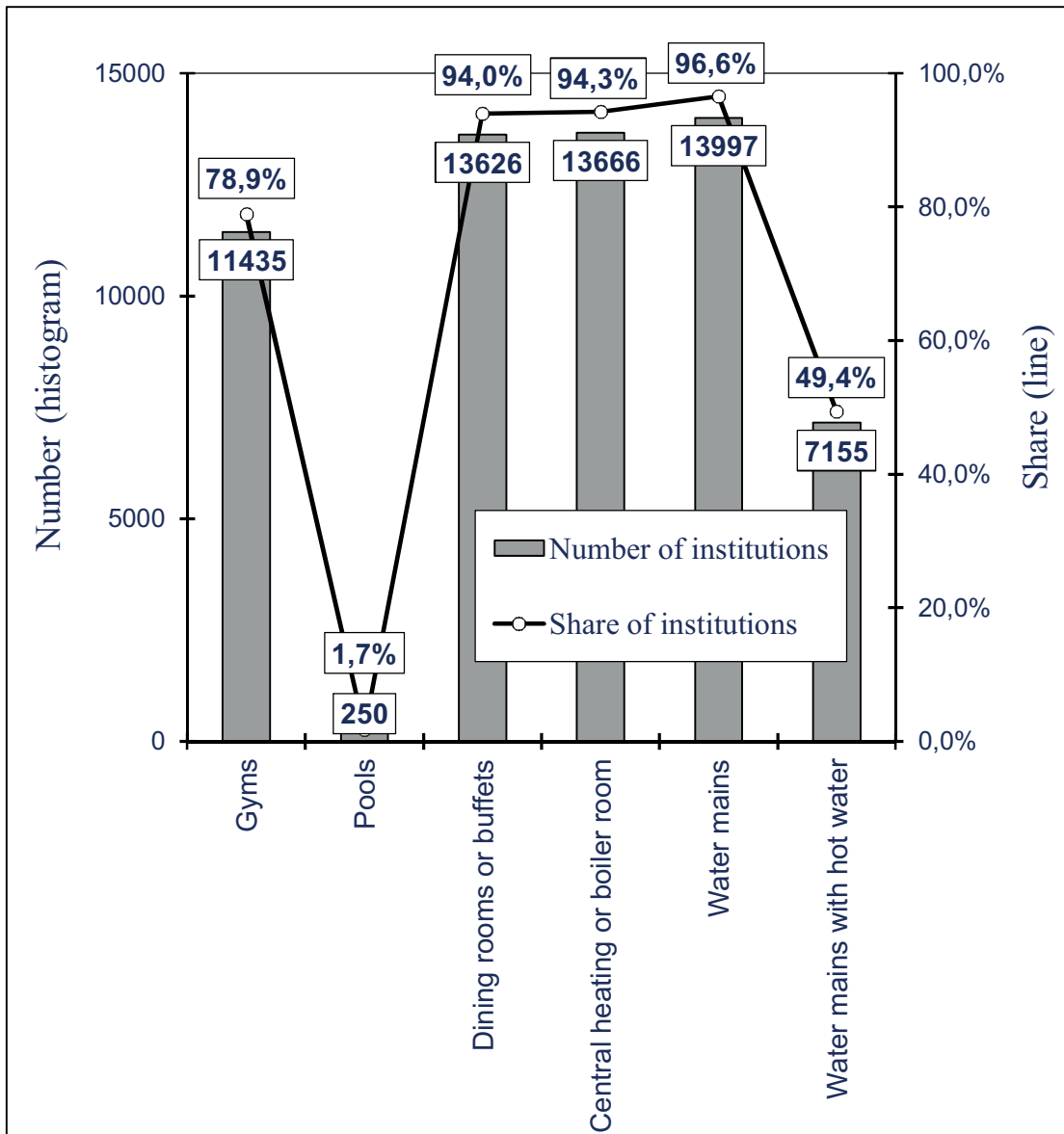
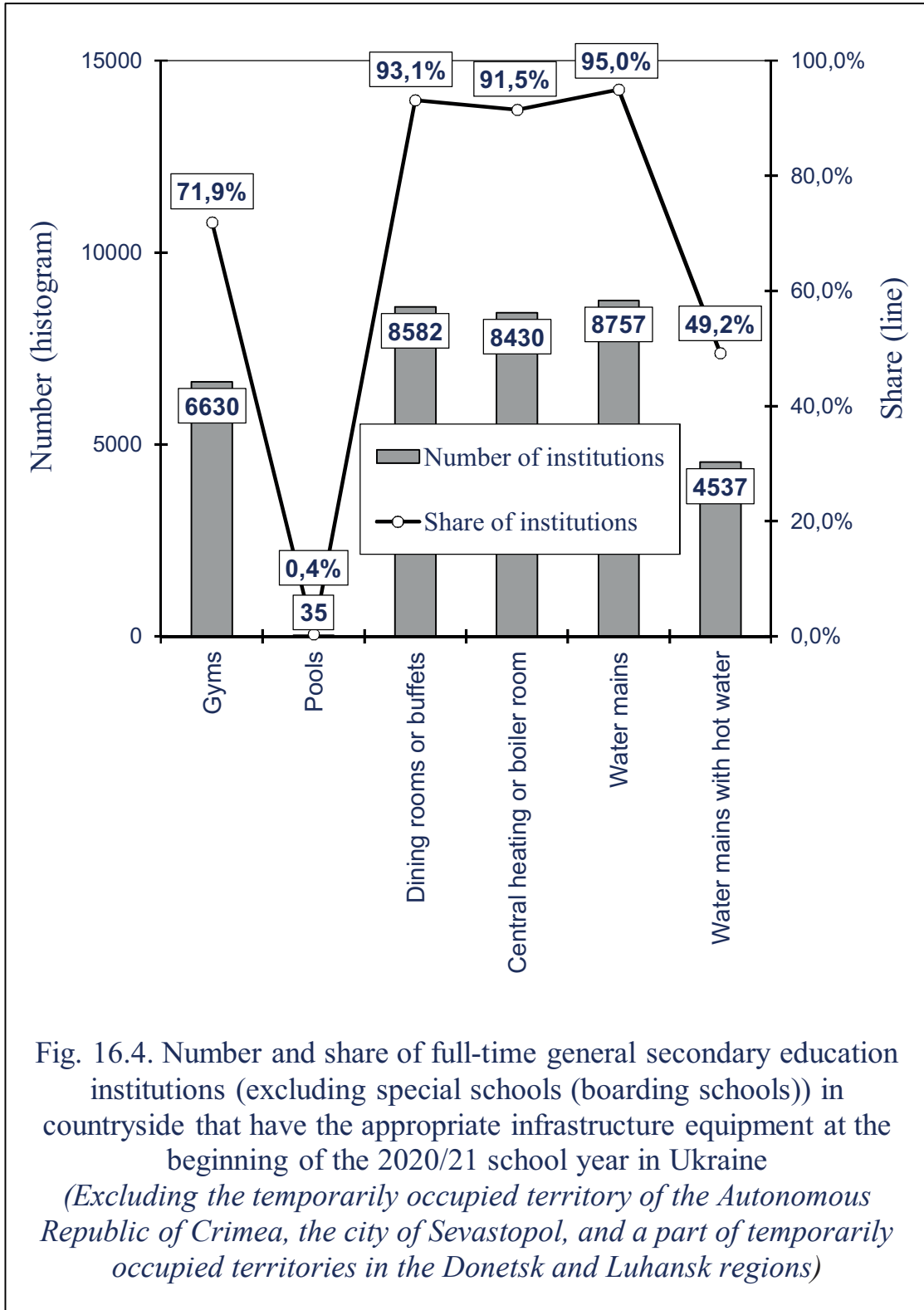
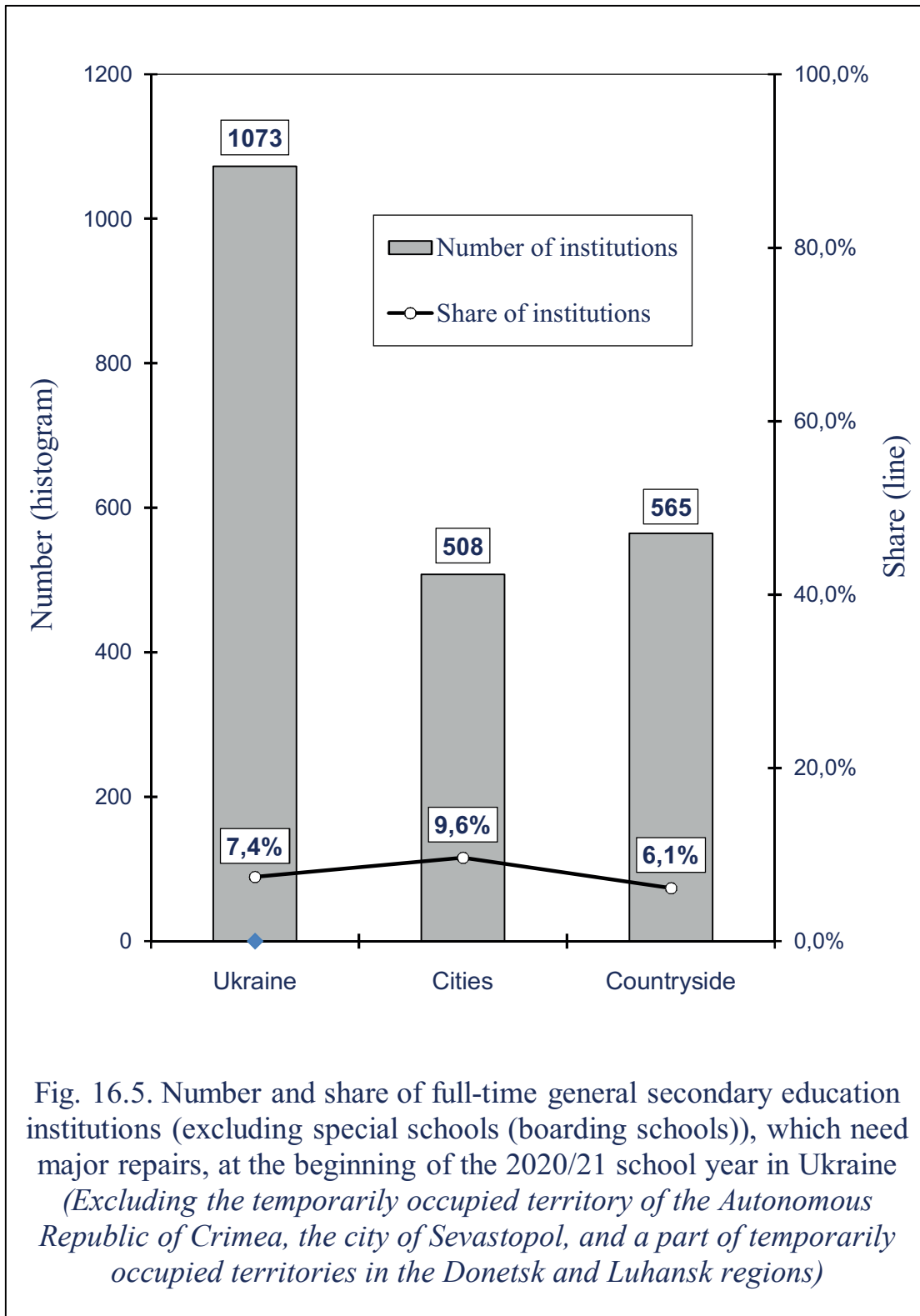


Fig. 16.3. Number and share of full-time general secondary education institutions (excluding special schools (boarding schools)) that have the appropriate infrastructure equipment at the beginning of the 2020/21 school year in Ukraine

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*





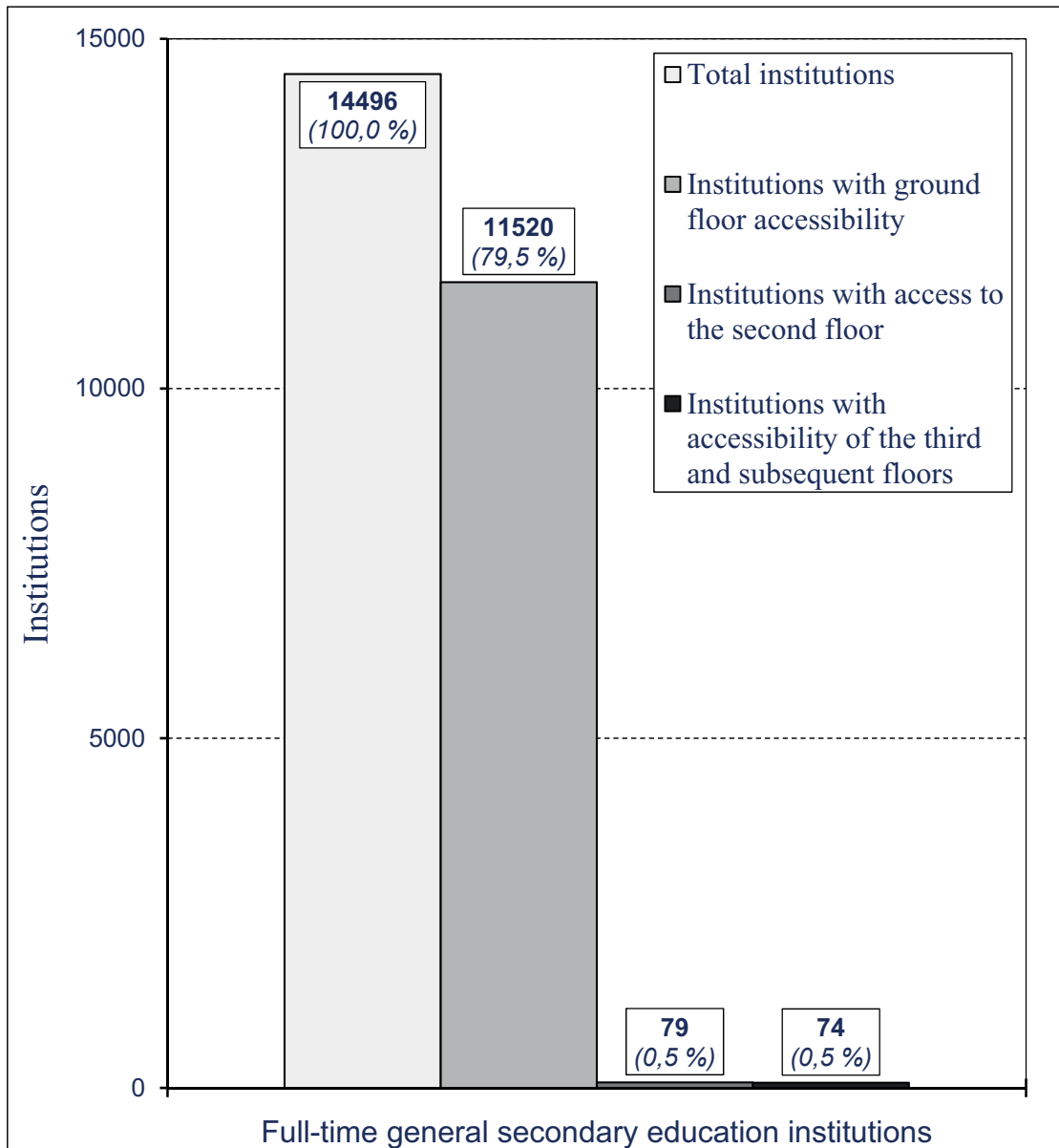


Fig. 16.6. Number and share of full-time general secondary education institutions (excluding special schools (boarding schools), in which unimpeded access of pupils with disabilities to school premises is organized in Ukraine in 2020

*(Excluding the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol, and a part of temporarily occupied territories in the Donetsk and Luhansk regions)*

## **Annex B (statistical data)**

Table 1

*Population*  
(as of 1 January; thsd.)

|                   | Total present population |          |          | Total resident population |          |          |
|-------------------|--------------------------|----------|----------|---------------------------|----------|----------|
|                   | total                    | of which |          | total                     | of which |          |
|                   |                          | urban    | rural    |                           | male     | female   |
| 1990              | 51 838,5                 | 34 869,2 | 16 969,3 | 51 556,5                  | 23 826,2 | 27 730,3 |
| 1991              | 51 944,4                 | 35 085,2 | 16 859,2 | 51 623,5                  | 23 886,5 | 27 737,0 |
| 1992              | 52 056,6                 | 35 296,9 | 16 759,7 | 51 708,2                  | 23 949,4 | 27 758,8 |
| 1993              | 52 244,1                 | 35 471,0 | 16 773,1 | 51 870,4                  | 24 046,3 | 27 824,1 |
| 1994              | 52 114,4                 | 35 400,7 | 16 713,7 | 51 715,4                  | 23 981,1 | 27 734,3 |
| 1995              | 51 728,4                 | 35 118,8 | 16 609,6 | 51 300,4                  | 23 792,3 | 27 508,1 |
| 1996              | 51 297,1                 | 34 767,9 | 16 529,2 | 50 874,1                  | 23 591,6 | 27 282,5 |
| 1997              | 50 818,4                 | 34 387,5 | 16 430,9 | 50 400,0                  | 23 366,2 | 27 033,8 |
| 1998              | 50 370,8                 | 34 048,2 | 16 322,6 | 49 973,5                  | 23 163,5 | 26 810,0 |
| 1999              | 49 918,1                 | 33 702,1 | 16 216,0 | 49 544,8                  | 22 963,4 | 26 581,4 |
| 2000              | 49 429,8                 | 33 338,6 | 16 091,2 | 49 115,0                  | 22 754,7 | 26 360,3 |
| 2001              | 48 923,2                 | 32 951,7 | 15 971,5 | 48 663,6                  | 22 530,4 | 26 133,2 |
| 2002 <sup>1</sup> | 48 457,1                 | 32 574,4 | 15 882,7 | 48 240,9                  | 22 316,3 | 25 924,6 |
| 2003              | 48 003,5                 | 32 328,4 | 15 675,1 | 47 823,1                  | 22 112,5 | 25 710,6 |
| 2004              | 47 622,4                 | 32 146,4 | 15 476,0 | 47 442,1                  | 21 926,8 | 25 515,3 |
| 2005              | 47 280,8                 | 32 009,3 | 15 271,5 | 47 100,5                  | 21 754,0 | 25 346,5 |
| 2006              | 46 929,5                 | 31 877,7 | 15 051,8 | 46 749,2                  | 21 574,7 | 25 174,5 |
| 2007              | 46 646,0                 | 31 777,4 | 14 868,6 | 46 465,7                  | 21 434,7 | 25 031,0 |
| 2008              | 46 372,7                 | 31 668,8 | 14 703,9 | 46 192,3                  | 21 297,7 | 24 894,6 |
| 2009              | 46 143,7                 | 31 587,2 | 14 556,5 | 45 963,4                  | 21 185,0 | 24 778,4 |
| 2010              | 45 962,9                 | 31 524,8 | 14 438,1 | 45 782,6                  | 21 107,1 | 24 675,5 |
| 2011              | 45 778,5                 | 31 441,6 | 14 336,9 | 45 598,2                  | 21 032,6 | 24 565,6 |
| 2012              | 45 633,6                 | 31 380,9 | 14 252,7 | 45 453,3                  | 20 976,7 | 24 476,6 |
| 2013              | 45 553,0                 | 31 378,6 | 14 174,4 | 45 372,7                  | 20 962,7 | 24 410,0 |
| 2014              | 45 426,2                 | 31 336,6 | 14 089,6 | 45 245,9                  | 20 918,3 | 24 327,6 |
| 2015 <sup>2</sup> | 42 929,3                 | 29 673,1 | 13 256,2 | 42 759,7                  | 19 787,8 | 22 971,9 |
| 2016 <sup>2</sup> | 42 760,5                 | 29 585,0 | 13 175,5 | 42 590,9                  | 19 717,9 | 22 873,0 |
| 2017 <sup>2</sup> | 42 584,5                 | 29 482,3 | 13 102,2 | 42 414,9                  | 19 644,6 | 22 770,3 |
| 2018 <sup>2</sup> | 42 386,4                 | 29 371,0 | 13 015,4 | 42 216,8                  | 19 558,2 | 22 658,6 |
| 2019 <sup>2</sup> | 42 153,2                 | 29 256,7 | 12 896,5 | 41 983,6                  | 19 455,3 | 22 528,3 |
| 2020 <sup>2</sup> | 41 902,4                 | 29 139,3 | 12 763,1 | 41 732,8                  | 19 343,5 | 22 389,3 |
| 2021 <sup>2</sup> | 41 588,4                 | 28 959,6 | 12 628,8 |                           |          |          |

<sup>1</sup> Ukraine population censuses data as of December 5, 2001.

<sup>2</sup> Excluding the temporarily occupied territories of the Autonomous Republic of Crimea, and the city of Sevastopol.

Source: State Statistics Service of Ukraine (ukrstat.gov.ua)



*Continuation of the table 1  
(as of 1 January)*

| Administrative units <sup>1</sup> |           |                              |        |   |                |             |                   |
|-----------------------------------|-----------|------------------------------|--------|---|----------------|-------------|-------------------|
|                                   | districts | united territorial community | cities | of which cities with special status, republican and regional importance | city districts | settlements | rural settlements |
| 1990                              | 479       | -                            | 436    | 145   | 120            | 927         | 28 804            |
| 1991                              | 481       | -                            | 436    | 149   | 120            | 925         | 28 845            |
| 1992                              | 485       | -                            | 437    | 153   | 120            | 923         | 28 828            |
| 1993                              | 486       | -                            | 441    | 158   | 120            | 915         | 28 858            |
| 1994                              | 489       | -                            | 445    | 164   | 120            | 911         | 28 863            |
| 1995                              | 489       | -                            | 445    | 165   | 120            | 909         | 28 864            |
| 1996                              | 490       | -                            | 446    | 167   | 121            | 907         | 28 838            |
| 1997                              | 490       | -                            | 447    | 167   | 121            | 904         | 28 834            |
| 1998                              | 490       | -                            | 448    | 168   | 121            | 896         | 28 794            |
| 1999                              | 490       | -                            | 448    | 169   | 121            | 897         | 28 775            |
| 2000                              | 490       | -                            | 448    | 170   | 121            | 894         | 28 739            |
| 2001                              | 490       | -                            | 451    | 173   | 122            | 893         | 28 651            |
| 2002                              | 490       | -                            | 454    | 174   | 118            | 889         | 28 619            |
| 2003                              | 490       | -                            | 453    | 176   | 118            | 887         | 28 612            |
| 2004                              | 490       | -                            | 455    | 178   | 118            | 886         | 28 597            |
| 2005                              | 490       | -                            | 456    | 178   | 118            | 886         | 28 585            |
| 2006                              | 490       | -                            | 457    | 178   | 118            | 885         | 28 562            |
| 2007                              | 490       | -                            | 458    | 179   | 118            | 886         | 28 540            |
| 2008                              | 490       | -                            | 458    | 179   | 118            | 886         | 28 504            |
| 2009                              | 490       | -                            | 459    | 179   | 118            | 886         | 28 490            |
| 2010                              | 490       | -                            | 459    | 179   | 118            | 885         | 28 471            |
| 2011                              | 490       | -                            | 459    | 180   | 118            | 885         | 28 457            |
| 2012                              | 490       | -                            | 459    | 180   | 114            | 885         | 28 450            |
| 2013                              | 490       | -                            | 460    | 180   | 111            | 885         | 28 441            |
| 2014                              | 490       | -                            | 460    | 182   | 111            | 885         | 28 397            |
| 2015                              | 490       | -                            | 460    | 184   | 111            | 885         | 28 388            |
| 2016                              | 490       | 93                           | 460    | 187   | 111            | 885         | 28 385            |
| 2017                              | 490       | 216                          | 460    | 189   | 111            | 885         | 28 377            |
| 2018                              | 490       | 458                          | 461    | 189   | 108            | 883         | 28 378            |
| 2019                              | 490       | 686                          | 461    | 189   | 108            | 883         | 28 376            |
| 2020                              | 490       | 841                          | 461    | 189   | 108            | 882         | 28 376            |

(as of 1 January)

| Administrative units <sup>1</sup> |           |                         |        |                |             |                   |
|-----------------------------------|-----------|-------------------------|--------|----------------|-------------|-------------------|
|                                   | districts | territorial communities | cities | city districts | settlements | rural settlements |
| 2021                              | 140       | 1 469                   | 461    | 108            | 882         | 28 372            |

<sup>1</sup>Data from the official webportal of Verkhovna Rada of Ukraine.

Source: State Statistics Service of Ukraine ([ukrstat.gov.ua](http://ukrstat.gov.ua))

Continuation of the table 1  
(as of 1 January; thsd.)

|                   | Resident population by selected age group |           |           |           |            |            |             |             |             |  |
|-------------------|---|-----------|-----------|-----------|------------|------------|-------------|-------------|-------------|--|
|                   | Total population                          | 0-14 year | 0-15 year | 0-17 year | 16-59 year | 15-64 year | 18 and more | 60 and more | 65 and more |  |
| 1990              | 51 556,5                                  | 11 084,2  | 11 814,3  | 13 305,0  | 30 291,4   | 34 297,7   | 38 251,5    | 9 450,8     | 6 174,6     |  |
| 1991              | 51 623,5                                  | 11 029,5  | 11 762,1  | 13 225,7  | 30 230,3   | 34 264,9   | 38 397,8    | 9 631,1     | 6 329,1     |  |
| 1992              | 51 708,2                                  | 10 951,4  | 11 690,8  | 13 148,4  | 30 314,4   | 34 248,7   | 38 559,8    | 9 703,0     | 6 508,1     |  |
| 1993              | 51 870,4                                  | 10 915,4  | 11 625,0  | 13 101,0  | 30 523,7   | 34 264,6   | 38 769,4    | 9 721,7     | 6 690,4     |  |
| 1994              | 51 715,4                                  | 10 767,7  | 11 489,8  | 12 937,1  | 30 646,9   | 34 084,4   | 38 778,3    | 9 578,7     | 6 863,3     |  |
| 1995              | 51 300,4                                  | 10 528,7  | 11 248,4  | 12 668,1  | 30 595,7   | 33 810,6   | 38 632,3    | 9 456,3     | 6 961,1     |  |
| 1996              | 50 874,1                                  | 10 246,0  | 10 988,6  | 12 416,7  | 30 424,3   | 33 569,1   | 38 457,4    | 9 461,2     | 7 059,0     |  |
| 1997              | 50 400,0                                  | 9 952,4   | 10 673,4  | 12 124,4  | 30 166,5   | 33 394,8   | 38 275,6    | 9 560,1     | 7 052,8     |  |
| 1998              | 49 973,5                                  | 9 624,5   | 10 366,0  | 11 823,0  | 29 793,6   | 33 322,4   | 38 150,5    | 9 813,9     | 7 026,6     |  |
| 1999              | 49 544,8                                  | 9 206,0   | 10 012,6  | 11 469,7  | 29 500,0   | 33 437,2   | 38 075,1    | 10 032,2    | 6 901,6     |  |
| 2000              | 49 115,0                                  | 8 781,0   | 9 571,9   | 11 116,0  | 29 353,4   | 33 515,1   | 37 999,0    | 10 189,7    | 6 818,9     |  |
| 2001              | 48 663,6                                  | 8 373,3   | 9 144,8   | 10 740,7  | 29 259,4   | 33 446,3   | 37 922,9    | 10 259,4    | 6 844,0     |  |
| 2002 <sup>1</sup> | 48 240,9                                  | 7 949,9   | 8 743,7   | 10 307,0  | 29 154,6   | 33 312,4   | 37 933,9    | 10 342,6    | 6 978,6     |  |

|                   |          |         |         |         |          |          |          |          |         |
|-------------------|----------|---------|---------|---------|----------|----------|----------|----------|---------|
| 2003              | 47 823,1 | 7 569,5 | 8 315,9 | 9 878,6 | 29 314,5 | 33 060,2 | 37 944,5 | 10 192,7 | 7 193,4 |
| 2004              | 47 442,1 | 7 246,3 | 7 966,1 | 9 503,3 | 29 514,6 | 32 826,5 | 37 938,8 | 9 961,4  | 7 369,3 |
| 2005              | 47 100,5 | 6 989,8 | 7 664,8 | 9 129,2 | 29 656,3 | 32 603,5 | 37 971,3 | 9 779,4  | 7 507,2 |
| 2006              | 46 749,2 | 6 764,7 | 7 408,3 | 8 802,0 | 29 812,1 | 32 417,4 | 37 947,2 | 9 528,8  | 7 567,1 |
| 2007              | 46 465,7 | 6 606,4 | 7 218,1 | 8 536,1 | 29 799,8 | 32 256,2 | 37 929,6 | 9 447,8  | 7 603,1 |
| 2008              | 46 192,3 | 6 501,1 | 7 071,0 | 8 325,7 | 29 738,5 | 32 184,5 | 37 866,6 | 9 382,8  | 7 506,7 |
| 2009              | 45 963,4 | 6 476,2 | 7 005,0 | 8 186,3 | 29 586,0 | 32 169,8 | 37 777,1 | 9 372,4  | 7 317,4 |
| 2010              | 45 782,6 | 6 483,6 | 6 982,6 | 8 081,1 | 29 328,6 | 32 130,2 | 37 701,5 | 9 471,4  | 7 168,8 |
| 2011              | 45 598,2 | 6 496,0 | 6 975,7 | 8 003,3 | 29 090,1 | 32 137,0 | 37 594,9 | 9 532,4  | 6 965,2 |
| 2012              | 45 453,3 | 6 531,5 | 6 993,1 | 7 971,6 | 28 842,2 | 31 993,3 | 37 481,7 | 9 618,0  | 6 928,5 |
| 2013              | 45 372,7 | 6 620,6 | 7 047,7 | 7 990,4 | 28 622,9 | 31 846,8 | 37 382,3 | 9 702,1  | 6 905,3 |
| 2014              | 45 245,9 | 6 710,7 | 7 120,1 | 8 009,9 | 28 372,5 | 31 606,4 | 37 236,0 | 9 753,3  | 6 928,8 |
| 2015 <sup>2</sup> | 42 759,7 | 6 449,2 | 6 816,0 | 7 614,7 | 26 613,3 | 29 634,7 | 35 145,0 | 9 330,4  | 6 675,8 |
| 2016 <sup>2</sup> | 42 590,9 | 6 494,3 | 6 856,3 | 7 614,0 | 26 317,4 | 29 327,7 | 34 976,9 | 9 417,2  | 6 768,9 |
| 2017 <sup>2</sup> | 42 414,9 | 6 535,5 | 6 887,0 | 7 615,6 | 25 982,0 | 29 011,9 | 34 799,3 | 9 545,9  | 6 867,5 |
| 2018 <sup>2</sup> | 42 216,8 | 6 530,5 | 6 895,7 | 7 609,3 | 25 641,3 | 28 719,0 | 34 607,5 | 9 679,8  | 6 967,3 |
| 2019 <sup>2</sup> | 41 983,6 | 6 481,0 | 6 862,8 | 7 579,7 | 25 293,7 | 28 468,0 | 34 403,9 | 9 827,1  | 7 034,6 |
| 2020 <sup>2</sup> | 41 732,8 | 6 386,8 | 6 786,5 | 7 533,9 | 24 968,1 | 28 199,5 | 34 198,9 | 9 978,2  | 7 146,5 |

<sup>1</sup> Ukraine population censuses data as of December 5, 2001.

<sup>2</sup> Excluding the temporarily occupied territories of the Autonomous Republic of Crimea, and the city of Sevastopol.

Source: State Statistics Service of Ukraine (ukrstat.gov.ua)

Continuation of the table 1

|      | Number of the liveborn, thsd | Children born to women in unregistered marriage, per cent | Number of deaths, thsd. | Natural increase in, decrease (-) population, thsd. | Population migration between Ukraine and other countries<br>Increase / decrease (-) in population thsd. | Registered marriages, thsd. | Registered divorces, thsd. |
|------|------------------------------|---|-------------------------|---|---|-----------------------------|----------------------------|
| 1990 | 657,2                        | 11,2  | 629,6                   | 27,6  | 78,3  | 482,8                       | 192,8                      |
| 1991 | 630,8                        | 11,9  | 669,9                   | -39,1   | 151,3   | 493,1                       | 200,8                      |
| 1992 | 596,8                        | 12,1  | 697,1                   | -100,3  | 287,8   | 394,1                       | 222,6                      |
| 1993 | 557,5                        | 13,0  | 741,7                   | -184,2  | 54,5  | 427,9                       | 219,0                      |
| 1994 | 521,6                        | 12,8  | 764,7                   | -243,1  | -142,9  | 399,2                       | 207,6                      |
| 1995 | 492,9                        | 13,2  | 792,6                   | -299,7  | -131,6  | 431,7                       | 198,3                      |
| 1996 | 467,2                        | 13,6  | 776,7                   | -309,5  | -169,2  | 307,5                       | 193,0                      |
| 1997 | 442,6                        | 15,2  | 754,2                   | -311,6  | -136,0  | 345,0                       | 188,2                      |
| 1998 | 419,2                        | 16,2  | 719,9                   | -300,7  | -152,0  | 310,5                       | 179,7                      |
| 1999 | 389,2                        | 17,4  | 739,2                   | -350,0  | -138,3  | 344,9                       | 175,8                      |
| 2000 | 385,1                        | 17,3  | 758,1                   | -373,0  | -133,6  | 274,5                       | 197,3                      |
| 2001 | 376,5                        | 18,0  | 746,0                   | -369,5  | -152,2  | 309,6                       | 181,3                      |
| 2002 | 390,7                        | 19,0  | 754,9                   | -364,2  | -33,8   | 317,2                       | 183,5                      |
| 2003 | 408,6                        | 19,9  | 765,4                   | -356,8  | -24,2   | 371,0                       | 177,2                      |
| 2004 | 427,3                        | 20,4  | 761,3                   | -334,0  | -7,6  | 278,2                       | 173,2                      |
| 2005 | 426,1                        | 21,4  | 782,0                   | -355,9  | 4,6   | 332,1                       | 183,5                      |

|                   |       |      |       |        |      |       |        |
|-------------------|-------|------|-------|--------|------|-------|--------|
| 2006              | 460,4 | 21,1 | 758,1 | -297,7 | 14,2 | 355,0 | 179,1  |
| 2007              | 472,7 | 21,4 | 762,9 | -290,2 | 16,8 | 416,4 | 178,4  |
| 2008              | 510,6 | 20,9 | 754,5 | -243,9 | 14,9 | 322,0 | 166,8  |
| 2009              | 512,5 | 21,2 | 706,7 | -194,2 | 13,4 | 318,2 | 145,4  |
| 2010              | 497,7 | 21,9 | 698,2 | -200,5 | 16,1 | 305,9 | 126,11 |
| 2011              | 502,6 | 21,9 | 664,6 | -162,0 | 17,1 | 355,9 | 182,5  |
| 2012              | 520,7 | 21,4 | 663,1 | -142,4 | 61,8 | 278,3 | 168,5  |
| 2013              | 503,7 | 22,1 | 662,4 | -158,7 | 31,9 | 304,2 | 164,9  |
| 2014 <sup>2</sup> | 465,9 | 21,1 | 632,3 | -166,4 | 22,6 | 295,0 | 130,7  |
| 2015 <sup>2</sup> | 411,8 | 20,6 | 594,8 | -183,0 | 14,2 | 299,0 | 129,4  |
| 2016 <sup>2</sup> | 397,0 | 20,1 | 583,6 | -186,6 | 10,6 | 229,5 | 130,0  |
| 2017 <sup>2</sup> | 364,0 | 20,5 | 574,1 | -210,1 | 12,0 | 249,5 | 128,7  |
| 2018 <sup>2</sup> | 335,9 | 20,5 | 587,7 | -251,8 | 18,6 | 228,4 | 153,9  |
| 2019 <sup>2</sup> | 308,8 | 20,5 | 581,1 | -272,3 | 21,5 | 237,9 | 138,0  |
| 2020 <sup>2</sup> |       |      |       | -323,4 | 9,3  |       |        |

<sup>1</sup> The data derived from acts of civil status of the state registration authority notwithstanding the annulment of marriage through the courts.

<sup>2</sup> Excluding the temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.

Source: State Statistics Service of Ukraine (ukrstat.gov.ua)

Continuation of the table 1  
(live births per 1000 females at age)

|      | Age – specific birth rates  |                             |                |                |                |                |                |                             |  |  | Total fertility rate <sup>2</sup> |
|------|-----------------------------|-----------------------------|----------------|----------------|----------------|----------------|----------------|-----------------------------|--|--|-----------------------------------|
|      | 15-49 <sup>1</sup><br>years | 15-19 <sup>1</sup><br>years | 20-24<br>years | 25-29<br>years | 30-34<br>years | 35-39<br>years | 40-44<br>years | 45-49 <sup>1</sup><br>years |  |  |                                   |
| 1990 | 53,3                        | 59,1                        | 161,8          | 87,6           | 41,6           | 15,1           | 3,4            | 0,1                         |  |  | 1,850                             |
| 1991 | 51,2                        | 60,3                        | 156,9          | 82,4           | 37,9           | 13,9           | 3,1            | 0,1                         |  |  | 1,776                             |
| 1992 | 48,2                        | 60,5                        | 147,9          | 76,5           | 34,6           | 12,5           | 2,8            | 0,2                         |  |  | 1,674                             |
| 1993 | 44,6                        | 58,4                        | 135,5          | 72,2           | 32,0           | 11,7           | 2,5            | 0,2                         |  |  | 1,562                             |
| 1994 | 41,4                        | 57,0                        | 126,1          | 67,8           | 29,6           | 10,9           | 2,4            | 0,2                         |  |  | 1,468                             |
| 1995 | 38,9                        | 55,1                        | 119,1          | 65,8           | 27,5           | 9,9            | 2,1            | 0,1                         |  |  | 1,398                             |
| 1996 | 36,8                        | 51,5                        | 114,2          | 62,8           | 26,6           | 9,3            | 1,9            | 0,1                         |  |  | 1,335                             |
| 1997 | 34,9                        | 46,2                        | 108,6          | 61,4           | 26,4           | 9,4            | 1,9            | 0,1                         |  |  | 1,272                             |
| 1998 | 33,1                        | 41,6                        | 103,3          | 59,2           | 26,2           | 9,1            | 2,0            | 0,1                         |  |  | 1,211                             |
| 1999 | 30,8                        | 35,0                        | 95,8           | 56,8           | 25,9           | 8,7            | 1,9            | 0,1                         |  |  | 1,127                             |
| 2000 | 30,6                        | 32,1                        | 94,9           | 57,7           | 26,5           | 8,7            | 1,9            | 0,1                         |  |  | 1,116                             |
| 2001 | 29,8                        | 29,2                        | 89,9           | 57,4           | 27,5           | 8,9            | 1,9            | 0,1                         |  |  | 1,078                             |
| 2002 | 31,2                        | 29,2                        | 91,3           | 62,7           | 30,2           | 9,8            | 1,9            | 0,1                         |  |  | 1,095                             |
| 2003 | 32,7                        | 29,0                        | 92,3           | 67,1           | 33,0           | 10,9           | 2,0            | 0,1                         |  |  | 1,172                             |
| 2004 | 34,3                        | 29,6                        | 93,4           | 70,6           | 35,4           | 12,2           | 2,2            | 0,1                         |  |  | 1,218                             |
| 2005 | 34,4                        | 28,6                        | 88,8           | 71,7           | 37,7           | 13,3           | 2,3            | 0,1                         |  |  | 1,213                             |
| 2006 | 37,5                        | 29,5                        | 92,2           | 79,4           | 42,7           | 15,5           | 2,5            | 0,1                         |  |  | 1,310                             |

|                   |      |      |      |      |      |      |     |     |       |
|-------------------|------|------|------|------|------|------|-----|-----|-------|
| 2007              | 38,8 | 30,3 | 92,2 | 81,3 | 45,4 | 16,8 | 2,9 | 0,1 | 1,345 |
| 2008              | 42,4 | 32,0 | 97,5 | 87,8 | 51,1 | 19,7 | 3,3 | 0,2 | 1,458 |
| 2009              | 43,1 | 31,2 | 94,8 | 89,0 | 54,1 | 21,5 | 3,8 | 0,2 | 1,473 |
| 2010              | 42,5 | 28,8 | 90,1 | 87,9 | 55,1 | 22,3 | 4,2 | 0,2 | 1,443 |
| 2011              | 43,6 | 28,1 | 89,9 | 89,2 | 58,0 | 24,6 | 4,6 | 0,2 | 1,459 |
| 2012              | 45,9 | 28,7 | 93,6 | 93,6 | 61,4 | 26,4 | 5,0 | 0,3 | 1,531 |
| 2013              | 45,0 | 27,2 | 91,0 | 91,5 | 61,2 | 27,2 | 5,2 | 0,3 | 1,506 |
| 2014 <sup>3</sup> | 44,5 | 27,0 | 89,9 | 91,3 | 60,6 | 27,6 | 5,5 | 0,4 | 1,498 |
| 2015 <sup>4</sup> | 44,2 | 27,3 | 92,3 | 91,8 | 58,8 | 27,3 | 5,6 | 0,4 | 1,506 |
| 2016 <sup>4</sup> | 42,7 | 25,3 | 87,8 | 90,1 | 58,7 | 27,3 | 5,8 | 0,5 | 1,466 |
| 2017 <sup>4</sup> | 39,6 | 22,4 | 79,5 | 84,8 | 56,3 | 26,7 | 5,9 | 0,7 | 1,374 |
| 2018 <sup>4</sup> | 36,9 | 19,7 | 73,3 | 80,3 | 54,3 | 26,4 | 6,1 | 0,7 | 1,301 |
| 2019 <sup>4</sup> | 34,3 | 16,9 | 68,1 | 76,5 | 52,4 | 25,3 | 5,9 | 0,8 | 1,228 |

<sup>1</sup> These groups include births given by mothers younger than 15 and older than 49 years.

<sup>2</sup> Per one woman.

<sup>3</sup> Excluding the temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol and administrative units data part of temporarily occupied territories in the Donetsk and Luhansk regions.

<sup>4</sup> Excluding the temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol data calculated excluding Donetsk and Luhansk regions.

Source: State Statistics Service of Ukraine ([ukrstat.gov.ua](http://ukrstat.gov.ua))



*Continuation of the table 1*  
(years)

|                   | Life expectancy at birth |       |        |
|-------------------|--------------------------|-------|--------|
|                   | total                    | male  | female |
| 1990              | 70,42                    | 65,60 | 74,82  |
| 1991              | 69,56                    | 64,62 | 74,21  |
| 1992              | 68,97                    | 63,81 | 73,98  |
| 1993              | 68,29                    | 63,16 | 73,35  |
| 1994              | 67,66                    | 62,39 | 72,95  |
| 1995              | 66,79                    | 61,22 | 72,54  |
| 1996              | 67,08                    | 61,52 | 72,80  |
| 1997              | 67,66                    | 62,23 | 73,19  |
| 1998              | 68,50                    | 63,17 | 73,84  |
| 1999              | 68,07                    | 62,62 | 73,61  |
| 2000              | 67,72                    | 62,10 | 73,53  |
| 2001              | 67,89                    | 62,32 | 73,63  |
| 2002 <sup>1</sup> | 68,32                    | 62,70 | 74,13  |
| 2003 <sup>1</sup> | 68,24                    | 62,64 | 74,06  |
| 2004 <sup>1</sup> | 68,22                    | 62,60 | 74,05  |
| 2005 <sup>1</sup> | 67,96                    | 62,23 | 73,97  |

|                   |       |       |       |
|-------------------|-------|-------|-------|
| 2006 <sup>1</sup> | 68,10 | 62,38 | 74,06 |
| 2007 <sup>1</sup> | 68,25 | 62,51 | 74,22 |
| 2008 <sup>1</sup> | 68,27 | 62,51 | 74,28 |
| 2009 <sup>1</sup> | 69,29 | 63,79 | 74,86 |
| 2010 <sup>1</sup> | 70,44 | 65,28 | 75,50 |
| 2011              | 71,02 | 65,98 | 75,88 |
| 2012              | 71,15 | 66,11 | 76,02 |
| 2013              | 71,37 | 66,34 | 76,22 |
| 2014 <sup>2</sup> | 71,37 | 66,25 | 76,37 |
| 2015 <sup>3</sup> | 71,38 | 66,37 | 76,25 |
| 2016 <sup>3</sup> | 71,68 | 66,73 | 76,46 |
| 2017 <sup>3</sup> | 71,98 | 67,02 | 76,78 |
| 2018 <sup>3</sup> | 71,76 | 66,69 | 76,72 |
| 2019 <sup>3</sup> | 72,01 | 66,92 | 76,98 |

<sup>1</sup> Data are calculated for two consecutive years.

<sup>2</sup> Excluding the temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol and administrative units data part of temporarily occupied territories in the Donetsk and Luhansk regions.

<sup>3</sup> Excluding the temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol data calculated excluding Donetsk and Luhansk regions.

Source: State Statistics Service of Ukraine ([ukrstat.gov.ua](http://ukrstat.gov.ua))

Table 2

*Preschool educational institutions*

|      | Number of institutions of preschool education <sup>2</sup> , thsd. | Number of places in institutions of preschool education <sup>3</sup> , thsd. | Number of persons in institutions of preschool education, thsd. | Coverage of children by institutions of preschool education, percentage of total children of specified age |
|------|--|--|---|--|
| 1990 | 24,5   | 2277   | 2428  | 57   |
| 1991 | 24,4   | 2243   | 2268  | 55   |
| 1992 | 23,8   | 2216   | 2063  | 51   |
| 1993 | 23,2   | 2189   | 1918  | 49   |
| 1994 | 22,3   | 2101   | 1736  | 47   |
| 1995 | 21,4   | 2014   | 1536  | 44   |
| 1996 | 20,2   | 1856   | 1342  | 41   |
| 1997 | 18,4   | 1770   | 1172  | 38   |
| 1998 | 17,6   | 1638   | 1103  | 38   |
| 1999 | 17,2   | 1216   | 1055  | 39   |
| 2000 | 16,3   | 1117   | 983   | 40   |
| 2001 | 15,7   | 1077   | 968   | 41   |
| 2002 | 15,3   | 1060   | 973   | 48   |
| 2003 | 15,0   | 1053   | 977   | 49   |
| 2004 | 14,9   | 1040   | 996   | 50   |
| 2005 | 15,1   | 1056   | 1032  | 51   |
| 2006 | 15,1   | 1063   | 1081  | 53   |

|                           |      |      |      |                 |
|---------------------------|------|------|------|-----------------|
| <b>2007</b>               | 15,3 | 1084 | 1137 | 54              |
| <b>2008</b>               | 15,4 | 1110 | 1195 | 54              |
| <b>2009</b>               | 15,5 | 1121 | 1214 | 53              |
| <b>2010</b>               | 15,6 | 1136 | 1273 | 53              |
| <b>2011</b>               | 16,1 | 1171 | 1354 | 55              |
| <b>2012</b>               | 16,4 | 1204 | 1428 | 57              |
| <b>2013</b>               | 16,7 | 1236 | 1471 | 61              |
| <b>2014<sup>1</sup></b>   | 15,0 | 1077 | 1295 | 55              |
| <b>2015<sup>1</sup></b>   | 14,8 | 1105 | 1291 | 55              |
| <b>2016<sup>1</sup></b>   | 14,9 | 1125 | 1300 | 57              |
| <b>2017<sup>1</sup></b>   | 14,9 | 1141 | 1304 | 59              |
| <b>2018<sup>1</sup></b>   | 14,9 | 1156 | 1278 | 61              |
| <b>2019<sup>1</sup></b>   | 14,8 | 1155 | 1230 | 63              |
| <b>2020<sup>1,5</sup></b> | 15,3 | 1153 | 1151 | 58 <sup>4</sup> |

<sup>1</sup> Data exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and temporarily occupied territories in the Donetsk and Luhansk regions.

<sup>2</sup> In 1990-2014 and in 2020, data include preschool educational institutions, which have not worked for a year or more for any reason, since 2015 - institutions that have worked throughout the year."

<sup>3</sup> In 1990-2014, data do not include places in the preschool educational institutions, which have not worked for a year or more for any reason."

<sup>4</sup> The calculation used data on the number of permanent population of Ukraine on 01.01.2020."

<sup>5</sup> Information has been compiled according to data from the State information system for education provided by the State scientific institution "Institute for Education Analytics" at the Ministry of Education and Science of Ukraine."

Source: State Statistics Service of Ukraine (ukrstat.gov.ua)

Table 3

*General education schools*  
(source: the Ministry of Education and Science of Ukraine)

(beginning of school year, thsd.)

|         | Total institutions | Total students | Total students |  | Students who finished general education schools (received a certificate) |                              | Total teachers |
|---------|--------------------|----------------|----------------|--|--|------------------------------|----------------|
|         |                    |                | full-time      | part-time, including distance learning | incomplete secondary education   | complete secondary education |                |
| 1990/91 | 21,8               | 7132           | 6939           | 193                                    | 696  | 406                          | 537            |
| 1991/92 | 21,9               | 7102           | 6918           | 184                                    | 699  | 409                          | 543            |
| 1992/93 | 22,0               | 7088           | 6918           | 170                                    | 683  | 393                          | 565            |
| 1993/94 | 22,1               | 7096           | 6937           | 159                                    | 674  | 375                          | 579            |
| 1994/95 | 22,3               | 7125           | 6972           | 153                                    | 654  | 355                          | 576            |
| 1995/96 | 22,3               | 7143           | 7007           | 136                                    | 639  | 361                          | 596            |
| 1996/97 | 22,2               | 7134           | 7016           | 118                                    | 657  | 374                          | 585            |
| 1997/98 | 22,1               | 7078           | 6970           | 108                                    | 670  | 378                          | 571            |
| 1998/99 | 22,1               | 6987           | 6876           | 111                                    | 724  | 408                          | 573            |
| 1999/00 | 22,2               | 6857           | 6743           | 114                                    | 737  | 434                          | 576            |
| 2000/01 | 22,2               | 6764           | 6647           | 117                                    | 720  | 475                          | 577            |
| 2001/02 | 22,2               | 6601           | 6486           | 115                                    | 738  | 505                          | 568            |
| 2002/03 | 22,1               | 6350           | 6237           | 113                                    | 724  | 508                          | 561            |

|                      |      |      |      |     |     |     |     |
|----------------------|------|------|------|-----|-----|-----|-----|
| 2003/04              | 21,9 | 6044 | 5936 | 108 | 720 | 526 | 551 |
| 2004/05              | 21,7 | 5731 | 5626 | 105 | 675 | 519 | 547 |
| 2005/06              | 21,6 | 5399 | 5301 | 98  | 649 | 515 | 543 |
| 2006/07              | 21,4 | 5120 | 5026 | 94  | 595 | 485 | 537 |
| 2007/08              | 21,2 | 4857 | 4768 | 89  | 561 | 467 | 531 |
| 2008/09              | 21,0 | 4617 | 4533 | 84  | 546 | 427 | 524 |
| 2009/10              | 20,6 | 4495 | 4421 | 74  | 317 | 391 | 522 |
| 2010/11              | 20,3 | 4299 | 4228 | 71  | 566 | 364 | 515 |
| 2011/12              | 19,9 | 4292 | 4225 | 67  | 480 | 215 | 509 |
| 2012/13              | 19,7 | 4222 | 4160 | 62  | 441 | 329 | 510 |
| 2013/14              | 19,3 | 4204 | 4150 | 54  | 411 | 304 | 508 |
| 2014/15 <sup>1</sup> | 17,6 | 3757 | 3718 | 39  | 339 | 247 | 454 |
| 2015/16 <sup>1</sup> | 17,3 | 3783 | 3750 | 33  | 336 | 229 | 444 |
| 2016/17 <sup>1</sup> | 16,9 | 3846 | 3815 | 30  | 329 | 211 | 438 |
| 2017/18 <sup>1</sup> | 16,2 | 3922 | 3894 | 28  | 329 | 203 | 440 |
| 2018/19 <sup>1</sup> | 15,5 | 4042 | 4017 | 25  | 345 | 195 | 441 |
| 2019/20 <sup>1</sup> | 15,2 | 4138 | 4116 | 22  | 352 | 198 | 440 |
| 2020/21 <sup>1</sup> | 14,9 | 4211 | 4191 | 20  | 345 | 222 | 440 |

<sup>1</sup> Data exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and temporarily occupied territories in the Donetsk and Luhansk regions.

Source: State Statistics Service of Ukraine (ukrstat.gov.ua)

Table 4

*Vocational schools<sup>1</sup>*  
*(source: the Ministry of Education and Science of Ukraine)*

|      | Total schools | Total students, thsd. | Admitted students, thsd. | Graduated, thsd. |
|------|---------------|-----------------------|--------------------------|------------------|
| 1990 | 1246          | 643,4                 | 380,5                    | 376,7            |
| 1991 | 1285          | 648,4                 | 377,4                    | 338,1            |
| 1992 | 1282          | 647,2                 | 367,9                    | 307,1            |
| 1993 | 1211          | 629,4                 | 340,8                    | 307,0            |
| 1994 | 1197          | 572,8                 | 286,0                    | 288,4            |
| 1995 | 1179          | 555,2                 | 300,5                    | 277,3            |
| 1996 | 1156          | 539,7                 | 304,2                    | 274,8            |
| 1997 | 1003          | 528,1                 | 311,2                    | 264,5            |
| 1998 | 995           | 529,0                 | 304,2                    | 259,2            |
| 1999 | 980           | 527,7                 | 307,3                    | 263,5            |
| 2000 | 970           | 524,6                 | 307,3                    | 266,8            |
| 2001 | 965           | 512,3                 | 309,1                    | 278,8            |
| 2002 | 962           | 501,9                 | 311,0                    | 282,4            |
| 2003 | 953           | 493,1                 | 311,2                    | 275,6            |
| 2004 | 1011          | 507,3                 | 327,6                    | 283,4            |
| 2005 | 1023          | 496,6                 | 314,2                    | 286,6            |
| 2006 | 1021          | 473,8                 | 303,7                    | 289,3            |
| 2007 | 1022          | 454,4                 | 299,2                    | 285,1            |



|                         |      |       |       |       |
|-------------------------|------|-------|-------|-------|
| <b>2008</b>             | 1018 | 443,6 | 288,1 | 269,6 |
| <b>2009</b>             | 975  | 424,3 | 249,9 | 239,4 |
| <b>2010</b>             | 976  | 433,5 | 282,9 | 247,4 |
| <b>2011</b>             | 976  | 409,4 | 241,7 | 240,1 |
| <b>2012</b>             | 972  | 423,3 | 241,8 | 202,1 |
| <b>2013</b>             | 968  | 391,2 | 225,2 | 227,3 |
| <b>2014<sup>2</sup></b> | 814  | 315,6 | 178,0 | 182,0 |
| <b>2015<sup>2</sup></b> | 798  | 304,1 | 176,6 | 165,0 |
| <b>2016<sup>2</sup></b> | 787  | 285,8 | 157,9 | 152,8 |
| <b>2017<sup>2</sup></b> | 756  | 269,4 | 146,9 | 141,3 |
| <b>2018<sup>2</sup></b> | 736  | 255,0 | 136,6 | 133,5 |
| <b>2019<sup>2</sup></b> | 723  | 245,8 | 131,0 | 124,0 |
| <b>2020<sup>2</sup></b> | 711  | 246,9 | 127,9 | 114,1 |

<sup>1</sup> Data for 1990 – vocational schools of the Ministry of Education and Science of Ukraine, since 1991 onwards – vocational schools of the Ministry of Educational and Science and other ministries.

<sup>2</sup> Data exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and temporarily occupied territories in the Donetsk and Luhansk regions.

**Source:** State Statistics Service of Ukraine ([ukrstat.gov.ua](http://ukrstat.gov.ua))

Table 5

*Institutions of tertiary education**(beginning of academic year)*

|                      | Number of institutions, units  |  | Number of students, of which, thsd.                                      |  |
|----------------------|--|--|--|--|
|                      | colleges,<br>technical<br>schools,<br>vocational<br>schools <sup>2</sup> | universities,<br>academies,<br>institutes <sup>3</sup> | colleges,<br>technical<br>schools,<br>vocational<br>schools <sup>2</sup> | universities,<br>academies,<br>institutes <sup>3</sup> |
| 1990/91              | 742  | 149  | 757,0  | 881,3  |
| 1991/92              | 754  | 156  | 739,2  | 876,2  |
| 1992/93              | 753  | 158  | 718,8  | 855,9  |
| 1993/94              | 754  | 159  | 680,7  | 829,2  |
| 1994/95              | 778  | 232  | 645,0  | 888,5  |
| 1995/96              | 782  | 255  | 617,7  | 922,8  |
| 1996/97              | 790  | 274  | 595,0  | 976,9  |
| 1997/98              | 660  | 280  | 526,4  | 1110,0   |
| 1998/99              | 653  | 298  | 503,7  | 1210,3   |
| 1999/00              | 658  | 313  | 503,7  | 1285,4   |
| 2000/01              | 664  | 315  | 528,0  | 1402,9   |
| 2001/02              | 665  | 318  | 561,3  | 1548,0   |
| 2002/03              | 667  | 330  | 582,9  | 1686,9   |
| 2003/04              | 670  | 339  | 592,9  | 1843,8   |
| 2004/05              | 619  | 347  | 548,5  | 2026,7   |
| 2005/06              | 606  | 345  | 505,3  | 2203,8   |
| 2006/07              | 570  | 350  | 468,0  | 2318,6   |
| 2007/08              | 553  | 351  | 441,3  | 2372,5   |
| 2008/09              | 528  | 353  | 399,3  | 2364,5   |
| 2009/10              | 511  | 350  | 354,2  | 2245,2   |
| 2010/11              | 505  | 349  | 361,5  | 2129,8   |
| 2011/12              | 501  | 345  | 356,8  | 1954,8   |
| 2012/13              | 489  | 334  | 345,2  | 1824,9   |
| 2013/14              | 478  | 325  | 329,0  | 1723,7   |
| 2014/15 <sup>1</sup> | 387  | 277  | 251,3  | 1438,0   |
| 2015/16 <sup>1</sup> | 371  | 288  | 230,1  | 1375,2   |
| 2016/17 <sup>1</sup> | 370  | 287  | 217,3  | 1369,4   |
| 2017/18 <sup>1</sup> | 372  | 289  | 208,6  | 1330,0   |
| 2018/19 <sup>1</sup> | 370  | 282  | 199,9  | 1322,3   |
| 2019/20 <sup>1</sup> | 338  | 281  | 173,6  | 1266,1   |

Source: State Statistics Service of Ukraine (ukrstat.gov.ua)

|                   | Number of entrants <sup>4</sup> , thsd.                      |  | Number of graduates <sup>5</sup> , thsd.                     |  | Number of postgraduate students, persons <sup>6</sup> | Number of Doctorate, persons <sup>6</sup> |
|-------------------|--|--|--|--|---|---|
|                   | colleges, technical schools, vocational schools <sup>2</sup> | universities, academies, institutes <sup>3</sup> | colleges, technical schools, vocational schools <sup>2</sup> | universities, academies, institutes <sup>3</sup> |   |   |
| 1990              | 241,0  | 174,5  | 228,7  | 136,9  | 13374   | ...                                       |
| 1991              | 237,5  | 173,7  | 223,0  | 137,0  | 13596   | 503                                       |
| 1992              | 212,6  | 170,4  | 199,8  | 144,1  | 13992   | 592                                       |
| 1993              | 198,9  | 170,0  | 198,0  | 153,5  | 14816   | 765                                       |
| 1994              | 194,0  | 198,0  | 204,3  | 149,0  | 15643   | 927                                       |
| 1995              | 188,8  | 206,8  | 191,2  | 147,9  | 17464   | 1105                                      |
| 1996              | 183,4  | 221,5  | 185,8  | 155,7  | 19227   | 1197                                      |
| 1997              | 166,2  | 264,7  | 162,2  | 186,7  | 20645   | 1233                                      |
| 1998              | 164,9  | 290,1  | 156,9  | 214,3  | 21766   | 1247                                      |
| 1999              | 170,1  | 300,4  | 156,0  | 240,3  | 22300   | 1187                                      |
| 2000              | 190,1  | 346,4  | 148,6  | 273,6  | 23295   | 1131                                      |
| 2001              | 201,2  | 387,1  | 147,5  | 312,8  | 24256   | 1106                                      |
| 2002              | 203,7  | 408,6  | 155,5  | 356,7  | 25288   | 1166                                      |
| 2003              | 202,5  | 432,5  | 162,8  | 416,6  | 27106   | 1220                                      |
| 2004              | 182,2  | 475,2  | 148,2  | 316,2  | 28412   | 1271                                      |
| 2005              | 169,2  | 503,0  | 142,7  | 372,4  | 29866   | 1315                                      |
| 2006              | 151,2  | 507,7  | 137,9  | 413,6  | 31293   | 1373                                      |
| 2007              | 142,5  | 491,2  | 134,3  | 468,4  | 32497   | 1418                                      |
| 2008              | 114,4  | 425,2  | 118,1  | 505,2  | 33344   | 1476                                      |
| 2009              | 93,4   | 370,5  | 114,8  | 527,3  | 34115   | 1463                                      |
| 2010              | 129,1  | 392,0  | 111,0  | 543,7  | 34653   | 1561                                      |
| 2011              | 105,1  | 314,5  | 96,7   | 529,8  | 34192   | 1631                                      |
| 2012              | 99,8   | 341,3  | 92,2   | 520,7  | 33640   | 1814                                      |
| 2013              | 93,9   | 348,0  | 91,2   | 485,1  | 31482   | 1831                                      |
| 2014 <sup>1</sup> | 69,5   | 291,6  | 79,1   | 405,4  | 27622   | 1759                                      |
| 2015 <sup>1</sup> | 63,2   | 259,9  | 73,4   | 374,0  | 28487   | 1821                                      |
| 2016 <sup>1</sup> | 60,6   | 253,2  | 68,0   | 318,7  | 25963   | 1792                                      |
| 2017 <sup>1</sup> | 59,1   | 264,4  | 61,2   | 359,9  | 24786   | 1646                                      |
| 2018 <sup>1</sup> | 53,5   | 256,8  | 55,5   | 357,4  | 22829   | 1145                                      |
| 2019 <sup>1</sup> | 47,1 7   | 250,1 7  | 50,2   | 333,6  | 25245   | 1113                                      |

<sup>1</sup> Data exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and temporarily occupied territories in the Donetsk and Luhansk regions.

<sup>2</sup> By the 2016/17 academic year – 1st and 2nd levels of accreditation.

<sup>3</sup> By the 2016/17 academic year – 3rd and 4th levels of accreditation.

<sup>4</sup> Number of first-time new entrants to institutions of tertiary education (excluding those who continue their studies for the purpose of obtaining a higher educational degree (educational qualification level)).

<sup>5</sup> Number of graduates (excluding those who continue their studies for the purpose of obtaining a higher educational degree (educational qualification level)).

<sup>6</sup> The end of the years 1990, 1991, ..., 2019.

<sup>7</sup> Beginning of 2019/20 academic year.

Source: State Statistics Service of Ukraine (ukrstat.gov.ua)

Table 6

## Number of R&amp;D personnel by occupation for 2010-2020

|                     | Number of R&D personnel — total, persons | Including   |  |               |  |               |  |
|---------------------|--|-------------|--|---------------|--|---------------|--|
|                     |  | researchers |  | technicians   |  | support staff |  |
|                     |  | persons     | in percentage of the total number of R&D personnel | ociб/ persons | in percentage of the total number of R&D personnel | persons       | in percentage of the total number of R&D personnel |
| 2010 <sup>1</sup>   | 182484                                   | 133744      | 73,3   | 20113         | 11,0   | 28627         | 15,7   |
| 2011 <sup>1</sup>   | 175330                                   | 130403      | 74,4   | 17260         | 9,8  | 27667         | 15,8   |
| 2012 <sup>1</sup>   | 164340                                   | 122106      | 74,3   | 15509         | 9,4  | 26725         | 16,3   |
| 2013 <sup>1</sup>   | 155386                                   | 115806      | 74,5   | 14209         | 9,2  | 25371         | 16,3   |
| 2014 <sup>1,3</sup> | 136123                                   | 101440      | 74,5   | 12299         | 9,0  | 22384         | 16,5   |
| 2015 <sup>1,3</sup> | 122504                                   | 90249       | 73,7   | 11178         | 9,1  | 21077         | 17,2   |
| 2016 <sup>2,3</sup> | 97912                                    | 63694       | 65,1   | 10000         | 10,2   | 24218         | 24,7   |
| 2017 <sup>2,3</sup> | 94274                                    | 59392       | 63,0   | 9144          | 9,7  | 25738         | 27,3   |
| 2018 <sup>2,3</sup> | 88128                                    | 57630       | 65,4   | 8553          | 9,7  | 21945         | 24,9   |
| 2019 <sup>2,3</sup> | 79262                                    | 51121       | 64,5   | 7470          | 9,4  | 20671         | 26,1   |
| 2020 <sup>2,3</sup> | 78860                                    | 51427       | 65,2   | 7117          | 9,0  | 20316         | 25,8   |

## Notes.

<sup>1</sup> Data for 2010-2015 include regular and temporary employees (employees holding a second job and persons who work under the civil and legal contracts including the scientific and pedagogical employees).

<sup>2</sup> Starting from 2016, the data are given without taking into account scientific and pedagogical workers who did not carry out scientific research and development.

<sup>3</sup> Data for 2014-2020 exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.

Source: State Statistics Service of Ukraine (ukrstat.gov.ua)

Table 7

## Number of R&amp;D personnel with a scientific degree, for 2010-2020

|                     | Number of R&D personnel — total, persons | Of them have a scientific degree |  |                             |  |
|---------------------|--|----------------------------------|--|-----------------------------|--|
|                     |  | doctor of science                |  | PhD / candidate of sciences |  |
|                     |  | persons                          | in percentage of the total number of R&D personnel | oci6 / persons              | in percentage of the total number of R&D personnel |
| 2010 <sup>1</sup>   | 182484                                   | 11974                            | 6,6  | 46685                       | 25,6   |
| 2011 <sup>1</sup>   | 175330                                   | 11677                            | 6,7  | 46321                       | 26,4   |
| 2012 <sup>1</sup>   | 164340                                   | 11172                            | 6,8  | 42050                       | 25,6   |
| 2013 <sup>1</sup>   | 155386                                   | 11155                            | 7,2  | 41196                       | 26,5   |
| 2014 <sup>1,3</sup> | 136123                                   | 9983                             | 7,3  | 37082                       | 27,2   |
| 2015 <sup>1,3</sup> | 122504                                   | 9571                             | 7,8  | 32849                       | 26,8   |
| 2016 <sup>2,3</sup> | 97912                                    | 7091                             | 7,2  | 20208                       | 20,6   |
| 2017 <sup>2,3</sup> | 94274                                    | 6942                             | 7,4  | 19219                       | 20,4   |
| 2018 <sup>2,3</sup> | 88128                                    | 7043                             | 8,0  | 18806                       | 21,3   |
| 2019 <sup>2,3</sup> | 79262                                    | 6526                             | 8,2  | 16929                       | 21,4   |
| 2020 <sup>2,3</sup> | 78860                                    | 7060                             | 9,0  | 17949                       | 22,8   |

## Notes.

<sup>1</sup> Data for 2010-2015 include regular and temporary employees (employees holding a second job and persons who work under the civil and legal contracts including the scientific and pedagogical employees).

<sup>2</sup> Starting from 2016, the data are given without taking into account scientific and pedagogical workers who did not carry out scientific research and development.

<sup>3</sup> Data for 2014-2020 exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.

Source: State Statistics Service of Ukraine ([ukrstat.gov.ua](http://ukrstat.gov.ua))

Table 8

## Research and development expenditure by R&amp;D type for 2010-2020

|                     | R&D expenditure — total, mln. UAH | Including performance |  |                  |  |                          |  | Share of R&D expenditures in GDP, % |
|---------------------|-----------------------------------|-----------------------|--|------------------|--|--------------------------|--|-------------------------------------|
|                     |                                   | basic research        |  | applied research |  | experimental development |  |                                     |
|                     |                                   | mln. UAH              | percentage of the total sum of R&D expenditure | mln. UAH         | percentage of the total sum of R&D expenditure | mln. UAH                 | percentage of the total sum of R&D expenditure |                                     |
| 2010 <sup>1</sup>   | 8107,1                            | 2175,0                | 26,8   | 1589,4           | 19,6   | 4342,7                   | 53,6   | 0,75                                |
| 2011 <sup>1</sup>   | 8513,4                            | 2200,8                | 25,9   | 1813,9           | 21,3   | 4498,7                   | 52,8   | 0,65                                |
| 2012 <sup>1</sup>   | 9419,9                            | 2615,3                | 27,8   | 2023,2           | 21,5   | 4781,4                   | 50,7   | 0,67                                |
| 2013 <sup>1</sup>   | 10248,5                           | 2698,2                | 26,3   | 2061,4           | 20,1   | 5488,9                   | 53,6   | 0,70                                |
| 2014 <sup>1,2</sup> | 9487,5                            | 2452,0                | 25,9   | 1882,7           | 19,8   | 5152,8                   | 54,3   | 0,60                                |
| 2015 <sup>1,2</sup> | 11003,6                           | 2460,2                | 22,4   | 1960,6           | 17,8   | 6582,8                   | 59,8   | 0,55                                |

|                         |         |        |      |        |      |        |      |      |
|-------------------------|---------|--------|------|--------|------|--------|------|------|
| <b>2016<sup>2</sup></b> | 11530,7 | 2225,7 | 19,3 | 2561,2 | 22,2 | 6743,8 | 58,5 | 0,48 |
| <b>2017<sup>2</sup></b> | 13379,3 | 2924,5 | 21,9 | 3163,2 | 23,6 | 7291,6 | 54,5 | 0,45 |
| <b>2018<sup>2</sup></b> | 16773,7 | 3756,5 | 22,4 | 3568,3 | 21,3 | 9448,9 | 56,3 | 0,47 |
| <b>2019<sup>2</sup></b> | 17254,6 | 3740,4 | 21,7 | 3635,7 | 21,1 | 9878,5 | 57,2 | 0,43 |
| <b>2020<sup>2</sup></b> | 17022,4 | 4259,0 | 25,0 | 3971,4 | 23,3 | 8792,1 | 51,7 | 0,41 |

**Notes.**

<sup>1</sup> Data for 2010-2015 have been recalculated excluding the expenditure for rendering the scientific and technical services.

<sup>2</sup> Data for 2014-2020 exclude the temporarily occupied territory of the Autonomous Republic of Crimea, the city of Sevastopol and a part of temporarily occupied territories in the Donetsk and Luhansk regions.

**Source:** State Statistics Service of Ukraine ([ukrstat.gov.ua](http://ukrstat.gov.ua))



Table 9

*Average monthly wages of regular employees by types of economic activity (2010-2020)*  
*(wage accruals per pay-roll, UAH)*

| Activity   | 2010        | 2011        | 2012        | 2013        | 2014        | 2015        | 2016        | 2017        | 2018        | 2019         | 2020         |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|
| <b>On average for an economy</b>                                     | <b>2250</b> | <b>2648</b> | <b>3041</b> | <b>3282</b> | <b>3480</b> | <b>4195</b> | <b>5183</b> | <b>7104</b> | <b>8865</b> | <b>10497</b> | <b>11591</b> |
| Agriculture, forestry and fishing                                    | 1467        | 1852        | 2094        | 2344        | 2556        | 3309        | 4195        | 6057        | 7557        | 8856         | 9757         |
| of which agriculture   | 1422        | 1786        | 2024        | 2269        | 2476        | 3140        | 3916        | 5761        | 7166        | 8738         | 9734         |
| Manufacturing  | 2578        | 3119        | 3497        | 3774        | 3988        | 4789        | 5902        | 7631        | 9633        | 11788        | 12759        |
| Construction   | 1777        | 2294        | 2543        | 2727        | 2860        | 3551        | 4731        | 6251        | 7845        | 9356         | 9832         |
| Wholesale and retail trade; repair of motor vehicles and motorcycles | 1898        | 2371        | 2739        | 3049        | 3439        | 4692        | 5808        | 7631        | 9404        | 10795        | 11286        |
| Transportation and warehousing, postal and courier activities        | 2648        | 3061        | 3405        | 3582        | 3768        | 4653        | 5810        | 7688        | 9860        | 11704        | 11951        |
| Land transport and transport via pipelines                           | 2357        | 2706        | 2977        | 3181        | 3541        | 4172        | 5265        | 7183        | 9187        | 10705        | 11288        |
| Water transport  | 2781        | 3058        | 2908        | 3340        | 3622        | 5076        | 6974        | 7590        | 10467       | 13057        | 12807        |
| Air transport  | 6947        | 8917        | 9996        | 10642       | 11967       | 18470       | 24688       | 31088       | 35651       | 27300        | 21685        |
| Warehousing and support activities for transportation                | 2976        | 3427        | 3848        | 4040        | 4231        | 5358        | 6603        | 8485        | 10884       | 12954        | 13137        |
| Postal and courier activities  | 1521        | 1693        | 1845        | 1917        | 1934        | 2180        | 2818        | 3851        | 5044        | 5993         | 6838         |

|   |      |      |      |      |      |      |       |       |       |       |       |
|---|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| Accommodation and food service activities                     | 1424 | 1750 | 2020 | 2195 | 2261 | 2786 | 3505  | 4988  | 5875  | 6730  | 6026  |
| Information and communication                                 | 3185 | 3705 | 4360 | 4659 | 5176 | 7111 | 9530  | 12018 | 14276 | 17543 | 19888 |
| Financial and insurance activities                            | 4695 | 5433 | 6077 | 6326 | 7020 | 8603 | 10227 | 12865 | 16161 | 19132 | 20379 |
| Real estate activities  | 1864 | 2184 | 2384 | 2786 | 3090 | 3659 | 4804  | 5947  | 7329  | 8626  | 8981  |
| Professional, scientific and technical activities             | 2914 | 3575 | 4287 | 4505 | 5290 | 6736 | 8060  | 10039 | 12144 | 14550 | 16613 |
| of which scientific research and development                  | 2901 | 3296 | 3805 | 4059 | 4268 | 4972 | 6119  | 8212  | 10259 | 11649 | 12882 |
| Administrative and support service activities                 | 1826 | 2162 | 2298 | 2546 | 2601 | 3114 | 3995  | 5578  | 7228  | 8700  | 9878  |
| Public administration and defence; compulsory social security | 2735 | 3049 | 3432 | 3719 | 3817 | 4381 | 5953  | 9372  | 12698 | 14785 | 16443 |
| Education   | 1884 | 2077 | 2532 | 2696 | 2745 | 3132 | 3769  | 5857  | 7041  | 8135  | 9271  |
| Human health and social work activities                       | 1616 | 1762 | 2186 | 2351 | 2441 | 2829 | 3400  | 4977  | 5853  | 7020  | 8848  |
| of which human health   | 1624 | 1768 | 2204 | 2374 | 2463 | 2853 | 3435  | 5023  | 5898  | 7087  | 8995  |
| Arts, sport, entertainment and recreation                     | 2129 | 2394 | 3017 | 3343 | 3626 | 4134 | 4844  | 6608  | 7612  | 8659  | 9624  |

|  |      |      |      |      |      |      |      |      |      |      |       |
|--|------|------|------|------|------|------|------|------|------|------|-------|
| arts, entertainment and recreation activities              | 1905 | 2096 | 2611 | 2934 | 2841 | 3150 | 3828 | 5774 | 6801 | 7834 | 8564  |
| Libraries, archives, museums and other cultural activities | 1912 | 2124 | 2579 | 2737 | 2769 | 3049 | 3705 | 5464 | 6381 | 7519 | 8024  |
| Other service activities                                   | 1742 | 2062 | 2601 | 2738 | 3361 | 3634 | 4615 | 6536 | 8132 | 9096 | 11998 |
|  |      |      |      |      |      |      |      |      |      |      |       |

**Note.** Data are given by legal persons and detached units of legal persons with 10 and more employees.

Since 2013 data are summarized by type of economic activity in line with the Classification of types of economic activity (State Classification 009:2010) which took effect on January 1, 2012.

Data for 2010-2012 were recalculated by type of economic activity according to the State Classification 009:2010.

Data for 2010-2014 are given excluding the temporarily occupied territories of the Autonomous Republic of Crimea, the city of Sevastopol, since 2015 – also excluding the temporarily occupied territories in the Donetsk and Luhansk regions.

**Source:** State Statistics Service of Ukraine ([ukrstat.gov.ua](http://ukrstat.gov.ua))

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