

NATIONAL ACADEMY OF EDUCATIONAL SCIENCES OF UKRAINE

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

Edited by the President of the NAES of Ukraine Vasyl Kremen

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The comprehensive analysis of the state and prospects of national education development over the 25 years of Ukraine's Independence is made; the educational sphere actual problems are determined; the causes of their appearance are revealed; the scientifically grounded proposals concerning the ways of domestic education modernization in the context of globalization, European integration and national self-identification are proposed.

The report will be useful to policy makers, state leaders, education institutions leaders, pedagogical and scientific and pedagogical personnel, wide community and everyone who cares for the competitiveness of Ukrainian education.

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INTRODUCTION

The world around us has changed significantly over the 25 years of Ukraine's Independence. Ukraine itself has also changed greatly while solving the dual mission. On the one hand, the country has overcome the negative legacy of the past by standing on the path of national sovereignty. On the other hand, Ukrainian society sought either to modernize on innovational basis or to gain acceleration as the result of global development.

People have always been and remain the main driver of this process — competent and qualified, constructive and competitive, compromising and cooperative. Education plays a constantly increasing role in the development of human potential and therefore, in human capital, of course if education is contemporary and meets all the best quality standards. Due to the educational component in the indexes of human development and global competitiveness, Ukraine holds average positions among many countries of the world.

Furthermore, at the same time it becomes apparent that extensive path of national education development has reached its logical end. Its new agenda is in gaining new quality characteristics that meet the current requirements. Figuratively speaking, the educational “added value” lies in the formation of the human capital and in the modern innovative type of personality, its role should be definitely increased.

Consequently, the subject of the National Report is dedicated to the current state and the nearest prospects of Ukrainian education development, the education that aims to bring up highly innovative and creative people. The scientifically grounded proposals concerning the urgent actions towards modernization of education are presented in the report on the basis of comprehensive analysis of the achievements and failures, including their causes, during the period of 1990-2015. After the White Book of National Education (2010) and the National Report on the State and Prospects of Education Development in Ukraine (2011), the current edition is the third analytical document prepared in recent years by the National Academy of Educational Sciences of Ukraine (NAES of Ukraine).

Thus, twenty-five years Ukraine's independence strengthening was marked by the formation, implementation and modernization of the national education policy. During 1991-2002 there was created quite self-sufficient working system of the national education. While preserving the progressive traditions of the past it has corresponded to the new social relations more effectively and had accumulated the innovative potential for the further development. Started with the adoption in 1991 of the Laws on Education and on Science and Scientific and Technology Activities this period of national education self-identification ended with final disintegration with the post-Soviet education space, creation of the national education legislation and adoption of the National Doctrine of Education Development.

In the forthcoming period of 2003-2013 the state education policy has been implemented within the framework of increasing spectrum and strength of the transformational impact of European integration and world globalization. Despite a number of positive changes, including innovational initiatives of the NAES of Ukraine, the national education system has accumulated some contradictions with the current European and worldwide practice. In particular, in 2010

the transition to the compulsory 12-year comprehensive secondary education was groundlessly canceled at the legislative level.

The current period of modernization of national education policy has been launched in 2014, in which a new approach for the quality education and its social role has been influenced by the Revolution of Dignity and signing the Association Agreement between Ukraine and the European Union. At the beginning of the period on the basis of the Bologna Process in creation of the European Higher Education Area the innovational Law of Ukraine “On Higher Education” was adopted. In 2015 within the framework of the European Research Area another progressive Ukrainian Law “On Science and Scientific and Technology Activities” was adopted. In the 2015-2016 the draft Law “On Education” has been submitted to the Parliament, currently undergoing the trial period; also there were prepared several other acts of legislation on education that continue systematic modernization of the national education legal framework. Ukrainian researchers of the NAES of Ukraine worked proactively following the top global trends, particularly taking an active part in the modernization of the educational and scientific sphere legislation.

This period was complicated with social and economic crisis caused by the Russian aggression, which led to massive movement of adults and children, education and research institutions, as well as to other various complications. However, the recent years were characterized by the new opportunities associated with significant intensification of international cooperation in science and education, its increasing openness to global innovations, acceptance of the European vector of development.

Among the lessons of the 25-year experience come the following conclusions: the state education policy should be poly-subjective, proactive, systematic, consistent, scientifically grounded and internationally agreed. In public policy the priority should be given to humanocentrism, quality and accessibility, competitiveness and performance of integration to European and world-wide education and research system; periodic national and international monitoring; comprehensive analysis of the state and prospects of education development, in particular launched by the NAES of Ukraine; provision of the necessary stable sufficient financial and intellectual resources. State education policy aims to change public attitudes towards education and its research orientation in the prospect of reforming the educational sphere, as required by the European integration and globalization challenges of the XXI century, investigative and innovative character of civilization progress, cultural, historical, social, political, socio-economic, scientific and technological processes in the Ukrainian society.

A new round of Ukrainian education should possess proper scientific grounding of changes. Since independence, education as the largest humanitarian sphere, despite the crisis, was able to establish the foundations of theoretical and methodological and scientific and methodical support. The NAES of Ukraine, established in 1992, became the center of the relevant research organizations of Ukraine.

However, the process of integral support is not completed. Its positive tendency has been halted in recent years by the short-sighted policy, partially destroying the gained achievements. Expenditures on science and scientific and technology activities of the NAES of Ukraine is less than 0.1% of budget spending on education. As a result, there are insufficient resources for holding the systematic comprehension of the world transformational processes in education, conduction of applied research and preparation of experimental developments, creation of advanced technologies and other measures of innovation activity and international cooperation. In general, during the 2015-2016, due to the reduction of funding, there were fired more than

800 (almost 37%) of employees of the NAES of Ukraine. In 2016 due to the lack of funds, the NAES of Ukraine practically blocked the training of Doctors of Philosophy (PhD) and Doctors of Sciences (DSc) (compared with 2014 admission to PhD studies reduced by 70% and to DSc studies by 95%). All this negatively affects level and pace of Ukrainian education modernization.

To strengthen the scientific support of the educational sphere, the following points are necessary.

First. To ensure the adequate and stable funding of the NAES of Ukraine being de facto the leading research organization in the field of education, pedagogy and psychology. Bringing the state funding of the NAES of Ukraine to no less than 0.2% of the total public expenditure on education; Ukrainian research organizations in the fields of pedagogical and psychological sciences in general — up to 2% of the total funding for science and scientific and technology activities in the country. Increase of the share of funding for applied research and experimental developments, capital expenditures, especially on the necessary equipment to carry out experimental verification and inventions implementation, as well as increasing the competitiveness of researchers' salaries.

Second. To increase the state order of the NAES of Ukraine to reproduce personnel capacity of researchers, training of Masters, PhD and DSc, as well as in-service training of managers in the field of education, pedagogy and psychology.

Third. For the research institutions of the NAES of Ukraine and other research organizations it is urgent to expand the international cooperation, increase the quantity of joint projects, internships, conferences and publications that also need appropriate investments.

The proposed National Report is the integral analytical paper produced by the joint research team consisting of nearly 120 researchers of the NAES of Ukraine. The report consists of an introduction, 18 chapters concerning all levels of education and major cross-cutting educational factors, have a short summary, conclusion, three appendixes with graphic illustration of the state, processes and trends in education of Ukraine and the world, basic statistics for 25 year period of independence, as well as the results of the modern sociological surveys in the education sector of the country.

The report will be useful to policy makers, managers, educators, researchers, students, PhD and DSc students, parents and everyone who cares for the future of Ukraine and its educated, highly intellectual, wise people.

1. STATE EDUCATION POLICY IN THE CONTEXT OF GLOBALIZATION AND EUROPEAN INTEGRATION: LESSONS OF THE TWENTY-FIVE YEARS OF INDEPENDENCE AND THE LEGISLATION RENEWAL

Twenty-five years Ukraine's independence strengthening was marked by the formation, implementation and modernization of the national education policy. During the 1991-2002 there was created quite self-sufficient working system of the national education. While preserving the progressive traditions of the past it has corresponded to the new social relations more effectively and had accumulated the innovative potential for the further development. Started with the adoption in 1991 of the Laws on Education and on Science and Scientific and Technology Activities this period of national education self-identification ended with final disintegration with the post-Soviet education space, creation of the national education legislation and adoption of the National Doctrine of Education Development.

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Development of the State Education Policy under the State Sovereignty of Ukraine

The beginning of the third millennium is characterized by globalization of social development, the convergence of nations, peoples, states, transition from industrial development to the scientific and information technologies, high economic and technological structures that are largely based on educational and intellectual potential of the population. However, there is an increase in the competition between regions, nations, states and individual citizens.

Particularly for the XXI century it becomes typical to realize that education can no longer be seen as costly social benefit that doesn't cover costs spent on it. Instead it is a productive factor and condition for the development and, therefore, it should acquire the status of the national strategy.

Civilization trends gave rise to a new paradigm of education, its reorientation from the state to the individual, to fundamental human values and consistent democratization.

Since gaining its sovereignty, Ukraine has started to build its own state education policy. Throughout 25 years there has been defined its basic principles and mechanisms.

The first period of 1991-2002 — is the period of national self-identification in education. In 1991 the Law of Ukrainian SSR “On Education” and the Law of Ukraine “On Scientific and Scientific and Technical Activities” were adopted.

During the First All-Ukrainian Congress of Educators (1992), the State National Program “Education” (“Ukraine of the XXI Century”) has been approved, which was adopted by the Cabinet of Ministers of Ukraine in 1993.

In 1992 by the Decree of the President of Ukraine there has been created the Academy of Educational Sciences of Ukraine as the highest branch state research institution that develops methodology, theory and methods of education for all the educational levels, provides scientific and methodical guidance for the modernization of the national education system.

In 1995 the first Parliamentary Hearings on the state of education in Ukraine has been held.

Due to the economic crisis and weak government control in these years the pre-primary education has begun to reduce. The 1995-1998 has been marked by mass strikes of educators in many parts of the country due to salary arrears. The mentioned period is characterized by the active uncontrolled creation of universities.

Real strategic education reform in those years did not take place for many reasons: lack of necessary and sufficient legal framework of its functioning, the socio-economic difficulties, contradictions and excessive politicization of reform steps, a sharp deterioration in the quality of life and social stratification of citizens, reduction of the status of educators. In fact it was survival, not the development of education.

In 1996 the Constitution of Ukraine has been adopted and amendments to the Law of Ukrainian SSR “On Education” have been introduced.

In order to develop the education and overcome the crisis, during the 1998-2002 there have been passed a number of laws of direct action. After the framework laws on Education (1991, 1996) and on Science and Scientific and Technology Activities (1991), there have been consistently adopted the laws of Ukraine “On Vocational Education” (1998), “On Comprehensive Secondary Education” (1999), “On Out-of-School Education” (2000), “On Pre-primary Education” (2001), “On Higher Education” (2002) and also the laws “On Protection of Childhood” (2001), “On Social Work with Children and Youth” (2001). After the approval on the Second All-Ukrainian Congress of Educators (October 2001), in 2002 the National Doctrine of Education Development has been approved by the Decree of the President of Ukraine.

The next period (2003-2013) — is marked by the state policy formation in the new methodological and socio-economic context — it has been defined by the processes of European integration and world globalization, acceleration of human development on research and innovation grounds.

In 2005 Ukraine has formally joined the Bologna process of building an attractive and competitive European Higher Education Area. However, the actual implementation of its main instruments (cycle organization of higher education, the European Credit Transfer and Accumulation System, national qualifications frameworks, standards and guidelines for quality assurance in the European Higher Education Area) has been delayed. In global terms, there has been a lag in the county’s implementation of the International Standard Classification of Education in 2011 and its field version in 2013. The system of Ukrainian education and scientific legislation did not meet the mentioned and other international documents. In this regard, the NAES of Ukraine has initiated a review of the conceptual principles of the National Qualifications Framework development (2010) on the Academy’s General Meeting, which a year later was approved by the Cabinet of Ministers of Ukraine on November 23, 2011 and of the National Standard Classification of Education (2013) as a national classifier of Ukraine. After all these and other initiatives of the NAES of Ukraine were normalized in the new laws on Higher Education and on Science and Scientific and Technology Activities, opening the way to create a clear system of individual’s lifelong learning. In general, aggravation of the crisis in the educational and scientific spheres led to more drastic reform actions, caused by overdue processes of European integration and globalization, what happened in the next period launched in 2014. Its start has been hastened by the social and political revolution of the late 2013 — early 2014.

The period from 2014 is characterized by complex modernization of the educational and scientific sphere. The progressive Laws of Ukraine “On Higher Education” (2014) and “On

Science and Scientific and Technology Activities” (2015) were adopted, a draft of new basic Law of Ukraine “On Education” was prepared and submitted to the Parliament, drafts of other education legislation acts were prepared.

Thus, during the years of independence, Ukraine has made significant progress in the formation, implementation and development of state education policy.

Although in the new documents on education policy the terminology field of basic concepts, content and time frames of changes in education are more precisely defined, while their implementation and observance have been systematically violated. In addition, the system monitoring of the quality of education is practically not carried out, thus there is lack of the objective data of the sphere development for the public administration. For a large number of conceptual and regulatory developments, the scope, pace and depth of reforms in education do not significantly meet the needs of the state, society and the individuals.

Analysis of Advances and Losses in the Process of Education Reform

Modern education policy should be implemented in the context of the country’s modernization needs according to the Strategy for Sustainable Development “Ukraine — 2020” (2015), the Association Agreement between Ukraine and the European Union (2014) and other strategic documents of Ukraine, which define its European and international status in the future. It is evident that reform cannot be successful if it is carried out as a stream of permanent, local changes, often conflicting, conceptually not united, has not gained wide support and understanding among educators and society. Therefore, it is important to evaluate objectively the achievements and losses of the past twenty-five years.

Among the most important achievements are:

- development of new methodology of Ukrainian education development;
- creation of new legal framework for education;
- defining the principles of equal access to quality education;
- formation of education content on the base of state standards;
- creation of scientific and methodological and largely program and methodical resource for the transition to the 12-year comprehensive secondary education;
- transition to the variable education;
- use of new forms and technologies of control and evaluation of academic achievements, introduction of the external independent assessment;
- introduction of new methods of pedagogical and scientific and pedagogical personnel attestation;
- dissemination of new educational technologies;
- gradual transition to multi-way financing;
- creation of the national pedagogical press;
- development of professional associations.

Major losses of the Ukrainian education reforming are:

- lack of systematic research-based ideology of education development;

- reduction of the pre-primary education institutions network due to the government withdrawal from salvation of the pre-primary education problems;
- functions of VET institutions and vocational schools, colleges under the new market conditions, innovative economy are still being undefined;
- due to the weak control at the center and at the local positions of the quantitative growth of higher education institutions, there appeared some risks that youth might obtain poor quality of education, thus the image of Ukrainian higher education abroad has deteriorated;
- transition to the next stages of education system modernization without proper monitoring as a preliminary condition;
- teacher education became the outsider for the higher education; the teacher is not formed as the subject of current values;
- aging of logistics.

The causes for this situation are:

- lack of real recognition by the state that education is an engine of social and economic development;
- a certain non-coordination of the laws of direct action, their functional incompleteness;
- insufficient monitoring of the education laws and regulations implementation;
- lack of meaningfulness of the fast and non-system changes in education;
- low social and material status of pedagogical and scientific and pedagogical personnel;
- centralized management;
- lack of modern statistics, timely objective and complete information about education management;
- provision of education institutions with programs, textbooks, equipment has not been achieved;
- unwillingness of substantial part of pedagogical and scientific and pedagogical personnel and education institutions leaders to participate effectively in the innovative development of education;
- creation of a system of continuous education remains on the periphery of public attention.

These and other mentioned areas of education have not yet accrued systemic, interconnected nature and, therefore, do not form a coherent state policy in education.

It is necessary to take into account positive international experience, current and future directions of our country in the process of formation of the national education policy.

Features of the National Education Policy in the European and World Leading Countries and Opportunities of Their Implementation in Ukraine

Modern feature of the educational political process in the context of globalization is the powerful influence of the international institutions — the UN, UNESCO, EU, OECD and World Bank, which form common supra-national educational priorities.

In terms of national variability common ideas of the international community that determine effective education policy in any country are contextuality, political feasibility, financial realism, involvement of all stakeholders.

Among common rules ensuring the implementation of education policy there are:

- consideration during the planning process of education policy the objective information about the state of education, contextual analysis of the conditions and prospects of development of the country, evaluation of the interests of all the participants and their role in educational transformations;
- development of education policy options with regard to effectiveness, acceptability, political, temporal and financial feasibility in advance, before the political decision-making;
- taking into account national / regional / local context, the mobilization of political and public support, flexibility in modifying the implementation process;
- systematic evaluation of results of implementation of education policy in view of the reality, improving the results, eligibility changes, the cost of implementing educational reforms (UNESCO, 1995, 2013).

Supranational frame that outlines the guidelines of education policy in terms of result and cooperative modern world orientation, the quality and effectiveness, fairness and equality that, in particular, determine the current EU strategy in the field of education in the document on “Education and Training 2020” (2009), describing the educational reforms in OECD countries (2015) and the United States.

The implementation of these ideas is actualized by the standardization of educational content and its transformation on the basis of competence-based approach, the introduction of external independent assessment and systems of accountability and quality monitoring. In particular, Ukraine has more than 10 years of experience in external independent assessment of comprehensive secondary education graduates; has participated in a pilot project according to the program “The Trends in International Mathematics and Science Study Subjects” (TIMSS) in 2007 and in 2011 (among pupils students of the 8th grade). In November 2015, the OECD agreed Ukraine’s application on inclusion of the countries participating in the international study on “Programme for International Student Assessment” (PISA) in 2018. The draft Law of Ukraine “On Education”, submitted to the Verkhovna Rada of Ukraine (Supreme Council of Ukraine), provides integrated operation of the national system of quality assurance. The introduction of competence-based approach in Ukrainian education, largely through the initiative of researchers of the NAES of Ukraine, is also a key area of education reform.

Priorities in the Education Policy Planning and Implementation in Ukraine

In the context of the realities and prospects of the Ukrainian state in education policy planning, it’s worth to take in the consideration European extrapolation and cost-effective models that are based on human centric paradigm of education, competence-based approach, concepts of measured quality of education.

The justification for this integrated (combined) model of education development requires determining the range of priority issues:

- changes in the Constitution and the laws (regarding the rights of citizens to education, determining the status of pre-primary, primary, basic, complete comprehensive secondary, special, out-of-school, vocational, higher, continuing education, social guarantees in education);
- streamlining and modernizing the network of education institutions;
- standardization of education quality norms and conditions of its competition as the basis for access to quality education;
- creation of a new economy of education;
- formation and comprehensive support of favourable educational and cultural environment;
- creation, concentration and implementation of innovative technological resources (on modernizing the content, material resources and equipment of educational process);
- introduction of state-public model of education management, development of social partnership in solving educational problems.

In order to provide the fundamental human right to access the quality education, the state policy in the field of education should take into account current and future requirements of socio-economic development. It is essential to develop scientifically grounded, innovative program of education development that would be perceived by the public. The most essential of its creation and implementation is to achieve the real interaction of factors: political, social, economic, cultural and actually educational.

The learning process at all education levels in the context of the idea of involving to self-education all actors: those who learn and those who teach, requires substantial modernization. The ability to learn as a key competence, defined by the Council of Europe and the EU is a prerequisite for modern teaching, learning and adaptation to life. Competence-based model of education in the first place raises not the process, but the learning outcomes, expressed in terms of individual's competences and can be assessed according the quality measuring conception.

Most European countries have decided to develop and correlate national qualifications frameworks with the European Qualifications Framework for Lifelong Learning (2008). This approach is productive also for the development of continuing education in Ukraine.

Thus, the complexity and scale of creating a national system of continuing education, its dependence on a number of factors need urgent definition of strategy, developing a comprehensive state program "Lifelong Learning", the implementation of which should be a public policy priority.

Education policy strategic priority is the formation of the constantly studying nation, that simultaneously learns democratic values, develops civil society, strengthens humanocentrism in education

This global strategy has to fundamentally change the value and motivational potential of education, to make it personally relevant to each individual, subject-subject and polysubjective.

Exceptional importance and new meaning in this context acquires the introduction of lifelong learning. Thus, the "A Memorandum on Lifelong Learning of the European Union" (2000) strengthens the idea that lifelong learning becomes the basic principle of the education system. The key principles of lifelong learning include:

- 1) New basic skills for all;
- 2) More investment in human resources;

-
- 3) Innovation in teaching and learning;
4) Valuing learning;
5) Rethinking guidance and counseling;
6) Bringing learning closer to home.

For the creation and development of the system of lifelong learning in Ukraine, it is necessary to implement goal-seeking prolonged state policy for the coordination within the country and respectively in the regions of all stakeholders.

*Harmonization of the education quality requirements standards
with its achievement conditions standards*

From the situational decision making for educational improvement it is necessary to move to clear definition of the standard requirements for educational results and social effects of education, which can only be achieved under the certain conditions.

The standardization of regulatory and criteria requirements to the results and conditions of education at all levels is the basis for network optimization, financing, development of education quality monitoring system at the level of institution, certain educational services sector, region and country.

Thus, the focus in reforming the education system should shift from the process to results and conditions of achieving their pre-arranged quality.

*System approach to hastening the innovation and technological changes in education
(planning, monitoring, control)*

For systematic realization it is necessary to ensure the cooperation of external and internal factors of education modernization.

External direction — is first of all, state, regions resources funds invested in education to achieve the expected quality. Innovations in education are correlated with innovation processes in the economy, new social standards. Only the set of innovations in the purposes, content, conditions, processes and results will provide leverage for the acquisition of innovation features by the Ukrainian education.

Internal resource — combine individual, material and technological factors. The individual — is education and development of a person of innovative type in the personalized manner. That should become the determinative characteristic of personal and professional growth of teachers, pupils, professionals and their ability to constantly learn, to understand the new challenges that require the change of outdated models of comprehensive and vocational education. The state policy in the licensing and accreditation of educational services is the most effective mechanism for the implementation of competence-based approach, ICT, individualization of learning, subject-subject interaction and continuous professional development into the Ukrainian education.

In order to move from productive ideas to real change in the field of education, it's necessary as soon as possible and effectively to implement retraining of personnel, to modernize the learning process technologically and methodically. The competence-based and personal and individual approaches should become basis of the innovative changes in the pedagogical personnel training, the combination of which makes it possible to individualize the learning process, based on educators' inner motivation.

*Development of the state and public administration
and social partnership in education*

In Ukraine during the years of independence, the formation of state and public administration in education has only started. The reasons for this slowness are largely rooted in the undeveloped civil society.

Many interested in education parties are actually excluded from the preparation, adoption and implementation of administrative decisions and results monitoring.

Civil society will fully participate in the education administration if social partnership as a phenomenon of democracy develops in the state. The use of technologies of social partnership opens additional opportunities for the investments in education development, mobilization of human resources, strengthening the social stability and realization of interests of all the social actors, avoiding the confrontation of social groups, strengthening the responsibility for “customer’s satisfaction” and educators’ social security.

*New models of finance and economic development of education —
the requirement of the time*

The problems of education financing, economics of educational activities, that are now acutely relevant, can be divided into three groups: first, optimization of distribution of general public (public and private) expenditure on education between the educational levels; second, introduction of new financing mechanisms that promote education quality; thirdly, ensuring the proper and effective use of funds allocated to education.

On the whole, in the recent years, the Ukrainian society spends on education from the public and private sources, about 7.0% of GDP, which corresponds with best international practice. Therefore, it is impossible to require from the society the further increase of the GDP share on education. Nevertheless, it is necessary to solve the problem of optimizing the financial resources between the levels of education, appropriate allocation and efficient use of funds accounting the educational accessibility and quality. This is especially true concerning the state (consolidated) budget.

For instance, from the consolidated education expenditures to the needs of primary, secondary and adult education in the country it is spent about 45%, that is much less than, for example, in the (34) OECD countries and in the (21) EU countries — that are the OECD members (in both cases — more than 60%). Thus, the domestic school of macroeconomic is definitely underfinanced and, moreover, its structure and network are suboptimal. The pupils-teacher ratio in Ukrainian schools is by almost one and a half or twice smaller than those of the developed countries, whereas average group sizes are relatively small.

To ensure the stability and adequacy of education financing, is possible through the change of financial mechanisms and management methods, based on the introduction of social and educational standards, new financial regulations and increase of the institutional autonomy and responsibility, as well as the institutions’ network optimization, based on their ability to provide sufficient quality educational services.

A necessary condition for the efficient use of public resources in education system at present is the need to expand economic and financial autonomy of education institutions (with simultaneous strengthening the responsibility), which requires an appropriate legal, institutional and economic support. This requires sufficient institutional capacity of each institution, which,

in turn, leads to the restructuring of the educational network, consolidation by combining depleted, low capacity institutions with vocational colleges and higher education institutions, including formation of the school districts, etc.

The formula “funds follow the student” introduces new opportunities, that could contribute to the rational and efficient use of funds, would stimulate the improvement of quality of education and provide equal rights and opportunities to all participants of the educational process, regardless of institutions ownership. In 2016 for the first time, the state requirement for the training of specialists with higher education would be corrected within the additional 25%, depending on the results of applicants’ external independent assessment.

The program-targeted funding of education seems to be promising. This, in turn, requires modernization of the mechanism of control over the budget execution and monitoring of education quality, efficiency of educational activities.

Implementation of new mechanisms for education financing includes: 1) their experimental verification and approbation, pilot implementation (as was in 2016 in higher education); 2) amendments to the regulatory acts, not only in the system of education, but also changes in the acts on interbudgetary relations, local government, taxation, charity, etc.; 3) development of the basic principles of institutional autonomy and responsibility; 4) improving the formula and regulatory support of government expenditures on education.

The Unsolved Issues of the State Policy to Ensure the Constitutional Requirement for the Complete Comprehensive Secondary Education

According to the General Law, complete comprehensive secondary education is compulsory, that imposes special state and public commitment towards this key, the most massive level of education, from the quality of which depend other educational levels.

To the problems that require solution on the legislative and regulatory level, first of all are included the following.

First. The real (not formal) provision of compulsory complete comprehensive secondary education could be obtained on condition of its postponement based on the individual’s decision.

Second. The quality of education is a determining priority of many concepts and documents, its content is the decisive factor in achieving of the required quality.

Transition to the 12-year comprehensive secondary education, as was previously mentioned, in 2010 was unreasonably interrupted by Verkhovna Rada of Ukraine on the initiative of the MES of Ukraine: the results carried out from conversion of primary and basic school to new content and methodical innovations were not analyzed; all the previous work was ignored. Into the invariant part of the Basic training plan of the MES of Ukraine there were introduced some significant changes, without monitoring of the pupils’ achievements and its further scientific interpretation.

In general, throughout the whole period of independence, the evaluation of the new content, new curricula and textbooks were carried out without prior experimental testing, ignoring the recommendations of the NAES of Ukraine.

The introduction of new national standards should include systemic changes, which are really required by this process. First of all, for the serious proactive preparation of the education resources for teachers, creation of the new methodical aids, radical environmental change, etc. — considerable financial and intellectual resources are required.

The expected transition to the 12-year complete comprehensive secondary education, provided by the draft Law of Ukraine “On Education” should reflect the current understanding of the mission of the educational level, its contribution in continuing education, access to quality education for all children, regardless of their place of residence and individual characteristics. Therefore, in the new edition of the Law “On Comprehensive Secondary Education” the provisions concerning the procedure development and implementation of state standards and workload optimization should be thoroughly revised. In terms of decentralization, the separation of functions of the education subjects is necessary in order to determine the volume and quality of state standards.

The educational school content should be developed and tested in advance with the actual mass adoption for 1-2 years; its approbation should be carried out with the clearly defined criteria and evaluation results — with the broad expertise of researchers, professional NGOs, parents.

The framework requirements for the selection procedures, printing and delivery of textbooks should be defined in order to finally overcome the practice of publishers’ lobbying, failure to deliver in time and in full production of the textbooks.

It is also important to determine the number of training hours per year and the duration of the school year in connection with the requirements of the state standard for the learning outcomes. The issue of the relationship of the amount and structure of state standard specifications financing hasn’t been carried out yet.

The object of evaluation during the monitoring of the school education quality in the conditions of the competence-based approach should become the competences themselves (including the key ones, which are samples of the principles of individual value oriented education).

Third. Ukraine is going through an extremely difficult period of formation of civil society, which should change cooperation of the state and community in the process of the distribution of powers, duties and responsibilities for the effective influence on the development of education.

In the National Strategy for Civil Society Development in Ukraine for 2016-2020, approved by the Decree of the President of Ukraine in February 26, 2016, No. 68, there is a number of provisions the implementation of which accelerates the educational sphere reform.

The social impact acquires particular importance due to the decentralization of secondary education administration, which is seen as a prerequisite to improve its quality.

The theoretical basis of the transition to the state and public control, mechanisms of its implementation should be subject to the interdisciplinary research and training of the teachers for all levels of education. Simultaneously, pupils and students have to purposefully form an active citizenship position, which is a prerequisite for mastering the civil competence, which belongs to the list of mandatory key competences, recommended by the EU Council for training young Europeans throughout their life (2006/962/EC).

Fourth. Decentralization of the secondary education administration has an impact on the functioning of schools in rural areas, that included 12.7 thousand schools, with about 1.4 million pupils enrolled in 2015/16 academic year.

The school education state in rural areas in the past five years has repeatedly been targeted by the state. By the Resolution of the Verkhovna Rada of Ukraine (June 7, 2012, No. 4949-IV) the recommendations has been approved; Resolutions of the Cabinet of Ministers of Ukraine approved the “Regulations on Education District” (January 20, 2016, No. 79). In 2016 a pilot project “Supporting School” has started, aimed at optimizing the network by converting schools with small contingents of pupils at the branch. However, this problem is not local but systemic, for the issue is closely linked with the provision of the network of schools with proper personnel training, their capacity, possibilities of children transportation, equipment, etc.

Fifth. Ukraine has positioned itself as a market state and education in these conditions is the field of educational services. Obviously, the priority of pragmatic school determines the priority of technological preparation of teachers. At the same time, the fundamental psychological and pedagogical training should serve as a basis for the educator in the changing working conditions of the various contingents of students, should help to acquire professional stability. It is crucial that in the new situation of school education and teacher training, the expected changes were conceptually grounded and defined normatively, providing the necessary resources.

The problem of shortage of pedagogical personnel in pre-primary education becomes more and more vital, which negatively affects the quality of the following level of education, particularly the lack of certain subject teachers in secondary school education. A significant part of graduates of pedagogical specialties do not work in their major field.

Consequently, state policy in education should acquire polysubjective character, using not only state, but also social leverage of influence; it should be consistent, open to professional dialogue with the scientific and political communities, NGOs, media, businesses.

A new round of Ukrainian education should be based on the new legislation, systematic and responsible public policy, in which immediate and long-term priorities, proper scientific justification changes are clearly defined.

2. SCIENTIFIC AND METHODOLOGICAL AND METHODOLOGICAL SUPPORT — AS A KEY CONDITION FOR THE MODERNIZATION OF EDUCATION

To ensure sustainable social progress, all areas (types) of human activity, including education, in which innovative people, innovative human capital is formed, require systematic and consistent, necessary and sufficient scientific, methodological and methodical (technological) support. During the years of independence, Ukraine's largest humanitarian sphere — education, despite the crisis, managed to lay the foundation for such support. The NAES of Ukraine, established in 1992, became the core centre of the relevant research organizations of Ukraine.

However, formation of the integral support is not completed yet. Its positive trend has been halted in recent years by the short-sighted policy with the elements of achievements' destruction. According to the latest statistics on research and innovation activity, in Ukraine in 2015 in the field of pedagogical and psychological sciences, there functioned 27 research organizations (2.8% of the 978 ones in the country), 13 of them, including all three psychology ones, belong to the NAES of Ukraine. However, these organizations operate in conditions of resource shortages — personnel, financial, logistical and others. Researchers at the main place of work (mainly in the NAES of Ukraine) presented 1.7% of the country's researchers, while half-time workers (mostly non-academic organizations) — 6.8%. According to the percentage accumulation, the researchers of the NAES of Ukraine (1.5%) yielded to the NAMS of Ukraine (5.2%) and to the NAAS of Ukraine (7.6%). The funding of scientific and technical work in the fields of pedagogical and psychological sciences was insufficient, which amounted to only 0.75% of the total expenditures for these works in 2015. Expenditures on scientific and technical activities of the NAES of Ukraine accounted less than 0.1% of budget expenditures on education. As the result, there is the resource lack for complete implementation of applied research and experimental developments, creation of innovative technologies and other measures of innovation and international cooperation. In 2016 due to the lack of funds in the NAES of Ukraine, in fact, the doctoral training procedure (compared with the 2014, the admission to PhD studies was reduced by 70% and DSc studies — 95%) was blocked. All this affects the level and pace of Ukrainian education modernization.

In order to strengthen the scientific and methodological, scientific and methodical provision of the educational sphere, the urgent measures are the following.

First. To guarantee the adequate and stable funding of the NAES of Ukraine, being as de facto chief research organization, as well as the other research organizations in the field of education, pedagogy and psychology. Raising the state funding of the NAES of Ukraine to no less than 0.2% of total state expenditures on education and the Ukrainian research organizations in the field pedagogical and psychological sciences in general — up to 2% of the total funding of science, scientific and technology activities in the country.

Second. To increase the state order of the NAES of Ukraine to reproduce the personnel capacity of researchers, Masters, PhD and DSc training, as well as in-service training of managers in education, pedagogy and psychology.

Third. For the research institutions of the NAES of Ukraine and other relevant research organizations, it is actual to create advanced technologies for education (new for Ukraine and radically new ones), an increase in requests for appropriate protection for intellectual property rights, to raise the publication activity and efficiency of researchers in the field of education, pedagogy and psychology, expansion of international cooperation, joint projects and internships.

The central role in the innovative development of Ukrainian society belongs to the field of education, research and development. First — because it is formed by innovative people, innovative human capital; second — because the system creates a database of relevant scientific knowledge and developments on their basis, in particular for education. Thus, the national organizations of “Education” are defined as a type and “Research and Developments” are defined as a subtype of economic activity by the Classification of All Economic Activities of 2010, during the 2011-2014 there were generally submitted about 90% of the total number of applications in Ukraine for inventions and utility models, whereas in 2014 92.0% patents for inventions and 87.6% — for utility models were received.

The tasks of systematic research and innovation support at all levels of education — pre-primary and out-of-school, secondary and vocational, higher education and in-service training and adult education institutions — gain particular relevance today. The network of these institutions consists of more than 40 thousand, where work 1.5 million and study 7 million people. The modern educational standards, programs, textbooks, effective methods and technologies, monitoring evaluations, scientific and methodical psychoeducational assessment and grounded bills, generalization of perspective international experience, theoretical and experimental pedagogy, theoretical and practical psychology in education are being necessary.

A key role in the implementation of these tasks belongs to research organizations working in the fields of educational and psychological sciences (according to their classification before 2015) and especially to the NAES of Ukraine, as the most organized and concentrated center of fundamental and applied researches and experimental developments in the country.

Academy of Educational Sciences of Ukraine was established by the Decree of the President of Ukraine in 1992 as the highest branch research institution in response to the challenges of national statebuilding. In 2010 it received the national status. For almost a quarter of the century of its existence, the NAES of Ukraine has demonstrated ability in the difficult socio-economic conditions to form and unite powerful scientific schools for carrying out fundamental and applied research, experimental developments and innovations. This confirmed the effectiveness of the academic model of branch science organization for scientific and methodological and methodical providing the complete and comprehensive development of education, educational sciences, pedagogy and psychology.

Established in 1992 on the basis of the Institute of Pedagogy (1926), Institute of Psychology (1945) and Pedagogical Museum (1901), the NAES of Ukraine now includes also the Institute of Special Education (1993), Institute of Educational Sciences and Adult Education (1993), Institute for Social and Political Psychology (1996), Institute of Problems on Education (1997), Ukrainian Scientific and Methodological Center of Applied Psychology and Social Work (1998), Institute of Higher Education (1999), Institute of Information Technologies and Learning Tools (1999), V. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine (1999), Institute

of Vocational Education and Training (2006), Institute of the Gifted Child (2007) and University of Educational Management (1952), carrying out a systematic scientific and methodical support at all the education levels.

With the participation of the NAES of Ukraine researchers there have been developed the State National Program “Education” (“Ukraine of the XXI Century”), which has been approved by the First All-Ukrainian Congress of Educators (1992) and adopted by the Cabinet of Ministers of Ukraine in 1993, the National Doctrine of Education Development, approved by the Second All-Ukrainian Congress of Educators (2001) and adopted by the Decree of the President of Ukraine in 2002. The NAES of Ukraine has played an important role in the creation and implementation of the effective system of national education legislation: the laws of Ukraine “On Education” (1996), “On Vocational Education” (1998), “On Comprehensive Secondary Education” (1999), “On Out-of-School Education” (2000), “On Pre-primary Education” (2001), “On Higher Education” (2002, 2014), “On Science and Scientific and Technology Activities” (2015), the preparation of decrees of the President of Ukraine and resolutions of the Cabinet of Ministers of Ukraine on education, pedagogy and psychology.

For the first time in Ukraine, the researchers of the NAES of Ukraine had prepared and published the Encyclopaedia of Education (2008), the White Book of National Education of Ukraine (2010), the thematic National Report “Education of Persons with Disabilities in Ukraine” (2010), the National Report on the State and Prospects of Education Development in Ukraine (2011), contributed to the creation of the National Qualifications Framework (2011), the concept of the National Standard Classification of Education (2013), National Education Glossary: Higher Education (2011, 2014), etc.

Researchers of the NAES of Ukraine have made a direct contribution to the development of all the educational units.

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 in the future. Implicitly, that the sciences on education, pedagogy and psychology being fundamental to human development, the functioning of educational space should be adequately organizationally and logistically provided. The main role in this task belongs to the NAES of Ukraine, as the self-governing research organization, focused on the holistic development of the individual, his/her education and training.

According to statistics of 2015, for the results of the 303 fundamental and applied, scientific and technology (experimental) works in the field of pedagogical and psychological sciences, there were published more than 25.5 thousand publications (8.2% of the total); of which there were: 2.3 thousand monographs, textbooks and manuals (11.1%); 11.0 thousand journal articles (7.0%). Most of the results are of the high scientific level. A large number of scientific papers on the methods and theories belong to the researchers the NAES of Ukraine.

However, the overall state of sciences on education, pedagogical and psychological sciences in Ukraine does not fully meet the existing needs of society. In 2015 institutional research and innovation potential of Ukrainian pedagogy and psychology was 27 research organizations (2.8% of all research organizations in the country), including 24 in the field of pedagogical and 3 — in psychological sciences. Of these, 13, including all three of psychological profile, are subordinated to the NAES of Ukraine.

Funding of the pedagogical sciences from all the sources in 2015 consisted of 72.3 million UAH (0.6% of total expenditures on scientific and technical sphere), psychological sciences —

19.9 million UAH (0.2%). From the state budget, for these sciences there were spent respectively 1.7% and 0.5% of the budget expenditures for implementation of research and innovations. This is worse than in 2014.

The worst state funding in 2015 was for the NAES of Ukraine as well. Compared to the 2014, Academy's funding on the three existing budget programs has decreased by 27.4 million, or 19%. This led to the forced reduction of the personnel of the subordinate institutions nearly to 400 staff units, reducing the number of structural units to 16 units and, consequently, three fundamental and one applied research has not started. In addition, in 2015 the production of published products on total sum of 713 thousand UAH of 32 units with a circulation of 9.3 thousand copies has been stopped. The PhD applicants' admission was reduced in 2015 to 60 people that equals to 78%, DSc candidates — to 19 people or 68% and the number of in-service training students was reduced to one thousand or 17%.

In 2016 the next expenditures reduction of the NAES of Ukraine to 16.4 million led to the reduction in the number of employees additionally to 408 of personnel, early termination of the eight researches, as well as conduction of 13 planned researches hasn't started, the PhD applicants' admission was reduced to 70% and DSc applicants' to 95%. There was a decrease in the average salary of workers of the NAES of Ukraine to 3.1 thousand UAH, that almost is twice lower than the average for the city of Kyiv.

Among the total expenditures on the pedagogical and psychological sciences in the last seven years the capital investments hasn't been anticipated at all.

Inadequate funding of science is not least due to the slow pace of integration into the European and world research and education space. Among the 7.1 thousand Ukrainian researchers, which during 2015 according to different sources of funding has travelled abroad (for training, education, teaching, research purposes), the representatives of pedagogical sciences were 354 (5.0%) and of psychological — only two.

The problem is poor development of the research and experimental base of sciences on education, pedagogy and psychology, including the lack in the structure of the NAES of Ukraine of education institutions of various types and levels, which have to undergo experimental verification of educational, psychological and pedagogical innovations.

However, the development of Ukraine, the desire of state and society for the profound systemic changes requires to significantly improve the scientific, methodological and methodical support of educational field of Ukraine. Thus, in a difficult time for the country protecting state sovereignty, the European choice and human dignity, faces new challenges with the psychological and pedagogical support for different categories of people, including displaced adults and children due to military operations.

For this purpose, the state education and research policy should contribute to the solution of urgent problems.

First. Bringing the state funding of the NAES of Ukraine to no less than 0.2% of the total expenditures of the consolidated state and local budgets for education (in 2015 — 114 billion USD) and Ukrainian research organizations in the fields of pedagogical and psychological sciences in general — up to 2% of the total funding for science and scientific and technology activities in the country. Increase of the share of funding for applied research and experimental developments, capital expenditures, especially on the necessary equipment to carry out experimental verification and inventions implementation, as well as increasing the competitiveness of researchers' salaries.

Second. To increase the state order of the NAES of Ukraine in order to reproduce personnel capacity of researchers, training of Masters, PhD and DSc, as well as in-service training of education managers in the field of education, pedagogy and psychology. Expanding the volume of scientific and technical services on the basis of self-supporting, including consulting, in-service training of leaders and scientific and pedagogical personnel of HEIs on actual issues of modernization of higher education in the context of Bologna process.

Third. For research institutions of the NAES of Ukraine, other research organizations working on education it is urgent to create the innovative (new for Ukraine and for the world) technologies in education, pedagogy and psychology, to increase the applications for protection for intellectual property rights, particularly of the patents and utility models, to increase activity and efficiency of research publications, extension of international cooperation, joint projects, internships, especially within the program of cooperation with the EU “Horizon 2020”.

3. PUBLIC OPINION ON CURRENT STATE AND DEVELOPMENT OF EDUCATION

Public opinion has increasingly higher influence on social processes, decisions of government officials and law-makers. Thus, when defining and implementing education policy one should know how it is perceived by wider population, regular educators and those whom they teach. It is also important to understand what problems they see in implementation of such policy, what they agree to and what they doubt.

It is the monitoring of public opinion towards problems of education system and its reform that provides this understanding. Such monitoring is being performed yearly since 2000 by the Institute for Social and Political Psychology of the NAES of Ukraine within programs of joint activities with the MES of Ukraine.

Monitoring results show that national education system enjoys a great credibility in Ukrainian society, far bigger one than to other social institutions such as state authorities, law enforcement, political parties, etc.

Over the whole observation period, education system usually had a positive balance of trust/distrust, which means that there were more respondents who somehow trusted it than those who did not. Only church could boast higher credibility for a long period of time. Today education system retains its place among the leaders of public trust: about half of adults find it credible to this or that extent (48%), while less than a third does not trust it at all (32%).

The confidence that the education course that was chosen at the dawn of independence of Ukraine is the right one grows in people gradually. Furthermore, systematic study of public opinion clearly shows that as long as education policy shows the signs of abandonment of reformist course, the level of people's confidence that education develops in the right direction decreases. On contrary, so far as the reforms are deployed and strongly defended by the leadership of educational sphere this confidence raises.

Thus, five years ago when the previous government actually halted the most important educational reforms, the share of the respondents who believed in the right course of education development was much lower (32%) than those who held an opposite opinion (41%). But not, the ratio has changed significantly in favor of positive ratings: 46% of respondents have positive opinion while 36% have a negative one. Even greater is the number of respondents who are somehow confident that education development goes in a right direction, among these 61% are educators.

At the same time, public opinion reflects the real contradiction in the processes that took place in the educational realm over the last quarter of a century. Ukrainians are quite critical of the achieved quality level in education and availability of high quality education. Majority of respondents (52% overall and 59% of educators) are convinced that today Ukrainian education

system provides average quality of education; 10% consider it as high quality, 23% — as low quality (among educators — 18% and 14% respectively).

High-quality education is regarded as quite accessible to all Ukrainian citizens by 6% of respondents only; rather accessible than inaccessible — 27%, rather inaccessible than accessible — 33%, absolutely inaccessible — 26%. In other words, about 60% of respondents are generally skeptical about accessibility of high-quality education.

The public opinion itself could be quite controversial at times. Some of the education reforms and innovations are approved by the majority of citizens while other are treated with suspicion, sometimes they even provoke an outright resistance.

External independent assessment of graduates of secondary schools is one of those innovations that have a significant support which, by the way, has been growing over the recent years. Positive attitude towards external independent assessment is shown by 57% of respondents (among citizens whose children or grandchildren have undergone this assessment — 69%, among educators — 74%, among secondary school graduates — 52%), while generally negative attitude was registered with 13% of respondents.

An idea to make the secondary school more narrow-specialized is also quite popular in Ukraine. Since 2009, the number of its supporters has never been less than half of respondents, while over 2014-2015 it fixated at 55% (among educators — 68%, respondents who have pupils or students in their families — 58%, secondary school graduates — 60%). But just here inconsistency and contrariety of public opinion becomes obvious since the popularity of idea to make secondary schools more specialized stridently contrasts with the negative attitude of all the categories of respondents towards introducing 12-year training period in secondary schools which is needed in order to properly implement this specialization without distorting its idea. Not understanding this, 69% of citizens are against 12-year training period, including 72% educators, 71% of people who have pupils or students in their families, 60% of secondary school graduates while the share of their opponents does not exceed 12-14%.

Inconsistent public opinion, its biased attitude towards certain innovations, which sometimes gets in the way of education reform, is caused by the lack of proper awareness, misunderstanding the systematic nature of the ongoing reform by the large part of society. One of the reasons is also the fact that public opinion on education develops spontaneously in Ukraine, with the lack of dialogue and feedback between reform initiators and the target audience of these reform.

Thus, there is an urgent task for education sphere to create an effective system of study and consideration of public opinion. This, in turn, envisages the development of the relevant infrastructure. It is advisable to establish PR departments within the MES of Ukraine, regional and Kyiv city departments on education and science as well as centers for monitoring public opinion on the regional level (coordination and methodical support can be provided by the NAES of Ukraine), to get the targeted funding for the relevant organization, media and research activities, to establish public and private funds to support them.

It should be borne in mind that considering public opinion involves adjustment of those management decision which are completely at odds with public opinion, on one hand and negative public opinion on the strategic decisions, on the other hand. Negative public opinion needs to be changed to positive one step by step through explaining the social meaning of the proposed reforms and the “benefits” that society will get once they are implemented.

Institute for Social and Political Psychology of the NAES of Ukraine has developed scientifically based set of technologies of creating positive public opinion towards education

innovations. Its essential elements are informational (media), networking and events technologies as well as technologies of reflexive management and culture creation. Today this complex of technologies is tested within nationwide experiment, which was launched by the Order of the MES of Ukraine of March 4, 2016, No. 219 in the secondary schools of Dnipro, Zhytomyr, Zaporizhzhia, Kyiv, Lviv, Khmelnytsky, Kherson, Chernigiv regions and schools of the city of Kyiv. Regional in-service teacher training institutes and a number of classical and pedagogical universities also take part in the experiment.

It is expected that experiment will improve significantly the attitude of educators, students, parents, territory communities involved in it, towards ongoing education reforms and especially towards 12-year training period. It is supposed to create motivation in these categories of population, to give them skills and capabilities to organize public events, debates and other forms of public discussion of educational innovations. It will also enhance the ability of pedagogical groups and parents communities to manage education institutions. Therefore, we hope that as soon as proposed approach and technologies will be finalized and their effectiveness is confirmed, they will be actively introduced by management of educational authorities of all levels. For its part, the NAES of Ukraine is committed to providing necessary scientific and methodical assistance.

4. PRE-PRIMARY EDUCATION: ACCESSIBILITY AND QUALITY FOR EACH CHILD

In international and national educational environment of the late twentieth and early twenty-first century the status of childhood has been strengthened, the fact that has been confirmed by the emergence of international documents on the protection of children, increased attention to the education and upbringing of children, children's art. Conceptual provisions of the Ukraine state policy on the pre-primary education have been relevantly reflected in recent years by the laws of Ukraine "On Pre-primary Education", "On Protection of Childhood", as well as by the National Strategy of Education Development in Ukraine for 2012-2021, etc.

Development of pre-primary education in Ukraine for the past 25 years has been influenced by socio-economic and socio-political, educational and social factors, including socio-cultural background. Ukraine has inherited a well-developed network of pre-primary education institutions, most of which were departmental. In the 1990, 24.5 thousand kindergartens held about 2.4 million of children, which corresponded to 57% of pre-primary education children (in cities — 64%, in rural areas — 43%).

Since independence of Ukraine this field of education underwent significant changes. Country low birth rate and economic uncertainty have led to reduction in the number of kindergartens almost by half at the end of the 1990s. Since 2004, the number of these institutions has gradually begun to increase. In 2010 the compulsory pre-primary education of five-year children has been legally implemented. As the result of these changes there occurred the coverage of 97% of Ukrainian pre-primary children by various forms of pre-primary education. According to the social and personal needs of the expanded areas of pre-primary education institutions, the number of specialized institutions, institutions (groups) of compensatory type — recreation centers and special institutions — for the children requiring some correction of physical and (or) mental development, as well as part-time day groups, particularly parent guided groups, child protection by social and educational patronage. At the end of 2015 in Ukraine there were 14.8 thousand pre-primary education institutions, which provided pre-primary education for 1.3 million of children.

The joint efforts of experts of pre-primary education are aimed at understanding by the public authorities the priority of the pre-primary education as a separate, independent, specific and system sphere of society vital activity, which sets trends for the development of next levels of education. There is an increasing awareness of the need for the social systematization of the educational process, the need of the joint efforts of science, promising practices, culture, education, medicine as important vectors of the pre-primary education sector, that contribute to the social development. Integration efforts ensure successful implementation of effective programs of all state institutions dealing with pre-primary childhood.

In the pre-primary education sector the work on the coordination of legal and regulatory documents of the pre-primary level education, based on the continuity of pre-primary and primary education has been continued, as well as procedures of bringing to the accepted standard of the pre-primary educational programs, training and development

Among the actual problems of the pre-primary education in the nearest future are: the problem of implementation of the actual systematic measurements to eliminate authoritarian and teacher-centered pedagogy; confirmation and support of stimulating technologies aimed at comprehensive development of physical, mental and spiritual potential of the pre-primary age child within the tradition of humanistic-oriented practices that enhance quality of life by optimizing pre-primary education children on basic principles of national culture.

Professional efforts of pre-primary education experts aim at scientific and methodical study of various forms of pre-primary education with the clear criteria for programs' selection and their discussion by the pedagogical personnel at the refreshing courses in the institutions of postgraduate education.

Actual current social demand is the development and implementation of the pre-primary education methodical support of the early childhood development (according to ISCED, it is the separate sublevel of pre-primary education — early educational development of children aged 0 to 2 years) based on a single concept, preparation of the training and methodical sets; providing families with children with methodical assistance on education and child development (education, guidelines, manuals and albums).

The system of children physical education requires scientific studies and fundamental changes. Among the relevant problems remain the problem of the state order for the new study on health preservation and strengthening; fulfilling the new concept of “healthy lifestyle” for every family and teachers of the modern kindergarten; introduction of mandatory positions of doctor in the kindergarten; introduction of medical, psychological and pedagogical expertise of the modern educational technologies for pre-primary education institutions based on scientifically grounded approach of saving child health (physical, mental, social, spiritual).

Joined efforts of the pre-primary education experts aimed at solving strategic problems of the field require institutional innovations, including creation of the service network of the scientific and methodical centers. Such institution is able to actualize and realize potential opportunities of the educational system in every pre-primary education institution, will be able to change the vector of interaction between all parties involved in the field of pre-primary education process by balancing the functions of education institutions.

5. COMPREHENSIVE SECONDARY EDUCATION AS THE MAIN AREA OF CONTINUOUS EDUCATION

Over the years of the independence of Ukraine, the national comprehensive secondary education has been established on the new methodological basis. Education goals, its content, approaches to the assessment of learning outcomes have been transformed. In the organization of school educational process, the competence-based approach was introduced; the orientation of education at the child's personality was enhanced.

The undeniable achievement of the national education system is the fact that 98.3% of children aged 6 to 18 are studying at comprehensive secondary education institutions.

Ukraine has provided the constitutional right to obtain comprehensive secondary education in their native language. In the 2014/15 academic year, 89.3% of pupils studied at schools in Ukrainian, 9.7% studied in Russian, 0.46% — in Romanian, 0.41% — in Hungarian, 0.08% — in Moldavan, 0.043% — in Polish. There are also schools with Bulgarian, English and Slovak studying languages.

In recent years, a total upgrade of comprehensive secondary school education that meets the needs of modern Ukrainian school was accomplished. It is aimed at the purposes and values of a democratic society, pupils' personal development, individualized educational process, civil and patriotic education of pupils. Positive role in the formation and modernization of school education content was played by the idea of creating national standards of primary and secondary education. They ensured the preservation of a single educational space and promoted a differentiated approach to school teaching.

In the period of Ukrainian schools development, the extensive work to create domestic textbooks for all subjects of the school curriculum was performed. However, not all textbooks meet education priorities and modern requirements for textbooks. The typical disadvantages of numerous textbooks include imperfect structuring of educational material, overload of irrelevant additional information, favoring reproductive type of training, lack of attention to the demonstration of the links between knowledge and life. The content of most textbooks does not facilitate the formation of pupils' ability to apply to the acquired knowledge in everyday situations as well as practical and educational activities.

In the textbooks of new generation that were prepared for the new programs for grades 1-7, these drawbacks were partially removed, but the formation of key competences remains to be challenging. Besides, they do not consider the possibility of using ICT in studying the subject.

An important achievement in the implementation of the personality-oriented approach in school education was the introduction of the profession-oriented education at high school. It aims to meet the cognitive abilities and interests of pupils and their educational needs in the future realization of life plans in their continuous education or obtaining a profession. Schools

received didactic and methodical support for the profession-oriented education; at present, the search for sustainable models is still in process. However, professional orientation of high school is not intense and experiences significant challenges: only 47 percent of high school graduates were educated on the selected profile in 2015.

Educational and material base of numerous schools is inadequate for obtaining the qualitative comprehensive secondary education. In accordance with the State Statistics Committee of Ukraine in 2013, only a quarter of classrooms and laboratories for biology, chemistry and physics were provided with modern teaching aids and equipment.

There is inequality in the access to the qualitative education of pupils in rural areas compared with urban pupils. In particular, only 2% of rural pupils have the opportunity to learn in groups with profound studying of certain subjects. In urban areas, this figure lies in the range of 11-20%. The proportion of lyceums, gymnasia, collegiums in rural areas is only 8.3% of the total number in the country. In 2014/15 academic year, the delivery of rural schoolchildren to the education institutions was organized by two-thirds of the need.

Certain difficulties in providing high-quality comprehensive secondary education for the pupils in rural areas are predetermined by a significant number of schools with few pupils. In 2015, in Ukraine there were 372 primary schools with 10 pupils in each one; 1,460 schools of the I-II stages enrolled 40 pupils; in 2527 schools of the I-III stages, the number of pupils was less than 100. Even 10-15 years ago, a small number of pupils was typical only for primary schools. Now this trend is peculiar for secondary and high school.

This phenomenon has a negative impact on the quality of comprehensive secondary education of rural pupils. In particular, the results of external independent assessment in 2016 demonstrated that the number of rural school graduates who received more than 175 points out of 200 in Ukrainian, English and mathematics is three times smaller than the one for the urban schoolchildren.

However, it is noteworthy to state that currently the work on solving urgent problems of rural schools has become more active. Educational districts are created; a network of basic schools is formed, additional funds for the purchase of school buses is provided. However, an urgent issue remains to be the need for updating the material and technical base of rural schools, providing them with the quick access to the Internet (3G and above), expanding opportunities for the broad use of modern educational technologies and various forms of individual and distance learning, etc.

There have been some improvements in monitoring the quality of secondary education: Institute of Educational Analytics was founded for the purpose of relevant studies, the participation of Ukrainian pupils in international comparative studies of the quality of education were renewed. The results showed weaknesses in preparing our pupils for the application of acquired knowledge in practice, in real life situations, to explain natural processes and phenomena, to justify certain provisions, etc.

Analysis of comprehensive secondary education in Ukraine makes it possible to highlight the main priorities for further development.

The structure of the school, its mission and target priorities of primary and secondary education require adjustments. The organization of the educational process at primary and secondary education should comply with the principles of the child-centered approach, correspondence to nature, ensure the performance of the health preservation function of schooling. According to the world trends in education, the period of *obtaining the complete*

comprehensive secondary education requires extension to 12 years, it is necessary to extend the potential of education by a combination of comprehensive secondary and vocational education of the high school graduates.

The school should establish a new type of learning, that is innovative learning, which is intended to grow up a personality able to make innovative changes to the existing culture and environment, solve problematic situations successfully and be responsible for making decisions.

An important role in enhancing the effectiveness of the educational process should be played by ensuring information and educational environment, which uses modern educational technology and is equipped with computer-oriented teaching aids. Therefore, there is a need for developing a wide range of educational materials of a new generation for different subjects, creating libraries of electronic resources, databases, adaptive learning technologies. Free access to educational resources and services as well as a network of distance training should complement traditional forms of secondary education.

The content of comprehensive secondary education should be fundamentally changed especially in the area of the developing the key competences as the main learning outcomes.

The current network of secondary schools requires optimization, bringing it into line with the needs of the consumers of educational services, extending the potential of the access to qualitative education, ensuring competitiveness of high school graduates in the labour market and in the way of continuing education. In particular, this necessitates the creation of a network of education institutions of different types of academic and professional lines.

It is advisable to expand the network of educational districts to be able to provide qualitative secondary education in the educational environment of the region, free access to electronic resources and modern educational technologies for the secondary education seekers, improve the quality of education in rural areas. The system of basic schools, systems of “pre-primary — primary school”, “school family” and so on should provide access to quality education for all pupils regardless of their place of residence, to meet their educational needs and vital interests to the whole extent, align the competitiveness of rural and urban schools.

6. OUT-OF-SCHOOL EDUCATION: ADDITIONAL OPPORTUNITIES FOR THE DEVELOPMENT OF THE PUPIL'S IDENTITY

In modern realities, the demand of children, youth and their parents for the complete development of the personality that would complement to the activities of schools and other education institutions has greatly increased. The solution of this important problem has been delegated to the out-of-school (non-formal) education, which is open and accessible to any child and is a truly socializing system; it is the most democratic and flexible environment that combines the efforts of families, schools and community to shape child's development and education.

In this context, it is necessary to actualize the question of the school education reforming, its focus on free choice of a growing personality of various types and forms of activity, the formation of intellectually and culturally developed personality, spiritually and morally conscious, patriotically focused, socially responsible and physically healthy person, capable of self-actualization, professional self-orientation.

Today in Ukraine there function 1.4 thousand state, municipal and private out-of-school education institutions, including 544 youth sports schools, that attract more than 1.2 million children, which makes 33.3% of school age children. Children and school pupils study in 32.5 thousand clubs, groups and other creative, art and aesthetic children and youth associations, in 14.3 thousand scientific associations, in 7.1 thousand environmental and naturalistic, in 6.1 thousand scout, tourist and local history associations of out-of-school education, as well as in 540 centers of military-patriotic education.

For the purpose of systematic development of this educational sector, researchers from the NAES of Ukraine together with HEIs scientific and pedagogical personnel, specialists of the MES of Ukraine, other involved ministries and departments, in recent years have identified a number of key targets, organizational and pedagogical priorities of out-of-school education, including the following:

- new approaches to organization of educational work of the out-of-school institutions has been developed and introduced into practice: personality-oriented; pro-active, aimed at practical socially significant activities; values and motivation targeting the formation of values and motivations; social and adaptation approach that helps child adaptation to the social challenges and threats. These priorities are designed to ensure the effectiveness of the intellectual, moral, spiritual and physical development of children, development of skills and self-determination;
- 83% of out-of-school education institutions has established an innovative model of integrated out-of-school and non-formal school educational space, at the center of which

there is a child with his/her special needs, motives, desires, interests, beliefs, ideals, self-consciousness;

- corresponding multi-level and multi-meaningful content of the out-of-school education has been developed and implemented into the practice. There are: scientific, artistic and aesthetic, ecological and naturalistic, tourist and local history, sports, fitness, rehabilitation, military, patriotic and other profiles (more than 250 profiles of new educational programs: single field, complex, cross-cutting, modular, research programs, programs of “alignment”, etc.);
- introduction of the appropriate training and methodical ensuring: study guides, textbooks for higher education and in-service teacher training institutions, complex of educational, didactic and methodical literature.

Today one of the major challenges that have been faced by the out-of-school secondary education is the practical implementation of the strategic course of the Ukrainian education system to the European integration. Its important aspects are the following ones:

- strengthening of interaction between comprehensive secondary schools, out-of-school school and higher education institutions; the family and the community interaction in the salvation of the urgent issues of child education and upbringing; creation of the special educational projects (art, local history, social adaptation, health care, etc.); development and introduction of integrated courses for all ages — “The European Studies”;
- introduction of innovative educational methods and technologies aimed at the formation of growing personality and its ability to build his/her own life trajectory of personal development and becoming a citizen and patriot, using as example the common European ideas and moral values of the society as a necessary element of the European integration;
- involvement of the out-of-school secondary education institutions in participation of the existing international educational programs of the European Union and the Council of Europe;
- organizing out-of-school educational work with pupils, in order to create such atmosphere that will promote the development of citizenship;
- establishment of school clubs, children and youth public organizations; development of series of game and interaction simulation projects to ensure the formation of their own view on the future path of Ukraine’s further integration into Europe.

The development of out-of-school (non-formal) secondary education today is hampered by objective and subjective reasons and unresolved problems: neglecting by local authorities and education management of the Law of Ukraine “On Out-of-School Education” on preserving and expansion of the network of out-of-school state, municipal and private schools; gradual reduction in the number of clubs and art groups and therefore children who are enrolled in the out-of-school secondary education institutions in all regions of Ukraine; poor financial and technological support of the out-of-school secondary education at the local levels (especially at regional and rural); insufficient scientific and methodical level of training of the future teachers in the field of out-of-school education in higher education institutions — all these factors in the near future will lead to a significant shortage of qualified teachers.

Solution of these problems is possible under the following conditions: increase of personal responsibility of the heads of local executive bodies and education institutions at all levels on the provisions of the Law of Ukraine “On Out-of-School Education” (2000) and, above all,

maintaining and expanding the network of these institutions; modernizing the legal framework of out-of-school secondary education institutions and bringing them to the requirements of present nomenclature; providing financial support to publish the required standards and amount the corresponding educational and didactic materials, manuals and textbooks, periodicals of out-of-school education; development of target training programs and increase of the professional level of the out-of-school secondary education institutions personnel for the higher education institutions and in-service teacher training system.

7. EDUCATION FOR CHILDREN WITH SPECIAL NEEDS: FROM INSTITUTIONALIZATION TO INCLUSION

Over the years of Ukraine's independence, education for children with special needs has undergone significant transformative changes since a new ideological social-and-educational paradigm was defined, which is based on child-centered principles. Equal access to quality education for all citizens, including persons with special needs was proclaimed a priority objective in the development of modern Ukrainian education. Currently, the operation and development of the Ukrainian special needs education (i.e. education provision for persons with special needs) is now characterized by the commitment to deinstitutionalization and inclusive education.

Since Ukraine became independent, special needs education went through a number of development stages, the time frames for which were set by political, social and cultural processes that marked the country's path to the European educational space.

Stage I (1991-2000): The Ukrainian special needs education system was established upon the ratification of international human rights instruments and after the right to education for all citizens, including those with special needs was recognized by the mainstream education community and in the key Ukrainian laws.

During that period, the Ukrainian special needs education system, inherited from the traditional Soviet education tradition, preserved its rigid structure by inertia. Special all-day kindergartens continued to serve pre-primary children with special needs and school-age children were placed to special comprehensive schools (internat schools) or to special groups at mainstream education institutions. In those years the education curriculum offered to children with special needs at special education institutions was mostly built on approaches, strategies and resources designed during Soviet times. Also, that curriculum was organized and implemented in accordance with the disability-specific principle.

The *main trend of stage I* was a "state-centered" education system characterized by institutionalization and tough regulation of teaching and learning at special education institutions. At the end of this post-Soviet period, special needs education faced a dilemma, i.e. either to continue under its own momentum within the traditional framework of concepts and approaches to the education for children with special needs who were viewed as passive "objects" of influence, knowledge-centeredness and focus on developmental defects or to infuse their teaching and learning with competences in order to improve life chances of every child.

Stage II in the development of education for persons with special needs (2000-2010): This period laid the philosophical, pedagogical, organizational and theoretical foundations for modern education to enable a major qualitative reform of the education sector. There was seen an increase in public interest for improvements in the organizational and legal framework for

ensuring the right to education for children with special needs; advances in the development of a new methodology for education of persons with special needs based on child-centered principles; and an active search for ways and means to operationalize them. The second stage in the development of special needs education in Ukraine is characterized by initiatives to upgrade the boarding school system that existed for a long time. Compared to 1990s, special schools performed a much broader range of functions. They started to provide psychological and pedagogical support, comprehensive interventions and rehabilitation for children with special needs to facilitate their integration in community.

Beginning with 2000, in the light of the international standards, a debate was initiated in Ukrainian society that underlined the inconsistencies between the segregated education model, on the one hand and the ideas of equality for minorities, innovative educational approaches, etc., on the other. During that time the new terminology was being established, e.g. “persons (children) with special needs” rather than “abnormal children”, “defective children”, “children with handicaps”, etc. Supporters of innovative approaches in education, e.g. researchers, parent community and NGOs, called for radical change drawing on the belief that all children are able to learn, receive quality education, fulfill themselves and be included in community. Thus, a programme was launched in 2001 to support social adaptation of children with special needs and their integration into community by placing them at regular schools. It was initiated by the Ukrainian Step by Step Foundation and carried out under the scientific guidance of the Institute of Special Education of the NAES of Ukraine and with organizational support by the MES of Ukraine. As an output of this experimental project that covered the majority of regions of Ukraine, policies were drafted, which later formed the basis for designing a legislative framework for inclusive education, as well as curriculum materials that ushered the process of producing Ukrainian resources for inclusive education.

Also, during that period, children with moderate intellectual disabilities and those with complex developmental disabilities, previously deemed “ineducable”, were included into education system. The research-based and methodological principles and curriculum materials to support their education were developed by researchers of the Institute of Special Education of the NAES of Ukraine in collaboration with innovative teachers and specialists of the MES of Ukraine in the course of pedagogical experiments (action research) conducted at different levels.

An important milestone at that stage was the introduction of sign language instruction into the education of children with hearing disabilities. It was made possible through joint efforts of the Institute of Special Education of the NAES of Ukraine and the Ukrainian Deaf Association. The Ukrainian sign language was introduced both as a school subject and a means of teaching and learning for non-hearing pupils.

These developments coincided in time with the reform of pre-primary education for children with special needs. A new model became wide-spread which envisaged comprehensive support services for a child with special needs at his/her family through social and pedagogical patronage. Since 2008, child development centers have been established as a new type of pre-primary institutions where parents are involved into teaching, learning and rehabilitation processes, while interventions may be provided for children living in other settings or in their families.

Therefore, the *specific characteristics* of the second stage in the development of education for children with special needs in Ukraine (2000-2010) are (a) the attempts to transform the nature of work at special education institutions from functioning by inertia to proactive and innovative development; and (b) a considerable increase in spontaneous integration of children

with special needs into regular education institutions. It should be mentioned that the official national statistics regarding the number of children with special needs spontaneously integrated to regular education institutions is practically missing. Similarly, there is no complete statistical data maintained by the state authorities as to children with special needs. This situation may be explained by inter-departmental barriers, the lack of a single categorical classification, different approaches to keeping records of these children, etc.

Stage III (2010 — present) in the development of education for children with special needs has been marked by the tendency to significantly reduce the number of special (segregated) education institutions and the number of pupils attending them. Thus, from 2005 to 2009, 67 500 pupils were educated there, while later, between 2011 and 2014 this number dropped 1.5 times to 42 000. The number of special education institutions also changed respectively — from 380 to 220.

An important achievement during this period was related to the introduction of inclusive education, a type of education model that involves providing educational services to children with special educational needs at a regular education institutions on the community level.

It was facilitated by the Ukraine-Canada project “Inclusive Education for Children with Disabilities in Ukraine” funded by the Canadian International Development Agency (CIDA) and implemented in Ukraine between 2008 and 2013 in collaboration with the Canadian Centre of Disability Studies, Grant MacEwan University, Institute of Special Education of the NAES of Ukraine, Ukrainian Step by Step Foundation, National Assembly of People with Disabilities and others. Its outputs and ensuing suggestions had a substantial impact on designing key national policies and curriculum materials necessary to introduce inclusive education in Ukraine. For example, amendments were made to the Law of Ukraine “On Comprehensive Secondary Education” regarding inclusive groups; and a number of policy documents were drafted including the Concept of the Development of Inclusive Education, the Procedures for Organizing Inclusive Teaching and Learning at Schools, etc. During this period a new National Primary Education Curriculum was designed for children with special needs; school and preschool teaching and learning resources were updated for 900 000 children with special educational needs.

Hence, the education for persons with special needs in Ukraine, as well as education generally, has gone through a long evolutionary process and experienced the relevant organizational and content-related changes. Now a systemic reform is underway. In order to be successful, this reform should ensure comprehensive solutions to a number of challenges, including education laws and policies, organizational and staff issues, research and curriculum provision. These objectives require a concerted effort of the relevant ministries and departments, research institutions, pedagogical universities, in-service teacher training institutes and civil society organizations.

8. EDUCATION OF ACTIVE AND RESPONSIBLE PATRIOT CITIZENS

During the years of Ukrainian independence, educational science and educational practice on civil and national and patriotic education of children and youth have been actively applying the educational potential of Ukrainian history, culture and folk pedagogy. Yet recent developments in Ukraine had outlined a number of shortcomings in education in general and in the patriotic education of the younger generation in particular. These defects include: ambiguity of the united scientific and ideological position caused by the lack of national idea and social cohesion; economic, social and political instability provoked by political struggle and oligarchic elites; lack of consistency of leading social education institutions of the younger generation, as well as the lack of proper provision of the modern social needs of children and youth.

One of the major challenges of Ukraine remain internal contradictions, particularly existence in the community of different attitudes towards the state languages status and the formation of language policy in assessing historical heritage; the choice of internal strategies that leads to the dual civil targets and regional polarization of public attitudes, inhibiting the creation of joint cultural space.

World globalization causes as positive, so negative consequences, like expansion of more powerful cultures in Ukraine, that can cause weakening and depersonalization of Ukrainian culture, that for centuries has been deliberately destroyed. The process of education is complicated by conditions of undeclared war, provoked by Russia in the east of Ukraine and well as by the problem of internal migration, including the growing number of single-parent families, children in difficult circumstances, increasing poverty and unemployment. The gains of Ukrainian culture and education undergo destruction in Crimea, parts of Luhansk and Donetsk regions, currently occupied by Russia; educational standards, programs and textbooks of the neighboring state has been implemented there, with specimens of Russian culture being propagated.

Fundamental changes in the political, social, economic and civil life of Ukrainian society clearly demonstrate the urgent need to intensify civil and national and patriotic education of children and youth. The core value is represented by national values like citizenship, patriotism, respect for human dignity, justice, honesty, truthfulness. All of these were incorporated into the educational processes that had evolved over the years of our independence and now increasingly occupy the prominent place. Educating a citizen-patriot occurs simultaneously with the process of consolidation of Ukrainian society into a single political nation. Due to the multi-ethnic status of Ukraine such education is designed to promote integrity and unity of the State, which becomes the core of Ukrainian national idea.

The following adopted government documents set the strategic orientation in this process: “The Strategy of National and Patriotic Education of Children and Youth for 2016-2020” approved by the Decree of the President of Ukraine on October 13, 2015, No. 580/2015; “The Concept of National and Patriotic Education of Children and Youth”, approved by the Order of

MES of Ukraine on June 16, 2015, No. 641; the State Social Program “The Youth of Ukraine” for 2016-2020.

Thus, there are three key aspects in the patriotic education: the *personal* aspect, in which a young person with his/her love for the Motherland aims to create conditions for free spiritual and moral self-development and preservation of identity; the *public* aspect, that represents a democratic society which is interested in complete self-development rights, formation of patriotic consciousness on a firm moral basis; the *state* aspect that provides conditions for the establishment of the nationally conscious citizens, capable to ensure, now and in the future, the country’s worth place in the civilized world; and in the case of a military threat — to defend the State independence and sovereignty.

Researchers the NAES of Ukraine has carried out a number of basic research studies, the results of which were laid in the “Program of Civil Education and Self-Identity” and in the guidelines on “Educating the Individual Citizen”; Concept of Military-Patriotic Education in the Education System of Ukraine (2015), the Concept of National Programs of Military-Patriotic Education of Ukrainian Children and Youth (2015), the Concept of Military-Patriotic Education of Ukrainian Youth (together with the Society Promoting the Defense of Ukraine, 2015) and others.

The problems of national and patriotic, spiritual and civil self-determination of children and youth are being solved with consideration of the new socio-cultural situation. Therefore, the subjects of research were social, spiritual and moral activity, the ability to value-focused activities, justice and patriotic sense as the highest value of the pro-active citizen. The results of the research held in Ukraine show that from 67% to 80% of today’s high school pupils consider themselves patriots of Ukraine. The subjects of pride for the high schoolers are their country, the nation, the past and the history of Ukraine, songs, festivals, customs, Ukrainian language; courage and heroism of our military men; flag, emblem, anthem and the hard work of the people, etc.

In recent years the significant role in the civil and national and patriotic education has been played by the children’s and youth movement that introduces children and young people to the civil society, the participation of children in decision-making activities and initiates effective dialogue between state and youth, develops social partnership between research institutions and public organizations. Currently, the society leads the discussion on support and promotion of the children’s social movement in Ukraine in 2016-2020, with the consolidated participation of the Ministry of Youth and Sports of Ukraine, Ministry of Education and Science of Ukraine and Ministry of Social Policy of Ukraine.

The process of becoming a personality with a rich spiritual world, nationally conscious, focused, with clear citizenship position, moral character, high level of responsibility for own actions and deeds — these are the factors that determine the questions of the quality development of the innovative content and technological support for the process of civil and national and patriotic education. The task of development of the innovative educational technologies — methods, tools, means, techniques, procedures, aimed at raising the humanistic content and pedagogically appropriate conditions for educational activities that increase the level of spiritual and moral education of the person. For this purpose, training courses of national and patriotic education were organized: the unique author technology has been developed and the training program and with the corresponding manual “With Ukraine in the Heart” has been experimentally approved. To participate in the training sessions, there were attracted more

than 450 representatives of education institutions of different levels from Kyiv, Vinnytsia, Dnipro, Donetsk, Ivano-Frankivsk, Zakarpattia, Zaporizhzhia, Kyiv, Luhansk, Mykolaiv, Odesa, Kharkiv, Kherson, Cherkasy regions.

Given the importance of the subject, the national and patriotic education should play the leading foreseeing role in the democratic process, a means to revive the national culture, the suspension of social degradation, the perfect stimulus of moral qualities awakening. This approach requires the search of the relevant challenges of the time-proved methodological approaches that rise up the practical educational potential of the educational environment and of the education system itself. That's why, in 2016 the NAES of Ukraine has launched fundamental and applied research aimed at improving civil and patriotic education of children and youth in education institutions of different types, various associations, as well as the introduction of innovative educational technologies.

The role of the teacher, pedagogue and educator has significantly increased, especially in personality education of children and youth, including the formation of civil competences that are the basis of civil, national and patriotic position, required by personality during his/her life. This issue also needs the attention care of the research institutions, universities in developing the structure and content of new textbooks, literature for children on the history of Ukraine, on the educational aspects of education content aimed at the development of civil and national and patriotic consciousness, instilling love for the nation, tolerance to representatives of other nations, respect their culture, religion and traditions.

9. VOCATIONAL EDUCATION FOR NEEDS OF A PERSON, ECONOMY, SOCIETY

Analysis of vocational education in Ukraine. Vocational education in Ukraine plays the key role in national economy development and defense capability maintain providing skilled workers for labour market, reproducing labour potential, meeting individual needs in social and professional development, attracting young and unemployed people in social and professional life.

Considerable transformation in vocational education of Ukraine has undergone for the years of independence via transition to degree system and informatization of educational process, introduction of new organizational and teaching forms and learning technologies, vocational education content upgrade, etc.

Now there are more than two thousand education institutions and enterprises of different types and forms of ownership in the system of vocational education of Ukraine. They are engaged to skilled workers training. 798 education institutions belong to the MES of Ukraine and other executive bodies. The network of vocational education consists of: vocational high schools (47%), higher VET schools (21%), VET schools (13%), professional colleges (0.4%) and vocational education institutions of other types (18.6%). These institutions provide vocational education and training for more than 300 thousand people in 35 areas and economic activities on 500 professions. The majority of pupils (61%) studies after 9th grade of comprehensive secondary education to get the complete comprehensive secondary and vocational education simultaneously. The VET schools' graduates' employment level is consistently high that indicates the urgent need in qualified workforce at the labour market.

To ensure quality training for skilled workers according to the demands of National Qualifications Framework the 310 state standards of VET for certain professions were designed and practically tested where 80% belong to production field. In recent years the active introduction of modern innovative technologies has been in place in the area of vocational education, 84 education and practical centers of innovative technologies with industry-professional purposes were created and are in action.

39.5 thousand teachers and trainers work in the system of vocational education and training where 66% are the masters of industrial training, teachers of vocational subjects' cycle and senior masters. The average availability of pedagogical personnel is 87%.

There are also some negative trends in vocational education development processes in Ukraine as: reduce of network and pupil contingent of VET schools; slow update of training directions list; state order and funding reduction; out-of-date legislative and regulatory framework; misbalance of volume, directions, levels and training quality of skilled workers and existing socio-economic conditions, employers' requirements; slow development and implementation

of competence-based educational and professional standards; inefficient system of professional guidance and professional-life consulting services for young people; lack of modern ICT in VET schools; pedagogical personnel turnover and others. Main problems are caused by persistence of significant centralization in the management of vocational education, lack of interaction among vocational schools, employers and researchers on the issues of national VET standards design and development, imperfection of funding mechanisms and others.

Scientific and methodical support for vocational education. The solution to many problems is associated with scientific and methodical support of vocational education and training. Thus, for vocational education development the scientific and methodical developments of the Institute of Vocational Education and Training of the NAES of Ukraine are valuable and useful. They represent the concept of career guidance for the youth, open vocational training on a modular basis, etc.; marketing management model of VET, social partnership development, organizational culture development for VET schools, the development of information and analytical competence of VET schools pedagogical personnel, etc.; VET content design competence-based methods, creation of electronic textbooks for VET schools, etc.; technology of modular vocational training for skilled workers in terms of high-tech manufacturing, preparing young people for professional career choose and realization, personality development, etc.; training programs for VET pupils “Technology for Professional Career Planning and Implementation”, “Steps to the Profession”, “Culture Environmental Safety of Professional Activity in the Construction Industry”, “Fundamentals of Energy Efficiency”, etc.; training courses for VET schools teachers “Implementation of Personal and Developmental Learning Technologies in VET”, “Creation and Use of Electronic Educational Resources”, etc. as well as electronic resources and teaching aids for pupils and teachers of VET schools.

Perspective directions of vocational education modernization. For further development of vocational education in Ukraine it is needed to: *in law*: to develop modern legal and regulatory framework for vocational education taking into account the best international practices and national circumstances; *in state order formation and implementation*: to create and implement labour market monitoring system to identify real needs for specialists; to improve state statistical reports in the field of vocational education and training; *in VET content improving field*: to align the National Classification of Occupations and Professions with International Classification; to update the state list of professions for skilled workers training in vocational schools; to ensure the development of competence-based educational and professional standards; *in expansion of cooperation with employers*: to create a modern system of tax and financial and credit mechanisms for raising employers’ funds and private sector investment in vocational education and research and innovational activities in education; to facilitate cooperation with employers on professional standards development and educational standards upgrade; to implement independent examination of VET programs; *in vocational education management*: to ensure a phased, research-based, gradual optimization of VET schools network and their transfer to municipal ownership regulations; to ensure the introduction of modern variable forms of vocational education; *in raising the prestige of working professions in society*: to develop and implement national and regional programs popularizing vocational education in the society; psychological and pedagogical support of counseling in planning and professional career development; *in information support of VET and introduction of innovative learning technologies*: to implement financial and methodological support of innovative processes in the Ukrainian VET system; to create the information and communication network of vocational training; *in on-the-job vocational training*: to ensure the education market formation; creation

of modern information and teaching support for learning in the workplace; *in improving the pedagogical personnel quality*: to improve training, retraining and in-service training for VET schools pedagogical personnel; increase salaries for teachers and masters of industrial training; *in financial and logistical support of vocational education*: to keep government funding for VET schools in the form of subventions from the state budget to local budgets, state order for skilled workers and junior specialists of strategically important specialties training; develop mechanisms of distributed responsibility for financing and guaranteeing efficient resources for vocational education allocation, multilevel and multi-finance training of qualified specialists.

10. HIGHER EDUCATION IN UKRAINE – TRANSFORMATIONS, STATE AND PERSPECTIVES FOR DEVELOPMENT OF THE HIGHER EDUCATION IN UKRAINE

Short historical review

Historically higher education in Ukraine has its fundamental origins in the late 16th and early 17th centuries. In general, in 1960-1990 during the global acceleration of scientific and technological progress the two main periods of HE development in Ukraine may be distinguished: 1960-1969 — a period of its administrative-intensive development; 1970-1990 — a structural stabilization period. The structure of higher education institutions network was simple but concentrated. There were classic universities and sectoral institutions (HEIs) with the unified system of training specialists, Candidates of Sciences and Doctors of Sciences. In 1970-1990, regions became significantly closer to each other by a number of students in HE and pupils in VET. Despite the changes in the number of HEIs and respective student population, interregional proportions of their distribution remained relatively stable. However, the initiated reforms of the HE and VET in the second half of the 1980s was not completed due to the socio-economic and political crisis that resulted in the collapse of USSR and changes in the political and economic systems.

Extensive (massive) growth of higher education in Ukraine in the years of 1991-2013 after gaining the State sovereignty

The years of 1991-2013 after gaining the State sovereignty can be characterized by extensive (massive) growth of higher education. At this time, the national legal framework of education, including higher education, was formed.

The prime key legislative acts, important for HE in Ukraine, were the Laws of Ukraine on Education (1991, 1996) and on Science and Scientific and Technology Activities (1991). Innovations included the right to establish private HEIs; licensing, accreditation of specialties (study areas), institutional accreditation of HEIs; the introduction of three levels of HE corresponding to the degrees (Bachelor, Specialist and Master); gaining the status of HEIs by VET institutions. Providing training of professionals based mostly on complete secondary education and also incomplete secondary education. Different forms of ownership of HEIs (public, municipal and private) were a crucial novelty for HE. HEIs had to carry out scientific activities.

The Law of Ukraine on Higher Education (2002) secured innovations in HE, including accreditation of HEIs, the state and the sectoral standards for HE, etc. A new classification of HEIs was introduced to distinguish different types of institutions (horizontal differentiation):

- HEIs with the III and IV levels of accreditation (universities, academies, institutes);
- HEIs with the I and II levels of accreditation (former VET institutions).

During this period, the increase in number of HEIs accredited at levels III and IV and the simultaneous increase in the students number was the main trend of HE development in Ukraine. Despite a slight reduction in the number of HEIs, starting from 2009 (mostly via their mergers), in 2013 most of them were smaller than in 1990, which did not contribute to accumulation of important university capacity.

Analysis of the specialization of HEIs indicated the absence of structural proportions' uniformity for the certain areas of education and training.

According to the socioeconomic macro-regions, HEIs of III-IV levels of accreditation and students' enrolment are mostly concentrated in Central (Kyiv), Western (Lviv), Eastern (Kharkiv) and Southern (Odesa) regions, while the HEIs accredited at levels I-II are concentrated in Central (Kyiv), Western (Lviv) and Eastern (Kharkiv and Donetsk) regions.

Distribution of HEIs by different forms of ownership has changed significantly during this period: a portion of public/municipal HEIs has decreased from 97% in 1991 to 79% in 2013 (a number of private HEIs has increased from 3% to 21%). Such growth in private sector of HE falls largely in the period of 1993-2007, which is related with general liberalization of the system of socio-economic relations in Ukraine and withdrawal from the total state ownership model of educational domain that existed in the Soviet era.

In terms of demographic and economic crisis, a large number of HEIs has a negative effect on the quality of educational services and competitiveness of HE at the national and European labour markets. Therefore, in 2011 the Ministry of Education and Science, Youth and Sports of Ukraine offered a two-step optimization program for the network of state/municipal sector of HE. In the period of 2010/11 to 2014/15 academic years the network of HEIs accredited at levels III and IV of state and municipal ownership has decreased by 34 institutions or that equals 14%. However, the number of private HEIs has decreased by 19 institutions or 18%.

Financial aspects of higher education

The Law on Budget Code of Ukraine(2000) had played a negative role for the implementation of financial autonomy of HEIs. According to the Law, all public and municipal HEIs were referred to the budgetary organizations; non-public revenues for commercial educational services were treated as “public earnings”, interpreted as the revenues from the State Budget and accumulated in the Special State Fund of the State Treasury.

HE financing in 2009-2013 had reached the highest absolute and relative levels since independence. Nevertheless, funding for student training in Ukraine was non-competitive. If calculated per student basis, the indicator was 7-10 times lower than in the developed countries.

The critical need for additional funding due to the economic crisis caused the following negative trends: HEIs started to focus on atypical educational programs; entry requirements for foreign HE students were lower than for the national ones; the number of scientific and pedagogical personnel representatives (with academic degrees of Candidates and Doctors of

Sciences, as well as Professors and Assistant Professors) was not enough to satisfy the growing number of HEIs (and their students).

Being deprived of almost any state support, private HEIs developed mainly “low-cost”, but popular educational programs and market-friendly courses that required less investment in terms of infrastructure and equipment and cater mainly for private businesses. Public HEIs has increased the number of students studying at their own expense to compensate the lack of public funding and to get at least minimal financial autonomy.

Cooperation with the labour market

HE isolation from the needs and interests of the labour market has been recognized as one of the key issues since 1991. Lack of fair competition in many sectors of the economy has caused a negative impact on higher education, as the labour market often encourages quality education. Undefined national qualifications, ambiguity of professional standards of HE constraint cooperation of HE and business.

Autonomy of higher education institutions

The level of autonomy of Ukrainian HEIs in 1991-2013 was assessed according to the indicators of the Autonomy Scorecard 2010 suggested by the European University Association. The results of the analyses proved transformation and expenditures of academic, organisational and staffing autonomy, stagnation of financial component. Public/municipal HEIs remain budgetary organizations, i.e. they are non-profit and tax exempt, but their financial activity, including their own earnings, is being strongly and meticulously controlled by the State Treasury.

External independent assessment

The introduction of external independent assessment has become of critical importance to ensure the equal access to HE. External independent assessment provided the leading HEIs with the opportunity to receive the best students and overcome corruption displays. The reform has had a significant influence of HE landscape allowing leading HEIs located at the major academic centres to select the best students. Consequently, weak HEIs has lost and sometimes were not able to enrol students even in vacancies funded by the government.

Vertical differentiation of higher education institutions (establishment of elite HEIs)

The vertical (elite) differentiation of HE in Ukraine has started in this period, characterized by the allocation of specific group of universities with the status of National University (from 1994), the introduction of the status of Research National University (from 2009) and definition of rankings according to the national and international ranking systems.

Now the status of National University is granted almost to 120 HEIs. In fact, the realization of the idea of the “elite” university by giving it the status of “national” was discredited by “massing” the process. The status of self-governing (autonomous) research national university was granted to 14 HEIs during 2009-2014.

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The concept of the new reform in HE in Ukraine is being implemented in the new Law of Ukraine on Higher Education (2014) with the main objectives to ensure the autonomy and quality of HE in the context of implementing key principles and instruments of the Bologna process to create an attractive and competitive European Higher Education Area and its integration into the European Research Area.

Conclusions

1. Several major factors have made principal impact on main changes in HE. Internal factors included the demographic crisis; limited public funding; low salaries of the pedagogical personnel and, respectively, aging scientific and pedagogical personnel in HEIs. External factors included dissatisfaction of the society with low quality of education and corrupt practices in the system; increasing demands of the labour market for HE quality; inconsistency between the structure of the state order for specialists with higher education and the labour market demands.

2. HE system in Ukraine is characterised by inefficiency and serious quantitative and qualitative deformations that adversely affect the training of citizens, reduce the global competitiveness of the country.

3. The main strategic areas of HE modernization include: reorganization of the HEIs network; bringing the students contingent in line with the real HE resource base; reform of the public funding of HEIs; the establishment of the national ranking system for HEIs; consolidation of existing HEIs in regions through their association in the powerful national regional universities.

4. The new education policy, having laid down in 2014 by the Law of Ukraine on Higher Education, is focused on institutional autonomy and development of higher education. However, the introduction of reforms is often hampered by low legal, political, managerial qualification of officials in HE and the universities top management; lack of financial autonomy of universities.

11. PEDAGOGICAL AND SCIENTIFIC AND PEDAGOGICAL PERSONNEL, THEIR PROFESSIONAL TRAINING AND SOCIAL SUPPORT – AS THE MAIN FACTORS OF COMPETITIVE EDUCATION

With more than 1.5 million educators (according to the number of employees it is the largest humanitarian field and the second — after the industrial one in Ukraine), about 0.8 million are pedagogical and scientific and pedagogical personnel. The later are distributed as the following (the data is rounded) according to levels of education: 140 thousand — pre-primary, 440 thousand — comprehensive secondary, 20 thousand — out-of-school, 40 thousand — vocational, 140 thousand (as the main activity) — higher, 20 thousand — postgraduate education. Among them are nearly 55 thousand education institutions leaders and their deputies.

Taking into consideration the number of people who regularly study (7.0 million in 2015) and the practice of the developed countries, Ukraine has a formal surplus of pedagogical and scientific and pedagogical personnel: the student-teacher ratio is about equal to 9, which is substantially less for example, than the average for the OECD countries. This complicates solving the problems of quality training and career development of sufficient quantity of high-quality personnel, its selection and adequate pay, ensuring other social guarantees and working conditions.

Due to the inconsistency, the repeated attempts to implement program-oriented approach to solving the complex issues of staffing the national education has not led to the expected results, including the Law of Ukraine “On Education” (1991, 1996), the National Doctrine of Education Development in 2002 hasn’t implemented the provisions of the State National Program “Education” (Ukraine of the XXI century) in 1993, the State Program “Teacher” (2002, 2011) which was planned for the period of 2012 has been terminated. The concept of teacher education in Ukraine has not been accepted yet; serious disparities in the network, structure and content of pedagogical and scientific and pedagogical personnel training have not been resolved. Social status and teachers’ salaries remain low, which leads to the chronic shortage of professionally qualified pedagogical personnel, the trend growth of their retirement, loss of youth interest in pedagogical, scientific and pedagogical career. These and other questions require rationing a new Law of Ukraine “On Education”, the draft of which was prepared with the participation of researchers of the NAES of Ukraine, pending at the Parliament of Ukraine. It is also important to promote comprehensive educational, pedagogical, scientific and pedagogical activities in the mass media.

Pedagogical and scientific and pedagogical personnel, corresponding pedagogical and scientific and pedagogical education according to their mission naturally occupy the central place in the educational sector, for they are professionally designed to provide the very education itself. Core position in education leads immanent foregrounding nature of pedagogical and scientific and pedagogical education, as well as of pedagogical and scientific and pedagogical activities, with the ahead of time (with anticipation of future circuits) character of their upgrade, for these professional education and these educational experts would actually become the accelerators of human progress.

At the end of 1980s and 1990s, Ukraine has developed a certain system of selection, training, distribution of pedagogical and scientific and pedagogical personnel, as well as creating conditions for their educational activities. Over the next two decades in this system, revolutionary changes have occurred. At the same time, new serious challenges the world has become more globalized, competitive, variable and innovative.

Reduction for a quarter century of a century by 41% (from 11.9 million to 7.0 million) of the total youth population that systematically studies hasn't been accompanied by the adequate increase of the quality of education and training of pedagogical, scientific and pedagogical personnel. Their total number has decreased to one fifth and student-teacher ratio is in one and a half or two times lower than in many developed countries. The total value of children and teachers in pre-primary (9: 1), students and teachers in secondary (also 9: 1), students and teachers in higher education (12: 1) is markedly different from the norms of the OECD: in pre-primary and secondary education — by 14: 1, in higher — by 16: 1.

The *skill level of the various categories* of pedagogical personnel throughout 25 years, although in some cases has been improved, has been often worsened (in many cases due to the need for a large number of personnel and unattractiveness of teaching). In particular, it concerns the lack of pedagogical personnel with *Master and Specialist degrees*. The main reason lies in the outdated approaches to staffing the education, including underestimating the key role of qualified teachers in the early childhood education, according to which in the pre-primary and primary school is allowed the presence of pedagogical personnel without Specialist or Master degrees of higher education in general and without higher pedagogical education especially.

In 2015 less than 59% of pre-primary teachers had higher education of Master or Specialist degrees level, with any specialisation orientation (49% in rural areas). In the primary grades 84% (77% in rural areas) of teachers. Among the teachers who teach basics of sciences, language and literature in primary and secondary school, including highly qualified specialists almost 97% (96% in rural areas). For teachers who teach music, fine arts, physical education, patriotic education, crafts training, corresponding figures are 83% (77% in rural areas). For comparison: in Finland, where pupils demonstrate some of the best results in the world, Master's degree is required to work in primary education.

In 1990-2015 according to percentage points there remained a significant gap between *urban and rural* areas in the provision of educators with higher education of Master and Specialist degree level. This disparity in the period of pre-primary education has even slightly increased from 12% to 13%, in the primary school it remained at 13%. As for the teachers who teach specific subjects (science foundations, language, literature), the difference in qualification of teachers in urban and rural schools by 2% hasn't changed. For teachers of music, fine arts, physical education, patriotic education, crafts training the difference in qualification for this time has decreased (from 15 to 10%) to a greater difference.

However, in 2015 in secondary schools of Ukraine there worked only 781 teachers with comprehensive secondary education.

Significant *regional differences* in secondary schools still remain, in providing the pedagogical personnel with qualifications of Master and Specialist degrees level. For primary school teachers this difference in 1990 and 2015 in percentage points respectively was 40% and 27%. In 2015 qualification rate has been significantly different even in the geographically close areas like Ivano-Frankivsk (94% teachers — Masters, Specialists), Chernivtsi (79%) and Zakarpattia region (67%). A significant backlog of Zakarpattia region and Chernivtsi regions of the mentioned Ivano-Frankivsk and Chernihiv (93%) regions and the city of Kyiv (92%), are primarily explained due to the fact that the latter carried out the necessary and sufficient training of primary school teachers with higher education of Master and Specialist degrees level and first — did not.

Such territorial disagreement is possible due to the presence or absence of appropriate training was observed for a group of teachers who teach music, fine arts, physical education, patriotic education, crafts training, in the city of Kyiv — 91%, Sumy and Chernihiv regions — 89%, while in Zhytomyr and Chernivtsi — by 76%, Transcarpathian — 80%. Overall variation between the territories of educational characteristics of this group of workers has decreased by half (from 29% in 1990 to 15% in 2015), but is still significant.

However, implementation in each region of training the teachers of science bases, languages and literature, primarily through classical and pedagogical universities, leads to the significantly lower territorial disagreement of the share of teachers with the higher education of Master and Specialist degree level: 4% in 1990 and 3% in 2015. However, for this category of teachers different qualification skills are typical depending on *the teaching subject*. The range of fluctuations is from 94% (science teachers) and 96% (foreign language teachers) to 99% (teachers of Ukrainian and Russian languages, history, mathematics, physics, chemistry, biology).

These data indicate that most graduates are working in areas where they have been studying. Also, if the geographical mobility of the graduates is complicated, the economic migration (outflow in other areas of economic activity), on the contrary, is recently picked up considerably. One of the negative effects of adverse economic mobility for education of young professionals — are teachers and the gradual aging of the pedagogical personnel even with available vacancies.

The actual quality of teacher education remains uncertain, standards in the field of higher pedagogical education on competence-based approach have not been developed.

The rapid development in the world of education in general, its lowest level, especially sublevel education of children of 2 and less years old, as well as the highest, doctoral and post-doctoral levels, actualization of priorities to build key (general) and subject (specific) competences of the individual, determine the need not only for optimization of the respective forming of pedagogical and scientific and pedagogical personnel, but also in their methodological and methodical and technological upgrading. Today it is evident that the content of teaching, research and teacher training should include the following harmonized basic components of the preparation: technological (mastery of effective methods of education), psychological (the ability to interact with individuals who study, a comprehensive understanding of their personalities), cultural (understanding the state trends and vision of civilization as current and future context of human existence) and subjective (mastery of subject studies). The teachers of pre-primary and primary education, dealing with children who have to live and work in fundamentally different from this innovative future require especially high proactive competence.

During the period of independence under the new standards of education, educational programs, curricula there was a significant (both positive and in some cases negative) redistribution of *the composition and structure of teachers* who teach specific subjects in secondary schools. The proportion of teachers of Ukrainian (from 13 to 15%), foreign languages (from 10 to 14%), computer science (4%) has increased, whereas — mathematics (from 15 to 11%), Russian (from 15 to 7%) have decreased. The share of teachers who teach foreign languages especially English continue increasing (in 1970 — 51%, in 1990 — 65%, in 2015 — 80%). However, the number of teachers and teachers-organizers was reduced more than twice.

Significantly has worsened the *gender* composition of the pedagogical personnel. The share of men among them in secondary schools has dropped from 19% in 1990 (24% in 1971) to 15% in 2015, indicating that growing professional educational sector is unattractive for men. This is two to three times worse than in similar schools of successful countries, in particular in the OECD.

In recent years, continuously increase the share of educational workers of the *retirement age*, who often carry out the outdated media experience: there was almost a doubling at much shorter period for the secondary schools from 8% in 1996 to 15% in 2015.

To improve the quality of the pedagogical personnel according to the designated above characteristics, the demographic situation of the last twenty-five years period has not been used, it is associated with significant (more than double) decrease and only a partial restoration of fertility reduction of kids and the general population, which leads to reduction of the required number of pedagogical personnel.

Despite the decline in 25-year period of the network of vocational education from 1246 to 798 (or 36%) of institutions, personnel problems with their teaching staffing hasn't not got its solution yet. Overall in 2015 in vocational schools there were 12.9% of vacant personnel positions. In particular, staffing with older masters and masters of industrial training was 78.9%, 1.7 thousand teachers were insufficient. Among the institution leaders and teachers with vocational qualification there were 28.9%.

The level of employment of graduates with pedagogical specialties has deteriorated, according to the optimistic estimates, only 80-85%. The complex problem is a professionally oriented set of the teaching profession. Given the extensive growth of the national high school, some education institutions in the fight for the number of students are accepting essentially anyone who has the formal right to enter a higher education institution.

Departure from the professional pedagogical training of the leading higher education institutions has worsened. Many of them changed their preferences towards the classical university model, even if there is no need in the national or regional one. This "universitisation" of education institutions has led to a narrowing cycle of psycho-pedagogical subjects, reducing teaching practice, closing departments of pedagogy. Since independence, the number of higher education institutions that specialize in pre-service teacher training has decreased almost by half.

Particular attention should be paid to pedagogical and scientific and pedagogical personnel of *higher education institutions*. At the beginning of 2015/16 academic year in institutions of I and II levels of accreditation there were employed 28.7 thousand, including 24.2 thousand (84%) pedagogical and scientific and pedagogical personnel. In institutions of III and IV levels of accreditation there taught 134.2 thousand, including 117.8 thousand (88%) pedagogical and scientific and pedagogical personnel. The first (pedagogical) equal to — 22.5 thousand (in the stuff 19.6 thousand, 87%), second (scientific and pedagogical) —

111.7 thousand (in the staff 98.1 thousand, 88%), hence the scientific and pedagogical personnel accounted 87% of the total number of employees of the both categories.

Among pedagogical and scientific and pedagogical personnel of HEIs of I and II accreditation levels there are 1118 (3.9%) Candidates and 68 (0.2%) Doctors of Sciences and 292 (1.0%) and 64 Associate Professors, (0.2%) Professors. Instead in the institutions of III and IV levels of accreditation among pedagogical and scientific and pedagogical personnel there are 46% Candidates and 9.3% of Doctors of Sciences and 31% Associate Professors and 8.2% Professors. With a large number of personnel of higher scientific and pedagogical qualification, there is a lack of modern competences, most do not speak English.

Interregional difference for supply of Candidates of Sciences and Associate Professors of HEIs of III and IV levels of accreditation is about 2 times, Doctors — 4 times, Professors — 3 times. As for the departmental security, it is different for Doctors and Professors in several dozen times.

Effective organizational forms of training highly qualified scientific personnel are PhD and DSc studies. In Ukraine in 2015 at 490 PhD studies and in 283 DSc studies there has been studying correspondingly 28.5 thousand PhD students and 1.8 thousand DSc students, most of them (86% PhD students and 81% DSc students) — in higher education institutions. Regarding doctoral studies in the higher education sector, the problem is that, often they are open in institutions where there are no philosophical schools, organization, relevant research laboratories and centres with the necessary equipment. For example, in 2015 in 288 higher education institutions of III and IV levels of accreditation there operated 151 research organizations at the same time — 234 PhD studies and 177 DSc studies.

Among the personnel problems of education are — training of school leaders and their reserve. In 2015 in the Ukrainian education institutions there were about 55 thousand leaders and their deputies, including 11.5 thousand leaders of pre-primary, 36.6 thousand leaders and deputies of comprehensive secondary schools, 2.6 thousand leaders and deputies of vocational education institutions. Nevertheless, some of them lack the managerial competences.

The salary level of pedagogical and scientific and pedagogical personnel doesn't facilitate the pursuit of their careers. Among 20 types and subtypes of economic activities, for which the State Statistics Service of Ukraine presents the data on average salaries, education occupies 17th place. In 2015 salaries in education were equal to 75% of the average in economy (in 1990 — 72%) and 65% of the average in the industry (in 1990 — 63%), which does not correspond with the Law of Ukraine "On Education". In 1965 for the last time the average salary in education exceeded the average salary of the national economy of the country and since then it has tended to systematically decrease.

In view of the previously mentioned there is a need to implement in Ukraine the following actions in order to resolve these problems.

1. As soon as possible to adopt scientifically based concept (strategy) of development of pedagogical and scientific and pedagogical education in Ukraine and draw a comprehensive plan to reform this key educational links.

2. To implement a set of measures with the rise of social prestige, status, enhance the protection of pedagogical, scientific and pedagogical activities to attract and retain the best in education professionals. Under any conditions, salaries of teachers should not be lower than the average in the Ukrainian society.

3. For the quality of education a large number of higher education institutions, should be restructured, especially the I and II levels of accreditation that train pedagogical personnel, putting aim to provide all the educational level with teachers with quality higher education of the Masters, Specialist degree level.

4. Promising models of teacher personnel requiring experimental verification and testing should consider the following:

- Integrated Master (currently the Specialist) with early pedagogical specialization (in pedagogical universities, academies and institutes) and thoroughly penetrating pedagogical practice;
- two cycle Bachelor-Master training with later pedagogical specialization (in classical universities) implementing educational internship.

Both models are important to preserve as complementary because each has its own advantages.

5. To decide upon the system of educational and professional educational standards and qualifications on competence-based approach, modernize the educational process introducing training through research, expansion of educational autonomy, strengthening practical training at Bachelor and Master degrees level of higher education.

6. To ensure flexibility and integration of educational programs and training disciplines (courses) as continuous pedagogical education (in universities that train teachers and institutions of postgraduate education) and by modulating and crediting, accreditation and certification, codification for educational levels and disciplines, specialties and specializations. For professional development it is expedient to make the most of scientific and pedagogical potential of the NAES of Ukraine and its subordinate institutions, the University of Education Management, Institute of Higher Education and Institute of Educational Sciences and Adult Education of the NAES of Ukraine.

7. In order to improve the training of scientific and pedagogical personnel of higher qualification its worth to revise the postgraduate network, maintain and expand it to those universities and research institutions, which created the right conditions, made a strong research and innovation, there are recognized scientific and pedagogical schools.

8. English language training of scientific and pedagogical personnel needs radical improvement that will contribute to their professional growth through direct study of scientific literature in English and enhance international academic mobility.

9. To improve the training of pedagogical, scientific and pedagogical personnel to the List of disciplines and specialties in higher education, it is advisable to make the following clearings: the discipline “Education” should be called “Education and Teacher Education” and specialty “Sciences on Education” — “Educational and Pedagogical Sciences”.

10. It is also important to promote comprehensive education, pedagogical, scientific and pedagogical activities in the mass media, particularly through television.

12. ADULT EDUCATION — AS AN INTEGRAL PART OF LIFELONG LEARNING

Since the beginning of 21st century the importance of adult education as an integral part of lifelong learning has been increasing; its development is connected with social and pedagogical, pedagogical, scientific and technical economic and other factors, technical and technological changes in the global economy. For Ukraine the importance of adult education is determined by some additional factors such as: the necessity of adults' adaptation to new economic conditions, remarkable decrease in employment of economically active population, incomes, increase of unemployment, the loss of necessary qualifications by different categories of youth and adults, great amount of functionally illiterate adults, aging population of the country. Flexible, open national system of adult education, that combines formal, non-formal and informal education should be aimed at meeting current and future individual's needs. In Ukraine formal adult education is represented by the secondary (evening school), vocational, higher education, in-service training institutions. At the same time, non-formal adult education that addresses specific educational and cultural needs of different social, professional, demographic and other population groups and is directed at the development of additional skills of different categories of adults is currently growing. Such education is provided in education institutions and public organizations, during private lessons and is generally not supported by the official document. The most common fields are artistic, recreational, cultural and linguistic, information and communication, psychological oriented, rehabilitation and other areas of non-formal education.

The main achievements of the adult education in Ukraine are the following:

- development of the Concept of Adult Education in Ukraine (2011);
- creation of the Public Union “Ukrainian Adult Education Association”, which became a member of the European Association for the Education of Adults in June 2016;
- establishment of education centers for various categories of adults in education institutions of different types and on the basis of local communities;
- consolidation of efforts of state bodies, public organizations, communities and businesses for the development of education for different categories of adults, for creation of affordable, effective, efficient educational infrastructure in the regions and on a global scale — civil society in Ukraine;
- enhanced role of local communities, the growing network of non-governmental organizations, whose activities are aimed at implementation of education initiatives for adults.

In Ukraine the collections of scientific works, scientific and practice-oriented journals in the field of formal and non-formal adult education are published: “Adult Education: Theory, Experience, Prospects” (since 2009), “Comparative Professional Pedagogy” (since 2011),

“Territory of Success” (since 2015), Ukrainian-Polish, Polish-Ukrainian Yearbook “Professional and Continuing Education” (since 2016), etc.

The research work on adult education is carried out in several institutions of the NAES of Ukraine: Institute of Education Content Modernization of the MES of Ukraine, the National Institute for Strategic Studies under the President of Ukraine. Complex fundamental researches on identifying the peculiarities of education of various categories of adults are carried out in the Institute of Educational Sciences and Adult Education of the NAES of Ukraine.

In all regions of Ukraine there are centers of adult education for various categories (independent institutions, divisions of secondary, vocational, higher education institutions, libraries and museums). The range of providers of education services, both formal and non-formal adult education, is expanding. State bodies, public organizations, communities and businesses consolidate their efforts on the principles of partnership for the development of education for different categories of adults and to create affordable, effective, efficient educational infrastructure in the regions of Ukraine.

To meet the cultural and educational needs of various categories of adults and taking into account the dynamic changes in the socio-cultural and economic development of the society, it is advisable: to update the legislative base of Ukraine; to develop and adopt the Law of Ukraine “On Adult Education”; to implement an integrated approach to the studying the adult education problems; to monitor the cultural and education needs of various categories of adults and the quality of provided educational services; to take into consideration the industry field component in the development of training programs for different categories of the adults; to create the formal and non-formal education institutions network for the preparation of professionals — teachers-andragogs to work with adults, subsequent introduction of the profession “Andragog” to the National Classifier of Ukraine (the Classifier of Professions DK 003:2010); to establish interdepartmental interaction and social partnership.

Taking into consideration the socio-economic situation in the state (downgrading of many intellectual professions, mass unemployment and impoverishment of Ukrainians, the factor of Russia’s military aggression, the Crimea annexation) it is extremely important to develop education for internally displaced persons; the soldiers — participants of the ATO (anti-terroristic operation); the soldiers who were injured in the fighting, as well as during the participation in peacekeeping and security operations, which require rehabilitation activities combined with personal development, professional training; as well as for unemployed, disabled and other categories of adults. It is needed to solve the problems of organizational, managerial, informational and financial support for non-formal adult education; to develop the non-formal education for individuals with limited access to the formal education market: the unemployed in cities (including unemployed youth), people with disabilities, rural population, people with low income, including those employed in the social public sector, people with family responsibilities (single parents, persons with disabled relatives, large families); older people (pensioners) in cities and villages; marginalized groups (homeless people, migrants, persons serving sentences/ former prisoners) and others.

13. POSTGRADUATE EDUCATION – AN IMPORTANT LINK OF PERSONNEL PROFESSIONAL DEVELOPMENT

Postgraduate pedagogical education (PPE) is an integral part of the education system of Ukraine, which provides continuous professional development of the pedagogical, scientific and pedagogical personnel and education institutions leaders in accordance with the requirements of state education policy, employers and stakeholders requests, as well as and consumers' needs for educational services.

Modern system of postgraduate pedagogical education consists of the following institutions: State Higher Education Institution “University of Educational Management” of the NAES of Ukraine, 27 regional PPE institutions of municipal ownership, as well as postgraduate education institutions and other relevant university departments. In the PPE institutions there are employed more than 1.4 thousand pedagogical and scientific and pedagogical personnel, among them — almost 100 Doctors and 500 Candidates of Sciences, 79 Professors and 328 Associate Professors, 45 Honored Workers of Education and Honored Teachers of Ukraine.

Since independence, PPE of Ukraine has undergone substantial institutional, organizational, managerial, personnel, content and technological changes that led to the transformation of the in-service teacher training institutes to the institutions (academies) of postgraduate education. This contributed to the raise of the pedagogical personnel professional development level and scientific and methodical support of education reforms. Every year more than 123 thousand pedagogical personnel of 163 categories undergo in-service training in various PPE institutions. The system of methodical work within the interterm course period has reached 400 thousand field professionals.

The leading institution of PPE system in Ukraine is University of Educational Management of the NAES of Ukraine, which developed and implemented innovative approaches to in-service training of pedagogical, scientific and pedagogical personnel and education institutions leaders based on the combining of formal, non-formal and informal education. The University of Educational Management of the NAES of Ukraine has initiated the creation of the All-Ukrainian Public Organization “Postgraduate Institutions Consortium”. Within the Consortium there was launched the Ukrainian Open University of Postgraduate Education (UOUPE) as an innovative modern education institution of the European type uniting 17 regional institutions of postgraduate education from different regions of Ukraine.

The andragogics serves scientific and methodical basis of PPE. Due to the cyclical nature of professional development of pedagogical personnel (from the formation of one competence to another), into the theory and practice of PPE there was introduced the notion of the andragogical cycle — a special period of 3-5 years. The cycle combines structured and meaningful training with intercourse period in order to raise education sphere workers professional competence. Andragogical training of teachers and PPE trainers is planned separately; the system of measures

for the organization and professional training of teachers as andragogs is currently being developed. Continuous training for more than 1.4 thousand PPE personnel has been implemented.

The complexity and multi-direction of the pedagogical personnel professional development requires practical application of postgraduate education in its various models: competence-based, differentiated, diversified, cluster, prolonged, accumulation and personality oriented.

PPE institutions have significant experience in the in-service training of pedagogical, scientific and pedagogical personnel and education institutions leaders in various forms of education: full-time, part-time, distance; currently, the informational and interactive learning technologies have been widely applied. Between 2005 and 2015 by PPE pedagogical, scientific and pedagogical personnel there were developed and published 1512 items of pedagogical and methodical literature for in-service training system.

The active introduction of blended and distance form of training is a response to requests from educational professionals and as the result of global challenges of informatization. During of 2000-2015 this study has covered almost all the pedagogical and administrative personnel of the compulsory secondary education in Ukraine (approximately 500 thousand). Today's training, modern by the content and comfortable by timing, enable each student to choose individual learning paths, to perform independent tasks and to write final papers. To support training courses, for those who wish to study at distance and blended forms, PPE of Ukraine has created a powerful informational and educational resource located on the platforms of web-sites and being easy to use.

Research activity in the PPE system is aimed at the development, implementation and experimental verification of the educational process advanced educational technologies, modern teaching facilities, research and forecasting trends of development of postgraduate education, modernization of its content, research personnel for the PPE system training and more.

The development of the PPE system is aimed at psychological and pedagogical support and the sustention of continuous professional development of pedagogical, scientific and pedagogical personnel and education institutions leaders, in particular, it is aimed at identification of trends in the education development in today's information society, at mastering new educational content and educational technologies, introduction of innovations, developing the ability to compare the local problems of the managerial and pedagogical activity with the national priorities and the motivation of their personal professional growth.

PPE institutions with its powerful information, research, teaching, training and educational potential should promote democratic reforms in the country and in every region in particular. Therefore, it is important to support these institutions by the state and regional authorities, the development of legislative and regulatory basis for logistics, replenishment of actual scientific and methodical literature, modern teaching aids, proper funding. Without a developed PPE system, it's impossible to implement modernization and education reform in Ukraine.

Recent actual issues of the PPE system:

1. It is vitally necessary to provide legislative and regulatory assurance of the postgraduate education functioning and development — by developing and adopting the laws of Ukraine “On Postgraduate Education”, “On Adult Education”, “On Pedagogical and Scientific and Pedagogical Activities”, corresponding acts regulating non-formal and informal types of professional education, in particular pedagogical.

2. The primary tasks of the PPE institutions nowadays should be the content and technology renewal of teachers and school leaders in-service training; development of their key, basic and

subject competences; deployment of research on the problems of formation and development of the corresponding competences, taking into account the preparation and implementation of the new standards and programs of the secondary education.

3. It is necessary to continue the active implementation of distance learning, online learning, promotion and widespread use of formal, non-formal and informal education capabilities for professional development of pedagogical, scientific and pedagogical personnel and education institutions leaders.

4. It is reasonable to develop, regulatory support and implement the professional development accumulation system; it will help to identify and enroll the learning outcomes under the PPE system diversification. The training certificates of various education institutions, social organizations and institutions of different types should be accepted in the established order. For this purpose, it's necessary to introduce a system of crediting, certification and accreditation, coding and single record of educational programs and separate courses. This approach will contribute to democratization and decentralization of PPE, will reinsure the right of educators and education institutions leaders to freely choose the form and content of their professional development.

5. The PPE system researchers' results should be adequately presented in the domestic and international research journals.

6. A promising perspective is the PPE quality monitoring. The development of appropriate scientific methods of monitoring requires further scientific study and practical testing.

14. PSYCHOLOGICAL BACKGROUND OF EDUCATIONAL SYSTEM AS THE FACTOR OF PERSONAL AND SOCIAL DEVELOPMENT

Today the psychological science of our country can provide scientifically grounded solution for different problems of the activity of the educational system subjects. New knowledge, which is built on the psychological science, enables educational perfection, thanks to: a) the enrichment of the system of psychological knowledge itself; b) skills of practicing psychologists basing on such knowledge in order to help certain individuals, groups and organizations; c) the improvement of the educational rules and techniques with the help of such knowledge; d) the representation of such knowledge in beliefs and activities of the school community. Influence of scientific achievements in the field of psychology on educational practice is exercised by the publication of scientific and methodical works; the elaboration of expert evaluations; the introduction of new diagnostic, developmental, correctional and other methods into the educational practice; the conduct of public scientific and practical events; cooperation with higher education institutions; training and certification of skilled psychologists; and coverage in the mass media, and others.

Striving for the humanization of education, Ukrainian psychologists proceed from a need for a synthesis of the egalitarian and elite interpretation of humanism that should be realized through the combination of the reliable mass introduction of relatively minimum required standards of erudition and culture with an attitude towards harmonious development of the individual potential of each person, opening up vistas of the display of independence and creativity.

Humanization of education envisages the combination of human treatment of the school community, above all students with the personalized orientation of educational process. Its elements are: a) taking account of student's age-related and individual mental qualities; b) promotion and humanization of student's personal development.

In the context of determining the psychological mechanisms of creative activity, local psychologists discovered the role of interaction of externally opposite components of mentality and human activity such as logic and intuition, rational and irrational thinking. This interaction is successfully used in methods for developing creative thinking of students, which have been evolved by the NAES of Ukraine.

The important direction of specification of personal orientation in the education was defined and it deals with the organization and performance of educational work. This direction involves coherent adherence to the principle of the combination of pedagogic impacts and inner characteristics of personal development that was proposed by G.S. Kostiuk. A student should have an opportunity to act and develop freely by his/her own laws, enabling him/her to maximally implement these laws along the most favourable lines. The Kostiuk's combination principle was applied in the genetic and modelling method of S.D. Maksymenko that made it

possible — modelling different types of students' activity by psychological and pedagogic experiment — to clarify various mechanisms of certain new mental formations, depending on subjects' content and the changes that take place in student's formation and development as a unique and well-adjusted personality.

The scientific achievements of members of the NAPS of Ukraine in the field of psychology had an influence on educational practice by different ways including the publication of scientific and methodical works, elaboration of expert findings and proposals customized for government authorities; the introduction of diagnostic, developmental, correctional and other methods into practice that were evolved or applied by the NAES of Ukraine researchers; the systematic conduct of public scientific and practical events in various cities of Ukraine, enlisting both researchers and practitioners, ongoing cooperation with institutions of higher education institutions; training of skilled psychologists, systematic popularization of the NARS of Ukraine researchers in the mass media, publication of popular scientific works meant for young people, children and their parents, etc.

At present, Ukraine's psychological science has to meet new challenges that were caused by the military conflict in the east of Ukraine. And psychological care has become an essential part of humanitarian aid to Ukraine's citizens who suffered from the military aggression. The NAES of Ukraine has the powerful potential to provide such aid. To prevent harmful repercussions of psychological traumas, research institutions of the NAES of Ukraine — G.S. Kostyuk Institute of Psychology, Institute for Social and Political Psychology and Ukrainian Scientific and Methodological Center of Applied Psychology and Social Work — have been doing large-scale, systematic and coordinated work since February 2014, giving psychological aid to individuals in the educational system.

Coping with the challenges, the psychologists of the NAES of Ukraine have evolved the methods of traumatic and stressful events' mitigation, preventive treatment of the disturbances of children and adults, psychological health care activities and psychical equilibrium sustention. They created methodical materials that help to transform hardships into the launching ground for person's development in order to work out life's new strategies, as well as to foster empathy and tolerance.

The integral part of Ukraine's education is now the psychological service of educational system. The guidelines of its activity include advisory and methodological assistance to participants in the teaching and educational process; educational work aimed at raising psychological standards in education institutions and families; the formation of commitment to healthy lifestyle among educators, pupils and students, as well as to protection of psychological health, etc. The psychological service of educational system influences profoundly the teaching and educational process, improves the participants' well-being, as well as protects their psychological and social health. Moreover, this service is currently providing psychological and social support for children and their parents who suffered from military operations and forced resettlement.

In spite of the achievements, psychological follow-up of the educational system that was established in Ukraine requires a substantial improvement. Seemingly, it is expedient to establish the state integral system of in-service training of practicing psychologists within the educational set-up; the state centralized system of the implementation of time-tested developments made by authoritative research institutions into educational practice, particularly those of psychological content; to provide the expert evaluation of conditions and the results of work of participants in the educational process that is due to the reforming of education system's components and

decentralization processes in the education; to improve pre-service training and retraining programs of pedagogical personnel in order to strengthen their psychological expertise and raise psychological standards; to entrust the NAES of Ukraine institutions and methodical centres with control over the distribution of professional psychological tools; to establish a body that would monitor adherence to ethical norms during psychological research and examination in Ukraine; to provide combination of strict adherence to these norms with the removal of pointless restrictions of access of the qualified psychologists, namely experts and researchers, to education institutions.

In order to maintain and rehabilitate people's psychological health in the present conditions, it is necessary:

- To use the media at a state level, so that professional psychologists can teach people various techniques of self-rehabilitation, stress coping, adaptability enhancement that will help to spread further the acquired knowledge by volunteer psychologists and sharpen psychological awareness in the society.
- To use community resources in order to intensify citizens' efforts to enhance an adaptation to conditions and the aftermath of the military conflict.
- To build up the family's rehabilitation potential to help people, who suffer from the repercussions of a long-term trauma, cope with insecurity, self-doubt and uncertainty about the future.
- To stimulate individual resources that enable the self-rehabilitation of a person after multiple psychological, physical, social and spiritual losses. To promote the techniques of psychohygiene and self-help, which can be used in order to enhance ability to cope with stress, magnify self-control, as well as to regulate efficaciously difficult emotional state.

15. ADVANCE OF ICT IN EDUCATION AS AN IMPERATIVE OF ITS PROGRESS

The progress of cutting-edge information and communication technologies (ICT) affects the content of education both directly and indirectly, the direct impact being associated with the level of scientific and technological achievements and the indirect one with the appearance of new professions. Human society is currently passing through a period of rapid and highly dynamic global transformations. A number of issues related to promotion and implementation of ICT in the national education call for urgent solutions.

The first imperative is the development and general implementation of Ukraine's common educational and information space.

The second is the necessity to deploy and enhance components of regional information and telecommunication networks infrastructure, connected both with each other and with the global Internet network, which will make it possible to overcome "digital inequality" among regions of Ukraine, affecting rural areas in particular.

The third imperative is increasing IT-related competences of the population and abandoning outdated approaches in education by encouraging learners to use advanced ICT.

The fourth problem consists in imperfect legal framework that does not support information society and, as a result, hinders advance of ICT in Ukraine's education system.

Effective progress in education is only possible if all components of educational systems, including information environment at education institutions, are updated in the context of human-centered paradigms and equal access to quality education.

One of the priorities is embedding ICT in the educational process, which gives a possibility to enlarge and deepen the scope of theoretical knowledge and create effective computer-oriented learning techniques.

Effective implementation of ICT in education and growth of information educational environment critically depend on developing ICT competences of the pedagogical, scientific and pedagogical personnel and education institutions leaders. This involves mastering the latest developments in the field of ICT, in-service training of the pedagogical, scientific, scientific and pedagogical personnel and education institutions leaders. An urgent question is the adaptation and implementation of teachers' certification in ICT proficiency.

Over the past 25 years Ukraine has accomplished transition from employing elements of computer-aided education and management to the widespread use of ICT as a powerful learning tool incorporated in automated systems of various levels of intelligence and application. The next step in advancing ICT in education is characterized by the use of innovative information and telecommunication technologies, multimedia technology tools and virtual reality systems alongside philosophical interpretation of the process and its social effects. The important achievements of the recent years include:

- creation of computer-technology open education platform at all levels — from pre-primary to post-graduate and lifelong education;

- equipment of education institutions, classrooms, laboratories, workshops and libraries with up-to-date computer facilities;
- updating of teaching techniques, content and methodological support of distance and e-learning through ICT use;
- introduction of new forms of education (e-learning, mobile learning, joint learning, smart-learning, blended learning, social learning, STEM education, open online courses) based on cloud technology, Web 2.0 and social networking services;
- creation and development of computer-oriented educational and research environment based on nation-wide integrated electronic software and hardware, training and research resources;
- implementation of open learning systems based on the extensive use of electronic research and educational resources, open-access journal databases and e-libraries;
- promotion of integrated research of issues relating to advance use of ICT in education;
- formation and development of information culture and IT- competences.

The NAES of Ukraine has developed and implemented in educational practice an impressive amount of teacher and learner software, e-textbooks, scientific and methodological publications, conducted a series of conferences for theorists and practicing teachers.

In recent years the NAES of Ukraine researchers developed a number of conceptually innovative approaches, technologies and techniques based on the results gained through psychological and pedagogical research in the field of ICT design, development and implementation. Among them are the formation of a cloud-based school learning environment, standardization of IT-competences in Ukraine’s comprehensive secondary education, assessment of e-learning effectiveness, electronic cataloging of innovative educational projects and educational innovations, electronic library of the NAES of Ukraine, development of teaching design technologies and techniques for cloud oriented learning environments in secondary, vocational and higher education institutions, Internet oriented technology for computerized learning support, methods of using computer-oriented learning tools, techniques for assessing quality of electronic teaching resources, virtual classroom techniques, techniques for creating Internet-based learning environment and using mobile devices. The NAES of Ukraine has developed draft regulations on distance learning in comprehensive secondary education, electronic teaching resources depository and the resource center for pupil distance learning.

Shaping the research and education policy aimed at advancing ICT in the national education system is a strategic goal of Ukraine’s government, which can only be effectively realized on the basis of up-to-date ICT-learning techniques and current international regulations on electronic teaching resources and systems. This policy should rely on present-day tendencies relating to information educational space and provide a well-grounded scientific and methodological support of ICT use in educational sphere.

The major tendencies of information educational space development include:

- ensuring mobility of information and communication activities, further development of mobile ICT tools and providing their access to electronic data (mobile Internet-devices, mobile Internet-communicators, smartphones, ipads, laptops, ultrabooks, widescreen panels and other components of mobile-oriented IT environment);
- development of cloud computing and virtualization of corporate, public and hybrid ICT-infrastructures;

- storage and processing of considerable amounts of information resources, creation and use of electronic databases and systems, including e-libraries and citation databases;
- development of resource and service-related features of the Internet, expansion of the topology of broadband communication channels and cordless access to digital data;
- development of software and hardware facilities of the Internet of things to provide setup, control and monitoring of electronic devices with the help of telecommunication technologies;
- development of robotics and robot systems, including 3D-printers and 3D-scanners;
- development of data security systems and counteraction to cybercrime;
- development of teaching and learning software industry, including publication of electronic educational resources;
- providing compatibility of ICT-tools based on different software and hardware platforms;
- development and expansion of ICT providers networks, ICT outsourcers of cloud services and computing center networks in particular.

Building human capacity in the information society is the main goal of Ukraine's national education system. Of particular importance is training the ICT specialists for educational purposes, teachers of informatics in particular and development of advanced post-graduate research programs.

The NAES of Ukraine has developed the following ICT (in particular, cloud based) products for education institutions: computer-oriented learning environment for the Science subjects, information educational environment for educational process management involving distance learning technologies, techniques for teachers' and pupils' IT-competences development, didactic requirements and techniques for electronic teaching resources quality assessment, e-textbooks, open electronic systems providing free access to and analytical support in research, teaching and learning activities, including open access electronic journal and conference systems.

The NAES of Ukraine researchers address issues of theoretical and methodological support of ICT-based education, among them the development of e-learning and e-pedagogy, substantiation of digital humanistic pedagogy, building virtual cognitive public education systems, implementation of e-learning in formal, non-formal and informal education, research of the current state of e-learning, main trends in its development and e-learning monitoring against the criteria and benchmarks of the international monitoring systems, standardization of requirements for the content, structure and procedures for development and use of electronic educational resources, standardization of teachers' and learners' IT-competences, design of e-learning environments for distance learning and self-study, in particular, for people with special needs and gifted youth, STEM education development, educational robotics, use of mobile Internet devices and other computer oriented learning tools, development of pupils' IT competences in the educational use of electronic social networks and creation of electronic teaching resources networks (Web 2.0, blogs, etc.), IT for psychological support, adults and senior people education, information security, data protection and countermeasures against information threats in computer-oriented research and education systems.

Further advance of ICT in education should be based on the recent achievements of scientific and technological progress, psychology and pedagogy, implementation of the human-centered paradigms and equal access to quality education, principles of open education, widespread use of up-to-date ICT in education, deeper cooperation between education, research institutions and ICT businesses aimed at providing high quality education, effective economic mechanisms stimulating joint activities in this field.

16. EUROPEAN AND GLOBAL INTEGRATION IN THE AREA OF EDUCATION – A WAY TO INCREASE THE QUALITY OF EDUCATION

An idea of a knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and social cohesion set as a Lisbon Agenda 2000 goal is a fundamental basis of the European integration in the 21-st century.

By 2020 the EU member states are expected to achieve four key objectives to address challenges in education and training systems: making lifelong learning and mobility a reality; improving the quality and efficiency of education and training; promoting equity, social cohesion and active citizenship; enhancing creativity and innovation, including entrepreneurship, at all levels of education and training.

In this context, the harmonization of national educational policies is in progress — as a result, the European space is transforming into an entity of individuals and institutions that are interconnected through a network of ideas, tasks and practices vertically and horizontally.

Integration tools at the level of secondary education aimed at improving its quality are the following: formation of pupils' key competences by means of content transformation into a competence-based one; introduction of the standardized assessment of pupils' educational achievements at local (national/regional/school tests) and international (international comparative studies of the quality of secondary education — TIMSS, PISA, PIRLS, etc.) levels; extension of comprehensive secondary education duration.

The formation of a single European area of vocational education and training envisages its transformation into a new paradigm for acquiring the following characteristics: attractive and inclusive professional education, high quality initial vocational training (I-VET), easily accessible and career-oriented professional training (C-VET) based on academic achievements and oriented at validation of outcomes of non-formal and in-formal learning; European educational space for increasing opportunities for international mobility of pupils and teachers of vocational education and training sector.

The modernization agenda for higher education includes increasing the number of university graduates; improving the quality of teaching and learning; promoting the mobility of students and teachers as well as cross-border cooperation; strengthening the “knowledge triangle” through a better interaction of education, research and innovations; and the introduction of mechanisms for the effective governance and funding of higher education.

Emerged in 1950s of XX century in the context of the EU and the Council of Europe educational policies implementation the European dimension in education is an important tool for harmonization of continental, national and regional characteristics. It is positioned as a certain standard of knowledge about Europe (European values and skills of democratic direction) to be translated by means of education (educational content, distance learning, communication between teachers, students, pupils and projects).

In 2012 under conditions of business competition aggravation and labour market demand of highly qualified workers the EU modernized strategic landmarks for education and training development in the member states in the document “Rethinking Education: Investing in Skills for Better Socio-Economic Outcomes”.

On the agenda:

- developing *skills for the 21-st century*: transversal and basic skills — learning capacity, critical thinking, mathematics, nature competences, enterprising, ICT-competences, modern foreign languages communication; and professional skills;
- *stimulation for open and flexible learning*;
- *improving learning outcomes, effectiveness of evaluation and recognition of educational results and qualifications*, including the results of informal learning;
- *the widest possible appliance of ICT and open educational resources potential*;
- *European teaching community support*, which involves the introduction of a new competences portfolio for teachers and administrators, innovative teaching methods;
- *optimization of the funding* according to the principles of shared responsibility, which is positioned as a tool of productivity increasing and economic growth;
- *further development of public-private partnerships*.

European integration in education has passed a longstanding way through establishing the basic principles of common policies, goals, deadlines for achieving them, introducing tools to measure success in their implementation (indicators, standards) towards formation of individuals’ and institutions’ entity which are interconnected vertically and horizontally with ideas, objectives, practices. This movement was not smooth — speaking of challenges of the so-called European and regional ethnocentrism. Economic maximization of education that absolutized the idea of its quality leaving unattended the idea of justice in conditions of multi-lingual, multi-ethnic and socially multi-level Europe has not become a less serious challenge. Therefore, since 2006 new slogans of Brussels policies in education and training are “efficiency and justice”.

Creation of the so-called “internal” European educational space basing on the principles of Europeanization nowadays is inseparably connected and correlated with the global integration in education. Lifelong learning becomes a postulate of this process within the framework designed by the international organizations such as the UN, UNESCO, World Bank, OECD, EU, etc. towards improving the quality and ensuring justice. These organizations form the common education space of global scale using common “harmonization” methodology (benchmarks for achieving, indicators for comparisons, standards, competences, qualifications, classifications, frameworks and networks).

World globalization and development of united Europe transform the national education integration into the European and world innovative educational space a mandatory condition for the existence of the Ukrainian state. Inconsistency of education policy has been a problem on the way towards integration that is why this process has a discontinuous nature. The new stage

started after 2014 is marked with the intensification of Ukrainian education synchronization with European characteristics.

Under conditions of Europeanization and global integration the future-oriented trends for the Ukrainian education comprise: convergence with European countries of key indicators determining the direction and nature of national education; optimization of governance and financing models taking into account the decentralization trend, strengthening the role of the regions in decision-making, development of state-public-private partnerships; further transformation of educational content on competence-based principles and development of valid assessment tools to measure the mastering of key and subject competences by youth; approximation of education to the needs of society and vocational — to the labour market demands.

17. ECONOMICS OF EDUCATION: KEY DIRECTIONS OF INCREASING EFFICIENCY

Education is one of the kinds of the economic activities, the results of which are taken into account in GDP of the country. The share of the gross added value for this type of GDP in Ukraine was 4.35% in 2001; 4.7% in 2005; 5.0% in 2010; 5.4% in 2014.

The overwhelming share of education services produced and provided by education institutions is covered by the state: the share of public funds to pay all the formal education services was 85.9% in 2000; 88.4% in 2005; 85.5% in 2010; 91.7% in 2014. In 2005 — 2014 the share of public expenditures on education in Ukraine as a percentage of GDP was 6.7% against 5.0% in Germany; 5.2% in the USA; 5.3% in Canada; 5.7% in France; 4.9% in Poland.

The main entities to form the demand for education services are the students (consumers of education services) or their parents or persons substituting them. The total number of students had decreased from 11.7 to 7.0 million during the 1990-2015. This applies particularly to students in secondary, vocational and higher education institutions (HEIs accredited at levels I-II). However, the number of students in HEIs accredited at levels III-IV had increased 1.6 times, the number of graduates — more than twice; the number of doctoral students — almost 3.5 times.

According to indexes of education level of citizens, calculated by UNDP, Ukraine is at the same level with appropriate indicators of the most developed countries. Thus, in 2005-2013, 93.6% of Ukraine's population aged 25 and older had at least secondary education, in particular, being ahead of such countries as the Netherlands (89.0%); Sweden (86.9%); Israel (85.8%); Japan (86.4%); France (80.5%); Spain (69.8%); Italy (75.7%); Poland (82.3%). The rates of gross ratio coverage of population with education in Ukraine in 2008-2014 are also equal to the most developed countries, being exceeding in some positions. In particular, the rate of population coverage with the higher education in Ukraine was 79% against 73% in Poland, 72% in France, 71% in Germany, 62% in the UK and Italy. In this regard one should point to a striking weak correlation between the high proportions of quantitative indicators of education activity in Ukraine and the low values of gross national product per capita in Ukraine by purchasing power parity in US dollars. In 2014, this indicator was at several times lower in Ukraine than in the developed countries: 8.2 million US dollars in Ukraine against 52.9 thousand US dollars in the USA; 43.9 thousand US dollars in Germany; 42.2 thousand US dollars in Canada; 39.3 thousand US dollars in the UK; 38.1 thousand US dollars in France; 33.0 thousand US dollars in Italy; 32.1 thousand US dollars in Spain; 23.2 thousand US dollars in Poland. Experts consider that one of the main reasons for the weak relationship is the low quality of education services provided by Ukrainian HEIs. This fact is proved, in particular, with the Gallup World Poll (% satisfied with the national education system, 2014) — only 49% satisfied with the quality of education in Ukraine to 81% — in Finland, 73% in Canada, 68% in the USA, 66% in Germany and France, 65% in the UK, 59% in Poland, 55% in Italy and 54% in Spain.

One should also pay attention to the indicators of the value of duration of study by years, which is calculated by UNDP. In 2014, the average duration of study was 11.3 years and the index of education expectancy was 15.1 years in Ukraine. The similar indicators of the value in such countries as Germany correspond to 13.1 and 16.5 respectively, the UK — 13.1 and 16.2, Canada — 13.0 and 15.9, the USA — 12.9 and 16.5, Poland — 11.8 and 15.5. All of the above mentioned gives the reason to conclude that Ukraine will lose the achieved positions without increasing the number of years of education in secondary schools.

Forming the offer of education services, education institutions are the second in importance entities of economic relations in education. In 2015, the number of pre-primary education institutions in Ukraine has decreased by 40%; secondary schools — by 21%; vocational schools — by 36%, HEIs accredited at levels I-II — by 49% compared to 1990. Considering that, the number of students also has dropped almost by half; the availability of education in Ukraine is mostly satisfactory. The number of HEIs accredited at levels III-IV has doubled for the mentioned period; the number of organizations with PhD programmes — by 1,7 times and DSc programmes — by three times.

The number of employees in education among the employed population in Ukraine occupies one of the leading positions among all kinds of economic activity that makes about 9%. It exceeds indicators both in the EU in general and in individual countries, including Germany, Italy and Poland. The average monthly salary of permanent employees in Ukrainian education is lower than the average salary according to the types and subtypes of economic activity and is inferior in size to the most of them. Whereas, the average salary of teachers in developed countries exceeds the average salary by types of economic activity.

The key issue of economic relations in education of Ukraine is the inconsistency of the economic mechanism with the principles of market economy.

Analysis of the state and the main issues of economics of education gives grounds to formulate the following conclusions and recommendations.

Education is an integral part of Ukraine's market economy and efficiency of education entities should be based on modern market economy.

In general, the conditions that ensure citizens' constitutional right to education have been created in the country. Relative indicators of human and financial resources allocated to the provision of educational activity generally correspond, except for the certain cases, to the level of leading countries. The volume of public expenditures on education in relative terms has reached the optimal level and might potentially increase in its absolute values simultaneously with the growth of GDP.

The provisions of the Article 53 of the current Constitution of Ukraine need to be changed to make them closer to the provisions of the Constitution of the European Union. Those changes refer to the right to get education in conformity with the religious, philosophical and pedagogical preferences with payment at the expense of state and local budgets not only in public and municipal education institutions in Ukraine.

The norm on defining the costs of state or local budgets for compulsory education for a students within the state educational standards should be introduced into the Budget Code of Ukraine. This innovation together with the normalization of the right to receive education in secondary schools irrespective of ownership and location will allow introducing the "Money Follows the Child" principle.

The concept of “educational product (education service)”, the procedure for determining its value and pricing for education services, development of state educational standards as the basis for determining the cost of education services should be regulated by the new Law of Ukraine “On Education” and other laws on educational issues.

It is necessary to ensure the development and implementation of the regulations to change the status of budget institutions for public and municipal education institutions that receive budget funds as payment for providing education services.

It is advisable to use the National Qualifications Framework and to implement the development of the National Standard Classification of Education in order to determine the educational needs of society, the economy, labour market and reasonable forecasting the volume of training workforce and specialists with higher education according to educational levels, fields of knowledge and specialties.

The main legal instruments to regulate social and labour relations in education should provide the right to the education institutions leaders to consider the working conditions, salaries (wages) and the rate of hourly labour imposed by the state as a minimum; to determine the salaries based on the financial capacity of a particular education institution if the education institution is not a budgetary institution.

18. LIBRARY AND INFORMATION SUPPORT OF EDUCATION

Over the years of independence, Ukraine has developed a system of library and information support of national education. The leading role in this system belongs to the V. Sukhomlynskyi State Scientific and Pedagogic Library of Ukraine as a *research institution* on branch librarianship, bibliography, book science, information activities, educational sources, biographical and historical education; as a *national branch book store, center* for library and information support of education; the *main coordinating scientific and methodological center* of the education libraries network of the MES of Ukraine and the NAES of Ukraine.

The activities of the Library are aimed at improving library and information support of education through the formation of a new socio-cultural image of a library which can effectively provide the modern users' needs; which has powerful databases, providing a free and unlimited access to global information networks and data banks through the extensive use of new information and communication technologies; which is focused on integration of internal and external information resources to promote informatization and intellectualization of the society.

Currently the branch libraries network unites over 16,000 pedagogical and educational libraries that have a common goal, objectives and functions. The main purpose of the network is to develop a single information resource industry, to create a system of scientific and information support of education by integrating information resources of educational libraries. These libraries serve more than 7.7 million users, who are annually given about 49 million copies of documents.

Today, information resources of educational library network have more than 335 million copies of the documents on different information mediums in many languages that make up a significant segment of the national branch library resources of the State Library Fund of Ukraine. An important component of the information resources of educational libraries is rare and valuable editions (book monuments), which are the national property of Ukraine.

In recent years there have been positive developments in library and information support of education. *The main achievements are made for the first time in Ukraine on the basis of the V. Sukhomlynskyi State Scientific and Pedagogic Library of Ukraine:*

- set up an integrated branch information resource on different information mediums;
- developed and introduced the system scientific and information support of education of Ukraine;
- created and introduced an integrated system of bibliographic publications in traditional and electronic form (scientific subsidiary, recommendation, reference);
- formed the branch segment in the State Abstract Database “Ukrainika Naukova” (Ukraine Scientific) and Ukrainian Review Journal “Dzherelo” (The Source);
- created the reading room of V. Sukhomlynskyi fund as a scientific laboratory to study the educational heritage of the outstanding teacher;

- provided distant users with various information services which are carried out on the basis of cooperation, among them — the interlibrary loan, electronic document delivery, virtual bibliographic information, etc.;
- launched electronic scientific journals: Proceedings of V. Sukhomlynskyi State Scientific and Pedagogical Library of Ukraine, Analytical Bulletin in Education and Science;
- made methodological and information support of the activity of the network of educational libraries of the MES of Ukraine and the NAES of Ukraine meeting the modern society demands.

However, there are a number of serious problems which affect the quality of library and information support of education, including:

- inconsistency of cumulative library fund formation to the current users' needs and requirements of society, in particular the lack of full provision with periodic and non-periodic Ukrainian and foreign editions, with both traditional and electronic manuals, electronic copies of instructional books, etc.;
- backwardness and slow pace of implementing information and communication technologies; outdated computer park, the absence of a licensed software to automate library processes;
- lack of a coherent government policy on corporate cataloging, which makes it impossible to exchange bibliographic information;
- lack of access to the world information resources Online Computer Library Center, EBSCO, full-text electronic journals of leading European publishers Elsevier, Springer, Kluwer Academic Press, etc. in most educational libraries;
- lack of financing in amounts sufficient for the effective operation and development of library network.

For the improvement of library and information support and introducing innovations in the field of education of Ukraine within European integration society processes the focus should be made on the following areas of activity:

- development of innovative strategies of educational libraries of the MES of Ukraine and the NAES of Ukraine;
- creation of modern information and communication environment in educational libraries, which will provide a quick and efficient search and obtaining of the right information regardless of its storage place;
- formation of funds of educational libraries of Ukraine on various information media, as well as the provision of the access to global electronic databases;
- preservation of rare and valuable books (book monuments), which are national heritage monuments;
- provision of intensive introduction of existing information resources into the library activity through creating electronic copies of publications in topical issues and access to them through scientific and educational electronic library of the V. Sukhomlynskyi State Scientific and Pedagogic Library of Ukraine in compliance with authors' legal rights;
- establishment of long-term scientific relations of domestic educational libraries with foreign libraries, associations, scientific and pedagogical and education institutions and cultural centers;
- financial support of access to leading library and information resources and transfer to electronic format of the available library fund.

CONCLUSIONS: URGENT ACTIONS AIMED FOR THE FUTURE

While summarizing, at this crucial for the Ukrainian society time, the complicated 25-year history of the independent Ukrainian's national education and optimistically looking to the future, the National Academy of Educational Sciences of Ukraine considers it necessary to implement the following complex of emergency operations of the system-wide importance.

First. To complete the started update of the education legislation taking into account the lessons of the past, forecasts of the future innovations and the best achievements of the European and international experience.

Second. To direct the educational changes to ensure real equal and equitable access to the quality education. Its quantitative parameters should be radically amended by quality competitive characteristics.

Third. To ensure the quality of education, especially of the educational content quality, that meets the innovative type of progress and tasks of innovative personality formation. The content of modern education should be competence-based.

Fourth. To implement the key educational principle of humanocentric education, to realize it in every Ukrainian citizen throughout his/her life. Based on guideline leading ideas of the humanocentrism, the corresponding principle should be provided with all the opportunities of the modern integrated education system, in the unity of its formal, non-formal and informal components. Besides its human-oriented content, education should acquire human-oriented flexible organization that would allow to personalize, at maximum, its educational trajectory.

Fifth. At all levels of education to create the education quality assurance system, which would include subsystems of internal (institutional) and external (national, sectoral, regional) quality assurance, as well as relevant education quality assurance agencies. This will make the education quality the matter of education institutions, not the matter of supervisory bodies.

Sixth. To introduce systematic monitoring and evaluation of the education quality both by national surveys and by participation in major international comparative studies of the students progress. Moreover, it is important to establish a system of national and regional institutions ranking, especially for higher education, according to the results of their activities, to encourage institutions to join the authoritative international rankings of the world and Europe. The movement for the quality and competitiveness of the national education should acquire continuity.

Seventh. By preserving and strengthening the Ukrainian national identity in education, it should be possible to integrate it into European and world education and research space.

Eighth. The scientific grounding for any changes in education should be achieved. Its stable system theoretical and methodological and scientific and methodical support has to become an

axiom, “alpha and omega” of carrying out educational activities, development of educational sector in general, including each of its units. By and large, in terms of innovative type of progress, the necessary and sufficient scientific component should become a key feature of the Ukrainian culture.

Ninth. Educational reform should be accompanied by systematic sociological studies and the corresponding formation of public opinion on reforms in education.

Considering the *separate levels and resources of education* the main tasks are the following.

In pre-primary education. In the starting link of the lifelong learning, the special attention present day should be given to the early childhood education from 0 to 2 years, considering the fact, that most children of this age get first education beyond the manger, in the family by efforts of parents. Also for children of pre-primary education ages it is important to get prepared for a smooth transition to the primary school, where the free play inferiors systematic training.

In primary education. This key link of education should become more self-sufficient and should be completed by the students national assessment in the Ukrainian language and in Mathematics. Primary school should be maximally close to the student’s residence.

In basic secondary education. By keeping the general basic character of the secondary education, its role in preparing students for the responsible and grounded choice of further specialized education, academic or professional, should be increased. Completion of this level of education should also be accompanied by a national assurance on basic subjects.

In specialized secondary education. The secondary education specialization should be implemented — academic (in comprehensive lyceums) and professional (in professional lyceums or professional colleges). Regarding the constitutional right and duty for complete comprehensive secondary education, the choice of its completion timing should be left on applicants throughout their life, while maintaining the state guarantees of free and accessible education. This complete comprehensive secondary education should last 12 years and state final examination should take place on the basis of external independent assessment.

In special education. The main task remains the complete implementation of inclusive education as the dominant paradigm of modern education of people with special needs. But preserving the possibility of teaching in special schools those children who cannot be taught by the means of the inclusive education.

In out-of-school (non-formal) education. It is necessary to maintain and improve this absolutely necessary branch of education for the personal development of children and students, as an integral part of the holistic education system.

In vocational education. This link should be decentralized with the state support of the constitutional obligation to provide appropriate education. The main types of education institutions of this educational branch should become single or multi-professional lyceums and multilevel and multi-professional professional colleges.

In higher education. The urgent task is to overcome fragmentation and disunity of the higher education institutions, creation of enlarged regional universities with national status, providing real organizational, academic, personnel and financial autonomy of higher education institutions and their internationalization, the implementation of research-based higher education.

In adult and postgraduate education. On the basis of accreditation of the educational programs and training courses certification, their crediting and codification, registration in the single coordinated database to implement applicant’s personal, created from birth, lifelong

educational card, by thus providing necessary conditions for the combination of formal, non-formal and informal components of education in a coherent and consistent educational system. The national system of adult, postgraduate education should be understood and recognized within the country and throughout the world.

In education of citizens. It is important to continue the implementation of the Concept of National and Patriotic Education of Children and Youth, measures for its implementation, developed by the NAES of Ukraine, approved by the MES of Ukraine Collegium and adopted by the MES of Ukraine, as well as the Strategy of the National and Patriotic Education of Children and Youth for 2016-2020 years, approved by the Decree of the President of Ukraine.

In psychological support of education. There is a need to strengthen the fundamental principles, their applied adaptation and experimental verification, regarding psychological assistance of different categories of children and adults in acquiring education, particularly the displaced ones from the area of ATO. Modernization of the education system, all of its major components should undergo professional psychological evaluation.

In providing education with personnel. The most important task is to provide education with the pedagogical and scientific and pedagogical personnel — by raising their social status, salaries to a level no lower than the national average. Professional training of teachers should be significantly improved and synchronized with the modernization of education.

In information assurance of education. The essential informative nature of education, formation of information society, development of ICT require examination of current information, its accessibility as content and procedural basis for the quality education, as its major educational resource. Education institutions need to be equipped with new computer tools, access to broadband Internet, electronic educational sources.

In financial support of education. It is urgent to establish optimization between different levels of education and educational sectors of financial flows. It is necessary to overcome budgetary underfunding of secondary education, to increase motivating and stimulating role of state and local budgets, to actually introduce multi-funding, to expand the rights and responsibilities of institutions on the use of funds. What is most important — the education system should be fully adapted to the market economy in Ukraine.

Systematic, complete and consistent implementation of these and some other priority measures in education system would give new impetus to the development of national education, improve the quality, competitiveness and dynamism of modernization and, thus, accelerate Ukraine's entry into the cohort of the world leading countries.

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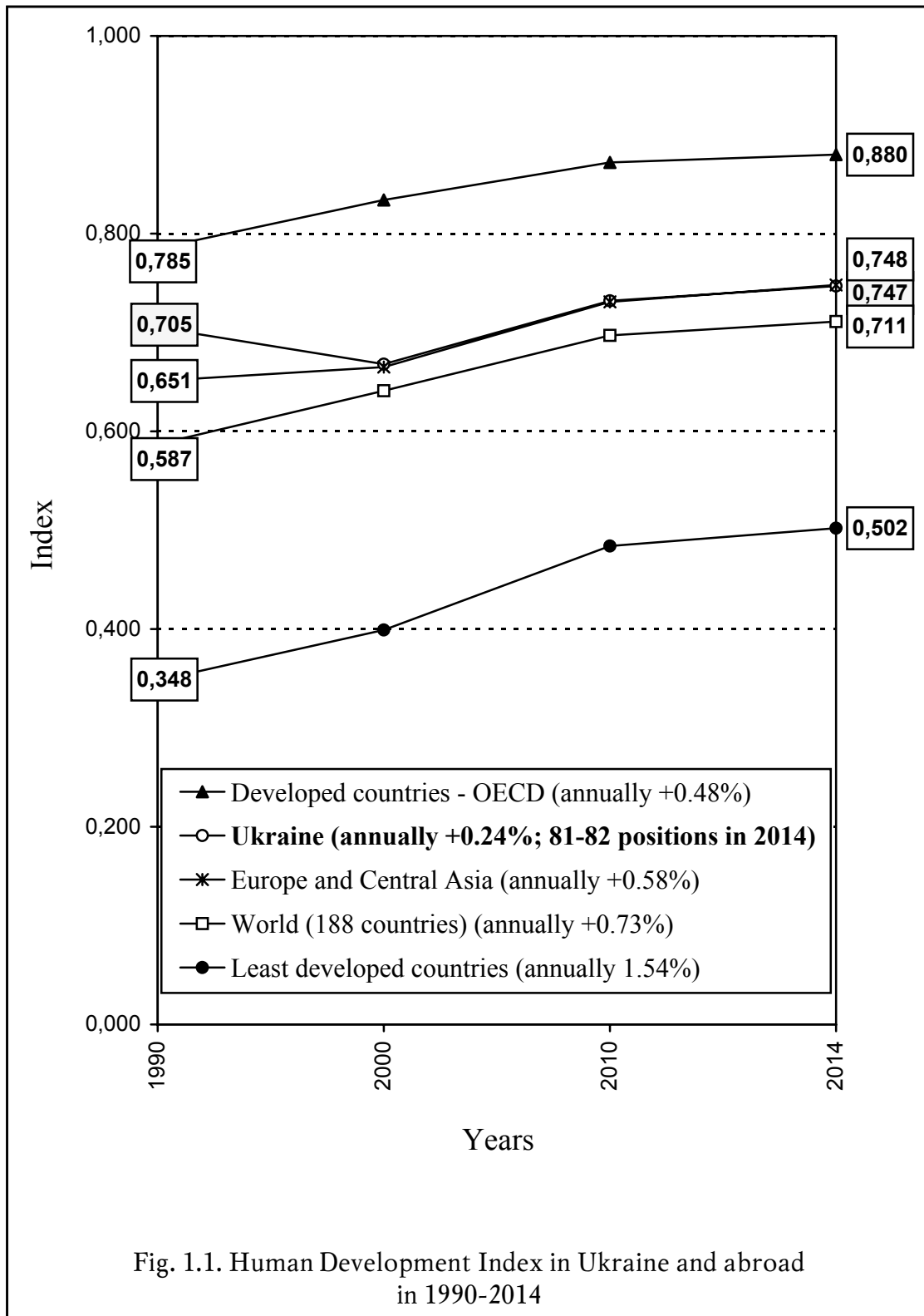
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ANNEXES

Annex A (figures)

1. EDUCATION AND HUMAN CAPITAL DEVELOPMENT: UKRAINE AND THE WORLD
2. DEMOGRAPHIC CHARACTERISTICS OF SOCIAL DEVELOPMENT OF UKRAINE
3. TOTAL NUMBER OF PERSONS ENROLLED IN EDUCATION
4. PRE-PRIMARY EDUCATION
5. COMPREHENSIVE SECONDARY EDUCATION
6. SPECIAL EDUCATION
7. OUT-OF-SCHOOL EDUCATION
8. VOCATIONAL EDUCATION AND TRAINING
9. HIGHER EDUCATION
10. PhD AND DSc STUDIES (ASPIRANTURA AND DOKTORANTURA)
11. PROVIDING EDUCATION WITH PERSONNEL
12. PSYCHOLOGICAL ASSURANCE OF EDUCATION
13. SCIENTIFIC AND METHODOLOGICAL AND METHODICAL SUPPORT OF EDUCATION
14. EDUCATION FUNDING
15. DEVELOPMENT OF EDUCATION MATERIAL AND TECHNICAL BASE

1. EDUCATION AND HUMAN CAPITAL DEVELOPMENT: UKRAINE AND THE WORLD



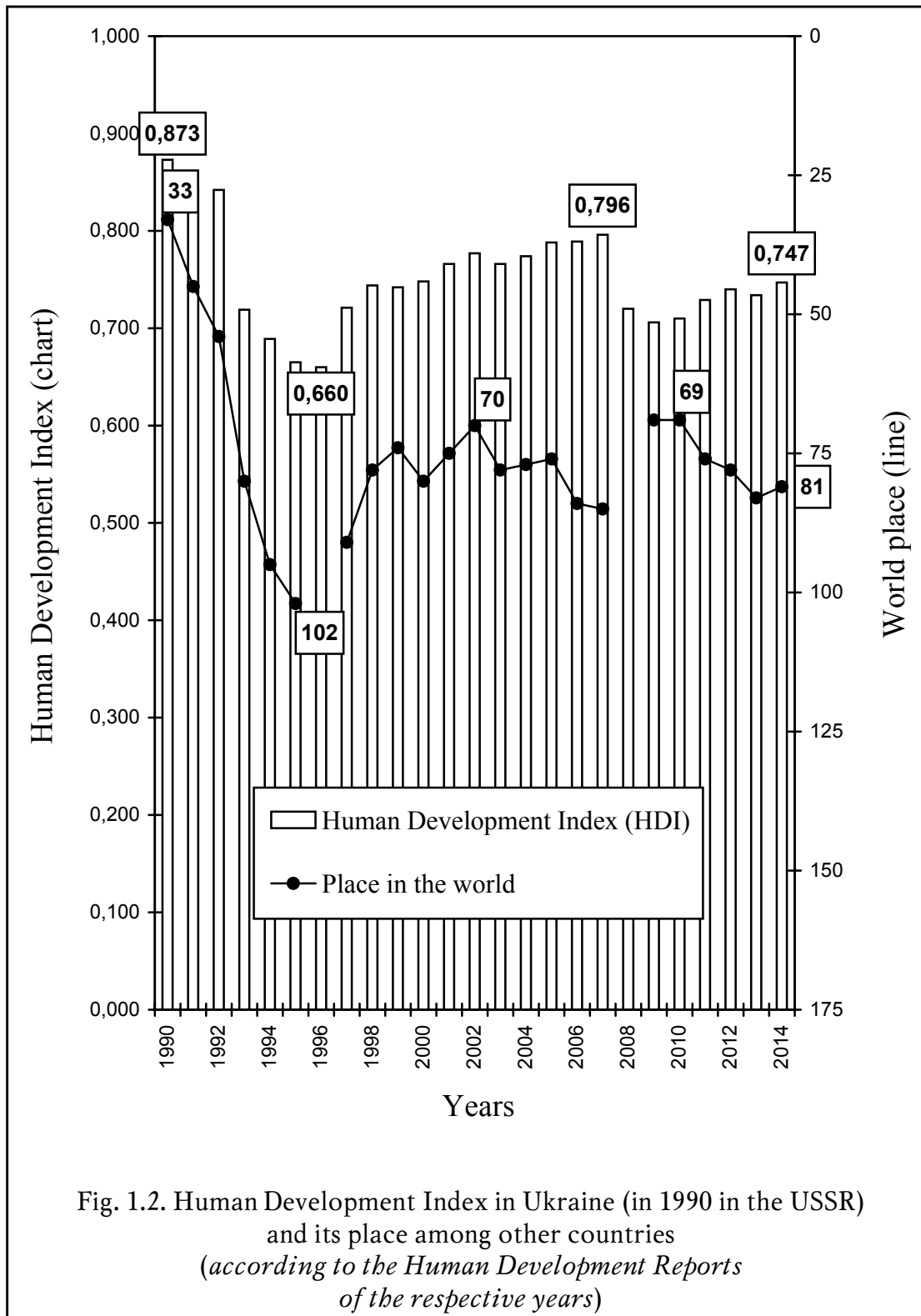


Fig. 1.2. Human Development Index in Ukraine (in 1990 in the USSR) and its place among other countries (according to the Human Development Reports of the respective years)

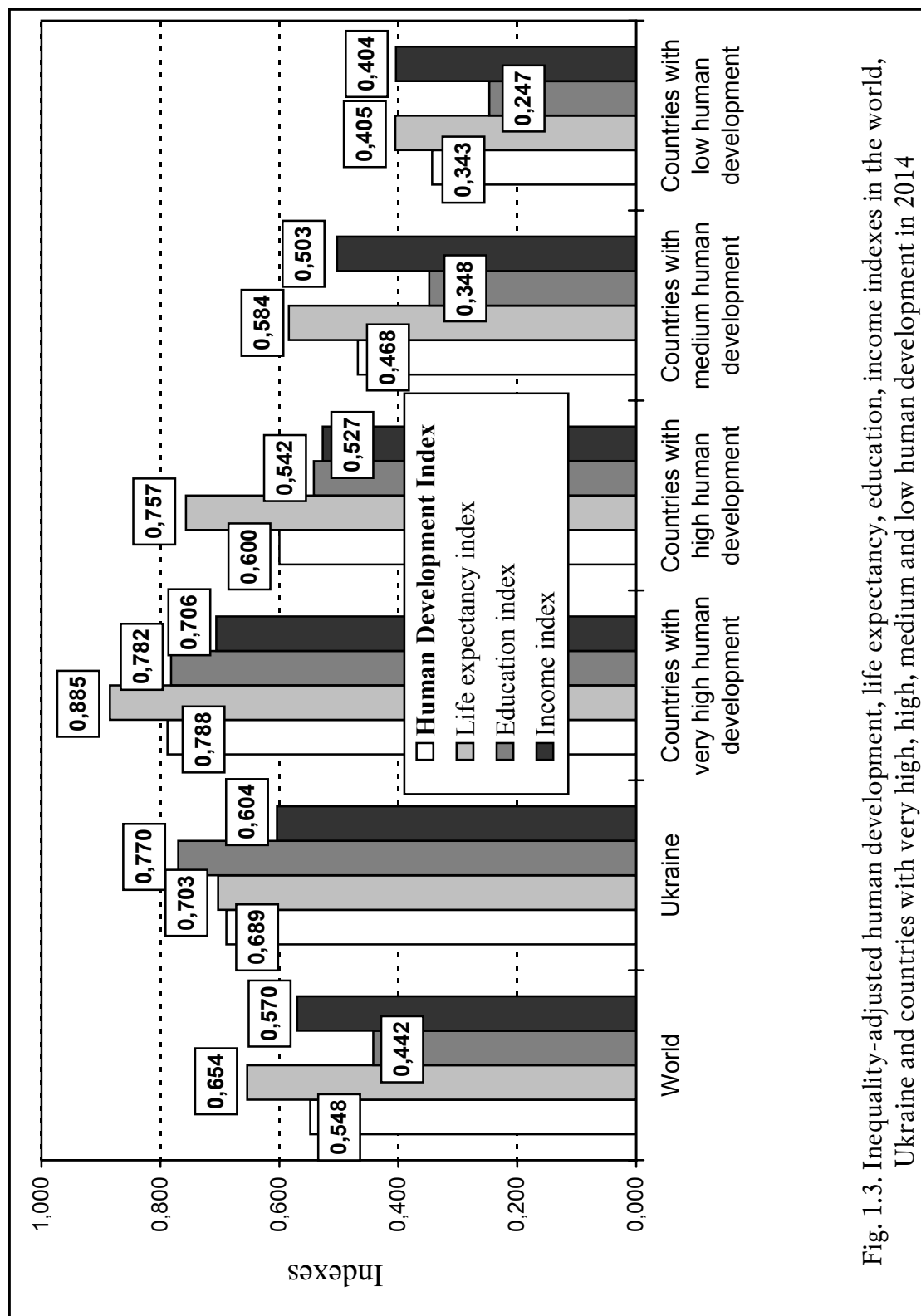


Fig. 1.3. Inequality-adjusted human development, life expectancy, education, income indexes in the world, Ukraine and countries with very high, high, medium and low human development in 2014

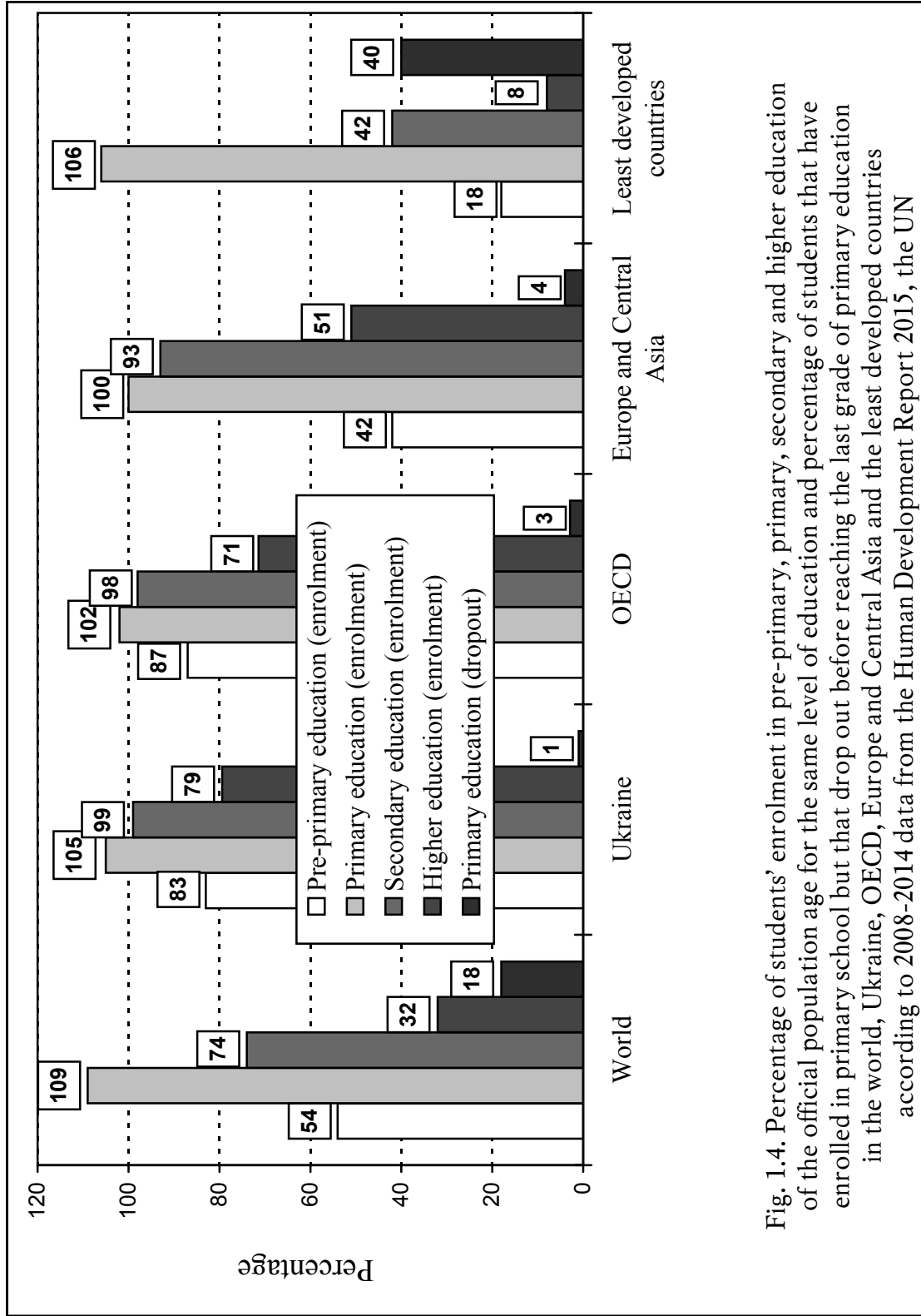


Fig. 1.4. Percentage of students' enrolment in pre-primary, primary, secondary and higher education of the official population age for the same level of education and percentage of students that have enrolled in primary school but that drop out before reaching the last grade of primary education in the world, Ukraine, OECD, Europe and Central Asia and the least developed countries according to 2008-2014 data from the Human Development Report 2015, the UN

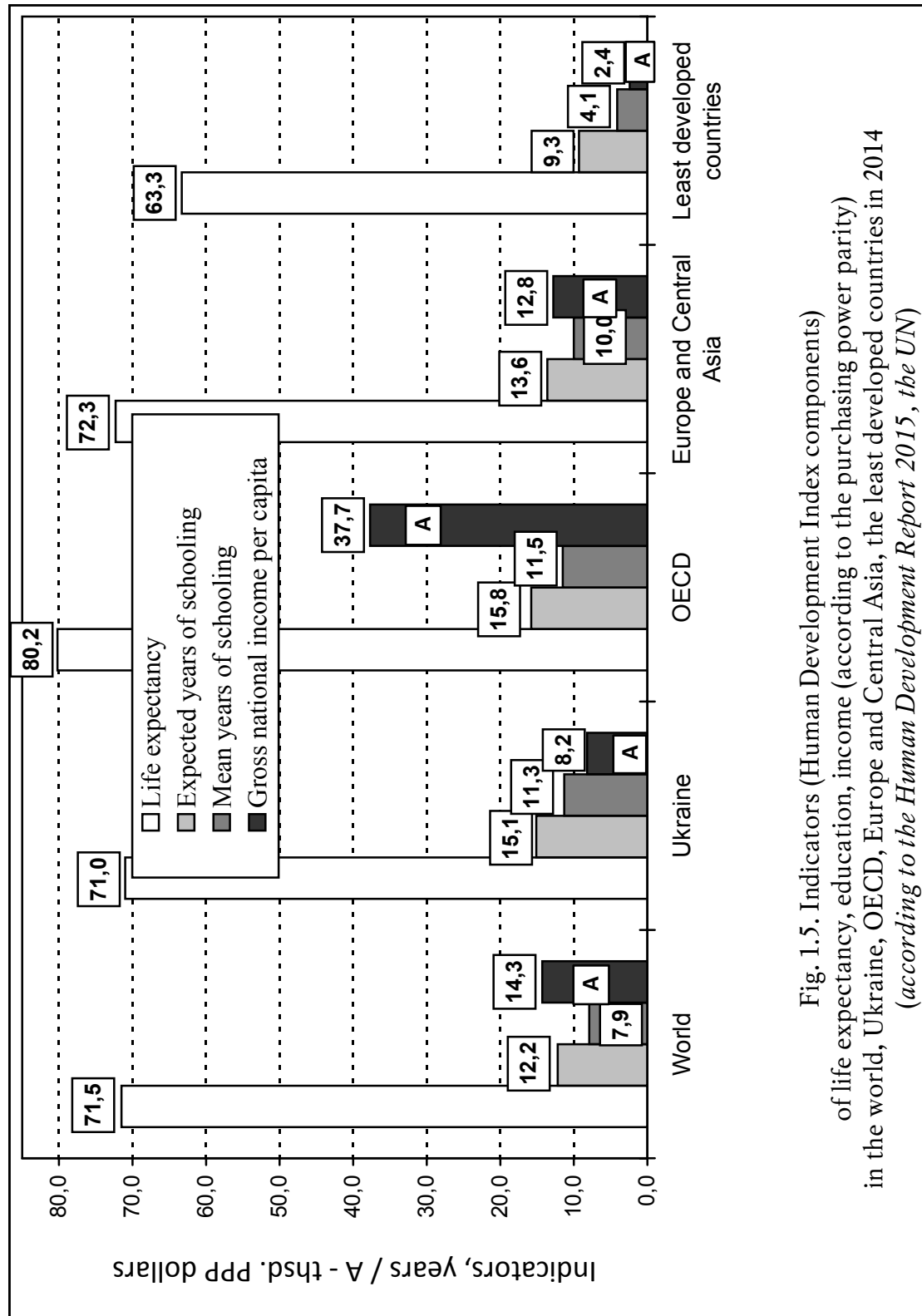


Fig. 1.5. Indicators (Human Development Index components) of life expectancy, education, income (according to the purchasing power parity) in the world, Ukraine, OECD, Europe and Central Asia, the least developed countries in 2014 (according to the *Human Development Report 2015, the UN*)

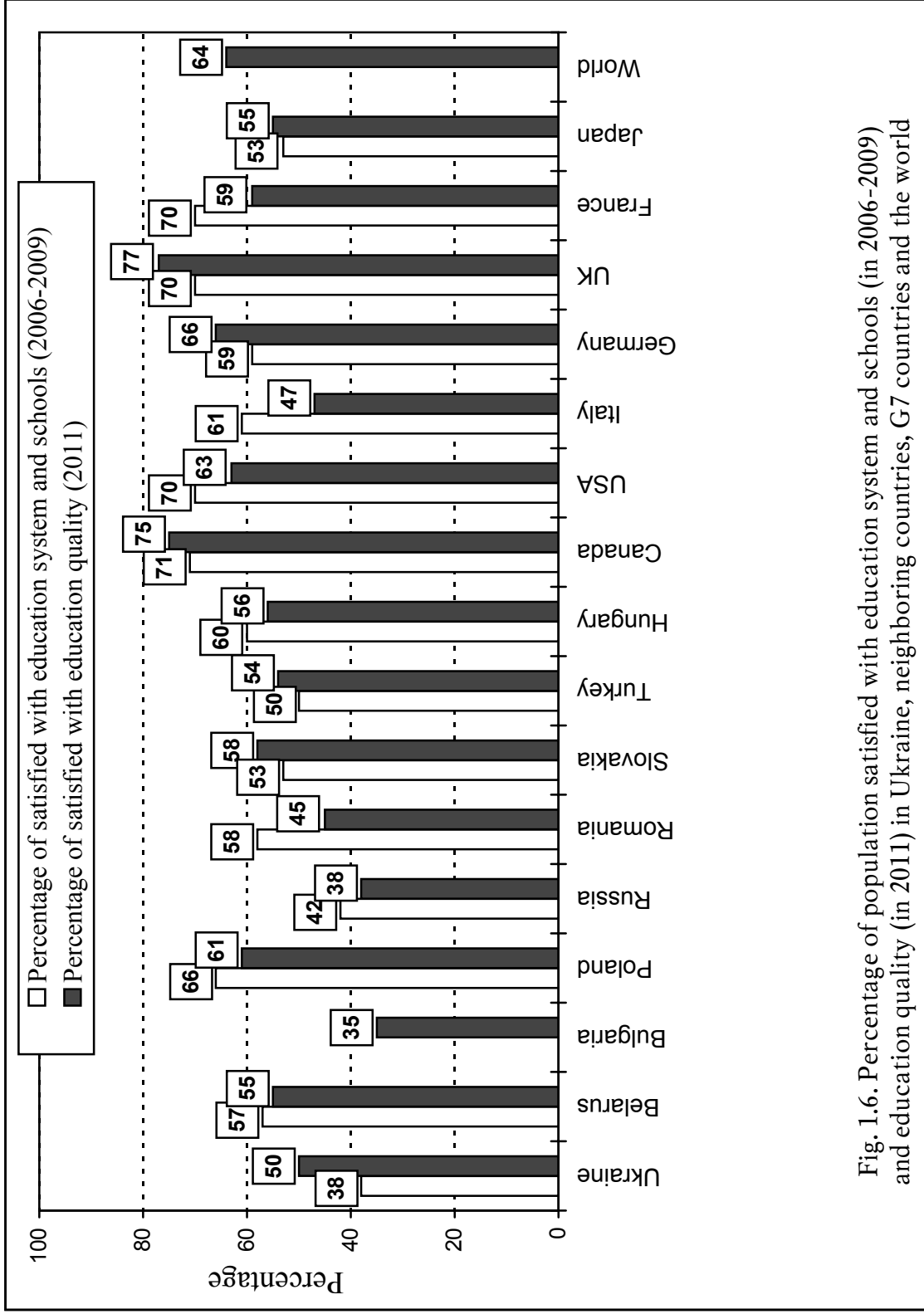


Fig. 1.6. Percentage of population satisfied with education system and schools (in 2006-2009) and education quality (in 2011) in Ukraine, neighboring countries, G7 countries and the world

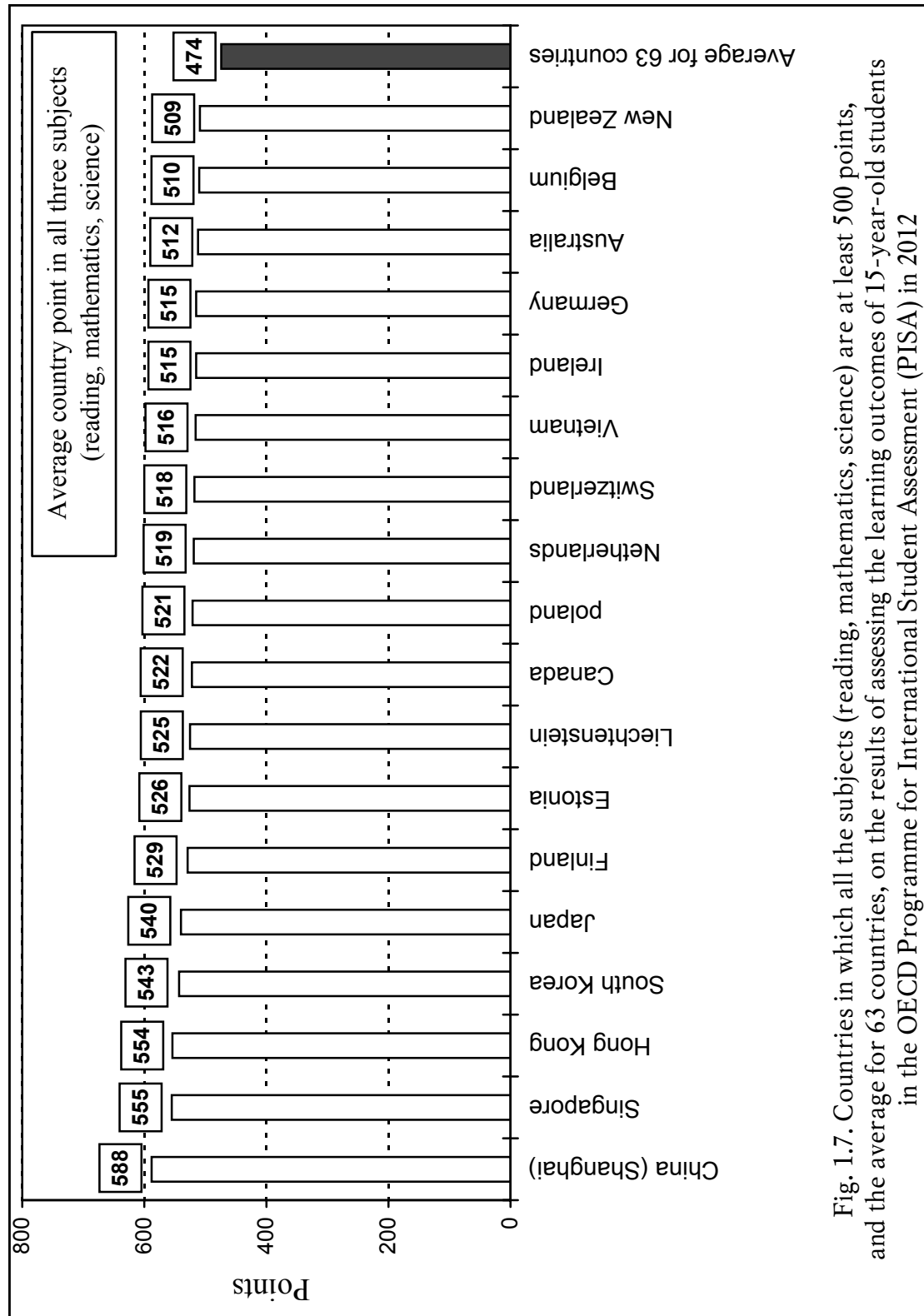


Fig. 1.7. Countries in which all the subjects (reading, mathematics, science) are at least 500 points, and the average for 63 countries, on the results of assessing the learning outcomes of 15-year-old students in the OECD Programme for International Student Assessment (PISA) in 2012

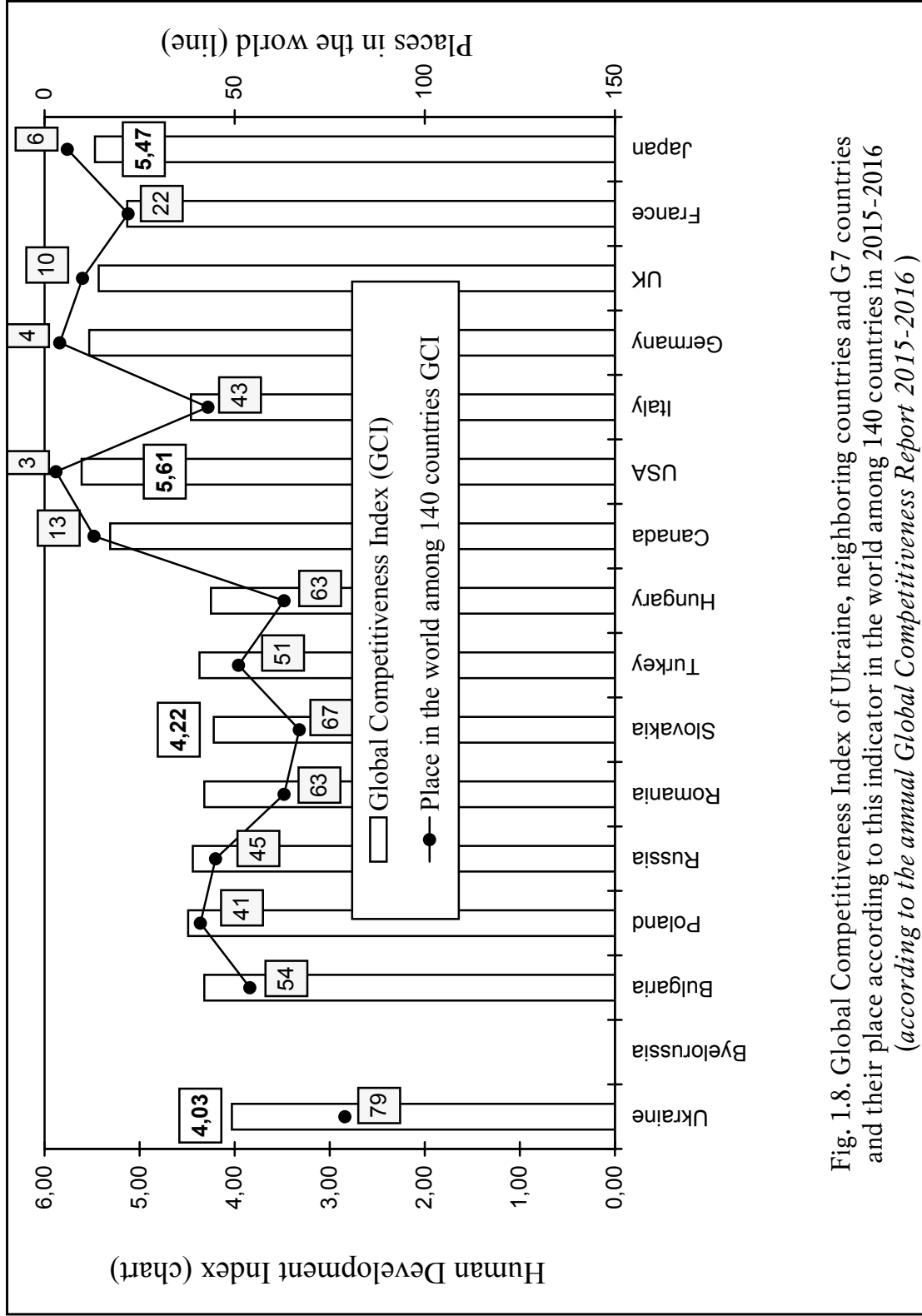


Fig. 1.8. Global Competitiveness Index of Ukraine, neighboring countries and G7 countries and their place according to this indicator in the world among 140 countries in 2015-2016 (according to the annual *Global Competitiveness Report 2015-2016*)

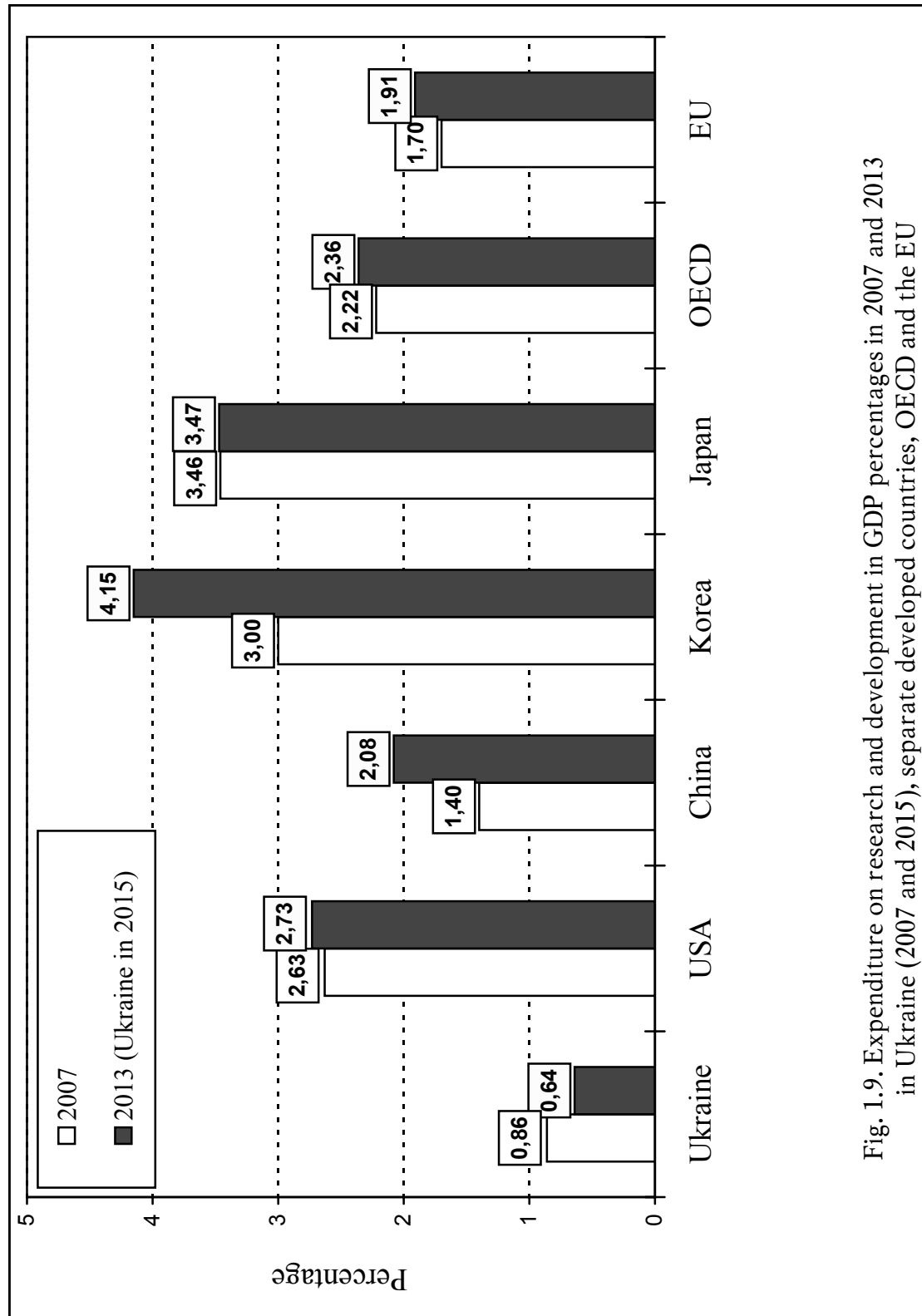


Fig. 1.9. Expenditure on research and development in GDP percentages in 2007 and 2013 in Ukraine (2007 and 2015), separate developed countries, OECD and the EU

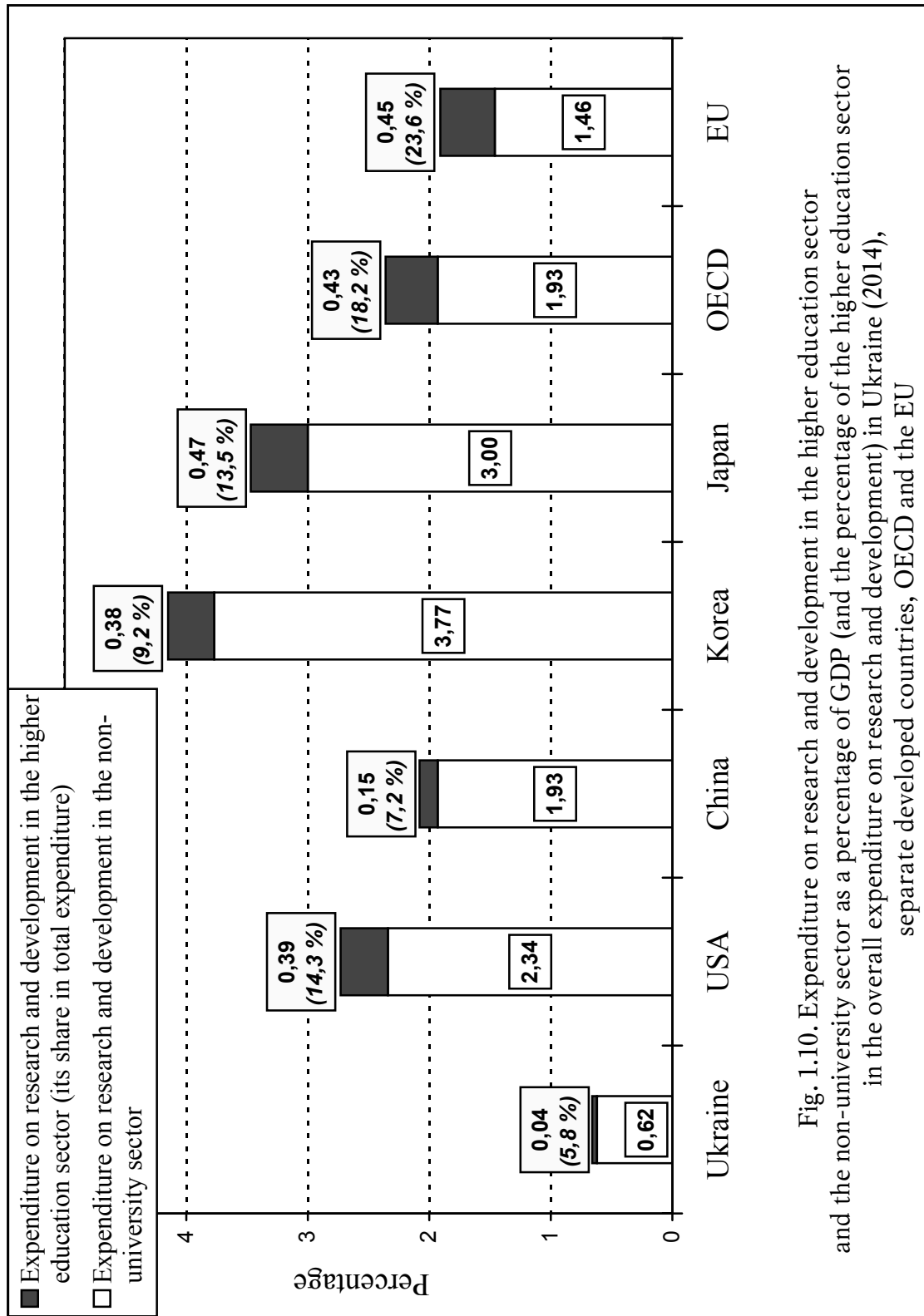


Fig. 1.10. Expenditure on research and development in the higher education sector and the non-university sector as a percentage of GDP (and the percentage of the higher education sector in the overall expenditure on research and development) in Ukraine (2014), separate developed countries, OECD and the EU

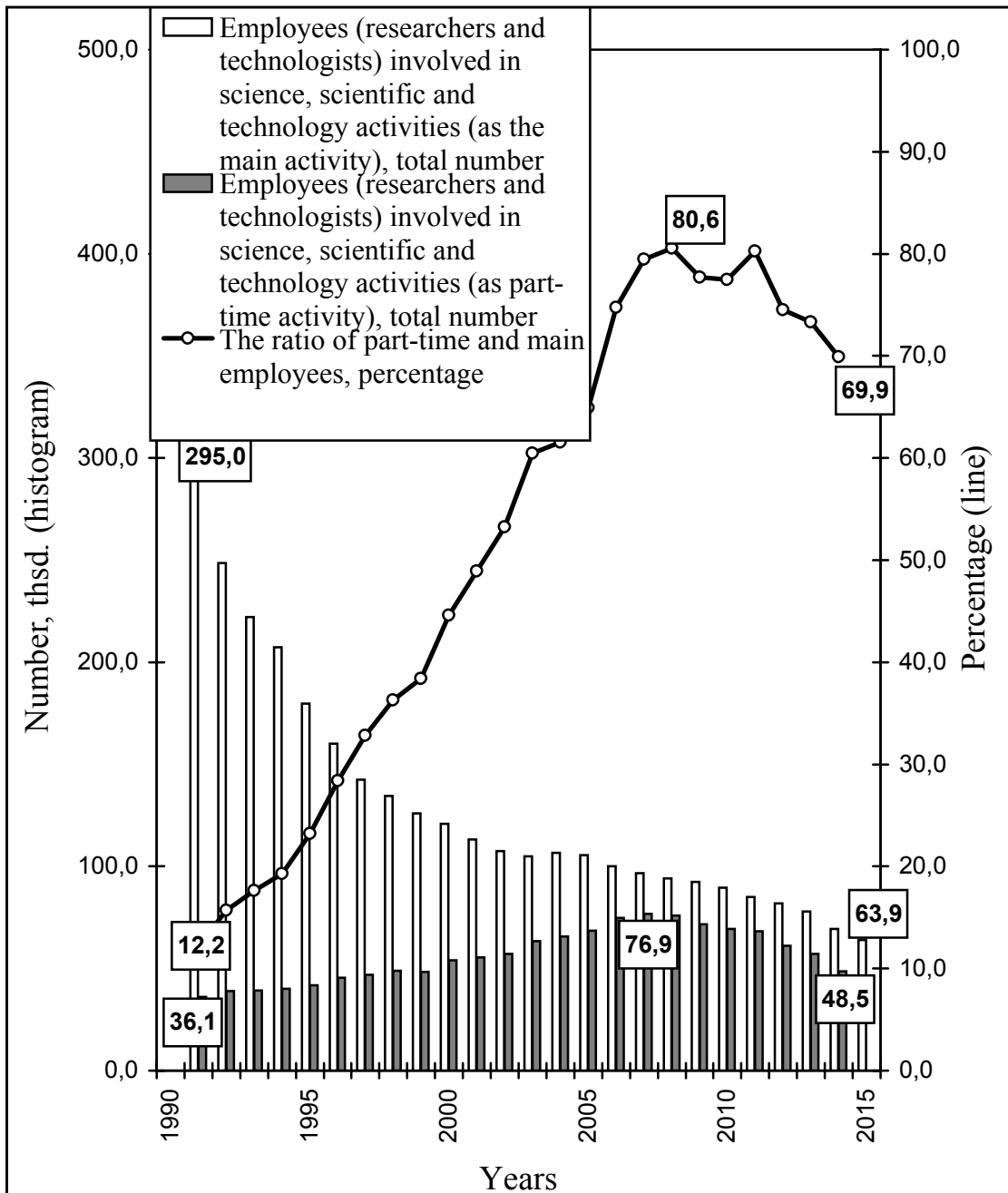


Fig. 1.11. Employees involved in science, scientific and technology activities as the main and as part-time activity in research institutions in Ukraine (in 2014 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

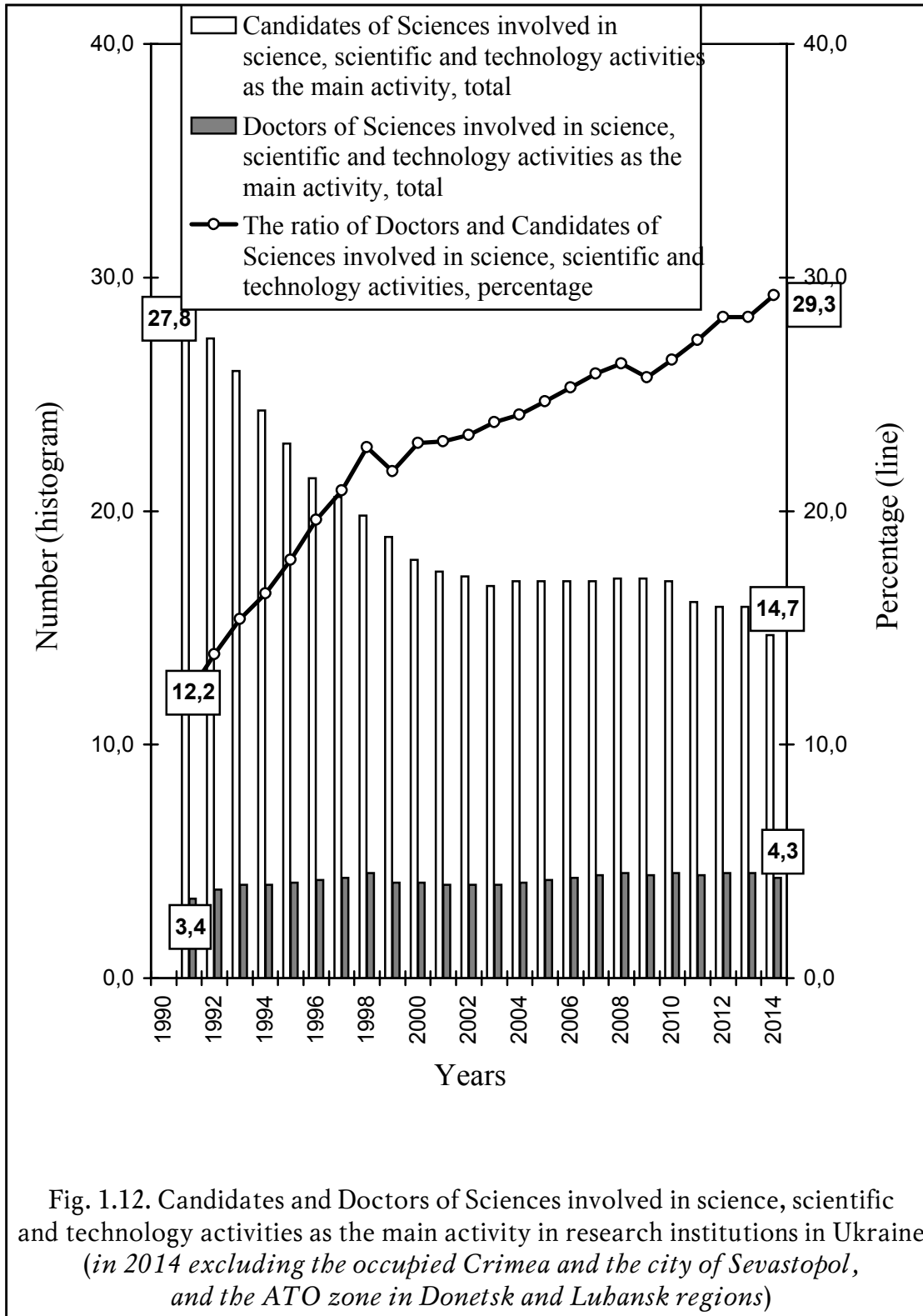


Fig. 1.12. Candidates and Doctors of Sciences involved in science, scientific and technology activities as the main activity in research institutions in Ukraine (in 2014 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

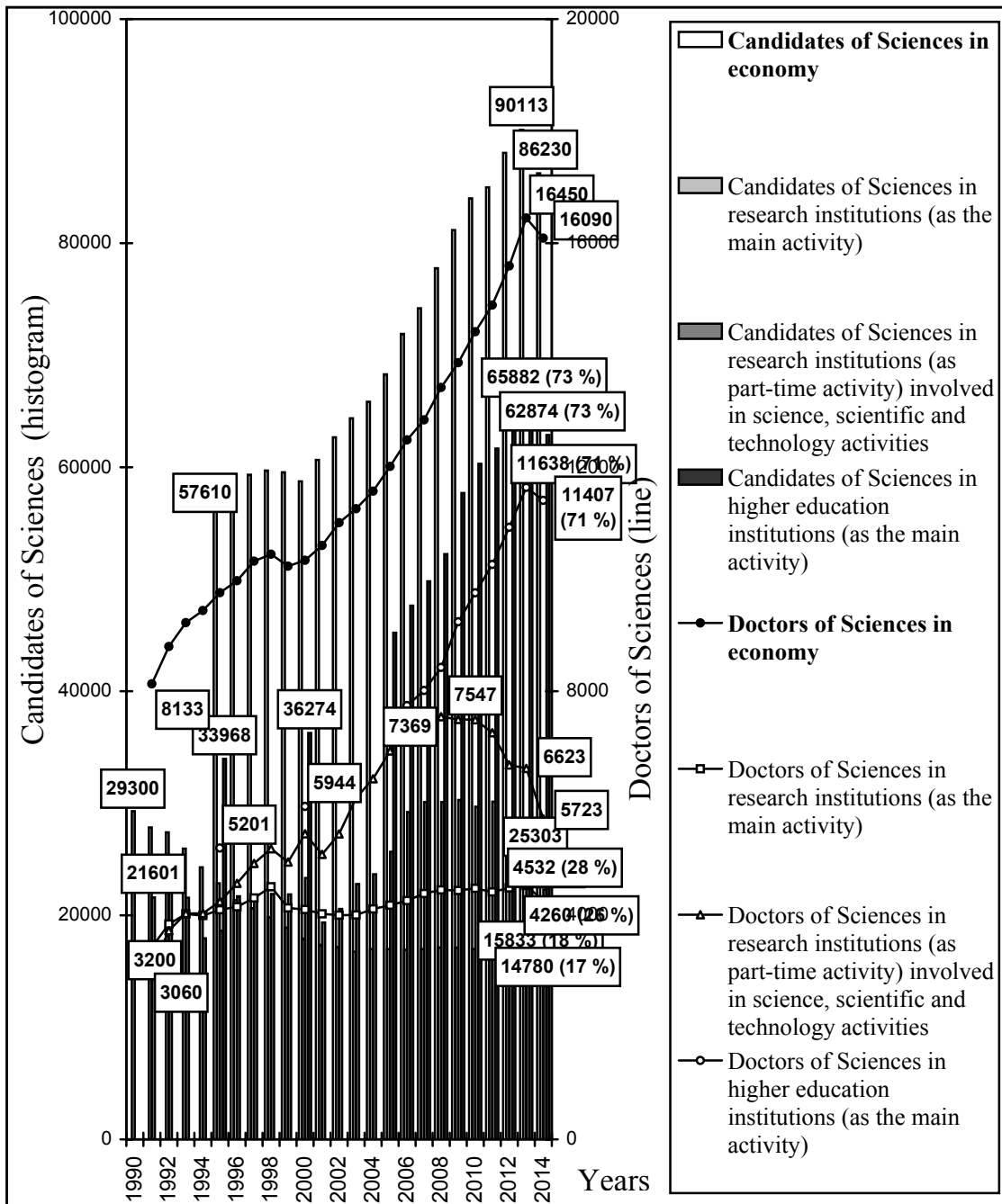
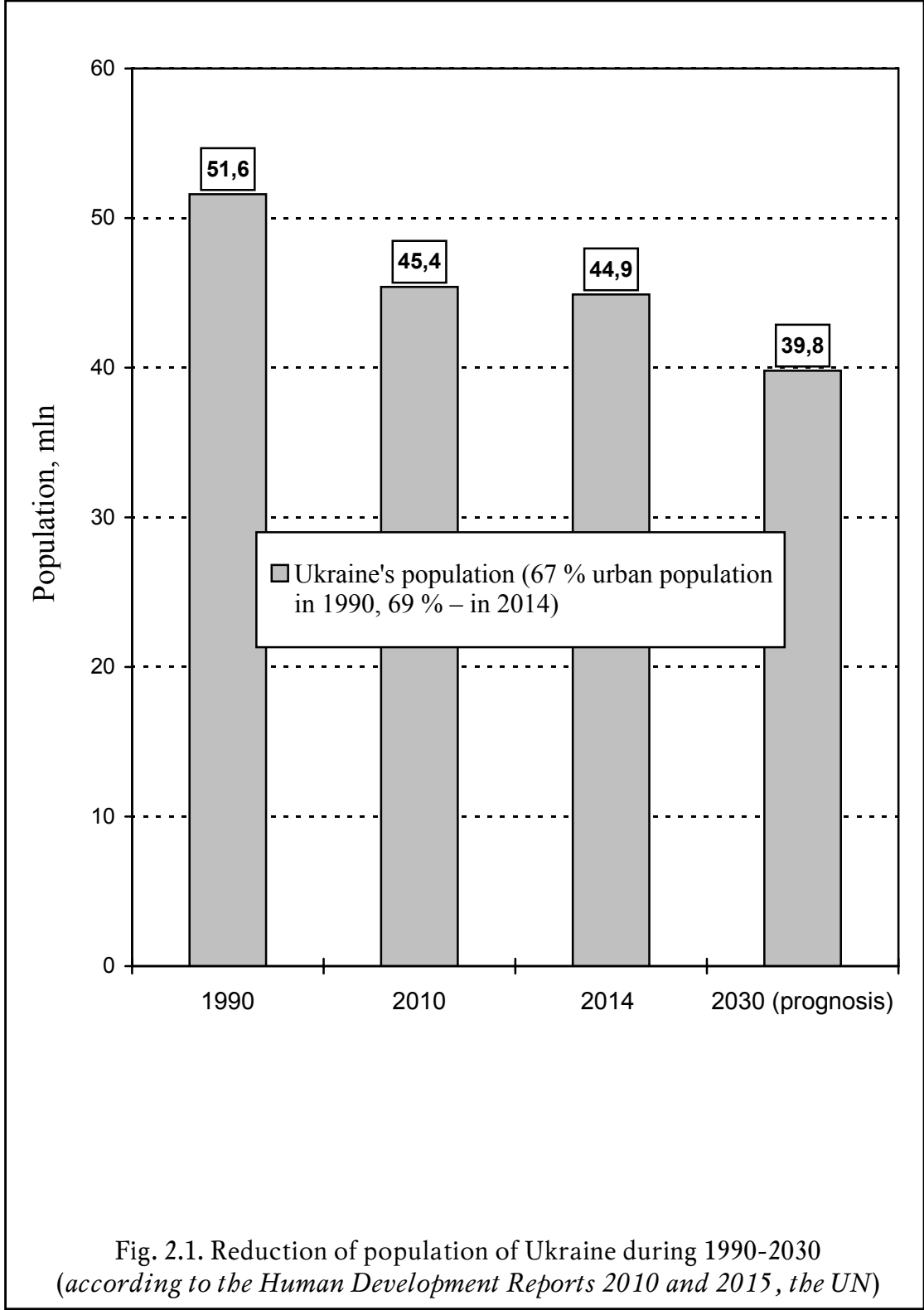


Fig. 1.13. Candidates and Doctors of Sciences in economy, in research institutions (as the main and as part-time activity) and in higher education institutions (as the main activity) in Ukraine (In 2014 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

2. DEMOGRAPHIC CHARACTERISTICS OF SOCIAL DEVELOPMENT OF UKRAINE



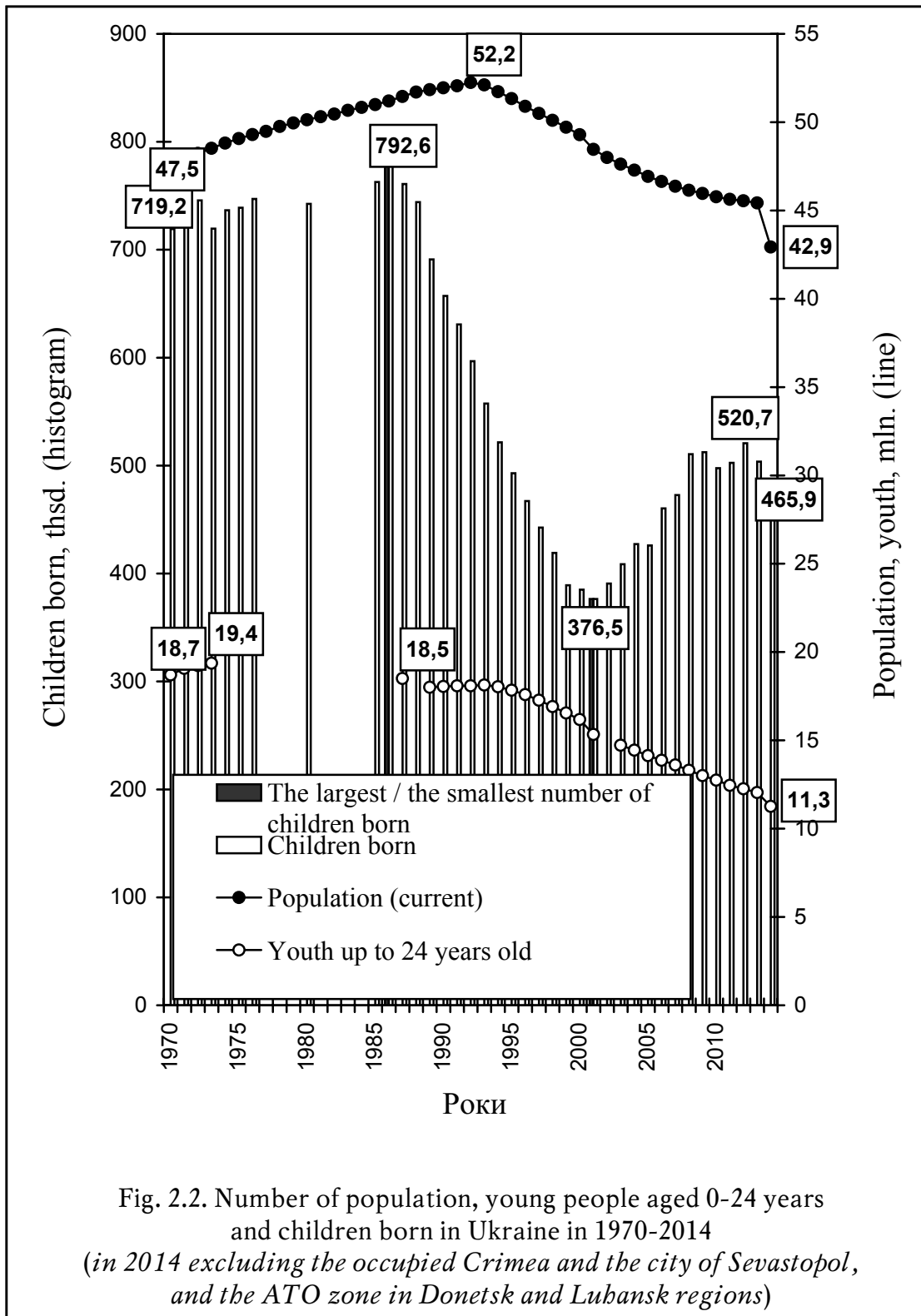
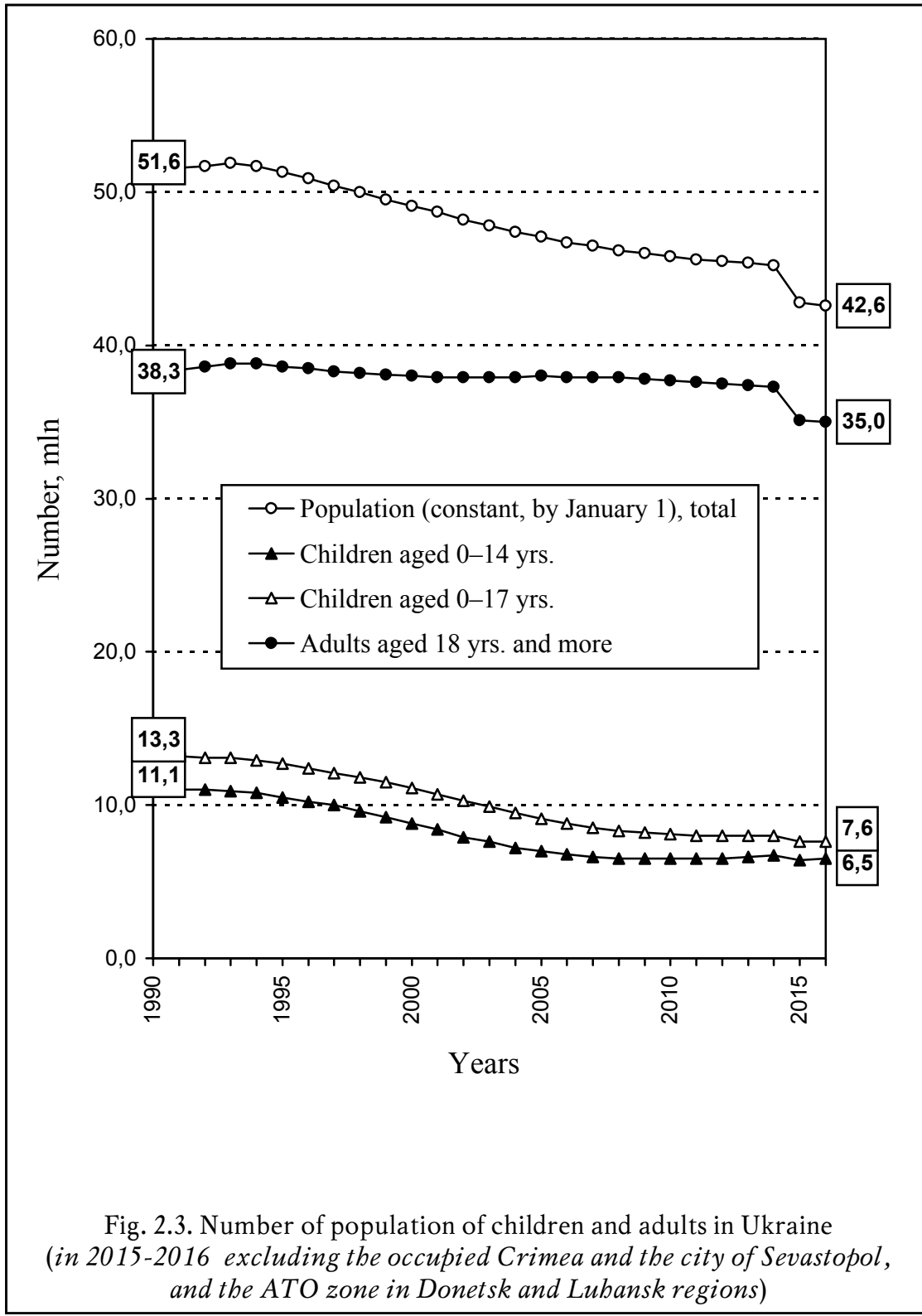


Fig. 2.2. Number of population, young people aged 0-24 years and children born in Ukraine in 1970-2014 (in 2014 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)



3. TOTAL NUMBER OF PERSONS ENROLLED IN EDUCATION

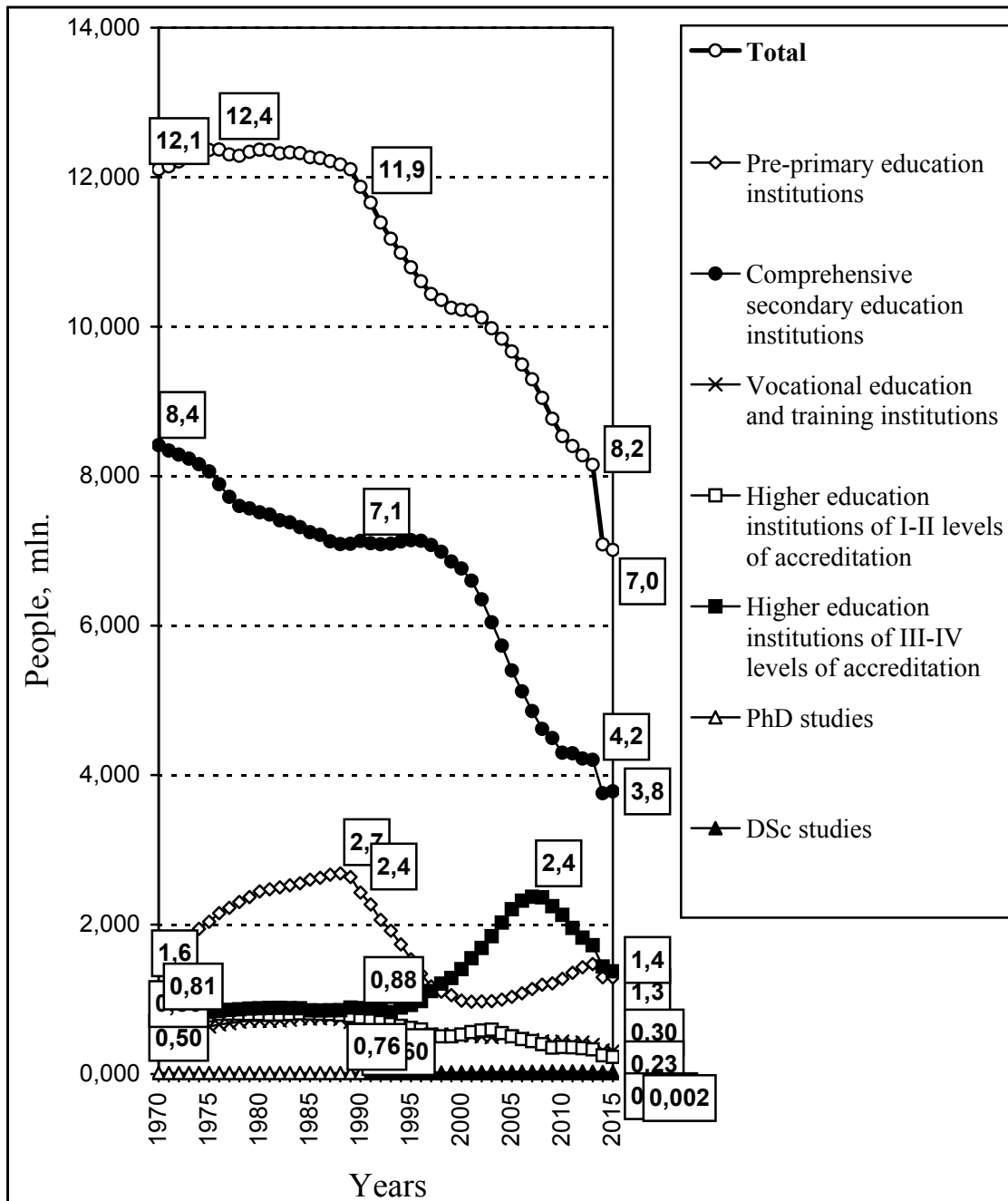


Fig. 3.1. Number of Ukraine's population that systematically studies (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

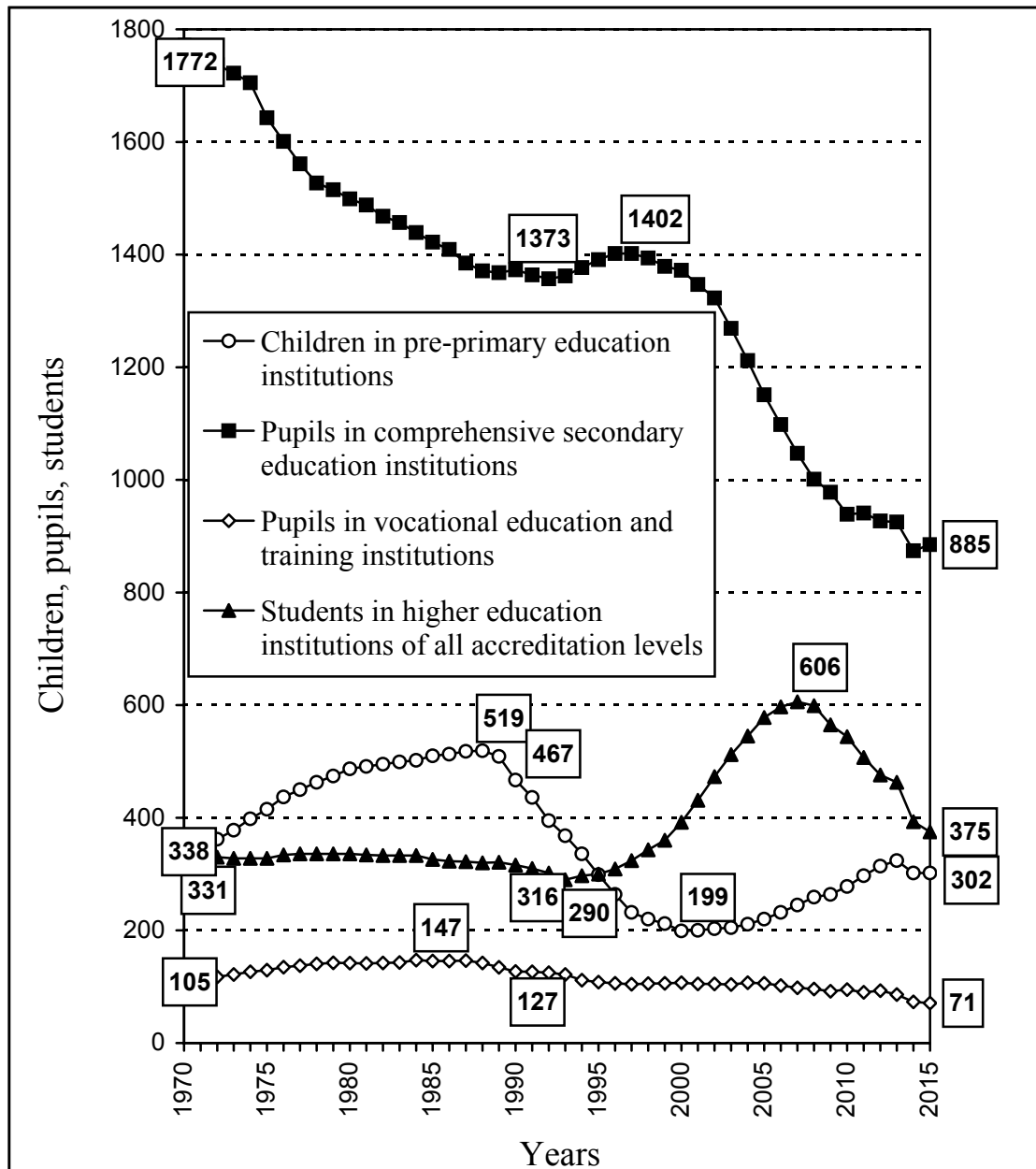


Fig. 3.2. Number of children in pre-primary education institutions, pupils in comprehensive secondary and vocational education institutions, students in higher education institutions of all accreditation levels by 10 thsd. of Ukraine's population (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

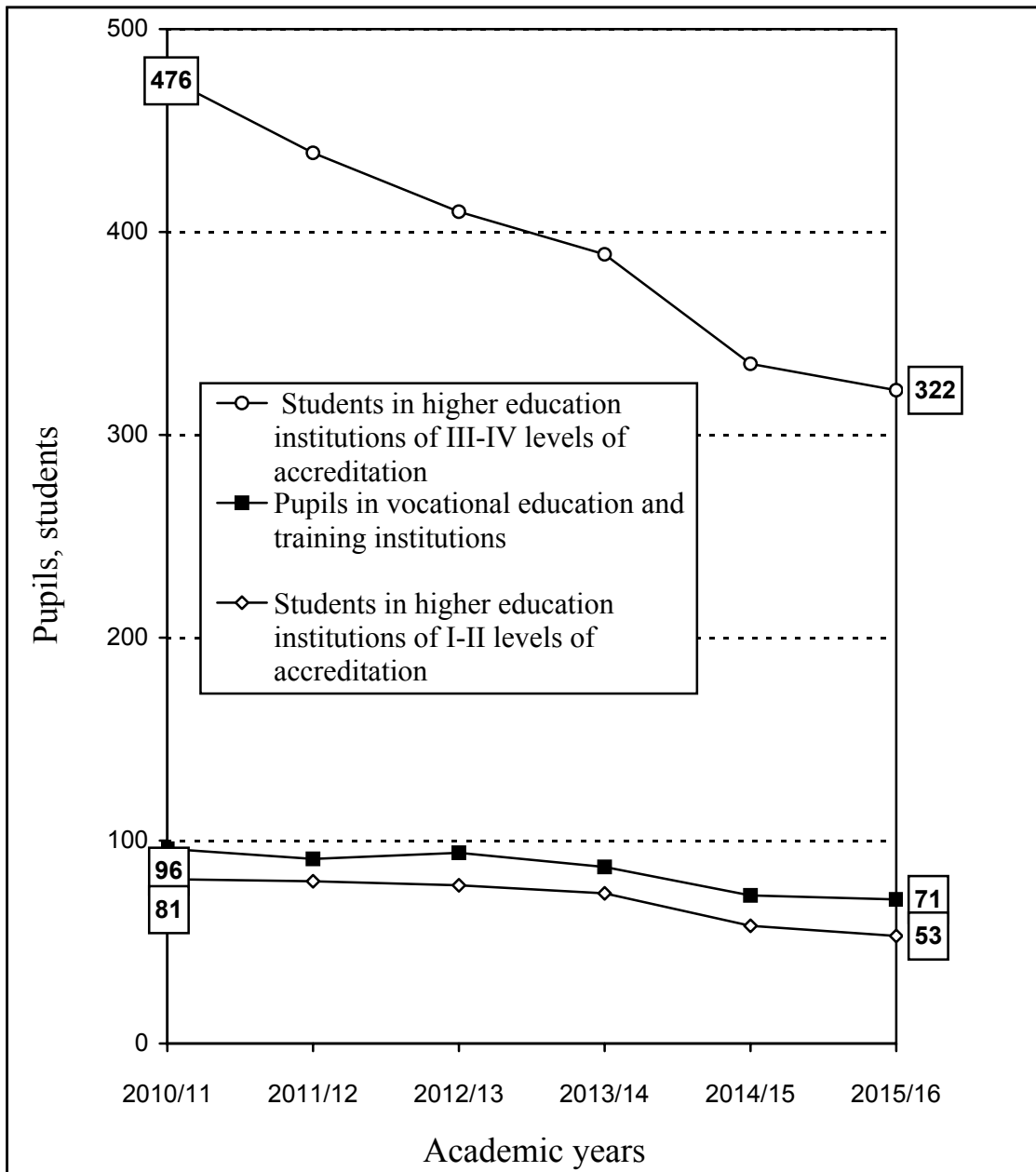


Fig. 3.3. Number of pupils, students in vocational and higher education institutions of I-II and III-IV levels of accreditation by 10 thsd. of Ukraine's population in 2010/11-2015/16 academic years (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

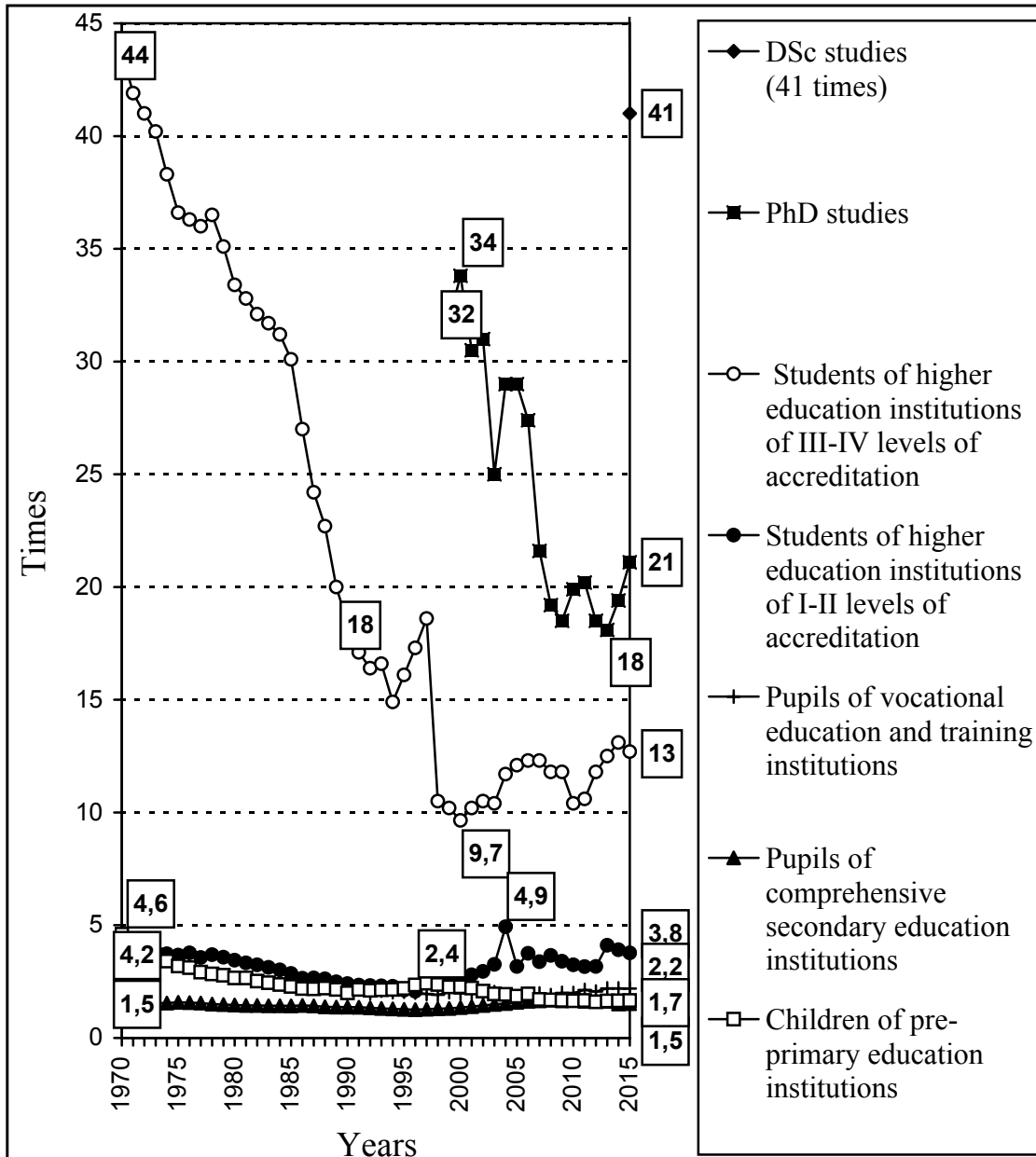


Fig. 3.4. Territorial ambiguities in number of children, pupils, students, PhD students, DSc students (ratio of maximum and minimum of their number to 10 thsd. of population) in education institutions, PhD and DSc studies in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

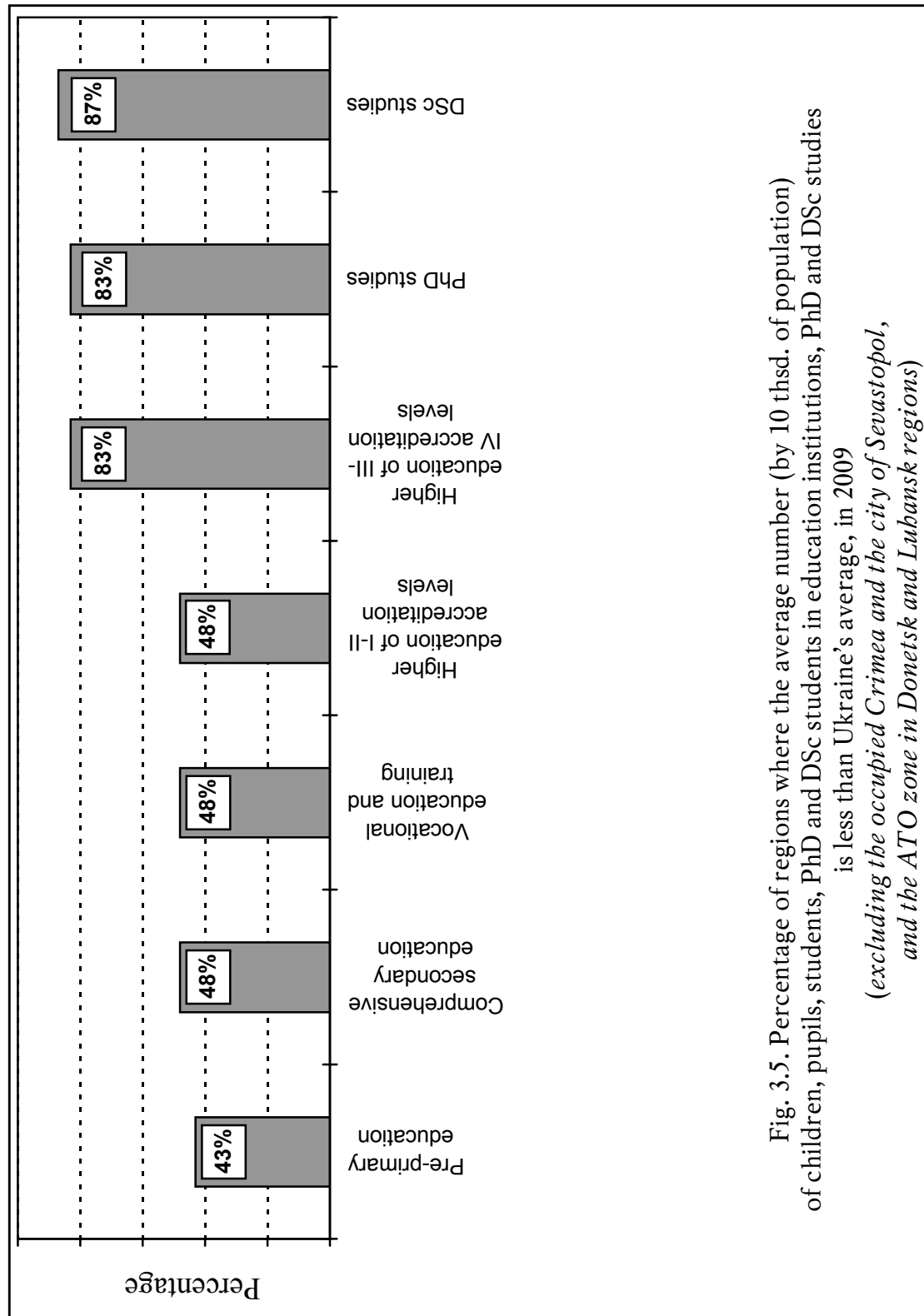


Fig. 3.5. Percentage of regions where the average number (by 10 thsd. of population) of children, pupils, students, PhD and DSc students in education institutions, PhD and DSc studies is less than Ukraine's average, in 2009
(excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

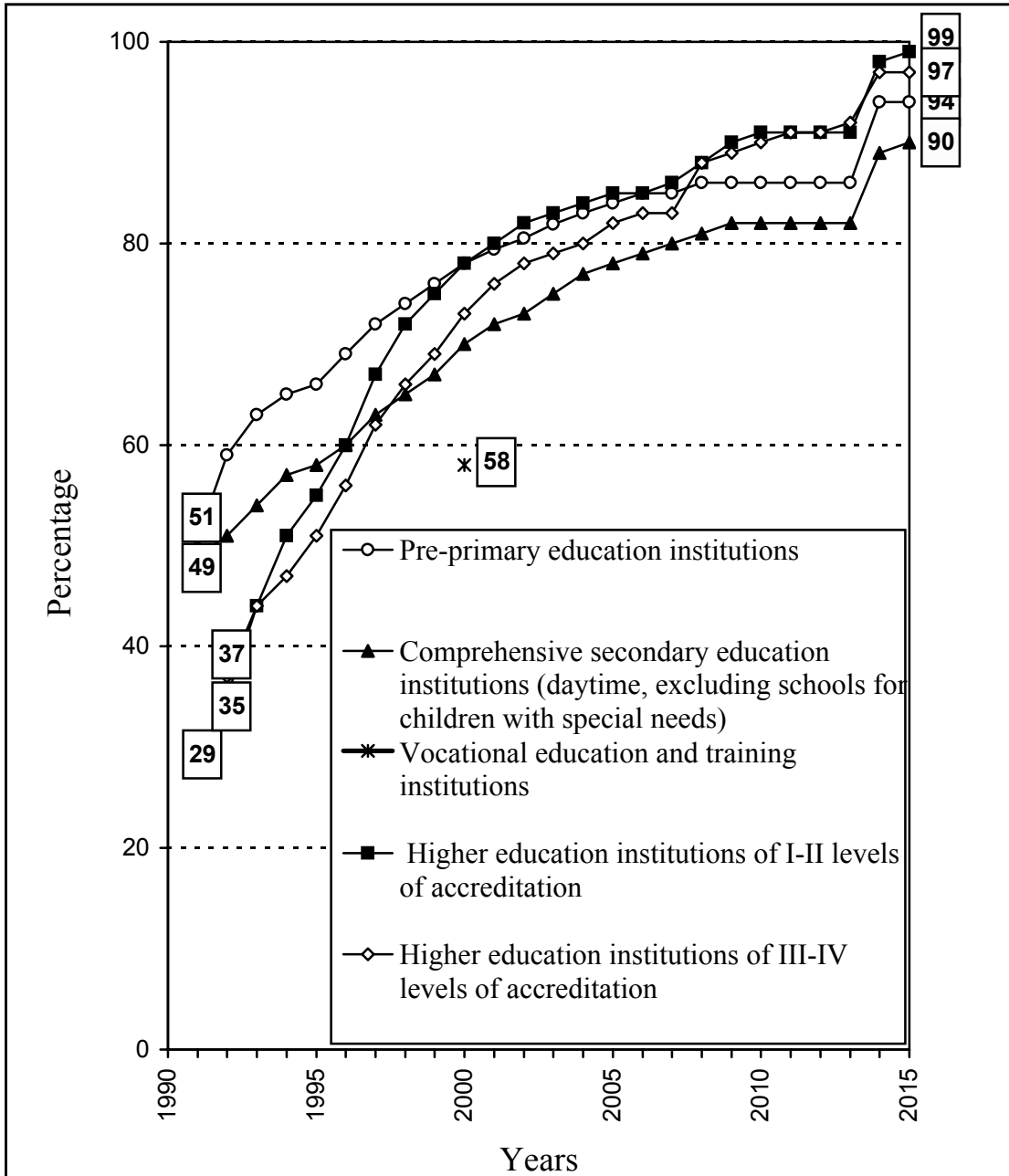


Fig. 3.6. Percentage of children in pre-primary, pupils in comprehensive secondary and vocational, students in higher education institutions that study in Ukrainian language in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

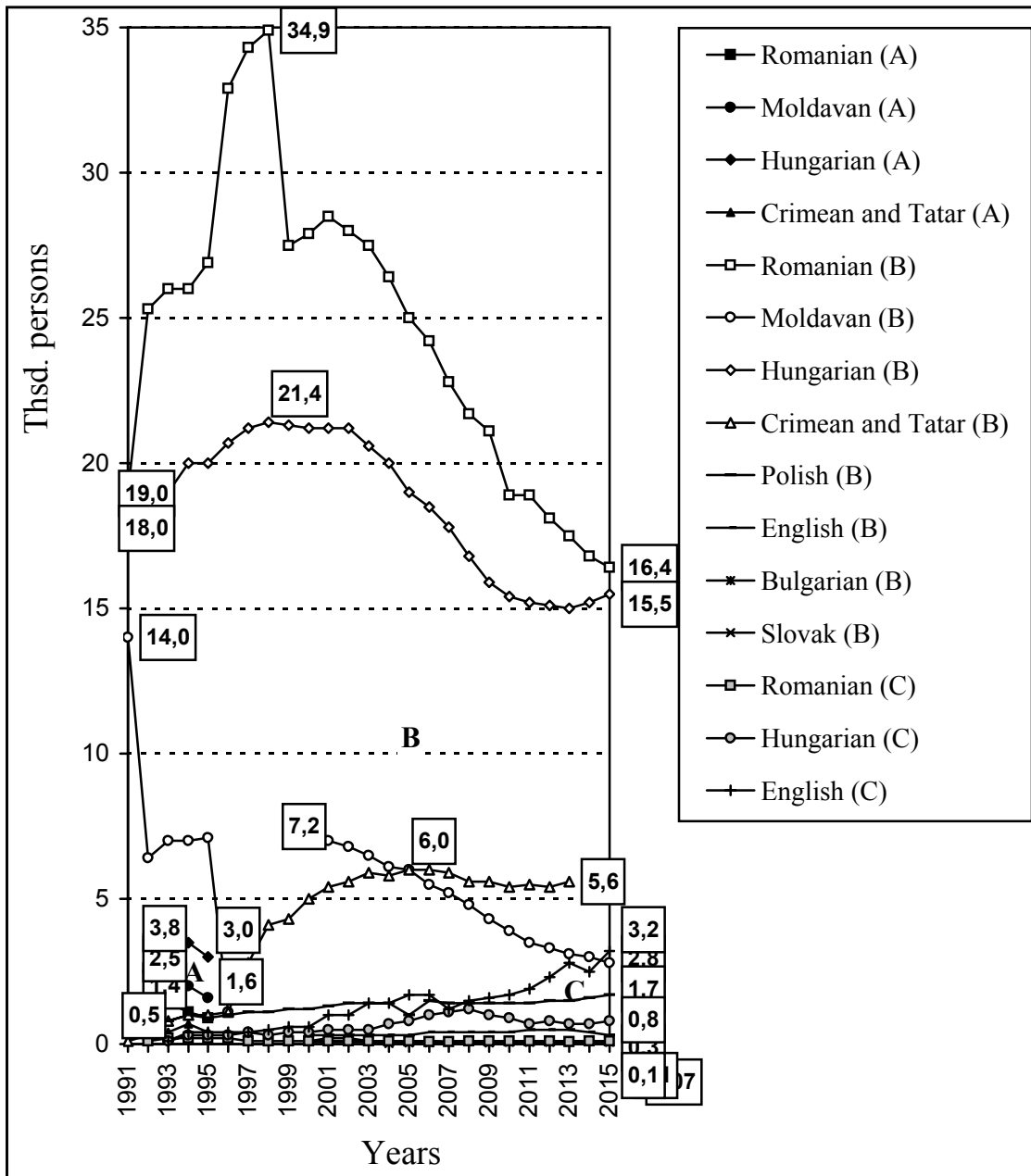


Fig. 3.7. Number of children, pupils, students studying languages of national minorities in pre-primary (A – in 2015 totally 8.6 thsd. in nine languages), comprehensive secondary (B) and higher (C) education institutions in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

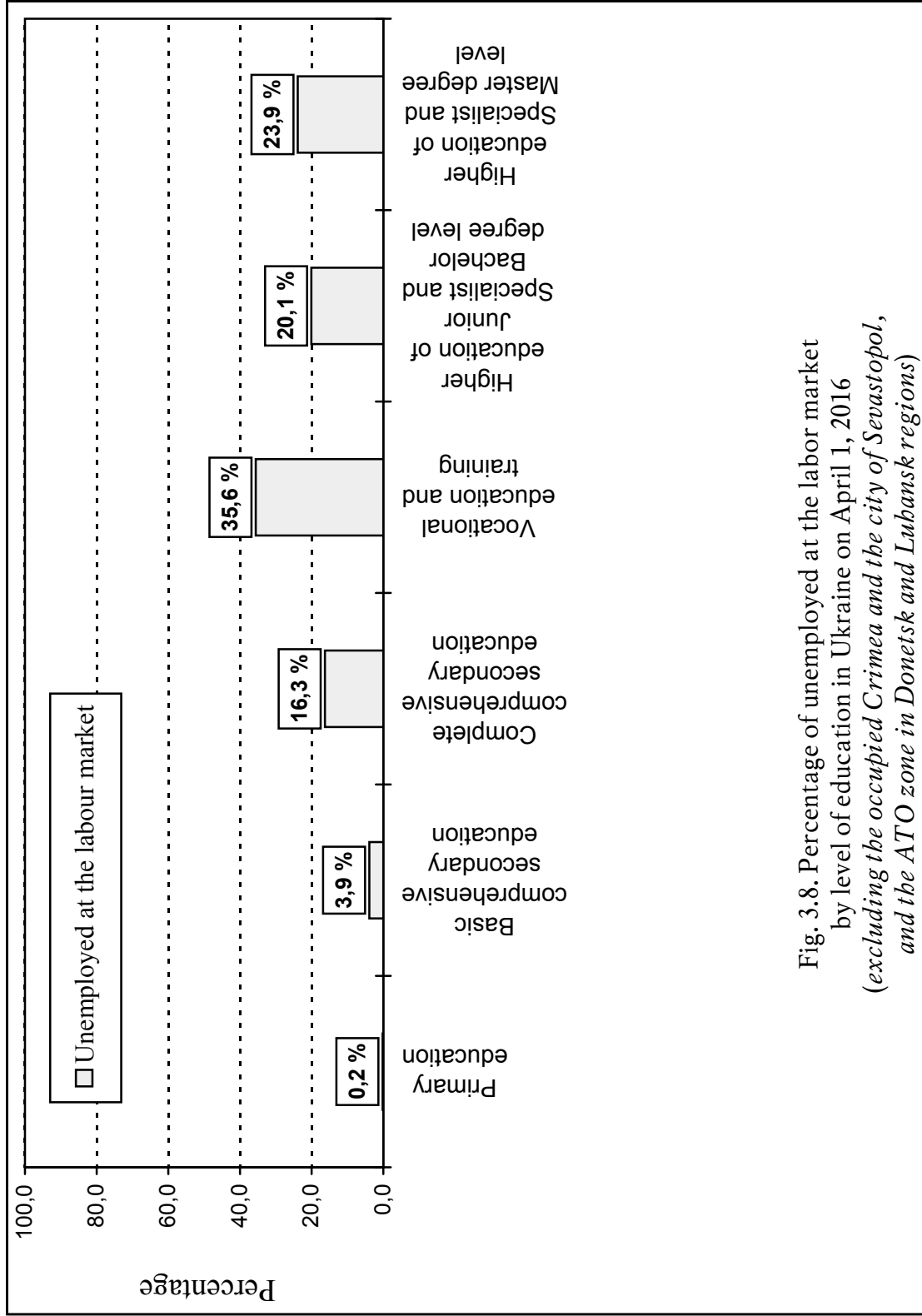


Fig. 3.8. Percentage of unemployed at the labor market by level of education in Ukraine on April 1, 2016 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

4. PRE-PRIMARY EDUCATION

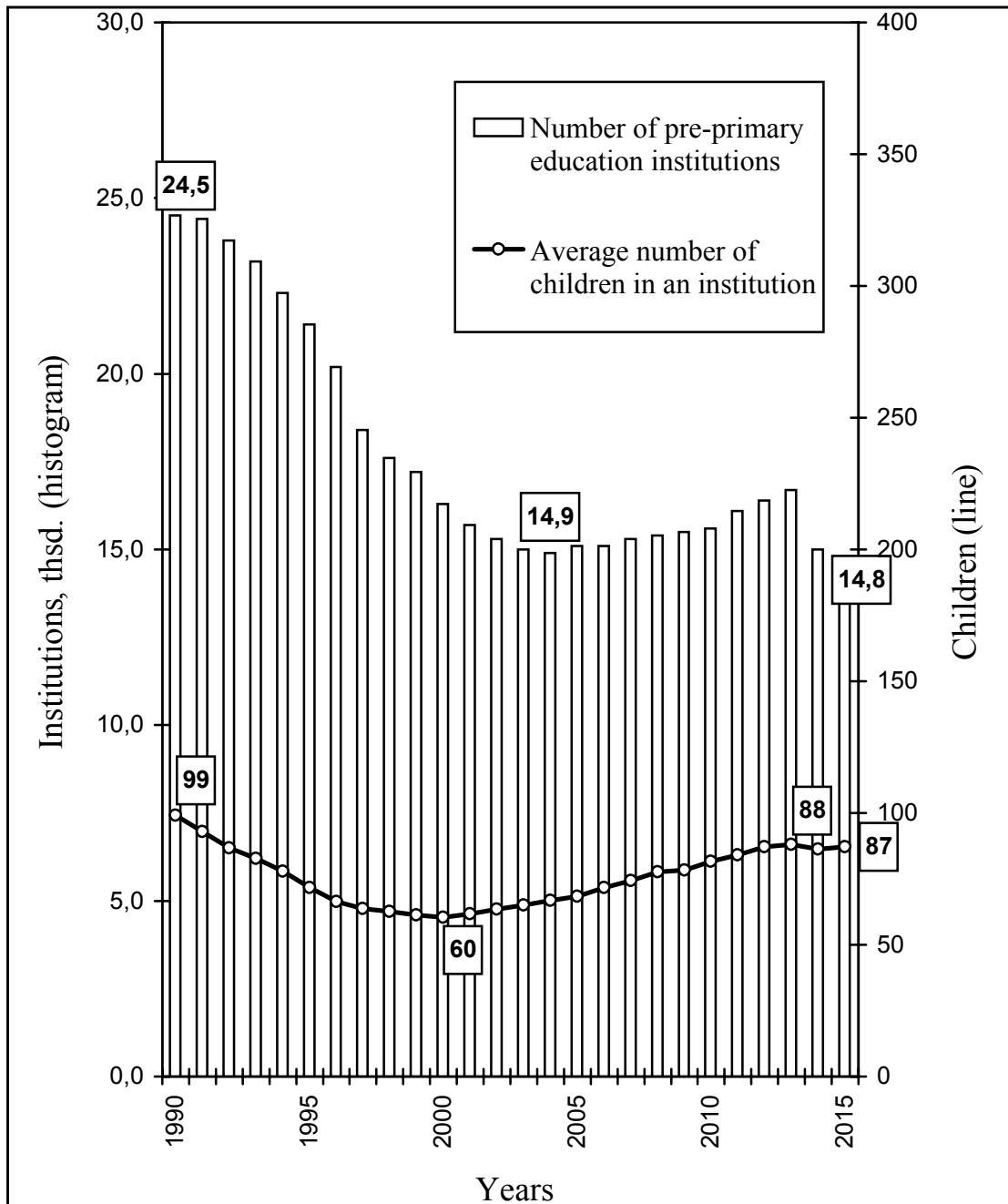


Fig. 4.1. Network of pre-primary education institutions in Ukraine and average number of children they have (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

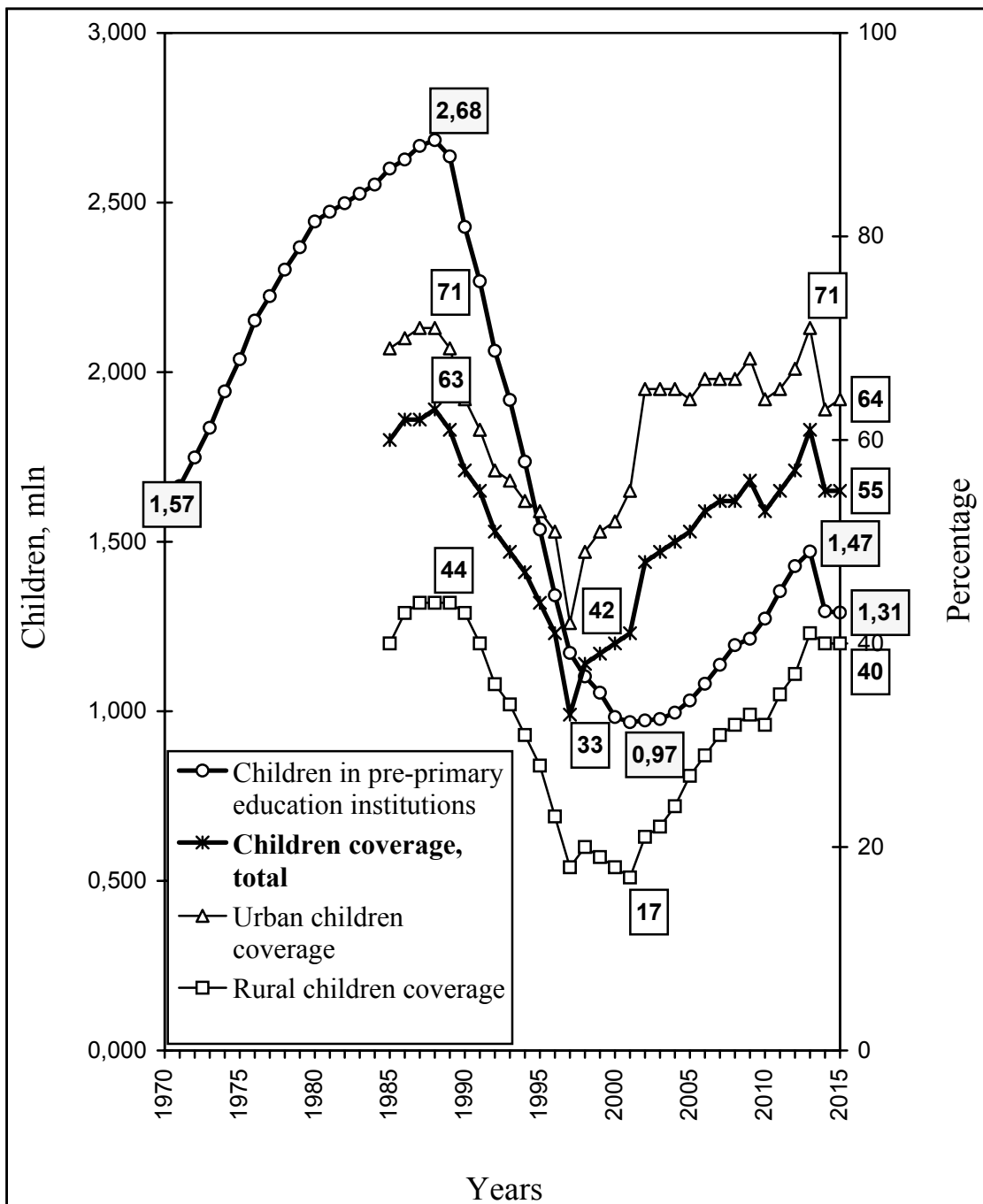


Fig. 4.2. Number of children and their percentage of all the children (coverage) in pre-primary education institutions of Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

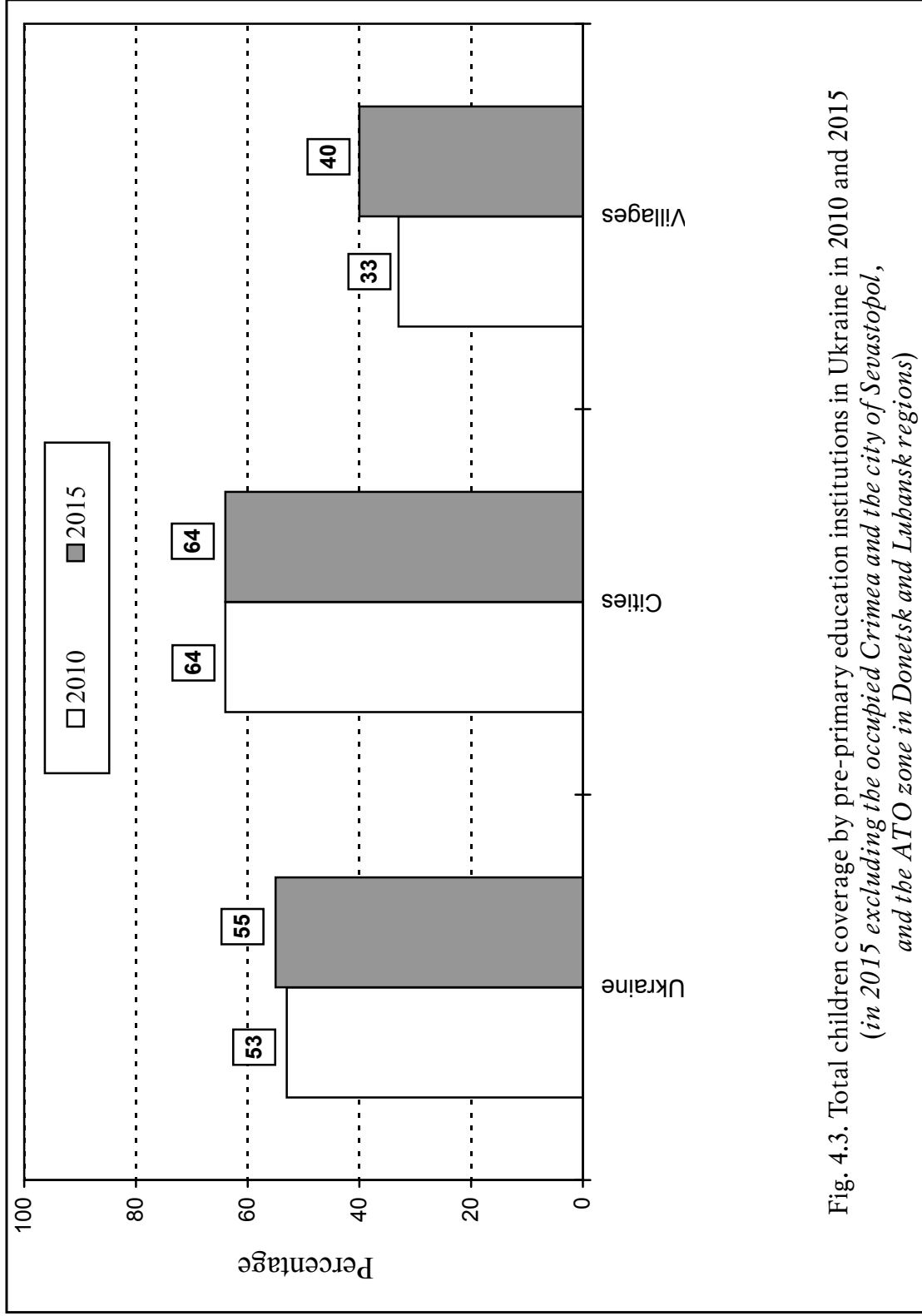


Fig. 4.3. Total children coverage by pre-primary education institutions in Ukraine in 2010 and 2015
(in 2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

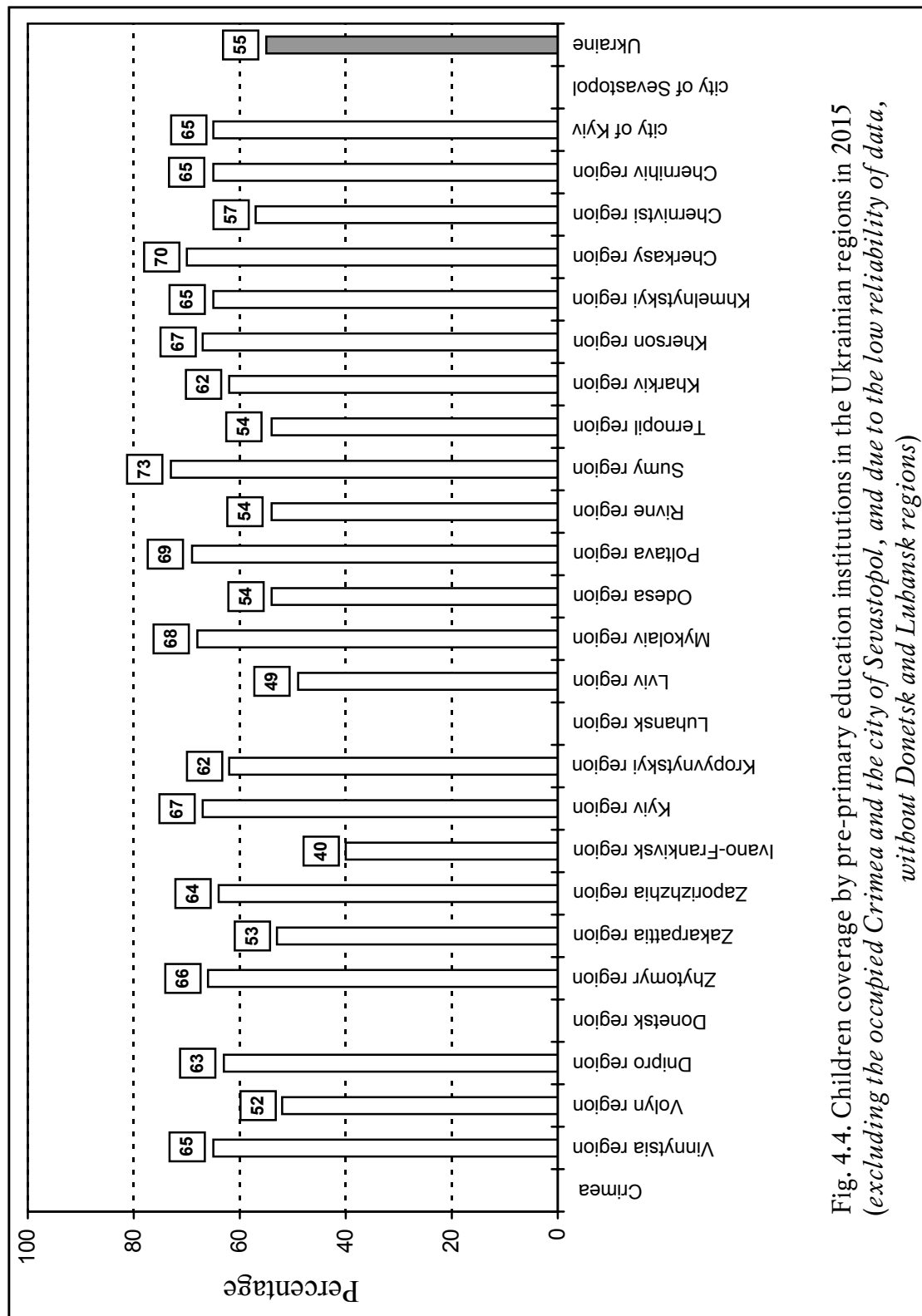


Fig. 4.4. Children coverage by pre-primary education institutions in the Ukrainian regions in 2015 (excluding the occupied Crimea and the city of Sevastopol, and due to the low reliability of data, without Donetsk and Lubansk regions)

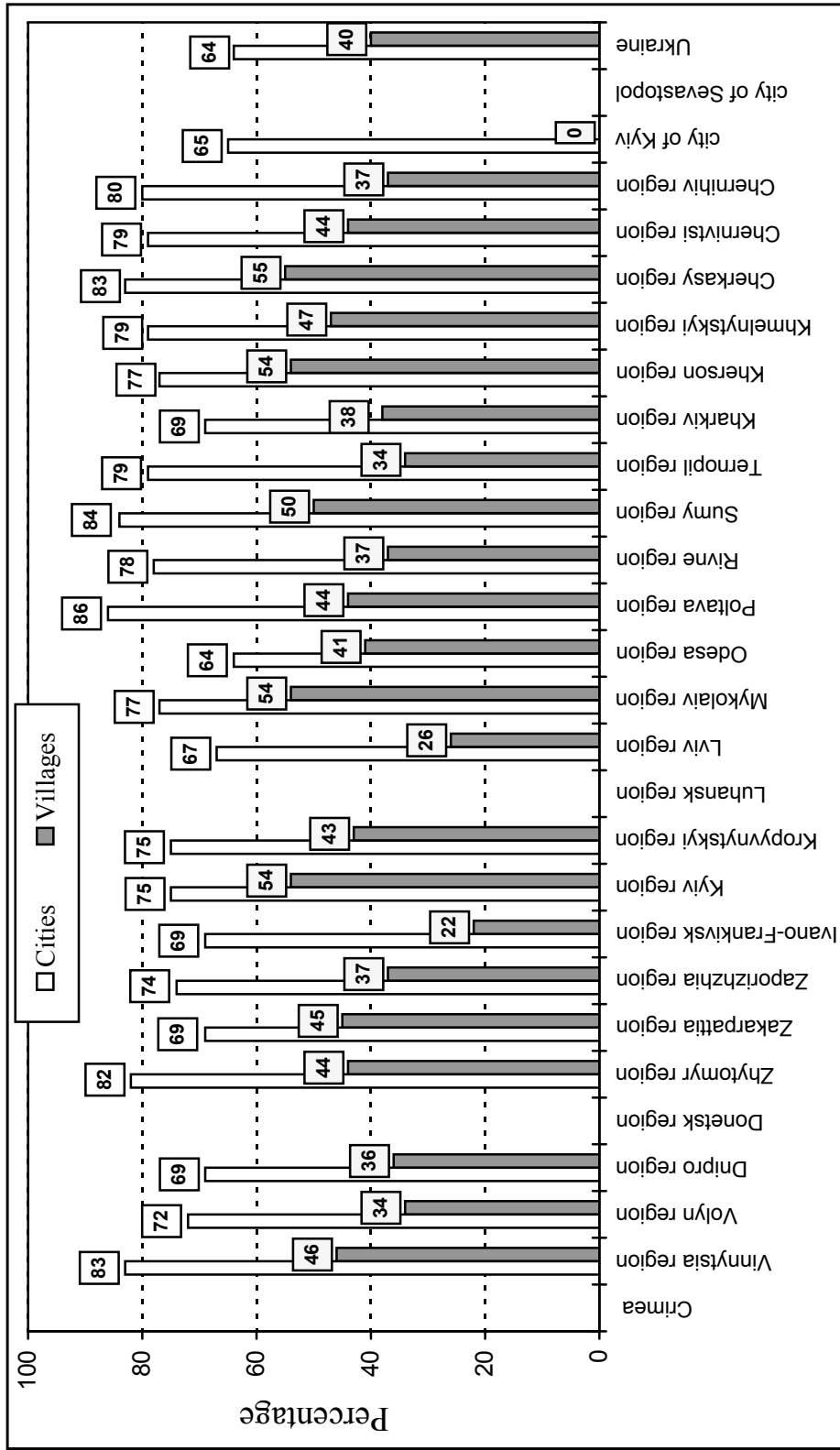


Fig. 4.5. Coverage of pre-primary education institutions in cities and villages in the Ukrainian regions in 2015 (excluding the occupied Crimea and the city of Sevastopol, and due to the low reliability of data without Donetsk and Lubansk regions)

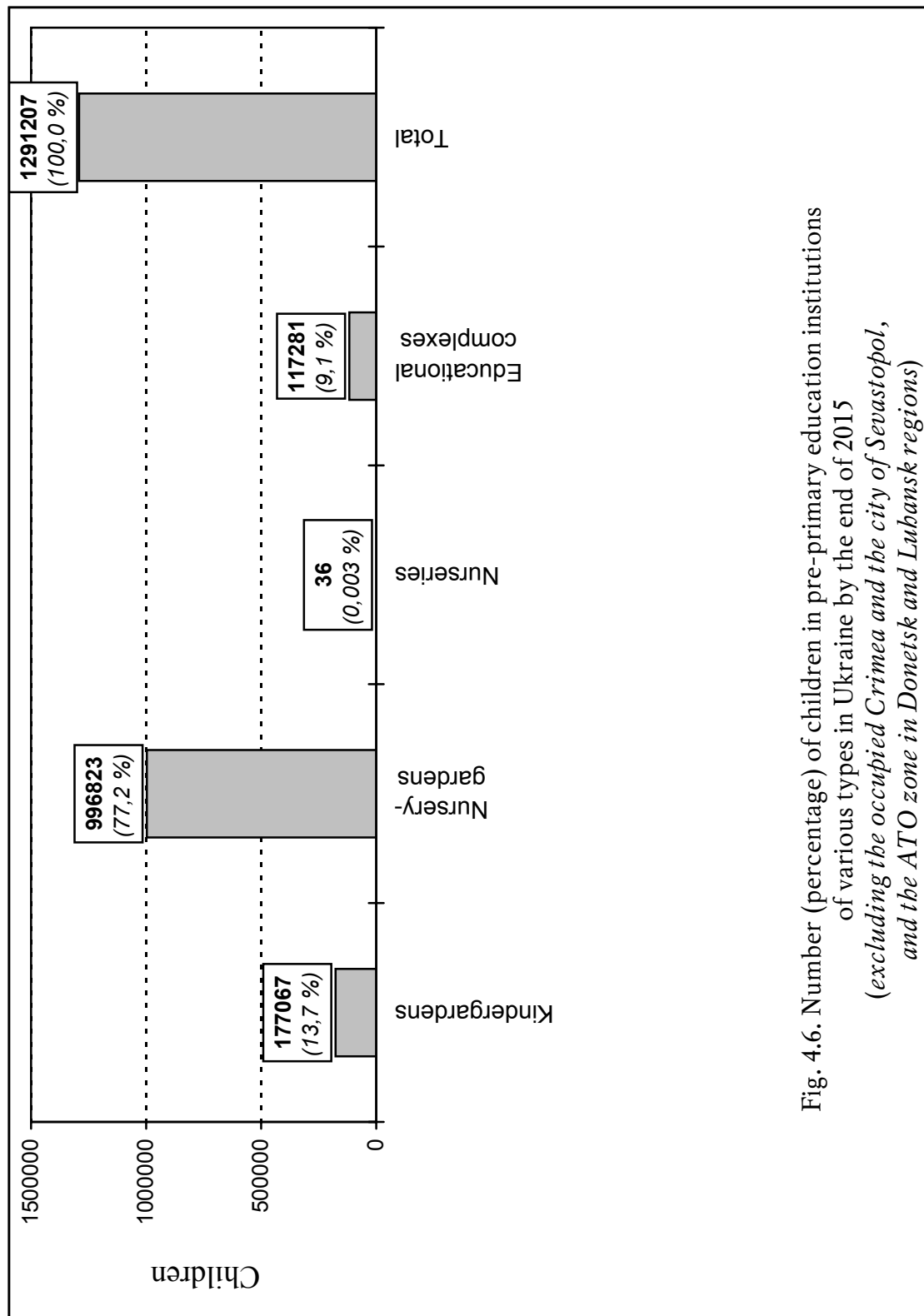


Fig. 4.6. Number (percentage) of children in pre-primary education institutions of various types in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

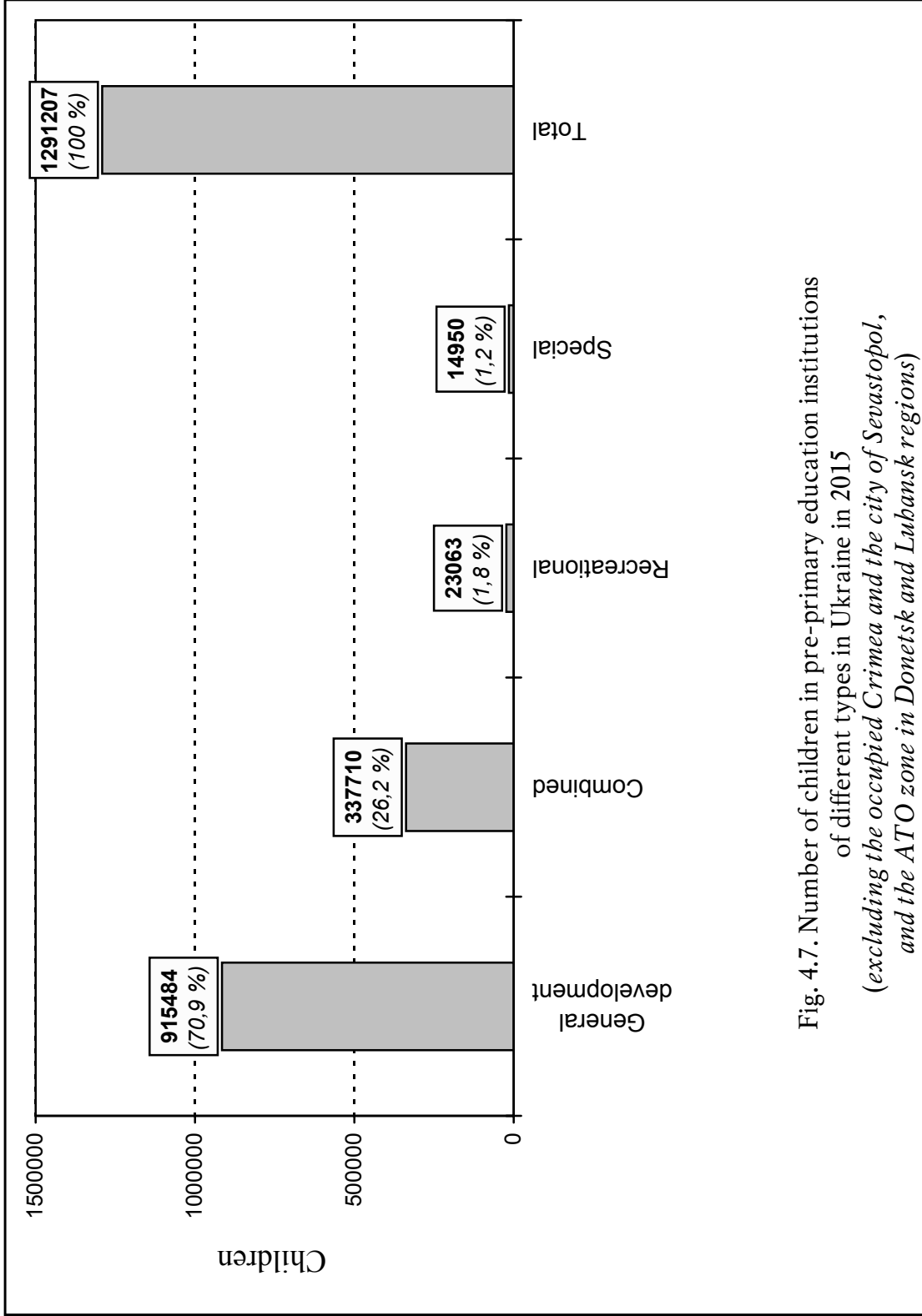


Fig. 4.7. Number of children in pre-primary education institutions of different types in Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

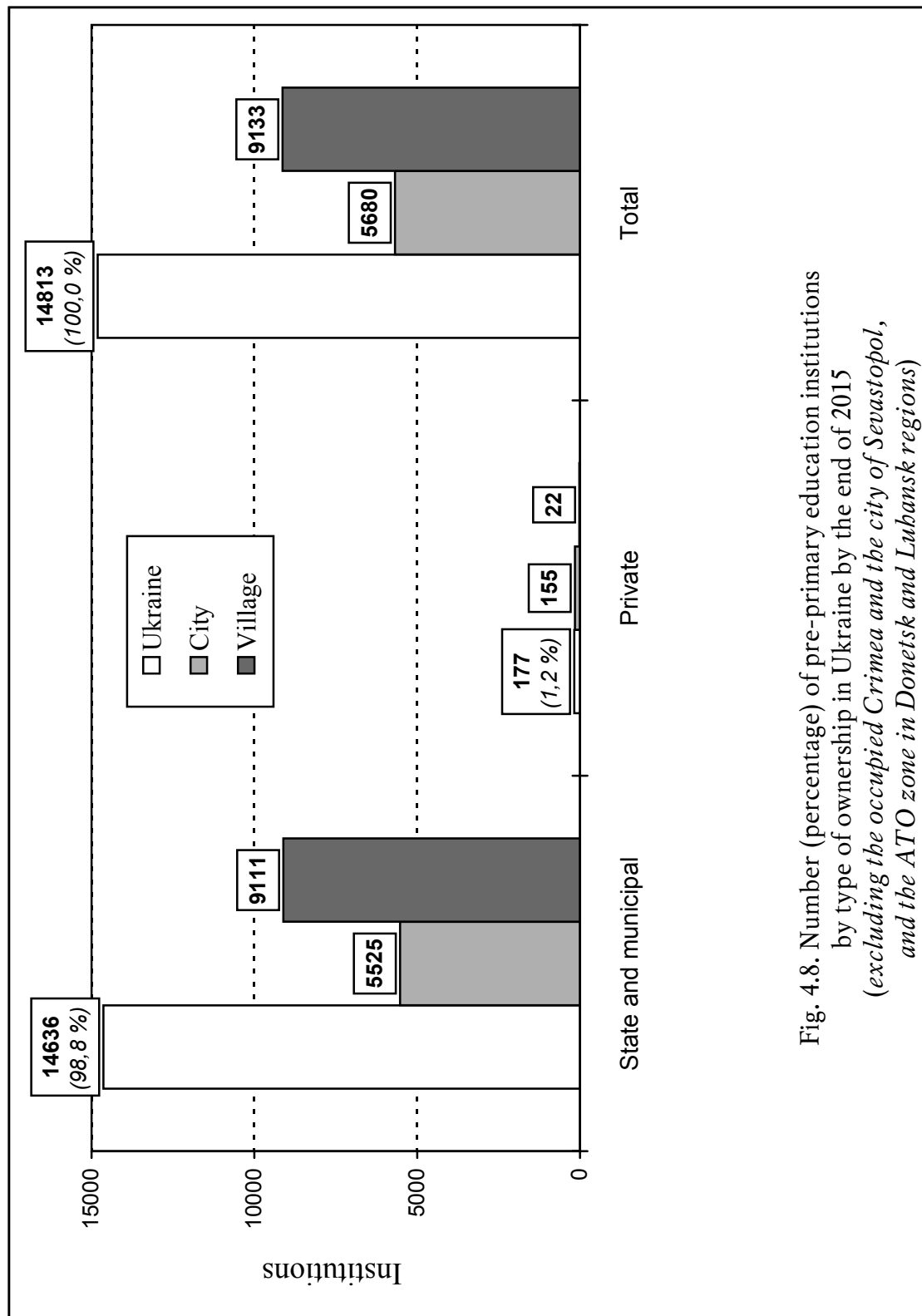


Fig. 4.8. Number (percentage) of pre-primary education institutions by type of ownership in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

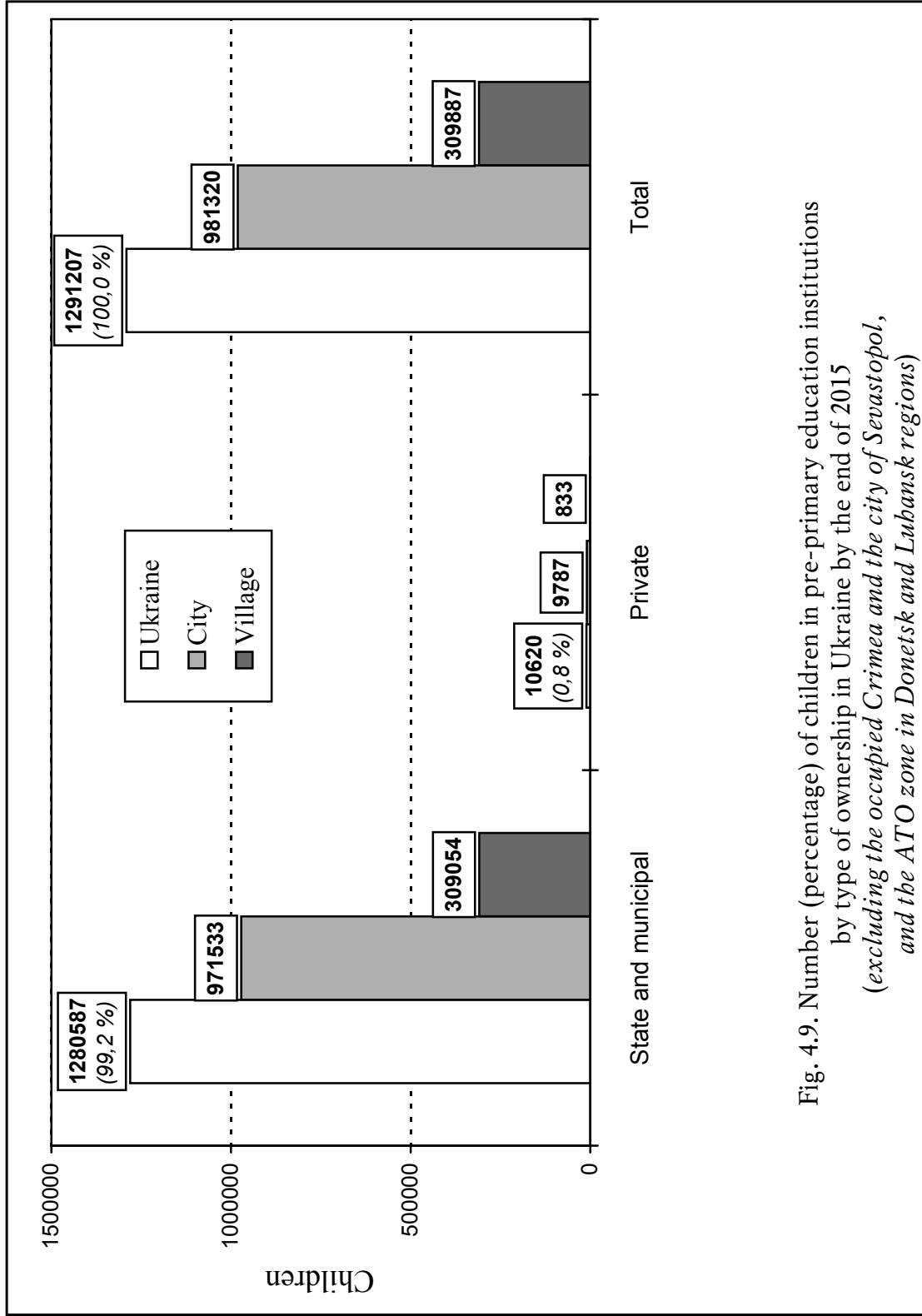


Fig. 4.9. Number (percentage) of children in pre-primary education institutions by type of ownership in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

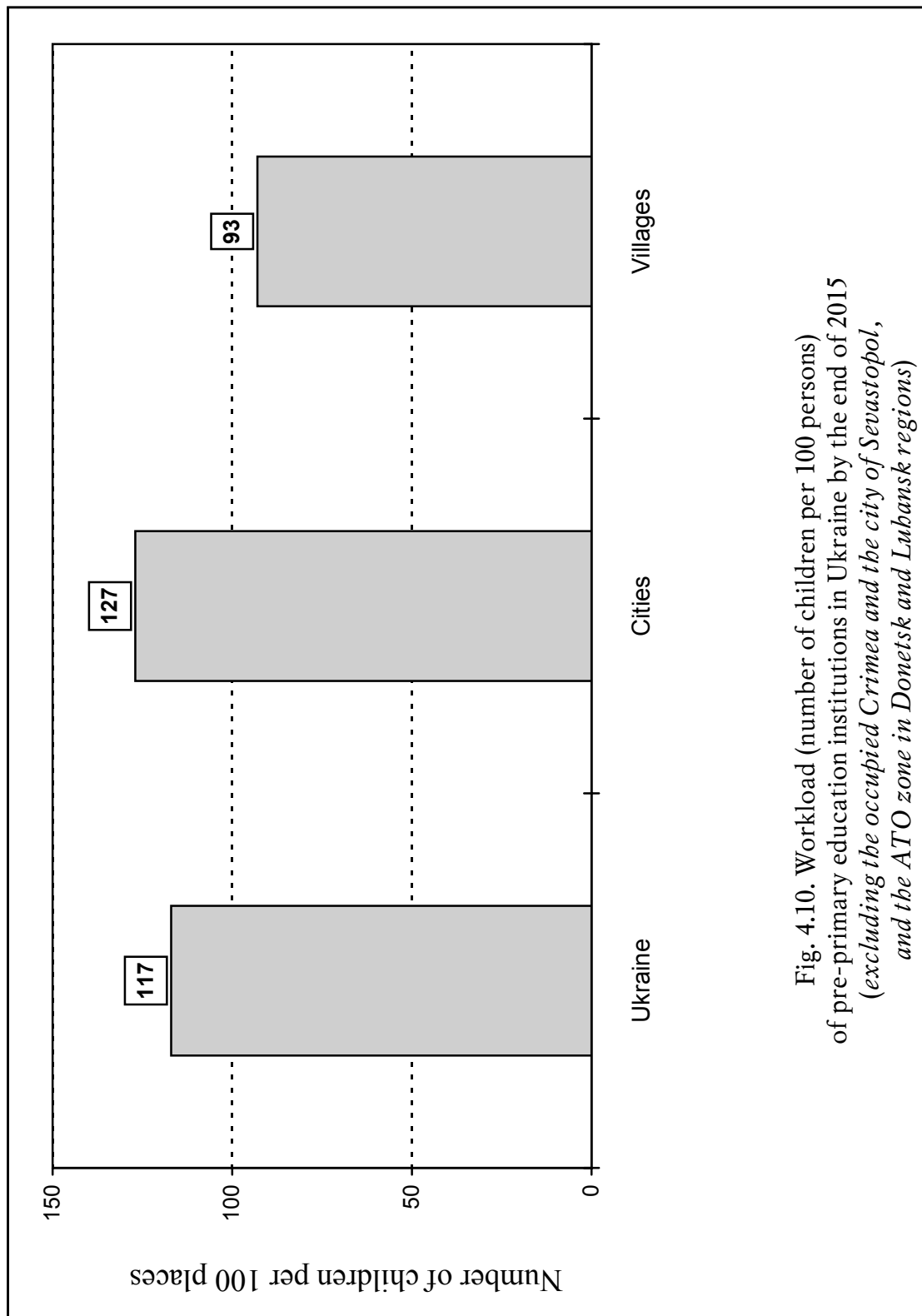


Fig. 4.10. Workload (number of children per 100 persons) of pre-primary education institutions in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

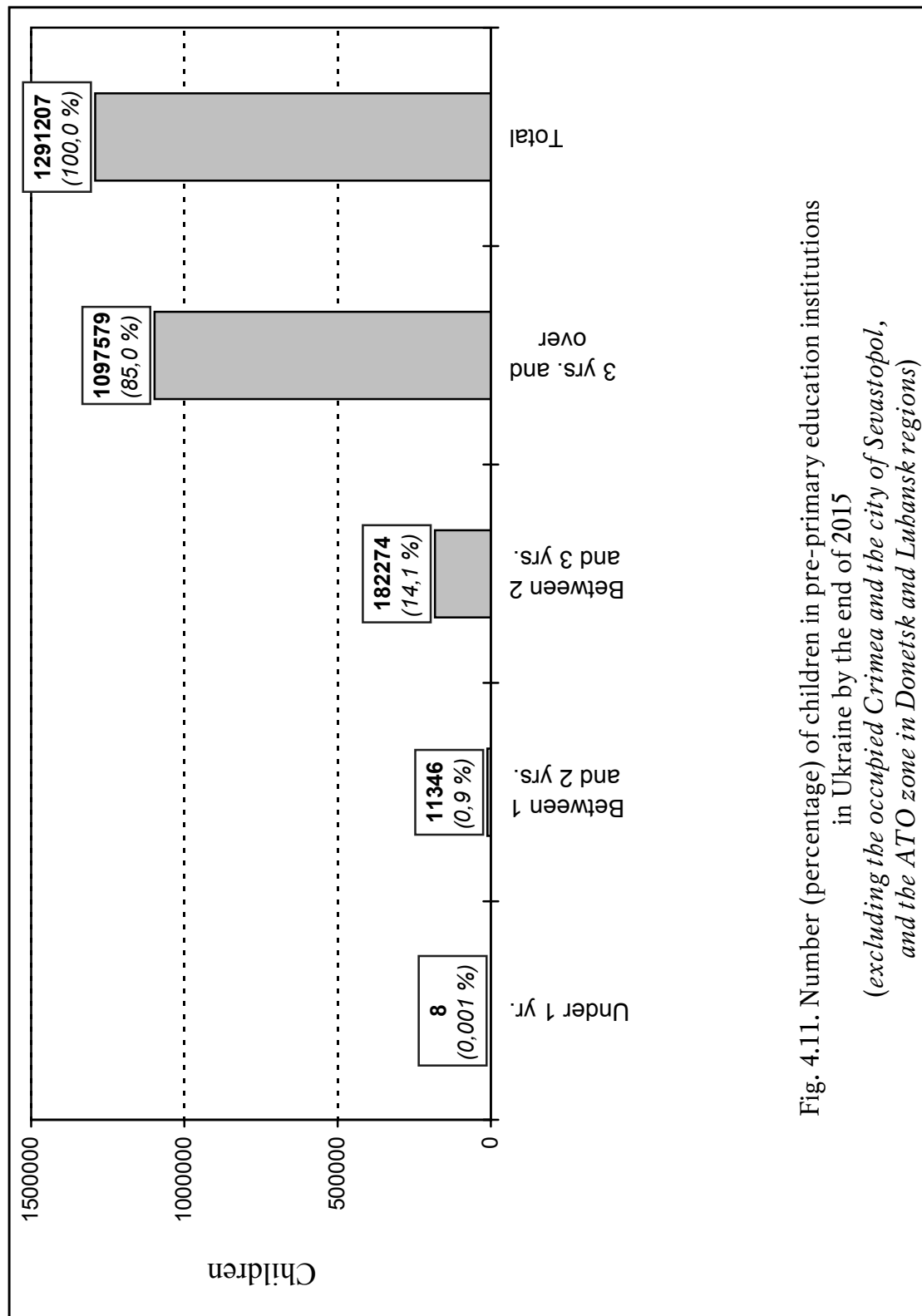


Fig. 4.11. Number (percentage) of children in pre-primary education institutions in Ukraine by the end of 2015
(excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

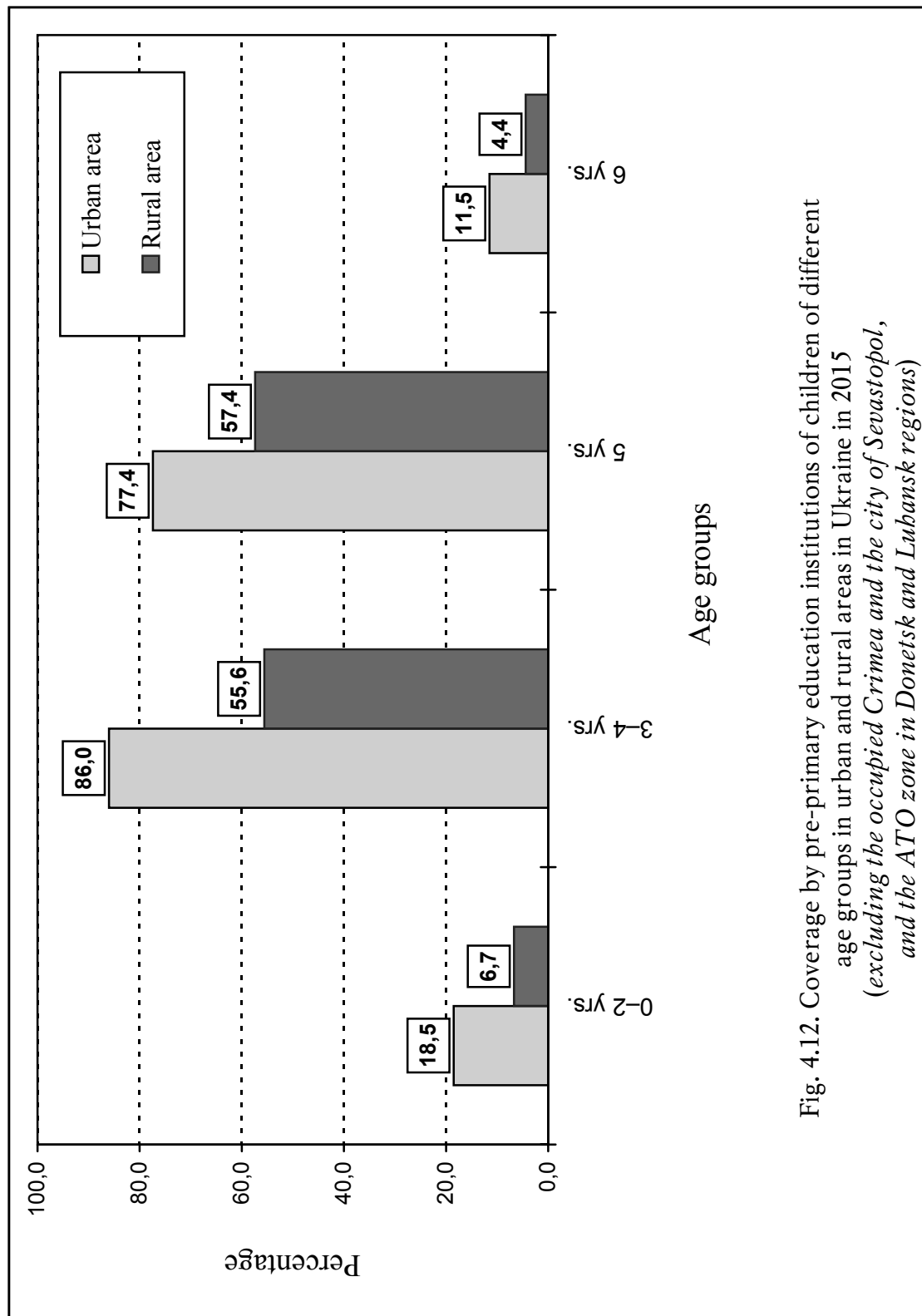


Fig. 4.12. Coverage by pre-primary education institutions of children of different age groups in urban and rural areas in Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

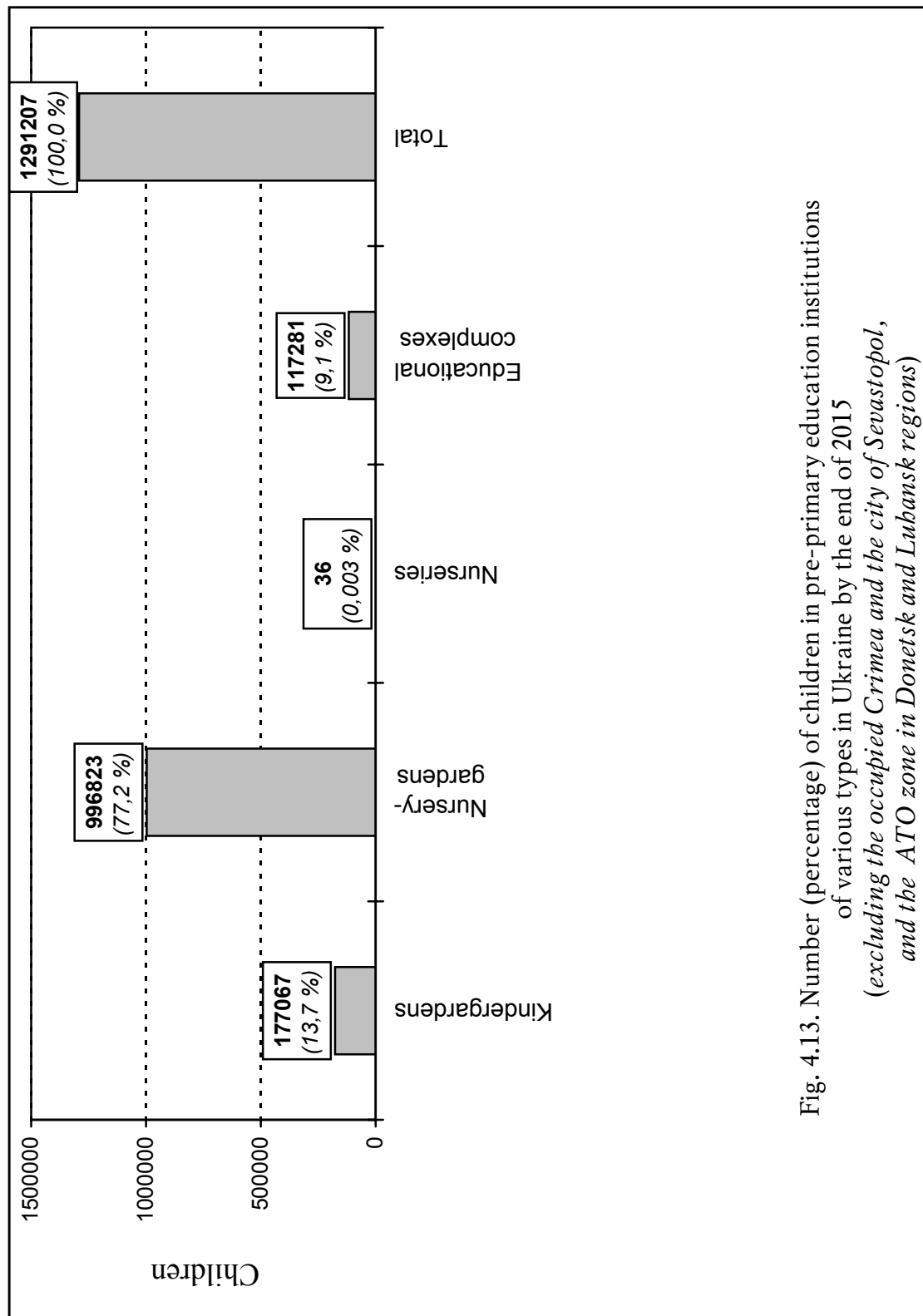


Fig. 4.13. Number (percentage) of children in pre-primary education institutions of various types in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

5. COMPREHENSIVE SECONDARY EDUCATION

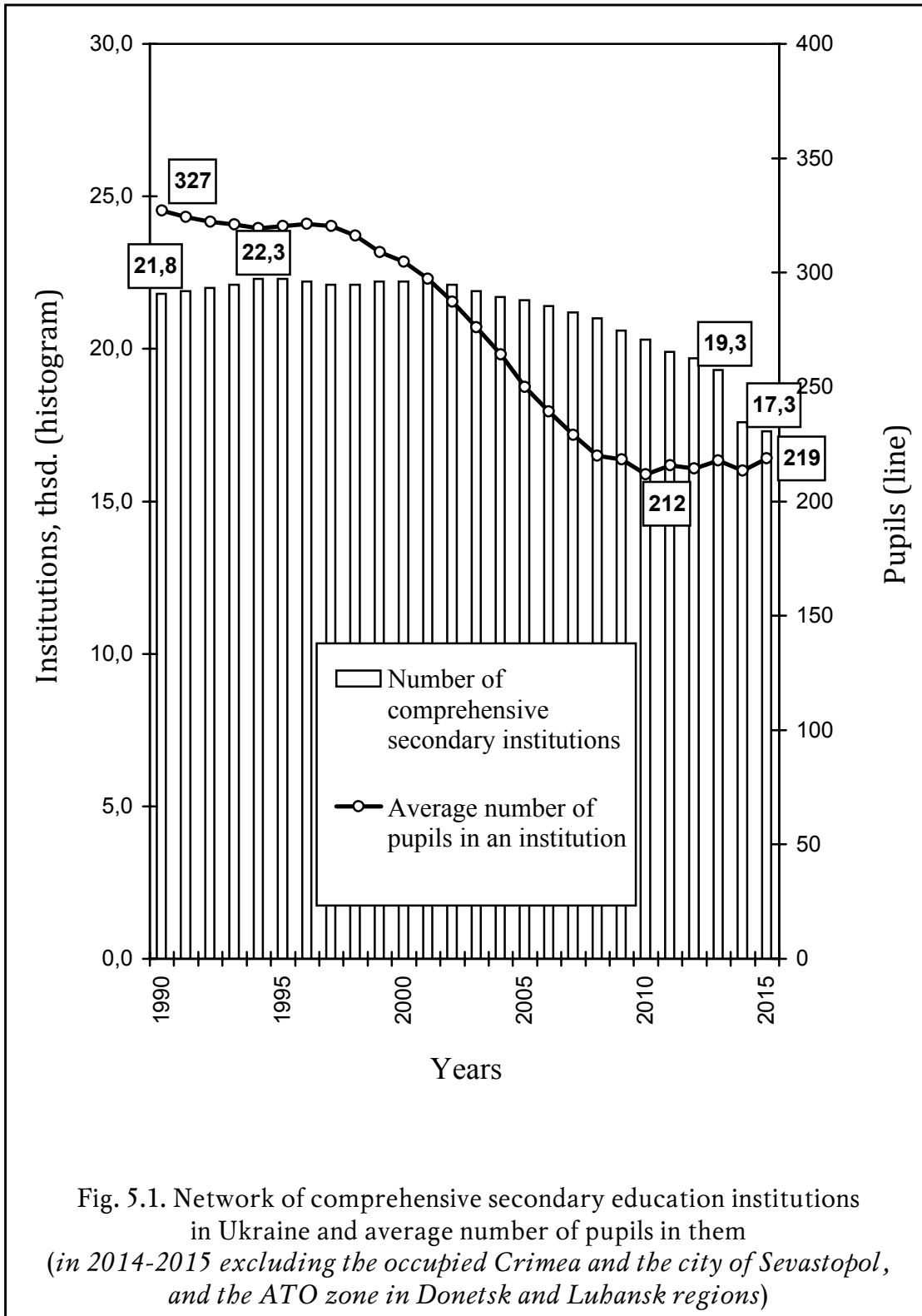


Fig. 5.1. Network of comprehensive secondary education institutions in Ukraine and average number of pupils in them (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

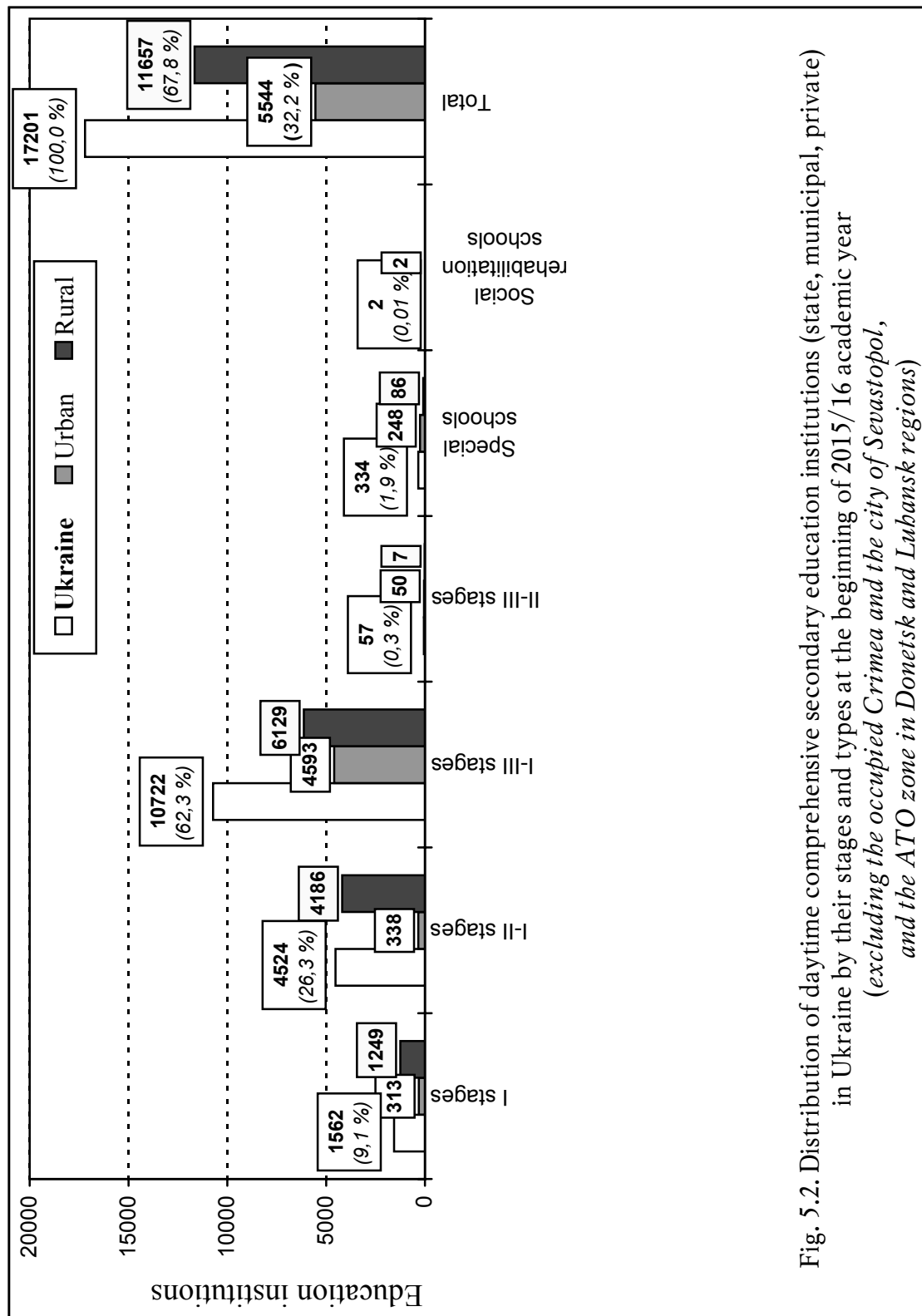


Fig. 5.2. Distribution of daytime comprehensive secondary education institutions (state, municipal, private) in Ukraine by their stages and types at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

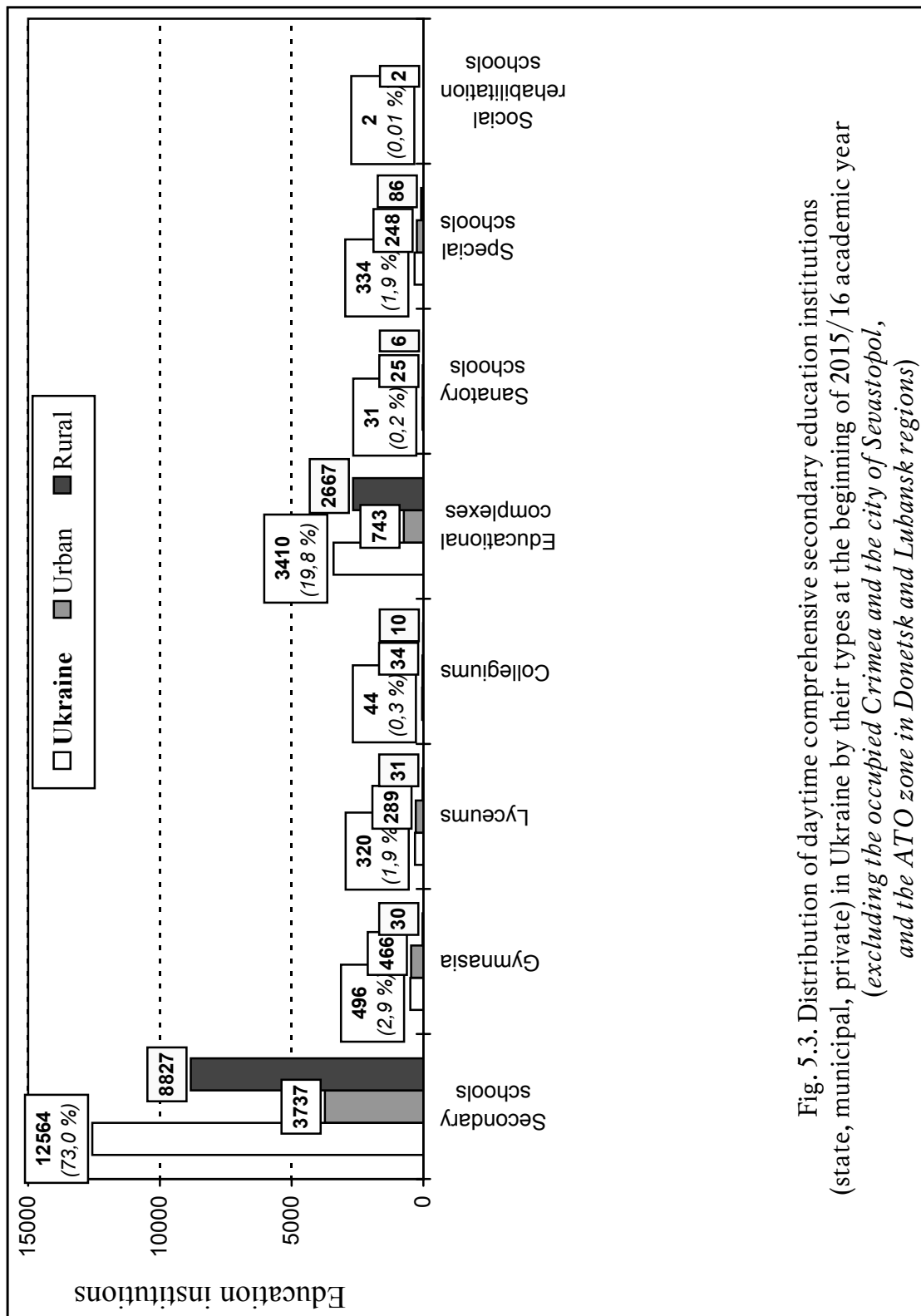


Fig. 5.3. Distribution of daytime comprehensive secondary education institutions (state, municipal, private) in Ukraine by their types at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

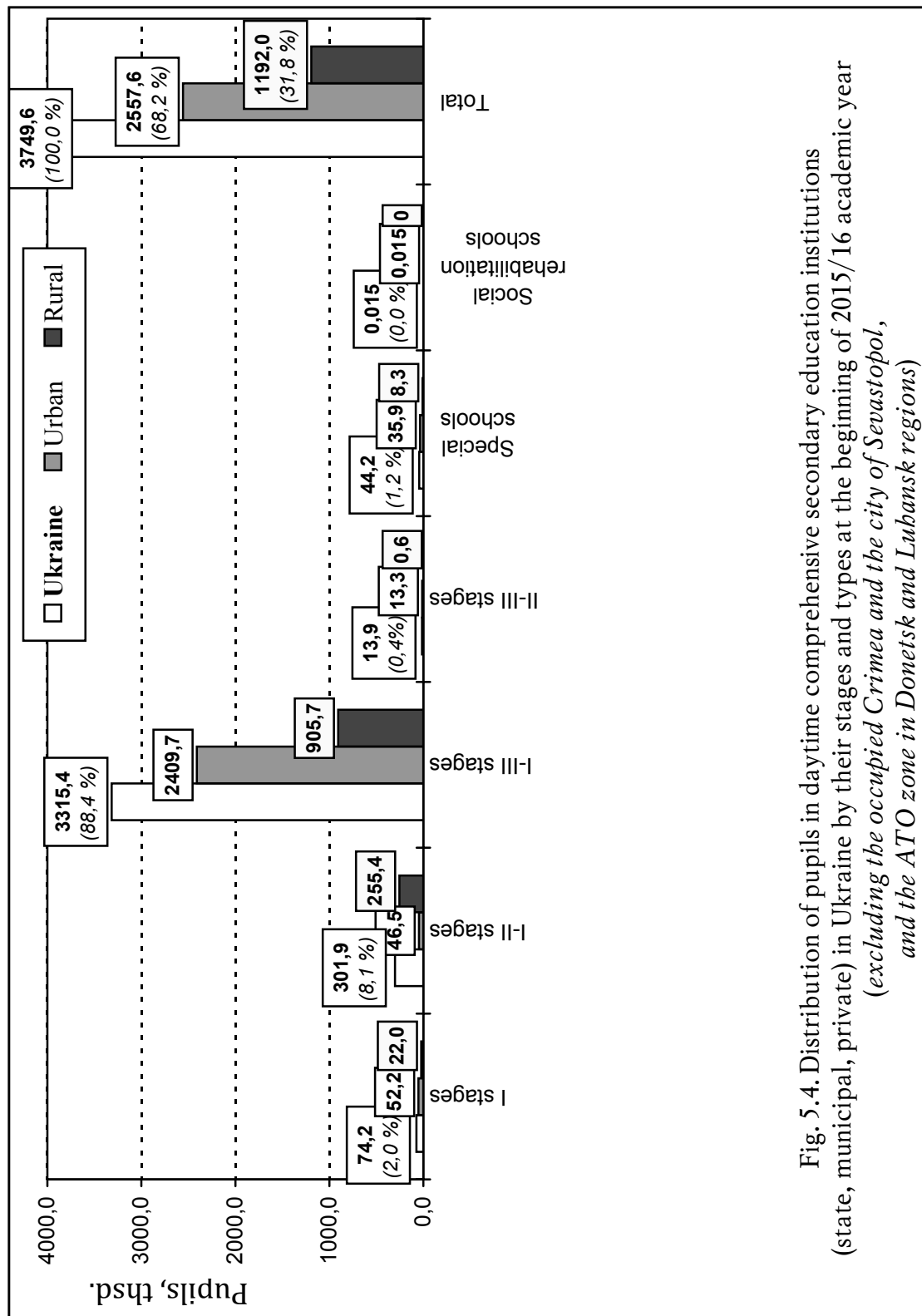


Fig. 5.4. Distribution of pupils in daytime comprehensive secondary education institutions (state, municipal, private) in Ukraine by their stages and types at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

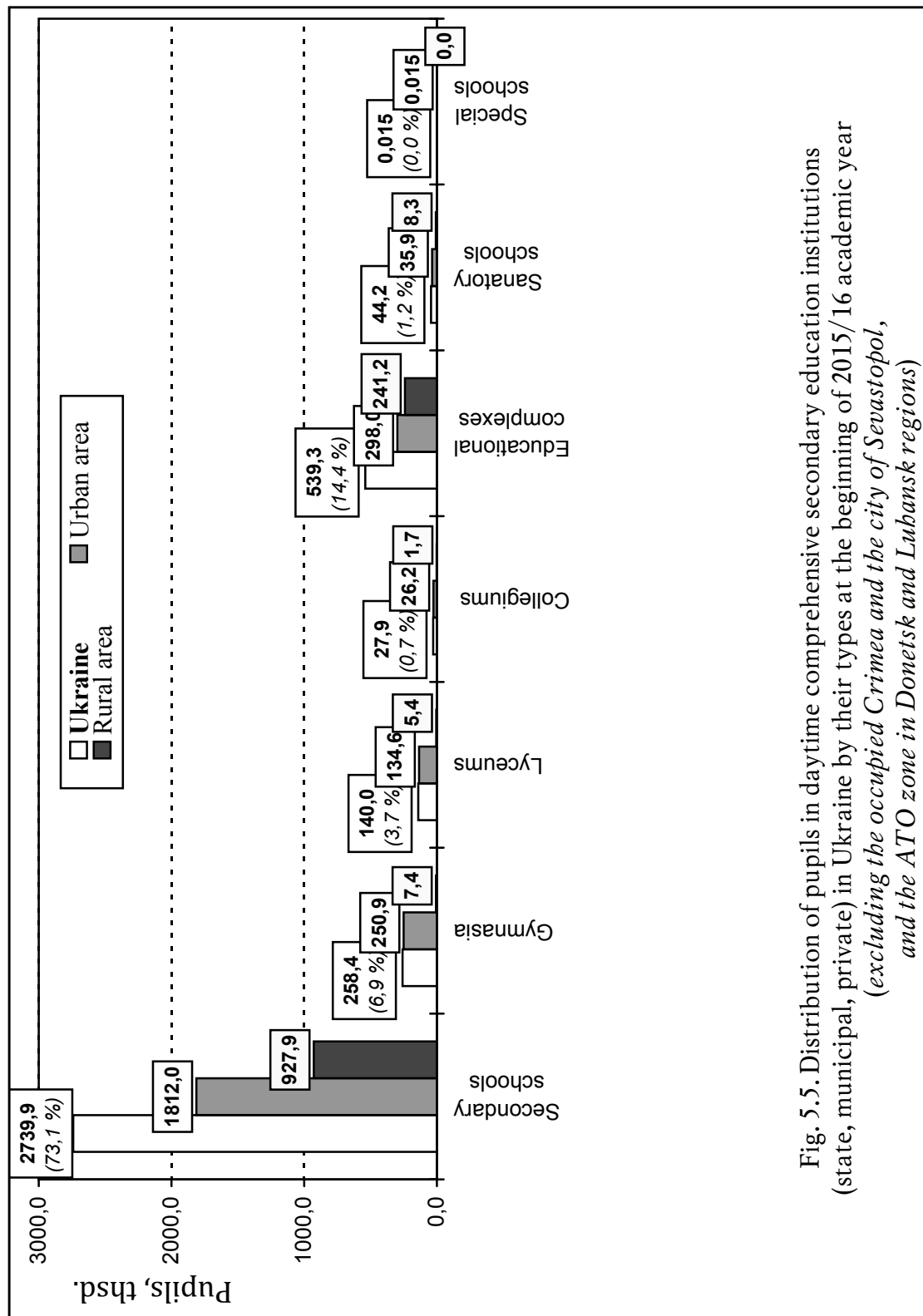


Fig. 5.5. Distribution of pupils in daytime comprehensive secondary education institutions (state, municipal, private) in Ukraine by their types at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

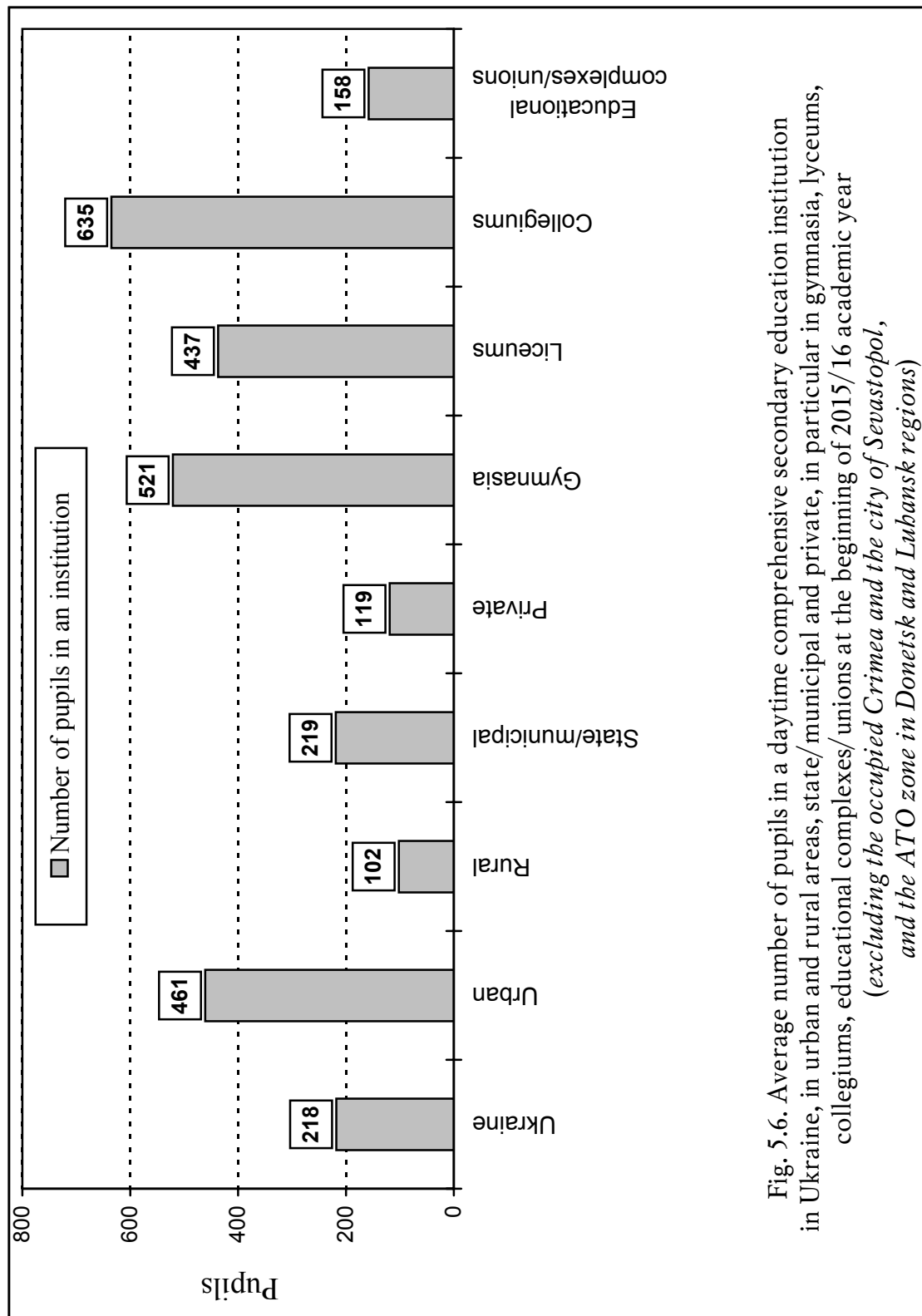


Fig. 5.6. Average number of pupils in a daytime comprehensive secondary education institution in Ukraine, in urban and rural areas, state/municipal and private, in particular in gymnasia, lyceums, collegiums, educational complexes/unions at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

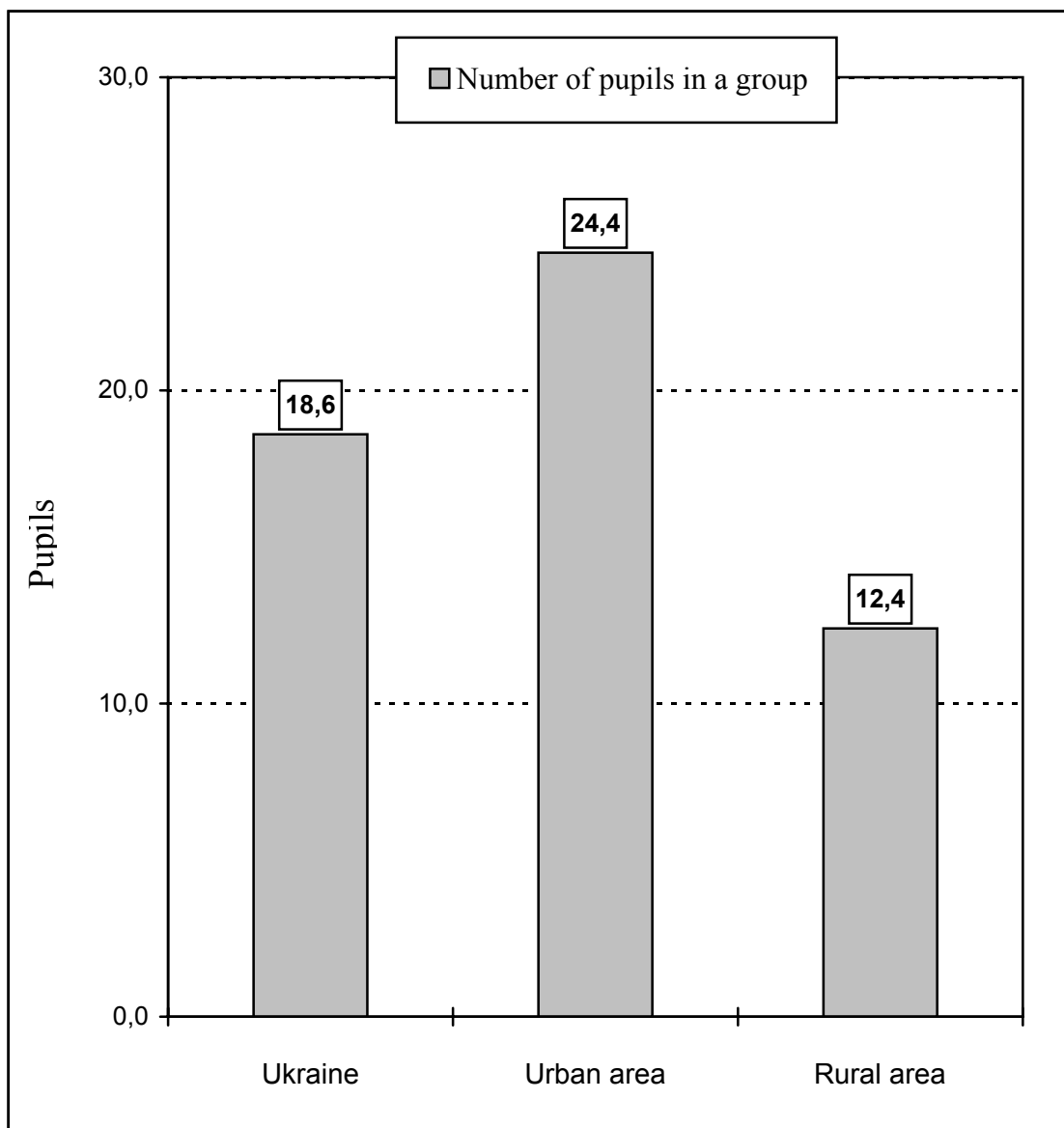


Fig. 5.7. Average number of pupils in a class of daytime comprehensive secondary education institutions in Ukraine, in urban and rural areas (without special groups pupils in comprehensive secondary education institutions as well as the pupils of special schools) at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

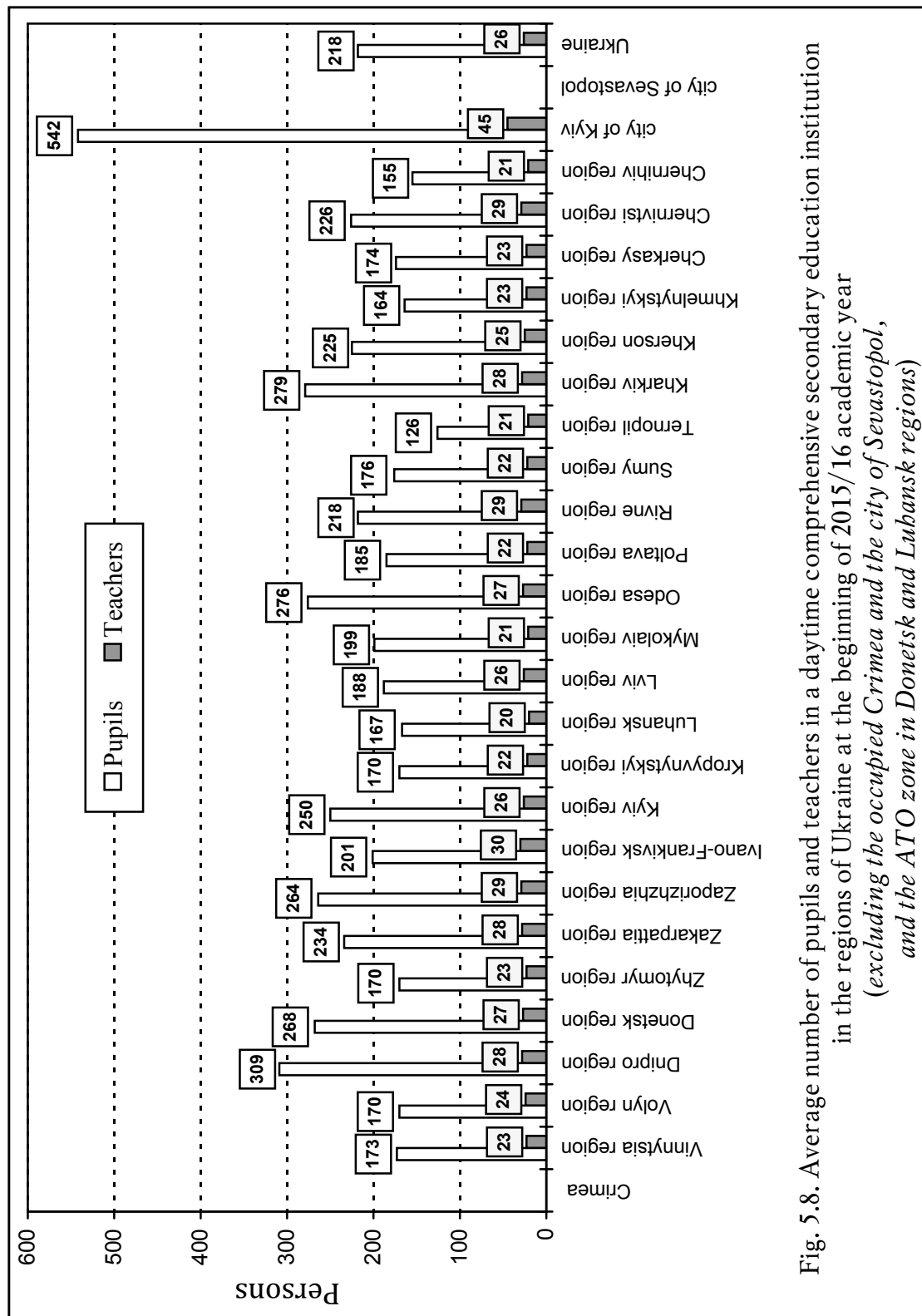


Fig. 5.8. Average number of pupils and teachers in a daytime comprehensive secondary education institution in the regions of Ukraine at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

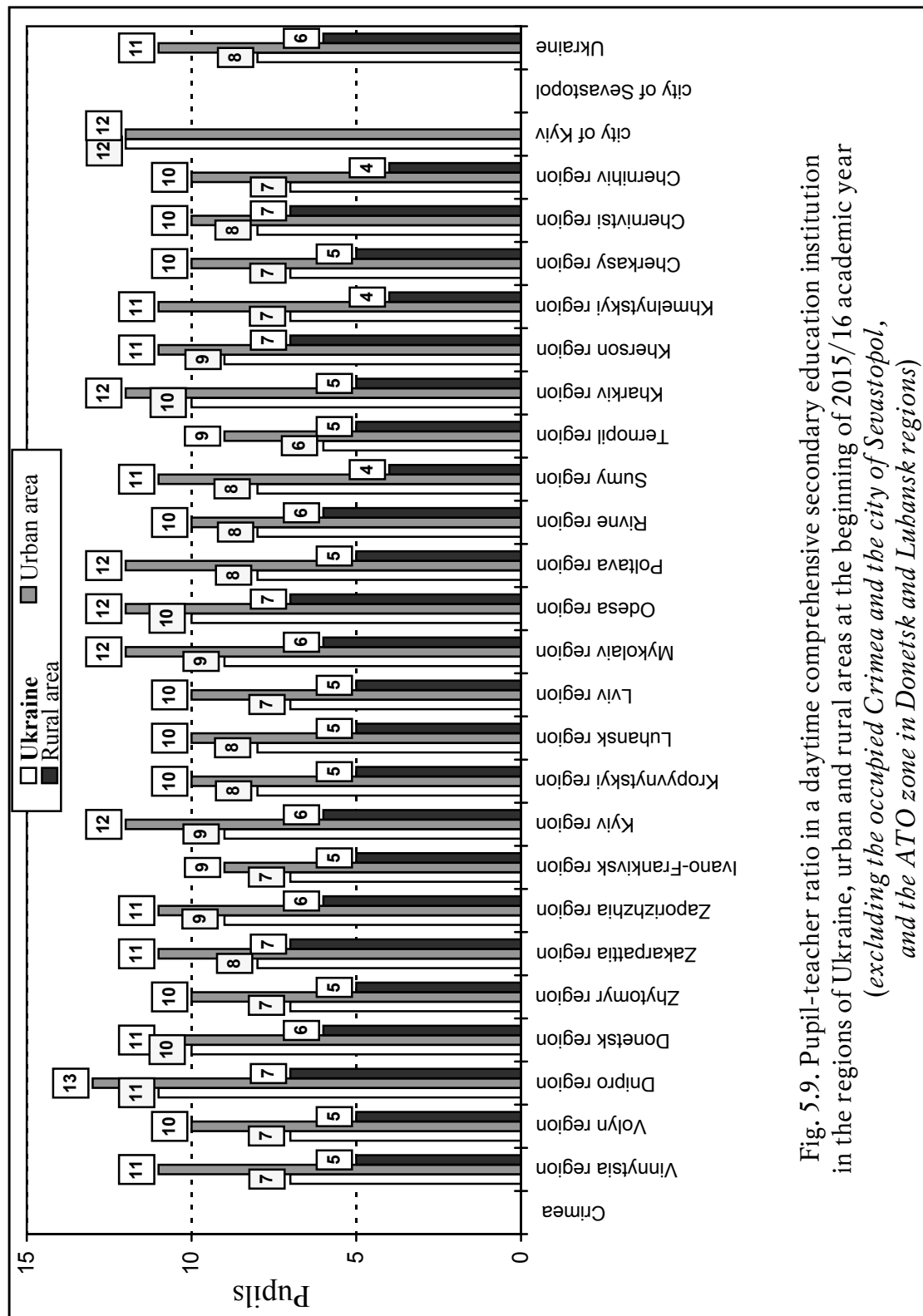


Fig. 5.9. Pupil-teacher ratio in a daytime comprehensive secondary education institution in the regions of Ukraine, urban and rural areas at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

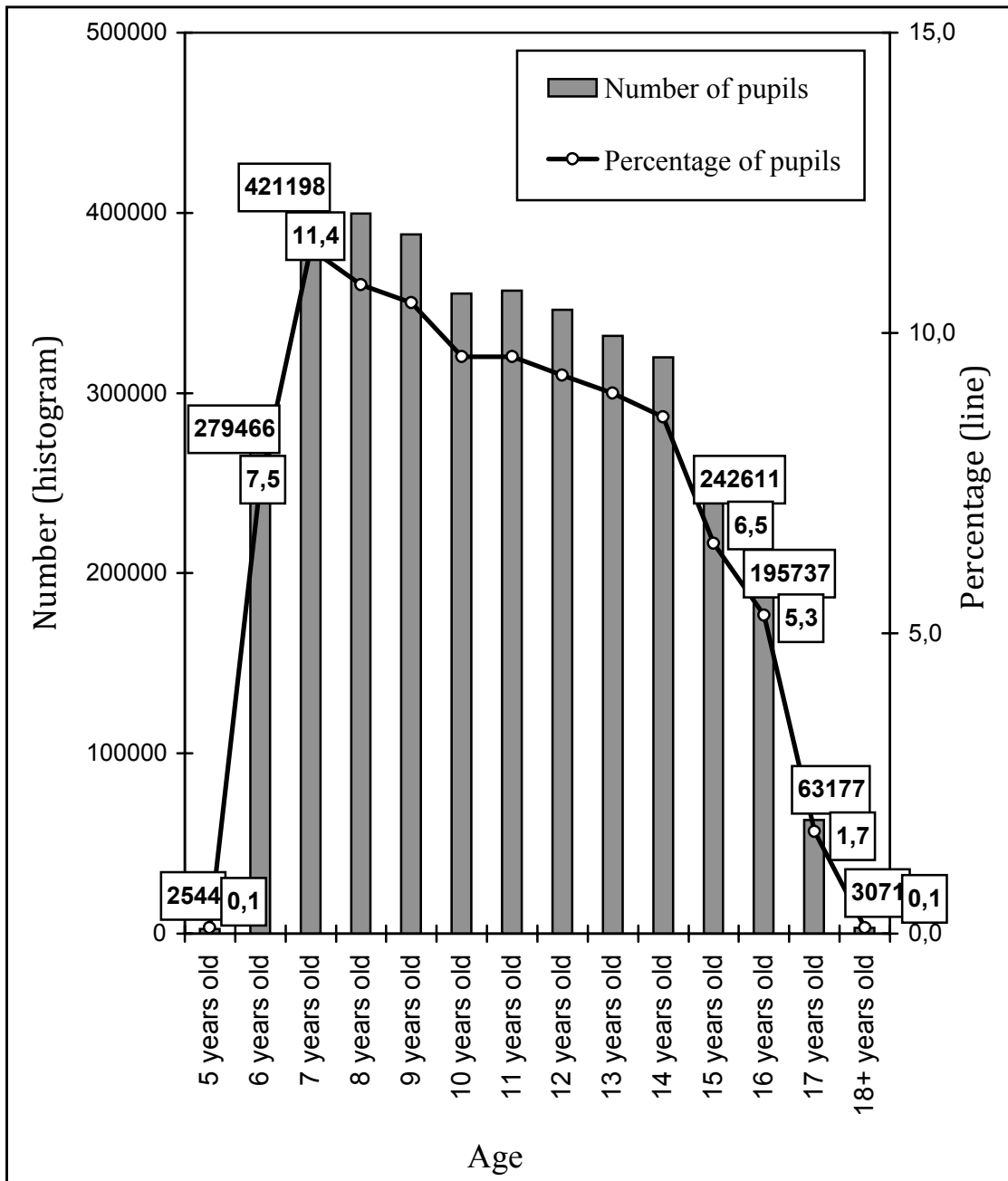


Fig. 5.10. Age structure of pupils (number and percentage) of daytime comprehensive secondary education institutions at the beginning of 2015/16 academic year in Ukraine (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

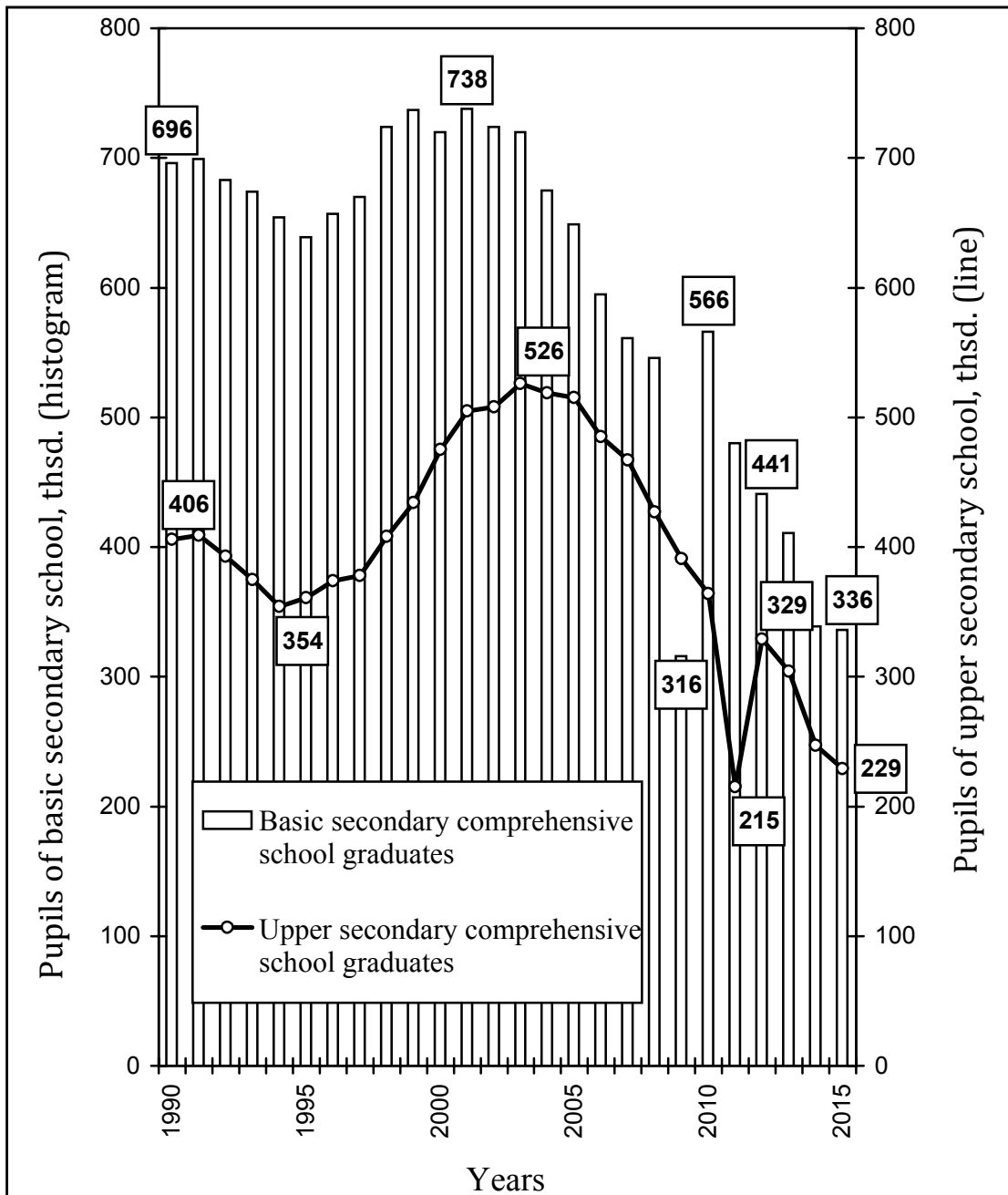


Fig. 5.11. Basic and upper secondary comprehensive school graduates in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

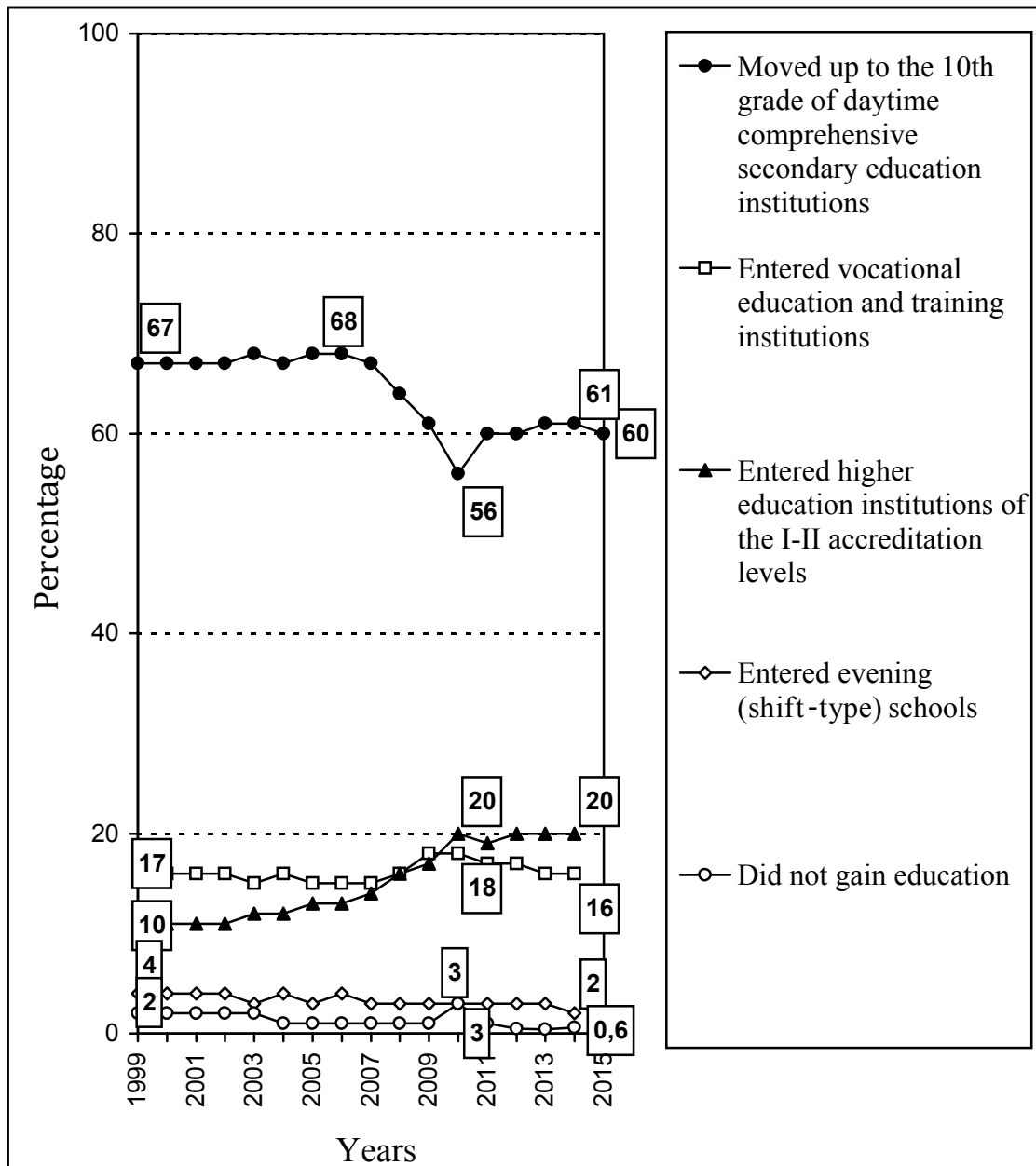
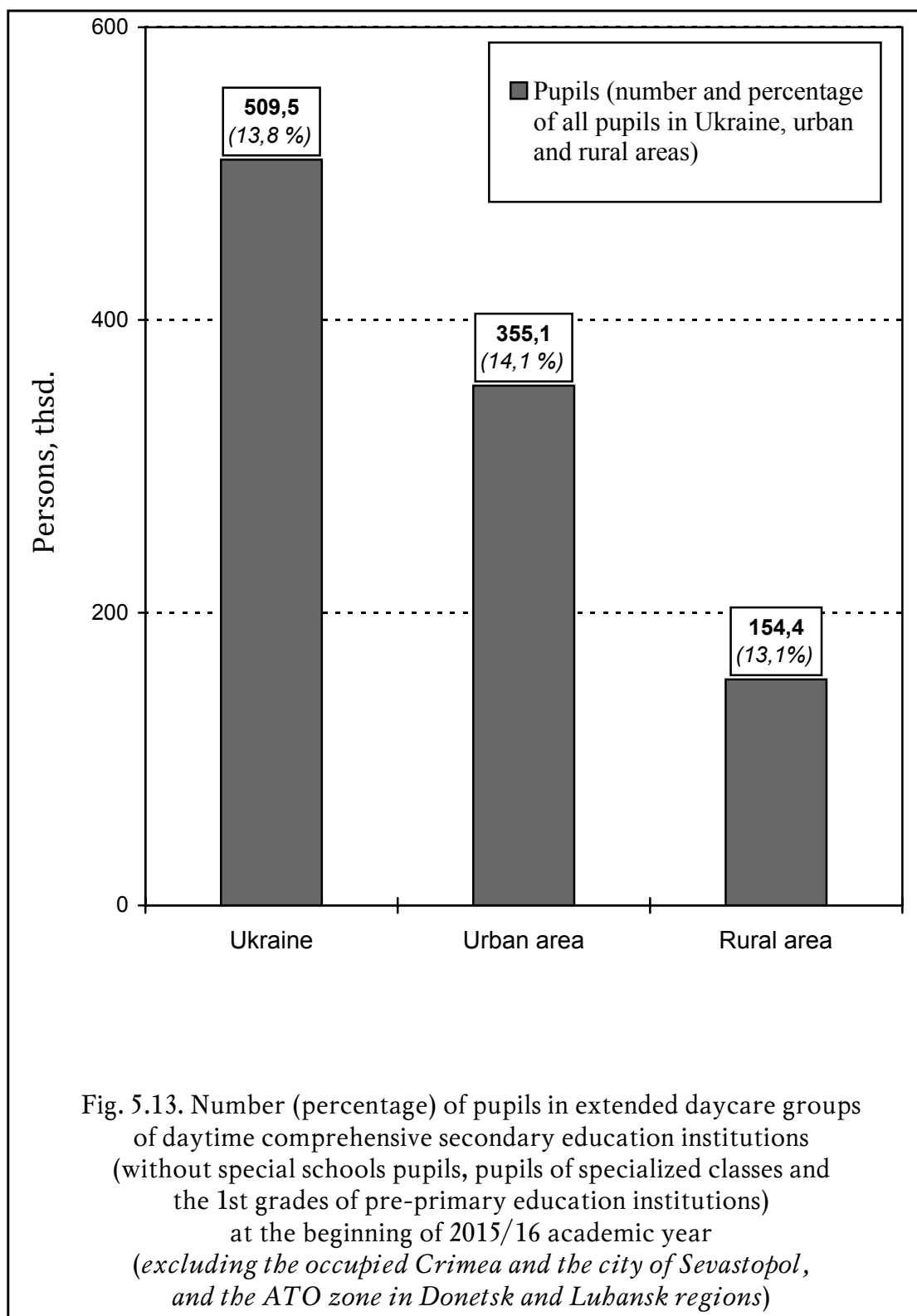


Fig. 5.12. Distribution of the 9th grades graduates of comprehensive secondary education institutions by forms of further education gaining in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)



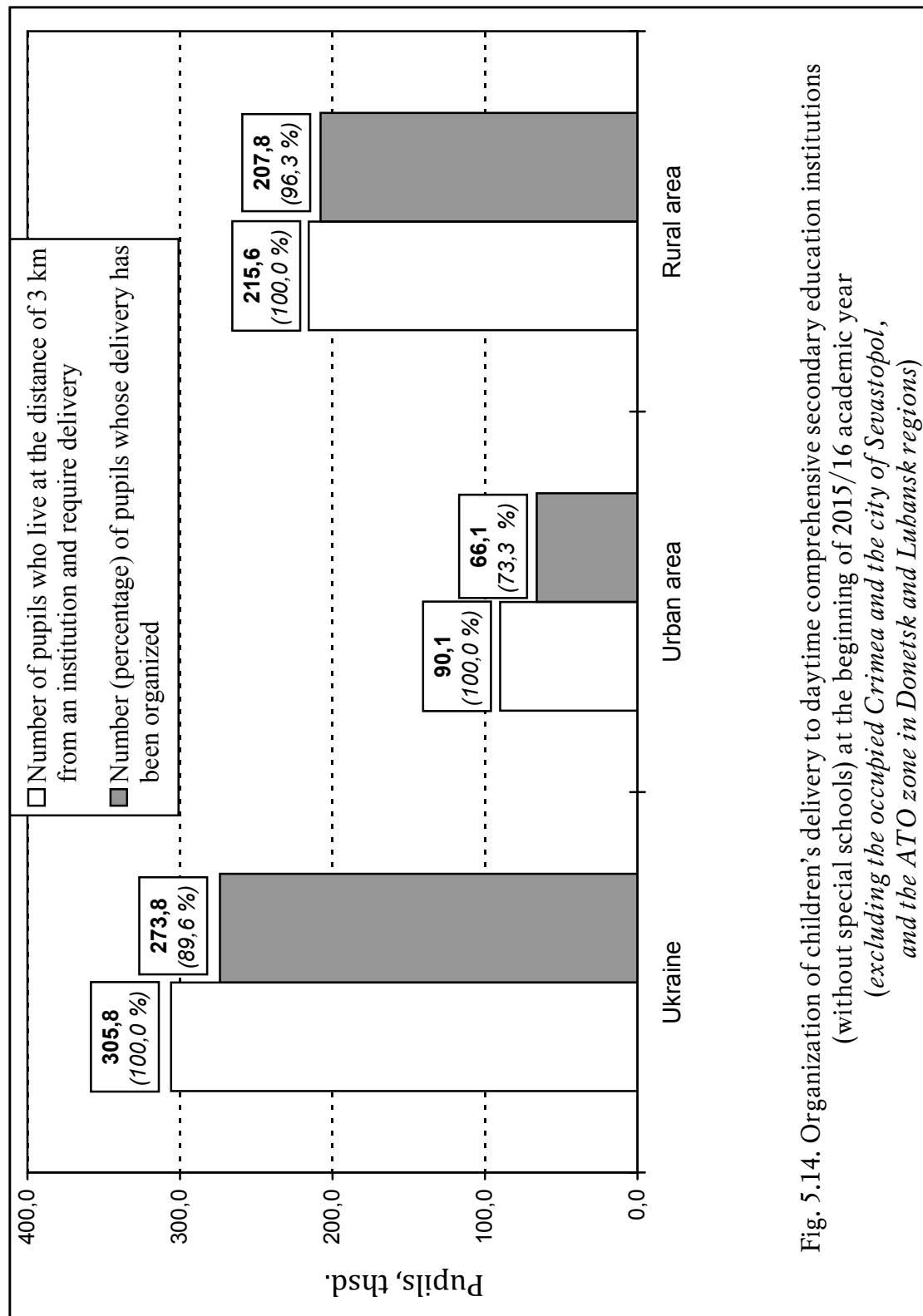


Fig. 5.14. Organization of children's delivery to daytime comprehensive secondary education institutions (without special schools) at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

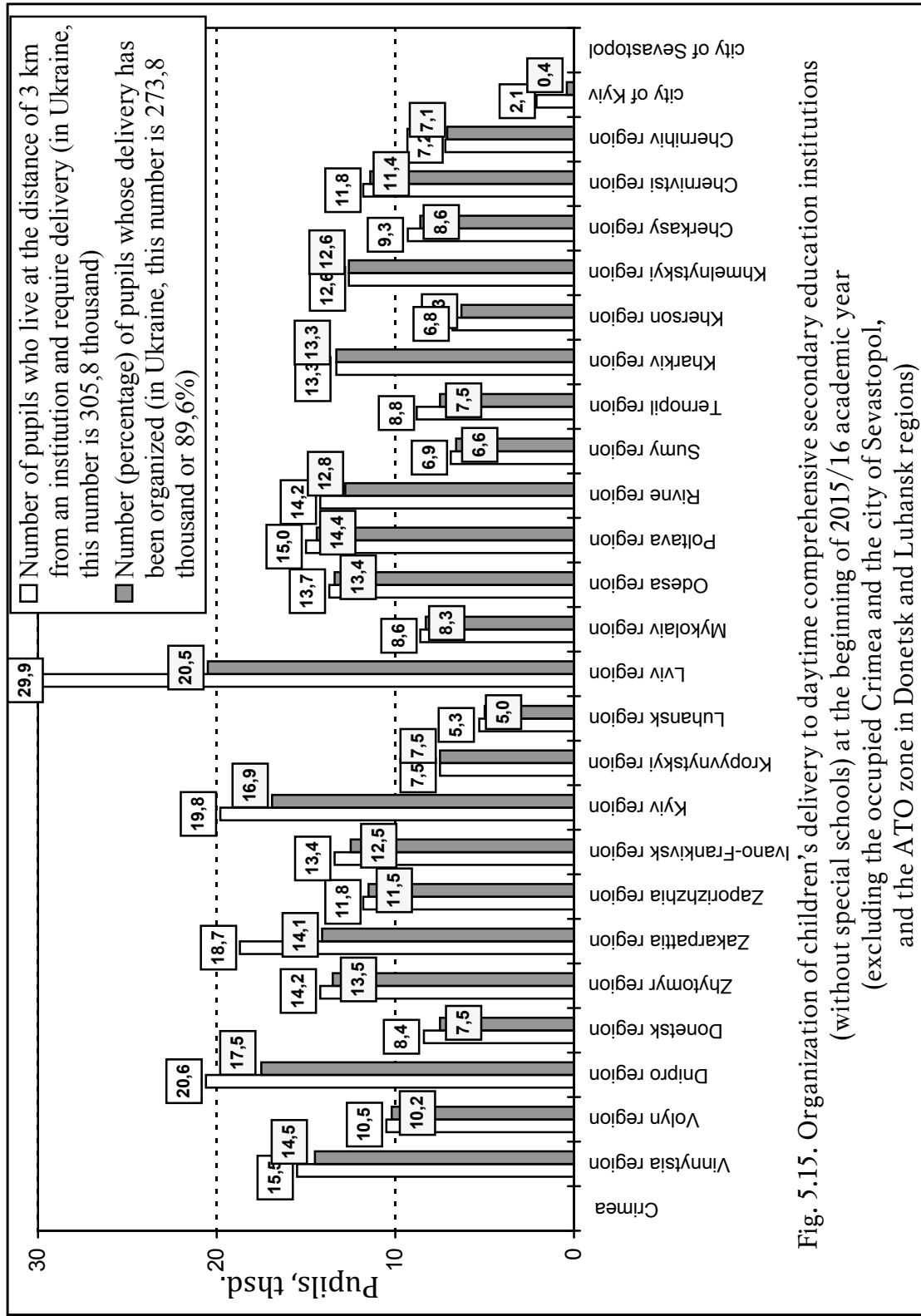


Fig. 5.15. Organization of children's delivery to daytime comprehensive secondary education institutions (without special schools) at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

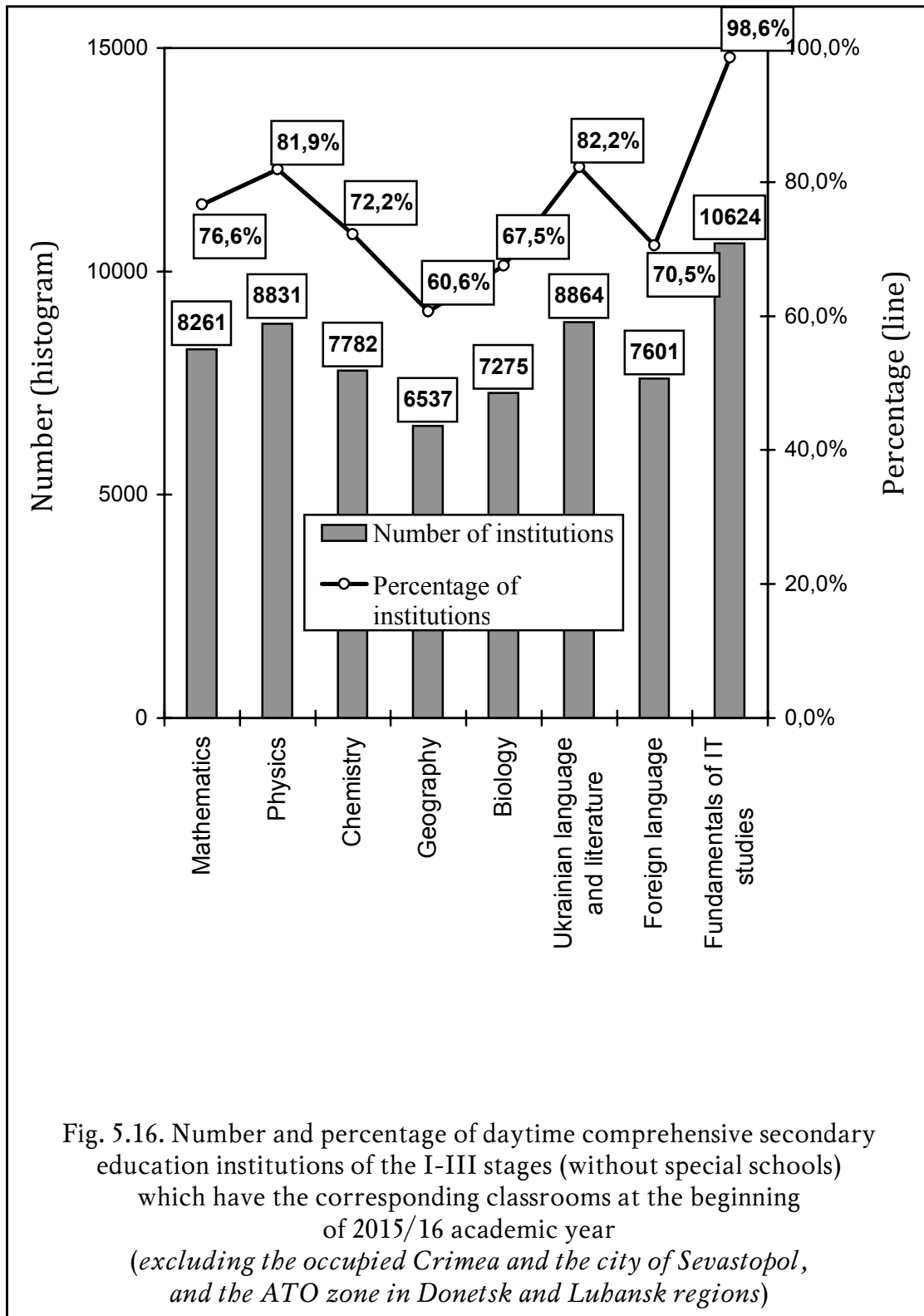


Fig. 5.16. Number and percentage of daytime comprehensive secondary education institutions of the I-III stages (without special schools) which have the corresponding classrooms at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

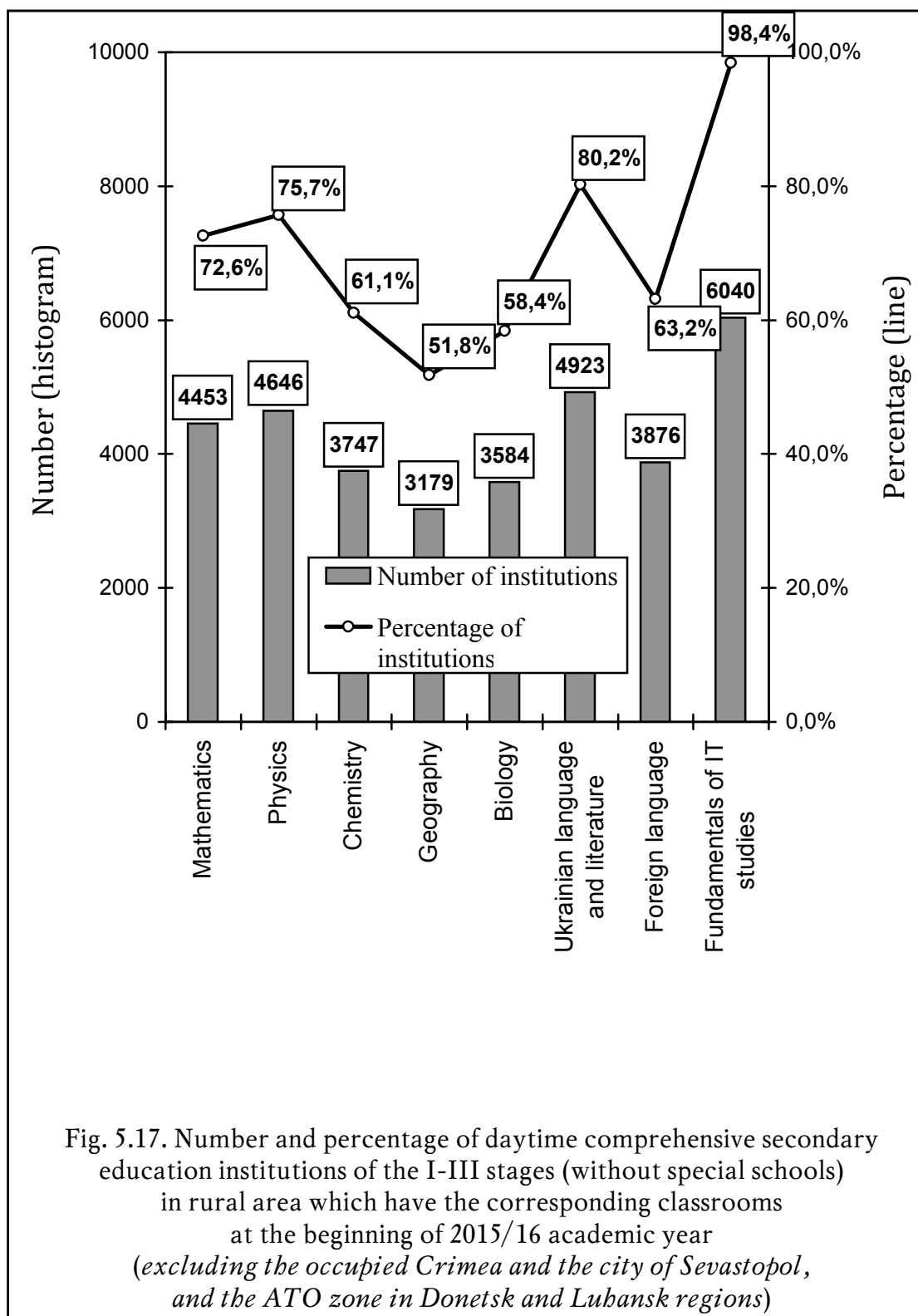


Fig. 5.17. Number and percentage of daytime comprehensive secondary education institutions of the I-III stages (without special schools) in rural area which have the corresponding classrooms at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

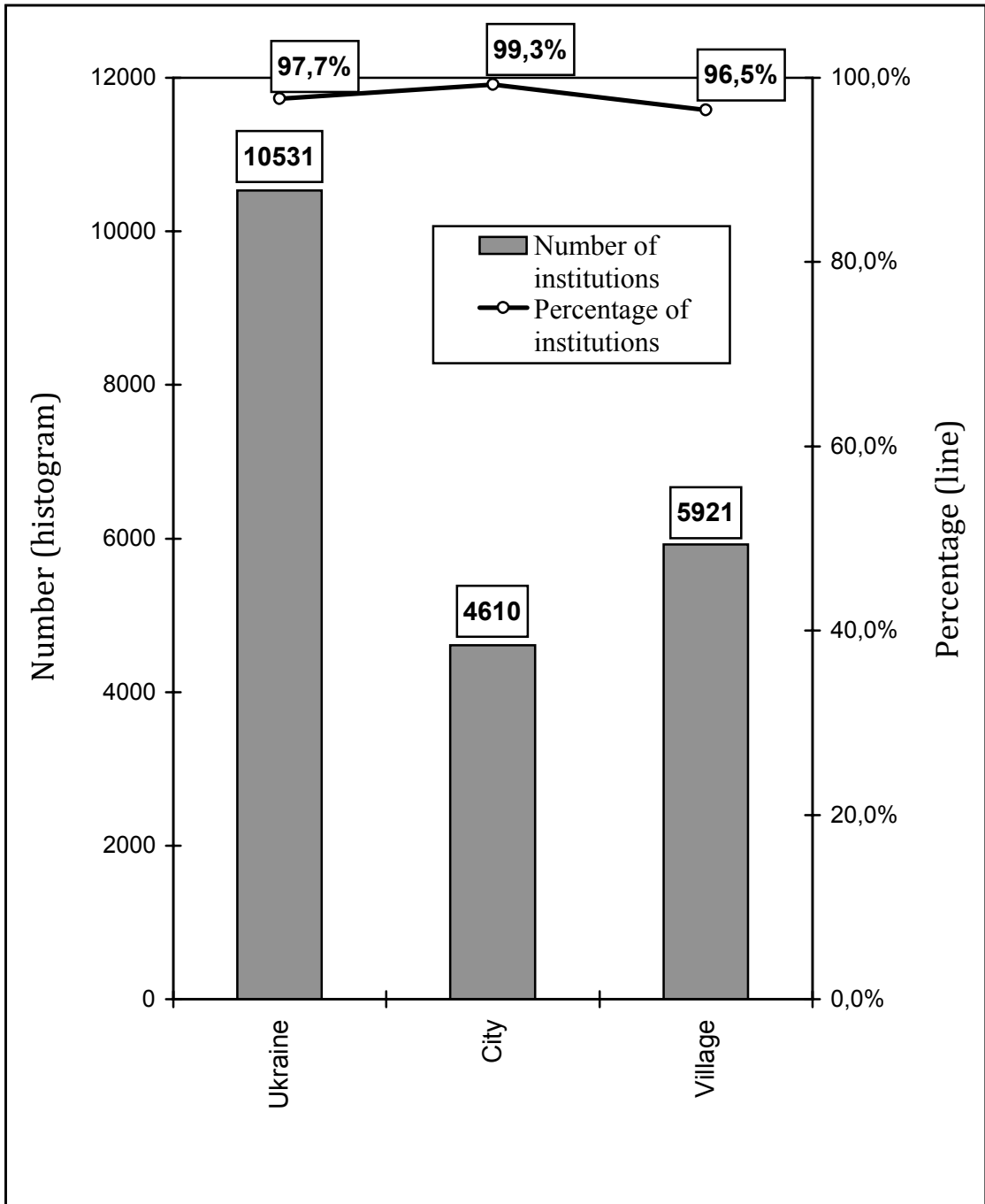


Fig. 5.18. Number and percentage of daytime comprehensive secondary education institutions of the I-III stages (without special schools) which have library funds at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

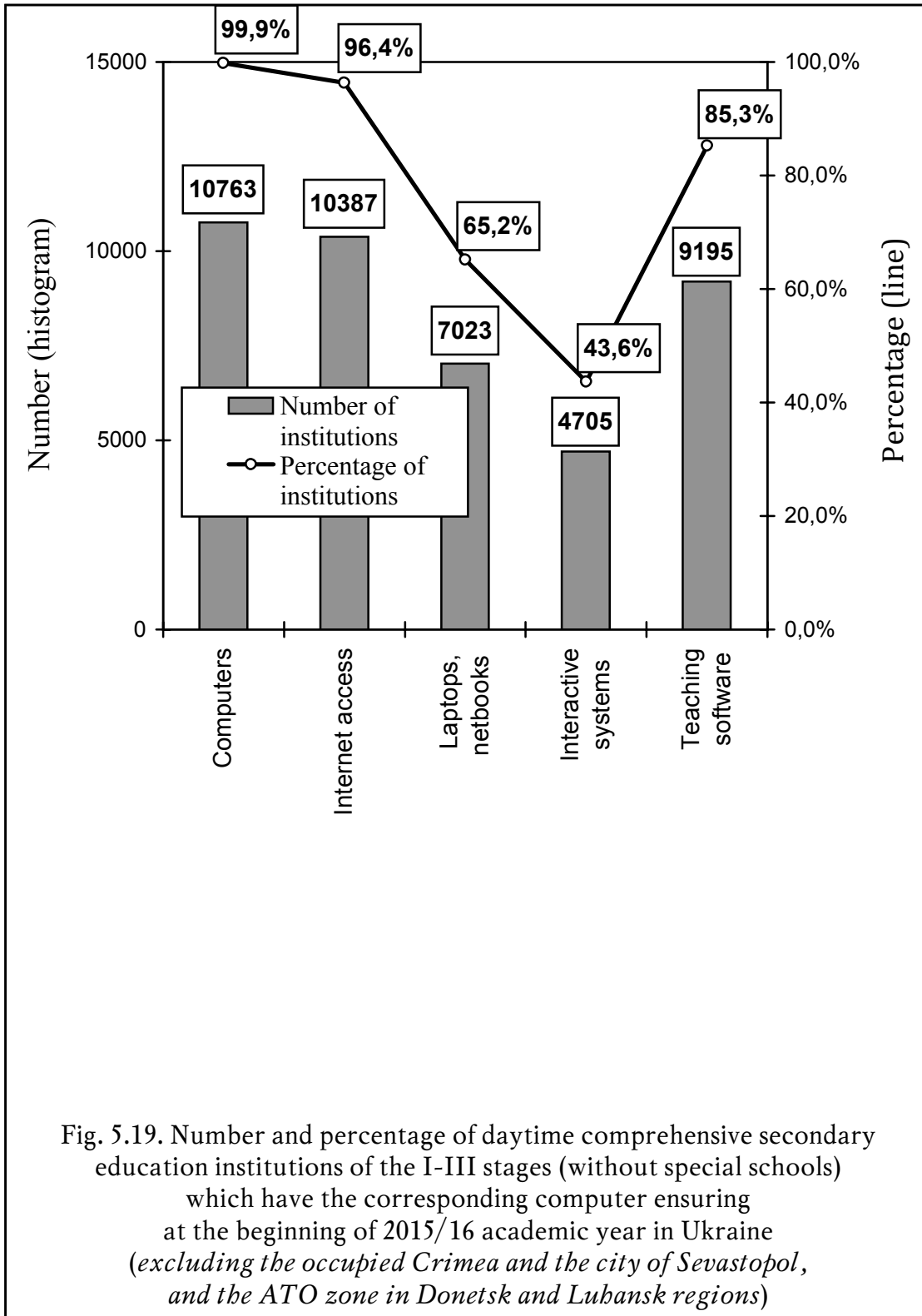
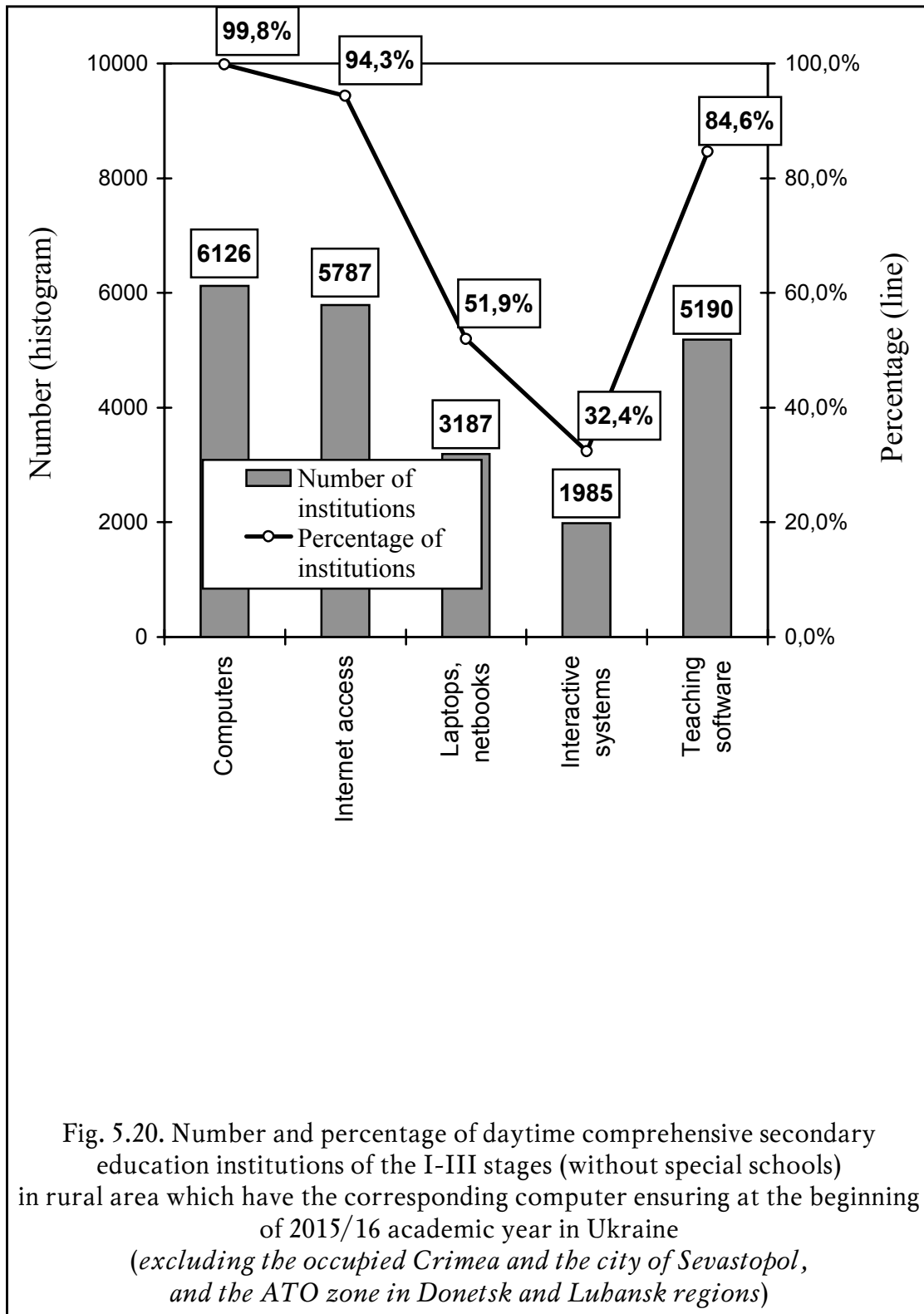


Fig. 5.19. Number and percentage of daytime comprehensive secondary education institutions of the I-III stages (without special schools) which have the corresponding computer ensuring at the beginning of 2015/16 academic year in Ukraine (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)



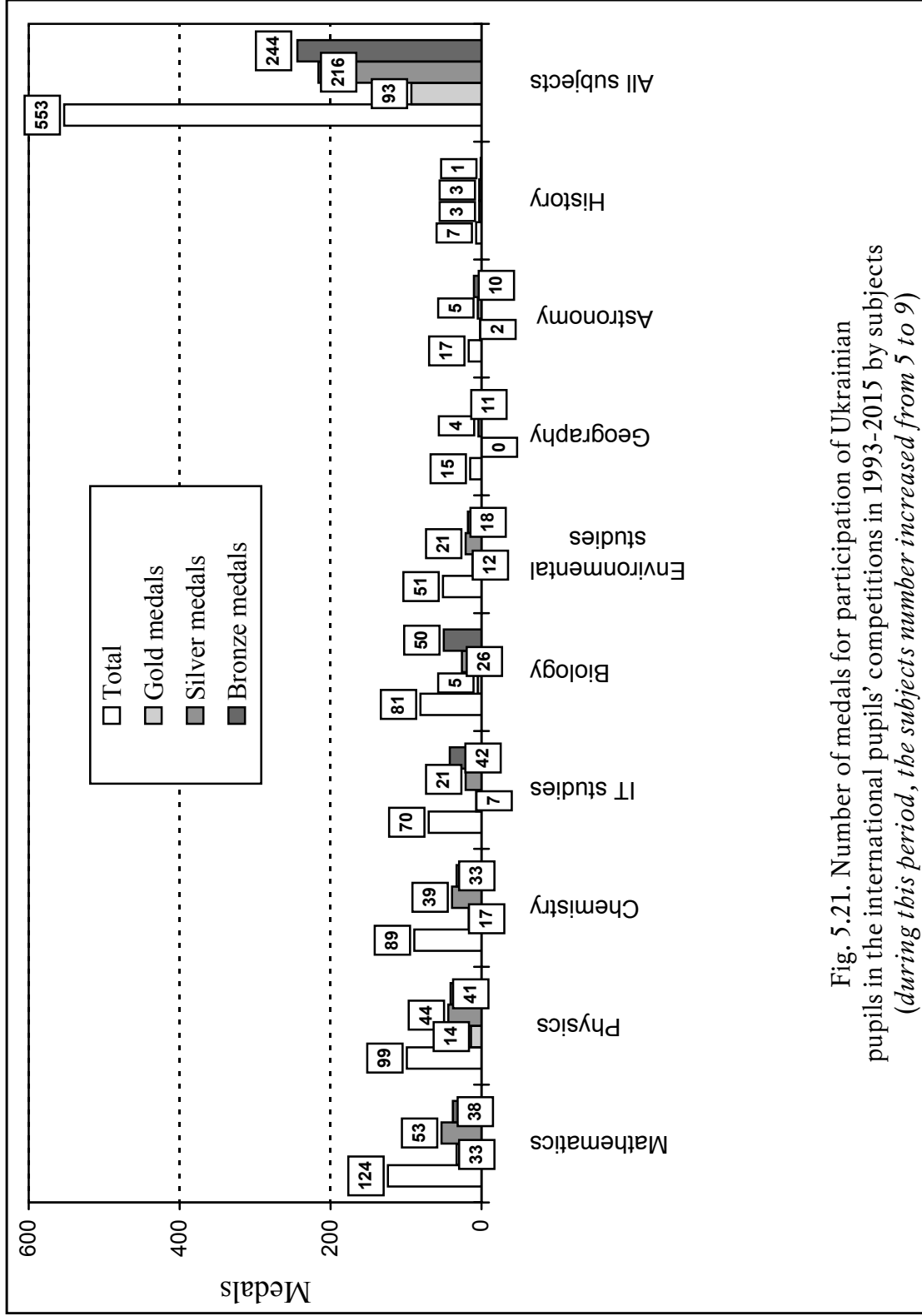


Fig. 5.21. Number of medals for participation of Ukrainian pupils in the international pupils' competitions in 1993-2015 by subjects (during this period, the subjects number increased from 5 to 9)

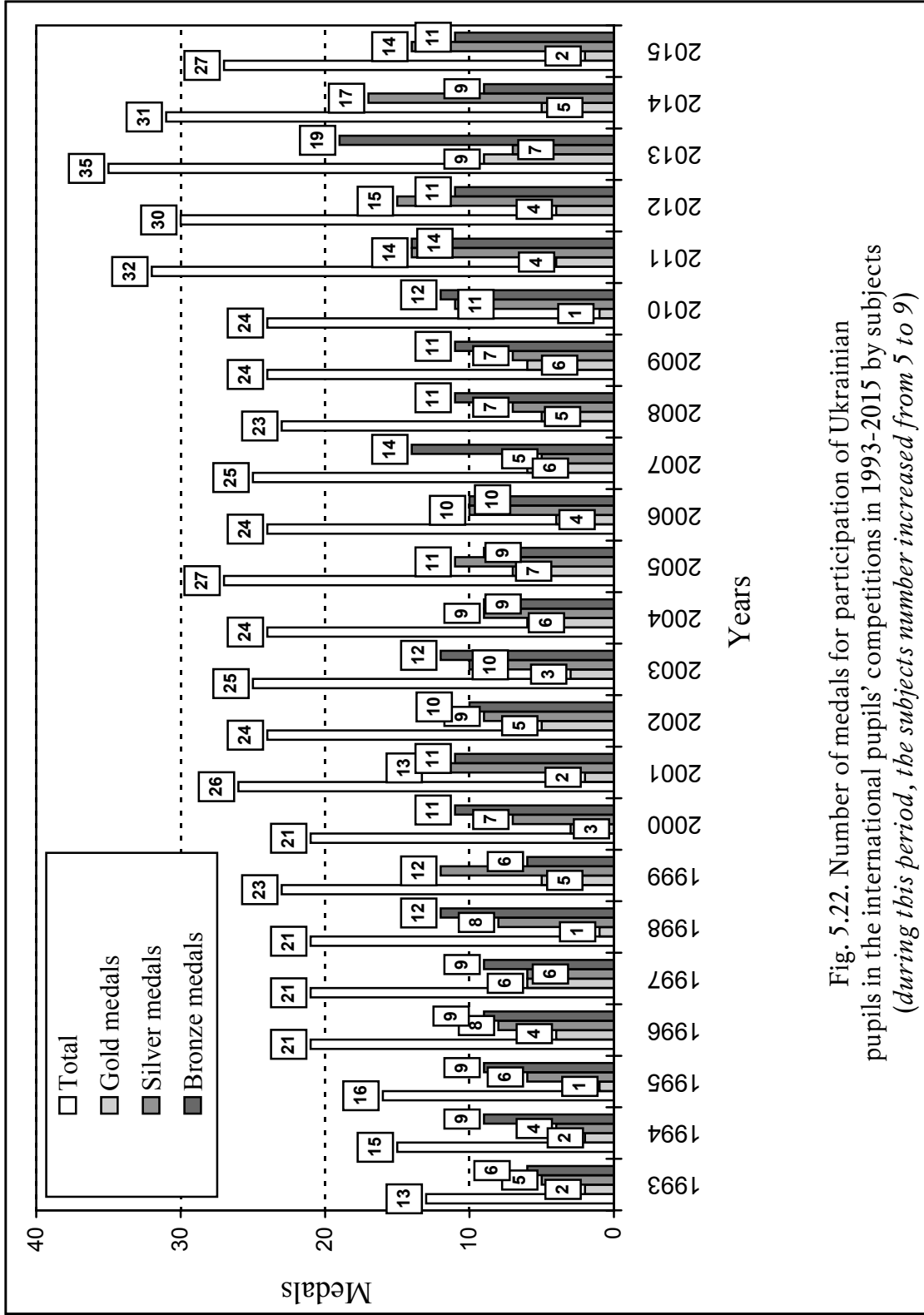


Fig. 5.22. Number of medals for participation of Ukrainian pupils in the international pupils' competitions in 1993-2015 by subjects (during this period, the subjects number increased from 5 to 9)

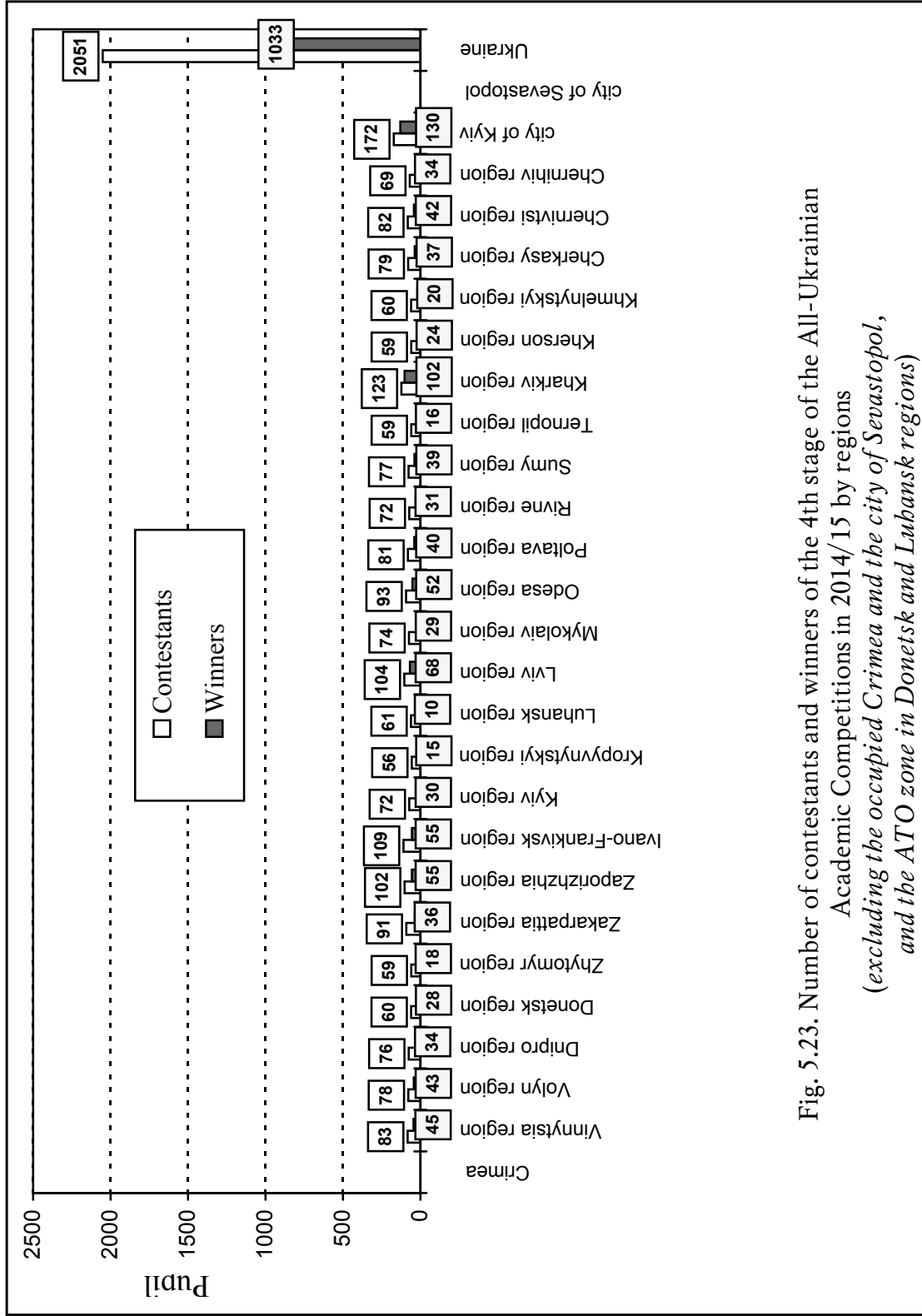


Fig. 5.23. Number of contestants and winners of the 4th stage of the All-Ukrainian Academic Competitions in 2014/15 by regions (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

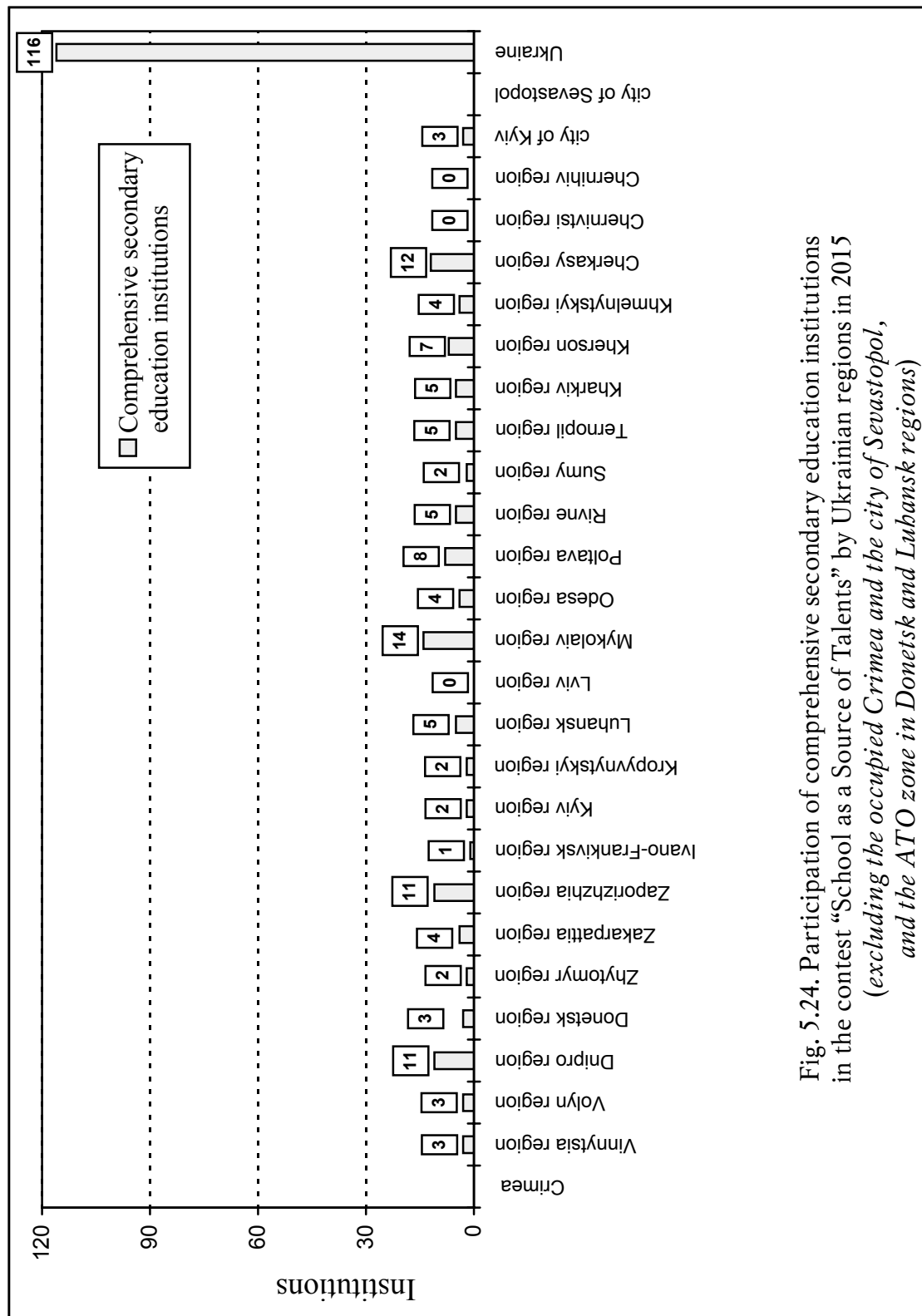


Fig. 5.24. Participation of comprehensive secondary education institutions in the contest “School as a Source of Talents” by Ukrainian regions in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

6. SPECIAL EDUCATION

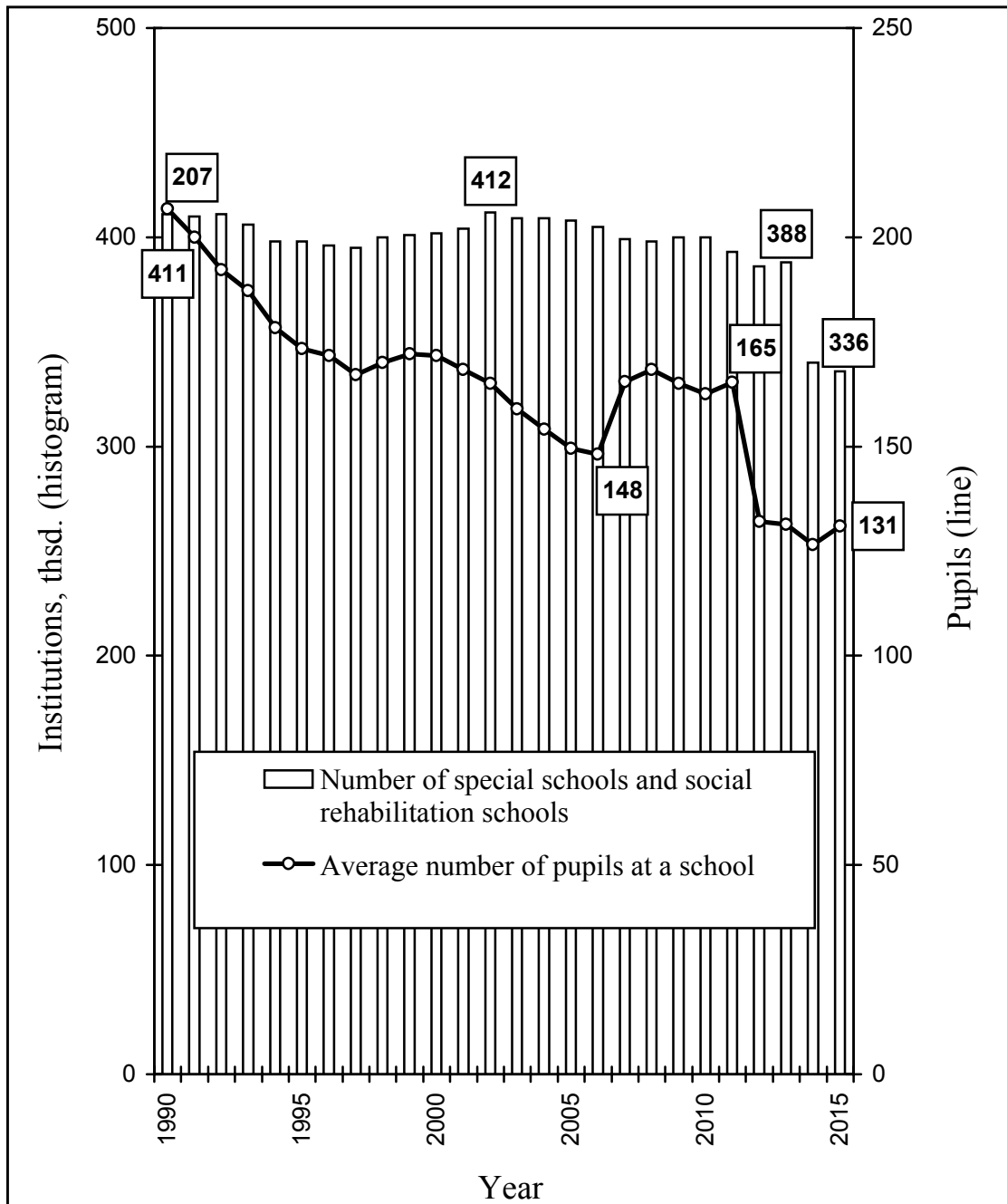


Figure 6.1. Network of special schools and social rehabilitation schools in Ukraine and the respective pupils numbers (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

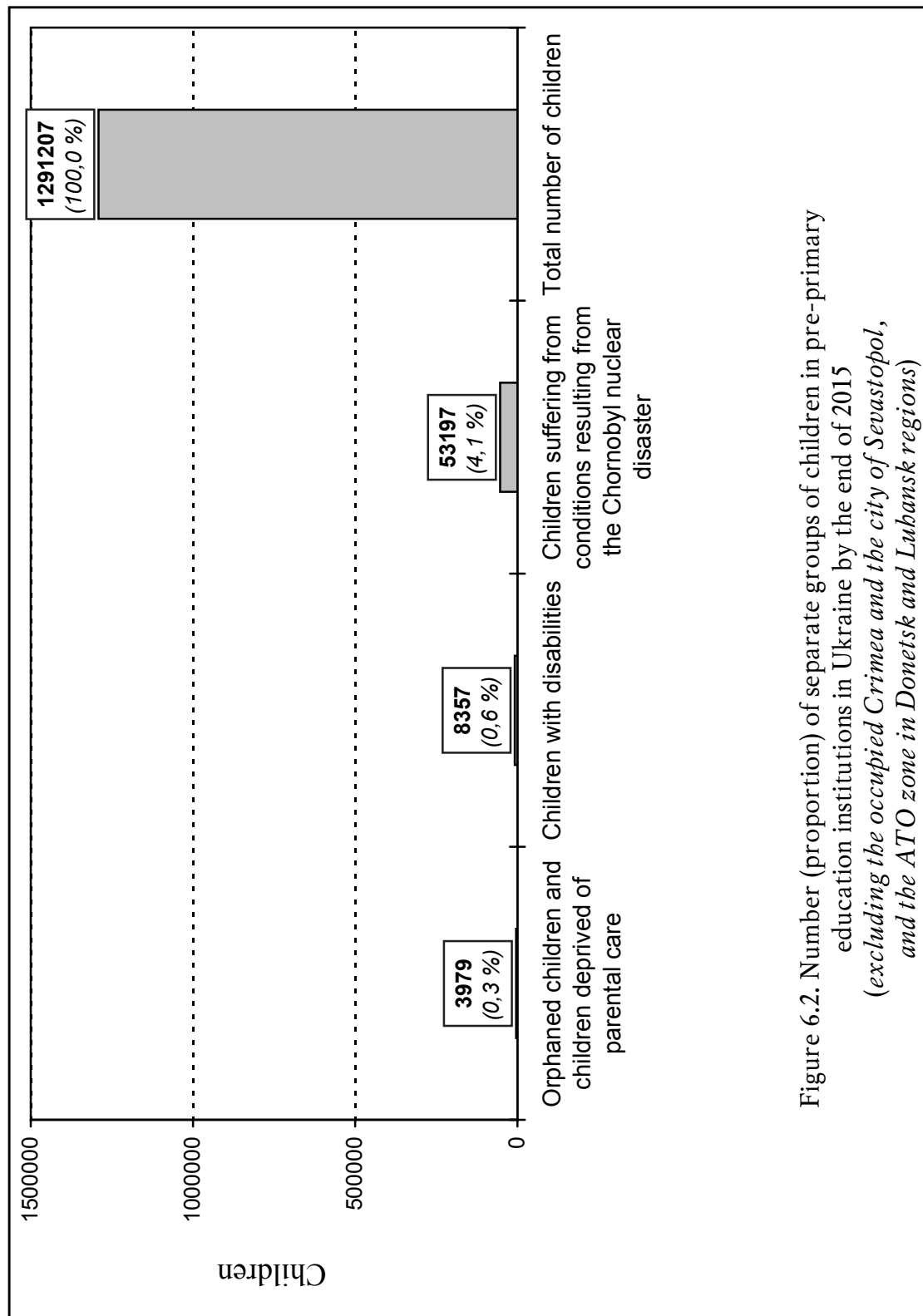


Figure 6.2. Number (proportion) of separate groups of children in pre-primary education institutions in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

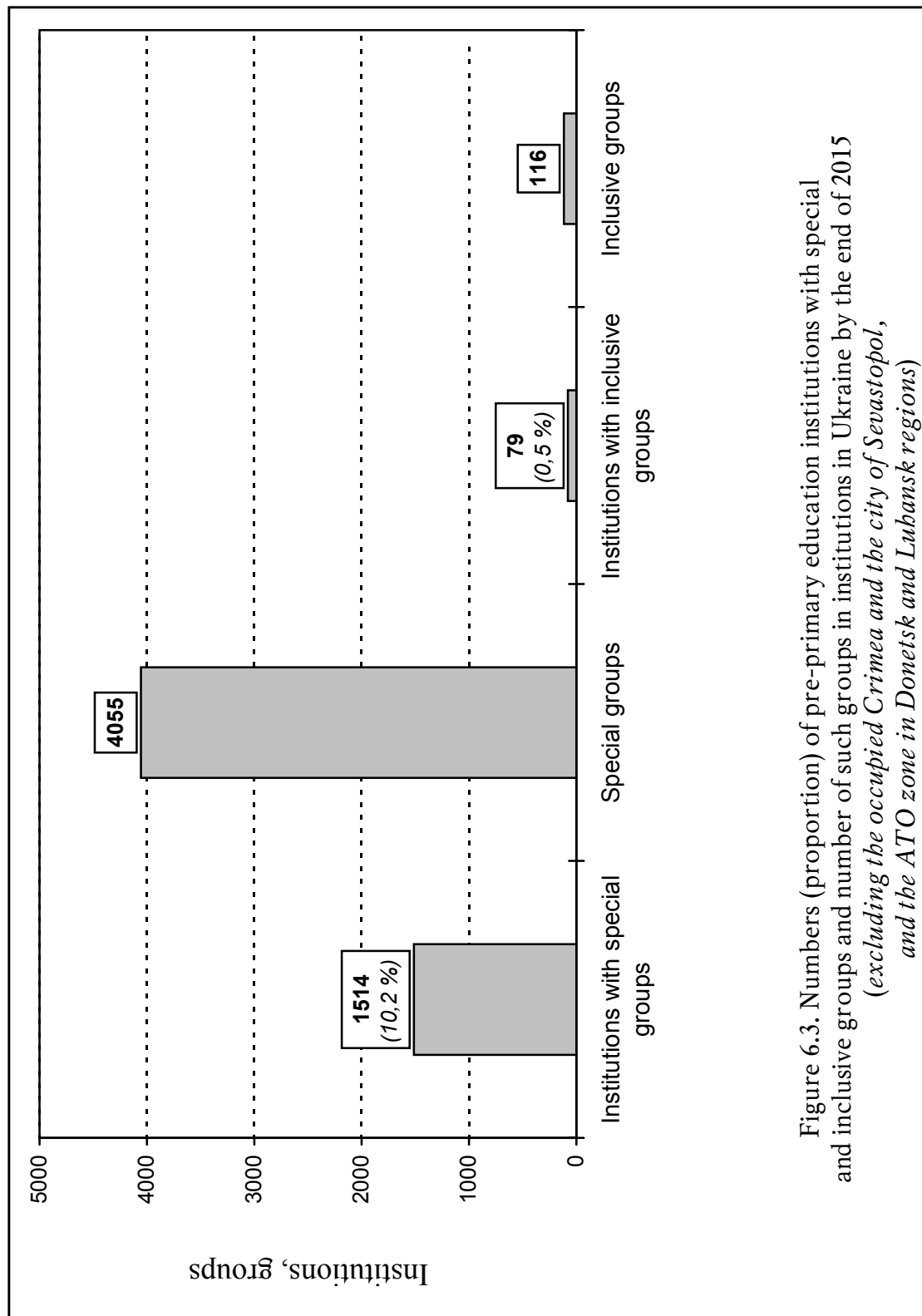


Figure 6.3. Numbers (proportion) of pre-primary education institutions with special and inclusive groups and number of such groups in institutions in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

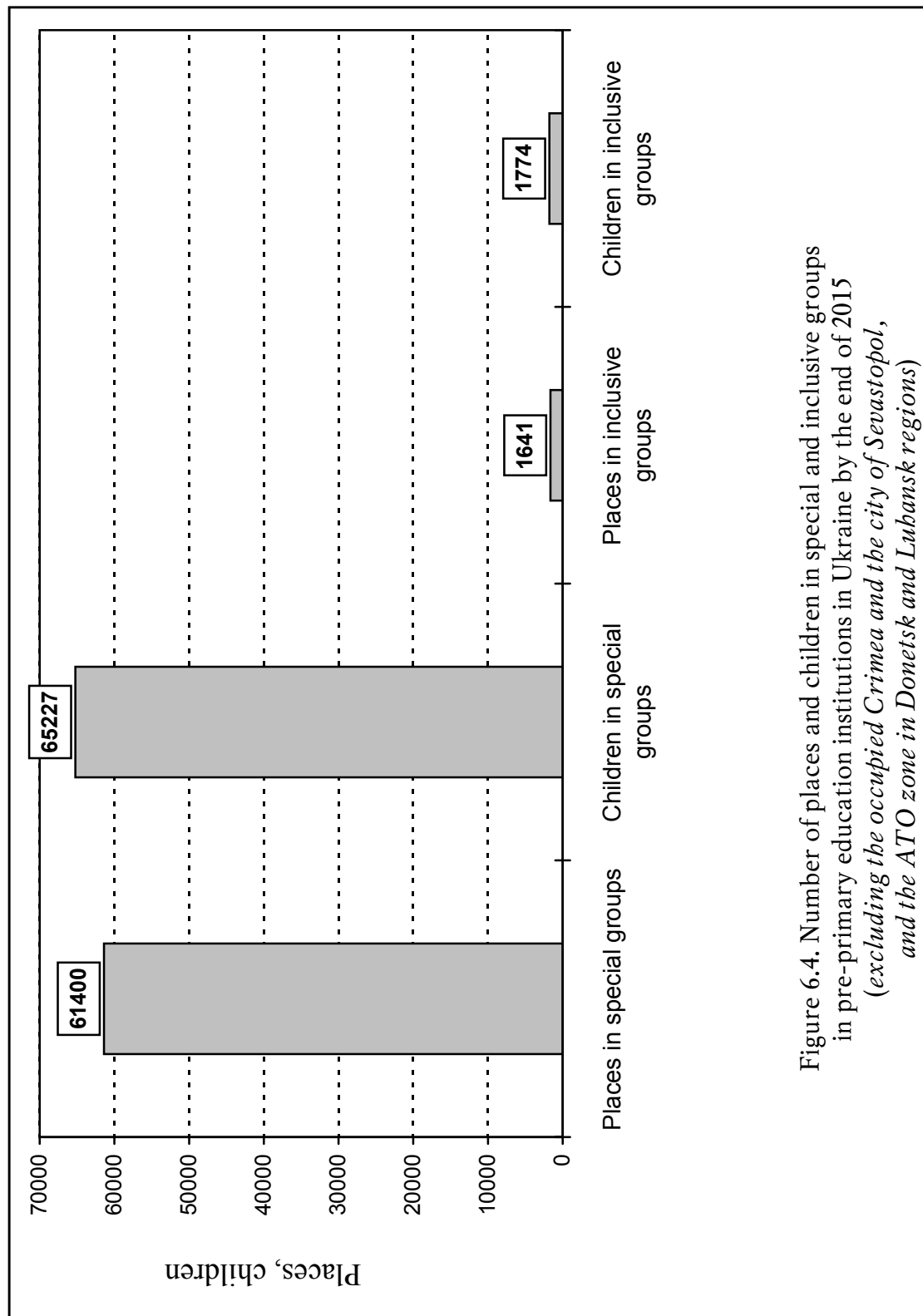


Figure 6.4. Number of places and children in special and inclusive groups in pre-primary education institutions in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

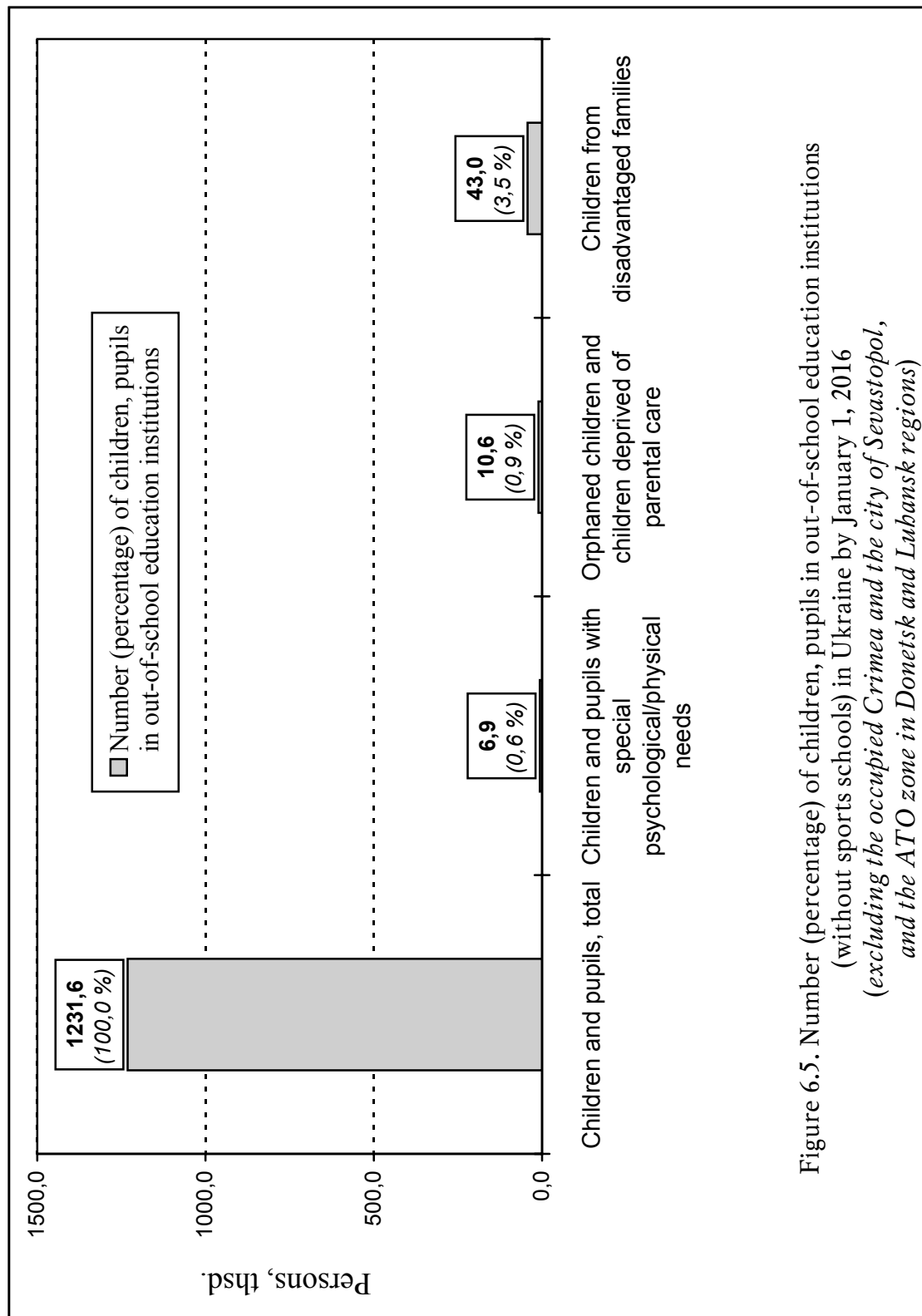


Figure 6.5. Number (percentage) of children, pupils in out-of-school education institutions (without sports schools) in Ukraine by January 1, 2016 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

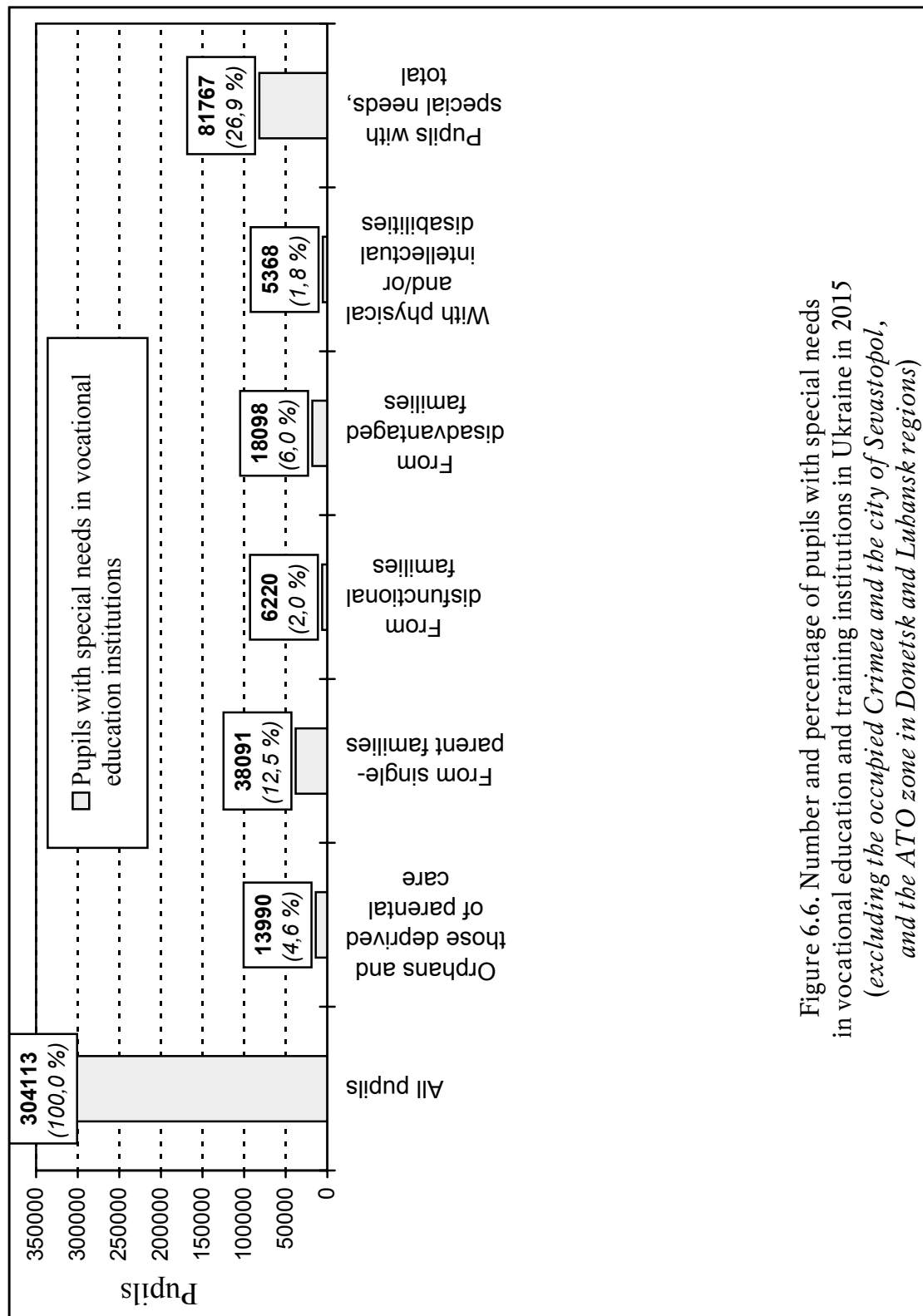


Figure 6.6. Number and percentage of pupils with special needs in vocational education and training institutions in Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

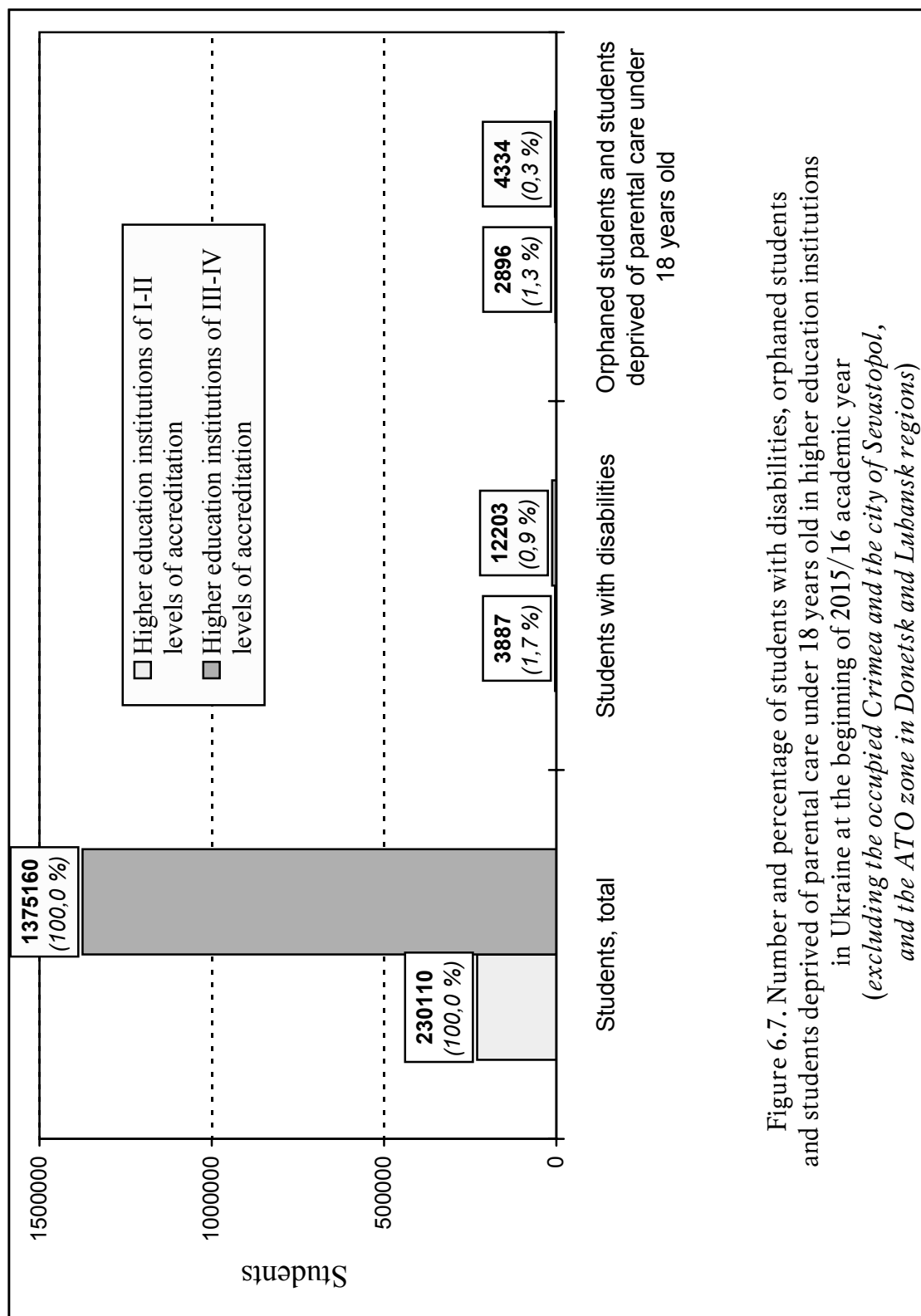


Figure 6.7. Number and percentage of students with disabilities, orphaned students and students deprived of parental care under 18 years old in higher education institutions in Ukraine at the beginning of 2015/16 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

7. OUT-OF-SCHOOL EDUCATION

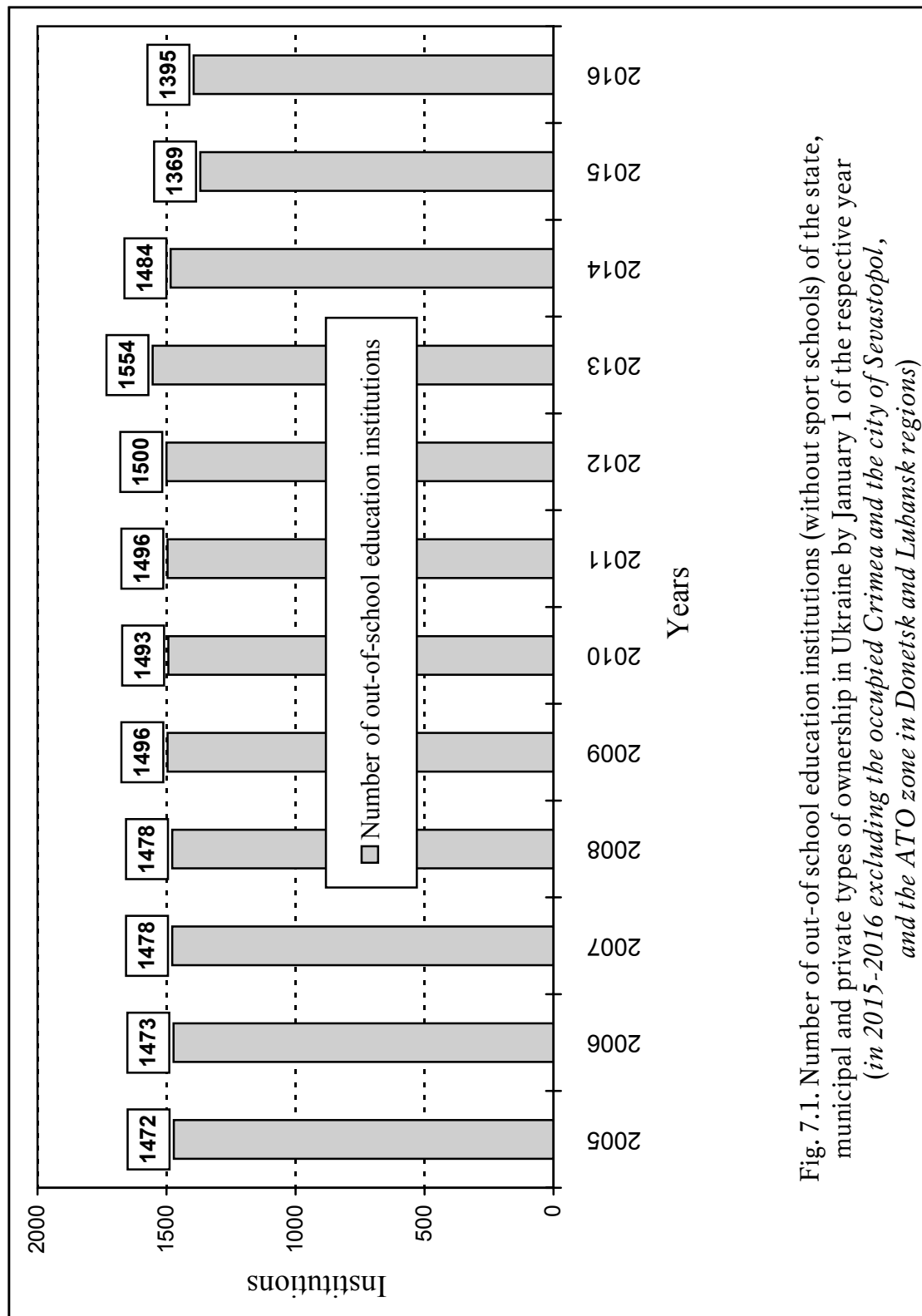


Fig. 7.1. Number of out-of-school education institutions (without sport schools) of the state, municipal and private types of ownership in Ukraine by January 1 of the respective year (in 2015-2016 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

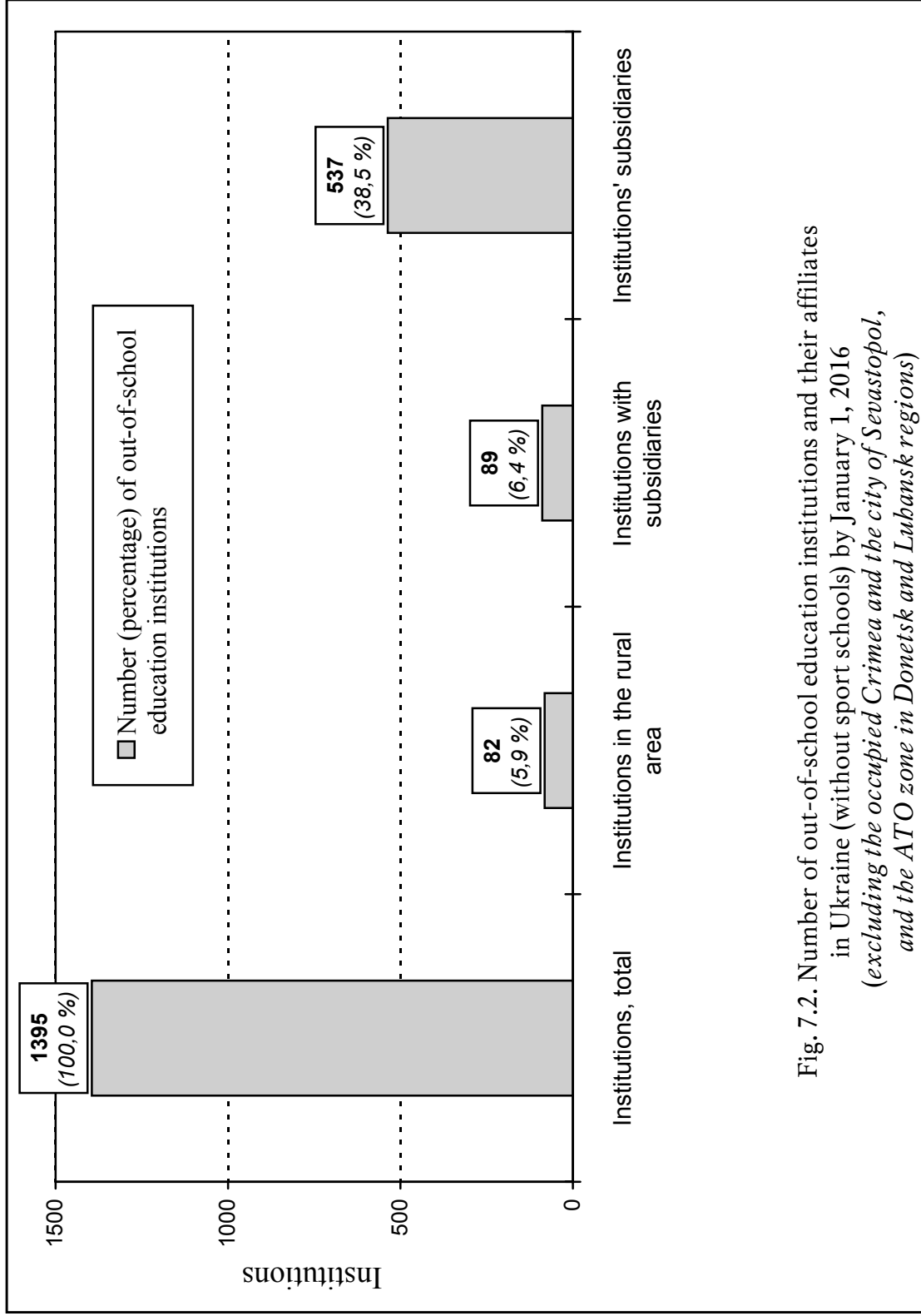


Fig. 7.2. Number of out-of-school education institutions and their affiliates in Ukraine (without sport schools) by January 1, 2016 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

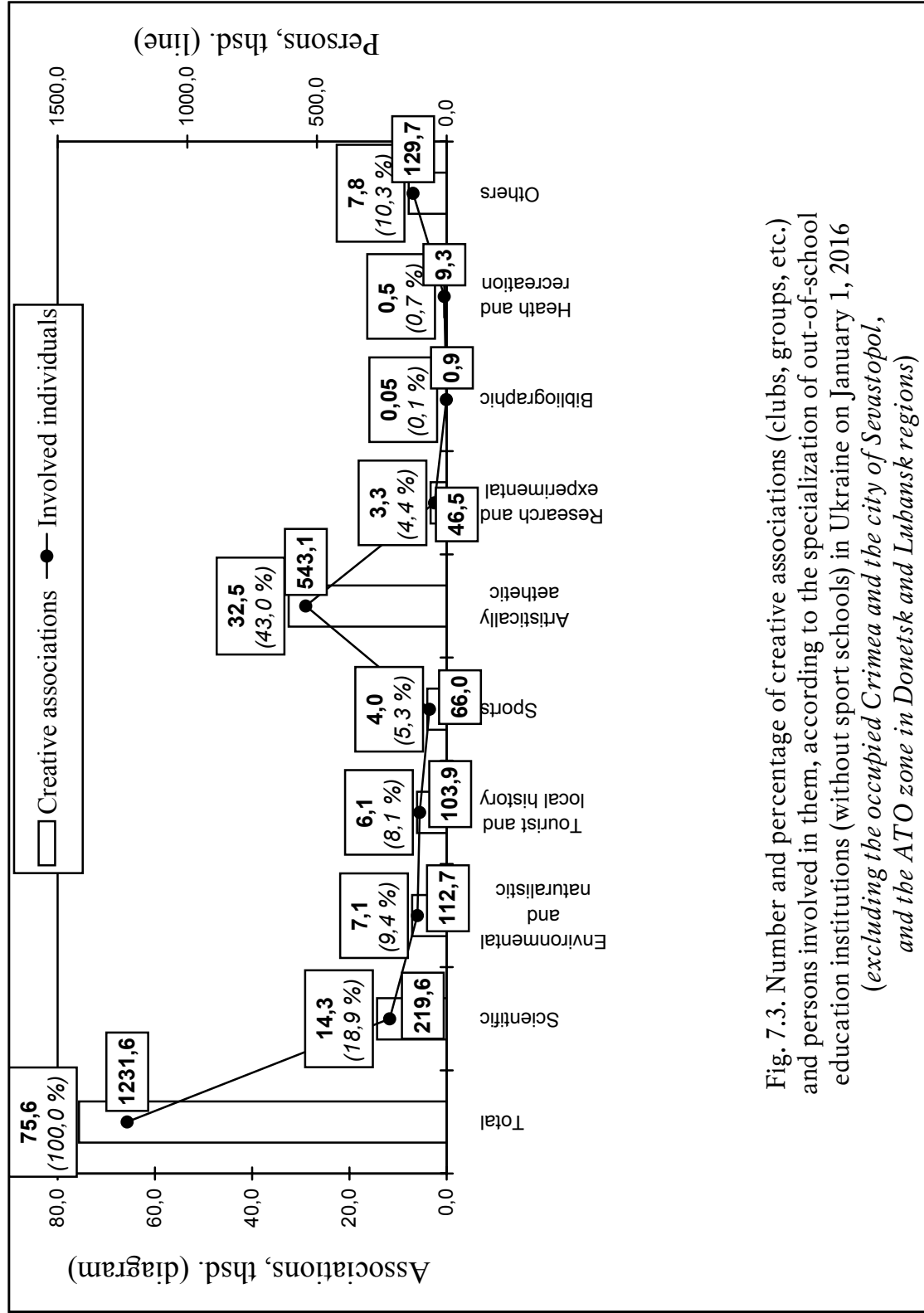


Fig. 7.3. Number and percentage of creative associations (clubs, groups, etc.) and persons involved in them, according to the specialization of out-of-school education institutions (without sport schools) in Ukraine on January 1, 2016 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

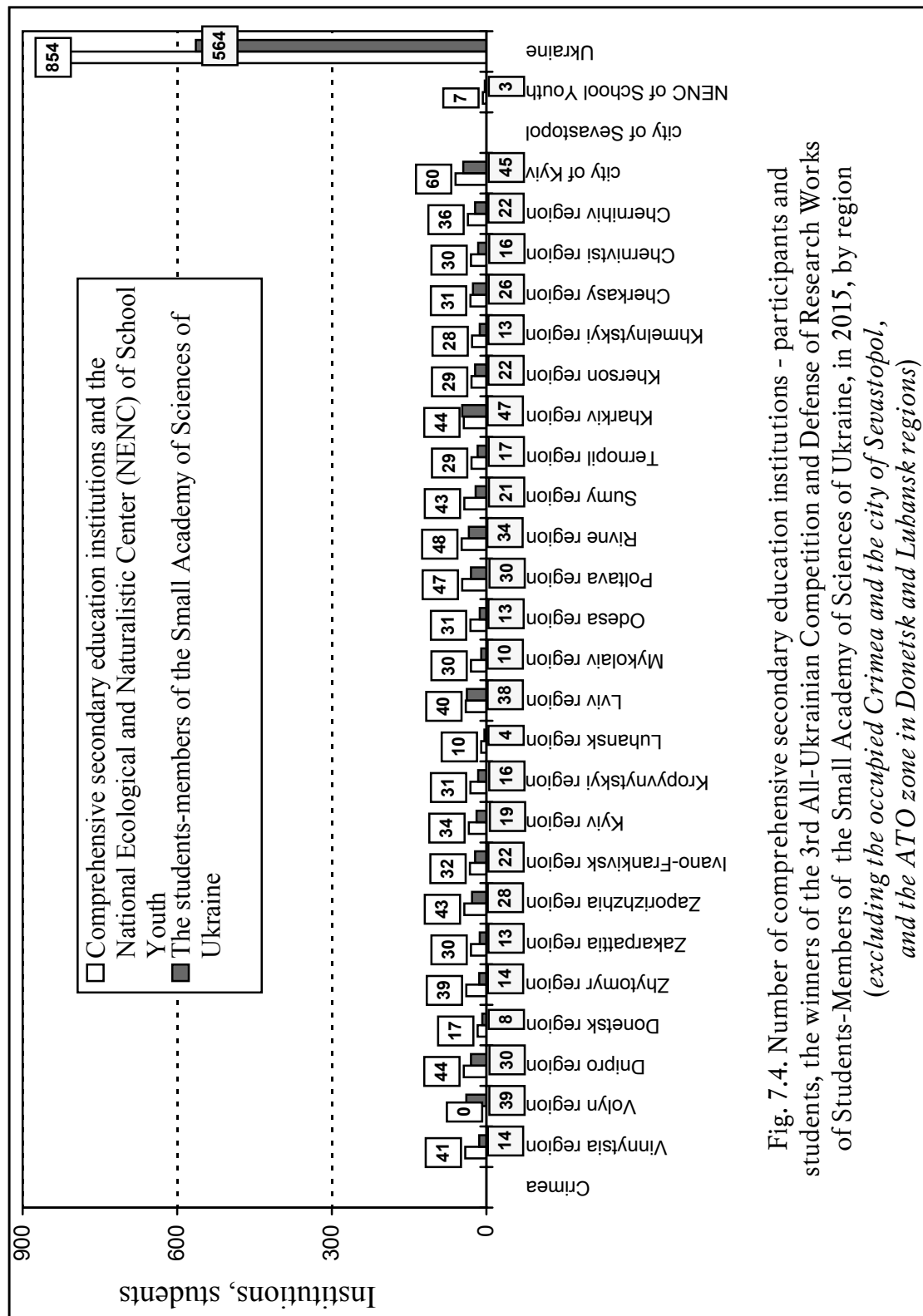


Fig. 7.4. Number of comprehensive secondary education institutions - participants and students, the winners of the 3rd All-Ukrainian Competition and Defense of Research Works of Students-Members of the Small Academy of Sciences of Ukraine, in 2015, by region (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

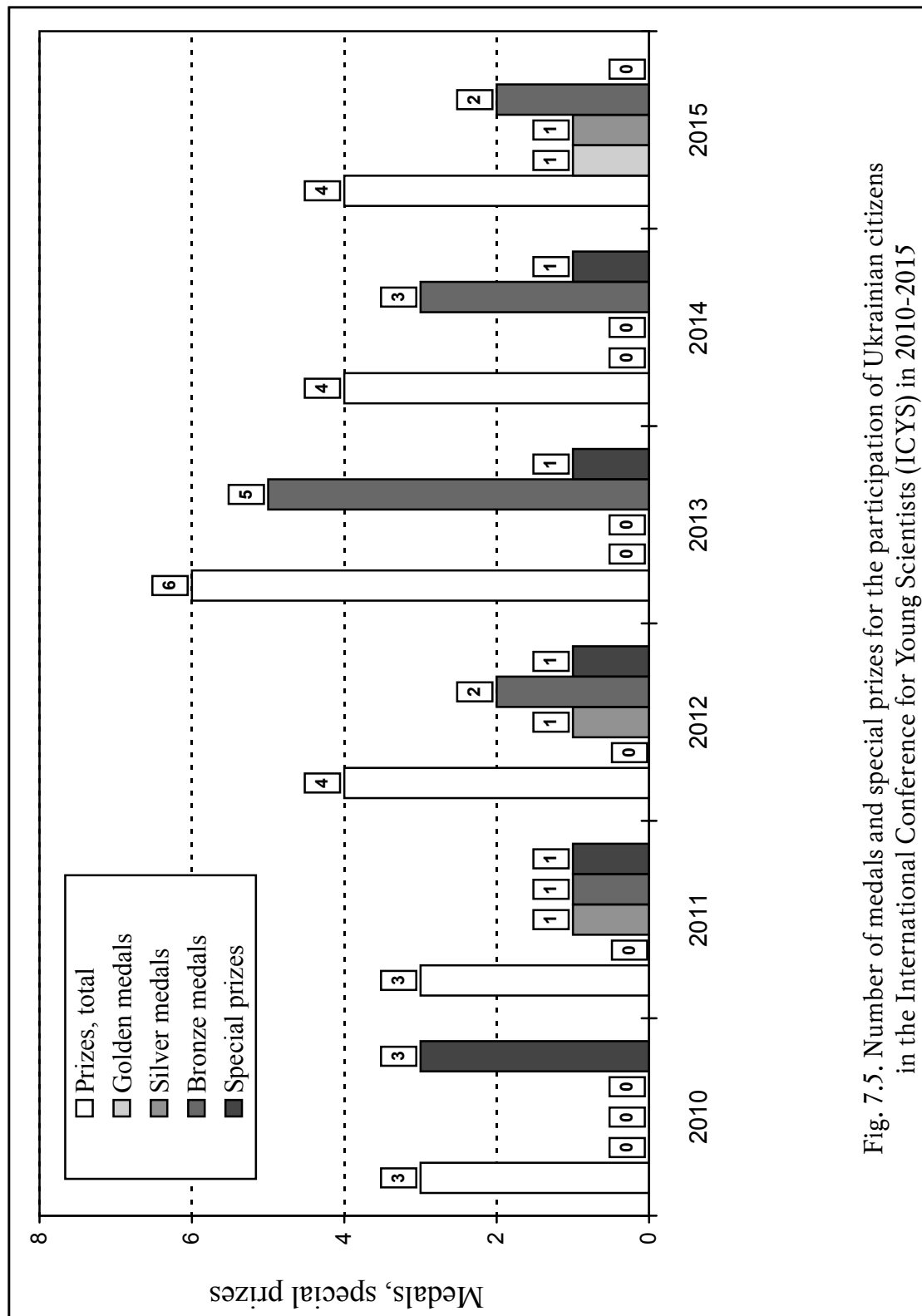


Fig. 7.5. Number of medals and special prizes for the participation of Ukrainian citizens in the International Conference for Young Scientists (ICYS) in 2010-2015

8. VOCATIONAL EDUCATION AND TRAINING

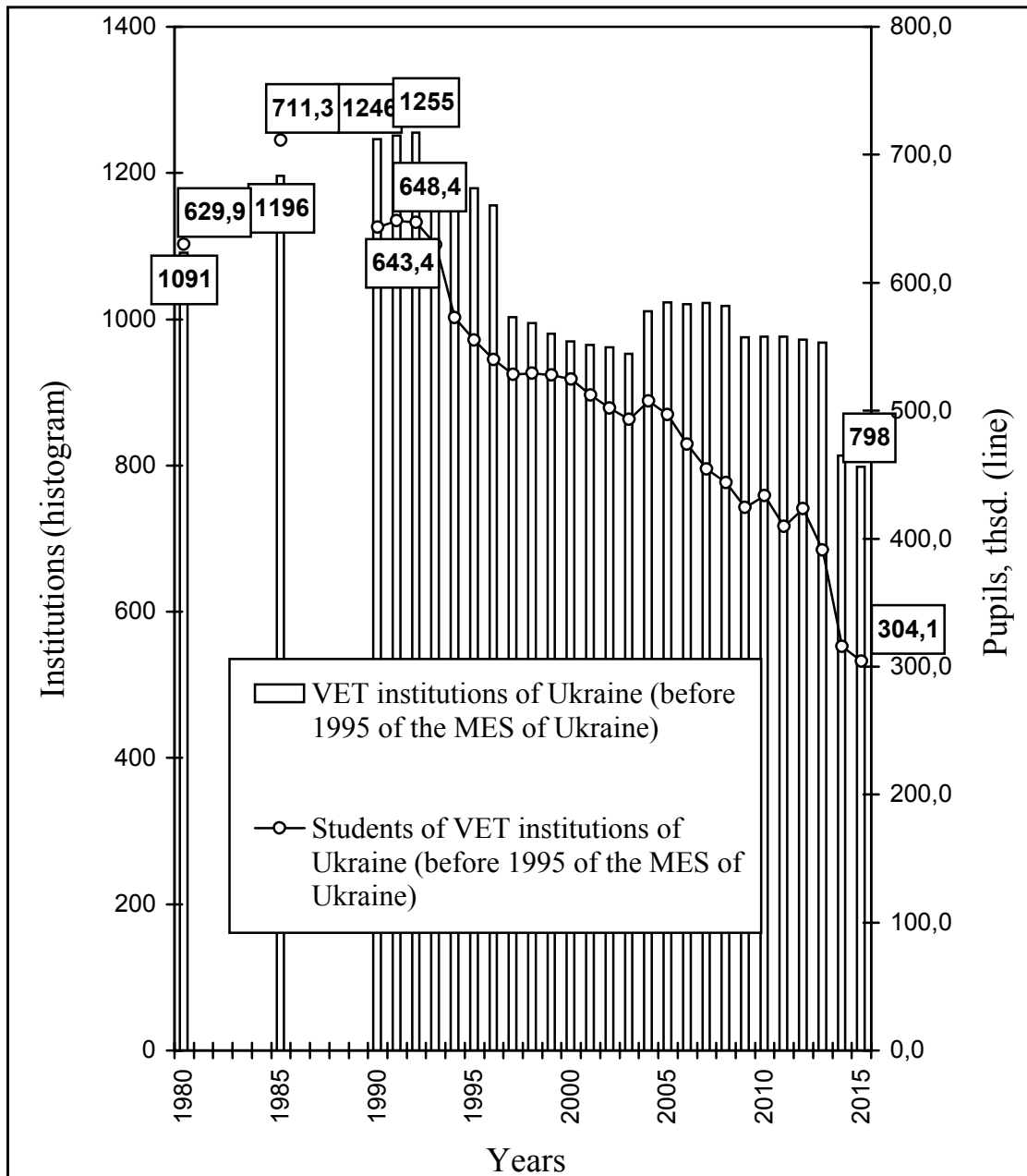


Fig. 8.1. Number of VET institutions (before 1995 of the MES of Ukraine – more than 97 % of all institutions) and number of pupils in them in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

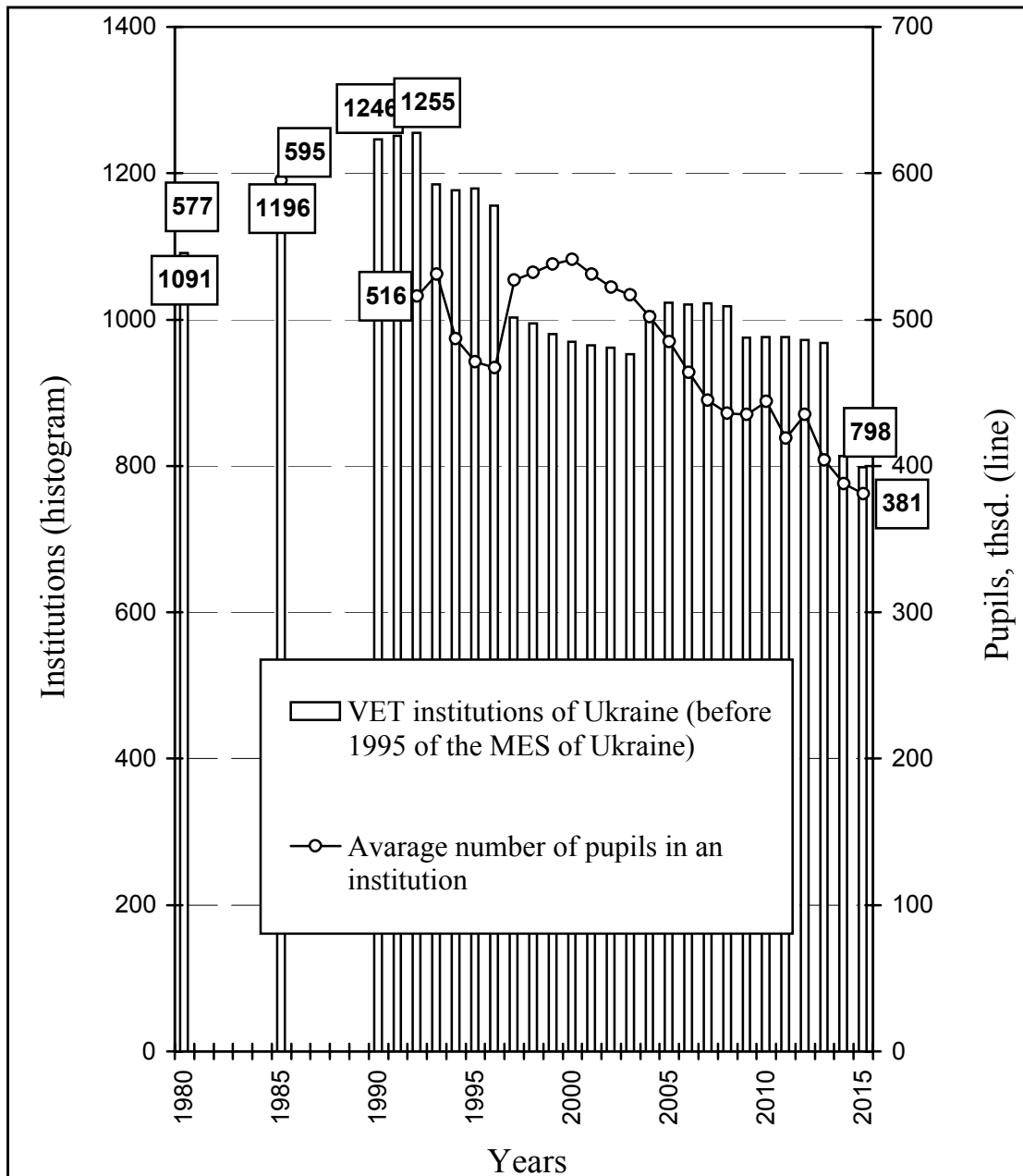


Fig. 8.2. Number of VET institutions (before 1995 of the MES of Ukraine – more than 97 % of all institutions) and average number of pupils in an institution in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

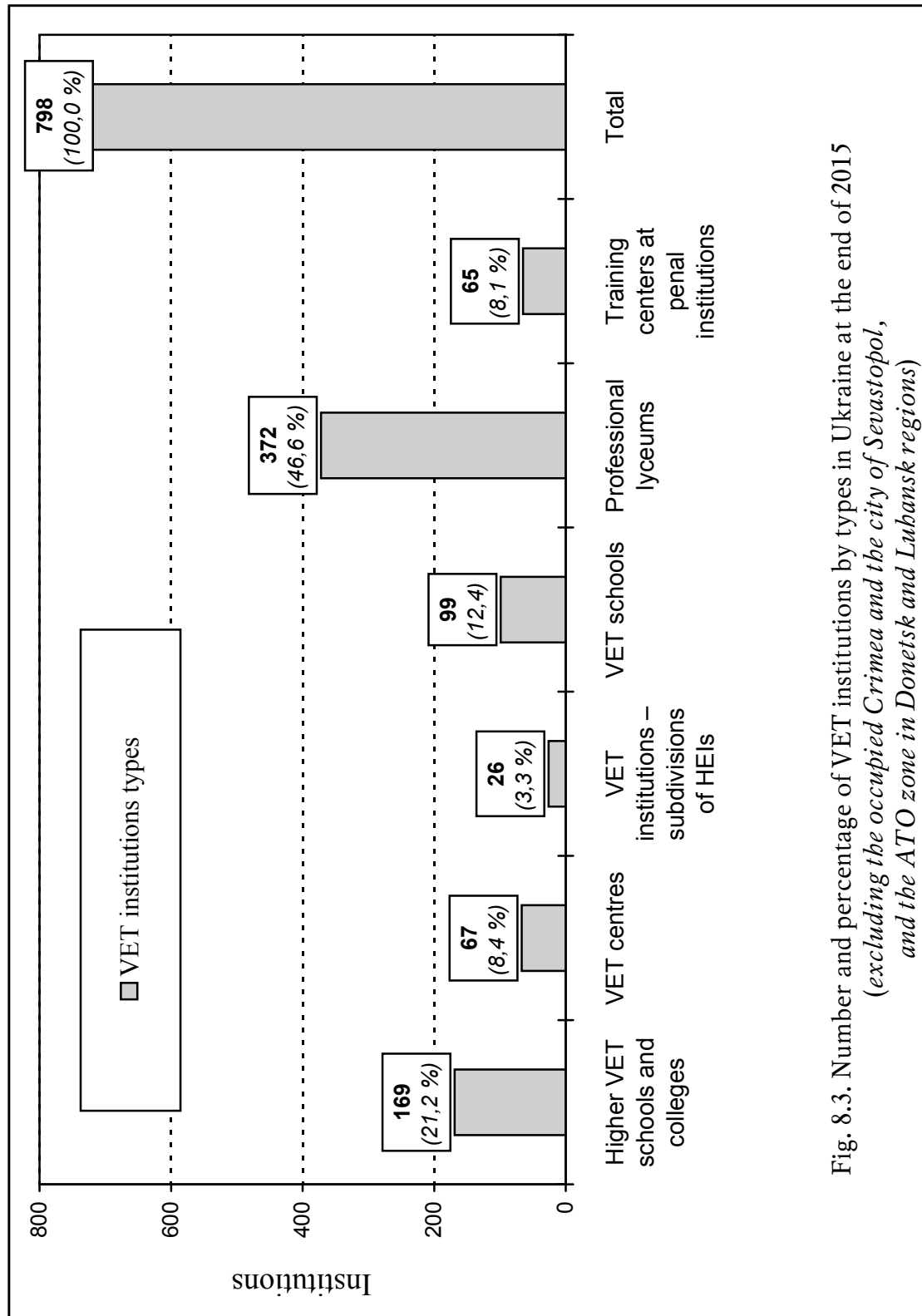


Fig. 8.3. Number and percentage of VET institutions by types in Ukraine at the end of 2015
(excluding the occupied Crimea and the city of Sevastopol,
and the ATO zone in Donetsk and Lubansk regions)

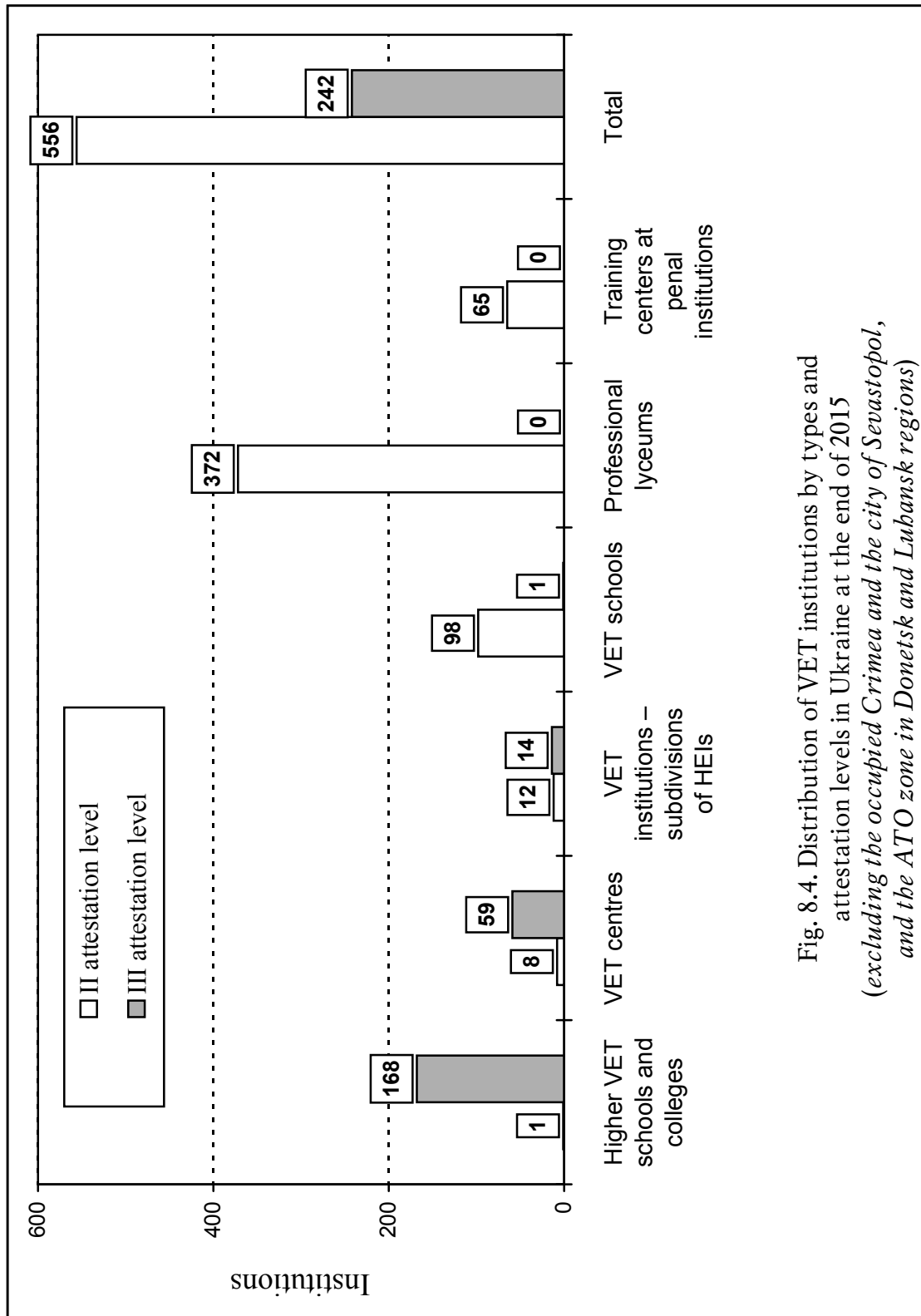


Fig. 8.4. Distribution of VET institutions by types and attestation levels in Ukraine at the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

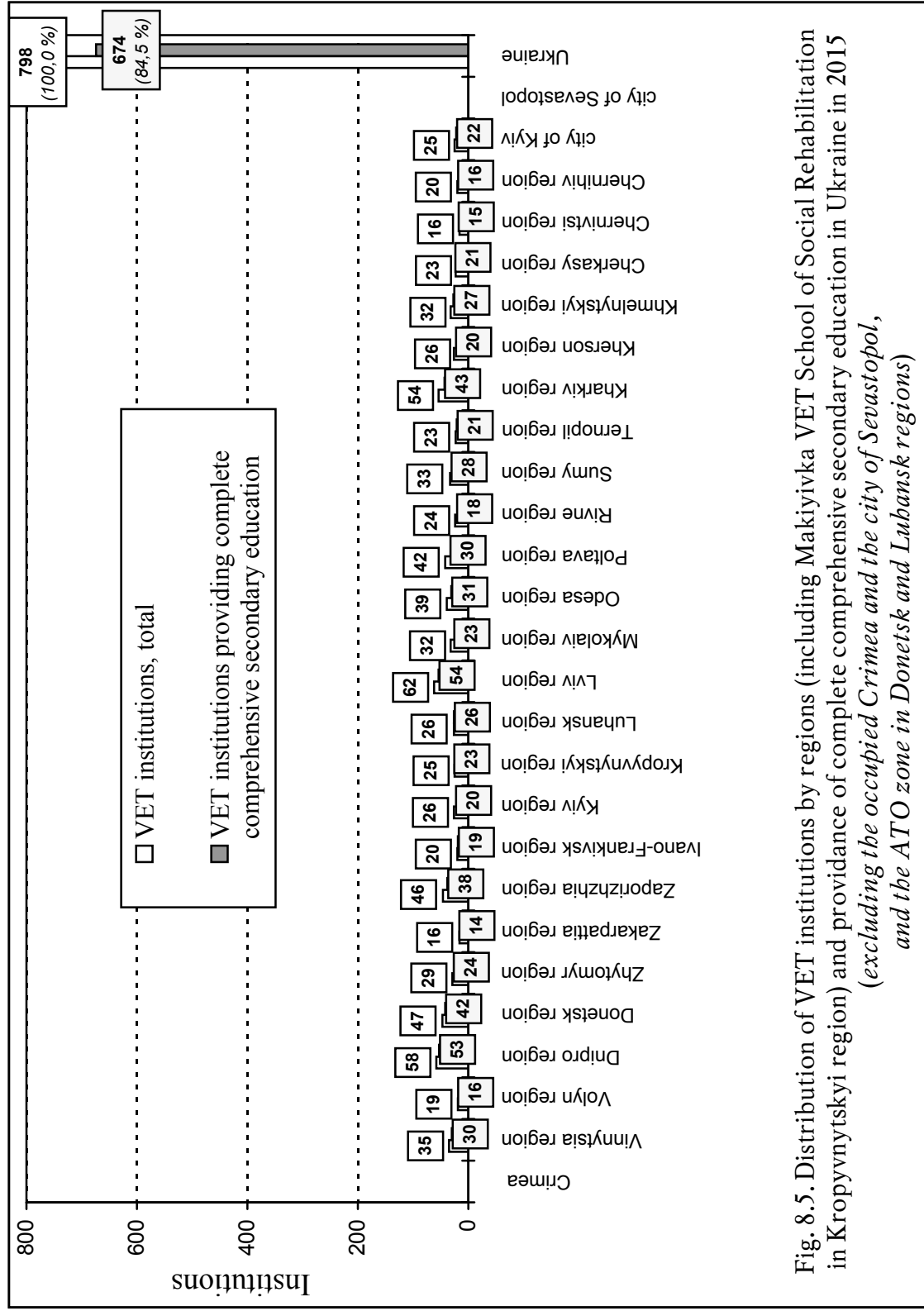


Fig. 8.5. Distribution of VET institutions by regions (including Makiyivka VET School of Social Rehabilitation in Kropyvnytskyi region) and providance of complete comprehensive secondary education in Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

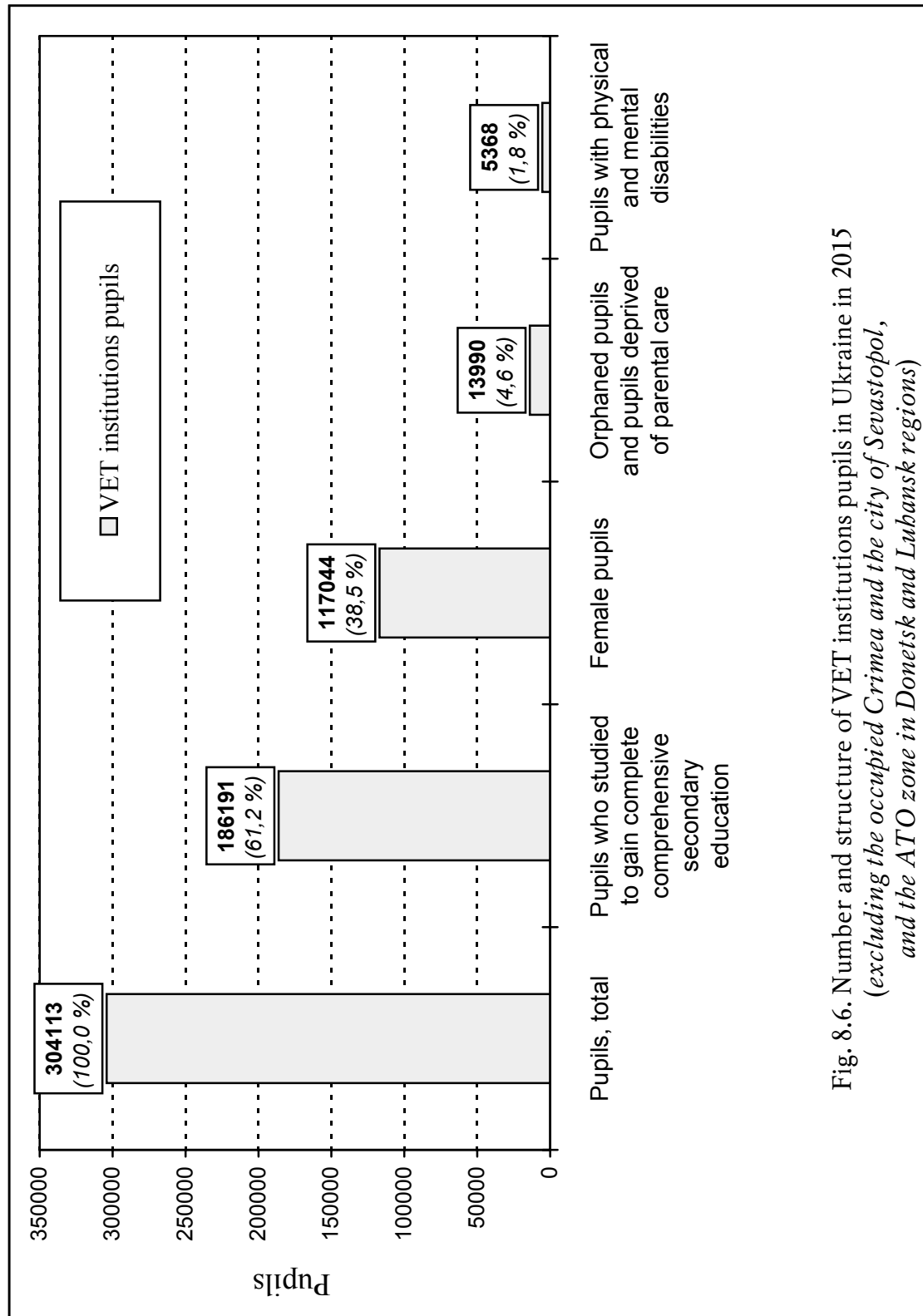


Fig. 8.6. Number and structure of VET institutions pupils in Ukraine in 2015
(excluding the occupied Crimea and the city of Sevastopol,
and the ATO zone in Donetsk and Lubansk regions)

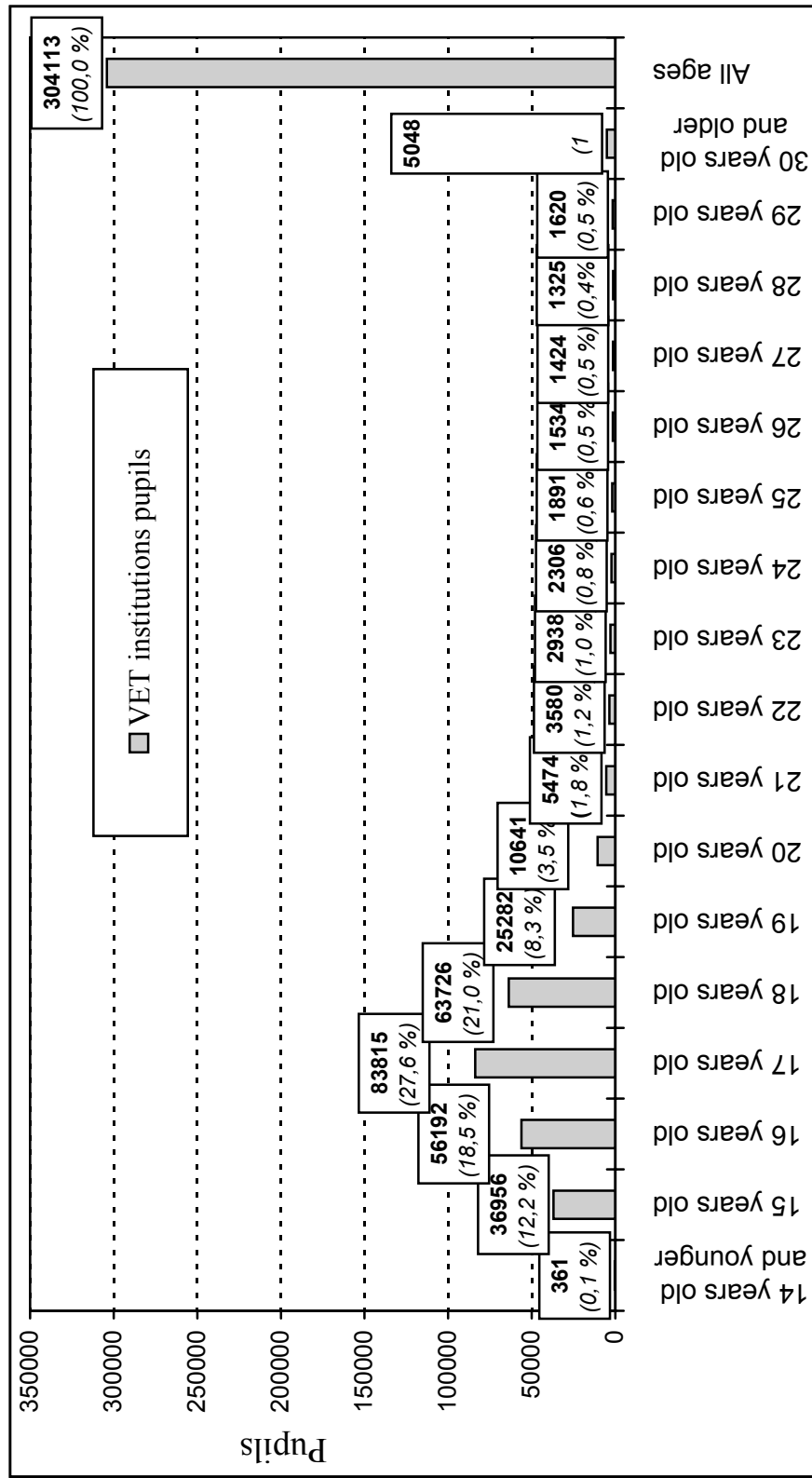


Fig. 8.7. Number and percentage of VET institutions pupils by age in Ukraine at the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

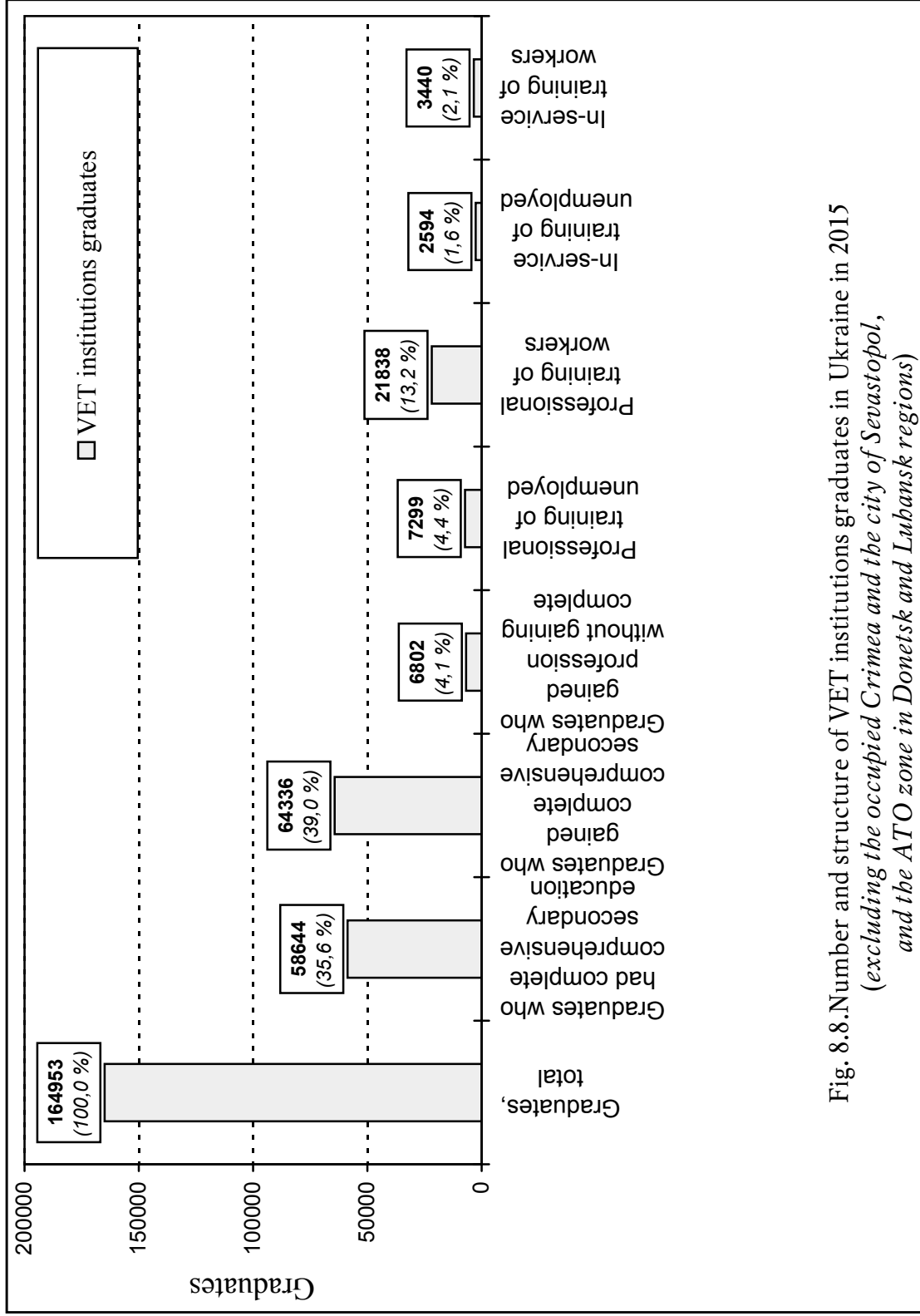


Fig. 8.8. Number and structure of VET institutions graduates in Ukraine in 2015
(excluding the occupied Crimea and the city of Sevastopol,
and the ATO zone in Donetsk and Lubansk regions)

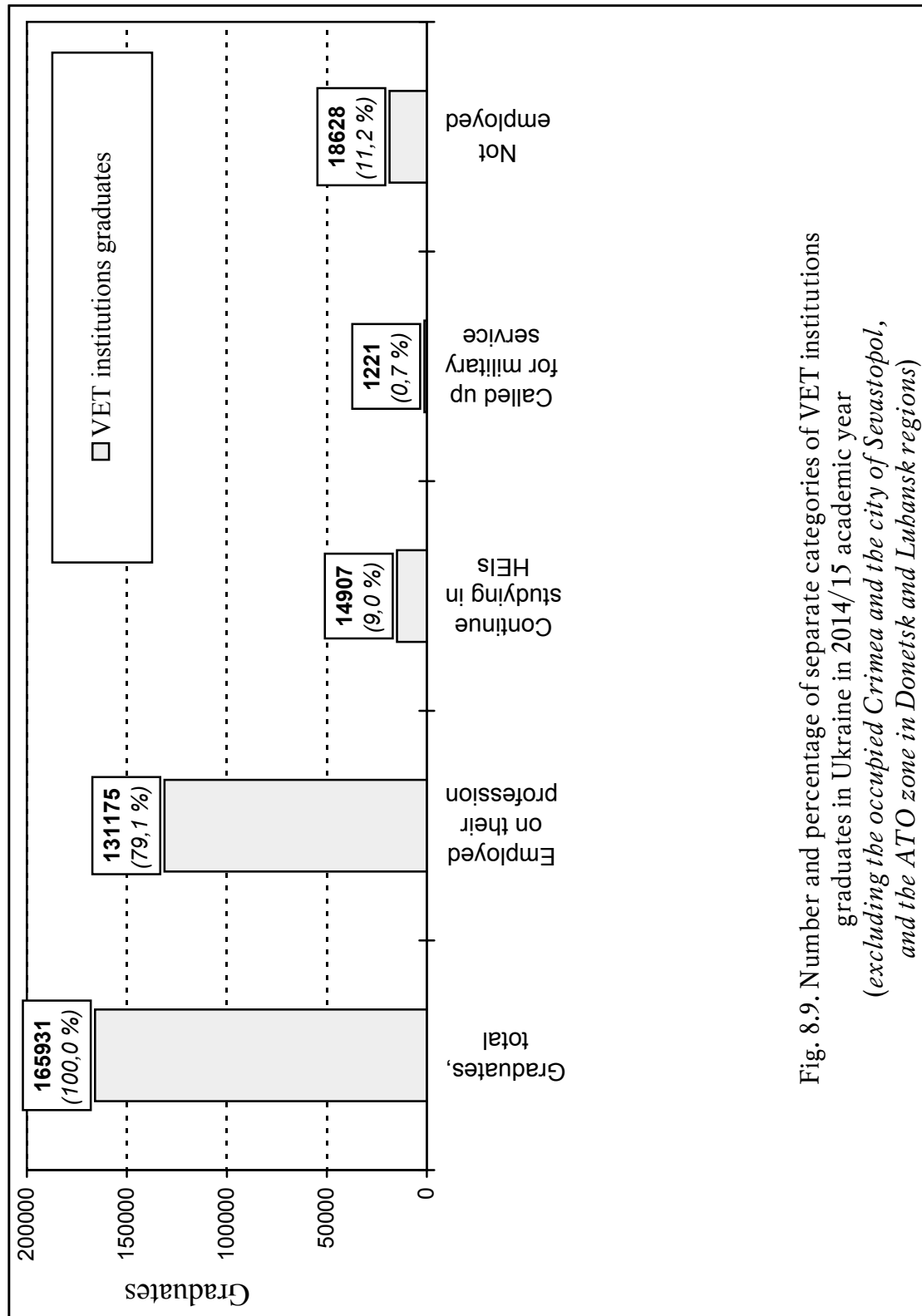


Fig. 8.9. Number and percentage of separate categories of VET institutions graduates in Ukraine in 2014/15 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

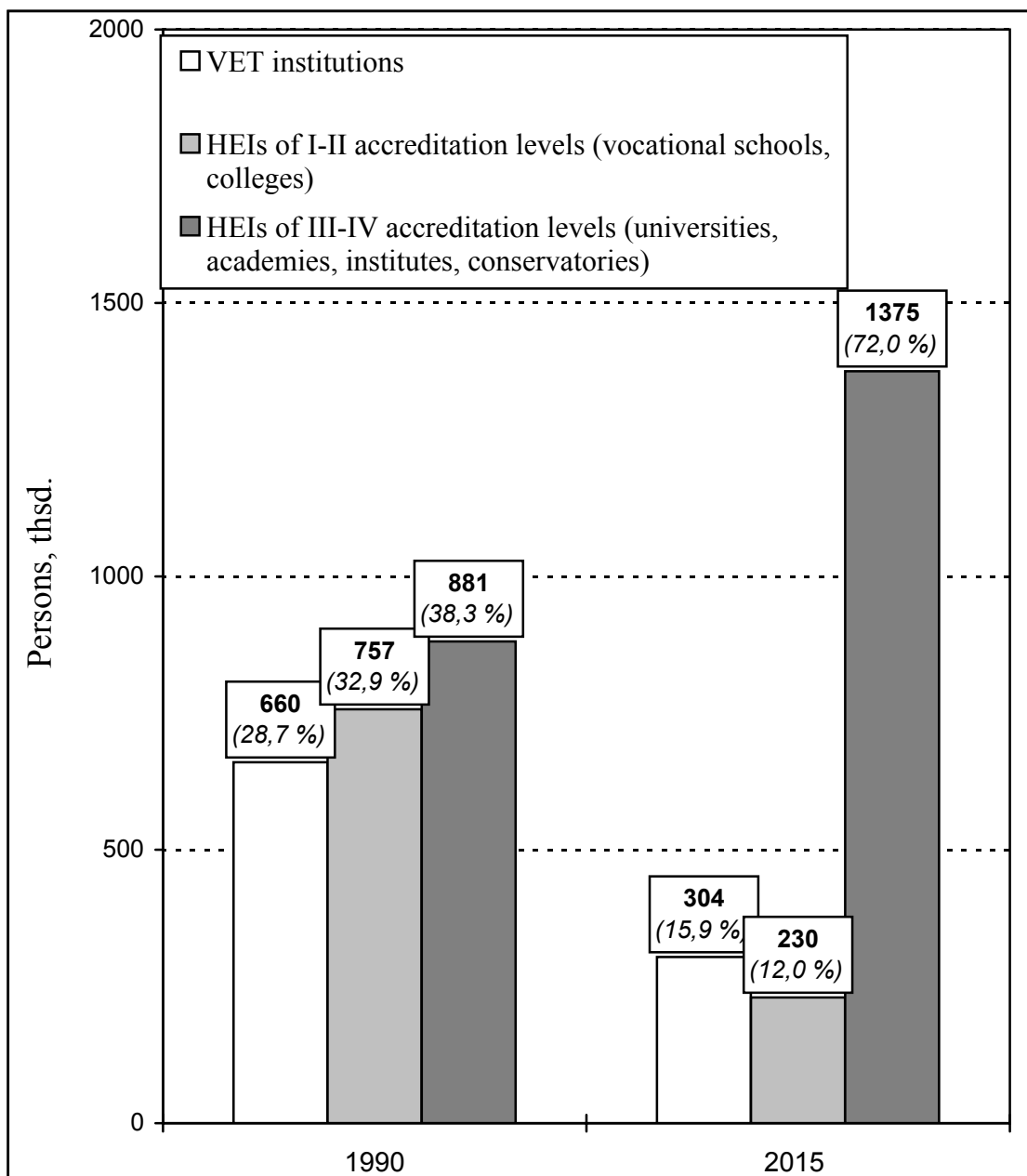


Fig. 8.10. Number (percentage) of VET institutions pupils and HEIs students in Ukraine in 1990 and 2015 (in 2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

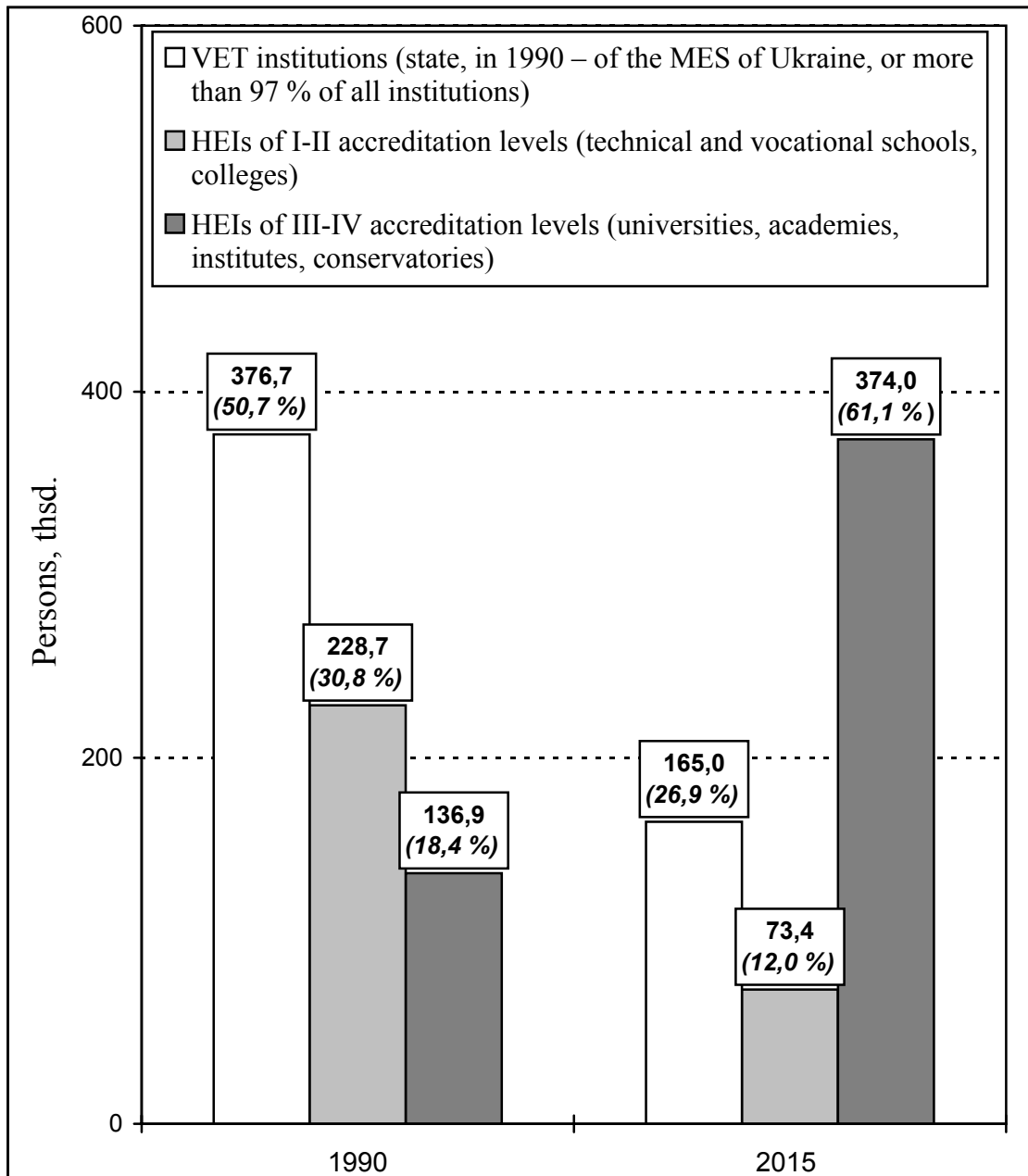


Fig. 8.11. Number (percentage) of VET institutions pupils and HEIs students in Ukraine in 1990 and 2015
(in 2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

9. HIGHER EDUCATION

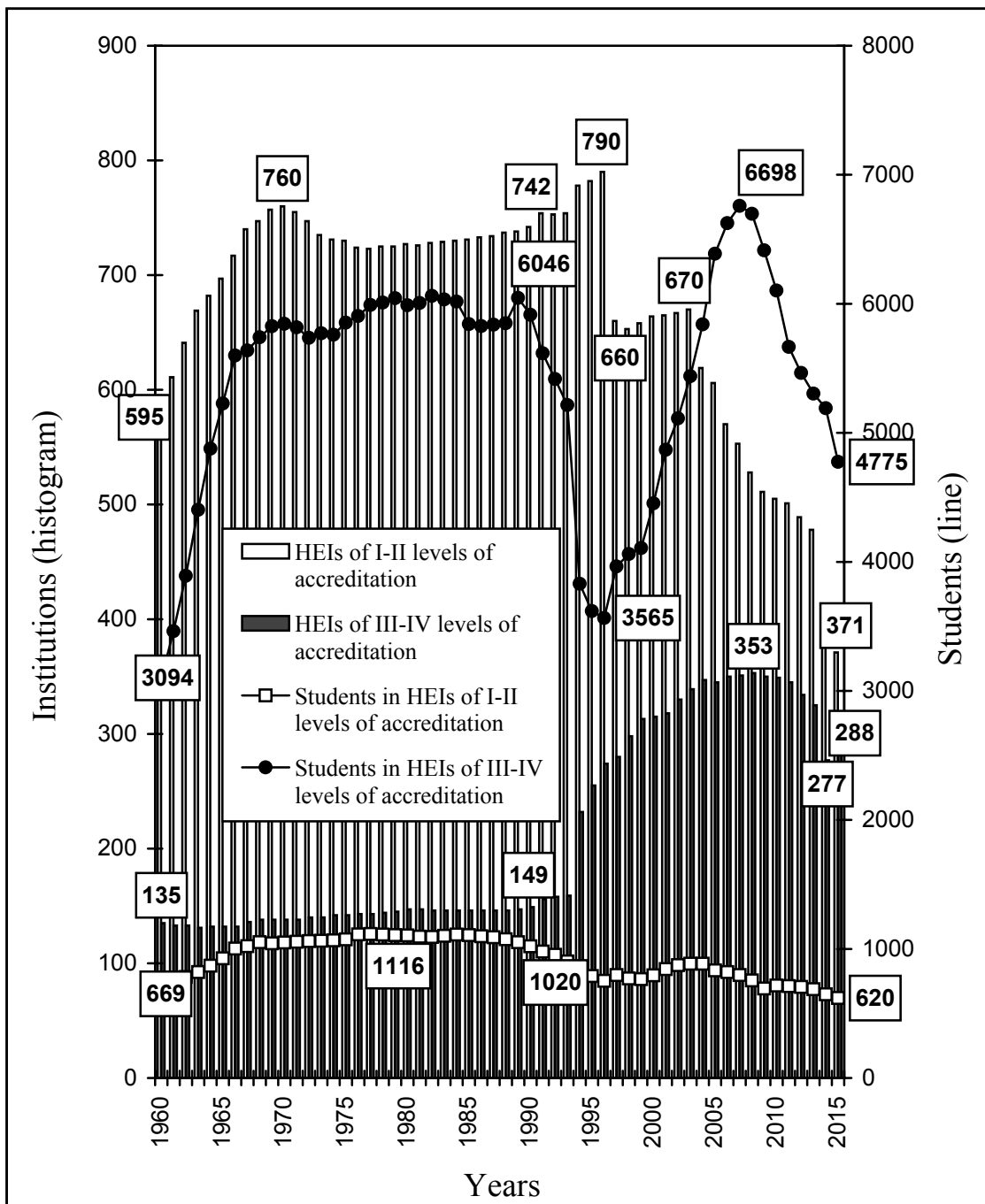


Fig. 9.1. Number of higher education institutions of I-II and III-IV levels of accreditation and average number of students in them (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

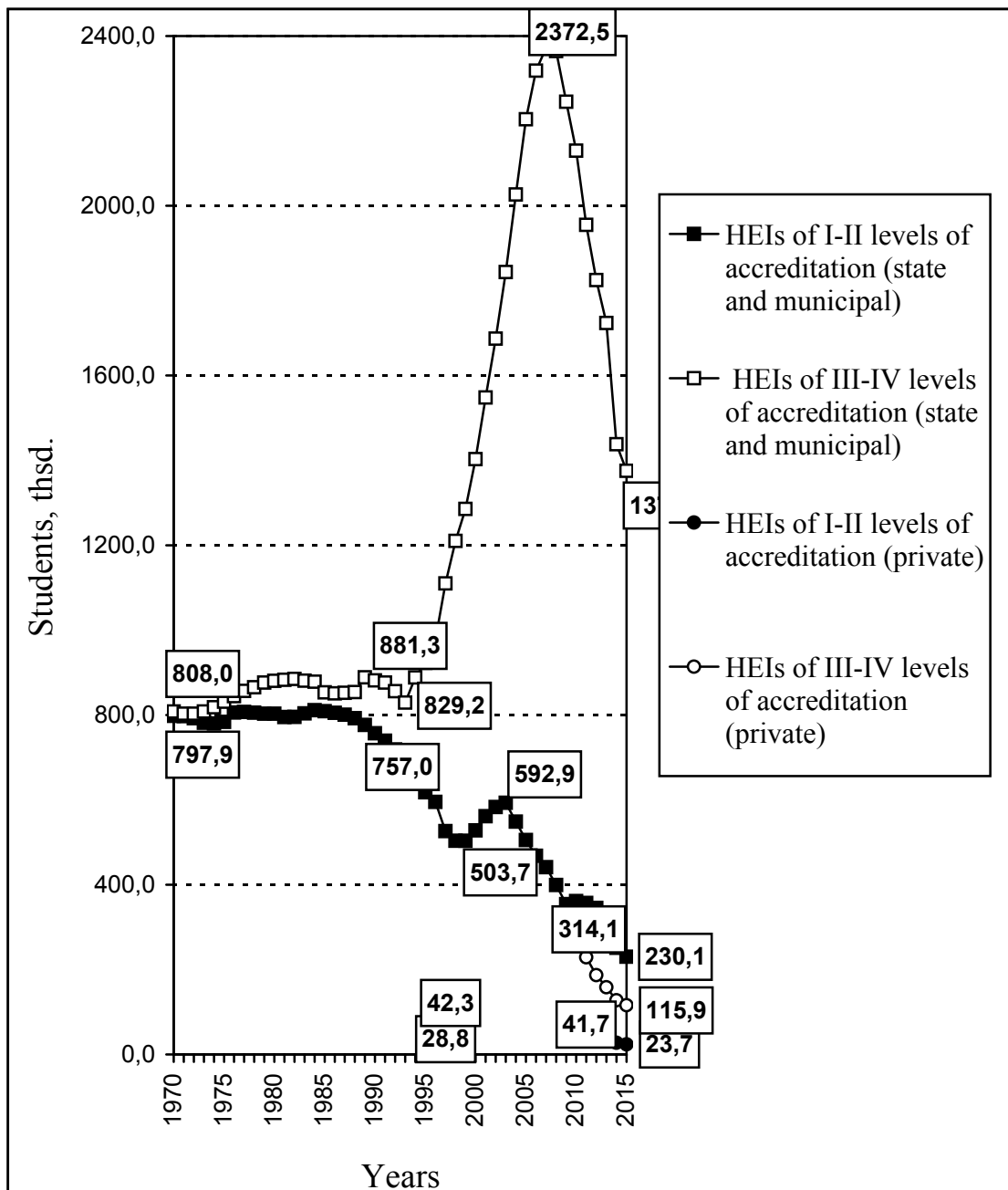


Fig. 9.2. Number of students in state, municipal and private higher education institutions of I-II and III-IV levels of accreditation in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

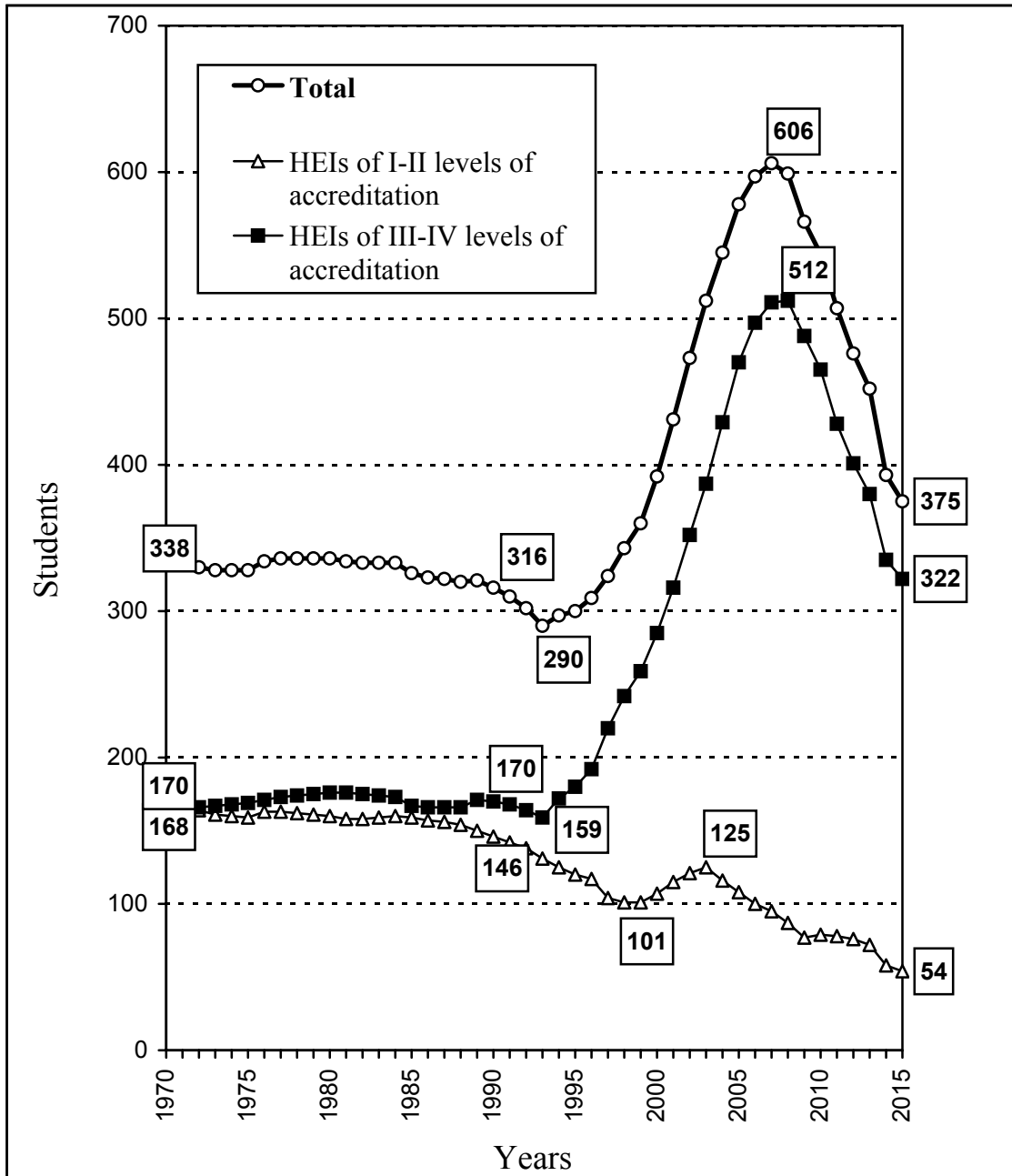


Fig. 9.3. Number of students in higher education institutions of I-II and III-IV levels of accreditation by 10 thsd. of population in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

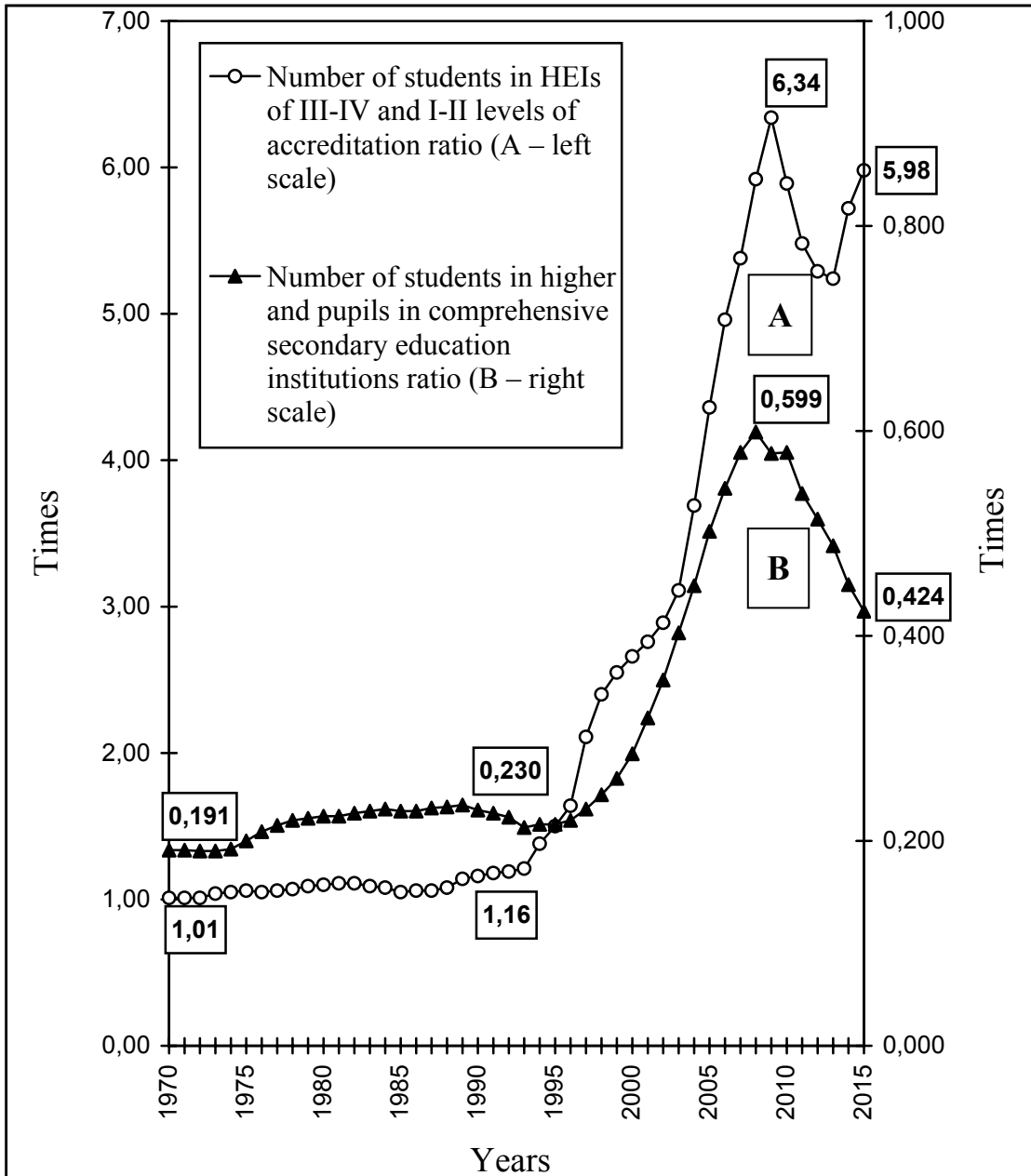


Fig. 9.4. Number of students in higher education institutions of III-IV and I-II levels of accreditation (A) and students in higher and pupils in comprehensive secondary education institutions (B) ratio (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

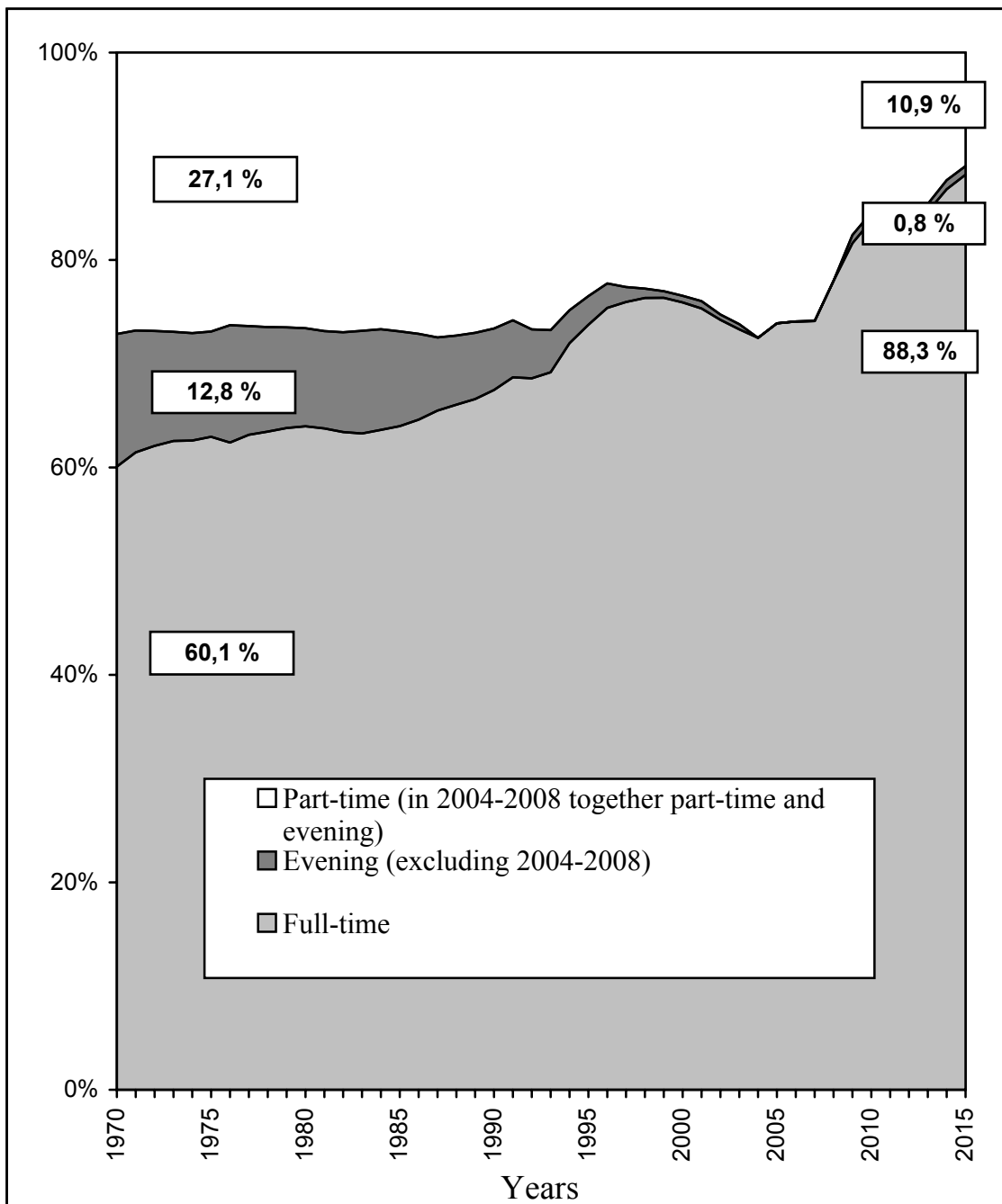


Fig. 9.5. Proportion of full-time, evening and part-time students (in 2004-2008 full-time and others) in higher education institutions of I-II levels of accreditation in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

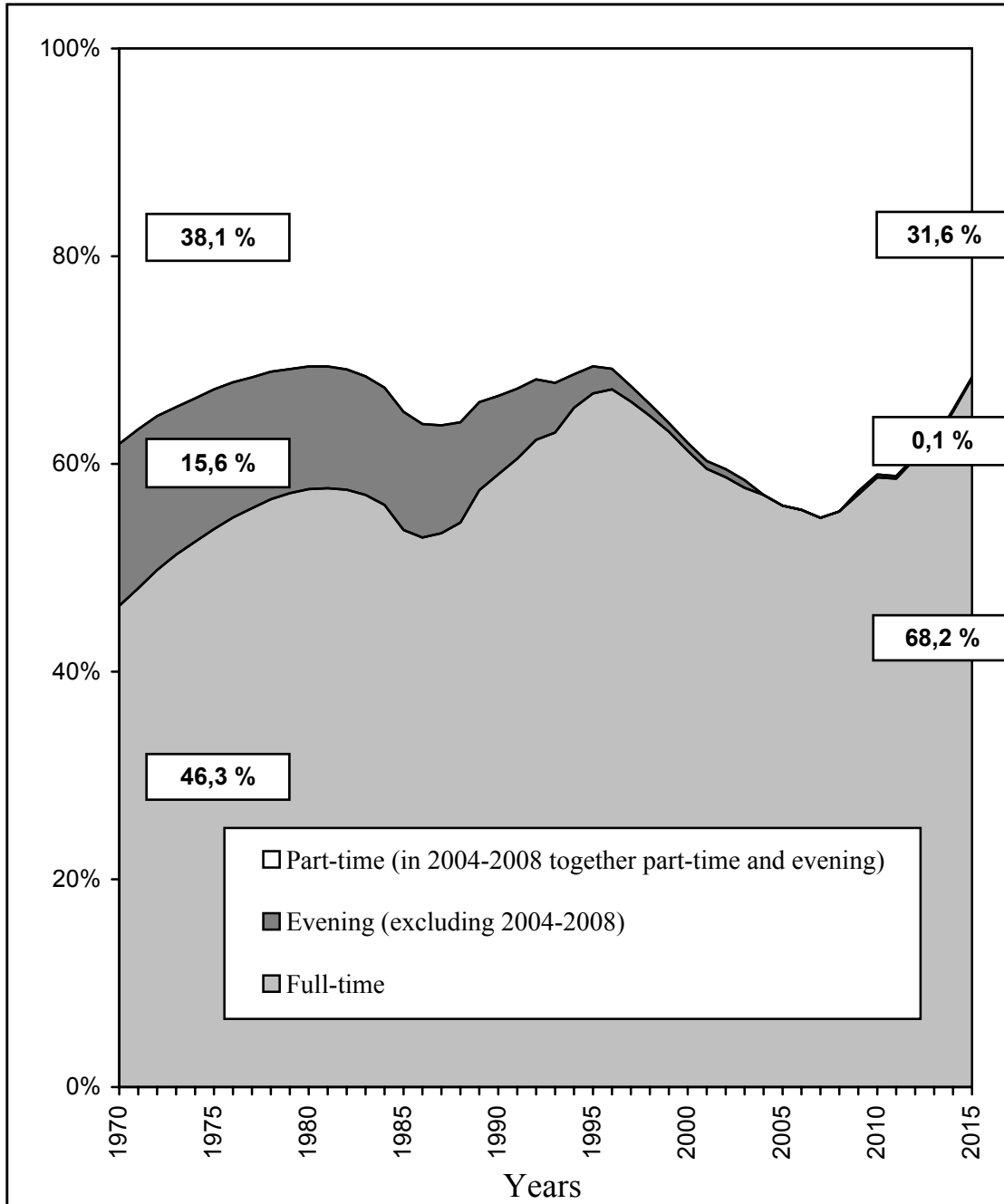


Fig. 9.6. Proportion of full-time, evening and part-time students (in 2004-2008 full-time and others) in higher education institutions of III-IV levels of accreditation in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

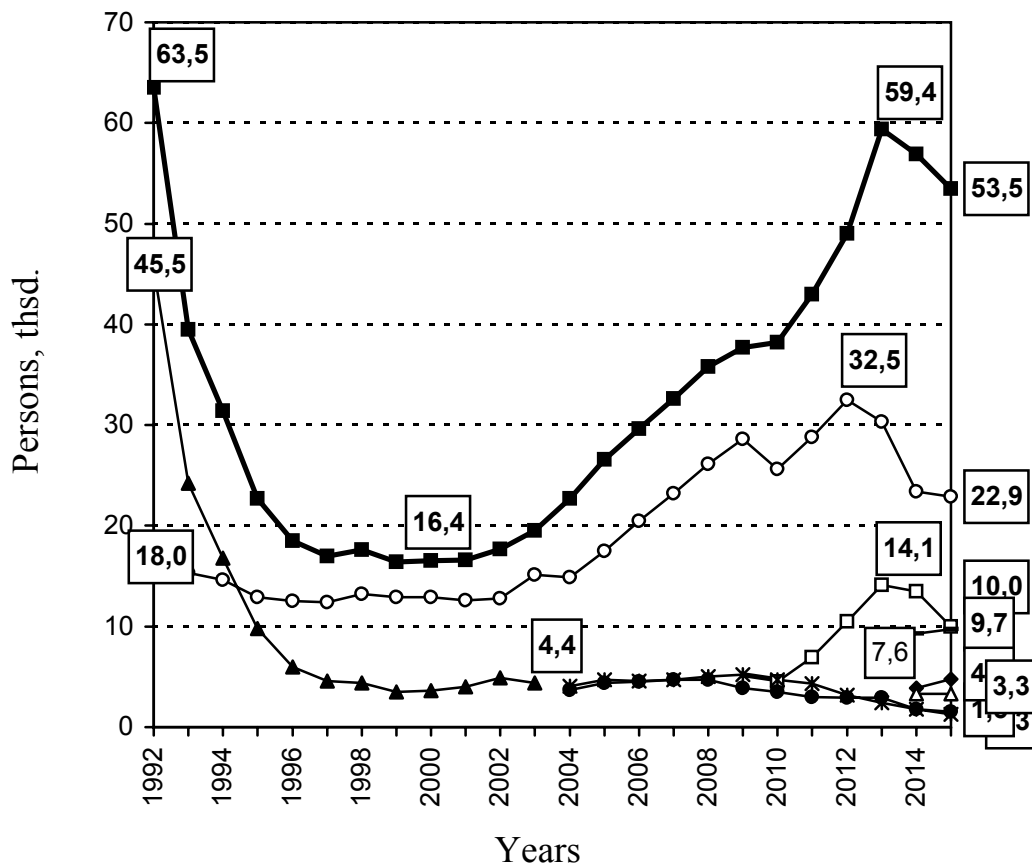
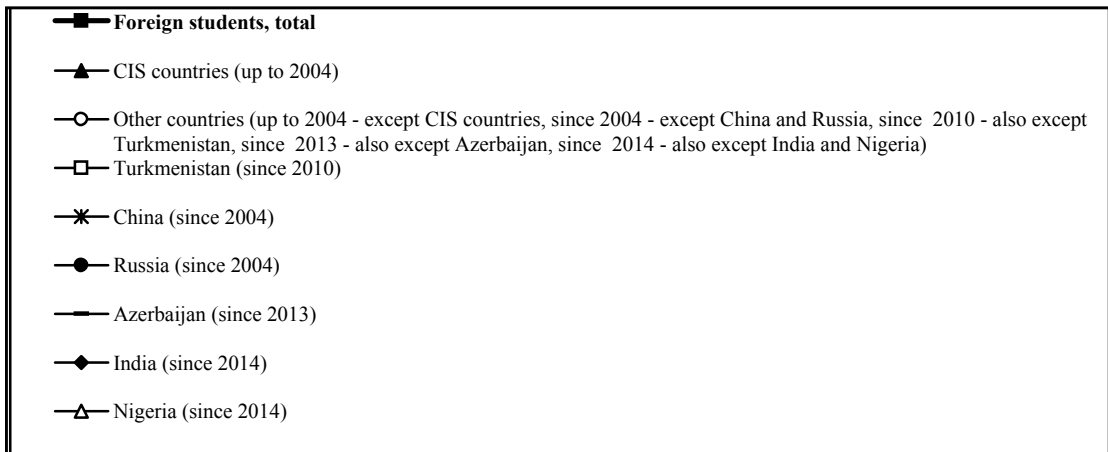


Fig. 9.7. Number of foreign students in higher education institutions of I-IV levels of accreditation in Ukraine in 1992-2015 (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

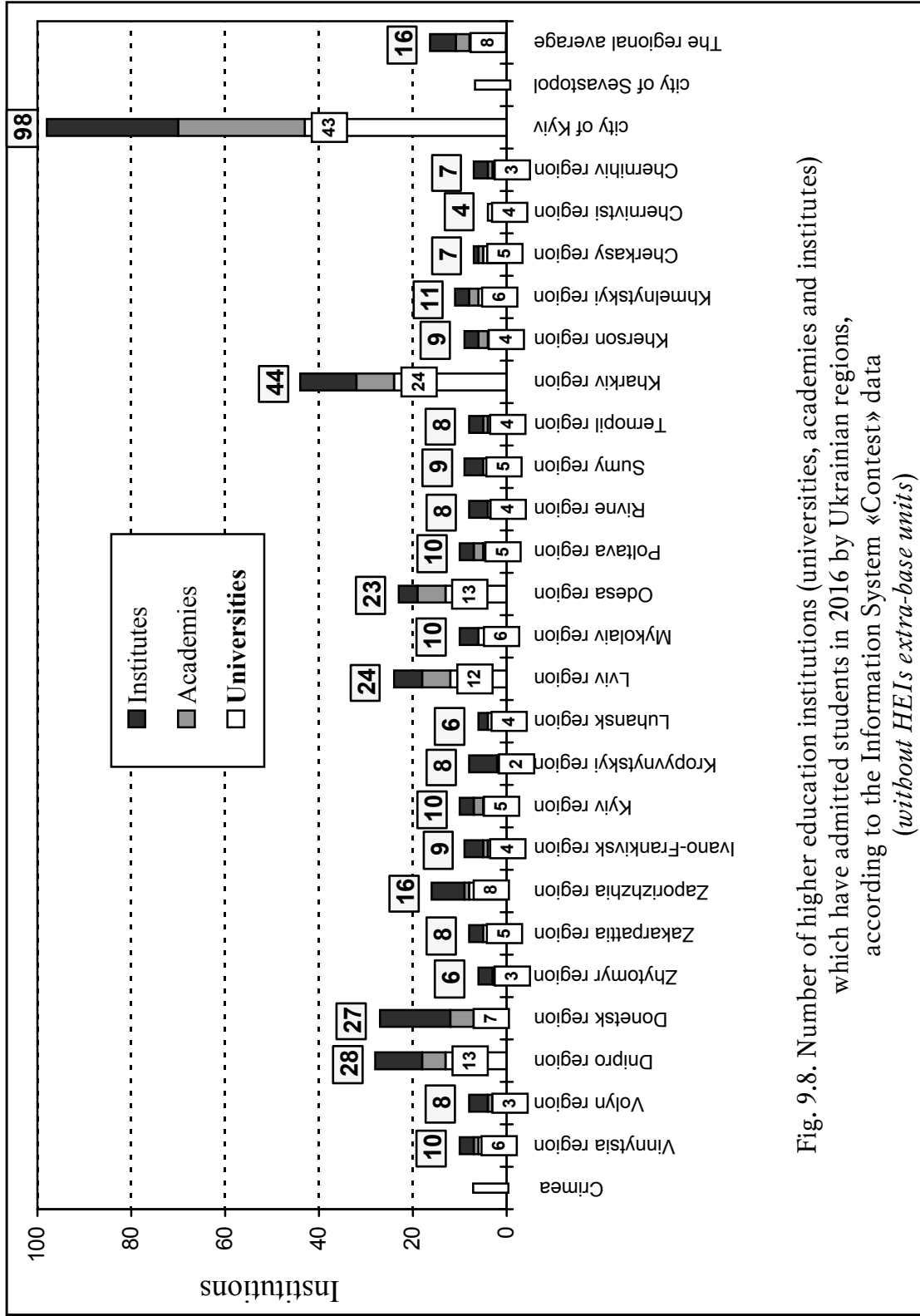
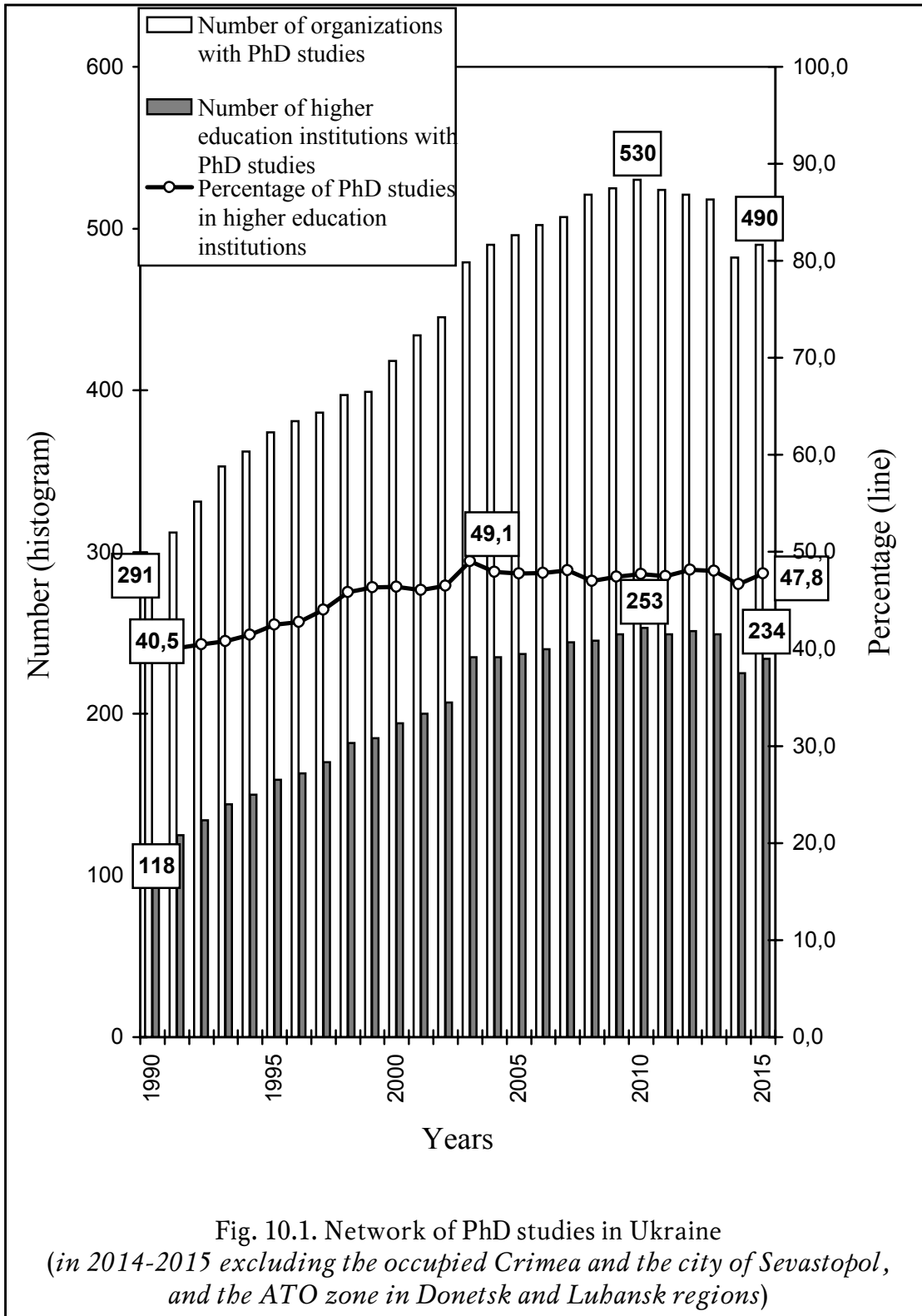


Fig. 9.8. Number of higher education institutions (universities, academies and institutes) which have admitted students in 2016 by Ukrainian regions, according to the Information System «Contest» data (without HEIs extra-base units)

**10. PhD AND DSc STUDIES
(ASPIRANTURA AND DOKTORANTURA)**



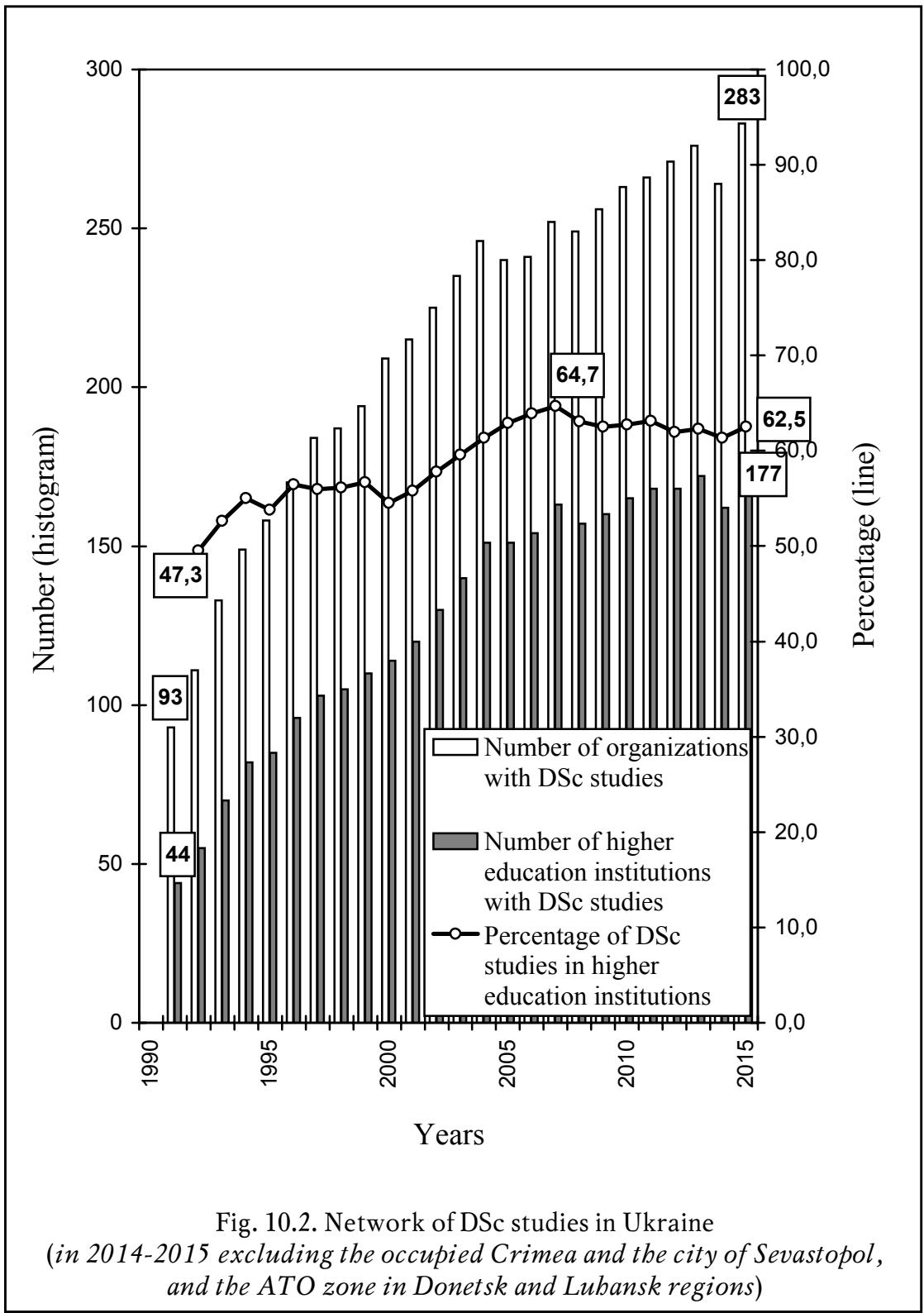


Fig. 10.2. Network of DSc studies in Ukraine
*(in 2014-2015 excluding the occupied Crimea and the city of Sevastopol,
 and the ATO zone in Donetsk and Lubansk regions)*

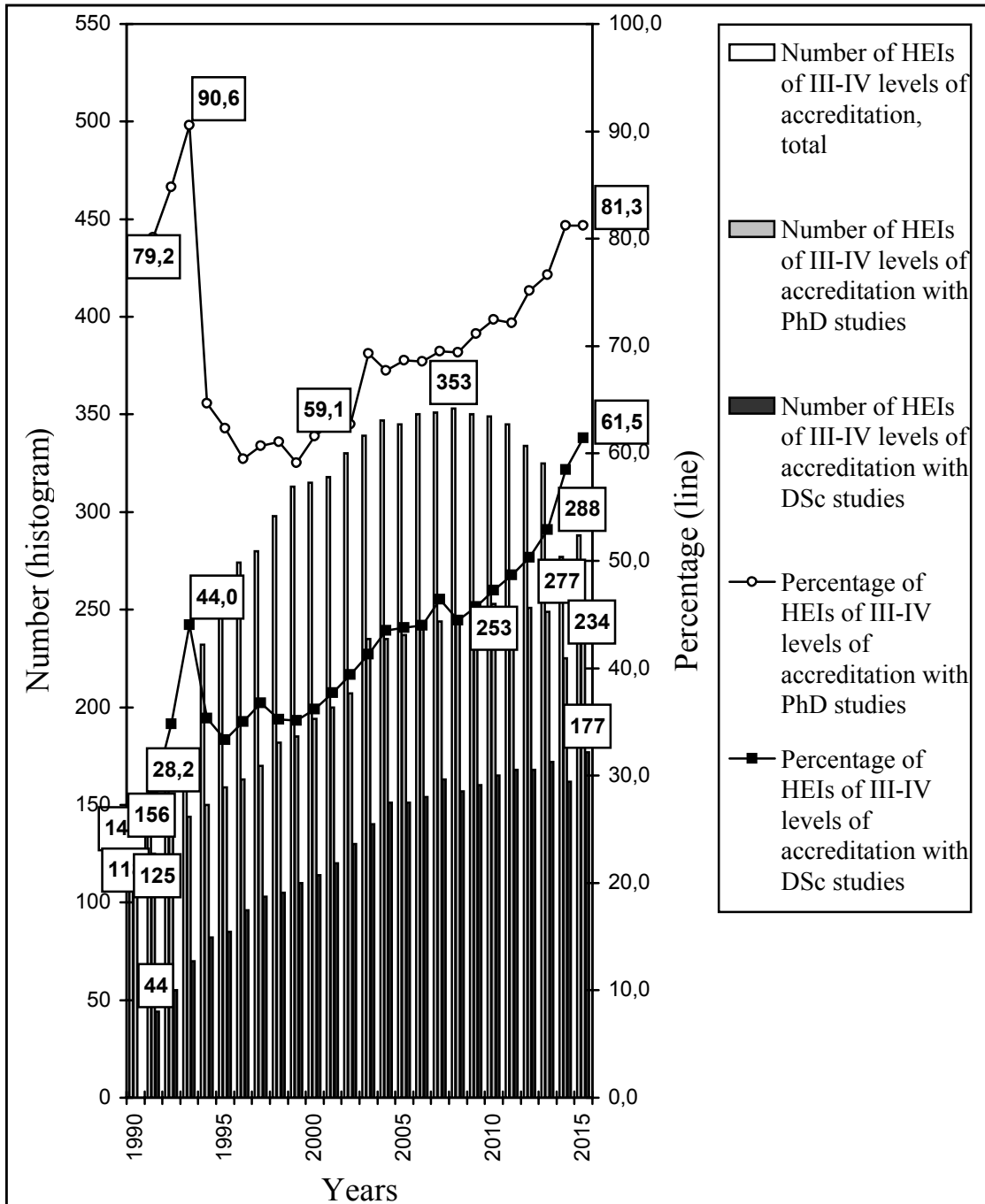
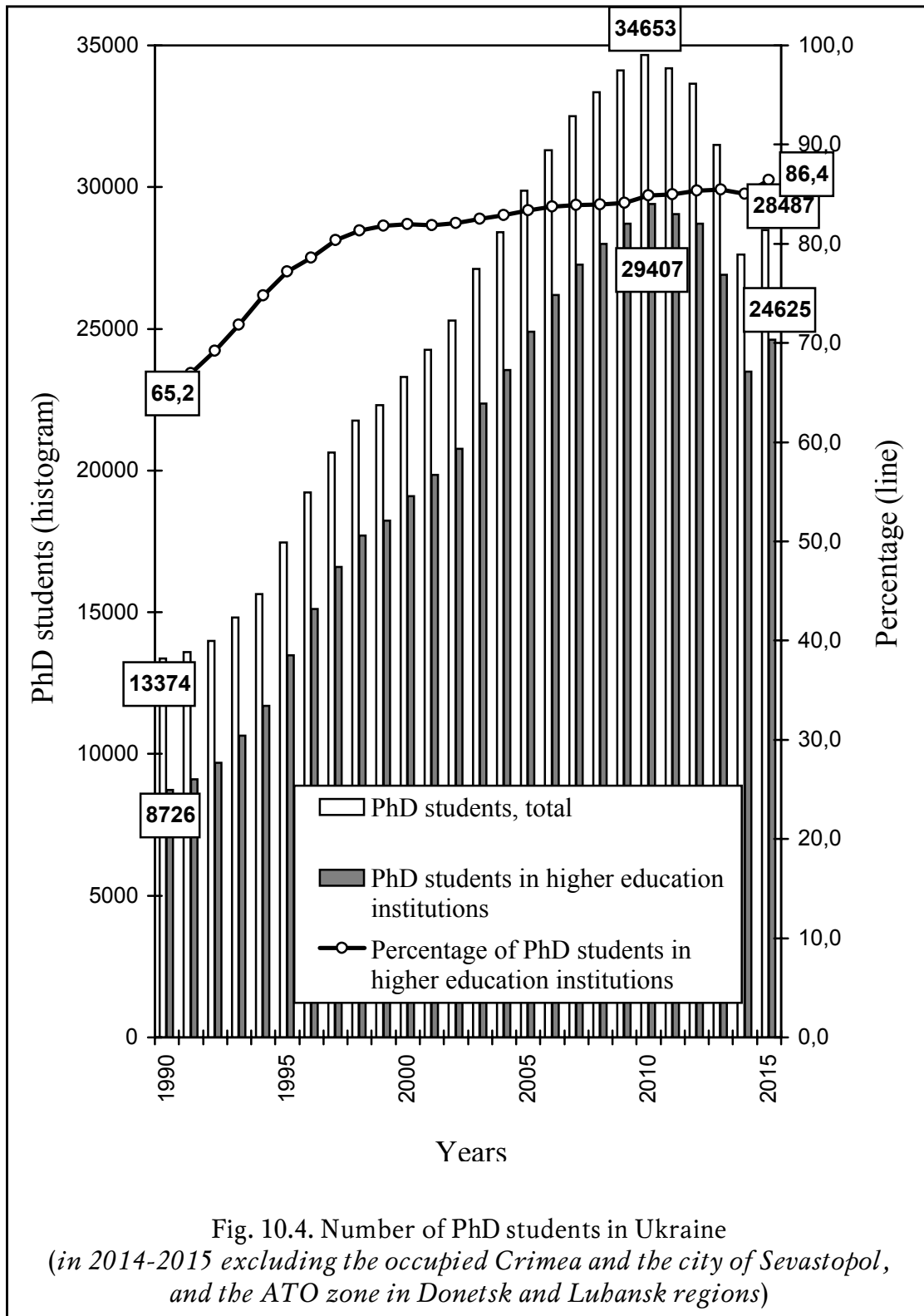
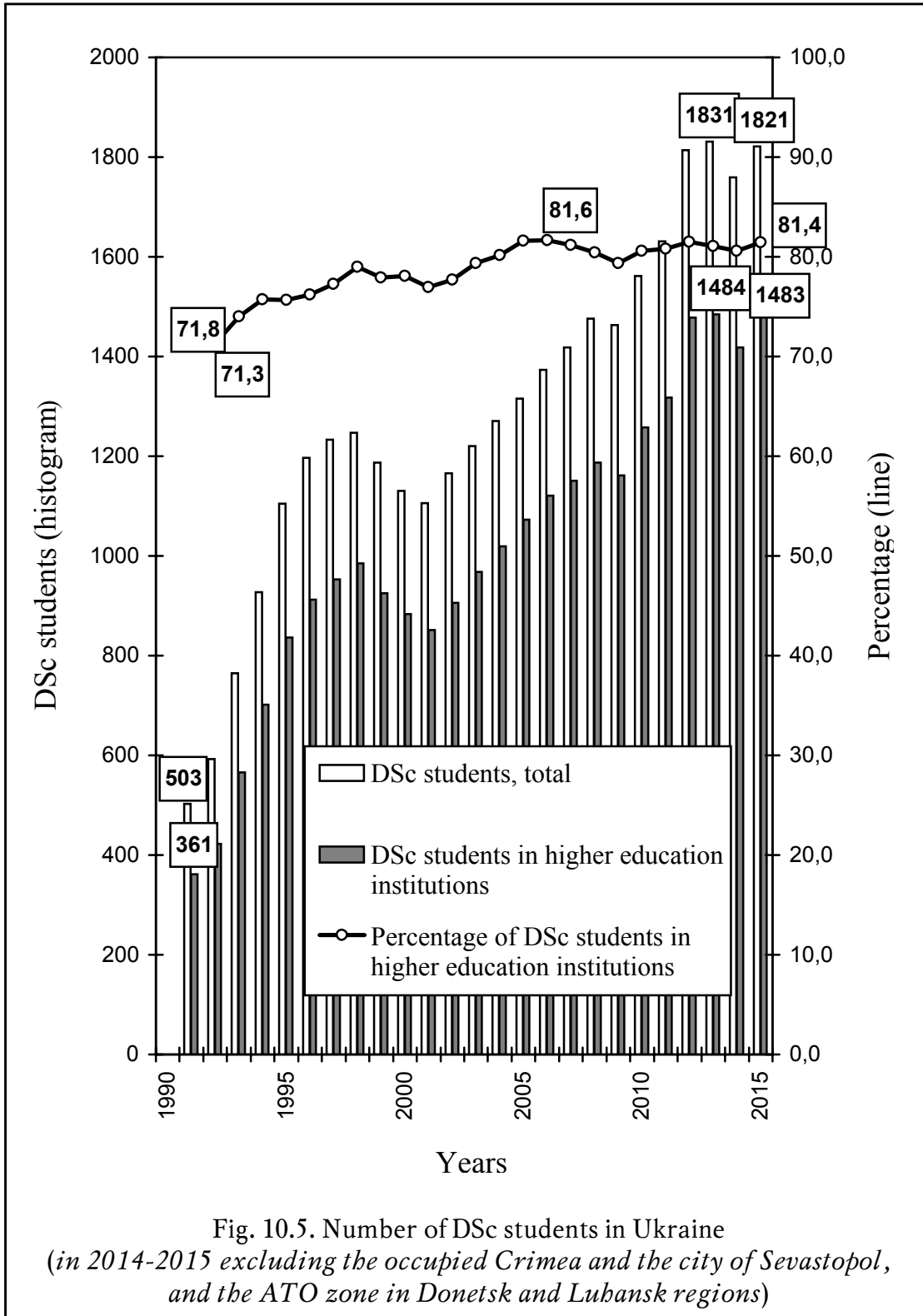
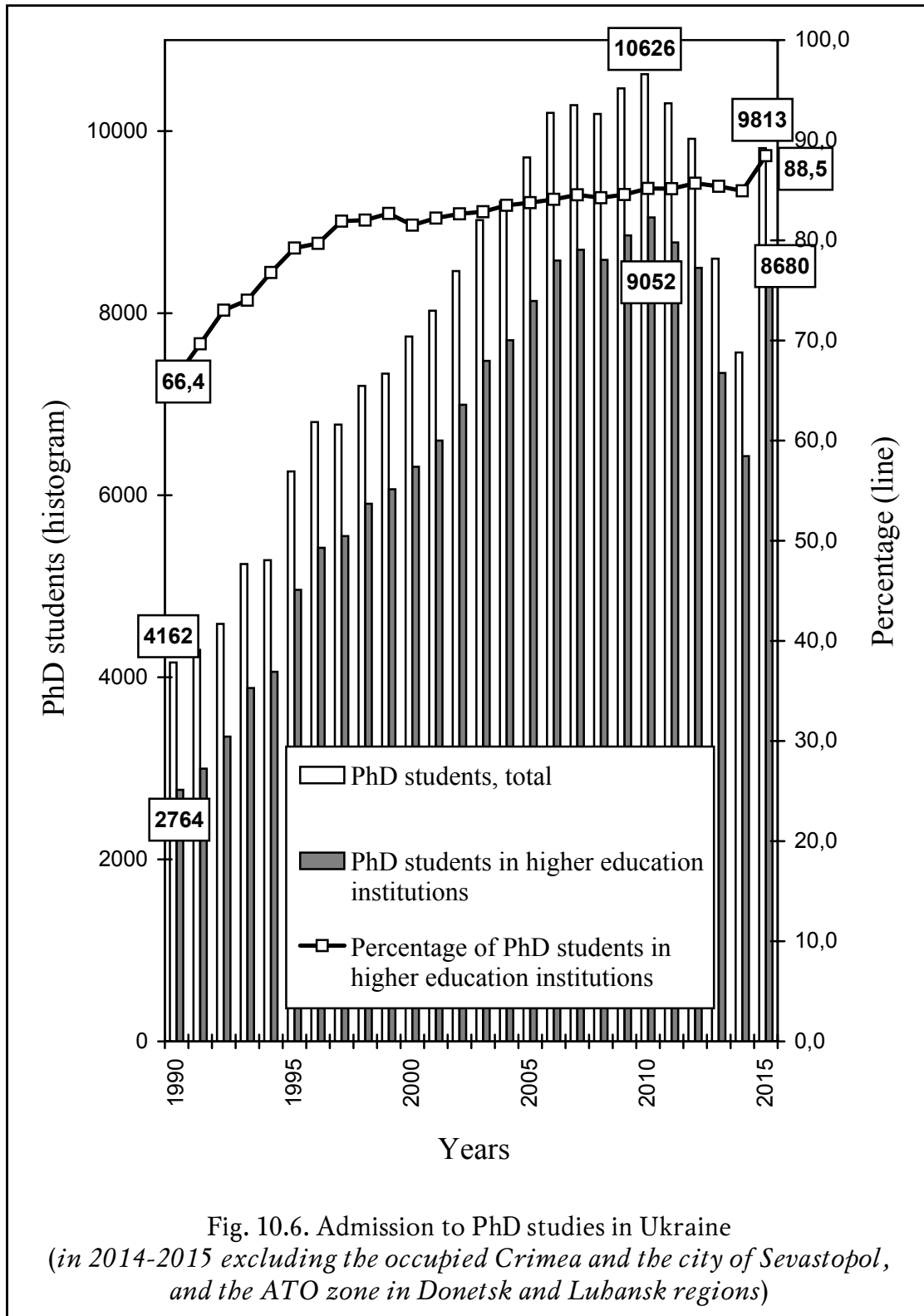


Fig. 10.3. Network of PhD and DSc studies in higher education institutions of Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)







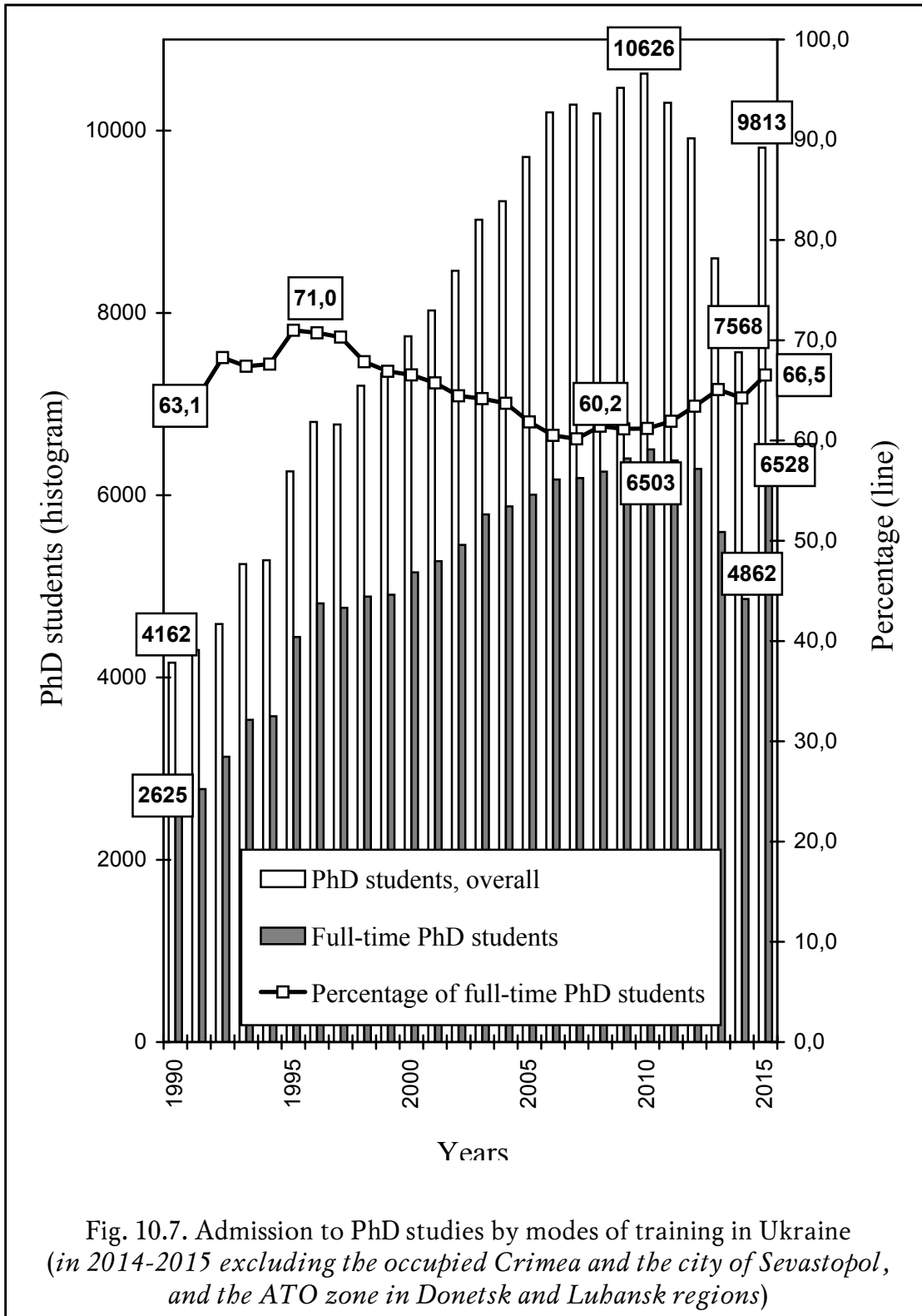


Fig. 10.7. Admission to PhD studies by modes of training in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

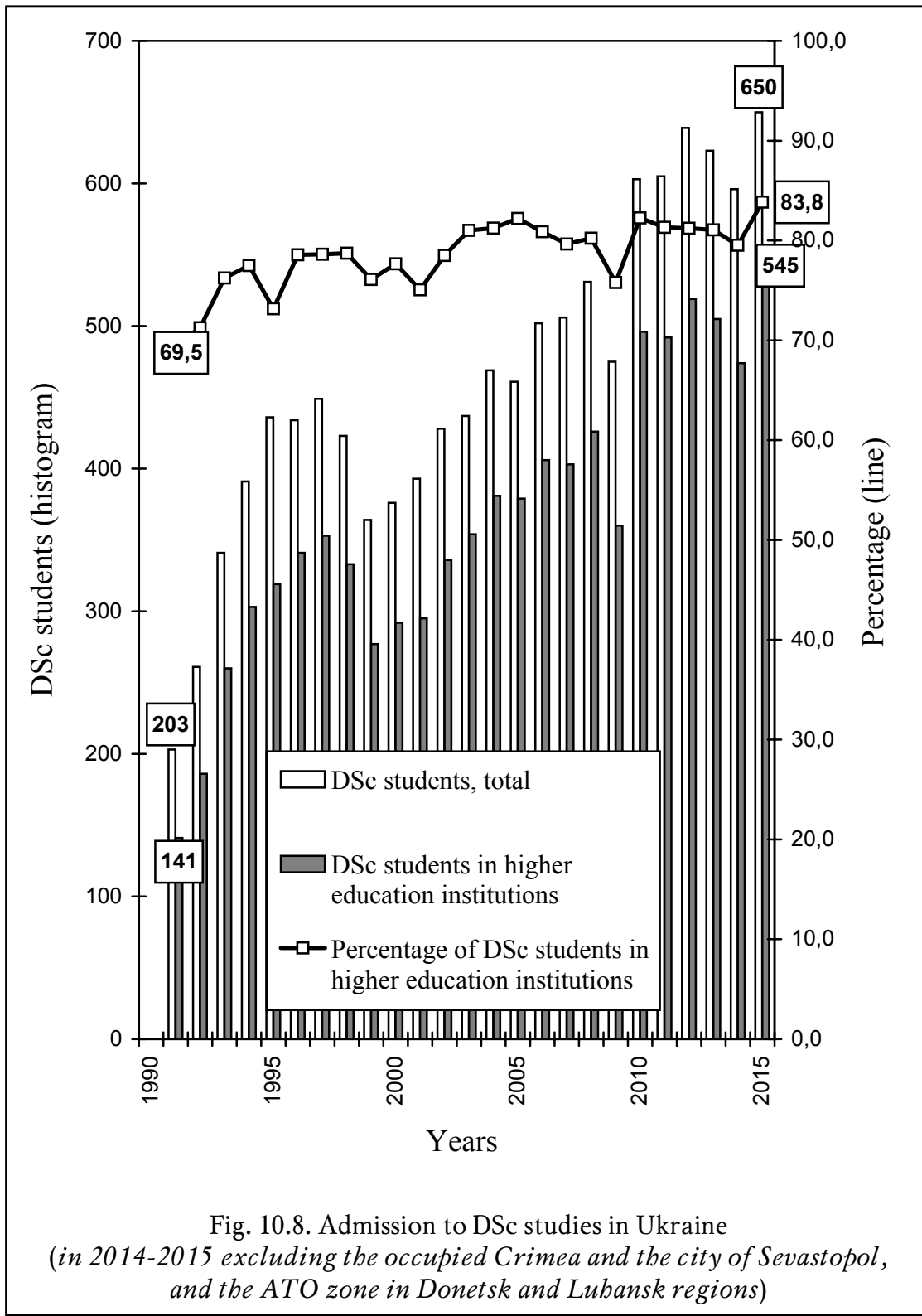


Fig. 10.8. Admission to DSc studies in Ukraine
*(in 2014-2015 excluding the occupied Crimea and the city of Sevastopol,
 and the ATO zone in Donetsk and Lubansk regions)*

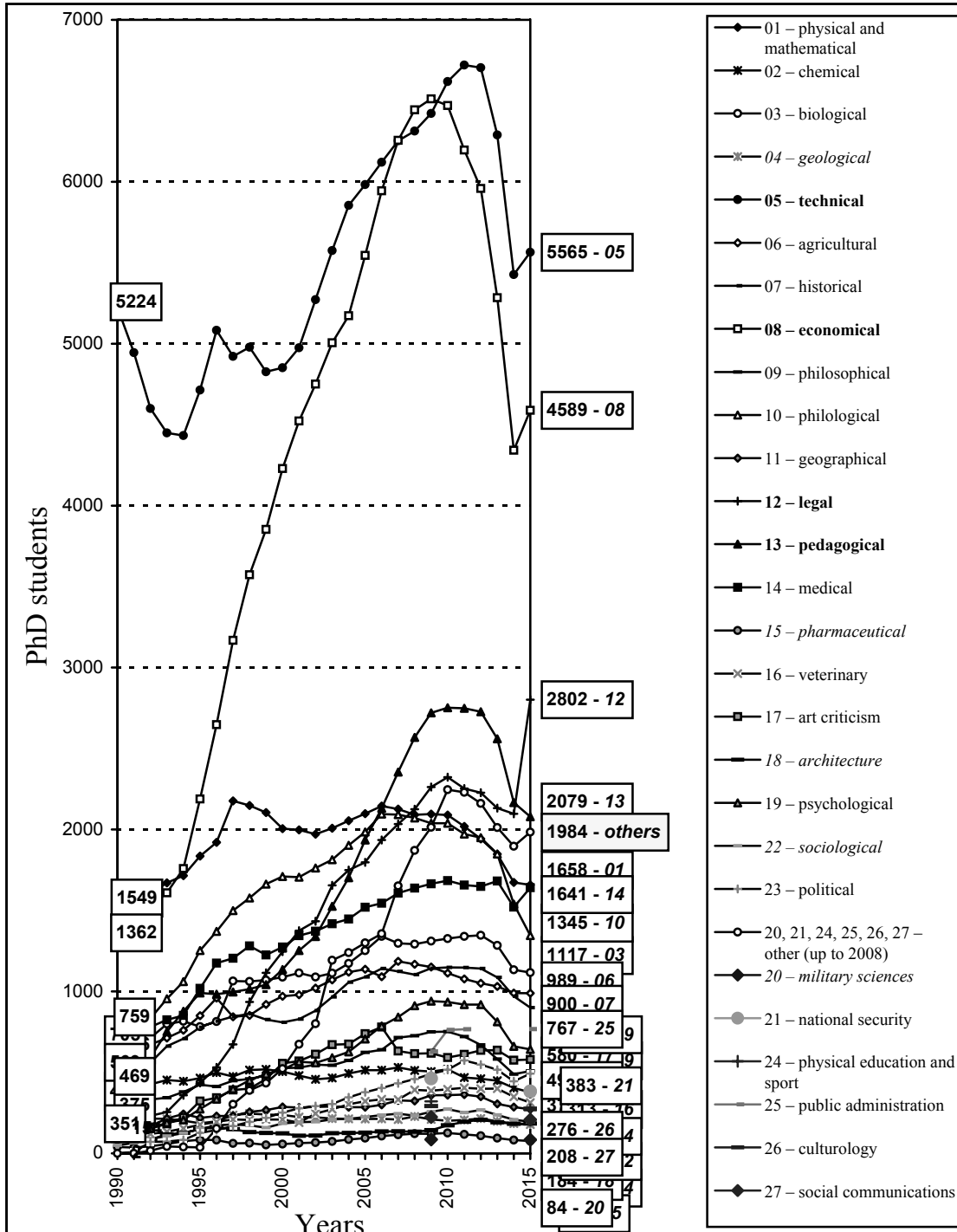


Fig. 10.9. Number of PhD students by fields of science in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

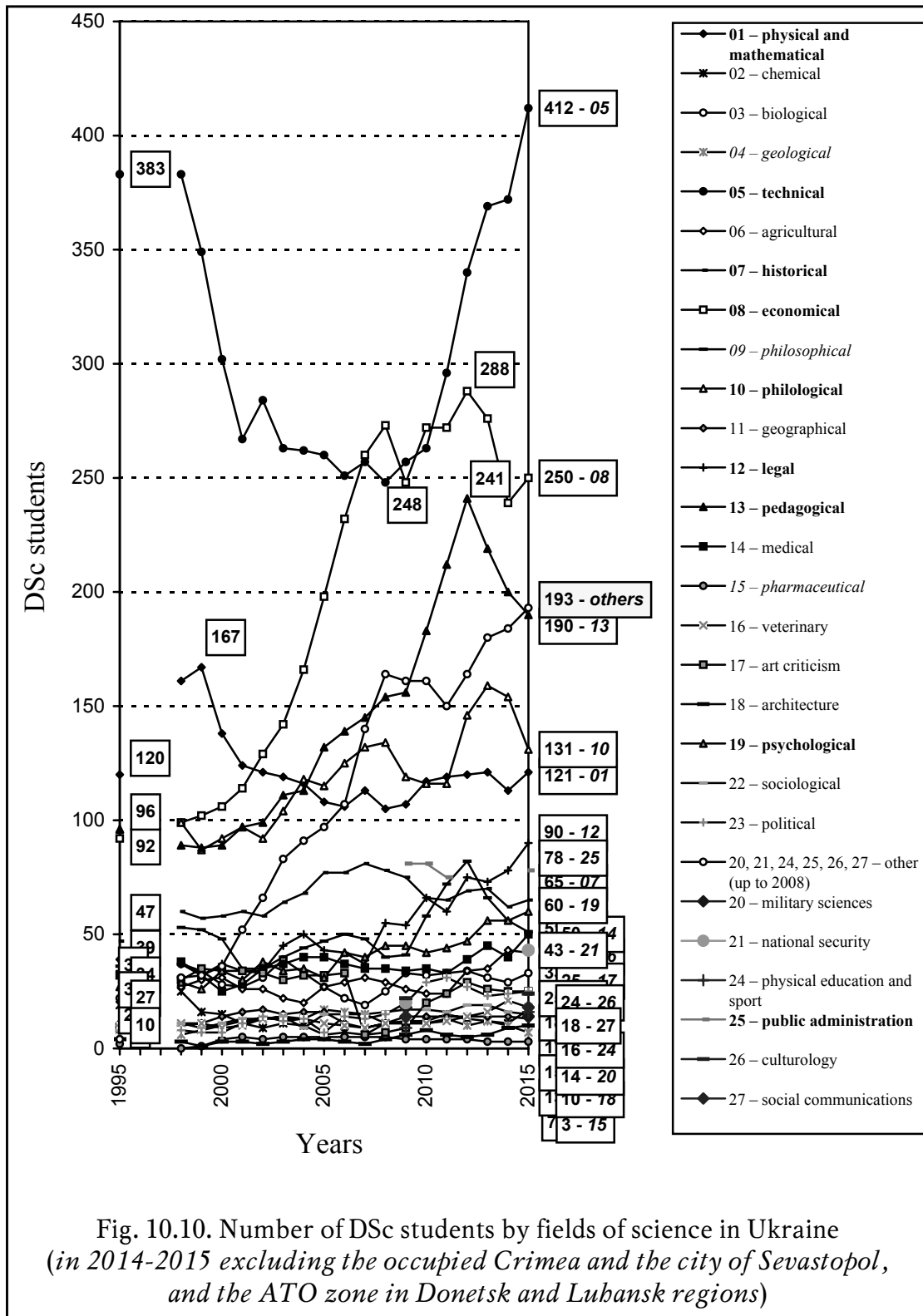


Fig. 10.10. Number of DSc students by fields of science in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

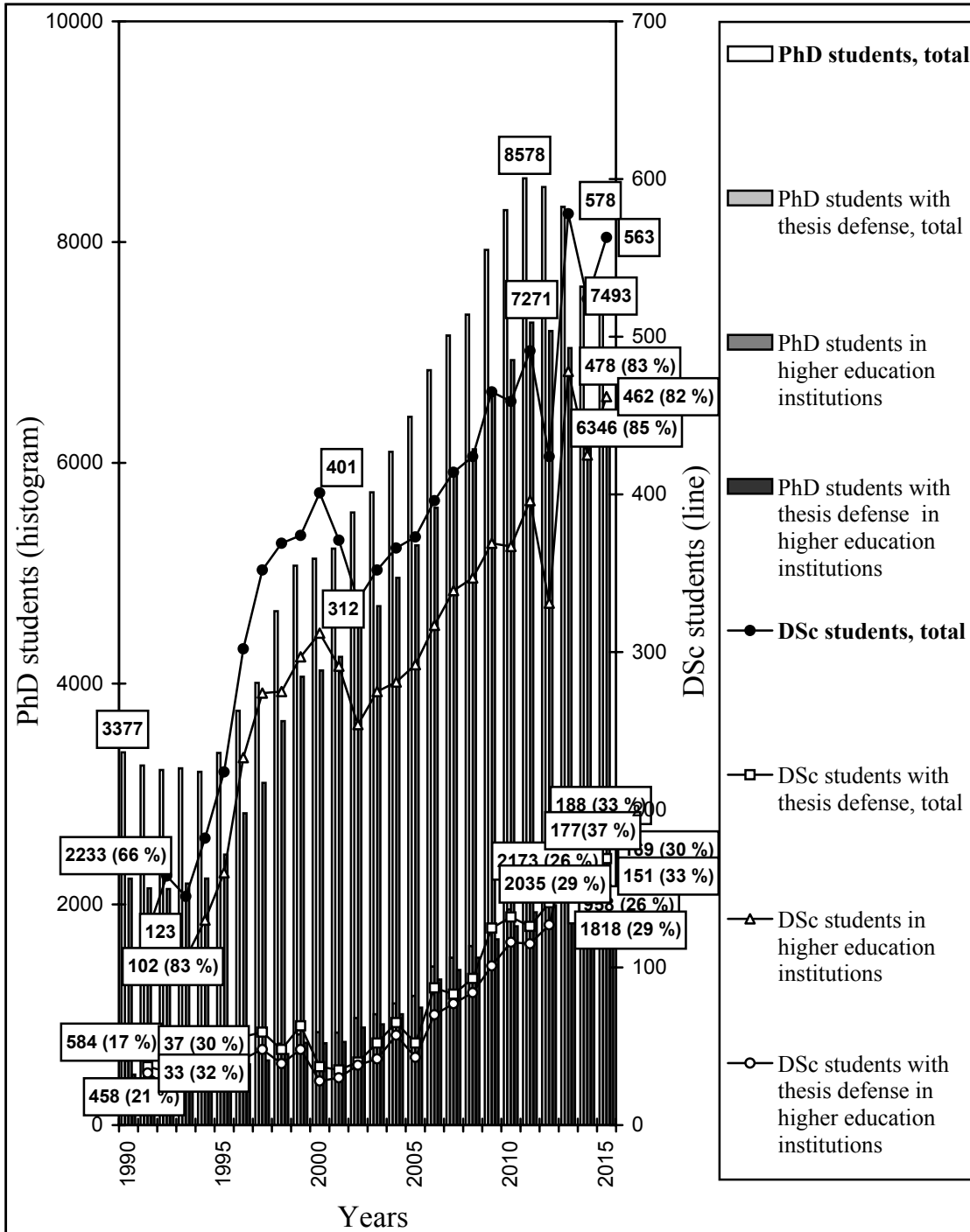
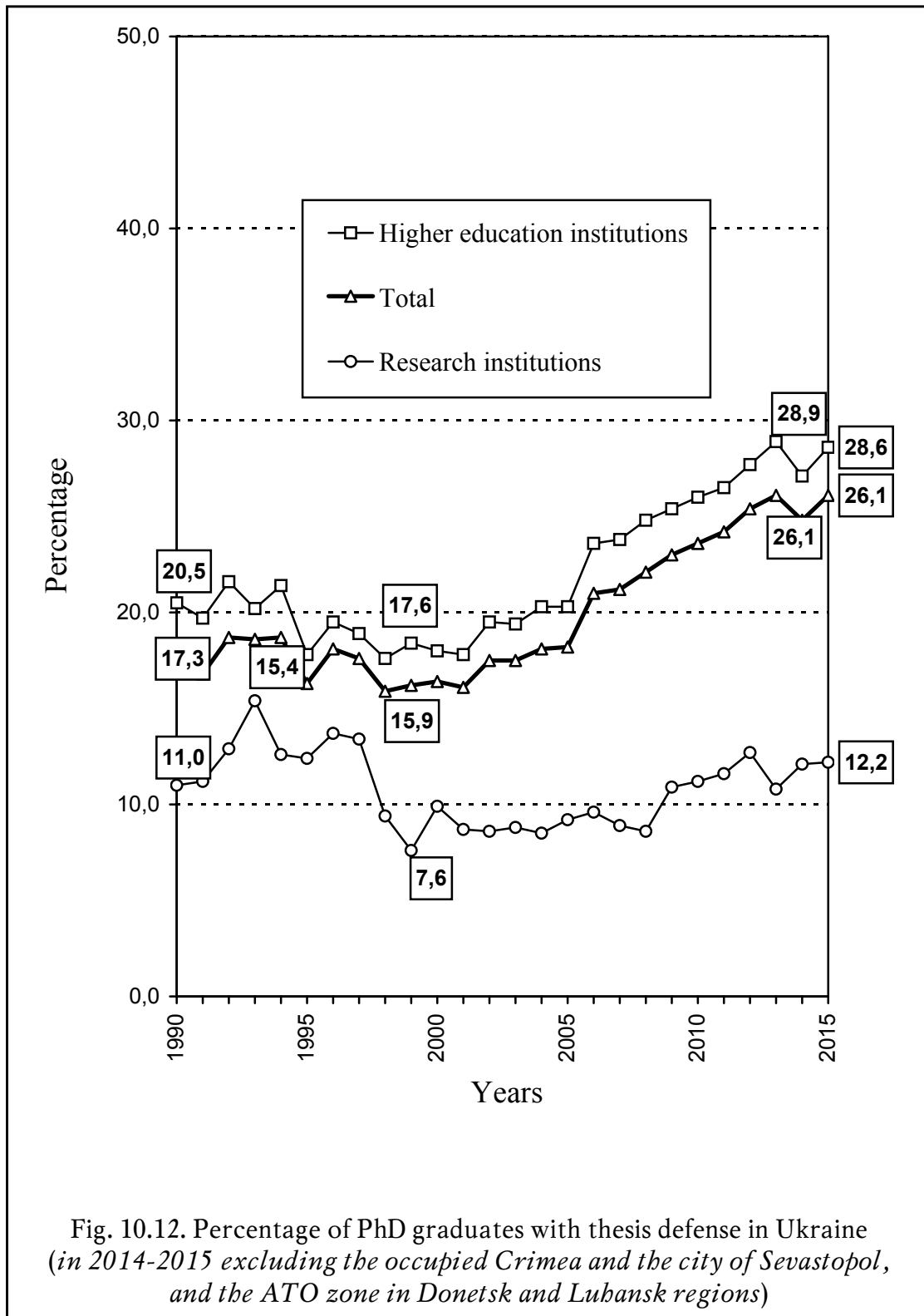


Fig. 10.11. Graduates of PhD and DSc studies in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)



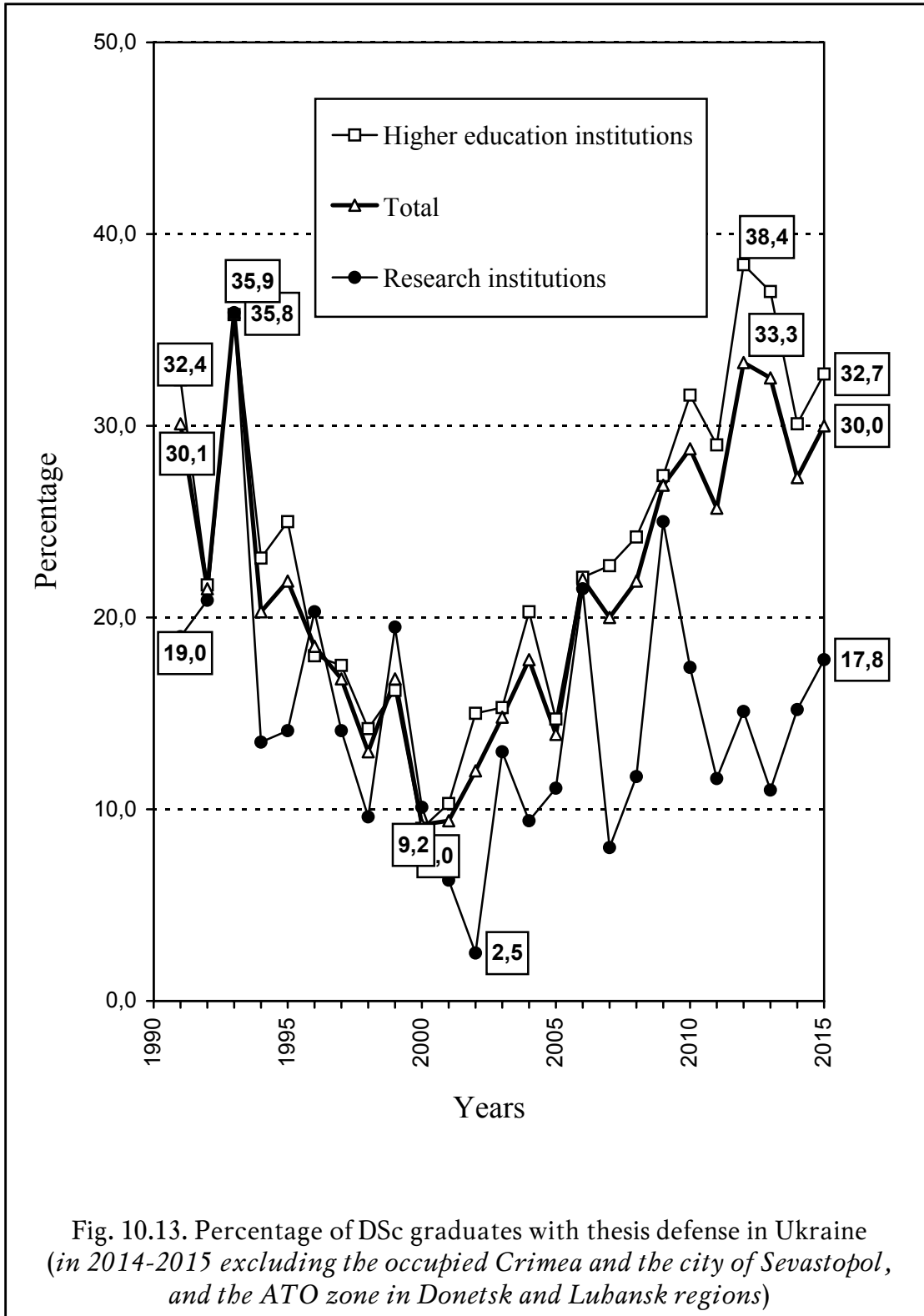


Fig. 10.13. Percentage of DSc graduates with thesis defense in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

11. PROVIDING EDUCATION WITH PERSONNEL

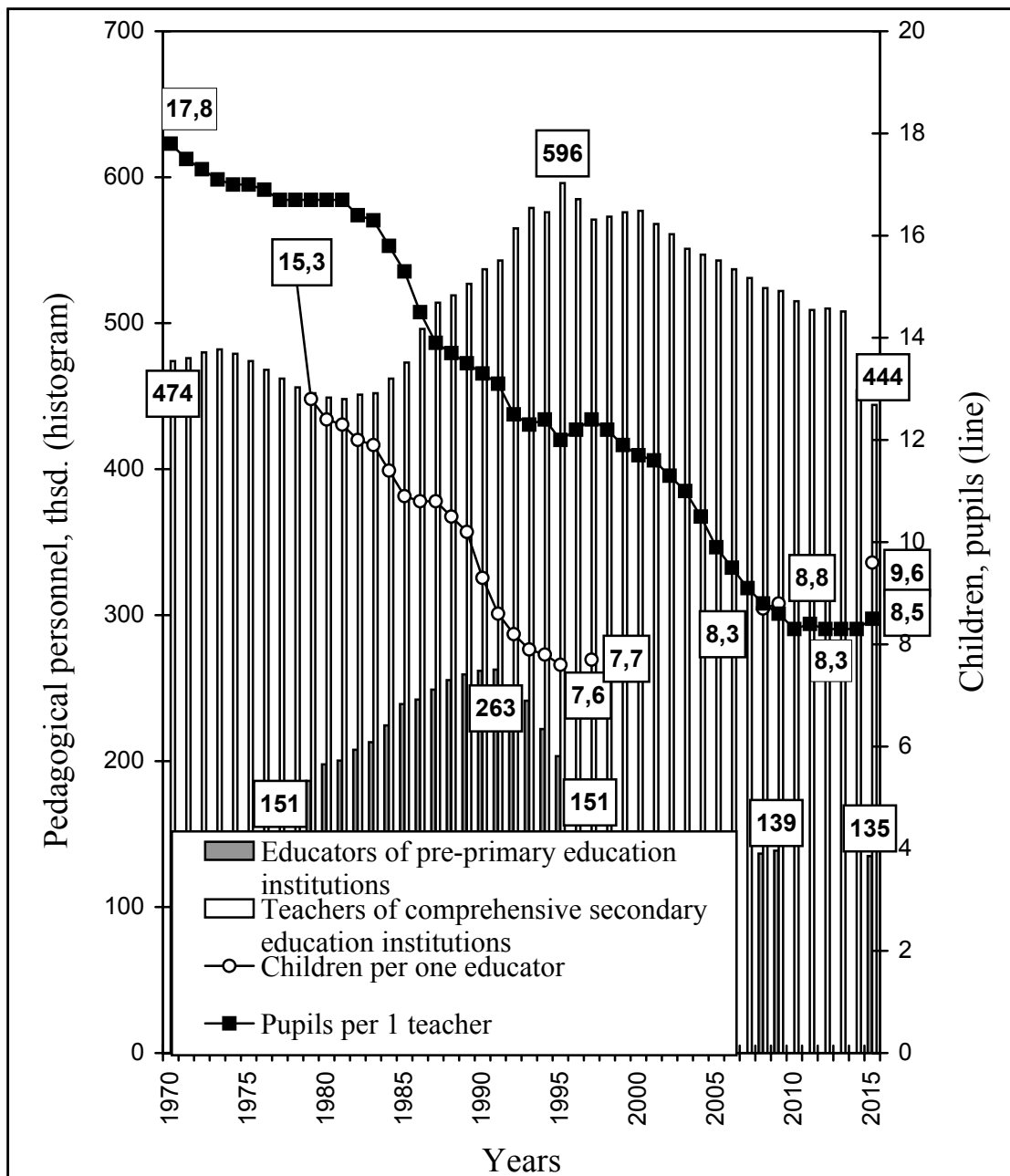


Fig. 11.1. Number of pedagogical personnel in pre-primary and comprehensive secondary education institutions and number of children, pupils per educator, teacher in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

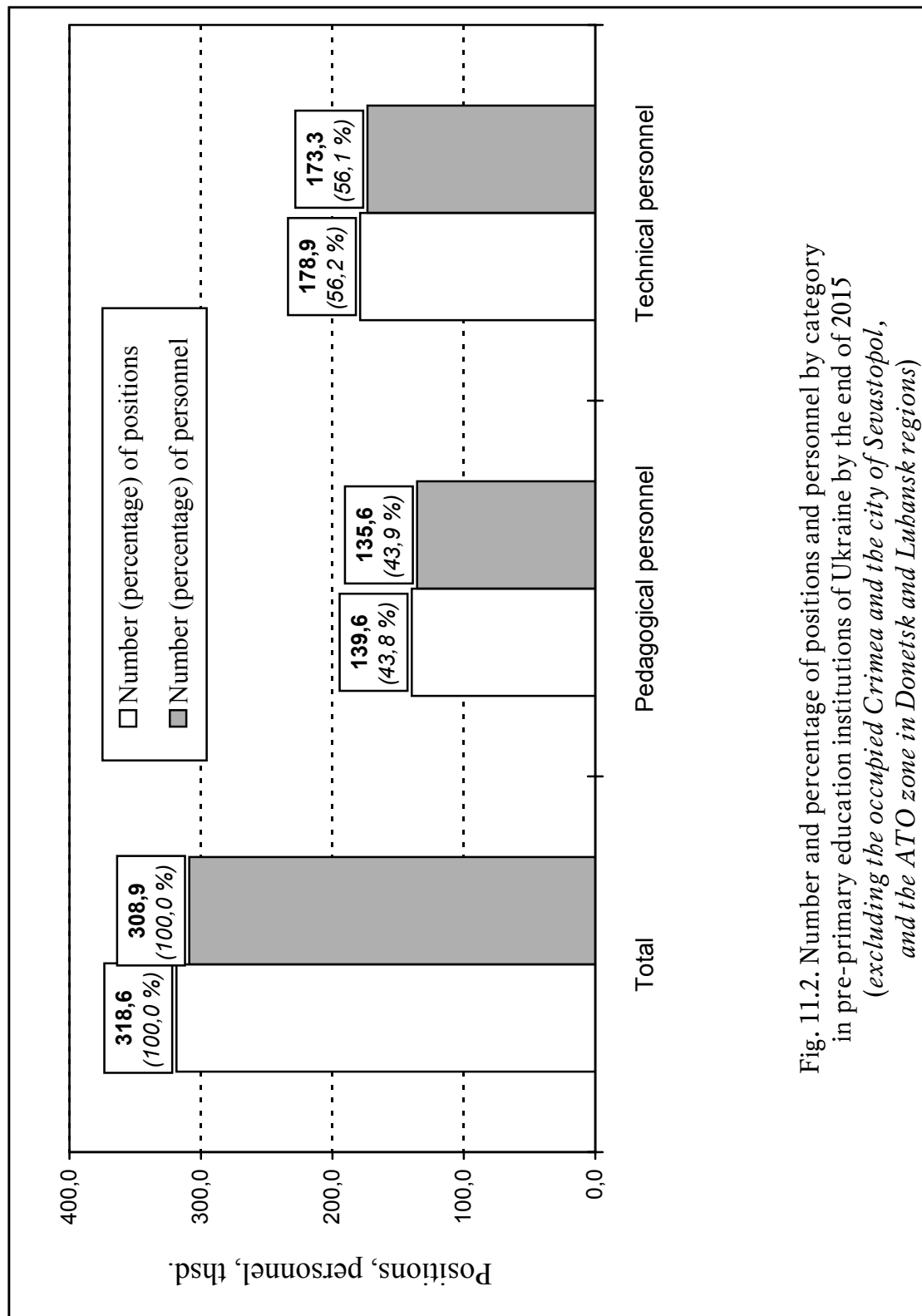


Fig. 11.2. Number and percentage of positions and personnel by category in pre-primary education institutions of Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

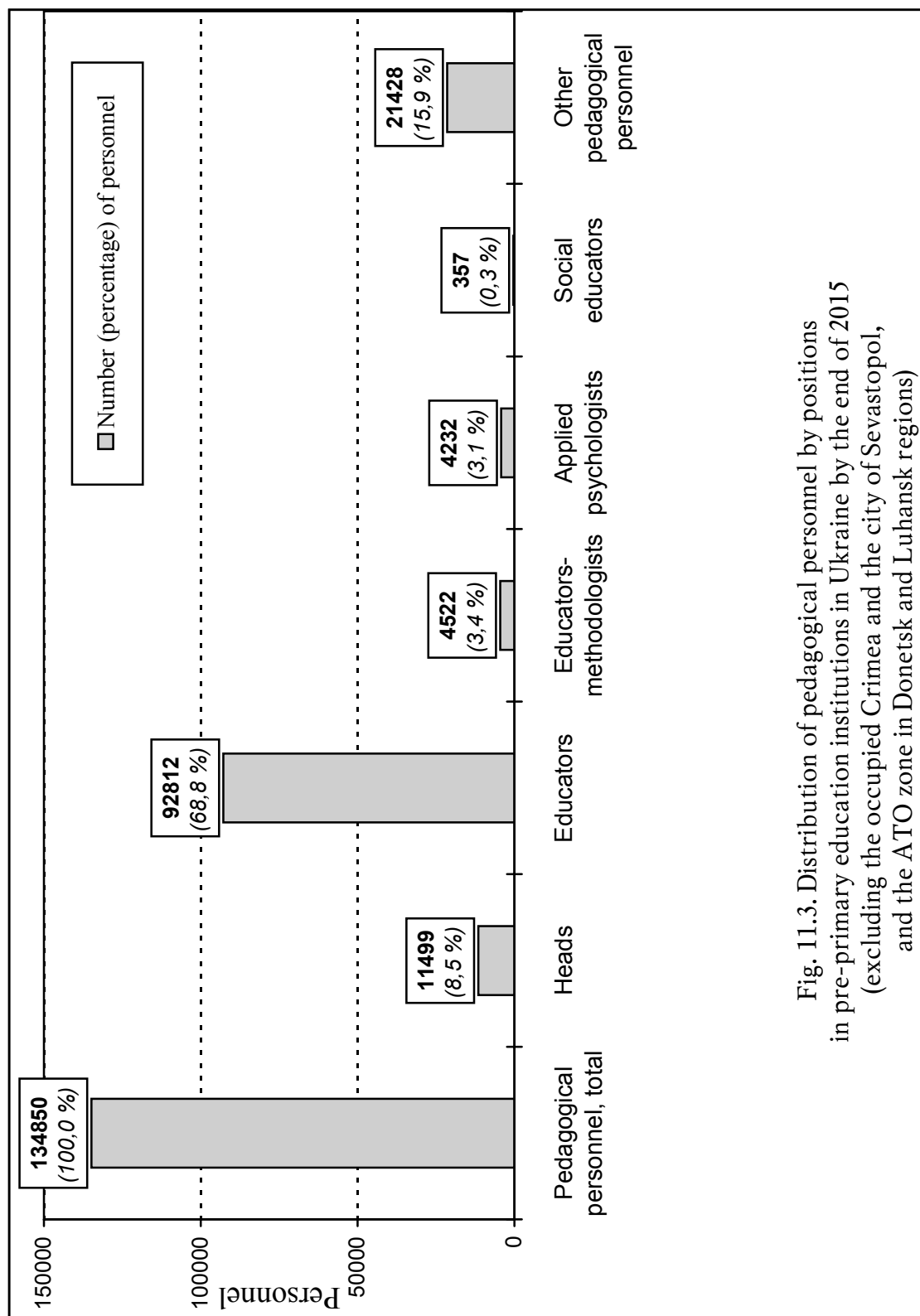


Fig. 11.3. Distribution of pedagogical personnel by positions in pre-primary education institutions in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

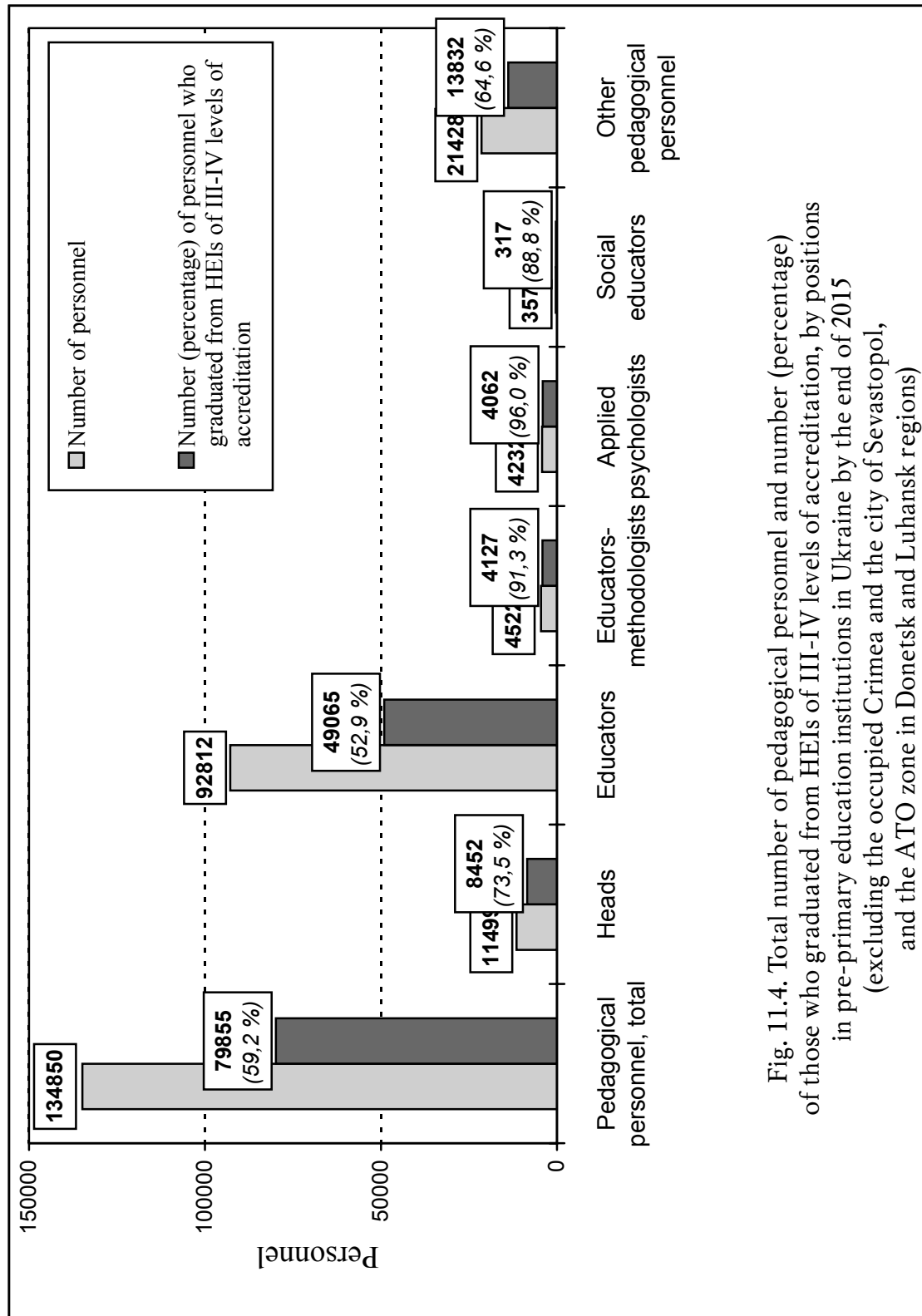


Fig. 11.4. Total number of pedagogical personnel and number (percentage) of those who graduated from HEIs of III-IV levels of accreditation, by positions in pre-primary education institutions in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

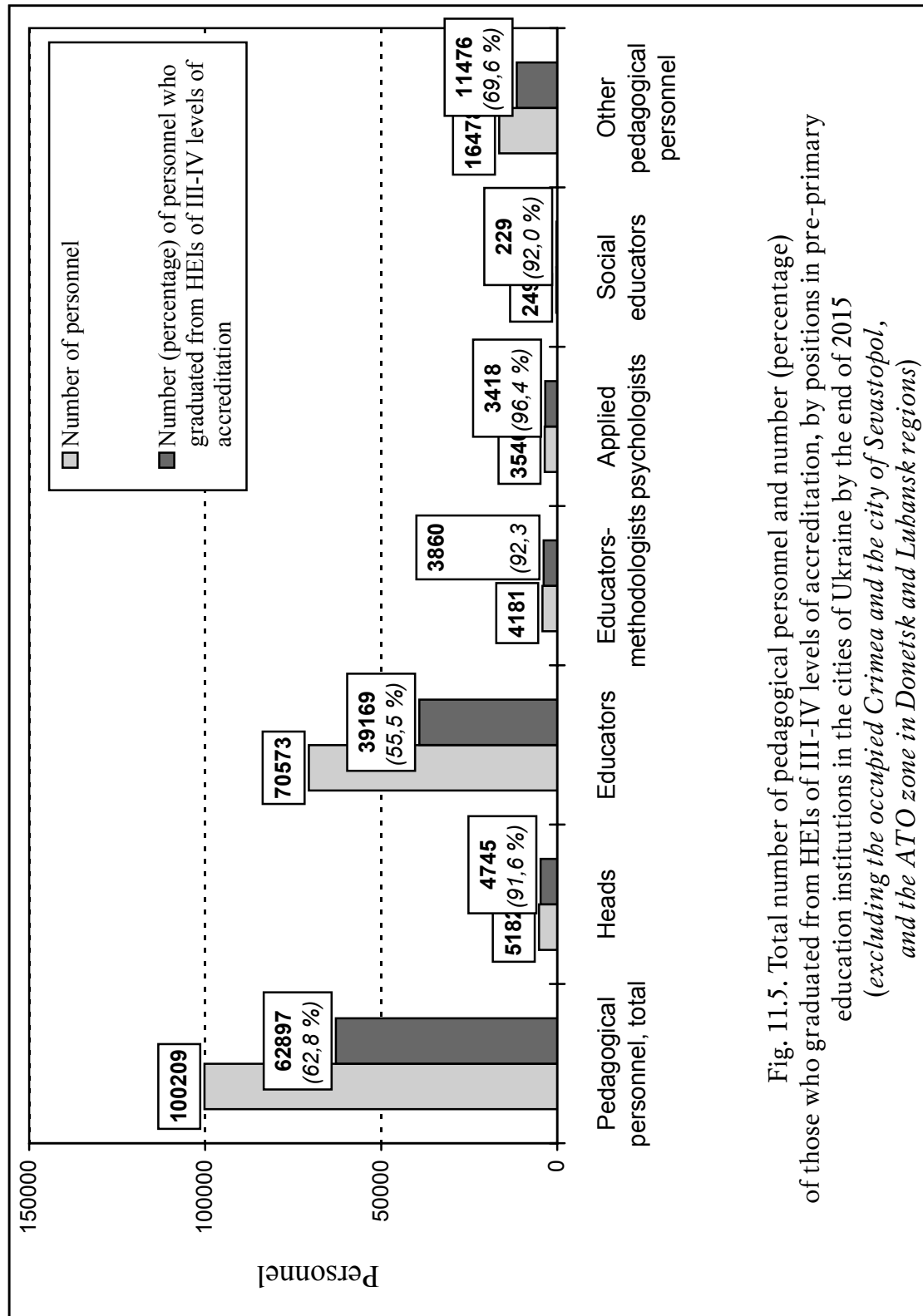


Fig. 11.5. Total number of pedagogical personnel and number (percentage) of those who graduated from HEIs of III-IV levels of accreditation, by positions in pre-primary education institutions in the cities of Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

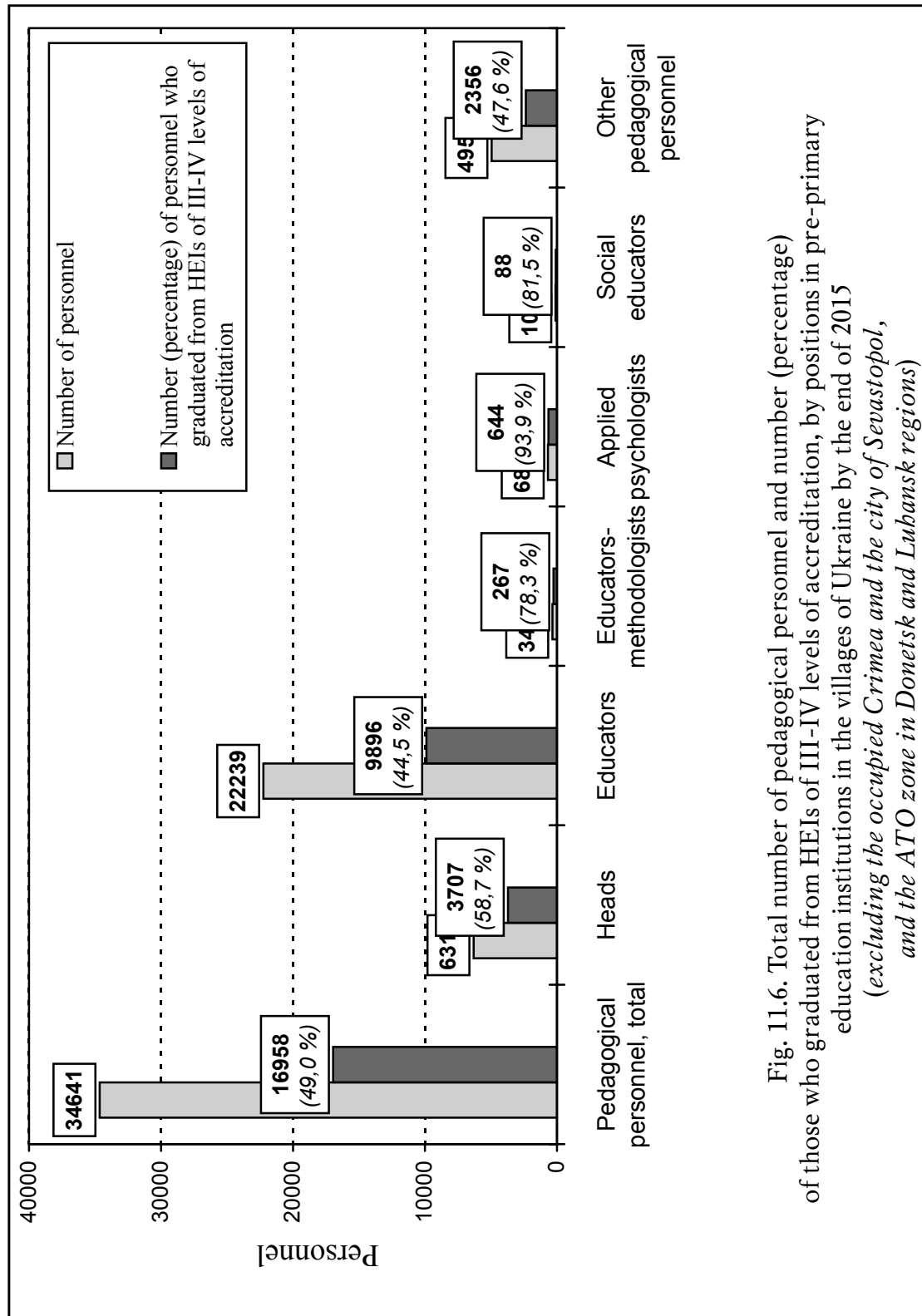


Fig. 11.6. Total number of pedagogical personnel and number (percentage) of those who graduated from HEIs of III-IV levels of accreditation, by positions in pre-primary education institutions in the villages of Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

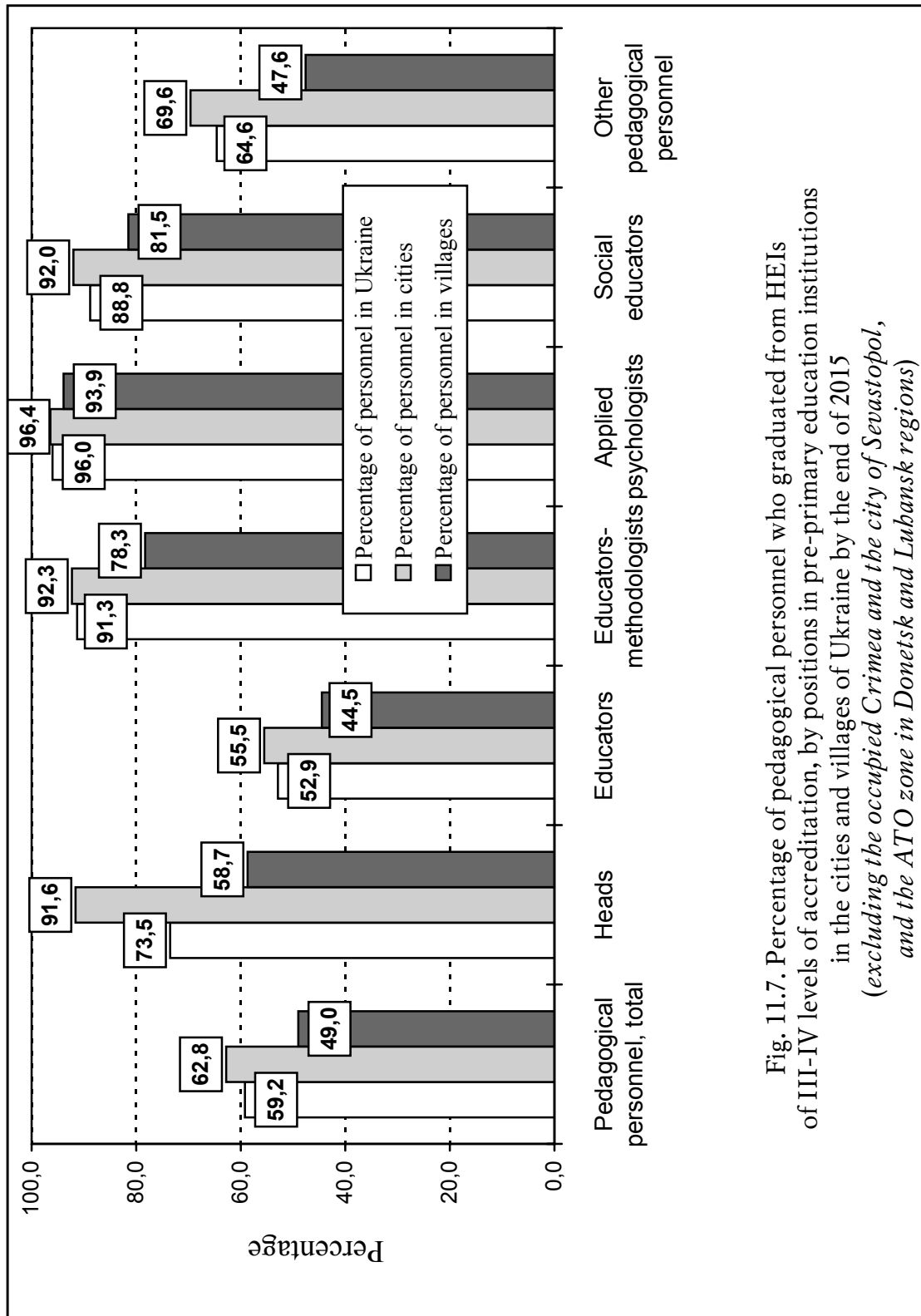


Fig. 11.7. Percentage of pedagogical personnel who graduated from HEIs of III-IV levels of accreditation, by positions in pre-primary education institutions in the cities and villages of Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

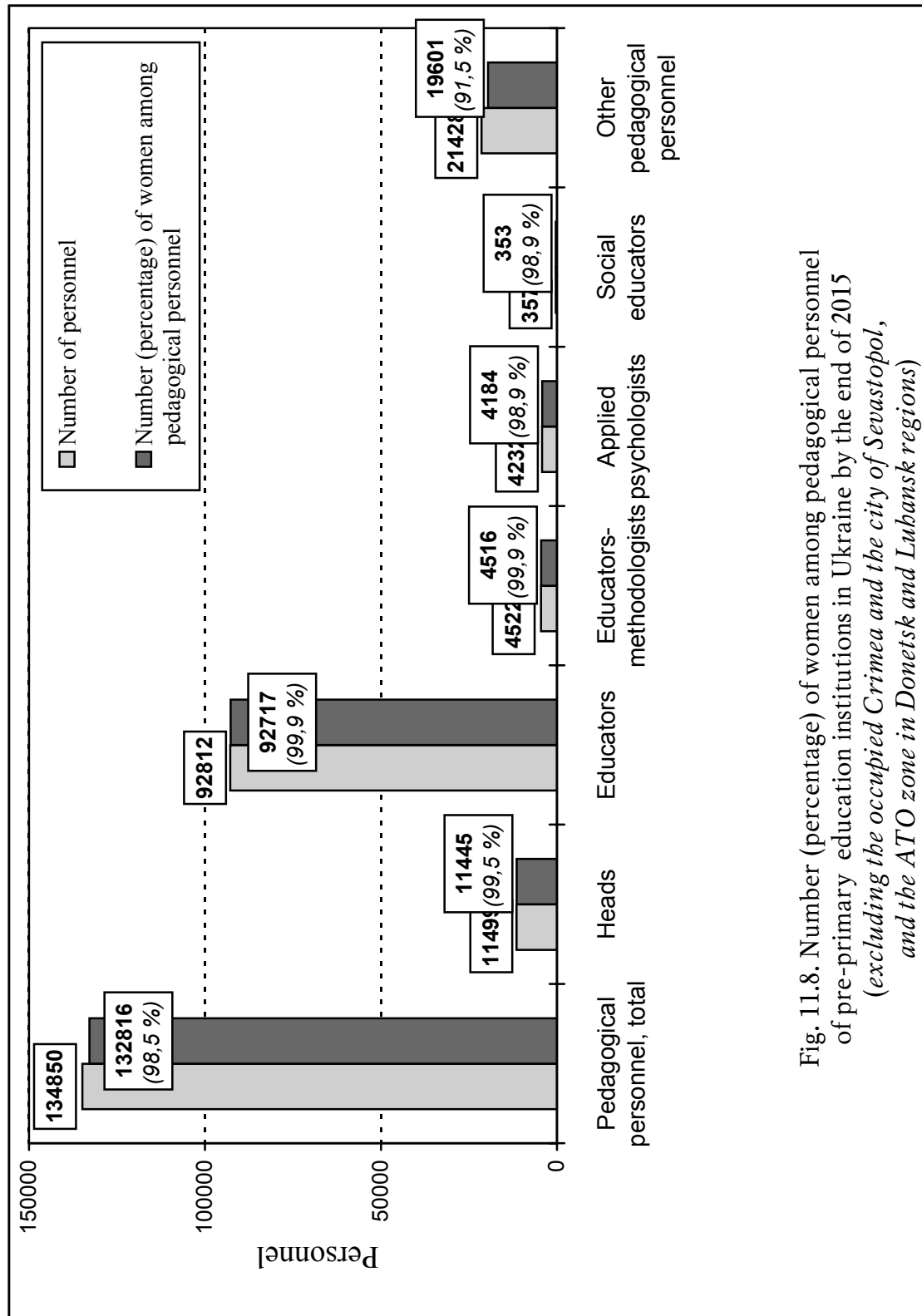


Fig. 11.8. Number (percentage) of women among pedagogical personnel of pre-primary education institutions in Ukraine by the end of 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

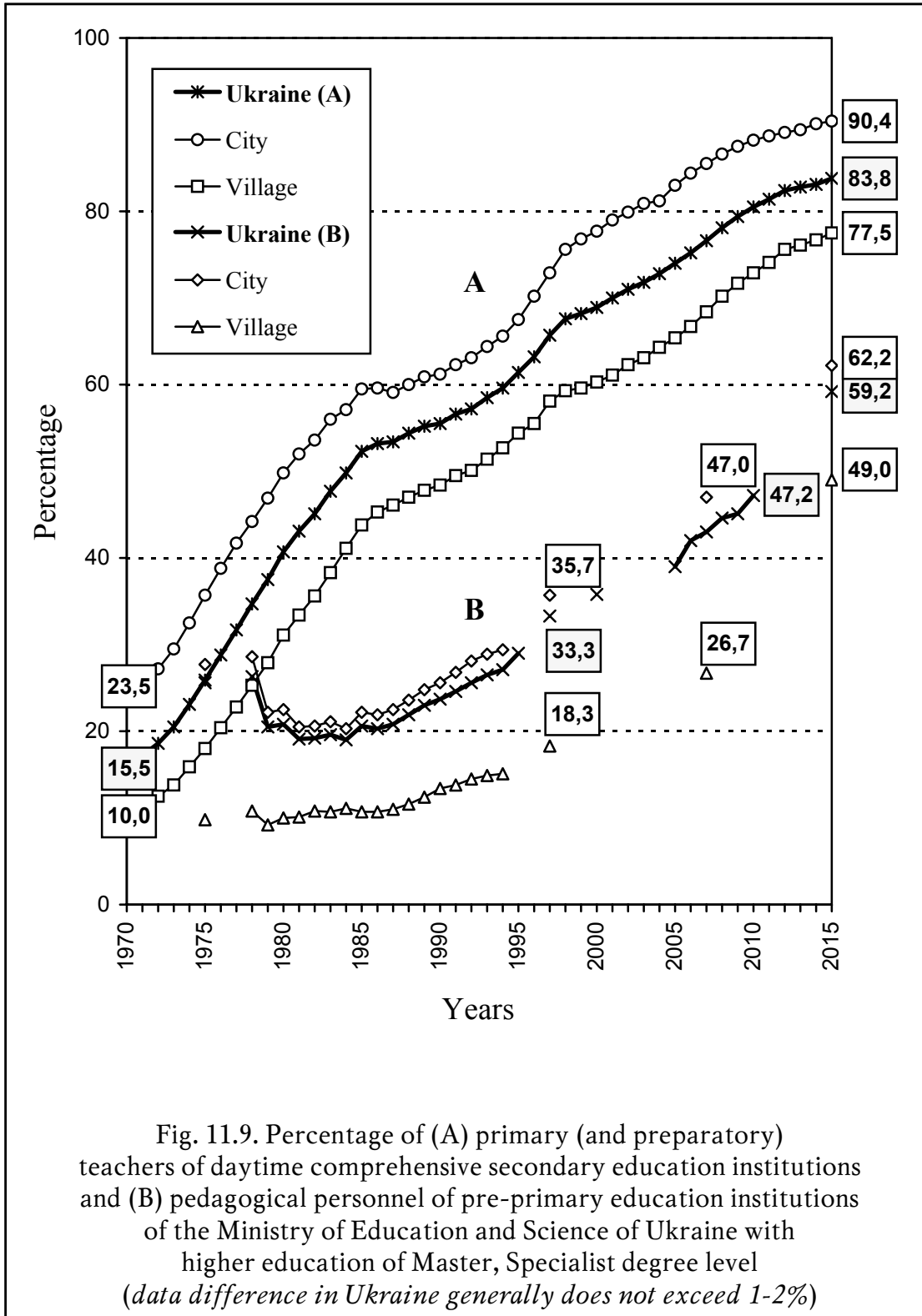


Fig. 11.9. Percentage of (A) primary (and preparatory) teachers of daytime comprehensive secondary education institutions and (B) pedagogical personnel of pre-primary education institutions of the Ministry of Education and Science of Ukraine with higher education of Master, Specialist degree level (data difference in Ukraine generally does not exceed 1-2%)

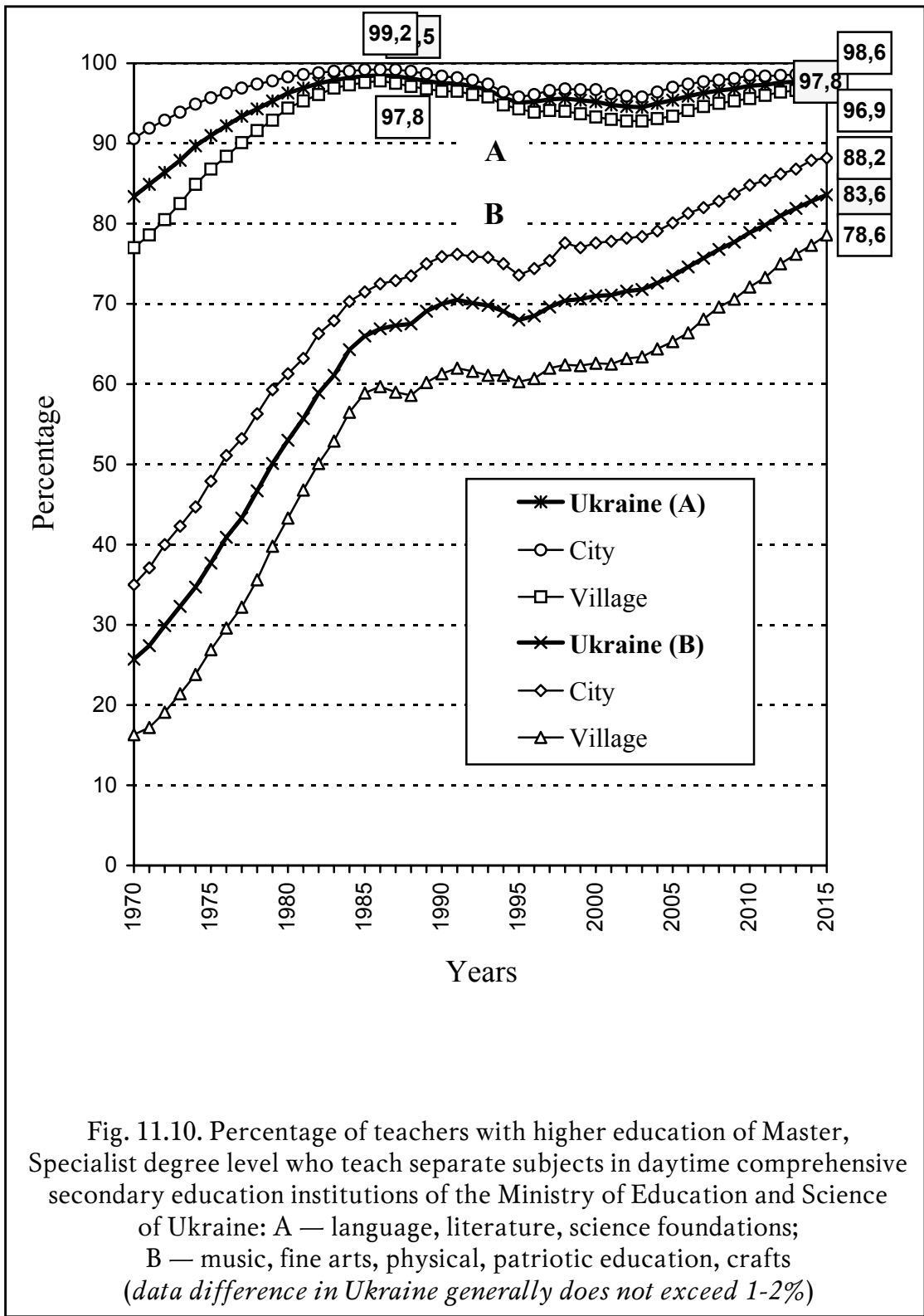


Fig. 11.10. Percentage of teachers with higher education of Master, Specialist degree level who teach separate subjects in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine: A — language, literature, science foundations; B — music, fine arts, physical, patriotic education, crafts (data difference in Ukraine generally does not exceed 1-2%)

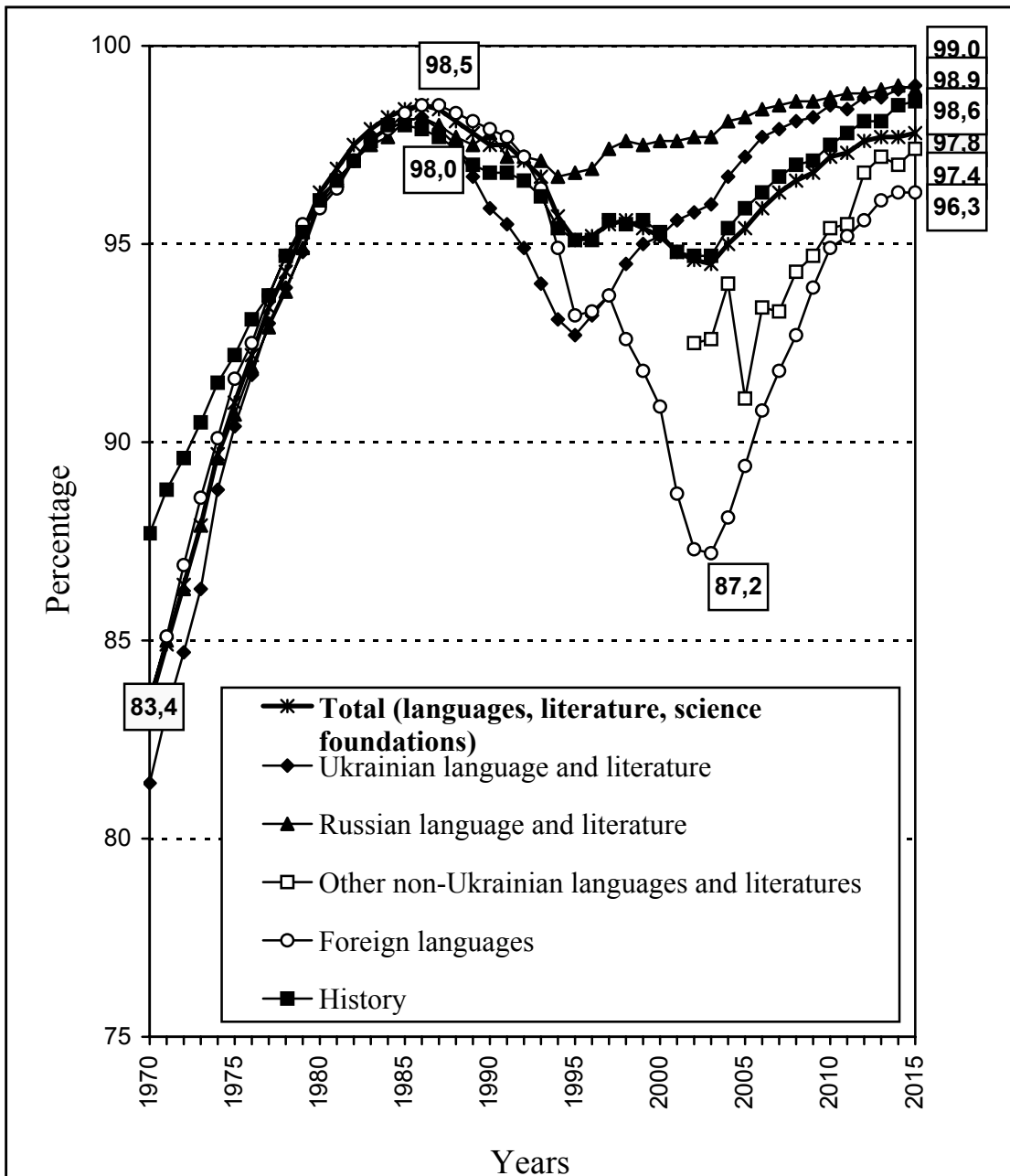


Fig. 11.11. Percentage of teachers with higher education of Master, Specialist degree level who teach separate subjects (languages, literature, history) in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine (*data difference in Ukraine generally does not exceed 1-2%*)

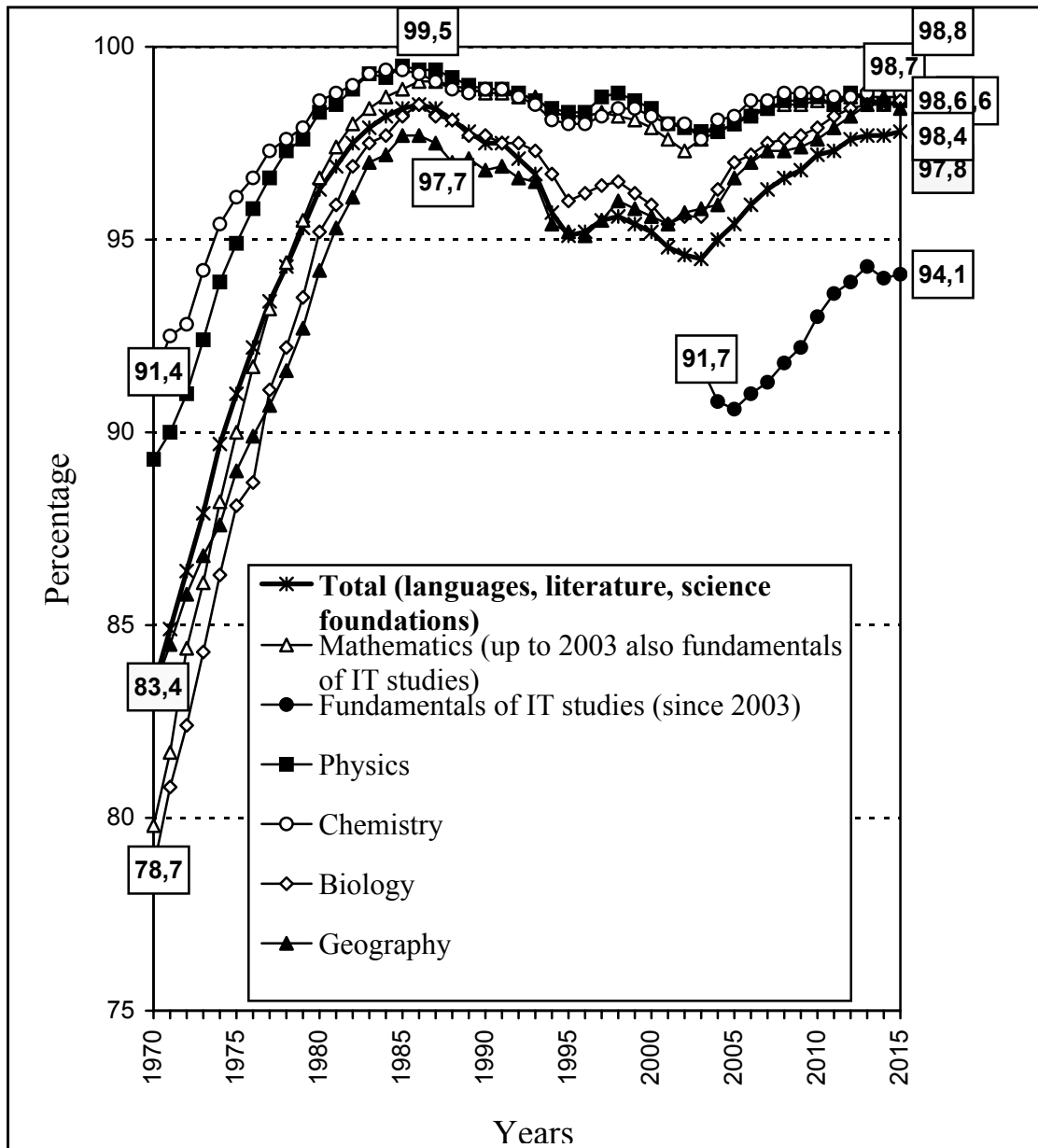


Fig. 11.12. Percentage of teachers with higher education of Master, Specialist degree level who teach separate subjects (mathematics, fundamentals of IT studies, natural sciences) in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine (data difference in Ukraine generally does not exceed 1-2%)

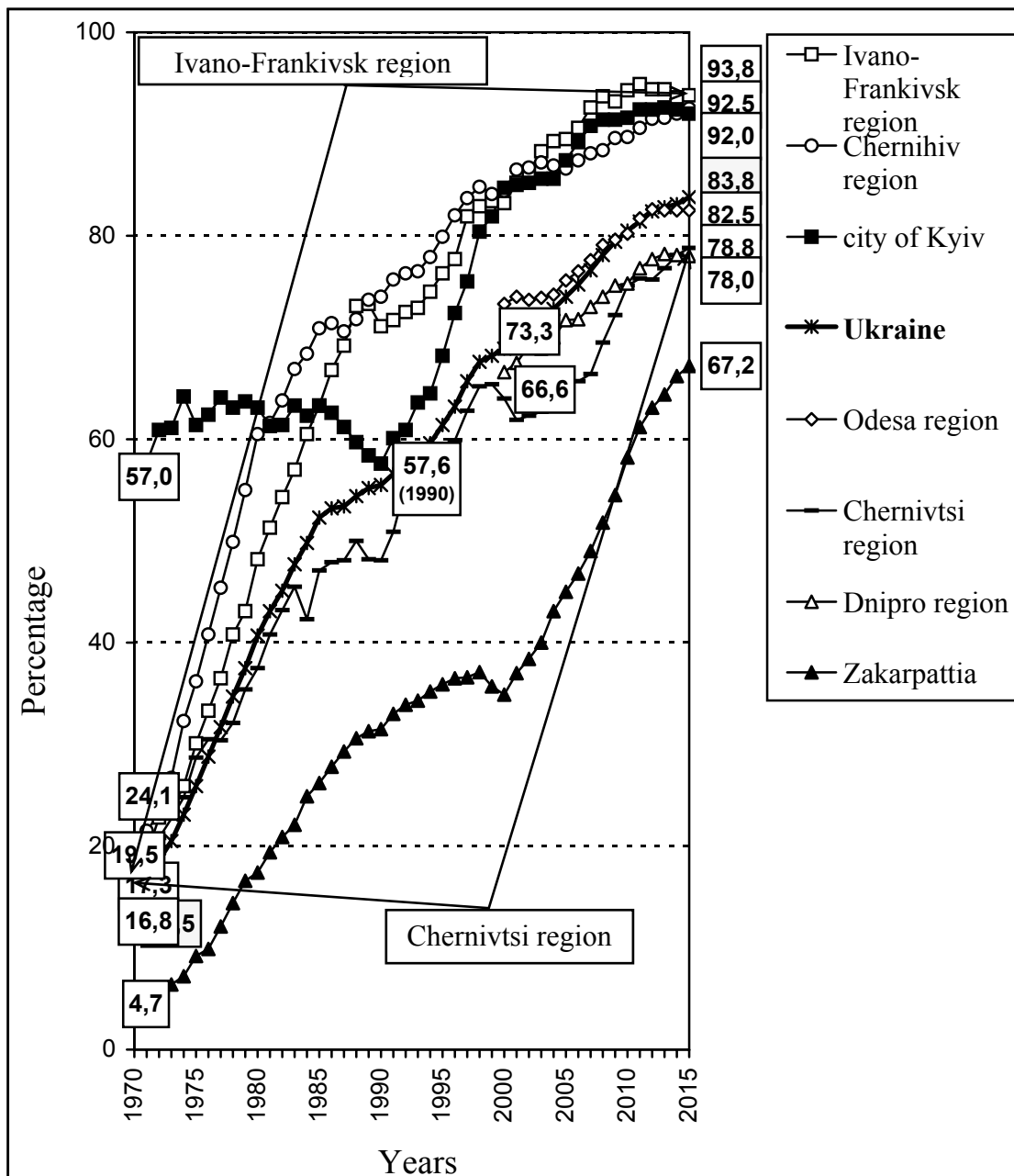


Fig. 11.13. Percentage of primary (and preparatory) teachers with higher education of Master, Specialist degree level in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine, in the regions and in the city of Kyiv (data difference in Ukraine generally does not exceed 1-2%)

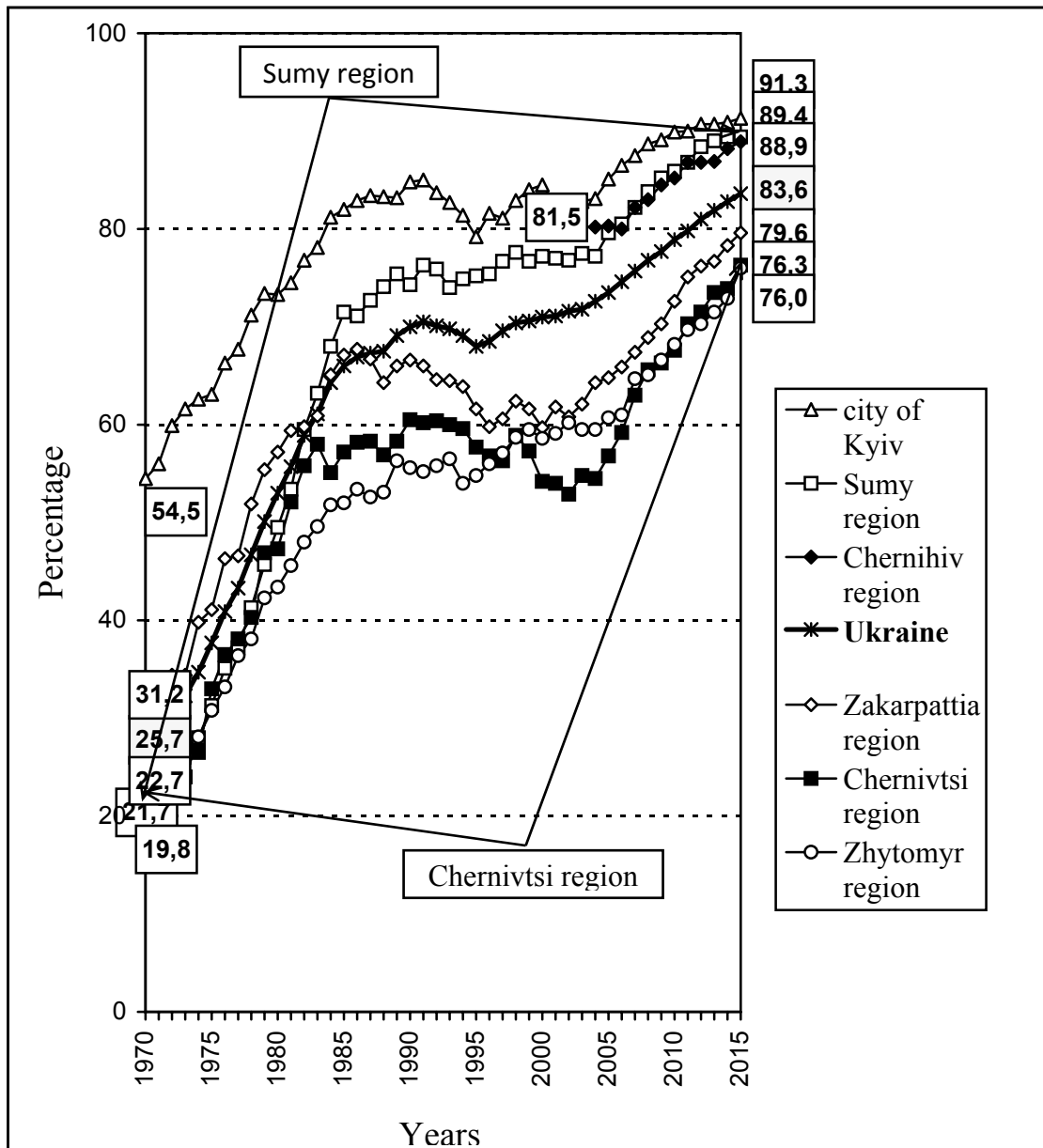


Fig. 11.14. Percentage of teachers with higher education of Master, Specialist degree level teaching music, fine arts, physical, patriotic education, crafts in daytime comprehensive secondary education institutions of the Ministry of Education of Ukraine, in the regions and in the city of Kyiv (data difference in Ukraine generally does not exceed 1-2%)

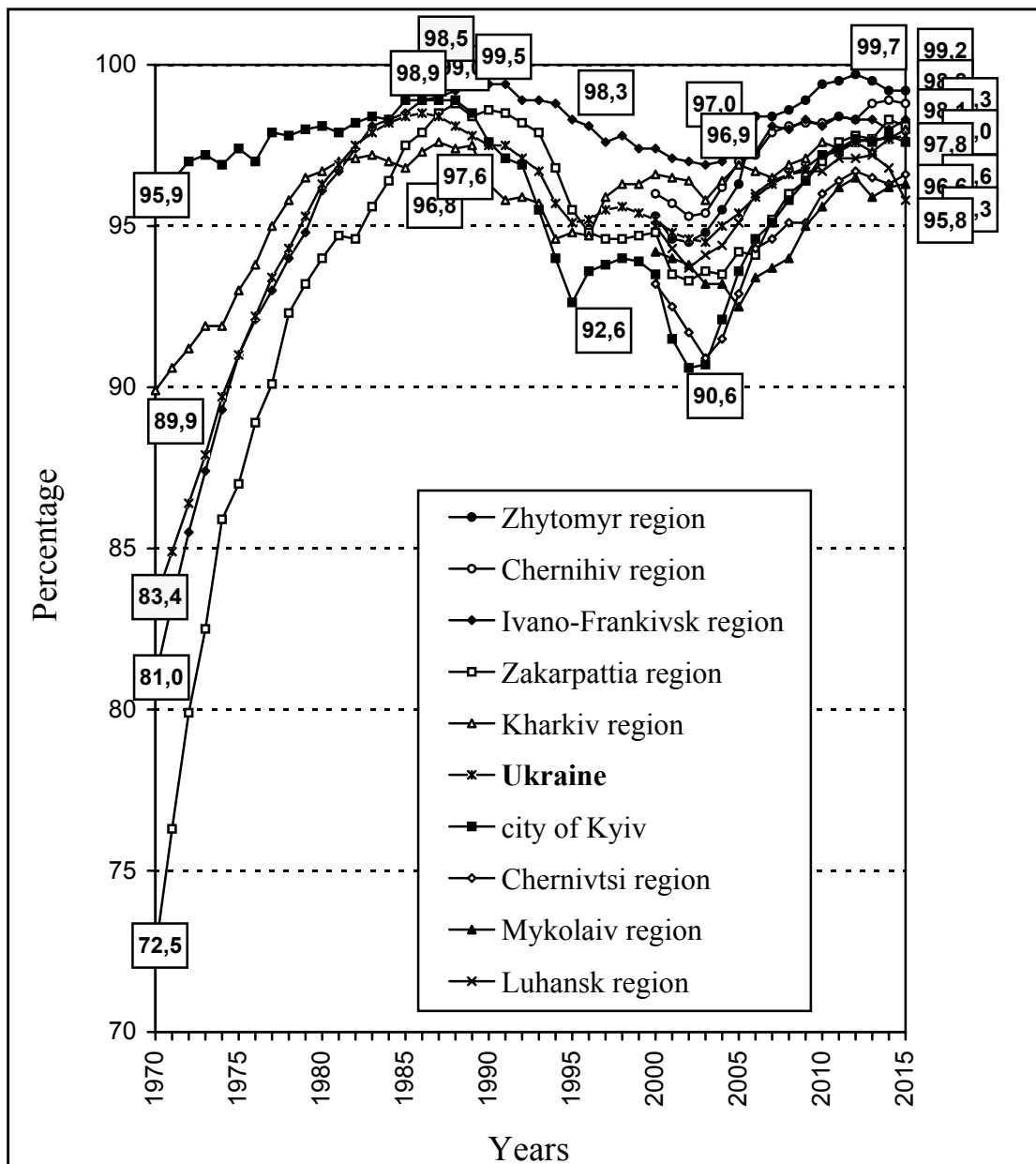


Fig. 11.15. Percentage of teachers with higher education of Master, Specialist degree level teaching separate subjects (languages, literature, science foundations) in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine, in the regions and in the city of Kyiv
(data difference in Ukraine generally does not exceed 1-2%)

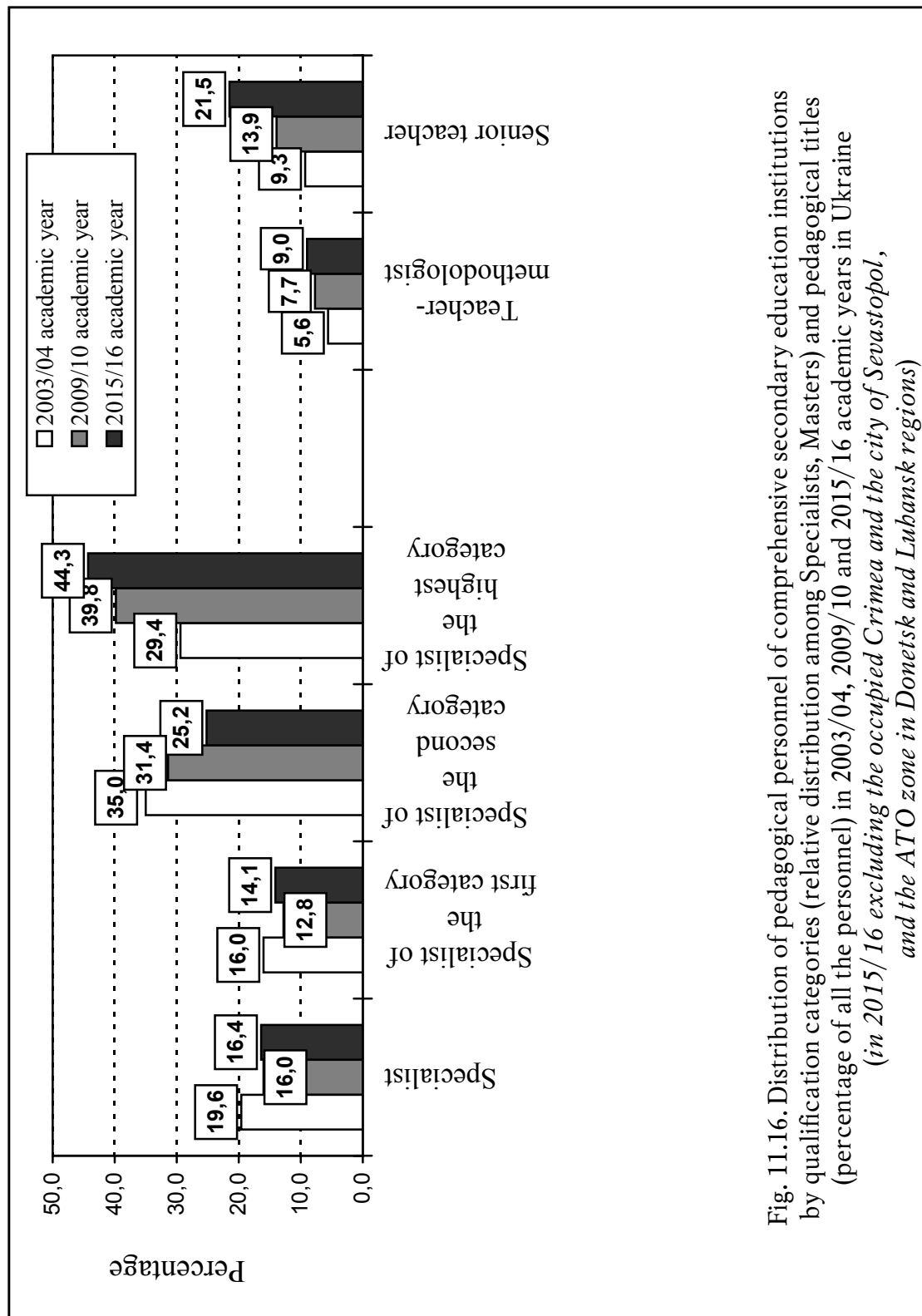


Fig. 11.16. Distribution of pedagogical personnel of comprehensive secondary education institutions by qualification categories (relative distribution among Specialists, Masters) and pedagogical titles (percentage of all the personnel) in 2003/04, 2009/10 and 2015/16 academic years in Ukraine (in 2015/16 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

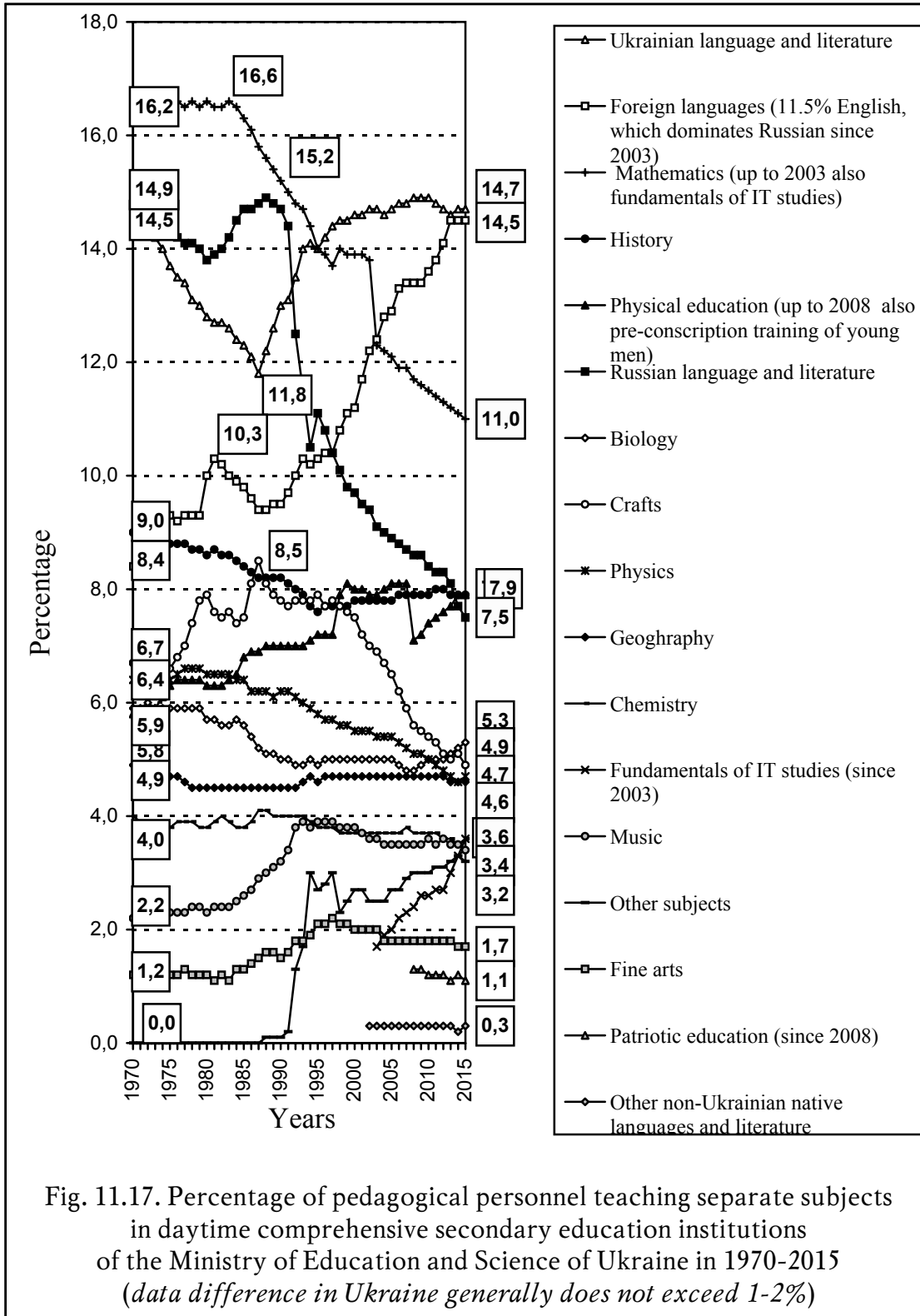


Fig. 11.17. Percentage of pedagogical personnel teaching separate subjects in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine in 1970-2015 (data difference in Ukraine generally does not exceed 1-2%)

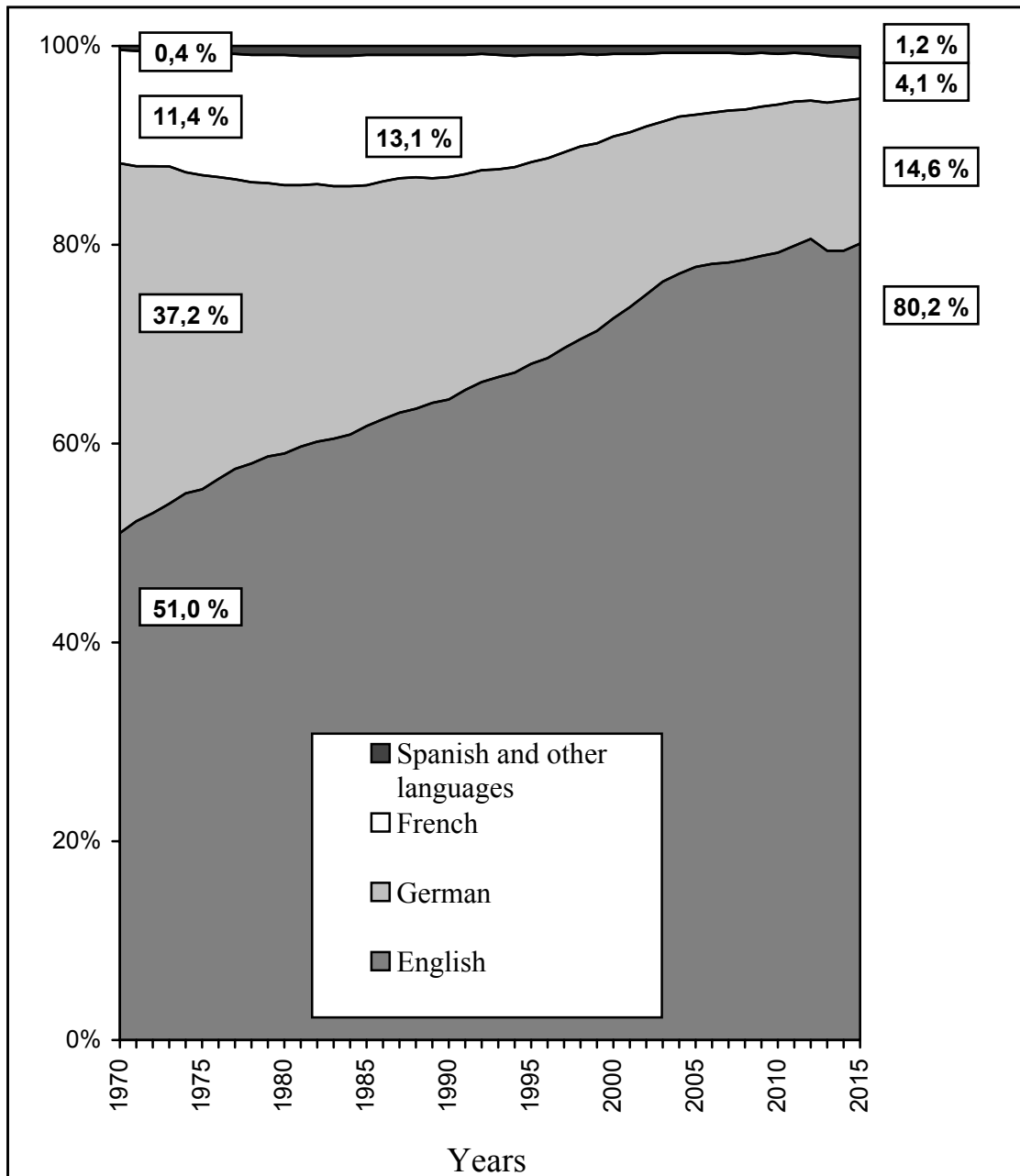


Fig. 11.18. Percentage of English, German, French, Spanish and other foreign languages teachers in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine (data difference in Ukraine generally does not exceed 1-2%)

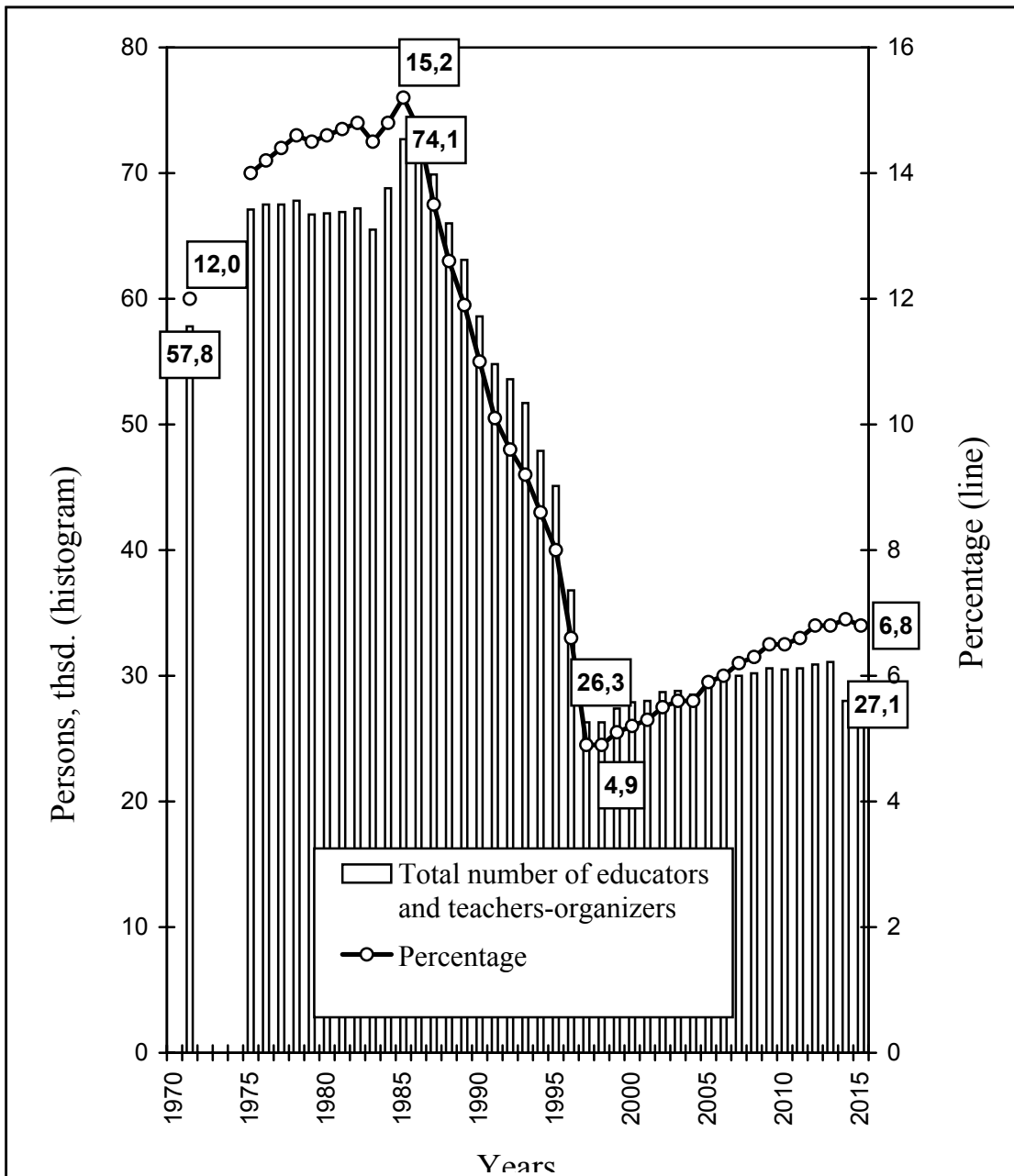


Fig. 11.19. Number of educators and teachers-organizers and their percentage among pedagogical personnel in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine (Ukraine difference data generally does not exceed 1-2%)

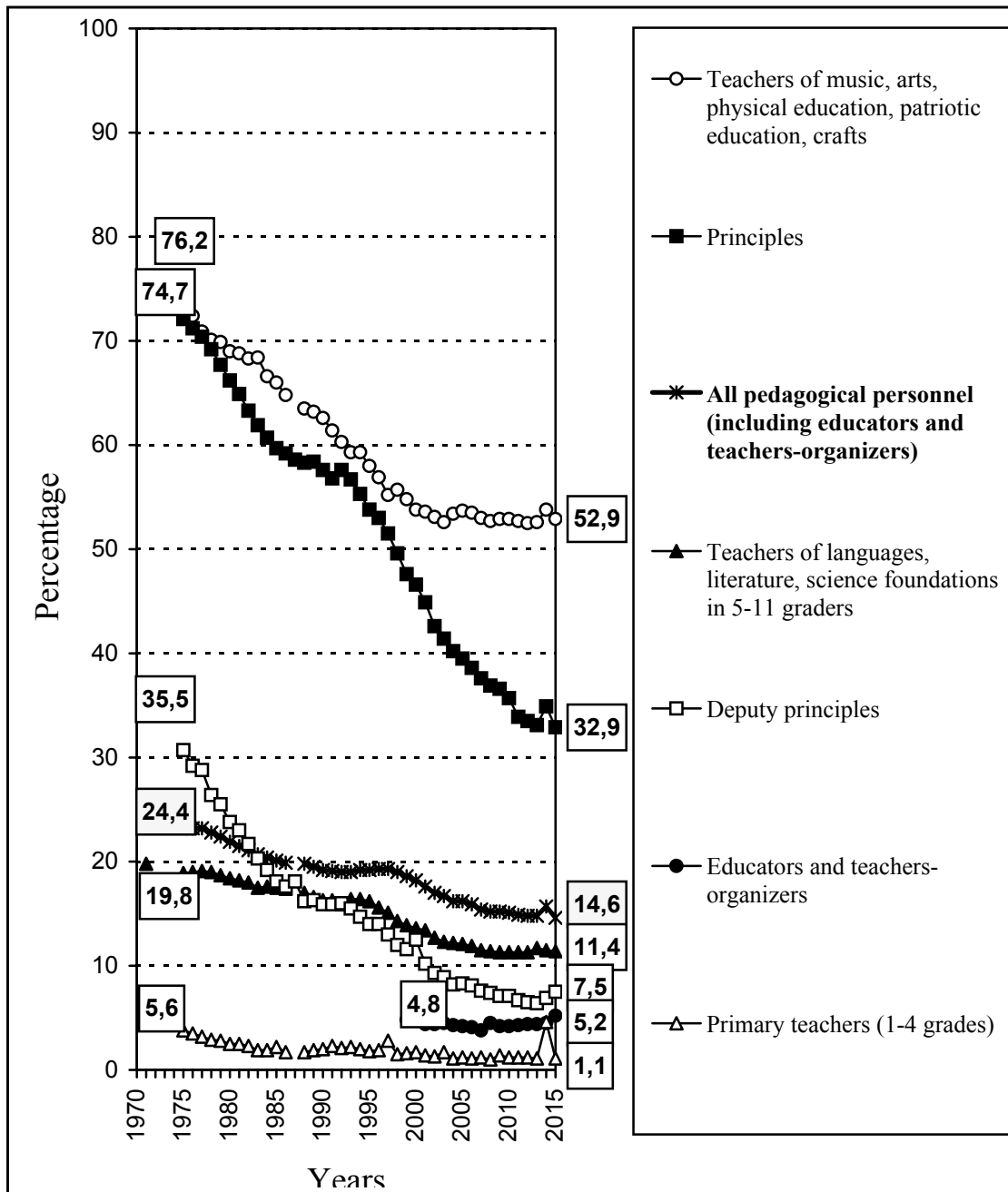


Fig. 11.20. Percentage of men among pedagogical personnel in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine (data difference in Ukraine generally does not exceed 1-2%)

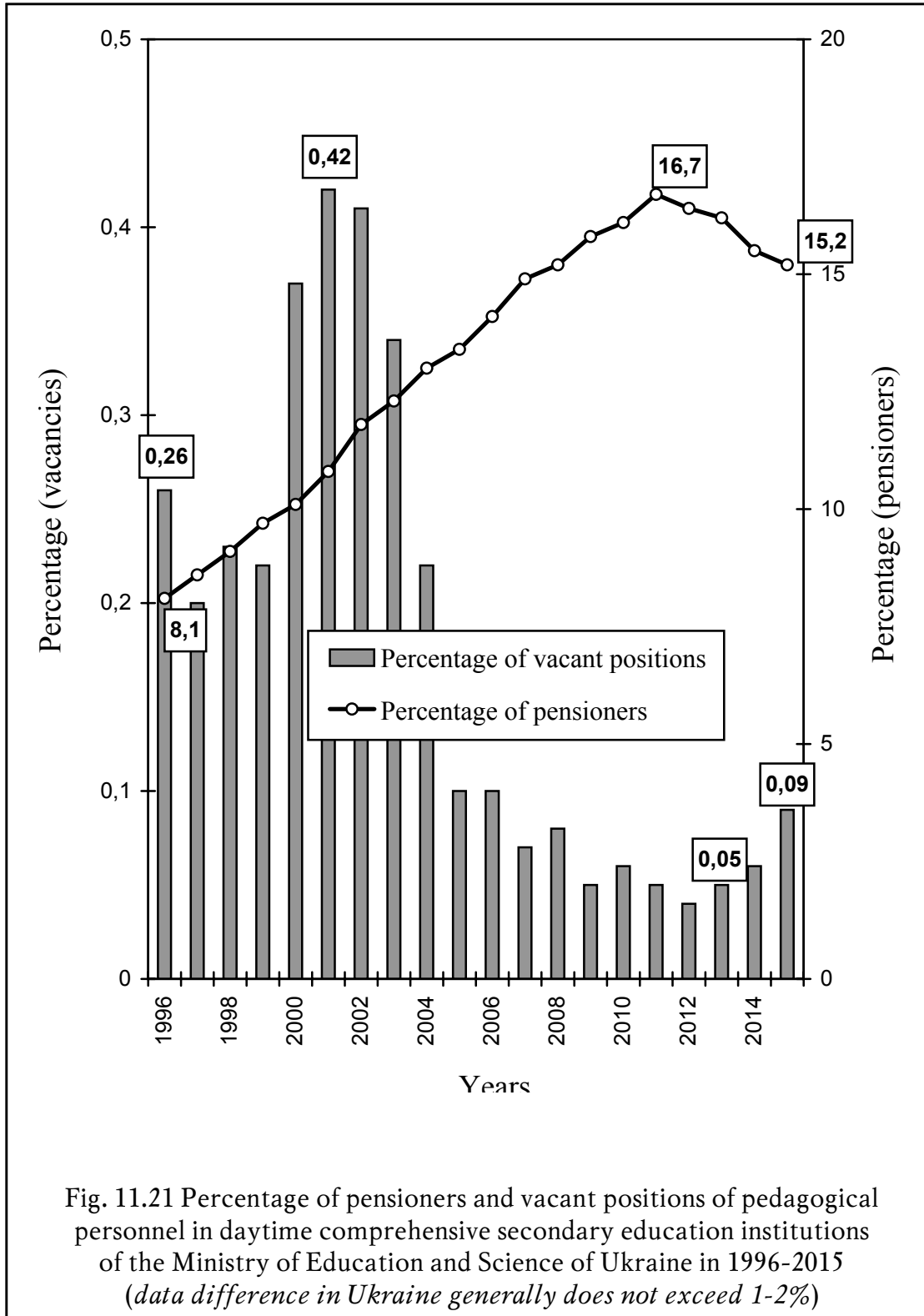


Fig. 11.21 Percentage of pensioners and vacant positions of pedagogical personnel in daytime comprehensive secondary education institutions of the Ministry of Education and Science of Ukraine in 1996-2015 (data difference in Ukraine generally does not exceed 1-2%)

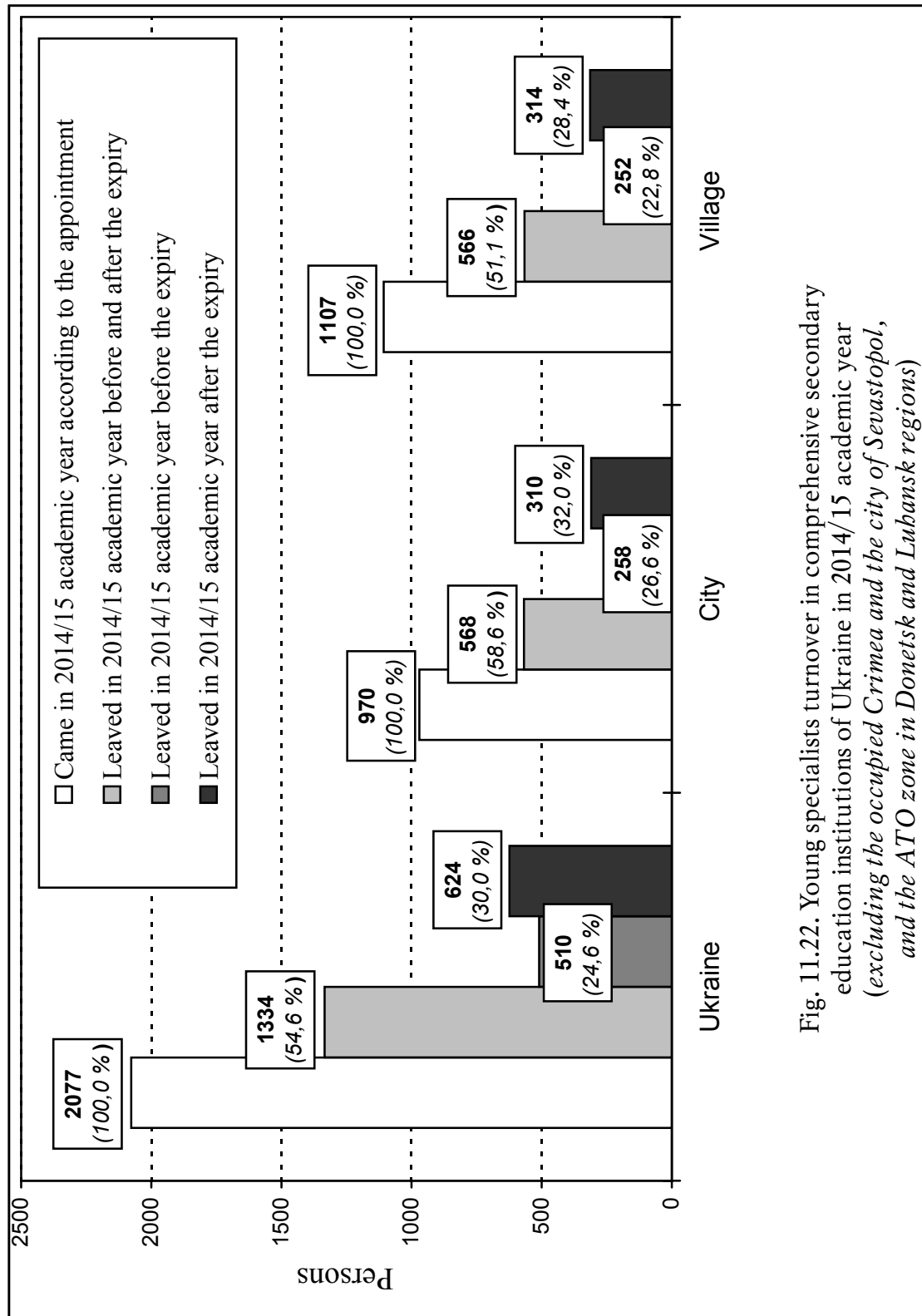


Fig. 11.22. Young specialists turnover in comprehensive secondary education institutions of Ukraine in 2014/15 academic year (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

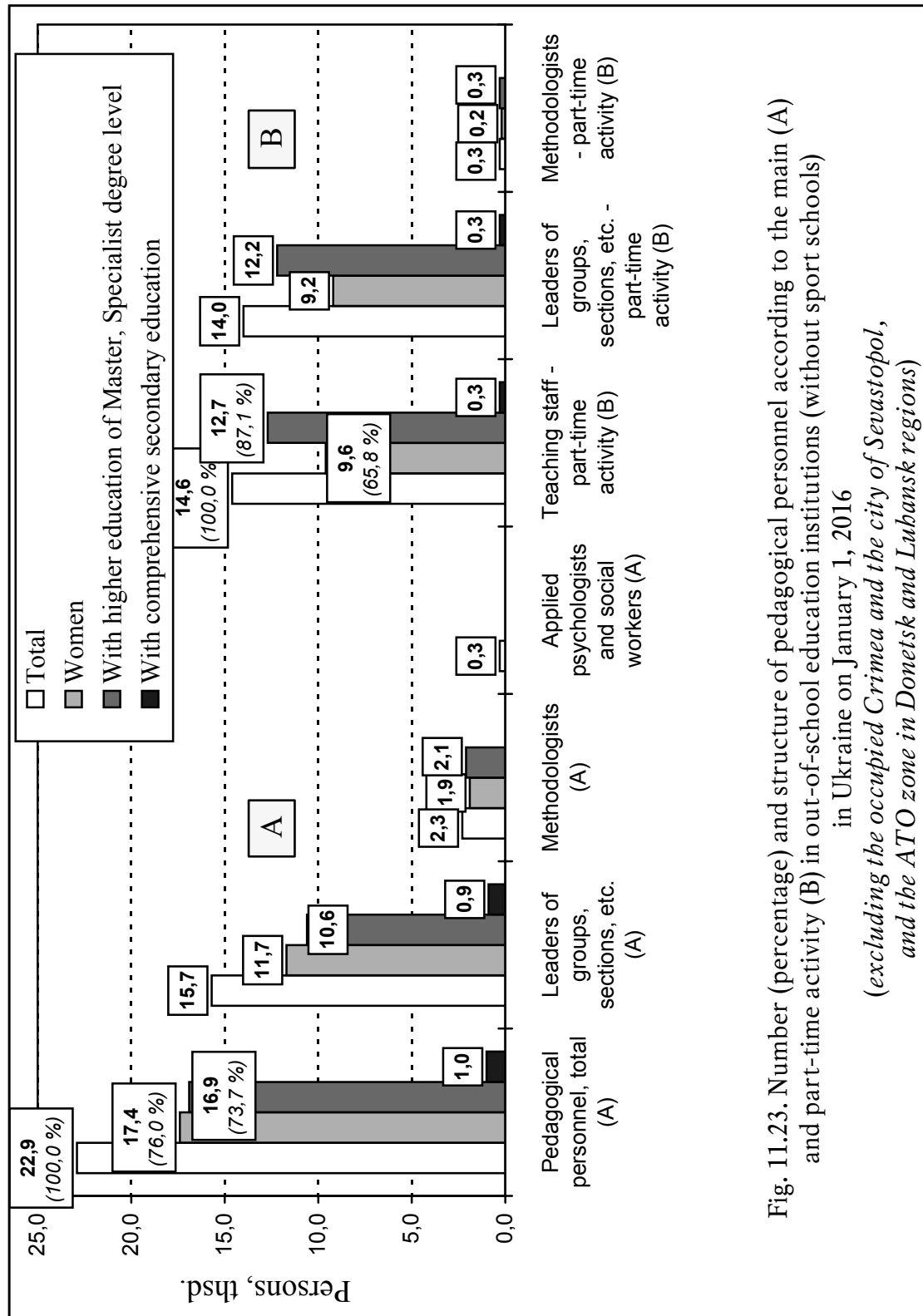


Fig. 11.23. Number (percentage) and structure of pedagogical personnel according to the main (A) and part-time activity (B) in out-of-school education institutions (without sport schools) in Ukraine on January 1, 2016
(excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

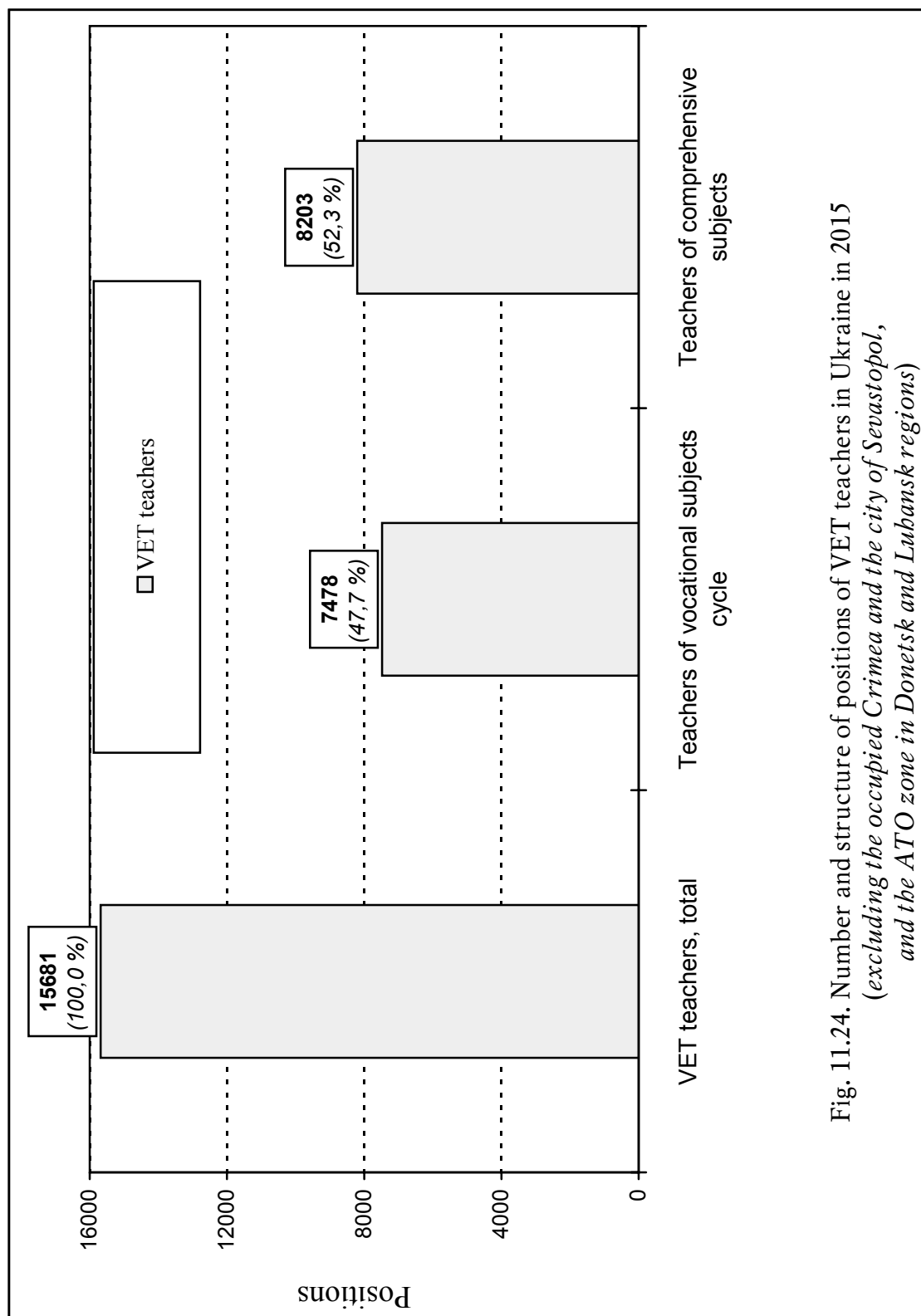


Fig. 11.24. Number and structure of positions of VET teachers in Ukraine in 2015
*(excluding the occupied Crimea and the city of Sevastopol,
 and the ATO zone in Donetsk and Lubansk regions)*

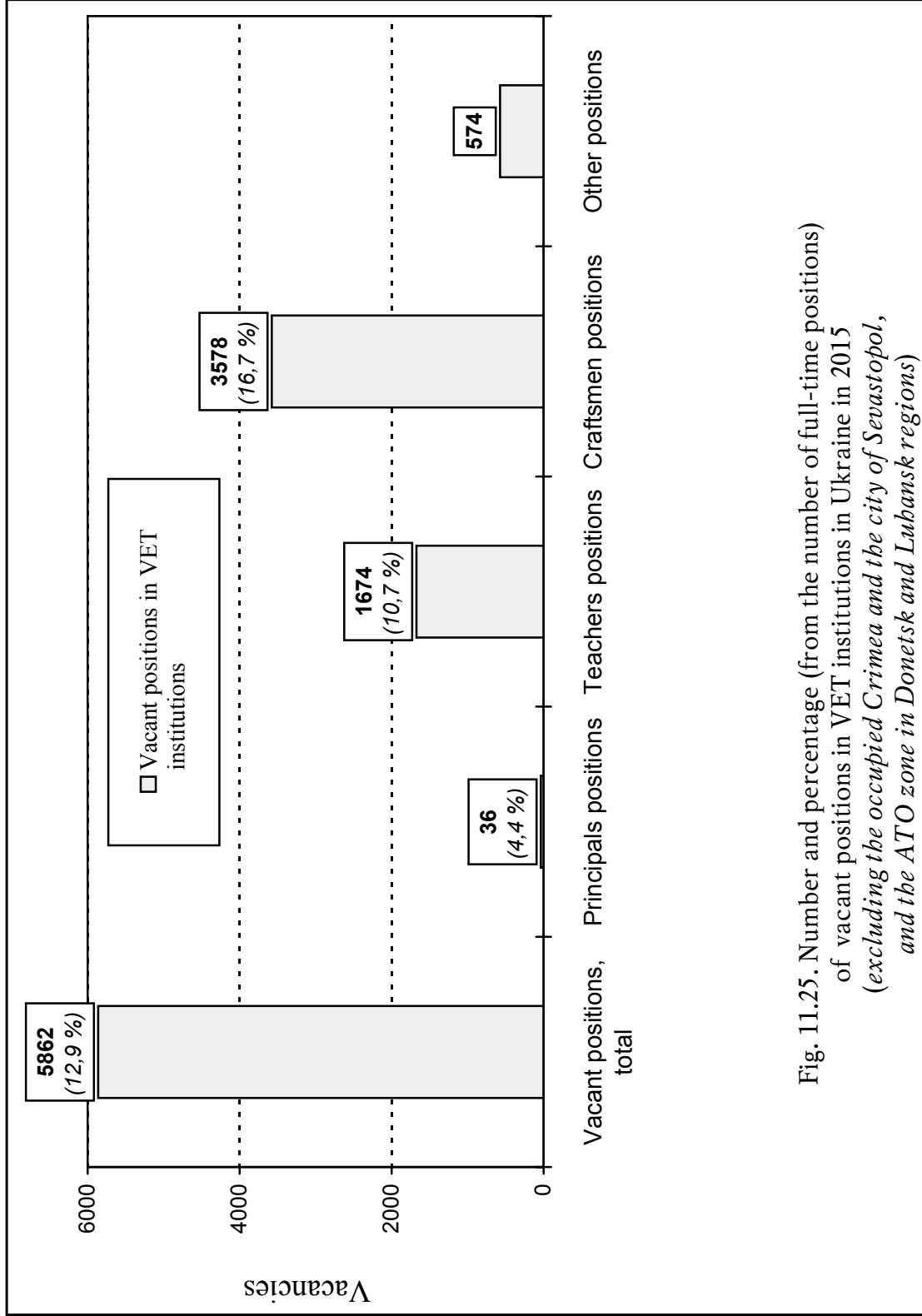


Fig. 11.25. Number and percentage (from the number of full-time positions) of vacant positions in VET institutions in Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

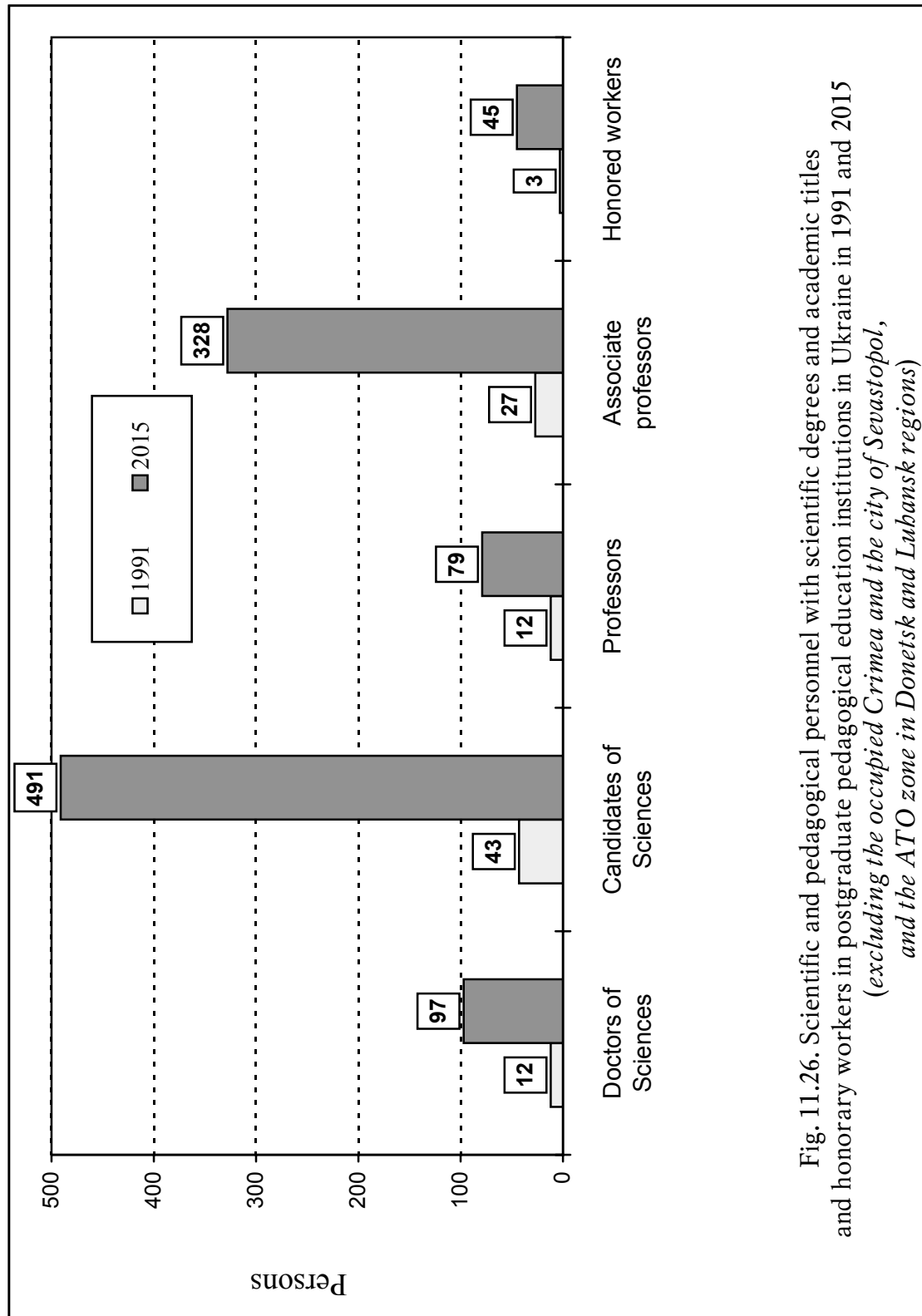


Fig. 11.26. Scientific and pedagogical personnel with scientific degrees and academic titles and honorary workers in postgraduate pedagogical education institutions in Ukraine in 1991 and 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

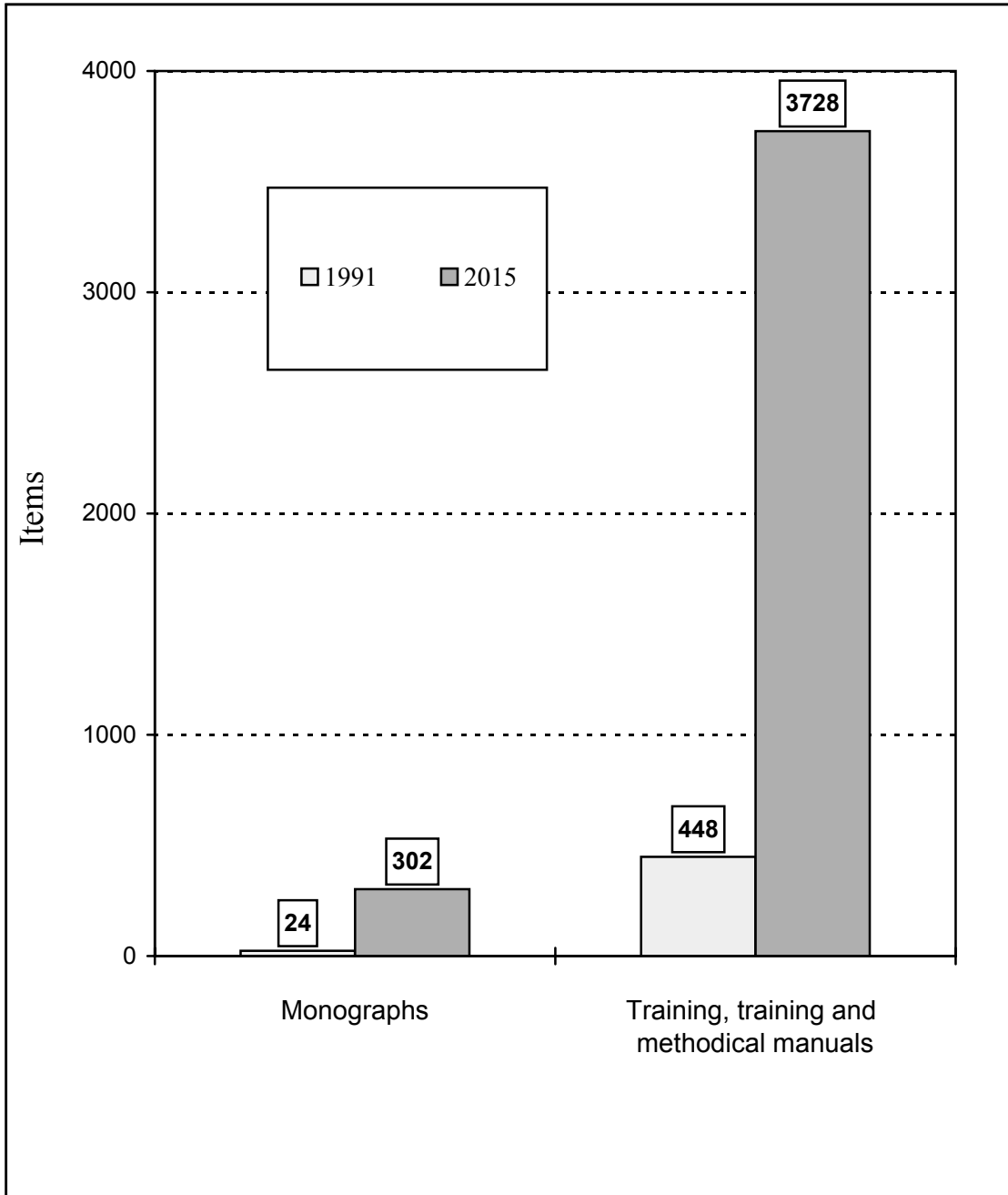


Fig. 11.27. Number of monographs and training, training and methodical manuals prepared by scientific and pedagogical personnel and methodologists of postgraduate pedagogical education institutions in Ukraine in 1991 and 2015
(in 2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

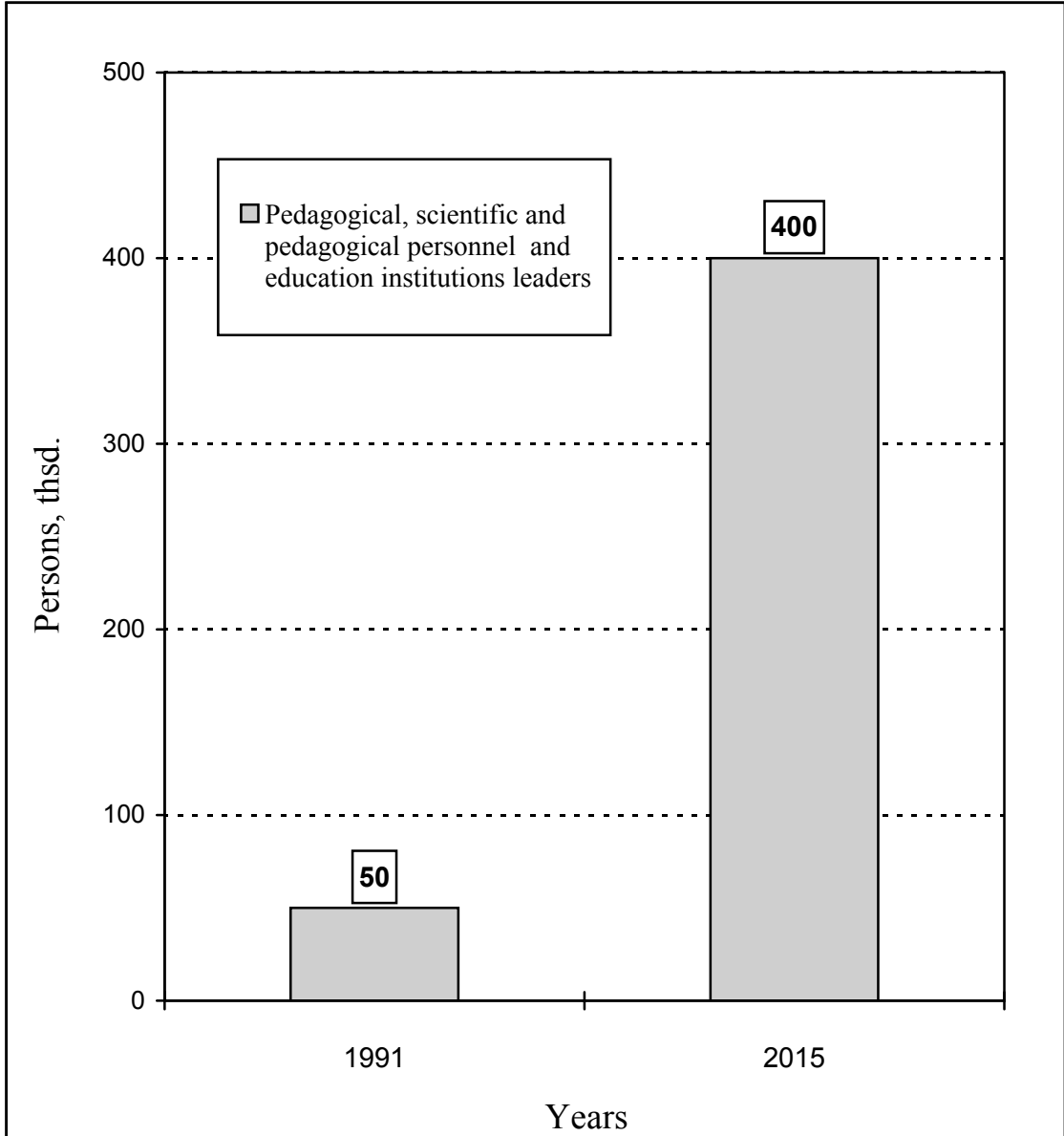


Fig. 11.28. Number of pedagogical, scientific and pedagogical personnel and education institutions leaders participating in the intercourse period studies of postgraduate pedagogical education in Ukraine in 1991 and 2015
(in 2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

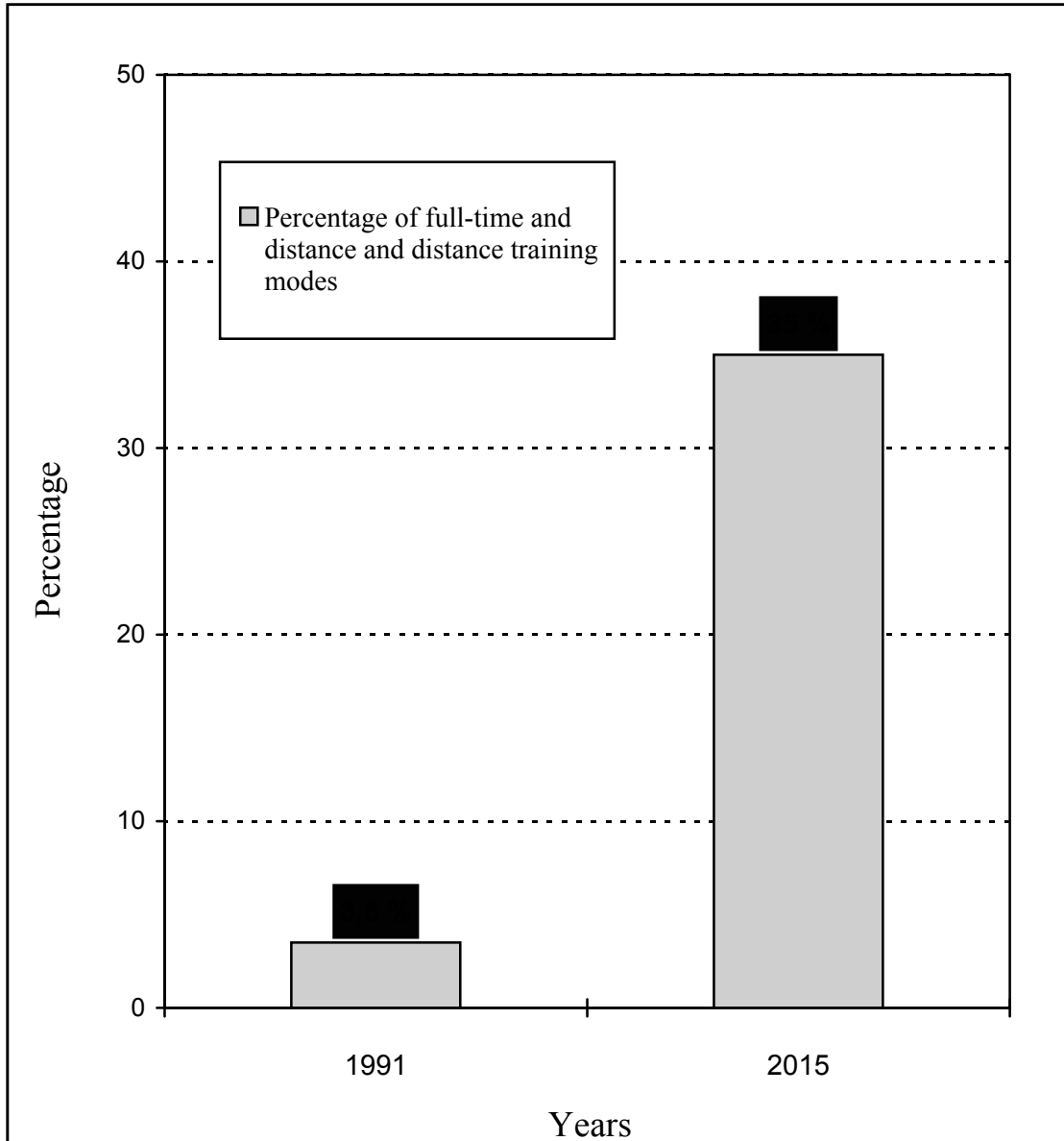


Fig. 11.29. Percentage of full-time and distance and distance training modes of postgraduate pedagogical education in-service training courses in Ukraine in 1991 and 2015 (in 2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

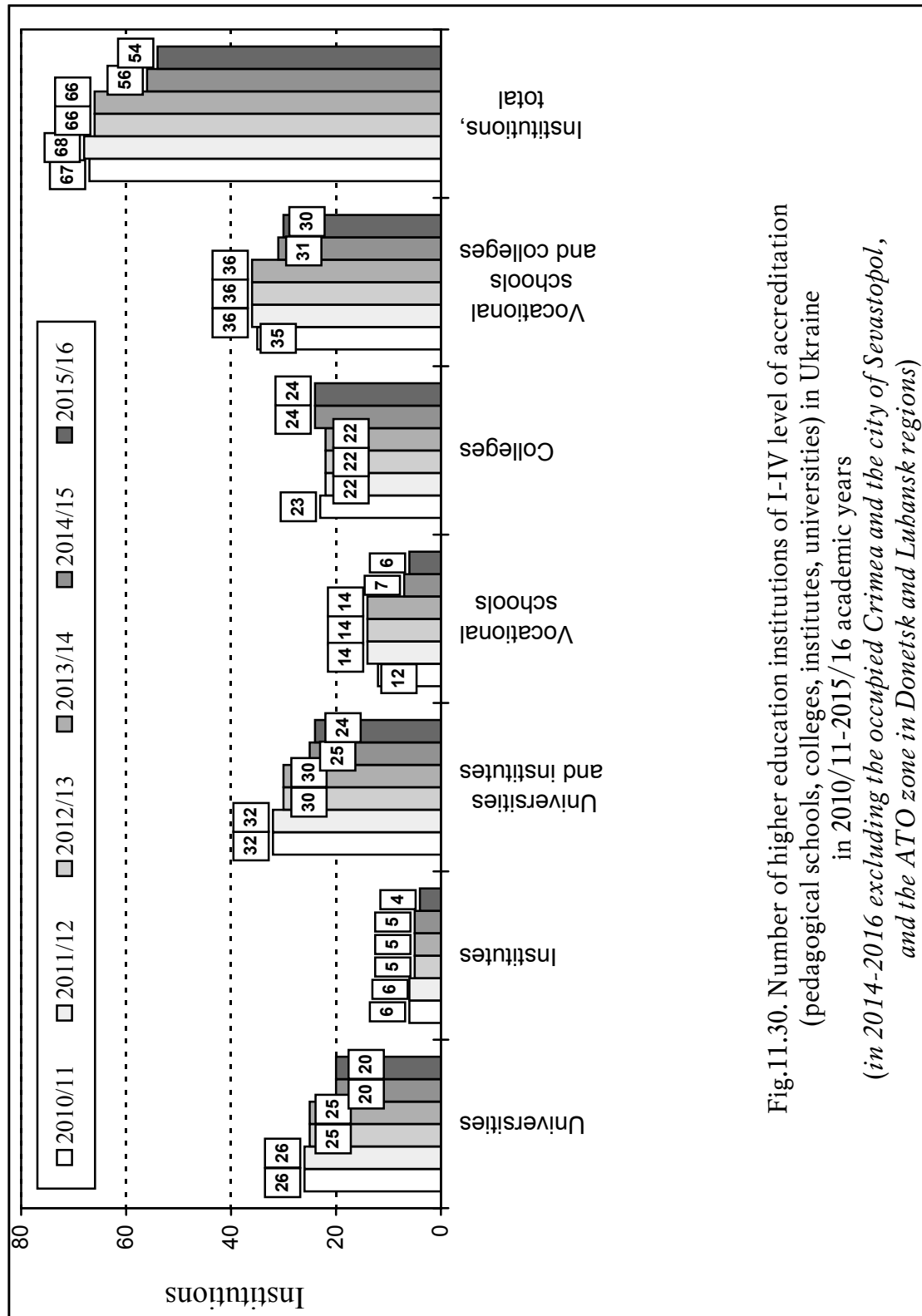


Fig.11.30. Number of higher education institutions of I-IV level of accreditation (pedagogical schools, colleges, institutes, universities) in Ukraine in 2010/11-2015/16 academic years (in 2014-2016 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

12. PSYCHOLOGICAL ASSURANCE OF EDUCATION

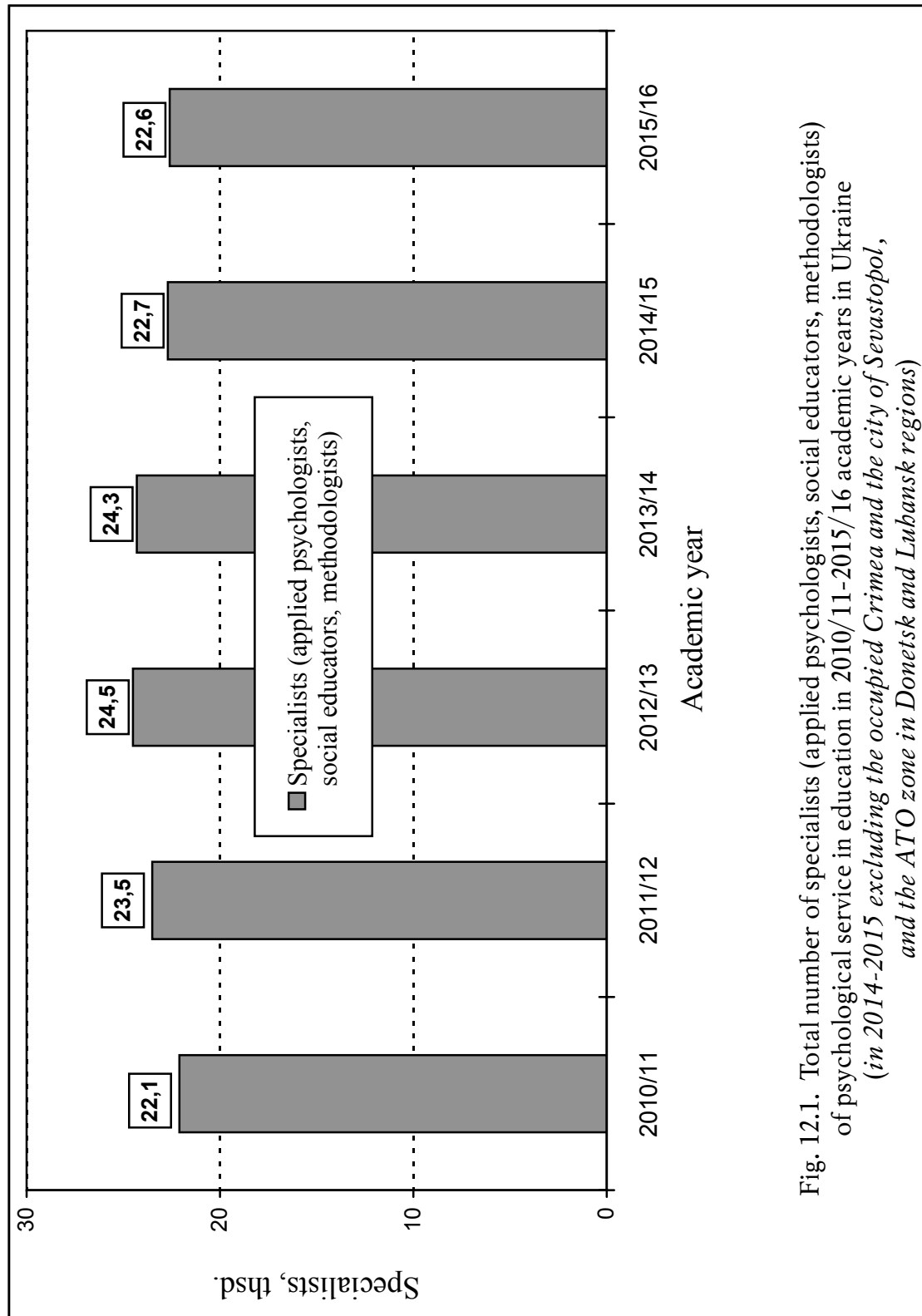


Fig. 12.1. Total number of specialists (applied psychologists, social educators, methodologists) of psychological service in education in 2010/11-2015/16 academic years in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

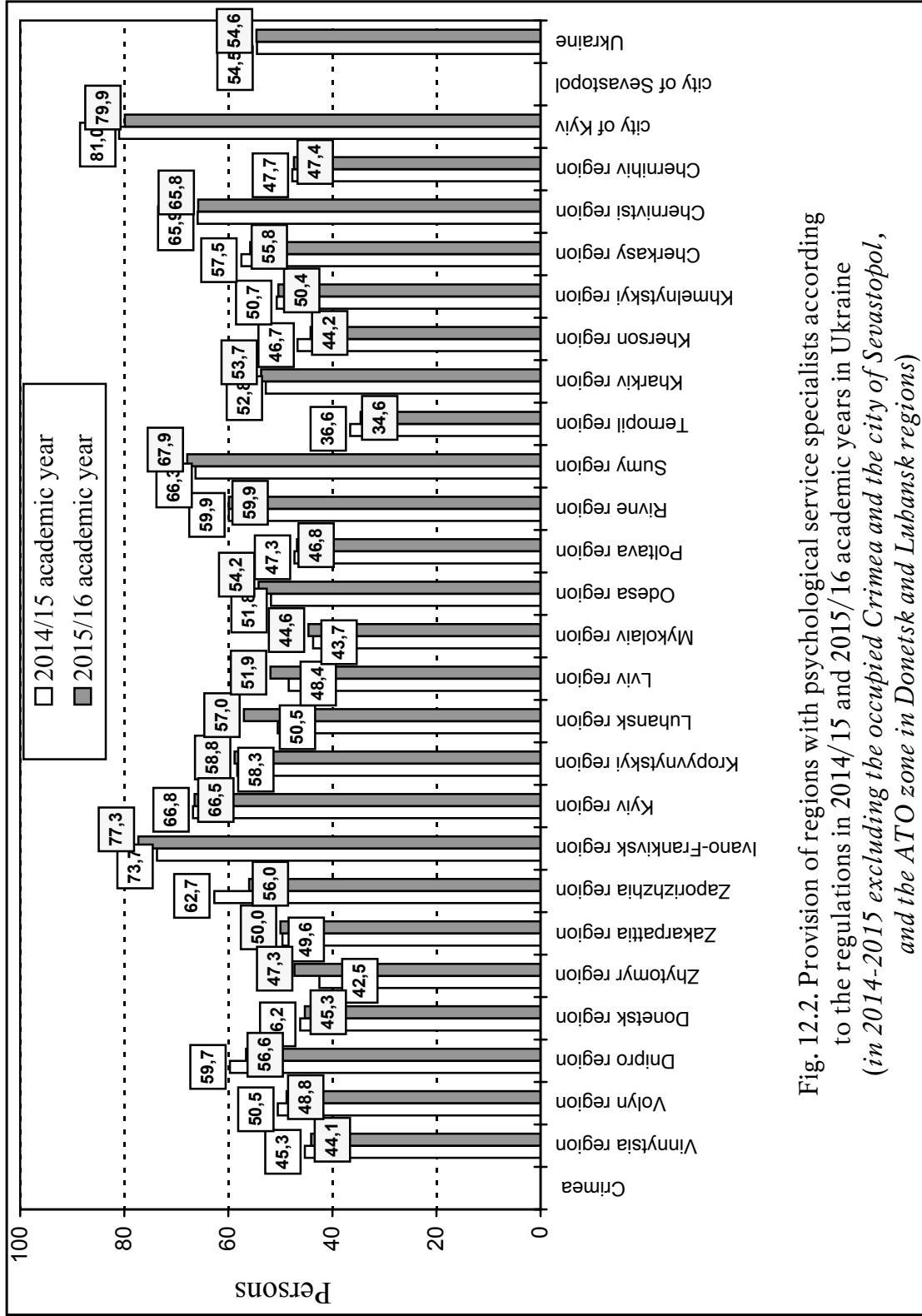


Fig. 12.2. Provision of regions with psychological service specialists according to the regulations in 2014/15 and 2015/16 academic years in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

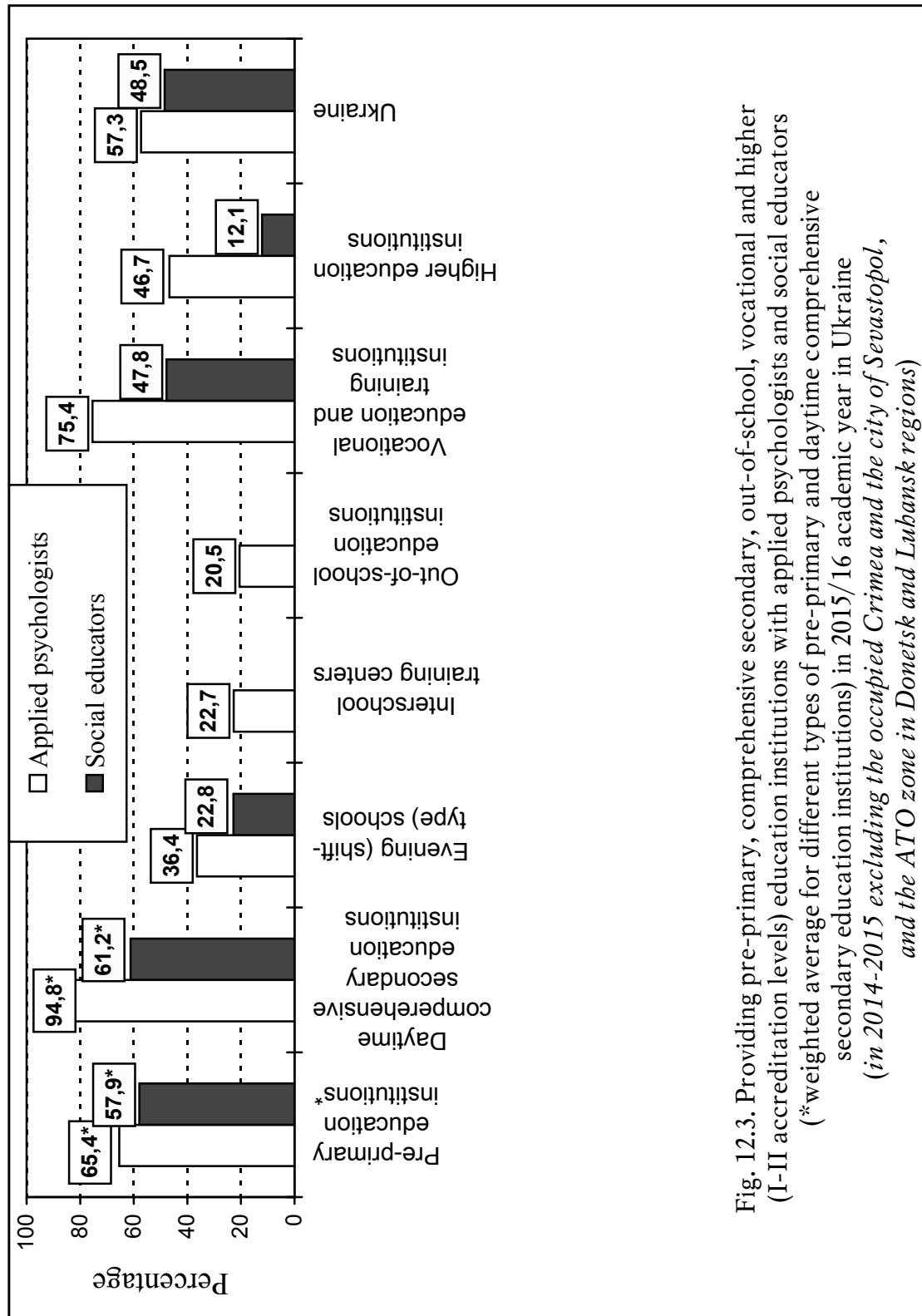


Fig. 12.3. Providing pre-primary, comprehensive secondary, out-of-school, vocational and higher (I-II accreditation levels) education institutions with applied psychologists and social educators (*weighted average for different types of pre-primary and daytime comprehensive secondary education institutions) in 2015/16 academic year in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

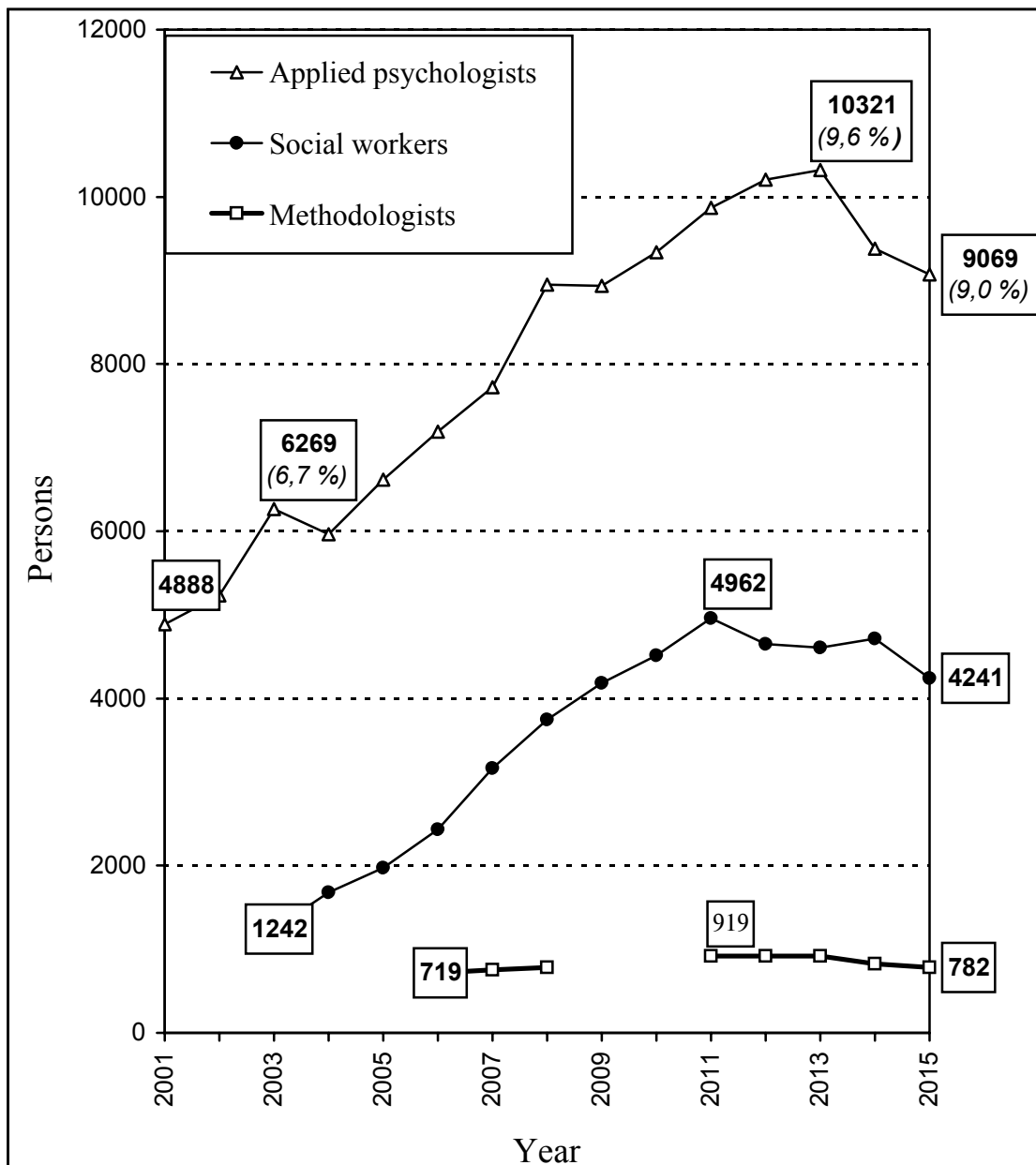


Fig. 12.4. Personnel (applied psychologists, social workers and methodologists) providing psychological services in daytime comprehensive secondary education institutions
(in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

13. SCIENTIFIC AND METHODOLOGICAL AND METHODOLOGICAL SUPPORT OF EDUCATION

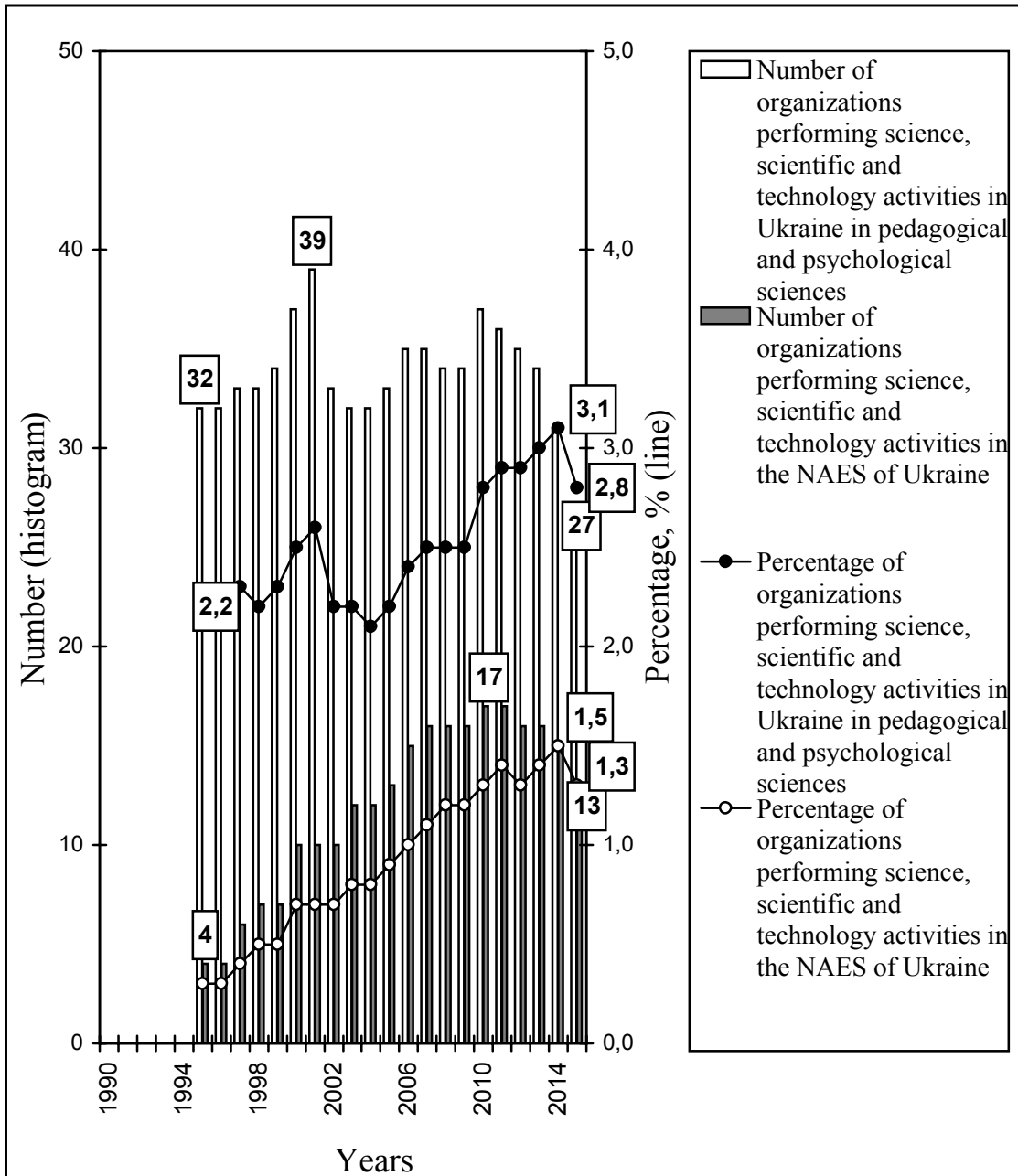


Fig. 13.1. Network (number and percentage) of organizations performing science, scientific and technology activities in Ukraine in pedagogical and psychological sciences, as well as in the NAES of Ukraine
(in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

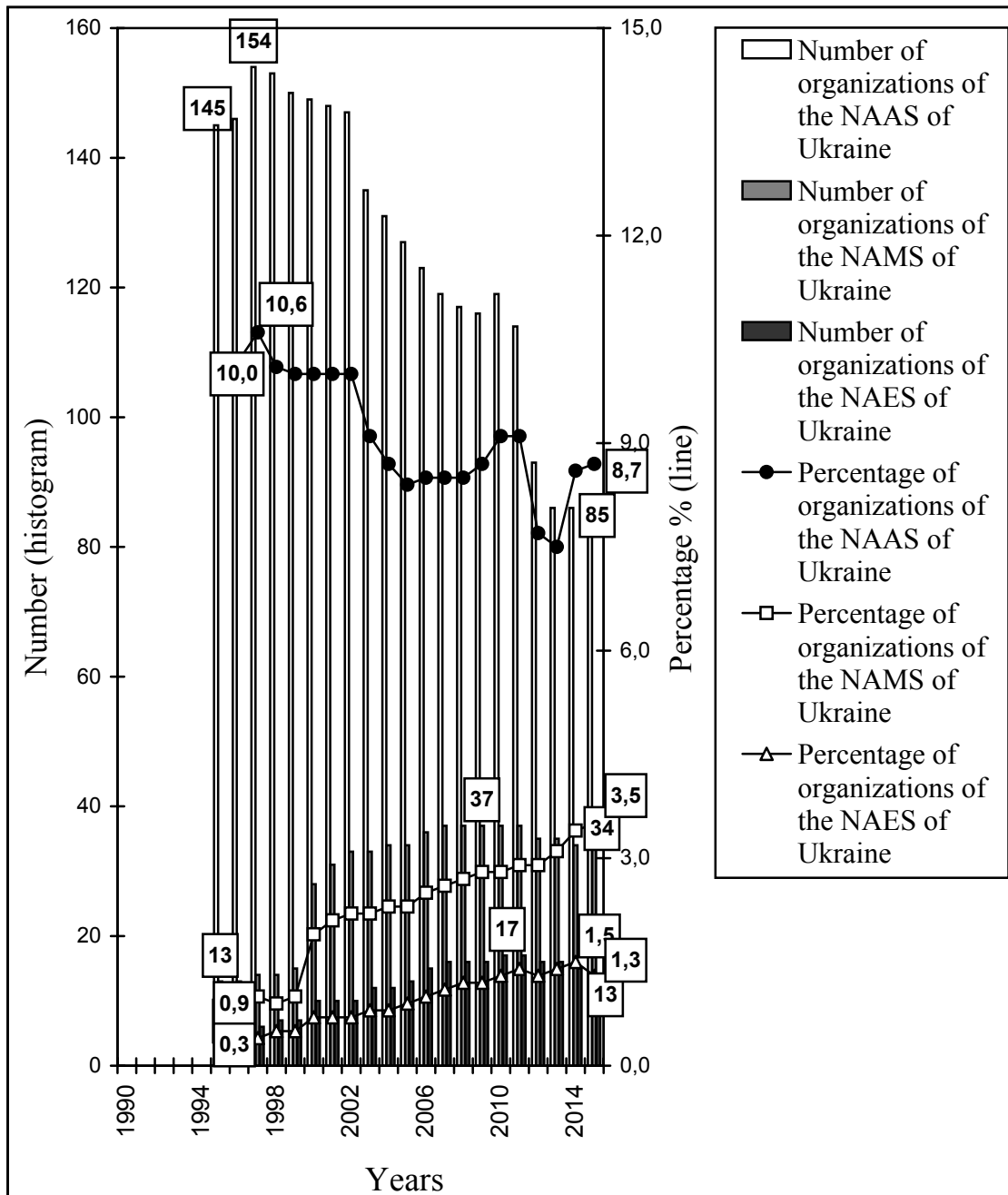
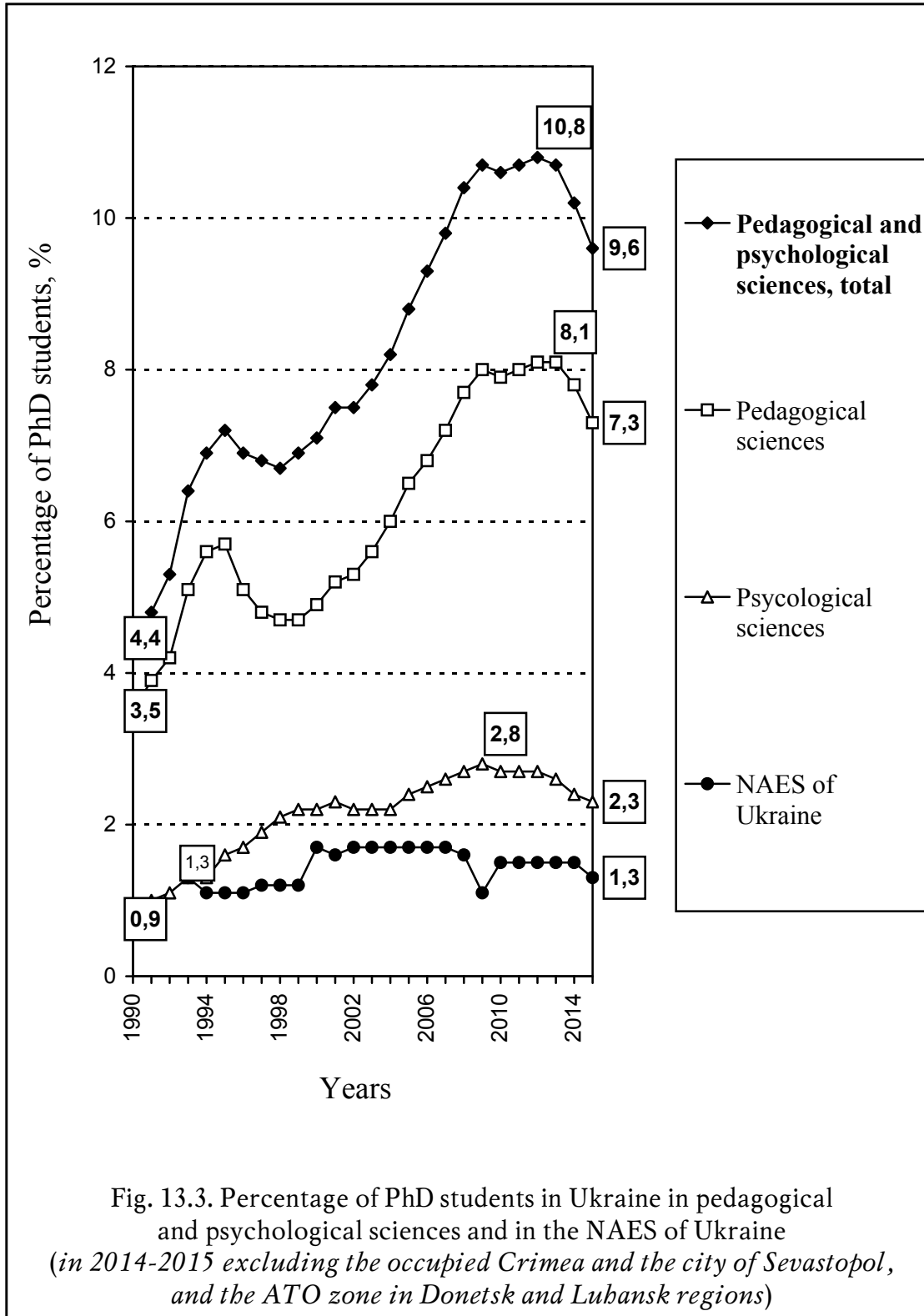


Fig. 13.2. Network (number and percentage) of organizations performing science, scientific and technology activities, in the NAAS, NAMS and NAES of Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)



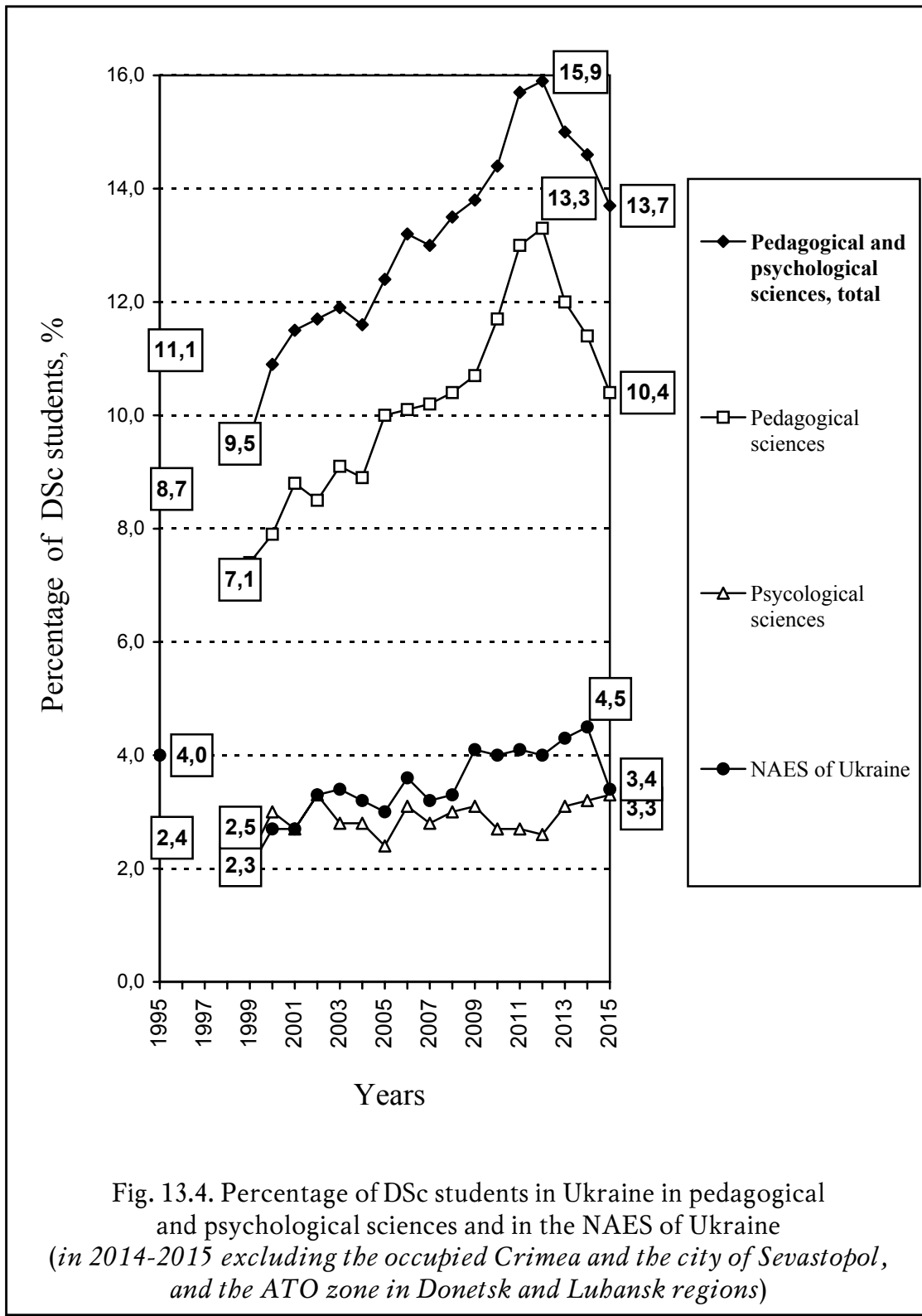


Fig. 13.4. Percentage of DSc students in Ukraine in pedagogical and psychological sciences and in the NAES of Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

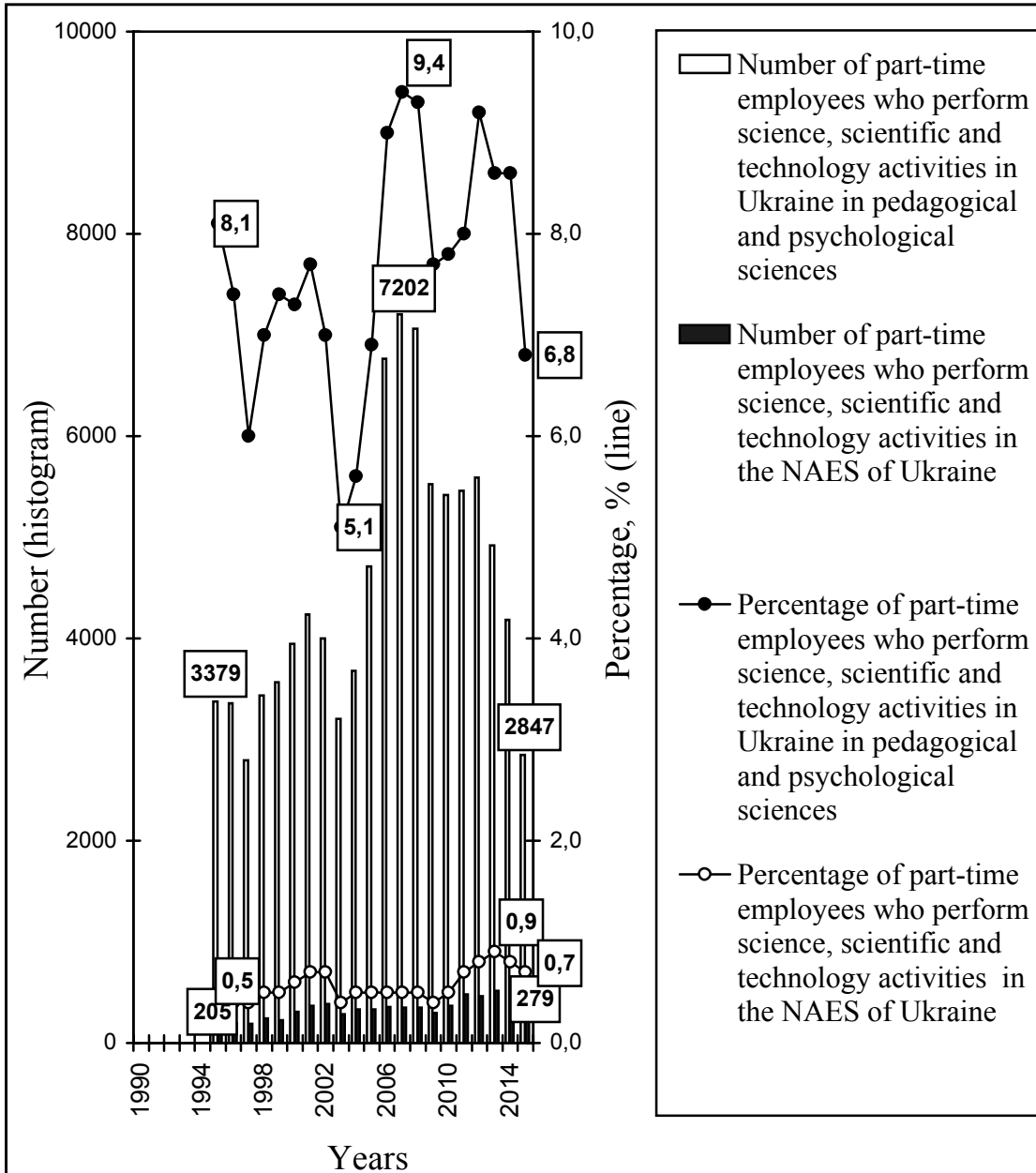


Fig. 13.5. Number and percentage of part-time employees performing science, scientific and technology activities in Ukraine in pedagogical and psychological sciences and in the NAES of Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

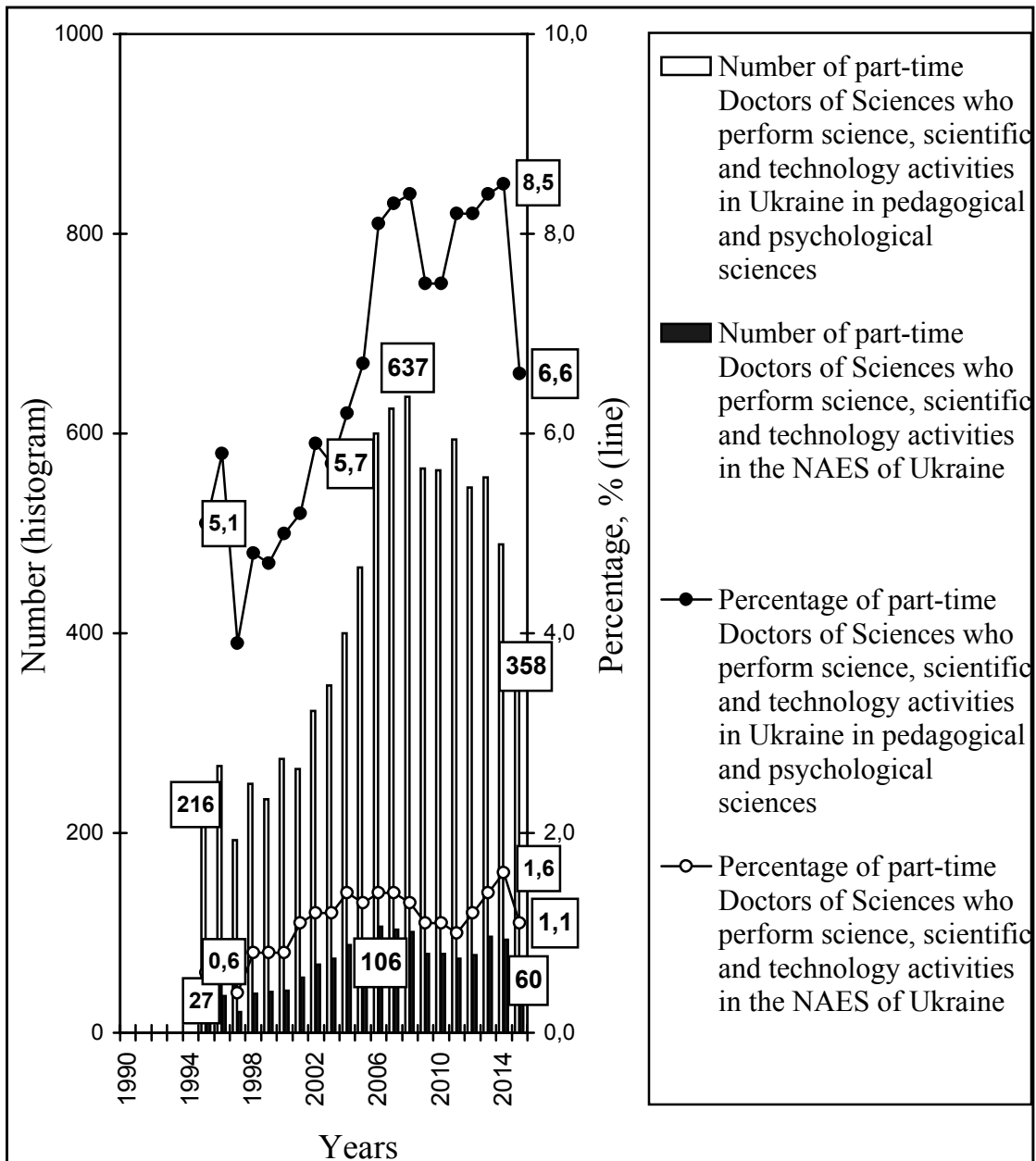


Fig. 13.6. Number and percentage of part-time Doctors of Sciences performing science, scientific and technology activities in Ukraine in pedagogical and psychological sciences and in the NAES of Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

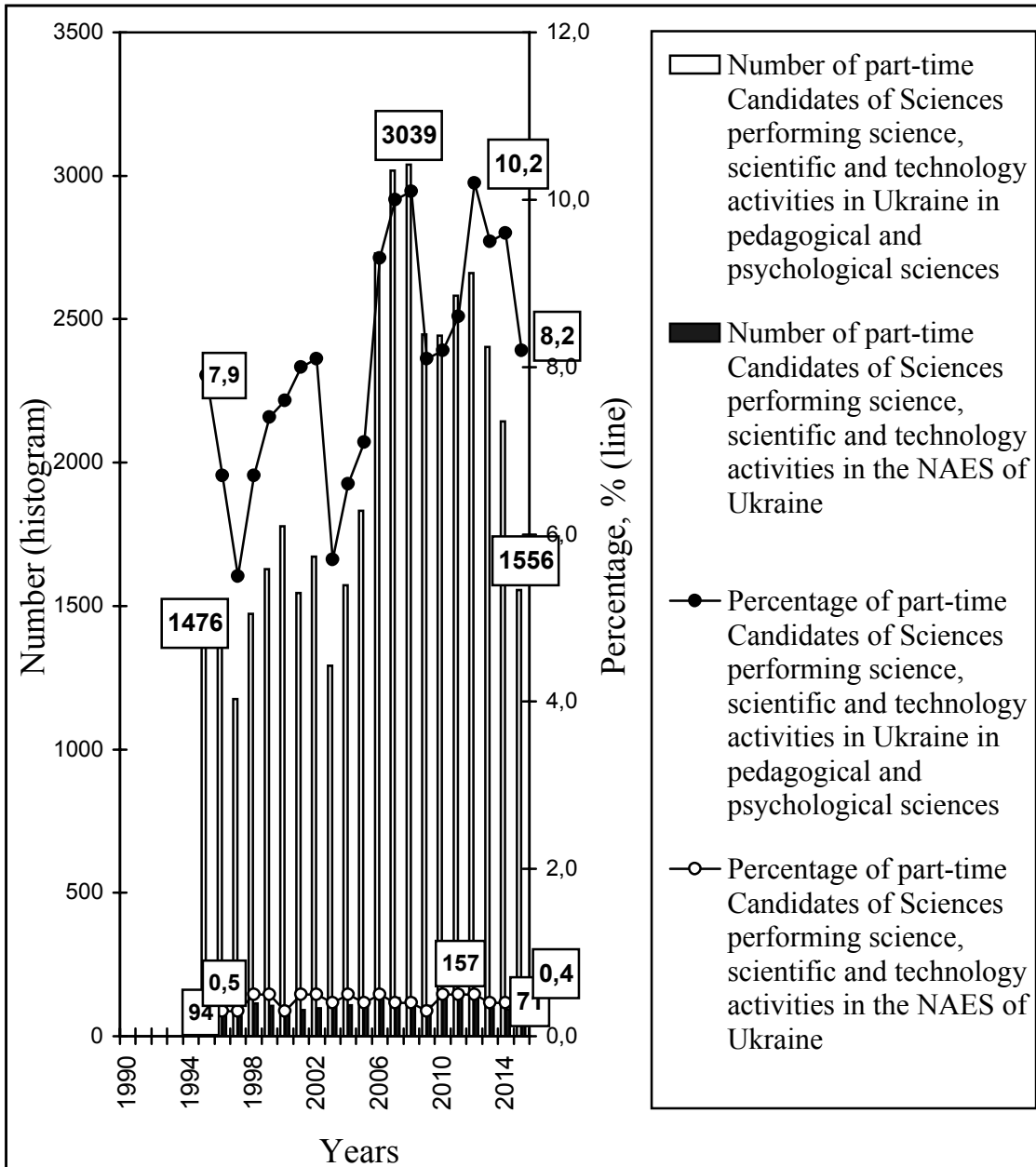


Fig. 13.7. Number and percentage of part-time Candidates of Sciences performing science, scientific and technology activities in Ukraine in pedagogical and psychological sciences and in the NAES of Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

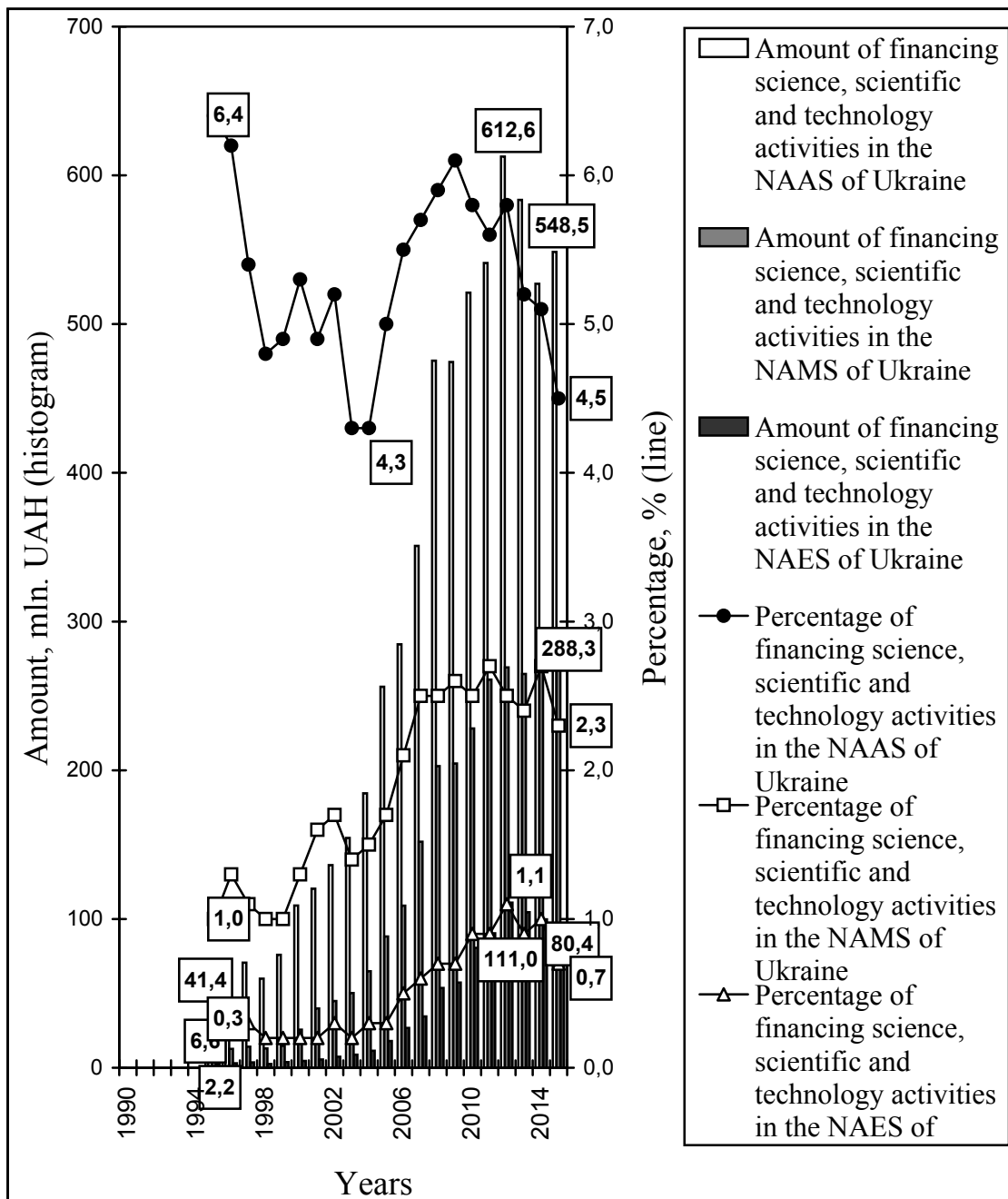


Fig. 13.8. Financing (amount and percentage) science, scientific and technology activities in the NAAS, NAMS and NAES of Ukraine (in 2014-2015 excluding the Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

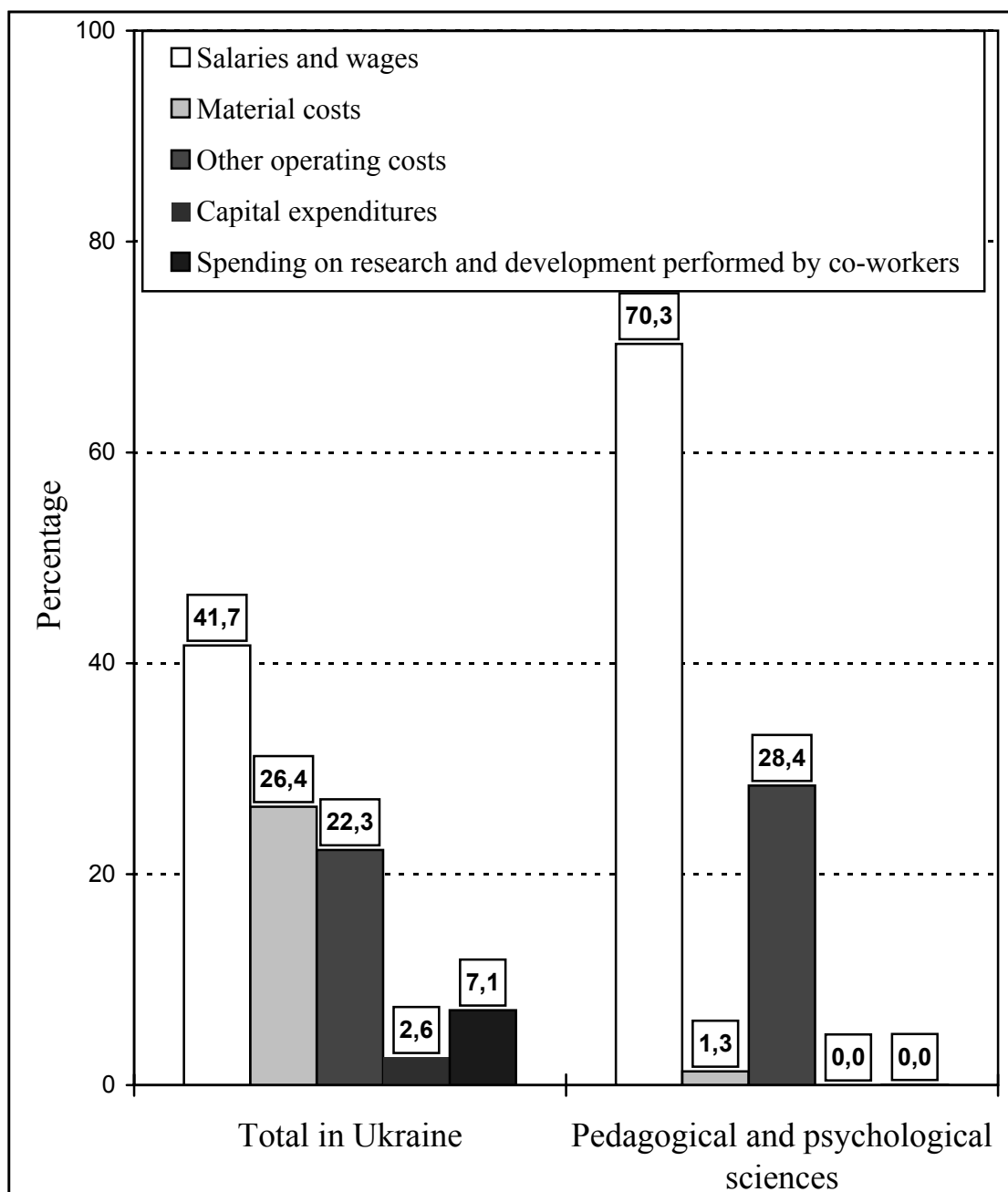


Fig. 13.9. Distribution of expenditures on performing science, scientific and technology activities according to the types in Ukraine and in the fields of pedagogical and psychological sciences in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

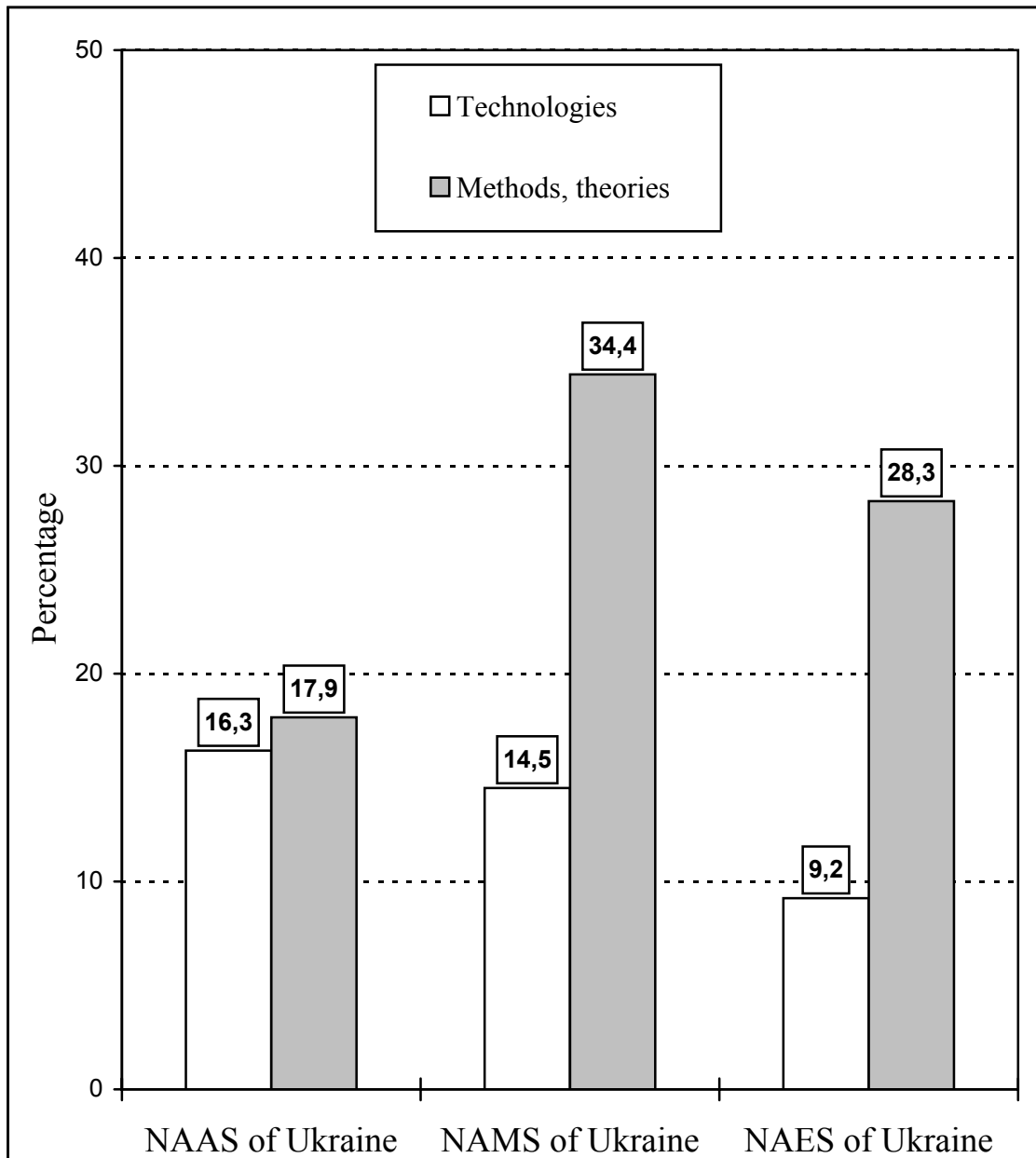


Fig. 13.10. Compliance rate of science, scientific and technology activities on creating the new technologies, methods and theories in the NAAS, NAMS and NAES of Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

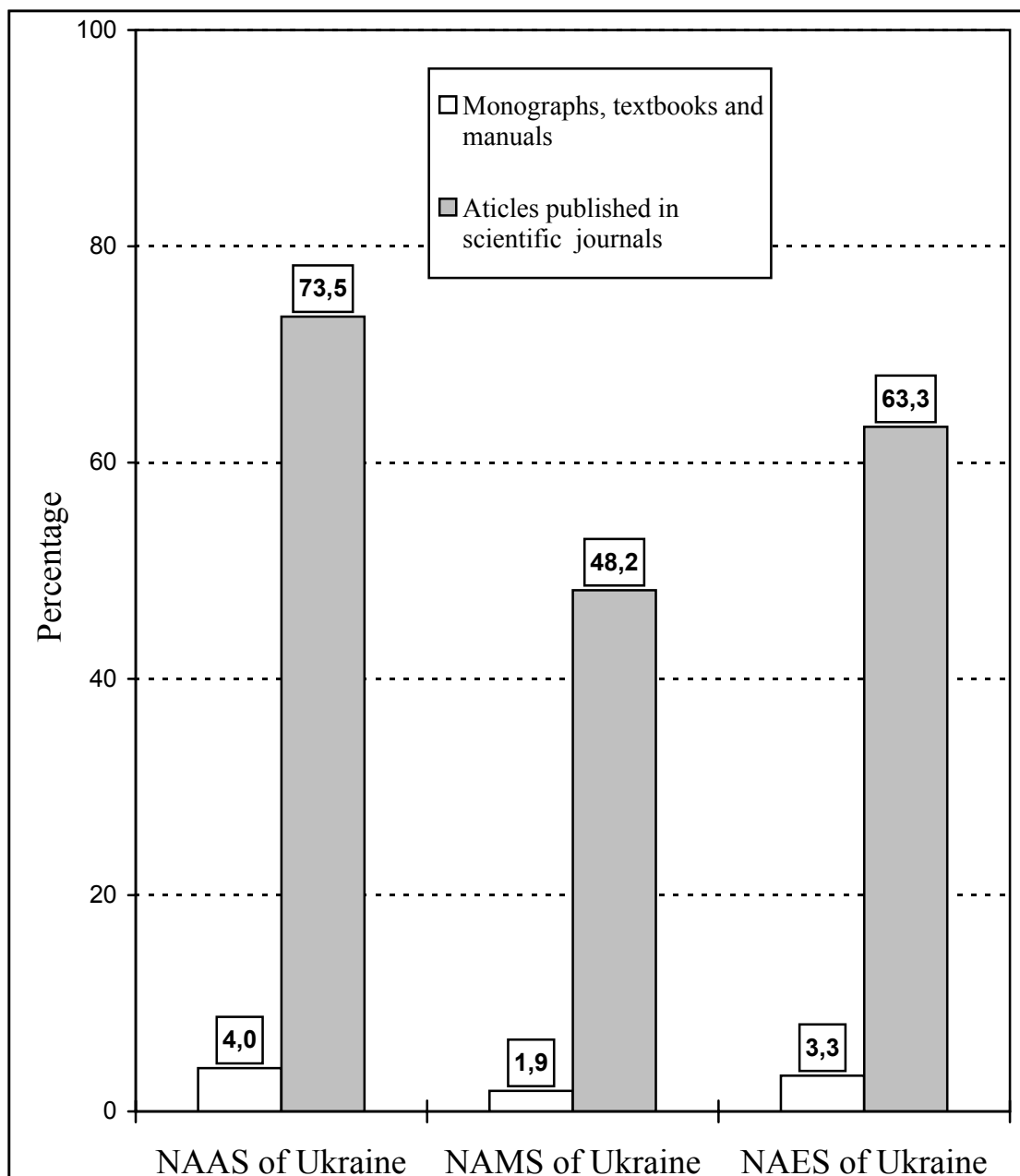


Fig. 13.11. Percentage of monographs, textbooks and manuals, as well as articles in scientific journals among the published works of the NAAS, NAMS and NAES of Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

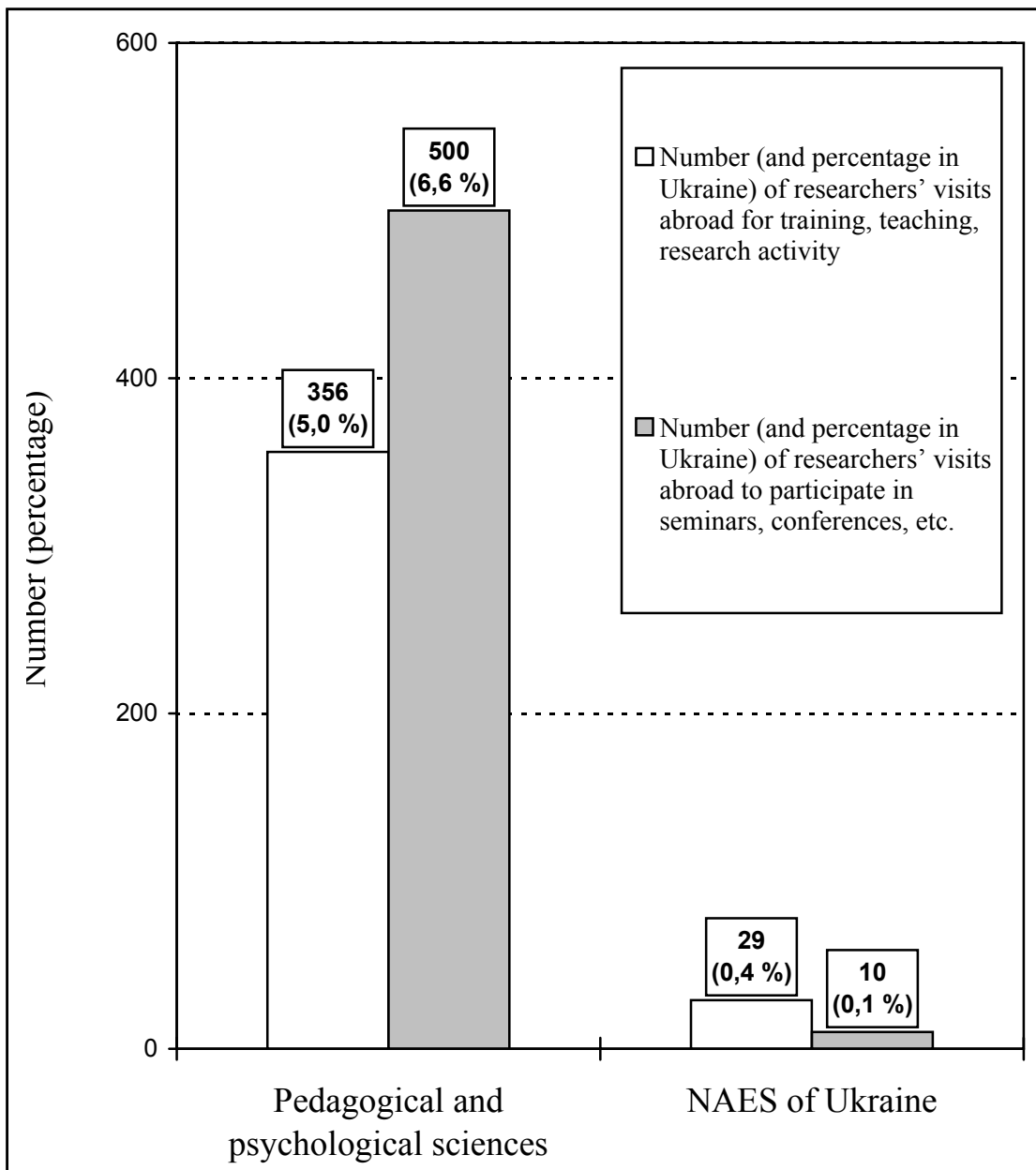


Fig. 13.12. Number (percentage) of researchers' visits abroad for training, teaching, research activity and participation in seminars, conferences, etc. in Ukraine in pedagogical and psychological sciences and in the NAES of Ukraine in 2015
(excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

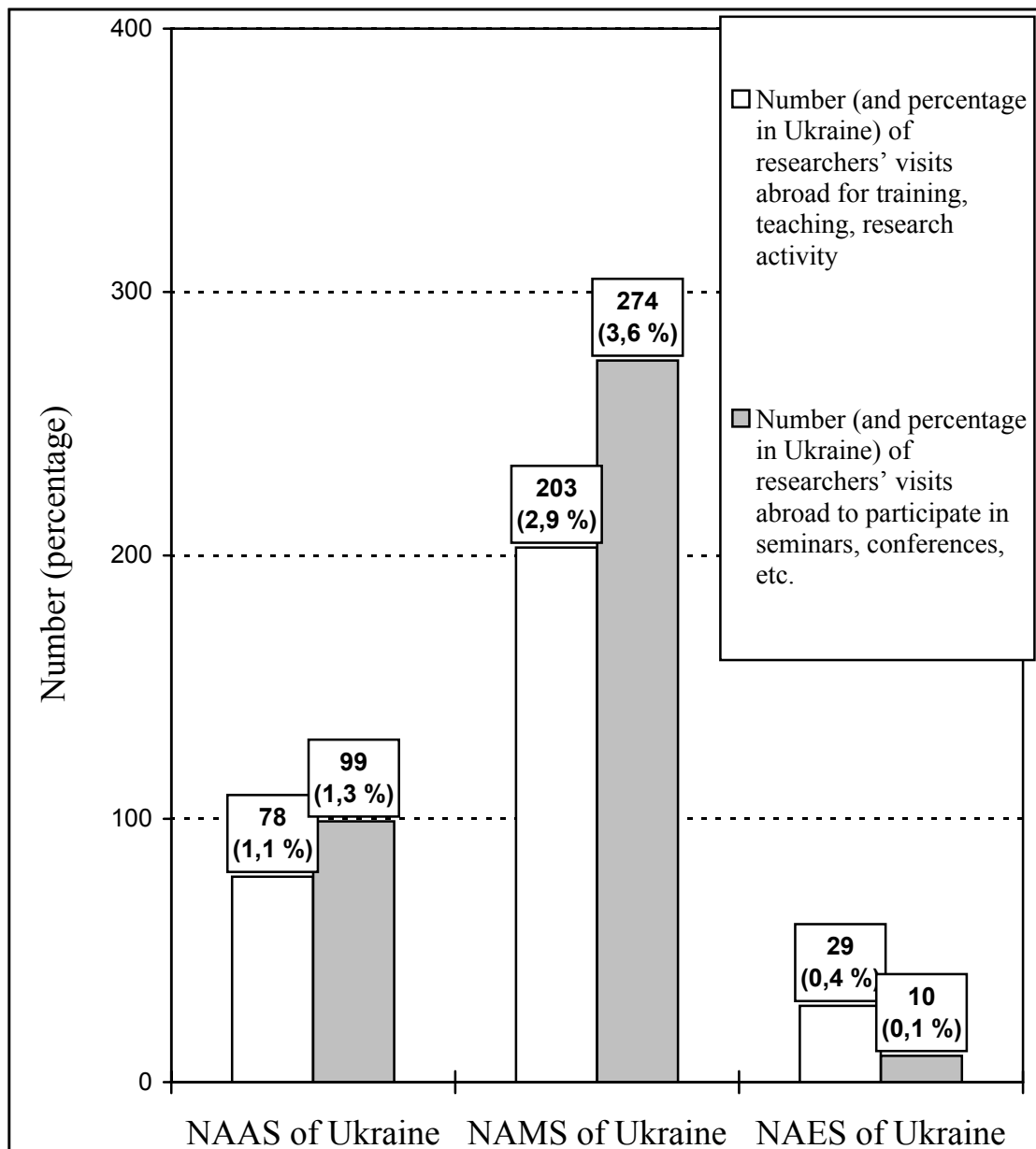


Fig. 13.13. Number (percentage) of researchers' visits abroad for training, teaching, research activity and participation in seminars, conferences, etc. in the NAAS, NAMS and NAES of Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

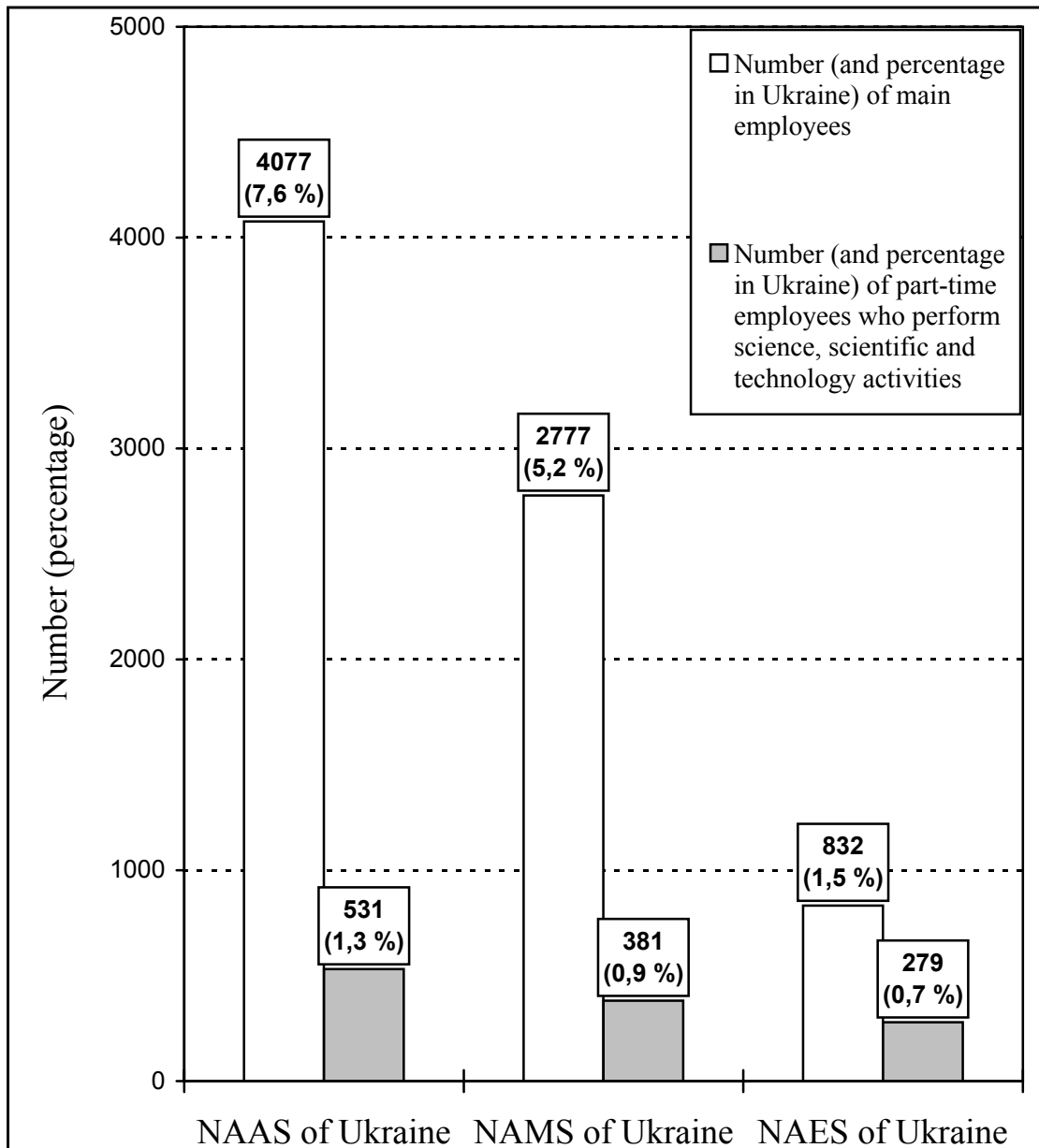
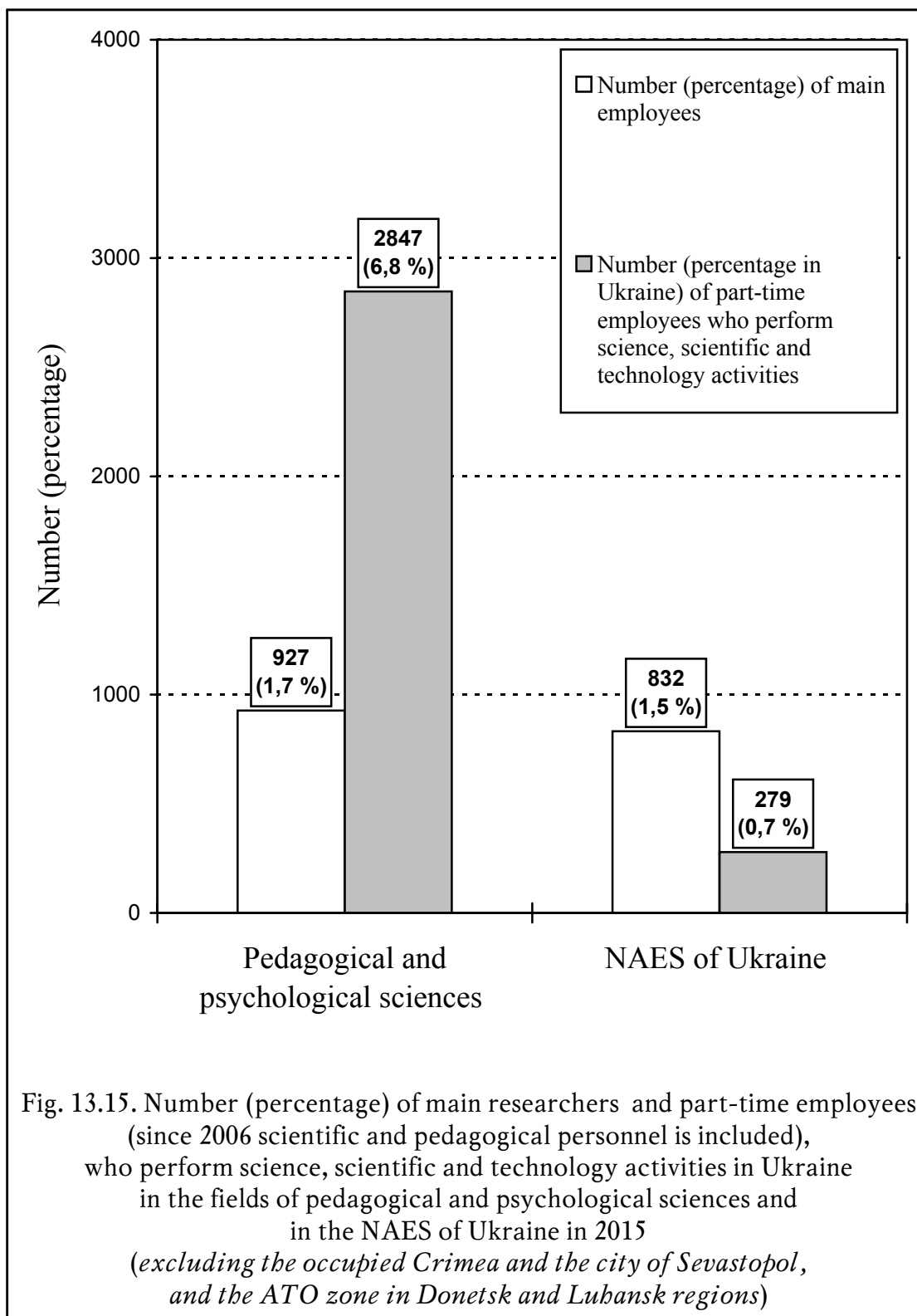


Fig. 13.14. Number (percentage) of main and part-time researchers in the NAAS, NAMS and NAES of Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)



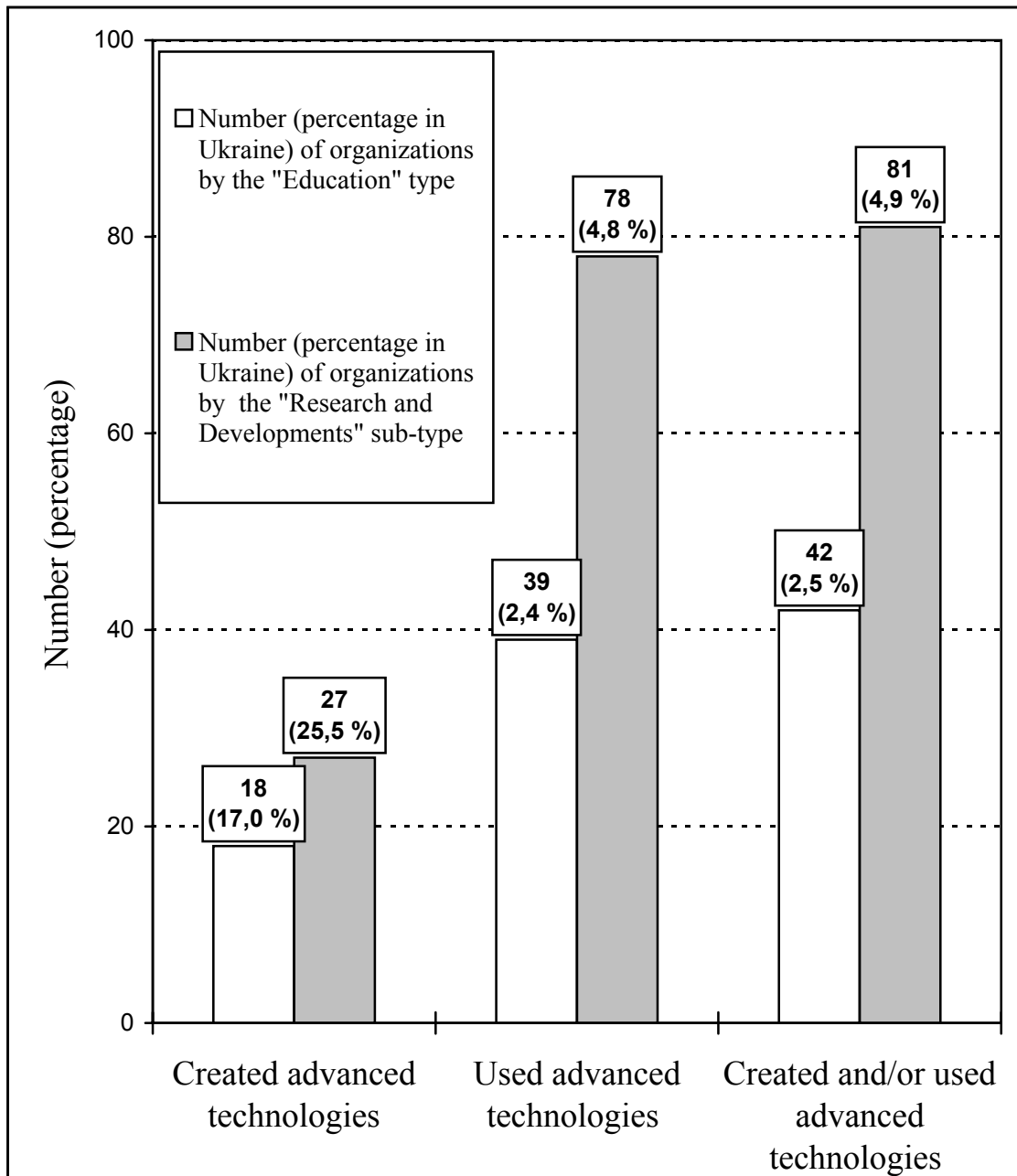
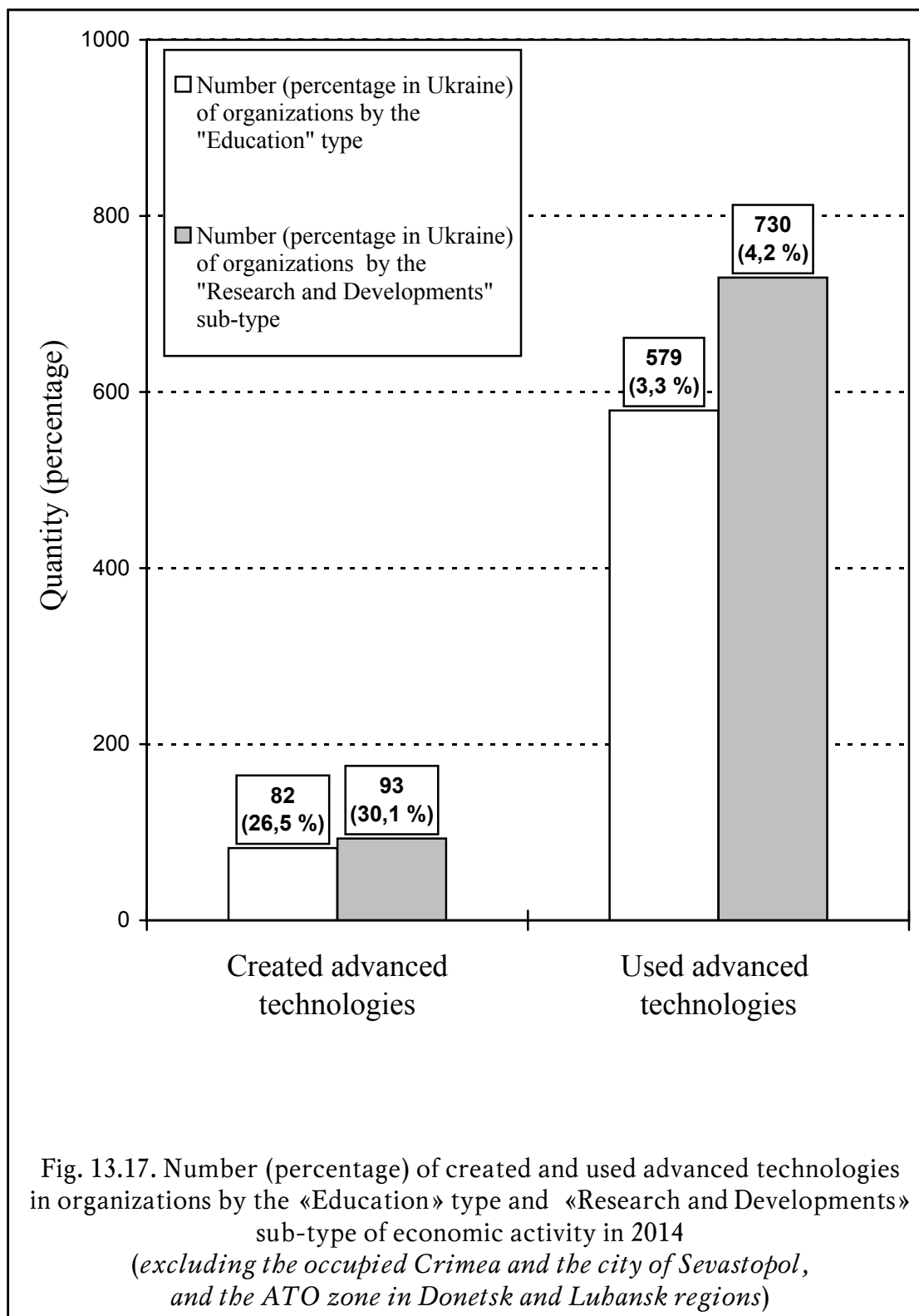
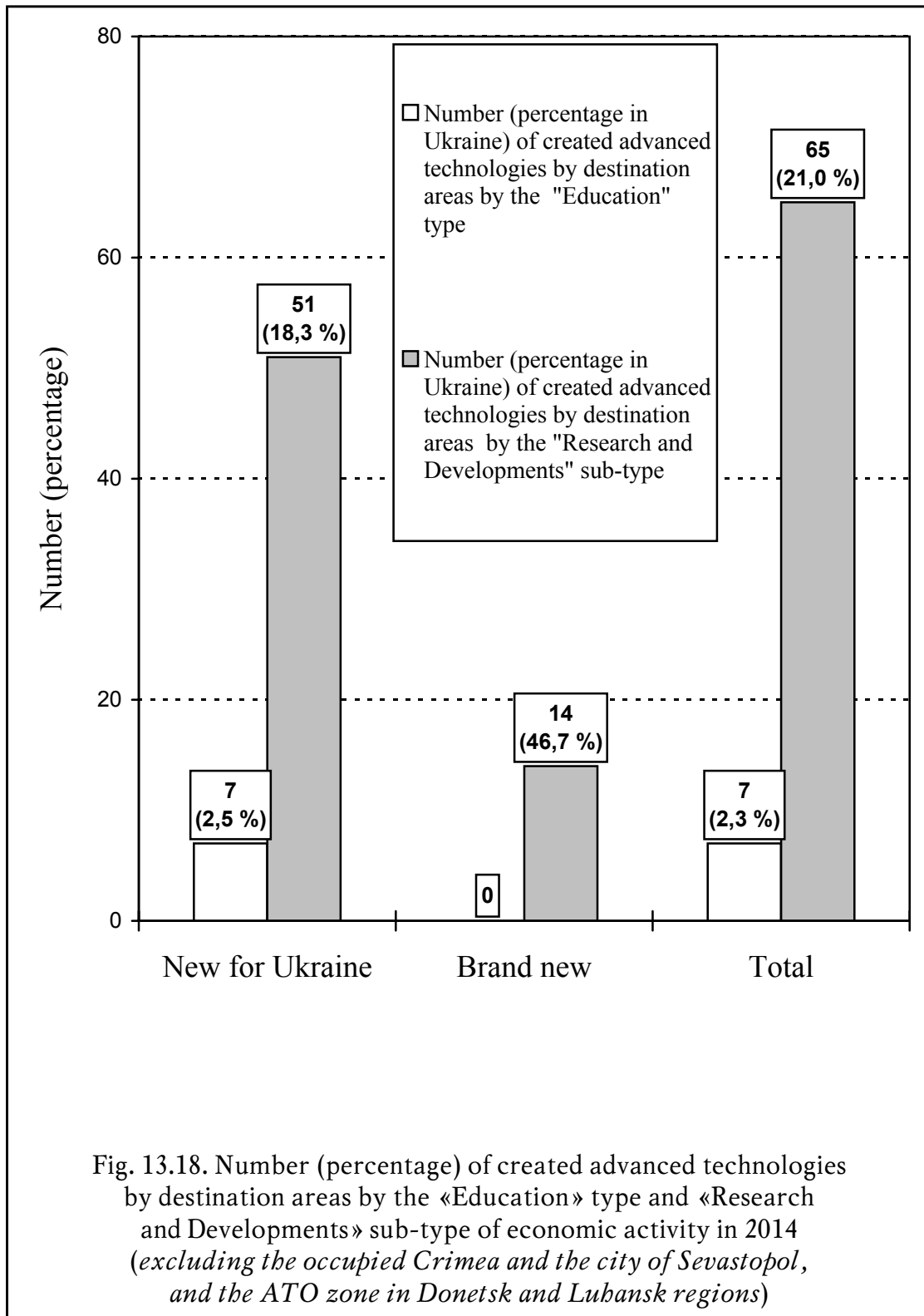


Fig. 13.16. Number (percentage) of organizations by the «Education» type and «Research and Developments» sub-type of economic activity which created and used advanced technologies in 2014 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)





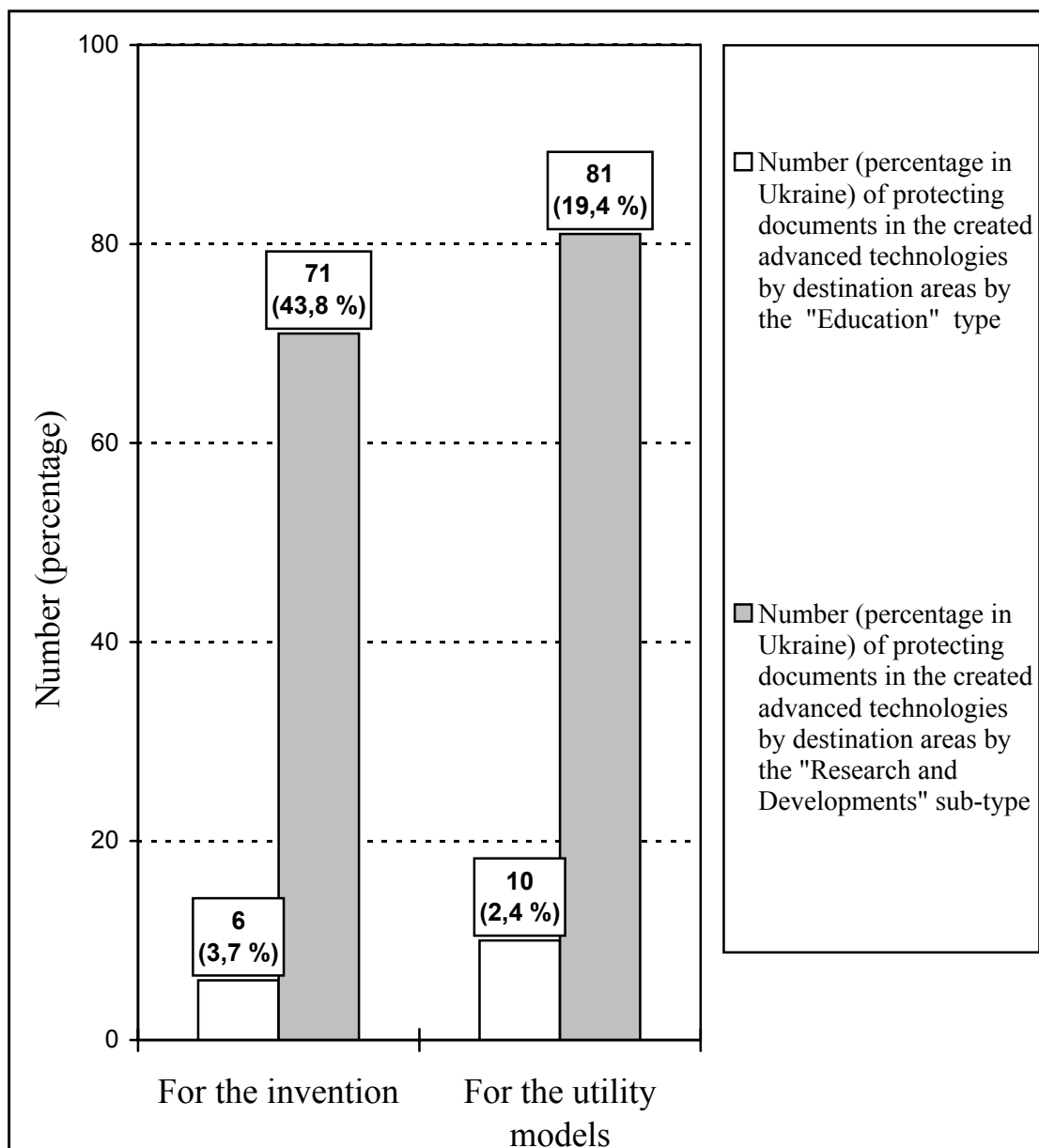


Fig. 13.19. Number (percentage) of protecting documents in the created advanced technologies by destination areas by the «Education» type and «Research and Developments» sub-type of economic activity in 2014 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

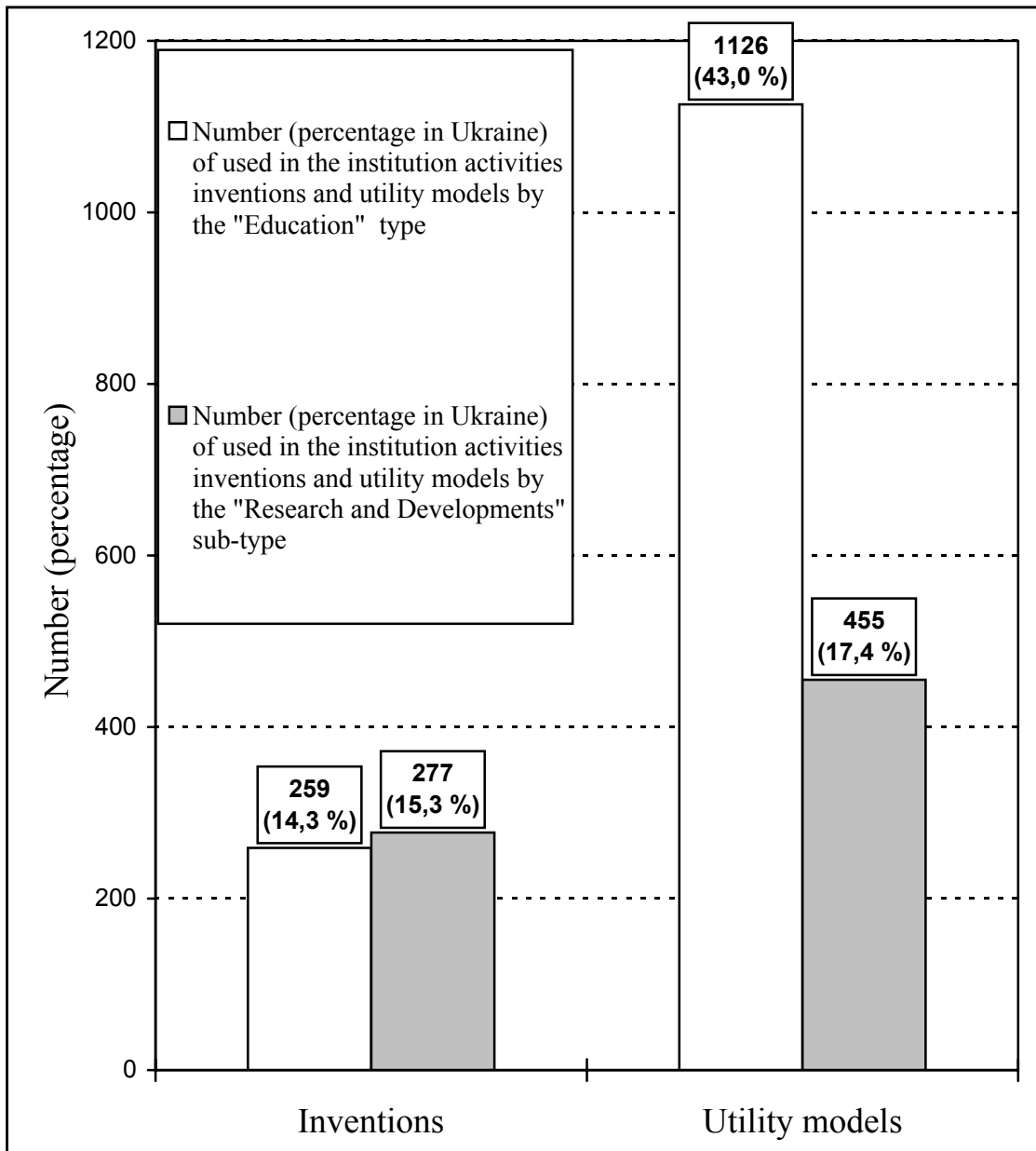


Fig. 13.20. Number (percentage) of used inventions and utility models in institutions' activities by the «Education» type and «Research and Developments» sub-type of economic activity in 2014 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

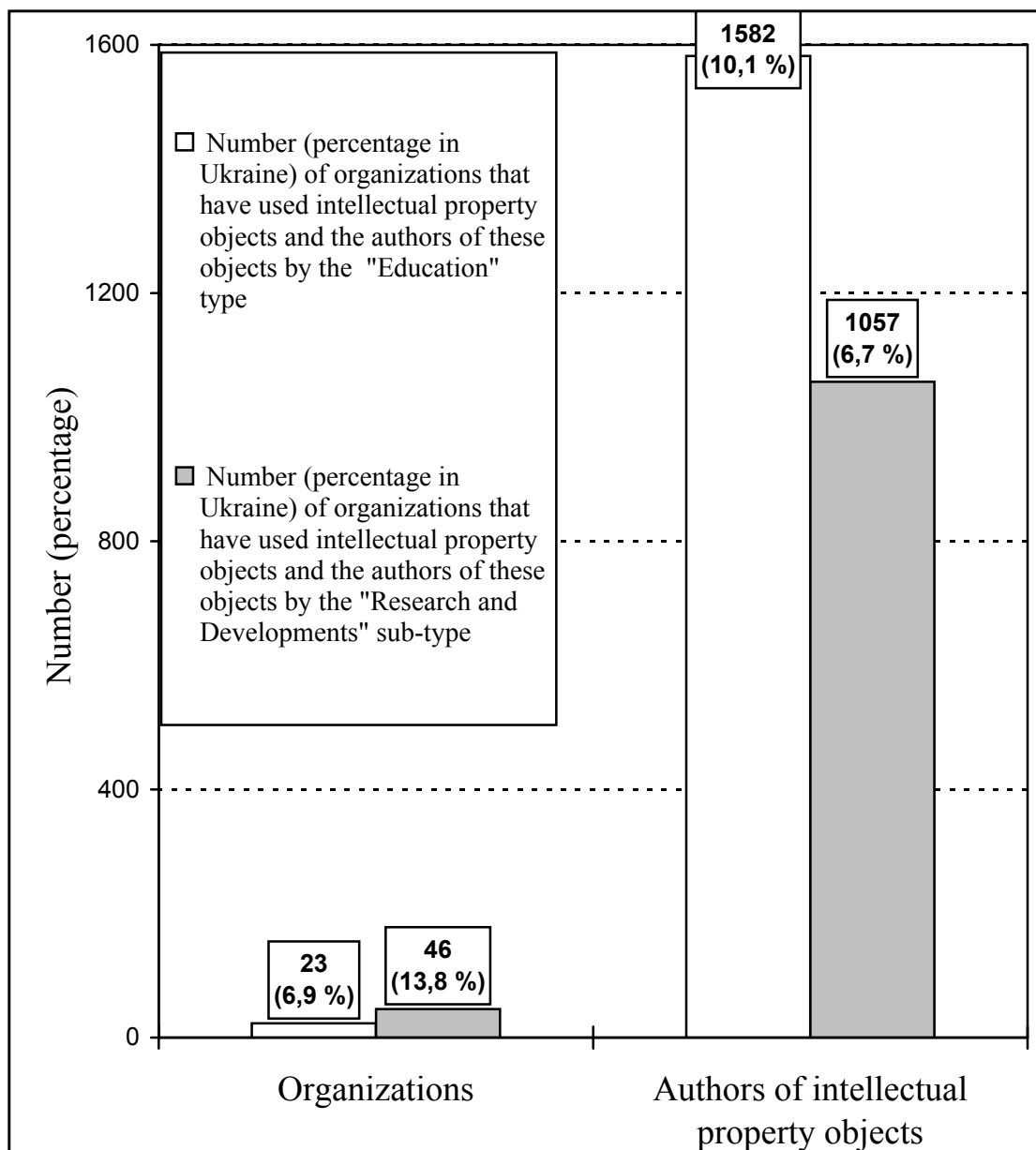
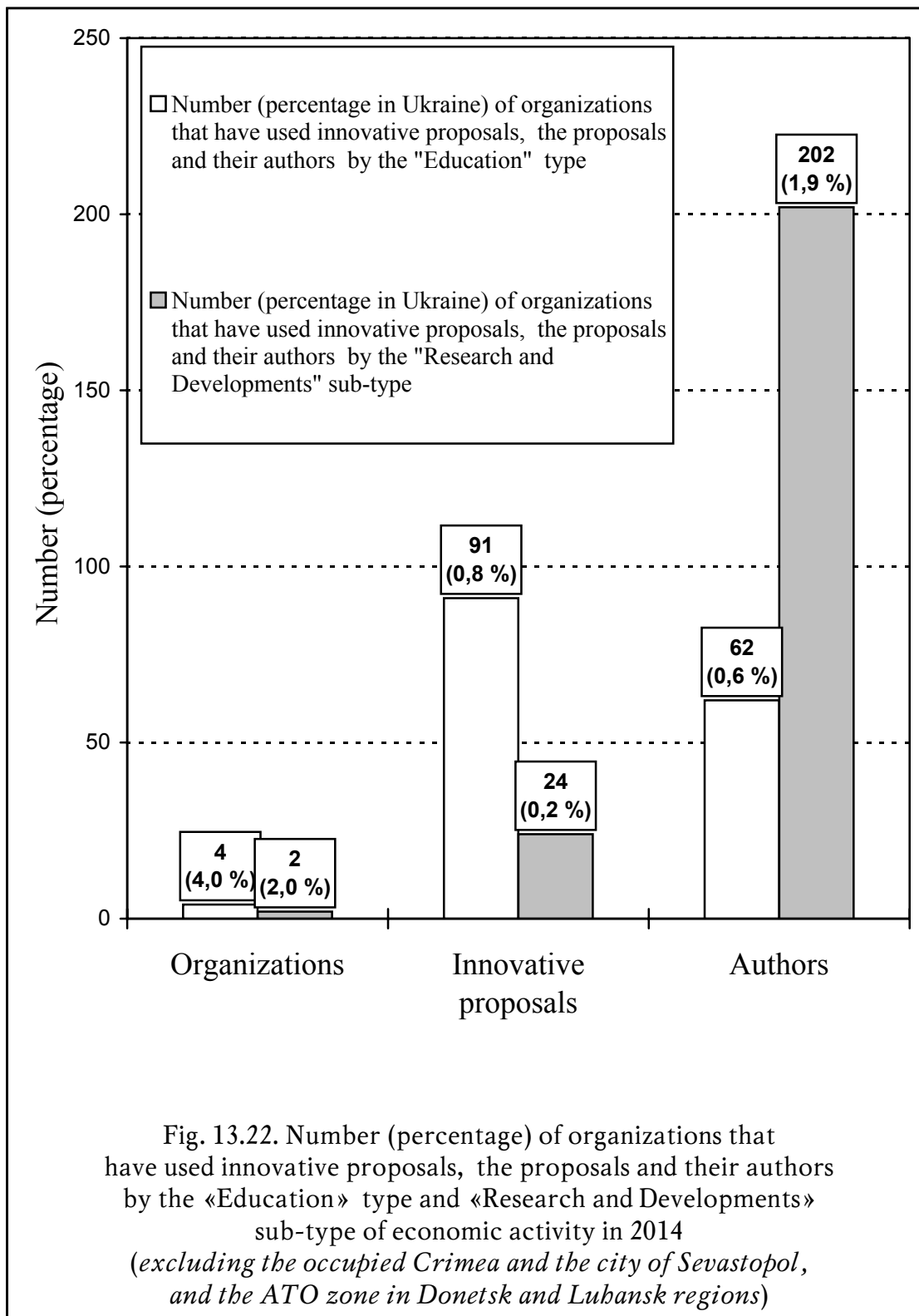


Fig. 13.21. Number (percentage) of organizations that have used objects of intellectual property and the authors of these objects by the «Education» type and «Research and Developments» sub-type of economic activity in 2014 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)



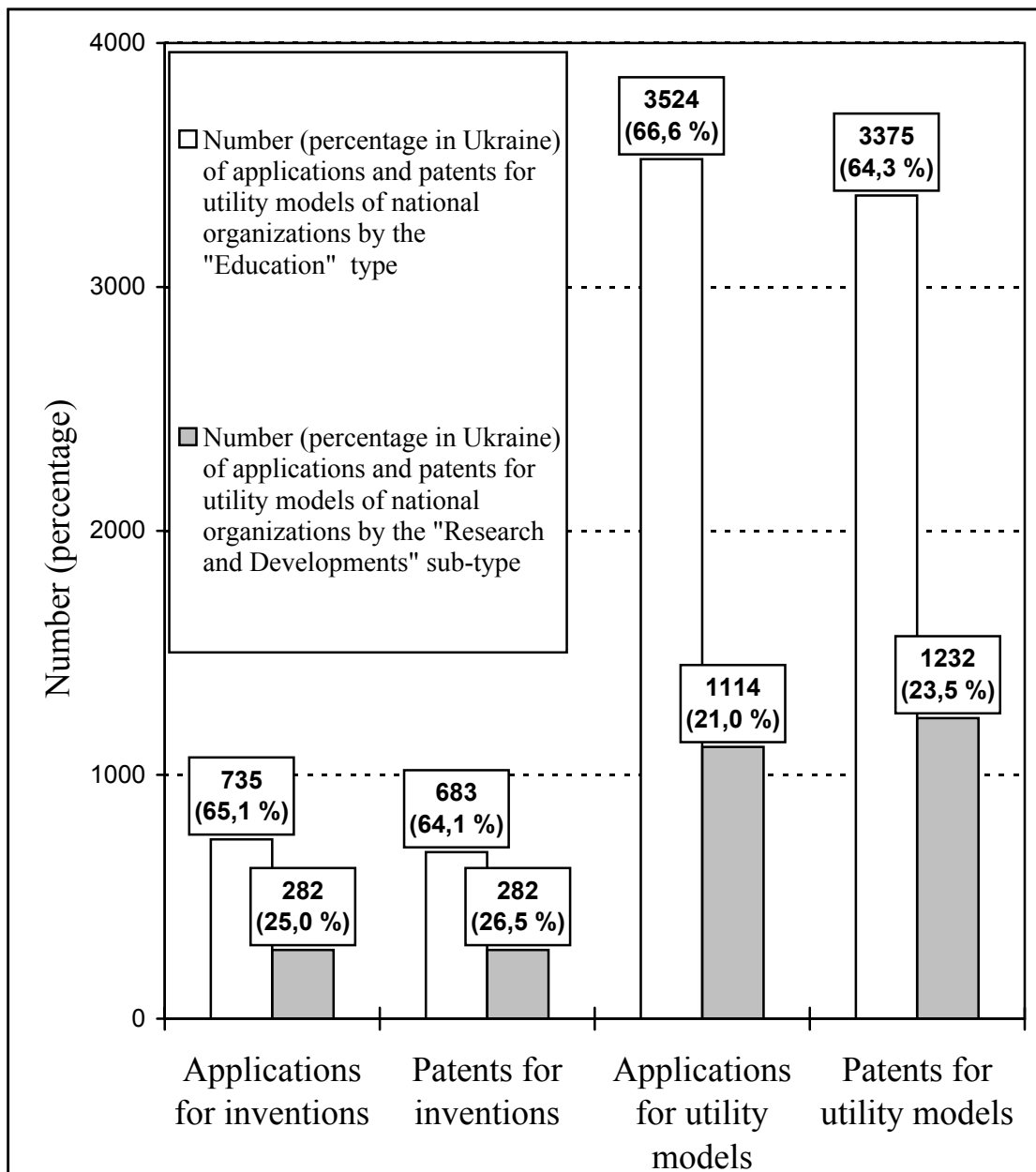


Fig. 13.23. Number (percentage) of applications and patents for utility models of national organizations by the «Education» type and «Research and Developments» sub-type of economic activity in 2014 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

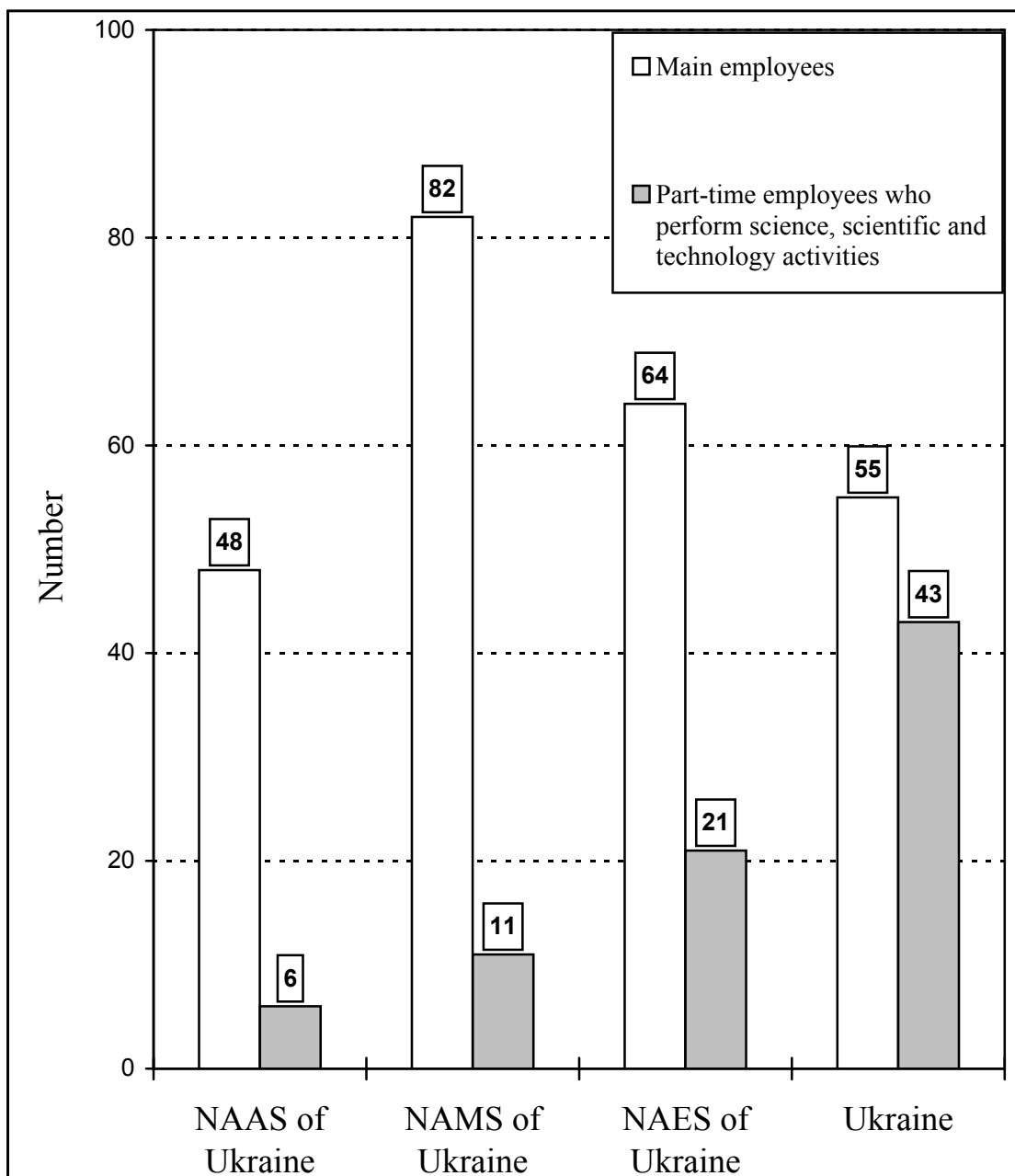


Fig. 13.24. Average number of main and part-time researchers in one research organization of the NAAS, NAMS and NAES of Ukraine in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

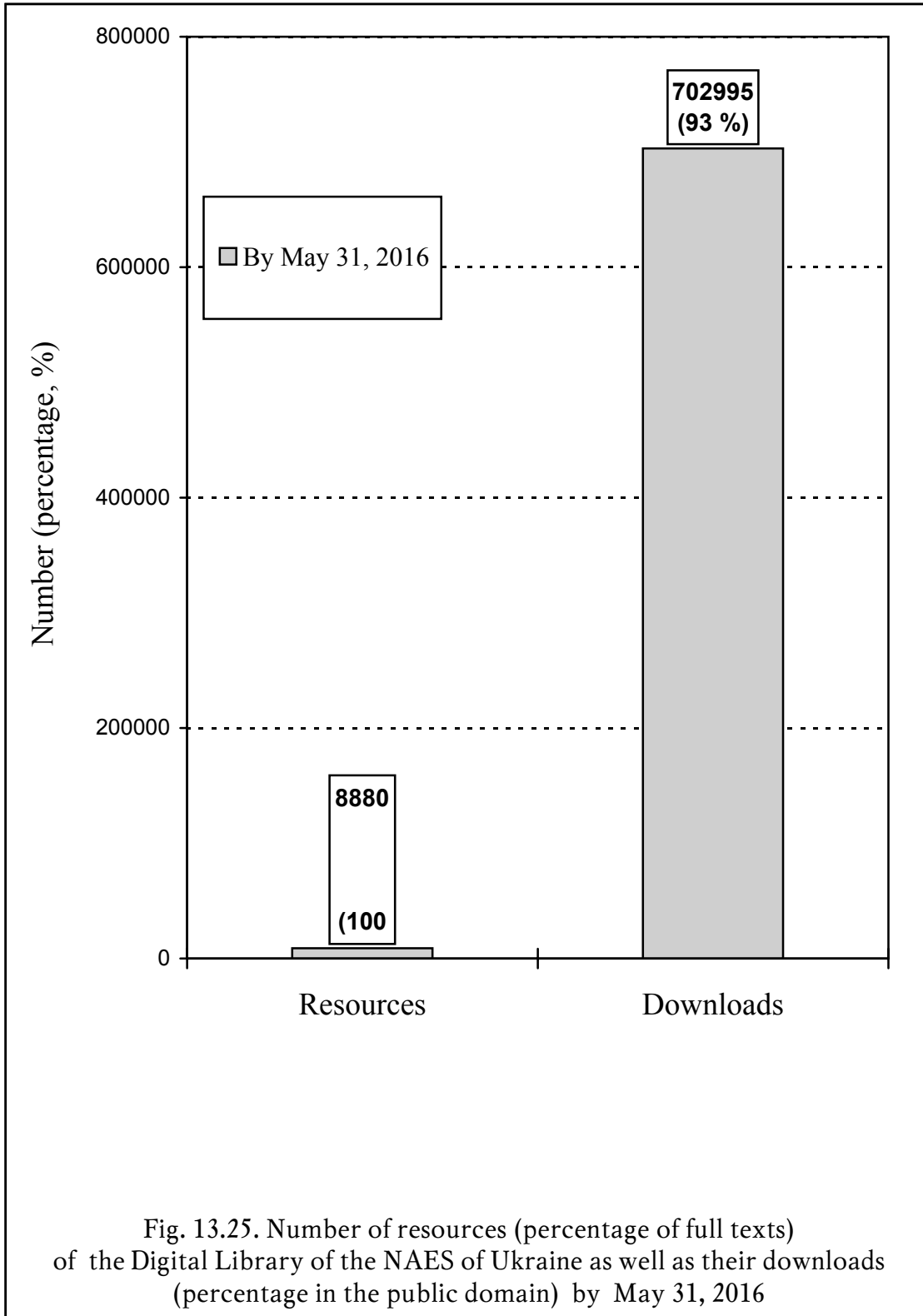


Fig. 13.25. Number of resources (percentage of full texts) of the Digital Library of the NAES of Ukraine as well as their downloads (percentage in the public domain) by May 31, 2016

14. EDUCATION FUNDING

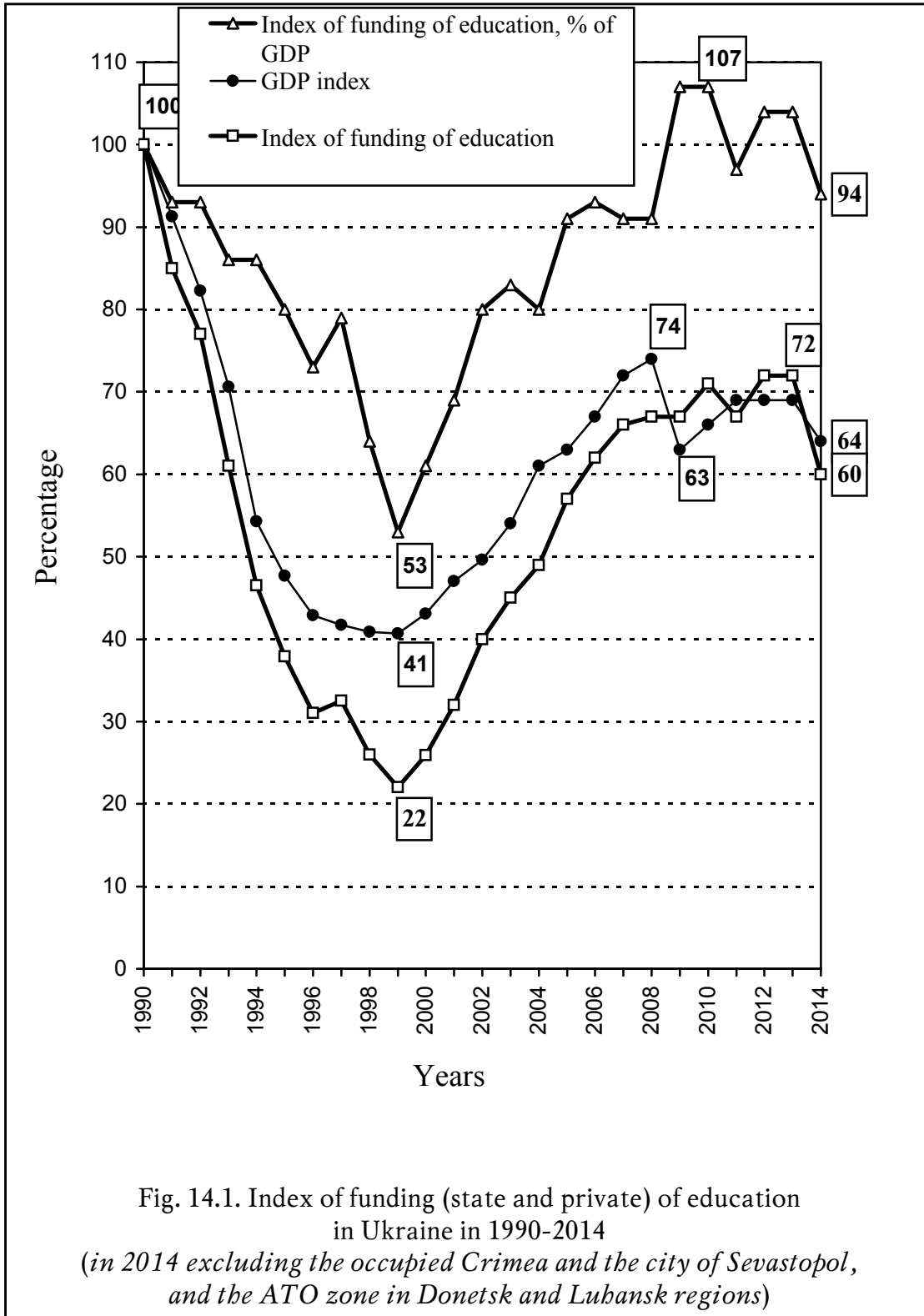
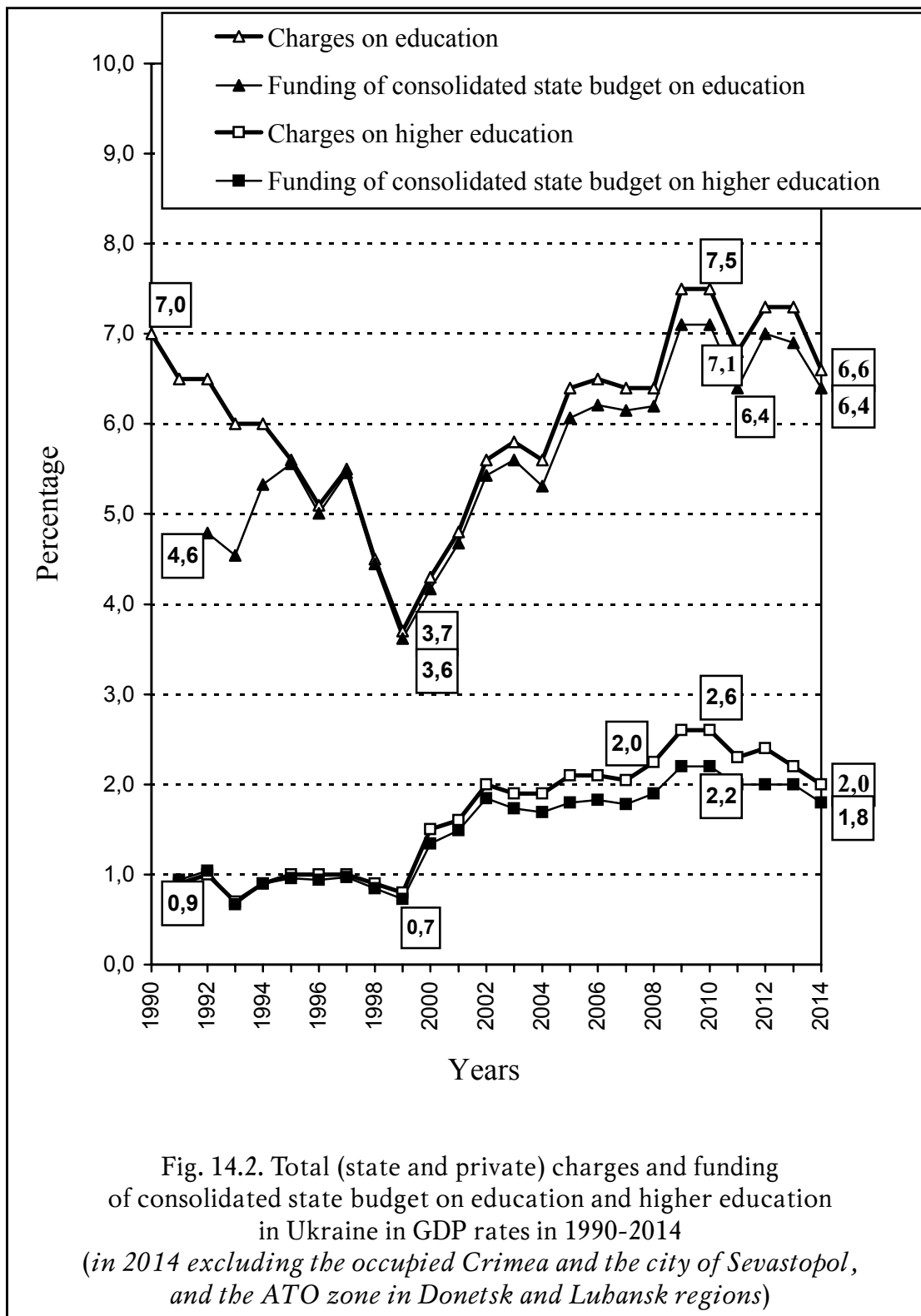


Fig. 14.1. Index of funding (state and private) of education in Ukraine in 1990-2014 (in 2014 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)



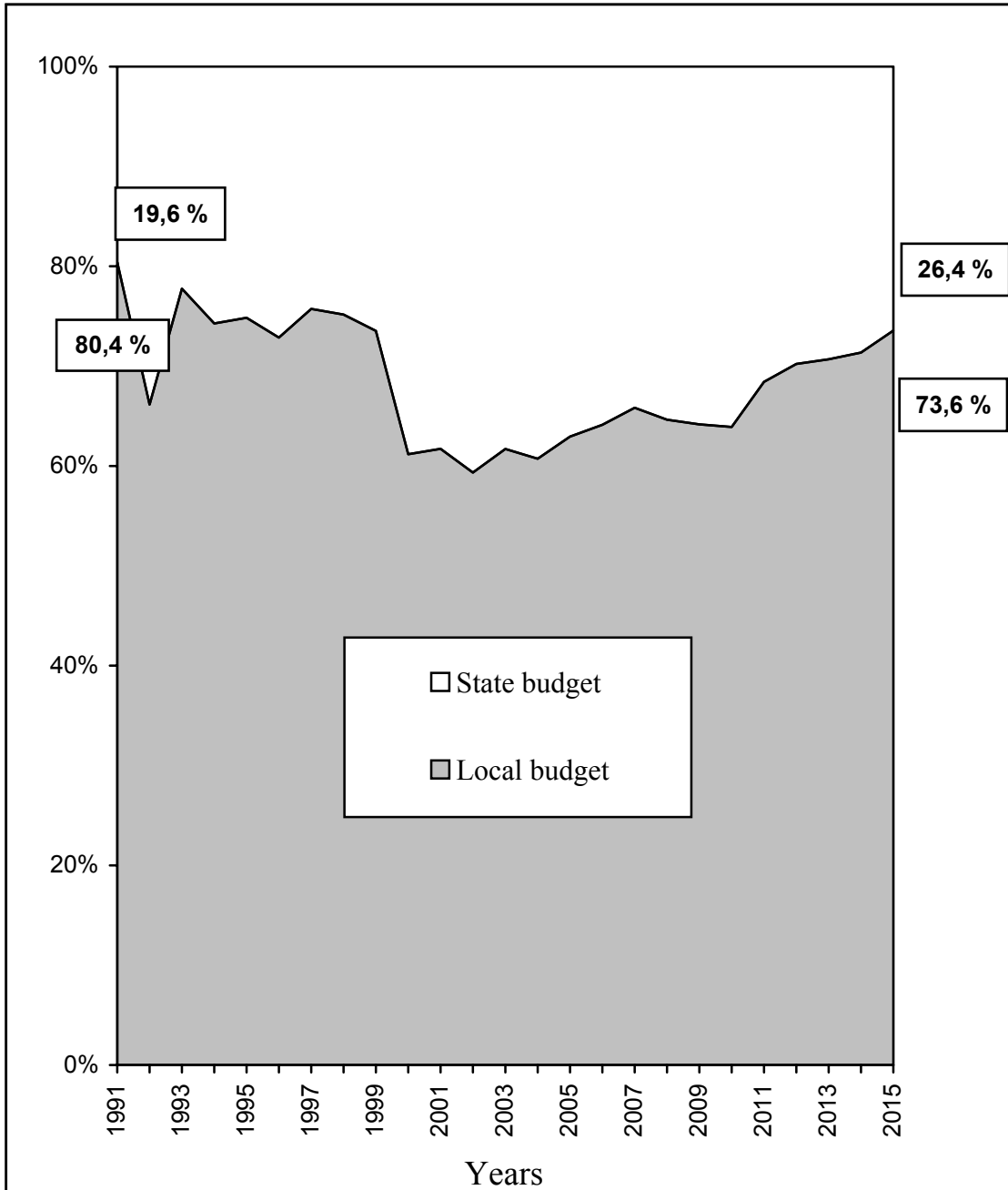


Fig. 14.3. Proportion of state and local budgets in consolidated budget of Ukraine with function 0900 «Education» in 1991-2015 (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

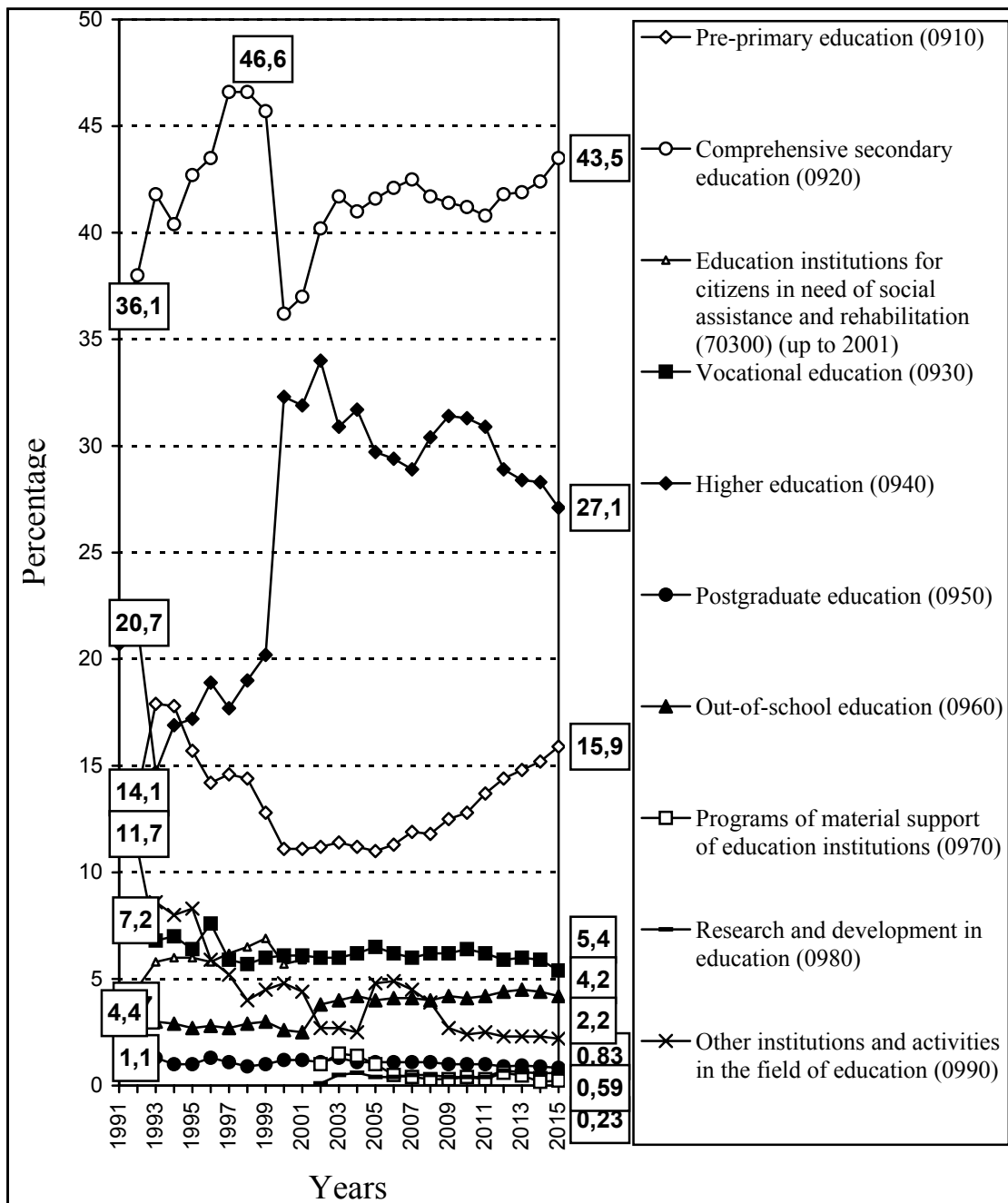


Fig. 14.4. Distribution of consolidated budget of Ukraine funding according to codes of functional budget ranging of function 0900 «Education» in 1991-2015 (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

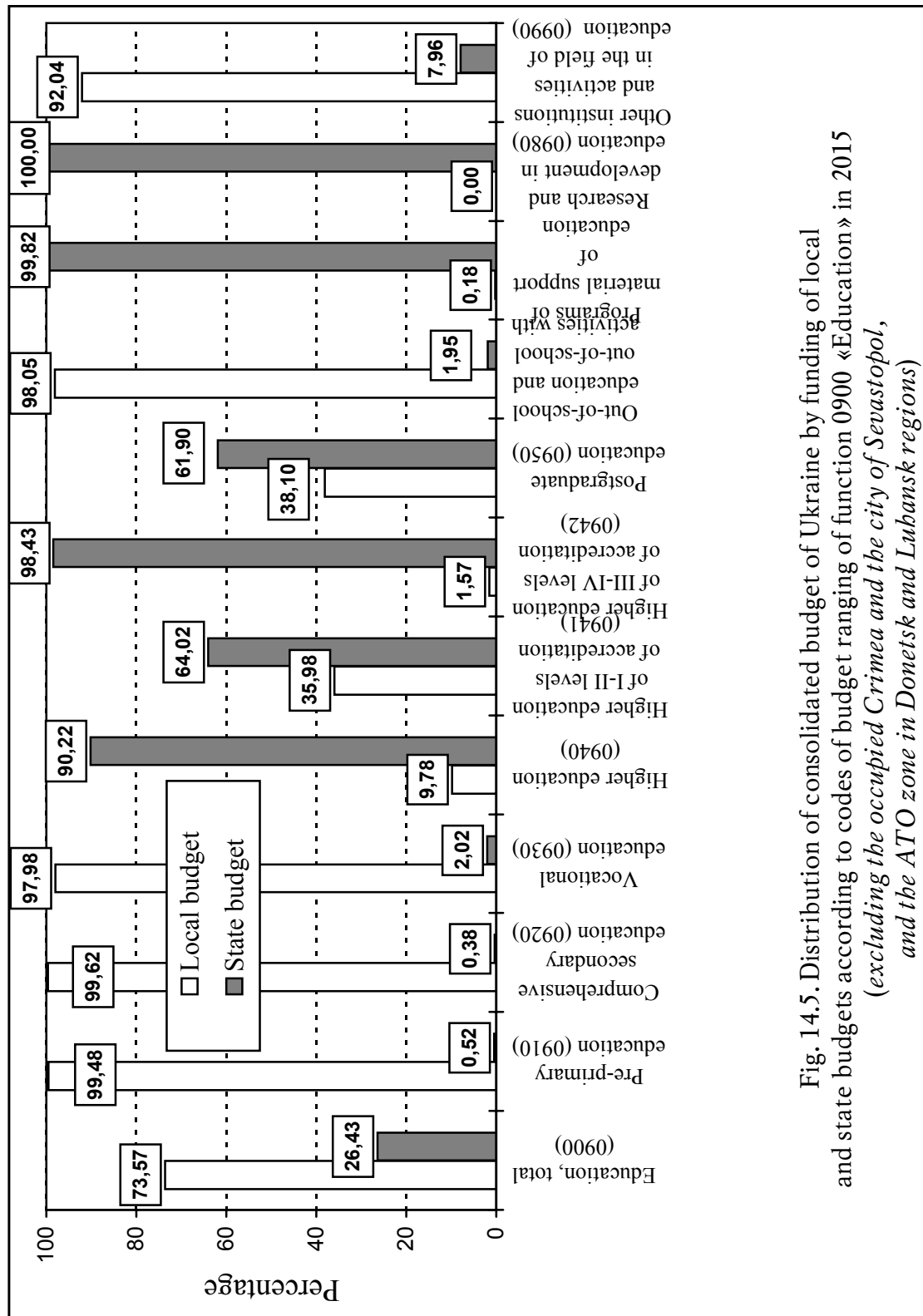


Fig. 14.5. Distribution of consolidated budget of Ukraine by funding of local and state budgets according to codes of budget ranging of function 0900 «Education» in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

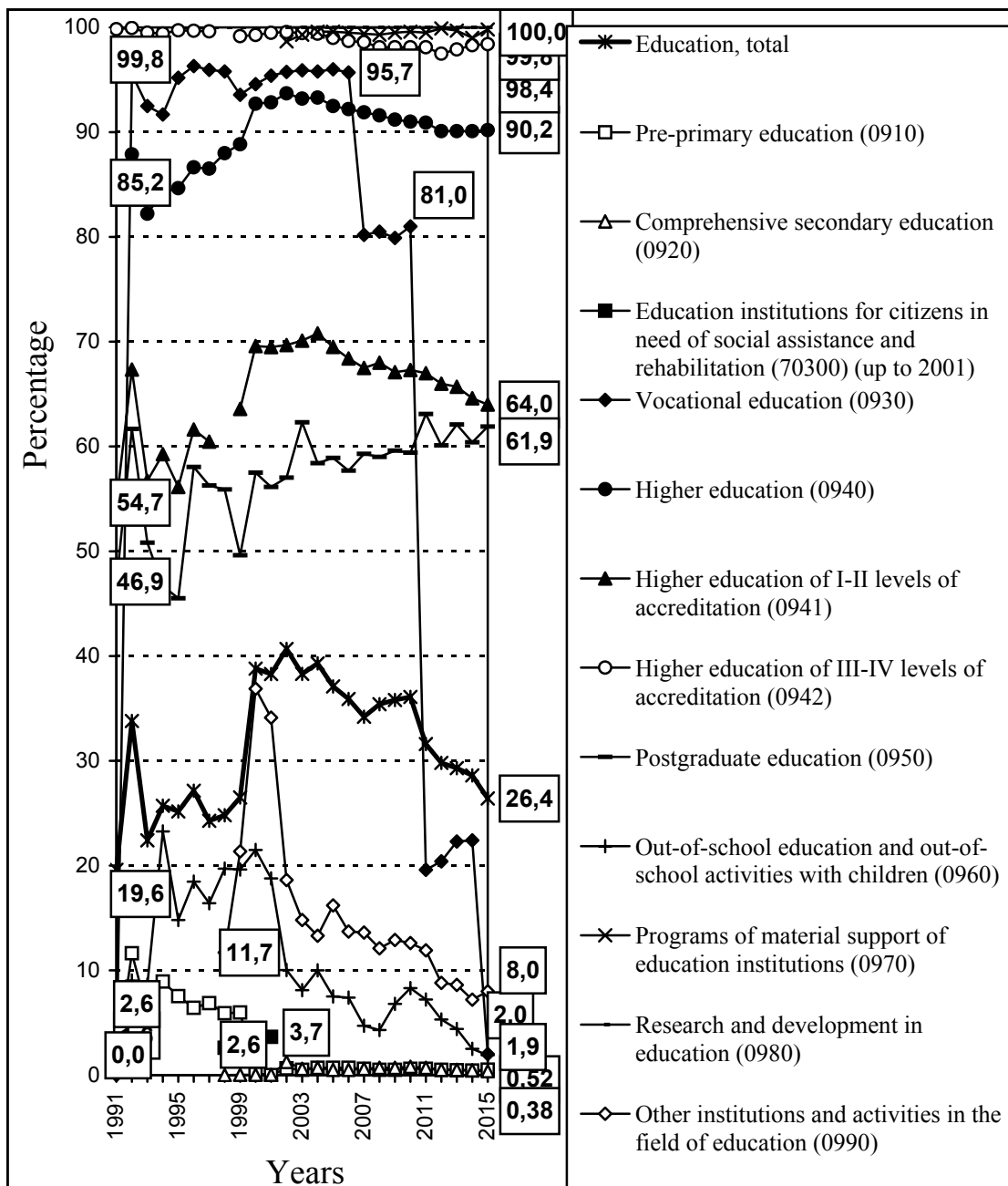


Fig. 14.6. Share of state budget in consolidated budget according to codes of budget ranging of function 0900 «Education» in 1991-2015 (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

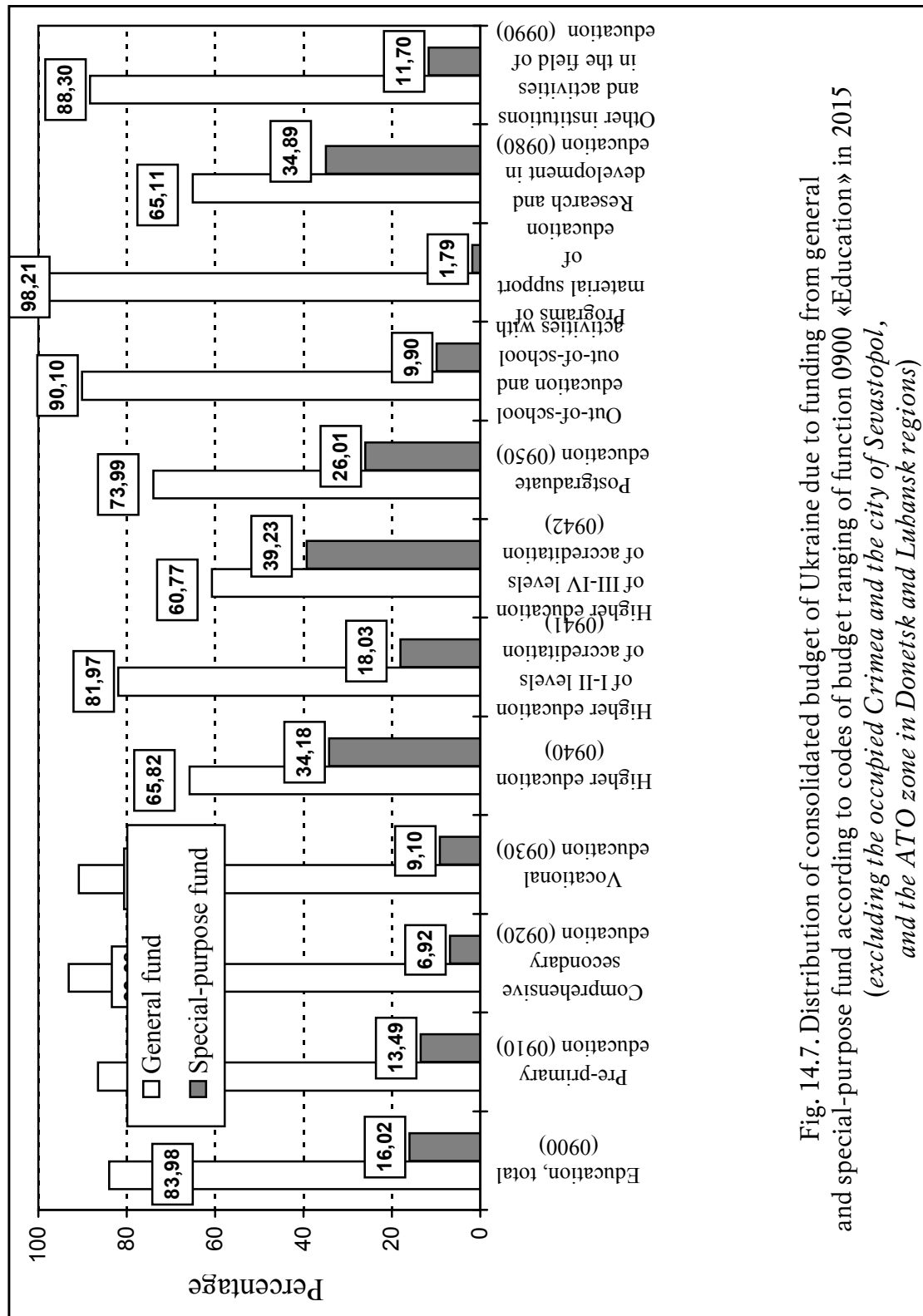


Fig. 14.7. Distribution of consolidated budget of Ukraine due to funding from general and special-purpose fund according to codes of budget ranging of function 0900 «Education» in 2015 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

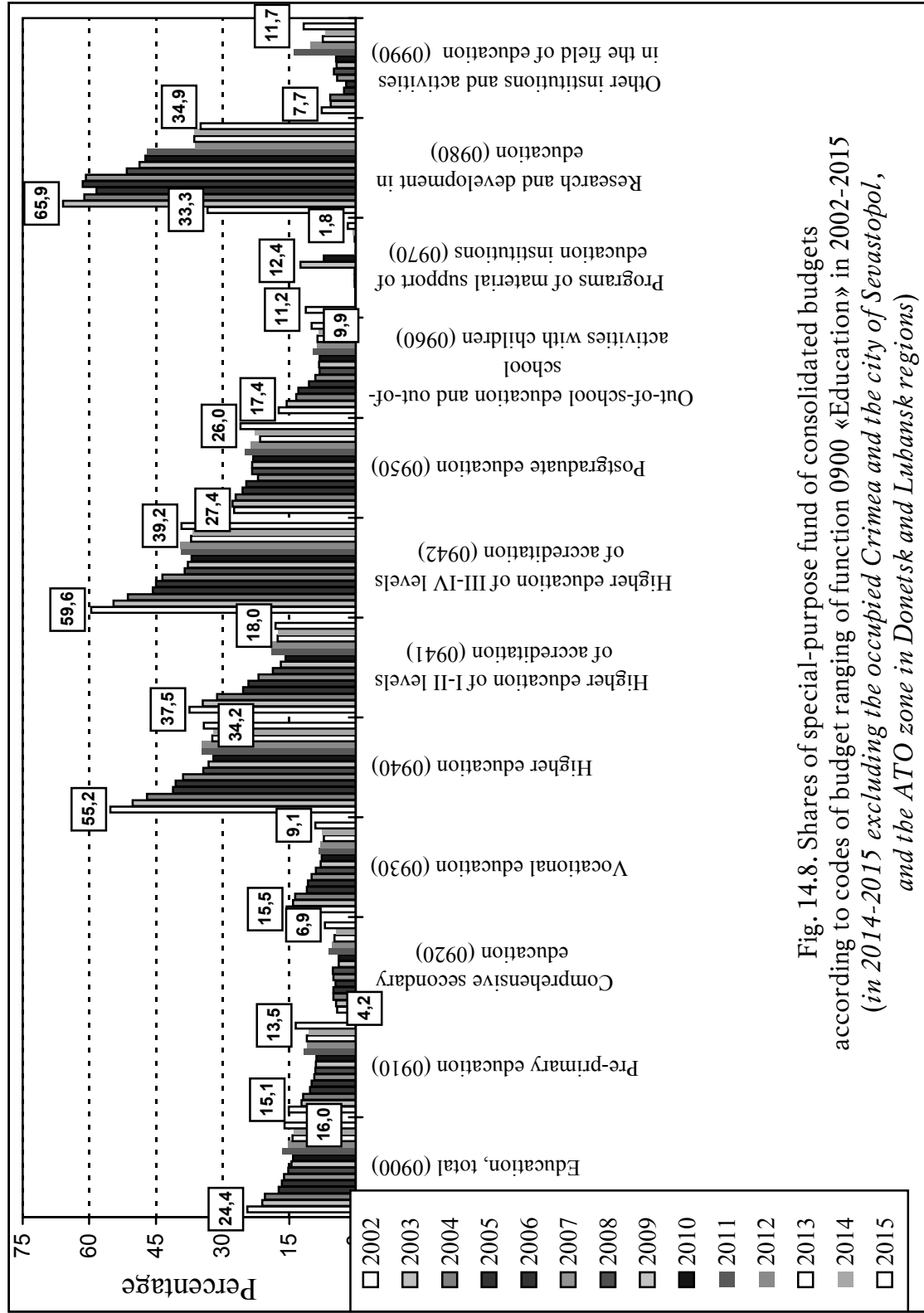


Fig. 14.8. Shares of special-purpose fund of consolidated budgets according to codes of budget ranging of function 0900 «Education» in 2002-2015 (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

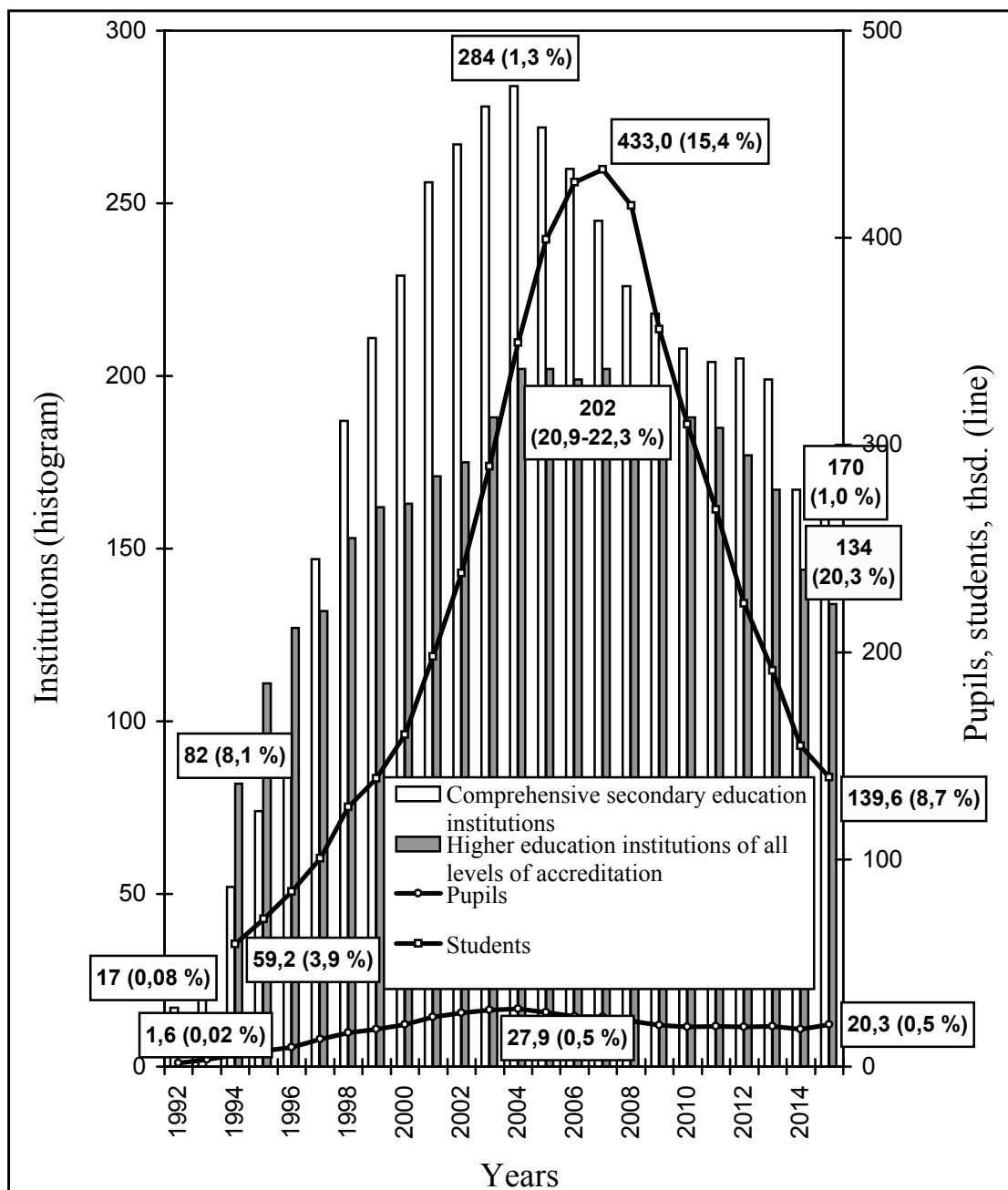


Fig. 14.9. Private segment of education (number of private comprehensive secondary and higher education institutions and number of pupils and students in them) in Ukraine in 1992-2015 (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

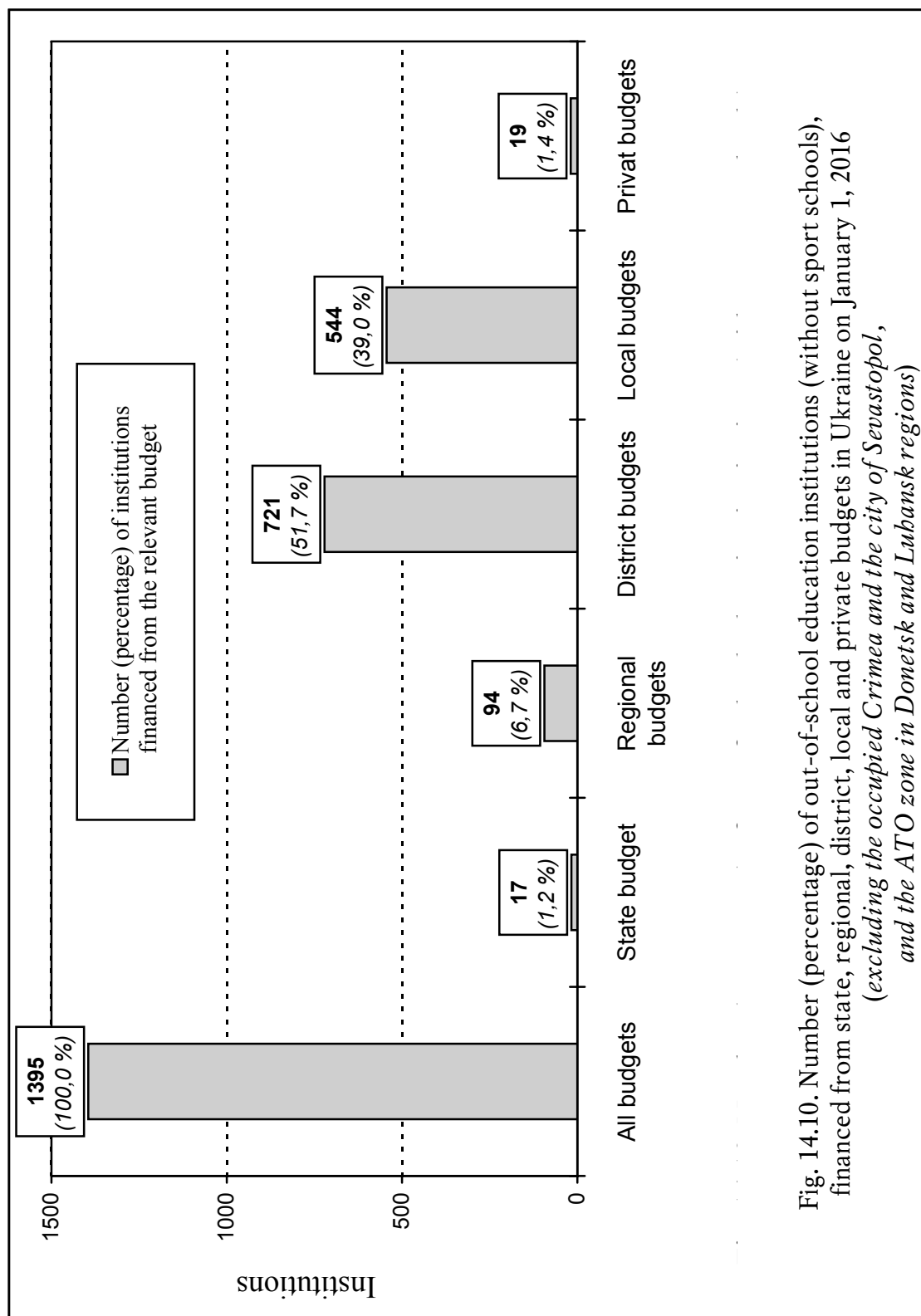
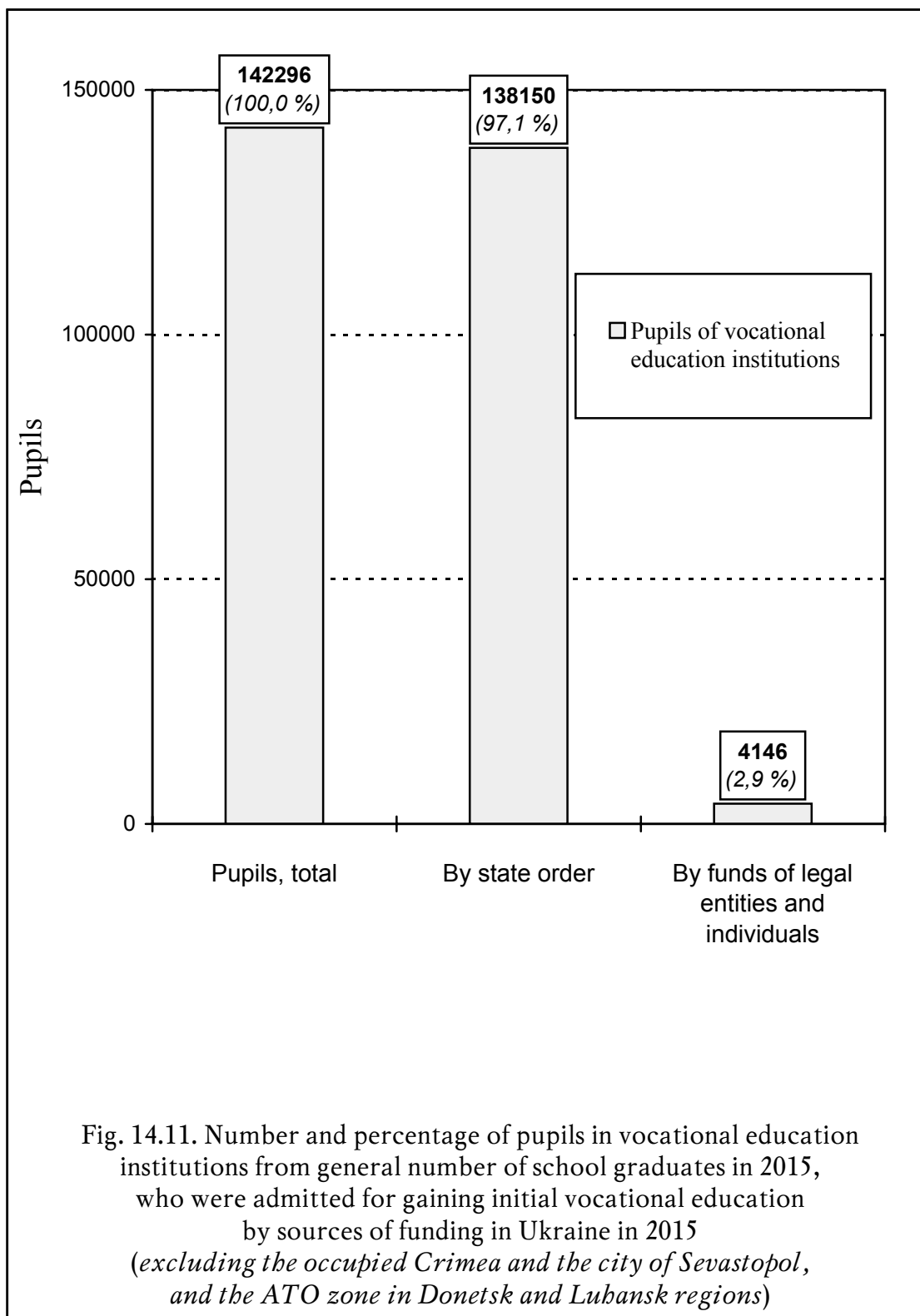
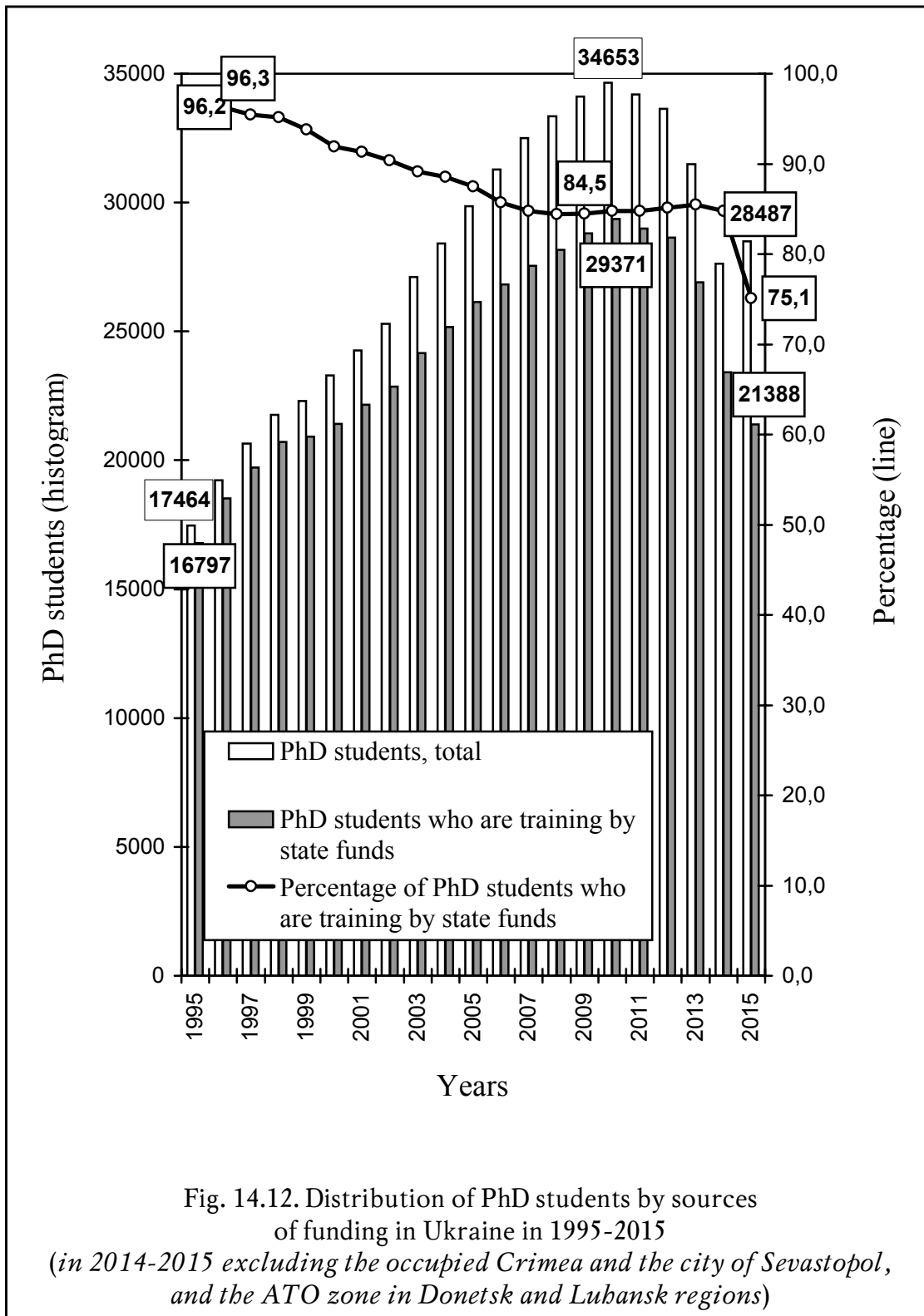


Fig. 14.10. Number (percentage) of out-of-school education institutions (without sport schools), financed from state, regional, district, local and private budgets in Ukraine on January 1, 2016 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)





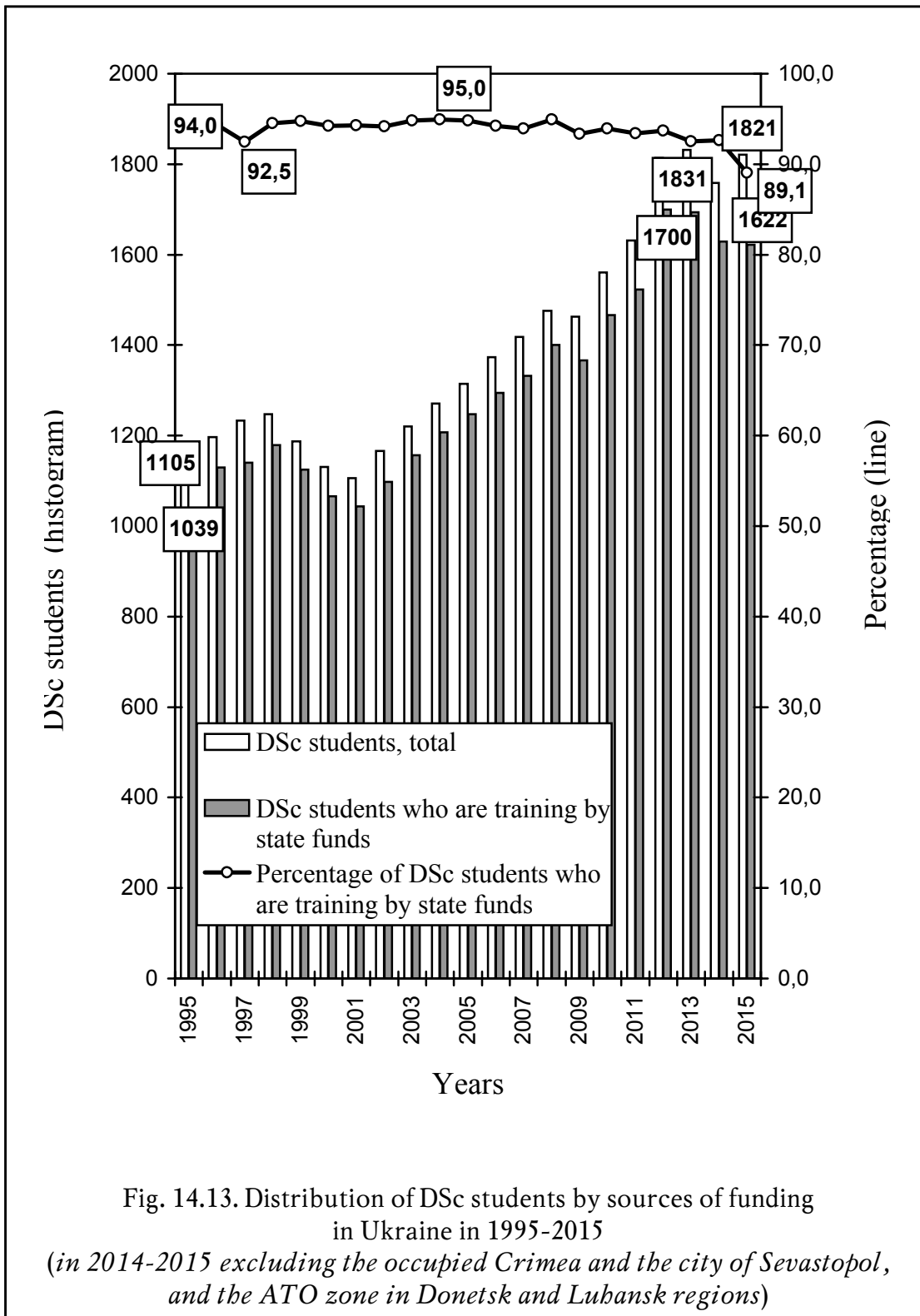


Fig. 14.13. Distribution of DSc students by sources of funding in Ukraine in 1995-2015 (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

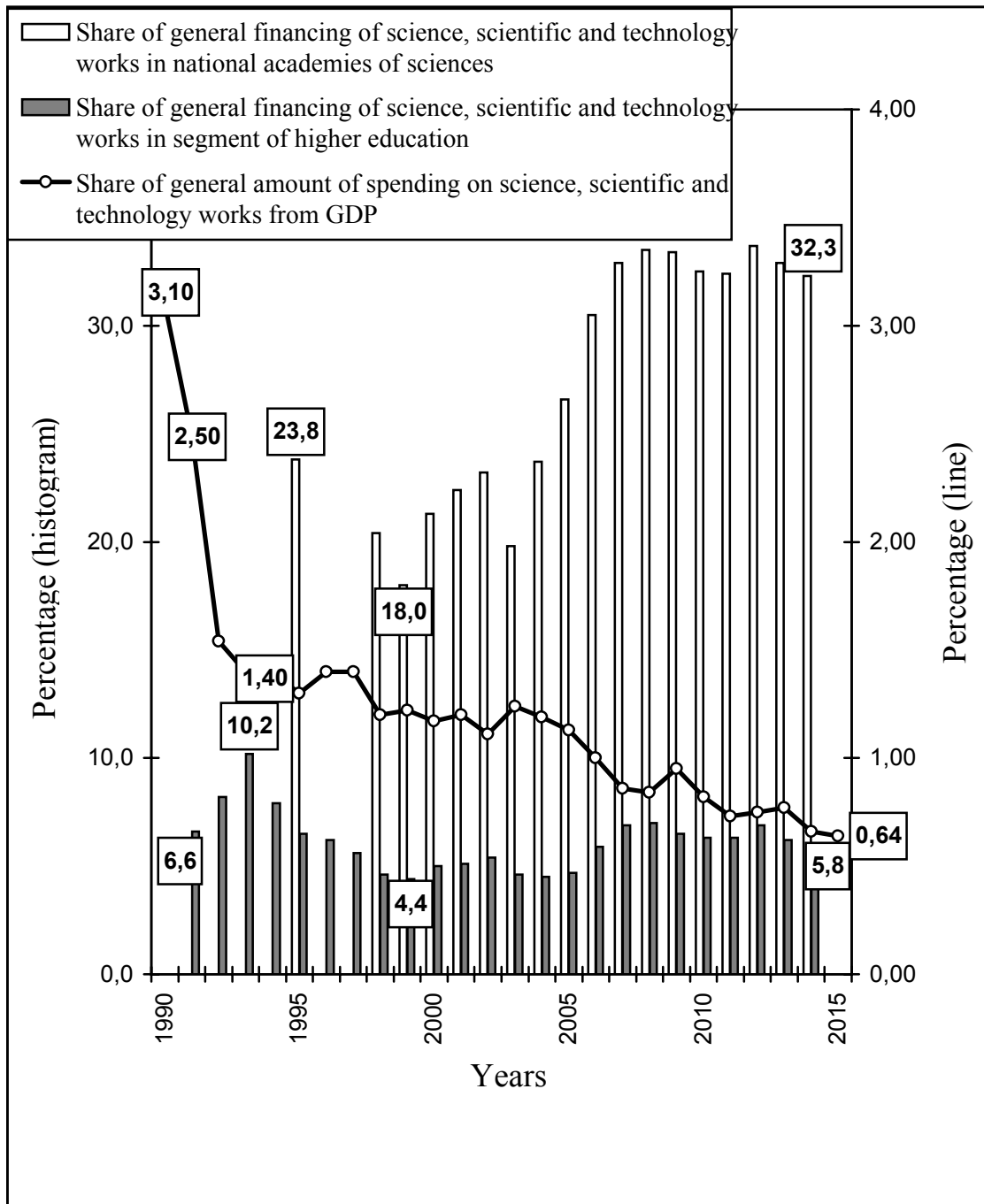


Fig. 14.14. Share of general financing of science, scientific and technology works from GDP (line) and share of national academies of sciences and segment of higher education in general funding (histogram) (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

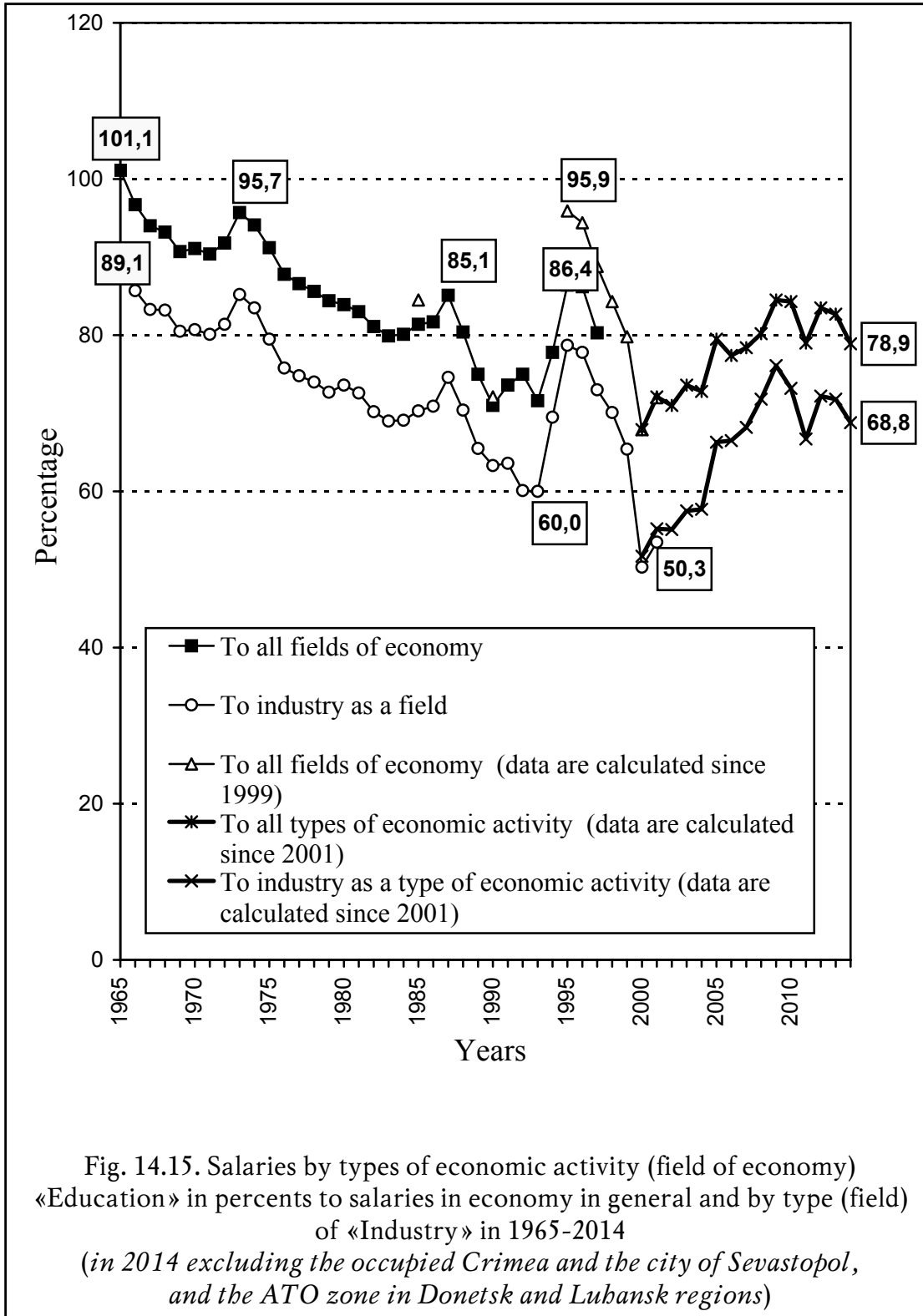


Fig. 14.15. Salaries by types of economic activity (field of economy) «Education» in percents to salaries in economy in general and by type (field) of «Industry» in 1965-2014
(in 2014 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

15. DEVELOPMENT OF EDUCATION MATERIAL AND TECHNICAL BASE

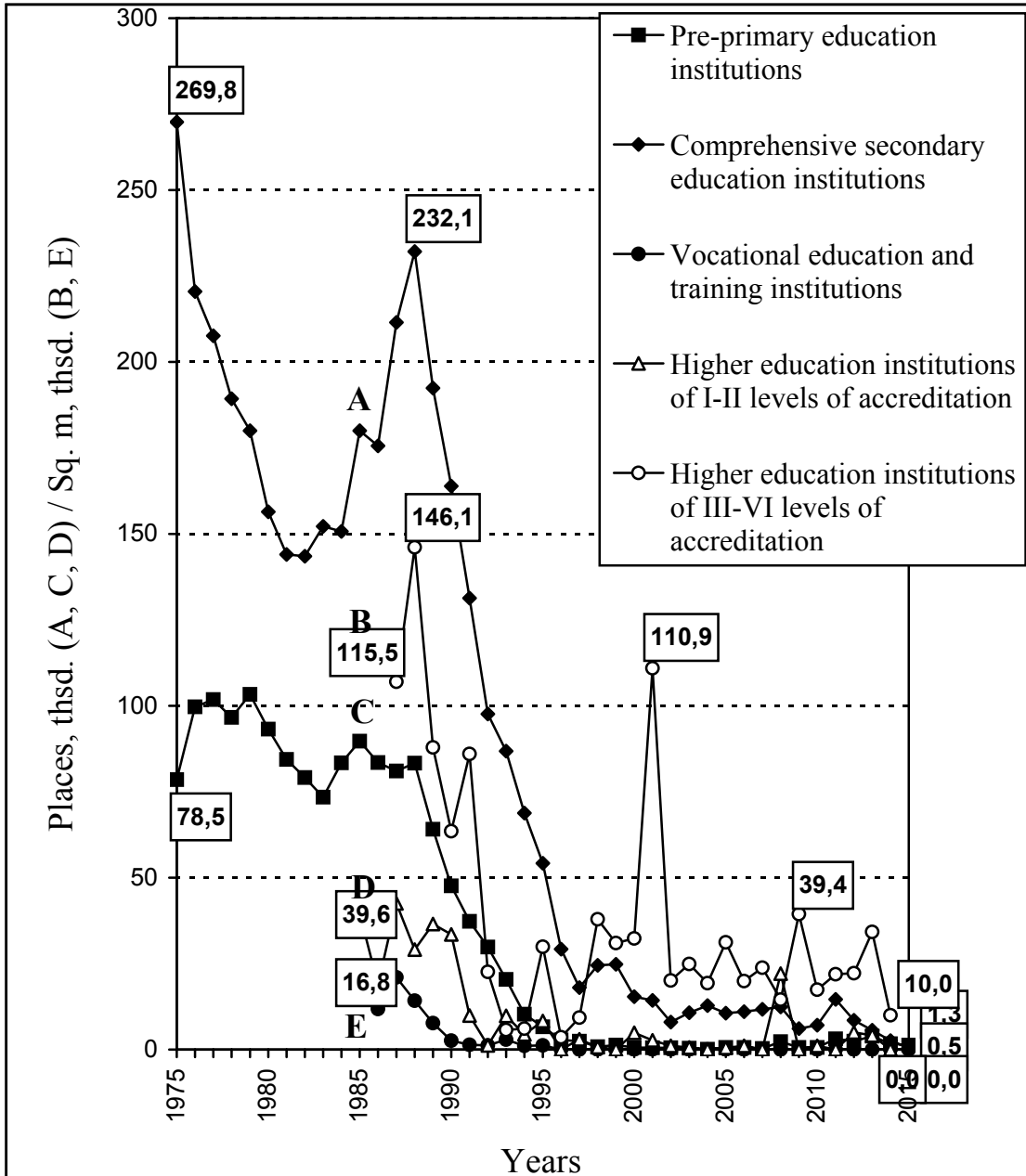


Fig. 15.1. Commissioning the objects for educational purposes - places (thsd.) in pre-primary, comprehensive secondary (in 2015 for 9 months) and vocational and areas (thsd. sq. m) in higher (data for 2014) education institutions in Ukraine (in 2014-2015 excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

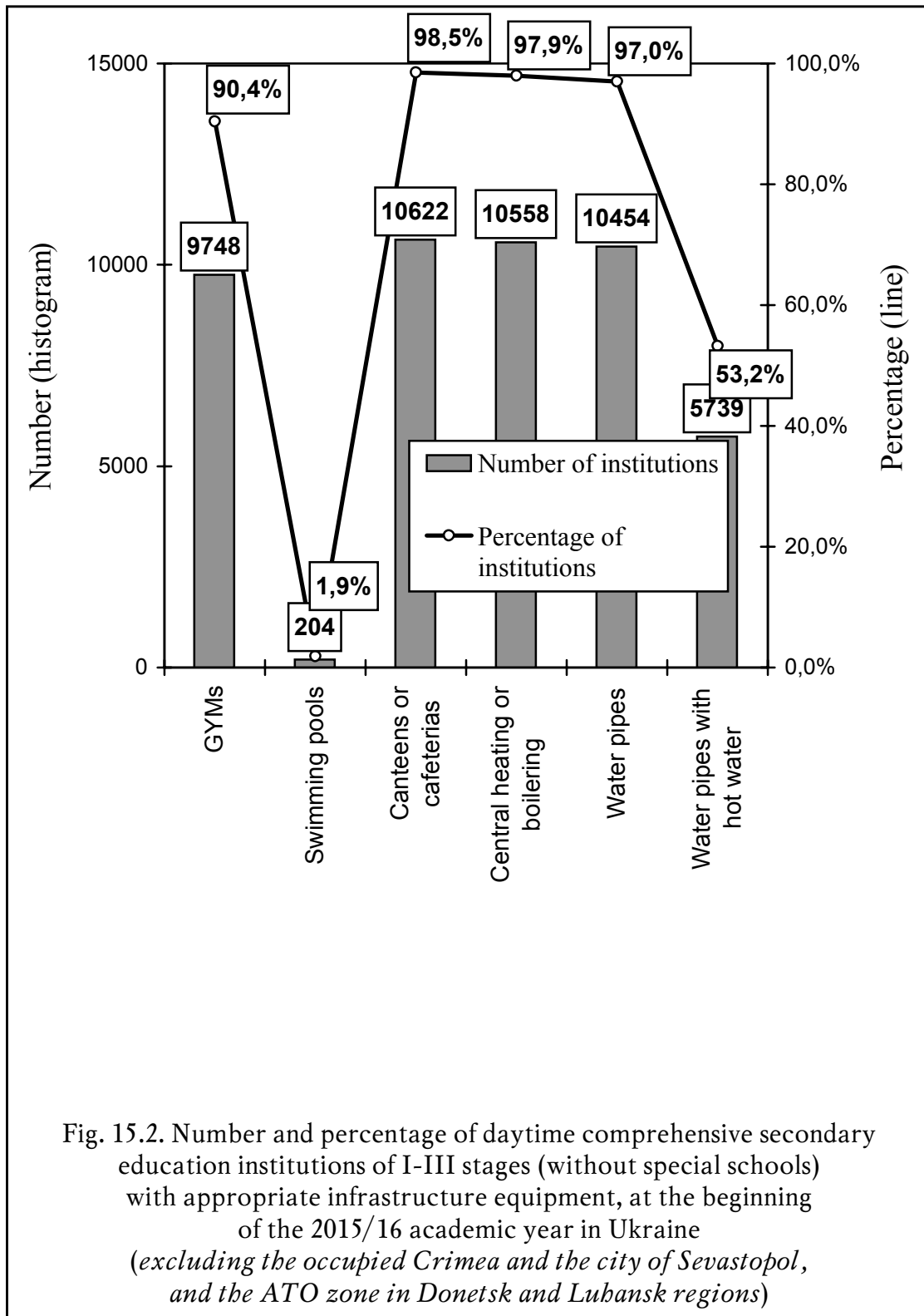


Fig. 15.2. Number and percentage of daytime comprehensive secondary education institutions of I-III stages (without special schools) with appropriate infrastructure equipment, at the beginning of the 2015/16 academic year in Ukraine (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

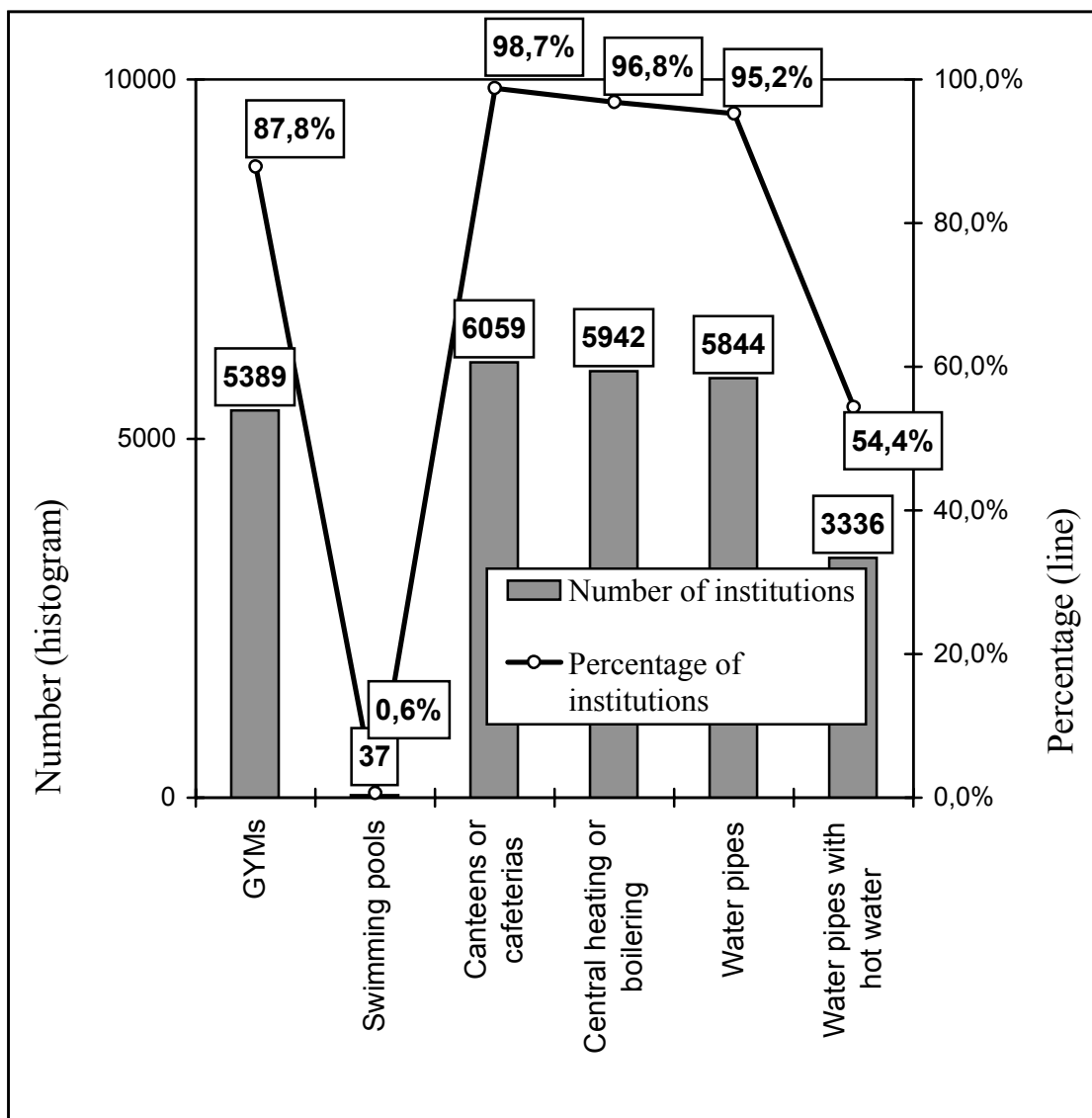


Fig. 15.3. Number and percentage of daytime comprehensive secondary education institutions of I-III stages (without special schools) in the rural area with appropriate infrastructure equipment, at the beginning of 2015/16 academic year in Ukraine (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions)

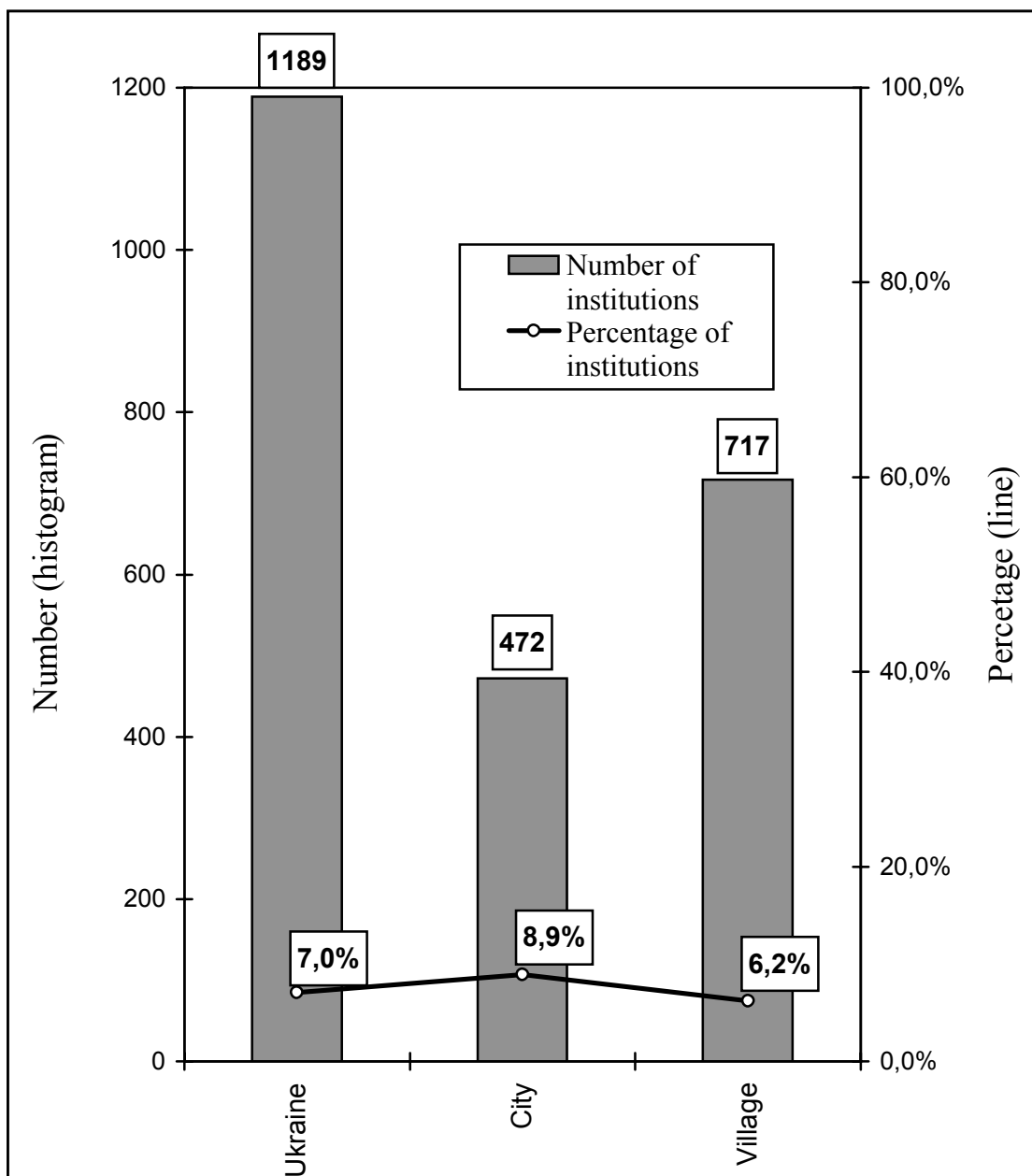


Fig. 15.4. Number and percentage of daytime comprehensive secondary education institutions of I-III stages (without special schools), facilities of which need major repairs, at the beginning of 2015/16 academic year in Ukraine (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

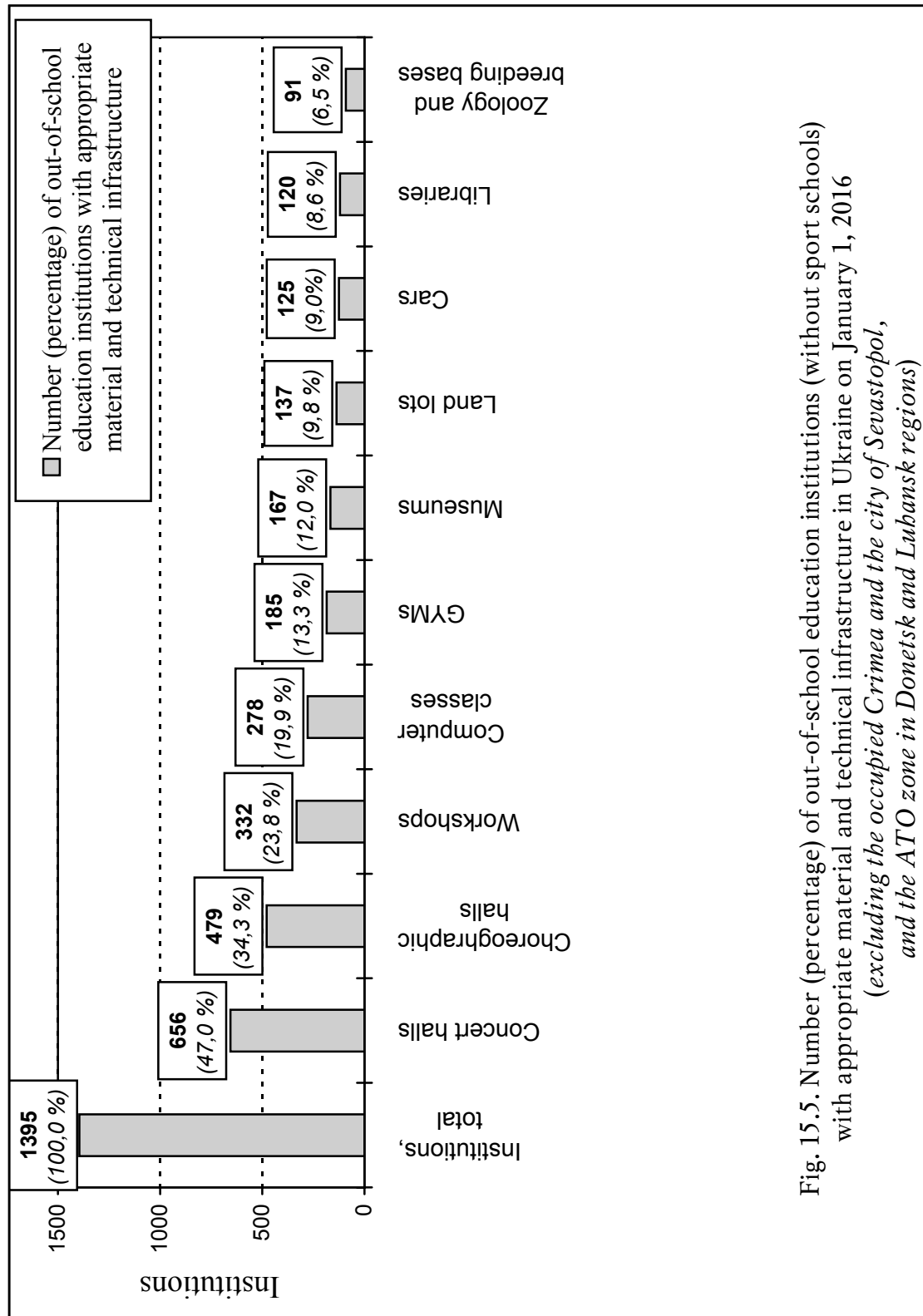


Fig. 15.5. Number (percentage) of out-of-school education institutions (without sport schools) with appropriate material and technical infrastructure in Ukraine on January 1, 2016 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

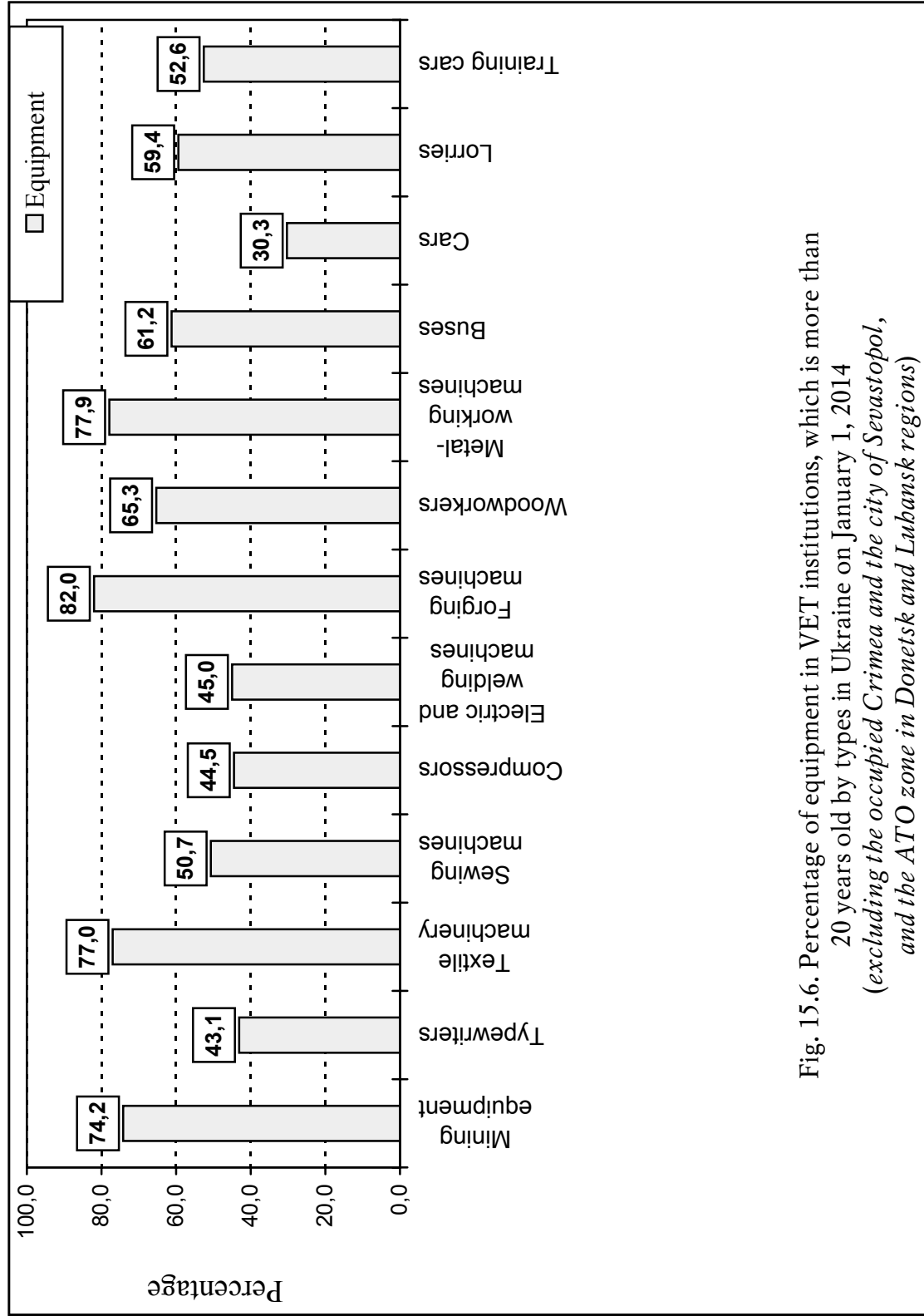


Fig. 15.6. Percentage of equipment in VET institutions, which is more than 20 years old by types in Ukraine on January 1, 2014 (excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Lubansk regions)

Annex B (tables)

Pre-primary Education Institutions

Years	Number of institutions ² , thsd.	Places in them ³ , thsd.	Number of children, thsd.	Coverage of children by institutions, percentage to the number of children of corresponding 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
2007	15,3	1084	1137	54
2008	15,4	1110	1195	54
2009	15,5	1121	1214	53
2010	15,6	1136	1273	53
2011	16,1	1171	1354	55
2012	16,4	1204	1428	57
2013	16,7	1236	1471	61
2014 ¹	15,0	1077	1295	55
2015 ¹	14,8	1105	1291	55

¹ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

² Pre-primary education institutions that have not worked for a year or more for any reason are included in 1990-2014; institutions that have worked for a year are included since 2015.

³ Places in pre-primary education institutions that have not worked for a year or more for any reason are not included in 1990-2014.

Comprehensive Secondary Education Institutions

(at the beginning of academic year, thsd.)

Years	Number of institutions	Number of pupils in comprehensive secondary education institutions	Number of pupils in comprehensive secondary education institutions		Comprehensive secondary education institutions graduates		Number of teachers
			day	evening (shift-type), including those who studied part-time	graduated from school of the II stage (received a certificate of basic comprehensive secondary education)	graduated from school of the III stage (received a certificate of complete comprehensive 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 ¹	17,6	3757	3718	39	339	247	454
2015/16 ¹	17,3	3783	3750	33	336	229	444

¹ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

Vocational Education and Training Institutions¹

Years	Number of institutions	Number of pupils, thsd.	Entered pupils, thsd.	Graduated qualified workers, thsd.
1990	1246	643,4	380,5	376,7
1991	1251	648,4	377,4	338,1
1992	1255	647,2	367,9	307,1
1993	1185	629,4	340,8	307,0
1994	1177	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
2008	1018	443,6	288,1	269,6
2009	975	424,3	249,9	239,4
2010	976	433,5	282,9	247,4
2011	976	409,4	241,7	240,1
2012	972	423,3	241,8	202,1
2013	968	391,2	225,2	227,3
2014 ²	814	315,6	178,0	182,0
2015 ²	798	304,1	176,6	165,0

¹Data for 1990-1994 are given on VET institutions of the Ministry of Education and Science of Ukraine, since 1995 – institutions of the MES of Ukraine and of other ministries (administrations) are included.

² Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

Higher Education Institutions

(at the beginning of academic year)

Years	Number of HEIs		Number of students in HEIs, thsd.	
	I-II levels of accreditation	III-IV levels of accreditation	I-II levels of accreditation	III-IV levels of accreditation
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 ¹	387	277	251,3	1438,0
2015/16 ¹	371	288	230,1	1375,2

¹ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

(at the beginning of academic year)

Years	Entered students, thsd.		Graduated specialists, thsd.		Number of PhD students ²	Number of DSc students ²
	I-II levels of accreditation	III-IV levels of accreditation	I-II levels of accreditation	III-IV levels of accreditation		
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 ¹	69,5	291,6	79,1	405,4	27622	1759
2015 ¹	63,2	259,9	73,4	374,0	28487	1821

¹ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

² At the end of 1990, 1991,..., 2015.

Research Personnel and Number of Organizations

Years	Number of organizations performing science, scientific and technology activities ¹	Number of researchers	Number of Doctors of Sciences in economy of Ukraine ²	Number of Candidates of Sciences in economy of Ukraine ²
1990	...	313079
1991	1344	295010	8133	...
1992	1350	248455	8797	...
1993	1406	222127	9224	...
1994	1463	207436	9441	...
1995	1453	179799	9759	57610
1996	1435	160103	9974	58132
1997	1450	142532	10322	59332
1998	1518	134413	10446	59703
1999	1506	126045	10233	59547
2000	1490	120773	10339	58741
2001	1479	113341	10603	60647
2002	1477	107447	11008	62673
2003	1487	104841	11259	64372
2004	1505	106603	11573	65839
2005	1510	105512	12014	68291
2006	1452	100245	12488	71893
2007	1404	96820	12845	74191
2008	1378	94138	13423	77763
2009	1340	92403	13866	81169
2010	1303	89564	14418	84000
2011	1255	84969	14895	84979
2012	1208	82032	15592	88057
2013	1143	77853	16450	90113
2014	999	69404	16090	86230
2015	978	63864

¹ Organizations that performed only scientific and technology services do not report beginning from 2006.

² Since 1998 – on October 1, since 2012 – on December 31. State statistical observations concerning the number of Doctors and Candidates of Sciences in economy of Ukraine are canceled beginning from the report for 2015.

³ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

Amount of Performed Science, Scientific and Technology Works

Years	Total, in actual prices	Among them				Specific weight of performed science, scientific and technology works amount in GDP
		fundamental researches	applied researches	developments	scientific and technology services	
mln. UAH						%
1996	1111,7	140,6	321,6	606,9	42,6	1,36
1997	1263,4	188,5	309,2	693,7	72,0	1,35
1998	1269,0	205,5	297,5	682,8	83,2	1,24
1999	1578,2	220,5	330,4	918,6	108,7	1,21
2000	1978,4	266,6	436,7	1106,3	168,8	1,16
2001	2275,0	353,3	304,9	1317,2	299,6	1,11
2002	2496,8	424,9	343,6	1386,6	341,7	1,11
2003	3319,8	491,2	429,8	1900,2	498,6	1,24
2004	4112,4	629,7	573,7	2214,0	695,0	1,19
2005	4818,6	902,1	708,9	2406,9	800,7	1,09
2006	5354,6	1141,0	841,5	2741,6	630,5	0,98
2007	6700,7	1504,0	1132,6	3303,1	761,0	0,93
2008	8538,9	1927,4	1545,7	4088,2	977,7	0,90
2009	8653,7	1916,6	1412,0	4215,9	1109,2	0,95
2010	9867,1	2188,4	1617,1	5037,0	1024,6	0,90
2011	10349,9	2205,8	1866,7	4985,9	1291,5	0,79
2012	11252,7	2621,9	2057,7	5369,9	1203,2	0,80
2013	11781,1	2695,5	2087,8	5772,8	1225,1	0,80
2014 ¹	10950,7	2475,2	1910,2	5341,5	1223,8	0,69
2015 ¹	12611,0	2465,6	2271,3	6523,0	1351,1	0,64

¹ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

Innovative Activity

Years	Specific weight of enterprises involved in innovations %	Total expenditure	According to the directions						purchase of machinery, equipment and software ⁴	other expenses
			research and developments ¹	among them		purchase of other external knowledge ²	preparing for production for innovations implementation ³			
				internal scientific works	external scientific works					
mln. UAH										
2000	18,0	1760,1	266,2	X	X	72,8	163,9	1074,5	182,7	
2001	16,5	1979,4	171,4	X	X	125,0	183,8	1249,4	249,8	
2002	18,0	3018,3	270,1	X	X	149,7	325,2	1865,6	407,7	
2003	15,1	3059,8	312,9	X	X	95,9	527,3	1873,7	250,0	
2004	13,7	4534,6	445,3	X	X	143,5	808,5	2717,5	419,8	
2005	11,9	5751,6	612,3	X	X	243,4	991,7	3149,6	754,6	
2006	11,2	6160,0	992,9	X	X	159,5	954,7	3489,2	563,7	
2007	14,2	10821,0	986,4	793,5	192,9	328,4	X	7441,3	2064,9	
2008	13,0	11994,2	1243,6	958,8	284,8	421,8	X	7664,8	2664,0	
2009	12,8	7949,9	846,7	633,3	213,4	115,9	X	4974,7	2012,6	
2010	13,8	8045,5	996,4	818,5	177,9	141,6	X	5051,7	1855,8	
2011	16,2	14333,9	1079,9	833,3	246,6	324,7	X	10489,1	2440,2	
2012	17,4	11480,6	1196,3	965,2	231,1	47,0	X	8051,8	2185,5	
2013	16,8	9562,6	1638,5	1312,1	326,4	87,0	X	5546,3	2290,9	
2014 ⁵	16,1	7695,9	1754,6	1221,5	533,1	47,2	X	5115,3	778,8	
2015 ⁵	17,36	13813,7	2039,5	1834,1	205,4	84,9	X	11141,3	548,0	

¹ Since 2007 the sum of internal and external scientific works.

² Up to 2007 purchase of new technologies.

³ Since 2007 the index is referred to other expenses.

⁴ Up to 2007 purchase of machinery, equipment is connected with innovations implementation.

⁵ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

⁶ Juridical persons of industry types of economic activities with 50 people and more submit reports beginning from 2015.

Sources of Innovative Activity Funding

Years	Total expenditure	According to the funds			
		own	state budget	foreign investors	other sources
		mln. UAH			
2000	1757,1	1399,3	7,7	133,1	217,0
2001	1971,4	1654,0	55,8	58,5	203,1
2002	3013,8	2141,8	45,5	264,1	562,4
2003	3059,8	2148,4	93,0	130,0	688,4
2004	4534,6	3501,5	63,4	112,4	857,3
2005	5751,6	5045,4	28,1	157,9	520,2
2006	6160,0	5211,4	114,4	176,2	658,0
2007	10821,0	7969,7	144,8	321,8	2384,7
2008	11994,2	7264,0	336,9	115,4	4277,9
2009	7949,9	5169,4	127,0	1512,9	1140,6
2010	8045,5	4775,2	87,0	2411,4	771,9
2011	14333,9	7585,6	149,2	56,9	6542,2
2012	11480,6	7335,9	224,3	994,8	2925,6
2013	9562,6	6973,4	24,7	1253,2	1311,3
2014 ¹	7695,9	6540,3	344,1	138,7	672,8
2015 ¹	13813,7	13427,0	55,1	58,6	273,0

¹ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

Scientific and Technology Activities¹

	The first half of 2015	2015
Expenses on performing science and scientific and technology works, mln. UAH	4755,3	12224,9
among them:		
from the state budget	1750,4	4214,2
Number of research organizations employees	101939	101598
among them:		
researchers	54021	53835
technicians	10276	10029
support personnel	18903	19057
Doctors of Sciences	4098	4124
Candidates of Sciences	13635	13929

¹ Excluding the occupied Crimea and the city of Sevastopol, and the ATO zone in Donetsk and Luhansk regions.

Annex C

(sociological surveys)

PUBLIC OPINION ON THE CONDITION AND DEVELOPMENT OF EDUCATION
EVALUATIONS OF RESPONDENTS TO THE MOST IMPORTANT ASPECTS OF
EDUCATION DEVELOPMENT

Table 1

The answers to the question “*In your opinion how has national education system changed during the years of state independence of Ukraine?*” (%)

<i>2015</i>	For the general sample	Among educators
has suffered fundamental changes for the better	17,7	24,7
hasn't suffered essential changes	32,3	37,1
has changed for the worse	27,5	25,8
difficult to answer	19,7	12,4
it doesn't bother me	2,8	–

Table 2

The answers to the question “*How has general level of Ukrainians' education changed during the years of independence?*” (%)

<i>2015</i>	For the general sample	Among educators
increased	21,9	30,0
hasn't suffered essential changes	31,7	30,0
decreased	29,4	26,7
difficult to answer	13,8	12,2
it doesn't bother me	3,2	1,1

Table 3

The answers to the question “*How would you rate the quality of education that provides modern Ukrainian education system?*” (%)

<i>2015</i>	For the general sample	Among educators
high	10,3	17,8
average	51,5	58,9
low	22,5	14,4
difficult to answer	12,5	8,9
it doesn't bother me	3,2	–

Table 4

The answers to the question “*Is quality education available to all citizens of Ukraine?*” (%)

2015	For the general sample		Among educators	
quite yes	6,1	33,3	13,3	44,4
rather yes than no	27,2		31,1	
rather no than yes	33,2	59,6	31,1	53,3
not at all	26,4		22,2	
difficult to answer	6,3		2,2	
it doesn't bother me	0,9		–	

Table 5

The answers to the question “*Do you consider that the national education system is developing in the right direction?*” (%)

2015	For the general sample		Among educators	
quite yes	11,1	45,6	8,9	61,1
rather yes than no	34,5		52,2	
rather no than yes	19,0	35,5	20,0	27,8
not at all	16,5		7,8	
difficult to answer	17,6		11,1	
it doesn't bother me	1,3		–	

Table 6

The answers to the question “*How would you rate the progress of education system's reform in Ukraine?*” (%)

2015	For the general sample		Among educators	
quite positively	8,2	37,1	10,0	34,0
rather positively	28,9		24,0	
rather negatively	22,8	32,0	42,0	54,0
negatively	9,2		12,0	
difficult to answer	24,9		12,0	
it doesn't bother me	6,0		–	

EDUCATION AS ONE OF THE LEADERS OF PUBLIC TRUST

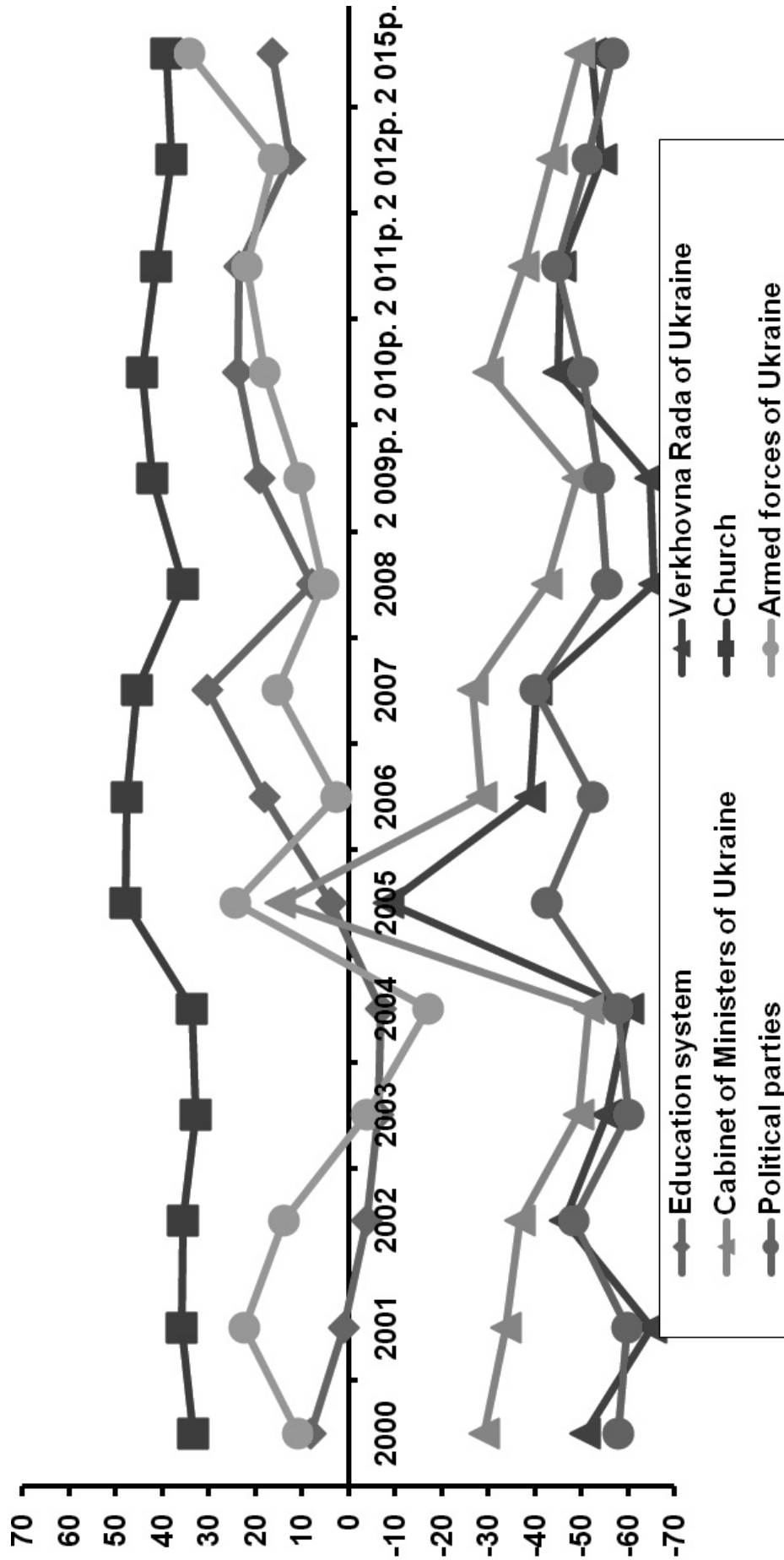


Fig. 1. Dynamics of balance of population's trust/ mistrust to the national education system in comparison with indicators of some other social institutions

RESPONDENTS' POSITION ON INTEGRATION OF NATIONAL EDUCATION TO THE EUROPEAN EDUCATIONAL SPACE

Table 7

The answers to the question "Do you consider that integration of national education to the European educational space is necessary?" (%)

	For the general sample								Among educators									
	2004	2005	2006	2007	2008	2010	2011	2013	2014	2004	2005	2006	2007	2008	2010	2011	2013	2014
I consider that joining our education the European educational space is extremely important and primary task	21,5	17,3	14,5	15,1	14,8	20,0	22,9	27,6	25,8	18,1	18,2	15,7	13,4	26,7	21,0	32,5	27,5	30,0
In my opinion this task should be solved in the future, but it is not the most important and primary	23,9	28,5	32,8	26,3	32,4	34,6	35,8	38,1	40,8	23,6	43,9	50,0	46,3	40,0	34,6	40,0	48,0	44,4
I consider that our education is better than on the West therefore its integration into the European educational space is not necessary and is harmful	20,7	23,5	25,7	30,0	28,2	27,4	21,7	19,2	14,6	16,7	21,2	21,4	20,7	22,2	28,4	15,0	11,8	13,3
another view	2,8	1,1	0,9	0,7	1,4	0,6	0,5	0,9	0,7	4,2	-	1,4	-	-	2,5	1,3	2,0	-
difficult to answer	31,1	29,6	26,2	28,0	23,0	17,5	19,1	14,1	18,0	37,5	16,7	11,4	19,5	11,1	13,6	11,2	10,8	12,2

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**PROBLEMS OF COMPREHENSIVE SECONDARY EDUCATION,
THAT THE MOST WORRIES PEOPLE**
(% to the respondents who called these problems during the monitoring)

Table 8

The answers to the question “*Which of these problems of comprehensive secondary education concern you personally?*” (%)

	2006	2009	2012	2015
spread negative phenomena among students (drugs, alcohol, immorality, lack of spirituality, early sexual relations, etc.)	59,3	61,0	49,5	48,1
decline of material and technical base of schools, lack of computers and other modern learning tools	46,6	48,1	43,3	44,6
permanent levies from parents (to repair schools, etc.)	44,7	41,7	38,6	42,3
spread bribery and corruption among the educators	38,2	37,0	28,7	41,9
quality of education	36,2	41,7	32,3	41,5
excessive complexity of curriculum, overloading students	24,0	23,7	28,8	33,9
low salaries of teachers, reducing their social status and professional level	37,3	34,6	31,7	31,9
low level of students' preparation for life, destruction of school contact with life	28,0	34,4	25,0	30,1
lack of textbooks	38,9	37,6	33,0	28,6
nature of relationship between students, their inequality	33,5	22,5	21,9	25,7
underestimated requirements for students, decrease of discipline	31,4	27,7	24,8	25,0
cases of humiliation of students by teachers and physical violence on them	23,2	24,3	23,4	22,8
biased teachers' attitude towards students, biased assessment of their knowledge	20,7	22,3	24,5	21,0

Notes:

1. Totally 23 items were in the list, the problems which were listed in the table has the frequency of choice at least 15%.

2. The sum exceeds 100% because respondents' choice of answers was not limited.

3. The proportion of respondents, who are concerned about the problem of external independent assessment, is about 78%, which is on 7% less than it was in 2006.

PROBLEM OF OVERCOMING CORRUPTION IN EDUCATION

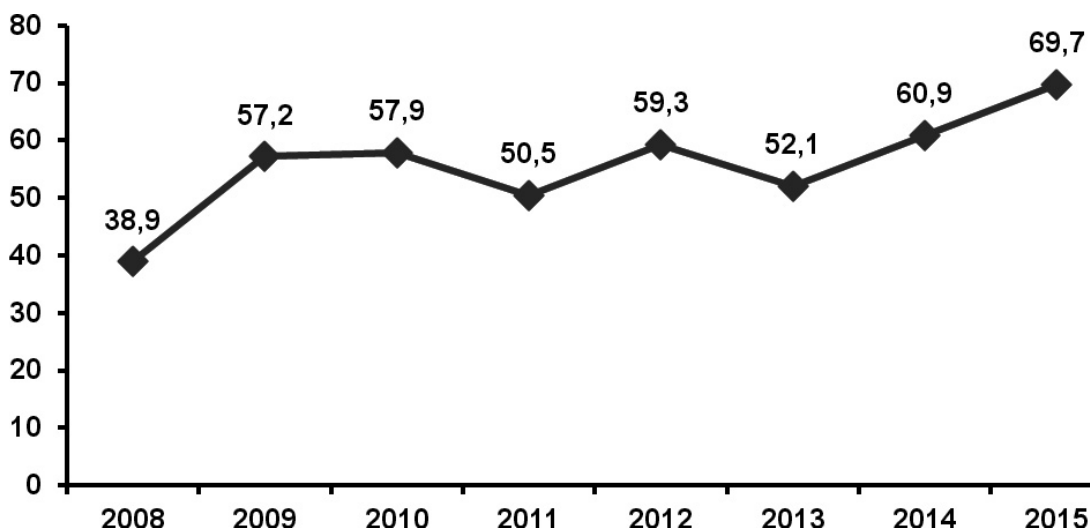


Fig. 2. Dynamics of respondents' percentage whose children entered the HEIs without bribes or protections (% to the respondents whose families had entrants at the time of the survey)

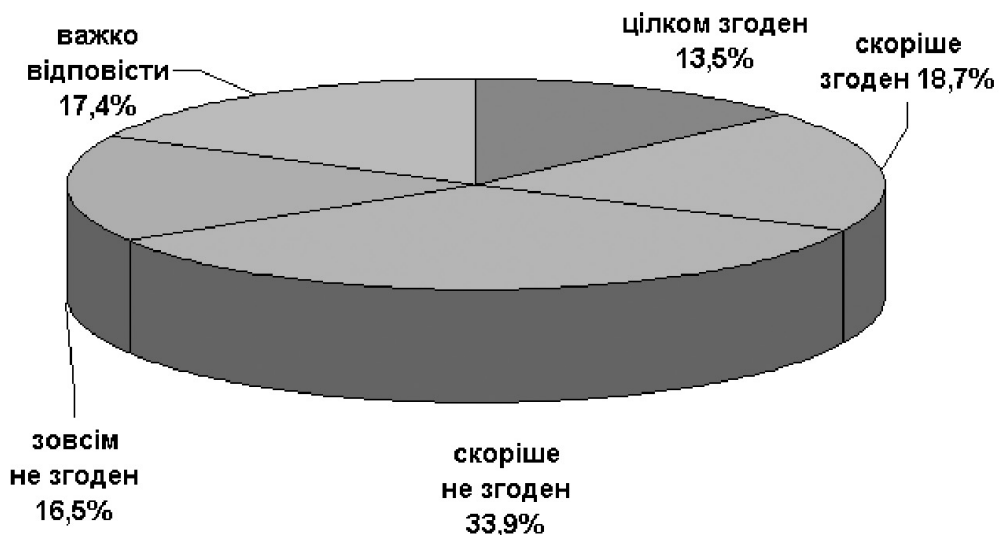


Fig. 3. Percentage of respondents who agree or disagree in varying degrees that in 2015 entrance exams to HEIs were without corruption (% to the respondents whose families had young people who entered the HEIs and became students)

Table 9

The answers to the question “*How do you think what more interferes overcoming bribery and corruption in education system - lack of political will in state or unwillingness of most people to refuse to give bribes?*” (%)

<i>2015</i>	For the general sample	Among educators	Among senior students
lack of political will in state to overcoming corruption	16,3	14,3	10,4
unwillingness of most people to refuse to give bribes	22,2	14,3	27,2
equally both	51,7	65,3	45,1
neither one nor other because there are not bribery and corruption in Ukrainian education	1,1	–	3,0
difficult to answer	8,7	6,1	14,3

Table 10

The answers to the question “*How do you feel about tradition to show gratitude for the services of teachers (teachers, educators, education institutions leaders, etc.) in the form of gifts or money?*” (%)

<i>2015</i>	For the general sample	Among educators	Among senior students
I think this is a good tradition – services of teachers deserve additional compensation	14,3	21,3	17,8
I do not mind such expressions of gratitude, if it happens not too often and not too large	45,7	48,8	41,5
I do not like it, but I have to endure	18,6	11,2	17,6
I do not think it possible to put up with this shameful practice	9,2	6,3	6,5
another view	1,0	6,3	2,3
it doesn't bother me	5,3	1,3	7,5
difficult to answer	5,8	4,8	6,8

DYNAMIC OF RESPONDENTS' ATTITUDE TOWARDS
INNOVATIONS IN EDUCATION

Table 11

The answers to the question “*How do you think about 12-points system of knowledge assessment which is used today in comprehensive secondary education institutions?*” (%)

	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
positively	26,2	30,9	29,2	25,9	24,5	29,2	31,2	36,9	35,9	37,6	41,6	43,5	39,7	44,6	48,8
negatively	37,6	54,1	53,2	56,6	52,3	40,6	37,0	36,6	41,8	37,3	32,1	30,1	32,4	26,1	36,4
difficult to answer	29,1	13,8	16,2	16,5	21,1	27,0	27,7	24,6	20,6	22,9	24,3	24,2	25,5	26,0	12,7
never heard about it	7,1	1,2	1,4	1,0	2,1	3,2	4,1	1,9	1,6	2,2	2,0	2,2	2,5	3,3	2,0

Table 12

The answers to the question “*How do you feel about introduction EIA in Ukraine - external independent assessment of comprehensive secondary education institutions graduates' knowledge in the form of tests, whose results are the basis for admission to universities?*” (%)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
positively	59,6	62,9	49,2	37,2	35,5	30,4	33,4	44,3	45,6	46,8	51,4	56,7
negatively	17,0	15,8	13,1	19,1	20,4	33,8	36,0	23,8	17,9	16,1	17,6	12,9
difficult to answer	18,1	17,1	26,0	28,1	29,0	30,8	26,8	27,2	27,2	28,0	23,5	24,7
never heard about it	5,3	4,2	11,7	15,6	15,1	5,0	3,9	4,8	9,3	9,1	7,4	5,6

Note. In 2003–2006 years the question was formulated in such reduction: “How do you feel about idea of introduction in comprehensive secondary education institutions external independent assessment of educational achievements of graduates in the form of tests?”

Table 13

The answers to the question “*How do you feel about profiling of high school, which involves the separation of students after ninth grade according to their success for in-depth study of certain subjects?*” (%)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
positively	54,3	58,7	50,0	43,1	41,2	43,7	52,5	59,3	52,3	51,1	51,4	55,1	55,2
negatively	21,4	19,0	18,5	16,4	18,4	18,2	17,8	13,9	16,0	16,5	16,7	14,4	28,4
difficult to answer	16,3	17,8	21,0	23,9	23,7	23,4	20,2	20,4	20,0	19,1	20,2	20,5	11,4
never heard about it	8,0	4,5	10,5	16,6	16,8	14,6	9,5	6,4	11,7	13,3	11,8	10,0	5,0

Table 14

The answers to the question “*How do you feel about introduction in comprehensive secondary education institutions the 12-years training period?*” (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2015
positively	25,5	23,5	16,2	15,5	12,3	14,5	14,8	16,4	13,2	12,4
negatively	44,8	59,8	67,2	65,5	61,7	55,9	56,4	58,4	65,4	69,3
difficult to answer	23,6	14,2	13,4	15,4	22,2	24,7	22,6	21,7	18,8	13,9
never heard about it	6,0	2,4	3,2	3,6	3,8	4,9	6,2	3,5	2,6	4,4

Table 15

The answers to the question “*How do you think about introduction of compulsory year of pre-primary education for 5 years old children?*” (%)

	2010	2011	2012	2013	2014	2015
positively	28,7	26,6	29,8	24,0	25,4	25,5
negatively	41,9	41,7	38,3	45,1	42,4	54,3
difficult to answer	21,4	16,1	18,0	13,2	16,5	13,8
never heard about it	8,0	15,6	13,9	17,7	15,6	6,3

Table 16

The answers to the question “*How do you feel about each of these innovations that were first introduced during the EIA and admission campaign to universities?*” (% to the respondents whose families had entrants at the time of the survey)

2015	positively	negatively	Difficult to answer	Never heard about it
combining state final examination of Ukrainian language with external independent assessment	59,7	16,9	14,0	9,5
application the criterion of “pass/ not pass” to determine the minimum passing score for the EIA results	47,7	18,5	18,1	15,6
introduction EIA tests with two levels of difficulty and provide higher education institutions the right to determine what kind of level is required for admission to the certain training direction	47,3	19,3	21,0	12,3
limitation of EIA certificate’s validity up to one year, rejection the practice of using certificates of previous years	29,6	52,7	11,1	6,6
setting weight coefficients of competitive point’s components, which provides, in particular, at least 20% for each EIA certificate and from 0 to 10% - for the high school diploma	30,9	14,0	29,6	25,5
provide higher education institutions the right to choose a list of competitive subjects and determine within the prescribed limits weight coefficient of each competitive point’s components	51,0	17,7	17,3	14,0
introduction the principle of priority of selected by entrant specialties and universities (if competitive point allows admission for the highest priority, the other applications do not automatically participate in the competition)	45,7	24,3	17,3	12,8
new mechanism for seats distribution of public order, according to which a large number of seats in public order should receive universities that are most popular among students	50,6	23,0	13,2	13,2

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LIST OF ABBREVIATIONS

DSc	Doctor of Sciences
EIA	External independent assessment
EU	European Union
GDP	Gross Domestic Product
HE	Higher education
HEI / HEIs	Higher education institution / higher education institutions
ISCED	International Standard Classification of Education
MES of Ukraine	Ministry of Education and Science of Ukraine
MSP of Ukraine	Ministry of Social Policy of Ukraine
MYS of Ukraine	Ministry of Youth and Sports of Ukraine
NAAS of Ukraine	National Academy of Agrarian Sciences of Ukraine
NAES of Ukraine	National Academy of Educational Sciences of Ukraine
NAMS of Ukraine	National Academy of Medical Sciences of Ukraine
NAS of Ukraine	National Academy of Sciences of Ukraine
OECD	Organisation for Economic Co-operation and Development
PhD	Doctor of Philosophy
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PPE	Postgraduate pedagogical education
TIMMS	Trends in International Mathematics and Science Study
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNPD	United Nations Development Programme
VET	Vocational education and training

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НАУКОВЕ ВИДАННЯ

НАЦІОНАЛЬНА ДОПОВІДЬ ПРО СТАН І ПЕРСПЕКТИВИ РОЗВИТКУ ОСВІТИ В УКРАЇНІ

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