

**Aliksieiev I.**

*Sc.D. in Economics, Professor, Head of Department of Finance  
Lviv Polytechnic National University;  
Ukraine, e-mail: ihor.v.aliksieiev@lpnu.ua*

**Mazur A.**

*Ph.D. in Economics, Senior Lecturer of Department of Finance  
Lviv Polytechnic National University;  
Ukraine, e-mail: andriana.v.mazur@lpnu.ua*

**Zhelizniak R.**

*Ph. D. in Economics, Senior Lecturer of Department of Finance  
Lviv Polytechnic National University;  
Ukraine, e-mail: roman.y.zhelizniak@lpnu.ua*

### **THE CLUSTER OF INNOVATION ACTIVITY TAX INCITEMENT: FORMATION AND FINANCING**

**Abstract.** In the article there is proposed an approach to the formation of cluster of innovation activity tax incitement. There is also grounded the choice of tax preferences as one of the main milestones of enterprise innovation activity tax incitement. The tax concessions provision is proposed in consideration of innovation process stages and existing of enterprises and organizations various types in the cluster of innovation activity tax incitement. There is given the selection of optimal ways of tax concessions provision for the members of cluster of innovation activity tax incitement. The sources based on components of the profit of income of enterprises that are members of innovation activity tax incitement cluster are systemized and developed in order to form the fund of science and technical preparation of production (STPP). To provide enterprises–members of the cluster of innovation activity tax incitement with necessary funds it is proposed the formation of a specific fund of scientific and technical preparation of production, which have accumulated funds from the sale of STPP results as the final product, which would be further used directly to finance the pointed stage, as long as the share of profit from sale of STPP products in the income of enterprises–members of the cluster of innovation activity tax incitement, which could be used to finance the STPP stage while its redistribution. The purpose of the article is to develop a conceptual framework for the forming the cluster of innovation activity tax incitement, and the justification of theoretical positions for the provision of tax preferences by the stages of the innovation process and isolation of income sources for financing of innovation activity tax incitement cluster members.

**Key words:** cluster of innovation activity tax incitement, tax preferences, tax concessions, stages of innovation process, scientific and technical preparation of production (STPP), STPP fund.

**JEL Classification:** O 31, O32, H20.

Formulas: 0; fig.: 3, tabl.: 1, bibl.: 10

**Алексєєв І. В.**

*д.е.н., професор, завідувач кафедри фінансів  
Національний університет «Львівська політехніка»;  
Україна, e-mail: ihor.v.aliksieiev@lpnu.ua*

**Мазур А. В.**

*к.е.н., старший викладач кафедри фінансів  
Національний університет «Львівська політехніка»;  
Україна, e-mail: andriana.v.mazur@lpnu.ua*

**Желізняк Р. Й.**

*к.е.н., старший викладач кафедри фінансів  
Національний університет «Львівська політехніка»;  
Україна, e-mail: roman.y.zhelizniak@lpnu.ua*

## КЛАСТЕР ПОДАТКОВОГО СТИМУЛЮВАННЯ ІННОВАЦІЙНОЇ ДІЯЛЬНОСТІ: ФОРМУВАННЯ ТА ФІНАНСУВАННЯ

**Анотація.** У статті запропоновано підхід до формування кластеру податкового стимулювання інноваційної діяльності. Обґрунтовано вибір податкових преференцій як один з основних етапів податкового стимулювання інноваційної діяльності підприємств. Запропоновано розгляд надання податкових пільг з врахуванням етапів інноваційного процесу та наявності різного типу підприємств та організацій в кластері податкового стимулювання інноваційної діяльності. Наведено вибір оптимальних шляхів надання податкових пільг для членів кластеру податкового стимулювання інноваційної діяльності. Систематизовано та розвинуто спосіб виокремлення частки прибутку підприємств–членів кластеру як джерела податкового стимулювання інноваційної діяльності для формування фонду НТПВ.

**Ключові слова:** кластер податкового стимулювання інноваційної діяльності, податкові преференції, податкові пільги, етапи інноваційного процесу, науково–технічна підготовка виробництва (НТПВ), фонд НТПВ.

Формул: 0; рис.: 3, табл.: 1, бібл.: 10

*Алексеев И. В.*

*д.э.н., профессор, заведующий кафедрой финансов  
Национальный университет «Львовська политехника»;  
Украина, e-mail: ihor.v.aliexsieiev@lpnu.ua*

*Мазур А. В.*

*к.э.н., старший преподаватель кафедры финансов  
Национальный университет «Львовська политехника»;  
Украина, e-mail: andriana.v.mazur@lpnu.ua*

*Железняк Р. И.*

*к.э.н., старший преподаватель кафедры финансов  
Национальный университет «Львовська политехника»;  
Украина, e-mail: roman.y.zhelizniak@lpnu.ua*

## КЛАСТЕР НАЛОГОВОГО СТИМУЛИРОВАНИЯ ИННОВАЦИОННОЙ ДЕЯТЕЛЬНОСТИ: ФОРМИРОВАНИЕ И ФИНАНСИРОВАНИЕ

**Аннотация.** В статье предложен подход к формированию кластера налогового стимулирования инновационной деятельности. Обоснован выбор налоговых преференций как один из основных этапов налогового стимулирования инновационной деятельности предприятий. Предложен порядок предоставления налоговых льгот с учетом этапов инновационного процесса и наличия разного типа предприятий и организаций в кластере налогового стимулирования инновационной деятельности. Приведен порядок выбора оптимальных путей предоставления налоговых льгот для членов кластера налогового стимулирования инновационной деятельности. Систематизирован и развит способ выделения части прибыли предприятий–членов кластера как источника налогового стимулирования инновационной деятельности для формирования фонда НТПП.

**Ключевые слова:** кластер налогового стимулирования инновационной деятельности, налоговые преференции, налоговые льготы, этапы инновационного процесса, научно–техническая подготовка производства (НТПП), фонд НТПП.

Формул: 0; рис.: 3, табл.: 1, библи.: 10

**Introduction.** With the technologies development, innovation projects cover not only one or few companies, but the whole sectors of economics where there are present enterprises and organizations of different types. The creation of clusters, which will fall under the criteria of the program of innovation activity tax incitement, will enable to establish closer relations among cluster members. The formation of such clusters is possible to realize according to the innovation activity

vectors, so there may be constructed clusters of innovation activity tax incitement on the regional level, as well as strategical clusters.

**Literature review and the problem statement.** The works of many scientists are dedicated to the issues of innovation activity tax incitement. K.I. Shvabiy [1] points, that the main factors, which prevent the development of innovation activity tax incitement, are ineffective control of tax legislation compliance, non-optimized appointment and use of tax concessions. V. Nahornyak and Y. Vovk [2] indicate that the usage of tax incitement at the macro level should be implemented by the afford of tax concessions to the certain enterprises and organizations for the provision of economic interest in innovation development. The scientists who researched tax factors of influence on innovations are also S.V. Filipenko [3], Y.B. Ivanov [4], P.V. Melnyk [5], Y.A. Zhalilo [6] and others.

According to the researches, the innovation development on the enterprises is faster where regional authorities possess an additional, primarily tax, leverage. Therefore, **the purpose of the article** is to develop a conceptual framework for the forming the cluster of innovation activity tax incitement, and the justification of theoretical positions for the provision of tax preferences by the stages of the innovation process and isolation of income sources for financing of innovation activity tax incitement cluster members.

**Research results.** The formation of clusters for the realization of regional vectors of innovation activity is due to the fact that enterprises and organizations that are at the large distance from each other will incur additional costs associated with transportation, communication, expenses for workers business trips etc. Certainly one can build national clusters that include different enterprises and organizations with the large distance among them. However, there can be socially necessary innovations that will be developed in such a cluster (for example, innovations in medicine). Or enterprises are occupied with the intellectual work, and, therefore, they can be associated with an informational technologies cluster, which enables the transfer of the products of one company to another without additional transportation costs.

Thus, in addition to the usual enterprises, the cluster should also consist in research institutions, universities, that will provide manufacturing enterprise with research and development (R&D) they will be unable to do singly. One more important cluster member must be the representative of state and/or local authorities. Primarily, this is because the state itself should determine the strategic directions of innovation activity, and hence there is a need for entry to the specified cluster of coordinating and controlling bodies. It is also possible that financial institutions will present in the cluster of innovation activity tax incitement, as it is shown in Fig. 1. Banks could provide tax credits, including the participation of insurance companies means. If the major manufacturing enterprises will be deprived of considerable funds to finance innovation, the cluster can also be attended by the venture capital companies and funds as long as “business angels”.

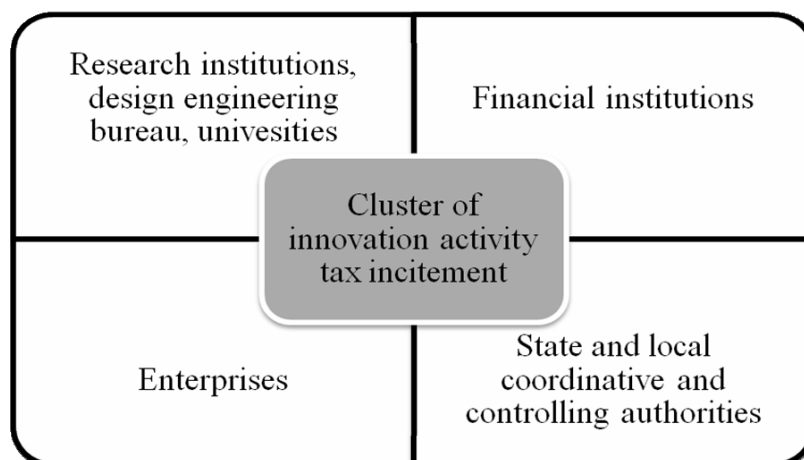


Fig. 1. Cluster of innovation activity tax incitement  
Note: proposed by authors

However the main focus in such a cluster should be given to the enterprises, because without innovations commercialization there is no need to stimulate them. The main benefit of such cluster formation should be obtained from the division of labor between its various subjects.

One of the major stages of innovation activity tax incitement is the choice of tax preferences. This stage is one of the most important because incorrectly selected tax concessions may lead to insufficient interest of the industry to the implementation of mentioned innovation activity. It is necessary to explore and choose sectors and enterprises that are in mentioned cluster.

The tax incitement of enterprises innovative activity the state should implement through the tax concessions. According to Article 30 of the Tax Code of Ukraine [7] the tax benefit is provided by tax and customs legislation release of the taxpayer from the obligation of calculation and payment of taxes and fees, payment of the taxes and duties in a lesser amount if there are grounds.

However, consideration of innovation activity tax incitement must start with the selecting of concessions type, and later – with the choice of ways to provide these tax concessions. It is necessary to classify the concessions, which, unfortunately, is not made in the legislation of Ukraine. This will prevent the state, represented by the President, the Government, the Supreme Council of Ukraine or local authorities etc, to carry out enterprises innovative activity tax incitement more accurately within the preparation of innovation development programs and help companies in their implementation, through tax concessions.

Major preferences for businesses should reduce taxes through tax credits and change assessment basis. Just these two types of preferences will be the most resultant in a release of additional funds and thus give the greatest effect. It is necessary to choose correctly the taxes that are to be dominant in the available tax concessions. There may be granted concessions associated with direct or indirect taxes, non-tax payments to the budget or to specialized funds.

It is necessary to consider one more classification of tax concessions, where will be highlighted widely their usage in innovation activity tax incitement, taking into the account economics clustering.

We propose to consider the tax concessions granting reckon with the stages of innovation process and the availability of various types of enterprises and organizations in the cluster of innovation activity tax incitement. So there can be:

- concessions with long-term effect ;
- concessions with short-term effect.

Let us review in details the choice of tax preferences on the stages of innovation process. While granting tax concessions with short-term effect within the program of innovation activity tax incitement of enterprises, different tax concessions are used on different stages, as it is shown in Fig. 2.

Thus, at the stage associated with performing of prospecting RSW (research scientific works), within which nomination, justification and experimental verification of ideas are realized, there should be implemented the tax incitement through such tax concessions as reduction of income tax as long as reduction of single fee for obligatory social insurance. This proposal is due to the fact that the first stage of the innovation process, in that cluster, focuses on research institutes, which, in most cases, are nonprofit organizations, and therefore cannot be interested in the concessions for profit tax.

In the second stage of innovation process, namely within the implementation of applied RSW, which determined the qualitative characteristics of new methods through the development of technical means and technical proposals for research and development activities, technological innovation, it is also necessary to realize tax incitement through the reduction of income tax, and a single fee for obligatory social insurance.

Implementation of research and development activities is the third stage of innovation process. At this stage in the cluster which is engaged into the innovation activity there are established the research links (samples) of new products, and the correction and transfer of technical documentation is realized. Already at this stage we should give consideration to tax concessions on VAT, customs duty and excise tax. However, the concessions for a single fee for obligatory social insurance and income tax should be saved not completely, as an attention in the

cluster will move from research institutes and design engineering bureaus to manufacturing enterprises. Concessions related to VAT must be submit it in the form of automatic return, which will allow sending the released funds to quickly create of research innovative product.

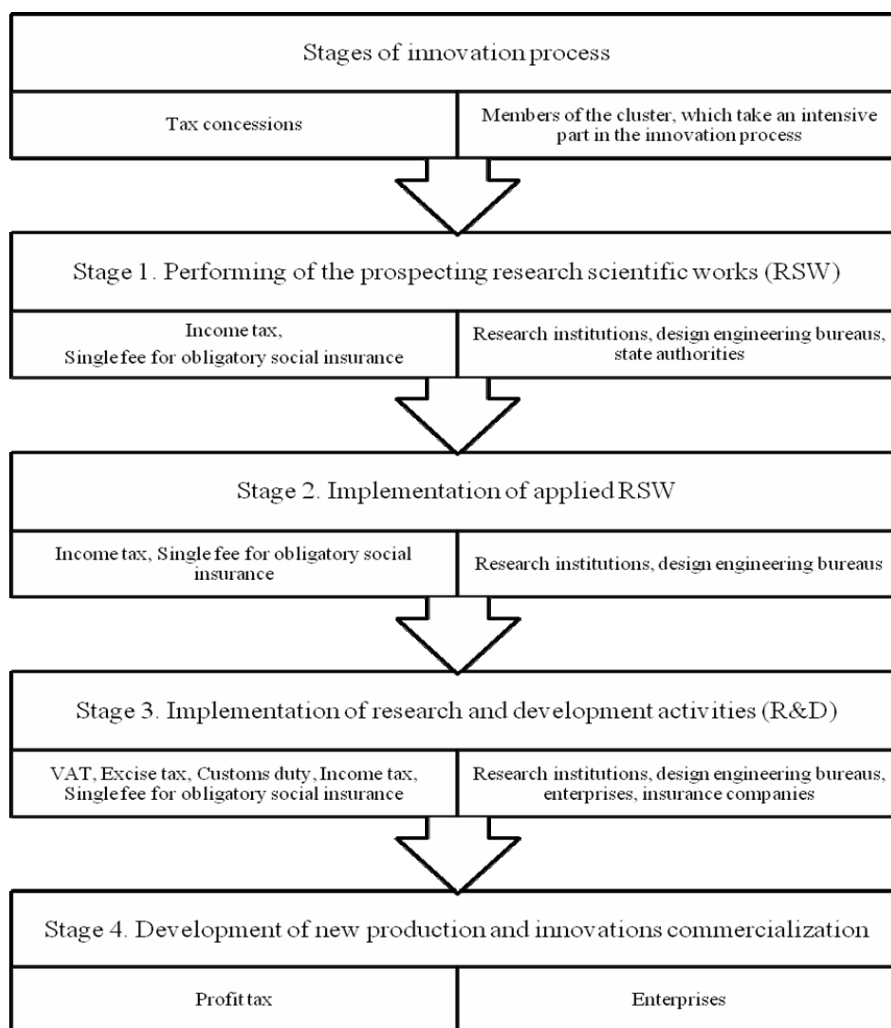


Fig. 2. Determination of tax concessions for the members of the cluster of innovation activity tax incitement by the stages of innovation process  
 Note: tax concessions and members of the cluster are proposed by the authors

At last, fourth, stage, namely the development of new production and innovations commercialization, one will carry out a complete return on investment in the process of implementation (commercialization) of output, and income receiving. The most effective tax incentives at this stage of the innovation process should become concessions for enterprise profit tax. In turn, decrease of profit tax by reducing its rate or its annulment, change in the assessment basis or tax research credit use, etc., will increase additional net profits, which should be directed to further innovation activity. Later, after the appearance of full production within competitors, the reduction of profit tax will help to reduce the cost of innovation product, which will also ensure the improvement of enterprise competitiveness, and therefore the cluster as a whole [8, p.194].

Providing tax preferences to certain companies or sectors of the economy requires deliberate steps. According to our research, one of the major stages of innovation activity tax incitement is the choice of tax preferences. However, the choice of the very taxes, through which tax concessions will be provided (presented in Table 1), is still an insufficient step. It is also necessary to choose the best way to provide these tax concessions.

Table 1

The concessions importance for the members of the cluster  
of innovation activity tax incitement<sup>1</sup>

Cluster members	Income tax	Single fee for obligatory social insurance	Profit tax	Indirect taxes
Research institutions	2	1	4	3
Design engineering bureaus	2	1	4	3
Enterprises	4	2	1	3
Financial institutions	3	2	1	4

Note: developed by the authors

Performing of innovation activity at all stages of the innovation process requires certain resources to develop relevant products, provision with new or upgraded means of labour, that meet advanced scientific and technological developments and so on. At present, the vast majority of companies feel the lack of funding for scientific and technological development, and while the redistribution of profits the provision of enterprise scientific and technical preparation is last. So there is a lack of innovation activity funding, particularly at the stage of scientific and technical preparation of production (STPP), even though the share of profits from sales business accounts for enterprise performance at this stage. Accordingly, there is a need to provide the financing of the scientific and technical preparation of production. It should be mentioned that a partial solution to the problem of scientific and technical works financing is the use of funds from the sale of scientific and technical developments for enterprises that are members of innovation activity tax incitement cluster. Another source of funding for scientific and technical preparation of production may be funds that are available to businesses when giving them tax concessions.

To provide enterprises–members of the cluster of innovation activity tax incitement with necessary funds we propose the formation of a specific fund of scientific and technical preparation of production, which have accumulated funds from the sale of STPP results as the final product, which would be further used directly to finance the pointed stage, as long as the share of profit from sale of STPP products in the income of enterprises–members of the cluster of innovation activity tax incitement, which could be used to finance the STPP stage while its redistribution. This enables to conduct new research and development activities or upgrade already existing technology.

As a fund of scientific and technical preparation of production we propose to determine the fund of cash assets generated from the funds from sales of STPP products, which is intended to finance scientific and technical works

We propose the following sources of formation of the scientific and technical preparation of production fund which is based on components of the profit of enterprises–members of innovation activity tax incitement cluster (Fig.3):

- 1) the share of profit of enterprises–members of innovation activity tax incitement cluster, which is formed at the expense of realization of the products developed in the process of STPP. These include:
  - profits from the sale of goods (material and technical means): prototypes, installations, equipment etc, which are produced in the process of STPP with the aim of implementation of works at the stage of STPP;

---

<sup>1</sup> the concessions importance for the different members of the cluster of innovation activity tax incitement is presented in descending order, from the 1st to 4th place in the rating.

- profit in the form of license duties: payments for the use of intellectual property assets (patents, trade marks, copyrights, software, etc); periodic payments for the right to use the subject of the license agreement – invention, patent, records on different mediums, brand, the right for paradigms and production pieces;
- 2) the share of profit of enterprises–members of innovation activity tax incitement cluster from the realization of prime products, within which the results of enterprise STPP departments activity are implemented;
- 3) the share of profit of enterprises–members of innovation activity tax incitement cluster as a result of state granting with tax concession for STPP performance.

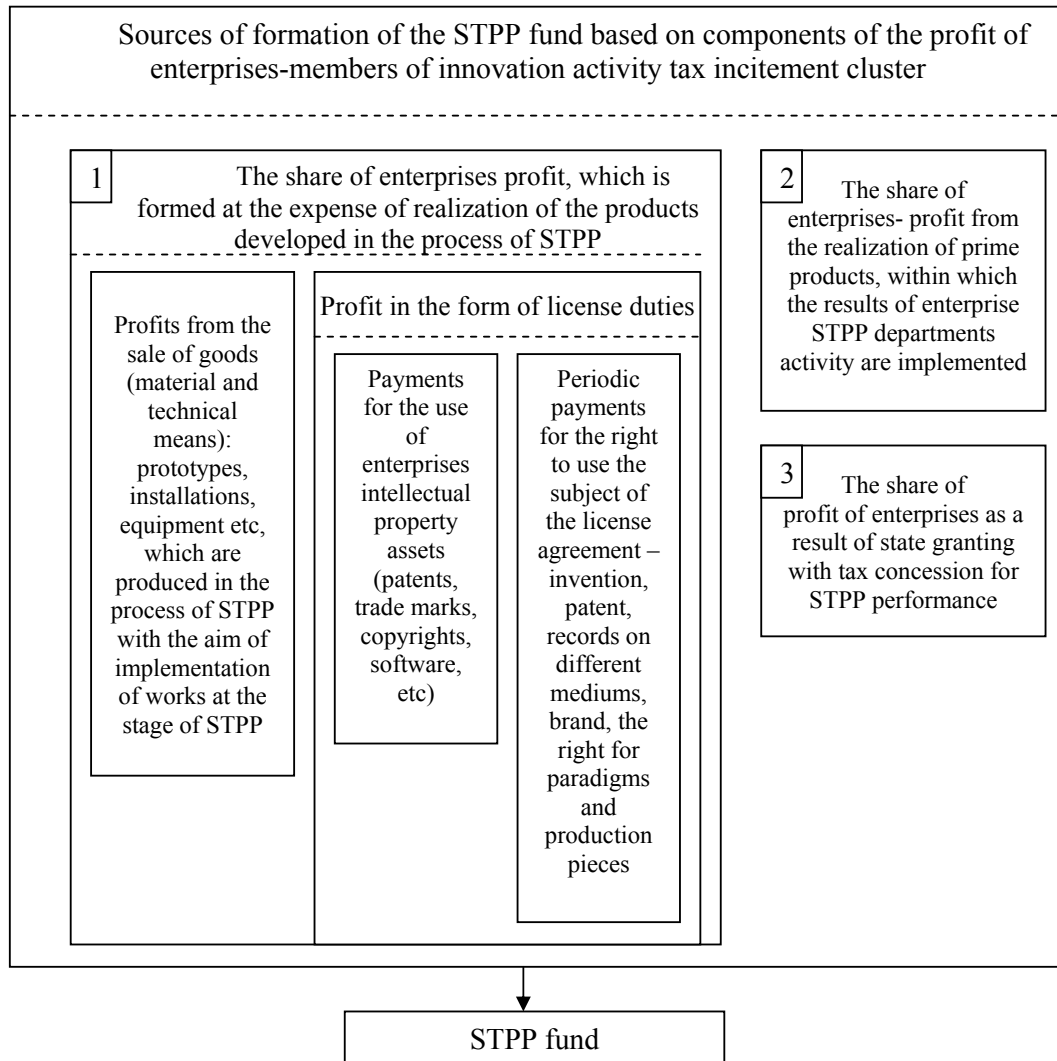


Fig. 3. Sources from the profit of enterprises–members of innovation activity tax incitement cluster for the formation of STPP fund  
 Note: systematized and developed by the authors

Accumulation of profits from the realization of STPP products in the STPP fund give the opportunity to resolve the problem of scientific and technical preparation of production financing. This will allow enterprises–members of innovation activity tax incitement cluster to modernize and update fixed assets for the improvement of STPP works efficiency as long as manufacturing of up–to–date, high–tech products or amendment of the existing ones, that will increase the enterprise competitiveness and improve its market position.

**Conclusions.** Summarizing mentioned above, it should be noted that to stimulate further the innovation activity of enterprises there should be also introduced additional preferences. These additional preferences are the auxiliary drive for enterprises to increase spendings on innovation in

the future. This is important because the companies who are involved in the program of innovation activity tax incitement must increase their innovation activity, but do not stop after completing the innovation activity costs within a short period and received tax preferences. Such leaps in innovation activity spending will not allow the systemic development of innovations in enterprises. It is therefore necessary to introduce along with major additional preferences, such as incremental tax concessions and cumulative tax benefits. Today the important question is financing of enterprises for the implementation of their innovation activity, including the steps of the innovation process at the stage of scientific and technical preparation of production, to increase their scientific and technical work efficiency. We proposed an approach that is based on the formation of a cluster of innovation activity tax incitement, and will boost not only the innovation activity of the enterprise but increase innovation potential of the country as a whole by reducing the tax burden through the system of tax preferences. This, in turn, provides additional sources of funds obtaining for the formation of STPP fund in order to develop innovation products, provide with new or upgraded means of labour etc.

#### References

1. Shvabiy, K. I., & Korotun, V. I. (2012) Podatkovi pilhy yak zahroza finansovii bezpetsi Ukrainy. *Torhivlia i rynek Ukrainy*, 34, 583–590.
2. Nahorniak, H., & Vovk, Yu. (2010). *Problemy podatkovoho rehuliuвання v Ukraini ta shliakhy ikh vyrishennia*. *Halatskyy ekonomichnyy visnyk*, 2 (27), 174–186.
3. Fylypenko, S. V. (2008). *Stimulirovaniye innovatsionnoi deiatelnosti predprynimatelei*. *Ekonomika Kryma*, 23, 62–65.
4. Ivanov, Yu. B., & Yeskov, O. A. (Ed.). (2007). *Suchasne opodatkuвання: motyvatsiynyi aspekt*. Kharkiv: INZHEK.
5. Melnyk, P. V., Taranhul, L. L., & Varnaliy, Z. (2008). *Podatkova polityka Ukrayiny: stan, problemy ta perspektyvy*. Kyiv: Znannia Ukrainy.
6. Zhalilo, Ya. A. (Ed.). (2009). *Teoriya ta praktyka formuvannya efektyvnoi ekonomichnoi stratehii derzhavy*. Kyiv: NISD.
7. *Podstkovyi kodeks Ukrainy*. (2010, December). Available at: <http://zakon3.rada.gov.ua/laws/main/2755–17>.
8. Kolodiihuk, A. V., Pisnyi, V. M., & Semchuk, Zh. V., (2009). *Sutnist innovatsii, struktura ta osnovni etapy innovatsiynoho protsesu*. *Naukovyi visnyk NTLU Ukrainy*, 19.9, 191–196.
9. *Deloitte Global Survey of R&D Tax Incentives 2015*. Available at: <http://www2.deloitte.com/content/dam/Deloitte/nl/Documents/tax/deloitte-nl-tax-global-survey-r-and-d-incentives-2015.pdf>.
10. *National Science Board Science & Engineering Indicators 2016*. Available at: <http://www.nsf.gov/statistics/2016/nsb20161/>

Стаття надійшла до редакції 22.03.2017

© Алексеев І. В.,  
Мазур А. В., Желізняк Р. Й.

#### Literature

1. Швабій, К. І. Податкові пільги як загроза фінансовій безпеці України [Текст] / К. І. Швабій, В. І. Коротун // Торгівля і ринок України : тематичний зб. наук. праць. – Донецьк : ДонНУЕТ, 2012. – Вип. 34. – С. 583–590.
2. Нагорняк, Г. Проблеми податкового регулювання в Україні та шляхи їх вирішення [Текст] / Г. Нагорняк, Ю. Вовк // Галицький економічний вісник. – 2010. – № 2 (27). – С. 174–186.
3. Филипенко, С. В. Стимулирование инновационной деятельности предпринимателей [Текст] / С. В. Филипенко // Экономика Крыма. – 2008. – № 23. – С. 62–65.
4. Иванов, Ю. Б. Сучасне оподаткування: мотиваційний аспект [Текст] : монографія / Ю. Б. Иванов, О. А. Єськов. – Харків : ВД «ІНЖЕК», 2007. – 328 с.
5. Мельник, П. В. Податкова політика України: стан, проблеми та перспективи [Текст] : монографія / П. В. Мельник, Л. Л. Тарангул, З. С. Варналій та ін. ; за ред. З. С. Варналія. – К. : Знання, 2008. – 675 с.
6. Жаліло, Я. А. Теорія та практика формування ефективної економічної стратегії держави [Текст] : монографія / Я. А. Жаліло. – К. : НІСД, 2009. – 336 с.
7. Податковий кодекс України [Текст] : прийнятий Верховною Радою України 02.12.2010 р. № 2755–VI : офіц. вид. – К. : Укрпівінформ, 2012. – 455 с. (чинне законодавство зі змінами та доповненнями – редакція від 01.01.2017 р.)
8. Колодійчук, А. В. Сутність інновацій, структура та основні етапи інноваційного процесу [Текст] / А. В. Колодійчук, В. М. Пісний, Ж. В. Семчук // Науковий вісник НЛТУ України. – 2009. – Вип. 19.9 – С. 191–196.
9. *Deloitte Global Survey of R&D Tax Incentives 2015* [Electronic resource]. – Available at: <http://www2.deloitte.com/content/dam/Deloitte/nl/Documents/tax/deloitte-nl-tax-global-survey-r-and-d-incentives-2015.pdf>.
10. *National Science Board Science & Engineering Indicators 2016* [Electronic resource]. – Available at: <http://www.nsf.gov/statistics/2016/nsb20161/>

Received 22.03.2017

© Aliksieiev I., Mazur A.,  
Zhelizniak R.