

T.A. Pereverzeva, M.K. Evdokimova

**ANALYSIS OF ADAPTIVE INSTITUTIONAL REGULATION
OF SOCIOECONOMIC DEVELOPMENT OF TRADE ENTERPRISES**

Т.А. Переверзева, М.К. Евдокимова

**ИССЛЕДОВАНИЕ АДАПТИВНОГО ИНСТИТУЦИОНАЛЬНОГО РЕГУЛИРОВАНИЯ
СОЦИАЛЬНО-ЭКОНОМИЧЕСКОГО РАЗВИТИЯ
ПРЕДПРИЯТИЙ ТОРГОВЛИ**

In the light of growing economic development and constantly changing market conditions the effectiveness of trade enterprises becomes a key point of organization's strategy and dictates the need for faster adaptation to the external environment. The article under review evaluates the relevance of this topic and explores the problem of adaptive institutional regulation of trade enterprises. The authors define the object and its structure, goals, tools, the algorithm of institutional regulation and describe evolutionary and revolutionary scenarios of adaptive regulation. The study includes a new interpretation of the definition of 'adaptive mechanism', covers L.A. Rastrigin's and Y.Z. Tsipkin's viewpoints of the 'adaptation' definition, describes the types of adaptation goals, analyzes the tools of institutional adaptation in terms of the entrepreneurial goals and develops the algorithm of institutional status assessment for a trade enterprise. Institutional status assessment involves describing the set of norms and standards followed by the enterprise, specifically economic and social ones, and comparing them to the reference values. The deviation from the reference value, in its turn, becomes the incentive for the normalization of institutional status in the sphere of corporate finance, tax liabilities, planning, controlling etc. The results of this study can be used to correct the strategy of organization's development in order to minimize risks and increase stability. The optimal number of institutional tools of trade business regulation is related to the number of the development goals, unique for every business entity. This relation is described with Tinbergen's inequality, that shows the balance between the number of goals and the number of tools used to achieve them. If economic practice reveals inefficiency of adaptation tools, it compels the organization's management to make some changes in the norms and processes used by specific institutions: either to introduce new norms/processes or to improve the existing ones. The need for theoretical and methodological evaluation of institutional adaptation of trade enterprises is constantly increasing, especially because of their growing importance for making operational and strategic decisions regarding the development of trade business.

ADAPTIVE INSTITUTIONAL REGULATION; GOALS OF REGULATION; FORMAL AND INFORMAL TOOLS; MECHANISMS AND INSTRUMENTS OF INSTITUTIONAL ADAPTATION; INSTITUTIONS.

В связи с увеличивающимся темпом развития экономики и постоянно меняющимися условиями рыночной среды обеспечение эффективной деятельности торговых предприятий становится ключевым моментом их стратегии с необходимостью максимально быстрого приспособления к внешним условиям. В этом актуальность данного исследования, в связи с чем рассмотрены вопросы формирования адаптивного институционального регулирования предприятий торговли: обозначены объект и его структура, цели, инструменты и поэтапный алгоритм институционального регулирования; приведены описания эволюционного и революционного сценариев адаптивного регулирования. Приведен авторский взгляд на дефиницию «адаптивный механизм», представлены взгляды Л.А. Растригина и Я.З. Цыпкина на определение «адаптация», рассмотрены компоненты внешней и внутренней институциональной среды; обозначены виды целей, анализируется институциональный инструментальный относительно специфики поставленных перед предприятием целей, сформирован алгоритм оценки институционального состояния организации. Оценка институционального состояния предприятий включает описание используемого предприятиями нормативного массива в части экономических и социальных норм с учетом их соответствия эталону. В свою очередь, определение степени отклонения от эталона становится для организаций торговой отрасли стимулом для нормализации институционального состояния в сфере корпоративных финансов, налоговых обязательств, планирования, контроллинга и т. д. Результаты исследования могут применяться при корректировке стратегии предприятия в целях минимизации рисков и обеспечения более высокого уровня устойчивости. Вопросы нахождения оптимального числа институциональных инструментов регулирования торгового бизнеса увязаны с количеством целей развития хозяйствующих субъектов отрасли в рамках неравенства Тинбергена, показывающего соотношение целей и используемых для их достижения инструментов. В случае если экономическая практика хозяйствующих



субъектов показывает неэффективность инструментов адаптации, это заставляет руководство предприятия осуществлять изменение нормопроцессов внутри конкретных институтов – регуляторов, вводя новые нормопроцессы или совершенствуя имеющиеся. Потребность в теоретико-методических разработках вопросов институциональной адаптации предприятий торговой отрасли постоянно возрастает и особенно усиливается их значимость в процедурах принятия оперативных и стратегических решений по развитию торгового бизнеса.

АДАПТИВНОЕ ИНСТИТУЦИОНАЛЬНОЕ РЕГУЛИРОВАНИЕ; ЦЕЛЬ КАК ОРИЕНТИР РЕГУЛИРОВАНИЯ; ФОРМАЛЬНЫЕ И НЕФОРМАЛЬНЫЕ ИНСТРУМЕНТЫ; МЕХАНИЗМЫ И ИНСТРУМЕНТЫ ИНСТИТУЦИОНАЛЬНОЙ АДАПТАЦИИ; ИНСТИТУТЫ.

Foreword. Socioeconomic development of enterprises in the trade industry causes the need for continuous adaptation to new rules and norms of business relations. One of the most important aspects of the study of working relations in the field of circulation is the institutional one, i. e. the identification of prospects and registration of consequences of changes in internal and external environment factors in the light of specific set of standards in use, which allows us to increase the efficiency of business entities in the industry.

Scientific problem statement. The analysis of institutional adaptation of trade enterprises requires taking into account the importance of adapting to modern business standards and to the mechanisms and methods that enable this adaptation.

In this article we use a broader definition of adaptation mechanisms or tools of institutional adaptation which covers the whole set of procedures of analysis, planning, regulation and stimulation of trade enterprises. In this context business entities of trade industry can be considered the substructures of institutional adaptation system involving a wide spectrum of iterations for the development of the institutional status as well as the institutional strategy and policy.

The basic concepts of adaptive institutional regulation for the goals of this study are as follows: setting the object of adaptive institutional regulation and developing the *algorithm* of adaptive institutional regulation.

Analysis. In our opinion the general notion of adaptation to new conditions needs to be clarified. In this respect the opinion of L.A. Rastrigin seems quite relevant. His interpretation of adaptation and its types is following: «The concept of adaptation as an active action (management action) typically combines two meanings: adaptation to a fixed environment (later referred to as *passive adaptation*) and search for the environment adequate to the given system (later referred to as *active adaptation*). In the first case the adaptive system acts so as to

perform its functions in the given environment the best way possible, i. e. maximizes its criterion of efficiency of functioning in the environment. Active adaptation, on the contrary, implies either changing the environment to maximize performance effectiveness criteria or active search for an environment in which the goal will be achieved. It is obvious that in reality both types of adaptation are used simultaneously and often interact with each other» [11, p.10].

The observations presented above provide an opportunity to view institutional adaptation in two different scenarios – evolutionary and revolutionary. This differentiation of institutional adaptation scenarios is quite common for trade industry entities – it implies, on the one hand, the adaptation to existing norms for trade organizations: social, legal, tax norms, etc., and, on the other hand, the reorganization of regulations themselves.

Speaking about the basic definitions of adaptive institutional regulation, first of all it is necessary to define the object of adaptive institutional regulation, i. e. the institutional environment, external and internal.

External institutional environment is the set of institutions affecting the trade enterprise from the outside. It is a reflection of current conditions of social development.

The study of the institutional aspects of trade organization development dictates the need for a wider approach to the interpretation of the institutions, in terms of which the institution is not only regarded as the norm of interaction between the economic agents or a set of specific standards and rules, but also as the organizational form of their association and regulation.

The general layout of institutions composing the external institutional environment can be represented by the federal institutions – general or trade ones or – and regional trade institutions [9, p. 76].

General federal institutions are the institutions of state power bodies which in accordance with

the laws of the Russian Federation exercise control over the trade with the purposes of protecting the rights of consumers, providing revenue for the government budget funds and ensuring food security for the population. External institutional environment is comprised of the multitude of norms produced by the institutions affecting the operations of the trade business, for example, Federal tax service of the Russian Federation /FTS/, Federal Antimonopoly service of the Russian Federation, the Federal Agency on Technical Regulating and Metrology, Federal customs service, Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing (Rosпотребнадзор), the Ministry of internal Affairs of the Russian Federation. External institutional environment represents, hereby, the diversity of the decisions of the listed institutions affecting the economic entities from outside, which is a product of the functioning of the economy as a whole, including the trade industry [1, 4, 14].

Business entities react to the influence of external institutional norms through adaptation (passive adaptation or evolutionary scenario) and the efforts to change the relevant standards (active adaptation or revolutionary scenario) [8, p. 275].

In addition to external institutional environment the structure of the object of adaptive institutional regulation includes the internal institutional environment. The difference in this context is a set of institutions and norms influencing the trade process. Each of the institutions has a certain number of regulatory processes, the implementation of which allows achieving the corresponding effects in the form of profits, sales or reduced costs as a result of functioning of the entire economic system including a trade enterprise and a trade network [2]. For example, a trade enterprise might be using such set of institutional processes as planning, promotion, financing, budgeting, accounting, etc.

The institution of planning typically includes such kinds of institutional norms and processes as the analysis of the goods turnover, analysis of the circulation costs with varying levels of detail, gross income and margin analysis of the whole enterprise and product groups, analysis of profit and profitability, etc.

Knowledge of peculiarities of an economic entity development and of the life cycle stages of the enterprise lay the groundwork for reviewing inefficient institutions, regrouping the sets of activities in the existing ones and in some cases for introducing new institutions. In this case the

revolutionary scenario of an adaptive institutional regulation of the organization development unfolds. It is the internal institutional environment that is the base of the revolutionary scenario of social and economic development of trade enterprises followed by a significant increase in their efficiency.

In order to define the *adaptive institutional regulation as a process* it is necessary to formulate the *goal* of the adaptation and the way of performing it, thus we can refer to the estimation of efficiency of functioning of a trade enterprise and design the algorithm of its adaptation, determining how to achieve this goal.

The statement that the adaptation as a management action can be viewed as an optimization in the obstructive environment is found in the works of Y.Z. Cipkin: «We will call an adaptation the process of changing the parameters and the structure of the system and possibly the management actions based on the current information aiming to achieve a certain, usually optimal state of the system given the initial uncertainty and constant changing of the environment conditions. ... Essentially we say that adaptation equals the optimization under the condition of insufficient prior information» [15, p. 58]

Generally, the results of business entities activity are measured by the extent their goals are achieved. The goals can express the desired configuration of the system and its separate elements. They might also define a certain trajectory of business development. Besides, for the business entities it is possible to speak about socioeconomic parameters of the implementation of the institutional goals. The question of hierarchical development of the system of adaptation goals can be relevant in this respect. In this case, lower level goals become the means to achieve the higher level ones.

Typically, the goals are considered on strategic, operational and tactical levels [6, p. 23]. Strategic goals are defined in the form of a perfect state, which means that they are formulated but can not be achieved yet. It is preferable to build the hierarchical structure of goals and to design the «tree of goals» before setting the operational goals. Tactical goals offer the means of achieving the operational ones.

It should be noted that the goal of the strategic level can be divided into the operational and tactical goals. The separation of a goal into interrelated components requires one to comply



with principle of the completeness of division. Such division is continued to a degree when in accordance with tactical goals one can identify the exact technology of their implementation in economic, legal, sociological terms and the ways of approaching the relevant norms. Knowledge of these characteristics is necessary for the effective operation of the industry.

Among these types of goals the strategic ones are most critical. These goals define the direction of institutional changes. At the same time the importance of operational goals which are necessary when quickly responding to the changes in institutional regulation tools should not be underestimated. Only the achievement of the operational goals makes tactical and strategic goals possible.

Each of the goals requires its own set of institutional tools. For example, the aggregate tools of achieving strategic and tactical goals, i. e. purchasing power of the population and the money supply in the country, are interconnected and act on the basis of the current institutional tools: interbank interest rate, volumes of mandatory reserves, public offers of government bonds, etc. If the aggregate tools are to change, the current tools need to change as well.

Depending on the specific goals certain adaptive mechanisms or regulating tools can be used.

The selection of tools according to the current institutions and norms has a great importance in the process of evolutionary adaptive institutional regulation of trade development [5, p. 62].

The «right tool for the goal» relation is developed inside the market economy, with its laws and its peculiarities (informal market, grey market, legal market). Therefore, the choice of tools depends on the current economic reality. It is possible to perform the regulation using economic institutional tools and/or social, legal ones, etc [3, p. 27].

In this connection, the quantitative aspect of the relationship of tools and goals must be noted, and «Tinbergen inequality» must be considered. It asserts that the excess in the number of tools over the number of goals allows for optimal system performance. In this light the edge case scenario which still provides the optimal system functioning will be the one where the number of tools is the same as the number of goals [13].

Therefore, it is important to detect the optimal number of institutional adaptation tools that can be used to achieve the goals of effective enterprise development in the trade industry.

The optimal number of institutional adaptation tools can be found using the following model [12, p. 118–125]:

$$y = a_0 + a_1x + a_2x^2,$$

where Y represents quantitative parameters of activity of business entities such as revenue, X is the number of institutional tools ensuring the sustainability of the business entities functioning.

Comparing the number of actual institutional tools with the optimal one allows establishing the following balance:

$$I_{opt} < I_{fact};$$

$$I_{opt} > I_{fact};$$

$$I_{opt} = I_{fact},$$

where I_{opt} is the optimal number of tools of institutional regulation providing a stable functioning of trade enterprises;

I_{fact} is the actual number of tools of institutional regulation.

The model above can be interpreted as follows. If the actual number of institutional regulators exceeds their optimal quantity it indicates the risk of growing administrative barriers in management. If the actual number of institutional regulation tools is less than optimal, insufficient institutional adaptation occurs.

If the economic practice of business entities shows the inefficiency of current adaptation tools, it forces the management of the enterprise to regroup existing norms/processes within specific regulatory institutions to introduce the new ones or to eliminate some of the existing.

At the same time the rationale of the choice of institutions promoting the sustainability and efficiency of trade entities development is based on the selection of formal and informal institutions. More often than not formal institutions phase out the inefficient informal ones and impede deviant behavior in business relations. Exercising institutional adaptation in the form of institutional agreements increases the stability of enterprise in the trade industry.

Types of adaptive regulators in use, in our opinion, are influenced by the regulator tools.

Institutional regulations based on the feedback loop can lead the system to chaos, prosperity or stagnation depending on a level of their adaptation to the goal of sustainable development of the object.

Among other things, the function of a feedback loop can be illustrated by the kickback on trade contracts. The mechanism of the feedback existing between the processes of informal adaptive

regulation indicated by the size of the kickback can be represented by the following parameters: coefficient of variation, variance and the average value of the kickbacks at the input and the output of the system.

Based on the analysis of the feedback loop one can draw the following dependence: if the deviations of kickback values from the average ones are large enough and the values of the coefficients of variation are significant, the system is close to the critical state and there is the need to introduce various methods of informal and formal regulation. If the values of the coefficients of variation are not excessively large, then the state of the system can be described as balanced.

In general view, the scheme of operation of the adaptative regulatory feedback can be described by such types of the feedback as reinforcing, proactive and balancing feedback.

A special institutional regulatory toolset allowing for the adaptation of the system to the environment is necessary for the achievement of the balanced state of efficiently functioning trade industry. Adaptation should be managed so as to exclude a risk of running unnecessary regulatory quasi-institutions.

Developing the algorithm of proactive feedback involves making prognoses for different possibilities of system development and selecting the most favorable one. The most promising method of projecting proactive feedback in trade industry is adaptive rational modeling. Therefore, proactive feedback allows to build the adaptation mechanism of using tools of formal and informal regulation.

The complex outline of the institutional relations of a business entity suggests a certain algorithm of institutional adaptation:

- formulating the goal of institutional regulation;
- assessing institutional status of the business entity;
- selecting and justifying the regulation tools ensuring both passive and active adaptation;
- designing the adaptation regulatory feedback;
- defining the institutional trade policy of the enterprise taking into account the conducted research.

The diversity of social and economic norms in the trade industry can be illustrated by comparing norms of specific trade enterprises with typical categories of socioeconomic norms of Saint-Petersburg business entities. This means that the assessment of institutional status can imply not only comparing factual and planned norms but also weighing them against the city averages or against industry best practices [10, p. 28].

In addition to the comparisons described above, the institutional status assessment includes a broad spectrum of analytical procedures involving various business activities, evaluation of financial stability of the enterprise and evaluation of its effectiveness. Evidently, an effective industry development requires the alignment of institutional status assessment with productivity indicators of business entities.

One of the possible schemes of institutional status assessment is described in Fig. 1. It comprises various aspects of social and economic development of trade enterprises.

In the developing market in Russia there is no singular typology of institutional behavior of trade enterprises. Most institutional strategies are the results of combination of different types. Growing international relations increased the transparency levels, but did not lead to full institutional adaptation to the domestic and global business environment.

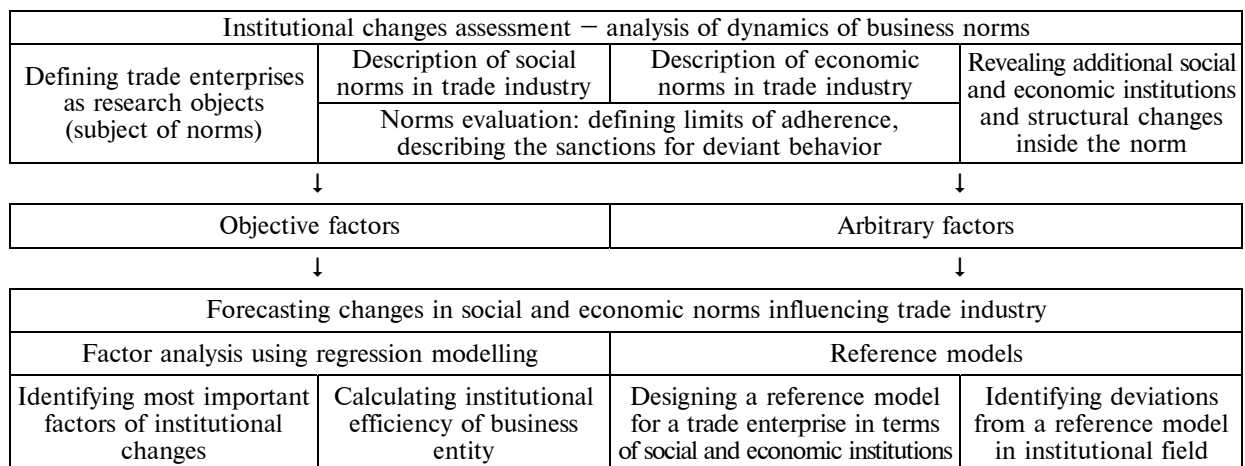


Fig. 1. Institutional status assessment algorithm (trade industry)



The starting point of the algorithm of institutional status assessment is the development of the institutional trade policy which will set the outline of organizations' institutional strategy. The institutional strategy of the business entity arises from the corporate values and goals, which explain the differences in the adaptation behavior of organizations [7, p. 92]. Some business entities aim at fulfilling 100 % of existing norms and standards, both internal and external. Official paychecks are accompanied by pensions and social benefits for employees. Another group of business entities represents the so-called «opportunists», the ones trying to bend the rules and evade their obligations to the employees or the state. Such enterprises are a priori part of the «shadow» economy. Moreover, main goals of such enterprises include maximizing the profits and minimizing the social responsibility.

At the same time, there is another type of organizations, so-called «constructivists», which are against excessive personnel layoffs in case of high unemployment rates in the region, and form lobbyist relationships with the government, invest in socially important projects in return for tax cuts, etc. Business entities of another type use an alternative, neutral institutional strategy. These enterprises do not rely on government's help and build their relationships with business partners based solely on economical reasons. Personnel relations (wages, benefits, layoffs) are also calculated basing on profitability.

The prediction of future institutional status of an enterprise implies taking into account the factors affecting the change of norms and processes in trade organizations. First of all, it is connected to the development of business relations inside the enterprise, aiming to increase the productivity of the trade system as a whole. The number and the specifics of factors affecting the phases of life cycle are individual for each organization. The higher is the accuracy of quantitative evaluation

of the influence of these factors, the higher is the efficiency of institutional transformation.

The arbitrary factor examples are the following: the use of specific incentives for employees and the use of specific controlling models and corresponding executive decisions in the organizational structure. Taking into the arbitrary factors account increases the possibility of achieving the desirable level of efficiency.

Also, the importance of accounting for the objective factors should not be underestimated. For example, growth of average citizen's income through the increased demand affects positively the levels of commodity circulation, pricing decisions and, therefore, the efficiency of business entities in the region.

Consequently, the quantitative prognosis of changes in institutional status of a trade enterprise requires accounting for the multitude of factors, both short-term and long-term, affecting the development of the industry subjects.

Study results

1. The definition of institutional regulation of socioeconomic development of a trade enterprise was clarified, factors affecting it were described, and mechanisms and tools of institutional adaptation were determined.

2. The algorithm of institutional status assessment was introduced, which is one of the stages in setting up the system of institutional adaptation of trade enterprises allowing us to point out the deviation from reference values in institutional outline.

Conclusion. This study justifies the necessity of institutional adaptation management using institutional status assessment in trade enterprises.

Directions for further studies. The development of the program of institutional adaptation as a key element of institutional trade policy of trade enterprise.

REFERENCES

1. Artemov S.A. Institutsional'noe sovershenstvovanie gosudarstvennogo regulirovaniia malogo predprinimatel'stva: avtoref. dis. ... kand. ekon. nauk. M., 2002. (rus)
2. Bespamiatnykh N.N. Institutsional'nye faktory effektivnogo razvitiia malogo predprinimatel'stva: avtoref. dis. ... kand. ekon. nauk. Ekaterinburg, 2004. (rus)
3. Vaisman E.D., Podshivalova M.V. Analysis of the institutional environment of russian entrepreneurship: time_structural slice. *St. Petersburg State Polytechnical University Journal. Economics*, 2015, no. 3(221), pp. 19–31. (rus)
4. Gorbacheva N.V. Formirovanie institutsional'nogo mekhanizma podderzhki i razvitiia malogo predprinimatel'stva: avtoref. dis. ... kand. ekon. nauk. Kazan', 2006. (rus)
5. Dorofeeva V.V. Formirovanie adaptivnykh kompetentsii predpriiatiia. *Kazanskaia nauka*. 2013. № 5. С. 60–63. (rus)
6. Evdokimov K.V. Osnovnye etapy evoliutsii teorii predprinimatel'stva. *Ekonomika i upravlenie*, 2011. № 6. S. 21–24. (rus)
7. Lysova E.A. Development of business mechanism of the services company competitiveness management. *St. Petersburg State Polytechnical University*

Journal. Economics, 2014, no. 2(192), pp. 88–97. (rus)

8. **Markovskaja E.I.** Osnovnye vidy mekhanizmov adaptatsii khoziaistvuiushchikh sub"ektov v rossiiskoi ekonomike. *Audit i finansovyi analiz*. 2013. № 1. S. 273–276. (rus)

9. **Pereverzeva T.A.** Sovershenstvovanie mekhanizma formirovaniia institutsional'noi sredy v trgovle: nauch. izdanie. SPb.: Izd-vo SPbTEI, 2009. (rus)

10. **Popov E.V., Vlasov M.V., Simakhina M.O.** Territorial'naia model' institutov razvitiia predprinimatel'stva. *Zhurnal ekonomicheskoi teorii*. 2010. № 2. S. 21–30. (rus)

11. **Rastrigin A.L.** Adaptatsiia slozhnykh sistem. Riga: Zinatne, 1981. 375 s. (rus)

12. **Stepanova T.V.** Otsenka sotsial'no-ekonomicheskoi effektivnosti torgovykh system. *Sistemno-institutsional'noe issledovanie protsessov razvitiia trgovli*: kollekt. monogr. Pod obshch. red. kand. ekon. nauk T.A. Pereverzevoi. SPb.: NOIR; IKTs, 2010. 292 s. (rus)

13. **Tinbergen Ia., Bos Kh.** Matematicheskie modeli ekonomicheskogo rosta. M.: Progress, 1967. 176 s. (rus)

14. **Khamidullin F.F.** Formirovanie institutsional'noi sredy razvitiia sistemy malogo predprinimatel'stva: avtoref. dis. ... dokt. ekon. nauk. Kazan', 2007. (rus)

15. **Tsyppkin Ia.Z.** Adaptatsiia i obuchenie v avtomaticheskikh sistemakh. M.: Glav. red. fiz.-mat. lit-ry izd-va «Nauka», 1968. 400 s. (rus)

СПИСОК ЛИТЕРАТУРЫ

1. **Артемов С.А.** Институциональное совершенствование государственного регулирования малого предпринимательства: автореф. дис. ... канд. экон. наук. М., 2002.

2. **Беспамятных Н.Н.** Институциональные факторы эффективного развития малого предпринимательства: автореф. дис. ... канд. экон. наук. Екатеринбург, 2004.

3. **Вайсман Е.Д., Подшивалова М.В.** Анализ институциональной среды предпринимательства в России: структурно-временной срез // Научно-технические ведомости Санкт-Петербургского государственного политехнического университета. 2015. № 3(221). С. 19–31.

4. **Горбачева Н.В.** Формирование институционального механизма поддержки и развития малого предпринимательства: автореф. дис. ... канд. экон. наук. Казань, 2006.

5. **Дорофеева В.В.** Формирование адаптивных компетенций предприятия // Казанская наука. 2013. № 5. С. 60–63.

6. **Евдокимов К.В.** Основные этапы эволюции теории предпринимательства // Экономика и управление, 2011. № 6. С. 21–24.

7. **Лысова Е.А.** Разработка организационно-экономического механизма управления конкурентоспособностью предприятия сферы услуг // Научно-технические ведомости Санкт-Петербургского государственного политехнического университета.

Экономические науки. 2014. № 2(192). С. 88–97.

8. **Марковская Е.И.** Основные виды механизмов адаптации хозяйствующих субъектов в российской экономике // Аудит и финансовый анализ. 2013. № 1. С. 273–276.

9. **ПЕРЕВЕРЗЕВА Т.А.** Совершенствование механизма формирования институциональной среды в торговле: науч. издание. СПб.: Изд-во СПбТЭИ, 2009.

10. **Попов Е.В., Власов М.В., Симахина М.О.** Территориальная модель институтов развития предпринимательства // Журнал экономической теории. 2010. № 2. С. 21–30.

11. **Растригин А.Л.** Адаптация сложных систем. Riga: Zinatne, 1981. 375 с.

12. **Степанова Т.В.** Оценка социально-экономической эффективности торговых систем // Системно-институциональное исследование процессов развития торговли: коллект. моногр. / под общ. ред. канд. экон. наук Т.А. Переверзевой. СПб.: НОИР; ИКЦ, 2010. 292 с.

13. **Тинберген Я., Бос Х.** Математические модели экономического роста. М.: Прогресс, 1967. 176 с.

14. **Хамидуллин Ф.Ф.** Формирование институциональной среды развития системы малого предпринимательства: автореф. дис. ... докт. экон. наук. Казань, 2007.

15. **Цыпкин Я.З.** Адаптация и обучение в автоматических системах. М.: Глав. ред. физ.-мат. лит-ры изд-ва «Наука», 1968. 400 с.

PEREVERZEVA Tat'iana A. – St. Petersburg state University of trade and Economics. 194021. Novorossiyskaya str. 50. St. Petersburg. Russia. E-mail: aterina30@rambler.ru

ПЕРЕВЕРЗЕВА Татьяна Алексеевна – заведующий кафедрой Санкт-Петербургского государственного торгово-экономического университета, доктор экономических наук. 194021, ул. Новороссийская, д. 50, Санкт-Петербург, Россия. E-mail: aterina30@rambler.ru

EVDOKIMOVA Marina K. – St. Petersburg state University of trade and Economics. 194021. Novorossiyskaya str. 50. St. Petersburg. Russia. E-mail: selena-rikman@mail.ru

ЕВДОКИМОВА Марина Константиновна – аспирант Санкт-Петербургского государственного торгово-экономического университета. 194021, ул. Новороссийская, д. 50, Санкт-Петербург, Россия. E-mail: selena-rikman@mail.ru