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REVIEW OF MARKET MECHANISM FEATURES OF INNOVATION SUPPORT IN AGRICULTURE INDUSTRY IN MORE ECONOMICALLY DEVELOPED COUNTRIES: STRATEGIES FOR RUSSIAN FEDERATION

I.S. Sandu, N.E. Ryzhenkova

Abstract

The article shows examples of market mechanism application of innovations implementation based on the experience of the countries with advanced economies. The analysis is based on the agriculture industry. In the article innovation activity encouragement methods are presented. Government's influence on the companies' innovation activity is analyzed as well as tax remissions of the companies involved in agriculture R&D in a series of advanced countries. By using this long-term overseas experience Russian Federation can greatly benefit to speed up its innovation processes in rural economy. The article's aim is to suggest the way to speed up innovation process.

Keywords: innovation, agriculture, government, economic regulation

Introduction

Innovations are a basis for the dynamic socio-economic improvement in the advanced countries. So implementation of innovations has become a strategically important issue.

In foreign countries with advanced economy, there are governmental services focused on application of scientific research and equipment absorption in agriculture, the so-called Agricultural Extension Services.

1. Different approaches to innovation implementation

Abundant experience of the USA and the European Union countries (such as Netherlands, Denmark, Germany, Great Britain, etc.) in implementation of innovation is highly relevant to the Russian rural economy. Drawing generalizations of the results proved by advanced economy countries allow us to figure out the following principles of the different economic mechanisms of effective innovation implementation:

- the way government treats innovation issue and the way it sees achievements of scientific, technical and technological progress by specifying them as crucial for an indicated period of time;
- the way innovations are supported, taking into consideration only efficient, political and institutionalized means of state support;
- assured government support measures based on formal approach, notwithstanding government officials' personal whim.

Direct methods of economic regulation, as a rule, include the following: public investment as financing (target, object-oriented, problem-directed); credits, leasing, stock market transactions, planning, programming and setting up business, driven by the government within innovation process.

The measures encouraging industrial corporations' cooperation in the field of scientific research and collaboration of universities with industry play especially important role in the system where the state has a direct economic influence on innovation process.

Indirect ways of economic regulation of innovation process overseas, on the one hand, are focused on its incitement, on the other hand – on creation of favorable economic environment and socio-political climate for technological and scientific development. Both of them are based on the fact that government does not limit directly independence of the companies in making decisions. Tax and depreciation regulation, credit and finance policy, price control, protectionism policy, tax and depreciation law liberalization are traditionally emphasized among indirect management methods.

Tax exemptions play especially significant role as they are used for encouraging those corporations' activities that are preferable for the authorities. For instance, these exemptions intend to stimulate scientific and technical progress, export and business activity of innovation enterprises.

Among the types of tax exemptions five basic are distinguished: tax profit discount that amounts the investments into equipment and construction; income tax reduction at the rate of R&D expenses; including into current expenses the expenditures on acquire and hold of equipment units, applying for scientific researches; creating non-taxable special-purpose funds at the expense of profit funds; income taxation at reduced rates (for small-sized companies).

Tax exemptions for capital investment in most cases are granted as investment tax credit. As a rule, companies investing into new machinery, equipment and technologies, etc., can apply for such exemptions. In that case, tax discount reduce income tax charges (unlike the ordinary discounts that are deducted from the total tax sum).

Investment tax discount is provided after equipment commissioning. A company automatically gains the right for such discount: there is no need to give reasons for receiving this discount as it is institutionalized.

The discount rate is established in percent off the adopted equipment price as follows: 5.3% in Japan (for electronic machinery and equipment); 50% in Great Britain (for the first operation year of new hardware, technology, materials, etc.); 10-15% in Canada (depends on the stage of development of the territory, where the company is located, there are developed and undeveloped state areas) and 100% in Ireland. In the USA, investment tax discount is only available for energetic equipment[1].

France implements temporary tax relief off profit or a partial reduction, the so-called *Tax Holiday*. It can be applied to brand-new small and medium-sized companies (among them those that provide scientific research). Income tax is reduced by 50% during the first five years of their business.

[1]U.S. Department of Energy, DSIRE (Database of state incentives for renewables & efficiency) Web: http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US02F

In Great Britain income tax is reduced from 20% to 100% for innovation startup enterprises. Limit for non-taxable investments for such companies is lifted up to 50%, reaching £150,000[2].

Capital growth tax evoked with long-term investments is reduced for companies that enter the market. Tax for reinvesting into such enterprises is cancelled. Taxable one-million pound limit is removed for funds involved by these companies, for the enterprises with fixed assets fund making up not less than £10,000,000.

Tax benefits allow small and medium-sized business to reduce income tax by 20% in such cases when previous maximum R&D expenses' level has been exceeded. Another option is to reduce tax payments by 6%, depending on the R&D expenses. In this case reduction should be not more than 15% off the company tax liabilities[3].

Enterprises that carry expenses burden when paying research institutions for scientific and technological development can also be kept back from tax income.

Tax benefits, connected with allowance for depreciation, are introduced. They are used to encourage priority development of certain sectors, to stimulate R&D or for common investment revival.

In highly developed countries, *accelerated equipment depreciation* is widely used as an incentive for renovating production assets. For instance, in the USA five-year depreciation period is set for equipment and machines, implemented for R&D that have service life of more than four and less than ten years. In Japan accelerated depreciation system is introduced for the companies that use energy-saving equipment or hardware that facilitates effective usage of resources and brings no harm to environment. There are different standards for accelerated depreciation – from 5% to 50%. Nevertheless, the most widely-spread average rate is 15-18%[4].

British companies have a permission to write off total price of technical equipment during its first operation year. In Germany 40% of expenditures can be written off for buying R&D equipment and machines during their first service year. Swedish amortization system allows writing off insignificantly valued equipment with up to three years service period at the year of its purchasing; when buying machinery or equipment a four or five-year term was used. In France it is possible to meet accelerated amortization for the most important equipment types – energy-saving, ecological and informational one. For instance, a computer can be amortized within one year. Amortization coefficient, when hardware has a service period up to four years, amounts at 1.5; for five or six years it makes up 2 points; more than six years of operation life makes 2-2.5 points.

The United States tax reform law, adopted in 1986, made tax policy of the government more well-aimed, though, with decreased implementation sphere of previously authorized tax benefits. The point is that amortization period was increased mostly for passive part of fixed assets for buildings and constructions to 31.5 years (previously to a 10-15-year period was used) for non-residential and 27.5 years for residential ones. However, for active part of fixed assets depreciation was more accelerated: at a five-year write-off period, depreciation up to 64% off the equipment price is allowed for a two-year period. Investment tax discount was authorized only for energetic hardware[5].

In order to stir up innovation business abroad, *state authorities often encourage personnel training*. For example, in France 25% of expenditures for the mentioned purpose are tax-free (in the economic fields, where unemployment rate is high, these expenses are not taxable).

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[2] Business N2K Need to know financial info for digital, tech & creative businesses - See more at: web:http://www.businessn2k.com/7-tax-incentives-for-uk-digital-technology-startups/#sthash.5yqthRva.dpuf

[3] Inland Revenue Authority of Singapore, Tax treatment of specific expenses. Web: http://www.iras.gov.sg/irashome/Business-expenses.aspx

[4] Deloitte, Country Guide: Belgium. Web: http://www.verginet.net/dtt/1/CountryGuideBelgium_6369.aspx

[5] The Reagan Presidency, Economic Policy. Web: http://www.reagan.utexas.edu/archives/reference/pressketch.html

France experience demonstrates that its transition to innovation policy was crucial. When it was realized that technological lag is connected, it happened, firstly, not with increased R&D investments but with adopting new production technologies, i.e. it was necessary to solve management problems.

2. Experience of innovation implementation - obstacles and solutions

Innovation policy brought forward cooperation encouragement for science and production. Nevertheless, the results of fundamental research and development were not always profitable for the industry. That is why in 1980s, acceleration of innovations' commercialization became a priority issue for state governmental institutions in the capital and beyond. All means of support and organization of this process were adopted: business-incubators, assistance to small and medium-sized innovation business, science parks, implementation firms, innovation support centers, tax benefits and other discounts. All these steps were worked out according to specific country environment. Government bodies provide 74% of money for financing science parks, because investing into these infrastructure objects encourages regional economic growth. Special road maps are developed in an interlinking way to bring forward technologies.

The following form of technology transfer support seems to be quite interesting: an individual obtains interest-free loans for creating a small business. In most cases, this person can be a famous pensioner, who previously showed himself to good advantage. A successful project is a condition of payback. Currently, 90% of small-sized enterprises have already worked efficiently for more than five years[6].

In Belgium innovation process is encouraged via the so-called *cluster policy*, i.e. a kind of union of institutes and enterprises. Students and scientists are also involved into technology transfer process.

In Flanders there is an investment law. According to it, budgetary funds for transferring technologies are made up via universities and research institutes. Up to 150 million euro are reserved from scientific and technical budget for introducing the results of these projects into industry. Companies are also stimulated for innovations via interest-free credits and grants the size of which may amount to 25% off the expenditures.

The position of ministry of Flanders on evaluating science investments also deserves attention. According to the officials, it is hard to estimate what these companies finally work out but that doesn't mean there should be no investment at all. As the result of this policy, there is a great number of employees working in knowledge-intensive field: 9% in comparison to average 4.5% in the European Union.

Commonly, the role of state in innovations is aimed at creating the most suitable legal framework because there is a great mixture of innovation business purposes that require a specific legal regulation of their relationships. Law defines the role and competence of the state in this field. In 1982 in the USA, when significance of small business became obvious, a law on supporting and developing such business was introduced. The law also contained a range of financing measures. Tax benefits and ability for a scientist or an engineer to receive initial capital for a new project were established. That was the form that led to emerging incubators, venture funds, innovation centers and other means of developing small business.

The experience of foreign countries showed that previously implemented loan types were not suitable for small innovation business since it was too risky to become bankrupt due to failure when introducing new projects. Then, a special investment form appeared – venture or risky capital. In the USA tax benefits for venture capital in scientific and technological research

[6] M. E. Stucke, Is competition always good? Journal of Antitrust Enforcement Volume 1, Issue 1, pp. 162-197. Web: http://antitrust.oxfordjournals.org/content/1/1/162.full

were also established for the income. Taking into consideration the uncertainty of achieving initial goals and different risks, the government is in charge of insuring possible losses.

Practical government activities in innovation field are determined by the policy it pursues. As a rule, the policy assumes figuring out first-priority areas.

German experience is quite illustrative: having 146 science parks and nearly 800 funding sources for innovation companies, the government created great conditions for accelerated commercialization of scientific and technological products that resulted to world leadership in export share of knowledge-intensive output in its overall volume.

Conclusions

Government cannot stay aside from solving such an important problem as innovations encouragement. One of the most efficient basic ways of dealing with them are the above mentioned tax benefits for developing new technologies. Tax benefits make investments economically profitable and bring capital funds. *Reduced custom taxes* on imported scientific equipment and *cut taxes for public services* work the same way.

World experience shows that in market economy, the government takes direct part in organizing innovation business, considering different forms of such participation. For instance, that is performed via optimum distribution of country scientific and technological potential on its territory. In the USA, Japan and some other countries nation-wide programs for developing such business in the regions were introduced, involving respective reestablishment of management functions.

Organizational role of the state could be more specific when state itself becomes a customer and consumer of innovation products, driven by its own scientific and technological programs.

Long-term overseas experience of state paternalism in scientific research sphere, mixed with commercialization of agriculture science, should be widely implemented in the Russian Federation because to its increasing integration into global economy by entering the World Trade Organization. That is, Russia's membership in the World Trade Organization will work as an extra urge, speeding up course of innovation in Russian rural economy. Otherwise, the Russian domestic agriculture sector will lose its competitiveness and will not be able to compete with dumping-priced imported products that have already flooded Russian market.

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PRZEGLĄD CECH MECHANIZMÓW RYNKOWYCH WSPIERAJĄCYCH INNOWACJE W ROLNICTWIE W KRAJACH BARDZIEJ ROZWINIĘTYCH EKONOMICZNIE: STRATEGIE DLA FEDERACJI ROSYJSKIEJ

Streszczenie

W artykule przedstawiono przykłady wykorzystania mechanizmu rynkowego do wdrażania innowacji w rolnictwie w oparciu o doświadczenia krajów z rozwiniętą gospodarką. Omówiono metody zachęcające przedsiębiorstwa do prowadzenia działalności innowacyjnej. Przeanalizowano wpływ rządu na działalność innowacyjną przedsiębiorstw a także umorzeń podatkowych dla podmiotów zaangażowanych w badania i rozwój w sferze rolnictwa na przykładzie państw bardziej rozwiniętych ekonomicznie. Korzystając z wieloletniego doświadczenia tych państw, Federacja Rosyjska może znacząco przyspieszyć procesy innowacyjne w rolnictwie. Celem artykułu jest zaproponowanie sposobu przyspieszenia procesu wdrażania innowacji w rolnictwie Rosji.

Keywords: innowacje, rolnictwo, rząd, regulacje gospodarcze

I.S. Sandu, Doctor of Economics, professor
State Research University VNIIESH
123007, Russia, Moscow, Khoroshovskoe shosse, bld 35/2, construction 3
Email: keyneslab@gmail.com

N.E. Ryzhenkova, Ph.D., docent
State Research University VNIIESH
123007, Russia, Moscow, Khoroshovskoe shosse, bld 35/2, construction 3
Email: info@lpei.ru