INNOVATIVE TECHNOLOGICA
METHODICAL RESEARCH JOURNAL
ISSN: 2776-0987 Volume 3, Issue 10 Oct. 2022

INNOVATIVE ACTIVITY IN UZBEKISTAN

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Abstract
The relevance of the study is justified by increased competition and accelerated growth rates of scientific and technological progress, which determined the innovative path of development of economic entities at all levels. The article discusses various areas of the economy in which innovations have been introduced. The innovative activity of Uzbek enterprises was compared to other developing countries.

Keywords: innovation, economic growth, innovative activity, research and development (R&D), Global innovation index.

Introduction
In the development of any economy lies the active application of innovations in the processes of production, distribution and consumption in order to create new customer value, improve financial results and increase productivity. As the President of the Republic of Uzbekistan Sh.M. Mirziyoyev said that “An important condition dynamic development of the Republic of Uzbekistan is the accelerated implementation modern innovative technologies in the economy, social and other spheres with wide application of achievements of science and technology”.
Innovation also contributes to the welfare of society by improving the quality of life and safety, reducing negative environmental impacts. In the 1990s, 60% of all investments in the United States were in the information technology sector, which led to an employment increase in sectors that produce and use these technologies (mainly the service sector). Salaries in these sectors were 80% higher than the average for the economy and productivity increased by an average of 42% per year. Despite the fact that its share in the GDP structure was 1.2%, economic growth was almost entirely provided by the growth of the information technology (IT) sector. Sectors with rapid growth potential, such as IT, were labeled high-tech because of the high proportion of investment in innovation and staff development. In addition to IT these sectors could include electronics, healthcare services and business services. Unlike high-tech industries, medium-tech industries include industries such as the

production of motor engines, transport equipment, etc., while low-tech industries mainly include labor-intensive industries, traditional services such as trade.

There are a large number of researchers that have revealed the huge role of knowledge and innovation in economic growth. For example, Professor of Columbia University Frank R. Lichtenberg found that an increase in the accumulated knowledge in the economy (the share of R&D in GDP) by 10% leads to an additional growth in GDP by 1-2% (given that the volume of investment in R&D is not so significant in relation to GDP - from 0 to 4%, then this is a significant contribution). The return on private spending on R&D is 7 times greater than the return on spending on physical capital.

In addition, knowledge and innovations have the property of spreading to other countries. Studies have found that smaller countries benefit from investment in R&D in larger countries. For example, a 0.5% increase in the share of R&D spending in the United States led to a 9% increase in GDP in that country and 7% in Canada (Coe and Helpman). 60% of innovations are imitated in other countries by the fourth year after implementation. Ideas about the application of innovations reach competitors in 1-1.5 years. Small businesses benefit from increased R&D in large companies by gaining experience from them. At the same time, personal contacts, conferences, fairs, seminars, meetings are an important channel for the dissemination of knowledge and innovation.

The demand for an innovative type of development has especially increased recently against the backdrop of growing economic, financial, and environmental challenges, which creates the need in many developing countries to expand production and export not so much of raw materials as of science-intensive competitive finished products.

In addition, today in many developing countries there is a potential demand for innovative solutions in the infrastructure and social sectors. For example, housing and communal complexes need a whole range of innovative solutions - from new technologies for the operation of thermal power plants, boiler houses and new methods of water treatment to new ways to control resource consumption and reduce energy losses during the transportation of heat and electricity in engineering networks. This is the case in education, healthcare, social protection and other sectors.

The main indicator of innovative development can be considered the Global Innovation Index. The index reflects both investments in innovations and their effectiveness. Consisting of around 80 indicators, the GII aims to capture the multidimensional aspects of innovation. The index criteria include the state of

ISSN: 2776-0987 Volume 3, Issue 10 Oct. 2022

institutions, human capital, relevant infrastructure, loans, investments, connections, assimilation and dissemination of knowledge, and creative results.

This year Global Innovation Index announced the results of innovative countries where Uzbekistan rises to 3rd in Central and Southern Asia region, ranking 82nd overall, and displacing Kazakhstan to 4th in the region and the 83rd position globally. Uzbekistan scores relatively high on four of the seven important indicators of the index, compared to countries that have similar development conditions: institutions (ease of starting a business), human capital and research (education spending, student-teacher ratio, graduates in science and technology), infrastructure, and market sophistication (general infrastructure, online public service, gross capital formation) that are above average for the lower-middle income group. On the contrary, Uzbekistan scores below average in such categories as business innovation (contribution to R&D, technology import), knowledge and technology (export of ICT services), and creative output (Internet creativity, generic top-level domains, mobile application creation).

Only 23.2% of firms in Uzbekistan said they had applied product innovations and 14.4% - process innovations over the past three years. However, only 5% of these firms spent more than $100 for this purpose. Over the past three years, 10% of surveyed firms have applied external best practices, 13% have used in-house capabilities, and 7% have outsourced on a contract basis to innovate.

Compared to other developing countries, the innovative activity of Uzbek enterprises is relatively low. For example, in developing countries with lower middle incomes, 36% of firms introduced innovative products, 35% - process innovations. In Eastern Europe and Central Asia, these figures were 29% and 20%, respectively.

Firms that have announced the introduction of innovations show a relatively high level of labor productivity. For example, if firms that have introduced product innovations account for 67 million sums per employee. production, then in firms that have not introduced product innovations, this figure is 55 million sums. Such a difference is observed for all 6 indicators of firm's innovativeness.

Excluding specific regional, industry-specific effects and company size, productivity differences persist among firms that have introduced product innovations (28%), process innovations (27%), and those that have used internal resources to innovate (43%).

State-owned enterprises are the most innovative. For example, state-owned firms introduced - 36% of product innovations (non-state firms - 29%), process innovations - 22% (non-state - 17%), R&D spending - 15% (non-state - 7%), used internal

ISSN: 2776-0987 Volume 3, Issue 10 Oct. 2022

potential 16% (non-state - 13%) and attracted external participants 15% (non-state - 7%). Foreign enterprises also show relatively high innovative activity. However, private firms turned out to be less involved in innovation processes.

The innovation activity of firms increases as the size of the firm grows. Thus, 32% of all large enterprises announced the introduction of product innovations, among medium-sized firms this figure is 30% and small - 28%. This pattern is observed for all indicators of innovative activity. This can be explained by the fact that the introduction of innovations is an expensive pleasure, and, in general, large enterprises with large financial resources can afford these costs.

Firm age also has a potential impact on innovation activity. For example, firms established within the last 5 years are less active than firms established more than 5 years ago.

Innovative activity, in turn, has a positive effect on employment growth. For example, in 83% of all firms that introduced product innovations, there was an increase in staff (against 75% in those that did not). A similar situation is observed for other indicators.

The state needs to create incentives for regional industries and the private sector to innovate. This may include measures to stimulate the export activities of enterprises or the growth of indicators of the efficiency of enterprises' production (energy saving, labor productivity, water saving, capital efficiency, etc.). For the development of production, it is necessary to introduce developments and to strengthen the mechanism of their transfer from science to practice. This requires the implementation of targeted technological platforms, development of technology parks, design and research departments at industrial enterprises, innovation centers, research institutions.

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