The article analyzes the role of innovation in the economy of the Bukhara region at the present stage of economic development. The problems restraining the growth of innovative activity, factors and influencing the formation of regional innovative potential are identified. The possibilities of innovative activity and its importance for supporting the competitive position of the region are considered. The methodological basis of the research and preparation of this work is the fundamental research of Uzbek and foreign scientists in the field of regional economy, innovative development and economic theory. The article presents investment indicators in technological innovation and modernization initiatives in the main industries of the Bukhara region. The analysis determines the role of industries in the development of the innovative economy of the Bukhara region and their impact on the processes of new industrialization in other industries. In addition, our task was to determine the priorities and objectives of innovative development and diversification of the economy of the Bukhara region. This allows us to solve the problems of regional innovative development and modernization of the industry.

**Key words:** structural changes in the regional economy, innovative economy, industries, technological structure, innovative development of the region, innovative potential, diversification of the regional economy.

**Language:** English

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practice. It is impossible to move to an innovative economy without forming a national innovation system. The component of the national innovation system is the regional innovation system. Consequently, modernization of the economy requires the implementation of regional structural changes that are innovative. The purpose of this article is to highlight the specific approach to identify trends in these regional structural changes.

The formation of an innovative economy is a complex and multifaceted process that depends on many factors. Building on these factors is not easy and time-consuming, but unless the structural changes in the modern-day economy of Uzbekistan and its regions are conducive to the transition to an innovative economy, there will be no opportunity for economic competitiveness in the globalization process. These considerations raise questions about how ready our society is to build an innovative economy, what steps should be taken in accordance with it, and what sectors are ready to make innovative technological structural changes. We will explore these issues in the next phase of our study.

Research methodology

In order to more accurately classify the changes in the economic structure of the Bukhara region, we will consider these changes in the technological structure of their production.

In modern conditions, the allocation of a particular area to a specific “technical unit” depends on how it develops on the production and technological basis. At the same time, agriculture can be incorporated into the first (or relictive) technical framework based on manual or low-mechanized technologies. The use of modern computer and biotechnology and genetic engineering in agriculture will move the network from the first technological cycle to the fifth and sixth.

Features of organization of production at light industry enterprises and improving logistics were studied by several scientific works of Tursunov B. [7;8;9;10;11;12;13;16]. Innovative ways of development of Uzbekistan agroindustrial complex were researched by Russian and Uzbek scientis as well as Nuritdin Yuldashev, Vladimir Nabokov, Konstantin Nekrasov, Bobir Tursunov [15].

Innovative development of regions through structural changes requires a regional information-analytical system based on scientific tools and methods that allow for continuous monitoring of processes. The main objective of such monitoring is to identify sectors that have a multiplier effect on the development of other sectors and to ensure that they are consistent with the implementation of the strategy. In our view, such scientific apparatus is the correlation coefficient (K), reflecting the interaction of structural changes between particular types of economic activity. Sectors and industries with the highest correlation coefficients compared to other sectors and enterprises can be considered as development points.

Analysis and results

The sectorial structure of the Bukhara region's economy changed in terms of physical (quantity of employees) and cost (production, investment) (see Table 1). At first glance, we can conclude that structural changes in all industries can be described as regressive. However, such an approach would require a rigorous review. Comparing the changes in the volume of investments made by individual types of economic activities with changes in the volume of production and the number of employees engaged in economic activity allows making important conclusions. Analysis of data in Table 1 shows that although investment in industrial production increased by 478.5 percent in 2018 compared to 2010, production decreased by 92.3 percent. In particular, mining and quarrying accounted for (61.3%), compared to (465.7%), and mining industry for (100.8%), for (415.9%). Positive shifts were also observed in the industrial sectors, including investments in food production by (295.6%) and production growth by (154.7%). At the same time, the number of employees in the network increased by (22.5%) and relatively low. Such shifts are indicative of the technological structural changes in the network, which correspond to four technical disciplines. The food industry, in our opinion, is more than ready to make technological changes in the five technical sectors and to move towards an innovative economy.

Table 1. Sectorial Changes in Economy of the Bukhara Region for 2010-2018 (%)*

<table>
<thead>
<tr>
<th>Areas of economic activity</th>
<th>Production</th>
<th>Investment</th>
<th>Number of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
<td>2018</td>
<td>Index</td>
</tr>
<tr>
<td>Gross regional product</td>
<td>100</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Production of industrial products by separate types of economic activity</td>
<td>28.8</td>
<td>26.5</td>
<td>0.9</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>11.4</td>
<td>7.0</td>
<td>0.6</td>
</tr>
<tr>
<td>from them:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Philadelphia, USA

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Impact Factor: ISRA (India) = 4.971 SIS (USA) = 0.912 ICSV (Poland) = 6.630 ISI (Dubai, UAE) = 0.829 PHHII (Russia) = 0.126 PIF (India) = 1.940 GIF (Australia) = 0.564 ESJI (KZ) = 8.716 IBI (India) = 4.260 JIF = 1.500 SJIF (Morocco) = 5.667 OAJI (USA) = 0.350
Changes in significant investment costs in other sectors had little effect on changes in output volumes. It should be noted that the mining and metallurgical industry (263.9%) includes coal and lignite (569.7%), metallurgical industry (263.9%), (332.4%), production of beverages (955.2%), manufacture of finished metal products in addition to machinery and equipment (527.2%), production of modern textile products (896.6%), clothing production (645.1%), chemical products (104.2%), rubber and plastic products The sectors of each industry (190.2%), production of other transport equipment (496.2%), machine equipment production (527.2%) belong to 3 technical units and in the majority of them there is an increase in the number of employees.

The development of other non-metallic mineral products, the production of computers, electronic and optical products, the manufacture of electronic...
equipment, is already underway in Bukhara region. These sectors are the basis for the development of an innovative economy of five technical areas.

In agriculture, forestry, and fisheries, there has been a (48.3%) decrease in the share of workers, along with an increase in investment and shifts in output. This is an evidence of the fact that innovative activities are being implemented in this economic activity. In the services sector, by contrast, the volume of services decreased with the increase in the number of employees. We believe that the resources of this industry are, in our opinion, widely used in information and communication and automation technologies.

Analysis of structural changes from the standpoint of reproduction shows that the growth of the innovation-investment market-oriented manufacturing sectors lags behind the consumer market.

Based on the data of the Bukhara regional statistical department, we create a matrix of transverse correlation coefficients of structural changes in the largest sectors of the economy of the Bukhara region for 2010-2018 (see Table 2).

Table 2. Matrix of correlation coefficients of interaction of sectorial changes in economy of Bukhara region for 2010-2018

<table>
<thead>
<tr>
<th>Areas of economic activity</th>
<th>Extraction of coal and lignite, crude oil and natural gas</th>
<th>Technical services in the mining industry</th>
<th>Food production</th>
<th>Production of textile products</th>
<th>Clothing manufacture</th>
<th>Production of coke and oil refining products</th>
<th>Production of chemical products</th>
<th>Production of other nonmetallic mineral products</th>
<th>Production of finished metal products, except machinery and equipment</th>
<th>Electricity, gas, steam supply and air conditioning</th>
<th>Services</th>
<th>Agriculture, forestry and fishery products</th>
<th>GRP</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraction of coal and lignite, crude oil and natural gas</td>
<td>1</td>
<td>0.27</td>
<td>0.82</td>
<td>0.42</td>
<td>-0.76</td>
<td>0.64</td>
<td>0.86</td>
<td>-0.42</td>
<td>-0.13</td>
<td>-0.42</td>
<td>0.55</td>
<td>-0.05</td>
<td>-0.004</td>
<td>1</td>
</tr>
<tr>
<td>Technical services in the mining industry</td>
<td>0.27</td>
<td>1</td>
<td>0.22</td>
<td>0.57</td>
<td>-0.61</td>
<td>-0.11</td>
<td>0.41</td>
<td>-0.09</td>
<td>0.45</td>
<td>0.06</td>
<td>0.11</td>
<td>-0.18</td>
<td>-0.36</td>
<td>7</td>
</tr>
<tr>
<td>Food production</td>
<td>0.82</td>
<td>0.22</td>
<td>1</td>
<td>0.41</td>
<td>-0.43</td>
<td>-0.35</td>
<td>0.7</td>
<td>0.41</td>
<td>-0.01</td>
<td>-0.75</td>
<td>0.30</td>
<td>0.38</td>
<td>0.31</td>
<td>2</td>
</tr>
<tr>
<td>Production of textile products</td>
<td>0.42</td>
<td>0.57</td>
<td>0.41</td>
<td>1</td>
<td>0.52</td>
<td>0.2</td>
<td>0.56</td>
<td>-0.28</td>
<td>-0.12</td>
<td>-0.3</td>
<td>0.17</td>
<td>0.25</td>
<td>0.14</td>
<td>3</td>
</tr>
<tr>
<td>Clothing manufacture</td>
<td>-0.76</td>
<td>-0.61</td>
<td>-0.43</td>
<td>0.52</td>
<td>1</td>
<td>0.34</td>
<td>-0.07</td>
<td>-0.03</td>
<td>-0.35</td>
<td>0.19</td>
<td>-0.49</td>
<td>0.28</td>
<td>0.29</td>
<td>11</td>
</tr>
<tr>
<td>Production of coke and oil refining products</td>
<td>0.64</td>
<td>-0.11</td>
<td>-0.35</td>
<td>0.2</td>
<td>0.34</td>
<td>1</td>
<td>0.75</td>
<td>0.56</td>
<td>0.31</td>
<td>0.08</td>
<td>-0.5</td>
<td>0.09</td>
<td>0.09</td>
<td>4</td>
</tr>
<tr>
<td>Production of chemical products</td>
<td>0.86</td>
<td>0.41</td>
<td>0.7</td>
<td>0.56</td>
<td>0.07</td>
<td>0.75</td>
<td>1</td>
<td>-0.32</td>
<td>-0.02</td>
<td>-0.41</td>
<td>-0.34</td>
<td>-0.46</td>
<td>-0.16</td>
<td>6</td>
</tr>
<tr>
<td>Production of other nonmetallic mineral products</td>
<td>-0.42</td>
<td>-0.09</td>
<td>-0.41</td>
<td>-0.28</td>
<td>-0.03</td>
<td>0.56</td>
<td>-0.32</td>
<td>1</td>
<td>0.86</td>
<td>0.37</td>
<td>0.24</td>
<td>-0.68</td>
<td>-0.51</td>
<td>5</td>
</tr>
<tr>
<td>Production of finished metal products, except machinery and equipment</td>
<td>-0.13</td>
<td>0.45</td>
<td>-0.01</td>
<td>-0.12</td>
<td>-0.35</td>
<td>0.31</td>
<td>-0.02</td>
<td>0.86</td>
<td>1</td>
<td>0.45</td>
<td>0.41</td>
<td>-0.64</td>
<td>-0.55</td>
<td>3</td>
</tr>
<tr>
<td>Electricity, gas, steam supply and air conditioning</td>
<td>-0.42</td>
<td>0.06</td>
<td>-0.75</td>
<td>-0.3</td>
<td>0.19</td>
<td>0.08</td>
<td>-0.41</td>
<td>0.37</td>
<td>0.45</td>
<td>1</td>
<td>0.23</td>
<td>-0.06</td>
<td>-0.71</td>
<td>8</td>
</tr>
<tr>
<td>Services</td>
<td>0.55</td>
<td>0.11</td>
<td>0.30</td>
<td>0.17</td>
<td>-0.49</td>
<td>-0.05</td>
<td>-0.34</td>
<td>0.24</td>
<td>0.41</td>
<td>0.23</td>
<td>1</td>
<td>-0.48</td>
<td>-0.73</td>
<td>9</td>
</tr>
<tr>
<td>Agriculture, forestry and fishery products</td>
<td>-0.05</td>
<td>-0.18</td>
<td>0.38</td>
<td>0.25</td>
<td>0.28</td>
<td>-0.05</td>
<td>-0.46</td>
<td>-0.68</td>
<td>-0.64</td>
<td>-0.06</td>
<td>-0.48</td>
<td>1</td>
<td>0.52</td>
<td>10</td>
</tr>
</tbody>
</table>

From our side, the matrix of correlation coefficients, which is considered as transverse structural change in major economic sectors of the Bukhara region for 2010-2018, has produced the following significant results. First of all, it should be noted that the correlation of structural shifts in economic activity with the GRP yielded positive results in only five sectors, with the highest proportion of agricultural, forestry and fishery products (0.52) indicating that the regional economy still has an agrarian orientation. Foodstuffs (0.31), garments (0.29) and textile products (0.14) are the leading industries in the region. As for the coke and oil refining industry (0.09), we can say that the calculations show that today it does not have a multiplier effect on the regional economy.
The analysis of indicators of the interrelated effects of structural shifts in economic activity has shown that no sector has a high positive impact. Nevertheless, we have tried to color them based on their average performance, and have the following results: first, in our opinion, we had to extract coal and lignite, crude oil and natural gas (0.27), as Bukhara region produced gas. It is the leader in the country. In the list are the following: foodstuffs (0.25), textile and ready metal products (0.195), coke and oil refining products (0.185), nonmetallic mineral products, chemical products and technical services in the mining industry (0.17) is correct. The correlation between agriculture, forestry and fisheries, and clothing industries with others had negative results. This may be explained by the sharp decline in the share of agriculture in comparison with other sectors, on the contrary, by the rapid increase in the share of garment production, and as a consequence of changes in other sectors.

The analysis of interactions between particular types of economic activity is also noteworthy. For example, it is clear that structural changes in extraction of coal and lignite, crude oil and natural gas are closely related to changes in food production (0.82) and chemical production (0.86), as food companies consume more natural gas, the chemical industry uses waste. The interaction between textile production and the production of chemical products (0.56) is due to the increased use of artificial fibers in the textile industry (carpeting). Consequently, the raw material base for the further development of the chemical industry is available. This is also confirmed by its high correlation (0.75) with the changes in coke and refining products. Thus, we can conclude that the development of the chemical industry in Bukhara region can be one of the priorities. The chemical industry, in turn, will give impetus to the development of the textile industry.

The close correlation of changes in the production of other non-metallic mineral products with changes in the manufacture of finished metal products, except machinery and equipment (0.86), at first glance seems pointless. However, a closer analysis revealed that these two areas are the construction of social facilities that stimulate the development of both sectors and are one of the key areas for the development of private entrepreneurship in the region, and these types of economic activities are the key areas for small business development in the region.

The negative correlation of changes in clothing production to changes in textile production (-0.52) indicates a low correlation between these two sectors. The main reason for this is that the raw material base for the production of garments is not based on local textile products. This is another reason for the development of the textile industry.

If the activity not included in Table 2 (as is now developing) is due to technological changes in the five technical sections, the field of computers, electronic and optical products, textile products (0.66), rubber and plastic products (0.55), Changes in the manufacture of electronic equipment showed that there is a correlation between foodstuffs (0.59), textile products (0.94), rubber and plastic products (0.65). Consequently, these figures suggest that food, textile and rubber and plastic products industries are more than ready for post-industrial technological changes and for the development of innovative economies in the region.

**Conclusions**

Thus, as a result of our research, we believe it is advisable to carry out structural changes in the regional economy in the following areas:

1. Trends in the development of the modern world economy and the present stage of development of the Bukhara region's economy is that structural changes should ensure not only quantitative economic growth, but also technological improvement based on innovative economies.

2. Given the greater tendency for food, textile, rubber and plastic products to develop innovative economies in the region, structural changes should be aimed at improving technological quality in these sectors.

3. The development of foodstuffs, apparel and textile products as the leading industries in the region's GRP needs to be accelerated.

4. The development of the chemical industry and based on the textile industry in the Bukhara region is one of the priorities of the policy of structural changes to ensure economic growth.

5. The production of other non-metallic mineral products, finished metal products and clothing should be at the center of structural changes as the leading sectors of private business development and small business development in the region.

6. Further development of economic activity in agriculture, forestry and fishery production is to be carried out through the use of intensive technologies, bio technologies, and genetic engineering.
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