Detection of the current structural-sectoral shifts in the steppe zone regions of Russia

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Abstract. The current challenge of stable development in the Russian steppe zone is an imbalance of structural-sector shifts in the economy of regions entering it. The paper presents an analysis of the sectoral structure transformation in the steppe regions according to principal types of economic activity, including different industrial and non-production sectors (manufacturing activity, mineral production, energetics, trade, transport, agriculture, etc.). The study's specifics consist of various methodological approaches used to determine a structural-sectoral shift: depending on specialization according to kinds of sectors and coverage. As a result, it was identified that in regions of the steppe zone, structural-sectoral reconstruction of the economy happened. It touched on a vast diapason of various sectors. The economy of the areas has passed the stage of overtaking development. The portion of the non-production sector has stably increased, simultaneously, an industrial and agricultural part, despite the reduction, has still stayed high. The regional specifics are the growth of non-production portion everywhere, a considerable increase of agro-industrial complexes in the traditionally agricultural regions, and slight changes in areas with a relatively balanced economic structure.

1. Introduction

The structure of the economy in regions is complex and multidimensional. It includes various combinations of industrial and non-production sectors, which determine the area's specifics. As a result of the territorial-sectoral division of labor, different regional features emerge. The principal factors affecting the regional specifics are an economic-geographical position, natural sources, social, demographic, and national peculiarities. Consequently, sectors emerge within the territories characterized by more suitable conditions for their development, and peculiarities of the territorial-sectoral division of labor create a specialization in the regional economy. However, regional structural sector division of work has been transformed during the time due to different economic factors. Therefore, territorial structural-sector shifts happen. Simultaneously, the regional structural-sector shift must be analyzed in the aspect of stable development and current challenges [1, 2].

2. Material and methods

Structural-sectoral shifts in 17 subjects, wholly or partly placed in Russia's steppe zone, were analyzed in the study. Such a macroregion has a vast opportunity to develop different economic branches due to its geographical position and latitudinal expansion. The continuous steppes zone of Russia (including forest-steppe) envelopes a vast space having the square of 1.7 million km² or 10% of the country. Elongated mainly in the latitudinal direction of more than 3.5 thousand km², it extends from 150 to 600 km from north to south [3-5].

The regional structural-industrial shift is an interdependent, inverse change of branches being as principal in the sector structure, identifying the specialization and economic development of the...
territory, as complexly complementary leading to deepening or weakening the regional occupation. It is necessary to mark the following types of structural-industrial shifts: 1 – according to types of sectors: general and industrial; 2 – according to types of regional specialization: single-specialized and poly-specialized; 3 – according to the scale of the industry: inner sectoral and intersectoral. A volume of the structural-sectoral shift should be considered to understand divergences in the structure of sectors. A defined average value can characterize the work. Simultaneously, an option of the average value as a sample is conditioned by the fact that it would reflect general and specific features typical for structural-sectoral shifts within the examined regions [2].

3. Results and Discussion

The principal types of economic activity represented in the Russian steppe zone regions are manufacturing activity, agriculture, mineral production, and non-production branches (including trade and transport). However, each area has its territorial specifics. At the same time, on the whole, the steppe zone of Russia has differences from the structure of the economy in the country (figure 1).

![Figure 1](image)

**Figure 1.** The dynamics of the sectoral structure in RF and the steppe zone for 2005 and 2017, %.

The conducted analysis of the sectoral structure within Russia's steppe zone showed twofold excess of agricultural portion in the steppe regions as Russia's steppe zone has had the most favorable natural-climatic conditions for agriculture. It determines a considerable contribution of this sector to the entire structure of the economy. A portion of the production and service sector is lower in the steppe zone regions in Russia as a whole, but simultaneously, there are no significant differences.

If the structural-sectoral shift dynamics are observed as in the steppe zone, so in the country, then similar changes will be seen. A portion of the industrial sector reduces, and a part of the non-production branch increases [6]. However, industrial production in the steppe regions decreases more rapidly than around the country. From 2005 to 2017, a portion of the industry has reduced from 40.8 to 39.7 % and reached 1.1 %. If these values are considered in the frame of the list of closed industrial enterprises, then 342 large closed enterprises of 797 will be in the steppe regions of Russia [7]. A portion of the agricultural sector has reduced, but it has happened less considerably at 0.6% in the steppe zone. At the same time, in the country, the sector has declined by 0.9%.

While production descends, there is considerable growth in the non-production sector; this branch has transformed actively. An increase of service sector in the steppe zone from 2005 to 2017 has been 4.3% that about two times higher than the sector's growth around the country – 2 %. Regions of the steppe zone have been overtaking areas in this sector compared to the country for this period. Thus, in 2005, the lag was 5.6%, and it reduced to 3.6% by 2017.

Considering the structural-sectoral shift, similar tendencies are noticed on the regional level (figure 2). If in 2015, the non-production sector was the dominating branch for ten regions of 17 in the steppe
zone of Russia, then in 2017, their number has increased to 13. Simultaneously, the unit weight increase has been noticed in 10 regions for this period. The most growth has been in Omskaya oblast – 12.7 %, Novosibirskaya oblast – 9.9 %, and the Republic of Bashkortostan – 9.8 %. The most decrease of the unit weight has been seen in Tyumenskaya oblast - 27.2 %, but it was conditioned by the reduction in the non-production sphere and the growth of bulk in other sectors.

The amount of regions where industrial production dominated has reduced from 7 to 4. Simultaneously, a decrease in the unit weight has happened in 11 areas. The most descendant industrial output is noticed in Omskaya oblast – 11.7% and in the Kalmyk Republic – 10.1%. The maximum increase of the industry's unit weight was seen in Tyumenskaya oblast. It has been 28.1%. Such a considerable structural-sectoral shift in industrial production in this region was conditioned by the growth of the oil and gas sector and rubber and plastic products.

The agricultural sector does not dominate in any region of the steppe zone. However, its portion considerably exceeds the average amount of the other areas of the country. Reduction of the unit weight in agriculture has been registered in 12 of 17 regions in the steppe zone for 2005-2017. The most considerable reduction was seen in Krasnodarskiy Kray (-5.4 %), Novosibirskaya (-4.6%), and Kurganskaya (-3.8 %) oblasts. The most excessive increase was observed in such significant industrial-agricultural regions of the country as Belgorodskaya (6.5 %) and Voronezhskaya (3.8 %) oblasts.

Analyzing regions of the steppe zone depending on their specialization, most of them are poly-specialized with a high degree of diversification of the economy. Only two areas have brightly expressed specialization and can be considered single-specialized. In particular, in Orenburgskaya oblast, about 40% of GRP is rated at a portion of mineral production. It forms severe socio-economic and ecological challenges in the aspect of the following stable regional development. The next region

![Figure 2. The unit weight's dynamics of the principal types of activity in the steppe zone regions for 2005 and 2017.](image-url)
having a low degree of diversification is the Kalmyk Republic. About 30% of GRP goes to agriculture; it more than six times exceeds the country’s same indicator and practically in 3 times of the steppe zone.

The most significant result of the structural-sectoral shift is the intensification of specialization. This process is continuous. It shows changes in values as dominating as other sectors of the economy [8]. In the steppe regions, most of the structural-sectoral shifts go to dominating branches of the non-production sector. However, in the many areas, these changes touch on no dominating units (figure 3).

![Figure 3](image)

**Figure 3.** Transformation of the sectoral structure of the regional economy, according to dominating types of activity for 2005 and 2017.

In eight regions of the steppe zone during 2005-2017, the maximal increase was in the non-production sector: trade, transport, state management, and real property business. In five regions, the industry with the dominance of manufacturing activity, extraction of mineral resources, energetics, and construction activity showed a slight increase in the economy sector. Agriculture made a considerable contribution to the economic development in the steppe zone. Three regions contributed to plant growth, and one area showed an increase in livestock breeding.

4. Conclusion

The structural-sectoral transformation of the economy has happened for the last decades in the steppe zone regions. It has touched on the broad diapason of economic sectors, from agriculture to alternative energetics, metallurgy, trade, transport, etc. The steppe zone areas have passed through the stage of overtaking development, a portion of the non-production sector has increased; at present, it is 52.1%. However, it is lower in the country’s average value – 55.7% and less than the global average value – 63%. Simultaneously, a part of the industry -36.8% and agriculture -11.1% has even reduced, but still stayed high and exceeded comparable global values (industry -30%, agriculture -6.4%). Such structural imbalances are current challenges and require considerable effort to be optimized [9, 10].

Based on the analysis of the modern structural-sectoral shifts in the steppe zone, we can consider a line of regional peculiarities:

- A considerable increase of non-production sector (trade, transport) at the expense of reducing traditional kinds of activity (manufacturing production, mineral resources extraction,
agriculture): Omskaya, Novosibirskaya oblasts, Krasnodarskiy Kray, the Republic of Bashkortostan and Kalmykia.

- A considerable increase of agro-industrial complex under the conservation of the other significant industry and service branches: Belgorodskaya and Voronezhskaya oblasts.
- Cardinal transformation of the economic structure (replacement of dominating sectors – a considerable reduction of service industry under the proportional increase of production) – Tyumenskaya oblast.
- Slight changes of the entire structure under the conservation of a dominating role of traditional economic sectors: Stavropol’skiy Kray, Saratovskaya, Voronezhskaya, and Rostovskaya oblasts.
- A lack of considerable structural-sectoral shifts (practically full conservation of the proportions between principal types of the economy): Samarskaya and Orenburgskaya oblasts.

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