

REGIONAL ECONOMIC DEVELOPMENT AND THE EXTENT OF ITS DEPENDENCE ON PETROLEUM DERIVATIVE PRODUCTION

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Abstract

The regions specialized in the production of oil and its derivatives in the Volga region in Russia will be studied and the growth of industries in these regions will be studied. There are also many factors that affect the growth of industries according to the Groningen theory. It will also seek to study the region and record all the data obtained from its operations whether with regard to exports, revenues and comprehensive economic management.

Keywords: Industrial growth; regional economy; investment growth; petrochemicals; price fluctuations; Groningen theories.

1. Introduction

The economics of oil and petrochemicals are among the most critical topics requiring attention [1]. There is significant growth in oil production, refining, and gas operations across various institutions and facilities and most nations rely heavily on revenues from oil exports; indeed, these financial returns are paramount for governments—with Russia ranking among the global leaders [2]. Consequently, it is essential to support and develop this sector by integrating technology to enhance productivity and improve management efficiency across all related industries [3].

2. Research Methodology

This study will compile all official data in the crude oil sector and provide a scientific analysis based on economic principles and statistical analysis [4]. as the sector is considered one of the main sources of government funding through the production process and contributes to the overall economic development. The classification of a region as an "oil and gas region" is not arbitrary; rather, it is determined through analysis and the calculation of a specific coefficient. A region is designated as an oil and gas region only if this coefficient exceeds one. The OGAC coefficient is determined by calculating the product of values derived from mineral extraction, total value-added, and oil and gas production output; a resulting value greater than one confirms the region's status as an oil and gas region[5][6].

3. Study Results

Table 1. OGAC (oil and activity coefficient) coefficient for a number of regions.

Region	EGVA1, %	OGP2, %	CRRP3, %	OGAC4
Volga Federal District	17.4	22.4	86.9	1.98
Republic of Bashkortostan	4.3	30.3	54.1	1.53
Republic of Tatarstan	29.6	18.9	90.7	3.41
Udmurt Republic	29.6	17.0	90.4	2.75
Perm Krai	26.5	26.8	92.6	2.75
Orenburg Oblast	44.5	11.3	85.7	4.15
Samara Oblast	20.6	21.5	92.9	2.14

From the table above, we observe that EGVA1 relates to exploration, while 2OGP covers the best gas and oil products, and 3CRRP encompasses unprocessed products and derivatives; conversely, 4OGAC lacks significant gas resources. Additionally, we note lower budgets and interest rates in non-gas-producing areas [7] [8].

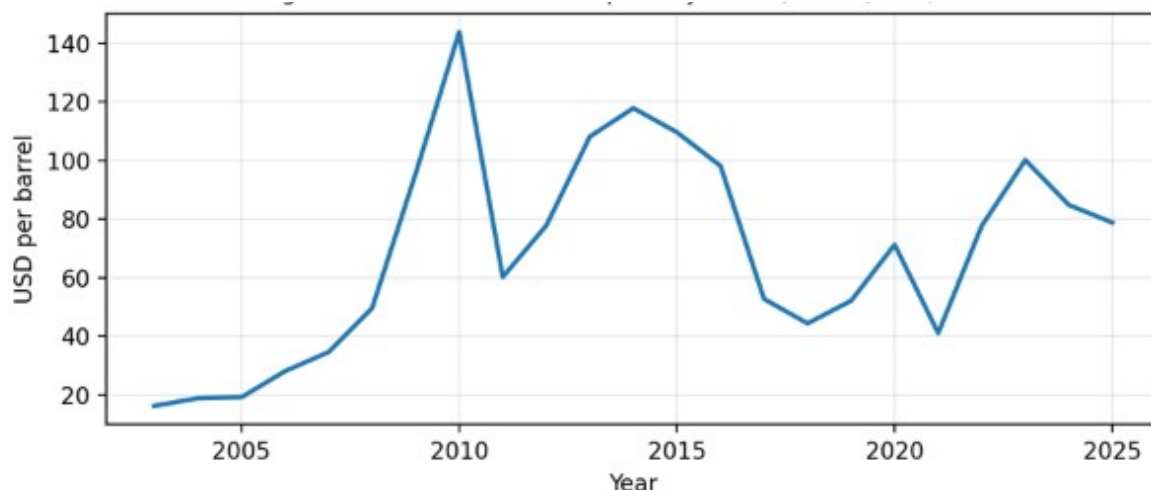


Fig.1.Brent crude, Moscow Exchange (MOEX), and its futures price dynamics. As the figure above illustrates, the "Groningen effect"[9][10].and the predictions associated with the theory—suggested that industries would fail, exports would decline, and unemployment would rise due to the sharp increase in petrochemical prices. However, the reality was quite the opposite; this producing region remained unaffected by the situation, contradicting the theory.

Table 2. Volga Region (Russia): Oil and Gas and Foreign Trade Structure (Million USD)

Region	FEC exp.	FEC imp.	CPI exp.	CPI imp.	MET exp.	MET imp.
Bashkortostan	1245	24.6	921	222	912	426
Tatarstan	8690	59.1	2438	946	684	4012
Udmurt Rep.	57.6	0.2	26.6	38.6	130.7	399.5
Perm Krai	2635	4.0	4526	224.8	270	418
Orenburg Obl.	1296	11.0	74.6	25.9	46.5	99.6
Samara Obl.	1883	3.5	2023	431.8	669	1690
Average, oil&gas regions	2634	17.1	1668	315	438	1174

The table above reveals that per capita figures are lower in oil- and gas-producing regions. We also observe that exports of fuel and energy exceed imports, whereas

the opposite holds true for the equipment and machinery industry—where imports surpass exports—thereby exacerbating the challenges associated with technological change in the processes involved.

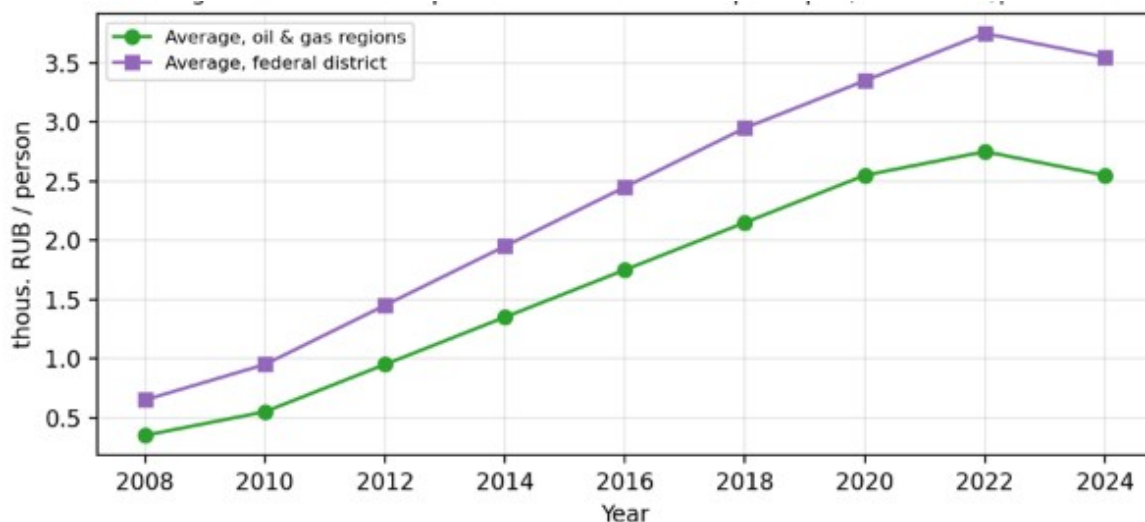


Figure 2 shows per capita expenditure on research and development in rubles.

The chart above shows a decline in per-capita support for research and development, as well as a reduction in support for equipment in oil and gas regions.

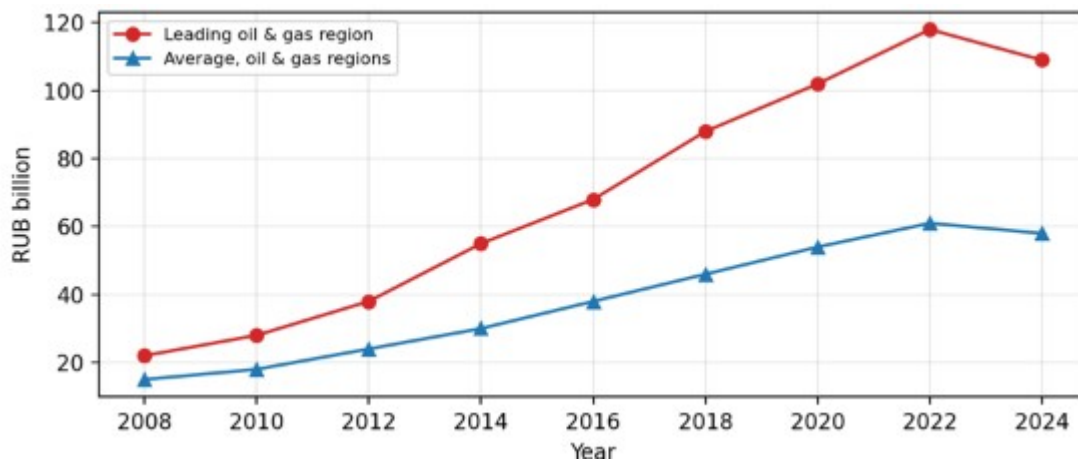


Figure 3. Corporate profit tax revenues / billion rubles

We observed that the income tax accelerated the development of enterprises [11].

However, state revenue from exports and the oil and gas sector remains low, and significant disparities exist within industrial enterprises.

Consequently, the researcher proposed an enhancement to the model of growth and innovation factors in this region.

4. Conclusion

Through meticulous study, data collection and analysis, and the derivation of specific values, we confirm that the development of oil and gas regions is driven by the OGAC factor. Our study concludes that the Groningen model—and the accuracy of its underlying theory—is not applicable to these regions. Furthermore, we propose a framework for organizational asset growth and for narrowing the gap between cash inflows and outflows. We also suggest a development model for oil and gas regions that accounts for factors such as price volatility and other variables that may impact this process.

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