

National economic systems of BRICS countries: prospects of the forest complex

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Abstract. The changing architecture of global geopolitical and economic cooperation is generating growing interest in new strategic alliances among the fastest growing economies in the world, particularly among the BRICS countries, whose significance in the global economic space is of great importance. The increasing level of institutionalization of this union of states objectively contributes to the formation of closer and more numerous economic and social ties. This also applies to interactions within the development of sectoral economy. The article examines transformative factors increasing the density of effective interaction within the development of industrial economy using the example of the forestry complex. Integration cooperation within interactions of national economic systems is possible only under the conditions of strategic directions of marketing interaction and logistic constructive protocols forming a sustainable framework for the development of all directions of economic interaction between sectoral blocks.

1 Introduction

The modern development of national economic systems is characterized by an increase in the growth of competitiveness of innovatively developed industries, limited resource potential, and a lack of tested protocols for sustainable competitive segmentation of sectoral economies within each specific national system. Technological singularity determines the growth of efficiency of national interaction not only in the format of political contacts, but to a greater extent integration in the issues of formation and development of efficient sectoral economies.

In this context, the format of integrative interactions between the national economic systems of the BRICS countries is of interest. The community of nations, founded less than 20 years ago as a communication platform for Brazil, Russia, India, and China, with the later addition of South Africa in 2010, and with Egypt, Iran, the UAE, Saudi Arabia, and Ethiopia joining the alliance by 2024, has not been fully institutionalized and still operates mainly through regular high-level meetings. However, given the economic and geopolitical significance of the BRICS member countries, it is not surprising that the alliance is seeking to expand its membership. Even before new members join the BRICS group, they are already influential players in the global economy and politics. The directions of integrative

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interactions between the national economic systems of the BRICS countries are diverse, including resource and commodity exchange, joint development of innovatively competitive systems, and the optimization of logistical itineraries [9, 15, 16, 18].

Although economists show some interest in issues related to climate change [9,11,13,17], rational natural resource management, ecological safety [10, 13, 17, 20], environmental education [9, 10, 13, 18], Although economists show some interest in issues related to climate change, rational natural resource management, ecological safety, and environmental education, there is very little research on the development of a unified protocol for the efficient development of the industry economy, including research on the development of the forest sector as an economic sector with prospects for national transformative interaction. In Russia, national scientists have made significant efforts to study BRICS environmental initiatives considering economic efficiency, leading to the interpenetration of the ecological and economic spheres. [9, 11, 13, 14].

It should be noted that despite efforts to form a unified framework for economic development, there are indeed radical differences between the BRICS countries, which are determined by the structure and composition of the national resource potential, as well as by different organizational and managerial approaches to the organization of industry and national economy. For example, Russia and Brazil have roughly the same population, but very different climatic conditions, geography, and economy. India and China, the neighboring countries, are global leaders in terms of population, but their economic systems are organized differently. The BRICS countries account for 40% of the world's forests, highlighting their global significance and role. The BRICS countries have much in common, most notably the fact that issues regarding the forestry sector are of utmost importance to the members of the association.

2 Methodology

Shortcomings of forest statistics collected by the Food and Agriculture Organization of the United Nations (FAO) have been widely discussed in the scientific literature, but thanks to time series research, distortions and lack of observations for certain periods are now smoothed out, allowing us to successfully analyze not only forest area but also forest resources [1, 4, 9,11, 13, 17].

In general, BRICS countries are characterized by high rates of economic development. However, the proportions and structure of this growth remain extremely uneven. [10,12,18]. Brazil, Russia, India, and China are major producers in the global market for forest products, while South Africa acts as a mid-level producer (Figure 1). In 2021, they harvested approximately 1.2 billion cubic meters of timber, or 30.2% of the global total volume. Thus, the influence of BRICS countries on the global forest industry is more significant than on the much more discussed oil and gas sector: their share in it did not exceed 20% before new members joined[6, 18].

Academician N.N. Moiseyev, in an attempt to understand the meaning of sustainable development, calls for giving it content, freeing it from political layers, which corresponds to scientific ideas about the relationship between nature and society at the present stage of development [11].

Global consumption of forest resources is generally stable over time, with industry development priorities serving as an additional impetus for the growth of the forestry and related sectors of each BRICS country's economy. This is primarily due to the high degree of market maturity, which has evolved over centuries to its current state. The geographic distribution of forest resources remains relatively unchanged, as natural and climatic conditions for forest growth on the planet change very slowly.

Even the infamous forest degradation in Brazil is largely compensated by the rapid growth of trees. In countries located in boreal or temperate zones, even under the most predatory logging regimes, dependence on the size of the resource base is not very high. Therefore, it is not surprising that timber harvesting in BRICS countries has remained practically unchanged for many years. In some cases, the stability of data on the state of forest resources is also due to the heterogeneity of forest resource assessment systems in individual countries.

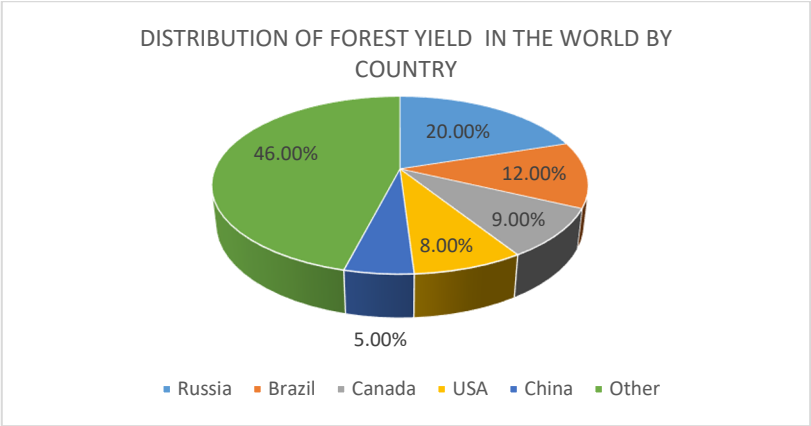


Fig. 1. Distribution of forest yield in the world by country (2023)

In terms of wood procurement volume, the BRICS countries are characterized by three distinct clusters: Brazil and Russia (266.3 million and 217 million cubic meters respectively), India and China (349.6 million and 337.5 million cubic meters respectively), and South Africa with a significant gap (28.8 million cubic meters) (Figure 2) [9, 10, 12, 17, 18].

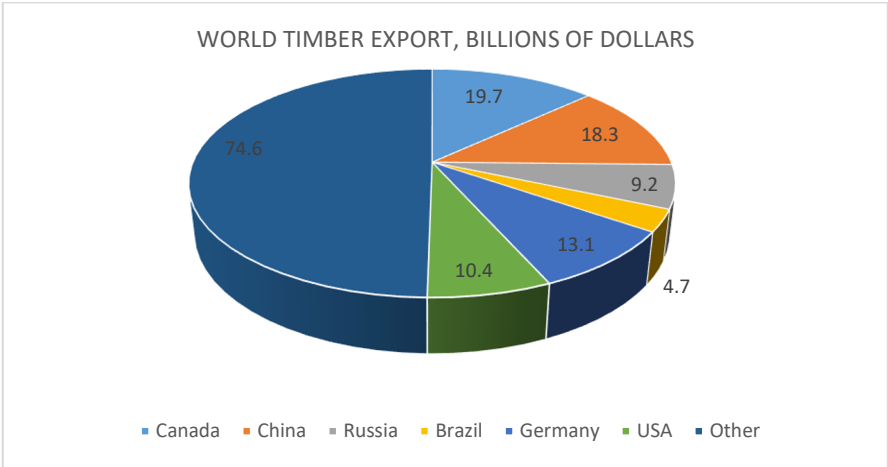


Fig. 2. World timber export, billion dollars (2023)

Although the volumes of harvested forest products in BRICS countries have remained almost unchanged over the past two decades, the processing of most types of forest products has increased several times (Figure 3, 4). The most noticeable growth in the wood processing industry has occurred in India, where the production of panels has increased by over 36 times in the last twenty years, and the production of paper and cardboard has more than doubled (Figure 3, 4). The forest sector of

China has demonstrated significant achievements: paper and cardboard production has increased by 3.5 times, while wood panel products have increased by 9.5 times (Figure 3). The efficient development of China's industry can be explained by the fact that the main factor of production - labor - in this country is relatively inexpensive, which affects the competitiveness of all types of industries and complexes. [4,10,12,17, 18, 20].

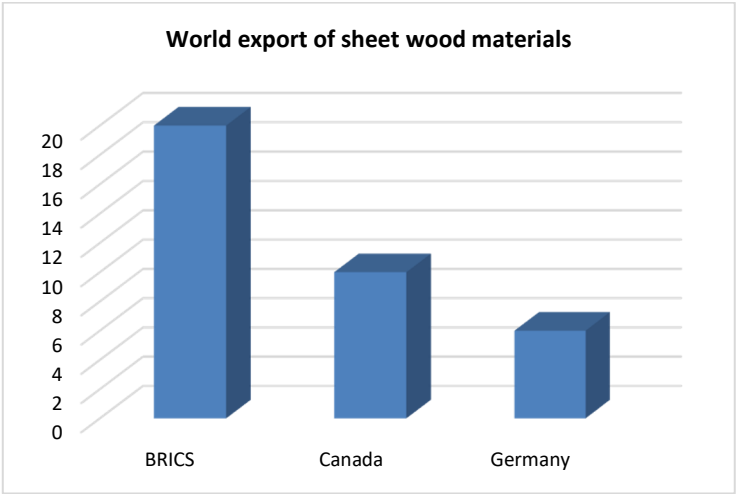


Fig. 3. World export of sheet wood materials (2023)

Large domestic markets of the BRICS countries are necessary not only as factors stimulating demand for the products of their growing industries. They also play a key role in trade between BRICS countries, which, thanks to wide export diversification, will contribute to both quantitative and qualitative economic growth. [9, 10, 12, 15, 18, 19].

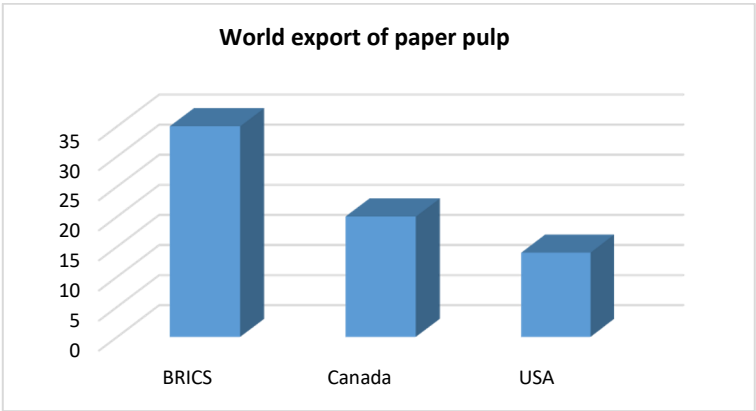


Fig. 4. World export of paper pulp (2023)

An analysis of production dynamics in the forest-based economies of BRICS countries has shown that significant progress in certain sectors has been achieved not through an increase in the consumption of primary raw materials or an increase in labor productivity, but rather through the activation of external trade.

With the exception of South Africa, all other BRICS countries have significantly increased their forest product exports over the last twenty years (Figure 5). Moreover, the growth of exports to China has been truly explosive: in 2021 it reached 43 billion US dollars,

which is 1119.7% higher than in 2000 [9, 11, 17, 19]. This trend is strongly correlated with the growth of timber production in China, which increased 13 times. This means that part of the additional forest production was consumed domestically, but the growth of its exports was also impressive. In India, exports grew even more strongly, which can be explained by slower growth in domestic consumption of forest products. Russian and Brazilian exports grew at much slower rates, which can be attributed to the complex development of the national economies of these countries.

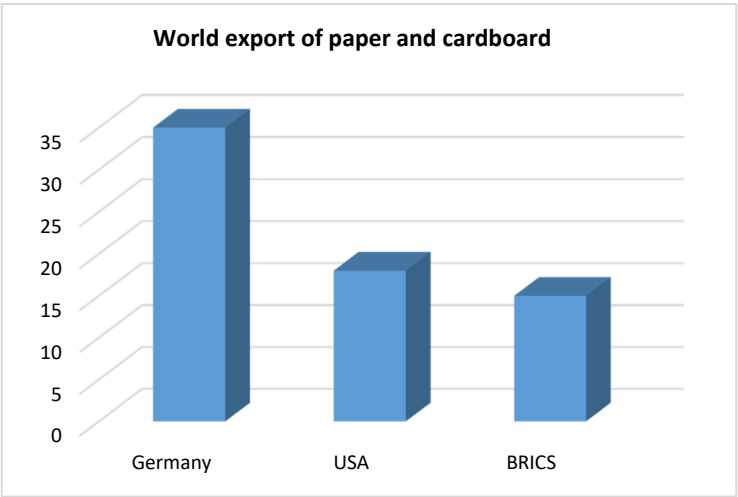


Fig. 5. World export of paper and cardboard (2023)

A key factor limiting external trade in forest products is logistical interaction, which determines the final cost and competitiveness of the entire forest complex production.

3 Results

It is evident that the increasing degree of institutionalization of BRICS objectively contributes to the formation of closer and more numerous economic and social connections. This applies to interactions within the development of the industrial economy, including the forest industry. Integration cooperation within interactions of national economic systems is possible only under conditions of strategic directions of marketing interaction, logistic constructive protocols, forming a sustainable framework for the development of all directions of economic integration of industry blocks. BRICS countries are leading industry economies in the global forest industry, accounting for just under a third of the world's timber harvesting volume.

The forest complex as an industry segment of economic interaction can become an important area of cooperation among BRICS countries as multilateral relations develop and contribute to further fragmentation of centers of political and economic power. However, in order to ensure the necessary conditions for competitive development of the forest complex, both within national economies and in the format of integrational inter-national economic cooperation, well-founded strategic marketing interaction protocols and developed logistical routes are necessary. In issues of full-scale interaction of national economic systems, a key role is played by the preventive substantiation of changes in factor dependencies of the development of industry economies, including the cost of resources, including labor, political situation inside and outside national boundaries, geopolitical alliances and the directions of their integrational portfolios.

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