FDI and Innovations in BRICS Countries

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Abstract

The developing countries were the main states providing FDI inflow in world economy in 2012. The share of BRICS countries in the total inflow of the current world FDI increased to 11% in 2011. Over the next 50 years the BRICS economies (Brazil, Russia, India, China and the Republic of South Africa) could become the driving force in the world economy. The development of BRICS countries will be promoted by an active introduction of innovation. The import of FDI in BRICS countries was 2.2 trillion dollars in 2011 (it was increased 5.3 times during the past eleven years). At the same time the import of FDI in Russia was increased by 14.2 times, in India – by 12.3 times. The application of FDI in BRICS countries is an important factor of the forming of further strong, steady and balanced rise of the national economies based on innovations, and their integration into the world economy. The development of scientific and technical potential is promoted by the increasing of the investment’s role as the catalyst of scientific researches. The essence of foreign investments, their value in the world economy, the main concepts of foreign investment and investment risks are defined in the article. As to the R&D’s expenses, Russia is considerably lags behind China, India and Brazil. The indicator of innovative development shows that Russia takes the last place among the BRICS countries. The main problems of the development of Russian economy are: poor financing of scientific research works, reducing number of Russian scientific researchers, low level of cooperation between universities and industrial companies. The special attention is paid to the structuring of the main advantages and shortcomings of foreign investments for the countries which exported and imported capital. The author analyzes the distribution of the
foreign investments among different groups of the countries, including BRICS countries.

**Keywords**: BRICS; FDI; innovations; R&D; financing; scientific and technical potential.

1. Introduction
The acronym BRIC (BRAZIL, RUSSIA, INDIA and CHINA) was proposed by Jim O’Neill, global economist at Goldman Sachs. On December 2010 South Africa officially became a member of BRICS. China and India, respectively, will become the dominant global suppliers of goods and services while Brazil and Russia will become similarly dominant as suppliers of raw materials. Over the next 50 years the BRICS economies could become a driving force in the world economy.

2. BRICS in World Economy
BRICS countries hold a combined GDP of more than 21,2 trillion USD, the share of GDP of the BRICS countries is 26,4% of global GDP (Table 1).

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Brazil</th>
<th>Russia</th>
<th>India</th>
<th>China</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (Bln.USD)</td>
<td>2324,0</td>
<td>2414,0</td>
<td>4515,0</td>
<td>11440,0</td>
<td>562,2</td>
</tr>
<tr>
<td>GDP per capita (USD)</td>
<td>11900</td>
<td>17000</td>
<td>3700</td>
<td>8500</td>
<td>11000</td>
</tr>
<tr>
<td>The share of GDP in global economy (%)</td>
<td>2,9</td>
<td>3,0</td>
<td>5,6</td>
<td>14,2</td>
<td>0,7</td>
</tr>
</tbody>
</table>

In 2011 the biggest GDP had China (11440 Bln.USD), then came India (4515 Bln.USD), Russia (12414 Bln.USD), Brazil (2324 Bln.USD) and South Africa (562,2Bln.USD).

In the GDP per capita Russia was the first (17000 USD), it was twice more than in China (8500 USD). The economic potential of BRICS countries is such that they could become the most dominant economies by the year 2050. The development of BRICS countries will be promoted by an active introduction of innovation in their economies.

3. FDI in BRICS Countries
The share of BRICS countries in the total inflow of the current world FDI increased to 11% in 2011. The import of FDI in BRICS countries was 2.2 trillion dollars in 2011 (it...
was increased 5.3 times during the past eleven years). At the same time the import of FDI in Russia was increased by 14.2 times, in India – by 12.3 times (Table 2).

Table2: Import of FDI of BRICS countries in 2000-2011 (Towards A New Generation of Investment Policies).

<table>
<thead>
<tr>
<th>Countries</th>
<th>2000</th>
<th>2011</th>
<th>Growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>122250</td>
<td>669670</td>
<td>5.5</td>
</tr>
<tr>
<td>Russia</td>
<td>32204</td>
<td>457474</td>
<td>14.2</td>
</tr>
<tr>
<td>India</td>
<td>16339</td>
<td>201724</td>
<td>12.3</td>
</tr>
<tr>
<td>China</td>
<td>193348</td>
<td>711802</td>
<td>3.7</td>
</tr>
<tr>
<td>South Africa</td>
<td>43451</td>
<td>129890</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>BRICS</strong></td>
<td><strong>407592</strong></td>
<td><strong>2170560</strong></td>
<td><strong>5.3</strong></td>
</tr>
</tbody>
</table>

The application of FDI in BRICS countries is an important factor of the forming of further strong, steady and balanced rise of the national economies based on innovations, and their integration into the world economy. The development of scientific and technical potential is promoted by the increasing of the investment's role as the catalyst of scientific researches.

4. R&D in BRICS Countries

Special attention is paid to the expansion of scientific researches and the development connected with nanotechnologies. The number of Russian researchers in the field of nanotechnologies grew by 1.4 times during the period of 2008-2011, the internal costs of carrying out researches of the organizations connected with nanotechnologies, increased by 2.4 times.

In Russia scientific researches and development in 2011 was carried out by 374,8 thousand researchers in 3682 organizations.

Scientific researches and development in 2011 in China was made by 511175 scientists (1.4 times more, than in Russia) from 5941 scientific institutions (1.6 times more, than in Russia). The biggest share of scientific researchers in China was developed in the field of the electronic and communication equipment (53.2%), medicine, pharmacology (18.3%) and the medical equipment (12.5% of researchers).

As to the R&D's expenses, Russia is considerably lags behind China and India (Table 3).
Table 3: Expenses on R&D in BRICS countries in 2011-2013

<table>
<thead>
<tr>
<th>Countries</th>
<th>2011</th>
<th>2012</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>27.9</td>
<td>29.5</td>
<td>38.5</td>
</tr>
<tr>
<td>Russia</td>
<td>35.7</td>
<td>37.0</td>
<td>38.5</td>
</tr>
<tr>
<td>India</td>
<td>38.4</td>
<td>40.3</td>
<td>45.2</td>
</tr>
<tr>
<td>China</td>
<td>177.3</td>
<td>197.3</td>
<td>220.2</td>
</tr>
<tr>
<td>South Africa</td>
<td>5.3</td>
<td>5.5</td>
<td>5.6</td>
</tr>
<tr>
<td>BRICS</td>
<td>284.6</td>
<td>309.6</td>
<td>348.0</td>
</tr>
</tbody>
</table>

The share of BRICS countries in the world expenses on research and development is: China – 13.7%, India – 2.8%, Russia – 2.56%, Brazil – 2.04%, South Africa – 0.38%.

5. Results of Scientific Researches
The results of scientific researches are reflected in the increasing number of the patents for the inventions. One of the main R&D (Research and Development) indexes is the quantity of Patent inventions in BRIC in 2011: China – 93706 items, Russia – 28808 items, India – 7539 items, Brazil – 2451 items.

In 2011 in Russia 41414 demands for issue of patents were submitted, 29999 of them were granted.

In China in 2011 101267 demands for issue of patents were submitted (2.4 times more, than in Russia), 82240 patents were granted (2.7 times more, than in Russia).

The biggest number of patents in China was received for inventions in the electronics and communication equipment (62.3%). On the second place there were patents for the inventions connected with electronic computers and office equipment (13.6%), on the third – patents for inventions in medicine and pharmacology (12.8%), on the fourth – patents for inventions of the medical equipment and tools (9.5%).

The quality and the importance of the scientific researches, led by the scientists of the countries are confirmed by the number of links to their works in the international editions.

In 2010 320354 links in the international editions were made to Chinese scientific works (13.9% to the works in the field of chemistry, 9.2% - to the works connected with computer technologies, 9.1% - to the works in the field of electronics, communication and automation (China Statistical Year Book 2012).

6. Quality of Education in BRICS Countries
The great impact on the condition of innovative processes in BRICS countries has the quality of education, the increase number of students per one thousand population of
the country, the growth of the number of universities among the leading universities of the world.

In 2011 in 1080 Russian institutions of higher education (1.1 times more than in 2000) were studied 6490 thousand students (1.4 times more, than in 2000).

Among 500 best universities of the world there are 38 universities of BRIC countries, including 19 – of China, 7 – of India, 5 - of Russia, 5 - of Brazil, 2- of South Africa.

The best Russian Universities in 2012 are: Moscow State University named after M.V.Lomonosov, St. Petersburg University, Moscow State Institute of International Relations, Novosibirsk State University, Moscow State Technical University named after Bauman (2012/13 QS World University Rankings Report).

In China in 2011 there were 2409 Universities (2.3 times more than in 2010).

One of the main innovation index is the number of students on 1000 people of BRIC countries in 2011: Russia – 61 students – the biggest number, China – 23 students (2.7 times less than in Russia), India – 17 students (3.6 times less than in Russia), Brazil – 10 students (6.1 times less than in Russia).

The best Chinese Universities in 2012 were: Peking University, Tsinghua University, Fudan University, Shanghai Jiao Tong University, Nanjing University, University of Science and Technology of China, Zhejiang University, Beijing Normal University, Xian Jiaotong University, Tongji University, Renmin (Poeople's) University of Chaina, Nankai University, Wuhan University, Sun Yat-sen University, Spanqhai University, Harbin Institute of Technology, Beijing Institute of Technology, Huazhong University of Science and Technology, Xiamen University (2012/13 QS World University Rankings Report).

In 2012 there were 221 Indian universities (including 16 national), about 11 thousand colleges (6.5 million students).

The best Indian Universities in 2012 were: Indian Institute of Technology Delhi, Indian Institute of Technology Bombay, Indian Institute of Technology Madras, Indian Institute of Technology Kanpur, Indian Institute of Technology Kharaaqpur, University of Delhi, Indian Institute of Technology Roorkee (2012/13 QS World University Rankings Report).

The following five universities were the best in Brazil in 2012: San Paulo's University (Universidade de Sao Paulo), Campinas State University (UNICAMP - UniversidadeEstadual de Campinas), Federal University of Rio de Janeiro (Universidade Federal do Rio de Janeiro), Federal University of Minas Gerais (Universidade Federal de Minas Gerais), San Paulo Federal University (Universidade Federal de Sao Paulo) (2012/13 QS World University Rankings Report).

In 2011 there were 24 higher educational institutions in South Africa (11 universities, 6 technical institutes, 7 institutions of higher professional education).

In 2012 the best Universities in South Africa in 2012 were: University of Cape Town, University of Witwatersrand (2012/13 QS World University Rankings Report).
7. Conclusions
The development of innovative process is connected with improvement of quality of scientific researches in the leading branches of knowledge, broad introduction of innovations in the production, with the improvement of the quality of student’s training.

The main directions of the development of innovative processes in BRICS countries are:
- The further development of science and technology.
- The expansion of scientific researches and development.
- The introduction of innovations in the production.
- The improvement of the quality of education in the Universities.
- The development of the patent business.
- The improvement of the quality of the published results – the increase of the number of links to them in the international editions.

References