The limits to Russia’s economy growth: lack of labor force, labor productivity and trade balance

South Africa

August, 2011

© Institute of Economic Forecasting
Goals of Economic Development

1. **Social aspect.** To provide sustainable extension of household consumption – household consumption per capita in Russia four times less than in USA and more than two times less compared to other developed countries.

2. **Global competitiveness.** To provide Infrastructure and Fixed capital modernization – to produce 1 dollar of GDP Russia consumes three times more energy than Japan and Germany, two times more energy than USA and Norway and 30% more than China.

---

**Russian Household Consumption Expenditure per capita compared to other countries (at current prices - PPP US Dollars)**

- USA: 26%
- Australia: 36%
- Austria: 39%
- Germany: 41%
- France: 43%
- Japan: 44%
- Spain: 48%
- Poland: 75%

Source: UN, IMF

**Energy Intensity - Total Primary Energy Consumption per Dollar of GDP, Btu per Year 2005 U.S. Dollars (PPP)**

- USA
- Japan
- Germany
- Norway
- Brazil
- China
- Russia

Source: EIA
Key assumptions for long-term macroeconomic scenario determined by goals of economic development

1. Growth rate of the Russian Economy should outpace the World GDP growth – only in this case Russian economy will be attractive for investors (foreign and also domestic) which provides the desirable investment flow into development of modern technologies. It means that Russian GDP should grow by 5% in a year.

2. Share of household consumption in GDP at least shouldn’t decline – this will diminish the income gap between Russia and developed world.

3. To meet the requirement of 5% annual GDP growth and active replacement of inefficient fixed assets the investment rate should grow from current 20% to 35%.

Source: Russian Federal Service of state statistics, IEF estimations
Three problems

Problems

1. Demographics
   - according to existing demographic trends during 2011-2020 Russia will lose 1 million of working age population per year and 0.3 million per year during 2021-2030.

2. Exports structure
   - energy and other primary commodities account for more than 80% of Russian exports. It means that due to growing efficiency of the world economy (declining energy intensity and increasing output per unit of input of primary resources) volume of Russian exports can’t grow faster than the world economy. The upper limit for the Russian exports growth from the demand side is 4% in a year.

3. Instability of world crude oil and commodity prices
   - world economic crisis in 2008-2009 highlighted high enough level of dependency of the Russian economy from oil price movements. Since that a lot of announcements were made where Russian officials called on to decrease the dependency from exports of energy commodities. For our calculations it means that economic growth in Russia can’t be based on growing world commodity prices. In other words crude oil price supposed to stay unchanged compared to 2011.
Two alternatives

Variant A
- given that growth of labor productivity is equal to GDP growth, balance at labor market is possible due to negative trade balance

Variant B
- given that growth of labor productivity is equal to GDP growth, positive trade balance is possible due to lack of labor force

Source: IEF estimations
Growth rates adjustment

- In case the enrolment rate will stay unchanged at a level of 85% during 2011-2030, Russian employment will likely decrease from 70 million in 2011 to 66 million in 2030.
- It means that labor productivity growth will outpace GDP growth nearly by 0.4 percentage points.
- To provide 5% of annual GDP growth, labor productivity should increase by 5.4% in year.
Labor productivity compared to USA, USA = 100

<table>
<thead>
<tr>
<th>Country</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Australia</td>
<td>81</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Japan</td>
<td>76</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>93</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>France</td>
<td>98</td>
<td>100</td>
<td>99</td>
</tr>
<tr>
<td>Italy</td>
<td>75</td>
<td>75</td>
<td>74</td>
</tr>
<tr>
<td>Netherlands</td>
<td>101</td>
<td>101</td>
<td>101</td>
</tr>
<tr>
<td>Belgium</td>
<td>112</td>
<td>112</td>
<td>111</td>
</tr>
<tr>
<td>Spain</td>
<td>75</td>
<td>75</td>
<td>76</td>
</tr>
<tr>
<td>Finland</td>
<td>77</td>
<td>79</td>
<td>80</td>
</tr>
<tr>
<td>Sweden</td>
<td>84</td>
<td>86</td>
<td>85</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>77</td>
<td>78</td>
<td>79</td>
</tr>
<tr>
<td>Denmark</td>
<td>81</td>
<td>81</td>
<td>79</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>43</td>
<td>45</td>
<td>46</td>
</tr>
<tr>
<td>Slovakia</td>
<td>48</td>
<td>51</td>
<td>54</td>
</tr>
<tr>
<td>Poland</td>
<td>43</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>56</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>39</td>
<td>40</td>
<td>41</td>
</tr>
<tr>
<td>Ireland</td>
<td>87</td>
<td>87</td>
<td>89</td>
</tr>
<tr>
<td>Portugal</td>
<td>44</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>23</td>
<td>25</td>
<td>26</td>
</tr>
</tbody>
</table>

Source: EU KLEMS; Russian Federal Service of state statistics
Growth rates and gaps: cross country comparison

Labor Productivity: growth rates and gaps 1950-1973

Level of Labor Productivity in 1950 compared to USA, USA = 100

Annual growth rate of Labor productivity in 1950-1973, %

Source: Bart Van Ark, 1996

Labor Productivity: growth rates and gaps 1973-1987

Level of Labor Productivity in 1973 compared to USA, USA = 100

Annual growth rate of Labor productivity in 1973-1987, %

Source: Bart Van Ark, 1996

Labor Productivity: growth rates and gaps 1987-1994

Level of Labor Productivity in 1987 compared to USA, USA = 100

Annual growth rate of Labor productivity in 1987-1994, %

Source: Bart Van Ark, 1996

Labor Productivity: growth rates and gaps 1995-2006

Level of Labor Productivity in 1995 compared to USA, USA = 100

Annual growth rate of Labor productivity in 1995-2006, %

Source: EU KLEMS
Relative growth rates and gaps: selected countries

Germany 1972-2006

Japan 1975-2005

France 1972-2006

Italy 1972-2006

axis Y – level of labor productivity, USA = 100
axis X – ratio of labor productivity growth rates (country x / USA)

Source: EU KLEMS
Relative growth rates and gaps: selected countries

- **Netherlands 1972-2006**
- **Finland 1972-2006**
- **Korea 1972-2006**
- **Portugal 1972-2005**

**Axis Y** – level of labor productivity, USA = 100

**Axis X** – ratio of labor productivity growth rates (country x / USA)

*Source: EU KLEMS*
Hypothesis: Curve of catching-up growth

Time period of labor productivity growth from 25 to 33 $US per hour

<table>
<thead>
<tr>
<th>Countries</th>
<th>25 $US per hour worked, at constant 2005 PPP dollars</th>
<th>33 $US per hour worked, at constant 2005 PPP dollars</th>
<th>Number of years</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>1970</td>
<td>1990</td>
<td>20</td>
</tr>
<tr>
<td>Australia</td>
<td>1983</td>
<td>1999</td>
<td>16</td>
</tr>
<tr>
<td>Japan</td>
<td>1991</td>
<td>2005</td>
<td>14</td>
</tr>
<tr>
<td>Germany</td>
<td>1982</td>
<td>1993</td>
<td>11</td>
</tr>
<tr>
<td>France</td>
<td>1980</td>
<td>1989</td>
<td>9</td>
</tr>
<tr>
<td>Italy</td>
<td>1984</td>
<td>2000</td>
<td>16</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1974</td>
<td>1984</td>
<td>10</td>
</tr>
<tr>
<td>Spain</td>
<td>1984</td>
<td>2004</td>
<td>20</td>
</tr>
<tr>
<td>Finland</td>
<td>1992</td>
<td>2004</td>
<td>12</td>
</tr>
<tr>
<td>Sweden</td>
<td>1987</td>
<td>2002</td>
<td>15</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>1991</td>
<td>2003</td>
<td>12</td>
</tr>
<tr>
<td>Denmark</td>
<td>1983</td>
<td>1995</td>
<td>12</td>
</tr>
<tr>
<td>Ireland</td>
<td>1990</td>
<td>2000</td>
<td>10</td>
</tr>
</tbody>
</table>

As a confirmation of hypothesis the following observation can be used:

- for lagging countries except Spain it took 1.5 times less to increase labor productivity from 25 to 33 $US per hour.
Assumption: labor productivity growth in USA is expected to stay at 1.57% per year during 2011-2030, which is equal to average annual growth during 1971-2007

Projection: average annual growth rate of labor productivity in Russia during 2011-2030 is expected to stay at 6.1%
1. Russian economy has a chance to avoid the choice between negative trade balance and lack of labor force

2. Development of long-term forecasts for the Russian economy should include the reasoning for possible and necessary labor productivity growth rates

3. Main advice for economic policy makers may consist in development of such industries where the implementation of modern technologies gives the highest growth of labor productivity.

4. The investigation of experience of countries which passed through catching up growth stage is needed
6% of labor productivity growth in Russia will not provide positive trade balance