THE DEVELOPMENT OF COMMUTER AND LONG-DISTANCE PASSENGER TRAFFIC IN RUSSIA

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PLAN

1. The characterization of the state of the railway passenger traffic.
2. Trends of the development of passenger transportation in the system of Russian Railways.
3. The reformation of the railway passenger sector.
4. The competitiveness of rail transport in passenger traffic.
5. The justification of the commuter trains efficiency.
6. Conclusions.
RANKING BY THE LENGTH OF RAILWAYS

Source: CIA world factbook, Rosstat

2% of GDP

GDP of Russia, trillion RUR
INDEX OF THE ECONOMIC MOBILITY OF THE POPULATION

$K_{mobility} = \frac{\sum a}{N}$

Number of railway journeys per inhabitant

- > 10 journeys
- > 5 journeys
- > 3 journeys
- > 1 journey
- < 1 journey
- n/a

Source: International Union of Railways

2008
THE NUMBER OF PASSENGERS TRANSPORTED BY RAILWAY \((\sum A)\), ML PASS.

- Japan: 8683.9
- India: 1352.8
- China: 1785.4
- Germany: 5378
- Russia: 1260

Source: World Bank Railway Database
THE PASSENGER TURNOVER OF RAILWAY ($\sum AL$), BL PASS-KM

Germany
France
Russia
Japan
China
India

Source: World Bank, Rosstat
TRANSPORTATION OF PASSENGERS BY MODE OF TRANSPORT IN RUSSIA, (ΣA) ML PASS.

Source: Rosstat
PASSENGER TURNOVER IN RUSSIA, $(\sum AL)$, BL PASS-KM

Source: Rosstat
The development of projects in Sochi

MAIN EVENTS AT THE SYSTEM OF RUSSIAN RAILWAYS

General partner - JSC RZD

12 tunnels in the rocks,
37 bridges
The organization of fast and high-speed traffic

Source: JSC RZD
MAIN EVENTS AT THE SYSTEM OF RUSSIAN RAILWAYS

Source: JSC RZD

Existing connections

Plans

- 300-400 km/h
- 160-200 km/h
- 70-90 km/h
MAIN EVENTS AT THE SYSTEM OF RUSSIAN RAILWAYS

Aeroexpress trains between airports and cities in:
- Kazan
- Moscow
- Vladivostok
- Kaliningrad
- St. Petersburg

Urban trains within big cities:
- The reconstruction of small ring of Moscow Railways for the organization of passenger traffic

The development of railways in the connection ‘airport - the city’ and within the city.
MAIN EVENTS AT THE SYSTEM OF RUSSIAN RAILWAYS

Double-decker coaches

Dual-system fast-speed locomotives

Modernized train stations
MAIN EVENTS AT THE SYSTEM OF RUSSIAN RAILWAYS

A) Purchase of train tickets over the Internet

B) Loyalty program “Russian Railways Bonus”

C) Duty-free shops on trains

D) Private cars on board of passenger trains

Client-oriented passenger services
THE COMPETITIVENESS OF RAILWAYS IN PASSENGER TRAFFIC

Source: Rosstat, Annual report of JSC FPC, 2011
ADVANTAGES (+) AND DISADVANTAGES (-)
OF TRANSPORT MODES

High risk of accidents (-)
Flexible schedules (+)
Less comfort (-)
Door to door delivery (+)

Transport safety (+)
All-weather traffic (+)
High carrying capacity (+)
Great comfort (+)
Less mobility (-)

Cost performance (+)
Short delivery time (+)
Additional time for airport activities (-)
THE RESTRICTING OF THE RUSSIAN RAILWAYS

Before

Ministry of Russian Railways

After

Ministry of Transport

The Federal Agency for Railway Transport (Roszheldor)

The Federal Service for Transport Supervision (Rostransnadzor)

JSC “Russian Railways” (JSC RZD)

Source: JSC RZD
LIBERALISATION OF PASSENGER MARKET IN RUSSIA

Phase I
- Aeroexpress
- Central RPC
- Sverdlovskaya RPC
- 'High-Speed Rail Lines'

Phase II
- Federal Passenger Company

Phase III
- 26 RPC
- 1 HSRL
- 1 FPC

Phase IV
- Commuter traffic
- High-speed traffic
- Long-distance traffic

Source: JSC RZD
LONG-DISTANCE PASSENGER TRAFFIC (JSC FPC)

Source: Annual report of JSC FPC

- Regions without railways or transportation is performed by other modes of transport
- Regions served by JSC FPC
THE STRUCTURE OF LONG-DISTANCE PASSENGER MARKET

2011

Passenger turnover of the branches of JSC FPC

- Far Eastern: 6.7%
- Trans-Baikal: 2.8%
- East Siberian: 4.1%
- Yeniseysky: 3.6%
- West-Siberian: 8.9%
- South Ural: 5.6%
- Ural: 8.2%
- Kuybyshesky: 6.5%
- Volga: 5.7%
- North-West: 10.0%
- Kaliningrad: 0.8%
- Moscovsky: 11.0%
- Gorkovsky: 7.8%
- North: 5.0%
- North-Caucasian: 10.4%
- South-East: 2.8%

Source: Annual report of JSC FPC
THE MARKET OF COMMUTER PASSENGER TRAFFIC

The split of passenger turnover among RPC

- **JSC Central RPC**: 49%
- **JSC North-West RPC**: 10%
- **JSC Moscovskaya-Tverskaya RPC**: 5%
- **JSC Sverdlovskaya RPC**: 5%
- **JSC Volgo-Vyatskaya RPC**: 4%
- **Others RPC**: 27%

Source: Dolmatov (2013)
THE STRUCTURE OF COMMUTER PASSENGER MARKET

Regional Passenger Company
- Tickets sales
- Legal transport operator
- Activities related to ticket-control (reductions of fare evasion)

Regional Government
- Set tariffs
- Analysis of volume traffic
- Subsidies of RPC’s losses

JSC RZD
- Locomotive traction
- Rent out of rolling stock
- Service of the infrastructure

Source: JSC RZD
## ECONOMIC FEASIBILITY OF RAIL COMMUTER TRAFFIC

**Case study: St. Petersburg - Vyborg**

### 1. Average index of coaches’ occupancy

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<thead>
<tr>
<th>Number of observation</th>
<th>Date</th>
<th>The start time of the observation</th>
<th>The end time of the observation</th>
<th>The actual occupancy of coaches, pas./coach.</th>
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</thead>
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<tr>
<td>1</td>
<td>21.07.2013</td>
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<td>11:50</td>
<td>16,05</td>
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<td>7:08</td>
<td>8:20</td>
<td>16,05</td>
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<td>01.08.2013</td>
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<td>7:49</td>
<td>10,7</td>
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<td>14:19</td>
<td>21,4</td>
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<td>04.07.2013</td>
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<td>20:55</td>
<td>96,3</td>
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<tr>
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<td>10.07.2013</td>
<td>17:06</td>
<td>18:04</td>
<td>48,15</td>
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</tbody>
</table>

**Average coaches’ occupancy index hcp, pass./coach**

<table>
<thead>
<tr>
<th>Average coaches’ occupancy index hcp, pass./coach</th>
<th>38.34</th>
</tr>
</thead>
</table>

### 2. Critical index of coaches’ occupancy

\[ h = \frac{Z}{(d+s)} = 19.7 \text{ pass/coach} \]
CONCLUSIONS

1. Rapidly growing segment of rail passenger traffic: fast and high-speed trains of “Sapsan”, “Allegro”, and “Swallow” can compete with air transport, as well as stimulates the integration of the regions, and increase the attractiveness of Russia for tourism.

2. Renovation of rolling stock, train stations, upgrading of facilities, and technologies for passengers increase the attractiveness of rail transport.

3. Reformation of the Russian Railways resulted in the creation of high-speed transport market, long-distance transport market, and commuter service market.

4. The problems of insufficient subsidies of Regional Passenger Companies require attention.

5. The optimal choice based on the given critical index of transport mode for commuter passenger transportation can minimize the losses of RPCs.
THANK YOU FOR YOUR KIND ATTENTION!
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