

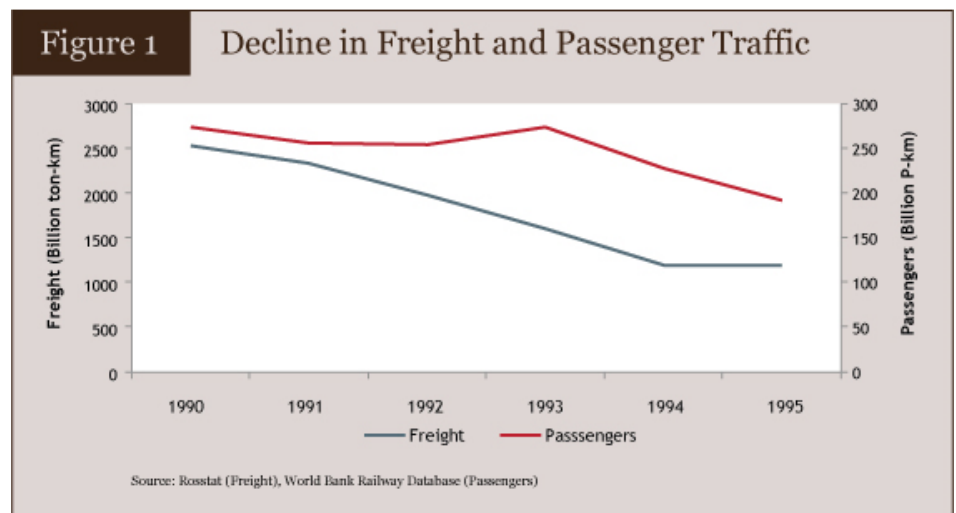
# Case Study

## Russian Railways

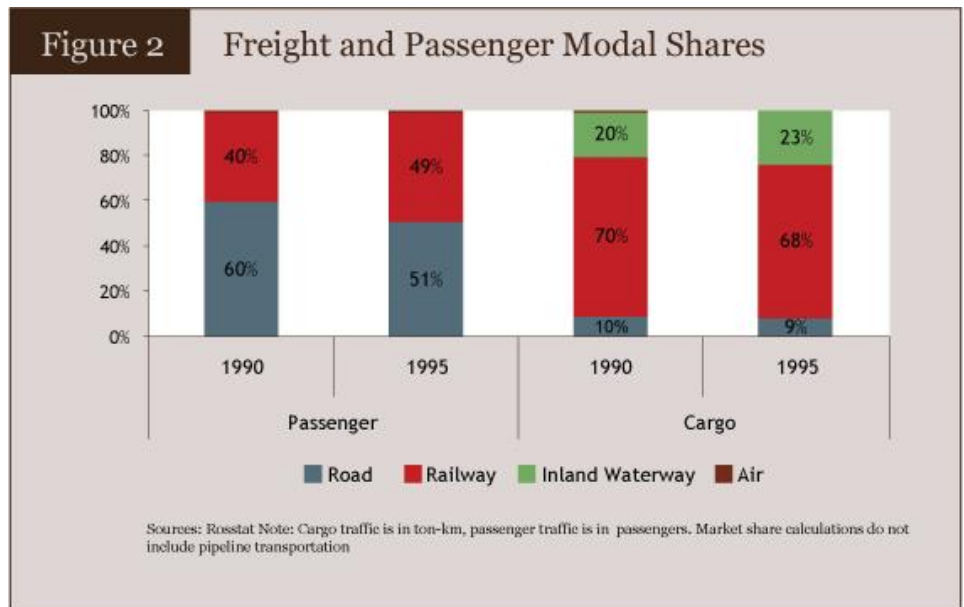
After the dissolution of the Soviet Union, the Russian railway industry entered challenging times. Freight volumes declined, the share of loss-making passenger traffic increased, financial losses mounted, assets deteriorated, and operational productivity declined precipitously. The Government embarked on an ambitious railway reform program to tackle these challenges. This case study summarizes the reforms and their impact on the Russian railways industry.

### 1 Before the Reform Process

Railway transportation is critical to the Russian economy. At the beginning of the 1990s, railways transported 70 percent of surface freight and 40 percent of public passenger service. However, the dissolution of the Soviet Union caused economic dislocations that had catastrophic consequences for the rail industry. Between 1990 and 1995, freight traffic plunged by 52 percent and passenger traffic by 30 percent (Figure 1).



Prior to that, freight traffic had been profitable enough to cross-subsidize the loss-making passenger traffic. To compensate for the overall losses, the railways raised freight tariffs, which depressed freight traffic even further. Freight modal share declined, while the rail share of loss-making passenger traffic increased from 40 to 49 percent (Figure 2).



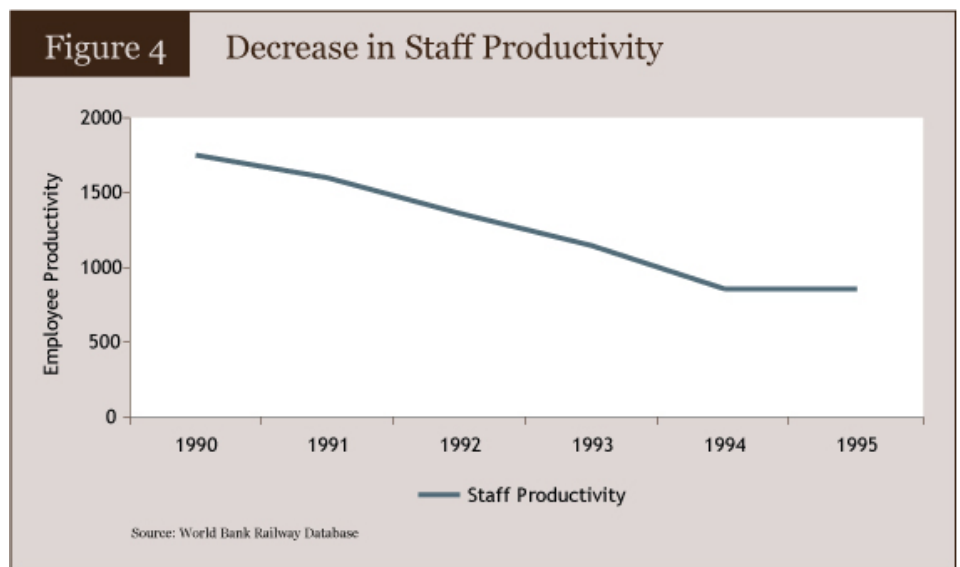
These significant traffic declines without corresponding operational reforms reduced both asset and staff productivity. Track and staff productivity declined by 50 percent; wagon productivity increased by a modest 10 percent (Figures 3 and 4).

**Figure 3** Decrease in Asset Productivity

	1990	1993	1995
Coach Productivity (000, P-km per Coach)		7,536	6,490
Locomotive Productivity (000, TU per Loco)	253,857	206,454	
Wagon Productivity (000, ton-km per Wagon)	2,983	2,452	3,298
Employee Productivity (000, TU per employee)	1,751	1,144	858
Track Productivity (000, TU per standard track km)	32,535	21,562	16,062

Source: World Bank Railway Database, Russian Railways, UIC

Investment in new equipment and maintenance declined, with new equipment deliveries falling by over 30 percent. As assets and infrastructure deteriorated, the number of track kilometers subject to speed restrictions increased by about 30 percent.<sup>316</sup> Clearly, railways could not maintain their pivotal role in the economy without reforms.



## 2 Reform Goals

Edict Number 426 (1997) established the following major goals for railway reforms:

- Stabilize quality and safety;
- Preserve a pan-Russian institution and ensure economic development;
- Ensure system interoperability<sup>317</sup>;
- Reduce system costs; and
- Meet demand for transport services.

Decree Number 448 (1998) refined these goals, adding: end cross-subsidies, improve tariff-setting supervision, and increase transparency of financial flows in the industry.

To achieve these goals, the railway reform strategy would need to leverage financing from the private sector. Government regulation and market mechanisms would need to create a favorable environment for private sector participation and increased competition in the railway sector.

<sup>317</sup> RZD needed to improve interoperability with its neighbors (part of its growth strategy is to expand outside of Russia). It has signed agreements on freight cooperation with some EU countries, e.g. Poland, Germany, and Finland. The strategy also included building of new lines to Iran, Azerbaijan, etc. In addition, RZD signed an agreement with the Chinese on container standardization.

### 3 Reform Process

The railway reform had three phases, illustrated in Figure 5:

**Figure 5** Phases in the Russian Railway Reform Process

Phase	Timeframe	Steps
Preliminary	Pre-2001	Establish legal framework for reforms Transfer social services to appropriate ministries Encourage private sector participation in supply industries
Phase I	2001-03	Establish joint stock holding company Encourage private wagon ownership
Phase II	2003-06	Separate subsidiaries into independent companies Begin phasing out cross-subsidization of passenger services
Phase III	2006-10 and beyond	Develop competition Increase private sector participation

Source: Russian Railways Reform, [http://eng.rzd.ru/static/public/en?STRUCTURE\\_ID=23](http://eng.rzd.ru/static/public/en?STRUCTURE_ID=23) (Accessed November 8, 2016)

#### 3.1 Preliminary Phase

This phase set the stage and established objectives. Federal Law 153 (1995) established a legal basis for the railway sector's organization and the relationships among entities involved. Presidential Edict No. 426 (1997) set the reform's objectives and Government Decree No. 448 (1998) added refinements. The Railway ministry transferred social services, such as hospitals and rest areas, to the appropriate ministries, and encouraged private sector participation in supply industries.

#### 3.2 Phase I—Separation of Regulations and Operations

In early 2003, the 'Federal Law on Railway Transport in the Russian Federation' came into effect. This law separated the Ministry of Railways into the Federal Railway Transport Agency (FRTA) and Russian Railways (RZD). The FRTA became a Ministry of Transport agency that would regulate rail transport, and RZD became a state-owned company in charge of railway infrastructure and train operations for freight and passengers. The law defined the relationship between railway infrastructure services, train operations, and Government; it created a legal basis for railway operators (managers of wagons) and railway carriers (managers of wagons and locomotives), and required RZD to provide open access to railway infrastructure for carriers and operators. In the spirit of separated services, RZD tariffs separated infrastructure charges from wagon and locomotive charges. The 2003 Federal Charter of Railway Transport specified business models and legal responsibilities for rail infrastructure service providers.

Under the new legal structure, independent cargo companies could manage their own cargo. However, RZD remained the primary carrier.<sup>318</sup> Rail operators and rolling stock leasing companies emerged as private businesses; rail operators functioned as freight forwarders that owned or rented wagons and handled all customer rail logistics; and rolling stock leasing companies purchased and leased wagons.

<sup>318</sup> Carriers have the universal service obligation of being willing and able to provide service to customers anywhere in Russia. This favors RZD, which has national scope.

In preparation for phase II, RZD made some internal changes: it created business units with separate accounting, creating financially transparent operations in each division.

### 3.3 Phase II—Separating Functions and Establishing a Joint-Stock Holding Company

Later in 2003, Decree No. 585 established RZD as a joint stock holding company (see Box), and separated many institutional activities. To enable this separation, RZD created 63 subsidiary companies, such as JSC TransContainer, RailTranAuto, Rail Passenger Directorate, Russian Troika, TransGroup, and Refservis. Subsidiaries focus on serving niche markets; for example, Refservis serves the refrigerated transport market. Ownership structures vary, and some companies can sell shares to the public. For example, in 2008, TransContainer sold 15 percent of its shares, raising about 7.8 billion rubles (approximately US\$ 314 million). In 2010, TransContainer sold another 35 percent of its shares, which raised another US\$ 400 million. This brought the private sector share in TransContainer to just under 50 percent.<sup>319</sup> Today, RZD owns 50 percent plus two shares in TransContainer.<sup>320</sup>

By 2005, one-third of the country's freight moved in privately owned wagons, and by 2013, private operators owned 80 percent of the wagon fleet. In 2011, Independent Transport Co. paid 125.5 billion rubles (US\$ 4.3 billion) for 75-percent ownership of First Freight Company (FFC), which owned roughly half of RZD freight wagons. It bought the remaining 25 percent of the shares in 2012 for an additional 50 billion rubles (US\$ 1.6 billion).<sup>321</sup>

#### Box 1 RZD Corporate Governance

The Government of the Russian Federation is the sole shareholder of RZD. RZD's board of directors (supervisory board) consists of ten members elected at the General Shareholders Meeting. Currently, six members are representatives from the Russian Federation, including the President of RZD, and four are independent directors.

Annual reports and financial statements are prepared according to International Financial Reporting Standards and are publicly published. Its executive body (management board) consists of 23 members from a variety of political and commercial backgrounds and is headed by the president of the company.

<sup>319</sup> Lawrence, Martha; Ollivier, Gerald. 2015. *Attracting Capital for Railway Development in China*. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/23800> License: CC BY 3.0 IGO. URI: <http://hdl.handle.net/10986/23800> P.47

<sup>320</sup> RZD Interim Condensed Consolidated Financial Statement as of 30 June 2016

<sup>321</sup> Lawrence, Martha; Ollivier, Gerald. 2015. *Attracting Capital for Railway Development in China*. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/23800> License: CC BY 3.0 IGO. URI: <http://hdl.handle.net/10986/23800> P.47

### 3.4 Phase III-Developing Competition

As part of its focus on creating competition, RZD formed First Freight Company (FFC), capitalizing it with 200,000 wagons, and formed Second Freight Company (SFC), which it capitalized with 217,000 wagons. Both faced competition from independent operators such as GlobalTrans and operating companies set up by major natural resources companies such as Gazprotrans. In 2012, RZD completed the sale of its shares in FFC. By that time, RZD had transferred a substantial portion of its wagon inventory to its subsidiaries and had subsequently sold shares of some of the subsidiaries, thereby, creating a competitive market for freight wagons and container operations.

This shift in wagon ownership to its subsidiaries and private companies meant that RZD itself needed fewer repair and maintenance facilities. By June 2010, RZD had sold 18 freight wagon repair depots to private companies, and had plans to separate the remaining repair depots into two competing companies, selling partial interest in each.

### 3.5 Passenger Service Reform

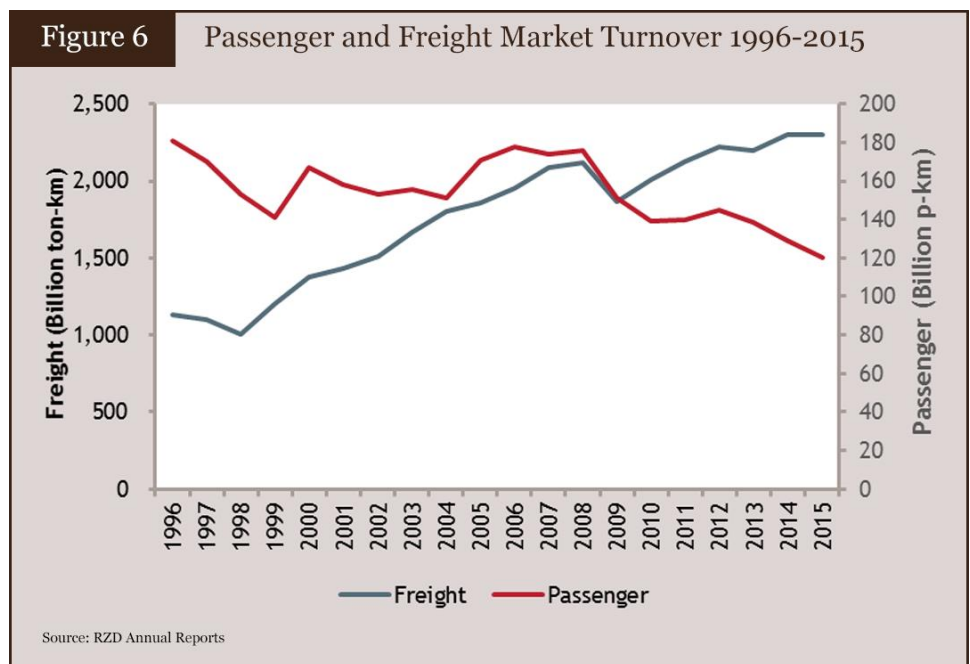
Since 2006, reforms have expanded to include passenger transportation. The Rail Passenger Directorate was formed to focus on managing long-distance passenger services as a business entity. Subsidiaries jointly owned by RZD and local governments have been formed for local passenger service, which allows RZD access to local government financial support for these loss-making services. In addition, private companies emerged to offer specialized passenger services, mostly on the St. Petersburg-Moscow line. The companies own and operate passenger coaches, set prices, sell tickets, and provide both on-board and in-station staffing. RZD locomotives and drivers haul these coaches. CJSC TC Grand Service Express and LLC Tverskoy Express were the most prominent private companies in 2009, having 0.3 percent of the market for long-distance passenger transportation.

By 2010, RZD reforms increasingly included suburban passenger transportation, for which the immediate goal was to reach the break-even point. RZD created a new system for tariffs that would eliminate fare evasions by introducing electronic ticketing and security services on some lines, improving terminals, and leasing vacant space for commercial use.

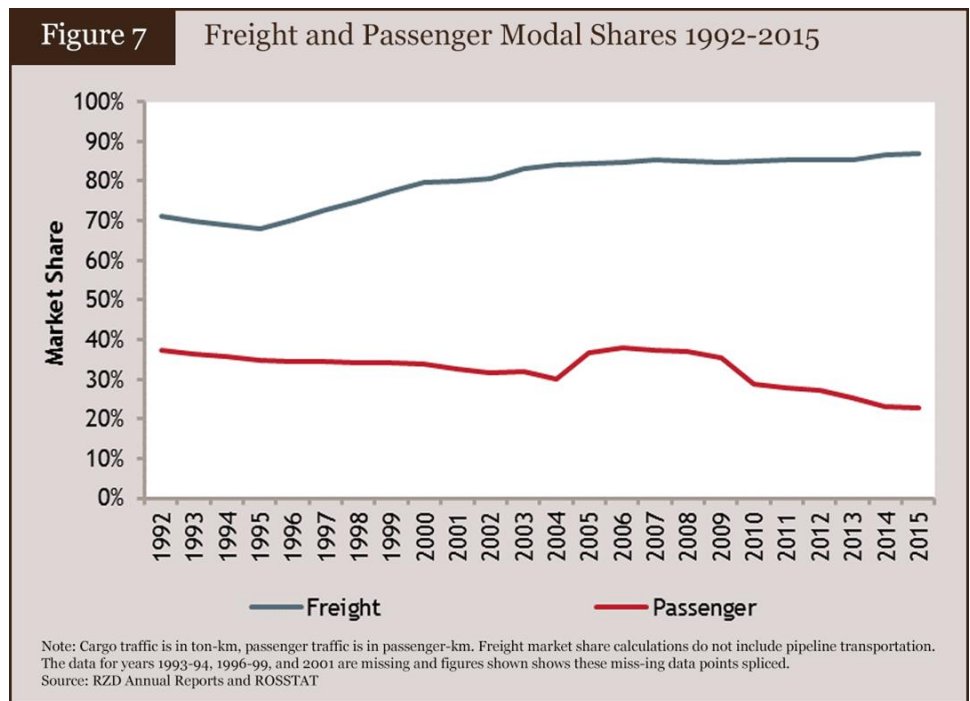
## 4 Results of Reform

### 4.1 Market Performance

Freight transportation underwent the most significant reforms, and market performance results are impressive. Between 1995 and 2009, freight turnover improved by a dramatic 87 percent before succumbing to the effects of the 2008 global economic crisis (Figure 6). Since 2010, freight turnover has been steadily increasing while passenger turnover has been on the decline.



Freight traffic accounted for 2.30 trillion ton-km in 2014, which was 42.3 percent higher than in that of 2003.<sup>322</sup> In the first half of 2015, however, traffic fell by 0.7 percent to 1.12 trillion ton-km compared to the same period of 2014 due to the political crisis in Ukraine coupled with economic sanctions against Russia.<sup>323</sup> The total freight traffic of 2015 remained at the same level as 2014.



<sup>322</sup> Polikarpov, A. (2015). "Russian Rail Freight Market". International Railway Journal

<sup>323</sup> Ibid



Currently, RZD continues to control all main line locomotives and traction services.<sup>324</sup>

The recent slowdown in Russia's economic growth coupled with reduced demand for passenger services, and aggressive competition from airlines<sup>325</sup> saw a decrease of 6.5 percent from the previous year in passenger transport services, particularly for long-haul and suburban passenger transportation.<sup>326</sup>

Despite this decline in passenger numbers, RZD saw an increase in demand for new rapid transit trains, with the highest passenger traffic increase seen on the Mosco-Smolsnek route and the Moscow-Belgorod route. Passenger turnover on rapid transit trains grew 25 percent to 2.5 bln passengers per km in 2015.<sup>327</sup>

Suburban passenger services continues to operate with shortfalls, and as such compensation in the form of subsidies is provided by the government to cover decrease in incomes from the government tariff regulation. These measures allowed for RZD's suburban transportation to break even in 2015.

## 4.2 Financial Performance

RZD's financial performance was slow to improve in the early stages of the reforms. However, revenues continued to increase steadily, thanks to both growing freight traffic and increasing prices. Profits from freight services increased between 2000 and 2008 but declined steadily between 2011 and 2013. This was a result of an increase in RZD operating expenses. Lower freight volumes due to economic sanctions and the drop in crude oil prices have also continued to plague RZD's financial performance in recent years.<sup>328</sup>

On the generally loss-making passenger services, RZD substantially reduced losses. Between 2010 and 2013, RZD even managed to produce small profits, with improvement in transport availability, government subsidies, and people's mobility. While the passenger services balance turned negative in the following years, the losses are very minimal, almost breaking even. Creating joint ventures with local authorities was successful in generating additional financial support for these services. In 2015, three-fourths of the operating shortfall for suburban services was covered by local subsidy.<sup>329</sup>

In 2015 and much of 2016, RZD's financial performance was negatively affected by the broader effects of lower oil prices and economic sanctions on the Russian economy. Reduced access to, and the higher cost of, capital led to a reduction in the company's investment program.

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<sup>324</sup> EBRD (2016). "The EBRD's projects in the Russian railway sector". EBRD Evaluation Department.

<sup>325</sup> A very competitive tariff policy set by airless and a decrease in international passenger traffic due to conflict in Ukraine contributed to a decline in demand for passenger rail services.

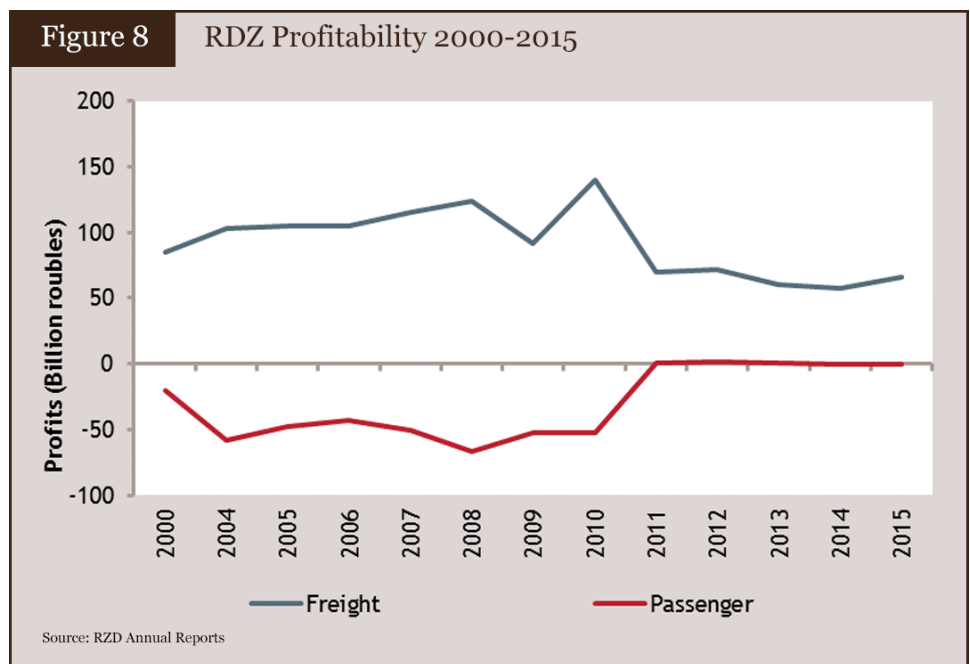
<sup>326</sup> RZD Annual Report, 2015

<sup>327</sup> Ibid

<sup>328</sup> RZD Annual Reports

<sup>329</sup> RZD Annual Report, 2015, p. 85.





### 4.3 Asset Condition

In the early years of the reforms, the Government faced challenges in bringing substantial new investment to the Russian railway industry. During 2004-08, the percentage of life-expired locomotives rose from 11.4 to 18 percent (Figure 9). In 2012, RZD owned 20,618 locomotives and 37,100 non-commercial freight wagons.<sup>330</sup>

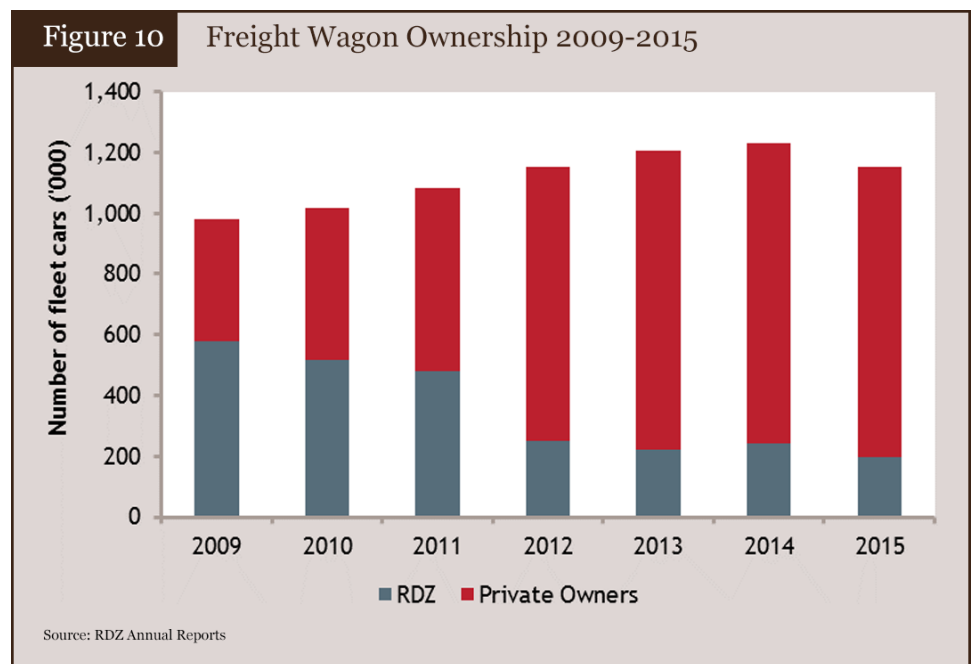
**Figure 9 Expired Life in RZD Rolling Stock 2004-2009**

	2004	2005	2006	2007	2008	2009
<b>Locomotives</b>						
Stock	19,551	19,549	19,631	19,765	20,003	20,101
Renewals and purchases	352	494	595	571	743	355
%with expired service life	11.4	13.1	13.6	14.5	18.0	20.4
<b>Freight Wagons</b>						
Total Stock ('000)	624	631	618	568	405	339
Average age (years)	20.2	20.7	21.1	21.4	21.7	24.8
Purchased ('000)	6.0	8.0	8.6	15.4	21.3	0.3
Modernized ('000)	5.9	5.0	7.3	5.3	16.9	22.6

Source: RZD Annual Reports

In the crisis period, RZD lacked the financial resources to put towards the renewal of both locomotives and wagons leading to significant number of its fleet being life expired. The railway reform process enabled private sector to invest in wagons readily, but less so for the locomotives. This resulted in a significant increase in the private sector providing wagon services, as shown in Figure 10. With the increase in the supply of wagons from the private owners, RZD was able to focus its resources on investing in renewal of its locomotive fleet.

<sup>330</sup> Murray, B. (2014) "Russian Railway Reform Programme" Working Paper. European Bank for Reconstruction and Development. June 2014. p.8.



Once RZD allowed private sector participation in wagon ownership, customers were able to choose between using RZD wagons at the regulated tariff price or wagons managed by a non-RZD operator at a market-determined price. With better wagons provided by non-RZD operators, more customers shifted to commercial operators. Over time, more and more wagons were supplied by commercial operators at market prices.

In 2015, RZD owned approximately 10,000 wagons directly (0.9 percent of the overall fleet of 1.15 million wagons), which were primarily used for its internal transport. Private wagon operators owned an estimated 950,000 wagons, with remainders owned by commercial wagon operating companies affiliated with RZD.<sup>331</sup> With private investors supplying wagons, RZD has been able to direct the bulk of that financing to infrastructure and other needs such as the renewal of its locomotive fleet.

#### 4.4 Operational Productivity

General rail sector operational productivity – locomotive and track productivity – has improved drastically due to reforms (Figure 11). As of the end of 2015, RZD locomotive productivity was 191 million TU per locomotive and track productivity at 28 million TU per track kilometer. However, the wagon productivity has remained relatively at the same level over the years, and coach productivity shows continued decline.

<sup>331</sup> RDZ Annual Report 2015.

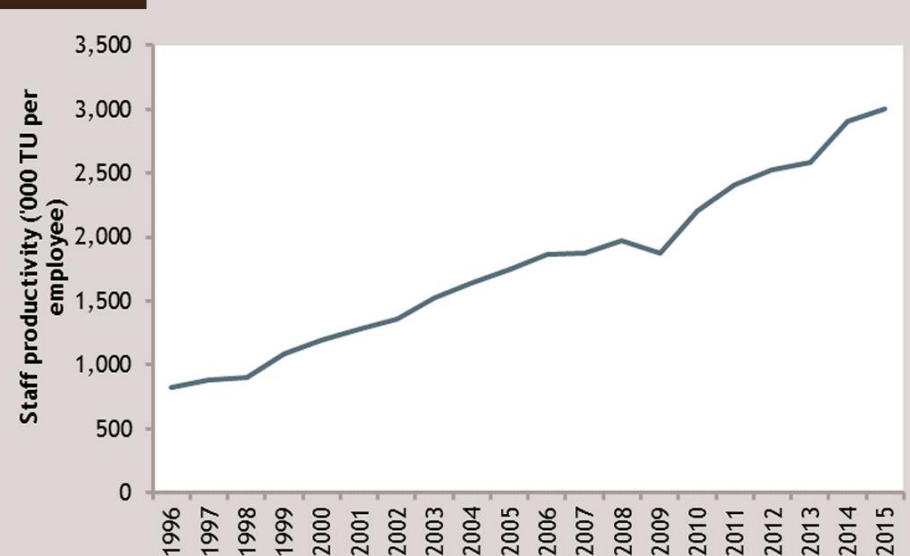
**Figure 11** Russia’s Rail Sector Operational Productivity 2000-2015

	2000	2005	2010	2015
Coach Productivity (000, p-km per coach)	8,072	6,562	4,045	3,033
Locomotive Productivity (000, TU per loco)	-	91,555	106,303	191,021
Wagon Productivity (000, ton-km per wagon)	2,507	2,946	1,978	2,002
Employee Productivity (000, TU per employee)	1,190	1,729	2,203	2,998
Track Productivity (000, TU per standard track km)	17,895	23,817	25,210	28,444

Note: RZD’s productivity is presented as proxy for the general sector productivity, except for wagon productivity. Wagon productivity takes into account Russia’s entire wagon fleet.  
 Source: Russian Railways, WB Railway Database, RZD Annual Reports, UIC statistics, and WB estimates

Similarly, since 1996, Russian Railways staff productivity has continued to improve, growing at 3.3 percent in 2015 (Figure 12) even with national labor productivity figures declining. Some of this may be because RZD no longer maintains a substantial proportion of the freight wagon fleet. RZD’s staff productivity is about three times the EU average.<sup>332</sup>

**Figure 12** Staff Productivity at RDZ 1996-2015



Source: ROSSTAT, WB Railway Database, RZD Annual Reports, and WB estimates

## 5 Conclusion

Railways are crucial to the economy, and Russia approached reforms gradually, leaving RZD as the dominant party. Reforms have taken over 15 years, the years between 2000 and 2010 were the most active, which is longer than was originally planned, but progress has been steady. As a result, reforms have succeeded in expanding rail freight traffic, expanding market share, reducing freight rates, restoring operational productivity, and attracting private capital to profitable sector elements such as high-value freight. The introduction of private companies into provision and maintenance of rolling stock brought more than \$50 billion of capital

<sup>332</sup> RDZ Annual Report 2015.

to the railway sector, freeing up RZD's capital for the improvement of freight services.<sup>333</sup>

However, significant issues remain unresolved. These include<sup>334</sup>:

- Regulatory and tariff reform;
- Opening the locomotive market and train operation to private sector participation;
- Improving financial sustainability, particularly for passenger transport;
- Creating competition in the passenger transport business;
- Increased investment in infrastructure upgrades, railway technology and development of new railway lines; and
- Establishing an effective public service obligation (PSO) mechanism.

For passenger transport, financial sustainability remains elusive. The Government issued Decree Number 377 (2008), "On Federal Target Program-Modernization of the Russian Transport System (2010-2015)", and passed "The Strategy of Railway Transport Development in Russian Federation to 2030" to tackle these challenges. The Strategy aims to increase asset renewal and resolve remaining economic challenges such as a stagnant economy with an updated mid-term action plan that spells out new infrastructure investment activities with adjusted project implementation deadlines and stages. In 2010, Prime Minister Putin authorized RZD to use proceeds from subsidiary IPOs to finance the Strategy. In February 2010, RZD announced share sales in 30 subsidiaries, including FFC, TransContainer, and Ref-service, but will retain controlling shares in each. In 2011, the Russian government sold 75 percent minus two shares in FFC<sup>335</sup> and in 2012, RZD completed the sale of its remaining 25 percent stake in the company.<sup>336</sup>

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<sup>333</sup> Murray, B. (2014) Russian Railway Programme, p.5. EBRD; and Lawrence, Martha; Olivier, Gerald. 2015. *Attracting Capital for Railway Development in China*. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/23800> License: CC BY 3.0 IGO. URI: <http://hdl.handle.net/10986/23800> p.51.

<sup>334</sup> EBRD (2016). "The EBRD's projects in the Russian railway sector". EBRD Evaluation Department.

<sup>335</sup> International Railway Journal (2011). <http://www.railjournal.com/index.php/news/rzd-to-sell-75-of-first-freight-company.html> Accessed November 8, 2016

<sup>336</sup> Global Rail News (2012). <http://www.globalrailnews.com/2012/11/29/rzd-sells-remaining-freight-one-stake/>. Accessed November 8, 2016.