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Local public transport in Russia: regulation, ownership and competition

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ABSTRACT

This workshop paper is motivated by the evolution of relations between public transport authorities and public transport operators all over the world. So far, however, there has been little discussion about this phenomenon with regard to Russian land passenger transport. This issue only received considerable critical attention in the 1990s in light of the post-soviet transformations. However, developments during the 2000s and 2010s have not been extensively studied. This period is filled with changes in market structure including the rapid growth of the private bus sector while electric transport remained publicly owned and operated. The regulatory policy has also undergone considerable changes in 2015.

This workshop paper attempts to understand both positive and negative trends of evolution of organisational practices in Russian land passenger transport. The methodological approach is mixed and based on analysis of changes in legislation, market structure and contracting approaches. Studies of the largest cities, including the recent Moscow 'new model', are also performed. The overall structure of the study includes overviews of legislation, the performance of public operators and institutions in the private bus sector. This research offers important insights into the evolution of public transport contracting systems in developing countries.

Keywords: Russia; Moscow; public transport; regulation; contracting; competitive tendering; new model.

JEL classification: L92, L98, R48.

1. Introduction

In the 1980s, many countries around the world started to reform public transport sectors. Authorities have been gradually decreasing transportation services by publicly-owned incumbent companies. Instead, they have started to regulate new entrants under competitive procedures and contracts. Public transport is now becoming more and more liberalised. Countries in Northern and Western Europe are leading this process and the reforms are spreading to other countries.

Organisational and regulatory changes are proceeding in land passenger transport in Russia as well. Rapid development of transport systems occurred between the 1950s and 1980s within the context of the urbanisation and industrialisation of the Soviet Union. Urban transport enterprises were financed and supervised by the Ministries of the RSFSR (Russian Soviet Federative Socialist Republic) in the context of a planned economy. The only exception was Moscow where all transport companies were managed by the local authorities. The organisation and economics of land passenger transport, in contrast to technical issues, has never been an important theme for scholars in this period. Until now, we know of only a few papers (e.g. Blinkin et al., 1988; Otdelnova, 1988) that have described how public transport started to achieve deficits in the 1970s due to artificially low fares, “frozen” since 1948, the constantly growing number of free-riders and the absence of incentives to reduce production costs.

New challenges were raised by Russia’s transition to a market economy in 1991. Public transport lost federal funding and vehicles from industry. The assets were transferred from federal to municipal ownership¹ and transportation became the responsibility of local authorities. Municipally-owned unitary enterprises were set up to operate municipal assets in this period. The transformations of electric transport (i.e. metro, tram, trolleybus) generally stopped at this time, while evolution in the bus sector continued. Given the extremely difficult financial situation faced by municipalities, enterprises could not purchase new buses in the required quantities. Bus depots continually reduced the output and could not meet the demand.

In the second half of the 1990s, private entrants started to fill market niches. The private sector experienced an enormous growth during the 1990s and 2000s. This started with individual private drivers and operators gradually being able to serve one or more routes. In 2000, private suppliers were involved in providing minibus services in 307 of the 1,290 cities in Russia (Rodionov, 2000). By the 2010s, they were present in almost every municipality. As a result, the market share of traditional municipally-owned bus companies decreased and they lost monopoly status.

Just as in other developing and transitional countries, public and private services vary greatly in Russia. Municipal unitary enterprises provide conventional transport services. They are characterised by large buses, which respect timetables and provide fare exemptions for young and elderly passengers. Private operators, in contrast, provide ‘Jitney’-type transportation with chaotic services and aggressive forms of competition on the market. Their minibuses are called ‘Marshrutka’ in everyday speech.

The 1990s attracted considerable critical attention from scholars studying the first decade of market transition. The crisis of municipal enterprises, the emergence of the private sector and the first regulatory experience were outlined both by Russian (Vaksman et al., 1992, 2002; Kossoy, 2000; Rodionov, 2000) and foreign (Gwilliam, 2000) academics and advisors. During the 2000s, papers comparing Russia with other developing countries (Gwilliam, 2003; Kominek, 2005; Finn and Mulley, 2011) and reports with reform proposals (World Bank, 2012; Oh and Gwilliam, 2013) continued to emerge. The most recent proposals were concerned with the need to commercialise unitary enterprises and improve the contractual

¹ Russian Federation Supreme Council Resolution No 3020-1 of 27 December 1991.

system. Russian scholars at that time were concentrating on case studies involving particular cities (Zyryanov and Sanamov, 2007).

However, previous studies do not cover regulatory changes during the 2010s when new legislation was introduced at all levels of government, particularly at the federal level. An important contribution was made with the introduction of Federal Law No 220-FZ ('On the organisation of regular public transport') in 2015. This legislation allowed either the use of currently practiced route franchises or a transition to public service contracts which are now starting to influence the markets. Moreover, a remarkable change was observed in Moscow with the implementation of gross cost contracts in 2016. These developments have led to a renewed interest in public transport reforms in Russia.

2. Methods

This paper provides an overview of institutional practices in Russian land passenger transport. It includes the relations between authorities and operators, the means of service quality regulation and the roles of private and public suppliers. The largest cities are discussed in this study. An overview of the Moscow 'new model of partnership with private operators' is also performed with regard to the following question: "What can we learn from Moscow?"

The work is based on analysis of legislation, tender documentation, route lists and quantitative data provided by local authorities. In addition, interviews with Moscow authorities and operators are conducted to outline different views.

3. Legal framework

Local public transport in Russia is regulated by federal, regional and local legal acts. Federal legislation forms a fundamental framework for:

- Civil relations between operators and passengers².
- Licensing of public transport activities³.
- Insurance of operator's liability against harm to the life, health and property of passengers⁴.
- Requirements for safety and security⁵.
- Organisation of regular public transport⁶.

Regional governments are responsible for regulating fares for local transport⁷, which could be delegated to the local level. Local authorities are in charge for service specification - they define routes, timetables, types of vehicles, etc. Furthermore, they are obliged to choose operators under competitive procedures.

² Federal Law No 14-FZ of 26 January 1996; Federal Law No 259-FZ of 8 November 2007.

³ Russian Government Resolution No 280 of 2 April 2012 (replaced previous regulation of 2006).

⁴ Federal Law No 67-FZ of 14 June 2012.

⁵ Federal Law No 16-FZ of 9 February 2007; Russian Government Resolution No 112 of 14 February 2009; Resolution of Ministry of Transport No 7 of 15 January 2014; and others.

⁶ Federal Law No 220-FZ of 13 July 2015.

⁷ Russian Government Resolution No 239 of 7 March 1995; Federal Law No 220-FZ of 13 July 2015.

Federal Law No 220-FZ of 13 July 2015 ('On the organisation of regular public transport') has established the legal basis for the planning, organisation and administration of regular services provided by bus, trolleybus and tramway. This legislation established four types of route: interregional, adjacent interregional, intermunicipal and municipal. The first is related to long-distance coach services, while the latter three regulate regional and local routes. These segments are regulated by different policies (see Table 1).

The interregional services are regulated under the most liberal model - a market initiative regime. One should note that this option has been unintentionally used since 1991. The role of the 2015 Federal Law was to formalise and clarify this practice. Under the Law, the routes are opened at the commercial initiative of an operator. The fares, types of vehicles and timetables are defined by an operator. To start running services, an operator has to submit a route proposal to the Ministry of Transport of the Russian Federation and will obtain a route certificate if it satisfies a simple list of requirements. These include the following: highways must be in a normal condition, emission standard of vehicles must meet the regional environmental policy, bus stations must have enough capacity and the headways between the routes with parallel segments must be higher than the established minimum⁸. The interregional market is now presented by roughly 1,200 companies and entrepreneurs serving 3,200 routes with 12,000 buses authorised for such services.

The remaining three types of routes (adjacent interregional, intermunicipal and municipal) are organised, in contrast, in an authority initiative manner. Adjacent interregional routes are organised under an agreement between governments of a federal city and the surrounding region⁹, intermunicipal services are the responsibility of regional governments and municipal services are organised by local authorities. Routes, timetables, fares, and types of vehicle are defined by authorities at a certain level. The invitation, financing (if specified) and control of operators is also the responsibility of authorities.

The Law identified two options for organising such routes. Authorities can organise them as services with either 'regulated fares' or 'non-regulated fares'. More broadly, they can be described as non-commercial and commercial services, respectively.

Services with regulated fares have to be organised through public service obligation contracts according to Russian legislation on public procurement. Authorities can choose a gross cost or net cost financing model.

The services with non-regulated fares represent a more simplified alternative without any budgetary obligations (excluding concessionary fare compensations that could be provided). The operators are invited according to a special procedure of 'open tenders with non-price criteria' - a procedure not covered by legislation in public procurement. After winning a tender, an operator achieves a route certificate with an exclusive right to run a particular route for five or more years. From an international perspective, this model could be classified as route franchising.

⁸ Resolution of Ministry of Transport No 368 of 16 December 2015.

⁹ There are only three such cases in the Russian Federation: Moscow, Saint Petersburg and Sevastopol.

Table 1 Organisational models according to Federal Law No 220-FZ

| | | Interregional services | Adjacent interregional, intermunicipal and municipal services | |
|----|--|---|---|---|
| | | | non-regulated fares (commercial services) | regulated fares (non-commercial services) |
| 1 | Organisational model | Operator initiative route authorisation | Authority initiative route franchising | Authority initiative public service contract |
| 2 | Type of competition | Competition on the market | Competition for the market and competition on the market | Competition for the market and (possible) competition on the market |
| 3 | Method of inviting the operator | The right to run services is given to the operator who proposes the route | Open tender with non-price criteria | Public service procurement |
| 4 | Criteria of bids evaluation | None | 4 non-price criteria | Defined by tender documentation |
| 5 | Duration of operator's rights to run services | Unlimited | From 5 years | Defined by tender documentation and contract |
| 6 | Documents confirming operator rights | Route certificate and cards for each vehicle | Route certificate and cards for each vehicle | Public service contract and cards for each vehicle |
| 7 | Service specifications to operators (e.g., vehicles, timetables, tickets, additional services) | Ministry of Transport reviews operator's application to meet Federal Law requirements | Authorities can ask only 3 requirements: quantity, capacity and emission standard of vehicles | Defined by tender documentation and contract |
| 8 | Penalties for poor performance | None | None | Defined by tender documentation and contract |
| 9 | Fare regulations | Fares set by operators | Fares set by operators | Fares set by regional (or municipal) authorities |
| 10 | Financing model | Fare revenues only | Fare revenues. Compensation for concessionary fares possible | 2 alternatives: gross cost contract or net cost contract |

4. Public sector

Municipal and state unitary enterprises represent the backbone of local transport. These suppliers provide all tram and trolleybus output and hold a significant share of bus markets. Amongst the 15 largest Russian cities with a population of over 1 million people, 14 have bus enterprises¹⁰, 15 - trolleybus, 14 - tram¹¹ and 7 - metro¹². Land transport companies

¹⁰ Excluding Perm where a municipally-owned bus company was liquidated in the late 2000s.

¹¹ Excluding Voronezh, where a tramway system broke down in the 2000s.

¹² Moscow, Saint Petersburg, Novosibirsk, Yekaterinburg, Nizhniy Novgorod, Kazan and Samara.

serve comprehensive networks, while metro systems are developed only in Moscow (12 lines) and Saint Petersburg (5 lines). The rest have small metro systems of one or two lines.

An important historical feature is the administrative separation of different transport industries. Bus enterprises were separated from electric services as well as metro from land transport. In the Soviet era, bus companies were administered by the Ministry of Road Transport of the RSFSR; tram and trolleybus - by the Ministry of Housing and Utilities of the RSFSR; and metro - by the Ministry of Railways of USSR. Moreover, numerous bus depots in the largest cities have never been centralised under one institution. Multiple attempts to consolidate industries were made between the 1950s and 1980s (Kossoy, 2000). The only success was achieved in Moscow where land transport was consolidated into the Passenger Transport Authority (currently state unitary enterprise Mosgortrans) in 1958. Many other attempts failed both in the Soviet period and market transition period.

In the 1990s, with the emergence of the private sector, public bus operators lost a significant share of their patronage. However, during the 1990s and 2000s, they enjoyed the privilege of operating on historical routes, while private entrants started to work on new routes, usually in parallel to a public operator. The practices of so-called 'open tenders with non-price criteria' for all routes, including historical ones, started in particular cities in the late 2000s. Nevertheless, public operators usually remained on historical routes as they were unprofitable for private rivals due to obligations to use large vehicles and provide fare exemptions.

The relations of local authorities and in-house operators could be classified as informal. Local bodies do not formally regulate operators. Usually, they do not set short-term and medium-term goals for operators, do not monitor the results of their performance and, most importantly, do not formally separate financial obligations for operators and local budgets. The obligations are only briefly outlined by charter documents, whereas contractual agreements and clear service specification are not practiced. The mutual obligations between operators and authorities are not set in advance. Authorities do not bear financing obligations while the operators do not have production and quality benchmarks. Therefore, this system guarantees neither stable financing nor control of performance and production costs.

For many decades, the financial deficit of unitary enterprises has been perceived as both normal and inevitable. In 2016, 63.7% of bus and 79.8% of electric transport enterprises yielded debts (Rosstat FSSS, 2016: Table 1.14), which were then repaid by local budgets with ex-post subsidies. At the end of each year, public companies calculate revenue reductions and apply to authorities for compensation. Deficit compensation does not allow authorities to plan the exact required amounts of public expenditures beforehand. For this reason, the planned sums of public expenditures often do not meet the estimations of operators. This results in numerous conflicts between operators and authorities, debts to electricity suppliers and a shortage of financing to vehicle replacement and infrastructure maintenance.

The Federal Law 2015 includes special sections aimed at reforming unitary enterprises. The authorities are required to award public contracts to municipal unitary enterprises by 2020 and state unitary enterprises by 2025. During the first two years after the implementation of

the Law (2015 - 2017), these reforms were carried out in few cities, e.g. Surgut (bus), Tyumen (bus), and Nizhniy Tagil (tram). These contracts include clear service specifications, penalties for poor performance (e.g. punctuality) and ex-ante net cost financing. The important features of these contracts are their short contract duration (typically one year) and the absence of obligations for vehicle replacement, which remains on the side of authorities and has to be done using other budgetary programmes. Nonetheless, these first contractual attempts are intended to understand the adequacy of obligations as well as to monitor unitary enterprises as contractors. It seems that subsequent contracts will be awarded for longer periods. Generally, these contracts are given a legal basis for improving the financial status and eliminating debt risks.

A new trend has recently emerged in the field of rolling stock purchases by public operators. The Moscow state-owned unitary enterprises Mosgortrans and Moscow Metro started to award life cycle contracts with manufacturers of buses, trams and metro trains. Between 2014 and 2016, contracts for 436 buses, 300 trams and 1,432 metro cars were awarded. These contracts include the manufacturer's obligations to produce, deliver and, then, maintain the rolling stock at Moscow depots during seven years for buses and 30 years for trams and metro cars. The essential part of these contracts is an obligation to guarantee the everyday availability of 95% of the bus fleet, 90% of trams and 93.5% of metro rolling stock. These contracts are aimed, from the operator's perspective, at reducing costs and increasing the durability of rolling stock and spare parts and, from the manufacturer's perspective, at enhancing the long-term development.

5. The private bus sector

Private operators play a significant role in bus markets. Dozens of operators serve 50 - 100 bus routes with 1,000 - 1,500 minibuses in the largest cities. Their market share, in comparison with traditional unitary enterprises, varies according to local policy: from moderate (Moscow and Kazan) to dominant (Saint Petersburg, Novosibirsk, Omsk, Voronezh, and Volgograd) or absolute (Perm). The corporate structure is also differentiated. Cities like Novosibirsk, Omsk and Volgograd are occupied by tiny operators. Almost every route is served by numerous companies (typically 2 - 5), whose activities are not coordinated. One should mention that this system was legally established by local authorities. A more favourable situation is observed in Moscow, Saint Petersburg, Kazan, Samara, and Rostov-on-Don where the markets are more or less consolidated (see Table 2).

The quality of service has traditionally been chaotic, unsafe and poor akin to the informal transport of developing countries. The only exception is private operators working under the 'new model' in Moscow since 2016. This reform has obviously improved the quality of services and enhanced the image of the Moscow transportation system. The 'new model' is studied separately within the latter section of this paper.

Table 2 Local bus markets of the largest Russian cities

| | Population, thousands (01.01.2016) | Municipal (state) bus operators | | | Private bus operators | | |
|------------------|------------------------------------|---------------------------------|--------|-------|-----------------------|--------|-------|
| | | Operators | Routes | Buses | Operators | Routes | Buses |
| Moscow | 12,325 | 1 | 630 | 6,400 | 8 | 211 | 1,960 |
| Saint Petersburg | 5,222 | 1 | 144 | 1,884 | 17 | 472 | 3,700 |
| Novosibirsk | 1,584 | 2 | 25 | 235 | 70 | 123 | 1,358 |
| Yekaterinburg | 1,444 | 1 | 29 | 323 | 29 | 60 | 1,135 |
| Nizhniy Novgorod | 1,272 | 1 | 59 | 517 | 39 | 60 | 1,031 |
| Kazan | 1,217 | 2 | 39 | 527 | 9 | 22 | 267 |
| Chelyabinsk | 1,197 | 1 | 33 | 213 | 27 | 43 | 1,231 |
| Omsk | 1,180 | 3 | 47 | 536 | 86 | 133 | 2,730 |
| Samara | 1,171 | 1 | 45 | 462 | 3 | 59 | 1,424 |
| Rostov-on-Don | 1,118 | 1 | 16 | 169 | 15 | 100 | 1,171 |
| Ufa | 1,115 | 1 | 41 | 336 | 11 | 89 | 1,353 |
| Krasnoyarsk | 1,069 | 3 | 26 | 259 | 38 | 44 | 712 |
| Perm | 1,036 | - | - | - | 41 | 63 | 961 |
| Voronezh | 1,033 | 2 | 18 | 171 | 12 | 85 | 1,256 |
| Volgograd | 1,018 | 1 | 38 | 105 | 81 | 162 | 4,292 |

Organisational models in local bus transport have been continuously evolving from free market to route franchises. During the 1990s, at an initial phase of private sector development, their activities remained unregulated. During the 2000s, operator initiative route authorisations became common. Since the late 2000s, due to increasing numbers of entrants, authorities have started to grant exclusive route franchises by a so-called 'open tenders with non-price criteria'. Authorities strived to improve service quality using tender requirements (e.g. type and quantity of buses) and non-price criteria to evaluate the bidders (e.g. bus age). Authorities awarded contracts with the exclusive right of a particular operator to run a particular route for a defined period (usually five years). The contract volume was typically modest (usually 10 - 20 pages), but allowed service specifications and penalties to be included. In addition, fares were regulated, however, operators did not carry concessionary passengers and could not apply for subsidies.

The latter model was preserved (with some exceptions) by Federal Law 2015 as services with non-regulated fares. The first exception, as the name implies, approves the absence of fare regulation. Secondly, the list of service quality specifications was reduced. Thirdly, contracts were replaced by so-called route certificates - a single page form.

A process of 'open tenders with non-price criteria' became far easier for the operators. Since 2015, local tender documentation can request only three mandatory requirements: maximum quantity, and the capacity and emission standard of vehicles. Usually, it is 'up to 15 minibuses with any emission standard'. In other words, authorities cannot force bidders to use new low-floor buses with air conditioners. Then the bids have to be evaluated by four non-price criteria: (1) number of traffic accidents in the previous year; (2) number of years in

public transport business; (3) vehicle quality and equipment (defined by local authorities); (4) vehicle age. Local authorities define a grading scale for these criteria and compare the bids (see Figure 1). The most valuable criteria are usually those reflecting the vehicle's quality and equipment (42% of the maximum points) and age (26%). The criteria reflecting the number of years in business and accidents are less important - 11% and 9% respectively. Before the implementation of the Law, authorities often used other criteria (e.g. bus depot characteristics). These criteria were not revised in cities such as Kazan, Samara, Krasnoyarsk and Voronezh, which have not undertaken new tenders in the last two years.

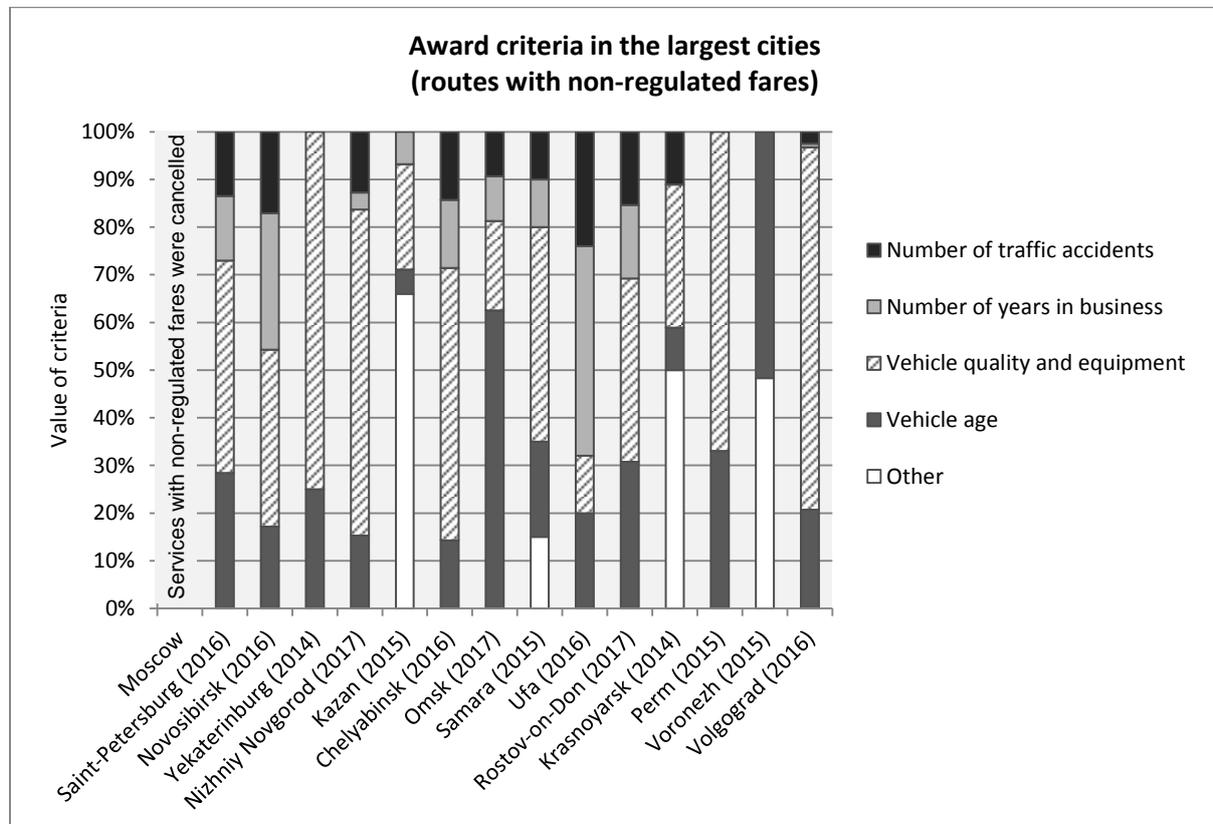


Figure 1 Award criteria in the largest cities (routes with non-regulated fares).¹³

As shown by recent tenders, the winning score is in the 60% to 80% range of the maximum possible points (see Table 3). However, the problem is associated with the thresholds for which the points are awarded. Many examples show that the maximum (or at least sufficient) number of points for the vehicle age criterion are awarded for the proposal to use minibuses aged five years at the moment of a tender. As a result, these vehicles are allowed to run for the following five years, i.e. for 10 years of full utilisation. However, the normal life cycle of a jitney minibus is no more than 5 - 6 years due to the aggressive driving styles of drivers and poor technical maintenance. As a consequence, these thresholds do not provide sufficient incentives to improve the quality of service.

¹³ Assumptions based on the use of 15 buses on a single route.

Table 3 Result of 'open tenders with non-price criteria' in Novosibirsk, Kazan and Omsk

| | Novosibirsk | Kazan | Omsk |
|---|-------------------|------------------|------------|
| Number of observed 'open tenders with non-price criteria' | 152 (2013 - 2014) | 72 (2012 - 2014) | 231 (2013) |
| Average number of bidders (except tenders with no bids) | 4.4 | 1.6 | 4.8 |
| Average score of winning bid (% of maximum points) | 79.7% | 61.0% | 67.0% |

The winner achieves a 5-year route certificate which only includes brief records on the operator, route, number of vehicles, their capacity and emission standard. Therefore, the 'non-regulated fares' model does not provide legal arrangements on service quality specification and service control. Operators, working under this model, are inevitably remaining within the 'Jitney' or 'Marshrutka' segment.

In this regard, the transition to the 'regulated fares' model with the use of the contracting system is proposed to be the only alternative in respect to service quality improvements. During the first two years after the Federal Law 2015 implementation, the best example of such improvements was observed in Moscow with the introduction of the 'new model of partnership with private operators'.

6. The Moscow 'new model'

6.1. Market overview

Moscow is the largest city in Russia with a population of over 12 million inhabitants. The majority of transport output has traditionally been provided by the Mosgortrans state unitary enterprise (formerly Passenger Transport Authority). Since 1991, with the collapse of the Soviet Union, public transport activities have been liberalised and new entrants have started to complement the market with minibuses. By the 2010s they held 30% of the bus market. In 2015, 67 private operators served 450 routes using 4,300 minibuses. State unitary enterprise Mosgortrans served 70% of the market or 630 bus routes with 6,400 conventional buses. Although the organisational model of private operators has evolved from free market to competitive route authorisations (see Table 4), the quality of service has always been criticised for poor safety and comfort, the absence of modern ticketing systems and no fare exemptions. The Moscow bus system was in fact divided into two parts: so-called social and commercial branches. Moscow Department for Transport and Road Infrastructure Development understood the need for reform and initiated a project that was named a 'new model of partnership with private operators'.

Table 4 Evolution of regulation of private operators in Moscow before the 'new model'

| | 1991 - 1998 | 1998 - 2006 | 2006 - 2014 |
|---|---------------|---|--|
| Legislation | Not regulated | Resolution of the first deputy prime minister of the Moscow Government No 336-RZP of 20 April 1998 | Resolution of the Moscow Government No 421-PP of 20 June 2006 |
| Organisational model | Free market | Operator initiative route authorisation: - Operator proposes the route. - Moscow Government reviews the route and grants the authorisation. | Operator initiative route authorisation after tender: - Operator proposes the route. - Moscow Government reviews the route, then organises 'open tender with non-price criteria', and then grants the authorisation. |
| Duration of operator's rights to run services | Not regulated | Unlimited | 5 years |

6.2. Preparation stage

The reform was thoroughly prepared by the Department for Transport between 2012 and 2015 including the following steps:

- Study of international experience of bus reforms.
- Extensive consultations with existing operators.
- Consultations with the Moscow Department for Finance and the Moscow Department for Economic Policy and Development.
- Consultations with the Moscow Office of Federal Antimonopoly Service of the Russian Federation.
- Meetings with Russian and Belarussian bus manufacturers, leasing companies and banks.
- Passage of amendments on the legislation of public transport in Moscow.
- Recruitment of competent personnel to the Department for Transport and its subsidiary agencies. These personnel were tasked with designing routes, managing contracts and monitoring the operator's performance. In summary, the staff included 50 people in the offices and 30 in the Line Control division.
- Comprehensive redesign of routes including their reduction from 450 to 211.

An essential part of the reform was market consultations. In early 2013, the Department for Transport wished to make a reform at a meeting with all operators. The first response was highly negative - companies were dissatisfied with the growing role of the authority and increasing service specifications. The Department responded with a proposal to draft the contract in consideration of the operators' points of view. A group of large operators (5 - 10 companies) accepted such an offer while the smallest ones (approximately 60) rejected it. The largest companies were motivated to save their market share even under another institutional basis. The legal and financial framework of the contract was designed by the Department over the next 2 years (2013 - 2014) with the support of operators. In particular,

operators confirmed the compensation formula based on current Mosgortrans prices plus 5% profit.

6.3. Contract details

The contracts include vast service specifications, which in fact required the purchase of almost an entire new bus fleet (2,000 buses including large, medium and small ones). The length of the contract was for five years plus an additional six months for preparation after the contract award. In terms of financing, the contract provides gross-cost monthly payments including three components:

1. Reward for bus trips.
2. Reward for paid passenger journeys (with upper limit) minus penalties.
3. Compensation of some costs (vehicle purchase, insurance fees, taxes, fuel costs).

The contracts include a list of 27 penalty terms, for which a reward for the paid passengers could be decreased. The share of possible penalties in the total lump-sums is limited to approximately 10% while the bonus payments are not specified. The performance is monitored using three methods: GLONASS-based automated monitoring system (equivalent to GPS), the Line Control division and CCTV cameras. The penalties included bus cleanliness and maintenance, speed on the route, and punctuality.

6.4. Electronic auctions

The 211 routes were merged into 63 route bundles. Every bundle included up to 14 routes located in more or less one district of the city.

Most of the auctions (61 of 63) were awarded towards the end of 2015. From the authorities' point of view, the reform had to be carried out simultaneously to prevent possible criticism affecting the following rounds of auctions. It also created an appearance of a rapid improvement in quality.

The auctions were strongly characterised by weak competition. The contracts were awarded only for eight companies (instead of 67 incumbents) and the price reductions were observed only in 11 of 63 auctions. The total contract prices were reduced by 0.28%. The majority of contracts were awarded to the only bidder or to the bidder who made the first bid with no price reduction. From the operator's perspectives, the lack of competition could be explained using the following arguments:

- The 'fundamentally modest' contract prices.
- The uncertainty of future prices (up to the year 2021) - due to a sharp increase in the national inflation index from a typical 6% to 12% in 2014.
- The difficulties for small operators to pay the 5% auction fee and purchase new vehicles.
- The unwillingness to participate in auctions with large buses as it meant the need to reconstruct bus depots and train the drivers.
- The need to change the philosophy of operations from market to authority initiative regime.

Nevertheless, the bidders demonstrated a rational tendering policy:

- The routes were chosen in accordance with depot locations.
- The calculations on the profitability of every bundle according to vehicle utilisation, commercial speed, etc. were performed by operators.
- The investment for the use of large buses was carefully evaluated. As a result, 80% of such routes were awarded to the largest operator - Transavtoliz (Autoline Group).
- Preliminary agreements with bus manufacturers, depots owners, banks and leasing companies were reached before the auctions.
- Some operators were consulted by external advisors.

6.5. Preparation to run services

Operators had six months to prepare to run services after the contract award. This period was filled with new challenges:

- Manufacturers of large and medium buses were overloaded which resulted in delays in bus delivery. Only 142 of 211 routes ran on schedule after six months. Others were supplemented in the following two months.
- The bus depot market has changed: some operators changed the locations, while some modernised the equipment to maintain large and medium buses.
- The labour force market was strongly affected. The number of drivers was reduced from 10,000 to 4,000 and many previous staff were replaced by those with experience in driving large buses (usually drivers from public enterprises).

6.6. Results of the first year

Most of the operators started running services on 9 May to 15 June 2016. The launch of the system became a new stage for the Russian bus market. However, the Moscow case shows the difficulties that may arise for authorities and operators.

During the first year of operation (from May 2016 to May 2017), the Moscow Department for Transport received 9,000 claims from passengers via mail, phone, website or mobile applications. Most of these claims were sent during the first few months after launching the system. Passengers were dissatisfied with the lack of information, the closure of old routes or the over-crowdedness of the new ones. Many of these claims could be solved only by increasing the service frequency. The Moscow Department for Transport established a special Centre aimed at analysing the claims and correcting the frequency. One should note that Russian procurement legislation allows contract renegotiation with a 10% change in production and costs. As a result, the frequency of 122 of 211 routes was increased during the first year of operations. The terms of 33 of 63 contracts were changed with an overall increase in costs by 0.40%.

The penalty payments strongly affected the operators' performance. Companies started to regulate and standardise their internal processes. 'New model' participants were internally reformed and lost any similarity with the 'Marshrutka' operators:

- Penalties for excessive speed affected the labour management heavily. Dismissals for driving style became a widespread practice, while the role of driving training and control increased as well.
- Penalties for punctuality motivated the development of dispatching systems.
- Penalties for cleanliness and maintenance improved the speed of repair works after road accidents.

The first year had also shown previously underestimated terms of the contracts that affect the operator's profitability. Firstly, the value of penalties became obvious - the majority of operators received the 10% maximum penalties for several months just after launching the system. Secondly, the reward for paid passengers became unfavourable because of its upper (but not lower) limit. Thirdly, operators were unhappy due to the inaccuracy of automated monitoring systems in the first months. Fourthly, operators noticed the inflexibility of the contract in terms of inflation.

As a result, a year after the reform the majority of operators did not reach 5% profitability and were working at zero profits. An opportunity to enhance the performance through reducing the costs remains unclear. The Moscow market cannot now be classified as commercially attractive from the operators' perspective. The majority of operators have increased their activities in other markets - the market of services with non-regulated fares in Moscow suburbs and the market of hired buses for corporate clients. Operators pay attention to the emergence of internal cross-subsidies. This raises questions on optimal contract terms in regard to the operators' needs.

At the same time, the reform draws attention to the role of the authorities. The slogan 'The city has accepted responsibility for every passenger', from the Moscow Department for Transport 2016 annual report (Moscow DfT, 2017), reflects the nature of the reform. The Moscow Department for Transport has evolved from a 'laissez-faire' agency into a professional and reliable public transport authority able to prepare and execute reform.

7. Conclusions

The reforms in Russian land passenger transport offer an important example for developing and transitional countries. Organisational models were evolving step-by-step from a free market to route franchises. The case of Moscow shows the potential for the next step - gross cost route contracts. Nevertheless, this step remains almost impossible without adequate planning and staffing, fair market consultation, attention to passenger needs and overall increase of responsibility of public transport authorities.

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