



Trusting partnerships in a regulatory game: The case of suburban railway transport in Russia



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ABSTRACT

The paper addresses the existing cross-regional diversity of delivery models in the sector of suburban passenger transportation in Russia by building a formal model of endogenous organisational choice. We develop a conceptual game-theoretic framework that allows for the trusting partnership to have become equilibrium in a regulatory bargaining game with delegation. The monopoly service provider initiates a more cooperative relationship with regional authorities by offering a share in the joint venture. The latter being benevolent welfare maximiser either accepts or rejects the offer taking into account transportation market characteristics, local budget constraints, information structure, as well as socio-economic and political factors. Once the partnership is formed the private information of the parties is revealed and information rent is eliminated creating the room for welfare improvement. However, ex ante rational organisational choice to form a trusting partnership may not lead to welfare improvement ex post. In the extended model we consider how concessionary passengers and fare-dodgers affect the bargaining outcomes. Our results can be generalized to characterize the diversity of organizational choices in the public sector.

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1. Introduction

In many countries suburban railway transport are running on losses and are seeking alternative delivery models to lessen the subsidy burden on local governments, and Russia is not an exception. At the regional level these services have been provided by the local divisions of the vertically integrated infrastructure monopoly 'Russian Railways' JSC (RZD) that also serves the markets for cargo and passenger rail transportation. Being regulated by the local authorities that set tariffs at the level that is deemed to be socially optimal, passenger services traditionally experience negative operating profits. What makes the financial results of railway undertakings even worse is the significant share of concessionary passengers (about 10–30%) that are only partially compensated from federal and regional budgets as well as widespread fare-evasion (another 10–30% of patronage) that is virtually unstoppable by ridiculously small fines amounting at approximately the charge for a one-way ticket to the 7th tariff zone.

Regional passenger service providers are regulated under a cost-based approach when the difference between reported costs and revenues from ticket sales is compensated through a lump-sum subsidy. However, when regional budgets have a lack of funds the transfer is insufficient to cover all the costs incurred. Moreover, the other reason for the only partial compensation of the reported losses of the monopoly is the lack of trust between the public authorities and the regulated monopoly. Specifically, by imposing strict budget constraints on the monopoly, regulators attempt to extract information rent that stems from the asymmetry of information about costs incurred by the monopoly. The standard assumption of the binding participation constraint evidently does not work in Russia where cross-subsidies of loss-making passenger transport from high-margin cargo transportation fill the gap. This is an example of a specific form of indirect income redistribution from the corporate sector that pays RZD higher infrastructure charges and tariffs for cargo transportation to public sector where RZD reports losses.

Intuitively, local authorities would always prefer such a state of affairs, since a public service is delivered at the expense of RZD and ultimately the corporate sector rather than regional budgets. However, this may not be socially optimal since price distortions in the corporate sector due to large mark-ups for transportation of high-value goods may be significant. Moreover, after the complete

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privatisation of RZD's 'first daughter', the First Cargo Company, the former (in the person of its 'second daughter', the Federal Cargo Company) faces rather fierce competition in the downstream market for wagon operations. Thus extra revenues from high-margin businesses may be skimmed by an independent rival which has no public service obligations. Hence, it is in the interest of RZD to change the status quo. Apparently, the two actors – local authorities and RZD – seem to be engaged in a bargaining game which (if played cooperatively) may create room for welfare improvement.

The rules of the game and the general strategy of passenger transportation service provisions were set by the Government that adopted a stage-by-stage approach to railway reform on May 18, 2001. The plan calls for the development of explicit Public Service Obligation (PSO) compensation contracts for the support of social requirements of suburban passenger transport. Unfortunately, adequate sources for local budgets were never clearly defined and provided. In these circumstances RZD initiated the process of establishment Suburban Passenger Companies (SPCs) in the form joint ventures with local authorities. In essence, RZD has been offering local authorities a share in the charter capital of newly created companies thus proposing a specific form trusting partnership (see Stanley & Hensher, 2008 for the definition). This form of cooperation has been proposed by RZD as an optional alternative delivery model in the sector. In turn, local authorities have been free to engage in trusting partnership depending on transportation market characteristics, local budget constraints, information structure, as well as socio-economic and political factors in the particular region.

An interview-based sociological survey conducted by the Higher School of Economics in 2010 demonstrated very low incentives for local authorities to participate in the suburban railway transport reform. Among 65 surveyed regions 17 (26%) reported that they were not involved in the reform and 28 regions (43%) played passive role. Only 8 (12%) regions saw themselves as active participants of the reform and 12 (19%) regions were likely to be involved with some reservations. Different geographical factors, socio-economic conditions as well as political and local cultural contexts across 73 Russian regions with suburban railways affected the reform pace. The observed variety of shareholding structures of 28 SPCs established so far provides the relevant factual background to pose a number of research questions: Why some regional authorities have agreed to partner with the service provider and some have not? Will trusting partnership lead to welfare improvement? What is the offered share in trusting partnership in order to be accepted? What factors affect the probability of trusting partnership creation and how?

This paper addresses the existing cross-regional diversity of delivery models in the sector of suburban passenger transportation in Russia by building a formal model of endogenous organisational choice. We develop a conceptual game-theoretic framework that allows for the trusting partnership to have become an equilibrium in a bargaining game rather than a predetermined outcome.

The building blocks of our model are as follows: First, a standard regulator's objective function which is commonly used in the literature puts a lower weight on the firm's profit reflecting certain redistribution concerns of the government. Second, we impose budget constraint on the local government and assume it to be binding reflecting the case when a lack of public funds affects organizational choice in the sector. By introducing further the asymmetry of information regarding the firm's costs we create room for bargaining between the firm and regulator. Then we define the conditions for trusting arrangements to become an equilibrium outcome in the above mentioned bargaining game.

For the sake of the tractability of the model we use a number of simplifying assumptions like linear demand function and constant unit cost of services. In the basic model the service provider is

assumed to have private information about its costs. It proposes to establish a trusting partnership with local authorities to share this information in exchange for greater representation of its interest in the future partnership. Thus the information structure of the regulatory game ex ante and ex post plays a crucial role for our findings.

The rest of the paper is structured as follows. Section 2 provides a brief literature review and highlights the importance of developing a specific analytical framework to study the questions of interest. In Section 3, relevant parties of the game, their objectives, choice variables and payoffs are determined for the two different delivery models. Section 4 discusses two interesting extensions – the case of concessionary passengers and fare-dodgers. Section 5 concludes.

2. Literature review

The proposed model has been inspired by several seemingly unrelated streams of studies. We incorporate the idea of 'selling authority' of Lim (2012) into the standard regulatory framework of Armstrong and Sappington (2006) who emphasize the role of imperfect information in a regulatory game. We modify this approach by introducing trusting partnership as an organisational alternative that ultimately reshapes political and institutional environment of the standard regulatory game. In particular, similar to Laffont (1999, 2000) we view trusting partnership as a better informed decision maker with specific objective function. Having this option, regulator as a benevolent social welfare maximiser may or may not wish to delegate to the trusting partnership the contracting process, including tariff setting.

The idea of delegated contracting is considered by Bennett and Iossa (2006b) who treat the public-private partnership (PPP) as a joint venture between the private sector (service provider) and a public sector. Compared to a public sector entity, the PPP has a greater profit orientation and a relatively smaller concern for social benefit. Their analysis suggests that the weight placed by the PPP on social benefits is a critical factor to the success of delegated contracting. The authors point out that the formation of a corporate share structure of the PPP should be a matter of particular concern, while the existing approach to modelling PPP¹ pays little attention to the process of ex ante bargaining over PPP structure. We depart from this literature by making the very process of delegation endogenous and developing a specific political economy framework for the analysis of PPP creation in the sector of suburban passenger transportation in Russia.

Our approach can be generalized to the study of political feasibility of institutional reform in public sector (see Boardman & Vining, 2012 for the discussion of political economy perspective on PPPs and Chong, Huet, Saussier, & Steiner, 2006 for the empirical study of the endogenous nature of organisational choice). As pointed out by Maskin and Tirole (2008) there is substantial evidence that political project choices are influenced significantly by the desire to please constituencies and by budgetary constraints. We believe our model provides for a tractable way to see the role of redistribution concerns and budget limits in organisational choice. Still we assume that the private partner does not capture the procurement process by colluding with the government and that government retains its benevolence.²

Practical developments of trusting partnerships in public transport have run ahead of academic analysis. Among a number of

¹ Bennett and Iossa (2006a), Martimort and Pouyet (2008), Carmona (2010), Iossa and Martimort (2012) etc. are examples.

² see Laffont and Martimort (1999), Martimort (1999) for the case of non-benevolent or captured government agencies.

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