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# Applying social marginal cost pricing in rail PPPs: Present state, drawbacks and ways forward

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A B S T R A C T

The application of social marginal cost pricing (SMCP) in PPP's in the railway sector faces several challenges. We examine in detail the practical applicability of SMCP in railway PPPs from the perspectives of cost accounting and effectiveness of SMCP towards the allocative efficiency goal, addressing the likely drawbacks in conciliating the welfare objectives of SMCP with the objectives of project financing (cost recovery) and value for money that justify the realization of PPP's. To this end, we combine theoretical analysis with the observation of empirical results of a case study. We split the analysis per type of private service provision, which can be for service operation or infrastructure management. For infrastructure management, we recommend splitting the operator remuneration and the track access charges. For service operation, we argue that the correct decision on source of funding of the service operator should depend on the characteristics of the contract.

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## 1. Introduction

The application of social marginal cost pricing (SMCP) in PPPs in the railway sector faces several particular challenges, related with the nature of rail marginal costs, with the nature of centralized planning and management of railway operations, and with the various existing scopes for private involvement in railway provision. We analyse the most relevant issues and their possible consequences to conciliation of SMCP with PPPs, and try to identify practical ways to adopt what should be feasible and effective approaches to the application of SMCP.

We start by reproducing reporting on trends and concrete cases of deployment of PPPs in the rail sector in Europe and proceed with a description of the social marginal costs involved in this sector. Drawing from the particular features of railway transport, we then examine in detail the practical applicability of SMCP from the perspectives of effectiveness of SMCP towards the allocative efficiency goal, addressing also the likely drawbacks in conciliating the welfare objectives of SMCP with the project financing (cost recovery) and value for money objectives that justify the use of PPPs. To this end, we combine a theoretical analysis with results of a case study of an urban railway line linking the two sides of the Tagus River in the Lisbon area, realized within the ENACT[1] study.

## 2. PPPs in the railway sector

### 2.1. Types of private involvement in railways

Railways were, in its early times, mainly constructed and operated by the private sector. However, with time, it became clear that network economies and reduced scope for competition put railways in a situation where a pure market was not the most beneficial system, and States began to take over their construction and operation. More recently, governments started increasingly relying on partnerships with the private sector for railway projects and undertakings, using regulation to guarantee their appropriate performance.

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[1] The ENACT study was commissioned by the European Commission under the 6th Framework program. The study developed in the period 2006–2009 and was led by Prof Rosário Macário (TIS.PT, Consultores em Transportes, Inovação e Sistemas).

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Since the recent unbundling of infrastructure network operation and train service operation, private involvement in railway supply can take two major forms:

- Service operation
- Infrastructure management

By private involvement in service operation we simply mean that the provision of railway services is performed by a private entity, which may or not own the assets – the rolling stock. Infrastructure management involves the supply, maintenance and, possibly, investment in railway infrastructure.

The first type is regarded as the "competitive" portion of the sector, where different private operators are expected to compete for the provision of train services and compete for demand within and outside the rail mode. This form of private involvement is already commonly used, and its application at a successful rate has been demonstrated under adequate regulatory frameworks.

It can be discussed whether private involvement in railway service provision can be regarded as a public–private partnership. The term "Public-Private Partnership" ("PPP") has been in general use since the 1990's, yet there is no widely agreed single definition or model of a PPP. In the 2003 European Commission Guidelines for successful Public–Private Partnerships, the term of PPP was broadly defined as "a partnership between the public sector and the private sector for the purpose of delivering a project or a service traditionally provided by the public sector". General characteristics of PPP arrangements that are proposed in the EC's Green Paper on PPPs (COM (2004) 327 final) are the relatively long duration of the relationship, the method of funding the project - in part from the private sector - the important role of the economic operator, who participates at different stages in the project, and the distribution of risks between the public partner and the private partner. By this account, simple franchises of railway service operation could be regarded outside the PPP universe, since contract durations and investments by the private party can be small and its participation may be restricted to a single activity (service operation). Nonetheless, private involvement in this area still poses important questions as to its conciliation with SMCP, and therefore we include service operation in our object of analysis.

Infrastructure management has less scope for competition, and certainly no significant scope for competition for demand. Still, a few PPPs for infrastructure have been carried out in Europe. They comprise both negative and positive outcomes, and the subject of attribution of infrastructure management to a private party is still subject to controversy (see e.g. Pollit & Smith, 2001; Vickerman, 2004). While the step back with network privatization in Great Britain and failures in other sites represented a major drawback, there are also cases that seem successful, and there is a set of new rail infrastructure PPPs under preparation in Europe. It is still uncertain whether this trend will prevail. For reference, in the following section we present a set of full-scale, infrastructure *build and operate* PPP experiences, in the European States.

### 2.2. Use of infrastructure PPPs in European states

#### 2.2.1. Trends in the use of infrastructure PPPs

According to the OECD report on transport infrastructure investment (OECD, 2008), PPP projects of the type seen in the road sector are less prevalent as far as rail infrastructure is concerned. This is perhaps due to the fact that rail is generally managed on a network basis, and because railway operators are already typically at an arm's length from government decision-making in many countries, as a result of their organisational structures. Notwithstanding, in all monitored countries there is a growing number of PPP rail projects in the preparatory or realization phase. In most cases, these ventures provide a special service that is somehow differentiated from the rest of the network operation. In the following pages we present some relevant examples.

#### 2.2.2. Infrastructure PPPs in European States

*2.2.2.1. Austria.* The example of PPP is the project Nordkettenbahn (NKB) in Innsbruck. The project is realized by Strabag (Innsbrucker Nordkettenbahn GmbH). The provider of the concession is NKB; the daughter company Strabag hands over economic risks and cashes for the financing incomes. The total investment is 51 mil. EURO (ENACT, 2008a).

*2.2.2.2. Great Britain.* One example is the Channel Tunnel Rail Link (CTRL). CTRL was launched in 1993, as the largest project under private finance initiative, to connect London with the Channel Tunnel, and therefore speed up travel time to Paris on the Eurostar. The project was also an EU Trans-European Networks (TENs) project. Revenue forecasts proved to be highly optimistic, resulting in the British government having to backstop the concessionaire with a loan guarantee. On the basis of this guarantee, in 2006 the UK Office of National Statistics determined that the government had a controlling interest over the project's parent company, London & Continental Railways, which was thus reclassified as a "public non-financial corporation".

In a similar vein, the Eurotunnel Group, created in 1986 to build and operate the Channel Tunnel, has struggled with the initial debt incurred for the project, which cost six times more than initially projected.

Another example of private finance initiative is the PPP to provide, maintain, renew and upgrade elements of the London Underground metro system. This involves 3 separate 30-year contracts for different elements of the work, with payments based on performance, including bonuses for surpassing a given cap, and penalties for not meeting it (OECD, 2008).

*2.2.2.3. Czech Republic.* Currently in Czech republic there is not any practical experience with realized PPP projects in the field of the railway transport. One project is under preparation, covering the Upgrade of the Prague-Kladno railway line plus construction of a railway connection to the Ruzyně Airport. It features a combination of BOT/DBFO and operation and management contract, costing around 500 million EURO and having a contract term of 30–40 years. Meanwhile the emphasis has been placed above all on the legislation treatment of the mentioned activities.

The following legal provisions are under question:

- proposal of Law about public–private partnerships (franchise law);
- proposal of Law about public orders;
- amendment of Law about estate of the congestion/scarcity and its appearance in legal relationship;
- proposal of Law about budgetary rules.

*2.2.2.4. France.* PPP funding is utilized in the railway transport infrastructure in France. An example is the building and operation railway Perpignan-Figueras Rail Concession. The main target of the project is the reduction of time needed for the border crossing between the two states and the reduction of the railway operation on the French-Spanish border. The total investment is 1.1 thousand million EURO. The private party is responsible for building and operation of the railway during the time of 50 years. The public sector, which also includes the government of Spain, ensures the project design and a partial funding of 540 million EURO. The

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