



**Reforming a publicly owned monopoly:  
costs and incentives in railway maintenance**

av

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**Akademisk avhandling**

Avhandling för filosofie doktorsexamen i nationalekonomi,  
som kommer att försvaras offentligt  
måndag den 21 december 2015 kl. 10.15,  
BIO, Forumhuset, Örebro universitet

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## Abstract

Kristofer Odolinski (2015): Reforming a publicly owned monopoly: costs and incentives in railway maintenance. Örebro Studies in Economics 30.

The railway system is often considered to be an industry where a monopoly occurs “naturally”, which can explain the public ownership and the use of regulations. However, railways in Europe have been subject to reforms during the last three decades. The use of tendering has increased, which is a way of introducing competition *for* the market in absence of competition *within* the market. Still, contracting out services previously produced in-house places a heavy burden on the client, where contract design and its incentive structures can be decisive for the outcome of the reform.

This dissertation provides empirical evidence on costs and incentives in a publicly owned monopoly that is subject to reforms, namely the provision of railway maintenance in Sweden.

Essay 1 estimates the effect of exposing rail infrastructure maintenance to competitive tendering. The results show that this reform reduced maintenance costs in Sweden by around 11 per cent over the period 1999-2011, without any associated fall in the available measures of quality.

Essay 2 estimates the relative cost efficiency between and within maintenance regions in Sweden. The results indicate considerable efficiency gaps together with economies of scale not being fully exploited.

Essay 3 analyses the effect of incentive structures in railway maintenance contracts. An increase in the power of the incentive scheme reduces the number of infrastructure failures according to the results. In addition, the estimated effect of the performance incentive schemes suggests that more effort towards preventing train delays is made at the expense of preventing other failures.

Essay 4 comprises an estimation of marginal costs of rail maintenance. The static model produces slightly lower marginal costs compared to previous estimates on Swedish data. The results from the dynamic model show that an increase in maintenance costs in year  $t - 1$  predicts an increase in maintenance costs in year  $t$ . Indeed, there is an intertemporal effect that depends on the performed maintenance activities (governed by the contract design).

*Keywords:* cost efficiency, contracts, tendering, rail infrastructure, maintenance

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