

# Quality tendering and contracting service design

## - Comparing the Dutch and Norwegian initiatives

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### 1 INTRODUCTION

Competitive tendering is now a well-established practice in several European countries, and is still spreading to further areas. The most common practice is tendering at the operational level, using gross cost contracts, where the authorities are responsible for the tactical level. Recently, further initiatives are taken to introduce tendering and contracting at the tactical level, and transferring more responsibility for planning and product development to the operator (Henscher and Houghton 2004, Johansen et al 2001, Van de Velde and Pruijmboon 2003).

The main objective of these initiatives was to enhance service quality improvements by giving more freedom to the operators (i.e. deregulation at the tactical level) in return for a clearer definition of the public transport targets by the authorities (i.e. regulation at the strategic level).

The objective of this paper is to compare two recent initiatives to introduce qualitative measures either in the tendering procedures or the contractual clauses, both aimed at delegating more service design freedom to the operator: The first initiative is taken from the Dutch experiences with tendering at the tactical level, and the second from the very first tendering of a performance-based subsidy contract in Norway.

The Dutch experiences offer several innovating and promising ways to introduce tactical freedom and competition at the tendering stage. Some of the examples even led to huge innovation and changes in design from previous networks and quite a large increase in service provision. The Dutch evidence seems less convincing when it comes to service innovation during the contractual period, at least for the time being. This can partly be explained by the fact that all cases analysed relied on net-cost contracts without any further incentives for market development. The operators are thus faced with all the burdens of market failures without being offered real potential of earnings in correspondence with the risks they endure.

To tender out a performance-based subsidy contract, as used in the Telemark county of Norway, increases the income potential for the operators by introducing strong incentives in addition to ticket revenue. The operators subsequently bid for the right to operate contracts with such super-incentives

and the level of freedom included with them. The risk dilemma that revealed itself in the Dutch cases is thereby balanced by super-incentives for market development. In many respect this solution offers a novel and promising way of combining aims of cost *and* service efficient regime both at the static tendering stage and during the more dynamic contractual period.

The objective of this paper will be to discuss the interaction between quality tendering and quality contracting, and the balance between financial incentives and level of freedom for the operator.

## **2 COMPETITIVE TENDERING AND COST EFFICIENCY**

Tendering of gross-cost contracts is still the most common way of competitive tendering in Europe (van de Velde 2003). This means that all passenger revenue goes back to the authorities and that the operators bid for the operating costs of the contract. Thus the operators have few - if any - incentives to focus on improving income and developing public transport provisions beyond reducing production costs<sup>i</sup>. The advantage of the type of competition is that it gives maximum control to the authorities, it is simple to implement and that the services are easy to compare given that the authorities have defined all aspects of the service in advance. Its popularity is also related to its success to deliver cost-efficient operations and thereby providing a solution to the problem of X-efficiency (Johansen et al 2001, Hensher and Houghton 2004).

However, there are growing concerns regarding the development of service quality under such a regime. The weaknesses lie in the fact that the transport service cannot be developed during the period of the contract without the necessity for re-negotiation. At the same time, the operators' interests are narrowed to the detail of internal cost efficient operations, with the consequences this inevitably entails for staffing costs such as salary and working conditions, which in reality are the aspects that have the greatest effect on costs. Both allow little room for dynamics and development of public transport provision over time, creating concerns over the regime's ability to produce sufficient dynamic and service efficiency.

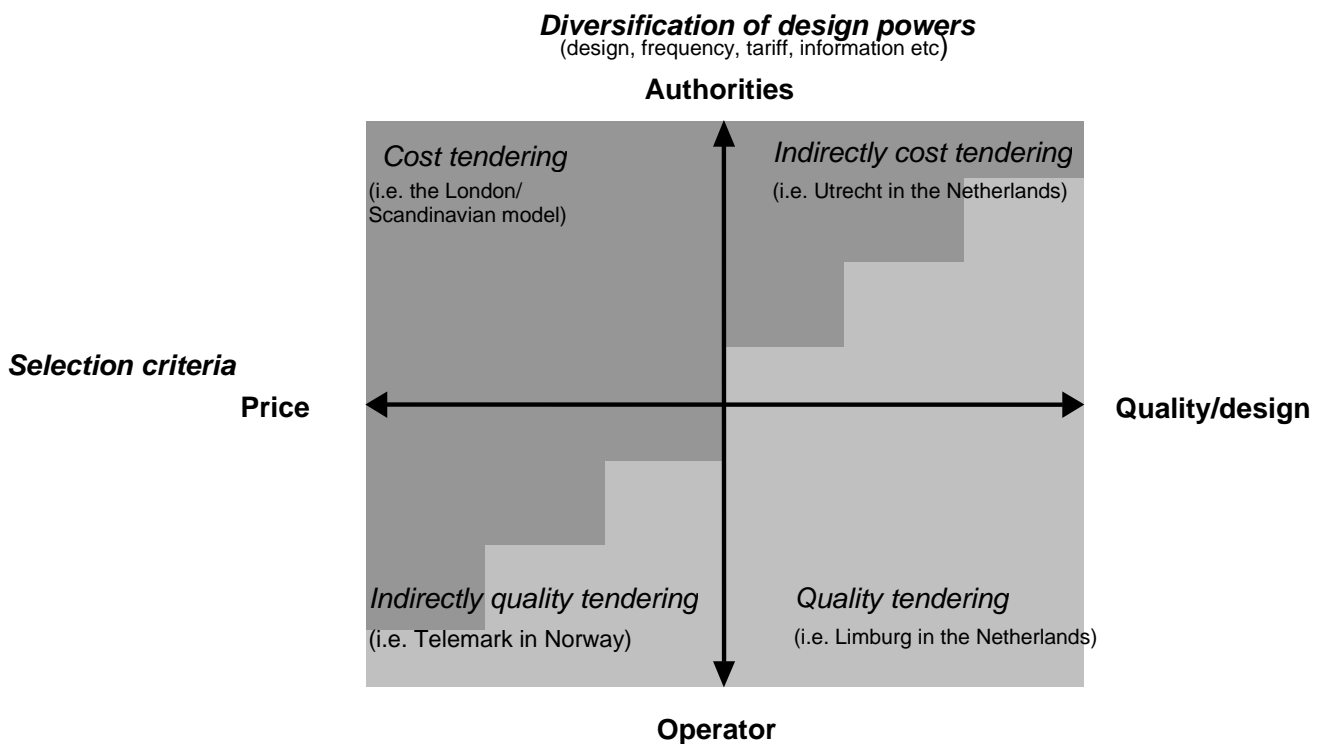
In principal, this type of dynamic and service efficiency can be implemented in two separate periods: (i) at the tendering stage and (ii) in the contractual period. In both situations, greater or lesser responsibility can be allocated to the operators regarding the development of service provision. The level of freedom during the first period does not presuppose freedom of choice during the second, and vice versa. Nonetheless, freedom of choice can be combined: the operators can, for example, be given major opportunities to affect the service provision at the tendering stage and at the same time be allocated contracts with major incentives for developing further service provision after the allocation. However, most current tendering rounds for gross contracts take the totally opposite view, in that the operators are given few or no opportunities to design the service level either at the tendering stage or in the contractual period.

### 3 QUALITY AT THE TENDERING STAGE – A TYPOLOGY

Initiatives to introduce quality criteria and design freedom at the tendering stage have created a vast dispersion of tendering regimes in Europe today. While some have introduced quality criteria to supplement cost calculations within the framework of gross cost tendering, others have developed new and innovating tendering regimes making service and quality design the decisive criteria in the choice of operator. On the basis of factors relating to the tendering procedures four main forms of competitive tendering may be identified (see figure 1):

Figure 1. Main forms of competitive tendering based on selection criteria and design freedom for the operator

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In the upper left corner in the figure, the service-design is pre-defined by the authorities and the operating costs remain the sole criteria for the choice of operator (“cost tendering”). *Cost tendering* is the standard competitive tendering regime referred to above, based on gross cost contracts as originally developed in London and Copenhagen. Nowadays, most areas have further elaborated this model by introducing some quality criteria as a supplement to the cost calculations. That is, they have moved their tendering model a bit closer to the right hand side of the figure.

The opposite extremity of the cost tendering model is found in the lower right corner of the figure, named as *quality tendering*. Quality tendering means that the service design and proposed quality is totally or partially decisive in the choice of operator. The operator is furthermore given great opportunities to develop the content of the service provision within a given geographical area (see section 4).

Both cost tendering and quality tendering models have their mixture forms, defined as indirectly quality tendering in the lower right side of the figure and indirectly cost tendering in the upper right side. *Indirectly quality tendering* has its basis in the cost tendering regime, as price remain the decisive selection criteria. It indirectly promotes focus on quality matters, however, as the operators' are allocated design freedoms and awarded net cost contracts with supply side incentives (see section 5). Similarly, *indirectly cost tendering* promotes focus on operating costs as the operators' service design freedom is very limited and practically none existent, even though the quality criteria are decisive for the choice of operator. The concept of quality tendering is further developed in the next section of the paper, as we present empirical evidence from trials with such a tendering regime.

#### **4 QUALITY TENDERING IN DUTCH PUBLIC TRANSPORT**

Following the enactment of the Passenger Transport Act 2000, the Netherlands has become one of the few countries in Europe to date that has tested tendering at the tactical level on a large scale. One of the aims of the Dutch reform was to enhance service quality improvements by giving more freedom to the operators (i.e. deregulation at the tactical level), in return for a clearer definition of the public transport goals by the authorities (i.e. regulation at the strategic level).<sup>ii</sup>

As stated above, quality tendering means that the scope of the service provision and the proposed quality is totally or partially decisive in the choice of operator. Quality tendering may, however, be developed in a more or less strict sense, depending on the amount of design freedom delegated to the operators and exact shaping of the selection criteria. That is, whether the competition deals with a fixed line network or not – and whether the number of evaluation criteria is great or small. The main forms of quality tendering are summarised with their strengths and weaknesses in Table 1.

Table 1: Positive and negative characteristics of different forms of quality tendering

Scope of criteria	Scope of competition	
	<i>Fixed network</i>	<i>Open network</i>
<b>Many</b>	<p><i>Indirectly cost tendering (in Utrecht)</i></p> <ul style="list-style-type: none"> <li>+ steering and control</li> <li>+ predictability</li> <li>+ easy to compare</li> <li>+ cost cutting with equal route services</li> <li>- difficult to divide</li> <li>- no innovation in the line network</li> <li>- little innovation in tools</li> <li>- little/no increase in service provision</li> </ul>	<p><i>Limited quality tendering (in Amersfoort)</i></p> <ul style="list-style-type: none"> <li>+ innovation in line network</li> <li>+ innovation in tools</li> <li>+ large increase in route provision for the same price</li> <li>- limited predictability</li> <li>- comparison is heavy on resources</li> <li>- asymmetric information</li> </ul>
<b>Few</b>	<p><i>Simple quality tendering (in Gelderland)</i></p> <ul style="list-style-type: none"> <li>+ predictable line network</li> <li>+ symmetric information</li> <li>+ easy to compare</li> <li>+ innovation in use of tools</li> <li>- no innovation in line network</li> <li>- limited increase in network provision</li> </ul>	<p><i>Overall quality tendering (in Limburg)</i></p> <ul style="list-style-type: none"> <li>+ plenty of innovation in line network</li> <li>+ plenty of innovation in tools</li> <li>+ major increase in route service for the same price</li> <li>- little steering of growth in capacity</li> <li>- zero predictability</li> <li>- difficult to compare</li> <li>- asymmetric information</li> <li>- vulnerable to legal action</li> </ul>

The majority of evaluation criteria in the Dutch examples were linked to quantitative measurements such as regularity, reliability and frequency. At the same time there were major variations in how the “design tenders” were drawn up. Nonetheless it is possible to learn from this, and there is much to indicate that the following rules of thumb can be used as a starting point: (i) the more open the line network and the greater the operators room for manoeuvre, the greater the potential for innovation and increase in production volume, but also for greater costs linked with both evaluating the different tenders and control following the allocation of the contract, and (ii), the more evaluation criteria there are, the better the steering, control and predictability for the authorities – but also less potential for innovation in service provision and types of vehicles. The latter, combined with fixed route networks, is in fact very similar to more traditional forms of gross-cost tendering and price competition. Limiting the operators' room for manoeuvre also encourages cost cutting rather than on service development and market innovation. The “indirect price competition” in Utrecht typically resulted in hefty cost cutting by the authorities on the same levels as the line network, creating results more in line with experiences from standard tendering of gross-cost contract with no freedom at the tactical level whatsoever (hence the label in the table). The more open forms of competition in Amersfoort and Limburg, on the other hand, resulted in a 50- 60 per cent increase in service provision for the same price.

In drawing up the rules and criteria used in the competitive tender, the authorities need to find a balance between the need for increased competition and market-based solutions on the one hand and the need for control and supervision on the other. The more quality criteria which the authorities include in the conditions for the competition, the less room the operators will have for designing their own tender – and the more they will focus on their internal cost efficiency rather than on service development and market innovation. In the same way as in choosing between price and design competition at the tendering stage, the type and scope of the design competition is decisive for the result we will obtain at the end of the tender procedures.

### **Low dynamic efficiency during the contractual period**

Even though the Dutch experiences showed several innovating and promising ways to introduce tactical freedom and competition at the tendering stage, none of the examples gave sufficient basis for a dynamic development of the service during the contractual period. Thus, design freedom at the tendering stage alone is not sufficient to secure innovation and service development over time. This can partly be explained by the fact that all the above-mentioned examples were based on net-cost contracts during the operating period, without any further incentives for market development and increased patronage. The operators are thus faced with all the burdens of market failures without being offered real potential of earnings in correspondence with the risk they endure.

This indicates that passenger income alone does not provide enough income potential for the operators in relation to the risk involved in developing and investing in new service provision. In principal, there are (at least) two ways to resolve this: reducing the income risk for the operators by returning to gross-cost contracts, or increasing their income potential by adding further passenger incentives to the ticket income and thereby creating what might be called super-incentive contracts. In Telemark, Norway, they have chosen the latter alternative.

The various choices stated above regarding contractual aspects, are illustrated in table 1 below. The introduction of super incentives to balance the risks the operators' endure implies the construction of a net cost contract combined with additional incentives (indicating a move from bracket 3 to 4 in the table). The choice of reducing the income risk for the operators implies the creation of a gross cost tendering regime, either in its strictest form or with additional incentives (indicating a move from bracket 3 to 1 or 2 in the table).

Table 2 Competitive tendering according to contractual clauses

Revenue risk	Incentives beyond risk diversification	
	No	Yes
Authorities	1. <i>Gross cost tendering</i>  (The Scandinavian model)	2. <i>Extended gross cost tendering</i>
Operator	3. <i>Net cost tendering</i>	4. <i>Extended net cost tendering/indirectly quality tendering</i>  (as in Telemark, Norway)

## 5 INDIRECTLY QUALITY TENDERING IN NORWAY

“The scandinavian model”, with competitive tendering of gross cost contracts, is not the dominating model for Norway. One of the reasons are a high share of net contracts and strong market initiative for the operators. Another reason is the developments of performance contracts and output-based contracts in several of the major cities (Johansen et al 2001). The general framework of these performance contracts are an extended market responsibility for the operator and extended financial risk related to the output based subsidies. The output based subsidies are calibrated to combine profit maximisation and social welfare optimisation.

While the tendering out of such a contract is a novel initiative, the performance-based model has been presented in earlier papers at the THREDBO-conferences (Norheim 1999, Larsen 2001, Carlquist 2001, Bråthen 2003). The model identifies a set of external effects that are typically not taken into account by the individual traveller when choosing transport mode (changes in congestion costs etc). The model is estimated by a two-stage procedure, where the first stage determines fare levels, bus revenue-km and bus capacities to maximise a social welfare function based on the above mentioned external effects. The second stage calculates rates for fare subsidies and for revenue-km subsidies (applicable in the peak and/or periods), which will induce a profit-maximising operator to choose the socially optimum levels for revenue-km and bus capacities. Hence, a per-passenger subsidy “pays for results”, whilst the revenue-km payment reimburses some of the costs, creating a contract where the subsidy is set to match the sum of avoided external costs of car use *and* the benefits of increased service frequency (see Johansen and Norheim 1999, Johansen et al 2001 and Fearnley et al 2004 for further elaboration of the model).

## Tendering the performance contracts

These contracts are normally not tendered, but competitive pressures are built in the contracts. If the quality satisfaction index fall beyond a specified level will the contract is put out for tender. The general problem has been to develop a proper tendering system for these contracts. The best operator for these contracts is the market-oriented operator that is able to develop the service level according to the incentives, knowing the market demand and inventive market solutions. It is difficult to compare and evaluate different bids depending on *expected* service developments.

In the following we will illustrate a tendering procedure for performance contracts in the twin-city of Skien/Porsgrunn in Telemark. The population are approximately 84.000 with a density of 1500 inhabitants/km<sup>2</sup> and 39 PT trips per inhabitant per year. This is a medium sized Norwegian city but below the average PT trip frequency. They political target for increased ridership is 50 PT trips per year in the short term and 70 trips per year in the long term. This is more up to the average level for similar cities in Norway.

Our alternative has been to tender out the *right to operate* these performance contracts, and the operators expectations for market developments and revenue forecasts will influence the bids (. The tender is awarded to those who are willing to pay the authorities the highest annual sum to operate a contract with clearly defined incentives and freedom for market development.

The revenue incentives are divided into three parts; frae box revenue, production incentives and passenger incentives (table 3). The operator are free to define the frequency, bus type and departure time, but not below the initial level. They are also free to define the fare structure but the average fare level must not be higher than initial level.

Table 3: Revenue incentives included in the contract and estimated total income based on initial production and passenger level Euro

	incentives	Million/year
Fare box revenue (per passenger)	1.50	5.9
Production incentives (vehicle km)	0.75	2.5
Passenger incentives (per passenger)	1.50	5.9
Estimated income (mill/year)		14.2

With current service level and revenue incentives, an operator who pays approximately 5 mil euro to operate such a contract will maintain the current net subsidy (subsidy level of 45%). The net subsidy corresponds to the estimated revenue in table 2 and estimated normative costs for initial service level. If a competing operator estimate a lower cost for the operation (based on with smaller buses, more effective operation etc.) they might be willing to pay a higher price for the right to operate this service. Similarly an operator who sees the potential for passenger increase might be willing to pay a higher price for this contract.



The main advantage of this solution is that it combines demands for cost effectiveness in production with opportunities for market development during the contract period. In relation to many of the Dutch examples - where the quality criteria and different bids can be difficult to compare - the criterion here is as simple as in standard tenders: the winner is the one who offers the best price. However, the price is the result of the operators' evaluation of the market potential and not simply a question of cost efficiency in its most narrow sense. This solution thus transfers power and steering capacity to the passengers to a far greater extent than in any other model, while the authorities can safeguard services by setting minimum requirements (in Telemark, the service must be at least as good as it was before).

If there are no potential for market developments, this will be a normal net contract tendering with a higher revenue risk. The worst scenario therefore is that the service remains as it was before. If there are a potential for market development, this contract will put more focus on existing an potential passengers benefit based on the passenger incentives.

### **The effect of Quality tendering in Telemark**

It is too early to conclude about the effect of quality tendering in Telemark. This is a dynamic contract and the long term effect will hopefully be evaluated in the end of the contract period. But there are some evidences already in the early stage of the contract, both regarding the tendering procedure and market development.

### **Tendering procedure**

The tendering procedure introduced in Telemark was a compromise between the initial proposal and financial restrictions in the county. The tender was restricted by an upper ceiling of the subsidy level and they used a fixed bus network as a base level for the tender. All operators were invited to design and tender for alternative networks.

Telemark County got three bids for the first round (two external and the existing operator). The county got some technical complaints according to the first tenders and had to organise a second round, with only two bids. The external operator delivered a complaint based on limited market information during the tendering process, but the complaint was not accepted.

Our general impression based on the process is that the market information was far from sufficient and must be improved in future tenders if they want to increase number of bids. The existing operator had a strong competitive advantage based on this market knowledge and this type of contracts is more dependent on this information.

The second problem was the "two-stage" tendering process. All the bids from the first round were official, and the operators were able to compare and adjust the bids. This might have influenced the drop out from one of the operators in the last round. But the technical problems in the first round was

not related to this type of tendering<sup>1</sup>, but more low experience in this type of tendering in Norway.

### **Market developments**

The main objective of this type of quality tendering is to stimulate product developments and new market initiatives in the region. And the incentives are calibrated to combine welfare maximisation for the society with profit maximisation for the operator. It is interesting to observe that the operator have introduced a novel and very promising bus network for the region, named the "METROBUS". They have reduced the number of bus lines from eight to three Metrobus-lines with 15 minutes frequency and four supplementary lines with low (hourly) frequency. The zonal fare system, varying from 2,7 to 7,9 euro per single ticket, are changed to a flat fare system of 2,4 euro per trip. Their market campaign use the slogan; "Double frequency - half the price".

The have invited the two local municipalities (Skien and Porsgrunn) to co-finance this development (120.000 euro/year each). Our general impression is that this scheme might be too optimistic, and that they need to do adjustments during the contract period. But the general idea to simplify the network, increase frequency and reduce/simplify the fare structure is close to our earlier recommendations.

## **5 CRITICAL REMARKS AND FURTHER DEVELOPMENTS**

This paper has presented two recent initiatives to introduce qualitative measures either in the tendering procedures or the contractual clauses, both aimed at delegating more service design freedom to the operator: The first initiative is taken from the Dutch experiences with tendering at the tactical level, and the second from the very first tendering of a performance-based subsidy contract in Norway.

### **The Dutch experience**

The Dutch experiences offer several innovating and promising ways to introduce tactical freedom and competition at the tendering stage. Some of the examples even led to huge innovation and changes in design from previous networks and quite a large increase in service provision. However, the more quality criteria which the authorities include in the conditions for the competition, the less room the operators will have for designing their own tender – and the more they will focus on their internal cost efficiency rather than on service development and market innovation. Here the results become more in line with experiences from standard tendering of gross-cost contract with no freedom at the tactical level whatsoever.

Furthermore, the Dutch evidence seems less convincing when it comes to service innovation during the contractual period, at least for the time being.

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<sup>1</sup> Appendix in an open envelope etc

This can partly be explained by the fact that all cases analysed relied on net-cost contracts without any further incentives for market development. The operators are thus faced with all the burdens of market failures without being offered real potential of earnings in correspondence with the risks they endure.

### **The Norwegian experience**

To tender out a performance-based subsidy contract, as used in the Telemark county of Norway, increases the income potential for the operators by introducing strong incentives in addition to ticket income. The operators subsequently bid for the right to operate contracts with such super-incentives and market-related freedoms that are included with them. The risk dilemma that revealed itself in the Dutch cases is thereby balanced by super-incentives for market development. In many respect this solution offers a novel and promising way of combining aims of cost *and* service efficient regime both at the static tendering stage and during the more dynamic contractual period.

The main advantage of this solution is that it combines demands for cost effectiveness in production with opportunities for market development during the contract period. In relation to many of the Dutch examples - where the quality criteria and different bids can be difficult to compare - the criterion here is as simple as in standard gross cost tenders: the winner is the one who offers the best price. However, the price is the result of the operators' expectations of the market potential and not simply a question of cost efficiency in its most narrow sense.

However, there are also challenges linked with this kind of tender. Firstly, this is a demanding form of tender, where the existing operators have the best market knowledge and thus a competitive advantage. This is the most vital criticism to the tendering procedure in Telemark. It is of vital importance for this type of tendering that all interested parties have the same information about the market they want to serve. A further challenge is that many county councils have restricted budgets below the welfare optimal subsidy level. Telemark has therefore set an upper limit on subsidy payments.

The first preliminary results of the Telemark tender are promising, and the incentives and level of freedom in the contract have stimulated the operator to develop a totally new PT network and fare structure. It is too early to evaluate and conclude if this is a sustainable service level, but they are moving in the right direction.

## BIBLIOGRAPHY

Bråthen et al (2003)

*Experiences with quality contracts in public transport in Norway*  
Paper presented at the Eight International Conference on Competition and Ownership in Land Passenger Transport (Thredbo), Rio de Janeiro 2003

Carlquist E, 2001

*Incentive contracts in Norwegian local public transport-The Hordaland model.*  
Paper presented at the Seventh International Conference on Competition and Ownership in Land Passenger Transport (Thredbo), Molde 2001

Fearnly, N, J-T. Bekken, and B. Norheim (2004), *Optimal performance-based subsidies in Norwegian intercity rail transport*,  
International Journal of Transport Management, Vol 2/1 pp 29-38.

Henscher, D.A and E. Houghton (2004) *Performance-based quality contracts for the bus sector: delivering social and commercial value for money*,  
Transportation Research Board, Part B 38 pp 123-146

Johansen, K.W., B Norheim , (1999) *Quality Contracts - Discussion of output-based subsidy contracts.*  
TOI report 455/1999 with summary in English. Oslo: Institute of transport economics

Johansen, K.W., O I Larsen and B Norheim, (2001) *Towards achievement of both Allocative Efficiency and X-Efficiency in Public Transport*,  
Journal of Transport Economics and Policy, Vol 35 Part 3, September 2001, pp 491-511

Larsen O I (2001)

*Designing incentive schemes for public transport operators in Hordaland county, Norway.*  
Paper presented at the Seventh International Conference on Competition and Ownership in Land Passenger Transport (Thredbo), Molde 2002

Longva F, Bekken J and Norheim B (2003)

*Tendering and organising incentive contracts for public transport in Telemark county*  
TOI report 676/2003 with summary in English. Oslo: Institute of transport economics

Norheim B (1999)

*Competitive pressure as an alternative to competitive tendering? The development of a performance contract in Oslo.*  
Sixth International Conference on Competition and Ownership in Land passenger Transport Cape Town, South Africa, 1999.

Van de Velde, D. (2003) *Regulation and competition in the European land transport industry: Some recent evolutions*, Working paper at the 8<sup>th</sup> Conference on Competition and Ownership in Land Passenger Transport, 14-18 September 2003.

Van de Velde, D. and E Pruijmboom (2003) *First experiences with tendering at the tactical level (service design) in Dutch public transport*, Working paper at the 8<sup>th</sup> Conference on Competition and Ownership in Land Passenger Transport, 14-18 September 2003.

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<sup>i</sup> The majority of gross contracts include one or more incentives to compensate for this condition, but in all cases these incentives are much weaker than the incentive that is included in net contracts with income responsibility.

<sup>ii</sup> See van de Velde and Pruijmboom (2003) for further description of the Dutch reform in a nutshell.