

COMPETITIVE TENDERING AND STRUCTURAL CHANGES IN THE BUS INDUSTRY – THE NORWEGIAN CASE

Terje Mathisen
and
Gisle Solvoll
Bodø Graduate School of Business

1. INTRODUCTION

In Norway, as in many other European countries, transport companies operating services on road and rail receive substantial subsidies from the authorities. During the last decades, governments all over the world have converted parts or all of their public transport systems to competitive market mechanisms and, according to a world review by Cox and Duthion (2001), the results have always been cost savings. Also the transport industry in the Nordic countries has been partially exposed to competition, but public authorities still exercise strong control over the quality and quantity of the services offered compared to the situation in countries with more extensive deregulation, such as Great Britain.

Historically, Norwegian public bus transport services have been subject to substantial public regulation. Until 1991, the county councils in Norway used either direct negotiations, standardised cost norms or a combination of the two to estimate the size of the subsidy allocated to a bus operator. In 1991 transport legislation was changed, and from 1994, county councils were also allowed to use competitive tendering as an alternative to negotiations and cost norms. However, during the first eight years, until 2002, operators had the opportunity to cease their operations and demand public realisation of operating equipment and fixed assets related to production if more than 20 percent of the companies' bus production was offered for tender. Consequently, today, county councils in Norway can either use direct negotiation, cost norms or tendering when distributing subsidies among bus operators.

Despite the opportunity to use tendering, it has up to now only been initiated on a limited part of bus services in Norway. Many county councils are still unsure whether they should introduce competitive tendering or not. An alternative is the use of long-term performance-based contracts in which the counties commit themselves not to use tendering in the contract period if the operators manage to reduce production costs. However, despite the modest use of tendering, the average cost per vehicle-kms has showed a decreasing trend in Norway during the nineties (Carlquist and Johansen, 1999). Cost reductions can be explained both by the actual use of tendering, but also by the authorities' opportunity and threat to put bus services out to tender.

The trend indicates a growing scale of competitive tendering in bus operations in Norway. After a slow introduction, the use of contracts obtained by competitive procedures has increased substantially during the last few years. The share of production put out to tender was 3 percent in 1999, 7 percent in 2001, 16 percent in 2003 and 20 percent in the spring of 2005 (Carlquist and Johansen, 1999, Frøysadal,

2002, The Federation of Norwegian Transport Companies, 2005). Based on statements from the counties this share is expected to grow to approximately 30 percent in 2009. Still, this is modest compared to the neighbouring country Sweden which in 1995 had 70 percent of its traffic volume subjected to competitive tendering (Alexandersson, et al., 1998).

The use of competitive tendering varies considerably between the Norwegian counties. While some counties have decided to put all bus services out to tender, others have decided still to negotiate all contracts. Several counties have negotiated contracts that end between 2006 and 2008 and some of them are planned to be renewed by competitive tendering. The rate of implementation depends on local political directions. Different political parties have differing attitudes towards tendering. Therefore, the outcome of county council elections has direct influence on the progression in application of competitive tendering.

The introduction of tendering in the Norwegian bus industry in 1994 has, despite its modest use, not only influenced the efficiency in bus operations. The 'new' procurement regime has also changed both the number of bus operators, and the ownership structure in the bus industry. Among other things we have witnessed many take-overs and a growing degree of ownership links. Moreover, operators from countries outside Norway, e.g. Connex (France), have begun to acquire shares in Norwegian transport companies. It looks as though transport companies have started determined positioning in response to an expected increase in competitive tendering in the Norwegian transport industry.

The aim of this paper is to provide a thorough description of the structural changes in the Norwegian bus industry. We analyse how the number of companies and the ownership structure has changed since the beginning of the nineties when competitive tendering was introduced. The implications of the structural changes on the local transport authority's procurement policy will also be discussed.

The paper is organised as follows: Section 2 presents and discusses the structural changes in the bus industry in Norway concerning both the number and size of companies and the ownership structure. In section 3 we discuss important implications of the structural changes among the bus operators and finally, in section 4, we summarise the main conclusions from our work and offer some proposals for further research.

2. STRUCTURAL CHANGES IN THE NORWEGIAN BUS INDUSTRY

When describing the structural changes in the bus industry we will focus on two main dimensions; the number and size of companies and the ownership structure.

Our data set consists of information from bus operators in Norway in 1991 and 2004; i.e. before the introduction of tendering and after about ten years of the 'new' procurement regime. All bus companies providing local bus services are included in the data base. However, only bus operators which are granted subsidies from the transport authorities will be analysed. Therefore, bus companies only operating tour

coaches and other purely commercial operations are not included in this analysis. Also companies only running school transport are omitted from the data base.

The size of the companies varies from about 9000 vehicle-kms to 22 million vehicle-kms. All bus operators are obliged to report accounting and production information to the authorities and this information is accessible through national data bases. Further information used in the analysis (shareholders and extensiveness of cross-ownership) is obtained directly from the bus operators and the transport authorities in Norway's 19 counties.

2.1 Number and size of companies

Table 1 shows the number of bus operators in Norway in 1991 and 2004 distributed according to the different counties. It should be noticed that, due to ownership links, the actual number of independent operators is lower than exhibited in the table.

Table 1: Number of bus companies in different counties in Norway in 1991 and 2004.

<i>County</i>	<i>1991</i>	<i>2004</i>	<i>Change</i>	
			<i>Number</i>	<i>Percent</i>
Østfold	11	5	-6	-55 %
Akershus/Oslo	11	5	-6	-55 %
Hedmark	8	2	-6	-75 %
Oppland	13	7	-6	-46 %
Buskerud	11	7	-4	-36 %
Vestfold	11	0	-11	-100 %
Telemark	12	8	-4	-33 %
Aust-Agder	6	6	0	0 %
Vest-Agder	4	3	-1	-25 %
Rogaland	15	12	-3	-20 %
Hordaland	13	6	-7	-54 %
Sogn og Fjordane	6	4	-2	-33 %
Møre og Romsdal	17	9	-8	-47 %
Sør-Trøndelag	6	5	-1	-17 %
Nord- Trøndelag	13	4	-9	-69 %
Nordland	11	8	-3	-27 %
Troms	4	3	-1	-25 %
Finnmark	1	1	0	0 %
Total	173	95	78	-45 %

- Companies are categorised according to postal address.
- Companies only running school transports are omitted.

As shown in Table 1 the total number of bus operators in Norway has been reduced by 78 from 173 in 1991 to 95 in 2004. This is a reduction of 45 percent. The table shows the distribution of bus companies according to postal address and indicate

where the bus companies have their central office. Even though Norway has 19 counties, the production in the Norwegian capital, Oslo, and the adjacent county is so closely connected that we have merged the two counties in the table. In 1991 practically every company only operated within its 'home' county due to historical exclusive rights to specific concession areas. Competitive tendering has made it possible for companies to operate in other counties than their 'home' county and has led to a higher geographical scattering of the bus companies' production. Hence, the actual number of companies operating in each county is slightly different from the situation showed in Table 1. E.g. in the county of Vestfold, where no companies have central office, there are two bus operators in 2004.

A 45 percent decrease in the number of bus companies during a 13 year period is quite considerable. All counties, except two, have experienced a reduction in the number of companies. Because the yearly bus production has been relatively stable¹, take-overs have increased the average company size. Measuring average company size by vehicle-kms, the growth has been 65 percent from 1.7 million vehicle-kms in 1991 (Solvoll, et al., 1994) to 2.8 million vehicle-kms in 2004. Ranked from large to small, the number of companies constituting half of the production has been reduced from 28 in 1991 to 15 in 2004. However, their share of the total number of companies has been stable at about 15 percent. This indicates that even though there are fewer and larger companies in 2004, the relative distribution of small and large companies is about the same as in 1991.

Furthermore, Table 1 shows that the reduction in the number of bus operators varies substantially between counties. The counties with the highest decrease in number of bus companies have experienced several mergers and extensive use of tendering. Several minor local companies have been ousted through competitive tendering and taken over by companies based in other counties. Ownership links set aside, 10 of the 95 companies operated in two or more counties in 2004.

Our data indicate that counties with modest changes in the number of companies are reluctant to initiate competitive tendering. All counties with a less than 50 percent decrease in the number of companies have not implemented or have moderate use of competitive tendering. On the contrary, the only county with no local bus companies (Vestfold) has put all its production out to tender. A simple analysis based on the 18 units gives competitive tendering and the number of bus companies a correlation of -0,624². The correlation is significant at a 1 percent level and indicates a negative relationship between the use of tendering and the number of bus operators. An interpretation of this relationship is that the number of bus companies in a county is reduced by 6 percent, if competitive tendering is increased by 10 percent.

Use of competitive tendering is expected to increase the efficiency of bus operations and thereby reduce the need for subsidies. Cost reductions are empirically proven by surveys in Norway (Carlquist and Johansen, 1999), Sweden (Alexandersson, et al., 1998) and in several other European countries (Transportrådet, 1998). As shown in Table 1, a reduction in the number of operators is another important consequence of the 'new' procurement regime.

2.2 Ownership structure

Table 2 describes the number of privately and publicly owned bus companies in Norway in 1991 and 2004. An operator is defined as privately owned if the majority of the shares is controlled by individuals or private companies. Otherwise the company is considered to be publicly owned.

Table 2: The ownership structure in Norwegian bus companies in 1991 and 2004.

	1991		2004		Change	
	Number	Share	Number	Share	Number	Percent
Companies with a majority of public owners	41	24 %	36	38 %	- 5	- 12 %
Companies with a majority of private owners	132	76 %	59	62 %	- 73	- 55 %
Total	173	100 %	95	100 %	- 78	- 45 %

Table 2 shows that the reduction in the number of bus companies in Norway in the period from 1991 to 2004 has been greatest for the privately owned companies with 55 percent. Consequently, the relative share of publicly owned companies has increased from 24 percent in 1991 to 38 percent in 2004. The take-overs between 1991 and 2004 have clearly affected private companies more strongly than public companies. Despite a substantial decrease in the number of private companies they still constitute a majority of the total number of bus operators in Norway.

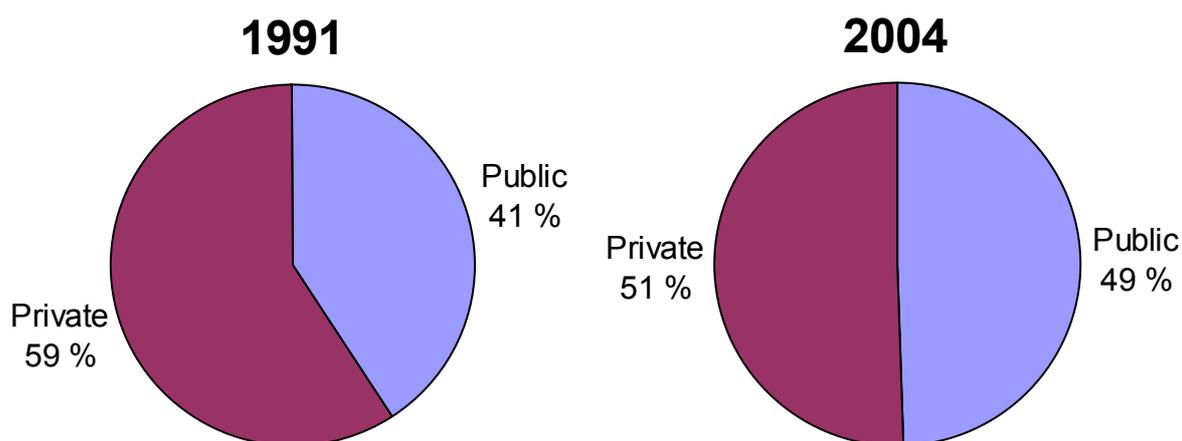


Figure 1: The distribution of vehicle-kms between public and private bus companies in Norway in 1991 and 2004

The ratio between public and private companies change when looking at total vehicle-kms produced instead of the number of companies. Figure 1 illustrates that the differences between public and private controlled bus operators have decreased from 1991 to 2004. While private companies in 1991 were responsible for 59 percent of vehicle-kms produced, in 2004 the private share had fallen to about 51 percent. Consequently, today the subsidised bus services in Norway are divided almost evenly between publicly and privately owned companies.

Table 2 and Figure 1 shows that public companies have increased their market shares during the last 13 years. Public companies have grown, mainly because of one group of companies, Nettbuss AS, which is fully owned by The Norwegian State Railways (NSB). Nettbuss AS is present in 15 of the 19 counties, and is responsible for about one third of the total subsidised bus services in Norway.

Market concentration was in 1999 described by the market shares for dominating alliances of independent operators (Carlquist and Johansen, 1999). The increased ownership links since then entail that large groups of companies dominate the market shares in 2004. Thus, the market concentration in Norway has gone through two stages; starting with the forming of strategic alliances of independent operators followed by a quite rapid growth in large groups of companies with strong ownership links.

Most bus operators in Norway are attached to one of the large ownership groups. Next to Nettbuss AS, there are seven large groups of owners that include about 50 percent of the companies and about 75 percent of the traffic volume³. A thorough study of the 2004 data set shows that 57 percent of transport companies have owners that, either directly or indirectly, have shares in other bus companies. This indicates that most of the companies with bus operations in Norway are related to some extent. About 46 percent of the total number of companies operate side by side in a county together with companies within the same group of companies, of them 42 percent are affiliated or consolidated companies and 4 percent companies with minor ownership links. Therefore, in a situation of competitive tendering, it is likely that some of the bidders have quite strong ownership links.

To our knowledge, there were no Norwegian bus companies with a majority of foreign owners in 1991. A historic review shows that mainly British, French and Swedish shareholders have entered the Norwegian bus industry since 1994, when competitive tendering was introduced. Today the foreign controlled companies operate in 8 of 19 counties, including both rural and urban areas. Even though only 6 out of 95 companies in our data set are classified as foreign-owned, these companies are responsible for over 31 million vehicle-kms or about 12 percent of the traffic volume. A recent example of a foreign take-over is Connex which in 2003 acquired the only transport company in Finnmark, a company which had been fully owned by the county of Finnmark for 100 years.

The ownership structure in the Norwegian bus industry changes rapidly. However, despite the considerable changes there have been no new entries of Norwegian bus operators, only consolidation and change of owners in the existing ones. Since the extraction of the cross-sectional ownership data at the end of 2004, some considerable ownership changes have taken place. Most important is Connex's take-

over in Sør-Trøndelag in April 2005 and Nordland in June 2005, introducing bus companies with a foreign ownership majority in two more Norwegian counties.

3. IMPLICATIONS OF A MORE CONCENTRATED OWNERSHIP STRUCTURE

The increased company size and considerable decrease in the number of bus operators in Norway presented in section 2.1 can be seen as one consequence of a growing use of competitive tendering. Isolated, this could be regarded as desirable if larger companies operate more cost efficiently than smaller ones. However, studies of economies of scale in the Norwegian bus industry (Jørgensen, et al., 1995, Jørgensen, et al., 1997, Odeck and Alkadi, 2004) and in the British bus industry (Cowie and Asenova, 1999) show that the average cost curve is slightly U-shaped and rather flat when output exceeds a certain minimum level. This indicates almost constant scale elasticity in the bus industry. Preston (2001) explains the existence of large bus companies despite the lack of economies of scale by advantages such as higher purchasing power and market power that do not show up in these types of analyses. Consequently, structural changes among the bus operators must principally be viewed as strategic positioning to meet the new competitive regime, rather than an approach to reducing average costs through economies of scale.

Normally, in a competitive market, the level of competition will be reduced if the number of competitors decreases. It is well known from microeconomic models that company profit increases as the market moves from perfect competition towards monopoly. A corporate strategy is to reduce the competition by acquiring shares in competing companies, and thereby take part in the rivals' profit and strategy plans. This is probably what we can observe in the Norwegian bus industry today.

Competitive tendering of bus services can be seen as a one round auction and it is reasonable that the degree of ownership links between the bidders will influence the result. Therefore, a problem in a market with only a few bus operators with extensive ownership links is the possibility for collaborative agreements that will weaken the potential efficiency gains through the use of competitive tendering. Theoretical studies of auctions conclude that ownership links between bidders generally damage both seller and society (Chillemi, 2005). In the context of bus tendering, ownership links would lead to higher subsidies than necessary. These effects are, in a general Cournot model, proven to be substantial even with relatively small ownership shares (Reynolds and Snapp, 1986). However, due to the interwoven and complex relationships between companies, it is difficult to measure and carry out empirical analysis of this ownership link problem.

As described in section 2.2, the public ownership share in Norwegian bus companies has increased during the last years. One commonly stated presumption is that publicly owned companies are less efficient than privately owned companies, firstly because public owners put less stress on management to improve profits than is the case with private owners, and secondly because a public company has other goals concerning the operation than a private profit maximising firm (Sandmo, 2001). However, the empirical literature is ambiguous on this topic. Cowie and Asenova (1999) refer to North American studies in which higher costs have been found to be present in publicly owned companies while Filippini and Prioni (2003), with a study of

the bus industry in Switzerland, can only partly confirm these assumptions. Analysis of the Norwegian bus industry finds, on the contrary, no evidence that privately owned companies exhibit superior efficiency to companies in public ownership (Jørgensen, et al., 1995). Similar findings for Europe is referred to by Transportrådet (1998), concluding that it is the presence of competition that increases efficiency and that public or private ownership has less importance. With the high market share of public companies in Norway, despite the increased focus on efficient bus operations through the introduction of cost norms and competitive tendering, there is no reason to believe that this conclusion has changed.

An example from the Norwegian bus industry is the large group of companies owned by state subsidiaries which operates with few or no local connections and thereby naturally can be categorised as a private participant. Hence, we find it reasonable to assume that only public companies with strong connections to the local area perform in a less profit oriented way. This assumption is supported by Cowie and Asenova (1999) who study ownership in relation to efficiency in the British bus industry, and suggest splitting the category of public companies between public limited holding companies and companies owned by local authorities. This is a

The introduction of competitive tendering and the following concentration in ownership structure has, in addition to decreasing the number of companies and increasing ownership links, clearly reduced the local authorities' ability to determine the quality of transport services through direct ownership control. Counties have reduced their ownership interests in transport companies, and are thereby in a weaker position to influence the companies' strategies directly. Transport authorities should be aware of these structural changes when considering the future progress of the implementation of competitive tendering. A worst case scenario would be if the bus industry should develop towards local monopolies leaving the counties with only one transport company to perform bus services.

To avoid this possible unwanted long-term effect of the extensive use of competitive tendering, we now see a growing interest in the use of performance- and output-based contracting as an alternative to competitive tendering (Norheim, 2002). Such contracts are argued to be more attractive than competitive tendering in terms of securing the maximum social surplus to the community, given the total amount of subsidy support available (Hensher and Stanley, 2003).

4. SUMMARY AND CONCLUDING REMARKS

The use of competitive tendering in bus operations is substantially lower in Norway than in the other Scandinavian countries and UK. After a careful introduction in 1991, today only 20 percent of bus production has been offered for competitive tendering, with an expected increase to 30 percent in 2009.

Despite the modest use of competitive tendering, we have seen a considerable change in the ownership structure among Norwegian bus operators since 1991. In this paper we have given a review of the changes in market structure that have taken place in the Norwegian bus industry between 1991, when tendering was introduced, and 2004. Our main findings are as follows:

- There has been a 45 percent decrease in the number of bus operators; from 173 in 1991 to 95 in 2004. This has led to a 65 percent increased average company size; from 1.7 million vehicle-kms to 2.8 million vehicle-kms per year.
- The reduction in the number of bus companies has been greatest in the counties with the most extensive use of competitive tendering.
- Bus companies with a majority of public owners have increased their relative market shares from 1991 to 2005, both regarding the number of companies and the share of production.
- The development in ownership structure shows an increasingly complex and interwoven set of ownership links and the entry of foreign-owned companies in 8 of the 19 counties.

The use of tendering has changed the market structure of the bus industry in Norway in the direction of a more concentrated ownership structure. In a long-term view this might lead to undesirable local monopolies which can weaken the competition in competitive tendering. Therefore, for the local transport authorities it is important to bear in mind that competitive tendering is only means of achieving efficiency and not a goal in itself. By combining different forms of procurement strategies, local authorities can maintain both the basis for competition and the overall objective of maximising the social surplus of public transport services.

The findings from this paper provide the basis for further research on competitive tendering in the Norwegian bus industry. A thorough review of earlier tendering processes would be useful to answer the question whether structural changes in the Norwegian bus industry present problems for the local transport authorities concerning the use of competitive tendering in the future. The review should include a study of whether groups of companies have strategies to coordinate the competition between their subsidiaries and whether they have geographical preferences regarding the area in which they wish to operate.

REFERENCES

- Alexandersson, G., Hulten, S. and Folster, S. (1998) The effects of competition in Swedish local bus services, **Journal of Transport Economics and Policy**, **32** (2) 203-219.
- Carlquist, E. and Johansen, K. W. (1999) **Local public transport systems: financial and organisational frameworks in Norway and abroad**, Rep. No. 451/1999, Institute of Transport Economics, Oslo.
- Chillemi, O. (2005) Cross-owned firms competing in auctions, **Games and Economic Behavior**, **51** (1) 1.
- Cowie, J. and Asenova, D. (1999) Organisation form, scale effects and efficiency in the British bus industry, **Transportation**, **26** (3) 231-248.
- Cox, W. and Duthion, B. (2001) Competition in urban public transport - A world view, **Proceedings of the 7th International Conference on Competition and Ownership in Land Transport**, Molde, Norway.
- Filippini, M. and Prioni, P. (2003) The influence of ownership on the cost of bus service provision in Switzerland - an empirical illustration, **Applied Economics**, **35** (6) 683-690.
- Frøysadal, E. (2002) Kontraktsmangfold i kollektivtrafikken (Contracts in public transport), **Samferdsel**, (9), (in Norwegian).
- Hensher, D. A. and Stanley, J. (2003) Performance-based quality contracts in bus service provision, **Transportation Research Part A - Policy and Practice**, **37** (6) 519-538.
- Jørgensen, F., Pedersen, P. A. and Solvoll, G. (1995) The costs of bus operations in Norway. **Journal of Transport Economics and Policy**, **29** (3) 253-262.
- Jørgensen, F., Pedersen, P. A. and Volden, R. (1997) Estimating the inefficiency in the Norwegian bus industry from stochastic cost frontier models, **Transportation**, **24** (4) 421-433.
- Norheim, B. (2002) Market efficient urban public transport – Optimal incentives under different constraints, **Proceedings of the European Transport Conference**, Cambridge, UK.
- Odeck, J. and Alkadi, A. (2004) The performance of subsidized urban and rural public bus operators: Empirical evidence from Norway, **Annals of Regional Science**, **38** (3) 413-431.
- Preston, J. (2001) Regulation policy in land passenger transportation in Europe, **Proceedings of the 7th International Conference on Competition and Ownership in Land Transport**, Molde, Norway.

Reynolds, R. J. and Snapp, B. R. (1986) The competitive effects of partial equity interests and joint ventures, **International Journal of Industrial Organization**, **4** (2) 141.

Sandmo, A. (2001) Offentlig tjenesteproduksjon: teori om (in)effektivitet, (Public service production: theory of (in)efficiency), **Økonomisk forum**, **55** (6) 30-37, (in Norwegian).

Solvoll, G., Pedersen, P. A. and Jørgensen, F. (1994) **Trafikkselskapsstruktur og effektivitet: en analyse av bussdriften i Norge**, (Market structure and efficiency: an analysis of the Norwegian bus industry), Rep. No. 4/1994, Nordland Research Institute, Bodø. (in Norwegian).

The Federation of Norwegian Transport Companies (2005) *Status for anbud i bussbransjen*, (Status for competitive tendering in the bus industry), (in Norwegian).

Transportrådet (1998) *Bustrafik i 7 Europæiske Lande - Oversigt over organisering*, (The organisation of bus services in 7 European countries –a review), (in Danish), Working paper 1/1998.

Notes

¹According to the Transport and Communication Statistics presented by Statistics Norway the total production for scheduled road transport was 3890 million passenger-kms in 1990 and 4231 million passenger-kms in 2004.

²This Pearson correlation has a two tailed significance on 0,006 and is estimated between the factors "share, in percent, of vehicle-kms offered for tendering in the county in 2004" and "change, in percent, in the number of bus companies in a county between 1991 and 2004".

³The seven groups next to Nettbuss AS exceeding 5 % of the market share measured in vehicle-kms are HSD ASA, TTS ASA (incl. Fosen Trafikklag ASA which is the major shareholder in Norgesbuss AS), Connex Norge AS, Gaia Trafikk AS, Schøyens Bilcentraler AS, Fjord 1 Nordvestlandske and TFDS ASA.