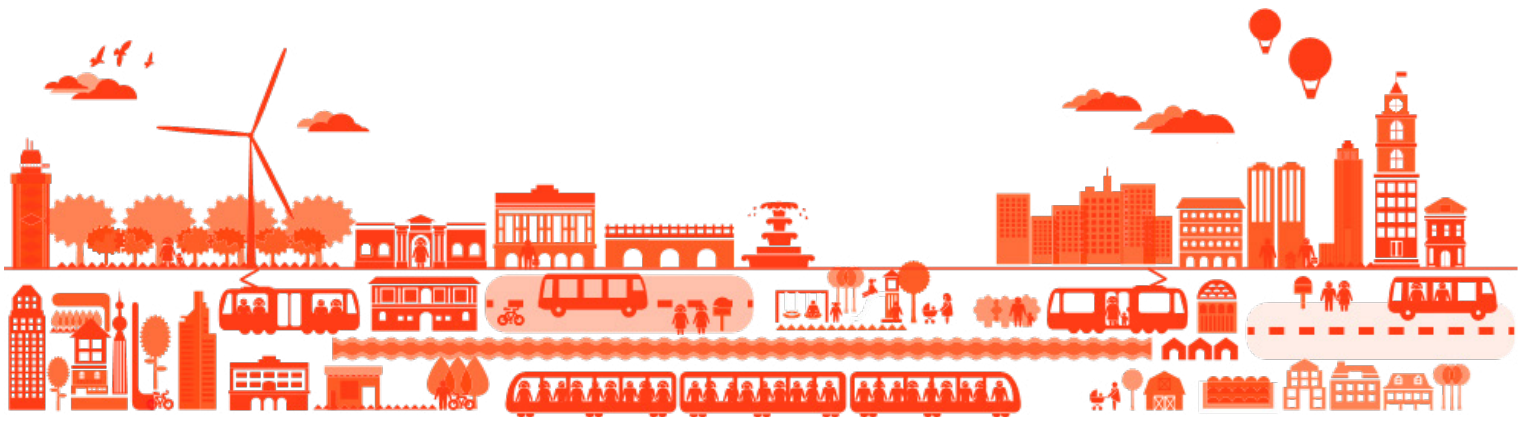
K2 WORKING PAPER 2022:5

Has collaboration contributed to goal achievement in Swedish public transport?

Roger Pyddoke and Karin Thoresson



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Foreword

This study is the first part of the project “Collaborative partnerships and contracts with effects?”. It has been conducted by VTI with funding from and in collaboration with K2 – the Swedish Knowledge Centre for Public Transport. The authors are grateful to employees at Västtrafik and Skånetrafiken for their cooperation and for providing data. The paper also benefited from comments from the reference group, Dr Wijnand Veeneman and the VTI review seminar in May 2022 with Ph D Anders Bondemark as the reviewer, and the Transportforum 2022 conference.

Stockholm, June 2022

Roger Pyddoke

Project manager

Summary

Collaborative contracting between public transport authorities (PTAs) and bus operators has been presented as a successful method for reaching public transport policy goals. This paper examines management processes and outcome data, asking whether this management approach, incorporating more far-reaching collaborative elements, is associated with higher goal achievement in two Swedish regions and two contracts. Stated regional policy goals are ridership growth, reaching set levels of customer satisfaction, and some cost-efficiency. This management approach suggests that PTAs should delegate more planning responsibility to operators. PTA management assessed the approach to be valid but, to our surprise, also said that they frequently reclaimed previously abandoned control to secure desired outcomes. This indicates that more delegation may not necessarily have led to increased goal achievement. Without making claims as to causality, we note that ridership increased in both regions and individual contracts, while customer satisfaction stagnated and costs increased steeply in both regions, but not in one contract. The paper questions whether collaborative contracting, on average, has contributed to ridership increases, although it may have in some instances.

Sammanfattning

Samverkan mellan regionala kollektivtrafikmyndigheter (RKTM) och bussoperatörer har framställts som en framgångsrik metod för att nå kollektivtrafikens politiska mål. Den här artikeln undersöker ledningsprocesser och resultatdata och frågar sig om denna upphandlingsmetod, som innehåller mer långtgående samverkanselement, är förknippad med högre måluppfyllelse i två svenska regioner och två kontrakt. De uttalade regionala målen är att öka antalet passagerare, nå fastställda nivåer av kundnöjdhet och viss kostnadseffektivitet. Denna upphandlingsmetod föreslår att RKTM bör delegera mer planeringsansvar till operatörerna. RKTM:s ledningar bedömde att tillvägagångssättet var giltigt, men till vår förvåning, sa de också att de ofta återtog tidigare överlämnat ansvar för att säkerställa önskade resultat. Detta tyder på att mer delegering inte nödvändigtvis har lett till ökad måluppfyllelse. Utan att göra anspråk på kausalitet, noterar vi att antalet påstigande ökade i både regioner och individuella kontrakt, medan kundnöjdheten stagnerade och kostnaderna ökade kraftigt i båda regionerna, men inte i ett kontrakt. Artikeln ifrågasätter huruvida samverkansavtalen i genomsnitt har bidragit till ökat påstigande, även om det kan ha gjort det i vissa fall.

1. Introduction

1.1. Problem and background

Earlier research on collaboration in public transport has argued that collaboration has been a critical success factor in the planning and production of public transport (see, e.g., Hrelja et al. 2016) and that it can support well-functioning public transport (Hrelja et al. 2018). Hrelja et al. (2018) qualified this, however, warning that these perceptions may be management rhetoric and that the claims need to be examined.

This paper examines "collaborative" aspects of the procurement of bus service contracts in the regions of Skåne and Västra Götaland in Sweden, in aggregate and in two separate contracts, one in each region, in the 2015–2019 period, and describes the outcomes in terms of ridership, customer satisfaction, and costs. The two contracts were nominated by the public transport authorities (PTAs) as particularly successful in reaching political goals. The paper asks two questions: How have management and collaboration evolved to cope with public transport goals? Can it be shown that new contracts with allegedly more collaborative elements are superior to their preceding alternatives at achieving goals?

The paper uses a combination of qualitative and quantitative methods for case studies.[1] We examine claims regarding the contribution of collaboration by analyzing goal documentation, management guidelines, and contracts and by interviewing PTA and operator management to map how collaboration was implemented. We study outcomes by describing data capturing how goal outcomes developed during the studied period.

Collaboration was defined in contracts as governing group activities in which representatives of the parties met regularly to identify operational problems, prepare proposals, and make decisions on the PTA goals and on actions needed to work towards them. This definition of collaboration is inclusive, not implying a distinct time when collaboration starts, as earlier contracts also involved meetings, follow-ups, and agreements on measures to be taken. A possible novelty beginning around 2010 was a conscious shift of responsibilities for timetable planning to operators. Regarding the two studied cases, the Hisingen contract started in 2013 and the Malmö–Lund contract started in 2016. We have therefore chosen to think of these contracts as starting points of a partly new set of ideas guiding the PTA–operator relationship, and therefore as new collaborations. In both cases, the collaboration includes relationships with the respective municipalities with the aim of managing the infrastructure for bus stops, terminals, and traffic conditions.

In the first decade of this century, the almost ubiquitous procurement of bus service in Sweden entered a period of modest ridership growth, rapid cost increases for PTAs, and

[1] In a companion paper (Thoresson and Pyddoke 2022) the analysis focuses more on the history of the management approach and how it is justified in documents and by management.

decreasing profitability for operators (e.g., Nilsson 2011; Rye and Wretstrand 2014). This development prompted PTAs and operators to aim for faster ridership growth. In 2006, the predecessor of the Swedish Public Transport Association and the trade organization of operators stated that local public transport needed reform. The main problem was identified as too little attention to what travelers wanted. This problem, it was claimed, was exacerbated by procurement practice that allowed little room for operators to adapt supply to traveler demand and by declining operator profits. The parties agreed that a common policy was needed to improve the development of the business. In 2008, a joint undertaking by the same group (i.e., PTAs and operators) proposed a national goal of doubling ridership by 2020 compared with 2006. Soon afterwards, a new business model was presented (Partnersamverkan 2009) in which the joint undertaking proposed using ridership incentives to stimulate ridership growth. In the same year, a government commissioner outlined the reform of regional public transport (SOU 2009:39). One emerging component of this new policy was collaboration (for more on this, see, e.g., Partnersamverkan 2009; Rye and Wretstrand 2014).

This paper is the first, to our knowledge, that examines collaboration in public transport contracts with respect to advancing the attainment of public transport goals. The main contribution is to demonstrate the tension between a management approach suggesting the harmonious fusion of PTA and operator goals and a practice in which operators did not fully adopt the PTA goals. Collaboration meant delegating more planning to operators, trusting their capabilities to lead to higher levels of goal achievement. These tasks mostly concerned timetable adjustments. This was previously done by PTAs. Later PTAs found that all problems were not solved, leading PTAs to resume responsibility for aspects of analysis and planning. This indicates that an initially simplistic view of the potential for delegation did not appear to have held. Earlier papers on collaboration, as described below in the literature section, have focused on the perceptions of involved individuals of how the collaborative process in itself worked and not on content or outcomes.

We have examined bus service in two Swedish regions and in two contracts in terms of outcome data, but have not examined causality in an econometric sense. Our data shows that ridership increased more in Västra Götaland than in Skåne and substantially in both the studied contracts. While collaboration may have contributed to ridership increases in some contracts, a previous study (Vigren and Pyddoke 2020) analyzing contracts in Skåne could not prove that the new collaborative contracts on average increased ridership more than in the previous form of contract. Customer satisfaction stagnated in both regions and both contracts. Costs increased more in Västra Götaland than in Skåne, and much in Hisingen. This and earlier studies suggest that parts of the increases in costs are due to factors that are hard or beyond the influence of operators. In the case of Hisingen the large cost increases appears to be partly attributable to decreased accessibility for buses in streets.

The paper is organized as follows. Section 2 reviews the literature. Section 3 presents the methodology and materials used in the paper. Section 4 describes the goals of the PTAs and operators and how these are implemented in contracts. Section 5 presents the results of interviews. Section 6 analyses the data, and section 7 finally discusses the findings and concludes the paper.

2. Literature

This paper builds on several strands of literature, mostly concerning welfare-optimal public transport, demand for public transport, collaboration in public transport, political science of procurement, and economics of the governance of private and public procurement.

2.1. The apparent and real political goals for public transport

This paper's concern with seeking possible explanations for desired effects calls for some analysis of what the relevant goals may have been. Section 4 describes the stated goals of the two PTAs. The literature on partnerships and collaboration (e.g., Hrelja et al. 2018; Rye and Wretstrand 2014; Sørensen and Longva 2011) focuses on the relationship and not on goals and goal achievement. Any attempt to evaluate the outcomes of public transport collaboration and contracts will, however, have to make assumptions as to the social goals.

In Sweden the political goals for public transport can be found in each region's traffic supply program (TSP; Swedish, "Trafikförsörjningsprogram") mandated by the Public Transport Act (2010:1065) and enacted in 2013. The overarching goals of national transport policy are found in the white paper on national transport policy (prop. 2008/09:93). The scholarly literature on the goals for public transport (examples are Walker 2008, Cohen-Blankshtain and Feitelson 2011, Manaugh et al 2015), gave the observation in that it was difficult to bring together all stated goals and weighing them together.

The economic literature on the optimal design of public transport supply has mostly assumed that the goal is social welfare optimization, with social welfare being constructed as the sum of consumer surpluses, consisting mostly of passenger valuations of time components (e.g., travel, waiting, changing, and delays), producer surpluses (i.e., the net of revenues minus costs), and externality costs (see, e.g., Hörcher and Tirachini 2020). This representation of the public goal implies that most of the social benefits generated by public transport improvements are due to different kinds of time savings (e.g., for travel, waiting, changing, and delays), sometimes with more weight on the welfare of low-income individuals. These benefits are balanced by the costs of the production and an extra weight on the cost to the public purse of delivering public services. Applying such social welfare maximization analysis to two smaller Swedish cities indicated that the current supply of public transport was larger than the socially optimal amount (Asplund and Pyddoke 2020; Börjesson et al. 2019).

Economists have also attempted to explain the deviation between real world public transport policy decisions and social welfare maximizing policies. De Borger and Proost (2015) use a model of political competition for government to explain the configuration

of political goals. The paper demonstrated how the shares of voters having access to cars and only to public transport respectively and the degree of decentralization of the political mandate to decide on the fares and supply of public transport significantly can influence political decision on fares and supply of frequencies and the level of subsidization. Their results indicate that regional decision making is likely to lead to low fares and cost recovery, that cost recovery may increase with the share of outside users and that higher degree of decentralization of public transport decisions may lead to higher cost recovery.

2.2. Important factors influencing public transport demand

Although operators can independently influence public transport demand, their opportunities to do so, and the relevant incentives to independently increase demand under current Swedish contract regimes, including for the two regions studied here, have been small (e.g., Vigren and Pyddoke 2020; Wika Haraldsen and Norheim 2017). Studies have not shown that ridership incentives can influence ridership (Pyddoke and Lindgren 2018; Pyddoke and Swärdh 2018; Vigren and Pyddoke 2020). Vigren and Pyddoke (2020), studying all bus contracts in Skåne before and after the currently analyzed contract in the Malmö–Lund case was implemented, overlapping the period studied here, found no effect of the contract form on ridership. The main observations were that ridership increases appear to have been driven by other factors, such as increased supply and population growth, that operators have minimal freedom to unilaterally change supply, and that supply increases may have been equally important before the introduction of ridership incentives. These results indicate the difficulty of determining the causes of changes in demand or of the effects of management practice, suggesting caution when attributing causes.

Empirically some further important factors potentially influencing demand are demographic factors like, age distribution, employment, and income. The prevalence of congestion and other obstacles are likely to delay and increase the uncertainty of public transport travel. On the other hand, congestion and other factors influencing the relative generalized cost of car use can have strong indirect influence on public transport demand. Such factors include energy prices, supply and pricing of parking.

Politics can have intended and unintended effects on the demand for public transport. In many cities voters and politicians often want both to improve public transport and car use. These goals may be hard to approach simultaneously as policy instruments decreasing the attractivity of car use can be among the most cost efficient policy instruments available for shifting demand to public transport (c.f. Asplund and Pyddoke 2021). Prioritizing buses over private cars by introducing bus lanes and signal priority for buses are such measures.

2.3. Partnerships between PTAs and operators

Studies of collaboration and partnerships in Swedish public transport have examined the relationship aspect (e.g., Hrelja et al. 2016, 2018; Rye et al. 2018), even in earlier literature (e.g., Hensher and Stanley 2010; Stanley and van de Velde 2008). Hrelja et al. (2018) compared organizations in Birmingham (UK) and Gothenburg (Sweden). The central observation was that partnerships with more collaborative elements in the form of regular meetings of representatives of the parties resulting in agreements on goals and measures to be taken and set forth in formal contracts, are seen by management as way to address perceived problems. The development was seen by interviewees as going from "individual short-term profit-motivated action" (p. 336) to "longer-term deliberative collaboration" (p. 336), suggesting the collaboration aspect to be a cause of better results.

Hrelja et al. (2018) reported that growing trust in Sweden has led to a weaker feeling of being monitored, cautioning that cozy relationships between authorities and operators (p. 337) are likely to increase with growing power imbalances (p. 329). Finally, the authors emphasized that they had not analyzed the outcome of the partnerships in terms of ridership, customer satisfaction, etc., and that such an analysis would require a study of its own.

2.4. Learning organizations in public transport

Management theorists like Argyris (1999) and Senge (2006) have developed criteria for learning organizations. An important difference between a company and a public organization is that the ownership of knowledge in a public organization is in principle a concern for all citizens, while in the company it is the concern mostly for the owners and management. Since the enacting of the new public transport law (2010:1065) in 2013 there has been a considerable development of the explicit discussion of goals, the collection of data on the performance of public performance and the dissemination of performance analysis. In all these dimensions, however, scholarly analysts have argued that the analysis of performance, data and openness was insufficient (e.g. Nilsson 2011 and Pyddoke 2020). The argument has not so much been that existing data are at fault, as that further open data and analysis could better inform the public and politicians on the use of public means and guide management better.

2.5. Competence for procurement

Political scientists studying the contracting out of public services have observed that the increasing share of public-sector services contracted out by public agencies in Sweden is likely to have influenced the governance of contracting processes.. Recently two Swedish political scientists noted that the phenomenon of public procurement has been surprisingly absent in scholarly work on the politics of such public sector reforms (Öjehag-Pettersson and Granberg, 2019). In the USA, the scholarly debate on the management of public affairs and contracting out (e.g., Kettl 2016; Resh 2019; Verkuil

2017) has identified loss of competence[2] as a major problem for public administration. Resh (2019), reviewing Verkuil (2017), summarized a central argument that the loss or dismissal of competence has meant that "when these 'steering' functions are put in the hands of opportunistic private entities… several things are lost: a) institutional memory and expertise, b) a sense of a general public purposiveness, and c) meritocratic principles that prevent nepotism, cronyism, and patronage." Resh (2019) also noted the risks associated with "revolving doors" in terms of recruitment between authorities and operators, which could give operators increasing influence over policy, even contracting policy.

Spagnolo (2020) provides a survey of the scholarly literature on competence in procurement. The study points to several empirical studies indicating that higher competence could give better outcomes and lower costs in procurement. The type of organization may also influence the outcome of procurement. Bandiera et al. (2009) e.g. found that semi-autonomous bodies (e.g. universities) that were subject to less stringent rules paid the lowest prices. Examining further public institutions Bandiera et al. found that compared to the semi-autonomous bodies, town governments paid 13% more, regional governments 21% more and ministries 40% more (quoted from Spagnolo 2020 p 68). There are no similar such studies of Swedish procurement known to us.

2.6. Governance and public procurement

Normatively, the purpose of public procurement should be to improve the quality and efficiency of the delivery of a commodity or service that would otherwise have been provided by a public organization. Before procurement was introduced at a large scale in Swedish public transport, the previous organization was a mix of private concessions and public production.

The choice between in-house production or procuring in the public sector recalls the make-or-buy decision in the private sector. Analysis of the make-or-buy decision for private firms was pioneered by, among others, Coase and Williamson (Nobel Prize 2009). The market, Williamson argued, "is likely to work well unless there are obstacles to writing or enforcing detailed contracts" (Nobel Prize 2009, p. 3). With sufficient competition, there is little room for agents to behave strategically. Once an agent on the competitive side of the market acquires relationship-specific capital, however, the room to bargain ex post grows unless there is a complete long-term contract. The potential losses from such ex post bargaining, Williamson observed, are positively related to higher profits for the seller. This may then lead to the integration of firms to reduce losses for the buyer. This aspect has so far received little attention in studies of public transport procurement.

[2] In Sweden, the Stockholm PTA actively divested its analytical competence, selling large parts of its data and its analysis department in 2001 to the private consultancy firm ÅF.

3. Methodology, data and materials

The central hypothesis examined here is that later collaborative contracts have delivered higher goal achievement than did earlier contracts. This examination is limited to the three goals of increased ridership, customer satisfaction reaching a certain targeted level, and cost efficiency requiring cost increases to stay at an acceptable level. For this to be possible, several preconditions must be fulfilled. Increased ridership requires increased supply, which must be cleared with the PTA as it will increase costs. Increased customer satisfaction is also likely to cost more. An important and stated source of increased ridership is moving capacity from lines with less demand, which requires that the PTA is willing to accept decreased supply in some areas. Improved goal attainment in dimensions not analyzed here may also increase costs. Cost increases are largely attributable to increased input costs (Vigren 2015), so not all cost increases can be attributed to measures to increase goal achievement.

As our available data on costs and cost drivers are limited, the potential to examine cost drivers is also limited. Many of the most important cost components are, however, indexed in the contracts with the aim of insuring operators against increases in such costs. Uninsured cost drivers, such as street congestion, are not handled directly in contracts, but delays from such sources can be avoided by adjusting timetables.

The main research methods used here are document studies, interviews, and data compilation and description. The document studies focus on TSPs (in which political goals are documented), management guidelines, and contracts. The interviews focus on how PTA and operator employees perceive goals, collaboration objectives, the content of interactions concerning timetable planning, and negotiations with the municipality about measures to reduce street congestion and possible bus speeds following from that. One crucial issue is whether PTA managers perceive proposals to be contributing to the goals of increased ridership and attention to costs. Another issue is how the PTA has reduced its former planning work and whether this affects its competence as a client. The data part involves compiling data on the traffic outcomes of the contracts in terms of patronage, supply of bus kilometres, costs, customer satisfaction, and punctuality.

If politics is strict on budgets, ambitious PTA-managers can try to gain more ridership increases for the same cost. If politics is more permissive of budget increases PTA-mangers can aim for higher ridership increases at higher costs. The more ambitious management is likely to give more attention to the operator's proposal and possible alternatives, in turn consuming some of the potential savings on resources generated by the delegation to the operator. Our assessment is therefore, that PTA management and operators could reach an agreement on timetable adjustments that increases costs to the PTA and profits to the operator as long as ridership increases sufficiently to satisfy political goals.

4. Goals and contracts

The planning and management of public transport in Swedish regions are intended to be governed by the TSP, the official goal document required by the Public Transport Act (2010:1065). This section briefly introduces the formal requirements of the TSP and related contracts and the collaboration requirements in the contracts.

4.1. Goals of PTAs

These TSPs are required to state:

1. the regions' and municipalities' goals for public transport;
2. what public transport services are subject to public service obligations; and
3. the grounds for setting fares provided by the regional PTA.

In the studied 2015–2019 period, the overarching goals in both regions included: 1. doubling ridership between 2006 and a specified target year; 2. reaching high levels of consumer satisfaction; 3. improving efficiency; and 4. reaching climate and environmental goals. In Västra Götaland, the document stated that it was expected that costs would have to increase to cover expanded services, to be funded by fares or taxes (Region Västra Götaland, 2012, p. 42). Later, the goals shifted and the importance of developing the supply in a cost-efficient way was more emphasized. Rural and suburban traffic in low-demand areas poses an ongoing prioritization problem.

A manager at Västtrafik (the PTA in Västra Götaland) noticed that, since about 2018, there had been more emphasis on economic efficiency and that this pressure came both from political and top-management actors. The goal of increasing or even doubling ridership was no longer stressed; rather, more emphasis was put on making existing supply more efficient and on reducing costs, the manager stated. Managers at Skånetrafiken(the PTA in Skåne) reported a similar shift in goals.

The TFP in Skåne for 2015 and onwards also aimed at doubling the total number of boardings from 2006 but at the earlier date of to 2020 (in both buses and trains). In addition, Skåne aimed at increasing the market share of public transport to 40 percent in 2020. The goal for customer satisfaction was a bit more modest but to an earlier date at least 80 percent satisfied or very satisfied in 2020. Finally, Skåne aimed at completely fossil free traffic in 2030. The document mentions efficiency in terms of supply (p. 6) efficient traffic with short routes, reliable and robust infrastructure with good accessibility (p 27). Efficient traffic in sparsely populated regions poses challenges which require other considerations to be justified (p. 27). Rural traffic must therefore regularly be reconsidered (p. 36).

4.2. Goals of operators

So far, little attention has been paid to the goals of operators. Standard economic modeling assumes profit maximization, sometimes extending over several periods. A dynamic perspective could consider richer representations that could include long-term investments in learning how to profitably win tenders, developing knowhow to service contracts more efficiently, learning about legal ramifications, gaining long-term market power, etc. These goals could all motivate strong challengers to accept short-term losses to invest in a future profitable presence in the market.

4.3. Contracts

The Hisingen contract in Västtrafik and the Malmö–Lund contract in Skånetrafiken are quite similar, partly due to the contract standardization led by the Swedish Public Transport Association.

4.3.1. Collaboration

The description and practice of collaboration has evolved over time in both regions and differs between contracts. The vision of collaboration in Västra Götaland is more elaborated and far-reaching. In the invitation to tender for the Hisingen contract, collaboration was described as follows: "In order to succeed …Västtrafik needs to deepen and improve its cooperation with the operator companies on several levels. The ambition is that all parties should feel that public transport is a shared business." In a more recent contract, the form of collaboration was further developed. This contract has a separate section on "forms of collaboration and business development."[3] The collaboration in the Hisingen contract was organized in the form of a council of partners (Swedish, "partnerråd") including representatives of PTA and operator senior management. This council decides on issues within and extending over the individual contracts, with the mission to develop the public transport of Västtrafik in its entirety not just in the contract in question. The mission is to manage and develop the shared business. The council is supported by a business team (Swedish, "affärsteam"), which acts as the operational management, preparing proposals for changes in supply decided on by the council. This structure of a decision-making group and a group preparing the proposals, follow ups, and adjustments is the same in Skåne. A feature of the collaboration is that the collaboration activities of the operator are expected to be provided without additional payment.

The central tasks of the council and business team in Västra Götaland are to formulate the business plan (revised yearly), design and adjust the supply (ongoing), conduct local marketing (ongoing), follow up the production, and manage by objectives (quarterly). These business plans contain analysis of the production outcome as well as projections and goals for production and ridership. In the Skåne and Malmö–Lund contracts, the business plan is adjusted triannually. An important part of business plan development is

[3] Linje 100 Bilaga C2 Samverkansformer och Affärsutveckling.

to assess the potential for demand growth. This assessment is based on the latest developments, expected population changes due to housing development, and expected demand changes due to changes in population and employment and in the relative attractiveness of the available modes of travel.

The concerned municipalities are further important partners, so “collaboration” is needed with them also. The relationship between the PTA, on one hand, and the operator or municipality, on the other, is not of the same nature. The two parties to the contract agree to have yearly “dialogue meetings” with the concerned municipalities.

4.3.2. Central aspects of the contracts

Both the Hisingen and Malmö–Lund contracts iterated and partly reformulated the regional goals of the then current TSP. Important aspects of the contracts were that the operator was paid for the production of bus hours and bus kilometers and was compensated for the number of buses specified in the contract. There was also a bonus for exceeding the target levels of customer satisfaction. As in the recommended standard contract, there were limits to changes in the total volumes of traffic at given prices; for changes within these limits, special tendered change prices applied. Major cost components were indexed using official indexes.

A further basis for payments was the number of boarding passengers. This incentive requires the operator to equip a minimum number of buses with automatic passenger-counting devices. In the Hisingen contract, these devices were introduced in 2015. This increased the estimated travel, prompting Västtrafik to adjust the ridership incentive payments. In 2019, ridership incentives as a proportion of total payments in both contracts were stated to be about 30%. In the Hisingen contract, quality bonuses constituted approximately 1–3% of total payments. The ridership incentive implies an incentive for operators to ensure that passengers are counted and to initiate capacity transfer from lines with lower demand to lines with higher demand, increasing operator revenues at the same costs. Conversely, the incentive to reduce supply when demand drops below current levels appears to be weaker. Västtrafik has required that operators suggest supply reductions, a requirement met to varying degrees by different operators.

In keeping with the assumption of operational responsibility, in both contracts the operators themselves were charged with substantial parts of the responsibility to follow up. Both the PTAs had invested in acquiring and making data accessible for analysis by the parties. There appears to have been good transparency for the parties but less for the public.

5. Interviews

The interviewed PTA managers were generally positive about the attained results and collaboration. They expressed confidence in the procurement model and the competence of operators. Procuring managers expressed belief that the operators have sufficient or superior competence to plan public transport.

At the same time, PTA managers emphasized that the ultimate responsibility and decision-making regarding what public transport should be provided (and funded publicly) cannot be handed over to operators. Over the last decade, both the PTA and operator managers described the delegation and then reclaiming of management responsibility. It started with the PTA delegating the responsibility for planning to the operators. At Västtrafik, this shift involved reducing the supply-planning staff at the PTA and increasing the corresponding function at the operators. Over time, however, some PTA managers perceived gaps in the coordination between the supply proposed by operators, oversupply tendencies manifested in low occupancy rates, and a general need to weigh overarching considerations associated with congestion and accessibility in the streets. This led PTAs to reclaim control by clarifying guidelines for supply planning and by adding further considerations, which avoided having to redo the coordination afterwards. The need to address coordination among operators also led to meetings attended by all operators.

These clarified guidelines, PTA managers told us, were associated with increased efforts by the PTAs and operators to analyze occupancy and with the need to adjust the supply plans. This reversal of delegation entailed the resumption of planning activity by the PTAs. Unfortunately for research, the data and analyses underlying these decisions appear to be only partially publicly available. Underlying these adjustments were the ongoing changes in population and employment and corresponding changes in demand for public transport that eventually made all assessments of appropriate levels of supply obsolete and in need of adjustment.

The way managers talked about this delegation and then reclaiming of responsibilities was couched in language preserving a high degree of confidence in the basic model of delegating planning to operators. An alternative interpretation of the reported relationships, also compatible with what managers told us, is that individual PTA employees realize that the client role also needs to adapt to changing circumstances and find appropriate measures to prevent undesired outcomes.

Another PTA manager recalled that “to begin with it was easier“ to find useful proposals. But “The proposals were not coordinated. We tended to accept them anyway and they often led to desired results. After a while, we felt we lost control over costs and travel”. This manager continued “we started working hard at steering better” and “we became better”. In 2017 we seriously started to coordinate the proposals. This manager also argued that better communication of desired outcomes has made operators better at

anticipating changes desired by the PTAs. The second PTA manager also stated that monitoring has increasingly developed towards stricter goals and more indicators.

The rescinded delegation of responsibilities was vividly described by a manager of an operator for Västtrafik: “In 2015, Västtrafik eliminated the function of timetable planners and renamed them traffic coordinators, thereby ridding themselves of the capacity to plan the supply. From that point in time, it was up to the operators to plan the supply. We did this while still looking out for what would benefit our own interests. This implied trust in our competence and willingness to plan in their interests. We shouldered this responsibility, and it was good. But then suddenly it came to a halt, because our horizon was limited to our contract [period]. Therefore, suddenly, Västtrafik started revising our proposals. They saw a need to coordinate supply between contract areas and between the short and long terms. Therefore, they took back some of the planning initiatives.” Recently, a yearly planning process was initiated by Västtrafik, giving the operator directives. One of the important documents translating goals and guidelines into actions was the business development plan.

A manager in Skåne emphasized that the PTA has tasks that cannot be delegated, such as setting limits on how resources should be allocated between different traffic tasks. This was deemed compatible with the claims that “operators are better at optimizing the deployment of fleet and drivers and timetables,” that such skills should be harnessed for the good of the authority, and that the authority “should aim at shifting more responsibility to operators.”

This manager conceded that, while operators were eager to expand supply when ridership increased and increased profits were in sight, they were not so motivated to suggest reducing supply (and associated revenues) when demand was low or declining. This forced the PTA to challenge the operators to better use capacity in such circumstances, meaning that the PTA was not fully relieved of the task of discerning demand.

5.1. The substance of collaboration

Officials reported different kinds of qualifications for these contract adjustments. In the Hisingen contract, the qualifications mostly concerned problems with congestion in streets and at terminals. In the Malmö–Lund contract, they mostly concerned service demands from the suburban municipalities that the lines bypassed.

The follow ups concerned with to what degree the operator delivered according to contract and which bonuses and penalties were correct. A manger stated that: “To only use penalties does not solve problems. Dialogue is needed to understand why problems arise.” There appears to be examples of analyses where many performance indicators are used. Neither the documents nor any spreadsheets or other calculations were spontaneously presented in the interviews with PTA managers. The exceptions were pre-studies from Skåne and material presented by an operator manager in Västra Götaland.

At the outset of this project, we expected improved infrastructure for increased accessibility (bus speeds) to be an important task for collaboration. In the Hisingen contract, which has lines passing central Gothenburg with considerable congestion

problems, both in streets and at terminals, congestion has been an important issue. In fact, a recent report (Nobina, 2019) indicated that Gothenburg was the Swedish city where timetable (run) times had increased the most in the last six years. In Skåne this increase was modest. Both the PTAs and their respective contract managers maintained that the work on bus accessibility was an important part of the collaboration. On closer examination, the distinction between temporary disturbances of accessibility (e.g., building sites encroaching on streets) and long-term deterioration (e.g., caused by population or traffic growth) was argued to be important. The temporary disturbances could often be reduced by various measures taken by the street authorities, while the longer-term deterioration requires policy instruments such as congestion charges or parking regulations (Asplund and Pyddoke 2021).

It appears as though the short-term disturbances attracted considerable attention, whereas the longer-term issues attracted less. Furthermore, addressing the longer-term issues appears to yield results only slowly and incrementally. There appears to be a lack of awareness that such changes require considerable efforts and spending by the cities, while most of the benefits are reaped by the passengers, operators, and PTAs. We return to this issue when analyzing cost increases in section 6.

5.2. Outcomes of collaboration

Our interviews started high in the managerial hierarchy and proceeded to lower levels. Higher levels of management were unable to identify or suggest concrete outcomes of collaboration. One manager at Västtrafik stated: “I do not believe that there will be obvious outcomes [of collaboration] that will differ from [those of] earlier contracts [without collaboration].” This manager noted the many circumstances, beyond the influence of the operator or the PTA, affecting outcomes: “So, when talking about successful collaboration, it instead refers to a feeling of very good cooperation, not necessarily visible in ridership or cost outcomes. I do not want to belittle the positive effects of collaboration—a positive mindset makes it easier to work together.”

The collaborative aspect appears to have been seen as inevitable given the contractual relationship between the PTA and the operator. Most of the managers’ reflections concerned the appropriate distribution of responsibilities. The questions of whether there could be more or less collaboration and whether spending more time negotiating would be useful were not raised in our interviews.

5.3. Public learning through open data, follow ups, and analysis

Managers at both PTAs emphasize how their organizations have learnt a lot form the experience of contracting and collaboration. There is no reason to doubt that individual employees learn from changes in circumstances and different kinds of adjustments in contracting and adjustments and the ensuing follow ups and discussions. At Västtrafik a manager told us that “we have successively upgraded our follow ups of contracts with more performance indicators”. This was stated to successively include new indicators. In

2018 contract costs were included. The follow ups are documented and shared by Västtrafik and the operator but are not open to the public. An analyst at Skånetrafiken noted that a potential for increased efficiency has been realized recently. Previously when new contracts were procured the current supply was used as the desired supply tendered for. Analysts then saw that there frequently was a potential to adjust the tendered supply as changes in demographics current demand motivated tendering for an updated supply. Skånetrafiken has since adopted the strategy to do a pre-analysis to adjust the tendered supply prior to the tender.

Employees at both the PTAs gave the impression that most analysis was short term and discussed bilaterally with operators and to some extent internally. These analyses were documented but not open. There are no or few mentions of long-term analysis that is performed or documented. There was also little exchange of experience with other PTAs. In learning organization terms there appears to be creative use of new data most likely improving performance.

6. Description of data

This section presents data on outcomes from the two regions (Västra Götaland and Skåne) and two contracts (Hisingen in Västra Götaland and Malmö–Lund in Skåne). First, we present the outcomes from the aggregate bus service in the two studied regions, then we present aggregate data from the individual contracts.

6.1. Total supply in Västra Götaland and Skåne

For Västtrafik, we have data on aggregate bus services from 2012 to 2019, but here we focus on the 2015–2019 period.

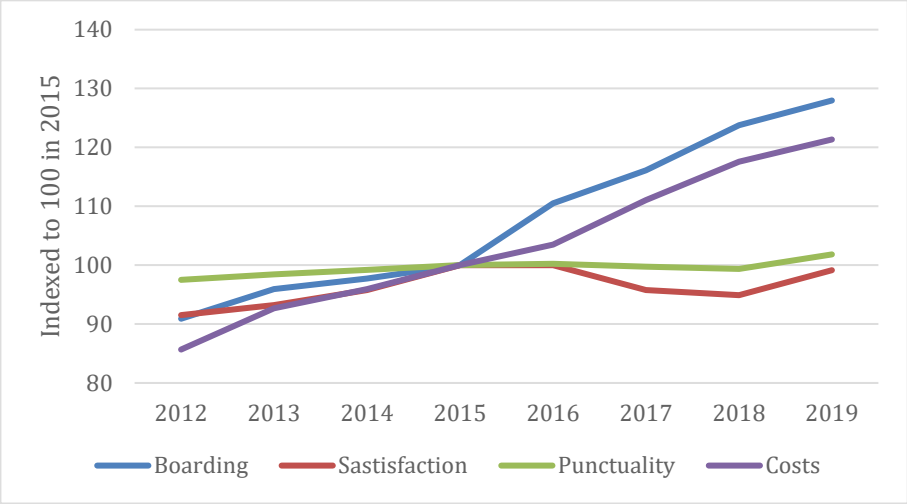

Figure 1. The aggregate development of key performance indicator (KPI) indexes for Västtrafik's bus services. Source: Västtrafik

From 2015 to 2019, the number of boardings (Figure 1) of all of Västtrafik's buses increased by 28%. Over the same period, costs increased by 21%, corresponding to 4.9% per year. These numbers are not comparable to those from Hisingen, as the aggregate numbers for the region included unknown overestimations of ridership growth due to earlier underestimations of ridership. We have not been able to correct for these mis-estimations.

For aggregate ridership with bus services in Skåne we use aggregate data from Skånetrafiken on bus services from 2014 to 2018 and focus on the period 2015 to 2018.

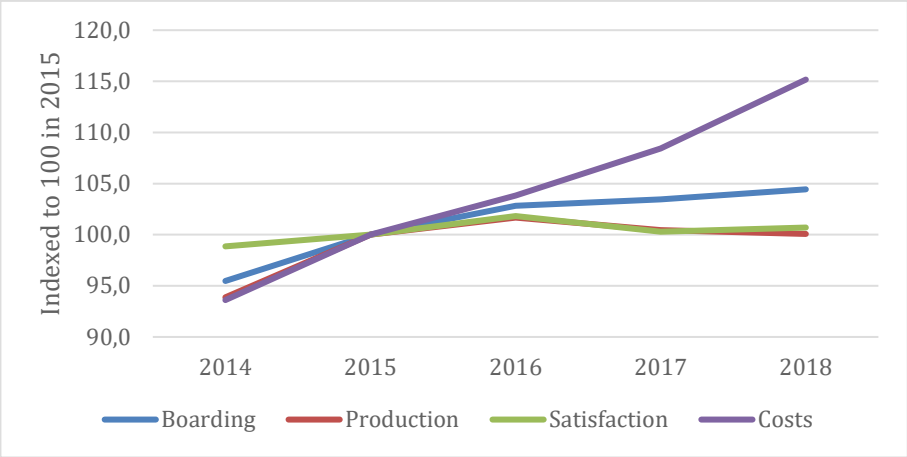

Figure 2. The aggregate development of KPI indexes for Skånetrafiken's bus services. Source: Skånetrafiken

For Skåne, Figure 2 shows that ridership increased modestly by 4% from 2015 to 2018, while customer satisfaction appears to have stagnated. Total costs increased by 15% and average cost by 4.8% per year. Part of this cost increase was due to a 4% increase in the production of bus kilometers. According to Nobina (2019), the average growth in timetable time per bus line was 3.3% in Skåne's cities and 3.1% in rural areas between 2013 and 2019.

6.2. Hisingen and Malmö-Lund contracts

6.2.1. Hisingen contract

Turning to the Hisingen contract, data from 2015 to 2019 are used. The central data series are indexed against the January 2015 values, except for punctuality, which starts in January 2016 and is presented in Figure 3.

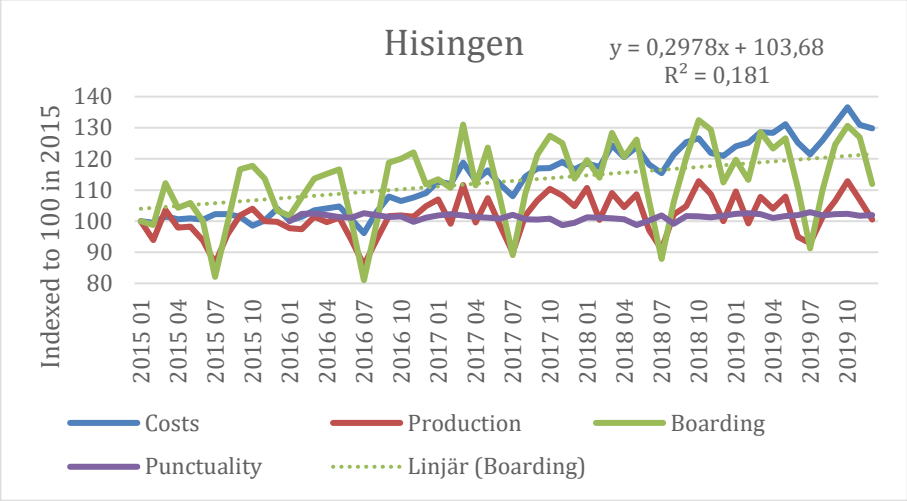

Figure 3. The development of outcomes for the Hisingen contract, 2015–2019. Source: Västtrafik.

The central observation is that ridership growth took off in 2016, increasing by 13% from 2015 to 2019 and corresponding to an average yearly growth of about 3.1%. This can be considered a desirable outcome by the region, although it was below the average growth for Västtrafik, as explained above. Most of this passenger growth was attributable to a few heavily used lines passing through the city of Gothenburg. Over the same period, supply measured as production of bus kilometers increased by 6%, or 1.4% per year.

Unfortunately, costs increased even faster. From 2015 to 2019 costs increased by about 27% (6.2% per year). Punctuality, which has been shown to strongly influence customer satisfaction, stagnated. Customer satisfaction also appears to have stagnated, although we only have data from 2016 and onwards (see Figure 3). These developments do not displays a trend with a coefficient statistically different from zero.

The observation of strongly increasing costs prompted closer inspection of how street congestion might have affected driving times and therefore the timetables of the contract. This contract operates some of the busiest bus lines in Gothenburg, running through the center of the city. In the city center, increasing building activities have slowed traffic and buses and forced Västtrafik to increase scheduled times. This in turn requires higher frequencies, as slower buses cannot transport as many passengers per hour as can buses travelling unimpeded by congestion. Management told us that deteriorating bus speeds could explain a large part of the cost increases.

The deterioration of speed requires more buses, increasing production by 6% over the same period. The Nobina (2019) report calculated increases in scheduled times in Sweden, indicating that bus travel times in Gothenburg had increased by about 10%. Data received by Västtrafik from the Hisingen contract indicated an 11% increase in bus hours over the same period. Combining this with a rule of thumb from Urbanet Analyse (2017, p. 147), i.e., that total costs increase equally with bus hours, suggests that about 10 percentage points of the cost increase could be explained by slower bus movements. An additional 13 percentage points of the cost increase could be explained by increasing ridership incentive payments. Finally, remaining parts of the cost increase could be explained by increasing payments for bus use, as the PTA allowed the operator to charge for more bus use. The number of buses in use increased from 131 in 2015 to 156 in 2019, an increase of close to 20%; the corresponding cost increase is unknown to us. These numbers suggest that most of the cost increase can be attributed to these factors.

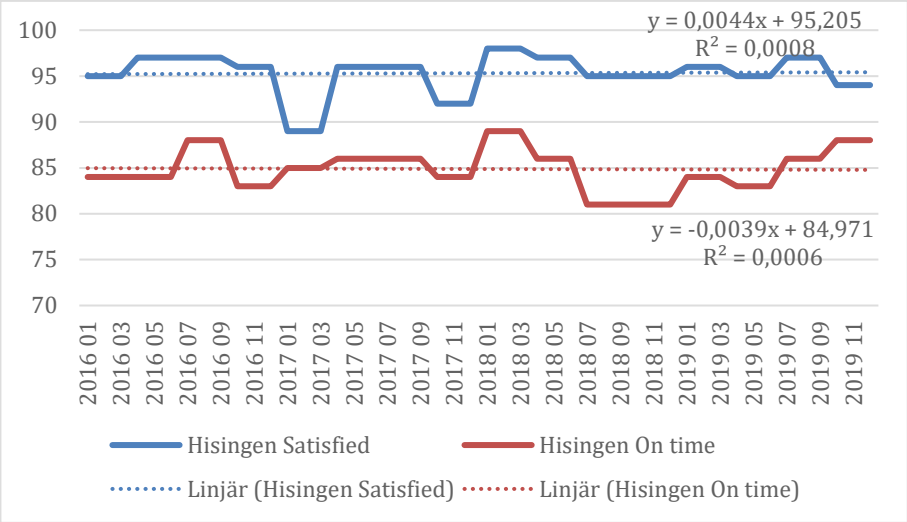

Figure 4 The development of overall customer satisfaction and satisfaction with the punctuality of the last bus service used in the Hisingen contract. Source: Data from Västtrafik.

Concerning customer satisfaction (Figure 4), Västtrafik management stated that the initial customer satisfaction exceeded target levels and continued to do so, and has therefore not been subject to improvement measures.

We conclude that the Hisingen contract was successful in increasing ridership but that this was accompanied by costs that increased by more than double the rate at which demand increased. Most of this cost increase appears to have been due to reduced bus speeds caused by traffic congestion, requiring an increased bus fleet and more bus hours to transport passengers. Some of the cost increase was also due to incentive payments for increased passenger demand.

6.2.2. The Malmö Lund contract

For the Malmö–Lund contract, the aggregate development is presented in Figure 5.

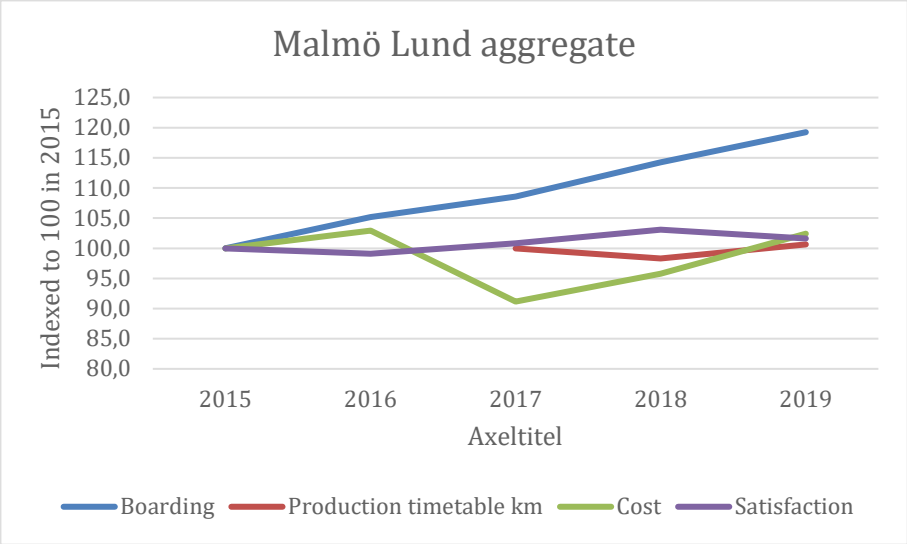

Figure 5. The development of outcomes for the Malmö–Lund contract, 2015–2019. Source: Skånetrafiken

Note that the differences between the outcomes for the Malmö–Lund contract and the aggregate outcomes for bus services in Skåne were quite large for some variables. For the Malmö–Lund contract, ridership increased by 19% from 2015 to 2018 (vs. 4% for Skåne), or 4.4% per year. As in the case of the aggregate outcomes for Skåne, the customer satisfaction indicator changed little and costs increased by about 2% (vs. 15% for Skåne).

7. Discussion and conclusion

This paper examines how collaborative contracts have managed public transport to achieve goals and whether new, later collaborative contracts can be shown to be superior to previous contracts in terms of the outcomes for central goal variables. The central hypothesis is that later collaborative contracts delivered higher goal achievement than did earlier, less collaborative contracts. We find that management is guided by an approach that apparently assumes that collaboration means delegating more planning responsibility to operators, trusting that their abilities will lead to higher levels of goal achievement. These tasks mostly concern timetable adjustments initially made by the PTAs.

Ideally this delegation could free up resources used by the PTA for planning while increasing the resources needed by the operator to a lesser extent. This shift in responsibility could entail both gains and losses. The potential advantages would be synergies for the operators between timetable planning and the deployment of drivers and vehicles leading to lower costs, provided that the PTA can steer correctly. The potential disadvantages would be that the loss of planning competence at the PTA would permit less goal achievement and increase costs for the public, accompanied by a lack of analytical capacity to detect this (as suggested in section 2, the literature review; see, e.g., Resh 2019).

When planning shifted to operators, simultaneous emphases on ridership growth and efficiency motivated operators to suggest capacity moves from lower- to higher-demand services. In contracts covering geographically large areas, capacity transfers may be easier to find, than in small areas. Unless demographic structure changes rapidly such transfers of capacity can become increasingly hard to identify. PTAs later found that operators seldom spontaneously suggested decreasing supply when demand declined, and that coordination problems between contracts were not automatically solved. This has led PTAs to reclaim responsibility for these aspects of analysis and planning by issuing extended guidelines. This indicates that the initially simplistic view of the potential for collaboration by delegation to operators did not appear to have held.

Demand growth for reasons other than increased supply call for increased capacity and possibly more tax funding. Desired levels of supply and ridership are largely a political issue, but one that can be guided by modeling, as suggested here.

The description of outcome data indicates that ridership increased more in Västra Götaland than in Skåne and substantially in both studied contracts. While ridership increases are assessed to be likely in some contracts, a previous study (Vigren and Pyddoke 2020) analyzing contracts in Skåne could not prove that the new contracts on average increased ridership more or that such increases had not occurred previously without the new forms of collaboration. The evidence for collaboration on average contributing to increased ridership therefore appears weak. This does not exclude the possibility that creative collaborative discussions have found instances where ridership could be increased at low cost.

In Västra Götaland, customer satisfaction levels were initially high and mostly above the set goal level, and the same appears to have been true in Skåne. Customer satisfaction has stagnated in both regions and both contracts. Not prioritizing further increases in customer satisfaction may be rational given the attained set goal levels. Costs increased rapidly in both Västra Götaland and Skåne, and in the Hisingen contract. PTA managers stated that, during these contracts, politicians became aware of rapidly increasing costs and expressed a wish to put a brake on them. This appears to have led to modest growth of supply kilometers in both contracts and regions during the studied period. We have no econometric evidence for changing levels of cost-efficiency. What we can show is that costs have increased faster than ridership in Västra Götaland and Skåne in the aggregate, and this can be an indication of decreasing cost-efficiency. This and earlier studies suggest that the cost increases are partly due to factors that are hard for operators to address or beyond their influence. In the case of the Hisingen contract, the large cost increases appear to be at least partly attributable to the decreased accessibility of buses in streets.

This study does not provide conclusive evidence that the collaborative management approach can improve goal achievement. It does, however, suggest that simplistic descriptions of collaboration may not be sufficient for high levels of goal achievement. Future studies of the effects of this management method on costs and efficiency could benefit from the use of more resolved cost and ridership data from several contracts when analyzing effects.

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Declaration of interest

Declarations of interest: none.

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