Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development

04-Nov-2016

English - Or. English

DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE

DAF/COMP/WP2/WD(2016)13
Unclassified

Working Party No. 2 on Competition and Regulation

INNOVATIONS AND COMPETITION IN LAND TRANSPORT

-- Note by Sweden --

28 November 2016

This document reproduces a written contribution from Sweden submitted for Item III of the 62nd meeting of the Working Part No. 2 on Competition and Regulation on 28 November 2016.

More documents related to this discussion can be found at: http://www.oecd.org/daf/competition/competitionand-innovation-in-land-transport.htm

Please contact Ms. Ania Thiemann if you have any questions regarding this document [phone number: +33 1 45 24 98 87 -- E-mail address: ania.thiemann@oecd.org].

JT03404460

Complete document available on OLIS in its original format

English - Or. English

-- SWEDEN --

1. Introduction

1. This contribution considers the question of innovations and competition in rail and road transport in Sweden.

2. The section on rail transport begins by outlining significant milestones of competition in Sweden over the last 25 years, before detailing the level of competition in the rail market today, where more than 25 companies are active on the Swedish rail market. It also discusses conflicts that have arisen in recent years between different market players, and the Swedish Competition Authority's (SCA) enforcement experience in the sector. The section on rail transport concludes by considering innovations and developments towards technological harmonisation, as well as recent government initiatives to analyse the overall organisation of rail transport and address the challenges which are faced in the sector.

3. The section on road transport outlines examples of technological developments in road transport in Sweden. It then details recent and ongoing government appointed inquiries into the sharing economy which can have significance for road transport, as well as regulatory initiatives regarding issues such as vehicle automation, electrification of the automobile fleet, congestion pricing and other developments.

4. Finally, the contribution discusses intermodality in freight services and competition between different modes of transport.

2. Rail

2.1 Competitive Swedish transport markets

5. Over the last 25 years the Swedish transport system has gradually been transformed from a situation where the government controlled virtually all traffic, to competitive markets in all regions and sub-markets. When liberalising transport markets the objectives have mainly been expressed in terms of more market players, greater and more diverse supply, more choice, increased availability and ultimately efficient markets resulting in positive effects for consumers. The extent to which this has been achieved varies between different market segments. Some market segments in Sweden, such as public transport and inter-regional passenger railway transport, have proven to be much more difficult to operate on standard commercial terms than others. Instead public tendering and competition for the markets have been used as a secondary solution to achieve more efficient markets.

2.2 Some milestones of competition in the Swedish railway sector

6. Sweden was by European standards early to introduce measures to liberalise the railway sector. In the late 1980s the incumbent, the national railway (Statens Järnvägar), was split into a public service enterprise (SJ) responsible for operating railway transport, both passenger and freight, and a government agency responsible for infrastructure, the Swedish National Rail Administration. The split was primarily introduced as a means for the government to address SJ's annual financial deficits. Another aim was to support and promote rail travel as a transport mode, which was considered safe and environmentally friendly, but facing increased competition from road transport.

7. This structural change also facilitated the first steps towards opening up the railway network to a larger number of operators. The change also meant that the state took on full responsibility for maintenance and upgrading of the main rail infrastructure. The train operators were required to pay fees, based on socio-economic costs, for using the infrastructure.

8. The model used was inspired by the road sector, where the National Road Administration had responsibility for infrastructure. Thereby a more level playing field was created for road and rail transport. SJ was required to operate the railway traffic on commercial terms and the only additional requirement made by the state was that SJ had to show a profit.

9. On a local level the County Public Transport Authorities (CPTA) were given the responsibility and operating rights for passenger services on county lines. The CPTAs were free to organise the traffic in-house or to purchase the train operations from any suitable contractor. Practically all train operations were purchased, and competitive tendering was introduced.

10. By the mid-1990s the market for railway transport was still completely dominated by the incumbent SJ. In addition, there were a few smaller companies which, to varying degrees, took part in tenders concerning regional transport as well as in the state's procurement of public services, e.g. inter-regional passenger services that SJ could not operate on a commercially viable basis. The state's procurements attracted some new bidders, but for some time all contracts were won by SJ. Through competitive tendering (introduced in 1992) the state's costs were, however, in most tenders reduced by 20% with roughly the same volume of traffic.[1]

11. A major step was taken when freight rail traffic was opened up for competition in 1996. All traffic operators meeting the requirements specified by the state, and according to Directive 91/440/EEC, obtained the right to operate freight services on the state railway network. However, already established freight traffic on a defined railway network was initially given priority in track allocation. New rules also allowed the CPTAs to run passenger traffic on the main trunk network within their counties. They were also allowed to provide local or regional rail traffic across county boundaries. SJ retained its exclusive rights concerning commercially viable inter-regional passenger traffic.

12. A new transport policy was decided by parliament in 1998. The policy stated that "the general objective of the transport policy shall be to ensure a socio-economically efficient and in the long-term sustainable transport provision for citizens and industry in all of Sweden".[2] The policy contained, for example, a new track charging system with variable and lowered charges (to obtain a level playing field with road transport) and some improvements regarding access to different service facilities for all operators. Furthermore, the system for subsidising unprofitable inter-regional passenger rail services was changed from a system with grants to cover deficits, to an active public procurement process.

13. Another important change with effect from 1999 concerned inter-modal competition from long distance bus traffic. The development of this market had until then been restricted by a right for SJ to block entry for bus services that could interfere with its commercial railway services. During the 1990s the SCA had consistently advocated such a change.

14. In 2001, the incumbent SJ was split into several limited liability corporations – one company, SJ AB, operating passenger traffic, and another, Green Cargo AB, operating freight traffic. Real estate, train maintenance, coach cleaning and IT-services were put in separate companies. The objective was that the core business for SJ AB and Green Cargo AB should for the time being be directly owned by the state. The other companies should be owned by the state through a holding company, but the intention was to eventually sell them. Except for the real estate company, Jernhusen AB, all of them were sold off shortly thereafter.

---

1 *The Swedish Railway Deregulation Path*, Gunnar Alexandersson & Staffan Hultén, 2008

2 *Transportpolitik för en hållbar utveckling*, prop. 1997/98:56

15. The liberalisation of the Swedish rail sector had at this point in time resulted in some positive effects both in the form of innovations, such as new market products and technical solutions offered by train operators, and in the form of reduced costs due to procurement and the restructuring of various activities. By mid-2000 a number of new actors had entered the market but both SJ and Green Cargo still had very large market shares on their respective markets (around 70-80%). Also, new traffic was often more complementary than in direct competition with SJ or Green Cargo. The newcomers, both Swedish and foreign, were mostly active and often won contracts in competition with SJ in the public procurement processes concerning local and regional transports.

16. Several consecutive government committees in the 2000s analysed and suggested further reforms and structural as well as regulatory changes concerning the rail industry. To a large extent the actual implementation of reforms reflected those laws and regulations required in order to fully comply with new EU railway directives (known as the "railway packages"). Other proposed measures strongly advocated by the SCA, such as further developments to secure better access to all essential facilities on transparent and non-discriminatory terms to all actors and to abolish the incumbent SJ's monopoly on rail services on specific routes, were put on hold.

17. Nevertheless, some small further steps were taken in the second half of the 2000s. In 2007 SJ's monopoly on charter and night train services was removed. In 2009, the markets for weekend and holiday traffic were opened up for competition and the right to accept passengers within Sweden in international traffic (cabotage) was introduced. In 2009 the government decided that commercial rail passenger services should be fully liberalised, in practice coming into effect during the trafficking year of 2012. This meant that SJ AB lost its monopoly and faced full competition in national passenger traffic. This last reform can be considered as the formal finalisation of the rail liberalisation process in Sweden.

18. Investments in railways and new trains have doubled the Swedish rail traffic since the 1990s. Regional traffic has increased by approximately 200% and long-distance traffic has increased by 50% . Severe quality problems were observed from 2010 as a result of the increased traffic and neglected maintenance, as well as very cold winters in 2010-2012. Since both freight and passenger traffic have increased, network capacity utilization is generally very high.

2.3 New organisation of Swedish public transport, and new competition possibilities

19. In 2012 a new Public Transport Act[3] came into force. New regional public transport authorities (RPTAs) were formed to be responsible for developing the public transport system in each region and co-ordinate it with other forms of social planning. The RPTAs are obliged to develop regional transport provision programs which specify the long-term goals for regional public transport. They also decide on public service obligations, which indicate the transport for which they intend to be responsible and which, as an undertaking to their citizens, they guarantee to maintain. An important novelty of the act is the stipulation that commercial companies are free to set up public transport services anywhere in the country, in direct competition to or as complementary traffic to the transport system organised by the RPTAs.

20. A few new commercial routes have been established, mainly consisting of tourist lines and better connections by bus to specific industrial premises, but overall the interest to enter the public transport market on fully commercial terms has been limited. One obvious reason for this is the difficulty to compete with publicly procured transport which is normally subsidised by up to 50%. The original proposal from the inquiry assigned by the government to prepare the new legislation was to give the RPTAs the right to decide on public service obligations on a route *only after* no operator had shown any interest to operate it on commercial terms. The government did not accept that principle, but the RPTAs are expected to take into account commercial initiatives when deciding which traffic to initiate using public service obligations.

[3] Lag (2010:1065) om kollektivtrafik

2.4 The situation in the Swedish rail market today

21. Currently, more than 25 companies are active on the Swedish rail market, roughly equally divided between passenger traffic the rail freight market. The incumbent rail freight company Green Cargo has steadily been facing increasing competition, especially over the last ten years. Its market share can be estimated to be around 55-60%.[4] On the passenger transport market SJ, including subsidiaries, still has a strong position and its overall market share was almost 80% in 2014.[5] But, two recent events will affect SJ's market share in coming years. Firstly, since spring 2015, the Hong Kong based company MTR has operated daily traffic on the Gothenburg-Stockholm route in direct competition with SJ. Secondly, MTR has also won the tender for operating the commuter trains in Stockholm from December 2016.

2.5 Conflicts and law enforcement

22. The possibility for RPTAs to organise regional traffic across county boundaries have over the years caused some conflicts between RPTAs and commercial operators. The new Public Transport Act opening up more competition in this area can also be expected to create some similar conflicts.

23. The RPTAs in the southwest of Sweden started traffic between Gothenburg and Malmö/Copenhagen in 2009, a route that SJ already operated. This meant a 50% increase in departures between Gothenburg and Malmö. SJ cancelled all traffic on the line in April 2012 due to it being unprofitable. Nonetheless, later SJ started new high speed traffic on this route which has arguably been more competitive compared to the slower RPTA trains.

24. A conflict also arose when the RPTA of Stockholm (SL) began running commuter trains to Uppsala via Arlanda Airport in 2013. Until then traffic to Arlanda Airport was primarily operated by buses, both commercial and public, in competition with the higher-price and high-speed train shuttle, Arlanda Express. The private bus company FAC Flygbussarna Airport Coaches complained to the SCA arguing that commuter traffic with tax subsidies meant an undue public intervention in a well-functioning market. SL on the other hand saw this traffic as a natural and necessary part of a robust regional public transport system for which they are responsible according to the Public Transport Act. The SCA assessed the case under the special prohibition in the Swedish Competition Act on anti-competitive sales activities by public entities. The SCA concluded, however, that the Public Transport Act gives SL the right to organise public transport in the county and the SCA therefore decided to close the case without further action.

25. A different conflict arose between SJ and Mälardalen Traffic AB (Mälab). Mälab is owned by the RPTAs in the counties of Stockholm, Uppsala, Västmanland, Örebro and Östergötland and Sörmland. Mälab plans to start up a wide-ranging commuter train network, denser than what is available today, to satisfy a growing need for more extensive commuting in the densely populated regions surrounding Stockholm. This will be done with the help of tax subsidies that are also intended to make the trips cheaper for the commuters. Today SJ is serving many of the intended routes and SJ has argued that Mälab's plans will mean a displacement of commercial traffic in the region. The conflict has been the subject of judicial review under the Public Transport Act and a number of appeals in administrative courts. The final judgement was in all essence the same as in the SCA airport bus case; that the RPTAs have a lawful right to organise this kind of traffic.[6]

---

4 *Transportmarknaden i siffror*, Transportstyrelsen, TSG 2014-1472 and *Godstransporter på järnväg*, Inge Vierth, VTI, 2015, annex report No. 15 in SOU 2015:110

5 *Transportmarknaden i siffror*, Transportstyrelsen, TSG 2014-1472

6 http://www.malab.se/wp-content/uploads/2016/03/Dom-Kammarrätten-i-mål-om-allmän-trafikplikt-160310.pdf

26. In March 2014 MTR complained to the SCA stating that SJ had abused its dominant position as a result of SJ refusing to give MTR access to "SJ-online", SJ's well-established online-booking system for rail tickets in Sweden. MTR was at that time preparing to start traffic on the Stockholm-Gothenburg route in direct competition to SJ from April 2015. SCA concluded in its decision[7] that in order to assess SJ's refusal as an abuse of dominance, SJ-online would need to be considered a so-called "essential facility" in the meaning that has been developed by the European Court of Justice (Case C-7/97 *Bronner*). The SCA's investigation did not show that access to the SJ-online was indispensable to be able to operate on the Stockholm-Gothenburg route and closed the case.

27. When MTR started its traffic in 2015, the company launched its own web-based ticket sales function. Furthermore, in January 2015 Samtrafiken (an association of 38 transport operators and RPTAs in Sweden), launched an updated version of the travel planner Resrobot, which makes it possible to plan journeys and buy tickets through one single function, even for trips with different transport modes and operators. The travel planner can be accessed via the internet and applications for mobile phones.

2.5.1 Measures taken to ensure a more level playing field

28. From the start of the liberalisation process new operators have occasionally complained about lack of competitive and neutral access to essential facilities, common service functions, rolling stock etc. In successive steps different functions, stations, workshops etc., previously in the control of the incumbents SJ or Green Cargo, have been separated and made available to new operators. The situation today is therefore better, although cannot be described as working perfectly (see further below). Regarding rolling stock and locomotives, however, the regional transport authorities addressed the situation at an early stage through the establishment of Transitio, a rolling stock company co-owned by twenty RPTAs. The business of Transitio is to buy trains on behalf of any of its shareholders. The trains are usually owned by a finance company and Transitio is the lessee from the finance company. Furthermore, a few trains are owned by Transitio. Therefore, in tenders for local and regional public transport the RPTAs can routinely supply the winning operator with the rolling stock needed.

29. The RPTAs have chosen to establish Transitio to obtain better skills in purchasing and ownership of trains, a better bargaining position to train manufacturers and enhanced standardisation of requirements. Transitio also has some spare vehicles to be used when regular vehicles need maintenance and periodic refurbishment.[8]

30. When the state has put out tenders for unprofitable inter-regional passenger rail services, rolling stock that was previously owned by SJ have been used. These wagons and locomotives are old but have been maintained and refurbished by the state.

2.6 Technological harmonisation and innovations in the rail market

31. The intention is that in the long term the new common signalling system, the European Rail Traffic Management System (ERTMS), should be introduced throughout Europe in order to increase interoperability. So far it has mainly been introduced on the new Bothnia Line in the far north of Sweden. In 2014 about 5% of Swedish locomotives and railcars were fitted with ERTMS.[9] There is a substantial added cost to equip a locomotive with the ERTMS technique, particularly if it is an old locomotive. Many operators and other stakeholders in Sweden are of the opinion that the expected benefits of ERTMS, e.g. safer and more frequent departures on the track, might be somewhat limited because Sweden's current ATC system is already a very well functioning system.

---

7 SCA case dnr 178/2014, http://www.konkurrensverket.se/beslut/14-0178.pdf

8 http://www.transitio.se/in-english/

9 Fordon vid Sveriges järnvägar 2014 – Analys av Transportstyrelsens fordonsregister, Bo-Lennart Nelldal, annex report No. 13 in SOU 2015:110

32. As for compatibility with Sweden's neighbouring countries, there is an important difference compared to Denmark. Electric locomotives and railcars that want to cross the Öresund Bridge must have a dual-current power system, because Denmark has a different power system from Sweden. A new dual-current locomotive is not very much more expensive than a single-current one, but there are not very many new locomotives on the market. The market for international traffic is thus somewhat limited. However, SJ and the Danish incumbent DSB have dual-current locomotives. Also, the German freighter DB Schenker Rail and the second largest freight operator in Sweden, Hector Rail, have locomotives with dual technology.

33. However, Sweden is fully compatible with Germany and Norway. Finland on the other hand has a different gauge, the same as Russia.

34. The issue of technical protocols is quite complex and closely linked to the technical harmonisation work that has been going on within the EU for a number of years. All significant and necessary documents are available in English. As regards "signalling protocols" specifically, there are both elements that are harmonized (i.e. non-country specific) and systems that are specific to Sweden. As mentioned above, there is an ongoing introduction of ERTMS in the EU, but so-called "legacy systems" ("Class B") are permitted. An example in Sweden is the above-mentioned ATC system. To solve the problem with two different signalling systems in different parts of the railway system a so-called specific transmission module (STM) is used. The module gives the driver the impression that communication is with an ERTMS system, though in reality it is an ATC system. An STM adapted for the Swedish ATC system is available and will be used in Sweden during the transition period where some routes have ERTMS and some ATC. The STM may be required on foreign locomotive operating in Sweden.

2.6.1 Innovations

35. An inquiry report into the organisation of Swedish railways has noted that although there is still a lack of companies innovating to find entirely different business models than those traditionally used, some innovations can be directly traced to the entry of new market players.[10] BK Tåg (one of the first commercial bus and train operators that challenged SJ in the late 1980s) introduced changes in drivers' tasks, so they became more involved in the maintenance of the vehicles. BK Tåg also introduced ideas for the improvement of the standards of railcars, based on its experience from its bus operations. In co-operation with an RPTA, the company also started to replace a lot of expensive railway-specific materials to cheaper and more standardized components. In the early 2000s another newcomer, Tågkompaniet, experimented with pricing and information and booking systems. SJ then also innovated and looked for new solutions, such as for types of vehicles, pricing and marketing.

36. Regarding freight, the most striking innovation has been the use of more tailored approaches to connect completely new customers to the railway. The emergence of daily rail shuttles (e.g. via the port of Gothenburg) is considered a particularly important effect of the market opening. This concept often includes an inland terminal linked to the port, hence called a "dry port". Shippers have also indicated that the tenderers now have incentives to buy new locomotives to live up to tender requirements for environmentally friendly and energy-efficient locomotives. Furthermore, Green Cargo has reduced both environmental impact and costs through the renovation of older vehicles.

[10] En enkel till framtiden? SOU 2013:83, page 154-155

2.7 Government inquiry to analyse today's rail challenges

37. The government once again launched an inquiry in 2013 to analyse the overall railway organisation in Sweden and to propose suitable changes. The main motive behind the inquiry was the fact that 25 years of successive national liberalisation efforts, accompanied by the implementation of the EU's four railway packages, have significantly changed the conditions for the whole railway industry. Other important issues which were identified were continuing infrastructure quality problems and capacity constraints and conflicts on a rail network which is simultaneously used by regional and national passenger transport as well as freight traffic operators. The possible options to reverse some of the steps taken in the liberalisation process were also a task for the inquiry to elaborate on.

38. In its first report in December 2013, the inquiry concluded that there is no possibility to go back on the major changes made according to the EU railway packages on structural separation and market opening. Minor adjustments in organisational structures not in conflict with the EU Directives would of course be possible. One such example, where the government has recently decided on a change, concerns which parts of track maintenance the infrastructure manager, the Transport Administration, should perform in-house and which could be procured on the open market.

39. In its second report in December 2015, the inquiry advised the government, as one of its major proposals, to carefully consider how the very often highly congested network is best used and which traffic should be prioritised on certain lines. According to this proposal, the existing general rule of socio-economic efficiency when prioritising between different traffic should be abolished. The inquiry further suggested that the government, especially when considering new high-speed railways on the Stockholm-Gothenburg and Stockholm-Malmö routes, more thoroughly investigates the long-term model for network access. The focus for such an investigation should be the possibility to use a model where competitive tendering is used for specific inter-regional/national passenger traffic in the same way as for regional traffic today. The government should also consider the long-term adequacy of the state keeping the ownership in the former incumbents SJ, Green Cargo, Jernhusen (real estate) and Infranord (track maintenance).

40. The committee also suggested that the conditions for commercially organised public traffic should be strengthened in relation to transport organised by the RPTAs using the public service obligation. This should, for example, be accomplished by increased requirements for consultation and transparency in the RPTAs' planning processes and operations together with demands for separate accounting for each and every traffic line organised by the RPTAs.

41. Moreover, a wide range of proposals concerning the responsibilities and operations of the Transport Administration were put forward. Some of them aimed at better secure access to essential facilities for all operators. The Administration should, for example, strengthen its general control over the infrastructure for rail services and their localisation and take responsibility for the marshalling services in the marshalling yards in its own network. The proposals from the inquiry were handed over to the government for consideration in December 2015.

2.8 New high-speed railway and reinforced track maintenance

42. In an infrastructure bill presented in October 2016 the Swedish government announced increased investments in the railway system. Delays and disruptions in today's railway services will be met by substantial reinforcements of track maintenance. Another goal for the government is to invest in new high-speed trunk lines on the Stockholm-Gothenburg and Stockholm-Malmö routes. These investments are to take place at a pace that the economy allows. Even if some parts can be expected to be ready earlier, the complete system could probably be in operation no sooner than 2035.

3. Road Transport

3.1 Technological developments and innovations in road transport

43. As described in the background note by the Secretariat, there are numerous examples from around the world on innovations, new products, services and market actors exploring and testing how to make use and take advantage of new technologies in the transport sector. Digitalisation, collaborative and sharing economies are key factors in this development. Automation, electrification and intermodality are other essential elements. Much of this can of course be seen in Sweden as well. So far the SCA has not dealt with any hard core competition or merger cases or partnership agreements between digital and transport companies. However, in the SCA's advocacy work and in its role as experts in government inquiries, it has had the opportunity to discuss and analyse some of these questions. In the following sections, some examples of developments, innovations, new market actors, government inquiries and ongoing testing activities related to the road transport sector in Sweden will be described.

3.1.1 Examples of online platforms for sharing free capacity (cargo/passengers) in Sweden

44. *Farewell* is an online platform with the aim to make logistics companies more efficient in order to save resources, prevent unnecessary emissions, and reduce the industry's environmental impact. Through the Farewell platform the participating companies are optimising their transports by redistributing free cargo capacity between each other. Farewell's sister organisation, WayWay, is a similar initiative for passenger services in collaboration with Taxi Stockholm and the platform taxibokning.se. WayWay's business idea builds upon the fact that in every Swedish car an average of 1.2 people travel. The back seat of a taxi is also more rarely utilized and the majority of taxis drive to and from the same destinations; airports, exhibition halls, etc.

45. Freelway is another example of a platform-based service for both cargo and passenger transport. Freelway HIT is for companies and municipalities and Freelway GO is for private individuals. Baghitch is a service for private cargo transportation. The service is mainly aimed at people purchasing things online in another part of the country who want them transported back home. Baghitch is planning to launch partnerships with auction houses and internet sites. Foxray is an online service that connects commercial transporters with companies or private persons that want to purchase a transportation service. CargoSpace24 is a digital platform that in real-time matches a customer in need of transport with a transporter with free capacity anywhere in Europe. Packbud Nordic is a similar service where the transporting companies put in bids in an auction for specific transport assignments. Urb-it performs a courier service to online-shoppers where goods are delivered home to customers from stores that have a contract with Urb-it.

3.1.2 Examples of carpooling, car sharing and ride sharing

46. A carpool is an institution where many people share cars and the fixed costs of the cars. A carpool can be organized in several ways. Many carpools in Sweden are run as non-profit economic associations. It is common for members to carry out some form of work needed for the operation of the association.

47. In carpools operated on a commercial basis members do not perform any duties. But costs are often higher than in a non-profit carpool. Most car clubs have a fixed monthly fee and then charge rent for the time the car is used. The monthly fee is in most cases between EUR 5 (Euros) and EUR 35. Mileage costs vary between carpools and type of cars, but are usually between EUR 2 and EUR 3 including fuel. In addition, there is usually an hourly fee of between EUR 1 and EUR 3. Non-profit carpools often have a deposit fee between EUR 150 and EUR 400.[11]

[11] http://www.expressen.se/motor/sa-hittar-du-ratt-bilpool/

48. In Sweden some well-known international commercial carpooling companies are present together with many national carpools. Some of the carpools have a connection to a car manufacturer or a car rental company. Some of the largest carpools in Sweden are presented here.

49. Sunfleet is one of the largest carpools in Sweden, with approximately 50 000 members and 1 200 cars in 50 cities. Volvo Cars, as the majority owner, together with Hertz, have been behind the company from the start, and mostly Volvo cars are used. Move About, uses only electric vehicles. Bilpoolen.nu is another carpool with a strong environmental profile using electric or hybrid cars and other low emission cars. Bilpoolen.nu compensates for the emissions their cars are responsible for by buying emission allowances from the EU ETS-system. Stockholms Bilpool and Göteborgs Bilkooperativ are two non-profit associations in Sweden's two biggest cities. Drivenow is a cooperation between the rental company Sixt and the car manufacturer BMW. SnappCar (former Swedish Flexidrive), is a Dutch car sharing company. Private car owners share their own cars with each other.

50. Additionally, a number of non-profit collaborations for ride sharing exist throughout the country. The more well-known and largest are Skjutsgruppen, Roadmate and Mobilsamåkning. Roadmate is associated to rental company Hertz, also active through Freerider. Mobilsamåkning is mainly active in non-urban areas. The basic principle is to let everyone in the network know when and where you are going in your own car, or where you want to go, and through an online platform or app be matched with a suitable fellow member.

3.1.3 Self-driving vehicles and electrified roads

51. Swedish based car manufacturer Volvo Car is involved in several projects developing and testing self-driving vehicles. Volvo is engaged in a partnership with ride-sharing company Uber to develop the next generation of autonomous driving cars. Volvo has also set up a jointly-owned company together with automotive supplier Autoliv to develop autonomous driving software. In the fall of 2016 Volvo kicked off a project called Drive Me, in which 100 cars will be tested by customers on public roads in Gothenburg during 2017.[12]

52. Truck manufacturers Volvo[13] and Scania[14], in co-operation with different universities, are engaged in research and testing of self-driving trucks used in the Swedish mining industry. Research indicates that self-driving trucks can help to improve transport efficiency and productivity.

53. Two different solutions for electrified roads are being tested by the Swedish Transport Administration. One will test a technique that involves an electric rail in the road itself, powering and charging the vehicle directly during its journey. The other will test a technique that involves a pantograph on the roof of the lorry´s cab feeding the current into an electric hybrid engine in the lorry.[15]

12 http://www.drivesweden.net/en

13 http://www.volvotrucks.se/sv-se/news/press-release.html?pubid=20892

14 https://www.kth.se/en/forskning/artiklar/researchers-have-come-a-long-way-with-self-driving-trucks-1.642722

15 http://www.trafikverket.se/en/startpage/about-us/news/2016/2016-06/first-electric-road-in-sweden-inaugurated/

3.2 Sharing economy inquiries

54. In Sweden, as in many other jurisdictions, the government has initiated several inquiries in the area of the sharing or collaborative economy. The Swedish government wants to promote a positive development of the collaborative economy and most inquiries are opened with a general purpose of increasing knowledge and understanding of the markets and analysing possible effects on existing regulations. One pending investigation, most relevant for this discussion, is about how to adapt existing legislation to new conditions for taxis and carpooling (dir. 2015: 81). See more on this below. The Swedish Tax Agency has published a first report about the sharing economy and its impact on tax systems and tax revenues over time. This too, touches on the taxi sector, since a number of Uberpop drivers have been convicted for tax evasion in Sweden.

55. In May 2016 the SCA was assigned by the government to investigate and analyse the development of the Swedish sharing economy and e-commerce from a competition and industrial policy perspective. The main purpose of this investigation is to map out and analyse possibilities and challenges for the sharing economy and to propose measures to safeguard and promote effective competition. The key areas of the investigation are peer-to-peer accommodation (e.g. Airbnb), peer-to-peer transport (e.g. Uber), on-demand household services and sharing resources (e.g. car sharing) and collaborative finance (crowdfunding). A report will be published in March 2017.

3.3 Regulatory initiatives regarding vehicle automation, electrification of the automobile fleet, congestion pricing and other developments in the road transport market

3.3.1 Self-driving vehicles requires adjustments to transport legislation

56. The development of self-driving vehicles is moving very fast and systems that under certain conditions can support a very high automation will soon be ready for market introduction. This trend can have a profound impact on the entire road transport system and its function in society. It is a complex system which is likely to have an impact on, for example, social and urban planning, settlement patterns, travel patterns and travel habits, traffic volume, types of car ownership etc.

57. In a study[16], the Swedish Transport Agency has concluded that there is nothing in the current transport legislation that directly hinders the use of self-driving vehicles in road transport. Today's traffic rules are based on the driver's responsibility for driving the vehicle. For completely self-driving vehicles, where there may be no driver/person at all present in the vehicle, the definition of the responsibility concept must be developed, however, to be able to decide who has the formal responsibility for the journey.

58. According to the Transport Agency, transport legislation is to a great extent governed by the EU and The United Nations Economic Commission for Europe (UNECE). Today, there are no requirements to ensure an identified security level of self-driving functions of vehicles. The Agency's view is that a regulatory framework that ensures a sufficient level of safety for vehicles with a higher degree of automation is required to facilitate the forthcoming market launch of self-driving vehicles. The Agency believes that these vehicles are technically ready to be introduced in the market around 2020 and it is therefore important to start the work for reviewing relevant EU legislation.

16 *Autonom körning, en förstudie*, Transportstyrelsen, TSG 2014-1316

59. Regarding testing activities of self-driving vehicles, an inquiry assigned by the government has proposed that a new specific law is introduced from 1 May 2017. A permit shall be needed to perform the tests. When the vehicle is in self-driving mode the formal responsibility should be on the permit holder of the testing operation.[17]

3.3.2 Congestion taxes in Stockholm and Gothenburg[18]

60. Congestion pricing has in general not been very common in Sweden in any transport sector, other than to a minor extent in the system for rail track charges. However, there has been a system of congestion taxes in Stockholm and Gothenburg for a few years. The road tax applies to vehicles registered in Sweden and outside Sweden. The payment system is completely automatic. When you drive past a control point, this is registered and a payment slip is sent to the owner of the vehicle. If the vehicle is registered abroad, the Swedish Transport Agency has entrusted a notification partner to identify the owner of the vehicle, send out invoices to and obtain payments from the owner of the vehicle via the system EPASS24.

61. In Sweden the difference between an infrastructure charge and a congestion tax is relevant. Infrastructure charges can only be charged for a newly built bridge, tunnel or mountain pass, for example, in order to cover the construction costs. If the bridge, tunnel or mountain pass has already been built using public money, under Swedish law, no charges may be introduced at a later date. Infrastructure charges are justified by the fact that the people who use the infrastructure are paying for it.

62. If the aim is to reduce congestion in Sweden's city areas, a congestion tax is used instead. Congestion taxes are justified by the fact that the people who are contributing towards congestion and environmental problems are paying for the costs to society this causes.

63. The congestion tax is charged for vehicles that pass a control point on Monday to Friday between 06.00 and 18.29. The tax is not charged on Saturdays and Sundays, public holidays, days before a public holiday or in the month of July. To make sure the tax has a real impact on reducing traffic, the amounts charged are different at different times – the cost is highest during the periods and in the places where traffic is heaviest. The maximum amount per vehicle per day is SEK 60 in Gothenburg and SEK 105 in Stockholm.

64. The follow-up studies since the taxes have been introduced show a decreased number of journeys. Depending on when and where the measurements have been made the results differ, but the general decrease can be estimated to around 5%.[19]

3.3.3 New taxi and ride sharing legislation

65. As mentioned above, a government appointed inquiry that was launched in 2015 is analysing some issues concerning the situation in the taxi market.

---

17 Vägen till självkörande fordon – försöksverksamhet, SOU 2016:28

18 http://transportstyrelsen.se/en/road/Congestion-taxes-in-Stockholm-and-Goteborg/

19 Trafikförändringar efter att trängselskatten förändrats i Stockholm, 2016-06-03, Trafikverket

66. The taxi inquiry was appointed to investigate the need for a renewed framework for taxis and the rules on ride sharing. The assignment includes the following issues:

- Investigate and if suitable propose the mandatory use of taxi-meter equipment in taxis without today's possibility to exemptions.
- Investigate the need for a new category of commercial passenger transport by passenger car or light truck (taxi).
- Review of the rules on ride sharing between individuals.

67. The primary aim of the inquiry is to ensure that tax authorities have the ability to scrutinise taxi companies. In addition there is an ambition to be able to adapt the current rules to new transport solutions and innovative IT solutions, primarily the introduction of companies such as the platform-based Uber/Uberpop, Heetch, Mytaxi and others. The inquiry will be presented in December 2016. The SCA takes part in this work through representation in the inquiry's expert group. The SCA´s starting point in these discussions is that new technologies should be allowed the opportunity to be used in the taxi industry, provided it can be ensured that the new technologies can meet similar requirements in terms of adherence to tax laws, controllability, transparency, etc. as the technology used today.

68. Uber entered the Swedish market during 2013 launching its taxi services Uber X, Black and Lux and the ride sharing service Uberpop. After dozens of convictions of Uberpop drivers for tax evasion as well as illegal taxi service without a taxi permit, the Uberpop service was shut down by Uber in May 2016.

3.4 Intermodality in freight services

69. Cargo in Sweden is mainly transported by trucks, trains and ships and to a small extent by aeroplanes. These transport modes have different characteristics and are therefore more or less suitable for different types of customers and cargo. There is a general trend towards larger vehicles and vessels, especially a shift towards trucks with increased loading capacity. One way to transport cargo efficiently can be to use various modes of transport in a transport chain using the specific benefits of each transport mode. The decision of the transport solution is normally taken by the transport buyer based on preferences regarding e.g. cost, time, delivery, performance and environmental impact.

70. The possibilities of increasing intermodal transports have long been on the political agenda in Sweden as well as in the EU, and have been much debated in the transport industry. A shift from road to railway and sea transport, wholly or partially where possible, to reduce the environmental impact of the total transport is a common goal supported by most stakeholders. But, there are circumstances that can work against such a desired change.

71. Intermodal transports normally involve the use of a terminal when changing from one mode to another. Terminal cost is therefore a factor when deciding and comparing costs for a potential change of transport system, from road to a more environmentally friendly alternative like rail/sea transport. The terminal cost must be balanced against a lower cost in another part of the transport chain. This means that an intermodal transport solution, involving rail/sea transports and terminal services with feeder transports, requires longer distances to counterweigh the additional terminal costs. Calculations indicate that in general, within a distance of less than 400-700 km in Sweden, trucks have a competitive advantage compared to rail and sea transport. Since only 3% of the cargo volume handled in Sweden is transported more than 500 km by truck there are not great profits to be made on a transfer from road to other modes.[20]

[20] *Det intermodala transportsystemet*, TSG 2015-1663, Transportstyrelsen

3.4.1 Competition between modes of transports and recent developments in road freight

72. The "polluter pays" principle is generally accepted in Sweden. If competing modes of transports are clearly and measurable taxed and charged differently for the environmental costs they generate this can distort competition, and efforts to correct the situation should be welcomed. At the same time it must be recognised that calculations necessary for this kind of comparisons are often difficult to perform and the conditions may change over time.

73. The Transport Administration has recently, after a government assignment, investigated to what extent road haulage and rail transport pay for the environmental costs they are responsible for. The presumption was that rail transport today pays more than road transport and, if so, this should be corrected. The Administration found that this was the case when comparing road haulage and rail.

74. The Administration suggested that by incorporating Article 34 of the Single European Railway Area (SERA) Directive in Swedish national law, Sweden can give environmental compensation to rail. The incorporation can take the form of an ordinance, since the government has the prerogative to decide on such a measure and the conditions for its implementation. However, before such a regime of environmental compensation may be applied, Sweden must notify the measures to the European Commission, which has to test compliance with the EU state aid rules. In the European Union today, compensation systems to promote rail freight is applied in Denmark, Italy, the UK and Austria. To be in accordance with the SERA Directive, the compensation system must be limited in time, therefore the Transport Administration proposes that it should be limited to the period 2016-2020, and then reconsidered.

75. The government has also initiated an investigation on how to introduce a special kilometre tax for heavy trucks. The tax aims to reduce the climate impact from trucks and their wear and tear on the roads. Both Swedish-registered and foreign-registered vehicles should be subject to the tax. The investigator's final report and proposals on this issue is due in December 2016. A possible launch of this tax can be expected to coincide with an expected reconsideration of the above-mentioned compensation scheme for rail, if it has been introduced.

3.4.2 Transport policy reforms announced by the government in the infrastructure bill

76. The government's ambition is that more freight should be transferred from road to sea and rail transport. In order to strengthen the Swedish shipping industry, the government will introduce a so-called tonnage tax in 2017. In order to streamline truck traffic, in March 2017 a limited number of roads will be opened up for 74-ton trucks, instead of the current limit of 64 tons. This should be only done on roads where competing transport by rail or sea are not possible. The overall climate and environmental effects must be positive. Furthermore, measures to be able to use longer freight trains have been carried out and traffic is now in progress.

REFERENCES

Development of supply and prices for railway lines in Sweden 1990-2014 and Evaluation of deregulation and competition and Analysis of traffic planned by commercial companies and by Passenger Transport Authorities (PTA), Nelldal, Andersson, Fröjd, Royal Institute of Technology (KTH), 2014

Järnvägens marknad och banavgifterna – Utvecklingen av järnvägssektorn och uppföljning av fordonsbestånd och kapacitetsutnyttjande, Bo-Lennart Nelldal och Jakob Wajsman, KTH Järnvägsgrupp 2016

The Swedish Railway Deregulation Path, Gunnar Alexandersson & Staffan Hultén, 2008

Den svenska buss- och tågtrafiken – 20 år av avregleringar, Gunnar Alexandersson

En enkel till framtiden?, SOU2013:83

En annan tågordning – bortom järnvägsknuten, SOU 2015:110

En annan tågordning – bortom järnvägsknuten, Bilagedel med underlagsrapporter, SOU 2015:110

Fordon vid Sveriges järnvägar 2014 – Analys av Transportstyrelsens fordonsregister, Bo-Lennart Nelldal, annex report No. 13 in SOU 2015:110

Godstransporter på järnväg, Inge Vierth, VTI, 2015, annex report No. 15 in SOU 2015:110

Vägen till självkörande fordon – försöksverksamhet, SOU 2016:28

En förbättrad kollektivtrafik? – en utvärdering av två reformer, Rapport 2014:13, Trafikanalys

Det intermodala transportsystemet och Transportstyrelsens roll, Transportstyrelsen (The Transport Agency), TSG 2015-1663

Autonom körning, en förstudie, Transportstyrelsen, TSG 2014-1316

Transportmarknaden i siffror – Översikt av utvecklingen på marknaderna för väg- och järnvägstransporter, Transportstyrelsen, TSG 2014-1472