

9TH CONFERENCE ON COMPETITION AND OWNERSHIP IN LAND TRANSPORT

EXPERIENCES WITH REGULATORY CHANGES OF THE TAXI INDUSTRY

Jon-Terje Bekken, Institute of Transport Economics, Norway

INTRODUCTION

The taxi industry remains one of the few industries where quantities and fares are still regulated to a great extent. International comparisons however, show a great diversity when it comes to regulation of the industry both to differences between countries as well as differences within countries. The diversity also inflicts on the approach to and outcome of regulatory changes.

This paper focuses on experiences with regulatory changes in the taxi industry. However, to understand the outcome it is also necessary to present the variety of regulatory approaches in the field. Thus, a brief presentation of this will also be made. The experiences will be compared to each other and discussed. The focus will be on European experiences. However, some references are also made to US and New Zealand experiences. The approaches are compared to each other and discussed in relation to supply, fares, quality of service and efficiency and effectiveness of administration and institutional structures.

The paper is based on a number of studies carried out by the Institute of Transport Economics since 2003. The studies have been commissioned by the International Road transport Union (IRU) (Bekken 2003), the UK Office of Fair Trading (OFT) (Bekken and Longva 2003), the Norwegian Taxi Owners Association (Bekken 2003) and the Irish Taxi Regulator (Bekken and Steen 2005). The studies have covered a wide range of topics in the field of taxi organisation and regulation. Synthesis of the findings has been summarized in Bekken (2005) and Bekken and Longva (2004).

2 Insert book title here

The description of the regulatory regimes in the paper is based on information collected from different cities and countries and on interviews with representatives from the industry. To some extent different authorities have also provided information. When it comes to evaluations of experiences with deregulation, I have relied on a number of secondary sources. Unfortunately, reasons for and against regulation are often coloured by general political views on the role of government. This has also influenced much of the literature on taxi regulation. To make theories more powerful, they should be based on empirical findings. Unfortunately, such empirical studies of the taxi industry are scarce. One reason for this may be that it is difficult to obtain the necessary information.

The paper starts by putting regulatory approaches into a conceptual framework to clarify the differences between regulatory approaches and also to point out some important market characteristics. The taxi industry isn't a homogeneous market. Rather, it is made up of different segments that to some extent may require different approaches. After having described the existing regulatory approaches in some European cities, some of the experiences with regulatory changes are summarized and conclusions and recommendations pointed out and discussed.

DIFFERENT MARKET SEGMENTS MAY CALL FOR DIFFERENT REGULATORY APPROACHES

Three major market segments exist in the taxi industry. These are the **taxi rank segment**, the **hailing segment** and the **telephone-booking segment**. The two first can be designated as the street work segment. These segments may call for different regulatory approaches.

The taxi rank segment and the hailing segment are unique to the taxi industry. They have more in common with a fresh goods market than with other markets. In general, these segments are recognized by a great number of suppliers as well as a great number of consumers. All of them being small, this would be the ideal situation for an efficient market solution. However, problems related to imperfect and asymmetric information are frequently observed. The spatial nature of these segments also creates problems. Further, unofficial "first-in-first-out" rules may also hamper free competition. As a result, there will be problems related to a pure market solution of these segments.

In the telephone-booking segment, customers are in a better position to shop around for the desired service and level of quality at an acceptable fare. Because, dispatching centrals clearly have great economies of scale, the problem may be to avoid monopolistic behaviour. Differences in the relative size of these segments may explain different outcomes of regulatory changes.

Experiences with regulatory changes in the taxi industry 3

In several countries, taxis play an important role in providing public transport services that are usually carried out on a contractual basis often through dispatching centres. The contracts cover school and medical transport as well as transport of the disabled and elderly. The table below shows some estimates of the percentage of trips paid for by the public sector.

Table 1: Percentage of trips paid for by the public sector. Source: Bekken 2003

	Less than 10%	10%-25%	More than 25%	Figures N/A
Case-study cities	Berlin, Helsinki, Vienna	Brussels, Amsterdam, Dublin, Oslo	Stockholm	Geneva, Budapest, London, Madrid, Paris
Countries (average)	Germany		Belgium, Finland, the Netherlands, Hungary, Sweden, Norway	Austria, France, Ireland, Spain, Switzerland, Great Britain

In most of the countries, public sector contracts are even more important in rural areas. The national average indicates that in most of the countries, they account for more than 25% of all trips. It is therefore of vital interest for the taxi industry to be treated on equal terms with other industries in large public tenders. Because of the organisation of the taxi industry, with its many small operators, DCs may play an important role in co-ordinating negotiations for such contracts.

In some European countries, most notably in Ireland, Germany, Austria and the UK, regulation of small public transport vehicles is based on a two-tier system. This allows for different regulation between the Private-Hire-Vehicle (PHV) sector and the taxi sector. The main difference between the two is primarily that PHVs are not allowed to ply for hire. PHVs can only accept pre-arranged services. The status as of 2001 is summarized below for a number of European countries.

Table 2: The significance of the PHV sector in different countries

Country	Size of the PHV sector compared to the taxi sector (number of licences)	Comments
Austria	Significant (approximately 59 %)	"Mietwagens" - Only allowed to pre-book trips. No requirements for drivers.
Belgium	Mainly deluxe hire services	
Finland	No sector	
Denmark	No sector, was integrated in the taxi sector (legislation) in the 1970s	
France	Approx. 7 %	"Véhicules de location" Not as heavily regulated as ordinary taxis
Germany	Approx 40 %	"Mietwagens" - Fares not regulated and taximeter not required. Not allowed to ply for hire.
Ireland	Significant, but declined after deregulation.	Fares not regulated and taximeter not required. Not allowed to ply for hire.
The Netherlands	No sector	
Norway	No sector	
Spain	Insignificant primarily luxury vehicles (3-4%)	
Sweden	No sector	
Switzerland	30% in Geneva, smaller share outside. The PHVs carry out only a small amount of trips	
UK	Important sector	Fares not regulated and taximeter not required. Not allowed to ply for hire.

In countries with a distinct PHV sector, the level of DC affiliation tends to be smaller. The obvious reason for this is that PHVs are only allowed to operate from a DC or similar facility. The result is that taxis to a larger extent focus on street work rather than competing with the PHVs on the booking market. This also tends to hamper the technological development of DCs. If it is a desired policy to increase the strength and the importance of the DCs, a large PHV industry will tend to discourage this. On the other hand, DC affiliation may not be as necessary in markets based on ranks and street hire. The lowest level of DC affiliation found by Bekken (2003) was in the three largest cities (Madrid, Paris and London). This may be because in these cities less traffic is generated through telephone bookings. It is likely that the size and population density of a city influences the size of the spot market.

The presence of a PHV industry also seems to be a way to tailor the regulation to different market segments. This is particularly related to fares. The customers are most likely to be exploited when catching a cab curbside or from a rank. Thus, some countries maintain strict fare regulation on these segments while allowing the PHV sector to compete in the segments where customers are in a stronger position to shop around.

REGULATORY APPROACHES IN EUROPE

Taxis and Private Hire Vehicles (PHVs) provide a very “local” service. The majority of trips take place within a city, municipality or a region. When taxis leave the area they are stationed, they usually return as soon as possible. This is no surprise considering the alternatives for longer trips, such as bus and rail. As a result of this local focus, the taxi industry and its regulatory framework have developed in a widely divergent manner throughout Europe and the rest of the world. To some extent, the industry has also developed differently within the same country. Due to the different starting point and differences between cities and countries it is no surprise that the outcomes from regulatory changes differ. Some cities have focussed on direct barriers to entry creating a maximum number of cabs and even allowed licences to be traded (Paris, New York, In Ireland until 2001, whereas other have relied on more indirect barriers to entry into the industry (Sweden). Regarding the regulation of fares, only a few cities (Oslo, Sweden) have deregulated.

The taxi industry is not only based on very local markets with little outside competition, all of the markets also consist of different market segments. As will be discussed, these segments may call for different regulatory approaches.

The taxi industry is highly complex with a great range of regulatory approaches and organisational structures. Unfortunately, much of the literature related to the taxi industry considers the taxi industry as one homogenous industry and does not address the complexity of its sub-markets and the different organisational structures or regional differences. As a

result, only a small proportion of the literature makes any attempt to clarify and define the services, players and markets discussed and the relevant markets.

In line with Toner (1997), I have identified three major groups of regulation concerning the taxi industry. Toner focussed on quantity regulation or the conferment of monopoly rights, the imposition of entry conditions and at last the control of fare. Following the outline set out in Bekken (2003), I have chosen a somewhat different diversion between the two first issues, taking into account the fact that quantity regulation is a barrier to entry and that in most of the cities considered, the conferment of monopoly rights is not absolute. Thus, I have classified the regulation concerning the taxi industry in the following groups:

- a) direct barriers to entry,
- b) indirect barriers to entry and
- c) fare regulations.

The direct barriers to entry relates primarily to the quantitative and qualitative regulations on the operators. The indirect regulation covers all other aspects creating barriers to entry. Taxi driver requirements and vehicle requirements are important in that respect.

Direct barriers to entry

The supply of a taxi service is dependent upon taxi operators (or proprietors) putting taxi vehicles in service. The direct barriers to entry are related to quantitative restrictions on the supply side of the market (number of operators and/or taxis per operator), or qualitative requirements imposed on the operators allowed in the market. Both of these create direct barriers to entry. The first directly involves a limit on the supply of services, whereas the second introduces a “cost of entry” for the taxi operator that may be more or less difficult to meet for potential entrants. New operators must satisfy the quality requirements before they face the quantity restrictions.

Quantitative regulations

Quantitative regulations involve (some degree of) control of the number of taxis on the streets (market access) and thus the supply in the taxi market. The degree of regulation is a continuum, ranging from totally closed markets with no new entrants allowed, to markets without any restrictions on the number of operators or taxis. The regulation is usually achieved by some kind of licensing regime. The criteria used for issuing licences are crucial in determining how tight market access is actually regulated. It is important not only to focus on the actual regulation, but also on the degree of regulation. A very flexible or lax regulation of market access may be very close to open entry. Quantitative regulation has been widely used in the taxi industry. It effectively reduces the threat of competition to the incumbents. This may create a scarcity value, which may be “harvested” if the licences are traded. In other cases the licences are not tradable but issued by authorities based on certain criteria such as seniority or by a lottery. Some times, the licences are not only a right but also entail a duty to serve the local community.

The table below provides a brief summary of the quantity regulations on the number of taxi operators in some European countries and cities. The table also indicate that some countries have delegated the decision on the regulatory approach to local authorities.

Table 3: Summary of quantity regulations in some European countries. Source: Bekken (2003)

National legislation on access to the market		No national legislation (Local authority decides)
Number of operators regulated	Number of operators not regulated	
Norway, Finland, Germany, France, Spain	Sweden, the Netherlands, Ireland, Austria, Hungary	GB (not regulated in London), Belgium, Switzerland

In some cases, the quantity regulation is close to a predetermined ceiling. In this situation, there is a static restriction on the number of taxis. A ceiling, which cannot be altered in the short term, determines the number of taxis. This is the extreme. Something close to a fixed ceiling system is found in Paris. The situation in Dublin before deregulation in 2000 was also one with a fixed ceiling system. Fingleton, Evans and Hogan (1998) reported that between 1978 and 1998, the number of licences in Dublin increased only once, by 7.6% in 1992. In Brussels a predetermined ceiling also exists, although expansion is possible for certain categories of vehicles providing services for disabled people and pensioners, as well as ecological vehicles. Outside Europe, the most cited example of such a predetermined ceiling is the New York medallion system.

Even though there are no fixed ceilings on the number of taxi, it doesn't mean that the licences are issued whenever someone passes the necessary requirements. There are usually certain criteria for issuing the licences. In some cases objective criteria for deciding the number of licensed taxis are used. This can be a population ratio or other similar measure. Objective criteria for issuing licences do not seem to be common in Europe (Bekken 2003). Subjective criteria are the most common criteria for issuing new licences. In such cases, an authority assesses the need for an increase or decrease in the number of licences. Often these criteria are related to terms as public need, excess demand, excess driver profits and other societal reasons. The real differences between objective and subjective criteria however may be small.

Quality standards on access to the profession for taxi operators

Such requirements are qualitative requirements which all operators must fulfil before they are allowed to exercise the profession of taxi operator. Thus, these requirements apply directly to new entrants (operators) into the industry. Such requirements usually exist in addition to the regulation on market access. The difference is that the regulation on market access may be definite, whereas everyone may try to pass the quality standards. Nevertheless, these two regulations must be considered together as they form the direct barriers to entry. Following political decisions in the EU to liberalise the economy, the EU has adopted some Directives with the aim to replace quantitative control with qualitative control (Council Directive 96/26

98/76/EC). The directive sets out requirements regarding the professional competence, financial requirements and requirements regarding the repute of operators. The Directives do not yet apply to the taxi industry, but some countries have nevertheless incorporated them for the taxi industry. The most widely used quality standards used are:

- Criminal record check. Both white-collar criminality is known to exist in the taxi industry. An important preventive step is to set requirements regarding criminal records for operators.
- Requirements regarding professional competence. These are important to ensure the professionalism of taxi operators. Most countries in their requirements regarding professional competence include topics such as knowledge of relevant laws, knowledge of how to run a company, and knowledge of accounting and economics. Among the countries investigated by Bekken (2003), most also required a written exam to access the profession.
- Financial/solvency requirements. In several countries, economic or financial/solvency requirements are imposed on operators. These may be very different, ranging from direct assets to bank guarantees and financial guarantees. Licence fees and requirements regarding annual earnings are also among the financial/solvency requirements to be found. Some countries additionally have an “assessment” of the economic stability of prospective operators. This is mostly related to previous experience of running a business and a check on any previous public debts. Solvency requirements vary greatly. Sweden has by far the strictest financial regime of the countries in the study by Bekken (2003), even exceeding the requirement in EU Directive 96/26. Other countries that reported substantial financial requirements were Austria (€7,500), Germany (€2,250) and Norway (€9,000). The payment of VAT and national insurance contributions is also important in the assessment of economic stability in other countries.

Overall tightness of the direct barriers to entry

Quality standards for access to the profession and regulation of market access together form the direct barriers to entry. These must be considered together. In Bekken (2003), 13 European cities were grouped into four groups based on the strictness of the regulations on market access and quality standards respectively. This is summarized below.

Table 4: The tightness of direct barriers to entry. Source: Bekken (2003)

		Quality standards on operators	
		Strict	Lean
Market access	Quantity restrictions	Oslo Helsinki	Brussels Madrid Paris
	No quantity restrictions	Stockholm Vienna Berlin London (Budapest)	Dublin Amsterdam (Geneva)

Indirect barriers to entry

The indirect barriers to entry are related to aspects other than the operators in the market. All requirements imposed on an industry inflicts on the cost of entry and thus indirectly and to different degree to the barriers to entry.

Taxi driver requirements are the most common indirect barrier to entry. Usually, some qualifications for driving a taxi are required. When qualified to access the taxi driving profession, the person is granted a taxi driver’s licence or equivalent. In many cases professional requirements (area knowledge etc) and medical requirements are imposed and suitability considered (criminal record or other) before a taxi driver’s licence is granted. Very strict requirements may prevent operators from expanding their business, thus indirectly regulating the supply. The “Knowledge” in London, which is the common name of the area knowledge test to be passed by prospective London taxi drivers, is an example of this. In some cases, the taxi driver requirements also function as quality requirements for operators. This is the case if operators are required by law to fulfil the requirements for taxi drivers.

Table 5: Taxi driver requirements in Europe. Source: Bekken (2003)

	Criminal record check	Professional competence (exam/test)			Medical certificate	Validity of taxi driver’s licence
		Type of exam	Local area knowledge test	Other		
Austria	X	Written	Yes (Included in exam)		X	Unlimited
Brussels	X	Mixed	Yes (Included in exam)	Driving test optional (local choice)	X	Must be renewed yearly
Finland	X	Written	Yes	Course required	X	Until revoked
France	X	Written		Course required	X	1 year
Germany	X	Written	Yes (Included in exam)	-	X	5 years revocable
Hungary	X	Written	Yes (Included in exam)	3-week course required	X	Until revoked
Ireland	X	Written (Dublin)	No			5 years
The Netherlands	X	None			X	
Norway	X	(Optional – written)	Optional (local choice)		X	
Spain	X	Written	Yes (Included in exam)			
Sweden	X	Written	Optional (local choice)		X	Until revoked
Geneva	X	Written	Yes		X	Unlimited
London	X	Interview	X		X	3 years, renewable, revocable

Other quality and service requirements concern the quality of the services offered and the service itself. Most of these are requirements related to the vehicles, the drivers and the operators. These types of requirements are very common in most industries providing personal services, including the taxi industry. The main purpose of quality and service requirements is to assure a minimum level of quality of service. Regulations may also assure different groups of customers a predetermined level of service. Quality and service regulations have often been used to alleviate the negative effects of cut-throat competition and asymmetric information between customers and service providers.

Fare regulation

Fare regulation is often a controversial topic. Different countries have chosen different approaches to this issue. The differences between fixed and free fare setting policies are important. However other intermediate practices, such as maximum and minimum fares must also be considered. Information is a key aspect. For competition to work properly consumers must be able to assess the fare in advance and use it as a basis for selection of service provider. In some segments of the taxi industry this is rarely the case. It is also important to gain a deeper understanding of the different market segments in order to assess the effects of fare regulation. In some segments, effective competition based on fares is hard to accomplish. In other segments, fares will be the main source of competition.

When considering fare regulation it is important to make a distinction between the fare structure and individual fares. The fare structure may be regulated whereas the fare level can be set freely. The table below is based on Bekken (2003) and summarizes the status of fare regulation in the 13 countries in 2002. For some of the countries, Belgium, Switzerland and Great Britain, local authorities have great discretion. As a result, the focus is on some major cities instead.

Table 6: Summary of fare regulation in Europe. Source: Bekken (2003)

	No fare regulation	Fare regulation		Requirements for fare structure	Other features
		Fixed	Max		
Austria		X		Detailed	Not regulated for PHVs
Belgium			X		In Brussels, the fares function as fixed fares
Finland			X	Info required	Function as fixed fares
France			X	Detailed	Local authority decides fare and structure. The national authority decides increase.
Germany		X		Detailed	Not regulated for PHVs
Hungary (In Budapest)			X		Function as free fares. Local authorities may regulate fares
Ireland (In Dublin)		X	X		Not regulated for PHVs. Local authorities may decide on fixed or maximum fares.
The Netherlands			X		Not regulated when booked through a DC
Norway	In some major cities		X		Fares deregulated in cities with more than one Dispatching Central
Sweden	X				Strict rules on fare information
Switzerland (In Geneva)			X		Local authority decides fare and structure.

GB (In London)		X			Outside London, local authorities free to decide. Not regulated for PHVs
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EXPERIENCES WITH REGULATORY CHANGES

Having considered the regulatory regimes in some European countries, I will now turn to experiences with deregulation. This chapter summarize the experiences as reported in a number of different sources. Focus is on the effects of regulatory changes in European countries. Since much of the literature concerning regulation of the taxi industry relies on US experiences a brief introduction to the US experiences is also included. Furthermore, the deregulation in New Zealand is included as it is very interesting and may shed a light on the most recent regulatory changes in Europe. The summary of experiences from regulatory changes is primarily based on Bekken and Longva (2003). UK experiences with regulatory changes have been documented in a number of different sources, such as Toner (1996 and 1997) and more recently by the Office of Fair Trading in their study of the regulation of licensed taxi and PHV services in the UK (OFT 2003). Unfortunately, I have reviewed these findings sufficiently, although they provide very good insights.

US Deregulation and re-regulation

In most US cities the taxi industry was brought under municipal or state regulation during the late 1920s or 1930s (Teal and Berglund 1987). The reason was the extremely competitive conditions following the Great Depression, which were a result of the low cost of entering the taxi industry at times when other jobs were hard to find. During the 1970's and 1980's, several US cities deregulated. The results of the changes in the US taxi regulation have been discussed in several papers. The most thorough assessment of the US experiences is presented by Teal & Berglund (1987). They evaluate the impact of deregulation in six cities, all having deregulated both entry and fares and with reasonably good data on the impacts. Price Waterhouse (1993) also summarizes effects from several US cities. More recently, the ITRE (1998) and Dempsey (2001) have also summarized and discussed experiences from deregulation in the US.

The main reported short-term effect of deregulation in the US was a dramatic increase in supply. Notably, though, the increased supply mainly occurred at already well-served locations such as airports and major cabstands. This was a result of the fact that most new entrants were independent operators and thus small fleet operators who were unable to serve the telephone market. At these locations, waiting times for customers were already short. This finding is reported both by Teal & Berglund (1987) and Price Waterhouse (1993). The consequences of deregulation in the three US cities studied by the ITRE (1998) were similar to those reported by earlier literature.

In the deregulated US cities, an increase in trip refusals occurred. As a result, consumers only experienced a marginal service improvement, according to the report by Teal and Berglund (1987). They rejected the argument by Frankena and Pautler (1984) that service improvements inevitably would follow new entry. Price Waterhouse also reported a decline in service quality. Trip refusal, increased vehicle age and soliciting for passengers were the primary results. According to Price Waterhouse, this was caused by over-supply. It is also interesting to note that the short-term effects were less adverse in smaller cities with an insignificant cabstand market. In all of the US case study cities, prices rose. The report by Price Waterhouse argued that this was a result of lagged cost increases and the fact that the cabstand market was generally price insensitive and lacked competition due to the first-in first-out nature of taxi queues.

Teal and Berglund (1987) reported from their study that taxi rates were higher in real terms in all of the cities investigated. The increase occurred immediately after deregulation. This was partly because rate increase was overdue in the regulated regime. Further, the report found the upward trends of rates to be even more pronounced in cabstand markets than in telephone order markets. The two major explanations they offered were both related to demand. First, demand was characterized by imperfect information and strong name recognition (branding). Second demand might be inelastic; consequently customers do not pay much attention to the fares.

Sweden – full deregulation and enhanced quality standards

The Swedish population of 8.8 million occupies a country of 450,000 square kilometres. This suggests a very sparsely populated country. However, most of the population is concentrated in the southern parts of the country. The Swedish taxi industry is organized into a large number of small operators. On average, each operator has 1.7 taxi vehicles across the country as a whole. This is also reflected in the use of salaried drivers. Most taxi drivers in Sweden are owner-drivers (70%). Only 30 per cent are salaried employees. In Stockholm and the other large cities, even fewer drivers are salaried employees. The Swedish taxi industry is heavily computerised. Most DCs have computerised contact with the affiliated drivers. There are few “independent” operators (“friåkare”), most operators are affiliated to a DC.

Taxis are also extensively used for public purposes. In the country as a whole, public sector contracts amount to about 56 per cent of the total taxi trips (SOU 1999). The public sector is required by law to use public tendering for all contracts above a certain threshold. DCs or other driver cooperatives may join forces and compete for such contracts. No Private Hire Vehicle industry (PHV) exists. All passenger transport from door-to door is regarded as a taxi service and must follow the requirements for such transport. Exceptions are made for some public services.

It is also important to have in mind that the telephone-booking segment is dominant in Sweden as shown by the table below. Some of the experiences must be viewed in light of this. In particular this has supported fare competition.

Table 7: Estimated proportion of taxi trips by type of market segment in Sweden and share of subsidized trips. Source: Gärling (1993) and SOU (1999).

	Stockholm	Large cities	Medium cities	Rural areas	Sweden
Telephone booking segment	70%	68%	79%	82%	N/A
Other (street work)	30%	32%	21%	18%	N/A
Subsidized taxi transport	15-20%			More than 90%	56%

Internationally, Sweden is one of the most important cases when discussing experiences from deregulation as the experiences is well documented. The Swedish taxi market was deregulated on July 1st 1990. The reason for the deregulation was that the taxi industry was believed to be inefficient due to a mismatch of supply and demand and a lack of price competition. It was believed that this resulted in excess waiting time for passengers and too high fares. After the deregulation in 1990, anyone could register as a taxi operator and charge the fare he wanted. Only a few requirements applied to the operators. The licence areas were all merged and taxis were allowed to operate freely all over Sweden. The required DC affiliation was also abandoned. At the same time, VAT was introduced on taxis.

Changes came about instantly after the deregulation. Major changes were: more vehicles, new profiles on cabs affiliated to different DCs and changes in tariff structure. Taxi fares rose, contrary to expectations (partly due to the included service and the lag in prices compared to taxi costs and the inclusion of VAT). More recently, however, fares have increased in line with inflation. Since deregulation, several new regulations have been introduced. In 1995, stricter rules for the taxi driver's licence were introduced. A practical driver's test was also introduced. Today, Sweden has some of the strictest rules for acquiring a taxi driver's licence. There are also strict requirements for operators. To make fare competition function better, strict rules on information have been introduced. Taxi companies are required have the same fare schedule for all vehicles and to state a standard fare clearly on each vehicle. Thus, competition is mainly between companies, not drivers.

When considering the short-term effects, it is important to have in mind that the deregulation took place prior to an economic recession and at the same time as VAT was introduced on taxis. Several taxi companies went bankrupt and taxi drivers lost their jobs. The increased number of vehicles reduced the efficiency of each vehicle and salaries for drivers decreased by up to 25% in larger towns. After deregulation, the role of DCs has increased. The reduced utilisation has not offset the increased supply and as a result, availability has increased. Unfortunately, crime in the industry both financially and assaults on passengers have increased. The industry tries to deal with this by approving DCs and recommending passengers to use taxis affiliated to such DCs.

Table 8: Summary of the Swedish regulatory changes. Source: Bekken and Longva (2003).

	Before deregulation	After deregulation	Later adjustments
Fares	Tightly regulated Adjusted for costs	Free to set. Tight requirements on fare information DCs must have uniform maximum fare schedules	Stricter requirements on fare information
Entry	Tightly regulated Local authorities decided the number based on necessity Geographical restricted	Free entry No geographical restriction, free to operate all over Sweden	Some cooperation between operators allowed
Operators	No major quality requirements DC affiliation required Schedule for operation to be followed	Some requirements on operators' reputation immediate after deregulation	Further enhancements. EU Directive adopted for taxi operators as well as other transport operators Maximum market share of DCs introduced
Drivers	Few regulations	Some requirements on taxi drivers' knowledge and reputation introduced	Further enhancements

Recently, Marrel and Westin (2002) have analysed the effects of the Swedish deregulation, with primary focus on rural areas. They conclude that no permanent increase in the number of vehicles occurred. Prices increased, although some variations occurred depending on the type of trip in question. Furthermore, they concluded that efficiency decreased in rural areas between 1991 and 1997. In relation to innovation, they found some developments in new services and businesses after the deregulation, although it is unclear whether competition has been the driving force behind this development. Furthermore, no large-scale enterprises emerged in either the urban or the rural areas studied.

Since the deregulation in 1990, several new regulations have been introduced. In 1995, stricter rules for the taxi driver's licence were introduced. Also a practical driver test was introduced. Today Sweden has some of the strictest rules for gaining a taxi driver's licence. To make fare competition function better, strict rules on information have been introduced. The fare competition requires the different companies or Dispatching Centrals to have a standard uniform fare for all their vehicles. The competition is thus mainly between the companies, not the drivers. Recently, further steps have been taken to reduce the commercial crime within the industry (such as tax and VAT evasion) and to reduce the problem of unlicensed taxi drivers (SOU 2004).

Tailored deregulation in New Zealand

Together with Sweden, New Zealand represents a country where the taxi industry was totally deregulated over the whole country at once. The restructuring of the New Zealand taxi industry in 1989 was intimately related to decisions to deregulate most aspects of what was then a highly controlled economy. Within ten years, New Zealand moved from being one of the most regulated of the OECD-countries to being one of the least regulated ones (Morrison

1997). The deregulation was particularly tailored as to assure some concentration of the industry. All taxi operators are required to be affiliated to an association providing services 24 hours/7 days and telephone booking opportunities. Furthermore, new associations must have at least 5 vehicles.

Before deregulation in 1989, 4 geographically based Transport Licensing Authorities (TLA) controlled the number of taxi operator's licences. Additional licences were seldom issued, creating rising prices for the existing tradable licences as demand generally exceeded supply. The removal of the restrictions effectively wiped out the scarcity value of licences (Morrison 1997). Fares were equally tightly regulated as the Secretary for Transport fixed a fare schedule for the different licence areas. No fare regulations currently apply in New Zealand. Individual taxi organisations can set their own fare schedule. The only requirements are that maximum fares are registered with the Secretary of Transport, calibrated on the taximeter and displayed both inside and outside the taxi. Thus, individual operators are not allowed to set their own fare schedule but must follow the schedule of the association. The lifting of quantitative restrictions allowed a whole variety of new drivers to enter the industry, which led to the imposition of additional qualitative requirements such as the display of identification cards, procedures for passenger safety, and the (re)introduction of area-knowledge requirements. So while New Zealand removed restrictions on the licence numbers and taxi fares charges in 1989, most qualitative controls remained – and in certain respects were strengthened.

After deregulation, the number of companies in the metropolitan areas increased three times and a massive increase in the number of taxis also occurred. In 1989 there were 2,762 vehicles nationwide, while by 1994 these had increased to 7,181, a figure far outweighing the growth in population figures. However, the availability of taxi services in smaller areas decreased marginally under regulation (Morrison 1997). Post-deregulation has also been characterised by a series of mergers between the largest taxi organisations, while at the same time creating leeway for entrants of many smaller operators. Fares have declined in real terms in the larger cities (i.e. 15% to 25%), while the changes in the smaller towns were more ambiguous (Morrison 1997). More interesting, however, is the introduction of differential pricing components. Overall, both Gaunt (1996) and Morrison (1997) note that, especially in the larger cities, the consumer has benefited from deregulation by greater numbers of taxis, shorter waiting times, and a greater range of services. In the smaller towns, however, the results seem more ambiguous. In addition, quantitative deregulation has been accompanied by increased regulatory cost due to significant increases in quality control.

Due to the service requirements of the association and the required affiliation to an association, the costs of monitoring the industry have been reduced. This has also assured that economies of scale have been achieved as well as service innovations.

Ireland – abrupt changes and extraordinary increase in the number of taxis

Compared to most European countries, Ireland has a very high number of taxis per capita (Bekken and Longva 2003). Furthermore, the PHV industry also provides a substantial number of trips, which come in addition to the services provided by taxis. Most taxis are affiliated to a DC. The majority of the taxi operators in Ireland are independent owner-drivers. There are very few salaried drivers. On average, there are almost as many taxis as there are operators. The Dublin taxi market is very much based on the street segments.

Until 2000, the Irish taxi industry had been very tightly regulated for years, with regard to both fares and entry. New licences were rarely issued. Several reports showed a great mismatch between supply and demand of taxi services prior to the changes in 2000. In January 2000, the Ministry of the Environment and Local Government decided to increase the number of taxi licences by 3,200. These were to be issued to current licensees. This decision was taken to court, based on preferential treatment of current licensees over and above newcomers. The High Court decided against the Ministry stating that the restriction of access to licences to current licensees exceeded the powers of the Minister. This decision effectively cleared the way for deregulation of entry restrictions to the Irish taxi industry.

The only regulation, which actually was altered in 2000, was access to the market. The other regulations of the taxi industry were more or less as before. Fares were tightly regulated whereas the requirements of drivers and operators were lightly regulated. No other changes were introduced as to alleviate the possible negative effects of deregulation. The early result of the deregulation is summarized in Goodbody (2001a) and Goodbody (2001b). The deregulation effectively wiped out the second hand value of the tradable licence plates. Certain licence holders suffered extreme personal financial hardship and as a result a Hardship Panel was established as to consider the need for compensation.

Based on the effects of the deregulation, the Competition Authority (2002) suggested some improvements to the legislation. Firstly, fares should be rebalanced to reduce excess supply and assure adequate service at all times. The maximum fares should continue to be set by local government. Secondly, quality standards should be tightened. On 26 July 2003, the Irish Government passed the Taxi Regulation Bill 2003, which introduced some re-regulation of the taxi industry. Following the deregulation, the authorities have also established the Office of Taxi Regulator. One of its duties will be to assess the applications for financial compensation and to prepare some new legislation to improve the reputation of the industry. The proposals of the Taxi Regulator will be made public in July. The proposal is based on a thorough investigation and consultations with different stakeholders. Bekken and Steen (2005) prepared an international review of taxi legislation for the Taxi Regulator.

The Irish experiences show that when entry is liberalised without other direct barriers to entry being introduced, the number of taxi operators will increase significantly. Salaried drivers prefer to become owners rather than working as salaried drivers. As a result, the utilisation of each taxi decreases. More taxis will be operated on a one-shift turn. The demand for taxi

services did not increase as much as the supply. This has reduced the profitability in the industry and put a pressure on quality and fares. When fares are capped, reduced quality may be a way to increase profitability. Consumers have benefited from the increased availability through reduced waiting time. This however is most important for the street work segments. Furthermore, new entrants primarily focus on the taxi rank segment, rather than the telephone booking segment.

Stepwise deregulation in the Netherlands

The Netherlands is one of the world's most densely populated areas. More than 90 per cent of the population live in cities (Johansson et al 2000). However, the population is more concentrated in the southern part of the country, rather than the north. The Dutch taxi industry is comprised of a large number of small units, but also a number of larger companies. There is a high level of DC affiliation in the Netherlands. In the 4 largest cities 89 per cent of the taxis are affiliated to a DC, whereas in the Netherlands as a whole, 67 per cent are affiliated (Nipo 2002). The competition between the DCs is also good. The importance of the different market segments differs greatly between urban and rural areas in the Netherlands. In the 4 largest cities, the streetwork has a market share of 55%, whereas the average for the entire country is 21%. Taxis are also extensively used for public purposes. In the country as a whole, close to 60 per cent of the trips are carried out via public sector contracts. This ranges from a low 21 per cent in the four largest cities to a high 76 per cent in rural areas.

A new Passenger Transport Act came into effect on 1 January 2000. The objectives of the new Act were to strengthen the role of the taxi with respect to other modes of transport and motivate more people to use taxis more often. The Act included both re-regulation and deregulation of certain aspects and supportive measures as well as intensified supervision and enforcement: It was to be gradually implemented from 2000 to 2004. This stepwise implementation was made as ensure a swift transition to the new regime and to allow for monitoring of the effects in order to modify components of the law if necessary. The most important changes as reported in EIM (2002), NIPO (2002) and Bekken and Longva (2003) were:

- Regulation on access to the market has gradually been revoked, starting 1 January 2000 and finished by 1 January 2002. During this period a minimum turnover and a 30-hour working week were required. Before the new Transport Act, access was regulated but demand was taken into account and new licences could be issued (no predetermined ceiling).
- Fixed fares were changed to maximum fares. However, for the contract market, fares are free. The change to maximum fares was the first step towards full deregulation of fares.
- The entire country became a single working area, as opposed to several licence/working areas previously. This change became effective from 1.1.2002.
- Centralised enforcement (as opposed to local before). The reason for this was to ensure equal requirements for drivers, operators and vehicles throughout the country.

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After deregulation, a significant increase in the number of taxis and the availability were experienced in all areas, regardless of market characteristics. However, in cities where the taxi rank segment dominates, the newcomers have been small owner-drivers, whereas in areas where the telephone-booking segment dominates, the incumbents have expanded their business. Taxi usage has not increased, as was the intention behind the deregulation. Thus, demand seems to be linked to other factors than the mere supply of taxis. The availability has increased most at taxi ranks and at night and in weekends, which has clearly benefited the consumers. Some of this increased supply is related to the removal of designated licence areas for the taxis. This has made it possible for operators from rural areas to supply services in major cities in the weekends when demand is low in rural areas.

Table 9: Summary of the effects of the Dutch regulatory changes. Where nothing is stated, the same applies to medium sized municipalities and rural areas as for large municipalities. Source Bekken and Longva (2003)

	Large municipalities (Cities)	Medium sized municipalities	Rural areas
Market characteristics	The taxi rank segment dominates. Some contract work	The telephone booking and taxi rank segments are quite similar. More than half of the trips on contracts	The taxi rank and hailing segments are insignificant, most traffic from telephone booking. Most trips on contract
Supply and taxi usage	Significant increase in the number of taxis. Primarily focussed on the taxi rank segment. Taxi usage has increased but not very much	The effect on supply is similar to that of large cities but more pronounced. Taxi usage declined	A significant increase in the number of taxis, however, the average size of operators also increased. Taxi usage has declined after an increase the first year after deregulation
Fares	The fares increased the first year and fell the second year in real terms. Since deregulation fares have increased by close to 5% in real terms. A maximum tariff exists, but most taxis charge below this		The fares increased the first year and fell the second year in real terms. The overall fare increase equal to that of large cities. A maximum tariff exists, but most taxis charge below this
Level of services	Increased availability, primarily at taxi ranks and in weekends. Customers still follow habit and choose the first taxi in line rather than the best deal		
Organisation	The average size of operators has declined, as more independent owner-drivers have entered the market		The average size of operators has increased indicating expanded business of current operators rather than new entrants
Innovation	No significant new services have occurred		

The stepwise deregulation has made alleviating policies possible. This has allowed the authorities to react to undesired effects. Currently some of the changes, in particular the liberalisation of fares have been put on a hold.

Norway – fare deregulation with quantity control

In contrary to the Netherlands, Norway is a very sparsely populated country. The number of taxis per capita is quite high compared to other European countries (Bekken 2003). Salaried drivers are used extensively and almost all taxi operators are affiliated to a DC (in fact, DC affiliation is compulsory). The high grade of DC affiliation has resulted in a high level of technology and a high degree of vehicle and driver utilisation. The figures in the table below are from 1997, however, the significance of the telephone-booking segment has not changed considerably. A survey among taxi customers nationwide (Norges Taxiforbund 1997) showed that almost 20 per cent of the taxi trips were paid for by the public sector. This ranged from almost 50 per cent in the most rural areas to 10 per cent in the largest urban areas

Table 10: Proportion of Taxi Trips by type of market segment in Norway. Source: Norges Taxiforbund (1997) and Bekken and Longva (2003).

	Oslo	Large cities	Medium cities	Small areas	Norway
Telephone booking segment	64%	60%	74%	90%	68%
Taxi rank segment	32%	37%	24%	6%	29%
Hailing segment	4%	3%	2%	4%	3%

In Norway the taxi licence is personal and limits the operator to one vehicle. As a result, a large number of small units exist. Salaried drivers are used extensively. The vehicles have a high grade of utilisation, which also require extensive use of hired drivers. The requirement to provide a service at all hours makes salaried drivers necessary. In some areas several DCs are competing. However, in most licence areas only one DC exists. On average 20 per cent of the taxi services are related to public sector contracts. Almost all taxi operators are affiliated to a DC (in fact, DC affiliation is required). The high grade of DC affiliation has resulted in a high level of technology and a high degree of vehicle and driver utilisation.

Another approach to the regulation of the taxi industry has been adopted in Norway compared to most other countries reforming their regulation. The regulation of fares has been revoked in some urban areas, whereas the number of taxis still is regulated. The fares have only been liberalised in areas where there are competing DCs.

The Competition Authority has investigated the effect on fares after deregulation (Konkurransetilsynet 2001). They found that fares in general increased. The fare increase on

weekdays has been relatively small, whereas the increase has been most notable at weekends and at night. The Norwegian Consumer Council investigated fare levels and fare structures in the deregulated areas two years after deregulation (Forbrukerrådet 2002). This comparison also illustrates that there are great differences within the different deregulated areas. If the customer was fully informed, he could save between 14 and 34 per cent on the same trip in Oslo by choosing the cheaper taxi. The figures were depending on the time of the day. To conclude, the effect of the fare liberalisation has not been any fierce competition. Prices seem to have increased rather than decreased. Problems with price information have also arisen.

Table 11: Summary of the effects of the Norwegian regulatory changes. Where nothing is stated, the same applies to medium sized municipalities and rural areas as for large municipalities. Source Bekken and Longva (2003)

	Large municipalities (cities)	Medium sized municipalities	Rural areas (No changes have occurred in these areas)
Supply	Number of licences increased by the authorities	Number of licences increased by the authorities	
Fares	Significant initial increase. The second year, the increase followed the CPI. Greater fare differentiation, major increase at times when demand exceeds supply	Significant initial increase, however smaller than in the largest cities. Greater fare differentiation, major increase at times when demand exceeds supply	
Level of services	The supply at night and in weekends has increased due to the increased fare and thus increased revenue potential. Taxi usage, however, has dropped.		
Organisation	No change		
Innovation	New fixed fare services to and from certain locations. This has made fare comparison easier		

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

The impacts of regulatory changes vary between different cities. Different market characteristics and different strengths of the different segments are important when assessing the impacts. However, based on the experiences from the above countries some lessons may be learned and some future need for research identified.

Supply

Supply increases when entry restrictions are removed. Thus, the waiting time for consumers is reduced and availability increases. New entrants into the industry primarily focus on the hailing and the taxi rank segments. In areas where the telephone booking market dominates, the increased supply occurs through the expansion of existing operators. In rural areas, the overall increase in availability is less than in urban areas.

From an economic point of view more supply is not necessarily better. The major focus should be on a proper balance between fares, availability and quality. There are costs of having idle taxis to be born by the customers at the end. Nevertheless, customers seem to value availability very high.

Fares

Fares do not necessarily decrease due to fare liberalisation. Rather, they seem to increase and become more differentiated. This may be partly due to fares being previously over suppressed under a regulated regime. Fares seem to increase most where there is less competition, such as at taxi ranks and in rural areas. Some of this may be explained by competition, but some is also due to lower taxi utilisation rates in rural areas. The major benefit from fare deregulation is related to greater fare differentiation between times of excess demand and excess supply, and some new fixed-fare services. Fares are higher at times when demand exceeds supply and consumers benefit through the increased supply that is generated.

Experiences from New Zealand and to some extent Norway and Sweden also show that measures to improve the bargaining position of consumers can improve fare competition. In New Zealand and Norway, DC affiliation is required. This has reduced the number of different fare schedules to choose between. In Sweden, strict requirements on fare information have been introduced. Based on the above experiences, there are strong indications that a two-tier system, with maximum fares for the street segments and no fare regulations for the telephone-booking segments, will be the most efficient. This is in line with Toner (1997).

Quality of service

The falling service quality and vehicle standards reported in several studies do not seem to be ultimately linked to free entry. Neither the free market nor heavy entry regulation in itself seems to avoid deteriorating service quality over time, both with regards to driver competence and vehicle safety standards. Problems related to falling service and vehicle standards must indeed be addressed no matter regulatory framework at hand, and several studies indicates that it can be overcome by tougher enforcement policies and procedures, increasing driver requirements and programs for further competence building. This may, on the other hand, lead to higher costs related to quality controls, leaving the net costs results of quantitative deregulation uncertain.

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Quality requirements appear to become increasingly important as entry and/or fares are deregulated. In some of the cities and countries investigated, deregulation of entry has occurred without quality enhancements. However, in most of these cases, re-regulation or quality enhancements have later been introduced. The most recent regulatory changes focus more on the quality of service rather than the number of vehicles. It is important to note that even modest quality requirements reduce the effects of deregulating entry by creating some barriers to entry.

Table 12: Summary of regulatory changes in a selection of countries. Source: Bekken and Longva (2003)

	Market characteristics	Numbers of vehicles	Fares	Level of service
Ireland (Entry deregulated)	The taxi rank- and hailing segments dominate (Dublin).	Massive increase. (+200% in Dublin, +100% on average).	Still regulated.	Reduced waiting time for customers nationwide. Primarily at taxi ranks. Small improvements in telephone booking segment.
New Zealand (Fares and entry deregulated)	The telephone-booking segment important in particular outside urban areas.	Massive increase (+160% 1989-2001 on average). Marginal decrease in taxis numbers as well as availability in rural areas.	Decline in real terms increase in nominal terms. Fares increased in real terms in rural areas.	Reduced waiting time. Far greater range of services.
Sweden (Fares and entry deregulated)	The telephone-booking segment dominates. Large share (56%) of trips subsidized (primarily in rural areas).	Increase immediately after deregulation, stable thereafter. No long term increase in rural areas. The efficiency has decreased.	Immediate increase (real terms), stable thereafter. The major increase occurred in medium cities and rural areas. The cost of subsidized trips increased in rural areas and decreased in cities.	Reduced waiting time, no change in consumer satisfaction.
Norway (Fares deregulated in some areas)	The telephone-booking segment dominates nationwide. Large share (20%) of trips subsidized (primarily in rural areas).	No change due to deregulation.	Immediate increase (real terms), stable thereafter. Greater fare differentiations (most prominent in large cities).	The supply at night and in weekends has increased due to the increased revenue potential caused by fare differentiation.
The Netherlands (Entry deregulated, maximum fares)	The taxi rank segment dominates in the largest cities, telephone segment elsewhere. Large share of public subsidized trips, primarily in rural areas.	Significant increase in the number of taxis, primarily at taxi ranks.	Increased the first year and fell the second year (real terms).	Increased availability most pronounced at taxi ranks in the weekends. Taxi usage has only increased marginally in urban areas and decreased in rural areas.
USA	Very different, however street work dominates in urban areas.	Massive increase (+18 to +127%)	Increasing	Unchanged

Efficiency and effectiveness of administration and institutional structures

A major problem in several countries has been the economic criminality within the taxi industry. There are some important aspects to consider in that respect:

- Enforcement
- Working time regulations
- Taxes and VAT
- Complaint handling

A general problem with the taxi industry has been to provide sufficient enforcement. In some countries, such as in Sweden, New Zealand and the Netherlands, this problem has been approached by focusing on the self justice among the taxi operators or the Dispatching Centrals. When the DCs become the important recognisable supplier of taxi services, it will be in their own interest to keep the bad apples out. If not the reputation of all the affiliated taxis will deteriorate. This is analogous to the problem of the commons in industries with no strong DCs. All taxis will be better off if everybody behaved. However no incentives exist for single drivers to do so. Thus a regulation that brings as many taxi operators as possible into larger entities will improve the effectiveness for authorities to oversee the business.

There is also reason to believe that the self-justice within the industry is promoted by increased professionalisation in the industry. When both drivers and operators receive training, they will be more likely to put a pressure on the ones not following the rules. Thus, quality requirements focussing on operators training may have a positive impact on the law-abidingness of the industry.

As previously noted, the taximeters may provide valuable information for consumers. Another important aspect is that they may provide valuable information to operators and different public authorities and facilitate enforcement of rules and regulations and “clean” business practices. The recent Swedish regulatory approach has focussed on this. They have proposed stricter requirements on how the information from the taximeters should be collected and made available to different authorities. The objective has been to reduce the problem of tax and VAT evasion. If such problems exist to a great extent, requirements on taximeters may be of great importance.

Overall comments

The conclusion from the above discussion may seem to be twofold. First, quality requirements, both on operators and drivers should be enhanced, whereas quantity regulations should be abolished. Second, fares should be regulated by maximum fares at least for the street market segments, perhaps allowing a two-tier system. However, one should be careful about drawing these conclusions from the above discussion. The market distortions in the taxi industry should be considered more thoroughly. Furthermore, the taxi industry is not one single market and different approaches may be warranted. Taxi services, in particular the

street segments, are also very similar to fresh goods markets with its implications for competition.

Regulatory changes in the taxi industry should not be considered on the belief that taxi services are a homogeneous service. There are great differences between the different segments and the different local markets. The industry is different in urban areas as compared to rural areas. In some areas the industry has an important role in meeting basic mobility needs. The taxi industry is also becoming more important in providing public transportation services in the most rural areas. Regulatory changes may have implications for the possibility to do so.

There are also other important aspects of the taxi industry that should be considered. One is the role of taxi dispatching centrals and the role of larger taxi companies. Taxi dispatching centrals are clearly underestimated as a factor for providing efficiency in the taxi industry. Efficient dispatching centrals may allow each taxi to provide more services and hereby reducing the idle time. Further, strong dispatching centrals or companies may create a better environment for fare comparisons and also provide a better opportunity for the authorities to control the industry. Hence, the role of dispatching centrals should be considered more thoroughly in relation to regulatory changes.

A stepwise approach to deregulation seems to be more appropriate due to the unexpected effects caused by regulatory changes in the taxi industry. Such an approach allows monitoring and tailoring of the effects as changes occur and should improve the overall outcome. This is in particular evident from the Dutch experiences.

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