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TRANSPORT RESEARCH CENTRE

(DE)REGULATION OF THE TAXI INDUSTRY

ROUND TABLE

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TRANSPORT RESEARCH CENTRE

REPORT OF THE
ONE HUNDRED AND THIRTY THIRD ROUND TABLE
ON TRANSPORT ECONOMICS

on the following topic:

(DE)REGULATION OF THE TAXI INDUSTRY

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Ministers at their Dublin Council in May 2006 agreed a major reform of ECMT designed to transform the organisation into a more global body covering all modes of transport. This new international transport Forum will aim to attract greater attention to transport policy issues, and will hold one major annual event involving Ministers and key sectoral actors on themes of strategic importance. 2007 is a transitional year for the setting up of the Forum. The new structure will be fully operational as of 2008.

Also available in French under the title:
La (dé)réglementation du secteur des taxis

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QUEBEC: THE ROLE OF TAXIS IN PUBLIC TRANSPORT

Denis CARTIER
Quebec Ministry of Transport
Montreal
Canada

SUMMARY

Montreal, March 2005

FOREWORD

This report is largely based on official documents from the Quebec Ministry of Transport (QMT), published as part of programmes, special studies or discussion papers. It draws on the wealth of information left by my friend and colleague, Mr. Michel Trudel, Taxi Regulation Co-ordinator at the QMT from 1988 to 2001. This databank provides an insight into trends in the taxi industry to date.

The author would like to acknowledge the competent and much appreciated assistance of M[e] Marie-Michèle Dion, lawyer, and Mme Johanne Morissette, administrative assistant, in drawing up this report.

1. INTRODUCTION

Available for hire 24 hours a day, seven days a week, the 8 000 taxis in the Province of Quebec provide a private transport service that is vital to the community. In Quebec, it is the government's role to legislate on all issues concerning transport within its borders, including taxi travel. In the field of public transport, it is also the government and its support schemes which provide the population with transport services throughout the Province. Seventy per cent of the population of Quebec have access to regular public transport services, 94% to specialised transportation and 100% to school transportation. Previously confined to the private sector, taxi services have managed to adapt over the years and become part of the public service. They are found virtually throughout the Province and could prove to be a major player on the public transport stage, particularly in towns with no classic public transport system, or in rural areas. There, taxis would be the only form of public transport available to the public.

This integration is fostering resource interpenetration and raising the profile of taxis throughout the inland passenger transport system.

The legislative and regulatory framework currently governing taxi travel dates back over thirty years, to the time when the Quebec government took over responsibility for this sector from the municipalities. We should point out that this differs from the rest of North America, where regulation in this field tends to be devolved to municipal authorities.

The government is also in charge of support schemes promoting the development of public transport, specialised transportation and rural transport.

After outlining the origins of taxi travel at the turn of the last century, we shall move forward in time, pointing out the milestones to reform in the taxi industry in 2002.

With the authorities now acknowledging that taxis services are vital to the community and can supplement public transport, as well as specialised transportation for disabled passengers and people with limited mobility, this report ends by describing how taxi services have made inroads into various forms of public transport.

2. BACKGROUND

From the earliest taxi services in Quebec to the Taxi Services Act of 2002, a number of milestones have marked the development of taxi travel in the Province.

It would be hard to trace the history of the taxi industry in Quebec without referring to the work of Mr. Michel Trudel.

"Right from the turn of the last century, there has been a taxi industry in Quebec. It developed gradually in urban areas, driven by timely road building and a dense customer base. The public of the 1920s viewed taxis as a lucrative market and it was a popular occupation for the self-employed. By 1929, there were some 1 500 taxis in Montreal alone.

The overabundance of taxi licences in Montreal dates back to the post-war period. At the time, the need to create jobs for veterans, bolstered by complaints from the public about the shortage of taxis, led to the removal of the ceiling on licences (then numbering 765), introduced during World War II. This generated a sharp rise in the number of taxis which, from 1946 to 1952, rose to 4 978 in the Montreal Island area[1]."

"In 1952, a study revealed that Montreal's ratio of taxi licences to the population was 3.5 times that of other North American cities: the task force set up to study metropolitan issues in Montreal therefore suggested that no more taxi licences be issued. But the harm had been done and economic problems in the industry persisted, eventually leading to a revolt by licence-holders (acts of violence and the formation of protest groups)[2]."

In 1970, faced with these issues, the government of the day decided to take stock of the situation in the taxi industry. Observing the overabundance of licences, it proposed introducing a "buy-back plan" to restore a healthy balance between supply and demand.

1973 marked a change of course in the taxi industry. To alleviate problems arising from the complete mismatch between urban boundaries and taxi rides, the lack of harmonization in taxi-licensing at the municipal level, and problems of access to Dorval Airport, responsibility for taxi issues was transferred from the municipal authorities to the government of Quebec.

"*The government then mapped out specific areas for the taxi industry, covering 57 urban areas and 249 regions*[3]." The Act also made it compulsory for licence-holders in each urban area to form owners' associations ("*ligues de propriétaires"*).

Consequently,

"*In 1978, at the request of the taxi industry, the government imposed a moratorium on taxi-licensing in urban areas. The idea was to give each operator a fair share of the market.*

In 1983 came the Taxi Travel Act. The main aims were to open up new markets for the taxi industry which was experiencing economic problems; this led to some interesting initiatives, including specialised transportation (or para-transit), public transport (shared taxis), franchising and other forms of contracting-out, and it also proposed a new distribution of responsibilities between regional authorities and the government of Quebec. The only region to have acted on this proposal was the Urban Community of Montreal.

At the same time, car-pooling for study and work purposes was recognised by law.

1985 marked the introduction of a buy-back plan for Montreal taxi licences which, within five years, eliminated 1 287 licences deemed to be superfluous (some 25% of the total). The cost of the scheme was fully covered by those licence-holders who decided to remain and by new entrants.

In 1987, the Urban Community of Montreal took over responsibility for the taxi industry within its boundaries, through its Office for Taxi Services.

1994 saw the launch of compulsory training for new taxi drivers in the cities of Quebec, Montreal, Laval and Longueuil.

In 1997, the Quebec Ministry of Transport announced that the Taxi Travel Act was to be revised. In 1999, a Parliamentary Commission undertook an in-depth review of the reform and looked at all of the transport services covered by the Act[4]."

The Taxi Services Act was passed on 21 June 2001 and came into force in June 2002 along with its implementing regulations.

At the same time, the Ministry of Transport went beyond its legal requirements and backed up the legislation with a new scheme, offering support for taxis catering for passengers in wheelchairs, as a means of promoting and facilitating this type of transportation.

As this historical overview has shown, the rules governing the taxi industry have undergone a series of changes over the years, often in response to specific problems. As a move towards more consistent legislation, the Act specifies that the Quebec Minister for Transport is to report to the government of Quebec on this subject in June 2005.

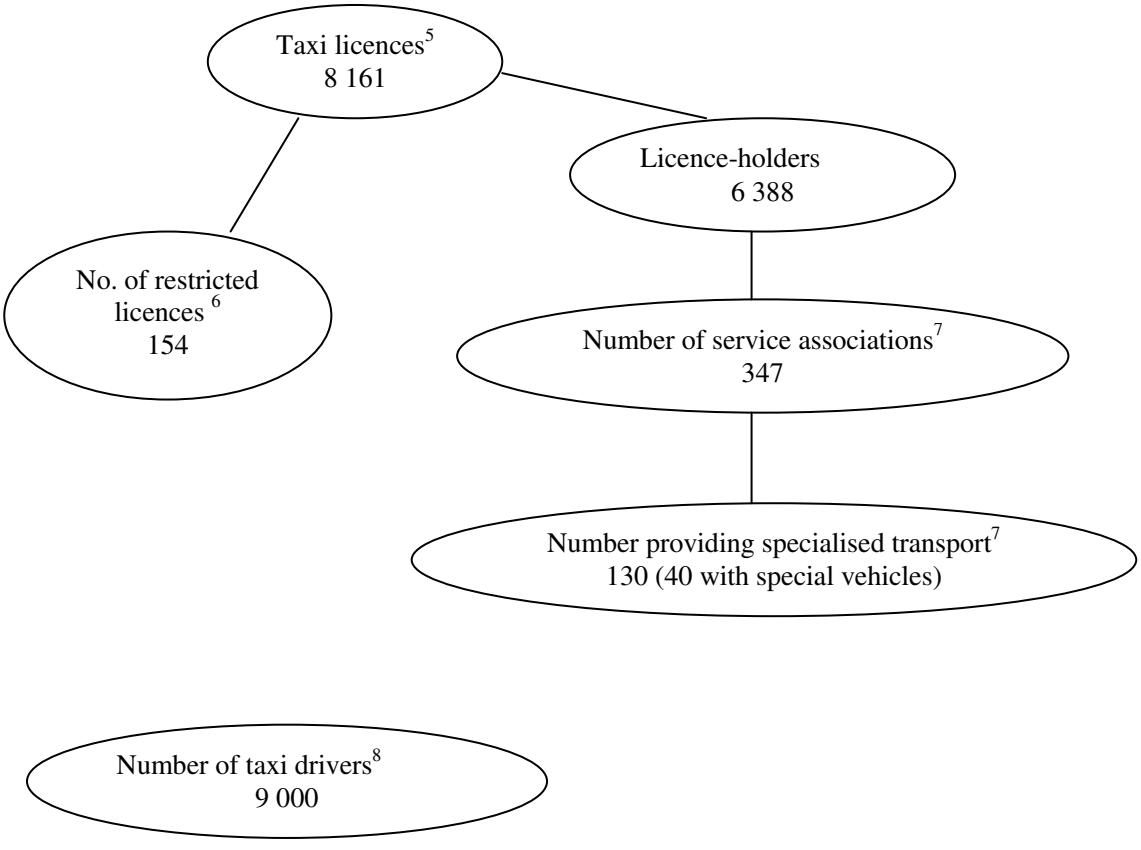
Interestingly too, a consultation was organised by three Members of the Province's National Assembly in Autumn 2004 to provide the Minister with background material.

3. A PORTRAIT OF THE INDUSTRY

As explained above, the Quebec Ministry of Transport is responsible for legal and regulatory oversight with regard to taxi travel. However, two other government authorities assist the Ministry in implementing the Taxi Services Act. The Quebec Transport Commission (CTQ) oversees the administrative side, delivering taxi-owner licences, setting prices and defining boundaries, while the Quebec Automobile Insurance Company (SAAQ) is in charge of issuing taxi-driver licences and enforcing the legislation.

It is worth noting that the SAAQ's remit covers the whole Province, with the exception of Montreal Island; there, the responsibility lies with the City of Montreal and its Office for Taxis and Towing (BTRVM), which has its own set of regulations. Under the Act, these responsibilities may be taken on by any municipal or supra-municipal authority that so wishes.

Together, these authorities seek to ensure the smooth running of the industry, which is described below[5,6,7,8]**:**



4. A RANGE OF TAXI SERVICES FOR PUBLIC TRANSPORT

Taxis provide a public service that is vital for mobility in the community; over the years, they have proved available and flexible enough to become a good partner and provider of services to supplement public transport. This applies to both urban and interurban transport, rural transport, and other more specific sectors such as school transportation and transport for the disabled.

Below is a snapshot of the situation, based on the data available at the time of writing.

We shall successively look at how taxi services help to supplement bus travel (feeder services) for public transport authorities; the shared taxi system, known as Taxibus, used for public transport; taxis as back-up for public transport in rural areas; and finally, transportation for the disabled. We have intentionally excluded some services (including parcel deliveries, patient transportation and chauffeuring services for inebriated drivers) which are not deemed relevant to this report.

4.1. Organisation of public transport in Quebec

While public transport is subsidised by the provincial government, it is run by local and regional authorities throughout the Province.

The Province of Quebec has nine public transport companies in the six main cities with over 100 000 inhabitants: namely, the Montreal transport company (STM), the Longueuil transport network (RTL), the Capital transport network (RTC), the Outaouais transport company (STO) and the Laval, Lévis, Les Forges, Saguenay and Sherbrooke transport companies.

The other areas are divided into "intermunicipal transport councils" (CITs) or "municipal and inter-municipal transport authorities" (OMITs). There are 21 CITs or OMITs, of which 13 are located around the Montreal region and eight in less populated centres. A CIT must cover several municipalities, while an OMIT must cover at least 20 000 inhabitants.

We should specify that transport companies organise, plan and operate services, whereas CITs and OMITs organise and plan services which are then run by private operators. Since 1998, public transport provision in rural areas is part of a new approach in catering to the needs of the population.

4.2. Use of taxis for public transport – first steps

To make savings on regular bus services, taxis began being used for public transport in the late 1980s. Some public transport authorities, for instance, brought in taxi operators under contract to cover specific areas or times of the year when demand was low.

These taxi services usually operated to set timetables on set routes, as did the regular services run by the transport authorities, and were often used to feed customers into existing services. "*Replacing*

buses with taxis on existing routes enabled some authorities to make savings. It also enabled them to provide new services costing less than bus services for similar quality provision[9]."

At the time, six public transport authorities (OPT) in Quebec's metropolitan areas were using taxis to supplement their services. The type of provision, like customer demand, would vary depending on the route and the authority.

Today, although provision is marginal and uneven, three OPTs – now public transport companies – still feature taxis in their public transport services.

Operating statistics for 2004[10]			
Company	**Number of taxis**	**Number of kilometres**	**Vehicle-hours**
Longueuil transport network (RTL)	45	483 770	24 000
Sherbrooke transport company (STS)	12	256 000	8 000
Capital transport network (RTC)	6	-	-

4.3. Taxibus (shared taxis)

Operating since 1993 in Rimouski, "*Taxibus has made it possible to experiment with and develop a new mode of transit, more closely geared to the needs and ability to pay of people living in an average-sized urban area*[11]."

We have dwelt on this particular scheme because the data available cover a longer period, and because the service has been up and running for a sufficient amount of time for us to take an informed view.

First, some information on Rimouski. The urban area has included the core town of Rimouski plus five adjacent municipalities since the merger in autumn 2002. With around 42 000 inhabitants, it is located 300 kilometres east of Quebec City and covers a total of 255 km^2.

Taxibus is the current name for what was originally a pilot scheme that has, over the years, become the typical form of public transport in Quebec's small- and average-sized towns. The main feature of the service is its use of taxis, a key to its success.

Again, to understand how the term Taxibus was coined, we need to go back to 1993, when the town of Rimouski joined forces with the Quebec Ministry of Transport to launch a pilot scheme featuring taxis. In 1995, the Ministry included in its Government Support Scheme for Public Transport the idea that was to become known as Taxibus.

To trace the development of the Taxibus scheme in Rimouski, we quote below some extracts from a report by Mr. Marc-A. Saint-Amand, a Rimouski councillor, who summarises very well the outcome of this early experiment in using taxis for public transport:

> "*The Taxibus service is flexible and easy to improve as you go along, as well as using a resource already available here in the town, namely taxis*[12]."

In its first year (1993), the Taxibus service provided 6 341 shared rides (in four months). After a trial period, the scheme was more closely tailored to customer needs; there are now more stops and bookings can be made at one hour's notice, compared with 24 hours when the service began.

In terms of service provision, Taxibus has undergone two major changes to date. Initially and up until 2000, it served 32 000 people and covered an area of 76 km².

In January 2000, two neighbouring towns joined forces with Rimouski to offer a public transport service known as Inter-Taxibus. This served 38 000 people and covered an area of 100 km².

Following a merger, the city of Rimouski now covers six municipalities. The Taxibus and Inter-Taxibus services have been covering the entire new area since 2003. To date, 42 000 people can use a mass transit system covering an area of 255 km².

The following tables show how the service has performed since 1993 in terms of customer demand and costs, and in terms of municipal funding.

Taxibus: Statistics and financial performance

Year	Customer demand (rides)			Number of trips		
	Taxibus	Inter-taxibus	TOTAL	Taxibus	Inter-taxibus	TOTAL
1993	6 341	-	-	3 311	-	3 311
1994	42 665	-	-	19 288	-	19 288
1995	56 122	-	-	21 403	-	21 403
1996	60 269	-	-	21 448	-	21 448
1997	58 758	-	-	21 056	-	21 056
1998	57 616	-	-	21 116	-	21 116
1999	60 903	-	-	21 982	-	21 982
2000	62 982	4 207	67 189	22 388	1 702	24 090
2001	68 360	5 451	73 811	24 349	2 249	26 598
2002	73 200	5 001	78 201	26 059	2 171	28 230
2003	68 498	7 229 (East) 1 771 (South)	77 498	25 054	2 546 (East) 815 (South)	28 415
2004	67 774	8 268 (East) 5 191 (South)	81 233	24 112	2 436 (East) 1 740 (South)	28 288

Taxibus: statistics and financial performance					
	Total costs ($)[13]			Municipal funding	
Year	Taxibus	Inter-Taxibus	TOTAL	$	%
1993	84 697	-	84 697	48 869	57.7
1994	268 905	-	268 905	129 892	48.3
1995	293 577	-	293 577	106 734	36.4
1996	288 588	-	288 588	93 632	32.4
1997	285 883	-	285 883	93 859	32.8
1998	304 831	-	304 831	96 963	31.8
1999	311 095	-	311 095	95 266	30.6
2000	337 893	31 175	337 893	118 611	35.1
2001	364 568	41 781	364 568	129 109	35.4
2002	387 658	40 487	387 658	146 631	37.8
2003	387 666	52 118 (East) 19 133 (South)	458 918	179 877	39.2
2004	377 952	54 771 (East) 47 727 (South)	480 450	180 012	39.2

Source: City of Rimouski.

From the data on 2004 in particular, the tables highlight the following points:

- The service provided more than 81 000 individual rides, requiring over 28 000 trips and giving an average of 2.89 passengers per trip;
- The cost breakdown per ride is $4.92 in transport costs and $0.99 in administrative costs, giving a total of $5.91;
- The overall financial results give a total expenditure of $480 446, with a breakdown of $399 996 in transport costs and $80 450 in administrative costs;
- Over 80% of expenditure goes on transport and under 20% on administration;
- In terms of funding, users pay 44%, while the Ministry of Transport provides 18% and other sources 4%;
- The city covers the shortfall of $147 000, or 34% of expenditure.

In light of these statistics, the Taxibus scheme can be said to be beneficial for cities the size of Rimouski.

Taxibus enables Rimouski to provide its citizens with an affordable public transport service, covering the entire urban area.

4.3.1 The Taxibus *scheme – follow-up*

Following the success of Taxibus in Rimouski, several other towns and cities in Quebec have introduced the scheme. The Taxibus system is held up as an example well beyond the area it serves and is the envy of many a community.

There are now 12 Taxibus services through the Province of Quebec. In many cases they are run in conjunction with ordinary bus services, while in others they are the sole mode of public transport.

On 1 February 2005, it was announced that a new Taxibus service would be starting up in Sept-Îles. The town will be able to provide its 25 000 inhabitants with a public transport service.

Taxibus services – Statistics for 2003[14]

	Population	Mode	Number of taxis	Taxi trips	Total expenditure	Total rides (passengers)	Cost per ride (passengers)
Val-d'Or	32 376	Taxis only	5	11 267	170 278	20 240	$8.41
Rimouski	41 950	Taxis only	45	28 497	458 917	77 498	$5.92
Sainte-Julie	27 670		2	4 350	2 581 644	391 075	$6.60
Sorel-Varennes	75 074		38	27 251	4 445 316	956 333	$4.65
Saint-Jérôme	60 764		48	2 926	1 974 809	303 659	$6.50
Saint-Eustache	41 295		[8 300]*	*	*	*	*
Victoriaville	39 828	Taxis only	28		573 286	104 096	$5.51
Le Richelain	36 368		1	776	3 429 788	890 987	$3.85
Salaberry-de-Valleyfield	39 360	Taxis only	35	15 565	199 493	24 739	$8.06
Baie-Comeau	24 201		1	250	356 432	67 047	$5.32

* Awaiting revised data from Saint-Eustache (the figure provided probably refers to the number of trips).

In 2003, the average cost of a Taxibus ride (where Taxibus is the only service available) came to $6.19, compared with an average cost of $4.23 by bus (OMITs and CITs). This is based on an average of 2.21[14] passengers per Taxibus trip (in Val-d'Or, Rimouski and Valleyfield).

More specifically in Rimouski, the average ride cost $5.92 for 2.72 passengers per trip, whereas in Valleyfield it cost $8.06 for 1.59 passengers per trip and in Val-d'Or $8.41 for 1.8 passengers.

As the average cost depends on vehicle occupancy, the evidence shows – as expected – that the average cost of Taxibus travel is higher than for bus travel, owing to the large number of passengers that can be carried by one bus.

However, the difference is relatively small and the cost of Taxibus travel remains of the same order, i.e. only 1.46 times the cost of bus travel.

By and large, a regular bus service would not be viable in most of the locations where Taxibus schemes operate: either the cost would be too high or the service would be of markedly lower quality. So shared taxis make it possible to provide a quality service (in terms of frequency, and proximity of stops) in areas where such a service would be hard to provide with standard buses.

However, the evidence shows that, under optimal conditions, a Taxibus-type service generates higher average costs per trip than existing bus services.

Although the trend is towards greater cost control in public transport expenditure, the Ministry of Transport's remit is to ensure the mobility of passengers and goods throughout the Province with safe, efficient transit systems that promote economic, social and sustainable development in Quebec. That being so, the demand for taxis might well be on the rise.

4.4. Public transport in rural areas

Public transport is playing a decisive role in the economic, social and environmental development of Quebec. This is because the Ministry of Transport always seeks to "*guarantee passenger mobility throughout the province with: accessibility to effective, efficient transport services; the long-term continuity of customer services; the pooling of available resources; the development of joint projects and partnerships between stakeholders (QMT, municipal authorities, transport operators and users); and empowerment for stakeholders in defining their needs and finding practical solutions.*

Public transport in rural areas is a new way of organising transport services, based on the optimal use of existing resources in a particular area.

"The Government Support Scheme for Public Transport in Rural Areas was launched to consolidate and support existing experiments in pooling public transport services and extending to the Province as a whole a new approach in partnership with elected municipal representatives[15]."

The pooling of public transport services is based on the use of all available seating in, for example, the vehicles used to carry disabled passengers or school pupils, or the special patient transport services run by healthcare facilities.

When such services are unable to meet demand, the municipal authorities can provide a secondary transport system to back up pooled resources. Here, taxis can prove to be useful if not indispensable partners.

In one experiment, for instance, which ran from 1998 to 2003, the Ministry of Transport provided "regional county municipalities" (MRCs)[16] with $20 000, to look at the feasibility of a scheme pooling transport resources in their area. During that time, 48 MRCs took advantage of this temporary support from the Ministry.

As a result of the interest shown by the MRCs, the government launched its Support Scheme for Public Transport in Rural Areas on 1 January 2003. The scheme follows on from a temporary support measure pooling public transport services.

Under the eligibility criteria for the Government Support Scheme for Public Transport in Rural Areas and because this is a rural Scheme, 81 of the hundred or so MRCs can claim research support and service operating subsidies for the period January 2003–December 2007. The eligible MRCs will thus share out operating cost subsidies ranging from $20 000 to $28 000, depending on their financial participation.

Since January 2003, 29 MRCs have already received $10 000 in support for research costs, while 30 other MRCs have received operating cost subsidies ranging from $2 428 to $28 000. Twenty-seven

MRCs are currently running public transport services in rural areas, and 16 of those are using taxis to meet their needs.

An experiment is to be carried out in the form of a pilot project in two regions of Quebec (Capitale-Nationale and Centre-du-Québec). Its aim is to integrate transport services in these regions by handing over to the Regional Conferences of Elected Representatives (*Conférences régionales des élus*, or CRE) the responsibility for planning all public transport services in their area, i.e. public transport in rural areas, specialised transportation, school transportation, transport services run by the healthcare network and social services, and shared taxis.

4.5. Transport for the disabled

In order to discuss the role of taxis in transporting the disabled, we must rapidly review the process leading up to the introduction of specialised transportation in Quebec.

"*The adoption of the Disabled Persons Act in 1978 made it compulsory for public transport companies to provide special services for the disabled in their areas.*

In 1979 the government of Quebec, as the leading player in charge of financing public transport services, introduced the first Government Support Scheme for Specialised Transportation for the Disabled[17]."

Consequently, whereas in 1980 specialised transportation services were only provided by the nine public transport authorities obliged to comply with the relevant legislation, by 2004 the number of services had risen to 102.

In 2004, specialised transportation services were available to 72% of the Province's municipalities, i.e. 830 out of a total of 1 150, covering 95% of the population of Quebec.

Access to these services is bound to grow as the National Assembly passed an Act amending the Disabled Persons Act and other legislative arrangements in December 2004. This extends to all municipalities the obligation to introduce a specialised transportation service in their area in response to demand.

The number of eligible users of specialised transportation services also rose spectacularly between 1980 and 1990, from 4 300 to 35 382. This growth in the user base has continued ever since but at a slower pace. In 2004, for instance, over 65 000 were eligible.

With an ageing population and policies promoting care in the community for the elderly and the disabled, the number of disabled people eligible for specialised transportation is forecast to continue rising in years to come.

Over the years, client profiles have changed substantially. Initially, when the Scheme was launched, most clients suffered from physical disabilities, but by 1999 this category accounted for only 42% of eligible passengers. The majority required ambulatory care and around one-quarter suffered from mental disabilities.

Budgets for specialised transportation, amounting to some $1.65 million in 1980, have risen steadily over the years and by 2004 stood at around $56 million.

Taxis have been playing a steadily growing role over the years. Here too, taxi services provide back-up for minibus services or, in certain cases, full cover for some specialised transportation authorities.

The first use of taxis for specialised transportation dates back to 1982, following a labour dispute by minibus drivers working for the public transport authority in the Quebec City area.

In 2004 throughout the Province, disabled passengers made 4.8 million trips in 375 minibuses or taxis. Taxis accounted for over 43% of those trips and were awarded contracts worth $18.5 million by specialised transportation authorities.

Various experiments tend to show that taxis can, under the right circumstances, provide suitable low-cost transport services for a whole group of people who would otherwise be forced to remain confined in their homes.

By making use of taxis, an autonomous transport resource already available in the community, local transport managers will be able to provide more people with access to all kinds of activities. They will thus be able to enhance the quality of life of their fellow citizens, while avoiding the pitfall of introducing what are often disproportionately large and expensive services.

4.5.1 Subsidy scheme for the adaptation of taxis for wheelchair users

To back the drive to rationalise the cost of specialised transportation services and encourage the taxi industry to become more involved in serving the disabled, both as part of specialised transportation companies and as vehicles for private hire, the Quebec Ministry of Transport set up a Subsidy Scheme for the Adaptation of Taxis for Wheelchair Users in Autumn 2001.

> "*With an annual budget of $1.4 million, the Scheme aims to see an average of 70 taxis a year adapted over a five-year period. The overall target of 351 specially adapted taxis throughout the Province of Quebec represents 4% of the entire taxi fleet, with a minimum of one special taxi in every regional county municipality*[18]."

The Scheme enabled the adaptation of 55 special taxis in 2001-2002, 51 in 2002-2003 and 26 in 2003-2004. To date, in 2004-2005, all of the funds committed to the Scheme have been spent. A record number of 73 special taxis will come on stream in the course of the year once work to adapt them has been completed. Four years into the Scheme (2001-2002 to 2004-2005), it has produced 205 special taxis, i.e. 58% of the initial target.

The budget allocated to the Special Taxi Scheme, reduced in the wake of budget cuts to $494 000 in 2003-2004, fell to $1.4 million in 2004-2005. Assuming that this budget remains the same in 2005-2006, there will be 278 special taxis when the five-year Scheme ends as planned on 31 March 2006, i.e. 79% of the initial target.

In 2005-2006, the number of applications for subsidies should be as high as in 2004-2005. There are still over 150 outstanding owner's licence applications for taxis catering for the disabled awaiting a decision by the Quebec Transport Commission.

A further measure to promote the use of taxis is the inclusion in the Taxi Service Regulations of a rule which, as of 31 March 2005, obliges every taxi company operating over 20 taxis in an area served by a public transport company to run at least one special taxi catering for the disabled.

Similarly Montreal, the only city in the Province to have its own taxi service regulations, makes it compulsory for each of the 25 taxi companies in the area to run at least one special taxi. This provision will come into force in June 2006.

The long-term aim is to maintain the fleet of special taxis and even meet the initial target of 351 special taxis throughout Quebec. It has been calculated that special taxis have a working life of five years. We are already having to plan how to maintain our achievements to date and ensure a follow-up to the Scheme so as to renew the fleet. Prior to this Scheme, there were in all around 50 special taxis in Quebec.

5. HOW TAXI SERVICE REFORM PROMOTES TAXI USE

"*The 1983 Taxi Travel Act retained many of the provisions from the 1973 regulations. Over the years, numerous amendments have made the taxi regulations hard to grasp, inflexible and restrictive.*

For the past ten years or so, new transport needs have emerged, the main factors being an ageing population, the shift to ambulatory care and a flagrant lack of services catering to the legitimate needs of disabled passengers[19]."

In 2002 two key goals -- greater passenger safety and better service -- guided the government in drawing up new rules applying to for-hire vehicles. These two goals went on to become the subject of the Taxi Services Act, which can be referred to for practical details on how the legislation is interpreted and enforced.

Among the provisions of relevance to this report, the Act includes measures on shared taxis in both urban and rural areas, and the transportation of disabled passengers.

These measures are aimed at giving Quebec a responsible, vibrant and competitive taxi industry, operating within a legal framework that will help to improve the quality of existing services, and provide scope for new ones.

There are two rules that may impact on public transport, one being restricted licensing to meet specific needs such as transport for the disabled, and the other the de-compartmentalisation of taxi areas[20]. In both cases, the Ministry was guided by the need to match supply to demand, both in facilitating operations by taxi owners and in opening up the market if the industry proved reluctant to enter all the available markets.

5.1. Restricted licensing for taxi owners

Restricted licensing is an incentive to promote the provision of taxi services for the disabled as part of public or private transport services.

This new system has been promoted to broaden transport services to wheelchair users and people with reduced mobility, mainly when taxi drivers are not interested in their patronage.

It also provides greater freedom of movement for the disabled, who can now look beyond specialised transportation providers and find taxis suited to their own needs whenever they wish, paying for private vehicle hire like the users of regular taxi services.

Ending the moratorium in place since 1978, while at the same time retaining strict criteria for the issue of any new licences to city taxi owners, is proving to be a key factor in facilitating the involvement of the taxi industry in specialised transportation, public transport and, we hope too, private transport.

These licences, issued under the new Act for a maximum of five years, have no market value and cannot be sold or transferred, unlike the current licences which are permanent and transferable, and have a market value. Current licence-holders will retain their rights.

To obtain the new licences, applicants must prove that the service they intend to provide will meet a specific need, particularly with regard to transportation for the disabled. However, the decision as to whether or not to issue these licences lies with the CTQ (Quebec Transport Commission), while the government retains the right to set the maximum number of licences that can be issued in an urban area.

So far, the scope provided by the Act has served mainly to increase transport supply for the disabled, although it could be used to meet all kinds of other specific travel needs, such as patient transportation.

To date, the CTQ has issued 154 restricted licences, 132 of them in the area of Montreal Island, out of a total of 471 applications.

5.2. Taxi "areas"

The zone covered by a taxi owner's licence is the "taxi area" in which it was issued. In the case of public transport, this situation carries a number of constraints, since transport companies may cover more than one "taxi area". This situation used to force them to deal with more than one taxi business, or end up with no competition between taxis. It also called for some very complicated transport planning on the part of the authorities, with artificial urban boundaries hampering efficient route planning.

The fact that the Act introduces more flexibility to the idea of "taxi areas", an entirely new feature, facilitates the planning of public transport routes.

Article 7 of the Act "*authorises the holder of a taxi-owner's licence to provide shared taxi services if under contract to a municipal or supra-municipal authority or any other person authorised by decree. These shared services may be provided throughout the contractor's area if the area covered by the taxi-owner's licence fully or partially matches that of the contractor*[21]."

Following on from this idea of taxi areas, which is certainly an important opening, licensed owners of special-access taxis are now allowed to pick up disabled passengers in any urban area if no other special taxis are licensed to cover that particular area.

Finally, in spite of the geographical boundaries specified by a taxi-owner's licence, the Act allows taxis from all of the urban areas listed in a specific regulation to serve a regional facility (e.g. airport or hospital), where necessary. This is aimed at increasing service provision for specific regional facilities as required.

6. CONCLUSION

We have attempted in this brief overview to describe the role of the taxi industry in the organisation of public transport. As readers will have realised, if only from the amount of information available, progress with these experiments in the Province of Quebec has been very uneven.

In fact, the taxi industry plays a major but precarious role. Because this is an industry of self-employed operators, its partnership with the transport authorities depends very much on the keenness of individual taxi licence-holders to participate. The partnership is also subject to the vagaries of the market and will, most probably, be playing an increasingly important role in the future.

In some areas, for instance, there may be an abundance of taxis to meet the demand for public transport, but in others a glaring shortage. The fact that the taxi industry is highly regulated and has a monopoly over for-hire automobile travel may, in some cases, act as a barrier to specific services requested by the public.

Although shared taxis are a far from ideal system of public transport, the rules applying to them are bound to evolve over the coming years. The need is there and it will increase with time. This is because the financial aspect of public transport will become increasingly problematic, and government and municipal authorities will have to find a *modus operandi* if they are to increase supply, or at least keep it stable, to meet the needs of the population.

The taxi industry should seize the business opportunities open to it and become a stakeholder in this emerging system of transport. For our part, as legislators, we will have to try to strike a fair balance between the needs of the community and the individual rights of taxi licence-holders. In our view, it is vital for this industry to expand within a framework that is regulated but flexible enough to foster personal mobility.

NOTES

1. Trudel, Michel (1995), "The fundamentals of taxi regulation and the Quebec experience", 7th Congress of the *European Taxi Confederation*, Donostia, San Sebastian, Spain, February, p. 10.

2. Trudel, Michel (1994), "Évaluation du plan de rachat de permis de taxi à Montréal", 14th Annual Conference of the *International Association of Transportation Regulators,* Quebec Ministry of Transport, Nassau, Bahamas, 11-14 October, p. 2.

3. Ministère des Transports du Québec (1999), *Réforme du transport par taxi, pour des services de taxi de meilleure qualité - Document de consultation*, July, p. 7.

4. Ministère des Transports du Québec (1999), *Réforme du transport par taxi, pour des services de taxi de meilleure qualité - Document de consultation*, Quebec Ministry of Transport, July, p. 8.

5. Source: Quebec Transport Commission, May 2004.

6. Source: Quebec Transport Commission, January 2005.

7. Source: Provincial Committee for partnership and development in the taxi industry (CPCDIT), January 2005.

8. Source: Société de l'assurance automobile du Québec (SAAQ), 2002.

9. Major, F., E. Roy and J. Vuille (1989), *Taxi collectif et minibus, bilan des principales expériences québécoises*, Quebec Ministry of Transport (collection Études et recherches en transports, systèmes de transport), data sheet.

10. Ministère des Transports du Québec, Direction du transport terrestre des personnes, Service du conseil, de l'expertise et du soutien aux partenaires.

11. Saint-Amand, Marc-A. (2003), *Les nouveaux rythmes urbains : leurs conséquences sur les déplacements et la mobilité : présentation sur le transport en commun à Lyon, France – Seizièmes entretiens du Centre Jacques Cartier*, Rimouski, 1 December 2003, p. 1.

12. Saint-Amand, Marc-A. (2003) (*op. cit*.).

13. All amounts in Canadian dollars.

14. Ministère des Transports du Québec, Direction du transport terrestre des personnes, Service du conseil, de l'expertise et du soutien aux partenaires.

15. Ministère des Transports du Québec (2003), *Programme d'aide gouvernementale au transport collectif en milieu rural, guide et modalités d'application*, Quebec Ministry of Transport, pp. 3-4.

16. Municipalities were merged in the early 1980s for land-use planning reasons and to promote economic and social development.

17. Ministère des Transports du Québec (2000), *Transport adapté, pour une meilleure accessibilité des services, révision du cadre organisationnel et financier - Document de consultation*, Quebec Ministsry of Transport, Autumn, p. 6.

18. Ministère des Transports du Québec (2001), *Programme de subventions à l'adaptation des taxis pour le transport des personnes se déplaçant en fauteuil roulant*, Quebec Ministry of Transport, p. 1.

19. Ministère des Transports du Québec (1999), *Réforme du transport par taxi, pour des services de taxi de meilleure qualité - Document de consultation*, Quebec Ministry of Transport, July, p. 8.

20. In some cases, these cover more than one municipality.

21. Québec. *Loi concernant les services de transport par taxi*, L.R.Q., chapitre S-6.01, 2001.

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EXPERIENCES WITH (DE-)REGULATION IN THE EUROPEAN TAXI INDUSTRY

Jon-Terje BEKKEN
Institute of Transport Economics (TOI)
Oslo
Norway

SUMMARY

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1. 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 regarding both differences between countries as well as differences within countries. This paper has two main objectives. The first is to describe current approaches in European taxi regulation and point out some characteristics of the regulation. The second is to present some experiences with regulatory changes in the industry and some of the trends in European taxi regulation.

The paper is primarily based on two comparative studies, carried out by the Institute of Transport Economics. The studies were commissioned by the International Road Transport Union (IRU) and the UK Office of Fair Trading (OFT), respectively. Both studies considered the situation as of January 2003. The study commissioned by the IRU (Bekken, 2003) examined the rules relating to key aspects of the taxi sector, including access to the profession, access to the market and taxi dispatch centres, as well as their impact on the quality of service in 13 European countries. The scope was both on regulated, deregulated and intermediate systems. The goal of the study commissioned by the OFT (Bekken and Longva, 2003) was to use the experiences of regulatory reform in taxi markets around the world to inform the thinking on the UK market. It was commissioned as part of a wider research into the UK licensed taxi market. To some extent, the paper has been updated with more recent changes, but not to a full extent; thus there may be changes in the last two years that are not reflected therein.

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, the author has 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 with a conceptual framework to clarify the different regulatory approaches and some important market characteristics. The taxi industry is not a homogeneous market. Rather, it is made up of different segments which, to some extent, may require different approaches. After having described the regulatory framework, the existing regulatory approaches in some European cities are presented within this framework. Finally, some of the experiences with regulatory changes are summarized and some trends pointed out.

2. CONCEPTUAL FRAMEWORK

Taxis and Private Hire Vehicles (PHVs) provide a very "local" service. The majority of the trips take place within a city, municipality or region. When taxis leave the area where 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 points and diversities between cities and countries, it is no surprise that the outcomes from regulatory changes vary. Some cities have focussed on direct barriers to entry, creating a maximum number of cabs, and have even allowed licences to be traded (Paris, New York, in Ireland until 2001), whereas others 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 it as one homogeneous industry and does not address the complexity of its sub-markets and the different organisational structures or regional diversity. As a result, only a small proportion of the literature makes any attempt to clarify and define the services, the players and the relevant markets involved.

2.1. 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 first two can be designated as the street work segment. These segments may call for varied 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. There are clearly problems, in particular related to information, affecting decisions in these segments. In general, these segments are recognised 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 for 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 dispatch centres clearly have great economies of scale, the problem may be to avoid monopolistic behaviour. Variations in the relative size of these segments may explain the different outcomes of regulatory changes.

2.2. Differences in the market organisation

In some countries such as the UK, regulation of the taxi industry is based on a two-tier system. This allows for different regulation for 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. It is important to consider differences between the usual one-tier systems, treating all market segments equally, and the two-tier systems, where usually the telephone-booking segment is less regulated, often allowing a separate PHV sector to compete.

In some countries, there are large operators with many employed drivers, whereas in most European countries there are primarily owner-drivers (Bekken, 2003). This implies that the operator drives the vehicle himself part, or all, of the time. It is important to also focus on how the taxi and PHV industries have been organised in relation to concentration or fragmentation, both on the operator level and on the dispatching level. In several cities and countries, regulations have assured that there has only been one dispatch centre. Furthermore, some regulations have allowed operators to operate one taxi only. This will certainly result in a fragmented industry. Nevertheless, several reports (such as Bekken, 2003) show that the industry in most countries is very fragmented, despite no regulation on the maximum size of the operators. One reason for this may be that this is a trade where unskilled workers, more easily than in other crafts, can work themselves into a manager role, and where it is possible to be your own manager and manage your vehicle and your time.

As mentioned before, it is also important to make a clear distinction between operators as *owner-drivers* and other operators. In particular, there may be different legislation for the self-employed and for companies. Furthermore, in some countries all operators are required to be drivers. This is the case in Norway and in Ireland. This therefore makes the taxi driver requirements valid for operators as well.

2.3. Different forms of regulation

In line with Toner (1997), the author has identified three major groups of regulation concerning the taxi industry. Toner focused on quantity regulation or the conferment of monopoly rights, the imposition of entry conditions and lastly the control of fares. Following the outline set out in Bekken (2003), the author has chosen a somewhat different diversion between the first two 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, he has classified the regulation concerning the taxi industry into the following groups: a) direct barriers to entry; b) indirect barriers to entry; and c) fare regulations. Direct barriers to entry relates primarily to the quantitative and qualitative regulations imposed on the operators. Indirect regulation covers all other aspects that create barriers to entry. Taxi driver requirements and vehicle requirements are important in this respect.

2.3.1 Direct barriers to entry

The supply of a taxi service is dependent upon taxi operators (or proprietors) putting taxi vehicles into service. The direct barriers to entry are related to quantitative restrictions on market size (number of operators and/or taxis per operator) or qualitative standards imposed on the operators allowed into the market. Both of these elements create direct barriers to entry into the taxi industry. The first directly involves a monopoly right for the service, whereas the second concerns a monopoly right for the profession of taxi operator. New operators must pass the quality requirements before facing the quantity restrictions.

Quantitative regulations involve some degree of control of the quantity of taxis on the street (market access) and thus the supply in the taxi market. The degree of regulation is a continuum, ranging from totally closed markets into which no new entrants are allowed, to markets without any restrictions on the number of operators. The regulation is usually achieved by some kind of licensing regime. How the licences are issued is fundamental in understanding how tightly 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 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 "cropped" 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.

The licences are often used to impose certain requirements. If the requirements are not fulfilled, the licences may be revoked. Common features of the licences include restrictions on the pick-up area, a maximum number of licences per operator and obligatory affiliation to a dispatch centre.

Quality standards on access to the profession for taxi operators concern 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 attempt to pass the quality standards. Nevertheless, these two regulations must be considered together. Together they form the direct barriers to entry. The relationship between quality standards and quantity control determines the composition of operators in the industry. Strict quantity control will make new entry rare and may assure experienced operators. However, this may hamper the positive effects which competition may yield. Qualitative standards, however, may directly assure a minimum level of competence and quality among operators.

Following political decisions in the EU to liberalize the economy, the EU Council Directive 96/26, on admission to the occupation of road haulage and passenger transport, was adopted. The aim was to replace quantitative control with qualitative control. This was further developed in the Council Directive 98/76/EC, which amended Directive 96/26/EC. The Directive does not directly apply to the taxi industry; however it is important, as a number of European countries have used the Directive as a guideline for the actual legislation of taxi operators. The Directive sets out requirements regarding the professional competence of the operators and their good repute as well as some financial requirements. These are also the most common qualitative requirements on operators in general.

2.3.2 Indirect barriers to entry

The indirect barriers to entry are related to factors other than the operators in the market. All requirements imposed on an industry inflict on the cost of entry and thus, indirectly and to different degrees, 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. Strict requirements may prevent operators from expanding their business, thus indirectly regulating the size of the market as the supply of drivers limits the possibility of operators to provide services. 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, as operators are required by law to be taxi drivers.

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 service quality. Regulations may also ensure a predetermined level of service to different groups of customers. Quality and service regulations have often been used to alleviate the negative effects of cut-throat competition.

2.3.3 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. In theory, price competition makes no sense unless consumers can assess the fare in advance and use it for purposes of comparison. In some sectors 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 others, fares will be the main source of competition.

3. REGULATORY APPROACHES IN EUROPE

The taxi industry concentrates mainly on domestic and local markets. As a result, the taxi industry has developed in a widely divergent manner. Some cities or countries have focussed on direct barriers to entry creating a maximum number of cabs and even allowed licences to be traded (France, some US cities such as New York, and Ireland until 2001). Other countries have focussed on indirect barriers to entry, applying standards on both operators and drivers. Regarding the regulation of fares, the differences are not as great. Most cities maintain a maximum fare regime at least. However, some cities have a two-tier system, allowing a particular sector of the industry to charge freely under certain conditions. The description of the European regulatory approaches will follow the outline of the preceding chapter.

3.1. Direct barriers to entry

When considering direct barriers to entry, it is important not only to consider whether there are rules governing the number of taxis, but also the tightness of those rules. To some extent, the actual barriers to entry may be tighter in cities with strict indirect regulation on access, compared to cities with a very liberal rule on access.

3.1.1 Quantity regulations

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 indicates that some countries have delegated the decision on the regulatory approach to local authorities.

Table 1. **Summary of quantity regulations in some European countries**

National legislation on access to the market		No national legislation (Local authority decides)
Number of operators regulated	Number of operators not regulated	
N, FIN, D, F, E	S, NL, IRL, A, H	GB (not regulated in London), B, CH

Source: Bekken (2003).

As the table shows, in Sweden (S), the Netherlands (NL), Ireland (I), Austria (A) and Hungary (H), national legislation requires market access to be free. In Great Britain (GB), Belgium (B) and Switzerland (CH), the decision on overall legislation is delegated to local authorities, and regional differences may therefore be found. In Brussels, market access is regulated, whereas in London and Geneva there are no restrictions on the number of operators. In Norway (N), Finland (FIN), Germany (D), France (F) and Spain (E), access is regulated through national legislation. The actual decision on the number of licences, however, is often delegated to regional or local authorities.

Most of the countries that do not regulate access nevertheless impose certain requirements on operators wanting to enter the market.

How is the number of licences decided?

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. Although the numbers are fixed, the Mayor may issue new licences in certain circumstances, but not in the short run. 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 taxis, it does not mean that a licence is 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. Such criteria are readily observable and the number of licences is calculated more or less according to these observations. The results are therefore relatively easy to implement. ***Objective criteria*** for issuing licences do not seem to be common in Europe (Bekken, 2003). In some German cities, objective criteria, such as number of trips and number of taxis in relation to inhabitants, have been observed. Furthermore, in the Belgian region of Flanders, a criterion of one licence per 1 000 inhabitants, with a 20% margin, was to be introduced.

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 such as public need, excess demand, excess driver profits and other societal reasons. The real differences between objective and subjective criteria may be small. To make the decision more "objective", different studies or investigations may be conducted. Nonetheless, the authority or the politicians will have the last word. Most of the case-study cities in Bekken (2003) reported that subjective criteria were the real basis for decisions. Nevertheless, some of them reported that studies or surveys were required before changes were implemented.

To whom are new licences issued?

When market access is regulated, the fulfilment of the quality requirements for operators does not automatically result in a licence. First, a decision to increase the number of licences must be made. Second, once an authority has decided to increase the size of the market, some criteria have to be used to decide to *whom* to grant access. The terms "objective" and "subjective" may also be used for this decision. Seniority and waiting lists are typical examples of objective criteria. The degree of subjectivity increases when authorities have to consider applications without any objective rule. Among the cities studied in Bekken (2003), objective criteria, such as seniority and waiting lists, were the most commonly used criteria for issuing licences. This was also reported by Toner (1997) as common approaches for local authorities in the UK.

Features of the licences

The licences often contain certain features. One obvious feature concerns the conditions related to validity and transferability. However, there is also a range of different features applied in various countries. Some of them impose heavy restrictions on the operator holding a licence to operate.

In most countries, licences are valid only in a certain area, not the entire country. The areas usually coincide with the borders of local jurisdictions. Often, operators are allowed to pick up passengers in this area only. In Finland, there are no restrictions on the pick-up area. Drivers are free to pick up passengers across the entire country. The legislation, however, requires the driver to return to his "home area" as soon as possible. Such pick-up restrictions may be imposed even in countries or cities with no regulation on the number of operators, as is the case in Hungary. Other restrictions may have similar functions. In Sweden, for instance, the taxi drivers' licences may be restricted to certain areas by imposing a local knowledge test.

There are two ways in which an operator may increase his fleet of vehicles. First, he may increase the number of vehicles without acquiring new licences. This makes it easy for a licensee to increase supply. In Austria in general and in Brussels, several vehicles may be operated with a single licence[1]. In both cases, the licensee is required to go through a formal application process. In Brussels, this process makes it possible to control the number of vehicles. Most of the countries and cities investigated in Bekken (2003) report that the operator's licence is restricted to one vehicle only. The second way for an operator to expand his business is to acquire several licences. In most of the reported cases, operators are not restricted to a specific number of licences. If an operator obtains more licences he is free to expand his operation. In Norway and Denmark, a restriction on the number of licences per operator exists. An operator is allowed to hold only one ordinary licence, although a system of reserve licences exists that enables him to hold a second licence under certain conditions.

Norway was the only country, reported in Bekken (2003), where licences required affiliation to a specific Dispatch Centre (DC). Each licensee is associated with one DC and only a few licensees are

permitted each year to change to another DC. As a result, no DCs may enter the industry without the number of licences being increased.

3.1.2 Qualitative standards on access to the profession for taxi operators

Quality requirements are generally decided at a national level. Only in Belgium, Switzerland and Great Britain can local or regional authorities decide the quality requirements entirely by themselves. In Belgium, a national regulation exists for regions that have not made their own legislation. In Switzerland, taxi regulation is treated as a cantonal matter, but operators are nonetheless required to be drivers and they must meet the driver requirements. In Great Britain, local authorities are free to impose restrictions on operators.

It is important to note the special situation of operators who are owner-drivers. Unlike "ordinary" operators, owner-drivers usually face two sets of legislation. In addition to operator legislation, they are also subject to driver legislation. On the other hand, owner-drivers are often recognised as self-employed. In many countries, self-employed drivers are subject to different legislation from that covering salaried drivers. In particular, this relates to working time, where salaried drivers face stricter regulations than the self-employed. In Finland, Norway, Ireland, Spain and the city of Geneva, all taxi operators are required to be taxi drivers. This makes all operators owner-drivers as well. Hence, the requirements for taxi drivers also indirectly apply to the operators.

A ***criminal record check*** is among the most recognised quality requirements for accessing the profession. There are several reasons for this. White-collar criminality is known to exist in the taxi industry. An important preventive step is to set requirements regarding criminal records and operators. The problem of crime directly against customers is better dealt with through taxi driver requirements, as the drivers are the ones who actually encounter the passengers. However, in order to ensure the safety of customers, it is also necessary for operators to have the necessary tools to impose sanctions on drivers. In France, there are no direct requirements regarding criminal records and taxi operators. They must, however, meet the same requirements as other companies. Furthermore, a criminal record check applies to taxi drivers in France.

Requirements regarding ***professional competence*** are important to ensure the professionalism of taxi operators. In their requirements regarding professional competence, most countries include topics such as knowledge of relevant laws, of how to run a company and of accounting and economics. Among the countries investigated by Bekken (2003), most imposed a written examination in order to access the profession. Only France and Ireland reported no national requirement, while in Belgium, Switzerland and Great Britain, it was at the local authorities' discretion to decide on such regulations. In both Geneva and London, however, a written exam was required. The requirement in Geneva is indirect, through the required taxi driver's licence. In Brussels, a certificate attesting elementary business knowledge is required. The certificate is issued to any person who has successfully completed certain studies or who has been a taxi driver for at least three years. In Ireland, there are also indirect requirements, as operators are obliged to have a valid taxi driver's licence. Clearance from the *Gardai* (police), that the driver is of good repute, is also required. To become a taxi driver in Dublin, a written taxi test must also be passed. Prior to 2003, there were no obligations regarding professional competence in Norway. A new Transport Act was approved in 2002. The Act incorporates EU Directive 96/26, making a course and a written exam compulsory.

In several countries, economic or ***financial requirements*** are imposed on operators. These may be very different, ranging from direct assets to bank guarantees and financial guarantees. Clearly, this may create different situations for operators. For instance, bank guarantees may be relatively easy to obtain compared to real assets. Licence fees and requirements regarding annual earnings also

constitute a financial obligation, although the only risk involved is loss of the licence. 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[2]. Other countries that reported substantial financial requirements were Austria (€7 500), Germany (€2 250) and Norway (€9 000). The Norwegian situation is a paradox. Although Norway is not a member of the EU, the new legislation affecting taxi operators as well as other transport operators fully incorporates the EU legislation for larger vehicles, including the financial requirements. In Ireland, a substantial licence fee of IEP 5 000 (€6 350) was reported. Until January 2001, the Dutch legislation also required a certain level both of earnings and hours of operation. In Belgium, the solvency requirements reported were only related to the previous payment of VAT and social security contributions, whereas in other Belgian areas no requirements apply. The payment of VAT and national insurance contributions is also important in the assessment of economic stability in other countries.

3.1.3 Direct barriers to entry summarized

Bekken (2003) concluded that the Swedish regulations on access to the profession were the most stringent, closely followed by those in Norway, Austria and Germany. Finland and Hungary also had requirements that more or less corresponded to EU Directive 96/26. In Great Britain, the differences between the regions were too vast to make any general comments. However, the requirements in London were broadly in line with those in Finland. These are cases with regulations that resemble EU Directive 96/26 to a greater or lesser extent. As in Great Britain, the Swiss and Belgian regulation cannot be generalised. In Geneva, only indirect requirements on operators apply, as operators must be taxi drivers. This is very much the situation in Spain as well, and in Norway before new legislation was introduced in 2003. The weakest quality requirements on access to the profession are found in Ireland and France. In France, the operators face no taxi-specific regulations. The principal Irish requirement is for a taxi driver's licence.

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 classified into four groups, based on the strictness of the regulations on market access, and quality standards, respectively. This is summarized in Table 2.

Table 2**. The tightness of direct barriers to entry**

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

Source: Bekken (2003)

3.2. 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 have an influence on the cost of entry and thus, indirectly and to different degrees, on the barriers to entry. The most important indirect barriers to entry are taxi driver requirements; however, there are also some other quality and service regulations that are important. Some of them are presented below.

3.2.1 Taxi driver requirements

All countries investigated in Bekken (2003) reported some requirements for taxi drivers. In Finland, Ireland, Norway, Spain and the city of Geneva, a taxi driver's licence is a prerequisite for becoming an operator. Here, the difference between drivers and operators may be seen as a two-step career line. The career starts when an individual meets the requirements to become a taxi driver. The next step may be to become an operator.

In most cities, an assessment of criminal records is required in order to become a taxi driver. The existence of a professional competence examination for taxi drivers is also reported as being widely used. This ranges from the optional exam that may be required by Norwegian local authorities, to "The Knowledge", which requires an in-depth familiarity with London. In between, there is a range of different approaches. When a written test is required it usually necessitates knowledge of the relevant laws as well as of the geographical area. The major taxi driver requirements in some European countries are summarized below.

Table 3. **Taxi driver requirements in Europe**

	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	Yes		X	3 years, renewable, revocable

Source: Bekken (2003).

3.2.2 Other quality and service regulations

Quality and service requirements concern the quality of the services offered and the service in itself. Most of these requirements are related to the vehicles, the drivers and the operators. These types of requirement are very common in most industries providing personal services, and come in addition to quality requirements for taxi operators and taxi drivers. The table below summarizes some of the requirements.

Table 4. **Summary of major taxi vehicle requirements in Europe**

	Basic vehicle requirements		Compulsory equipment	
	Seating and luggage	Required test (schedule)	Taximeter and sign	Other important
Austria	9 seats	Annual	X	
Brussels	9 seats	Every 6 months	X	
Finland	9 seats	Annual	X	
France	9 seats	Annual	X	Hour-km counting machine (tachograph)
Germany	9 seats	Annual	X	
Hungary		Annual	X	
Ireland	5-9 seats	Annual	X	
The Netherlands		Annual	X	
Norway	9 seats	No	X	Maxi taxi with 18 seats (some conditions)
Spain	Usually 5 seats	Annual	X	
Sweden	9 seats	Annual	X	
Geneva	9 seats	Every 3 years	X	Tachograph
London	9 seats	Annual + random	X	

Source: Bekken (2003).

3.3. Fare regulation

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 certain countries -- Belgium, Switzerland and Great Britain -- local authorities have great discretion. As a result, the focus is on some of their major cities instead.

In most cases, fare regulation is nationally instituted, although local authorities usually have the power to decide on the actual fare. In Finland, Norway and the Netherlands, however, the national authority decides the fare. The table below shows that most countries impose some kind of fare regulation. Sweden, the only country with totally deregulated fares, has instead imposed strict requirements for making price information available to customers. Also, in some Norwegian cities fares are no longer regulated.

Table 5. **Summary of fare regulation in Europe**

	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 maximum 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	X (in some major cities)		X		Fares deregulated in cities with more than one Dispatch centre
Sweden	X			Strict rules also on 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

Source: Bekken (2003)

4. SOME EXPERIENCES WITH REGULATORY CHANGES

Having considered the regulatory regimes in some European countries, we will now turn to experiences with deregulation. This chapter summarizes the experiences as reported from a number of different sources. The focus is on the effects of regulatory changes in some European countries. Since much of the literature concerning regulation of the taxi industry relies on US experiences, a brief introduction to them 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 change 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, the author has not been able to review these findings and will only briefly present the recommendations and the policy result from the OFT study.

Based on their study of experiences with different regulatory approaches in the UK, the OFT recommended that the legislative provisions allowing licensing authorities to impose quantity controls in the UK (outside London) should be repealed. Furthermore, best practice in applying quality and safety regulations should be promoted. Lastly, they suggested that fare tariffs should be set as maximum fares and that the local authorities should facilitate more price competition, in particular in the "rank" and "hail" sectors of the market. The Government, however, did not support this. It felt that local authorities remain the best placed to determine local transport needs and to make decisions about them in the light of local circumstances. Rather than imposing a legislative solution, a number of steps were proposed to encourage local authorities to remove restrictions, unless they could show that they delivered benefits to consumers. Where they felt restrictions should be retained, they should justify and publish their reasons.

4.1. 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). This was due to the extremely competitive conditions following the Great Depression, which resulted from the low cost of entering the taxi industry at a time when other jobs were hard to find. During the 1970s and 80s, several US cities deregulated. The results of the changes in US taxi regulation have been discussed in several papers. The most thorough assessment of the US experience is presented by Teal and 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 the effects from several US cities, as well as, more recently, the ITRE (1998) and Dempsey (2001).

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 cab-stands. This was due to 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 and Price Waterhouse. The consequences of deregulation in the three US cities studied by the ITRE 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. 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 cab-stand 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 cab-stand market was generally price insensitive and lacked competition, due to the first-in, first-out nature of taxi queues.

Teal and Berglund 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 a rate increase was overdue in the regulated regime. Furthermore, they found the upward trends of rates to be even more pronounced in cab-stand markets than in telephone order markets. The two major explanations they offered were both related to demand. First, demand was characterised by imperfect information and strong name recognition (branding). Second, demand might be inelastic; consequently, customers did not pay much attention to the fares.

4.2. Sweden – full deregulation and enhanced quality standards

Internationally, Sweden is one of the most important cases when discussing experiences from deregulation, as their experience is well documented. The Swedish taxi market was deregulated on 1st July 1990, the reason being 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 over-priced 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 dispatch centre affiliation was also abandoned. At the same time, VAT was introduced on taxis.

Changes came about instantly after the deregulation, the major ones being: more vehicles, new profiles on cabs affiliated to different dispatch centres 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 stringent 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.

The deregulation took place prior to an economic recession. 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. Since 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 financial and assaults on passengers, has increased. The industry tries to deal with this by approving dispatch centres and recommending passengers to use taxis affiliated to such DCs.

Recently, Marrel and Westin (2002) have analysed the effects of the Swedish deregulation, with a 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, Marrel and Westin found some development of new services and businesses after 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.

4.3. Tailored deregulation in New Zealand

Together with Sweden, in New Zealand 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 (Morrison, 1997). The deregulation was particularly tailored so as to ensure a certain concentration of the industry. All taxi operators are required to be affiliated to an association providing 24-hour/7-days-a-week service as well as telephone booking. Furthermore, new associations must have at least five vehicles.

Before deregulation in 1989, four geographically based Transport Licensing Authorities (TLA) controlled the number of taxi operators' 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 taxi-meter and displayed both inside and outside the cab. 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 numbers of licences and taxi fare 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 the greater numbers of taxis, shorter waiting times and a wider range of services. In addition, quantitative deregulation has been accompanied by higher regulatory costs, due to significant increases in quality control.

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

4.4. Ireland – abrupt changes and an 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, 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 sector.

Until 2000, the Irish taxi industry had been very tightly regulated for years, with regard to both fares and entry, and 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 ruled 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.

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 26th 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 enforce the new, foreseen quality standards to render the enforcement more credible.

The only regulation which was actually 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 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, to consider the need for compensation.

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. 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 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 times: however, this is most important for the street work segments. Furthermore, new entrants primarily focus on the taxi-rank area rather than the telephone-booking segment.

4.5. Stepwise deregulation in the Netherlands

The Netherlands represents one of the world's most densely populated areas. More than 90 per cent of the population live in cities (Johansson *et al.*). 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 great number of small units, but also a number of larger companies. On average in the Netherlands, each operator has five taxi vehicles. In Amsterdam, the average number is close to one, whereas the other large cities have a somewhat larger number of taxis per operator. There is a high level of DC affiliation in the Netherlands. In the four largest cities, 89 per cent of the taxis are affiliated to a DC, whereas in the country 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 EIM (2002), it is estimated that 30 per cent of the trips in Amsterdam originate from telephone bookings. In the country as a whole, the corresponding figure is 70 per cent.

A new Passenger Transport Act came into effect on 1st January 2000. The objectives of the new Act are to strengthen the role of the taxi with respect to other modes of transport, and to motivate more people to use taxis more often. The new Act includes both re-regulation and deregulation of certain aspects and supportive measures as well as intensified supervision and enforcement, and was gradually

implemented from 2000 to 2004. This stepwise implementation was made to allow for monitoring of the effects in order to modify components of the law if necessary.

In the new legislation, regulation on access to the market is revoked. Until 2000, access was regulated, but demand was considered when deciding on the issue of new licences. The new legislation also replaced a fixed fare regime by a regime with maximum fares. However, for contracted services, fares are free to set. The change to maximum fares was planned to be the first step towards full deregulation of fares. From 1999 to 2000, a significant increase in fares was reported. This led to the decision to retain maximum fares for a period of time. The country has also become a single working area, as opposed to several licence/working areas previously. This change became effective from 1st January 2002. The enforcement in the new legislation has been centralised instead of locally enforced, as previously. The reason for this was to ensure equal requirements for drivers, operators and vehicles throughout the country. The implementation of the new law required yearly monitoring of the effects of the changes. This allows the authorities to react to undesired effects.

After deregulation, a significant increase in the number of taxis and their availability was 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 where the telephone-booking segment dominates, the incumbents have expanded their business. Taxi usage has not increased, as had been intended by deregulation. Thus, demand seems to be linked to other factors than the mere supply of taxis. The overall economic situation in the country may be important in this respect. Another reason might be that the supply was satisfactory before deregulation occurred. In that case, supply would only increase if fares declined or quality improved. None of this has transpired. Availability has increased most at taxi ranks, at night and on 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 at the weekends, when demand is low in rural areas. The stepwise deregulation has permitted alleviating policies. 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 hold.

4.6. Norway – fare deregulation with quantity control

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 the extensive use of hired drivers. The requirement to provide a service at all hours makes salaried drivers necessary. In some areas, several dispatch centres are in competition. However, in most licence areas only one DC exists. On average, 20 per cent of 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 number of DC affiliations has resulted in a high level of technology and an important degree of vehicle and driver utilisation.

A different 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 is still regulated. Fares have only been liberalised in areas where there are competing dispatch centres.

The experiences from Norway are important as they can give some information about the isolated effect of fare liberalisation. They also provide another approach to the regulation of fares versus quantity, compared to other countries. The effect of the fare liberalisation has not resulted in any fierce competition. Prices seem to have increased rather than decreased, as one might have expected.

Problems with price information have also arisen. The purpose of merging licence areas was to increase competition and supply. Although some areas have been merged, local authorities are still responsible for issuing licences. This has had some unfortunate consequences: one example is the reported fact that the differences in waiting lists make prospective operators apply for a licence in an area where the waiting list is shorter, even though they do not intend to drive in that area. Thus, the outskirts end up with a reduced supply of taxis, whereas the supply increases in central areas.

The Norwegian 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 dependent on the time of day.

4.7. The outcome of regulatory change

Substantial variations in the regulation of the taxi industry, as well as regulatory changes, have been identified above. A summary of the main effects is presented in Table 6. The table clearly shows that the effects on consumer welfare from regulatory change vary between different locations, and that they depend on alleviating policies as well as diverse market characteristics. Nevertheless, the availability of taxis and the waiting time of consumers in general improve following the removal of entry controls. This is the case in particular in urban areas and at taxi ranks. The cost of this increase, however, must also be considered. Increased fares may follow increased availability if fares are also deregulated.

To a great extent, the effects depend on different market characteristics. The effect of deregulated entry on availability is greatest in urban areas and in the cab-stand segment. The effect of fare liberalisation is also different depending on market characteristics. In rural areas and in the street segments (cab-stands and curb-hailing), the overall fare increase is greater compared to urban areas and the telephone-booking segment.

Table 6. **Summary of regulatory changes in a selection of countries**

	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 taxi 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. 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 at 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 at 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
Canada	Very different, however; street work dominates in urban areas.	Increase	N/A	Increased availability, reduced quality.

Source: Bekken and Longva (2003).

5. SUMMARY, CONCLUSIONS AND FURTHER NEED FOR RESEARCH

The impacts of regulatory changes vary between different cities. Varying market characteristics and differences in the strength of the various sectors are important when assessing these impacts. However, based on the experiences from the above countries, some lessons may be learned and some future needs for research identified.

5.1. 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.

5.2. 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).

5.3. 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 the regulatory framework at hand, and several studies indicate that it can be overcome by tougher enforcement policies and procedures, increasing driver requirements and programmes for

further competence building. This may, on the other hand, lead to higher costs related to quality controls, leaving the net cost results of quantitative deregulation uncertain.

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.

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 evident in particular from the Dutch experience.

5.4. Trends in taxi regulation

In the USA, the deregulation movement of the 1980s affected the taxi industry strongly, as several cities deregulated. The report by Frankena and Pautler (1984) formed the highlight of this discussion. The tide changed as experiences from deregulation showed that the expected positive effects had largely not been achieved. Based on this, Teal and Berglund (1987) argued for either retaining price control or entry standards. Several cities in the USA re-regulated, as a consequence of the undesired effects from deregulation. The Swedish taxi market was deregulated in July 1990, the reason being that the taxi industry was believed to be inefficient, due to a mismatch of supply and demand and a lack of price competition. As in Sweden, the New Zealand taxi industry was totally and simultaneously deregulated throughout all areas. The restructuring of the New Zealand taxi industry in 1989 was closely 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 to one of the least regulated of the OECD countries (Morrison, 1997).

The regulatory changes above took place more than ten years ago. More recently, several European countries, such as Norway, Finland, Belgium, Hungary, the UK and Switzerland, have started evaluations of the current taxi legislation, or changes are being planned. In other countries, the legislation has changed recently for the entire country (Ireland and the Netherlands) or for certain cities (Brussels, London and Oslo).

There have clearly been some dynamics in most regulatory changes. In several cities, certain aspects of the regulations have been enhanced after the initial deregulation. Most countries which have changed the regulation, apart from Norway, have deregulated the actual barriers to entry. Ireland stands out as an extreme case, with neither significant direct nor indirect regulations regarding market entry and requirements imposed on operators. On the other hand, Ireland has kept relatively strict regulations on fares, which have been extensively deregulated in other countries, such as Norway (Oslo), New Zealand and Sweden.

From the description above, there seem to be two major trends in taxi regulation. First, several countries have deregulated market access. Such changes are also planned in other countries. Second, strict quality standards are being introduced in a number of cities. This is very much in line with the overall changes in EU legislation. It is also worth noting that fares continue to be regulated and that countries which have deregulated fares later impose strict requirements on their information aspects.

5.5. Further need for research and discussion

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 their implications for competition.

Regulatory changes in the taxi industry should not be considered under the belief that taxi services are homogeneous. There are great differences between the various segments and local markets. The industry is different in urban as compared to rural regions. In some areas, the industry plays 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 which should be considered. One is the role of taxi-dispatch centres and the role of larger taxi companies. Taxi-dispatch centres are clearly underestimated as a factor for providing efficiency in the taxi industry. Efficient dispatch centres may allow each taxi to provide more services and thereby reduce idle time. Further, strong dispatch centres or companies may create a better environment for fare comparisons, as well as providing a better opportunity for the authorities to control the industry. Hence, the role of dispatch centres should be considered more thoroughly in relation to regulatory changes.

NOTES

1. In Belgium two systems exist. The number of cars per licence may be limited to one (as at Zaventem Airport) or several vehicles may be allowed per licence (in Antwerp, ten licences and 320 vehicles). However, the number of vehicles is taken into account when issuing new licences or increasing the number of vehicles for a certain licence.

2. The EU Directive covers vehicles with more than nine seats. Imposing the same requirement for small and large vehicles has a greater impact on operators of small vehicles. Compared to the investment, the guarantee will be greater in real terms for small vehicles, as they are cheaper.

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DEREGULATION OF THE TAXI INDUSTRY: EXPERIENCES IN THE NETHERLANDS

Peter BAKKER
AVV Transport Research Centre
Ministry of Transport, Public Works and Water Management
Rotterdam
The Netherlands

SUMMARY

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ABSTRACT

In many countries the taxi industry is a private market sector, wherein street taxis without government subsidies become exploited. Nevertheless, it is mostly an extremely regulated sector. Entrance into the market and the determination of tariffs are not free, but strictly bound to rules. The question is whether those kinds of rules are necessary, and whether the market could not itself be better in tune with supply and demand.

After lengthy debate, the taxi sector was substantially deregulated in the Netherlands as of 1st January 2000. The National Government was convinced that the sector could better orientate itself to supply and demand. Through the existing system of licences, the amount of supply in the taxi market was unnecessarily rationed. The expectation was that deregulation would lead to a more dynamic market, resulting in a better balance between supply and demand with, eventually, higher-quality services, lower prices and a more pronounced role for the taxi in the total transportation system.

Entrance into the market has been significantly simplified; taxis are no longer bound to specific regions and price setting is now freely determined, provided it does not exceed the agreed maximum tariff levels. The discussion was not based purely on deregulation, however. After carefully considering the experiences of other countries, the Netherlands chose a combination of deregulation and re-regulation, and a recentralisation to guarantee basic service quality and fair competition.

As of 1999, the changes in the taxi market have been intensively followed by a detailed monitoring programme in order to create a picture of the effects of the new regulations. The supply side as well as the demand side have both been followed.

The results of this monitoring have shown that the client's evaluation of the taxi has, in many aspects, remained up to par. That is worth mentioning when considering the many negative messages sent out by the press in the early years of deregulation. Although the total numbers of taxi drivers and taxi vehicles have risen significantly, the number of actual vehicle operation hours has decreased. A considerable disappointment is that the real taxi tariffs had visibly increased in the early years after deregulation; and it is likely that taxi use did not increase because of this.

The disappointing price developments and unchanged use have, in part, to do with the structural qualities of the taxi market but, in particular regarding the transparency of the taxi tariffs, there are still possible improvements to be made in order to reach the original goals (of deregulation).

1. TAXI POLICY IN THE NETHERLANDS

1.1. Historical background to current taxi policy

Until 2000, the Netherlands had enforced a clearly regulated taxi policy, as part of the 1988 Passenger Transport Act. Key points of this Act related to the taxi sector were:

- Decentralisation: The issue of licences per operator and per taxi by provincial authorities who were able to delegate these duties to a consortium of local authorities;
- Capacity control by provincial authorities or co-operative local authorities, based on demand and preserving opportunities for profitable exploitation;
- Price control in a uniform structure of fares for the entire country; the exact regional fare levels were fixed by provincial authorities or co-operative local authorities;
- Control of the quality of the range of taxi services, by setting requirements for the vehicle, the operator and the driver;
- Market control, by setting up transport zones within which solely those operators who were registered in that zone could operate (i.e. pick up customers);
- Monitoring and enforcement by three bodies (police, licence issuers and the RVI, *Rijksverkeersinspectie*).

Over the years, it emerged that implementing the Passenger Transport Act in the taxi market had not led to an adequate match between supply and demand. Regional taxi regulators seemed to be over-focussed on serving incumbent operators' continuity and on avoiding trouble with the sector. It was difficult to enter the street taxi market and thus the supply was rationed artificially; hence consumer interests were promoted insufficiently. Taxi operators were unsuccessful in anticipating changing demand. Additionally, the entrance of supply had stagnated (while even a slight drop in the number of taxis occurred between 1995-99). Because incumbent operators were protected by the regulatory set-up in force, the anticipated competition failed to appear. Furthermore, a scarcity of operator licences arose (or licences were used in affiliation with a taxi control centre, planning and dispatching trips pre-booked by telephone). The market values of the operators' licences were out of proportion to the taxi industry's cost structure. The Government considered the taxi's role in the total mobility of persons to be still too limited, despite a slightly growing use.

The reasons above were sufficient enough for the Government to revise taxi policy stipulations, as illustrated by the modified taxi rules in a new Passenger Transport Act.

1.2. Current taxi policy

After long discussions in and outside of Parliament, the new Passenger Transport Act came into effect on 1st January 2000. The new taxi policy aimed to achieve a final situation consisting of an optimally functioning and dynamic taxi market. Easier entrance to the taxi market was expected to result in more competition, stimulating operators to develop new services which responded to changing consumer wishes. By means of quality and price differentiation, consumer choice was

expected to increase and taxi services would attract more consumers. The taxi industry was supposed to take initiatives towards achieving co-operational structures in order to guarantee availability 24 hours per day. Along with traditional street taxi work, new services would arise, including the possibility of shared taxi use at a reduced price for independently travelling clients. The consumption of taxi services used solely or in combination with other public transport modes was expected to increase. In the countryside and medium-sized cities, taxis would fill an important and cost-effective role as a substitute and an addition to regular public transport. Particularly in combination with other transport modes, taxis might have even contributed to a reduction in individual car use and the mitigation of congestion.

In order to reach this blueprint, the Dutch Government formulated a set of concrete goals. The main new policy objective was to strengthen the taxi's role in the mobility of persons. A better integration of the taxi in passenger trip chains and a better functioning market were secondary objectives.

So as to enable the above objective, the Act adopted several tools, *viz.*:

- Deregulation of taxi capacity. Licensing is limited to operators instead of individual vehicles. Initially by adopting a licence issue quota on vehicles for market entrants so as to avoid depressed growth; followed by total deregulation in 2002. Operators are now totally free to add vehicles to their operations. New operators only have to pass quality checks; capacity checks have been abolished.
- Deregulation of fixed pricing by abolishing fixed fare prices and by launching a maximum fare rate. Additionally, the Minister decided to maintain the latter regulation for another two years.
- Measures to upgrade the quality of taxi service operators (operator licence, chauffeur ID, blue number plates). Responding to negative publicity and incidents in the larger cities, a special exam for taxi drivers has recently been added in order to better guarantee basic quality.
- Abolition of transport zones (effective as per 1.1.2002).
- Centralisation of licensing and intensified enforcement, to be effected by the IVW, the Transport Ministry's inspection division.
- During the implementation period, the effectiveness of the policy should be evaluated by an intense monitoring programme.

Considering previous negative experiences in other deregulating countries, the Dutch Government chose an implementation strategy consisting of deregulating as well as re-regulating elements. The philosophy was, firstly, to safeguard basic service quality and fair competition, and secondly, to abolish capacity and fare rules. Additionally, a time-phased strategy was chosen, with a relieved capacity check and maximum fares in the first two years, instead of an immediate, full deregulation of capacity and prices, thus enabling reaction to the outcome of policy in practice.

The modified Taxi Act does not apply to the so-called street taxis[1] only, but also to pre-contracted, multiple-trip taxi services. However, like the former regulatory setting, the price regulations do not apply to the pre-contracted taxi sector.

1.2.1 Schematic outline of major taxi sector policy issues

Scheme 2.1 briefly outlines the current state of affairs regarding taxi policy in the Netherlands. Nine policy elements are identified, *viz.*: 1) Requirements concerning the taxi (vehicle); 2) Requirements concerning the taxi driver; 3) Requirements concerning the taxi operator; 4) The transport zone; 5) Pricing; 6) Required consumer information; 7) Airport access; 8) Fiscal facilities; 9) Enforcement.

Table 1. **Scheme 2.1: The Netherlands**

	Organisational regulations	**Quality conditions**	**Capacity conditions**
Taxi (vehicle)	A car being used as a taxi must be approved by the Ministry of Transport, Public Works and Water Management (RDW). Additionally, taxis should be marked with special blue number plates.	Taxis are subject to annual tests. Taxis must be fitted with a taxi-meter. Policy specifies that board computers must be fitted by the end of 2002. There are rules concerning the use of roof lighting. Use of roof lighting is not compulsory.	The number of vehicles deployed by each operator is not determined by the Government (except for the capacity test for new operators in 2000 and 2001). The requirement of 24-hour a day availability (as enforced in decentralised regulations) was abolished following centralisation of enforcement powers.
Driver	Every driver must have a driver's ID card in his own name. With this ID card, a driver may work for more than one operator.	Requirements for a driver's ID: – Statement concerning behaviour Medical declaration Passport photo Valid driver's licence – In 2005 a drivers' exam was added, testing special taxi drivers' skills	A driver's ID is valid for five years, and costs €40 (2002). Rules governing operating hours and breaks are enforced.
Taxi operator	Every taxi operator must have an operator's licence and one or more licence certificates. Along with the operator's licence, the operator receives certificates for the number of cars for which he can prove the long-term availability for taxi transport.	Conditions for an operator's permit: - Competence, in the form of a certificate for taxi operators (or, until 1 July 2001, historical competence). This requirement applies only to those in actual and permanent charge. - Reliability, in the form of a certificate of good behaviour (this applies only to those who are in charge and are drivers). - Chamber of Commerce registration. - An operator's licence is valid indefinitely. - An operator's licence costs (for new operators) €500 (2002). Licence certificates are provided for €12 (2002)	Until 2002, a capacity test applied to new operators: one had to prove that each vehicle had a turnover of at least *f* 50 000 (€22 689) a year and the vehicle had to be operated for at least 390 hours per quarter. This test was abolished effective 1st January 2002. It is prohibited to lease, sell, purchase or hire operator licences. Licence certificates are issued per taxi and are replaced every five years.

Table 1. **Scheme 2.1: The Netherlands** (continued)

	Organisational conditions	Quality conditions	Capacity conditions
Transport zone	The Netherlands was divided into transport zones. Operator's licences and certificates were only valid within particular zones. These were abolished 1st January 2002.	The taxis were allowed to pick up passengers within their own transport zone only. Of course, customers could be dropped off anywhere and boundaries could be crossed. However, it was only permissible to pick up new passengers on the return trip in other zones if they were pre-booked at the operator's office.	
Pricing	Maximum price caps are set: – Starting fare – Fare per kilometre – Waiting fare	The operator may vary the fare price under the maximum fare. After an intermediate evaluation, the maximum fare procedure was continued into 2002 and 2003 and it was also decided to continue the maximum fare rules in 2004.	
Consumer information	The operator's licence certificate must be visible to the customer while in the vehicle. Every operator must have a complaints procedure. Every operator must be affiliated with a disputes committee. The driver's ID must be visible to the customer while in the vehicle so that he is aware that the driver is reliable and identifiable. A taxi should be identifiable by the blue licence plate. The taxi price must be visible both inside and outside the taxi.		
Airport access	Until 2002: Based on the zone system, under which only taxis from the Zaandam, Amsterdam and Schiphol regions may use the ranks at Schiphol. In contradiction with the goals of the new taxi policy, there is a privileged position allocated to several taxi-service operators due to the contracts they had with Schiphol Airport authorities. A ruling clarified that these contracts must be respected until a reasonable expiration date. Future contracts must be tendered in accordance with EU guidelines.		
Fiscal facilities	Taxi operators are exempt from road tax (MRB), and may qualify for (BPM) tax returns if they are able to prove that 90% of mileage travelled entailed taxi transport services.		
Enforcement	If the driver is unable to display an ID, then both driver and operator may be prosecuted. Operator's licences and certificates are issued by the RVI (the predecessor of the IVW), who also checks whether the operator fulfils all requirements. Tests are given every five years. The licence certificate must be visible to enforcement agencies within the vehicle. In addition to a taxi-meter, trip statistics must be kept for monitoring. The IVW (Inspectie Verkeer en Waterstaat) is responsible for all monitoring and enforcement. However, nationwide enforcement platforms were set up (the IVW, police, public prosecutor, GAK and special investigation forces) for the exchange of information and expertise.		

Source: AVV/EIM, 2002.

2. MONITORING RESEARCH

2.1. The monitor as part of new regulations

Because the new taxi regulations generated much discussion, and a number of parliamentary members had little faith in a positive outcome, for the consumer or the taxi sector, resulting from deregulation, it was stated that the Minister would report on the efficacy and results of the new regulations in practice within 18 months of their taking effect (before 1 July 2001). As a consequence, an initial report was delivered in May 2001. In connection with the results of the report, there was a discussion between the Minister and Parliament, after which a subsequent evaluation for the middle of 2004 was agreed upon. In this evaluation there would be further reporting on the practical, continued results of the regulations. Thus another report was delivered in May 2004. A monitoring programme was implemented between 1999 and 2003 in order to ensure information based on facts instead of beliefs. As a result, the Minister met the wishes of the taxi market and "kept his finger on the pulse" of the market in the early phases of the new regulations.

The execution of the monitoring project was granted, in accordance with European tender procedures, to TNS NIPO Consult and KPMG BEA. An internal V&W support commission was formed, with representatives from the Transport Research Centre (AVV), the Director General of Passenger Transport (DGP) and the Ministry's Inspection Division (IVW).

2.2. The monitoring instruments

The following instruments were used in the monitoring process.

Consumer research consisted of regular yearly telephonic research of 2 000 consumers from 1999 to 2003. Approximately half of these were taxi users, the other half non-users. The latter group consisted of persons who had not used taxis in the past year. By using a standardized question list, yearly insight was gained into the extent and background of (non-)usage of taxi services. The development of the consumers' perceptions regarding different aspects of taxi products was also closely followed.

Business research consisted of regular yearly telephonic contact with 400 taxi operators. Because the operators were randomly telephoned, different ones were worked with each year. Different aspects of the taxi industry's operational management were brought to light through a standardized list of questions. The focus was thus on production and financial information, as well as developments in the standing of personnel and in the fleet.

The research into the *granting of licences, enforcement and tariffs* focussed on the aspects which were connected to the supervision of the industry. By conducting desk research and interviews with responsible civil servants and operators, an annual picture of developments in the area of licence-granting and enforcement was created. Tariff developments for 2000, 2001, 2002 and 2003 were charted using a written survey of 350 operators.

2.3. Supplemental instruments

In addition to these three monitoring instruments, concise research into infrastructural developments was conducted annually. The goal of the research done by the decentralised governing body was to create a picture of progress in the area of taxi standing zones. Each year, random sample surveys were conducted among the governing bodies to record the state of affairs. In the first half of 2000, the first measurements were taken. From then, and every year up to 2003, measurements were regularly taken at the same time of year.

What is more, so-called conjunctive research of frequent taxi users was conducted three times in this period. This research was oriented towards the determination of the relative importance that consumers attach to products characteristic of a taxi and how this might shift with the passage of time. As a result, approximately 350 consumers were asked about their preferences towards taxi products[2].

2.4. Progress monitor

No problems were encountered during the field work aspect of the research. Although the research took place five years in a row and part of the branch was far from co-operative with deregulation, both consumers and companies were sufficiently co-operative each year.

The monitoring research is the most important source for the taxi industry case study and the post-deregulation developments in the Netherlands, and will be discussed in the following chapter.

3. THE NETHERLANDS TAXI INDUSTRY: STRUCTURE AND MARKET DEVELOPMENTS DURING FOUR YEARS OF DEREGULATION

3.1. Introduction

This chapter provides a brief profile of the developments in the Netherlands' taxi sector (in terms of policy and performance) in different years during the new regulations. The year 2000 is the first under the new regulatory setting. The information in this chapter is largely based on the report, monitoring and evaluating the deregulation of taxi transport, conducted by TNS-Nipo/KPMG-BEA in June 2004, including the appropriate appendices.

3.2. Street work and pre-contracted work

Typical of the Netherlands' taxi regulation is the absence of separate licences for the different taxi sectors. Once in possession of a taxi licence, one is allowed to pick up clients at taxi ranks, and to serve kerb-side hail requests as well as single trips pre-booked by telephone (this kind of work falls under the category "street work"). Therefore, a maximum of flexibility is provided to operators using vehicles, optimising their range of taxi work.

The same licence is also needed for the so-called "contract work" -- work concerning more than one trip based on a previously agreed contract. The Netherlands has a well-developed contract work taxi sector, mainly operating in the area of transport of the elderly and disabled or sick persons. This is arranged in a collective manner. The absence of separate licences for different taxi sectors results in the absence of separate statistical numbers for each individual sector. Based on a survey among taxi operators[3], the share of pre-contracted work in the total turnover is estimated at an average of 68 per cent for the whole country in 2003, varying from 30 per cent in the four large cities to 77 per cent in the countryside. The numbers presented hereafter include street work as well as pre-contracted work.

3.3. Taxi consumption

In the year 2003, almost 41 per cent of all residents of the Netherlands above the age of 16 (6 300 000) had used a taxi once or more in the previous 12 months before they were surveyed. In 1999, this percentage was 52 per cent.

Figure 1. **Number of residents who used a taxi once or more in the 12 months before they were surveyed**
(millions per respective years)

Source: TNS NIPO Consult,- KPMG BEA, June 2004.

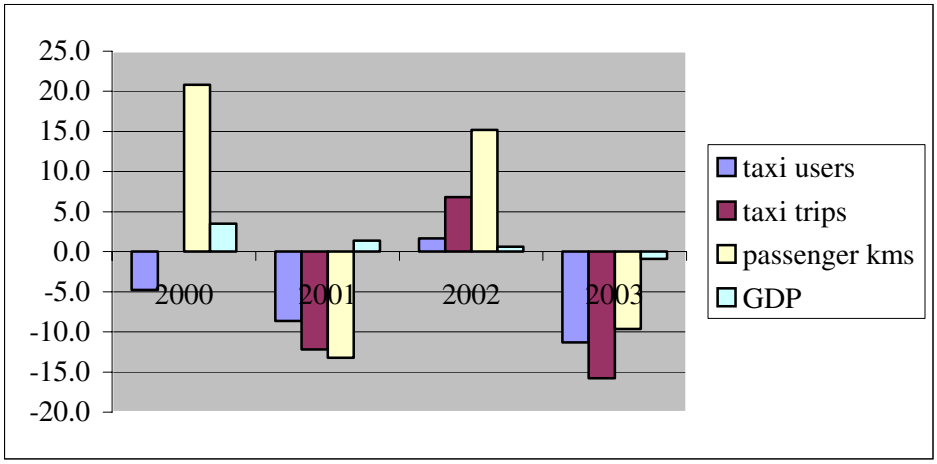
In 2003, 58 per cent of consumers used taxis for going to restaurants, cafés, cinemas and theatres, etc., 34 per cent to a station (non-business related), 27 per cent for travelling to the airport, 26 per cent for a business-related trip, 20 per cent travelling to family or friends, 18 per cent to medical destinations, 13 per cent for tourism and 5 per cent for shopping.

In fact, traveller kilometres increased, but this is a result of the average taxi ride becoming longer, not of a growing number of trips. It is likely that the relatively short rides were in the more price-sensitive segment (e.g. going out, trips to the station) and for that reason suffered due to the lack of demand, as a result of increased prices and the downward economic trend.

The total number of taxi rides contrasts with the total number of kilometres driven. This is due to the fact that the number of taxi users dropped from 6.6 million to 5.3 million; in particular, transportation for going out and shorter trips to the station declined. Businesses which perform a lot of

street work, of which there are many in the four large cities (Amsterdam, Rotterdam, The Hague and Utrecht), also noticed this in their turnover.

Figure 2. **Percentage annual change in taxi consumption and Gross Domestic Product**



Source: TNS NIPO – KPMG BEA, June 2004, CPB Kerngegevens *Nieuwsbrief*, December 2004.

In the 1999-2003 period, the Netherlands was marked by rapid economic growth up to the year 2000. From 2001 on, economic growth levelled off sharply; in 2003 the Netherlands was in recession and was the worst-performing economy of the enlarged EU. There seems to be no clear relationship between the numbers for economic growth and taxi use during the 1999-2003 period. The share of residents using a taxi diminished steadily from 41 per cent in 1999 to 33 per cent in 2003. The number of taxi trips fluctuated and resulted in an overall fall of 17 per cent, whilst the number of kilometres travelled by taxi rose by 20 per cent in the same period.

3.4. Number of taxis and vehicle operation hours

In 2003, there were 24 800 taxis in the Netherlands. Compared to 1999, the last year before deregulation, taxi numbers rose by 50 per cent. Of the total number of taxis in 2003, 3 428 were active in the four largest cities (Utrecht, Amsterdam, Rotterdam and The Hague). In these cities, the taxi numbers rose by 13 per cent in 2000, the first year of deregulation, but levelled off rapidly. In fact, the total number for 2003 is nearly the same as in 2000. The initial fleet growth resulting from deregulation was stronger in the rest of the country (+18 per cent) than in the four large cities. Apart from the four large cities, the taxi fleet grew steadily until 2003.

Compared to eight other countries surveyed by EIM[4], taxi density in the Netherlands in the year 2000 ranked from average (nationwide) to low (large cities). In 2003, the national taxi density clearly developed in an above-average manner, whilst the density in the four large cities remained relatively low. One should note that while the capital city was examined in the other countries surveyed, figures on the Netherlands cover the four large cities in their entirety (Amsterdam, Rotterdam, The Hague and Utrecht).

Despite the fact that, on paper, the number of drivers and vehicles increased, the total number of vehicle operating hours offered by those drivers under assignment fell. This is equally the case in the national situation (from 1999-2003 a decrease of 7 per cent) and in the four large cities (with a decline of 11 per cent). The number of vehicle operating hours has decreased since 2002 in particular.

Table 2. **Selected structural data on the taxi sector in the Netherlands**

	Four largest cities 2003	**Four largest cities 2000**	**Netherlands 2003**	**Netherlands 2000**	**Netherlands 1996**
Number of residents	2 065 000	2 000 000	16 200 000	15 900 000	15 400 000
Number of taxis	3 428	3 418	24 771	19 291	19 881
Number of operators	2 370	1 880	4 857	3 599	2 834
Number of drivers	3 793	4 095	33 424	28 500	N/A
Number of vehicle operating hours	6.7 million	7.8 million	21.7 million	21.9 million	N/A (1999: 23.4 m)
Total turnover of taxi sector in €	98 million	114 million	742 million	624 million	N/A
Number of taxis per 1 000 residents	1.66	1.71	1.5	1.2	1.3
Number of taxis per operator	1.4	1.8	5.1	5.4	7.0
Turnover per taxi in €	28 588	33 352	29 954	32 347	N/A
Turnover per vehicle operating hour in €	14.63	14 71 (1999: 14.34)	34.19	28.49	N/A (1999: 23.42)
Average fare in €*	16.94	15.04	16.79	14.86	N/A (1999: 13.36)

* Price of a 5-km city ride with a total delay of 10 minutes (traffic lights, congestion).

Source: TNS NIPO Consult – KPMG BEA, June 2004, CBS Statline2005.

3.5. Taxi fares

Modified legislation concerning deregulation of the taxi market came into force effective 1st January 2000. One aspect thereof entails setting a (temporary) national maximum fare for taxi transport (Maximum Fare Regulation), with the aim of preventing deregulation from causing undesirable taxi fare hikes as long as the available supply of taxi transport (i.e. capacity) lags behind demand for taxi transport. In short, the measure stipulates that taxi trip fares may not exceed the fare of the same trip when departing from the aggregate sum of the maximum tariff stipulated for every fee element.

Contract work is the exception to the maximum taxi fares.

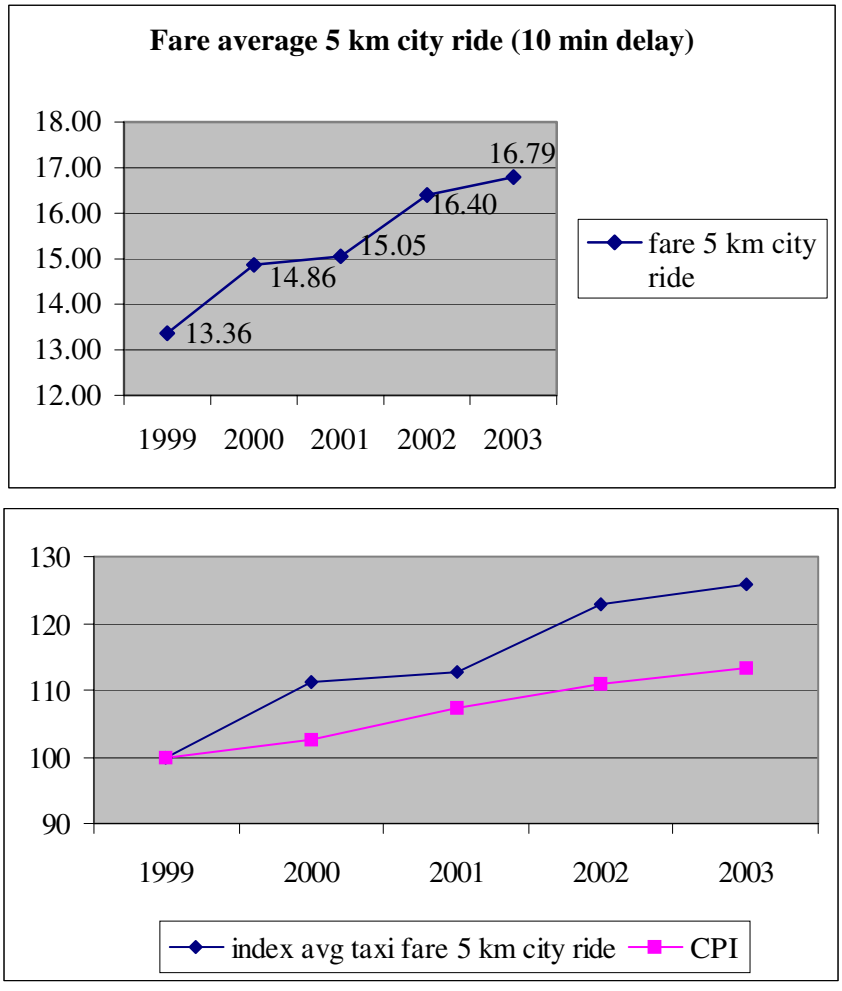
The maximum tariff comprises three fee elements, namely: starting fare, fare per kilometre driven and waiting fare per hour. Tariffs vary according to taxi usage; i.e. taxis with a capacity not exceeding four passengers (including the driver) may charge lower tariffs than those exceeding the five-passenger capacity. Moreover, when the aggregate sum of the maximum tariff stipulated for every fee element does not exceed the maximum as stipulated, higher fares may be charged.

Presently (from 1st January 2003 up to now), the following maximum levels apply to each fee element when using a taxi not exceeding the four-passenger capacity, excluding the driver (maximum fares for larger taxis or in-wheelchair transport are staged between brackets):

Starting fare	€5.12	(€8.33)
Fare per kilometre driven	€1.94	(€2.23)
Waiting fare per hour	€32.87	(€32.87)

In practice, average taxi fares charged are significantly lower than the maximum fare (for example, €2.75, €1.80 and €30.26 for a normal taxi in 2003[5]). But one must bear in mind that the regulator set the initial maximum fare quite high in order to give some elbow room to regions with one or more fare elements at an historically divergent high level and for initiatives with an above-average quality.

Figure 3. **National price developments for an average 5-km city ride with a 10-minute delay in comparison with Consumer Price Index (CPI)**



Source: TNS NIPO Consult – KPMG BEA 2004, CPB Kerngegevens Nieuwsbrief, December 2004.

Tariffs in street taxi transportation increased by 26 per cent over four years6. In particular, the tariffs increased substantially in the first year after the transition from regional fixed tariffs to a national maximum tariff system. The price increase was higher than the Consumer Price Index, which grew by 13 per cent. The people who used taxis to go out or for short station trips appeared to be especially sensitive to the price changes. The large group of constant and regular taxi users consists of 1.5 million people and accounts for approximately 80 per cent of all taxi rides. The group consists, to a large extent, of people who use the taxi due to health problems or for business trips.

3.6. Turnover

Turnover per taxi in the Netherlands amounts to €29 954 and ranks at a low level compared to both Sweden (completely deregulated) and Denmark (completely regulated) (see Table Annex 1.1). This is not so much the result of fare levels because, according to an international comparative study by UBS, Amsterdam scores highly in this area (see Table Annex 1.2). A low turnover may be attributable to the fewer hours that the taxi is operational (available for transport), a lower number of kilometres travelled per taxi, and a lower actual level of occupation.

Equally, sound figures that may be used to enable international comparison are unavailable. However, the result of deregulation is that operators are totally free to add vehicles to their operations, even if only for several hours of work per week. So it is likely that Dutch taxis have had less operational hours per vehicle since 1st January 2000. Because there are no longer costs per vehicle licence, it is useless to maximize the operational hours per vehicle, per day. Drivers can easily drive their taxi as a private car when they are not working. For economic performance-measuring goals, the "turnover per vehicle operating hour" would be a much better indicator.

Since 1999, the turnover per vehicle operating hour has grown by 47 per cent, whereas the yearly turnover per vehicle has dropped 10 per cent. Unfortunately, international numbers concerning the turnover per vehicle's operational hours are unavailable.

The turnover outside the four large cities has risen noticeably, while that of the four large cities themselves has declined. The primary reason for the increase is that tariffs have risen considerably (in all regions). It is also true that in the countryside and in the other cities, the total number of kilometres travelled has increased (this is of importance with regard to turnover), while in the four large cities the total number of rides taken as well as the total number of kilometres travelled have dropped, resulting in a decrease in turnover despite the increase in tariffs.

3.7. Consumer satisfaction

In general, passengers in the Netherlands are positive regarding taxi travel. Eight out of ten travellers have allocated a score of 7 out of 10 or higher. Only 5 per cent are truly dissatisfied, and have allocated a score of 5 or lower. From 1999 to 2003, taxi-user satisfaction remained stable, with an average score between 7.3 and 7.5. Those who were dissatisfied generally complained about telephone access and driver behaviour.

Alas, no comparable information was available in this respect for other countries.

Table 3. **General satisfaction score of taxi users and non-users on a scale of 1–10**
Users: used a taxi once or more in the preceding year; Non-users: all others

Users	**Four large cities**	**Netherlands (entire country)**
1999	7.2	7.4
2000	7.1	7.4
2001	6.9	7.3
2002	7.1	7.5
2003	7.3	7.4
Non-users	**Four large cities**	**Netherlands (entire country)**
1999	7.1	6.9
2000	6.9	6.9
2001	6.8	6.8
2002	6.5	6.8
2003	6.7	6.7
Users	**Score > = 7**	**Score <= 5**
1999	85%	6%
2000	83%	5%
2001	82%	7%
2002	84%	5%
2003	80%	5%
Non users	**Score > = 7**	**Score < = 5**
1999	69%	8%
2000	65%	9%
2001	63%	9%
2002	65%	8%
2003	63%	11%

Source: TNS NIPO Consult, KPMG BEA, June 2004.

3.8. General findings over the 1999-2003 period

The businesses which perform primarily contract work have profited from the new regulations. They have broadened their fleets and their capacity to respond to demand. The abolishment of the 24-hour availability requirement has given the businesses the ability to be more efficient in what they offer. Despite abolition of 24-hour availability, the taxi users were more satisfied regarding taxi availability in 2003 than they were in 1999, with no difference between daytime or nighttime. Also, the overall taxi users' opinions regarding taxi quality have remained consistent in the past years. In the four large cities they gave an average rating of 7.3 and in the other cities and countryside an average rating of 7.4. It can be ascertained that the group of non-taxi users, which has increased greatly, have a lower opinion of taxi services, and hence a lower rating of 6.7. The ratings on their views on tariffs and the higher ride prices have declined in particular.

The development of eleven central indicators has been provided below. This includes ascertainments from the monitoring research conducted by TNS Nipo–KPMG BEA, set against the expected developments for both the national overview as well as the four large cities.

Table 4. **Results of eleven central indicators**

	Indicator	Expected development	Ascertained national development	Ascertained development of four large cities
	Output			
1.	Costs of entry	Lower	Low costs	Low costs
2.	Market dynamics	More entrants, operators which do not keep up drop out	Dynamic, many newcomers and dropouts	Dynamic, many newcomers and dropouts
3.	Supply differentiation	More choice	In progress	In progress
4.	Quality (advantages)	Improvement	Remained the same	Remained same
5.	Efficiency	Improvement	Minor improvement	Same
6.	Capacity utilisation	Improvement	Minor improvement	Minor decline
	Outcome			
7.	Taxi use	Increase in total rides and kilometres travelled	Decrease in total rides, increase in kilometres travelled	Decrease in rides and km travelled
8.	Average tariff growth	Comparative decrease	Increase similar to NEA' cost price growth and significantly above CPB Consumer Price Index	Increase similar to NEA-cost price growth and significantly above CPB Consumer Price Index
9.	Modal split	Greater share for taxi	No noticeable / measurable changes	No noticeable / measurable changes
	Effectiveness indicators			
10.	Turnover	Increase through increased demand, but hampered by lower prices	Increased turnover through higher prices, not through increased demand	Decline in turnover through decreased demand, despite increased tariffs
11.	Employment	Increase through increased demand, but hampered by higher efficiency	Increase through expansion of capacity, in turn based on increased demand in kilometres travelled	Increase through expansion of capacity, not in turn based on kilometres travelled

Source: TNS NIPO Consult – KPMG BEA, June 2004.

At the national level, six of the eleven indicators went in the expected direction; they were the costs of entry, market dynamics, supply differentiation, efficiency, capacity utilisation and employment. With regard to supply differentiation it can be seen that the total number of businesses which report to apply products, services or tariff differentiation in practice increased from 3 per cent in the early years to 31 per cent in 2003. With respect to four indicators (quality, taxi use, modal split and turnover), there is too varied a picture to draw any clear conclusions. It is therefore true that the expectations were not met but, at the same time, the developments were not negative. Tariff growth was not as expected because the anticipated decrease did not appear.

The picture for the four large cities is less positive than for the national situation. The most important difference is that taxi use, especially from standing zones, has declined to the point where turnover and business results are under pressure. The tariff increases applied by operators are most likely the cause of the decline in demand. But, at the same time, they could not prevent the turnover decreases and pressure on business.

In 2000 and 2001, the total number of active businesses increased sharply through easier entrance into the taxi market. The available capacity (in vehicle operation hours) has declined slightly in the last two years. The business is particularly active in the time frames which the clients expect. Because of this there is, on the one hand, talk of more efficient production forces but, on the other hand, the better efficiency would go unused by consumers as a result of oversupply. The assessment of taxis in the four large cities was somewhat lower than for the rest of the Netherlands in the early years of the policy, but has improved in the last two years and has, in fact, returned to 1999 levels.

4. EFFECTIVENESS OF NEW TAXI POLICY IN THE NETHERLANDS

On the basis of the above developments, conclusions can be formulated about the effectiveness of the new taxi policy in practice. In addition, the six most important elements of the taxi policy will be examined.

4.1. Capacity

In practice, the gradual loosening of capacity policy led to a growth in the number of entrants into the market and an expansion of the number of existing businesses from 1st January 2000, as regards both businesses and drivers. The number of businesses driven out of the market has also increased in the last two years. This has contributed to unrest in the sector, although there has been no talk of an extreme outburst. The desired dynamic has been achieved and the measure appears to be sufficient as a result. The addition of a number of businesses did not actually lead to competition which resulted in lower prices or better quality. Regarding the popular standing zones in large cities at busy times in particular, there are actually longer rows of taxis, but the businesses mutually agree to the first-in, first-out system, where client choice has still not progressed.

4.2. 24-hour availability requirement

The abolition of the 24-hour availability requirement has led to a drop in the total number of vehicles' operational hours. Especially in the quiet hours, it appears that supply has been curtailed and that keeps the cost prices down for businesses. This decreased supply has not led to a situation where consumers more often try in vain to order a taxi. Consumers correctly give higher evaluations for taxi availability and response times. This is also true for people who are dependent on taxis due to health problems. The higher evaluations are in line with the objective of bringing supply and demand in closer harmony. This regulation has turned out to be efficient.

4.3. Tariffs

The ability to set tariffs below a fixed maximum was in force for the entire period. The originally expected development was a relative decrease in tariffs and more distinction between different providers. Contrary to expectations, however, tariffs increased more than the average Consumer Price Index (26 compared with 13 per cent). More providers (more businesses) and a constant supply (unchanged total vehicle operation hours) have, so far, hardly led to price competition.

In the year 2000, the operators made use of their new freedom under the maximum tariff by sharply increasing prices. The maximum tariff worked out more as a guide for setting the pace for tariff increases rather than functioning as a ceiling. Beginning in 2001, tariff increases rose in line with the Consumer Price Index, with the average tariff increase remaining, at any rate, within the boundaries of the permissible maximum increase. It can be concluded that the measure did not lead to what was aimed for and that the set level of the maximum tariff created the space to generate tariff increases.

4.4. Quality

In the eyes of the consumer, the basic quality with regard to the taxi product has remained unchanged since 1999. More than 80 per cent of consumers give the taxi a figure of seven or higher as an overall rating for both street and contract work. The availability of the taxi, which beside the price is the most important quality in taxi services, has improved in all regions. Although the media and the sector have made some noise about the quality of the taxi service in the four large cities, given the overall satisfaction of taxi users it can be surmised that weaker performance gets more attention than rides which go well to very well. The IVW has noted an overall decline in the number of violations following inspections in the last two years. The rules are better observed and that could mean that the inferior taxi operators have vanished or have adjusted their behaviour.

It can be concluded that the quality of the taxi product in general has been experienced as fairly adequate by users. The perception of non-users appears to be affected by overly focusing on odd incidents.

4.5. Transport zones/administrative level policy

The Netherlands has been a single transportation zone since 1st January 2002. The existing division of transport areas has therefore lapsed and taxi businesses can now offer their services everywhere (with the exception of Schiphol Airport, where a specific procedure applies).

In 2000, the jurisdiction of the decentralised authorities was passed on to the IVW. The handover went well. The IVW works regularly with the regional police in the area of enforcement. The decentralised authorities are responsible for the infrastructure (taxi standing zones, shared bus lanes) and public discipline. Some municipalities invest time in maintaining contact with the taxi sector. They sometimes, however, experience bottlenecks in the area of quality and complaints resolution as being more difficult to handle at the local level.

It can be concluded that the new administrative configuration works well in principle. Important points of attention include the implementation of the role of the larger municipalities regarding the quality of the taxi product, including standing zones and enforcement.

4.6. Control and enforcement

The control and enforcement activities of the IVW have intensified. The IVW is handling the new law well. Points of attention include the operational problems with respect to the control of the maximum tariff and the driving and rest times. The introduction of an on-board computer seems to be the best solution to both of these issues.

In summary, it can be stated that five of the six regulations worked as expected. As regards tariffs, it follows that there are pros (people have remained under the maximum tariff) as well as cons (the extent of the tariff increases). The latter has been experienced as an important aspect, as it weighs up as a predominantly negative evaluation.

4.7. Conclusion

The main objective of the new policy was the strengthening of the role of the taxi in public mobility. The sub-goals were the integration of the taxi into the transportation chain and market forces, and to create competition. Considering the interests of the consumer, quality and tariffs were viewed as a separate sub-goal. The sub-goals will be touched on before moving on to the main objective.

4.7.1 Integration of the taxi into the transport chain

In recent years, public transportation has been primarily concerned with the strong turbulence created by the introduction of tendering concessions (competition *for* the market) and through state cutbacks. Taxi transportation and other forms of public transport can and must complement each other more, focusing on integration in the supply chain. These days, taxi businesses tend to take on a larger portion of public transport (for example, via shared taxi services as a supplement to fixed bus routes or, to a lesser degree, in place of those routes). Based on the monitoring process, it appears that this component of taxi service has grown, and thus has reached expectations. It has been seen, however, that the taxi is used less for before-and-after transport to supplement traditional public transport. In importance/satisfaction research (part of the monitoring studies) it has come to light that these sorts of trips belong to the most price-sensitive segment, and have probably suffered relatively strongly from the drop in demand resulting from price increases and the downward economic trend.

4.7.2 Market forces and competition

There is talk of increased market forces. The entrance of businesses into the market has become easier and the first two years of the period under review led to a strong growth in the number of businesses. The impression is that much of the influx has found its place in the popular standing zones of the four large cities. Businesses outside of these areas saw the possibility of generating more turnover. The larger supply created the need for competition by differentiation of demand and tariffs. Price competition developed slowly, however. Policy in the area of market forces created the prerequisite constraints. With entrances into the market also came withdrawals from the market, which was not entirely effectual for the desired competition. This also had consequences for quality and tariffs.

4.7.3 Quality and tariffs

Quality evaluation has remained constant. The availability of the taxi has increased and the general evaluation of the taxi is reasonably high, just as it was before deregulation. What is less favourable for the consumer is that tariffs have risen more than the Consumer Price Index**.**

Despite the addition of a number of businesses, still not enough competition regarding price or quality has arisen. This is presumably because a part of the body of taxi consumers is not price-sensitive due to their high incomes, or the fact that employers or insurers reimburse the costs, or because they have little choice (as with disabled or sick people). In addition, regarding transportation from the taxi ranks, it takes much time and effort for consumers to select the driver with the best price/quality ratio. The tariff stickers are small and the tariff structure, consisting of three elements, is complicated and still does not provide a definite answer about the final fare price at the end of a trip. There is also the risk that, by the time a passenger has surveyed the row and decided which taxi is the cheapest, that taxi has in the meantime already left the standing zone with another client.

It is therefore not advantageous for individual owner-operators to distinguish themselves with lower prices or quality because this would not, or would rarely, lead to extra turnover.

4.7.4 Assessment of main goal

Taxi use based on kilometres travelled has risen by 20 per cent. This rise has resulted from an increase in the average trip length. The total number of users has declined and this has led to a drop in the total number of trips, particularly in the price-sensitive market segments. The use of the taxi has declined both with frequent (heavy) users and incidental (light) users. This may be due to, on the one hand, the image formed about quality and higher prices holding consumers back and, on the other hand, the economic recession.

When a distinction is made between the four large cities and the rest of the Netherlands it appears that the drop in taxi use shows up primarily in the four large cities. There is both a drop in total trips and in kilometres travelled. This seems to be due to a combination of image and negative economic developments. For the rest of the country, it is the general case that the total number of kilometres travelled has increased and the total number of rides has decreased.

Through the growth of the total number of kilometres travelled, the role of the taxi regarding total mobility could remain stable or may have even improved. The decline in total trips did not lead to taxi use and thus contributed to the relative decline in vehicle traffic. Since deregulation, capacity utilisation has improved slightly.

The conclusion is that the introduction of the new taxi legislation led to a greater degree of turbulence in the taxi market. There is a greater degree of operator entrance to and withdrawal from the market. The broader freedoms offered operators the possibility of playing more with demand. At the national level this has led to improved availability with less vehicle operation hours.

After the first corrections resulting from the freedom to set tariffs as of 2000, the tariffs were increased in line with the costs of transport services. This was not in accordance with the expected tariff decrease, but was in line with the experiences of other countries. The market forces have visibly led to a changed taxi market and have prompted the innovative behaviour of the operator.

The results were not only positive, however. The market changes led to considerable unrest among pre-existing operators in the four large cities. They were concerned that their turnover would

diminish through the arrival of so many newcomers to the market, and in any case it was clear that the value of their licences would decline. The turnover in the four large cities actually declined, particularly due to falling demand because of increased tariffs and downward economic trends and also through damage to the image of taxi services. The existing businesses as well as the newcomers in street work experienced strong pressure on their turnover. Outside of the four cities, the developments occurred more gradually. The growth of turnover was primarily seen in businesses that are mainly focussed on contract transportation.

4.8. Implementation strategy

It has become clearer that the success of the introduction of policies empowering market forces does not only depend on a good "blueprint". Other determinants of success include the manner in which the government beforehand shapes a step-by-step change process and later makes adjustments or corrections: so-called implementation management.

In an interdepartmental research programme, "taxi deregulation" came forward as an example of good implementation management because from the start there were sections of the end goal which were clear and distinct. These were phased in over time and there were fixed evaluation points built in (even fixed in the rules).

Structural characteristics of the demand side should have received more measured attention early on. It is not only of importance to consider and regulate the power play as regards supply, but it is also important to know what the consumer wants and what they are therefore not sensitive to. In this respect, the taxi services' situation was not thoroughly thought out. On the one hand, a large number of consumers are not price sensitive, while on the other hand the ones that are price sensitive now have insufficient time and possibilities to compare prices in an adequate manner. It could have been previously recognised that some "institutions" were hardly susceptible before the ruling: no expectations of self-regulation from a moderately organised small-scale branch of industry.

5. POLICY CONTINUATION

5.1. Analysis

The implementation of policy definitely broke the market open, but the favourable effects are still partly in waiting. This is also in line with foreign examples, where six to eight years, rather than four, have been reported as necessary. In the meantime, it can be established that there is little talk of the expected price-disciplined effect of more competition through free market entrance. Taxi tariffs increased more than the cost prices in the same period after the introduction of deregulation. The market for street taxis was more imperfect than previously thought. An important segment of the consumer market is not necessarily price-sensitive. However, as mentioned in section 4.7.3, the consumer also has a difficult search process at taxi standing zones: searching for the cheapest taxi in a row full of owner-operators is not as simple as choosing from among brands of most consumer articles[8]. This implies that individual operators do not automatically profit from lowered prices nor have the reward of more travellers. If consumers reacted to one individual operator lowering his

prices, it is doubtful whether that sole driver-operator could supply all the consumers who sought those prices. The street taxi branch seems to be a prisoner of its own small scale; from a cost viewpoint it is extremely important to retain small-scale organisation in this cost-sensitive branch (from a tax and insurance contribution system perspective).

Because price competition did not arise, a chance was missed by this branch to both reach more travellers with a lower price level and to play a larger role in the mobility market. A study previous to deregulation, conducted on the basis of economic model formation validated by first monitoring observations, made clear that with lower tariffs there was most certainly the expectation of increased demand and an adequate return per operator[9]. In various parts of the monitoring study, the consumer gave the fare level and the uncertainty of the final amount due at the end of a trip as the most important reasons for not making (more frequent) use of taxis.

The entrance of newcomers, that have now found their place in the market without an increase in demand, appears to be related to higher tariffs and few travellers per produced hour. The higher tariffs have not led to more profit as the outsider might expect, but were necessary to divide the same "piece of the pie" among more driver-operators. A favourable effect for the consumer is the increase in availability. However, because this supply was too expensive it was not actually "consumed". This can work for a time because the basis of the street taxi market is inelastic (the "must transport"), until a large portion of the travellers drop out and operators see the necessity of tariff control at the sector-wide level. The chance of a greater role in the mobility market concerns the more price-elastic travellers (the "comfort and leisure transport"). This chance has been missed thus far.

Now that the street taxi market appears less perfect than previously thought, the question arises as to how taxi policy should take further shape.

5.2. Options for the future

Returning to policy before deregulation is not an option. There were good reasons to want things to be different: the consumer was not favoured by the government-imposed artificial scarcity**,** while the advantages from that were not passed on to all drivers, but one-sidedly to only the few private individuals that leased out the licences in combination with taxi dispatch-centre affiliation. Implementing a new set of re-regulations would take time once again.

Broadly speaking, there are two other possible scenarios:

1. Continued heavy steering with the maximum tariff (considerably lower);
2. Assistance with the imperfections in the street taxi markets so that price competition can spring forward.

There are, however, good reasons not to choose scenario number one:

- It does not fit the character of deregulation;
- With a low maximum tariff, the danger exists that at difficult times and places availability would be put at risk (while one of the most important roles of the taxi in the personal transport market is that it goes where and when other forms of transportation do not);
- One region would demand a different maximum tariff from the other (as the reintroduction of transport zones would hinder efficient supply);
- Space for diversity in products of a higher quality would be at risk.

It is also important to note that choosing this scenario would imply the necessity of long-term policy and political care in finding an optimal tariff level. There would be the need for permanent monitoring and continual discussion about the correct tariff level. This scenario would not contribute to the emergence of mechanisms leading to an autonomous or organic optimal price level. In Dublin, for example, policy is managed by free market entrance and fixed prices. It has been reported that the consumer greatly appreciates this[10]. There is now pressure there, though, to raise tariffs because the drivers do not earn enough income. But it must be feared that higher tariffs will lead to an extra influx of drivers rather than to more earnings per driver: and that will provoke the reintroduction of capacity regulations, resulting in a setback for consumers.

5.2.1 Rectifying market imperfections through more transparent tariffs

Scenario 2 relies on working with a simpler system which makes the tariffs more transparent. With simplified tariffs something could be done about search costs, which stand in the way of price competition. Consumers have conveyed in the monitoring process that not only are the tariff increases not appreciated, but also the lack of transparency of the tariffs. Tariff transparency would not only take away uncertainties, but one would expect more competition in prices, resulting in lower tariff levels.

In the short term, the logical components of this policy package scenario would be the following: space in regulations for tariff systems that give guarantees beforehand on the price to be paid; the posting of larger tariff stickers, upon which there would be the required publication of a reference ride; better enforcement of the reference stickers.

Grounds for this were found in the aforementioned studies, as there are few obstacles to accomplishing this in practice.

5.2.2 No further rules for less relevant qualities

In Parliament much importance has been placed on more detailed quality regulation, in connection with negative press publicity about certain incidents. In this way, for example, the requirements for drivers have been raised. From the monitoring research, there were no grounds for continued government intervention in the many different aspects of quality in taxi supply. The client evaluation regarding many quality aspects is already good, in contrast to what the media put forward, and did not drop after the implementation of deregulation. The monitoring process, as well as other research, points out that tariffs and availability are the most important factors[11]. Over-detailed regulation of quality factors, which are less relevant to the consumer, can have a negative impact on cost price or availability, on which the consumer places greater importance.

In the meantime, a majority of Parliament agreed with the Cabinet's proposal, which settles this to an important extent:

- No reintroduction of capacity policy;
- A number of already enacted quality measures will be enforced, but there will be no further issuance of rules;
- More transparent taxi tariffs by converting from three tariff elements to one, with the remaining one having a required minimum distance of 2.5 to 3 km; larger tariff stickers, upon which there would be the obligatory publication of a reference ride; space to work with fixed prices (per zone, for example).

Because of the tariff developments, there is still felt to be insufficient support in favour of abandoning the maximum tariff idea, despite the disadvantages that it carries.

NOTES

1. In the Netherlands, single trips booked at taxi ranks, along the kerb-side or pre-booked at taxi control centres are expressed by the term "street taxi". In contrast to this, "contracted taxis" are taxi services concerning multiple trips based on a previously agreed contract, e.g. between operator and municipality, health insurance company or institutions for the elderly or disabled..

2. Similar preferences change slowly, so it was not useful to pursue this research every year.

3. TNS Nipo Consult – KPMG BEA, bijlagerapporten Monitoring deregulering taxivervoer: 1999-2003.

4. The year 2000 averages for Sweden, New Zealand, The Netherlands, Ireland, the United Kingdom, Belgium, Denmark, Germany and France are 1.1 (national) and 2.7 (capital).
EIM (2002), *Taxi abroad, an inventory of experiences with regulated and deregulated policies abroad*, April.

5. TNS NIPO Consult – KPMG BEA, June 2004.

6. Tariff development in the contract sector was not taken into account in the monitoring process.

7. NEA is the research institute that was traditionally asked to calculate taxi cost prices in the days of fixed regional prices.

8. Research by Muconsult in 2002 made clear that market forces in the taxi sector are limited by "search costs" (as expressed in the economic literature) for consumers.

9. *Maximumtarief Taxi Eindrapport*, April 1998, MuConsult.

10. *Study of the Impact of Liberalisation on the Dublin Taxi Market*, Dublin, October 2001, Goodbody Economic Consultants

11. *Maximumtarief Taxi Eindrapport*, Amersfoort, April 1998, MuConsult.

ANNEX

INTERNATIONAL COMPARATIVE SURVEY

AVV contracted EIM (2002) to gather information in order to compare experiences gained abroad with Dutch taxi policy and the Dutch taxi market. Information about current policy, taxi structure and performance in other countries may thus directly be positioned against the background of Dutch policy and taxi sector performance in the Netherlands.

Annex Table 1. **Summary country review (year of analysis: 2002)**

Description	Sweden	New Zealand	Netherlands	Ireland	UK	Belgium	France	Denmark	Germany
Policy framework									
General legal framework	Centralised	Centralised	Centralised	Centralised	(De-) centralised	(De-) centralised	Centralised	Centralised	(De-) centralised
Executive decisionmaking	Centralised	Centralised	Centralised	Decentralised	Decentralised	Decentralised	Decentralised	Decentralised	Decentralised
Enforcement	Decentralised	Centralised	Centralised	Decentralised	Decentralised	Decentralised	Decentralised	Decentralised	Decentralised
Decentralised body	Region	N/A	N/A	City/borough	City/borough	City/borough	City/depart.	City/province	Region/city
Deregulation	Almost complete	Almost complete	Partial	Partial	No	Partial (Flanders)	No	No	No
Deregulation since	1990	1989	2000	2001	N/A	2002 (Flanders)	N/A	N/A	N/a
Status of contract transport	Free	Free	Free	Separate	Separate	Separate	Separate	N/A	Separate
Taxi tensions	No	No	No longer	Yes	No	Yes	Yes	N/A	
Type + degree of regulation									
Fare structure	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fare level	No	No	Maximum	Maximum/ fixed	Maximum	Maximum	Fixed	Fixed	Fixed
Taxi transport zones	No	No	No (2002)	Yes	Yes	Yes	Yes	Yes	Yes
Maximum number of taxis	No	No	No	No	Yes	Yes/no[a]	Yes	Yes	Yes
Numerus fixus in practice	N/A	N/A	N/A	N/A	No	Yes/no[a]	Yes	No	No
Taxi driver	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Taxi operator	Yes	No	Yes	Yes	N/A	No	Yes	Yes	Yes
Taxi service	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Information	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Licence validity	Yes	No	Yes	No	N/A	Yes	N/A	N/A	No
Airport access	Market system	Market system	Zone system	Zone system	Zone system	Zone system	Zone system	Zone system	Zone system

Annex Table 1. **Summary country review (year of analysis: 2002)** (continued)

Description	Sweden	New Zealand	Nether-lands	Ireland	UK	Belgium	France	Denmark	Germany
Sector structure (2000)									
Number of taxis	14 521	7 108	19 300	6 257	(approx.) 70 000	(approx.) 4 000	(approx.) 44 000	5 500	52 500
Taxi growth in last 5 years	Nil	N/A	+2 406	+4 283	(approx.) +10 000	-150 / +200	Nil	+200	Nil
Percentage growth in 5 yrs	0	N/A	+14%	+216%	+17%	-11 / +13%	0	+4%	0
Taxi density nationwide	1.6	1.9	1.2	N/A	1.2	0.4	0.7	1.0	0.6
Taxi density in capital	4.0	2.8	1.7[c]	5.2	2.5	1.3	2.7	2.1	2.1
Taxis per operator	1.7	1.1	5.4	N/A	1.0	1.6	1.5	1.7	1.9
Turnover per taxi in €	87 000	N/A	32 347	N/A	40 000[d]	25 000[d]	55 000[d]	116 000[e]	25 000[d]
Membership of dispatch centre	Yes; market	Yes; compulsory	Yes; market	N/A	N/A	N/A	N/A	Compulsory	N/A
Performance/ services rendered									
24-hour service	Not compulsory	Yes; compulsory	No	Not compulsory	Yes; compulsory? [a]	N/A	Yes; compulsory? [a]	Yes; compulsory? [b]	Not compulsory
Differentiated services	Yes	Yes	Yes	No	No	Yes/no	No	No	Yes
Connected to public transport	Yes	N/A	Yes	No	No	Yes/no	Yes	No	Yes
Estimate of public satisfaction	Adequate	Good[e]	Adequate	Low	Adequate	N/A	Low	N/A	N/A
Comparative rate in €[f]	8.10	4.90	11.20	7.70	9.10	6.60	7.50	6.70	10.45

a. The Brussels situation is stated before the '/', the Flanders situation thereafter.
b. 24-hour service is standard; obligation unknown.
c. Netherlands: four large cities.
d. Concerns: London (rough estimate); Brussels (rough estimate); Paris, Copenhagen and Berlin (hard figures).
e. Safety aspect.
f. Based on purchasing-power parity; EIM calculation based on UBS (United Bank of Switzerland) data, year 2000.

N/A = not applicable.

Source: AVV/EIM Research 2000.

Annex Table 2. **International comparison of taxi prices in 2000**

City	Price 5-km taxi ride in €	Price 10-km bus ride in €
Amsterdam	11.20	1.40
Auckland	4.90	1.20
Berlin	10.50	2.10
Brussels	6.60	1.30
Copenhagen	6.70	1.70
Dublin	7.70	1.10
London	9.10	1.80
Paris	7.50	1.10
Stockholm	8.10	1.40

Source: EIM calculations based on UBS data.

Annex Table 3. **Effects found by EIM of deregulation on taxi-sector performance**

Policy variable	Policy effect
Taxi capacity available	Direct strong effect: clear increase after deregulation
Taxi density	Direct strong effect: clear increase in density in country/capital
Capacity development	Effect after several years: balanced adaptation to demand
Turnover of taxi sector	Effect after several years: higher turnover per taxi
Fares of taxi service	Effect after several years: trend equal to transport prices
Innovation/diversity	Direct effect: new services; effect after several years: new technology
Intensity	No information available
Satisfaction	Effect after several years: clear improvement

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REGULATION OF THE TAXI INDUSTRY: SOME ECONOMIC BACKGROUND

Catherine LISTON-HEYES
School of Management, Royal Holloway College
University of London

and

Anthony HEYES
Department of Economics, Royal Holloway College
University of London
United Kingdom

(DE-)REGULATION OF THE TAXI INDUSTRY – ISBN 978-92-821-0112-4

SUMMARY

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1. INTRODUCTION AND SCOPE

Taxis are a ubiquitous and valued feature of modern life in almost all countries, particularly in cities. Growth of taxi-ridership in recent years has been rapid in many locations. It is an area of economic activity that has long been subject to substantial public policy intervention. In common with deregulatory trends through many other sectors over the past two decades, however, a deregulatory momentum has built-up. Significant deregulatory steps have been implemented in many jurisdictions including Japan, New Zealand, and selected cities in the United States. Elsewhere, deregulation is being debated or proposed[12].

The objective of this short paper is to provide some economic underpinning to current policy debate regarding the regulation - or more appropriately de-regulation - of the taxi industry.

We will identify the fundamental premises upon which arguments for regulatory intervention are built; assess the factors that determine the validity and strength of those arguments; summarise some of the most important empirical and theoretical research findings in the area; and provide some tentative assessments and recommendations.

Space and time limitations prevent us from developing a formal mathematical model of the taxi industry. We do, however, offer citations to some of the most important, and in the text provide some evaluation and insight into the most important distinctions between them. In addition, whilst occasionally citing empirical analyses in order to motivate particular theoretical assumptions, a survey of the body of empirical literature in the field is beyond our scope.

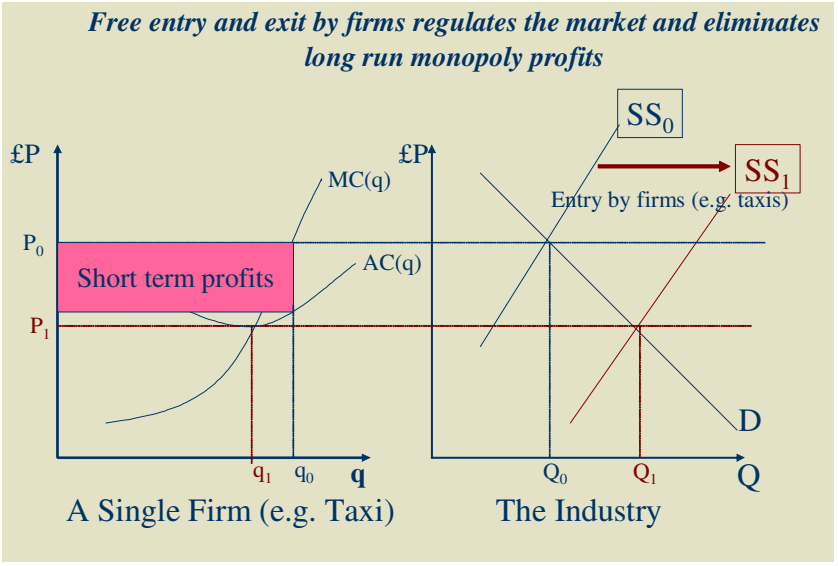
In terms of scope, the focus here is exclusively on "economic" regulation. This is not a particularly clear term, but here we take it to mean public policy intervention, the *aim* of which is to influence the economic condition of the industry: prices, level of production, market structure, levels of profitability, etc. We avoid important issues in social regulation – public policy aimed at questions such as environmental impact of the activity, health and safety issues as they pertain to drivers, etc. What should, however, be recognised in passing, and held in mind during policy debate, is the profound interdependence between multiple policy objectives[3].

2. MARKET FAILURE, FOUNDATIONS FOR REGULATION AND RATIONALES FOR ECONOMIC REGULATION IN THE TAXI INDUSTRY

The fundamental presumption of capitalist economies is that, broadly-speaking, "markets work". For most goods, in most contexts, the interaction of supply and demand can be expected to generate - at least approximately - the incentives required to ensure efficiency. The range and quantities of goods offered will be those that consumers want, they will be produced in the least-cost manner, and will end up in the hands of those with the highest willingness to pay for them.

If a good that consumers want is not currently available, or is in short supply, then its price will rise. That rise in price will send a signal to the supply-side of the economy to expand production, providing profitable opportunities for profit-motivated producers to move into that area of activity. The converse applies to goods that are oversupplied - soft demand will mean that prices will fall and some producers will choose to exit the activity, see Figure 1. In a perfectly competitive market, competition amongst suppliers will also provide incentives for least-cost production. A market entrant able to produce a good more cheaply than an existing firm can usurp that incumbent. His cost advantage allows him to undercut current prices and attract customers away from the latter. In terms of final assignment, it is straightforward to understand why, in a market-based system, the individuals who will ultimately secure a good that is in scarce supply will be those willing to pay or bid the highest in exchange.

Figure 1. **A perfectly competitive market**



So, through these simple price-based processes, "The Market" provides answers to the three fundamental questions that any system of resource allocation must address: "What?", "How?" and "For whom?" At least in the frictionless, seamless world of perfectly competitive economies, it answers those questions spontaneously. Adam Smith's "invisible hand" works without the need for governmental intervention. And, as judged against conventional, utilitarian welfare criteria, it answers those questions in a way that can be expected to maximise social welfare.

There are, of course, other resource allocation systems that could be employed: Soviet-style central planning, for example. Such systems can provide answers to the questions, but most modern economic analysis, as well as historical experience, provides a compelling body of evidence that the social welfare delivered by such regimes falls short of the benchmark. Bureaucrats making resource allocation and spending decisions on behalf of others, face informational, motivational and other constraints that are likely to make executing their task "efficiently" next to impossible. As Milton Friedman, the University of Chicago's celebrated neoclassical economist, is reported to have said: "*The best spending decisions are those made by people spending their own money*."

So the unregulated, free market approach to the provision of goods and services has a strong intellectual claim for our attention.

The free market ideal of textbook economics (as depicted in Figure 1) is not, however, descriptive – even approximately – of many real-world markets. The efficiency predictions of "first best" economics are predicated on a number of assumptions. Market entry and exit should be free, there should be no economies of scale in production, consumers should be fully informed about the characteristics of goods available and about prices, there should be no externalities associated with consumption or production, and there should be no monopoly power (power to charge above marginal cost).

Very often, of course, one or several of these idealised market conditions does not prevail. In that case, there is scope for markets to fail. It is market failure that provides the rationale for policy intervention. From this perspective, the role of regulation can be seen as the correction of market failure.

Market failure does not in itself, of course, provide a sufficient justification for regulation. Though the market may not deliver the ideal, it is incumbent upon the proponent of policy intervention to lay out clear criteria for reform. Economists will typically adopt a utilitarian social welfare criterion – a proposed intervention will have to pass the test that it enhances welfare. Many argue that this hurdle is difficult to pass, given the complex and rarely measurable consequences of market failure in the taxi industry.

Taxi markets have peculiar characteristics, in that demand and supply functions (as opposed to just levels) are inherently interdependent – a rightward shift in the supply function decreases the average waiting time faced by a prospective customer, and so induces a rightward shift in the demand function. (In appendix, we present a simple, stylised model of the taxi market that highlights this feature of the industry.) This, it has been argued, makes designing *good* policy particularly difficult. The focus of Beesley and Glaister's (1983) analysis of the taxi sector, with an application to London, is on the difficulty that regulators face in eliciting the information that they need to regulate. They begin their study by citing Harold Demsetz: "*We show that intervention could, in principle, improve welfare. However, effective intervention depends on generating and using suitable information. In markets in which demand cannot be kept analytically separate from supply, this is not easy. This difficulty characterises the markets with which we are concerned, and we suggest methods of inferring parameters relevant to certain acts of intervention.*"

This, following Demsetz (1968), should involve a "*comparison of outcomes with intervention, with those expected without it, in which one argument must be the prospect of suitable regulatory information* (Beesley and Glaister (1983: 594)."

There is a substantial body of theoretical and empirical research that points to the possibility that regulation can diminish welfare, even when markets fail (see, for some discussion, Armstrong, Cowan and Vickers (1994), pages 106 onwards).

In the rest of this chapter, we identify the sources of market failure in the market for taxi rides. In Chapter 3, we go on to consider possible instruments for intervention, and their impacts.

2.1. Market failure in the market for taxi services

So what are the principle sources of market failure that might arise in the market for taxi rides?

Most theoretical analysis is focussed implicitly or explicitly on the cruising market. In many areas the market for telephone-booked, dispatched taxis is very substantial, and somewhat different considerations come to bear. Specific issues might arise in other specialised markets, such as in airport to city-centre services and taxi ranks, and we will return to mention these later.

2.1.1 Inadequacy of price competition

Price competition is a cornerstone of market efficiency. Taking fleet size as given, absent regulation, price competition should drive prices down to the point where it equals marginal cost.

There are features of the market for taxi services that may lead to price competition being reduced in intensity.

Principal amongst these are the issues surrounding costly search. In a well-functioning, competitive market, consumers know the prices on offer from all available suppliers, and can move at zero or small cost between suppliers. In a deregulated taxi market, serviced by a large number of small operators, such would clearly not prevail. Diamond (1971) established that monopoly pricing can prevail in a market in which customers face search costs, even when there are a large number of prospective suppliers. A supplier who undercuts the others would not attract extra sales because it is costly for customers to search for such lower prices. In the context of cruising taxis, the search costs would include both the time cost associated with waiting for a second offer, as well as the psychic cost of declining a high-price driver.

Additional issues arise in that, in searching (waiting) for a second offer, the consumer cannot keep the first in hand, and so has to make a judgement about the distribution of price offers that will be forthcoming and take the gamble of turning down a sure offer in exchange for an uncertain prospect.

Whilst a market populated by a large number of consumers and a large number of suppliers may look competitive *ex ante*, once a *particular* taxi stops in response to a summons from a consumer, the "firm" becomes more like a local monopolist, and is able to charge a price well above what would be the perfectly competitive level.

Notice that these arguments apply less when applied to customers hiring at a taxi rank or booking by telephone. At a taxi rank in a deregulated setting, it would – in principle at least – be comparatively uncostly for the buyer to sample several suppliers. If a supplier is confronted with few customers but a

large number of rival taxi drivers, (s)he will be reluctant to forgo a certain fare, albeit one that has been bargained down substantially, for the uncertain prospect of finding a new customer who may or may not be willing to pay the desirable fare. Recall that a basic prediction of Bertrand price competition is that in a market for a homogeneous good or service (such as a point-to-point taxi ride), two suppliers are enough to ensure competitive pricing[4]. In a setting where fares have been regulated, there may be a strong social convention that riders take the first car in the rank, and it could take time for this to be overcome – and replaced by a convention or acceptance of "shopping around" – post deregulation[5]. A market cannot be expected to function well if consumers are shy to make price comparisons when such comparisons are relatively cheap to make.

A problem also arises out of the incentive for individual drivers in a market absent from price regulation to exploit customers who are not well informed (e.g. tourists arriving at an airport), those clearly disadvantaged (e.g. by heavy luggage), or requiring transport out of a less safe part of town, or in the early hours of the night[6].

This is a very atomistic view of a deregulated market, however, one in which repeat custom is not expected to be important. This might be appropriate if the market structure contemplated was a large number of small operators: self-employed individuals driving single vehicles, for example. It is reasonable to think, however, that a deregulated market will be serviced by a number of companies, each with a significant fleet, and that companies will seek to develop a reputation for low prices. Indeed the competitive advantage accrued from a company able to build such a reputation could be the rationale for large-fleet operators to come to predominate. Thus, at a rank, a customer might seek out a car sporting the colours or livery of a particular company; on the telephone, would call that company's number; or on the kerbside with a reasonable density of cars on offer, would wait for a car from the preferred supplier[7]. Note that competition on the basis of this formula is likely to prove less straightforward and there may be scope for monopolistic behaviour in practices and pricing. Predicting the likely outcome of these market structures in terms of public welfare is very difficult.

Frankena and Pautler (1984) describe how multiple, distinctively marked fleets can reduce problems associated with private search costs in the cruising market, and provide some formal analysis. Coffman (1977) makes a similar argument.

Williams (1980) argues that price competition is feasible because of the existence of taxi ranks and telephone booking systems. These allow consumers to search on the basis of price, at comparatively low cost. He also argues that competition between taxis and other forms of mass public transport will compete taxi fares down in a deregulated environment.

The incentive for companies to invest in reputation in this way will, naturally, vary according to the characteristics of the market, and in particular the population of consumers. Where the ridership comprises a high proportion of infrequent or uninformed taxi users, such as tourists, it is more difficult for companies to reap the gains associated with having a "good" reputation, thereby reducing the incentives to offer low prices and a quality service.

Hackner and Nyberg (1995) study pricing and capacity choice in markets for phone-ordered taxicabs. Taxi operators first choose capacities, then compete on price. They show that as firm demand increases, so does average customer waiting time. This dampens competition and makes prices too high from a social point of view. Efficiency improves if firms choose large fleet sizes. Such an analysis calls into question attempts to limit fleet size in a setting where a high fraction of the market is telephone-based.

2.1.2 Waiting times and excess capacity as a public good

To what extent will an unregulated market ensure an efficient fleet size, and the efficient supply of taxis at different times of day and different locations?

The taxi market is an intriguing one in that service quality depends upon the supply/demand relationship. This point is discussed more formally in, for example, Cairns and Liston (1996), Anderson and Bonsor (1974), and Devany (1975).

Empty taxis are, in a sense, a "public good" - they reduce the expected waiting time of an individual at a kerbside or rank who wants to procure a ride, and increase demand for all taxi suppliers. Public goods are typically undersupplied in free markets, and this effect might lead to a presumption that there is a natural tendency to *undersupply* capacity in a competitive taxi market.

In a first-best setting, that is to say in the context of an otherwise undistorted market environment, the well-known American transport economist Richard Arnott has argued that this under-provision could provide a case for subsidising taxi use to encourage "economies of density" (Arnott, 1996). More realistically, however, this pressure towards under-supply will serve to mitigate concern for excess supply, to be outlined below.

The well-known analysis by De Vany (1975) highlights these issues. As he notes in his abstract: "*Both the Averch-Johnson (A-J)*[8] *Model and the Chamberlin Model fail to consider the value of excess capacity to consumers. Service industries, whether they are regulated or not, will usually have excess capacity in the Chamberlinian sense, because this capacity conserves time for consumers* (De Vany, 1975: 83).". He sets out to examine a model of the taxi market in which allowance is made for the positive impact of capacity on quality of service (via waiting time), and argues that "*(M)any of the characteristics of taxi markets that would appear to confirm the monopolistic-competition thesis arise because of the nature of regulation of these markets* (De Vany, 1975: 83)." (The simplified model of the taxi market in appendix also highlights this characteristic.)

2.1.3 Economies of scale and excess entry

The stock argument for limiting entry to the taxi industry is the so-called "excess entry" result (originally due to Chamberlin's 1933 model of imperfect competition).

Economies of scale – unit costs decreasing in the level of production – are generated where there are fixed costs associated with being in a market. Taken literally, any number of firms greater than one in the market, that is any market structure that isn't a monopoly, implies a market failure, due to the duplication of fixed costs.

Duplication of fixed costs drives up industry-wide average costs and, depending upon the market elasticity of demand with respect to waiting time, can lower occupancy rates. This provides a rationale for limitation of entry into the industry.

How serious are the problems associated with excess entry likely to be? This depends largely upon the believed extent of fixed costs in the industry. We should also note, from 2.1.4, that excess capacity means something different here than it does in many other markets. Excess capacity here is valuable because it reduces customer waiting time, and so does not present the same type of welfare costs as in other markets. Hackner and Nyberg (1995) show that, to the individual taxi driver, fixed costs are low and sunk costs are even lower[9].

Fingleton, Evans and Hogan (1997) accept the evidence of low fixed costs in the context of their study of the Dublin market, and use it in defence of their recommendation that entry into that market should not be subject to control.

2.1.4 Quality and regulation

There are certain aspects of "quality" of the service offered by a taxi company, other than expected waiting time. These include the safety and cleanliness of vehicles, road competence and the geographical knowledge of drivers.

With regard to many of these, there are clear asymmetries of information – the prospective purchaser is unable to observe, or verify in a straightforward way, the characteristics of the service he or she is buying, even *ex post*. In "credence good" contexts of this sort, it is typically efficient that the unobservable dimensions of quality be subject to direct regulation.

Tirole (1991), Shy (1999) and other industrial organisation texts, provide a more detailed analysis of the case for the direct regulation of credence goods.

2.1.5 Industry-specific practices: route swamping, schedule jockeying, etc.

We have argued that the dangers of excess capacity associated with the deregulation of entry are somewhat mitigated by the positive impact of excess capacity on waiting times. In fact, some authors argue that there is insufficient capacity and that entry should be subsidized to improve the quality of the service. There are nonetheless issues regarding how excess capacity is to be managed, if and when it exists. Excess capacity will intensify competition between taxi drivers and may lead to problems of overcrowding at particular taxi ranks. More generally, there may be incentives for each individual driver to patrol high-density areas without servicing the less popular streets of a city and/or servicing the off-peak hours of a day. In other words, by increasing the intensity of the competition between drivers, excess capacity may lead to cream-skimming of routes and/or times of day. No-shows and trip refusals will naturally increase when competition intensifies. Cream-skimming makes sense at the individual level but can be highly detrimental to the industry as a whole. Universal service provision is unenforceable in a deregulated context, so incentives will need to be artificially created if this is a policy goal[10].

3. REGULATORY INSTRUMENTS

A number of formal mathematical theoretical models, exploring the impact of alternative regulatory interventions and the optimal regulatory "mix", are available. These include Tullock (1975), Coffman (1977) and Williams (1980), who argue in favour of deregulation. Deregulation of entry, while retaining regulated fares, is implicit in the work of Douglas (1972), Beesley (1973, 1979), DeVany (1975), Abe and Brush (1976), Manski and Wright (1976) and Fingleton *et al.* (1997). For examples of modes in favour of joint fare and entry regulation, see Shrieber (1975, 1977, 1981), Schroeter (1983), Gallick and Sisk (1987), Teal and Berglund (1987) and Cairns and Liston (1996).

3.1. Price control

The traditional response to the problem (real or perceived) of inadequate price competition (see 2.1.1 above) has been price regulation by metering. The regulated price is based on some formula relating to distance and time of journey, plus some fixed cost. The meter allows the customer to verify the distance travelled, which is usually the largest component of the fare. A minimum fare is normally used to reduce the number of refusals on short journeys. There may also be particular dispensations for times of day or particular geographies (e.g. a premium charged for leaving city limits), public holidays and additional passengers. Rates are normally posted somewhere visible inside the taxi and can be viewed before the journey is taken.

If regulated by a public authority, the fares will be set in accordance with market conditions, an acceptable rate of return on the time and capital invested by the driver, and the expected number of trips in a typical day's work. It will also reflect wider social aims, such as congestion targets, tourism imperatives, universal service ambitions, etc. If the meter rates are set by a private fleet organisation, fares will presumably reflect profit-maximising imperatives, taking into account the price sensitivities of customers and other rival fleets, as well as competing modes of transport.

3.2. Regulation of entry

There is a long and wide history of the limitation of entry into the taxi market. Typically, this is by the distribution, sometimes by auction, of licences or medallions to operate. The rationale for entry control is the excess entry result, as identified in 2.1.3. How serious that problem is will depend in a large part upon how substantial fixed costs are judged to be in this setting. Evidence, as we have argued, is that those costs are unlikely to be substantial.

Waiting time, and the interdependence of service quality and demand are, as was noted, distinctive characteristics of the taxi market. Some authors support the deregulation of entry to encourage excess capacity.

For example, the seminal model of Manski and Wright (1977) takes an explicitly probabilistic view of the matching process. They make restrictive assumptions, however. They model a taxi fleet

serving a single stand, assume a Poisson process of customer arrivals, negative exponential service time and a first-come, first-served queue discipline. Assuming (plausibly) that demand is a declining function of expected waiting time, they establish that increasing fleet size can – over a certain range – simultaneously benefit taxi drivers and customers. This occurs due to economies of density. Simultaneous increases in the arrival rate of customers and the number of servers both reduces expected waiting time for customers and increases expected occupancy rates for drivers. Though the Manski/Wright model – as with many other models in this field – is predicated on a particular set of restrictive assumptions, it does highlight an important principle.

Fingleton, Evans and Hogan (1997), in a careful analysis of the Dublin market, provided evidence of excess demand, and estimated that the market there could support at least twice the number of taxis licensed at that time[11]. They used that evidence to support a case for deregulating entry.

Toner (1992) makes a separate argument in favour of entry restriction, as it makes maintenance of quality easier to control. We discuss this proposal further in section 3.4. below.

Flath (2002) – in a paper motivated by the study of deregulatory discussions in Japan – proposed a model of cruising taxis under *laissez-faire* pricing and free entry, comparing it with alternative regimes. In his model, price-setting in the fare-deregulated world is determined by bargaining under complete information, which naturally results in fare levels above marginal cost. Under *laissez-faire* pricing and free entry, it is established that the vacancy rate of cabs (supply of cabs) could be either *higher* or *lower* than optimal, depending upon the relative bargaining power of drivers and prospective riders[12]. This sort of analysis points to the danger of trying to draw any generic conclusions about the direction of the distortions due to free entry.

3.3. Subsidy

Arnott (1996) makes the case that taxi travel should be subsidised. The result derives from economies of density. Doubling both trips and taxis reduces waiting time. In a first-best environment the subsidy should be calibrated to cover the shadow costs of the taxi's idle time, evaluated at the optimum. Arnott's analysis provides a proof of the proposition for dispatch taxis.

The intuition for the result is that the subsidy serves to correct for the under-supply of vacant capacity, identified in 2.1.2, by compensating operators for the provision of capacity.

Other cases for subsidising taxi travel would be based on "second-best" arguments, for instance, availability of taxis at short waiting times, discouraging private car commuting into urban centres, and therefore peak time congestion on arterial routes. These sorts of "general equilibrium" arguments will be highly sensitive to assumptions regarding cross-elasticities of demand, and we do not dwell on them here.

3.4. Regulation of quality

Waiting time, and the interdependence of service quality and demand are, as was noted, distinctive characteristics of the taxi market. In a decentralised taxi market overseen by a civic government, monitoring of quality of service, including the safety and comfort of passengers, proper maintenance of the vehicle, taking the most direct route, and holding to the regulated fare when the passenger is captive, can be potentially difficult. This will be true even if all taxis are organised

through co-operatives exerting loose control over their members. This can be a particularly difficult issue in large cities, where many rides are taken by one-off customers. Medallions in that case can and are used as a *de facto* bond, similar to the efficiency wages found in other labour markets. Suspension of the licence or medallion for several days constitutes a threat of a substantial economic penalty, and can act as a deterrent to shirking and as a potentially effective way of maintaining quality of service. Kitch *et al.* (1971) and Frankena and Pautler (1984) dismiss this rationale for medallions and restricted entry, on the basis that cities do not appear to use revocations or suspensions as enforcement devices.

4. GENERIC PROBLEMS WITH REGULATION

Regulatory capture occurs when the regulator prioritises the interests of a regulated industry instead of the interests of its consumers. In general, taxi regulators are prone to "capture" by the industry and can end up – consciously or unconsciously – acting in the interest of the operators, and not the existing and/or potential customers of the industry, for the following reasons:

1) Taxi consumers are mainly low-income (with no cars) and business people on paid company accounts. Both these groups are unlikely to lobby for lower fares to municipal authorities. This facilitates the job of a "captured" regulator, who may be under pressure to set fares at higher levels.

2) Regulating the taxi industry is time-consuming and difficult relative to the amount of economic activity it generates. As discussed above, the interrelatedness of the demand and supply, and the effect that spare capacity has on waiting times are difficult variables to quantify, as are search costs. There is also much additional data required in the design of a solid regulatory regime, which is not discussed in this report, including the variability of trip lengths, changes in demand throughout the day and the week, competition from other modes of transport and other factors affecting these (e.g. parking fees), etc. These factors will and should affect the selection of entry quotas and/or fares if these are to be set at efficient levels. Moreover, they will need to be updated regularly to take into account changes in the labour market and other developments. In other words, regulators may in practice be unable or unwilling to devote the resources required to design an appropriate regulatory regime. Implementation issues that emerge as regulators try to convince a large number of small operators to comply with the regime, can compound these difficulties.

3) Taxi markets can be politically very active and will lobby for regulations reducing entry and increasing fares, as well as more favourable treatment in the public transport hierarchy. Faced with poorly organised and dispersed customers, taxi lobbies are virtually unopposed. Regulators will also rely on the trade itself to obtain information about various economic parameters. Unopposed and without a clear picture of what is going on, regulators will, in good faith perhaps, side with the operators and comply with their demands.

The potential for regulatory capture means that regulation may not necessarily constitute an improvement on a free market, even if we accept that the industry is subject to important market failures. Poor regulation can be more harmful to the public good than no regulation at all.

The political economy literature cites a number of characteristics that a regulatory process must share in order to avoid capture and deliver the intended welfare gains. This includes ensuring that each of the parties' vested interests are recognised, so as to understand the incentives of those involved in the process, formulating a clear mandate to the regulators concerned, and making sure that the process is completely transparent and explained to the wider public.

The conventional wisdom is that rent-seeking activities, such as those related to lobbying by taxi operators for higher fares and restricted entry, are wasteful and should if possible be eliminated, unless they genuinely inform regulators about the true state of the industry. By ensuring that the regulatory process is transparent and "capture-proof", the expected gains from lobbying are reduced, which in turn discourages industry operators from partaking in such activities.

5. SUMMARY AND ASSESSMENT

Our evaluation of the economics research literature on the regulation of the taxi industry points towards the following conclusions:

- In developing policy, there must be clarity and transparency on the policy objectives and on how conflicting policy priorities should be traded off.

- There are only weak arguments in favour of regulating entry into the market. Comparatively low fixed costs to operation suggest that the risk of excessive entry is minimal. In many settings, there is evidence of inadequate supply, such that additional entry should be encouraged, not "taxed".

- The case for fare regulation is ambiguous. The balance of the case will depend upon the characteristics of the local market – in particular, the division of activity between the cruising, rank and telephone-dispatch sectors – and upon a judgment about the extent to which taxi operators would be able to differentiate themselves and compete, on the basis of reputation, for pricing practices.

- Segments of the market with particularly distinctive characteristics are likely to require separate regulatory approaches. Foremost amongst these are the routes between airports and urban centres.

- Various aspects of the characteristics of individual drivers and their vehicles (e.g. with regard to safety) should be subject to central regulation. Medallions and licences can potentially be used as a bonding mechanism to enforce quality standards. For this system to work, the authorities must be willing to suspend or confiscate permits when breach of contract occurs.

ANNEX: A FORMAL MODEL OF THE TAXI INDUSTRY

A number of scholars provided formal mathematical models of the taxi industry. These include Orr (1969), Beesley (1973), De Vany (1975), Frankena and Pautler (1986) and Beesley and Glaister (1983). A key distinction amongst models is the assumption made regarding how prices would come to be set in a fare-deregulated environment.

Fully developing such a model is beyond the scope of the current paper. In thinking about market intervention, it is important to have a feel for the features that "drive" such models. We present a representative one here, based most closely on Cairns and Liston (1996).

In any given hour, the number of trips demanded can be represented by the function:

(1) $Q=f(p,w)$

where "p" is the taxi fare and "w" is the waiting time for a ride. For simplicity, we assume that trips are of constant duration and distance. Based on our earlier discussion, $\partial Q/\partial p < 0$ (as price goes up, quantity demanded decreases) and $\partial Q/\partial w < 0$ (as waiting time increases quantity demanded decreases). Formal models of the taxi market share this characteristic in one way or another.

Suppose that there are "N" taxis in the industry, each working "h" hours per day ($0<h<24$). Demand is assumed to be distributed evenly during the day – allowing for periods of peak and low demand enriches the model but adds much complexity to the analysis. This means that in any given hour there are on average $Nh/24$ taxis in service, implying that each taxi can expect to provide $q=Q24/Nh$ customer trips per hour.

If a trip is of average duration "t", then there are $Nh/24 - tQ$ taxis available – in "service" but not occupied – at any given time. The extent of this spare capacity will determine how much time a typical customer has to wait for an available taxi. In other words, spare capacity determines an important quality dimension of the industry: waiting time "w". Many authors implicitly or explicitly assume that $\partial w/\partial N<0$, i.e. that other things being equal, waiting time decreases as the number of taxis increases. More concretely, "w" will be a function of the number of available taxis in circulation, and hence $w=w(Nh - 24tQ)$, implying that demand is a function of itself, $Q=f(p, w(Nh-24tQ))$.

It is this feature of the taxi market that makes its analysis so difficult, as it implies that more than one equilibrium solution in the values of Q, N and h can arise. In such economic cases policy intervention is often warranted, on the grounds that some of these equilibriums will be "better" than others – in terms of public welfare – and policymakers should regulate such that it materialises.

If we assume, for the usual textbook reasons, that the average cost per taxi ride is U-shaped - i.e. it initially decreases as the number of rides increases due to fixed costs, reaches a minimum at "m", when it is used at its optimum capacity, then rises again as h approaches 24, then hourly profit in the industry can be written as:

(2) $\pi = p[Q/(Nh)]h - c(h)/24 = pQ/N - c(h)/24$

Using this simplified model of a typical taxi market (cruising), we can try to infer how many taxis will enter the industry (N), how many hours a day they will be in service (h) and what fare they will charge.

A useful starting point is to examine what happens when a monopolist controls the market. A monopolist will choose N, h and p, so as to maximise the profits per unit of time of its entire fleet:

(3) $\pi = pf(p,w(Nh-24tQ)) - Nc(h)/24$

Deriving (3) with respect to N, h and p, and rearranging terms, yields:

(4) $(p-mt)/p = -Q/(p\partial Q/\partial p)$

The result that emerges is, in effect, the standard monopoly price "mark-up" formula, adapted for the taxi market[13]. The term "mt" is the marginal cost of increasing capacity to provide a trip of duration t, by either increasing intensity of use (h) or by extending the size of the fleet (N), whichever is cheaper at the margin. The result in (4) shows that the monopolist will maximise profits by choosing N, p and h, in such a way that fares are above the marginal cost of providing a taxi ride, and that the extent of the mark-up will depend upon the sensitivity of consumers to changes in fare prices (i.e. the price elasticity of demand). Note that this mark-up takes into account the "economics of density" factor inherent in the taxi market – i.e. when prices increase, some customers opt out of the industry, but new ones enter or increase their consumption, attracted by the improvement in quality that follows the increase in spare capacity.

Interestingly, modelling this industry as competitive implies assuming that there are large numbers of firms facing large numbers of customers each time a transaction takes place. This is not an adequate nor relevant description of the taxi market. In the cruising-taxi market, the norm is for a single customer to hail a single taxi as it goes by. Search costs are expensive to customers and many prefer a higher fixed fare than one established through bargaining with experienced operators. If however, there are few customers and a large number of taxis (e.g. at a taxi stand), then customers have an advantage since they can drive prices down by announcing that they will hire the driver that offers the lowest fare. With few outside options, taxi drivers will undercut each other and drive the price down. Taxi drivers will in such cases prefer a fixed fare rather than facing a disadvantageous bargain[14].

During low-demand periods, customers and taxis will meet fairly rarely and once they begin to negotiate a fare, there is a high cost to each to search for an alternative partner with whom to negotiate. In periods of higher demand, there may be an opportunity to bargain with more than one counterpart (taxi or customer) if one incurs the cost of searching. The existence of alternatives will obviously affect the bargain concluded. Using simple game theoretical tools, we can easily demonstrate that the important search costs implicit in the matching of a given taxi and a given

customer will prevent the long-term survival of the taxi market in its competitive, atomistic form (see Cairns and Liston, 1996 – Appendix).

If drivers, as occurs in many cities, organise themselves into firms or co-operatives, the industry is no longer competitive. The closest relevant model in such cases is not perfect competition but oligopolistic interactions. An oligopoly is a market structure in which participating firms have market powers, the extent of which depends on the number of players in the industry and other economic conditions. Discussing the outcome of such models is outside the scope of this paper, but it is worth noting that oligopolists will have reputation-linked and other incentives to set fixed fares, and service less popular areas and times of day, although the terms on which they do so may not necessarily be advantageous to consumers and potential entrants to the industry.

The conclusion of this simplified analysis suggests that, left to its own devices, the taxi market, at least in cities with a large cruising segment, is unlikely to evolve towards the competitive outcome associated with a deregulated environment. Search costs will prevent the long-run survival of a genuinely free taxi market. Its survival will depend on its organisation into less competitive market structures that may be associated with substantial market powers and, on this basis alone, may require some regulatory oversight. An additional rationale for regulation arises as a result of the need for the industry to maintain a sufficient amount of excess capacity to guarantee reasonable waiting times for their customers. As explained above, the inter-relatedness of the taxi demand and supply means that there are several combinations of N, h and p that could work in terms of allowing the industry to survive; but a social planner may need to manage conditions in order for the best outcome to emerge.

Once other non-economic imperatives are added to the equation, there appears to be a strong case for regulating the sector. The extent of this, and whether it should be all-encompassing, including fares, entries and other service dimensions, will depend on the efficacy of the regulators and their ability to understand and adapt to an intrinsically complicated economic market.

NOTES

1. For some description and analysis of deregulatory action and debate in a number of countries, see, for example, Schaller and Gorman (1996), Pickering (1992), Fingleton, Evans and Hogan (1997), Kang (1997).

2. Samuelson and Marks (1999: 375) use the New York City's Tax Commission as a case study, in the chapter on Monopolistic Competition in their popular undergraduate microeconomic textbook. The exercise leads students to conclude that consumers in this industry would be better served if entry were to be deregulated, but intensive lobbying by fleet owners and industry representatives successfully prevents this happening. The case is used as a basis for class discussion.

3. To take an obvious example, imposing congestion or emissions taxes on taxi operators could reasonably be expected to impact any or all of the four "economic" characteristics of the industry just identified.

4. For a textbook treatment of Bertrand competition, see Tirole (1991), Shy (1999) or any other good industrial organisation text.

5. See Shreiber (1977) for a discussion of this point.

6. In the UK, a series of advertisements recently appeared during popular evening programmes, informing the public about the dangers (particularly for females) of hiring unregulated mini-cabs (Roberts, 2004). Recent public policies, designed to improve management of the nightlife in London streets, give a prominent role to taxis, but explicitly acknowledge that strict regulations will need to be in place to make the service safe and reliable – this presumably includes a number of fare guidelines/regulations (LDA, 2002).

7. Again, the problem arises that, in restraining from flagging a company from a non-preferred supplier, the customer at the kerbside faces an uncertain waiting time before a car from the preferred supplier arrives.

8. The Averch-Johnson Effect (Averch and Johnson, 1962) refers to the idea that regulation designed to secure some rate of return on the capital of a firm, will induce it to hold excess capacity.

9. Sunk costs are fixed costs that are irrevocably committed to the market, and cannot be recovered on exit. It is these that determine how susceptible a market is to welfare-enhancing "hit and run" competition (perhaps an unfortunate terminology in the context of transitory taxi drivers!!). The two major fixed costs associated with entering most taxi markets are: (a) a vehicle; and (b) a medallion or licence. Both of these are, typically, tradeable and therefore not sunk.

10. Some have also argued that more taxis will increase traffic congestion. But as Fingleton *et al.* (1997) suggests, this is perhaps more to do with the fundamental and general problem of pricing of public infrastructure (i.e. road pricing). Traffic congestion is principally due to the proliferation of private cars and insufficient provision of public transport. Insofar as taxis provide a useful public service, it could be argued that they should be privileged and given access to bus lanes.

11. In a survey conducted in 1996, only 23% of calls succeeded in securing a taxi, and the average waiting time for a taxi was 48 minutes. See Fingleton, Evans and Hogan (1997: 3).

12. And therefore a plethora of market-specific characteristics.

13. If the monopolist sets p, N and h so that the equality in (4) materialises, he/she will be maximising fleet profits. Increasing the fare "p" beyond this point would reduce the quantity demanded by a greater extent than what would be added to revenues through higher fares, and *vice versa* if he/she tried to lower p.

14. Zerbe (1983) and Frankena and Pautler (1984) report that violence and bickering broke out in some US cities when fares were deregulated. Teal and Berglund (1987) observed that most of the new suppliers in deregulated markets went into the taxi-stand market, where customers' waiting time was already effectively nil. For telephone-dispatched taxis, the rate of "no-shows" or refusals to serve a customer increased in almost all cities they studied.

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OTHER CONTRIBUTIONS

During the Round Table, several participants submitted further written contributions, which are reproduced herewith.

FRANCE

Richard DARBÉRA
LATTS – ENPC
Marne la Vallée

WHEN THE REGULATOR ACKNOWLEDGES THE EXISTENCE OF TWO DISTINCT MARKETS FOR TAXI SERVICES

SUMMARY

1. TWO MARKETS

In the 1960s, economists who looked into problem areas of taxi regulation soon discovered that there were actually two quite distinct markets for transport by taxi and private hire vehicle[1]. The first, the street hail market, showed several symptoms of market failure and required certain forms of regulation. In contrast, the only regulation required by the second market, the pre-booked market, differed little from that applicable to most other commercial activities.

Before the telephone became widely available to all social classes (in the 1960s in the United States and the 1970s in Europe), the first of the two markets was the larger. The arrival of the telephone quickly reversed this situation, first in small towns and then in big cities. Today in most towns, the majority of taxis are booked by telephone.

As a matter of fact, much of the controversy that divided the economists who laid the foundations for the literature on the subject was over the relative size of the two markets in their models.

While there are many economists today who agree that there are two distinct markets (for instance, Bekken, 2005) and that two different regulatory systems are therefore called for, there are few deregulation schemes that have actually allowed for that fact. In most cases (Sweden, Ireland, Norway, Netherlands, New-Zealand, etc.) the new regulatory framework lumps together taxis plying for hire and radio-taxis, as if there were no differences between the two.

Analyses and evaluations of these schemes have shown, each time, that any unwanted effects or failures which were observed occurred in only one of the two markets (Teal and Berglund, 1987; Price Waterhouse, 1993; Gärling *et al*., 1995; Kang, 1998).

Cities which have facilitated the differentiated development of their regulatory framework, in order to allow for the specific characteristics of each of the two markets, are much less common and less studied. This paper will look at three such cases: New York, Paris and London. In all three of these cases, we will describe how the regulator responded to the changes forced on the taxi industry by the advent of the telephone. It will then go on to give a comparative analysis of the regulatory systems that have been put in place in the three cities, and will explore the impact of these regulatory policies on travel.

2. THE ADVENT OF THE TELEPHONE

Before the advent of the telephone, alongside the classic taxicab, there have always been other transport services available for hire by booking direct from the carrier. In France, for example, the distinction between taxis (in those days known as "*voitures de place*") and private hire vehicles has existed since the 16th century, and the basis of the current regulatory system was consolidated by Napoleon III in the 19th century (Toner, 1996, p. 80). The co-existence of the two forms of service rarely posed any problems, since only classic taxis were licensed to pick up passengers hailing them in the street or waiting at taxi ranks, and these formed the bulk of the market

After the advent of the telephone, it became extremely easy to hire a taxi and classic taxis were quick to realise that their market was going to shift to telephone bookings. In all three cities, they responded by equipping taxi ranks with telephones, installing radio-telephones in their vehicles and by signing up with telephone dispatch centres. More importantly, taxi drivers in all three cities made strenuous representations to the regulator to prevent growth in the supply of private hire services.

Faced with these formal demands, the regulators in New York, London and Paris all responded in very different ways. In London, the regulator resisted pressure from the taxi lobby and left operators free to compete for the telephone booking market. In New York, the regulator awarded the telephone market to private-hire vehicles. Taxis that had had radio equipment fitted had to discard it, but to compensate for that, the regulator tightened up restrictions. In contrast, in Paris, the regulator extended the taxi's monopoly over the telephone booking market, resulting in the gradual disappearance of private-hire vehicles.

3. PARIS, LONDON AND NEW YORK: THREE REGULATORY MODELS

The study of the regulatory system governing the taxi and private-hire market in the three cities, Paris, London and New York, shows three very different approaches in the provision made for the role of the telephone in hire bookings. In all three, private-hire vehicles supply services alongside taxis. While the supply of such services is negligible in the Paris region, it is plentiful in London, where private-hire vehicles, known as "minicabs", operate, and in New York, where they are known as "car services" or "black cars", which are grouped under the "livery" category.

In France, the regulatory framework for the provision of private-hire services has not changed significantly since the invention of the telephone.

In New York, "livery" services expanded in the 1960s, legally, when they obeyed restrictions prohibiting them from picking up fares in the street, and responded to telephone bookings primarily. However, from the very start, liveries were a bone of contention. While many elected officials

defended them as community businesses which provided needed transport services in outlying neighbourhoods, the taxi industry attacked them as unfair, unregulated and unsafe. By 1973, they outnumbered taxis. At this same time, taxi drivers started having their vehicles fitted with two-way radios[2]. In 1987, in a bid to settle the competition problems and clean up the profession, the New York City Taxi and Limousine Commission made the operation of liveries subject to licence and to special regulations, including a requirement to belong to a dispatch centre. It also prohibited taxis from serving radio calls. So, New York's Yellow Cabs were subject to strict licence quantity restrictions, but kept the monopoly on street hails, while liveries - for which licences were freely available - were given the monopoly on telephone fares.

In London, despite their numbers, "minicabs" were subject to no regulation, other than the regulations that applied to businesses in general until 1998. From then on, a special licence has been gradually phased in.

In the remainder of this paper, the term "taxi" will be used to designate only those vehicles which are authorised to pick up passengers hailing them in the street or waiting at taxi ranks.

3.1. Quantity restrictions on licences

In both Paris and New York, tight restrictions apply to the number of licences that allow taxis to operate on the roads. Owners can sell licences on the open market and, because of the quantity restrictions, they can be worth a great deal of money. Currently, they fetch from 100 000 to 125 000 Euros in Paris (*Le Monde*, 5 December 2003) and twice that much in New York (Schaller, 2004a).

The price difference between Paris and New York can be explained by the different procedures used for issuing licences. In Paris, they are issued free of charge by a tripartite commission, on which the taxi unions have a decisive influence. There are scores of applicants for free licences that can ultimately be sold for such high prices and the waiting list is long: 16 000 in Paris (Ministry of Home Affairs, 2001). In New York, licences are sold at auction and so there is no waiting list. The latter system has three advantages over France's free issue system:

1) It is free from any suspicion of favouritism;
2) It is not unfair to taxis which have had to buy their licence on the market; and
3) The scarcity value generates monopoly rents for the city authorities.

In London, there are no quantity restrictions on taxis.

There are no limits on the number of licences to operate private-hire vehicles in any of the three cities. However in France, applications for licences for private-hire vehicles are required to come before the same commission as taxi licence applications, and the Prefects who chair those commissions are under instructions to discourage applications.

While there are 42 000 private-hire vehicles in New York and around 50 000 in London, there are fewer than a hundred or so in all of the Ile de France region, and the number is declining year by year.

3.2. Vehicle quality

In London, vehicles to be used for the provision of taxi services are subject to very specific requirements (comfort, turning-circle, etc.) which make them instantly recognisable. In New York, taxis are ordinary cars, but since 1970 have been required to be painted yellow so as to distinguish them from private-hire vehicles (Schaller, 2004a, p. 45), and must also be less than five years old. In Paris, vehicles used as taxis are also ordinary cars and the only requirement is that they be less than seven years old and submitted for an annual roadworthiness test. Attempts to impose a uniform colour on Parisian taxis have always met with a categorical refusal from taxi drivers, both because it would lower the value of their vehicle on the second-hand market and because they use their vehicles for personal purposes in their off-duty hours.

In the three cities, there are no specific requirements for private-hire vehicles, other than an annual roadworthiness test in Paris and London and a three-yearly test in New York[3]. However in Paris, they are not permitted to display any distinguishing signs advertising their private-hire activities on the outside of their vehicle.

3.3. Driver qualification

In all three cities, taxi drivers need a special qualification, which is awarded after passing an aptitude test. In London, applicants have to pass an extremely difficult examination, called "The Knowledge", which necessitates a substantial investment from them in terms of both study and money.

In the three cities, other than a driving licence, no particular skill is required to be a private hire vehicle driver, but in London and New York applicants must have no criminal record.

3.4. Fares

Taxi fares are regulated in all three cities. The tariff can be broken down into three parts: (i) a minimum fare; (ii) a per-kilometre rate; and (iii) a time rate, which replaces the per-kilometre rate when the vehicle is stationary or once the speed drops to what is referred to as the "changeover speed". Taxi fares for a typical journey in Paris are around the same as in London, but substantially higher than fares in New York.

The fares charged by private hire vehicles are not regulated. In New York, most companies charge by zone, but when they do use a meter, it must be inspected by an approved centre at regular intervals.

3.5. Comparison

The table below summarises the main differences in the management of the supply of transport by taxi and private hire vehicle.

Table 1. **Paris, London and New York : three management models for the supply of transport by taxi and private hire vehicle**

	New York	London	Paris
Taxi Licences	Quantity restrictions	No quantity restrictions	Quantity restrictions
Market value of taxi licences	$300 000 approx. (a)	£0	€150 000 approx.
Taxi driver aptitude	Tested by examination	Tested by highly selective examination	Tested by examination
% of taxis driven by licence owner	29% (a)	Not applicable	57%
Taxi fares	Regulated	Regulated	Regulated
Licences for private hire vehicles	No quantity restrictions	No quantity restrictions	De facto quantity restriction, programmed disappearance
Private hire vehicle driver aptitude	Tested by examination, no criminal record	No criminal record	
Private hire vehicle fares	Unregulated	Unregulated	Unregulated

Source: Darbéra (2005).
Note: (a) The price of licences increased by 50 % over the past 10 years, basically because bank loans could be obtained on better terms (lower rates, longer terms). Indeed, over the same period, the rates for leased licences did not change.

4. EFFECTS OF REGULATION ON SUPPLY AND DEMAND

The impact of these policies on the supply of transport by taxi and private hire vehicle, and on resident's mobility in the three cities, has been very different in Paris, on the one hand, and London and New York on the other.

The table below summarises the main effects of regulation on the supply of taxi services. Measured in number of cars per capita, it is three times lower in Paris, where it is concentrated on the airport and business travel markets. The supply in London and New York is much more diversified as well as being greater, and is more focused on residents' demand, and particularly demand from lower-income residents.

Table 2. **Impact of regulation on supply of transport by taxi and private hire vehicle**

	New York	**London**	**Paris**
Number of taxis	12 500 (a)	24 000	15 000
% of journeys booked by telephone	Zero by definition	n.d.	32%
% of journeys from airports	2.7% (b)	n.d.	35% or 25% (a)
% of journeys refunded by employer	15%	n.d.	70%, 50% or 55% (a)
Number of private hire vehicles	40 000	40 000 to 60 000 (a)	94 (d)
Number of private hire vehicle dispatch centres	550 (c)	2 000	
Population of area concerned (millions)	8.0	7.2	5.2
Number of taxis and private hire vehicles per 1 000 residents	7.2	9.8	2.9
Number of journeys per year (millions)	270	164	39

Source: Darbéra (2005).
Notes: (a) Depending on the source; (b) Figures for 1988; (c) Figures for 1993; (d) in 2001, for the whole of the Ile de France.

The impact on mobility also varies a great deal. In the densely populated Ile de France region, trips by taxi accounted for only 0.6% of trips by mechanised transport in 1991. The share of taxis and minicabs in travel by Londoners is three times higher: 2% of trips by mechanised transport (TfL, 2000, p. 26).

The high fares in Paris make taxis a mode of transport that is largely reserved for the corporate market (from 50 to 70 per cent of trips, depending on the source, are refunded by employers). In New York, where taxi fares are cheaper than in Paris (despite the fact that purchasing power is higher there), this market accounts for only 15 per cent of trips . In New York, this segment of demand is almost entirely serviced by *"black cars"* which specialise in it. Similarly, the share of trips from airports is much higher for Parisian taxis than for New York taxis (see table above).

As the London *minicab* sector is highly competitive, fares can vary substantially. However; on average they are quite a bit lower than regulated taxi fares. As a result, unlike Parisian taxis which tend rather to be used by affluent car-owning households, transport by taxi or minicab in London is used mainly by low income or non-car owning households. This is what the tables and figures below indicate.

Table 3. **London residents' travel analysed by car ownership**
(number of trips per person from Monday to Friday)

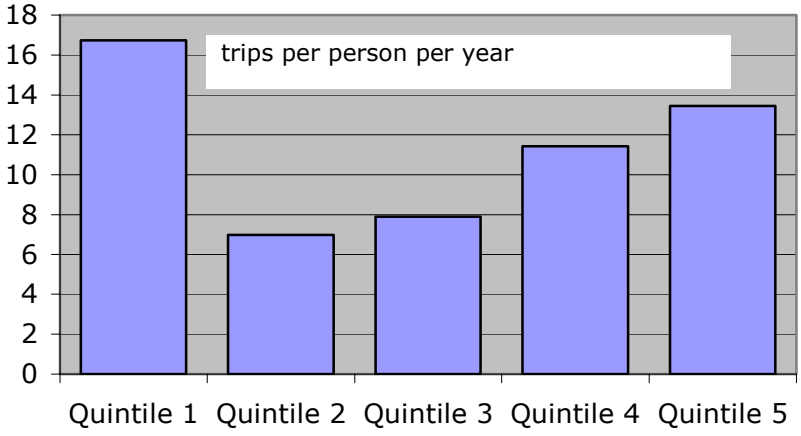
Main mode	Households without cars		Households with cars	
Bus	2.95	49%	1.07	10%
Underground	1.38	23%	0.82	8%
Train	0.61	10%	0.64	6%
Car	0.81	13%	8.15	75%
Taxi & Minicab	0.25	4%	0.15	1%
Motorcycle/bicycle	0.06	1%	0.09	1%
Total	6.06	100%	10.92	100%

Source: Darbéra (2005), according to TfL (2003, p. 26).
Note: Multimodal trips are classed by whichever mode is used over the longest distance.

The data given above are taken from the "London Area Travel Survey", a household survey conducted in 2001. They show that households in London without cars travel just over half as much as households with cars, but make nearly twice as many trips by taxi or mini-cab as car-owning households.

The National Travel Survey (NTS) gives a clearer illustration of the impact of household income on the use of transport by taxi and private hire vehicle in London. Taxis and mini-cabs are used more (+25%) by those with the lowest incomes. This is shown in the figure below.

Figure 1. **Number of taxi and minicab trips by London residents per year by household revenue quintile group: 2002-2003**

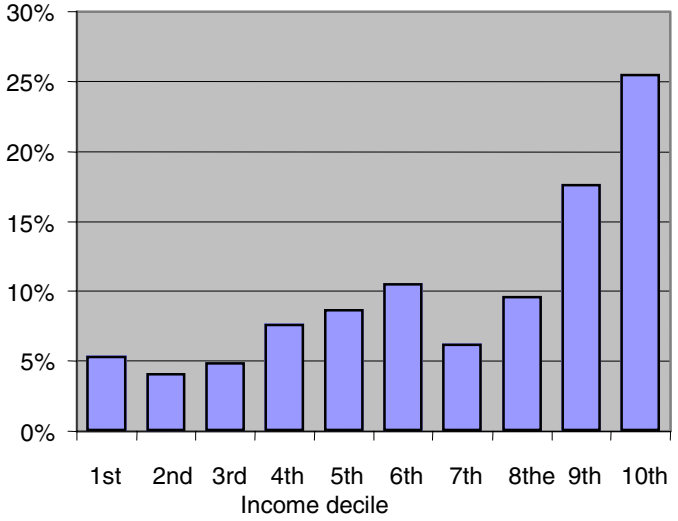


Source: National Travel Survey, DfT.

Richard Darbéra (2005) tried to see whether the Paris Region Transport Survey (*Enquête Globale de Transport,* EGT) would deliver findings comparable to those obtained from the UK surveys. Those findings are given in the figure below.

The figure shows the distribution of taxi trips for each sample by household income category. Although there are weaknesses in the data, it is reasonably safe to assume that in the Ile de France, the wealthiest households use transport by taxi more than the least wealthy.

Figure 2. **Distribution of taxi trips by household income decile group according to EGT, 2001-2002**



Source: Darbéra (2005).

For the lowest income households, not having a driving licence seems to be an important factor in using taxis. This is not the case for the highest income households. Forty-four per cent of taxi users in 50% of lowest income households do not have a driving licence. This is the case for only 17% of taxi users in the highest income households.

Lastly, more than half of the taxi users in 50% of lowest income households do not have a household car. Two-thirds of taxi users living in the highest income households have at least one car, and one-quarter in households that have more than one car.

Despite the weaknesses in the figures, they do indicate that taxis serving the Ile de France cater more for the highest income households, in contrast to taxi and private hire services in England. The figures also suggest that having no household car or no licence is more of a factor in taxi use for the lowest income households than for households with the highest income.

5. EVALUATION OF THE THREE REGULATORY MODELS

The performance of the three regulatory systems in Paris, London and New York can be assessed using several criteria. From the users' point of view, the London and New York systems, with their large private hire sectors, ensure a more diversified supply. This diversity allows users to choose whichever is the best value for money for them. This said, it should be noted that for taxis hailed in the street, fares in New York are substantially lower than fares in London.

Regarding the accessibility of disadvantaged areas, the London and New York systems are much better than the Parisian system. For safety reasons, Parisian taxis prefer not to go to certain districts, especially at night. In contrast, in London and New York, private hire vehicles are mainly based in these neighbourhoods and can therefore play a major role in ensuring the provision of transport services to them.

Likewise, from the standpoint of improving local employment prospects in disadvantaged areas, the size of the private hire sector in London and New York, and the fact that they are based in such areas, provides residents with opportunities to set up local businesses that will create low-skilled jobs.

Evaluating the performance of the regulatory systems in terms of road congestion and urban pollution criteria is not so easy. In point of fact, a greater supply and a better taxi and private hire transport market produce two conflicting effects.

Firstly, where a plentiful supply is not available, households with no car have an incentive to buy one for all uses for which the public transport supply is inadequate, such as shopping, family trips, visiting friends, etc. Since these non-car-owning households are often the poorest, they generally buy second-hand cars, which are older and cause more pollution.

Then again, a plentiful, cheap supply of taxis and private hire transport competes with public transport. If public transport loses a substantial share of its patronage, this could have a negative impact on pollution and congestion. This said, it is important to note that a negative impact is by no means a foregone conclusion. As things stand, the lack of private hire vehicles is forcing some local

authorities in the Paris suburbs to put in place highly subsidised demand-responsive minibus services, or to keep scheduled bus services running at times when demand is too low to ensure that vehicles will be reasonably full. One trip by a virtually empty bus causes more pollution than a trip by car.

The table below summarises these contrasting factors.

Table 4. **Evaluation of the three management models for the supply of taxi and private hire transport in Paris, London and New York**

	New York	**London**	**Paris**
Diversity of supply	+	++	-
Value for money for users	++	+	-
Travel in disadvantaged areas	++	++	-
Employment	+	+	-
Congestion	+	+	?
Pollution	?	?	?

For all of the above criteria, the London and New York regulatory models seem much better than the Paris model. Nevertheless, developments in technology may well undermine them sooner.

6. THE LONGER TERM

Although for different reasons, in both New York and London, the rapid development of information and communications technologies is sure to necessitate a review of the regulatory framework for transport by taxi and private hire vehicle. In Paris, on the other hand, the system is sufficiently secure for new technologies to be introduced without upsetting the existing balance. GPS tracking of taxis was first introduced there as long ago as 1996.

In Paris, the regulator favoured the emergence of just a handful of large groups alongside a large owner-operator sector. To make their fleet more profitable, when they were allowed neither to add to it nor to utilise fare differentiation, these groups followed two complementary strategies, both of which were based on investing in new technologies.

Given the Malthusian quantity restrictions that apply, supply is substantially lower than demand, particularly at peak hours. This means that there are clients who are willing to pay more than the regulatory fares to have taxis available. The groups catered for this category of customer by introducing special formulas for account-holders, so that they can be sure of having a taxi available

any time they phone. The high prices charged for this service are a means of capturing the rents generated by the scarcity of taxis.

In order to minimise empty running, these groups also invested in GPS tracking systems at a very early stage, so that they would be able to dispatch the vehicle nearest to the location of the customer phoning. The efficiency of the system, and the need to recoup the high investment costs involved, prompted these groups to propose their services to taxi owner-operators for a monthly charge. More than half of all Parisian taxis are now linked to these dispatch centres. The centres, in competition in an oligopolistic market, will most likely develop a supply for the mobile telephone market in the near future.

Paradoxically, it is precisely because their market has been strictly regulated that Parisian taxis have been quicker than the other cities to adopt technologies that promise the greatest productivity gains. However, there is no guarantee that this will benefit travel by Parisians.

In London, it is in-car navigation technology that is weakening the main argument for maintaining the strict selection process for taxi drivers that constitutes an entry barrier to the profession. The process is based largely on testing the applicant's knowledge of addresses and routes in the city. The efficiency and precision of on-board navigation systems render this knowledge obsolete and there has already been pressure to abandon "The Knowledge" (*The Economist*, 10 October 2002). If London's regulator wishes to maintain taxi quality standards and restrict numbers, the selection process will have to be based on other criteria, such as knowledge of foreign languages or the history of the city, or the regulator will simply have to set a public quantity restriction, as in New York.

In New York, it is the spread of mobile telephone technology which may force the regulator to redraw the line between the taxi market and the liveries market. In actual fact, there is nothing to prevent a customer on the street phoning a car service to pick him up. For now this is just fiction, since there are too many car service telephone dispatch centres, and the fleets they manage are too small for them to send a cab to respond to such a call at reasonable cost and within a reasonable time. However, one might well imagine that if enough firms group together under one telephone number and fit their vehicles with a GPS type tracking system, they would be able to dispatch the nearest free vehicle rapidly to customers, after first recording their mobile telephone number. They would thus be in a position to offer a service equivalent to yellow taxis, but at a much lower cost, since they would not have to recover the costs of purchasing a licence (medallion).

If this were to happen, the regulator would have to find another way to divide up the market this time.

There have been some attempts in London recently to develop a supply targeting mobile telephone users: for instance, by putting the customer (located by GPRS) in touch with the nearest free vehicle (located by GPS), or even by siting taxi points at strategic locations identified by a code number, so that customers can send an SMS and be picked up at the taxi point. The fragmentation of the London taxi sector means that none of these systems have grouped together enough cars (fewer than 500). The coverage they can provide is too low and the waiting times too long and unpredictable to make opening an account attractive for potential customers. Without an accounts system there is too great a risk that the customer will be gone by the time the taxi gets there, picked up by another passing cab that happened to be free. This explains why taxi drivers are not too keen on signing up with these systems either. This said, it is likely that as soon as one of these systems reaches critical mass, the market for mobile telephone bookings will grow quickly. Dispatch centres providing these services will rapidly find themselves in an oligopoly position.

Up to now, these innovative systems have involved only black cabs. However, once centres have totally saturated the taxi market, they are sure to extend their supply to minicabs. If the regulator does not explicitly withdraw minicabs' right to take bookings via mobile phone, access to this new market will enable them to reduce their empty return runs, lower their costs and make their fares even more attractive compared with the regulated fares charged by black cabs.

If the regulatory framework doe not change, there is a risk of seeing minicabs sucking the last taxi market dry.

CONCLUSION

The literature on experiences with the regulation of the taxi sector generally looks just at instances in which the regulator considered that the for-hire market was homogeneous. In fact, there are two quite distinct markets. The first is the street hail taxi market. The second is the telephone-booked market. Several large cities have acknowledged this in practice and have reformed their regulatory framework accordingly. In this paper, we have reported and evaluated the experience of three cities. Our analysis has shown that the supply of taxi and private hire transport services in New York and London is more plentiful, more diversified and cheaper than in Paris. Nevertheless, it is possible that the very Malthusian regulatory framework in Paris gives it an advantage over the other two cities, which is that it may be in a position to provide a service that can respond to calls made in the street from mobile telephones before the other two cities can.

NOTES

1. For a review of the literature on this issue, see Darbéra (2005).

2. By 1982, almost one-third of New York taxis had been fitted with two-way radio, and belonged to one of 13 dispatch centres (Schaller Consulting, 2003, p. 26).

3. The yearly test became three-yearly in 1987, because second-hand cars made up a significant portion of the fleet.

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IRELAND

Sean BARRETT
Economics Department
Trinity College
Dublin

REGULATORY CAPTURE, PROPERTY RIGHTS AND TAXI DEREGULATION - A CASE STUDY

SUMMARY

1. THE DEREGULATION DECISION

This paper examines the economic and legal aspects of the deregulation of taxi services in Ireland by a decision of the High Court in 2000, and affirmed by judicial review in 2001. Market entry had been restricted from 1978 to 2000. A ministerial proposal to increase the number of taxis, by adding vehicles to existing taxi licences, was challenged in the High Court by hackney drivers of private hire vehicles. In Irish transport law, taxis are public hire vehicles which may be hailed on the street or at taxi ranks, while hackneys are private hire vehicles which are hired by phone.

The legal challenge of hackneys to the insider-only expansion of taxi licences was successful. Entry to the taxi sector was deregulated by the High Court. Murphy, J., in his taxi deregulation judgement in the High Court, stated that "*a quantitative restriction not alone affects the rights of citizens to work in an industry for which they may be qualified but it also manifestly affects the rights of the public to the services of taxis, and, indeed, restricts the development of the taxi industry itself.*"

Murphy, J., also stated that the scheme of issuing new licences to existing licence holders only, rather than to the wider community, "*is a blanket restriction which renders nugatory applications from parties other than current taxi licence holders. It represents a fettering of the Minister's discretion which affects the rights of citizens to work in an industry for which they may be qualified and, further, which affects public access to taxis and restricts the development of the taxi industry.*"

The judgement also referred to the EU dimension to the case. "*I have come to the conclusion that the scheme purportedly put in place by* (Statutory Instrument) *2/2000 may very well indirectly discriminate against Member States of the European Union other than Ireland in a manner which is prohibited by Article 12 of the EC Treaty. I venture that all - or if not, the great majority - of current licence holders are Irish nationals. By restricting the grant of new licences to this category of persons, the Minister is effectively precluding nationals of other EU Member States from becoming the owners of new taxi licences in Ireland.*"

Following the deregulation judgement, there was a dramatic increase in taxi numbers. Data published by the Department of Transport in November 2002 showed large increases nationally and in the five main cities. The data are shown in Table 1.

Table 1. **Taxi numbers immediately before, and two years after deregulation, Ireland, 2000-2002**

	2000	2002	Index
Ireland	3 913	11 630	297
Dublin	2 722	8 609	316
Cork	216	590	273
Galway	148	410	279
Limerick	207	434	210
Waterford	41	147	358

Source: Department of Transport statement of 20 November 2002.

The increase in Irish taxi numbers since deregulation was more dramatic than in any of fourteen countries covered in a joint study by the International Road Transport Union, the European Conference of Ministers of Transport and the OECD (2001). The study found that the number of taxis increased over 100% in Romania since 1989, by two-thirds in Austria since 1989, by 60% in the United Kingdom since 1985, by almost 20% in the Netherlands since 1994, and by 15% in Sweden between 1990 and 1998. Relatively stable taxi numbers were found throughout the above period in Finland, France, Germany, Belgium, Hungary, Spain and the Province of Quebec.

The Irish taxi deregulation is thus more dramatic than in other countries. It is an interesting case study of regulatory capture, rent seeking and the role of new market entrants.

2. REGULATORY CAPTURE AND RESTRICTION OF NEW MARKET ENTRY

Pressure from incumbent licence holders, including street blockades, brought a government decision in 1978 to limit the number of licences by statutory instrument. This led to the licences acquiring a scarcity value. As the Irish economy grew rapidly after 1987, in the "Celtic Tiger" era, the value of taxi licences rose rapidly, to a high level by international standards.

Dublin taxi numbers remained unchanged at 1 800 from 1978 until 1991-92, when there was an increase of 150. In 1997, there were 1 974 licences and, on the eve of deregulation in late 2000, there were 2 724 licences. Had taxi numbers been indexed to real GDP, there would have been a fleet of 4 200 in 1997, compared to the actual licensed fleet of 1 974 (Fingleton, Evans and Hogan, 1997).

Restricting entry to the taxi business became policy in an era of rapid economic growth. Between 1978 and 2000, the number of persons employed in Ireland increased by 63%, from 1.1 million to 1.8 million. Unemployment fell from almost 18% in 1986 to 3.7% in 2001. The number of overseas visitors increased from 2 million to over 6 million in 2000, stimulated by the deregulation of access transport in 1986, through the licensing of Ryanair. Thus, the abolition of economic rent in one area of transport increased it in another, because of an inconsistency in the approach to deregulation across the transport sector.

The failure to increase taxi numbers in the fastest growing economy in the OECD caused widespread dissatisfaction, because of the shortage of taxis in Dublin and elsewhere. Research by Oscar Faber (1998) found that 75% of those interviewed in street surveys disagreed or strongly disagreed with the statement that taxi and hackney services "can be hired easily at peak times". Difficulties in obtaining a taxi, in particular between 4 and 6 p.m., were experienced by 72.6% of businesses. The report found that in Dublin city centre some 9% of hourly observations resulted in average waiting times in excess of 15 minutes. During the period 11 p.m. to 4 a.m., waiting times in excess of 90 minutes were "frequently observed".

3. TAXI LICENCE PRICES AND PROPERTY RIGHTS

The price of a taxi licence in Dublin rose from £3 500 in 1980 to IR£90 000, or US$114 000, in 2000. Table 2 shows the growth of taxi licence prices in Dublin throughout the period of restriction of new market entrants. Taxi licence prices in Ireland are shown to be above those in other countries, thus indicating a larger gap between regulated supply and a market-determined supply. The large growth in taxi numbers in Ireland since deregulation confirms that there was a major gap between the pre-deregulation regulated supply and a market-determined supply.

Table 2. **Taxi licence prices in Ireland and elsewhere before deregulation in 2000 (IR£)**

Ireland:	**IR£**
Dublin	90 000
Killarney	70 000
Ennis	107 000
Cork	70 000
Galway	80 000
North America/New Zealand :	
Boston	75 000
San Diego, Phoenix, Seattle (1970s)	40 000
New York (1988)	20 000
Ottawa	57 000
New Zealand (1989)	10 000
United Kingdom/Europe (1990-92):	
Manchester	31 000
Leeds	10 000
Glasgow	12 000
Marseilles	16 000
Bonn	7 500
Munich	7 500

Sources: Affidavits filed in the High Court (Dublin), 2000, 699JR 2000;
Kahn, A. (1988), *The Economics of Regulation*, p. 111/11, Government of Ireland, Interdepartmental Committee, 1992.

Table 3 shows the rise in taxi licence prices in Dublin from 1980 to 2000, the period of restriction of new entrants. The licence price rose from IR£3 500 to IR£90 000, indicating a rapid increase in the rent earned by incumbents, because of the restrictions on new market entrants.

Table 3. **Taxi licence prices in Dublin, 1980-2000 (£IR)**

1980	3 500
1985	7 200
1990	43 000
1995	70 000
2000	90 000

Source: Barrett (1991) and affidavits, *op. cit.*

The development of a secondary market in taxi licences also leads to the separation of taxi licences from taxi driving. Kenny and McNutt (1998) found in Dublin "*a vibrant market for individuals who rent plates and then act as an intermediary between the owner and the driver.*" The drivers were likened, by Kenny and McNutt, to urban sharecroppers. They estimated that one individual controlled 45 plates and that there were 1 500 drivers without licences in Dublin, known as "cosies", who rented licences from licence-holders. Based on the cost data in the Oscar Faber report (1998), Kenny and McNutt state that "*it is hard to see why the established plate owner does not hire out the plate completely, rather than drive the car themselves (unless they have a very low opportunity cost of their time)*".

The Oscar Faber Report estimates that half the average fare revenue from taxi operation in Dublin in 1997 was required to rent a vehicle and taxi licence plate from a licence holder (59). The average taxi licence cost in the Oscar Faber Report was £80 000. By contrast, the price of a Toyota Carina, the most popular model purchased for taxi use, was just under £18 000, according to Appendix H of the Oscar Faber Report. The taxi licence, whether purchased outright at market entry or rented over the period of operation, was therefore a significant cost of operating in the regulated market. Without restrictive licensing, the new market entrant could purchase 4.4 vehicles at market entry from savings in not having to buy a licence from a market incumbent. Since deregulation, the local authority administration fee for the issue of a taxi licence is £5 000. Market entry costs of £98 000 for a vehicle and licence before deregulation have fallen to £25 000 since deregulation, a fall of 74%. The Oscar Faber Report estimated that, under regulation, the annual capital cost to a "cosy" of a taxi vehicle and licence was £14 400, compared to £1 176 capital cost for the vehicle only. The abolition of the licence scarcity value has thus reduced the cost base of the industry, and this should, in time, result in lower fares.

4. INVESTMENT OR GAMBLING?

Financial institutions did not accept taxi licences as collateral for loans. Licence purchases were typically financed by mortgaging other assets, such as houses. The owners of licences described themselves as having invested in the industry through the purchase of licences, and claimed to have thus acquired property rights. Economists who supported deregulation contended that the taxi licence purchasers were more correctly categorised as gamblers, who had taken a bet that governments would never deregulate the sector.

In Irish law, there are three judgements that taxi licences do not confer property rights, and that the terms under which they are held may therefore be altered without compensation. The judgements may be summarised as follows.

Case A: In 1992, taxi licence holders opposed extra hackney licences because these would reduce the value of taxi licences. The judgement of Costello, J., in Hempenstall *v.* the Minister for the Environment (1992), stated that "*property rights arising in licences created by law (enacted or delegated) are subject to the conditions created by law and an implied condition that the law may change those conditions. Changes brought about by law may enhance the value of those property rights (as the Regulations of 1978 enhanced the value of taxi plates by limiting the numbers to be issued and permitting their transfer), or they may diminish them.... But an amendment of the law which by changing the conditions under which a licence is held, reduces the commercial value of the licence cannot be regarded as an attack on the property right in the licence - it is the consequence of the implied condition which is an inherent part of the property right in the licence*."

Case B: In 1998, hackney owners attempted to create a secondary market in hackney plates, as applied in 1991-92, when a temporary moratorium on hackney licences created a licence value of IR£20 000. The hackney licence-holders sought to apply the taxi licence precedent of restricting entry to their sector. The High Court judgement of Geoghegan, J., in O'Dwyer *v.* Minister for Environment (1998), stated that "*hackney licences are regulated quite differently and the mere fact that the regulation of hackneys does not produce a similar side effect as produced by the regulation of taxis, does not in any way render the regulatory scheme discriminatory... . Because of the long-established policy of restricting the number of taxi licences in taximeter areas, there has been for many years a saleable market in taxi licences but there never was such a market in hackney licences except during that very short period in 1991-92. There could be no obligation on the Minister to create such a market*."

Case C: In the judicial review (2001) of the taxi deregulation judgement of Murphy, J. in 2000, Carney, J. dealt with the property rights issue as follows:

1. "*...as the only interference with their rights has been one implemented by means of an implied condition of which the Applicants were fully aware and one which is envisaged by the very terms and conditions under which a licence is held, then it would seem incongruous if the State were obliged to introduce a concomitant scheme of compensation.*"

2. "*…the interference with property rights is not only justified but is minimal in that the applicants are still free to dispose of their licence and also to use it as they see fit. There has been no expropriation of their licences.*"

3. "*The payments made in the secondary market achieved the objective for which they were made at the time, namely the purchase of a job when jobs were otherwise unobtainable.*"

4. "*…the applicants are mistaken if they believe that there is an automatic right to compensation in all circumstances*."

With three High Court judgements against compensation for the holders of taxi licences on deregulation of the sector, the licence holders sought, as an alternative, payments for *solacium*. This term is defined as relief in sorrow or misfortune; a source of comfort or consolation; consolation for disappointment or similar; something that makes up for a disadvantage; and compensation or indemnification (*Oxford Latin Dictionary*, 1990, 171).

The *solacium* case was endorsed in late 2002 by the report of the Taxi Hardship Panel, notwithstanding the above High Court verdicts. In economic terms, the *solacium* case is compensation under a new name, and the compensation proposals are at odds with the court verdicts and economic logic. A further problem is that the payment of compensation, in the face of both the court judgements and economic logic, will make any further deregulations in the Irish economy more difficult to achieve. The attempts by the pre-deregulation licence holders, since 2000, to roll back the High Court deregulation decision by political pressure, are analysed below.

5. REGULATORY CAPTURE AND POLICY CHANGE

In the High Court, the licence holders cited assurances given to them by the Government that the sector would not be deregulated. The State disputed that such assurances were given. The judgement of Carney, J. dismissed the relevance of such assurances. "*It is unnecessary in the instant case to establish whether such representations had been made or assurances given to the Applicants on foot of which they formed a belief that the previous policy would not be altered. However, even in the event that such assurances had in fact been given, even by high-ranking members of the Executive, the nature of such assurances is such that they could only be regarded as conditional… . A person or group of persons who have benefited from a previous policy can legitimately make representations as to why policy should not be changed. They cannot, however, legitimately expect to fetter the body's statutory discretion to adopt a new policy in the public interest, as it is the public interest and not the private rights incidentally created that the public body must ultimately seek to vindicate.*"

6. THE LICENCE HOLDERS' CASE AGAINST DEREGULATION

The arguments made against taxi deregulation may be divided into two categories: those made successfully during the period 1977-2000 against deregulation, and those made unsuccessfully in the High Court cases in 2000 and 2001.

In making the case against deregulation in the 1970s, taxi licence holders "…*complained that the absence of control over the numbers entering the trade had resulted in a greater number of vehicles operating than the demand justified, with the result that incomes were depressed* (Interdepartmental Committee, 1992, 28)."

A report for the National Prices Commission (1977) concluded "…*that too many taxis were licensed to operate and that there should be a controlling agency to deal with such matters as the number of licensed operators, the establishment of service standards, etc.* (*ibid.* 28)." In 1978, the Government decided to give local authorities the power to limit taxi numbers.

The Interdepartmental Committee (1992) stated that "…*rather then recommend deregulation the committee believes that a policy of gradual liberalisation is a more appropriate strategy. The proper application of such a policy resulting in the regular issue of new licences in line with demand would confer the same benefits as open entry without introducing the negative aspects. While, in theory, it would not eliminate the market for transfer licences, in practice a more liberal policy in the issue of new licences in line with demand would gradually reduce the value of such licences* (30)."

In 1998, the Oscar Faber Report stated that "…*ultimately entry deregulation of the taxi market is the best policy*…(45)" but recommended the issuing of 350 licences per year for a ten-year period, followed by full entry deregulation (52). Faber believed that "…*full and immediate entry deregulation might lead to excessive entry into the market, which would then take some time to reach equilibrium…*" and that "…*entry deregulation would impact very severely on a minority of individuals who have recently bought licence plates on the open market* (46)." New licences would be issued by the local authority for £15 000. "*The number of licences issued must be kept small in the transitional period to ensure that above normal incomes can be earned by existing plate owners, thus ensuring that they are compensated for the reductions in licence plate values* (51)." Appendix 1 of the Oscar Faber Report estimated that a fleet of 5 901 taxis would be needed after ten years to serve the Dublin market. In a little over two years, by the Spring of 2003, the deregulated Dublin market had over 9 000 taxis.

Kenny and McNutt (1988) state that "…*if the Oscar Faber reasoning does not support free entry now, it would not support free entry in 7-10 years time, if the market price of plates has not fallen to free entry levels* (13)." They also note that the recommendations of the Dublin Taxi Forum for an annual increase of 200 taxis per annum to 2002, without further proposals for increases and no commitment to deregulation, would have a minimal impact on plate prices.

Fingleton, Evans and Hogan (1998) recommended that a second licence should be given free to each existing licence holder, with those who had bought in the previous five years given an extra licence immediately, while the remaining licence holders would receive an extra licence after two

years. Full deregulation of entry would take place at the end of five years. They estimated that 4 200 taxis were required in Dublin, based on GDP growth since 1978, when quantity licensing was introduced. The actual number of taxis in 1974 was 1997, or only 47% of the estimated required number, based on economic growth since 1978. The excess of 9 000 taxis provided by the deregulated market in early 2003 was therefore 3.3 times the regulated market in 2000, and more than twice the number estimated to be required by economic growth over the years 1978-98.

The Irish case study indicates several difficulties inherent in gradual entry liberalisation, as opposed to entry deregulation. Both the Oscar Faber Report and the Dublin Taxi Forum Report significantly underestimated the additional number of licences required, compared to actual market entry in a deregulated market. To increase the number of taxis by a number short of free entry retains a scarcity value for taxi licences and increases the number of persons holding such licences. A policy of slow but eventual deregulation will therefore have more opponents at the end of a proposed transition period than a policy of immediate deregulation. Nonetheless, the Government proposed to confine the issue of more licences to existing licence holders and some of their drivers. The Minister for the Environment and Local Government proposed, in November 1999, to issue an additional licence in Dublin to all holders of an existing taxi licence. In addition, 500 extra licences would be issued to those without a licence. Preference in the issue of the extra 500 licences would be given to those who drove taxis but did not own them, the aforementioned "cosies".

The Minister's proposals were opposed by four hackney operators. These are private hire vehicles, in contrast to taxis which are public hire vehicles. Taxis ply for hire in public and may stand for hire at designated ranks and use bus lanes, while hackneys can not. Taxis are regulated in their prices, while hackneys are not. The four hackney operators were granted a judicial review, by the High Court in February 2000, of the November 1999 proposals of the Minister for the Environment and Local Government.

In defence of the scheme to issue new licences overwhelmingly to incumbents rather than new market entrants, at the judicial review, the Minister denied that "*…any local authority has taken account of extraneous or irrelevant considerations. Neither have the local authorities had regard to the preservation or fostering of the economic interests of one section of the community as alleged*." The allegations referred to were that licence holders had achieved regulatory capture over the regulatory authorities at the expense of aspiring new entrants, consumers and the public at large. The State also pleaded that the provisions of Article 40.1 of the Constitution, providing for equality before the law, are not applicable to the holding of taxi licences.

In opposing unsuccessfully the deregulation of the taxi sector achieved by the legal action of the hackney licence holders, the taxi licence holders cited Toner and Dempsey. Toner(1998) concluded that "*…the effects of taxi deregulation were not so beneficial to consumers due to increased fares and deteriorated service quality. In addition, the returns to operators as well as drivers also decreased, and there was no significant evidence of innovation in the industry. On the other hand, the structure of the industry became more fragmentary with increased single operators and taxi leasing. Therefore, this study concludes that market entry should be regulated somehow and the level of fares also needs to be controlled. In addition, more stringent regulations are necessary in order to ensure high quality and improved safety in taxi services*."

Dempsey (1996) concludes that "*…given the failure of deregulation to produce consumer pricing and service benefits, coupled with its propensity to injure carrier productivity and profitability, most communities which have experimented with deregulation have rejected it, and re-regulated in whole or in part their taxi industry* (115)." Dempsey proposed that "*…new entry should be modest, measured and monitored. In deciding which among several applicants should be allowed to operate in*

the market, a prudent regulatory authority might choose the applicant which, for example, has a sound financial base and a seasoned and experienced managerial team, a minimum fleet size with centralised radio dispatch to serve the entire community adequately, trained and experienced drivers, adequate insurance, and a young, safe and environmentally sound fleet of cabs…the regulatory authority must be careful to expand entry on a phased-on basis only very gradually…(119)."

In the Irish case, the consumer argument for extra taxis, combined with the rights of those outside the taxi sector to enter that sector, succeeded in the High Court over the case made by the licence holders relying, *inter alia*, on the above studies. The increase in new entrants has been dramatic and the consumer response has been overwhelmingly positive.

Toner's recommendation that "*market entry should be regulated somehow*" involves some exclusion of potential entrants and infringement of their rights to enter a sector for which they are qualified, and thus conflicts with the High Court judgement of Murphy, J., cited above. Any measure which stops new entry short of the level under free entry will cause taxi licences to retain a scarcity value, which will increase if demand for taxi services grows faster than the limited increases in supply under the cautious entry policy proposed by Dempsey. The new licence holders will join with existing licence holders to seek regulatory re-capture. The combined group of old and new licence holders will form a bigger obstacle to any further new entrants under either a gradual basis or deregulation.

Barriers to entry, such as minimum fleet size and a seasoned and experienced managerial team, as proposed by Dempsey, deny both a career choice to new entrants and the consumer benefits of new entry. If there are economies of scale in taxi operation, an open market will itself lead to increased fleet sizes without regulator intervention. If there are no economies of scale, a regulator-imposed minimum fleet size both increases costs to users and deters new investors. A study of the deregulated, shared taxis sector in Northern Ireland by Barrett and McLaughlin (1984) found that the administration requirements were minimal. A regulatory requirement for "a seasoned and experienced managerial team" is thus both a barrier to new entry and a cost-increasing measure.

7. THE RESULTS OF DEREGULATION

The evaluation of taxi deregulation in Dublin by Goodbody Economic found that "…*over two-thirds of people believe that deregulation was a good idea with 14% disagreeing*." The impact of the large increase in market entry was shown in the declines in waiting times for taxis. "*In 2001, 48% of persons waited for less than five minutes, a considerable improvement compared to 25% in 1997*." Just under half of all taxi users considered that the service has improved, with only 5% indicating that the service has disimproved.

After midnight, the average waiting time was in excess of 30 minutes for 43% of the hours surveyed in 1997, and for only 6.2% in 2001. In 1997, 20.3% of hours surveyed had waiting times of less than five minutes. Under deregulation, this increased to 60.2% in 2001.

On vehicle quality, Goodbody found that "*most cab users find the quality of the vehicles acceptable*" and that "*it would be difficult to argue that there is demand for radical change in this area*." The pre-deregulation fleet was found by Oscar Faber to have almost a third of taxis over seven

years old and two-thirds of hackney cabs over seven years old. The service improvements in the November 2000 deregulation were the annual testing of taxis under the National Car Test and the compulsory issue of printed receipts for each journey.

Around the second anniversary of taxi deregulation, in November 2002, the licence holders made claims that criminals had entered the deregulated taxi sector and that vehicle standards had deteriorated. During 2002, eleven Dublin taxi licences were revoked by the Carriage Office on police recommendation. Separate data are not published for pre- and post-deregulation licence holder offences. The taxi licence revocation rate of 1.2 per thousand compares with a general crime rate of 58 per thousand in the Dublin Metropolitan Area. In late 2002, two heavily publicised cases of incidents involving taxi drivers referred to the pre-deregulation period. The complaints were largely generated by the industry itself and reflect attempted regulatory recapture rather than consumer sovereignty.

8. LICENCE HOLDERS' ATTEMPTED REGULATORY RECAPTURE

Pressures by the licence holders to reverse or reduce the impact of the deregulation of the sector included a series of strikes, poster campaigns in taxis against the outgoing government in the 2002 General Election and lobbying through the country's largest trade union, SIPTU. The use of the trade union vehicle, by a group of self-employed persons, to pursue a campaign against deregulation, secured the legal privileges of the trade union movement for the taxi drivers. By contrast, these exemptions did not apply when another group of self-employed people, farmers, picketed meat and milk plants, without seeking to avail of trade union legal privilege.

In an administrative and political system with a strong tradition of interventionism and regulatory capture and weak consumer representation, the taxi operators set out to reverse two major parts of the High Court decision deregulating the sector. These were the decisions against compensating taxi licence holders for the loss of the licence value and the freeing of market access to new entrants. The instruments used in pursuit of the goal of reversing the deregulation decisions were the Taxi Hardship Panel and the office of National Taxi Regulator.

Although it has four High Court judgements against compensation for taxi licence holders, the Government appointed, on 5 February 2002, a Taxi Hardship Panel "*…to examine and report in general terms on the nature and extent of extreme personal financial hardship experienced by individual taxi licence holders arising from loss of income as a direct result of the liberalisation of the taxi licensing regime on 21 November 2000.*" The office of National Taxi Regulator was established on a non-statutory basis in February 2003.

9. THE TAXI HARDSHIP PANEL (2002)

The Taxi Hardship Panel recommended the payment of 12.6 million euros to address "*persistent claims that certain taxi licence holders have suffered extreme financial hardship*" following taxi deregulation. The recommendation is made, notwithstanding the report's acknowledgement that the panel "*…is aware that, since 1992, the Courts have clarified on a number of occasions that there can be no legal duty on the State to compensate taxi licence holders in relation to open market values of licences*." The preface to the report states that "*…we realise that our findings will provoke considerable debate, ranging from those who believe that no payment of any kind is justified to those who feel substantial compensation is warranted. It is our view that our recommendations provide for a fair and final settlement of all grievances that taxi licensees had as a result of liberalisation*." The compensation payments recommended are shown in Table 4.

The payments recommended are proposed to be outside both the tax and social welfare systems, in that they would not be treated as taxable income or included in assessment of entitlements for social welfare payments. This recommendation contrasts with the use of a comprehensive definition of income in computing both tax payments due and social welfare entitlements. The proposed payments are additional to refunds of 6.35 million euros, where local authorities had charged licence holders more than the subsequent deregulated access cost of a licence, under limited market entry schemes before deregulation. In addition, taxi licence holders were allowed capital allowances over five years to cover the purchase price of a taxi licence before deregulation. The allowances could be offset against both trading income and rental income.

Table 4. **Recommendations for Taxi Hardship Compensation (2002) (Euros)**

	Per person	**Total cost (millions)**
1. Widows	15 000	1.110
2. 65 years plus	13 000	2.028
3. No pension	13 000	5.629
4. Wheel-chair accessible taxi	3 000	0.948
5. Large loans	9 000	2.889
6. Capital claims	-	-
7. Insufficient information	-	-
8. Extra working hours	-	-
9. Invalids	13 000	0.975
Total		12.604

Source: Taxi Hardship Panel (2002).

The panel reported that "*…amongst the many and varied medical conditions cited as being directly attributable to, or intensified by, liberalisation, are strokes, hypertension, high cholesterol and heart problems, stress, anxiety and panic attacks, depression, asthma, back problems and fatigue…*" and that "*…this by no means purports to be an exhaustive list of ailments*."

There were 3 912 taxi licences prior to deregulation and 2 006 licence holders made representations to the panel. Of these, 46.1% returned a fully completed submission form to the panel and 29.3% partially completed the form. The remaining forms were not returned.

In the categories listed in Table 4, categories 1, 2, 3 and 9 refer to the loss of income when widows, pensioners and invalids rented out licences. Category 4 refers to those who made an extra investment in wheelchair-accessible vehicles. Category 5 refers to those who purchased licences with loans based on houses as collateral, because financial institutions did not accept taxi licences as collateral. The remaining disallowed categories include those seeking compensation for loss of capital value and those who claimed that they had to work extra hours since deregulation.

The panel's report, surprisingly, contains no reference to the way in which a monopolistic rent came to be attached to taxi licences nor to the cost of such monopolistic rent to society as a whole over the period in which new market entrants were restricted. The economic absurdity of compensating people for the loss of their ability to ban new entrants to their sector is ignored. The legal judgements against the recommendations made by the panel are set aside without analysis. No examination is made of the role of the welfare state in dealing with hardship in this specific case, or in general, and the recommendations are made outside the context of the tax and social welfare systems. The report makes no reference to the gains to the Irish economy as a whole from deregulation, nor to the precedent which it creates by adding to the potential costs of deregulating other sectors in future.

10. THE NATIONAL TAXI REGULATOR

The role of the regulator is to apply a "national focus" to taxi standards and licensing, to issue licences in consultation with the police, to set standards for drivers, their training, requirements for entry, comprehensive local knowledge and other testing, promotion of disability awareness and an acceptable dress code for drivers, vehicle standards, "*an acceptable uniform colour for vehicles, overseeing taxi vehicle testing, and setting licence fees* (Department of Transport statement, 20 November 2002)."

In the statement establishing the regulator, the Government stated that the High Court judgement "*created the legal position that limiting of taxi licences in the interests of existing licence holders could not be sustained*." However, the statement added that "*it is now time to bring forward legislation that will bring stability to the industry, develop a proper and effective structure, establish lasting career opportunities for all those involved, and offer the customer a service that is modern, efficient and operated to the highest standards.*"

There are obvious dangers to deregulation in the government statement above, such as seeking to "bring stability" to a rapidly expanding industry over two years, following over twenty years of

stagnation, and in seeking "lasting career opportunities for all those involved", when the Government was well aware of the wish of the sector to ban new entrants and its success in doing so in the very recent past. These dangers are combined with the prospect that even *bona fide* quality controls become barriers to contestability, as frequently happened in Irish transport policy in the past. The designation of the new office as a national one precluded a situation in which even a single local authority might licence taxis, on a more liberal interpretation of the High Court decision of October 2000.

A further cause of concern that the Government might wish to water down the High Court deregulation decision, is the announcement of a new Taxi Advisory Council, to consist of representatives of the industry, other stakeholders, *Gardai* (police), consumer interests, disability interests, tourism interests, business, public transport and other relevant sectors. Such bodies opposed deregulation in the 1990s, and were cited in evidence by the taxi interests during the High Court hearings. Potentially, this problem could recur, given the weakness of consumer representation in Ireland, the tradition of regulatory capture and the less than ringing endorsement of the Court deregulation decision in the Government Statement of 20 November.

An interim, non-statutory regulator was appointed in February 2003. His first public intervention, in March 2003, was to investigate the purchase of a taxi licence by the chief executive of Ryanair, Mr. Michael O'Leary, following complaints by the existing licence holders. Since the sector had been deregulated by the High Court some two years earlier, market entry was open to any new entrant. The regulator investigated the licence concerned, notwithstanding that the notice of the establishment of the National Taxi Regulator stated that in "…*October 2000 a High Court judgement created the legal position that limiting of taxi licences in the interests of existing licence holders could not be sustained.*" It appears likely that there will be producer pressures on the regulator to revisit the High Court decision permitting new entrants. This has already occurred in the case of the High Court decisions concerning the ineligibility of taxi licence holders for compensation when the sector was deregulated.

From the perspective of contestability, the appointment of the regulator has a number of disadvantages. The emphasis throughout the announcement is on new market entry as a problem. The gains from deregulation are overlooked, as are the problems caused by the previous success of licence holders in achieving regulatory capture for over two decades. In addition to the cost of an extra bureaucratic layer, there is a reduction in local government autonomy. The statement that "*it is now time to bring forward legislation that will bring stability to the industry*" implies that the increase from 4 000 to 12 000 in taxi numbers is now seen by the Government as a problem rather than a solution.

CONCLUSION

The Irish taxi deregulation resulted from a High Court decision in favour of potential new entrants, and against those who wished to retain a scarcity value for taxi licences. There was a dramatic increase in new market entry, unprecedented by international standards. This was predictable, since the monopolistic value of Irish taxi licences was also unprecedented by international standards. Large reductions in passenger waiting times have made deregulation popular among the public. There has not been a reduction in either driver or vehicle standards.

Taxi deregulation in Ireland followed a restriction of new entrants for twenty-two years, the second half of which was a period of rapid economic growth, leading to full employment. The spectacular results of deregulation reflect the success of previous licence holders in restricting new market entry, making the price of Irish taxi licences among the most expensive in international surveys, and achieving regulatory capture over the political and administrative system.

Taxi deregulation in Ireland was achieved by a High Court decision. The licence holders retain some elements of the regulatory capture, which previously brought them a ban on new entrants and has latterly brought compensation proposals and a national taxi regulator. Neither development is supported by analysis of the benefits of taxi deregulation.

The Irish taxi deregulation decision resulted from a striking down by the High Court of a scheme to control expansion of taxi numbers, and to confine these largely to incumbents. Schemes of gradual liberalisation, rather than deregulation of market entry, would all have been much less radical in terms of new market entry. Taxi licences would thus have retained a scarcity value, based on monopolistic rent, which could not be bidden away by a sufficient number of new entrants. The Irish experience is that there should be full and immediate deregulation, rather than mere liberalisation of taxi markets.

The implications of the judgement of Murphy, J., concerning the rights of new market entrants to work in an industry for which they may be qualified, and the rights of the public to services, are significant in an economy with many cases of regulatory capture. If extended to other sectors, the judgement would revolutionise the economy. For example, in a report on the Bus and Rail Passenger Transport Sector, the Competition Authority (2001) noted the wider significance of the taxi verdict, and stated that "*in the light of a recent High Court decision, it may actually be questionable whether quantitative restrictions on licensing such as those provided for by the practice of the Minister under the 1932 Act are constitutional or compatible with EC Treaty rules* (6)." Current legal opinion is that the taxi deregulation decision is indeed a turning point in Irish law dealing with property rights and market access.

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SUMMARY OF DISCUSSIONS

Andreas KOPP
Chief Economist
OECD/ECMT Transport Research Centre

SUMMARY

1. INTRODUCTION

The Round Table was an offshoot of discussions within the ECMT Urban Transport Policy Working Group. Taxi regulation is an area for reform that figures prominently on the agendas of national transport ministries and city governments. The Round Table sought to answer the following questions:

- What is the basic rationale for regulating the taxi industry? Does this rationale provide any clue as to the appropriate form or extent of regulation?

- Does the taxi industry's experience of deregulation suggest any suitable regulatory reforms?

- Should taxi deregulation be restricted, in view of the role of taxis in the *public* transport sector?

The Round Table discussions led to the following major conclusions:

- The case for regulating entry has been overstated in the past. Entry has been deregulated in many countries, with the result that waiting times have been reduced substantially. Experience would suggest that entry deregulation should be accompanied by other regulatory measures. The market structure of the taxi industry improves if entry is not atomistic, but results from increases in company fleets in excess of a specified minimum threshold.

- Price regulation remains necessary to protect the consumer from a weak bargaining position arising from search and switching costs. Price deregulation has not caused prices to decrease because of heightened competition. Entry deregulation leads to an increase in the hourly cost of effective passenger travel. As a rule, entry deregulation can be effective only when accompanied by price reform or by subsidies to increase entry, the objective being to decrease waiting times. Price controls such as maximum prices can be counterproductive insofar as they serve as a vehicle of co-ordination for price-setting by taxi firms. Important differences exist between cruising markets and dispatch-centre markets. The smaller the cruising market sub-sector, the less important it is to regulate prices.

- Where massive entry occurred after entry deregulation, a decrease in service quality was generally observed. This has led to re-regulation in the form of stricter standards for service quality. There would seem to be a danger of regulatory capture, insofar as the regulation of quality has in some countries been tantamount to a restoration of entry regulation.

- Support for specialised taxi services for disadvantaged groups can provide strong impetus for industry development. Where the taxi industry has been given a strong role in public transport, it has resulted in substantial budgetary demands.

2. THE ECONOMIC BACKGROUND OF TAXI REGULATION

The Round Table began by discussing the economic background of taxi industry regulation. A first, fundamental question to be addressed was "why should the supply of taxi services be regulated at all?" After all, the market for taxi services has many suppliers and many consumers. This fact might prompt expectations that a competitive market would emerge, providing services to customers at the lowest possible cost. But markets for taxi services hardly meet all of the conditions for perfect markets. A perfectly competitive market would require, for example, that producers and consumers have perfect information on the quantity and quality of services traded. Market entry and exit should not entail major costs, and the cost to consumers of switching to another supplier should be low.

Which deviations from a theoretical ideal market should be examined depends first of all on the form of the market for taxi services. Most arguments on taxi industry economics are based on the assumption of a cruising market, implicitly considering that the supply side is dominated by small owner-operators. This is not, however, the only market form. In many cities, or areas of cities, licensed access to taxi stands with an assigned market area is important. These market forms may differ substantially from a cruising market with respect to regulatory issues.

2.1. Search costs and price competition

Analysis

In a cruising market, potentially high costs arise from the need to search for a taxi. Search costs comprise the cost of time spent searching for an initial offer by a taxi service provider and then, if that offer is turned down, waiting for another one. Moreover, once a particular taxi stops when hailed by a user, the service provider takes on the role of a local monopolist, who may charge a price that is considerably higher than would be charged on a perfectly competitive market. Given the increased cost of switching once a trip has started, a taxi operator cannot even credibly quote a price before a trip has ended. In short, the technical conditions for supplying taxi services provide the operator with substantial bargaining power which she or he can use to price discriminate between customers. The prices charged are then unrelated to costs, driving a wedge between what consumers are willing to pay for a trip and the costs associated with providing the service. These problems are particularly significant if customers have a low level of information about the local market, as in the example of tourists disembarking at the airport of an unfamiliar city.

There are other market forms in which the local bargaining power of taxi operators is mitigated. The first such case is when a market is not atomistic. If taxi firms have sizable – and clearly marked – fleets, they can build up a reputation for quality service and fair charging. Here, the problem of the taxi operators' local monopoly power turns, to some extent, into one of the taxi firm's internal organisation: individual drivers might try to cash in on the company's reputation, exploiting local market power to the detriment of their fellow drivers in the firm.

Secondly, taxi ranks and telephone systems reduce the costs of price search substantially, as long as different stands or call centres can serve the same geographical area. Prices can then be searched by

calling different taxi firms, which reduces search costs substantially. However, search costs can be reduced only in advance; the consumer's problem of high switching costs once a journey begins still exists.

Regulation

These arguments show that there is a strong case for price control. The traditional response to search costs and the effect on market structure is to control prices through metering. If the objective of price control is confined to reducing the market power that arises from the existence of search and switching costs, the regulated price is based on a formula that factors in distance and time of journey, plus some fixed cost. A minimum fare is often introduced to cut down on refusals of service for short journeys. If (large) companies introduce meters themselves, this effectively excludes the incentive for individual drivers to cash in on their company's reputation. Their objective will then be to maximise the rate of return for the collection of drivers. To some extent, prices will still constitute monopoly rents, but they will also reflect differences in local demand, competition between rival fleets, and competition from other modes as well.

In some cases, fares are not only geared towards ensuring a normal rate of return to taxi operators, but they reflect wider social aims as well, such as congestion targets, tourism imperatives, universal service goals, etc. Whenever objectives other than efficient supply of taxi services are pursued, charges to customers have to be compared with the costs of using other instruments. In general, to attach objectives other than efficiency to pricing formulas leads to losses of efficiency. There is also some indication that price regulation that tries to achieve objectives other than efficiency, increases the taxi industry's bargaining power in the *political* process, by broadening the basis for the mobilisation of special interests to support relatively high prices.

2.2. Market entry

Analysis

A second area of taxi industry regulation is market entry. In many cities, or even areas of cities, the level of barriers to entry is in dispute. On a conceptual level, there are partial arguments for contending that entry barriers are too low, and others supporting the view that entry is excessive. Whether entry should be regulated at all is an empirical question.

The case for regulating entry is based on the more general view that fixed costs and, as a consequence, average costs that decrease as demand increases, imply that there is "excess capacity": exit decisions are held to be determined by the fact that investment costs are sunk. To reduce the number of suppliers by regulating entry would lead to higher capacity utilisation and thus to lower costs to the consumer. On a theoretical level, this argument is incomplete insofar as it neglects crowding of an individual supplier and resulting increased costs of providing taxi services. Empirical studies have shown that individual taxi drivers incur low fixed costs, and because their vehicles can be sold on secondary markets for other uses, the sunk costs are, in general, unimportant.

The case against regulating entry involves the consumer's perspective. The argument for increased entry begins with the fact that consumers lack the option to pay to reduce waiting times. Excess capacity in the form of empty taxis is therefore a non-marketable service, cutting the expected waiting time of a customer at a kerbside or rank, which in turn increases demand for all taxi service providers. Since it is impossible to turn the benefits of reduced waiting times into income for taxi

providers, taxi services are in short supply. According to this argument, then, access to the taxi market should not only not be restricted, but government ought to provide subsidies to increase the supply.

Regulation

As the analysis and the discussion showed, the case for restricting access to the taxi market is far weaker than the current level of restrictions would suggest. The reduction of barriers to the taxi market helps to shorten waiting times. Shortened waiting times provide a social service that could potentially even justify subsidies for entry. However, the economic benefits of increased entry would have to be weighed against the possible drawbacks of negotiated contributions to taxi services, which might cause supply to exceed a socially optimal level. In any case, there seems to be a growing consensus that entry to taxi markets is overly restricted, at least if there is no associated quality control.

2.3. Regulation of the quality of taxi services

Analysis

Another argument for regulation arises from the fact that taxi users cannot have prior knowledge of the quality of the service offered. An unsafe vehicle or incompetent driver cannot normally be identified by the customer in advance. In this sense as well, taxi service constitutes a "credence good", i.e. one with unobservable quality dimensions. Some of these quality dimensions are not even observable at the time of the service, such as an unseen safety risk to which the customer has been exposed. In "credence good" contexts of this sort, efficiency would typically dictate that the unobservable dimensions of quality be subject to direct regulation.

Regulation

The Round Table discussion confirmed the analytical finding that quality regulation is addressed inadequately in many geographical areas. A major difficulty in regulating quality is the fact that needs and operational specifications depend on the technical environment. Knowledge of a city's geography, for example, has become less relevant to the quality of taxi services because of the availability of electronic pilot systems. The discussion clearly highlighted an important distinction between the regulation of entry and the regulation of quality. The objective of quality regulation has to be consumer protection. Some proposed quality regulations could effectively regulate entry without serving the consumers' interest.

2.4. Deregulatory experience

In many countries, the taxi industry has been deregulated. The Round Table looked at the experience of Ireland, New Zealand, Sweden, Norway, the Netherlands, the United States and Canada. Conceptual analysis suggested that the most important area of deregulation was entry. Country experiences differed with respect to concomitant deregulation of fares. In some cases, entry deregulation was accompanied by a stricter regulation of the quality of services.

Entry regulation

In all cases where entry was deregulated, there was a substantial increase in the number of drivers and vehicles. The regional distribution of entry was, however, uneven. In some cases, the sharpest increase in the number of vehicles occurred at locations where waiting times had already been

relatively short (such as airports and railway stations). Hopes that entry regulation would lead to an improvement in rural areas, as in Sweden, have been disappointed.

The most dramatic increase in supply occurred in Ireland. On average, the number of taxis in major cities tripled, reflecting severe pre-reform restrictions on entry. The Irish example also shows the potentially drastic consequences for incumbents. Because the number of licences issued had been so small, the price of a licence increased by 2 500 per cent between 1980 and 2000. The price of a licence in Dublin was four times the price of a licence in New York. The massive devaluation of licences after the reform has sparked major political controversy. Demands for compensation of the loss of wealth were initially rejected on grounds that a licence was not a conventional financial asset, that the banking system did not accept it as a medium to store wealth, and that revenues from the sale of licences were merely windfall profits. The counter-argument held that a licence was the equivalent of a property right to produce taxi services in a restricted market. The increase of the licence price over time was seen as a failure of the government to auction licences properly.

Political protests, after the massive increase in the supply of taxi operators, finally led to compensation for pre-reform licence-holders, involving aggregate expenditure of EUR 12.6 million. Payouts were based not on assessments of the licence-holders' pre-reform wealth, but on the extent of the threat to their economic circumstances, factoring in such considerations as age, absence of a pension, disability, etc.

To avoid an economic squeeze on taxi firms, due to the post-reform increase in the number of licences, entry deregulation in New Zealand was designed to make the industry more concentrated. All taxi operators were required to be affiliated with an association providing services 24 hours a day, seven days a week, as well as telephone booking facilities. In addition, new associations were required to have at least five vehicles.

Price regulation

The expectation that entry deregulation would, at the same time, trigger a decrease in the price of taxi services - which in Sweden had been the basis for simultaneous deregulation of entry and dismantling of price controls - failed to materialise. With the increase in the number of competitors being in some cases massive, the average hours of individual vehicle operation have decreased. Because a substantial share of vehicle and labour costs is fixed, the actual hourly costs of servicing customers have gone up. This means that entry deregulation can be effective only if it accommodates price increases.

To limit price increases and meet the goal of increasing taxis' share of the public transport market, the Netherlands' Government authorised fare increases up to a specified limit. This upper limit seems to have worked as a vehicle of co-ordination between taxi firms, with fares converging to a single market price identical to the regulated maximum price. There were no reported cases in which post-reform price competition between taxi firms had led to a decrease in the market price.

There are strong arguments for maintaining some form of price regulation. They relate to the low bargaining power of consumers and strong market powers of firms when regulators try to limit the number of firms in order to decrease consumers' search costs. Nevertheless, strict price control is detrimental to the objectives of entry deregulation. In New Zealand and in Norway, new entrants are required to be associated with a dispatch centre in order to reduce search costs. In Sweden, strict requirements on fare information have been introduced. Some analysts support a two-tier system, with maximum fares for street segments and no regulation of fares for telephone booking segments.

Quality regulation

In one respect, entry deregulation has led to improved quality of service in all of the countries that have instituted reform: waiting times have decreased as a result of the greater numbers of taxis and drivers. Despite this widespread, enhanced attractiveness, taxis' share of the overall passenger transport market has not increased. This is due to the higher prices generated by the greater amount of time that taxis are either idle or cruising empty. If both objectives – shorter waiting times and an increase in taxis' share of the passenger transport market – were to be achieved, subsidies would be required to achieve increased entry, coupled with stricter price controls.

A general impression from the Round Table discussion is that the greater the number of reform-driven new entrants to the taxi industry, the higher the frequency of complaints about quality of service. Complaints were related to driver competence, vehicle standards and safety. Decreasing service quality in the wake of deregulation was the most important reason for subsequent re-regulation. Ireland, which had enacted one of the most radical taxi reforms, re-established a national taxi regulator, who sets standards for driving abilities, comprehensive local knowledge, vehicle standards, and even a dress code.

Effective quality regulation requires a strong commitment to enforcement. The more quality controls are effectively implemented, the more this regulation restricts entry, which in turn increases customers' waiting times. In some cases, quality controls seem to be used as a means of implicitly restoring controls on entry. The Irish Taxi Regulator has the mandate of "bringing stability to the industry, creating a proper and effective structure, and establishing lasting career opportunities". To achieve these objectives, the regulator enjoys autonomy in setting licence fees.

Public transport service obligations of the taxi industry

Policies of the Province of Quebec were discussed, as an example of introducing and supporting services for such special target groups as the population of remote areas, disabled people, the elderly, etc. Access to taxi and other public transport services were further improved as a result of an Act of the National Assembly, amending the Disabled Persons Act and other legislative provisions, in December 2004.

The number of users of specialised services has increased spectacularly, from 4 300 in 1980 to about 65 000 today. The example of the Province of Quebec suggests that specialised transport for disadvantaged groups requires major government outlays. The overall budget for specialised transport increased from some $1.65 million in 1980 to $56 million in 2004. In 2004, disabled persons made 4.8 million trips throughout the province; 43% of those trips were made in taxis. The contracts awarded to the taxis in question were worth $18.5 million, provided by specialised transportation authorities.

To enhance the role of taxis as a means of transporting the disabled, the Province of Quebec had set up a Subsidy Scheme for the Adaptation of Taxis for Wheelchair Users. This led to the refitting of 4% of the provincial fleet to improve taxi accessibility for wheelchair users. The Scheme is endowed with an annual budget of $1.4 million. Over the years, the number of refitted vehicles has risen dramatically, creating a risk that the Scheme will become underfunded. This example shows the difficulty of supporting government schemes that remain linked to demand of the targeted group.

3. CONCLUSIONS

The Round Table discussions led to the following major conclusions:

- The case for regulating entry has been overstated in the past. Entry has been deregulated in many countries, with the result that waiting times have been reduced substantially. Experience would suggest that entry deregulation should be accompanied by other regulatory measures. The market structure of the taxi industry improves if entry is not atomistic, but results from increases in company fleets in excess of a specified minimum threshold.

- Price regulation remains necessary to protect the consumer from a weak bargaining position, arising from search and switching costs. Price deregulation has not caused prices to decrease because of heightened competition. Entry deregulation leads to an increase in the hourly cost of effective passenger travel. As a rule, entry deregulation can be effective only when accompanied by price reform or by subsidies to increase entry, the objective being to decrease waiting times. Price controls such as maximum prices can be counterproductive, insofar as they serve as a vehicle of co-ordination for price-setting by taxi firms. Important differences exist between cruising markets and dispatch-centre markets. The smaller the cruising market sub-sector, the less important it is to regulate prices.

- Where massive entry occurred after entry deregulation, a decrease in service quality was generally observed. This has led to re-regulation in the form of stricter standards for service quality. There would seem to be a danger of regulatory capture, insofar as the regulation of quality has, in some countries, been tantamount to a restoration of entry regulation.

- Support for specialised taxi services for disadvantaged groups can provide strong impetus for industry development. Where the taxi industry has been given a strong role in public transport, it has resulted in substantial budgetary demands.

LIST OF PARTICIPANTS

Prof. Yves CROZET **Chairman**
Directeur
Laboratoire d'Économie des Transports (LET)
Université Lumière Lyon 2
MRASH
14 avenue Berthelot
F-69363 LYON Cedex 07
France

Mr. Denis CARTIER **Rapporteur**
Co-ordinateur - Taxis
Ministère des Transports du Québec
35 Port-Royal East
4th Floor
MONTREAL, Québec H3L 3T1
Canada

Mr. Jon-Terje BEKKEN **Rapporteur**
Research Economist
Institute of Transport Economics (TOI)
Dept. of Passenger Transport
Postboks 6110 Etterstad
N-0602 OSLO
Norvège

Drs. Peter BAKKER **Rapporteur**
Ministry of Transport, Public Works and Water Management
AVV Transport Research Centre
P.O. Box 1031
Boompjes 200
NL-3000 BA ROTTERDAM
Pays-Bas

Dr. Catherine LISTON-HEYES **Rapporteur**
Reader in Business Economics
University of London
Royal Holloway
GB-EGHAM TW20 0EX, Surrey
Royaume-Uni

M. Maurice ABEILLE
Chef du Département Mobilité
CERTU
9 rue Juliette Récamier
F-69456 LYON Cedex 06
France

Mr. Sean BARRETT
Trinity College
Department of Economics
25 Westland Row
IRL-DUBLIN 2
Irlande

Mr. Jorn BERTHELSEN
Chief Research Officer
Norges Taxiforbund (NT)
Postboks 6754 Rod
N-0503 OSLO
Norvège

Mr. Marc BILLIET
Responsable, Transport des passagers de l'UE
IRU (International Road Transport Union)
IRU Permanent Delegation to the EU
32-34 avenue de Tervuren, bte 37
B-1040 BRUXELLES
Belgique

Prof. Halina BRDULAK
Warsaw School of Economics
Al. Niepodleglosci 164
PL- 02-554 WARSAW
Pologne

Monsieur Richard DARBERA
Chercheur au CNRS
LATTS-ENPC
Cité Descartes
6 avenue Blaise Pascal
F-77455 MARNE-LA-VALLEE Cedex 2
France

Mme Chantal DUCHENE
Secrétaire Générale
Groupement des Autorités Responsables de Transport (GART)
(Conseil des Communes et des
Régions d'Europe)
22, rue de Palestro
F-75002 PARIS
France

Mr. David FLATH
North Carolina State University
Department of Economics
Box 8110
RALEIGH, NC 27695
États-Unis

Dr. Daniel FLORES-GURI
Economist
Econ One Research, Inc.
601 West 5th Street
5th Floor
LOS ANGELES, CA 90071
États-Unis

Mme Maryline JOUAILLEC
Secrétaire Général
Fédération Nationale des Artisans du Taxi (FNAT)
46, rue Armand Carrel
F-75019 PARIS
France

Ms. Masako KUWATA
Senior Research Officer
Ministry of Land, Infrastructure and Transport
Road Transport Bureau
Passenger Transport Division
2-1-3 Kasumigaseki, Chiyoda-ku
J-TOKYO 100-8918
Japon

Mr. Adam MILLARD-BALL
Nelson/Nygaard Consulting Associates
785 Market Street
Suite 1300
SAN FRANCISCO, CA 94103
États-Unis

Prof. Marco PONTI
President
TRT Trasporti e Territorio SRL
Via Rutila, 10/8
I-20146 MILANO
Italie

Mme Michaela POPESCU
Directrice
Ministère de la Région de Bruxelles-Capitale
Rue du Progrès, 80, bte 1
B-1035 BRUXELLES
Belgique

Prof. Katalin TANCZOS
Head of Department
Budapest University of Technology and Economics
Bertalan L.u.2.
H-1111 BUDAPEST
Hongrie

Mr. Leif THORSON BOFARULL
Project Manager
Universitat Politécnica de Catalunya
Centre for Innovation in Transport (CENIT)
Edificio Nexus 2
Jordi Girona, 29, 2-A
08034 BARCELONA
Espagne

Dr Jeremy TONER
Lecturer in Transport Economics
University of Leeds
Institute for Transport Studies
36 University Road
GB-LEEDS, LS2 9JT
Royaume-Uni

Mrs. Kerstin WESTIN
Assistant Professor
Umea University
Dept. of Social and Economic Geography
SE-901 87 UMEA
Suède

Prof. Peter WHITE
Public Transport Systems
University of Westminster
Transport Studies Group
35 Marylebone Road
GB-LONDON, NW1 5LS
Royaume-Uni

Prof.Dr. Bernhard WIELAND
Technische Universität Dresden
Institute for Transport & Economics
Chair of Transportation Economics & International Transportation Policy
Andreas-Schubert-Strasse 23
D-01062 DRESDEN
Allemagne

Prof. Hirotaka YAMAUCHI
Dean
Hitotsubashi University
Graduate School of Commerce & Managemen
Faculty of Commerce and Management
2-1 Naka, Kunitachi
TOKYO 186-8601
Japon

Prof. Hai YANG
The Hong Kong University of Science and Technology
Department of Civil Engineering
Clear Water Bay
Kowloon
HONG KONG

ECMT SECRETARIAT

JOINT TRANSPORT RESEARCH CENTRE

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Chief Economist

Dr. Michel VIOLLAND
Administrator

Mrs. Julie PAILLIEZ
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(DE)REGULATION OF THE TAXI INDUSTRY

This Round Table examined the basic case for liberalisation of the taxi industry, and reviewed experiences with taxi (de)regulation in OECD and ECMT member countries. There are a number of aspects to regulation of the taxi industry: regulation of entry into the industry, price regulation and service quality regulation. The discussions of these aspects concluded that little empirical evidence supported the argument that entry restrictions improved capacity utilisation. On the contrary, the case could be made that increased entry and associated economies of density, as well as shorter passenger waiting times, warranted subsidies for entry.

The need for price regulation depends on the type and structure of the taxi market. Consumers face search and switching costs when they require taxi services, which gives taxi operators considerable price-setting power. The abuse of that market power is greater in unfamiliar geographic environments and in the cruising market. In markets dominated by dispatch centres, firms may earn a reputation for high or low service prices, which opens up the possibility of some price competition. A similar argument applies to service quality. The more anonymous the market, the greater the need for regulation. Again, dispatch centres enhance the self-regulatory role of competition for repeat customer relations by building a good reputation.

Experiences with deregulating the taxi industry have had mixed results. Where the taxi industry has been liberalised, there has generally been massive entry, leading to consumer benefits in the form of shorter waiting times.

Background papers were presented by Catherine Liston-Heyes from Holloway University, London, Jon-Terje Bekken from the TOI, Norway, Peter Bakker from the AVV, The Netherlands and Denis Cartier, from the Quebec Ministry of Transport, Canada.

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