URBAN PUBLIC TRANSPORT DEREGULATION: THE CHILEAN EXPERIENCE

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ABSTRACT

Over the last fifteen years, urban transport congestion in Santiago, Chile, has concerned authorities, academicians and the public in general. Unlike other congested cities, the case of Santiago is a very special one, since it makes it possible to compare different regulatory mechanisms within the same institutional context and within the same city. After facing a very poor transport system, both in coverage and frequencies, the deregulation of the sector in 1979 was a blessing for those who needed public transportation. However, massive entry into the industry occurred. Entry created congestion and fares did not fall, instead they dramatically increased due to the existence of a collusive cartel despite free entry of firms. The cause of the Chilean cartel was not, as in other cases, a high supply concentration in the industry, but rather the lack of clarity in both the regulator and the Antitrust Commissions, which gave too much power to bus owner associations. Another lesson to be learned from the Chilean experience is that reducing entry does not necessarily imply increasing monopoly rents. This tradeoff can be reduced through competitive tendering.

SINTESIS

Durante los últimos quince años, la congestión del transporte urbano en Santiago de Chile ha concitado la preocupación de las autoridades, académicos y público en general. A diferencia de otras ciudades congestionadas, el caso de Santiago es muy especial, pues permite comparar los distintos mecanismos regulatorios dentro del mismo contexto institucional y dentro de la misma ciudad. Después de haber enfrentado un sistema de transporte muy deficitario, tanto en cobertura como en frecuencia, la deregulación del sector en 1979 constituyó una bendición para aquellas que necesitaban de transporte público. Sin embargo, se produjo el ingreso masivo. El ingreso originó congestión y las tarifas no bajaron, sino que, por el contrario, subieron dramáticamente debido a la existencia de un cartel colusivo a pesar del ingreso libre de las empresas. El origen del cartel en Chile no se debió, como en otros casos, a una alta concentración de la oferta en industria, sino más bien debido a la falta de claridad tanto, de parte del regulador como de la Comisión Antimonopolios, que le otorgaron demasiado poder a las asociaciones de propietarios de buses. Otra lección que se desprende de la experiencia chilena la constituye el que la reducción del ingreso no necesariamente supone aumentar las rentas monopólicas. Es posible reducir este efecto de compensación a través de licitaciones competitivas.

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1. INTRODUCTION

Over the last fifteen years, urban transport congestion in Santiago, Chile, has concerned authorities, academicians and the public in general. The rapid growth in the number of buses and cars has also occurred in most other Latin American capitals, such as Lima, La Paz, Caracas, Mexico City, and hence is becoming an important issue in the debate on economic regulation. Even though the 20 km/h commercial bus speed in Santiago is still far from the situation in cities like Bangkok, where cars move at an average of 4 km/h, it is urgent to cope with this problem. In fact, several short run measures have been tried, such as a two digit restriction to circulate, prohibitions to enter congested areas and some traffic management improvements.[1]

From both a policy and an academic viewpoint, the Chilean situation in urban public transport is especially interesting. Since the deregulation initiated in 1979, the Chilean case is a very special one, since it makes it possible to compare different regulation mechanisms within the same institutional context and within the same city. Not only fares were liberalized in 1979 in Chile, but also free entry to all routes, free determination of frequencies, and complete freedom as to the type of organizations for operators were allowed.

There is little doubt that the aim of deregulation was to put an end to the severe restrictions the market was previously facing, and to allow for an improvement in the service through higher frequencies, coverage and lower occupation factors. However, deregulation of the market also created additional problems. Two

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[1] More recently, some "supply side" incentives suggested definitely represent more structural actions. For a detailed analysis, see Gutiérrez (1995) and especially Jara-Díaz (1995).

particularly important issues were the increase in congestion and its associated higher levels of contamination. However, what makes the Chilean case unique in a way, and it is the main idea we want to address here, is that despite free entry, the origin of these problems was in the existence of a collusive cartel in the industry.

In this paper, we analyze the problems associated with the deregulation of the urban transport industry in Santiago, Chile, and we make a rough evaluation of the new policies of "competitive tendering" that were implemented to face the critical problems of congestion. The second section presents a brief analysis of some relevant international experiences on transport deregulation. The third section describes the Chilean institutional context, develops a simple model explaining collusion in a context of free entry and analyzes whether the evidence is consistent with that model. The fourth section analyzes the impact of competitive public tendering and we conclude with policy implications.

2. INTERNATIONAL EXPERIENCES IN TRANSPORT DEREGULATION

The nature and significance of the deregulation process in Chile can be better understood in the light of some international experiences in urban transport deregulation. In the United Kingdom (UK), for over 50 years the bus industry sustained a licensed route service that controlled the route network, frequencies and fares on an overall basis, and assigned monopoly franchise rights to operators. The industry was controlled by a few companies (national and municipal), and entry was severely limited. A main consequence of this granted monopoly was the lack of motivation to innovate and improve efficiency (White, 1990). In 1985, the Bus Deregulation and Privatization Act for all the U.K., excepting London, was enacted. On the grounds that public and private firms presented important cost differences, analysts argued that deregulation would reduce costs considerably. The main provision of the 1985 British Transport Act was to allow operators to compete freely in providing commercial local bus services. The reported consequences of the 1985 Act on costs, productivity, and services are important to gain an insight as regards the best policies to improve the performance of the industry.

2.1 Costs and productivity

The deregulation of the UK public transport industry brought about a change in the fleet structure, motivating the introduction of minibuses, which have lower operation and maintenance costs and need no special parking space. Deregulation and privatization also allowed companies to hire external maintenance services, thereby reducing employment and improving productivity significantly.

Some reductions in costs, however, can be associated with wealth distribution problems rather than with social welfare increases (Shleifer and Summers, 1988).

Drivers of independent operators were paid lower hourly wage rates than drivers of conventional buses working for former public sector companies. Besides, a wage structure that was paid independently of the effective working hours came to an end with deregulation. Likewise, additional workers were hired during holidays or sickness periods of other employees while the firm was public, which significantly explained the higher operating costs of public companies.[2]

To sum up, the need to place the newly privatized public sector operators on a sound commercial footing after years of receiving revenue support, combined with the freedom to negotiate wages and conditions locally according to what an individual company could afford, led to these reductions in wage rates and weekly earnings. There were, however, cost reductions from a number of other sources, improved labor productivity being by far the most important one of them.

Nothwistanding the above, it is not clear that deregulation was a factor affecting costs as Vickers and Yarrow (1988) suggest for some industries in the UK. In regions that did not privatize, the industry presented only marginal improvements in productivity. A case in point is The Scottish Bus Group, which only achieved marginal gains in productivity, and is still to be privatized, thus indicating that the process of privatization may be the most influential factor in reducing costs.

2.2 Services and welfare

A main effect of the Deregulation Act in the UK was that new companies entered into the market. As a consequence, bus-kilometers doubled, the average number of passengers per bus halved and average passenger waiting times fell by 30 to 40 percent. On the other hand, headway became irregular, and bus scheduling efficiency fell by a few percentage points.

Furthermore, a main basis for deregulation in the UK was the belief that, independently on whether there was active competition or not, incumbent operators would be so disciplined by the threat from potential entrants that they would always provide the best possible pattern of services and fares. The evidence on social welfare is, however, mixed. While Evans (1990) argues that intense comercial competition eliminated the substantial profits and gave benefits of greater value to passengers in the form of reduced bus waiting times, Beesley (1990) reports evidence that operators matched fares and tacitly colluded to mantain the pre-existing fare structure and to simultaneously increase fares at a rate equivalent to inflation.

[2] Among Metropolitan operators, more than half of the total unit cost reduction is explained by productivity improvements, particularly among non-platform staff. As for reductions in wages, these can only account for 4-8 percent of cost savings, while non-labor costs account for less than 5 percent.

The latter aspect is of great interest for our purpose. Even though some routes began to operate competitively, most local bus markets remained highly monopolized after deregulation and many potential entrants failed to enter the industry. Evans (1990) argues that local knowledge of incumbents was crucial. In fact, entrants did not get any more passengers per bus than the incumbents, and often got fewer. Consequently, the effects on net welfare are not clear. If companies raised their fares, social welfare could have dropped. Thus far, however, after deregulation the industry has had low profits, which was especially associated with the places where a better minibus service, at lower fares, began to operate. Perhaps, fleet composition explains that a small net benefit was obtained in the metropolitan areas, but a net loss, elsewhere. Thus, on one side, consumers benefited from higher frequencies and, on the other side, they lost due to lack of coordination among firms, higher real fares and higher instability. Likewise, workers lost from lower wages. Considering the gains due to cost reductions, the net gain in Metropolitan areas reported by White (1990) seems much more consistent with what was expected.

In contrast, in London where the market was not deregulated, there were no user or worker losses, but a substantial net benefit through higher productivity. White (1990) asserts that the London example of competitive tendering within a coordinated system has worked much better from the passenger's point of view. Operating costs were substantially reduced, without the associated losses found in deregulated areas.

Most other countries in Europe have not experienced deregulation. Local bus services are generally operated under monopoly franchise; only Denmark, Sweden and Portugal have any significant degree of competition in the field. All other countries have supported little moves in the direction of free entry. Furthermore, in most countries, despite the indicators of excessively high costs, asociated with poor regulation, there are not as yet any changes towards deregulation. The most plausible explanation for the latter is that public transport is seen primarily as an element of a locally planned social infrastructure, which requires direct local political control. The implementation of regional national fare systems (e.g., as the one existing in the Netherlands), often applying to all modes, is perceived to be incompatible with a deregulated market. That is, even where services are either provided by private companies, as in France, or through competitive tendering, as in Sweden, there remains a commitment to planned integration of public transport and to local autonomy.

In short, the general perception is that the UK experience with deregulation was unfavorable. In many cases, the different perceptions on costs and benefits appeared to be the result of scanty information, either coming from the complicated nature of the industry structure, or from different experiencies at different locations. Even in other European countries that attempted deregulation, competition had to be limited either to areas where no integration issues were perceived to arise

(Portugal) or where side marginal competition within a largely planned system could take place (Sweden and Denmark).

3. THE CHILEAN CASE

Until 1975 the role of the Government in the urban transport industry in Chile was all embracing and stifling. The State granted routes to a group of people that had the exclusive right to operate them. Changes in fares, routes, and frequencies could only be made through a Law Decree. Furthemore, in that context of inflexibility and limited entry, the existence of susbstitutes was much smaller than it is today. Thus, there were fewer taxis in relation to passengers, the underground railroad (Metro) was only a project and the proportion of private cars was much lower than it is today.

In 1975 the first steps towards deregulating the industry were taken. The first policy was to allow entry, eliminating the requirement of government authorization. However, it was in 1979 when the government implemented the most severe deregulation actions. In that year entry and fares were completely liberalized, custom tariffs on used vehicles were reduced and the government granted US$80 million in subsidies on vehicles purchased, which had an important effect on the supply of buses.[3] Despite some criticisms regarding the effect that deregulation would have on congestion, a Decree stating the complete freedom of routes was enacted in 1988.[4]

In 1991, as a consequence of the critical contamination and congestion levels in Santiago, that had led the government to impose a daily restriction on 20 percent of the vehicles, the power of the Ministry of Transport to limit access to new routes was reestablished, and a process of higher regulation was undertaken again. The same law prohibited imports of used vehicles and authorized the allocation of routes through competitive tendering. The latter aspect has been the most interesting action taken and its nature and effects are evaluated in section 4.

3.1 Foundations for deregulation in Chile

There are many arguments to deregulate urban transport. The most important one in Chile was the poor service provided by the regulated and state-owned industry. In Chile, coverage and quality of service in 1977 had reached a dramatically low level. Thus, while in 1960 the service was not satisfactory in terms that coverage and frequencies were poor, a decade after, with a city that had grown

[3] For details, see Fernández (1994).

[4] For more details and references, see Paredes-Molina (1991).

enormously, the number of buses per trip or per person was even lower.[5] A second argument to deregulate is the association between entry restrictions and monopolistic fares. Demand elasticities are small enough to consider that monopolistic fares could bring about important social losses. Furthermore, the reduction of fares towards more competitive levels has an important effect on wealth distribution and social equity.

On the other hand, a deregulation process, as the one performed in Chile, is extreme and presents some problems. The first one is that the use of public roads was congested and hence a basic externality arised. In other words, when an agent decides to enter a congested road, it is because what he obtains in terms of time saving, comfort, and so on, is more than what he loses. However, when this agent enters a congested road he also generates a cost to the other agents using it. Consequently, it may well be the case that the agent decides to enter a road, even if his gain (social gain) is smaller than the social cost (his cost plus the other agents' cost). A main consequence of this externality is that, if the price of using the road is zero, the demand for its use will exceed the supply. This will translate into congested roads and a social cost of transport that is higher than what it should be.

Why was urban transport in Chile deregulated and specifically why did the government allow complete free entry? Apart from the arguments regarding the need to improve services, and reduce fares, there are two reasons that prevailed in the decision to deregulate. The first, is that the regulator did not foresee that roads would become congested so soon.[6] Second, and more important for our purpose, the regulator thought that price mechanisms would do a good job limiting entry when the service achieved a satisfactory level. In other words, regulators acted under the assumption that free entry would reduce fares and that lower fares would control entry.

However, an additional problem concerning regulation arose in Chile. It is usually the case that when entry is limited, fares, frequencies, and other aspects of the service are regulated. The natural extension of such arguments implied that in Chile, once entry was liberalized, the regulator also freed fares. The economic argument was that collusive practices are unlikely to exist since free entry will impede mantaining an agreement not only among the operators, but also among unknown potential entrants.[7] Furthermore, those engaged in collusive practices will have the incentive to break the agreements if they think collusion will end soon.

[5] See, Ministry of Transport, (1990), and Fernández (1994) for details.

[6] This, in part, was also the consequence of low investment in infraestructure that took place in Chile in the seventies and eighties.

[7] In such a case, one may think that the problem the cartel faces is that property rights are not properly defined. In other words, as anybody could ask the cartel for a share of their profits in order to remain out of the industry, it is less likely that a successful cartel could survive.

This "last period effect" is an additional argument to rule out the possibility of a disciplined cartel.

The regulator went beyond that point, though. To facilitate coordination and dialogue between the Ministry of Transport and the operators, it promoted the formation of associations among the latter. It was expected that those associacions would take care of their members' reputation, by improving their efficiency, but in no way, as it did happen actually, would they allow them to engage in collusive activities.

3.2 Collusion in public transport: Is it possible with free entry?

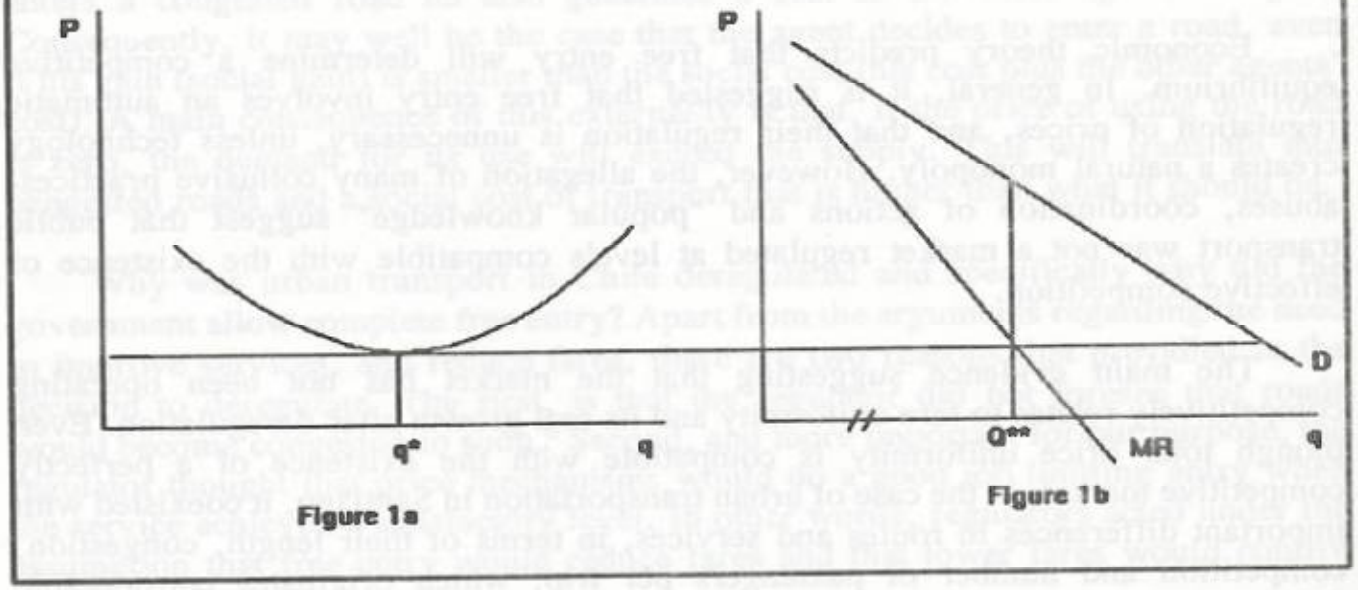
Economic theory predicts that free entry will determine a competitive equilibrium. In general, it is suggested that free entry involves an automatic regulation of prices, and that their regulation is unnecessary, unless technology creates a natural monopoly. However, the allegation of many collusive practices, abuses, coordination of actions and "popular knowledge" suggest that public transport was not a market regulated at levels compatible with the existence of effective competition.

The main evidence suggesting that the market has not been operating competitively relates to fare uniformity and its real growth after deregulation. Even though total price uniformity is compatible with the existence of a perfectly competitive market, in the case of urban transportation in Santiago, it coexisted with important differences in routes and services, in terms of their length, congestion, competition and number of passengers per trip, which originates considerable differences in costs and revenues. This is why fare homogeneity can be better interpreted as a symptom of collusion rather than as a result of a competitive process.

Notwistanding the above, an argument exists that would explain the efficiency of homogeneity of fares in a context of uncertainty and which makes it convenient to outrule it. In the case that each bus charges different fares, the benefit for a passenger to wait for another bus that probably charges a lower fare depends directly on the variance of fares on the route. The lower the variance of fares on a route, the shorter the waiting period will be, and hence, the greater the willingness to pay for trips. Due to this, in could be thought that fare homogeneity, even as the product of the coordination of operators, might not reflect any monopolistic abuse and, to the contrary, it could enhance efficiency. However, this argument has little relevance for the Santiago transport sector since a significant portion of the routes and passenger pick-up points overlap, so instantaneous comparison of fares can be performed. Furthermore, to put the relevance of such an argument aside, it is important to emphasize that there were an important number of complaints lodged with the Antitrust Commissions regarding coercitive practices by some

"associations" against their members to maintain the fares over what they wanted. In the next section, we analyze some of these complaints and we argue that only monopolistic fares would explain the sustained increases of post-deregulation fares. Furthermore, evidence from the latest episodes of bus regulation suggest that increases in fares after deregulation could not be associated with quality improvement, implicit in the greater number of frequencies.

FIGURE 1



3.3 Complaints lodged with the Antitrust Commission

In the past twelve years the Antitrust Commissions have analyzed more than twenty cases regarding urban transport. Without doubt, this places the urban transport sector as number one with alleged anticompetitive practices. However, only in a few cases the accused were sanctioned. This is explained by three main factors: i) the wrong interpretation of how a Bus Transport Association should be regulated; ii) the wrong belief that "legal freedom" of entry to different routes and to associations was enough to create effective entry and real competition, and iii) the lack of capacity of the Antitrust Commissioneers to relate criminal actions so as to discipline the cartel.

Regarding the first factor, it is worth emphasizing that many complaints against bus associations were related to their restricting member's freedom to work. They

forced their members (drivers-entrepreneurs) who did not keep the fares above the level they wanted to quit the association.[8] For a long time, the doctrine of the Antitrust Commissions was that the statutes of the Association were not a matter of their jurisdiction. For example, in Resolution 318 of May 1989, the Commission ruled that limiting the access would only affect the affiliated and thus, quotas imposed by the association were not illegal.[9] It was also argued that even expelling an associate hindered neither freedom of work nor the degree of competition, since it is possible to work without belonging to an association (e.g., Resolution 111, November 1981, and Resolution 177, September 1984). Furthermore, in judgment of the appeal made by Resolution 209, December 1985, the request for sanctions against an association for price fixing was overruled on the grounds that it was the authority who promoted the Associations and that the operation of the associations would be equivalent to the operation of a firm. Therefore, the Commision concluded that to impose fares on members would not be illegal.

In this context of freedom to collude, the last case treated by the Commission involving a bus owner and its Association is very relevant. After two months of dealing with a fare imposition case, the plaintiff withdrew the complaint. The Commission, however, decided to continue the investigation, since public well-being was affected. Once the case was reinitiated, the operator who filed the complaint explained that when he reduced the pre-fixed fares, the Association withdrew all insurance benefits, especially those allowing him to receive an indemnification for accidents. He also argued that the Association did not allow him to enter a new bus into the route to replace another one wich was too old, until there was a positive resolution from the Antitrust Commission.

Even though it is not a legal requirement to belong to an Association in order to enter into the sector, belonging to them is virtually a necessity since it reduces the cost and hence eases entry. The following three factors have in practice induced small operators to become affiliated with an Association, and hence they become a useful tool to control the collusive behavior of the whole industry.

a) Insurance against accidents

While the private sector provides insurance against accidents, in the case of public tansport it does so only at a considerably higher cost than the cost that association members have to afford. In consequence, being affiliated to an Association facilitates obtaining insurance which is a key input for participation in the industry. The above is the outcome of economies of scale in the body repair market and, also due to the fact that the word hazard problems is eliminated by integrating both the insurance and client.

[8] Specifically, drivers who did not charge the fare set by the association did not get a proper schedule or their buses were simply hit by others.

[9] See also Resolution 199, September 1985.

FIGURE 2

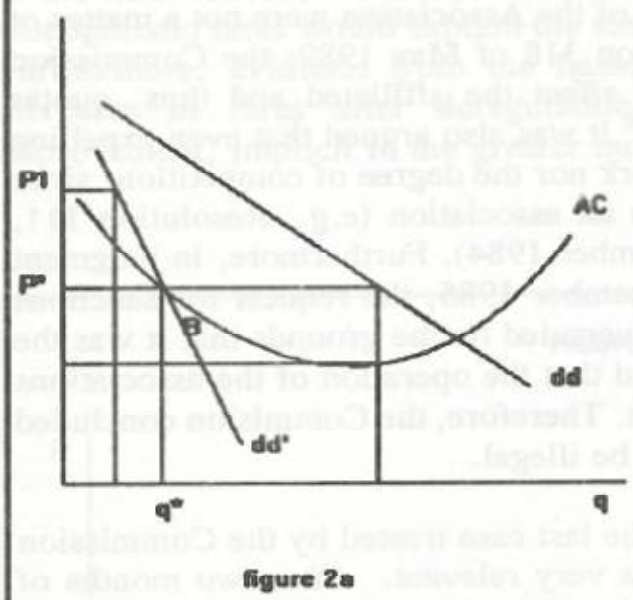


figure 2a

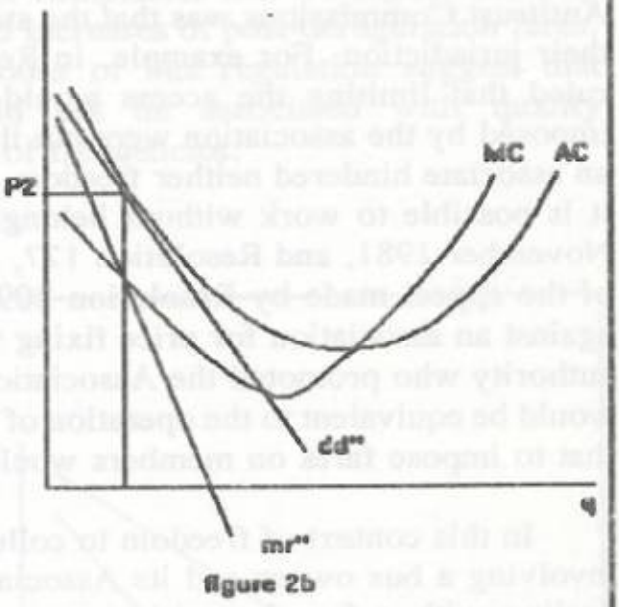


figure 2b

b) Frequencies

An independent operator that works on a route in which frequencies are optimally established, can compete under equal conditions only when a general adjustment in the frequencies of the others results from his entry. To discourage the entry of an independent competitor, it would be enough not to affect the frequencies of the other operators. Moreover, incumbents could modify frequencies and hence reduce the possibility for newcomers to pick up a significant number of passengers. This action, frequently denounced by small operators trying to work without being affiliated to an association, not only has efficiency costs, but also has been reported as the cause of a number of traffic accidents.

c) Non economic deterrance

Another factor that has been present in most of the complaints filed are criminal actions against those who do not fulfill the orders issued by the Associations. Collision denunciations, physical aggressions, and damaged windows and seats, were common. These practices, even when they are not necessarily generalized, have dissuasive consequences, mainly if they are easy to commit and are difficult to control or demonstrate in court.

3.4 Advantages of cartelization with free entry

Even when economic theory points out that the probability of an effective cartel in the presence of free entry is small, the question still remains: could it be

convenient for a cartel which is able to control a price agreement, to maintain the price regardless of free entry? The answer, as we argue below, depends on the firm's cost structure, the demand elasticity and the entry lag.

To illustrate this, suppose a representative firm with a U shape average cost function and an industry demand as in the figures 1a and 1b. With free entry and competition, the price will be equal to the minimum average cost of the firm, the amount produced by each firm will be q^* and the number of firms (n) will be Q^*/q^*.

In the case of a monopoly, the marginal income equals the marginal cost, the amount produced by each one of the monopoly's plants will be the same as the one produced by each firm in competition, the total production will be Q^{**}, the price will be associated with that quantity and the number of plants Q^{**}/q^*.

Now let us assume a situation in which, as hypothesized in the case of the urban public transport in Santiago, a cartel can control fares, but not entry of new firms. Is it convenient for a cartel, in this case, to set fares at a monopolistic level? Increasing fares will rise the return to the members of the cartel for a period, but after entry takes place, the excess of returns will be eliminated by the increase in costs, since each firm will produce less than q*. What is then more convenient for the firms, to keep fares high and reduce the occupation of buses or reduce fares and keep the occupation level?

The answer to this question depends on the demand elasticity, the cost function and the speed of entrys. The lower the demand elasticity, the fixed costs, and the speed of entry are, the greater the convenience of increasing the prices and reducing production. In figure 2a, dd represents the market demand divided by the number of operators[10] and AC is the average cost of a representative firm. Setting the price at Po will bring profits to B. These profits will involve the entry of new operators and their dissipation, not through the reduction of prices, but by an increase in cost due to a reduction in the units sold associated with the shift of the demand to dd'. When each firm sells q^*, the profits disappear and entry will stop. The cartel can set a higher price though; for example P1, and the whole process takes place once again. The long term equilibrium is illustrated in figure 2b, where increasing prices over P2 is no longer convenient.[11]

This simple model explains the relationship and double causality between price increases, entry and idle capacity, that is only broken when the prices have reached a level that makes the demand each firm faces tangent to the average cost curve. The model can also complement a much more plausible explanation for the observed

[10] This is analogous to the per capita demand curve of Chamberlain's model of monopolistic competition.

[11] It is important to point out that even though the equilibrium obtained in this model is similar to the one in Chamberlain's monopolistic competition, it is conceptually very different. In effect, there is no product differentiation and the negative slope of the demand curve at a moment in time is due to the fixed number of operators at that moment.

dynamics of prices, which is basically a product of a quasi-zero elasticity of public transport demand in this case. Unless a different sort of restriction exists, the cartel will set an infinitely high price. However, fares that are too high will lead the government to intervene and hence any profit could be ended. Consequently, the cartel could progresively increase the price to keep the same given return. The government, if it does not realize the origin of the price increases will allow this behavior, especially if it only looks at rates of return to monitor how high prices are set.

In any event, the data is quite consistent with either explanation. Table 1, shows a consistent fall in the number of passengers per bus and an important increment in the urban transport fares after deregulation. To prevent any criticism regarding the deflator used, the fares of interurban and urban buses are presented. The inputs in each of them are basically the same, and therefore the different evolution of fares through time should only respond to the kind of considerations made earlier, in the sense that the urban transport operation was cartelized and that the factors that affected the possibility of their monopolistic action were not present in interurban transport.

Table 1

	Bus Rates*		Supply and Demand		
Year	Urban	Interurban	No. Buses	Passengers	Passengers /Bus/Day
1977	n.a.	n.a.	4,760	848,235	488.2
1978	n.a.	n.a.	5,092	869,441	467.8
1979	64.4	64.4	5,185	891,177	470.9
1980	71.7	53.5	6,043	913,456	414.1
1981	69.6	60.5	6,081	936,293	421.8
1982	80.6	55.3	6,579	959,700	399.7
1983	110.2	47.4	7,178	885,600	338.0
1984	120.1	47.8	8,240	864,040	287.3
1985	155.6	46.6	8,653	786,140	248.9
1986	169.2	51.8	9,304	820,240	241.5
1987	147.4	50.0	9,945	984,680	271.3
1988	135.3	45.3	10,561	1,033,914	268.2
1989	139.3	44.8	11,841	1,085,610	251.2
1990	177.5	54.8	12,698	1,200,000	258.9
1991	160.3	47.4	13,353	1,224,000	251.1
1992	151.5	46.1	11,891	1,248,480	287.7
1993	146.6	44.4	11,034	1,273,450	316.2
1994	131.8	37.4	11,562	1,298,919	307.8
1995	127.0	39.2	10,228	1,324,897	354.9

Source: Ministerio de Transporte y Telecomunicaciones (Ministry of Transport and Telecommunications).
*Urban fares are in $ 1995, and interurban ones were indexed such that 1979 was 64.4.
n.a.: Not available.

4. COMPETITIVE TENDERING

In 1989 some symptoms of re-regulation appeared, with new characteristics, though. First, buses older than 23 years (built before 1966) were withdrawn. In 1990, 2,300 additional buses were also withdrawn, this time the government paid for them. Despite this effort, in 1990 the total fleet was over 12,000 buses, almost tripling that of 1977.

The diagnosis regarding the situation of urban transport in Santiago led the authority to look for different solutions. An interesting possibility that was explored for the first time in Chile was to open a competitive tendering process. The use of this mechanism would face the two main problems detected: congestion and collusion. Furthermore, competitive tendering would create competition, which the Ministry of Transport was not allowed to do. On the basis of the bid the Ministry defined the routes, the frequencies, and the number of buses for each route.

Between 1992 and 1994, 330 routes in Santiago were auctioned. This process started with 270 routes crossing downtown and involving 6,300 buses. Then, the process continued and included the "Circunvalación Américo Vespucio" and 30 additional peripheral routes. In all, the process involved 9,300 buses.

To avoid granting a monopoly to the licensed firms, a first critical aspect in the bid was the fare. In 1990, the fare was Ch$100 (about US$0.3) independently of the length of the route. The basis of the bid gave 20 points to those charging Ch$80, and a minimum of 10 points to those charging Ch$100.

The second problem, congestion, was faced by encouraging larger buses and lower frequencies than those existing thus far. The Ministry estimated an "optimal frequency" and from that a ratio between the size of the fleet offered by the bidder and the minimum size fleet necessary to serve the required demand. If that ratio was between 1 and 1.1, that is, if the fleet offered did not exceed the minimum size fleet by more than 10 percent, the bidder got 20 points. If the ratio was 1.2, the bidder got 5 points. Ratios out of the range (1, 1.2) did not qualify for the bid.

Likewise, the size of the buses was considered important in the process. Larger buses as well as newer ones received more points. Finally, other aspects such as authomatic tolling, decontamination technology and proportion of driver's wage that was fixed were also considered in the bidding process.

Currently, only a couple of years after the competitive tendering was initiated, the consequences of the process are difficult to assess. Thus far, though, data from the Ministry of Transport and special surveys suggest that buses increased their occupation factors from 600 to 900 passengers daily, more than compensating the reduction in fares that the process reduced by about 11 percent between 1991 and

1992.[12] These two pieces of information suggest that the process was a success. Furthermore, the fact that the fares fell and occupation factors increased suggest that the much higher fares observed after the deregulation in the late 1970's can not be explained only by a better service. In fact, the service-fare combination achieved as a consequence of the competitive tendering process should be the optimal from the consumer's viewpoint.

As expected, the losers in all this process are the associations and thus, their members. Even though occupation has increased by 50 percent and prices fell only by 11 percent, cost increased in part because nowadays the firms have a much more modern fleet.[13] This could also explain why associations today lay the blame on their high debt, which amounts to about US$25,000 per bus and is the main argument in their lobby to modify the fare adjustment clauses.

5. CONCLUDING REMARKS

Different episodes of regulation, deregulation and re-regulation in Chile show that having a well organized, cheap, and efficient urban transport system is a difficult task. The Chilean experience, though, is particularly interesting because under the same external conditions, such as infraestructure, demand structure, and so on, the regulator used different regulatory schemes, that suggest that only the one promoting the highest competition, i.e., competitive tendering, shows advances in the correct direction.

Before the deregulation of the urban transport, Santiago had a very poor transport system, both in coverage and frequencies. Anecdotical observations suggest that considering the minuses and the pluses, the deregulation of the sector in 1975 was a blessing for those who needed public transportation. However, massive entry into the industry was, from any viewpoint, excessive. In fact, entry created congestion and fares did not fall. On the contrary, fares dramatically increased due to the existence of a collusive cartel.

While the UK experience shows that cartels are possible, the origin of the ones appearing in Chile was different. The cause of Chilean ones was not, as in the UK, a high supply concentration in the industry. The origin was the lack of clarity in both the regulator and the Antitrust Commissions which gave too much power to the bus associations. Furthermore, low industry concentration in Chile is an important source of the still unsolved problems. Thus, although the competitive tendering process reduced the excess of supply, this was done in relationship to the peak demand hours. This means that off-peak hours supply is still excessive. Lack of

[12] Information is not quite compatible in this regard. However, different data sources confirm an important increase in occupation factors.

[13] The average age of a bus in the auctioned area is about 3 years, while at the end of the eighties it was 11 years.

coordination within and among different lines creates an excess of supply and a consequent excessive cost.

Another lesson to be learned from the Chilean experience is that reducing entry does not necessarily imply increasing monopoly rents. This trade-off can be reduced through competitive biddings, which as mentioned above, are not problem-free. Economists and lawyers recognize that defining long term contracts creates the trade-off between flexibility and certainty. In Chile, urban transport representatives have been arguing that conditions have changed and that fares must be reviewed. They have correctly argued that the authority has allowed an excessive increase in privately owned cars, which has increased congestion, and thus increased the necessary fleet to meet the frequency requirements. This factor has also increased fuel, brakes, and operating costs. In addition, there is some evidence that unauthorized buses are operating on the auctioned routes. This, of course, would be the consequence of the lack of control by the Ministry of Transport and, if it is the case, it is urgent to solve it.

In addition to these two arguments, which may in a part explain the relatively low return of some firms, as fare evolution suggests, there is no reason to believe that fares are low. Furthermore, the most sensible argument, the high debt that bus owners have should not be considered to change contracts and fares. Given the quite predictable environment operators face at the moment of the competitive bidding, there are no clear reasons why the return to the sector should be lower than the competitive one, unless the operators won the bids offering too low fares, expecting that in the future, contracts would change.

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