This paper discusses the regulation of the Istanbul taxicab market and its consequences. While price and entry regulations are common to many taxi markets, there are significant differences in their institutional frameworks. We examine the problems of the Istanbul market and offer recommendations to improve its efficiency.

**Keywords:** Social costs, monopoly, taxi market, entry restrictions, price controls.

**Introduction**

The unintended and unforeseen costs of regulations usually exceed the expected benefits (Hertog, 2000). Indeed, empirical studies on the government regulation of markets have demonstrated the inefficiency of external control and central planning (Bartel and Thomas, 1985; Stigler, 1971). The transport sector is no exception. Taxicab markets are regulated because of their supposed public good characteristics: taxis have to be available at times when demand is low and in sparsely populated areas. Regulation usually takes the form of price controls and entry restrictions (Beesley and Glaister, 1989; Guri, 2003; Hackner and Nyber, 1995).

Although taxicabs are not a strategic industry and the public goods characteristics are controversial, the sector enjoys the benefits of restricted entry in many big cities. Monopolistic market structures encourage rent extraction and rent-seeking behaviour, resulting in welfare losses and inefficiencies. As predicted by the economic theory of regulation and public choice theory, interest group politics are an institutional component of these markets. Accordingly, taxicab regulations tend to reduce economic efficiency and increase social costs (Marell and Westin, 2002, p. 135).

The goal of this paper is to discuss the regulation of the Istanbul taxicab market and its consequences. While entry and price regulations are similar in many cities around the world, the institutional arrangements vary significantly. We examine the economic problems of the Istanbul taxi market and how they relate to its institutional framework, before offering policy recommendations to improve its efficiency.

**The nature of taxi regulation in Istanbul**

Taxicab markets can have both ‘economic’ and ‘social’ regulations. Social regulations include safety and security regulations, maintenance requirements, rules on drivers’ training levels and so on. Economic regulations such as price and quantity restrictions are defended on the grounds of asymmetric information and negative externalities. While these are purely economic reasons for regulation, they are also used to attain social goals. Using economic regulations in order to reach social objectives is an inefficient way of improving the quality of service in taxicab markets.  

Medallion (i.e. taxi-licence) owners in tightly controlled markets have monopoly power to control the level of fares. Regulation becomes a low-cost tool in these cases. As the rent-seeking literature would argue, taxicab owners cannot effectively establish a cartel and fix prices. The costs of collective action are too high. Public regulation is a more efficient way of determining prices. Thus, cheating is legally forbidden and taxi owners do not worry about any contestant (Mueller, 2003). It is argued that entry regulations and quotas raise taxi fares by at least 25% compared with cases where there is free entry to the market (Rufolo, 1998, p. 15).

In Istanbul, the municipality uses the medallion system and strictly controls entry to the market. It does not have any
restrictions over the mechanical specifications of the car, as seen in New York and London. Any type of car can be used as a taxi, without any restrictions on mileage, year, legroom etc. A taxi-meter calculates the price of each trip. Customers are charged based on the distance they travel and the time they spend in a taxi. The municipality regulates taxi fares through a transportation co-ordination committee.

In practice there is no social regulation; the market is regulated only through entry restrictions and fare regulations. The absence of competition allows taxi owners to ignore the social characteristics of the service; passengers do not have a say on the market structure in any case. For example, taxi drivers have to accept all passengers regardless of their destination. They should not discriminate on any basis. Yet insufficient enforcement and vague rules give drivers room to be selective with respect to destination and other factors.

**Entry restrictions**

The fundamental problem in the Istanbul taxicab market is the municipality’s resistance to new entry. The number of legal taxis in Istanbul has been 17,416 since 1991 (OECD, 2001, pp. 249–253). Price and quantity restrictions incentivise rent-seeking and create other efficiency costs.1

The expressed goals of public policy and the implementation of these policies collide. A recent report by the Ministry of Interior Affairs is a case in point (Lekesiz and Agca, 2003). The report argues that regulation increases productivity in the industry. This view contradicts the reality in Istanbul. To begin with, there is no economic explanation for freezing the number of taxis for two decades. Moreover, cities such as Antalya and Ankara (a tourism centre and the capital of Turkey, respectively) have a higher number of taxis per person than Istanbul, which reflects the necessity of introducing new entry. More clearly, the sharp increase in medallion prices (see Figure 2 below) reveals the wasted resources in the taxicab market.

The restriction of medallions is usually defended for the reduction of negative externalities and the elimination of information asymmetries. Traffic congestion takes first place among the defences of quantity restrictions. However, the number of taxis per person is relatively low in Istanbul in comparison with other big cities. Since there is considerable excess demand in the sector, many operate illegally, as discussed more fully below. Taxis from neighbouring cities and rental cars with drivers can very often be found in Istanbul. The entry restrictions also increase the number of private cars in the city by lowering the associated opportunity costs (Harris, 2002). As a result, the unintended consequences of taxi regulation create considerable negative effects in the market.

**Rent-seeking and regulation**

In cases where there is no natural monopoly, entry restrictions create artificial rents. Quantity restrictions raise the price to monopolistic levels. Incumbent firms tend to spend their resources in order to protect these rents. The Istanbul taxicab market is a typical example in this regard. The rent-seeking model (Keem, 2001; Mueller, 2003; Tullock, 1967) can be used to analyse the situation. In Figure 1, Q shows the competitive level of medallions. The competitive price of a medallion will be P, which includes fees to obtain a medallion and other opportunity costs of acquiring it.2 When there is free entry and exit, there will not be a difference between the secondary market price of medallions and the cost of obtaining a new one from the government. Entry restrictions create monopoly rents for those who already own medallions. In Istanbul, substantial monopoly rent was created when the number of medallions was frozen.

The excess demand for taxis and the ability of a few people3 to control medallions to determine prices play a central role in the pricing of medallions. Medallion owners have a good understanding of market demand and have control over the relevant variables. Both the deadweight loss (ABC triangle) and monopoly rents (P*APB rectangle) are large amounts, given the market prices of medallions (see Figure 2). As in many other cities, this process raises medallion prices, as the number of taxis per person falls.4 In this market environment, social welfare losses due to monopoly rent increase. The entry into the market is only through the secondary market. Alternatively, people have to rent existing medallions. As one would expect, rental prices fully reflect purchase prices.

The taxi/population ratio (number of taxis per 1000 people) in Istanbul was 2.5 in 1991. As the population increased in subsequent years, the number of taxis remained the same, so the ratio fell to 1.4 in 2008. By comparison, the ratios in Antalya and Ankara are 7.6 and 2.1, respectively (Table 1).

**Table 1:** The number of taxis per 1,000 people in Istanbul, Antalya and Ankara (2008)

<table>
<thead>
<tr>
<th>City</th>
<th>Number of taxi medallions</th>
<th>Population</th>
<th>Taxis per 1,000 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Istanbul</td>
<td>18,000</td>
<td>12,569,041</td>
<td>1.4</td>
</tr>
<tr>
<td>Antalya</td>
<td>9,738</td>
<td>1,273,940</td>
<td>7.6</td>
</tr>
<tr>
<td>Ankara</td>
<td>9,527</td>
<td>4,395,888</td>
<td>2.1</td>
</tr>
</tbody>
</table>


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1 Lekesiz and Agca, 2003.
2 Harris, 2002.
4 Tullock, 1967.
Figure 2 shows estimates of medallion prices. At the end of 1999, a medallion cost approximately $104,000. In 2000, the price had risen to $170,000. The economic crisis in 2001 temporarily reduced medallion prices; but after the recession, prices continued to rise, reaching $410,000 in 2006. They remain around $400,000 today.

Figure 3 shows that when the number of medallions is fixed the price of medallions rises as the population increases. Figure 4 suggests there is a negative relationship between the number of taxis per person and the price of medallions. As a result, a continuing entry restriction would push medallion prices to higher levels.

In the current system, the driver’s chamber spends some of its resources to protect its monopoly rent. So, following Tullock, we can argue that some of the monopoly rents are wasted in the process. The waste of resources through rent-seeking has negative effects on related markets. The increasing use of private cars and the minibus market, which is also protected, can be given as examples.

**Taxi fare controls**

In a competitive market, prices reflect average costs – mostly operating costs in a taxicab market. However, in restricted taxi markets, taxi fares reflect monopoly rents as well. For example, if the annual operating cost of a taxi is $10,000, a potential entrant also has to consider the opportunity cost of investing $410,000 in a medallion. Customers would pay a higher fare because of medallion prices, and since the medallion price is only a wealth transfer with no productive effect, it is a waste in terms of social efficiency (Taylor, 1980, p. 180).

Table 2 gives the taxi fares in Istanbul from 1990 to 2006, which reflect the magnitude of wealth transfers. The variability of the numbers gives some information on the political pressure on fare setting by medallion owners. In ten of the 16 years, taxi fares rose more than the inflation rate. In six years, they were behind the inflation rate. These years were periods of economic crises. Thus, municipalities were more sensitive to an adverse reaction from consumers. Under normal economic conditions, lobbying seems to be effective. Medallion owners press for higher taxi fares in order to cover the cost of their medallions. This is an example of government failure, in the sense that the governing authority fails to price taxi services efficiently.

A related issue is tax-avoidance. According to the related tax laws in Turkey, incomes from both providing taxi services and medallion sales are liable to a lump-sum tax. Accordingly, taxi and medallion owners must declare their revenues to the tax authority at the end of every year and pay tax based on their revenue levels (Ugurlu, 2008). However, neither medallion sales, nor taxi fares are *de facto* taxed in Turkey because taxi drivers and medallion owners tend to be dishonest in the disclosure of their revenues. Governments have failed to take this issue seriously. The lack of enforcement effectively makes taxicab markets part of the underground economy. It also attracts other illegal activities to the taxicab market. While official evidence is lacking, it is widely believed that those who hold most of the medallions operate in the informal economy in other sectors as well.

**The quality of service**

The Istanbul taxi market is typical of monopolistic structures. The quality of service appears to be low compared with other big cities. While there is no empirical study on the quality of

<table>
<thead>
<tr>
<th>Year</th>
<th>Initial fare (TL)</th>
<th>Fare per km (TL)</th>
<th>Change in taxi fares (%)</th>
<th>Inflation rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>1,000</td>
<td>750</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>1991</td>
<td>2,500</td>
<td>1,750</td>
<td>150</td>
<td>66</td>
</tr>
<tr>
<td>1992</td>
<td>5,000</td>
<td>4,000</td>
<td>100</td>
<td>70</td>
</tr>
<tr>
<td>1993</td>
<td>8,000</td>
<td>6,000</td>
<td>60</td>
<td>66</td>
</tr>
<tr>
<td>1994</td>
<td>12,500</td>
<td>12,000</td>
<td>56</td>
<td>106</td>
</tr>
<tr>
<td>1995</td>
<td>15,000</td>
<td>18,000</td>
<td>20</td>
<td>89</td>
</tr>
<tr>
<td>1996</td>
<td>30,000</td>
<td>35,000</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>1997</td>
<td>60,000</td>
<td>75,000</td>
<td>100</td>
<td>86</td>
</tr>
<tr>
<td>1998</td>
<td>120,000</td>
<td>135,000</td>
<td>100</td>
<td>85</td>
</tr>
<tr>
<td>1999</td>
<td>300,000</td>
<td>245,000</td>
<td>150</td>
<td>65</td>
</tr>
<tr>
<td>2000</td>
<td>400,000</td>
<td>300,000</td>
<td>33</td>
<td>55</td>
</tr>
<tr>
<td>2001</td>
<td>500,000</td>
<td>375,000</td>
<td>25</td>
<td>55</td>
</tr>
<tr>
<td>2002</td>
<td>780,000</td>
<td>585,000</td>
<td>56</td>
<td>45</td>
</tr>
<tr>
<td>2003</td>
<td>1,050,000</td>
<td>790,000</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td>2004</td>
<td>1,050,000</td>
<td>790,000</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>2005</td>
<td>1,300,000</td>
<td>900,000</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>2006</td>
<td>1,500,000</td>
<td>1,000,000</td>
<td>15</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: Istanbul Chamber of Drivers, Istanbul Metropolitan Municipality and the State Statistics Institute.
service, anyone who hails a cab in Istanbul has a high chance of encountering old and unsafe cars, as well as ignorant and rude drivers who do not obey traffic laws.

Quality-of-service issues came to prominence with the deregulation movement in the 1970s and have subsequently become still more important. Some countries (e.g. Sweden and New Zealand) loosened economic regulations and increased social regulations (Bekken, 2007). It is our belief that economic deregulation should be combined with an increase in social regulations. Thus, as prices decrease by economic deregulation, quality might increase as social regulations are strengthened.

An important source of low quality and safety standards in Istanbul is the leasing system. Most medallion owners rent or lease their medallions. The duration may be as short as one day. There is not any long-term contracting in the industry. Medallion owners rent out the cars as well. Thus, they lack the incentive to offer better car standards. Drivers have no incentive to improve the quality of service either. The absence of competition adds to the safety and quality issues. In addition, it is very easy to purchase a medallion in the market. Moreover, there are no controls on the use of medallions (IBB, 1999; OECD, 2000). A better licensing mechanism would force medallion owners to consider quality and safety issues.

Finally, the absence of any consumer courts as in New York or any other administrative process of complaint creates additional difficulties for consumers who have conflicts with drivers. An increase in social regulations would improve the quality and safety of the service.¹⁰

The medallion rental market and for-hire taxis
While the medallion market is monopolistic, the driver market is quite competitive. Entry and exit are free. Driver wages are therefore close to competitive levels. Any increase in taxi fares tends to raise medallion prices rather than pay rates. There is no criminal record check, written or oral interview, local area knowledge test, medical certificate, nor strict enforcement of driving licence requirements for taxi drivers (IBB, 1999; OECD, 2000). European countries enforce at least some of these conditions (Bekken, 2007, p. 44). Medallion owners lobby strongly to stop any regulation that would increase the quality of drivers. Higher quality drivers would raise wages at the expense of medallion returns.

In Istanbul, 40% of taxis are operated by one driver only, 55% by two drivers, and 5% by three drivers. One-driver taxis are run by the owner in two out of three cases and they work regular business hours. Two-driver taxis work around 16 hours and three-driver taxis work almost 24 hours (IBB, 1999).

Medallion owners can expropriate monopoly rents from drivers. Monthly rental values are around $2,000. The driver has to pay for insurance, fuel, maintenance and other costs. For this reason, for-hire taxicabs are not well maintained. Owner-drivers usually drive better cars. Most taxis with two and three drivers are rentals. Owners usually work alone. The restriction of entry exacerbates the problems it is intended to address.

Illegal taxis
A major consequence of entry restrictions is the increasing number of illegal taxis. These are private cars that work as taxis, or taxis from neighbouring cities. They try to obtain a share of the rents created in Istanbul. As they do not have medallions to work in Istanbul, they do not bear the cost of buying or renting the plate. Illegal taxis do not pay legal fees and have no legal obligations in Istanbul. Their costs are therefore lower and they can offer the same service for lower prices. In a sense, the existence of illegal taxis reduces rents for incumbents. On the other hand, the absence of any control mechanism increases the level of negative externalities (Black, 1995; Harris, 2002). It is estimated that there were around 5,000 illegal taxis in Istanbul in 2000 (TUBITAK, 2007).¹² Taxis from neighbouring cities also work in Istanbul from time to time.¹³ There are just 1.4 legal taxis per 1,000 people, a very low figure compared with many other major cities (see Table 3).

The supply of illegal taxis also indicates an artificial shortage of taxis. According to the Istanbul Transportation Master Plan (2007), taxis account for only 5% of all motorised trips in Istanbul, compared with over 10% in 1987. There are a number of factors that affect the shortage in the taxicab market in addition to population growth. These factors also indicate excess demand for taxicabs.

The limited availability of public transport increases the demand for taxicab services. While the public transport system has improved substantially, it remains behind population and density growth. The percentage of motorised trips taken by bus in Istanbul has declined since 1987, from 35% to 21.5% today.

Istanbul is a densely populated city¹⁴ and a hub of economic activity, factors which have a positive effect on taxi demand. A large proportion of Turkish GDP is created in Istanbul and per capita income is the highest in the country. Moreover, economic growth has been rapid over the last 20 years. This supports our thesis that there is a sustained increase in demand. The city’s population is also inflated by the high number of tourists.

Levels of car ownership are also relevant. Along with other variables, car ownership is rising. However, it has not increased to the extent that it has suppressed the demand for taxis. Moreover, as the number of cars rise, the congestion problem gets worse. As a result, driving in the city becomes more costly. In the end, this also increases the demand for taxicabs. Car ownership in Istanbul reflects increased wealth more than a rise in the number of car journeys.

<table>
<thead>
<tr>
<th>City</th>
<th>Taxis per thousand people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tasmania</td>
<td>13.00</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>12.00</td>
</tr>
<tr>
<td>Queensland</td>
<td>8.00</td>
</tr>
<tr>
<td>New York</td>
<td>8.00</td>
</tr>
<tr>
<td>Miami</td>
<td>5.20</td>
</tr>
<tr>
<td>Wellington</td>
<td>3.66</td>
</tr>
<tr>
<td>Stockholm</td>
<td>3.02</td>
</tr>
<tr>
<td>Auckland</td>
<td>2.93</td>
</tr>
<tr>
<td>Istanbul</td>
<td>1.40</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>1.20</td>
</tr>
<tr>
<td>Sydney</td>
<td>1.14</td>
</tr>
</tbody>
</table>


Table 3: Comparison of taxis per thousand people

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The flood of illegal taxis is a good indicator that the medallion system is not working in its current form. The medallion system supports the underground economy. While the law bans illegal taxis, the level of expected profits and limited enforcement encourage individuals to find ways to offer taxi services under different names. Among these, rent-a-car services, tourism companies and mechanics are the most common. For example, rent-a-car services work like taxis by offering short-range services. It is reasonable to expect that illegal taxis have lower standards of quality than legal ones.

Safety and security

There are no entry criteria for taxi drivers and vehicles in Istanbul and there are no legal requirements on driver entry to the market is therefore low-cost. However, there are no legal requirements for drivers and passengers. Medallion owners are against any entry restrictions for drivers inasmuch as it would decrease their rents. As in some other countries, security and safety requirements for drivers could be established (Bekken, 2007). Such regulations could include security cameras, GPS tools and safety curtains. Neither medallion owners nor for-hire drivers support these measures. Cost is the primary rationale. Owner-drivers are in favour of these improvements, but they are not a strong group. Cities such as Sydney and New York use some mechanisms to improve driver safety.

In the Istanbul taxi market anyone can be a driver, as long as he holds a driving licence and pays his fees to the Chamber of Drivers. Entry to the market is therefore low-cost. However, since the medallion numbers are frozen, drivers transfer most of their income to the owners as rent. This situation encourages drivers to ‘take more chances on the road’ in order to increase their income. Naturally, the harder they work, the less careful they become (Harris, 2002, p. 213).

The regulatory legislation does not impose strict standards for vehicles to be used as taxis. Medallion owners, who usually rent their cars with medallions to drivers, are against any improvement in safety standards. However, those who drive their own cars tend to improve their cars beyond the legal requirements for the sake of their own comfort. Passengers also prefer newer cars when they get the chance to choose a taxi in the city centre. At present, economic regulation pushes owners to maximise their rents and neglect the safety dimension.

Conclusion

The Istanbul taxicab market exemplifies the perils of bad regulation. None of the economic rationales for the current controls seems to be justified by the empirical evidence. The deregulation of entry restrictions would increase the number of taxis and improve competition. The observed excess demand and high medallion prices offer strong support for this conclusion. Deregulation would also reduce the number of illegal taxis in the city. We also expect customer waiting times to fall, based on the evidence from other cities. For example, in Dublin deregulation reduced waiting times by 30%. The impact was not as dramatic in San Diego, however – average waiting times dropped from ten minutes to eight minutes (Barrett, 2003; OECD, 2003).

An important dimension of deregulation is whether social regulations will be combined with economic deregulation. If the political pressure of medallion owners succeeds, it may be hard to introduce stronger social regulations and the welfare of customers may not be improved. It is our contention that a reduction in entry and fare restrictions, along with an increase in social regulations would increase social welfare and efficiency.

Nevertheless, any deregulation movement will face fierce opposition from medallion owners and other groups that extract rent from the current system. The influence of the medallion owners makes deregulation unlikely for the foreseeable future. Medallion owners consider that they have legally binding rights to medallion values and any change in their value would be viewed as unfair by them. They could challenge deregulation in the courts by arguing that their rights had been violated. This possibility creates another political motive to protect the status quo in the taxicab market.

To summarise, the Istanbul taxicab market exhibits a range of negative effects resulting from entry restrictions and price regulations. Economic regulation affects medallion prices and taxi fares directly, and the quality of service, safety and security, and negative externalities indirectly. The absence of any social regulations makes the situation even worse in Istanbul. Strong interest group pressure, in the absence of any social constraints, creates more rent seeking. But deregulation may be a way of breaking this rent-seeking spiral. However, legal and political considerations would hold back any attempt to relax price or entry restrictions. In this environment, strengthening social regulations and giving more rights to customers may be a viable policy.

Acknowledgements

This paper is based on a TUBITAK (2007) (Scientific and Technical Research Council of the Turkish Republic) project. Most of the data come from the project. The authors gratefully acknowledge the financial support of TUBITAK.

1. In this paper, ‘taxicabs’ refers to private for-hire cars, which roam freely and service all places in a predefined geographic area, usually a city. They are categorically different from minibuses and limousine services.

2. In terms of demand, quality and price regulations may have the same effect. When the regulator cannot regulate the quality of the service (e.g. technical specifications of cars), price regulations may be defended to give some incentives to taxi owners to improve the quality of their cars. This works to some extent in Istanbul. Owner-drivers are more inclined to improve their cars in comparison with rented cars.

3. We use the term ‘medallion’ because of its wide usage. In Turkey, taxis do not have medallions on vehicles. Their plates are different from other vehicles. In the secondary market, plates are exchanged.

4. While there is no empirical study, the anecdotal evidence supports the thesis that medallion owners are more influential over the municipality, in accordance with the economic theory of regulation.

5. We do not have any accurate data on the likely value of P, since there is no new entry for almost three decades. However, we may assume that the administrative costs would not be very much. On the other hand, new entrants, even if they are allowed, will be paying around the current prices if the municipality uses a bidding auction model, since the drivers’ chamber would not allow too many medallions to be sold.

6. According to newspaper articles, in Bagcılar Auto Centre, which is the central location for the medallion market, some owners hold 80 to 100 medallions (see, for example, Şener, 2005).

7. For example, the price of a medallion is over $300,000 in New York (New York Times, 24 April 2004).
8. There are important methodological problems in determining medallion prices. Firstly, the market for taxi medallions is not well-defined. The information is very limited and based on newspaper articles and interviews with taxi drivers. Secondly, only a small number of taxi medallions are sold in a year. The low level of sales creates large differences across transactions. Thirdly, all sales are informal. Thus, there is no document that gives price information. The market remains part of the underground economy, which is a problem in itself. On the other hand, the comparative analysis of the Istanbul taxi market and other big cities where data are available, and the taxi medallion prices, generally supports these findings.


10. Another reason was the big devaluation in 2001. While Turkish Lira prices fell by 25%, dollar-based prices fell by 65%.

11. The Chair of the Istanbul Driver’s Chamber declared that ‘the number of taxis in Istanbul is sufficient in terms of the population density, the efficiency of mass transportation and taxi fares. We want that this structure of the market should be saved’. See Sabah newspaper, ‘Sarıphan Soldu’, 26 August 2001.

12. The minibus market in Istanbul is also closed to new entry. Minibuses are private buses with a capacity of 14 people, which work on specific routes. Minibus plates are also sold in the secondary market with prices a little lower than taxi medallions (Milliyet newspaper, 1 April 2006).

13. Opportunity cost may still be closer to zero, as it reflects the cost of entering alternative markets.

14. With a very simple calculation it can be found that almost 60% of the taxi fare goes to cover the cost of the medallion in Istanbul. A similar number is found for New York and other cities with restrictions.

15. We use some indirect indicators on inefficiency. Unfortunately, the lack of data makes it impossible to calculate the magnitude of the efficiency, even approximately. As shown in the figures and tables, there is substantial evidence of inefficiency; yet measuring it still remains a task for the future.

16. A similar problem exists in inter-city passenger travel in Turkey. While firms try to fix prices, the possibility of new entry pushes firms to compete on non-price dimensions of the service. The taxi market, with no entry, is free from this non-price competition as well.

17. This number is higher in New York where there are around 30,000 illegal taxis (Harris, 2002, p. 211). The institutional structure of the Istanbul taxi market makes it harder for illegal taxis to enter Istanbul continually.

18. Taxis in Istanbul are vigilant for taxis from neighbouring cities. However, private cars that work as a private phone service are harder to pinpoint. As information and enforcement costs rise, more illegal taxis enter the city.

19. According to the Turkish Statistical Institution (www.tuik.gov.tr), Istanbul has the highest population density, at 2,420 people/km².

20. The security of drivers also needs to be improved. Each year around ten taxi drivers get killed in attacks.

21. There are only six female taxi drivers in Istanbul (Hürriyet newspaper, 27 October 2007).

22. The current daily rental rate for a medallion is around $75. The driver keeps what he earns above this amount.

References
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