THE ECONOMIC REASONS FOR PRICE AND ENTRY REGULATION OF TAXICABS

A Comment

By David J. Williams*

In recent papers in this journal Professor Shreiber (1975, 1977) has supplied an appealing model of determination of price and waiting time in unregulated taxicab markets, which he concludes would produce a large number of cabs, a short waiting time for customers, and high fares. This scenerio, along with Shreiber’s implicit belief that his pure cruising taxi market is representative of real world taxi markets, allows him to advocate price regulation to achieve a satisfactory relationship between price and availability.

The validity of Shreiber’s analysis depends on the following assumptions:

A. When price is below Shreiber’s zero waiting time price, cab owners are unable, except by chance, to generate situations where consumers can compare the price of vacant taxis in the vicinity.

B. Taxicab owners, whatever price they charge, are unable to transmit information to prospective customers as to their location in any geographical area, and vice versa.

C. Cruising is the only form of cab operation, and other modes of passenger transport are not sufficiently close substitutes to influence the price of cabs.

D. Even when price is high enough to generate close to zero waiting times, there is no incentive for large entrepreneurs to enter the industry and combine a large fleet with a lower market price in an attempt to capture a significant share of the market.

The failure of any one of these assumptions can be expected to generate forces of price competition in a taxicab industry free of price and entry regulation.

FAILURE OF SHREIBER’S ASSUMPTIONS

A. The taxicab rank
Shreiber's consumer can only compare the price of taxicabs if by chance more than one passes him simultaneously, or if the price of cab service is so high that waiting time is near zero. Shreiber hypothesises a situation in which consumers minimise their

* School of Economics, La Trobe University, Victoria, Australia. This paper forms part of a wider study funded jointly by the Bureau of Transport Economics and a private group. Opinions expressed are those of the author and do not necessarily represent the views of the Bureau of Transport Economics. The author has benefited greatly from discussions with Michael E. Scorgie and Ronald Kirby and comments from an anonymous referee.
risk of not obtaining travel by accepting the first cab to pass, providing taxi owners with a disincentive to decrease price. The scenario which emanates from this has the necessary conditions that neither consumers nor suppliers have fixed buying or selling locations, and that demand and supply are both random and stochastic.

In both regulated and unregulated markets a taxi rank can provide consumers and suppliers with valuable information. Taxi ranks are useful because the demand for taxi service is not entirely random. Some areas have much larger probabilities of trip generation than others, and consequently cabs congregate in these areas: for example, hotels, railway stations, airports. Conversely, large areas of low demand would never be served by cruising cabs because of the low probability of a vacant cab passing a customer within a reasonable time, and because the passenger/cab ratio would be such that fares must be exorbitant to provide a low waiting time. It might be preferable to have a cab rank in the centre of such areas, minimising average waiting time, taxi fares, and the cab owner’s risk of not finding a passenger at all. Some areas, however, would be too large and demand too weak to make taxi ranks attractive to either operators or users, even if demand would be sufficient to support a taxicab service if information were perfect. In such areas, cab service might be limited to cabs cruising out of the area after delivering passengers, unless some other device is utilised for transmitting information—one method is proposed later.

The existence of taxi ranks means that a potential traveller now has the choice of waiting (accepting the random stochastic wait for cruising cabs) or of walking to a rank where vacant cabs congregate in expectation of customers. Further, the use of ranks is likely to be self-reinforcing between consumers and suppliers. In regulated markets this will be partly because of the considerations outlined above on demand density per area, and also partly because of the discomfort most travellers perceive in waiting to begin their journey, but primarily because a cab at a zero-waiting-time price is unlikely to be able to compete with taxis using taxicab ranks and pricing accordingly. In the absence of price and entry regulations, taxi ranks have the additional benefit that they can be used by customers to compare the prices of cabs. Any owner who lowers his price can expect to be engaged more quickly, gain more rides and have a lower dead mileage than higher priced cabs.1 Lower priced cabs will tend not to cruise, because they will wish to gain the benefits enjoyed by other industries from having fixed selling locations. The patient consumer, who in Shreiber’s cruising market cannot signal his position or the time that he is willing to trade-off to obtain a lower fare, now has a solution to both these problems. In addition, because taxi ranks provide customers with more choice, the demand curve facing each taxi driver is more elastic than if pure cruising were the norm. Furthermore, because the co-ordination problem has to some extent been solved, the rides offered and taken at each price will be greater. Using Shreiber’s terminology: the less random, more predictable nature of taxi demand will mean that a lower passenger/cab ratio is needed to satisfy a given occupancy rate, with the consequence that the Rides Offered and Rides Taken curves will be less steep.

---

1 Taxi meters are not a necessary condition for competition, but might be justified here on regulatory grounds because in their absence owners can be seen to have an exorbitant power to discriminate in price against people in weak bargaining positions. With enforced metering, owners will have to come to some decision on setting a fare that will enable them to compete in the higher density areas where the main part of their work will be.
ECONOMIC REASONS FOR TAXICAB PRICE REGULATION

David J. Williams

Taxi ranks are as old as the taxi cab itself, and appeared before entry or minimum/maximum prices were ever controlled. The oldest known cab rank was on the site of what is now St. Mary’s Church, in the Strand, London. It was first used in 1634, some time before the first cab regulations in 1710. In Melbourne, several known cab ranks were operating before 1849, when the first legislation giving regulatory power over taxicabs was introduced, and some 80 years before taxicab numbers were limited and minimum/maximum fares specified. This natural incentive to taxi ranks was discovered by the Board of Public Utilities in Los Angeles when it attempted to ban taxi stands in Los Angeles in the 1920s. Taxi owners formed their own ranks, which in many cases blocked off business premises, pedestrian crossings, etc. (Eckert, 1972, p. 409). In Melbourne, the early taxi ranks are known to have been places of eager bidding, and it was the rowdiness of this spirited kerbside competition that later induced the Melbourne City Council to locate ranks in the middle of streets. In Los Angeles it was similar over-zealous behaviour by operators that caused the regulatory body to replace open stands with exclusive stands to minimise their duties of regulatory enforcement. This suggests, despite Shreiber’s model, that taxis do not gain business solely by cruising and that traditional markets where buyers and sellers met and exchanged information did exist in early taxi markets.

B. The telephone booking system

Many of the first motor taxicab businesses arose not necessarily from an explicit decision prior to the purchase of an automobile, but because of approaches to the homes of car owners for transport. This type of taxi service came to be known as hire cars, liveries, limousines, etc., and surprisingly escaped much early taxicab legislation because the drivers did not “ply for hire” upon the street. The operation of these vehicles, originally depending on customers who personally ordered cars from the depots or homes of their owners, received encouragement from the invention and use of the telephone and later the two-way radio.

Unlike Shreiber’s taxi operators, these operators had a fixed selling location, were identified easily by customers, and could therefore build up a stable clientele. Also, unlike Shreiber’s operators they had a signalling device which informed them of the whereabouts of potential customers. A taxi operator who works from a depot, aided by phone information and assisted by two-way radio, can vary his price to a level that enables him to co-ordinate his work to minimise dead running, and yet be able to give low waiting times to customers he chooses to supply. Further, it seems probable that any limiting effect on fares in the cruising market from this type of operation will be extended with increases in consumers’ values of time and in the number of telephones per head of population.

The influence on prices in all taxicab activity from this type of competition is shown also by the numerous price variations that existed between hire cars and street taxis before regulation was introduced in Victoria. Hire cars in Victoria remained unregulated in any respect until 1939, while street taxicabs had had maximum fares

---

2 See, for example, McManus (1976), also Melbourne City Council By-Laws, ss. 5 to 9. For evidence on the effect new companies had on single owners by the use of taxi stands, shortly after the introduction of taxicabs in Melbourne, see Victoria Parliamentary Debates, V. 190, p. 3937.

3 Eckert (1969), pp. 409–413. The move was later subject to an unsuccessful Supreme Court challenge; see Rothmeyer et al. (1970), pp. 26–27.
specified since 1911, numbers limited from 1930, and maximum/minimum fares prescribed since 1937. The minimum price regulations of 1937 prevented taxicabs from being able to compete with hire cars. There were various hire car prices but the majority charged 6d. per mile, while regulated street cabs had no option but to charge 9d. per mile. Pressure quickly arose from taxi interests to get the city council to bring the fares and entry of hire cars under control, and in 1939 this was achieved, along with a uniform fare of 9d. per mile. Many hire car owners saw no reason to give up their competitive advantage, and some maintained cheaper fares in defiance of the regulations. While they were later to cause further concern to cruising taxi owners because of the introduction of two-way radio with its improvements in service times, dead mileage and revenue, hire cars were legally prevented from cutting prices against cruising cabs again.

The taxicab rank and the phone booking system assisted by the two-way radio are the main competitive forces that would affect cruising taxi fares in an unregulated market. The higher level of information and co-ordination gained by their use means that at any price a lower passenger/cab ratio will be necessary to achieve a given occupancy rate. The Rides Offered and the Rides Taken curves in Shreiber's second paper are likely to be less steep where demand is signalled by either of these methods than if cruising were the only method of operation. Shreiber shows appreciation of the forces shaping a consumer's belief that he must accept the stochastic wait of the cruising market, but he fails to appreciate that these same forces (imperfect signalling and information) have encouraged more efficient transmission of information and thus a more heterogeneous and efficient taxicab industry.

In the Melbourne regulated taxi market, taxi ranks and phone ordering are far more important than cruising in enabling people to obtain cabs. Approximately one-half of taxi activity is initiated at taxi ranks, a third by phone and only about one-sixth by hailing a cruising cab. Further, these proportions increase at the expense of hailing as the distance from the city centre increases: the area where the greater pressure for price discrimination would exist in a pure cruising market. Shreiber's model refers only to a small section of what we would describe as the taxicab industry.

C. Competition with mass transit

Even were we to accept a pure cruising taxi market, there is no reason to expect that some form of taxicab activity would not develop, in the absence of regulation, to compete with the more conventional modes of mass transport, especially tram-cars and omnibuses. Complaints against taxicabs for "fleazing" tram-car customers have been common in Melbourne over a long period (Transport Regulation Board, 1954, p. 50). However, the United States experience gives us a stronger indication of what to expect in an unregulated market.

---

4 See the Melbourne Herald, 6 July 1939, p. 13, and the Melbourne Argus 4 and 5 July 1939, p. 11. For evidence of the pressures for the regulation of the hire cars from existing taxi owners, see Victoria Parliamentary Debates V. 190, p. 3932–3937, 3092; V. 206, p. 4027–4029, 4012–4016, 3926–3959.

5 See Melbourne City Council Licensed Vehicle Committee Minutes, 19 July 1939; also Melbourne Argus 6 July 1939, p. 3.

6 For evidence on the methods of signalling demand by geographical area, see Queensland Department of Transport (1972), Fig. 4.7. In Wisconsin, 84% of all pickups are contracted by telephone bookings: see Zachar and Beimborn (1974), p. 429.
ECONOMIC REASONS FOR TAXICAB PRICE REGULATION

The Jitney period in the United States which began in 1914 is evidence of the variation in service and price that might be expected in the absence of price/entry regulations. Jitneys were autos that typically operated to or from the main business centres, and they had few constraints on mobility or the number of passengers they transported.\(^7\) Jitneys first appeared in Los Angeles in July 1914; by 1915 there were reported to be 62,000 operating in 175 cities. They operated for fares that their main competitors, the street railways, estimated to be below their out-of-pocket expenses. They competed vigorously and favourably against not only the street railways and buses but also the existing taxicab industry.\(^8\) The constraining effect on Jitney fares of the presence of the electric street railways was shown when strikes or bad weather prevented the railways from operating: Jitney fares would then increase from their usual 5 to 10 cents to somewhere in the range of 75 cents to $1. This demonstrates that the existence of close substitutes (whether they be hire cars, Jitneys, trams or buses) may have an important effect on the price of taxicabs generally.

D. The entry of large fleet owners

Schreiber has explicitly assumed away large fleet operators. In Melbourne, at least, large fleets have at times had a dominating effect upon the industry, both with and without regulation. It seems probable that in Schreiber’s model, as price increases, entrepreneurs will perceive that, if they could raise the paid mileage ratio of their cabs above the industry average, a greater than normal profit could be made. In Schreiber’s model this can only be achieved by having a large percentage of all cabs in one fleet and lowering the price they charge; even then, imperfect information and coordination may limit the gains. However, by utilising the mechanisms for transmitting information discussed earlier, a fleet owner can expect to gain a favoured position over single operators, partly because of economies of scale available with telephone booking systems and modern computer dispatching and plotting techniques, but also because there may be economies of scale in reputation.

When the Yellow Cab Co. entered the unregulated Melbourne market in 1924 it cut fares, offered concessions and operated from 17 taxi stands allotted to it at stations, hotels and dance halls. Other large companies later pursued the same policy of price-cutting.\(^9\) It was these companies’ actions which gave indirect support to consumer groups who used the price competition in a successful lobby to the city council to decrease maximum taxi fares. They also led to pressure by existing fleet owners to get the council to impose minimum fares as well as maximum fares.

It seems probable that, in an unregulated industry characterised by cruising, rank and telephone work, there may be an incentive for fleet owners to enter and cut price in the short run. In the long run, oligopoly power may lead to price fixing. However, intuition would indicate that we should expect quiescent oligopoly with low prices. Attempts to collude and hold prices high will allow the entry of single owners into the

\(^7\) For an illuminating account of their rise and fall (due to the pressures for regulation) see Eckert and Hilton (1972). See also Ozdirm (1973), pp. 59–63, for a discussion of the role of the Jitney in Turkey.

\(^8\) See, for example, The Australian Motorist, 1915, pp. 976–1136.

\(^9\) See Melbourne City Council Licensed Vehicle Committee minutes, 6/2/35, 20/3/35, 17/7/35. Similar pressures existed in other cities: see for example the experience of Chicago in Kitch et al. (1971), p. 320.
market and make less effective the fleet owners' use of radio work, telephone bookings and rank work (Williams, 1979, pp. 20–21).

Speaking of pre-two-way-radio Los Angeles, Eckert notes that: "Because of the large number of firms, the odds were against the operators themselves successfully colluding on rates. Operators consequently requested the Board to facilitate their agreement on rates or to set a legal minimum rate to end overt rate competition . . . The Board attempted to promote harmony by facilitating informal private collusion among the operators".10

It is clear that the incentives to form fleets will have increased with the advent of two-way radios and computer dispatching and plotting devices. However, it is not clear that this will lead, in the absence of regulation, to high prices and/or monopoly power for fleet owners unless entry can also be restricted; the threat of entry by single owners will be ever present.

THE NEW YORK CITY EXPERIENCE

Shreiber describes the New York industry as a free market, but omits to explain the circumstances of the taxicabs’ use of metering devices. The extent of their usage will influence the amount of kerbside bidding that can be assumed to have occurred, and therefore Shreiber’s account of taxicab prices. It is difficult to comprehend a situation with no variation in prices where price is unregulated, and where every taxi owner simultaneously sets the same flagfall, distance, detention and luggage charges. In Melbourne before minimum fare regulation there was much price competition: this is not recorded in official publications, but can only be gleaned from a fine reading of government correspondence and from an understanding of the pressures to regulate minimum fares.

Shreiber provides no discussion of the effect of modes of taxicab operation other than plying for hire. Did companies have their own taxicab ranks? Were the ranks open to all? Did councils discourage competition at ranks by making customers take the first cab, or indeed did official ranks exist at all? Likewise, we are given no information on the prices of booking hire cars or the regulations, if any, that were enforced upon them.11

We are told nothing of the effect of, or reasons for, what Eckert (1973, p. 95) calls stringent regulation by the police department between 1918 and 1930, or why fleet owners saw this as in their interest to lobby for entry limitation during this period. Furthermore, there is no consideration of effects on prices of the changing ratio of fleet cabs to independents between the figures Shreiber (1975, p. 273) supplied for 1930 (52% and 47% respectively) and the figures Eckert supplied for 1937 (61% and 38%).

In addition, Shreiber’s figures are difficult to analyse because of the number of influences upon the industry during this period. He does not contemplate, for instance,

10 Eckert (1969), p. 412. Later he notes that "while there were certainly times when all operators charged identical rates and adjusted them simultaneously, these periods of successful collusion were probably sporadic" (p. 418).

11 That New York, today at least, has a large number of hire car type vehicles operating by two-way radio and not subject to regulation has been documented by Lee et al. (1972), pp. 1–2.
the effect on the supply of taxicabs, and consequently on their price, of the regulations putting down a large number of Jitneys in New York in the late 1910s and early 1920s. A large and mobile group of displaced Jitney owners, who had previously worked for fares that many felt would not cover their out-of-pocket costs (Eckert and Hilton, 1972, pp. 299–303), would have had a dramatic effect on taxicab prices in the early 1920s. Many of these operators would have naturally drifted into the taxicab industry. They had the necessary capital and they probably had few other options, since unemployment in the U.S. was 11.9% in 1921 and 7.6% in 1922. A better explanation of price reductions and low occupancy rates in the 1920s and 1930s might be found in the effects of the short-term labour problems from putting down the Jitneys, the high rate of unemployment in the early 1920s and later the Great Depression, the dramatic decrease in the price of automobiles during the period,\textsuperscript{12} and the low rates of interest during the period.\textsuperscript{13}

CONCLUSION

We have provided a more intuitively satisfying description of the operation of modern taxicab markets, and demonstrated that there is no reason to believe that an unregulated taxicab industry will not be efficient.\textsuperscript{14} This is more likely to be true today than in the past because of technological advances in communications, dispatching, and taxicab plotting systems. In Melbourne approximately half of all taxi activity is initiated at taxi ranks, a third by phone, and only about one-sixth by hailing a cruising cab. An unregulated taxi industry may well diminish the importance of the cruising cab further. It is suggested that Shreiber provides insufficient information and data to support his model, and that the lack of information for consumers and suppliers, necessary for the functioning of his cruising market, is no problem in practice. This is not to imply that the high-price-low-waiting-time hypothesis was never applicable. Clearly, the period before the invention of taxicab meters,\textsuperscript{15} government-appointed cab stands, telephones and two-way radios more closely exhibited the necessary conditions for its fulfilment. The expanded use of all these devices has made possible traditional market situations, where consumers and suppliers meet and exchange information, and where there is informed competition as opposed to uninformed bilateral bargaining.

We conclude that there is little reason to regulate either price or entry. We have in our midst examples of unregulated taxi markets in both entry (Washington, London,

\textsuperscript{12} In 1920 the average wholesale price of an automobile was $941; in 1923 it had dropped to $606; a slight rise in price occurred before the Depression, but by 1933 the price has dropped to $496. These figures are derived from U.S. Bureau of Census, Series Q 310–320.

\textsuperscript{13} Wright (1976) says on page 18: "The rapid economic growth of the 1920s stimulated the profitability and expansion of the taxicab industry. The annual price reductions for the model T Ford, combined with low interest rates, spawned a wave of discount taxi companies in many cities".

\textsuperscript{14} Coffman (1977) raises the possibility of entry by large fleet owners and their possible use of phone bookings, but does not combine this with the added coordination and signalling benefits of taxi ranks and two-way radios.

\textsuperscript{15} The inventor of the first modern taximeter in 1891 was thrown into the river by angry cabmen because it reduced their "opportunities for overcharging". See Georgano (1976), p. 110.
Honolulu, etc.) and price (a number of towns in Wisconsin), and recently the cities of Seattle and San Diego have taken away restrictions on entry and pricing. Price competition and free entry are realistic goals for present-day taxi markets. Despite difficult political barriers, it is hoped that in the next decade an increasing number of governments will move in this direction.

REFERENCES


Melbourne City Council: By-Laws, as specified.


Williams, D. J.: Is the regulation of price and entry in the taxicab industry still acceptable? Australian and New Zealand Association for the Advancement of Science, 49th Congress, Auckland, January 1979.
