

**DEMAND RESPONSIVE TRANSPORT**

**(An economic study of the jitney  
in the South-Western Cape 1926-1990)**

by

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All errors, however, remain my own.

*Intro*

**Abstract**

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This thesis treats the role of the jitney in urban transportation from an economic perspective. The method of enquiry begins with a theory review including a description of the jitney, the distinction between passenger and operator costs, economies of scale and scope, market structure, and an allocatively efficient pricing rule for the jitney industry. It is asserted that in an unregulated urban transportation market a socially efficient pricing structure arises, which reconciles both user and producer costs. A discussion of the rise and decline of the jitney industry in Cape Town from 1924 to 1931 and industry developments in the 1970s and 1980s places this exposition within an historic context. Policy implications of the foregoing analysis are suggested with respect to the potential role to be played by the jitney in urban public transport. Based on this approach, an alternative consideration of the competition between the jitney and conventional transport methods is proposed.

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## INTRODUCTION

Hardly a day passes without the newspapers carrying story of another multi-fatality "kombi taxi" accident, or another episode in the violent "taxi wars" in which rival organisations battle to control a taxi route.

This "kombi-taxi" or "black taxi" phenomenon is not unique to South Africa - the literature has identified similar transportation options in Hong Kong, Malaysia, Ghana, Israel, Korea, Philippines, Kenya, Puerto Rico and Venezuela. Just as the "taxi" phenomenon is not unique to South Africa, neither is it new. They initially appeared in Cape Town before 1926, while their first recorded appearance was in 1914 in Los Angeles. There they reputedly charged a sum referred to as a "jitney" - a smuggler's term for an amount of tobacco. The name "jitney" has become accepted in the literature when describing a special type of demand-responsive transit.

The general body of economic literature has so far not presented a synthesis of theory dealing particularly with the economic analysis of the jitney. It is, however possible to divide the literature into two sections; the first constitutes the analysis of jitney-related issues (such as pricing, costs, value of time, regulation), while the second comprises case studies and analyses of the jitney phenomena. This distinction is made because most work dealing with jitney-related issues concentrates on analysis of the specific issue (such as pricing theory) removed from a

jitney context. For example, Mohring's (1972) work on economies of scale deals with unscheduled transport only, but can be extended to jitney applications.

Inappropriate or incomplete theoretical foundations are sometimes used when investigations of jitneys move beyond mere description to include economic analysis. For example Luk (1980) relied on the analysis of cruising taxis developed by Shreiber (1975) which applied only to the highly specific applications of a pure cruising market with passengers unable to compare prices. Jitneys, unlike taxis, operate along routes and are shared. Jitneys also behave in a ranking fashion as jitney passengers generally embark at a common origin and price comparison is simple (Bassier, 1989).

This thesis will attempt to assemble various theoretical aspects of the jitney and use them to clarify the current economic position of the jitney in the urban public transport network.

### Definitions

Before beginning certain terms need to be defined. To start with, the concept of the "jitney" is related to those of "transit", "mass transportation" and public transportation:

*The terms 'transit' or 'mass transportation' are synonymous and include surface street car, bus, or trolley bus in local urban service as well as rail rapid transit operating on exclusive rights-of-way, generally subway or elevated. The term 'public transportation' includes transit or mass transportation plus rail commuter services.  
(Owen, 1966).*

"Paratransit" is a more flexible subset of "public transportation" and has been defined by Vuchic<sup>1</sup> as:

*urban passenger transportation service usually in highway vehicles operated on public streets and highways in mixed traffic; it is provided by private or public operators and it is available to certain groups of users or to the general public, but adaptable in its routing and scheduling to individual user's desires in varying degrees.*

Takyi (1990) made use of a broader definition of paratransit which includes car rentals, carpools, vanpools, subscription bus, taxis, dial-a-ride and jitneys. Vuchic excluded car rentals and car pools from his definition, but this difference in definition has no impact on the analysis of jitneys.

Jitneys supply a group of services within the subset of paratransit. Farkas and de Rouville have identified two 'groups' of jitney advocates:

*The 'high density' advocates are seeing the jitney in its purely historical form, where individual operators traveled routes of high demand on an unscheduled basis. High demand was required to provide enough vehicles to give reliable service, since times were not fixed. The 'low density' supporters, however, are taking a broader interpretation of the word jitney to include what others might consider private minibus or van service. They see the low capacity jitney better serving a low ridership route than a large capacity bus. While such concepts may include some form of subscription, scheduling or despatching to improve reliability over completely random operations, they see jitneys as being less formally organized than traditional common carriers.  
(Farkas and de Rouville, 1988: 93)*

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<sup>1</sup> Vuchic, V.R., *Urban Public Transportation Systems and Technology*. Prentice-Hall, Inc., 1981: 593. Cited in Takyi, 1990: 164.

This thesis takes the wider view. For example the following products, while not conventional jitneys, are contained in the category of "jitney services":

**Subscription bus services** entail the purchase of a season ticket to guarantee a place on a bus every day, and are relatively high-comfort services in special vehicles. They are designed to compete directly with the private car while providing commuter transport at a lower social cost.

**Dial-a-Bus services** are typically designed for use by the elderly or handicapped, often subsidised by a relevant authority. Results of dial-a-bus schemes have not been encouraging.<sup>2</sup> They have often been introduced as a result of political decisions - where the handicapped or elderly are a significant lobby - and do not really serve those people who require such a product (such as the urban poor and not the suburban rich).

The essential difference between jitneys and "formal (or conventional) transit" (the non-paratransit component of mass transportation) is that jitney services are demand responsive in the market period. Jitney operators tailor their service characteristics (routes, fares, frequencies, vehicle sizes) to perceived demands for jitney services in the very short term while formal transit does not respond in this period to fluctuations in

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<sup>2</sup> Jackson (1982) provides a good example of this type of study. The Dial-a-bus services analysed in his study were all directed at improving the mobility of the elderly and handicapped. Negative features of these services included long travel times, the minimal assistance given to passengers, the necessity of relatively long advance notice being served, and the restriction of services to geographic areas proscribed by political boundaries rather than the needs of their clients (Jackson, 1982: 540).

demand. Although a jitney vehicle is generally envisioned as a relatively small vehicle carrying between ten and 15 passengers, it might just as easily be a large vehicle with a capacity of 80 passengers.<sup>3</sup> "Jitney" refers to the type of service operated, rather than the type of vehicle.

The jitney service (and vehicle) may be either a complement to or a substitute for other public transport modes. A jitney acting as a peak hour feeder to a rail service acts as a complement. The same vehicle in off-peak times might undertake line-haul services (services of medium distance with relatively few loading or unloading stops), becoming a rail substitute.

In spite of the long history of the jitney there has been little formal theoretical work on the subject. Eckert and Hilton (1972) described the growth of jitney operations in the United States and assessed the reasons and effects of the regulations which caused jitneys to stop operating in the 1930s. Locally, Horwitz (1936) concentrated on the broader debate of road transportation regulation in the rail/road transport controversy. More recently Foster and Golay (1986) analysed the 'unsociable' aspects of jitney operations in terms of information costs and competitive equilibria.

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<sup>3</sup> Walters (1982) ascribed the larger size of conventional buses to the influence of regulation. Vehicle capacity is a different issue to that of load factor: Vehicle capacity refers to the maximum number of passengers that can be safely accommodated. The load factor indicates how much of that capacity is taken up, and is often expressed as a percentage of capacity. For a more detailed description of various jitney systems and vehicles the reader is referred to Takyi (1990).

In the field of general applied micro-economics however there does exist a body of literature with bearing on the analysis of jitneys.<sup>4</sup> Issues covered include costing (and the distinction between user and producer costs); the existence economies of scale and the influence this and the theory of contestable markets has on market structure; and pricing (the difference between user's price and the fare and an allocatively efficient pricing rule for the jitney industry). These themes are discussed in the theory section of this thesis (chapter 1). That chapter concludes with a discussion of how several schools of economic thought (Austrians, neo-Classicals, and neo-Marxists) approach the topic of public transport and the policy implications to which these lead.

In Cape Town, jitneys commenced competition with the conventional transportation modes (tram, train and bus) in late 1926 and, following a world-wide trend, proved so threatening to vested (state) interests that they were outlawed in the late 1930s. Following legal changes in 1977 vehicles operating these route-based highly demand-responsive services were once again legalised and the "kombi taxi" industry has since flourished. The history of the jitney in Cape Town is recounted in chapter two and differs from previous approaches (Gill (1961), Coates (1976)) in that it focuses on the development of the regulatory environment pertaining to jitneys in the 1920s and 1930s - a legal framework that is still in use. A discussion of recent developments in the jitney industry and the state of the industry in 1989 complete the chapter.

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<sup>4</sup> In much of the American literature jitneys fall under the umbrella of "paratransit".

Various works dealing with South African jitneys are reviewed in chapter three (including Horwitz, 1936; Gill, 1961; Coates, 1976; Luk, 1980; Kokernot, 1984; Vorster, 1985; Bassier, 1989). These serve to highlight how, with very few exceptions, previous studies have not examined the economics of the South African jitney industry.

In chapter four, the concluding chapter, policy implications of the foregoing analysis are suggested with respect to the role to be played by the jitney in urban public transport. Some transport policy 'traps' are identified - transport policies which neglect user costs and focus only on producer costs can result in a socially less preferred situation. Based on this approach, an alternative consideration of the competition between the jitney and conventional transport methods is proposed.

## 1. Chapter One

### TOWARDS A THEORETICAL UNDERSTANDING OF JITNEYS

In this chapter an attempt is made to clarify the theoretical understanding of the role of jitneys in urban public transport - the multiproduct nature of transport demand and the role the jitney can play in satisfying this demand. Use is made of Lancaster's characteristics analysis (as proposed in Lancaster, 1979). The following is a preview of the major issues discussed in this chapter.

While it is asserted that the jitney is the most flexible of the public transport modes available to satisfy the individual's demand for transport its analysis is not straightforward. As is explained in this chapter, the user of transport services and the producer "talk a different language": the price the user pays comprises both money and time costs, while the transport operator receives only a money price. Towards the end of the chapter it is explained how this dichotomy can be resolved in an allocatively efficient manner which maximises net social benefit.

It has been asserted by some that the public transport industry is a "natural monopoly" as it faces decreasing long run average costs, and it should be regulated in order to avoid the welfare losses of monopolistic supply. An analysis of cost curves reveals that indeed, the user average cost curve does decrease over much of the range as the service provided expands. However, from the operator's perspective, the evidence suggests that incremental

costs are constant, and that large enterprises may even confront diseconomies of enterprise size.

While the economies of scale evidence does not support the "natural monopoly" argument, this argument is similarly not validated by an analysis of economies of scope (economies arising out of the production of greater numbers of products) - there does appear to be an efficient firm size. Given the multiproduct nature of transport demand, productive efficiency can be most effectively encouraged by permitting jitney-type firms to operate in a deregulated manner. It is unlikely that a single firm could or would effectively supply all markets in a competitive environment. Lancaster's characteristics analysis suggests that product differentiation can serve to maximise net social benefits, even when provided by monopolistically competitive firms.

While the question of producer and user economies is relatively clear, a topic that is more ambiguous is the matter of timetabling and information costs. The question of regulation of jitney services hinges to a large extent on the incidence of information costs: a regulated service makes information a lot cheaper to the user at the expense of rigidity in services provided - the service cannot respond to significant shifts in demand in the short term.

Wrapping up this analysis, productive and allocative efficiency are reconciled: Even given that a jitney industry performs best in a deregulated environment, it remains to be asked whether allocative efficiency will naturally follow. The discussion concludes that current pricing which charges "what the market will bear" is efficient in that user time elasticity of demand is

reflected in money price and thus the producer and user "talk the same language".

This chapter ends with a section on contributions from conventional economic theory. Three main schools of thought have been selected in order to demonstrate how the approach taken in this thesis is valid under each.

### 1.1 The role of the jitney in urban transportation

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This section examines the nature of jitneys with emphasis on their characteristics, especially in so far as their roles differ from that of conventional transit.

*The jitney movement is customarily said to date from July 1, 1914, when L.P. Draper of Los Angeles picked up a passenger in his Ford Model T touring car, took him a short distance, and accepted a nickel fare as payment. ... The peak number of jitneys in the country [U.S.A.] was estimated at 62 000, probably about the second quarter of 1915.*  
(Eckert and Hilton, 1972: 294-5)

The jitney has been described by Eckert and Hilton (1972: 308) as; relatively speedy, convenient and offering a specialised service. These are the most important reasons for the success of jitneys in competing with formal transit. Vehicles used for jitney services are frequently smaller than conventional buses. Because of their smaller size and loadings they make fewer stops, use less fuel (per trip, but not necessarily per passenger), are more maneuverable and, most importantly, offer shorter journey and waiting times than do conventional bus services. Readers familiar

with the Cape Town jitneys, discussed in chapter two, will recognise that they conform.

Unlike conventional services jitney service characteristics are tailored to demand conditions minimising off-peak excess capacity. This results in more frequent, less time consuming services accommodating a greater range of destinations than conventional services where jitneys are not bound to specified stops or routes. Public mobility is enhanced through greater accessibility in terms of both time (frequency) and place (origin and destination).

For definitional purposes there is a conventional distinction made between transport and mobility: The demand for transport is a derived demand; transport is not demanded for its own sake but as a means to effect other transactions. Mobility is dependant on transport but has characteristics beyond those of mere transportation including comfort, safety, convenience, cost, origins and destinations. Transportation refers to the physical attributes of the actual journey, while mobility refers more to the options available for transportation. (Kokernot (1984) included a comprehensive discussion of this point.)

#### **1.1.1 Multiproduct nature of transit**

The transit product is not homogeneous. Unlike many other commodities or services, transport can neither be stored nor its consumption deferred. Thus, no arbitrage can occur with respect to either physical location nor time. Mohring has suggested that

waiting and journey time be treated as integral inputs of the transit production process:

*Transportation differs from the typical commodity of price theory texts in that travelers ... play a producing, not just a consuming role. In using common carrier services, they must supply scarce inputs, their own time ..., that are essential to the production process. In dealing with many transportation problems, it is both useful and sound analytically to separate these two roles. That is to say, transport costs can be analyzed as if user inputs are purchased in factor markets rather than supplied in kind. Transport demand can be dealt with as if the price of a trip equals whatever fare is charged plus the money value the traveler attaches to the time his trip requires.*  
(Mohring, 1972: 591)

This proposition can be validated from two aspects: Firstly, passengers embarking on any form of transport literally "spend their time" as well as their money. Time is a scarce and irreplaceable resource and the consumption of that time involves a real (opportunity) cost. Time spent travelling may be "spent" in other, more 'utility-rewarding' ways.

The second aspect supporting Mohring's approach arises from the analysis of congestion. In causing an increased time cost to fellow passengers (for example by delaying the whole bus as well as passengers down the line by boarding and/or alighting, or by increasing the cost of time spent in making a journey such as by adding to crowding and making the journey more unpleasant for everyone) there is an external cost incurred which is borne by all other passengers. These points are covered in more detail in the section on passenger costs (1.2.1).

Different modes and types of transport with differing time and money costs will have different demand curves (at different times). For example a rapid comfortable mode (such as rail) may

have an inelastic demand curve when demand is a function of money price. Should demand be reflected as a function of generalised commuter cost (the sum of time and money costs), it may well tend to be elastic. Smerk (1974) in his review of the USA Federal Demonstration Projects findings related that people are attracted to transit through the following features: Going where people want to go, frequency, integration with other parts of the system; access in terms of time and physical dimensions; elapsed journey time; visibility - promotion. Fare, according to Smerk, is a dimension that is less influential than the above-mentioned in the longer run. These characteristics are included in the passenger's subjective calculation of journey cost, the fare forms only a part of this calculation.

The rational traveller will make use of the alternative that incurs the lowest total trip cost. This trip cost is not merely the cost of a one-way trip, but may often take into account the return trip as well and all attendant costs (including time, money, safety, convenience). For example many trips are at least a two-leg journey: from home and back again. Using one mode may eliminate another choice for the return (for example taking the bus on the outward trip implies that the private car cannot be used on the return trip.) Because the demand for transit is derived (ie. arises in order to complete other transactions) and each individual in effect constitutes a different market there is no reason to believe, as classical economics would indicate, that the marginal costs for the consumer are equal for all modes. Quite clearly individuals are not indifferent with respect to their transportation option preferences as the increased number of

private cars on Fridays ("pay-day") on Cape Town's roads bears out.

This dimension extends over time of day as well as the day of the week. A seat in a bus departing at a given time is a different product to a seat in a bus leaving a short while later (or earlier). Peak hour demand ('necessary trips') tends to be more inelastic than off-peak and similarly for week-end and week-day (although the relative direction is not certain).

What this demonstrates is that the rapid express train service, for example, is a different product to the normal rail service, the difference being reflected in the respective journey time costs. Similarly the jitney service is a different product to the other modes. (The full range from a 'no-frills' shuttle service to a luxury subscription bus service fall into the jitney category.) Passengers who have high time valuations may prefer a relatively quick journey in a jitney, to a slow trip in a conventional bus. This point is emphasised by Lancaster's characteristics approach described on 16.

Jitney services are defined by their relative freedom in operating parameters and are multiproduct by their very nature. Jitney operations can potentially range from express line-haul to relatively dense short distance feeder-type operations. Differing comfort levels, routes and journey times contribute to the variety of transport products offered by this mode.

The multiproduct aspect of jitney services enters in a further dimension. While the number of different types of jitney services (products) has been discussed, the concept that transport is time-

sensitive and cannot be stored implies that different transport opportunities at different times are different products - even if they are undertaken by the same mode. For example a train departing at hour  $h$  is a totally different product to one departing at  $h + 60$  minutes; the difference lies in the waiting time. The analysis of multiproduct industries becomes important when examining the market structure of a jitney industry (section 1.3), especially with regard to the existence and implications of economies of scope.

This section has argued that the jitney industry is a multiproduct one, and in the following section the importance of a diversity of transport products in satisfying the variety of transport demands is discussed.

#### 1.1.2 The importance of transport product diversity

An examination of fare elasticities of demand for different modes illustrates that different market segments exist for transit - as different groups are prepared to pay varying amounts for the transport of their choice. Lago et al (1981) analysed over 60 studies of transit fare demand and concluded that transit demand is inelastic to fare changes - the mean transit fare elasticity was  $-0.28$ . They also concluded that fare elasticity of demand for bus travel is more elastic than rapid-rail travel, off-peak fare elasticities are double the size of peak fare elasticities, short-distance trips are more elastic than long-distance trips, fare elasticities rise with income and fall with age, and the fare elasticity of the work trip is less elastic than shopping and

school trips. These various market segments can be satisfied by different types of transport: For example those passengers with the highest fare elasticities would be prepared to pay a money premium to obtain the speedy, convenient transit they prefer<sup>1</sup>.

Lancaster (1969, 1979) constructed a theory of product differentiation which departed from classic economics in that it viewed goods as being transfer mediums for a set of characteristics. The demand for goods, he suggested, is derived - goods are not demanded for their own sake but because of characteristics they embody. In the classical approach a new set of indifference curves would be constructed for the new complete range of goods. Lancaster suggested that indifference curves are constructed with respect to characteristics of goods, and not the goods themselves.

Lancaster distinguished between vertical and horizontal differentiation: Vertical differentiation occurs where there is a difference in 'quality' between goods - i.e. where amounts of characteristics differ (for example a larger capacity bus). Horizontal differentiation takes place when there is a variance in specification between the goods - i.e. the ratios of characteristics vary (for example a bus with air conditioning).

New goods, where they do not introduce new characteristics, reflect different combinations of characteristics. Lancaster

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<sup>1</sup> Fare elasticities essentially reflect opportunity cost and high fare elasticities reflect income only in part. If, for example, a worker's job is at risk if he is late, no matter how little that day's income may be, the fare elasticity of demand is likely to be very high. In this case the elasticity also represents the capitalised value of future earnings which may be lost.

proposed that the place of a new good in the economic system depends on its price - it will only sell if its price is low enough to induce consumers to purchase it. If the prices of the original goods do not change after the introduction of a new good at least one consumer who purchased the new good would have moved to a higher indifference curve and none to a lower curve.

A difficulty with Lancaster's approach arising from a reading of this literature lies in the definition of new characteristics. It is not clear, for example, if a bus with air conditioning offers a new characteristic, or merely more of an existing one (i.e. comfort). Nor is it clear whether a price difference (generalised cost) is simply that, or if it is a characteristics difference. These questions are not change the applicability of the concept that there are social welfare gains from differentiating products.

Transport lends itself particularly well to this type of analysis. Because transport is a derived demand a transport mode is therefore patronised because of its characteristics (for example time cost, money cost, perceived comfort, perceived safety, etc.). By explaining that product differentiation can enhance social welfare Lancaster's perspective powerfully supports the arguments in favour of diversity in transport. However the introduction of a new service may not be pareto-optimal: the prices of other services may change and some consumers may move to a lower indifference curve.<sup>2</sup>

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<sup>2</sup> Monetary cost may not change, but the time price could very well be different (for example, due to fewer passengers on the old services, or shorter queues. The new services may even add to general road congestion and raise prices for the old services.). However this issue could be resolved by taking the time cost to be a characteristic.

It has been stated above that the jitney class is comprised of a number of different types of services, and that individuals have different time valuations, different origins and destinations, and different service requirements. Diversity and flexibility in services offered becomes crucial if individuals are to maximise their utility by choosing the transport options that most closely fulfill their needs. In chapter two it is shown that jitneys became preferred to the existing conventional mode of mass transit in Cape Town in the 1920s, the tram. This was because jitneys were more successful in fulfilling previously unsatisfied needs. This process is once again currently in evidence.

A number of economists have described and assessed the question of diversity in public transport services (eg. Akom (1984), Kirby (1987), Mahalel and Polus (1984), Takyi (1990), Won (1986)). The World Bank argued for the encouragement of diversity:

*In most developing countries, buses are the major mode of urban transport and often the only one affordable to the poor. Because of the variety of vehicles in use, they are efficient in moving large numbers of people and in meeting the demand for different quantities and qualities of transport. Experience shows that the public welcomes a wide choice of transport and makes tradeoffs between time and discomfort and the amount they are willing to pay. But despite the clear need for great variety in public transport, there is a tendency to establish large, costly public undertakings that offer very limited choices.*

(The World Bank, 1986: ix)

The early history of Cape Town's road passenger transport system this century, as introduced in chapter two, will provide confirmation of this perspective.

Bernstein (1973) evaluated mass transit using a special needs approach; identifying different groups<sup>3</sup> in the 'urban ghettos' of New York and different transport needs (social-recreational, shopping, employment, health). This type of approach is useful in that it identifies those groups who are not necessarily satisfied by the broader purposes of conventional transit or a transportation system imposed by a 'top-down' approach. One of the means suggested by Bernstein in which the differing needs of the various groups could be satisfied is through

*"a modified jitney system with centralized pick-up and drop-off points, properly sheltered, for better access to shopping centers in evenings; ... daytime uses of such a system to provide better access to health facilities for routine medical needs; ... keeping the system on call in late evenings for medical emergency conditions".*

(Bernstein, 1973: 449)

Black (1974) suggested that taxi firms offering jitney operations could serve that portion of the passenger transport market not adequately serviced by conventional transit, particularly those individuals who do not have access to a private car including the young, the handicapped, the aged, as well as members of one-car households during certain times of the day. Smerk (1974) tackled the issues for and against mass transit and the question of what could be done to solve the mass transit problems of externalities such as congested roads and pollution, and increasing subsidies with decreasing ridership. One of his answers was diversity in service in order to best serve the urban transport markets, which should be considered as a collection of nonhomogeneous segments.

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<sup>3</sup> These groups are characterised by race, family size and age combined, sex, car-ownership, occupational status and income combined.

Bernstein, Black and Smerk were, however, wedded to the "institutional model" of conventional transit (providing conventional services in a regulated and restricted environment) and did not go as far as to recommend a free market alternative to the provision of urban public transport services - their recommendations were aimed at reforming the attitudes and practices of 'conventional transit'.

Similarly Dawson (1983) seemed oblivious to the potential of a jitney system. He recommended segmenting the provision of transit into peak and off-peak hours on the basis of demand elasticities for effective marketing of mass transit services - targeting services at the two types of traveller. Unfortunately he too applied his insights only to reforming the operations of conventional transit.

Fisher (1984) viewed the jitney as providing a group of services which are not covered by conventional transit operators who are generally unable to deliver them efficiently. These services constitute what he terms "the growth market for travel". Mahalel and Polus (1984) made a similar point in their analysis of the Israeli jitney (Sherut). They suggested that paratransit had inherent advantages over conventional transit, having greater flexibility in matching demand for services with available supply. As a result, although the routes are often parallel to that of the bus, the jitney offers a higher service level than the bus in terms of waiting, walking and in-vehicle times. The various South African theses; Luk, Vorster, Kokernot, and Bassier have confirmed this.

Teal (1985) reported that taxi firms were becoming involved in the provision of shared public transport through "Demand Responsive Transport" (DRT), such as Dial-a-Bus. He believed that the taxi enterprise is uniquely equipped to deliver different transport products as the infrastructure already exists for the more traditional product of Exclusive Ride Transit (ERT - where only one person hires the taxi). The same fleet of vehicles and dispatch facilities can be used interchangeably for DRT and ERT. The benefit in this arrangement is that services can be delivered at a lower cost than conventional transit as the 'sunk costs' are already in place for ERT, and DRT in essence is a joint product. While Teal's discussions were particularly directed at the relatively restricted Dial-a-Bus type of operations, jitney operations would just as readily be accommodated.

The local experience in this regard has shown an evolution by many independent taxis. Originally offering ERT, they have moved into the Shared Ride Transit (SRT) markets using larger capacity vehicles. Such "Kombi-taxis" are now only nominally taxis and are pure jitanes. There are still a number of relatively large firms offering only pure taxi services with smaller sedan-type vehicles, however Bassier (1989: 4-3) found that only 13% of vehicles licensed as taxis in Cape Town in 1988 operated ERT (taxi) services.

Ross and Simmons (1984) suggested that the private sector provision of DRT could be most efficiently accomplished by having independent companies owning and operating taxis dispatched by an independent dispatch service that has no interests in any of the operating companies. This system would optimise (producer)

economies of scale. In Cape Town some of the ERT operators operate under a similar arrangement ("Owner Drivers Radio Taxis"). Dickson (1987, 1991) stated that jitney services are flexible and adaptable, and

*the combi is still preferred, certainly by those passengers able to afford the fare*  
(Dickson, 1987: 13).

although he suggested that their negative aspects (such as unreliability and poor safety) may outweigh their benefits:

*"Well-intentioned government encouragement of minibuses because they are self-funding and need no subsidy might prove self-defeating too, with accident costs approaching the level of current subsidy payments to buses and trains"*  
(Dickson, 1991: 36)

In the 1920s the Cape Town jitneys were similarly criticised by the advocates of conventional transit. These allegations included a propensity to violence - the so-called 'taxi wars'; unroadworthy and unsafe vehicles; violations of traffic rules; overloading; lack of passenger and public liability insurance; reckless driving; low passenger safety; aggravating road congestion; and affecting the profitability of conventional transit by poaching passengers from buses. While these allegations are fairly wide-ranging they nearly all find solutions in adequate enforcement of existing non-discriminatory regulations by law enforcement authorities. Takyi (1990) offered similar arguments in his criticisms of the jitney. (Horwitz (1936) presented an effective defence to many of these allegations.)

### 1.1.3 The jitney in a developing-economy context

Jitney services occur throughout the world but are more prevalent in developing economies. This is in part due to the relatively low car ownership per thousand population, which would tend to encourage the demand for public transport modes generally, and a regulatory environment less hostile to jitney modes which tend not to suppress jitney supply. A number of case studies have been carried out on jitney operations in various parts of the world:

The Eno Foundation Report (1980) described the operations of "public light bus" minibuses operating in maximum demand areas of Hong Kong, some of which had been franchised by the local authorities to operate on routes not serviced by conventional transit. The type of service rendered by these minibuses is similar to South Africa's "black taxis". Walters (1979) undertook a fairly thorough study of the benefits of minibuses in Kuala Lumpur, Akom (1984) found the minibus operating on high demand routes in Komasi, Ghana, and Mahalel and Polus (1984) examined the Sherut jitneys in Israel where they run along bus routes, but charge a higher cash fare than the buses. These Sheruts are not jitneys in the strict sense, as they run along defined routes, and will not deviate to offload a passenger away from the route. Won's (1986) study described the operation of bus co-ops in Korean cities which incorporate all the private bus operators, and spread routes and revenue evenly amongst them. The result is akin to that of a single supplier (the co-op) but the individual buses are operated by separate enterprises. Kirby (1987) detailed the minibus system operating in the Philippines and Takyi (1990) described the operations of various jitney systems: The Jeepneys

of Manilla (Phillipines), the Matatus of Nairobi (Kenya), the Trotros of Kumasi (Ghana), the Publicos of San Juan (Puerto Rico), and the Caros Por Puestos of Caracas (Venezuela).

All these studies generally have been descriptive and contain common elements of jitneys (minibuses) plying their trade along routes busy enough to at least generate normal profits. Closer to home, Luk (1980), Kokernot (1984) and Bassier (1989) described how jitneys operate in Soweto and Cape Town, respectively.

#### 1.1.4 Summary

The term "jitney" refers to the type of service operated, not the type of vehicles. A jitney service is characterised by the demand-responsive nature of its routes, fares, frequencies and vehicle sizes. The range of jitney services lies between the extremes of a taxi service, where one or more passengers charter the vehicle for their exclusive use (ERT - Exclusive Ride Transit), and a formal bus system with defined routes, fares and operating to a timetable. Each type of jitney service exhibits an individual profile with respect to convenience, speed, comfort, safety, time, frequency, reliability, image and prestige. In terms of Lancaster's theory of product differentiation, this variety in service characteristics assists prospective passengers to maximise their utility by choosing the mobility option that best suits them.

## 1.2 The nature of costs in a jitney industry

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This section examines the nature of costs for jitney trips. These (opportunity) costs are viewed differently by the passenger and supplier, while social costs are the net total of passenger and supplier costs. The existence of economies of scale, and the issue of information costs are also investigated here.

Generally the literature on costs has not made a clear distinction between operator costs and social costs. Social costs, of course, are more than just operator and passenger costs. They would also include such items as road congestion, pollution and environmental effects, and others - in other words external costs.

*The terms private and social costs were first employed by A.C. Pigou, The Economics of Welfare, 4th ed. (London: Macmillan, 1932), part II, chap. 9. Pigou and some later economists failed to distinguish carefully between those social costs which are reflected in private and those which are truly external to a firm. In order for a social cost to be external to a firm it must be one over which the firm has no control or no incentive to exercise control. (Miller and Meiners, 1986: 274.)*

While the wider social costs, such as pollution and road congestion are meaningful the magnitude and direction of the wider external costs and benefits arising from jitney operations is highly debatable and to deal with them adequately would require a thesis of much greater length than this as. (The interested reader is referred to Vorster (1985) who gives a comprehensive starting point for identifying these external costs.) It is relatively straightforward, however, to analyse costs generated by the producer and user on each other (in aspects such as crowding) and these costs form the basis of this thesis.

Costs are viewed differently by the supplier of a transport service, from those who demand it: The supplier of the public transport service looks at the private (accounting) costs involved in the provision of the service while the users of the service study both their outlay in terms of money (the fare) **and the time they spend in getting to their destination.** This is the basis of Mohring's (1972) argument that the traveller has a producing role in mass transit, inputting their own time and that therefore producer and consumer costs should be considered on a par in a social costing exercise (this is explained on page 12).

On a simple level in an unregulated and unsubsidised environment an operator's decision to supply a service is based on operator costs, while a passenger's decision to make use of a particular service depends on passenger costs. In a more sophisticated analysis where social costing is employed in deciding whether or not to provide a service (for example in the case of contract services, or where a subsidy is given) passenger costs (and benefits) should form an important part of the social cost/benefit calculation. In the following two sections the notion of passenger and operator costs are discussed more fully.

### 1.2.1 Passenger costs (time costs)

The seminal contribution to the literature has been that of Mohring (1972) who wrote that the traveller has a producing role in transport - their time cost. Every passenger incurs their own time cost in the form of walking, waiting and travelling times, and also adds to the time cost of others. These time costs form

part of the generalised of cost making a bus (jitney) trip and should be added to the usual operator costs in order to establish a more complete (social) cost of making a trip. The total passenger costs, as a result of the relatively large numbers of passengers, can often be far greater than the operator costs.

Mohring identified two effects of the marginal passenger upon other passengers. He named these 'own bus' and 'system' effects: The own bus effects occur where the marginal passenger embarks or disembarks and delays those passengers already on the vehicle. The system effects refer to potential passengers further down the line (or even behind them at the same stop) who now have to wait longer. Some restrictive assumptions apply to the actual calculation of these costs and valuation difficulties occur, such as time values, length of delays, average speed, and that queueing behaviour is unaffected by timetables. The principle of the passenger having a producing role in the production of a public transport journey nevertheless remains. This analysis has a similarity to the analysis of congestion where the marginal passenger affects all others, however Mohring's analysis differs in that it refers to all services, not just those offered at congested periods.

Turvey and Mohring (1975) expanded on Mohring's (1972) theme and reiterated that passenger costs have to be taken into account when estimating economically efficient (allocatively efficient) fares. Ross (1981) applied Mohring's analysis of passenger costs and concluded that for an 'intermediate' sized city, a taxi service is less costly in terms of a generalised social cost than a bus service, if a relatively low time value is assumed. The higher

the time value, the more attractive the taxi becomes due to the lower time cost of a taxi journey.<sup>4</sup>

Elasticity studies have affirmed this approach and illustrated the significance of time-related components: While these studies did not explicitly measure journey time elasticities and compare them to fares but what can be said is that passengers internalise their individual time elasticities of demand and incorporate them into fare elasticities. For example Abe's (1973) results of a study between 1955 and 1970 yielded a **fare elasticity** of demand for bus services of **-0.22** on average, yet **quality factors**, such as bus hours of service and headway factors (the time between departures) rendered values of **3.0** each. Baum (1973) similarly revealed that fare was secondary to the following factors: time related components (including punctuality and frequency and total travel time), quality related components (including convenience and safety), route related components (including length of the lines and routing), and status components.

While expanding the services available to the passenger almost always leads to a benefit from the passenger's perspective, it is not without its limits: Expanding a service also incurs additional operator costs and these may outweigh the incremental benefit accruing to the passengers, resulting in a net social cost. Dodgson (1986) illustrated the point that social costs are neither solely supplier nor solely user costs, but that both have an equal part to play in the calculation of social costs. Making use of regression analysis based on an elasticities approach he concluded

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<sup>4</sup> Ross' use of "taxi" corresponds to the wider definition of "jitney" used in this thesis.

that over selected bus routes in the area under his study (peak hour) service frequencies should be reduced as they incurred a net social cost. The financial savings so derived, he suggested, should be used to reduce off peak fares. An explanation for his conclusions could be that the routes which he analysed may have been in the stages of relatively low patronage coupled with relatively low time valuations placing the marginal social benefits lower than the marginal social costs. It may well have been the case that by using a slightly higher passenger density or time valuation an increase rather than a decrease in frequency would have achieved a net social benefit.

### 1.2.2 Operator costs

The costs that the profit-maximising operator considers when deciding whether or not to supply a service are primarily accounting or private costs. Decisions regarding fleet size, routing, frequency, vehicle size and type, stops, type of service, and often fare are based on the financial costs faced by the operator<sup>5</sup>. It is usually only when such matters as subsidy are being considered that the purely financial decisions may be tempered by social accounting.

Focussing on operator costs, Lee and Steedman identified

*three variables which together explain nearly 80% of the variation in total working expenses/bus-mile. These are the undertaking labour price ... , labour input/bus-mile ... , and fuel consumption.*  
(Lee and Steedman, 1970: 25)

<sup>5</sup> In a regulated environment certain parameters are specified by the regulatory agency, such as stops, routes, frequency and fares.

This is supported by an analysis of the public transport accounts for the City of Johannesburg for 1982/3 and 1983/4 (City of Johannesburg, 1984: Annexure A).

Depreciation was omitted from Lee and Steedman's regressions as it was not systematically related to any other component of working expenditure. In any case the inclusion of depreciation would have been incorrect - where depreciation does not accurately reflect 'wear and tear' it would occur whether or not the facility was being utilised and is not an economic cost of service. The economic costs are those opportunity (escapable) costs incurred strictly in the production of output and similarly "sunk", or overhead costs are not economic costs in the short term.

Discounting an attempt to reduce labour costs by employing part time labour (for peak use), Lave (1980) argued that hiring part time labour to deal with the peak phenomenon instead of full-time drivers was a short term policy. In the longer term, he asserted, it would prove to be a more expensive policy as organised labour would demand concessions in order to agree to it. The relevance of this analysis does not extend to systems with relatively unorganised labour such as the South African jitney industry which is by-and-large conducted by small operators using non-unionised labour. On the other hand the major South African bus systems are unionised.<sup>6</sup>

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<sup>6</sup> With the latest deregulation moves this position may also change for the large systems where they may be broken up into collectives of small operators who are able to enter into individual contracts with their staff.

The jitney industry has been part of the 'informal sector' since its inception. The relative freedom from the influence of organised labour in the jitney industry is reflected in the structure of industry labour contracts. In Cape Town during the 1920s not only did jitney owners avoid paying union-negotiated rates, but they also evaded Wage Board determined minimum wages and working conditions. This was accomplished through the setting up of dummy partnerships where the principal (owner) - agent (driver/crew) relationship was legally that of equals. Current practices are similar in intention: A standard wage/salary is unusual and often the driver 'rents' the jitney vehicle from the owner, or the driver is compensated on a commission basis (Kokernot (1984) includes a useful description of these practices). For a discussion on the optimality of labour contracts in a jitney industry the interested reader is referred to Appendix II.

### 1.2.3 The output of a jitney firm

In examining the nature of costs a definitional problem is encountered with respect to the output of a jitney firm. In section 1.1.1 it was stated that different types of transport at different times are, in effect, different products. Allied to the definitional difficulty with regard to output, is one pertaining to product which is highlighted when applying the analysis of multiproduct firms to jitney firms.

The difference between output and product in the jitney industry is not one of mere semantics: Product refers to the operator

output only, while product takes into account the producer role of the user as well. Product incorporates the variables of route and time (when to depart). Output includes vehicle size. In other words a jitney trip to a destination  $d$  departing at time  $t$  is a discrete product (simply a departure of a jitney). The output of a jitney firm is this product multiplied by the capacity of the vehicle utilised for that run. Output could be doubled by using a vehicle of twice the size, yet it would make no difference to intending passengers if the original vehicle was not crowded in the first place. While output has doubled, product has not. Similarly doubling the number of runs by a vehicle of given size would increase both the product and the output - the difference being that overall capacity of a double the runs with small vehicle is exactly the same as a single run with a large vehicle. From Mohring, the crucial difference is waiting time. All things being equal, the passengers would prefer an increase in capacity to arise out of an increase in the number of runs and not of vehicle size.

To be able to compare operator and user costs a common basis for comparison is required. It may be more helpful to use capacity per hour, or the number of bus runs per period of time over a route-by-route basis as an indicator of passenger time costs. Operator economies of scale with respect to enterprise size and vehicle size could then be plotted on the same axes as user costs. Because of the nature of the transport product (*i.e.* that it cannot be stored) it is important to use disaggregated measures.

#### 1.2.4 Economies of scale

*... economies of scale and increasing returns to scale are related but are not exactly the same. Increasing returns to scale are the technological or production basis for economies of scale. Economies of scale are represented by a declining average cost of larger-scale production. Economies of scale can arise solely on the basis of technologically increasing returns to scale, or they can come about solely from price effects on inputs. Hence, it is possible for there to be increasing returns to scale but no economies of scale if the firm must buy its inputs at prices that rise when the industry (or firm) expands production. It is important, however, to distinguish between changes in factor prices which result from the expansion or contraction of an industry and those which result from causes outside the industry. The former are reflected in the shape of the firm's LAC curve; the latter are reflected in the position (upward or downward shift) of the firm's long-run and short-run cost curves.*

(Miller and Meiners, 1986: 297)

The issue of economies of scale is crucial when discussing the questions of productive efficiency and market structure. If economies of scale are present then the industry supply may tend to be concentrated in few suppliers and an oligopoly-type situation may emerge. Classical analysis states that even natural monopoly involves a welfare loss mainly due to the problems of allocative and productive inefficiency (monopolistic prices are higher and outputs lower than those of more "competitive" market structures). Lancaster has refined this approach and stated that monopolistic competition need not incur such a welfare loss if this monopolistic competition is the result of product differentiation, which allows consumers to choose the product they most prefer (and move to higher indifference curves). Marked economies of scale, however, will tend to reduce the amount of product differentiation and move increasingly to an oligopoly-type structure, which even Lancaster concedes involves a net welfare cost (when compared to differentiated monopolistic competition).

Generally literature on costs has not made a clear distinction between operator and social costs. Mohring (1973) illustrated significant returns to scale yet Lee and Steedman (1970) and Kirby (1987) found that scale economies did not exist for bus operators. What Lee and Steedman, and Kirby referred to is that the cost schedule of operators running relatively small fleets or relatively large fleets is proportional to the size of the fleet. Mohring's point was that, from a social accounting point of view, each successive passenger's trip incurred a lower social cost if it meant that a vehicle fleet was used more intensively.

Based on the two perceptions of costs, there are two types of economies of scale: Economies of scale from the points of view of the supplier and of the transport user.

*From an economic point of view, the salient feature is that there are significant economies of number of vehicles serving a given geographical area, and equally important economies of vehicle size. The number economies are manifest in the user costs, while the size economies exist in the producer costs. The number economies have to do with the access to sts [scheduled transport services], and are normally reflected in both the frequency of service and the density of service. (Jansson, 1979: 269-270)*

This section deals in the main with enterprise size, while vehicle size economies enter into the discussion on frequencies and user time. These are discussed in the following section; market structure of a jitney industry.

When examining producer economies of scale two effects can be identified. Firstly economies due to the size of the enterprise, and secondly economies attributable to the size of the vehicles. These are essentially independent issues, a small enterprise being subject to the same vehicle economies as a large concern. Pagano

and McKnight (1983) described the policy implications of operator economies of scale as follows:

*If economies of scale are present, regulation should encourage the granting of licences in more than one municipality in order to encourage efficient size. ... If substantial diseconomies are present, then regulations which limit the number of firms in a given area may help to perpetuate inefficient operations. If, on the other hand, economies are present and the taxicab industry is deregulated in smaller areas, the question arises whether monopoly providers will result, or whether several small firms can coexist in one area.*  
(Pagano and McKnight, 1983: 299)

Abe (1973) wrote that

*to explore the existence of scale economies ... operating cost per bus mile deflated by the Bureau of Labor Statistics consumer index of transportation was plotted against ... the number of revenue passengers. The resulting curve was U-shaped. ... The result is statistically significant. ... The U-shaped curve indicates that scale economies exist in the bus transit operation.*  
(Abe, 1973: 427)

The U-shaped cost curve reflects both economies and diseconomies, however since Abe's output concept is defined as a bus-mile, it is not clear from Abe's paper which economies are the most significant - vehicle size or enterprise size. The curve may also reflect management economies - the more intensive use of existing capacity - or size economies - whether the capital stock was enlarged for larger undertakings.

Pagano and McKnight (1983) also derived a U-shaped cost curve for taxi operations which defined a level at which the firm could optimise its economies of scale although, due to the specificity of the data employed, the specific applicability of their result is restricted to the geographical area they studied. The possibility of taxi or bus operations being a natural monopoly was

discounted by Pagano and McKnight through their use of specifying two separate output measures; annual ridership and annual passenger miles. They observed the U-shape in the first measure:

*[T]here are strong, virtually linear, economies with increasing annual mileage [above 250 000 passenger miles]. This would appear to mean that very small operations are not efficient because vehicles are not used as intensively as in larger operations.*  
(Pagano and McKnight, 1983: 309)

However, when using ridership as their output measure they found diseconomies of scale;

*... apparently the very small operator cannot use fixed overhead efficiently; but with riderships over 50 000 the operator needs more dispatchers and/or administrators and encounters mounting coordination costs.*  
(ibid.: 307)

On the other hand Lee and Steedman (1970) and Kirby (1987) could not find evidence to support the hypothesis that economies of scale exist for bus operators:

*The weight of our evidence supports the hypothesis of constant returns to scale in municipal bus operation. The tentative evidence of increasing returns to scale in traffic and, among the largest undertakings only, in maintenance and repair activity is not reflected in the variation in total working expenses. However, it is possible that scale economies might accrue to very large undertakings ... which are larger than any of the undertakings in our sample. Furthermore, it should be emphasised that, because of limitations of data, the scale hypothesis has been tested throughout with costs per bus-mile as the dependent variable. It is conceivable that a different scale effect might have been observed if costs per bus passenger-mile had been used as the dependent variable.*  
(Lee and Steadman, 1970: 27)

The studies of operator economies of scale referred to above are based on enterprise-wide or system wide (macro) data, while user costs and economies of scale are essentially individual trip decisions (micro). While the preceding studies used conventional

accounting costs when tackling the question of operator economies of scale Mohring (1972), taking producer and user (time) costs on a par, found long run economies of scale. These 'social economies' are due to time in transit and waiting time, both of which are reduced with increased frequency of service. Based on the approach to costs laid out by Mohring (1972), Turvey and Mohring (1975) largely bypassed the matter of producer economies of scale.

*There is an asymmetry between the disbenefits of more passengers with the same number of bus runs and the disbenefits of fewer bus runs with the same total number of passengers. Fewer buses mean increased waiting time because of a longer interval between buses. ... The point is then, even if there are constant private costs to scale of bus operation, there are decreasing social costs. If the number of bus runs and the number of passengers both went up by x per cent, total waiting time would not go up by x per cent. So marginal social costs are below average social costs.  
(Turvey and Mohring, 1975: 282)*

#### Turvey and Mohring's analysis

*concentrates entirely on the case where passengers do not know when the next bus will come.  
(ibid.: 281)*

This reasoning is especially relevant to jitney operations with regular but unscheduled journeys. However Mohring (1972) and Turvey and Mohring (1975) in assuming away operator costs have produced a model that is largely one-sided, biased towards the passenger. It certainly does appear that by sheer force of numbers, user costs initially far outweigh producer costs however as the number of vehicles rises relative to the number of passengers producer costs become more prominent. If operator diseconomies of scale exist then eventual diseconomies of scale with respect to social costing exist as depicted below.

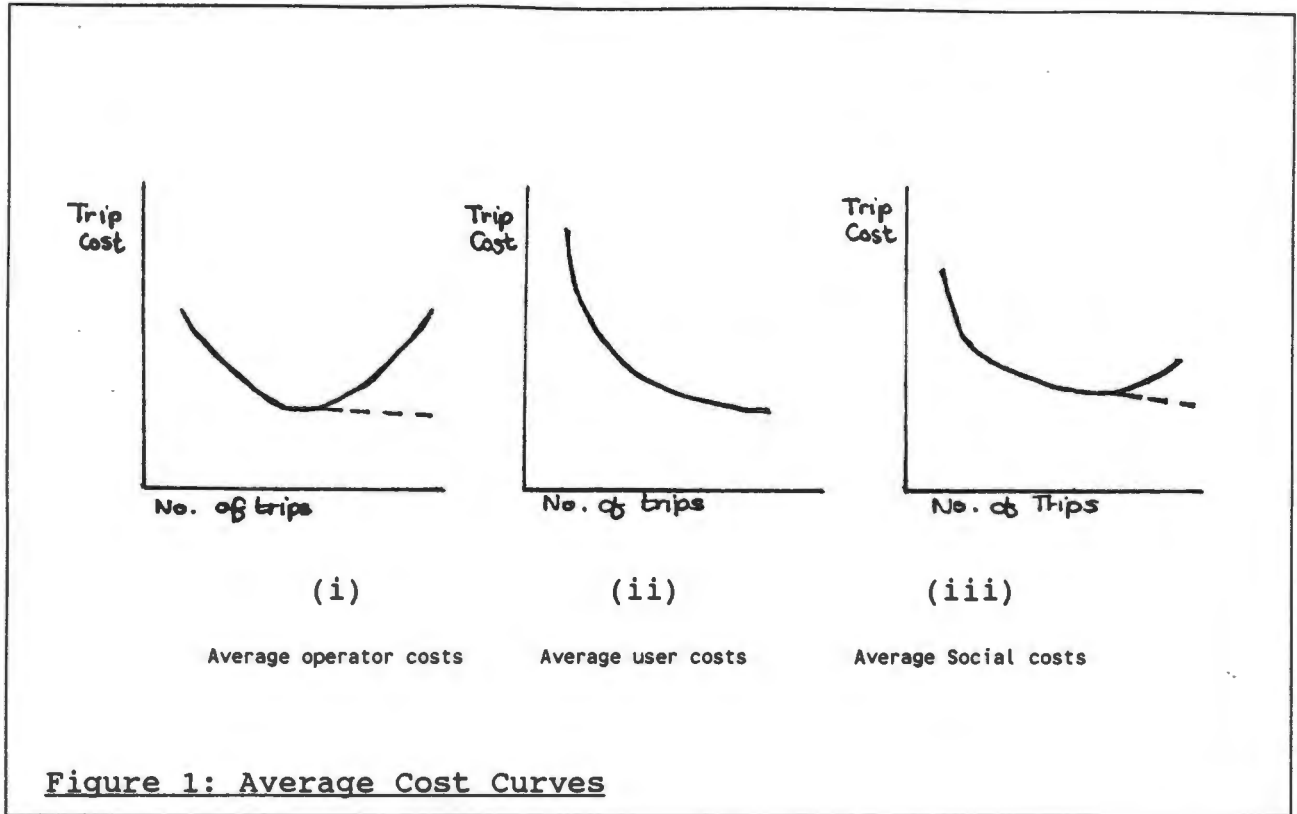


Figure 1: Average Cost Curves

The first figure (i) depicts the U-shaped average operator cost curve. Based on the discussion above, if the industry comprises of one operator only with a U-shaped cost curve then the above diagram is valid. However if we permit as many operators as is necessary to constitute the industry, then an average producer cost curve for the industry can be derived that has no region where average operator costs are rising (the broken line in i). This arises as firms entering the market with lower cost structures receive a relatively higher return from jitney operations and replace firms with higher cost structures who exit the market.

The second figure (ii) illustrates the average user non-monetary cost - which decreases with every additional jitney departure. The third figure (iii), average social costs, is the sum of average operator costs and average user non-monetary costs. It is

clear that if the average producer cost curve is not U-shaped, then there need not be a situation of social diseconomies of scale (broken line).

Jansson (1979), in extending Turvey and Mohring's (1975) analysis indicated why he believed the scheduled transport sector is a 'decreasing cost' one:

*... the coexistence of significant economies of vehicle size [producer costs] and economies of vehicle number [user costs] makes the scheduled transport sector a pronounced 'decreasing-cost industry' (Jansson, 1979: 270).*

In other words the greater the demand for public transport the lower the average cost of providing it, if peak effects are not significant. This should hold whether it be between two communities similar in all respects excepting that one has a higher demand for public transport than the other, or where one community is larger than another with similar population density and trip characteristics (lengths, routes, times). If the industry comprised of a monopoly-type situation the operator would maximise their profit by concentrating on producer economies (economies of vehicle size). In a competitive industry there would be a greater incentive for producers to cater for the various market segments, identified by the different fare elasticities of demand. One of Jansson's central assumptions thus appears to have been freedom of entry into and exit from the industry as monopoly or oligopoly suppliers would emphasise producer economies at the expense of user economies. This point is made more clearly on page 76. Jansson's argument can be easily extended to the unscheduled (jitney) services sector.

Jansson asserted that in the absence of schedule maintenance (running to a timetable), reliability is sacrificed, imposing an information cost - users do not know when the next vehicle will be arriving. (The question of information costs and timetables is discussed more fully in section 1.2.5. In particular he took issue with Turvey and Mohring's definition of the short run, suggesting that the only variable should be the occupancy rate, or load factor and that, unlike Turvey and Mohring:

*... the fixing of the schedule can be considered to be the most important dividing line between questions of short-term operations and longer-term policy matters. ... If the schedule can be adjusted, one might just as soon assume (e.g.) the vehicle input to be variable. (ibid.: 275)*

A jitney service would be characterised by flexibility in both schedule and vehicle input. Schedule flexibility would occur in the short run (in essence, the decision of whether or not to start the vehicle on a journey). Jansson's short run would correspond to the market period - when a jitney vehicle has commenced its run (i.e. the supply curve is vertical). Mohring and Turvey's definition of the short run would remain accurate. The vehicle input is not able to be as instantly responsive to demand and cost conditions, and would be adjustable in a slightly longer run. In the short run for a competitive jitney service the only variable would be the schedule if it is assumed, as is the general current practice, that the jitney driver will only depart once a certain base-load has been reached or is expected (off-peak behaviour).

In regard to the earlier definition of product, (jitney trips per time period on a route-by-route basis) the operator can make the following decisions in the short term:<sup>7</sup>

- choice of route, and
- choice of when to run.

These choices define the short-run. Once these choices have been made the market period is entered where the only choices faced by the operator pertain to stopping for an intending passenger, and whether to abort or continue the trip<sup>8</sup>.

Jansson (1979) proposed that a scheduled service has 'schedule-keeping costs'. The implications (if any) of this modification for economies of scale are ignored. Jansson, furthermore, seems to rely on an intuitive basis for his assertion that the producer is subject to economies of vehicle size. For a given number of passengers, the operator would be subject to a lower average cost if as few vehicles as possible convey them - as only one driver is used per vehicle. Even though the vehicle may be larger, the cost of the driver is not likely to be much more than for a smaller vehicle and if the capital cost of the vehicle is not proportionally lower, it should be at least proportionally equal to a smaller one. If there is an operator cost disadvantage in

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<sup>7</sup> Evans (1987: 10) gave the operator discretion in respect of fare levels as well. In practice the jitney operator has only a limited ability to determine fares as fares are set in the broader market, of which the operator is a participant. It is also unlikely that price discrimination can be successfully practiced in shared ride transit. Decisions regarding vehicle size are influenced by producer economies of vehicle size.

<sup>8</sup> Foster and Golay (1986) refer to this practice as "turning", in which an operator does not wish to complete the journey and terminates the trip short of the stated destination - to the inconvenience of passengers on board.

using larger vehicles, it is unlikely that operators would use such vehicles.<sup>9</sup>

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Table 1: Summary of economies of scale research

**Abe (1973)**

Economies of firm-size:	U-shaped (not clear whether economies are of enterprise or vehicle size)
Economies of vehicle size:	
Economies of number of departures:	Not investigated

**Jansson (1979)**

Economies of firm-size:	Not investigated
Economies of vehicle size:	Operator economies of scale
Economies of number of departures:	User economies of scale

**Kirby (1987)**

Economies of firm-size:	No economies of scale
Economies of vehicle size:	Not investigated
Economies of number of departures:	Not investigated

**Lee and Steedman (1970)**

Economies of firm-size:	No economies of scale
Economies of vehicle size:	Not investigated
Economies of number of departures:	Not investigated

**Mohring (1973)**

Economies of firm-size:	Not investigated
Economies of vehicle size:	Not investigated
Economies of number of departures:	Social economies of scale

**Pagano and McKnight (1983)**

Economies of firm-size:	U-shaped (based on ridership) economies of scale (based on passenger miles)
Economies of vehicle size:	Not investigated
Economies of number of departures:	Not investigated

**Turvey and Mohring (1975)**

Economies of firm-size:	Not investigated
Economies of vehicle size:	Not investigated
Economies of number of departures:	Social economies of scale

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<sup>9</sup> This point is made by Walters (1982), who ascribes the large vehicle size to subsidy, regulation and controls.

Table 1 presents a summary of the major economies of scale studies which clearly indicates that there is little evidence to suggest that a transit operation is a natural monopoly in which a single producer can minimise total operator costs. The sole study in which economies of firm size were discovered (Pagano and McKnight, 1983) was based on passenger-miles and this result may have been due to a more intensive use of vehicles (for example in firms with a large amount of long-distance services). On balance then, the evidence favours a U-shaped cost curve for enterprise size, reflecting both economies and diseconomies of scale.

The evidence regarding economies of vehicle size is much clearer and there are good *a priori* grounds for positing economies of vehicle size (as discussed above). Of course, excess capacity is expensive and running a large vehicle which very rarely gets full may incur a higher average operator cost than a smaller vehicle.

The issue of economies of number of departures were originally described by Mohring (1972) and have been discussed at length in this chapter. Walters (1982) tackled Mohring on the extent of his external waiting-time effect:

*... the Mohring externalities were very largely generated by his implicit assumptions of a monopoly supplier of bus services and a fixed size of (large) bus. There are likely to be only small externalities in a competitively organized bus industry. The size of bus, the frequency of service, and the fares would all adjust to reflect passenger preferences.*  
(Walters, 1982: 60)

In this critique Walters has reinforced the validity of Mohring's original point - that there are economies of scale in the public transport industry if passenger time is taken into account - but has suggested that in a deregulated system not bound by

legislative constraints on route, timetable and vehicle size, these effects would have been internalised by the profit maximising operator to a large extent. A jitney service would be the prime example of internalising such parameters.

For many years Cape Town's road passenger transport industry has matched Mohring's assumptions: a monopoly supplier of scheduled bus services employing unionised labour and a standard large size bus. This contrasts with the re-emerging jitney industry which to a large extent internalises the Mohring externalities (even though the maximum permitted jitney capacity is 16 passengers).

Waters (1982) raised an interesting point when he suggested that the marginal passenger has an external benefit on other passengers as bus operations are expanded when demand increases:

*As usage increases, frequency will increase with the increased number of buses required.*  
(Waters, 1982: 49)

Increased frequency reduces the waiting time for all passengers, and so the marginal passenger has some credit for this, albeit "inconsequential". Waters apparently did not anticipate the case where the bus company responds to increased demand by placing larger vehicles in service. In this event waiting time would remain unchanged (or even increase) but journey times would rise because of the larger number of passengers embarking and disembarking. In this case the marginal passenger would be liable for an external disbenefit on extra passengers. At best Waters' (1982) phenomenon can be said to be ambiguous.

### 1.2.5 Information costs and timetables

Information costs are present whether the service is 'controlled' or not with respect to fares, routes, schedules, and type of vehicles, and safety. The essential matter is the incidence of these costs. This topic is a grey area in the transport economics literature, with discussion taking place in a rather cursory manner, which is regrettable since most instances of market failure are based on information costs or externalities.

Where regulation is instituted it spreads the incidence of information costs from the marginal passenger to the average passenger over the entire spectrum of regulation. For example timetable regulations provide marginal passengers with a guide to help minimise their total time costs. This measure on the other hand prejudices the passenger who would have benefitted from an additional trip not permitted under the timetable (where the operator is 'conservative' in scheduling), or the operator who may be forced to make an unprofitable trip.

Similarly where bus operators are restricted in terms of routes, fares, and vehicle type the marginal passenger benefits through relatively cheap information, at the expense of the average passenger (although it is fair to add that the average passenger is the marginal passenger at some stage). In other words a formal transit system spreads the information cost burden over all passengers and operators (travelling a system or individual route), while a jitney system leaves the acquisition of information to the marginal passenger.

For this reason, in a relatively unregulated environment, the overall time costs may not decrease as much as would be expected if there is a decrease in headway (the period time between departures). This is because the average passenger in a scheduled system may not arrive at a bus-stop on a random basis; the existence of a timetable almost certainly has an influence on queueing behaviour, especially in off-peaks where headways are relatively long. In other words, even though frequencies have increased (or decreased) due to de-regulation, waiting times may not decrease as much as expected (or may increase more than expected) due to the relative expense in acquiring information as to vehicle frequencies.

There is no doubt as to the usefulness and costs of timetables. This is not to suggest that timetables are indispensable, but that there is room for a timetable-bound service and a timetable-free service to co-exist. In other words, a case can be made for subsidisation of a (nominal) timetabled service, where an external benefit of this service is the relatively cheap information to passengers and the consequential benefits accruing to both passengers and operators of a (parallel) jitney service.

To a large extent this describes the current situation in Cape Town: The large (subsidised) bus operator operates according to strict routes and timetables, while the jitney services run smaller vehicles along a corridor, but without the timetable and route restrictions. Without the subsidy the financial viability of the bus company becomes threatened because the jitanes "skim the cream" of the off-peak passengers. In this case the private bus operator is incurring expense in providing information to the

public and jitney operators, the return for such investment accruing to the other parties. A consequence of this may be the withdrawal or curtailment of scheduled bus services.

This problem is essentially one of conflicting goals: The private operator is profit-maximising and expects a private return on investment. Adhering to a timetable is a private investment (made by the timetabled operator) while the return from adhering to a timetable becomes a public return (does not accrue to the timetabled operator) if other operators "poach" the passengers. A subsidy from public coffers applied to the timetabled operator to cover the costs of this service results in a public return accruing to a public investment and also enables a careful analysis to be made of the incidence of the costs and benefits of this subsidy. In this way the structure of the timetabled services can be optimised to ensure that "social objectives" are most effectively met. The issues pertaining to such a subsidy are discussed more fully on page 70.

Such a system, in which regulated, subsidised services run parallel to jitney operations appears to be stable. If the subsidy results in a net social benefit there is no welfare-related reason to discontinue it. Even if no passengers are carried, there may be an information cost subsidy. However if the subsidy results in a net social cost, no matter how many passengers are carried, there can be little justification for maintaining it. The dynamic effects will be confined to the jitney industry, since the timetabled service will be relatively predictable and unchanging in the short to medium term.

This idea has not been proposed in the literature and is more complex than has been presented here. In calculating the social costs and benefits of a subsidised timetabled service there are dynamic effects to be considered. An example is the impact of the subsidised system on the behaviour of the jitney operations: changes in the timetabled system fares will effect jitney fares and this, in turn, will influence the social costs and benefit calculations. But these considerations are basically mechanical and can be incorporated into a social cost-benefit model.

The operator of such a subsidised service can be drawn from the ranks of the jitney operators on a tender basis which can be reviewed at regular intervals. An operator can, during gaps in the timetable, move vehicles from timetabled services to jitney operations. This concept of parallel jitney and timetabled (subsidised) services unfortunately is beyond the scope of this thesis and can be developed in further research.

In the absence of such an organised parallel system the jitney will overwhelm timetabled operations for the reason that there is no incentive to adhere to timetables. A pure jitney system encounters the information cost problems, while the mixed, parallel system explicitly takes some of these costs into account in a socially efficient manner.

#### **1.2.6 Summary**

Costs are viewed separately by suppliers and users of public transport services. Operator costs relate to the decision to

supply a public transport service and are accounting, or private monetary costs. Passenger's costs relate to the decision to demand a particular service. From the passenger's perspective the costs of making a journey involves both a money component, and a time component of the completed return journey.

Mohring (1972) has argued that passenger's time is a productive input and should, in a social accounting system, be reflected as a cost of production. This analysis is similar to that of the economics of congestion. For the operator approximately 80% of the costs of a bus-mile are labour related costs and fuel consumption while capital costs are not a major component of the economic costs of a bus-mile.

Evidence regarding the presence of operator economies of scale with respect to size of enterprise (vehicle numbers) is mixed, however it seems clear that there are economies of vehicle size. From the passenger's perspective economies of scale are manifested through number of available vehicles per unit of time per route. There is an asymmetry between the disbenefits of more passengers with the same number of bus runs and the disbenefits of fewer bus runs with the same total number of passengers as fewer bus departures result in increased waiting time. From a social costing point of view the public transport industry is a 'decreasing cost' industry, however this assertion rests on the assumption of unrestricted entry and exit from the various markets.

The information costs issue essentially relates to the incidence of these costs. Information costs, including matters such as

safety, fares, routes, frequencies, waiting and journey times, cannot be escaped altogether. Regulation tends to distribute these costs over the average passenger while in a relatively unregulated environment, such as a jitney system, the acquisition of information (in other words the burden of information costs) falls on the individual (the marginal passenger) and this may have the effect of making the journey more costly. The question of how to deal with the costs covered in this section is dealt with in the forthcoming section on pricing.

An alternative form of industry arrangement, a mixed, or parallel, system in which jitneys coexist with subsidised timetabled services, is based on social costs and benefits and explicitly takes information costs into account. The subsidy offered to the timetabled operator essentially serves to reduce the information costs of the wider community and the benefits accrue to the operators, users and intending users.

### **1.3 Market structure of a jitney industry**

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Some commentators have asserted that public transport is a "natural monopoly", consequently demanding a regulatory agency to minimise the welfare loss potentially arising out of monopoly supply. This does not appear to be the case in practice as it was illustrated in the previous section that economies of enterprise size, if they exist, do not appear to be significant in determining industry structure. Continuing with the theoretical analysis of the jitney industry in an attempt to clarify the

economic position of the jitney in the urban public transport network we now turn to a consideration of market structure, which is largely determined by the presence of economies of scale and scope. The two main questions being answered by this section are: Given that regulations pertaining to route, fare determination, vehicle size and timetables (amongst other discriminatory legislation) are suspended, what form can the resultant industry structure be expected to take, and will this structure make society worse off when compared to the regulated transport environment?

Given a range of transport service bundles the answer might be guided by Lancaster, who showed that even in the presence of monopolistic competition ("competitive monopoly") and demand for diverse products, there need not be a net welfare loss as product differentiation enables the consumer to benefit from the choice of a most preferred product. This gain in utility could outweigh the welfare loss from monopolistic production and pricing. In the absence of product differentiation the result is essentially oligopoly or monopoly and here the welfare loss is more or less undisputed (except by those Austrians (for example Armentano, 1978) who suggest that society indicates its preference for the oligopoly structure by buying the products of those oligopolistic firms).

Two main lines of reasoning determine the market structure likely to arise in a jitney industry with non-significant entry and exit barriers: the impact of operator economies (both of scale and scope) on enterprise size, and the theory of contestable markets. (These are covered in the two following sections.) The question

of market structure is important due to the possibilities of an operator's ring which would be in a position to extract monopoly rents which would result in a socially sub-optimal situation would require regulation to rectify.

Decisions pertaining to the size of enterprise and size of vehicle operated are made by the operator and are based on operator costs; costs borne by passenger do not enter into these calculations. Operator economies of scale (rather than passenger economies of scale) are therefore a determinant of firm size. In the previous section it was shown that there is no clear evidence to support the hypothesis that, from an operator's point of view, the jitney industry is a 'natural monopoly'. It has been suggested that a major reason for this is the growing influence of organised labour in larger companies, the small operator being able to enter into individually negotiated employment contracts with staff in respect of working conditions and remuneration.<sup>10</sup> The larger companies also encounter increasing 'co-ordination costs'. Economies of scale affect the size of firm at which productive efficiency is optimised and since there are no clear economies of firm size in the jitney industry, in a competitive market a larger firm may have few advantages over a smaller one.

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<sup>10</sup> The influence of organised labour should not be underestimated. Ponsonby (1932: 62) related that even as far back as 1926 the labour cost of providing additional peak hour services by the London General Omnibus Company was higher than the cost of providing off-peak services. This was due to an agreement with the unions that limited the "spread-over duties" so that a driver could consequently not work both peaks in a day. Similarly in chapter two it is shown that the Cape Town Tramway Company was locked into a wage agreement between 1926 and 1931, and their competitors were able to pay a lower wage in spite of a Wage Board determined minimum.

### 1.3.1 Economies of scope

While economies of scale explains how much of a product a firm produces, economies of scope help explain why a firm produces more than one product. They are well described by Bailey and Friedlaender (1982):

*There are said to be positive economies of scope when a single firm can produce a given level of output of each product line more cheaply than a combination of separate firms, each producing a single product at the given output level. As a general matter, ... economies of scope arise from the sharing or joint utilization of inputs.*

(Bailey and Friedlaender, 1982: 1026)

This notion is closely linked to by- and joint-products in that economies of scope arise from utilising the same inputs in different processes of production. For example economies of scope arising from joint production in the jitney industry would be the return leg of a peak hour journey.

The presence of fixed factors of production can bring about economies of scope. In the jitney industry this fixed factor could be defined as the vehicle itself which could be used for available traffic in the peak hours, and for charters in the off-peak<sup>11</sup>. Conventional bus services are not able to make as effective a use of these economies due the nature of their operation - by definition they are bound by route, fare and timetable restrictions.

Economies of networking can also foster economies of scope. An example would be where the use of smaller vehicles conducting

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<sup>11</sup> The Charabancs in Cape Town in 1927 were a good example (these operations are described in chapter two).

feeder services to vehicles of the same firm involved in line-haul business.

Economies of scope can be encouraged by the reuse of an input by more than one product. A journey by a jitney vehicle (the input), carries passengers from origins to their destinations. The same vehicle on the same journey could carry parcels, or display advertising as well.

Economies of scope also arise from the sharing of intangible assets and applies in particular to management and information economies. In this they are similar to economies of scale, but affect the composition rather than the level of output. For example, an entrepreneur researching a specific route for jitney operations may find that from the same origin there is sufficient demand to run two vehicles on different routes to the same destination (where the second route may be subject to a lower fare elasticity). In this case information accrued in the establishment of one service, could profitably be used in the establishment of another as well. It is important to note here that vehicle size is not a function of economies of scope, but rather of operator economies of scale - i.e. how much output to produce.

Every operator would be subject to economies of scope arising out of joint products, the presence of fixed factors of production (the vehicles themselves), and the reuse of an input by more than one product as soon as they decided to commence jitney services. The only economies of scope unlikely to be shared by all operators would be networking economies - which rely on some sort of

property or monopoly rights such as terminal facilities, and the sharing of intangible assets - especially information, research, and management economies.

In defining economies of scope the qualification should be added that the separate firms be run as if they are the parent firm. Economies of scope do not mean that the single firm will necessarily be the lowest cost producer in the industry. If, for example, another operator is happy to receive a lower return on capital, has a lower overhead structure or if the employees of another firm are content to work for a lower remuneration than the other firm, even though it may be more 'specialised' would have a lower cost structure, particularly in the absence of industry economies of scale. Additionally, even though a firm may be able to spread its overheads by competing in other markets while a firm dedicated to one market has to cover all its overheads from that market alone, the success of competing in other markets depends on the prevailing demand conditions. The firm may therefore not compete in other markets if the profitability of doing so relative to remaining in existing markets is too low.

It is likely that a jitney firm is also subject to diseconomies of scope since economies of scope arise essentially from the sharing of inputs. If the input is a jitney vehicle (with or without crew), it is clear that there is an upper limit to how many markets the enterprise can compete in. The vehicle can only be used for a maximum of 24 hours a day and cannot be in more than one place at a time. If input is broadened to include management and information similar upper bounds are placed. Information, for example, is limited and other markets will be entered only as far

as the information extends. In other words economies of scope are finite in extent.

For these reasons even if a firm in the jitney industry enjoys potential economies of scope, which appears likely, it does not necessarily mean that this firm will undertake production in other markets (*i.e.* times or routes). The size of the enterprise is therefore circumscribed by the absence of economies of scale, and such a firm, while encouraged by economies of scope, should act in only a relatively limited number of markets.

The second factor influencing the number and behaviour of firms in the market is the potential for competition, the theory of contestable markets.

### 1.3.2 The Theory of contestable markets

It has been shown that relatively larger jitney enterprises do not necessarily enjoy significant advantages over others because of their larger size. The theory of contestable markets, when applied to the jitney industry explains why, in a competitive environment, a larger firm would find it difficult to maintain market power by virtue of its size.

*In essence, a market is perfectly contestable if incumbent firms must post prices and abide by them for some period, say  $t$  days. It is further supposed that all capital needed by potential entrants is mobile from market-to-market or that there is a well-developed lease or resale market for capital, so that capital could be salable or reusable with no unusual loss in value  $t$  days after its use in a particular market.*

(Bailey and Friedlaender, 1982: 1040)

According to this theory the presence of abnormal profits encourages new entrants to "hit" the incumbent by offering lower prices. The incumbent cannot respond for  $t$  days. At this time the raider exits the markets ("runs") without any cost disadvantage.

What this means is that even in the presence of economies of scale or monopoly, duopoly or oligopoly suppliers, prices and output will behave as if operating in a competitive market. Production will also tend to be with the most (technically) efficient processes, as inefficient production will be an invitation for competitors to enter.

Perfect contestability requires some stringent conditions:

*They involve easy access to the market on equal terms for new entrants and old incumbents. They demand that durable capital goods be easily transferable by second-hand sale or alternative deployment that recoups their cost. They require that industry-specific human capital should not be market-specific but should be transferable from market to market to avoid large personnel costs from hitting and running. They demand that price reductions not be matched immediately but instead that there be a delay before incumbents can meet an entrant's price.*

(Bailey and Friedlaender, 1982: 1041)

Nevertheless, the jitney industry would appear to be an almost ideal candidate for satisfying the requirements for perfect contestability:

If a route (origin and destination) is considered as a market then incumbents and new entrants have easy access to these markets. Coercive measures are sometimes utilised to limit access of the new entrants to the markets, as in Cape Town's current "taxi wars", but it is unlikely that it can be effectively extended

beyond a relatively small number of routes to incorporate significant portions of the jitney system. New entrants can, for example, elect to serve portions of the market (such as passengers embarking *en route*, rather than at termini). Furthermore in the absence of legal barriers to entry, sufficient new entrants can 'overwhelm' the incumbent's attempts to limit entry.

Passenger loyalty to any one particular operator is not considered to be a major factor in the jitney market. Firstly, trip decisions are time sensitive and unless two vehicles are leaving together and are expected to arrive at the preferred destination together any choice of preferred operator involves an additional cost to the passenger at least in terms of waiting time. Secondly, the operators themselves are relatively indistinguishable, even with operator's attempts to 'personalise' their vehicles with special paint jobs, or by giving vehicles unique names. Unless one operator has clearly outstanding characteristics (such as the vehicle is especially superior or inferior, or the driver or fellow passengers pose an obvious threat to the intending passenger's safety) it is unlikely that loyalty to any one operator would be maintained.<sup>12</sup>

Durable capital goods are highly mobile in the jitney industry, a vehicle can be transferred between routes and departure times at very low cost.<sup>13</sup> In other words sunk costs are all but

<sup>12</sup> In chapter two it is related how, with very few exceptions, passengers hailed the first vehicle that came along in the bus war between City Tramways and its competitors in Cape Town. Very few passengers revealed operator loyalty.

<sup>13</sup> Frequent complaints by City Tramways (incumbent) that private operators ignored timetable and route restrictions in Cape Town are recounted in chapter two.

nonexistent, excepting for the cost of acquiring information. Industry-specific human capital is also readily transferred from market to market: Drivers can just as easily drive on one route at a specific time as on another route, or they can drive at another time. The information costs of this transfer (such as learning the prevailing fare, the route itself, demand conditions, terminal facilities, etc.) vary with the experience of the driver.

It is with the theoretical condition that the incumbent faces a delay in revising prices that a difficulty is reached. According to this theory a new entrant is attracted by the presence of potential profits. If the incumbent is going to reduce prices to the competitive level, or to the 'predative' level as soon as the new entrant commences operations, incentives for the new entrant to compete are absent. Two points can be made in connection with these difficulties:

This condition relies on the assumption that competition will be on a price basis. As has been discussed earlier in this chapter, the price of a jitney journey, as reflected in the demand curve, is a sum of the fare and time cost. It may well be that new entrants would not reduce fares for, as Shreiber (1975) has demonstrated, there is no reason for a relatively small operator in the cruising cab market to reduce fares below the prevailing rate. His analysis is similar to Sweezy's 'kinked demand curve' but differs in that rivals will not necessarily match price decreases; if the new entrants are small relative to the market the passenger's saving in terms of lower fare may be less than the additional time cost in waiting for those operators that charge a lower fare. Competition would therefore not be likely over a fare

basis, thus this condition is redundant: The condition that the incumbent faces a delay in revising prices is no longer necessary in order for the theory of contestable markets to be valid. Excess output is likely to redistribute the monopoly profits (producer's surplus) to passengers by decreasing the numbers of passengers carried for all operators while increasing the frequency of services<sup>14</sup>. This is illustrated in the following diagram.

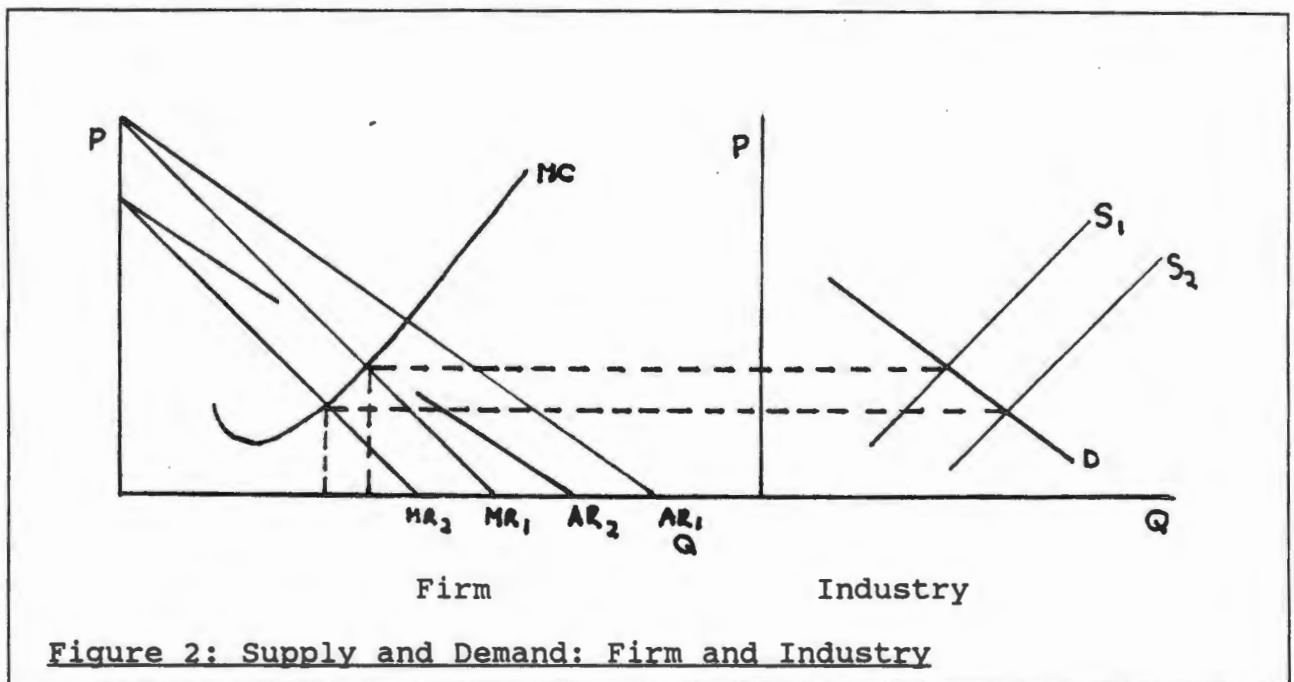


Figure 2: Supply and Demand: Firm and Industry

Referring to the diagram above: Initially the operator is in the position of a monopolistic competitor. Two effects occur when a competitor enters - on the industry, and on the firm. Looking at the industry, we have a downward sloping demand curve. The

<sup>14</sup> Load factors for a single operator may decrease given a constant operator's departure frequency (number of trips in a time period), or a single operator may have fewer runs given the same load factor. The increase in frequency and associated decrease in journey times may stimulate overall demand for all carriers and thus the decrease in operator's surplus may be tempered.

vertical (price) axis, as has been shown previously, represents a generalised cost comprising the money fare and waiting time (assuming away Mohring's 'own bus' and 'system' effects for simplicity). The horizontal axis measures jitney trips (vehicle departures) per time period over the selected route. Increasing the number of jitney trips leads to a lower (market-clearing) price. The element of price that changes is the waiting time component. Fare remains unchanged.

Looking at a diagrammatic representation of the individual operator, the normal well behaved revenue and cost curves of the monopolistic firm are used, there is however one major difference: Demand is not equal to average revenue since demand also includes a waiting time component. The average revenue curve therefore lies below the demand curve. The individual operator, with a given fleet size, would still confront the conventionally shaped marginal cost curve in the short run (where only the number of trips made can be varied). The U shape of this curve reflects the relatively high disutility of the driver in undertaking the first and last trips. i.e. If driver time is treated as the variable factor the law of eventually diminishing marginal returns holds. The level of efficient production is still where marginal cost equals marginal revenue. As with monopolistic competition, the effect of each new entrant is to shift the demand and marginal revenue curves facing existing enterprises inwards. (If the increased number of operators results in more journeys being undertaken and lower load factors, the new demand and marginal revenue curves will also become more elastic, since the traffic

increases less than proportionally to the increase in the number of trips although it increases in total.<sup>15)</sup>

If one assumes behaviour at terminals in which competition is not based on fare (Shreiber, 1975) and vehicles depart only when full the incumbent operator will still produce at the level where marginal cost equals marginal revenue. Each new entrant causes the marginal revenue curve to move inwards and become flatter but the same level of fares (average revenue) applies at this lower level of output. It is therefore possible to have new entrants without affecting the prevailing level of fares. The above graphic analysis also illustrates that where super-profits accrue to the incumbent operator, even where prices adjust instantaneously, new operators can still be rewarded for entering the market. Cape Town's jitneys have not competed on a fare basis, most of their business is conducted from termini and new entrants have not resulted in the (nominal) fare decreasing.

If entrants embark on competition at the termini (common origins) then it is likely that fare competition (predatory pricing) will emerge to a certain extent. Should repeated attempts at entry arise the incumbent will not be able to sustain the financial losses resulting from predatory pricing, and prices will tend toward the competitive price. However this is not to dismiss the possibility of some monopoly profits being a stable equilibrium; Evans (1987: 28), referring to bus competition, has pointed out that because the product measure of a bus or jitney is lumpy (i.e. jitney trips per time period on a route-by-route basis) it is

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<sup>15</sup> This follows from the relatively high elasticity of demand with respect to waiting and journey time.

conceivable that "*partial monopolies may exist over wide ranges of demand*".

It has been shown above that even if prices are free to vary instantaneously, as they will in the jitney markets, then the theory of contestable markets is not invalidated. When the contestable markets theory refers to price, it intends average or marginal revenue. In the jitney market price has two components; fare and waiting time. The fare is average revenue and may be relatively stable over time and routes as a result of low sunk costs and the resulting high level of contestability.

Given that entry barriers to the jitney industry, and to the markets within that industry are non-significant the following observations about the likely market structure have been made: Firstly there is an absence of operator economies of scale in terms of firm size and evidence suggests that there are diseconomies of scale for larger firms. The efficient sized firm is therefore likely to be relatively small. Secondly, even though economies of scope are present, these are slight, negated by the diseconomies of firm size, and with increasing number of products produced a region of diseconomies of scope is entered. There is a finite firm size, and a finite number of markets in which this firm will compete - the jitney or bus industry is not a "natural monopoly".

The jitney industry's high level of contestability suggests that it does not matter if various sub-markets within the industry are served by a single, or a small number of firms as their output and price would tend to be that of a competitive equilibrium.

Contestable market theory is also shown to hold in the jitney markets where prices can react instantly.

This section has highlighted the different nature of passenger and operator costs. The question now addressed is how to reconcile the two approaches into an allocatively efficient pricing structure.

#### **1.4 Pricing and allocative efficiency in a jitney industry**

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*An economic rationale for pricing public services is the economic efficiency that pricing renders in providing these services, although pricing augments revenues. Pricing is a mechanism that guides users in making decisions among choices open to them. Prices help establish the quantity and quality of the services users desire and thus aid public decisions about investment, operation, and production - higher prices are an indication that users want more services, and that more services should be provided, if possible. ... Economic efficiency requires that charges be tied as specifically and as precisely as possible to the act of using the services.*

(Abe, 1975: 536)

This section attempts to assess the efficiency of likely jitney pricing practices by discussing the allocatively efficient concept of marginal cost pricing and the implications of Mohring's work on costs and price. It becomes apparent that marginal cost pricing is impractical and the alternatives of two-part tariffs (clubs) and Ramsey prices are presented while the theory of clubs is shown to be logically a special case of Ramsey pricing. The system of Ramsey pricing, in which prices are based on marginal costs subject to a revenue constraint, is evaluated with a discussion of Ramsey prices in the presence of externalities. These Ramsey

prices are compared with charging 'what the traffic will bear' as a pricing rule in contestable jitney markets.

The debate of which pricing regime to follow is an old one. Mohring (1972) revitalised the field when he accorded equal analytical weight to operator and user costs:

*Apart from railway passenger transport, economists have not been much interested in the pricing problems of scheduled transport undertakings. Even for railway transport pricing, the vivid interest shown in the first half of this century by leading economists like Wicksell, Cassel, Pigou, Taussig, Hotelling and Dessus seems to have faded in modern times. The reason for the lack of interest of modern economists cannot be that the consensus of opinion has been attained on a method of optimal pricing of scheduled transport services. At least in the general debate, suggestions of reformation of public transport pricing policy range from the application of zero prices to self-financing full-cost pricing.*

*However, a path-breaking contribution, which should cause a renaissance of the interest of economists in this field, has been made by Ralph Turvey and Herbert Mohring (1975).*

*(Jansson, 1979: 269)*

As has been previously discussed Mohring's work distinguishes between fare, price, and cost. Cost of provision is the escapable operator cost involved in a jitney trip over a given route. The social cost of providing an additional jitney journey (by a marginal passenger) is essentially the sum of Mohring's 'own bus' and 'system effects' (the 'Mohring Effects') as well as the operator cost and other external costs (but these are mostly less significant than the Mohring Effects). Fare is the money paid by the passenger to the operator in order to journey in the vehicle, while price is the sum of the fare paid and the waiting and journey time. This theme was implicit in Abe (1975):

*A user of public service is usually required to provide his own time resource. Time is a scarce commodity, and as such it commands a positive price which is an*

*essential element in the pricing of public services. Therefore, public services are offered and rationed not only by money price but also by time price.*  
(Abe, 1975: 537)

#### 1.4.1 Marginal Cost Pricing - charging for resources used

The question of marginal cost pricing has been the subject of several authors attentions: Hendrickson and Wohl (1982) repeated the point made earlier by Jansson (1979) that while marginal cost pricing, by reflecting the true costs of resources used, maximises social benefit. Marginal cost pricing does, however, have its attendant problems in issues of equity, income redistribution, the low significance of operator costs, costs of collection and the lack of price-stability. These are discussed below.

For the jitney industry the market period should be considered where a jitney trip is a 'fixed cost' - a trip is already under way and cannot be aborted. In this case the social marginal cost curves essentially reflect the 'Mohring Effects' as fixed or "sunk" costs are not marginal (escapable) costs. Prices based on marginal cost thus largely do not account for operator costs. Else (1985) made a similar observation. However Ponsonby (1935) suggested that sunk costs have a facilitating role in production and Hendrickson and Wohl (1982) repeated Jansson's (1979) interesting but incorrect point that some overhead (fixed) costs could also be included in marginal cost pricing because of this. The role of overheads has no place in marginal cost pricing since, while their usefulness and necessity is acknowledged, they are not used up during the production of output, and thus do not form part of the marginal (opportunity) cost of output. The opportunity

costs of these overheads and 'sunk' costs are components of the total cost function of the firm. Jansson and Hendrickson and Wohl are proposing a system similar to Ramsey pricing, discussed on page 76.

Jansson's (1979) analysis of marginal cost pricing of scheduled transport services followed on from Turvey and Mohring (1975) in which producer and user costs are placed on a par and economies of vehicle size (to the producer) and vehicle number (to the user) were identified. Jansson concluded that transit is a decreasing (social) cost industry. In previous sections it was stated that there do not appear to be significant economies of firm size, although Jansson's (social) economies of vehicle size and vehicle number were supported. A major difficulty when embarking on marginal cost pricing in a decreasing (social) cost industry is that the marginal cost is always lower than the average cost. Because of the 'Mohring Effects' pricing at marginal social cost will have little relationship with operator costs, and so whether the jitney operator incurs a loss or makes a normal or abnormal profit is something that cannot be generalised and can only be calculated on an individual basis. The conventional diagrammatic analysis of a firm confronting a downward-sloping average revenue curve is of not much help as we do not know the position of the average cost curves of the firm.

Abe (1973: 538) believed that marginal cost pricing promotes efficiency (presumably allocative) but runs into equity problems - the so-called 'tolling off' effect where congestion tolls effectively ration the resource to only the relatively wealthy (and perhaps those with the highest time valuations):

*Surveys have shown that most transit passengers are the captive riders who cannot afford to pay for expensive transportation. They ride on mass transit because it is the only transportation to which they have access. On the other hand the automobile is priced so low that most commuters prefer to travel by automobile, and this has caused massive traffic jams.*<sup>16</sup>  
 (Abe, 1975: 538)

Equity questions of another sort were highlighted by Anderson and Bonsor (1978). Marginal cost pricing is not pareto optimal since, while it maximises net social benefits, there are gainers and losers. In the cases where 'ideal taxes' (non-distortionary) and subsidies are levied to make up the deficits incurred by operators

*the marginal cost pricing prescription remains strictly subject to our willingness to alter the distribution of real income in favour of one group at the expense of another.*

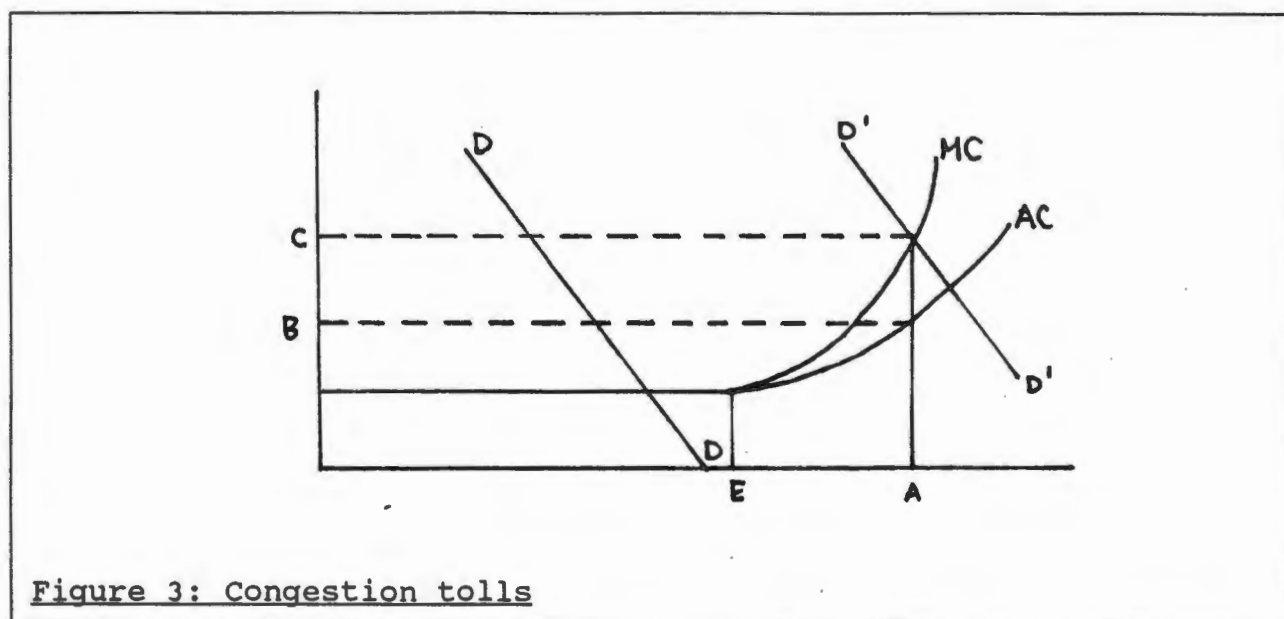
(Anderson and Bonsor, 1978: 5)

The suggestions of Abe (1975) and Walters (1982) are typical of the subsidy-tax school: Acknowledging the pricing distortions in the transport market where private cars are priced at less than their marginal social cost, Abe (1975) and Walters (1982) advocated subsidies and pricing mass transit services at less than their marginal social cost as a next best alternative. The mass transit subsidy could be partially financed by congestion tolls levied on private vehicles (thus raising their price) and would

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<sup>16</sup> The rational traveller will make use of the alternative where their total trip cost is lowest. This trip cost is not merely the cost of a one-way trip, but takes into account the return trip as well and all attendant costs (including time, money, safety, convenience). Because the demand for transit is derived (i.e. arises out of different needs) and each individual in effect constitutes a different market there is no reason to believe, as classical economics would indicate, that the marginal costs are equal over all modes. Quite clearly individuals are not indifferent with respect to their transportation option preferences.

increase social welfare through benefitting both rich and poor alike by easing road congestion and public transport fares.



Congestion tolls are those raised from the taxing of private motorists in order to make private average cost equal social marginal cost. This cost difference only arises from congestion, where private cost and social cost diverge. The money so raised may be used to subsidise public transport (either by means of fares subsidy or by extending service) in order to encourage fewer peak-hour private vehicle journeys. Muth (1975: 147) presented the concept of congestion tolls clearly: Until capacity is reached and the system becomes crowded after OE,  $MC = AC$ . When the rate of use increases to OA - such as during peak periods - the cost borne by each user is OB, yet other users incur costs of BC. If the rate of use of the facility were reduced, output worth OB is foregone, but resources that would produce OC worth of output are released.

The advocates of this 'double measure' of mass transit subsidy and private transit congestion tolls suggest that this scheme would also promote allocative efficiency by preserving the marginal cost relationship over private and public transit; the price-marginal cost ratio for each mode would be the same. A similar approach to the problem of distortions was suggested by Anderson and Bonsor (1978). These schemes however, rest on the assumption of some redistribution of income from drivers on the taxed road to mass transit users and the broader community. (Baumol and Oates, 1988: 237-240 explained this clearly).

The question of income redistribution is not clear-cut. Sherman (1967) reiterates

*Weisbrod's argument that a mass transport service has value for potential users just by being there, in case they might want to use it.<sup>17</sup>*  
(Sherman, 1967: 238).

Certainly if the financial deficit of a local service is financed by a central tax, the charge of an income redistribution effect from all taxpayers to local transit users appears to have merit. If, however, the financial deficit of a local network is financed from purely local sources and that the mere availability of public transport has some value (as Weisbrod, above, suggested) then the case of redistribution does not look as strong. If the source of finance is narrow enough, the user, or potential user of public transport is also the taxpayer.

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<sup>17</sup> Weisbrod, B.A. (1964). 'Collective Consumption Services of Individual Consumption Goods', *Quarterly Journal of Economics*, Vol. 78, August: 471-77.

Discussions of the application of marginal cost and Ramsey prices (prices based on marginal cost, but with a fixed cost component - discussed on page 76) to mass transit invariably deal with the case of the public utility where the services offered are scheduled and controlled by a regulatory authority. The difficulties with marginal cost pricing become even more acute when the practicalities of the jitney operations are considered.

To be allocatively efficient marginal cost pricing should cover marginal social cost which is largely the 'Mohring Effects'. Yet price comprises both operator fare and passenger time. The jitney operator, who is assumed to be a profit maximiser, looks only at his private costs in establishing fare and will not be interested in charging optimal prices for several reasons: i) Merely calculating the marginal social costs of an extra trip or journey is at best an educated guess. ii) The 'Mohring Effects' are quite different for each additional passenger, and iii) Operator costs and remuneration play only a minor role in determining these prices.

There are two main rocks upon which the application of marginal cost pricing in the jitney industry founders: the theoretical and the practical. On a theoretical level marginal cost pricing is not pareto-optimal (since it relies on an altered distribution of income from non-users to users of transit where operating deficits are covered by subsidy). From a practical perspective it is extremely difficult to calculate a meaningful marginal cost price and even if such a price could be calculated, it is well-nigh impossible to implement it in a jitney context due to continual and large fluctuations of that price (due to the volatile nature

of the 'Mohring Effects' - the additional time cost borne by all other passengers). However the marginal cost price concept still has relevance and is explored further in this section.

To summarise: Marginal cost pricing, while it is allocatively efficient in terms of relating production costs to decisions to consume, has numerous problems rendering it an unattainable goal in the jitney industry. These problems include equity - 'tolling off' and income redistribution, the lack of emphasis on operator costs, collection, calculation, and price stability.

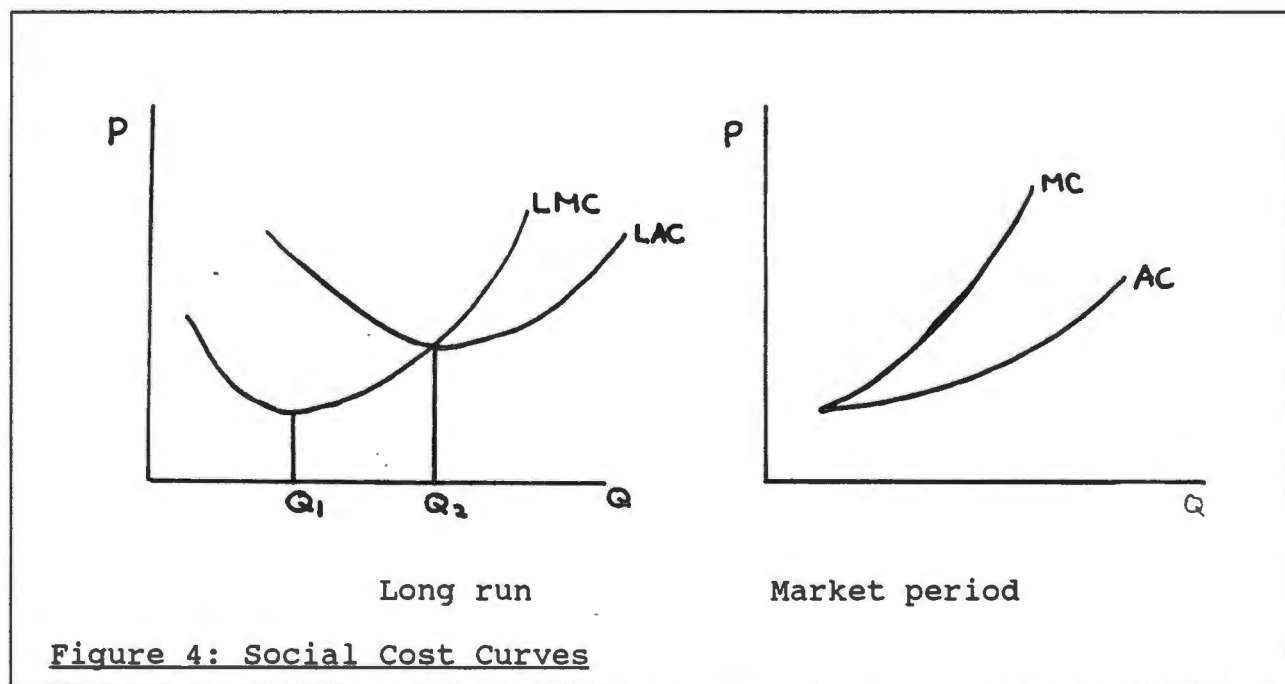
#### 1.4.2 The club principle for public transport

*Marginal cost pricing is supported as the appropriate procedure under conditions in which the difference between total costs and total revenue (at marginal cost prices) is covered out of the consumers' surpluses of the users of the public utility's output. The latter proviso forms the basis for a club principle for public utilities.*

(Anderson and Bonsor, 1978: 3)

In an attempt to promote allocative efficiency between the private transport and public transport sectors, and between modes within the public transport sector Sherman (1967), using Buchanan (1965) as his starting point, proposed a system of two-part pricing. This system includes a membership fee to a 'passengers club', the payment of which carries the right to make use of the various modes at marginal (social) cost. The sum of membership fees is sufficient to cover the fixed costs of providing the transport facilities. Bonsor and Anderson (1978) have taken up this idea, viewing it as a solution to the problems of operator financial deficits and the income redistribution problem.

Besides the difficulties inherent in applying a marginal cost pricing system, it is not at all certain that current passengers (paying marginal private cost) would want to change to paying marginal social cost. The analysis in this thesis has suggested that the long run marginal social cost curve lies below the long run average social cost curve for a large range of jitney operations but the short run marginal cost curve lies above the short run average cost curve due to the 'Mohring Effects'. In effect being charged short run marginal social cost will result in the price for the marginal user in the congested (peak) periods increasing. The diagram below depicts this:



The diagram on the left refers to the long run marginal and average social cost curves. In the long run it is possible to vary the number of jitney runs (the 'product'). Up to  $Q^1$  level of output, an extra jitney run will have a lower marginal social cost than the previous one due to the saving in terms of the 'Mohring

Effects'. Above  $Q^1$  the additional saving in passenger's time becomes less than the additional operator expense and eventually long run marginal cost rises above the average cost curve (above  $Q^2$  output).

In the market period the jitney trip is a fixed factor: The driver has either decided to commence the trip or the trip is already under way, the only variable is the number of passengers on board. Every additional passenger taken on will slow down the vehicle by at least the amount of time it takes to board and disembark while at the very least a passenger will generate a negligible cost if the jitney vehicle is empty and if there are no other passengers waiting further on. The costs of these delays will be borne by those passengers on board and those waiting further on and thus the short run marginal cost curve will coincide with the short run average cost curve until the 'Mohring Effects' are felt (i.e. there are passengers waiting or on the vehicle who are delayed). Therefore in most cases charging marginal social cost fares will result in the passenger paying more and not less.

The monthly unlimited-ride train ticket is a good example: The marginal cost of an additional passenger is close to zero as no special stops are made for passengers, even taking into account the 'Mohring Effects' (small delays in departure from a station caused by tardy passengers can be made up *en route* to the next stop). As the marginal congestion costs are relatively low in this case, private cost approximates marginal social cost. However bus and jitney passengers generally require dedicated stops, and the 'Mohring Effects' are larger here, resulting in a disparity between private and social costs.

The other main problems with the club approach to the pricing problem, besides the reservations as to the practicability of marginal cost pricing, are the reliance on a formal, controlled transportation network, the artificial distinction between taxpayers and users, and its vagueness. These are discussed below.

In a regulated, subsidised, scheduled bus transport network with few operators it would be relatively straightforward to devise prices based on the marginal social cost principle and to formulate the basis for collection and allocation of funds to cover the operator's deficit. In an unregulated, unsubsidised demand-responsive jitney service where operator decisions are made on the basis of private costs and revenues it would be difficult to introduce the infrastructure needed to make such a system workable without tampering with the flexible nature of a jitney service by introducing route, schedule, fare or other constraints.

The vagueness of the club concept poses the biggest problem. The club model comprises a two-part pricing system: an entrance/access/membership fee, and a marginal social cost price for use of the facility. The entrance fee is valid for a limited period of time and is negotiable (club membership can be sold to someone else) and the membership fee can be paid in installments which can become very small indeed. If the commuter is a regular traveller and pays for his travelling in advance (for example weekly or monthly card) the installments can be paid each time such a ticket is purchased.

Additionally since the membership is transferrable, and the operator is not interested in who makes use of offered services, but how many use it, the operator would be indifferent to the following situations: At extremes, if one person uses the jitney  $n$  times, or  $n$  people use it once each makes no difference to the operators (assuming vehicle capacity of one). As long as the number of passengers is reasonably predictable the membership fee can be paid in installments, with a part of the fare for each trip made being the membership fee. An additional fare corresponding to the marginal social cost can then be levied. Whatever the additional marginal fare the operator will at least receive normal profits (assuming that demand for the service is sufficient). Essentially the resultant pricing scheme is the same as under Ramsey pricing.

#### 1.4.3 Ramsey prices

*... the pricing method proposed by Ramsey (1927) can be used to maximise social welfare subject to the condition of breaking even. This pricing rule allocates the fixed cost of production to various markets ... in such a way as to minimise the total loss of social welfare caused by the deviation of prices from their respective marginal costs.*

(Oum and Tretheway, 1988: 307).<sup>18</sup>

Jitney operators have an implicit revenue constraint - the normal profit requirement; anything less will induce them to leave the market or industry. Ramsey prices provide an alternative to marginal cost prices as these prices reflect some contribution to

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<sup>18</sup> Ramsey pricing was first proposed by F.P. Ramsey (1927) in 'A Contribution to the Theory of Taxation', Economic Journal, Vol. 16(2): 151-159.

fixed costs. Ramsey prices is essentially a special open club in which the concept of members is redundant, subscriptions are paid each time use is made and all users are 'members'. The general version of Ramsey pricing results in the same quantity shares prevailing as under first-best pricing.

In the preceding analysis of the jitney industry based on Turvey and Mohring (1975), it was suggested that the jitney industry is a multi-product one in which demands for the products are interdependent and externalities are significant (the 'Mohring Effects'). Oum and Tretheway have developed a Ramsey pricing rule for

*when social marginal costs deviate from their respective private marginal costs because of the presence of externality costs when there is more than one good and demands are interdependent.*  
(ibid: 308)

Oum and Tretheway's (1988) pricing rule results in a price which is based on marginal private cost with a mark up of a fraction of marginal externality costs. This fraction depends upon the extent of the deficit to be covered and is not based on marginal social cost

*... because the break-even constraint ... is formulated on the basis of total private cost, while the net social benefit is measured on the basis of total social costs. This can be explained as follows. Marginal social cost pricing marks up price over private marginal cost to give a signal to consumers to recognise externalities and reduce their demand. As prices are marked up over private costs in order to cover a budget deficit, demand is choked off. This makes it less important to introduce a further markup over private costs as a specific signal to consumers to reduce demand because of externalities. The deficit markup by itself is already choking off demand. Allowing both factors to choke off demand would be an overkill, and would result in lower social welfare.*  
(ibid: 312-3)

Furthermore the rate of markup is a weighted average of inverse elasticity and the marginal rate of external cost. Basically the lower the fare elasticity of demand and the higher the marginal rate of external cost, the higher the markup, which is the standard approach to Ramsey prices. However using the marginal rate of external cost in calculating the markup results in quantity shares changing from the first-best marginal cost pricing rule.

In the jitney industry, it is a fortuitous coincidence that that class of passengers with the lowest fare elasticities are also those with the highest marginal external costs - viz. the peak-hour passengers.<sup>19</sup>

An observation can be made regarding the application of Ramsey prices to the jitney operations: Prices should be higher for peak hours where there is generally a lower fare elasticity of demand, and a higher marginal external cost is generated. However, here is where difficulties are encountered.

A practical difficulty in application of this pricing rule lies in the determination of the revenue constraint. The operator's revenue constraint is calculated over a daily basis, and the decision to make a trip is based on the expected revenue at least being equal to a certain target. All that can be said is that even if the fare remains constant, the generally lower off-peak time valuations for walking, waiting, and journey times, and the

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<sup>19</sup> Lago, Mayworm, et al (1981) found fare elasticities for off-peak passengers to be two to three times larger than for peak passengers. Ahsan (1982) has calculated elasticities for work, shopping and study trips. The results broadly concur with Lago, et al.

relatively higher time valuations for the peak hours<sup>20</sup> may still result in a journey by the marginal passenger costing more in the peak hours when facilities (including the jitney vehicles and roadways) are congested and higher marginal operator and social costs prevail as the passenger's price of a jitney ride comprises both time and money costs.. Journey times are also lower in off-peaks due to uncongested facilities while waiting times in peaks may be lower due to higher frequencies of departures. In other words since the price of a jitney trip has both a fare and a time component, the difference in the price between a peak and off-peak trip may be brought about through differing time costs, while the fare component may remain constant. A similar conclusion was made in the discussion of the Contestable Market Theory.

In summary: Ramsey pricing in the presence of externalities attempts to reconcile marginal operator cost and marginal social cost with a revenue constraint while minimising the total loss of social welfare caused by the deviation of prices from their associated marginal costs. Ramsey pricing is classified as a 'second-best' solution for this reason. The prices so arrived at comprise operator marginal cost with a markup of a portion of marginal external costs (the rate of markup is a weighted average of inverse elasticity and the marginal rate of external cost) and for this reason the prices of peak-hour passengers over a given route should be higher than for off-peak passengers. Practical difficulties emerge with calculating fares and service levels since the price of a jitney ride includes a time and a fare component. It is not necessary, therefore, for fares to change

<sup>20</sup> Lago, Mayworm, et al, 1981.

throughout the day as the length of journey and waiting times changes throughout the day, as do the passenger values of waiting and journey times (for example it is more unpleasant to journey in a crowded vehicle<sup>21</sup>).

While data on the cross elasticities of demand with respect to fare and time is scarce, it can be said that since a passenger's time commands a positive value, and that the cross-elasticities of demand with respect to peak and off-peak is relatively small (in the order of approximately 0,20<sup>22</sup>), a passenger will be willing to pay an increased fare in order to have a journey with a lower time cost. Illustrating the importance of waiting time (and the resultant effects on journey time) in the demand function for public transport Abe (1973) calculated a fare elasticity of transit demand in the region of 0.23 while the respective elasticity for a headway factor was 3.08.

The current pricing practices of most jitney and transit operators are based on average operator cost in which fares are constant throughout the day, while headways, journey times and passenger loads vary. Even though the rail and bus operators issue multi-ride tickets (monthly and weekly tickets, and clipcards) these can not really be considered as being Ramsey or Club prices: They are not club prices because while the user pays for access (a one-off fee), use of the facility is charged at marginal private cost and not marginal social cost. In a congested facility marginal private cost is less than marginal social cost while in an

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<sup>21</sup> Jansson, 1979: 274.

<sup>22</sup> Lago, Mayworm, et al, 1981: 141.

uncongested facility, where there are no 'Mohring Effects' these arrangements can be considered as Club prices. However most multi-ride ticket users travel in the congested (peak) times.

Average operator cost prices may only coincidentally be Ramsey prices. Although Ramsey prices do not require fares to vary and can be effected through the time costs implicit in differing journey times (including waiting and other time costs) the relationship for each passenger between fare elasticity of demand and the marginal rate of external cost is not explicitly covered by average operator cost pricing. Average operator cost pricing is less efficient than either club or Ramsey pricing: Compared to the marginal social cost based prices average operator cost pricing tends to penalise the off-peak passenger and favour the peak hour passenger who generates relatively larger external costs. This is because the overheads of the large peak-hour capacity should be covered by peak-hour passengers and not by off-peak passengers; running off-peaks is a by-product of peak-hour services (if the capacity is available, it might as well be used). An alternative is that the off-peak passengers pay only for the capacity and infrastructure they would require, and not be left with the burden of contributing to the extra costs of servicing the peak passenger.

Since it is assumed that the passenger is a utility maximiser, the passenger would consider paying a higher fare for a lower time cost journey only if the increase in fare is at least matched by the expected reduction of the total travel time cost. This brings us to a pricing system that explicitly takes this relationship into account: 'What the traffic will bear'.

#### 1.4.4 'What the traffic will bear'

What this standpoint lacks in analytic rigour, it gains in practical appeal. Turvey and Mohring (1975) suggested that charging what the traffic will bear can be a reasonable approximation to the marginal cost pricing principle as under this scheme price should reflect fare (and time) elasticities of demand. Most importantly this regime allows (demands) a policy of differential pricing with respect to peak and off-peak.

Walters (1982) has noted that the 'Mohring Effects' would probably be very small in a competitively organised jitney industry, as the operator's decisions with respect to frequency, size of bus, fares and routes would reflect passengers' preferences. The size of Mohring's externalities are, he stated, largely due to Mohring's assumptions of a monopoly supplier of bus services, and of a fixed, large-sized vehicle. His reasoning is sound and ironically constitutes not a criticism, but a validation of the Mohring's thesis. In particular it highlights the benefits to be obtained by moving to a flexible system where prices bear a closer relationship to social marginal costs.

'What the traffic will bear' implicitly reconciles operator and user decisions. The fare the user is prepared to pay is contingent upon the time cost incurred in making use of the operator's service and the generalised cost of substitutes. This relationship is expressed through fare and time elasticities of demand, and time valuations. The fare at which the operator is willing to supply the service is dependant upon at least the daily

revenue constraint (hiring charge and opportunity cost of labour) being fulfilled.

Unsatisfied demand in the jitney markets (prices are too low) will encourage fare increases and/or the use of larger vehicles (and consequently longer waiting and journey times). Excess supply in the jitney markets will be characterised by financial deficits and eventual exit from these markets by those operators with higher cost structures (usually the larger ones, or those with relatively expensive labour components) leaving first. It would not be in the interests of the smaller operators to reduce fares unilaterally, as described by Shreiber (refer to page 59).

#### 1.4.5 Summary

This section on pricing has attempted to assess the economic efficiency of likely jitney pricing practices, and not to discuss how the prices are determined.

Marginal cost pricing is allocatively efficient in that users are charged for resources used. There are, however, a number of factors which render marginal cost pricing unsuitable in a jitney application, not least of which is the practical impossibility of determining a true marginal social cost. Another problem with marginal cost pricing is the relatively small part played by operator financial information in a decreasing social cost industry in the determination of social marginal costs. A result of financing the potential operator deficit, even through 'ideal

taxes' can be a redistribution of income from non-users to users of public transport - a non Pareto optimal situation.

The club principle has been applied to these problems of public transport, but once again cannot be easily applied to the unsubsidised, unscheduled jitney system. The club principle appears to be a special case of Ramsey prices which are welfare-maximising prices in the presence of a revenue constraint and externalities. Prices so arrived at are based on marginal private cost with a markup depending on the rate of marginal external cost and inverse fare elasticity. In other words passengers with the lower fare elasticities of demand, and those that incur the highest rate of marginal external costs are subject to the highest markup. In the jitney industry those passengers with the lowest fare elasticities are generally also those who incur the highest marginal rate of external costs - the peak hour passengers.

Constructing these Ramsey prices depends on ascertaining valuations of time, where these differ for peak and off-peak passengers in order to calculate the external costs. Fare elasticities should also be calculated in order to see which class of passengers are liable for the higher markup. Ramsey prices are a second best solution and are not merely paid over the dimension of fare, as much of the literature assumes.

Charging fares at 'what the traffic will bear' internalises passenger preferences and operator supply decisions and is the practical application of Ramsey prices in the presence of externalities. Prices under this regime are similar to those set

where operator costs are marked up according to inverse elasticities and the marginal rate of external costs generated.

### 1.5 Contributions from conventional economic theory

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Three main schools of economic thought have been selected in order to demonstrate how the efficiency attributes assigned to the jitney would be accepted generally, regardless of ideology. The Austrian, the Neo-classicals and the (Neo-) Marxist approaches to public passenger transport are discussed below.

#### 1.5.1 The Austrians

*From each as they choose, to each as they are chosen.*  
(Reekie, 1984)

The Austrian School is characterised by the insistence that valid explanations of economic relationships must ultimately refer to individual choices rather than rest on the assumption that aggregates interact directly. According to Lachmann (1978) Austrianism has three main features:

- i) Radical subjectivism.
- ii) An awareness that economic relations take place over time and that, since knowledge and information change over time and affect the economic actors, it is impossible to predict any future state of the world.

iii) Choice by the economic actor as the source of economic experiences, and thus a distrust of models of economic behaviour not based on this.

The labour theory of value is rejected, being replaced by a belief that value is in the eye of the valuer.

These tenets result in an emphasis of competition as a process and not as an end-state or equilibrium. The role of the entrepreneur is that of an agent, disseminating new knowledge to the market - acting as an intermediary in satisfying wants and needs.

Austrians, like the Marxists stress the social science aspect of economics as a field of study. Austrianism, however, differs in its rationale for this: Because economic actions have their source in the minds of individuals, determinism is precluded and a multi-disciplinary approach to economic analysis is appropriate. Lachmann suggested that economics become more descriptive, while economic history be used when empirical generalisations are needed. Like the Marxists, Austrians trace the development of market processes from history; they differ in their contention that these observations cannot be used to predict the future.

The Austrian scholars would regard official restrictions in the urban public transport markets as obstructions to the realisation of individuals choices. (Opportunity) cost and value measures are subjective and individual choices are made on the basis of these valuations. Government can play a major role in the urban public transport (or any other markets) by assisting in the dissemination of information and/or the delineation of property rights so that entrepreneurs can act more effectively in discovering and meeting

the wishes of consumers and producers. By the government intervening in markets it isolates industries from market forces and subjects them to political forces in which weight is given to some producers or consumers (Littlechild, 1978). State intervention, according to Rothbard, is the only way that monopoly can occur, where such intervention lessens competition, distorts the consumer's choices and results in an 'inefficient' resource allocation.

Neo-classical 'monopoly', according to Armentano (1978) is not really monopoly. Consumers prefer the product of the 'monopoly' firm and that is why there are no others operating. Only if others are prevented from competing by legal barriers can there be said to be monopoly.

To the Austrians competition means a process of mobility - the competitive process depends on error. (Reekie, 1984)

There are several implications of the Austrian approach to the problems of Urban Public Transport:

Firstly, intervention can serve a useful purpose if it encourages the dissemination of information or the definition of, supporting the market process and not hindering it. For example, action by the authorities against agreements to partition or seal off the market to new comers would be consistent with enhancing the effectiveness of the market.

Secondly, entrepreneurs are by nature inclined to satisfy consumer demands and consumers, in turn, make their own choices. This supply and demand information changes constantly and entrepreneurs

need the freedom to satisfy consumer wants. A flexible system allowing the operator free reign in decisions such as routes, frequencies, and fares satisfies these wants better than a regulated, formal, restricted and non-competitive system. Especially in fares, discriminatory pricing is not the vice it is claimed to be - value (and therefore opportunity cost) is in the eye of the valuer. The sections of this thesis on costing have shown that the major component of marginal cost of a bus trip to the passenger is that passenger's time costs. The passenger's ex-ante valuation of a public transport journey is mainly comprised of the anticipated time cost, reflected in a unique elasticity of money price.

Thirdly, competition need not mean many firms operating - contestable markets theory suggests that the mere potential for competition can bring about the competitive solution - hence the importance of deregulation in fostering the potential for competition.

### **1.5.2 The Neo-Classicals**

This school relies on the study of markets in equilibrium. In the Walrasian system the auctioneer adjusts prices to quantities supplied or demanded, while under the Marshallian system quantities are adjusted in response to market-clearing prices. Equilibria are static, and change in response to new information.

Urban public transport can be viewed as a multitude of markets - each passenger choosing whether to make a journey, and each

operator choosing whether to collect a passenger (and commence or continue a trip). Each of these markets is cleared by individuals acting in accordance with their anticipated marginal (opportunity) costs and marginal benefits of whichever course of action they choose.

For this reason the analysis of comparative statics is too cumbersome to model day to day activities. At best trends can be ascertained, for example what is expected to occur in situations when passengers are unable to get a ride at the time of their choosing, or where operators incur super-profits or losses. Nevertheless the marginal analysis technique is the best available method of analysing and modelling the behaviour of individuals, firms and markets.

The policy implications of the neoclassical school would once again be to free up the urban public transport markets so that demand and supply can arrive at their equilibrium prices and quantities whenever information changes. Interference in the markets results in misallocation of resources and so the authorities could best use their resources in order to make information less costly for both operators and passengers, thus assisting in the process of equilibrium attainment.

The information cost issue is important, especially if the Keynesian idea of effective demand is considered. The authorities could have a role in helping to develop new markets where effective demand is deficient while potential demand may be strong.

### 1.5.3 The Neo-Marxists

Approaches under this school generally follow Lange's (1968) opinion that 'bourgeois economics' has not described fundamental tendencies of capitalist economics and has not developed a consistent theory of economic evolution. In essence 'bourgeois economics' and Marxian economics belong to different ranges: The Marxists concentrate on the evolution of capitalism and society, while 'bourgeois' economics can only make a historical description. 'Bourgeois economics' can however, describe the everyday life of a capitalist (and even a socialist) economy far better than Marxian.

In dealing with the political-economy approach to the urban public transport issue, the philosophical approaches are stressed. There are very few issues that can be directly analysed using the Political-economy approaches as satisfactorily as the neo-classical or Austrian economics.

An important issue under the political-economic approach is the function and purpose of urban public transport. With the neo-Marxian emphasis on property relations, in which a small group of non-workers appropriates or expropriates the economic surplus from a large class of workers two main concepts of the role of urban public transport in capitalist economies emerge:

- As an adjunct to exploitation,
- As an instrument of exploitation.

Design of the public transport system can serve the interests of the capitalist class by restricting the working class access to resources, especially when the operation of the transport

enterprises are carried out by enterprises of the capitalist state (such as local or central government). These resources are withheld from the working class in order that they may be exploited more fully. Examples would be limiting opportunities to compete with the capitalist class (for example denying access to educational facilities; transport lines that only run from residential areas to workplace or to capitalist owned shopping areas; that such transport is expensive and profits so accumulated are used to subsidise the capitalist city). While oppressing the working class design of the public transport system can be orientated to providing an effective transport medium only between workplace and residential areas in order to enhance productivity at the workplace and lower the socially necessary labour time in production of a good. Subsidising work-related transport can also reduce the costs of reproduction of the labour force.

However for non-work trips public transport can also be a direct instrument of exploitation, especially if it is undertaken by a private monopoly. This is achieved through high (monopoly) fares and the accumulation of super-profits for the enterprise running the service. In other words, in a capitalist economy urban public transport can be manipulated to serve the interests of the non-workers at the expense of the workers.

The role of urban public transport in a socialist economy, as explained by French (1983), is illuminating. The Marxist-Leninist principles give rise to the following planning ideals for Soviet urban areas:

- Planned at all levels (micro and macro) -

- Resulting in 'optimum' conditions for work, recreation and living.

Well developed public transport systems are part of the fundamental principles of town building. The emphasis is placed on the minimum journey to work based on a public transport mode (in this sense reveals similar intent to the capitalist economy is revealed). The larger towns boast dense route networks, high frequency of services and cheap, standard fares. This is coupled with a land use policy that develops 'homogeneous' housing. Land and transport (money) costs are similar wherever one chooses to live in a given city and the residential location decision is to some extent based on the calculation of an extended transport cost (individual's effort and time).

Thus the Marxian or political-economy adherents advocate strong regulation of urban public transport by the authorities;

- i) in order to pursue public policy goals relating to the make-up of the socialist city and the practising of the socialist ideology in daily life, and
- (ii) to ensure that urban public transport does not become an agent of exploitation of the working class as in capitalist societies.

The socialist planning of a transport network for a city such as Cape Town would be characterised by a distrust of the market mechanism as an allocator of resources and a view of public transport as a means of achieving broader social objectives. For these reasons it is likely that the proposed urban public transport system would consist of a few large non-competitive

operators (private or local government) with geographical monopolies. A large number of competitive operators would create difficulties in monitoring, control and coordination.

Cross-subsidisation would be viewed as a powerful tool for achieving broader social objectives, thus pricing over the more lucrative routes is likely to be based on 'value of service' rather than cost of service. Subsidisation of operations would also be used to ensure the operation of social services. The socialist policy would in effect be the same as that prevailing between 1931 and the mid-1980s in South Africa. The "coordination and elimination" road transport policies introduced in the late 1920s were, in fact, based upon an explicit socialist ethic.

Present socialist planners may however rely on private operators to provide the services via competitive tendering in order to keep costs of providing the services at a minimum. More importantly transport policies would be thoroughly integrated with urban land-use and road policies, and more general social policies. In the 1990s it seems certain that socialists would recognise the destructive results of encouraging private car use and public transport policy would have to be pro-active in this regard. For example, road use policies would favour multi-occupant vehicles and it is likely that parking policy would be far more restrictive (higher fees and fewer available parking places). Taxes on private vehicle purchases and use would also be higher and put to effect in subsidising public transport facilities (although cross-subsidisation policies and a tight control of transport operations would discourage public transport use over some routes).

## 1.6 Summary

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This chapter has characterised jitney services as; route based and highly flexible with respect to schedule, fares and vehicle size. These vehicles are typically 'mini-buses' with capacities of up to 20 passengers. Jitney, however, refers to the nature of service provided and not the type of vehicle. At the present time there remains a legal distinction between taxis (operating jitney services) and conventional bus services. Buses are confined by timetables, routes and bus-stops while taxis are allowed to operate as they like except on scheduled services, fixed routes, or using bus-stops.

Transport as a product is not homogeneous. A major factor distinguishing between transport products is the total user time cost of the journey and passengers will patronise the mode that minimises their generalised transport cost - a large part of which is the total journey time. (Other costs include the money fare and a premium for safety and status). The user values his time subjectively and various factors can change this subjective time cost, influencing the modal choice. For example a passenger will wait for a later vehicle if travelling in a crowded, smoky bus imposes an in-vehicle cost greater than the expected extra time cost incurred waiting for an emptier or faster vehicle. Similarly the valuation of time spent waiting at an uncomfortable stop may be such that generalised cost would be minimised by travelling in the first available vehicle, even if it is smoke-filled and overcrowded.

The user of a jitney service imposes costs upon the operator and upon other passengers. Operator costs are the familiar straightforward costs of fuel, wear and tear, labour, depreciation, insurance, etc. Additionally the user imposes a cost on other users arising out of loading and exiting delays and crowding costs, and the possibility that another intending passenger would not be able to find space in the vehicle. This is similar to the analysis of congestion and is more pronounced in the case of demand-responsive services, such as jitneys than regulated (timetabled) services such as conventional transit (such as buses and trains) where delays en route are moderated to some extent by timetabled departures. In other words, the marginal user imposes a cost upon existing users which is borne by these users, and they similarly impose on him.

For allocative efficiency, costs should be borne by those who incur them. The marginal user should be liable for the incremental costs of the producer and of the other passengers in order that the decision of how much of which transport products to consume is based on correct information. However a productively efficient producer should only be compensated for those costs imposed by the marginal passenger on the producer - this tells the producer how much to produce in which markets. There thus arises a dichotomy - the marginal passenger's price must compensate for the costs accruing to the producer and other passengers while the operator's income should only reflect operator costs.

In short, the decision to supply jitney services is based on operator cost information, while the decision to demand jitney services is based on passenger costs, which consists of both money

and time costs. The further implication of this falls on economies of scale which can be clearly divided into operator and user economies. Expanding a service by offering lower headways almost always results in scale economies when based on user (and social) costs, but not necessarily when calculated using operator costs, while expanding a service by increasing vehicle size almost always results in scale economies for the operator, but not for the user. This implies that in the absence of a pricing system which reconciles operator and social costs, the operator may produce at the most productively efficient point from their perspective, but this will not be the most productively efficient point from the wider social costing aspect.

This chapter has argued that such a pricing system can be found in pricing at 'what the market will bear' after a consideration of various pricing regimes such as marginal cost pricing, club pricing and Ramsey pricing. This pricing system implicitly reconciles operator and user costs, including external effects on fellow passengers by taking into account that the fare elasticity of demand for jitney (and other transport services) also reflects time preferences and other arguments in the demand function. For example a passenger may be prepared to pay for a jitney with a lower journey time cost by spending some extra time waiting for it, or by paying a higher money fare. Similarly if the user places a high premium on perceived personal safety they will similarly be prepared to incur an extra time cost or a higher money cost to patronise those modes of their choice. This approach is rooted in the non-homogeneity of the transport products available.

This suggests that pricing at 'what the market will bear' in an unregulated urban transportation market results in a socially efficient pricing structure, which reconciles both user and producer costs. Transport policies which neglect user costs and focus only on producer costs therefore result in a socially less preferred situation. The success of such a system which allows the user to select the modes that minimise their generalised transport costs and by so doing maximise their utility, depends on freedom of entry and exit to and from the jitney industry. The role of the controlling authorities should be as a facilitator to the market process, according to the neo-classical and Austrian approaches. The authorities ideal task would be to enhance the flow of information used by jitney operators and users alike in making their producing and consuming decisions. Therefore regulation which isolates the operator from this information by confining the operator to specific routes, 'over-specifying' the types of vehicles to be used, and requiring adherence to timetables stopping-places and a schedule of fares results in a socially sub-optimal modal choice by both the passenger and operator.

This is not to suggest that there is no room for some regulation or for a 'conventional' type of public transport service. Certainly bus stops, fare schedules and timetables have some benefit in that they serve as information sources to passengers but there is no compelling reason why all operators should be so confined. If it is believed that such restrictions assist in the dissemination of information and enhance the market process a case

can be made for running these services as 'welfare' services on a competitive-contract or tender basis by the relevant authorities.

## 2. Chapter Two:

### PUBLIC TRANSPORT IN THE EARLY 20th CENTURY

The historical context of the theoretical discussion of the jitney is narrated in this chapter. Just as minibus taxis have provided a source of public controversy since their operation was permitted by the 1977 amendment to the Road Transportation Act, so they did sixty years ago. This chapter includes a synopsis of the points argued in the 1924-1934 period which appear remarkably similar to the opinions expressed currently. An update on the state of the jitney industry in Cape Town to 1989 shows that the kombi-taxis today are natural successors to the "pirate buses" of the late 1920s. Valuable lessons can be taken from the initial jitney period, not the least of which is that the consequences of regulatory actions cannot be avoided indefinitely and that any policies limiting user choice in public transport should be carefully considered.

At a general level, the South African transport market has suffered serious regulation over the years at both urban and national levels. An economic intuition, made formal by E.J. Mishan, can be used to justify this. However, there is a widespread feeling that this intervention has historically been based on rent-seeking by civil servants and permit holders, rather than a concern for the public welfare, and that the current difficulties in the urban transport system are a function of market distortions which have prevented the system from achieving a market based level of economic efficiency.

Before attempting to impose any doctrine, a synopsis of the major features of the initial jitney controversy is necessary:

Cape Town in the 1920s was a city whose working population was spread in a line running North/South from Sea Point through the City, District Six, and the Southern Suburbs to Wynberg. The current Northern Suburbs, and the suburbs between Muizenberg and Wynberg, contributed little to the transport problem of this population.

During the 1920s Sea Point and the Southern Suburbs were linked to the city by rail and tram lines, a necessity given the poor state of the roads and technical limitations of early motor vehicles. Both limitations were, however, undergoing rapid adjustment. These simultaneous developments allowed private road transport to become competitive with both of the rail based options in the late 1920s. In consequence, the Sea Point railway ceased operation in April 1929 and the number of private vehicles offering passenger transport services escalated from 28 in 1924 to 53 in 1926 and to 244 in 1929<sup>1</sup>.

Despite opposition by the City Council, Central Government became increasingly involved in the control of urban transport, and by 1931 new legislation effectively ended the independent operator challenge to City Tramways and the Railways. A consequence of this reduction in the transportation options open to individuals has been increased use of private transport, escalating the externalities just as Mishan suggested it might.

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<sup>1</sup> Report of the Road Motor Competition Commission (1929), p.16, and the Cape Times 1/12/28.

It will become clear as the situation of the late 1920s is described, that many parallels with the current situation existed. The major routes are no longer along the North/South line or rail, but instead follow the highways onto the Cape Flats.

Mishan (1975) described transport decision making as an effective non zero sum game following the Prisoner's Dilemma, in which the existence of a fallacy of composition combines with non-reversability of private decision making to show that what seems best for the individual may not be once replicated by society at large.

He suggested the example of an economy in which public transport is the norm (as Cape Town was in the period pre 1927). An individual making the decision to buy a vehicle would do so by looking at the expected flow of benefits from it and comparing the subjective monetary valuation of this with the monetary cost of the vehicle. If expectations are formed adaptively the result is a valuation of benefits based on uncongested roads.

By the time others in the community have followed this lead, road congestion becomes an issue and early buyers may wish to return to the old option of relatively cheap public transport. The public system, however, faced by declining demand, may have closed down certain rail or tram lines (or bus routes) or raised fares in line with the principle of average costing. Certainly bus trip times have increased due to the additional congestion of the roads. The old status quo is therefore no longer available and more people make the move to (private) road transport. With each move the irreversibility becomes more serious. Ultimately the only way

out, in line with the solution to the prisoner's dilemma, is the intervention of some outside agency, in this case probably central government, which would effectively have to proscribe certain transport options in order to achieve the second best solution.

Mishan stressed that the first best solution could have been preserved had marginal social cost pricing been applied to the public and private modes in the first instance. The vicious spiral process can also be accelerated by inappropriate outside intervention, as is shown in this chapter when the Local Road Transportation Board implemented their 'co-ordination and elimination' policies in 1931.

## 2.1 The background to public transport from the turn of the century

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The early history of the motor bus in Cape Town is well documented in Peter Coates' authoritative account of the Cape Town tramways. Until the mid 1800s horse-drawn omnibuses were the prime modes of public passenger transport between Cape Town and the outlying villages (now Sea Point and the Southern Suburbs). In 1864 the Wynberg Railway Company's line between Salt River and Wynberg was opened (Coates, 1976: 35) and shortly thereafter the omnibuses ceased running along the Main Road.

Due to the discomfort and expense of commuting by omnibus, the residential areas near the City were favoured by those working in Cape Town. In 1863 the Cape Town and Green Point Tramway Company

commenced operations between Sea Point and the City Center. The Company was established under an Act of Parliament and given a monopoly over tramway services by a Municipal franchise (for which it was obliged to maintain the roadway, and return a share of profits to the City Council). The tramway proved to be popular, land values in the areas between Sea Point and the City rose as these areas became more accessible to workers from the City. Coates reported that rapid residential development is recorded as having taken place.

*the first motor bus licences to be issued by the Cape Town Municipality were three to the City Tramways Company in January 1912.*  
(Coates, 1976: 164)

It had been intended to run charabanc-type buses to a terminus at the docks, but the railways refused to sanction the idea, so the vehicles were then used on scenic trips to Hout Bay, Kommetjie and Kirstenbosch. In the interim, various tramway companies (City, Cape Town and Green Point, Metropolitan, and the Southern Suburbs of Cape Town Tramways Companies) had become subsidiaries of the Cape Electric Tramways and had electrified their tramways (from horse drawn) and extended their operations along the Main Road to Wynberg (1896)<sup>2</sup>.

The operations of the motor buses were controlled by the City Council of Cape Town under *Regulations framed by the Town Council of the City of Capetown under the Provisions of Act No. 26 of 1893, and Act No. 28, 1902, in re Motor Omnibuses and Motor Vehicles of the Char-A-Banc Type.* These regulations, approved by

<sup>2</sup> From this point on "City Tramways", a current operating name of Cape Electric Tramways, is used and refers to Cape Electric Tramways, as does "Tramways". "tramways" refers to the mode.

the Administrator of the Cape on 22 April 1911, became known as the 1911 regulations re Motor Omnibuses and Charabancs.

### 2.1.1 The 1911 regulations

In the main these regulations referred to safety and vehicle standards. A licence was needed in order to ply for hire which was granted when various provisions were satisfied. These included the payment of an annual fee (£7) and that certain physical requirements pertaining to the vehicle itself were adhered to.

Additional regulations were to be complied with once license had been issued. Included amongst these were the passing of an annual vehicle inspection; drivers were required to pass a test of their competence in order to obtain a licence; and vehicles were not to

*be driven at such a speed or in such a manner as to constitute a source of danger or annoyance to pedestrian or vehicular traffic; and in no circumstances shall the speed exceed 12 miles per hour*  
(R. VIII).

In terms of restriction of operations, regulation III.4 read

*When making application for the vehicle to be inspected the proprietor must specify the route or routes upon which he intends the vehicle to ply, and these routes shall not be departed from except after due notice has been given to the Corporation.*

Regulation XII. was also an important provision in that

*the owner shall exhibit in some conspicuous part of the vehicle a table of fares to be demanded and received from passengers. Regulation XVI similarly stipulated that the owner and the conductor and driver of every motor omnibus shall cause such omnibus to start punctually from the places and at the times stated, which times shall be shown upon a table in such omnibus.*

No special bus stopping places were demarcated under the regulations, and overloading was forbidden under threat of cancellation of the driver's and/or conductor's licences. The penalty for contravention of these regulations was a fine of up to £20.

The key feature of this period of competition is that under existing regulations - the 1911 regulations - the Council were only able to refuse a licence if no fee had been paid or if the provisions of regulation III, which in the main dealt with mechanical specifications, were not complied with. The Council thus were obliged to licence all applicants as long as the vehicle was of a satisfactory standard. The Council could not impose conditions with respect to fares, routes or timetables. Similarly those regulations pertaining to routes, fares and timetables would have been easy to circumvent. For these reasons, and the fact that buses were required to stop on demand, the bus services that arose were of a jitney nature, although the legislation did not provide for it.

## 2.2 Scenic trips and the onset of competition

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In **September 1921** the City Tramways advertised a service to the docks (Cape Times 22/9/21). Excursions to Hout Bay and Cape Point were promoted, with the fare to Hout Bay being 7s. Peninsula Pleasures, a rival company, advertised excursions to Cape Point, Kommetjie and Hout Bay at the same fare in **October 1921** (Cape

Times 13/10/21). By February 1922 the price had dropped to 5s. and was matched by City Tramways (Cape Times 11/2/22).

City Tramways had realised the potential danger of bus competition to the tramways as early as late 1925 or early 1926 when Tramways came to an agreement with the Charabanc owners; Tramways would not compete in the excursion market, if the Charabancs would not compete with City Tramways within the City. Tramways' foresight may have been prompted by the development of bus competition in other centres which at that time was making itself felt very seriously.<sup>3</sup> This was the first example of serious monopoly rent seeking.

On 20 May 1926 and 16th June 1926 representatives of the Cape Electric Tramway Company met with a City Council committee - the 'Streets and Drainage Sub-Committee in re Regulation of Street Traffic'.

At both meetings, the Tramway representatives stressed

*that it would be very difficult for the [Tramway] Company to undertake improvements involving considerable expense without some protection being given [against private competition on the part of owners of charabancs], and indicated that [Tramways] thought the Council might see their way to secure powers by means of a Provincial Ordinance.*

This Ordinance would, in Tramways opinion, be based on the English model, whereby no further bus licences were issued if the Board of Trade was satisfied that the routes to be followed by applicants were already efficiently and sufficiently served by existing transport. Councillor Dr. A. Abdurahman, the Committee chairman,

<sup>3</sup> Cape Town Municipality. Traffic Advisory Board. Minutes 22/9/27. Letter from W. F. Long to the City Engineer.

believed that it was very unlikely that the Company would meet with any outside competition - presumably referring to other tramway operations, in line with the Municipal franchise. They thus refused to give an undertaking to obtain powers to protect the Tramway Companies against private bus competition. This marked the first of numerous attempts by Long to control the nature and extent of competition facing the tramway operations. By **October 1928** the Council had started to accede to Long's representations and requested the Administrator to draft an enabling Ordinance to permit the limiting of bus numbers and operations.

The first public transport operations were those run by City Tramways to the Docks in **September 1921**. The origin of the Suburban services was related by Coates (1976: 165): After a request by the Lansdowne and District Civic Association, Peninsula Pleasures commenced a motor bus service between Philippi and Claremont Station via Lansdowne Road from 1st **June 1922**. On 9th **July 1923** the City Tramways introduced a bus service to Fresnaye with the aim of relieving the congestion on the Sea Point trams (Cape Times 4/7/23). Similar motives lead to the commencement of a Sea Point bus service from 1st **April 1924**.

The flexibility of the buses meant that some could travel via Main Road, others via Beach Road (alongside the railway line). The service ran to a 10 minute timetable during the morning, lunch and evening peaks and was calculated to be four minutes faster than the quickest trams (Cape Times 1/4/24). Sea Point commuters now had the choice of train, tram or bus travel.

The buses were targeted at the 10 000 passengers who paid cash or used ticket books on the Sea Point trams each week - monthly cards were not accepted on these buses. However only 2 600 passengers used the buses in their first week of operation, and even fewer in the second week - an average of three passengers per journey was recorded (Cape Times 11/4/24). Continued poor patronage of the Sea Point buses lead to the General Manager of City Tramways, Walter Frederick Long, permitting the use of Sea Point monthly tram tickets with a payment of 1d from the end of April. The busiest day on the buses up till that time was recorded on the 29th April when 670 passengers were carried (capacity for 1 800) (Cape Times 30/4/24).

The Tramways had already faced competition between its trams and buses along the Clifton route. In 1924 the railways had commenced a bus service in competition with tram and bus services operated by the Camps Bay Tramway Company (a Cape Electric Tramways associate). This had been resolved in 1926 when City Tramways relinquished their docks bus service in return for which the railways withdrew from the Camps Bay Service. Three years later the Camps Bay route was once again the subject of fierce competition - this time from the jitneys.

W. F. Long, the General Manager of the City Tramways, claimed that bus competition on a large scale commenced in late 1926:

*The advent of buses on this road [the Lower Main Road to Observatory] dated from the end of 1926, the time at which its reconstruction was completed. Before then it had been in too bad a state for the buses to be able to use it without being shaken to pieces. That year really marked the beginning of the development upon a large scale of the bus movement in Cape Town. Until then, there had existed, practically speaking, only the 'busy*

*time' bus services to Sea Point and Fresnaye.*  
(Cape Times 3/8/29)

Coates referring to Cape Electric Tramways' minutebook wrote:

*Early in November 1926 there was a sharp drop in the number of passengers using the trams. Someone was siphoning off the normal traffic.*  
(Coates, 1976: 164)

Tramways management decided to purchase buses in 1927-8 to supplement their tram services, and to prevent the competing operators from getting such a grip on the transport business that it would be forced to close down the tramways in which much capital had been invested. (This is a consequence also raised by Mishan.) They were thus placed in the anomalous position of running buses in competition with their trams. The first major expansion of the Tramways bus fleet took place in **October 1927** when four thirty-six seaters, and one thirty seater were placed in service. A further five were introduced in **November** and another ten due for service towards the end of the year. The bodies were all built at the Tramway Company's workshops in Strand Street, Cape Town (Cape Times 15/10/27).

### 2.2.1 Competition from charabancs - the issues identified

On 17 **February 1927**, Long once again complained to the City Council about competition from the charabancs.

*The latest activities of our competitors take the following form; if business is forthcoming round the mountain this is undertaken, and on the return of the vehicles they are put into service during the evening in competition with the Tram services and on the Lower Main Road, Observatory, Bus service inaugurated by my Company in December last. Unfortunately the public gives its patronage to this intermittent private service, although purely for the gain of the operators without any thought*

whatsoever for the convenience of the travelling public.

A further recent service has been started by these people in the neighbourhood of Tamboers Kloof, no sort of time-table being adopted, or route for that matter - the vehicles changing their routes at the whim of the operators during the course of a day - and they are of course taken off altogether over the week-end to run trips round the mountain etc.

The main issues raised by Long were:

**Safety:** Charabanc bodies were not in accordance with 1911 regulations and were unsuitable for city work.

**Violation of agreement:** The agreement made in late 1925 or early 1926 in which City Tramways withdrew from pleasure trips in exchange for an undertaking from Charabanc owners not to compete within the City.

**Cream skimming:** Cape Town Tramways were undertaking unremunerative services at the request of the Council and public. *Meanwhile our competitors are allowed to pick the eyes out of the Tramway business by only operating on the most profitable routes, and not adhering to routes or time tables.*

**Competitors paying low wages:** Competitors paid their conductors one pound per week, while Tramways paid their conductors between £4 and £6 per week, as well as fringe benefits such as sick pay, and free uniforms.

**Tramways as acting in the Ratepayers' interest:** Having undertaken tramways extensions requested by the Council, Tramway Company felt that the Council should grant

*some measure of protection both against present unfair competitors and others who we know contemplate starting in the near future.*

Tramways paid part of its profits to the Council, as well as purchasing its electricity from the Council.

**Competitors not paying for road damage:** Tramways maintained the roadway surrounding the tramway, while motor bus operators only paid £7 10s. per annum licence fee.

**Moral duty:**

*Having granted my Company many years ago a concession to run tramways for the convenience of the travelling public and placing certain onerous responsibilities upon us, is it right that these irresponsible people should be allowed to do just as they please without any sort of regulations governing their activities?*

The competition from the charabancs was actually to City Tramways' advantage since they competed only in the peak hour. This would have tended to reduce the peak hour demands on Tramways and enabled them to reduce their peak hour capacity while not affecting their off-peak revenues. Peak hour trips are the most expensive and least profitable due to the cost of maintaining peak capacity - profit is made in the off-peaks.

A potential consequence of Long's hoped-for quantity restrictions would have been the emergence of a situation similar to that of New York taxis where medallions permitting public transport operations trade for substantial amounts. Kokernot (1984: 117) reported that rank permits (analogous to medallions) in Cape Town's townships traded for approximately R10 000 in 1984 and Shreiber (1975) related that Manhattan taxi medallions sold for about \$25 000.

In terms of Mishan's argument, Long was warning of a potential problem if, as a result of road congestion, irreversibility of

options should result in the public being left with a third best solution. This was more explicit in the 'capital flight' argument articulated later. However the conflict was not essentially inter-modal, but between the large, established City Tramways, who operated buses and trams, and the smaller, independent bus operators.

### 2.2.2 The differences between the services of tramways, jitneys and taxis

#### **Tramways:**

These were operated by the Cape Tramways subsidiaries and ran between Cape Town and Wynberg, District Six, Sea Point (Main Road), Camps Bay, Kloof Nek, and Gardens area. The services were regulated by timetables.

#### **Buses/Jitneys:**

Buses were operated by the Tramways Companies initially to augment their tram services and to provide scenic trips to places of interest according to timetables. From the late 1920s, buses were increasingly used by the Tramway Companies to run on routes not serviced by trams and to compete with private buses. Increasingly the competitive environment encouraged Tramways to adopt more jitney-like characteristics, and to depart more frequently from timetables.

The Railway Administration also ran buses over a few routes, although not in competition with Tramways buses or trams. The railway services all ran to timetables.

At this time, the private and independent operators were those operating buses on jitney services. Initially, they were the charabanc operators who ran peak hour services in competition with Tramways and off-peak scenic trips. Later, this group concentrated on commuter services throughout the day. They paid scant regard to regulations governing their operations.

### **Taxis**

Taxis were a separate group entirely. They were the successors to the hansom cabs and incorporated car-hire services. Taxis did not compete in the commuter market, but operated true taxi services and were controlled by the Taxi regulations (Hackney Carriage Regulations) which applied to vehicles plying for hire with a capacity of less than seven passengers. Only in 1930 and 1931 were any complaints made about the activities of taxis, and only two incidents have been noted.

#### **2.2.3 Early official policy**

The official response to the jitneys can be divided into two classes, viz. the attitude adopted by the Cape Town City Council and the Provincial authorities, and that adopted by the State, through the Road Transportation Boards.

The City Council and the Provincial Authorities had a relatively enlightened view, and refrained from taking sides in the jitney-Tramways conflict. As early as **June 1927**, the Council had refused to act against Tramways' competitors, initially suggesting that the trams would not be faced with competition (on a strict

interpretation, no one else would run trams). Later, when the bus war was at its height, the Council maintained that this was part of the normal competitive process and would resolve itself.

However the Council did intervene at an early stage to impose some order on the industry - this intervention was circumscribed by their lack of legal powers, but the intent was not to prejudice the private operators to the benefit of Tramways. In **July 1928** the Administrator notified the Council that he was unwilling to limit the number of licences or limit the number of proprietors. He was, however, generally in favour of a proposed regulation which would empower the Council to exercise some control over road usage. Even when they were granted powers to control the competition under Road Traffic Ordinance (No. 19 of 1929) the regulations that were framed were of a relatively mild and essentially non-partisan type.

The presence of Long on the Traffic Advisory Board (1927-1929)<sup>4</sup> did not appear to result in actions by the Council favourable to Tramways at the expense of their competitors. Long certainly prompted the Council's decision to ban charabancs from City services in **September 1927** when the Council insisted that vehicles on City services have windows. This regulation was, however, motivated purely on safety grounds.

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<sup>4</sup> The Traffic Advisory Board was appointed to deal with road traffic matters and reported to the Council through the Streets and Drainage Committee. The first sitting was on 24 March 1927 and included representatives from the Railways, the Royal Automobile Club and the Cape Town Tramways. The Traffic Control Committee, comprised entirely of Councillors, replaced this Advisory Board, its first meeting was held on 8th March 1929.

In direct contrast, the Road Transportation Boards, established in terms of the Motor Carrier Transportation Act (Act 39 of 1930) were biased in the extreme in favour of the railways and existing tramway operations (which were exempt from the Act). They followed a policy of 'elimination and co-ordination' which aimed at eliminating 'wasteful services' and especially those services which competed with the railways. The Co-ordination aspect of their policy was directed at achieving a 'one operator per area' goal. The Local Road Transportation Board had successfully eliminated all inter-enterprise competition by 1932.

### 2.3 1927-8: Escalation of the conflict

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In **February 1927**, Tramways policy seems to have been aimed at beating the jitneys at their own game and they decided to again expand their bus fleet. . Competition was biting: in **May 1927** Tramways notified the Traffic Advisory Board that due to the competition from the buses, they would not undertake tramway extensions they had earlier agreed to, and the tram track from Tollgate to Mowbray would not be doubled. Indeed, Tramways' report for the year ended 30 **June 1927** showed a decrease of 1 088 820 tram passengers (to 25 801 292) from the previous year and a total of 3 169 585 passengers carried by the bus operation. In **August 1927**, Tramways' weekly revenue was between £1 200 and £1 500 per week lower than in usual years - this difference being ascribed to the bus competition.<sup>5</sup> About this time (the latter

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<sup>5</sup> Letter to the City Engineer from W.F. Long, 18/8/27.

half of 1927) private buses started competing with the tram services on Gardens, Kloof Street, and Tamboers Kloof routes. The response by City Tramways was to introduce a fleet of buses into Gardens and Tamboers Kloof.<sup>6</sup>

In July 1927, the Council agreed to amend the Motor Omnibus Regulations to include clauses specifying adherence to routes, timetables and the punctual start of vehicles, and fares as approved by the Council. Regular buses could not be taken off in order to undertake special trips. In other words, while the Council had no power to limit the number of buses on the roads, they could regulate to some extent the routes these vehicles travelled, and the times at which they could do so. Not surprisingly, the private bus operators resented this interference into their business and complained to the Traffic Advisory Board

*stating that it was very necessary that omnibuses should work according to the traffic demand, and pointing out that on certain days there might be public gatherings at places entirely off the usual routes, and if a specified route had to be adhered to, there might be no demand for an omnibus there, but a great demand in another direction, which could not be catered for owing to the restriction: that competitors, who might have a great number more vehicles than they, would be in a position to schedule a number of omnibuses to exactly the same time table as they did, and on the same routes, thereby causing congestion of traffic with no advantage to the public: and adding that they considered the table of fares was a matter which should be left entirely to the omnibus proprietors.<sup>7</sup>*

To some extent there was already a form of timetable regulation. The Council already had a regulation laying down three minutes as

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<sup>6</sup> Cape Town Municipality. Traffic Advisory Board. Minutes 11/11/27. Statement from Kloof District Civic Association.

<sup>7</sup> Cape Town Municipality. Traffic Advisory Board. Minutes 5/8/27.

the maximum time for which buses might stand in Adderley Street. Motivating the timetable regulation, the Chairman of the Traffic Advisory Board said:

*The Council will not lay down your time table. ... You must run your buses from Mondays to Sundays at certain hours and adhere to these hours. Frankly, the object is that you shall not run your buses on ordinary days and then on holidays take the bus off and run it to Newlands and leave the public in the lurch. The matter cannot be left to the bus owner's discretion. ... The public, however, must not only get facilities but regular facilities.<sup>8</sup>*

The trams were becoming increasingly unpopular. In **November 1927** various community groupings complained to the Council about the various regulations limiting bus operations and stated that since the onset of bus competition tram fares had decreased but the buses still offered a quicker and cheaper service. Buses also serviced streets not served by the trams.

**1928** began with a new fleet of buses belonging to the Camps Bay Tramway Company operating between Adderley Street and Camps Bay, running through Sea Point whereas Camps Bay Drive was the tram road to Camps Bay. This was touted as the first major step in the phasing out of the Camps Bay trams. This process of closing down the Camps Bay trams (which had its roots in 1905 at the end of the lease of the Camps Bay line to the Cape Town Tramway Company) commenced in earnest in 1924, when the Railways introduced their service between Sea Point and Camps Bay (later given to Camps Bay Tramways in exchange for the Docks service), and was completed on 16th February 1930 when the last Camps Bay tram ran.

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<sup>8</sup> Cape Town Municipality. Traffic Advisory Board. Minutes 22/9/27. Chairman Councillor Dr. A. Abdurahman.

By mid-September 1928 Tramways were operating the largest single fleet of buses in Cape Town: 69 vehicles, compared with 40 vehicles of the Triangle Association, and 55 private operators. (Cape Times 1/12/28). The Capetown Motor Omnibus Owners Association (known as the Triangle Association due to the shape of their emblem) was formed by 18 owners on the 6th November 1928.

The private interests did not have to rely on Civic deputations to state their case, and Tramways ceased to be the only voice on the topic. The debate, now often acrimonious, moved into the public arena.

### 2.3.1 The great debate

On 30th July 1928, a letter from W.F. Long, the General Manager of Cape Town Tramways, was published in which he portrayed City Tramways as

*the body responsible for maintaining a standard of transportation service compatible with the needs of greater Cape Town.*  
(Cape Times 30/7/28)

This presumably derived from the franchise given Cape Electric Tramways by Acts of Parliament to run trams in Cape Town. The franchise was for trams only, and so the assumption of this title seems rather pretentious. (The Railways were also fond of making this claim.)

Most of the arguments have been mentioned already - they were raised in a letter to the Town Clerk in February 1927, but they appeared here in a more developed form and were as follows:

- Assistance to development of Cape Town;
- the risk of setting up the tramways;
- increased labour costs had resulted in increased cash fares, although monthly tickets were cheaper;
- over the previous eight years large sums had been spent repairing and improving the tramways, streets and rolling stock;
- £250 000 was paid annually to the Council each year in respect of electricity;
- the unfair manner of competition behaviour gave temporary benefit to the public but would prove detrimental in the long run (also Mishan's analysis).

*In dealing with unfair competition let me at the outset outline what is demanded of the Railways and my company as the recognised bodies responsible for the movement of Cape Town's travelling public:*

*(1) A regular service on all routes with equipment commensurate with the safety of the public, at all times to schedule; and the provision of additional rolling stock to handle rush hour traffic morning, noon and evening.*

*(2) In so far as tramways, as distinct from omnibuses, are concerned - the construction and maintenance of the whole of the road occupied by the track, and in addition the payment of 10 per cent of our profits to the City Council, amounting to more than £6,000 per annum for the last ten years.*

*(3) The operation of many public convenience services which are quite unremunerative.*

*(4) As large employers of labour we recognise the standard of living demanded under present economic conditions and pay wages in accordance with an agreement with our employees under and Industrial Council.*

The competitors were alleged to behave in the following way:

- When they were licensed they followed the profitable traffic stream; unpredictable with respect to route and time.

- There were no backup or spare vehicles, or vehicles reserved for the rush hour. Vehicles were as cheap as possible (bought under hire-purchase agreements) and were often unsuitable for the purpose.
- Very few adhered to Wage Board determinations.
- Vehicles were unsafe - seating in excess of manufacturers specifications, and the operators were not interested in safeguarding the travelling public or other road users. Long added

*It will be argued by many that our competitors are worthy of support in that they have brought down fares - a simple matter if done at the expense of employees in addition to catering only for the best-paying business, built up by your competitor, leaving him the collar work and the responsibility.*

Long's assertions regarding the wages paid to private employees was confirmed by the Divisional Labour Inspector in **August 1928**. The contraventions included paying lower than the legal minimum, overtime contraventions, and the failure to give a weekly day off to employees. These allegations were hard to prove because the employees were often in collusion with employers (e.g. partnership contracts), many bus owners did not maintain correct registers, and the truth only emerged after employees lost their jobs. (Cape Times 21/8/28)

The Secretary of the Triangle Association, S.M. Beeten, wasted no time in responding on **1st August 1928**.

*... we are more than pleased that the concerted action on the part of the Triangle bus service is being felt so keenly by this 'hog of the road'.  
Now let us take the complaints under the various heads:  
1. 'There are too many buses in Cape Town.' - I wonder if the public who wait about the pavement in Castle*

*Street for their particular bus say that? ... How many Tramway buses do you think would be running between the trams on any route if private enterprise were made impossible (as Mr. Long would like).*

Beeten added that profitability derived from public support and kept private buses on the road. If Tramways was not getting public support they were neither supplying a want nor meeting requirements of the public.

Countering the allegation that Tramways' competitors were not running to a time table, Beeten stated that in each Triangle bus there was a time table to which the operator must adhere. He said that serious penalties were levied upon operators deviating from their routes or times. (No evidence to support this assertion has been found.)

On the matter of wages Beeten suggested that the majority of the Triangle buses were owned by the 'small man' and were owner-driver, owner-conductor, or family or relative owned. Where partnership arrangements of this kind were not used, the owner was obliged to pay the full wage rate as laid down in the determination by the Wage Board - which was higher than those paid by the City Tramway Company (which operated under an Industrial Council determination).

Discussing the reduction of fares, Beeten wrote that competition prevented a City Tramways monopoly in which high fares would prevail, there would be an end to buses competing with the trams, and a poor quality of transport.

Beeten concluded his reply with a stinging attack on City Tramways:

(1) *If they can't run their business profitably, without state interference designed to bolster up and secure profits, then they should get out of the business.*

(2) *If they cannot give an efficient service that will of itself command supremacy and safeguard the investors, they should sell out.*

(3) *When the only way you can regain support you once had or retain the patronage you now enjoy is by decrying, defaming, and discrediting your opponents, it is time you lost the support you even now have.*

Other comments on Long's letter, published the same day as Beeten's reply, also reveal an intuitive understanding of some of the main points:

According to one correspondent, the private buses smashed the trams' monopoly - trams with tracks mean monopoly and are noisy, uncomfortable, nerve-shattering, slow - in short, they were nuisances. Long, the correspondent wrote, was pleading for the obsolete. Tram routes had ceased to be profitable because trams had outlived their usefulness. Buses, alternatively, meant reasonable fares and the public preferred buses to trams. Another was of the opinion that quick transit improved trade and increased it if fares were cheap. (Cape Times 3/8/28)

It was suggested by another commentator that local legislation should be modelled on the 1919 laws controlling U.S. bus traffic

*which provides for State Commissions furnished with wide regulatory powers, and some of these are (a) the right to grant, or refuse to grant, the right to operate; (b) the fixing of rates or fares; and (c) to provide for the obtaining of a certificate of public convenience and necessity before a licence be granted.*

*The result is that the functions of the motor bus are diverted into its most useful channel, which is co-ordination with existing systems in the opening up of wider areas which cannot be touched on economic grounds, and in this respect it has accomplished much, and can do so here.*

*To suggest that the bus may replace the electric trams in Cape Town is absurd, as one has only to consider the*

*number of buses that would be necessary to cater for the peak traffic that exists during our rush hours.*

Four days later Beeten once again took up the cudgels on behalf of the private operators: (Cape Times 7/8/28) Referring to Long's statement that private operators were running below cost, Beeten suggested that Long saw this as an excuse for increased fares, and that operators on the Southern Suburbs route had found this route very lucrative and had established fleets of vehicles. If, as Long believed, the operators were not covering costs, then they should be exiting the industry. This was not happening.

Furthermore, if Long was of the opinion that too many buses were running, he should withdraw the Tramways buses. Beeten also questioned why Tramways should run buses in competition with their trams - and at a loss, and recommended that Long should either remove his trams, or make their fares so low as to make bus competition unprofitable.

*It was undoubtedly public support given to the private buses that compelled Mr. Long to camouflage his buses so that the general public would not know the one from the other, even to the extent of painting some of them piebald; it did and still does deceive many who hail a bus driver to stop and only discover too late that it is a monopoly bus.*

*All that the private owners ask of the public is to use their brains, and we shall be satisfied as to their actions. On the other hand, what Mr. Long asks is for more and more legislation and embarrassing regulations, differentiating in favour of the tramways.*

*I contend that what the public of Cape Town want is rapid, reliable and convenient passenger transport service. This at present spells motor omnibuses, not trams, which all agree are a source of annoyance to fast traffic on the road, and a perfect nuisance to the many. They are entirely out of date, and what the public are saying to-day is, scrap the trams and give us motor buses. Mr. Long replies, save the trams and make it impossible for the buses to compete with them, not by way of reduced fares on trams, but by way of certain restrictions which will render it unprofitable to operate buses. Eliminate the possibility of extending the service of buses; make it too inconvenient for the*

*public to patronise the buses, thereby driving them back to the trams*

### 2.3.2 Complaints and accusations

Alongside the efforts by Tramways and the Triangle Association to gain credibility for their organisations by discussing the issues, was a spate of complaints and counter-complaints, both from the organisations, their agents, and the interested public. Competitive behaviour was exemplified by buses often running in pairs to the same destination. A Tramways bus and a private bus would cut and chase in their quest for passengers (Cape Times 24/8/28). The Traffic Control Committee disallowed cruising for passengers by buses in March 1929<sup>9</sup> and regulations were passed which provided that vehicles were only permitted to park at an appointed stand at authorised times.

The peak hour problem was the main reason given by Long when he announced on 25th October 1928 (Cape Times 25/10/28) that tram and bus fares were to be increased. Rush hour traffic had vastly increased while slack hour traffic remained low. Most of Tramways' routes conveyed work related trips, except the Main Road and Sea Point services which were the most competitive routes.

*The number of casual passengers - those who pay the highest rate - is becoming so small as is insufficient to give us a reasonable average fare taking into consideration the low fares paid by the rush hour passenger and the high cost of operating a service requiring 2 times as many trams and twice as many buses during peak hours as is necessary to give a reasonably frequent service in slack times.*

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<sup>9</sup> Cape Town Municipality. Traffic Control Committee. Minutes 8/3/29.

Long harped on the old themes of the common carrier aspect of his service and responsibility to the public - and questioned what would have happened if he had stuck to the highest margin service. He was also far sighted enough to recognise the congestive effects of the car on all road-based modes and made an interesting and valid point: The more people who acquired the 'bus habit', he asserted, the more Tramways' difficulties increased - due to the addition to peak hour loads<sup>10</sup>.

The Triangle Association promptly undercut Tramways by offering unlimited period 80 ride tickets cheaper than Tramways limited period ticket, and undertook not to raise fares. (Cape Times 25/10/28) Even with the fare increase, Tramways buses were still cheaper than their competitors over the Rondebosch to Salt River Road route. (Tramways charged 3d, and the Triangle fare for the same journey was 4d - Cape Times 20/9/29)

The Traffic Control Committee was certainly no friend of the Tramway Company and yet it is difficult to understand why it refused to even recommend enforcement of the Council regulations. In this light a statement by Beeten that *The City Council should not be concerned about the profits of private enterprise*

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<sup>10</sup> By attempting to escape congestion costs of one sort (crowded buses), the individual is adding to congestion costs of another (crowded roads, increased journey times, more crowded buses, higher capital costs, etc..). A further argument in favour of persuading off-peak travel.

(Cape Times 25/7/29) contained little truth<sup>11</sup>. However Beeten too felt that the Council should *concern themselves with the protection of the public against certain malpractices*. He would have been referring particularly to the practices of cutting and chasing, which all operators indulged in, and were prey to.

Enforcement lay with two bodies: the Vehicle Inspectorate, and the Police. Under an Act of the old Cape Parliament of 1902 the Government had assumed entire responsibility for the police administration in return for which the local authorities had waived all claims for shares of fines imposed in respect of contraventions of Municipal regulations. This may go some way to explaining why the Council were reluctant to expand the duties of the Vehicle Inspector's office to include regulation enforcement. The police were not unaware of the dangerous practices of racing and passing which, in a classic example of buck-passing, were highlighted by the District Commandant of No.1 District, S.A. Police in **April 1929** in a letter to the Town Clerk. The Traffic Control Committee was thereupon prompted to frame a regulation prohibiting buses proceeding in the same direction from passing each other, except when such vehicle has stopped. To be fair, the Police were also insistent upon the need for increased powers and

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<sup>11</sup> On 11/10/29 the Traffic Control Committee insisted that the Vehicle Inspector test Tramways' crews, even though Tramways thoroughly tested their drivers themselves saying that "*no differentiation should be permitted in the application of the omnibus regulations*". This was affirmed on 13/12/29 when the Traffic Control Committee refused Tramways permission to self-insure, in spite of the more than sufficient size of their assets.

were co-operating with the Council in matters of traffic control<sup>12</sup>.

A casualty of the bus competition, the Sea Point railway closed:

*... just after midnight on 17th April 1929 the last train returned to Monument Station in Adderley Street bringing to an end this misbegotten railway's history.*  
(Coates, 1976: 169)

An additional burden was created for Sea Point operators as an average of 7 000 passengers per day (February, 1929) turned to alternative transport. Only about 1 500 passengers journeyed off peak. This required an additional 21 tram or 50 bus trips during each morning and evening peak (Cape Times 29/8/29).

In the year since **July 1928**, the private owners had trebled their fleets, while the City and Camps Bay Tramway Companies had only added one or two vehicles - the total of registered buses stood at 221, operating over 38 routes. Only 19 buses had submitted timetables when taking out the 1929 licence<sup>13</sup> - yet licences had been issued to defaulters. The various vehicles operated over approximately 47 routes originating from the City Centre. City Tramways buses faced no competition over eight of these routes while over 28 routes the privates competed amongst themselves. The Railways and Triangle service competed over one route. The remaining ten routes were the troublesome ones, over which there was *excessive competition*: the Main Road from Camp's Bay to Heathfield, and the Lower Main Road, Observatory, where all the

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<sup>12</sup> Cape Town Municipality. Traffic Control Committee. Minutes 21/3/29.

<sup>13</sup> Cape Town Municipality. Traffic Control Committee. Minutes 12/7/29.

enterprises competed. The Triangle Association and Tramways Companies, who controlled the majority of the buses between them, appointed their own inspectors to regulate the arrival and departure of their own buses<sup>14</sup>.

There was considerable difficulty in obtaining reliable statistics, as there is now: In September 1928, 23 routes were identified, while in April 1929, 28 routes were specified, although it was not certain if eight of those were still being operated.<sup>15</sup>

### 2.3.3 Introduction of the Railways to the debate

The System Manager of the S.A. Railways approached the Traffic Control Committee in July 1928 with a direct request that they limit bus competition on their cherished Docks route - obtained from the Cape Town Tramways in November 1926. The System Manager maintained

*that as the Administration already provides an adequate service between these points there is no justification for the introduction of an additional service; that as legislation provides that before licences are issued for the introduction of a new bus service, licensees are required to supply the Council with time tables, routes, fares etc., the Administration suggest that it is within the powers of the Council to withhold the issue of licences if satisfied that the district is already adequately served.*<sup>16</sup>

<sup>14</sup> Cape Town Municipality. Traffic Control Committee. Minutes 12/7/29. Interview with Administrator.

<sup>15</sup> Cape Town Municipality. Traffic Control Committee. Minutes 16/4/29. Additional routes were Cape Town to Bantry Bay, Walmer, Jamestown (Athlone), Mowbray, Wynberg to Hout Bay.

<sup>16</sup> Cape Town Municipality. Streets and Drainage Committee. Minutes 17/7/28.

This request was denied by the Council as the Traffic Control Committee did not accept that it had the power to withhold licences provided applicants complied with the provisions of the Ordinance.

Ordinance no. 19 of 1929, the Ordinance to Make Provision for the Regulation of Omnibus Traffic by Local Authorities (the Omnibus Traffic Control Ordinance, 1929) was assented to on 28th **September 1929** and became effective from 1st **January 1930**. The objective of the Council would not have been to exert rigid control over the bus competition, but only to contain some of the undesirable aspects that arose from competitive behaviour. The Council's 'laissez-faire' policy was described by the Town Clerk in **July 1929** in the Council's submission to the Road Transportation Competition Commission (see below). Under this policy the Ordinance would have been used as a 'threat' to bring serious offenders into line.

Amongst the various powers permitted under the Ordinance was the power to refuse to issue bus licences if the Local Authority had satisfied itself that an area was sufficiently served by existing modes. The Ordinance also provided that insurance be maintained in the following manner: £1 000 security for third party risks per vehicle to be lodged with the local authority when applying for a licence, or maintain an insurance policy for at least £1 000 per vehicle for third party risks. The bus may only be used whilst the policy was valid. A passenger liability policy of at least £100 per seat was to be presented on licence application, and to be maintained.

## 2.4 The Road Competition Commission (1929) and The Road Motor Transportation Act

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The Road Competition Commission and the resultant legislation which effectively usurped control of the Cape Town bus traffic from the Cape Town City Council was strenuously opposed from the start. On 26th February 1929, the Council were approached by the Road Competition Commission for its opinion on the issues raised by the Commission, and to complete a detailed questionnaire on the state of road competition in their jurisdiction. Already at this early stage the impartiality of the Commission was viewed with great scepticism

*the personnel of which, [the Town Clerk] pointed out, was composed of Government nominees to support the interests of state transport.*

At a subsequent meeting the Town Clerk, referring to the 'over-traded' bus sector, added:

*That there may be over competition is in the nature of things to be expected. It is however an economic waste which will in due course find its own solution. Any attempt however to restrict freedom of competition at the present state of development is to be deprecated, notwithstanding the fact that such competition may result in a loss of revenue to certain section of the State railways.<sup>17</sup>*

According to the Town Clerk, the development of roads in Cape Town had resulted in the development of public transport, permitting an expansion of the City not otherwise possible. Although there were certain disadvantages as a result of inadequate powers of control, road motor transportation had had a direct beneficial result in

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<sup>17</sup> Cape Town Municipality. Traffic Control Committee. Minutes 8/3/29.

that it had facilitated the development of outlying areas beyond the reach of the existing railway services. The cheap and rapid service offered had also assisted towards a solution to the housing problem by relieving congested areas. Railway revenues had also been affected by an expansion in the numbers of private vehicles and commercial vehicles.

The Town Clerk criticised the aims and composition of the Commission, saying

*The terms of reference coupled with the language employed in the questionnaire seem to imply that the Commission is specifically directed to recommend measures the effect of which will be either to restrict or suppress the competition to which the railways of the country are in certain areas being subjected by reason of the advent of motor transportation both for the conveyance of passengers and goods.*

The City Engineer, too, showed an appreciation of social costs in his submission in respect of the technical aspects of the roads question:

*A graduated system of road improvement, adapted to the amount and nature of the traffic, will pay for itself; in some cases out of direct savings in maintenance; in others at any rate by a reduction in the costs of transportation to the community and a general increase in prosperity.*

Horwitz (1936, 1937) prepared an excellent critique of the Road Motor Competition Commission's report and the Road Transport Act. These references, drawing on economists Frankel, Ponsonby, and Pigou are highly recommended.

From the Report:

*Experience in other parts of the world tends to show that unregulated and uncontrolled competition results in an undue and uneconomic multiplication of services in certain areas and the neglect of others. (p. 19) In the Union this 'multiplication of services' was beyond the*

reasonable needs of the communities, which multiplication, apart from the purely economic aspect, tends towards unnecessary congestion of streets, 'racing' between competing passenger vehicles, 'cutting', 'piloting', and other practices which are undesirable and dangerous. Many vehicles on the streets were also 'unsuitable'.

The Commissioners also reported that

*when transport service is offered in excess of public requirements, invested capital is detrimentally affected and in the end public interests suffer. [Mishan's analysis] ... The competition leads to the cutting of fares and rates for transport service and, while the public may temporarily gain by uneconomic rate-cutting - and this is a point made much of by the advocates of free competition - in the end it must pay. It is almost the invariable experience after a rate war that the survivors so frame their tariffs as to recoup themselves for losses temporarily sustained. ... Not only is the public liable to suffer in the end in regard to rates and fares, but the stability and efficiency of service, as also uniformity of treatment to all customers, are most desirable factors in the field of transportation.*

The Commission expressed themselves

*satisfied that a measure of competition in public transport is healthy and desirable*  
(p. 21)

but nevertheless felt that there was a need to 'stabilise' public service and restrict 'wasteful' competition which 'undermined' established railway and tramway services as well as

*the placing of road transport on an economic and sound basis in the interests alike of the road transport vendor and the public he serves.*  
(p. 21)

The manner in which this would be accomplished was not to be by unshackling the railways from the variety of socio-developmental policies and practices, but by similarly inhibiting the road transport market.

The Commission thus recommended the creation of a regulatory body

- a Road Transportation Board independent in character, representative of diverse interests, and free from political control. ... Such a regulatory body, after due investigation, prescribe areas or routes which should be designated as 'transportation areas' or 'transportation routes' in or over which control and regulation of public services should be exercised. No one [should] be permitted to engage in any form of public transport by road within, into, from or through such transportation areas or over such transportation routes save under a 'public service licence', in which the nature of the operation authorised, and ... the route or routes to be served should be specified.

(p. 26)

The regulatory body would have wide discretionary powers - the ability to determine the extent to which competition

*is desirable and in the public interest. ... In determining whether or not a certificate should be issued, the transportation needs of the area or route to be served should be considered in relation to the transport facilities available by road and rail (including tram services). Consideration should be given to all relevant factors; the sufficiency of the available services, the question of their suitability and efficiency in relation to the needs of the community, as well as the reasonableness of the charges levied, etc., should be taken into account.*

(p. 27).

The analysis of tram and bus competition in the report followed similar lines to that of rail competitors. Once again the tramway companies' liability in respect of their permanent way was seen as unfair, as was the developmental role of pioneer tram services.

*Individual owners of small buses - often bought second-hand, or on the hire-purchase system - originated the competition; sometimes unwise in their decision and often unbusinesslike in their methods, they created a competition which was frequently uneconomic and destructive. They either operated the vehicles themselves or employed staff who were required to work excessive hours, often at low rates of wages and under conditions which no well-established and responsible transport undertaking could recognise; this enabled the owners to 'cut' fares and obtain traffic from tram and other traffic agencies. They frequently operated without any great sense of responsibility, giving service at such time and in such manner as their interests dictated.*

*These vehicles did not and could not take over the whole function of the tramways, but did succeed largely in taking away that portion of the tramway traffic which provided the necessary margin between gross revenue and expenditure, with the result that the tramway companies have, in some cases, been compelled to enter into active competition by purchasing and running buses themselves. In doing so, they have in turn entered into competition with railway services, e.g., between Cape Town and Wynberg.*

(p. 46)

Horwitz (1936) calculated that the railways only experienced a decline of about 14% in Cape Town suburban passengers from 1927 to 1929 - indicating that the nature of the competition was not between the railways and others, but essentially between Tramways and jitney operators. By using the small decrease in rail passengers as an argument in favour of extending transport regulation to Cape Town, it certainly appeared as if the Commission had an agenda other than protecting the railways.

Akin to the Railways sentiment that road transport 'has its place', the tramway camp felt that "uncontrolled and unregulated" bus competition was harsh and unfair. The private bus operators were stated to indulge in various malpractices including irregular and undependable service, circumventing the Wage Board determinations through 'partnership' arrangements, employing youths as conductors, did not have sufficient financial stability to operate a public transport service (presumably meaning insurance and replacement vehicles), did not give developmental service to new areas, but operated only in areas developed by the older forms of transit, and

*operate at uneconomic rates, which, if not properly regulated and controlled, will ultimately have the effect of impairing transport stability.*

(p. 47)

Commissioners Borain and Gundelfinger, representatives of the Federated Chamber of Industries and the Association of Chambers of Commerce respectively, submitted a minority report critical of the perceived tendency towards a railway monopoly. While they agreed to the principle of tariff regulation in the case of passenger transport saying that

*it is a well-established principle and a world-wide practice that public transport passenger services should be subject to regulation in regard to tariffs*  
(p. 60)

they rejected its application to goods transport.

Competition, in their opinion, had a beneficial effect on the railways and that an application of certain basic standards with respect to vehicles, licensing, insurance, and taxation would tend to eliminate much of the 'unfair and irresponsible' competition confronting the railways. The decrease in viability of rail passenger services, they submitted, was not so much due to bus competition, but to the increase in the numbers of private cars. Harsh road legislation, they believed, would encourage individuals to make use of private means of transport - a point restated by Mishan.

The neo-Marxist view of capitalism places great emphasis on vested interests. It would have been expected that industry and commerce would support measures aimed at reducing the reproduction cost of labour and thus oppose the stifling of a competitive transportation system. Surprisingly, they restricted their opposition only to goods transportation. Reasons for this may have been that the interests of the large tram and bus operators

within the Chambers may have outweighed the somewhat uncertain benefits of private bus operations.

#### 2.4.1 Conflicting regulatory framework

The Ordinance and Motor Transportation Act emerged at similar times from provincial and central government. There was conflict between them regarding the government's power to control transport services

Until this time all bus operations had been under the authority of the Revised 1911 Motor Omnibus and Charabancs regulations, periodically amended. The main points of the 1911 regulations (already covered) were as follows: The necessity of a licence, which was granted if various mechanical and vehicle body specifications were adhered to. The main clauses specified that the route/s to be travelled should be specified when applying for the licence and could only be departed from after due notice was given to the Council, that timetables had to be exhibited and adhered to, that drivers had to be licensed and adhere to a speed limit (12 mph), and that buses could stop on request.

The revised regulations, published in 1927, additionally compelled buses to stop for intending passengers if room were available in the vehicle, and passengers could only (dis)embark at (Council) recognised stopping places. Additionally bus licences would only be issued if the Council was satisfied that the proprietor was in a position to handle any reasonable claims for compensation in the event of an accident. This requirement was rescinded in November

1928 as it could not be enforced due to the lack of specific statutory authority (no provision for it in the Ordinance).

Other alterations made up to the period of the 1930 regulations included: Conductors compulsory (22/9/27); vehicles needed windows and not just curtains, to be licensed (22/9/27); carrying of fire extinguishers (22/9/27); buses and charabancs prohibited from plying for hire in certain City streets (18/11/27); no standing passengers allowed (17/7/28); parking regulations (places, duration, time) (19/10/28); minimum age of conductors 17 years (8/3/29); no overtaking (12/4/29).

The Council had extensive powers under the Ordinance outlined above, and utilised them to the full in the regulations. Looking at where the newer regulations differed significantly from the 1911 regulations, one finds that the laws regarding responsibility were tightened up (definition of "proprietor" was wider) and that before licence could be issued the proprietor had to satisfy the Vehicle Licensing Inspector that there was adequate provision for passenger and third party risks. Most important, when applying for a licence, the proprietor was required to specify the route(s) the vehicle was to ply, as well as submit a table of fares to be charged. Both the routes and fares were required to be approved by the Council and were required to be adhered to unless prior written consent from the Council had been obtained. In other words, failing to run was an offence. The first major action taken under the Ordinance was to define routes for buses plying in Cape Town, and to restrict buses to plying these routes only, in **June 1930**. Essentially, these regulations reflected the old

policy of timetable licensing - the Council had not yet taken power to limit the number of buses plying on any route.

The Tramway and Omnibus Worker's Union submitted in **November** that the regulations were impossible to adhere to, and as much was said by one of the Cape Town magistrates in a trial. They stated that between £400 and £500 had been spent on defence fees (excluding fines) from **January to October 1930** - all of which came from member's wages<sup>18</sup>.

Once again, it should be stressed that it is not the laws themselves which are important, but rather the extent to which they are enforced. In this respect while the rules and standing orders above severely restricted the operations of buses, the application of these laws was lenient in comparison to the later actions of the Local Road Transportation Board in terms of the Act.

The speeding problem, which had subsided, flared up again in the month preceding the publication of the regulations. 138 of 193 speeding cases from **January 1 to May 1 1930**, involved buses. Of the 108 cases heard by May 1, 102 drivers were convicted with several having their licences suspended. Long once again said that competition was the cause of speeding and that schedules were ignored by Tramways competitors when it suited their purposes (such to have more vehicles ready for the start of the peak). This was defended by drivers convicted of speeding who said that their schedules were too tight with only two minutes between

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<sup>18</sup> Cape Town Municipality. Traffic Control Committee. Minutes 14/11/30 and 19/11/30.

arrival and departure at termini - so drivers had to speed if they wanted a break. Additionally, timetables failed, it was said, to take into account the different sizes of buses.

Other allegations included that drivers were instructed to chase rivals while some vehicles hung back to run in front of a rival bus, allowing as large a gap as possible to accumulate between them and the vehicle in front. Some vehicles were also said to turn back before reaching the end point of the route in order to beat competitors. The driver's position was all that more awkward because there were between 50 and 60 unemployed bus drivers and conductors at that time. (Cape Times 13/5 and 14/5/30)

In summary, the powers of the Council with reference to the licensing of bus traffic as at 23rd **September 1931** were:

No bus could ply for hire within the jurisdiction of the Cape Town City Council without the proprietor first having obtained a licence from the Council. This licence was granted after the Vehicle Inspector had examined the vehicle and was satisfied that it complied with the safety regulations. At the same time the applicant should have specified the routes upon which it was intended that the bus ply for hire, and submitted a schedule of fares to be charged, both of which had to be approved by the Council and were not to be deviated from after approval (without the prior written consent of the Council). A bus was only allowed to ply for hire between the places and along the routes specified in the licence. The proprietor was also to submit a time-tables in respect of the routes intended to ply for the Council's approval.

No bus was permitted to ply over any route which had not been established in terms of the rules framed by the Council under the Ordinance 19 of 1929. All routes, before they could be established, had to be certified by the City Engineer to be suitable with regard to width, gradient, surface, and other physical characteristics<sup>19</sup>. Jitney operations were now explicitly forbidden.

As has been previously explained, the Council's policy towards the bus competition was one of minimal interference. This was apparent on two fronts viz: Regulatory - where the type of regulation was of a relatively mild nature (at least until the 1930 regulations); and Enforcement - where the offenders were not vigorously pursued. In this respect Long applied on several occasions to the Traffic Control Committee for them to enforce their own regulations receiving at best a non-committal answer.

The Parliamentary debates of the Road Competition Commission and the Motor Carrier Transportation Act suggested reasons for the Government's desire to control road operations where they competed with railways. However, in the case of the Cape Town bus war, there was no evidence to suggest that the competition was primarily with the railways - the inter-modal competition which existed was between bus and tram transport. It would thus appear that the Government somewhat exceeded its brief (although not its powers) when they regulated bus transport in Cape Town. When looking for a reason for the application of the Act to the bus war, a clue lies in the Parliamentary debates of the Motor Carrier

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<sup>19</sup> Cape Town Municipality. Traffic Control Committee. Minutes 29/9/31.

Transportation Bill, when it appears that the arguments of the Tramways held some sway - arguments pertaining to 'stability' and 'investment in the industry'. Indeed, the tram story was more than superficially analogous with the rail problems: both presented the case of significant sunk costs, a near monopoly for some years which had been eroded by the development of a new, more flexible technology not bearing its full share of attributable costs.

A further reason for Central Government intervention in what was essentially a local government issue may have been the relationship pertaining between the levels of Government, with the Central authority now being legally entitled to usurp some local authority powers.

A notice appeared in the Government Gazette of 26th **September 1930** proclaiming the area of local jurisdiction of the Cape Town Transportation Board and stating that the provisions of the Act prohibiting motor carrier transportation except under a motor carrier certificate granted by the local board, would be imposed as from 1st **January 1931**.

The 'Big Axe' fell on 30th **December 1930** when certificates valid for 1931 were not issued to some buses running between Cape Town and Wetton, Cape Town and Diep River, and Cape Town and Bellville. (Cape Times 30/12/30)

The Town Clerk and Assistant Town Clerk had apparently decided that they would not co-operate with the Local Board, and this compromised the position of the Traffic Control Committee Chairman

(Councillor H. Jasper Smith) on the Local Board. Jasper Smith stated that the Local Board was more concerned with the volume of motor transportation within the City, while the Council were concerned with the control of the traffic within its jurisdiction. He continued to plead the case for co-operation between the Traffic Superintendent and the Local Board especially regarding timetables and routes as any changes of these by the Local Board would affect the Council timetables. The Committee eventually endorsed a policy of co-operation in **June 1931** when they agreed the Traffic Superintendent should supply the Board with statistics, but would not incur any expense for the Board<sup>20</sup>.

Typically the Council had a fairly wide view of the situation, believing that a restriction of buses to outlying areas would encourage living in the City centre and result in more urban overcrowding and particularly have

*far reaching effects on the poorer classes of the City's ratepayers' living in the outlying areas.*

The Council also had the concerns of its revenue, believing that since the Traffic Superintendent would not be able to licence buses if they did not have a motor carrier's certificate, and if the bus owners took the Transportation Board to court, the Council would lose out on a whole year's licence revenue<sup>21</sup>. There were also fears of transport chaos due to the bus operations falling under the ambit of two independent regulatory bodies.

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<sup>20</sup> Cape Town Municipality. Traffic Control Committee. Minutes 12/6/31.

<sup>21</sup> Cape Town Municipality. Traffic Control Committee. Minutes 16/1/31 and Memo from Traffic Superintendent to TCC. Minutes 10/7/31.

The Traffic Superintendent was hostile towards the Board in his report to the Traffic Control Committee saying

*I am of opinion that no good purpose can be served in continuing to deal with the traffic requirements of the City in this nibbling fashion. The whole matter stands or falls on the decision as to who has control of traffic within the area of the Capetown Municipality. ... The certificates issued by the Board were far in excess of public requirements and we had to control the volume of traffic by time-tables. If the Board are of opinion that the transport facilities are in excess of public requirements then let them cancel the certificates. ... I am of the opinion that we should reply to no other letters from the Board in regard to the transport of the City until they tell us what their feeling is and give us a detailed reply to our report.*

On 14th **September** Councillor H. Jasper Smith, the Chairman of the Traffic Control Committee and member of the Local Board, attacked the Local Board's policies publicly through the Cape Times. His main points were that

- The local board's actions represented an interference in the authority of local government and a usurpation of citizen's rights.
- The Board, he said, took a census on two occasions during a slack period of year in a time of economic depression. A fair census, it was said, would only be possible if taken over a period of several years.
- The actions of the Board conflict with Section 20 of the Motor Carrier Transportation Act (protecting the powers of municipalities).
- The tramways would gain the most from the Board's measures, not the railways.

- An effort to force traffic out of its natural channels not desired by or to the advantage of the public, not economic and bound to fail.
- Dual control would be impossible. The local board issued certificates and timetables, the Council issued licences and timetables. (Cape Times 14/9/31)

The Council conceded defeat on 23rd **September 1931**. The Board's actions over services which were

*being operated in a manner economically sound and advantageous to the public*

were criticised. Such measures, it was said,

*must result in great inconvenience and loss to the travelling public and property owners*

and were

*retrogressive and the negation of all modern ideas of transport and constituted an unwarranted attempt on the part of the Board to force the public to use modes of transport not desired and neither economic nor advantageous: indeed it seemed to be an effort to force traffic out of its natural channels for which reason it must fail. Elimination of buses would merely result in the introduction of some other form of transport such as the motor car over which the Local Board has no control and so inevitably result in greater congestion and danger than the form of transport which apparently the Board is seeking to destroy.*

The point made by Mishan 44 years later was being stated here.

## 2.5 Implementation of policy

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The policy of the LRTB was to create 'spheres of influence' and one operator per route. This was accomplished through the issue of certificates - a method of imposing quantity restrictions.

### 2.5.1 Route regulations

From 1 January 1931, no new certificates were issued for the Sea Point routes and on 10 March 1931, Cape Electric Tramways bought out the Triangle competitor (Cape Town Motor Omnibus Company). The cycle completed itself, and in June 1932 Tramways withdrew the Sea Point buses on Sundays, while the tram service and Camp's Bay bus service continued.

The Southern Suburbs routes included those running along the Main Road from City (to Observatory Lower Main Road, Mowbray, Paradise Estate and Kirstenbosch, Claremont, Wynberg and Diep River), branching at Mowbray (to Pinelands, Crawford, Jamestown and Wyndover), branching at Claremont (to Wyndover, Lansdowne and Wetton, and Ottery Road), and services branching at Wynberg (to Hout Bay). Those services traversing the Main Road as far as Diep River were the most intensely competed.

The bus war had started over the Observatory Lower Main Road section in 1926, and before long, had spread to the entire Main Road from Cape Town to Diep River. Unlike the Sea Point and Camps Bay routes, the competition here was between operators and modes - mainly between the Triangle Association and Tramways and then

between operators within the Triangle Association. The largest single operator was the Woodstock Bus Company.

Notwithstanding an earlier attempt by the Traffic Control Committee to reduce the number of Southern Suburbs trips (18 July 1931) and much public ill-feeling, the LRTB cancelled all Southern Suburbs certificates from 30 July 1931 and issued fresh ones from 1 August, effective from 1 October. The Board did not seem to understand the economics of the bus routes, and their view was that co-ordination of bus services with the railways would result in the railways regaining some of the traffic to which it was 'legitimately entitled' (but which, according to Horwitz (1936), it had not lost in the first place: he calculated only a 14% decline in the period 1927 to 1929). By implementing this co-ordination it was supposed that fares would be reduced which would far outweigh the additional inconvenience. Many suburban routes were redefined as 'feeders' to the nearest railway station. Main road traffic that had sustained these services was now unavailable to them. Where there was believed to be an oversupply of buses, 'elimination' reduced the number of permits.

Mishan's analysis could be extended here: Mishan suggested that an individual's actions could result in raising the cost structure of transportation generally. In the case of the LRTB interventions, the state's intervention raised the costs of using public transport for the individual and accelerated the vicious spiral. Rather than promoting a solution, the actions of the LRTB aggravated the problem.

**1 October 1931** marked the first day of LRTB management of Cape Town's public transport system: The new feeder routes were poorly patronised while the train services gained very few passengers from the curtailed bus services. Tramways reinstated a tram service to Claremont in response to the reduction of their Main Road buses to Wynberg and extended the tram service to Wynberg in **January 1932**. With the certificate system firmly in place, the Southern Suburbs bus operators underwent a major reorganisation. The two largest Triangle members, the Woodstock Transport Company and the Defiance Bus Company merged into the Peninsula Transport Company on **1 December 1931**, which company was given the LRTB franchise to operate on the Main Road to Wynberg, while Tramways buses were withdrawn from this route and allocated to the Lower Main Road and Gardens routes.

The official end to the Southern Suburbs bus war was announced on **23 June 1932**: Peninsula Transport had come to a financial arrangement with tramways, and the trams between Mowbray and Wynberg were reduced to two a day.

The last major development over the Southern Suburbs routes occurred in August 1934 when the Peninsula Transport Company was bought out by the Cape Electric Tramways. Fears that the proposed introduction of trackless trams on the Wynberg route would fall outside of the ambit of the Act and the LRTB, surely hastened Peninsula Transport's willingness to merge.

The Northern Suburbs routes included those buses departing City and turning off at Stuckeris Street to Milnerton, Kensington, Maitland, Goodwood and Bellville. The bus competition along these

routes did not attract as much attention as the Sea Point and Southern Suburbs routes. Tramways did not run trams or buses over these routes until 1936 and this surely played a role in keeping these routes out of the 'public eye'.

The regulatory measures taken in 1931 paralleled those on the Southern Suburbs routes: The Council attempted to pre-empt the LRTB in **July** by reducing the number of trips over these routes, but the Board instituted stricter measures effective from 1 **October** in accordance with their policy of 'co-ordination and elimination'. The number of through-buses was greatly reduced and feeder services were instituted.

The Northern Transport Company (the successor to the United Bus Owners' Association) was given control over most of the Northern Suburbs routes by the LRTB in 1932 and was bought out by Cape Tramways in **May 1936**.

### 2.5.2 Industry concentration

The Amalgamated Bus Owners' Association (Triangle Association) was liquidated on 7 **January 1932**. By **June 1932** Tramways had bought out the Kloof Street Bus Service. The City Bus Service was liquidated in the same month.

With the new stability in the industry, the three major operators, Tramways, Peninsula Transport and Northern Transport raised tram and bus fares following the new higher Wage Board determination in **March 1933**. In the course of 1933, Tramways had purchased the

Heylon Bus Service (running between Hanover Street and the Main Road) and Charabancs Limited. The last private bus certificates, held by the veteran operator Mr. V. Cardinal, on the suburban Main Road between Hout Bay and Cape Town, and Hout Bay and Wynberg, were cancelled by the Board on 14 September 1934. At the end of August 1934 the Peninsula Transport Company was bought out by the Cape Electric Tramways and in May 1936 Tramways bought out the Northern Transport Company.

By February 1939 the bus situation in Cape Town was as follows:

- Cape Town Tramways comprised of the following Companies: The Metropolitan Tramway Company, the City Tramway Company, the Cape Town Motor Omnibus Company, the Southern Suburbs of Cape Town Tramways, Peninsula Transport, Northern Transport [and Charabancs, Limited]
- City Tramways operated 98 buses (half of which were double-deck vehicles) and there were 20 independents on non-competitive routes. For the first time, it was said, an unbroken journey could be made between Wynberg and Sea Point (using the new trackless trams). The City Tramways operated buses in Gardens, Sea Point, and the Northern Suburbs.
- The Railway Administration operated buses between: Cape Town to Docks, and Hout Bay; Bellville - Durbanville; Mowbray Station - UCT.
- Private Companies included the following:  
M & K. Bus Service: Plein Street - Kensington

Golden Arrow<sup>22</sup>: Mowbray Station - Gleemore, Crawford.  
 Pinelands Bus Service: Mowbray Station - Pinelands.  
 Klipfontein Bus Service: Athlone - Klipfontein.  
 Southern Transports: Claremont - Wyndover, Wynberg Station -  
 Ottery, Plumstead - Klip Road and Busy Corner.  
 Constantia Bus Service: Wynberg Station - Constantia, Tokai.  
 Simon's Town Bus Service: Simon's Town Station - Froggy  
 Pond.

## 2.6 Recent developments

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As predicted, the strictures of the Transportation Board system provided incentive to avoid them. In September 1934 a taxi driver operating between Elsies River Station and Matroosfontein was acquitted of being in contravention of the Transport Act. The Supreme Court said that "regular service" referred to intention.

The taxi matter assumed greater proportions, especially in rural areas of the country. These types of vehicles were mainly found in Natal and Transvaal, conveying people over long distances according to a fairly regular schedule. They were often not roadworthy, insured, or even licensed. The General Manager of the Railways, Mr. G.H. Watermeyer, stated that the Railways' revenue was being seriously affected by uncontrolled taxi competition<sup>26</sup>.

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<sup>22</sup> In an interesting turn of events the Golden Arrow Bus Services, established as a "pirate" in July 1929, gained control of the Cape Electric Tramways (the Holding Company of City Tramways) in 1956.

At the Conference of the Association of Road Passenger Transport Undertakings of South Africa the following resolutions,

*aimed at control of the activities of taxis including what some delegates called "pirate" taxis, were passed this afternoon:*

*This conference desires to draw attention to the increasing extent to which taxis, whether licensed or unlicensed are being used outside their legitimate sphere of operations, to the serious detriment of established transport undertakings, which are subject to limitations imposed by the Motor Carrier Transportation Act, and urges the Minister of Railways and Harbours to introduce amending legislation at the earliest possible date, whereby taxis operating outside the precincts of urban areas will be brought under the provisions of the Act.*

*In the light of present-day conditions, and having regard to the increasing toll of the road, this conference urges the Minister of Railways and Harbours to re-enact the provisions of the Act relating to security by all road motor operators certified under the Transportation Act.*

*(Cape Times 24/11/38)*

The post-war history in this section is based to a large extent upon Bassier (1989). The interested reader should consult that thesis for a more detailed description.

Strictly-defined jitney operations were illegal as early as 1927 when the Council ruled that buses were only permitted to load or unload passengers at authorised bus stops. Under Ordinance 19 of 1929 the Council commenced the eradication of jitney operations by requiring adherence to approved routes and timetables. In July 1931 the Council began to implement quantity restrictions on the number of journeys and to refuse permits for new routes or operators. The LRTB finally stamped out all vestiges of jitney services from 1 October 1931.

In the period from 1931 to 1959 the Group Areas Act was being implemented in Cape Town. The new "non-white" townships being

established on the Cape Flats were served by buses, acting as feeders to the railway stations. At this time the Golden Arrow Bus Services and its associated companies were expanding rapidly to serve these areas, while the City Tramways routes were essentially stagnant. Over the same period the bus industry in Cape Town was undergoing consolidation culminating in 1956 when the Golden Arrow Bus Services acquired control of the Cape Electric Tramways. The interested reader is referred to Gill (1961).

Jitney operations in Cape Town only recommenced shortly before 1959, according to Bassier. He reported that poor bus services in the Cape Flats townships inspired a Mr. Ganieff to operate a feeder service between Ottery and the nearby railway station using sedans carrying four passengers. He was the first to introduce the concept of a shared metered taxi and, encouraged by the success of this venture, he expanded the service to Steenberg in 1959. In 1969 he offered a service between Parkwood and Wynberg station. The idea of a shared metered taxi did not initially find favour amongst other taxi operators, however other taxi operators on the Parkwood route soon followed suite. Shortly thereafter additional routes were introduced.

The Driessen Commission of Enquiry in 1974 recognised that these services, occurring country-wide were of a jitney nature and should be seen as a complement to the conventional mass transit modes. The Road Transportation Act (Act 74 of 1977) permitted vehicles with a capacity of eight passengers to operate as taxis, where previously the maximum was four.

Predictably Tramways were upset, repeating almost word-for-word their laments of 50 years earlier:

*These illegals operate how and when they like - most popularly just ahead of the scheduled bus service with the promise of delivering their passengers much closer to their destination - if not right at their door. ... If kombi-taxis continue creaming off profitable peak hour traffic and working the high density commuter routes, the entire viability of the public transport system will be undermined, possibly even destroyed.<sup>23</sup>*

Due to the difficulty in obtaining a LRTB taxi permit and the strictures of such permits there were more 'illegal' than 'legal' operators. Tramways ascribed a large part of their 23% decrease in bus passengers between 1976 and 1984 to the operations of jitneys.

Bus operators did have valid grounds for complaint: These included that 'taxis' were able to stop to load or unload passengers anywhere - except at bus stops - while buses were confined to routes and stops.

Tramways were vindicated by the Welgemoed Commission in 1983 which recommended a return to the old four-passenger taxis but this recommendation was never implemented. However the Road Transport Amendment Act (Act 8 of 1983) compelled the courts to confiscate any vehicle and goods involved in the undertaking of unauthorised road transportation on the third and subsequent conviction.

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<sup>23</sup> Tollgate, 11(2) 1983. In Bassier, 1989: 3-5.

### 2.6.1 The state of the industry in the 1980s

Field work was undertaken by Kokernot (1984) and Bassier (1989) who collected the valuable data which forms the basis of this section. Kokernot's work was mainly descriptive and is a useful source for readers who wish to get the 'feel' of the industry.

For various reasons, information has been very difficult to assemble: There is the reluctance of City Tramways to assist; the erratic nature of jitney operations ('illegals' form a significant proportion of the operators). Reliable industry statistics have not been kept as the jitney industry has been seen as an 'informal sector' activity and therefore not the subject of in-depth, ongoing analysis. Of the data that is available different collection methods have made this data inconsistent.

In terms of industry structure Kokernot (1984) found that 13% of her sample comprised owner/drivers, who maintained on average two vehicles. The rest of the vehicles belonged to fleet owners running on average six vehicles. She suggested that once an owner acquired more than four vehicles, he retired from driving and concentrated on managing the business. 88% of drivers were paid on a commission basis, which varied from 25% to 35% of fares collected. The remaining 12% received a fixed wage. The average driver worked 15 hours a day.

Bassier (1989: 4-3) illustrated the growth in jitneys in Cape Town from 361 in 1980 to 1846 in 1988, running along more than 100 routes with mainly black passengers. His survey only included 67 routes.

The following is a summary of the main points of Bassier's data: The average waiting time of bus users is 14,5 minutes, while taxi users wait on average for 6,8 minutes. The walking time component (from vehicle to destination) is similar between bus and taxi passengers. Taxi users preferred the taxi to alternative modes because taxis were quicker (54%), cheaper cash fare (21%) and convenient (15%). However 36% of bus respondents indicated that they would change to the mode that charged a lower fare, versus 21% of taxi respondents, indicating that bus users place a greater emphasis on money costs than taxi users (and correspondingly that taxi users place a relatively higher value on their time).

54% of jitney routes are short distance (under 10 km), 45% are medium (10-35 km) and 1% are long (35 km). Bassier corroborated Vorster's findings when he found a trend between route distance and bus-jitney modal split: the shorter the route, the greater the jitney share. Jitney fares were on average 19,6% cheaper than bus cash fares. On 64% of the routes the clipcard (subsidised) bus fare was cheaper than the jitney fare. A trend was discerned between the difference in the jitney and bus clipcard fare and the bus-jitney modal split: The smaller the difference, the greater the jitney share.

Looking at how long the jitney routes had been established, Bassier found that 26% were between 0-2 years old, 42% were between 3-10 years, and 32% were between 11-30 years old. Bassier was particularly interested in the impact of the jitanes on other modes, especially the bus. He found that over a full day, 293 000 bus passengers were conveyed while jitanes carried 177 806 and further that 30,6% of bus daily passengers have been lost to the

jitneys (including 39,5% of off-peak passengers and about 26% of peak passengers). 19 222 train passengers (4,4% of total) were estimated to have transferred to jitneys. Similarly 1,73% of private car passengers now make use of jitneys

Unfortunately Bassier did not extend his survey to cover the taxi industry itself - particularly the question of ownership; the prevalence of owner-drivers and the size of taxi fleets. Data on these variables, as well as the employment conditions and incomes attributable to taxi owners and drivers would be invaluable to test the hypothesis that the lower level of jitney fares occurs at the expense of labour and to assess whether the contestable markets approach has any validity.

Looking towards the future, possibilities of a new policy were outlined in the National Transport Policy Study (1984-86), which was aimed at deregulation and encouraging private enterprise and took the opposite line to Welgemoed. The White Paper on National Transport Policy in August 1986 recommended increasing taxi capacity to 15 passengers (from eight) and LRTBs were requested to issue permits for these vehicles. Many kombi-taxis were retrofitted to increase their capacity and were licensed.

The White Paper further recommended gradually deregulating the transport industry. For example the LRTB permit was to be replaced by an "Operating Authority" which would be issued if the vehicle was certified fit, the driver had a Professional Driving Permit, and a passenger liability was adequately covered.

The Transport Deregulation Bill in 1988 provided for the deregulation of road transportation which would involve the gradual repeal of the Road Transportation Act in favour of the Road Traffic Act (Act 29, 1989) and the proposed Passenger Transport Act. The purpose of the Road Traffic Act was to consolidate the laws relating to the registration and licensing of motor vehicles and drivers, and the regulation of traffic. The proposed Passenger Transport Bill is intended to deal with transport policy and has not yet been published.

In a repeat of history, newly-legitimate taxi operators, such as those comprising the South African Black Taxi Association (SABTA), are opposed to the deregulation process since many of them had to incur significant expense in obtaining their LRTB permit and feel that additional competition will destroy the profitability of the industry.

## 2.7 Summary

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This chapter has recounted the history of Cape Town's first jitney period with particular emphasis on the development of the regulatory framework. The jitneys commenced operations in 1926 and initially operated under the innocuous 1911 regulations. These regulations provided in the main for safety standards but were geared towards a technology that was rapidly becoming out of date. In spite of efforts by the Municipality to maintain safety standards in a non-discriminatory way, and to leave the eventual status of the passenger transport industry to market forces, the

enabling legislation did not provide the "teeth" to back up their actions. To a large extent they were not only victims of poor legislation, but also of a lack of will to enforce existing regulations. By the time the new Ordinance was brought into effect, it was already too late - Central Government intervention in 1931 brought its heavy hand. With a desire to centralise control of public transport the industry was forced to become concentrated. The legislative framework was modified in 1977, 46 years later, to permit the re-emergence of jitneys in passenger transport, but control over freight transport remains rigid.

The manifestation of the "bus wars" in the late 1920s is remarkably similar to the current experiences. In a sense, the incumbent City Tramways operates its vehicles along fixed routes and according to schedules - just as if they were running trams along rails. The "bus pirates" of the late 1920s were flexible in their approach, despite the Municipality's (half-hearted) attempts to constrain them to conventional-type operations. Tramways' arguments against the jitneys have also been remarkably similar over the years.

The current situation in public transport, as described in the introduction and in chapter one of this thesis, is a consequence of the implementation of the Road Motor Transportation Act. The intervention by the Local Road Transport Board in 1931 in Cape Town was not based on any coherent policy aimed at increasing social welfare. Mishan's vicious spiral in which individuals increasingly turned to private transport when their needs were left unsatisfied by a curtailed public transport network was

aggravated by those policies that attempted to force individuals to abandon their preferred modes of transport. In so doing private transport was made relatively more attractive and the additional congestion raised the costs of transportation for all users.

### 3. Chapter Three:

#### SOUTH AFRICAN RESEARCH ON THE JITNEY

*Black taxis operate like jitney vehicles, and do not provide the high level of service that taxis should. Additional charges (substantial) are made for door-to-door services.*

(Luk, 1980: 141).

When offering a review of literature in theses of this sort it is conventional to do so by raising issues and mentioning how these have been covered historically by various authors. Since the intention of this chapter is to present an insight into the very limited amount of work which has been done on the topic of jitneys in South Africa and to point out not only the inconsistencies but also the gaps which have been left in this literature, I have opted instead to present a survey of each individual author's contribution. This survey is arranged chronologically, highlighting that with very few exceptions, the works were essentially short-sighted responses to the issues of the day, and did not add much to our understanding of the jitney.

Readers who are familiar with this literature can therefore omit it without loss of continuity.

The following are the main reports on jitneys in South Africa:

- Horwitz, R. (1936). 'The Restriction of Competition between Road Motor Transport and the Railways in the Union of South Africa'. Unpublished M.A. (Economics) thesis, University of Cape Town.

- Luk, K.O. (1980). 'The Role and Function of Black Taxis in Urban Transportation with special reference to Soweto and Johannesburg'. Unpublished M.Sc. (Civil Engineering) thesis, University of the Witwatersrand.
- Kokernot, D. (1984). 'The Kombi Taxi - An alternative mode of transport'. Unpublished M.Sc. (Geography) thesis, University of Cape Town.
- Vorster, J.C. (1985). 'The Future Role of the Jitney in South Africa'. Unpublished M.Eng. thesis, University of Stellenbosch.
- Bassier, A.M. (1989). 'The Impact of Kombi-Taxis on Public Transport'. Unpublished M.Sc. (Eng.) thesis, University of Cape Town.

Because these theses are reviewed below in greater detail, a few brief introductory comments: Horwitz (1936) primarily directed his energies at examining the issues in the road and rail debate and the implementation of the Motor Carrier Transportation Act (39 of 1930). Many of the arguments in favour of, and against restricting jitney transport were considered. Horwitz put up a spirited defence of this mode, and of a decentralised solution to the question of private road carriers versus government operated and controlled rail transport generally.

Luk (1980) based his analysis on the cruising taxi market but concluded that this analysis was not applicable to the phenomenon under examination. His work was also basically descriptive. Kokernot (1984) applied a geographer's skills to the jitney issue, describing the role of jitenys from a mobility point of view and also describing their modus operandi in some detail. There was an

absence of any analysis of economic issues in Kokernot's work. Vorster (1985), while not making use of any formal economic theoretical work, showed an intuitive appreciation of time costs. He embarked on a series of costing exercises using a highly detailed data-base of South African jitney operations. His study clearly displayed the different results to be obtained by comparing costs and benefits of bus versus 'kombi' services from a financial and 'restrained' social costing perspective (incorporating some time costs). While Vorster's work is clearly the most rigorous of the local studies, his lack of an economic framework puts the magnitude (but not the direction) of his results in a questionable light, and similarly some of his conclusions and arguments lack validity. Bassier (1989) analysed the shift in passenger share away from bus, train, and private transport toward the jitanes in Cape Town in the period 1976 to 1988. He also presented a discussion of the evolution of the jitney services in Cape Town. There was no economic analysis.

### 3.1 In Defence Of Competition

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R. Horwitz (1936): 'The Restriction of Competition between Road Motor Transport and the Railways in the Union of South Africa'

Horwitz wrote this thesis as a response to the newly-implemented restrictions on freight transport in the Union of South Africa. Whereas Horwitz concentrated on private road competition as it affected the railways, in chapter two this thesis private competition as it affected a similarly entrenched and 'officially

approved' operator - the Cape Town Tramway Company is examined. However, the economic issues covered by both this thesis and Horwitz's are by and large the same. Certain sources too, are common (for example the report of the Road Motor Competition Commission and the parliamentary debates concerning the Motor Carrier Transportation Bill). The works of G.J. Ponsonby, particularly in his book "London's Passenger Transport Problem" (1932) and journal article (1935) embody the economic approaches of both this and Horwitz's thesis to the questions of private versus state provision of services, and competitive versus monopoly provision of public services. Some of the arguments in defence of free market provision of public transport services will be recounted as they take on added relevance in current policy debates.

In introducing the thesis Horwitz illustrated the extent to which the railways were affected by competition: While the Cape Town suburban line faced approximately a 14% decline in passengers from 1927 to 1929, the greatest threat the railways confronted was to its high rated short distance goods traffic. This traffic was the means by which the Railway Administration financed its policies of cross-subsidisation and was the cornerstone of its financial viability. In the early stages of the competition the Railways had attempted to improve their passenger services and reduce passenger fares. Horwitz described how eventually various legislative and coercive measures were considered (including the Road Motor Competition Commission and the Motor Carrier Transportation Bill), culminating in the provisions and implementation of the Motor Carrier Transportation Act.

A historical review and critique of the railway rating system in place at that time (1936) was based on work by Professor S.H. Frankel. Passing use was made of a welfare economics approach which was applied to investment being diverted from more productive uses (for example, conveying goods more speedily and cheaply by road) to less socially productive applications. The conclusion of this discussion highlighted how the railways had become financially dependent, through their rate structure, on the highly-rated cargo. This explained why road motor competition posed a serious threat to the financial stability of the railways at that time. The serious consequences of this policy was summarised by Prof. S.H. Frankel:

*The present rates policy not only raises the cost of transport of the large traffic now being discriminated against, but leads to a cumulative increase in the rates on all traffic, and will result ultimately in the railways becoming a burden on the taxpayers of the Union. In the meantime the development of the interior provinces is restricted.*  
(Frankel, 1925: 40)<sup>1</sup> .

The most interesting section of the thesis was the evaluation of the general arguments in favour of restricting competition, many which were the same as those which were levelled by the Cape Town Tramway Company at the private bus operators - both in the 1920s and more recently. Horwitz concluded that the railways constituted a profit maximising discriminating monopoly, pricing on the basis of value of service. A competitive tariff would have been set under the cost of service principle, as suggested by Pigou. Pigou readily admitted that the determination of this rate in practice would be extremely difficult but that the principle

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<sup>1</sup> Frankel, S.H. (1925). 'Railway Policy of South Africa since Union': 40. Cited in Horwitz, 1936: 61.

should be adhered to as far as was feasible. However this was precisely where private bus and road motor competition proved its worth:

*But the very importance of road motor transport is that it provides the competition in transportation which will enable the 'cost of service' principle to be realised almost automatically. ... The value of the motor lorry and the omnibus is that they afford some protection to the buyer of transportation from monopolistic exploitation.*  
(Horwitz, 1936: 70).

Horwitz quickly trashed the concept of "wasteful competition". This argument, often paraded by those in favour of restricting private bus operations, basically said that competition causes waste by forcing the adoption of new capital equipment when producers would prefer using the existing ones. The result is over-investment, surplus capacity and the premature abandonment of capital equipment. In refuting this argument Horwitz drew on Pigou and Ponsonby (1935). Pigou's approach was simply that

*... the loss to the old producers through the reduction in the price of their products is at least equalled by the gain to the consumers and the profits of the new producers are a net social gain.*  
(ibid: 76)

Ponsonby's (1932, 1935) argument asserted that the costs concept is essentially one of opportunity costs. Where capital is 'sunk' and has no alternative uses (such as railway cuttings), for pricing purposes these form no part of the costs of service. This impacts on two processes; renewal and abandonment:

*... in the case of absolutely specialised and durable equipment only if the revenue earned was unable to cover all other costs, short- and long- run, not including any return on the capital invested in that durable form; long-lived equipment when revenues fail to cover the shorter-run costs incurred; shorter-lived equipment when revenues fail to cover still shorter-run costs.*  
(ibid: 80)

In their analysis of costs Ponsonby and Horwitz assumed that sunk costs, such as in railway cuttings, have no other uses - in effect no opportunity cost. It seems to be a reasonable assumption that even these highly specified items would command a positive price in some market or other. This price may well be very low, but it represents an opportunity cost and should be covered, only failing which abandonment should be considered. In other words, the contribution of revenue to debt-servicing should be at least enough to cover the opportunity cost of that (market value) capital. Anything above that forms a rent.

Protection of the railways (and equally, the tramways) had the effect of bolstering the revenue accruing to these operations and thus supporting the rent and enhancing the value of these assets. A problem is that at the time of replacement, the old technology may be replaced by similar equipment, instead of the new, more efficient technology. Horwitz concurred with Ponsonby in concluding that waste is the result of protection and not of competition. These 'wastes' were incurred at the time of investment by incorrect expectations. The introduction of new facilities and technologies highlights the fact that there has been waste (at the time of the original investment) and does not cause it.

Horwitz then turned his attention to a rebuttal of the "in excess of public needs" argument. This rationale alleged that in the absence of quantity control, the facilities provided are 'in excess of public needs' or 'an unnecessary duplication of services'. Horwitz attacked this theme was attacked from two fronts: Firstly, Horwitz said that the price consumers are willing

to pay reflects the benefits they receive, and the terms under which operators are willing to provide the services are a measure of the opportunity cost (the return on resources invested in other uses). Entry restriction forces the investment of these resources in uses which offer a lower perceived return, and deprives the community of the benefits of technological progress.

Secondly, there is no reason to believe that members of a regulatory board are any more capable of arriving at the true needs of the consuming public than is the free interplay of economic forces.

Horwitz rounded off his thesis with "Some General Considerations" in which he suggested that not all road traffic had come about at the expense of railway patronage, but that road services had lured some 'new' traffic. Certain factors, such as natural barriers, also mitigated against the profitability of a railway, but proved profitable for road carriers. The lack of developmental services by the road operators was due to the lack of profitable opportunities in such services. He added that the railways were unrivalled when it came to long distance heavy and bulky consignments, while road transport offered a more personalised door-to-door service which could be relatively easily extended to deal with special requirements.

The railways were themselves responsible for the emergence of competition in goods services through their rates policy which represented *some of the worst abuses of discriminating monopoly.*

(ibid: 94)

Because private investment decisions were made on the basis of the rates structure being in place, a cost of service principle should be gradually brought in to minimise dislocation to the broader economy. It would be unavoidable that the remunerations and privileges of the railway staff would be affected but, Horwitz suggested, staff are attracted from the private sector when wage rates above the market rate are offered. As an aside to the debate around the 'civilised labour policy' of the railways, Horwitz illustrated that the railways attempts to solve the "poor whites problem" had quite the opposite effect. By replacing unskilled black labourers with whites, it had the effect of depressing unskilled labour rates in other sectors of the economy. Unskilled whites coming into the labour market were also confronted by these lower wages.

Horwitz asserted that only one reason put forward for the control and restriction of motor carrier competition had validity, and that was that road transport had not borne its share of road maintenance costs. Other reasons, such as erratic service, unroadworthiness, the lack of insurance, and unsafe operation were not arguments for restriction, but for law enforcement<sup>2</sup>.

In retrospect shortcomings in Horwitz' arguments were that there was a lack of formal appreciation of the time value of passengers, and that the externalities arising out of making a jitney journey were not discussed. These concepts have, however, only been

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<sup>2</sup> Official sanctioning of a monopoly or oligopoly supplier of bus services is, in effect, in return for the operators to assume some of the safety control and law enforcement duties. The burden thus is shouldered by those who sacrifice a competitive supply for that of a single supplier with all the attendant costs.

formalised in subsequent years. The time value notion is nevertheless implicit in several of Horwitz's statements such as 'that buses are preferred over trams and trains because of their convenience', or 'that passengers are prepared to pay in accordance with the benefits received'.

Horwitz's major shortcoming, from the point of view of this thesis, is that he has not offered an explanation as to why the Local Road Transportation Board intervened in Cape Town's bus wars in the first place although, to be fair, Horwitz was engaged primarily in examining the competition between the private road operators and the state rail monopoly.

The Cape Town experience, as illustrated in chapter two of this thesis, was exemplified by the large regulated enterprise, the Cape Town Tramway Company, facing competition from private bus operators. Because Cape Town essentially was a case of tram versus bus competition the local railways were not affected to the same extent as the longer distance and rural freight services. Indeed, the trams competed as much with the railways as did the private bus operators, yet tram operations were explicitly excluded from the ambit of the Motor Transport Act.

Horwitz and Dollery and Wallis (1985) ascribed the intervention of the Local Road Transportation Board in the road transportation markets as an attempt to preserve the peculiar railways rating structure. In a later journal article Horwitz (1937) further suggested that the political importance of the 55 000 railway employees was another factor for the Board's regulatory activities. This explanation does not account for the

interventions of the Transportation Board in the jitney-Tramways war as the railways were not involved.

Horwitz' (1937) journal article covered essentially the same ground as the thesis but placed a greater emphasis on the measures adopted by the railways to deal with their competition, and the effects of the competition and these measures on the railways.

### 3.2 The public transport studies

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A good descriptive review of much of the literature pertaining to jitney operations in South Africa appears in Vorster (1985). The interested reader is referred to that thesis as it is not proposed to repeat these reviews here.

#### J.C. Laight (1948): Competition in Road Motor Transportation

This article was devoted to a discussion of the findings of the Page Commission of Enquiry into Road Motor Transportation, tabled on 3 March 1947.

Not surprisingly, the Commission rolled out the same arguments favouring road transport regulation refuted by Horwitz some eleven years earlier. This Commission additionally misappropriated a number of economic concepts in order to illustrate why continued regulation was necessary. For example, it was suggested that since the market conditions in road transport were not those of perfect competition, then some regulation was in order. Laight fell into the same trap, and did not challenge this reasoning

directly, but deflected the issue, saying that this was true of most industries, and was therefore not an argument in favour of regulation. Laight unfortunately left most of the arguments favouring regulation unchallenged, particularly the issue of prices and costs, where he considered costs to be those only confronting the operator.

This article was essentially a review, rather than a critique of the Page Commission. Laight appeared to be an apologist for the Commission and exhibited his lack of understanding of the road transportation issue by avoiding a criticism of the findings. A superb opportunity for exposing the theoretical poverty of the Motor Carrier Transportation Act was wasted. In short, this reading is not useful and is not recommended.

Fraser Gill (1961): Cape Trams - From horse to diesel

Published to commemorate the centenary of the Cape Electric Tramways the jitney period was covered in this book in the chapter entitled "The Bus Pirates" (which indicates the author's sentiments!). The jitneys were seen as destructive, and the regulations which terminated their operations were viewed as a positive and stabilising influence.

Though not as good as Coates' work (1976 - see below), this reference is useful for a brief, if partisan, introduction to Cape Town's first experiences with jitneys and for the interesting pictures.

Peter Coates (1976): Track and Trackless - Omnibuses and trams in the Western Cape

This is a fascinating and scholarly work, reflecting the author's long-lasting interest in the trams and trolleybuses that plied Cape Town's streets from 1861 to 1964. Chapter 13 of this book, entitled "Dark Days for Tramways" covers the first jitney era in Cape Town in a far more satisfactory manner than Gill (1961 - above). This reference forms the core of the historical section in Bassier's thesis.

Track and Trackless as a whole was meticulously researched and presented. Coates delighted in the detail with which he recounted the development and demise of Cape Town's tram and trolleybus network. A critical point in this process was the jitney period, 1926 - 1931. While Coates did not devote as much attention to jitneys as to those matters directly pertaining to tramways, he nevertheless presented an excellent account. For a description of the jitney movement in Cape Town this is an invaluable source. The economic analysis and discussion, however, was not attempted.

K.O. Luk (1980): 'The role and Function of Black Taxis in Urban Transportation with Special Reference to Soweto and Johannesburg'

The Road Transportation Act had been amended in 1977 to permit eight-seater vehicles to operate as taxis, and Luk's thesis was the first dealing with South African jitneys as they are now seen. Although it was reviewed by Vorster (1985) and briefly by Bassier (1989) it is worth another inspection.

Luk's expressed goals were:

*... to gain a better understanding of the role and function of Black taxis in urban transportation, and to provide transportation planning policies and*

*recommendations in order to achieve a desirable urban Black taxi transportation service.*  
(Luk, 1980: 4)

Luk appeared to view jitneys as a type of vehicle rather than a style of urban passenger transport service. He excluded the taxi from the category of para transit and curiously, in spite of citing case studies of jitney services elsewhere in the world, insisted on classifying Soweto's "black taxis" as taxis and not jitneys - in spite of comments such as *Because Black taxis operate like jitney vehicles ...* (ibid: 127)

The policy conclusions formulated by Luk were particularly ill-informed. For example, he advocated the formation of a large taxi company so that the benefits of (assumed) economies of scale could be derived and a *more efficient taxi system could be offered to the Black community* (p. 149). In chapter one of this thesis it has been argued that there is little evidence to support the notion of economies of firm size. In fact a U-shaped cost curve was derived implying diseconomies of firm size beyond a certain level.

As far as the regulatory environment is concerned, Luk was particularly committed to 'management' of jitney services by transport authorities. Small revisions were suggested in order to eliminate certain bureaucratic inefficiencies caused by the current transportation board permit system, but the concept of regulation was unchallenged and even endorsed: Heavy penalties were suggested for 'zonal' taxis using town ranks.

Luk's was a very 'practical' and descriptive thesis, featuring basic financial costing of the Soweto jitneys, the nature of the

routes, the attitudes of passengers and the regulatory environments under which they operate.

Vorster (1985: 2-2 - 2-4) compiled a more detailed review of Luk's thesis.

D. Kokernot (1984): , 'The Kombi Taxi - An alternative mode of transport'

Kokernot's (1984) thesis, submitted for an M.Sc. (Geography) has a perspective on the jitney debate quite different to the economic approach followed in this thesis. There is nevertheless much common ground between this and Kokernot's thesis: Kokernot concentrated on the geographic notion of mobility demand, which has been extended and dealt with more rigorously in the concept of generalised passenger cost in the first chapter of this thesis.

Being a geographer, Kokernot obviously concentrated on geographic approaches to land-use, transport demand modelling and city development. Her justification for adopting a geographic approach was as follows:

*... The functioning of the taxi is essentially geographical in terms of the transportation system in which it operates, the friction of distance effects and the spatial patterns created through movement and accessibility.*

(Kokernot, 1984: 7)

The economic approach of this thesis is the other side of the same coin, attaching an economic analysis of costs and pricing to the more macro geographic approach. The economic content of Kokernot's thesis was thin, in particular the distinction between a jitney and taxi was not made clear enough, but this did not detract from the thesis as her aims were to examine the kombi-

taxi<sup>3</sup> phenomenon from a geographic perspective. In spite of its shortcomings, Kokernot's thesis is interesting from two directions:

The geographic/social scientific approach complements the somewhat narrower economic approach of this thesis. Kokernot gave a good view of the broader picture of the development process of the city (in this case Cape Town). Transportation routes are quite vividly 'arteries, veins and capillaries' keeping the city alive.

*Transport in today's city is viewed as an activity system comprised of nodes and linkages which in turn mould and are moulded by urban land use patterns.*  
(ibid: 11)

These transportation linkages are governed by commuter demand. Mobility demand gaps are caused by unfulfilled aspects of transportation demand. These gaps cause stress on the existing transportation network, manifested as congestion, long waits, and long journey times. The user may look for alternate forms of transport to relieve these stresses.

Kokernot suggested that the kombi taxi fulfills three significant functions; as a mode to facilitate the movement of people (where it appears to increase access and satisfy individual travel demands), provides social benefits (security, door-to-door service, and can accommodate relatively large fluctuations in demand), and can be an employment provider and income generator.

Kokernot proposed that in the capitalist city the emergence of jitneys fills a service gap as public policy eventually came to

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<sup>3</sup> Kokernot and Bassier use the term "kombi taxi" where this thesis refers to "jitney". Kokernot also uses the term "intermediate transport" where this this refers to "paratransit".

favour personal transit. Intermediate transport (such as jitneys) has arisen through recent attempts to deal with various urban problems and through a recognition that fixed route transit cannot serve all markets that require an alternative to personal transit.

The socialist city, on the other hand, has as a primary goal

*spatial efficiency and a comprehensive and reliable transportation system is but one component of that spatial efficiency.*

(ibid: 28)

Other components are thorough town planning and a clear land use policy. Here the state is relied upon to provide geographical access to its citizens, and the public transport network is

*geared towards meeting the majority of the mobility demands of the society.*

(ibid: 29)

Nevertheless private transport is favoured by those who have access to it.

The non-western city is characterised by

*a lack of financial capital and dense populations, while unemployment and concentrated pockets of poverty typify the urban areas.*

(ibid: 32)

Because of the relative lack of public and private transport, intermediate transport flourishes.

Cape Town appears to be a manifestation of the colonial city which contains a large, unskilled and relatively poor population. The basic form of the colonial city is capitalist inherited. The dominant group prescribes where and how the urban population will be distributed, resulting in the urban poor living furthest from

places of employment and thus a subsidised form of mass transport is necessary to the economic operation of this city.

The demand for alternate transport by black commuters was highlighted in chapter three. Problems such as overcrowding and journey durations were discussed and the legislative framework was outlined. It was also asserted that the kombi taxi is the mode which most satisfies the demand for transport by black travellers.

This chapter also contains a useful review of South African literature on para-transit. Kokernot's main critique of South African studies was that they have been mainly descriptive and lacking in analysis.

*Lacking in all of the studies is a thorough examination and identification of the underlying forces generating the need for the kombi as a mode of intermediate transport.*  
(ibid: 70)

According to Kokernot the reasons underlying mode and route choices are that

*commuting activity is structured around three premises: poverty, housing and employment*  
(ibid: 72)

In the concluding chapter she pronounced strongly in favour of the jitney in a South African context: the jitney in Cape Town was said to involve fewer modal changes and a lower journey time than conventional transit while the jitney industry assists in developing entrepreneurial skills. Kokernot concluded her thesis as follows:

*By offering a personalised, speedy and efficient service to the urban commuter, the kombi taxi is able to fill that need which has previously been left unsatisfied and therefore it should continue to function as part of the*

*metropolitan transport system.*  
(ibid: 141)

One of the major shortcomings in Kokernot's thesis was her occasional misuse of the concept of economic cost, based on a fundamental misunderstanding of that concept. This is reflected in a statement such as

*The kombi taxi provides a higher level of commuting service than the bus or train and costs less per trip than does private automobile travel.*  
(ibid: 135).

Another problem area was her reluctance to acknowledge the 'kombi taxi' as a jitney, even though she likened the 'kombi taxi' to other jitney systems elsewhere.

Kokernot's thesis is interesting and informative and contains some good descriptive data on the actual operation and (financial) costing of selected jitney undertakings. Her assumption that individuals act in their perceived best interests is one that is shared in this thesis.

Vorster (1985): "The future of the jitney in South Africa"

Vorster's (1985) study was very well researched in comparison to Luk's and Kokernot's. However, because this thesis was submitted towards the degree of M.Eng the important economic content was not as well covered as it should have been. Even so, Vorster's thesis is useful. Particularly helpful was Vorster's data on jitney operations in Klerksdorp, and various regressions, particularly those comparing jitney and bus services. His review of local and overseas jitney studies was similarly well done. Vorster was unfortunately not focussed enough to decide which arguments for or against jitneys were valid and which had no relevance, for example

he included a section on 'the national interest' which relied heavily on government policy statements.

Early in the introduction Vorster acknowledged that 'black taxis' should be considered to be jitneys and continued to present a case study of operations in Klerksdorp. Of interest is his observation that jitney operations are in greater demand for short distance travel. An explanation for this, which Vorster omitted to mention, is that subsidies to long distance bus fares distort modal choice in favour of the bus, especially where

*jitney fares become more expensive than bus fares as the trip length increases, apparently on a linear scale.*  
(Vorster, 1985: 3-16).

On the basis of regression analysis, Vorster also asserted that

*in all areas where bus frequencies compare favourably with those of jitneys, jitney operators find it difficult to compete.*  
(ibid: 3-8)

This is supported by a graph illustrating the regression results which highlights the crucial nature of journey times in modal choice. Vorster did not investigate the journey time differential for jitneys and buses over long distances - it may well be that for long distance journeys, jitney and bus travel times are similar (due to the 'express' nature of the service - ie. fewer stops made by buses). Nevertheless, international evidence points to the comparative advantage of jitneys over conventional transit as lying in short distance (less than 15km). Vorster's questionnaires have revealed that

*jitney services are in most cases superior with regard to crowding, frequency, and total travel time.*  
(ibid: 3-15)

Vorster's "financial and economical comparison between bus and jitney services" clearly illustrated that the jitney's comparative advantage over the bus occurs only under certain circumstances. The procedure was based on that adopted by the CSIR and was of a cost effectiveness type. Despite the usual problems with validity and consistency of cost data, this study covered all of the important costs, although on a highly aggregated level. Vorster's conclusions would tend to be conservative in respect of jitneys as he made use only of a ten-seater vehicle in his models while recent legislation has permitted 15-seaters:

*buses are clearly more economical for daily passenger volumes in excess of 500 passengers, if time costs, congestion costs and other economical costs to the community are excluded from the analysis*  
(ibid: 6-24)

*On the other hand jitneys are not only more cost effective in the case of low passenger volumes, but also if used over short trip distances. The analysis indicate that below trip distances of say four to five kilometres, jitney are the most economical mode, regardless of passenger volumes in excess of 1 000 daily passenger. However, as trip distances exceed this limit, buses increasingly become more cost effective than jitneys.*  
(ibid: 6-26)

The financial advantage of the jitneys is due in no small part to the lower remuneration jitney operators are willing to accept in contrast to the remuneration of conventional transit operators. The conclusion of the cost comparisons ties in well with the theory discussed in chapter one of this thesis.

A critique of the legislative framework, comprising The Road Transportation Act (74, 1977), The Road Traffic Ordinance and Regulations (1966), and the Local Authority By-Laws was attempted, based on recommendations by various articles covered in Vorster's

literature review. This section was deficient in that Vorster did not assess the merits of these recommendations and accepted them at face value.

Vorster's concluding chapter was most problematic and contains sections on the 'commuter's point of view', the effect on the bus industry, and a particularly out of place discussion entitled "the national point of view" which was based on stated government policy. Vorster advocated a form of 'limited entry control' but without a sufficiently considered argument as to why he believed this desirable, nor did he appreciate the economic effects of such regulation. He also called for the control of fares of subsidised transport services, ignoring the possibilities of other methods of delivering the transport subsidy (such as transport coupons, or competitive-tender services). When dealing with the matter of timetable restrictions Vorster rejected these merely 'because they inevitably lead to increased costs' and did not discuss the question of information or external costs in regard to timetables. Similarly he ignored the role of pricing in the allocation of scarce infrastructural resources.

Vorster believed that jitneys should be given a major role in the provision of short distance services, however he suggested that they be licensed to 'corridors' or 'areas' in order to suppress their

*erratic nature of service ... and to avoid unfair competition with bus services.*  
(ibid: 8-21)

Vorster attempted to satisfy everyone within the framework of government policy but unfortunately he seemed to be suggesting

that the status quo is optimal, and no alterations should be allowed. In other words, his recommendations were based on a static situation, with no room for flexibility or change. He fell short of providing a good theory or framework for analysing jitney operations and ultimately revealed that his understanding of the mode is superficial. This is apparent when concepts such as 'determining the optimum number of jitanes for each area or corridor' were side by side with

*the number of jitney services be determined by market forces*  
(ibid: 8-21)

In conclusion, Vorster's thesis is most useful for the thoroughness of its data collection and manipulation. Unfortunately when he ventured into economic terrain Vorster illustrated his lack of understanding of the broader role of costs, prices and the economic interaction of jitney passengers and operators.

Rollo Dickson (1987): "The Day of the Jitney"

Dickson's article contains a good exposition of the jitney issues, and described some of the positive and negative aspects of this mode. However Dickson's bias is clearly in favour of the large bus company. The questions and problems he posed were valid, but Dickson attempted to answer these by stressing the negative facets of the jitney, and ignoring the negative points of conventional transit. He apparently was familiar with his topic, so it is a pity that he did not undertake a brief analysis of costs and prices. This reference is recommended as a good thought-provoking tool, which presents some of the main jitney-related questions.

A.M. Bassier (1989): The impact of kombi-taxis on public transport

Bassier's thesis covered similar terrain to Luk, Kokernot and Vorster. It is useful inasmuch as it attempted to quantify the impact of jitneys on the conventional modes of public transport, in particular the bus, in the Cape Town Metropolitan Area. The extent of jitney operations in Cape Town in 1988 is discussed, and the development of this mode recounted. There is no economic analysis of jitney operations in Bassier's thesis although reference is often made to 'economic' points, which refer to financial or accounting issues.

The main point made in his literature survey is that previous studies did not deal with the effects of jitneys (which Bassier refers to as 'kombi-taxis') on other conventional modes and that these studies were made prior to 1986 when jitneys were permitted to carry 15 passengers (from eight). Bassier reviewed the Driessen report (1974, which regarded jitneys as a complement to the conventional public transport system and resulted in the 1977 Urban Transport Act permitting a taxi capacity of eight passengers from four). Luk (1980), Kokernot (1984) and Vorster (1986) are also reviewed as well as a number of other local studies such as Oosthuizen (1986) and Freeman (1987) which were primarily data sources.

Bassier's chapter three, "The introduction of shared taxis" covers similar ground to this thesis. He discussed the historical overview and was heavily reliant on Coates (1976)<sup>4</sup>. Parallels are

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<sup>4</sup> In chapter four of this thesis the historical perspective is introduced making use of sources in addition to Coates (1976).

drawn between the situation in the 1920s and 1930s and the 1970s and 1980s, particularly the growth trends, the accusations by City Tramways against jitney operators, the nature of the tram-bus-taxi competition and the decrease in passenger volumes by the Tramway Company.

Bassier updated the historical narration and interpreted the growth patterns of the jitney industry in Cape Town in the 1980s: From 361 legal taxis in September 1980, the number grew to 1 846 in May 1988. Illegal taxis, initially estimated to equal number of 'legals' in 1980, were estimated to be only 5% of the total in 1988 as the Local Road Transportation Board had become more willing to issue taxi permits. Growth trends of other variables are also examined, including train commuters, bus passengers, population, the consumer price index, registered unemployment, and the petrol price. However the significance and linkages between these variables is not made clear.

The results of his statistical processes produce some interesting points: Of note is that average walking times to the passenger's destination were slightly lower from the bus than from the taxi, but that taxi waiting and journey times were significantly lower. 54% of passengers patronised the taxi because the taxi was quicker than the bus, while 43% of bus passengers patronised the bus because of the subsidised clipcard and less overcrowding. Taxi fares were on average 20% cheaper than bus cash fares, while clipcard fares were on average 8% lower than taxi fares. The total deviation from bus to taxi was estimated to be 30,6% of daily bus passengers, while the figure from trains was 4,4% and from cars 1,73%.

In his conclusion Bassier asserted that the popularity of bus travel was due to a large extent to the subsidised clipcard. He predicted that if the subsidy was made available to taxi passengers (for example by the application of user subsidies) then a larger proportion would make use of taxi services. He further suggested that buses should concentrate on the longer line-haul routes.

Bassier's thesis offers a large amount of useful data and in this regard is a valuable addition to the literature.

### 3.3 Summary

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Of all the literature found on the South African transport situation, it seems ironic that the most searching and penetrating should have been written 50 in 1936. For the last 50 years it has been ignored in terms of policy implications. A common failing of the local jitney studies since then, usually undertaken by engineers, is the confusion between the economic and the financial or accounting concepts. No studies have as yet brought the various strands of economic tools (post-Pigouvian welfare economics) together and applied them to the analysis of the more complex transportation network in Cape Town at the moment. This thesis assembles various theoretical aspects of the jitney and uses them to clarify the economic position of the jitney in the urban public transport network.

4. Chapter Four:  
POLICY IMPLICATIONS

This thesis has pointed to the potential and, as yet, partially actualised role that jitneys can play in the urban public transport sector; a role which has not yet been fully discussed in the South African literature. Jitneys and their routes and frequencies are by definition highly responsive to demand conditions. As such they offer cost advantages to both operators and users: average costs to the operator are reduced by the spreading of overheads when supply is directed to routes of maximum demand and user costs are consequently reduced by reductions in journey times.

The presence of (incorrectly specified) economies of scale has lead some commentators to suggest that the public transport industry is a 'natural monopoly'. In the course of this thesis it has been pointed out that although this may appear to be the case when user costs are included (which would generate a downward-sloping long run average cost curve) this does not appear to be the case when one takes cognisance only of private (operator) costs; which are the only costs relevant in determining the optimal enterprise size in a free-market economy. When discussing the development of the jitney industry in the 1920s it was argued that one of the diseconomies of scale affecting large enterprises then, as now, was their employment of unionised labour. In a market economy the transport industry does not appear able to extract monopoly rents due to its diseconomies of enterprise size

and its low sunk costs (the theory of contestable markets). Free transportation markets, it has been argued in this thesis, will not result in the social losses of monopoly production.

Economies of scale, once user costs have been included, might be used as an argument for the centralised provision of transport services: this leads to questions of ideology. Given a commitment to the market mechanism, however, social costs would be minimised through the provision of a diverse bundle of freely competing transport services. The role of a regulating agency should be confined to assisting the market, particularly through the spread of information whilst the conventional services would provide the minimum service standards deemed necessary ("social services"). Being the result of a market process, the jitney relies on effective information dissemination in order to function at full potential. This is where the 'conventional transit' of regulated, route-bound and timetable-adhering bus services exhibit a social benefit. The role of the jitney is enhanced by the presence of a 'conventional' system which can prescribe the minimum levels of public transport service and, at times, provide a restraint on jitney fares.

The lessons of the 1920s and subsequent years are that for social welfare to be maximised legislation must be non-discriminatory. Each mode of transport, public or private, should bear its full net costs, social and private, including safety, pollution, road congestion, etc. Legislation should ideally ensure that the externalities generated by the road user are internalised within his cost structure. The debate to which this should lead, on the

pros and cons of Pigouvian taxes and Coaseian property rights, is beyond the scope of this thesis.

#### 4.1 Lessons from the 1920s

Chapter two discussed the establishment of the Road Transportation Boards and their "co-ordination and elimination" policy which effectively abolished jitneys. The Road Motor Transportation Act imposed the views of a centralised bureaucracy over the wishes of the transport users. The results are apparent in the current public transportation crisis: financial troubles of scheduled bus transportation<sup>1</sup>, road congestion and a jitney system going through the same growing pains of violence, unreliability and personal hazard as 60 years ago.

A motivation underlying this legislation was the intuitive argument, later made formal by Mishan, that consumer choice can be short-sighted and that government had to intervene to ensure that the public transport industry would survive in the long term. The form of the intervention was underpinned by a misguided assumption that the public transport industry was a natural monopoly. As discussed in chapter one, the public transport industry long-run average cost curve does indeed slope downwards, but only if based on a social costing.

The legislation introduced in the late 1920s may have had a chance of long-term success if it had been integrated with land-use

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<sup>1</sup> The largest private bus company in South Africa, PUTCO, has decided to close up shop in 1991, and the Port Elizabeth Tramways ceased operations in 1990.

policy, tight restrictions on private cars, a road policy less enticing to private transport and broader social objectives, as socialists propose. However, in the light of Lancaster's analysis it has been argued that broader social welfare is enhanced by allowing individuals to make use of their preferred mode, as long as the complete costs of that mode are reflected in its price.

The chaotic development of the jitney industry was partly explained by the relatively primitive monitoring and controlling technology at that time (Foster and Golay, 1986). The technology of remote speed trapping, roadworthy checking, licence validation and the monitoring of general road behaviour exists today in a sophisticated form - all that is needed is the will to control the industry's worst excesses. The argument put forward by Horwitz that many of these excesses can be subdued by appropriate law enforcement was covered in the second and third chapters.

Another reason for the relative chaos of the 1920s was that the legal armoury was deficient; laws were often unenforceable, and no-one wished to enforce them. It was often beyond the powers of the Council to draft appropriate laws and in several cases no penalty clauses were provided. The current legal framework is the result of 60 years of development and is not deficient in terms of delegating powers. The unamended 1911 regulations enforced roadworthy standards of vehicles and of routes and were non-discriminatory. These provisions are contained in current legislation and are enforceable. However later discriminatory legislation regulating fares, timetables and routes hampered the ability of the jitney (or other public transport modes) to adequately cater for the dynamic nature of demand and encouraged

the use of private transport. While there was a squabble in the 1920s over which bodies would undertake enforcement, that situation was resolved many years ago. All that is missing at the present is a political will to make sure the jitney industry (and all road users) behave in such a manner that external costs which are not internalised are at least minimised.

Early concentration in the industry took the form of a voluntary association (the Triangle Association), subsequent to this the Council and Transportation Board acted to limit the number of operators and routes in the late 1920s. At this time certificates of operation became negotiable and commanded a positive value. Before this point there appeared to be no tendency to concentration, although, of course, there were some operators who were relatively large in the market. A current analogue has been the formation of the various taxi associations which are largely organised on a route basis and are consequently able to exert some coercive pressure on new operators (especially at termini, where new operators are relatively easy to identify). Despite this, however, high levels of contestability have meant that fares have not been rigged to such a high level that independent operators are induced to poach along some sections of the routes. Labour remains non-unionised and individual operators relatively small in the market.

Based on the experiences of jitneys in Cape Town, particularly in the late 1920s and early 1930s, it became evident that it is impossible to completely control all facets of urban transport, particularly private transport. People choose those modes that minimise their generalised transportation costs and by making

public transport relatively more expensive, private transport became more attractive. A result was Mishan's spiral: the increased use of private transport at the expense of public transport lead to a contraction of the public transport network further discouraging public transport use. Private transport users find it relatively cheaper to continue with private transport although generalised costs of this mode has increased. Furthermore once the initial investment has been made in private transport the balance of the costs are concealed relative to public transport where user money costs are more apparent.

The quantity and quality restrictions that were imposed on Cape Town's bus transport from the early 1930s distorted the pattern of infrastructural investment as much investment was directed toward the private motorist while the public transport user was considered a captive market. Public transport routes were not aimed at taking people where they wanted. Operators that had previously penetrated into suburban areas by covering their fixed costs through line-haul services were restricted to these suburban feeders and found them unprofitable. A complex system of cross-subsidisation had to be evolved in subsequent years in order once again to provide these "social services".

#### Suggestions for future policy

The following points of policy were raised in the course of this thesis:

- i) Social welfare is enhanced by the provision of a diverse bundle of transport products.
- ii) Given i) social welfare is maximised when operators and consumers interact freely in establishing the price of each transport option.
- iii) The relevant authorities have a vital role in this process by ensuring that each mode internalises as completely as possible all costs attributable to it, especially external costs such as congestion and pollution.
- iv) The internalisation of costs to consumers as well as producers of transport services may be a necessary addendum to iii) above. A specific point of controversy in the freeing of jitneys has been the adverse effect on road safety; the internalisation of this cost would require the imposition of non-monetary penalties, in particular "time" fines and licence suspensions.

Since a jitney service is a substitute for a conventional service, a conventional service can be used to maintain a minimum level of public transport facilities, put a "limit" on jitney fares and provide "social services". Such a conventional service would effectively prescribe the minimum levels of jitney services; if conventional fares are lower than those of the jitneys, jitneys departing just before this service would be unable to "poach" passengers unless they offered lower journey times. Even if passengers were 'poached' by a jitney running just ahead of the bus service the costs of running the restricted service would amount to a straight information subsidy to passengers (as the

jitney service effectively functions on the bus timetable). The alternative, denying passengers access to the service of their choice amounts to a tax on such passengers.

In short, the social benefits of a 'conventional' service are not merely reflected in whether it pays its way, or in fact whether it carries any passengers at all. The social benefit of such a service lies in its role as an information source to operators and passengers alike, the external benefits of which might even exceed the costs of running it. The rationalisations forwarded for the restriction of jitney transport since the 1920s have centred around 'social services' and the external benefits of running them. The 'social service' argument was also used as a justification for the practice of cross-subsidisation. A scheme whereby 'social services' are provided separately from other services still relies on a subsidy to such passengers, but it is an explicit subsidy, and not hidden. The extent of the social services subsidy can be easily ascertained and the parameters of the service tailored.

Current subsidy policy, where subsidies are awarded on a route-by-route basis, is supposed to be operating in the same manner. In reality, however, the subsidy is diluted over the entire extent of operations since the expenses of the marginal route cannot be effectively isolated from those of the firm as a whole. (As they would be if the route were put out to tender.)

The operation of a tendered conventional service would not require a separate operating company (such as City Tramways) as these services could be awarded to operators irrespective of size:

existing operators can be drawn from the jitney ranks - a vehicle can operate as a jitney while it is not engaged in conventional services. In this manner the least-cost provision of social services can be accomplished, in a manner that limits distortion of the jitney markets to an explicit minimum.

In terms of the legal framework the implications arising out of the analysis for the Transportation Act are fairly clear. Non-discriminatory legislation is essential in order to allow the transport markets to choose society's most preferred combination of modes and operators and thus maximise social welfare. By non-discriminatory it is meant that similar standards apply for all vehicles while taking into account the unique characteristics of each class of vehicle. The necessity for non-discriminatory regulation pertaining to vehicle and road safety is not under debate as the externalities arising from unsafe vehicles and operations are so large. However law enforcement also needs to be in a non-partisan manner: many of the undesirable practices of 'kombi taxis' today arise out of a lack of enforcement of the safety codes, especially with respect to road worthiness, observation of traffic rules (including speed limits), overloading and driver fitness.

There is also role for non-monetary prices in controlling the behaviour of jitanes and other road users: Money fines can be budgeted for by the operator, but the passenger can also have a role in ensuring that the driver obeys road traffic rules. The imposition "time fines" (for example 20 minutes enforced delay) as a supplement to money fines for moving violations can be powerful in this regard. Apart from delaying the driver, "time fines" will

also delay the passengers who will rapidly learn that it is in their interests to ensure that the driver behave in a legal manner if they wish to minimise their journey (time) costs (which are very powerful in relation to money costs). Other penalties would include suspension of vehicle and driver licences supported by regular checking of licences and serious punishments for unlicensed drivers or vehicles.

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- U.G. 8/1930. Report of the Road Motor Competition Commission.
- U.G. 46/1947. Report of the Commission of Inquiry into Road Motor Transportation.

Appendix I

REPORTS ON JITNEY OPERATIONS ELSEWHERE

Other reports on jitneys elsewhere include:

-, (1981). 'Report on Joint Conference Eno Foundation Board of Directors and Board of Consultants October 23-24 1980', *Traffic Quarterly*. Vol. 35 (1), 185-260.

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These are short journal articles and deal only with limited aspects of the jitney question (with the exception of The World Bank, 1986). Akom (1984), The Eno Foundation (1980), Mahalel and Polus (1984), and Won (1986) are mainly descriptive; Dickson (1987), The World Bank (1986), and Kirby (1987) also discuss some of the issues; Eckert and Hilton (1972) look at the history and results of jitney regulation; Foster and Golay (1986) analyse some of the 'unsociable' aspects of unrestrained bus competition; and Walters (1979) economically evaluates the performance of minibuses.

## Appendix II

### A NOTE ON THE OPTIMALITY OF LABOUR CONTRACTS IN A JITNEY INDUSTRY

The jitney industry has been part of the 'informal sector' since its inception. The relative freedom from the influence of organised labour in the jitney industry is reflected in the structure of industry labour contracts. In Cape Town during the 1920s not only did jitney owners avoid paying union-negotiated rates, but they also evaded Wage Board determined minimum wages and working conditions. This was accomplished through the setting up of dummy partnerships where the principal (owner) - agent (driver/crew) relationship was legally as equals. Current practices are similar in intention: A standard wage/salary is unusual and often the driver 'rents' the jitney vehicle from the owner or the driver is compensated on a commission basis.

Shavell (1979) and Harris and Raviv (1979) suggest that the nature of these contracts approaches optimal fee-schedules:

*For such ... a fee schedule to be Pareto optimal it must implicitly serve to allocate the risk attaching to the outcome of the agent's activity in a satisfactory way and to create appropriate incentives for the agent in his activity.*

(Shavell, 1979: 55)

The agent's effort, together with a random element, determines the outcome, which is then 'enjoyed' by the principal, who pays the agent a fee. In the jitney industry the relevant outcome can be simply the gross fare revenue (the sum of total fares paid by all passengers carried), or it may be operating profit (gross revenue

less operating expenses), depending on the specifications of the individual contract. The main assumption is that both the agent and principal maximise their utility: The agent's utility function includes effort (negative, a disutility) and wealth, while the principal's utility function comprises wealth only. However the agent's perception of wealth would be the remuneration received, while the principal's wealth would be made up of the retained portion of the outcome less enterprise expenses attributable to the agent's activity, but not covered by the agent. This would include items such as wear-and-tear (especially where this is significant, for example if the agent is involved in an accident), excessive depreciation, and such other expenses such as traffic fines accruing from the agent's activities (such as speeding, overloading, or operating in violation of the transportation permit). These all comprise additional risk and uncertainty to the principal and if the principal is assumed to be risk neutral or risk averse, the principal will attempt to insure these risks.

In the jitney industry, the principal has imperfect information as to the activities of the agent and also with respect to the outcome - the principal does not know how hard the agent is working, nor does the principal know just how much fare revenue is being collected (nor are the vehicle running costs known). This is the main difficulty in constructing optimal incentive contracts in a jitney industry. Neither Shavell nor Harris and Raviv have considered this possibility. Yet the jitney scenario can still be consistent with the received theory - the outcome can still be certain - if the outcome is redefined from operating profit to

simply that the vehicle is given out by the principal to the agent for a specific time. In this case both sides know with certainty that the agent has received the jitney vehicle from the principal for a period of time.

While the principal may have imperfect information regarding the agent's effort, there is nevertheless some information. At the very least, for example, an odometer reading on the vehicle would indicate how far the vehicle has travelled in the period under review (and thus, in essence, whether or not the driver has done any work at all). In this case if the agent is risk neutral, according to Shavell, the fee can depend upon the outcome alone (a simple rent), but if the agent is risk averse the fee would depend to some extent upon the information which the principal has about the agent's effort.

Harris and Raviv (1979) have put this another way: They suggest that in such cases of imperfect monitoring (and there are always gains to monitoring except where the monitoring bears no relationship to the agent's effort) a dichotomous contract will be employed. This is where:

*the agent is paid according to some prespecified schedule (depending on output and monitoring result) if his action is judged to be acceptable based on the monitoring result. If the action is judged to be unacceptable, he receives a fixed and less preferred payment.*

(Harris and Raviv, 1979: 252)

This is the nature of current labour contracts. In the late 1920s the role of dummy partnerships reflected the role of the principal, who very often was working directly alongside the agents in the day-to-day running of the enterprise. Furthermore,

the use of pre-printed tickets was information pertaining to the gross revenue. As Harris and Raviv noted:

*the optimal incentive contract will depend on the available monitoring technology.*  
(op. cit.: 232)