

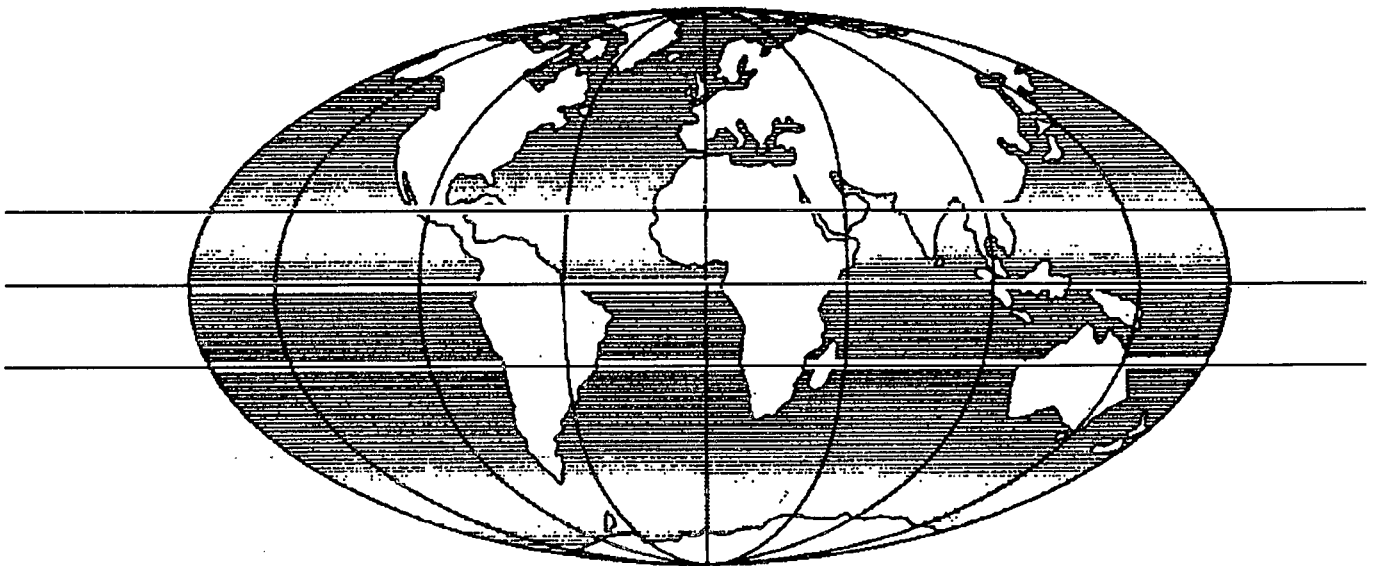


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TITLE Financing Pakistan's trucking industry

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FINANCING PAKISTAN'S TRUCKING INDUSTRY

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1. INTRODUCTION

Finance plays a key role in shaping the structure of all sectors of the economy and it is also the main channel used by aid agencies to promote development. In recent years in Pakistan, about 60 per cent of all agricultural tractor sales have been financed through institutional credit funded by the World Bank and other international agencies. By contrast truck operators have made virtually no direct use of any form of institutional finance. For some time there has been concern that this has been a constraint on the trucking industry, particularly with regard to the purchase of larger trucks. It is interesting to consider how the industry has developed and whether the scope for institutional finance will change in the near future.

In Pakistan road freight transport accounts for over three-quarters of total freight movement. It has been estimated that in 1983 there were 45,000 privately registered trucks in active use (Hundal 1985), about ninety per cent of them being operated by individual entrepreneurs who owned just one vehicle. For the overwhelming majority of these operators, the only source of credit available was through an informal system of hire purchase. Despite the size of the market and the long haul distances (trip lengths of over 1000 kms being very common) for most of the 1970's and 1980's the vehicle fleet was dominated by two-axle Bedford trucks with a design capacity of 7 tons.

To gain an understanding of the economics of the industry, and to investigate vehicle utilisation and capital costs a comprehensive study of road freight transport was carried out by the Overseas Unit of the Transport and Road Research Laboratory in cooperation with the National Transport Research Centre, Islamabad.

During 1985-86 a series of surveys was undertaken for the study. The main element was a Roadside Survey in which 3500 truck drivers were interviewed at 39 sites throughout the country. Because truck drivers are responsible for finding work, collecting revenue, keeping accounts and maintaining vehicles, they were able to answer a wide range of questions on the vehicles' operations. Information gathered in this survey included data on journeys, loads, tariffs, vehicle age, make, type, value, ownership, fleet management, finance, operating performance, costs, accidents and insurance. The survey included all trucks apart from those operated by the armed forces and those belonging to the National Logistics Cell (NLC) a military organisation which was set up by the government to assist with the movement of civilian bulk cargoes during the 1978/79 harvest failure.

In another survey structured interviews were held with 188 freight consignors and 237 freight agents. Information was gathered on consignors' preferences for "own account" and "hire and reward" operations, freight modal choice, and on the role of agents in freight consigning and vehicle finance.

Over 50 drivers' diaries were collected which provided detailed information on vehicle revenues and costs going back many years. Other surveys were carried out which recorded data on vehicle time utilisation, and trends in freight tariffs.

This paper examines the economics of operating trucks in Pakistan and considers the role that vehicle finance may have on the development of the industry. However, before finance is considered in detail background information on the vehicle fleet, freight tariffs and the organisation and management of the industry is presented.

2. THE FLEET

Because of import restrictions very few fully-constructed freight vehicles have been imported for the commercial market and most trucks are assembled locally. Two-axle Bedford trucks have been assembled in Pakistan for many years. The 98 HP model with 7 tons carrying capacity has changed little in 30 years, although the local content has been progressively increased so that by 1986 local content accounted for about 60 per cent of the vehicle value. During the 1970's protection in the form of import duties helped to prevent other makes from becoming more established and in 1979, Bedfords accounted for over ninety per cent of total truck sales. However, during the 1980's, protection was relaxed and the import and assembly of many medium-sized Japanese trucks became possible. As a result, the importance of the Bedford truck declined and by 1985 their market share of new sales had fallen to less than 50 per cent.

Most of the new Japanese trucks have two axles, engine power in the range 140 to 220 HP, and a design carrying capacity of up to 12 tons. Local content by value is currently below 20 per cent, although under agreements between the Government and the vehicle assemblers, this has to be progressively increased. However the assemblers have plans to widen the model ranges and as a result it is likely to prove difficult to achieve the ambitious local content targets that have been planned (up to 80 per cent within 7 years).

In the Roadside Survey two-axle Bedford trucks accounted for 76 per cent of vehicles surveyed; two-axle Japanese trucks (mostly Nissan, Hino and Isuzu) formed a further 14 per cent; three-axle trucks made up four per cent and tractor-trailer combinations, three per cent. In the last two categories Nissan was the dominant make. In addition to the privately owned fleet, the NLC has imported a number of high capacity vehicles including Mercedes trucks with draw-bar trailers and Fiat tractor units with semi-trailers.

Vehicle bodies are made locally and fitted to the truck chasses after they have left the assembly plant. Apart from tankers, vehicle bodies are made almost exclusively of wood. In most cases the bodies are highly decorated and there is usually a purpose-built space on top of the cab where the drivers and assistants can rest or sleep whilst the vehicle is in motion. In all categories, apart from tractor-trailers, high sided bodies are the most common, accounting for 80 per cent of the total.

Most trucks in Pakistan are strengthened after assembly to take heavier loads. Strengthening is applied to all types of truck including the newer Japanese vehicles, the most popular modifications made being the strengthening of the chassis, axle springs and engine compartment. Wheel rims, tyres, and axles are also often changed for heavier duty items. By contrast little evidence was found to suggest that brakes are improved to cope with increased loads.

Bedford trucks designed to take 7 tons are commonly modified to carry 11 tons, while two-axle Japanese trucks designed to take 12 tons will carry 16 tons. Some two-axle Japanese trucks are converted to three-axles carrying up to 30 tons while others are converted to tractor units by the addition of a "fifth wheel". In addition the chassis of the semi-trailers are strengthened and loads of 55 tons and more are not uncommon for tractor-trailer combinations.

No evidence was found to suggest that the performance of existing engines are improved or that more powerful engines are put into existing vehicles. It appears that attempts to improve productivity by modifying vehicles are entirely directed towards carrying heavier loads rather than by achieving higher speeds.

Vehicle modifications and repairs are carried out by groups of small workshops. Each workshop has relatively little working space, employs no more than a handful of people and has only a limited access to machinery. It tends to specialise in providing a particular service, but in most towns a wide range of skills and machine tools is available and usually a full range of repairs can be carried out.

Spare parts for Bedford truck are cheap and very widely available. Many of them are made in Pakistan and in most cases, if not immediately available they can be made locally. In the larger towns, imported spares for the Japanese trucks are available, but they tend to be about three times the price of the equivalent part for the Bedford.

3. THE ORGANISATION OF THE INDUSTRY

Road freight transport is largely organised on a free market basis; freight tariffs are competitively determined by supply and demand, and apart from the operations of the NLC there is little direct government intervention in the industry. There is a relatively lax licensing system and there is little enforcement of axle load limits or of vehicle construction and use regulations.

Data collected from the surveys found that the vehicles are used very intensively. One survey found that trucks were in active use (ie moving, loading or unloading) for over 12 hours per day and it appears that they travel over 100,000 kms per year. The typical pattern of operations usually involves two drivers and one assistant. They will travel night and day going from job to job for up to three weeks at a time before returning to base.

The road transport industry is dominated by a large numbers of small scale entrepreneurs: freight agents, truck owners operating "hire and reward" services and garage mechanics. All of these are widely spread throughout the country.

Very few non-transport companies operate their own transport fleets: they choose to rely on hiring transport. The few vehicles they do own tend to be used for local delivery work. The survey of industrial consignors showed that these firms felt that it was not worth their while in cost and managerial effort to run their own vehicles.

Freight forwarding agents play a pivotal role in the operations of the industry. It was found that 63 per cent of loads were placed through agents. In most instances, vehicles can be found very quickly: 90 per cent of freight agents said they could find a truck within one hour. Besides helping to place consignments on trucks, freight agents also run warehouses and act as middle-men in buying trucks and selling them on a hire-purchase basis.

There are a few large transport organisations of which the NLC is by far the biggest with about 2000 trucks. A small number of large privately run firms concentrate on running tractor-trailers and on moving containers, specialised equipment and outsized loads.

4. FREIGHT TARIFFS

A great deal of information was collected in the Roadside Survey on trip distances, loads and tariffs. Some of the findings are shown in Table 1 and Figures 1 and 2. Bedford trucks travel the shortest distances and have tariffs per ton kilometre very similar to the two-axle Japanese trucks. Three-axle trucks and tractor-trailer units on the other hand have overall tariffs about 35 per cent lower - very similar to those charged by Pakistan Railways for their commercial traffic. More goods are moved away from Karachi than to Karachi and it was found that there was a consistent difference in tariff rates which reflected this.

Table 1: Summary of Revenues, Distances and Loads

	2 Axle Bedford	2 Axle Japanese	3 Axle Japanese	Tractor-Trailer Japanese
Mean tariff Rs	1702	3508	5682	5940
Mean loaded trip distance Km	547	831	1051	957
Per cent of trip distance loaded	86.5	90.6	96.7	87.6
Mean load tons	8.1	12.2	20.0	25.7
Overall Tariff: Rs per ton km	0.38	0.35	0.26	0.24

(Approximate exchange rate Rs24 = £1)

5. VEHICLE OWNERSHIP AND MANAGEMENT

In the Roadside Survey it was found that in over 60 per cent of cases the registered owner of the truck was the provider of finance for the truck purchase and not the person who gained a profit from the truck operation. This was because under the common hire-purchase arrangements, the vehicle seller or provider of finance safeguards his investment by registering the truck in his own name until the vehicle is fully purchased.

Table 2 gives details of vehicle ownership. Over 90 per cent of the trucks were owned by a single private individual; partnerships accounted for just 7 per cent of the total. Non transport companies owned less than one per cent of the total trucks surveyed but a much higher proportion of the tractor-trailers. Twenty per cent of the principal drivers were found to have either a full or part share in the ownership of the truck. In the remaining 80 per cent the principal driver was an employee.

Table 2: Truck Ownership

	2 Axle Bedford	2 Axle Japanese	3 Axle Japanese	Tractor-Trailer Japanese
Private Individual	2416	486	102	79
Family Partnership	146	15	6	12
Non Family Partnership	52	6	1	1
Non-Transport Company	11	2	0	14
Federal Government	2	0	0	0
Provincial Government	0	0	0	1
Public Corporation	3	1	0	1
Others	2	0	0	0
Total	2632	492	109	108

Table 3 gives data on vehicle fleets under common management. Fleets of two or more vehicles accounted for about 13 per cent of the total trucks surveyed. The data suggests that the more expensive the vehicle the greater the likelihood that it will be part of a fleet and the greater the probability that the fleet will be large.

Table 3: Truck Fleets

	2 Axle Bedford	2 Axle Japanese	3 Axle Japanese	Tractor-Trailer Japanese
Is truck managed in common with other trucks ?	Yes % No %	10 90	16 84	26 74
Total replies	2623	485	109	107
Mean Fleet Size for those in common management	4.62	4.0	9.6	28.3

6. VEHICLE PURCHASE AND FINANCE

It was found that there was a very high turnover in the purchase and resale of second hand trucks. Over 50 per cent of the Bedford trucks had been purchased by their current owners during the previous two years but 86 per cent of these sales were of second hand vehicles.

Table 4 gives information on how trucks were purchased by their current owner. Approximately three quarters of the privately owned fleet was purchased on a repayment basis. As might be expected it was found that for each vehicle type the cheaper trucks tended to be purchased through an outright payment. However a much greater proportion of the more expensive tractor-trailers were purchased by a single payment reflecting the larger firms involved in running these vehicles.

Table 4: Truck Purchase

	2 Axle Bedford	2 Axle Japanese	3 Axle Japanese	Tractor-Trailer Japanese
Trucks purchased:				
by single payment %	25	18	22	49
by multiple payments %	75	82	78	51
For single payment trucks:				
1986 value Rs.000	140	302	424	507
Mean vehicle age yrs	12	4	4	5
For multiple payments trucks:				
1986 value Rs.000	159	345	499	599
Mean vehicle age yrs	9	2	2	3
----- For trucks with repayments per cent of replies -----				
Repayments to: Bank	1	3	6	6
Relative	1	1	0	0
Friend	1	3	0	0
Vehicle Seller	81	77	81	83
Agent/Money Lender	15	15	13	11

Most repayments were made to the previous owner or an agent. In total about one per cent of the repayments (but a higher proportion for the larger trucks) was arranged through banks. Truck owners complain that it is difficult, time consuming and expensive to use bank loans for truck purchase. The banks usually demand comprehensive insurance which is normally very expensive. (Most trucks were found to have form of Third Party insurance which cost about Rs34 per year compared with comprehensive insurance which was about Rs 3000 per year.) The banks may also demand legal entitlement to other assets, such as property, besides the truck itself as security for the loan and this too can be expensive to arrange. By contrast, informal sources of credit appear to be much more flexible and easier to arrange.

Agents buy new trucks and arrange to sell them on a repayment basis to operators. No evidence was collected on the source of credit for this business although it is believed that it is mainly financed by non-bank sources because of the very small proportion of comprehensive insurance found. Banks have been prevented from giving concessionary loans for truck purchase because road freight transport was not classified by the government as an "industry". This drawback is now being rectified.

In Pakistan, most people involved in buying and selling a vehicle rarely think in terms of an interest rate although one can usually be inferred from the terms of a sale. If a vehicle is to be bought on hire purchase, then a higher price is quoted. Repayments are usually made on a monthly basis lasting between 40 and 60 months. This compares with vehicle life expectancy of about 15 years. In the survey, about 80 per cent of the trucks purchased on a repayment basis were still being paid for, reflecting the high turnover of vehicle ownership.

It was found that, on average, owners of Bedford trucks appear to have a higher proportion of late repayments than the owners of other trucks. It was easiest for the owners of largest trucks to make their repayments. If the owner gets too far behind in his repayments, then the deal is presumed to be broken and the truck reverts to the seller or money lender.

From the data provided on purchase-time value, initial deposit, and the monthly repayments an estimate was made of the effective rate of interest. The results of this analysis are shown in Figure 3. This refers to all trucks for which data was available, irrespective of date of manufacture or the date when the agreement was made. In total nearly 1800 cases were analysed. It can be seen that there is a wide spread of interest rates, with a modal value at 16-20 per cent, per annum. The 13 per cent of cases with interest rates above 60 per cent should be viewed with suspicion for it is possible that the data provided for many of these particular cases is faulty.

Excluding cases with interest rates over 60 per cent, the average rate paid was 25 per cent. However the average rate weighted by the amount borrowed was found to be 22 per cent. In general the owners of Bedford trucks paid the highest rates of interest and the owners of tractor-trailers the lowest. There appears to be a consistent pattern with the larger the sum borrowed, the lower the average rate of interest.

The terms under which hire purchase agreements were made for new trucks (as distinct from all trucks) are presented in Table 5. This shows that the greater the purchase price of the truck, the higher the proportion of value borrowed. The initial down payment accounts for 31 per cent of the purchase price of a Bedford and only 19 per cent of the value of a tractor-trailer.

Table 5: Repayments and Interest Paid for New Trucks (Made in 1985/86)

	2 Axle Bedford	2 Axle Japanese	3 Axle Japanese	Tractor-Trailer Japanese
For cases with effective interest rate below 60 per cent, per annum:				
Mean interest rate per cent, per annum	21.1	21.5	19.3	18.9
Mean purchase price Rs 000	305	377	519	625
Mean sum borrowed Rs. 000	209	265	384	505
Mean initial payment Rs 000	95	112	135	120
Mean monthly payment Rs	6571	9221	13,433	15,200
Mean payment period months	48.4	41.3	39.6	46.6
No. of cases with rates below 60 per cent	35	185	30	5
No of cases with rates above 60 per cent	2	6	0	0

7. VEHICLE PROFITABILITY

An analysis of vehicle profitability was carried out using revenue and cost data collected in the different surveys. A summary of this data is shown in Table 6.

Table 6: Estimates of costs, revenues and profitability (1986 prices)

	2 Axle Bedford	2 Axle Japanese	3 Axle Japanese	Tractor-Trailer Japanese
New vehicle purchase price Rs 000	305	377	519	625
Running costs Rs/day	850	988	1389	1503
Revenue Rs/day	967	1177	1846	1917
Gross profit Rs/day	117	189	457	414
For trucks with repayments:				
Mean IRR per cent	6	15	68	-

The calculated internal rate of return (IRR) shown relates to the profitability of running the truck over its lifetime. It is for new trucks purchased in 1985/86 where the owner has bought the vehicle on hire purchase. The calculation assumes that for vehicles of different ages current levels of revenue and costs will be maintained in real terms over their future life.

Because of the high level of uncertainty associated with calculating profitability indirectly from survey data the estimates in Table 6 should be interpreted with caution. Nevertheless they confirm impressions gained from discussions with drivers and truck owners. Bedford trucks appear to be marginally profitable while three axle trucks appear to be the most profitable. There was insufficient data to estimate the IRR of the tractor-trailers although their overall rate of return is believed to be intermediate between the two-axle and three-axle Japanese trucks. The relative success of the three axle trucks is probably due to their combination of capacity and flexibility in operation. Each truck has its own particular maintenance requirements and drivers differ in their ability to find loads, hence within each class there is likely to be a wide spread of profitability.

With the appreciation of the Yen the price of Japanese trucks has risen substantially since 1985 and this will obviously affect the profitability of new operators entering the market.

The IRRs given are in real terms and they should be viewed in relation to the alternative returns on capital. After inflation is taken into account money invested on deposit at the bank has, in recent years, only given a return of between zero and three and a half per cent.

In starting up a truck operation, owners not only have to pay out their initial down payment but they may also have to meet a shortfall in net revenues during the initial years whilst they make their repayments. An analysis suggests that the total negative cash flow could amount to Rs 200,000 for a new vehicle, however because of their high levels of gross profitability this figure is not necessarily larger for the more expensive trucks.

8. DISCUSSION

Pakistan's trucking industry is dominated by small scale entrepreneurs who rely on informal sources of credit for finance. A wide range of interest rates is paid for vehicle purchase and there is a high turnover of ownership in the industry. Freight rates are competitively determined and vehicles are operated efficiently. Most trucks in Pakistan are strengthened to take heavier loads, however new large capacity trucks can provide transport at very much lower rates than the 7 ton Bedford and the other two-axle trucks upon which the industry has relied so heavily.

The wide range of profitability for vehicles of different types suggests that the industry is very far from an equilibrium position. The evidence points to very strong incentives for owners to purchase much larger trucks. This is born out by the recent growth in their numbers. The very high levels of profitability for the larger trucks suggests that high levels of interest for vehicle finance are unlikely

to have been a major constraint on the purchase of larger trucks. However with the appreciation of the Yen and the much greater use of larger vehicles, the very high levels of profitability found for these trucks will almost certainly decline.

There are clearly several reasons why greater numbers of larger trucks have not been used earlier. Protection for the Bedford truck, coupled with its familiarity and very low maintenance costs are the most obvious reasons. However evidence collected from drivers' past records suggest that the profitability of Bedford trucks has declined since the late 1970's. Some areas of the country (notably around Karachi and in Baluchistan) have taken to the newer trucks much more quickly than other areas. The reason for this probably relate to differences in the relative suitability of the different vehicles as well as imperfections in the spread of information. Another reason why operators may be reluctant to buy larger trucks is the possibility of total loss; amongst operators there is some distrust of insurance companies and comprehensive insurance is very rare.

If finance had been the only constraint on the operation of larger vehicles then it would have been open to the larger commercial companies with their cheaper sources of finance to enter the industry. The survey of freight consignors found that most commercial companies believed they could not compete with existing operators. An explanation of their disadvantage compared with small scale operators relates to the supervision and control of drivers. The small-scale operator works efficiently by allowing the driver to be totally responsible for finding work and maintaining the vehicle. If the driver of a small scale operator does not bring in sufficient revenue he is dismissed. Large companies cannot work in this way; they find it necessary to give less responsibility to the driver and try to supervise the vehicle's operations closely.

Larger vehicles are more likely to be operated as part of a fleet and in the longer term it can be expected that the single entrepreneur operating a two-axle truck will play a less important role in the industry. In the past, small-scale operators wishing to buy small two axle trucks have been well served by informal sources of finance. However as the demand for more expensive vehicles increases, the small scale operator may well be at a disadvantage relative to large companies and private individuals with substantial wealth who can obtain credit on more favourable terms.

The evidence from Pakistan suggests that given an appropriate competitive environment, small-scale entrepreneurs can provide a very efficient and flexible transport service. Nevertheless to maximise the long run efficiency of the industry, small operators will need to gain a similar level of access to cheap finance that large companies currently enjoy. To meet this demand there could well be a role for institutional finance to be made more readily available to the industry.

9. REFERENCE

Hundal, S A (1985) Transport Statistics. NTRC Report No. 83. National Transport Research Centre, Islamabad.

10. ACKNOWLEDGEMENTS

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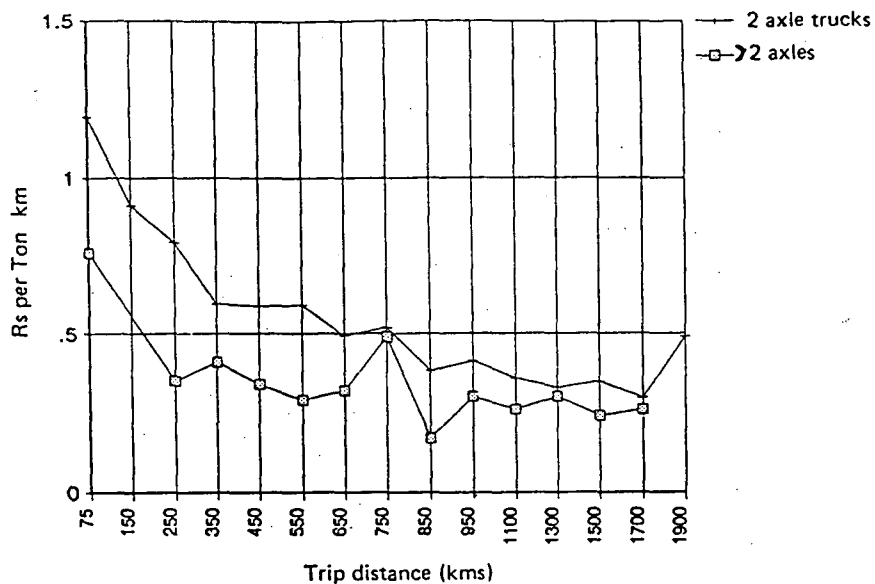


Fig.1 Freight Rates From Karachi

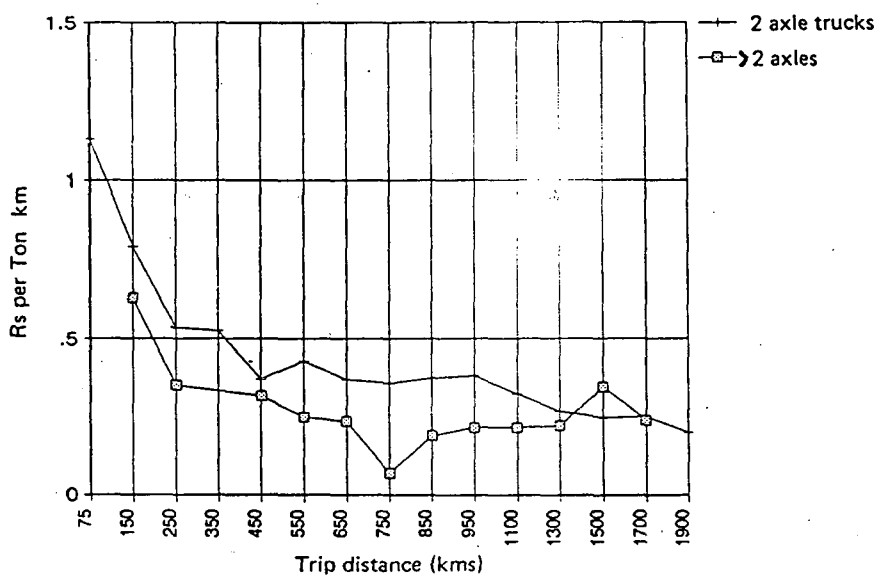


Fig.2 Freight Rates To Karachi

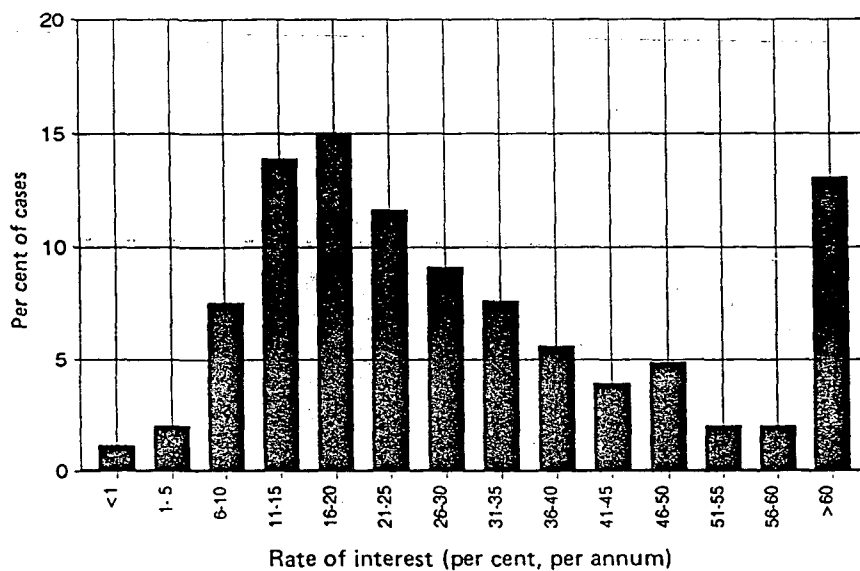


Fig.3 Effective Rate of Interest Paid for Truck Purchase