The bus transport demand supply and elasticity economics essay

Given that economics is the study of scarce resource. In the present world economics scenario one of the recently discovered resource and which has almost topped the list of the scarce natural resource is Oil. The oil has been mainly brought in to commercial use around one and half century back, from than the world has been highly reliant for energy needs with in short span of time. The use of oil is in every sector of industry from transportation, Manufacturing, Power Generation almost 35% the energy needs is supplied by oil(Times March 23, 2012). Now the problem lies in the realization that even though demand of the oil in the world has been steadily increasing the resource as any other natural resource its limited and over the years its had become increasingly costly to extract it.

Oil price increase can result by following reasons

Low-cost reserves of oil are being rapidly exhausted, forcing oil companies to turn to more expensive sources of oil. This replacement of low-cost sources of oil with higher-costs sources is driving the price of oil higher.(Parliament Oct 2010)

In case of war or major political unrest in oil producing countries

New Zealand as majority of country in the world is heavily dependent on oil imports and will remain so in future. While there is a possibility to substantially increase domestic oil production, even than it cannot insulate New Zealand from global oil price shocks because New Zealand pays the world price for goods like oil. and 40% of New Zealand energy demand is supplied by oil(Parliament Oct 2010)

Let’s analyze the effect of the rise in oil price on the Bus transport demand supply and elasticity

Analysis:

Present Supply and Demand Scenario analysis of New Zealand Bus transport:

Transport supply: The capacity of transportation infrastructures and modes, generally over a geographically defined transport system and for a specific period of time. Supply is expressed in terms of capacity, services (frequency) and networks (coverage). Capacity is often assessed in static and dynamic terms. The number of passengers that can be transported per unit of time and space is commonly used to quantify transport supply. (Notteboom 2009)

Transport demand: Transport needs, even if those needs are satisfied, fully, partially or not at all. Similar to transport supply, it is expressed in terms of number of people. Demand is either reflect productive, where transportation reflects a clear economic function, or consumptive transport needs, where the economic function is much less evident. While the transport of a truckload of cargo to a distribution is considered a productive transport demand, a leisure cruise is considered consumptive.(Notteboom 2009)

Now to understand better the effect of increase in oil price in Bus transport business let us first study the present economic scenario of bus Transport Company operating in New Zealand. Let’s assume that most bus transport company is operating at the profit margin of 15%. Now the main substitute for the bus business is private cars, taxi and other automotives.

More over it should be realized that the bus seating capacity is generally larger than the actual demand since the average utilization degree of bus rarely reaches 100%. For instance, during off-peak period the transit bus occupancy is always below the capacity. (Notteboom 2009)

“ Taylor and Fink (2003) divided the factors affecting transit rider ship into two categories: external and internal. The external factors are those beyond the control of transit systems, while the internal ones are hose they can control. The price of gas is one of these external factors that can affect rider ship. Other external factors, as noted by Taylor and Fink, include socioeconomic factors, such as employment level, income level, and auto ownership; spatial factors, such as the availability and price of parking and residential and employment densities; and public finance factors.”(Mattson June 2008)

Supply and Demand Scenario analysis of New Zealand Bus transport on oil price increase:

The Petrol and cost variation can happen due to two reasons.

More the trip than more the consumption of petrol resulting in more petrol operating cost

The cost of the oil in New Zealand

Now let’s assume that there is an increase in 30% in price of the oil. The 30 % increase in the fuel cost will result in corresponding increase in the operating cost of the bus company. Now in this scenario there are three options before the company management i. e.

To increase the fare of bus tickets to the proportional increase in operating cost

Not to increase the fare of bus tickets and totally bear the burnt of the increase in operating cost

Partially pass the cost to the passengers and try to maintain the balance

Now all this options have their own benefit before starting our analysis on the above options. We must realize the nature of demand elasticity of the bus transportation business. The demand elasticity of the bus transportation is relative inelastic as in case of public road transportation all the other form of transportation depends increase on oil as well so the increase in the price will also result in increase in cost of the other mode of transportation. The profit margin depends completely on the management decision of raising the price. Given that Bus transportation is relative inelastic following will be the affects

Option 1:- To increase bus fare proportionally to oil price raise

This may results in decrease of the profit margin if there is a suitable substitute for the bus transportation in that route. If not than it won’t result in major change.

Option 2:- Not to increase the bus fare at all.

Exercising this option will result in decreasing the profit margin even though it won’t be proportional to rise in the oil price as the demand being relative inelastic. Thus covering up the increased operating cost of oil

Option 3:- To increase bus fare partially to oil price raise

Exercising this option can result in raise of the profit margin. This can result in increase in the demand due to cross elasticity effect as the other mode of transportation like cars, taxis will prove more costly. Even though there are chances that people may start walking to the destination to avoid the increase in cost.

As per the above analysis it is clear that in case of bus transport company as there is a factor of bus seating capacity if that was less before the raise than even if the business decides to bear the operating cost still there is an possibility that the profit margin is not significantly affected.

Let’s assume that the bus travelers association has protested strongly against the increase in the bus fare price. The government issues a directive to bus companies to maintain the same price than given in this scenario the profit margin will dip and thus resulting in the cost cutting measures by the company. The cost cutting measures can be by cutting down their work force and other controllable operating cost. This can result in increase in unemployment rate in the society.

Now given the risk of unemployment government can take following steps to combat such happening.

Killing the root cause of the happening : This can be done by investing amount in research for finding new source of oil wells by employing new technology or by innovating new green technology which can fuel future public road transportation The main idea is to aim for an energy self reliant New Zealand.

Advance economic research implementation: If killing the route cause for some reason could not be achieved than government can deploy robust price control economic policy which will result in more people preferring mass transit like Bus thus resulting in decreased countries oil consumption at the same time being environment friendly.

Conclusion:

The bus transportation industry is relative inelastic if the price of oil increases because price elasticity of demand as per its determinant the markets seem to be more broadly defined due to lack of immediate viable substitute for bus transportation and most importantly bus transportation is deemed as necessities more than luxury.

Even the time horizon determinant seems to be working in favor of the bus transportation due to increase in oil price. The other means of transportation like cars can prove costly for an individual traveler resulting in the increase of the supply of passengers for bus transportation in long term if the oil price continues to increase.

We should also keep in mind that fine tuning of the price if it’s increased and bus occupancy will also prove as an important factors to create a win win situation for the passengers and the bus transportation company.(Mankiw 2009)

The elasticity of passenger taking bus transport with respect to fares is usually in the -0. 2 to -0. 5 range in the short run (first year), and increases to -0. 6 to -0. 9 over the long run (five to ten years). These are affected by the following factors:

1) Bus transport price elasticity’s are lower for the dependent riders than for discretionary (“ choice”) riders.

2)Elasticities are about twice as high for off-peak and leisure travel as for peak and commute travel.

3) Cross-elasticities between bus transport and automobile travel are relatively low in the short run (0. 05), but increase over the long run (probably to 0. 3 and perhaps as high as 0. 4).

4) A relatively large fare reduction is generally needed to attract car drivers to bus transport, since they are discretionary riders. Such travelers may be more responsive to service quality (speed, frequency and comfort), and higher automobile operating costs through road or parking pricing. (Litman 2012)