What are the implications for demand in the short and long run of undercharging for road transport?

The demand for road transport is a derived demand, derived from the demand to transfer both the population and goods between different locations (Griffiths and Wall. et al 1999) and is heavily influenced by both time and space, subjected to regular fluctuation creating the characteristic peak and off peak situation upon urban roads. This results from the immediate consumption of a road, if it is to be considered as a good, preventing the possibility of storing the good for periods of greater demand. The demand placed upon road transport is therefore affected by three main factors; the price of road transport, the price of alternative transport services, and individual income.

However the true cost of road transportation is hard to quantify as there are many external costs not considered by an individual when calculating the marginal cost and benefit ratio before undertaking a journey (Parkin. 2000). These externalities include the cost of congestion, especially during peak periods adding to the cost of fuel and time to the journey, air pollution and its resulting effects upon both human health and the environment, noise pollution effecting property value in areas surrounding busy roads, and the costs of traffic law enforcement.

Initially the under pricing of road transport was beneficial to the motor vehicle industry due to the economics of scale at the time, encouraging private car ownership with the reduction in the average costs of running a car. However today there are very few further economics of scale available in the motor industry, which is common for many mature industries, as an increase in the number of cars on the road does not guaranty a benefit for society and has both positive and negative effects on the economy of a nation; it can be seen that the external costs and diminishing returns now outweigh the benefits of undercharging (www.vtpi.org).

In the short term undercharging provides the individual with a benefit, defined as an internal benefit, road transport is cheaper and personal mobility is increased. It can also be argued that it opens up the opportunity of the low-income bracket of a nation's population (in regard to the developed world) to make use of road transport and has a greater benefit to those that use road transport to a greater extent than those who do not. A lower than actual running cost of road transport inevitably increases car sales benefiting the motor industry and the transportation of produced goods within the manufacturing industry. This would therefore increase the demand for road transport, road space and road maintenance, in the short term, as the marginal benefit of making a journey would become greater than the marginal cost of the journey.

Subsidising the creation and maintenance of a good road network is again is very beneficial to business and the general public in the short term, reducing the time spent travelling and encouraging industrial development. For example, a location that is easily accessible by road will attract industry and hence increase the value of the land; similarly existing property will increase in value with improved road accessibility. Undercharging for the use of road transport increases the individual benefit obtained by commuting from more isolated locations suggesting that undercharging makes urban services, jobs and lifestyle available to those living in rural areas. This has the added effect of increasing rural property value, but also allows companies to locate

outside the central business direct, potentially increasing profits without the risk of reducing consumer purchase revenues. This can then induce a multiplier effect where other competitive companies are also attracted into the area, which can be seen with the creation of out of town business parks. This would also imply an increase in the demand for road transport, as privately owned cars would be the preferred method of transport to access these rural or isolated locations if the costs were subsidised, the services would be available to a greater proportion of the population if transport cost are kept artificially low.

It can be seen that undercharging increases the demand for road transport in the short term by providing an internal benefit to road users; in effect it would appear that undercharging encourages car ownership. It does not however provide a short-term external benefit to society, but instead further increases the external costs in the long term. A higher number of cars on the road reduces the average speed of travel, causes congestion within urban areas costing an individual both directly and indirectly and is detrimental to the environment inducing a risk to health.

Perhaps the greatest external disadvantage of the increased demand for road transport resulting from undercharging is the inefficient use of the cars purchased. With reduced costs a car is used when it is not the most efficient method of travelling, for example for very short journeys. In the long term this creates a market failure where resources are not efficiently allocated, in this case road space, with the sub-optimal use of vehicle technology (Barde and Button.1990). In this situation external cost's, such as congestion costs may decrease the marginal benefit in relation to the marginal cost of road travel and therefore reduce the demand for road transport. Alternatively the external costs are paid for with a decrease in wage income or increase in tax else where, as a reduction in productivity caused by congestion increases manufacturing costs. However undercharging road transport does not provide an incentive for the individual to use road resources efficiently, little is therefore saved by not using road transport as the externalities are paid for else where, for example in tax, which is paid by everyone whether road transport is used or not; there is no internal benefit not to use road transport. Consequently in the long term the effect upon the demand for road transport is minimal.

Demand however may be increased if a situation of car dependency arises within a region. The effect of undercharging private car ownership that results in inefficient car use that in turn creates a situation where a car is no longer optional but a necessity. The increased demand for private car ownership reduces in the proportion of the population that make use of public transport, restricting it to the young and old. With a reduced demand for public transport there will be consequently be a reduced investment into these services having a continuing multiplier effect which makes public services inadequate for regular use, reducing the demand for the public service further and increasing the demand for private car ownership to the point private transport is no longer a luxury. The price elasticity of a good that is considered a necessity is low, generally less than 1, suggesting that price changes would have little effect in the short term on the demand of road transport and therefore would be an inelastic good (Maddison et al. 1996)
Over time it can often be seen that the population can adapt, for example if fuel prices were to increase then in the short term there will be little effect on demand, although in the long term more efficient cars will be developed and the population will find a

way to reduce their personal fuel consumption. This would suggest that in the long term the price elasticity of road transport become greater, and has been valued at around 1.5 - 2 (Maddison et al. 1996) becoming more elastic.

In the long term it can be seen that the internal benefit of the less than actual price of road transport is paid for by excess charges, or via taxation, in other goods or services, thus not becoming a true benefit to the individual at all. The provision of a less than true price road transport service prevents the capital from being invested in other more efficient public services, for example health care or education, again reducing the productivity of the nation. Japan, compared to the UK or USA, spends a lower proportion of its GNP on road transport indicating a more efficient economy of the nation with out high road transport dependency (www.vtpi.org).

The development of a car dependent urban area, due to urban sprawl arising with increased rural development and out of town business parks or with a more dispersed distribution of services if resulting from road transport undercharging does not provide a benefit to low income households. In the long term it increases the personal amount of road transport actually taken place and therefore will increase the percentage of their income that is spent on running a car. The dispersal of services combined with inadequate public services results in greater car usage. If the cost of road transport was true, then perhaps low income households would find more economical methods of transportation, hence increasing the market efficiency. Car dependency in effect reduces the individual choice of the population as road transport becomes the only transport method available to access the dispersed services.

It can be seen that in today's society there is very limited benefit obtained by the continuation of undercharging policies. The excess use of road transport imposes external costs that lie hidden from the consumer in the sense of actual use of road transport but are paid for in other indirect forms. It is apparent that the dependency upon road transport common among many developed nations has been fuelled with the undercharging policy that has been in operation since the very early stages of the motor vehicle industry, within the UK since the 1920's. At present it seems a very unfair policy with the externalities paid for by the whole population in the form of taxation, something that there is no personal choice over paying. This inevitably means that those who use road transport more benefit more from undercharging than those that don't. Those at the greatest include the small proportion of the population that do not drive that in effect pay for those that do in taxation.