DUBLIN'S CHRONIC CONGESTION: WHAT WE HAVE DONE AND WHAT WE HAVE FAILED TO DO

SIOBHAN SCALLAN

Senior Sophister

In this paper Siobhan Scallan considers the varied costs arising as a consequence of Dublin's road congestion problems and explores the measures that have been employed to date in an effort to alleviate the growing crisis. Considering the London model as a case study, 'congestion charging' is examined as a possible solution. It is argued that such a policy will only be beneficial in conjunction with increased investment and development in public transport.

Introduction

"Roads and rail are the arteries and veins of a modern economy. Clog them up and circulation starts to fail. Ignore the disease for too long and the patient's condition may take a serious turn"[1]

Traffic congestion is a rapidly growing concern in many contemporary cities and Dublin is no exception. Congestion can be defined as "waiting for other people to be served" (Thomson, 1974:72); it is the delay imposed by one vehicle on another. This is not an efficient system for a modern economy.

This paper considers the current congestion problem in Dublin. The costs associated with congestion are explored. Following from this, the merit of the government's response over the last forty years is questioned. Congestion pricing, a proposed policy solution, is discussed and its success in reducing congestion in London is examined. To conclude, this paper advocates an increase in the marginal cost of motoring in the city, relative to the fixed cost via the pricing mechanism.

[1] The Economist, 2006

Gridlock Beckons[2]

Dublin's transport infrastructure was unprepared for the record period of economic growth in the 1990s. This brought about a phenomenal increase in the number of cars in the city, and generated an excess demand at peak hours for an inadequate public transport system. For instance, between 2003 and 2004 the number of cars licensed in Ireland grew by 6.9% (CS0, 2004). As expected, this rise in the level of car ownership coincided with an ever-increasing reliance on the private motor vehicle as the preferred mode of transport. The percentage of people driving to work in Dublin increased from 45.1% in 1996 to 50.3% in 2000 (Morgenroth, 2001). This flow of vehicles into the city meant the ratio of road space to vehicles diminished rapidly. Such an increase in the number of vehicles has significant implications for vehicular emissions and congestion in Dublin. This is largely due to the fact that the development in traffic management, public transport and "growth in road space has not kept pace" (Clinch and Kelly, 2001:4).

Car commuting is another major cause of traffic congestion. Dublin City Council has been monitoring inbound commuter car journey times during the morning peak period since 1994. Data on journey times and average speeds are summarised in Table 1. The average inbound journey times during the morning peak period on the 20 routes monitored increased by 44% between 1994 and 2002, while average speeds declined by 31%. It is evident that changes are needed.

Table 1: Private Car Commuter Journey Times/Speeds 1994, 1998 & 2002 (Average for 20 Routes)

Morning Peak	1994	1998	2002	% Change
Journey Time (mins.)	21.24	26.19	30.65	+44%
Average Speed (km/hr)	16.71	13.55	11.58	-31%

Source: Dublin City Council

The Costs of Urban Road Congestion

How much is congestion costing us? The distinguished economist Button, has shown congestion to imply a "dead-weight welfare loss and to reduce the economic efficiency of any transport system" (Button, 1993:118). Congestion represents a cost to those who are exogenous to a person's

[2] Title from The Economist, 2002.

decision of undertaking a journey. Any side effects, whether positive or negative, of the decision are known as externalities. Housing policy during Ireland's economic boom was particularly inadequate. Consequently the spread of the Dublin commuter belt to comprise all of Leinster, and further afield, has resulted in many undesirable externalities. These include "further congestion, increased travel time to work, rising frustrations and stress, increased fuel use and associated greenhouse gas and pollution emissions" (Clinch & Kelly, 2001:4).

Clinch and Kelly describe how a recent report from Infras/IWW (2000) placed the "external costs of all transport in the EU at 8% of GDP, with private cars accounting for some 58% of this cost" (ibid:6). It is approximated by the Dublin Transportation Office that congestion costs in terms of lost time amount to £0.5 billion per annum while the "Small Firms Association are less specific, stating simply that it is costing the economy millions every year" (ibid:7).

Economist Johansson-Stenman in his report *Regulating Road Transport Externalities: Pricing Versus Command and Control*, outlines the principle externalities of traffic congestion as discussed below.

Environmental Costs

Of all the environmental pressures facing Ireland, congestion is the most highly correlated with GDP growth, with car ownership growing at over 7% per annum (ibid). There are numerous negative environmental externalities resulting from road transport. These consist of noise, dirt, vibrations, toxic fumes, safety fears, loss of privacy, disruption and the need for relocation of people and industry (Button, 1993).

Increased numbers of vehicles contribute to the level of noise pollution in an area (Johansson-Stenman, 1999). According to an OECD EST report in 2000, high levels of transport noise can contribute to sleep loss, high blood pressure and cardiovascular disease. The report also notes that current EU limits on noise emission levels greatly exceed levels consistent with health and comfort.

Congested traffic results in repeated acceleration, deceleration and idle motors. "Emissions from cars can be found to be up to 250% higher under congested conditions than under free flowing traffic" (Clinch & Kelly, 2001:5). CO_2 emissions contribute considerably to global warming and are of particular concern in the Irish case given the requirements of the Kyoto target. Other pollutants include NO_X, VOCs, CO and particulate matter, the latter two being particularly damaging to human health (ibid). Convery (2001) affirms that the vast majority of air pollution in our cities, and the

related health and other dysfunctions, are a consequence of emissions from road-based transport.

Accident Costs
There is a significant correlation between the number of vehicles on the road and the probability of accidents. Congested traffic is undoubtedly more stressful than free flowing traffic. The frustration of being 'hemmed in' in traffic can lead to over acceleration when roads are clear (Johansson-Stenman, 1999). There are many components involved in the external costs of accidents including physical costs, mental costs and loss of output.

Road Wear and Tear
Road damage is primarily thought to relate to heavy vehicles and factors determined by the weather. Although heavy vehicles are responsible for most of the damage, the phenomenal increase in road usage has also contributed significantly to the wear and tear of urban roads. The cost of this damage is not simply the cost of road repairs, but "the cost of discomfort and damage to cyclists, other motorists and their vehicles from poor road surface integrity" (Clinch & Kelly, 2001:6).

Time Loss
The major cost imposed by traffic congestion is usually found to be time; "queuing up for the use of a transport facility and slowing down in its consumption take up the user's time" (Button, 1993:118). This is a large cost to the Irish economy. Congested traffic leads to delays and undoubtedly contributes to drivers' stress and anxiety (Johansson-Stenman, 1999). According to IBEC's Traffic Congestion Survey in 2006, some 89% of Irish businesses are affected by traffic congestion and this figure is higher, at 95% in Dublin.

What We Have Done?

'Engineering dominance' is distinctly evident in the Government's policy responses over the past few decades. Ireland is still in the investment phase; building roadways and railways. These activities generate substantial social costs at the expense of general traffic flow. The traditional outcome of "transportation planning exercises in Dublin has been a set of ambitious and expensive plans to expand capacity" (Keegan, 2003:105). The transportation strategy for 2001 to 2016, *A Platform for Change* is no different in this regard, being both predominantly ambitious and costly.

According to a progress report in the National Development Plan 2000 - 2006, the following positive developments to Dublin's transport network can be noted (National Development Plan, 2006). Significant upgrades continued to be made to Dublin's national roads in 2006 with an allocation of over €137 million, over €41 million was allocated for non-national roads throughout Dublin. The Dublin Port Tunnel was opened, improvements made to the Naas Road and the upgrading of the M50 is now under way. In 2006, Dublin Bus planned to purchase 100 replacement double-decker buses which cost €29 million, and by September over 80 of the buses were acquired. In the first six months of 2006, LUAS carried over 12 million passengers. There are now eleven Quality Bus Corridors (QBCs) constructed in the Greater Dublin Area and in 2006 €40 million was allocated to the Dublin Transport Office for the planned doubling of the QBC network. 5% of commuters in Dublin cycle (Dublin City Council, 2004). Dublin City Council's objective is to double that over the next seven years via the construction of 160 km of a strategic cycle network. In recent years, there has been a dramatic improvement in taxi services in Dublin from a customers' perspective as a consequence of market entry liberalisation. Towards the end of 2004, the city's taxi fleet consisted of 10,000 licensed carriers (ibid) as opposed to just 1,975 in 1995 (Keegan, 2003).

Recently, in November 2006, the Irish government celebrated the first anniversary of its investment plan Transport 21; a large transport investment plan for the years 2006 to 2015, costing the Irish taxpayer 34.4 billion euro. Dr. Sean Barrett of the Economics Department, Trinity College, Dublin states that Transport 21 is a "seriously flawed document" (ESRI, 2006). Barrett describes the plan as showing a "lack of any evaluation culture in the Department of Transport and its spending agencies" (ibid).

According to IBEC's Traffic Congestion Survey 2004, 45% of Dublin–based companies had a lack of confidence in the National Development Plan, compared to the 74% that lacked confidence in Transport 21 in 2006. IBEC Transport Director Reg McCabe notes that the "industry would like to see a number of urban congestion relief projects included in Transport 21" (O'Connor, 2006:32). Of course, the findings of a survey are not definitive.

The Irish Government has evidently invested heavily over the past decade to provide reliable and timesaving alternatives to private car commuting. Nonetheless, thousands of commuters and urban residents must endure chronic congestion in Dublin city each day. "Dublin buses operate in far worse traffic than any other European city, according to an EU-based public transport study" (Connolly, 2003). Is the government's response of continued and greater investment *ever* going to achieve an efficient transport network in Dublin? What the urban public now need is an incentive to

switch from the private motorcar to public transport, thus reducing congestion and benefiting society as a whole. Road pricing is a potential policy solution, having proven itself in both London and Singapore. It may well be Dublin's answer to congestion.

What We Have Failed To Do?

Economist Newbery (1990) describes road space as 'a valuable and scarce resource' that should be rationed by price. It has only recently been accepted that managerial measures such as "pricing are the correct solution to urban road-congestion" (Barrett, 2002). Road pricing is, it seems, the best method to internalise the undesirable costs related to congestion. Barrett comments that we have allowed the road pricing debate to be "dominated by negative critiques" (ibid), making the issue a tenuous one with policy makers.

Singapore provides a prime example of a successfully implemented road pricing scheme. The success of the scheme was largely due to the exemplary public transport system which includes a Metro. Dublin's lack of an integrated public transport system, gives substance to the argument that in the absence of adequate alternatives, road pricing in Dublin is politically unacceptable. However, under the government's National Development Plan 2000-2006 many alternatives have been provided as already discussed. Transport 21 also outlines vast investment in the public transport network, including the provision of a Metro line. IBEC strongly endorses the Dublin Metro project, "which can contribute massively to relieving congestion" (O'Connor, 2006:32).

Regarding equity considerations, Clinch argues that "higher tolls disproportionately affect poorer drivers" (Clinch and Kelly, 2001:16). This argument, however, ignores those who travel by public transport, as they cannot afford a car. Barrett argues that "road pricing does not harm low-income people because the bus will be the big gainer from creating a market for the first time in scarce urban road space of which it is an efficient user" (Barrett, 2002). Low-income people will benefit from less congested routes and faster journey times, thus enduring a lower journey cost overall.

Fears that road pricing will merely result in a transferral of the congestion problem to just outside the pricing zone, also causes opposition. Barrett refers to this problem as "The Ranalagh Problem". People will start to perform U-turns to avoid the charge and further congestion will result. However in the London case, fears of this kind were unfounded and the pricing zone was recently further enlarged. In London, "higher traffic levels did not materialize, at least partly as a result of improved traffic management

systems that adjust traffic lights to manage the flow of traffic on and approaching the ring road" (Leape, 2006:167).

Success of London's Policymakers

As early as the 1960s, the road congestion problem was underlined in the field of economics in the Smeed Report (1964). Around this time, Vickrey (1958, 1963) and Walters (1961) formalized Pigou's (1920) ideas on the application of marginal social cost pricing to the case of congested roads. The report recommended the introduction of road pricing in London. Road pricing is a system of charging drivers for travelling through certain urban areas. It was not until forty-three years later, innovator Ken Livingston introduced the economic concept of pricing away congestion into London, and proved the system to be a phenomenal success. The introduction of the London congestion charge is "a triumph of economics" (Leape, 2006:158). Leape describes it as representing a "high-profile public and political recognition of congestion as a distorting externality and of road pricing as an appropriate policy response" (ibid).

The charge has had a significant impact on congestion levels. One way to measure congestion is in terms of minutes of delay experienced compared to an un-congested travel rate. Using this measure, congestion has fallen an average 30% from the start of the charge in February 2003 to mid 2005 (Transport for London, 2005:14). "The drop in congestion levels, and increase in average speeds, reflects mainly a decrease in queuing time at junctions" (Leape, 2006:166).

Pricing had a favourable impact on public transport in London. The congestion charge sought to reallocate road space from private motor vehicles to public transportation. The higher price of rush hour car travel induces many to switch to public transport. This is the incentive Irish policy lacks to urge Dublin people to change their mode of transport. The switch to public transport reduced congestion and led to increased travel speeds for buses which in turn further encourage patronages while also reduced average costs per passenger to transport providers (Leape, 2006:166).

In the most recent detailed estimates drawn from Transport for London (2006:171), the total estimated social annual costs of the congestion charging scheme are £163 million, while the total annual benefits are £230 million. The case for congestion charging is clearly "overwhelming" (Wolf, 2007:15).

Despite London's phenomenal success in reducing congestion, the general public are still feeling the pain of paying for space that used to be

free. On February 15th 2007, 1.5 million people had signed the Downing Street petition that argues that "road pricing is already here with the high level of taxation on fuel" (ibid). Wolf questions, "can 1.5 million people be wrong? Yes, they can" (ibid). Wolf explains that the tax that drivers pay on fuel is an efficient way to encourage people to buy fuel-efficient vehicles and reduce emissions. It is not an efficient way to reduce congestion. "It is a principle of economics and common sense that one needs two stones to hit two birds" (ibid). If the objective is to cut emissions and congestion, one needs a fuel tax and road pricing.

Conclusion

The answer to Dublin's traffic congestion lies in pricing. This will reduce the traffic on the roads, while maintaining the flow of people. We should seek a shift in preference from the private motorcar to other more efficient available modes. Road pricing has the power to make public transport and other modes relatively more attractive to the private motorist.

The numerous costs of congestion to our society and environment have been discussed, the Government's current and past policy solutions have been explored and the results can be easily observed – widespread chronic congestion. There is an overwhelming case for pricing to solve this problem, provided it is part of an integrated approach to investment in roads and development of public transport. In London, it took the courage of Mr. Livingstone's convictions to initiate the policy solution. Does Ireland have such a politician? Only time will tell.

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