Transport Demand

Executive Summary

This report examines the demand for transport in Ireland. The emphasis is on identification of the spatial distribution of demand and the shares of different modes of transport. Consideration is also given to the future level of demand.

From the point of view of the development of a National Spatial Strategy, car ownership levels will largely determine the extent to which the capacity of regional and inter-regional road infrastructures will come under pressure, necessitating both further investment in road infrastructures and measures to encourage a transfer to public transport modes. This study presents forecasts of car ownership at the national, regional and county levels.

Freight Traffic: Modal Shares and Spatial Distribution

Based on available data, the rail share of total traffic for 1994 is estimated at 9.77 per cent of tonne kilometres and 3.8 per cent of tonnes carried. The rail share of total traffic declined during the 1980s (in terms of tonne kilometres), but has apparently stabilised since then. These figures understate the rail share in the long-distance freight market in which it largely competes. If the rail system is regarded as competing in the greater than 150 kilometre freight market only, its share in tonne kilometres rises to 19 per cent.

In spatial terms, the bulk (70 per cent) of road freight movements is intra-regional involving short trip lengths. Inter-regional flows are dominated by the East sub-region, which accounts for 30 per cent of all tonnes originating and terminating. Thus, the major flows are to and from the East sub-region.

Rail freight movements are focussed on Dublin to a considerable extent. However, there are significant movements that are not Dublin originating or terminating.

Passenger Traffic: Modal Shares and Spatial Distribution

Total passenger kilometres of travel are estimated at 56,140m in 1996. Over the period 1987-1996, passenger kilometres have been growing at rate of 5.4 per cent per annum. In 1996, road modes accounted for 97.7 per cent of all passenger kilometres, with the rail mode accounting for the residual 2.3 per cent. The rail share is estimated to have declined by just over 30 per cent in the nine years. The private car accounts for 87 per cent of all travel, and is tending to increase its share.

However, the rail market share is significantly higher in some markets, particularly the inter-urban market. For example, it is estimated that the rail share of travel between Dublin and the cities of Cork, Galway and Limerick is more than 25 per cent.

There is considerable variation in road traffic volumes on the National Road system. In the approaches to cities and towns, volumes increase significantly and then decline between towns. Simulation of origin-destination flows indicates that the major town-to-town flows are between Dublin and the major urban areas. The only other large flows are between Cork and Limerick, Cork and Waterford, and Limerick and Galway. Inter-city flows are low relative to the average traffic level on interurban route sections.

Almost 80 per cent of inter-county rail trips originate in the SE region. This is because of the nature of the rail system and the distribution of the population. Dublin and the Mid East sub-regions dominate, with 63.2 per cent of all trips originating in these two sub-regions.

With regard to rail, the major rail passenger movements are between Dublin and other counties particularly those in the Mid-East sub-region i.e. they are radial in nature. This pattern partly reflects the increased use of mainline rail services for long distance commuting to Dublin. Use of suburban rail services is undergoing a significant increase.

Passenger movements between counties other than Dublin are much lower. The top ten such movements account for only 0.4m trips or 4 per cent of all movements. The only non-radial routes that figure are Cork-Kerry and Cork-Limerick.

National Car Ownership Forecasts

There are now almost 1.2m private cars in the country and car ownership has exceeded 50 cars per 100 persons for the first time. It is predicted that, over the period 1996-2001, car ownership will increase by 50 to 55 per cent, depending on the saturation level adopted.

Car numbers are expected to double between 1996 and 2016, from 1.1m to 2.1m. For the period 1996-2001, car numbers are expected to grow at 5.2 per cent per annum, falling to in excess of 4 per cent in the period 2001-2006. In the more distant future, the growth rates will fall to around 2 per cent per annum. Over the period 1996-2016 as a whole, car numbers will grow by some 3.5 per cent on average.

Regional and County Car Ownership Forecasts

There is little difference in car ownership levels between the BMW region (49.5 cars per 100 adults) and the SE region (51.7). The rate of growth in car ownership over the period 1981- 1998 has also been similar at 27.6 per cent and 28.6 per cent respectively. The Border sub-region has the lowest car ownership level (47.1) followed by the Dublin sub-region (48.0). Car ownership is highest in the Mid-East (55.2).

Based on a saturation level of 90 cars per 100 persons, the BMW region will have 529,800 cars in 2016, while the SE region will have 1,608,400, representing, in each case, a doubling of car numbers.

One of the interesting features of the results is that because by year 2016, saturation will be fast approaching, there is a levelling up of car ownership across counties. This means, in turn, that in the long term the population distribution will be more important than income levels in determining differences in growth in car numbers across counties and regions.

The strength of the county car ownership model employed in this study is that it can predict the impact of different spatial distributions of populations and incomes. When regional population projections become available from other studies within the National Spatial Strategy, it will be possible to assess their impact on future car ownership, car numbers and car travel.

Travel Forecasts

Increases in car numbers may not translate into corresponding increases in car travel if average car use declines. However, there is no evidence as yet to support this view. In these circumstances, the best approach may be to assume that the projected increase in car numbers represents an upper limit in terms of growth in car traffic.

Apart from cars, goods vehicles are the other principal constituents of road traffic. A recent forecast of goods vehicle kilometres is available which forecasts an average 2.3 per cent rate of growth up to the year 2011.

A traffic growth rate of 3.3 per cent per annum is predicted for the period 1996-2016 as a whole.

Iarnrod Eireann predicts an increase in demand for mainline rail passenger travel of 24 per cent between 1999 and 2005, or 3.7 per cent per annum. As the prediction of car numbers (and thus car travel) is for an increase of just over 4 per cent per annum in the same period, the implication is that the rail modal share may continue to slowly decline. However, the future rail modal share will reflect the extent to which new and expanded services are introduced.

Future rail freight traffic growth is likely to be dependent on the expansion of industrial sectors with low value to weight goods. The prospects for a significant increase in rail freight traffic are not good.

Policy Implications

The current policy priority given to investment in transport infrastructure on radial routes is therefore warranted by the structure of transport demand. A high level of investment in inter-regional (non-radial) transport links would not be warranted by existing transport volumes. Such a policy must therefore be seen as a stimulus to regional development, not a reaction to predicted demand.

The relatively low modal share of rail in both freight and passenger markets raises questions about the appropriate role for this mode in the context of regional development. Unless, road infrastructure investment is matched by similar level of service enhancing investment in rail, the decline in the mode share of the latter is likely to accelerate.

The problem of urban congestion will be exacerbated by the doubling of car numbers expected over the period to the year 2016. Policies will be required to minimise car use, so as to ensure that urban road systems operate efficiently. A range of traffic management, public transport enhancement and sustainable land use policies, targeted largely at restraining local road traffic growth, will be required. In this situation, maximising the use of the rail mode, especially in a commuter context, will be a key issue.