What is induced traffic?

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Abstract. Investment in new or up-graded roads both raises the level and alters the pattern of accessibility over the whole area served by the road system. Vehicle-users will perceive the opportunities that this increased accessibility offers and respond in various ways, most of which can lead to more rather than less travel on the system. To the extent that travel increases overall, it can be said to have been induced by the road-improvement. Conversely, congestion as it spreads on the network will deter some travel and can be said to have a "traffic suppression" effect.

The purpose of this first paper is to spell out, as clearly as possible, what is meant by "induced" traffic and to relate its various components to the full range of behavioural responses by travellers. In doing so, it draws upon the recently published (December 1994) report by the Standing Advisory Committee on Trunk Road Assessment (SACTRA) and response by the UK Government. The paper concludes with some of the implications of induced/suppressed traffic for current methods of forecasting and evaluation of road investment, which are covered in more detail by subsequent authors.

1. Introduction

You must lie upon the daisies and discourse in novel phrases of your complicated state of mind. The meaning does not matter if it's only idle chatter of a transcendental kind.

Sir William Gilbert (1836–1911)

In June 1992, when SACTRA embarked on its most recent inquiry on behalf of the UK Department of Transport (DoT), doubts were already being voiced in some quarters about the wisdom of trying to match the predicted growth in traffic by continual expansion of the nation's trunk road and motorway networks. Over the two and a half years it has taken for the evidence to be collected and assessed, for the report to be written and for the Government to frame their response, these doubts have not only swelled in volume but have also begun to find official expression. The earlier report of the Royal Commission on Environmental Pollution (1994), for example, based their recommendation for a halving of the planned capital investment in new highways on the now widely-held argument that "new roads generate traffic". Strictly speaking, the corollary of this argument was the one invoked by the
Royal Commission, namely that “the future growth of traffic will be less than currently predicted, if fewer new roads are built”.

Publication of the SACTRA Report (on 19 December 1994) on this very issue, along with the Government’s considered response to it, was therefore timely and should do much to inform the political debate. Although the title of the report “Trunk Roads and the Generation of Traffic” is couched in terms of the popular argument and reflects the Department of Transport’s hitherto rather conventional view of the issue, the SACTRA Committee felt it important to define as precisely as possible the nature and scope of the “behavioural” consequences of new highways being opened to traffic. This is because any new road added to a network is, of course, designed to alter the accessibility, e.g., by reducing congestion, allowing faster journey-times or linking new origins and destinations. The behavioural consequences of this, however, are many and vary over time, with some consequences interacting with others. The mechanism is complex and covers not only the use made of the network itself, but the uses made of the land in the surrounding area served by that network.

In the course of spelling out these consequences, two things became abundantly clear:

- if the Report was to succeed in its bid to inform the political debate, then it must define its terminology in a precise and unambiguous way; and
- that the term “generated traffic” is already being used in ambiguous ways, neither of which accords precisely with the nub of the issue.

To avoid any confusion, therefore, the SACTRA Committee chose instead to adopt the word “induce” and rephrased the fundamental question of their inquiry: do new or improved roads induce traffic? The purpose of this first paper, therefore, is to enlarge on this definition of “induced traffic” as an essential precursor to resolving the debate.

2. The need for a sharper definition

Although there is this widespread belief that new roads “generate traffic”, that is, they encourage extra car or truck trips which would not otherwise be made, its likely causes are many and various. The resulting extra traffic could, for example, include more trips between the same origin and destination, or a change in the origin or destination (reflecting a decision to travel further to a more attractive place) or a shift from public transport to car. The proposition is that a poor quality of service on the road network discourages (that is, suppresses) traffic and that, conversely, when a network is improved or congestion relieved, extra traffic is induced.