

**Comment on 'The Value of Cost  
Benefit  
Analysis of Road Projects'**

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## THE VALUE OF COST BENEFIT ANALYSIS OF ROAD PROJECTS — A COMMENT

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In accepting the invitation by the editors of the *Quarterly Economic Commentary* to comment on Mr. Mansergh's paper it is hoped to show that his fears about cost benefit analysis and its use are unjustified.

His paper proposes two important changes in cost benefit analysis. These are the treatment of labour costs as benefits and taxes as a resource rather than as a transfer payment. Labour is treated as a cost in cost benefit analysis because the supply price of labour is positive. Workers require a positive sum in exchange for their labour.

Cost benefit analysis measures the benefits and costs *to society as a whole* from projects. The level of a project's benefits over its costs is the critical factor in evaluating the project. The division of the benefits between those accruing in tax revenues and elsewhere in the economy distributes the net benefits of the project. It neither increases nor reduces the level of net benefits from the project. Transfer payments, such as taxes, are therefore excluded from cost benefit analysis.

The proposed changes add two categories of benefit, labour costs and tax revenues, and delete one cost, labour. These changes would raise the rate of return on projects now rejected. They are thus inconsistent with the paper's recommendation that "a more rational result might be a reduction in the national enthusiasm for investment".

The paper claims, without supporting evidence, that there is "a tendency for COBA to support high cost strategies" and "a tendency to overstate user benefits".

Cost benefit analysis compares the costs *and* benefits of competing projects. The analysis of projects with wide differences in costs requires that high cost projects generate a return adequate to cover their incremental costs over low cost projects. Cost benefit analysis compares without bias what the paper describes as "expansionist" and "equilibrium oriented" investments. His fears that cost benefit analysis discriminates in favour of the former are without foundation although they are frequently expressed. No evidence is offered to support the assertion that cost benefit analysis leads to high cost strategies. He correctly states that this was not found by Barrett (1975/76).

### *The Results of the Naas Study*

Mr. Mansergh raises the issues of generated traffic, work-time savings, and

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the impact on public transport. His paper suggests two extra sensitivity tests.

It was our judgement that the Naas bypass would not generate traffic and that its use could be predicted from traffic volumes on the old route through Naas town. The traffic volumes on the bypass confirm that there has been no generated traffic at Naas. This has been announced at three seminars of the Institution of Engineers of Ireland (1984a, 1984b, 1985). It is surprising that the paper should criticise the Naas study on the basis of a problem widely known not to exist.

On work time savings the paper cites "a British study in the late 1970s [which] suggested that small time savings are difficult to use, because people's days are usually organised into a number of activities, and substantial time savings may be necessary, if an additional activity is to be fitted in (Heggie, 1979)". This article does not contain a study but the assertion that "the long distance haulier, travelling for six hours on an inter-urban route may be quite unable to make use of a half-hour saving, since his units of account may consist of indivisible journeys occurring in 4, 5 or 6 hour blocks" (Heggie, 1979). Irish hauliers are flexible in their operations. Between 1980 and 1982 their average mileage per vehicle increased from 32,548 to 39,198 per year. In a competitive economy, hauliers acting in the way described by Heggie would lose business as would industrial and commercial concerns using such hauliers.

The Naas Bypass Study shows that some 750,000 public transport users will benefit from the bypass in the base year on bus journeys.

Nine sensitivity tests were used in the Naas study. Mr. Mansergh proposes two additional tests to "cast light on the issue of traffic generation". The tests exclude time savings above the legal speed limit and time savings from speeds in excess of 45 mph on rural roads and 20 mph on urban roads. Illegal benefits were not included in the Naas study. The second test ignores the valuation placed on time savings by the beneficiaries, which cost benefit analysis seeks to measure. Neither test refers to generated traffic.

#### *Recent Developments in Transport Economics*

The paper's criticisms of the Naas study rely exclusively on British references which pre-date the Leitch Report (1977). The eleven references cited are on average eighteen years old and include two which are twenty-seven years old.

The Leitch Report was commissioned by the British government to examine all aspects of inter-urban road investment including the criticisms cited in the paper. According to Leitch "COBA, provided it is kept within the overall framework suggested, we believe to be basically sound." The Naas study incorporates the findings of the Leitch Report. The absence of a reference to Leitch in the paper is surprising since it deals with the pre-1977 objections to COBA and established the evaluation framework used today.

Reference to more recent literature would also have avoided the incorrect diagnosis of schizophrenia among economists who accept the results of the Naas study but question the benefit-cost ratios of urban motorways. The analysis differs in each case.

COBA is not suitable for the evaluation of large urban road schemes because of "the intricacy of urban road networks and traffic movements, the tendency for the increased supply of urban roads to generate new demand which affects

the level of congestion, and hence costs, for existing users; the competition from alternative forms of transport, especially acute urban environmental problems and a more sensitive interaction with land use" (Gwilliam and Mackie, 1975). These are more complex factors than those analysed in the Naas study and we lack shadow prices for many of them. Leitch found that "the techniques of assessment for urban schemes have not been standardised to the same extent as for inter-urban schemes. There is thus no single procedure that we have been able to review". The difficulties of achieving a comprehensive evaluation of urban road investment, and regulation as an alternative to investment, are examined in Barrett (1982) and Barrett and Walsh (1983).

The call in the paper for more public funding for "community car pools, local collective taxi services in areas not served by bus, cycleways and bus priorities" also neglects recent developments in transport economics. The proposed schemes for subsidy are already in operation and in some cases have not required public funding. There is no evidence that there would be an acceptable return on further public funds in these areas.

Car passengers and car pools accounted in 1982 for 11.6 per cent of all journeys to work, exceeding the bus (10.8 per cent) and train (1.5 per cent) (Feeney and Hynes, 1984). Shared taxi services in Belfast and Derry carry an estimated 23 million passengers a year (Barrett and McLoughlin, 1984). The Dublin Transportation Task Force already operates an evaluation scheme for buslanes and cycleways (Chidgey, 1985). Busways to Tallaght and Dundrum have been sanctioned (Department of the Environment, 1985).

#### *The Policy Implications of the Naas Study*

The paper interprets the policy implications of the Naas study to support an inter-urban motorway construction programme. It states that, while this programme might not be an explicit part of current government programmes for roads it is likely to occur because of bureaucratic and professional pressures. Cost benefit analysis, in Mr. Mansergh's opinion, would facilitate such an expanded motorway programme.

These propositions are not consistent with the findings of the Naas study, stated public policy on roads, and the nature of cost benefit analysis. The Naas study concluded that "the positive rate of return on the Naas bypass suggests that similar projects might be examined for other congested towns on the national primary network such as Newbridge, Athlone, Ballinasloe, Roscrea, Nenagh, and Arklow, including studies of less expensive inner relief roads such as that at Portlaoise . . . . in the difficult circumstances of the Irish public finances it is important that the appraisal should not exclude low cost solutions such as inner relief roads" (Barrett and Mooney, 1984).

Only two motorways are scheduled for commencement before the end of 1987 according to the Policy and Planning Framework for Roads (Department of the Environment, January 1985). These schemes are the Newbridge bypass and the Dublin Western Ring Road. The paper does not discuss either project although they represent what is for him the public section of an undesirable policy. In assessing criticisms of road investment policy it is important to refer to the January 1985 statement of that policy. Fifty-two of the fifty-four schemes proposed are non-motorway schemes. The standard road proposed for the 302

kilometres of national routes to be improved is a 7.3 metre carriageway with a three metre paved shoulder on either side. This is not referred to in the paper.

As an insider in local government Mr. Mansergh has an advantage over the authors of the Naas study when he speculates that unpublished motorway building plans currently exist. In the absence of examples the economic aspects of such projects are impossible to assess. However, there is no reason to suppose that, on going public, the plans would meet the criteria of cost benefit analysis. Systematic traffic counting programmes operate for each link of the national primary route network. The results are published by An Foras Forbartha. It would thus become immediately obvious if a level of expenditure on any link were proposed not appropriate to its traffic volumes.

Cost benefit analysis examines projects from the point of view of society as a whole rather than from the perspective of particular lobbyists in society. It does not of course eliminate the activities of groups such as the roads lobby which is described in some detail in the paper. Cost benefit analysis makes explicit the assumptions underlying public expenditure proposals and increases the information available to decision makers when they are subject to what the paper calls "organisational and professional pressures to seek the most expensive scheme standing a reasonable chance of funding". To reject cost benefit analysis, as the paper proposes, would weaken the position of the decision maker *vis-à-vis* the lobbyists whom Mr. Mansergh opposes.

Road investment in Ireland has been one of the most advanced sectors in the use of public expenditure evaluation techniques. The coverage of the analysis has improved steadily since the early studies of the Naas dual carriageway (O'Keefe, 1962) to the recent study of the Newry-Dundalk route (An Foras Forbartha-Transport and Road Research Laboratory, June 1984). There is a systematic programme of traffic counts, infrastructure inventory and recording of accident data.

The 1985 Public Capital Programme states that "some progress — but not enough — has been made during the year in having departments and agencies generally apply the Department of Finance guidelines and the Department is pressing forward on this point with them". The Programme praised "notable developments" in two areas of public expenditure appraisal, roads and industrial grants. This is an assessment of the value of cost benefit analysis of road investment in Ireland with more supporting evidence than the case put in the paper.

To recapitulate, Mr. Mansergh's treatment of labour costs and tax revenue is incorrect. He mistakenly believes that cost benefit analysis has a bias in favour of large projects. He neglects recent developments in transport economics and the results of the operation of the Naas bypass. It has not caused generated traffic and has not neglected public transport users.

The findings of the Naas study did not favour an interurban motorway programme nor is this government policy. A national interurban motorway programme would not satisfy the criteria of cost benefit analysis without a large increase in real incomes, to which the value of time savings is linked, and a large increase in traffic volumes. In the meantime discussions of public policy should involve the latest knowledge of theory and fact and refer to actual rather than imaginary policies.

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### Editors' Note

In thanking both authors for their contributions, we believe that this debate has raised several important questions which need to be examined further. Among the more important of these unresolved issues are the definition of the correct shadow-price for labour in an economy with heavy unemployment, the establishment of mechanisms to ensure the capture of an adequate proportion of the social benefit of a project as a cash flow to service the debt incurred, the achievement of a satisfactory balance between expenditure in different fields of social infrastructure, and the avoidance of any risk that cost benefit analysis could be mis-used to justify inappropriate "gold-plated" projects. These are all matters of real practical relevance to the quality of public decision-making.