

COST BENEFIT ANALYSIS - SCIENCE OR SOPHISTRY? - VERSION 2

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What is cost-benefit analysis?

Cost-benefit analysis applied to large public schemes such as motorways or airports puts monetary values both on the costs of construction and on such intangibles as time saved, noise, accidents and deaths caused, all these normally based on forecast traffic loads. The best scheme is the one which "saves" most of this "funny money".

Fantasy forecasts

J.C. Tanner, a leading DoE/DTP traffic forecaster, states: "policies based on low forecasts would discourage traffic growth" (Letter in Town and Country Planning, February, 1975). In plain English, the traffic level forecast can only happen if the airport/motorway is built for it and not otherwise, and the "forecast" is nothing but a way of stating this simple fact in the "official obfuscation language". (o.o.l.).

Noise is peace

The Roskill Commission, in examining the Third London Airport, assessed the cost of noise by comparing market prices of houses near airports with similar houses elsewhere. On this basis, when the whole country is covered with a uniformly high level of noise, the cost of this noise will be found to be zero.

Death is dollars

The Roskill Commission assessed the value of a death as £9,300. This figure consisted of lost net output added to the funeral and other expenses associated with killing the person, with an additional £5,000 added to the sum so calculated. The £5,000 was needed as otherwise it would actually "pay" to kill those people, such as the old, whose expected future net output is so negative as to outweigh the costs associated with killing them. The pre-£5,000 planner aimed to kill as many oldsters as possible: the more humane post - £5,000 planner will merely prefer killing oldsters.

The reverse Robin Hoods

Roskill decided that in assessing the value of time saved, the time of richer people was worth more. In assessing costs of noise, Roskill observed that more expensive houses depreciate more than cheaper ones. Hence cost-benefit-driven planners must choose the scheme which speeds the rich more than the poor, while affecting the poorer area more, and as, we have seen, killing more of the older.

Why cost-benefit analysis?

- 1) To provide an o.o.l. for defending a policy of using the money of the poorer to damage and even kill them for the benefit of the richer.
- 2) To ensure that no objector to any scheme can gain a proper hearing unless he can state his objection in o.o.l. terms.
- 3) To ensure that the o.o.l. is such that the objection will always fail or, at best, lead to a marginally modified scheme.

Can cost-benefit analysis be improved?

When King Nebuchadnezzar asked the Chaldeans and other wise men of Babylon to tell him what he had dreamt, they at once answered that there was no-one on earth who could answer such a question and "therefore there is no king, lord, nor ruler, that asked such things at any magician or astrologer or Chaldean". When planners accept that traffic forecasts are meaningless and that noise and death cannot be valued, they will have become as enlightened and unsuperstitious as the magicians of Babylon.

What can be done?

Science can say roughly how much noise and how many deaths would result from a given traffic level, but it cannot say what the traffic level would be or what the noise and deaths cost. It is therefore worth finding out in broad terms what the effects of various schemes (and no scheme) would be, assuming two or three traffic levels (say, low, medium and high). These effects should be given in their own units (say, number of deaths per century, number of houses with more than a given noise level) or at least as a score where the present level is 1 or 100. Effects of a scheme can be commoned up to a certain extent, but if this is done too much the evil effects of cost-benefit analysis will result to some degree.

Assessing Archway

The Archway Inquiry of 1977 (following the 1973 and 1976 ones) gave rise to controversy and even demonstrations because at first the Inspector allowed the Department of Transport to obfuscate, and he even tried to hold the Inquiry in a closed bunker excluding nearly all those affected by the scheme. But after lengthy hearings he agreed the objectors' case, ruled that the Department's traffic figures were phony (as they had to admit themselves), and ordered them to show exactly how they had derived both their traffic forecasts and economic benefit figures. The Department refused to obey his orders, and abandoned the Inquiry so as to rid themselves of an Inspector who had become independent, and have since been busy spreading smears about objectors to cover this up. (Refer to cuttings from the "Ham and High", and the Hornsey Journal. This case alone shows the essential falsity of claims made for DTP-style cost-benefit analysis, as its proponents are not prepared to disclose how the black magic machine operates.

Assessing Archway - how to do it

Below is a possible table for the Archway scheme as outlined in "what can be done?" above. It analyses three strategies - the DTP scheme, doing nothing, and not building a road but introducing some traffic restraint and improvements in public transport etc.. The three strategies are analysed for a "low traffic assumption" - that overall traffic will stay about the same, and a "high traffic assumption" based on the DTP forecasts (discredited though they were). This can be described as a BETA (benefit-time analysis).

| | Low traffic assumption | | | High traffic assumption | | |
|--------------------------|------------------------|-------------|----------------------------------|-------------------------|-------------|----------------------------------|
| | Widening | No widening | No widening + restraint, etc. | Widening | No widening | No widening + restraint, etc. |
| Capital cost | £35m | | £1m | £35m | | £1m |
| Homes destroyed | 150 | | | 150 | | |
| Homes affected | 5,000 | | - 2,000 | 10,000 | 2,000 | - 1,000 |
| Acres of concrete | 100 | | - 5 | 150 | 25 | - |
| Road deaths/century | 40 | 50 | 20 | 200 | 70 | 30 |
| Fumes and noise | 0.9 | 1.0 | 0.5 | 3.0 | 1.3 | 0.7 |
| Public transport | 0.9 | 1.0 | 2.0 | 0.8 | 0.8 | 2.0 |
| Shopping | 0.8 | 1.0 | 1.3 | 0.7 | 0.8 | 1.2 |
| Walking and cycling | 0.8 | 1.0 | 1.5 | 0.6 | 0.9 | 1.3 |
| Commuting for 10% | 2.0 | 1.0 | 0.5 | 1.0 | 0.8 | 0.4 |
| Commuting for 90% | 0.9 | 1.0 | 2.0 | 0.8 | 0.9 | 1.8 |
| Leisure journeys for 25% | 1.5 | 1.0 | 0.9 | 1.1 | 0.9 | 0.8 |
| Leisure journeys for 75% | 0.9 | 1.0 | 1.4 | 0.8 | 0.9 | 1.3 |
| Greenery | 0.5 | 1.0 | 1.2 | 0.4 | 0.9 | 1.1 |

Discussions of Archway BETA table

- 1) The entries need not be precise to more than one significant figure.
- 2) At any Inquiry a BETA table should be agreed. A proposed BETA table can be appreciated and criticized by almost anyone; cost-benefit analysis by almost no-one.
- 3) Preparing the BETA table is quite cheap and needs little technical knowledge. In many cases it could be done at the Inquiry by the Inspector questioning an experienced assessor and discussing his estimates with those present.
- 4) Once the table is agreed - and if agreement is impossible alternative ones can be drawn up - the decision-maker must be called in.
- 5) The conclusions can be stated in outline verbally: "The Archway motorway means slightly faster journeys for a few commuters, slower for the rest, makes travel worse for those without cars and greatly damages the environment". It is the political decision-maker who has to weigh up one factor against another.

The Guardian convinced?

I give below a table from an article by Lesley Grant-Adamson in the Guardian of 26th November 1979 on the third London airport. This is certainly as useful as the 10-volume £1m+ Roskill report in reporting facts, and is a lot clearer. It doesn't go all the BETA way (1) In not considering alternative traffic levels (2) In not considering the effect of doing nothing, or of other no-airport strategies.

| | Final cost (£) | Phase one open (years) | Nos. in lose homes | Nos. severely affected by noise | Bases threatened | New homes required | Cost of road & rail links (£) |
|-----------------------|----------------|------------------------------|-----------------------|---------------------------------------|---------------------|-----------------------|-------------------------------------|
| Hoggston | 1630m | 16 | 200 | 4,900 | 3 | — | 280-305m |
| Langley | 1600m | 15 | 740 | 1,000 | 7 | 75,000 | 250m |
| Maplin Sands | 1695m | 20 | — | — | 4 | 42,000 | 370m |
| Foulness Island | 1660m | 20 | 300 | 100 | 4 | 42,000 | 370m |
| Stansted | 1235m | 10 | 1200 | 23,300 | 4 | 70,000 | 210m |
| Willingale | 1500m | 14 | 440 | 8,000 | 6 | 57,000 | 175m |
| Yardley Chase | 1900m | 16 | 100 | 10,000 | 7 | — | 285-310m |

Abolishing cars - another BETA case-study

There are about 200,000 miles of roads in Great Britain, of which 50,000 miles are B class or better, and nearly everyone lives on or near such a road. If cars and lorries were largely prohibited except for taxis, invalid cars, delivery vans and other exceptional users, public transport would operate far better and more cheaply, and conditions for pedestrians and cyclists would change from inhuman as at present to pleasant and promoting more speed. Currently passenger transport of all kinds runs about 10^{11} vehicle miles per year. If instead a public service vehicle (bus, tram, train as appropriate) ran up and down every road of B class or better every five minutes, day and night, about 10^{10} vehicle miles would be needed. The no-car system would give good transport to everyone, while the current system delivers fairly good transport to the one-third of the population with good access to a car. Much of this one-third would be better off too for most journeys. The much lower costs of the no-car strategy can be explained by (1) an order less mileage (2) two orders less vehicles, so far less depreciation (3) an order less spending on roads. The BETA table is useful in separating actual and environmental costs and transport benefits, and in not muddying the whole issue by built-in assumptions that cars are inevitable. It could be separately shown that the money subsidy to private motoring is now (1980) at about £8,000m per year, this being made up of road construction, maintenance, policing, allowing for land cost and past investment (as is done for rail), tax allowances on company cars, and the Leyland rescue. Realistic fares on the no-car strategy would be (1980) about 2p per mile, far below present levels, and need no subsidy. The author accepts that figures quoted here are liable to debate, but maintains that BETA makes debate possible.

| | 1980 Current | 1980 No cars | 2000 Current | 2000 No cars |
|---|--------------------|--------------------|--------------------|--------------------|
| Annual passenger-miles | 3×10^{11} | 4×10^{11} | 5×10^{11} | 6×10^{11} |
| Annual vehicle-miles | 10^{11} | 10^{10} | 2×10^{11} | 10^{10} |
| Total cost - user and subsidy (£) | 2×10^{10} | 5×10^9 | 4×10^{10} | 5×10^9 |
| Of which subsidy (5) | 8×10^9 | - | 10^{10} | - |
| Commuting transport benefit for 10% | 100 | 60 | 80 | 50 |
| Commuting transport benefit for 90% | 100 | 200 | 60 | 200 |
| Leisure transport benefit for 20% | 100 | 50 | 80 | 50 |
| Leisure transport benefit for 90% | 100 | 150 | 80 | 150 |
| Transport megadeaths per century | 1 | 0.1 | 1 | 0.1 |
| Population suffering noise at 65 dB(A), L ₁₀ (%) | 50 | 5 | 70 | 5 |
| Pollution | 100 | 60 | 130 | 60 |
| Oil use (tons) | 2×10^7 | 2×10^6 | 3×10^7 | 2×10^6 |
| Cycling and walking benefits | 100 | 300 | 70 | 300 |

Conclusions

BETA says all that science can say by making the issues involved in the choice of schemes as clear as they can be made. It shows who would be planned for and who would be planned against; who is being planned into a smooth car ride and who into a coffin. If we want clarity cheaply, BETA is the answer. If we want costly obfuscation, cost-benefit analysis delivers it.

The opinions expressed above are my own and do not represent ICL policy.

Thanks to Denning

PUBLIC OPINION, otherwise known as the power of the people, is neither impotent nor dead. Though individual small protest groups may despair when they find themselves embattled with government, they are the very basis of the democracy in which we live and their existence is vital to its health and welfare.

For instance, those who have fought the battle of Archway Road, Highgate, where the Department of Transport has attempted to foist its view on an unbelieving public, will undoubtedly welcome last week's decision by the Court of Appeal.

Indeed, the DoT's motorway and trunk road programme is in disarray following the decision of Lord Denning, Master of the Rolls, to quash the order approving the building of sections of the M40 and M42 on the outskirts of Birmingham.

In doing so, Lord Denning, regarded in legal circles as something of a maverick but one, nevertheless, who wields considerable power, sliced through the nonsenses that have brought public inquiries into disrepute.

He maintained—and we say rightly—that virtually no government ministry can demand the green light for its policies unless it provides the evidence to support such policies, and that they are properly questioned and tested.

This, of course, is exactly what Mr Ralph Rolph, the last Archway inspector, determined. He ordered the DoT to produce the facts on which it based its traffic forecasts, but the DoT steadfastly refused to do so.

No wonder that Lord Denning declared that there has been a deplorable loss of confidence in public inquiries, the public now believing that the inspectors conducting them being nothing but rubber stamps.

Yet government is obstinate. Despite Lord Denning's view that the DoT should not take its case to the House of Lords, it has ignored his advice and its appeal to the Lords will be heard in November.

That is typical of the arrogance of government. For the DoT had claimed that its minister "was empowered to confirm the orders without any evidence having been called before the inspector in support of such confirmation."

If you take that statement to its logical conclusion—and it affects far more than the building of roads—then there is every reason for concern that democratic rights are to be trampled upon and violated.

Similarly, those who voted for the Thatcher government, we believe, do not appreciate the mandate they have given it to change radically the basis of our society, whether the intentions are allegedly good or not, and have many shocks in store.

Lord Denning may believe that he has struck a blow for justice. We sincerely hope he is right. But our suspicions are that those with legitimate grievances must not be lulled into a sense of security. None exists.

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Where are Archway figures? STAMP demand

HOOLIGANS rule in the Department of Transport, according to Archway Road objector, George Stern.

Mr Stern, press officer of STAMP, is angry that traffic figures ordered during the inquiry have not been released.

Asking Transport Secretary Kenneth Clarke for an urgent meeting, he writes: "The issue we want to discuss with you is not Archway: it is the flouting of the Rule of Law by the hooligans in your department who are defying both the Archway Inspector and now the Court of Appeal by not supplying the information the Archway Inspector ordered".

He continues: "We understand that there has been contact between the department and Hugh Rossi and certain members of the Minority Group of Haringey Council: in the past these persons have not hesitated to make damaging remarks about us. We ask for a meeting to put our side of the case and to show you that all we want is to live by the orders of the Inspector".

HORNSEY JOURNAL
10th August 1979

LEADER, HAMPSTEAD AND HIGHGATE EXPRESS
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