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PERFORMANCE TARGETS IN TRANSPORT POLICY

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Abstract

The measurement of performance in the public sector has become increasingly important in recent years and it is now commonplace for transport organisations, and local and national governments, to publish performance goals for service supply and quality. Such commitments, when time referenced, are known as targets. This paper explain how changes in management style, consumer rights legislation, contractual obligations and other factors have combined to make management-by targets increasingly common in the public sector. The advantages and disadvantages of management-by-targets are illustrated through discussion of the processes and experience of setting transport targets in UK national transport policy. We conclude that while some of the targets have had a significant impact on policy makers, managers and their agents, the effects have not always been as intended.

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1. Introduction

The use of targets to assess the performance of, and report on, different aspects of government is becoming increasingly widespread within the public sector (NAO, 2001). The transport sector has, for the most part, followed rather than led in these changes. However, the assessment of transport system performance through targets is becoming increasingly widespread worldwide (FHWA, 2004; NCHRP, 2004; TIPP, 2004; Hidas and Black, 2002; Turner et al., 1999). Despite these trends there is little published evidence on the effect of targets on the performance of the transport sector.

This paper explores the motivations for target setting, reviews the processes that can be adopted in setting targets and, with particular reference to the targets incorporated in the UK Government's Ten Year Plan for Transport (DETR, 2000a), seeks to draw conclusions on the impact of targets on policy making and implementation. Although this paper concentrates on UK case studies we believe that the principles behind the conclusions drawn are universal and should be of wider interest.

Given the difficulties caused by ambiguous terminology in this field, we think it appropriate to begin by defining the terminology adopted in this paper (see Table 1).

Table 1: Terminology

Term	Definition
Objective	A succinct statement of the key goal(s) being pursued over the medium to long-term. May be expressed in terms of an input (q.v.) (e.g. “to invest in road safety”), an output (q.v.) (e.g. “to increase the provision of pedestrian crossings”) or an outcome (q.v.) (e.g. “to improve safety for all travellers”)
Input(s)	The resources that contribute to the production and delivery of an output. (e.g. <i>research, capital investment, running costs</i>)
Process	The means by which an outcome or output is to be achieved (e.g. <i>by adopting an integrated approach to transport planning</i>)
Output(s)	The immediate result of an action (e.g. <i>numbers of new-style pedestrian crossings introduced</i>)
Outcome(s)	The ultimate impacts of an action (e.g. <i>reduced number of road casualties</i>)
Performance indicator	A means of measuring performance (e.g. <i>number of fatalities per thousand vehicle kilometres per annum</i>)
Constraint	A limit on inputs or processes or a level of performance that an organisation feels it must achieve.
Target	The level of performance that the organization aims to achieve for a particular activity within a given timeframe. Usually relates back to an objective and may be expressed in terms of inputs (e.g. <i>investment of 1bn Euro in road safety during 2003</i>), outputs (e.g. <i>construct 1000 new-style pedestrian crossings in 2004</i>), or outcomes (e.g. <i>reduce the number of fatalities by 5% per year between 2003 and 2010</i>)

Source: loosely adapted from NAO (2001)

2. Motivations for the Use of Targets

The increasing use of targets reflects changes in management philosophy, in government’s view of its role and responsibilities and more general changes in society. Five principal motivations for the use of targets are suggested below.

2.1 Better management

The use of performance targets is widespread in the private sector where they are an integral part of the dominant management philosophy (Peters and Waterman, 1982; Kaplan and Norton, 1992; Gates, 2001). Performance measurement systems have been studied, particularly in the field of operational research, for many years (e.g. Kaplan and Norton, 1992). It is generally held that target-based performance management is essential to success in a commercial environment. A recent review (2GC, 2003, p2) concluded that “without target values, the utility of a performance management system is massively reduced”, and a survey of 113 major

companies across the world (Gates, 2001, p1) found that “*Measurement-managed companies consistently out-perform companies that do not use measures to manage*”.

Targets can be set by organisations for a variety of management purposes: to communicate the strategic choices taken; to define benchmark best practice activity levels or to set desired goals for attitudinal or cultural change (2GC, 2003). Management-by-targets suggests that, when given a clear goal, management and workers can be encouraged to focus their attention on the essentials to success and, by monitoring achievement of the target, can be motivated to succeed. Many organisations now make an explicit link between their employees’ salary and achievement of targets by means of performance-related payments or bonuses.

The effectiveness of targets in stimulating focussed achievement presupposes that the targets are ‘SMART’ (**S**pecific, **M**easurable, **A**chievable but challenging, **R**elevant to the organisation, and **T**ime bound), that the process of measuring outcomes and performance against targets is fully integrated into the business planning cycle and that they cover all significant areas of work (Commonwealth of Australia, 1996; HM Treasury et al., 2001). We examine the robustness of this assumption in the transport sector through the case studies in Section 4.

Performance measurement has found increased application within government partly because of the perception that government should conduct its business in a more disciplined, business-like, environment than was previously the case. Government can use targets to focus the minds of civil servants and to exercise control over agents and subsidiary authorities. Where continued funding is made dependent on the achievement of targets, this control over agents and subsidiary authorities can be given particular potency. Their use in the public sector also reflects the political, legal and consumer-oriented landscape in which public policy is made and enacted - as discussed below.

2.2 Legal and contractual obligations

Perhaps the most powerful motivation for organisations to develop targets, whether in the public or private sector, is the existence of legal or contractual obligations that give particular importance to the achievement of a given level of performance. These obligations may have been freely entered into, as is the case when a supplier negotiates to provide a guaranteed level of service to its client, or may be established in law.

In the transport context, performance targets related to punctuality and reliability, which will have been negotiated between the state and the transport providers as part of a service contract, can be regarded as contracts freely entered into. Other transport targets driven by legal requirements include environmental targets such as air quality or noise standards set by European and national administrations (e.g. DETR et al., 2000).

The existence of legal and contractual obligations, and the possibility of compensation claims, provides a clear stimulus to service providers to set, monitor and achieve targets which are no less stringent than those embodied in the legal obligation. Where the penalty for not meeting a legal obligation is significant in financial, moral or political terms, an organisation might regard meeting that obligation as a constraint rather than as a target (see definitions in Table 1).

2.3 Resource constraints

The provision of public services is constrained by the availability of money, materials, manpower and knowledge. Management theory suggests that, by using targets to focus on measurable achievements, efficiency in the use of resources is likely to be increased but, where the resources are strictly limited, reliance on indicators of output or outcomes will put pressure on the resource constraints. This may result in the targets not being met or in the constraints being broken – it being a political judgement as to which of these is the least damaging. An even more unsatisfactory situation can arise if targets are expressed purely in terms of inputs (e.g. “*we will invest x million Euros in new buses*”) because there is no incentive to ensure that the money is spent effectively and, since the target can be achieved most easily by increasing expenditure, resources are likely to be wasted.

An alternative approach is to set targets for outputs or outcomes which reflect the resource constraints. Setting the actual target level will require the kind of careful costing, analysis and planning which one might regard as the hallmark of a well-run organisation in the public or private sector. Of course, if circumstances change and the planning assumptions prove to have been inaccurate, the target may become unachievable. It is clear that consideration of resource constraints has particular relevance for the determination of the ambitiousness of the targets set within the performance management process. This is discussed further in Section 5.

2.4 Consumer orientation

User satisfaction with public services is of primary concern to an elected government. In their analysis of the principles of government Hjortdal and Schou (1994) argued that increased dialogue between public agencies and citizens was becoming an important new principle of organisation throughout the public sector. These concerns have been addressed primarily through the development of consumers’ (or citizens’) charters and through the publication of targets. The preamble to the Portuguese Charter is explicit in stating that “*The customer is the judge of quality, the citizen-customer is the focus of attention for the public services*” (SMA, 1995). The UK Government accepts that target setting should “include systematic monitoring of user satisfaction with public services” (HoC, 2003).

This dialogue requires government to know what the public want. Traditional political intuition is now supplemented by focus groups and surveys which

seek people's views on the current state of public services and their support for potential policy interventions. Correctly undertaken, satisfaction surveys can identify key issues in the provision of public services, quantify and track changes in the target group's satisfaction with the services provided and can identify the emergence of new problems. They can thus provide a basis for the definition of targets and for monitoring their achievement. However, recent research (Marsden and Kelly, 2005) has suggested that indicators of user satisfaction are poorly represented in the UK transport planning process. Other research has highlighted that, without careful questionnaire design, sampling and re-weighting, the results of such surveys can give a very biased picture of the public's concerns and aspirations (Bonsall et al., 2005).

2.5 Political aspirations

The political dimension to target-setting in the public sector is inescapable. Targets are a means by which politicians communicate policies to the electorate and differentiate themselves from their opponents – even at the risk of making it easier for opponents to point to any failures which subsequently occur. The use of targets in the public sector is not therefore a new phenomenon. The desire to set ambitious targets as a basis for election while avoiding a too public commitment to something which may prove unachievable creates obvious tensions.

The role of targets as indicators of political aspirations is inextricably linked to the question of political accountability in a democracy. Kelly and Snell (2005) reviewed developments of the use of information to achieve accountability within the UK parliamentary system and conclude that, whereas in the 100 years leading up to the second world war, the emphasis was simply on the accounting of inputs, post second world war the substantial increase in government expenditure led to debates about the size and complexity of the machinery of government and to “*a perceived lack of control and accountability*” (*Ibid.*, p9). Carter et al. (1992) hypothesised that increased emphasis on reporting was due to three main concerns: about public expenditure planning; about managerial competence within the Civil Service; and about accountability. Kelly and Snell (2005) note the significance of a 1972 decision by the Expenditure Committee of the House of Commons who decided that, in order to measure achievements against targets, emphasis should be placed on monitoring output indicators for individual service departments. As Carter et al. (1992: p7) put it ‘*for centuries parliament had fought to establish its right to examine...proposals for spending now it was fighting for its right to examine what the money actually bought*’. Targets in the transport sector have traditionally focused on the output of road or motorway construction (e.g. DoT, 1989) but, as we shall see, there is now a strong drive to relate targets to the core outcomes implied by the main objectives of each government or local authority department.

3. Approaches to Setting Targets

This section focuses on the practicalities of target setting, accepting that the targets themselves may be motivated by one or more of the reasons outlined

above. We identify three main approaches to target setting, two are evidenced, the third aspirational. This section uses case studies to indicate how they have been used in the UK transport sector.

3.1 Model-based

The first, and most rigorous method of setting targets, is to apply models of transport user and system interaction to examine how a given indicator varies under a range of different policy scenarios. This enables a realistic range of responses to be identified to provide the evidence base for picking a target. The success of such an approach relies on three factors:

- the ability of the model to reflect reality;
- the accuracy with which assumptions are made about how underlying exogenous factors will change over the period for which the target is being set; and
- the extent to which the policy interventions assumed to be in place are indeed implemented.

The first two aspects are an accepted feature of any modelling procedure. The third involves engineering and political judgement and is at the heart of determining the level for the target; ambitious assumptions about policy implementation will suggest scope for ambitious targets.

Some of the targets in the UK government's Ten Year Plan for Transport (10YP) (DETR, 2000a) were developed following a modelling exercise and, to assist with the transparency of the process of target setting, the government published the underlying assumptions and modelled outcomes around which the Plan was based (DETR, 2000b). Assumptions about the rate of economic growth, population change, household growth and household composition were consistent with forecasts from other Government departments. A further key assumption was that the underlying price of oil per barrel would fall from \$28 in 2000 to \$16 per barrel in 2010. In fact the rate of economic growth has been higher, and the price of oil much higher, than was expected.

To counter uncertainty about assumptions and policy implementation four alternative scenarios were run in addition to the core 10YP scenario, reported on in DETR (2000b):

1. Constant (instead of falling) motoring costs and additional investment
2. Wider take-up of local charging powers (80 cities outside London adopt local charging schemes (compared to 20 in the core scenario).
3. Road charging on the most congested parts of the interurban network to a maximum on 10 pence per kilometre.
4. All three scenarios combined.

Table 2 shows the range of outcomes forecast for the do-minimum, the 10YP and for each of the four scenarios. The table also shows the targets which were adopted. A discussion on the full list of targets adopted in the 10YP is included in Section 4.

Table 2: DfT model forecasts and targets for 2010 (as at 2000)

Indicator	% change on year 2000 levels						Target set for 2010
	2010 Baseline (do minimum)	2010 10YP	Scenarios – 10YP plus:				
			1 constant motoring costs	2 wider local charging	3 inter-urban charging	Scenarios 1, 2 and 3 combined	
Traffic kms	22	17	13	17	17	12	none
Congestion (all roads)	15	-6	-12	-7	-9	-15	none
Congestion on trunk-roads	28	-5	-11	-5	-20	-25	<0
Congestion in large urban areas	15	-8	-11	-8	-12	-15	<0
CO ₂	2.3	-2.9	-5.5	-2.9	-3.2	-6.5	None*
NO _x	-57.5	-58.5	-58.9	-58.5	-58.7	-59.4	None
PM ₁₀	-45.3	-45.3	-46.8	-45.8	-46.3	-47.3	None
Rail passenger kms	23	51	83	n/a**	n/a**	n/a**	≥50%

* No specific transport target was agreed although reference was made to the UK national commitment to reduce CO₂ emissions by 20% compared to 1990 levels.

** No forecast made

The targets set for congestion were for major urban areas and the inter-urban network as these were viewed as having the most severe problems. The model suggested that the targets were achievable under a range of circumstances. The target of a 50% growth in rail patronage was more stretching as it was dependent on capacity increases that would otherwise constrain growth and only allowed a 1% dip from projected patronage increases.

3.2 Extrapolation and evidence-led judgement

Not all indicators can be modelled, or modelled with sufficient accuracy for target setting. Equally, not all authorities can afford to develop and maintain transport models for their networks. Where such a situation arises the next most logical approach is to use extrapolation and professional judgement. Extrapolation is only possible if there exists a sufficiently long time-series of data, and even then it is important to identify random fluctuations and separate long-term trends from effects such as major policy interventions. The trend line can be used to estimate a baseline position and the potential impact of policy interventions can then be superimposed. Techniques such as benchmarking (Gilmour and Seagriff, 2004) and the use of data from knowledge bases such as KonSULT¹ or the TDM Encyclopaedia² and good practice guides (e.g. Cairns et al., 2004) can be used to estimate the potential

¹ <http://www.elseviersocialsciences.com/transport/konsult/index.html>

² <http://www.vtpi.org/tdm/>

impact of a range of policy interventions in a less formalised manner than would normally be the case with a traditional model.

Extrapolation and expert judgement is widely used to set targets for road traffic accidents. This reflects the general availability of excellent time series data on the occurrence of accidents and of substantial evidence on the extent to which policy interventions (such as accident blackspot treatment, speed cameras and vehicle technology improvements) might lead to reductions in accidents. The 1987 Strategy for Road Safety (DoT, 1987) was the first major example of outcome based target setting in UK transport. It set a target for a 33% reduction in casualties by 2000. The success of this target is reviewed in Section 4.2.

3.3 Aspirational

The third approach to target setting is based on aspiration. Aspirational targets differ from extrapolation and evidence-led judgement in that, although time-series data may be available, no strong evidence base exists on the likely behavioural response to changes in policy and investment. The targets set therefore reflect a best assessment of what *should* be achieved.

The development of the UK's national cycling targets provides an interesting illustration of this. The 1996 National Cycling Strategy (DoT, 1996) contained a target of doubling cycle use between 1996 and 2002 (and quadrupling it by 2012). The strategy was intended to create "a focus for organisations and individuals who are in a position to influence a change in physical conditions, the attitudes of individuals and the outlook of organisations." (*Ibid.*, p5) The targets were set against a background of a steady decline in cycle use and were, from the outset, regarded by outside observers as somewhat ambitious. The Strategy document made oblique reference to this with the words; "*For some organisations the prospect of doubling bicycle use may be a relatively straightforward commitment - for others it may appear to be an impossibility. It is hoped that all will establish challenging yet achievable targets, the cumulative result of which will realise the national aspiration*". (*Ibid.*, p16).

4. Recent Experience in the UK

Section 3 provided a review of three different approaches to setting targets within transport. Use of an appropriate approach will help to ensure that the target is achievable but, as the SMART framework implies, it must also be specific, measurable, relevant and time-bound. With these desiderata in mind, this section will review the UK experience with a series of transport targets over the past two decades. The first part focuses on national targets set within the 10YP and is organised according to the methodological approach introduced in Section 3. The second part indicates how these national targets have fed down to the local level.

Table 3 lists the targets set in the 10YP in 2000, indicates how they had evolved between 2000 and 2004 and records their status following a major review in July 2004 (DfT, 2004).

4.1 Model-based target experience

Section 3.1 described the apparently rigorous approach to the development of the congestion and rail targets in the 10YP. However, by mid-2002, only 12 months into the actual 10 Year Plan period, the credibility of the congestion and rail targets were being widely questioned (HoC, 2002).

On roads, it quickly became apparent that very few local authorities would introduce local charging (the 10YP had assumed that 20 would do so but, to date, only London and, in a very modest scheme, Durham, have gone ahead). At the same time, concerns were raised about the speed with which the anticipated roads programme would be completed (HoC, 2002) and the achievability of the targets was being widely questioned. Interestingly, none of the examined scenarios had assumed less than full implementation of the interventions envisaged in the 10YP.

The relevance of the chosen indicator of congestion was also being challenged. Goodwin (CPRE, 2001) highlighted its sensitivity to relatively small changes in actual journey times; he showed that small time savings could result in large reductions in the indicator's value and that relatively modest increases in journey times (due, for example, to policy implementation falling behind schedule) would produce massive increases in the indicator's value – neither of which outcomes particularly reflects the public's own experience of traffic conditions which, as was highlighted in Section 2, should be an important consideration.

As with the roads target, both the metric and the achievability of the rail target was criticised. The Passenger Transport Executive Group criticised the use of passenger kms as an indicator because it favoured the development of long-distance cross-country routes and London commuter services rather than the local commuting services that are important to the transport systems of other major cities (PTEG, 2002). More significant however was the serious rail accident in October 2000, just three months after the 10YP was published, when a high speed train left the tracks as a result of a broken rail causing several fatalities. Subsequent investigation revealed that the rail network was in a worse state of repair than had previously been thought and widespread speed restrictions were introduced on safety grounds – causing a deterioration in service reliability. It soon became apparent that the substantial rail expenditure which had been provided for under the 10YP would be swallowed in maintenance and that only a relatively limited expansion programme would be possible. These factors combined to interrupt progress towards the rail patronage target. The actual increases in rail patronage are shown in Figure 1 as are the do-minimum and 10YP target values. It is clear that performance is currently following the 'do-minimum' line and that the 10YP line is proving to be over optimistic.

Table 3: Evolution of Ten Year Plan Targets

Original Target (as in 2000)		Status pre July 2004 announcement	July 2004 statement/revised target (DfT, 2004)
1	Reduce congestion on the inter-urban trunk road network and in large urban areas in England below 2000 levels by 2010	No definition for congestion had yet been agreed (see Section 4.1)	The Department is developing better indicators of inter-urban and urban congestion and will publish new targets by July 2005
2	Increase rail use in Great Britain (measured in passenger kilometres) from 2000 levels by 50% by 2010 ¹ , with investment in infrastructure and capacity, while at the same time securing improvements in rail punctuality and reliability ²	Government had conceded that the extra capacity needed to allow a 50% growth in rail use is unaffordable (see Section 4.2)	The rail patronage target has been abandoned. The new rail target is to improve punctuality and reliability of rail services to at least 85% by 2006 with further improvements by 2008
3	Increase bus use in England (measured by the number of passenger journeys) from 2000 levels by 10% by 2010 ¹ , while at the same time securing improvements in punctuality and reliability. ²	On track due almost entirely to substantial increases in bus use in London which represents around 1/3 of the UK bus market (see Section 4.2)	The new target is to increase the use of public transport (bus and light rail) by more than 12 per cent in England by 2010 compared with 2000 levels, with growth in every region
4	Double light rail use in England (measured by the number of passenger journeys) by 2010 from 2000 levels	Increased tender prices had recently led to the suspension of many proposed schemes (see Section 4.2)	
5	Cut journey times on London Underground services by increasing capacity and reducing delays (specific targets were to be agreed by Mayor after the Public Private Partnership had been established)	The PPP deals were concluded during 2003 and the underground had become the responsibility of the Mayor. A whole suite of performance related targets were embodied in the PPP contracts but this is now seen as a matter of London governance. Performance against benchmarks had been mixed (NAO, 2004)	There is now no national target relating to the London Underground
6	Reduce the number of people killed and seriously injured in Great Britain in road accidents by 40%, and the number	On track across all categories of casualty (see Section 4.2 and DfT (2003a)	The target has been augmented by adding, <i>"tackling the significantly higher incidence in</i>

	of children killed or seriously injured by 50% by 2010 compared with the average for 1994-98		<i>disadvantaged communities</i> ".
7	Improve Air Quality by meeting our National Air Quality Strategy objectives for carbon monoxide, lead, nitrogen dioxide, particles, sulphur, benzene and 1-3 butadiene. Joint target with DEFRA	On track for all seven pollutants except NO _x and PM ₁₀ (but these too were "on a downward trend" (DfT, 2003a))	Unchanged
8	It ought to be possible to achieve an 80% increase in rail freight by 2010	Rail freight had increased by 10% in the first year of the plan but suffered through disruptions to the Channel Tunnel rail link. Insufficient funds were available to support the necessary freight infrastructure upgrading and there was a shortage of inter-modal interchanges	Target abandoned
9	Triple the number of cycling trips compared with a 2000 base, by 2010	A halt in the decline of cycling had been achieved (See Section 4.3)	Target abandoned to be replaced by a general aim, supported by as yet unspecified local targets, "to increase walking and cycling in the next 20 to 30 years"
10	Achieve a 1/3 increase in the proportion of households in rural areas within 10 minutes walk of an hourly or better bus service by 2010	Substantial increases had been reported	Local targets for bus service provision now encouraged
11	By June 2001, no more than 0.5% of bus services cancelled for reasons within operator's control	Not on target - 1.6 % of services cancelled in 2002/03 compared to 1.8% in 2000/01. Failure was related to a number of factors including labour market conditions	Incorporated into the new combined public transport target
12	Bring down the average age of buses to 8 years by 2001	This target had been met (DfT, 2003a) and a commitment had been given by bus operators to maintain this	There is a new target relating to low floor or accessible buses.
13	Reduce rail overcrowding to meet SRA standards	Rail overcrowding standards continued to be breached and there seemed little prospect of solving commuter overcrowding on the London network	Target abandoned

14	Maintain our strategic road network in optimum conditions	This target was being met.	The target is now specific to the Highways Agency
15	Provide sufficient resources to local authorities to halt the deterioration in the condition of local roads by 2004 and to eliminate the backlog by 2010.	The condition of unclassified local roads had continued to deteriorate although the backlog in other roads had been halted in line with the first target. There was considerable on-going debate about the true size of the maintenance backlog.	Target abandoned to be replaced by local targets
16	Invest £121 billion of public money by 2010	Extra resources had been pledged above the £121m already committed but less private finance had become available than was originally anticipated. Rail costs had risen significantly so it was unclear whether spend was rising in real terms	Not officially a target but the new total remains a clearly defined statement of investment intent

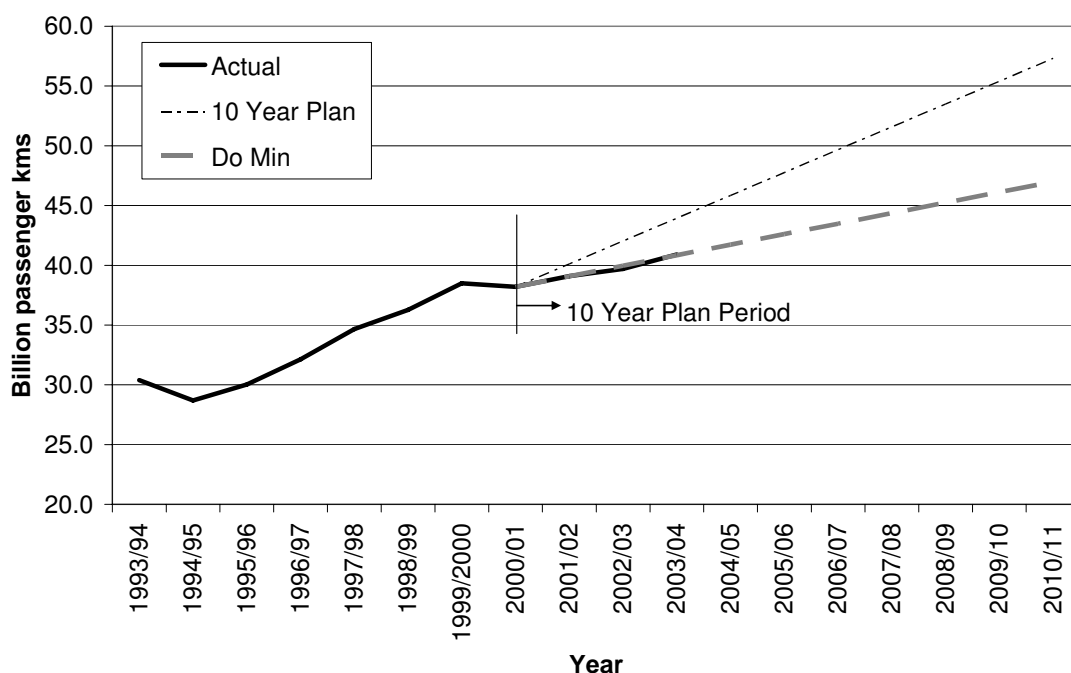


Figure 1: Changes in national rail patronage compared to year 2000 estimates

By mid 2002 it was becoming politically difficult to support the targets set in 2000 and, shortly after the introduction of a new Secretary of State for Transport in late 2002, the Department for Transport produced a revised version of the modelling underpinning the 10 Year Plan. It noted that whereas the modelling underpinning the 10YP had consisted of “*separate models for road and rail traffic, combined with forecasts from other models*” the revised model was fully multi-modal and contained some feedback between different parts of the model (DfT, 2003b, p4). The approach also differed with respect to the sensitivity tests. The initial 10YP modelling examined a series of scenarios which all gave more positive outcomes than the Plan itself whilst the revised modelling approach reported results in a range according to different input assumptions “*taking into account uncertainty over future behaviour and the impact of policies*” (*Ibid.*, p2). The baseline assumptions were revisited in the light of, for example, higher forecasts of economic growth than had seemed likely in 2000. The results were based on a series of assumptions for a low and high demand scenario that would fall either side of the baseline. Economic growth was varied $\pm 2\%$ and a range of assumptions were made about propensity to travel and responses to so called ‘soft measures’ (*Ibid.*, p13).

Table 4 shows the results from the new (2002) model runs alongside forecasts and targets dating from 2000³. It is clear that, even if all the 10YP

³ The presence of a substantially enhanced model structure with slightly different baseline assumptions makes direct comparison of results with the year 2000 estimates non exact. In addition London results have been merged with those for other large urban areas.

policy options were to be introduced by 2010, the original (2000) targets for congestion on trunk roads, for congestion in urban areas and for rail patronage look unlikely to be met by 2010.

Table 4: DfT Model forecasts for 2010; forecasts made in 2002 compared with those from 2000

Indicator	% change on 2000 levels						Target for 2010 (as at 2000)
	2010 Baseline (do minimum) levels			2010 10YP Scenario			
	Estimated in 2000	Estimated in 2002		Forecast in 2000	Forecast in 2002		
		Low	High		Low	High	
Traffic kms	22	23	26	17	20	25	none
Congestion (all roads)	15	27	32	-6	11	20	none
Congestion on trunk-roads	28	52	67	-5	1	15	<0
Congestion in London and large urban areas	15	25	30	-8	9	20	<0
CO2 (MtC)	2.3	2.9	4.5	-2.9	-1.9	1	none
Nox (Kt)	-57.5	-47.7	-46.9	-58.5	-48.1	-46.9	none
PM10 (Kt)	-45.3	-41	-40.4	-45.3	-40.8	-39.9	none
Rail passenger kms	23	18	30	51	33	49	≥50%

The use, in 2000, of a model based approach to help set the 10YP targets clearly did not guarantee that the targets would be realistic. Deficiencies in the model and the use of assumptions which turned out to be wrong resulted in forecasts which supported targets which proved overly ambitious. Of course, the fact that there are ‘technical’ reasons for the over-ambitiousness of the targets counts for little in the political and media debate on the extent to which targets are being met. However, the modelling has provided a reasoned basis for proposing alterations to strategy in the light of unforeseen circumstances. It has for example drawn attention to the need for more radical policy interventions to tackle congestion (e.g. Darling, 2005).

4.2 Extrapolation and evidence-led judgement based target experience

Evidence on this type of target comes from the safety targets of 1987 and 2000 and from the public transport targets set out in the 10YP. In 1987, a target for a 33% reduction in casualties by 2000 relative to the 1981-85 average was set. This target, and the figures for actual casualty numbers are shown in Figure 2.

Strictly speaking, the 1987 strategy failed in that the total number of road casualties fell by only 1% during the specified period compared to a target reduction of 33%. In fact, since traffic levels grew by 55% during the same period, it is likely that the 1987 target was never realistically achievable. However, despite this growth in traffic, Killed and Seriously injured (KSI) fell by 41% (DETR, 2000c see Figure 2), and it has been argued that the existence of the target had a very positive effect, particularly in providing an impetus for education campaigns, vehicle design improvement negotiations and some engineering improvements.

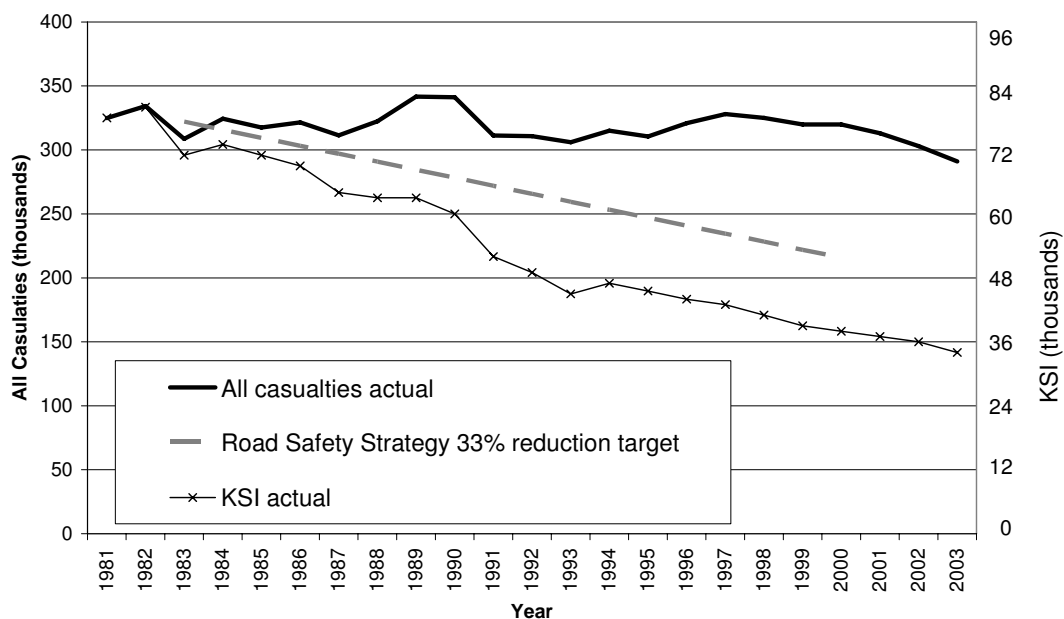


Figure 2: Changes in total casualties and KSI relative to 1987 Road Safety Strategy target

The 10YP also specified road safety targets and, as in the case of the 1987 strategy, they were again developed in the light of a combination of extrapolation and expert judgement. Learning perhaps from the problems experienced with having a target expressed only in terms of total casualties, the 10YP targets were expressed in terms of numbers of people killed or seriously injured (KSI) (the actual targets being a 40% reduction in total KSI and a 50% reduction in child KSI by 2010 compared to the respective 1994-98 averages). A target was also set for a 10% reduction in the slight casualty rate - thereby allowing for any changes to total vehicle kilometres travelled.

Figure 3 shows the target and actual total KSI and the target and actual slight casualty rate.

Other targets set on the basis of extrapolation and judgement include the 10YP targets for bus use (increase passenger journeys by 10%) and light rail use (double passenger journeys). The bus use target is on track to being met, largely due to substantial increases in bus patronage in London whilst decline continues across large parts of the rest of the UK, albeit at a much slower rate than in the preceding 10 year period. The 10YP assumed up to 25 new Light Rail lines would be constructed. In the light of recent increases in tender costs and an unwillingness from central and local government to cover provide the funding to cover these price rises, fewer light rail schemes will be built than had been anticipated and the Light Rail target seems unlikely to be met.

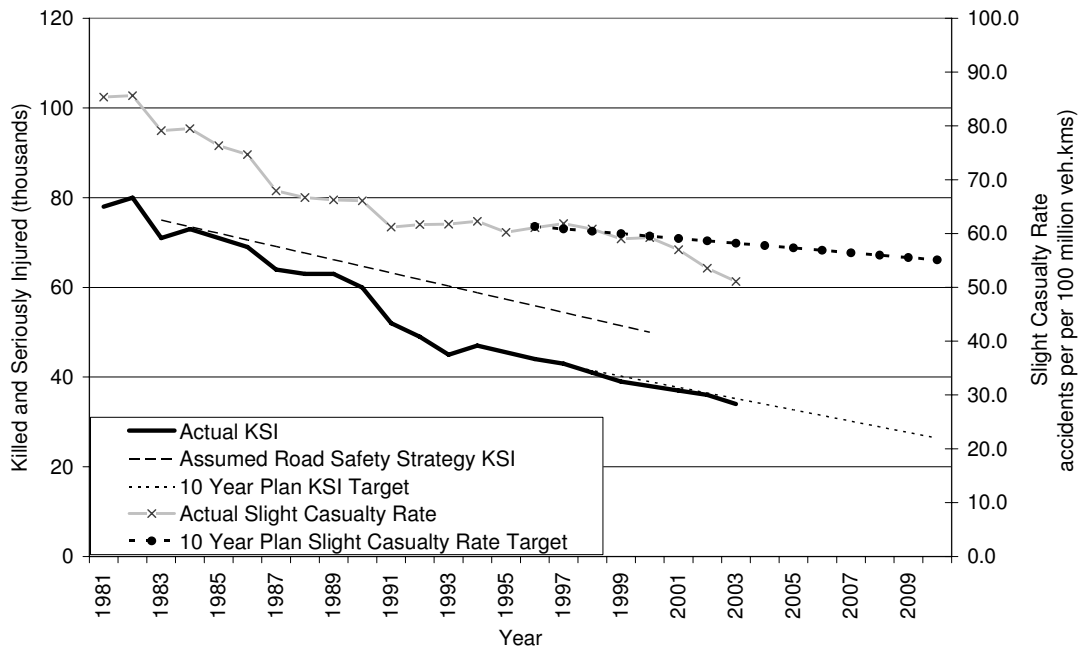


Figure 3: Changes in KSI and slight casualty rate 1981-2003 and targets

Irrespective of whether or not the 10YP targets for bus and light rail patronage are met, they, like the target for heavy rail, can be criticised as referring to solutions rather than outcomes; the adoption of separate targets for each mode suggests that a particular mix of modes is appropriate and so limits the scope for rational analysis of their relative merits in any given situation. Interestingly, the bus and light rail patronage targets have since been combined and this will allow a more even handed approach to determining where resources should be allocated – although the exclusion of local rail from the equation still leaves something of a distortion. On a broader level, however, the existence of *any* target for public transport patronage may be questioned; although increased use of public transport is clearly related to the government’s objectives to improve the environment, increase equity and increase economic efficiency, these links are, at best, indirect. Increased use of public transport will not yield environmental improvement unless it results in reduced car use, will not increase equity if only the richest people can afford to travel by car, and will not bring economic efficiency if journey times or costs are thereby increased. The recently announced intention to provide free travel for all senior citizens in England will, for example, contribute to improved equity (at a price to the exchequer) but could substantially bolster bus usage without impacting peak-hour mode split. One value of patronage targets is that they provide a statement of intent from the government regarding its support for public transport and a common agenda for local policy makers and bus companies. Their danger lies in the risk that achieving the increased patronage becomes the focus of policy rather than part of a strategy to tackle the real issues (congestion, air quality, noise, climate change emissions etc).

4.3 Aspiration-led target experience

The experience of the aspiration-led national cycling target for the UK has been disappointing. As can be seen from Figure 4, progress between 1996 and 2000 fell well short of the National Cycling Strategy targets. Nevertheless, the 10YP included an almost equally ambitious target to triple cycle use between 2000 and 2010. This has been interpreted by some observers as a political unwillingness to change what was a manifestly unachievable target. By 2004 it was obvious that the revised target was not going to be met and, in the July 2004 announcement, the national target has been abandoned and replaced by an aspiration, backed by as yet unspecified local targets, to increase the amount of cycling and walking over the next twenty to thirty years (DfT, 2004a).

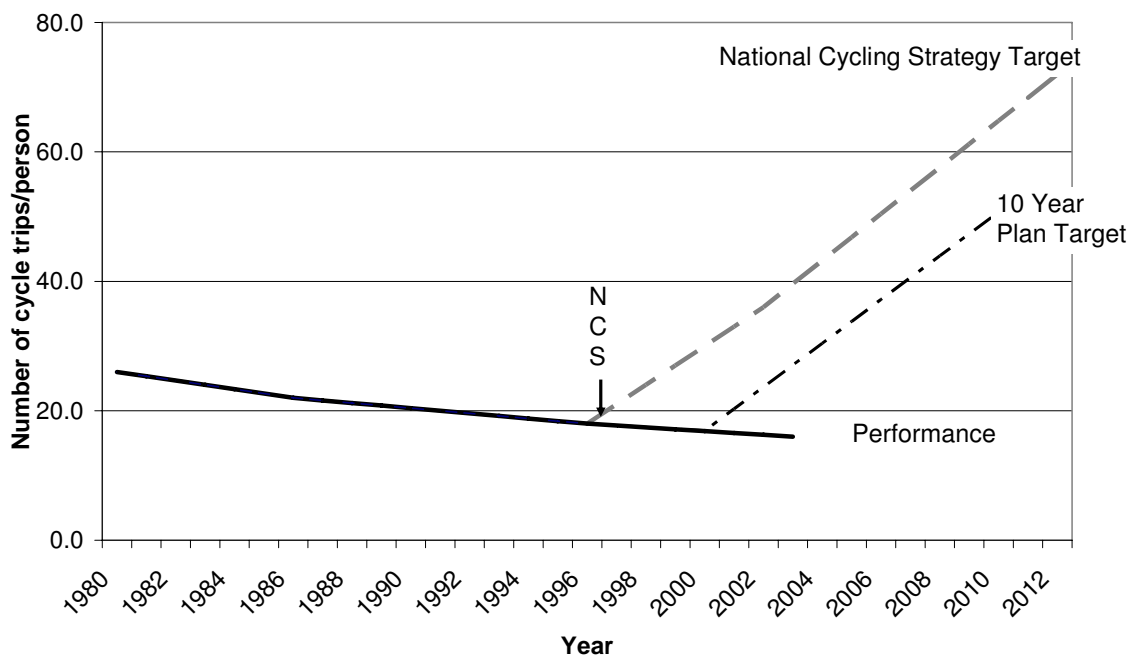


Figure 4: Cycling Volumes and Targets

Even if it is accepted that cycling should be encouraged as a sustainable mode which promotes health, the rationale for selecting such ambitious targets was always open to question. The existence of a cycling target might, as in the case of the safety targets, have been set in order to galvanise all parties to improve cycling conditions. If so, the targets may be said to have succeeded in as much as actions were taken and funds were invested, but whether the actions were insufficient or the premise that such actions would encourage more cycling was false, the failure to make any progress towards the targets caused question marks have been raised over the whole cycling strategy.

The National Cycling Strategy and 10YP targets for increased cycling were apparently set without reference to model based forecasts of the possible effectiveness of the policy interventions which were designed to deliver the

increase, and clearly assumed that long term trends could be altered. This may be a salutary lesson in the dangers of aspirational targets. Interestingly, the latest National Transport Model includes tentative predictions of the impacts of National Cycling Strategy on cycling volumes. The 2003 analysis suggests an increase in cycle use of between 30% and 37% by 2010 with the 10YP in place and a small decline in its absence (DfT, 2003b). It is interesting to speculate on whether, had these forecasts been available in 1996 or in 2000, the National Cycling Strategy and 10YP targets for cycling would have been so ambitious.

4.4 Targets at a local level

Under the terms of the government's Spending Review for the period 199-2002 all central government departments were required to set targets in 1998 (Brown, 1998). By 2000 this had filtered down to local transport planning. Local authorities in England were asked to submit five year integrated transport strategies (Local Transport Plans) to national government setting out what they wanted to achieve and how much capital funding would be required to deliver it (Marsden and Wootton, 2001). As part of this process, authorities were required to set targets for key indicators and to assess and report annually on progress against these targets. There was little experience of such an approach to strategy management among local authorities and this some of them to choose to report on up to 100 indicators. A review of the implementation of the Local Transport Plan process found that most authorities had provided a clear set of targets but that there was little evidence that they were "realistic and challenging" (Atkins, 2003, p14). The same study also reported that many authorities felt that too much emphasis was given to monitoring and targets and that it was (as of 2003) too early to judge the outcomes of the plans. Despite these concerns, the national government began to use the annual progress reports to financially reward authorities performing well (in terms of delivery and progress against strategy) and penalise those that performed badly.

The second round of local transport plans is, as of mid 2005, currently being prepared for submission. The guidance issued by the Department for Transport requires a focus on a smaller set of nationally consistent indicators but also allows local flexibility to set additional targets (DfT, 2004b). Over the coming five year period, financial settlements will be adjusted up or down by up to 25% according to the quality of the plan (in the first instance) and the performance against targets over the plan period (Marsden, 2005). Space limitations preclude a more detailed exploration of issues at a local level but benefits and difficulties similar to those discussed earlier in respect of national targets are apparent.

5. Perspectives on the Use of Targets

This section summarises the key arguments for and against the use of targets in transport planning. Evidence of both the good and bad aspects of target setting have been demonstrated through Section 4. Target setting is not a

new process and much can be learned from past experiences to overcome the negative aspects observed.

5.1 The case for and against using targets in the public sector

The case in favour

The main arguments for the use of targets in the public sector have already been alluded to but can be summarised as follows:

- Targets provide a clear focus for the work of civil servants, government agencies and subsidiary authorities.
- The use of targets helps to determine funding priorities between and within departments.
- The existence of targets helps to cut through red tape that might otherwise hamper progress.
- Monitoring of targets can provide an early warning of potential problems in a given area of policy and will stimulate consideration of the need for a change in tactics or additional funding.
- The achievement of a target sends a signal that a given policy should be continued or, in the case of policies designed to accelerate achievement, that the policy can now be scaled back.
- Targets are easily understood by the general public and so help to ensure that elected politicians can be judged on their achievements.

The case against

Experience from our research, other government sectors and management literature suggest the following potential drawbacks of targets:

- Targets produce an undue concentration of attention and resources on a subset of issues which reflect neither the totality of issues that should be of concern to government nor a 'rational' assessment of priorities. Issues which are not the subject of targets then become starved of resources (e.g. Thomson and Lally, 2002). Several examples of this potential problem have been put forward, many of them from the health sector, but it is interesting, in the context of this paper, to note that even though the reduction in road casualties might have been expected to be accepted as a laudable aim, the adoption of targets for casualty reduction was criticised as a distortion of priorities. The criticism, by Hillman et al. (1991), was that the interventions designed to meet the targets (including extensive pedestrian segregation from roadways with barriers and cattle-pen crossings) treated pedestrians as inferior citizens and was likely to discourage walking.
- Targets distort the focus of policy and delivery towards those areas where progress can be most easily measured. A focus on easily-measured outcomes is likely to militate against the adoption of long-term targets and, as Marsden and Kelly (2005) note, this will be a particular problem for transport sustainability targets which, because the outcomes require changes in lifestyle, are likely to take a considerable time to appear in the data.

- It is hard to define the right metric against which to measure performance. Eccles (1991, p2) notes, “*depending on the metric, behaviours may be positively targeted towards an area of performance weakness but, more negatively, could encourage more myopic behaviours to the detriment of performance at the system level*”.
- There is sometimes an insufficient evidence base from which to reasonably estimate future performance and this makes target setting uncertain (2GC, 2003).
- Public sector targets tend to be department-specific (or sector-specific) even though the underlying issue may involve several sectors. An example, noted by the House of Commons (HoC, 2004) is that, although the UK Department of Health is responsible for targets relating to physical activity (*30 minutes of physical activity 5 times a week*), the actions required to achieve the target probably fall within the remit of the Department of Culture, Media and Sport and of the Department for Transport. It is difficult for departments to justify extra expenditure on policy areas against which their progress is not being measured (Zografos et al., 2004).
- Public sector targets are inevitably political and so may be defined, set, interpreted or opposed for reasons of political gamesmanship rather than management-efficiency and this may distort their impact. The original 10YP target for bus patronage is a case in point.

5.2 Alternative approaches to planning

As many countries have not yet moved towards a target-led regime, and given the downsides that might exist with management through targets, it is useful briefly to review the alternatives before drawing conclusions.

Vision based v. problem solving

A distinction is made in the planning literature (e.g. by Banister, 2002) between a vision-based approach, based on the desire to achieve broad objectives and an incremental or problem-solving approach, seeking to address issues as they arise. In fact the distinction may be less clear cut than this because the vision-led approach is often influenced by an appreciation of existing problems. An alternative characterisation is between top-down and bottom-up approaches because it is the vision of political leaders which tends to set the agenda in the one case while it is the experience of problems by individual citizens which tends to drive the other.

Targets have a role in both these approaches. They can encapsulate the objectives inherent in the vision-based (top-down) approach and can provide a means of monitoring the progressive solution of problems in the incremental (bottom-up) approach. The nature of the targets will, of course, differ in the two cases; the first will tend to employ targets oriented to political aspirations while the other will tend to make more use of targets relating to legal or contractual obligations.

Planning without targets?

Targets have become such a feature of the planning landscape that it is sometimes forgotten that they are not implicit in the philosophy of planning. The main alternative approach relies on analysis of costs and benefits, whether via a formal cost-benefit analysis, a multi-criteria appraisal or a planning balance sheet in order to identify the 'best' of a series of potential interventions. Properly applied, a cost benefit analysis is much more sophisticated than reliance on targets; by making use of trade-offs it can identify optimum levels of investment and facilitate 'objective' comparisons between potential investments and can be responsive to changes in costs or the valuation of benefits (Powell, 2001). Understanding the cost of achieving a particular outcome is an essential part of determining whether a proposed strategy is good value for money and, ultimately whether the marginal benefits of public expenditure exceed the costs (McCarthy, 2003).

However, despite its claim to objectivity, the approach is fundamentally dependent on the weights put on the various costs and benefits. COBA, the Department for Transport's cost benefit analysis computer program, is one of several such programs which has been criticised (e.g. by Banister, 2002) for putting undue weight on tangible benefits (e.g. savings in time and reductions in accidents) relative to less measurable issues (e.g. environmental quality). Although there are ways in which the sensitivity of the results to the weights can be explored (see for example, Bonsall et al., 1991) and there are various methods of determining consistent weights (Grant-Muller et al., 2001), the dependence of the result on largely abstract concepts remains a major stumbling block. Another, related, criticism of the cost benefit approach is that it is too opaque for use in the public arena. It is suggested that while people can understand and appreciate targets expressed in terms of outputs and simply-defined outcomes, they cannot be expected to comprehend an implied target to maximise abstract entities such as Benefit/cost Ratios, Net Present Values, Consumer Surplus or Social Welfare.

A recent model-based analysis of urban transport policies compared the targets and cost-benefit approach to optimizing transport strategies (Emberger et al., 2003). It found that whilst the target based approach was simpler and more transparent it ignored the cost-effectiveness perspective and could be dominated by individual targets. It noted that target regimes, although supposed to drive good performance, sometimes produced strategies which gave lower value for money and that this was probably due to the absence of any feedback on the cost of each outcome.

In fact the best approach is likely to involve the use of cost benefit analysis to support the determination of appropriate targets. Because it considers costs as well as benefits, this approach is able to identify the point at which achievement of a target would not be cost-efficient and this feature could be used to avoid adopting and pursuing targets which, although politically attractive, could not be achieved without incurring excessive costs. The decision to drop the national target for a 50% growth in rail passengers in the

UK has partly been taken in recognition of the unaffordable expenditure commitment that such a target represents.

Another potential application of cost benefit analysis in conjunction with targets is in the determination of the most cost effective allocation of funds between different departments of government in the pursuance of a given target. For example, to establish whether it would be more effective to pursue health targets (e.g. those relating to obesity and heart disease) by encouraging walking and cycling than by improving the treatment of the symptoms in hospitals.

5. Conclusions

Targets have been an important feature of the public sector landscape. Their traditional manifestation was in the form of political promises to the electorate. Against a background of increasing demand for transport, these promises were often expressed in terms of increased provision of infrastructure or services to meet the expected demand. Political commitments in the transport sector typically related to the construction of X miles of new roads or Y new runways. As there have always been more schemes than money available to fund them, the choice between alternative investments was then made on the basis of the relative costs and benefits of the different alternatives. The traditional emphasis on promised increases in capacity became increasingly untenable as rising demand began to outstrip any conceivable increase in capacity. The new policy agenda had to place much more emphasis on the management of demand and also of expectations. This change in the policy environment, together with society's increasing emphasis on consumer rights and contractual/legal obligations and new perspectives on the role of central government and its relationship with lower tiers, has contributed to the UK government's decision to adopt the private sector's management-by-targets approach for most aspects of its activities. The approach was pioneered in the health and education sectors but the transport sector, where there was some experience of the successful use of targets to drive policy initiatives, was not far behind.

This paper has reviewed the experiences, good and not so good, of a series of national targets set in the UK between 1986 and 2004. One of the first conclusions must be that the "success" of a target should be measured not simply in terms of the achievement of the nominated value of the specified indicator, but in the light of the progress achieved towards fundamental objectives.

Evidence-led targets have greater operational robustness than aspirational targets. Evidence-led targets should, where possible, be informed by scenario modelling that tests a series of assumptions, positive and negative, about exogenous factors and policy impacts. Such an approach does not render the decision-maker immune to the sorts of 'one-off' changes observed on the UK rail network but builds a healthy appreciation of the inevitability of uncertainty into the target setting process.

When targets have succeeded, as in the case of the road safety targets, they have acted as a catalyst and focus for delivery of desired outcomes by all the relevant actors. However, some targets have clearly failed to inspire positive outcomes. The reasons for this are varied but two key themes have emerged. First, sector-specific outcome targets (e.g. separate targets for increases in use of cycle, rail, light rail and bus) drive expenditure to achieve these goals whether or not it represents good value for money (e.g. attempts to meet the rail and light rail targets threatened to deliver particularly poor value for money). Second, the metric chosen for the indicator of performance is of crucial importance. There is an understandable tendency to concentrate on metrics that are already measured even though these metrics may lead to unwanted management actions. The difficulties experienced in devising a suitable metric for road congestion has damaged the credibility of the target-setting process in that sector.

One of the manifest benefits of targets is that they focus management attention but the corollary is that less management effort and resources will be spent on areas where there is no target (as was the case for walking). Such concerns become more important if targets relate to the growth of individual modes rather than to high-level objectives (efficiency, environment, equity etc). Under an objective-led targets framework, the most cost-effective solutions can be found at a local level by selecting the most appropriate combination of each mode to achieving the desired effect. However, although mode-specific, or sector-specific, targets are largely redundant if they are simply the means to a higher end, provided they are used with great care they may still have a role in drawing attention to the potential contribution by a mode or sector that might otherwise be overlooked.

In summary, despite the mixed success of targets as a means to measure governmental performance in the UK, there are a series of underlying pressures that suggest that they will continue to be important. We conclude that a deeper understanding is needed of the management behaviours that targets induce in the public sector. Much more could also be done to ensure that the targets relate to the key outcomes that need to be achieved rather than to those, such as mode use, that are easiest to measure. The use of targets is clearly no panacea for government's dilemma in managing expectations but it does give greater transparency to the aims of policy and provides clearer identification of conflicts and synergies with other policy areas. Set properly, targets are a positive management tool. Set badly, they are likely to lead to unintended outcomes and investments that represent poor value for money.

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