

The difficulty in prioritising long-term solutions to transport

Geoff Cooper, Chief Economist Auckland Council

Chris Parker, Economist New Zealand Institute of Economic Research

Auckland hosts a quarter of the world's Fortune 500 companies and two thirds of New Zealand's top 200 companies. New Zealand's largest and most productive city attracts multitudes of highly skilled migrants every year and accounts for the vast majority of New Zealand's foreign investment. It is clear that the economic success of Auckland is critical for New Zealand.

Transport problems are among the most significant issues preventing Auckland from realising faster and more sustained economic growth (the cost of Auckland's congestion is roughly estimated at one billion dollars every year). It is not surprising then, that a range of transport projects are currently underway in Auckland, with others at various stages of scoping. The importance of Auckland as a driver of New Zealand's economic success means that many of these projects attract varying levels of national funding.

For a transport project to be approved for national funding, the government must be sure that it represents the best value for money for all of New Zealand. A critical component of this is performing a comprehensive benefit cost assessment for each project. Where a project returns a benefit cost ratio greater than 1, it is said to have positive net returns to society. The methodology used to assess such transport projects is determined by the New Zealand Transport Authority's Economic Evaluation Manual. One of the most controversial components of this guiding methodology is the application of a social discount rate.

New Zealand's current social discount rate policy attempts to solve two distinct problems. The first is to take account of an infrastructure project's 'wider economic investment' effects (as distinct from 'wider economic benefits' that are currently trendy). This means ensuring that public projects do not crowd out/replace even more profitable private sector projects – as well as taking account of how productivity improvements stimulate more private investment. These wider investment benefits and opportunity costs can differ significantly between projects. Taking account of these features is critical to ensure value for money.

The second problem is determining the social rate of time preference. It is well accepted by economists that individuals and society in general, place a higher value on benefits and costs that occur in the near future vis-a-vis those that occur many years into the future. This is best tested by asking a two year old if they would like a lollipop today, or two lollipops in a years time (I'm yet to find one who will wait a year for the extra lollipop). The social discount rate makes a judgement on the value of benefits received in the future. This "time value" judgement is critical for the aspirations of sustainable investment in New Zealand's transport network and our corresponding level of wealth over time¹. The social discount rate currently used in the assessment of transport projects is 8% (real and net of general price inflation).

So what does this mean in practice?

This rate means that policy-makers equate a unit of benefit received in 30 years time, with 6 cents received today. A reduction in the social discount rate would alter this equation significantly. For instance, at a discount rate of 4%, policy makers would equate a unit of benefit received in 30 years time with 31 cents received today (so benefits in the future are given a higher value). This has important implications for the type of projects that are approved for funding. A lower discount rate changes the

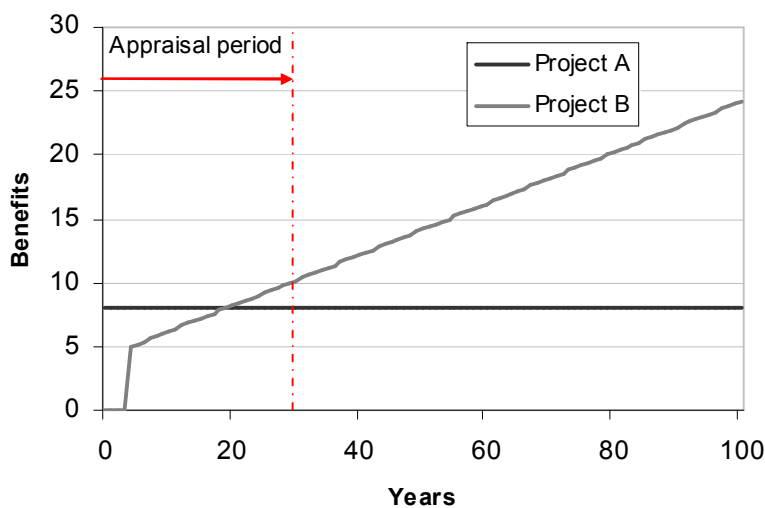
¹ Auckland Council is nearing the release of a paper outlining an alternative to the current discount rate policy, which provides methodology for incorporating the social rate of time preference into infrastructure project assessments.

prioritisation of transport projects from those that have benefits in the short term to projects that have benefits further into the future.

Consider two projects that are mutually exclusive (that is, doing one means you would not do the other) (shown in Figure 1). Project A (e.g. widening a road) realises benefits immediately and sustains them indefinitely, while project B (e.g. implementing a rapid transit corridor) has smaller benefits in the short to medium term but substantial benefits in the longer-term. Which of these projects would you prefer to invest in?

The answer to this lies in the value society places on future benefits – a judgement made implicitly by the social discount rate. Using New Zealand’s current discount rate of 8%, project A is preferred over project B, because the benefits from project B are realised in the distant future, which is heavily discounted. In fact, transport project evaluation is currently capped at 30 years because any benefits realised after this period are often discounted to zero anyway. This means that the benefits of project B are largely excluded in the benefit cost analysis. In contrast, using a discount rate less than 4.8% means project B would be preferred over project A.

Figure 1: The cashflow profile of long-term and short-term projects



If New Zealand wants to invest in infrastructure projects that create sustainable economic growth for future generations, then our current assessment methodology is not fit for purpose. The use of a social discount rate much higher than the social rate of time preference rarely makes projects that transform the economy worthwhile, simply because the benefits of such projects occur over extremely long periods. The very projects that New Zealand needs to invest in are overlooked, in favour of piece meal solutions to deeply entrenched transport problems. This is particularly important for considering solutions to Auckland’s heavily congested transport network. For instance, the City Rail Link has recently been promoted as a long-lived piece of infrastructure that will be transformative to the Auckland economy. The benefits from such a project will continue past well past 2050 – yet our current assessment policy prevents such benefits from even being considered in the projects appraisal.

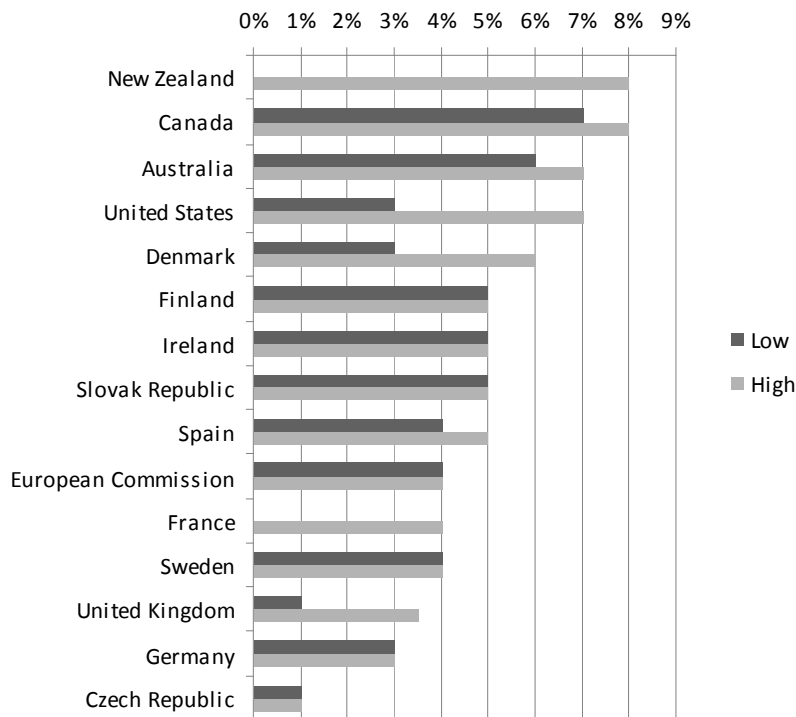
So how do other countries approach this issue? Figure 2 provides a comparison of social discount rates with other developed countries. Most other developed countries that New Zealand competes against use social discount rates in the 3%-5% range. These countries are therefore able to demonstrate stronger economic justification for undertaking major infrastructure projects, which have higher returns

in future periods. While almost all the countries shown here would choose project B with its higher future benefits, New Zealand would choose project A, blind sided by the stream of more immediate returns.

Moving towards a more productive economy requires investment. The Global Economic Forum recently released a report showing a strong correlation between a country's infrastructure provision and its global competitiveness. For New Zealand to improve its economic prospects, it must become more globally competitive, which means providing quality infrastructure to give cities and firms a competitive edge in the global economy. The Government has signalled its commitment to a strong, coordinated approach to infrastructure provision with the release of the National Infrastructure Plan. This Plan takes a long-term view, envisioning that by 2030, New Zealand's infrastructure is resilient and coordinated and contributes to economic growth and increased quality of life. If New Zealand is to achieve such a lofty goal, it is critical that we adopt assessment methodologies that reflect this long-term strategy. This requires sensible judgments on the value of benefits accrued in the future. Getting our social discount rate policy in line with the rest of the world is a critical component of improving the living standards for New Zealand. Without a change to our discount rate policy, we will continue to fund projects that return mediocre growth in the long term.

In this age of fierce global competition, can New Zealand really afford to be so short sighted with its infrastructure funding?

Figure 2: Comparison to international approaches



Source: NZIER and Parker (2009)