

Modelling socially optimal fares

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This information paper summarises our approach to estimating socially optimal fares for public transport in Greater Sydney and how we have considered these in setting draft maximum fares.

More detailed information on our modelling approach and findings are presented in our technical paper *Socially optimal Opal fare calculation*.

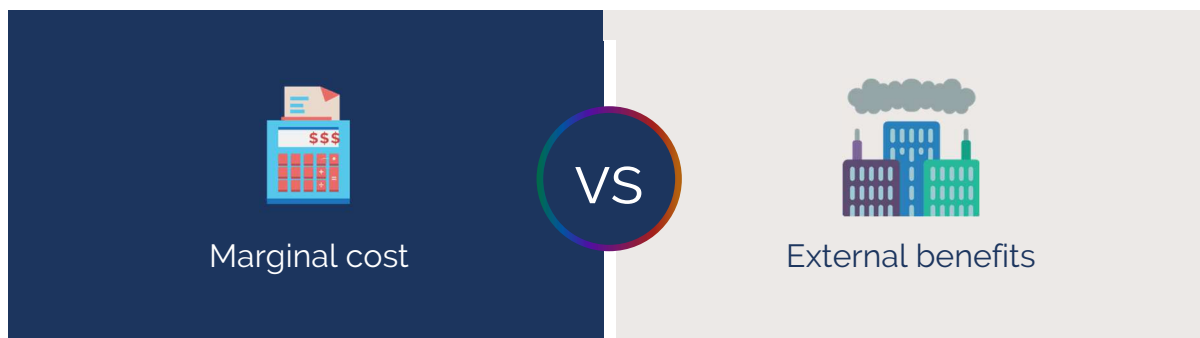
What are socially optimal fares?

Our social optimisation model calculates the level of fares that maximises the level of welfare to society. These are referred to as socially optimal fares.

How did we calculate socially optimal fares?

Our calculation of socially optimal fares accounts for both the financial costs of running the service and the costs and benefits of public transport journeys to other members of society who are not public transport passengers.

This results in a fare that may be lower than the financial cost of the passenger's journey.



When you decide to take a trip by public transport, the public transport system incurs certain costs that it would otherwise have avoided.

We refer to these costs as the marginal cost of your trip. It is reasonable to ask you to pay the marginal cost that you impose.

However, your decision to use public transport means that other people can avoid or reduce certain costs that they would otherwise have had to face.

We refer to these benefits as the marginal external benefits of your trip. It is reasonable to discount your fare to reflect that benefit that you create.

To estimate marginal cost, we referred to accounting data from Transport for NSW on the costs of providing public transport services. Examples of these include staff wages, fuel, and costs associated with vehicle and infrastructure maintenance.

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present. We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

We applied adjustments for efficiency, and discounted by the external benefits that we consider should be assigned to society as a whole, namely agglomeration and social inclusion benefits.



Agglomeration benefits

arise when businesses and activities are clustered together in a single location like a central business district.

We consider the costs of fleet ownership and dedicated public transport infrastructure to be costs that are incurred to secure agglomeration benefits.



Social inclusion benefits

are generated by providing opportunities for people who would not otherwise travel to be more involved in society.

We consider on-demand buses provide social inclusion benefits to areas where a regular timetabled bus service is unavailable. For this reason we have set the fares of on-demand services to be the same as timetabled services.

To estimate marginal external benefits, we considered:

- travel time savings from reduced road congestion
- reduced carbon emissions and health benefits from reduced air pollution
- savings in accident cost faced by pedestrians and cyclists from reduced road crashes
- health benefits from more active transport (i.e. walking and cycling).

The optimal fare for each transport mode represents its marginal cost less the marginal external benefits it generates.

Complications arise because the external benefits of each transport mode are impacted by the fares for other transport modes, and people's behaviour to switch modes in response to fare changes. For more information on how we have calculated optimal fares across all modes, see our technical paper on Socially optimal Opal fare calculation.

How did we use socially optimal fares?

The socially optimal fares we produced are generally higher than our draft maximum fares, with a more pronounced distance effect, that is, longer distance socially optimal fares are significantly higher than our draft maximum fares, while shorter distance fares are more similar.

In setting our draft maximum fares, we balanced the outcomes of the social optimisation model with other key considerations such as affordability and accessibility and cost recovery of the public transport system.