

Transport Costs

Both time and money shape how people choose to get around, and how the city works as a place. These factors influence decisions in different ways. Time often has a stronger influence on how people travel. Understanding this helps guide choices that support a more efficient, accessible and liveable city.

Context

Transport costs include *direct financial costs* to the user, as well as the *time cost* associated with different forms of transport. While prices and costs affect people in many ways, there are also trade-offs that people make, which are often made for non-financial reasons.

The cost of transport is important as people's transport decisions can be influenced by both the financial and time cost of different modes.

Key Definitions

Key terms relevant to this topic are defined below:

- **Price elasticity** is an economics term to describe how much demand for a particular mode of transport changes when costs change. When demand changes a lot for a price or time change, it is called *elastic*. When demand doesn't change much, it is considered *inelastic*.
- **Cross elasticity** shows how a change in the price of one form of transport can affect the use of another.
- In addition to costs borne by the user, there can also be costs associated with travel borne by society in general, which are known as **externalities**. Transport externalities include air pollution, congestion and road trauma.
- **Fixed costs** stay constant, while **variable costs** rise with use and are known as **marginal costs**. For example, car users have high upfront and ongoing fixed costs (e.g. purchase price, vehicle duty, vehicle registration, insurance), and relatively low variable costs (e.g. servicing, petrol), meaning the marginal cost of use is low. Conversely, public transport has no fixed cost to users who pay only variable cost (fares), making the marginal cost higher.
- Time is an important non-financial consideration in transport choice, termed the **value of time**. Every hour spent travelling is an hour that could have been used for doing something else.

Understanding the Impact of Cost on Transport Decisions

In terms of *financial costs*, transport costs are generally price inelastic:

- A doubling of fuel prices could decrease car use by as little as 3.5%.
- Paid parking has a very small effect in lowering overall car use – although its impact is stronger than fuel cost. However, paid parking has a more powerful impact on redistributing where people park.
- Public transport fare decreases do not always lead to significantly increased use. In Poland, free public transport increased use by 10-60%, but car use remained largely unchanged. In Luxembourg, free public transport did not lead to a large increase in use – other factors such as walking distance, travel time, reliability, and ease of transfer were more significant.

An assessment of cross elasticities for car fuel costs and public transport fares shows that **people are more sensitive to the costs of public transport than the cost of car use**.

Travel time, like cost, also plays a role in mode choice. The *value of time* differs depending on the travel mode. In addition, **people are more sensitive to time spent accessing and waiting for public transport than being on vehicle**.

The *value of time* also varies depending on the trip type. **People are more sensitive to both financial cost and time for work trips than all trips** i.e. time is more valuable than money to commuters.

Both time and cost affect travel choices, but time is a stronger influence on behaviour. Any actions which make car travel faster will encourage more people to drive, and any actions which make public transport faster and more reliable will encourage more people to ride the train or catch a bus.

An assessment of price elasticities of various modes, applied to the mode share of journeys to work in Perth is shown in Figure 1, revealing that changes in time have a greater impact than changes in price.

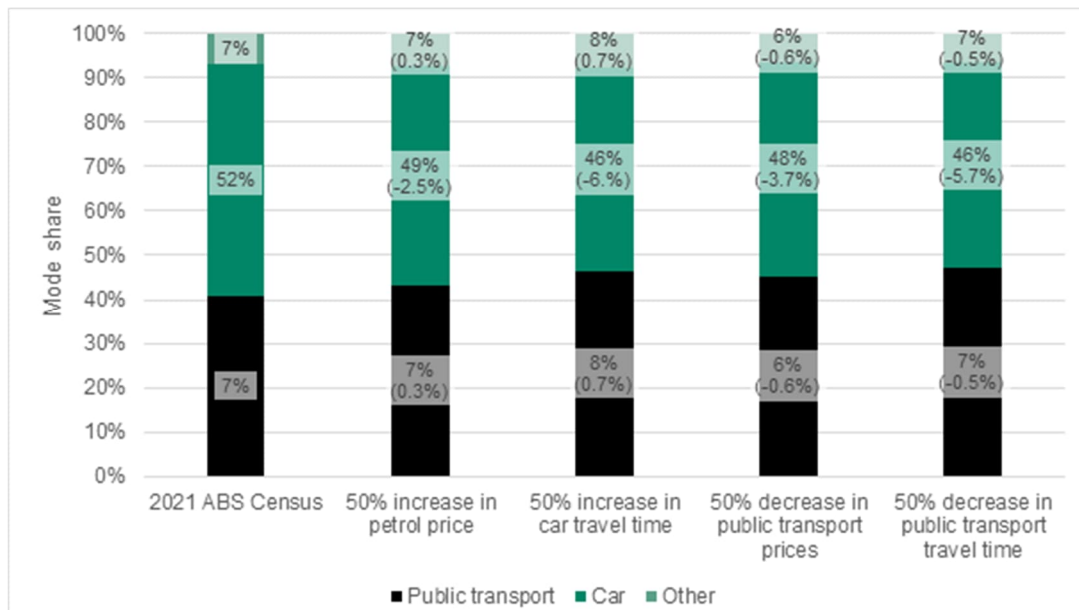


Figure 1 Potential changes to City of Perth mode share, based on changes to price and time

How Transport is Costed in Perth

There are four types of transport costs: financial costs to users, time costs to users, financial costs to government and externalities costs. Additionally, there are also benefits to users (such as improved health) which must be considered. Different transport costs and benefits are associated with different modes:

Individuals

Car ownership involves upfront fixed costs (e.g. purchase price, vehicle duty), ongoing fixed costs (e.g. licensing, insurance), and variable costs (e.g. servicing, tyres, fuel). Public transport users have no fixed costs and pay fares only. Bicycle users face fixed costs (e.g. purchase and maintenance) and also receive health and amenity benefits.

Government

Government spending on transport systems include capital for infrastructure, maintenance and service provision.

Externalities

Externalities of road use include congestion, road trauma, noise pollution, particulate emissions, and greenhouse gas emissions.

Key points on the comparison of the different types of transport costs and benefits associated with different transport options are noted below:

- For users, the financial cost of public transport and bicycle are consistently lower than the cost of car use. However, the cost to government of providing public transport is generally higher and increases with distance.
- The net cost (all costs plus benefits to users, government and including externalities) of public transport is lower than the car travel costs at all distances. However, distance is an important factor to consider – for trips over 10 kilometres,

bus travel has a higher total cost than car, while train remains cheaper. This is partly a reflection of lower bus occupancy, and would therefore become less expensive with more patronage.

- The financial cost to the user shows that for all trips, of all distances, using a car to travel to the City of Perth is more expensive to the user than public or active transport, yet more than half of journeys to work to the City of Perth are still by car, suggesting limitations to what pricing alone can do.

Opportunities

The key findings from the assessment of transport costs are that the price of transport alone is very limited in the effect it has on transport behaviour. People are more sensitive to changes to travel time than to changes to transport costs.

This has key implications on opportunities:

- Changes to the financial cost of travel do not have a big impact on transport choices.
- Reducing travel time for public transport through increased on road priority and higher frequency of services has a more potent impact on increasing patronage than changes to fares.
- A decrease in average car travel speeds reduces the attractiveness of driving and encourages more active and public transport use.
- Actions to make active and public transport a more attractive choice should be focused around increasing the time competitiveness of these options, rather than reducing public transport fares.
- Car park pricing could send clearer signals, reducing demand for on-street parking and allowing reallocation of kerbside space to other uses.