



Understanding how infrastructure charges affect households

June 2024

New Zealand Infrastructure Commission / Te Waihanga

Te Waihanga seeks to transform infrastructure for all New Zealanders. By doing so our goal is to lift the economic performance of Aotearoa and improve the wellbeing of all New Zealanders. We are an autonomous Crown entity, listed under the Crown Entities Act 2004, with an independent board. We were established by the New Zealand Infrastructure Commission/Te Waihanga Act 2019 on 25 September 2019. Information on the Commission is available at www.tewaihanga.govt.nz/

How to cite this document

New Zealand Infrastructure Commission (2024). *Understanding how infrastructure charges affect households*. Wellington: New Zealand Infrastructure Commission/Te Waihanga.

Disclaimer

This document is provided subject to Te Waihanga's Terms of Use (<https://www.tewaihanga.govt.nz/terms-of-use/> – noting that 'our websites' includes this document). It is recommended that you seek independent advice on any matter related to the use of this document.

Access to the data used in this report was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Data and Statistics Act 2022. The results presented in this study are the work of the author, not Stats NZ or individual data suppliers. These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit <https://www.stats.govt.nz/integrated-data/>.

Any view, opinion, finding, conclusion or recommendation of an external party (including experts, researchers, parties providing feedback or surveyed respondents) are strictly those of the party expressing them. Their views do not necessarily reflect the views of Te Waihanga.

Te Waihanga takes reasonable care to ensure information in the document is accurate and complete and that any opinions given are fair and reasonable. However, we disclaim any express or implied warranties in relation to such information and opinions to the maximum extent permitted by law.

Contact

Judy Kavanagh

Director, Inquiries

Email: judy.kavanagh@tewaihanga.govt.nz

Website: tewaihanga.govt.nz

LinkedIn: [tewaihanga](https://www.linkedin.com/company/tewaihanga)

ISBN 2024 978-1-7385911-8-3 (Online)

Acknowledgements

This report is the final research report developed as part of the 'What's Fair' research programme. This report was written by Jane Godfrey, Judy Kavanagh and Nicholas Green and is based on analysis of Stats NZ data by Dave Heatley and Andrew Sweet.

Summary

Meeting New Zealand's infrastructure challenges will require different ways of charging and paying for infrastructure services. Over 2023 and 2024, the New Zealand Infrastructure Commission carried out research to better understand how changing the way infrastructure services are charged for could affect households on different levels of income.

Ultimately the costs of providing infrastructure must be recovered somehow. We found that the way that households and businesses are charged for infrastructure services has a big impact on who pays for infrastructure and how much they pay. As part of preparing advice for decision-makers, it is important for officials to undertake distributional analysis to understand the effects of infrastructure charging structures and proposed changes to how infrastructure services are charged for.

Households pay for infrastructure services in different ways

The way New Zealanders pay for infrastructure differs by sector and location. For example, some councils charge for drinking water through rates, while others charge households based on water usage. Similarly, a typical household power bill includes a mix of fixed charges (which are the same per day) and variable charges (which are based on how much you use).

How much households pay for infrastructure services differs

The average New Zealand household spends \$13,500 per year on infrastructure, or about 16% of their after-tax income. On average, lower-income households spend less in total on infrastructure services than higher-income households, but they pay a much higher share of their income. However, we found significant variation. While the average household in the lowest income quintile spent around 37% of its disposable income on infrastructure services, one in six low-income households spent less than 10% (that is, less than the average proportion of income spent on infrastructure services by the highest income quintile).

Many factors drive these differences in spending

Observable factors, including income, location, and household composition, explain about two-thirds of the variation in spending on infrastructure between households. Households with higher after-tax incomes, more adults in the household, or households in rural areas or regional towns, tend to spend more on infrastructure, while households with lower after-tax incomes, that rent, or live in a city, tend to spend less than average.

We were unable to conclude that there is a statistically significant difference between the expenditure of Māori and non-Māori households on infrastructure services, largely due to the wide variation in levels of household infrastructure spending across income groups.

How infrastructure services are charged for changes how the costs are distributed across households

Infrastructure services are often funded via a combination of fixed and variable charges, and both play a part in raising revenue. Fixed charges take up a greater proportion of the income of lower income households and cannot be avoided. Variable charges allow households to adjust their infrastructure use and costs to suit

their circumstances. Distributional analysis helps decision-makers understand the impact on household budgets of changing the mix of fixed and variable charges on different households.

We simulated how charging structures impact households on different incomes. The simulations tested different ways to pay for four infrastructure services: electricity, public transport, private transport, and drinking water.

Raising fixed charges for water, electricity, or private transport had a disproportionately negative impact on lower-income households. This is because fixed charges require everyone to pay the same amount and (unlike variable charges) households cannot reduce their expenses when faced with a fixed charge. Conversely, variable charges are generally better for low-income households.

Decreasing rates and increasing volumetric water charges can make households on lower incomes can be better off. Lower-income households are smaller on average and so will tend to use less water. Volumetric charging reflects actual use, and so a shift away from paying through rates (which do not relate to usage) will tend to mean lower overall water charges. However, this scenario is most likely to be beneficial for low-income households that own their own home (for example, most superannuitants) and hence directly receive the rates reduction.

Reducing public transport fares benefitted higher-income households more than lower-income households. This is largely because only around 8% of New Zealand households currently pay for public transport and this group tends to have higher incomes.

The charging approach used for infrastructure services has a greater impact on lower-income households. Raising revenue by increasing fixed or variable charges had a roughly similar impact on higher-income households. However, raising revenue by increasing fixed charges was more burdensome for lower-income households than raising revenue from variable charges.

Addressing infrastructure affordability can be difficult

Affordability can be addressed by increasing household incomes (for example, through tax reductions or welfare payments) or reducing infrastructure prices. However, reducing prices can create other problems, such as encouraging excess use (congestion) and calls for more capital investment to meet demand.

Targeting assistance can be difficult. How much infrastructure services a household uses can be a poor indicator of need, and income levels are not the only driver of infrastructure spending.

Fairness is also not the only goal we are seeking from infrastructure pricing. We must recover the costs of infrastructure if we are to have a sustainable and quality infrastructure system. Finding ways to deliver infrastructure more efficiently will benefit all New Zealanders, but the biggest beneficiaries would be lower-income households, who bear the biggest burden (relative to their incomes) of the costs.

Contents

- 1. Background 6
- 2. What households spend on infrastructure services differs 7
 - 2.1. There are many ways of paying for infrastructure services 7
 - 2.2. Lower-income households spend less in total, but more of their income 7
 - 2.3. Spending on infrastructure services does not grow as fast, when household incomes rise 8
 - 2.4. Income isn't the only thing that drives spending on infrastructure services 9
- 3. How households pay for infrastructure services matters 10
 - 3.1. Increasing fixed charges has a big impact on low-income households 10
 - 3.1.1. Paying for water more by use than rates can be better for lower-income households 11
 - 3.1.2. Reducing public transport fares benefits higher-income households more 11
 - 3.2. How revenue is raised matters more for lower-income households 12
- 4. Addressing infrastructure affordability can be difficult 13
 - 4.1. Boost incomes or reduce prices? 13
 - 4.2. Help everyone or target assistance? 13
 - 4.3. Changing prices can create other problems 15
 - 4.4. Reducing overall infrastructure costs may be the best way to help low-income households 15

1. Background

Meeting New Zealand’s infrastructure challenges will require different ways of paying for infrastructure services. We wanted to know more about how changing how infrastructure services were charged for could affect households on different levels of income. Distributional analysis is vital to understand who will bear the costs of – and who will benefit from – different ways of paying for infrastructure services.

This report is based on our research into the relationship between household income, household characteristics and spending on infrastructure. It draws primarily from the following four research reports which are all available on our website:¹

- The income elasticity of household infrastructure expenditure
- Drivers of household expenditure on infrastructure
- Māori household expenditure on infrastructure services
- Simulating the impact of different ways of charging for infrastructure on households

These reports use Stats NZ’s Household Economic Survey (HES) data from 2006/7 to 2018/19 to explore how much New Zealand households spend on infrastructure and extend on research we published in 2023.²

Some of our findings are intuitive. However, others may be surprising, especially our findings about the distributional impact of charging structures.

¹ <https://tewaihanga.govt.nz/our-work/key-topics/what-is-fair-providing-and-paying-for-infrastructure>

² NZ Infrastructure Commission. (2023). ‘How much do we pay for infrastructure? Household expenditure on infrastructure services’. <https://media.umbraco.io/te-waihanga-30-year-strategy/3segaqje/household-spending-on-infrastructure-services.pdf>

2. What households spend on infrastructure services differs

2.1. There are many ways of paying for infrastructure services

Funding to provide infrastructure can come via:

- **taxes** including personal income tax, GST, and company tax, which is collected by the government
- **rates** which are tied to property values and collected by councils
- **variable user charges** which usually increase in line with use (for example, per kilowatt charge for electricity, public transport fares, Fuel Excise Duty (FED) or Road User Charges (RUC))
- **fixed user charges** which do not vary with usage (for example, driver licensing fees, vehicle registration, daily charge for electricity connection)

Infrastructure services are often funded through a combination of charges.³ For example, electricity is typically paid for via a bill that includes a combination of variable and fixed user charges. Conversely, public transport is funded through fares from users, rates from local homeowners and businesses, and a portion of FED and RUC from drivers of vehicles.

How infrastructure is funded can vary depending on where you are in the country. Councils like Auckland, Tauranga, and Kāpiti Coast, for example, charge for drinking water by usage (called volumetric charging) or a mix of volumetric and fixed charges, while other councils fund the supply of drinking water through rates which are paid by homeowners and businesses.

How we pay for infrastructure has also changed over time. For example, while households now pay based on usage, when electricity was first introduced in New Zealand, each household paid a flat annual fee based on the number of electric lights in the house.⁴

2.2. Lower-income households spend less in total, but more of their income

New Zealand households spend on average around 16% of their after-tax income on infrastructure services like electricity, road transport, mains water, and mobile and internet coverage. That's around \$260 per week or slightly over \$13,500 per year.^{5, 6} This figure includes all the different ways households pay for infrastructure including taxes, local authority rates, variable user charges and fixed user charges.

While higher-income households pay more in total towards infrastructure, this takes up a smaller share of their total income. Households in the highest income quintile spend an average of 12% of their after-tax

³ For more about how infrastructure is paid for in New Zealand currently see our video 'How New Zealanders pay for infrastructure'. <https://tewaihanga.govt.nz/watch-listen/videos/how-new-zealanders-pay-for-infrastructure>

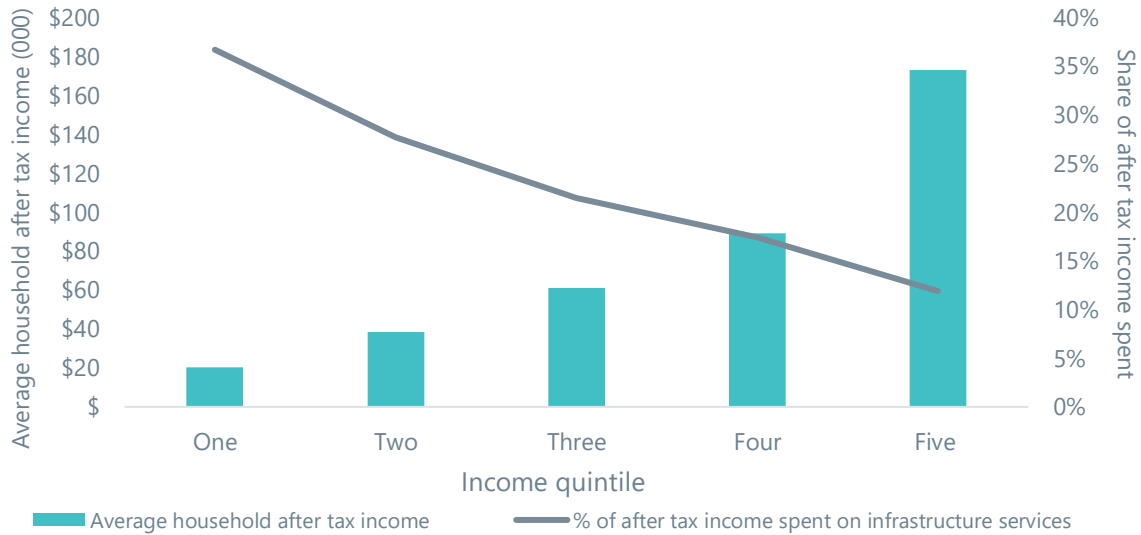
⁴ Electricity Engineers' Association. 'Over 125 years of electricity supply'. <https://www.eea.co.nz/Site/about/electricity-Industry/125-years.aspx>

⁵ NZ Infrastructure Commission. (2023). 'How much do we pay for infrastructure? Household expenditure on infrastructure services'. <https://media.umbraco.io/te-waihanga-30-year-strategy/3segaqje/household-spending-on-infrastructure-services.pdf>

⁶ Note that these are 2019 dollar values.

income on infrastructure. In comparison, households in the lowest income quintile pay an average of 37%.⁷ (Figure 1).

Figure 1: After-tax income and % of after-tax income spent on infrastructure by income quintile



Source: Te Waihanga, 2023

2.3. Spending on infrastructure services does not grow as fast, when household incomes rise

One reason why high-income households spend a lower share of their overall income is that spending on infrastructure services does not increase at the same rate as incomes grow. In technical language, infrastructure spending has a 'low-income elasticity'.

'Income elasticity' is a measure of how sensitive spending is to a change in income. An elasticity of 1 indicates that a 1% increase in income is associated with a 1% increase in infrastructure spending. Smaller elasticities mean that infrastructure spending increases more slowly than income. An elasticity of 0.2, for example, indicates that a 1% increase in income is associated with only a 0.2% increase in household spending on infrastructure.

Our research found that for every 1% increase in a household's income, total spending on infrastructure services increases by around 0.373% and variable expenditure by 0.554%.⁸ The elasticity estimates for total expenditure (that is, both fixed and variable expenditure) are mostly lower than those for variable expenditure. That's because there's not a lot that households can do to reduce costs from fixed charges, but households can influence their variable expenditure by changing how much they use.

⁷ NZ Infrastructure Commission. (2023). 'How much do we pay for infrastructure? Household expenditure on infrastructure services'. <https://media.umbraco.io/te-waihanga-30-year-strategy/3segagje/household-spending-on-infrastructure-services.pdf>

⁸ NZ Infrastructure Commission. (2024). 'The income elasticity of household infrastructure expenditure'. <https://tewaihanga.govt.nz/our-work/key-topics/what-is-fair-providing-and-paying-for-infrastructure>

2.4. Income isn't the only thing that drives spending on infrastructure services

Although spending on infrastructure services on average takes up a larger share of household income for lower-income households (**Figure 1**), there is more diversity in spending patterns within income groups than between them.

For example, while the average household in the lowest-income quintile spent around 37% of its disposable income on infrastructure services, one in six low-income households spent less than 10%.⁹ Low-income households are not all the same. They include retirees, students, and welfare recipients – and each of these groups have different levels of assets, future expected incomes, and spending patterns.

Some household characteristics are associated with either higher or lower than average household infrastructure spend, outlined in **Table 1**.^{10,11} Overall, these observable factors, including income, location, and household composition, explain about two-thirds of the variation in spending on infrastructure between households.

Table 1: Characteristics associated with higher and lower than average household spend on infrastructure services

Associated with higher spending	Associated with lower spending
<ul style="list-style-type: none"> • Higher after-tax income • More adults in a household • More working adults in a household • Presence and number of dependent children • Number of bedrooms in dwelling • Living in a crowded dwelling • Living in rural areas or regional towns • Car ownership 	<ul style="list-style-type: none"> • Lower after-tax income • Renting (as opposed to owning) household's dwelling • Living in a local area (meshblock) that has a higher rate of deprivation • Living in a city

Sometimes these characteristics balance each other out. For example, we found Māori households were more likely to have characteristics that were associated with both higher-than-average spending (for example, more dependent children) and lower than average spending (for example, lower after-tax income, renting). We were unable to conclude that there is a statistically significant difference between the expenditure of Māori and non-Māori households on infrastructure services, largely due to the wide variation in levels of household infrastructure spending across income groups.¹²

⁹ NZ Infrastructure Commission. (2023). 'How much do we pay for infrastructure? Household expenditure on infrastructure services'. <https://media.umbraco.io/te-waihanga-30-year-strategy/3segaqje/household-spending-on-infrastructure-services.pdf>

¹⁰ NZ Infrastructure Commission. (2024). 'Drivers of household expenditure on infrastructure: An analysis of the factors that explain variations in household infrastructure spending'. <https://tewaihanga.govt.nz/our-work/key-topics/what-is-fair-providing-and-paying-for-infrastructure>

¹¹ NZ Infrastructure Commission. (2023). 'How much do we pay for infrastructure? Household expenditure on infrastructure services'. <https://media.umbraco.io/te-waihanga-30-year-strategy/3segaqje/household-spending-on-infrastructure-services.pdf>

¹² Firecone & Sawtooth Economics. (2024). 'Māori household expenditure on infrastructure services – an investigation of the relationship between Māori ethnicity and household infrastructure spending'. <https://tewaihanga.govt.nz/our-work/key-topics/what-is-fair-providing-and-paying-for-infrastructure>

3. How households pay for infrastructure services matters

How infrastructure charges are structured has an impact on how much different households pay. To demonstrate this, we simulated changes in charging policies on households on different incomes, while still raising the same overall revenue for the infrastructure service.¹³ For example, we tested the effect on different households of decreasing rates but increasing usage charges for water.¹⁴

These simulations tested the impact of small changes to charging structures in four infrastructure services: electricity, public transport, private transport, and drinking water. The modelled price changes were, on average, \$200 per household per annum for water, electricity and private transport services. We used \$50 for public transport services.

By analysing how after-tax incomes changed under various charging policies, it was possible to assess the impact on households at different income levels. Specifically, we were able to assess whether a change in how the revenue was collected would be progressive (make lower-income households better off at the expense of higher-income households) or regressive (make higher-income households better off at the expense of lower-income households).¹⁵

3.1. Increasing fixed charges has a big impact on low-income households

In the simulations, raising fixed charges for water, electricity, and private transport (for example, daily charges for water and electricity and car registration fees) had a disproportionately negative impact on lower-income households. That's because fixed charges require everyone to pay the same amount, regardless of their income or usage. A household cannot reduce their expenses when they face a fixed charge.¹⁶ Fixed charges also involve averaging costs across users, so low users end up subsidising high users.¹⁷

Conversely, variable charges are generally better for low-income households. Our analysis found that, in most cases, decreasing fixed charges and increasing a variable charge can be progressive, that is, households on lower incomes could be better off. When a variable charge is applied, lower-income households are able to reduce expenditure by using less of a service and/or changing when they use a service to take advantage of off-peak (cheaper) pricing.

¹³ Sawtooth Economics & Firecone. (2024). 'Simulating the impact of different ways of charging for infrastructure on households'. <https://tewaihanga.govt.nz/our-work/key-topics/what-is-fair-providing-and-paying-for-infrastructure>

¹⁴ Access to the data used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Data and Statistics Act 2022. The results are the work of the authors, not Stats NZ or individual data suppliers. The results are the outcomes of simulations. They are not a description of the status quo. Rather, they should be interpreted as 'what would happen to the distribution of household incomes if policy X was implemented, holding all else constant'.

¹⁵ Note that this analysis only captures 'first round effects' of a policy change. Household behaviour changes as a result of the changes in prices and incomes could not be captured in this analysis.

¹⁶ Although households can avoid some fixed charges by forgoing the service entirely (for example, a gas connection).

¹⁷ However, infrastructure providers may prefer to use fixed charges in their pricing approaches, since providers face both variable and fixed costs that must be recovered. Relying solely on variable charges could require a provider to set their per-unit prices higher than some consumers were willing to pay, leading to less consumption overall. Using a mix of fixed and variable charges allows providers to adjust the rates of each to suit different customer groups.

3.1.1. Paying for water more by use than rates can be better for lower-income households

In the simulations, decreasing rates and increasing volumetric water charges was found to be slightly progressive. This is partly because lower-income households are smaller on average, and so tend to use less water. Unlike rates, volumetric charges reflect actual use, so shifting from paying through rates to volumetric charges would mean lower overall water costs for smaller households.

This impact is converse to claims that charging for water based on use inherently disadvantages lower-income households. This sentiment has underpinned opposition to introducing water meters and volumetric water charges in many New Zealand cities and regions.¹⁸

However, the extent to which this scenario is progressive in practice would depend on the nature of the household. For lower-income households that own their own home (for example, 66% of superannuitants),¹⁹ decreasing rates and increasing volumetric charges should be beneficial, as they will directly receive rates reductions. For households that rent, the impact is more ambiguous, and will depend on whether rates reductions are passed on into their rental costs.

3.1.2. Reducing public transport fares benefits higher-income households more

Public transport fares for most users are a variable charge, that is, spending increases with use.²⁰

Our simulations found that reducing public transport fares was regressive because it benefitted households on higher incomes. This reflects who uses public transport in New Zealand. Only 8% of New Zealand households pay for public transport.^{21 22} Users of public transport tend to have higher incomes, be younger and live in densely populated urban areas with jobs that align with public transport routes and schedules (typically a professional job in the central city).²³

Improving public transport service frequency or coverage is more likely to benefit lower-income households than reducing fares. However, improving frequency and coverage can have complicated longer-run effects. Houses in areas with good public transport networks tend to be more desirable, so public transports tend to push up house prices and rents in these areas, which may price out lower-income households.^{24 25}

When half-price public transport fares were introduced in 2022, households earning more than \$100,000 added the most public transport journeys during this period.²⁶

¹⁸ Fonseca, D. (2020, February 26). 'Water meters: the 'third rail' of council politics'. Newsroom.

<https://newsroom.co.nz/2020/02/26/water-meters-the-awkward-question/>

¹⁹ NZIER (2024). "As safe as houses: mortgage debt and financial stress in older persons."

²⁰ Exceptions include SuperGold cardholders who can travel for free on public transport during off-peak hours.

²¹ Sawtooth Economics & Firecone. (2024). 'Simulating the impact of different ways of charging for infrastructure on households'.

<https://tewaihanga.govt.nz/our-work/key-topics/what-is-fair-providing-and-paying-for-infrastructure>

²² Others such as SuperGold cardholders use public transport but do not pay for it.

²³ Noting that this reflects current routes and schedules and if these were to change then the demographics of public transport users would likely also change.

²⁴ See also Ministry of Transport. (2019–2022). The New Zealand Household Travel Survey. <https://www.transport.govt.nz/area-of-interest/public-transport/new-zealand-household-travel-survey/>

²⁵ MRCagney (2020). 'Equity in Auckland's Transport System'. Ministry of Transport.

https://www.transport.govt.nz/assets/Uploads/Report/NZ3060_Equity_in_Auckland_Transport_System.pdf

²⁶ Ipsos / Waka Kotahi. (2022). 'RN 009 – Impact of half price public transport fares – a research note'.

<https://www.nzta.govt.nz/resources/research/notes/009>

3.2. How revenue is raised matters more for lower-income households

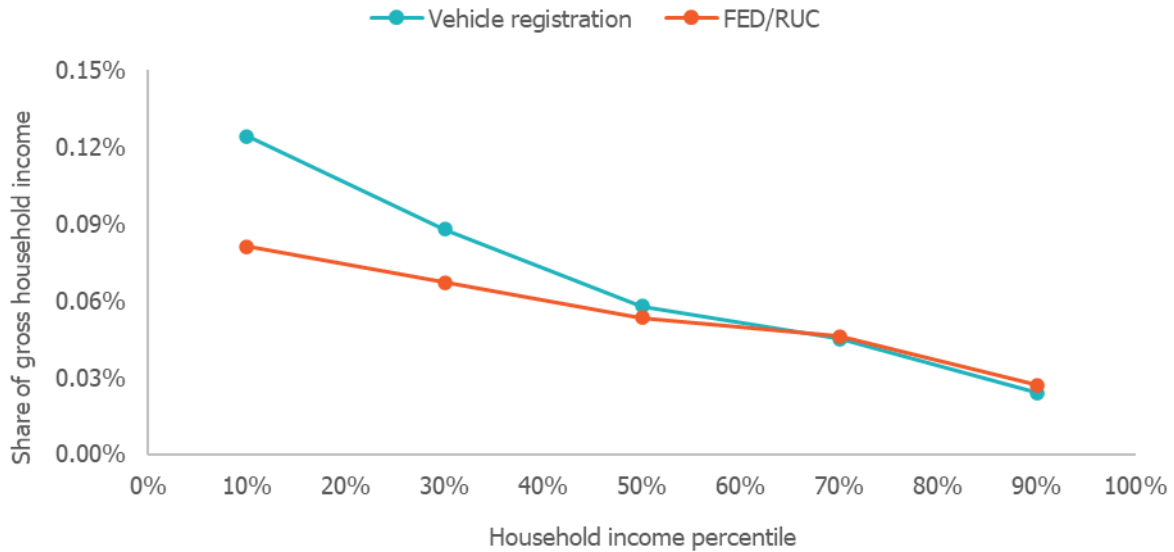
We were also interested in understanding the effect on different households of raising extra revenue for infrastructure.

Figure 2 shows the simulated impact on household budgets of raising \$250 million in new revenue for transport, by either increasing vehicle registration fees (a fixed charge) or fuel exercise duties and road user charges (both variable charges).²⁷

Regardless of the method used to raise revenue, lower-income households ended up paying a larger share of their incomes than higher-income households. However, raising revenue by increasing the vehicle registration fee (a fixed charge) had a bigger impact on lower-income households than raising FED/RUC (variable charges).

For households with above average income, raising revenue through increasing fixed or variable charges had a roughly similar impact. The policy choice about how to raise additional revenue for (private) transport is therefore more material for lower-income households.

Figure 2: Estimated impacts of increasing transport revenue on households with different income levels



Source: New Zealand Infrastructure Commission.

²⁷ NZ Infrastructure Commission (forthcoming). 'Transport pricing and investment: Does how we price infrastructure affect what we need to build?'

4. Addressing infrastructure affordability can be difficult

4.1. Boost incomes or reduce prices?

Policies to improve the affordability of infrastructure services generally do one of two things: increase household incomes or reduce infrastructure prices.

Increasing a household's income so households are better able to afford infrastructure services can be done via increases to welfare payments, tax reductions, or by specific payments. For example, the Winter Energy Payment is a specific payment made during the winter months to beneficiaries and superannuitants.²⁸ The payment increases their ability to pay without impacting the price of electricity, gas or firewood. An evaluation of the Winter Energy Payment found that it led to statistically significant reductions in financial hardship.²⁹ These types of payments give people agency to make their own decisions, even if it means the money is spent on things other than infrastructure services.

Decreasing the price of infrastructure services reduces the upfront costs, improving affordability of a specific service. Examples include discounted electricity tariffs for targeted groups, and half-price public transport for Community Services cardholders.³⁰

Other policies can be implemented to protect vulnerable groups, for example, the Electricity Authority's Consumer Care Guidelines³¹ (to be mandated from early 2025³²) outline recommended actions for electricity retailers when dealing with medically dependent consumers. Without these protections, providers could charge a premium for such protection or additional safeguards. When services are regulated, the costs are usually spread across other consumers. However, to maintain service quality, lost revenues will need to be recouped in some other way. This may lessen the benefits for the targeted group.

4.2. Help everyone or target assistance?

Some social assistance policies are universal, for example, New Zealand superannuation. Universal provision tends to be much more costly to government and benefits both those in need and those not in need. They also tend to be harder to remove. However, universal provision can avoid the potentially high transaction costs of targeted policies (for example, collecting and assessing evidence of eligibility for assistance).

Many policies in New Zealand are targeted to specific groups. Arguments for targeted provision focus on the idea that it is those most in need who should receive more assistance. Targeting can be based on a variety of factors (**Table 2**).

²⁸ Work and Income. 'Winter Energy Payment'. <https://www.workandincome.govt.nz/products/a-z-benefits/winter-energy-payment.html>

²⁹ Hyslop, D., Riggs, L., & Maré, D. (2022). 'The impact of the 2018 Families Package Winter Energy Payment policy'. https://motu-www.motu.org.nz/wpapers/22_09.pdf

³⁰ Work and Income. 'Public transport fares'. <https://www.workandincome.govt.nz/eligibility/living-expenses/public-transport-fares.html>

³¹ Electricity Authority. (2021). 'Consumer care guidelines'. <https://www.ea.govt.nz/documents/2093/Consumer-Care-Guidelines.pdf>

³² Radio NZ. (2024, February 1). 'Electricity retailers required to provide basic protection for customers'. <https://www.rnz.co.nz/news/business/508124/electricity-retailers-required-to-provide-basic-protection-for-customers#:~:text=Electricity%20retailers%20will%20be%20required%20to%20provide%20basic%20protection%20for.from%20the%20beginning%20of%202025>

Table 2: Possible characteristics for targeted interventions

Characteristics	Examples
Individual or household's characteristics (for example, age, ethnicity, number of dependent children)	Free off-peak public transport for SuperGold cardholders. ³³ Remissions from water charges in Christchurch for those with a medical condition and/or with more than eight household members. ³⁴
Individual or household's level of need	Half-price public transport for Community Services cardholders. ³⁵
Location, either as a proxy for individual/household disadvantage or as part of a cost/burden sharing mechanism (including rural and remote areas where the cost of supply is higher and/or the population is too small to meet the costs)	Rural Broadband Initiative to extend high-speed broadband access to underserved rural areas. ³⁶
Individual or household's ability to pay	Winter Energy Payment. ³⁷ for those receiving superannuation and other benefits

However, targeting assistance effectively can be difficult. How much infrastructure services a household uses can be a poor indicator of need, and income levels are not the only driver of infrastructure spending.

For example, in 2004 the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations were introduced which required electricity retailers to offer every household at least one low fixed-charge plan. They were introduced in response to concerns about large increases in fixed charges and were intended to 'help older New Zealanders on fixed incomes who are typically frugal users of power'. However, electricity usage and income levels are not closely correlated, so the regulations were not especially beneficial to low-income households, and a number of higher-income households (including those that had holiday homes) also benefitted.³⁸

Assistance policies that only target household incomes are likely to miss people in need. The share of households reporting difficulties paying their infrastructure bills does not fall quickly with income. For example, 9% of households in the middle-income quintile reported difficulties paying their bills, compared to 12% of households in the lowest income quintile.³⁹

³³ Ministry of Transport. 'SuperGold Card public transport funding'. <https://www.transport.govt.nz/area-of-interest/public-transport/supergold-card-scheme/>

³⁴ Christchurch City Council. 'Remissions from water charges'. <https://ccc.govt.nz/services/water-and-drainage/water-supply/water-reporter/remissions/>

³⁵ Work and Income. 'Public Transport Fares'. <https://www.workandincome.govt.nz/eligibility/living-expenses/public-transport-fares.html>

³⁶ Ministry of Business, Innovation and Employment (MBIE). 'Broadband and mobile programmes'. <https://www.mbie.govt.nz/science-and-technology/it-communications-and-broadband/digital-connectivity-programmes/broadband-and-mobile-programmes/>

³⁷ Work and Income. 'Winter Energy Payment'. <https://www.workandincome.govt.nz/products/a-z-benefits/winter-energy-payment.html>

³⁸ MBIE (2021). 'Regulatory impact assessment: Phase-out of the Electricity low fixed charge tariff regulations'. <https://www.mbie.govt.nz/dmsdocument/17685-regulatory-impact-assessment-phase-out-of-the-low-fixed-charge-tariff-regulations-proactiverelase-pdf>

³⁹ Heatley, D. (2023, September 9). 'Understanding NZ's low-income households: Insights from Stats NZ's household economic survey'. Asymmetric Information. <https://nzae.substack.com/p/understanding-nz-low-income-households-heatley>

4.3. Changing prices can create other problems

Prices provide important signals for infrastructure investment and use. Good pricing should both guide future investment decisions and encourage the efficient use of existing infrastructure.⁴⁰

For example, adopting time-of-use road pricing encourages people to spread their journeys across the day, avoiding congestion and calls to build new roads to accommodate traffic at peak times. Charging households directly for the water they use encourages people to identify and fix leaks. Many councils that have adopted volumetric charging for water have been able to delay the need for investment in new capacity, by making better use of existing pipes and assets.⁴¹

Fixed charges play an important role in meeting the costs of our infrastructure networks, now and into the future. However, increases to fixed charges can have a disproportionate impact on low-income households, and so need to be designed carefully and with due consideration to their impacts.

Similarly, broad-brush price reductions, designed to assist low-income households, can have unintended and negative consequences. For example, lowering the cost of driving by reducing FED/RUC may encourage increased use of roads, leading to higher road maintenance costs and increased congestion.

Good pricing should also allow the benefits of infrastructure to be widely shared.⁴² Sometimes pricing strategies can incentivise best use of existing infrastructure and allow the benefits of infrastructure to be shared. For example, because off-peak transport services typically have spare capacity, free off-peak public transport for SuperGold Card holders contributes to shifting demand for public transport away from peak times, makes better use of the existing public transport network, as well as ensuring that price isn't a barrier to travel for older New Zealanders.

4.4. Reducing overall infrastructure costs may be the best way to help low-income households

Infrastructure is expensive and the ability to recover costs is important if we are to continue enjoying the living standards we expect. However, there is value in finding cost savings and efficiencies (without compromising quality of service) that can be passed on to New Zealanders in the form of lower prices and lower taxes/rates. Such efficiencies would benefit all New Zealanders, but the biggest beneficiaries would be those households that bear the biggest burden (relative to their incomes) of the costs of infrastructure.

⁴⁰ PwC. (2024). 'Approaches to Infrastructure: Pricing Study: Part 1 – Economic design'. NZ Infrastructure Commission. <https://tewaihangā.govt.nz/our-work/research-insights/network-infrastructure-pricing-study>

⁴¹ NZ Infrastructure Commission (forthcoming). 'Addressing our water needs: examining the benefits of volumetric water charges'.

⁴² PwC. (2024). 'Approaches to Infrastructure: Pricing Study: Part 1 – Economic design'. NZ Infrastructure Commission. <https://tewaihangā.govt.nz/our-work/research-insights/network-infrastructure-pricing-study>