
Report prepared for the Independent Māori Statutory Board

Analysis of the regional fuel tax and increase to national Fuel Excise Duty

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1. Introduction

The Independent Māori Statutory Board (IMSB) is interested in the potential social and economic impacts of increases to the taxes and excises on fuel, both nationally and regionally. As a result, the IMSB commissioned us to produce a policy paper that:

- explains the key concepts and estimated effects of the increases;
- examines any material impacts from an equity (fairness) perspective; and
- discusses possible mitigation options where such equity impacts are found.

The focus of the work is on low-income Auckland households, with some emphasis on Māori households in the south and west of the region.

The report proceeds as follows. Section 2 provides background information on the tax and excise increases and introductory material on the economics of taxation. Section 3 then estimates the impacts of the fuel tax and excise changes based on a simple model we developed and insights from previously published papers.¹

Section 4 concludes with discussion of the results and possible implications (including options for mitigation). An appendix to the paper contains additional contextual information, including a specific focus on West Auckland and other factors (not tax and excise-related) relevant to the households which are the focus of the paper.

¹ Further detail on the method used is available on request.

2. Background

2.1 Clarification of the tax and excise increases

2.1.1 A new regional fuel tax for Auckland

The Government has introduced a Land Transport Management (Regional Fuel Tax) Amendment Bill (the Bill) that provides for a regional fuel tax mechanism to raise funds for transport infrastructure projects that would not otherwise be funded. The Bill focuses on Auckland and specifies a maximum rate for regional fuel tax of no more than 10c per litre. The Regional Fuel Tax (RFT) is proposed to apply to petrol and diesel and be charged up to a maximum rate of 10 cents per litre, for a maximum of 10 years. Rebates will be available to those that do not use fuel on roads. Eligibility for rebates will be confirmed when the regulations are finalised.²

The Bill was passed in June 2018. Auckland Council has voted in favour of the RFT and a consultation process on the proposal was concluded in May 2018.

2.1.2 Signalled increases in the national fuel excise duty

The Government Policy Statement on land transport (GPS), released March 2018, states that the Government is currently considering an annual increase to fuel excise duty of 3 to 4 cents per litre (and equivalent for road user charges) per annum for three years.³

Table 1 shows the combined impact of the two increases at the end of the three years of signalled increases in the national fuel excise duty. Both tax and excise changes are subject to goods and services tax (GST) of 15%. This means that the impact could be as high as 25.3 cents per litre of petrol after three years.

Table 1: Summary of tax and excise changes

	Cents per litre	Cents per litre (GST incl)
Regional Fuel Tax	10.0	11.50
Increases to National Fuel Excise Duty (by year 3)	12.0	13.80
Total	22.0	25.30

² <https://www.transport.govt.nz/land/regional-fuel-tax/>

³ *Government Policy Statement on Land Transport, 2018/19 - 2027/18*

Source: GPS; Sapere calculations

2.2 Insights from the economics of taxation

Economics is now essentially the language of policy and as such, looking at proposed and actual policies through an economic lens provides valuable insights into likely effects. Taxation policies are often considered in terms their efficiency and equity.⁴

2.2.1 A trade-off exists between equity and efficiency

Efficiency is concerned with minimising both the cost of complying with the tax (i.e. the administrative burden) as well as the potential distortions that may arise from the tax (e.g. behaviour changes to lower exposure to the tax).

Equity is principally about the fairness of a tax. There are several criteria for determining what is considered fair. For instance, the benefits principle states that people should pay taxes based on the benefits that they receive from government services. For instance, excise taxes on fuel are used to pay for roads and other transport investments. However, taxes on income are based on the **ability to pay principle**.

The ability-to-pay principle can be classified in terms of **vertical equity** and **horizontal equity**. Vertical equity is the principle that people with higher incomes should pay more taxes, such as the provision for the increasing marginal tax rates at higher levels of income. Horizontal equity is the principle that people with higher necessary expenses should pay less tax than someone else with equal income but without the expenses. A common application of this principle is the provision for the numerous deductions and tax credits available for people who have children, allowing them to pay less tax for a given level of income.

Another general principle that would make taxation more equitable is to consider the **marginal utility of money**. As with everything else, the marginal utility of money declines with increasing amounts. Each successive dollar of income holds less value than the previous dollar for the holder. This is because when people have less money, they need to spend it on essential goods and services, such as food, clothing, and household energy. On the other hand, wealthy people have much more money than what they need for essential goods and services, so they can invest it to make even more money or pass it to their descendants.

Thus, when considering the marginal utility of money, a poor person paying 25% of their income for taxes is paying a much more valuable portion of income than a wealthy person paying the same percentage, or even a much higher percentage, of their income.

It is well known and generally accepted that there is a trade-off between efficiency and equity in relation to taxes. That is, it is possible that a tax can simultaneously increase efficiency (i.e. be cost-minimising) and decrease equity through the uneven proportional distribution of who pays the tax. In the context of fuel taxes in particular, there is a long history of work

⁴ This section draws from material outlined at: <https://thismatter.com/economics/taxation.htm>

that has established that such taxes are generally regressive in nature (i.e. gives rise to inequitable impacts across different groups- see the following material).⁵

2.2.2 Good policymaking requires consideration of this trade-off

It is often difficult to be explicit and definitive about the nature and extent of the efficiency-equity trade-off, but it is a key plank in the assessment of the welfare implications of proposed policies. Failure to consider the efficiency-equity trade-off could lead to decisions that give insufficient attention to the potential reduction in the welfare of particular groups. In other words, there are unintended consequences which are harmful to particular people or sectors of society.

In the context of taxation policy, this would result in the implementation of policy that fails to assess the degree of regressivity of the tax. In simple terms, a tax is regressive if lower income households tend to pay a larger share of their income in fuel (and consequently fuel taxes) than higher income households.

The regressivity of a tax is not necessarily a bad thing. As alluded to above, in some circumstances it might be desirable for lower income households to bear a greater proportion of a tax (e.g. where lower income households benefit disproportionately from the services provided by the government, funded from the tax). The concern is where there are regressive effects that have been overlooked or ignored in the relevant policy decisions.

2.2.3 Equity impacts of fuel tax and excise increases largely ignored by public agencies

Available material from public agencies seems more concerned with efficiency than equity. The Regulatory Impact Statement (RIS) accompanying the Bill only superficially considers the impact of the RFT on low income households. The RIS claims negative impacts on the poor ‘may’ or ‘could’ happen. However, the RIS makes no attempt to estimate the nature and extent of these impacts. While we acknowledge the claim in the RIS that only limited relevant data were available, the lack of quantified evidence on such negative impacts restricts the ability of policymakers to base decisions on sound, complete evidence.

Moreover, the RIS gives more prominence to the likelihood of inequitable impacts of possible price spreading (residents in regions that do not have a regional fuel tax paying higher prices) than it does to impacts on poorer households within Auckland.⁶ In our view, this focus was misplaced and is a significant oversight.

The Q&A material provided with the Bill acknowledges that “there is some evidence to suggest that a regional fuel tax will have a greater impact on lower income households”. The response briefly notes that low income households will benefit from new transport projects:

⁵ Poterba, J.M. (1991) “*Is the gasoline tax regressive?*” Tax Policy and the Economy 5, s145–s264.

⁶ <https://www.transport.govt.nz/assets/Uploads/About/Documents/Regional-Fuel-Tax-RIS.pdf>

“However, low income households should benefit from the new transport projects funded by a regional fuel tax, in particular, more public transport.”⁷

2.2.4 Equity impacts need to be highlighted

It is not our intention (nor is it necessarily straightforward or desirable) to re-litigate policy decisions already taken. Rather, we provide this analysis in order to better highlight equity issues that have not been prominent in the material provided by public agencies thus far, but have more recently been identified as important.

For instance, Sam Warburton of the New Zealand Initiative has opined that the view that the RFT would not negatively affect low-income people is mistaken. He refers to yet-to-be-published analysis which shows that petrol tax increases hit Māori, the unemployed and other disadvantaged groups hardest.⁸ Efeso Collins, an Auckland Councillor, referred to the need for further discussion of methods to ensure that low income households (many of which are in his Manukau ward) benefit from proposed investments as a result of the RFT, given the evidence that they would likely suffer hardest.⁹

The next section of this report contains our analysis of the likely impacts on lower income households as a contribution to the debate.

⁷ <https://www.transport.govt.nz/assets/Uploads/Land/Documents/RFT-QAs-March-2018.pdf>

⁸ <https://nzinitiative.org.nz/reports-and-media/opinion/gravy-trains/>

⁹ <https://thespinoff.co.nz/auckland/15-05-2018/taxing-the-poor-to-transport-the-rich/>

3. Estimating the equity impact on households

This section considers the impact of the RFT and signalled increases to the national Fuel Excise Duty from the perspective of the additional costs faced by households in Auckland. To estimate the impacts we constructed a model using publicly available data with key parameters around distance travelled to work, the number of drivers per household, fuel efficiency and ability to pay.¹⁰

3.1 The underlying premise

3.1.1 Regressive taxes not generally preferred in developed countries

We are analysing the distributional aspects of fuel taxation. That is, how the tax is borne by different members of society. The essential idea is that taxing a good or service that is used mainly by the rich is progressive, while taxing a good that is used predominantly by the poor is regressive. In western (developed) countries there is a general preference for progressive taxes, though in practice assessing the extent of progressivity or regressivity of taxes is not straightforward.

The most useful metric in such analysis is the budget share for the relevant good or service. Suppose that a low income (poorer) person has a budget share for some item, say food, of 40% while a richer person only spends 10% of their income on food. Then clearly a tax that increased the price of food by 10% would take 4% of the poorer person's budget but only 1% of the rich person's budget and thus such a tax would be considered regressive.¹¹

3.1.2 Tax on petrol potentially regressive for poorer and Māori households

Figure 1 uses Household Economic Survey data to show the expenditure shares on private transport supplies and services for households in the lowest and highest expenditure quintiles (i.e. 20% of the relevant population).¹² There is *prima facie* evidence that a tax on fuel is regressive in nature. In 2008, the lowest expenditure quintile of households (i.e. poorer households) spent around 13% more on petrol than the highest expenditure quintile of households (i.e. richer households). This differential reduced in 2014 to around 7%, after reaching 21% in 2011. That is, petrol accounts for 7% more of poorer households'

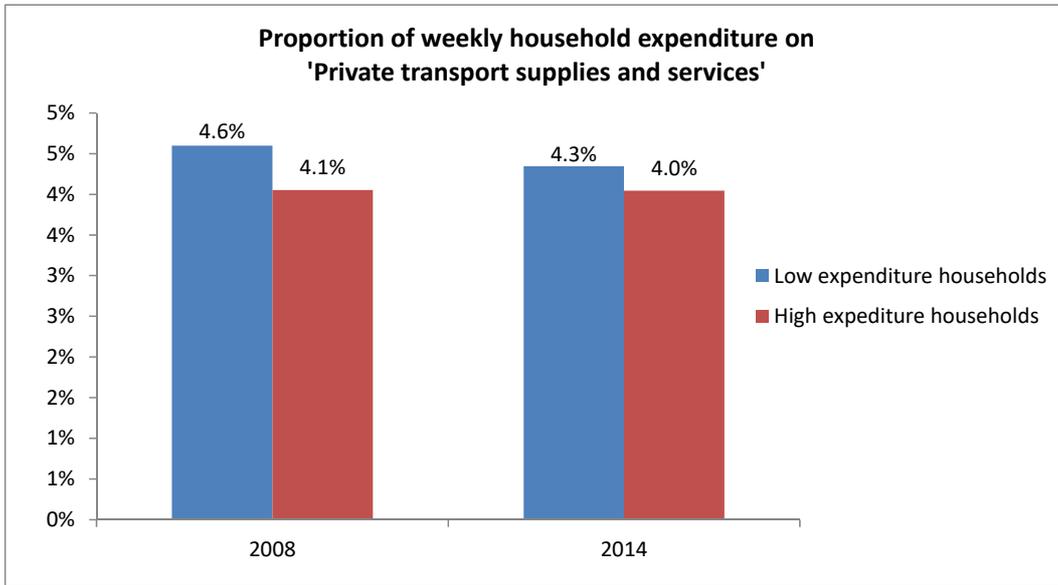
¹⁰ Further detail on the data and model are available on request.

¹¹ Note that while we focus on low-income households, expenditure is often used as the relevant metric in assessment of regressivity.

¹² As petrol makes up around 60% of the private transport supplies and services category, the category is a useful proxy for petrol expenditures.

expenditure than richer households, and has been as much as 21% higher relatively recently. Thus, any tax on petrol would affect poorer households more than it would richer households.

Figure 1 Expenditure shares for fuel



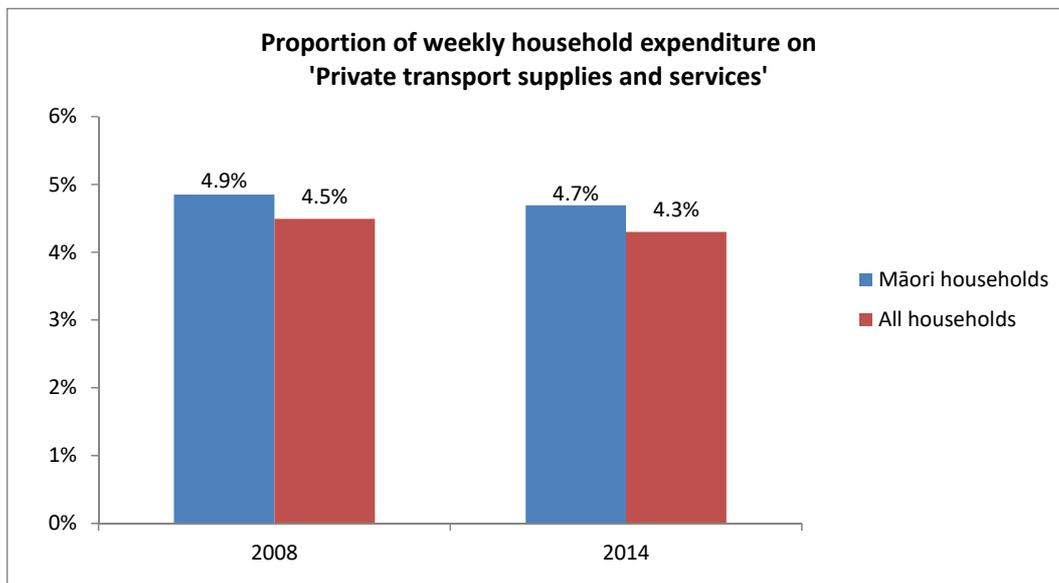
Source: Statistics NZ, Sapere calculations

Looking at the same data for Māori households we can see that Māori households tend to use more of their weekly spending for Private transport supplies and services (i.e. petrol) than all households (see Figure 2).¹³ In 2008, Māori households spent around 8% more on petrol than all households in total. This differential rose to around 9%, in 2014, after being around 5% in 2011.

That is, petrol accounts for 9% more of Māori households’ expenditure than richer households. Like the impact on poorer households, by looking at expenditure shares, we see the potential for any tax on petrol would affect Māori households more than it would other households. This result is perhaps not surprising given the understanding that Māori households tend to have lower incomes than others. In the next section we use more detailed data to delve further into the analysis of the impacts of the tax and excise increases by household.

¹³ Households defined as Māori are where at least one member has reported Māori ethnicity.

Figure 2 Expenditure shares for fuel, Māori versus all households



Source: Statistics NZ, Sapere calculations

3.2 Key results of more detailed modelling

The modelling we undertook uses the number of households where at least one person drives to work as its base. We then use the relativity between distance travelled for week days to total distance travelled across the week to estimate the total distance driven during a week. The scale factor used is 1.2 (i.e. total distance travelled is 1.2 times distance travelled to work). We examine households across income brackets using reported median income levels by Census Area Unit, aggregated up to Local Board area.

In short, we are able to calculate the estimated impact on households of the tax and excise increases and compare these across local boards in Auckland and income brackets. The goal is to test whether or not the tax and excise increases are regressive in nature (i.e. lower income households pay a larger share of their income in fuel, and consequently fuel taxes than higher income households).

3.2.1 Main cost driver is distance travelled¹⁴

The tax is on a litre of fuel. Therefore, consumption of fuel is the major driver of the cost burden faced by households. In turn, fuel consumption is determined by the:

- distance travelled per household; and
- efficiency of the vehicle/s used by the household.

¹⁴ Note that, for reasons of tractability, we did not factor in any reduction in distance travelled due to the rise in the price of fuel.

While we were able to use Census data on household distance travelled to work, the available data on fuel efficiency is limited. As a result we rely on scenario analysis utilising data from the Ministry of Transport¹⁵ and some assumptions and extrapolation.

There is considerable variation in the weighted average (annual) distance driven to work across local board areas (see Table 2). The annual distance travelled to work by a person in Franklin is over twice as great as that for someone in Albert-Eden.

Table 2 Distance driven to work by local board

Local Board	HH annual distance (km)	Local Board	HH annual distance (km)
Five shortest		Five longest	
Albert-Eden	3,088	Franklin	8,736
Orākei	3,171	Hibiscus and Bays	7,630
Waitemata	3,220	Rodney	7,085
Maungakiekie-Tamaki	3,617	Papakura	6,325
Otara-Papatoetoe	3,980	Manurewa	5,268

Source: Richard Paling Consulting, Sapere calculations

As mentioned, the metric we use in modelling is the total household distance travelled. We calculate this measure by scaling up distance travelled to work by 1.2 (to account for non-work travel) and then multiplying the estimated distance by the number of people who drive to work per household.

A key determinant of that total distance is the proximity to work and leisure opportunities. Table 3 shows the proportion of trips that are within the same local board area. A low percentage indicates that people are travelling outside their local board area for work and leisure while the opposite is true of higher percentages.

Of note is Manurewa, whose households seem to take long trips but only a small proportion of such trips are within its own boundaries. On the other hand, households in Albert-Eden seem to travel shorter distances with relatively few in the same local board area (suggesting trip destinations in neighbouring local board areas). Of course, not all local board areas are

¹⁵ <https://www.transport.govt.nz/resources/vehicle-fleet-statistics/#annual>

the same size, and those that are less dense in terms of population and employment are likely to have greater annual distances travelled. Notwithstanding this, for our analysis distance travelled is a major driver of the fuel cost burden (and subsequent tax faced).

Table 3 Trips within the same local board area

Local Board	Trips within local board area (%)	Local Board	Trips within local board area (%)
Five lowest		Five highest	
Puketapapa	13%	Upper Harbour	32%
Waitakere Ranges	14%	Howick	34%
Manurewa	15%	Rodney	41%
Whau	19%	Franklin	41%
Albert-Eden	20%	Waitemata	48%

Source: Richard Paling Consulting, Sapere calculations

However, the tax and excise increases apply to fuel consumption, not strictly distance travelled. Hence there is not a strict one-to-one correspondence between distance travelled and fuel tax paid. Where vehicles are less fuel efficient (i.e. older and/or bigger in engine size) for a given distance travelled, fuel consumption would be higher with less efficient vehicles. While there may be an argument for such an occurrence where the intent of the fuel tax is to reduce emissions or achieve some other environmental goal, it does not seem that these factors were front of mind in the development of the tax and excise increases.

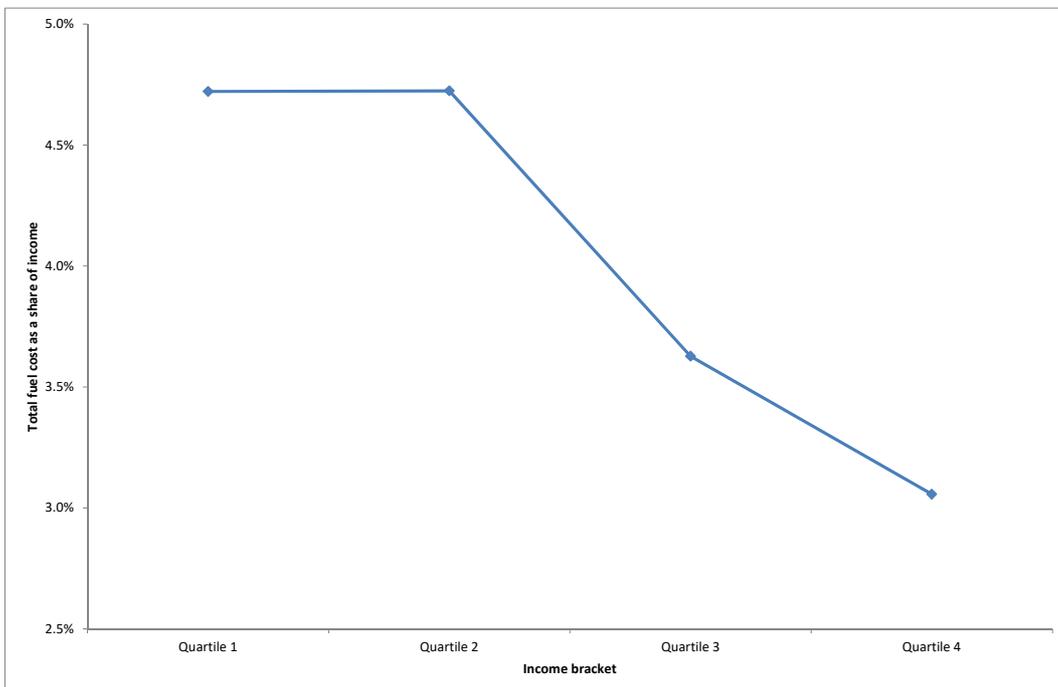
Intuitively, it seems plausible that lower income households would own older (cheaper) vehicles and ones with bigger engines (e.g. vans, minibuses and the like). This would be true especially of Māori and Pasifika households, which typically have larger families. In the absence of data on vehicle types by local board area we are unable to examine this issue in any detail. However, we were able to derive some fuel efficiency estimates based on vehicle age, which we use to construct scenarios around likely impacts using assumptions about the ownership of older (less fuel-efficient) vehicles.

We compared average fuel consumption per 100 kilometres for light vehicles first registered in the year 2016 with average fuel consumption of the average-sized vehicle first registered in 2000. The figures were 8.29 litres/100 km and 10.23 litres/100 km respectively, an assumed difference in fuel efficiency of around 23%.

3.2.2 Lower income households will be disproportionately affected

Our estimates (under varying scenarios) consistently show the effect of the fuel tax changes will be regressive in nature (i.e. lower income households will pay a higher share of their income than higher income households). Figure 3 shows that as income rises, total fuel cost as a proportion of income falls. The difference between the lowest income quartile and the highest income quartile is over 50%. That is, the share of income accounted for by fuel for the poorest households is over 50% larger than the share of income accounted for by for the richest households. The chart assumes average vehicle fuel efficiency across the entire Auckland region.

Figure 3 Fuel cost as proportion of income by income quartile, Auckland region

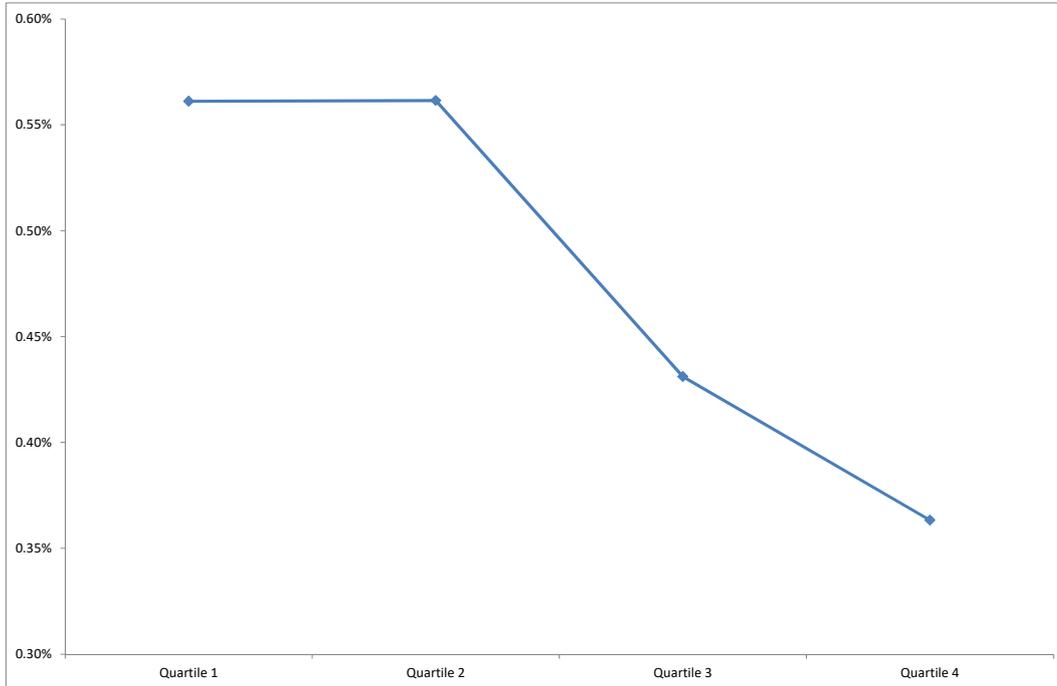


Source: Sapere

This general result applies across all local boards, though to differing degrees. A similar pattern is observed in respect of the *additional* cost faced by households as a result of the tax and excise increases (see Figure 4). Poorer households are impacted proportionally more than richer households.

For simplicity, the analysis underpinning the charts treats the fuel tax and excise increases in a combined sense. That is, it models the impact on incomes of a single, one-off rise in the cost of fuel of 22 cents (the RFT of 10 cents per litre and the total increase in fuel excise duty of 12 cents per litre). Thus, the share of the increase that each of the respective changes is responsible for is about 45% for the RFT and 55% for the fuel excise duty. GST is included on both components in the modelling.

Figure 4 Increase in fuel cost as a proportion of income quartile, Auckland region



Source: Sapere

3.2.3 Averages mask significant variation across local boards

We estimate that the average increase in total fuel cost across the region will be around \$252 per annum (ranging from \$188 for the lowest income quartile to \$271 for the highest income quartile). On the face of it, this might be what the Minister of Transport was referring to when he was reported as indicating the impact of the fuel tax and excise increases was no more than a cup of coffee a week.¹⁶ However, the impact is not uniform across local boards, regardless of income bracket.

Figure 5 plots the impact on total fuel costs by income quartile by local board against the Auckland average, expressed as a ratio.¹⁷ Any ratio that is above one in value indicates an impact (i.e. increase in total fuel costs) above the region-wide average for that income group, while a ratio value of less than one indicates below-average impact.

¹⁶ https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=12027564

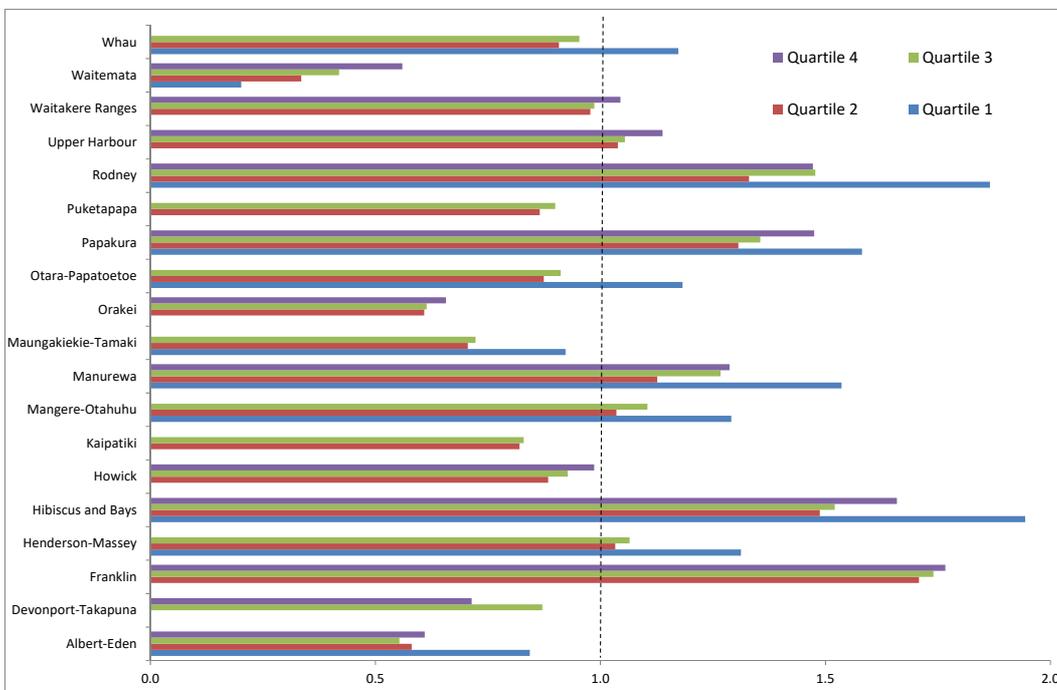
¹⁷ Recall that the data is organised in terms of median household income in local area boards. This arrangement allows cross-tabulations on other variables of interest (e.g. employed people, numbers driving to work). Where the maximum median income for a board is below the upper bound (\$100,000), then there will be no bar for the top income quartile. The same situation applies to households in board areas where the minimum median income per household is above the lower bound.

We can see that the local boards with above average impacts (i.e. greater than Auckland average in all relevant income brackets) are Franklin, Hibiscus and Bays, Mangere-Otahuhu, Manurewa, Papakura and Rodney. For the lowest income brackets in these local boards the difference relative to the average across Auckland in that bracket ranges from 30%-90% higher (i.e. additional total fuel costs of \$244-\$366 per annum).

Notwithstanding the possibility that at least some of these households would likely think of the additional cost in terms of school lunches foregone rather than a cup of coffee, this means for some that the additional cost is more like 1.3-1.9 cups of coffee, which is a significant difference.

At the other end of the spectrum, Albert-Eden, Orakei and Waitemata local boards have impacts that are consistently below the Auckland average.

Figure 5 Increase in total fuel cost as proportion of income by income quartile by local board



Source: Sapere

3.2.4 Accounting for vehicle fuel-efficiency exacerbates differences

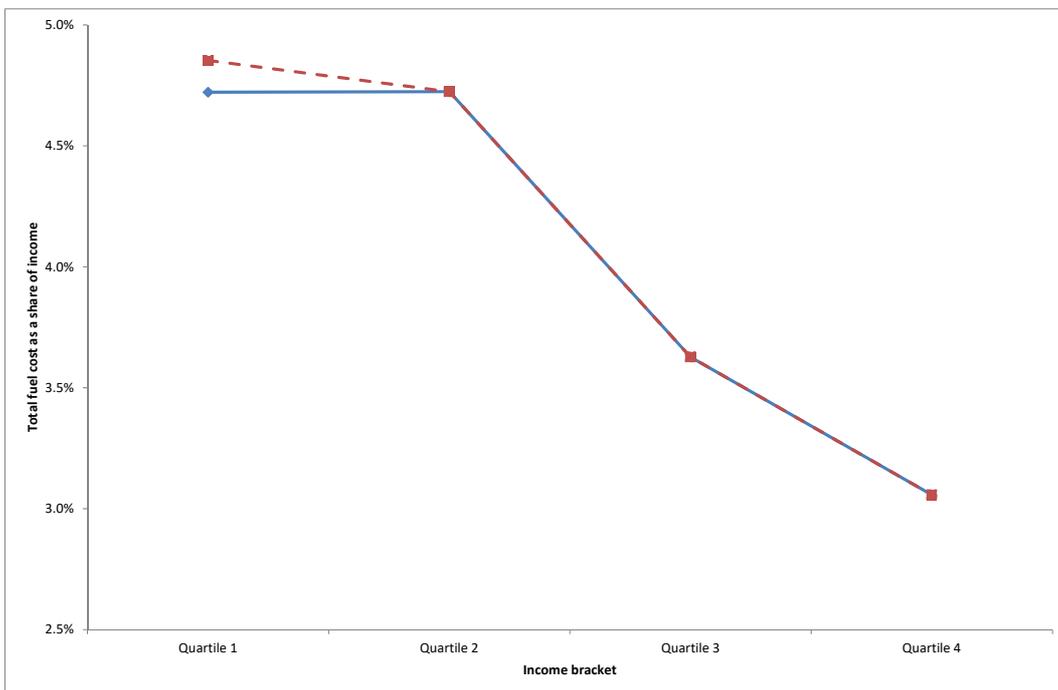
The results above assume that all vehicles have the same average fuel efficiency (i.e. consumption is 8.29 litres/100 kilometres). This assumption is not realistic, but as indicated earlier the available data does not allow us to precisely match vehicle fuel efficiency to local board areas nor to accurately identify in official statistics the fuel efficiency of vehicles registered past 2005.

We derived an interpolated fuel-efficiency rate of 10.23 litres/100 kilometres for vehicles first registered in 2000. We use this figure to introduce likely differences between lower-

income households and higher income households in terms of the ownership of more fuel-efficient vehicles. In particular, assuming that all households in the lowest income quartile drive less fuel-efficient vehicles, we can see that the fuel tax and excise increases become more regressive.

Figure 6 overlays the total cost of fuel as a proportion of income curve from Figure 3 with the curve including the effect of the fuel efficiency assumption. The red line represents the increase in regressivity as a result of that assumption. In this case, it adds around \$44 (23%) per annum to the total cost of fuel for households in the lowest income quartile.

Figure 6 Fuel cost as proportion of income by income quartile, Auckland region, adjusted for fuel efficiency

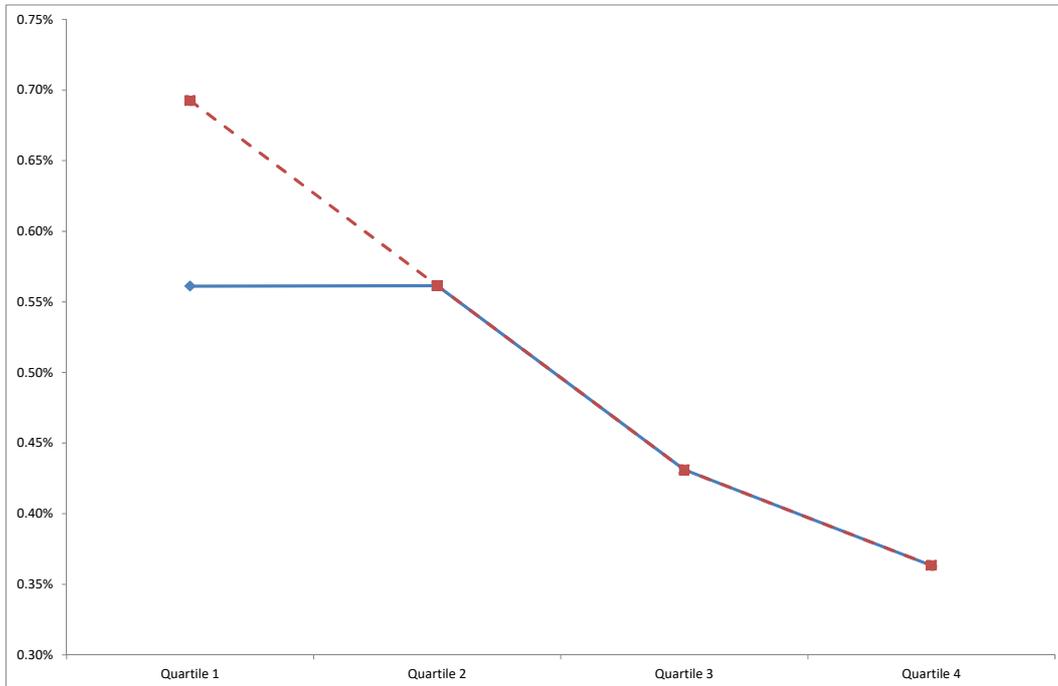


Source: Sapere

The increase in likely inequity after accounting for fuel efficiency is highlighted by the red line in Figure 7. The increase in steepness of the red line indicates that the distance between households in the lowest income quartile and those in the highest quartile in respect of the increase in fuel costs as a share of income between the two groups has grown.

While we applied a somewhat crude and simple method to get around data constraints, there is clear and reasonably strong evidence that the fuel efficiency matters in terms of the likely inequitable impact and regressivity of the tax and excise increases.

Figure 7 Increase in fuel cost as a proportion of income by quartile, Auckland region, adjusted for fuel efficiency



Source: Sapere

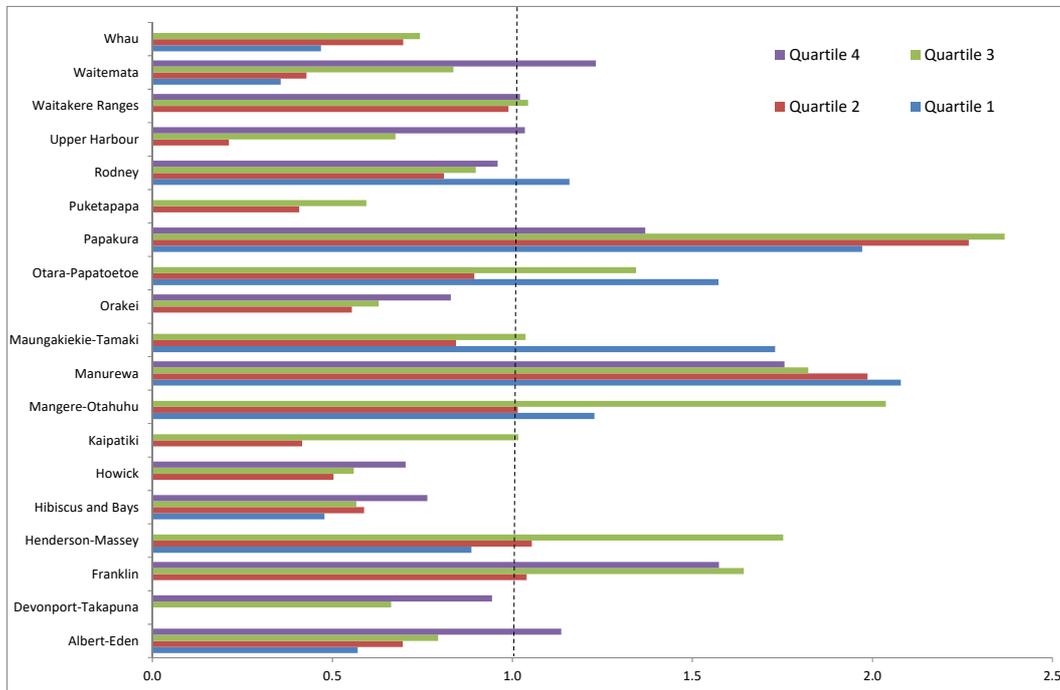
3.3 Impacts on Māori

We saw earlier that expenditure on fuel for Māori households is larger as a share of income than non-Maori households. This suggests intuitively that the fuel tax and excise increases would impact Māori households disproportionately. We also saw, using more detailed data that the tax and excise increases impact lower-income households disproportionately. Unfortunately, we are unable to source data specifically for Māori households that would allow distinct analysis of the impacts on Māori. What we are able to do is establish correlations that lead to conclusions around the likely impact of the fuel tax and excise increases on Māori.

Māori account for around 10% of total households in the Auckland region. The distribution of Māori households across local board areas is not uniform. Figure 8 shows the distribution of Māori households across the region by income quartile. The data is expressed relative to the average proportion of Māori households within the specific income quartile across the region. Any value above one means that Māori are concentrated in that local board area in the specific income bracket.

We can immediately see that Papakura stands out across all income brackets for the proportion of Māori households in the area. Across the three lower income quartiles Papakura has around twice the proportion of Māori households than Auckland overall. Other local board areas of note are Manurewa, Franklin, Otara-Papatoetoe and to a lesser extent Henderson-Massey.

Figure 8 Distribution of Māori households by local board by income quartile



Source: Sapere

Table 4 lists those local boards identified earlier where inequitable impacts are likely to be above average with local board areas with above average Māori representation. Of the top six local board areas in each category, four local boards appear in each list (highlighted in the table). These areas are all in the south of the region (Papakura, Manurewa, Franklin, and Mangere-Otahuhu).

Table 4 Māori households and major impacts, by location

Local board with high proportion of Māori households	Local boards with material impact
Papakura	Franklin
Manurewa	Hibiscus and Bays
Franklin	Mangere-Otahuhu
Otara-Papatoetoe	Manurewa
Mangere-Otahuhu	Papakura
Maungakiekie-Tamaki	Rodney

Source: Sapere

While we are unable to establish causality, we have shown that there is a likelihood that Māori households would by virtue of incomes, be disproportionately negatively affected by the fuel tax and excise increases. In addition, that negative impact on Māori households is likely to be concentrated in the south of the region.

4. Discussion of results

The results of our basic analysis highlight that the tax and excise increases are likely to be regressive in nature. Lower-income households would be disproportionately impacted relative to higher-income households. The difference could be as much as 95%. That is, households in the lowest income quartile in particular local boards would face additional fuel costs as a proportion of net income from the fuel tax and excise increases that are almost double the equivalent costs (as a share of income) of higher income households.

By virtue of their greater representation in lower-income households, Māori (and Pasifika) are also likely to be disproportionately impacted by the increases, though we are unable to be definitive around the quantum of the difference.

These impacts appear to have been overlooked by public agencies in their analysis of the tax and excise increases. That is, the inherent trade-off between efficiency and equity has not been considered in any detail. Good policymaking requires consideration of this trade-off. Even if it is effectively too late to include analysis of this trade-off into decision-making, it is still, in our view, important that the findings of such an analysis are considered in terms of possible mitigation options.

4.1 Mitigation options

Given the omission of analysis of equity impacts of the tax and excise increases from publicly released official material, it is not surprising that there has also been very little analysis of possible mitigation options for the inequitable impacts of the increases. We suggest further in-depth analysis is required of such mitigation options before a decision is made, but offer some suggestions and comments below.

4.1.1 Existing policies that may ‘offset’ inequitable impacts

It has been suggested that previously announced increases to the minimum wage and social welfare entitlements would act to ‘offset’ any likely negative impacts on lower income households from the tax and excise increases. The implication seemed to be that there was no need to explicitly consider mitigation options as the overall effect of the other policy changes with the tax and excise increases would somehow cancel each other out.

It is not clear to us how these policy changes are relevant to consideration of inequitable impacts from fuel tax and excise increases. It is highly questionable the extent to which decisions in relation to minimum wages and/or benefit levels are driven by their interaction with fuel taxes and excises.

If there was a strong and direct link between these factors then some analysis of the relative position of lower-income households could, in theory, be undertaken to establish the net position following the increases. However, we consider the link tenuous and therefore fail to see how such policy changes could be seen as mitigating inequitable impacts from the tax and excise increases.

4.1.2 Other central government policy levers

Central government has control over other policy levers that could be used to mitigate inequitable impacts of the fuel tax and excise increases. For instance, Working for Families provides tax credits to assist in raising families while working.

While not exclusively for low-income families, income thresholds are used to determine eligibility. The policy provides for additional assistance for affordable housing and possible subsidies for child care costs. It may be possible to extend the policy so that families faced with additional costs as a result of the fuel tax and excise increases can receive assistance.

In addition, a voucher-type scheme could be developed that would work in a similar manner to the fuel discount scheme operated by supermarkets at present. For instance, people with Community Services Cards may receive a discount on fuel costs, with the fuel company then invoicing the government at monthly or weekly intervals.

At the least, further investigation and advice is needed to determine whether and to what extent additional income support could be made available to those most disadvantaged by the fuel tax and excise increases, particularly the RFT.

4.1.3 Local government policy levers

Despite not investigating to any degree the inequity of the RFT, the use of rates funding was considered and dismissed in the RIS for the RFT, on the basis that it was unfair and inequitable. The argument was that rates do not necessarily relate to use of the transport system.

We concede that it is possible that an RFT is fairer than rates if people who drive more pay more in terms of maintaining and improving roads. On the flip side, it is possible to argue that rates are fairer than RFTs if rates are better able to raise revenue from richer households than poorer households. This analysis has not been done sufficiently to be definitive about the relative merits of rates versus RFT.

Nevertheless, the possibility exists that rates could be used as a mitigation tool- either through rates relief or in future, instead of RFTs altogether. The extent to which use of rates may be more equitable than an RFT is finely balanced. It is well known that property and land taxes are favoured by economists for their efficiency and stability properties (they are hard to avoid, introduce fewer distortions than other alternatives and are relatively stable in terms of income generation over time).

However, as mentioned, there is less of a direct link between rates and transport system use. The effectiveness and equity of rates as a revenue-raising mechanism also relies on the degree to which property owners pass costs on to renters. Again, this element requires further analysis. The key factor is the nature and extent of pass-through from landlords to tenants. It may be that there is asymmetry in that cost increases (through using rates instead of the RFT to raise revenue) are fully passed through to tenants, but relief in the form of rates rebates is not fully passed through, meaning that potentially lower-income tenants would continue to face inequitable impacts.

A further option that falls within the auspices of local government is the provision of dedicated public transport options from the specific locations most affected, at the times where the disproportionate impacts are felt. Public transport options in the reasonably

densely-populated south to non-CBD work locations could be given priority. The case for such options is probably strong even without the fuel tax and excise increases, but it is by no means a straightforward undertaking. The point we make here is that the inequitable impacts identified here (and elsewhere) provides support for further consideration of such mitigation options.

4.1.4 No clear solution

In our view, there is no sure ‘winner’ in terms of mitigation options, but the need to consider such options in light of the inequitable impacts on lower-income and Māori households is clear.

A previous analysis of alternative funding options for transport in Auckland considered two alternative pathways: a rates and fuel tax pathway and motorway user charge pathway. The authors concluded that the rates and fuel tax pathway is the more regressive approach, but simpler. They found exemptions for severely affected low-income households would be costly to implement and administer, and would be hard to target to the affected households. They did however, suggest that broad, national policies are available that could increase the ability of low-income, vulnerable households to pay. These include supplements to Working for Families, New Zealand Superannuation and/or increases to the minimum wage.¹⁸

In the first instance, these approaches seem to us to be worth exploring further. We note also that fuel tax and excise changes will likely become less sustainable in the future as technology and changes in preferences make vehicles powered by fossil fuels less prevalent. In that context other approaches such as congestion and road pricing are likely to become more attractive. In saying this, we are mindful that previous studies of the potential for road pricing in Auckland identified social equity impacts similar to those considered in this report, which would require additional analysis of mitigation options to succeed.¹⁹

4.2 Concluding remarks

We have examined publicly available data and reports to assess the extent to which there are equity impacts from the introduction of an RFT in Auckland and to increase the fuel excise duty nationally. Such equity impacts were largely absent from material released by government agencies in support of the tax and excise increases.

In our view, good policymaking requires consideration of the trade-off between equity and efficiency in any policy decision. We acknowledge that there are data limitations, but it appears that the efficiency arguments in favour of fuel taxes in general, and the RFT in particular (i.e. easy to implement and administer, difficult to avoid, revenue-generating) have been prioritised over equity considerations. This is a serious omission.

¹⁸ Independent Advisory Board (2014) “*Funding Auckland’s Transport Future. Alternative Funding for Transport- Two Pathways.*” Report prepared for Auckland Council.

¹⁹ Ministry of Transport (2006) “*Auckland Road Pricing Evaluation Study*” and (2008) “*Auckland Road Pricing Study.*” Available at: <https://www.transport.govt.nz/land/auckland/the-congestion-question/previous-ministry-of-transport-studies/>

We conclude that the fuel tax and excise increases will:

- give rise to significant variation across households in terms of impacts;
- be regressive in nature- (i.e. disproportionately impact on lower-income households);
- likely impact inequitably on Māori households, especially in the south of Auckland;
- produce even more inequitable impacts when fuel efficiency of vehicles is considered;
- require further analysis of possible mitigation options, with central government policy levers being a useful starting point; and
- be at risk of not achieving its objectives in future as technology changes change the way people travel and other alternatives (such as congestion and road pricing) then become more attractive.

Appendix 1: Additional insights

A look at local board areas in West Auckland

The main body of the report focused on local board areas where the likely impact of the fuel tax increases would be greatest (i.e. proportionately high and across income quartiles).

Alongside this, we identified local board areas with a high proportion of Māori households, leading to one of our conclusions that the impacts of the fuel tax and excise changes will be felt most acutely in the north and south of Auckland, including several local board areas with a high proportion of Māori households such as Papakura, Manurewa, Franklin and Māngere-Ōtāhuhu.

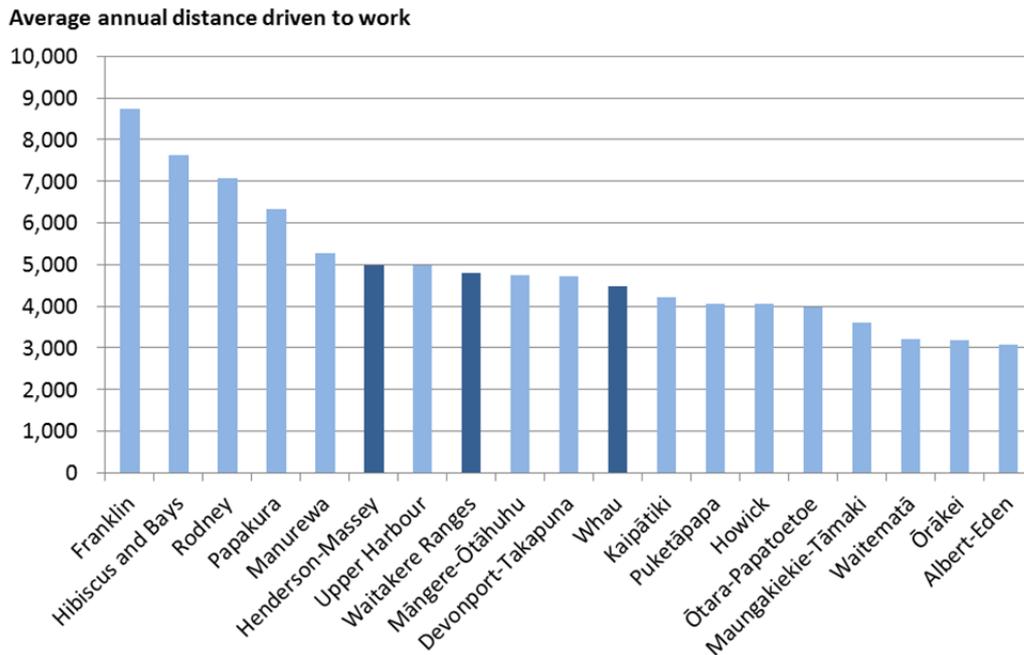
We were asked why it was that West Auckland did not feature prominently in our findings. In this section, we look specifically at the three local board areas in the west of Auckland – Whau, Henderson-Massey and Waitākere Ranges. Our examination concluded that:

- Henderson-Massey would face impacts that are very similar to those modelled for Māngere-Ōtāhuhu, with higher-than-average impacts across the three lowest income quartiles and particularly in quartile 1 (being 30% higher than the average).
- Whau would face a higher-than-average impact in income quartile 1 (20% higher), with the impacts in other income quartiles being slightly less than the average for Auckland.
- Waitākere Ranges would face impacts that are similar to the average impact modelled for each income quartile.

Taken together, we conclude that some households in some areas in West Auckland stand-out, but that overall, the local area boards that constitute West Auckland as a constituency did not display impacts that made out a ‘West Auckland story’ as such.

This conclusion is explained, to a large extent, by the distance driven, as well as the average number of people per household who drive to work. Figure 9 shows the average annual distance driven to work for each local board area. Henderson-Massey is ranked sixth-highest, just behind Manurewa and ahead of Upper Harbour.

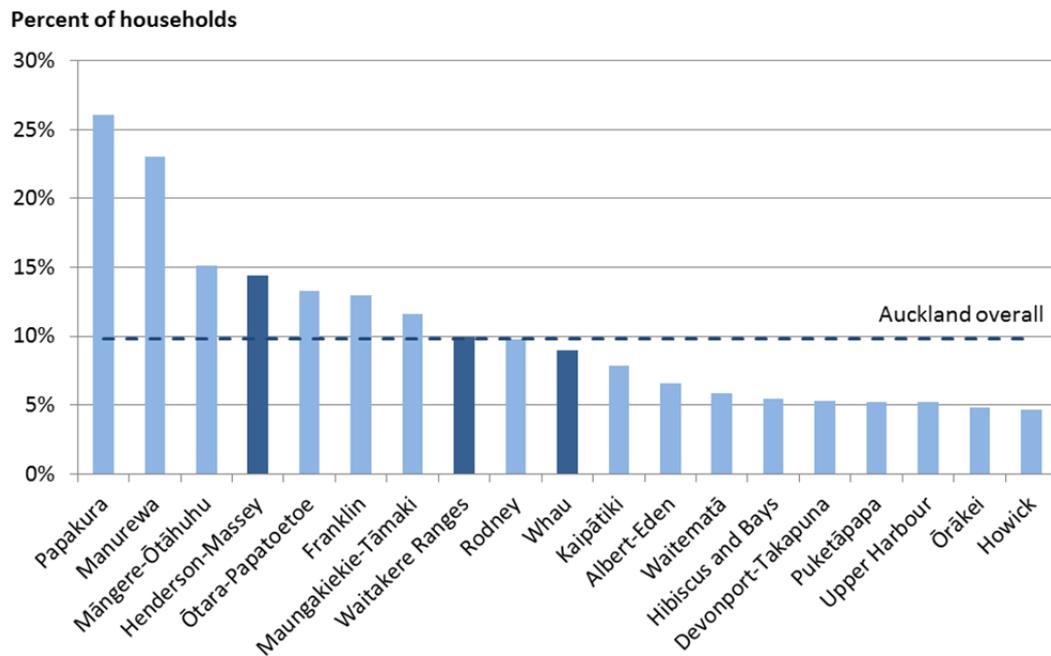
Figure 9 Average annual distance driven to work by local board



Source: Richard Paling Consulting, Sapere calculations

Figure 10 shows the proportion of Māori households in each local board area, with those in West Auckland being highlighted. Henderson-Massey has a relatively high proportion of Māori households (14.4%) that is close to that observed in Māngere-Ōtāhuhu (15.1%). Waitākere Ranges (9.9%) is very close to the proportion of Māori households in Auckland overall (9.8%) with Whau being slightly lower (9.0%).

Figure 10 Māori households as a proportion of all households by local board



Source: Statistics NZ

In summary, Henderson-Massey is the local board area within the West Auckland grouping that stands out, but its influence is insufficient for there to be a strong ‘West Auckland story.’ On its own, Henderson-Massey could be included alongside the group of local board areas, identified in the main body of the report, as being expected to face (proportionately) high impacts from the fuel tax increases while also having a relatively high proportion of Māori households.

Broader context within which to consider the fuel tax and excise increases

The impacts of the fuel tax and excise increases do not occur in isolation. They are part of a broader context of rising costs faced by low-income and Māori households. Available data from Statistics New Zealand’s Household Living Costs Price Index (HLPI) provide insights into cost pressures faced by such household groups.

The HLPI was developed by Statistics New Zealand to provide extra indexes to reflect changes in the purchasing power of incomes for different demographic groups. The motivation for the HLPI came from the fact that the Consumer’s Price Index (CPI) is an aggregate measure that represents the price change experienced on average by households. Yet, hidden behind all averages is a distribution. The distribution of inflation means the CPI does not necessarily align well with inflation experienced by different demographic groups.²⁰

Māori and low-expenditure households (as well as beneficiaries) hit hardest by inflation over time

Table 5 shows the impact of inflation faced by different household groups for three different time periods. Clearly, Māori and low expenditure households (and to a lesser degree low-income households) are hit hardest by inflation, both historically and contemporaneously.

Beneficiary households have experienced similar impacts from inflation as Māori and low-income households, but we are not able to distinguish Māori beneficiary households from other beneficiary households and thus cannot focus on Māori beneficiaries to any degree.

The table also highlights that households with the highest expenditure and income levels have faced significantly less impact from inflation than Māori and low-income and expenditure households.²¹

Table 5 Inflation impact by household group

Household group	June 2008 qtr- March 2018 qtr	March 2015 qtr- March 2018 qtr	March 2017 qtr- March 2018 qtr
All households	16.1%	3.8%	1.7%
Māori households	17.2%	4.5%	2.0%
Lowest expenditure quintile households	22.3%	4.4%	1.8%

²⁰ Statistics New Zealand (2016) “Household living-costs price indexes: Background.” Available from: www.stats.govt.nz

²¹ We note that this is national data, but expect the pattern to be broadly consistent in the Auckland region.

Household group	June 2008 qtr- March 2018 qtr	March 2015 qtr- March 2018 qtr	March 2017 qtr- March 2018 qtr
Highest expenditure quintile households	11.7%	3.3%	1.4%
Lowest income quintile households	20.4%	4.0%	1.7%
Highest income quintile households	12.9%	3.7%	1.6%

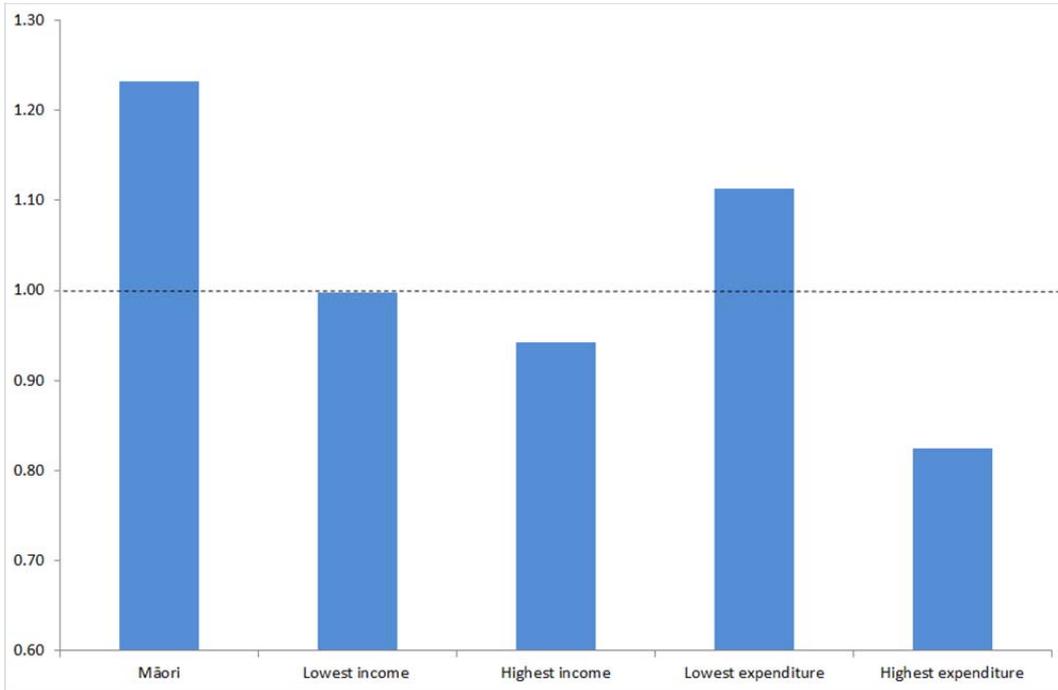
Source: Statistics NZ (HLPI)

Māori households hit hardest by inflation most recently

Focussing on the most recent time period, we see that Māori households in particular have been impacted by inflation between the March quarter of 2017 and the March quarter of 2018. In Figure 11 we express the inflation impact faced by particular household groups against the inflation impact experience by all households (a value of one implies that a particular household grouping experienced an inflation impact that was exactly the same as that for all households).

The ratio for Māori households is 1.23. This means that, relative to all households, Māori households experienced a 23 % greater inflation impact. Lowest expenditure households (i.e. the 20% of households with the lowest expenditure levels) experienced an 11% greater impact than all households in the most recent period for which data is available.

Figure 11 Relative inflation impact between March 2017 qtr and March 2018 qtr



Source: Statistics NZ (HLPI), Sapere calculations

Rents and energy major drivers of inflation impacts for Māori households

Previous evidence suggests that observed differences between the highest income group and the lowest were explained by higher contributions to inflation from housing and household utilities, tobacco, food and insurance.

For the most recent time period the major difference between Māori households and ‘all households’ was the contribution of rents under the housing and household utilities category of expenditure. The expenditure share of Māori households on rents was some 47% higher than that for all households, while expenditure on household energy was some 18% higher for Māori households relative to all households.

In comparison, the Government's ‘first year free’ education policy coupled with cheaper international airfares has made life easier for higher spending households. The highest-spending households received the greatest benefit because they spend proportionally more on tertiary education.

Considering the impacts through a living standards framework

The changes considered in this report have local (regional) and national dimensions. In relation to the latter, the Treasury has developed a Living Standards Framework to encourage economic policy analysis to be supplemented with analysis and indicators of wider dimensions of wellbeing. The Framework remains a work in progress but the core comprises “four capitals” – natural, social, human and financial capital and their growth, distribution

and sustainability.²² It may be useful to consider how the key findings in the main report (i.e. that the fuel tax increases are regressive in nature) could be framed within the Living Standards Framework. We offer the following observations.

- Financial capital – includes the country’s physical and financial assets. The fuel tax increases are an efficient way to raise revenue to enable to government to build long-lived transport infrastructure, which in turn will support economic activity. However, the burden of this additional taxation will be felt more heavily by the households with the lowest incomes.
- Social capital – includes things like trust, rule of law and the Crown-Māori relationship. Arguably, government decision making that lacks advice on the equity impacts is inconsistent with maintaining and enhancing societal trust (i.e. a negative impact on social capital).
- Human capital – the skills, knowledge and health that enable people to participate in society, including in work and study. It is unclear whether the fuel tax increases would affect human capital. To the extent that the additional costs become a barrier for some people in low income households to travel to participate in work, then there would be a negative impact on human capital.
- Natural capital – includes all aspects of the natural environment. It is unclear whether the fuel tax increases would materially affect natural capital.

Figure 12 Living Standards Framework – the four capitals



Source: New Zealand Treasury (2018)

²² See <https://treasury.govt.nz/publications/presentation/living-standards-framework>

What does this mean for ‘good’ policy-making?

Ultimately, the goal is to make ‘good’ policy, regardless of the particular jurisdiction. That is, both central and local government decision-makers should be concerned with both efficiency and equity implications. Where one aspect of that calculus has been neglected, mitigation action may be helpful.

We offer the following points to inform any discussions about potential mitigation options.

Consideration could be given to the outcomes being sought.

- Offsetting the monetary impact on household budgets – if some direct mitigation in the form of “cash in hand” is preferable, then some of the policy levers canvassed in the main report may be relevant, including the welfare payment system, local government rates or a voucher system. The downside of these options is that they are likely to be inefficient. That is, they are weak at targeting the relevant segment of the population (e.g. people in low income households who regularly drive some distance to work) or come with high administrative costs that undermine their feasibility.
- Alternative transport options – if reducing dependency on vehicles is preferable, then targeted investment in public transport to the areas most affected by the fuel tax increases is relevant. Options could include new infrastructure in rapid transit (rail, light rail or rapid bus), putting on additional or more frequent bus routes, or reducing cost barriers via lower passenger fares. The downside of these options is that public transport may not provide sufficient flexibility for everyone (in terms of destination and travel times) and, in the case of new infrastructure, will only be realisable in the medium-term.

Ongoing monitoring of the impacts of the fuel tax increases is another consideration. The work undertaken for the main report has highlighted that the information necessary to model the impacts of the fuel tax increases in any detailed way is not easily accessible and so may not be readily scrutinised.

- A formal monitoring programme could gather accurate and timely information on the impacts of the fuel tax increases. The monitoring could focus on low income households in Auckland and could be reported publicly on a regular basis. Data available from the 2018 Census would provide an updated view of patterns of impact, though assessment over a longer period of time would be required in order to be definitive.
- Going further, regular monitoring could inform a formal review of the impact of the fuel tax increases, for example, within one or two years, to determine whether the tax increases should be modified and/or whether some mitigation is warranted.