

Tax Working Group Public Submissions Information Release

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**SUBMISSION TO THE
TAX WORKING GROUP ON THE
FUTURE OF TAX: SUBMISSIONS BACKGROUND PAPER**

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About the author

I am an economist with fourteen years' experience in various policy roles, all with significant economic and regulatory impact analysis components.

I was employed in the Ministry of Transport's Funding and Infrastructure team for four years until August 2017, which included dealing with tax and expenditure policy. I have advised on three Government Policy Statements (GPS) on land transport: GPS 2015, the draft GPS 2018 for the then National-led Government, and the draft GPS 2018 for the now Labour-led Government.

This year, I will be producing a report under The New Zealand Initiative banner on the problems with current transport funding (tax), planning and expenditure policies. This will be followed by a report on how to reform the sector.

During my studies, I was awarded the New Zealand Association of Economists & Treasury Scholarship, and all of Victoria University's prizes for economics and public policy at the time, including the School of Economics and Finance Prize in Economics, the Jan Whitwell Prize for Monetary and Macroeconomics, and the Civil Service Institute Prize in Public Policy and Public Administration.

Disclaimer

This submission is mine. Views expressed are mine and do not necessarily reflect the views of The New Zealand Initiative, its staff, advisors, members, directors or officers.

Structure of this submission

This submission discusses the criteria which taxes should be assessed against, and then applies those criteria to transport taxes. My submission has the following chapters:

1. Tax criteria
2. Transport taxes in the Tax Working Group's Background Paper

3. Things everyone involved in transport funding should understand
4. An assessment of transport taxes
5. Efficiency
6. The inequitable impact of fuel taxes, particularly on poor people
7. Transparency

My general position

Tax criteria

Efficiency and equity should be the focus of analysis. The other four proposed criteria are either components of efficiency and equity or an overall constraint. Focussing on these four risks not capturing other factors that are also important.

The Tax Working Group (TWG) should be careful to properly structure its criteria. If it doesn't the TWG risks, double-counting some benefits or costs and missing other benefits and costs.

Fuel taxes

The Background Paper cites a couple of issues around transport taxes. One is revenue integrity. The Background Paper correctly notes that this isn't a particularly urgent issue.

The Background Paper does not note much bigger and very urgent problems, in particular, the extraordinary burden fuel taxes place on the poor.

Fuel taxes are grossly regressive. Fuel taxes over-tax poor regions and subsidise rich regions. Within regions, Māori, the unemployed and sole parents are among those who are over-taxed and subsidising others.

Fuel taxes should be replaced by congestion and road pricing.

1. TAX CRITERIA

1. The Background Paper lists six criteria:

- Efficiency
- Equity and fairness
- Revenue integrity
- Fiscal adequacy
- Compliance and administration costs
- Coherence

and then focusses on the first two of these.

2. There is a reason efficiency and equity should be the focus and that is because the other four criteria are either components of efficiency and equity or an overall constraint. They are not so much separate issues that can be traded-off against (overall) efficiency or equity.

3. The TWG should be careful to properly structure its criteria. If it doesn't the TWG risks, double-counting some benefits or costs and missing other benefits and costs.

1.1. EFFICIENCY AND EQUITY

4. Efficiency and equity are well, and succinctly defined. I reproduce them here as I reference them in my consideration of the other criteria later:

***Efficiency:** Taxes should be efficient and impose as little cost on society as possible. By this it is meant that taxes should be imposed in a way to maximise national welfare, by not creating biases between different investments or activities, unless there are sound reasons to believe that there are wider social costs that these taxes are addressing.*

***Equity and fairness:** The tax system should be fair. This involves both horizontal equity (fair treatment of those in similar circumstances) and vertical equity (fair treatment of those with differing abilities to pay tax).*

1.2. REVENUE INTEGRITY

5. The Background Document says that revenue integrity means:

The tax system should minimise opportunities for tax avoidance and arbitrage and provide a sustainable revenue base for the government.

6. This goes to both efficiency and fairness. It is not 'horizontally equitable'¹ if some people can avoid tax and others cannot. It is not efficient if some people can avoid tax nor when that avoidance creates that potential for 'biases between different investments or activities'².
7. Imagine, as an example, two taxes with exactly the same overall impact on efficiency. The first is income taxes which, let's assume for the purposes of illustration, reduce labour supply (with an associated deadweight loss) but are hard to avoid. The second is company tax which, let's assume, has no impact on labour supply but is easy to avoid.
8. In this example, both taxes have the same overall impact on efficiency, but labour taxes would be favoured because company tax gets marked negatively for avoidance. Avoidance (revenue integrity) is one part of overall efficiency and should be treated as such. Avoidance should not be treated as something to be traded-off against efficiency, only against other things that affect efficiency such as the impact on labour supply.
9. That economic models should be able to estimate the impacts of both reduced labour supply and tax avoidance in dollar values only strengthens the case that all factors that affect overall efficiency should be treated equally, or at least identified and properly accounted for.
10. That said, a tax system may be so full of holes that people lose faith in it. If there is to be a 'integrity' criteria it shouldn't be about minimising avoidance as that is captured by efficiency, but by a constraint in the analysis that the overall system be reasonable enough that people have confidence in it. This should, however, be captured under the 'coherence' constraint.

1.3. FISCAL ADEQUACY

11. Fiscal adequacy is the overall constraint. Left-leaning governments generally want more tax revenue. Right-leaning, less.

¹ See definition of equity.

² See definition of efficiency.

12. The Chair of the TWG appears to have acknowledged that fiscal adequacy is a constraint rather than something by which to assess the merits of particular taxes when he said³:

Implicit in our terms of reference is the notion that whatever the package - or packages - of proposals that we come up with they will be roughly fiscally neutral. The one caveat I would add personally to that is that they must be capable of sustaining somewhat higher levels of spending if that is considered necessary or desirable by future governments and their electors.

13. While it's possible to say things like 'congestion charging will fix congestion but not raise enough money to pay for all our desired transport infrastructure', pointing to 'fiscal adequacy' gets us nowhere except saying we'll also need other taxes/charges to pay for infrastructure.
14. Congestion charges are to reduce the externality that is congestion. That's the problem it solves.
15. Negatively viewing congestion charging because it doesn't raise enough money to pay for all infrastructure would be wrong. A properly-designed tax system (see chapters 2 to 7) would have congestion taxes to solve the externality and infrastructure charges (road pricing, public transport fares) to pay for infrastructure.
16. Both congestion charges and infrastructure charges could well be assessed as both efficient and fair, and satisfy the fiscal adequacy constraint, without inaccurately placing a greater value on infrastructure charges over congestion charges in the analysis.

1.4. COMPLIANCE AND ADMINISTRATION COSTS

17. Compliance and administration costs are also a component of efficiency.
18. Same as with revenue integrity, two taxes that are equally efficient overall should not be treated differently just because one has higher compliance and administration costs while the other, for example, reduces labour supply more. The only justification for this might be an equity/fairness/social reason to, but this should then be explicit in the equity and fairness criterion.

³ <https://taxworkinggroup.govt.nz/sites/default/files/2018-03/twg-spch-2018-03-02-purpose-principles-possibilities.pdf>

1.5. COHERENCE

19. Somewhat ironically, the coherence criterion says we should be careful about looking at anything 'in isolation' after previously listing three criteria that should not have been isolated.
20. There's nothing wrong with worrying about coherence but it is, like fiscal adequacy, a constraint rather than a criterion. One tax that solves one problem, while opening up other problems in other taxes may not be efficient.
21. Taxes, like any other policy mix addressing other policy problems, can only be efficient and equitable together and individually if they are coherent.
22. But if two taxes are in conflict, how do you decide which one to pursue? The one that is most efficient and equitable, of course.
23. Coherence is really just a constraint. A check to do regularly throughout the analysis to make sure you're counting all impacts of taxes on each other when assessing efficiency and equity.

1.6. OTHER RECENT WORK WHERE CRITERIA HAVE BEEN MISUSED

24. You don't have to go far to see where adding too many primary criteria leads to disastrous analysis. The Ministry of Transport included so many criteria in its analysis⁴ of regional fuel taxes – revenue integrity, equity, compliance costs, and coherence as well as environmental sustainability and speed of implementation – that it forgot to include economic efficiency.
25. The inclusion of compliance costs criterion and the absence of an overall economic efficiency criterion led the Ministry to conclude that road tolls (a user pays tax/charge) was economically worse than any other way of paying for transport such as general tax, rates and fuel taxes.

1.7. OTHER CRITERIA

26. The TWG is certainly going to receive submissions about other criteria, e.g. environmental harm.
27. These will have as much justification for singling out as the revenue integrity and compliance costs criteria. They should not be elevated to the level of overall efficiency and equity, but will be components of one or other.

⁴ <https://www.transport.govt.nz/assets/Uploads/About/Documents/Regional-Fuel-Tax-RIS.pdf>

1.8. RECOMMENDATIONS

28. I recommend that the TWG puts efficiency and equity as the top two criteria, with every other aspect of tax listed under one or both of those.

2. TRANSPORT TAXES IN THE TWG'S BACKGROUND PAPER

30. The Background Paper makes only small references to transport taxes. Here are those mentions in their entirety:

Technological advancements in transport may affect the traditional base of fuel excise duty as vehicles become more fuel efficient.

[p.12 in a section about technological change]

The definition of "environmental" is also broad: as an example, in some cases the tax revenue on petrol excise taxes is ring-fenced to be used to build roads. Nevertheless petrol taxes are included in the list of environmental taxes because they are environmentally related.

[p.49 in a section about environmental outcomes]

Existing tax incentives include accelerated deductions of forestry capital costs (for example, planting or tending costs), accelerated deductions for some types of environmental expenditures, and the exemption of electric vehicles (EVs) from road user charges until EVs make up 2% of the national fleet.

[p.50 in the same section about environmental outcomes]

31. These sections, I gather, are just to give people a taste of the kinds of issues and complexities in our tax system.
32. Revenue integrity ("...may affect the traditional base of fuel excise duty...") is the biggest issue the Ministry of Transport is concerned about because that's what agencies do: care about their budgets.
33. The focus on these issues suggest there aren't bigger issues. There are.
34. While increasing numbers of hybrid vehicles over time will make it increasingly difficult to maintain current transport taxes, there are enough current problems with transport taxes to completely reform the way we gather transport revenue now.

3. THINGS EVERYONE INVOLVED IN TRANSPORT POLICY SHOULD UNDERSTAND

35. This chapter sets out how transport is currently funded (from a variety of taxes), and how it should be funded according to criteria of efficiency and equity.

3.1. CURRENT TRANSPORT FUNDING ARRANGEMENTS

36. The National Land Transport Fund (NLTF) is made up of revenue from:

- fuel excise duty – currently 59.524 cents per litre
- road user charges – varies by vehicle weight and configuration; for example, a light diesel vehicle (3.5 tonnes or less) pays \$62 per 1,000 kms, while an 8-axle truck pays at least \$333 per 1,000 kms
- motor vehicle registration – a fixed annual fee per vehicle.

37. A regional fuel tax of 10 cents a litre would increase the per litre charge on petrol to 69.524 cents (and to about 79.524 cents with the proposed national fuel tax increase), and introduce a per litre charge on diesel of 10 cents.

38. There has been some suggestion – from the Taxpayers' Union, from Judith Collins, even recently from the Ministry of Transport – that fuel excise duty and road user charges should only be spent on roads or things that benefit drivers.

39. This view is mistaken.

40. Apart from state highway maintenance and improvements, most all other transport expenditure from the National Land Transport Fund is matched close to 1 to 1 from rates including local road maintenance and improvements, public transport (which is about half funded from users), and walking and cycling.

41. Many ratepayers drive very little, or not at all.

42. A commitment to only spend road taxes on roads would commit ratepayers to only spend their contribution on roads. This would be a massive subsidy to road users.

43. While motorists might pay for some projects they don't benefit from (e.g. a driver in Southland paying for public transport in Wellington), ratepayers might pay for projects they don't benefit from (e.g. people who walk to work in Wellington paying for roads people use to drive to work in Wellington).

44. Governments have to be mindful of this balance when deciding how to set taxes, rates and public transport fares and in divvying-up expenditure.

3.2. HOW TRANSPORT FUNDING SHOULD WORK

45. Instead of everyone paying a bit towards projects they don't really want, people should pay for the projects they do want.

User pays

46. Motorists should pay for roads. Public transport users for public transport. Walkers and cyclists – well, it'd be hard to get them to pay, so funding for that will likely always come from rates. These charges would also vary by region, or local authority, so that, for example, people in Canterbury where it is cheaper to put in transport, don't subsidise people in Wellington where it is more expensive. This is a user-pays approach. For roads, it is known as 'road pricing'.

Congestion pricing

47. Instead of motorists subsidising public transport for the congestion relief benefits, there should be congestion charges. The problem with public transport subsidies from motorists is that they have to be paid to everyone who uses public transport, even the ones who would always use public transport even if they were paying the full price.
48. Consider an example of lowering public transport fares to encourage people off the roads and onto trains and buses. Because you can't tell who's newly off the road and who was already using public transport, you must lower fares for all users. You will succeed in getting some additional people off the road, but it'll cost you in terms of paying everyone who uses public transport, not just the additional people.
49. Congestion pricing – an extra charge on road users if they want to travel at peak/congested times – encourages people to take public transport or travel at a different time of day. It gets the same behaviour change, but at a much lower cost. Further, the revenue from the congestion charge can be used in any number of ways including:
 - compensating low-income people for the higher cost of travel if they have to keep driving, or the inconvenience of changing modes or travelling at a different time of day
 - providing more public transport, walking and cycling, or roads

- lower public transport fares or road taxes
- anything else.

Social provision of transport

50. What then of public transport for social welfare reasons / providing choice to those who have little choice or limited means?
51. As above, the revenue from congestion charging can be recycled to leave the poor no worse off (or even the rich no worse off if you wish).
52. Other than that, transport social welfare should be provided by the Crown as other social welfare programmes like subsidised health and education are. We have a progressive income tax and social welfare system that taxes the rich a bit more in order to support the poor.
53. It is inappropriate to use fuel taxes – a regressive tax; one that is paid disproportionately by the poor – to provide social welfare transport to the poor.
54. Nor is it appropriate to tax a subset of society – motorists – to pay for social welfare transport.
55. Motorists should pay for their costs of transport. New Zealand society should pay, and the rich among society a bit more, for social welfare transport.

Overall

56. While people can legitimately favour fuel taxes or rates depending on their preferences and concern for different ‘winners’ and ‘losers’ from each and the weight they place on efficiency and equity, the approach outlined above of congestion pricing, road pricing, and Crown funding for social welfare reasons is as close as any policy gets to an ‘everybody wins’ solution.

3.3. HOW TRANSPORT FINANCING CURRENTLY WORKS

57. While less directly related to the issue of taxes, it's also important to understand the role financing plays in transport.

Central Government

58. Road taxes are ring-fenced (also known as 'hypothecated') for land transport expenditure. Funding ranges for different types of expenditure – public transport, state highway improvements – are set in the Government Policy Statement on land transport. Taxes are set by regulation.
59. Being largely outside of the normal Budget process, there is less scrutiny of taxes and expenditure. The Ministry of Transport advises Ministers, but it's not in the context of competing uses of tax revenue from other Votes and the process attracts little interest from Treasury.
60. Because of the lack of scrutiny and to protect against overly political decision-making, transport is funded on a pay-as-you-go basis – capital expenditure is paid for when it is undertaken by today's motorists and ratepayers, not over the lifetime of the asset as businesses or households might normally do (such as with home loans).⁵
61. Lots of expenditure is planned in the next few years, particularly in Auckland, that will last decades and lifetimes. Burdening today's road tax and ratepayers with all of that cost rather than spreading the cost over the lifetime of the asset is both inefficient and inequitable. It's a high price we pay because we can't trust politicians to make good investments.

Local government

62. While councils do usually finance transport investment through borrowing, Auckland council is currently targeting a self-imposed limit on borrowing of 270% of operating revenue beyond which, the Council says, credit agencies would downgrade Auckland Council from its AA rating.
63. Transferring – as a regional fuel tax does – the burden from Councils to ratepayers and motorists, of course, doesn't really reduce the risk of higher borrowing costs to Auckland as a

⁵ There are a handful of exceptions with some projects financing through borrowing from the Crown or public-private partnerships (PPPs).

whole – it just transfers it from the Council to households, many of whom with house prices where they are, will have borrowing of 1,000% of income.

3.4. HOW TRANSPORT FINANCING SHOULD WORK

64. Capital expenditure on transport should be paid off by all who use it, not just today's motorists and ratepayers.
65. This could be achieved through an overhaul of transport planning – reducing the potential of political decision-making and increasing the chance that transport investments accurately reflect what users want.
66. If we are to change the way we gather transport revenue, we should also look to change the way we allocate that revenue so that we can further improve the operation of transport taxes and the transport planning system as a whole.

4. AN ASSESSMENT OF TRANSPORT TAXES

67. There's a common claim that fuel excise duty is a highly-efficient tax in that its administration costs are low and that it doesn't distort the market too much.
68. I test that claim in chapters 5, 6, and 7, and assess FED against the objectives of efficiency and equity. I also make special mention of how FED stacks up against transparency (being a component of efficiency). I find that FED is about as efficient as RUC in terms of administration costs and deadweight losses, and performs far worse on equity and transparency.

5. EFFICIENCY

5.1. ADMINISTRATION COSTS

69. It is true that FED costs little in administration costs. FED is collected at the point of import or from domestic refineries, rather than a charge individuals process. According to the Ministry of Transport, administration costs are about 0.10% of revenue⁶.
70. This compares to administration costs for current 0.76% for current volumes of light RUC.⁷
71. Administration costs are not, however, the only component of efficiency. Taxes result in distortions and deadweight loss.

5.2. DISTORTIONS AND DEADWEIGHT LOSS

72. The cost of taxes is typically described in terms of deadweight loss. Taxes increase the costs of goods and services, reducing the amount that consumers are willing and able to buy. In general, this creates a deadweight loss – a reduction in benefit to consumers and producers over and above the revenue generated.
73. The situation is a bit different if a Government is simply cost-recovering a product it provides through a user-charge. If a tax/charge perfectly matched the cost of the good or service the Government provided, there would be no deadweight loss – the tax would be similar to a business charging a customer.
74. Treasury, in its cost-benefit analysis guidelines, says FED is one of these cost-recovery charges with no deadweight loss:

Note that some 'taxes' (such as the fuel excise duty) are calculated to reflect the value of an externality or the resource cost of providing government goods or services and therefore function like market prices; in such cases the deadweight cost is zero.

⁶ Ministry spreadsheet: 'tax efficiency model - Final_for Sam Warburton'

This excludes the compliance costs for the tax payer. The Ministry assumes that this is equal to the administration cost, but I have excluded it from the calculations for this sub-chapter.

This includes revenue raised for ACC.

⁷ My estimate. Assumes collection costs are in proportion to share of revenue relative to heavy RUC, and heavy RUC accounts for all refunds.

75. In a report comparing current and potential sources of revenue, the Ministry of Transport wrote that⁸:

FED is relatively efficient in terms of deadweight impact on economic output because demand for petrol is relatively insensitive to the level of FED.

76. The Ministry did not comment on whether or not there are deadweight losses from road user charges.

77. The Treasury's position is incorrect, and the Ministry's is incomplete. They both overstate the relative efficiency of FED as a source of revenue.

78. The costs of maintaining any stretch of road varies with the weight and configuration of vehicles, the kilometres travelled by those vehicles, and factors that don't vary by vehicle like topography and weather.

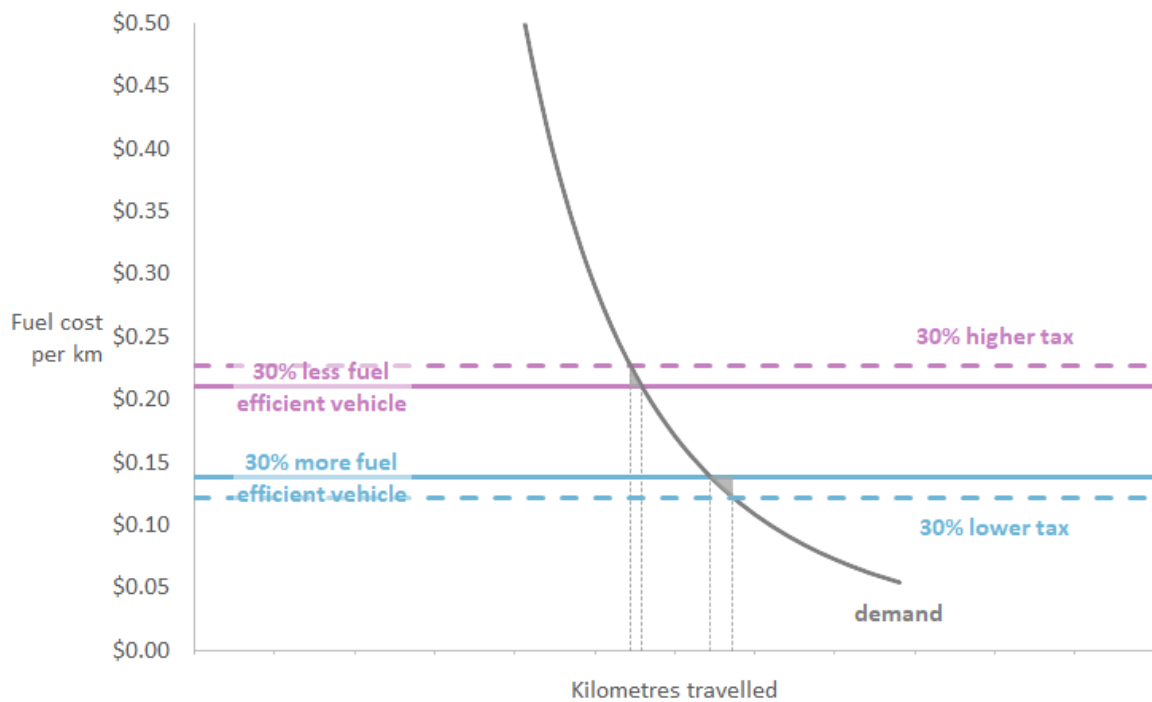
79. The costs of maintaining any stretch of road does not vary by how much fuel a vehicle uses. By charging some vehicles more per kilometre because of higher fuel consumption and some vehicles less per kilometre, FED over- and under-taxes (subsidises) people. Contrary to Treasury, taxing some to subsidise others generates a deadweight loss through the under- or over- use of roads, respectively.

80. In the illustration below⁹, two drivers with the same demand for driving. The first driver has a vehicle that is 30% less fuel efficient than average. The second has a vehicle that is 30% more fuel efficient than average. If each were taxed only for their use of roads, their per kilometre costs are marked by the solid lines, with no deadweight loss. Taxing drivers by their fuel consumption raises the per kilometre cost for the less fuel-efficient vehicle, and acts as a subsidy for the high fuel efficient vehicle. The deadweight loss is indicated by the grey-shaded areas.

⁸ <http://www.transport.govt.nz/assets/Uploads/Our-Work/Documents/ff-assessment-of-revenue-tools.pdf>, p25

⁹ The illustration is to scale. The long-run elasticity of demand for petrol is [-0.3](#). The fuel cost of running an average fuel efficiency vehicle is \$0.17 per km.

Figure 1: Illustration the effects of over- and under-taxation



5.3. FUEL EXCISE DUTY AND ROAD USER CHARGES MAY BE SIMILARLY EFFICIENT

- 81. While the deadweight loss is not large for an individual, it is not zero. If RUC has higher administration costs and FED has greater deadweight loss, there is a question about which is more efficient.
- 82. I estimate that switching all petrol passenger vehicles (including hybrids) would cost about \$15.7 million per annum in collection costs and between \$4.5 million and \$8.9 million in compliance (time) costs associated with purchasing RUC. Including commercial vehicles, motorbikes and heavy petrol would increase compliance costs.
- 83. Total costs are between \$20.1 million and \$24.6 million, and lower than a similar analysis by the Ministry of Transport which estimated costs at about twice that. The Ministry’s analysis split current RUC administration costs equally between heavy and light RUC, assumed compliance costs were equal to administration costs, and scaled up to be the relative amount FED revenue. We apportioned current RUC administration costs in proportion to the amount of light and heavy RUC revenue, assumed compliance costs involved between one and two

purchases per year¹⁰. The \$20.1 million to \$24.6 million estimate will over-estimate costs if there are economies of scale from more vehicles using RUC.

84. Against this, there would be some relatively small savings from disestablishing the FED system. The Ministry had figures of \$1.5 million in administration costs and an equal amount in costs to fuel companies and importers. I'm not sure what the source of these figures are. We counted cost savings from disestablishing the FED refund system costing \$1.0 million per year¹¹, and compliance costs to fuel companies, importers and refund applicants of \$1.5 million as per the Ministry's assumptions¹². There is a small, but unknown and uncounted, cost to Customs of collecting FED.
85. Using the simple partial-equilibrium method illustrated in Figure 1, I estimated the deadweight loss from FED from light private passenger vehicles to be between \$5.3 million and \$6.6 million per annum. Demand was modelled with a [long-run elasticity of demand of -0.3](#) and a constant elasticity of demand function.
86. The deadweight loss will be an underestimate in at least two ways. First, because it excludes commercial vehicles, motorbikes and heavy petrol vehicles which make up 6.2% of petrol vehicle kilometres travelled. Second, because it only estimates costs from people driving less or driving more than they would with a per kilometre tax. Over- and under-taxation changes not just how much people drive but what vehicles they might purchase, whether it's low income people buying a smaller vehicle than they would otherwise or a hobbyist putting off buying a vintage car.
87. The taxation of off-road petrol use (e.g. agricultural quad bikes, boats, lawnmowers) also causes a deadweight loss. The Ministry of Transport estimates¹³ that between 4.7% and 5.7% of petrol is used off-road generating between \$88 million and \$107 million in revenue. About \$59 million of that is refunded¹⁴, leaving between 1.6% and 2.6% of petrol use facing a price of about \$1.88 per litre¹⁵ rather than the tax-free rate of \$1.29. If the elasticity of demand is the same as for on-road vehicles (-0.3), the deadweight loss is between \$1.6 million and \$2.7

¹⁰ Three minutes per transaction at an average hourly wage rate of \$28.14.

¹¹ The 2016/17 NZTA annual report (p.92) records a cost of \$1.2 million. I've rounded this down to \$1.0 million as the annual report says the \$1.2 million includes some temporary costs to get through a backlog of refund applications.

¹² It is also a reasonable match to the cost of operating the refund system. If the costs of processing refunds is similar to the cost of applying for refunds, \$1.5 million seems a reasonable estimate included

¹³ [Annual vehicle fleet statistics](#), tab 1.9.

¹⁴ Ministry of Transport's revenue model.

¹⁵ Unweighted average petrol price for 2016 from MBIE's weekly monitoring.

million. If the elasticity of demand is higher, as might be the case given that many off-road uses are recreational, the deadweight loss will be higher. For example, an elasticity of demand of -1.0 results in a deadweight loss of between \$5.9 million and \$9.7 million.

88. Table 1 summarises the costs and benefits if light private passenger vehicles were switched from FED to RUC.

Table 1: Estimated impact¹⁶ of switching FED to RUC for light passenger vehicles

Impact	Low estimate	High estimate	Notes
Costs			
Collection costs	\$15.7m	\$15.7m	Possible over-estimate
Compliance costs	\$4.5m	\$8.9m	Under-estimate
Total	\$20.1m	\$24.6m	
Benefits (costs avoided)			
Refund system	\$1.0m	\$1.0m	
Compliance costs	\$1.5m	\$1.5m	
Deadweight loss – drivers	\$5.3m	\$6.6m	Under-estimate
Deadweight loss – off-road			
-0.3 elasticity	\$1.6m	\$2.7m	Probable under-estimate
-1.0 elasticity	\$5.9m	\$9.7m	
Total			
-0.3 elasticity	\$9.4m	\$11.8m	
-1.0 elasticity	\$13.7m	\$18.8m	

5.4. CONCLUSION

89. While FED has a big advantage over RUC in administration costs, deadweight loss closes the gap considerably. A more precise set of estimates that included the impact on other petrol vehicles and a broader calculation of the distortion and deadweight loss from FED might see a conclusion that FED and RUC are, more-or-less, equally efficient ways of raising revenue.

¹⁶ Totals may not sum due to rounding.

6. THE INEQUITABLE IMPACT OF FUEL TAXES, PARTICULARLY ON POOR PEOPLE

6.1. THE IMPORTANCE OF FAIRNESS

90. Efficiency isn't the only objective people care about in tax or any other policy.
91. If efficiency was the overwhelming objective of tax, the inelasticity of fuel purchases to price changes would see fuel used not just as a way of raising revenue for transport purposes, but for Government spending generally. This is the approach taken in a number of other countries¹⁷ and in New Zealand before the National Land Transport Fund was ring-fenced in 2008.
92. Economist [Matt Rognlie set out](#) the problem with focussing overly on efficiency:

When designing a tax system, the deadweight loss isn't the only relevant consideration.

To see why, let's consider a silly example. Imagine a tax with the lowest deadweight loss imaginable: a tax on breathing, levied at a rate of \$10 every day that you take a breath. The demand elasticity here is exactly zero—no one (I hope) is going to stop breathing for an entire day just to avoid paying the tax. This is a wonderfully efficient tax: it has zero deadweight loss.

In fact, this is effectively a lump-sum tax, a tax demanded equally of every individual. Since lump-sum taxes are a perfectly efficient way to collect money, anyone thinking about how to minimize deadweight loss will always raise revenue exclusively through lump-sum taxes. But this is a cheat: obviously we don't observe lump-sum taxes in practice, even though at the margin it would be possible to implement them. (If the government demanded that everyone coughed up an additional \$50, almost everyone could manage to do it.)

The reason why the government doesn't do this, of course, is distributional: we care about the poor, and it wouldn't be fair to ask them to pay exactly the same dollar amount as the rich. This is important for even the most

¹⁷ Reference needed?

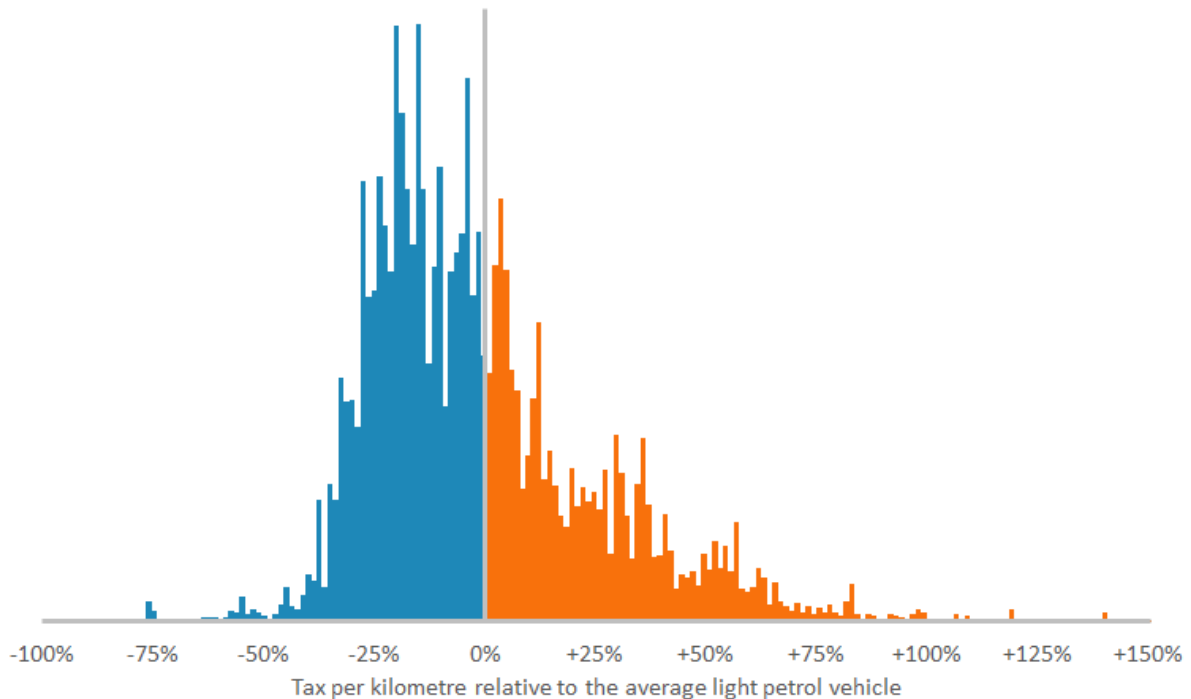
conservative fiscal policy proposals—many of them suggest flat taxes, but never a regressive lump sum.

6.2. THREE TYPES OF INEQUITY

A general inequity

93. Operators of light (cars, vans, utes) diesel vehicles all pay the same tax of 6.2 cents per kilometre. The amount that operators of light petrol vehicles pay depends on the vehicle's fuel efficiency, which varies widely. Figure 2 shows the distribution of under- and over-taxation for light petrol vehicles.
94. That many people can pay 25% less tax and others 50% more per kilometre is inequitable.

Figure 2: Under- and over-taxation of fuel excise duty for light petrol vehicles



Fuel tax versus rates

95. It's possible to argue that a fuel taxes are fairer than other sources like property rates if people who drive more pay more for the maintenance and improvement of roads. It's possible to argue that rates are fairer than fuel taxes if rates raise more revenue from richer households than poorer households.
96. What people consider is fair depends on the extent of, and how much they weight, each of those aspects. Unfortunately, there isn't, as far as I'm aware, analysis of the burdens of rates on different parts of society with regard to transport. This makes it very difficult for

Parliament and society to decide the best course of action yet, but should be a focus for the TWG.

The burden of fuel taxes falls disproportionately on the poor

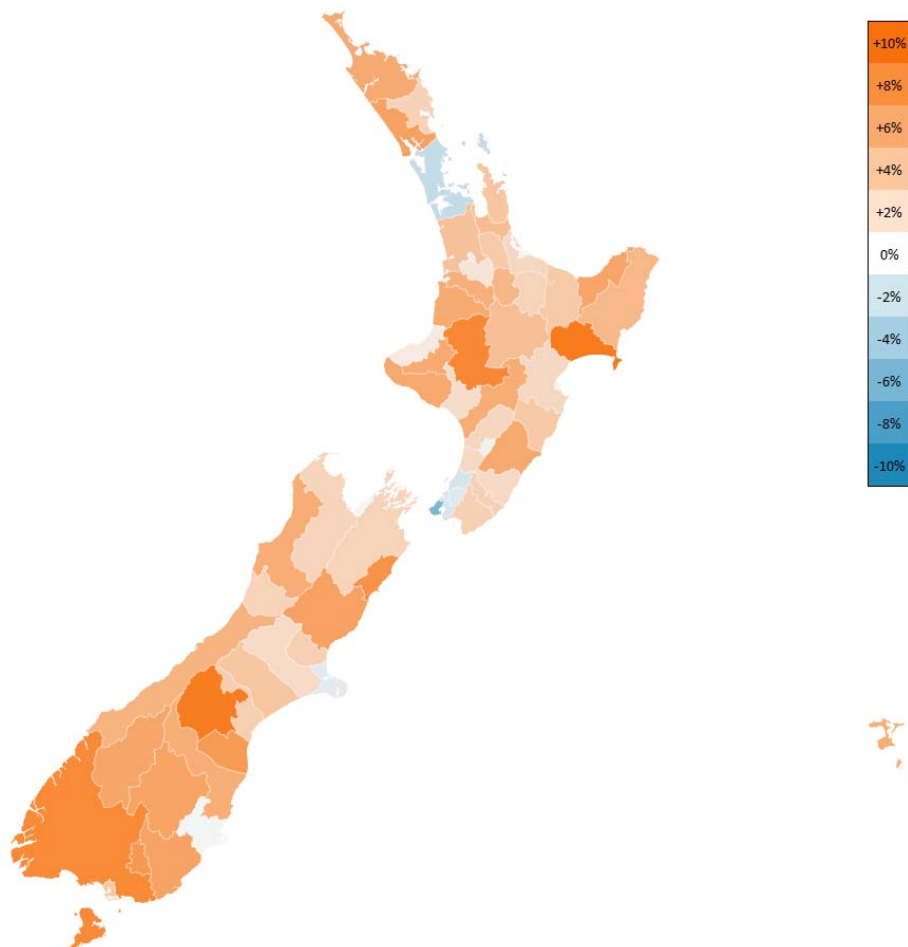
97. It is not possible to argue that a fuel taxes are fair when they charge poor people with less fuel-efficient cars more than rich people with more fuel-efficient cars.

6.3. POOR RURAL AREAS SUBSIDISE RICH URBAN AREAS

98. According to my analysis of data supplied by the NZ Transport Agency and the Ministry of Transport, poor rural regions subsidise a handful of rich cities.

99. Figure 3 shows the average fuel excise duty paid per kilometre compared to a vehicle with the national-average fuel efficiency. That is, vehicles with average fuel efficiency pays no more or less tax than the average vehicle, while those with higher/lower fuel efficiency pay less/more tax.

Figure 3: Under- and over-taxation of fuel excise duty by territorial authority



100. Wellington city is the most undertaxed territorial authority, paying 5.7% less tax per kilometre than the national average Wairoa is the most over-taxed paying, 9.3% more tax per kilometre than the national average.
101. Only 12 territorial authorities are undertaxed. The twelve can be characterised as relatively affluent cities with more transport choices (such as public transport should people not wish to pay higher fuel taxes).
102. Fifty-five of the 67 territorial authorities are over-taxed and are relatively low-income. Low - income areas of New Zealand are subsidising high-income areas.
103. Table 2 lists the 12 under-taxed territorial authorities, their level of under-taxation and their household incomes. Table 2 also lists the 12 most over-taxed territorial authorities.

Table 2: Dozen most under- and over-taxed territorial authorities

Twelve under-taxed			Twelve most over-taxed		
Territorial authority	Tax	Income	Territorial authority	Tax	Income
Wellington	-5.7%	+42.8%	Wairoa	+9.3%	-33.5%
Auckland	-2.3%	+19.9%	Mackenzie	+9.1%	-13.6%
Kapiti Coast	-1.6%	-16.3%	Ruapehu	+8.3%	-30.4%
Lower Hutt	-1.4%	+8.9%	Southland	+8.1%	0.0%
Porirua	-1.3%	+23.7%	Kaikōura	+7.4%	-22.1%
Upper Hutt	-1.1%	+7.2%	Gore	+7.0%	-14.6%
Christchurch	-1.0%	+2.4%	Waimate	+6.8%	-24.6%
Hamilton	-0.6%	+0.3%	Hurunui	+6.3%	-11.6%
Palmerston North	-0.4%	-8.3%	Kaipara	+6.3%	-33.5%
Tauranga	-0.3%	-12.5%	Clutha	+6.2%	-12.7%
Dunedin	-0.1%	-14.7%	Central Otago	+6.2%	-14.1%
Nelson	-0.0%	-14.9%	Ōpōtiki	+6.1%	-36.8%

104. The territorial authority data shows that fuel excise duty is regressive: lower-income people pay more tax per kilometre. But territorial authority data also hides wide differences within territorial authorities.

6.4. POORER, AND MORE AT-RISK HOUSEHOLDS, ARE OVER-TAXED AND SUBSIDISE RICHER HOUSEHOLDS

105. Within regions, Māori, the unemployed and sole parents are among those who are over-taxed and subsidising others. This accords with what we would expect: those on lower-incomes¹⁸ cannot afford more fuel-efficient vehicles¹⁹, and those with bigger families need bigger, less fuel-efficient vehicles.
106. Figure 4 shows who pays the most and least tax per kilometre by family type, ethnicity, and employment status.²⁰ The first table suppresses results where there are fewer than 30 households (below which you would be concerned about data reliability). The second table relaxes the suppression to fewer than 10 households. The additional results in the second table will not be statistically sound, but are consistent with other results and what we would expect.
107. Families with at least one Māori person pay, on average, 14% more tax than the average New Zealand Household. Households with at least one unemployed person and at least one child pay 6% more. Sole parents pay 5% more.

¹⁸ Ministry of Transport survey data about incomes was not good enough to use, but being Māori, unemployed and a sole parent are all correlated with low income.

¹⁹ Note that there will be additional hidden costs here. Those on low incomes have a greater incentive to buy vehicles that are smaller (and more fuel-efficient) than they would otherwise prefer. Despite, low income households' vehicles are, on average, less fuel efficient than the national average.

²⁰ Where an ethnicity is recorded as any ethnicity other than European, that household has at least one person of that ethnicity. For example, a Māori household has at least one Māori person, while a European household consists of only European people.

With regards to employment status, a person who was both a student and employed was recorded as a student. A person receiving a benefit and employed was recorded under 'other benefit' rather than employed. Employed, therefore, refers to employed people who are also not a student or receiving welfare support.

Figure 4: Under- and over-taxation by household type

At least 30 households

Ethnicity					Employment status				
Māori	Pacific Is.	Asian	European		Retired	Student	Unempl.	Other ben.	Employed
+7%	+0%	-5%	+0%	All	-6%	-1%	+3%	+1%	+2%
+5%		-7%	-3%	Person living alone	-6%				-1%
+0%		-2%	-2%	Family with adults only	-8%	-5%			+0%
		-7%	+0%	Other adults only (eg flatmates)	-14%	-4%			+1%
+3%	-3%	-11%	+2%	Married/defacto couple only	-5%				+3%
		+6%	-1%	Single adult living with children	-10%				-1%
+14%	+3%	-3%	+3%	Family (including extended) with children	-10%	+5%	+6%		+3%
			+6%	Family with child(ren) plus flatmates/boarders					+5%

No. of children		Regions			
Zero	-0%	Northland	+6%	+9%	Taranaki
One	-4%	Auckland	-2%	-3%	Wellington
Two	+8%	Waikato	+4%	+3%	Nelson-Marlborough-Tasman
Three	+13%	Manawatū-Whanganui	+9%	+4%	West Coast
Four or more	+10%	Bay of Plenty	+1%	-4%	Canterbury
Sole parents	+5%	Gisborne	+7%	+4%	Otago
Other households with children	+2%	Hawke's Bay	+0%	+1%	Southland

At least 10 households

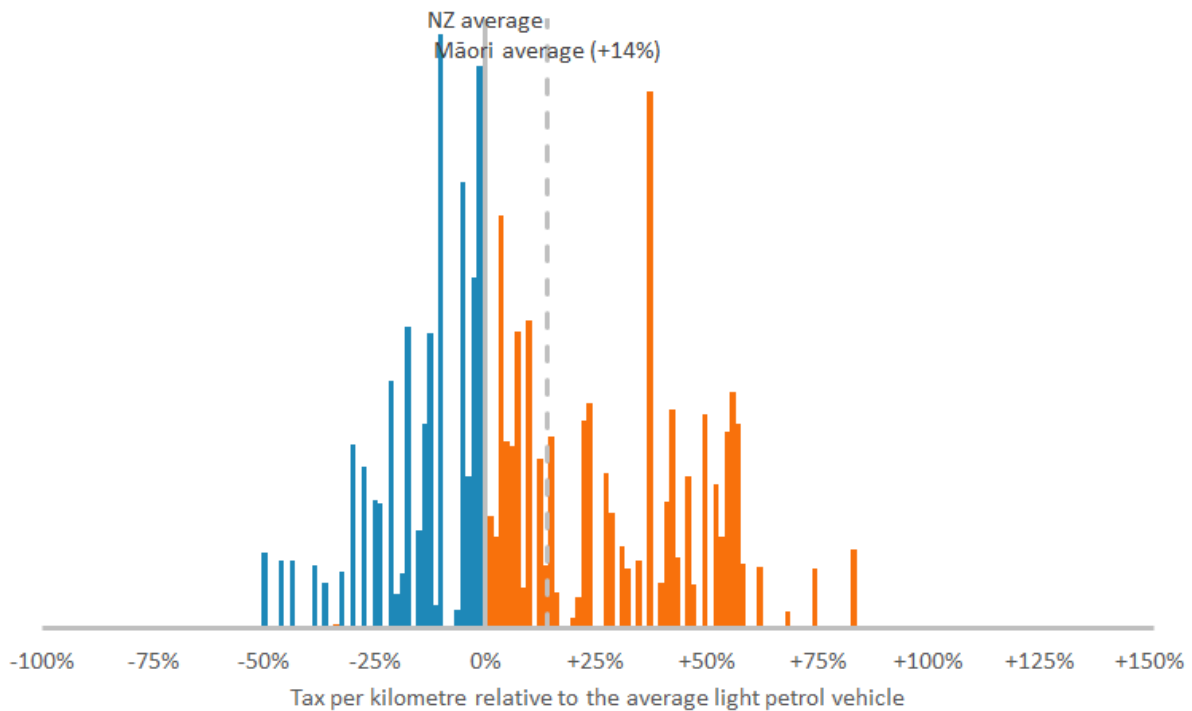
Ethnicity					Employment status				
Māori	Pacific Is.	Asian	European		Retired	Student	Unempl.	Other ben.	Employed
+7%	+0%	-5%	+0%	All	-6%	-1%	+3%	+1%	+2%
+5%		-7%	-3%	Person living alone	-6%	-9%	-5%	-4%	-1%
+0%	-6%	-2%	-2%	Family with adults only	-8%	-5%	+8%	+1%	+0%
-2%		-7%	+0%	Other adults only (eg flatmates)	-14%	-4%	-5%		+1%
+3%	-3%	-11%	+2%	Married/defacto couple only	-5%	-2%	+4%	+3%	+3%
+14%		+6%	-1%	Single adult living with children	-10%	+7%	+6%		-1%
+14%	+3%	-3%	+3%	Family (including extended) with children	-10%	+5%	+6%	-1%	+3%
+6%		-5%	+6%	Family with child(ren) plus flatmates/boarders		-6%			+5%

No. of children		Regions			
Zero	-0%	Northland	+6%	+9%	Taranaki
One	-4%	Auckland	-2%	-3%	Wellington
Two	+8%	Waikato	+4%	+3%	Nelson-Marlborough-Tasman
Three	+13%	Manawatū-Whanganui	+9%	+4%	West Coast
Four or more	+10%	Bay of Plenty	+1%	-4%	Canterbury
Sole parents	+5%	Gisborne	+7%	+4%	Otago
Other households with children	+2%	Hawke's Bay	+0%	+1%	Southland

6.5. THESE INEQUITIES ARE NOT SMALL

108. That Māori pay 14% more might not seem like a big deal to some, but even this hides burdens on different households. Figure 5 shows the distribution of under- and over-taxation among Māori families.

Figure 5: Under- and over-taxation of Māori households



109. 55% of vehicles owned by Māori households, are overtaxed compared to 39% for New Zealand as a whole.

110. 30% of vehicles owned by Māori households are overtaxed by 25% or more, compared to 16% for New Zealand.

111. 11% of vehicles owned by Māori households are overtaxed by 50% or more, compared to 6% for New Zealand.

6.6. THE OVER-TAXATION ADDS UP TO CONSIDERABLE AMOUNTS

112. Taxing vehicles by the litres they consume rather than the kilometres they've driven creates wide differences in tax paid, with the 10% lowest fuel efficiency vehicles paying **between 110% and 135%** more tax per kilometre than the 10% highest fuel efficiency vehicles.

113. Table 3 shows the difference in the current tax paid between the vehicles with the most and least fuel efficiency assuming they travel the national-average 10,500 kms per annum. The last

column, for example, compares the 20% most fuel-efficient vehicles with the 20% least-fuel efficient vehicles.

Table 3: Differences in current tax paid per annum by operators of light petrol vehicles

All types of light petrol vehicle (household, taxis, hire vehicles, goods, other)				
		5%	10%	20%
Highest fuel efficiency		\$305 to \$315	\$330 to \$340	\$355 to \$360
Lowest fuel efficiency		\$765 to \$870	\$720 to \$785	\$670 to \$700
Difference	\$	\$450 to \$565	\$385 to \$455	\$310 to \$345
per vehicle	%	+145% to +185%	+115% to +135%	+85% to +100%
Household light petrol vehicles only				
		5%	10%	20%
Highest fuel efficiency		\$310 to \$315	\$330 to \$340	\$355 to \$365
Lowest fuel efficiency		\$770 to \$870	\$720 to \$780	\$665 to \$700
Difference	\$	\$450 to \$560	\$380 to \$445	\$305 to \$345
per vehicle	%	+140% to +180%	+110% to +135%	+85% to +95%
Difference per household		\$735 to \$915	\$625 to \$730	\$500 to \$560

114. The average household pays \$950 in fuel excise duty per annum (\$580 per vehicle²¹).

115. Owners of low fuel efficiency vehicles subsidise owners of high fuel efficiency vehicles. Households with vehicles among the 10% lowest fuel efficiency pay between \$1,385 and \$1,490 tax per annum. Households with vehicles among the 10% highest fuel efficiency only pay between \$645 and \$660 per annum.

116. As earlier, Māori, the unemployed and sole parents are over-represented among households with low fuel efficiency vehicles.

117. For the average household in Kawerau with a household income of \$37,300 per annum, the extra \$500 per year some of them are overtaxed amounts is a lot.

6.7. THE BURDEN ON THE POOR WILL INCREASE WITH HIGHER FUEL TAXES

118. The last National-led Government increased fuel excise duty by 17 cents per litre between July 2009 and July 2015. I estimate this increased annual tax on a 10% most fuel-efficient vehicle

²¹ New Zealand households own an average of 1.64 vehicles for household use.

by \$115 and \$120, compared to \$235 to \$250 for a 10% least fuel-efficient vehicle (nominal figures).

119. The current Labour-led Government intends to increase nation-wide fuel excise duty by about 10 cents over the first three years of a ten-year period. I estimate that this will increase the annual tax on a 10% most fuel-efficient vehicle by about \$70, compared to between \$140 and \$150 for a 10% least fuel-efficient vehicle.
120. For Auckland, where the intention is to have a regional fuel tax of a further 10 cents a litre, I estimate that this will increase the annual tax on a 10% most fuel-efficient vehicle by between \$135 and \$140, compared to between \$260 and \$275 for a 10% least fuel-efficient vehicle.

Table 4: Increases in tax 2009 to 2018 and beyond

All light petrol vehicles			
	5%	10%	20%
National-led Government 2009 to 2015			
Highest fuel efficiency	\$110 to \$110	\$115 to \$120	\$125 to \$125
Lowest fuel efficiency	\$250 to \$280	\$235 to \$250	\$220 to \$225
Labour-led Government intentions for 2018 onwards			
<u>Other than Auckland</u>			
Highest fuel efficiency	\$65 to \$70	\$70 to \$70	\$75 to \$75
Lowest fuel efficiency	\$145 to \$165	\$140 to \$150	\$130 to \$135
<u>Auckland</u> (including regional fuel tax)			
Highest fuel efficiency	\$125 to \$130	\$135 to \$140	\$145 to \$145
Lowest fuel efficiency	\$275 to \$305	\$260 to \$275	\$245 to \$250

121. In Auckland, the average household will pay about \$320 more in nation-wide and regional fuel taxes per annum than it does today (from \$930 to \$1,250).
122. For a household with vehicles that are among the least 10% fuel efficient, the additional tax will be between \$440 and \$470 per annum, with disproportionately more of these households being Māori, unemployed, and sole parents.

6.8. RECOMMENDATIONS

123. Fuel taxes are inequitable and grossly regressive. They should be replaced at the earliest possible opportunity with congestion pricing and road pricing – approaches to transport funding that are as close to an ‘everyone wins’ policy as it gets.

124. If congestion and road pricing are more than a few years away, we need to think about moving from fuel taxes to road user charges and/or compensating poor households.

7. TRANSPARENCY

125. In 2015, the Ministry of Transport completed a project looking at a variety of current and potential transport taxes/charges. Here's what it wrote about the advantages of fuel taxes:

Advantages

- ▶ It has significant revenue yield, coupled with very low administrative and compliance costs. A small increase in the fuel tax generates substantial revenue.
- ▶ As payment of fuel taxes is automatic with purchase it requires no action on the part of end users, who may not even be aware of how much they are paying. Small increases can go unnoticed by many users and generate little negative response.

126. Perhaps inadvertently, the Ministry cited that advantage again in its regulatory impact statement on regional fuel taxes (page 16):

Payment of fuel taxes requires no action on the part of end users, who may not even be aware of how much they are paying. Small increases can go unnoticed by many users and generate little negative response. Transport fuel taxes have significant scope to be increased. Fuel demand is generally acknowledged to be highly inelastic historically, that is, demand is not very responsive to price. However, this may be changing according to both international and national indicators, especially since the price of petrol in New Zealand increased to above two dollars per litre.

127. The only people who benefit from not knowing how much tax they're paying and whether expenditure plans warrant those levels of taxes are people who don't care and Governments and their agencies that would rather that those people who do care, don't notice.

128. This is a remarkable, striking admission and not in keeping with requirements for government to be open and transparent.

129. Transparency is also required so that people can judge for themselves whether taxes are fair and whether the tax is justified (whether the resulting expenditure is worth it).

Final remarks

130. The Background Paper cites a couple of issues around transport taxes. One is revenue integrity. The Background Paper correctly notes that this isn't a particularly urgent issue.
131. The Background Paper does not note much bigger and very urgent problems, in particular, the extraordinary burden fuel taxes place on the poor. This has been going on for decades and must be remedied as quickly as possible
132. Fuel taxes should be replaced by congestion and road pricing.
133. Thank you for your consideration of my submission. I look forward to contributing further as the review continues.