



2023 Lifetime Tax Report

October 2023



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Average of all deciles

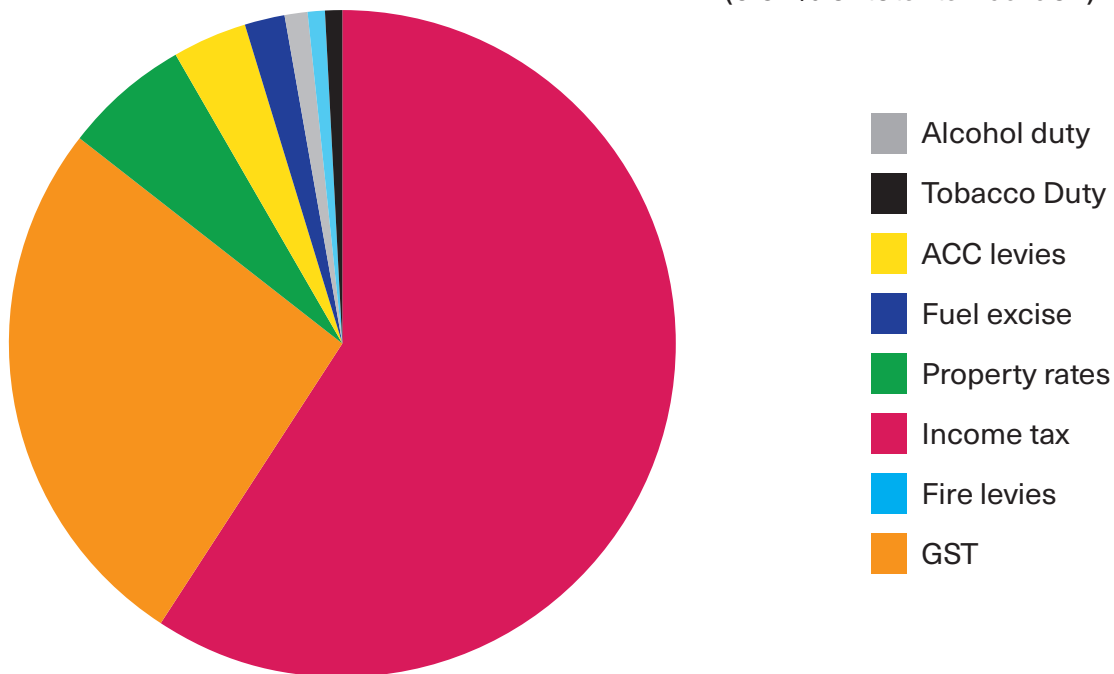
At current prices, the average New Zealander will pay a total of \$1,096,777.97 ($\pm 4.52\%$) in tax across his or her lifetime.

The mean gross annual personal income across all income deciles is \$48,423.35.

At this mean income, the average New Zealand taxpayer will spend 22.65 years ($\pm 4.52\%$) of their life working just to pay their tax burden.

At current prices, over their lifetime the average New Zealand taxpayer will pay:

- \$648,917.84 in income tax - (59.17% of total tax burden)
- \$291,385.78 ($\pm 12.57\%$) in goods & services tax (GST) - (26.57% of total tax burden).
- \$67,345.54 ($\pm 12.67\%$) in local body property rates and similar services – (6.14% of total tax burden).
- \$40,178.11 in Accident Compensation Corporation (ACC) levies – (3.66% of total tax burden).
- \$20,581.39 ($\pm 12.56\%$) in fuel excise – (1.88% of total tax burden).
- \$9,555.32 in fire & emergency levies – (0.87% of total tax burden).
- \$11,447.47 ($\pm 12.53\%$) in alcohol duty – (1.04% of total tax burden).
- \$7,366.52 ($\pm 4.91\%$) in tobacco duty – (0.67% of total tax burden).



Graph 1: Average tax paid as a proportion of the average total tax paid (middle of lower and upper bands)

Bottom decile

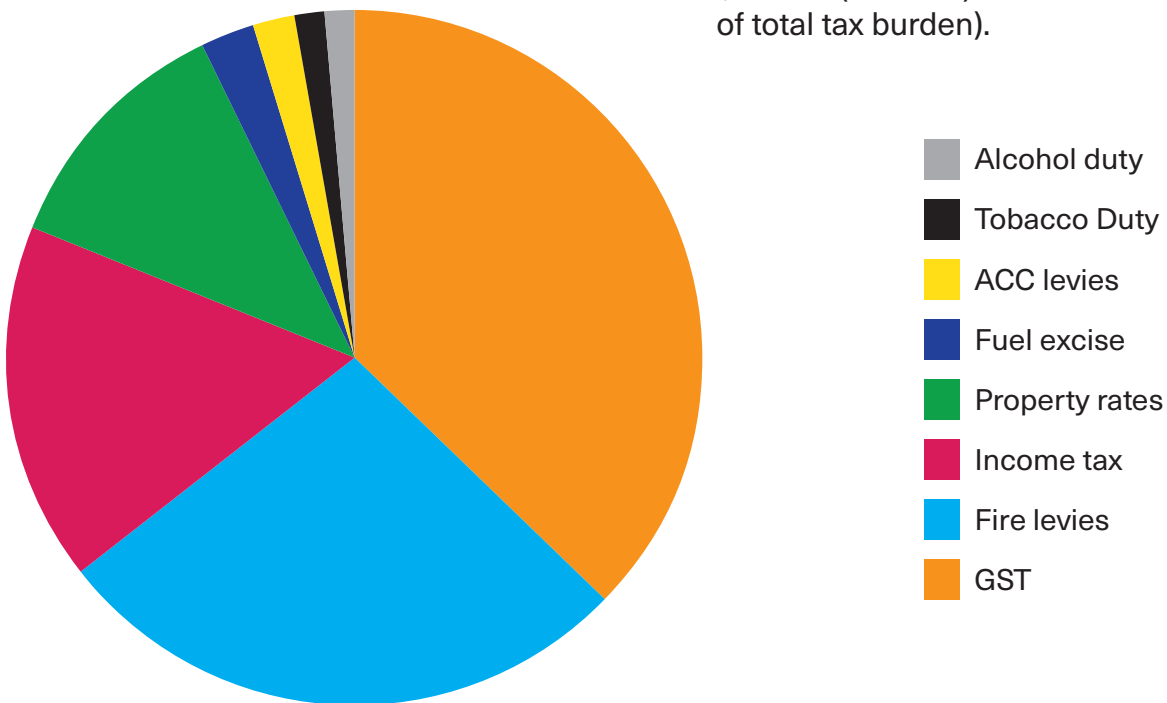
At current prices, the average New Zealander in the lowest 10% of lifetime earners will pay a total of \$33,314.12 ($\pm 5.64\%$) in tax across his or her lifetime.

The mean annual income of a bottom decile earner is \$809.03.

The average New Zealand taxpayer in the lowest 10% of lifetime earners will spend 41.18 years ($\pm 5.64\%$) of their life working just to pay their tax burden.

At current prices, over their lifetime a bottom decile earner in New Zealand will pay: -

- \$5,525.14 in income tax - (16.58% of total tax burden)
- \$12,429.99 ($\pm 10.65\%$) in goods & services tax (GST) - (37.31% of total tax burden).
- \$3,894.18 ($\pm 10.65\%$) in local body property rates and similar services – (11.69% of total tax burden).
- \$701.46 in Accident Compensation Corporation (ACC) levies – (2.11% of total tax burden).
- \$771.93 ($\pm 10.65\%$) in fuel excise – (2.32% of total tax burden).
- \$9,131.57 in fire & emergency levies – (27.41% of total tax burden).
- \$425.73 ($\pm 10.65\%$) in alcohol duty – (1.28% of total tax burden).
- \$434.13 ($\pm 3.26\%$) in tobacco duty – (1.30% of total tax burden).



Graph 2: Average tax paid by decile 1 as a proportion of the average total tax paid by decile 1 (middle of lower and upper bands)

Top decile

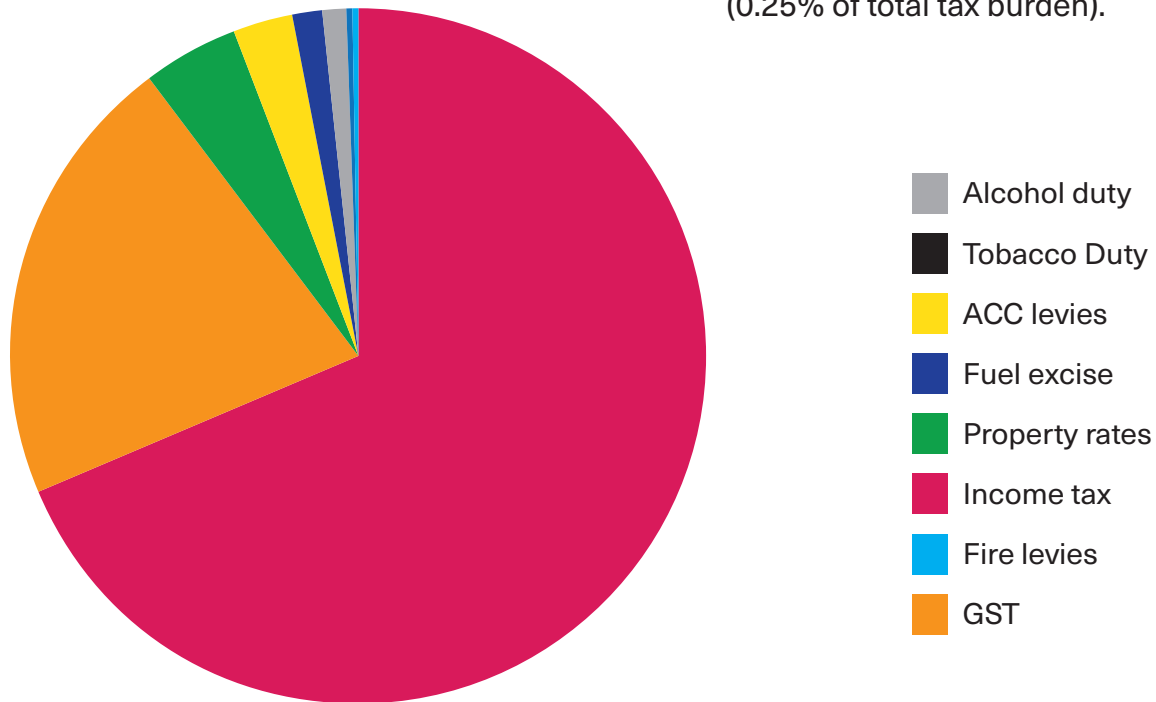
At current prices, the average New Zealander in the highest 10% of lifetime earners will pay a total of \$4,287,584.41 ($\pm 3.55\%$) in tax across his or her lifetime.

The mean annual income of a top decile earner is \$165,749.52.

The average New Zealand taxpayer in the highest 10% of lifetime earners will spend 25.87 years ($\pm 3.55\%$) of their life working just to pay their tax burden.

At current prices, over their lifetime a top decile earner in New Zealand will pay: -

- \$2,943,778.84 in income tax - (68.66% of total tax burden)
- \$903,926.60 ($\pm 12.67\%$) in goods & services tax (GST) - (21.08% of total tax burden).
- \$189,808.65 ($\pm 12.67\%$) in local body property rates and similar services - (4.43% of total tax burden).
- \$125,644.50 in Accident Compensation Corporation (ACC) levies - (2.93% of total tax burden).
- \$64,432.64 ($\pm 12.67\%$) in fuel excise - (1.50% of total tax burden).
- \$9,824.77 in fire & emergency levies - (0.23% of total tax burden).
- \$39,264.03 ($\pm 12.67\%$) in alcohol duty - (0.92% of total tax burden).
- \$10,904.38 ($\pm 5.31\%$) in tobacco duty - (0.25% of total tax burden).



Graph 3: Average tax paid by decile 10 as a proportion of the average total tax paid by decile 10 (middle of lower and upper bands)

Tax-freedom years

The graph below represents the average number of years it would take for the average taxpayer in each income decile to pay their total lifetime tax bill.

This assumes that all of a taxpayer's income is taken in tax each year until the lifetime tax burden has been paid.

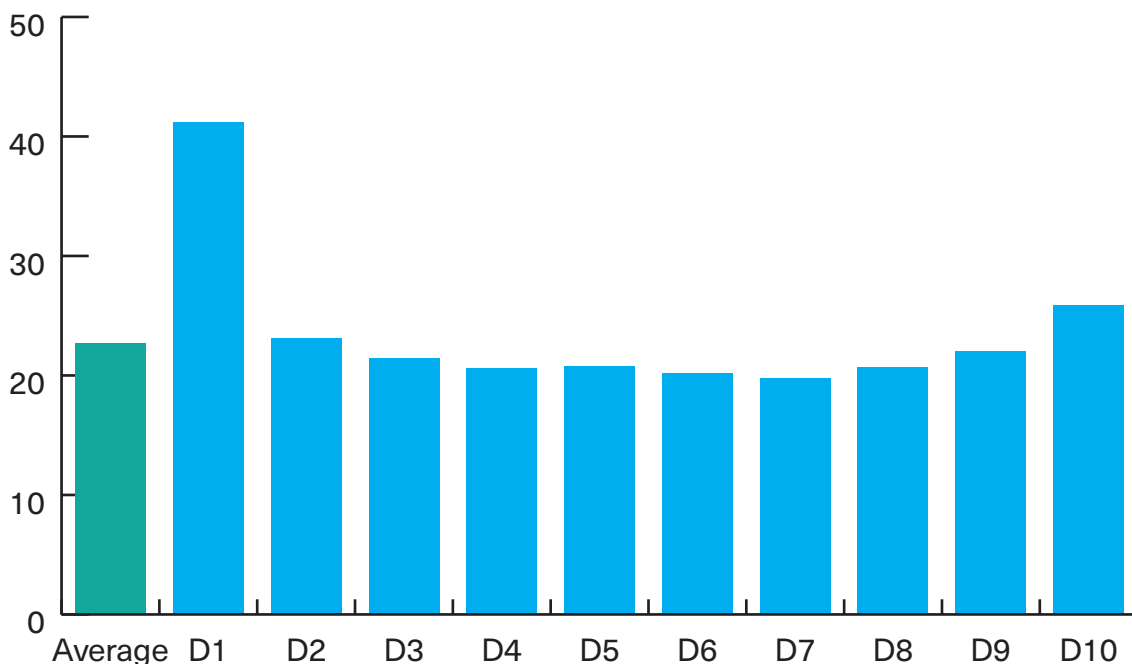
This therefore represents the total number of years that a taxpayer spends working just to generate revenue for the Government, before they can start earning money for their own benefit.

This visualisation shows that there is an approximately u-shaped relationship between income earned and the number of years it takes an earner to pay their total lifetime tax bill.

Owing to low average incomes and a number of relatively fixed-sum taxes such as the fire and emergency levy, the lowest 10% of earners spend 41.18 years ($\pm 5.64\%$) paying off their lifetime tax burden on average.

The portion of a taxpayers' life working for the Government's coffers broadly continues to decline until decile 7, with a mean personal annual income of \$51,599.49. This decile spends the lowest portion of their life generating money for the Government at 19.79 years ($\pm 4.22\%$).

Those earning incomes greater than \$51,599.49 see the number of years they spend working for the Government climb sharply as incomes increase. Those in the top 10% of earners, with a mean gross annual income of \$165,749.52, lose 25.87 years ($\pm 3.55\%$) to the Government on average.



Graph 4: Average number of years it takes to pay the total lifetime tax bill by income decile

Proportion of life spent paying off tax burden

Stats NZ collect data on the earnings and expenditure of those above the age of 15, and so although a small amount of GST will have been paid before then, for the purposes of this study 15 is taken as the age from which people begin to pay tax.

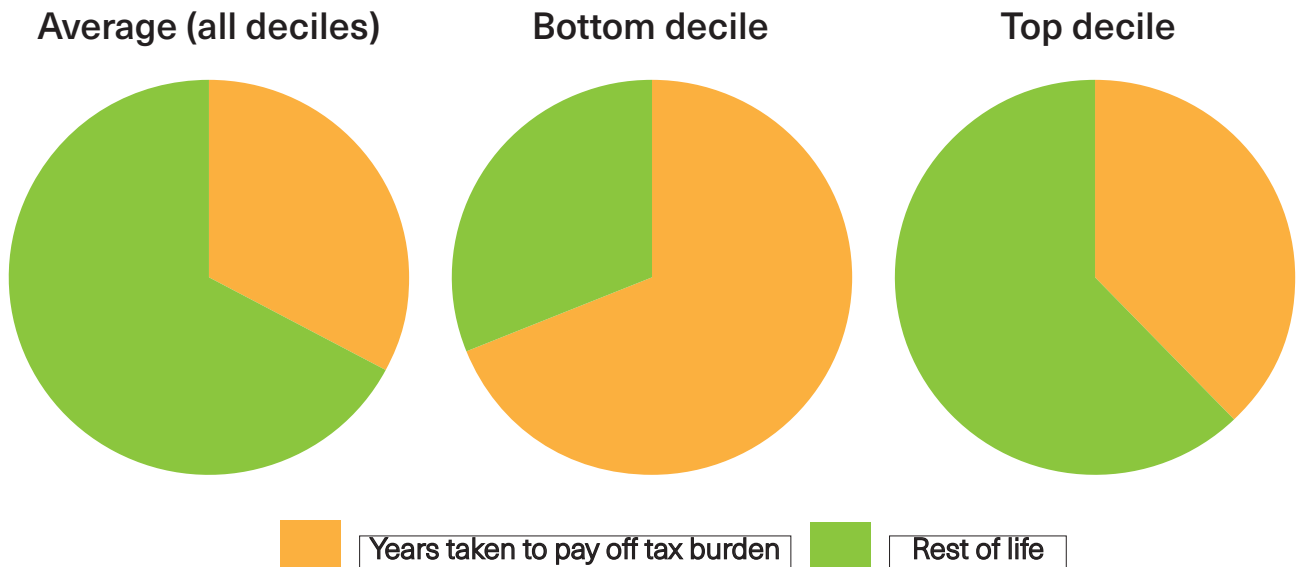
Our forecast weighted average life expectancy in New Zealand for 2023 is 82.75. Therefore, the average New Zealander will be paying some amount of tax during 67.75 years of their life.

Using the Tax Freedom Years methodology, we therefore calculated the proportion of a taxpayers' taxable life that they are required to spend just paying taxes, before they can start to live their life for their own benefit.

The average New Zealander requires 22.65 years to pay off their tax burden, or 33.43% of their life between the ages of 15 and 82.75.

A taxpayer in the lowest 10% of earners needs 41.18 years to pay off their tax burden, or 60.78% of their life between the ages of 15 and 82.75.

Someone in the highest 10% of earners will take 25.87 years to pay their lifetime tax burden, which is 38.18% of their life between the ages of 15 and 82.75.



Graphs 5, 6 & 7: Proportion of life required to pay off lifetime tax burden for the average taxpayer, average bottom decile earner and average top decile earner, respectively.

Proportion of lifetime earnings paid in tax

Proportion of lifetime earnings paid in tax.

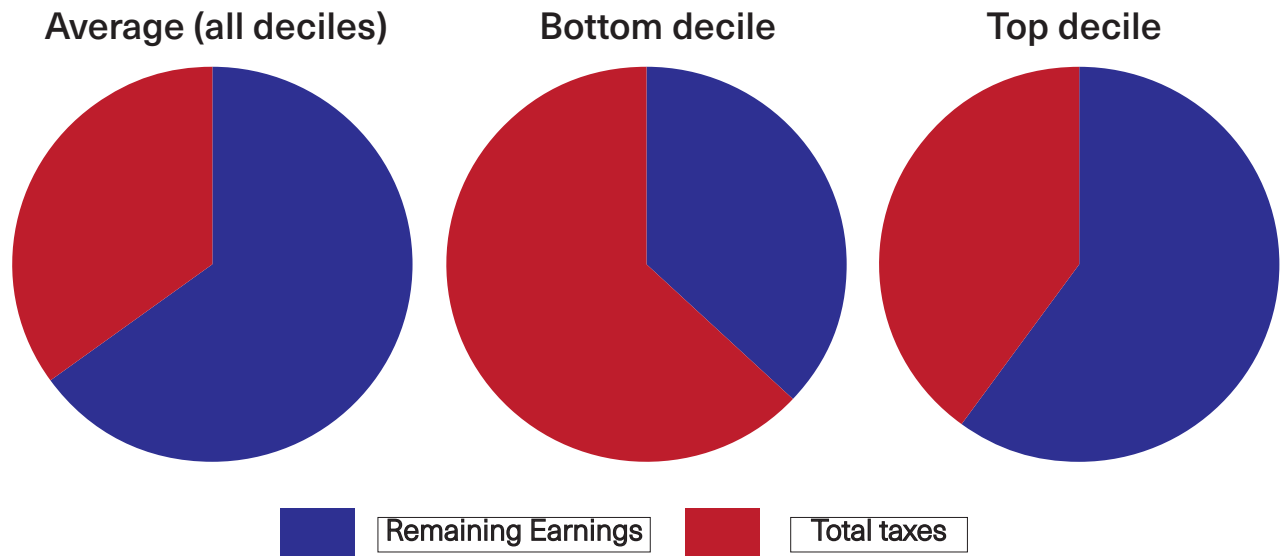
Again, Stats NZ collect data on the earnings and expenditure of those above the age of 15, and so although a small amount of GST will have been paid before then, for the purposes of this study 15 is taken as the age from which people begin to pay tax.

Our forecast weighted average life expectancy in New Zealand for 2023 is 82.75. Therefore, the average New Zealander will be paying some amount of tax during 67.75 years of their life.

The average New Zealander will earn \$3,155,713.44 in their lifetime and pay \$1,096,777.97 in tax. This means that of everything the average New Zealander earns between the ages of 15 and 82.75, they will pay 34.76% to the Government in tax.

Someone in the lowest 10% of earners will on average have \$52,723.90 in income between the ages of 15 and 82.75 and will pay \$33,314.12 in tax. Of their earnings, 63.19% will be taken by the Government in tax.

Someone in the highest 10% of earners will on average earn \$10,801,771.48 between the ages of 15 and 82.75, and their total life tax burden will be \$4,287,584.41. The Government will take 39.69% of their earnings in tax.



Graphs 8, 9 & 10: Proportion of lifetime earnings paid in tax for the average taxpayer, average bottom decile earner and average top decile earner, respectively.

Methodology, Qualifications, Assumptions and Limitations

This study aims to stimulate informed debate around New Zealand's tax burden, and the methodology of this paper required a number of assumptions. The figures presented in this paper are calculated conditionally on these assumptions, and therefore may not exactly line up with figures carried out using a different methodology. As this research aims to spark debate over taxation in New Zealand, we welcome others to expand upon this work further and improve on the calculations made in this paper where they are willing and able to do so.

This study estimates the total amount of tax that would be paid by an individual born today over a typical lifetime. Current tax rates are applied to the standard life expectancy of an individual, starting at the age of 15. Income levels, GDP and prices are also treated as a constant, and so the effects of inflation are discounted. As such, the value of the lifetime tax burden and proportion of earnings paid in tax can be taken as extrapolations of the current tax burden faced by the mean individual in each income decile. The lifetime tax burden is therefore an approximation of the real-terms tax burden in 2023 prices; it should be remembered that the nominal value of tax paid would likely be significantly larger when 67.75 years of future inflation are accounted for.

Within the Government, opinions differ as to the status of benefits received with regards to taxation. For instance, whilst Treasury treats benefits as negative taxation the Inland Revenue Department instead treats benefits as income. For the purposes of this study, the Inland Revenue Department's view on benefits was taken. Either method would be perfectly valid, although particularly for lower decile earners the results presented would differ fairly significantly.

Within income deciles, this study uses mean income rather than median in its analysis. Whilst median may be preferable owing to the potential that incomes are unevenly distributed within income bands, limitations with the availability of income data from Treasury's APITRE tool precluded this. Again, using mean is a perfectly reasonable methodological choice regardless of any data limitations however should other researchers undertake to repeat this study using median incomes this may contribute meaningfully to the discussion around the tax burdens faced by New Zealanders.

Income in this study refers to statutory income, primarily composed of wages and salaries as well as benefits received. It therefore discounts other sources of economic income such as capital gains. This is owing to the data which Treasury makes available through its APITRE tool. A similar analysis involving all forms of economic income would likely produce more accurate figures for the total lifetime tax burdens, particularly for middle-income and high-income New Zealanders .

For the purposes of dividing New Zealanders into income deciles based on their lifetime earnings, it was assumed that those in, say, the bottom decile remained in the bottom decile for life. This applied to each decile. This may be mildly problematic at the crossover between pre and post-retirement incomes, where it is somewhat less likely to be a perfectly accurate representation of an individual's lifetime earnings. Whilst this may not be true for any given individuals, it does provide a reasonable approximation for the tax burdens faced by those in each decile. Nonetheless, this should be borne in mind when considering the findings of this study.

Average annual personal gross income by income decile

To calculate average annual personal gross income, we sources data on the number of individuals and their average and taxable incomes. The New Zealand Treasury's aggregate personal income tax revenue estimate (APITRE) tool provides this data in \$1000-wide annual income bands from \$0 to \$300,000+. Individuals who earned \$0 annually (of which there were 248,620) were excluded from the calculation. To find the number of individuals per income decile, the total number of income-earning individuals (4,107,353) was divided by ten to produce ten bands of 410,735.3 individuals each.

Where there were too many individuals per income band to constitute a decile, or where there was overflow between bands, the income bands were split proportionally between and shared across two deciles. For instance, in the first three APITRE income bands, there are 384,372 individuals in total. Adding all 39,975 individuals from the fourth income band to this total would take the group to 424,347, which is larger than a decile. As such, 26,363.3 individuals from income band 4 were packaged with income bands 1, 2 and 3 to constitute income decile 1. The remaining 13,611.7 individuals from income band 4 were included within income decile 2. This process was repeated with for all ten income deciles.

To find the average income per decile, first the average income for each band was multiplied by the number of individuals in that band. This was repeated for all income bands in each decile. A weighted average mean was found by totalling each of these values for each decile. A weighted average mean was found by totalling each of these values for each decile, and dividing these totals by the number of individuals in each decile (i.e. 410,753.3).

Income decile	Average income
Average	\$48,423.35
1	\$809.03
2	\$9,021.58
3	\$17,213.16
4	\$22,624.81
5	\$29,573.92
6	\$40,689.17
7	\$51,599.49
8	\$64,438.37
9	\$82,514.46
10	\$165,749.52

Table 1: Average annual personal gross income by income decile (2022)
 Source: NZTU calculations using data from New Zealand Treasury, "Aggregate Personal Income Tax Revenue Estimate Tool (2022)"

Average lifetime

Stats NZ collect details in the income of all age groups in five-year bands, starting from the age of 15. As such, for the purposes of this study 15 years was the age from which taxpayers began working. It should be noted that as most people of this age will be in full-time education rather than employment, the average annual income per individual will be lower than the average income received by 15–19-year-olds in employment. As non-earners as recorded by Treasury's APITRE tool were discounted, however, this will not have an effect on the results of this study. The average working life, therefore, was calculated as the difference between 15 and the superannuation age of 65 .

The average retired life (17.74 years) was calculated as the years between the superannuation age and New Zealand's weighted average life expectancy. To calculate the average life expectancy (82.74) , data was sourced for the average life expectancy by sex for the years 1950-52 through to 2017-19. Using Microsoft Excel's FORECAST.LINEAR function, this trend was extrapolated to provide a life expectancy figure for 2023-25 for both the male and female population. By multiplying the life expectancy figures for males and females by their respective estimated populations , and dividing this figure by New Zealand's total estimated population, a weighted average life expectancy figure was produced (82.75)

	Males	Females	Total
Number	2,556,100	2,595,500	5,166,900
Average life expectancy	80.6	84.9	82.75
Total life expectancy	205,963,736.2	220,353,395.1	426,317,131

*Table 2: National population estimates and average life expectancy (2023)
Sources: Statistics New Zealand, Life expectancy (2023); Statistics New Zealand, National population estimates (2023)*

Average annual personal gross income by age group

Average annual personal gross income for working years (15-64) and retirement years (65+) were sourced from Stats NZ's dataset on paid employment by region, sex, age and ethnic group. This dataset breaks earnings data down into eleven age groups in five-year intervals from 15-19, up to 65+. To calculate average annual personal gross income for working life years (ages 15 to 64) and retired life years (ages 65 and over), data on earnings for people in paid employment by age specifically was used. In this dataset, there are 11 age groups in total, from 15-19 to 65+, each with an age range of five years, except for the 65+ age group. First, we found the total weekly earnings of all age groups and of each one by multiplying the average weekly earnings of each age group by the number people in that group. For example, for all age groups, the average weekly earnings is \$1,363, and the total number of people in paid employment is 2,791,100, so the total weekly earnings is \$3,804,269,300 ($\$1,363 \times 2,791,100$).

Finally, to find the average annual personal gross income of each decile of both age groups (15-64 and 65+), the average annual personal gross income (of all age groups) was multiplied by those aforementioned proportions, respectively. For example, to find the average annual personal gross income of decile 1 of the 15-64 age group (\$816.31), the average income of decile 1 (\$809.03) was multiplied by the proportion of the average weekly earnings that the 15-64 age group earn relative to all groups (101%).

Then, to find the average weekly earnings of those aged 15 to 64, the total weekly earnings of each age group from 15 to 64 were summed (\$3,581,055.60) and divided by the number of people aged 15 to 64 in paid employment (2,603,900). To find how much the 15-64 age group earns relative to all groups (101%), the average weekly earnings of the former (\$1,375,270) was divided by those of the latter (\$1,363,000). To find how much the 65+ age group earns relative to all groups (83%), the average weekly earnings of the former (\$1,130,000) was divided by those of the latter (\$1,363,000).

Ages	Total earnings	Number of people	Average weekly earnings	Proportion of all weekly earnings
All	\$3,804,269.30	2,791,100	\$1,363.00	N/A
15-64	\$3,581,055.60	2,603,900	\$1,375.27	100.9%
65+	\$211,536.00	187,200	\$1,130.00	82.9%

Table 3: Average weekly earnings for ages 15-64 and 65+ (2022)
 Source: Statistics New Zealand, "Earnings for people in paid employment by region, sex, age groups and ethnic groups"

Average annual personal gross income by age group (continued)

Finally, to find the average annual personal gross income of each decile of both age groups (15–64 and 65+), the average annual personal gross income (of all age groups) was multiplied by those aforementioned proportions, respectively. For example, to find the average annual personal gross income of decile 1 of the 15–64 age group (\$816.31), the average income of decile 1 (\$809.03) was multiplied by the proportion of the average weekly earnings that the 15–64 age group earn relative to all groups (101%).

Income decile	15–64	65+
Average	\$48,859.13	\$40,145.55
1	\$816.31	\$670.73
2	\$9,102.77	\$7,479.38
3	\$17,368.07	\$14,270.63
4	\$22,828.42	\$18,757.18
5	\$29,840.07	\$24,518.37
6	\$41,055.35	\$33,733.51
7	\$52,063.85	\$42,778.74
8	\$65,018.27	\$53,422.86
9	\$83,257.04	\$68,408.91
10	\$167,241.16	\$137,415.23

Table 4: Average annual personal gross income by income deciles for ages 15–64 and 65+ (2022)

Sources: New Zealand Treasury, "Aggregate Personal Income Tax Revenue Estimate Tool Overview"; Statistics New Zealand, "Earnings for people in paid employment by region, sex, age groups and ethnic groups"

Income tax

Income tax rates were sourced from Inland Revenue . To calculate annual income taxes paid, firstly the average annual personal gross incomes of each decile were separated by the two respective age groups (i.e. 15-64 and 65+) into the appropriate income tax brackets. The income figures were then multiplied by the relevant figures for the relevant income tax rate.

Finally, we summed the annual income taxes paid in each bracket. For example, the average annual income of decile 10 is \$172,773.98. The first \$14,000 is taxed at 10.5% (the multiplication of which is \$1,470), the next \$34,000 is taxed at 17.5% (\$5,950), the next \$22,000 is taxed at 30% (\$6,600), and the last \$102,773.98 is taxed at 33% (\$33,915.41). The sum of this (\$47,935.41) is the total average annual gross income tax paid of decile 10.

Non-income tax

To calculate the average amounts paid in GST, petrol taxes, property rates and both alcohol and tobacco duties, data was sourced on household expenditure from the Household Economic Survey (HES) . Specifically, data on average weekly household expenditure on the total of all expenditure groups, transport, cigarettes and tobacco, alcoholic beverages, and property rates and related services was used. As data was only available from 2007 to 2019, Microsoft Excel's FORECAST.LINEAR function was used to extrapolate trends in expenditure and to produce forecast expenditures for the year 2023. These weekly expenditure figures were then converted into annual household expenditures.

Using the Household Economic Survey's lower and upper income limits, the proportion of income expended on each variable was deduced. Lower and upper income limits for 2023 were forecast using the data from 2007-19. To produce the upper expenditure limits, the annual expenditure figures were divided by the lower income limits and one was subtracted. To calculate the lower limits of the proportion of income expended, the annual expenditure figures were divided by the upper income limits.

To find the lower limit of the average annual personal expenditure of both age groups, the respective average annual personal gross incomes were multiplied by the lower limit of the proportion of income expended; to find the upper limit, the respective average annual personal gross incomes were multiplied by the upper limit of the proportion of income expended . This process was used to calculate the average annual personal expenditure on the total of all expenditure groups, on petrol, on cigarettes, on alcohol, and on property rates.

To work out the working life non-income taxes paid, the annual non-income tax expenditures were multiplied by 50, and for retired life these same figures were multiplied by 17.75. The methodology for calculating expenditure on each non-income tax is expanded upon in more detail below.

Goods and services tax (GST)

GST is charged at a rate of 15%. To calculate annual GST expenditure, the lower and upper limits of average annual personal expenditure of each decile was multiplied by 3 then divided by 23.

Accident Compensation Corporation (ACC) earners' levy

For the 2023-24 financial year, ACC earners' levies are charged at a flat rate of \$1.56 per \$100 (including GST). To calculate the ACC rate without GST, the sum $(1.53 - ((1.56 * 3) / 23))$ was utilised, giving a rate of 1.33%. Similarly, the maximum ACC levy payable for the year 2023-23 is \$2,132.58 including GST. To calculate the maximum ACC levy without GST, the sum $(2132.58 - ((2132.58 * 3) / 23))$ was utilised, giving a figure of \$1,854.41).

To calculate the average annual ACC earners' levies paid, the average annual personal gross income of each decile was multiplied by 0.0133. For decile 10 of both age groups, as this figure exceeded the maximum levy payable annually, the maximum levy figure was used instead.

Property rates

Details on the average expenditure for each income decile on property rates were taken from the latest Household Economic Survey. The proportion of expenditure was multiplied by the average income for each decile to calculate individual expenditure, and a forecast figure for 2023 was extrapolated. To exclude GST from the calculation, the average annual personal expenditure on property rates for each income decile and age group was multiplied by 3 and divided by 23, and this figure was then subtracted from the GST-inclusive personal expenditure on property rates.

Petrol tax

The Household Economic Survey does not collect data on petrol expenditure specifically, but does have statistics on transport expenditure more broadly. Statistics on household expenditure on petrol from the years 2015/16 and 2018/19 were sourced from Stats NZ, and used to forecast household expenditure for the year 2023/24. Dividing the forecast average weekly household expenditure on petrol by the average weekly household expenditure on transport gave a figure for what proportion of average weekly household transport expenditure is constituted by expenditure on petrol.

Multiplying each income decile's annual household expenditure on transport by the proportion calculated above gives a figure for the average household expenditure on petrol. To find the proportion of income that the average household of each decile spends on petrol, expenditure on petrol was divided by the lower and upper income bands of each decile. To work out the amount that the average person of each decile of both age groups spends on petrol, the average annual personal gross income was multiplied by those respective proportions.

Next, to calculate the proportion of the price of petrol that is taxed, data was sourced on the average weekly retail price of regular petrol for the 28 weeks so far in 2023, as sourced from the Ministry of Business, Innovation and Employment. As taxes had increased the price of petrol by 25c/litre plus approximately 4c/litre in GST on 1st July 2023, to provide a more realistic picture of the proportion of the cost of petrol which is to be taxed moving forwards, 29c/litre was added to the price of petrol for the weeks preceding this date.

As of 21 July 2023, the total cost of all taxes on petrol prices (excluding GST) was approximately 77.284c/litre. To find the proportion of petrol that is taxed, the total fuel tax was divided by the average price including the noted uplift, which produced a figure of 27.64%.

Tobacco excise duty

Data was sourced on the weighted average retail price of a pack of 25 cigarettes at supermarkets and convenience stores from the consumer price index (CPI) . The price was calculated as the average of the first 2 quarters of 2023. The rate for “manufactured cigarettes not exceeding in weight 0.8 kg actual tobacco content per 1,000 cigarettes,” because it is in dollars per cigarette and the CPI uses the same measure, whereas the others are in dollars per kilo tobacco content. The rate in terms of dollars per pack of 25 cigarettes was then calculated, which is \$27.46. Finally, to find what proportion of the price of cigarettes is tax, the above rate was divided by the average price of a pack of 25 cigarettes. This gives a rate of approximately 60.42%.

Item	Unit	Q1 2023	Q2 2023	Mean
Cigarettes (supermarket & convenience store)	Pk of 25	\$48.71	\$48.75	\$48.73

Table 5: Weighted average retail price of cigarettes (2023)
Source: Statistics New Zealand, Consumer price index: July 2023 quarter (2023)

Tobacco product	Excise duty rate	Per pk of 25 cigarettes	Proportion of average price
Manufactured cigarettes ≤ 0.8kg actual tobacco content per 1,000 cigarettes	\$1,177.75 per 1,000 cigarettes	\$29.44	60.42%

Table 6: Tobacco excise duty rate from 1 January 2023 (excluding GST)
Source: New Zealand Customs Service, New excise duties rates for tobacco and tobacco products (2023)

Fire and Emergency levy

To calculate the Fire and Emergency levies paid on buildings and property, it was assumed that each decile of both age groups pays the annual cap of \$106.00 and \$21.20, respectively. To calculate the levies paid on vehicles, data on the number of vehicles that households own by income sextile was sourced from the 2013 Census. Because the only levy rate for motor vehicles is for those that weigh less than 3.5 tonnes, it was assumed that all vehicles weighed less than that and, so, all vehicle owners paid the flat rate of \$8.45 per vehicle.

To find the total levies paid of each sextile, the number of households that owned zero, one, two, or three or more vehicles was multiplied by the number of vehicles they owned and by the flat rate of \$8.45. Next, the amounts that each sextile paid were summed. For example, in sextile 1, 40,560 households owned no vehicles; 79,368 owned one; 17,115 owned two; and 4,293 owned three or more. Those households would have paid a total of \$0.00, \$670,659.60, \$289,243.50, and \$108,827.55 in levies, respectively. Thus, sextile 1 would have paid a total of \$1,068,730.65.

However, because the data was grouped by sextiles, it was necessary to convert it into deciles. The lower and upper bands of the income deciles from the 2013 Household Economic Survey (HES) were used, and fitted into the lower and upper bands of the income sextiles from the Census. Merging the decile and sextile bands generated fifteen in total. To find the percentage that each income band is of each income group, first, the size of each of the fifteen bands were calculated by subtracting the lower band from the upper.

Then, to find how many households in each sextile are in each band of that sextile, and how much each band in a sextile pays of the total levies of that sextile, the number of households in a sextile - and the total levies it pays - was multiplied by the percentage that a band constitutes of a sextile. Next, for the bands of fifteen that fitted into a decile, the number of households and total levies paid of those bands were summed. Finally, the total levies paid per decile were divided by the number of households in that decile to find the average vehicle levy paid per decile.

Fire and Emergency levy (continued)

To illustrate the above, consider the following example for calculating the average vehicle levy paid by decile 1. The lower and upper bands of sextile 2 are \$20,001 and \$30,000, respectively, so the size is \$9,999 (i.e., \$30,000 – \$20,001). The total households in sextile 2 are 141,930; the total levies paid are \$1,264,990.35. Two income bands fit into sextile 2: \$20,001 to \$23,099 and \$23,100 to \$30,000. The length of the first band is \$3,098, or 31% of sextile 2; the length of the second is \$6,900, or 69%. Thus, it was assumed that 31% of the households in sextile 2 (43,998) are in the first band and 69% (97,932) in the second, and that 31% of the total levies paid by sextile 2 (\$392,147.01) are paid by the first band and 69% (\$872,843.34) by the second.

The lower and upper limits of decile 1 are \$0 and \$23,099, respectively. As such, it overlaps with sextiles 1 and 2. The lower and upper limits of sextile 1 are \$0 and \$20,000, respectively; the total number of households is 141,336; and the total levies paid are \$1,068,730.65. Thus, in decile 1 are the first two of the fifteen income bands, the total number of households is 185,334 (141,336 + 43,998), and the total levies paid are \$1,460,877.66 (\$1,068,730.65 + \$392,147.01). Therefore, the average levy paid is \$7.88 (\$1,460,877.66 ÷ 185,334).

Income decile	Total households	Total vehicle levies	Average vehicle levy
1	185,334	\$1,460,877.66	\$7.88
2	125,481	\$1,194,766.03	\$9.52
3	119,377	\$1,394,998.33	\$11.69
4	141,743	\$1,783,334.98	\$12.58
5	124,866	\$1,727,439.75	\$13.83
6	114,063	\$1,789,439.31	\$15.69
7	133,585	\$2,124,565.10	\$15.90
8	80,106	\$1,452,865.10	\$18.14
9	130,415	\$2,365,327.27	\$18.14
10	144,862	\$2,627,340.81	\$18.14

Table 7: Total households, total vehicle levies, and average vehicle levies by income decile (2013)
Source: Fire and Emergency New Zealand, "Guide for levy payers"; Statistics New Zealand, Number of motor vehicles by total household income (2017)

Alcohol excise duty

Data was sourced on the weighted average retail price of bottles of beer, wine, and whisky at supermarkets, licensed premises, and/or liquor stores from the consumer price index (CPI). The price of each beverage was calculated as the average of the prices during the first two quarters of 2023.

Item	Unit	Q1 2023	Q2 2023	Average price
Beer bottles (supermarket & liquor store)	12	\$22.31	\$22.80	\$22.56
Wine cask, white (supermarket & liquor store)	3L	\$28.85	\$29.35	\$29.10
Whisky (liquor store)	1L	\$50.24	\$52.29	\$51.27

Table 8: Weighted average retail prices of alcoholic beverages (Q1 & Q2 2023)
Source: Statistics New Zealand, Consumer price index: September 2022 quarter (2023)

Data on annual alcohol available for consumption from 2012 to 2022 was used as a proxy measure for the proportion of alcoholic beverages consumed. Forecast values for 2023 were produced and used to calculate the proportion of each alcoholic beverage available (the total volume of a type of alcoholic beverage available divided by the total volume of all alcoholic beverages available).

Next, because excise rates are charged either per litre of alcohol or per litre of beverage depending on the alcohol content, it was necessary to find the percentage of each beverage that was pure alcohol. To do so, the total volume of pure alcohol available for a beverage was divided by the total volume of that beverage available. The CPI beverage volumes were multiplied by their pure alcohol percentages to find the amount of alcohol each beverage has on average.

Beverage	Vol. of beverage available (ML)	Proportion of total	Vol. of pure alcohol available (ML)	Average alcohol content
Beer	297.368	58.73%	13.346	4.49%
Total Wine	108.411	21.41%	11.195	10.33%
Spirits	16.276	3.21%	6.836	42.0%
Total Spirits	100.516	19.85%	12.306	12.24%
Total	522.572	103.21%	43.682	8.36%

Table 9: Annual alcohol available for consumption (year ended December 2022, forecast values for 2023)
Source: Statistics New Zealand, Annual alcohol available for consumption (2023)

Alcohol excise duty (continued)

For beer and whisky, because the relevant excise rates were per litre of alcohol, the alcohol content of each beverage was multiplied by the respective excise rates to find the proportion of the price that is excised. For wine, because the excise rate was per litre of beverage, the CPI wine volume was multiplied by the respective excise rate.

To work out the amount that each decile of both ages annually spends on beer, wine, and spirits, the average annual personal expenditure on alcohol was multiplied by the annual percentages of beer, wine, and spirits available. To calculate the annual beer, wine, and spirits excises paid, the expenditure on each beverage was multiplied by the proportion of the price of that beverage that is excised. Finally, to find the annual alcohol excise paid, the annual beer, wine, and spirits excises paid were summed.

Good	Unit	Excise duty rate
Beer made from malt containing > 2.5% vol.	Per litre of alcohol	\$35.451
Wine of fresh grapes containing ≤ 14% vol.	Per litre of beverage	\$3.5451
Whisky	Per litre of alcohol	\$64.571

*Table 10: Alcohol excise duty rates from 1 July 2022 (excluding GST)
Source: New Zealand Customs Service, Excise and Excise-equivalent Duties Table*

Lifetime tax paid and years to pay it

Total working life and retired life expenditure on each of the above taxes was calculated by multiplying the annual expenditure by 50 and 17.75, respectively. These figures were added together to give a total average lifetime tax burden for each income decile and the average New Zealand taxpayer.

The above figures were divided by each decile's (and the average taxpayer's) average annual personal gross income in order to calculate the number of years it would take an earner in each decile to pay their entire lifetime tax burden. Therefore, it was calculated how much of New Zealanders' lives is spent working just to generate revenue for the Government before they are free to live their lives as they see fit.

The proportion of each decile's lifetime earnings which are taken by the Government in tax was also calculated, to demonstrate the real impact on New Zealanders of our current tax burden.

Data

Income Decile	Income Tax		GST		Property Rates		ACC Levy		Fuel Excise		Fire Levy		Alcohol Duty		Tobacco Duty		Total		
	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	
Mean	\$648,917.84		\$291,385.78	12.57%	\$67,345.54	12.67%	\$40,178.11		\$20,581.39	12.56%	\$9,555.32		\$11,447.47	\$0.13	\$6,868.48	4.91%	\$1,096,777.97		4.52%
1	\$5,525.14		\$12,429.99	10.65%	\$3,894.18	10.65%	\$701.46		\$7,131.57	10.65%	\$9,131.57		\$425.73	10.65%	\$404.78	3.25%	\$33,314.12		5.64%
2	\$61,611.45		\$86,642.52	20.18%	\$32,978.14	20.18%	\$7,822.02		\$5,790.77	20.18%	\$9,242.37		\$2,235.62	20.18%	\$2,277.68	12.96%	\$208,765.72		12.49%
3	\$129,676.18		\$147,242.10	12.40%	\$48,393.58	12.40%	\$14,924.40		\$10,103.96	12.40%	\$9,388.67		\$5,700.79	12.40%	\$3,524.27	5.03%	\$369,209.51		7.16%
4	\$191,272.76		\$177,601.25	14.31%	\$40,924.20	14.31%	\$19,616.49		\$14,160.18	14.31%	\$9,449.23		\$5,899.19	14.31%	\$6,389.47	6.97%	\$465,776.06		7.43%
5	\$270,369.19		\$223,406.66	11.12%	\$53,031.67	11.12%	\$25,641.61		\$14,829.84	11.12%	\$9,533.92		\$7,579.71	11.12%	\$8,030.56	3.74%	\$613,005.46		5.48%
6	\$396,885.54		\$272,800.30	10.95%	\$64,097.61	10.95%	\$35,278.91		\$19,502.87	10.95%	\$9,659.24		\$11,444.91	10.95%	\$9,808.23	3.56%	\$819,888.81		4.95%
7	\$546,468.31		\$308,554.79	10.40%	\$68,809.40	10.40%	\$44,738.53		\$21,853.90	10.40%	\$9,673.85		\$12,630.25	10.40%	\$7,939.51	3.01%	\$1,021,244.22		4.22%
8	\$785,498.80		\$348,821.79	10.72%	\$81,862.34	10.72%	\$55,870.28		\$25,057.57	10.72%	\$9,824.77		\$11,860.82	10.72%	\$12,359.07	3.33%	\$1,332,051.58		3.80%
9	\$1,158,092.24		\$432,431.84	15.05%	\$89,655.65	15.05%	\$71,542.87		\$29,310.26	15.05%	\$9,824.78		\$17,733.66	15.05%	\$7,784.11	7.72%	\$1,816,939.93		4.75%
10	\$2,943,778.84		\$903,926.60	12.67%	\$189,808.65	12.67%	\$125,644.50		\$64,432.64	12.67%	\$9,824.77		\$39,264.03	12.67%	\$10,167.15	5.30%	\$4,287,584.41		3.55%

Table 11: Mean total lifetime tax paid by tax and income decile.

Income Decile	Income Tax		GST		Property Rates		ACC Levy		Fuel Excise		Fire Levy		Alcohol Duty		Tobacco Duty		Total		
	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	
Mean	\$137,759.67		\$65,766.49	12.57%	\$15,200.05	12.67%	\$9,529.27		\$5,393.14	12.56%	\$2,487.77		\$2,585.55	12.53%	\$1,803.61	12.28%	\$240,525.55		4.74%
1	\$1,239.51		\$2,805.48	10.65%	\$878.93	10.65%	\$158.43		\$202.28	10.65%	\$2,377.45		\$96.16	10.65%	\$106.16	10.65%	\$7,864.39		5.53%
2	\$13,821.89		\$19,555.43	20.18%	\$7,443.25	20.18%	\$1,766.70		\$1,517.41	20.18%	\$2,406.30		\$504.94	20.18%	\$601.66	20.18%	\$47,617.58		12.55%
3	\$26,705.55		\$33,232.91	12.40%	\$10,922.55	12.40%	\$3,370.86		\$2,647.94	12.40%	\$2,444.39		\$1,287.59	12.40%	\$925.53	12.40%	\$81,537.02		7.45%
4	\$40,524.11		\$40,085.04	14.31%	\$9,236.69	14.31%	\$4,440.63		\$3,710.53	14.31%	\$2,460.15		\$1,332.40	14.31%	\$1,690.38	14.31%	\$103,459.93		7.74%
5	\$58,268.57		\$50,423.43	11.12%	\$11,969.38	11.12%	\$5,791.47		\$3,886.01	11.12%	\$2,482.20		\$1,711.97	11.12%	\$2,106.94	11.12%	\$136,639.98		5.70%
6	\$86,651.20		\$61,571.70	10.95%	\$14,466.99	10.95%	\$7,968.18		\$5,110.53	10.95%	\$2,514.83		\$2,517.21	10.95%	\$2,573.00	10.95%	\$183,379.64		5.14%
7	\$114,510.52		\$69,641.57	10.40%	\$15,530.45	10.40%	\$10,104.75		\$5,726.59	10.40%	\$2,518.63		\$2,852.70	10.40%	\$2,081.93	10.40%	\$222,967.13		4.47%
8	\$159,224.69		\$78,729.94	10.72%	\$18,476.53	10.72%	\$12,618.99		\$6,566.08	10.72%	\$2,557.93		\$2,678.91	10.72%	\$3,241.63	10.72%	\$284,094.69		4.14%
9	\$238,351.04		\$97,600.93	15.05%	\$20,235.50	15.05%	\$16,158.84		\$7,680.45	15.05%	\$2,557.93		\$4,005.37	15.05%	\$2,048.29	15.05%	\$388,638.33		5.09%
10	\$638,299.64		\$204,018.46	12.67%	\$42,840.28	12.67%	\$32,923.84		\$16,883.90	12.67%	\$2,557.93		\$8,868.26	12.67%	\$2,670.60	12.67%	\$949,062.91		3.68%

Table 12: Total retired life tax paid by tax and income decile.

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Income Decile	Income Tax		GST		Property Rates		ACC Levy		Fuel Excise		Fire Levy		Alcohol Duty		Tobacco Duty		Total	
	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±	Mean	±
Mean	\$511,158.17		\$225,619.30	12.57%	\$52,145.49	12.67%	\$30,648.84		\$15,188.25	12.56%	\$7,067.54		\$8,861.92	12.53%	\$5,1562.91	2.52%	\$856,252.41	4.45%
1	\$4,285.63		\$9,624.51	10.65%	\$3,015.25	10.65%	\$543.02		\$569.66	10.65%	\$6,754.12		\$329.57	10.65%	\$327.97	0.86%	\$25,449.73	5.68%
2	\$47,789.56		\$67,087.09	20.18%	\$25,534.89	20.18%	\$6,055.32		\$4,273.36	20.18%	\$6,836.07		\$1,814.18	20.18%	\$1,814.18	10.60%	\$161,148.15	12.47%
3	\$102,970.63		\$114,009.20	12.40%	\$37,471.03	12.40%	\$11,553.54		\$7,456.32	12.40%	\$6,944.28		\$4,419.20	12.40%	\$2,854.28	2.65%	\$287,672.49	7.07%
4	\$150,748.65		\$137,516.21	14.31%	\$31,687.51	14.31%	\$15,185.86		\$10,449.65	14.31%	\$6,989.07		\$4,566.79	14.31%	\$5,172.40	4.58%	\$362,316.13	7.34%
5	\$212,100.62		\$172,983.23	11.12%	\$41,062.30	11.12%	\$19,850.13		\$10,943.84	11.12%	\$7,051.72		\$5,867.74	11.12%	\$6,505.92	1.35%	\$476,365.49	5.41%
6	\$310,234.34		\$211,228.60	10.95%	\$49,630.62	10.95%	\$27,310.73		\$14,392.35	10.95%	\$7,144.41		\$8,627.69	10.95%	\$7,946.42	1.17%	\$636,515.17	4.90%
7	\$431,957.79		\$238,913.22	10.40%	\$53,278.95	10.40%	\$34,633.78		\$16,127.31	10.40%	\$7,155.21		\$9,777.55	10.40%	\$6,433.28	0.62%	\$798,277.09	4.15%
8	\$626,274.11		\$270,091.85	10.72%	\$63,385.81	10.72%	\$43,251.29		\$18,491.49	10.72%	\$7,266.84		\$9,181.90	10.72%	\$10,013.61	0.94%	\$1,047,956.89	3.71%
9	\$919,741.20		\$334,830.91	15.05%	\$69,420.15	15.05%	\$55,384.03		\$21,629.81	15.05%	\$7,266.85		\$13,728.29	15.05%	\$6,300.25	5.34%	\$1,428,301.50	4.65%
10	\$2,305,479.20		\$699,908.15	12.67%	\$146,968.37	12.67%	\$92,720.66		\$47,548.73	12.67%	\$7,266.84		\$30,395.76	12.67%	\$8,233.78	2.92%	\$3,338,521.49	3.52%

Table 13: Mean total working life tax paid by tax and income decile.

Income Decile	Total Lifetime Tax Burden			Mean Yearly Income		Years to Pay off Total Tax Burden			
	Lower	Upper	Mean	±	Lower	Upper	Mean	±	
Mean	\$1,047,234.63	\$1,146,321.30	\$1,096,777.97	4.52%	\$48,423.35	21,626,644.8	23,672,902.8	22,649,773.8	4.52%
1	\$31,434.74	\$35,193.51	\$33,314.12	5.64%	\$809.03	38,854,828.29	43,500,848.5	41,177,838.4	5.64%
2	\$182,690.60	\$234,840.84	\$208,765.72	12.49%	\$9,021.58	20,250,390.98	26,020,998.2	23,140,694.6	12.49%
3	\$342,794.29	\$395,624.73	\$369,209.51	7.16%	\$17,213.16	19,914,659.15	22,983,847.9	21,449,253.5	7.16%
4	\$431,159.68	\$500,392.43	\$465,776.06	7.43%	\$22,624.81	19,056,943.18	22,116,980.3	20,586,961.7	7.43%
5	\$579,436.45	\$646,574.47	\$613,005.46	5.48%	\$29,573.92	19,592,816.37	21,862,992.8	20,727,904.6	5.48%
6	\$779,273.53	\$860,504.08	\$819,888.81	4.95%	\$40,689.17	19,151,863.59	21,148,231.3	20,150,047.5	4.95%
7	\$978,157.41	\$1,064,331.03	\$1,021,244.22	4.22%	\$51,599.49	18,956,727.01	20,626,775	19,791,751	4.22%
8	\$1,281,459.29	\$1,382,643.87	\$1,332,051.58	3.80%	\$64,438.37	19,886,588.39	21,456,842.1	20,671,715.2	3.80%
9	\$1,730,659.42	\$1,903,220.24	\$1,816,939.83	4.75%	\$82,514.46	20,974,013.35	23,065,293	22,019,653.2	4.75%
10	\$4,135,280.96	\$4,439,887.85	\$4,287,584.41	3.55%	\$165,749.52	24,948,977.29	26,786,731.6	25,867,854.4	3.55%

Table 14: Mean years to pay off total lifetime tax burden by income decile.

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