Answer Booklet

# AS91226 (version 2)
# Economic Theory and Practice

# Analyse statistical data relating to two contemporary economic issues

Te whai hua - kia ora!

sorted in Schools

LEVEL 2

CREDITS 4

SORTED THEMES

Savings
KiwiSaver
Retirement

This resource provides answers to the questions in the student AS91226 Practice booklet.

# Theme A:

## Introduction to inequality

## Theme A, Activity 1

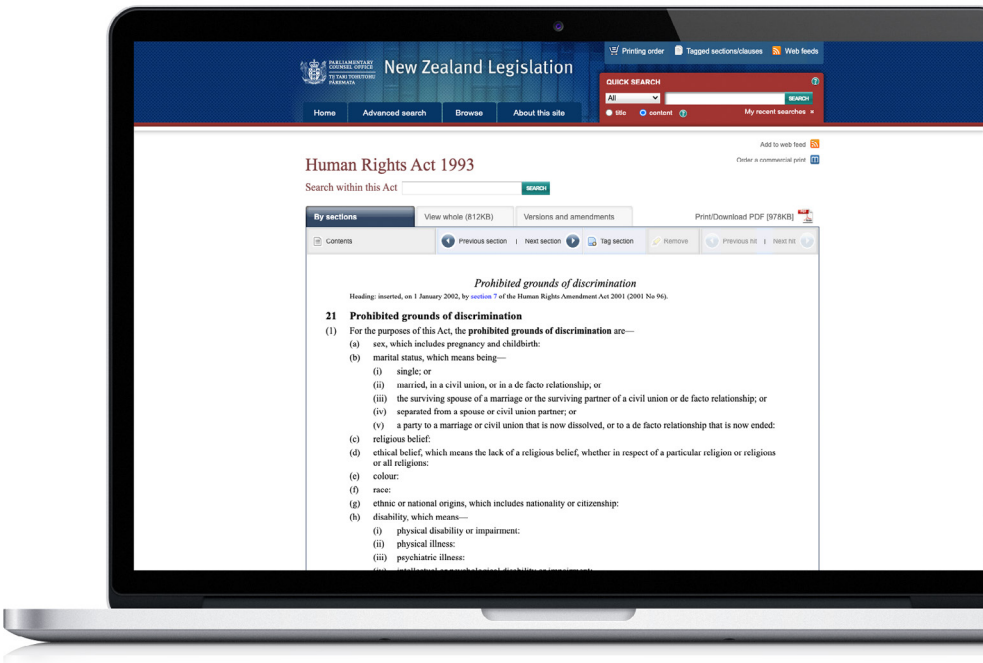
| | | Fair? Yes or no | Why? |
|---|---|---|---|
| 1 | Females on average earn about 80% of the income received by males. | | *The purpose of this task is to allow the students the opportunity to discuss the concept of fairness and recognise that it is subjective rather than objective. For that reason, no definitive answers are provided.*<br><br>*Try to encourage students to come up with explanations to support both the Yes and the No decision.*<br><br>*For example for 2: Yes, the needs and living costs of superannuants do not vary because of gender and therefore they have equal need for superannuation. No, women have a longer life expectancy than men and therefore tend to receive a greater value of superannuation payments from the government over their lifetime.* |
| 2 | Females receive the same amount in superannuation payments from the government per fortnight as males. | | |
| 3 | Female models in the clothing industry are generally paid more than male models. | | |
| 4 | Female tennis players receive the same for winning a Grand Slam tournament as male tournament winners. | | |
| 5 | Female rugby players are at best semi-professional and often earn less than $50,000 per year while many male rugby players earn well in excess of $100,000 per year. | | |
| 6 | Airline pilots are paid more than bus drivers. | | |
| 7 | Police officers are paid more than nurses. | | |

## Theme A, Activity 2

Section 21 of the Human Rights Act (1993) outlines the prohibited grounds for discrimination. Can you think of any other grounds for discrimination that should be prohibited? Discuss your choice with someone else.

*The prohibited grounds for discrimination are: sex, marital status, religious belief, ethical belief, colour, race, ethnicity, nationality, disability, age, political opinion, employment status, family status and sexual orientation.*

*The purpose of this task is to allow the students the opportunity to discuss the concept of discrimination and consequently no specific answers are provided.*



# Theme B:

## Introduction to climate change

## Theme B, Activity 1

Read **Time Magazine's article: The Climate Crisis Is Global, but These 6 Places Face the Most Severe Consequences.** List five features that you think these places have in common.

*Answers may include, but not limited to: close to the equator, low lying, poor infrastructure, densely populated, significant inequality.*

## Theme B, Activity 2

**a.** Car pool, buy an electric car, use a heat pump, be a vegan

**b.** When you buy locally produced goods you are encouraging producers to source their inputs and products locally and reduce transportation. This will reduce the impact of transportation on the emission of greenhouse gases.

## Theme B, Activity 3

Changes to land use and agricultural practices are likely to have a major influence on New Zealand's ability to reduce and manage our greenhouse gas emissions. These changes are likely to occur at a significant cost, but there is the possibility that new opportunities will arise. List three benefits or opportunities that you predict are likely to arise from changes to land use and agricultural practices.

*Consider answers such as: a more efficient use of scarce resources, creating environmentally friendly products or eco-tech that can be sold internationally, enhancing the "100% Pure" New Zealand brand.*

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# Topic One:

## Processing and presenting statistical data

## Topic 1, Activity 1

### Processing inequality data

This activity uses an **Excel spreadsheet of data showing the number of active/ provisional KiwiSaver members, by income bracket** that you can test yourself with. Make sure you use a calculator.

**a.** In June 2022 what percentage of the total number of contributors earned $120,000+?

$$\frac{178735}{3120579} \times 100 = \mathbf{5.73\%}$$

**b.** At the same time, what percentage of the total number of contributors earned $1-$20,000?

$$\frac{1194852}{3120579} \times 100 = \mathbf{38.29\%}$$

**c.** What was the percentage change in the number of $120,000+ income earners between 2017 and 2022?

$$\frac{(178735-105471)}{105471} \times 100 = \mathbf{69.46\%}$$

**d.** What was the percentage change in the number of $1-$20,000 income earners between 2017 and 2022?

$$\frac{(1194852-602294)}{602294} \times 100 = \mathbf{98.38\%}$$

Need more practice processing statistical data? Try doing the same 4 calculations but for 2021 and the period 2016 to 2021.

**5.07%, 37.60%, 61.71%, 83.06%.**

## Topic 1, Activity 2

### Processing inequality data

Here is some climate change data to test your processing skills on:

| The total insurance cost of weather-related events (storms, floods, tornadoes, and fires) in New Zealand 2013 to 2022 [2]. | |
|---|---|
| **Year** | **Cost ($m)** |
| 2022 | 351.26 |
| 2021 | 324.94 |
| 2020 | 274.27 |
| 2019 | 206.28 |
| 2018 | 226.30 |
| 2017 | 242.66 |
| 2016 | 51.80 |
| 2015 | 116.30 |
| 2014 | 152.80 |
| 2013 | 175.30 |

**a.** The 2022 Cyclone Dovi cost a total of $54.84m, which is what percentage of the total weather-related insurance costs for 2022?

$$\frac{54.84}{351.26} \times 100 = \textbf{15.61\%}$$

**b.** In 2019 Timaru hailstorm cost a total of $130.7m, which is what percentage of the total weather-related insurance costs for 2019?

$$\frac{130.7}{166} \times 100 = \textbf{78.73\%}$$

**c.** What was the percentage change in the total amount between 2021 and 2022?

$$\frac{(351.26-324.94)}{324.94} \times 100 = \textbf{8.10\%}$$

**d.** What was the percentage change in the total amount between 2018 and 2019?

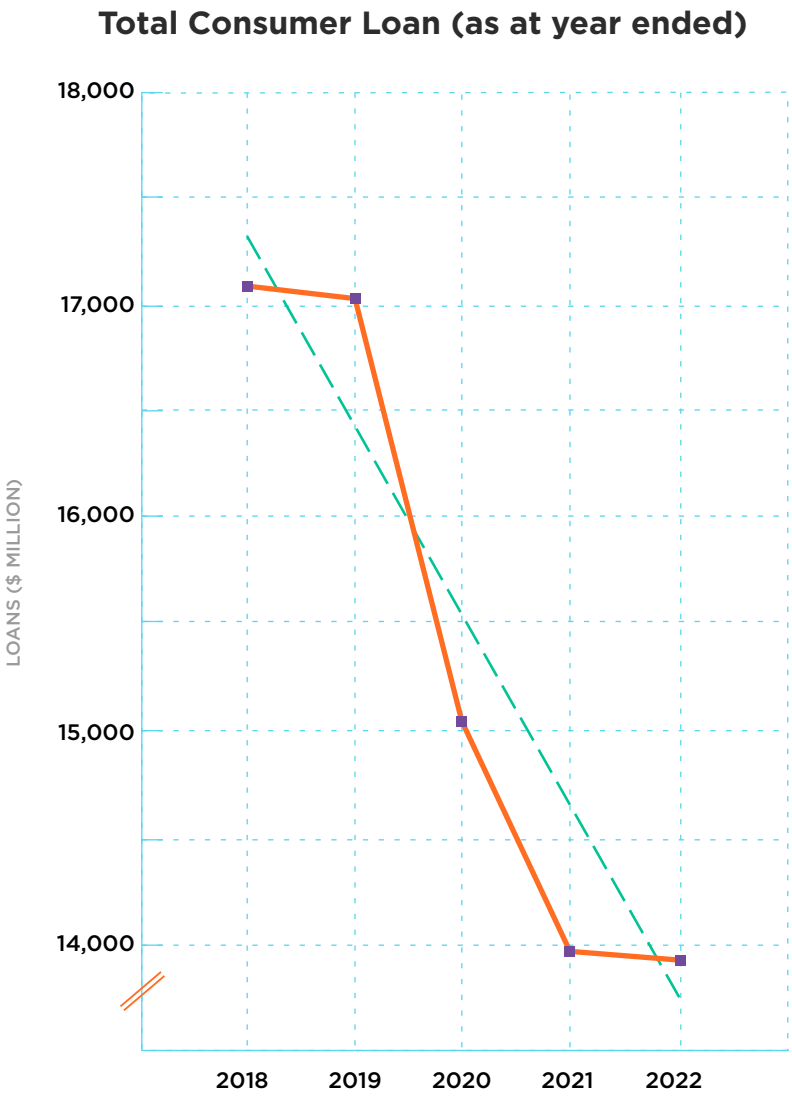
$$\frac{(206.28-226.3)}{226.3} \times 100 = \textbf{-8.85\%}$$

# Topic 1, Activity 3

## Presenting consumer loan data

Present the following data on the graph provided.

| Total Consumer Loans (as at year end) [3] | |
|---|---|
| **Year** | **Amount ($million)** |
| 2022 | 13,866 |
| 2021 | 13,983 |
| 2020 | 15,070 |
| 2019 | 17,030 |
| 2018 | 17,140 |



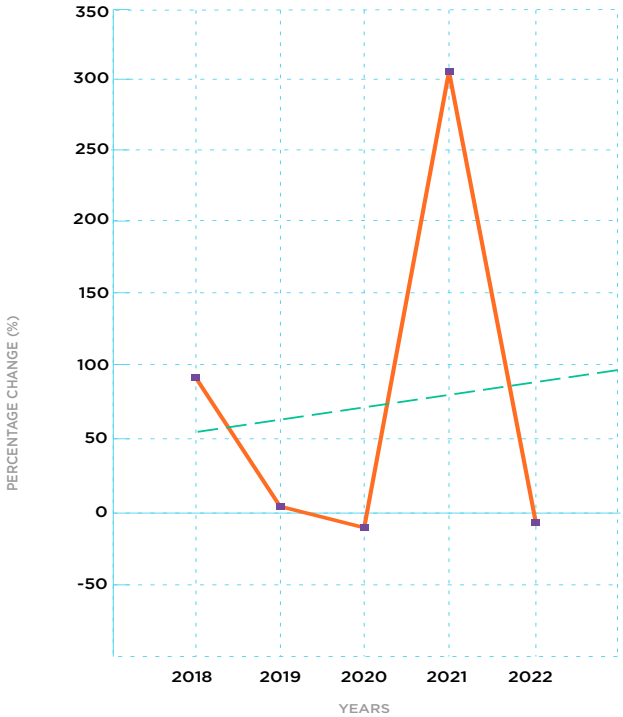
## Topic 1, Activity 4

### Presenting percentage changes in electric vehicle (EV) registrations data

Present the following EV percentage change data on the graph provided.

| Monthly EV Registrations (for the month of July) [4] | | |
|---|---|---|
| **Year** | **Month of July Registrations** | **Percentage Change (%)** |
| 2022 | 1828 | -6 |
| 2021 | 1949 | 304 |
| 2020 | 482 | -14 |
| 2019 | 560 | 2 |
| 2018 | 550 | 90 |
| 2017 | 292 | |

**Percentage Change in Month of July EV Registrations**




## Topic 1, Activity 5

Insert an appropriate trend line onto the graphs that you have drawn for activities three and four.

*Appropriate trend lines are shown on the graphs above.*

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# Topic Two:

## Explaining trends in statistical data

## Topic 2, Activity 1

### Processing inequality data

**a.** What is meant by the term "relative poverty"?

*In New Zealand relative poverty is measured as a low-income threshold set at 60 percent of the national median income. This means that these households have significantly less income than most households and are therefore unable to enjoy a lifestyle and living conditions that would normally be associated with members of New Zealand society.*

**b.** What is meant by the term "tragedy of the commons"?

*This is a situation where an individual, acting in their own self-interest, behaves in a way that is contrary to the common good, when they access shared resources. The shared resources are exploited or spoiled by the collective actions of the individuals. For example, individual fishers will take as many fish as they can because if they do not other fishers will take the fish. As a result, the fish stocks will be exploited and eventually the fish will disappear.*

**c.** How is climate change likely to impact on production in New Zealand? Consider whether you think the total output of goods and services will rise or fall. Also think about the types of goods and services New Zealand produces will change, and whether the way that those goods and services are produced will change.

*Climate change is likely to result in changes to production in New Zealand. As an agriculturally based economy, some of our crops will perform better and some will perform worse due to changes in weather patterns. We could see changes in the types of products we grow. Changing world demand for products could also see us altering our production to meet the needs of our customers.*

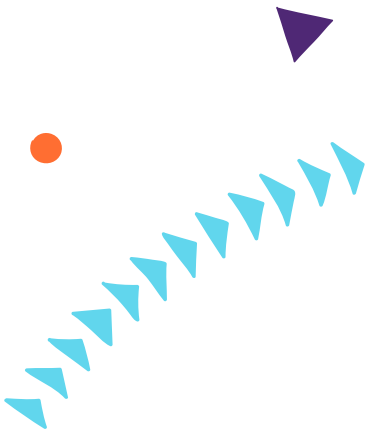
*Climate events may impact on our infrastructure and property. This could make it more difficult for us to maintain our output. The cost of international transport and insurance is also likely to rise. These added costs will reduce the profitability of some New Zealand businesses. Output is not likely to fall significantly but the ability to increase output is likely to be reduced.*

## Topic 2, Activity 2

There is a recognised relationship between income and savings. The following resource is an explanation of this relationship, but the sentences have been jumbled. Rewrite the paragraph putting the sentences into an order that creates a detailed economic explan`ation of the relationship between income and savings.

Higher income households have more choice about how they spend their money because a greater percentage of their income is left over after paying for essential goods and services like food, housing, and energy. The reason for this is that these households have higher disposable income and are more able to save. Households that have higher incomes are more likely to have higher savings. Data from the **Motu Working Paper 'Household Wealth and Savings'** that tells us between 2004 and 2006 median individual savings were $1,248 whereas the savings of the 75th percentile were $32,221, supports this statement.

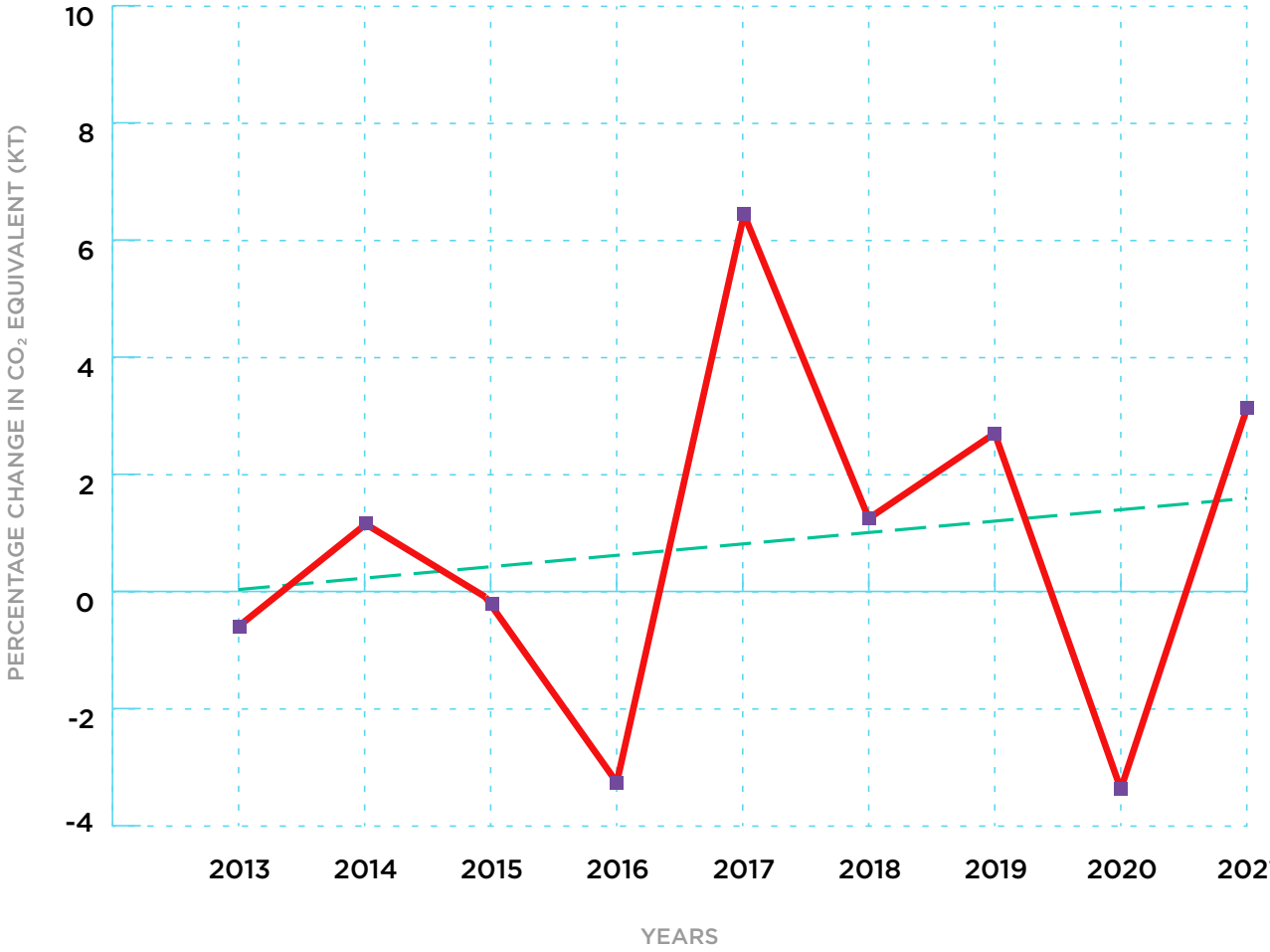
*Households that have higher incomes are more likely to have higher savings. Data from the* **Motu Working Paper 'Household Wealth and Savings'***that tells us between 2004 and 2006 median individual savings were $1248 whereas the savings of the 75th percentile were $32,221, supports this statement. The reason for this is that these households have higher disposable income and are more able to save. Higher income households have more choice about how they spend their money because a greater percentage of their income is left over after paying for essential goods and services like food, housing, and energy.*



## Topic 2, Activity 3

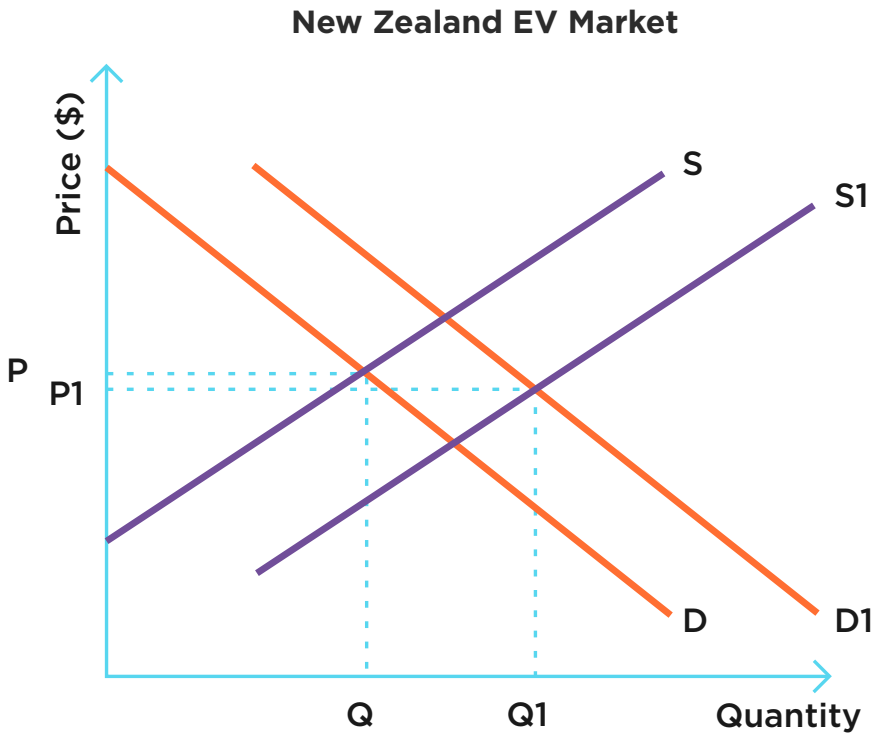
Use your answer to activities 1.4 and 1.5, as well as the following graph from the Student Booklet, to provide a detailed explanation of the relationship between electric vehicle registrations and climate change.

**New Zealand Greenhouse Gas Emissions 2012–2021**




*The trend in EV registration is that registration numbers are increasing. Between 2017 and 2022 monthly registrations have risen from 292 to 1828 for the month of July. Registrations have increased because a greater variety of new EV options are becoming available and more used imported EVs are also becoming available. Furthermore, a government subsidy in the form of 'The Clean Car Discount' scheme has been made available since 1 July 2021 thus making EVs more affordable for consumers. These factors represent an increase in supply (as shown by the shift from S to S1). Consumers have been better able to match their preferences and budget with the vehicles available.*

*In addition, consumers have increased their demand for EVs as access to recharge stations, a complementary service, has made EVs a closer substitute to a petrol vehicle. The demand for EVs has increased from D to D1.*




*The increase in EV registrations from 2017 to 2021 has contributed to reducing increases in $CO_2$ emissions as shown above. While the data shows some volatility due to other economic factors which may have impacted on the level of $CO_2$ emissions, the percentage increase in $CO_2$ emissions has fallen from about 6.3% in 2017 to 3% in 2021. The overall outcome of increased EV registrations is therefore likely to be reducing the impacts of vehicle transport on climate change.*

*NB: The use of the supply and demand model is not required for this answer to be at Merit level, but it does make it easier for the assessor to judge that this answer has reached that standard.*

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# Topic Three:

## Explaining the inter-relationships between climate change and inequality.

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## Topic 3, Activity 1

**a.** Identify an economic model that you could use to help explain the inter-relationships between climate change and inequality.

*A sample of possible models includes: aggregate supply and aggregate demand model, Lorenz curves, circular flow model and Gini coefficient*

**b.** Use the diagrams from topic three in the Student Booklet to explain in detail the inter-relationship between climate change and inequality.

**c.** Underline the economic terms and concepts that you have used in your explanation.

*Economically disadvantaged members of society have fewer choices available in relation to their working conditions and consumption. They are therefore more likely to be exposed to climate hazards. Through their production and consumption, they are also more likely to choose options that are cheaper and generate more climate changing hazards.*

*Consequently, disadvantaged members of society will suffer the negative effects of climate change more and be less able to offset or recover from these impacts. The value of their assets and income will be disproportionately impacted and therefore inequality is increased.*

*Poverty creates an inability to avoid or recover from climate hazards. It also leads to greater hazards being created, which in turn creates greater inability to avoid the hazards and greater loss of asset and income value. This loss in value creates greater poverty which in turns leads to greater inequality.*

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# Topic Four:

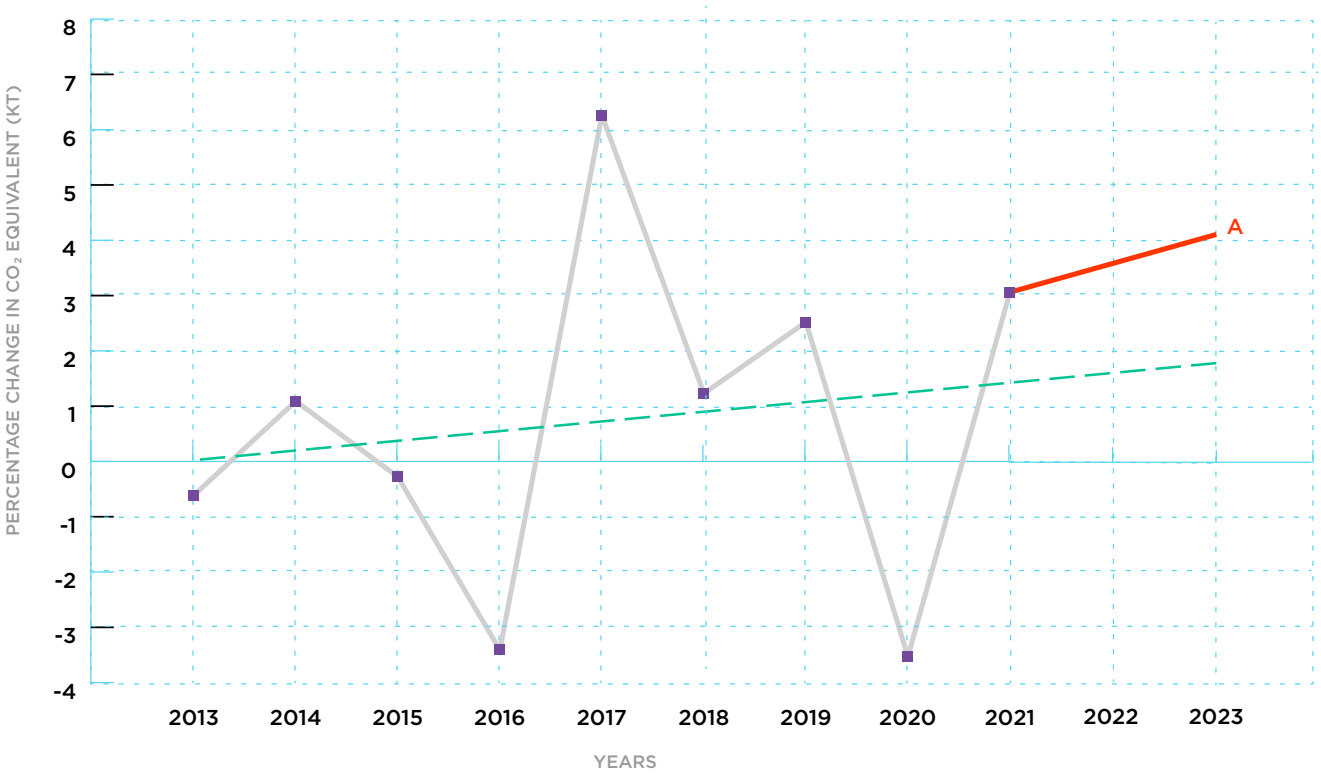
## Making a justified forecast

## Topic 4, Activity 1

The example from the Student Booklet, used past data as a justification.

**a.** Use the cyclical nature of the economy to provide a justification of the forecast below.

**New Zealand Greenhouse Gas Emissions 2013–2021**

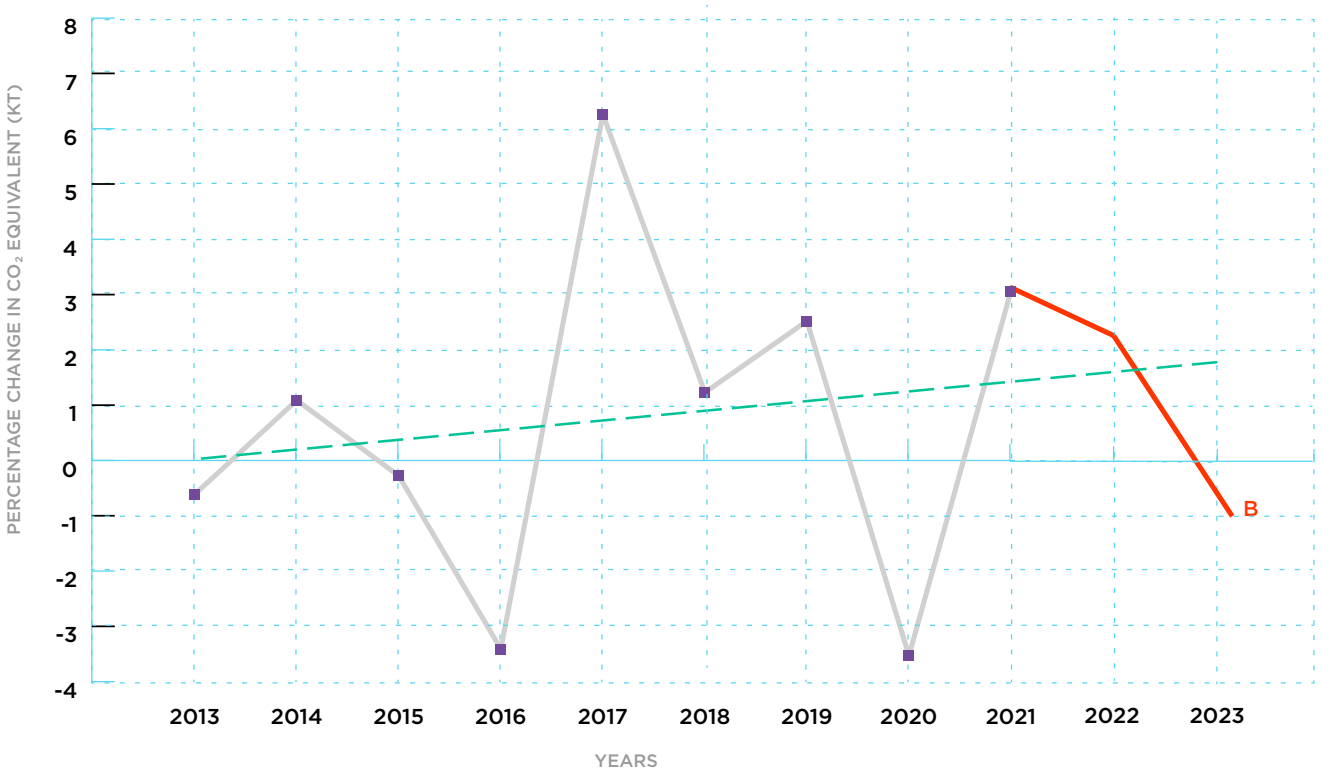



*The data could be predicted to rise to a positive change as shown by line **A**. The justification for this could be the increase in economic activity following a contraction in the NZ economy in 2020 due to the Covid-19 pandemic. Factors such as the easing of global supply chain issues, record low interest rates together with funds injected by the government to support households and businesses, stimulated the recovery and growth of the NZ economy. This would result in production increases and increases in CO2 emissions. This growth would see a continuation of the upward trend.*

**b.** Use the known impact on the economy of high interest rates (due to persistent high levels of inflation) to provide a justification for the forecast below.

As an additional challenge try to use the aggregate supply and aggregate demand model as part of your justification.

**New Zealand Greenhouse Gas Emissions 2013–2021**

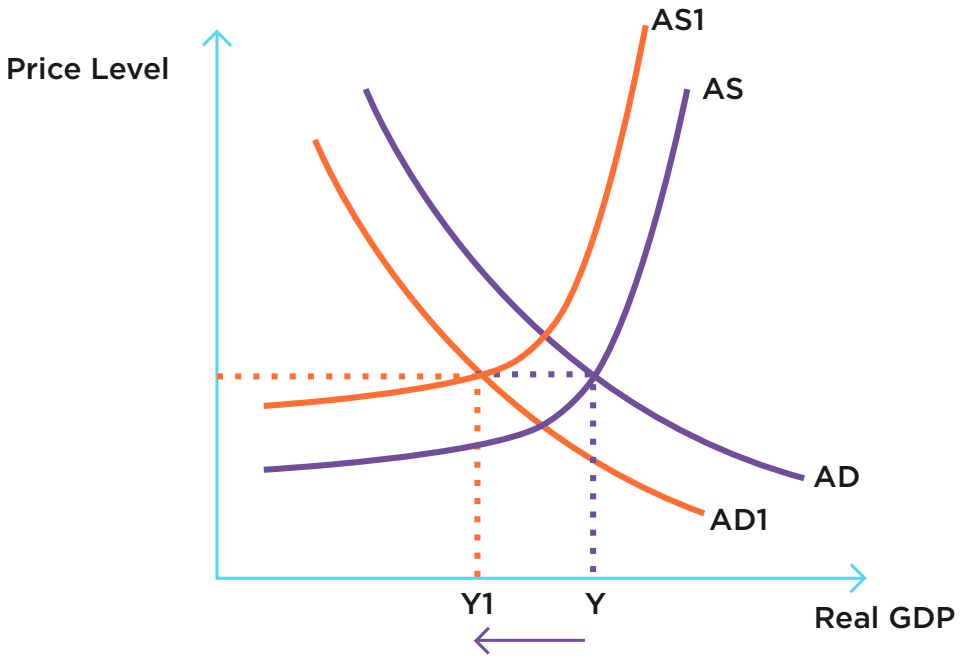



*The data could be predicted to decline further as shown by line **B**. The justification for this could be the growing levels of inflation experienced by the NZ economy in 2021 (economic causes can be inserted here to explain why). This requires the RBNZ to tighten monetary policy through increasing interest rates via the OCR tool.*

*Higher interest rates reduce investment and consumption levels due to increased costs of borrowing. Ongoing levels of high inflation also create further uncertainty, decreasing business and consumer confidence. Firms are less likely to expand, and households are encouraged to save rather than use their discretionary income or credit facilities to buy goods and services. Consumption and investment are components of aggregate demand and therefore aggregate demand has decreased which is shown as a shift to the left (from AD to AD1).*

*Ongoing inflationary pressures are likely to continue increasing firms' costs of production via higher wages, raw materials and other input costs. These costs are components of aggregate supply and therefore aggregate supply has decreased which is shown as a shift to the left (from AS to AS1).*

*The resulting decrease in real GDP has, in turn, led to decreases in $CO_2$ emissions. This decline may see the continuation of a downward trend. While this is a cyclical downturn in the economy, it is unlikely that $CO_2$ emissions will return to previous levels in the foreseeable future due to legislative and societal changes focused on reducing the causes of climate change.*




**AD/AS Model**

## References


1) https://www.ird.govt.nz/about-us/tax-statistics/kiwisaver/datasets

2) https://www.icnz.org.nz/natural-disasters/cost-of-natural-disasters/

3) https://www.stats.govt.nz/experimental/national-accounts-income-saving-assets-and-liabilities-december-2022-quarter/

4) https://www.transport.govt.nz/mot-resources/vehicle-fleet-statistics