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	CREDITS
2	**4**

SORTED THEMES

Savings
KiwiSaver
Retirement

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

Theme A:

Introduction to inequality

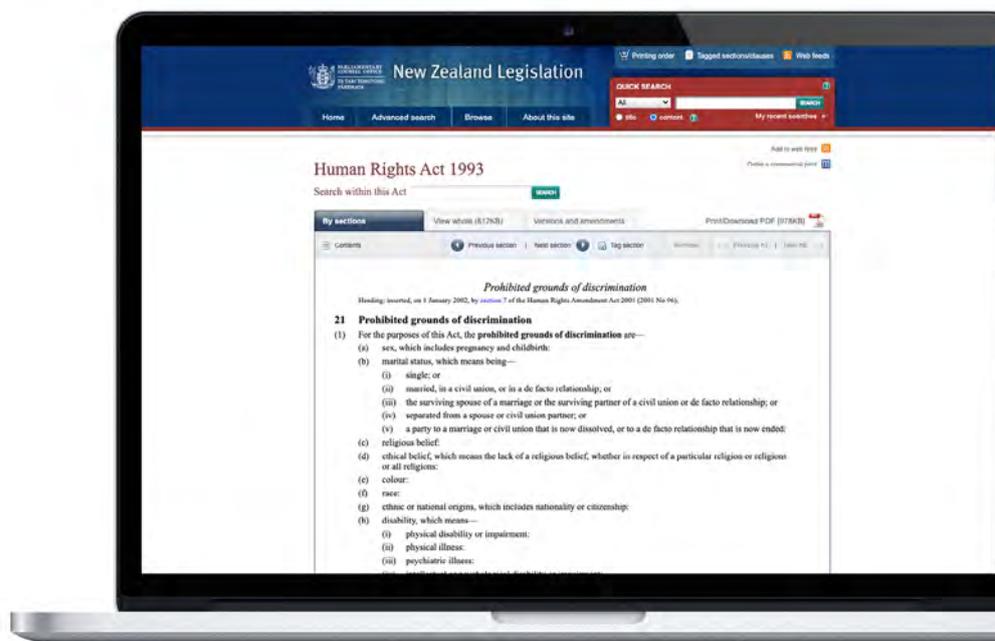## Theme A, Activity 1

		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.*
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.		*Try to encourage students to come up with explanations to support both the Yes and the No decision.*
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.		*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.*
6	Airline pilots are paid more than bus drivers.		
7	Police officers are paid more than nurses.		

Theme A, Activity 2

<u>Section 21 of the Human Rights Act (1993)</u> 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.
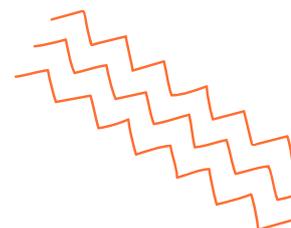
Topic One:

Processing and presenting statistical data

Topic 1, Activity 1

Processing inequality data

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

a. In June 2019 what percentage of the total number of contributors earned $120,000+?

$$\frac{126524}{2288983} \times 100 = \textbf{5.53\%}$$

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

$$\frac{609752}{2288983} \times 100 = \textbf{26.64\%}$$

c. What was the percentage change in the number of $120,000+ income earners between 2014 and 2019?

$$\frac{(126524-67832)}{67832} \times 100 = \textbf{86.53\%}$$

d. What was the percentage change in the number of $1-$20,000 income earners between 2014 and 2019?

$$\frac{(609752-576700)}{576700} \times 100 = \textbf{5.73.\%}$$

Need more practice processing statistical data? Try doing the same 4 calculations but for 2018 and the period 2013 to 2018.

6.41%, 23.59%, 150.35%, 3.98%.

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 2010 to 2019 [2].	
Year	Cost ($m)
2019	166
2018	226.3
2017	242.66
2016	51.8
2015	116.3
2014	152.8
2013	175.3
2012	8.7
2011	57.5
2010	68.8

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

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

b. In 2015 Cyclone Pam cost a total of $2.2m, which is what percentage of the total weather-related insurance costs for 2015?

$$\frac{2.2}{116.3} \times 100 = \textbf{1.89\%}$$

c. What was the percentage change in the total amount between 2016 and 2017?

$$\frac{(242.66-51.8)}{51.8} \times 100 = \textbf{368.46\%}$$

d. What was the percentage change in the total amount between 2017 and 2018?
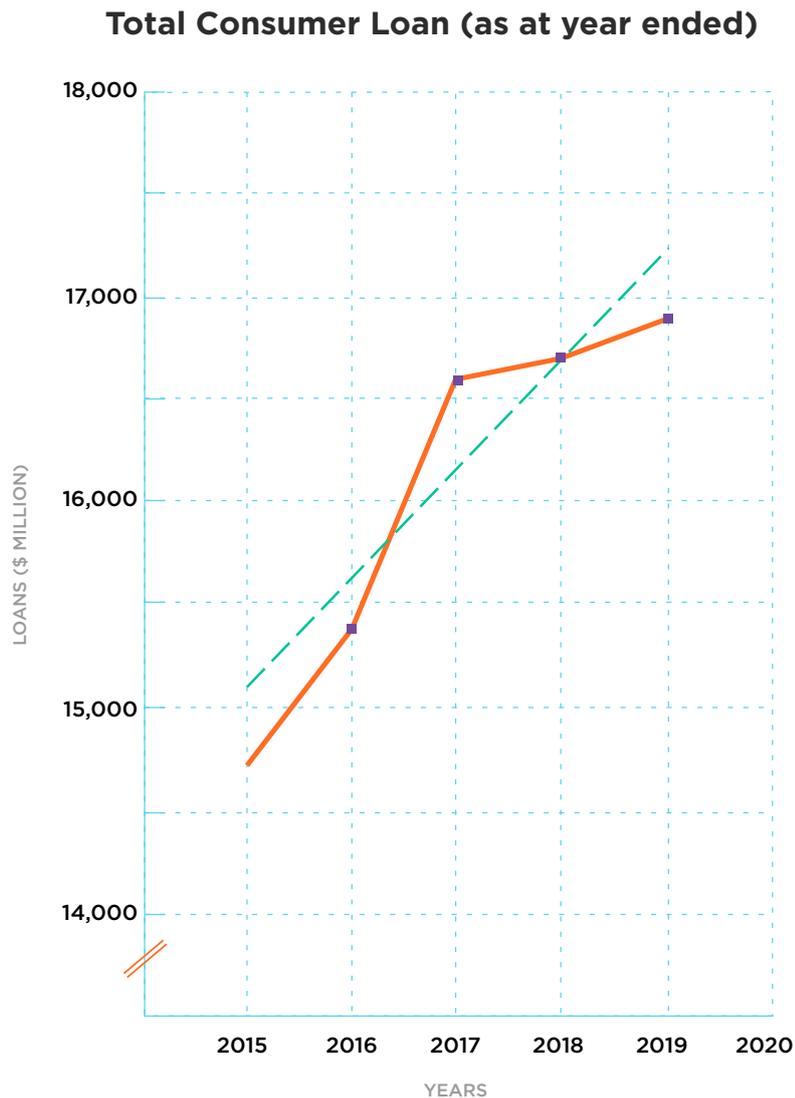
$$\frac{(226.3-242.66)}{242.66} \times 100 = \textbf{-6.74\%}$$

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)
2019	16,966
2018	16,736
2017	16,663
2016	15,377
2015	14,698

**Total Consumer Loan (as at year ended)**

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 (%)
2020	482	-14
2019	560	2
2018	550	90
2017	292	91
2016	153	219
2015	48	

Percentage Change in Month of July EV Registrations
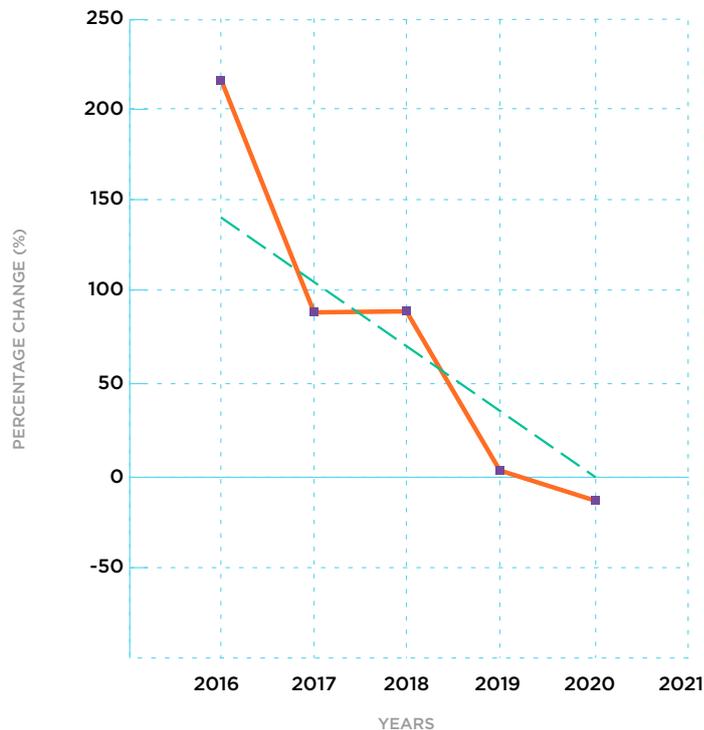
Topic 1, Activity 5

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.*
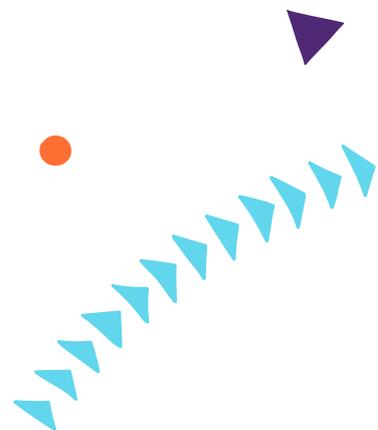
Topic 2, Activity 3

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 2009–2018
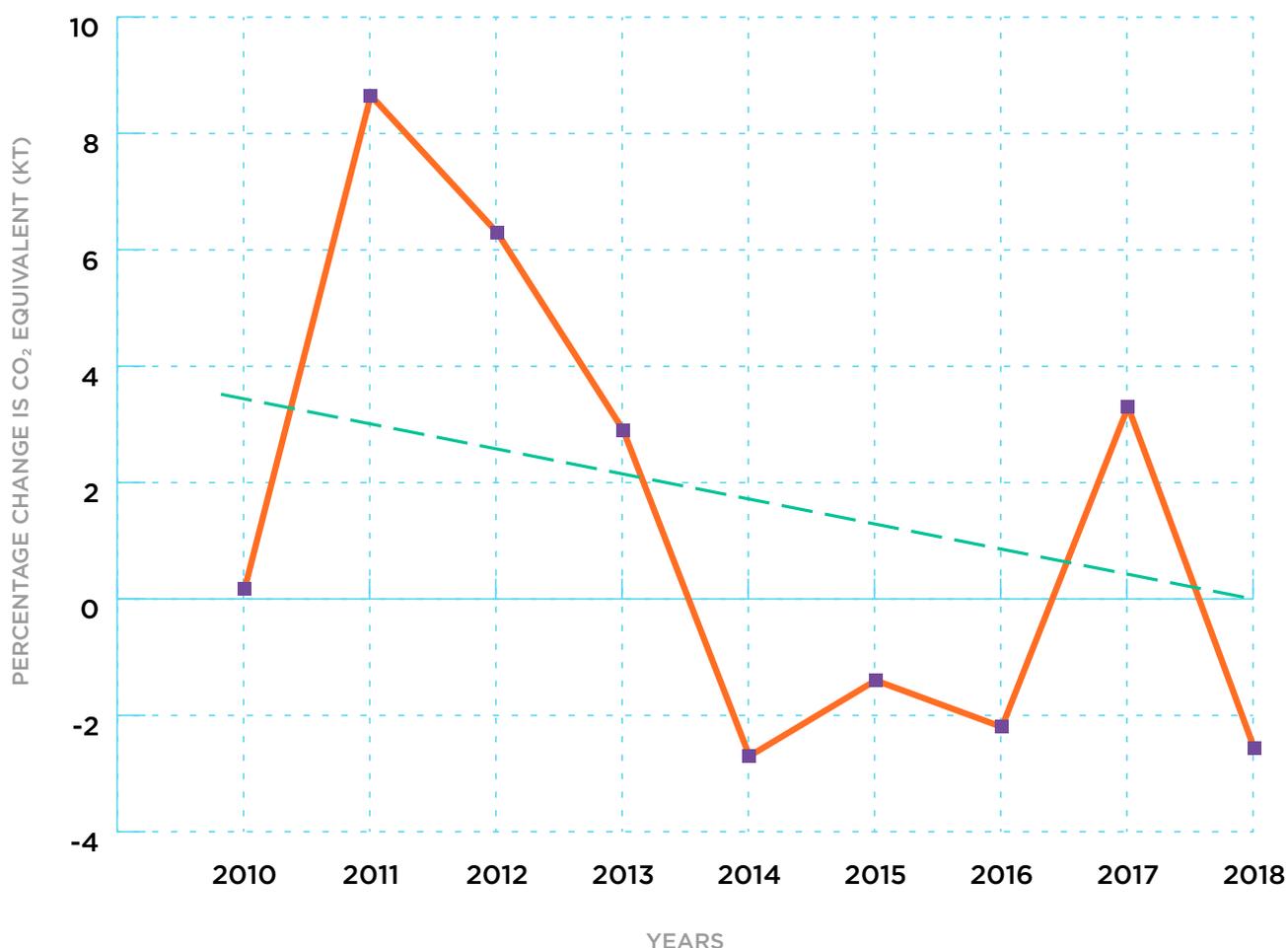
The trend in EV registration is that registration numbers are increasing. Between 2016 and 2019 monthly registrations have risen from 152 to 560 for the month of July. Registrations have increased because a greater variety of new EV options are becoming available and more used imported EVs are also becoming available. This represents an increase in supply (as shown by the shift from S to S1). Consumers have been better able to match their preference 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.

New Zealand EV Market
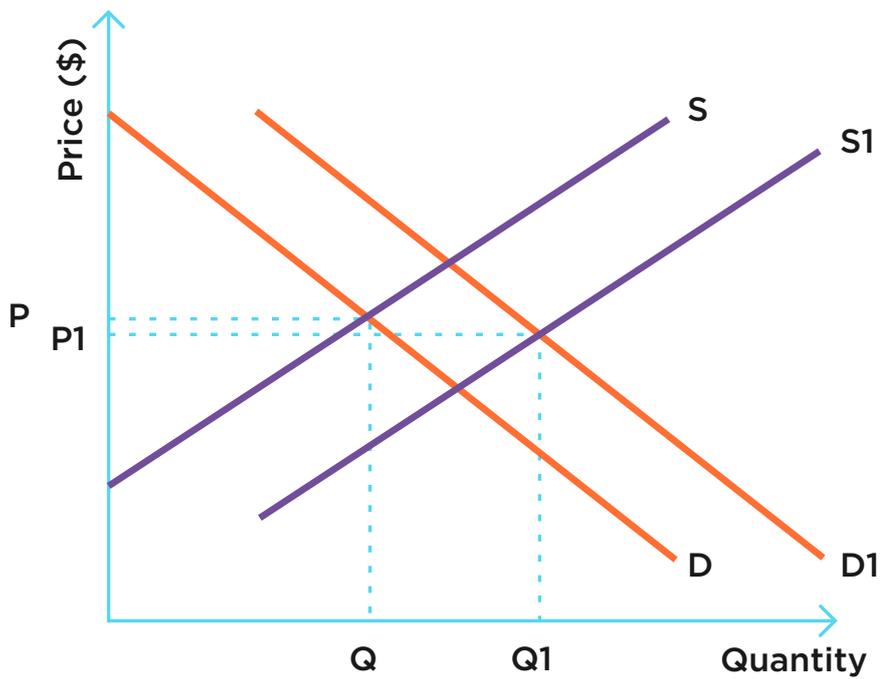
The increase in EV registrations has contributed to the trend of reducing increases to CO2 emissions as shown above. The percentage increase in CO2 emissions has fallen from about 8% in 2011 to about 3% in 2017. The overall outcome of increased EV registrations is therefore likely to be reductions in the impacts on climate change from vehicle transport.

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.

Topic Three:

Explaining the inter-relationships between climate change and inequality.

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.
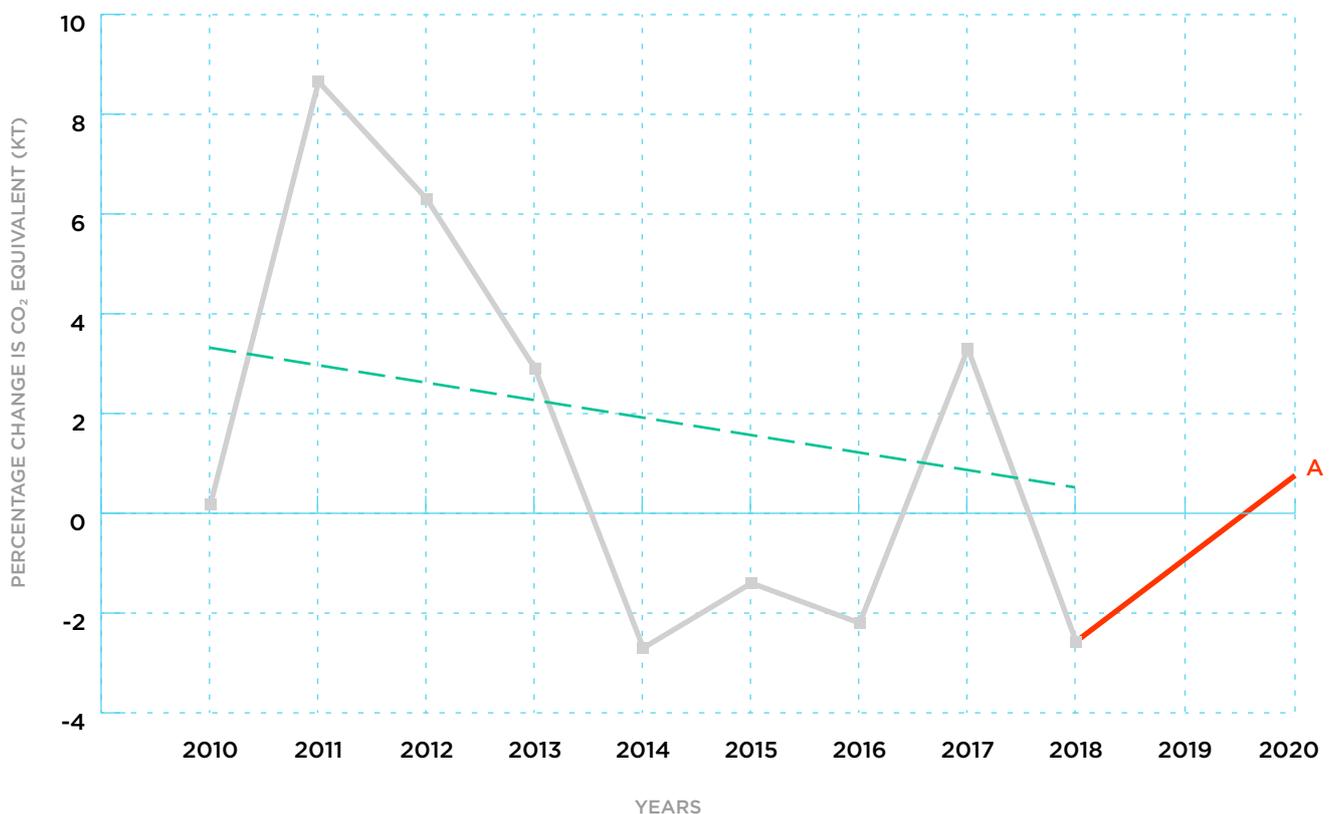
Topic Four:

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 2009–2018**

*The data could be predicted to rise to a positive change as shown by line **A**. The justification of this could be that the period of 2014 to 2018 was largely a period of weaker economic growth and recovery of the New Zealand economy would result in production increases and increases in CO2 emissions. This growth would lead to a reversal of the overall trend. After an economic downturn, any predicted recovery of the economy is likely to reverse the downward trend in CO2 emissions that resulted from falling production.*

b. Use the known impact on the economy of Covid-19 to provide a justification of the forecast below.

As an additional challenge try to use the aggregate supply and aggregate demand model as part of your justification.
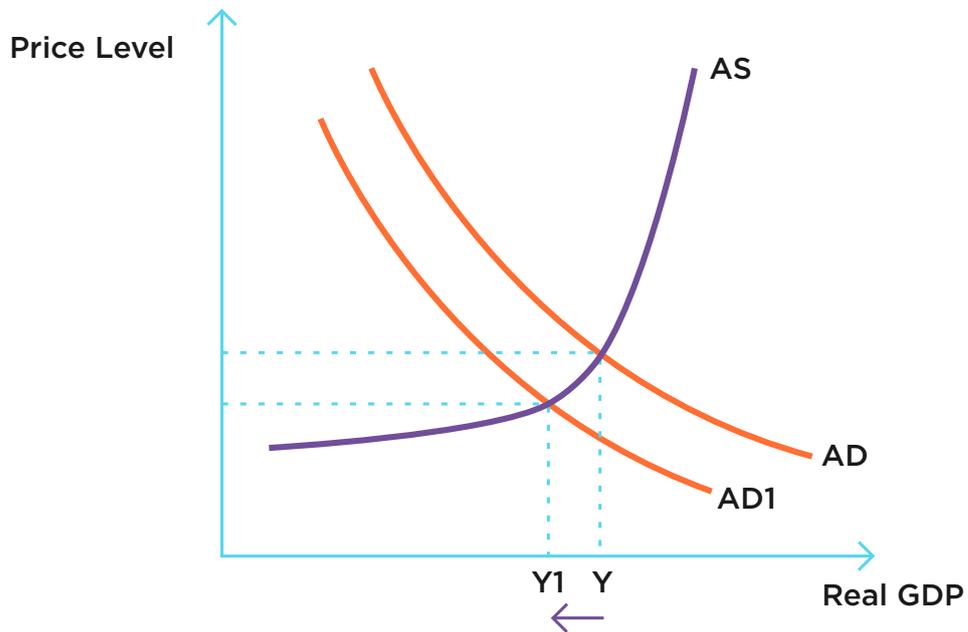
New Zealand Greenhouse Gas Emissions 2009–2018
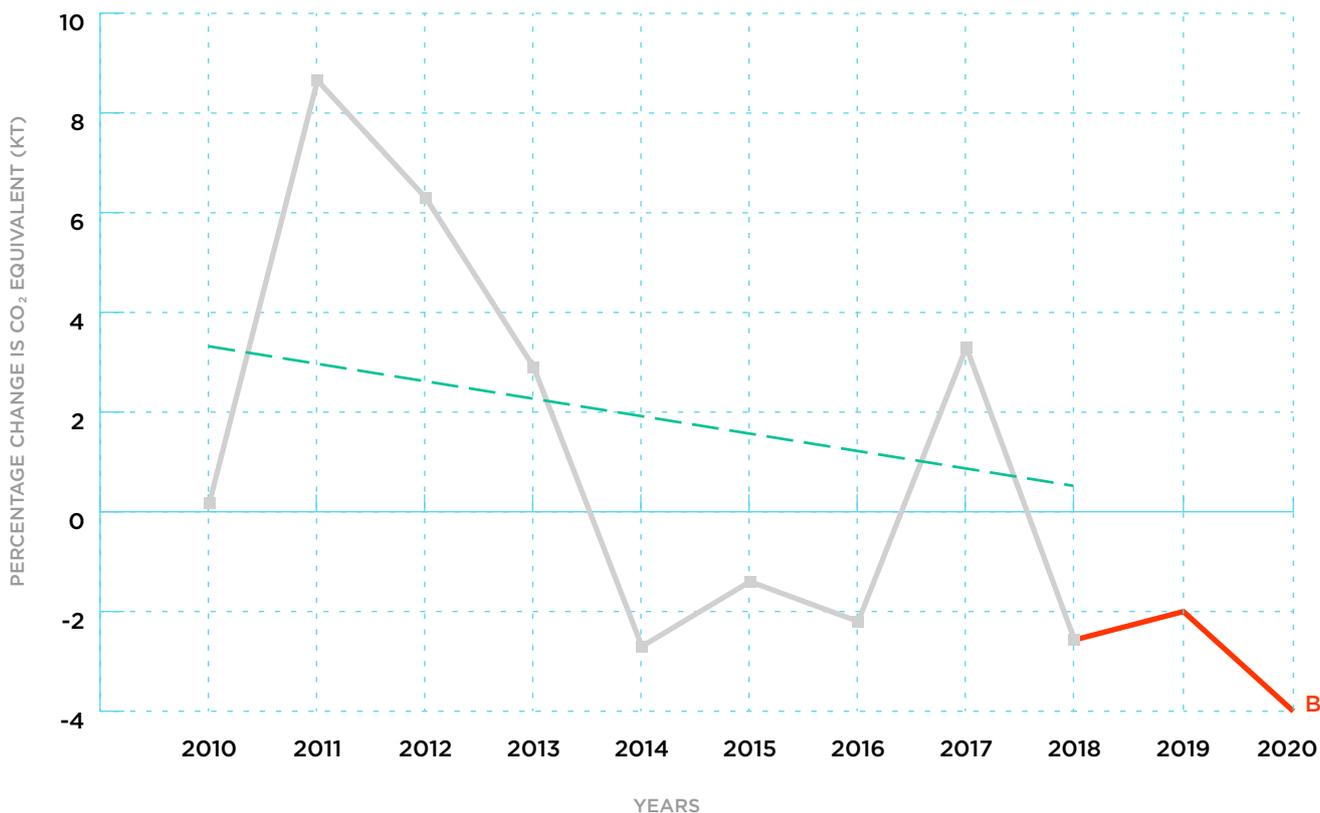
*The data could be predicted to decline further as shown by line **B**. The justification for this could be that although the period of 2014 to 2018 was largely a period of weaker economic growth, the 2020 Covid-19 pandemic has resulted in significant reductions in consumer and business confidence.*

These decreases in confidence have resulted in lower levels of consumption and investment. 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). The resulting decrease in real GDP has, in turn, led to decreases in CO2 emissions. This decline would lead to a hastening of the overall downward trend. The significant reduction in international air travel is having a direct impact on CO2 emissions. While this downturn in the economy and travel continues it is unlikely that CO2 emissions will return to previous levels in the foreseeable future.

AD/AS Model

Price Level

AS

AD

AD1

Y1   Y

Real GDP

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.rbnz.govt.nz/statistics/c22

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