



# Graphing and interpreting errors in Budget Forecasting



## Part 1: Budget forecasting errors over time

Errors in Budget forecasting are often represented as a percentage of the total economic output of a country, or gross domestic product (GDP). This is a more realistic measure of the size of a Budget forecasting error as it is relative to the size of an economy. The errors in Budget forecasting represented as a percentage of GDP are shown in the table below.

### Errors for One-Year Forecasts, as a Percentage of GDP, 2011–2022

Year ending 30 June	Budget outcome as % of GDP	Error in forecasts as % of GDP
2011	-3.3	-0.4
2012	-2.9	-1.4
2013	-1.2	-1.3
2014	-3.0	-1.9
2015	-2.3	-0.5
2016	-2.4	-0.3
2017	-1.9	0.3
2018	-0.6	1
2019	0.0	-0.8
2020	-4.3	-4.7
2021	-6.5	4.5
2022	-1.4	3.6

- 1 Graph the Budget outcomes and errors in percentage forecasts for the period between 2010-2022 on one chart.
- 2 What type of graph did you select to use?
- 3 Why did you choose this type of graph?
- 4 Interpret the graph and write a paragraph describing your interpretation using the following framework.



**Framework for interpreting graphs**

<b>Introduction</b>	<ul style="list-style-type: none"> <li>■ Describe what the graph shows.</li> <li>■ 'This graph shows ...'</li> <li>■ Identify and list any general patterns, trends or relationships.</li> </ul>
<b>Trend 1</b>	<ul style="list-style-type: none"> <li>■ Describe the first pattern or trend.</li> <li>■ Provide evidence from the graph to support the pattern, trend or relationship.</li> </ul>
<b>Additional trends</b>	<ul style="list-style-type: none"> <li>■ Repeat the above for any additional patterns, trends or relationships.</li> </ul>
<b>Anomalies or differences</b>	<ul style="list-style-type: none"> <li>■ Describe any anomalies or different data points.</li> <li>■ Provide evidence from the graph.</li> </ul>

**Part 2 – Distribution of Budget forecasting errors**

**1** Open a spreadsheet and put the percentage errors in a table with the following headings.

	Percentage error
	1.4
	-0.4 etc.
Average (mean)	
Median	

- 2** Use the SORT function to sort the percentage errors from lowest to highest.
- 3** Set up formulas to calculate the average (mean) and another to calculate the median.
- 4** What is the average percentage error? What is the median percentage error?
- 5** Are these figures similar? Which one is higher and why?
- 6** On the same spreadsheet (you should have a bit of space to the right of your first table) set up another table like this:

Category	Number of errors in this category
-5 to -4	
-4 to -3	
-3 to -2	
-2 to -1	3
-1 to 0	
0 to 1	
1 to 2	
2 to 3	
3 to 4	
4 to 5	
Total	

- 7** Count the number of percentage errors in each category and add this information to the table. The -2 to -1 range has been done for you.
- 8** Put in a formula at the bottom of the column to add up the number of percentage errors you have. If the Total is not 12, check the information you've entered.
- 9** Insert a chart to display this information. Choose your style and colours. Make sure the chart has labels and a title.  
Refer to *Building charts and tables – How-to-sheet*.
- 10** Describe the overall pattern of the data (shape, center, spread), and any deviations from the pattern (outliers). If necessary, use the framework provided above.

