

Excel Data Analysis Worksheet: Construction Industry Dataset

Introduction

This worksheet will guide you through the process of analysing a dataset using Microsoft Excel. You will learn how to calculate descriptive statistics and create charts. These skills are essential for interpreting data effectively.

Step 1: Preparing Your Dataset

1. Go to Moodle and download the provided dataset, then open in Microsoft Excel.
2. Review the dataset, looking at titles, column and row names and understand what each variable represents.
3. Check for any missing or inconsistent data (e.g., blank cells, text in number columns).
4. Save your file as 'YourName_ConstructionAnalysis.xlsx' before starting your analysis.

Step 2: Descriptive Statistics

1. You will calculate some summary statistics for your chosen numerical variables in the dataset. You do not need to calculate them all for everything, you should pick measures that are appropriate and useful for the data you are analysing, but at least one example of each of the below.
2. Use the following Excel functions to calculate the summary statistics:
 - Mean: =AVERAGE(range)
 - Median: =MEDIAN(range)
 - Mode: =MODE.SNGL(range)
 - Standard Deviation: =STDEV.S(range)
 - Range: =MAX(range)-MIN(range)

Step 3: Data Visualisation

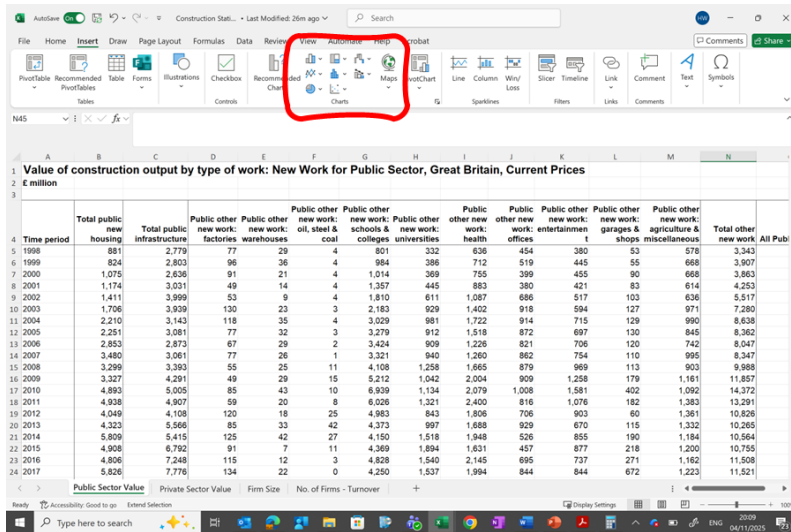
1. Create at least three different types of chart to represent the data visually. Selecting the most appropriate type of graph for your data is essential to ensure accurate and meaningful analysis. Choosing the right visual representation makes trends, relationships, and outliers easier to spot, improving the clarity and usefulness of your analysis

Recommended chart types:

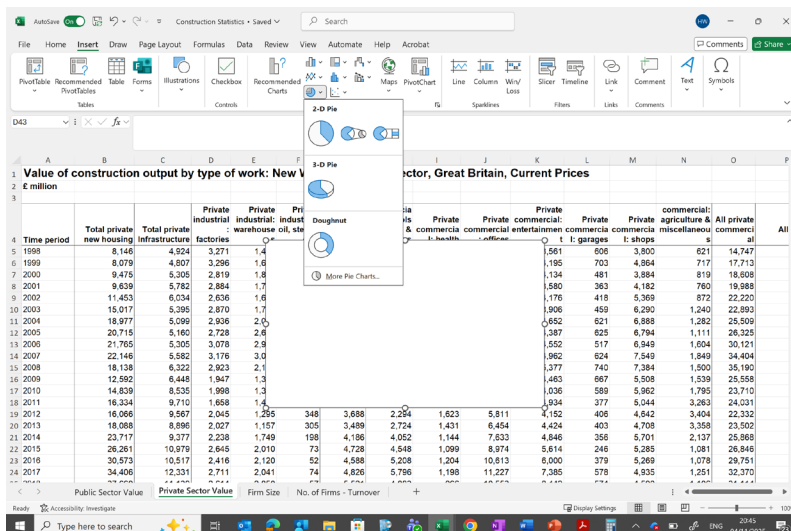
- Bar Chart – Compare quantities across categories
- Pie Chart – Show proportions or percentages of a whole
- Line Graph – Display trends over time

- Stacked Bar Chart – Show how components contribute to a total across categories.

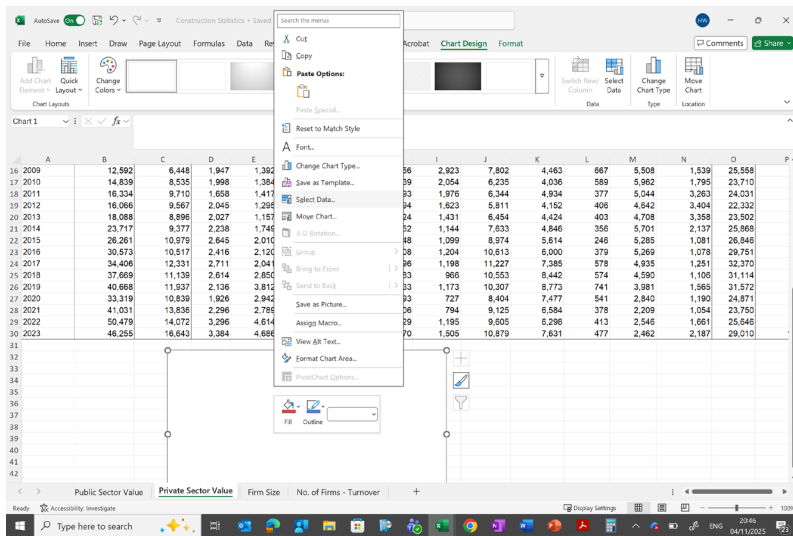
2. Go to the ****Insert**** tab → ****Charts group****



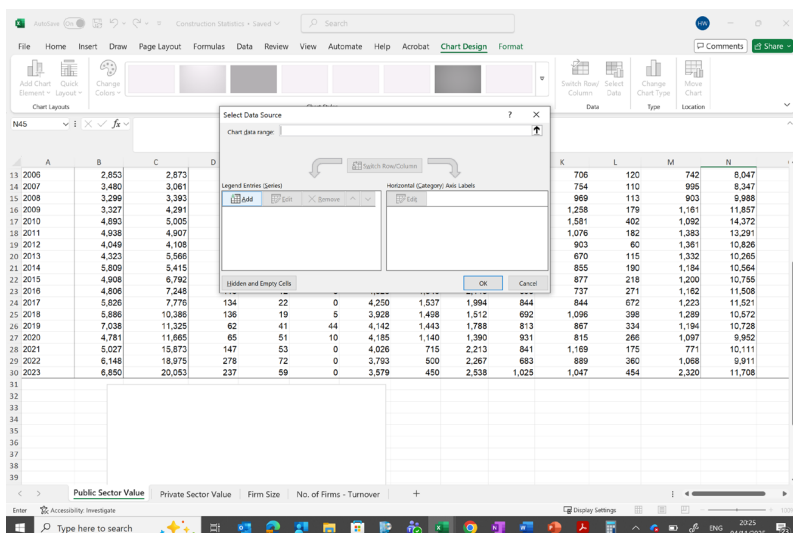
Select the graph type.



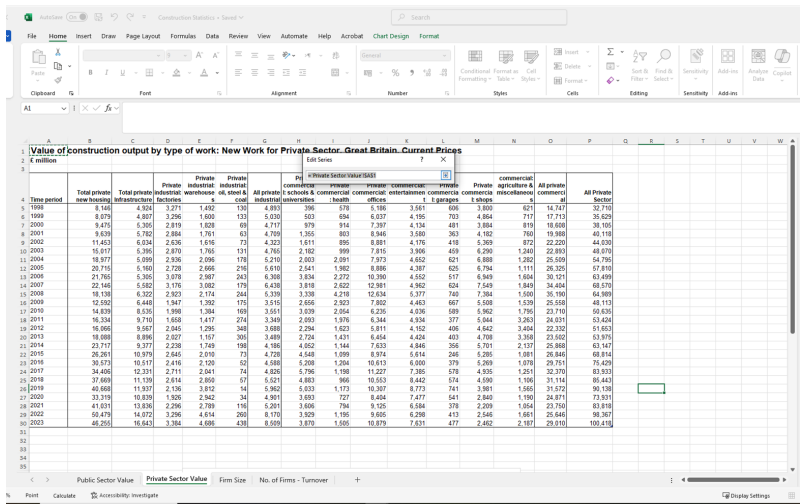
Right click on the blank graph and go to select data.



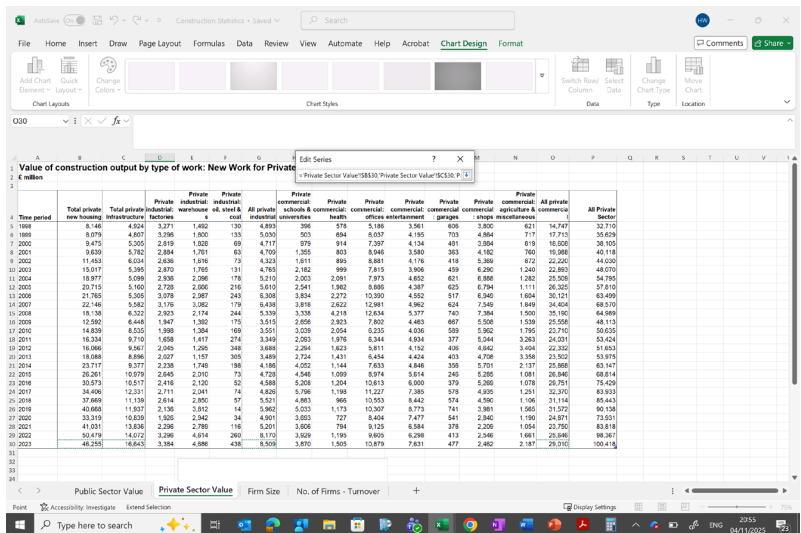
Now add your data. This will vary depending on what type of chart / graph you have opted for and what data you want to include.



Select a series name. This can either be typed into the box, or you can select a cell in the spreadsheet with an appropriate name. Do the latter by selecting the arrow that points upwards. Then used your cursor to select the cell and confirm by clicking on the box with an arrow pointing downwards.

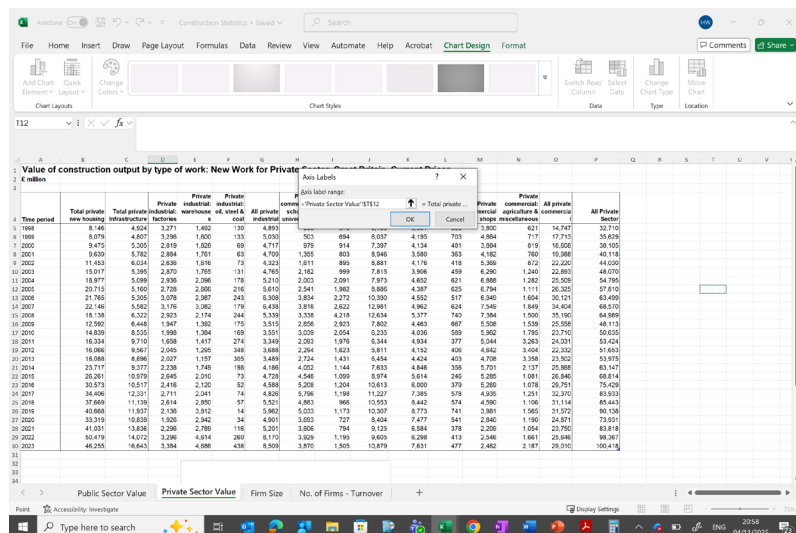
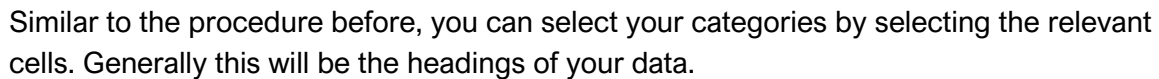


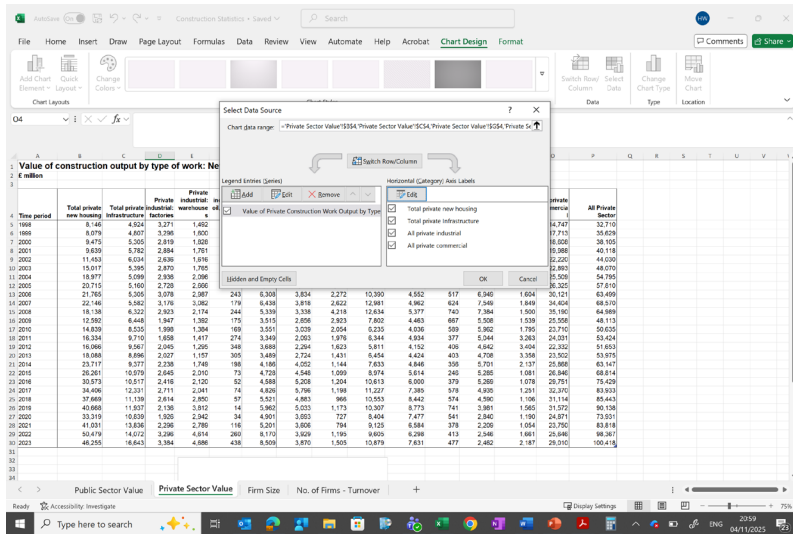
Now select the data you want to plot. This time select series values by selecting the upward pointing arrow. Now you can select your data using the mouse. You can drag and select whole sections, or if you wish to just include specific data points, you can select each cell and while continuously holding down the control button, select the other cells you are interested in. Again, once you are happy with your selection then you can press the downward pointing arrow to confirm.



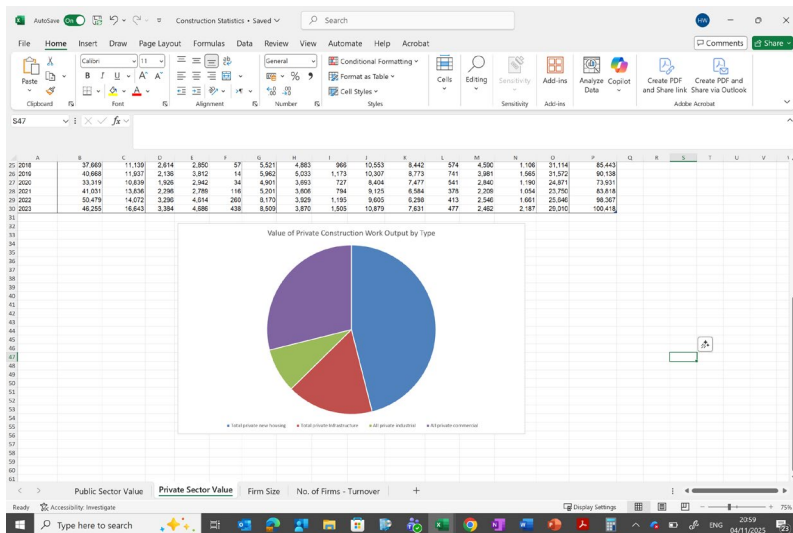
Now the next stage varies depending on what type of graph / chart you have opted to create.

For a pie chart you want to make sure all of your categories are labelled correctly. This can be done by selecting edit on the Horizontal (Category) Axis Labels.

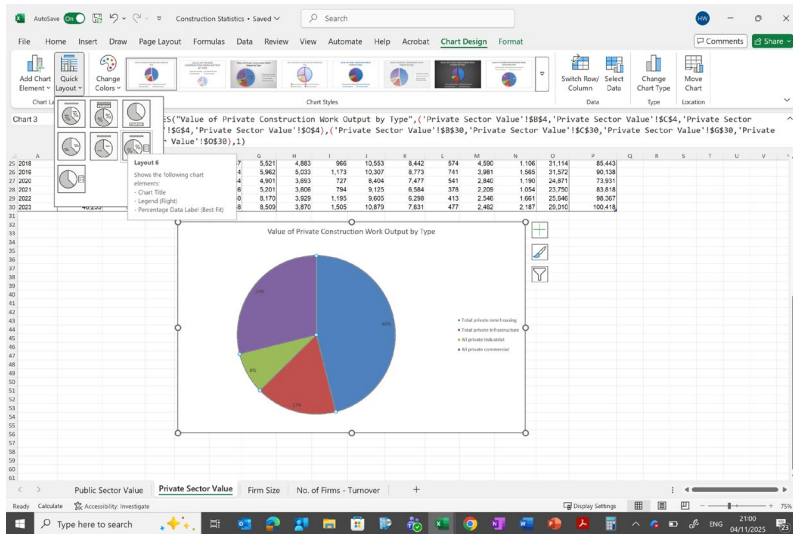




Select ok, and your chart will be produced



Now this has produced an appropriate pie chart, it is now time to make sure all the important information is included. Go to quick layout and choose an appropriate layout for the graph you have produced.



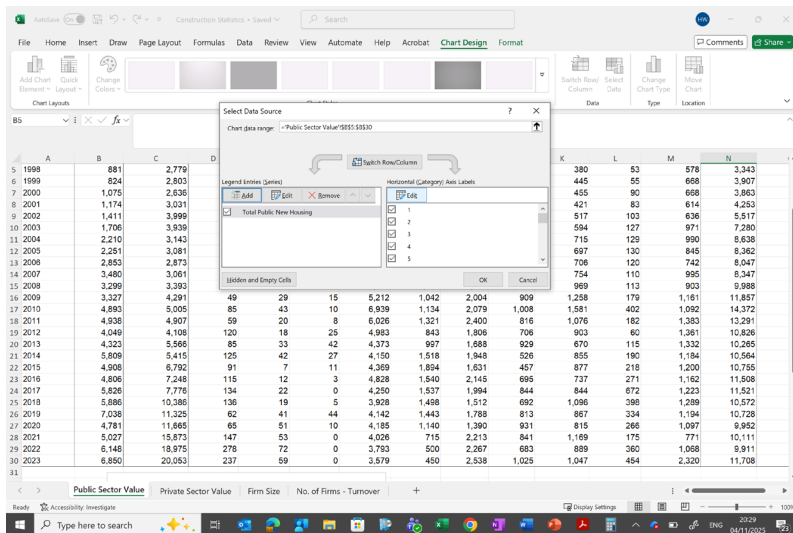
Each chart must include:

- A clear title
- Category labels
- Percentages

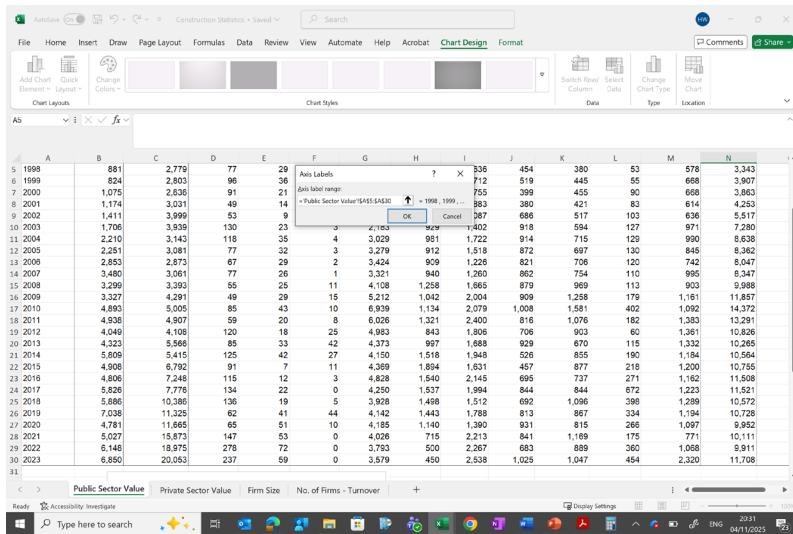
Line Graph

This time for a line graph you want to make sure your x axis is labelled correctly.

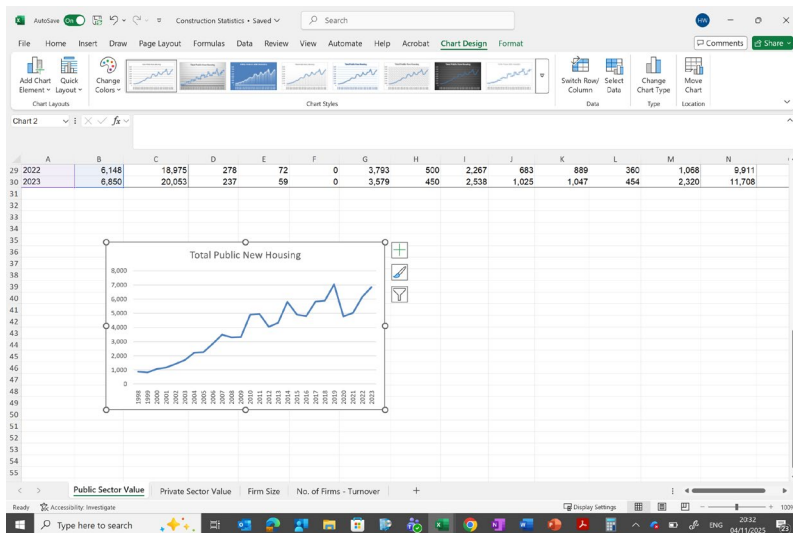
Similarly to before, this can be done by selecting edit on the Horizontal (Category) Axis Labels.



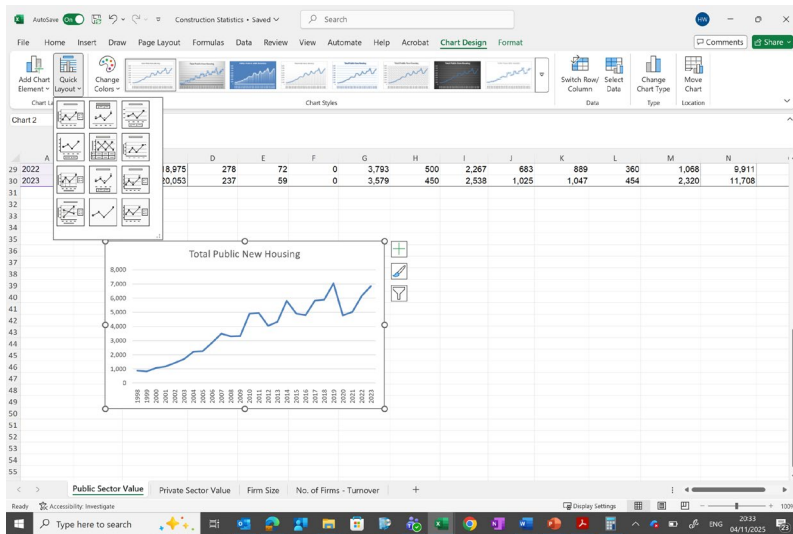
Now select the data you want to use for the x-axis. Think about what you are trying to show in your graph.



Select ok, and your graph will be populated.



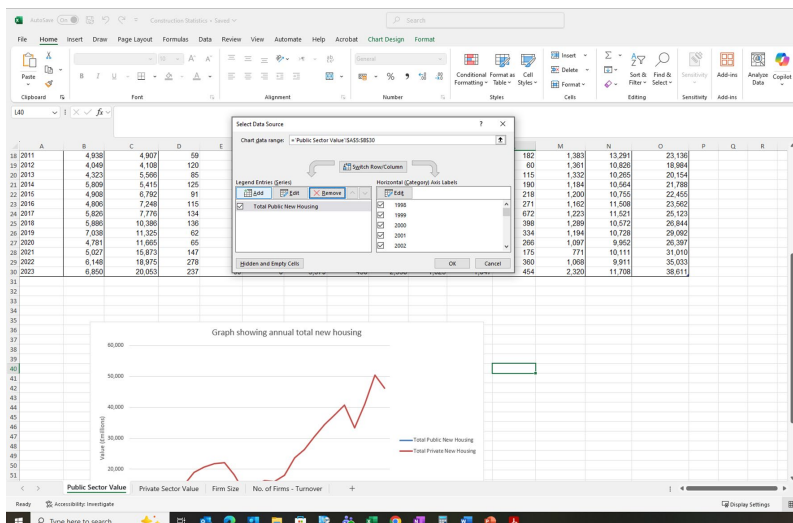
Again, we need to make sure this has all the information we required so go to quick layout and choose an appropriate layout for the graph you have produced.

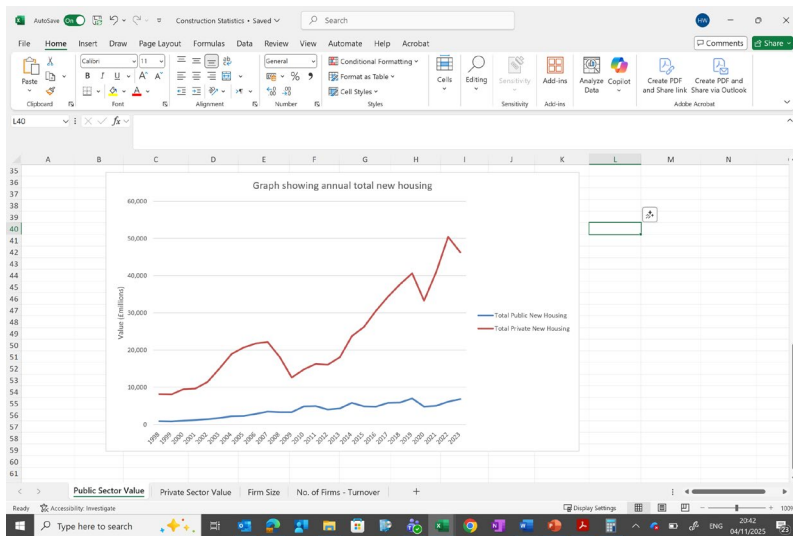


Each chart must include:

- A clear title
- Axis labels
- Legends (if applicable)

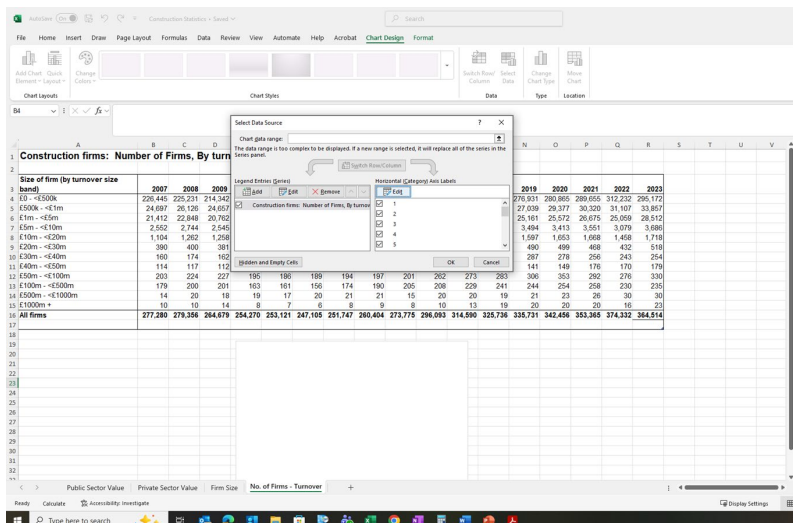
If you wish to add additional datasets to your graph, you can select add Legend Entries (Series) again, and follow the same procedure with your second dataset.



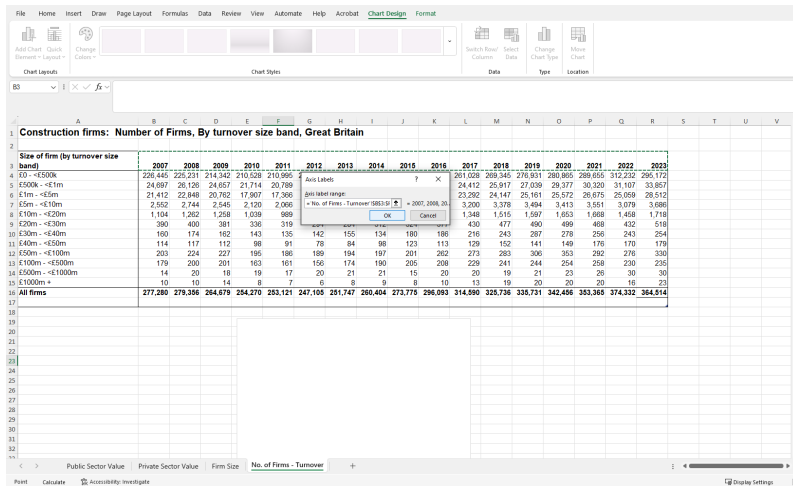


Bar / Column Chart

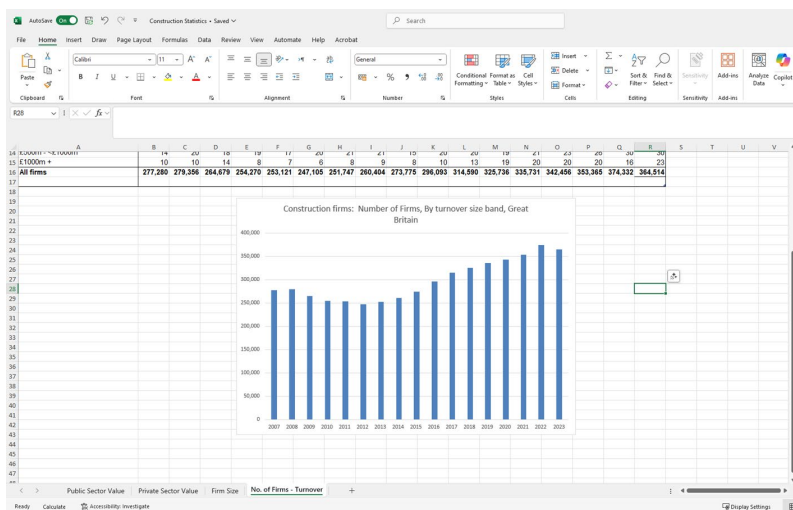
This time for a bar chart you want to make sure your x axis is labelled correctly. Similarly to before, this can be done by selecting edit on the Horizontal (Category) Axis Labels.



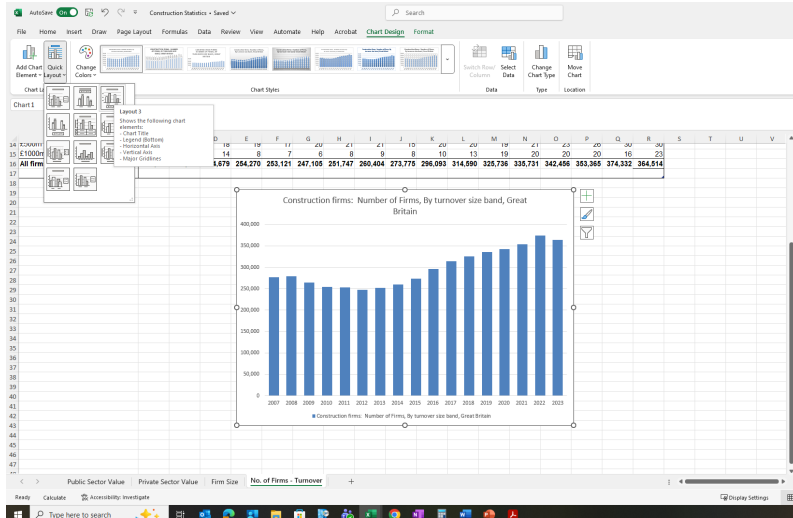
Now select the data you want to use for the x-axis. Again, think about what you are trying to show in your graph.



Select ok, and your chart will be populated.



Again, we need to make sure this has all the information we required so go to quick layout and choose an appropriate layout for the graph you have produced.

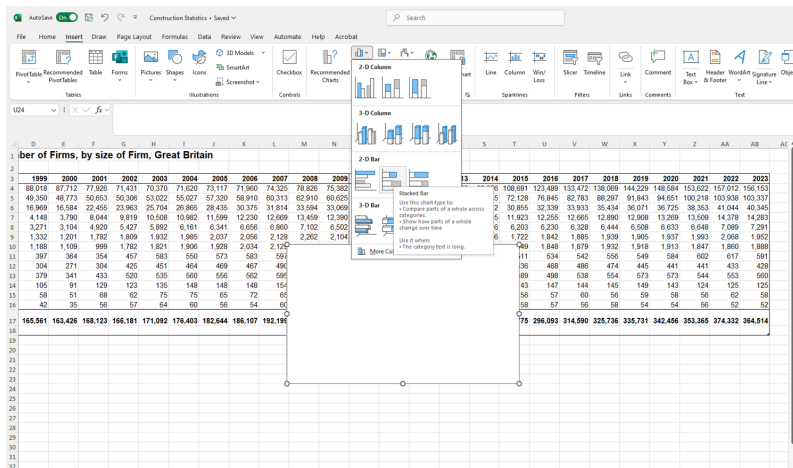


Each chart must include:

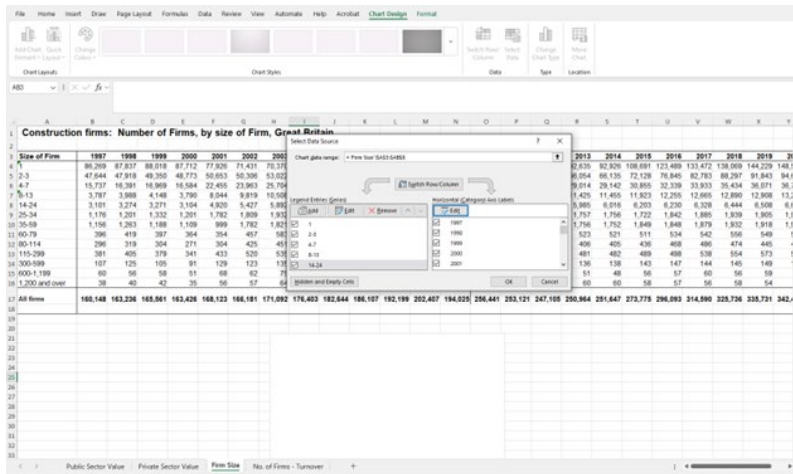
- A clear title
- Axis labels
- Legends (if applicable)

Stacked Bar / Column Chart

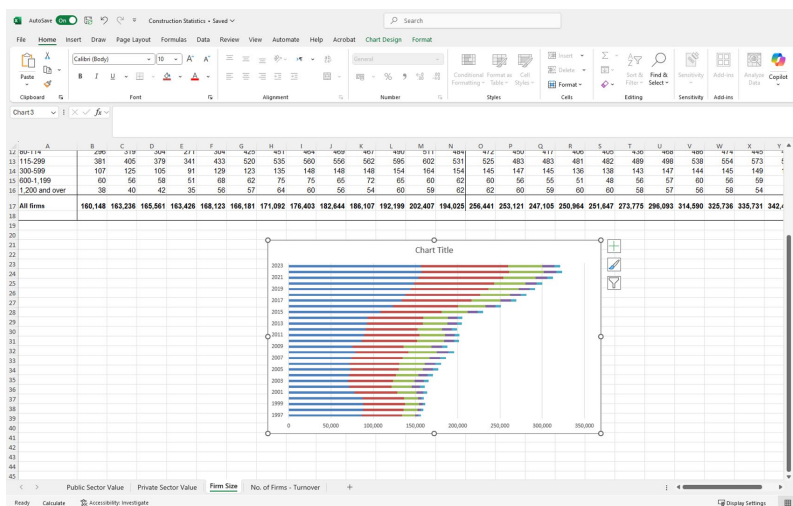
Now if you want to produce a stacked bar / column chart the procedure is the same as for a bar chart but this time select the stacked option.



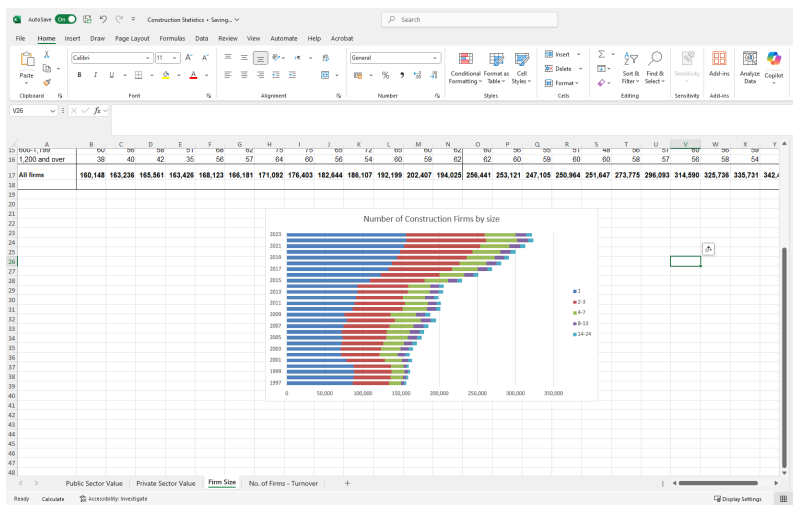
Follow the same procedure as before. This time selecting each set of data individually. Here you will see I have 5 different sets of data.



Select ok and your stacked bar / column chart will be produced.



Again, we need to make sure this has all the information we required so go to quick layout and choose an appropriate layout for the graph you have produced.



Each chart must include:

- A clear title
- Axis labels
- Legends (if applicable)

If you are not happy with aspects of your graph then you can generally select the components and manually alter them. You can change titles, you can move the legend, you can change the font sizes to make it more readable.

Step 4: Submission Checklist

Before submitting your Excel file, make sure it includes:

- A selection of descriptive statistics
- At least three well-formatted different style graphs / charts.