Economic Freedom of the World

Photo by Luca Upper on Unsplash

This task aims to provide an introductory understanding and insight into the visualisation and analytical capabilities of Pyramid, a business intelligence software with features ranging from data visualisation to machine learning and much more.

Task Objectives

1. Review and import the source file to begin analysis
2. Familiarise yourselves with Pyramid's modelling and discovery functions
3. Explore and experiment with Pyramid's visualisation and analytical capabilities

Background

The Economic Freedom of the World is the world's premier measurement of economic freedom, ranking countries based on five areas—size of government, legal structure and property rights, access to sound money, freedom to trade internationally, regulation of credit, labour and business (Fraser Institute 2020, https://www.fraserinstitute.org/studies/economic-freedom).

Source File

https://query.data.world/s/4xw22cieov57pfdwdf2pbiu2d65u42

Walkthrough:

Start by downloading the excel file from the link above (it is suggested that you make a habit of organising your files for ease of reference in the future).

Working with Delimiter Files:

The majority of the files you will be working with are often expressed in the form of a delimited text file, such as comma separated values(.csv), tab separated values(.tsv), etc. All this means is that the elements of the information that make up a table is separated by the specified delimiter. For example, a file named text.csv will have all its column elements separated by a comma.

When you import such files, it is important to make sure the delimiter specified corresponds to the type of file you are importing.

But before we jump into pyramid, we need to modify the excel file just a little bit. If you open the source file, you'll notice that only columns A-I contains the information that we need. So what we'll need to do first off, is to remove all columns from J onwards.
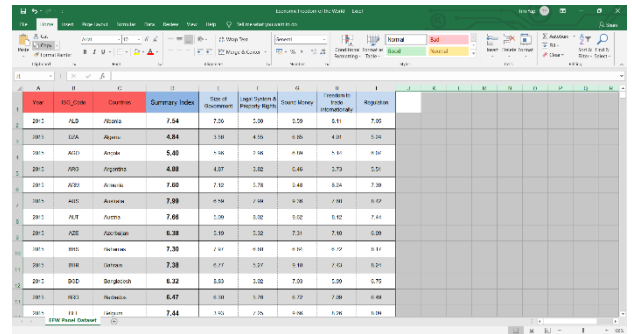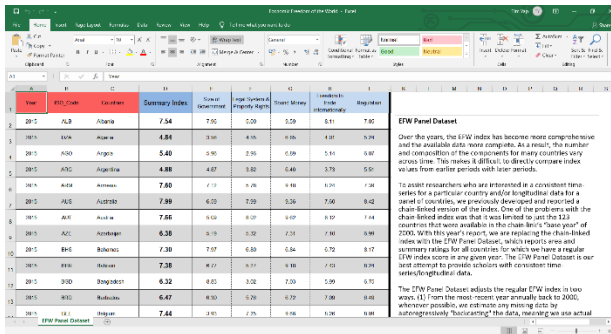

The reason behind this step is that software reading delimited text files are not able to intelligently guess when the table "ends".

Once you've cleaned your excel file, save it and we can move on to Pyramid for some analysis.

<u>Pyramid Analytics</u>:

For this exercise, we'll be taking advantage of Pyramid's visualisation abilities to represent data in charts and graphs to help you paint a picture and tell a story.
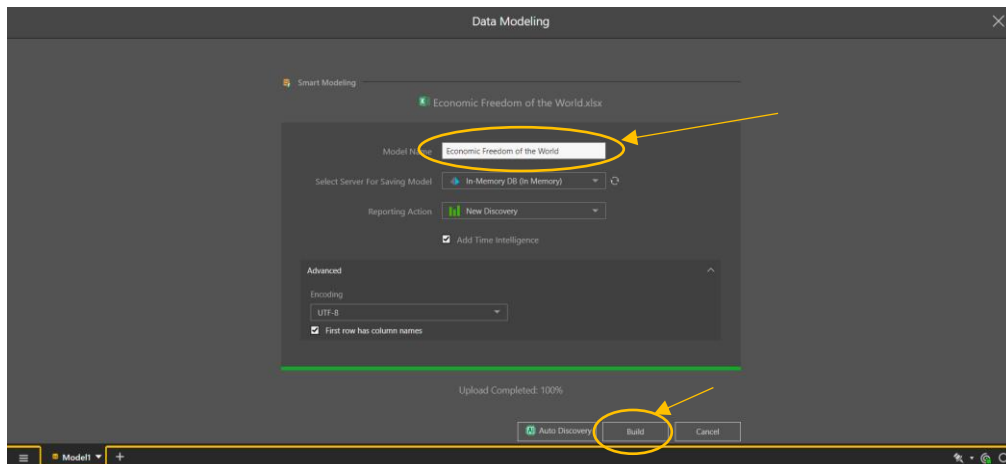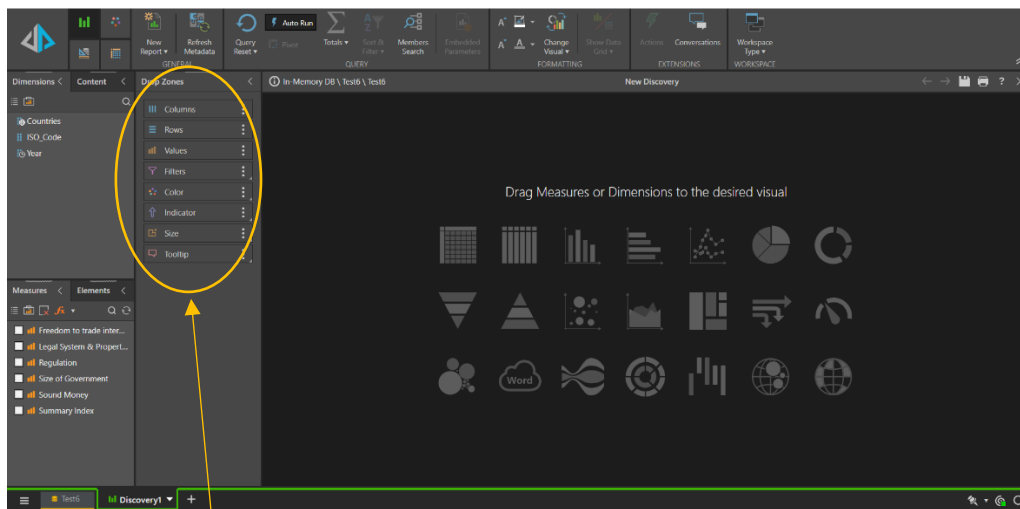
This is the pyramid home screen:
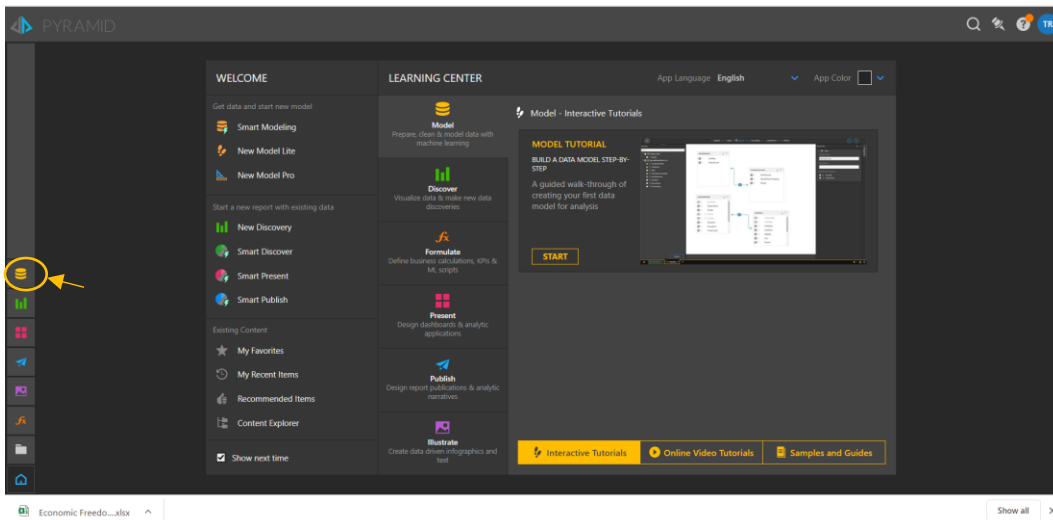
Start by clicking on the **Model** button on the top of your taskbar.
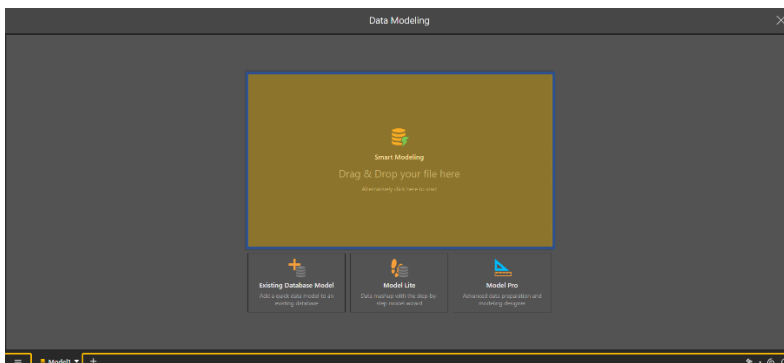
Drag your excel file over to the **Smart Modelling** square, provide your model a unique name, and then click *Build*

Pyramid will then automatically load in your model and prep all the data for analytics and visualisation in *Discover*.


Pyramid uses *Drop Zones* as a means to illustrate information contained within the data through various visualisation techniques. For starters, let's begin by trying out the *Scatter Chart* visualisation that Pyramid's Discover offers.

We'll start by dragging *Countries* from the *Dimensions* tab to the *Scatter Chart Option*.
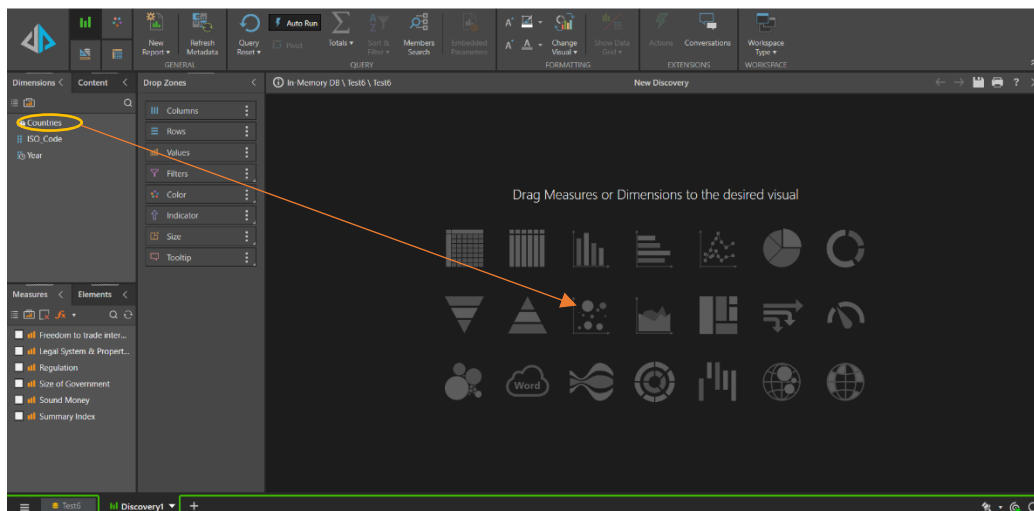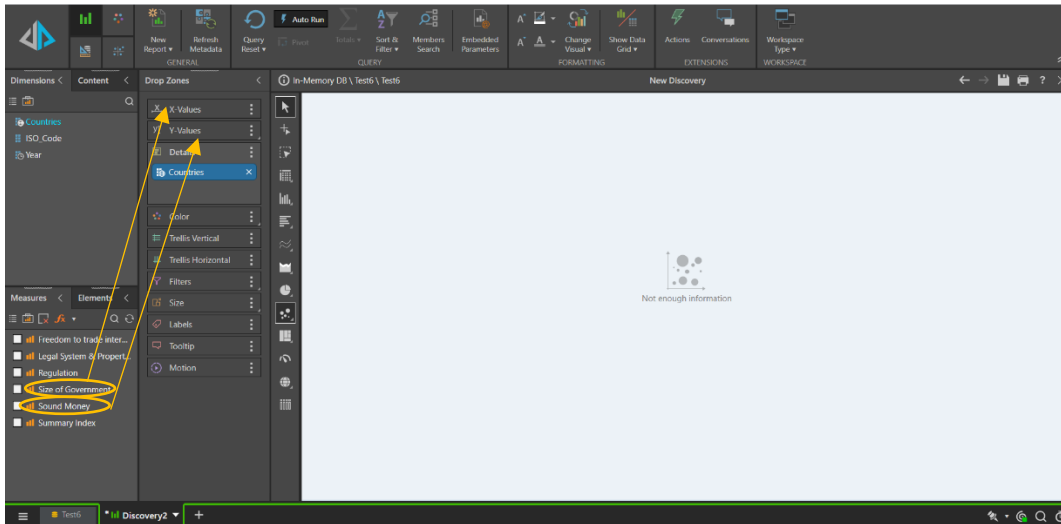
To begin, let's get pyramid to illustrate the relationship between **Sound Money** against **Size of Government** based on **Countries.** To do that, drag **Sound Money** and **Size of Government** from the **Measures** tab over to the **X-Values** and **Y-Values** Drop Zones respectively.
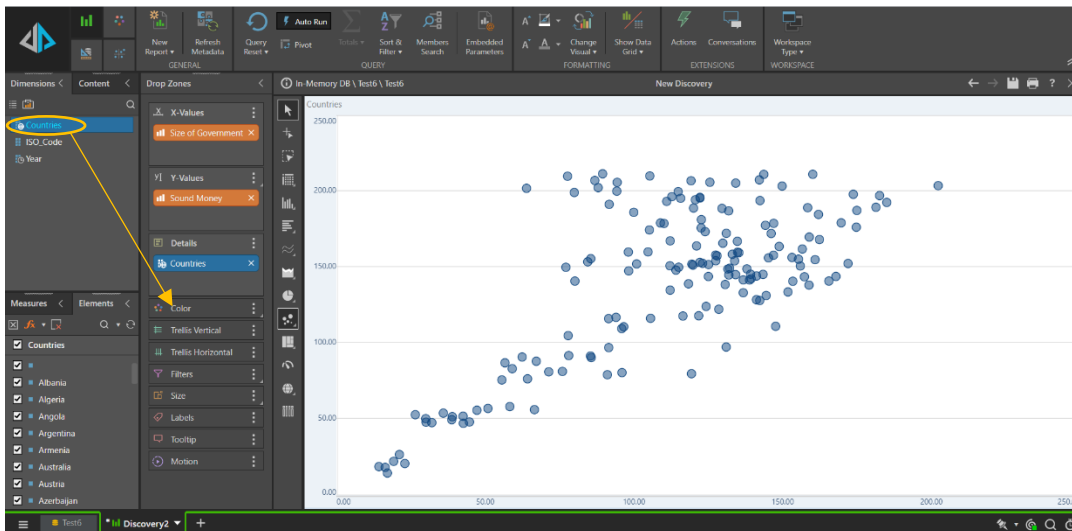
Lastly, to add more visual representation to our scatter chart, drag **Countries** from the **Dimensions** tab down to the **Color** tab in the **Drop Zones.**
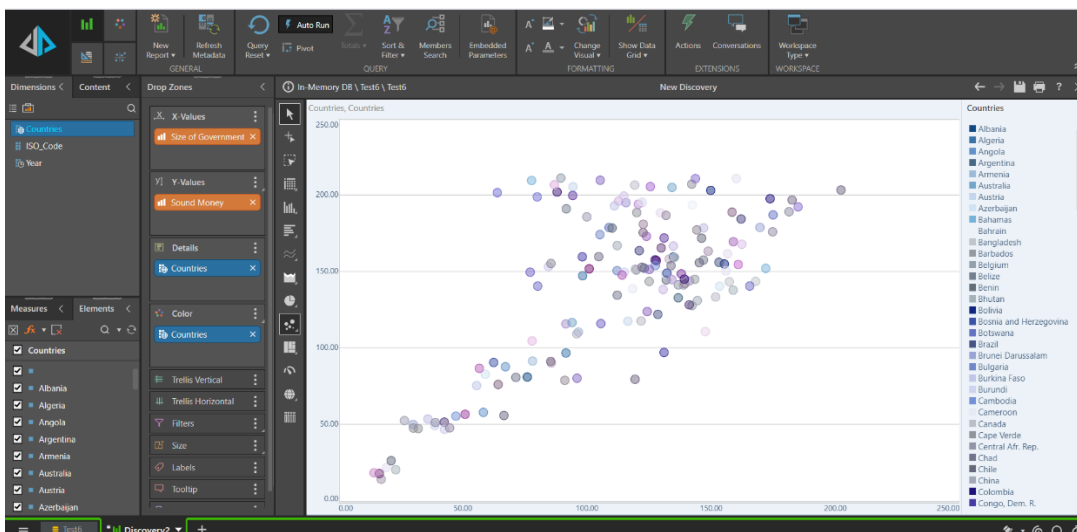
With the above chart, you would be able to show how the size of a government of a country would affect the amount of sound money that it has which would be a factor in its economic freedom.

Try it yourself:

Test out different combinations of **Measures** and **Dimensions** with the **Drop Zones** and see what other form of analysis you can do with the given data.

For your reference, below is a table with a brief explanation of what every column represents in the excel source file given.

Column Name	Data Type	Description
Year	Datetime	Corresponding Years
ISO_Code	String	Iso Code
Countries	String	List of Countries
Summary Index	Float	Economic Freedom Index
Size of Government	Float	A measure of a country's government size
Legal Systems and Property Rights	Float	A measure of protection of every person and their property in a given country
Sound Money	Float	A measure of the amount of stable money in a country, i.e. Gold etc
Freedom to Trade Internationally	Float	A degree of a country's freedom to trade on a global and international market
Regulation	Float	A measure of a country's government-imposed rules and regulations towards businesses and the economy

Problem Set:

1. Pie Charts:
   Using Pyramid's **Pie Charts**, illustrate every country's **Freedom to Trade Internationally.** Take a snapshot of your work.
   Having done that, explore the **Drop Zones**, is there a way to constrain or **FILTER** the data such that your pie chart only shows the top 10 countries with the highest index value. (Hint: It's all in the mouse)

2. Bar Charts:
   Using Pyramid's **Column Chart**, illustrate every country's economic freedom (**Summary Index**). Take a snapshot of your work.
   Having done that, alter your chart such that it only displays the indices associated with the years of **1970, 1975, 1980** and **1985**.
   Comment on the economic freedom of Japan, Singapore, the United States and France during the 4 years mentioned previously**.**

3. It is said that a country's whose government size is larger, actually affects the overall economic index due to restrictions that are generally imposed by government towards trade in the international market. This is because government decision making is substituted for individual choice (Fraser Institute 2020, https://www.fraserinstitute.org/studies/economic-freedom). Using Pyramid, choose a means of data visualisation (bar charts, scatter plots, etc) that you deem would best justify this statement.

To navigate from one visualisation technique to another, simply select the visualisation technique you'd like from the toolbar.
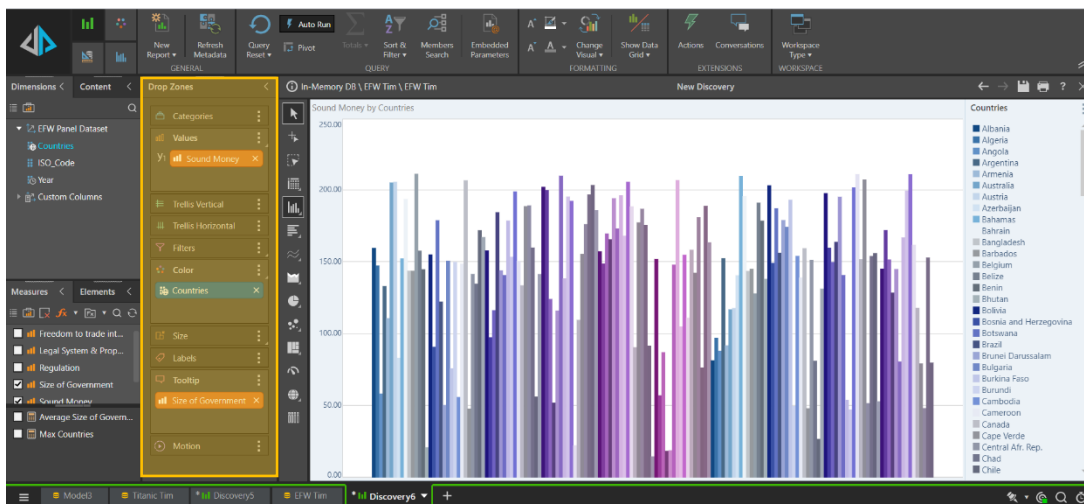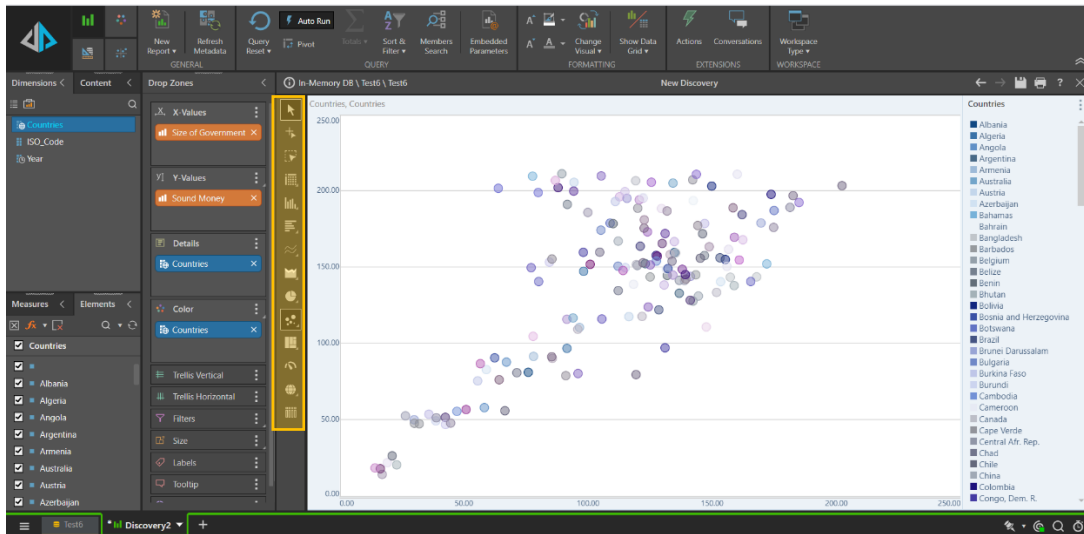
Alter the items within the **Drop Zone** to match the criteria of the tasks.

To filter the results down to the top 10 **countries**, what we can do is a **quick filter**. In this case, simply hover your mouse over the criteria you'd like to filter, right click, select **quick filter**, and select the option that suits the task at hand.
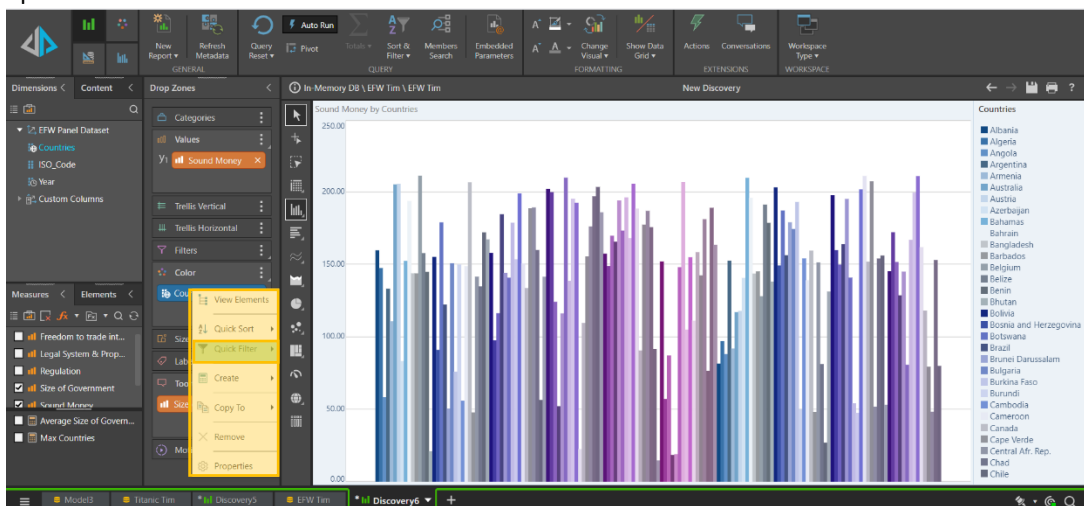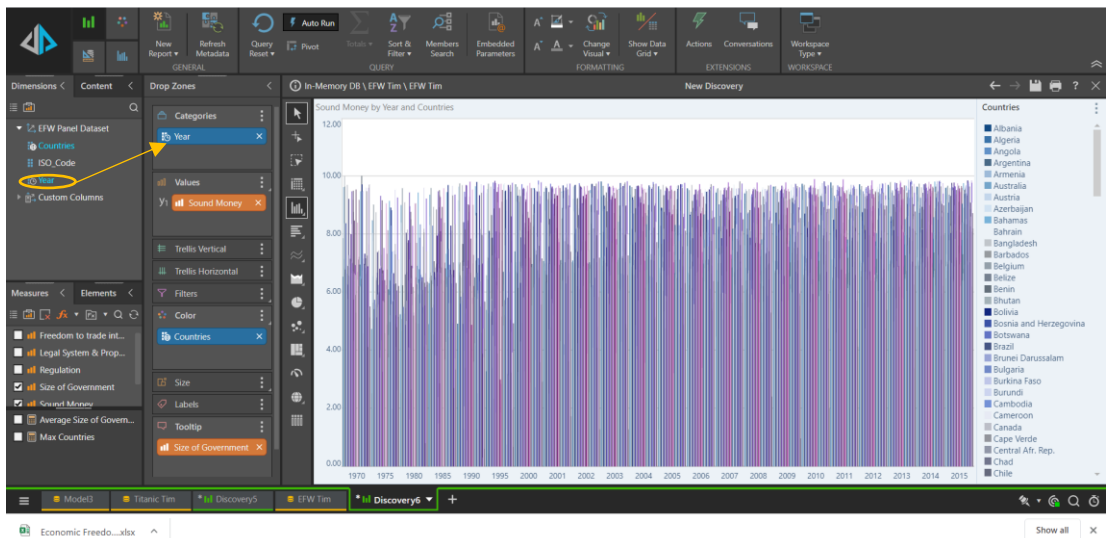
To alter your charts such that you are able to isolate specific years for analysis, make sure that you drag **Years** from the **Dimensions** tab into the **Categories** Drop Zone.

There are two ways to go about illustrating from problem 2. The first extends upon the use of the **Quick Filter** function mentioned earlier, which is not often fool proof.

To properly execute this problem, we can use the **Filters** function available in the **Drop Zone**. Much like before, drag the criteria you would like to filter in to the **Filters** tab in the **Drop Zone** and you'll notice a filter tab appear which allows you to manually select and filter criteria.
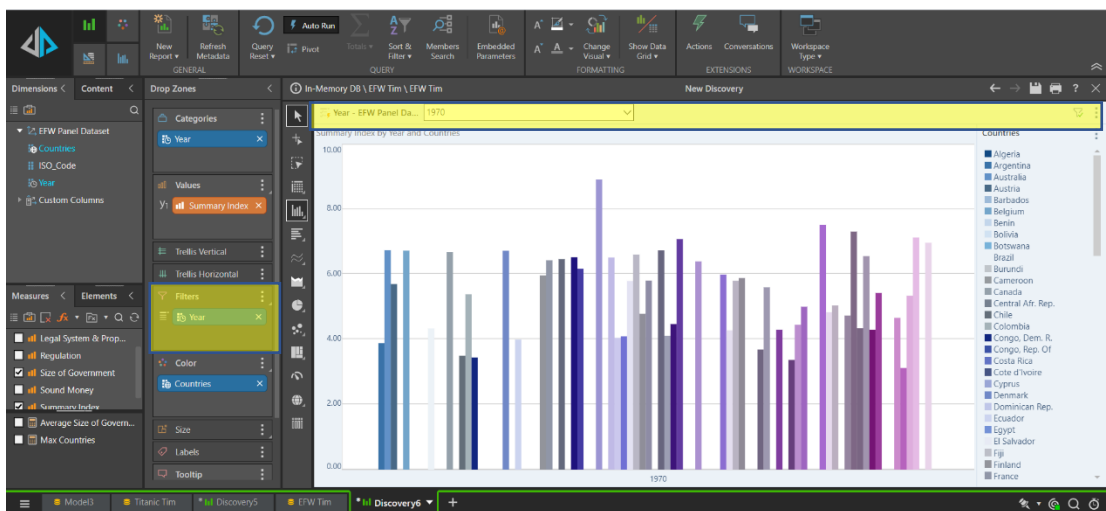
By default, the filter option is set to a drop-down list which only allows you to filter your analytics by **one** specific criteria. In order to filter more years, all you have to do is to change the settings of the filter tab. Click on the **three vertical dots** at the end of the filter bar, select **Settings**,
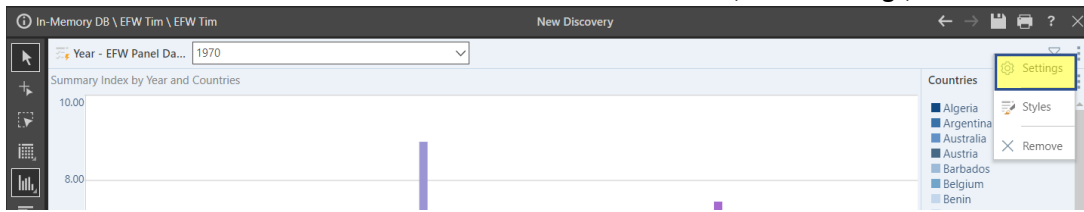
and under **Type**, select **Multi Select Drop Down** and that should enable you to select a specific range of criteria.
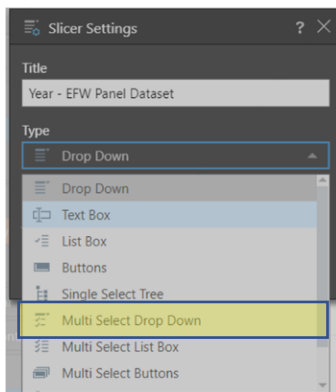

Now to narrow your analysis down to specific countries, you could either select the required countries manually from the tab on the left, which will cause all other columns pertaining to all other countries to fade slightly
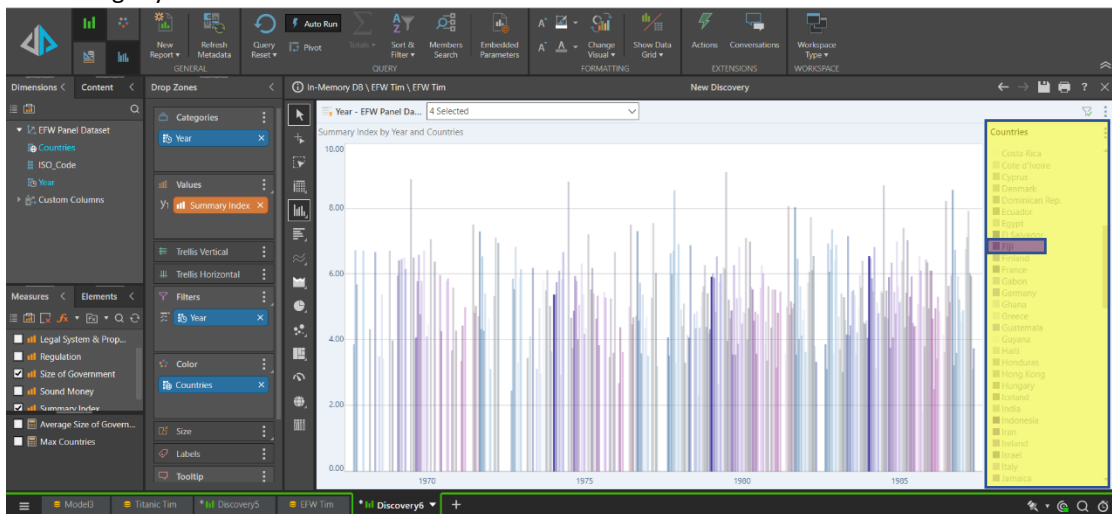
OR

To improve upon the solution above, we can also make use of the **Filters** tab in the **Drop Zone** to allow you to specifically select the secondary criteria you require. You should end up with something like this:
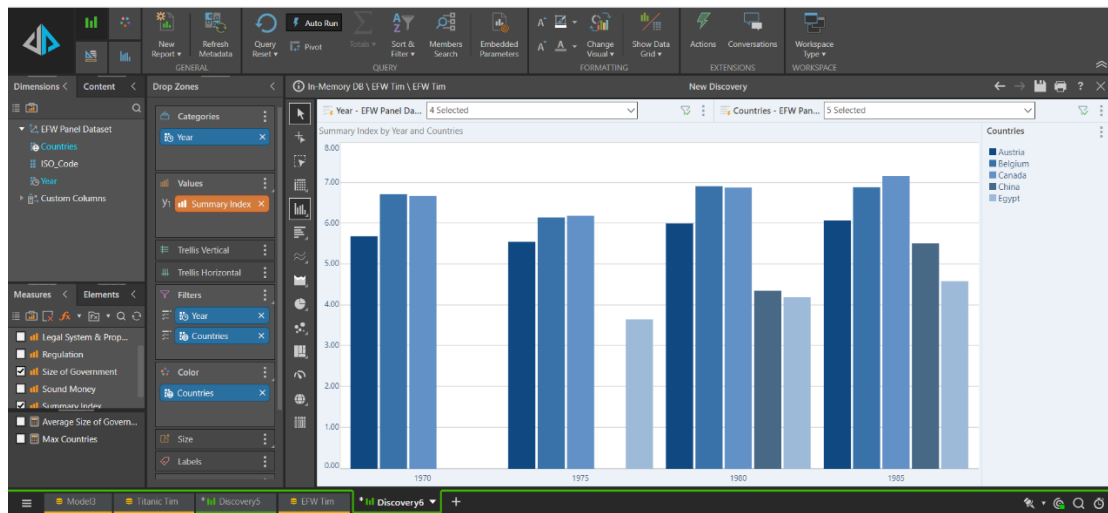
The solution to problem 3 is fairly open, there is no 1 right answer. It's a matter of putting together everything we've covered in the past couple of exercises to justify the given statement; the goal being to present your viewer with something that is visually convincing to get your point across.