

Sample Exercise Instructions SOLUTION

1. Locate and download data sets you have been given access to
 - a. CountryRegion.csv
 - b. imf-dm-export-GDP.csv
 - c. imf-dm-export-Population.csv
 - d. imf_Countries
2. Open the data sets and review the structure of the data.
(column and row headings). Hint: *Country names used by IMF do not match exactly the names used in the CountryRegion dataset so a cross reference file exists to link the two spellings via a Country Code column*

CountryRegion.csv

File Origin: 1252: Western European (Windows) | Delimiter: Comma | Data Type Detection: Based on first 200 rows

name	alpha-2	alpha-3	country-code	iso_3166-2	region	sub-region	intermediate-region	region-
Afghanistan	AF	AFG		4 ISO 3166-2:AF	Asia	Southern Asia		
Åland Islands	AX	ALA	248	ISO 3166-2:AX	Europe	Northern Europe		
Albania	AL	ALB	8	ISO 3166-2:AL	Europe	Southern Europe		
Algeria	DZ	DZA	12	ISO 3166-2:DZ	Africa	Northern Africa		
American Samoa	AS	ASM	16	ISO 3166-2:AS	Oceania	Polynesia		
Andorra	AD	AND	20	ISO 3166-2:AD	Europe	Southern Europe		
Angola	AO	AGO	24	ISO 3166-2:AO	Africa	Sub-Saharan Africa	Middle Africa	

imf-dm-export-GDP.csv

File Origin: 65001: Unicode (UTF-8) | Delimiter: Comma | Data Type Detection: Based on first 200 rows

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10
GDP, current prices (Billions of U.S. dollars)	1980	1981	1982	1983	1984	1985	1986	1987	1988
Afghanistan	no data	no data	no data	no data	no data	no data	no data	no data	no data
Albania	1.946	2.229	2.296	2.319	2.29	2.339	2.587	2.566	2.53
Algeria	42.346	44.372	44.78	47.529	51.513	61.132	61.535	63.3	51.6
Angola	6.639	6.214	6.214	6.476	6.864	8.457	7.918	9.05	9.81
Antigua and Barbuda	0.131	0.148	0.164	0.182	0.208	0.241	0.29	0.337	0.39
Argentina	233.696	189.802	94.25	116.267	130.544	98.599	118.565	121.561	142.3
Armenia	no data	no data	no data	no data	no data	no data	no data	no data	no data
Aruba	no data	no data	no data	no data	no data	no data	no data	no data	no data
Australia	162.628	188.067	186.709	179.151	196.777	174.067	181.147	212.712	270.5

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	C
Population (Millions of people)	1980	1981	1982	1983	1984	1985	1986	1987	1988	1
Afghanistan	no data	no data	no data	no data	no data	no data	no data	no data	no data	n
Albania	2.672	2.726	2.784	2.844	2.904	2.965	3.023	3.084	3.142	3
Algeria	18.666	19.246	19.864	20.516	21.175	22.2	22.8	23.4	24.1	2
Angola	8.91	9.151	9.393	9.639	9.894	11.149	11.467	11.76	12.079	1
Antigua and Barbuda	0.068	0.068	0.067	0.066	0.065	0.064	0.063	0.062	0.061	0
Argentina	27.95	28.45	28.93	29.34	29.84	30.35	30.74	31.09	31.47	3
Armenia	no data	no data	no data	no data	no data	no data	no data	no data	no data	n
Aruba	no data	no data	no data	no data	no data	no data	0.061	0.06	0.061	0
Australia	14.803	15.038	15.388	15.483	15.677	15.801	16.138	16.385	16.687	1

CountryRegion.csv contains all the names of countries with their codes and regions and sub regions. So ideal if you need to look up any categorical information like Europe, Asia for Region and North America, Sub-Sahara Africa for Sub Regions.

- Using your skills create a data model for Country, Population and GDP
- To achieve this you may need to combine the data sets, cleanse and filter.

The imf-dm-export-GDP and Population files need to be converted into this format

	A ^B _C Country	A ^B _C Year	A ^B _C GDP
1	Afghanistan	1980	no data
2	Afghanistan	1981	no data
3	Afghanistan	1982	no data
4	Afghanistan	1983	no data
5	Afghanistan	1984	no data
6	Afghanistan	1985	no data
7	Afghanistan	1986	no data
8	Afghanistan	1987	no data
9	Afghanistan	1988	no data
10	Afghanistan	1989	no data
11	Afghanistan	1990	no data
12	Afghanistan	1991	no data
13	Afghanistan	1992	no data
14	Afghanistan	1993	no data
15	Afghanistan	1994	no data
16	Afghanistan	1995	no data
17	Afghanistan	1996	no data
18	Afghanistan	1997	no data
19	Afghanistan	1998	no data
20	Afghanistan	1999	no data
21	Afghanistan	2000	no data
22	Afghanistan	2001	no data
23	Afghanistan	2002	4.367
24	Afghanistan	2003	4.553
25	Afghanistan	2004	5.146
26	Afghanistan	2005	6.167
27	Afghanistan	2006	6.925
28	Afghanistan	2007	8.556
29	Afghanistan	2008	10.297
30	Afghanistan	2009	12.066
31	Afghanistan	2010	15.825

	A ^B _C Country	A ^B _C Year	A ^B _C Population
1	Afghanistan	1980	no data
2	Afghanistan	1981	no data
3	Afghanistan	1982	no data
4	Afghanistan	1983	no data
5	Afghanistan	1984	no data
6	Afghanistan	1985	no data
7	Afghanistan	1986	no data
8	Afghanistan	1987	no data
9	Afghanistan	1988	no data
10	Afghanistan	1989	no data
11	Afghanistan	1990	no data
12	Afghanistan	1991	no data
13	Afghanistan	1992	no data
14	Afghanistan	1993	no data
15	Afghanistan	1994	no data
16	Afghanistan	1995	no data
17	Afghanistan	1996	no data
18	Afghanistan	1997	no data
19	Afghanistan	1998	no data
20	Afghanistan	1999	no data
21	Afghanistan	2000	no data
22	Afghanistan	2001	17.887
23	Afghanistan	2002	18.707
24	Afghanistan	2003	19.477
25	Afghanistan	2004	20.237
26	Afghanistan	2005	20.947
27	Afghanistan	2006	21.596
28	Afghanistan	2007	22.426
29	Afghanistan	2008	22.997

To achieve this various steps need to be performed culminating in unpivoting all the columns except the country name

PowerQuery is the ideal tool to complete these tasks for example

4 APPLIED STEPS

Source

Changed Type

Promoted Headers

Changed Type1

Removed Top Rows

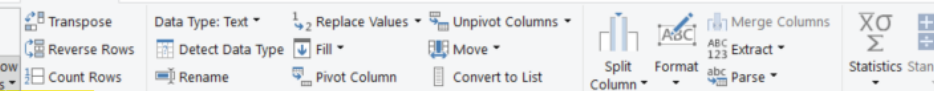
Removed Bottom Rows

Unpivoted Other Columns

✕

Renamed Columns

So let us complete each step in turn

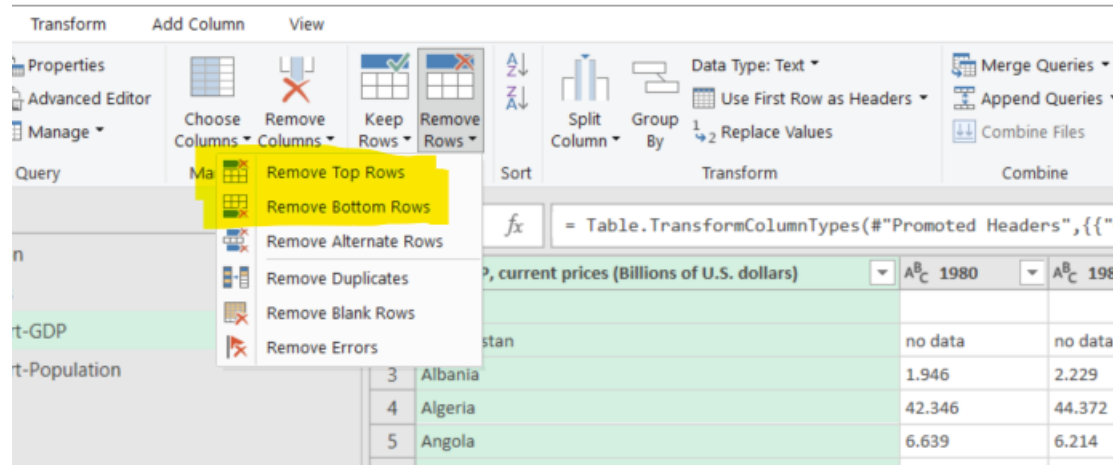


The screenshot shows the Microsoft Excel ribbon with the 'Transform' tab selected. The 'Group By' section has the 'Use First Row as Headers' button highlighted. A tooltip is visible over this button, stating: 'Promote the first row of this table into column headers.' Below the ribbon, a table is displayed with columns 'Column1', 'Column2', 'Column3', and 'Column4'. The first row of the table is highlighted in yellow and contains the text 'GDP, current prices (Billions of U.S. dollars)', '1980', '1981', and '1982'. The subsequent rows contain country names and their corresponding GDP values for the years 1980, 1981, and 1982.

Column1	Column2	Column3	Column4
GDP, current prices (Billions of U.S. dollars)	1980	1981	1982
Afghanistan	no data	no data	no data
Albania	1.946	2.229	2.296
Algeria	42.346	44.372	44.78

	A ^B _C GDP, current prices (Billions of U.S. dollars)	A ^B _C 1980	A ^B _C 1981	A ^B _C 1982	A ^B _C 1983	A ^B _C 1984	A ^B _C
1							
2	Afghanistan	no data	no data	no data	no data	no data	no d

m-export-GDP - Power Query Editor



Remove top row and also the bottom 34 rows that include summary information for the regions. The last row should be Zimbabwe

Before

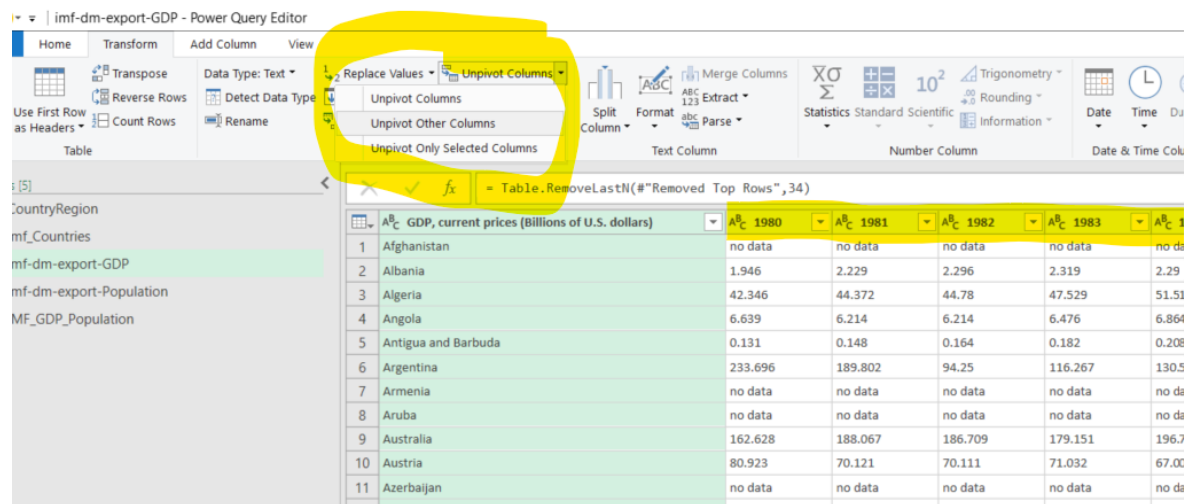
= Table.TransformColumnTypes("#Promoted Headers",{"GDP, current prices (Billions of U.S. dollars)",{"GDP, current prices (Billions of U.S. dollars)",{"GDP, current prices (Billions of U.S. dollars)",{"GDP, current prices (Billions of U.S. dollars)"				
	A ^B _C GDP, current prices (Billions of U.S. dollars)	A ^B _C 1980	A ^B _C 1981	A ^B _C 1982
191	Venezuela	69.841	78.367	79.998
192	Vietnam	35.357	17.617	23.369
193	West Bank and Gaza	no data	no data	no data
194	Yemen	no data	no data	no data
195	Zambia	4.246	4.385	4.232
196	Zimbabwe	no data	no data	no data
197	Africa (Region)	452.24	461.543	468.331
198	Asia and Pacific	2332.04	2515.656	2447.025
199	Australia and New Zealand	185.148	211.506	209.914
200	Caribbean	18.04	19.73	21.79
201	Central America	34.6	34.871	35.303
202	Central Asia and the Caucasus	96.596	97.865	88.918
203	East Asia	1570.606	1688.818	1605.847
204	Eastern Europe	160.124	169.825	183.443
205	Europe	4007.285	3607.257	3492.48
206	Middle East (Region)	402.931	435.946	415.674
207	North Africa	136.375	130.856	135.728
208	North America	3376.402	3823.836	3888.28
209	Pacific Islands	5.931	5.896	5.644
210	South America	581.546	584.403	494.949
211	South Asia	227.85	263.568	273.017
212	Southeast Asia	245.909	248.004	263.685
213	Sub-Saharan Africa (Region)	315.865	330.686	332.603
214	Western Europe	3847.16	3437.432	3309.037
215	Western Hemisphere (Region)	4010.588	4462.84	4440.323
216	ASEAN-5	231.915	232.519	246.687
217	Advanced economies	8480.504	8615.632	8554.98
218	Emerging and Developing Asia	742.886	758.572	774.533

After

183	Ukraine	no data	no data	no data
184	United Arab Emirates	40.415	45.002	41.848
185	United Kingdom	603.983	587.652	558.72
186	United States	2857.325	3207.025	3343.8
187	Uruguay	12.165	13.578	11.1
188	Uzbekistan	no data	no data	no data
189	Vanuatu	0.121	0.114	0.114
190	Venezuela	69.841	78.367	79.998
191	Vietnam	35.357	17.617	23.369
192	West Bank and Gaza	no data	no data	no data
193	Yemen	no data	no data	no data
194	Zambia	4.246	4.385	4.232
195	Zimbabwe	no data	no data	no data

Now to do any analysis on this data we need to be able to differentiate the year associated with the GDPO and Populastion. Currently the Year is represented as a column so there are the years 1980 to 2026 as 46 columns one for each year in the range.

To convert these columns to rows we use the Unpivot option in the Transform tab.



The screenshot shows the Power Query Editor interface. The 'Transform' tab is active, and the 'Unpivot Columns' option is highlighted in the ribbon. The data table below shows the result of unpivoting the years 1980 to 1983.

CountryRegion	mf_Countries	mf-dm-export-GDP	mf-dm-export-Population	MF_GDP_Population	
1	Afghanistan	no data	no data	no data	
2	Albania	1.946	2.229	2.296	2.319
3	Algeria	42.346	44.372	44.78	47.529
4	Angola	6.639	6.214	6.214	6.476
5	Antigua and Barbuda	0.131	0.148	0.164	0.182
6	Argentina	233.696	189.802	94.25	116.267
7	Armenia	no data	no data	no data	no data
8	Aruba	no data	no data	no data	no data
9	Australia	162.628	188.067	186.709	179.151
10	Austria	80.923	70.121	70.111	71.032
11	Azerbaijan	no data	no data	no data	no data

This results in

Any Column		Text Column	Number Column
		= Table.UnpivotOtherColumns("#Removed Bottom Rows", {"GDP, current prices (Billions of U.S. dollars)"})	
	A ^B _C GDP, current prices (Billions of U.S. dollars)	A ^B _C Attribute	A ^B _C Value
1	Afghanistan	1980	no data
2	Afghanistan	1981	no data
3	Afghanistan	1982	no data
4	Afghanistan	1983	no data
5	Afghanistan	1984	no data
6	Afghanistan	1985	no data
7	Afghanistan	1986	no data
8	Afghanistan	1987	no data
9	Afghanistan	1988	no data
10	Afghanistan	1989	no data
11	Afghanistan	1990	no data
12	Afghanistan	1991	no data
13	Afghanistan	1992	no data
14	Afghanistan	1993	no data
15	Afghanistan	1994	no data
16	Afghanistan	1995	no data
17	Afghanistan	1996	no data
18	Afghanistan	1997	no data
19	Afghanistan	1998	no data

So now we just rename the columns and do exactly the same steps for the Population data set.

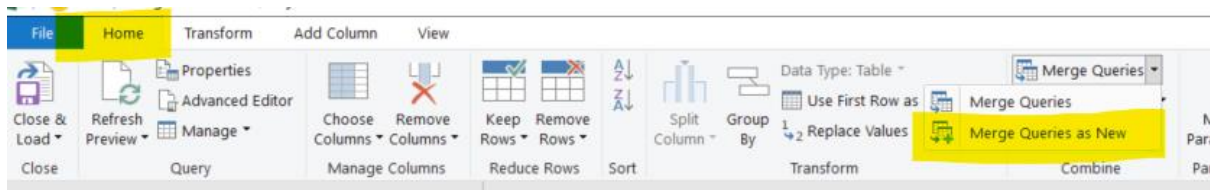
Any Column		Text Column	
= Table.RenameColumns("#Unpivoted OI			
A ^B _C	Country	A ^B _C	Year
1	Afghanistan	1980	no data
2	Afghanistan	1981	no data
3	Afghanistan	1982	no data
4	Afghanistan	1983	no data
5	Afghanistan	1984	no data
6	Afghanistan	1985	no data
7	Afghanistan	1986	no data
8	Afghanistan	1987	no data
9	Afghanistan	1988	no data
10	Afghanistan	1989	no data
11	Afghanistan	1990	no data

= Table.RenameColumns("#Unpivoted Other			
A ^B _C	Country	A ^B _C	Year
1	Afghanistan	1980	no data
2	Afghanistan	1981	no data
3	Afghanistan	1982	no data
4	Afghanistan	1983	no data
5	Afghanistan	1984	no data
6	Afghanistan	1985	no data
7	Afghanistan	1986	no data
8	Afghanistan	1987	no data
9	Afghanistan	1988	no data
10	Afghanistan	1989	no data
11	Afghanistan	1990	no data

We now MERGE these two data sets together to produce one dataset consisting of

= Table.ExpandTableColumn(Source, "imf-dm-export-Po				
	A ^B _C Country	A ^B _C Year	A ^B _C GDP	A ^B _C Population
1	Afghanistan	1980	no data	no data
2	Afghanistan	1981	no data	no data
3	Afghanistan	1982	no data	no data
4	Afghanistan	1983	no data	no data
5	Afghanistan	1984	no data	no data
6	Afghanistan	1985	no data	no data
7	Afghanistan	1986	no data	no data
8	Afghanistan	1987	no data	no data
9	Afghanistan	1988	no data	no data
10	Afghanistan	1989	no data	no data
11	Afghanistan	1990	no data	no data
12	Afghanistan	1991	no data	no data
13	Afghanistan	1992	no data	no data
14	Afghanistan	1993	no data	no data
15	Afghanistan	1994	no data	no data
16	Afghanistan	1995	no data	no data
17	Afghanistan	1996	no data	no data
18	Afghanistan	1997	no data	no data
19	Afghanistan	1998	no data	no data
20	Afghanistan	1999	no data	no data
21	Afghanistan	2000	no data	no data
22	Afghanistan	2001	no data	17.887
23	Afghanistan	2002	4.367	18.707
24	Afghanistan	2003	4.553	19.477
25	Afghanistan	2004	5.146	20.237
26	Afghanistan	2005	6.167	20.947
27	Afghanistan	2006	6.925	21.596
28	Afghanistan	2007	8.556	22.426
29	Afghanistan	2008	10.297	22.997
30	Afghanistan	2009	12.066	23.596
31	Afghanistan	2010	15.325	24.269
32	Afghanistan	2011	17.89	25.031
33	Afghanistan	2012	20.293	25.864
34	Afghanistan	2013	20.17	26.736
35	Afghanistan	2014	20.635	27.601
36	Afghanistan	2015	20.22	28.425

To complete this we use the Merge as New option and join on the Country name and Year this should say 195 rows match.



×

Merge

Select tables and matching columns to create a merged table.

imf-dm-export-GDP

📄

Country	1	Year	2	GDP
Afghanistan		1980		no data
Afghanistan		1981		no data
Afghanistan		1982		no data
Afghanistan		1983		no data
Afghanistan		1984		no data

imf-dm-export-Population

📄

Country	1	Year	2	Population
Afghanistan		1980		no data
Afghanistan		1981		no data
Afghanistan		1982		no data
Afghanistan		1983		no data
Afghanistan		1984		no data

Join Kind

Left Outer (all from first, matching from second)

OK

Cancel

Make sure we expand the Table reference which is the second table we merged imf-dm-export-Population

✕

✓

fx

= Table.NestedJoin("#imf-dm-export-GDP", {"Country", "Year"}, "#imf-dm-export-Population", {"Country", "Year"}, "#imf-dm-export-GDP", "GDP", "#imf-dm-export-Population", "Population")

	A ^B _C Country	A ^B _C Year	A ^B _C GDP	imf-dm-export-Population
1	Afghanistan	1980	no data	Table
2	Afghanistan	1981	no data	Table
3	Afghanistan	1982	no data	Table
4	Afghanistan	1983	no data	Table
5	Afghanistan	1984	no data	Table

✕

Expand imf-dm-export-Population

Select the columns to expand.

A1

☒ (Select All Columns)

☐ Country

☐ Year

☒ Population

Default column name prefix (optional)

OK Cancel

We only need to add the Population column as we already have the name and year.

Data types of our columns are very important

	Country	Year	GDP	Population
1	Afghanistan	1980	no data	no data
2	Afghanistan	1981	no data	no data
3	Afghanistan	1982	no data	no data
4	Afghanistan	1983	no data	no data

Currently Year, GDP and Population are all Text columns. This is because the GDP and Population columns include the text “no data” from the original IMF csv files. We need to replace these with *null* to be able to convert them to decimal columns.

Columns ▾ Columns ▾ Rows ▾ Rows ▾ Column ▾ By ▾ Replace Values ▾ Combine Files Parameters ▾ settings Manage Columns Reduce Rows Sort Transform Combine Parameters Data Sources New Query

= Table.TransformColumnTypes(#"Expanded IMF-dm-export-Population",{{"Year", Int64.Type}})

	Country	Year	GDP	Population
1	Afghanistan	1980	no data	no data
2	Afghanistan	1981	no data	no data
3	Afghanistan	1982	no data	no data
4	Afghanistan	1983	no data	no data
5	Afghanistan	1984	no data	no data
6	Afghanistan	1985	no data	no data
7	Afghanistan	1986	no data	no data
8	Afghanistan	1987	no data	no data
9	Afghanistan	1988	no data	no data
10	Afghanistan	1989	no data	no data
11	Afghanistan	1990	no data	no data
12	Afghanistan	1991	no data	no data
13	Afghanistan	1992	no data	no data
14	Afghanistan	1993	no data	no data
15	Afghanistan	1994	no data	no data
16	Afghanistan	1995	no data	no data
17	Afghanistan	1996	no data	no data
18	Afghanistan	1997	no data	no data
19	Afghanistan	1998	no data	no data
20	Afghanistan	1999	no data	no data
21	Afghanistan	2000	no data	no data
22	Afghanistan	2001	no data	no data
23	Afghanistan	2002	4.367	no data
24	Afghanistan	2003	4.553	19.477
25	Afghanistan	2004	5.146	20.237
26	Afghanistan	2005	6.167	20.947
27	Afghanistan	2006	6.925	21.596
28	Afghanistan	2007	8.556	22.426
29	Afghanistan	2008	10.297	22.997
30	Afghanistan	2009	12.066	23.596
31	Afghanistan	2010	15.325	24.269

Replace Values

Replace one value with another in the selected columns.

Value To Find
no data

Replace With

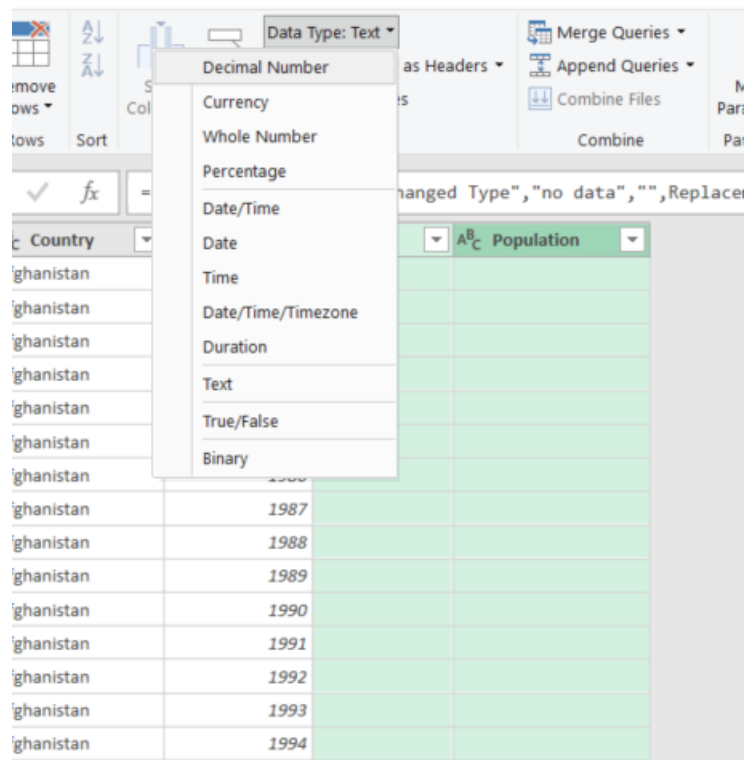
> Advanced options

OK Cancel

= Table.ReplaceValue(#"Changed Type", "no data", "", Replacer.Repl

	Country	Year	GDP	Population
1	Afghanistan	1980		
2	Afghanistan	1981		
3	Afghanistan	1982		
4	Afghanistan	1983		
5	Afghanistan	1984		
6	Afghanistan	1985		
7	Afghanistan	1986		
8	Afghanistan	1987		
9	Afghanistan	1988		
10	Afghanistan	1989		
11	Afghanistan	1990		
12	Afghanistan	1991		
13	Afghanistan	1992		
14	Afghanistan	1993		
15	Afghanistan	1994		
16	Afghanistan	1995		
17	Afghanistan	1996		
18	Afghanistan	1997		
19	Afghanistan	1998		
20	Afghanistan	1999		
21	Afghanistan	2000		
22	Afghanistan	2001		17.887
23	Afghanistan	2002	4.367	18.707
24	Afghanistan	2003	4.553	19.477
25	Afghanistan	2004	5.146	20.237
26	Afghanistan	2005	6.167	20.947
27	Afghanistan	2006	6.925	21.596
28	Afghanistan	2007	8.556	22.426
29	Afghanistan	2008	10.297	22.997
30	Afghanistan	2009	12.066	23.596
31	Afghanistan	2010	15.325	24.269

Now with GDP and Populatiopn columns selected use the Data Type option on the Home Tab



.TransformColumnTypes("#Replaced Value",{{"GDP", type

Year	1.2 GDP	1.2 Population
1980	null	null
1981	null	null
1982	null	null
1983	null	null
1984	null	null
1985	null	null
1986	null	null
1987	null	null
1988	null	null
1989	null	null
1990	null	null
1991	null	null
1992	null	null
1993	null	null
1994	null	null
1995	null	null
1996	null	null
1997	null	null
1998	null	null
1999	null	null
2000	null	null
2001	null	17.887
2002	4.367	18.707
2003	4.553	19.477
2004	5.146	20.237
2005	6.167	20.947
2006	6.925	21.596
2007	8.556	22.426

Rename the merged dataset as IMF_GDP_Population

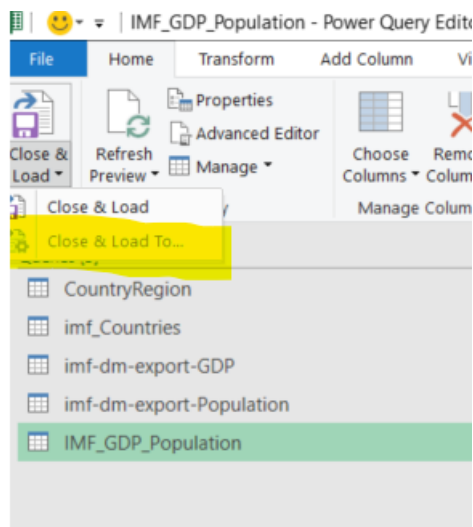
Queries [5]	Queries [5]
CountryRegion	CountryRegion
imf_Countries	imf_Countries
imf-dm-export-GDP	imf-dm-export-GDP
imf-dm-export-Population	imf-dm-export-Population
Merge1	IMF_GDP_Population

1. Some suggested analysis

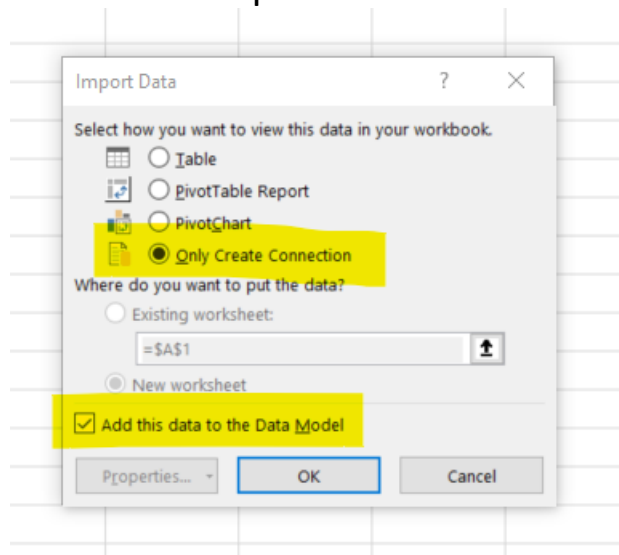
- a. What are the average GDPs and Populations for all countries?

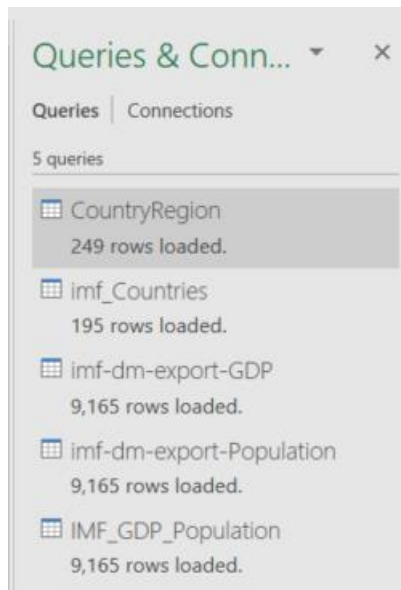
Best way of achieving this in Excel is with a Pivot Table

When leaving Power Query using the option



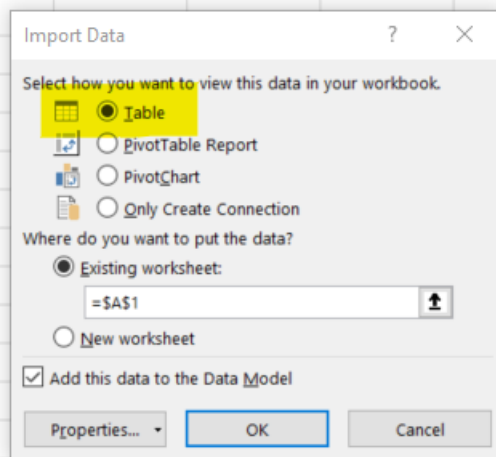
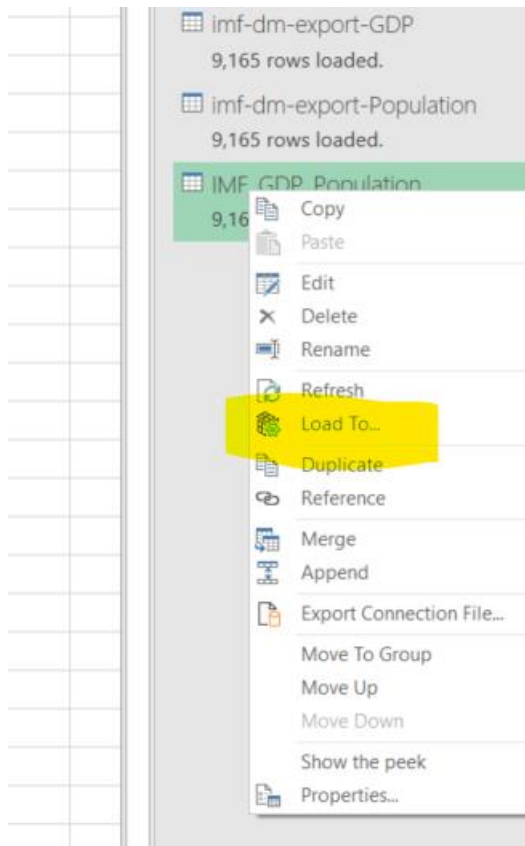
Select these options





By default you end up with worksheets for each of the datasets. We only need one data set to start with and that is the IMF_GDP_Population dataset

To create a Worksheet with that dataset as a table use the following option when right clicking on the relevant connection



	A	B	C	D
1	Country ▼	Year ▼	GDP ▼	Population ▼
2	Afghanistan	1980		
3	Afghanistan	1981		
4	Afghanistan	1982		
5	Afghanistan	1983		
6	Afghanistan	1984		
7	Afghanistan	1985		
8	Afghanistan	1986		
9	Afghanistan	1987		
10	Afghanistan	1988		
11	Afghanistan	1989		
12	Afghanistan	1990		
13	Afghanistan	1991		
14	Afghanistan	1992		
15	Afghanistan	1993		
16	Afghanistan	1994		
17	Afghanistan	1995		
18	Afghanistan	1996		
19	Afghanistan	1997		
20	Afghanistan	1998		
21	Afghanistan	1999		
22	Afghanistan	2000		
23	Armenia	1980		
24	Armenia	1981		
25	Armenia	1982		
26	Armenia	1983		
27	Armenia	1984		
28	Armenia	1985		
29	Armenia	1986		
30	Armenia	1987		
31	Armenia	1988		

9148	Samoa	1992	0.188
9149	Samoa	1993	0.193
9150	Samoa	1994	0.154
9151	Samoa	1995	0.236
9152	Samoa	1996	0.251
9153	Samoa	1997	0.273
9154	Somalia	2011	3.499
9155	Suriname	1980	1.192
9156	Suriname	1981	1.333
9157	Suriname	1982	1.372
9158	Suriname	1983	1.325
9159	Suriname	1984	1.296
9160	Suriname	1985	1.309
9161	Suriname	1986	1.336
9162	Suriname	1987	1.469
9163	Suriname	1988	1.741
9164	Suriname	1989	2.034
9165	Tuvalu	2000	0.014
9166	Tuvalu	2001	0.013
9167			

Using the table create a Pivot Table to summarise GDP and Population

The screenshot illustrates the process of creating a Pivot Table in Excel. The main window shows a Pivot Table with two columns: 'Average of GDP' and 'Average of Population'. The 'Value Field Settings' dialog box is open, showing the 'Source Name' as 'GDP' and the 'Custom Name' as 'Average of GDP'. The 'Summarize value field by' section is set to 'Average'. The 'Format Cells' dialog box is also open, showing the 'Number' category and the 'Currency' format. The 'Symbol' is set to '£' and the 'Decimal places' are set to 2. The 'Format Cells' dialog box also shows a list of currency symbols for various countries and regions, including '£' for the United Kingdom, '€' for the Eurozone, and '¥' for the Japanese Yen.

Value Field Settings

Source Name: GDP
Custom Name: Average of GDP

Summarize Values By: Show Values As

Summarize value field by

Choose the type of calculation that you want to use to summarize data from the selected field

Sum
Count
Average
Max
Min
Product

Format Cells

Number

Category: General, Number, Currency, Accounting, Date, Time, Percentage, Fraction, Scientific, Text, Special, Custom

Sample: Average of GDP

Decimal places: 2

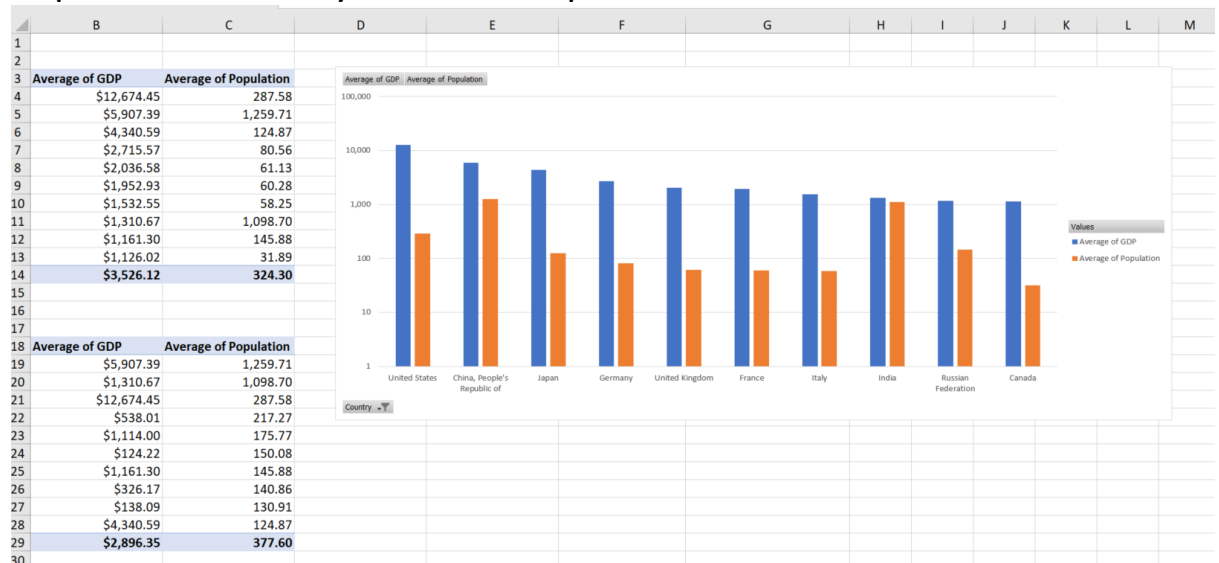
Symbol: £

Negative: None

Currency formats are used for general monetary data.

OK Cancel

Top 10 countries by GDP and Population

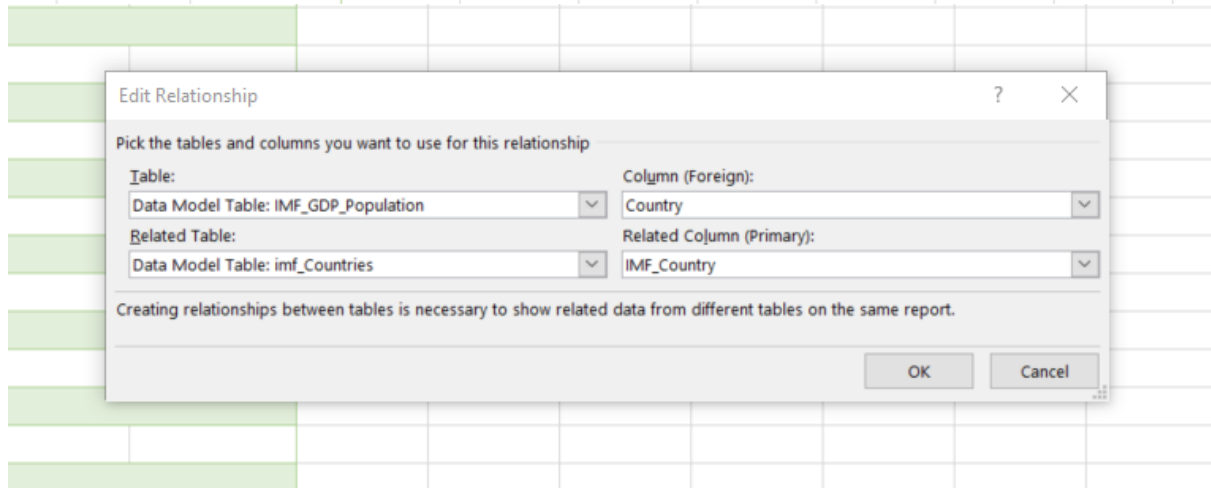
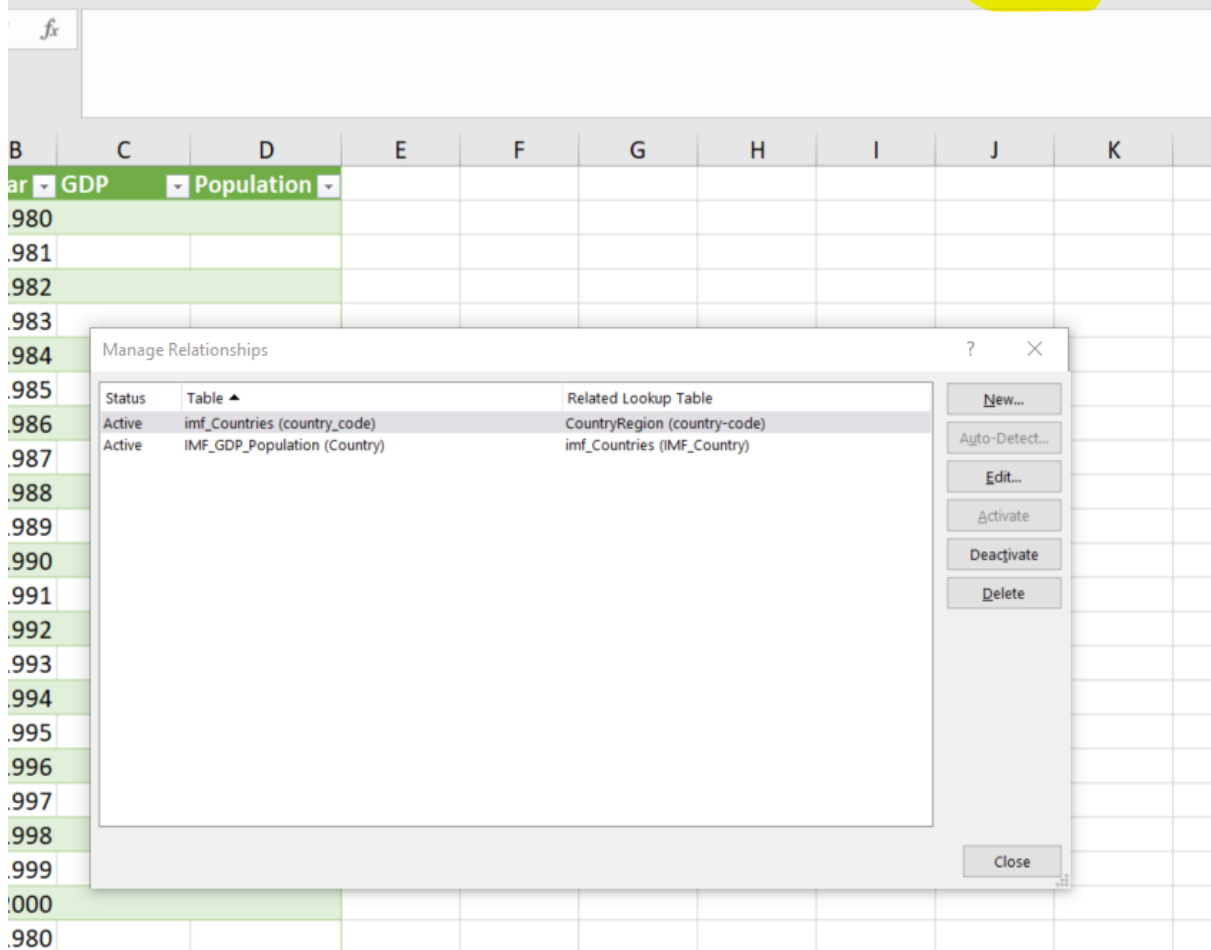
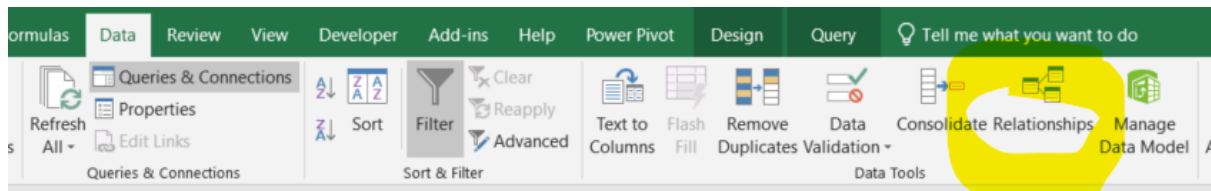


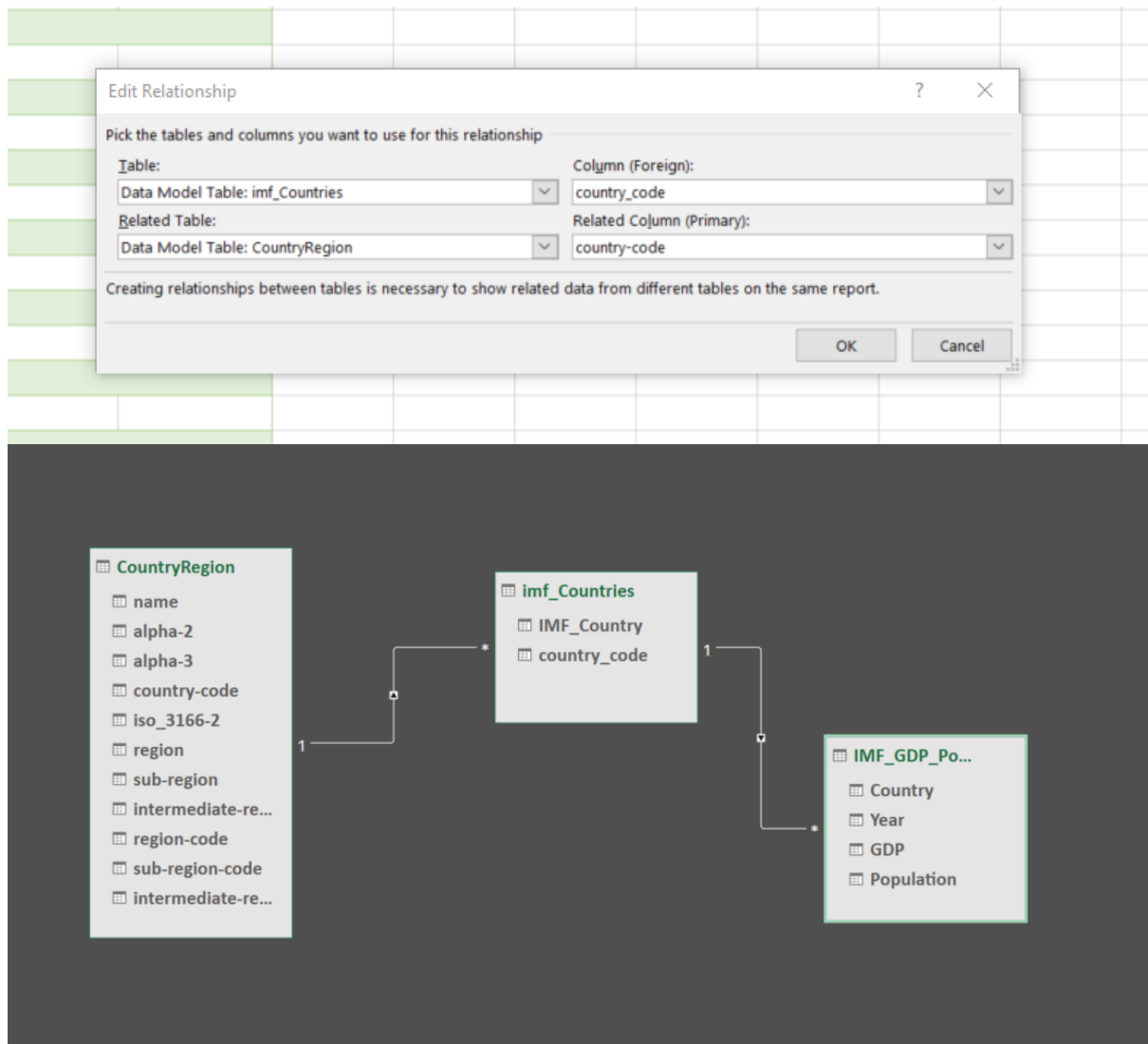
- As an enhancement link the Region and Sub Region to the country so summary statistics for GDP and Population can be shown for the region information.

To achieve this we need to link the CountryRegion dataset to the IMF_GDP_Population dataset. We can do this using Power Pivot and first set up the relationships in the Data tab where we link

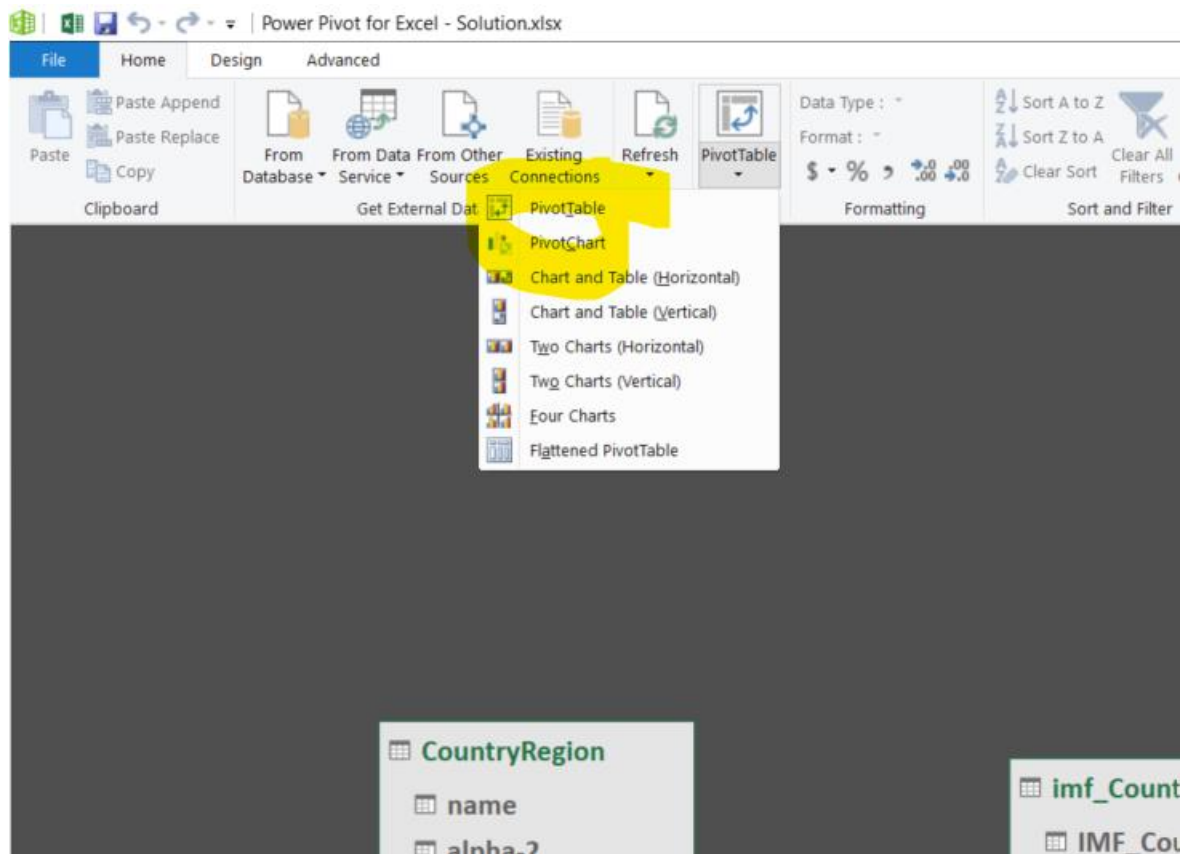
Country field in **IMF_GDP_Population** with **imf_Countries**
IMF_Country field

We then link the **imf_Countries** field **country_code** with **CountryRegion country-code** field (hyphen rather than underscore)





The resultant Pivot Table now has access to all the tables listed above.



The imf-dm_export_GDP and imf-dem-export-Population tables have been hidden from the client tools

23	Armenia	1980	no data
24	Armenia	1981	no data
25	Armenia	1982	no data
26	Armenia	1983	no data

CountryRegion	imf_Countries	imf-dm-export-GDP	imf-dm-export-Population	IMF_GDP_Population
---------------	---------------	--------------------------	--------------------------	--------------------

- Delete
- Rename
- Move
- Description...
- Unhide from Client Tools
- ☒ Show Calculation Area

PivotTable Fields

Active

All

Choose fields to add to report:

Search

CountryRe...

☐ alpha-2
 ☐ alpha-3
 ☐ country-...
 ☐ intermed...
 ☐ intermed...
 ☐ iso_3166...
 ☒ name
 ☒ region
 ☐ region-c...
 ☒ sub-reg...
 ☐ sub-regi...

imf_Countries

☒ IMF_GDP_P...
 ☐ Country
 ☒ GDP
 ☒ Populat...
 ☒ Year

IMF_GDP_Po...

☐ Country
 ☒ GDP
 ☒ Populat...
 ☒ Year

Drag fields between areas below:

Filters

Year

Rows

region

sub-region

name

Columns

Σ Values

Average of P...

Average of G...

Queries & Conn...

Queries

Connections

5 queries

CountryRegion

249 rows loaded.

imf_Countries

195 rows loaded.

imf-dm-export-GDP

9,165 rows loaded.

imf-dm-export-Population

9,165 rows loaded.

IMF_GDP_Population

9,165 rows loaded.

	A	B	C	D	E	F	G	H
		Year	All					
		region	sub-region	name	Average of Population	Average of GDP		
		Africa	Northern Africa		30.36	\$74.32		
			Sub-Saharan Africa		15.69	\$21.73		
		Americas	Latin America and the Caribbean		15.59	\$95.00		
			Northern America		159.74	\$6,900.23		
		Asia	Central Asia		12.73	\$39.49		
			Eastern Asia		230.68	\$1,794.93		
0			South-eastern Asia		51.56	\$155.68		
1			Southern Asia		176.02	\$235.75		
2			Western Asia		11.59	\$108.95		
3		Europe	Eastern Europe		29.57	\$215.84		
4			Northern Europe		10.30	\$371.29		
5			Southern Europe		12.49	\$263.22		
5			Western Europe		26.23	\$920.09		
7		Oceania	Australia and New Zealand		12.32	\$472.18		
8			Melanesia		1.85	\$4.15		
9			Micronesia		0.06	\$0.19		
0			Polynesia		0.10	\$0.30		
1		Grand Total			34.42	\$286.14		
2								
3								
4								
5								

We can now summarise based on Regions and Sub Regions