Chapter 7

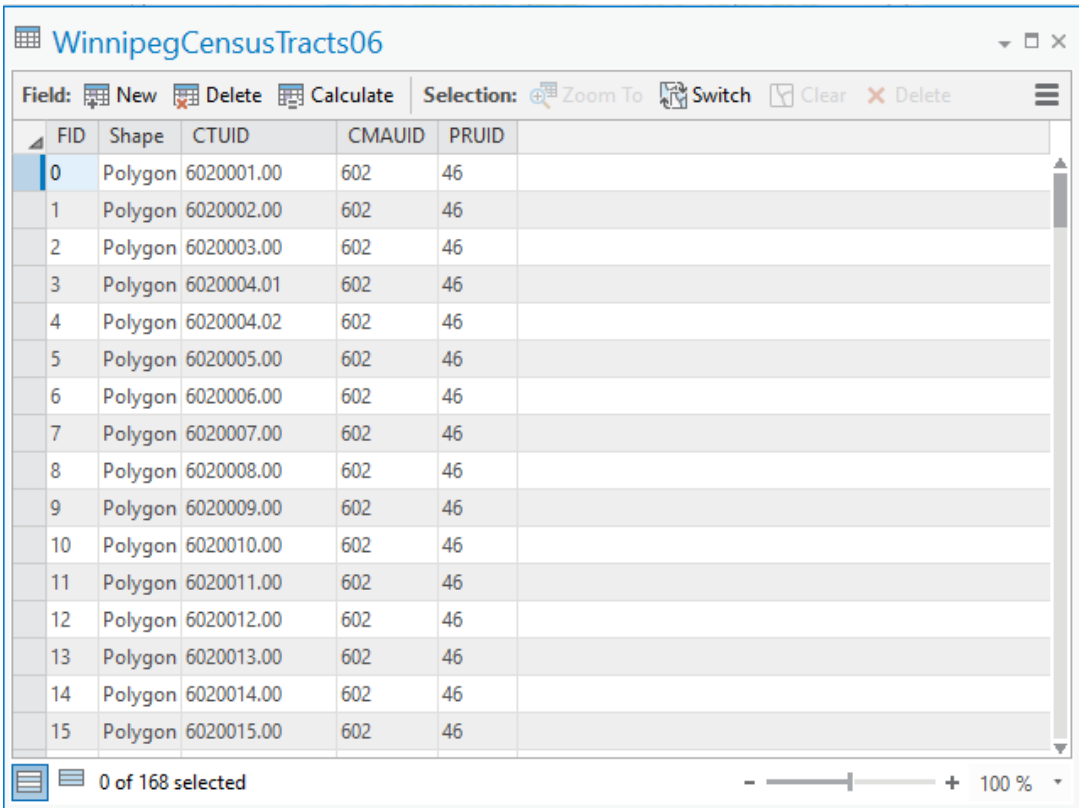
Joining Maps to Other Datasets in ArcGIS Pro

Skills you will learn: How to join a map layer to a non-map layer in preparation for analysis, based on a common joining field shared by the two tables.

If you are unfamiliar with the basic functionality of ArcGIS Pro, such as how to add map layers and other data tables to the map document, please review the tutorial **A Quick Tour of ArcGIS Desktop**.

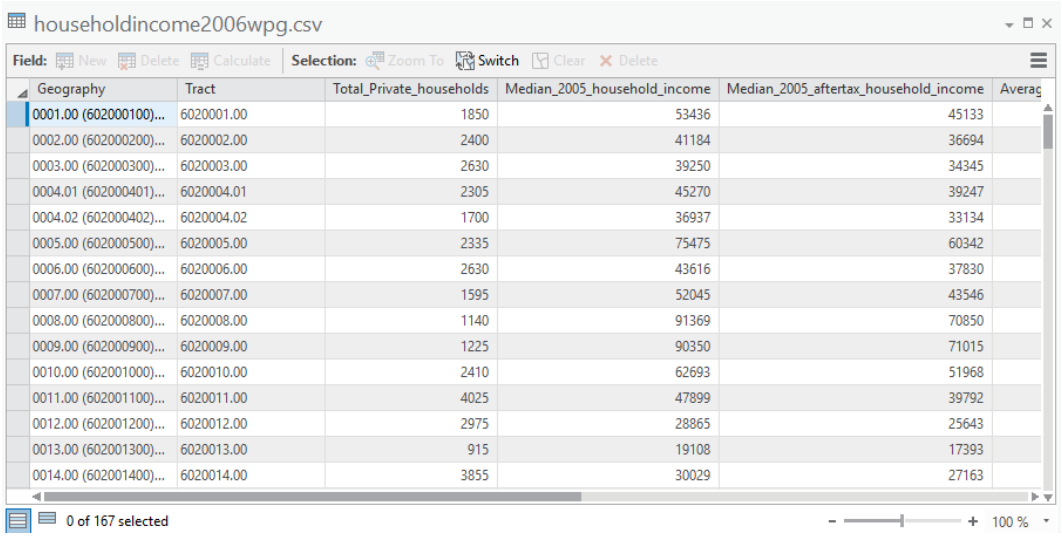
Getting started

Add the map layer and the non-geographic layer to your ArcGIS project map. For the purposes of this illustration, we are using a shapefile of census tracts in Winnipeg, Manitoba, Canada and a dataset of median household income from the census. This is what the attribute table looks like for the map layer.



FID	Shape	CTUID	CMAUID	PRUID
0	Polygon	6020001.00	602	46
1	Polygon	6020002.00	602	46
2	Polygon	6020003.00	602	46
3	Polygon	6020004.01	602	46
4	Polygon	6020004.02	602	46
5	Polygon	6020005.00	602	46
6	Polygon	6020006.00	602	46
7	Polygon	6020007.00	602	46
8	Polygon	6020008.00	602	46
9	Polygon	6020009.00	602	46
10	Polygon	6020010.00	602	46
11	Polygon	6020011.00	602	46
12	Polygon	6020012.00	602	46
13	Polygon	6020013.00	602	46
14	Polygon	6020014.00	602	46
15	Polygon	6020015.00	602	46

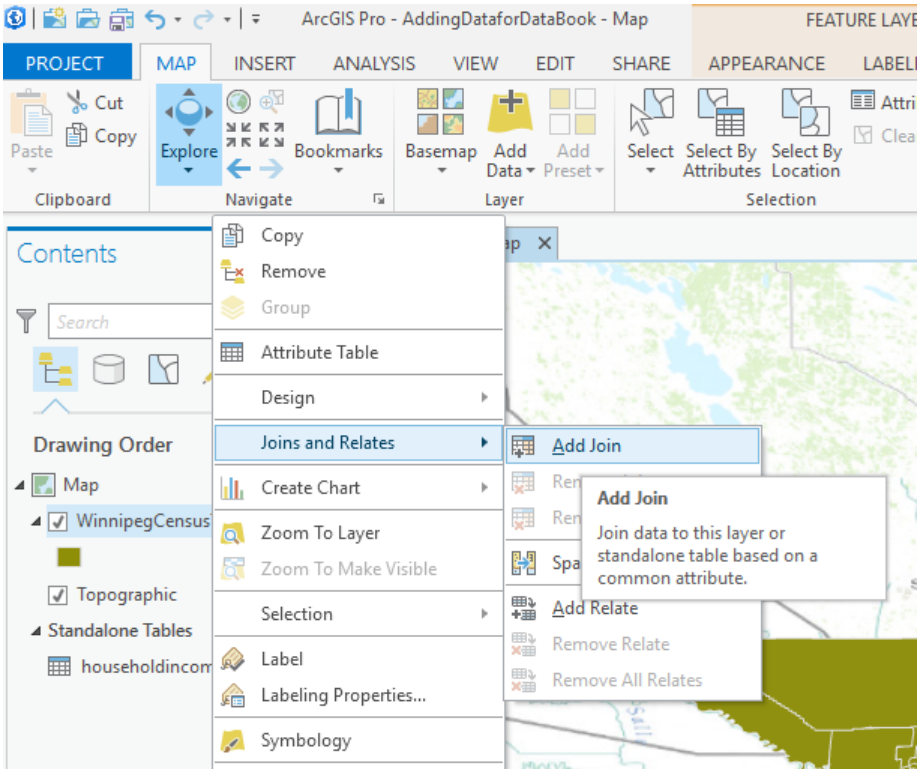
And this is the data table:



Geography	Tract	Total_Private_households	Median_2005_household_income	Median_2005_aftertax_household_income	Averag
0001.00 (602000100)...	6020001.00	1850	53436	45133	
0002.00 (602000200)...	6020002.00	2400	41184	36694	
0003.00 (602000300)...	6020003.00	2630	39250	34345	
0004.01 (602000401)...	6020004.01	2305	45270	39247	
0004.02 (602000402)...	6020004.02	1700	36937	33134	
0005.00 (602000500)...	6020005.00	2335	75475	60342	
0006.00 (602000600)...	6020006.00	2630	43616	37830	
0007.00 (602000700)...	6020007.00	1595	52045	43546	
0008.00 (602000800)...	6020008.00	1140	91369	70850	
0009.00 (602000900)...	6020009.00	1225	90350	71015	
0010.00 (602001000)...	6020010.00	2410	62693	51968	
0011.00 (602001100)...	6020011.00	4025	47899	39792	
0012.00 (602001200)...	6020012.00	2975	28865	25643	
0013.00 (602001300)...	6020013.00	915	19108	17393	
0014.00 (602001400)...	6020014.00	3855	30029	27163	

Making the join

Right click on the name of the map layer in the table of contents, and from the menu that appears choose Joins and Relates>Add Join.

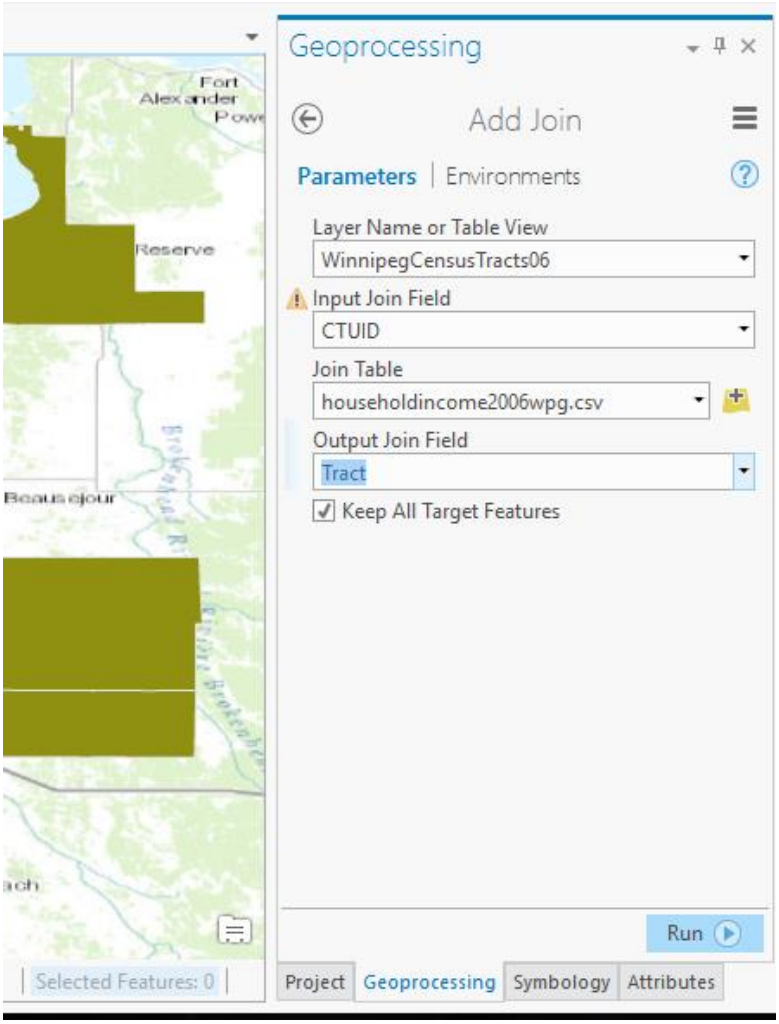


In the join dialogue that opens, choose an Input Join Field, which is the field in the map layer that will be used to join to the data table. Just as in a join in a relational database, this must contain data identical to the matching rows in the data table. In this case, the join field is the census tract ID number, or CTUID.

Next, choose the data table to join to, if there is more than one.

Third, pick the field in the data table to be used to join to the map table, the Output Join Field. Again, the data has to be identical to that in the matching fields in the map layer table.

To see all features on the map, even if there is no matching record in the data table, make sure Keep All Target Features is checked.



To add the join, click Run. If your join is successful, ArcGIS Pro will indicate this at the bottom of the pane.

Once the join is completed, data from the data table will be added to the attribute table for the map layer, and can be used to perform further analysis. You can see this by opening the layer's attribute table:

WinnipegCensusTracts06

Field: New Delete Calculate | Selection: Zoom To Switch Clear Delete

WinnipegCensusTracts06.FID	WinnipegCensusTracts06.Shape	WinnipegCensusTracts06.CTUID	WinnipegCensusTracts06.CMAUID	WinnipegCensusTracts06.PRUID	Geography	Tract	Total_Private_households
0	Polygon	6020001.00	602	46	0001.00 (602000100)...	6020001.00	1850
1	Polygon	6020002.00	602	46	0002.00 (602000200)...	6020002.00	2400
2	Polygon	6020003.00	602	46	0003.00 (602000300)...	6020003.00	2630
3	Polygon	6020004.01	602	46	0004.01 (602000401)...	6020004.01	2305
4	Polygon	6020004.02	602	46	0004.02 (602000402)...	6020004.02	1700
5	Polygon	6020005.00	602	46	0005.00 (602000500)...	6020005.00	2335
6	Polygon	6020006.00	602	46	0006.00 (602000600)...	6020006.00	2630
7	Polygon	6020007.00	602	46	0007.00 (602000700)...	6020007.00	1595
8	Polygon	6020008.00	602	46	0008.00 (602000800)...	6020008.00	1140
9	Polygon	6020009.00	602	46	0009.00 (602000900)...	6020009.00	1225
10	Polygon	6020010.00	602	46	0010.00 (602001000)...	6020010.00	2410
11	Polygon	6020011.00	602	46	0011.00 (602001100)...	6020011.00	4025
12	Polygon	6020012.00	602	46	0012.00 (602001200)...	6020012.00	2975
13	Polygon	6020013.00	602	46	0013.00 (602001300)...	6020013.00	915
14	Polygon	6020014.00	602	46	0014.00 (602001400)...	6020014.00	3855
15	Polygon	6020015.00	602	46	0015.00 (602001500)...	6020015.00	3395
16	Polygon	6020016.00	602	46	0016.00 (602001600)...	6020016.00	1070
17	Polygon	6020017.00	602	46	0017.00 (602001700)...	6020017.00	1450
18	Polygon	6020018.00	602	46	0018.00 (602001800)...	6020018.00	1260
19	Polygon	6020019.00	602	46	0019.00 (602001900)...	6020019.00	1265
20	Polygon	6020020.00	602	46	0020.00 (602002000)...	6020020.00	1020
21	Polygon	6020021.00	602	46	0021.00 (602002100)...	6020021.00	2350
22	Polygon	6020022.00	602	46	0022.00 (602002200)...	6020022.00	1845
23	Polygon	6020023.00	602	46	0023.00 (602002300)...	6020023.00	2665
24	Polygon	6020024.00	602	46	0024.00 (602002400)...	6020024.00	200
25	Polygon	6020025.00	602	46	0025.00 (602002500)...	6020025.00	1115
26	Polygon	6020026.00	602	46	0026.00 (602002600)...	6020026.00	725

If you would like to create a new map layer that permanently includes the new data, use the Join Field tool. You can also export the map layer to a new shapefile or feature class in a file geodatabase.

Relates

You can also create what is called a relate, which is similar to a join but the data from the data table is not added to the map layer. This feature is not typically used in journalistic workflows.