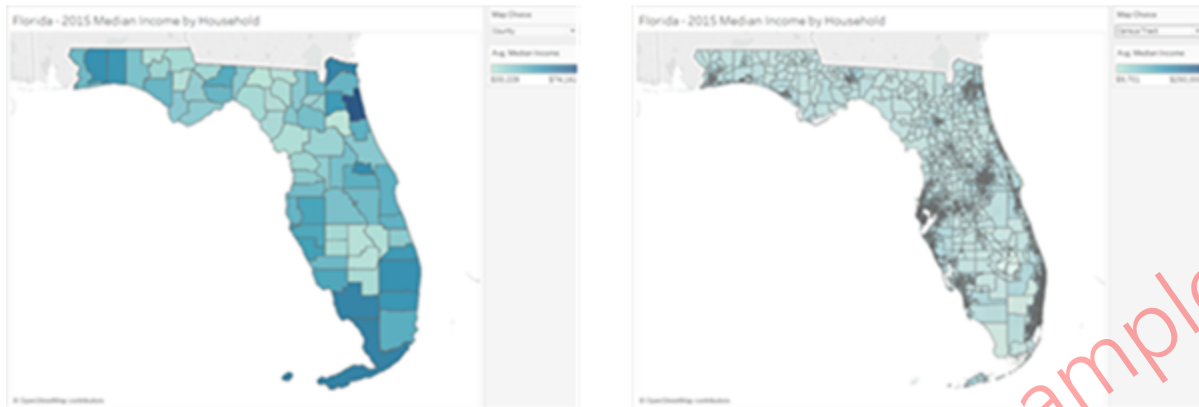
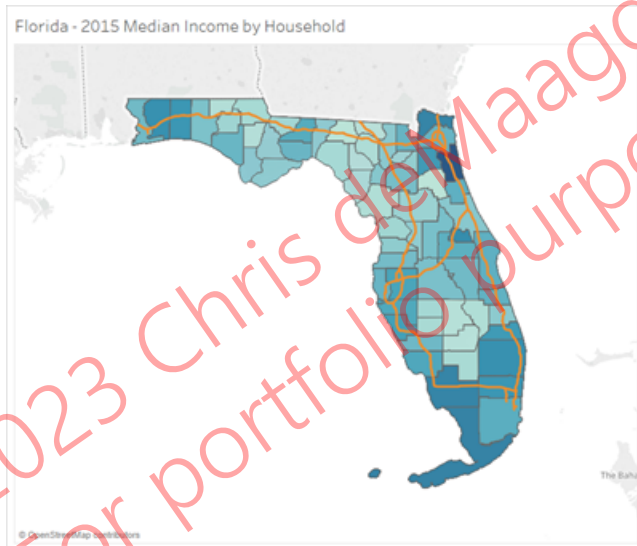


makes it easy to compare geographic data and can potentially lead to insights not easily obtained without seeing the data on a map.



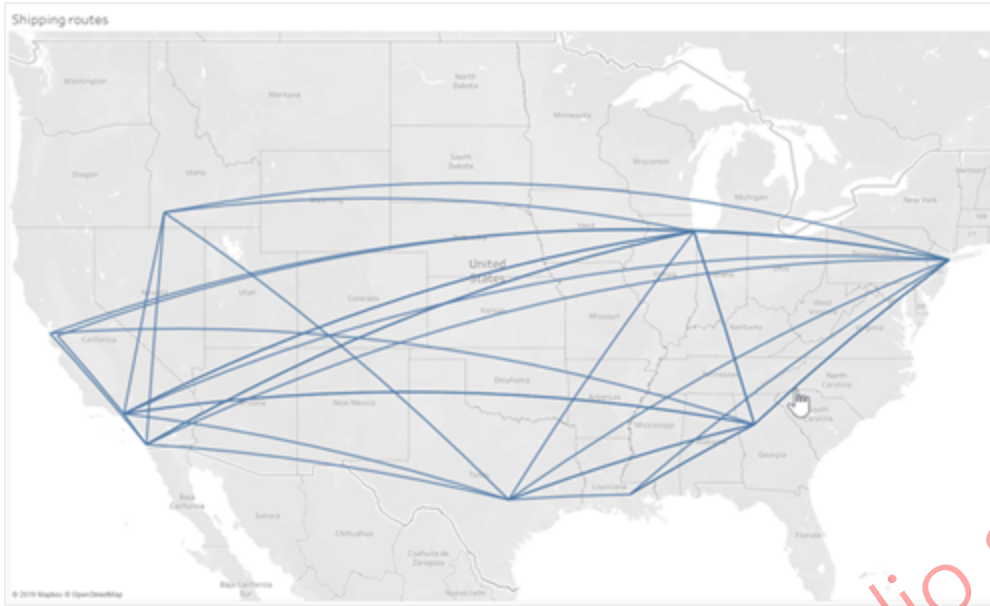
Another approach to joining multiple spatial data files that share a geography is to use them to create a dual-axis map. This type of map enables you to create more than one layer of your data on the map. Most importantly, if your spatial data files do not share the same type of geometry (for example, one uses polygons and the other uses lines), you will need to create a dual-axis map in order to see both geometries on the same map.



### Spatial Functions: MakePoint and MakeLine

If you have a non-spatial data source that has latitude and longitude coordinates (such as an Excel sheet or text file), you can join the non-spatial data to a spatial data source using a join calculation and the **MAKEPOINT** function. You can also use the **MAKELINE** function to add lines connecting points on a map.

You can use MakePoint and MakeLine together to create origin-destination maps, which are useful for showing where events such as commuting trips, airline flights or delivery routes begin and end. For example, here is a map of flight paths between US cities:



In the non-spatial data source, make sure that the origin and destination points you want to use in the map are lined up on the same row. For example, consider an origin-destination map that shows distances from your home to nearby businesses. The coordinates in the data source should be arranged in a way similar to this:

Home location	Business location	Home latitude	Home longitude	Business latitude	Business longitude
My home	Café (C)	Latitude for Home	Longitude for Home	Latitude for C	Longitude for C
My home	Grocery store (GS)	Latitude for Home	Longitude for Home	Latitude for GS	Longitude for GS
My home	Gym (G)	Latitude for Home	Longitude for Home	Latitude for G	Longitude for G
My home	Diner (D)	Latitude for Home	Longitude for Home	Latitude for D	Longitude for D

To create lines between the "Home location" latitude and longitude and the respective "Business location" latitudes and longitudes, you could use the following calculated field:

```
MAKELINE(MAKEPOINT([Home latitude],[Home longitude]),MAKEPOINT([Business latitude],[Business longitude]))
```

Then, double-click the new field to add it to your view.