

NICAR Advanced Hands-On: Unemployment Correlations with Tableau Public

About this data: This dataset is about US monthly unemployment from the recession since Nov. 2008 until Sept. 2012. We can view trends across regions and also see how individual states compared. There might be some surprises, but we want to allow for a lot of interactivity for our readers.

Before we begin...:

Let's build something cool. Unemployment is a big deal in the US. What are some things do you think correlate with unemployment (not cause, or are directly linked, just correlate)?

1. Drag 'Unemployment Correlations.twbx' onto Tableau Public.
2. Drag 'Current Unemployment Rate' to Rows. Drag another metric (Urban Population) to Columns.
3. Notice Tableau is summing everything. Let's disaggregate, by State. Drag State to 'Level of Detail.'
4. Right-click and choose 'Trend Line'. Seems there's a correlation. Let's swap between some other ideas. Try 'Advance degree or more', 'Rural' Population', or 'Voted for Obama.'

Analyzing our Data / connect to data, knowing how it is shaped

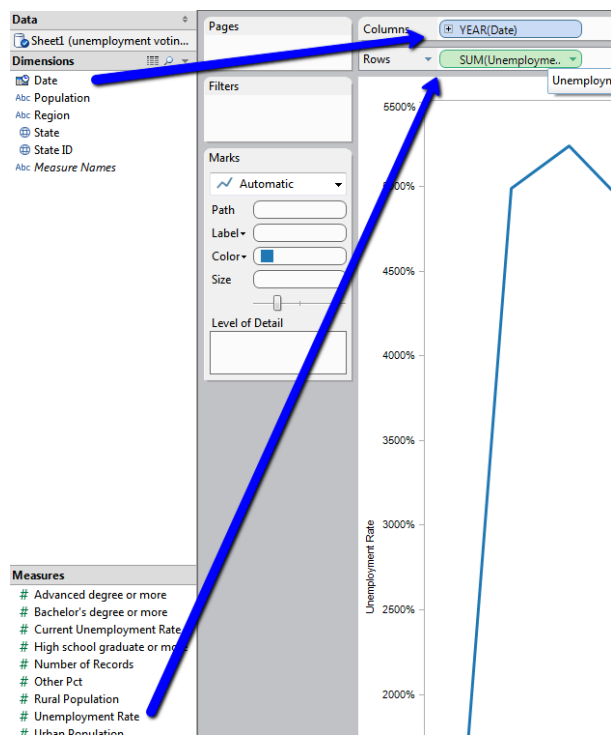
1. Before we connect to our data set, let's take a look at it. This is important because understanding how you're data is shaped will help you know how to work with it.
2. Main points here: each row is a state, month and year with unemployment statistics.
3. Notice that there is a column for "Current Unemployment Rate" and "US Employment Rate". There is one slightly problematic thing to note here, anyone know what it is? It will be duplicated, because each state will appear more than once (for current rate) and US Employment Rate will appear 50 times (because there are 50 states). There are easy ways to deal with this, we just need to know it's there.

Pop	US Unemployment Rate	Unemployment Rate
599	0.068	
313	0.068	
665	0.068	
402	0.068	
327	0.068	
742	0.068	
044	0.068	
792	0.068	
015	0.068	
244	0.068	
849	0.068	
457	0.068	
389	0.068	
603	0.068	
197	0.068	
866	0.068	
866	0.068	
787	0.068	

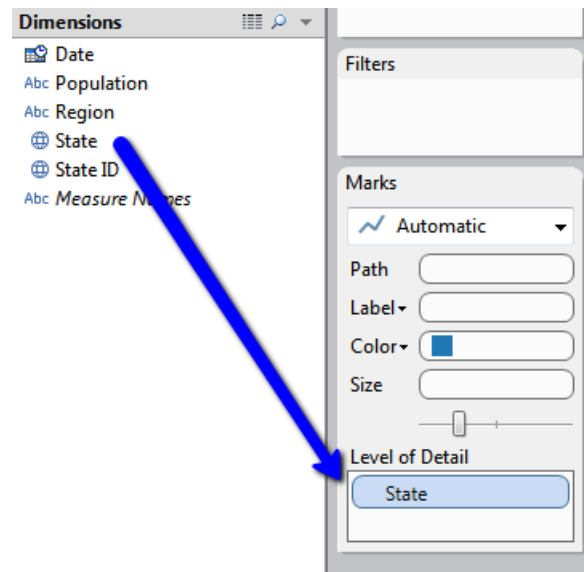
- Let's go ahead and connect. Tell Tableau to open the Excel file.

Unemployment trends / table calculations, dual axes

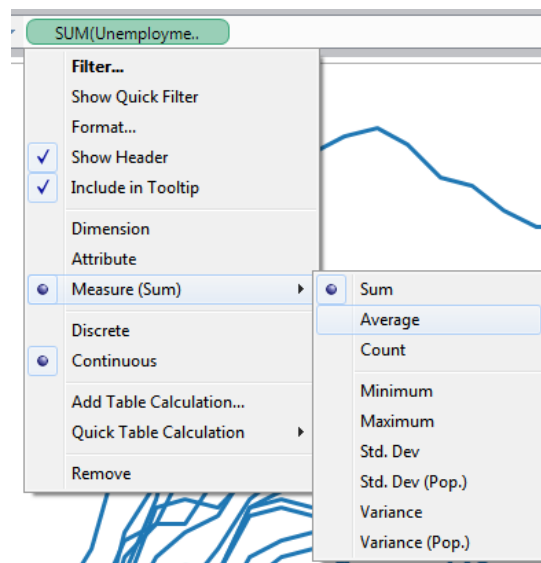
- Let's see some time trends. Put Date on Columns, Unemployment Rate onto Rows. Remember, Tableau will default to sum and aggregate the data for all of our different states.



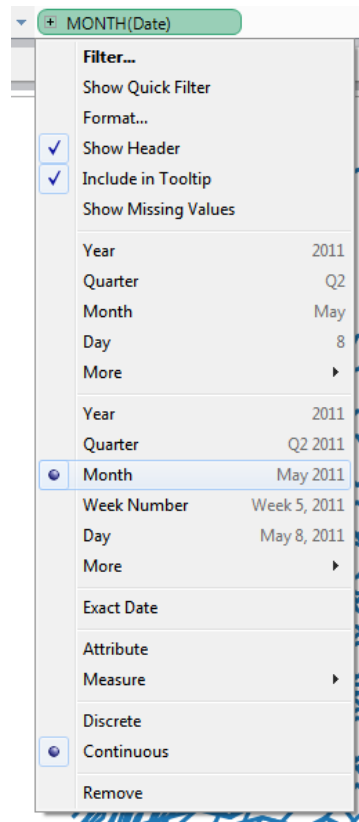
2. Drag 'State' to 'Level of Detail.' Putting any dimension onto the 'Marks' shelf will cause it to disaggregate by that dimension. If you put it on Level of Detail, it will split it, and do nothing else. Put it on color and see what happens. Size. Put it back to Level of Detail.



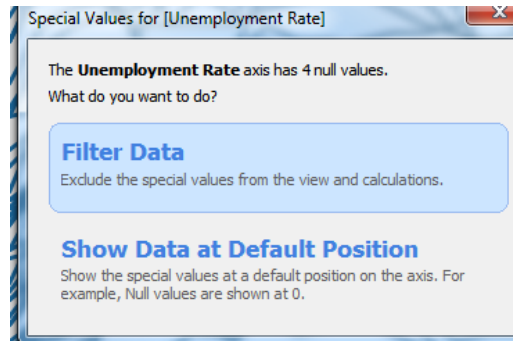
3. Right-click 'Unemployment Rate' in the data window. Select Field Properties and Number Format. Change it to Percentage.
4. Let's change 'Sum(Unemployment Rate)' to Average, because summing for each year doesn't make sense as there are multiple months.



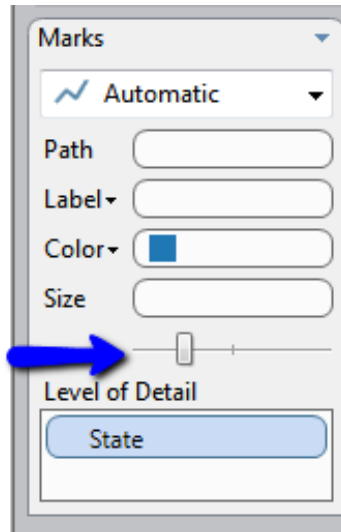
5. Let's provide more granularity. If you remember our data (pull up the View Data window), we go down to month. So let's do that. Select Month / Year.



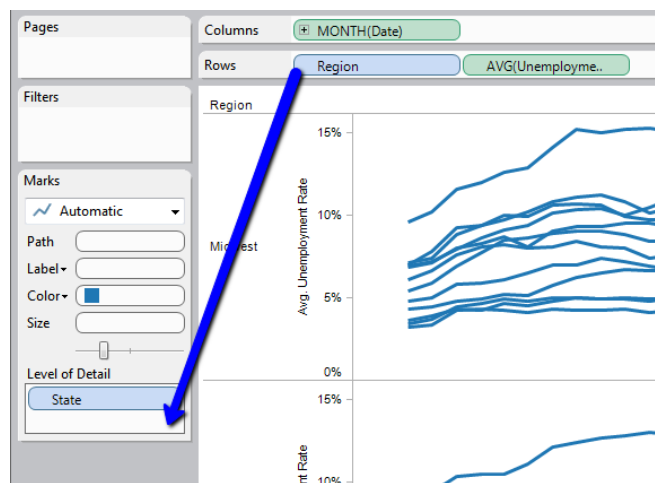
6. Click on the 4 nulls in the lower right. Filter the data out. They don't exist in our data set.



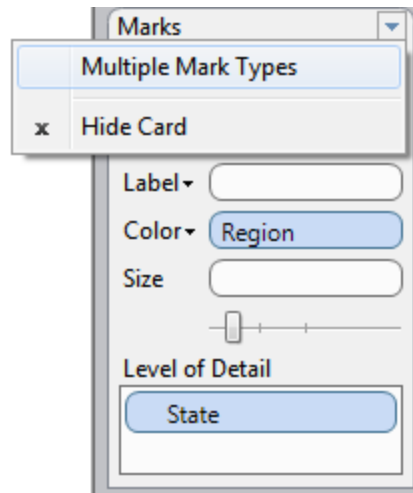
7. Let's see if we can find any trends. Let's drag Region to Rows. What do you notice? It might be worth making the width smaller (resize the window on the right).
8. Make the lines smaller.



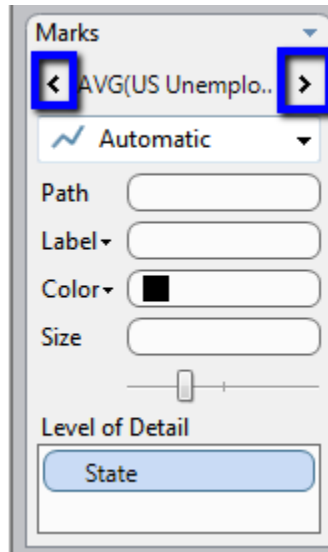
9. Let's put everything on to one graph so we can compare them all. Move Region from Rows to 'Color' on the Marks shelf. Change some of the colors by opening the color legend.



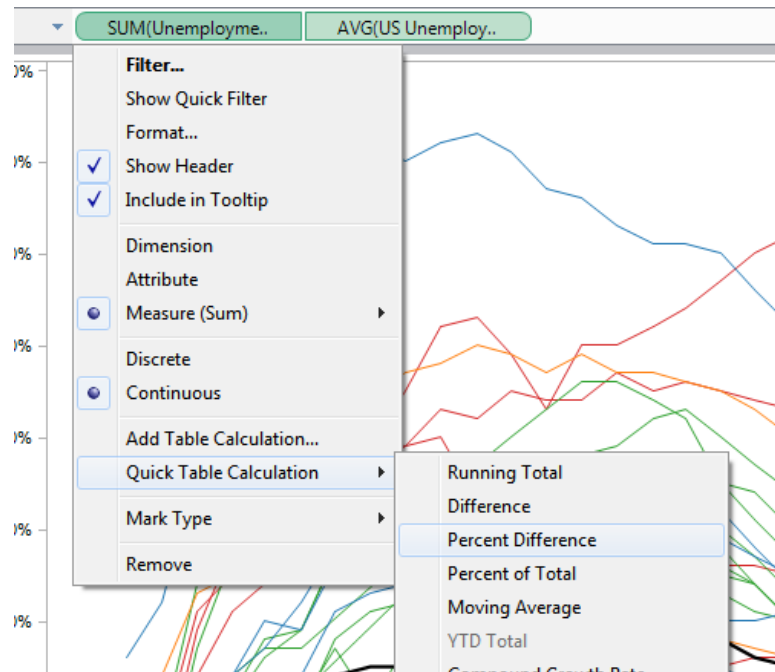
10. Let's compare this to the US average. We do have this, it's 'US Unemployment Rate.' Drag it out to Rows. Change it to Average—we're not interested in summing.
11. Select the drop down for US Unemployment Rate, and choose dual axis. Right-click the axis, and choose to synchronize. (You can even right-click and uncheck 'Show Header')
12. Click the drop down for Marks. Choose Multiple Mark types. This lets us specify different things for each mark (Unemployment, and US Unemployment).



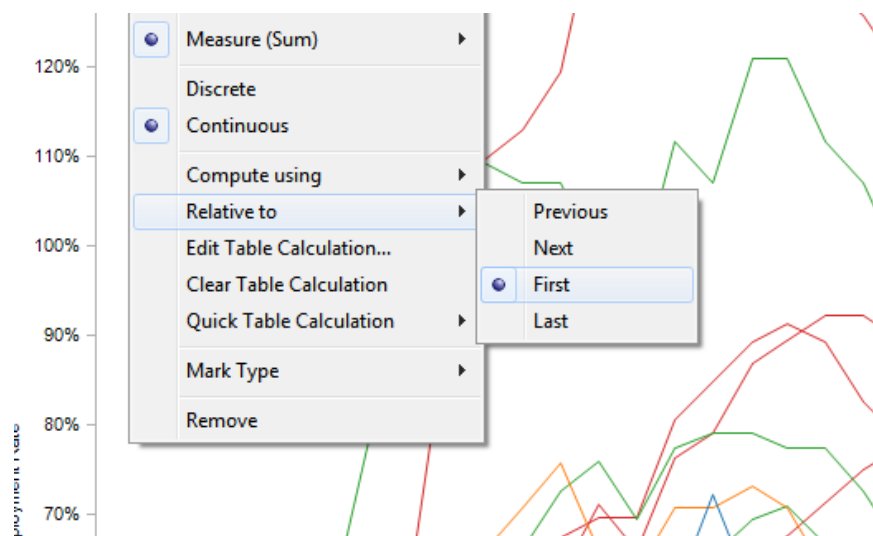
13. Scroll through the Marks arrows until you get to US Unemployment Rate. Remove Region from color, make the line thicker and make it a different color. Also, remove State from level of detail.



14. This is one way to make the view. You can see overall trends, but as a reader, maybe I want to know how things changed from their original starting point. Let's use table calculations. On the drop-down of 'Unemployment Rate', choose Quick Table Calc, and Percent Difference. This will tell us how things have changed over time.



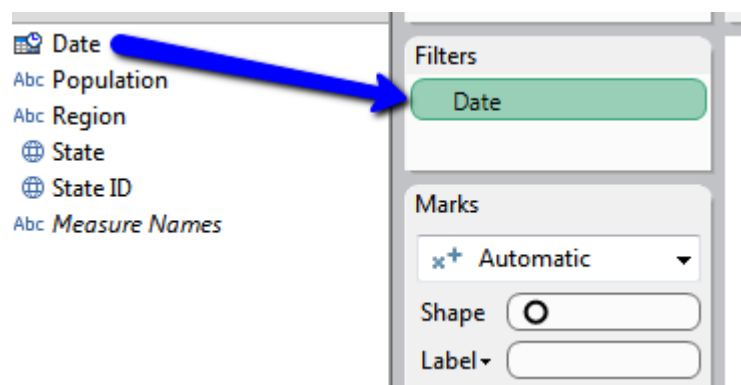
15. Well, this looks crazy. Click on the drop-down again, and go to 'Relative to'. Notice that by default it says 'Previous'. That could be useful, but maybe not here. Let's go with 'First,' which is the first data point we have. Now we've normalized all the states together.



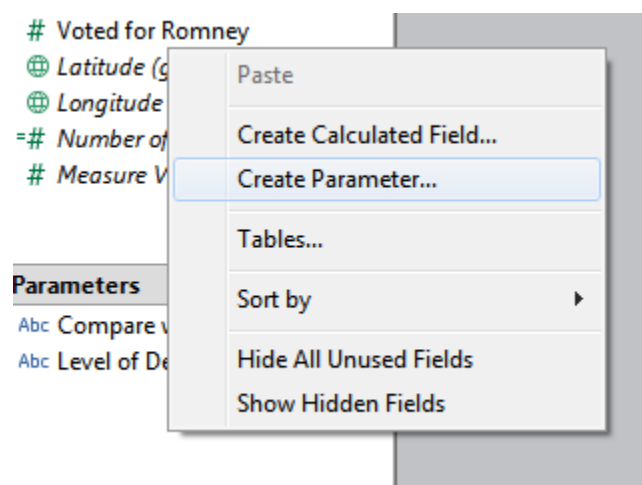
16. Do the same for the US Unemployment too. Unemployment is up for all states, except four—and interestingly all in our Midwestern region.
17. There are lots of other table calculations you can use, including moving averages, percent of totals, and tons more which you can access in the calculated field editor. Try a few of them out to see how they work.

Building for the audience / understanding data, parameters

1. Let's work on rebuilding that original view we start off with, the cool one. Drag 'Urban Population' to Columns and 'Current Unemployment Rate' to Rows. Also, 'State' to Level of Detail. Drop a trend line. This isn't quite the view we had earlier. The numbers are way too big. Why? It's our data (view data). We're duplicating our records. First, is see how each number is identical, they're just copies of each other. It's really a description—we don't want to sum or aggregate the numbers in this case. Let's solve this by adding a date filter (Sept. 2012) so we're only looking at one row of data—in fact this is how I prebuilt the workbook when we started if you noticed.



2. Drag Region to color.
3. Now, readers might want to do what we did, which was try lots of different measures. They can't do that on the web (yet), but we can build that for them, using parameters. Create a parameter (right-click blank space, choose Create Parameter).



4. Call it 'Compare With'. Data Type is String. Make it a List. Input as many options as you want. I'm going to create 4 (the 4 below).

Edit Parameter Compare with

Name: Compare with Comment >>

Properties

Data type: String

Current value: Voted for Obama

Display format:

Allowable values: ☐ All ☒ List ☐ Range

List of values

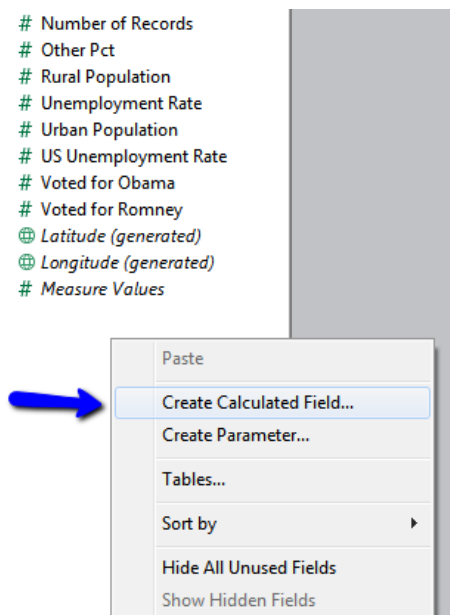
Value	Display As
Urban Population	Urban Population
Voted for Obama	Voted for Obama
High school graduate or more	High school graduate or more
Bachelor's degree or more	Bachelor's degree or more
Add	

Add from Parameter Add from Field Paste from Clipboard

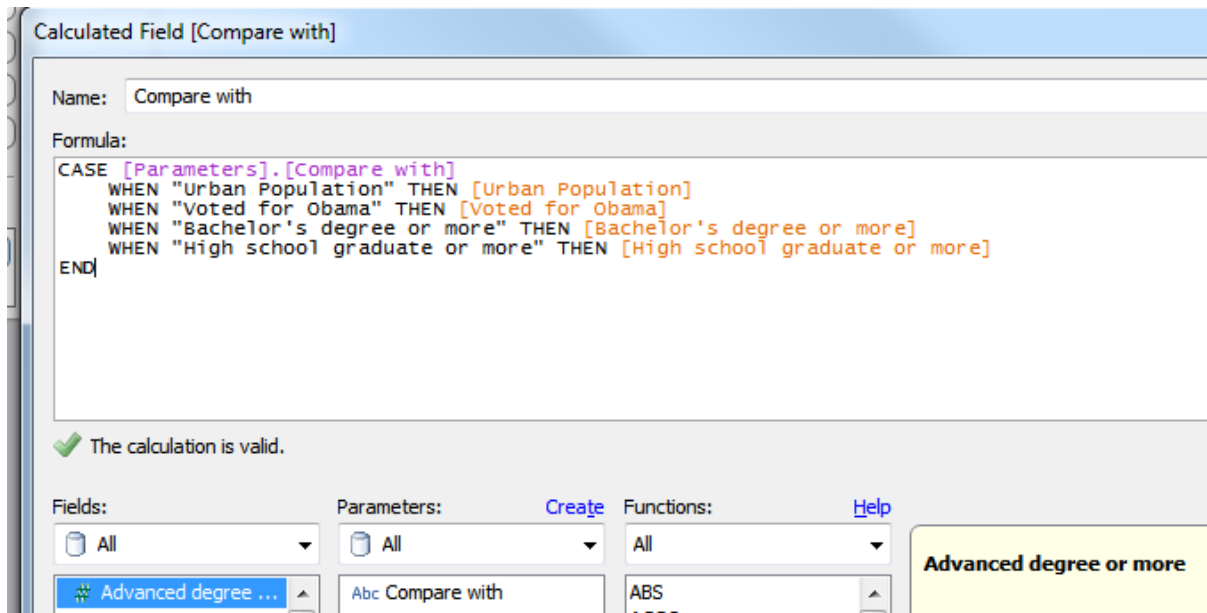
Clear All

OK Cancel

- Right-click 'Compare With' in the parameters pane, and select Show. Flip through it. It doesn't do anything. We haven't assigned it a field to control.
- Right-click, and choose Create Calculated Field



- Name it 'Compare With'. Type in this text:

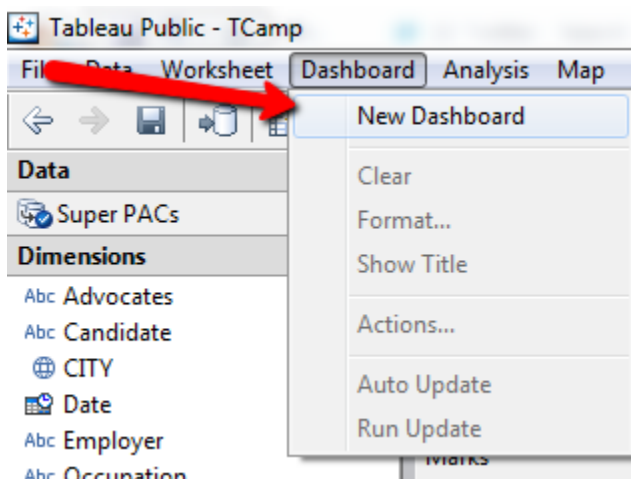


If you haven't seen code before, essentially we're tying the parameter to a field and saying that WHEN the parameter is a certain value, set this new field to a certain value as well. The brackets denote a data field in our data set. The quoted fields match the names of our parameter.

8. Now, replace 'Urban Population' with 'Compare With'. Now, try swapping between different fields with the parameter. You can add or remove as many fields as you want. You can also use the same calculated field on as many charts as you want, and the parameter will control them all at the same time.

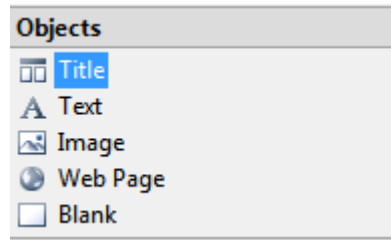
Building a beautiful view / dashboards

1. Let's put it together. Create a New Dashboard.

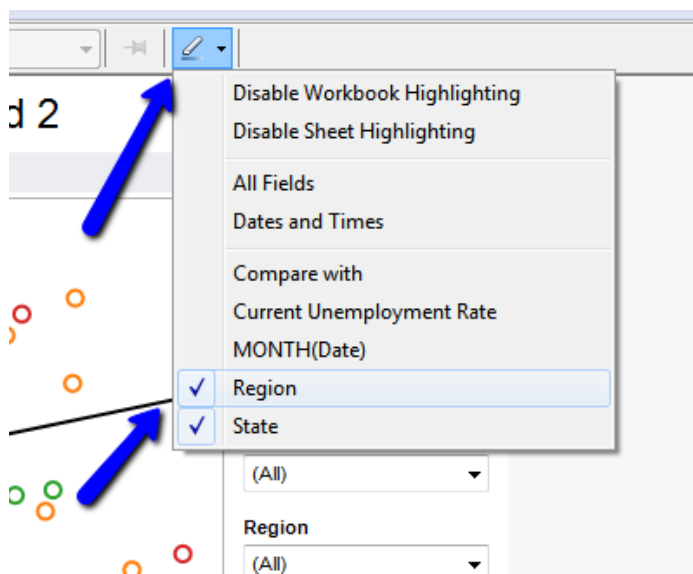


2. Put the Scatter Plot and the Time Series on it.

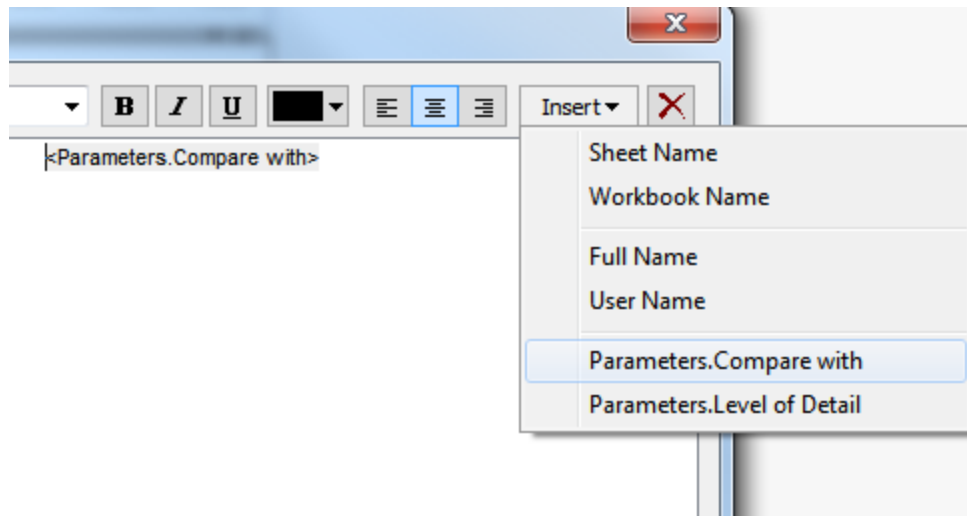
- Let's add a title. Double-click 'Title' in the lower-left corner. There are also other objects you can add to the dashboard here.



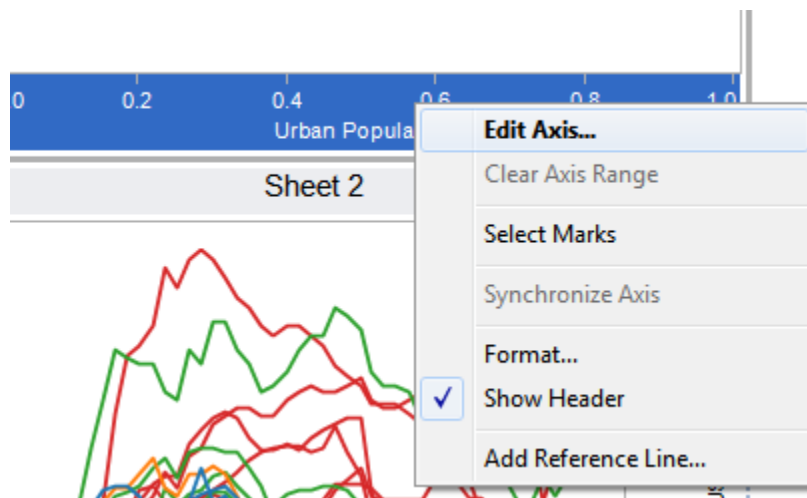
- Let's add some highlighting. This way when someone clicks on a dot it will highlight the same data point in another sheet.



- Now, the name 'Compare with parameter' isn't too exciting. After all, I have to go back to 'Compare With' to see what I selected. Unfortunately the axis isn't dynamic, but we can work around it. Add a text box below. Insert the parameter name.



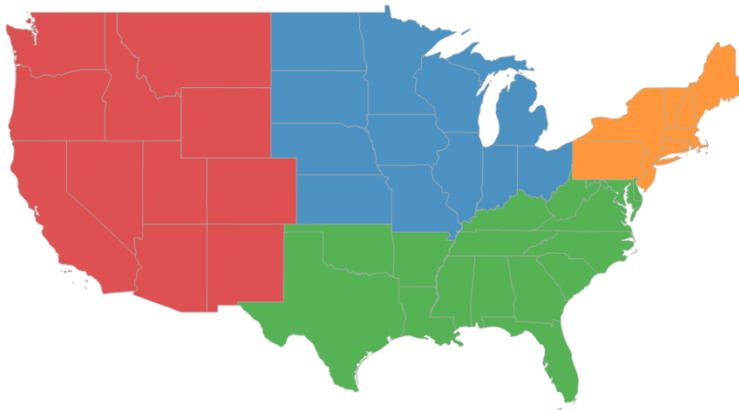
6. Now, get rid of the Axis text.



7. This is great, but let's think about how people will use this visualization. This is important: think of your audience. There's no simple way to know which dot or line is which state. How can I find mine? Let's create an easy way to do this.

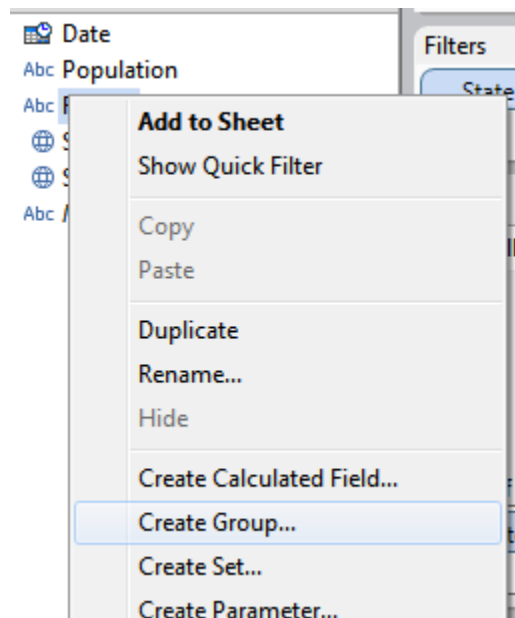
Creating a guided experience / sheets as filters

1. Create a New Sheet
2. Double-click 'State'
3. Exclude Alaska and Hawaii.
4. Uncheck all the map options.
5. Drag 'Region' to color.



What's the benefit of this? The great thing about maps is you immediately know what region is which, what state is what. Now, when we add this sheet to the dashboard, it can act as a filter. Someone can click on their own state and see information.

6. As a side note, if you don't agree with these region definitions, or want to add more, you can. Right-click Region in the data window and select 'Group.'

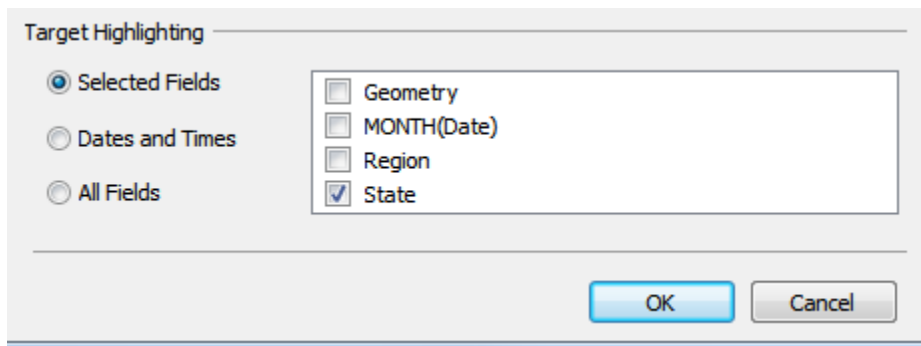


Define your groups, and drag this new field to the Color shelf.

Putting it all together / the finishing touches

1. Add this sheet to the dashboard. Go to Dashboard > Actions.

2. Choose to do a highlight. The source sheets are the ones that will trigger the highlight. The target sheets are the ones that will be highlighted (or affected by the action). Make sure the filter is set to “State”

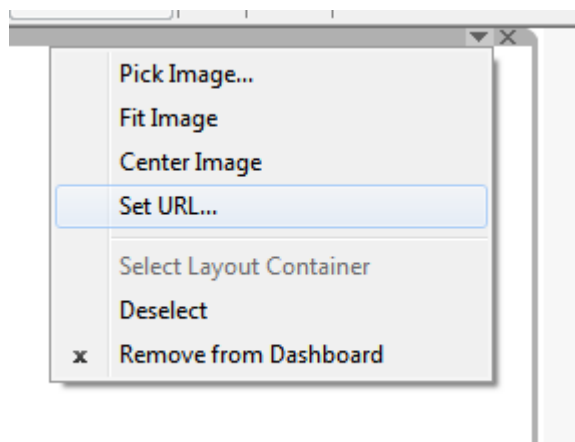


You can also do filter and URL actions (the URL will go to a certain web page once you click on a mark).

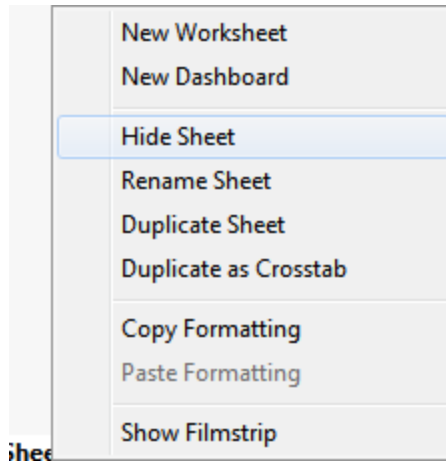
3. It's also important now to add some call to actions. Change the titles so they include what to do and the expected behavior.

Source your Data / dashboard tabs, images, URL actions

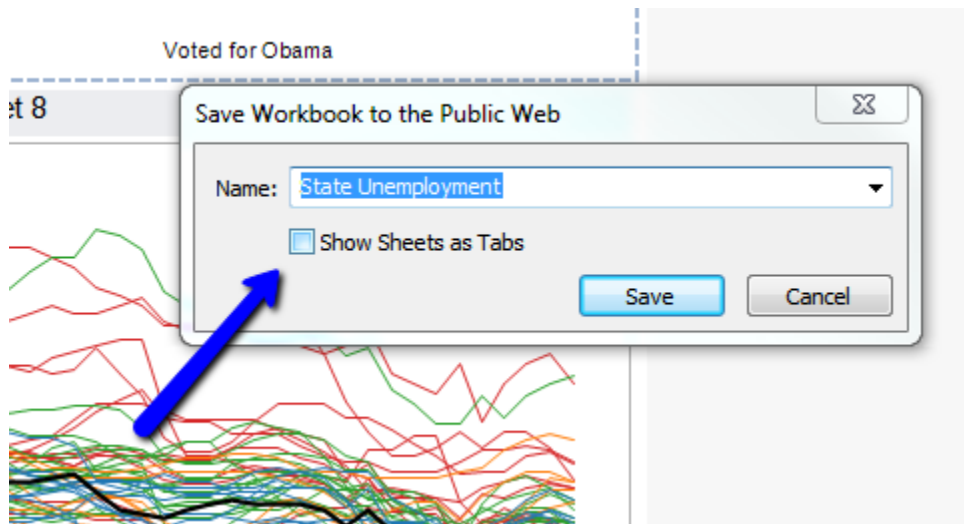
1. Create a new dashboard.
2. Make sure it's the same size as your previous dashboard. Add some text here.
3. You can also add images. Drag out the image object and select our BLS image.
4. Click on the drop-down in the upper right to set a URL for it.



5. Right-click all of our worksheets, and choose to 'Hide Sheet.'



6. Now, let's publish. Make sure to choose 'Save sheets as tabs.'



7. Done!

Other Resources

1. Tableau Public training! (1st Friday of every month is a topical training where we focus on something like calculated fields, parameters, dashboard actions, etc.
2. YouTube. We've begun putting resources onto YouTube, such as how to format your data, when to use certain chart types, etc.
3. Viz of the Day! See what other people are doing.
4. Us! Follow us on twitter, or email us directly. We're here to help you all succeed.