Microsoft

Microsoft Excel 2019

Pivot Table Data Crunching

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Sample files on the web

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9. Remove Region from the Rows area. Choose the Geography hierarchy from the PivotTable Fields list. As shown in Figure 4-62, you have something very similar to Figure 4-59. However, note that Drill Down is now enabled in the ribbon.

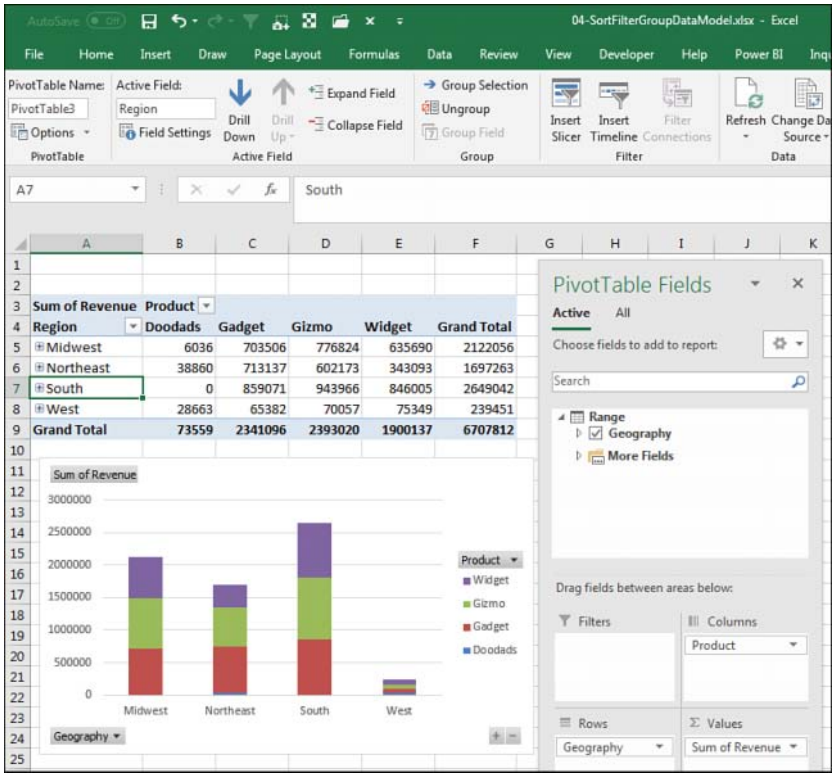

FIGURE 4-62 Plus signs appear next to each region. The Drill Down icon is enabled.

10. Select cell A7 for South. Click on Drill Down. The pivot table and pivot chart will change to show the markets in the South region (see Figure 4-63).

You can keep using Drill Down or Drill Up to travel through the hierarchy.

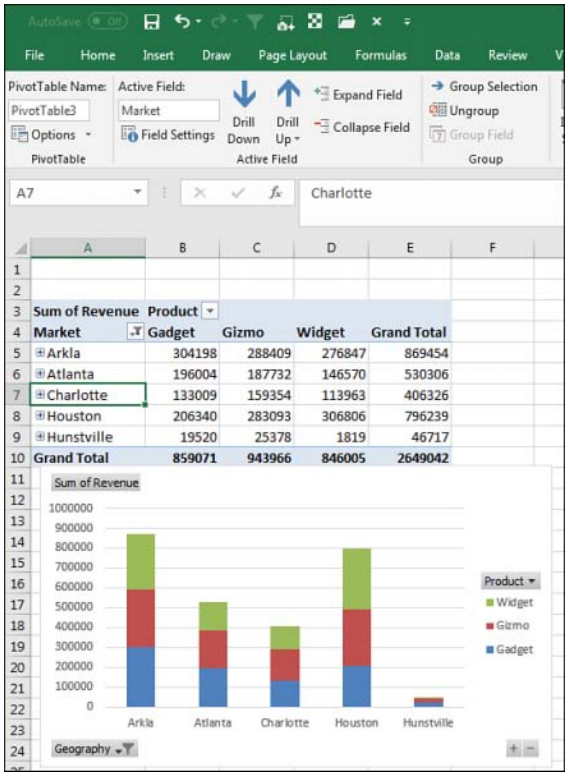

FIGURE 4-63 After drilling down on the South region, the markets in the South appear. The Drill Up icon is now enabled.

Next steps

In Chapter 5, "Performing calculations in pivot tables," you'll learn how to use pivot table formulas to add new virtual fields to a pivot table.

CHAPTER 5

Performing calculations in pivot tables

In this chapter, you will:

- Introduce calculated fields and calculated items
- Create a calculated field
- Create a calculated item
- Understand the rules and shortcomings of pivot table calculations
- Manage and maintain pivot table calculations

Introducing calculated fields and calculated items

When analyzing data with pivot tables, you will often need to expand your analysis to include data based on calculations that are not in your original data set. Excel provides a way to perform calculations within a pivot table through calculated fields, measures, and calculated items.

A *calculated field* is a data field you create by executing a calculation against existing fields in the pivot table. Think of a calculated field as a virtual column added to your data set. This column takes up no space in your source data, contains the data you define with a formula, and interacts with your pivot data as a field—just like all the other fields in your pivot table.

A *measure* is a calculated field created in a Data Model pivot table using the Data Analysis Expressions (DAX) formula language. In many cases, measures run circles around calculated fields. In order to create a measure, you have to choose "Add This Data To The Data Model" when creating the pivot table. Measures are discussed in length in Chapter 10, "Unlocking features with the Data Model and Power Pivot." Refer to "Creating Median in a pivot table using DAX measures," "Reporting text in the Values area," and "Using time intelligence," in Chapter 10. Measures are also used in the case study at the end of this chapter: "Case study: Using DAX measures instead of calculated fields."

A *calculated item* is a data item you create by executing a calculation against existing items within a data field. Think of a calculated item as a virtual row of data added to your data set. This virtual row takes up no space in your source data and contains summarized values based on calculations

performed on other rows in the same field. Calculated items interact with your pivot data as data items—just like all the other items in your pivot table.

With calculated fields and calculated items, you can insert a formula into a pivot table to create your own custom field or data item. Your newly created data becomes a part of your pivot table, interacting with other pivot data, recalculating when you refresh, and supplying you with a calculated metric that does not exist in your source data.

The example in Figure 5-1 demonstrates how a basic calculated field can add another perspective on your data. Your pivot table shows total sales amount and contracted hours for each market. A calculated field that shows your average dollar per hour enhances this analysis and adds another dimension to your data.

	A	B	C	D
1				
2	Row Labels	Sales_Amount	Contracted Hours	Avg Dollar Per Hour
3	BUFFALO	$450,478	6,864	$65.63
4	CALIFORNIA	$2,254,735	33,014	$68.30
5	CANADA	$776,245	12,103	$64.14
6	CHARLOTTE	$890,522	14,525	$61.31
7	DALLAS	$467,089	6,393	$73.06
8	DENVER	$645,583	8,641	$74.71
9	FLORIDA	$1,450,392	22,640	$64.06
10	KANSASCITY	$574,899	8,547	$67.26
11	MICHIGAN	$678,705	10,744	$63.17
12	NEWORLEANS	$333,454	5,057	$65.94
13	NEWYORK	$873,581	14,213	$61.46
14	PHOENIX	$570,255	10,167	$56.09
15	SEATTLE	$179,827	2,889	$62.25
16	TULSA	$628,405	9,583	$65.57
17	Grand Total	$10,774,172	165,380	$65.15

FIGURE 5-1 Avg Dollar per Hour is a calculated field that adds another perspective to your data analysis.

Now, you might look at Figure 5-1 and ask, "Why go through all the trouble of creating calculated fields or calculated items? Why not just use formulas in surrounding cells or even add the calculation directly into the source table to get the information needed?"

To answer these questions, in the next sections, we will look at the three different methods you can use to create the calculated field in Figure 5-1:

- Manually add the calculated field to your data source.
- Use a formula outside your pivot table to create the calculated field.
- Insert a calculated field directly into your pivot table.

Method 1: Manually add a calculated field to the data source

If you manually add a calculated field to your data source, the pivot table can pick up the field as a regular data field (see Figure 5-2). On the surface, this option looks simple, but this method of precalculating metrics and incorporating them into your data source is impractical on several levels.

	N	O	P	Q	R
1	Sales_Amount	Contracted Hours	Sales_Period	Sales_Rep	Avg Dollar Per Hour
2	$197.95	2	P08	5060	$98.98
3	$197.95	2	P08	5060	$98.98
4	$191.28	3	P08	5060	$63.76
5	$240.07	4	P11	44651	$60.02
6	$147.22	2	P08	160410	$73.61
7	$163.51	2	P02	243	$81.76
8	$134.01	3	P02	243	$44.67
9	$134.01	3	P02	243	$44.67
10	$134.01	3	P02	243	$44.67
11	$239.00	3	P01	4244	$79.67
12	$215.87	4	P02	5030	$53.97
13	$180.57	4	P02	64610	$45.14
14	$240.07	4	P02	213	$60.02

FIGURE 5-2 Precalculating calculated fields in your data source is both cumbersome and impractical.

If the definitions of your calculated fields change, you have to go back to the data source, recalculate the metric for each row, and refresh your pivot table. If you have to add a metric, you have to go back to the data source, add a new calculated field, and then change the range of your pivot table to capture the new field.

Method 2: Use a formula outside a pivot table to create a calculated field

You can add a calculated field by performing the calculation in an external cell with a formula. In the example shown in Figure 5-3, the Avg Dollar per Hour column was created with formulas referencing the pivot table.

D3 =B3/C3

	A	B	C	D
1				
2	Row Labels	Sales_Amount	Contracted Hours	Avg Dollar Per Hour
3	BUFFALO	$450,478	6,864	$65.63
4	CALIFORNIA	$2,254,735	33,014	$68.30
5	CANADA	$776,245	12,103	$64.14
6	CHARLOTTE	$890,522	14,525	$61.31
7	DALLAS	$467,089	6,393	$73.06
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15	SEATTLE	$179,827	2,889	$62.25
16	TULSA	$628,405	9,583	$65.57
17	Grand Total	$10,774,172	165,380	$65.15

FIGURE 5-3 Typing a formula next to your pivot table essentially gives you a calculated field that refreshes when your pivot table is refreshed.

Although this method gives you a calculated field that updates when your pivot table is refreshed, any changes in the structure of your pivot table have the potential of rendering your formula useless.