Medicare Average Claims Report

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1 Executive Summary

As an actuarial student, I have to analyze extensive and unorganized data from several health insurance providers, including data from Medicare and Medicaid. The data that I deal with usually comes with extra information that is superfluous and unnecessary. The purpose of this project is to create clean and user friendly data so that users can take a quick look at the total averages of payments that Medicare users made. From the several columns that the data has, users or actuaries are usually interested in two: *Ambulatory Payment Classification (APC) and Providers State*. Using these two columns, or more accurately variables, users or actuaries can calculate the *Total Average Payments*, which helps them focus on geographical areas and services provided. In turn, the can generate a deeper analysis.

By clicking the *Filter Summary* bottom the user can select from as many APCs and US states to filter the data, which came from the 2013 data released by Medicare and Medicaid on their website. Once the data is filtered, it is summarized in the *Filter Summary* sheet. The next step is achieved by clicking the *Pivot Table Graph* button. This button allows the user or actuary to create a pivot table based on the filtered data. Additionally, this step creates a bar chart that shows the distribution of the Total Average Payment by state and city.

2 Implementation Documentation

- To begin, I downloaded data from the Medicare and Medicaid website. I assigned the name *opps apc summary* the Excel worksheet where the data is placed and where all the analysis occurs.

- In Excel, I created another worksheet labeled *Key Labels*. This is where data regarding each type of APC and each state would be stored. I created this worksheet so I could use the lists as a reference for the listbox controls, which will be explained later in this paper.

- Using VBA code and Userforms, I created a form that grabs all the APC types and states from the large data set. The ListBox controls have a multi-selection option so the user can select as many options as they want for both lists, services, and states.

- To activate the form, I designed a couple buttons located in the ribbon tap named *Project Tab*. By clicking the *Filter Summary* button, a form pops up and the user can begin selecting data from the two lists. The VBA code assigned to the form filters the data, creating a copy of the filtered data in the worksheet *Filter Summary*. In this worksheet, I only collected the data for the columns of APC, Provider City, Provider State and Average Total Payments. Every time that the form is activated, the *Filter Summary* worksheet is updated with the new information as selected by the user or actuary.
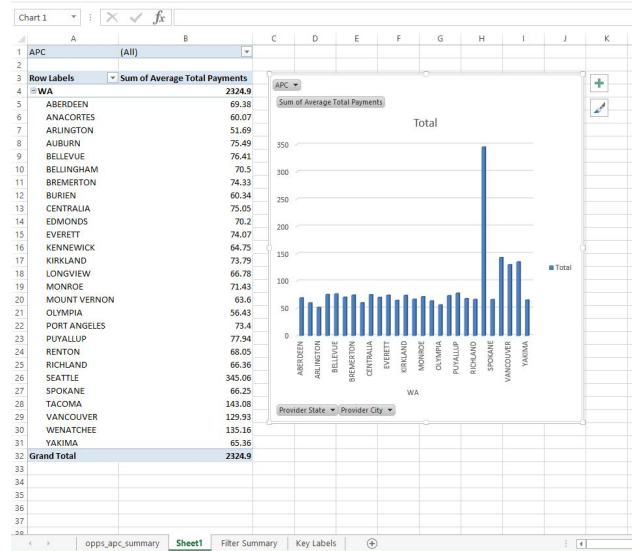

- The bottom *Pivot Table Graph* then extracts the filtered data from the *Filter Summary* worksheet and creates a pivot table and a bar chart in a new worksheet. As mentioned

before, the pivot table and the Bar chart help the user quickly identify the areas and numbers that are more relevant to the health insurance industry or to the analysis she wants to perform.

3 Learning Process

This project was an excellent opportunity to apply what we learned during the semester. While working on this project, I realized how powerful VBA is and the many things that we accomplish through coding. One of the things that I encountered and learned while working was the ability to filter using Forms. I spent several hours trying to figure out how to properly filter my data every time the form was activated. I encountered many problems, such as filtering a multi-selection and returning the data back to its original state after data was filtered. Another problem that I faced was the ability to copy the filtered data into the *Filter Summary* worksheet. By spending time online, I figured out how to do it using the method *.SpecialCells(xlCellTypeVisible.* I enjoyed the whole process of doing this project, especially working with loops because during the whole semester I had such a difficult time understanding them. I feel satisfied with the product that I created because I understand several methods that before, I performed without thinking about the logic behind them.

4 Assistance

The main assistance that I received was the Internet, previous projects, class videos, notes, and homework. I also asked another classmate if he could give me an idea how to structure some of my code. However, I was able to achieve the assignment by using my reasoning and through trial and error.