The United States International Trade

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Background and Motivation: There are a lot of people interested in the history and trend of the US international trade, especially in the election year. It is always a hot topic in the debates and the audiences are eager to get an idea about it. While they can easily find the numbers from the government report, a good visualization of the boring numbers however will assist them to appreciate and understand the information greatly. We would like to provide such a visualization with which people can easily understand what's going on vividly.

The questions we want to answer: Profile of trading between a specific country and the US. Temporal trend of international trading. The source of trading deficiency.

Data: We have acquired the data from the government resources: http://catalog.data.gov/dataset?groups=businessusa4208&tags=international and http://www.census.gov/foreign-trade/statistics/country/index.html

We have reorganize the data to fit our needs by using Statistical analysis software SAS. The dataset contains very details data of export and import of thousands of items such as wheat, rice, soybeans etc. It is unwise to show each of the thousands items. We categorized the items to a handful of clusters such as food, machinery etc. We write a python script to help us with this procedure. Since we don't know what is the best way to aggregate the data, making a script helps us when we make different decisions.
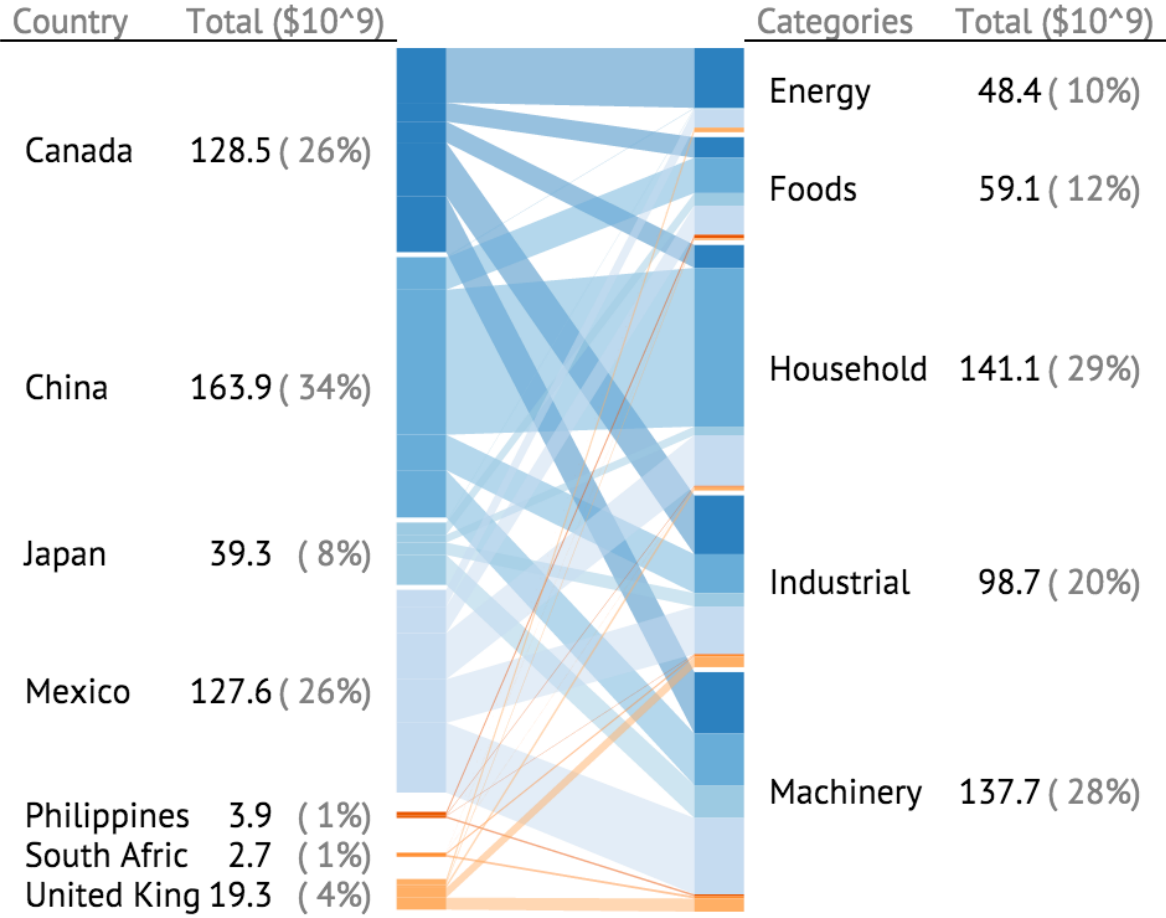
Design Evolution: As is discussed in our proposal, one of our visualizer which shows the import & export data for different countries would look like:
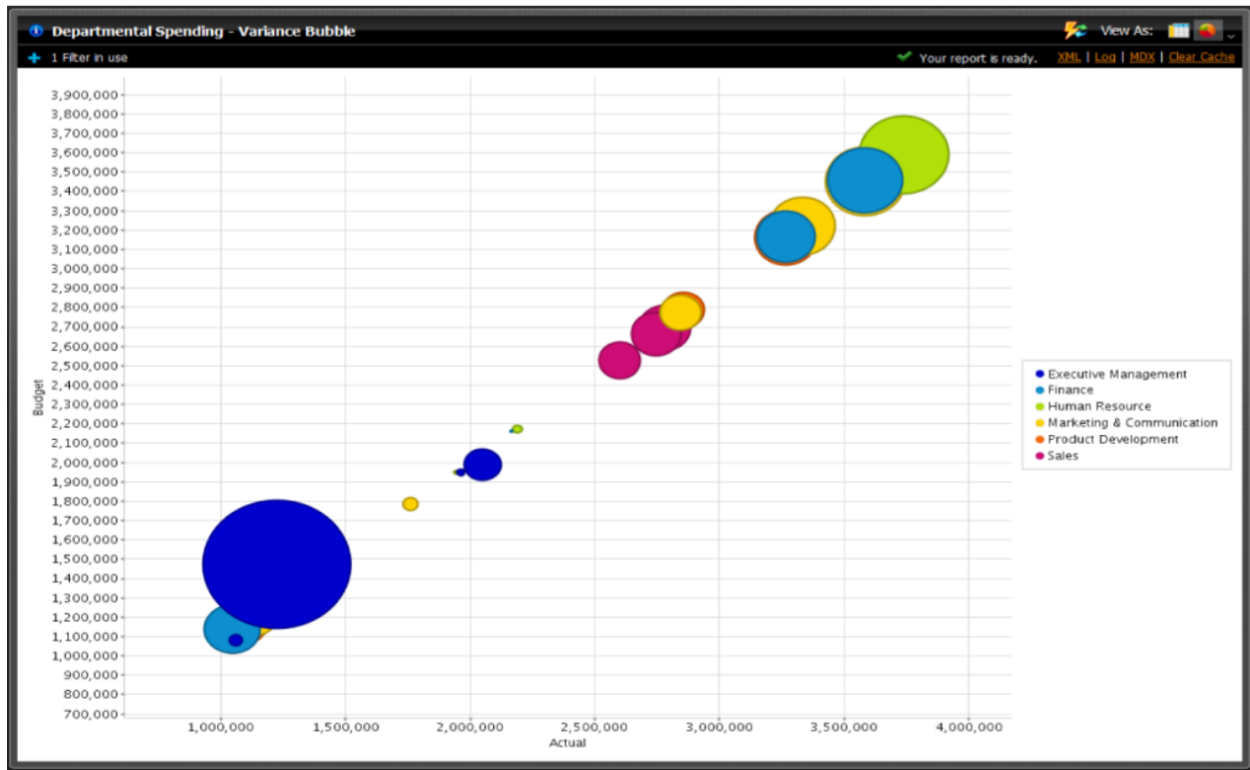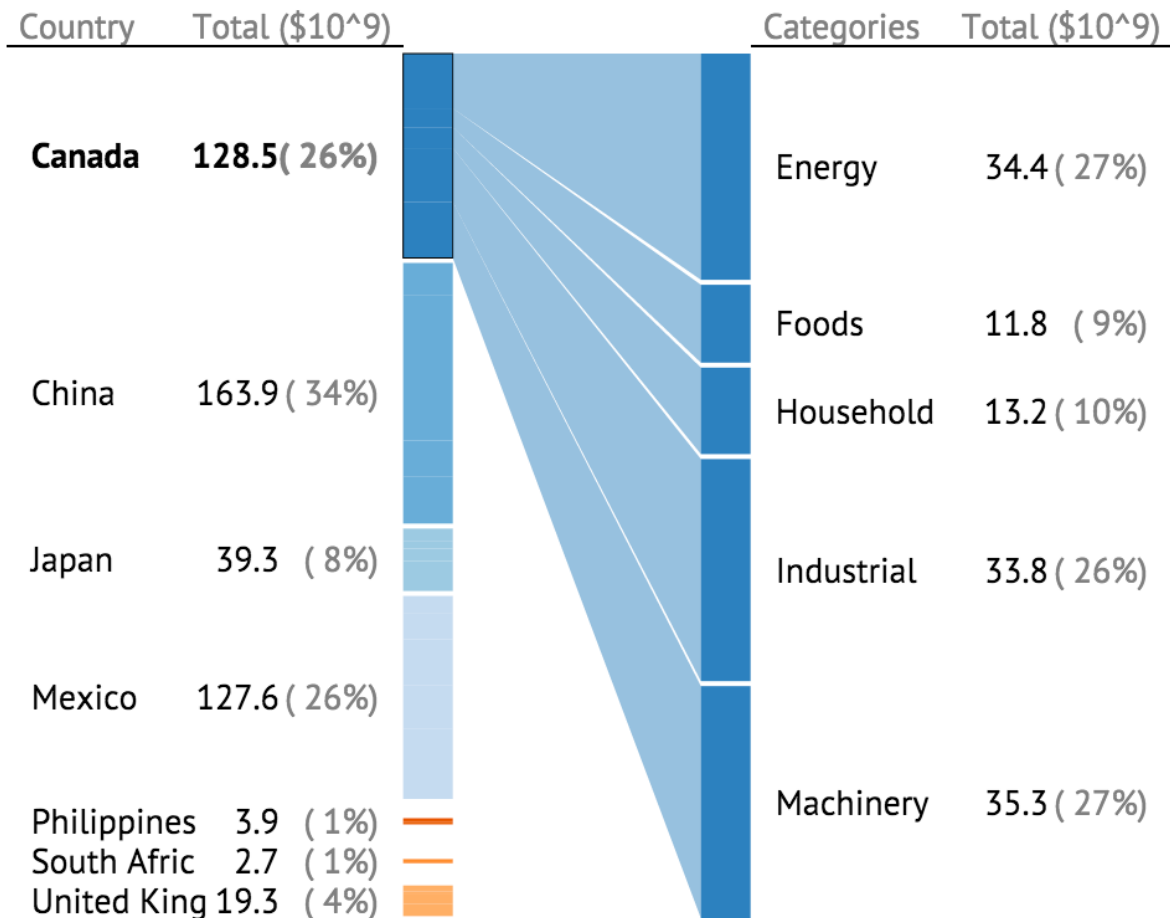
During peer review, we got really good feedback on the drawbacks of this design. Bon and Ryan pointed out some problems:

1. As a matter of fact, most circles are going to be on the same line, with bigger circles on the top and smaller ones to the bottom. This doesn't look very good although it reveals the true data.
2. If we show all the data for different countries, some circles are going to be very small. If we really want to do this, maybe we need to enable zooming.
3. Since we only have 10 years' data, we don't expect to see a significant change in this visualizer. Such design is OK, but not visually attractive.

According to their suggestions and our concerns, we redesigned our visualizer. The new one looks like:

Country	Total ($10^9)		Categories	Total ($10^9)
			Energy	48.4 (10%)
Canada	128.5 (26%)			
			Foods	59.1 (12%)
China	163.9 (34%)			
			Household	141.1 (29%)
Japan	39.3 (8%)			
			Industrial	98.7 (20%)
Mexico	127.6 (26%)			
Philippines	3.9 (1%)		Machinery	137.7 (28%)
South Afric	2.7 (1%)			
United King	19.3 (4%)			

Country	Total ($10^9)		Categories	Total ($10^9)
Canada	**128.5 (26%)**		Energy	34.4 (27%)
China	163.9 (34%)		Foods	11.8 (9%)
			Household	13.2 (10%)
Japan	39.3 (8%)		Industrial	33.8 (26%)
Mexico	127.6 (26%)		Machinery	35.3 (27%)
Philippines	3.9 (1%)			
South Afric	2.7 (1%)			
United King	19.3 (4%)			

We not only aggregate the data into main categories, but also choose to show only some major partner countries. In this way, the visualizer is more readable and more meaningful.