

**Title:** An exploration of state-level Department of Defense spending. Brandeis University, Fall Semester 2024, COSI 116A Group 5. Cooper Gottfried, Dean Carey, Garret Rieden, and Adam Rieden.

**Motivation:** Initially, we were motivated to understand the scope and scale of government financial waste. During our initial research, we came across public-facing examples of government spending that we considered wasteful (i.e; [government cheese caves](#)), and wanted to dig deeper into the anatomy of government spending nationwide. To provide a basis for interesting analysis, we chose to break spending down in two major ways: by state and by department. After exploring available resources, we found that the Department of Defense is, in nearly every U.S. state, one of the top spenders. Given that the Department of Defense is often responsible for a significant portion of budgetary waste (i.e; [leaving equipment behind after operations](#)), we chose to focus our visualization on how much spending the Department of Defense is responsible for by state. Our data provides interesting insights into the spending priorities of the U.S. government, and should spark meaningful discussions about the massive military spending that has become routine in America. By showing the dollar amount spent by the military, and the percentage of a state's total spending that takes up, we aim to provide a complete picture of the Department of Defense's impact on the U.S.'s budget.

Motivating questions:

1. Where does the U.S. government spend the majority of its money?
2. How does military spending compare to other major categories of spending?
3. How does this comparison vary across states?

**Demo Video:** To be done after visualization is complete.

**Visualization Explanation:** To be done after visualization is complete.

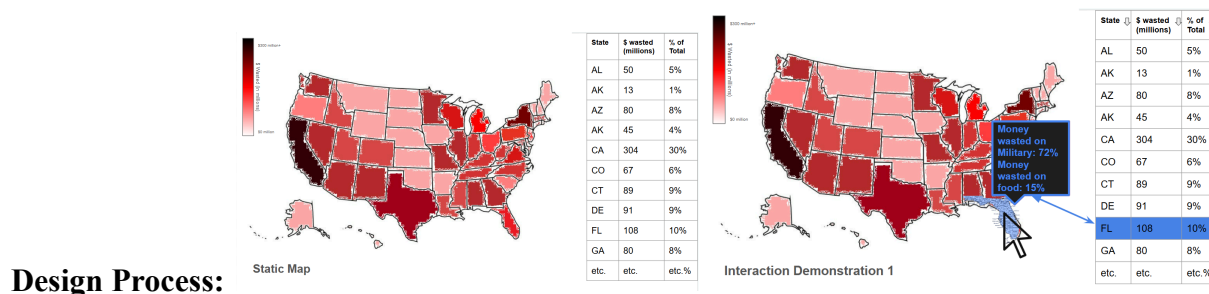
**Data Analysis:** Our data comes from the U.S. government's public repository of state-level spending data, at <https://www.usaspending.gov/state>. For each state, we filtered the data to be from January 1st, 2023 to December 31st, 2023. Some states still had too many records to download, so we filtered the data to only include transactions over \$250. We feel that both of these filters ensure that our data is a representative sample of government spending over the course, addressing data availability concerns without compromising on data validity. Once the data was downloaded, we extracted the total outlayed amount for the Department of Defense and the other three departments that spent the most in that state. This allowed us to create a representative sample of the state's total spending, as there was typically a large drop off after the first few highest-spending departments. This process was repeated for each state, and provided us with all the data we would need to complete our visualization. We put the total outlayed

amount for each state into Tableau to create the bar graphs necessary for our tooltips, used the DoD's spending to color in our heatmap, and used all of the data to create our table.

We chose not to include the spending data for every department that operated within each state. By narrowing our focus to only the Department of Defense and the other top three departments, we feel that we created a more easily understood (but still insightful) visualization.

**Task Analysis:** Our task table holds three tasks. By order of importance, the first task is to understand how much money the government wastes per category. To categorize the government's waste, we broke spending down by department on a state level. We feel that, wherever the most spending is within a state, the most waste also likely resides. So, in order to make insights into how much money is being wasted by different government departments, we must first understand how much they're actually spending. This task's key goals are to compare, lookup, and present data. The second most important task is seeing categories of government spending. This is completed during the pursuit of the aforementioned goal. To understand government waste, we must first understand government spending. The goals of this task are to summarize, explore, and discover data. Our third most important goal is to see what problems the wasted money could address. This is addressed in our conclusion. The goal of this task is to identify, browse, and discover the data.

While the first two tasks are essential to the visualization itself, the third task is especially important to its interpretation. By gaining an understanding of what the U.S. government could alternatively spend its budget on, the spending choices it currently makes take on new meanings.



For our final visualization, the heat map is central. The more red a state is, the higher the amount the Department of Defense spent in that state. We'll have two view present: one that shows the dollar amount spent by the Department of Defense in that state, and one showing the percentage of total spending within the state that is attributed to the Department of Defense. Combined, these will provide an accurate picture of the Department's spending nationwide. We're using the color red to emphasize the violent nature of many Department of Defense operations, and the gravity of the amount that they are spending.

When a state is moused over, a tooltip will pop up, containing a blue bar graph showing more information about the spending within the state. The corresponding row in the table will also light up in blue. We chose to use blue to contrast with the red of the heat map, drawing attention to the small details that we're making available.

More information will be filled in for this section as progress continues on our visualization.

**Conclusion:** To be done after visualization is complete.

**Acknowledgements:** To be done after visualization is complete.