**Assignment 1**

**John Hopkins University – Computational Modeling for Policy and Security Analysis**

When I am at the grocery store trying to determine which line to use for checkout, I attempt to analyze the situation to determine which line will have the least wait time. There are many, many factors that impact wait time, some visible and obvious (e.g. the number of people in each line), and some non-visible and not-obvious (e.g. someone in the line deciding to pay with coins). I’m only a human, with limited capabilities, so I am unable to analyze all of the factors and build a perfect model. Instead, I analyze as many as I can given my mental capacity at that moment. Often, that is just the number of people in line, the number of items in line, the type of checkout (cashier or self), and the number of checkouts per line (because self-checkouts often have one line for many terminals). Based on those factors, I estimate my wait time in each line, and choose the line with the lowest estimated wait time.

The mental model I build in my head is nothing like (at least I hope) what is used to evaluate and analyze policy, besides for one key similarity. Just like I could not process every factor in the grocery store line, no model or analysis can include every factor that will affect the policy being modeled or analyzed. For example, it’s impossible to know the exact effect of government spending, there are simply to many variables and people to track, not to mention it’s impossible to know exactly what would have happened had the government spending not occurred. However, the models used can give good estimations of what the effect is, and even though they aren’t perfect, they provide valuable information that allow policy makers to make informed decisions, just like my mental model allows me to make informed decisions about which line to use.