**Budget Justification**

**Personnel**

**Michael Flynn,** co-Principal Investigator, 2 full effort months per year (over the summer), partial effort during the academic year.

Dr. Flynn will be working as a co-author on manuscripts and will be engaged primarily in data management and analysis, but will also take on additional roles in theory building and drafting manuscripts.

**Fringe Benefits**

Fringe benefit rates are based on the applicable federally negotiated rates.

**Laptop Computer**

Dr. Flynn is requesting $5,100 to help pay for a new laptop computer. Dr. Flynn is not traveling to conduct fieldwork and will be the primary data analyst on the project. The laptop request is in lieu of travel funds. As in our previous projects, the bulk of our analysis will rely on Bayesian hierarchical choice modeling of public opinion data. These models can be incredibly demanding in terms of processing speed and memory consumption. The hierarchical structure of the models and our focus on hundreds of sub-national groupings/clusters within the focus countries means that estimating the models, exploring posterior samples, and generating contrasts from the posteriors to examine effects of interest, will consume more memory than his current laptop can handle. His current laptop computer is a 2020 MacBook Pro with 16GB of memory. Running only basic word processing, internet browsing, and PDF software consumes approximately 11–13 GB of memory, leaving little for RStudio and modeling activity. The proposed replacement would be a MacBook Pro with 128 GB of memory and an M3 Max processor, providing ample computational resources to estimate models and explore complex combinations of the posterior distributions. Dr. Flynn’s department has limited funds to replace laptops, with replacements generally capped around $1,200.

One important detail to note is that while Kansas State University maintains the BEOCAT high-performance computing cluster, this is not a viable option for our purposes. Dr. Flynn has worked with the Computer Science staff who maintain BEOCAT on previous projects in an effort to use the cluster for his modeling needs. However, the installation of R, Stan, and brms rely on underlying software that requires installing material outside of the user’s account, which the system does not allow. Accordingly, these previous efforts to use BEOCAT for similar projects have failed and all of our work has been run on local machines (e.g. laptops or desktops).

**Indirect Costs**

The indirect costs are calculated at Kansas State University’s predetermined Facilities and Administrative (F&A) cost rate of 52% MTDC in year 1 per DHHS agreement dated 02/03/2020.