Robert Summers Fellowship Application

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Summary of relevant expertise and current research interest in economic measurement

I have been a research economist at the Bureau of Economic Analysis since 2018, the year I finished my PhD in economics at the University of Minnesota. My job market paper focused on California water policy and how it affects farmer crop choice decisions. A major part of that work was bringing together data from a multitude of sources to measure something unmeasured—groundwater usage by farms in the largest agricultural county in the United States. This data work attracted me to the job at BEA, and vice versa.

One of my primary accomplishments so far at BEA was creating the methodology for BEA's distribution of state personal income. The initial paper describing the method is here. Since those initial experimental statistics, I have led the yearly publication of the prototype state distributional statistics. Data users can now find statistics such as the Gini coefficient, 90/10 ratio, top/bottom decile shares, and others for each state and DC, that are fully consistent with BEA state income totals. My responsibilities have been updating the methodology and code, testing and bringing in new source data, and coordinating new data releases by presenting to BEA senior staff and interfacing with the Communications Directorate and Data Verification teams. We most recently published state income distribution statistics for 2023 last July. I am currently working on the 2024 statistics, and consulting on the production of the national distributional statistics.

Before my time at BEA, the agency worked in concert with NSF to incorporate R&D as part of investment in the 2013 comprehensive update of the national accounts. Recently, the inter-agency collaboration has continued with a new R&D satellite account, focusing on the measurement of R&D production, with a geographical focus. I have been a principal member of this team. Our latest prototype statistics include R&D value added, employment, and compensation by state. Detail is also included on R&D-intensive industries. We measure R&D on a performance basis—attributing the economic activity to where it is produced, both in a geographical and industry sense. This entails adjusting the NSF source data, which comes to us on a company basis, to an establishment basis to be comparable with the rest of the statistics that BEA publishes. We are now working to estimate R&D investment by state. This is less straightforward for both source data reasons as well as conceptual reasons, but that makes it an exciting problem to work on.

I have a new paper with a BEA colleague on energy measurement (earlier version here). Using unpublished item-level detail in BEA's input-output accounts, we build energy-specific supply and use tables that are consistent with System of Environmental-Economic Accounting standards. We then show how these tables can be regionalized (component by component) using EIA and other data. Results show that in recent years the US has become a net exporter of energy commodities. Examining commodity detail shows a

picture of multiple energy transitions—principal of which are the decline of coal and the rise of natural gas. These results are amplified at the state level, given the concentration in where energy commodities are produced. This paper also serves as a pilot for state-level supply and use tables more generally, discussed next.

The backbone of BEA's National Income and Product Accounts are the input-output tables, showing an incredible amount of detail on how industries are interconnected. It has been a long-running goal to build out a regional dimension, and I'm working on a team researching the feasibility of doing so. We were recently accepted to present at the NBER disaggregated accounts conference in 2027. Among other benefits, this work would allow BEA to produce estimates of GDP by the expenditure approach, rather than just the income approach (as is done now). PCE by state is already an official BEA statistic, government consumption and investment by state are in the experimental phase, and private fixed investment by state is in research (another small part of my time). State-level trade flows are the last major component. Importantly, trade flows here include both foreign trade and state-to-state trade. Two colleagues and I have a new paper which makes progress on this front (submitted to SI-CRIW). We show the steps necessary to adapt our source data (which is collected for transportation infrastructure planning) to the economic concept needed to estimate the location of production and consumption. We make relatively weak assumptions and use a large-scale numerical solver to link shipments flows and estimate production versus distribution shipments, allowing for us to calculate state-level trade in goods. The next step of this project will be more difficult, but we are beginning to investigate strategies to estimate trade in services by state.

My first project at BEA was helping to develop the method to produce state-level statistics on the outdoor recreation economy. I contributed by finding and testing the best possible data sources to regionalize detailed national totals based on the input-output accounts. After two publication cycles in prototype status, I then handed this work off to production staff for official regular publication.

In a recent reorganization, my duties were expanded to include reviewing current statistics on quarterly state personal income before publication. This experience has helped me place research efforts into the larger agency context, as well to better understand the agency's work and how it fits into the broader economic data context and the policymaking discourse. I have been able to use my interest in following the debates among academics, policymakers, and data watchers to better anticipate questions data users might have about BEA methods and publications.

All of this leads me to be very interested in the CRIW subject matter. I've been a faithful YouTube viewer but hope to participate in person as a Robert Summers fellow this year.