

In a letter dated November 7, 2016, Prof. Andrew Reamer at The George Washington Institute of Public Policy expressed support for the BRDIS data collection as an important source of information for guiding U.S. competitiveness policy. Prof. Reamer also expressed support for the expansion of BRDIS to include microbusinesses. He encouraged the Census Bureau and the National Center for Science and Engineering Statistics to consult with a number of government organizations that may benefit from BRDIS data prior to its next clearance. Prof. Reamer also requested a conference call update on the status of the Census Bureau's efforts to identify current prospective uses of BRDIS data to describe global value chains (GVCs), measure international trade in value-added (TiVA), more accurately measure trade in services (including R&D), and comprehensively classify U.S. business activity by function, including R&D. We thank Prof. Reamer for his statement of support for BRDIS. Prof. Reamer's suggestions will be considered in future meetings between Census and NCSES survey managers.

Response to “the Census Bureau shall include a report identifying current and prospective uses of BRDIS data to describe global value chains (GVCs), measure international trade in value-added (TiVA), more accurately measure trade in services (including R&D), and comprehensively classify U.S. business activity by function, including R&D”:

Beginning with the initial redesign of the Survey of Industrial Research and Development (SIRD) that resulted in BRDIS, one of the goals of Census and NCSES survey managers was to collect information from companies that better reflects the increasingly global nature of business in a range of industries. BRDIS data can be used to inform studies of global value chains (GVCs) by identifying the specific country locations where businesses are conducting research and development in-house and quantifying both the amount of domestic R&D that is funded by foreign organizations and the amount of R&D being outsourced by U.S.-located companies to foreign organizations. Questions were added to BRDIS to improve the understanding of the international flow of R&D funding within companies. Data from these questions may inform research on trade in value-added (TiVA), trade in services, and international tax issues such as transfer pricing. However, since research and development is but one “link” in a company's global value chain, BRDIS data may need to be combined with data from other surveys or data sources to paint a complete picture of how it is organizing its business across national boundaries. The Census Bureau is working to improve its own ability to pull together company information from its various surveys and other data sources to reduce the burden placed on surveyed businesses and improve the quality and usefulness of the data.

An important difference between BRDIS and SIRD, is that BRDIS asks companies to report R&D and sales by business activity. This allows BRDIS to classify companies according in the industry with the most R&D activity. NCSES is currently in the process of analyzing these data from the 2014 and 2015 survey cycles and plans on comparing this method of classification to others (such as based on economic output) that are used by other countries.

In a letter dated November 7, 2016, Prof. Josh Lerner at the Harvard Business School asked, “To what extent have the Census Bureau and the National Science Foundation (NSF) considered firm differences in R&D accounting in the design of the BRDIS R&D spending questions?” During the design of BRDIS, interviews were conducted with company respondents in a range of industries to collect information about how the companies defined R&D and tracked it (record-keeping study). Findings from these interviews along with input from business experts and senior Census accountants resulted in the current approach used by BRDIS. For company-funded R&D (R&D expense), this approach is first to ask companies to report what they consider to be R&D and then use follow-up questions to net out costs for activities that are not considered R&D according to the survey definitions. For R&D that is funded by 3rd parties (such as customer-sponsored R&D, collaboration reimbursements, or government grants), costs for specific activities considered to be R&D by BRDIS are requested individually and then are summed to achieve a total figure. In addition to this approach to guide respondents to report R&D consistently, collected data are edited by analysts in an attempt to correct reporting errors.

Professor Lerner subsequently asked, “to what extent have Census and NSF determined the value and validity of aggregate BRDIS R&D data in light of these accounting differences?”

Measurement error is a topic of high priority for BRDIS management. Because business R&D spending is highly concentrated in a relatively small number of companies, BRDIS is able to assign staff account managers to companies that account for 80% of key survey estimates. These companies receive proactive guidance and their data undergo an additional level of review. Though acknowledging that no survey data are perfect, this process and annual company debriefing interviews give Census and NSF a high degree of confidence in the overall validity of BRDIS R&D data. Census and NSF also encourage the use of BRDIS data by researchers at Census research data centers (RDCs) as feedback from users of the microdata greatly assist in ongoing efforts to improve data quality.

In the same letter, Prof. Lerner made a number of additional suggestions and asked additional questions. These are detailed below along with a discussion of actions taken with respect to them.

- **Request that the BRDI-M question on sources of funding be revised to ask the total amount of funds raised by the firm, with distribution by source.** *The current version of the survey asks for dollar ranges of business funding by source.*
- **Given a lack of questions pertaining to strategic alliances and financing in exchange for intellectual property rights, how can BRDIS adequately capture the role of strategic alliances in R&D and innovation activities?** *BRDIS does request that companies report details for R&D paid for through collaborative R&D agreements, but does lack any questions related to the nature of these agreements. Census and NSF would appreciate assistance in crafting questions that could gather useful information on this topic while minimizing respondent burden. One*

possibility is to expand the question on intellectual property transfer activities (Question 6-13 on the 2016 survey).

- **I do not see BRDIS questions that ask the firm to identify relationships between R&D expenditures and innovation outcomes, relationships between innovation outcomes and new intellectual property (IP), and the extent to which the firm utilizes its IP in its own product and service offerings. I ask Census to consider preparing, with NSF, a study of possibilities [for questions on these relationships] and reporting the results to OMB and interested stakeholders by 2018.** *It was an important goal of BRDIS to measure outputs of R&D in addition to R&D expenditures. Currently BRDIS does collect information on product and process innovations and patenting activity. One question in the intellectual property section of BRDIS touches on the relationship between R&D and patenting (Question 6-4 on the 2016 survey). Another question in the same section attempts to measure the number of disclosed inventions at the company, regardless of whether or not a patent application was filed (Question 6-5 on the 2016 survey). During the design of BRDIS attempts were made to develop additional questions related to outputs of R&D and financial returns on R&D spending but it was determined that companies either did not track these data consistently or would not be able to report them without substantial burden. Census and NSF welcome suggestions or proposals for questions that may assist in the understanding the relationships between R&D, innovation, and intellectual property.*