

An Evaluation of the RaDiUS R&D Database as a Resource for Regional Development

What is RaDiUS?¹

Definition

RaDiUS (Research and Development in the U.S.) is a database developed by a subsidiary of the Rand Corporation. It's primary focus is the tracking of federal grants given to research and development. The grants are primarily awarded by the USDA, DoC, DoD, DoE, HHS, DoI, DoT, EPA, NASA, and NSF. RaDiUS's main uses are "(1) exploring the overall scope of federal R&D activities across all agencies and (2) comparing R&D activities in specific areas of science and technology among the various federal agencies." As this information focuses on grants awarded to specific geographical areas, it is capable of measuring the *number* of grants provided to regional economies.

Why RaDiUS Exists

In 1993 RaDiUS was developed by Rand in cooperation with the National Science Foundation to assist government offices and agencies interested in R&D information. Due to the un-standardized reporting of R&D information by different agencies, it was difficult to track where federal money was going and how much was going there. To remedy this, Rand and the NSF created the RaDiUS database to synthesize and report on all federal R&D funding. The Office of the President, Office of Management and Budget (OMB) now implements RaDiUS in optimizing R&D investments.

Methodology

How RaDiUS Works

Originally RaDiUS focused on universities obtaining federal R&D grants. These universities were hand checked to make sure no double counting took place due to the existence of satellite campuses that received R&D funding. All colleges that not only receive R&D funds but also manage an R&D facility are excluded from the database and analysis as a great deal of that funding does not go to R&D per se but rather to fund the managing of the R&D facility. Hence, universities such as the California Institute of Technology receive federal funds to manage the Jet Propulsion Laboratory (JPL) and hence the college is not included in RaDiUS, since the JPL is federally owned and R&D funding cannot be credited to the university.

Some Exceptions

Because medical schools obtain a disproportionately large amount of funding, it was necessary to "tag" those universities atypically within the database. This is mainly done so that in an analysis of state universities an adverse effect will not be seen in those states not having a university with a medical R&D college. A majority of this medical R&D funding is derived from NIH total funding and therefore is completely suppressed since NIH does not disclose to RaDiUS any of their funding data. In addition, not all congressional earmarks of R&D funding are included in RaDiUS due to the fact that large portions of those monies go to capital expenditures either to build new facilities and laboratories, or acquiring major R&D equipment. This, combined with the universities not included in the database and the special

¹ RaDiUS is a registered trademark of the Rand Corporation.

situation resulting from the medical R&D, results in a significant understatement of funding. Of the approximately \$2.1 billion in R&D earmarks spent by the 2005 legislature,² RaDiUS captures just over 1% or \$22 million of that spending in their “Total Funding” number.

Advantages

RaDiUS is extremely specialized in obtaining grant quantity and time horizon information on a regional level. Each federal R&D grant has an abstract stating what the grant is being awarded for, what department is issuing the award, and which university or research institution is receiving it. RaDiUS provides timely information on the number of grants injecting funds into regional economies.

Drawbacks

Of the data collected by RaDiUS, only approximately 26% of awards have total funding data available. However, 84% do have average funding data for tracked grants. Due to the absence of so much funding data and the high volatility of funds associated with federal R&D grants, RaDiUS cannot predict how much money is actually promoting local development. Also, large portions of research and development expenditures are specialized and may not always be purchased regionally—even further reducing the regional economic impact.

Essentially the quantity of R&D awards provided by RaDiUS is the only potentially useful regional economic indicator, and could be used to provide a rudimentary measure regional innovation. However, for the same purpose a better indicator, equally obtainable, is the number of patents being issued to entities in a region. The drawback of R&D data is the volume of suppressions, compared to patent data which has no suppressions, is publicly available, and is more comprehensive.

In summary, RaDiUS cautions its users when interpreting the funding data they do provide:

“It is important to understand the meaning of these numbers. **Budget Authority (BA)** represents the total funding controlled by a specific organization. This amount is not necessarily strictly devoted to the Level 5 award/tasks directly related to your search. Thus, were one to use Budget Authority alone to estimate the amount of resources devoted to the subject of a query, one would almost certainly overestimate the scope of the activity. **Obligations** are more closely related to the scope of the specific R&D in question, but in some cases this figure is not made available by federal agencies for inclusion in RaDiUS. Thus, were one to use obligations alone to estimate the level of funding relating to a query, one would likely underestimate the scope of the activity.”³

About EMSI

Economic Modeling Specialists Inc. (EMSI) is a professional services firm that offers integrated regional data, web-based analysis tools, data-driven reports, and custom consulting services. EMSI has served thousands of workforce, education, economic development, and other policy professionals in the U.S., Canada, and the United Kingdom, and the company’s web-based **Strategic Advantage** research and analysis suite is used by over 2,500 professionals across the U.S. For more information, call (866) 999-3674 or visit www.economicmodeling.com.

² <http://www.nsf.gov/statistics/seind06/c5/c5s1.htm> “a brief look at congressional earmarking.”

³ <https://radius.rand.org/radius/resources/userbook.html#IYR>.