MEASURING THE PUBLIC FUNDING OF R&D: A FEASIBILITY STUDY

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Can we estimate government spending on research and development using publicly available administrative data?

Research and Development (R&D) is basic and applied research and technological development. R&D is a subset of Science and Engineering (S&E), which also includes training, conferences, and fellowships.

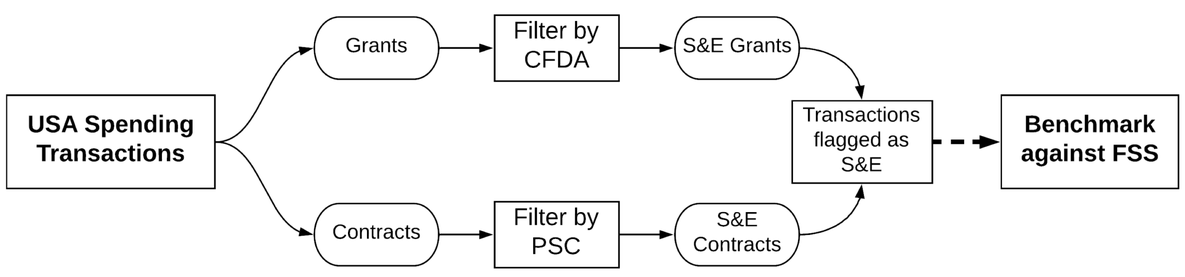
We examined spending from 6 federal agencies in fiscal year 2016 to determine the feasibility of identifying transactions related to S&E and R&D. These 6 agencies (DOD, DOE, USDA, NASA, NIH, NSF) accounted for 97% of all R&D funding in the 2016 fiscal year.

Methods: Identifying Science and Engineering funding in USA Spending

Data Source: USA Spending

- Maintained by Treasury Department, Bureau of the Fiscal Service since 2008
- Dataset includes all transactions between federal government and institutions of higher education in FY 2016
- 174,377 grant-related transactions
- 126,617 contract-related transactions

Catalog of Federal Domestic Assistance (CFDA) numbers explain intended use of grants. CFDA codes could identify S&E, but not specifically R&D.



Product & Service Codes (PSC) classify contracts by purpose (including R&D)

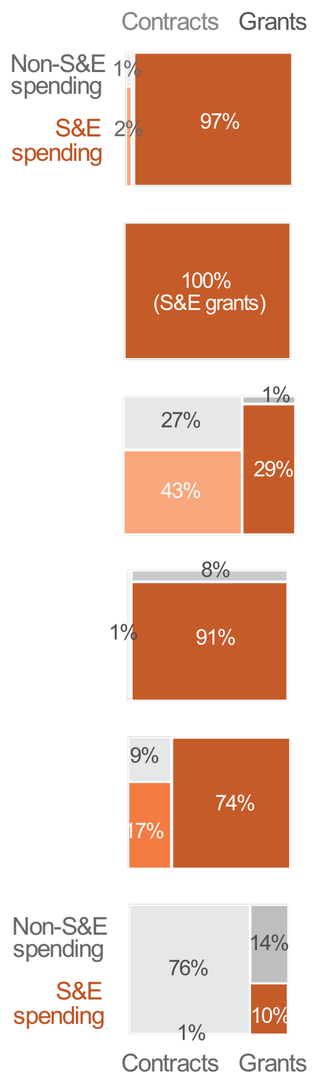
Benchmarking: The Federal Support Survey (FSS)

- The Survey of Federal Science and Engineering Support to Universities, Colleges, and Nonprofit Institutions (FSS) is run by the NCSES
- Yearly census of R&D and S&E funding; used FY 2016 data in analysis

Results

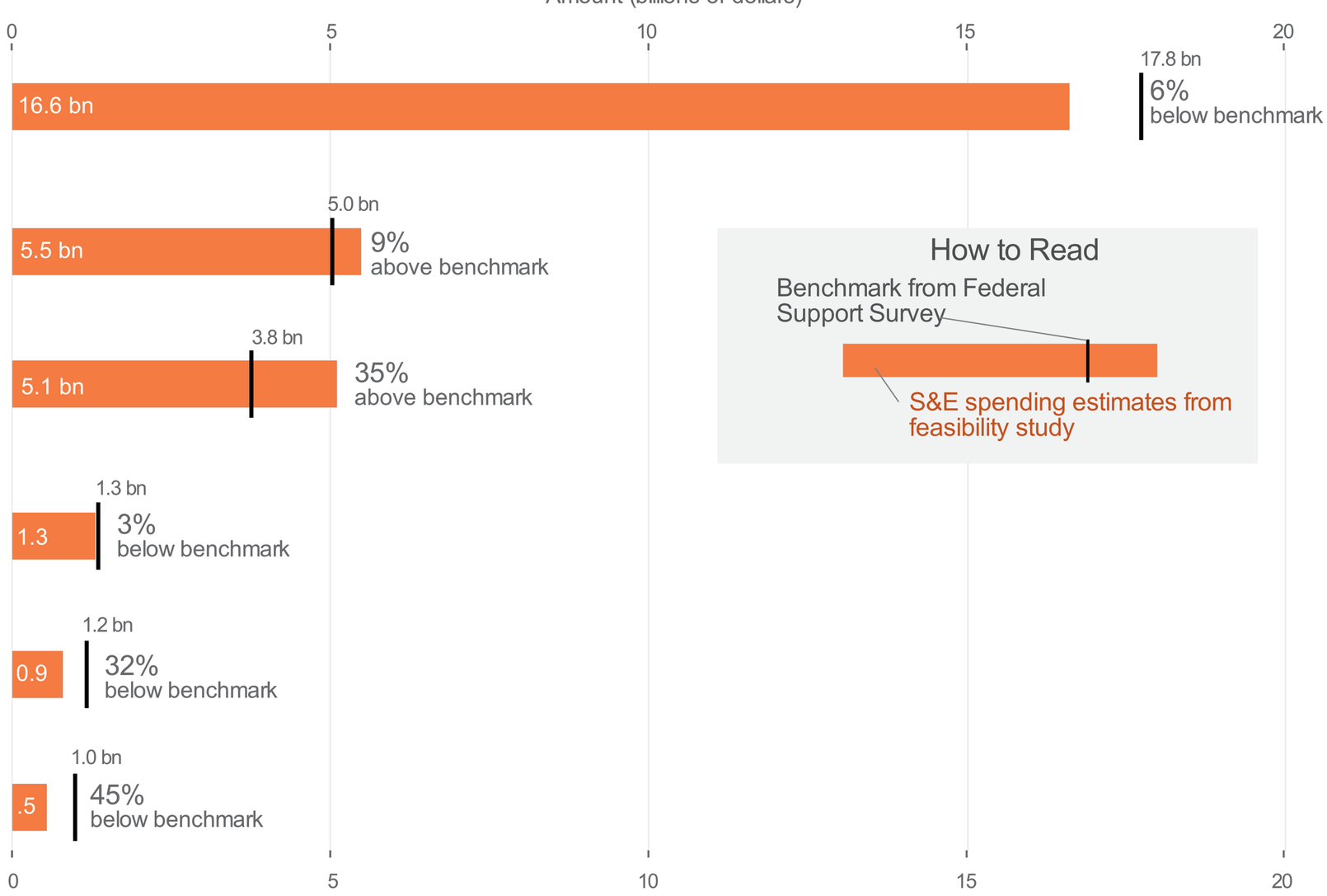
Distribution of funding provided by agencies

Based on S&E estimates from USA Spending in FY16



Feasability study estimates compared to Federal Support Survey benchmarks

Estimates of S&E funding to institutes of higher education in FY16, based on USA Spending



Checking Our Work

- Federal RePORTER is an NIH-run public database of R&D funding: accurate, but not comprehensive
- Used as a sample of R&D grants to test accuracy of our classification method

Result:
The Classification method identified 99.9% of the R&D grants found in Federal RePORTER.

Identified as S&E in USA Spending	Found in Federal Reporter: Yes	Found in Federal Reporter: No
Yes	69,932	19,252
No	93	3759

Conclusions

Yes, it is feasible to estimate R&D spending with publicly available data. Using project funding indicators in USA Spending, we produced estimates of S&E funding similar to those in the FSS.

Future Work

Refine and measure subtypes of S&E and R&D

- Use additional microdata, e.g. abstracts, to assess whether basic, applied, and development research can be identified
- Examine agency-specific databases to fill in additional information beyond USA Spending