

Moderators: Terry Allard / Clint Sprott

Sources: **R&D: FY22 US Trends and International Comparisons.** <https://nces.nsf.gov/pubs/nsb20246/executive-summary>

UW-Madison Indirect Costs. [https://news.wisc.edu/the-real-costs-of-research-funding-](https://news.wisc.edu/the-real-costs-of-research-funding-cuts/?elqTrackId=FCD7D2CBC82840FADD1745CE2DBA2626&elq=82423c5400c54ab1924a91911ed2a46a&elqaid=67734&elqat=1&elqCampaignId=52643&elqak=8AF528B8D385EA980842E9817B65B37E2ACAD05535984E79FA5129FAB0EDCCCB975F)

[cuts/?elqTrackId=FCD7D2CBC82840FADD1745CE2DBA2626&elq=82423c5400c54ab1924a91911ed2a46a&elqaid=67734&elqat=1&elqCampaignId=52643&elqak=8AF528B8D385EA980842E9817B65B37E2ACAD05535984E79FA5129FAB0EDCCCB975F](https://news.wisc.edu/the-real-costs-of-research-funding-cuts/?elqTrackId=FCD7D2CBC82840FADD1745CE2DBA2626&elq=82423c5400c54ab1924a91911ed2a46a&elqaid=67734&elqat=1&elqCampaignId=52643&elqak=8AF528B8D385EA980842E9817B65B37E2ACAD05535984E79FA5129FAB0EDCCCB975F)

Discussion Questions

1. What are the historical trends in R&D funding? Who provides the money?

- a. Federal govt vs business.
- b. Comparisons to other countries.
- c. Breakdown by the 3 categories of R&D.

2. Is there a unique role for the federal government in supporting research, basic or otherwise?

- a. Broad distribution across critical investment areas vs business focus.
- b. High-risk, high-payoff research which will not pay off in short-term return on investment.
- c. Unanticipated benefits of curiosity-driven discovery.
- d. Technical areas important to national security writ large.
- e. Building critical infrastructure and pipeline of expertise in academia and industry.

3. What is the value to the US global economy of these investments?

- a. Recruiting and retaining the global best and brightest.
- b. Enabling competitive US innovation.

4. What is the relationship between federal research funding and academia?

- a. How should *indirect cost rates* be set (currently ~55% at UWisc-Madison)? What does it pay for?
 - b. What's the right model for disbursing government funding? Peer-review? Public / private partnerships? Advanced Research Project Agencies (ARPAs / ONR)?
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Read-Ahead Points

1. Three categories of Research & Development (Science & Engineering): Basic Research, Applied Research, Technology Development.
2. In FY22, Business provided 76% of R&D funding (~\$673B of \$886B).
 - ✓ Eclipsed federal spending in 1980.
 - ✓ 78% was in Technology Development.
 - ✓ Concentrated on Big Pharma and Big Tech (AI/IT)

Figure RD-2

U.S. R&D, by source of funds: 1953–2022

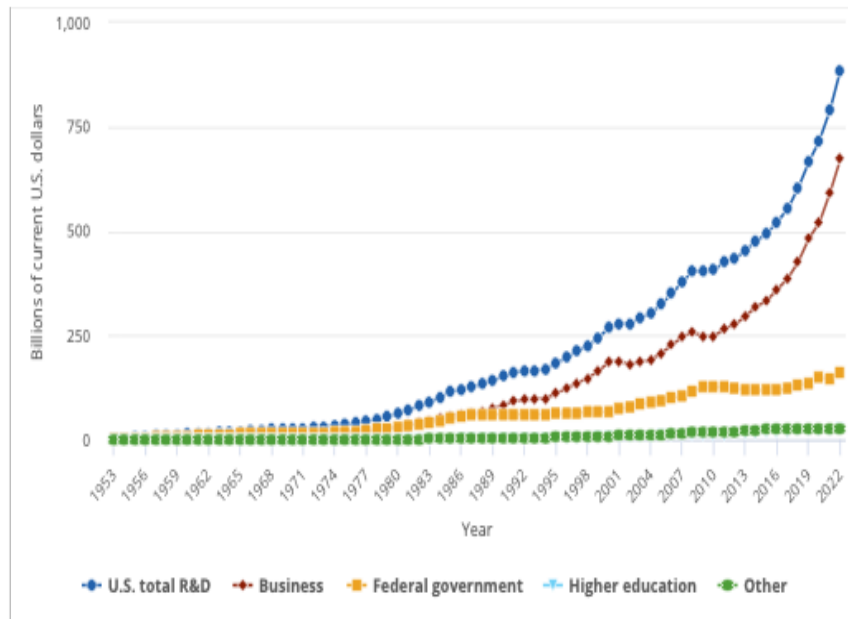
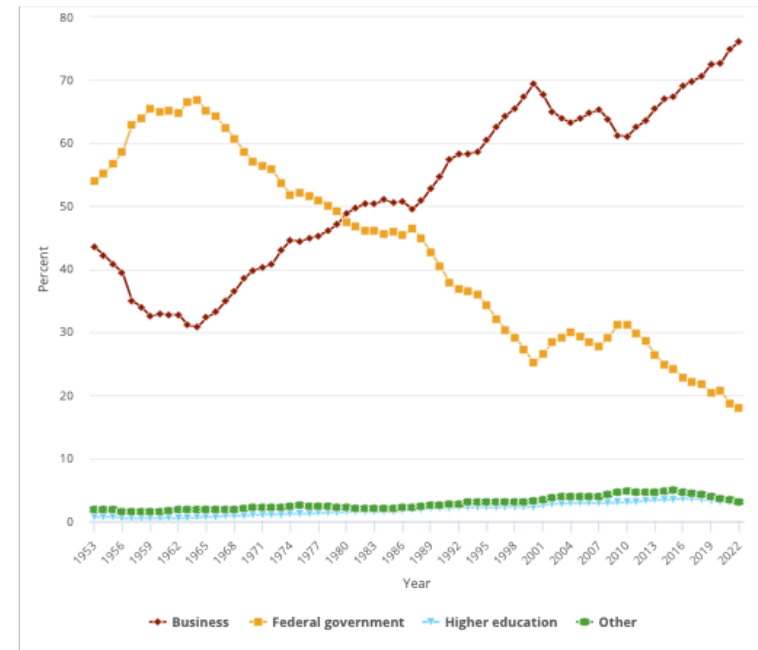
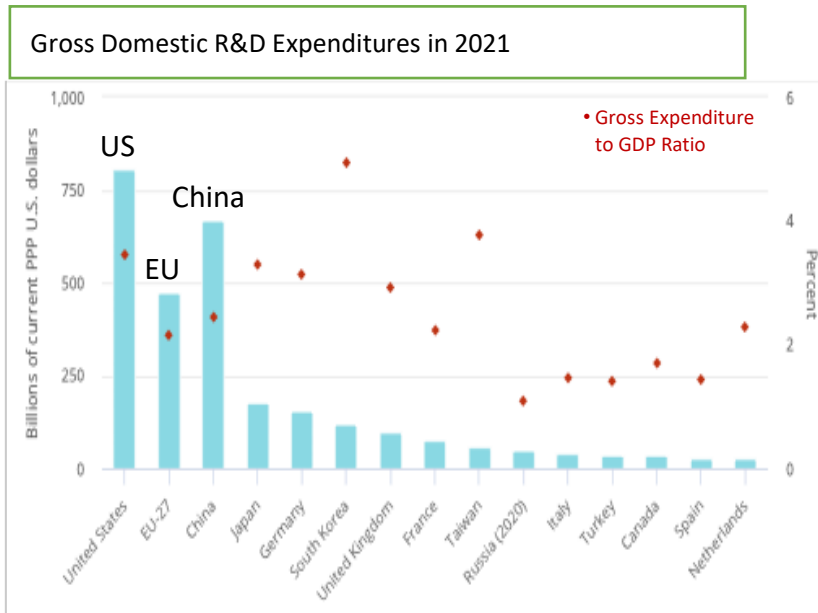


Figure RD-4

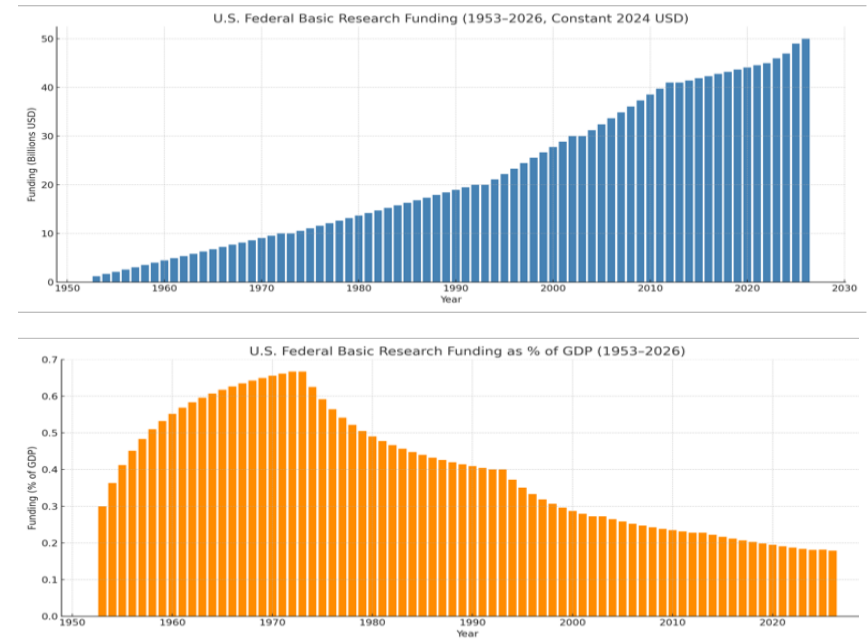
U.S. R&D expenditures, shares by funding sector: 1953–2022



3. US leads the world in R&D funding followed by China and EU.
 - ✓ US outpaces in Expenditure to GDP ratio.



4. Basic Research is 15% of Total US R&D
 - ✓ High-Risk, High-Payoff, Curiosity-Driven Discovery with long-term benefits.
 - ✓ Consistent growth in real dollars does not keep pace with Gross Domestic Production.



✓ Most University R&D expenditures in Medical Research.

Figure 2

Federal obligations for science and engineering to universities and colleges, by agency: FY 2023

