# The Economic Effects of R&D Tax Incentives in Texas

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# The Importance of R&D

R&D activities of private businesses, universities, and the government are important for

- increasing innovation
- sustained increases in economic growth
- the standard of living.

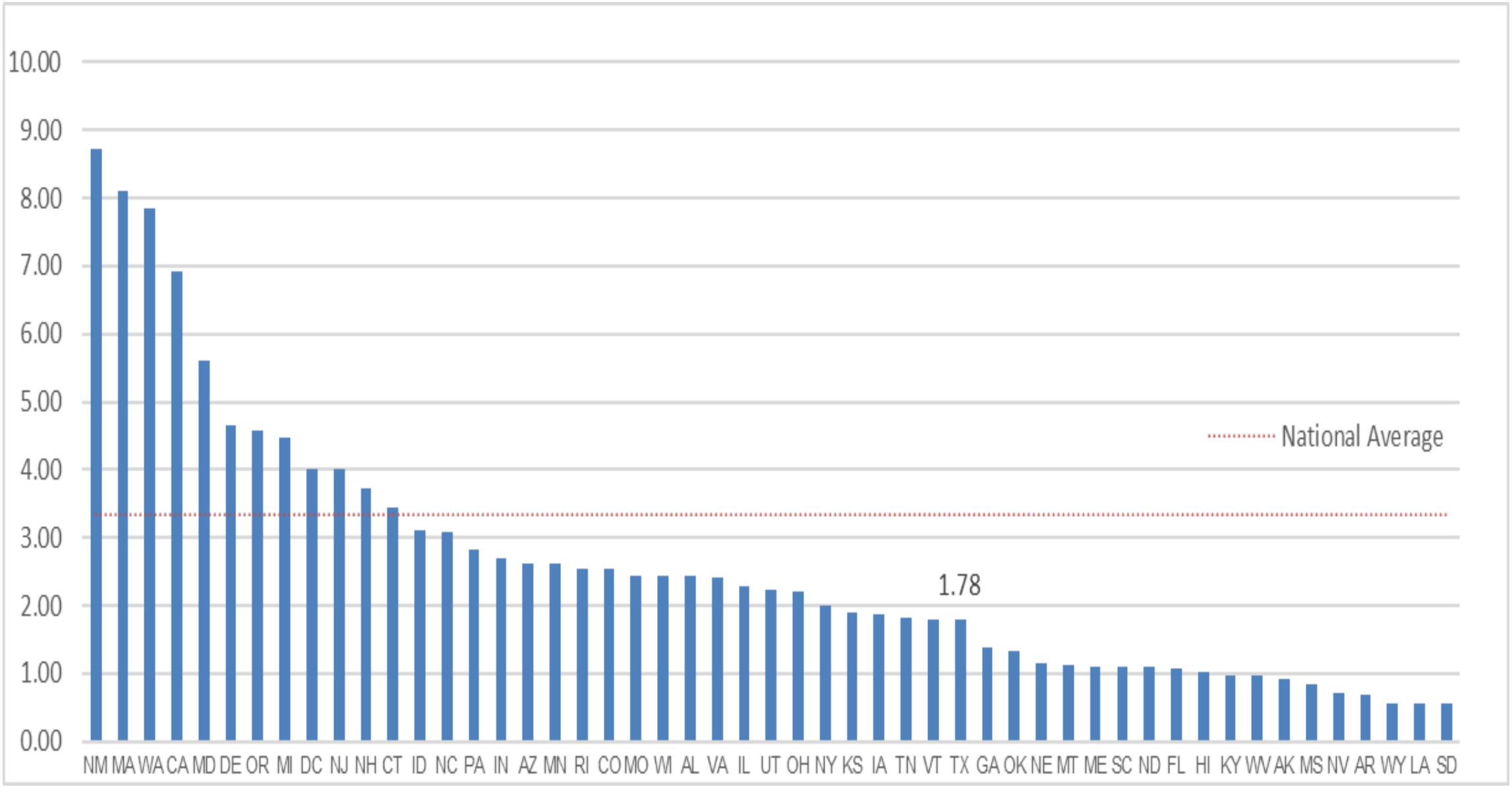
# R&D Incentives in Texas

Texas enacted incentives into law from

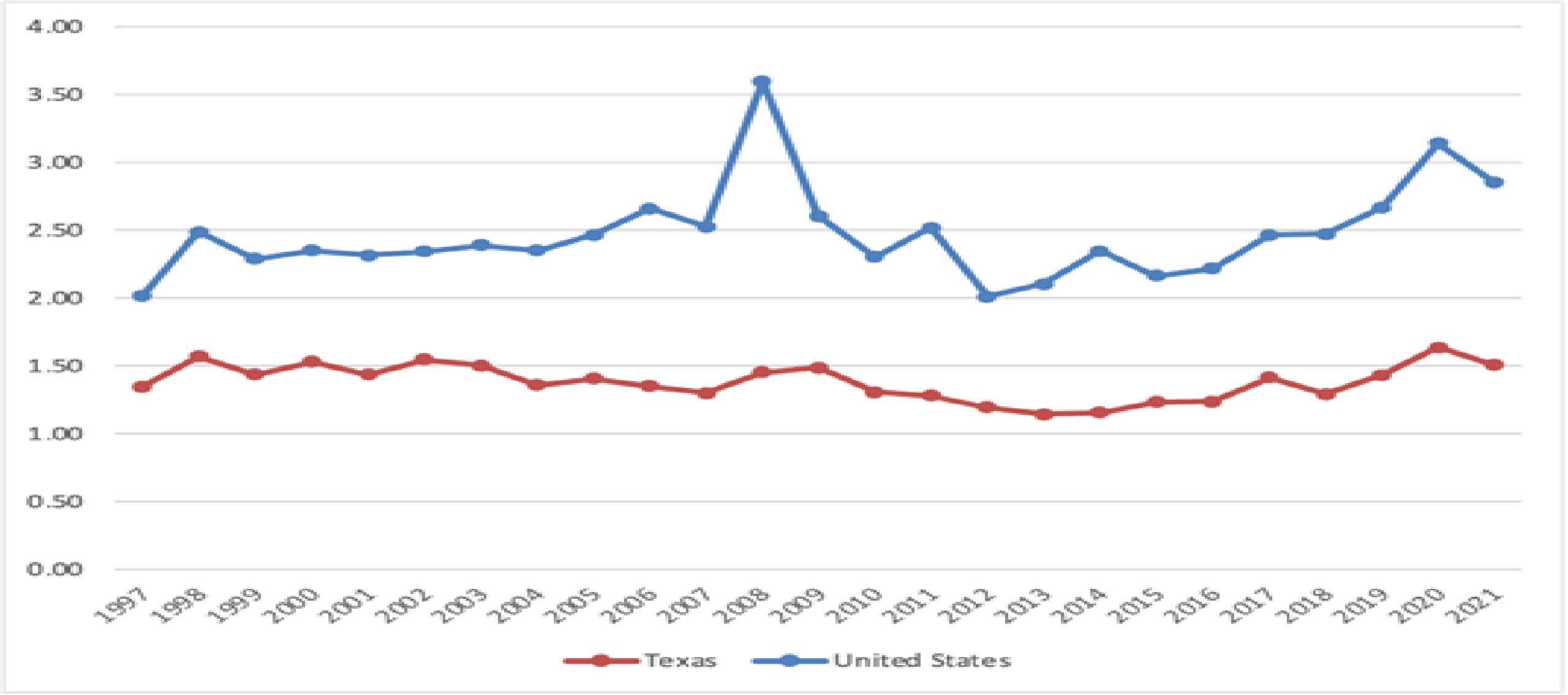
- 2000 to 2007
- 2014 to 2026

-- magnitude, structure and temporary nature of incentives are an issue.

# R&D as a Percentage of GSP 2021



# Business Funded R&D as a Percentage of Private-Industry Output 1997-2021



# Economic Effects of R&D for States

- The literature on the impact of R&D expenditures
  - depends on the after-tax price of R&D (the user cost of capital)
  - the types of businesses that benefit from different types of tax incentives
  - the mobility of R&D expenditures across states in response to tax incentives
  - the economic impact of state tax incentives.

# Economic Effects of R&D for States

- Important findings include
  - Wilson (2009): a 10 percent decrease in the price of R&D capital results in a 25 percent increase in R&D expenditures
  - Billings, Musazi, Volz, and Jones (2020): show that R&D spending by private businesses is positively related to the size of the R&D tax credit and that the strength of this effect increases with the overall tax burden.
  - Wu (2008) finds that R&D tax credits increase the number of high-technology companies in a state by roughly 1.4 percent on average
  - Fazio, Guzman, and Stern (2019) find that having a state-level R&D tax credit
    - is associated with a 7 percent increase in new business formation
    - increases entrepreneurship by about 2 percent a year and by 20 percent after 10 years

# Diamond-Zodrow Model

- Dynamic, overlapping generations, computable general equilibrium model of the economy
  - Calibrated to match aggregated version of Texas economy
  - Three production sectors (NH, OH, RH)
  - Each household lives for 55 years, works for 45 years and is retired for 10 years, maximizes lifetime welfare subject to a lifetime budget constraint, accounting for wage and capital income, taxes at federal, state and local level, transfer income, and a target bequest
  - Federal, state, and local govt's purchase goods at market prices, make transfer payments, pay interest on debt, collect revenues with varies tax instruments
  - Economy begins and ends in a steady state and equilibrium
  - The model is based on real prices and ignores inflation

# The Proposal Examined

- A credit against Texas franchise tax equivalent to 8.722% of new QREs for research conducted in Texas, or 10.903% if the taxpayer contracts with a university for performance of the research.
  - New QREs for research conducted in Texas is equivalent to
    - (1) the amount of QREs reported by a taxpayer on Internal Revenue Service Form 6765 and incurred in Texas,
    - minus (2) 50 percent of the average amount of QREs reported on Form 6765 and incurred in Texas during the three preceding tax years.
    - Limited to 50% of the franchise tax due for that year
    - excess credit may be carried forward to a future tax year (limited to 20 years).
- The proposal reduces revenue by $661.4 mil. in FY2026

# Macro Effects of R&D Tax Credit: GC Offset

| Variable % Change in Year: | 2026 | 2030 | 2035 | 2045 | LR |
|---|---|---|---|---|---|
| GSP | 0.01 | 0.04 | 0.07 | 0.11 | 0.13 |
| Total Consumption | -0.01 | 0.02 | 0.05 | 0.09 | 0.11 |
| Total Investment | 0.25 | 0.30 | 0.36 | 0.38 | 0.35 |
| Non-Housing | 0.45 | 0.45 | 0.49 | 0.48 | 0.46 |
| Owner Housing | -0.18 | -0.03 | 0.07 | 0.16 | 0.11 |
| Rental Housing | -0.22 | -0.05 | 0.06 | 0.16 | 0.11 |
| Total Capital | 0.02 | 0.06 | 0.12 | 0.22 | 0.29 |
| Total Wages | 0.01 | 0.04 | 0.07 | 0.11 | 0.13 |
| State and Local Taxes | -0.01 | 0.02 | 0.06 | 0.12 | 0.17 |
| Property Taxes | 0.01 | 0.04 | 0.10 | 0.18 | 0.26 |
| Sales Taxes | -0.01 | 0.02 | 0.05 | 0.09 | 0.11 |
| Business Taxes | -0.09 | -0.04 | 0.01 | 0.04 | 0.06 |

# Macro Effects of R&D Tax Credit ($ mil.)

| Variable % Change in Year: | 2026 | 2030 | 2035 | 2045 | LR |
|---|---|---|---|---|---|
| GSP | $259 | $1058 | $2176 | $4224 | $28774 |
| Total Consumption | -$204 | $349 | $999 | $2270 | $16627 |
| Total Investment | $973 | $1242 | $1643 | $2183 | $11940 |
| Non-Housing | $1200 | $1282 | $1550 | $1888 | $10735 |
| Owner Housing | -$165 | -$26 | $74 | $227 | $934 |
| Rental Housing | -$62 | -$14 | $19 | $68 | $270 |
| Total Capital | $1073 | $3938 | $8963 | $20017 | $160289 |
| Total Wages | $222 | $665 | $1322 | $2532 | $17340 |
| State and Local Taxes | -$18 | $43 | $133 | $322 | $2653 |
| Property Taxes | $10 | $37 | $91 | $214 | $1804 |
| Sales Taxes | -$9 | $14 | $41 | $96 | $734 |
| Business Taxes | -$19 | -$8 | $1 | $11 | $115 |

# Macro Effects of R&D Tax Credit: Tax Offset

| Variable % Change in Year: | 2026 | 2030 | 2035 | 2045 | LR |
|---|---|---|---|---|---|
| GSP | 0.01 | 0.04 | 0.07 | 0.11 | 0.12 |
| Total Consumption | -0.01 | 0.02 | 0.06 | 0.10 | 0.13 |
| Total Investment | 0.24 | 0.29 | 0.35 | 0.37 | 0.35 |
| Non-Housing | 0.44 | 0.44 | 0.48 | 0.47 | 0.46 |
| Owner Housing | -0.18 | -0.03 | 0.06 | 0.16 | 0.12 |
| Rental Housing | -0.23 | -0.05 | 0.05 | 0.16 | 0.11 |
| Total Capital | 0.02 | 0.06 | 0.12 | 0.21 | 0.29 |
| Total Wages | 0.01 | 0.04 | 0.07 | 0.11 | 0.13 |
| State and Local Taxes | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Property Taxes | 0.01 | 0.04 | 0.09 | 0.18 | 0.26 |
| Sales Taxes | 0.01 | -0.03 | -0.10 | -0.19 | -0.29 |
| Business Taxes | -0.09 | -0.04 | 0.00 | 0.03 | 0.06 |