

# **Pyramids, Cascades, and the Taxation of Business Inputs**

**Presented to the New Mexico Revenue Stabilization and Tax Policy Committee**

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# About ITEP

## The Institute on Taxation and Economic Policy (ITEP)

- Non-profit, non-partisan research organization
- Federal, state, and local tax policy issues
- We conduct rigorous analyses of tax and economic proposals and provide data-driven recommendations to shape equitable and sustainable tax systems.



# Topics for Today

1. What is pyramiding?
2. What isn't pyramiding?
3. Problems with pyramiding.
4. Why is pyramiding so common?  
(Are the upsides of eliminating it really so great?)
5. Approaches to lessening pyramiding:  
Rate cuts vs. new exemptions

# What is Pyramiding / Cascading?

- “**Pyramiding** results when a sales tax is imposed multiple times on the same value of business input purchases at multiple stages in the production and distribution process leading up to a final sale to consumers.”
  - *Phillips, Andrew and Muath Ibaid, “The impact of imposing sales taxes on business inputs,” Ernst & Young LLP. Emphasis added.*
- “If businesses pay sales taxes when they purchase their inputs and then again when they sell their outputs, a problem of cascading develops.”
  - *Slemrod, Joel and Jon Bakija, “Taxing Ourselves,” MIT Press. Emphasis added.*

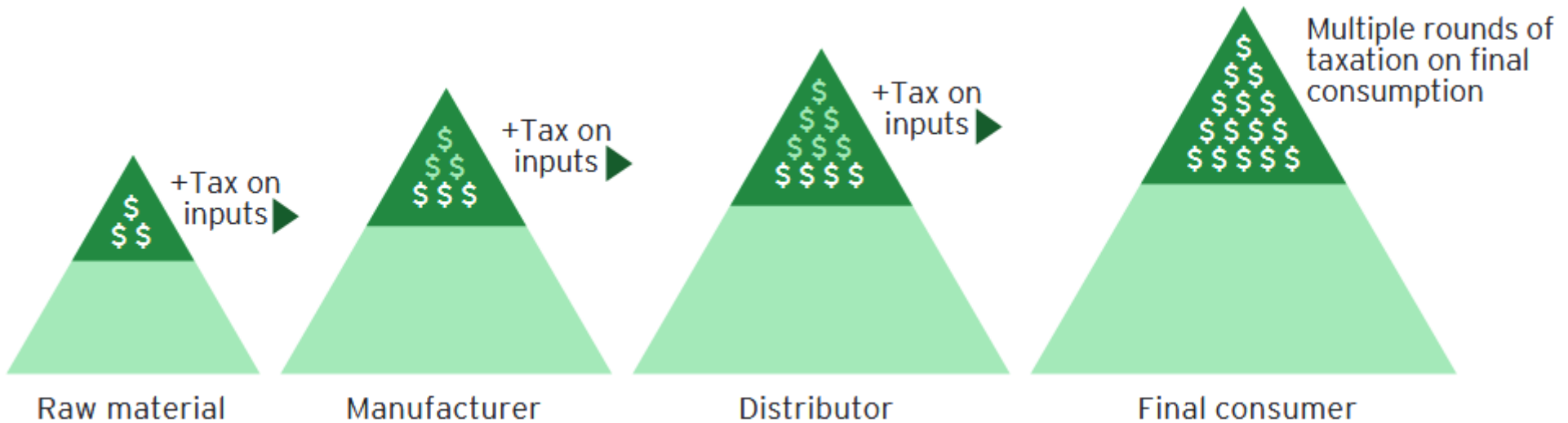
# What isn't Pyramiding / Cascading?

Taxing an input to a  
good or service where...

- The final sale is exempt
- The final product is exported
  - (At least, it's not pyramiding from a New Mexico only perspective.)



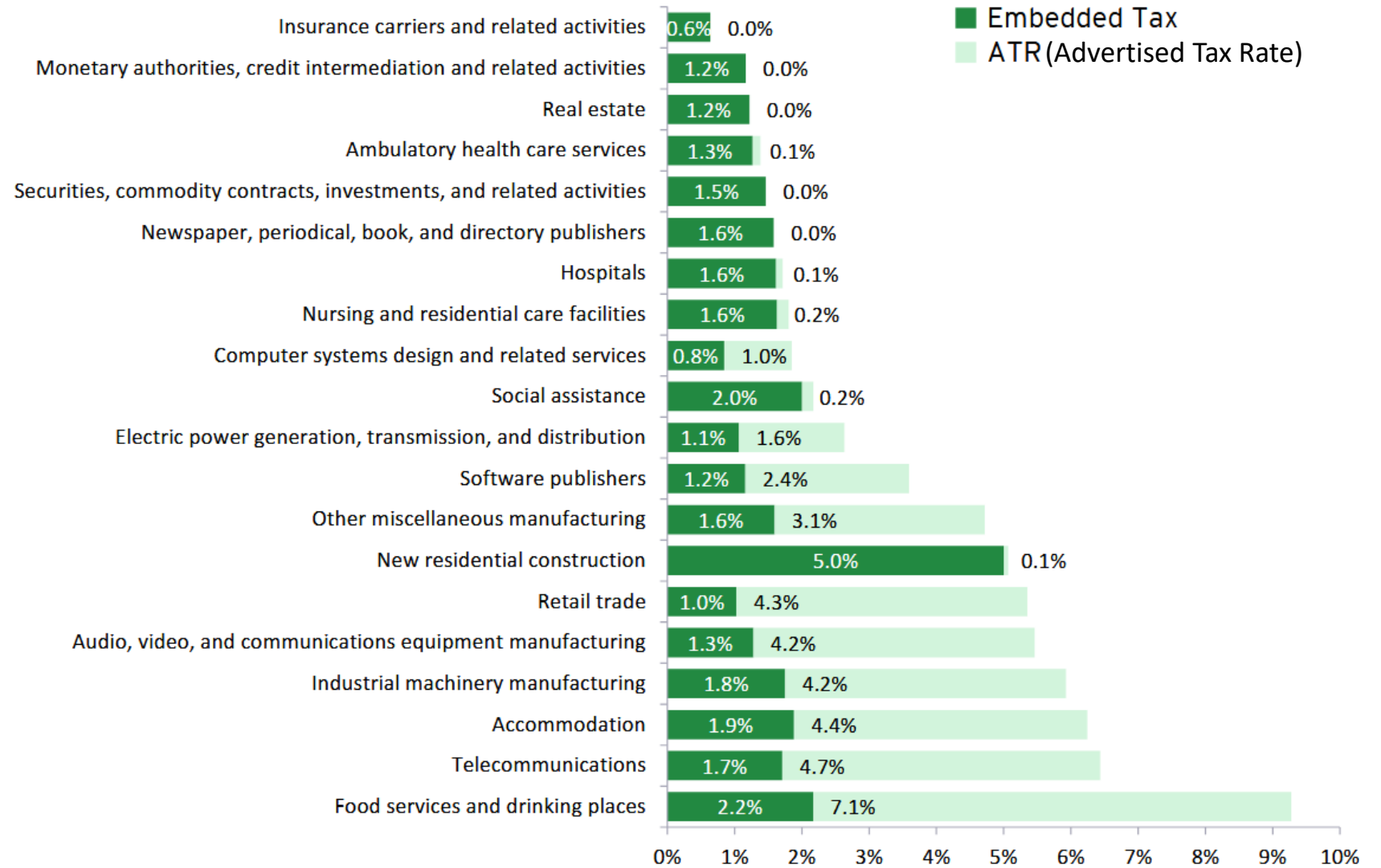
# Illustrations of Pyramiding Sometimes Exaggerate Its Effects



(In this illustration, pyramiding triples the advertised tax rate and taxes ultimately comprise around 1/4<sup>th</sup> of the tax-inclusive purchase price.)

# Reality (nationally) looks more like:

Source: Phillips, Andrew and Muath Ibaid, "The impact of imposing sales taxes on business inputs," Ernst & Young LLP.



# What Pyramiding (Mostly) Isn't: A Tax on a Tax

Say there's a product that sells for \$1,000 and is subject to an 8% advertised tax rate plus substantial taxes on business inputs (this high degree of pyramiding is not typical of most industries):

- **Stage 1** of production:
  - \$150 of inputs \* 8% rate = \$12 embedded tax
- **Stage 2** of production:
  - (\$600 of inputs + \$12 Stage-1 tax) \* 8% rate = \$48.96 embedded tax
- **Final sale:**
  - (\$939.04 price before embedded taxes + \$12 Stage-1 tax + \$48.96 Stage-2 tax) \* 8% rate = \$80 visible tax

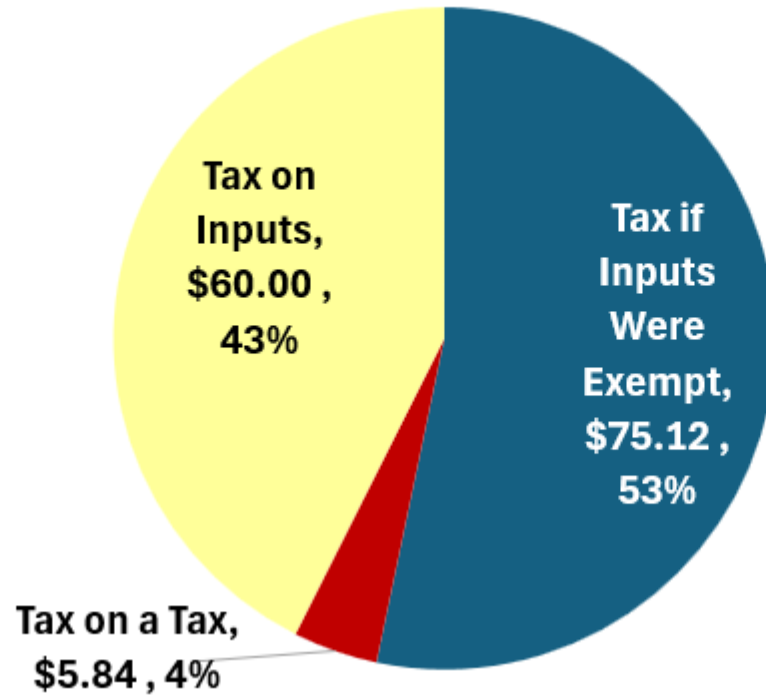


# Three Ways of Looking at this Hypothetical, High-Pyramiding Scenario

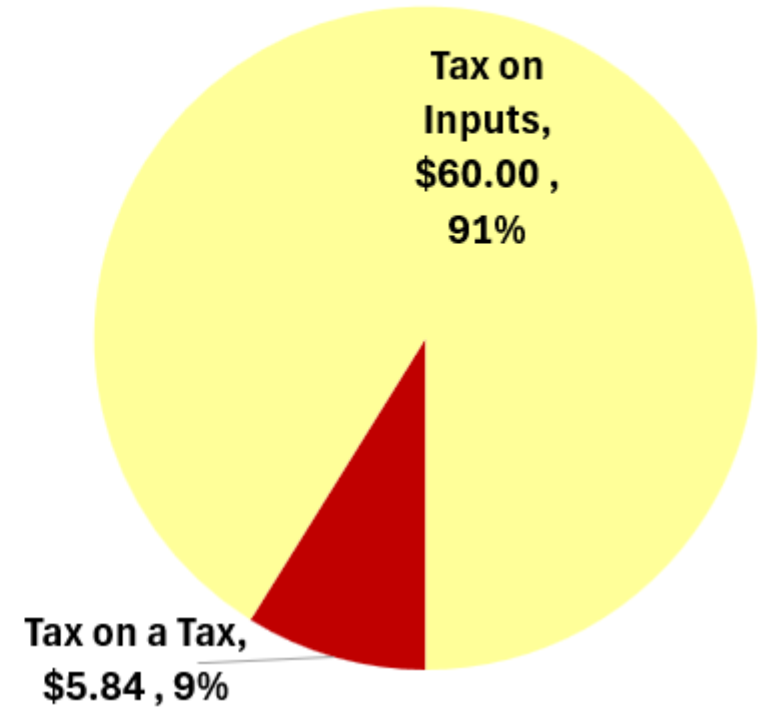
Effective Tax Rate =  
15.0%



Decomposition of Full Tax



Decomposition of Pyramiding Only



# Common Arguments Against Taxing Business Inputs

1. Contrary to principles of sales tax in some respects
2. Non-neutral across firms (e.g., encourages vertical integration)
3. Non-neutral across sectors
4. Competitiveness of firms selling in national/international markets
5. Opaque, regressive tax
6. Added complexity in some scenarios
7. Tax on a tax

**Question:** Why does no state even come close to fully exempting business purchases from sales tax?

**Lowest State (Indiana)**

**32%**

**Business share**

Source: EY

**Nationwide Average**

**42%**

**Business share**

Source: EY

# Answer: Because doing so involves significant tradeoffs.

## Arguments for Exempting Inputs

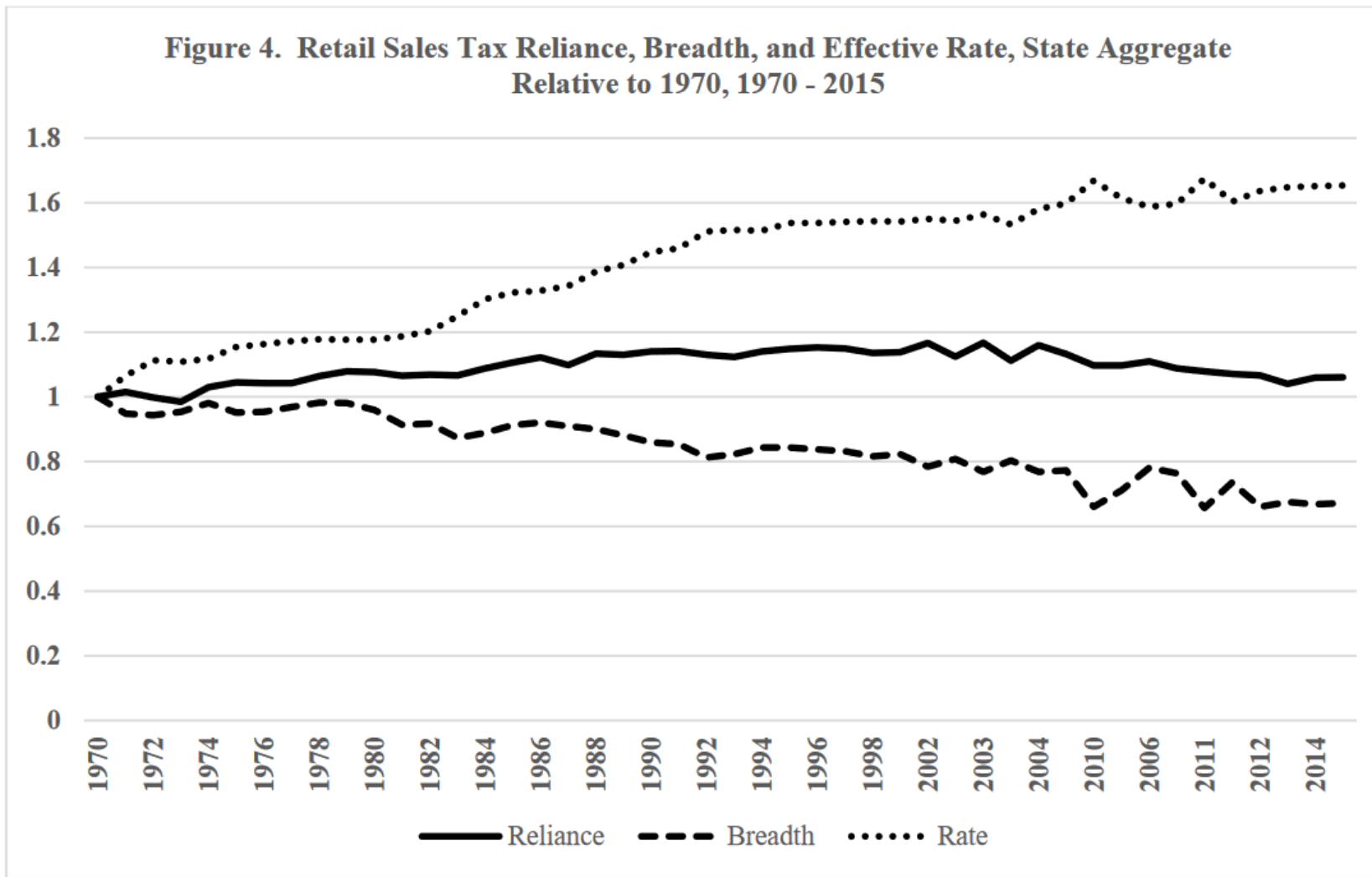
	Advantages Vertical Integration	Neutrality Toward Input Choices	Advantage to Biz Operating in Natl / Intl Market	Tax on a Tax	Transparency
<b>Taxing Business Inputs</b>	Yes	Less	No	Yes, though typically minor	Less
<b>Partial Exemption of Business Inputs</b>	Varies	Less	Varies	Somewhat	Moderate
<b>Full Exemption of Business Inputs</b>	No	More	Yes	No	More

## Arguments for Taxing Inputs

	Revenue	Tax Rate	Evasion Potential	Exportability
<b>Taxing Business Inputs</b>	Higher	Lower	Lower	Higher
<b>Partial Exemption of Business Inputs</b>	Moderate	Moderate	Moderate	Moderate
<b>Full Exemption of Business Inputs</b>	Lower	Higher	Higher	Lower

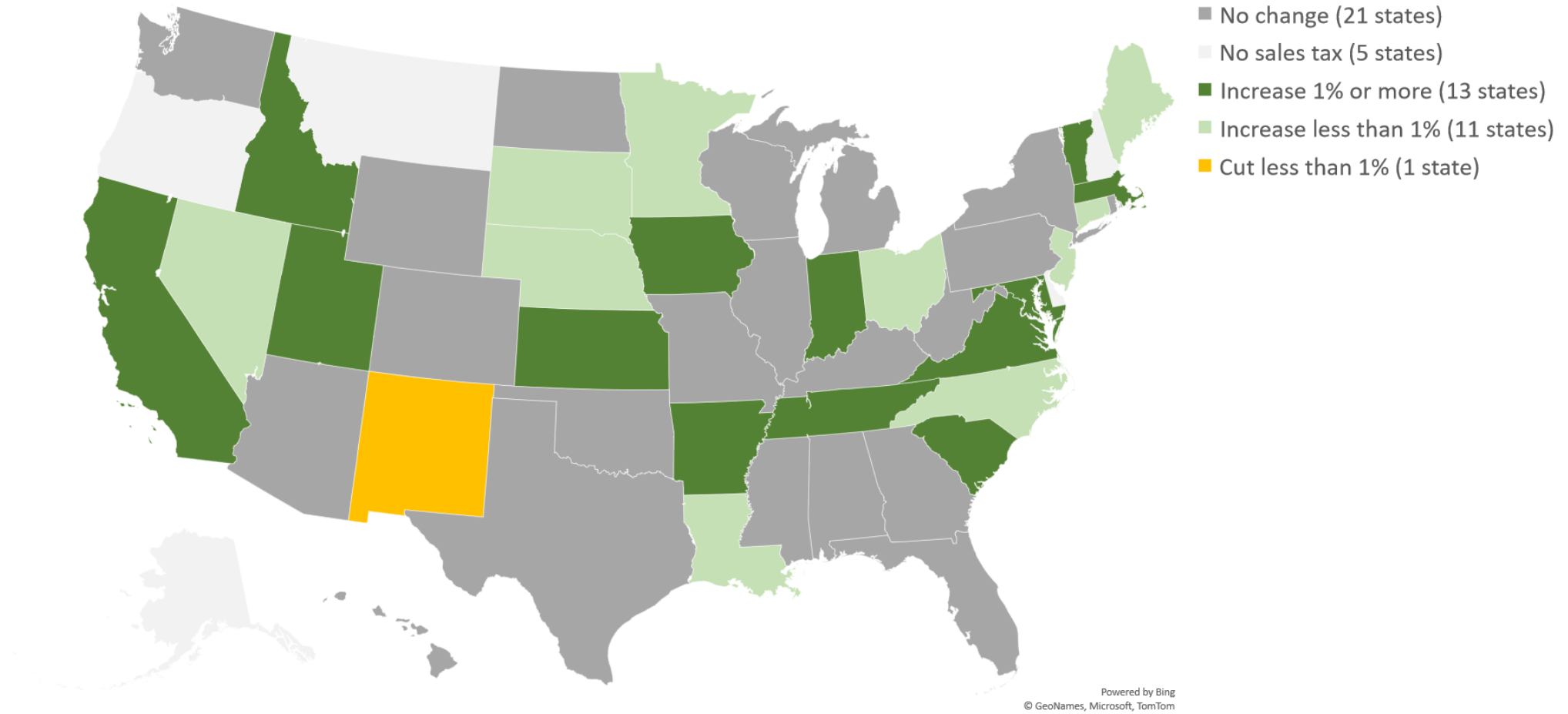
## Situation Dependent

	Simplicity	Volatility	Adherence to Principle of Taxing Final Consumption
<b>Taxing Business Inputs</b>	Varies	Varies	Varies
<b>Partial Exemption of Business Inputs</b>	Complex	Varies	Varies
<b>Full Exemption of Business Inputs</b>	Varies	Varies	Varies



Source: Mikesell, John L. and Sharon N. Kioko, “The Retail Sales Tax in a New Economy,” Municipal Finance Conference, July 2018.

# Change in State-Level General Sales Tax Rate Between 2000 and 2024



# Comparing Two Approaches to Cascading Rate Cuts vs. New Exemptions

## Pro- Exemption

Share Going to Business	Ability to Tailor Toward High-Pyramiding Industries
60%	No
<100%	Yes

## Pro- Rate Cut

Impact on Local Revenue	Headline / Advertised Rate	Number of Businesses Losing	Simple to Implement and Enforce
None	Lower	None	Simple
Negative	Higher (with local)	Some	Varies

## Other Considerations

Simpler for Business	Number of Businesses Benefiting	Improved Neutrality Toward Input Choices	Impact on Volatility	Adherence to Principle of Taxing Final Consumption
No change	~All	Varies	None	No change
Varies	Targeted	Varies	Varies	Varies

<b>Tax Rate Cut</b>
<b>New Exemptions</b>

