

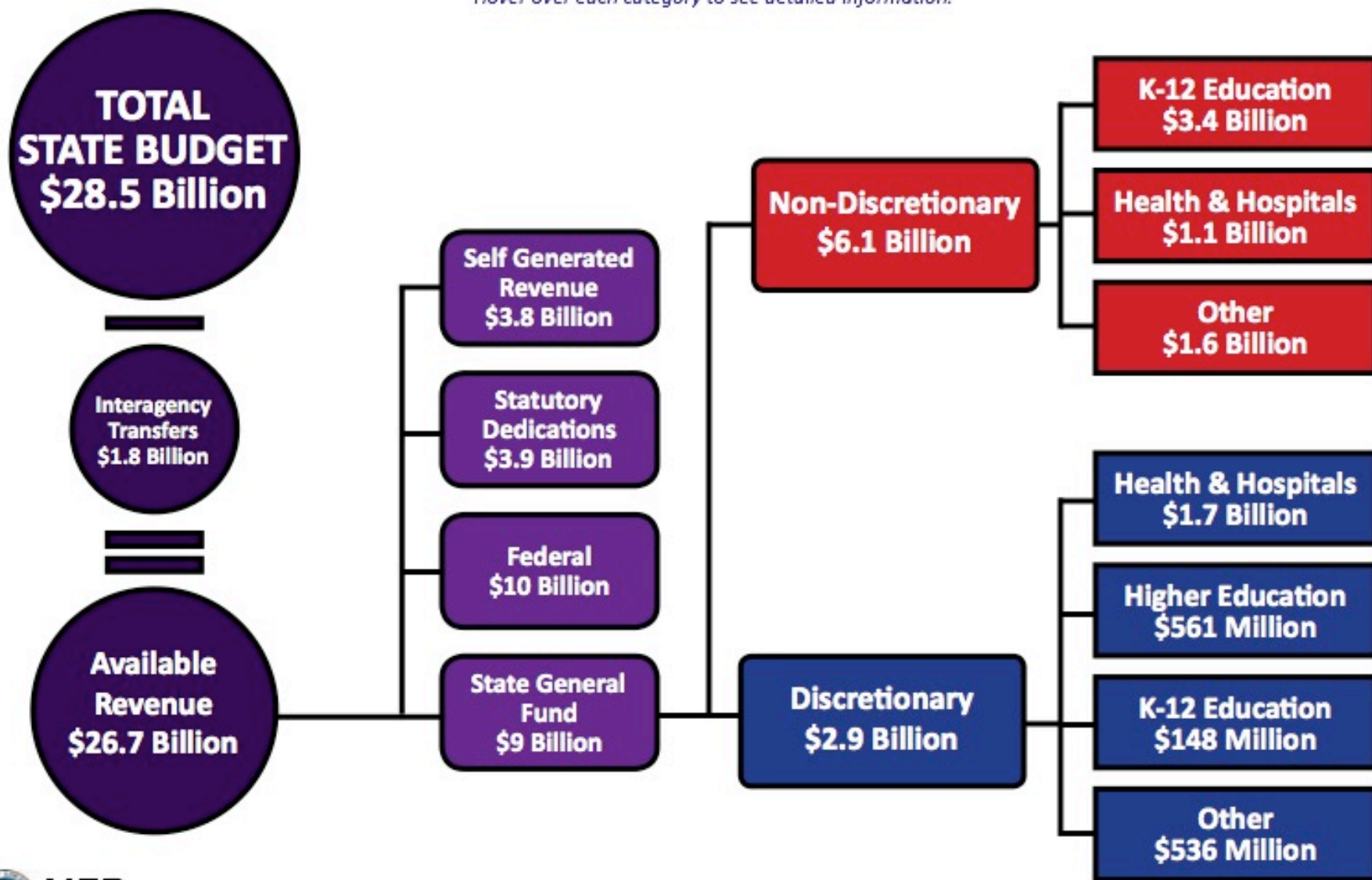


Oil Prices and the Louisiana Budget Crisis: *Culprit or Scapegoat?*

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Discretionary/Non-Discretionary Breakdown FY15-16

Hover over each category to see detailed information.





Introduction

In the News: Oil Prices and the State Budget

“Several states that are dependent on energy revenue are facing strained budgets due to low oil prices, and at least three – Alaska, Louisiana and New Mexico – are at risk of having their credit ratings lowered, according to a report from Standard & Poor’s Rating Services.”

CNBC – *Falling oil prices put the squeeze on state budgets*, Jeff Daniels, January 22, 2016

“A significant portion of the economy is tied to the world market’s extremely low oil prices. When the oil and natural gas markets suffer – as they have been since the summer of 2014 – Louisiana’s economy suffers . . . Some of the state government’s current budget deficit is also more directly tied to the low oil prices.”

Nola.com – *Louisiana’s budget is a hot mess: How we got here*, Julia O’Donoghue. February 12, 2016.

Introduction

Arguably, the largest two news stories in Louisiana over the last year have been:

1. Historic Budget Crisis
2. Historical Drop in Oil Prices

This story of oil prices and the budget shortfall might be interpreted, to some, as a scapegoat for politicians as they cannot control global oil prices!

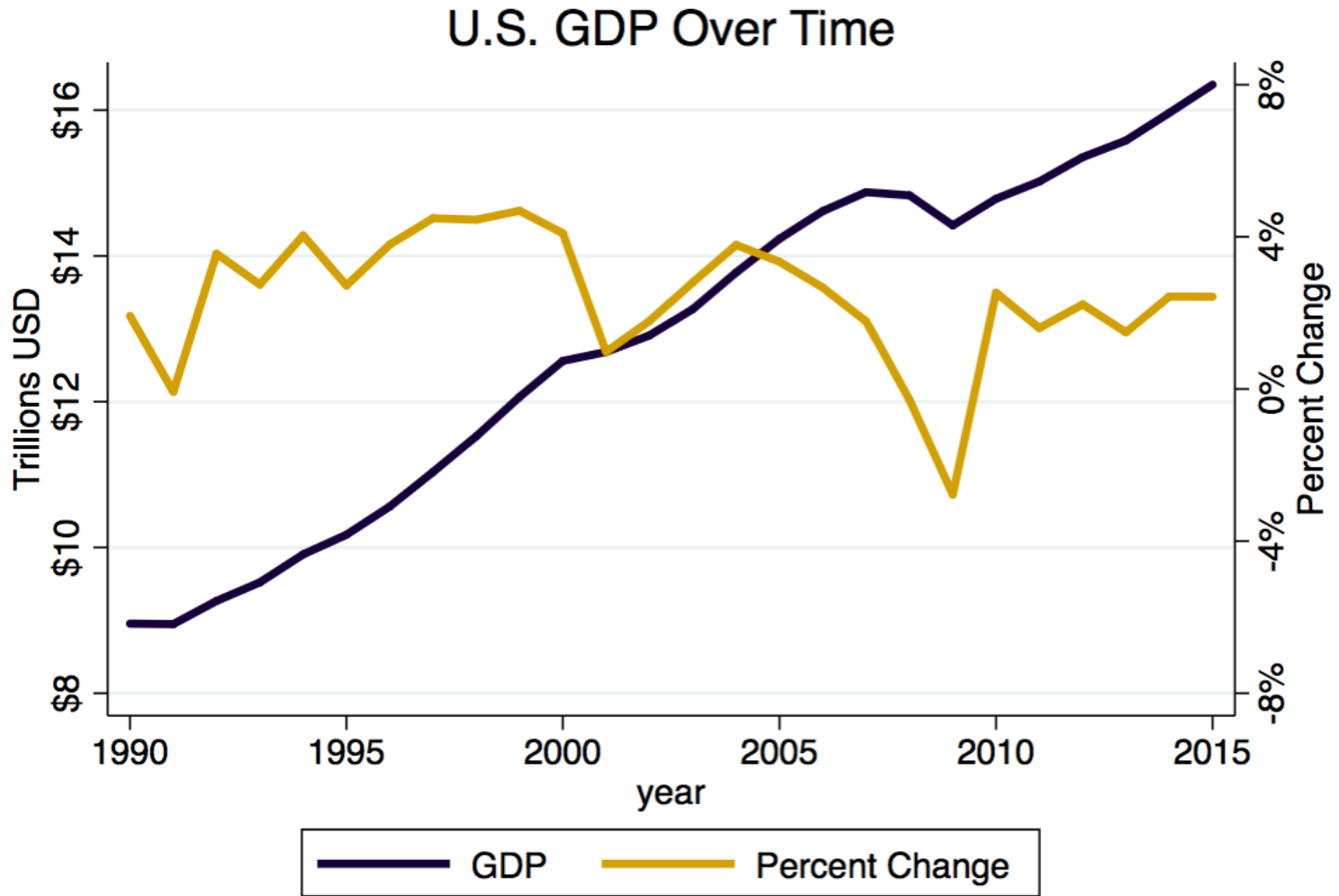
But has this old adage simply turned into a scapegoat that politicians use? Or is a drop in the oil price truly catastrophic for our state budget?

Introduction

- The history of Louisiana's budget woes can, in part, be explained by volatility in oil and gas prices.
- States with a large share of the economy concentrated in one industry inherently have a more volatile economy.
 - Any given industry is more volatile than the economy as a whole.
 - In a given year, one industry might do well, while another might not.
 - But on aggregate, the U.S. has experienced remarkably consistent economic growth over about 2 to 3 percent per year for the past century.

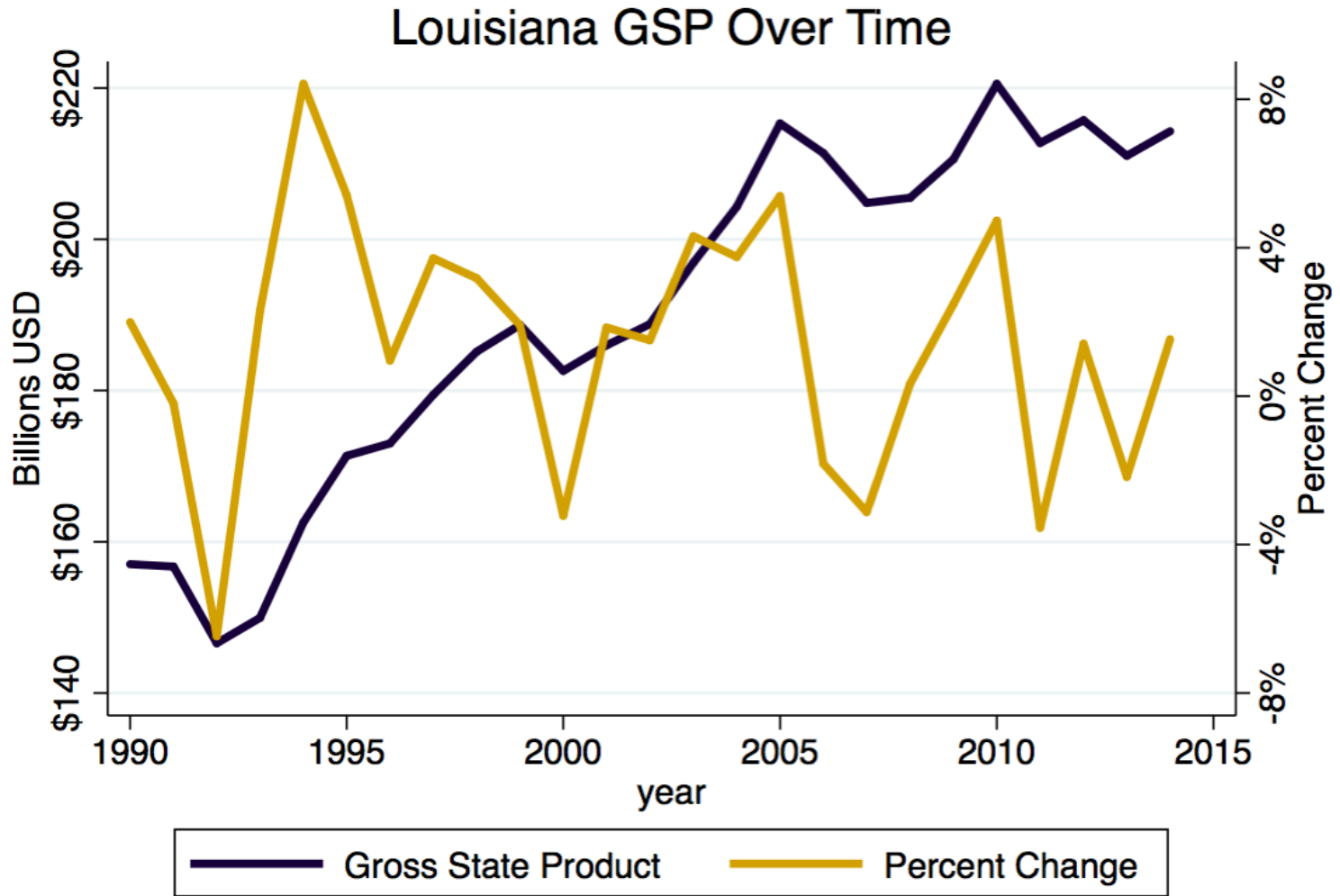
Individual industries, and individual states, have not seen such a long run steady growth rate.

U.S. GDP Growth



U.S. GDP chained in 2009 dollars.

Louisiana GSP Growth



GSP chained in 2009 dollars.

Free Markets to Work!

- Substitution of resources from one sector to another is a sign of a healthy economy!
 - Capital, both human and physical, are transferred to different sectors of the economy as needed.
 - This flexibility is one of the great benefits provided by the capitalistic engine that drives our economy.

Shortage → Increased Price → Increased Production

Surplus → Decreased Price → Decreased Production

But sometimes, while the boom might feel good, the bust can really hurt!

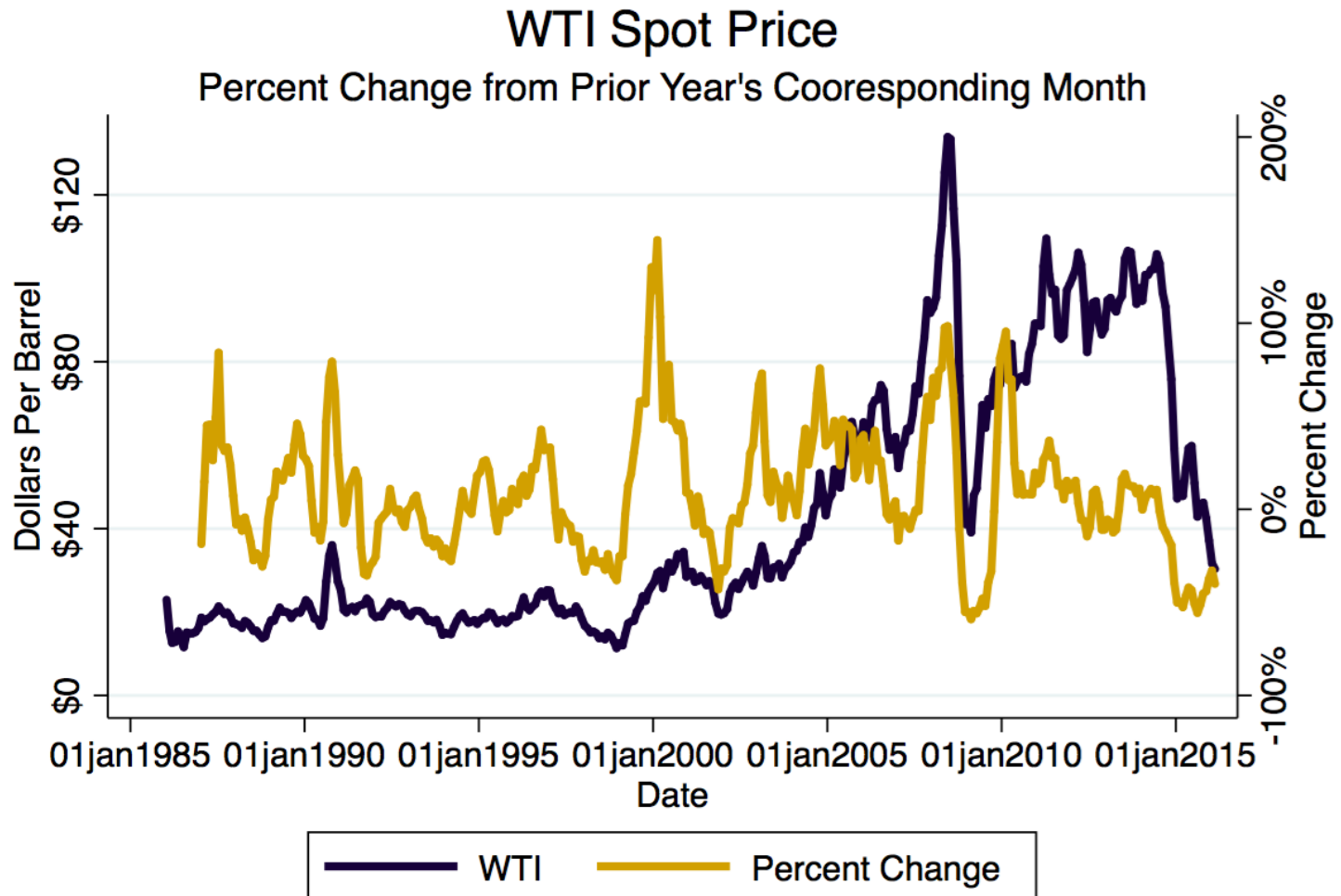
Global Markets

Upstream oil and gas extraction can be a particularly volatile industry, because price swings can be completely independent of local events.

Commodities, in general that are traded on a global market (such as crude oil) can commonly see **large price swings** that can have **significant and asymmetric implications** for different areas of not only the U.S., but also the world.



Volatile Commodity Prices



Percent change based on 12 month lag.

Distributional Effects of Price Shocks

- If there is **political chaos** in the Middle East, the price of oil can skyrocket.
 - **Good** for **oil and gas producers**.
 - **Bad** for **consumers** and businesses who utilize hydrocarbons in their daily lives and business activities.
- If there is a **large discovery** or a new extraction technique invented, and the domestic oil price drops.
 - **Good** for **consumers** and businesses.
 - **Bad** for up-stream **oil and gas companies**.

Crude Prices and Rig Counts

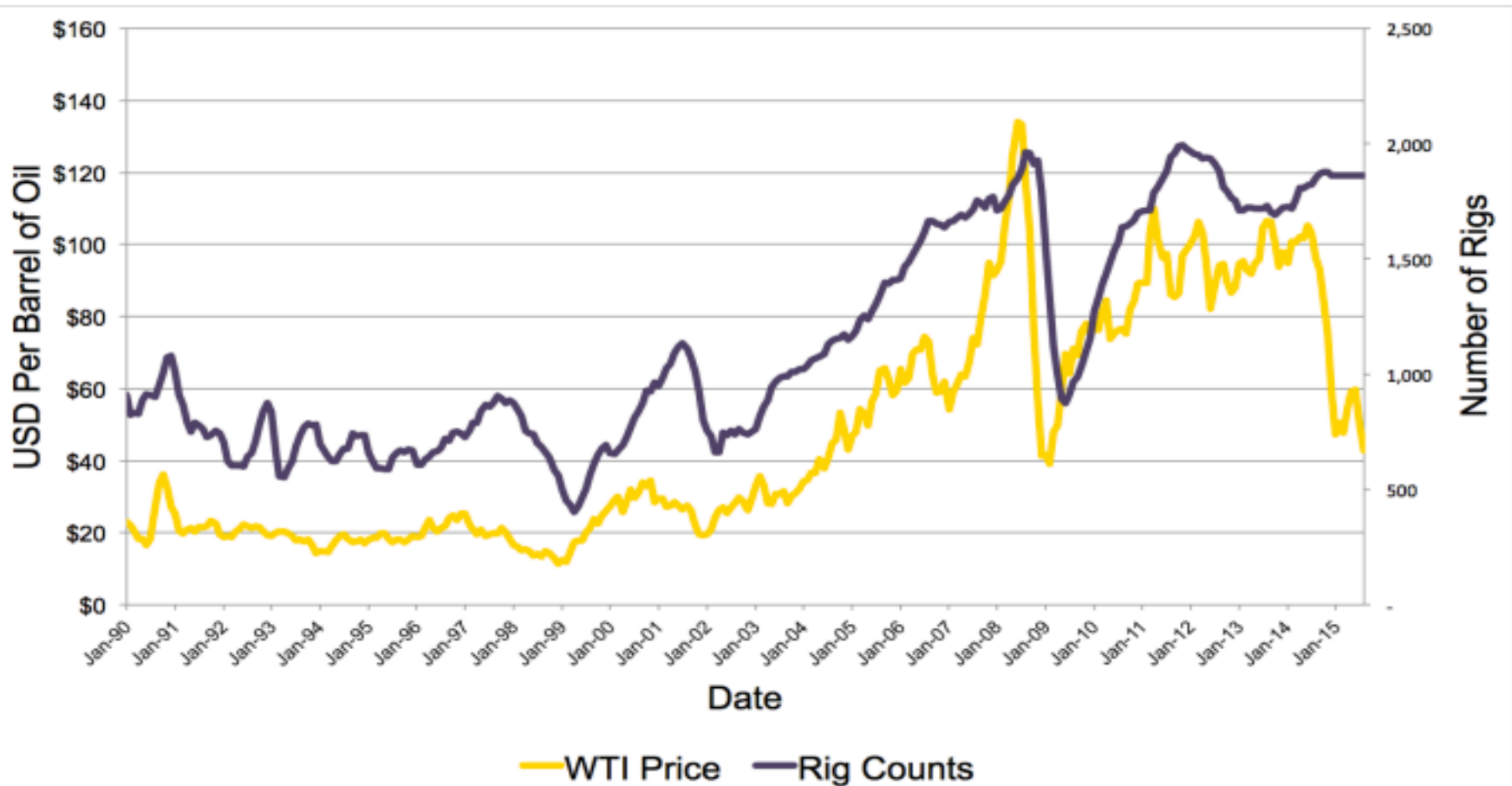


Figure 2.2: Supplier Response to Oil Price Shocks

Source: Energy Information Administration, U.S. Department of Energy; and Baker Hughes.

Source: Upton, G.B. Crude oil exports and the Louisiana economy: A discussion of U.S. policy of restricting crude oil exports and its implications for Louisiana. LSU CES Whitepaper.

Distributional Effects of Price Shocks

- The differential **impact of oil and gas booms and busts** on a state is highly **dependent upon the makeup of that state's economy**.
 - A state like Louisiana, that has historically had a large share of oil and gas workers, **benefits when the oil price increases**.
 - A state like Mississippi, with no oil and gas activity to speak of, can get the **brunt of the increased prices at the pump** when the price rises, **with no benefit associated with the booming industry**.

Thus, while the net impact of an oil price shock on the aggregate economy can be debated (and has been debated heavily for decades), the individual impact on different regions of the country can be quite clear.

So where does Louisiana fall into this mix???

Louisiana State Budget

Louisiana's state budget has historically been particularly susceptible to oil and gas price shocks for two reasons.

1. Historically **a significant share of Louisiana's tax revenues** have come directly from **severance taxes**; the tax assessed on oil and gas at the point from which it is severed from the ground.
 - When the price of oil and/or gas drops, two things occur.
 1. The actual **value** of the severance tax declines with the price.
 2. Further decreased revenues through a decrease in **production**.
2. The largest revenue generators for the state are from **sales tax** and **income tax** receipts.
 - When oil field workers are laid off, they earn less income (less income tax revenues) and have less money to spend (less sales tax revenues).
 - Countervailing effects are present in the savings for consumers and businesses in the form of cheaper fuel.

Therefore, there is simply not a straightforward way to calculate the effect of a drop of the price of oil on the state's budget!

Outline

To understand these complex relationship between the oil and gas industry and the state's budget, we must first understand:

1. The history of the oil and gas industry.
2. How this industry has shaped the state's economy and budget.



History of Oil and Gas Industry in Louisiana

Drake Well

- The extraction of hydrocarbons from the ground, i.e. “rock oil,” was motivated by the shortage of another hydrogen and carbon based molecule—namely whale oil.
- Historically, “artificial light” used to light homes at night came in the form of beeswax candles or whale oil lanterns. As demand for lighting increased during the 1800s in the United States, this drove up the price of whale oil.
- On August 27, 1859 Edwin Drake struck oil on a salt dome rock formation in Titusville, PA that was 69 feet deep and produced 15 barrels per day. The modern oil industry was born.



Edwin Drake in front of first oil well in the United States. 1859.

Spindletop

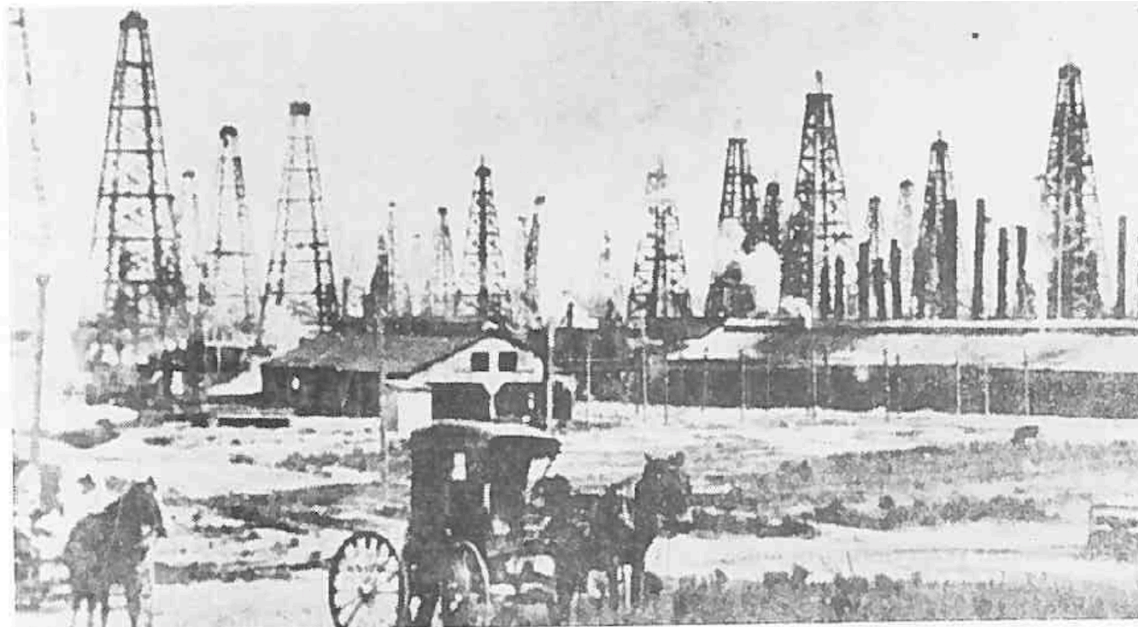
- Anthony Lucas struck oil on January 10th 1901 near Beaumont Texas near the Louisiana border.
- **“Spindletop”**—named after the hill for which the well was located, was the deepest well drilled to date at more than 1,200 feet.
- At the time, very few wells produced more than 50 barrels per day, while Spindletop’s initial production was over **50,000 barrels per day**.
- The gusher was so large and unprecedented that it took weeks for the drilling team to control the gusher.
- By itself Spindletop was producing more than **20 percent** of the **entire US production per day**. This marked the beginning of a new era of oil and gas discoveries.



Jennings Field

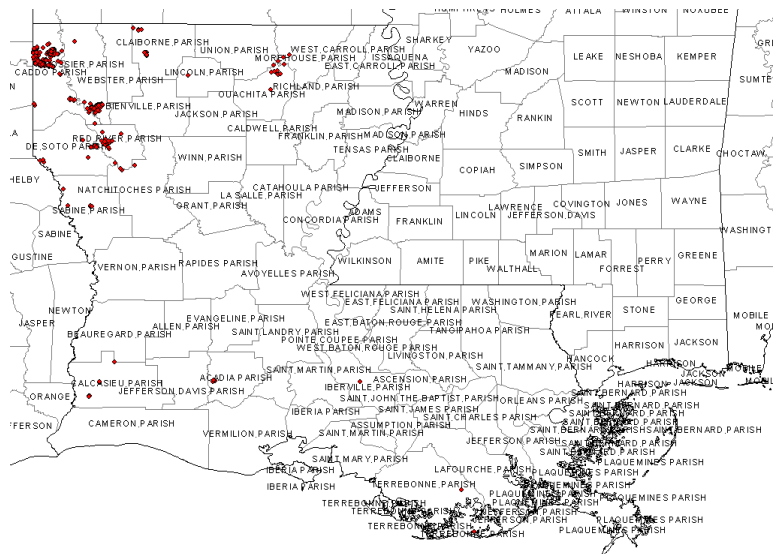
As news of Spindletop quickly spread throughout the country, focus shifted to potential oil production in the Gulf Coast region.

On September 21, 1901, less than 9 months after Spindletop, W. Scott Heywood struck oil for the first time in Louisiana, spewing oil more than 100 feet into the air and producing an estimated between **7,000 and 8,000 barrels per day**. The Gulf Coast was on its way to becoming the new epicenter for oil production in the US.

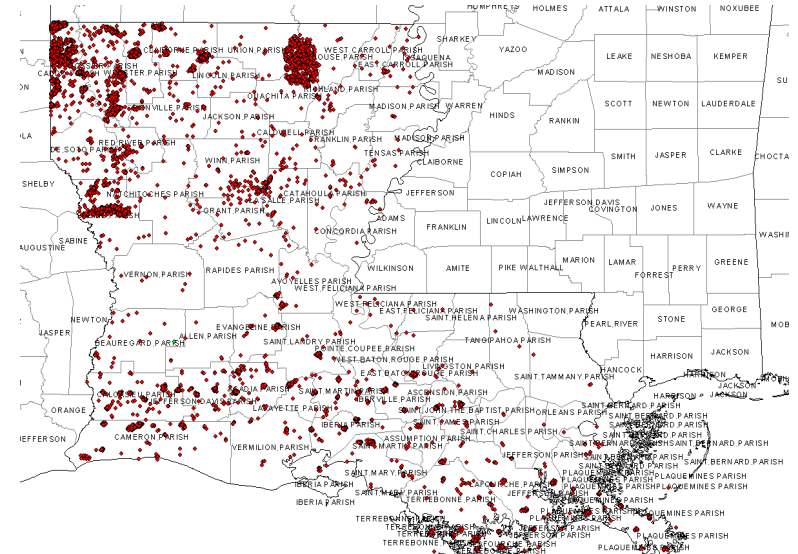


Early Days of Oil and Gas

- But drilling in Louisiana's wetlands was difficult.
- In particular, storing and transporting the oil once extracted as cost prohibitive in many locations.
- Therefore, the very early days of the industry were focused primarily in northern Louisiana.



1900 to 1920



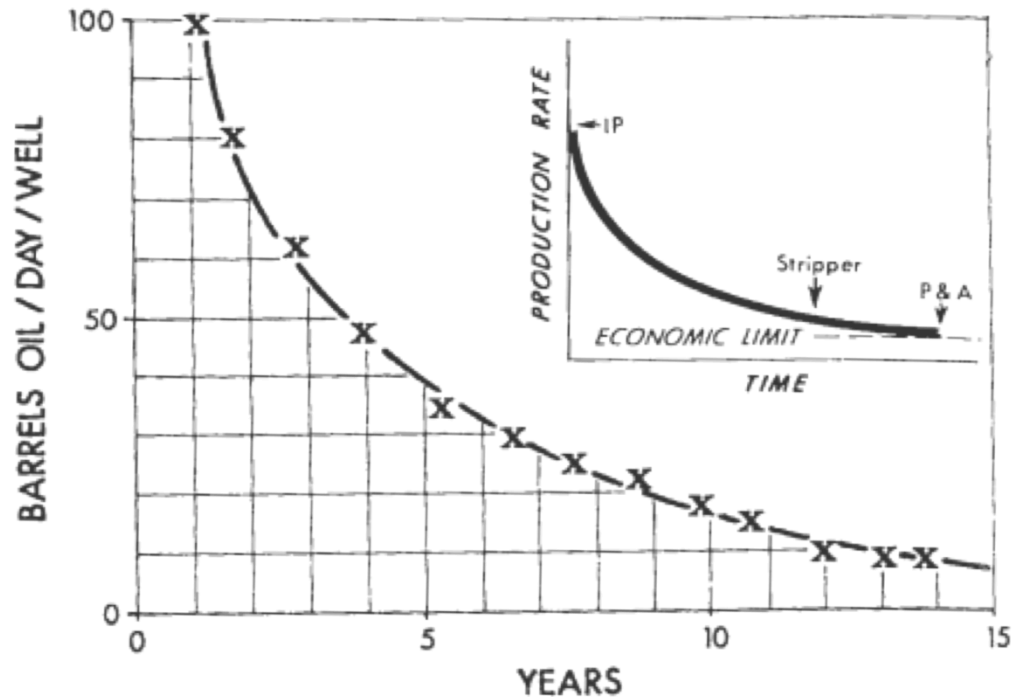
1920 to 1940

Decline Curve

When an oil or gas well is drilled, the production follows a **“decline curve.”**

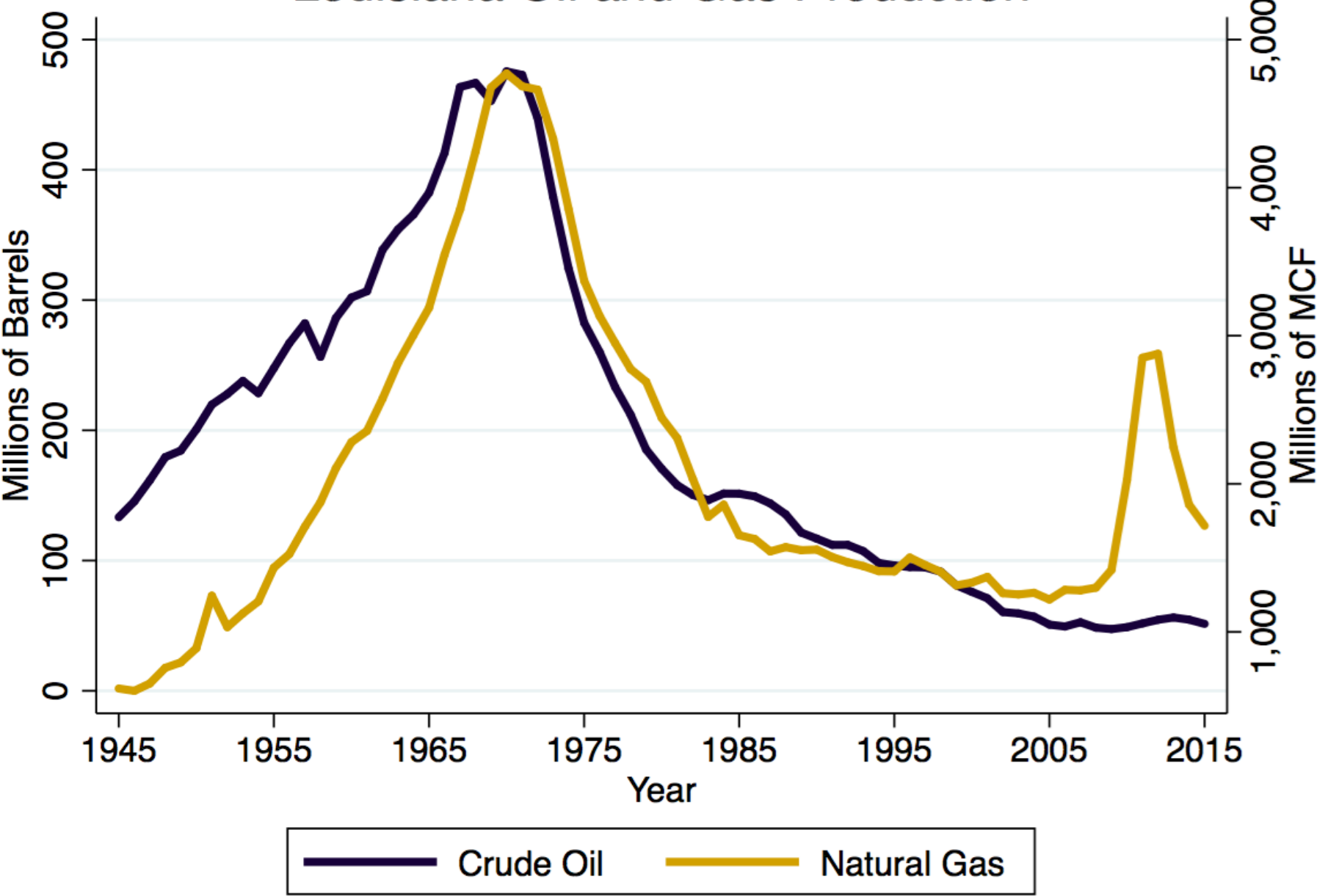
Typically, the well has a large amount of production in the weeks and months after it is first drilled, called **“Initial Production.”**

Then this production declines until eventually the well produces a more steady **“long tail”** of production.



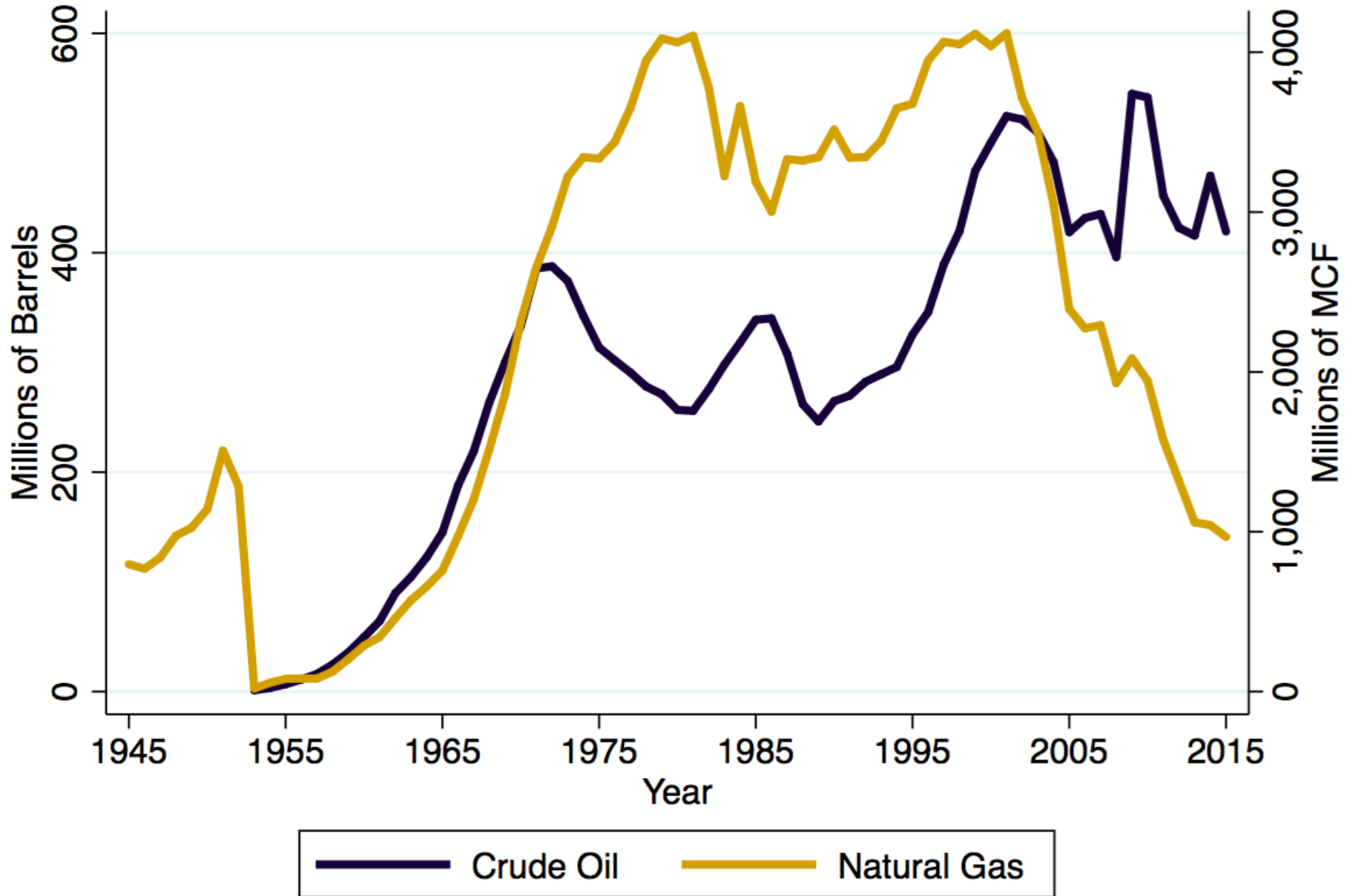
Source: Norman J. Hyne. *Nontechnical Guide to Petroleum Geology, Exploration, Drilling & Production. Third Edition*

Louisiana Oil and Gas Production



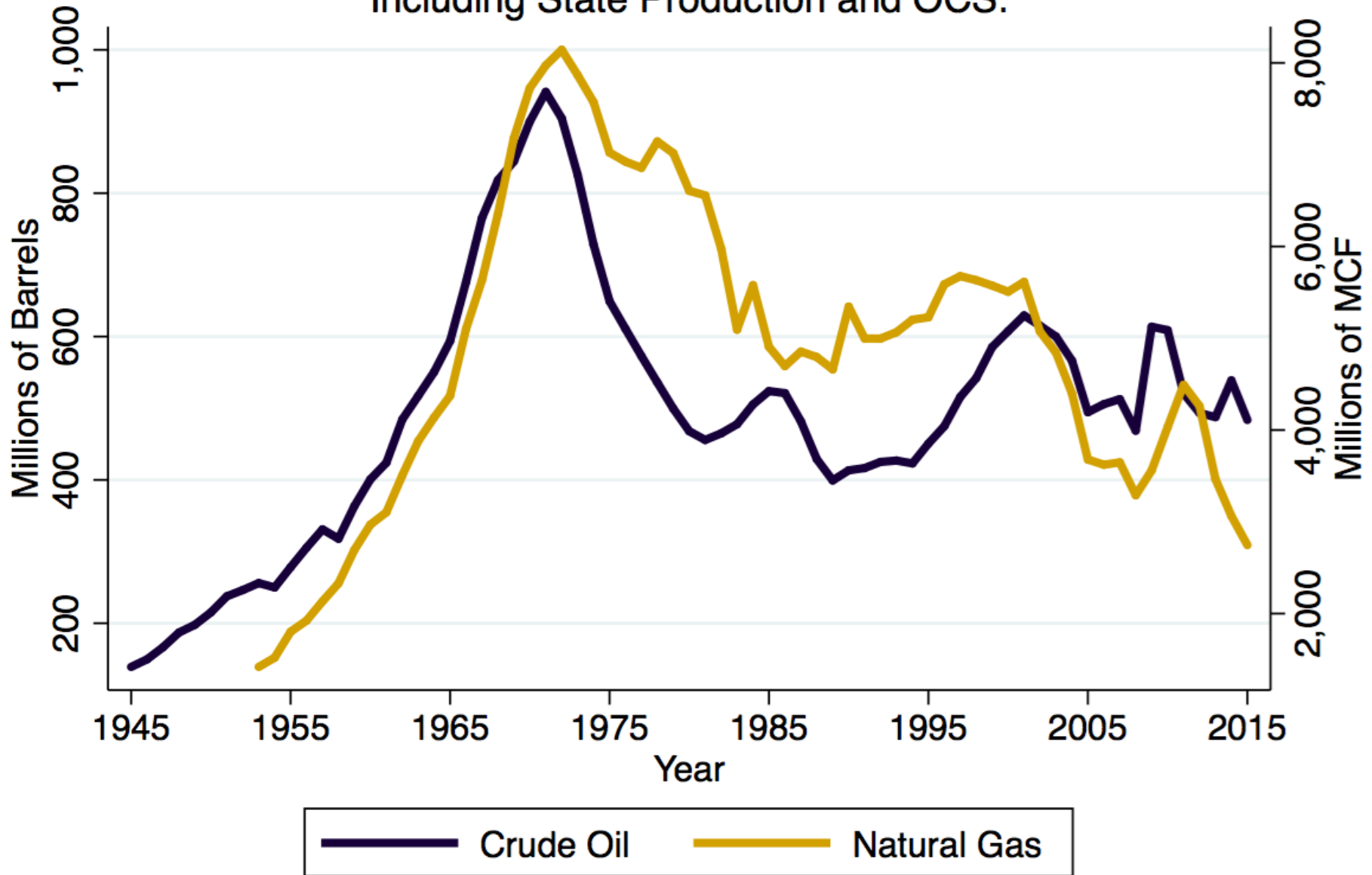
Source: LA DNR.

Louisiana Federal OCS Oil and Gas Production



Louisiana Total Oil and Gas Production

Including State Production and OCS.



A Move to Offshore

But remember, Louisiana's budget is not just impacted by severance taxes, but also from income taxes, sales taxes, etc paid by oil and gas workers.

So while state production has declined, what has happened to Louisiana's oil and gas workforce?

Oil and Gas Share of Louisiana Economy

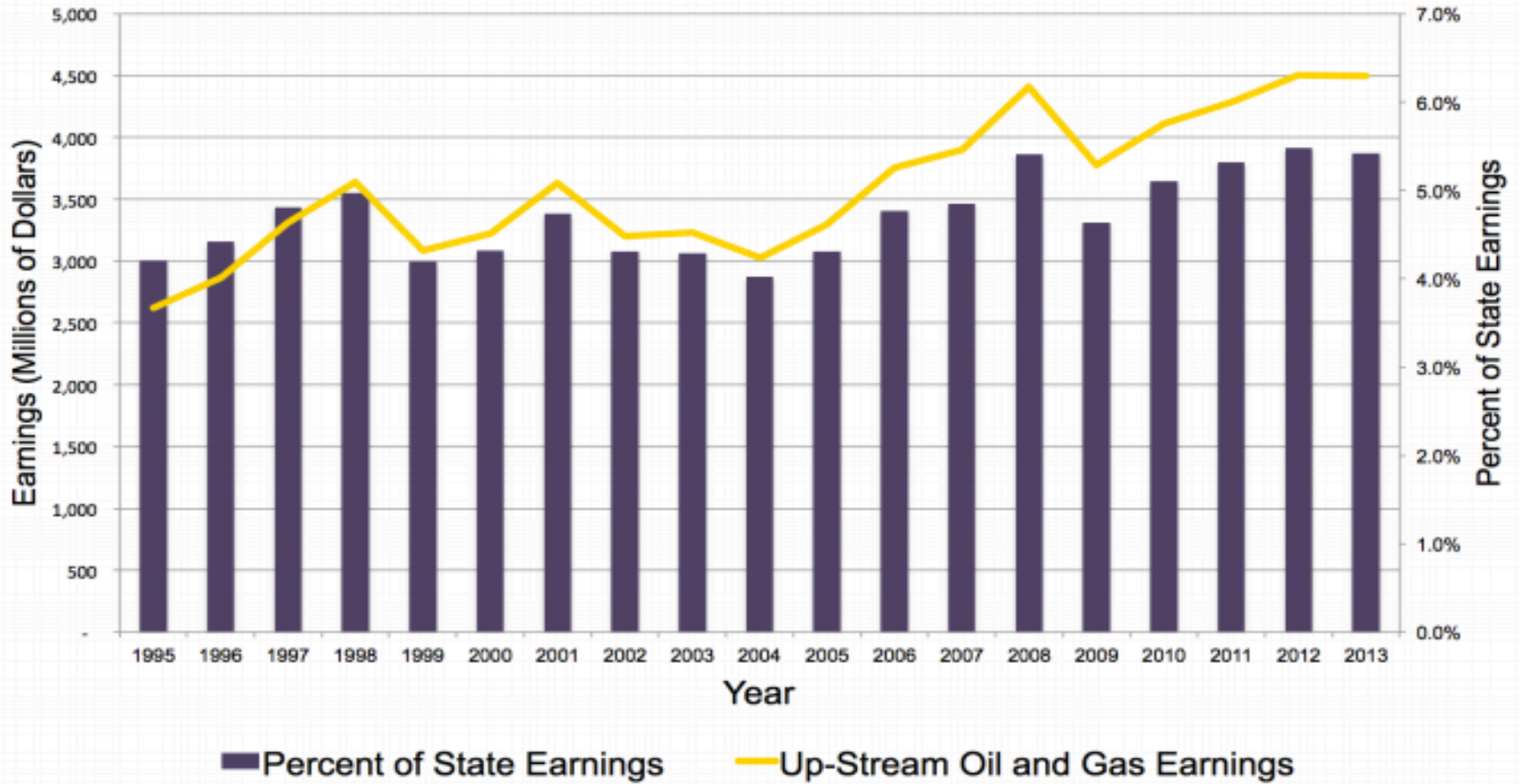


Figure 3.3: Louisiana Upstream Oil and Gas Earnings

Source: U.S. Census Bureau Quarterly Workforce Indicators and Author's Calculations

Source: Upton, G.B. Crude oil exports and the Louisiana economy: A discussion of U.S. policy of restricting crude oil exports and its implications for Louisiana. LSU CES Whitepaper.

Oil and Gas Share of Louisiana Economy

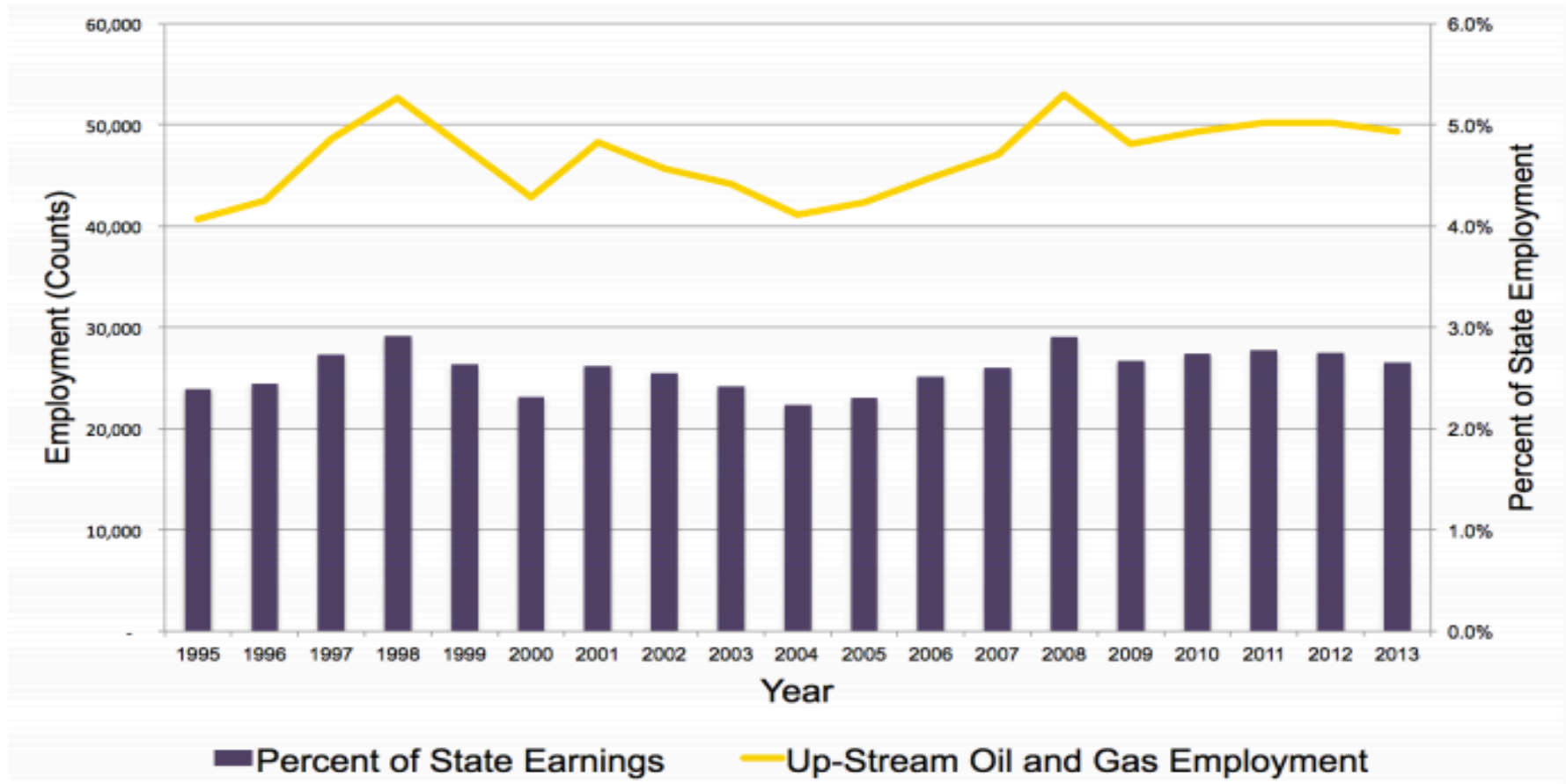


Figure 3.4: Louisiana Upstream Oil and Gas Employment

Source: U.S. Census Bureau Quarterly Workforce Indicators and Author's Calculations

Source: Upton, G.B. Crude oil exports and the Louisiana economy: A discussion of U.S. policy of restricting crude oil exports and its implications for Louisiana. LSU CES Whitepaper.

Oil and Gas Share of Louisiana Economy

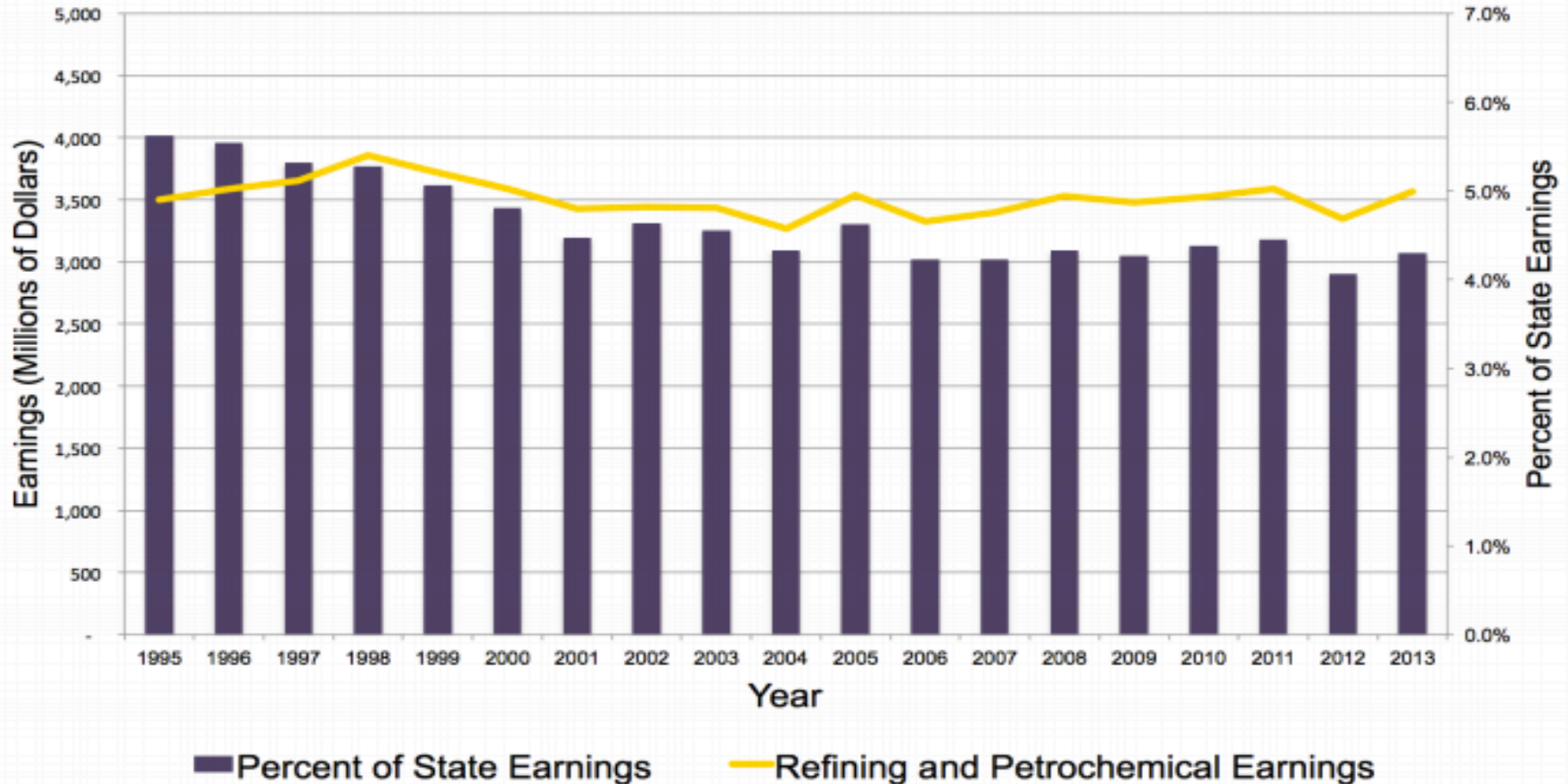


Figure 3.5: Louisiana Refining and Petrochemical Earnings

Source: U.S. Census Bureau Quarterly Workforce Indicators and Author's Calculations

Source: Upton, G.B. Crude oil exports and the Louisiana economy: A discussion of U.S. policy of restricting crude oil exports and its implications for Louisiana. LSU CES Whitepaper.

Oil and Gas Share of Louisiana Economy

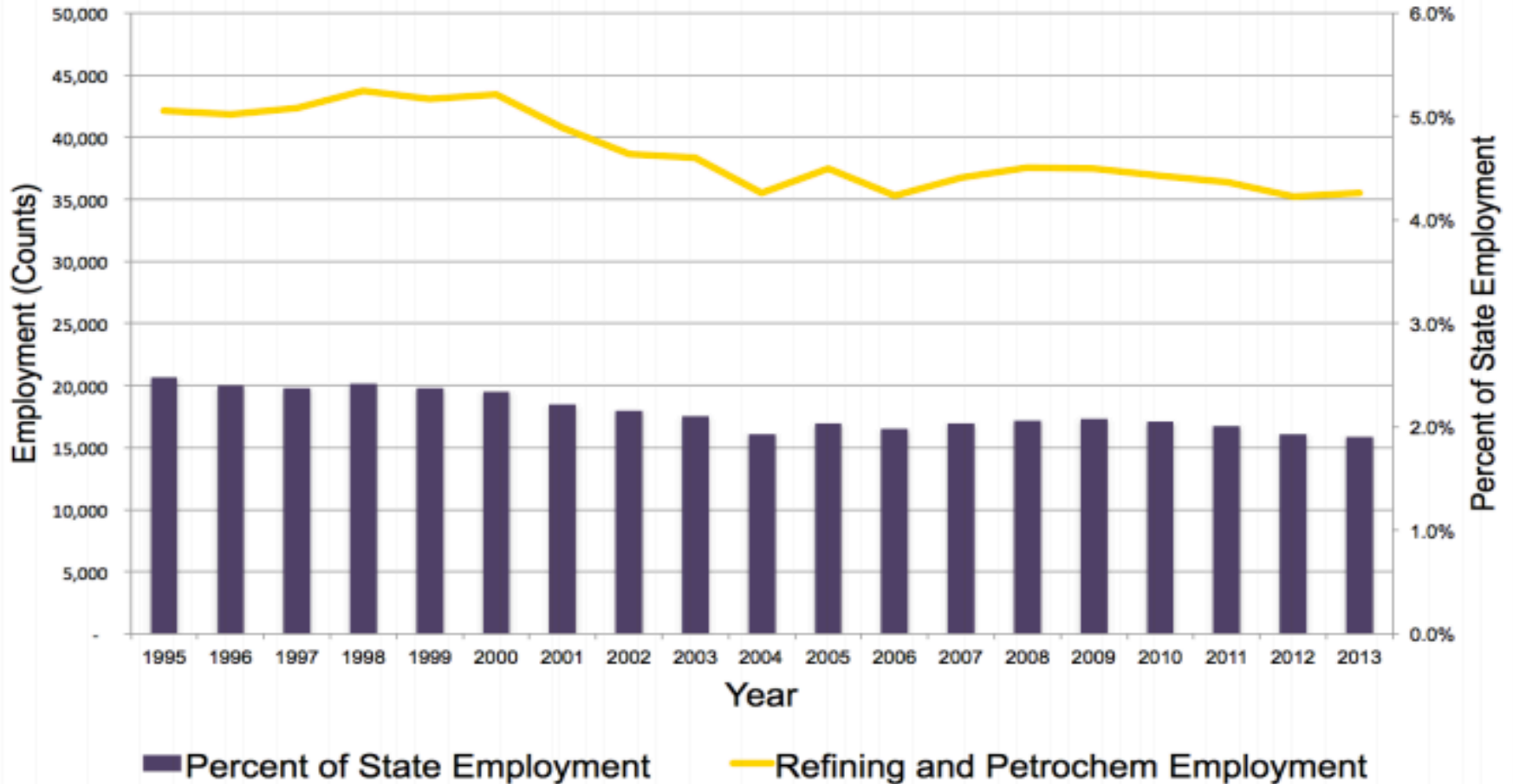


Figure 3.6: Louisiana Refining and Petrochemical Employment

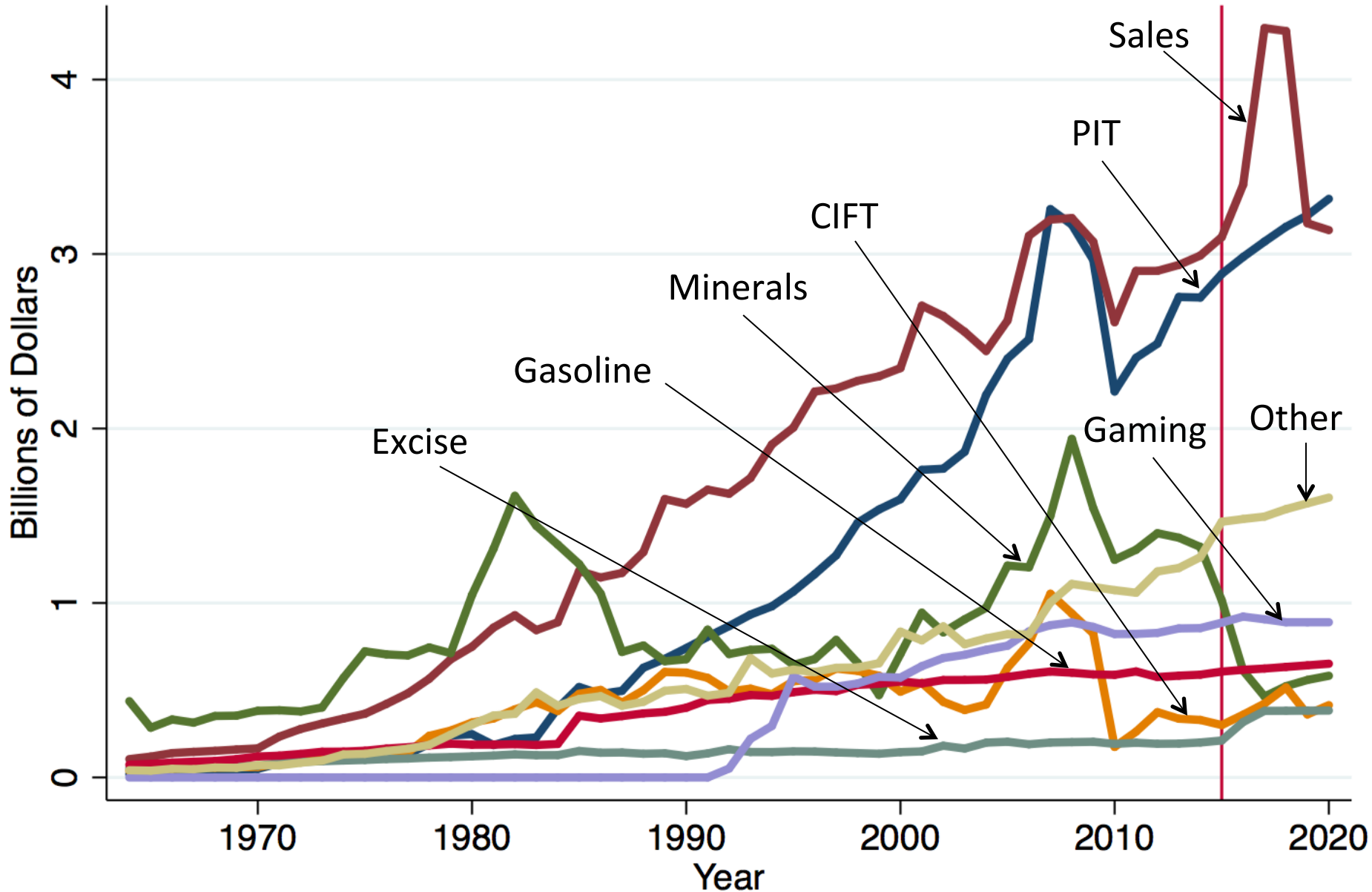
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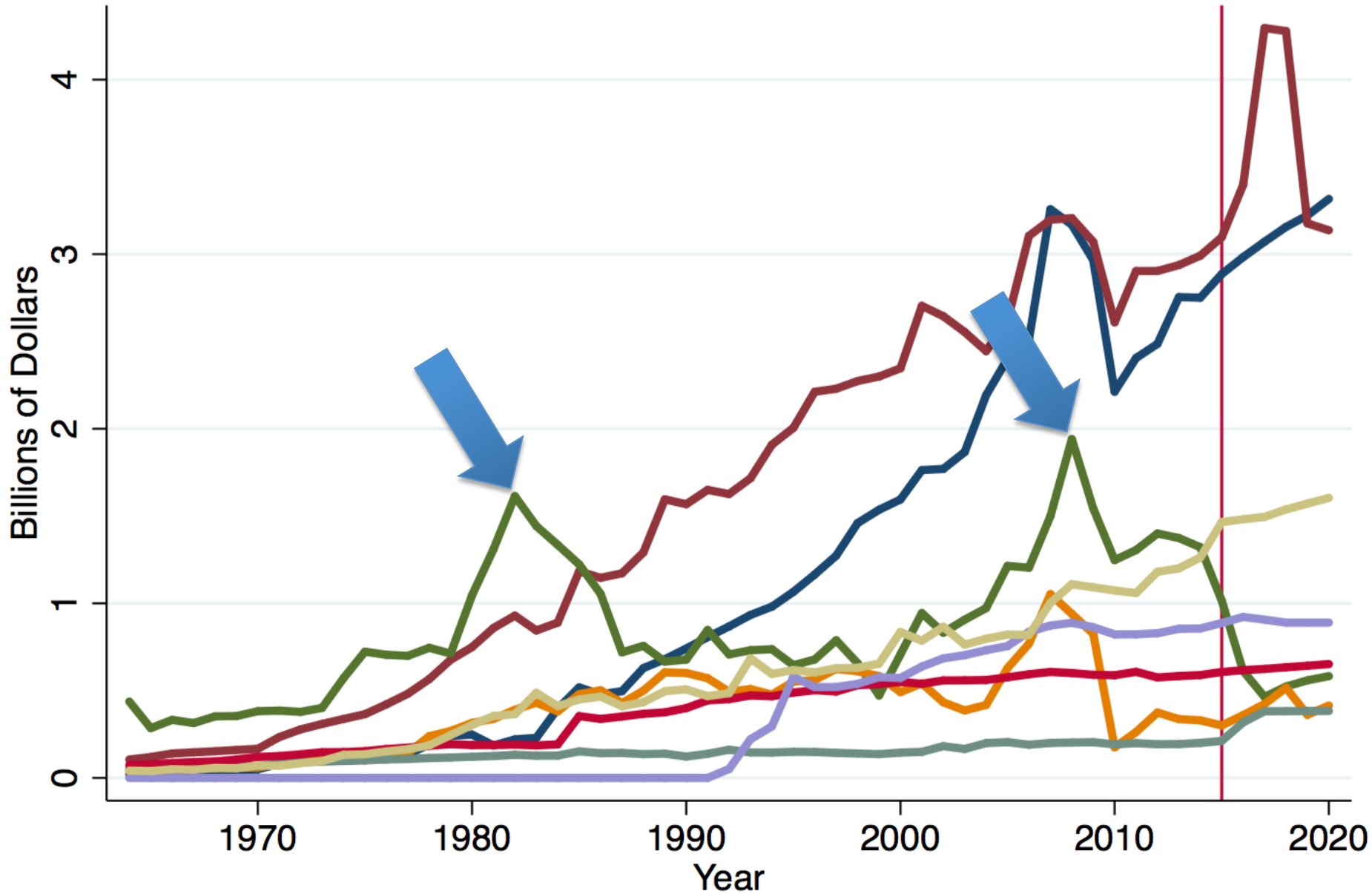


Oil and Gas's Contribution to the State Budget

Louisiana Tax Revenues by Source



Louisiana Tax Revenues by Source



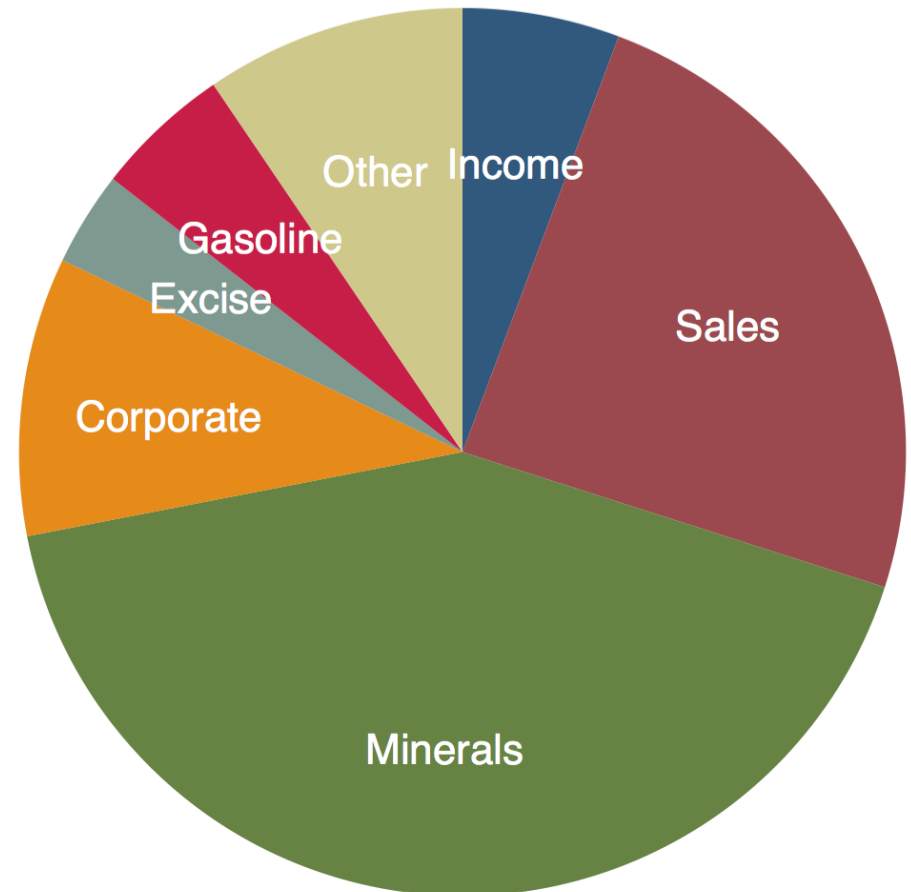
Relative Share of Revenues

In 1982, mineral revenues peaked at **42 percent** of total state revenues.

This was the largest source of revenues for the state!

Therefore, a sudden and drastic **drop in oil prices** were quite **draconian!**

Louisiana 1982 Revenue Shares by Source

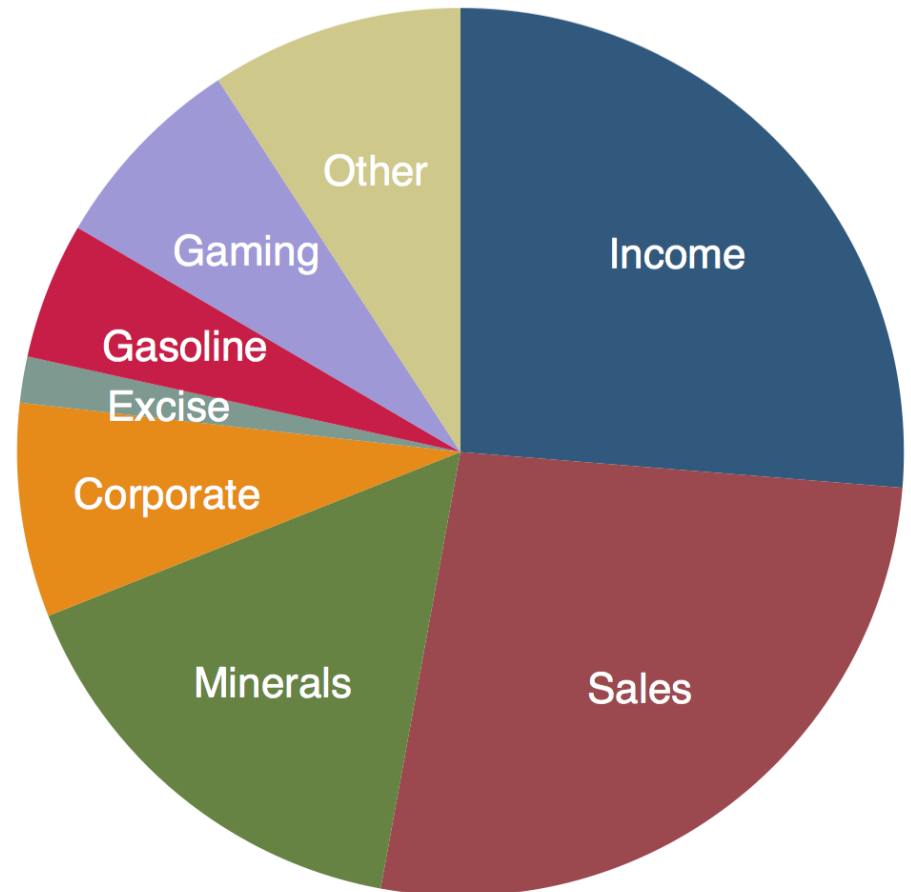


Relative Share of Revenues

In FY 2008, mineral revenues were at a recent high of **16 percent** of total state revenues.

Sales and PIT made up **53 percent** of total revenues.

Louisiana 2008 Revenue Shares by Source

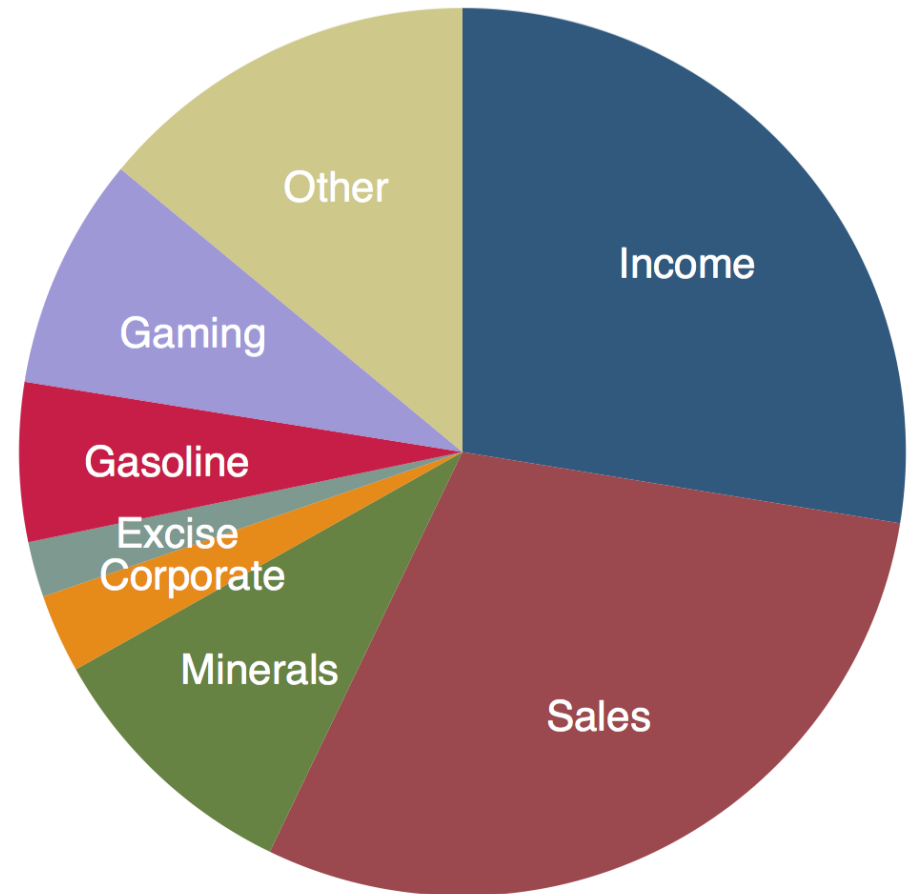


Relative Share of Revenues

In the FY 2015, mineral revenues were less than **10 percent** of total revenues.

Sales and PIT making up **57 percent** of Total Revenues.

Louisiana 2015 Revenue Shares by Source

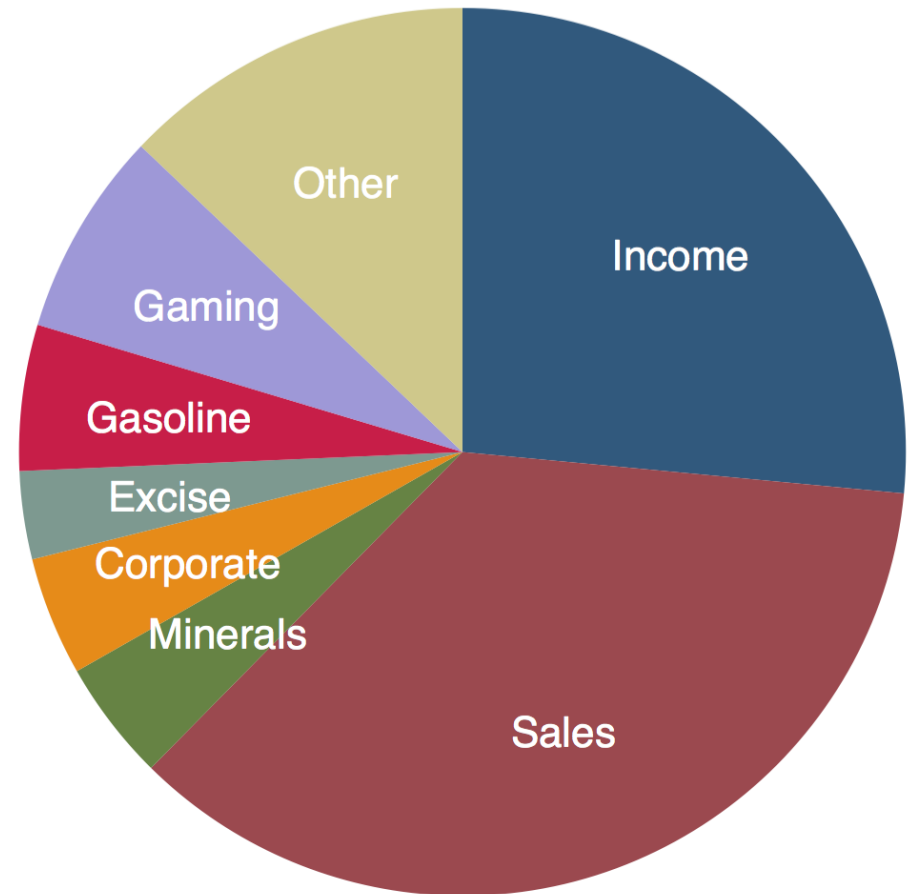


Relative Share of Revenues

In FYs 2017 and 2018, the two years before the tax increases go off the books, sales taxes will make up an estimated **36 percent** of total revenues.

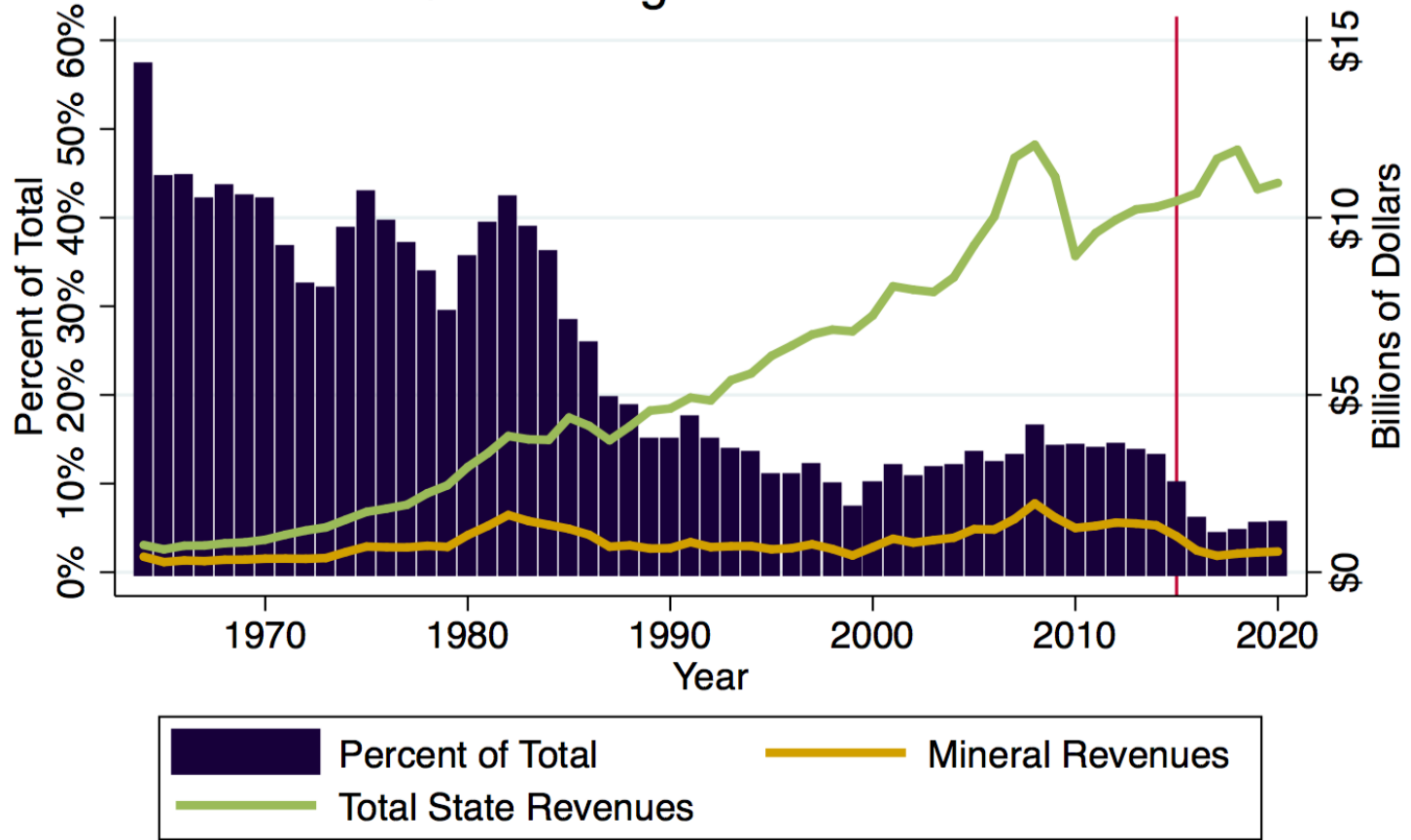
This will be the **highest share** of state revenues made up by **sales tax** in **Louisiana's history**.

Louisiana 2018 Revenue Shares by Source



History of Tax Revenues

Louisiana State Budget and Mineral Revenues



State Revenues include all taxes, licenses, and fees.
 Mineral revenues include both severance taxes and mineral revenues from state lands.

Mineral Tax Revenue's Contribution to Budget Crisis

“Back of the envelope” estimates suggest that a \$1 sustained drop in the oil price for an entire year lead to \$12,000,000 drop in state mineral revenues.

In FY 2014-2015, the average price of crude sold in Louisiana was \$96.83. In 2015-2016, the average price dropped to \$73.27.

$$\begin{aligned} & \$105.20 - \$73.27 = \$31.93 \\ & \$31.93 \times \$12 \text{ Million} = \$383.16 \text{ Million} \end{aligned}$$

Or about 3.6 percent of the state's \$10.47 billion in revenues.

Mineral Tax Revenue's Contribution to Budget Crisis

What can we expect for 2016-2017 FY?

In FY 2015-2016, the average price of crude sold in Louisiana was \$73.27. Current oil prices are approximately \$40 per barrel:

$$\begin{aligned} \$73.27 - \$40.00 &= \$33.27 \\ \$33.27 \times \$12 \text{ Million} &= \$399.24 \text{ Million} \end{aligned}$$

Or about 3.8 percent of the state's \$10.47 billion in revenues

The Whole Story?



Stelly Plan

History of Income Tax Brackets for Joint Filers (single filer)

Pre 2002

2%; \$0 to \$20,000 (\$0 to \$10,000)

4%; \$20,000 to \$100,000 (\$10,000 to \$50,000)

6%, over \$100,000 (over \$50,000)

2003 to 2008

2%; \$0 to \$25,000 (\$0 to \$12,500)

4%; \$25,000 to \$50,000 (\$12,500 to \$25,000)

6%, over \$50,000 (over \$25,000)

Post 2008

2%; \$0 to \$25,000 (\$0 to \$12,500)

4%; \$25,000 to \$100,000 (\$12,500 to \$50,000)

6%, over \$100,000 (over \$50,000)



History of Taxes in Louisiana

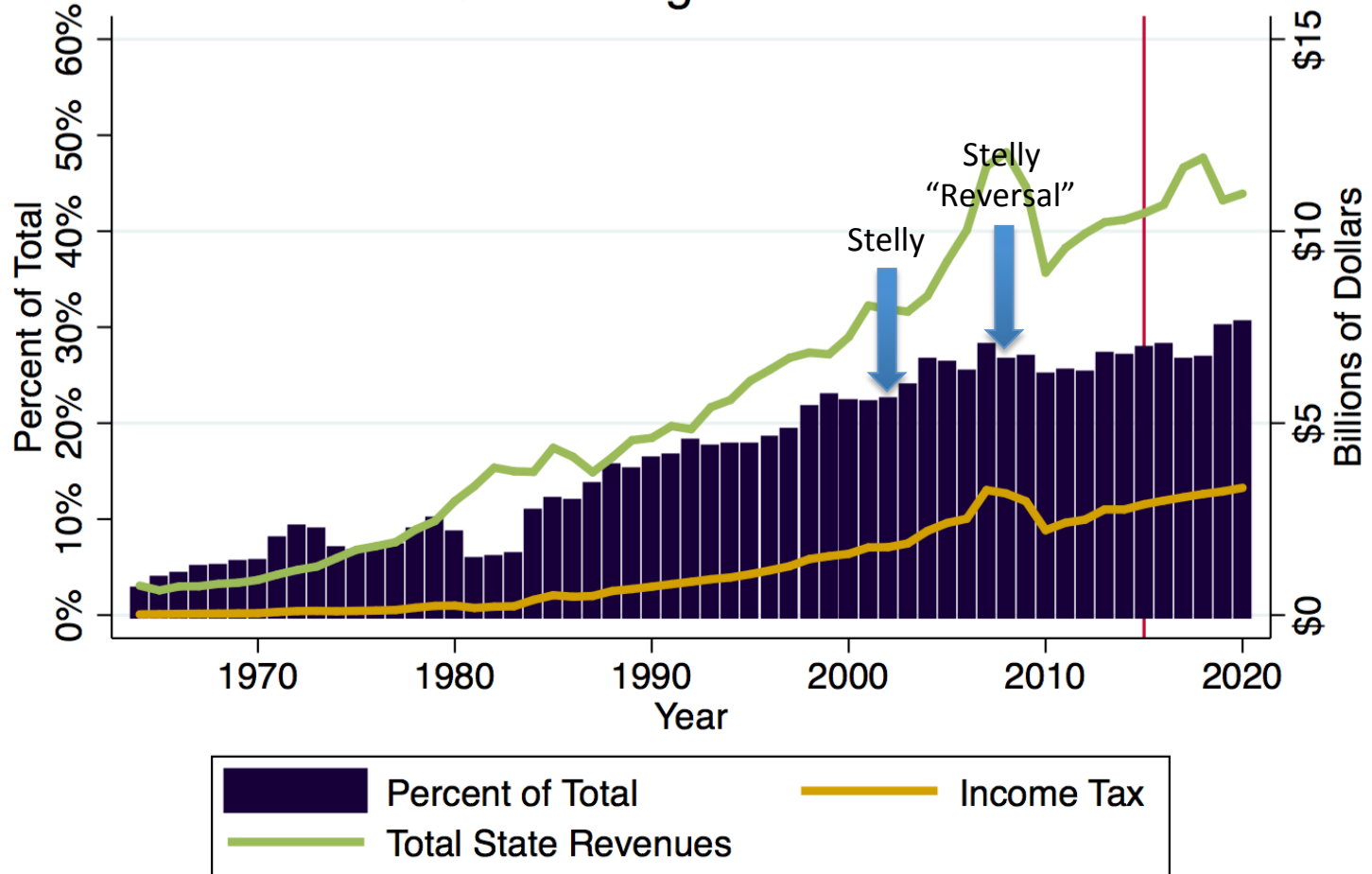
- **Also in 2002, the electorate voted to place a constitutional prohibition against sales tax on:**
 - **Food purchased for consumption at home**
 - **Natural Gas**
 - **Electricity**
 - **Water sold directly to consumers for residential use**
 - **Prescription Drugs**

In 2002, the state increased income taxes and decreased sales taxes.

In 2008, the state decreased income taxes back to rates similar to pre-2003 and but made no change to sales taxes.

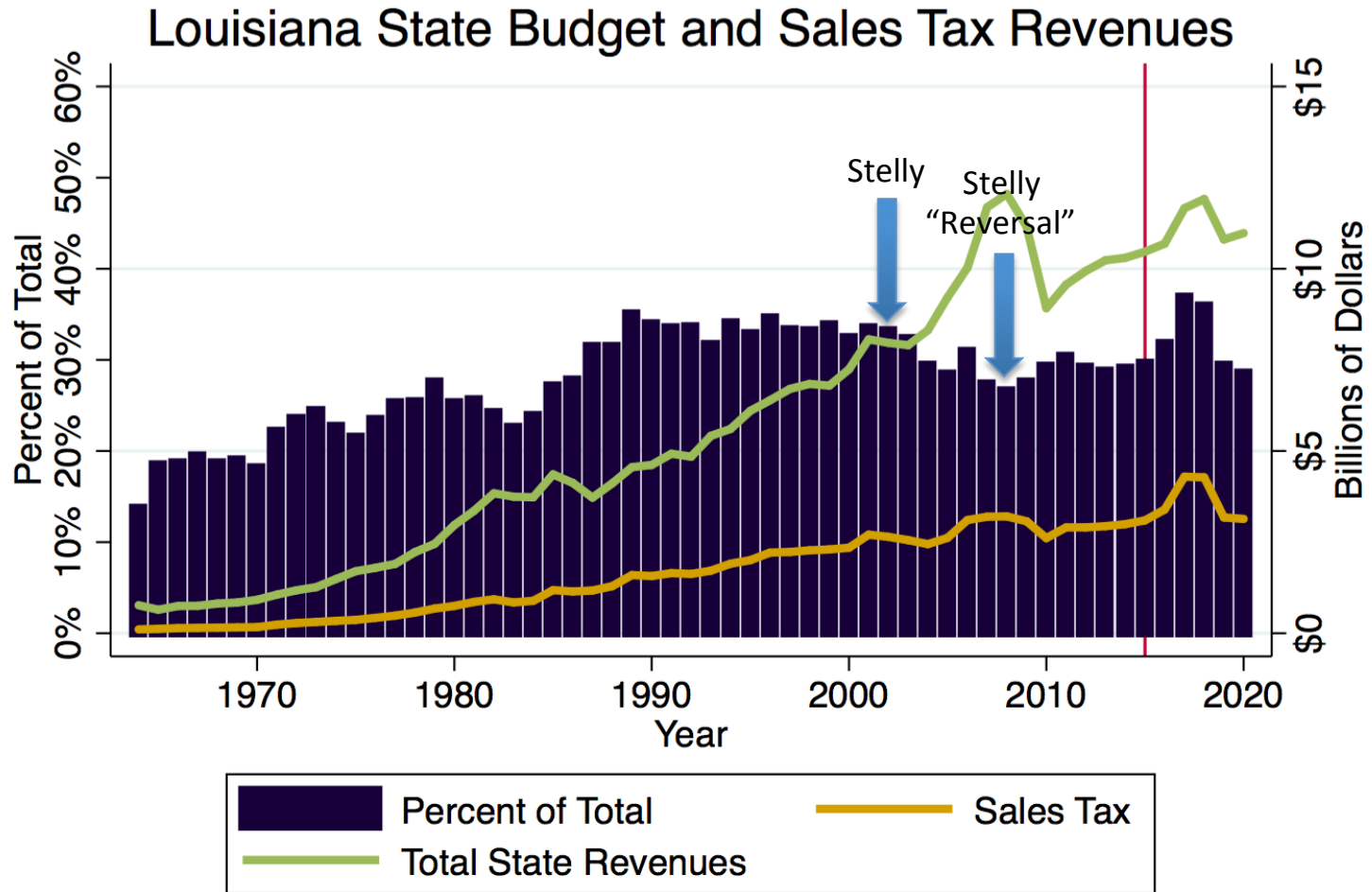
History of Tax Revenues

Louisiana State Budget and PIT Revenues



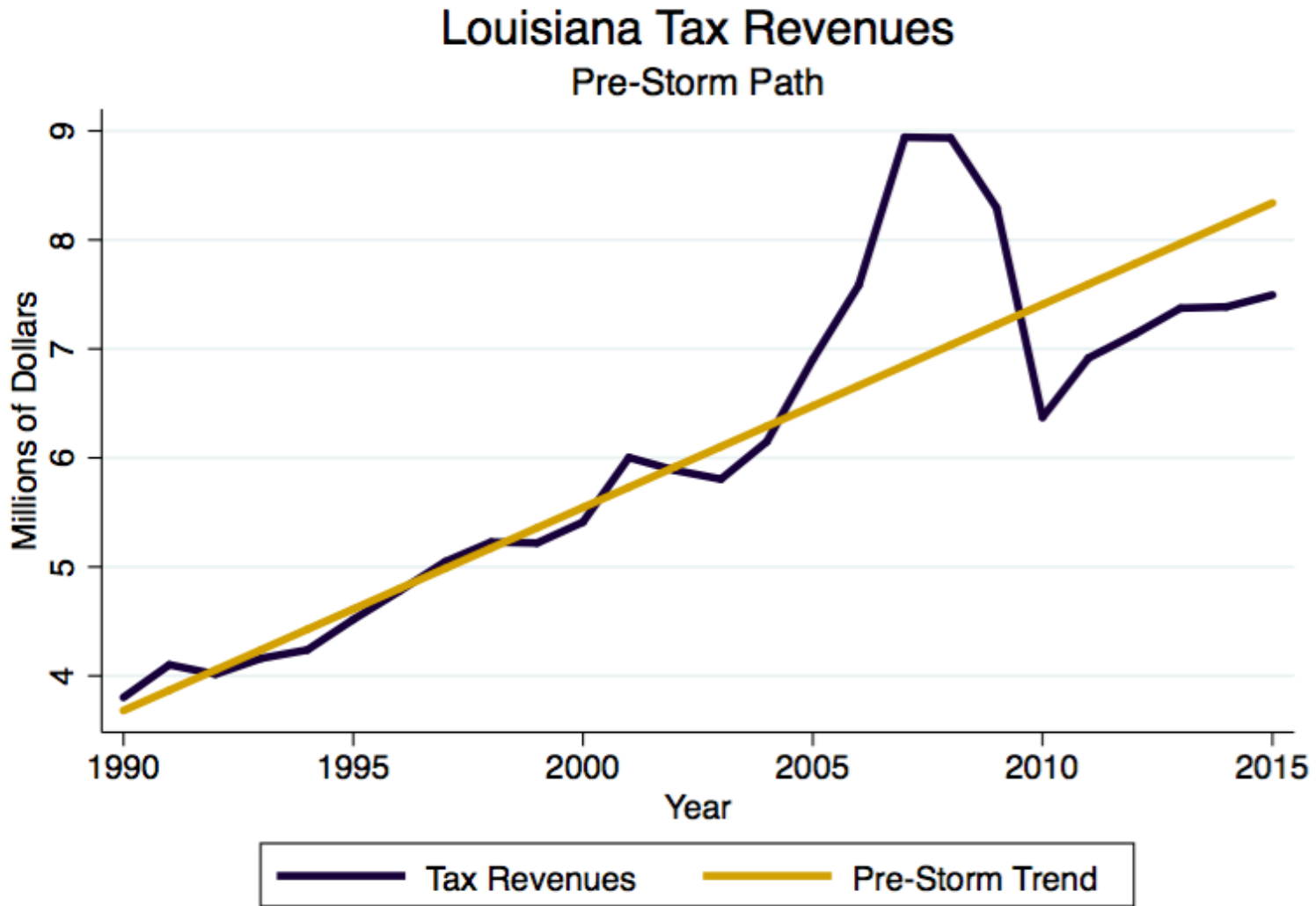
State Revenues include all taxes, licenses, and fees.

History of Tax Revenues

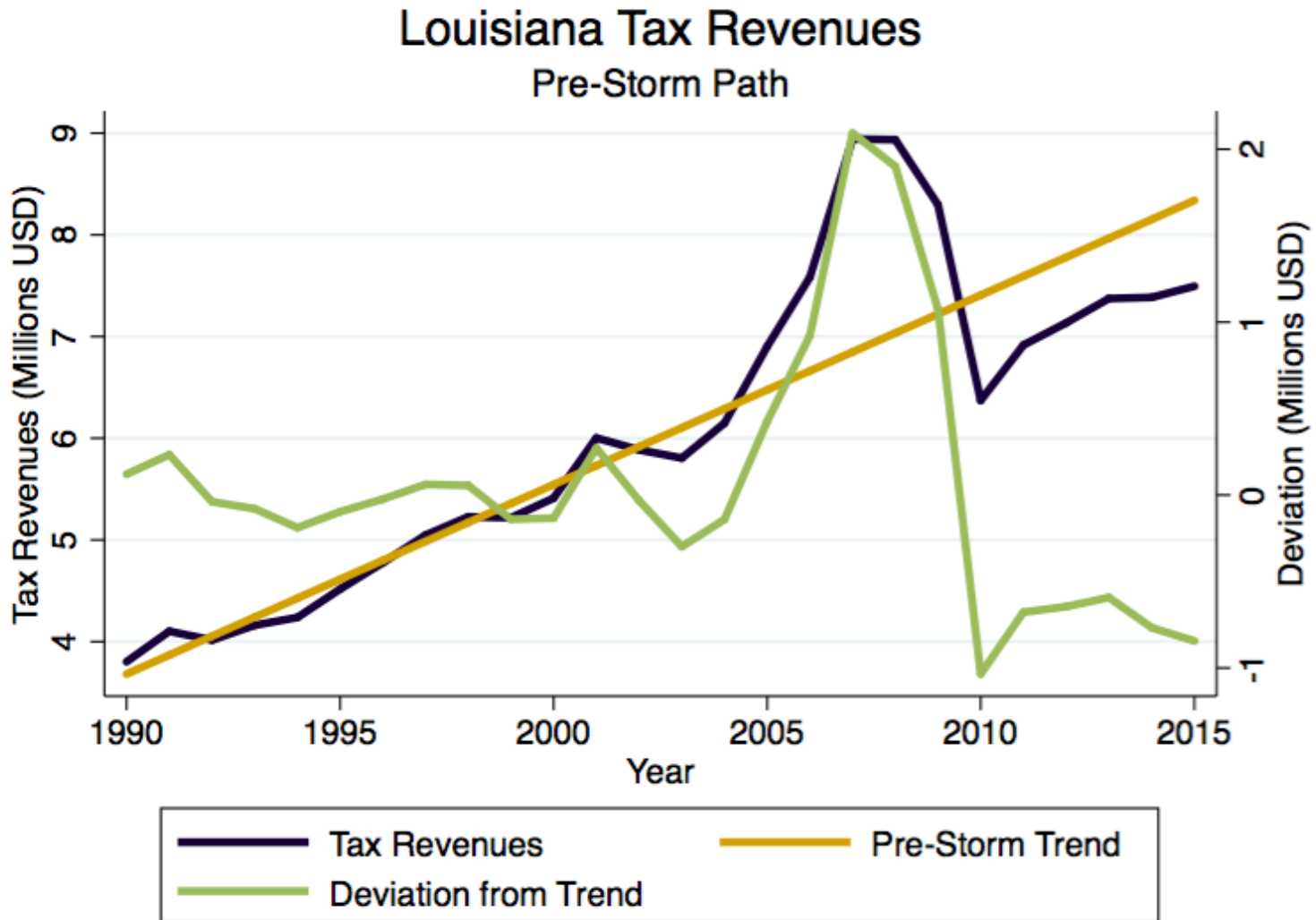


State Revenues include all taxes, licenses, and fees.
 Sales tax includes vehicle sales taxes.

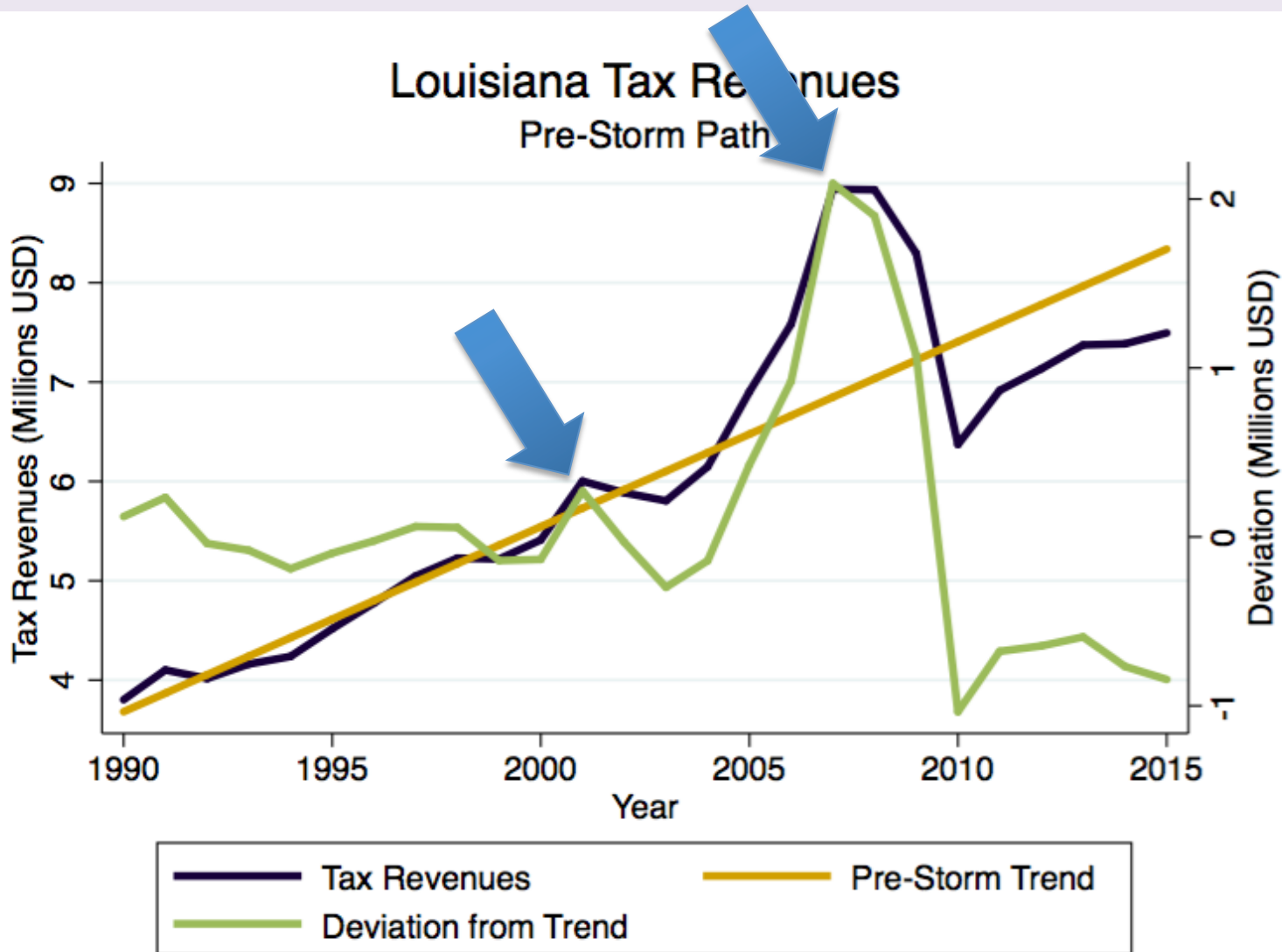
History of Tax Revenues



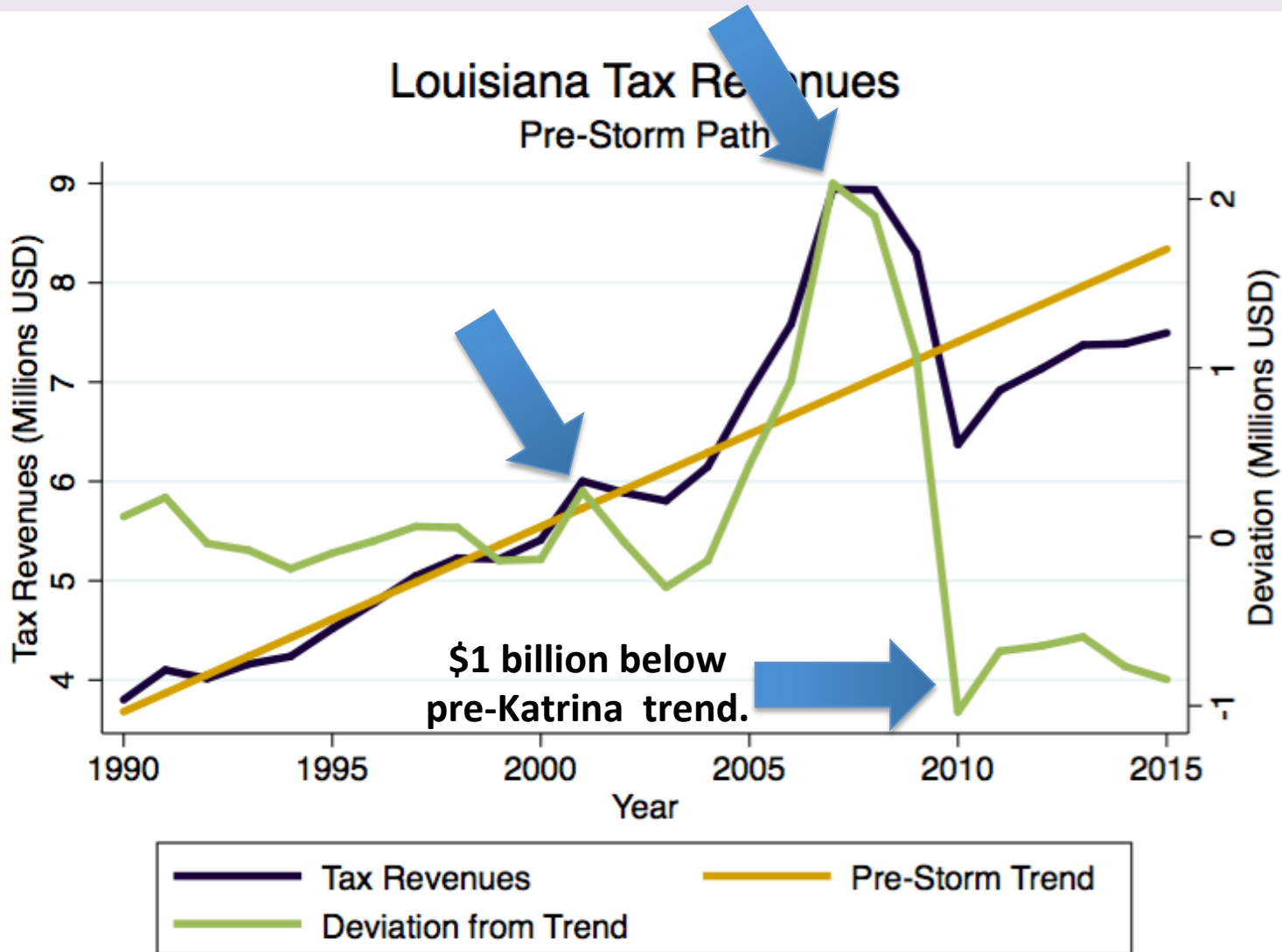
History of Tax Revenues



History of Tax Revenues



History of Tax Revenues

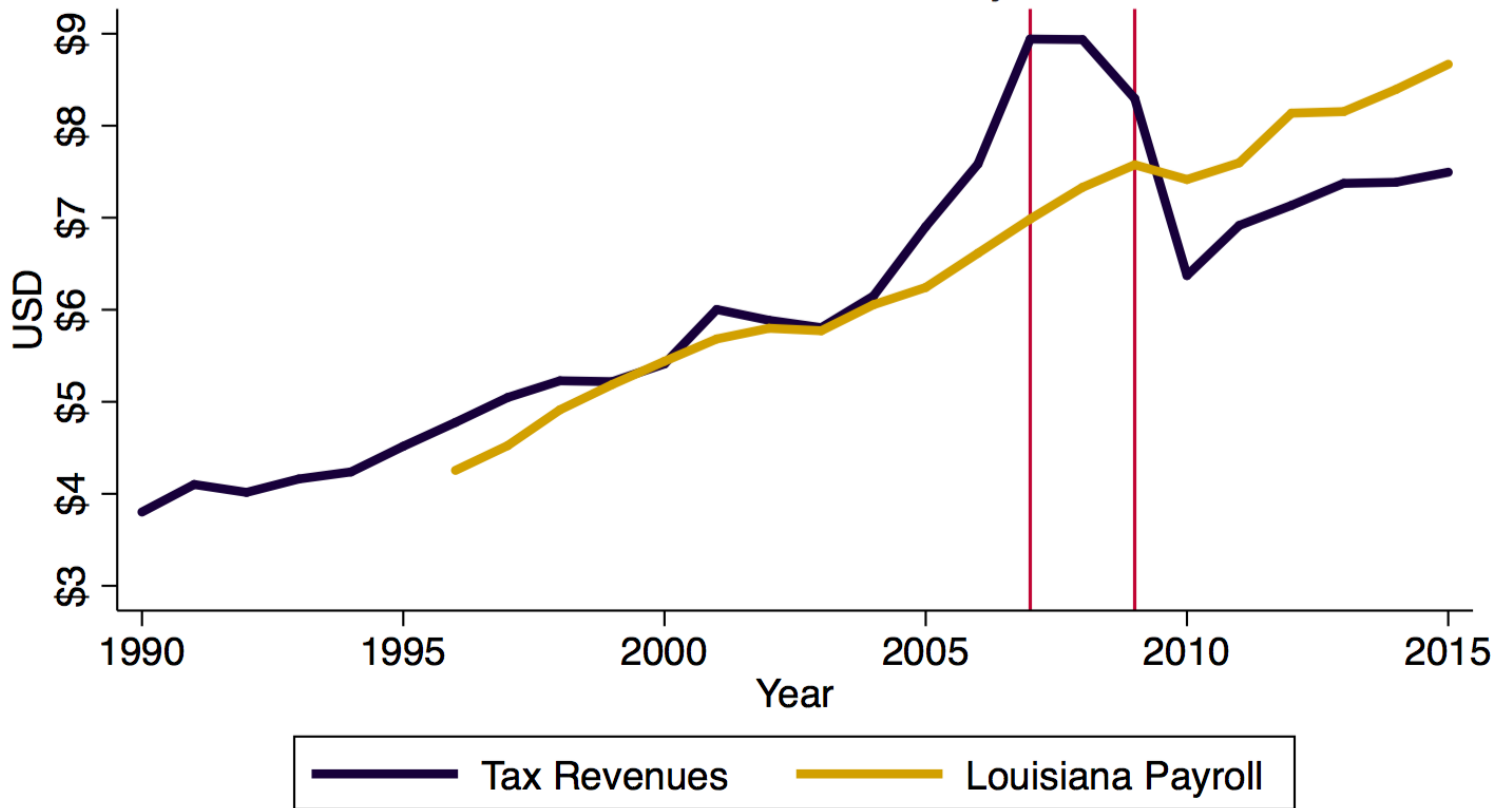


Recession?!

- In December of 2007, the United States entered into the “Great Recession.” This recession lasted until June of 2009.
- Could the drop in revenues in FY 2009-2010 be due to the recession—not necessarily changes in the tax structure?

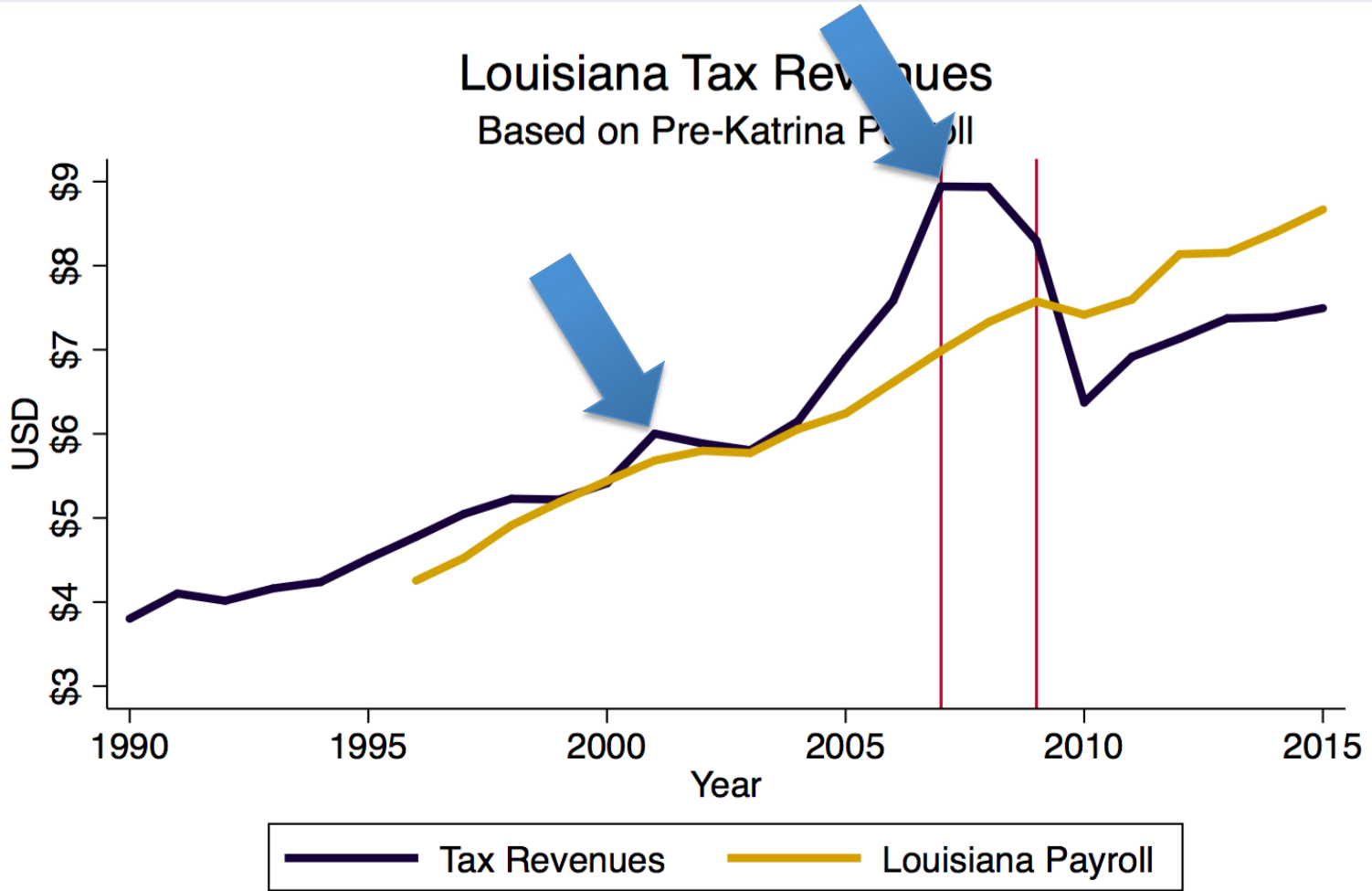
History of Tax Revenues

Louisiana Tax Revenues
Based on Pre-Katrina Payroll



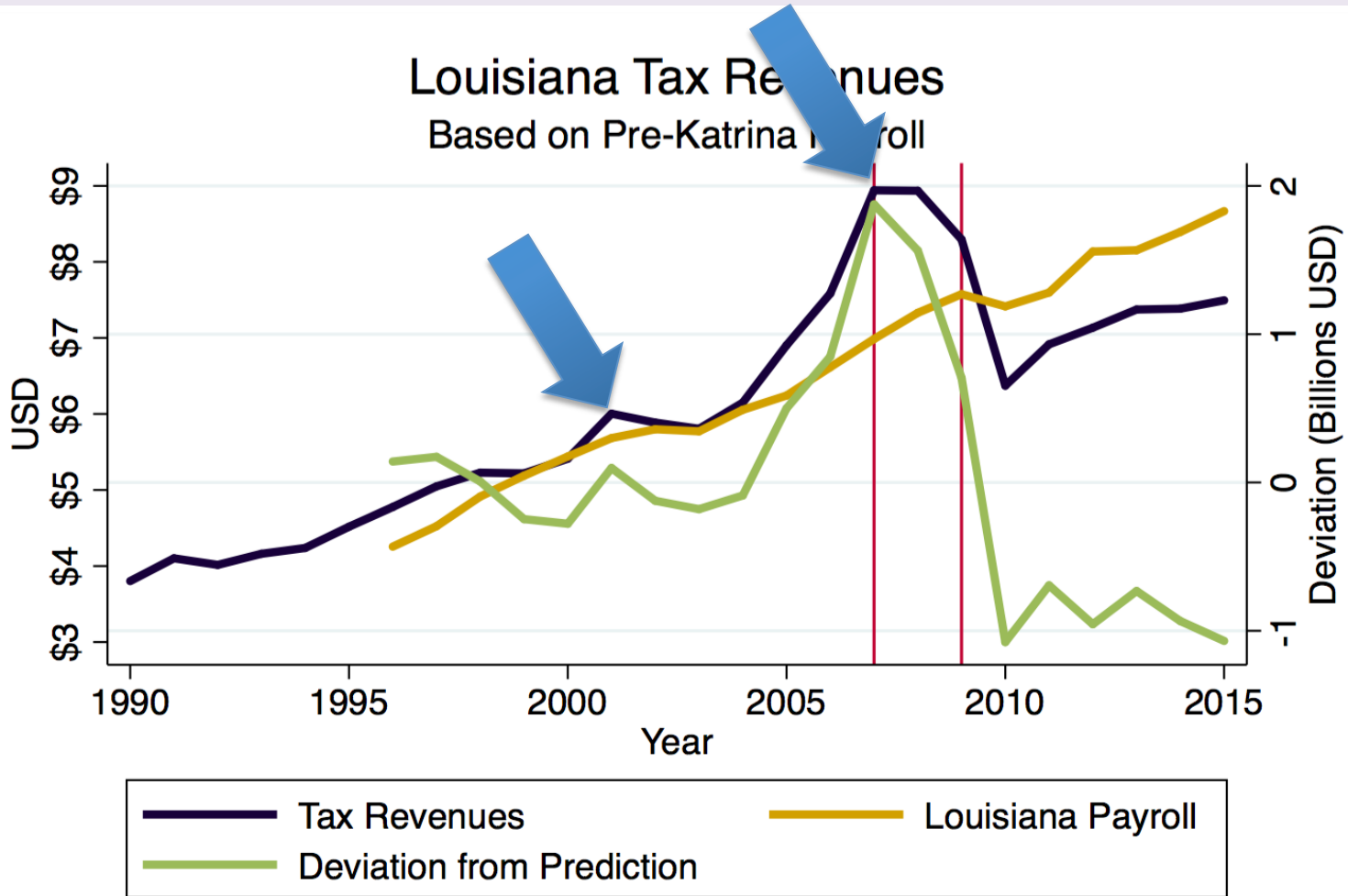
Payroll in tens of billions of USD. Revenues in billions of USD.
Payroll data source: United States Census Bureau - Quarterly Workforce Indicators.
Recession dates shown with vertical lines.

History of Tax Revenues



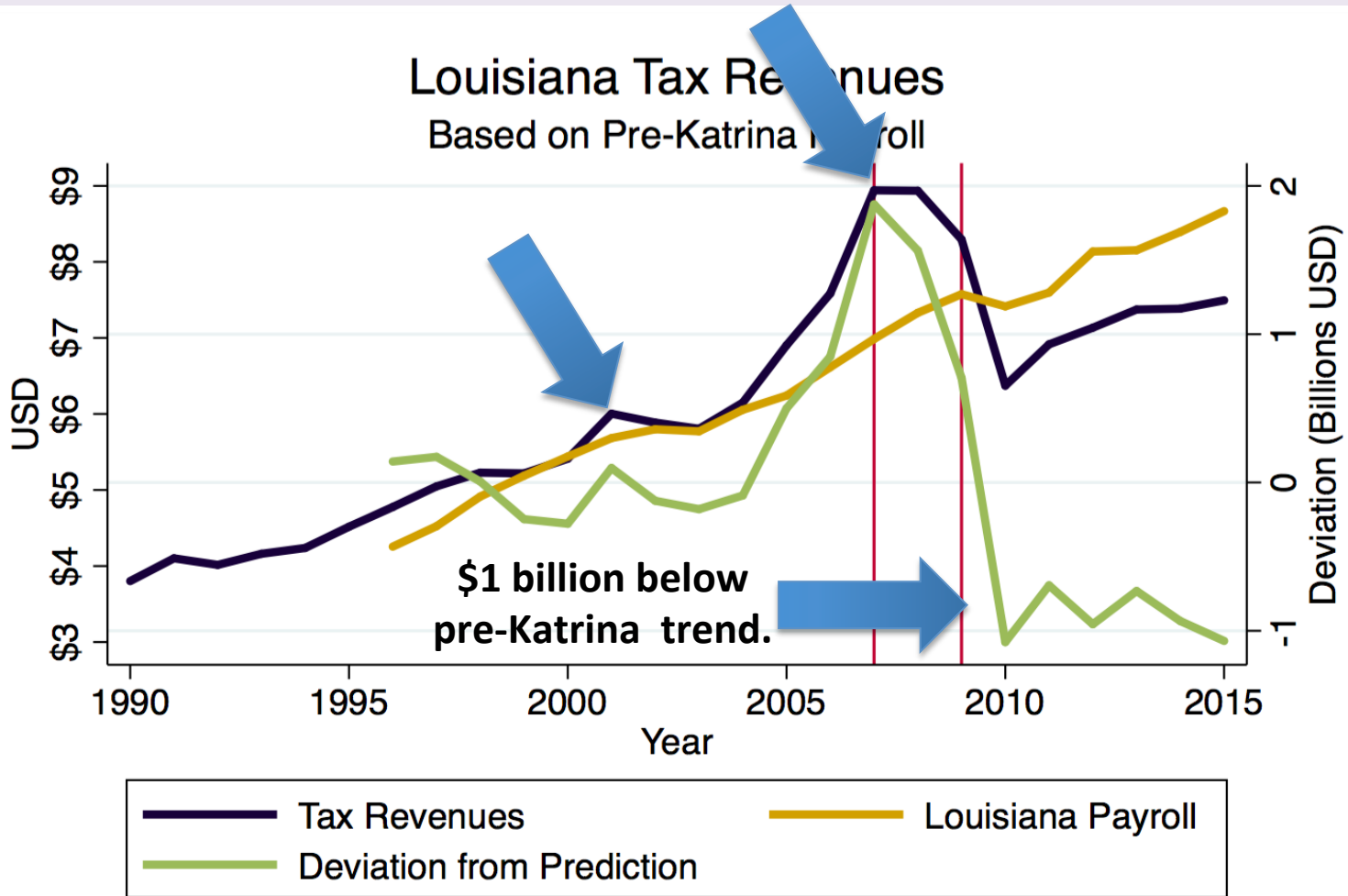
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History of Tax Revenues



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History of Tax Revenues



Payroll in tens of billions of USD. Revenues in billions of USD.
 Payroll data source: United States Census Bureau - Quarterly Workforce Indicators.
 Recession dates shown with vertical lines.

Conclusions

Conclusions

- The recent oil price drop is having a **significant impact** on the state's budget.
 - Not only can this impact revenues through severance taxes and royalties, but
 - Decreases in employment and earnings amongst oil and gas workers can also impact the budget through other tax revenue channels.
- But, the **oil price drop** just **exacerbates** an already systematic **drop in revenues** associated with tax decrease made during the post-Katrina boom.

Conclusions

So, culprit or scapegoat?

Well, certainly not the culprit for the fiscal challenges since Katrina:

- Certainly, the drop of oil price has been a **contributor** of the **mid-year budget cuts** this year.
- But the drop in the oil price is **not the reason** for the **sustained budget cuts** that have occurred over the past decade.



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