

Overview of Mineral Revenues

**Presentation to Subcommittee of the House Committee on
Ways & Means of the Louisiana Legislature**

Greg Upton, Ph.D. - Nov 30, 2022



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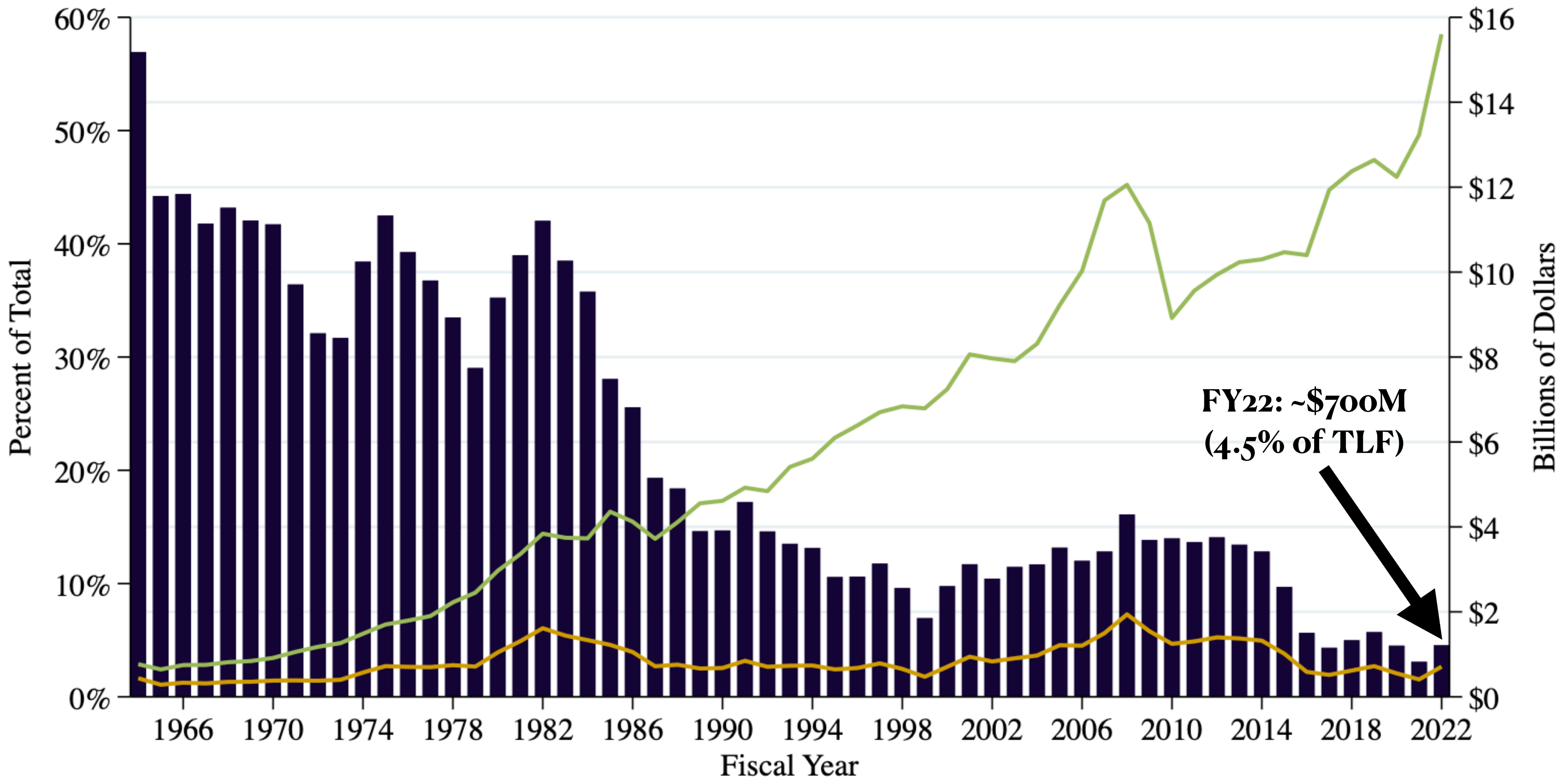
8

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Figure 3-1: Louisiana State Budget and Mineral Revenues

Note: Total State Revenues include Revenue Estimating Conference (REC) definition of taxes, licenses and fees (TLF). Mineral revenues include severance, royalties, bonuses and rental payments.

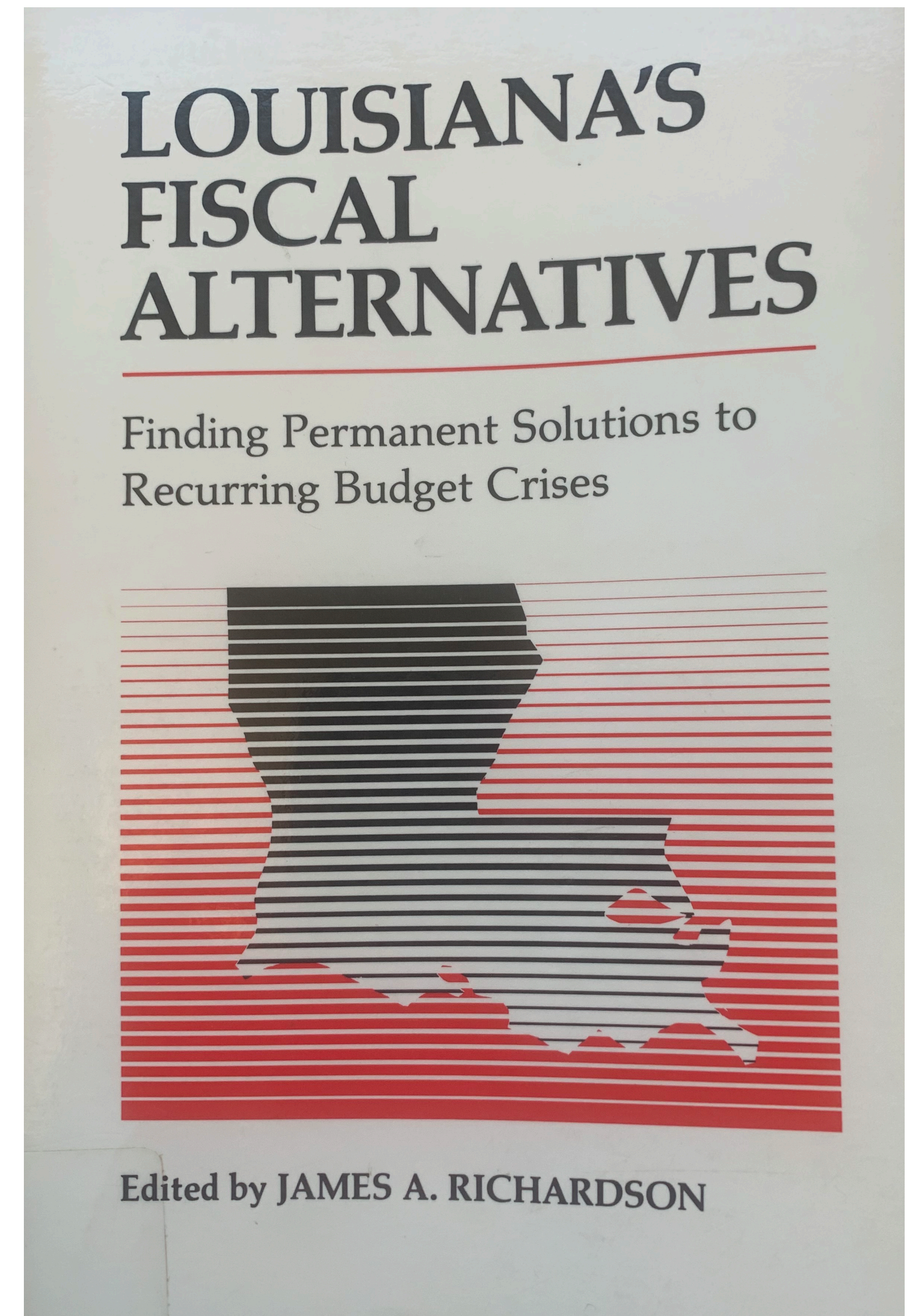


Percent of Total
 Mineral Revenues
 Total State Revenues

Source: Mineral Revenues in Louisiana. LSU Center for Energy Studies. Includes update for recent years.

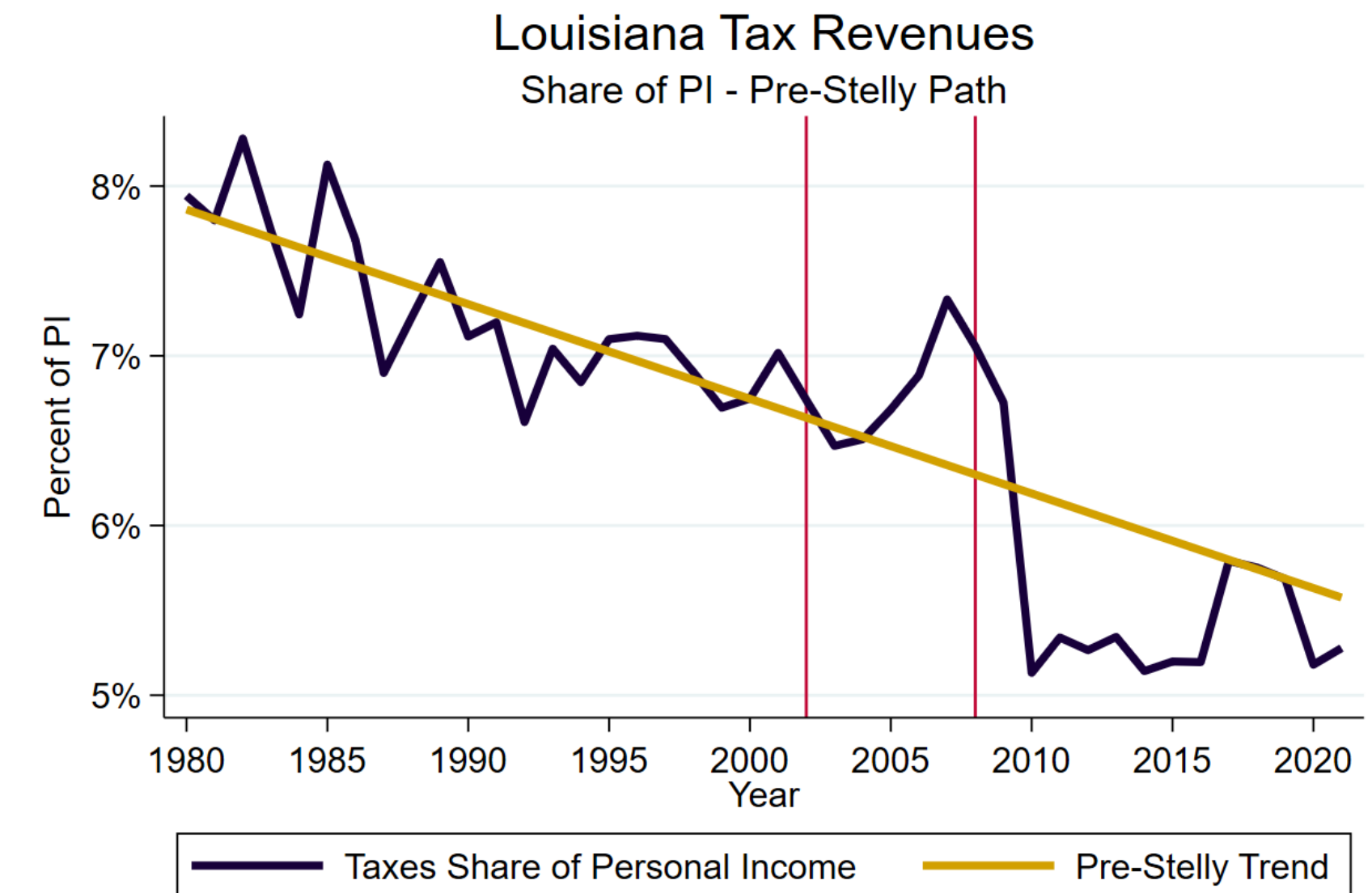
Some history...

- In the 1980s, the prices of oil dropped significantly. As a result, mineral revenues as a share of state taxes, licenses and fees dropped from over 42% in 1982 to less than 15% by 1989.
- As a result, fiscal problems persisted throughout the 1980s.
- In 1983, the Council for a Better Louisiana, with encouragement from several legislators and executive departments, created a special committee to study the state's financial situation.
- A book entitled *Louisiana's Fiscal Alternatives* was published in 1988.
 - Edited by James A. Richardson, but includes eighteen contributors writing chapters on specific areas of taxation.

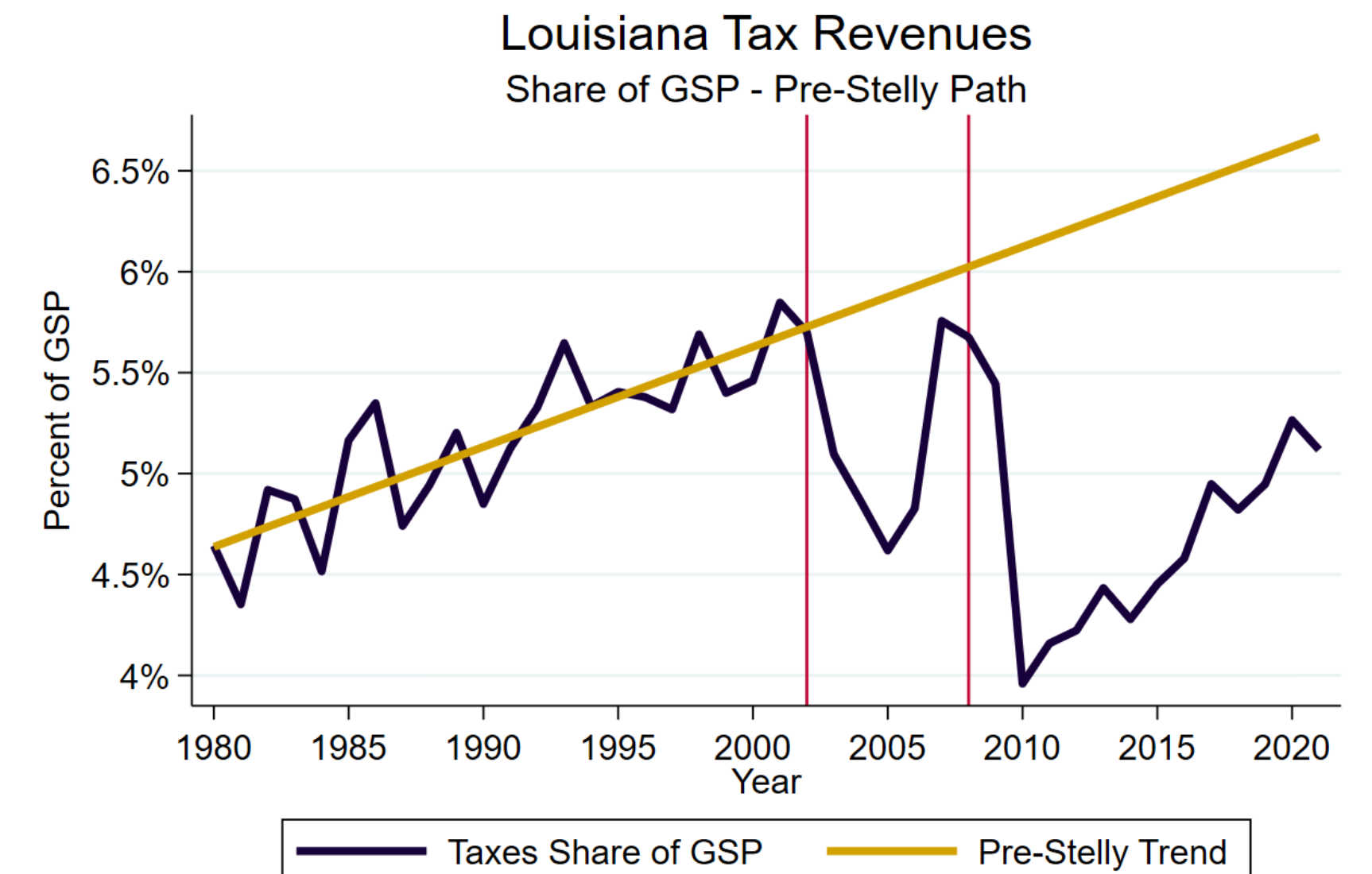


History continued...

- Fast forward to 2002. Legislature passed the “Stelly Plan” pioneered Rep. Vic Stelly.
- *Decreased* sales taxes
- *Increased* income taxes
- By 2008, tax receipts were up significantly due to (1) post hurricane recovery and (2) high commodity prices.
- Legislature *decreased* the income tax similar to pre-Stelly level while not changing the sales tax.



Source: Louisiana Legislative Fiscal Office and BEA. Includes all taxes, licenses and fees.



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Source: Updated figures from
*Oil Prices and the Louisiana Budget Crisis:
Culprit or Scapegoat?* Greg Upton.
LSU Center for Energy Studies.

History continued...

- First extraordinary session of 2016, HCR11 created Task Force on Structural Changes in Budget & Tax Policy.
- Dr. Richardson & Secretary Lewis served as co-chairs along with 11 other participants.
- Final report published in January of 2017.
- The Task Force did not make any major suggestions for the overall taxation of oil and gas given that commodity prices had just declined substantially.
- In November 2018, *Exploring Long-term Solutions for Louisiana's Tax System* was published by the LSU Press.

LOUISIANA'S OPPORTUNITY
Comprehensive Solutions for a Sustainable Tax and Spending Structure

Prepared by
The Task Force on Structural
Changes in Budget and Tax Policy



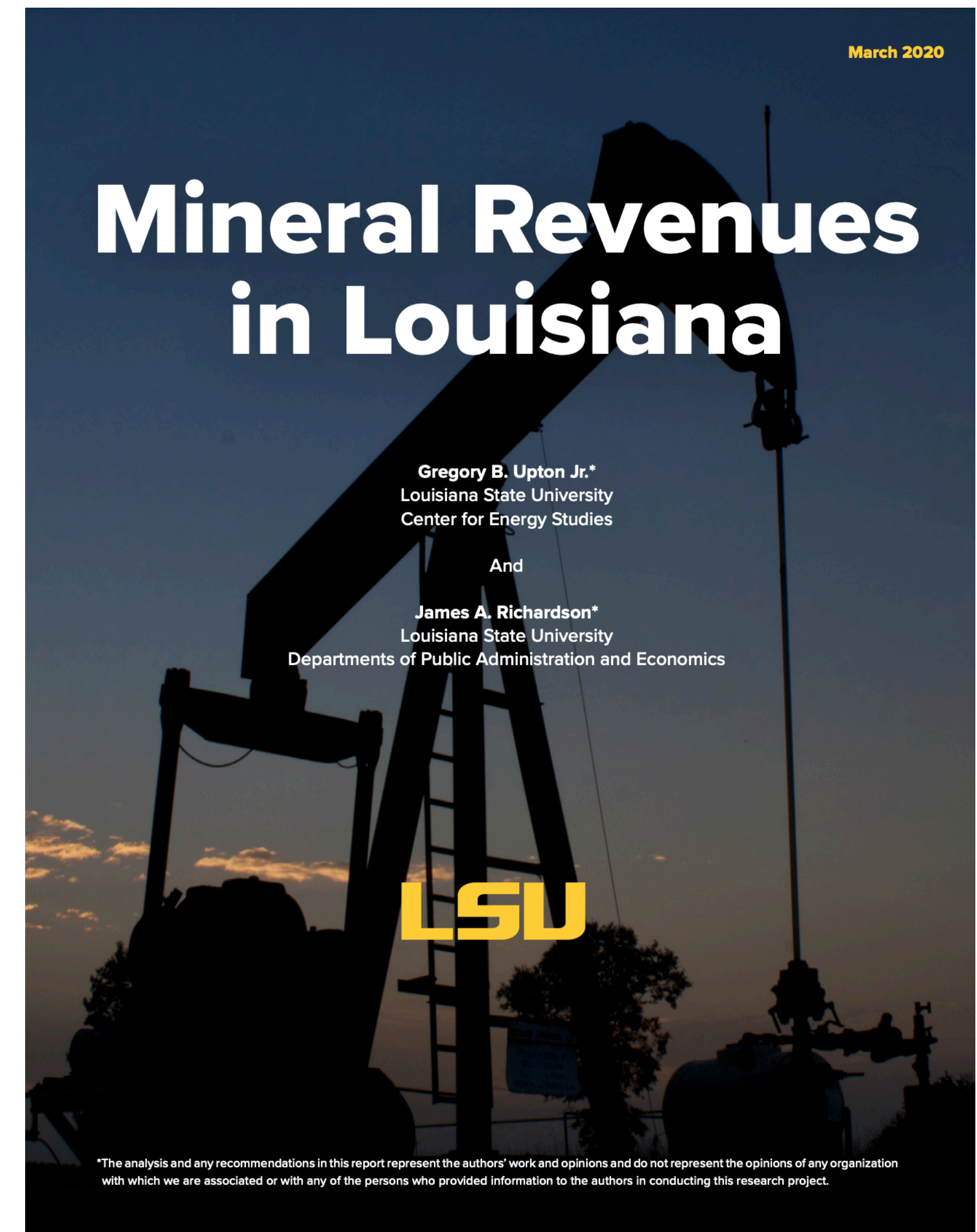
FINAL REPORT
JANUARY 27, 2017

EXPLORING LONG-TERM SOLUTIONS FOR LOUISIANA'S TAX SYSTEM

James A. Richardson
Steven M. Sheffrin and
James Alm

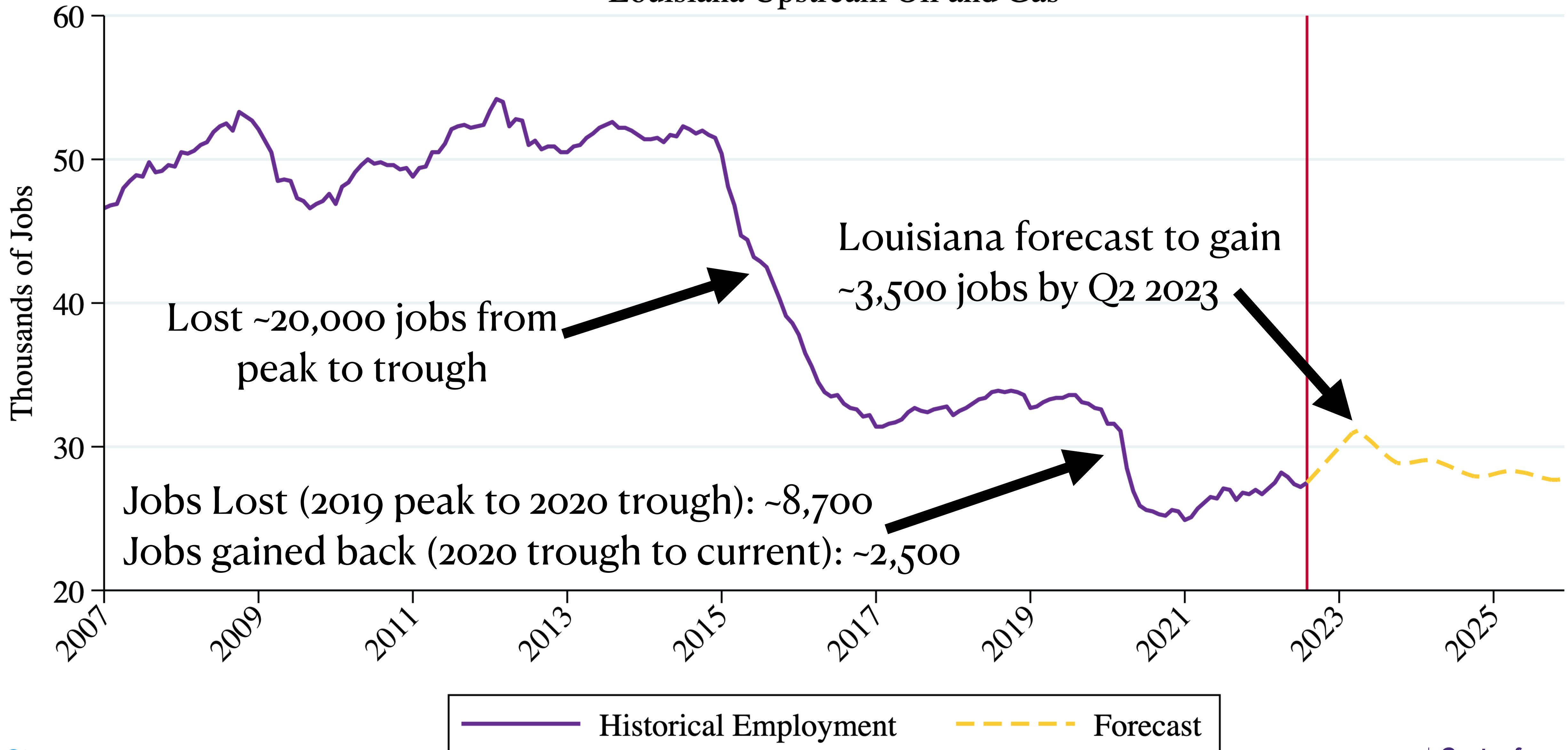
History continued...

- SCR 4 of the 2018 second extraordinary session requested that LSU Center for Energy Studies and Public Administration Institute take a broad and long-term look at Louisiana's severance tax system.
- Resolution outlined a three year process:
 - Year 1: Meet with stakeholders and provide preliminary status report in early of 2019.
 - Year 2: Conduct analysis and submit final written report in early of 2020.
 - Year 3: Provide specific bills implementing recommendations by early 2021.
- January 2021, the report and recommendations presented to Joint House Ways & Means / Senate Revenue & Fiscal Affairs.



Employment Forecast

Louisiana Upstream Oil and Gas



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4 | Louisiana's Tax Structure and Comparison with Other States

4.1 Severance Tax Rate

- Louisiana has the **highest severance tax rate for oil of any state** in the continental United States; 12.5 percent of its value at the time and place of severance [R.S. 47:633(7)(a)].
- Louisiana has a **relatively low tax rate for natural gas:** approximately 4 percent [R.S. 47:633(d)(i)]
- For comparison, Texas taxes oil and 4.6 percent and natural gas at 7.5 percent.
- Arkansas and Mississippi have a 5 and 6 percent tax rate for oil and natural gas respectively.
- Most states tax oil and natural gas at the same (or very similar) rates.

Conclusion: Louisiana severance tax on oil is high relative to neighboring states and severance tax rate on natural gas is low relative to these states. Louisiana is unique in that oil is taxed at approximately three times the rate of natural gas.

4.2 Valuation for Tax Purposes

- Louisiana taxes oil at a rate of 12.5 percent of its value at the time and place of severance.
 - This value is the higher of (1) the gross receipts received from the first purchaser, less transportation charges or (2) the posted field price [R.S. 47:633(7)(a)]
 - Posted field prices are no longer an industry practice and therefore the laws should be updated to reflect the current state of the industry.
- Louisiana is unique in that natural gas is taxed at a volumetric rate adjusted to the Henry Hub natural gas price in the preceding year [R.S. 74:633(d)(i)].
 - Unlike oil, transportation charges are not subtracted from the price for valuation.

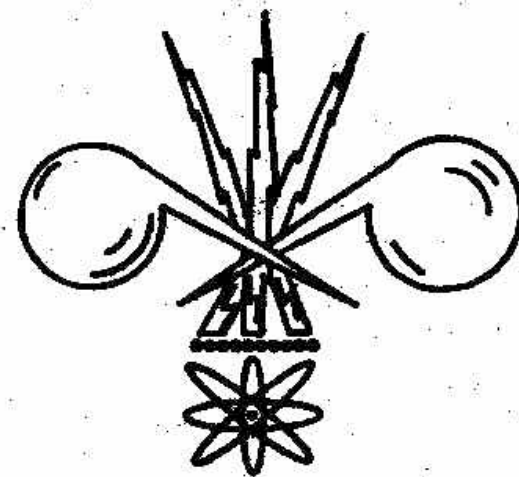
Conclusion: Louisiana, along with North Dakota, are unique in taxing natural gas at a volumetric rate indexed to a market price in the prior fiscal year. Louisiana taxes oil similar to other states based on the value of the oil at the point of severance from the ground.

ANALYSIS OF AN
INDEXED VOLUMETRIC SEVERANCE TAX

Prepared for
Raymond W. Stephens, Jr.
Secretary of Natural Resources

DEPARTMENT OF NATURAL RESOURCES

Prepared by
T. Michael French, P.E.
Director
&
Manual L. Lam
Senior Energy Analyst



DIVISION OF TECHNOLOGY ASSESSMENT

Baton Rouge
February 17, 1989

“Mid-Continent proposed the indexed volumetric severance tax to avoid a percent value tax which its members (i.e., mostly the majors) opposed then and now. Mid-Continent prefers the indexed volumetric approach for its simplicity of implementation and opposes the percent of value approach for its complexity and difficulty to implement.”

Contrarily, Louisiana Association of Independent Producers and Royalty Owners (LAIPRO), which represents the independents in the state, oppose the indexed volumetric severance tax for its difficulty to implement and its unfairness to independent producers. LAIPRO prefers the percent of value approach for its simplicity of implementation and its equity to producers with different selling prices.”

4.4 Exemptions

One of the broad recommendations made by the Task Force was to keep rates as low as possible and the tax base as broad as possible. Part of broadening the base for any tax is removing exemptions. In this section we highlight the exemptions available to Louisiana producers and compare to other states.

4.4.1 Horizontal Drilling Exemption

Louisiana has a horizontal drilling exemption that is 100 percent of taxes owed for the first two years or until well payout whichever occurs first [R.S. 47:633(7)(d)].

Conclusion: Louisiana is not the only state with an exemption or reduced tax rate on horizontal wells, but we are unique in the size of this exemption; one hundred percent of production exempt for two years or until well payout and applies to both oil and natural gas wells given, that the price of oil is below \$70 per barrel and the price of natural gas is less than \$4.50 per MCF. The horizontal exemption was placed in the law in 1994 and had no price limitations until 2015.

4.4 Exemptions

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4.4.2 Stripper and Incapable Well Tax Rates

- Stripper oil wells are incapable of producing an average of more than 10 barrels of oil per day during the entire taxable month [R.S. 47:633(7)(c)].
- Incapable oil wells are incapable of producing an average of more than 25 barrels of oil per day during the entire taxable month which also produces at least 50 percent saltwater per day [R.S. 47:633(7)(b)].
- Stripper wells are taxed at 3.125%, while incapable at 6.25%.
- There are similar tax differences for natural gas with specific requirements depending upon whether the natural gas is produced from an oil or natural gas well [R.S. 47:633(9)(b-c)].

Conclusion: A number of states have severance tax relief for stripper and incapable wells due to the relatively stable costs of producing the oil and gas but with a volatile revenue stream.

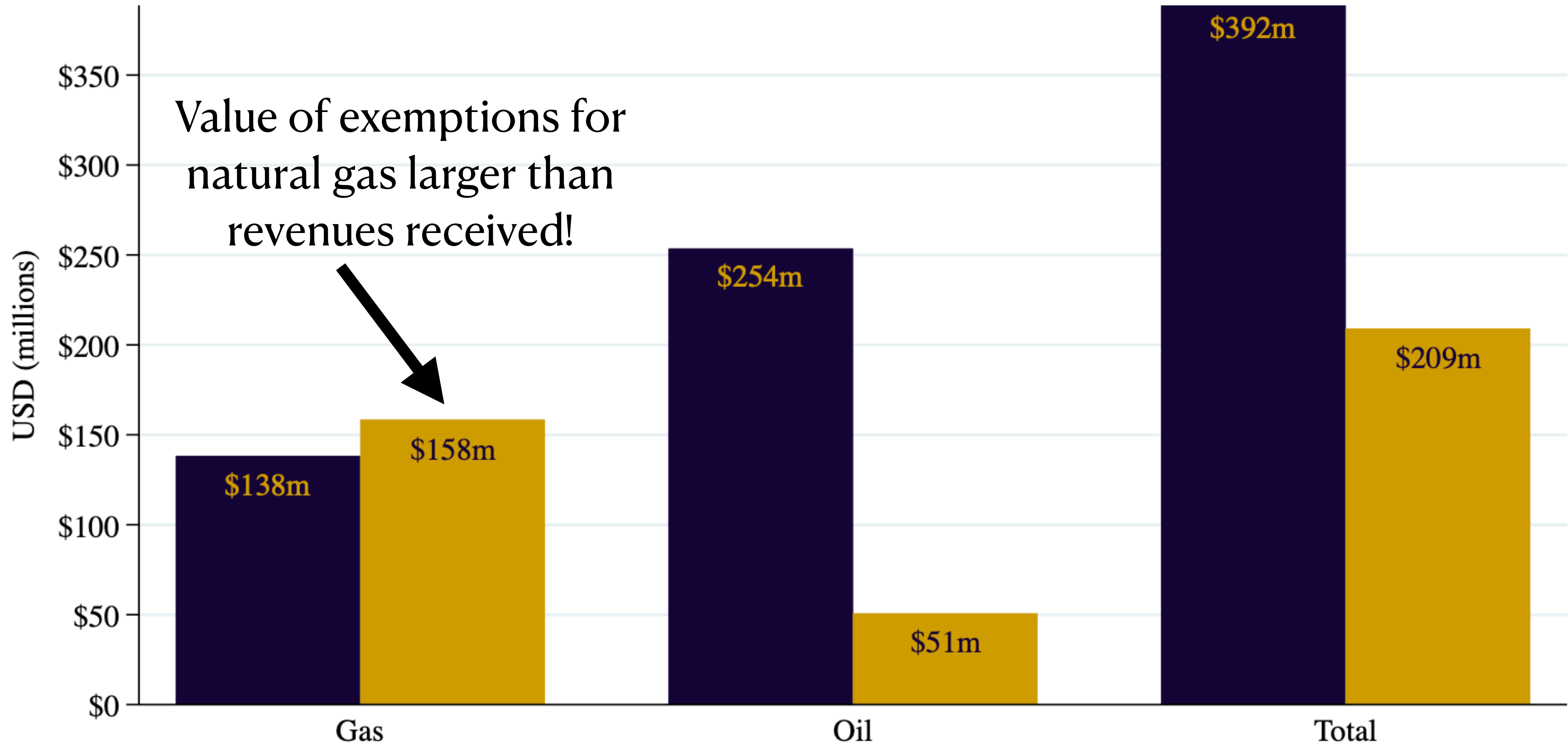
Table 9-1: Severance Tax Collections and State Exemptions

	Oil	Gas	Total
Panel A: Revenues Received and Value of Exemptions			
	(1)	(2)	(3)
Severance Tax Revenue Received	\$253,552,267	\$138,247,205	\$391,799,472
Severance Tax Revenue Loss	\$ 51,720,043	\$163,991,575	\$215,711,616
<i>Share of Potential Revenue</i>	16.94%	54.26%	35.51%
Value of State Exemptions	\$50,699,664	\$158,436,664	\$209,136,328
<i>Share of Potential Revenue</i>	16.61%	52.42%	34.43%
Panel B: Value of State Exemptions by Well Type			
Incapable Wells	\$4,618,394	\$12,287,073	\$16,905,467
<i>Share of Exemption Value</i>	9.11%	7.76%	8.08%
Inactive Wells	\$94,803	\$0	\$94,803
<i>Share of Exemption Value</i>	0.19%	0.00%	0.05%
Stripper Wells	\$19,201,992	\$0	\$19,201,992
<i>Share of Exemption Value</i>	37.87%	0.00%	9.18%
Horizontal Wells	\$8,684,506	\$144,965,667	\$153,650,173
<i>Share of Exemption Value</i>	17.13%	91.50%	73.47%
Deep Wells	\$2,658,763	\$1,144,980	\$3,803,743
<i>Share of Exemption Value</i>	5.24%	0.72%	1.82%
Tertiary Wells	\$15,416,320	\$0	\$15,416,320
<i>Share of Exemption Value</i>	30.41%	0.00%	7.37%
Source: Louisiana Department of Revenue; Annual Report and Tax Exemption Budget. The five-year average is calculated using 2017-2021. Potential Revenue estimated by combining the values of Severance Tax Revenue Received and Severance Tax Revenue Loss.			

Source: Mineral Revenues in Louisiana. LSU Center for Energy Studies. Includes update for recent years.

Figure 9-2: Value of State Severance Tax Exemptions Relative to Total Tax Collections

Source: State of Louisiana Tax Exempt Budget and Louisiana Department of Revenue Annual Reports

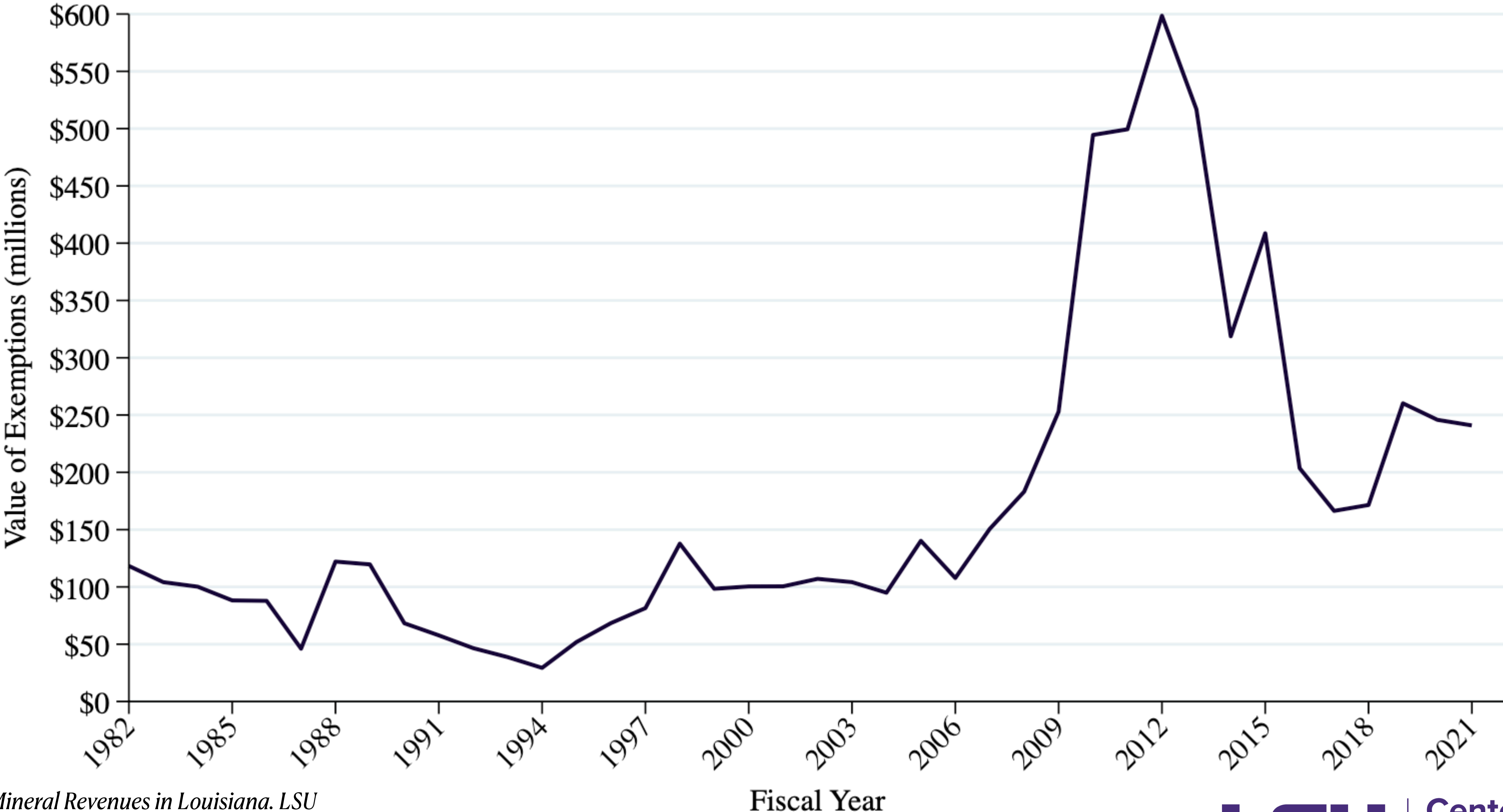


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Figure 9-1: Historical Value of State Imposed Severance Tax Exemptions

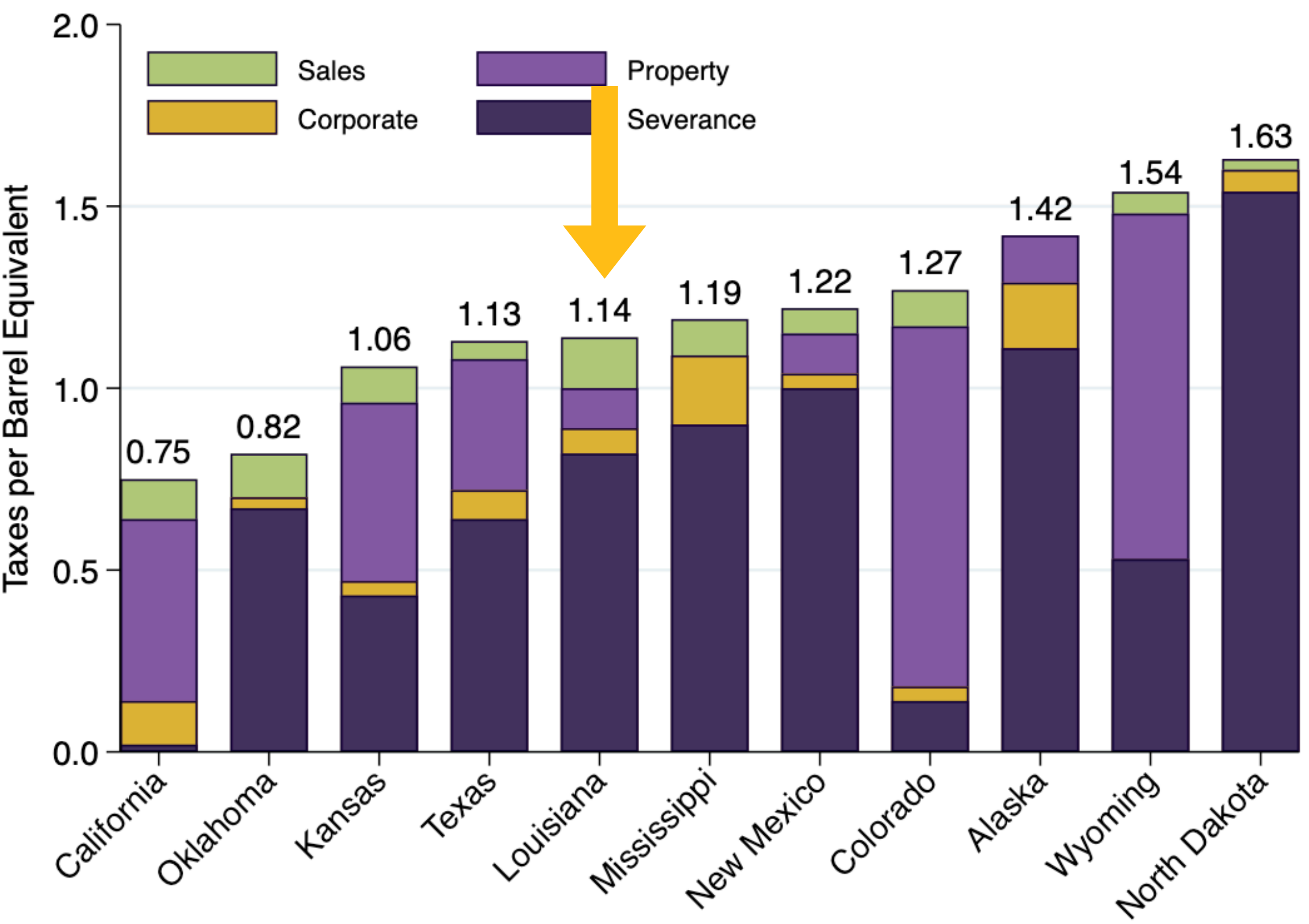
Source: Louisiana Tax Exempt Budget. Adjusted to Consumer Price Index. Base year 2018.⁴³



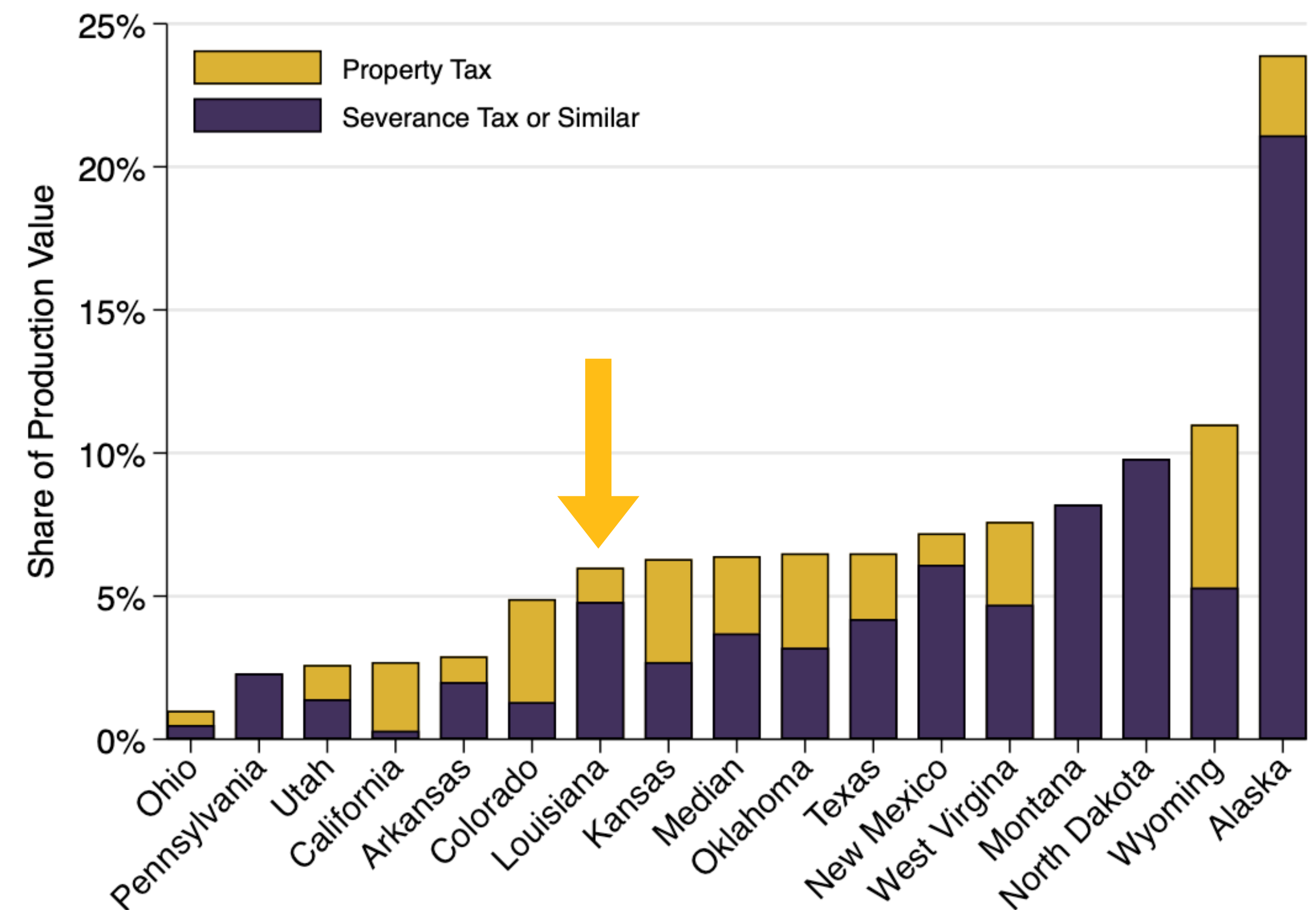
Source: Mineral Revenues in Louisiana. LSU Center for Energy Studies. Includes update for recent years.

4.5 Overall Competitiveness of Louisiana's Tax Structure

Figure 4-1: Comparison of Tax Structures



(a) Pulsipher et al. (1990)



(a) Newell & Raimi (2018)

Conclusion: Louisiana's tax structure is on net competitive. The goal of this analysis is to make recommendations to improve the tax structure without disturbing the revenues received by the state.

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8 | Valuation of oil and gas for tax purposes

8.1 An Inherent Tradeoff

Article 7, Section 4(B) of the Louisiana Constitution of 1974 allows the state to assess a severance tax based “upon either the quantity or value of the products at the time and place of severance” (underline added for emphasis). As previously discussed, Louisiana’s current laws tax oil at 12.5 percent of the value of the oil sold, less transportation costs (unless the production qualifies for an exemption). Natural gas is taxed based on the quantity sold (indexed to a market price).

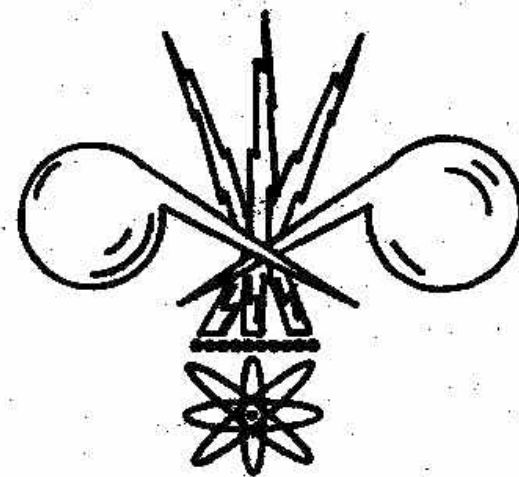
Taxing quantity versus value presents an inherent tradeoff. Quantity taxes are relatively straightforward. A volumetric rate is published. Producers report how much is produced and multiply the volumetric rate by the quantity produced to arrive at the tax liability. Auditing is also straightforward, as LDR only needs to audit the quantity produced. Taxing based on quantity, though, has a downside: different producers and/or fields may receive different prices which means these different barrels of oil will pay different effective tax rates. For example, “heavy sour” crude oil historically has a lower market value than “light sweet” crude oil. Thus, if both the heavy sour and light sweet crude are assessed the same volumetric rate, the heavy sour crude will be taxed at a higher effective rate.

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8.2 Policy Questions

Whether it is prudent to move to a volumetric rate indexed to a market price for oil comes down to a tradeoff. Charging a tax rate based on a percent of value produced allows for consistency in the tax burden. But on the other hand, charging a tax rate on a percentage of value is more difficult to audit for the state and requires more complex accounting for companies. Moving to a set volumetric rate is simplistic. But is the simplicity worth the tradeoff of potentially adverse effects on different areas and producers? This comes down to a few empirical questions that can be addressed.

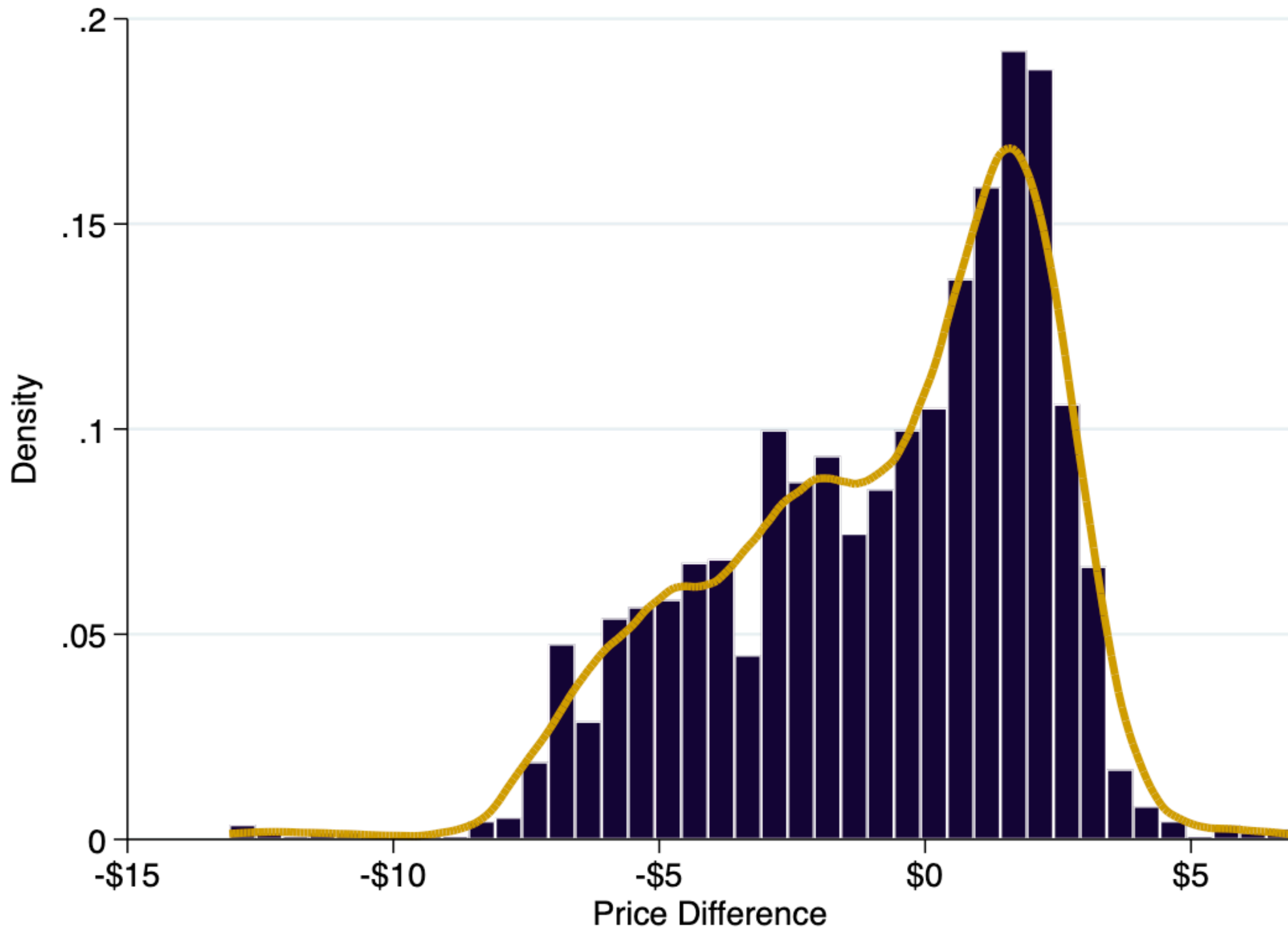
8.2.1 Does All Oil Command the Same Price?

Table 8-1: Price Variability

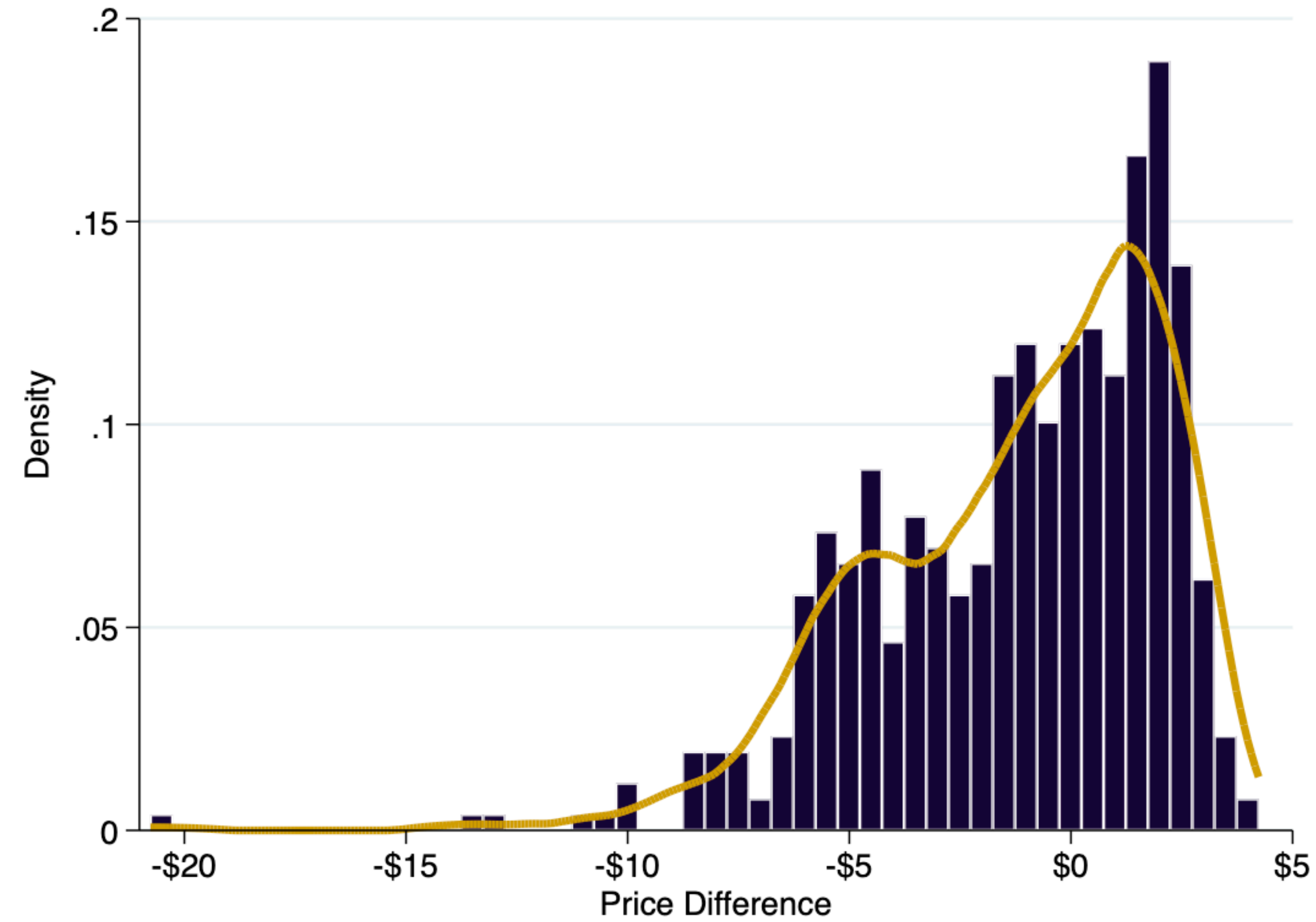
	Oil	Condensate
	(1)	(2)
Percentile	Price Received less LLS	
5%	-\$6.35	-\$6.74
25%	-\$2.89	-\$3.45
50%	-\$0.13	-\$0.47
75%	\$1.62	\$1.50
95%	\$2.94	\$2.66
N	2,226	517
Barrels	18,833,770	3,097,894

Source: Individual tax records provided by LDR and LLS market prices from EIA. Note: The unit of observation is producer by month. There are a maximum of five low price volatility months across 1,126 producers. Not all producers sell to the market in all months. Not all producers sell both oil and condensate.

Figure 6-1: Louisiana Oil and Natural Gas Production by Well Age



(a) Oil



(a) Condensate

8.2.2 Do Larger Producers and Larger Fields Receive Better Prices?

Table 8-2: Top Ten Producers and Fields by Share of Total Production

Average Price per Barrel	Producers	Fields
	(1)	(2)
Top Ten	\$50.08	\$51.78
All Others	\$49.77	\$50.94
Price Difference	\$0.31	\$0.84
<i>Percent Difference</i>	<i>0.62%</i>	<i>1.64%</i>
<hr/>		
<u>Share of Total Production</u>		
Top Ten	53.2%	25.7%
All Others	46.8%	74.3%
<hr/>		
Observations	561	661

Source: Individual tax records provided by LDR and author's calculations.

Table 8-3: Do Larger Producers and Fields Receive Better Prices?

	<u>Producers</u>	<u>Fields</u>
Average Price per Barrel	(1)	(2)
Share of Barrels Produced	0.219** (0.093)	0.283* (0.151)
Observations	23,271	28,498
<p>Standard Errors Clustered at by producer and field respectively. Year by month fixed effects included but coefficients not shown. Unit of observation is monthly observation by producer or field.</p>		

A one percentage point increase in the producer’s share of total production is associated with a \$0.22 per barrel higher price.

A one percentage point increase in the field’s share of total production is associated with a \$0.28 increase in the price per barrel.

Conclusion: These differential prices represent a tradeoff that must be considered in examining the benefits to moving to a volumetric rate for oil indexed to a market price. The tradeoff is that some producers will pay higher/lower effective tax rates.

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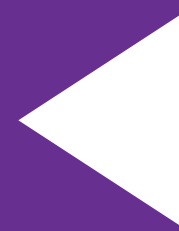
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9 | Exemptions

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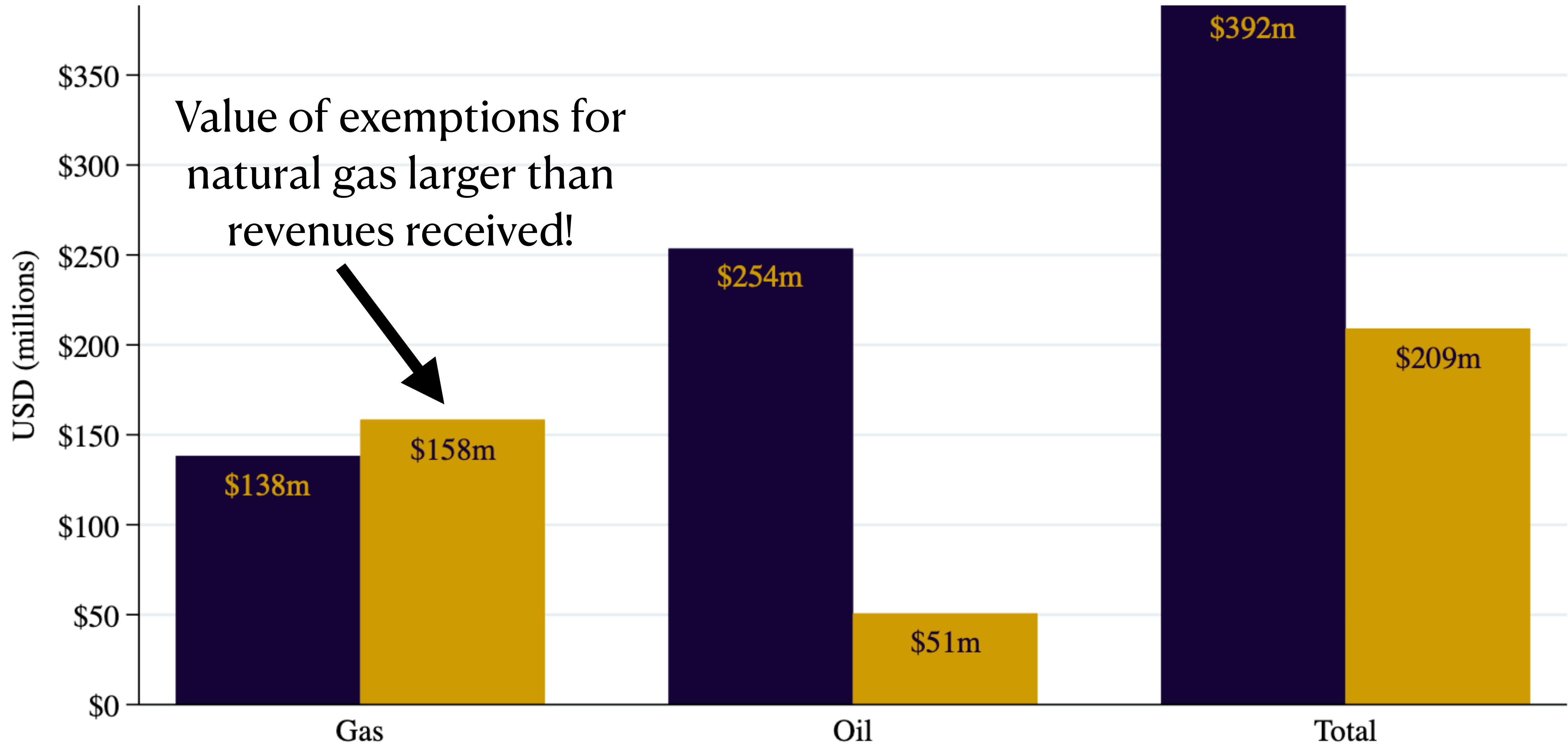
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Figure 9-2: Value of State Severance Tax Exemptions Relative to Total Tax Collections

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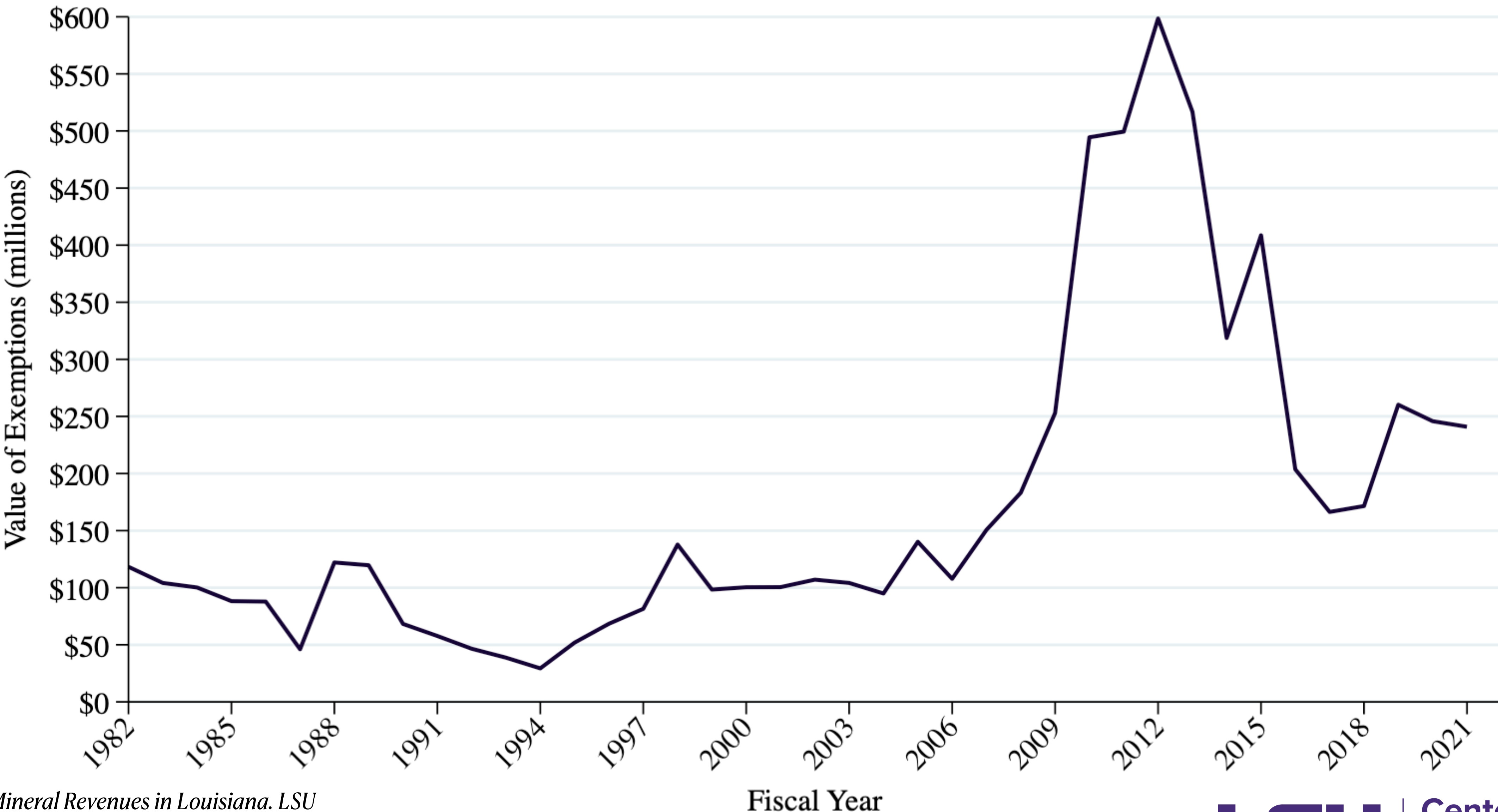


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Revenues Value of Exemptions

Figure 9-1: Historical Value of State Imposed Severance Tax Exemptions

Source: Louisiana Tax Exempt Budget. Adjusted to Consumer Price Index. Base year 2018.⁴³



Source: Mineral Revenues in Louisiana. LSU Center for Energy Studies. Includes update for recent years.

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10 | Differential Tax Rate for Oil and Natural Gas

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Oil is taxed at approximately three times the rate of natural gas in Louisiana. This large difference is not observed in other states. A basic question that we need to ask is: Does this differential still serve any purpose and, if so, what purpose?

Potential Benefits of Leveling

- Less Distorting
- Equity Concerns

Potential Challenges of Leveling

- Transition
- Relative Elasticity of Supply
- Downstream Impacts of Tax Incidence

Some inherent realities

- Revenue Neutrality
- Forecasting Precision
- Short Run and Long Run Effects Can Be Different

Table 10-1: Levelized Severance Tax Rate for Oil and Natural Gas

	All State Exemptions Removed	Keeping Only Stripper/Incapable Exemptions	No Change to Exemptions
	(1)	(2)	(3)
All Years	5.5%	5.9%	7.1%
1992 - 1999	6.7%	7.1%	7.5%
2000 - 2009	5.4%	5.8%	6.3%
2010 - 2018	5.2%	5.6%	7.7%

Recommendation: Remove all exemptions except for stripper and incapable wells and set tax rate for both oil and natural gas as to be approximately revenue neutral in the long run.

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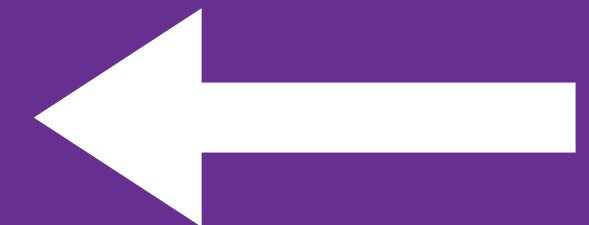
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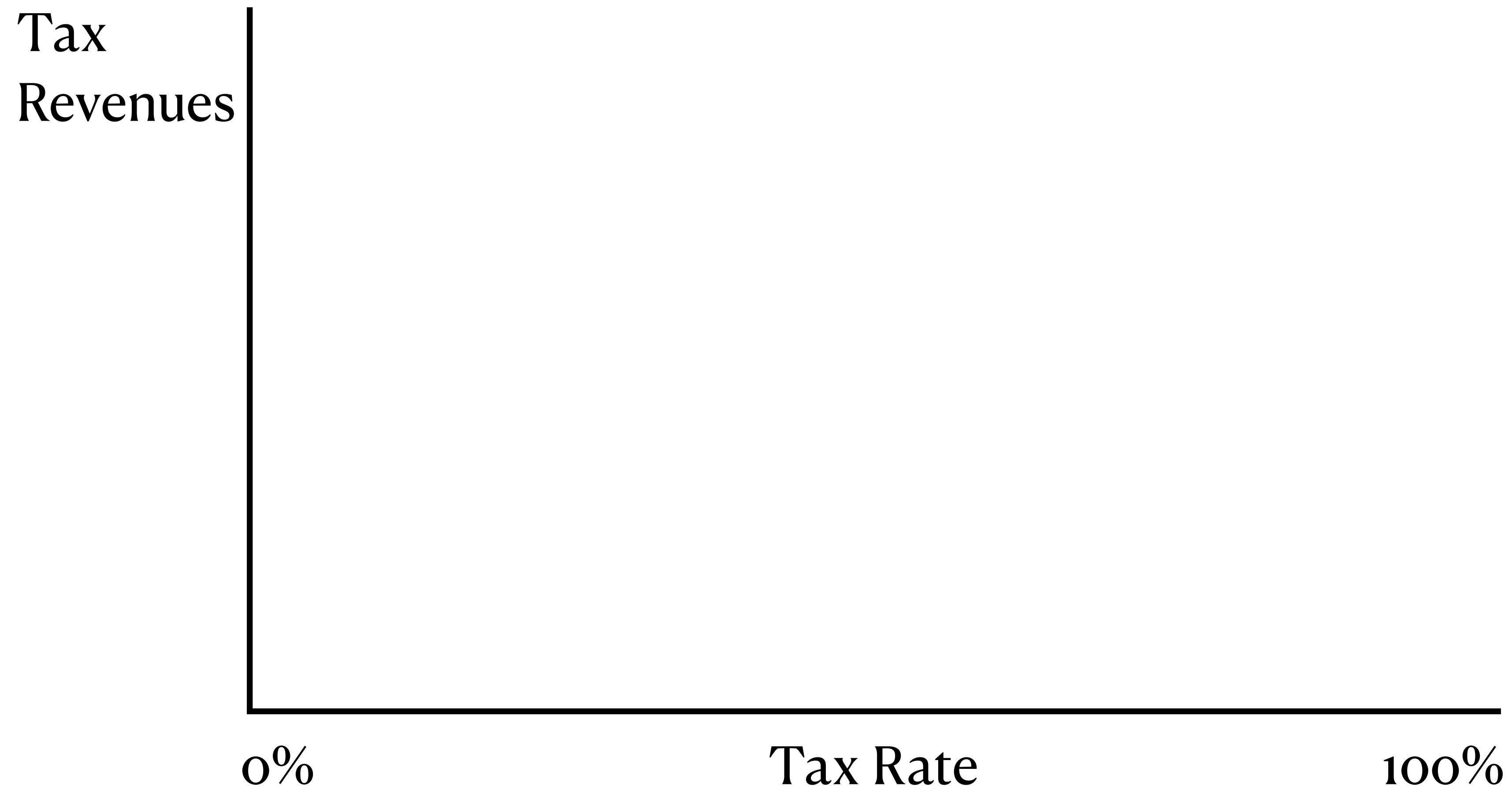
Additional Information



7 | Estimating Sensitivity of Oil and Gas Production to Price Changes

Response to Severance Tax Change

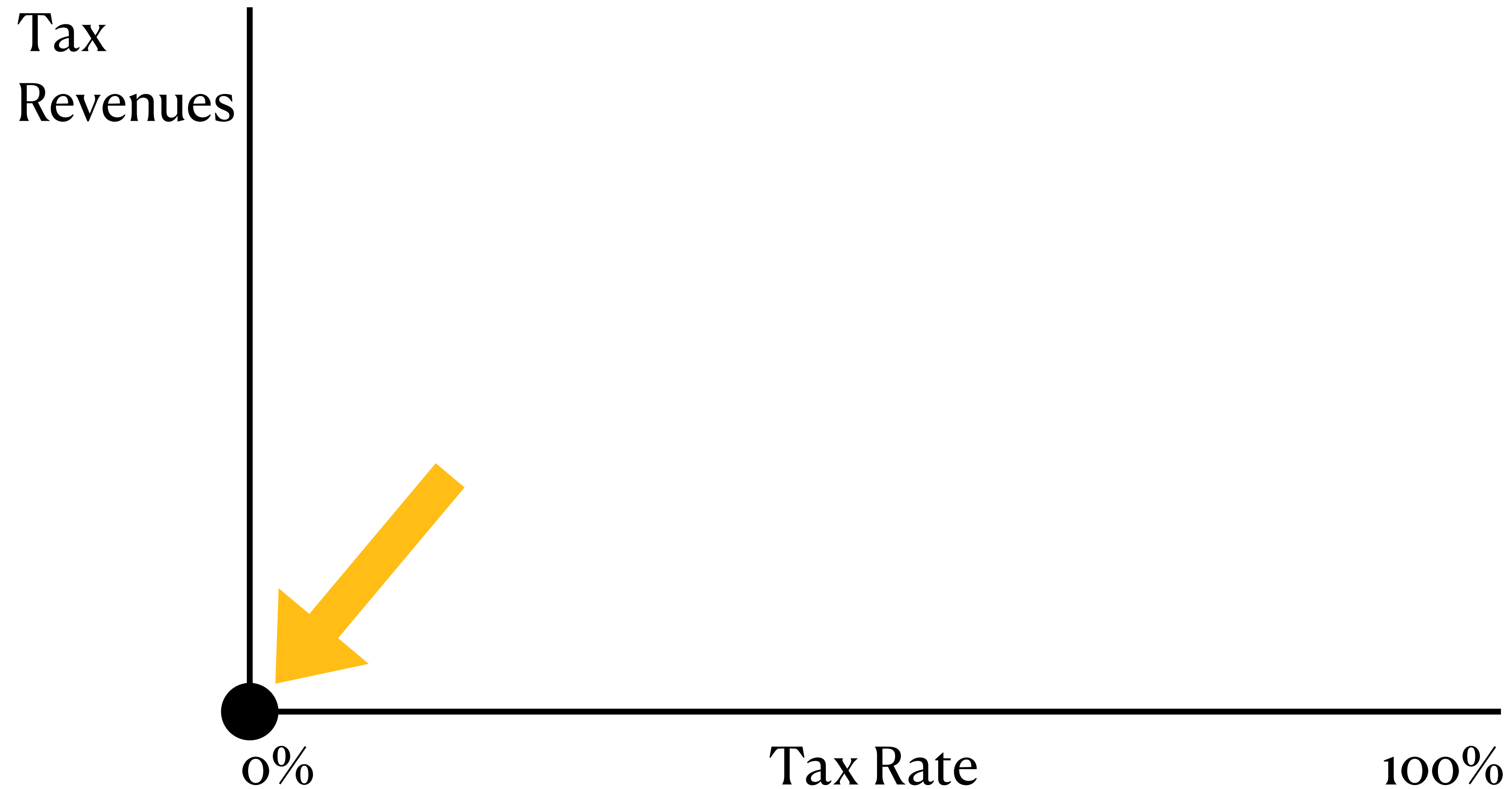
Laffer Curve



Source: Author's illustrative example.

Response to Severance Tax Change

Laffer Curve



Source: Author's illustrative example.

Response to Severance Tax Change

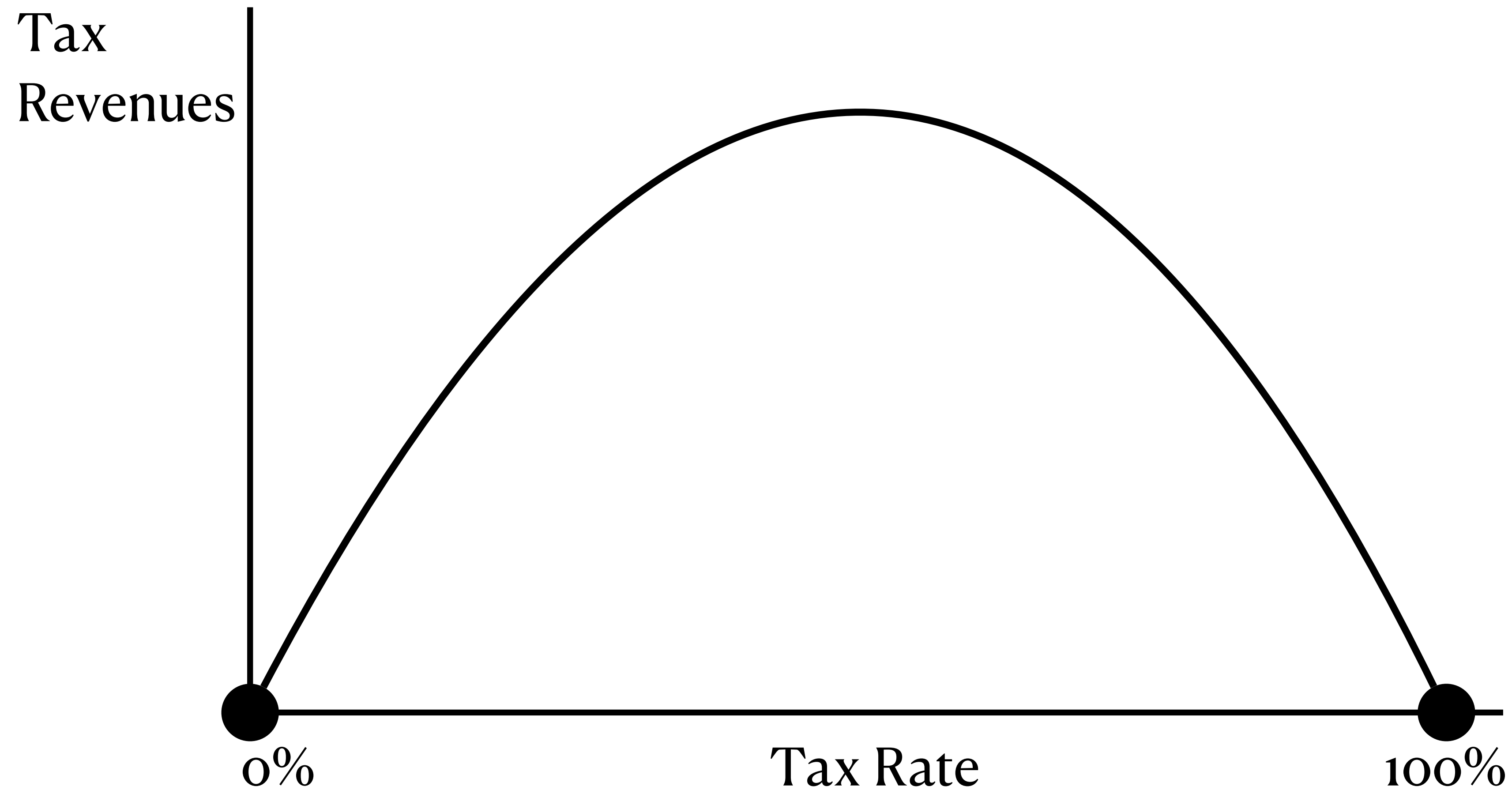
Laffer Curve



Source: Author's illustrative example.

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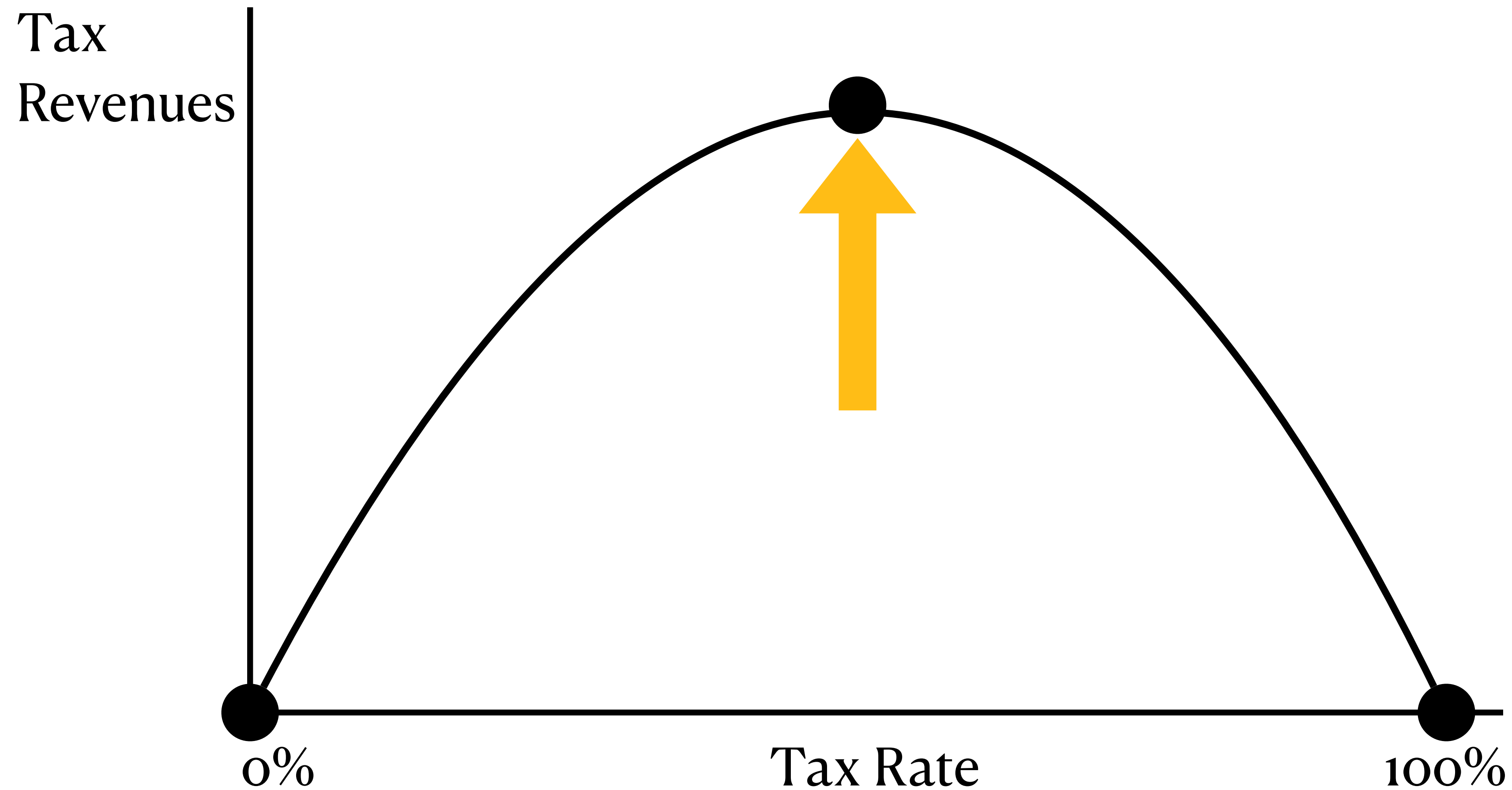
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Source: Author's illustrative example.

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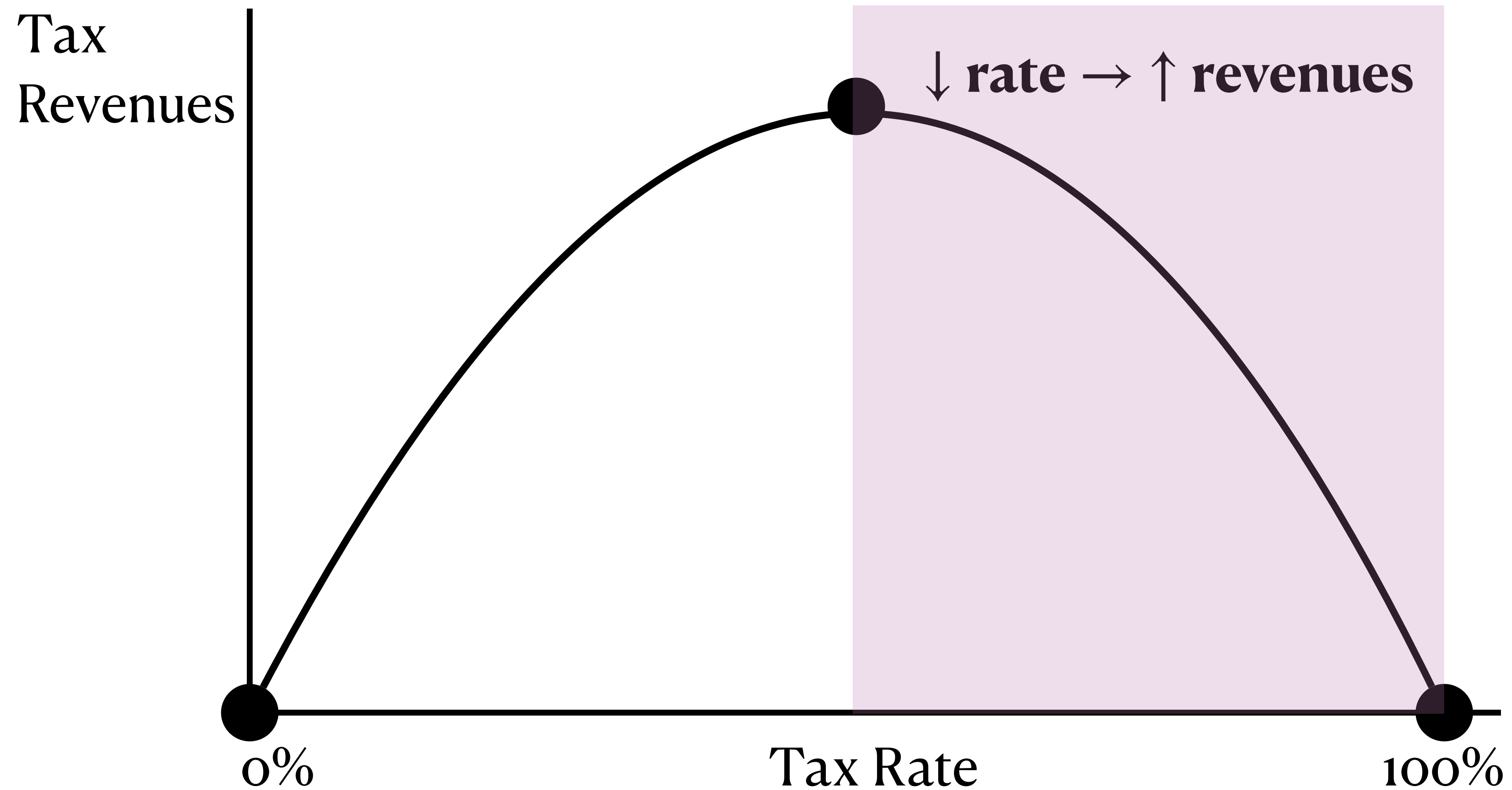
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Source: Author's illustrative example.

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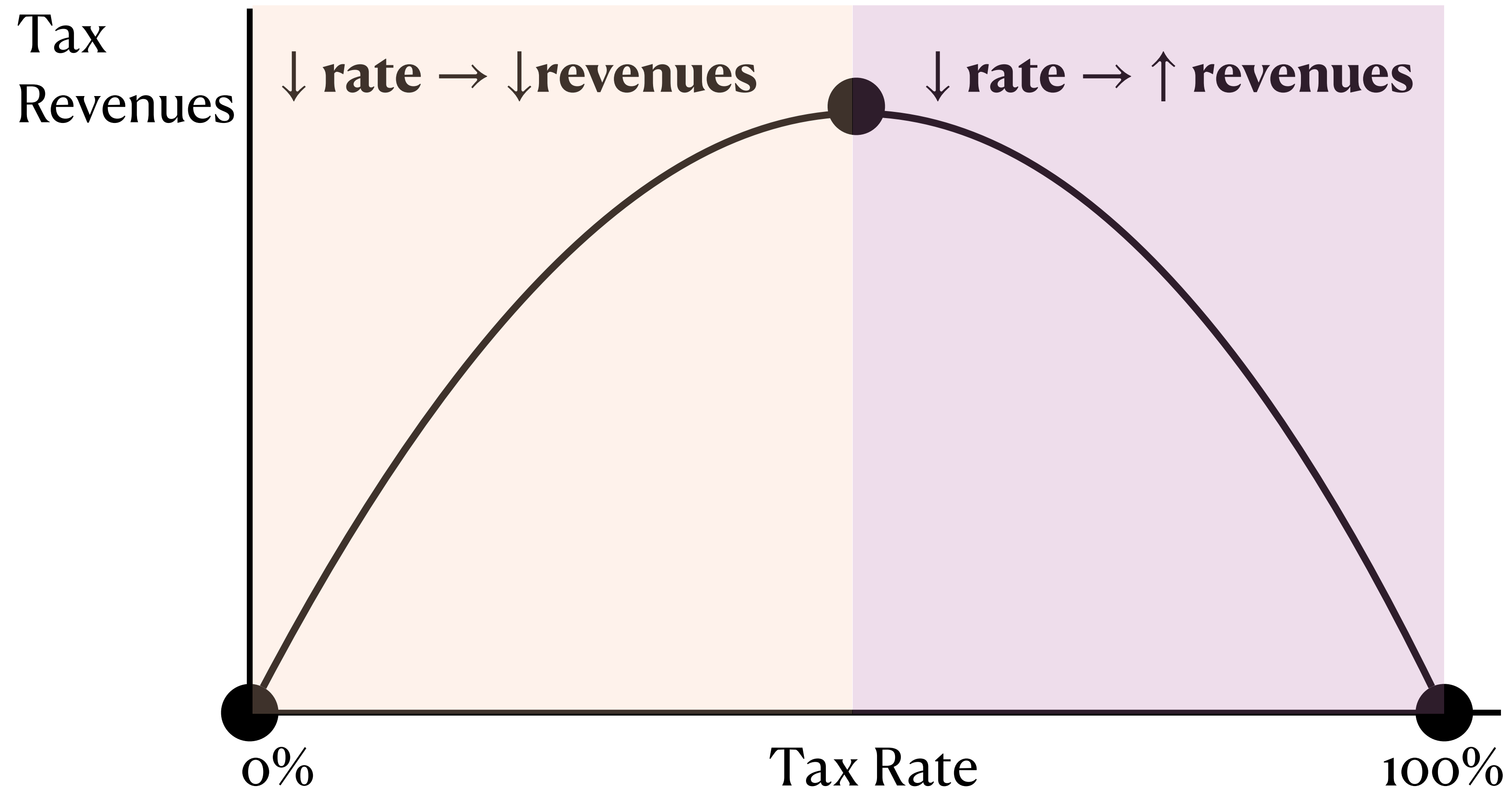
Laffer Curve



Source: Author's illustrative example.

Response to Severance Tax Change

Laffer Curve



Source: Author's illustrative example.

Dynamic Scoring

In February of 2021, Representative Coussan requested that the LSU Center for Energy Studies requested a “separate, independent analysis of the fiscal impacts” of what would be come House Bill 57.

This was in response to Governor Edwards veto of House Bill No. 29 by Rep. Devillier passed during the 2020 Second Extraordinary Session.

What is dynamic scoring?

Dynamic scoring is a forecasting technique for government revenues that incorporates predictions about behavior of economic agents to policy changes.

In this context, a **reduction in severance taxes** can **increase economic activity** through several channels:

- Increase drilling / well enhancement activity
 - Oil companies pay taxes directly.
 - Workers pay income taxes, sales taxes, etc.
 - Wells drilled will pay severance tax once exemption expires.
- Increase in royalties paid to landowners
 - The state is also land owner.

But also, **decrease in government revenues** can **reduce economic activity** through reductions in government spending, which itself will create a feedback loop of less revenue.



February 10, 2021

Dr. David E. Dismukes, Ph.D
Executive Director
Center for Energy Studies
Louisiana State University
Baton Rouge, LA 70803

Re: Fiscal Impact of Proposed Severance Tax Exemption For Certain Wells

Dear Dr. Dismukes:

During the 2020 Second Extraordinary Session, House Bill No. 29 by Rep. Phillip Devillier passed the legislature and ultimately vetoed by Governor John Bel Edwards due to a handful of uncertainties. The bill would have enacted a limited-period severance tax exemption for oil produced from new wells, enhanced wells, and orphaned wells that produced between January 1, 2021 and December 31, 2023.

In an attempt to prepare for pursuing that concept once again, I would like to ask you and your staff to **examine and provide a separate, independent analysis of the fiscal impact of the bill**, effective as set forth below. If possible, **please include a dynamic scoring analysis of the economic impact of a capital investment** as a result of the severance exemption. For example, the State may see a direct loss due to the reduction in severance tax collections but how does that compare to an increase in collections due to income, franchise, sales, and property tax collections?

Finally, in response to the Governor's veto message dated November 11, 2020, I plan to make the following changes in any bill:

- 1) The period within which production would be eligible for the exemption would move to July 1, 2021, through June 30, 2023.
- 2) The exemption period would begin on the date that new or post-enhancement production commences.
- 3) The prohibition for violations of Statewide Order 29-B would apply only to violations that occurred prior to the application for the exemption authorized in the legislation. Violations that might occur during the period of exemption will not affect the already-in-place exemption.

Please consider the above changes for any analysis. Lastly, please do not hesitate to reach out to me or members of my staff for additional information or clarification.

Sincerely,

A handwritten signature in black ink, appearing to read "Jean-Paul Coussan".

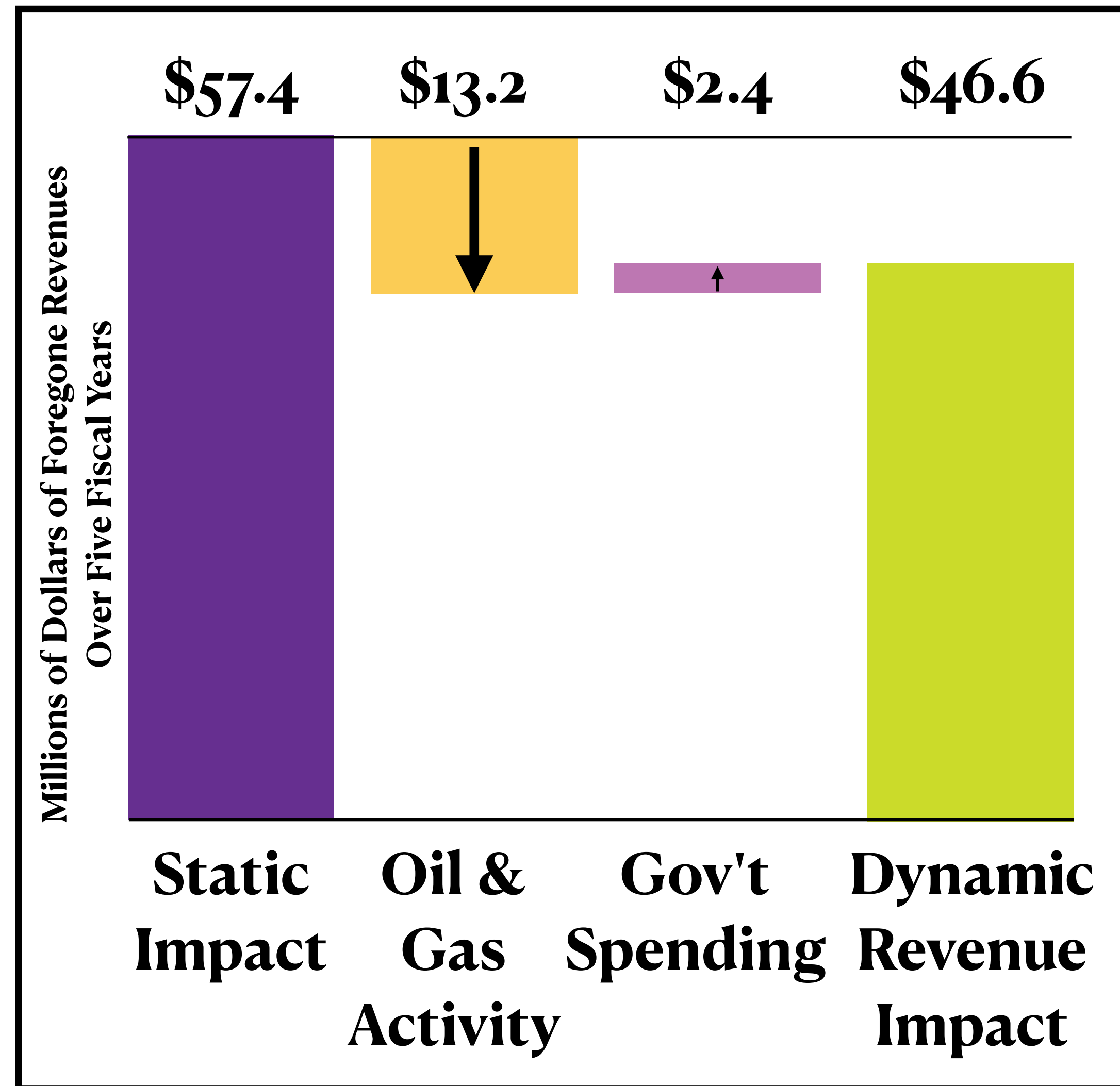
Rep. Jean-Paul Coussan, Chair
House Committee on Natural Resources and Environment

CC: Dr. Greg Upton, Center for Energy Studies

Dynamic Scoring House Bill No. 57 of the 2021 Regular Session. LSU Center for Energy Studies. At the request of Rep. Coussan

- A **static fiscal impact** suggests that severance tax revenues will be reduced by **\$57.4 million over five years**:
- Economic benefits:
 - 29 new wells will be drilled, and 16 new well enhancements.
 - 1.5 million barrels of oil and 2.5 billion cubic feet of natural gas.
 - In total, this economic activity will **increase state revenues by \$13.2 million**.
- Economic Costs:
 - The state has a **balanced budget constraint**. Reduced spending by the state will have negative economic impacts, **reducing state revenues by \$2.4 million**.
- In net, state revenues are estimated to decrease by **\$46.6 million over five years**, which is about **19% lower than the static tax impact**.

Fiscal Impact with Dynamic Scoring



Louisiana Economic Impact Model

Table 1: Fiscal Note With Dynamic Scoring Included

9 Month Well Payout Scenario

Fiscal Year	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Static Severance Tax Revenue Impact	\$ (3,724)	(18,384)	(19,516)	(15,401)	(409)	\$(57,434)
Dynamic Impact of O&G Activity						
<i>Severance Taxes</i>	\$ 3	279	1,403	2,425	2,618	\$ 6,727
<i>State Royalties</i>	\$ 52	328	468	490	246	\$ 1,583
<i>Other TLF</i>	\$ 122	818	1,381	1,524	1,028	\$ 4,873
Total Dynamic Benefit	\$ 177	1,426	3,252	4,439	3,891	\$ 13,184
<i>Percent of Static Note</i>	4.8%	7.8%	16.7%	28.8%	951.0%	23.0%
Dynamic Impact of Reduced Government Spending Due to Balanced Budget Constraint						
Initial Reduction in Government Expenditures	\$ (3,546)	(16,958)	(16,264)	(10,963)	3,482	\$(44,250)
Additional TLF Reduction Due to Balanced Budget	\$ (189)	(903)	(866)	(584)	185	\$ (2,357)
Dynamic Fiscal Note	\$ (3,735)	(17,861)	(17,131)	(11,547)	3,667	\$(46,607)
Percent Difference with Static Note	0.3%	-2.8%	-12.2%	-25.0%	796.3%	-18.9%

Note: Dollar values in thousands of dollars. Royalties also include rentals, bonuses and mineral interest.

Table 3: Fiscal Note With Dynamic Scoring Included

Well Enhancement Exemption

Fiscal Year	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Static Severance Tax Revenue Impact	\$ (1,132)	(4,267)	(4,437)	(3,163)	0	\$(12,999)
Dynamic Impact of O&G Activity						
<i>Severance Taxes</i>	\$ 1	112	413	660	636	\$ 1,821
<i>State Royalties</i>	\$ 15	78	111	113	60	\$ 377
<i>Other TLF</i>	\$ 30	195	333	369	253	\$ 1,180
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<i>Percent of Static Note</i>	4.1%	9.0%	19.3%	36.1%		26.0%
Dynamic Impact of Reduced Government Spending Due to Balanced Budget Constraint						
Initial Reduction in Government Expenditures	\$ (1,086)	(3,883)	(3,580)	(2,020)	948	\$ (9,621)
Additional TLF Reduction Due to Balanced Budget	\$ (58)	(207)	(191)	(108)		\$ (563)
Dynamic Fiscal Note	\$ (1,143)	(4,090)	(3,770)	(2,128)	948	\$(10,183)
Percent Difference with Static Note	1.0%	-4.2%	-15.0%	-32.7%		-21.7%

Note: Dollar values in thousands of dollars. Royalties also include rentals, bonuses and mineral interest.

Response to Severance Tax Rate Change

- Reducing severance tax rates would lead to reduced revenue for the state.
- Empirical estimates suggest that lower tax rates are associated with more activity, but revenues associated with new activity are not large enough to offset tax rate reduction.
- The effect of a tax change on revenues is an empirical question.
 - **Lower tax rates \Rightarrow Lower Tax Revenues**
- “The academic literature on the supply price elasticity of oil suggests elasticities from zero to 0.6 in the long run (Jones, 1990; Dahl & Daggan, 1996; Kilian, 20009).”

Outline

1

History

2

Louisiana's severance tax structure

3

Valuation for tax purposes

4

Exemptions

5

Tax Rates

6

Sensitivity of production to tax changes

7

Conclusions



8

Additional Information



11 | Conclusions and Recommendations

Major Recommendations:

We recommend the following:

1. Institute an equivalent volumetric tax rate for oil and natural gas with rate to be established semi-annually;
2. Remove exemptions associated with horizontal drilling, tertiary wells, and deep wells for new activity;
3. Implement recommendations (1) and (2) simultaneously while maintaining revenue neutrality with respect to current severance tax projections;
4. Implement the new severance tax rates for oil and gas production from new activity; activity originated before tax law change will comply with the current tax structure.

These recommendations are consistent with a broad base and low rate philosophy, revenue neutrality for severance tax collections, and administrative efficiency.

Alternative Recommendations:

- ▶ Establish a volumetric tax rate for oil with the rate to be established semi-annually;
- ▶ Remove the verbiage “posted field price” from R.S. 47:633 (7);
- ▶ Review and simplify the calculation of the volumetric rate for natural gas and establish the rate semi-annually;
- ▶ Remove exemptions associated with horizontal drilling, tertiary wells, and deep wells while maintaining revenue neutrality with respect to current severance tax projections.

LSU

**Center for
Energy Studies**

Questions/Comments

gupton3@lsu.edu

Additional Resources:

Mineral Revenues: <https://www.lsu.edu/ces/publications/2020/mineral-revenues-in-louisiana-online-df.pdf>

Gulf Coast Energy Outlook: <https://www.lsu.edu/ces/conferences/gceo2023/>

Greg Upton, Ph.D. — November 30, 2022

Dynamic Scoring Modeling Details

Representative Wells

Representative Wells

The model relies on six “representative wells”:

- (New Drill | Well Enhancement) × (Full Rate | Incapable | Stripper)
- Model calibrated with initial production and decline curves based on data from SONRIS and *Enversus*.
- Some model inputs include:
 - Price of oil
 - Price of natural gas
 - Royalty rate (22.5%)
 - Oil and natural gas tax rates (12.5% & 4%)
 - Transportation costs

Up-front drilling costs estimated such that 9 month payout is achieved if no exemption available.

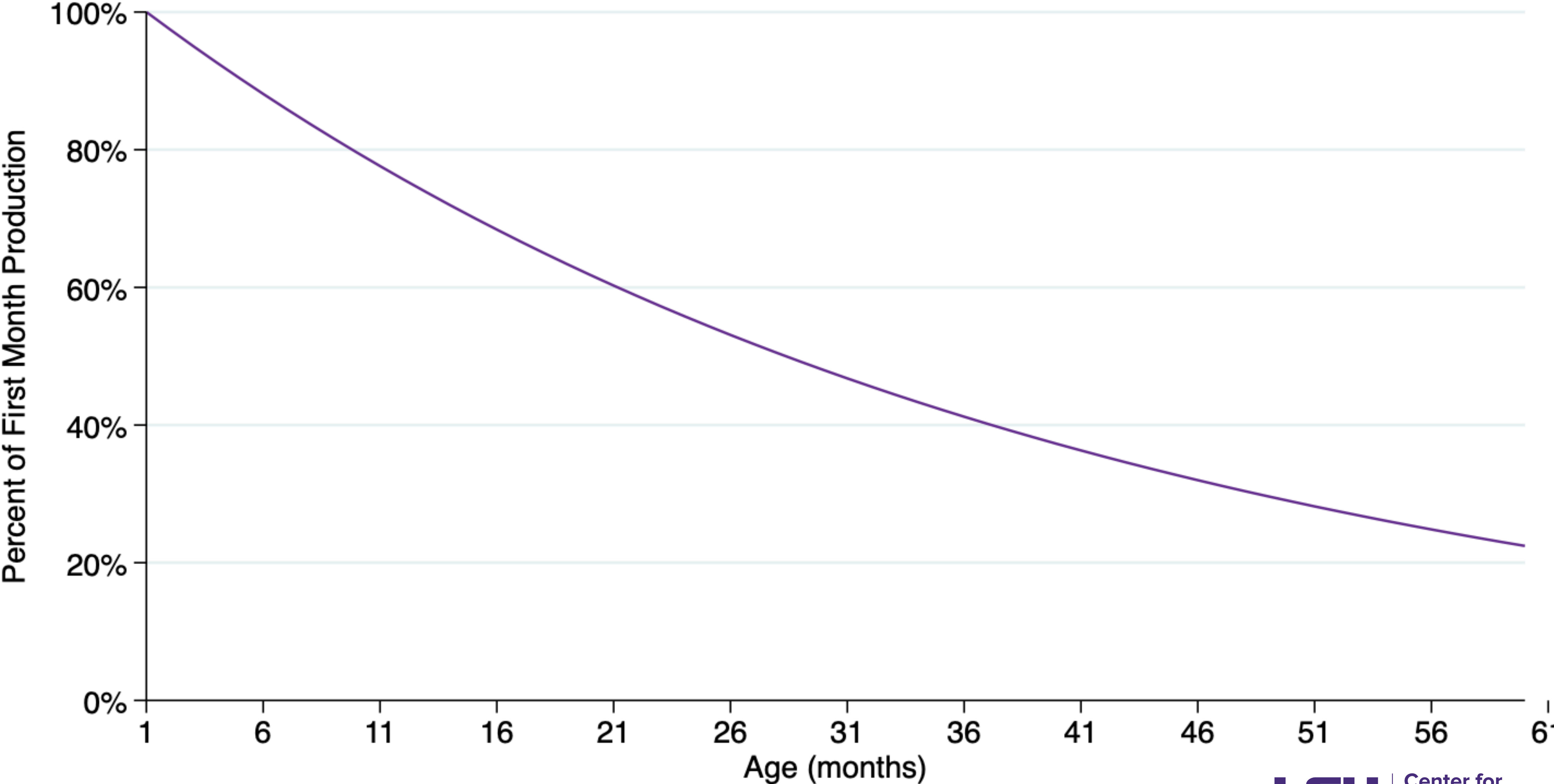
Representative Wells

Well Category	Cost Per Well	Average bopd in first month
New Drill - Full Rate	\$493	61.5
New Drill - Incapable	\$150	17.5
New Drill - Stripper	\$80	9
Enhancement - Full Rate	\$241	30
Enhancement - Incapable	\$150	17.5
Enhancement - Stripper	\$80	9

All wells produce 1.64 mcf of gas for each barrel of oil.
Gas-oil ratio remains constant throughout the well's life.

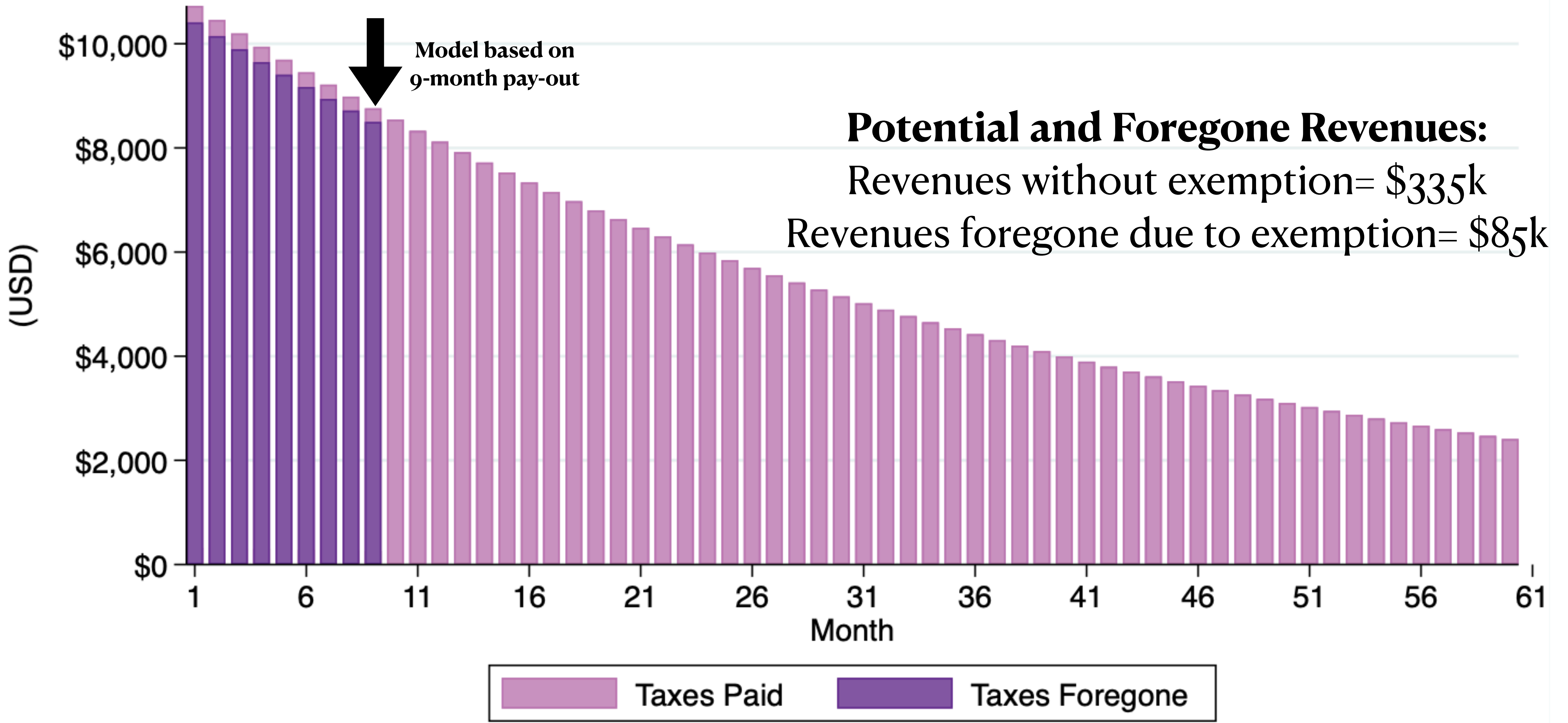
Note: Values in thousands of dollars.

Decline Curve



Severance Tax from Representative Well

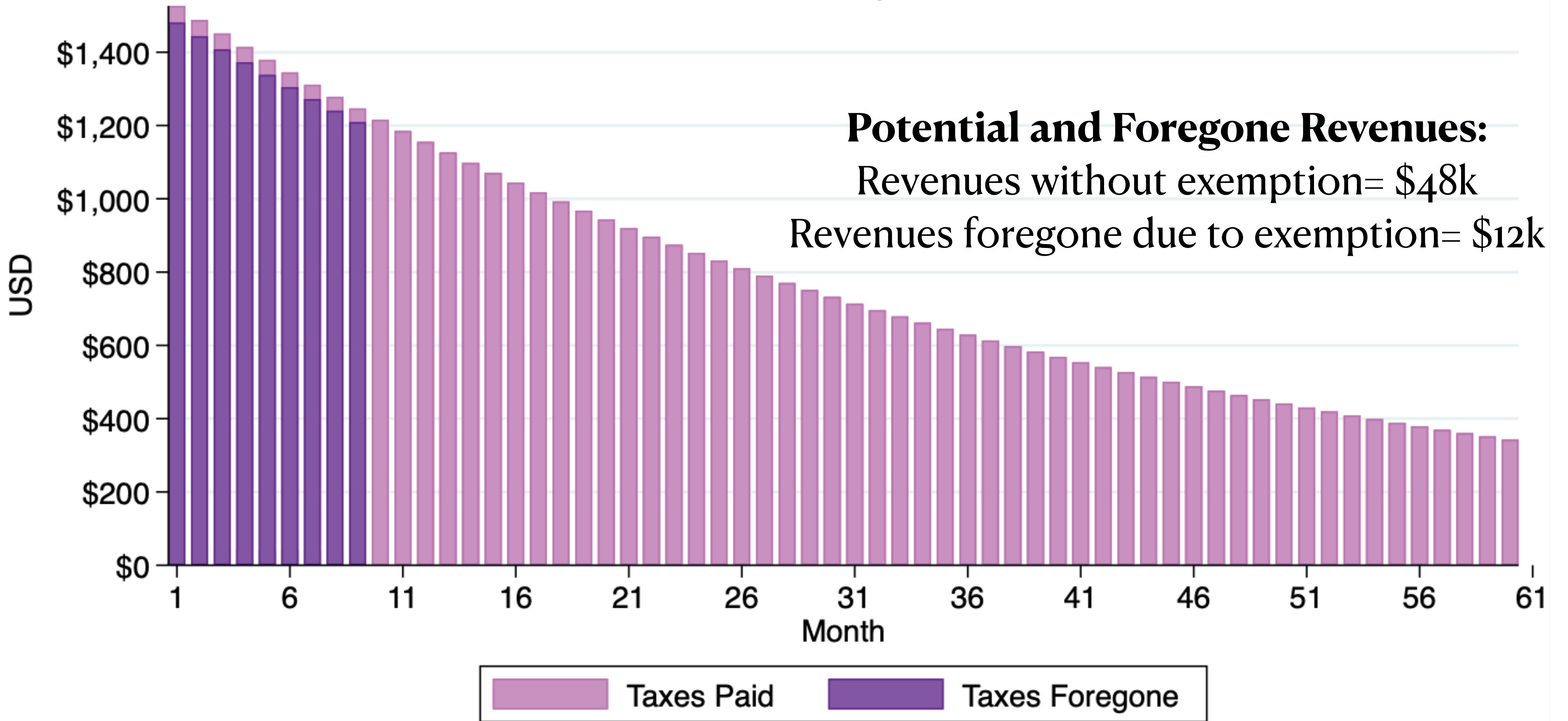
New Drill - Full Rate



Note: Months since exemption beginning date (Jan 2022)

Severance Tax from Representative Well

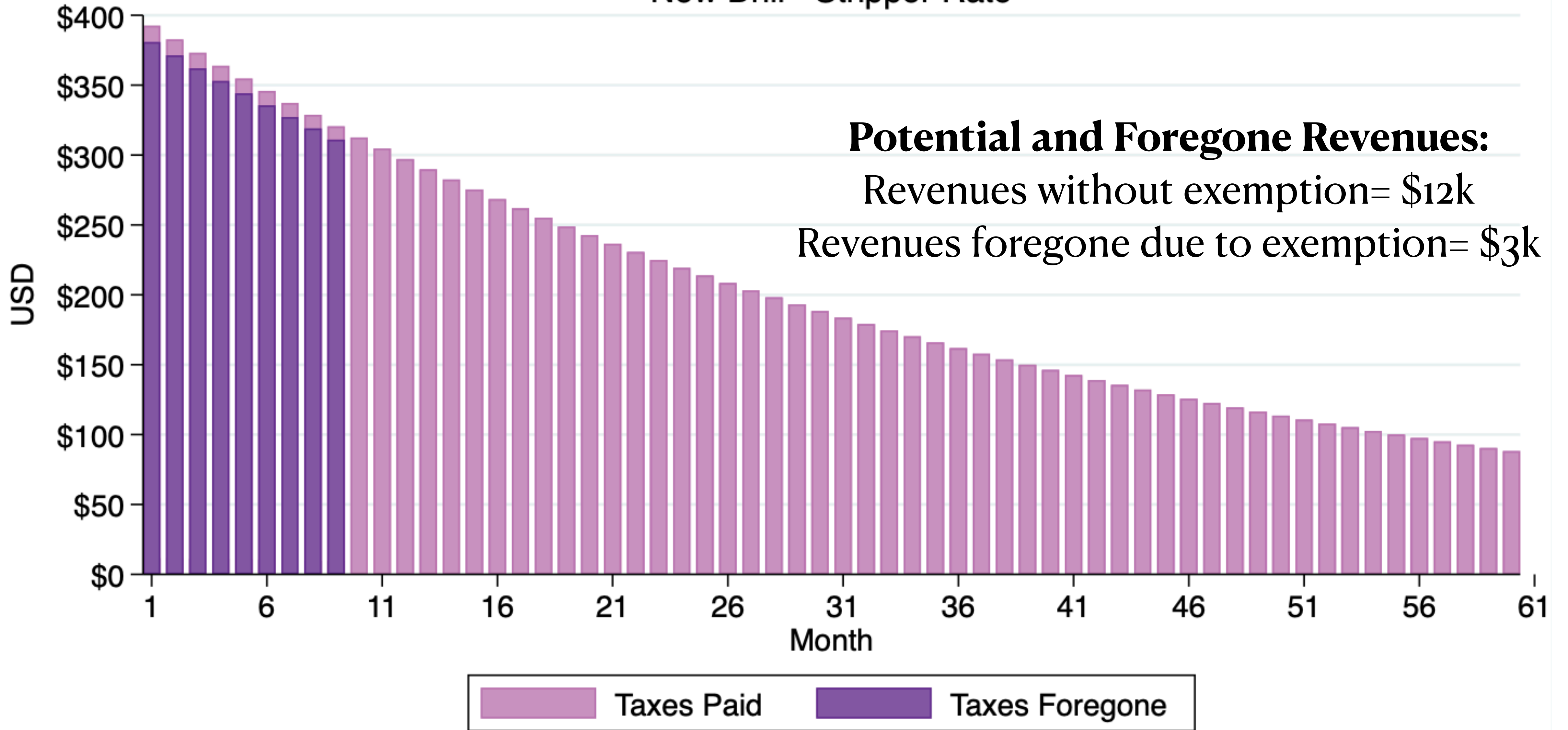
New Drill - Incapable Rate



Note: Months since exemption beginning date (Jan 2022)

Severance Tax from Representative Well

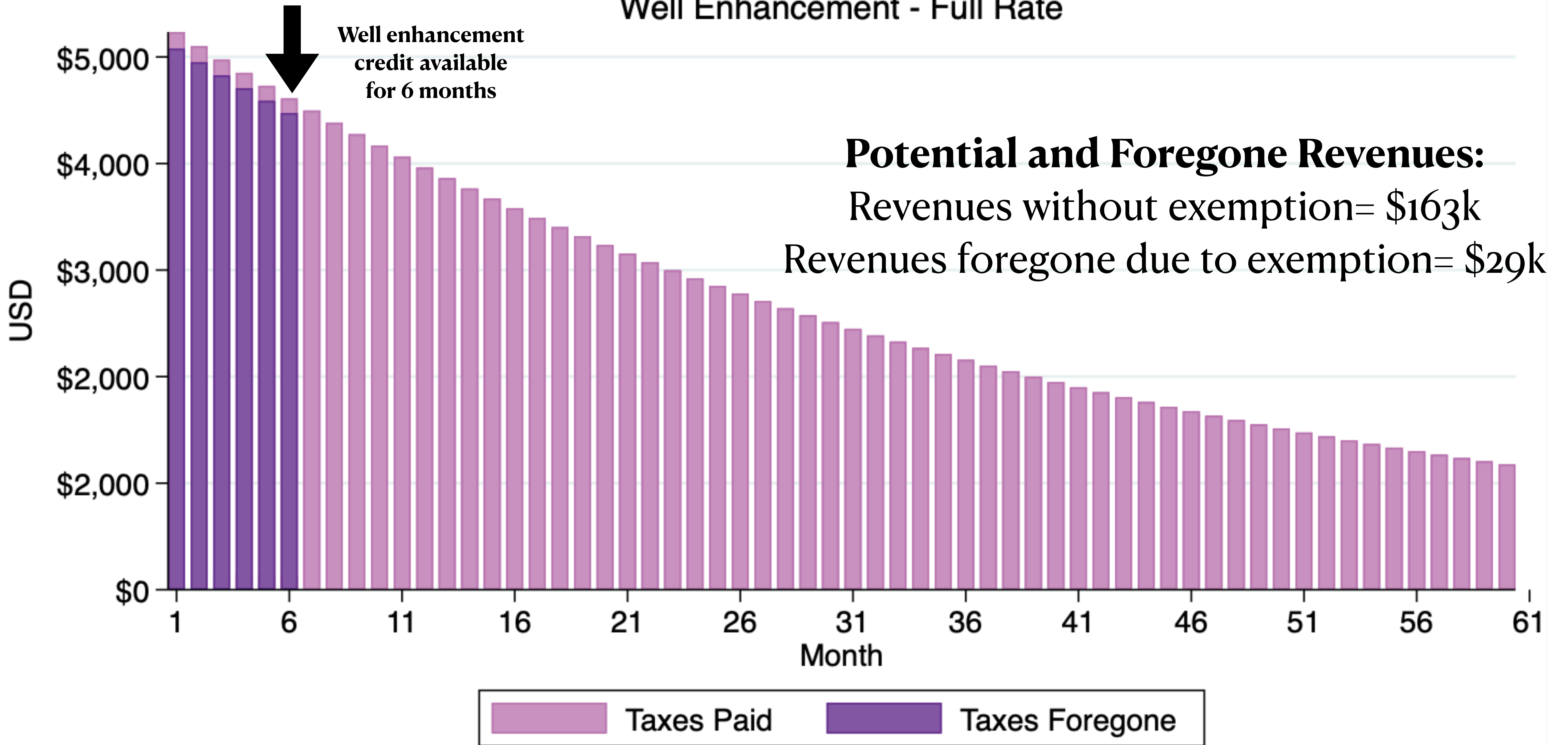
New Drill - Stripper Rate



Note: Months since exemption beginning date (Jan 2022)

Severance Tax from Representative Well

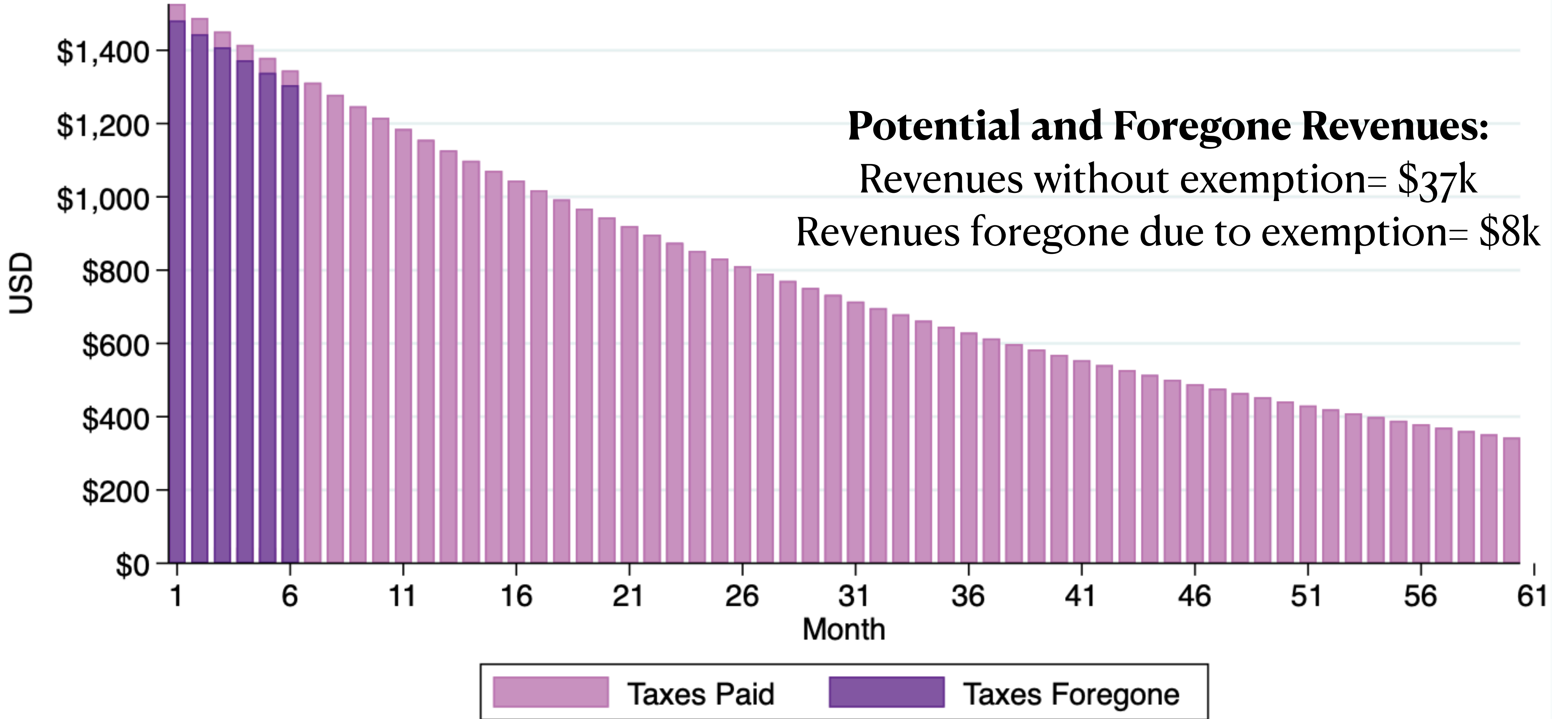
Well Enhancement - Full Rate



Note: Months since exemption beginning date (Jan 2022)

Severance Tax from Representative Well

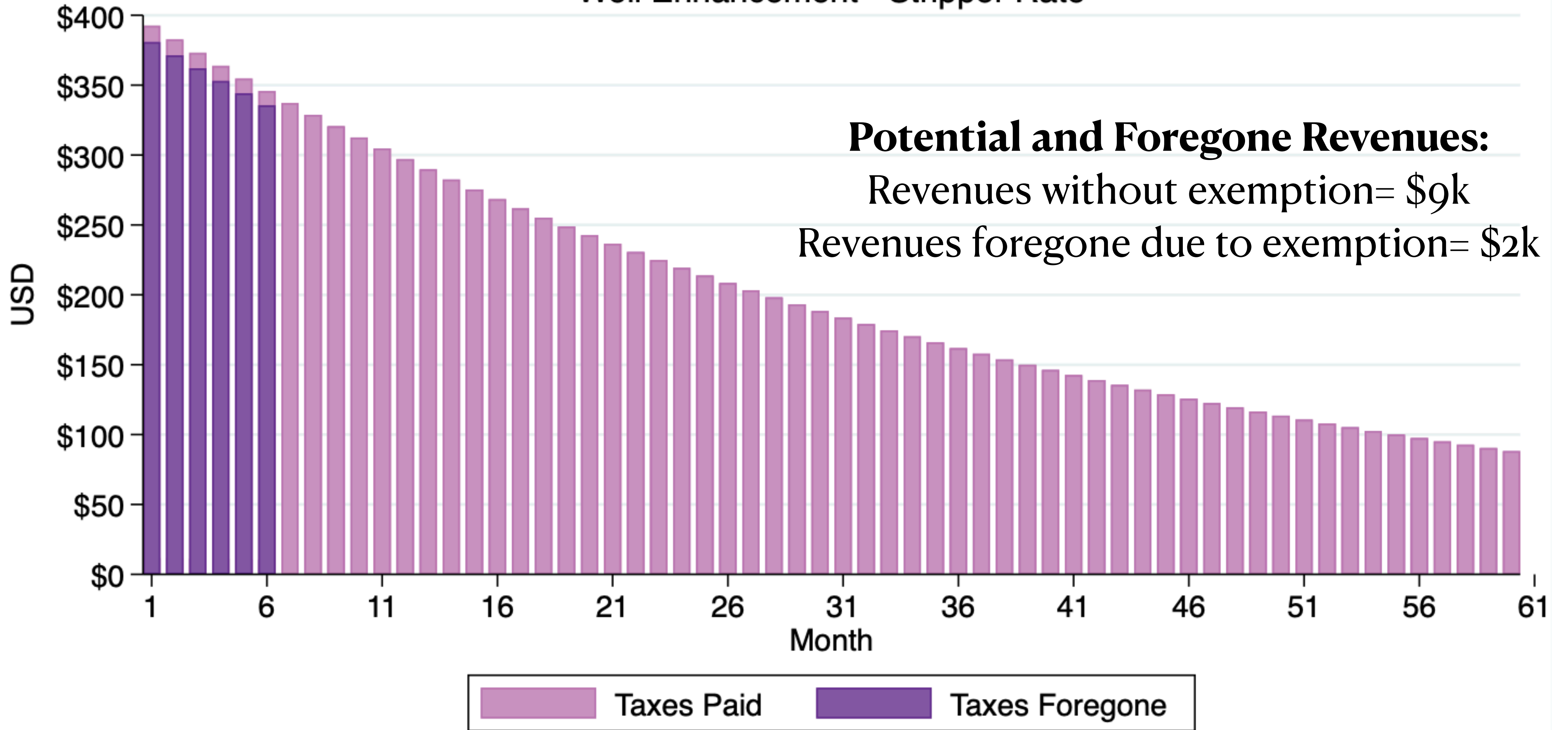
Well Enhancement - Incapable Rate



Note: Months since exemption beginning date (Jan 2022)

Severance Tax from Representative Well

Well Enhancement - Stripper Rate



Note: Months since exemption beginning date (Jan 2022)

Static Fiscal Note

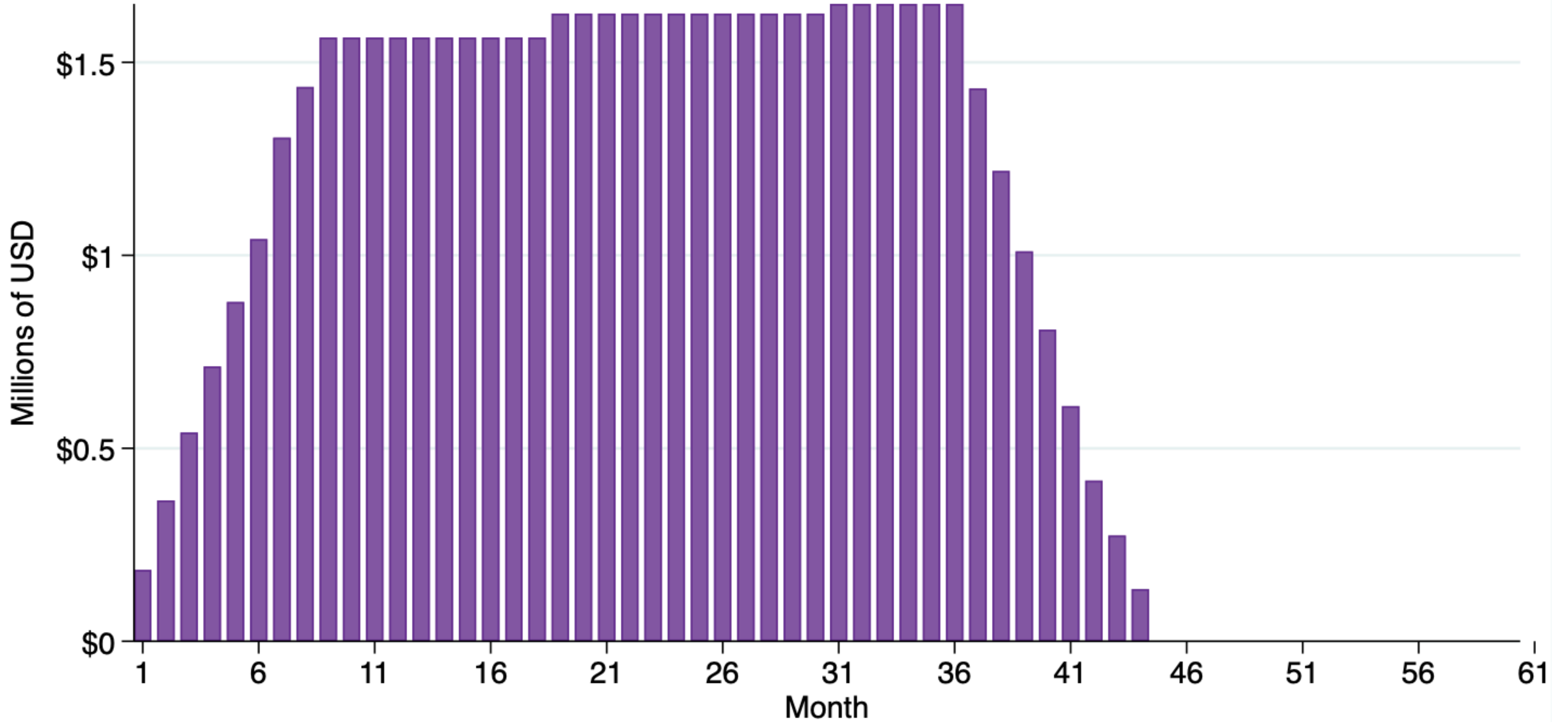
Static Fiscal Note

- Three year average of wells by category obtained from SONRIS
- Adjustments made to avoid double counting wells with multiple activities
- Only includes wells that are actively producing (i.e. no “dry holes”)
- Activity divided by 12 to obtain monthly activity over five year period
- Oil prices escalated in future fiscal years based on REC price
- Monthly values aggregated into fiscal years

Well Category	Average Wells Per Year
New Drill - Full Rate	160
New Drill - Incapable	1
New Drill - Stripper	26
Total new drills per year	187
Enhancement - Full Rate	93
Enhancement - Incapable	38
Enhancement - Stripper	29
Total enhancements per year	160
Total Activity	347

Static Fiscal Note

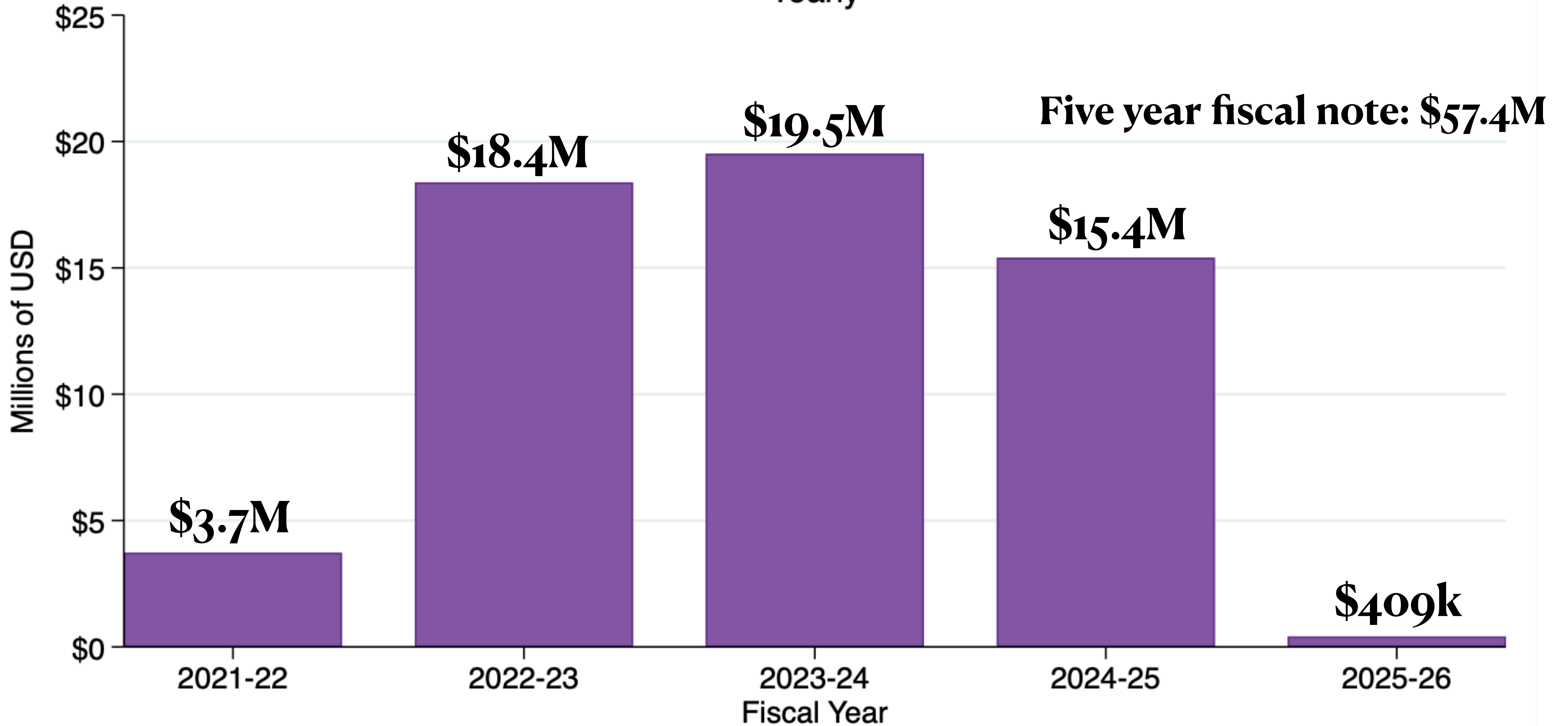
Monthly



Note: Months since exemption beginning date (Jan 2022)

Static Fiscal Note

Yearly



Static Fiscal Note Breakdown by Category

Well Category	Fiscal Impact (Millions of dollars)
New Drill - Full Rate	\$46.7
New Drill - Incapable	\$0.03
New Drill - Stripper	\$0.28
Enhancement - Full Rate	\$9.1
Enhancement - Incapable	\$1.09
Enhancement - Stripper	\$0.21
Total	\$57.4

Over 80% of static
fiscal note

Economic and Tax Benefits to Reduced Severance Tax Rate

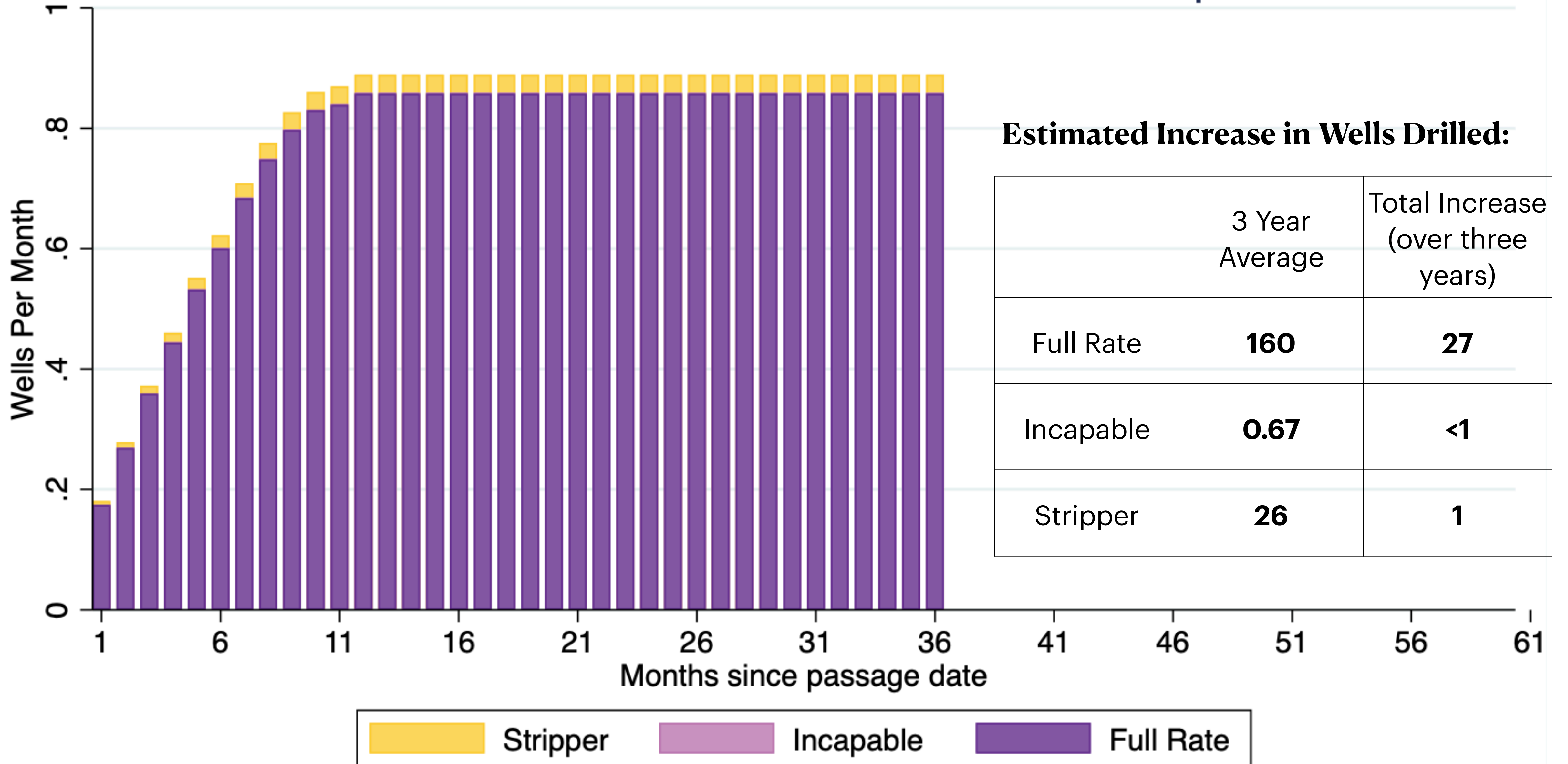
Dynamic Scoring

Reducing the severance tax rate will create economic benefits:

- Reducing taxes will improve the IRR on drilling activities, which may increase the amount of drilling, and therefore future severance tax revenues.
- Royalty payments will formulaically increase to landowners (both private and the state).
- The royalty payments and new drilling may generate additional economic activity as money is spent in the local economy.

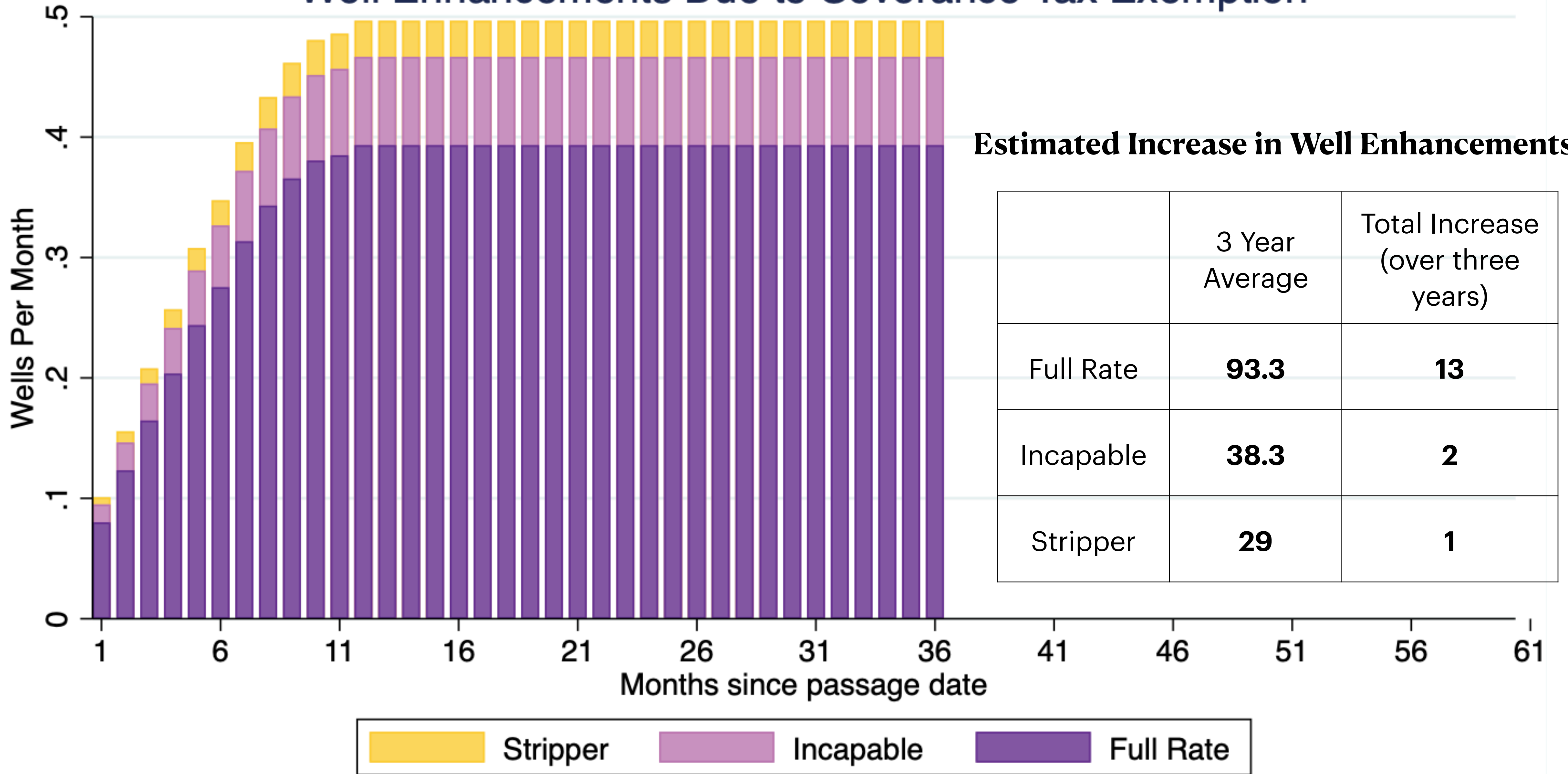
How large could these benefits be?

New Wells Drilled Due to Severance Tax Exemption



Note: Months since exemption beginning date (Jan 2022)

Well Enhancements Due to Severance Tax Exemption

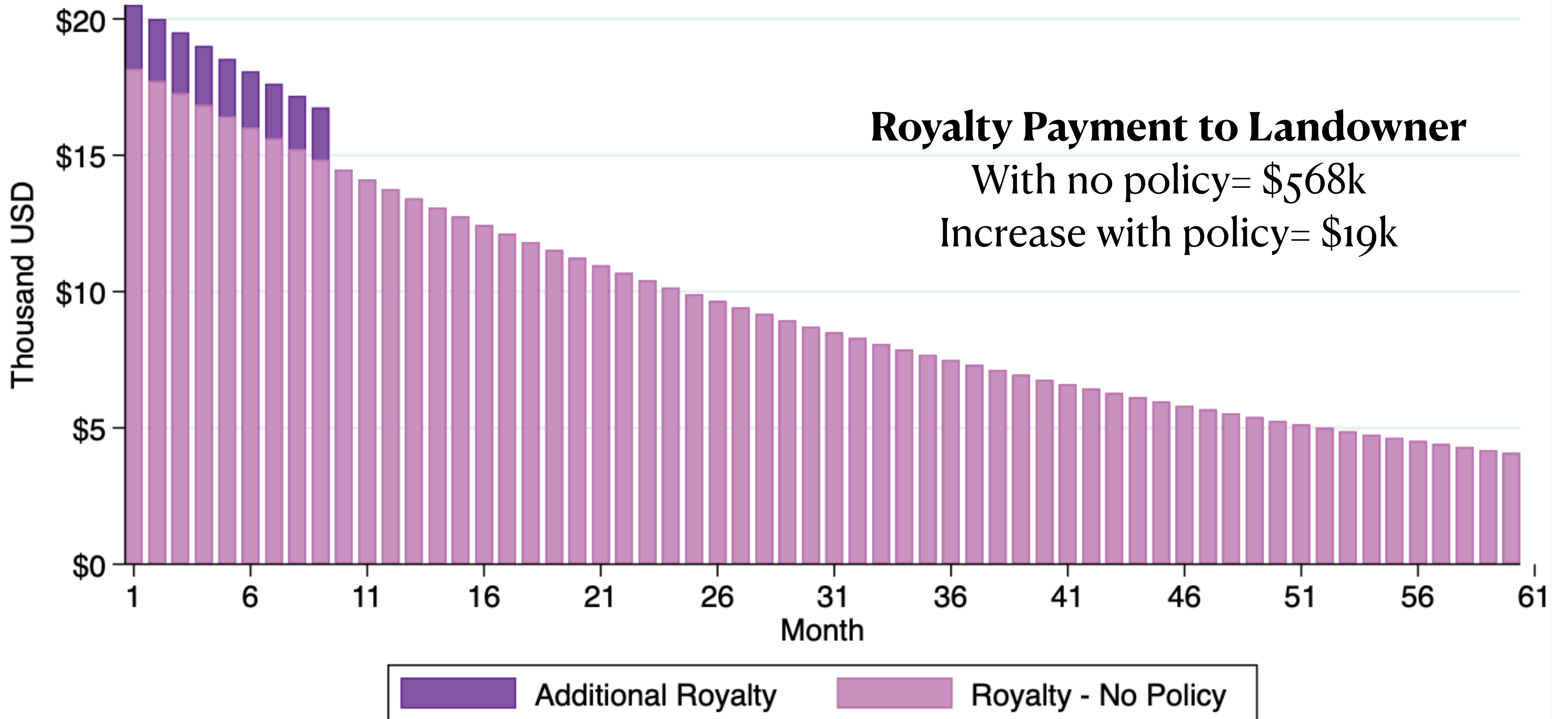


Note: Months since exemption beginning date (Jan 2022)

Severance Tax Impact on Royalty Payments

Royalty Payment to Landowner

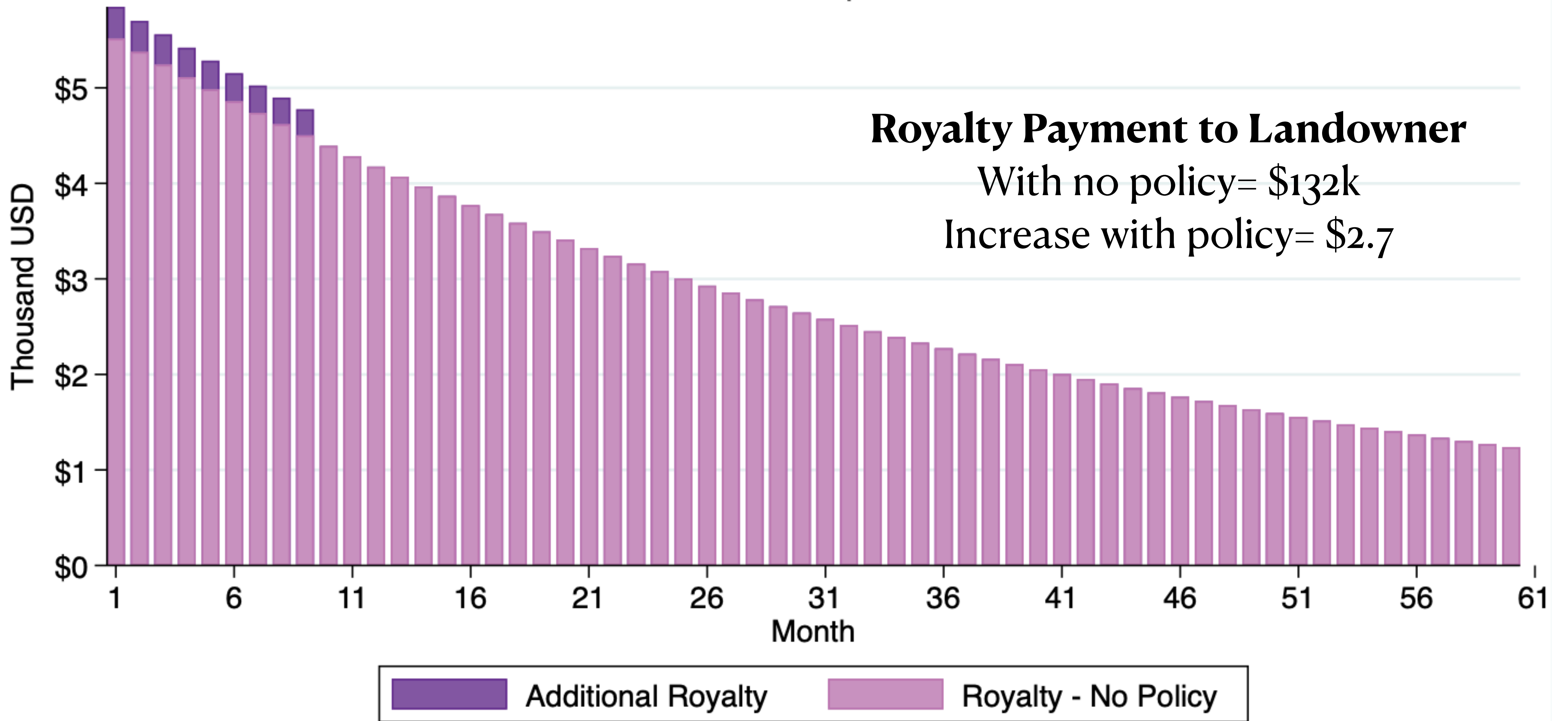
New Drill - Full Rate



Note: Months since first production.

Royalty Payment to Landowner

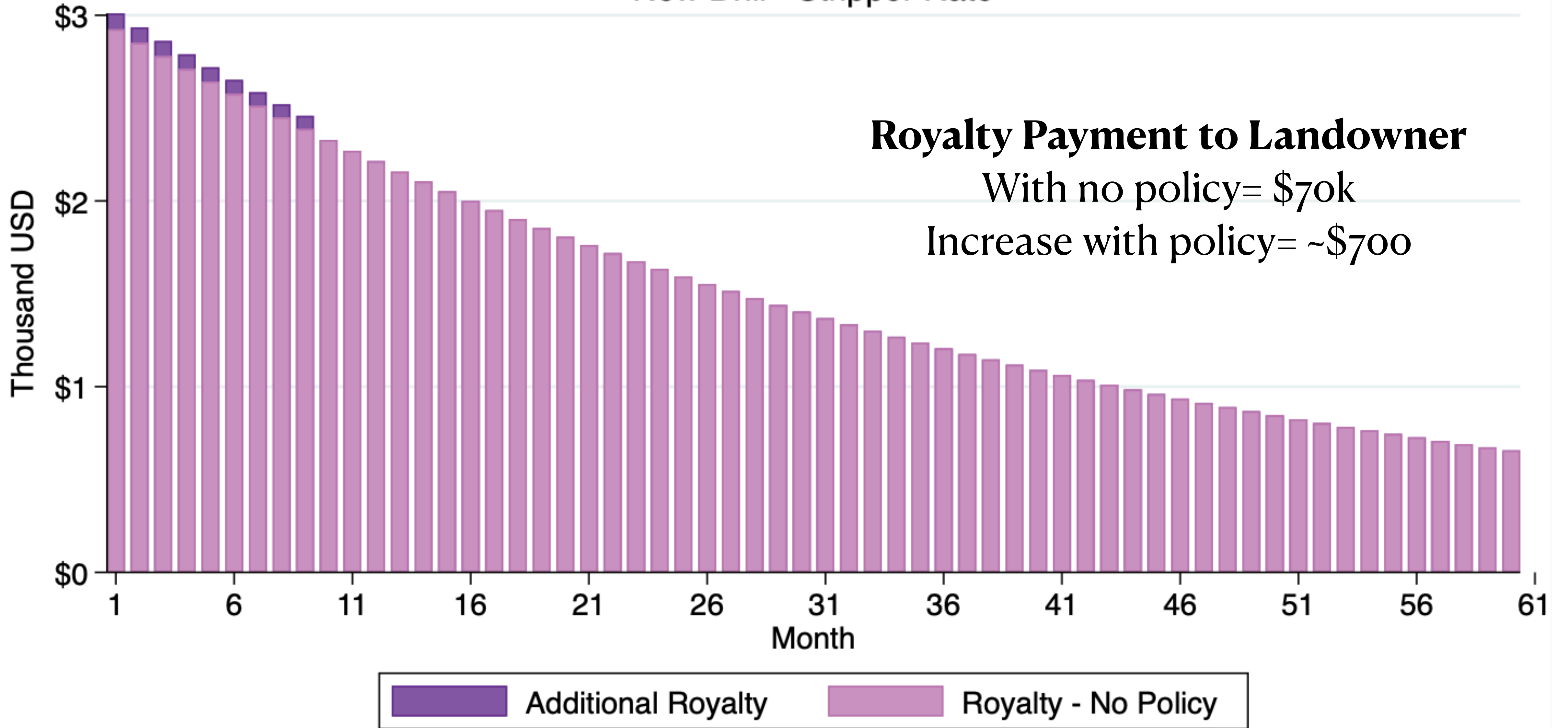
New Drill - Incapable Rate



Note: Months since first production.

Royalty Payment to Landowner

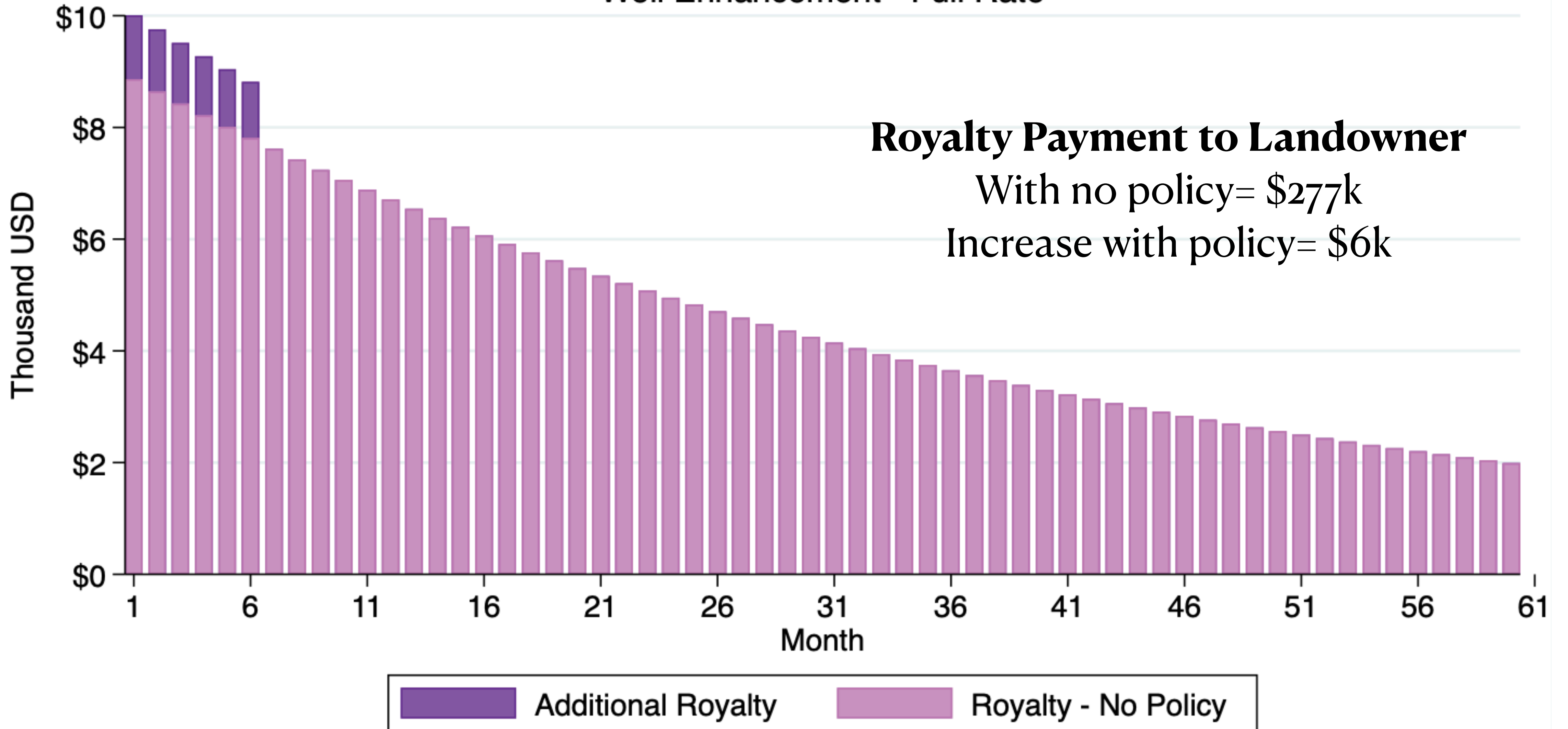
New Drill - Stripper Rate



Note: Months since first production.

Royalty Payment to Landowner

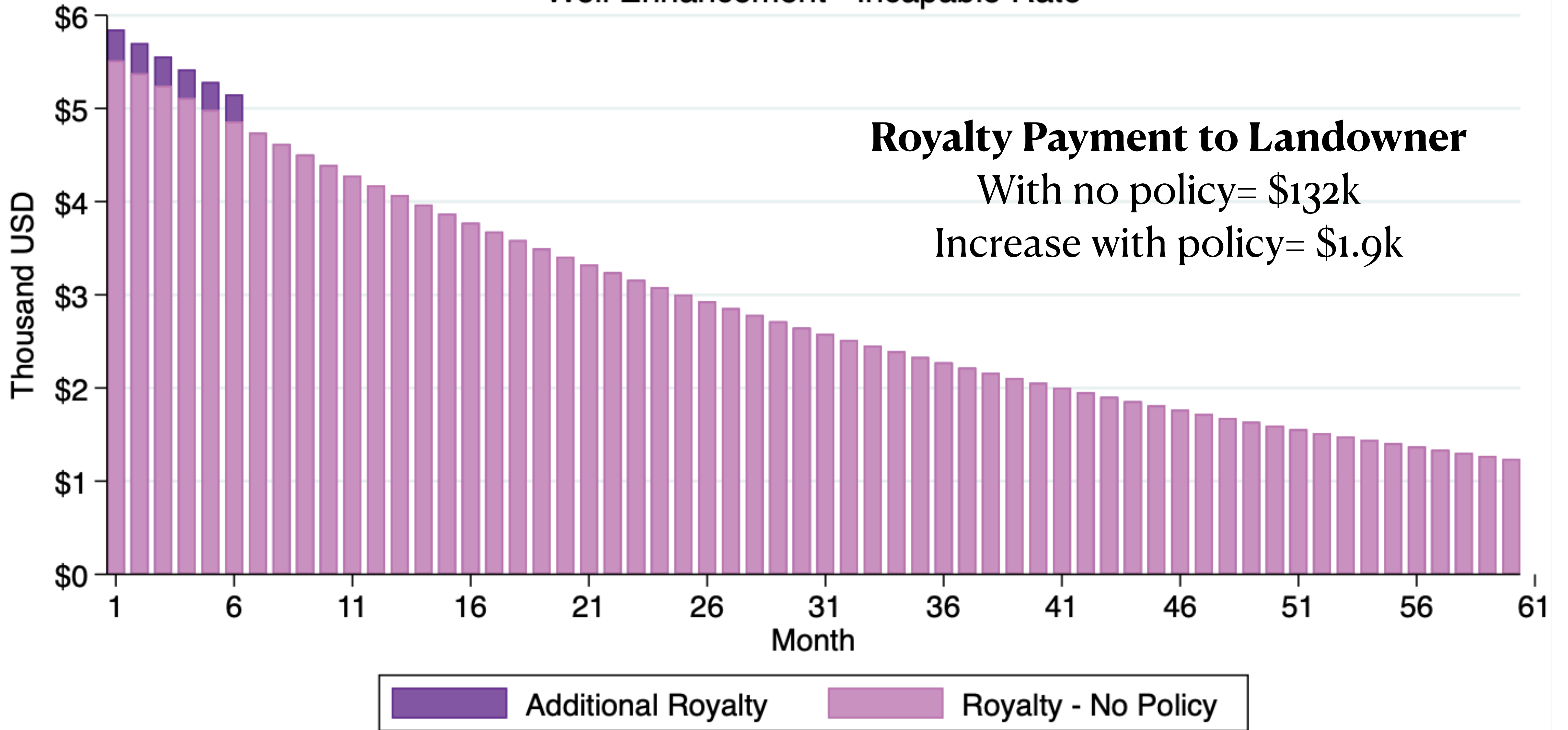
Well Enhancement - Full Rate



Note: Months since first production.

Royalty Payment to Landowner

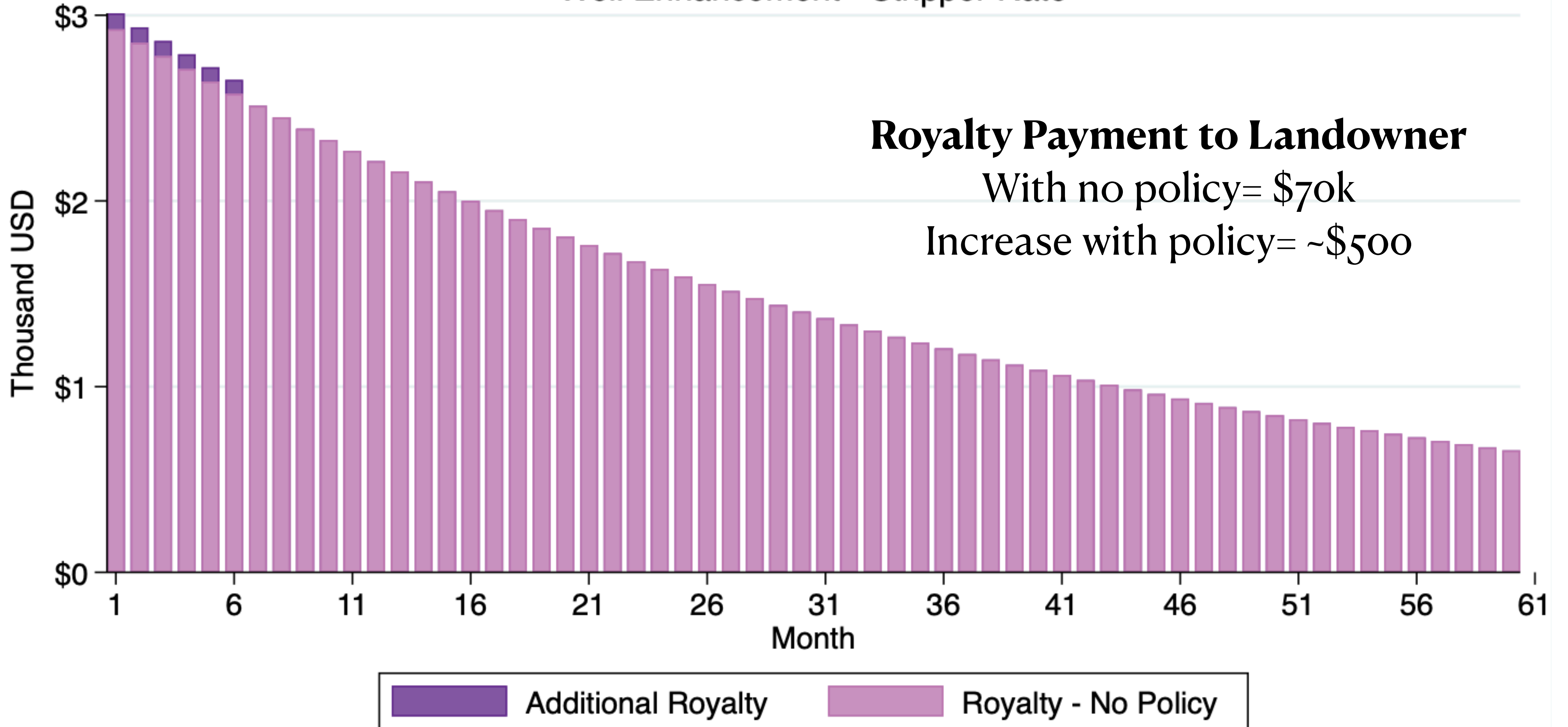
Well Enhancement - Incapable Rate



Note: Months since first production.

Royalty Payment to Landowner

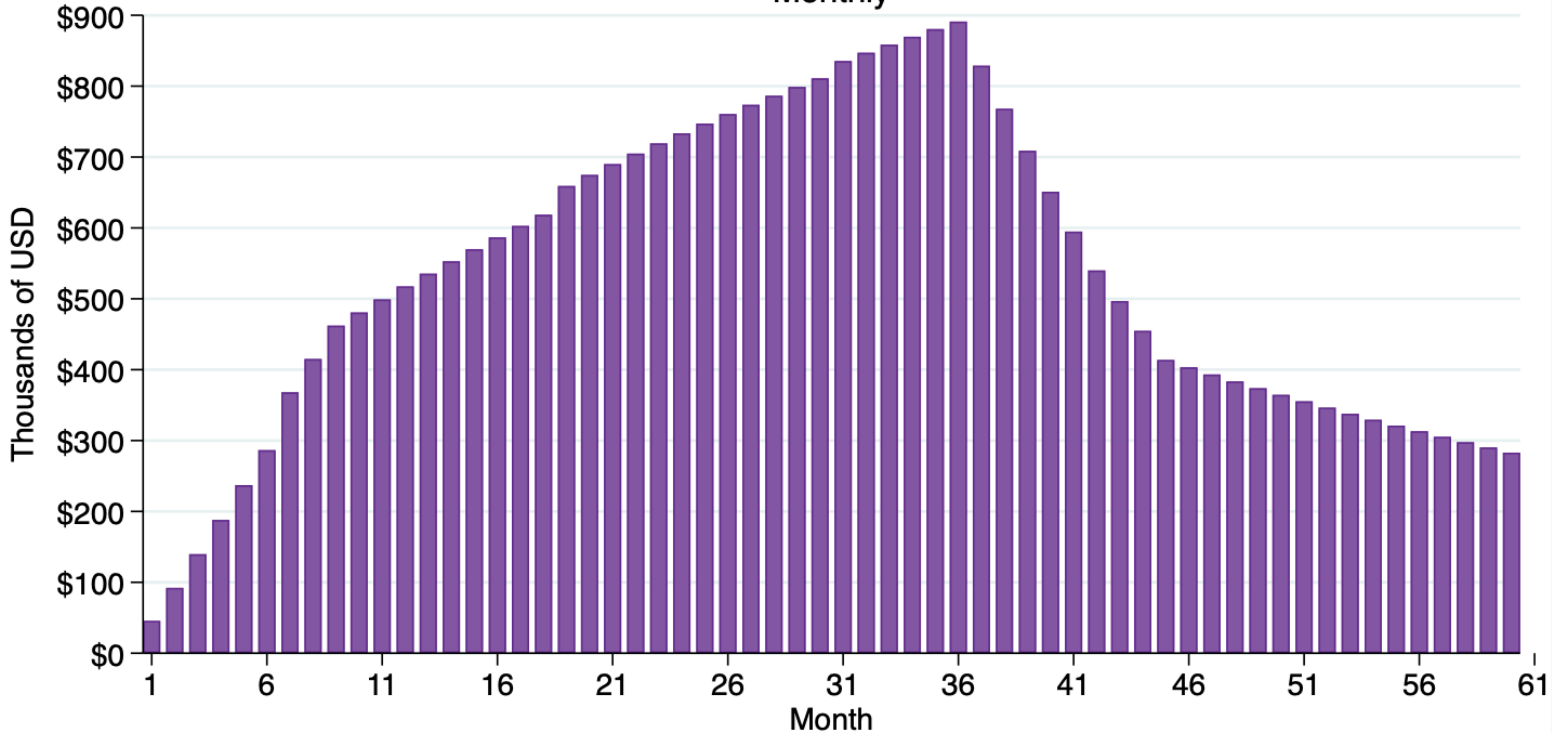
Well Enhancement - Stripper Rate



Note: Months since first production.

New Royalties Paid to Landowners Due to Exemption

Monthly

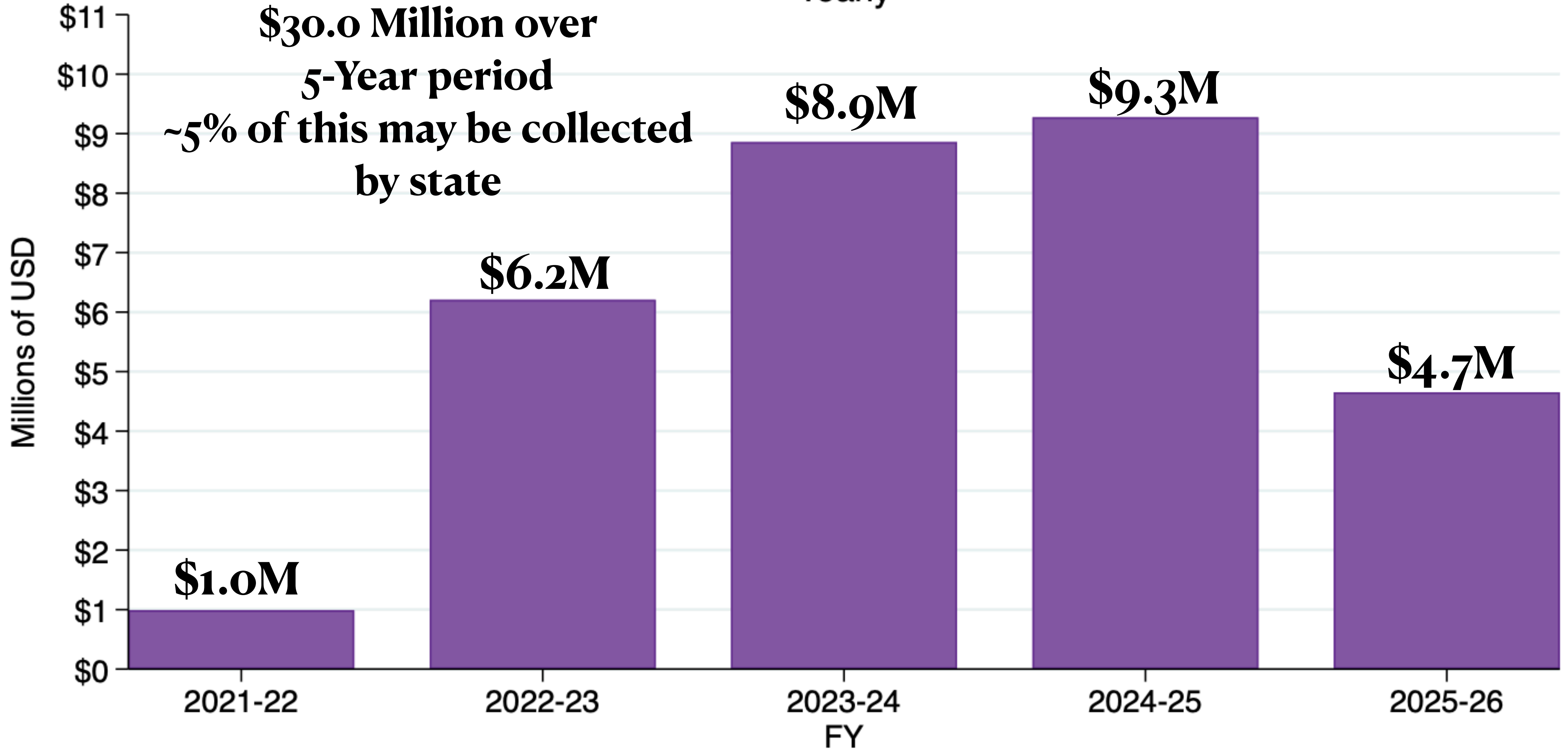


Note: Months since exemption beginning date (Jan 2022)

Additional Royalties Paid to Landowners

Yearly

**\$30.0 Million over
5-Year period
~5% of this may be collected
by state**



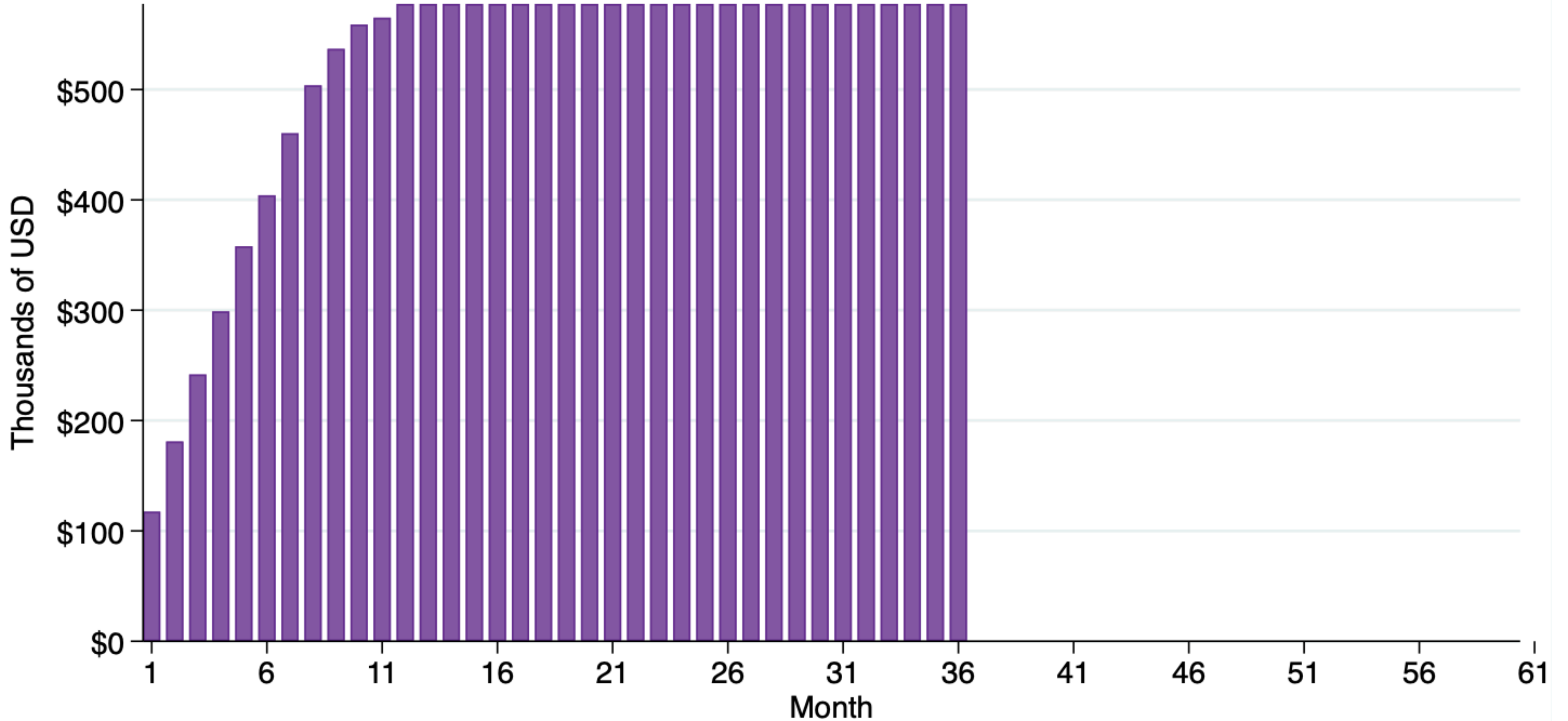
Economic Activity Induced by Tax Reduction

Economic Impacts of Activity

- There are economic impacts when:
 - (1) Drilling new wells or enhancing existing wells
 - (2) To support wells once producing
- This economic activity will produce tax revenues through:
 - (1) Additional severance taxes paid on production that would not have occurred if not for the exemption.
 - (2) Other TLF collected through economic activity generated (sales tax, income tax, etc)

Increase in Spending on Oil and Gas Activity

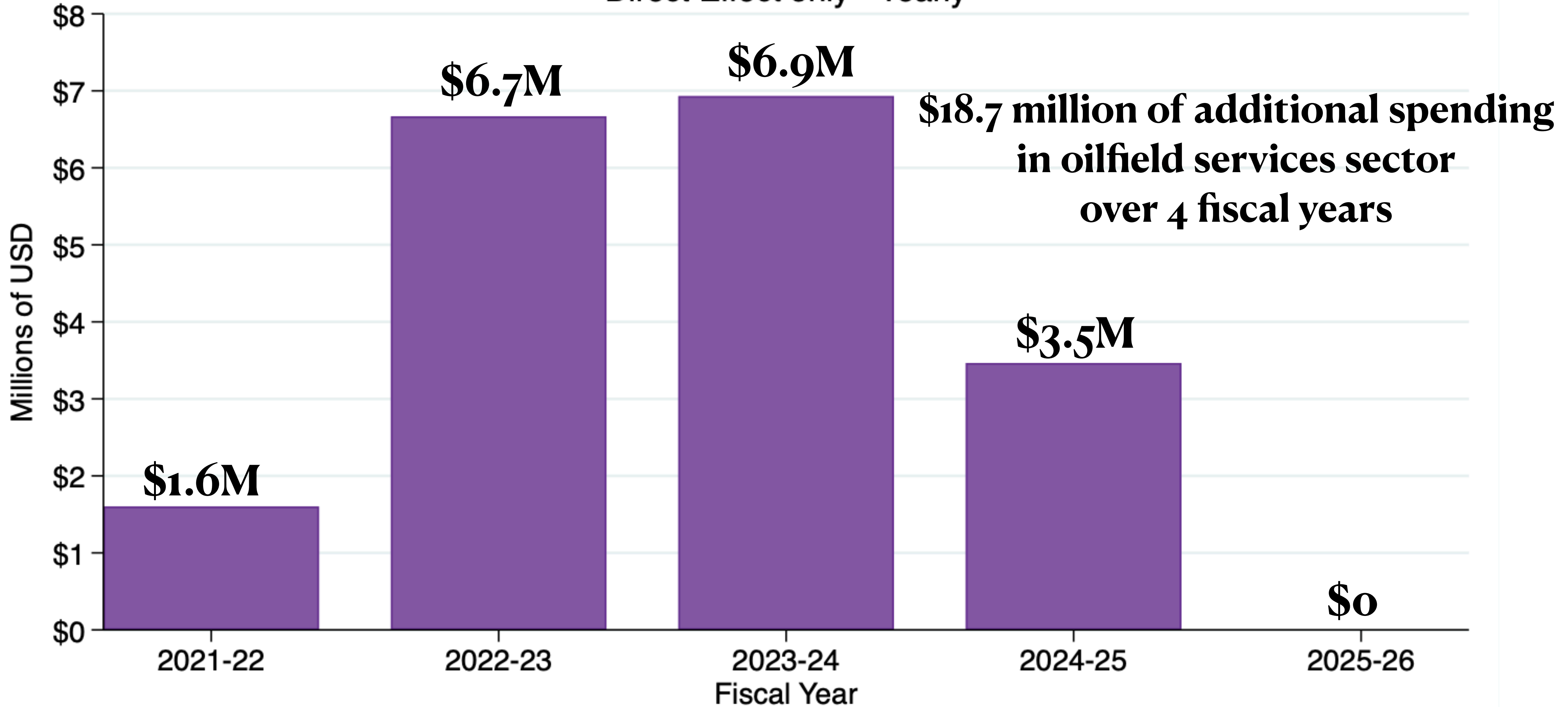
Direct Effect only - Monthly



Note: Months since exemption beginning date (Jan 2022)

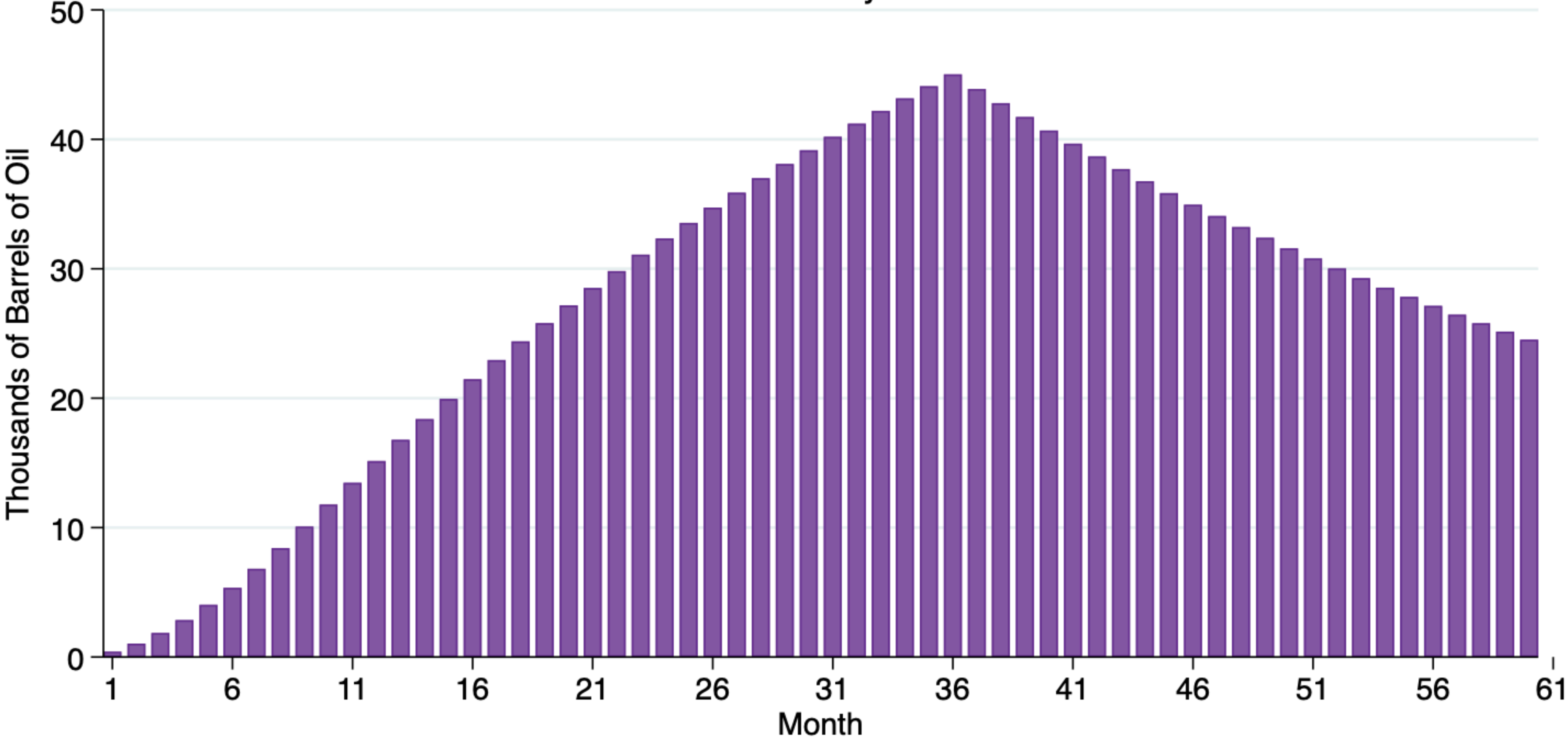
Increase in Spending on Oil and Gas Activity

Direct Effect only - Yearly



New Oil Production Due to Exemption

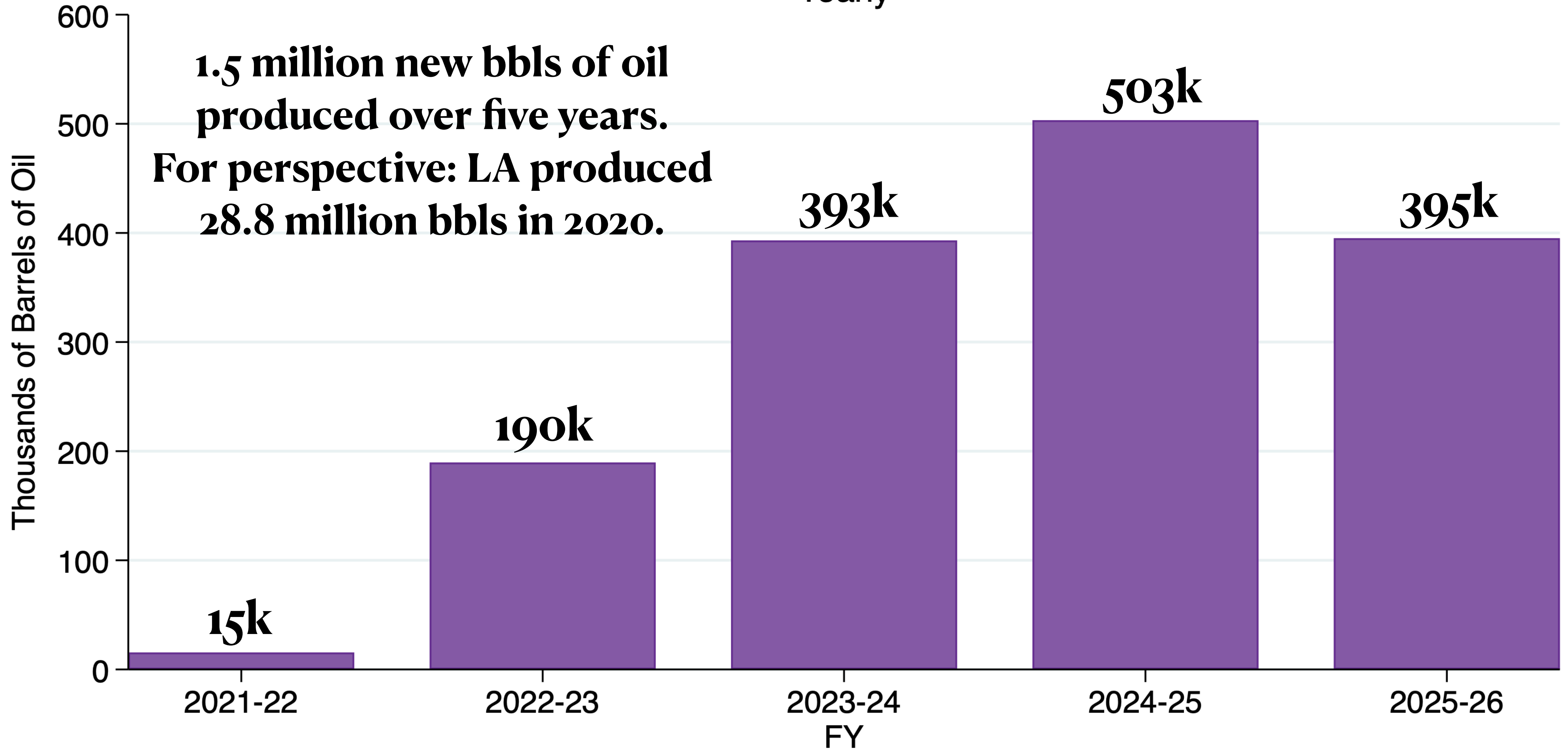
Monthly



Note: Months since exemption beginning date (Jan 2022)

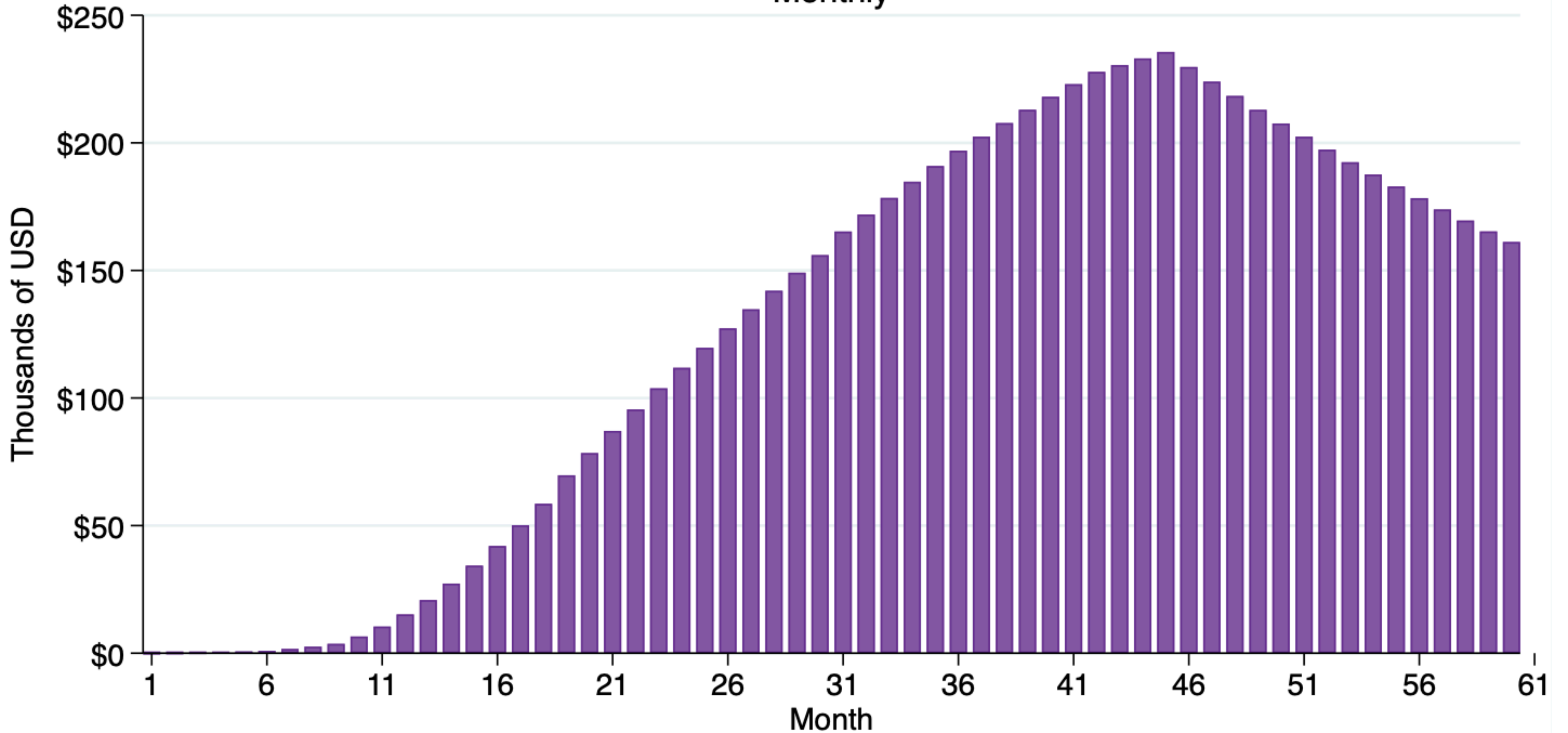
Additional Oil Production from Wells Due to Exemption

Yearly



New Severance Taxes Paid Due to Exemption

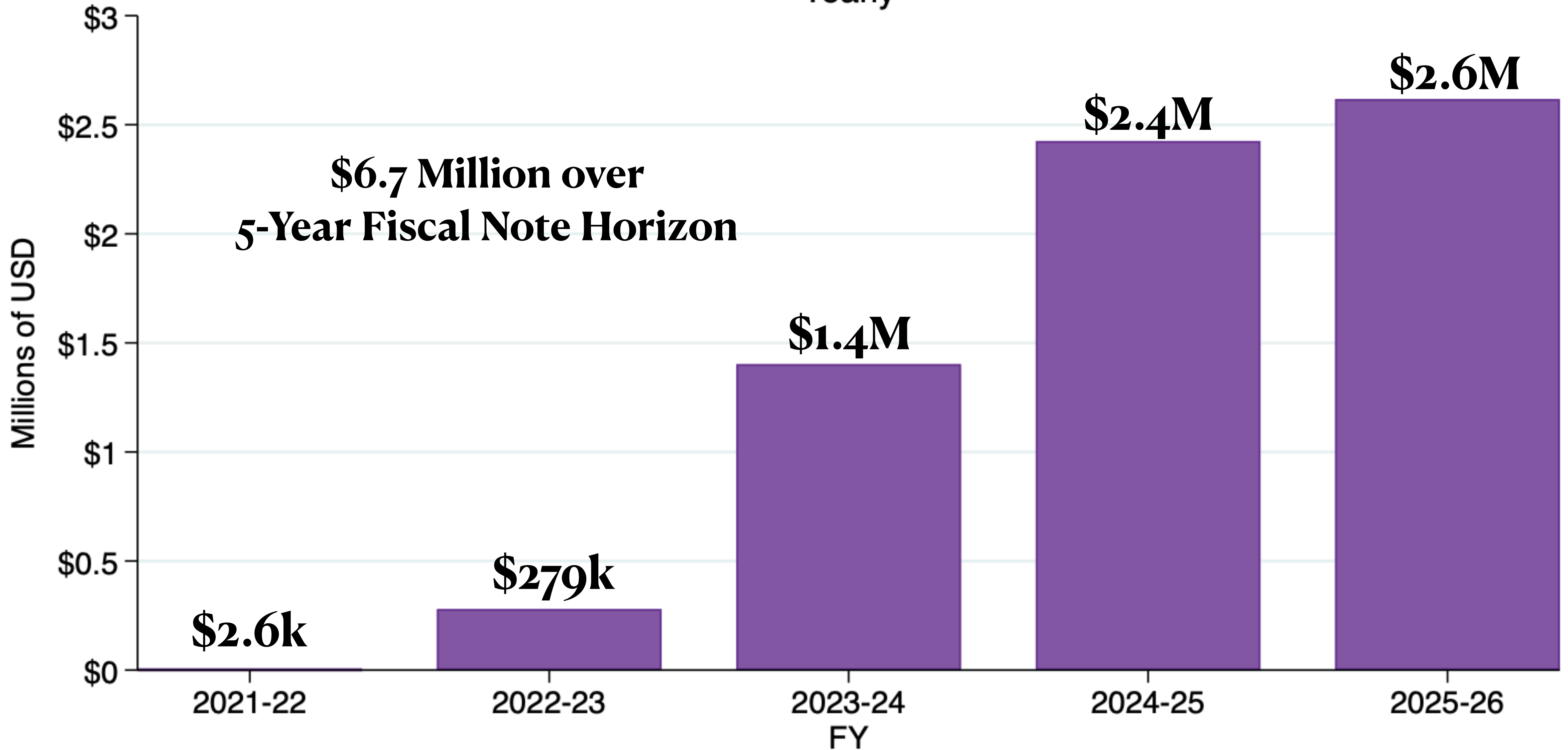
Monthly



Note: Months since exemption beginning date (Jan 2022)

New Severance Taxes Paid Due to Exemption

Yearly



Tax Benefits Associated with Severance Tax Reductions

Fiscal Year	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Drilling Expenditures	\$ 1,601	6,668	6,931	3,466	0	\$ 18,667
<i>Earnings</i>	\$ 842	3,508	3,646	1,823	0	\$ 9,819
Oil and Gas Production	\$ 690	9,273	21,399	28,475	22,768	\$ 82,606
<i>Earnings</i>	\$ 333	4,469	10,312	13,722	10,972	\$ 39,808
Private Sector Royalties	\$ 937	5,881	8,392	8,785	4,407	\$ 28,401
<i>Earnings</i>	\$ 300	1,882	2,685	2,811	1,410	\$ 9,088
Total Earnings	\$ 1,475	9,858	16,644	18,356	12,382	\$ 58,715
TLF Generated from Economic Activity	\$ 122	\$ 818	\$ 1,381	\$ 1,524	\$ 1,028	\$ 4,873

*Note: Dollar values in thousands of dollars. *Employment is average employment impact per year.*

Balanced Budget Constraint

Balanced Budget Constraint

- Louisiana has a **balanced budget constraint**.
- In any given year, Revenues \approx Expenditures
- Thus, if the legislature chooses to reduce severance taxes, they will either have to **spend less**, or **increase taxes** on another taxpayer.
- This analysis will consider a scenario where spending is reduced.

Estimates suggest that the bill will result in a **decrease of \$2.4 million** in other state revenues due to economic impact of reduced spending over the five year fiscal note horizon.

General Fund Spending Sectors

Well Category	Share of General Fund Spending
Higher Education	10.3%
Elementary & Secondary Education	37.9%
Transportation	<1%
Corrections	8.1%
Healthcare	19.3%
Other (i.e. Gov't Administration)	24.3%
Total	100%

Note: Based on average of prior three fiscal years. Source: National Association of State Budgeting Office. Data provided by LFO

Results & Alternative Estimates

Table 1: Fiscal Note With Dynamic Scoring Included

9 Month Well Payout Scenario

Fiscal Year	2021-22	2022-23	2023-24	2024-25	2025-26	Total
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Percent Difference with Static Note	0.3%	-2.8%	-12.2%	-25.0%	796.3%	-18.9%

Note: Dollar values in thousands of dollars. Royalties also include rentals, bonuses and mineral interest.

Table 2: Fiscal Note With Dynamic Scoring Included

12 Month Well Payout Scenario

Fiscal Year	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Static Severance Tax Revenue Impact	\$ (3,724)	(21,313)	(24,075)	(20,030)	(1,945)	\$(71,087)
Dynamic Impact of O&G Activity						
<i>Severance Taxes</i>	\$ 3	176	1,122	2,145	2,539	\$ 5,984
<i>State Royalties</i>	\$ 52	364	524	547	266	\$ 1,753
<i>Other TLF</i>	\$ 140	909	1,488	1,597	1,045	\$ 5,178
Total Dynamic Benefit	\$ 195	1,448	3,134	4,289	3,849	\$ 12,915
<i>Percent of Static Note</i>	5.2%	6.8%	13.0%	21.4%	197.9%	18.2%
Dynamic Impact of Reduced Government Spending Due to Balanced Budget Constraint						
Initial Reduction in Government Expenditures	\$ (3,529)	(19,865)	(20,941)	(15,741)	1,904	\$(58,172)
Additional TLF Reduction Due to Balanced Budget	\$ (188)	(1,058)	(1,115)	(838)	101	\$ (3,098)
Dynamic Fiscal Note	\$ (3,717)	(20,923)	(22,056)	(16,580)	2,005	\$(61,271)
Percent Difference with Static Note	-0.2%	-1.8%	-8.4%	-17.2%	3.1%	-13.8%

Note: Dollar values in thousands of dollars. Royalties also include rentals, bonuses and mineral interest.

Table 3: Fiscal Note With Dynamic Scoring Included

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Additional TLF Reduction Due to Balanced Budget	\$ (58)	(207)	(191)	(108)		\$ (563)
Dynamic Fiscal Note	\$ (1,143)	(4,090)	(3,770)	(2,128)	948	\$(10,183)
Percent Difference with Static Note	1.0%	-4.2%	-15.0%	-32.7%		-21.7%

Note: Dollar values in thousands of dollars. Royalties also include rentals, bonuses and mineral interest.

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Questions/Comments

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