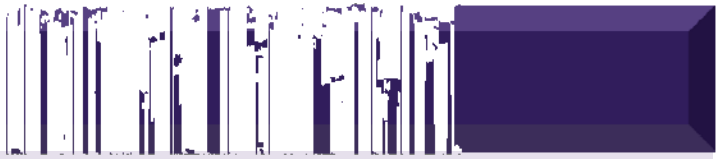


Executive Summary

Executive Summary (continued)

- **Louisiana has simply become an increasingly difficult place for conventional oil**

Executive Summary (continued)

- **This study updates research originally conducted in 2005, on the behalf of the Louisiana Department of Natural Resources and the Louisiana Department of Economic Development, comparing the changes in Louisiana conventional oil and gas drilling activity to other energy producing states and examining the economic impacts of the relative deterioration in drilling activity.**

- **The 2005 study indicated that legacy lawsuits were having a negative impact on south Louisiana conventional drilling activity. However, the results from this 2005 research were considered somewhat preliminary since the cut off date for the statistical analysis only included about three years of post-legacy information, making it difficult to draw any sweeping and definitive conclusions about the role that legacy lawsuits were having on decreased drilling activity.**

- **The statistical model utilized in this research re-enforces the preliminary findings of the 2005 study finding an important and statistically significant deterioration in state drilling activity since the inception of the legacy lawsuits.**

Executive Summary (continued)

- **Legacy lawsuits are strongly and negatively correlated with Louisiana drilling activity. Increases in legacy lawsuits are correlated with reductions in conventional Louisiana oil and gas drilling**

Table of Contents

1. Overview of Legacy Lawsuits and Oil & Gas Litigation

Corbello Lawsuit

Corbello Lawsuit (continued)

In 2003, the *Corbello* case was appealed to the Louisiana Supreme Court for an ultimate ruling. The Supreme Court upheld the plaintiffs' damages, plus attorney fees and interest, reaching a grand total of close to $80 million awarded. In

Cumulative Number of Louisiana Legacy Suits

Changes in Environmental Practices

- **Over the past two decades, environmental regulators and industry have come to appreciate the ill-effects of certain past materials handling and site preparation practices. Regulations and industry practices have changed to meet the current understanding of the impact that certain past oil and gas practices can have on the environment.**

- **Today, cuttings, materials, and produced water are collected under safer procedures and are either hauled away for further processing and reclamation, or**

Legacy Lawsuits: Industry Claims

Litigation Trends: Louisiana Rankings

- **There are additional concerns that trends in legacy-site litigation could lead to further negative impressions about the litigious nature of doing business in Louisiana.**

- **The U.S. Chamber of Commerce, for instance, recently-released its 2010 survey of general counsels and senior litigators at various public corporations throughout the country to assess their impressions on the individual fairness of individual state tort liability system. The Chamber has been conducting this survey as earlier as 2002.**

- **Louisiana has consistently fallen into the five perceived worst states in the following areas:**
    - **Overall treatment of tort and contract litigation**
    - **Jury fairness**
    - **The treatment of class action lawsuits.**
    - **The timeliness of summary judgments and dismissals.**
    - **The area of discovery.**
    - **Technical and scientific evidence**
    - **Judges' impartiality**
    - **Judges' competence.**

Source: United States Chamber of Commerce. State Liability Systems Ranking Study. January 2011.

2. Recent Industry Price and Drilling Trends

Overview: The Relationship between Price and Drilling Activity

Oil and natural gas drilling activity is a function of a number of different factors that can influence the degree, speed, and location of where drilling activities will occur.

Energy prices, however, are one of the more significant factors influencing drilling activity. Empirical research supports the important and positive influence that prices have on drilling activity: as oil and natural gas prices increase, drilling activity increases, and as oil and natural gas prices fall, drilling activity tends to contract, other things being equal.

The period between January 2000 and January 2008 experienced natural gas price increases of some 230 percent and crude oil price increases of some 242 percent. US drilling activity, during a comparable period, increased by some 126 percent.

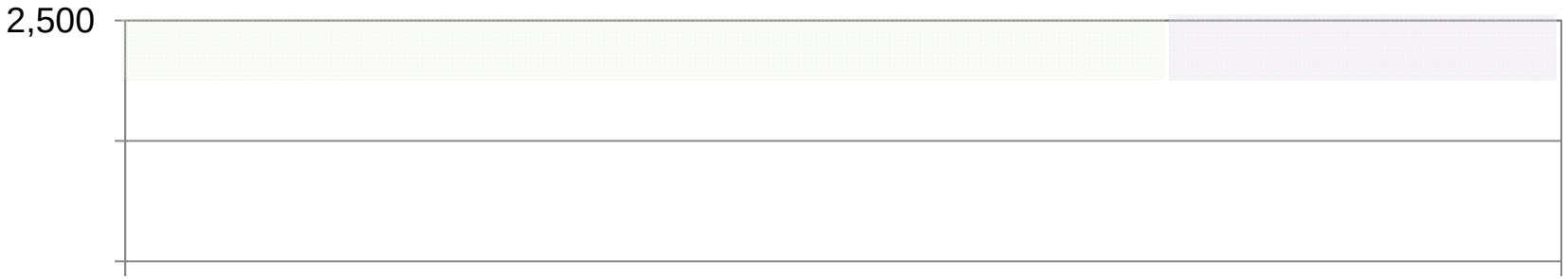
Louisiana activity during this time period has been mixed. In north Louisiana, unconventional shale drilling has increased considerably over the past several years, while conventional drilling activity throughout the state, including North Louisiana, has languished.

Natural Gas (Henry Hub) and Crude Oil (WTI) Price

January 2000 to January 2008 natural gas prices have increased by a dramatic 230 percent while crude oil prices have increased by over 242 percent. Crude and natural gas prices fell considerably with the start of the global financial crisis and recession.

Weekly Counts of Rotary Rigs in Operation (2000 to Present)

Total U.S. oil and gas drilling rig counts increased by some 118 percent and 127 percent, respectively, between January 2000 to January 2008. Rigs dedicated to drilling crude oil wells have been stable to increasing even through the worst of the recession. Natural gas-related drilling rigs, however, have not recovered from their pre-recessionary losses.



Average Annual Rig Count

Post-2000 drilling activity has been exclusively relegated to North Louisiana, unconventional shale activity (Haynesville), where as south and offshore Louisiana drilling activit

Historic Rig Count and Crude Oil Prices (1987-2012)

Pre-2000 Louisiana drilling activity was comparable and competitive with other major oil and gas producing states. Louisiana activity has fallen considerably since that time on both a relative and absolute basis.

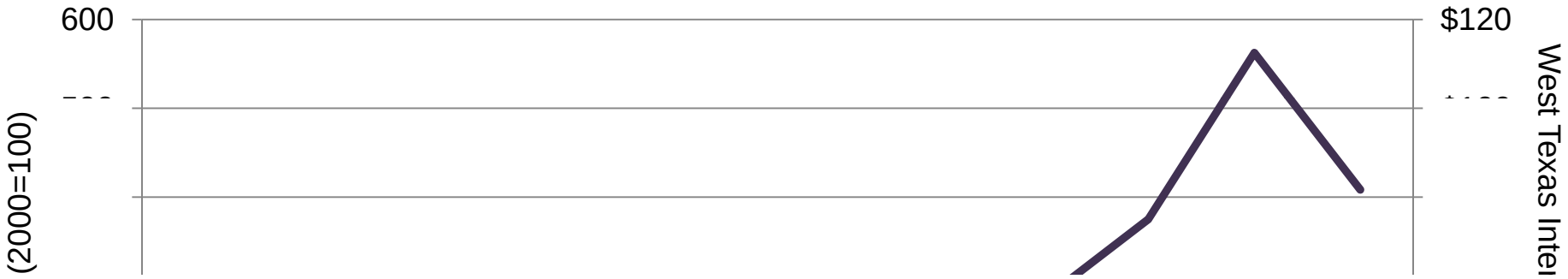
Historic Rig Count and Crude Oil Prices (2000-2012)

Drilling activity in most oil and gas producing states has surged since the energy price increases of 2000. South Louisiana drilling activity, however, is not only uncompetitive with these other states, but lags its own historic drilling performance.

Wes

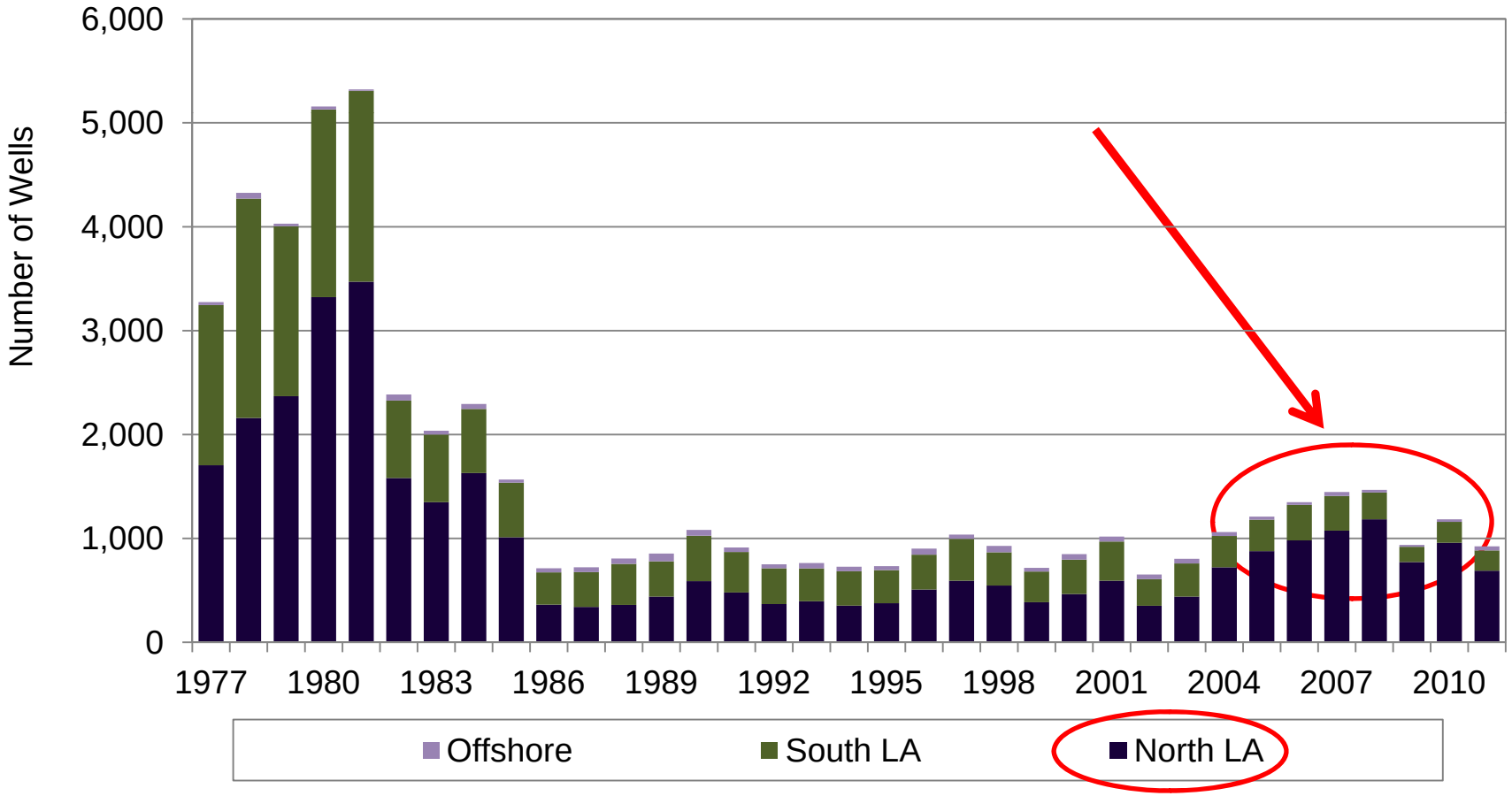
Historic Rig Count and Crude Oil Prices (2000-2012)

South Louisiana oil and gas drilling activity is some 46 percent below its peers despite a 242 percent increase in crude oil prices since 2000. South Louisiana drilling activity, while still positive, is almost 40 percent below the drilling activity levels experienced in the state over a decade ago, in a period of considerably lower prices.



Number of Well Completions by Completion Date

Well completions are down considerably, and the small (relative) increases observed over the past five years are primarily attributable to Haynesville, not conventional development.



Source: Louisiana Department of Natural Resources.

Natural Gas Dry, Proved Reserves (Lower 48 States)

Crude Oil, Proved Reserves (Lower 48 States)

Louisiana's crude oil reserve development, while competitive with other lower 48 states until about 2000, has lagged far behind its peers, and is now at one of the lowest relative levels of development in over a decade. Post-2000 decreased drilling

3. Modeling Relative Changes in Regional Oil and Gas Activities

Empirically Modeling Oil & Gas Activities

Statistical models of oil and gas supply have been developed over the past 40 years. Particular advancement of the subject has occurred since the energy crisis of the 1970s and early 1980s. Some of the earliest models of oil and gas supply activity were developed in the 1960s with Adelman (1962) and Fisher (1964). Adelman's work specified two distinct equations for natural gas production that were largely a function of price. An important finding in his model was that it was one of the earliest works attempting to provide quantitative estimates of the sensitivity of natural gas production to price (i.e., price elasticity of supply).petrol24 73.8petrol467.08 Tm-.0007 Tc(in)TjE

Two years later, Fisher (1964) focused on the sensitivity of petroleum exploration

Empirically Modeling Oil & Gas Activities (continued)

The regulation of natural gas ceiling prices in the early 1970s brought about the next wave of oil and gas supply modeling, and in 1971 the results of two models, the Khazzoom Federal Power Commission (FPC) (1971) model and the Erickson-Spann (1971) model, were published. Two years later, an important contribution was provided by MacAvoy-Pindyck (1973). All of these early models, collectively, are important contributions to the literature from the perspective that they focused on

An Empirical Model of Relative Drilling Activity

The empirical model of drilling activity developed for this research is based upon the total number of wells drilled during the period 1991 to 2007 by the major energy producing states in the lower-48. For purposes of this empirical model, major energy producing states include: Alabama; California; Colorado; Kansas; Louisiana (North, South & Inland waters); New Mexico; Oklahoma; Texas; and Wyoming. Combined, these states account for 80 percent and 83 percent of all onshore lower-48 oil and gas production, respectively.

Drilling activity is statistically modeled using standard panel-model econometric techniques. A number of economic variables are assumed to affect drilling activity in each state. Technical econometric considerations are used

An Empirical Model of Relative Drilling Activity (continued)

The first set of variables included in the model is related to the state-specific factors influencing drilling activity. These factors can include regulatory, permitting, and taxation policies that either encourage, or discourage drilling activity to occur in any of the states included in the model. South Louisiana is used as the reference for these state-specific impacts, so parameter estimates generated by the model will measure differences relative to South Louisiana drilling activity levels.

The second set of variables used in the statistical model control for the effect of well drilling costs, oil and gas reserves, and gas prices in each state.

The last set of indicated variables included in the statistical model attempts to capture the impacts of legacy litigation in Louisiana. This variable is simply based upon the number of legacy-related suits. If the parameter estimate for this variable meets a defined threshold of importance, then a measure of the reduction in Louisiana drilling activity can be developed, holding other factors constant.

Data Used in the Empirical Model

A considerable amount of data was collected for the pooled cross-sectional/time series analysis in this research. All of the data used in the analysis comes from publicly available or commercial available data.

Empirical Model Output

Dependent Variable: Total Wells (logged)
Sample: 1991 2007
Periods included: 17
Cross-sections included: 11
Total panel (balanced) observations: 187
Swamy and Arora estimator of component variances
Cross-section SUR (PCSE) standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	P-value
Constant	1.726	1.05	1.64	0.102
Average real well costs (logged $2010 / well)	-0.217	0.08	-2.70	0.008
Sum of Reserves (logged MMBOE)	0.973	0.09	11.41	0.000
Real natural gas prices (logged $2010 / Mcf)	0.651	0.13	4.96	0.000
Legacy Cases in Louisiana	-0.008	0.00	-2.02	0.045
Region: Alabama	-0.738	0.32	-2.28	0.024
Region: California	-0.632	0.41	-1.53	0.128
Region: Colorado	0.037	0.34	0.11	0.915
Region: Kansas	0.430	0.39	1.09	0.277
Region: North Louisiana	0.298	0.26	1.14	0.255
Region: South Louisiana (excl. inland waters)	-0.269	0.20	-1.32	0.189
Region: New Mexico	-0.518	0.35	-1.46	0.146
Region: Oklahoma	0.228	0.35	0.66	0.512
Region: Texas	0.156	0.44	0.36	0.722
Region: Wyoming	-0.162	0.38	-0.42	0.672
R-squared	**0.93**	**Mean dependent var**		**5.33**
Adjusted R-squared	**0.93**	**S.D. dependent var**		**1.25**

Empirical Model Results (Technical variables and differences in state activities)

The empirical model of drilling activity estimates, as expected, a negative relationship between changes in inflation-adjusted well drilling costs and drilling activity. The model estimates that a one percent increase in well drilling costs results in a 0.21 percent decrease in drilling activity, holding all other things constant .

The model also estimates positive relationships between drilling and oil and natural

Empirical Model Results (Post-Legacy Lawsuit Environment)

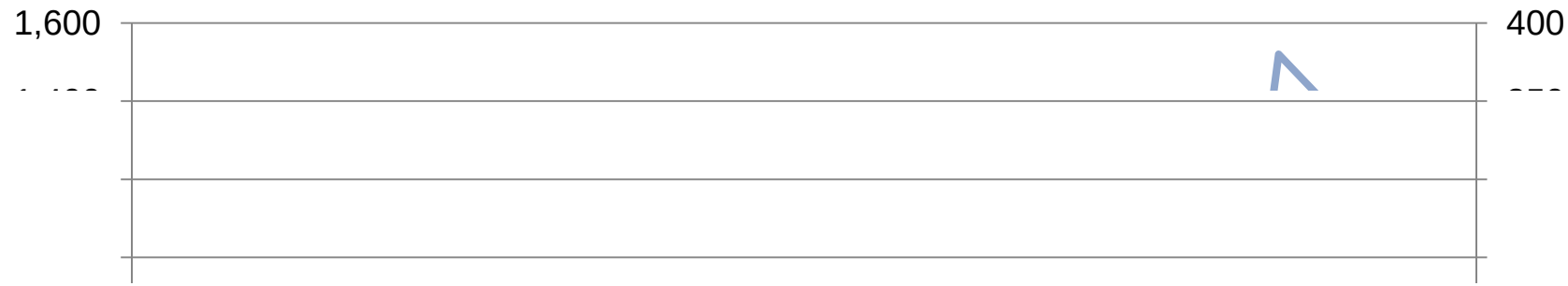
Empirical Model Results (Post-Legacy Lawsuit Environment)

The overall statistical findings estimate that, on average, about 150 fewer wells per year, over the last eight years, were drilled in Louisiana due to legacy lawsuits. This empirical research estimates that over the past eight years, legacy lawsuits have led to a loss of some 1,200 new wells. This translates into a total statewide reduction of about $6.8 billion dollars in lost Louisiana drilling investments over the past eight years, and does not include any production-related expenditures and mineral revenues that would have also been created by these new wells.

4. Economic Impact of Legacy Lawsuits

Legacy-Induced Reductions in North Louisiana Drilling Activity

Legacy lawsuits are estimated to have a statistically significant negative impact on north Louisiana conventional drilling activity. Overall, north Louisiana drilling activity is estimated to have been reduced by some 952 wells over the past eight years with the most significant impact occurring in 2005 and 2006.



Legacy Induced Reduction in South Louisiana and Inland Waters Drilling Activity

Legacy lawsuits are estimated to have a statistically significant negative impact on

Actual versus Legacy-Impacted Wells

Legacy lawsuits are estimated to have contributed to a significant reduction in drilling activity during 2005 and 2006. While the legacy-induced impact is down in 2007, it still accounts for a several hundred well reduction

Actua

Economic Output Impact

Legacy lawsuits are estimated to have led to the loss of around $4 billion over the past eight years in north Louisiana, and a loss of close to $6.5 billion in economic activity in south Louisiana.

Overall state economic activity has been reduced by close to $10.5 billion.

	Output (2010$ Millions)		
	N. Louisiana	S. Louisiana and Inland Waters	Total
Total (8 years)			
Output			
Direct	$ (2,561)	$ (4,167)	$ (6,729)
Indirect	$ (1,038)	$ (1,690)	$ (2,728)
Induced	$ (395)	$ (642)	$ (1,036)
Total	**$ (3,994)**	**$ (6,499)**	**$ (10,493)**
Average per Yea	53829.32 322.98 Tm-9eBT0 T0m-9e(e)6(r)536(53n440.c084[0)e		53829.32
Output			
Direct	$ (320)	$ (521)	$ (841)
Indirect	$ (130)	$ (211)	$ (341)

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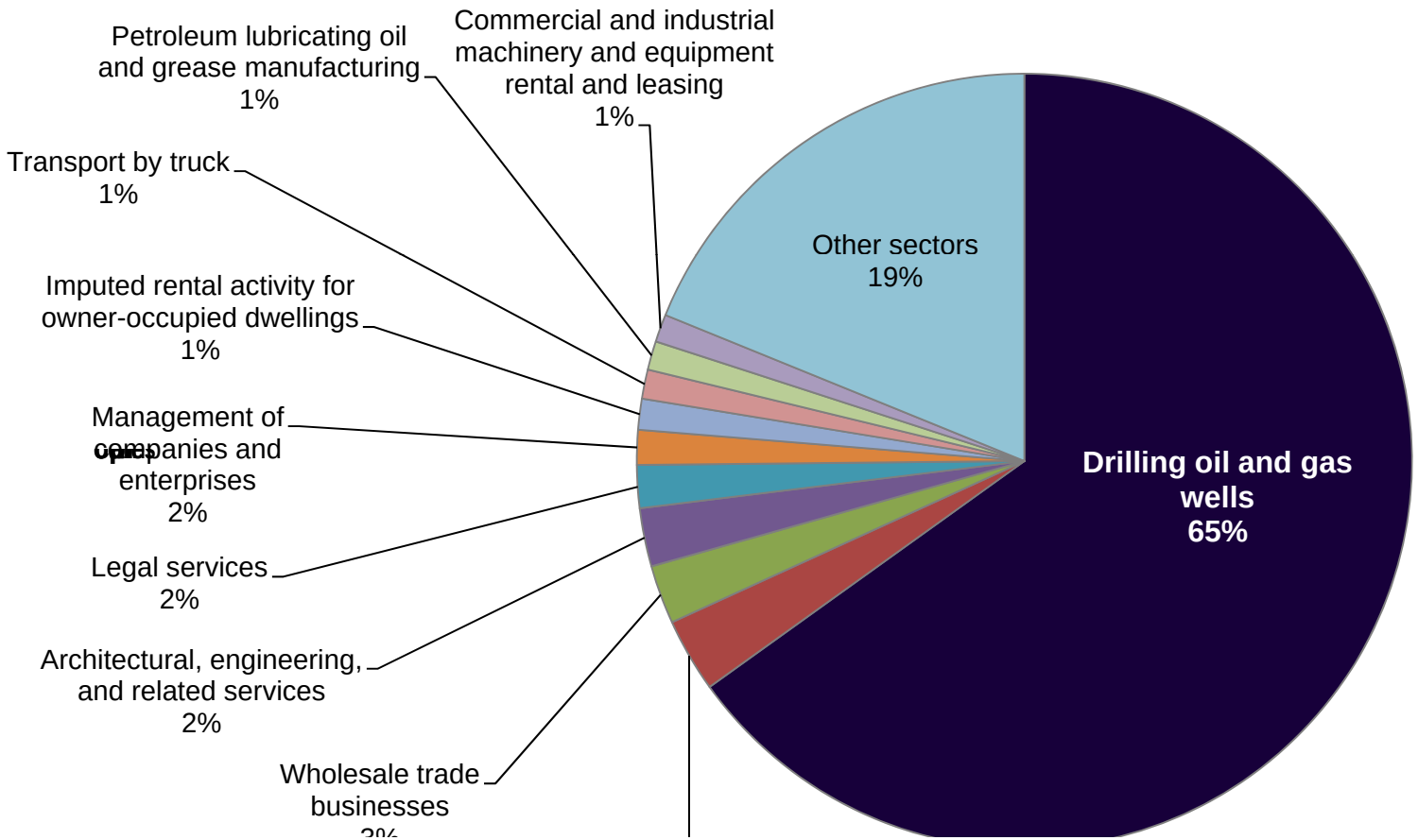
Value Added Impact

Legacy lawsuits are estimated to have resulted in the contraction of some $1.7 billion in other value added over the course of the past eight years in north Louisiana. South Louisiana has seen a contraction of some $2.8 billion over a comparable time period.

Overall, Louisiana has lost some $4.5 billion in other value-added activity as a result of legacy-induced reductions in oil and gas drilling. Other value added includes state and local taxes that would have occurred but for the legacy suit-induced reduction in oil and gas drilling.

	Value Added (2010$ Millions)		
	N. Louisiana	S. Louisiana and Inland Waters	Total
Total (8 years)			
Output			
Direct	$ (1,007)	$ (1,639)	$ (2,647)
Indirect	$ (488)	$ (794)	$ (1,281)
Induced	$ (231)	$ (375)	$ (606)
Total	**$ (1,726)**	**$ (2,808)**	**$ (4,534)**
Average per Year			
Output			
Direct	$ (126)	$ (205)	$ (331)
Indirect	$ (61)	$ (99)	$ (160)
Induced	$ (29)	$ (47)	$ (76)
Total	**$ (216)**	**$ (351)**	**$ (567)**

Distribution of output impacts



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5. Longer Run Considerations

Longer Run Implications Associated with Legacy Suits

- **The negative perceptions created by legacy lawsuits in the oil and gas industry has significant implications for, not only the state's economy, but its annual mineral revenue collections.**
- **While Louisiana has benefitted considerably from recent unconventional oil and gas drilling and production in the Haynesville shale, these benefits have clearly n**

Louisiana Natural Gas Production Trends

Total Louisiana Haynesville Production by Parish

North Louisiana production comes primarily from about four or five parishes.

Rig Coun

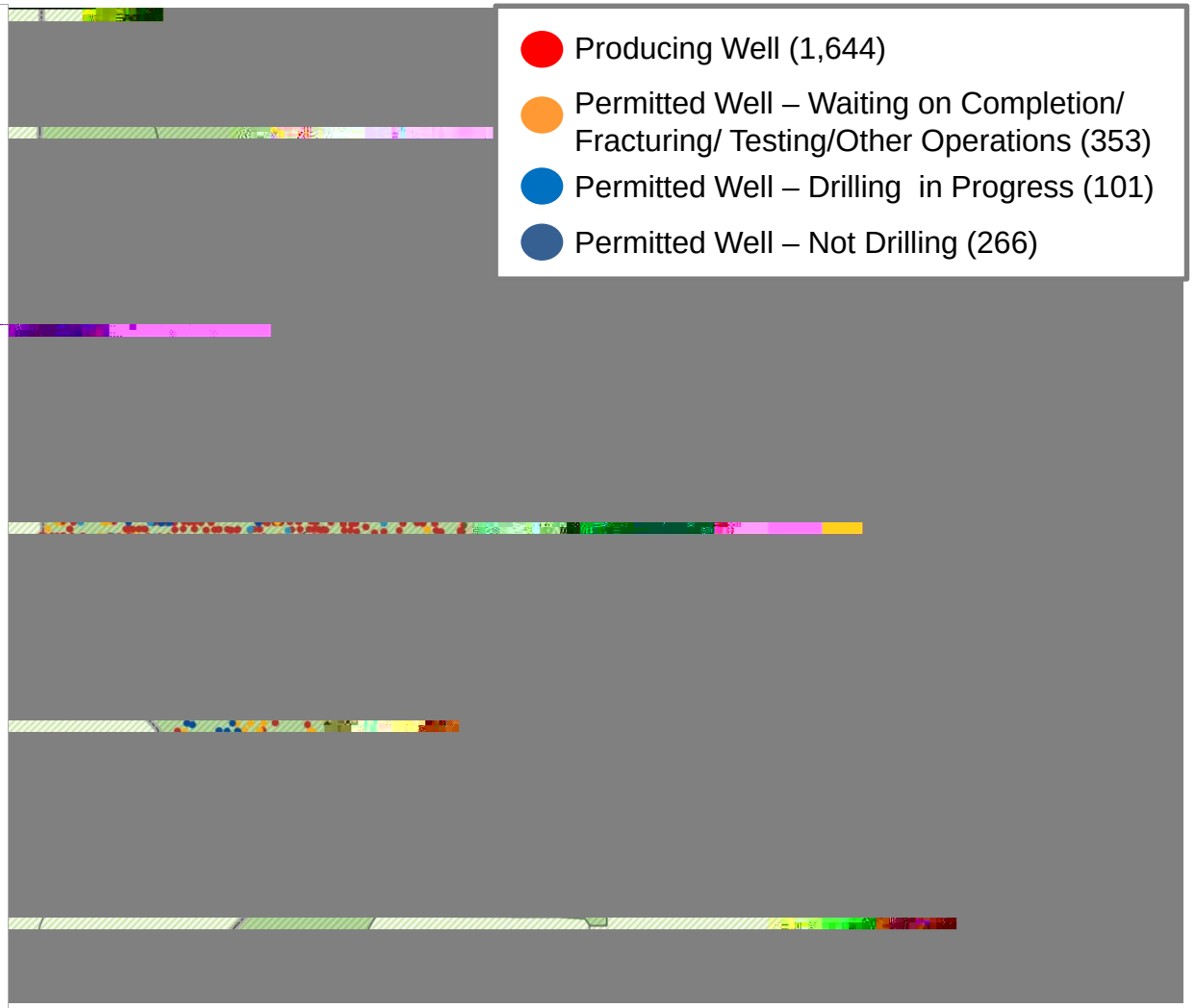
Rig Count, North Louisiana (Haynesville) and Texas District 1 (Eagle Ford)

Indexing the rig change from January 2009 hi

Haynesville Wells

During 2008 and 2009, there was a significant well development backlog in the Haynesville parishes: meaning that there were a large number of wells, that had been completed, but were awaiting necessary infrastructure for initial production. This is one of the reasons why 2009 and 2010 saw increased natural gas production volumes from the region despite decreased drilling activity

Today, there are few wells (353) left in the development backlog to come on line over the next 6 to 12 months. This will likely lead to a downturn in overall natural gas production from the area without any substantial pick-up in drilling activity.



State Oil and Gas Mineral Revenue per BOE (Severance)

6. Conclusions

Conclusions

- **Legacy lawsuits are strongly and negatively correlated with Louisiana drilling activity. Increases in legacy lawsuits are correlated with reductions in conventional Louisiana oil and**