

## **The Regional and Statewide Impacts of the April 2010 BP Oil Spill by Industrial Sectors**

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December 2013

### **Introduction**

In April 2010 the Macondo well blew out, exploded and burned until the Deep Water Horizon sank, causing millions of barrels of crude oil to discharge into the Gulf of Mexico. The explosion and subsequent fire caused the largest oil spill in the history of the United States, probably of the world. The spill caused significant damage to both the natural resources of the Gulf of Mexico and the states bordering the Gulf – Louisiana, Mississippi, Alabama, Florida, and Texas. As a result of the natural resource damage and related adverse publicity about the region after the spill, the economy of all five states was adversely impacted. Of that, there is no dispute.

It has been agreed to by all parties, including BP itself, that the spill and its aftermath caused damage to the economy of all five states. A number of lawsuits have followed in the wake of the spill. One set of suits – those brought as a class action by business owners who were impacted – has been settled. In the course of the payment of the settlements, there has been a great deal of discussion about the calculation of business losses and, more recently, the causality of the losses.

The purpose of this paper is to discuss the interrelationships of businesses in a metropolitan statistical area (MSA) and a state's economy. The basic economic premise to be analyzed is how connected businesses in different industries are to each other within the geographic boundaries of a MSA or a state. That analysis will be done from two points of view – the first is a theoretical analysis and the second is an empirical analysis using a simulation methodology.

### **Theoretical Analysis**

From the viewpoint of economic theory, there is a large area of overlap of most businesses located within the same MSA or state. That overlap is the result of many factors that will be discussed later in this report. The analogy is that of tossing a stone into a pond. Once the stone hits the water, ripples are sent to all ends of the pond. The stone's initial striking the water is referred to in economics as the "direct" impact. The waves that emanate from the stone's impact are referred to as the

secondary impact. In keeping with the analogy, the secondary impact is sometimes referred to as the “ripple effect.” Every sector in the MSA or state economy is likely to be affected by an impact in any one sector, especially if that initial impact is large.

There are many reasons for the interrelationships described above. Those include:

1. The impacted industry may produce a product or service that is used as an input in other industry. To site an example, consider the case of an initial negative impact in the electric utility industry. If electricity prices go up, almost every industry, including households, will feel the effects. This is a good example to consider the multiple layers of the ripple effect. As electricity prices go up, grocery stores will see higher costs and will, in all probability, raise prices to customers. Now, residents will feel a second round of negative impacts through higher food prices. As food prices go up, consumers will have to reduce spending in other areas as well to stay within their budget. So, other sectors of the economy, such as clothing stores will see a reduction in demand as consumer cut back. This process continues through many rounds as the initial impact is carried through the entire economy.
2. The impacted industry uses products or services of other local industries as an input into their production process. Using the electricity example, the electric company may purchase services from local contractors to trim trees, string line, buy insurance, buy legal services, and so forth. When the electric company reduces output, the demand for these local companies will decline, initiating another ripple effect that will have several rounds also.
3. Workers in the initially impacted sector will see a reduction in earnings as a result of the initial action. Using the electricity example, workers of the electric company will see losses in income. Those losses will result in reduced spending on many goods and services in the local economy as described above. Again, there are several rounds of impacts as it works through the system.
4. Local owners of the directly impacted businesses will see a reduction in income as a result of the initial, or direct, impact. These owners will not only reduce their consumer spending but they may very well be owners of other local businesses. The negative impact on the initial business will have a spillover negative impact on their other businesses in the area, starting another ripple effect that will work its way through the area’s economy.
5. Any local economy is influenced by spending, including capital spending, by national firms that have a local nexus. When there is a negative impact in one area, there is a chilling effect on new money flowing into that local economy, especially if the initial impact is a large one. As a result, fewer national dollars flow into the impacted area’s economy causing a reduction in local spending.

Again, this reduction has its own ripple effect that travels through the area's economy.

6. Governments provide goods and services to the residents of their community. The initial impact on one or more businesses in the area can cause reductions in governmental revenues that can lead to a reduction in governmental services. That reduction in services affects local businesses in several ways – government may reduce the number of employees it has, thereby reducing demand for goods and services in the community; the reduction in governmental services (such a local police or fire protection) may cause businesses to make less than optimal substitutions (such as increased spending on private security systems or increased insurance premiums). These actions will have their own ripple effects.

There can certainly be other effects that could link businesses in one sector of an area economy to businesses in other sectors, such as changes in relative prices of inputs and outputs, but the six identified above are the major ones. What this theoretical analysis tells us is that an impact in one area of a local economy can have subsequent impacts on just about every other sector in that economy. It may be very difficult to trace the impacts themselves since they are contained in so many aspects of the local economy, but those impacts are present.

### **Application of the Theory to the BP Oil Spill**

The BP oil spill of 2010 was the largest oil spill in the history of the United States, putting millions of barrels of crude oil into the Gulf of Mexico, affecting fisheries in the Gulf and connected estuaries, tourism to the entire region, seafood prices and availability, trust in the seafood itself, to name just a few.

This section of the report will use a simulation model to estimate the total impacts on the area economies by sector. The simulation model will test two very basic economic hypotheses. The first hypothesis is that almost all businesses within a metropolitan area are connected to each other, as discussed in the theoretical section of this paper. The second hypothesis that will be tested is that the impact of an action in one part of a state will affect businesses in other parts of the state.

In order to test these two hypotheses, two simulation models were developed and run. The first simulation model traces the impacts of initial shocks to the local economy (the oil spill) to all business sectors within that economy. The geographic area of the first simulation will be the New Orleans MSA, which consists of Orleans, Jefferson, Plaquemines, St. Bernard, St. Charles, and St. Tammany Parishes in southeast Louisiana. This MSA is only one of the many that were affected by the spill. The choice of the New Orleans MSA is purely illustrative and is not meant to imply that the impacts were limited to this MSA. The second simulation model looks

at the final impact of some a shock to the economy in one metro area (namely the oil spill as it affects the New Orleans metro area) to the entire state economy (using the State of Louisiana as the example).

### Simulation Model 1

The oil spill had multiple direct impacts on the several different aspects of the New Orleans area economy. Again, purely for the sake of this simulation, the following direct impacts will be traced through the area economy:

1. The impact on the local seafood or fisheries industry. The spill caused major fish kills in the waters surrounding the spill. Catches were down for several species of fin and non-fin seafood.
2. The impact on the local tourism industry. Annually, many visitors from throughout the world visit the coastal areas of the Gulf of Mexico for fishing, recreation, dining, eco-tourism, and relaxing on the beaches. The spill and resulting oil deposits in fishing and beach areas caused a significant decline in visitation.
3. The impact on the local restaurant industry. Seafood supplies to local restaurants were reduced by the spill. Perhaps more importantly, the public became concerned about the safety of the local product. This created a decrease in demand for local restaurants.
4. The impact on the local construction industry. Many local and national investors curtailed or even completely abandoned many local development opportunities in the region after the spill. The reason was simple – investors felt the spill had negatively impacted the projected rate of return on their projects, thereby increasing risk and reducing investment. There are countless instances recounted in which planned developments were put on hold or stopped after the spill.

For the purposes of this simulation, the assumption is that each of the four impacts was of \$100,000,000. Again, the choice of this figure does not indicate that the actual magnitude of the direct impacts in these industries was actually \$100,000,000. The actual impacts were actually much larger but the \$100 million is chosen to illustrate the point not estimate actual damages. For the tourism impact, the total direct impact is \$100 million but that is divided into the four areas that visitors tend to spend in – 30% in hotels and other accommodations, 30% in restaurants and bars, 30% in retail shops and attractions, and 10% in local transportation.

Table 1 presents the results of the simulation exercise. A few words about Table 1 are in order to understand the simulation. First, the source of the data is from the IMPLAN Economic Impact Model. IMPLAN is an economic model that was first developed by the U. S. Department of Agriculture as an aid in analyzing the economic impact of their projects. It was subsequently sold to the private sector and is currently owned by IMPLAN Group, LLC. IMPLAN is used by many private

consulting firms, economists, and government agencies. In 2013, as a result of the government sequester, the U. S. Bureau of Economic Analysis (BEA) was forced to abandon its regional economic impact model, RIMS II. This year, IMPLAN group purchased the BEA RIMS II model and has incorporated it into their modeling efforts. The version of the model that is used in Tables 1 and 2 of this report is the IMPLAN I-RIMS model for 2011.

The local and state economy has been broken down in Tables 1 and 2 into specific sectors, or industries. The breakdown is according to the NAICS codes, which are the method the U. S. Census Bureau use to divide the U. S. and state and local economies into industry sectors. NAICS codes can be very detailed and go into 6-digit specificity. Normally, most Census and BEA publications use only major sectors – normally 2-digit NAICS codes. As an example, the BEA publication on gross domestic product by metropolitan statistical area breaks the economies down into 77 industries. To be more precise in this analysis, Tables 1 and 2 break the New Orleans MSA and Louisiana economies down into 96 separate industries, offering a more detailed analysis of the impact of the oil spill.

In Tables 1 and 2, the industries that are in bold are the major industries. Totals for the major industries are the sums of the totals for the component industries that are in non-bold type below the major industries.

**Table 1**

## Simulation Results of \$100 Million Impacts in Four Industries in the New Orleans MSA

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Private Industries								
<b>Agriculture, forestry, fishing, and hunting</b>	<b>\$107,004,693</b>	<b>\$150,767</b>	<b>\$13,408</b>	<b>\$45,230</b>	<b>\$33,350</b>	<b>\$2,054,485</b>	<b>\$722,198</b>	<b>\$110,024,131</b>
<b>Mining</b>	<b>\$97,811</b>	<b>\$649,005</b>	<b>\$13,522</b>	<b>\$194,702</b>	<b>\$240,669</b>	<b>\$301,755</b>	<b>\$9,698,552</b>	<b>\$11,196,015</b>
Oil and gas extraction	\$9,067	\$219,020	\$5,966	\$65,706	\$189,888	\$88,805	\$9,448,101	\$10,026,553
Mining (except oil and gas)	\$8,411	\$53,913	\$844	\$16,174	\$4,806	\$47,957	\$62,544	\$194,649
Support activities for mining	\$80,333	\$376,072	\$6,711	\$112,822	\$45,974	\$164,993	\$187,908	\$974,813
<b>Utilities</b>	<b>\$6,703</b>	<b>\$684,031</b>	<b>\$6,109</b>	<b>\$205,209</b>	<b>\$85,069</b>	<b>\$295,068</b>	<b>\$6,630,064</b>	<b>\$7,912,254</b>
<b>Construction</b>	<b>\$55,743</b>	<b>\$344,533</b>	<b>\$5,728</b>	<b>\$103,360</b>	<b>\$998,716</b>	<b>\$168,639</b>	<b>\$100,283,539</b>	<b>\$101,960,259</b>
<b>Manufacturing</b>	<b>\$9,635,541</b>	<b>\$7,174,772</b>	<b>\$112,542</b>	<b>\$2,152,431</b>	<b>\$1,176,097</b>	<b>\$3,975,248</b>	<b>\$10,836,667</b>	<b>\$35,063,299</b>
Durable goods	\$6,819,981	\$3,929,277	\$58,018	\$1,178,783	\$764,078	\$2,381,744	\$5,923,396	\$21,055,277
Wood product manufacturing	\$6,639,883	\$691,628	\$9,564	\$207,488	\$75,399	\$445,561	\$974,896	\$9,044,418
Nonmetallic mineral product manuf	\$14,436	\$659,303	\$8,093	\$197,791	\$42,597	\$610,372	\$1,304,350	\$2,836,942
Primary metal manufacturing	\$2,371	\$191,311	\$1,993	\$57,393	\$12,520	\$214,052	\$588,879	\$1,068,519
Fabricated metal product manufacturing	\$2,519	\$409,914	\$5,616	\$122,974	\$21,102	\$153,103	\$501,736	\$1,216,964
Machinery manufacturing	\$3,830	\$337,054	\$4,842	\$101,116	\$64,284	\$128,837	\$375,780	\$1,015,743
Computer and electronic product manuf	\$3,041	\$323,401	\$6,030	\$97,020	\$35,752	\$129,760	\$458,224	\$1,053,228
Electrical equip, appliance, & comp manuf	\$944	\$102,036	\$2,214	\$30,611	\$32,519	\$77,182	\$189,143	\$434,649
Motor veh, body, trailer, & parts manuf	\$10,489	\$106,920	\$1,640	\$32,076	\$55,481	\$78,239	\$212,650	\$497,496

**Table 1 - Continued**

Simulation Results of \$100 Million Impacts in Four Industries in the New Orleans MSA

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Other transportation equipment manuf	\$7,744	\$398,015	\$5,261	\$119,405	\$187,838	\$155,210	\$480,976	\$1,354,450
Furniture and related product manuf	\$62,292	\$394,789	\$6,686	\$118,437	\$171,573	\$153,107	\$481,568	\$1,388,450
Miscellaneous manufacturing	\$72,432	\$314,907	\$6,079	\$94,472	\$65,014	\$236,321	\$355,193	\$1,144,417
<b>Nondurable goods</b>	<b>\$2,815,560</b>	<b>\$3,245,494</b>	<b>\$54,525</b>	<b>\$973,648</b>	<b>\$412,019</b>	<b>\$1,593,504</b>	<b>\$4,913,271</b>	<b>\$14,008,022</b>
Food and beverage and tobacco prod manuf	\$1,663,602	\$300,692	\$5,586	\$90,208	\$40,167	\$335,084	\$536,467	\$2,971,805
Textile mills and textile product mills	\$79,986	\$136,838	\$2,333	\$41,051	\$25,383	\$76,469	\$131,073	\$493,134
Apparel and leather and allied product manuf	\$95,028	\$647,617	\$10,737	\$194,285	\$44,854	\$214,309	\$382,012	\$1,588,844
Paper manufacturing	\$2,097	\$302,814	\$5,109	\$90,844	\$13,542	\$229,153	\$453,835	\$1,097,395
Printing and related support activities	\$198,877	\$1,053,972	\$20,472	\$316,192	\$40,808	\$262,922	\$1,155,433	\$3,048,676
Petroleum and coal products manufacturing	\$4,808	\$196,951	\$2,530	\$59,085	\$116,537	\$141,717	\$957,856	\$1,479,483
Chemical manufacturing	\$61,754	\$260,356	\$3,688	\$78,107	\$100,176	\$193,053	\$751,028	\$1,448,162
Plastics and rubber products manufacturing	\$709,408	\$346,255	\$4,069	\$103,876	\$30,551	\$140,796	\$545,566	\$1,880,523
<b>Wholesale trade</b>	<b>\$3,012</b>	<b>\$438,070</b>	<b>\$10,789</b>	<b>\$131,421</b>	<b>\$37,424</b>	<b>\$357,425</b>	<b>\$308,120</b>	<b>\$1,286,260</b>
<b>Retail trade</b>	<b>\$14,953</b>	<b>\$585,004</b>	<b>\$28,971</b>	<b>\$175,501</b>	<b>\$30,098,716</b>	<b>\$341,608</b>	<b>\$678,200</b>	<b>\$31,922,952</b>
<b>Transportation and warehousing</b>	<b>\$72,113</b>	<b>\$4,793,071</b>	<b>\$93,686</b>	<b>\$1,437,921</b>	<b>\$697,488</b>	<b>\$10,675,805</b>	<b>\$15,788,984</b>	<b>\$33,559,067</b>
Air transportation	\$8,118	\$2,827,002	\$9,605	\$848,101	\$27,759	\$10,635,708	\$523,190	\$14,879,482
Rail transportation	\$33,632	\$338,096	\$5,682	\$101,429	\$106,137	\$10,325,020	\$7,188,637	\$18,098,632

**Table 1 - Continued**

## Simulation Results of \$100 Million Impacts in Four Industries in the New Orleans MSA

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Water transportation	\$4,971	\$201,543	\$22,148	\$60,463	\$13,056	\$11,278,723	\$266,684	\$11,847,588
Truck transportation	\$4,073	\$292,674	\$8,777	\$87,802	\$222,809	\$11,337,652	\$534,745	\$12,488,532
Transit and ground passenger transportation	\$1,729	\$173,754	\$2,116	\$52,126	\$27,887	\$10,124,396	\$364,413	\$10,746,421
Pipeline transportation	\$5,136	\$321,293	\$9,489	\$96,388	\$174,805	\$10,185,411	\$5,355,277	\$16,147,797
Other transportation and support activities	\$10,773	\$371,126	\$9,718	\$111,338	\$96,223	\$10,862,794	\$808,961	\$12,270,932
Warehousing and storage	\$3,681	\$267,583	\$26,151	\$80,275	\$28,813	\$10,656,736	\$747,078	\$11,810,316
<b>Information</b>	<b>\$21,949</b>	<b>\$3,962,536</b>	<b>\$83,310</b>	<b>\$1,188,761</b>	<b>\$101,772</b>	<b>\$1,092,155</b>	<b>\$2,633,958</b>	<b>\$9,084,441</b>
Publishing industries, except Internet	\$5,937	\$1,172,395	\$24,012	\$351,718	\$40,505	\$565,635	\$519,725	\$2,679,926
Motion picture and sound recording industries	\$5,436	\$1,109,692	\$24,631	\$332,908	\$21,504	\$265,093	\$445,914	\$2,205,176
Broadcasting and telecommunications	\$5,156	\$724,768	\$15,909	\$217,430	\$13,152	\$105,886	\$541,564	\$1,623,865
Information and data processing services	\$5,421	\$955,681	\$18,758	\$286,704	\$26,612	\$155,542	\$1,126,756	\$2,575,474
<b>Finance and insurance</b>	<b>\$14,825</b>	<b>\$3,086,989</b>	<b>\$75,074</b>	<b>\$926,097</b>	<b>\$76,981</b>	<b>\$316,589</b>	<b>\$2,202,159</b>	<b>\$6,698,714</b>
Fedl Reserve banks, credit intermed & rel serv	\$5,064	\$1,453,223	\$14,807	\$435,967	\$40,286	\$69,421	\$954,025	\$2,972,792
Securities, commodity contracts, investments	\$5,381	\$817,962	\$35,155	\$245,389	\$21,082	\$153,240	\$734,977	\$2,013,186
Insurance carriers and related activities	\$2,211	\$394,453	\$13,218	\$118,336	\$7,688	\$55,743	\$163,504	\$755,153
Funds, trusts, and other financial vehicles	\$2,169	\$421,352	\$11,894	\$126,406	\$7,925	\$38,185	\$349,652	\$957,583
<b>Real estate and rental and leasing</b>	<b>\$41,372</b>	<b>\$1,790,552</b>	<b>\$64,400</b>	<b>\$537,166</b>	<b>\$192,885</b>	<b>\$247,572</b>	<b>\$3,363,596</b>	<b>\$6,237,543</b>



**Table 1 - Continued**

## Simulation Results of \$100 Million Impacts in Four Industries in the New Orleans MSA

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Real estate	\$34,584	\$537,245	\$43,065	\$161,173	\$135,267	\$47,030	\$2,655,345	\$3,613,710
Rental & leasing services & lessors of intang assts	\$6,788	\$1,253,308	\$21,334	\$375,992	\$57,618	\$200,542	\$708,251	\$2,623,833
<b>Professional, scientific, and technical services</b>	<b>\$209,449</b>	<b>\$20,153,156</b>	<b>\$270,999</b>	<b>\$6,045,947</b>	<b>\$290,487</b>	<b>\$1,832,771</b>	<b>\$6,685,786</b>	<b>\$35,488,595</b>
Legal services	\$3,496	\$775,758	\$19,780	\$232,727	\$18,375	\$62,119	\$202,561	\$1,314,815
Accounting, tax prep, bookkeeping, & payroll serv	\$4,108	\$1,083,210	\$15,207	\$324,963	\$11,560	\$120,336	\$221,016	\$1,780,401
Architectural, engineering, and related services	\$11,808	\$2,150,504	\$15,412	\$645,151	\$28,116	\$99,603	\$501,997	\$3,452,591
Specialized design services	\$8,545	\$2,835,860	\$21,854	\$850,758	\$18,177	\$161,471	\$346,631	\$4,243,298
Custom computer programming services	\$6,932	\$1,004,370	\$52,698	\$301,311	\$12,464	\$62,276	\$438,175	\$1,878,226
Computer systems design services	\$6,365	\$2,131,845	\$16,478	\$639,554	\$23,863	\$101,996	\$221,867	\$3,141,966
Other computer rel services, incl facilities manag	\$4,010	\$1,278,207	\$12,832	\$383,462	\$8,991	\$67,760	\$136,905	\$1,892,167
Management, scientific, & tech consulting serv	\$5,547	\$1,750,782	\$14,128	\$525,235	\$14,639	\$214,501	\$198,120	\$2,722,952
Environ & other technical consulting serv	\$3,976	\$1,065,176	\$13,059	\$319,553	\$12,022	\$85,304	\$181,755	\$1,680,844
Scientific research and development services	\$134,168	\$1,108,761	\$18,371	\$332,628	\$52,496	\$309,276	\$3,121,136	\$5,076,836
Advertising and related services	\$4,627	\$933,369	\$19,592	\$280,011	\$23,417	\$211,285	\$299,396	\$1,771,697
Other misc prof, scientific, & technical serv	\$2,873	\$770,210	\$9,969	\$231,063	\$14,599	\$61,355	\$164,755	\$1,254,823
Photographic services	\$4,931	\$1,488,361	\$18,088	\$446,508	\$33,139	\$128,426	\$225,354	\$2,344,808
Veterinary services	\$8,063	\$1,776,744	\$23,532	\$533,023	\$18,629	\$147,063	\$426,118	\$2,933,171

**Table 1 - Continued**

## Simulation Results of \$100 Million Impacts in Four Industries in the New Orleans MSA

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
<b>Management of companies and enterprises</b>	<b>\$6,783</b>	<b>\$1,148,796</b>	<b>\$18,673</b>	<b>\$344,639</b>	<b>\$14,796</b>	<b>\$86,949</b>	<b>\$615,629</b>	<b>\$2,236,264</b>
<b>Administrative &amp; waste management serv</b>	<b>\$26,841</b>	<b>\$3,354,547</b>	<b>\$31,255</b>	<b>\$1,006,364</b>	<b>\$68,489</b>	<b>\$481,198</b>	<b>\$784,731</b>	<b>\$5,753,426</b>
Administrative and support services	\$11,603	\$1,821,907	\$17,118	\$546,572	\$35,923	\$172,213	\$391,639	\$2,996,976
Waste management & remediation serv	\$15,238	\$1,532,640	\$14,137	\$459,792	\$32,566	\$308,985	\$393,091	\$2,756,450
<b>Educational services</b>	<b>\$27,060</b>	<b>\$772,124</b>	<b>\$42,804</b>	<b>\$231,637</b>	<b>\$16,684</b>	<b>\$123,143</b>	<b>\$625,035</b>	<b>\$1,838,487</b>
<b>Health care and social assistance</b>	<b>\$67,254</b>	<b>\$3,355,017</b>	<b>\$104,716</b>	<b>\$1,006,505</b>	<b>\$158,293</b>	<b>\$343,471</b>	<b>\$1,835,882</b>	<b>\$6,871,138</b>
Ambulatory health care services	\$4,088	\$850,562	\$18,865	\$255,168	\$48,034	\$93,701	\$323,294	\$1,593,712
Hospitals & nursing & residential care facilities	\$43,670	\$1,199,475	\$45,913	\$359,842	\$81,711	\$116,400	\$706,131	\$2,553,141
Social assistance	\$19,496	\$1,304,980	\$39,938	\$391,494	\$28,548	\$133,370	\$806,458	\$2,724,285
<b>Arts, entertainment, and recreation</b>	<b>\$103,750</b>	<b>\$1,433,750</b>	<b>\$58,546</b>	<b>\$430,125</b>	<b>\$83,343</b>	<b>\$404,541</b>	<b>\$1,797,870</b>	<b>\$4,311,925</b>
Perform arts, spect sports, museums, & rel serv	\$13,261	\$575,423	\$29,848	\$172,627	\$23,950	\$230,645	\$577,666	\$1,623,420
Amusement, gambling, and recreation	\$90,489	\$858,327	\$28,698	\$257,498	\$59,393	\$173,895	\$1,220,205	\$2,688,505
<b>Accommodation and food services</b>	<b>\$238,418</b>	<b>\$103,753,578</b>	<b>\$30,043,750</b>	<b>\$31,126,073</b>	<b>\$175,443</b>	<b>\$384,542</b>	<b>\$2,664,587</b>	<b>\$168,386,392</b>
Accommodation	\$28,613	\$2,810,072	\$30,016,230	\$843,022	\$43,124	\$191,326	\$1,959,872	\$35,892,258
Food services and drinking places	\$209,806	\$100,943,506	\$27,519	\$30,283,052	\$132,319	\$193,216	\$704,715	\$132,494,133
<b>Other services, except government</b>	<b>\$66,056</b>	<b>\$8,091,303</b>	<b>\$234,602</b>	<b>\$2,427,391</b>	<b>\$1,483,490</b>	<b>\$1,806,392</b>	<b>\$7,754,653</b>	<b>\$21,863,887</b>
Automotive repair & maint, excep car wash	\$3,875	\$546,336	\$15,701	\$163,901	\$560,585	\$226,192	\$272,117	\$1,788,706

**Table 1**

## Simulation Results of \$100 Million Impacts in Four Industries in the New Orleans MSA

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Car washes	\$4,188	\$716,829	\$18,838	\$215,049	\$93,013	\$111,191	\$579,509	\$1,738,616
Electronic & precision equip repair & maint	\$1,786	\$278,708	\$8,238	\$83,612	\$24,496	\$101,643	\$284,418	\$782,900
Commer & indust mach & equip repair & maint	\$3,470	\$567,021	\$8,325	\$170,106	\$23,879	\$87,661	\$234,564	\$1,095,026
Personal and household goods repair and maint	\$11,443	\$752,625	\$13,308	\$225,788	\$178,311	\$126,391	\$257,472	\$1,565,337
Personal care services	\$4,583	\$709,168	\$28,306	\$212,750	\$284,930	\$87,723	\$485,308	\$1,812,768
Death care services	\$3,768	\$645,417	\$11,116	\$193,625	\$44,929	\$166,336	\$555,075	\$1,620,266
Dry-cleaning and laundry services	\$1,078	\$203,131	\$2,766	\$60,939	\$14,888	\$51,775	\$316,161	\$650,738
Other personal services	\$5,480	\$827,683	\$30,197	\$248,305	\$69,843	\$223,227	\$546,023	\$1,950,759
Religious organizations	\$8,997	\$650,435	\$41,890	\$195,130	\$127,674	\$224,985	\$3,114,339	\$4,363,450
Grantmaking, giving, & social advocacy organ	\$6,842	\$1,463,328	\$34,931	\$438,998	\$40,661	\$283,044	\$485,524	\$2,753,329
Civic, social, professional, and similar organ	\$10,547	\$730,622	\$20,988	\$219,187	\$20,282	\$116,223	\$624,145	\$1,741,993
Total	\$117,714,326	\$165,721,600	\$31,312,883	\$49,716,480	\$36,030,194	\$25,289,354	\$175,910,210	\$601,695,047

Source: IMPLAN I-RIMS Model

### Simulation Model 2

The second simulation model traces the economic effect of the same four direct impacts that emanated in the New Orleans area economy on business in all sectors in the entire State of Louisiana. The purpose of this simulation is to show that the oil spill impacted Louisiana businesses in a variety of sectors outside of the New Orleans metro area.

**Table 2**

## Simulation Results of \$100 Million Impacts in Four Industries in the State of Louisiana

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Private Industries								
<b>Agriculture, forestry, fishing, and hunting</b>	<b>\$112,290,898</b>	<b>\$181,878</b>	<b>\$11,598</b>	<b>\$54,563</b>	<b>\$42,371</b>	<b>\$126,081</b>	<b>\$951,195</b>	<b>\$113,658,584</b>
<b>Mining</b>	<b>\$670,739</b>	<b>\$952,215</b>	<b>\$12,974</b>	<b>\$285,665</b>	<b>\$301,506</b>	<b>\$593,722</b>	<b>\$10,113,313</b>	<b>\$12,930,133</b>
Oil and gas extraction	\$39,108	\$209,665	\$3,781	\$62,899	\$197,633	\$92,897	\$9,574,525	\$10,180,508
Mining (except oil and gas)	\$167,015	\$188,779	\$2,060	\$56,634	\$41,513	\$307,596	\$263,699	\$1,027,294
Support activities for mining	\$464,616	\$553,772	\$7,133	\$166,131	\$62,361	\$193,230	\$275,089	\$1,722,331
<b>Utilities</b>	<b>\$29,743</b>	<b>\$686,518</b>	<b>\$4,695</b>	<b>\$205,955</b>	<b>\$98,750</b>	<b>\$355,815</b>	<b>\$7,413,704</b>	<b>\$8,795,180</b>
<b>Construction</b>	<b>\$245,414</b>	<b>\$347,843</b>	<b>\$4,424</b>	<b>\$104,353</b>	<b>\$1,050,440</b>	<b>\$169,203</b>	<b>\$100,293,970</b>	<b>\$102,215,647</b>
<b>Manufacturing</b>	<b>\$20,255,134</b>	<b>\$8,680,628</b>	<b>\$105,070</b>	<b>\$2,604,188</b>	<b>\$1,769,971</b>	<b>\$4,868,724</b>	<b>\$14,161,610</b>	<b>\$52,445,323</b>
Durable goods	\$8,292,701	\$4,963,649	\$57,968	\$1,489,095	\$1,274,043	\$2,938,683	\$7,683,768	\$26,699,907
Wood product manufacturing	\$7,092,344	\$677,615	\$7,618	\$203,284	\$78,298	\$429,983	\$1,030,957	\$9,520,098
Nonmetallic mineral product manuf	\$68,925	\$681,353	\$6,724	\$204,406	\$47,595	\$614,479	\$1,464,048	\$3,087,530
Primary metal manufacturing	\$13,781	\$309,704	\$2,515	\$92,911	\$20,524	\$297,959	\$983,031	\$1,720,425
Fabricated metal product manufacturing	\$23,171	\$506,193	\$5,785	\$151,858	\$29,481	\$176,309	\$658,982	\$1,551,779
Machinery manufacturing	\$14,168	\$431,370	\$4,939	\$129,411	\$68,465	\$148,454	\$465,232	\$1,262,039
Computer and electronic product manuf	\$15,240	\$372,873	\$5,074	\$111,862	\$63,515	\$137,160	\$496,897	\$1,202,622
Electrical equip, appliance, & comp manuf	\$11,578	\$161,418	\$2,291	\$48,425	\$44,347	\$114,942	\$334,973	\$717,974
Motor veh, body, trailer, & parts manuf	\$129,275	\$270,729	\$3,361	\$81,219	\$179,287	\$213,430	\$459,261	\$1,336,562

**Table 2 - Continued**

Simulation Results of \$100 Million Impacts in Four Industries in the State of Louisiana

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Other transportation equipment manuf	\$44,907	\$555,693	\$5,848	\$166,708	\$355,776	\$253,563	\$644,453	\$2,026,949
Furniture and related product manuf	\$720,173	\$618,068	\$8,601	\$185,420	\$308,243	\$296,655	\$727,785	\$2,864,947
Miscellaneous manufacturing	\$159,139	\$378,632	\$5,211	\$113,590	\$78,510	\$255,750	\$418,149	\$1,408,982
Nondurable goods	\$11,962,432	\$3,716,978	\$47,102	\$1,115,094	\$495,928	\$1,930,041	\$6,477,841	\$25,745,416
Food and beverage and tobacco prod manuf	\$7,941,923	\$369,347	\$6,014	\$110,804	\$56,829	\$395,240	\$729,553	\$9,609,709
Textile mills and textile product mills	\$1,883,087	\$288,681	\$3,564	\$86,604	\$34,868	\$163,352	\$443,268	\$2,903,424
Apparel and leather and allied product manuf	\$514,781	\$721,426	\$8,296	\$216,428	\$48,520	\$258,376	\$506,310	\$2,274,136
Paper manufacturing	\$807,259	\$408,641	\$4,527	\$122,592	\$24,679	\$317,787	\$951,957	\$2,637,441
Printing and related support activities	\$203,509	\$1,034,018	\$15,610	\$310,205	\$42,497	\$251,006	\$1,224,141	\$3,080,986
Petroleum and coal products manufacturing	\$11,021	\$166,752	\$1,620	\$50,026	\$111,962	\$134,750	\$858,968	\$1,335,099
Chemical manufacturing	\$119,778	\$313,805	\$3,407	\$94,142	\$127,266	\$234,809	\$1,012,893	\$1,906,099
Plastics and rubber products manufacturing	\$481,075	\$414,310	\$4,064	\$124,293	\$49,308	\$174,722	\$750,751	\$1,998,522
<b>Wholesale trade</b>	<b>\$13,418</b>	<b>\$433,812</b>	<b>\$7,140</b>	<b>\$130,144</b>	<b>\$38,713</b>	<b>\$303,873</b>	<b>\$314,744</b>	<b>\$1,241,843</b>
<b>Retail trade</b>	<b>\$36,981</b>	<b>\$551,782</b>	<b>\$17,226</b>	<b>\$165,535</b>	<b>\$30,098,670</b>	<b>\$294,488</b>	<b>\$668,667</b>	<b>\$31,833,349</b>
<b>Transportation and warehousing</b>	<b>\$316,304</b>	<b>\$4,593,273</b>	<b>\$61,119</b>	<b>\$1,377,982</b>	<b>\$684,096</b>	<b>\$10,575,181</b>	<b>\$15,395,194</b>	<b>\$33,003,150</b>
Air transportation	\$19,610	\$2,730,878	\$5,943	\$819,263	\$25,170	\$10,522,941	\$472,688	\$14,596,493
Rail transportation	\$214,888	\$329,443	\$4,227	\$98,833	\$108,471	\$10,269,869	\$7,171,067	\$18,196,798

**Table 2 - Continued**

## Simulation Results of \$100 Million Impacts in Four Industries in the State of Louisiana

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Water transportation	\$12,150	\$187,265	\$13,649	\$56,179	\$11,934	\$11,034,183	\$280,785	\$11,596,145
Truck transportation	\$10,401	\$258,826	\$5,300	\$77,648	\$219,822	\$11,119,311	\$472,138	\$12,163,447
Transit and ground passenger transportation	\$4,814	\$186,853	\$2,051	\$56,056	\$31,186	\$10,115,733	\$388,466	\$10,785,159
Pipeline transportation	\$19,002	\$276,570	\$5,754	\$82,971	\$162,819	\$10,156,707	\$4,973,428	\$15,677,250
Other transportation and support activities	\$22,576	\$355,328	\$6,883	\$106,598	\$93,778	\$10,761,467	\$830,857	\$12,177,488
Warehousing and storage	\$12,862	\$268,112	\$17,312	\$80,433	\$30,915	\$10,621,240	\$805,765	\$11,836,639
<b>Information</b>	<b>\$89,695</b>	<b>\$3,992,791</b>	<b>\$64,035</b>	<b>\$1,197,837</b>	<b>\$102,650</b>	<b>\$897,745</b>	<b>\$2,755,688</b>	<b>\$9,100,441</b>
Publishing industries, except Internet	\$30,358	\$1,092,818	\$17,230	\$327,845	\$38,178	\$438,831	\$505,453	\$2,450,712
Motion picture and sound recording industries	\$20,514	\$1,160,695	\$19,482	\$348,208	\$22,437	\$229,554	\$464,017	\$2,264,906
Broadcasting and telecommunications	\$18,511	\$834,821	\$13,069	\$250,446	\$15,133	\$103,488	\$631,555	\$1,867,023
Information and data processing services	\$20,312	\$904,458	\$14,254	\$271,337	\$26,903	\$125,872	\$1,154,664	\$2,517,800
<b>Finance and insurance</b>	<b>\$51,247</b>	<b>\$3,228,374</b>	<b>\$59,207</b>	<b>\$968,512</b>	<b>\$85,972</b>	<b>\$282,250</b>	<b>\$2,420,550</b>	<b>\$7,096,113</b>
Fedl Reserve banks, credit intermed & rel serv	\$17,425	\$1,517,417	\$13,911	\$455,225	\$44,947	\$62,649	\$1,037,958	\$3,149,532
Securities, commodity contracts, investments	\$19,785	\$902,322	\$27,124	\$270,697	\$24,483	\$139,780	\$854,583	\$2,238,773
Insurance carriers and related activities	\$7,065	\$392,008	\$9,577	\$117,603	\$8,000	\$45,850	\$165,209	\$745,312
Funds, trusts, and other financial vehicles	\$6,973	\$416,627	\$8,596	\$124,988	\$8,541	\$33,972	\$362,801	\$962,497
<b>Real estate and rental and leasing</b>	<b>\$147,802</b>	<b>\$1,693,205</b>	<b>\$41,052</b>	<b>\$507,962</b>	<b>\$192,151</b>	<b>\$201,149</b>	<b>\$3,339,631</b>	<b>\$6,122,951</b>

**Table 2 - Continued**

## Simulation Results of \$100 Million Impacts in Four Industries in the State of Louisiana

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Real estate	\$123,654	\$509,223	\$26,007	\$152,767	\$135,307	\$42,350	\$2,644,217	\$3,633,525
Rental & leasing services & lessors of intang assts	\$24,148	\$1,183,982	\$15,045	\$355,195	\$56,844	\$158,800	\$695,414	\$2,489,427
<b>Professional, scientific, and technical services</b>	<b>\$634,794</b>	<b>\$21,416,648</b>	<b>\$215,916</b>	<b>\$6,424,994</b>	<b>\$315,403</b>	<b>\$1,666,330</b>	<b>\$7,188,157</b>	<b>\$37,862,243</b>
Legal services	\$13,142	\$883,004	\$15,617	\$264,901	\$21,614	\$58,167	\$229,151	\$1,485,598
Accounting, tax prep, bookkeeping, & payroll serv	\$14,238	\$1,154,281	\$11,920	\$346,284	\$12,479	\$104,574	\$237,124	\$1,880,901
Architectural, engineering, and related services	\$40,549	\$2,263,353	\$13,915	\$679,006	\$30,724	\$89,353	\$543,663	\$3,660,563
Specialized design services	\$24,604	\$2,822,590	\$15,874	\$846,777	\$18,479	\$135,329	\$349,526	\$4,213,179
Custom computer programming services	\$22,846	\$1,076,850	\$37,379	\$323,055	\$13,690	\$57,795	\$477,810	\$2,009,424
Computer systems design services	\$21,083	\$2,318,164	\$17,266	\$695,449	\$26,766	\$91,568	\$243,100	\$3,413,397
Other computer rel services, incl facilities manag	\$16,115	\$1,411,836	\$12,891	\$423,551	\$10,114	\$63,085	\$152,318	\$2,089,909
Management, scientific, & tech consulting serv	\$25,244	\$2,252,500	\$14,433	\$675,750	\$19,018	\$228,943	\$255,775	\$3,471,664
Environ & other technical consulting serv	\$15,754	\$1,130,635	\$10,482	\$339,191	\$13,096	\$75,636	\$194,408	\$1,779,201
Scientific research and development services	\$334,592	\$1,131,401	\$13,280	\$339,420	\$57,951	\$301,118	\$3,370,955	\$5,548,717
Advertising and related services	\$15,035	\$899,653	\$13,449	\$269,896	\$23,018	\$167,519	\$293,590	\$1,682,160
Other misc prof, scientific, & technical serv	\$10,713	\$738,760	\$6,801	\$221,628	\$14,438	\$48,204	\$161,254	\$1,201,799
Photographic services	\$13,790	\$1,467,578	\$12,936	\$440,274	\$33,657	\$106,866	\$223,070	\$2,298,171
Veterinary services	\$67,089	\$1,866,043	\$19,673	\$559,813	\$20,357	\$138,174	\$456,412	\$3,127,561



**Table 2 - Continued**

Simulation Results of \$100 Million Impacts in Four Industries in the State of Louisiana

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
<b>Management of companies and enterprises</b>	<b>\$28,366</b>	<b>\$1,155,712</b>	<b>\$12,682</b>	<b>\$346,713</b>	<b>\$15,844</b>	<b>\$80,120</b>	<b>\$652,542</b>	<b>\$2,291,979</b>
<b>Administrative &amp; waste management serv</b>	<b>\$90,844</b>	<b>\$3,292,291</b>	<b>\$26,491</b>	<b>\$987,687</b>	<b>\$68,426</b>	<b>\$398,736</b>	<b>\$779,344</b>	<b>\$5,643,819</b>
Administrative and support services	\$38,767	\$1,837,445	\$13,910	\$551,234	\$36,630	\$146,408	\$396,779	\$3,021,172
Waste management & remediation serv	\$52,077	\$1,454,846	\$12,581	\$436,454	\$31,796	\$252,327	\$382,565	\$2,622,647
<b>Educational services</b>	<b>\$81,525</b>	<b>\$784,420</b>	<b>\$28,105</b>	<b>\$235,326</b>	<b>\$17,455</b>	<b>\$109,929</b>	<b>\$640,973</b>	<b>\$1,897,733</b>
<b>Health care and social assistance</b>	<b>\$209,247</b>	<b>\$3,346,836</b>	<b>\$67,625</b>	<b>\$1,004,051</b>	<b>\$165,674</b>	<b>\$311,255</b>	<b>\$1,881,524</b>	<b>\$6,986,212</b>
Ambulatory health care services	\$13,111	\$827,857	\$12,297	\$248,357	\$48,909	\$81,053	\$319,997	\$1,551,581
Hospitals & nursing & residential care facilities	\$112,794	\$1,196,282	\$28,851	\$358,885	\$86,305	\$109,075	\$718,821	\$2,611,012
Social assistance	\$83,342	\$1,322,697	\$26,477	\$396,809	\$30,461	\$121,126	\$842,706	\$2,823,619
<b>Arts, entertainment, and recreation</b>	<b>\$190,438</b>	<b>\$1,371,521</b>	<b>\$36,593</b>	<b>\$411,456</b>	<b>\$82,999</b>	<b>\$338,756</b>	<b>\$1,689,873</b>	<b>\$4,121,637</b>
Perform arts, spect sprts, museums, & rel serv	\$31,143	\$608,978	\$19,915	\$182,693	\$27,804	\$194,181	\$607,555	\$1,672,268
Amusement, gambling, and recreation	\$159,295	\$762,543	\$16,678	\$228,763	\$55,195	\$144,575	\$1,082,318	\$2,449,368
<b>Accommodation and food services</b>	<b>\$545,110</b>	<b>\$103,879,570</b>	<b>\$30,030,788</b>	<b>\$31,163,871</b>	<b>\$189,343</b>	<b>\$376,082</b>	<b>\$2,892,555</b>	<b>\$169,077,318</b>
Accommodation	\$76,303	\$2,912,770	\$30,011,976	\$873,831	\$47,498	\$184,647	\$2,141,545	\$36,248,571
Food services and drinking places	\$468,806	\$100,966,799	\$18,812	\$30,290,040	\$141,845	\$191,435	\$751,010	\$132,828,747
<b>Other services, except government</b>	<b>\$223,977</b>	<b>\$8,499,002</b>	<b>\$168,306</b>	<b>\$2,549,701</b>	<b>\$1,618,265</b>	<b>\$1,686,177</b>	<b>\$8,662,148</b>	<b>\$23,407,577</b>
Automotive repair & maint, excep car wash	\$10,344	\$577,921	\$10,879	\$173,376	\$622,684	\$215,021	\$293,376	\$1,903,601

**Table 2 - Continued**

## Simulation Results of \$100 Million Impacts in Four Industries in the State of Louisiana

Industry	Primary Areas of Impact of the BP Oil Spill of 2010							Total
	Fisheries	Eating & Drinking Places	Tourism - Accommodations	Tourism - Restaurants	Tourism - Retail Trade	Tourism - Local Transportation	Construction	
Car washes	\$15,571	\$739,897	\$13,559	\$221,969	\$100,858	\$105,288	\$627,814	\$1,824,956
Electronic & precision equip repair & maint	\$5,743	\$271,176	\$5,672	\$81,353	\$25,341	\$85,906	\$292,033	\$767,223
Commer & indust mach & equip repair & maint	\$8,391	\$583,272	\$6,113	\$174,982	\$25,667	\$79,268	\$249,536	\$1,127,227
Personal and household goods repair and maint	\$33,297	\$753,512	\$9,327	\$226,054	\$186,337	\$111,504	\$265,985	\$1,586,017
Personal care services	\$14,299	\$710,122	\$18,128	\$213,037	\$299,592	\$78,141	\$500,164	\$1,833,483
Death care services	\$19,375	\$732,076	\$8,591	\$219,623	\$53,656	\$185,561	\$665,400	\$1,884,281
Dry-cleaning and laundry services	\$4,539	\$217,916	\$2,144	\$65,375	\$17,140	\$52,142	\$359,470	\$718,727
Other personal services	\$15,963	\$769,897	\$18,575	\$230,969	\$68,246	\$174,162	\$525,389	\$1,803,201
Religious organizations	\$37,397	\$731,499	\$29,605	\$219,450	\$149,472	\$236,298	\$3,622,651	\$5,026,371
Grantmaking, giving, & social advocacy organ	\$24,657	\$1,598,375	\$29,860	\$479,512	\$45,742	\$256,208	\$540,482	\$2,974,836
Civic, social, professional, and similar organ	\$34,402	\$813,340	\$15,853	\$244,002	\$23,530	\$106,679	\$719,849	\$1,957,654
<b>Total</b>	<b>\$136,151,674</b>	<b>\$169,088,319</b>	<b>\$30,975,047</b>	<b>\$50,726,496</b>	<b>\$36,938,698</b>	<b>\$23,635,619</b>	<b>\$182,215,382</b>	<b>\$629,731,235</b>

Source: IMPLAN I-RIMS Model

There are several important aspects of Tables 1 and 2 to point out. The first is that every cell of both tables has a non-zero value. That means that the oil spill has had a negative impact on every sector of the New Orleans MSA and Louisiana economies. It is sometimes difficult to trace the causality but the results of the tables clearly indicate that the spill had a negative impact throughout the local and state economies, no matter how far removed the sector may seem to be from the directly impacted sectors. This result suggests that the first hypothesis – namely that the oil spill had an impact on all business in any metro area directly affected – is valid.

The second is the magnitude of the results. According to the simulation, in the New Orleans MSA alone, the initial impact of \$400 million in the four chosen sectors caused a \$601.70 million impact overall. Thus, for every dollar of initial impact, an additional 50 cents of damage was caused in other sectors of the local economy. For the Louisiana economy, the \$400 million initial direct impact caused \$629.73 million of damage to the overall economy. Every one dollar of direct impact created 57 cents of damage to other sectors of the Louisiana economy.

The final point is that the secondary impact, or ripple effect, is larger for the State than for the New Orleans MSA. That indicates that the damage from the oil spill directly borne by businesses in the New Orleans MSA spilled over to other areas of the State, thus validating the second hypothesis. In other words, the ripple effect is not limited to the New Orleans MSA, even if the initial damage was. This analysis is only a simulation. In fact, direct oil spill damage occurred in other areas of the State – in the Houma MSA, in the Lafayette MSA, and in the Lake Charles MSA, to name just three. Clearly, the damage to the Louisiana economy reached far beyond the areas of direct damage.

## **Conclusion**

It is clear from the theoretical economic analysis and the results of the simulation model employed in this report, the 2010 BP oil spill touched almost every business in the area of direct damage and in other areas of the Louisiana economy. Using a single part of the State that was directly impacted by the spill – the New Orleans MSA – the subsequent economic damage affected all economic sectors and all geographies in the State of Louisiana. Extrapolating this analysis to other areas of direct damage and other states indicates a much more pervasive negative impact than that claimed by attorneys for BP. This simulation model can be adapted and tested for other impacted areas – the States of Mississippi and Alabama and the affected areas of Texas and Florida.

I declare under penalty of perjury that the foregoing is a true and correct statement of my analysis and opinions.

Dated: December 17, 2013

A handwritten signature in black ink, appearing to read "Timothy P. Ryan". The signature is written in a cursive style with a large initial 'T' and 'R'.

## **TIMOTHY PATRICK RYAN**

**Education:** **Ph.D., Economics, The Ohio State University, 1978**

Dissertation: "The Determinants of State and Local Tax Structures, with Special Emphasis on Tax Exporting."

Dissertation Reading Committee:  
Professor Frederick Stocker, The Ohio State

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**M.A., Economics, The Ohio State University, 1973**

**B.A., Economics, University of New Orleans, 1971**

**Honors:** Recipient of the Young Leadership Council's Role Model Award, 1992.

Recipient of the Homer L. Hitt Outstanding Alumni Award of the University of New Orleans, 1987

Recipient of the University of New Orleans' Excellence in Teaching Award, 1982

Member, Phi Kappa Phi, 1974

University Fellowship, The Ohio State University, 1972

**Teaching Areas:** New Orleans Economy  
Public Finance (Undergraduate and Graduate Level)  
Managerial Economics  
State and Local Public Finance  
Law and Economics  
Statistical Analysis  
Microeconomic Theory  
Money and Banking

**Professional Experience** Private Economic Consulting, 2010-  
Chancellor Emeritus, University of New Orleans, 2011-  
Chancellor, University of New Orleans, 2003-2010  
Interim Executive Vice Chancellor, 2003  
University of New Orleans  
Dean, College of Business Administration, 1993-2003  
University of New Orleans  
Hibernia Professor of Economics, 1991  
University of New Orleans  
Professor of Economics, 1986-  
University of New Orleans  
Director, Division of Business and Economic Research,  
1984-1994  
University of New Orleans  
Associate Professor of Economics, 1981-1986  
University of New Orleans  
Assistant Professor of Economics, 1978-1981  
University of New Orleans  
Instructor of Economics, 1976-1978  
University of New Orleans  
Research Associate, 1973  
Midwest Econometrics  
Graduate Teaching Assistant, 1972-1976  
The Ohio State University

**Publications:** Timothy P. Ryan, Janet F. Speyrer, Vincent Maruggi, and Patricia J. Connor, The Metropolitan Report - Economic Indicators for the New Orleans Metropolitan Area (Quarterly, 1990-2010).

Timothy P. Ryan and Janet F. Speyrer, Gambling in Louisiana: a Cost/Benefit Analysis (Prepared for the Louisiana Gaming Control Board, 1999)

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Timothy P. Ryan, Frederick Stocker, and Anthony Vignola, "Goals, Objectives and Strategies in State Economic Development," (Columbus: Department of Economic and Community Development, 1974).

**Professional Presentations:**

Timothy P. Ryan, "Casino Development: How Would Casinos Affect New England's Economy? Summary and Concluding Comments," presented at the Federal Reserve Bank of Boston symposium on casino gambling in New England, October, 1995

Timothy P. Ryan, "The Impact of Casino Gambling in the United States," presented at the Federal Reserve Bank of Atlanta symposium on casino gambling, October, 1996

Timothy P. Ryan, "The Effects of Tax Structures on Economic Development," presented at the North American Economics and Finance Association Meetings in Mexico City, July 1984.

Timothy P. Ryan and Nicholas Mercuro, "A Comparative Institutional Approach to Law and Economics, the Case of Externalities," presented at the Law and Society Association Meetings, 1983.

Timothy P. Ryan and Nicholas Mercuro, "Law and Economics: A Comparative Institutional Approach," presented at Southwestern Economics Association Meetings, 1982.

**Other**

**Academic Activities:**

Timothy P. Ryan, Board of Editors, Review of Financial Economics, 1993-2003

Timothy P. Ryan, Board of Editors, Louisiana Tax Study Committee, 1985

**Professional Associations:**

American Economic Association  
National Tax Association  
Southern Economic Association

**Community Service:**

2012, Member, Public Affairs Research Council's Tax Reform Tax Advisory Group

2011, Economic Consultant, City of New Orleans Tax Fairness Commission

2010-Present, Business Council of New Orleans Advisory Board Member

2008, Member, Morganza to the Gulf Technical Review Panel

2002-Present, Idea Village Board of Directors

2005-2012, GNO, Inc. Board of Directors

2005-2011, GNO, Inc. Executive Committee

2005-2010, New Orleans Chamber of Commerce Board of Directors

2003-2010, United Way of New Orleans Board of Directors

1998-Present, Universal Personnel Board of Directors

2002-2008, Chairman, Junior Achievement of Greater New Orleans

2001-2003, Co-Chair, Committee for a Better New Orleans/Metropolitan Area Committee (CBNO/MAC)

2002-2006, Diamond Data Systems Advisory Board

1999-2002, Executive Committee, Junior Achievement of Greater New Orleans

1998-2007, Wink, Inc. Board of Directors

1998, President, Metropolitan Area Committee

1997-2008, New Orleans Sports Foundation Board of Directors

1997, Member, City of New Orleans Welfare Reform Task Force

1993-2008, Board Member, Junior Achievement of Greater New Orleans

1993-2003, World Trade Center of New Orleans Board of Directors

1991-1998, Vice-Chair, Metropolitan Area Committee 's Local Government Finance Committee

1994, Co-Chair, Mayor Morial 's Economic Development Transition Team

1990-1993, Member, Hotel Dieu Planning Committee

1990, Executive Director, MetroVision Partnership

1990, Member, Mayor Barthelemy's Charter Revision Committee

1989-1993, Member, Metropolitan Area Committee Executive Committee

1988, Co-Chair, Governor-Elect Buddy Roemer's Economic Development Advisory Panel

1988, Member, Secretary of Labor Task Force on Economic Growth

1988, Member, Mayor Barthelemy's Revenue Task Force

1987, Member, Joint Legislative Committee on Louisiana's Economic Strategies

1987, Member, Governor's Commission on International Trade, Industry and Tourism

1987, Member, Mayor Sidney Barthelemy's Committee of 25

1987, Member, United Way of New Orleans Long-Range Strategy Committee

1985-1986, Staff Economist, Governor's Economic Development Commission.

1985-1988, Metropolitan Area Committee (MAC) Board of Directors.

1985-1988, Chairman, Data Assimilation Subcommittee, Financing the Future Coalition.

1983-1988, UNO's Official Representative to the Financing the Future Coalition.

1983-1984, Member of the State of Louisiana's Joint Legislative Tax Study Committee.

1979-1980, Consultant to City of New Orleans' Revenue Revision Task Force.

**Major  
Funded Research:**

Timothy P. Ryan, The Economic Impact of Deepening the Mississippi River to 50 Feet (2013)

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Timothy P. Ryan, The Economic Impact of Avondale shipyards on the Louisiana Economy (2002)

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Timothy P. Ryan, Comparative Tax Structures of the Five State Southeastern Region (1991)

Timothy P. Ryan, The Economic Impact of Agricultural Subsidy Programs in the Five State Southeastern Region (1991)

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Timothy P. Ryan, The Economies of the Five State Southeastern Region (1990)

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Timothy P. Ryan, Economic Development in the Tri-State Region (1988)

Timothy P. Ryan, Labor Force Characteristics of the Tri-State Region (1987)

Timothy P. Ryan, The Economic Impact of the Port of New Orleans and the Maritime Industry to New Orleans and Louisiana (1985)

Timothy P. Ryan, The Economic Structure of the Tri-State Region (1985)

Timothy P. Ryan, New Orleans City Expenditures: A Comparison with Other Large Cities (1985)

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Timothy P. Ryan, The Economic Impact of Avondale Shipyards, Inc. (1985)

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Timothy P. Ryan, The Economic Impact of the Space Station Project on the New Orleans Area (1984)

Timothy P. Ryan, Louisiana Superdome: Public Costs and Benefits, 1975-1984 (1984)

**Consulting Clients:**

St. Bernard Port and Terminal District  
State of Louisiana Department of Revenue  
Louisiana Community and Technical College System  
Big River Coalition  
New Orleans Public Belt Railroad  
City of New Orleans "Tax Fairness Committee"  
Wink Engineering  
Diamond Data Systems  
IBM/Price Waterhouse Coopers  
The New Orleans Saints  
Jefferson Parish  
JEDCO  
The Business Council of New Orleans  
The Louisiana Council for Fiscal Reform  
Entergy, Inc.  
Halter Marine Group  
Freeport-McMoRan, Inc.  
BellSouth  
Avondale Industries  
Southern Scrap  
International Shipholding Corporation (Central Gulf  
Lines)  
New Orleans Regional Medical Center

East Jefferson Hospital  
West Jefferson Hospital  
The State of Louisiana  
The City of New Orleans  
The Port of New Orleans  
The New Orleans International Airport  
The City of Kenner  
The MetroVision Partnership  
Lockheed Martin  
Associated Branch Pilots of Louisiana