Louisiana Economic Forecast™ SM

State and MSAs: 2022 and 2023

Prepared by: Dr. Loren C. Scott, President, Loren C. Scott & Associates, Inc.

Loren C. Scott & Associates, Inc. would like to thank the following corporate sponsors:

Platinum Sponsors

Gold Sponsors

Silver Sponsor

Louisiana Economic Forecast:™℠
State and MSAs 2022 and 2023

Dr. Loren C. Scott, President

Loren C. Scott & Associates, Inc.

www.lorencscottassociates.com

October 2021

Copies of the Louisiana Economic Forecast: State & MSAs are available for purchase by contacting Dr. Scott at LScottecon@gmail.com.

Acknowledgements

As we pen this document, we reflect on all the people and organizations that make it possible. Not a word could have been written without the financial support provided by our generous underwriters. Special thanks go out to our Platinum donors---**Blue Cross Blue Shield of Louisiana**, **Cleco** and **J. P. Morgan Chase**. We add an extra kudo to BCBSLA for printing paper copies of our report. Special thanks, too, go out to our Gold Level sponsors---**BRF**, **Entergy**, **HomeBank**, **ISC**, **Shell**, and **Turner Industries**. We appreciate **ExxonMobil** for being our steady Silver sponsor for about a decade. You folks made it possible.

A detailed economic forecast is really not possible without input from professional economic developers across the region. We always get great support from the state's chief economic developer---Secretary **Don Pierson**---who makes his staff across the state available to us. One person in particular, Pierson's executive Director of International Commerce---**Larry Collins**---spends hours with us reviewing industrial announcement lists to insuring nothing crucial is missed and helping us assign probabilities to announcements. **Connie Fabre** at the GBRIA maintains an announcements data base which is generously shared with us.

Various state and federal agencies provide us data of which the public is generally unaware. We will miss the valuable input of **Greg Albretch** at the Legislative Fiscal Office who is a terrific source on the state budget and tax matters. Greg is retiring this fall and with him goes a wealth of institutional knowledge about the inner workings of state government. Every year, **Jay Carney** at LDOTD promptly provides us with a massive excel sheet on road letting across the state. A key source for the Army Corps spending on hurricane protection in the state has been **Eric Soraghan**. Several folks in the Division of Research within the Louisiana Workforce Commission have often resolved data issues for us.

Unlike many regional forecast documents, this one contains a great deal of institutional detail on different areas of the state. This information is only possible because people all over Louisiana answer our phone calls and readily supply data to us. Among these great friends are **Michael Hecht, Harrison Crabtree, David Doss, Adam Knapp, Fred Palmer, Paul Sawyer, David Broussard, Scott Gammel, George Swift, Jim Rock, Roy Martin, Gary Ryder, Kevin Melton, James Harp, Rich Self, Rick Ranson, Craig Spohn, Eric England, Jay Meyers, Bob Fudickar, Stacey Neal, Ed Jimenez, Vic Lafont, Mike Tarantino, Chett Chassion, Larry Deroussell, Dale Logan, Lynn Hohensee, Chett Ferachi, Angelle Davis, Sue Nickels,**

Katy LeBlanc, Rocky Rockett, Sandra McQuain, Murray Viser, Liz McCain, Leah Brown, David Bennett, Craig Romero, Brandy Christian, Zazell Dudley, Julia Fisher, Jerry George, Jay Carney, Stephen Price, and Kate McArthur. We could not do it without your input.

Christe Ducote, Judith LaDousa and **Stacy Gaskin** were invaluable in advice, project style, graphics, and administrative services.

A grateful shout out goes to my two favorite capitalists---**Rolfe McCollister** and **Julio Melara**. We admire their skills in developing what is arguably the best business publication in the nation, plus the whole family of other fine magazines in the LBI suite of publications. They offer us each year the Top 100 Luncheon venue for releasing our forecast. We could not ask for better supporters.

This year's forecast required a great deal of project management, writing, editing, as well as financial, copyright and contract assistance. It was my good fortune to be guided in this effort by the smartest business person I know---my wife, **Peggy**. It wasn't possible without you.

Platinum Sponsors

BlueCross BlueShield of Louisiana | CHASE | CLECO

Gold Sponsors

Shell | Turner Industries | BRF Building our Region's Future

Home Bank | Entergy | ISC

Silver Sponsor

ExxonMobil

Table of Contents

Page

APPENDIX I

APPENDIX J

Report Figures

Report Tables

Appendix Figures

Appendix Tables

EXECUTIVE SUMMARY

This year's forecast is made more complicated by a plethora of uncertainties about COVID, Hurricane Ida effects, policy changes by the Biden Administration, and always oil and natural gas prices. Our forecasts assume the following:

- Hurricane Ida's impacts will be short-lived, like those after Rita in Lake Charles.
- Employment in Louisiana will recover from COVID effects at about the same rate---but lagging---the U.S.
- RGDP will recover smartly this year and remain strong in 2022 as it recovers from COVID, but higher taxes and a tsunami of regulations will slow growth in 2023.
- Oil prices will stabilize in the $65-$69 a barrel range.
- Natural gas prices will stay slightly above $3 per MMBtu.

One might very easily label these assumptions as "heroic".

The outlook for each of the state's MSAs, in order of size is:

- Because of its heavy tourism/convention base the **New Orleans MSA** will recover more slowly from COVID than its sister MSAs. We project 31,800 jobs in 2022 (+5.7%) and 11,300 jobs in 2023 (+1.9%). FIDs are expected from one large LNG project, one or two methanol projects, and 2-3 sub-$1 billion projects over these two years. The approval of Peninsula Casino in Slidell and an FID for the $9.4 billion Formosa plastic complex in St. James Parish would significantly boost these numbers.
- The new Amazon fulfillment center and new distribution center in the **Baton Rouge MSA** should guarantee at least 2,000 new jobs. Almost $8 billion in announced new projects have a strong possibility of getting FIDs over the next two years. We are forecasting 16,600 new jobs in 2022 (+4.2%)---including full recovery of COVID losses---and 5,300 new jobs in 2023 (+1.3%).
- A combination of an Amazon fulfillment center and Ochsner's new PPE manufacturing facilities will bring nearly 2,000 new jobs to the **Lafayette MSA**. We are projecting 9,200 (+4.7%) new jobs in 2022 and another 22,100 jobs (+1%) in 2023 for this MSA. Energy-related firms will benefit from repairing storm damages in the Gulf, but will be hampered by slower business in the Permian Basin. If things click just right, Turner Industries will bring several hundred new jobs to the Port of Iberia. The area's Big 6 firms are healthy and stable.
- **The Shreveport-Bossier MSA** will also receive a major bump from a new Amazon facility (+1,000 jobs). We expect this MSA to gain 5,500 jobs (+3.2%) in 2022 and another 2,800 jobs in 2023 (+1.6%). If natural gas prices stay over $3, we expect a serious uptick in the Haynesville play. Landing major

projects at the Port of Caddo-Bossier and at the Cyber Research Park could run employment well past our projections.

- Perhaps the only MSA of its size in the country that has less people employed than the first month of the COVID shutdown, we are projecting 9,000 new jobs in 2022 (+9.5%) and another 6,000 jobs (+5.8%) in 2023 for the **Lake Charles MSA**. These projections are based heavily on the heroic assumption that federal aid is coming to this region before yearend. An FID is expected on the huge $16.8 billion Driftwood LNG project and perhaps at least one large methanol project. The area will gain about 500 jobs when the Isle of Capri (now Horseshoe) Casino reopens on land.
- About 2,400 new jobs are projected for the **Houma MSA** in 2022 (2.9%) and another 700 in 2023 (+0.8%). We are assuming (again, heroically) that federal aid will be coming promptly for hurricane repairs and that new business will be created for area firms to help repair facilities in the Gulf. Shipbuilder Edison Chouest and Bollinger continue to grow and win contracts, and work will soon begin on the half billion elevated LAI.
- Most of the growth in the **Monroe MSA**---2,700 jobs in 2022 (+3.6%) and 300 jobs in 2023 (+0.4%) will come from COVID recovery. Vantage Health Plan will help with job growth, as will the addition of another class at the new EVC Medical School.
- The major employers in the **Alexandria MSA** are reporting stable to very slight growth, so like Monroe most of this MSA's projected 1,100 jobs over the next two years (+1.6%) will come from recovery of jobs lost to COVID. It is encouraging for the long run for this area that the proposed I-14 through the area has been "authorized" by Congress.
- The attraction of the new 450-person Medline Distribution Center to the **Hammond MSA** will help offset some of the slow to declining growth in the area's two largest employers---SLU and North Oaks Medical Center. We are forecasting 300 new jobs a year over 2022-23 for this MSA, about 0.3% annually.
- In response to the housing boom, there will be a major invasion of sawmills into **rural Louisiana** over the next two years. The possible addition of the $700 million Delta Biofuels in Caldwell Parish and a $121 million investment in Vidalia by Syrah Resources would be a big boost for this region. We are projecting an unusual 2,500 new jobs in 2022 (+1.2%). However, the powerful effects of population out-migration in these parishes will cause a return to negative (-1,500 jobs) in 2023.

Summing these results across the 9 MSAs and the rural parishes leads to a total of 80,800 new jobs in **Louisiana** in 2022 (+4.3%) and another 27,600 jobs in 2023 (+1.4%). The higher growth number in 2022 is largely associated with recapturing the jobs lost due to the COVID shutdown. This growth path will lead Louisiana to a new record of 1,998,700 jobs, just shy of the two million mark.

Summary Table

Item	2021	2022	2023
BASIC ASSUMPTIONS:			
Real Gross Domestic Product: Growth	6.6%	4.4%	2.2%
Inflation Rate	3.7%	2.8%	2.8%
30-Year Fixed Interest Rate	3.2%	3.8%	3.8%
Oil Price: barrel	$67	$65*	$69*
Natural Gas Price: MMBtu	$3.22	$3.10**	$3.20**
STATE PROJECTIONS:			
Non-Farm Employment (000s):	1,890.2	1,971.0	1,998.7
Absolute Growth Rate	52.9	80.8	27.6
Percent Growth Rate: Employment	2.9%	4.3%	1.4%
MSA PROJECTIONS: EMPLOYMENT (000s)			
Alexandria	61.5	62.3	62.6
Absolute Change	2.0	0.8	0.3
Percent Growth Rate	3.4%	1.3%	0.5%
Baton Rouge	393.4	410	415.3
Absolute Change	9.7	16.6	5.3
Percent Growth Rate	2.5%	4.2%	1.3%
Hammond	46.2	46.5	46.8
Absolute Change	1.2	0.3	0.3
Percent Growth Rate	2.7%	0.6%	0.6%
Houma	83.1	85.5	86.2
Absolute Change	1.2	2.4	0.7
Percent Growth Rate	1.5%	2.9%	0.8%
Lafayette	196.6	205.8	207.9
Absolute Change	5.6	9.2	2.1
Percent Growth Rate	2.9%	4.7%	1.0%
Lake Charles	95	104	110
Absolute Change	-1.3	9	6
Percent Growth Rate	-0.1%	9.5%	5.8%
Monroe	76.0	78.7	79.0
Absolute Change	1.9	2.7	0.3
Percent Growth Rate	2.6%	3.6%	0.4%
New Orleans	553.5	585.3	596.6
Absolute Change	23.8	31.8	11.3
Percent Growth Rate	4.5%	5.7%	1.9%
Shreveport-Bossier	169.9	175.4	178.2
Absolute Change	2.1	5.5	2.8
Percent Growth Rate	1.3%	3.2%	1.6%
RURAL EMPLOYMENT	215	217.5	216.0
Absolute Change	6.7	2.5	-1.5
Percent Growth Rate	3.2%	1.2%	-0.7%

Source: Loren C. Scott. *Around a wide range of $30 to $120 a barrel. **Around a range of $1.50 to $4.00 per MMBtu.

UNDERLYING ASSUMPTIONS: 2022-23 FORECAST

"Forecasting is easy, unless you are talking about the future." (Anonymous)

It is an axiom in forecasting that the fewer the uncertainties surrounding a variable, the easier it is to forecast. Food consumption in the U.S. is a case in point. From 1960 to the present its graph is basically a straight line moving upward to the right. No matter what the shape of the economy, people in the U.S. will still manage to eat three meals a day. (Not all populations in the world are so fortunate.) Forecasting food consumption easy and can be done with a high degree of accuracy.

Add uncertainty to the mix and everything becomes more difficult and iffy. We have been monitoring the Louisiana economy for 40 years. We have had to generate projections when oil prices collapsed in the early 1980s, sending Louisiana into its deepest and longest recession in the state's history. Forecasts were made when the state was hit by Hurricanes Katrina and Rita, devastating the largest MSA in Louisiana plus another large city. Forecasts were made last year when a government order shut down the economy nationwide starting in mid-March due to the COVID epidemic.

Those forecasting environments were extremely tough, but none of those compare to the mountain of uncertainty facing us in late summer 2021 as we contemplate the outlook for 2022-23. COVID is obviously the culprit driving these uncertainties. For example:

- At this writing we are in the midst of a major surge in cases linked to the Delta Variant of the virus, and Louisiana is one of the most affected states in terms of cases and deaths per capita. Will this be a temporary spike or more long-lasting?

- If this becomes a more prolonged and intense spike, will the country be shut down again as it was in March 2020?

- Even if there is no official shutdown, will people retreat to their homes again, resulting in another dramatic drop in fuel demand and the accompanying drastic drop in oil prices---a critical element in this energy-dependent state?

- As of June 2021, Louisiana had recovered only 49% of the jobs lost due to the COVID shutdown in spring 2020. Even if the present spike is short-lived, how rapidly will Louisiana fully recover those job losses?

- Is Louisiana's employment really 49% recovered? COVID created serious employment data reporting issues that have caused data revisions ten times larger than anything experienced in the past. How reliable are the data on which we are basing our forecast?

- A key reason Louisiana has recovered from the shutdown so poorly relative to other states, is those other states did not house Lake Charles---a city devastated by two hurricanes, a significant flood event, and unusual freezing conditions caused by Winter Storm Uri. Normally a city so hammered by such events receives an injection of federal relief dollars within 120 days. It has now been over a year with no federal support. Will that change during our forecast period? If so, when?

- At this writing we are just days past the second worst hurricane to hit the U.S. Hurricane Ida arrived on the 16th anniversary of Hurricane Katrina, slamming into the Louisiana Coast at Port Fourchon as a category 4 hurricane and remaining at a Cat 2 level almost to I-10 just west of Hammond. Much of the south-central part of the state was left without power. New Orleans was left totally in the dark as huge transmission towers dropped their lines into the Mississippi River. How quickly can the state recover from this disaster?

Statisticians faced with these uncertainties have a tool to alert readers about how confident they can be in the prediction—a **confidence range** or confidence interval. You are given a "point estimate"---the forecaster's best estimate of what will happen in the future---followed by a confidence range of say +/- 10% around that point estimate. The greater the uncertainty of the point estimate, the wider the confidence range around that estimate.

In this report we will be providing point estimates for each of our forecast, but the level of uncertainty is so great that we will not even attempt to provide confidence interval. What will be done in this "Basic Assumptions" section is to provide readers with the thinking and models behind generating the point forecasts. Readers will have to judge for themselves how wide the confidence intervals should be.

Hurricane Ida

Let's tackle that last bullet point above first. What will be Hurricane Ida's impact on the Louisiana economy? Predicting this is like trying to predict where a rocket will go when it is four feet off the ground. We are pressed with a publishing deadline that forces a forecast from basically the four-foot level. We are only about eight days removed from Ida hitting the coast near Port Fourchon with sustained winds in excess of 150 miles per hour. Cat 4 force winds were experienced almost as far inland as Hammond. Ida sat over the city of Laplace so long that major flooding occurred. The good news is that the $14.5 billion spent to reinforce the 130+ miles of levees around New Orleans withstood this major test, so that flooding did not occur there.

As of September 8th, over 700,000 people are still without electricity, though the pace of restoring power is impressive given the extent of damage. Most refineries and chemical plants along the river have still not reopened. Plant re-openings have been delayed by (1) lack of power, (2) inability of labor to return, and/or (3) just the length of time it takes to restart one of these monsters once it is shut down. On a happier note, reopening of parts of the heavily ravaged Port Fourchon is occurring, and within a week much of the port is expected to be open for business.

What does all this mean for our forecasts for 2022-23? Our best guess is based on what might be labeled the "Lake Charles Rita model." Hurricane Rita laid a direct Cat 3 hit on southwest Louisiana in late September 2005. The damages to the region were very extensive and are detailed in Appendix E. The damage was also mainly in the form of wind damage, not flooding, which meant homeowners insurance covered most damages. In the aftermath of storms like this, huge amounts of rebuild monies are pumped into an economy which also fuels growth. Too, the federal government immediately began to provide financial aid to the region.

Despite the horrific damages from the storm, the Lake Charles economy only lost jobs in the first month after the storm. In October 2005, the MSA dropped 1,600 jobs, largely because people could not get to work because they were working on making their homes habitable again. However, in November, the MSA was growing again adding 900 jobs year-over-year, and growth continued on through 2006. Like the Baton Rouge-New Orleans region, Lake Charles has considerable

`

major petrochemical industries whose plants were exposed to the elements. Yet, by December all three of its refineries were back fully in operation.

We are making the heroic assumption that those conditions are similar to the ones we are facing in the aftermath of Ida, and that recovery will begin to happen rather swiftly. The speed of recovery at heavily hammered Port Fourchon strengthens our confidence in this position. Huge amounts of rebuild monies will be flowing to the area that will bolster these economies. The large petrochemical firms along the river lose so much money while down that the firms are strongly incentivized to restart as quickly as possible.

While the Houma area particularly took a beating there are two very hopeful, near term positives ahead. First, there will be the rebuild monies for their homes and businesses. Second, while exploration/production facilities in the Gulf largely survived the storm unscathed, there was enough damage to create a whole new, large round of repair work which is the life blood of this community.

Thoughtful readers may raise their hands and say, "Look at Lake Charles today. That region suffered through two horrific hurricanes last fall and even worse off than before the COVID shutdown occurred." The answer lies in one word in the last sentence, fourth paragraph back. In referring the federal aid coming to the Rita-ravaged region, we used the word "immediately". Typically, when a natural disaster occurs, federal aid monies arrive within 120 days at most. It has now been over a year since Hurricanes Laura and Delta hit Lake Charles and federal aid is still not forthcoming. Our forecast of the impacts of Ida assume that federal aid will be forthcoming very soon. Having Cedric Richardson in the President's ear, and the powerful Steve Scalise nearby, should help this region avoid what is happening in Lake Charles now.

Perhaps that is another "heroic" assumption.

How Fast for Total COVID Recovery?

Perhaps the most critical element in the forecasts for 2022 and 2023 in Louisiana is **how long will it take to recover all the jobs lost due to the virus**? In the first full month of shutdown---April 2020---the state lost 286,800 jobs or 14% of its workforce. As of June 2021, the state had recovered 49% of those jobs.

COVID Discriminated by Sector

Table 1 shows the distribution of the job losses across sectors in Louisiana in April 2020 and the respective recovery rates by June 2021. COVID did not hit all sectors equally. This was basically the first ever recession **led by losses in the services sector** as opposed to the usual goods sector.

Louisiana's biggest loss by far was in the leisure and hospitality area. 105,200 jobs vanished in this sector, a remarkable decline of 44%. All of the state's casinos and racetracks were shuttered. Importantly, Louisiana is home to New Orleans, a major tourist attraction and convention market. The Morial Convention Center is the 6th largest in the country. At the height of the outbreak the last place people wanted to be was in a large crowd at a convention. **Of the 155 conventions scheduled in the city for 2020, 66 were canceled**. So far in 2021, 48 of the 124 conventions scheduled have already been canceled.[1]

Table 1

Sector	4/2020	6/2021	% Improvement
Total	-286,800	-145,000	49%
Mining	-4,800	-7,000	-46%
Manufacturing	-6,500	-12,400	-91%
Construction	-31,000	-24,600	21%
Retail Trade	-30,700	-6,100	80%
Finance	-4,500	-4,700	-4%
Prof. & Business Services	-24,100	-6,700	78%
Healthcare & Soc. Services	-23,500	-3,000	87%
Leisure & Hospitality	-105,200	-40,700	61%
Other Services	-19,500	-7,100	25%
Government	-15,200	-19,300	-27%
State Government	-2,700	-1,600	40%
Local Government	-13,200	-17,500	-33%

Data Source: Bureau of Labor Statistics

[1] EventsinAmerica.com/events/Louisiana/new-orleans/top-trade-shows

`

The other services sector---home to barber shops, beauty parlors, repair shops, etc.---dropped by 19,500 jobs, a 26% decline. While the state lost 14% of its jobs, Louisiana's unusually large construction shed 21% or 31,000 jobs. Some industrial construction sites were totally stopped, plants that were scheduled to start construction were postponed, and turnarounds were pushed into 2021.

The last column of Table 2 shows how much these April 2020 employment losses have improved. What is striking is that there are a few sectors that have actually gotten worse. **Manufacturing** has lost even more jobs since April 2020, but it should be pointed out that this sector was initially only lightly tapped by COVID, losing only 5% of its jobs. The state did experienced three significant manufacturing hits with the closure of (1) Shell's refinery in Convent (-1,100 jobs), (2) Bayou Steel (-376 jobs), and (3) Cleco's Dolet Hills power plant (-88 jobs).

Mining, primarily oil and gas exploration, having lost 13% of its jobs initially, experienced even more losses since April 2020. The closure of Cleco's Dolet Hills lignite mine (-155 jobs) added to these mining losses. The other sector showing further deterioration since April 2020 is the **government** sector, though this worsening was confined to local government.

COVID Recovery V. Neighboring States

It is instructive to examine how Louisiana's rate of recovery from COVID versus neighboring states: Mississippi, Arkansas, and Texas. Those three states are all on a much faster recovery path than Louisiana. The data in Table 2 help sort out why that is the case.

First of all note that Louisiana was the hardest hit by COVID at a 14% job loss, though Mississippi was close on our heels at 13%. **What is startling however is how much faster our neighbors are recovering---almost twice as fast as Louisiana**. At look at key sectors that were battered by the virus clears the air on why this state has lagged behind.

First, our leisure/hospitality area was hit six percentage points harder than in the other three states, a reflection of just how much New Orleans' convention business plays (relatively) in Louisiana's economy. Texas alone among the four has seen its leisure/hospitality sector worsen, while Arkansas and Mississippi are only 13% away from a full recovery. Second, Louisiana's construction sector suffered three times worse that Texas and four times worse that Mississippi, and 10 times worse than Arkansas. Texas' construction employment has deteriorated slightly since April 2020, but it was not hit very hard in the first place. Construction employment in Arkansas and Mississippi has fully recovered.

A real defining difference between Louisiana and its neighbors to the north and east is that those two states do not even have a meaningful mining sector, while Louisiana has lost 7,000 jobs in that sector.

But there is a fourth key factor differentiating these four states: **Texas, Arkansas, and Mississippi do not have a Lake Charles**. Lake Charles is perhaps the only MSA of its size in the U.S. that actually has **fewer people employed now than in April 2020**. When the COVID shutdown occurred in April 2020 Lake Charles shed 21,300 jobs, an 18% decline and four percentage point worse than the state decline of 14%. Why the more pronounced decline? Lake Charles is home to the state's largest casino market, with 5,400 employees, that was totally shut down. It also has a substantial construction sector to support its huge petrochemical complex—a sector also pounded by COVID (see Table 1).

Table 2

Recovery from COVID: Louisiana, Texas, Arkansas & Mississippi

Sector	LA	TX	AR	MS
State % Loss 4/20	**14%**	**10%**	**9%**	**13%**
State % Recovered 6/21	**49%**	**87%**	**95%**	**86%**
% Leisure/Hospitality Loss 4/20	**44%**	**38%**	**38%**	**38%**
% Leisure/Hospitality Recovered 6/21	**61%**	**-77%**	**87%**	**87%**
% Construction Loss 4/20	**21%**	**6%**	**2%**	**5%**
% Construction Recovered 6/21	**21%**	**-5%**	**100%**	**100%**
% Mining Loss 4/20	**13%**	**6%**	**NA**	**NA**
% Mining Recovered 6/21	**-46%**	**-34%**	**NA**	**NA**

Data Source: Bureau of Labor Statistics

By June 2021, the job loss in Lake Charles had sunk further to 22,700, a further decline of 7%. Why hasn't Lake Charles shown at least some improvement since April 2020? This MSA has been clobbered by **one natural disaster after another** in the past year. In late 2020 it was hit by two strong, devastating hurricanes---Laura and Delta. Then it was drubbed by Winter Storm Uri which clogged up much of the petrochemical sector and led to a fire that destroyed the Bio Lab industrial site. A heavy rain also led to a flooding problem in the area in May 2021.

Normally, when a region is devastated by natural disasters such as these, federal aid arrives for the recovery effort within 120 days. At this writing, it has been one year since the first hurricane leveled Lake Charles. There is still no federal aid for the region. Lake Charles is a major reason for Louisiana's poor COVID recovery record versus its neighboring states.

Adjusting 2021 and 2022 for COVID Recovery

Of all the elements of our projections for 2022 and 2023, by far the most important is the assumptions made about the recovery of the COVID job losses. These will be the biggest numbers to add to any underlying growth forecast. Unfortunately, there is no neat econometric model to help here. Candidly, much of this component is based on gut calls and our overall knowledge of each area of the state.

Table 3

COVID Impacts & Recovery on Jobs by MSA

MSA	Loss 4/2020	Loss 6/2021	% Recovered: 6/2021	% Recovered 12/2021
State	-286,800	-145,000	49%	73%
New Orleans	-103,400	-57,300	45%	65%
Baton Rouge	-61,300	-25,800	58%	81%
Shreveport-Bossier	-24,300	-10,500	57%	80%
Lafayette	-24,200	-13,100	46%	69%
Lake Charles	-21,200	-22,700	-7%	13%
Houma	-9,200	-4,200	54%	77%
Monroe	-10,300	-4,200	59%	82%
Alexandria	-6,000	-2,500	58%	81%
Hammond	-4,700	-200	96%	102%

Data Source: Bureau of Labor Statistics

Table 3 documents the COVID job loss in April 2020, the losses as of June 2021, the percent of losses recovered by June 2021 and our estimate of the percent of jobs

`

recovered by the end of 2021. Though the state had recovered 49% of its COVID losses by June 2021, the recovery was obviously not evenly distributed. The most striking figure in Table 3 is the percent of job recovery for Lake Charles that we discussed in the section above. Again, we believe this is the only MSA of this size in the country that is actually worse off than in April 2020.

Below average recovery was also the case for New Orleans (45% recovery) with its down-beaten convention market. New Orleans was also reined in by its substantial ties to the oil and gas market, which---as seen back in Table 1---has lost even more jobs since April 2020. These same close ties to the oil and gas extraction market are also behind Lafayette's below average performance (46%). The MSAs are listed by size in Table 3, and the smaller MSAs were all hit less by COVID and have recovered faster than their larger sister MSAs.

The bigger question is how did we arrive at the numbers in the last column of Table 3, the estimates of how much each MSA will have recovered by the end of 2021? These estimates were derived through a series of steps. We first start with forecasts of U.S. nonfarm employment growth generated by the Economics Department of Wells Fargo. Though U.S. RGDP has fully recovered to pre-pandemic levels, U.S. employment has not. By June 2021 the U.S. employment had recovered 56% of its COVID job losses as compared to Louisiana's record of 49%. So, we start by assuming each of these MSAs is at least seven percentage points behind the U.S.

Second, Wells Fargo has U.S. employment 80% recovered by the end of 2021. Since we started seven percentage points behind, **we assume Louisiana will have recovered 73% of its losses by year end**. That represents a 24 percentage- point recovery from June 2021, a very healthy recovery. It would not be out of line to claim this as also a "heroic" assumption. Clearly this assumes COVID will not be a major barrier to the recovery process.

Third, we then applied this 23 percentage-point improvement across the MSAs initially, and then either raised or lowered the percentage based on the economic makeup or other special conditions of the MSA. Fourth, we assumed that all MSAs will have recovered all of their COVID losses by the end of 2022. Behind this calculation is the assumption that Lake Charles will begin receiving federal aid by early 2022.

BLS Data Revisions: A Further Muddying of the Waters

"The government is very keen on amassing statistics. They collect them, add them, raise them to the nth power, take the cubed root and prepare wonderful diagrams. But you must never forget that every one of these figures comes in the first instance from the village watchman, who just puts down what he damn well pleases."

---Josiah Stamp

As if things were not difficult enough, there is another problem COVID has generated for our forecast. Recall that the middle column of Table 3 shows the jobs losses across the MSAs as of June 2021 and the fourth column shows the percent recovery from the low in April 2020. The data in those two columns are based on the first six months of employment data produced by the Bureau of Labor Statistics (BLS). These data are based on surveys and documents submitted by firms in the state as a part of filing their unemployment insurance reports.

These data will go through at least two revisions. The data reported for June will be revised when the July data are released, after even more survey data come in for the month of June. Typically, the next-month revisions are relatively small.

The second larger revision will occur next March when the BLS will produce their benchmark revisions. At the state level it has not been unusual for these revisions to be as much as +/- 5,000 jobs. **When the revisions came out for the 2020 data, the December employment number for Louisiana was revised downward by 72,500 jobs!** Instead of appearing to have recovered 72% of its jobs, the state had only recovered 42% in December! We have been working with these data for 40 years and have never seen a revision even remotely in the ballpark of this one. The excuse was that it was difficult to get all the data in during the COVID environment.

The question is, will the 2021 data on which we are basing our COVID recovery estimates be radically revised again? Are we making hard calculations off of very spongy data? We will not know until next March. In the meantime, looming revisions add another layer of uncertainty to our forecasts.

The National Economy: Recovering from COVID…or Not?

Performance of the Louisiana economy depends to no small extent on how well the national economy is expected to perform. Data in Table 4 cover the change in real gross domestic product (RGDP) from 2020 along with forecasts for 2021-23.

RGDP data for 2020 indicate just how badly the forced COVID shutdown impacted the national economy. On an annual basis, RGDP fell by 3.5%. But on a quarterly basis, the numbers were far more dire: 2020-I -5%; 2020-II -31.4%; 2020-III 33.4%; 2020-IV 4.3%. The 31.5% decline in 2020-II was the largest decline---by a factor of three---in RGDP in the 73 years the Bureau of Economic Analysis has been collecting quarterly RGDP data. Once the economy reopened, RGDP started coming back very fast, but it took until 2021-II to fully recover the losses experienced in the first half of 2020.

Table 4

Outlook for Change in Real Gross Domestic Product

Year	Change in RGDP
2020	-3.5%
2021	6.6%
2022	4.4%
2023	2.2%

The rebound was heavily stimulated by a huge injection of stimulus monies into the pocketbooks of U.S. households and by another huge injection into the business sector via PPP loans. As a result, the RGDP growth estimate for 2021 (+6.6%) is unusually large, as is the one for 2022 (+4.4%).

Note that these strong growth periods are expected to be followed by a rather weak 2.2% expansion in 2023. These are, of course, **annual average** estimates. On a quarterly basis, the slowdown in growth is expected to start in 2022-III after all the stimulus monies are expended and the economy returns to a more normal, but below average, pattern.

Increased Regulatory Burden

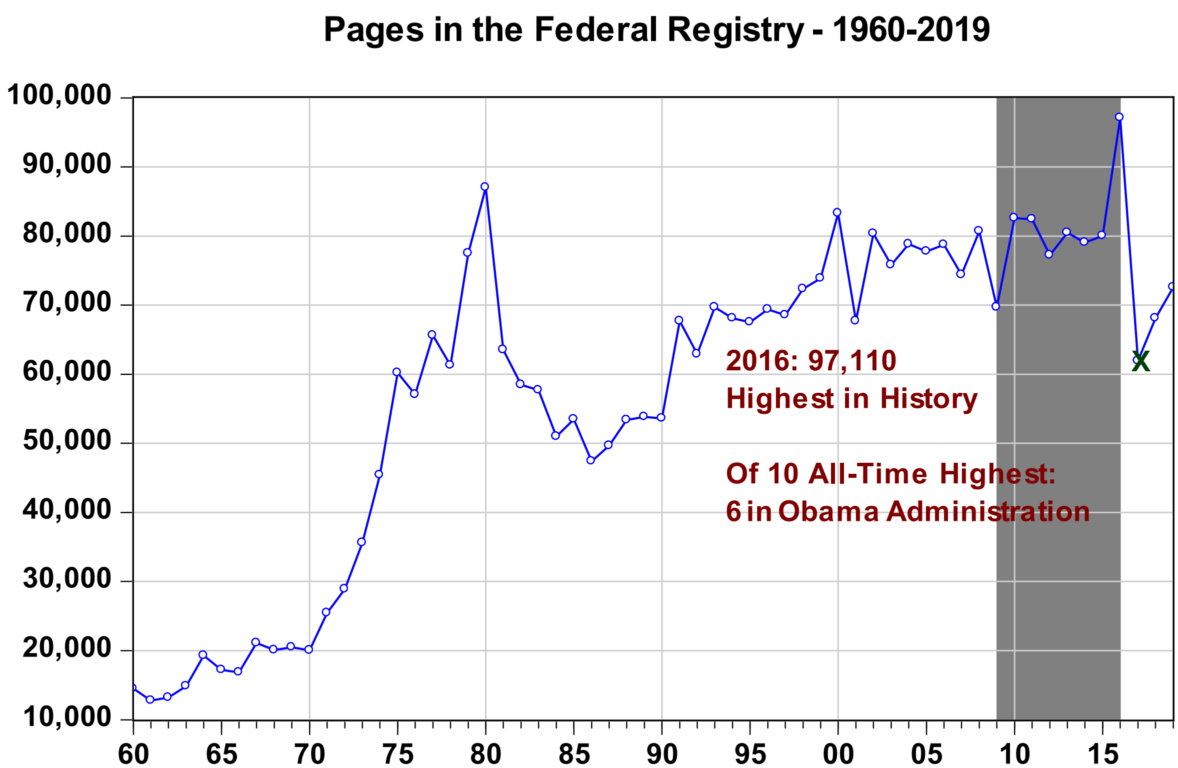
Why the "below average" pattern? There are two growth-arresting issues on the horizon. The Biden Administration has made clear its intention to **significantly**

`

Dr. Loren C. Scott & Associates Inc.

boost regulatory activity during his term. On his first day in office, the president issued a memo entitled "Modernizing Regulatory Review" which sets the tone for this aspect of his administration. Normally, when a new regulation is being considered it must go through a review process at the Office of Management and Budget (OMB) to ensure that the benefits of the regulation exceed the costs. Note the following excerpt from the Presidential memo: "**"…ensure that the review process promotes policies that reflect new developments in scientific and economic understanding fully accounts for the regulatory benefits that are difficult or impossible to quantify and does not have harmful anti-regulatory or deregulatory effects."** It is hard to translate that other than to remove all obstacles to any new regulations proposed.

Figure 1



Data Source: www.lllscd.org/assets/sourcebook/fed-reg-pages.pdf

While reasonable arguments might be made that more new regulations are needed in order to make our society fairer, the fact remains that new regulations shift the cost curves of firms upward, leading to less production and fewer employees. It is instructive that six of the 10 highest years of additions to the

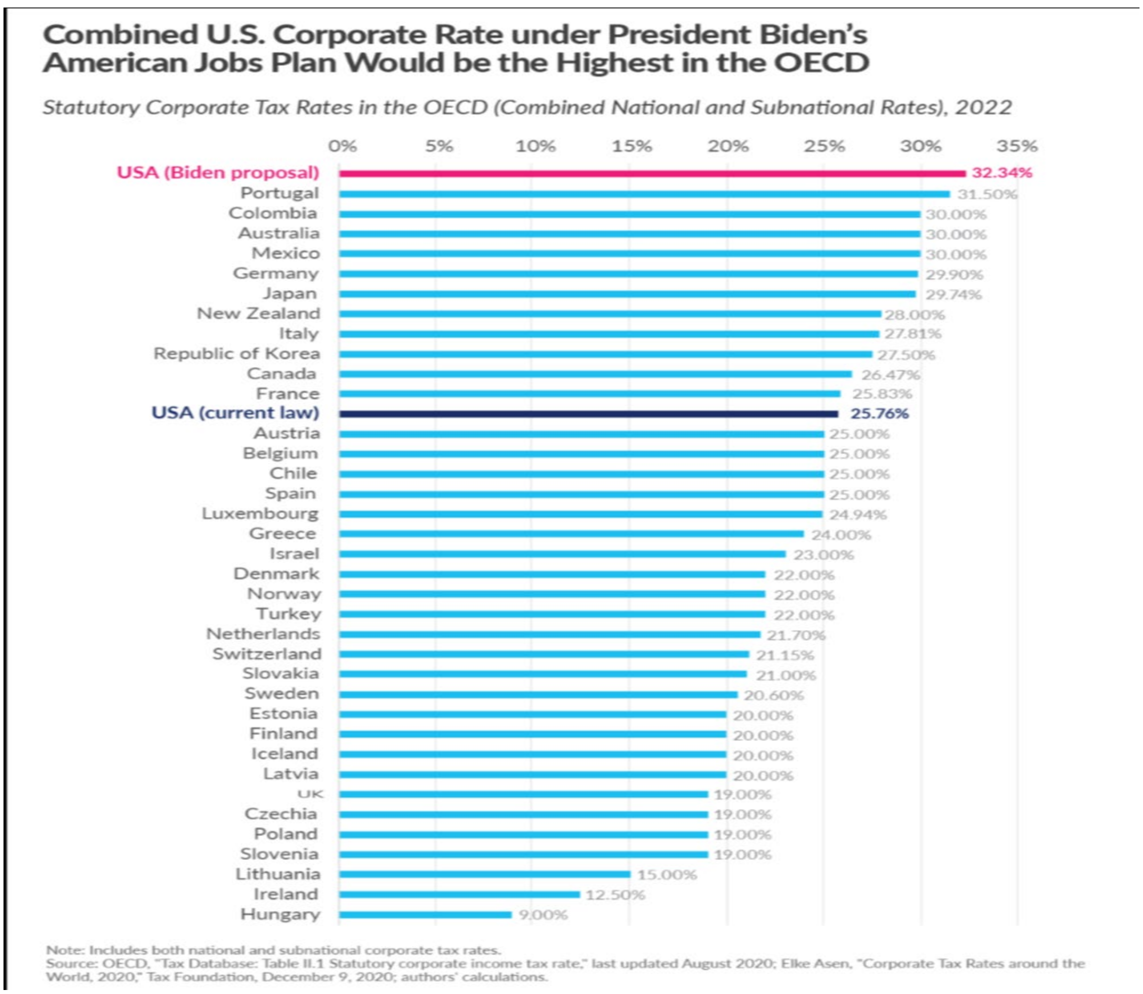
Federal Registry <u>in the last 60 years</u> occurred in the eight years when Biden was Vice President during the Obama Administration (see Figure 1).

Higher Taxes

A second growth-arrestor is the expected **new taxes** under the Biden Administration. For example,

- To finance the American Jobs Plan the Administration has proposed raising the corporate tax rate from the high-middle to the highest in the industrialized world (see Figure 2).[2]

Figure 2



Source: Reproduced by permission from the Tax Foundation

[2] The Tax Foundation, December 9, 2020. Graph used with permission.

- The Administration proposes to raise the top marginal tax rate from 37% to 39.6%.
- It is proposed that (1) the social security tax ceiling be raised from $137,000 to $142,800 and then be indexed to inflation and (2) that after $400,000 there would be no exemption from the tax.
- It is proposed that the maximum capital gains rate for people who earn more than $1 million be raised from 23.8% to 39.6%.
- To partially finance the new trillion-dollar infrastructure bill, it is proposed that the Superfund Tax be reinstated (it ended in 1995). The tax rate ranged from 22 cents to $4.87 per ton. The highest ($4.87 per ton) rate applied to certain petrochemicals to the extent they were not put to a "qualified fuel use": acetylene, benzene, butane, butylene, butadiene, ethylene, naphthalene, propylene, toluene and xylene. A rate of $3.44 per ton applied to methane not used as fuel, used in fuel, or put to a "qualified fertilizer use." This is a particularly worrisome tax for Louisiana with its very large petrochemical industry.

This is just a partial list of proposed tax changes. Proponents of these tax increases will point to social programs that need funding and fairness issues in the tax code. However, the practical effect is that new taxes shift the cost curves of firms upward, leading to less production and fewer employees and slower growth.

The expected higher Taxes and increased regulation are behind the slower 2.2% growth projected for 2023. **Actually, the slowdown is expected to start showing up in the quarterly RGDP statistics in about 2022-III**.

Beware Who Is Skulking Around

As our readers look back at the RGDP forecasts in Table 4, it is most important to remember that hiding behind that table like a dark spirit is COVID. Our forecasts assume this monster is effectively under control. A failure to get some control over COVID, the possibility of repeated spikes in cases so severe that hospitals must revert to triage, even the possibility of another government-mandated shutdown all linger in the background. Any one of these could send us back into red numbers again.

Oil Prices: Great Collapse, Great Recovery

Louisiana is the nation's second largest producer of crude oil, if one includes petroleum produced in the Gulf of Mexico (GOM). Including GOM production in Louisiana's total makes sense, since some 90%+ of GOM exploration and production is serviced out of Port Fourchon on the state's coast. Because of its importance in the State's economy, big movements in oil prices typically create big movements in employment in Louisiana.

Unfortunately for the forecasting business, big movements in oil prices---especially unexpected ones--- are not infrequent. Our new nemesis, COVID, has just added another level of uncertainty. This is shown vividly in Figure 3 which tracks the weekly movement in the price of West Texas Intermediate (WTI) crude oil from January 2020 through July 2021.

Oil prices plummeted from $63.27 per barrel in early January 2020 to only $15.06 a barrel in April 2020---a remarkable 76% decline in just 3 ½ months. There was one day in April 2020 when the price was a remarkable -$37 a barrel, due to a contractual quirk in the future's market.

Figure 3
Weekly Price of West Texas Intermediate Crude Oil:
January 2020 through July 2021

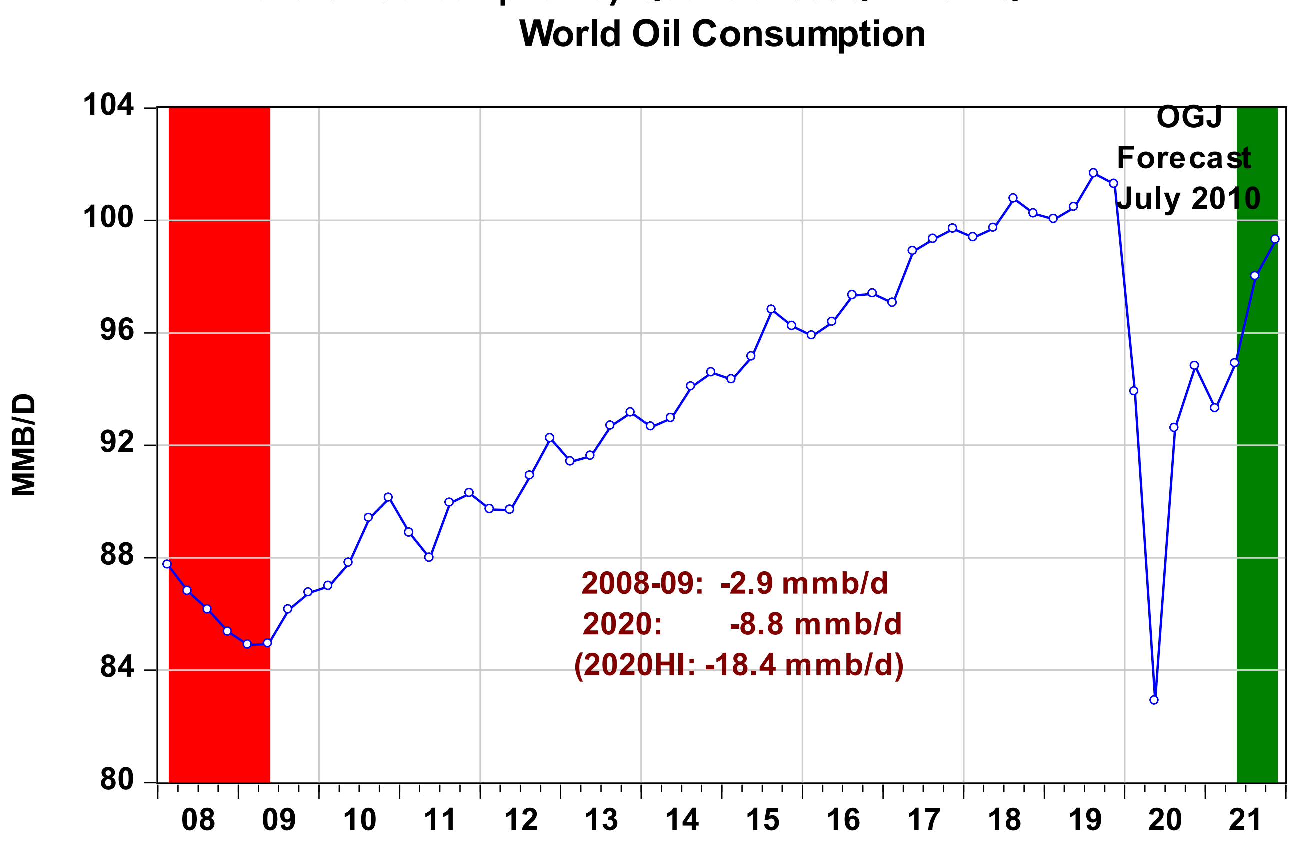
Data Source: Federal Reserve Bank of St. Louis

`

Demand Side Driven Price Collapse

What caused such a fast and stunning decline? The answer again is COVID. The initial response to the onset of this virus was that countries all over the world essentially shut down. People hunkered down in their homes and quit driving and flying. The impact on world oil consumption was both rapid and breathtaking in its depth as seen in Figure 4. **World consumption dropped by 18.4 million barrel per day (mmb/d) in the first half of 2020**, a decline the industry had never seen before. Over the entire period of the Great Recession (2008-09) oil production only fell by 2.9 mmb/d. The demand decline in 2020-H1 was more than sufficient to create the price drop shown back in Figure 3.

Figure 4
World Oil Consumption by Quarter: 2008Q1 – 2021Q4



Data Source: Energy Information Administration

OPEC+ to the Rescue

Note back in Figure 3 that since the spectacular decline in the first four months of 2020, the oil price has recovered fairly steadily so that by mid-August it was back at almost $70 a barrel. Two key factors are behind this recovery. First, were the **supply-side** actions. The biggest factor was the OPEC+ nations got together in early summer 2020 and took 10.9 mmb/d a day off the market. Added to the OPEC+ action was what happened to U.S. production. In response to very low oil prices the rig count in the U.S. dropped from about 800 at the beginning of 2020 to near 250 six months later. U.S. production declined from near 13 mmb/d to 10 mmb/d in May 2020. Similar declines occurred in the North Sea, Brazil and Africa.

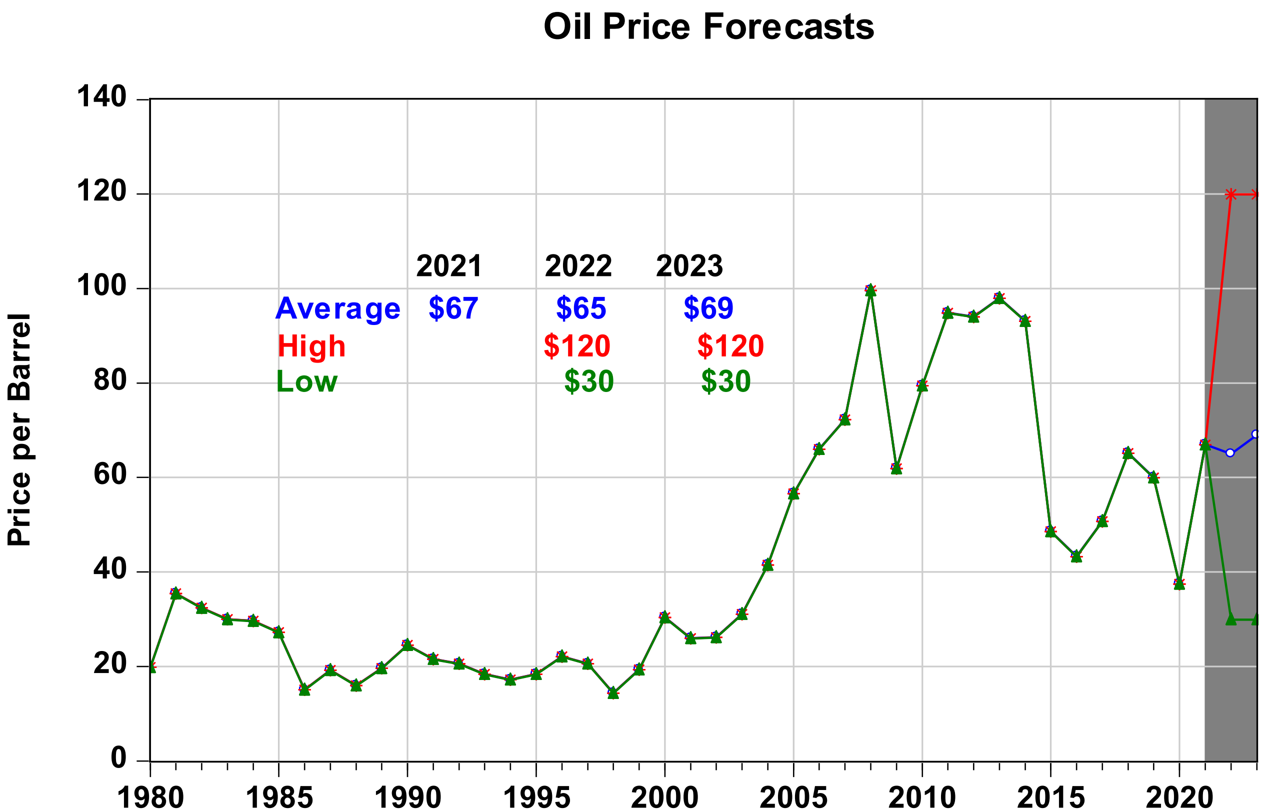
Help from the Demand Side; Driving & Flying Again

A second factor boosting oil prices came on the demand side. As cases and deaths declined, then the vaccine rolled out, people started to drive more and eventually to fly again. Note in Figure 4 how demand began to recover starting in 2020-H2. The combination of supply cuts and demand gains pushed prices back to pre-pandemic levels.

Oil Prices: 2022-23

Figure 5 shows not only the history of oil prices since 1980 but also our forecasts for 2022 and 2023. We are projecting oil prices will remain relatively stable, going from an average of $67 a barrel this year to $65 in 2022 and $69 in 2023. Our confidence range around these forecasts is $30 to $120 a barrel. Even a casual glance at the graph in Figure 5 will confirm why such a broad confidence range is necessary. Oil prices move around a lot over time and for often unanticipated reasons. For example, who could have forecast the spectacular price decline in 2015 caused by the Saudi's desire to kill the shale industry in the U.S. that was making huge inroads into the Saudi's export market.

Figure 5



Data Source: Energy Information Administration

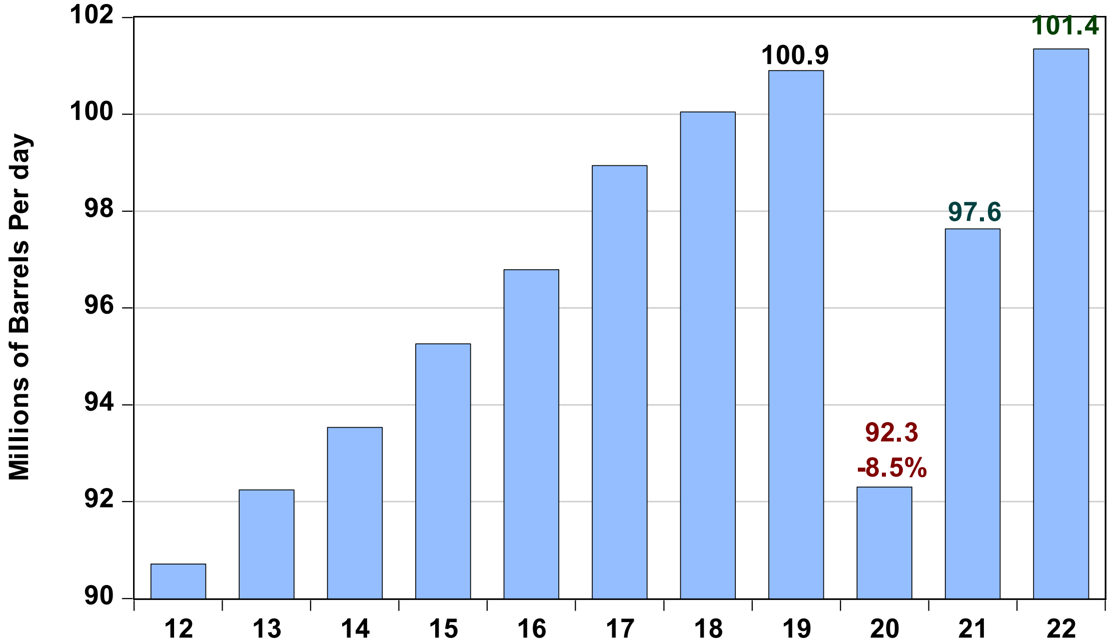
"Heroic" Forecast Demand Growth?

Why would we think oil prices might stabilize at present levels? It has to be because of demand side and/or supply side factors. As it turns out it should be "and" in the last sentence. On the demand side the Energy Information Administration (EIA) is projecting global oil demand will be fully recovered by 2022 (see Figure 6). This projection is based on the heroic assumption that COVID will be brought under control, there will be no nationwide shutdowns, and there will be no new variants jamming our hospitals. Now that we are going through the fourth surge of this virus, it is clear that "heroic" is a correct way to characterize this assumption. Another way to say it is there is a wide confidence interval around this point forecast.

`

Figure 6

Global Oil Demand



Data Source: Energy Information Administration

OPEC+ Wants Their Market Share

On the supply side, the OPEC+ nations have already started adding oil back on the market as driving and flying have started to recover. By early July, the group had restored all but 5.8 mmb/d of the original 10.9 mmb/d cut. On July 18, 2021 the group agreed to add 400,000 b/d per month through September 2022 until the original 10.9 mmb/d cut is restored. Here is an added uncertainty in this forecast: Can OPEC+ maintain the discipline to keep production in check? Significant production capacity expansions are underway in Saudi Arabia, Russia, and the UAE. Will these countries stick to their assigned quotas? Will Biden sign a nuclear deal with Iran, enabling that country's output to jump from 2.4 to 3.8 mmb/d? Uncertainties abound.

Meanwhile in the U.S. the rig count has rebounded somewhat from a low of 250 to 503 in late August---still far away from the 800 rigs running pre-pandemic. U.S. production may recover to a level of 12 mmb/d but will still remain below its pre-pandemic peak of 13 mmb/d. That is because shale wells have a decidedly steep production decline curve, dropping to one-third of its total production by the third year. Not even the stock of drilled-but-uncompleted wells (DUCs) in the U.S. can stave off an overall production decline in this country.

The bottom line is that though demand is expected to rebound, OPEC+ plans to add an awful lot of oil to the market. That is a recipe for stable to declining oil prices.

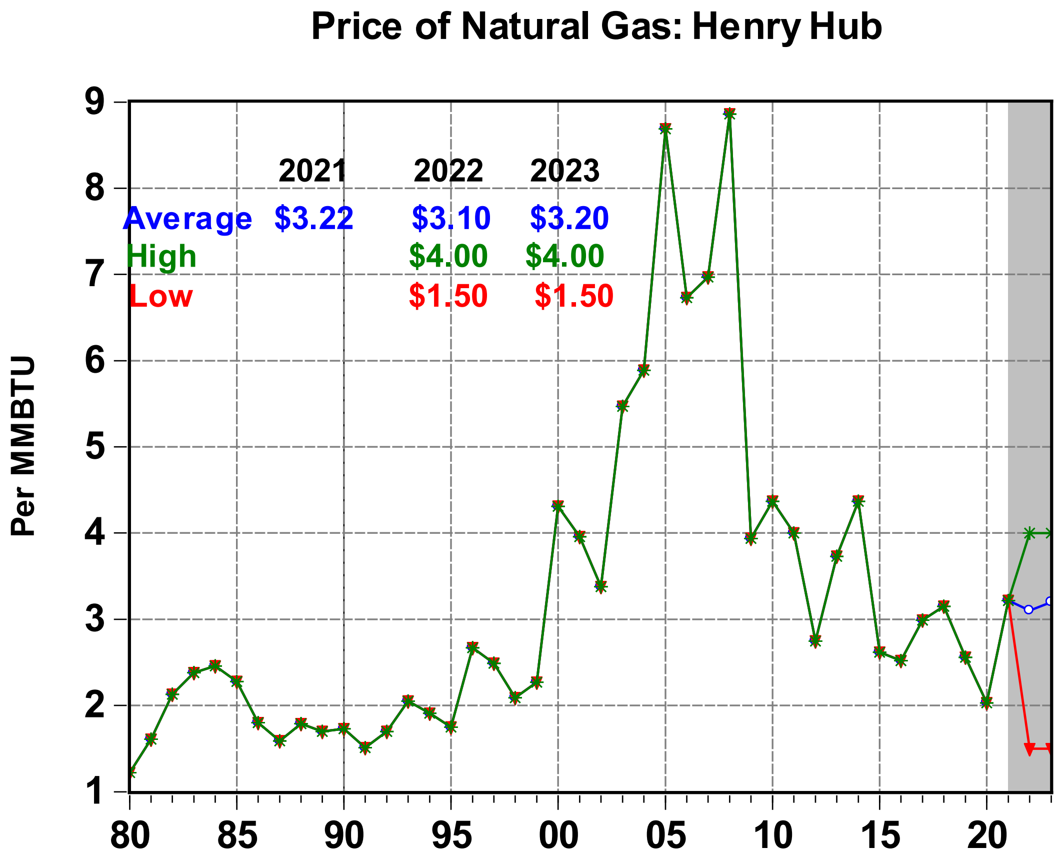
Natural Gas Prices: Opening Door to Haynesville, Not Closing to Industry

Louisiana is the #4 state in the U.S. in natural gas production, most of it coming from the northern part of the state in the Haynesville Shale Play. Natural gas prices play into the Louisiana economy in a number of different ways. First, if prices are high enough, it spurs exploration activity (and jobs) in the Haynesville Play. Secondly, Louisiana is the nation's 6th largest producer of chemicals, and most of these are first stage, bulk chemicals made from natural gas. If natural gas prices are not too high, those chemicals can still be made profitably in Louisiana. Thirdly, if U.S. natural gas prices can remain much lower than natural gas prices in Europe and Asia, chemical firms in those countries will be motivated to expand in Louisiana rather than their home country. **If our natural gas price forecast is near the mark, its will be in the sweet spot where Louisiana wins on all three scores**.

Natural Gas Prices: A Little Higher & Stable

Figure 7 traces historical natural gas prices at the Henry Hub in Louisiana since 1980 and provides our projections for 2022-23. Note that recently natural gas prices have risen to just over $3 per million British Thermal Units (MMBtu), and we are projecting it will remain in the $3.10 to $3.20 per MMBtu range over the next two years. Our confidence interval around this forecast---$1.50 to $4.00---is much narrower than for oil prices.

Figure 7

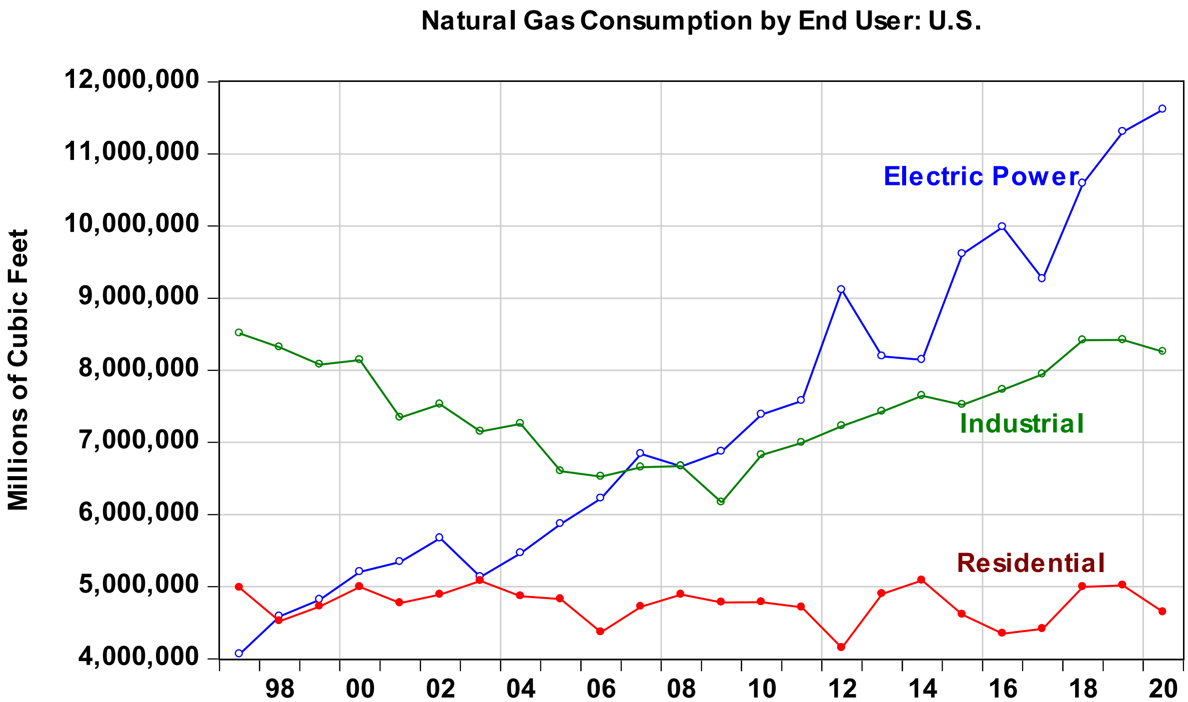


Data Source: Energy Information Administration

Electric Power, Industry & Mexico Fuel Demand

What is behind this projection for slightly higher natural gas prices? Partly, it is a matter of **strong, consistent demand growth** over the next two years. Figure 8 illustrates the pattern of gas consumption by end users in the country. While residential consumption has remained rather constant, the use of natural gas to generate power has almost tripled as utility firms have switched from coal-burning power plants to this much cleaner fuel. After declining for the first half of the graph, industrial consumption of gas has also taken off, increasing by about one third since 2009.

Figure 8



Data Source: Energy Information Administration

Two other factors are boosting natural gas demand. The larger of the two is **exports to Mexico** which have risen exponentially from basically zero in 2000 to 2.5 trillion cubic feet (tcf) in 2021.[3] Mexico has initiated an aggressive program to move from coal-fired power generation to gas-fired. Several key pipelines have been built to move natural gas from the Permian Play in West Texas into Mexico to facilitate this move.

A second factor increasing gas demand is LNG exports. While much smaller (about 10 billion cubic feet (bcf)) than pipeline exports to Mexico, this demand has also been growing exponentially since 2016. More LNG export terminals are expected to come on board as will be seen when the Lake Charles and New Orleans MSAs are discussed below.

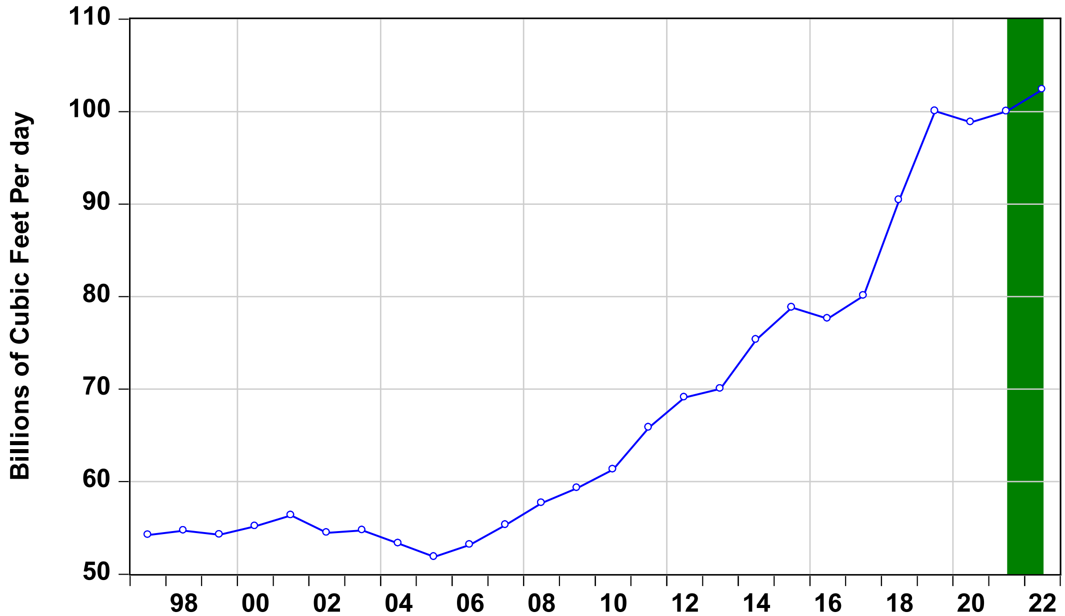
[3] Energy Information Administration. 2021 data estimated based on half year of data.

"Associated" Gas Slows

On the supply side, the production of natural gas had been experiencing very rapid growth since about 2008 (see Figure 9). This huge increase was driven by associated gas produced as exploration companies drilled for oil in the various wet plays in the U.S.

Figure 9

Natural Gas Production: U.S.



Data Source: Energy Information Administration, Short Term Energy Outlook, July 7, 2021

However, note that production fell slightly in 2020 and is projected by EIA to only rise slightly through 2022. The decline in 2020 was due to the dramatic drop in the rig count----especially in the wet shale plays, which meant <u>less associated gas</u>. While the rig count has recovered some, it still remains almost 400 rigs below its pre-COVID peak. Drillers in these wet plays are sending every signal that they will be moving much more cautiously in this recovery cycle. That suggests weak growth in associated gas produced ahead.

`

Haynesville a Big Winner?

Property owners and exploration companies in Louisiana's Haynesville Shale Play would look on the price forecasts in Figure 7 with no little glee. The rig count in the Haynesville has already jumped from 20 to 34 in the last year. One report has Chesapeake Energy tagging the breakeven price in the Haynesville at $2 to $2.25.[4] Add to this the decision by the proposed Driftwood LNG developers to source all their natural gas from their own wells in the Haynesville and you have prospects for another significant jump in the Haynesville rig count.

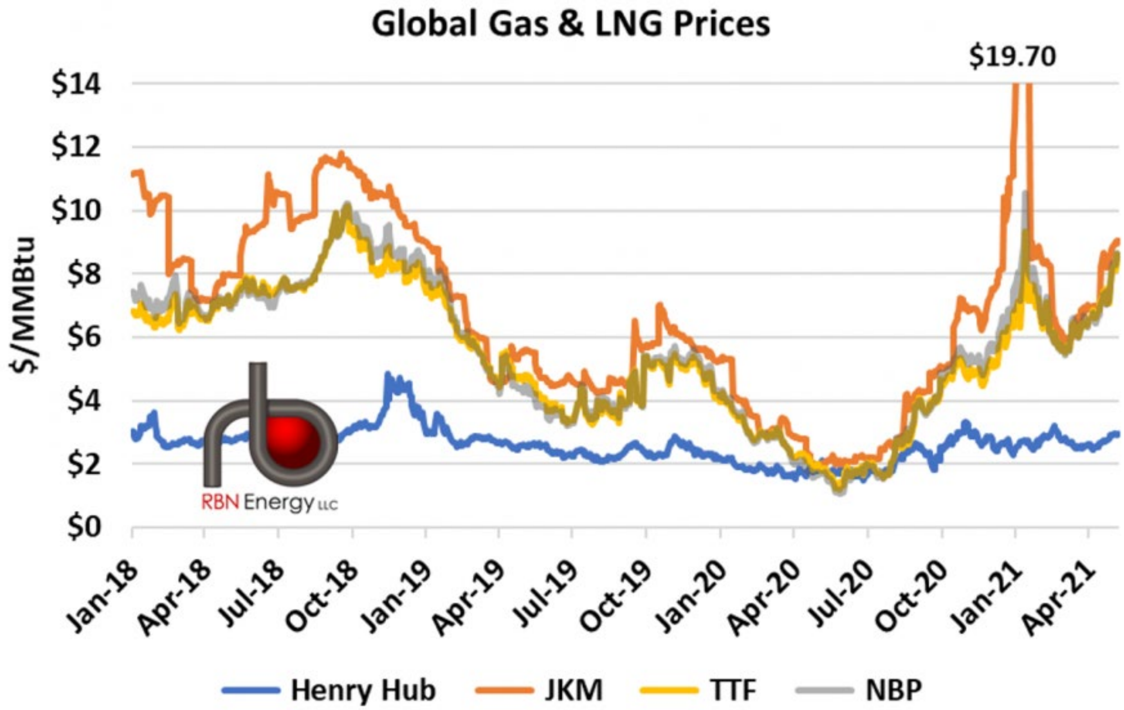
Petrochemicals Big Winners, Too?

The other potential big winner if this price forecast rings true is Louisiana's huge petrochemical industry for whom natural gas is the primary input to the production process. Out of natural gas the industry makes ethane, and out of ethane, ethylene is produced which is the foundation for hundreds of consumer products. While the industry will not like the recent increase in natural gas prices, the increase is nothing like in the early 2000s which pummeled the industry.

More importantly, though gas prices have increased here, it is nothing like the increases felt by chemical firms in Asia and Europe as shown in Figure 10. Note the wide gap between Asia-European natural gas prices and those in the U.S. in 2018. This gap spurred billions of dollars in investments in new and expanded chemical firms in Louisiana as these firms shifted to the source of decidedly cheaper inputs. COVID's impact was felt on this important metric as well, as the virus shut down many firms in Europe and Asia, dropping the industrial demand for natural gas enough that their natural gas price headed south to match the U.S. price.

[4] https://haynesvllemineralrights.net

Figure 10



Graph used with permission from RBN Energy, Inc.

As economies have started to reopen, the price gap reappeared, once again giving Louisiana chemical firms a competitive advantage over their counterparts in Asia and Europe. **As the prospects for individual regions of the State are discussed later in this report there will be repeated references to new chemical firms starting construction or existing firms expanding---especially for regions on or below I-10**.

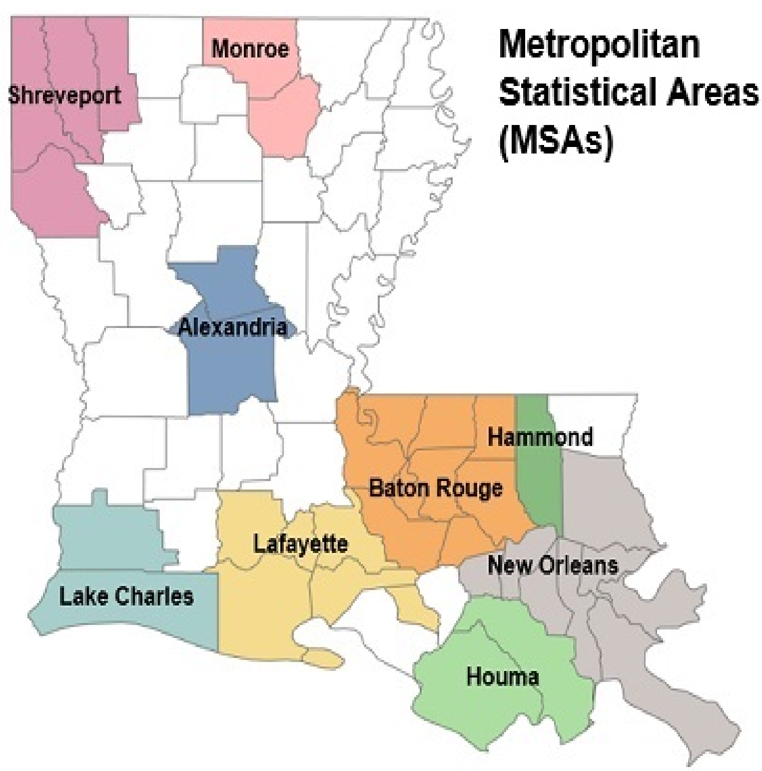
`

THE LOUISIANA METROPOLITAN STATISTICAL AREAS

Below we will analyze separately the prospects for Louisiana's **metropolitan statistical areas** (MSAs). The U.S. Bureau of Economic Analysis has taken 35 of Louisiana's 64 parishes and combined them into nine separate MSAs. These MSAs are delineated in Figure 11 (source: LAWorks.net). The parishes without color---those outside the MSAs---are designated as "rural" parishes, of which there are 29. These rural parishes generally have a large agricultural economic base. Exceptions include the energy-dominated St. Mary Parish, the heavily military Vernon Parish, and Lincoln and Natchitoches Parishes which contain significant universities.

For those unfamiliar with Louisiana's MSAs, readers can refer back to this figure as we review the economic prospects for each area below. Each of the MSAs will be examined in order of size, beginning with the largest one in the state---New Orleans.

Figure 11
Louisiana Metropolitan Statistical Areas



Map from Laworks.net

THE NEW ORLEANS MSA

Will Formosa, VG & Peninsula Pull the Trigger?

Located in the southeast corner of the state, the New Orleans MSA is the largest in the state and is composed of eight parishes---Orleans, Plaquemines, Jefferson, St. Charles, St. John the Baptist, St. Tammany, St. James, and St. Bernard. Because of its geographic location near the mouth of the Mississippi River, this MSA is a major port region, including the nation's largest in terms of tonnage moved (the Port of South Louisiana), the huge Port of New Orleans, and the Port of Plaquemines. Because the river provides access to deep draft ships, numerous refineries (including the nation's second largest) and chemical plants line its banks. Numerous exploration companies such as Chevron and Shell have significant locations in the area in order to direct exploration activity in the Gulf of Mexico.

With its unique culture and cuisine---plus the French Quarter---the city proper is a major tourism/convention site. Its Morial Convention Center is the 6th largest in the country. Tourists are also attracted by the region's gaming industry. New Orleans is the home to the state's only land-based casino, two other riverboat casinos, and the Fairgrounds racetrack. In addition to several community colleges, the University of New Orleans, Tulane University, Loyola, and Dillard are located within its boundaries.

As of 2021, there are about 553,500 people employed in the region. The New Orleans MSA is firmly established in this first place position, being about 41% larger than the Baton Rouge MSA.

Figure 12 tracks the employment history of this MSA over 1980 through 2021, along with our forecasts for 2022-23. For readers who are interested, a write up of the history of this MSA from 1980-2019 can be found in Appendix A.

2020: COVID-19 Hits New Orleans Hard

Economists watching the New Orleans MSA were anticipating an excellent 2020. The oil and gas exploration activity offshore was poised for a revival. Multi-billions in plant expansions or greenfield projects had been announced. COVID squelched those hopes. Among Louisiana's nine MSAs, New Orleans was hit the hardest. **In April the MSA lost a remarkable 103,400 jobs (-18%).**

This is a huge convention/tourism city, an industry that was stopped cold turkey in April 2020. The MSA's two riverboat casinos and its land-based casino were forced to be shuttered between mid-March and mid-May. When people hunkered down in their homes and quit driving, oil prices nose-dived to under $20 a barrel at one point, sending the once promising exploration industry into the doldrums. Instead of industrial construction leading a boom in the region, several final investment decisions were delayed----some by as much as two years. In a totally unanticipated move, the $975 million Monsanto project was terminated and **Bayou Steel** closed its 376-person plant. Turnarounds at the large petrochemical firms were also pushed into 2021 or 2022. Given the nature of the New Orleans MSA economy, it is a wonder the job losses were not bigger.

2021: Clawing Back Against COVID

As seen in Figure 12, we are expecting this MSA to recover about 65% of those 103,400 jobs initially lost by the end of 2021. Candidly, that will require a major reversal in the COVID trend the MSA is experiencing at this writing. This 4th surge of the virus, led by the Delta variant, has pounded the New Orleans area more than almost any other region of the country. This MSA also suffered a major blow when **Shell** announced the closure of its 1,100-job refinery in Convent. On the Northshore, **Arcosa Marine** shuttered its 100-person shipyard in Madisonville because COVID had hampered demand for the liquid barges the company built.

New Orleans is home to the nation's 6th largest convention center---the **Morial Convention Center**. Table 5 illustrates the horrific impact COVID has had and continues to have on the convention business. Of the 138 conventions scheduled in 2019 (pre-COVID) none were canceled. By contrast, 66 of the 155 scheduled in 2020 were canceled (all after mid-March), and so far 48 of the 124 scheduled for 2021 have been cut.

Table 5

Conventions	2019	2020	2021
Conventions Scheduled	138	155	124
Conventions Canceled	0	66	48

Data Source: EventsinAmerica.com/events/Louisiana/new-orleans/top-trade-shows

Despite these hits, the New Orleans region did have some positive economic news in 2021. There are at least **$1.44 billion in industrial construction projects** underway in the MSA, including:

- This year, **Diamond Green Diesel** will wrap up a $1.1 billion project in Norco to more than double its capacity to produce renewable diesel fuel from cooking oils and other feedstocks. The expansion will create 55 new jobs.

- **Shell/Equilon** is spending $234 million over three years on maintenance and upgrades to their facility, an investment that will create five new jobs.

- **Lineage Logistics** is engaged in a $42 million expansion of a cold storage unit that will result in 50 additional jobs paying $61,000 annually.

- **Arq** in St. Rose is spending $40 million on a facility to produce a proprietary fuel product. On completion the facility will employ 12 people paying a $52,000 annual wage.

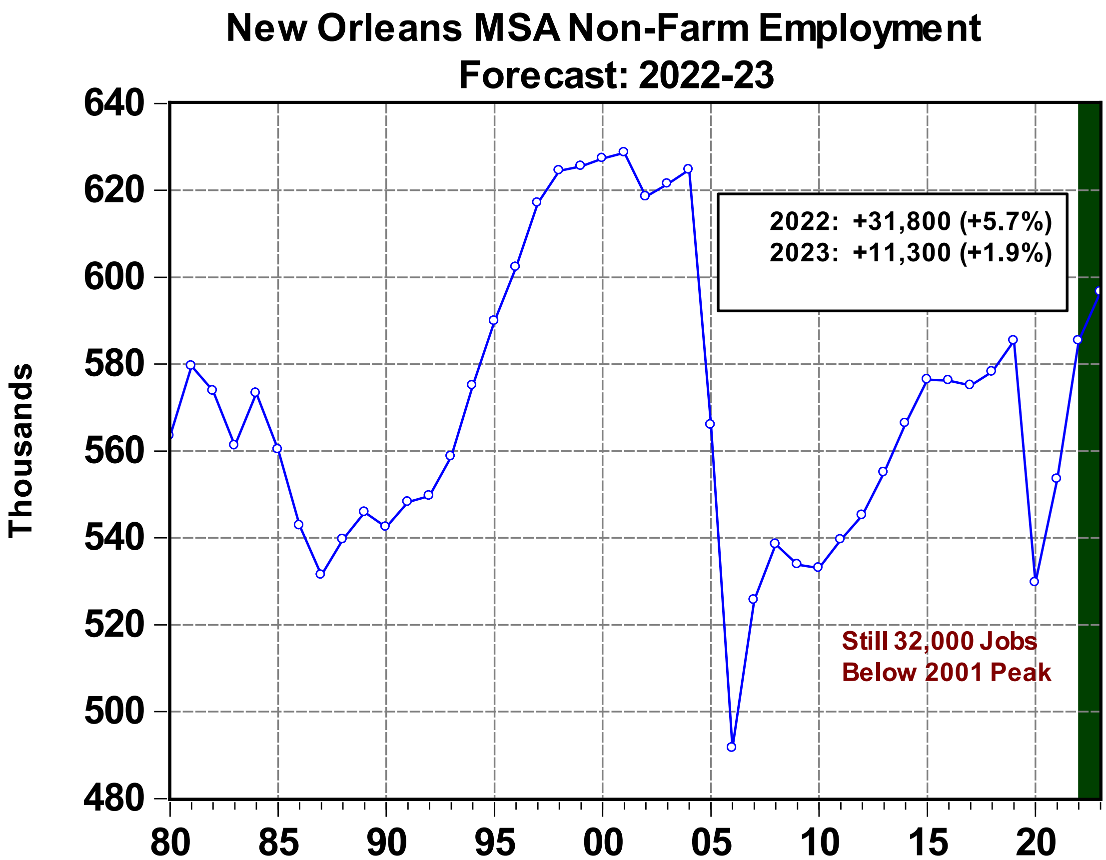
The net result is the New Orleans MSA is expected to add back about 23,800 jobs in 2021, a growth rate of 4.5%. **While this is a healthy growth rate, it will still leave the MSA 31,800 jobs below pre-COVID**.

Forecast for 2022-23: FIDs from Formosa, VG, Methanol & Peninsula Critical

As seen in Figure 12, **we are projecting 31,800 jobs for the New Orleans MSA in 2022 (+5.7%) and another 11,300 jobs in 2023 (+1.9%)**. It is apparent from the graph in Figure 12 that much of this job growth is continuing to retrieve the jobs lost to COVID. However, there are some very hopeful lights appearing on the horizon that could give this MSA an extra boost.

`

Figure 12



Data Source: Bureau of Labor Statistics

COVID will muddle the outlook in all the MSAs, perhaps this one more than the others. The New Orleans MSA has been slower than most MSAs to recover because of the outsized role conventions and tourism play in its economy. The trends in this sector are not encouraging (see the data back in Table 5). Recurring spikes in cases and deaths will drive an increasing number of organizations to Zoom or GoToMeetings, despite the lack of comradery and networking. We suspect this sector will hold back New Orleans over the next two years.

FIDs Needed

The real key to the future track of this economy is how many of the industrial projects announced for the region will actually commit to construction---to issue an FID, a Final Investment Decision. By our count, **there is an impressive $39.28 billion in industrial projects announced for this MSA that have yet to issue an FID**. If just a couple of the larger projects pull the trigger, it will make all the difference in this MSA's future. Among these are:

`

- **Venture Global** is very close to issuing an FID on its proposed $8.5 billion Plaquemine LNG project in Plaquemine Parish. VG has all the necessary permits in hand, and in May received an approved environmental assessment to build the Columbia Gulf Transmission's East Lateral Express Pipeline to feed the project. An FID is expected by the end of the year (2021). Once constructed the facility will support 250 jobs at $70,000 annually.
- Venture Global's $8.5 billion **Delta LNG** has received all the necessary FERC approvals but does not have any offtake agreements at this time. An FID on this project is not expected within our forecast horizon.
- Still in the pre-filing stage with FERC is **Pointe LNG**, a $3.2 billion LNG export facility planned in Plaquemines Parish. We believe any FID on this project will likely be outside of our forecast period.
- The largest, most closely watched, and perhaps the most controversial of the proposed projects is the Sunshine Project---**Formosa Plastics $9.4 billion chemical complex** planned in St. James Parish. Environmentalists have waged a fierce battle against the facility, but Formosa is still proceeding with pre-FID site work, widening LA3127, relocating utilities, test pile placements, etc. The fully built out plant would employ 1,200 workers. We place a medium probability on this plant going forward.

At least four significant projects in this MSA depend upon emerging changes in the **global methanol market**. Our understanding is this market is expanding about 5% per year worldwide. There is a large and growing demand for methanol in China to replace its coal-fired burners and as a raw material for making many consumer products. On the supply side, methanol plants in Chile, Australia and New Zealand are having difficulties accessing natural gas supplies. This combination may require 3-5 new plants a year and should ignite FIDs among the following:

- **Yuhang Chemicals** has just completed a $1.9 billion facility in St. James Parish. Koch Methanol has acquired a majority interest in the site, and the company is examining another $1.9 billion expansion.
- **IGP Methanol** has trimmed their earlier $3.6 billion plant to two smaller, zero-emissions plants of $1.3 billion each in Plaquemines Parish. It will take 3 ½ years to complete both plants. Site work is underway now and an FID is expected before year end.

- Some $300 million has been spent on site work across the Mississippi River from Nucor in St. James Parish on the proposed **South Louisiana Methanol** project. The group has filed amendments to its Title 9 air permits and river permits and has amended design of the project to bring tank terminals on its land. This is still an active project.
- A smaller project---**Syngas Energy Holdings**---is still trying to finalize financing on its $350 million project. At last report the group was still trying to finalize its epc (engineering, procurement and construction) contract. If built the facility would employ 100 people at $78,600 a year.

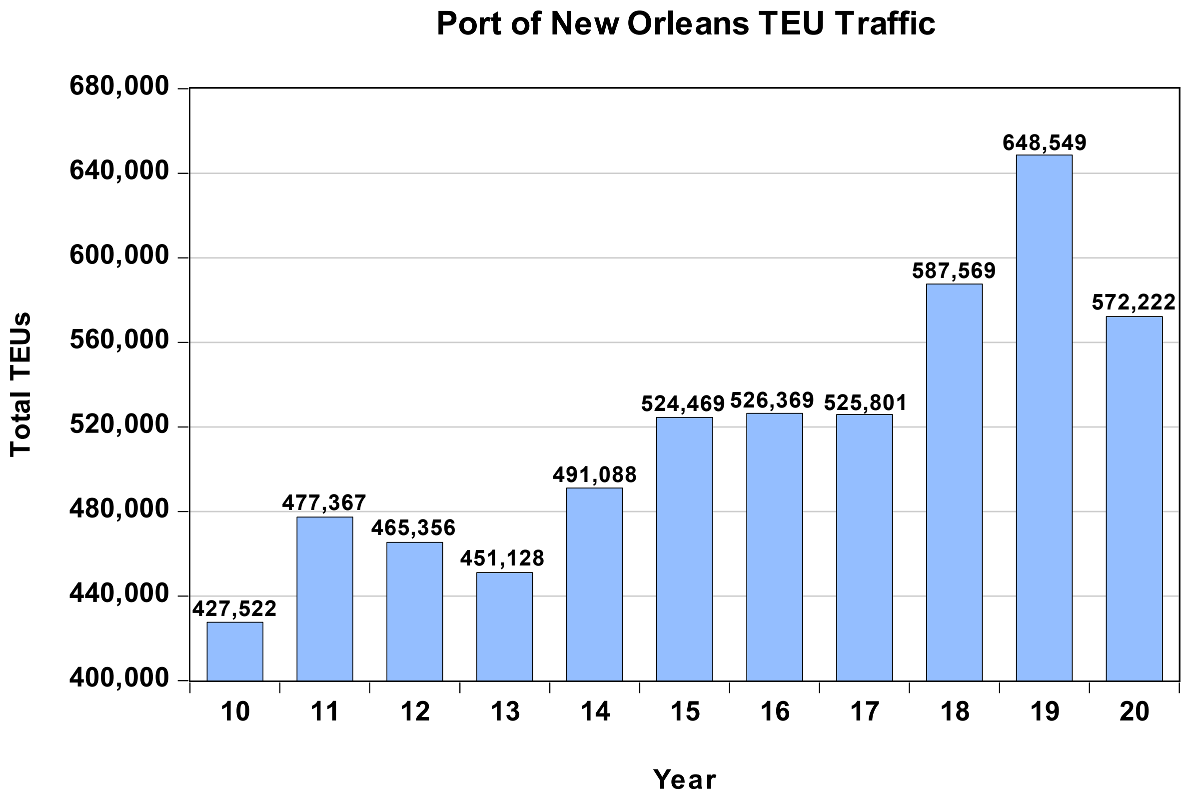
Regarding other projects:

- We are optimistic that the $500 million investment by **PBF Energy** to convert an idled refinery in Chalmette will go forward soon. The Council, School Board and Sheriff of St. Bernard have all voted yes to the groups ITEP application to the Louisiana Department of Economic Development. The hydrocracker unit would be retrofitted to make diesel out of non-fossil fuel feedstocks, such as soy beans, corn oil and other fats and oils.
- We are equally optimistic that **Greenfield Louisiana** will invest $500 million to construct a 36-silo grain terminal on 248 acres within the Port of South Louisiana (POSL) boundaries in St. John Parish. This would be the first new grain elevator inside POSL in 40 years and would employ 80-100 people.
- **ElementUS**, a joint venture of Enervoxa and DADA, has announced plans to spend $800 million on a plant to extract rare earths from alumina byproducts at the 400-person Noranda Alumina site. The new facility would hire 200 people paying $85,000 annually.
- **Solar farms** are under construction or planned all over Louisiana and the New Orleans MSA is no exception. Three have been announced in the River Parishes. **St. Jaques Solar** has announced plans for a $134 million solar farm in Vacherie, and **Vacherie Solar** has plans for another $89 million facility nearby. In that same area, **St. James Solar** is planning a $100 million farm. All three expect to be operational by 2023-24 and will hire a total of three people combined.

Port of New Orleans: COVID Hit but Big Plans Ahead

The **Port of New Orleans** is a major port for accepting container cargoes and other bulk imports such as steel. As seen in Figure 13 container traffic at the Port had been increasing nicely until COVID hit, dropping the TEUs handled by the Port by over 76,000 units or about 12%. Cruise ship traffic declined even more drastically in 2020 as most cruise ships halted cruises.

Figure 13



Data Source: Port of New Orleans

Despite the blow to container traffic in 2020, which is continuing into 2021, due to COVID, prospects on the other side of the virus are very promising. **Alliance Ocean Network** has added the Port of New Orleans to its port-of-call for traffic to and from Asia. Alliance will make a **$100 million investment** at the Port to expand the Napoleon Avenue Container Terminal, adding four new 100-foot-guage container gantry cranes. This will increase the capacity at that site to one million TEUs and improve the ability to work larger ships.

Further in the future, and beyond our forecast range, the Port has submitted coastal use permits, completed vessel navigation simulations, conducted a

`

phase 1 traffic study and wetlands jurisdictional determination on a proposed **$1.5 billion container terminal** that would be located on 1,100 acres at Violet in St. Bernard Parish. Construction would not start until about 2025 in phases. In anticipation of the COVID recovery, the Port is also examining sites for **a third cruise terminal**. This project is probably 5 years out.

Michoud Assembly Facility: Steady as She Goes

One of the largest employers in the New Orleans area is the broadly defined **Michoud Assembly Facility** (MAF) in New Orleans East. There are slightly over 3,000 people employed at the various units at MAF, a number that has not changed much in the past year, and a number that is not expected to vary much over 2022-23. MAF will provide a solid base of stability to the region's economy.

About half of these people work on products used in NASA's Artemis space vehicle. **Boeing** employs about 923 people manufacturing the core stage of the spacecraft, and **Lockheed** has just over 200 people building the capsule that holds the astronauts. There are another 376 people working for **Synen Space Services** which is the facilities contractor for the operation. There are about 100 NASA employees on site. Artemis 1 is expected to launch before the end of 2021 and would be the first heavy lift launch since the Apollo series. It is designed to go back to the moon and perhaps to Mars.

The other large employer (960 workers) at MAF is the **USDA Finance Center** which is the government's largest payroll services provider. The **Coast Guard** has a facility at MAF that uses 187 workers.

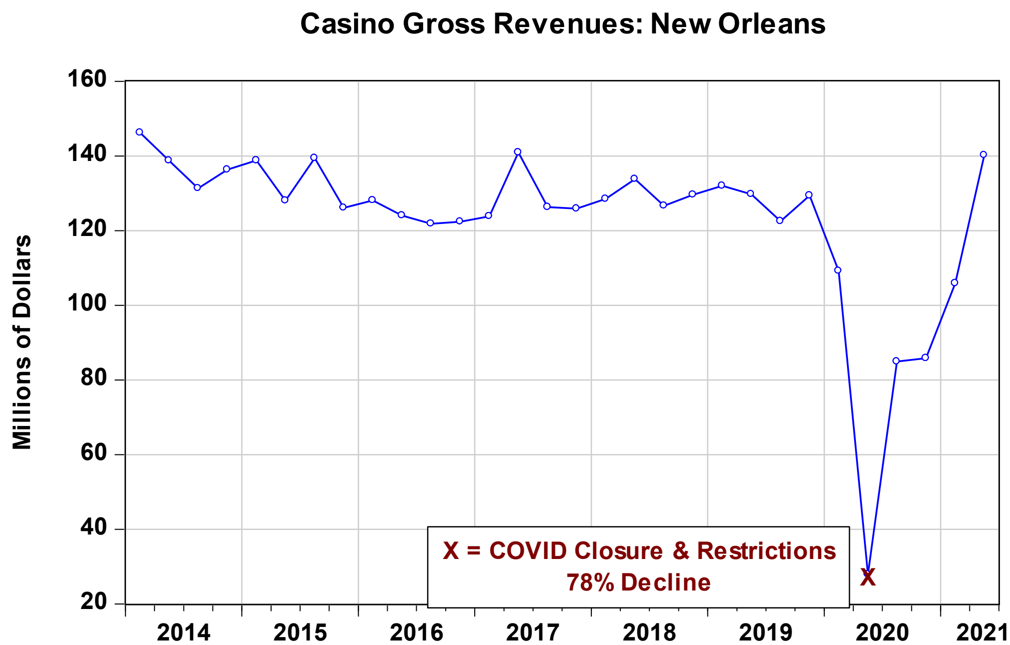
Will Peninsula Pump Gaming & A Welcoming Breeze?

Is gaming poised to be a huge job-producer for the New Orleans MSA? That question has not been asked about this region since shortly after the casinos arrived back in 1994. Why is it poised now? On November 13th, the citizens of St. Tammany Parish will vote on whether to allow **Peninsula Pacific Entertainment** to build a new casino on the waterfront near Slidell. Peninsula wants to move the DiamondJack license from Shreveport-Bossier to Slidell. Permission for the move has been granted by the Gaming Control Board, but the move requires the citizens of St. Tammany to over-ride a previous vote to ban casinos in the Parish. Peninsula plans to spend $325 million to build the casino on 50 acres, including a 250-room hotel. Employment is projected to be 1,500, obviously a major employment boost to the region.

Another boost to the economy will come via **Caesar's land-based casino**. The company will be spending $325 million on renovations to the casino and to add a 350-room hotel tower above the valet entrance. The project is scheduled for completion by 2024 and will add 500 jobs.

About 3,100 people were working in the two riverboat casinos, the land-based casino, and the Fair Grounds Racetrack in the MSA. As seen in Figure 14, this sector has been clobbered by COVID. The casinos were under mandated closure from mid-March to Mid-May in 2020 and then were able to open up at only 25% capacity until September when occupancy was increased to 75%. The result was a 78% decline in gross revenues between 2019-Q1 and 2020-Q2. In reality, it was much worse because for most of that interval gross revenues were zero.

Figure 14



Data Source: Legislative Fiscal Office

The other head-shaker about the data in Figure 14 is the remarkable recovery in gross revenues since they bottomed out in 2020-Q2. Not only have gross revenues totally recovered, they are actually among the highest levels ever experienced. While we have not scientifically tested this theory, our belief is the strong response was funded by the two rounds of stimulus checks provided during and immediately after the COVID shutdown.

While not a gaming company, the announcement by **Breeze Airways** that Louis Armstrong Airport would be its base was a big tourism win. The company will spend $6.6 million at the airport and hire 161 people at $65,000 annually.

Northshore: Remember Peninsula

Whether one is in favor or against the proposed **Peninsula Casino**, from an employment standpoint it is the key difference between a good outlook over 2022-23 for the Northshore and a great outlook. The Northshore has never faced the prospect of a one-time, 1,500-job prospect before. Nor can we remember another one-time $325 million capital investment in this area's history. The anti-gaming arguments are easy to understand and appreciate, as are the pro-gaming ones. The point is that the vote on November 13th will significantly determine this area's job future.

The Northshore is one of several areas of Louisiana that will be benefitting from the **Amazon** expansions. The company is building a new, 140,000 square foot distribution center in Slidell that will employ an expected 300 people at $15 an hour. One Northshore company that continues to benefit from the COVID shutdowns and travel restrictions is **Pool Corp**. The company now has 300+ employees on the Northshore and will be adding 5% a year over 2022-23. A total of 4,000 people work for Pool Corp across 14 different countries. Benefits company **Gilsbar** employs 376 on the Northshore, a figure that is expected to remain stable over the next two years.

Some key companies on the Northside of the Ponchartrain have close ties to the offshore oil and gas exploration sector. Chief of these is **Chevron**, whose Gulf of Mexico headquarters are located in Covington. The company employs 357 at this site. **C-Innovations** is an Edison Chouest company that conducts underwater ROV and AUV work for oilfield companies (90%) and the government (10%). About 270 people work in this corporate office and offshore. The company is about 30 people short now. **Hornbeck**---which supplies supply vessels in the Gulf---has about 34 vessels operating and another 42 stacked, which has been about normal in the industry since the 2014 oil price collapse. Hornbeck's shore-side operations employ about 160 and another 900-1,000 mariners operate its vessels. Now that Mexico has turned more exploration activities over to the private sector, Hornbeck has flagged a number of its vessels to work in this important, secondary market. All these companies are watching carefully the Biden Administration's

`

attitude towards fossil fuels and especially towards exploration activity in federal offshore waters.

Still a strong, and growing, firm for the Northshore and New Orleans East is **Textron Systems** with 750 employees across its three sites in the area. Textron just delivered three of its Ship-to-Shore Connector crafts to the Navy and has orders for 21 more. It's new Common Unmanned Surface Vessel---to be used for mine-counter measures---successfully completed trials in July, and its Cottonmouth amphibious vehicle is being built for the Marines. Textron has added 100 employees in the area in the last year.

What will really give the St. Tammany economy a nice lift over the next two years is **road work** (separate and apart from any national infrastructure legislation). The eight parishes in the New Orleans MSA are scheduled for $604.5 million in state road lettings. St. Tammany will get $214.6 million of that total or a whopping 36%. As a reference point, the six parishes that make up the Shreveport-Bossier and Monroe MSAs are scheduled for $249.9 million. Among the projects are:

- $75 million to widen LA3241 to 4-lane from LA36 to LA435;
- $55.4 million to widen 3241 to 4-lanes from LA40 to LA41;
- $27.9 million to widen US190 to 4-lanes from LA437 to US 190 Business.

In addition, the state is providing another $38 million to complete the 3rd phase of **I-12 widening** between LA59 and LA1077. The first phase---$55 million---is 62% complete and the second phase---$60 million---is 15% complete. In addition to these construction monies, St. Tammany is getting $1.2 million out of the latest **GOMESA** distribution for hurricane protection and coastal restoration.

Public Works: Levees, Roads & Superdome

Some major public spending projects are on the boards for this MSA over the next two years. Leading the pack are two huge levee projects. The **Plaquemines Parish 26-mile back levee** will use mud from the bottom of the Mississippi to rebuild disappearing wetlands. This $878 million project will be completed in 2024. An equally huge project is the $760 million **St. Charles/St. James levee** from Hope Canal near Garyville to the Bonnet Carre Spillway east of LaPlace. This work began in August 2021 and will take five years to complete.

As mentioned in the "Northshore" section, the state has approved $604.5 million in **state road lettings** in this MSA, down slightly from last year, and a large chunk (36%) will occur in St. Tammany Parish. In an important project for our ports, the

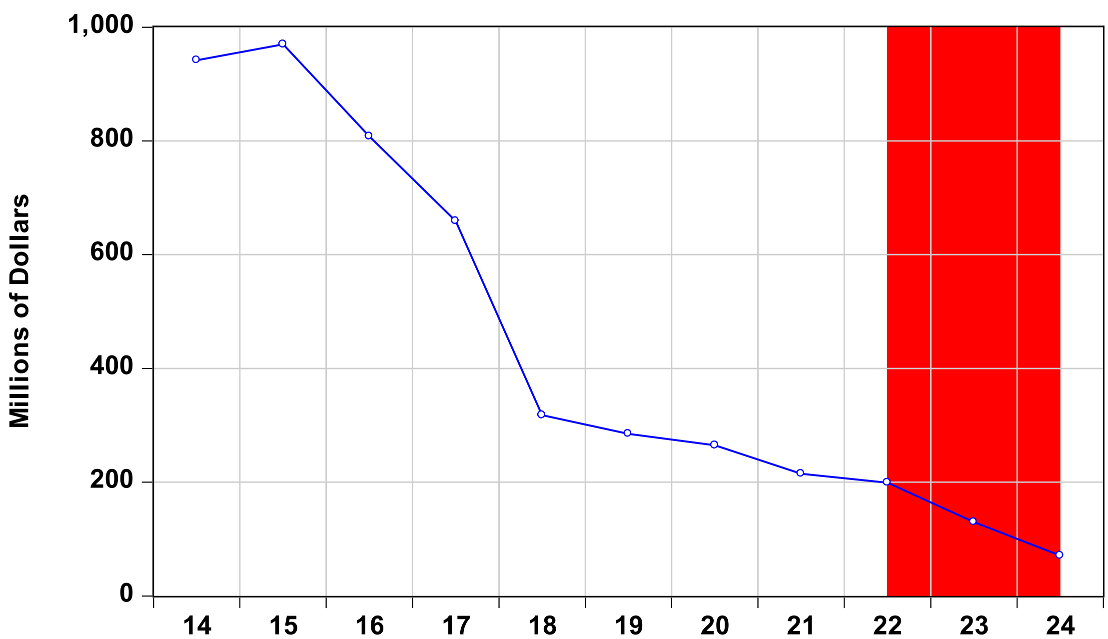
Army Corps will be spending $250 million to **deepen the Mississippi River** from 45 feet down to 50 feet between Baton Rouge and the Gulf. Back in 2015 the Corps was spending almost $1 billion in the area on its Hurricane and Storm Damage Risk Reduction System, but as shown in Figure 15, those monies have declined steadily and will end in 2024.

Significant monies will be spent over the next two years on some public buildings. A 4-year, $450 million facelift is underway on the **Superdome**, which is part of a contract to extend the Saints in New Orleans through 2050. A $300 million renovation of the **Old Charity Hospital** is supposed to begin in 2021-H2 to create subsidized housing and some commercial facilities. The **LSU Health Sciences Center** should complete a $102 million 10-story apartment complex next year to house medical and nursing students. The status of a proposed $558 million, 1,200-room hotel on the up-river end of the **Morial Convention Center** has been put on a COVID-hold as we understand.

Two other, smaller public projects include the on-going work on the $44 million **Canal Street Ferry Terminal** and $60 million earmarked from the FAA for a runway extension at the **Louis Armstrong Airport**.

Figure 15

Hurricane & Storm Damage Risk Reduction System



Data Source: U.S. Army Corps of Engineers

Keep Your Fingers Crossed: Shell Norco & Bayou Steel

Earlier we indicated that Shell had closed its 1,100-person refinery in Covent and Bayou Steel had also been shuttered. The Shell Refinery is on the market, and we think probabilities are quite good that it will get sold and reopened. The case of Bayou Steel is a bit iffier. We understand that the Port of South Louisiana may be trying to buy the site, not so the POSL can run it, but so the port can effectively market it. We are keeping our fingers crossed on these two, because either (especially Shell) could add an extra spark to the MSA's growth prospects.

THE BATON ROUGE MSA

Invasion of the Amazons!

The Baton Rouge MSA is the second largest in the state behind the New Orleans MSA. In 2015, this MSA's employment rose above the 400,000 level for the first time in its history. However, COVID drove that number down to 393,400 jobs in 2021.

The largest number of parishes (9) is in this MSA: East Baton Rouge, West Baton Rouge, Livingston, Ascension, Iberville, St. Helena, Pointe Coupee, East Feliciana, and West Feliciana (see Figure 11). According to the Bureau of Economic Analysis, in 2020, East Baton Rouge Parish had the highest population in the state at 456,781. Interestingly, three of the top eight fastest growing parishes in the state, in terms of population, over 2010-2020 were in this MSA---Ascension (+18%), West Baton Rouge (+14.4%) and Livingston (+11.4%).

A combination of (1) access to the Mississippi by deep draft ships and (2) access to plentiful natural gas made this region a haven for the petrochemical industry. Louisiana is the 6th largest producer of chemicals---especially first-stage bulk chemicals that can be moved via ocean-going ships---and the Baton Rouge MSA is their largest home in Louisiana. Huge national and international firms like BASF, Dow, ExxonMobil, Eastman and others have very large facilities.

Louisiana also has an enormous pipeline network in the state, enough miles of pipelines to circle the globe four times plus. Access to those pipelines and access to the river to move their products helped Baton Rouge land the nation's fourth largest refinery, ExxonMobil and a across the river a smaller lube plant (ExxonMobil) and smaller refinery (Placid). The combination of the chemical plants and refineries is typically referred to as the petrochemical industry. These are very capital-intensive facilities located largely outdoors. A vast industrial construction industry---the largest in the state---resides within these plants daily to maintain them. In some cases, the number of contractors working at a plant equals the number of people wearing the petrochemical company's shirt.

Baton Rouge is as far up the Mississippi River as deep-draft ships can go, stymied by the Old River Bridge in north Baton Rouge. Inside this region is the nation's 8th largest port, the Port of Greater Baton Rouge. Louis Dreyfus has a large grain elevator at the port, and Drax Biomass runs its wood pellets through the port heading for power plants in Europe.

`

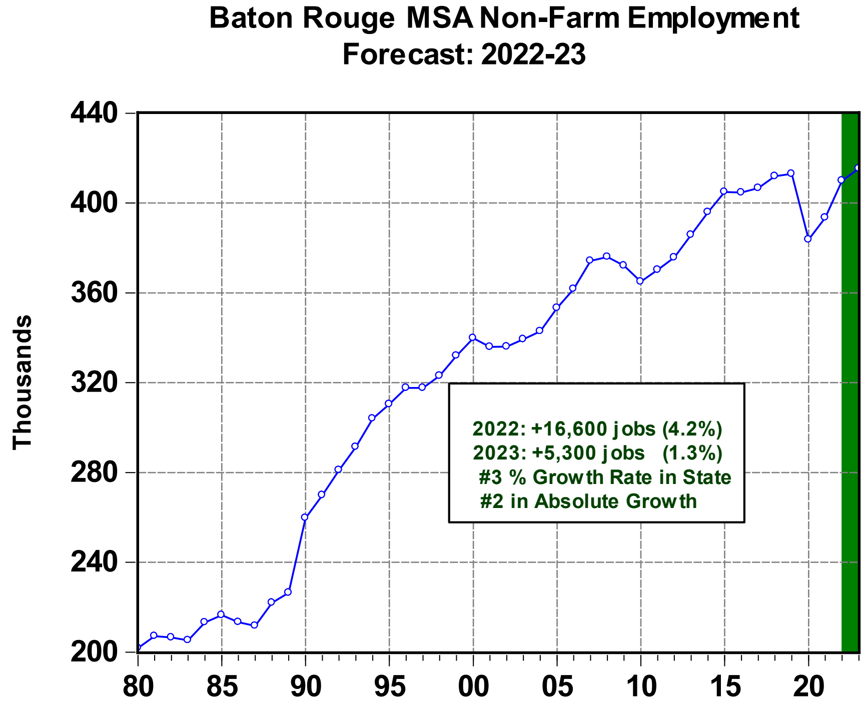
Government plays an outsized role in this MSA since Baton Rouge is the home of the State Capitol and its vast office complexes. Two state-supported universities are in Baton Rouge, LSU and the historically black college---Southern University. Started up only a few years ago, The Baton Rouge Community College is among the more successful of the community colleges in the state. Electronic Arts (game play technology) and the state-of-the-art IBM facility power a developing high tech sector.

2020-21: COVID Effects & Recovery

Figure 16 traces the employment history in the Baton Rouge MSA from 1980 through 2021 and provides a forecast for 2022-23. A detailed description of the history of this MSA over 1980-2019 is provided in Appendix B.

COVID let loose its vengeance on this MSA in 2020. **In April of that year the MSA dropped 63,100 jobs in one month**, a 15% decline that was slightly worse than the state loss of 14%. On an annualized basis, 2020 was 29,300 jobs (-7.1%) below 2019. Construction employment, an outsize player in this market, faced special difficulties over these two years. Many "turnarounds" planned for 2020 were postponed to 2021. Other projects that were underway were either slowed down or stopped completely. The work on the Methanex 3 plant in Gonzales is an example of the latter. Some companies were poised to announce an FID and begin construction of their new facility or an expansion but decided instead to postpone those decisions to 2022 or beyond. The $1.2 billion expansion at Shell's chemical plant in Geismar is a case in point.

Figure 16



Data Source: Bureau of Labor Statistics

On top of these industrial construction issues, layer the closure of **LaAlumina's** 392-person alumina plant in Ascension Parish, coupled with about 375 persons being laid off at **Stupp Piping** and you get a slightly bigger hit to this MSA compared to the State as a whole. Having all three of its **casinos** completely shuttered from Mid-March to Mid-May (-1,600 workers) added to the misery.

These losses were somewhat offset by the opening of a new 120,000 square foot **Amazon** distribution center in the Industriplex that created 250 new jobs. Too, **Turner Industries** had filed a WARN notice with the Louisiana Workforce Commission that there would be 350 layoffs at its pipe facility in Port Allen. Fortunately, those layoffs never materialized and 375 people are employed at the site now.

As indicated back in Table 3, by June of 2021 this MSA had recovered an estimated 58% of the jobs lost to COVID. This is a significantly better performance than statewide (49%). We are estimating that by the end of 2021, the MSA will have recovered 81% of its COVID losses and will be 100%+ back in 2022. On an annualized basis (see Figure 16), the Baton Rouge MSA is expected to add 9,700 jobs in 2021, a 2.5% growth rate.

Forecast for 2022-23: Invasion of the Amazons!

Our forecasts for 2022-23 are also shown in Figure 16. **This MSA is expected to recover virtually all jobs lost to COVID by 2022, adding 16,600 jobs (+4.2%) in that year. The MSA is projected to add another 5,300 jobs in 2021 (+1.3%), moving the MSA to a new record level of employment of 415,300.** In absolute terms, this would make the Baton Rouge MSA the second fastest growing MSA in the state and the third fastest in percentage terms. New Orleans and Lake Charles are ranked higher primarily because they are recovering from a much slower recovery in 2021.

Even More Amazon

COVID has made many changes in our lives, and one has been a major switch of retail from in-store sales to online sales. That, in turn, has meant an increase in the demand for delivery services. Amazon, in particular has been throwing up sites all over the state.

By far the biggest economic development news for this MSA was the initiation of construction of a new **Amazon fulfillment center** at the old Cortana Mall site on Florida Boulevard. The Mall was completely torn down and a new $200 million, 3.5 million square foot robotics fulfillment center that will be twice as large as Cortana is under construction. Exact employment at the center once it is operational is not known, but from the number of parking places being built it is estimated at between 1,000 and 3,600 jobs. That is a wide range, but even the lower end would be a huge boost to the area's economy. The facility is projected to open in August 2022. Amazon's primary real estate company has also purchased a 63-acre site in Port Allen for a **sorting center**. That facility is projected to employ about 300 people.

Some caution must be used in evaluating the net new jobs to the area from the Amazon facilities. Remember that these new facilities are needed because people are going to retail outlets less frequently, meaning jobs are declining in those areas. It remains to be seen what the net employment impact of these changes will be.

Industrial Construction: Still a Powerful $14 Billion Driver

The wide difference between natural gas prices in Europe and Asia versus those in the U.S. (see Figure 10) has fueled a massive round of investments in the petrochemical industry in the Baton Rouge MSA since 2012. Fortunately for this MSA, those investments continue unabated. By our count **there are $6 billion in capital investments underway in this region and another $7.9 billion that have been announced but have yet to issue an FID**. These projects have fueled a solid, and growing, industrial construction demand for such large Baton Rouge area players as Turner Industries, ISC, Performance Contractors, Cajun Contractors, MMR, and others. Among the projects underway are:

- After recently completing a $1.3 billion expansion (SPP3), **Shintech** has begun site work on the $1.5 billion SPP4 plant. There are 500 people presently employed at Shintech and this will add another 30 high-paying jobs at $86,000 a year.
- In July, work was resumed on the COVID-paused $1.4 billion Methanex 3 plant in Geismar. We understand there is still between $800-900 million in construction remaining, and it will take until late 2023 to complete. Once operational, this plant will add 25 jobs to the workforce at $80,000 a year.
- Also in Ascension Parish, work is underway on **REG's** $825 million expansion (to triple its size) to manufacture renewable diesel fuel out of animal fats. The addition will create 60 new jobs paying $45,000.
- It was heartening to see construction underway or triggered for three large **ExxonMobil** projects in this MSA. Work is moving forward on a $500 million expansion of the firm's polyolefin plant that will open in 2022 with 65 new jobs. Some $410 million in new equipment, technical advances and upgrades are scheduled for the refinery as a part of that unit's Competitiveness Initative. Among the additions will be a new mooring system for larger vessels at the company's docks. Finally, ExxonMobil plans to spend $334 million over the next 30 months at its 3,722-person chemical plant on maintenance and expansions.
- **Formosa Plastics** in spending $332 million to expand its PVC production plant, a move that will generate 15 new jobs paying $77,667 annually.
- On the west side of the river in Plaquemines, Louisiana **SNF Flopan** has begun a $300 million expansion to produce more polyacrylamide and acrylamide. This expansion should be completed in 2022.
- In response to a significant increase in housing starts across the country, new and expanding lumber mills are sprouting up across Louisiana. In Holden, **Weyerhaeuser** will be investing $157 million over the next three years on a new planner mill, upgraded continuous dry kilns, and upgraded

computer and environmental equipment. The firm will add four new jobs and retain 119.

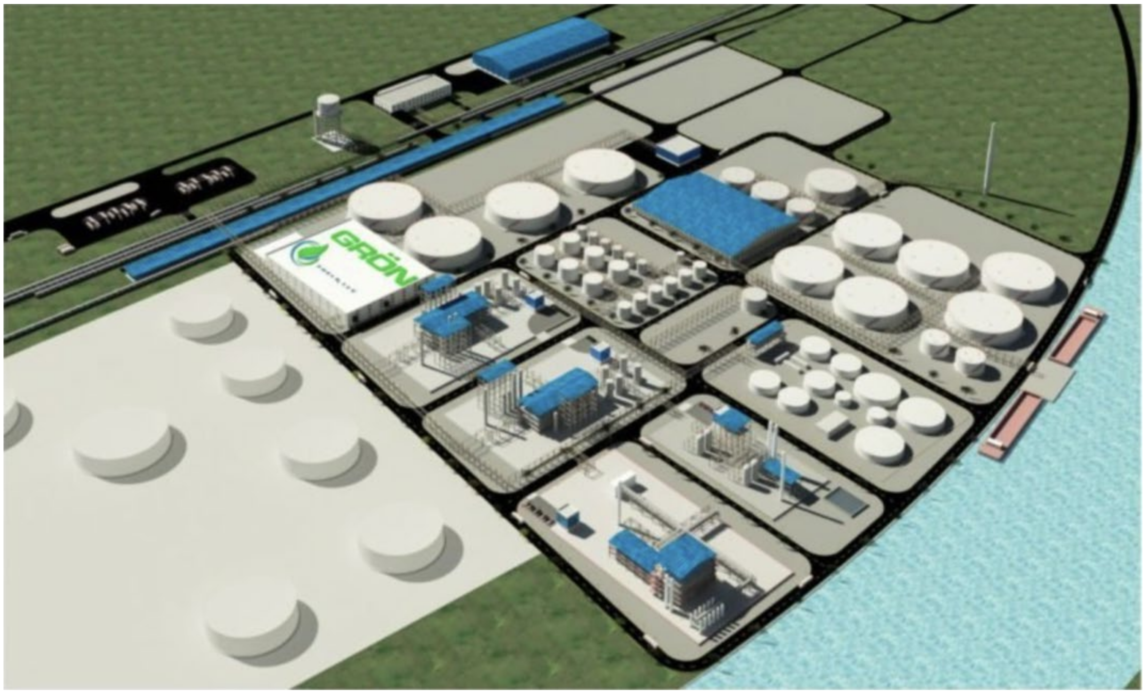
- **Air Liquide** is spending $145.5 million on an air separation unit in Port Allen, a move that will produce 10 new jobs and an additional $1 million in total payroll.
- In St. Gabriel, **Eastman/Taminco** has a 3-year $70 million project underway to expand and modernize its facility that will generate five new jobs.
- The **1.4Group** has begun work on a new $35 million chemical processing facility that will produce insect repellants and preservatives for potatoes in storage. Thirty-four new jobs paying $68,619 annually will come with this new plant in Ascension Parish.
- **Honeywell** is in the midst of a $20 million project to add products and upgrade manufacturing at its facility on Airline Highway in Baton Rouge. The expansion will result in 15 new jobs.

Happily, prospects are quite good for further additions to this already lengthy list as FIDs materialize on a number of announced projects. They include the following:

- An FID was expected in 2021 on **Shell Chemical's** proposed $1.2 billion expansion of its chemical plant in Ascension Parish. The company is planning a world-scale mono-ethylene glycol unit that would support 23 new jobs paying $100,000 annually. The FID has been pushed to 2022 due to COVID. We place a high probability on this project.
- An FID is expected by mid-2022 from **Mitsubishi** for a $1 billion methacrylate manufacturing complex in Geismar. A 67-acre site has been purchased next to REG. The company would hire 125 people when operational and pay an average salary of $100,000. We place a high probability on this FID.
- An FID is expected later this year on the proposed $9.4 billion **Gron Fuels** renewable diesel plant at the Port of Baton Rouge (see Figure 17). Diesel would be made out of soy beans, canola oils and animal fats. The plant would be built in phases, and phase 1 would be $1.2 billion and would generate 340 jobs at $100,000 annually. When all phases are completed some 1,025 jobs would result.

Figure 17

Proposed Gron Fuels Plant: Port of Baton Rouge



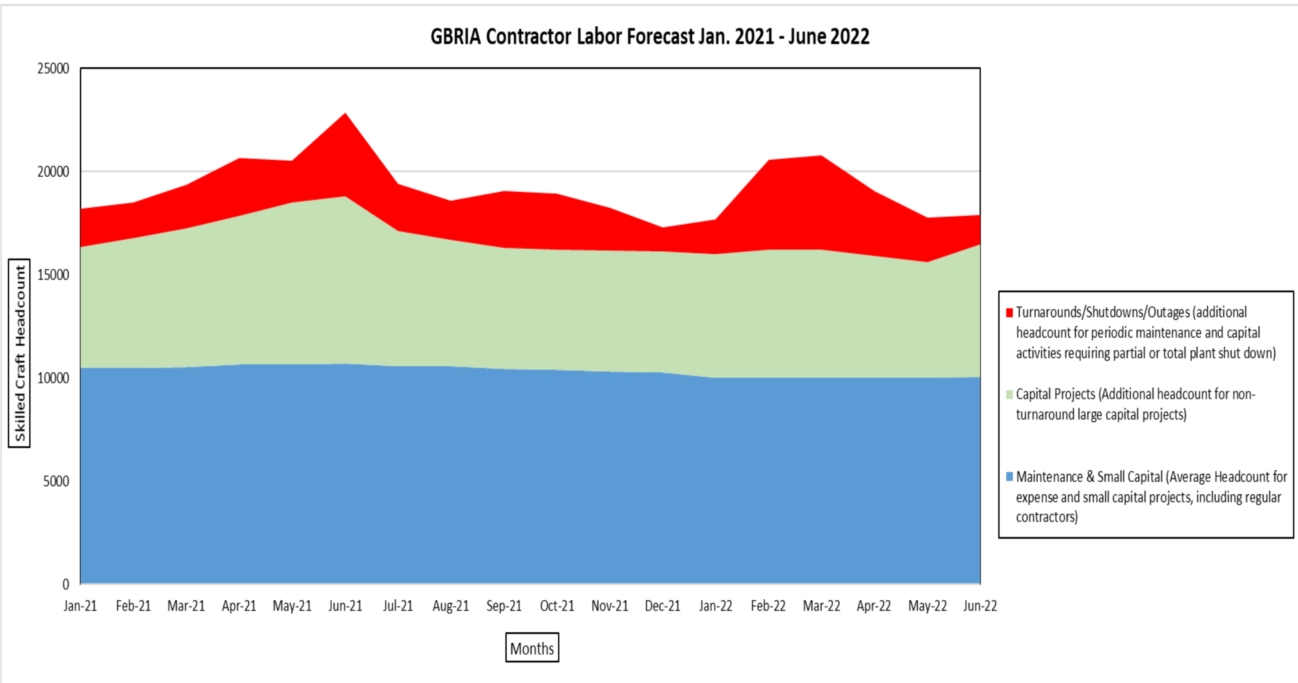
Drawing used with permission from the Port of Greater Baton Rouge.

- The 1,600-person **BASF** facility in Ascension Parish is poised for more growth. An $803 million expansion is very near an FID and an $868 million expansion (MDI3) has an FID that has been postponed to 2022-23.
- An FID has also been postponed to 2022 on a proposed $560 million expansion of **Nutrien**'s ammonia plant in the Ascension/Iberville Parish area. If approved, this expansion would add 15 new jobs to Nutrien's 170-person workforce.
- A $450 million expansion of **Westlake**'s vinyl chlorine monomer plant in Geismar would generate 15 more jobs at the facility. Board action on an FID is expected in October 2022.
- There are three solar farms proposed for this region that total almost $1 billion in capital spending. **Bueche PV1** wants to construct two solar farms, a $308 million facility in East Feliciana Parish and another $240 million farm north of Port Allen. If approved, construction would start in July 2022. **BP** has announced plans for a 1,000-acre, $300 million solar farm in Pointe Coupee Parish.

- In Ascension Parish, **Huntsman-Rubicon** is planning a $280 million expansion of its MDI production facility, where it presently employs 450 company employees and 275 contract workers. Its industrial tax exemption process is complete. The project was initially delayed by COVID but is expected to move forward.
- **Air Liquide** was expected to build two $139 million air separation units to support the Methanex 3 plant in Geismar. If constructed, each unit would support four new jobs at $100,000 each. Now that construction of Methanex 3 has restarted we expect these two facilities to go forward as well.
- **CF Industries** is very close to a decision on a $100 million green ammonia project in Geismar. A decision is expected in 2021-III.
- **International-Matex Tank Terminals** is considering a $100 million investment next to the REG site. It would include six storage tanks, two pipelines and more dock space. We place a high probability on this project.
- We place a high probability on an FID being granted on **Placid Refinery's** proposed $94.5 million upgrade to its refinery in Port Allen. The refinery employs 223 people now and would add five new jobs with this upgrade.
- **Railport** has been negotiating with Syngenta to develop a rail and warehousing facility on Syngenta's site. An $87 million dollar project had been proposed for the St. Gabriel area, but at the Syngenta site the project would be on a much smaller tract so would be smaller. Probabilities for this project are about 50-50 now.
- **Coca-Cola** is considering a $42 million investment to expand its bottling plant in Baton Rouge. The firm wants to add a 120,000 square foot warehouse and make upgrades including adding new equipment. The investment would result in 15 new jobs added to its 558-person workforce.
- **Veolia North America** is requesting an industrial tax exemption for a $20 million chemical plant in Ascension Parish. Our understanding is this project has been put on hold.

This lengthy list of $7.9 billion in proposed projects is important to keep in mind when interpreting the data in Figure 18. This chart shows forecast of industrial construction employment needs derived from surveys conducted by the Greater Baton Rouge Industrial Alliance (GBRIA). Note that industrial employment is projected to vary from about 16,000 to 23,000 through the end of 2022. However, the reader's attention is called to the pea-green portion of the chart---the new capital projects. If just three or four of the proposed projects we listed above issue FIDs, there will be a noticeable swelling in that pea-green portion. We believe that is going to happen and the chart in Figure 18 will start to bulge upwards in 2021.

Figure 18



Graph used with permission from GBRIA.

COVID & High Water Batter the Port

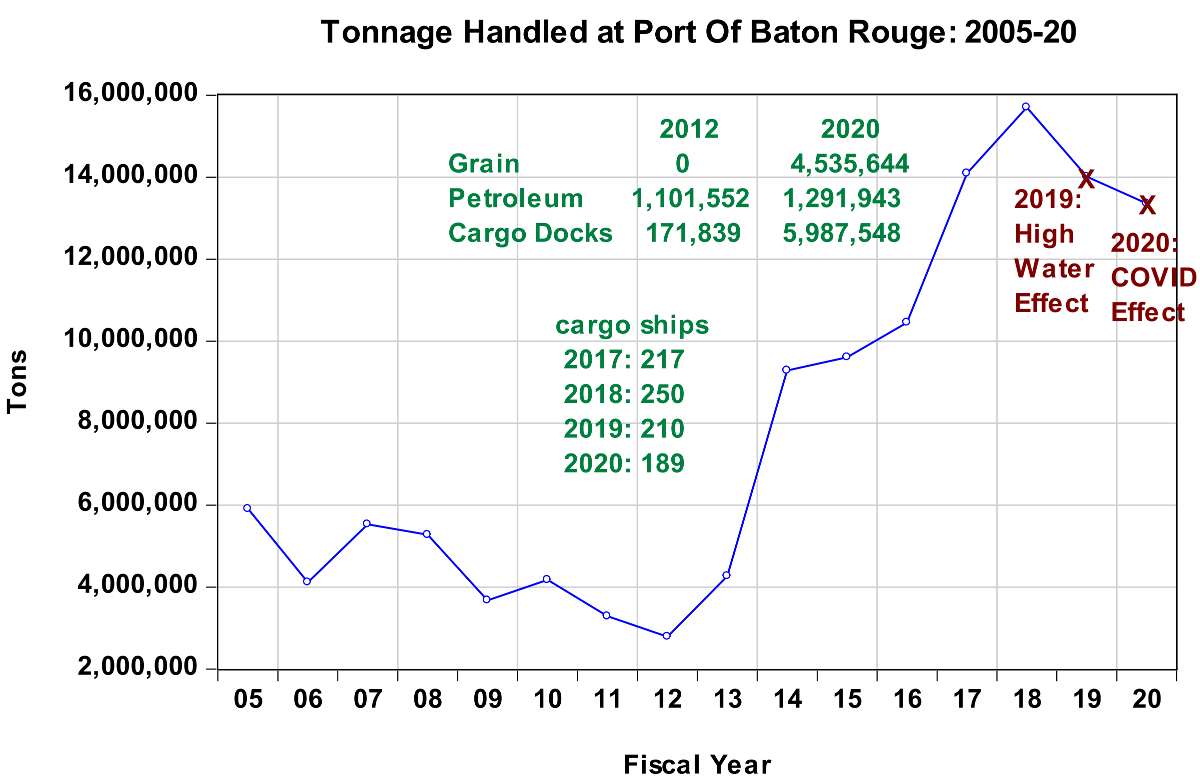
The nation's 8th largest port has taken it on the chin the past two years after spectacular growth in the preceding six years. Between 2012 and 2018, tonnage rose from 2.8 million tons to 15.7 million tons---almost by a factor of six. During this period **Louis Dreyfus Commodities** made a major investment in an export grain elevator at the Port, and as seen in the insert in Figure 19, over 4.5 million tons of grain were added to the Port's tonnage numbers. In 2020, 74 ships came to the port to handle grain from Dreyfus. In addition, **Drax Biomass** added two new holding facilities for the wood pellets in brings in from plants in Northern Mississippi and Louisiana to be shipped to Europe. The Port handled 27 ships for Drax alone in 2020.

`

In addition, in partnership with the port, **SECOR AMH** built---and then expanded---the Inland River Marine Terminal. The IRMT is located on a barge canal near the intersection of the Mississippi River and the Gulf Intracoastal Waterway. The container-on-barge service takes empty barges from Memphis to several local petrochemical plants where they are filled with containers loaded with plastic pellets. The containers are then shipped down the Mississippi River to New Orleans where they are sent to plants in Europe, Asia and South America. A total of 8,018 containers left the IRMT in 2018; by 2020, that number had risen to 13,835.

Unusually high waters on the Mississippi River significantly reduced authorized vessel traffic on the River in 2019 and 2020, and then COVID piled it on in 2020 as well. Note in Figure 19 that tonnage at the port declined from 15.7 million tons in 2018 to 13.4 million tons in 2020. The number of ships handled feel from 250 in 2018 to 189 in 2020.

Figure 19



Data Source: Port of Greater Baton Rouge

Waiting in the wings are two possible, very large wins for the Port. The first is the possibility of Gron Fuels (described above) declaring an FID on its huge renewable diesel plant. The second is the possible award of a $15.2 million port priority application for expansion of the northern petroleum terminal berth that would make possible unloading of a a fourth deep draft vessel.

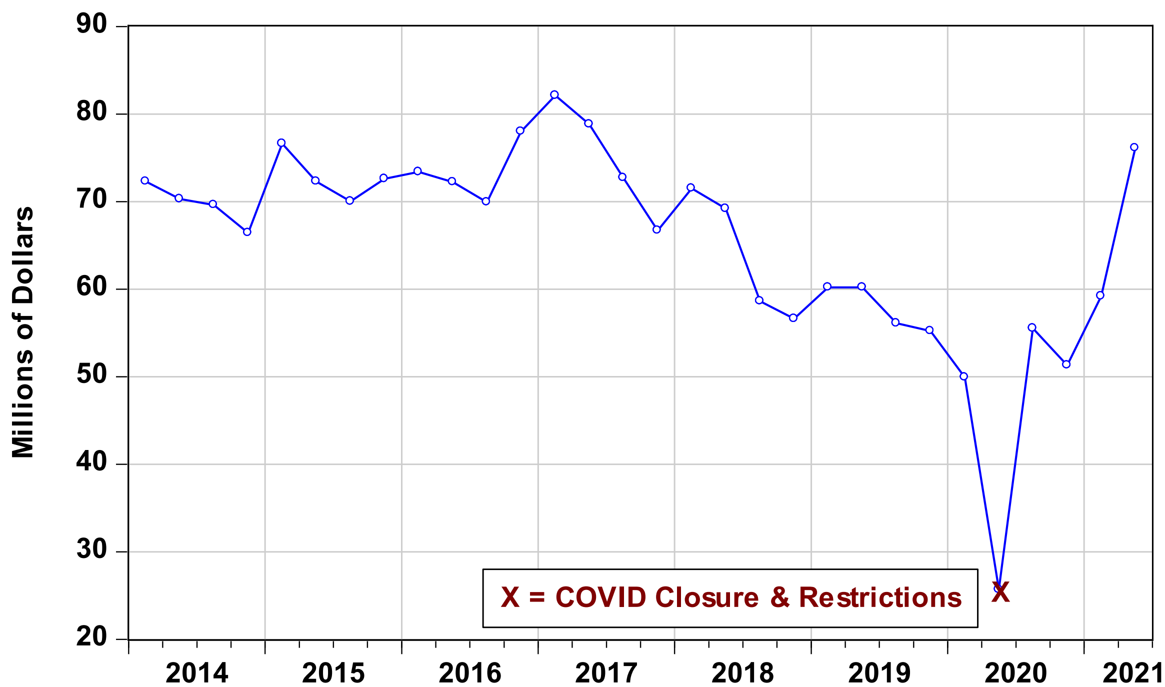
Casinos: Hollywood Coming on Land

Figure 20 contains data on adjusted gross revenues at the three casinos in the Baton Rouge MSA. Prior to COVID these revenues had been on a serious downward trend from $82.1 million in in 2017-I to $55.2 million in 2019-IV. COVID closed these casinos from mid-March to mid-May, then, when they were allowed to reopen it was limited to 25% capacity until September when the capacity limit was raised to 75% by Governor Edwards. Note in Figure 20 that **gross revenues fell by more than half to only $25.7 million in 2020-II. Employment fell from a high of 1,614 in 2019-IV to 1,098 in 2020-IV---a decline of 32%.**

The good news is that fueled by government stimulus checks, gross revenues rose to an unanticipated $76.1 million in 2021-II, a level that significantly exceeded the pre-COVID levels. Our expectations are that once the "fuel runs out," gross revenues will returns to the mid-$50 million level of pre-COVID.

Figure 20

Casino Gross Revenues: Baton Rouge



Data Source: Legislative Fiscal Office Louisiana

One other factor could push gross revenues higher over the next two years. A deal will be finalized at the end of this year for Hollywood to be purchased by Twin River Casino. The company broke ground in August on a **$60 million project to move this casino on land**. Once the move is completed the casino expects to add about 200 more people to its payroll.

What will happen next in the Baton Rouge casino market? License plate counts conducted several years ago indicated that this market is heavily locally driven, as compared to Lake Charles and Shreveport-Bossier that draw heavily on the Texas market. A locally-driven market is not likely to expand much over time. Twin River also purchased the Belle of Baton Rouge, a casino in which the previous three owners had invested very little. Given Hollywood's on-land move and the presence of the much larger L'Auberge Casino, an interesting question is whether or not the new owners will try to move the Belle to another site in the state.

A Bump from Public Construction Projects

The focus to this point has been on the private sector contributions to economic growth in the Baton Rouge MSA over the next two years. There are, however, some unusually large public sector construction projects that will pump a great deal of money into this region's economy over 2022-23, such as:

- Taxpayers in the other 49 states are once again coming to the aid of Louisianans after the devastating impacts of the 2016 flood. $1.4 billion has been awarded from the Army Corps to the area for two key projects. The first is $343 million to help complete the **Comite River Diversion Canal**. The total cost of this project is $450 million, with the balance to be covered by taxes assessed by the Amite River Basin Commission. Completion of the canal is expected in December 2022. Another $255 million has been provided for clearing, widening, and dredging **Parish waterways---especially Jones Creek, Wards Creek and Bayou Fountain.** Permits have been approved, land has been acquired, and work should start about the time this forecast goes to press. The project will take about another 3 years. Another $1.2 billion has been provided for **flood resiliency protection**. These dollars will be spread over 5 years. The Governor's office has started the process of developing the projects under this program. It is expected that spending will pick up over 2022-23. A total of $1.7 billion has been set aside in **HUD housing flood recovery** assistance. About half of these monies have

`

been expended, and the rest should be spent by the end of 2022. The **Hazard Mitigation Grant Program** is providing $300 million in the Capitol Region to elevate homes, buy homes, and tear down some homes and to implement flood control measures. Only about half of these monies have been spent, and the remainder should be by the end of 2022.

- A substantial amount of **state spending on roads** is planned for this region over 2022-23. Specifically:

    - Kiewit and Boh have been selected to construct Phase 1 of the project to **widen I-10** from LA415 to the I-10/I-12 split. Phase 1 is a $716 million section that runs from Washington Street to Essen. Work is scheduled to begin in late 2022.

    - The state has designated $529.6 million in **road lettings** for this region over 2022-23 (down from $606.8 million last year). Among the larger of these lettings are:

        - $165.5 million for the LA1 to LA415 connector;
        - $19.7 million to 4-lane LA30 from Brightside to Gourrier;
        - $16.3 million to 4-lane Sullivan Road.

- Almost $1 million in **GOMESA** monies ($914,542) will be spent in Livingston Parish on coastal restoration and hurricane protection projects.

THE LAFAYETTE MSA

Positives Galore, But the Gulf of Mexico?

The second most oil-dominant MSA in the state is the 5-parish Lafayette MSA. Located in the south-central part of Louisiana along and below I-10, it is composed of Lafayette, St. Martin, Vermillion, Acadia, and Iberia Parishes. In 2021, there were about 196,600 people employed in this region, and of that amount 5.2% were directly employed in oil and gas extraction and support activities for the industry. That is more than three times the state average, and is closely connected to the oil and gas exploration that goes on in South Louisiana and the Gulf of Mexico.

Not surprisingly, there are many fabricators (e.g., Frank's Casing) and service firms (e.g., Halliburton) that came to the area because of their close ties to the exploration sector. Because of their special skills, business for these firms extends to the Permian Basin and all the way to North Dakota. Many firms handle both U.S and international service and exploration work. Several large companies serving the offshore industry utilize the very productive **Port of Iberia** located in this MSA.

Lafayette is far more diversified MSA than Houma, another oil dominated MSA. Consider the following non-energy firms:

- **Acadian Ambulance:** 1,315 employees and a subsidiary that monitors over 200,000 alarms in 40 states and monitors businesses and houses via videos
- **Stuller Inc.:** 1,025 employees and the nation's largest jewelry settings manufacturer
- **LHC:** 889 employees just in Lafayette and the nation's second largest home-health company
- **Waitr:** 690+ employees plus a nationwide home food delivery complex
- **CGI:** 650 employees and a growing high-tech firm
- **SCP Health:** 540 employees providing ER and hospitalist medicine doctors to hospitals in 30 states

Lafayette is the home of one of the state's larger public universities---the **University of Louisiana at Lafayette**---making it a significant university town.

2020-21: COVID Hit & Recovery

Like all the other MSAs in the state, the Lafayette region was thrashed by the COVID shutdown. **In April 2020, the MSA lost 24,200 jobs, a drop of 12%.** While an awful blow, it was less than the 14% hit absorbed by the state as a whole or the

18% leveled on New Orleans and Lake Charles. It was helpful that Lafayette has no gaming industry like those other two MSAs, nor does it have a robust convention business to shutter. Lafayette began to recover as the economy reopened and ended up with an annualized **loss in 2020 of 14,200 jobs (-6.9%)**

As documented back in Table 3, by June 2021 the Lafayette MSA had recovered only 46% of its initial COVID job losses, a number lower than the 49% recovery at the state level and much below places like Baton Rouge (58%) and Shreveport-Bossier (57%). Exploration dependency was behind this weaker performance. Oil prices initially plummeted (see the "Basic Assumptions" section), and the Biden Administration took some very adversarial steps towards the industry. Several firms in Lafayette service exploration activities in places as far away as the Permian Basin, where the rig count dropped dramatically and is far from fully recovered.

Forecast 2022-23: Plethora of Growth Sources but O&G?

Figure 21 tracks employment in this MSA from 1980-2021 and illustrates our forecast for 2022 and 2023. Readers interested in a historical review of this MSA over 1980-2021 are referred to Appendix C. **We project the Lafayette region will add 9,200 jobs (+4.7%) in 2022---much of that being recovering COVID losses---and an additional 2,100 jobs (+1%) in 2023**. This projection would make the area one of the fastest growing in the state (in percentage terms), but readers are reminded that this MSA also has experienced a weaker recovery in 2020-21 from the COVID hit so has more to gain back.

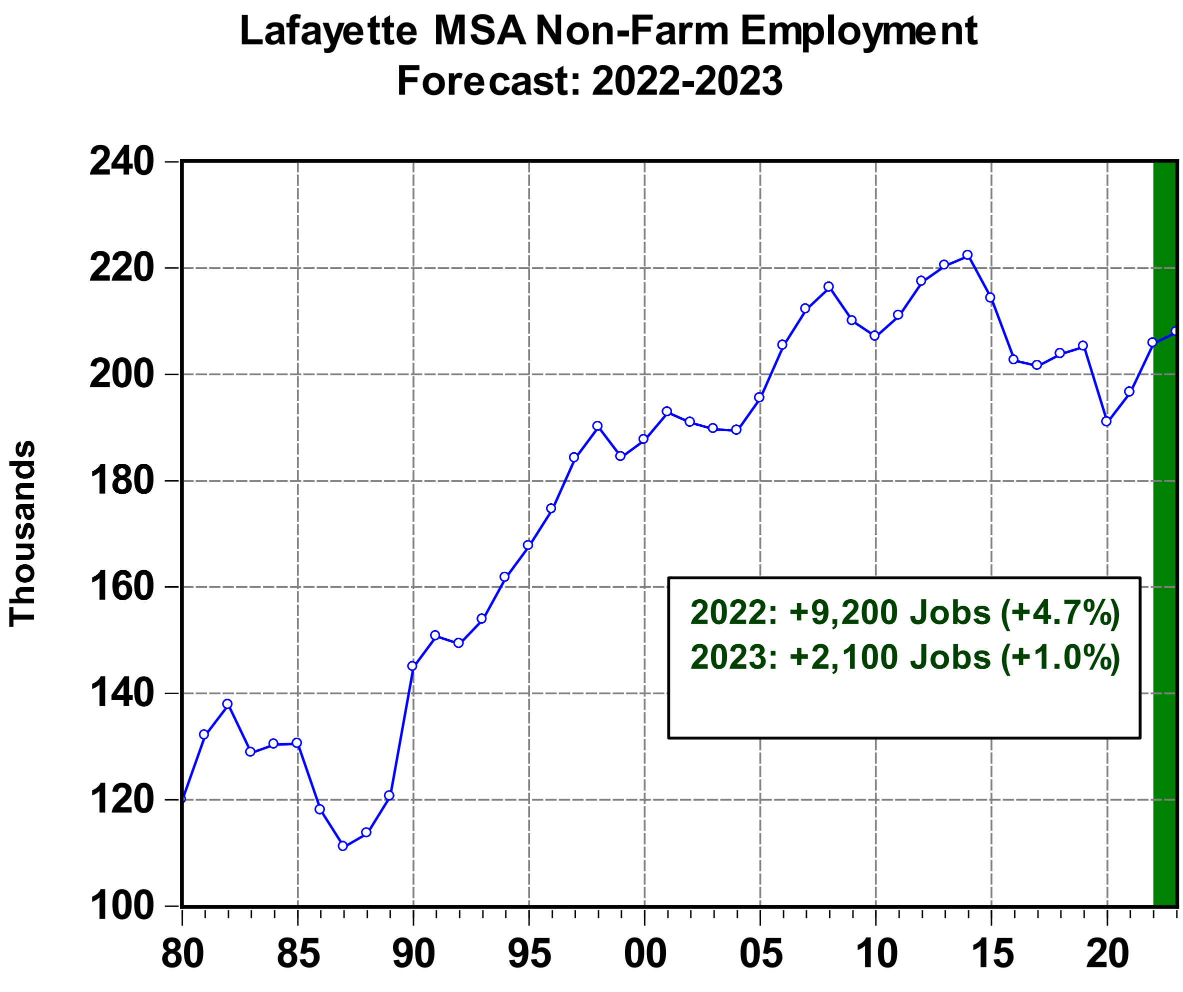
As the heading to this section indicates, there are several nice job-creating sources ahead for this MSA over the next two years. The real wildcard in the forecast is the pace of recovery in the oil and gas sector.

A Plus from the GOM; A Minus from the Permian

In the opening description of this MSA it was pointed out that this is one of the most oil and gas-dependent regions in the state, or for that matter, the nation. 5.2% of its workforce is directly working in the oil and gas exploration sector (four times the state average), and a wide variety of local fabricators and service firms are indirectly tied to the exploration side. Where the oil and gas industry goes, so goes the Lafayette MSA---a point made obvious in our historical description of this region in Appendix C.

The question is where is this industry heading over the next two years? Guessing is like peering into a very soupy fog. Certainly, if our oil price projections of mid-$60s for oil and $3+ for natural gas hold true, that would be a positive for the industry. A great problem is uncertainty surrounding the Biden Administration's attack on this sector. How real and how intense will it actually turn out to be? Our read is that prospects for the Gulf of Mexico (GOM) are different from those for the oil shale plays in Texas, Colorado and North Dakota.

Figure 21



Data Source: Bureau of Labor Statistics

Activity in the GOM has not really slowed much and is not likely to over the next two years. Scott Angelle---a native of Breaux Bridge and former Director of the Bureau of Safety and Environmental Enforcement---has pointed out that the GOM is one of the better places to explore for fossil fuels in the world. Because there is virtually no flaring, the carbon-intensity of the oil derived is quite low. That means

`

less carbon dioxide emitted into the air compared to oil secured from other places.

The Biden Administration has put a hold on new lease sales in the GOM pending a study of impacts on the environment. While this is disconcerting, there are still a number of leases from past sales that are still scheduled to be explored. Importantly, **the Administration has not slowed the pace of permit activity on existing leases**. This would be very difficult for the Administration to pull off, because as Angelle points out, once the government sells a lease to an oil company the company enjoys "**lease engagement rights**." That is, a contract has been signed between the government and the company, allowing the latter to develop the field. The government cannot do something---like deny all permits---that would make the lease worthless. The bottom line is the moratorium on lease sales will impact activity in the future, but over the next two years it should pretty much be business as usual in the GOM. Further, a federal judge in Monroe has ruled the lease ban unconstitutional since decisions about lease sales are the prerogative of the Legislative branch not the Executive. At this writing, sales are provisionally being scheduled for early 2022.

Such is not the case in the onshore oil shale plays. While action in the GOM involves long range planning in the 7 to 10-year window, activity in the onshore plays is far more short term. Producing wells can be developed in a matter of months and investor-owned firms expect a nice, quick return while being sensitive to environmental issues. The present regulatory environment has reined in these investors so that the onshore rig count is nowhere near where it was pre-COVID. That means a significant loss of business for Lafayette area firms selling products and services in these plays. **Over the next two years, we do expect these sales to be problematic and slow the recovery of this MSA's energy-related firms**.

What will be the net impact on these energy firms? **Our expectation is the sector will act as a bit of a drag on the area's growth over 2022-23.** This outlook is not wholly supported by **Halliburton**, which has 930 people employed in the region at nine different sites. The company is expecting its employment to stay stable or grow slightly. Nor is it supported by **Offshore Energy**, a company that runs casings in wells. Its workforce in Lafayette is projected to stay at 200 over the next two years.

`

Ochsner & Amazon Bring Big Numbers

Our lead into this forecasting section for the Lafayette MSA indicated there was a "plethora of growth sources" ahead. At the top of that list are new projects by Ochsner and Amazon. **Ochsner** is partnering with Safe Source Direct to construct (1) two manufacturing plants and (2) a headquarters in the MSA. The group will spend $73 million to retrofit an 80,000 square foot building for a manufacturing plant and a headquarters in Broussard (see Figure 22). Another $77 million will be used to build a new 400,000 square foot facility in St. Martin Parish. The plants would manufacture personal protective equipment such as surgical masks, hair covers, shoe covers and N95 masks. The facilities are under construction and once opened will employ a very impressive <u>1,221 people</u>.

Figure 22

Ochsner PPE Facility under Construction in Broussard

Reprinted with permission from Ochsner

Also under construction and slated to open in December 2021, is **Amazon's** new fulfillment center at the Evangeline Downs site. The 120,000-acre facility is projected to cost $100 million and will employ about 500 workers. That means in excess of 1,700 new jobs for the region (plus the multiplier effects) from just two projects---great economic development wins for the MSA.

The Big 6: At 5,500 and Growing

Lafayette is very fortunate in that it is not just unilaterally energy-dominated. There are six large firms in the area whose activities and employment have somewhat insulated this region from the worst effects of wild oil price swings. At the top of this list is the 1,315-person **Acadian Companies**. In addition to an ambulance service covering several states, Acadian also has a Safety Management Systems unit that operates mainly in the pipeline industry. The company is very short of paramedics and EMTs and would like to add 200 people to its payroll.

The largest jewelry settings company in the U.S. is located in Lafayette---**Stuller, Inc**. Having just added 300 employees in 2021, the company workforce is now at 1,415, a number Stuller would like to grow to 1,500 by 2023. Lafayette is also host to the country's second largest home health company. **LHC** now has 889 people employed in Lafayette, 3,226 employed statewide, and 28,437 employed across the nation. LHC expects to add 100 people a year to its Lafayette workforce.

Providing ER and hospitalist doctors to 300 hospitals across 30 states, **SCP Health** employs 540 people in Lafayette. Absent a merger, this number should remain relatively stable over 2022-23. Delivery service firm **Waitr**---a company whose business exploded during COVID---employs an estimated 690 people in the Lafayette area. At last report Waitr had 4,000+ workers in 20 markets in the U.S. A sixth fast growing firm in the region is information technology company **CGI**, located at the ULL Research Park (but moving into the former MidSouth Bank building in late summer 2021). Presently at 650 employees, CGI needs to be at 800 jobs by 2023. Their professional services people earn north of $90,000 and demand is very strong for this type of employee.

Note that about 5,500 people work in these six firms and that number should exceed 6,000 by the end of our forecast period. These firms represent an important diversification of this region's economy

The Second 4 Plus 3: Close by & Expanding

Close behind the Big 6 are three new firms with significant employment and good growth prospects. They are also helping to diversify the local economy even more.

One of two **Metal Shark Boats** facilities is located in the Lafayette area at Jeanerette. Aluminum boats that are small enough (under 200 foot long) to be trailered out are built by the company's 240 employees. The company has built about nine out of 50 autonomous vessels it will construct for the Navy. Metal Shark Boats plans to add about 25 jobs at this site. **Viemed** came to Lafayette about three years ago after purchasing the Stone Energy Building for its operations. The firm provides in-home equipment and therapy for respiratory care in 46 states. The company has 235 employees in Lafayette and 575 nationwide. At the Acadiana Airport, **Aviation Exteriors**---a company that paints aircraft for FEDEX, Boeing and others---employs 100 people. The firm would like to hire at least 50 more people but is struggling to find candidates. On the topic of airports, the **Kopter Group** was supposed to open a facility at the Lafayette Regional Airport to manufacture helicopters. Kopter was bought out by Leonardo, a company that will use its excess capacity in Philadelphia for this purpose. The deal is dead for Lafayette.

Last year, **School Mint** consolidated its operations and also moved its headquarters to Lafayette, with the potential to create 178 jobs. Presently at 59 jobs, School Mint is acquiring other firms, including Whetstone Education, SchoolRunner and BrightMinds Marketing. The firm is the leading K-12 provider of solutions for strategic enrollment management. Organized in mid-2019, **Completeful Technologies** is a drop-shipping fulfillment services firm. The company just purchased the Walmart Super Center and has hired 100 people with a goal of being at 200 people over our forecast period.

In addition to these three, the MSA had two other significant wins recently. The largest is **Delta Biofuels**, a proposed $70 million biomass fuel pellets plant on 16 acres near Jeanerette. Construction start is planned for this September with opening in September 2022. It will take 126 people to run the plant. Construction should also start this year on the $5.1 million **Westfield Hydraulics** facility, a company that will manufacture hydraulic and fluid control components. Relocating from San Fernando, Westfield will hire 67 people at the plant and pay $49,797 yearly plus benefits.

Port of Iberia: Will Turner Bring Big Bucks?

Another bright light in this MSA's economy is the **Port of Iberia**. Activity at the port will receive a nice positive jolt as a result of deepening the **Acadia Gulf of Mexico Access Channel** (AGMAC). As seen in Figure 23, this channel runs from the Port to the Intercostal Canal. About $38 million is now available to dredge the AGMAC to 16 feet deep where it will meet with the Canal which is already at 17-18 feet deep. The project starts in September 2021.

Figure 23

Map used with permission by Port of Iberia

Dredging of the AGMAC is critical to the Port because it enables Port tenants to fabricate and service much larger items. This was a key factor in attracting **Turner Industries** to secure the 93-acre east fabrication yard from Dynamic Industries. Officials at Turner have noticed that more and more plants are building their new or expansion units in modular blocks then putting them together at the plant site. With its new location and deeper access to the Gulf, Turner can build larger modular units and easily ship them to the building site. Work can occur year around, there is deepwater access and no size challenges. Turner anticipates 400+ new jobs by 2022 and perhaps as high as 800 by 2023.

Dynamic Industries still has a solid workforce of 400 at the Port doing maintenance work on offshore facilities. **Bayou Coatings** is presently averaging 180-220 employees at the Port. The future is looking good for this company with a backlog of pipe needing coating by the majors and the new LNG facilities needing concrete coating on their piping. The firm could add 50-100 people over our forecast period.

Also at the Port, **Chart Industries** makes cold boxes and has two nice contracts with Venture Global and Driftwood. Chart presently employs between 100-150 people. **Custom Compression** employs about 100 people in its facility at the Port where the company makes devices for the fracking business in West Texas. This company is owned by **Louisiana Cat**, which is also the largest marine equipment dealer in the western hemisphere. Unfortunately, that segment of business is challenged now. While at 200 people, that number will probably be dropping off.

Three other smaller companies at the Port are doing well and will be making additions to their workforces. **Seadrill** operates in Dynamic Industries' west yard and brings in rig parts from all over the world for repairs. The firm employs 60-80 people. **Red Guard** manufactures explosion proof buildings for industrial plants and offshore operations. At 25-30 employees, the firm expects to double that number over 2022-23. **Crosby Energy Services** is an ASME certified pressure vessel fabrication shop that employs about 60 people. The company just landed a contract with Formosa and should be adding about 25 jobs.

Construction: Major Jump in Lettings Plus Seven 16?

Separate and apart from the construction associated with building the facilities above, there are two other areas that will give this region an extra shot in the arm. Leading the race are the **new state road lettings** which the Department of

Transportation and Development tags in at $332 million, almost doubling the amount from last year ($182.4 million). The top three projects listed are:

- $125.2 million for a new interchange on I-49 South at Ambassador Caffey and US190;
- $26.4 million to raise the medium on LA182 from Jeanne Street to Alcide; and
- $23.4 million for rail spur removal on US90.

Due diligence is scheduled to be completed by October on the construction of **Seven 16 Lafayette Tower**, a $140 million, 240,000 square foot, 20-story tower. The first seven floors would be parking, with floors 8 to 16 for commercial and the top three floors for condos. The 2-year build out would create the tallest building in Lafayette at 260 feet.

On a much smaller scale, Iberia, St. Martin and Vermillion Parishes are scheduled for $3.1 million in **GOMESA** funds for coastal restoration and hurricane protection.

THE SHREVEPORT-BOSSIER MSA

Amazon Delivers---Jobs!

Louisiana's fourth largest MSA is located in the northwest corner of the state. Four parishes---Caddo, Bossier, Webster, and DeSoto---make up the Shreveport-Bossier MSA (see Figure 11). There are an estimated 169,900 non-farm jobs in these four parishes in 2021.

Unlike the other eight MSAs, a key metric for this MSA is its relatively high dependency on durable goods manufacturing employment, which makes the area much more susceptible to national recessions. Some of the larger durable goods manufacturers are:

- **Sabre Industries -** (formerly, CellXion) a manufacturer of cellular towers)
- **Frymaster -** a manufacturer of deep fryers and similar products for McDonalds and KFC
- **Ternium -** a steel components manufacturer
- **Benteler Steel -** a large steel plant at the Port of Caddo Bossier
- **Fibrebond** - in Minden, which manufactures modular electric buildings for data

Three major players in this market are:

- The **Caddo-Bossier Port** which is home to several firms including Ronpak, Sports South, the Ternium steel firm, the Pratt recycling company, and Benteler Steel. Altogether, tenants at the Port employ about 1,763 people.
- **BRF** employs 614 people at its various facilities, including its incubator support for new firms. It is home to the new Center for Molecular Imaging & Therapy.
- The **Cyber Research Center** which is a major new and growing player in the region with 1,350 employees at its three centers.

Shreveport-Bossier is also home of the **Haynesville Shale**---a very large deposit of natural gas. One of the first plays to use the fracking technology, exploration companies invested $4.5 billion in new dollars (including about $3.2 billion in mineral lease payments) into the northwest section of the state in 2008. The following year, that figure rose to $7 billion (including about $1 billion in mineral lease payments). The Haynesville is poised to be a significant factor in this region's economy over the next two years.

The military plays an important role in this MSA, because Bossier City is home to **Barksdale Air Force Base**, an employer of 9,206 military/civilian workers. Shreveport-Bossier is also the state's second largest casino market. This MSA now has five **large river boat casinos** plus the **Harrah's Racetrack**, which together employed 4,146 people in 2019-IV.

2020-21: Hammered by COVID, Followed by Strong Recovery

Figure 25 below reveals the track of nonfarm employment in the Shreveport-Bossier MSA over 1980-2021 along with our forecast for 2022-23. Readers interested in a review of the history of this economy from 1980 through 2019 are referred to Appendix D.

Like every other MSA in the state, the Shreveport-Bossier area was clobbered by COVID. This MSA lost 13,300 jobs on average in 2020, a decline of 7.3%. **In April 2020, this first full month of the shutdown employment in the area fell a full 23,400 jobs or 13%**. The region had 4,542 people employed in its six casinos and another 188 at the Harrah's Racetrack before COVID hit. All those gaming venues were closed from mid-March to mid-May and then were only allowed to reopen initially at 25% capacity. The region's smallest casino---DiamondJack---closed permanently, and attempts are underway to move that license to St. Tammany Parish

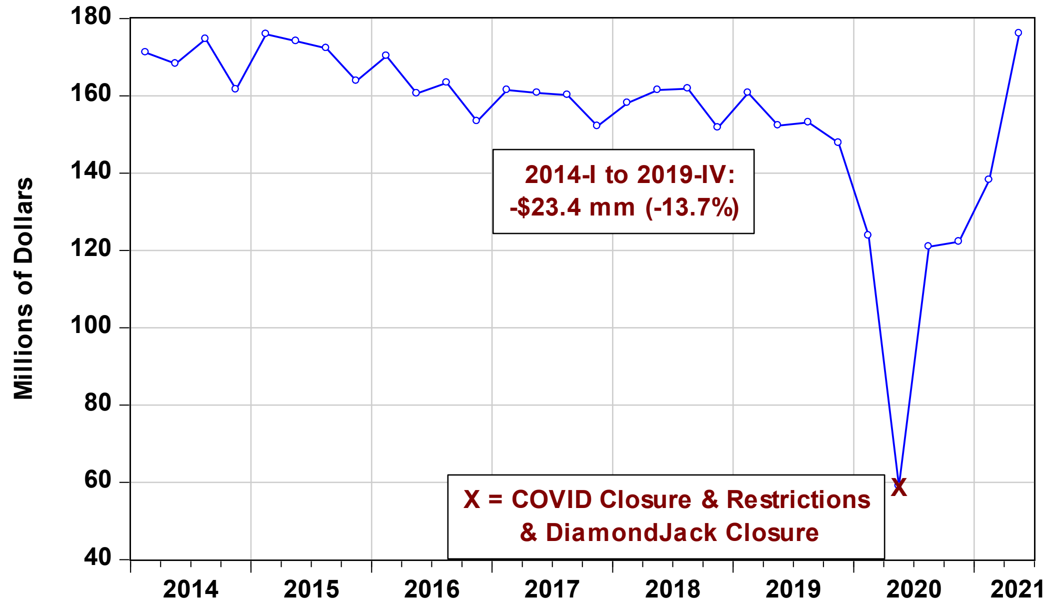
As seen in Figure 24, gross revenues at these casinos took a severe beating in the first two quarters of 2020, dropping from $147.8 million in 2019-Q4 to $59 million in 2020-Q2---a stunning decline of 60%! Remarkably, by 2021-Q2 gross revenues had not only fully recovered but also had reached a new record for the MSA of $176 million. And that happened with one less casino in the region. We attribute this remarkable recovery to the large stimulus checks that citizens received during this period.

Readers can also see in the graph in Figure 24 the **influence that the new Indian casinos in Oklahoma** have had on this region's casino market. In the pre-COVID years covering 2014-Q1 through 2019-Q4, gross revenues at the six casinos in the area declined 13.7% or $23.4 million.

`

Figure 24

Casino Gross Revenues: Shreveport-Bossier



Data Source: Legislative Fiscal Office Louisiana

In addition to jobs lost in the gaming sector, other major closures hit the Shreveport-Bossier MSA. **Libby Glass** shuttered its 450-person plant in Shreveport, and **Cleco Power** shut down its Dolet Hills lignite mine and power plant (-243 jobs). Employment at **Benteler Steel** at the Port of Caddo Bossier fell from 395 to 240, and **Western Global's** MRO unit at the Shreveport Airport shed 65 jobs.

The good news is that by June 2021, this MSA had recovered 57% of the jobs lost in April 2020 due to COVID, a significantly better record than the state as a whole (+49%). A real boost over 2020-21 came from the capital spending and other expansions at the **Ochsner-LSU Health Sciences Center Partnership**. We have estimated new operational and capital spending by the Partnership created 1,575 new jobs in Caddo Parish over those two years.[5] Employment at the **Cyber Research Park** also continued its steady growth, which added another shot in the arm to the recovery.

[5] The Economic Impact of the New Ochsner-LSU Health Sciences Center Partnership on North Louisiana, Loren C. Scott & Associates, March 2021.

Forecast for 2022-23: Amazon plus Haynesville?

As shown in Figure 25, we are forecasting something unusual for this MSA given its recent past---three straight years of job growth. After COVID recovery in 2021, **we are projecting that this MSA will pick up 5,500 new jobs (+3.2%) in 2022 and another 2,800 jobs (+1.6%) in 2023.**

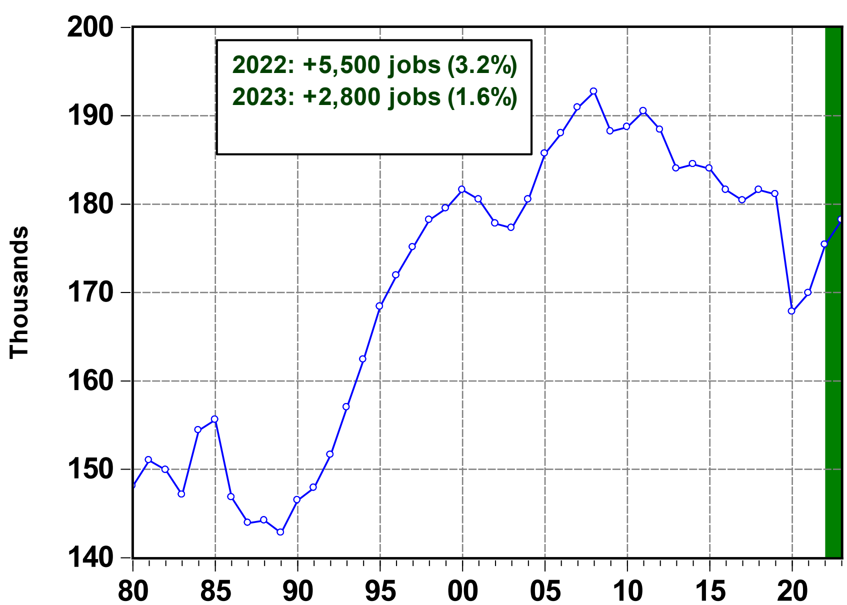
Major Bump from Amazon

Economic developers and government officials did a victory dance when **Amazon** announced it would place one of its fulfillment centers in the Shreveport area. This $200 million robotic center will be located in the Hunter Industrial Park and should open in the fall of 2022. An impressive 1,000 new jobs are projected at the plant, a one-time job boost the likes of which this MSA has not seen since the Haynesville Shale boom in 2008-10.

Readers should keep in mind that this is unlikely to be a net 1,000-job addition to the region. One reason Amazon is doing so well is buyers are switching from going to retail stores to ordering online. That means fewer retail jobs. However, Shreveport was very lucky; this facility could have been located in Tyler, Ruston, Natchitoches, or anywhere else. It located in Shreveport and is bringing 1,000 new jobs.

Figure 25

Shreveport-Bossier MSA Non-Farm Employment Forecast: 2022-23



Data Source: Bureau of Labor Statistics

A Major Bump from the Haynesville?

Note the question mark after this heading. Will 2022 be the beginning of a serious resurgence in the Haynesville Shale? The Norwegian energy research firm Rystad is projecting gas production in this play will ramp up by 86% between now and 2035.[6] Several factors are driving this optimistic forecast. First, back in the "Basic Assumptions" section we estimated that natural gas prices would enjoy a **price jump** that would leave it in excess of $3 per MMBtu (see Figure 7). We also cited a Chesapeake estimate that the breakeven price in the Haynesville Shales is now in the $2 -$2.25 range. At these higher prices, the Haynesville is suddenly a profitable play. Indeed, when natural gas prices exceeded $4 per MMBtu in July, S&P Global Platts Analytics estimated the rate of return on investment at 29% in the Haynesville.

Second, the Haynesville has a **location advantage** over the Marcellus Play in the Appalachian region because of the ease of transporting gas from the wellhead to the Gulf coast markets. The addition of the LEAP, CJ Express and Index 99 pipelines have enhanced this advantage. If the Play is to achieve the 86% growth Rystad has projected, the Gulf Run Pipeline will need final FERC approval or the region's pipelines will be over-utilized by 2024-Q4.[7]

Third, there is evidence from **M&A activity** that producers are increasingly interested in the Haynesville. Southwest Energy spent $2.7 billion to purchase Indigo Natural Resources and Chesapeake spent almost the same amount ($2.2 billion) to purchase Vine Energy. A fourth advantage for the Haynesville is the **nature of its investors**. The Marcellus Play is dominated by <u>investor-owned</u> exploration companies. These companies are beholden to investor pressures that have kept these companies from increasing production. By contrast, Haynesville operators are dominated by <u>private-equity</u> backed firms, with a stronger focus on production and making money.

Finally, **Tellurian** is making a big move into the Haynesville because the firm plans to control all the natural gas needed to supply its proposed Driftwood LNG in the Lake Charles area. Indeed, Tellurian has basically said the sanctioning of the Driftwood facility <u>depends</u> on it controlling 1.5 bcf/d of natural gas. At this writing the firm controls 100 mmcf/d, and it wants to start construction of its LNG facility in 2022.

[6] Oil and Gas Journal, May 3, 2021
[7] Ibid

`

All of these factors are painting a much rosier picture for this play over the next two years. In fact, the rig count in North Louisiana has jumped from 20 to 34 in July compared to last year.[8]

Another Growth Target: Cyber Research Park

A serious growth engine for this MSA recently has been the Cyber Research Park in Bossier Parish. There are now 1,200 people working at the three main units at the Park. General Dynamics is the largest player with about 1,100 high-wage jobs. There are 80 on the staff of the Cyber Innovations Center and another 300 at the call center on Benton Road. Construction is underway on the $22 million **Louisiana Tech Research Institute** (see Figure 26), which will start with about 200 employees when it initially opens in 2022, and then will grow to 500.

The Cyber folks are working on two other large projects which if landed will result in another significant kick upward in employment in the area. One is a potentially 600-1,000-job firm associated with the Air Force's Strike WERX program, which would engage inter and extra service innovators and entrepreneurs in the operations of the U.S. Air Force. A second possibility---Project X---is more secretive and could generate up to 2,000 new jobs. As an important aside, the Cyber Research Park also attracts 4,000+ visitors a year who spend money in local restaurants, hotels, etc.---another nice boost to the economy.

Figure 26

Rendering of Louisiana Tech Research Institute

Drawing used with permission from Cyber Research Center

[8] Oil and Gas Journal, August 2, 2021, p. 62.

Port of Caddo-Bossier: Still a Star in Region's Economy

One of the real bright lights in this MSA's economy over the past several years has been the Port of Caddo-Bossier. Looking forward, these units will still be adding jobs and capital expenditures to the region.

There are 1,763 people employed at the various firms at the Port. As a reference point that is only 500 jobs lower than the total civilian workforce at the huge Barksdale Air Force Base (2,263). Family company **Sports South** is a weapons distributor at the Port and is the Port's largest employer at 335. Pharmaceutical company **Morris Dickson** is the second largest employer at the Port with 206 employees. The firm expects to add 10 new jobs over 2022-23.

The third largest, relatively new, plant at the Port is **Benteler Steel**. Prior to COVID there were 395 people working at the site, but that number ultimately fell to 240. Employment is projected to increase to 380 by 2023-Q3, a nice 140-job increase. Benteler will also spend $10 million over the next two years on a heat rerating project, new furnace floor designs, and an improved throughput project.

OMNI Specialty Packaging (OSP) is a state-of-the-art blending and packaging facility located on 30 acres at the Port. OMNI is the fourth largest employer at the Port with 216 employees, a number expected to stay stable over 2022-23. However, OMNI plans to spend $2.75 million on a blending process and tank farm expansion. **RonPak** makes specialty packaging for What-A-Burger, Canes, Popeyes, and others. The firm started at 50 people in 2012 and has grown to 185. The firm expects to hire an additional 100 workers over 2022-23 and will make a $25 million investment.

International steel company **Ternium** presently employs 163 people and will grow that number to 198 over the next two years. Ternium will be spending $15.2 million on multiple projects to improve production, infrastructure, and safety. **Pratt**, a paper and packaging company, has a $10 million project presently underway and will add five new jobs to its 114-person workforce over the next two years. Another $10 million project is planned for 2022-23 for better traffic, raw material inventory holds, and equipment. **Calumet Packaging** has a 90,000 square foot facility located on a fifteen-acre tract at the Port. The facility manufactures and packages engine oils, hydraulic fluid, gear oils, transmission fluid and functional chemicals. The company has 165 employees, a number that is not expected to change over 2022-23 unless approval is received for a new, $15 million distribution center that would add 50 new jobs to Calumet's workforce.

What is really encouraging is that the Port is near the final attraction of **two new firms** to the Port. One is a regional frack sand company (see our discussions of the Haynesville Shale prospects above) that would spend $25-$36 million on its processing facility and create 60-90 new jobs with starting salaries of $55.000-$85,000 a year. The second prospect is a new $325 million plant that would use existing infrastructure and units and would add a large number of barges to the traffic at the Port. A decision on this prospect is anticipated for 2022-Q1. Either prospect would be a nice economic development win for the region.

Ochsner, BRF, Fibrebond Continue Growth

Additional jobs are projected from a number of other sources over the next two years. The **Ochsner-LSU Health Sciences Center** was a major job contributor over the past two years and should continue so over 2022-23. The Partnership is projected to add 240 new jobs over 2022-23 and spend some $25 million a year on capital projects. The latter will include a new community health center, continuing renovations at the Kings Highway campus, an additional 25 inpatient beds at St. Mary, and a new building for intensive outpatient treatment of mental disorders. There are 614 people employed directly at **BRF** entities. BRF recently attracted Omicron Technology Solutions---a software-as-a-service developer, hiring 20 new people. Work will be completed early next year on the $20 million Center for Molecular Imaging and Therapy on the BRF campus. The highly successful **Fibrebond** Company, which manufactures modular electrical enclosures, has 450 employees. Fibrebond would like to hire about 50 more people but is having a very tough time finding qualified electricians.

Honeywell is making an additional $75 million investment at its plant on Mooringsport Road. That will generate 15 new jobs. The 170-person **Continental Structural Plastics** facility in Webster Parish is engaged in a $13 million expansion that will add 33 new jobs. The company manufactures under-carriages and bumpers for cars and trucks. A $35 million **Spine Center of Excellence** is under construction in Bossier City and should be completed in the second half of 2022.

Little Change in Road Lettings; Little Help from Airports or Casinos

While there will be a healthy amount of money coming to the area in **state road lettings** ($129.5 million), this figure is little changed from a year ago when it was $127 million. Some of the bigger projects include:

- $53 million on I-20 rehab work from Pins Road to I-220;
- $12 million to replace the Cross Bayou bridge; and
- $8 million on US171 from Caddo Place to LA3132.

While some additional injection of funds into this economy will come via roads, the same cannot be said for airports in the area, starting with the largest employer in the MSA---**Barksdale Air Force Base**. There are almost 9,000 troops and civilians employed at the base. That represents a great economic driver for the region. However, as can be seen in Table 6, the base has been in an employment slide for almost a decade. Combined troop/civilian strength has dropped by 828 jobs since 2012 and declined by 289 jobs between 2019 and 2020.[9] Better news comes from the capital spending side of the base. Work will begin in the second half of 2022 on a $46.5 million entrance to the base. Hopes are high that a new $170-$225 million weapons storage facility will be authorized at the base next year. That facility would result in about 100 new jobs.

Table 6
Troop & Civilian Employment at Barksdale AFB

Year	Civilians	Troops	Total
2012	**1,090**	**8,,655**	**9,745**
2019	**2,368**	**6,838**	**9,206**
2020	**2,263**	**6,654**	**8,917**

Data Source: Barksdale Forward & Public Affairs-Barksdale AFB

News is decidedly less happy at Shreveport Regional Airport. **Global Western Airlines**, a jet maintenance facility, dropped from 120 employees to 60 due to COVID. The company would like to go back to 170 or so workers but is struggling to find workers and demand for their services is still weak. **Advanced Aero Services**, which had hoped to get an MRO facility well underway at the Airport, has really not gotten underway or secured all the necessary permits to operate.

[9] 2021 data are not available until year end.

While flight traffic out of the airport is nearing pre-COVID levels, United Airlines has still not reinstated its direct flight to Denver.

As seen back in Figure 24, casino revenues took a beating during the COVID shutdown, and the MSA emerged with one less casino than pre-COVID. Though gross revenues have more than come back, the same cannot be said for employment. In the pre-COVID quarter of 2019-Q4 there were 4,542 people employed in the region's six casinos. A year later in 2020-Q4 (latest employment data available) there were 2,515 workers at the five casinos operating. **Over 2,000 jobs vanished in one year**. It is tough for an MSA of this size to overcome a loss of that magnitude.

THE LAKE CHARLES MSA

Will There Ever Be a Federal Rescue?

Parlor question: What was the fastest growing MSA in Louisiana between 2012 and 2018? Related question #1: What was the fastest growing MSA in the country in 2018? Related question #2: What was the poorest growing MSA in the country over 2020-21? The answer to all three questions is…(drum roll here): Lake Charles. Oh my, how fortunes have turned. Lake Charles has gone from being one of the fastest growing MSAs in the country to probably the only MSA of its size in the nation whose employment was lower in June 2021 than it was in April 2020---the month of the COVID complete shutdown.

There are two parishes in this MSA that are very different from each other. Calcasieu Parish is a very industrialized and thriving parish with the fifth fastest growing population in the state between 2010 and 2020. Cameron Parish is the largest in geographic size in the state but the second least populated parish in the state. Of the 64 parishes in the state, Cameron's population change over 2010-2020 was the second worst in the state (-18.2%).

Both parishes are located in the far southwestern corner of Louisiana (see Figure 11). The petrochemical industry is a dominating force in this MSA. Large firms in the region produce chemicals (including LNG) and refinery products. A huge employer, the petrochemical industry employs in excess of 7,500 direct employees and about 3,800 contractors at its 16 different chemical plants, two refineries, three LNG export facilities, and three industrial gas processing plants. Because these are very capital-intensive firms, there is an associated huge industrial construction sector for maintenance, repair, and construction work for these firms.

A second key industry is aircraft repair. A major source of jobs in the region is the tenants at Chennault Industrial Airpark. Among the larger employers there are Northrop Grumman, Landlock Aviation, and Citadel Completions. Historically, there have been some very significant changes at the Airpark that caused meaningful swings in this MSA's employment.

The gaming industry is particularly large in this MSA. In fact, Lake Charles has the largest casino market in the state, drawing as it does from the nearby Texas market. Three riverboats operate in the MSA, plus the Delta Downs Racetrack. The two largest casinos are L'Auberge du Lac and the Golden Nugget. The Isle of

Capri is the smallest of the three casinos but is the only one moving its operations onshore. The three casinos employed 4,611 people in 2019-IV. When **Delta Downs** added slot machines it became a "racino," and presently employs 636 people.

2020-21: One Incredible Plague after Another

Like all MSAs in Louisiana---and for that matter, like all MSAs across the country---the Lake Charles MSA suffered from the COVID lockdown in early 2020. **In the first full month of lockdown, April 2020, this MSA lost 21,300 jobs**. That 18% decline was worse than for the state as a whole (-14%) for two primary reasons. First this is Louisiana's largest **casino market**, with 4,611 employees. These casinos were totally shut down from Mid-March through Mid-May and then were only allowed to open at 25% capacity until September when that was raised to 75%. Second, this MSAs **construction sector** was hammered by COVID as turnarounds were delayed, projects were slowed, and FIDs were pushed into 2021-22.

Just as Lake Charles was starting to show signs of COVID recovery, its area was lashed by **Hurricane Laura**, a category 4 hurricane that tied for the worst to ever hit Louisiana. A ten- foot storm surge was recorded in Cameron Parish, and an estimated $19 billion in damages was recorded in Southwest Louisiana and Southeast Texas. Before the region could stick its head out from under Laura, category 2 **Hurricane Delta** hit in early October and added to the destruction. **Winter Storm Uri** piled on four days of sub-freezing temperatures in February 2021 that created havoc among the area petrochemical plants. Then, in May 2021, a steady, heavy rainfall created serious **flooding** in Calcasieu, Cameron, Beauregard, Allen and Jeff Davis Parishes. It was like Moses had come back and was laying one plague after another on this community.

The result of all this havoc was the Lake Charles MSA was the only MSA in the state not to grow in 2021. **In fact, employment in the MSA in June 2021 was actually lower (-7%) than in April 2020 when the COVID lockdowns first hit.** We suspect it is the only MSA of any size not to show at least some recovery from the April 2020 lockdown.

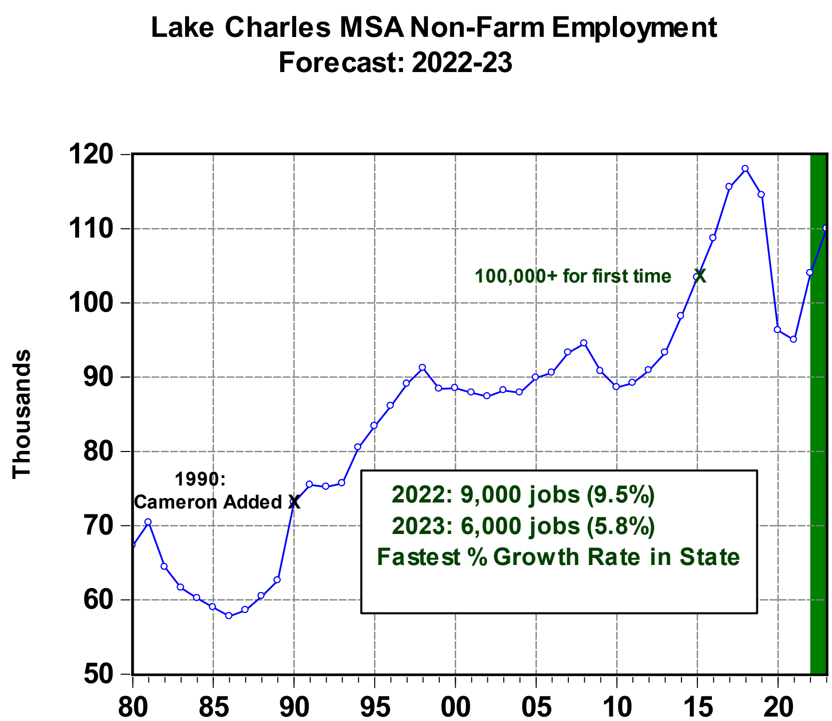
This poor recovery record must be partially---if not heavily---laid at the feet of the federal government. Typically, when a weather disaster occurs, federal aid reaches the community within 120 days. **It has been a year since Hurricane Laura made landfall, and that federal aid is still not forthcoming**.

Forecast for 2022-23: Desperate Need – Federal Aid & Some FIDs

Figure 27 tracks employment in the Lake Charles MSA over 1908-2021 plus our forecasts for 2022-23. Readers interested in a review of this MSA's history over 1980-19 are referred to Appendix E. **We are projecting this MSA will add a lofty 9,000 jobs in 2022 (+9.5%) and another 6,000 jobs in 2023 (+5.8%)**. This would bring the MSA's employment back to its previous peak in 2018. This would make Lake Charles the fastest growing MSA in the state.

The projection for 2022 is a startlingly high number, but recall this MSA is the only one that has shown no recovery from the April 2020 COVID shutdown. This excellent growth rate---and the growth rate for 2023---is based on three assumptions that one might righteously label "heroic". The first is that sometime in late 2021 or early 2022 **federal aid will arrive** for the recovery from Laura, Delta, Uri and the May flood. Given the extent of the calamity, it is dumbfounding that this aid still has not materialized. Second, along with the federal aid will come the beginnings of **the recovery to normal from COVID** that we have assumed in the other MSAs. This MSA has a lot more catching up to do, and the influx of federal aid should spark this recovery into overdrive.

Figure 27



Data Source: Bureau of Labor Statistics

`

Finally, these very healthy growth rates will require resurgence **in industrial construction** employment, which has suffered mightily since 2018. That in turn will require the announcement of **at least two large FIDs** on projects that have been previously announced but not yet approved for construction. Work has been completed on the 3rd train at the **Cameron LNG** site, and the new **Venture Global LNG** is near completion of its first phase. The 6th train at **Cheniere's LNG** site will be completed in early 2022. Two or more large FIDs will be necessary to begin to offset the construction jobs losses from those three projects winding down.

Some employment growth is coming from the rebuilding of the **Bio Lab #3 Plant** that was destroyed by fire from Hurricane Laura. This represents a $142.5 million spend. Also, McDermott has been selected by **Lotte** to conduct the epc work for a $75 million 7th heater addition to the company's LACC ethane cracker. This job will be finished in 2023 and will add no new permanent jobs at the site. Both of these are nice projects but not near enough to offset the billions lost as the three LNG projects wind down.

A Source of Hope: More LNG Facilities

The good news is that when it comes to potential FIDs, the Lake Charles MSA is not starting from scratch. We are aware of **$68.3 billion in announcements** planned for this area, some of which are ripe for an FID soon. They include the following:

- News chatter has picked up markedly this year about the proposed $16.8 billion **Driftwood LNG** project (see Figure 28). Offtake agreements were signed with Total SE, Vitol and Shell, so that commitments are up to 9 million tons per year (mmt/y), just shy of the 9.2 mmt/y that is supposedly needed for the first phase of construction. The company is developing a drilling program in the Haynesville Shale to fuel the plant and already controls 100 mmcf/d. In June, Chairman Souki indicated construction would start this summer, but sources indicate this date has been pushed to early 2022. Once fully constructed the site will host 498 high-paying jobs. We consider the probability of an FID on this project to be over 80%.

Figure 28
Proposed Driftwood LNG Project

Reprinted with permission from Tellurian

Beyond the Driftwood project things become decidedly iffier. There are several other LNG projects that have been announced for the area and each has its own set of issues. Two are much further along in the permitting process.

- The $12-$16 billion **Lake Charles LNG** in one sense is a step above some of the others because it was initially built as an LNG import terminal, so tanks and port facilities were already in place. Recently, the site was owned by a joint venture between Shell and Energy Transfer Partners (ETP), but in summer of 2020 Shell backed out of the arrangement. Our understanding is that ETP is reducing the scope of the project by about one-third to two trains. We also understand that the tanks and port facilities may require significant upgrades to be efficient and competitive. ETP did renew its options to lease additional acres from the Port of Lake Charles.
- In June of 2020, **Magnolia LNG** was sold to Magnolia LNG Holdings which is owned by the Glenfarne Group out of New York. This site has all its permits in place. In October 2020, FERC granted Magnolia a 5-year extension on

project completion and supply infrastructure. Our understanding is that Glenfarne will decide by year-end 2021 whether to proceed with construction.

- **Commonwealth LNG's** $4 billion project appears to be treading water at this point. Our understanding is that permitting work with FERC has been suspended due to funding issues and lack of third-party financiers. There are also some challenging issues at the site, specifically having to do with a sufficient turning pocket for its ships.
- Venture Global has begun the pre-filing process at FERC for its 18-train **CP2 LNG** project which is apparently about the same size as the one VG is just now completing ($8.5 billion). To be built adjacent to the new VG facility, this project will also involve an 87.5 mile pipeline from Jackson County, Texas (in the Texas part of the Haynesville Shale) to bring natural gas to the site. An FID on this project is outside our forecasting range.
- Steady work continues on the proposed $9 billion **G2 Net-Zero LNG** project in Cameron Parish. This investor group expects to start construction of a $1.2 billion power plant within 12 months of receiving funding (2022). This plant will produce industrial gases and electricity to sell in the market place. FEED work has begun on the project and the group is in discussions with (1) two candidates for the epc for the project and (2) equipment suppliers for phase I and II of the LNG facility.
- We have seen no action in sometime on the proposed **Monkey Island LNG** project. We assume this one is dormant for now.

As mentioned in our write up on the New Orleans MSA, the **global methanol** market is taking some turns that could bode well for methanol facilities proposed in the Lake Charles MSA. There are problems with suppliers in Chile, Australia and New Zealand due to natural gas access issues. At the same time, the demand for methanol is growing strongly as China converts many of its coal-fired boilers to a methanol base. Consequently, conditions are looking better for two methanol projects in the Lake Charles MSA.

- Proman had already started construction in 2016 on the $2.3 billion **Big Lake Fuels**, a plant to produce 1.4 million tons of methanol a year. Construction was paused in order to complete a plant in Beaumont and then again because of financing issues. Hopefully current market conditions will allow a restart of this project.

- While many have lost confidence in prospects for the $4.6 billion **Lake Charles Methanol** project at the Port of Lake Charles, improvements in the methanol market may have changed the outlook. The company is adding sequestration of CO2 to its mix which may allow tax credits to get this project across the finish line.

In additional to these large projects, we are aware of another highly probable, large one we will call **Project X**. This is a project involving in excess of $1 billion in capital investment.

In Figure 29 below, the LAIA's survey of contractors shows that in the fall of 2021 there will be a major spike (+3,000 jobs) in industrial construction employment driven by turnarounds that were deferred from COVID-impacted 2020 to this year. What needs to be watched carefully over the next two years is the light blue section of Figure 29 which indicates construction employment on large capital projects. Landing FIDs on two or more of the projects listed above would cause that section of the chart to swell up. That is precisely what Lake Charles needs to help pull it out of its present funk.

Figure 29

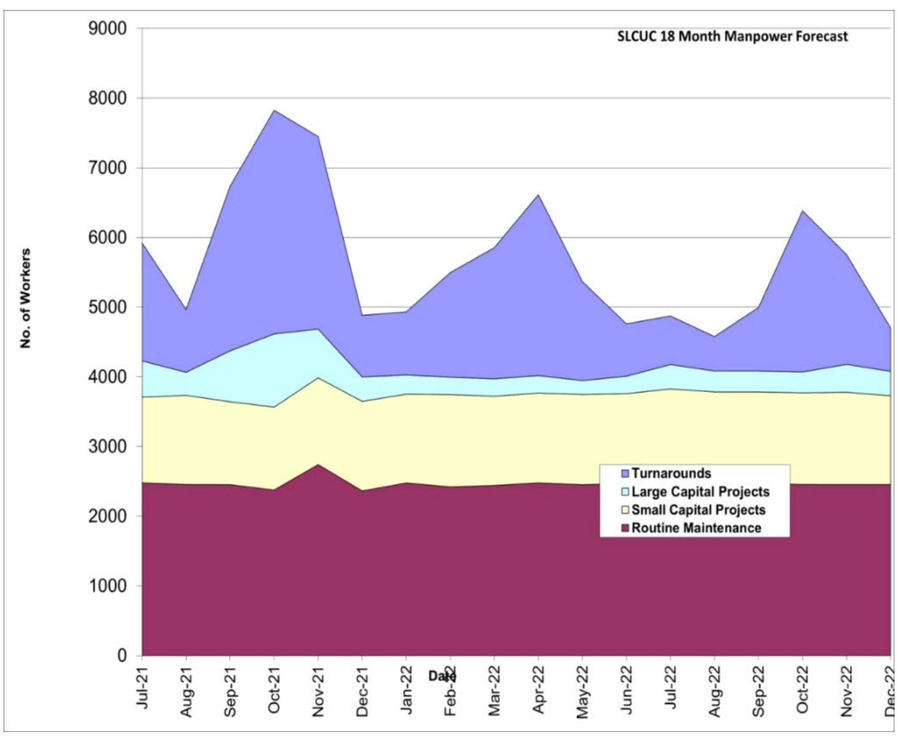


Chart use with permission of LAIA

`

Completions = Permanent Jobs

When one of the huge industrial construction jobs is completed---say the new Venture Global LNG plant----hundreds of construction workers pack up and go home. That pulls employment down in the region as seen back in Figure 27 for 2019. However, those construction jobs are replaced somewhat by an admittedly smaller number of permanent jobs to run the newly built facility. Table 7 contains LAIA data on the increase in number of permanent employees in its member plants over 2022-24.

Table 7

Year	Permanent Employees Added
2022	**+270**
2023	**+150**
2024	**+130**

Data Source: Lake Area Industrial Alliance Survey

According to the LAIA survey, there were 7.115 employees at its member company plants in 2021. Over 2022-23, this region will gain another 420 new permanent jobs, and in 2024 (just outside our forecast period), another 130 jobs are expected. Two important points about the numbers in Table 7 suggest these numbers significantly understate the real addition of permanent jobs. First, these numbers only include people who are directly employed by the company. That is, they wear a shirt that has a Citgo, Sasol or PPG emblem attached. It does not include **contractors** employed at the plant. Lest one think this is trivial, in addition to the 7,115 permanent direct employees of LAIA members employed in 2021, there were another 3,500+ contract employees working at the plants. These are people wearing shirts that say Turner Industries, Performance Contractors or Cajun Industries.

Second, there are some large firms in the area that are not members of LAIA so are not included in the numbers in Table 7. For example, neither Venture Global nor Sempra data are included in Table 7, and each will employ 100 direct employees once fully operational.

COVID Recovery Gains at Chennault

Employment gains for the region should also come via the tenants at **Chennault Airpark.** The largest employer at the Airpark is **Northrop Grumman** which has its Aircraft Maintenance and Fabrication Center (AMFC) there. Seven hundred people are employed at the AMFC and that headcount is expected to jump by 50 in 2022. NG performs maintenance, repair and overhaul (MRO) work on large military aircraft. The company landed a $900 million contract with the customs and border protection agency that will last 10 years, and another 10-year contract for maintenance and logistical work on the CRP P-3 aircraft. Last year, NG landed a $36 million contract to replace 174 nose cowls on B-52s, and the company continues work on the JSTARS aircraft.

Citadel Aviation does VIP modifications to large, commercial-size aircraft for select clientele. A good number of executives are going in this direction since the onset of COVID. The company occupies two hangers and an administrative building, has 185 employees, and is committed to having 256 by the end of 2022. **Landlock Aviation** is an aircraft painting company that employed 150, pre-COVID. COVID created so many financial problems that airlines suspended much of the aircraft painting work and employment fell to 60. Landlock won a big contract in January that would enable the company to more than double its employment, but the company has had a great deal of difficulty finding employees. The Masonite company **Louisiana Millwork** manufactures commercial and residential windows and doors at the Airpark. A stable workforce of 60 works at that company.

Two buildings are on the way at Chennault. Ground-breaking will take place at the end of the year on: (1) a $24 million Readiness Center for the **Louisiana National Guard** and (2) a $2.3 million administration building for **Louisiana Wildlife and Fisheries**. At the airport there are $9+ million in capital projects scheduled for 2022, including a $4.6 million air cargo building and another $5.1 million on taxiways, aprons and lights. The Executive Director of the Airpark---Kevin Melton---anticipates about **$39.2 million in insurance repairs** to be made due to damage from the hurricanes.

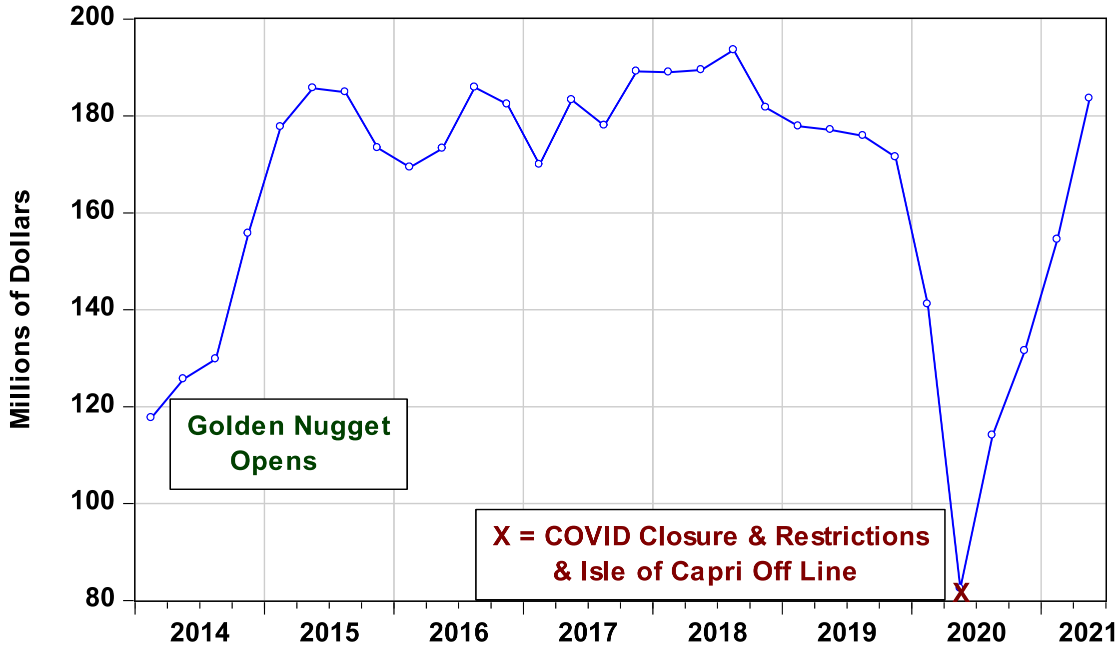
Lake Charles Casinos: COVID Recovery & Isle of Capri Onshore

As mentioned in the introductory section to this Lake Charles section, this is the largest casino market in the state with 4,611 people employed at the casinos pre-

COVID and 636 at the racetrack. Figure 30 traces gross receipts by quarter at the three casinos from 2014-Q1 through 2021-Q3.

Figure 30

Casino Gross Revenues: Lake Charles



Data Source: Legislative Fiscal Office

Note in Figure 30 that the opening of the huge Golden Nugget Casino, instead of cannibalizing business from the other two, caused a major jump in gross revenues in this market. Revenues went from about $130 million to well over $180 million, staying in that neighborhood until the first half of 2020 and the COVID shutdown and capacity restrictions. In those two quarters revenues declined a remarkable 52%. Oddly, employment at the casinos fell only 8.6% by the end of 2020-Q2. Just as in the New Orleans and Baton Rouge markets, revenues demonstrated a stunning recovery, regaining all those lost revenues by 2021-Q2.

What is also striking about the gross revenue recovery in the first half of 2021 is that it was done without the **Isle of Capri Casino** even being open! This riverboat came loose from its moorings during Hurricane Laura and jammed up under the I-10 Bridge. This casino had already made the decision to move on land and to spend

`

$112.7 million on a casino that would have three times its former gaming space and have other resort type amenities as well. A decision was also made not to reopen the riverboat casino but to remain closed until the land-based site was ready in fall 2022. The land-based casino will reopen as **Horseshoe Casino** and have about 70 more job slots than the previous riverboat.

Port of Lake Charles & Roads: Big Capital Spending Ahead

The Port of Lake Charles took a major hit from the hurricanes. An estimated $176 million will be needed for repairs transit sheds and pilings. Table 8 lays out other capital spending over 2021-23.

Table 8

Capital Spending: Port of Lake Charles

(Millions of Dollars)

Year	2021	2022	2023
Assuming Lake Charles Methanol FID	$44	$75	$56
Maintenance of Channel	$68	$61	$62
Navigation Funding	$7.5	$7.5	$7.5

Data Source: Port of Lake Charles

Two categories virtually tie for the largest spending over our forecast period (2022-23). If an FID is issued on the Lake Charles Methanol plant, the Port will be spending $131 million on support of that project. The Army Corps will spend $123 million over two years on maintenance of the Channel and dredge material management. The P3 program----port, industry, state---will put up $7.5 million a year for the non-federal share of dredge material handling.

This MSA will receive another injection of $133.2 million for **state road lettings** over 2022-23. This is up smartly from $82.1 million last year. The two largest state road projects are: (1) $49.1 million on a new Nelson Road extension and bridge and (2) $12.2 million on ramps and a bridge on US90 over I-10. In addition, $152 million will be spent to **widen I-10** from the Texas line to LA108. Ground-breaking on this job occurred in November 2020 and will take 5 years to complete. Finally, this MSA will receive $2.7 million in **GOMESA** monies for coastal restoration and hurricane protection.

THE HOUMA MSA

Will the Gulf of Mexico Hold Up?

This very energy dependent MSA is located in Southcentral Louisiana on the coast (see Figure 11). Comprised of two parishes---Lafourche and Terrebonne---Houma is more energy-dependent (6.5% of its employment versus 1.6% at the state level) than any other MSA in the state. Not only are there a large number of direct jobs in the exploration industry, but there are many other support companies---machinery, fabrication, shipbuilding, water-borne transportation---that feed off of extraction activities.

The fabrication industry is quite large in this region, largely founded on building components for offshore oil and gas exploration/production. Now many are busy trying to diversify into non-oil and gas related work. They also have shifted towards more maintenance and repair work on offshore facilities, led by companies such as **Grande Isle Shipyards**, **Danos**, **Gulf Island Fabricators** and **Chett Morrison**.

Shipbuilding is a major employer in the region---an industry that used to be totally focused on offshore energy work but has now diversified into other areas. Perhaps the largest of these support companies is **Edison Chouest** a firm that owns and operates some 300 supply boats servicing the offshore industry but is now also building boats to service the offshore wind industry. Many of these ships operate out of Port Fourchon, a small city on the Gulf, which services about 90 percent of the offshore platforms and drill ships in the Gulf of Mexico. The 650-workforce **Bollinger Shipyards** is another huge shipbuilding player in the region. Originally building ships for offshore work, this company now has a long-term contract with the Coast Guard to build several Fast Response Cutters. **Thomas-Sea** is a 450-person shipyard that has made the shift into non-oil and gas vessels such as research vessels and brown-water barges.

2020-21: COVID Effects & Recovery

Just as this MSA was pulling itself up from the recessionary years of 2015-17 to fight again, it was like a gut punch was delivered to it by COVID. COVID actually delivered the region a compound blow---a one/two punch. First, the simple act of the shutdown caused this MSA to drop 9,200 jobs in April 2020, a decline of 11% (see Table 3). Then this very energy-dependent MSA was hammered by a dramatic drop in oil prices. It began when the shutdown caused people to quit driving (dramatic demand drop), and that was almost immediately followed by the Saudis pumping an extra 2.5 mmb/d of oil into the market. The combination pushed the price below $20 a barrel. The next lease sale in the Gulf was the lowest since region-wide sales began, and the first-time total sales fell below $100 million. Conditions were so dire that the BOEM failed to conduct a scheduled lease sale in August 2020, and the Gulf rig count fell to only 12.

As the economy started to reopen the Houma MSA began to recover some of its COVD losses and **ended up down 5,500 jobs or -6.3% in 2020**. The region's recovery has continued into 2021. As seen back in Table 3, by June 2021, the MSA had recovered about 54% of its original job losses. We are estimating that will improve to 77% by year-end. Despite these improvements, **the MSA will end 2021 some 18,800 jobs below its previous 2014 peak** (see Figure 31).

Forecast for 2022-23: Can the GOM Hang in There?

Figure 31 below tracks employment in this MSA over 1980-21 and shows our forecast for 2022-23. Readers interested in an historical review of this MSA over 1980-19 are referred to Appendix F. As seen in Figure 31, **we project the region will add 2,400 jobs in 2022 (+2.9%) and another 700 jobs in 2023 (+0.8%)**. While these 3,100 new jobs will be very welcome in the area, note in Figure 31 that it will still leave the Houma MSA well short of its previous peak achieved in 2014.

Will the GOM Stay Steady or Grow?

In the opening description of this MSA it was pointed out that this is the most oil and gas-dependent regions in the state. Six point five percent of its workforce is directly working in the oil and gas exploration sector (four times the state average), and a wide variety of local fabricators and service firms are indirectly tied to the exploration side. Where the oil and gas industry goes, so goes the Houma MSA---a point made obvious in our historical description of this region in Appendix F.

The question is: where is this industry heading over the next two years? (We repeat here our analysis of the same subject under the Lafayette MSA.) Guessing is like peering into a very soupy fog. Certainly, if our oil price projections of mid-$60s for oil and $3+ for natural gas hold true, that would be a positive for the industry. A great problem is uncertainty surrounding the Biden Administration's attack on this sector. How real and how intense will it actually turn out to be?

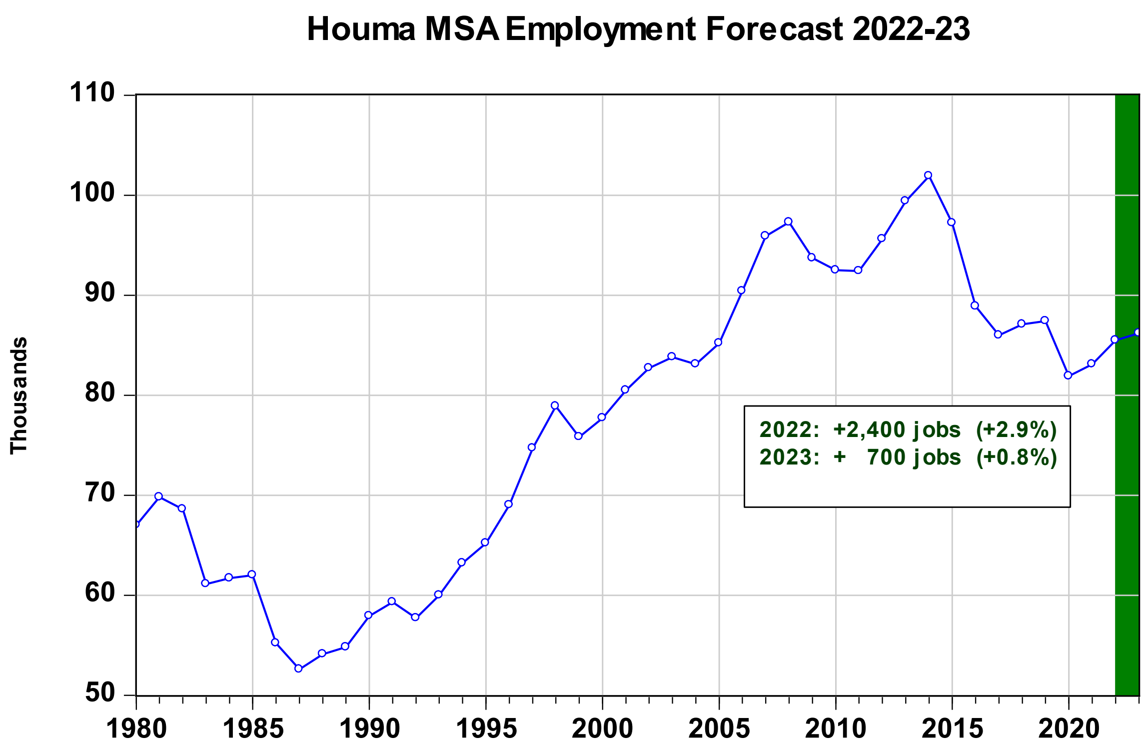
We believe activity in the GOM has not really slowed much and is not likely to over the next two years. This is obviously a heroic assumption. As Scott Angelle---

`

a native of Breaux Bridge and former Director of the Bureau of Safety and Environmental Enforcement---has pointed out, the GOM is one of the better places to explore for fossil fuels in the world. Because there is virtually no flaring, the carbon-intensity of the oil derived is quite low. That means less carbon dioxide emitted into the air compared to oil secured from other places.

The Biden Administration has put a hold on new lease sales in the GOM pending a study of impacts on the environment. At this writing a federal judge has ruled that moratorium illegal because lease sale timing is a prerogative of the Legislative Branch. The issue is being fought out in the courts. While this is disconcerting, there are still a number of leases from past sales that are still scheduled to be explored.

Figure 31



Data Source: Bureau of Labor Statistics

`

Importantly, **the Administration has not slowed the pace of permit activity on <u>existing</u> leases**. This would be very difficult for the Administration to pull off, because as Angelle points out, once the government sells a lease to an oil company the company enjoys "**lease engagement rights.**" That is, a contract has been signed between the government and the company, allowing the latter to develop the field. The government cannot do something---like deny all permits---that would make the lease worthless. The bottom line is the moratorium on lease sales will impact activity in the future, but over the next two years it should pretty much be business as usual in the GOM.

There is evidence from the field that the GOM business is holding its own for now. **Grande Isle Shipyards**---after taking a blow after the 2020 price drop---has shifted somewhat into offshore maintenance and repair work and is adding to its 600-700-person workforce in the Houma area. The company is struggling to find qualified people but plans to add 8%-10% to its workforce over 2022-23.

Similarly, **Danos** now has 1,500-1,700 employees in the Houma MSA. Most of these people work offshore conducting maintenance and repair work on platforms or working as operators on platforms. Danos would also like to grow its workforce by 10% a year. **Chett Morrison's** employment count is back up to 500 and should be stable over 2022-23. The company does a lot of pipeline remediation, though much of that is shifting onshore. The company's offshore work (mainly shelf work) has been pretty flat.

Gulf Island Fabricators sold its shipbuilding component to Bollinger, and the company is now focused on offshore maintenance/repair services (about 230 employees) and fabrication of deep sea plets and plums used in producing from deepwater wellheads and tying back to host platforms (about 300 workers). **Halliburton** has about 304 people employed at its four sites in this MSA---including Port Fourchon---and the firm anticipates stable to slight growth in its workforce. Chevron has 390 people positioned out of Galliano to work offshore and expects that number to remain stable.

Evidence from these firms suggests activity in the GOM is hanging in there and will provide a few new jobs over 2022-23.

The Shipbuilders: Growth through Diversification

Shipbuilders play an outsized role in this MSAs economy. Initially focusing on vessels to service the offshore exploration/production industry, these companies have been in the process of diversifying into other areas. By far the largest builder, and operator, of offshore service vessels (OSVs) has been **Edison Chouest** (EC). Some 75 of its 300-fleet service vessels are still tied up, but OSV work is still a major part of EC's revenues. The company not only has OSVs in U.S. waters, but EC is also active in in Mexico and Ghana. EC is in a number of other markets as well, such as tugs for the LNG industry, vessels to service offshore wind farms, and specialty vessels for the Navy. EC does all the docking work for the Navy. EC's LaShip yard presently employs 450 and is trying to hire 200 more, and the company expects to add 30 more to its 185-person North American Shipyard. EC's North American Yard at Port Fourchon is at 250 and expected to stay at that level.

Bollinger is another large shipbuilder in the area that just got even bigger. Bollinger has had a large contract with the Coast Guard to build at least 64 Fast Response Cutters for the Coast Guard. In August 2021 the company was awarded four more that will keep its 650-person workforce busy through the summer of 2025. Last year, Bollinger landed a contract to build a floating dry dock to support construction and maintenance of the Navy's newest class of ballistic missile submarines. The dock is to be delivered in 2024. In April of this year, Bollinger purchased the west yard and dry docks from Gulf Island and we understand Bollinger assumed GIs contract to build the ATS ice class vessel (a total of seven to be constructed) and a third regional research class vessel. Bollinger's exact employment at the old GI yard is unclear, but prior to the purchase, 250 people worked at the site. The firm's future certainly looks bright as it was awarded the contract to conduct concept and preliminary design of the Navy's light amphibious warship for the marines, a contract that could lead to a 28-30 ship order. Bollinger also has a ship repair yard at Port Fourchon that employs about 150.

Shipbuilder **Thoma-Sea** has also been diversifying to keep its 450-person workforce busy. The company is doing repair work on tugs and barges, and repair work for the Coast Guard and Army Corps. The company landed a $178 million contract in January to build two new research vessels for NOAA that will keep its workforce busy through June 2024.

Port Fourchon: Big Dredging Projects

This MSA is the home to the most important port in the nation supporting GOM exploration activities---**Port Fourchon**. Figure 32 shows the layout of this vitally important link in the country's huge offshore energy production. Activity is constantly underway to make the port more efficient and accommodating to its tenants and to make room for more tenants.

Some $10 million was spent this year on the final dredging work on **Slip D** (upper right corner of Figure 32). Over the next two years, an estimated $18 million more will be spent to build the bulkheads around Slip D. Expansion of **Slip C** will be finished this year. Some final bulkhead construction is going to bid this year that will require another $10 million of expenditures in 2022. The feasibility report to **dredge the port to 30-33 feet** from the entrance into the port to slips A, B, C and D has been transmitted to the Army Corps. The Corps has to finalize the environmental impact study soon. This dredge project will lead to $20 million in each year from 2022-24.

The Port is finalizing the permitting process to develop **Fourchon Island** (big yellow area at bottom of Figure 32). Work should start in 2022 on a $24 million bridge to access the island. If final permits are granted in late 2022, about $50 million in dredge work will start on the island in 2023. The aim is to use the island to for offshore rig refurbishment and decommissioning and to service the offshore wind industry. It is estimated that it will take $200 million to totally develop the island.

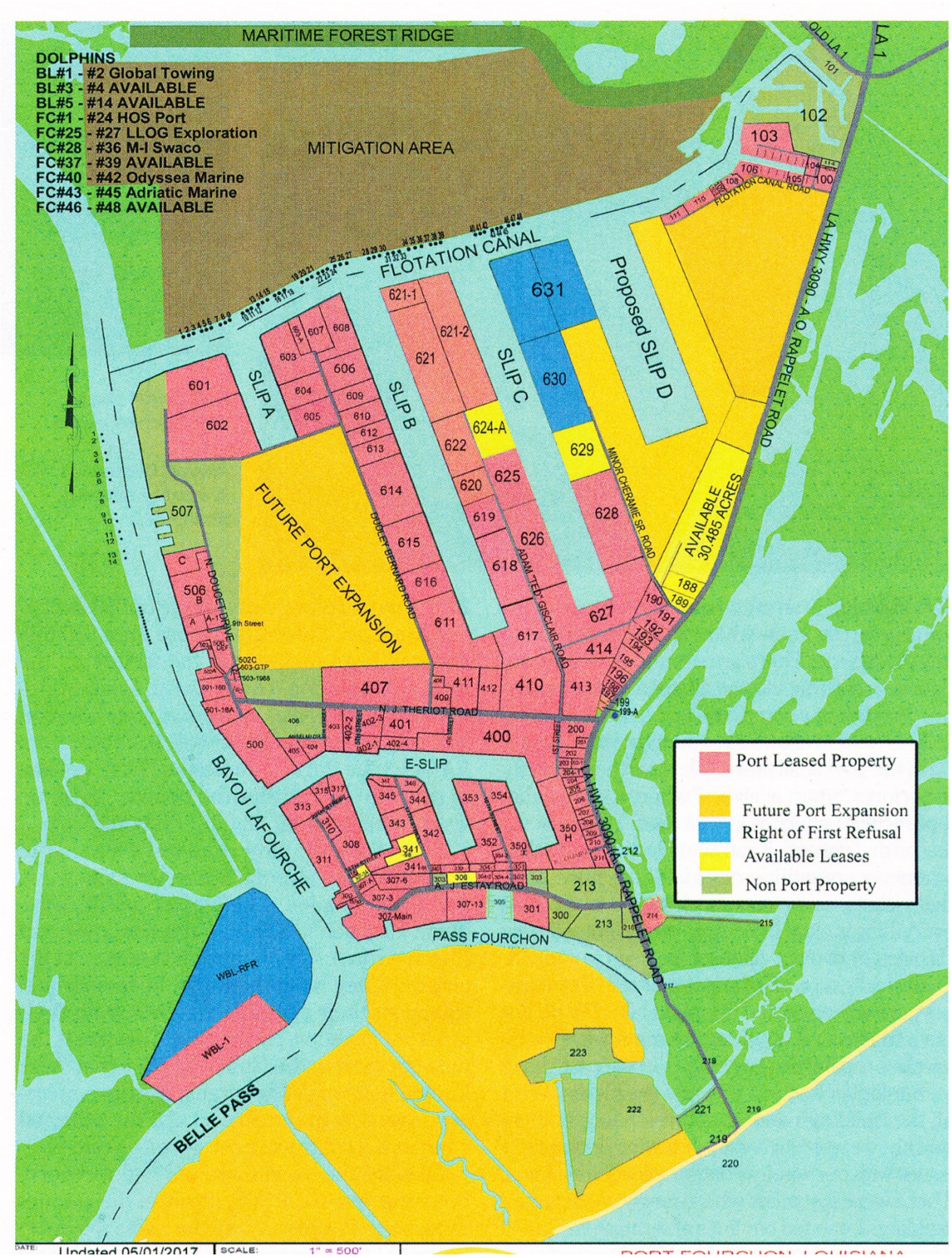
Construction began in April of this year on the **$35 million airport corridor project** to connect the South Lafourche Leonard Miller Junior Airport to LA3235. This 3-year job will involve spending about $10 million a year over our forecast period.

The port has signed a right of first refusal with Stabilis for the 150 acres on the west side of Belle Pass (light blue area at bottom of Figure 41). The company wants to build a $300-$400 million LNG conversion facility and bunkering site to service vessels that are LNG-fueled. If the FERC application process goes smoothly, construction could start next year.

`

Figure 32

Map of Port Fourchon



Map used with permission from Port Fourchon

Highway LA1 Pumps Up Road Lettings

Last year the total value of state road lettings for the Houma MSA was $106.7 million. This year the total is nearly five times higher at $552.4 million. The key difference is the allocation of **$445 million to elevate LA1** from Leeville to Golden Meadow---a project that will make access to Port Fourchon much easier and constant. Bids will be opened in October of this year, with construction to start in 2022. This challenging construction project will take six years to complete (end of 2027). Two other significant road projects are $23.7 million to replace the Boudreaux Canal Bridge and $20 million to replace the Lafourche Bridge.

This region will also benefit from a $200 million solar farm to be built near Thibodaux that should open in 2024. **Thibodaux Solar** will hire five new people. Finally, the region will see some $2.8 million in **GOMESA monies** arriving for coastal restoration and hurricane protection.

`

THE MONROE MSA

A Watchful Eye on Lumen

The third smallest MSA in Louisiana is the 2-parish (Ouachita and Union Parishes) Monroe MSA located in the Northeast corner of the state (see Figure 11). The two largest private employers in this MSA are **Graphic Packaging**---a paper/carton plant that employs about 1,100 people at its three sites---and the 2,300-person **Lumen Technologies** (the former CenturyLink)---one of Louisiana's Fortune 500 Companies. **IBM** has a 100-person operation near Lumen that provides support to that company. A relatively new and prospering company for the region is **Vantage Health Plan** which now employs 1,435 people.

Monroe is also a university town, hosting the **University of Louisiana Monroe** with its 300 faculty members. A new medical school---**Edwards Via College of Osteopathic Medicine**---opened in fall 2020 with 150 freshmen and is admitting a second class this year.

JPMorgan Chase Mortgage operates a 900+ person center in Monroe. **Foster Farms** has a huge chicken processing facility in Union Parish with over 1,200 employees, not counting the growers and transporters. The **Ochsner/LSU Health Sciences Center Partnership** has renovated the old E.A. Conway Charity Hospital and added clinics, raising its employment to 840 in the region. **Gardner Denver** is a 250-person facility that manufactures pumps for medical equipment.

2020-21: The COVID Impact

The history of the Monroe MSA employment trends from 1980 through 2021 along with our projections for 2020-23 are illustrated in Figure 33. Readers interested in the history of this MSA from 1980 to 2019 are referred to Appendix G.

The Monroe MSA was tapped pretty hard by the COVID shutdown, losing 10,300 jobs in April 2020. However, this 13% decline was slightly less than the statewide average (-14%) because this region does not have a (1) gaming industry, (2) oil and gas extraction industry, nor (3) a significant tourism sector---all of which were hard hit by the shutdown. **As seen in Figure 33 it was still the worst decline the MSA has experienced in the last 40 years**.

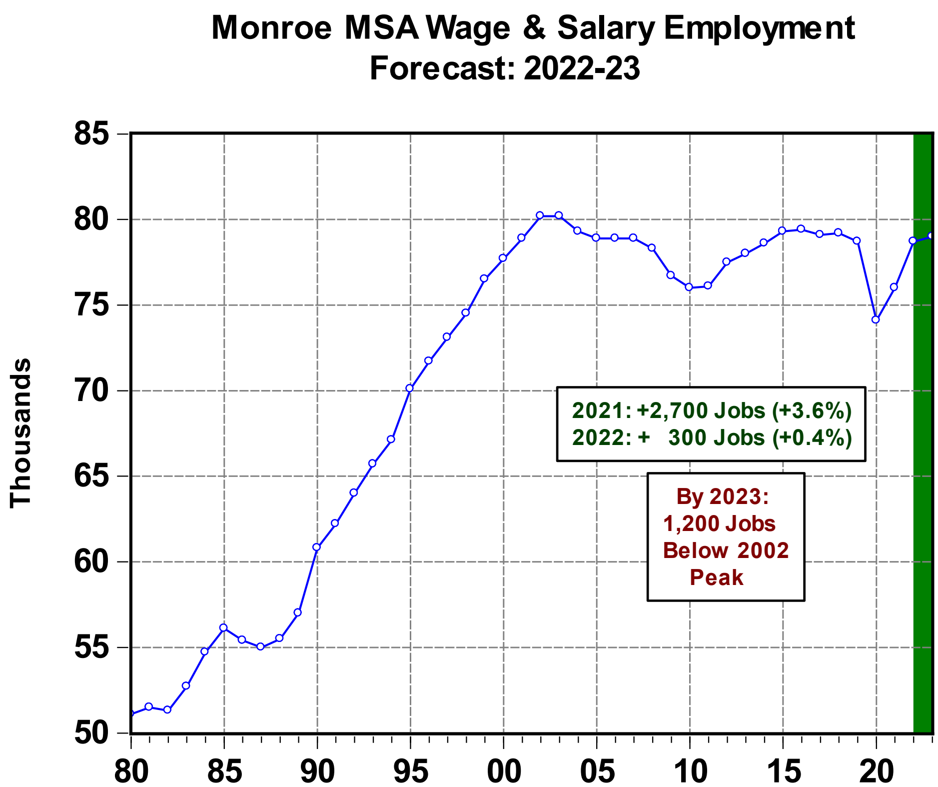
By June 2021, the MSA had recovered 59% of those COVID losses. A reference back to Table 3 will reveal that this was the second best recovery rate in the state and well above the statewide average of 49%. Two key events fueled this better-than-average recovery. First, the new **Edwards Via College of Osteopathic**

Medicine was opened in the fall of 2020, bringing with it 100 new faculty members and 150 freshmen entrants. Secondly, the **Ochsner-LSU Health Sciences Center Partnership** invested over $15 million in the old E.A. Conway Charity Hospital and jacked up operational spending at the hospital. That created almost 200 new jobs in Ouachita Parish.[10] We are estimating that by year-end, the Monroe MSA will have gained 1,900 jobs (+2.6%) in 2021.

Forecast for 2022-23: Help from Medical; Drag from Graphics & Lumen

Our projections are **that the Monroe MSA will add 2,700 jobs in 2022 (+3.6%) followed by another 300 jobs in 2023 (+0.4%)**. Note in Figure 33 that even with these additional jobs, the region will still be 1,200 jobs below its peak reached 20 years earlier.

Figure 33



Data Source: Bureau of Labor Statistics

The exceptional growth in 2022 of 3.6% is primarily due to recovery of COVID losses. This performance, while very good, is poorer than the statewide average

[10] The Economic Impact of the New Ochsner-LSU Health Sciences Center Partnership on North Louisiana. Loren C. Scott & Associates, Inc., March 2021, p.17.

growth of 4.4% that is predicted. That is because (1) the region has no significant new players announced for the MSA and (2) there are at least two existing companies that will create a headwind against job growth. One of those companies is the very large and important **Graphics Packaging** which operates a paper mill and a packaging plant in the MSA. The huge employer now provides 1,100 jobs for the community. Over the next two years the company will be spending about $40 million a year on new labor-saving technology that will drop its employment into the 800-1,000 range. Forty percent of the company's workforce is over 50 so much of this reduction will occur via attrition.

The second worrisome company is **Lumen Technologies**---the former CenturyLink--- one of the few Fortune 500 companies located in Louisiana. The former CenturyTel merged recently with Level 3, and the former CEO of Level 3---Jeff Storey---is now the CEO of the newly merged, and renamed, company. Storey did not relocate to Monroe, but rather has stayed in Denver. The widespread fear is that when the company's agreement with the state to keep the Lumen headquarters in Monroe until 2025 runs out, the company will be relocated to Denver. We understand that employment at the facility in Monroe has already declined from 2,300 to about 1,500. A large number of people working from home make it difficult to determine present employment. What makes this trend doubly worrisome is that **IBM** has a major facility across from Lumen to service the company. A loss of Lumen would very likely mean more losses at this company as well.

Vantage, VCOMM, Ochsner & Chase Provide Growth

Four companies in the region will be offsetting the losses above with new jobs in the MSA. **Vantage Health Plan** has been a vital new entrant into the Monroe area economy over the past five years. Now at 1,435 employees, Vantage expects to add 100-150 new employees a year over 2022-23. The company has begun administering the Medicare Advantage business for Blue Cross Blue Shield of Louisiana and is about to launch into a new business area. Recently, Vantage expanded into six counties in Arkansas and is now going into 48 counties and will expand into 36 Mississippi counties in 2021. After making a large investment in E.A. Conway Charity Hospital and renaming it the Monroe Medical Center, the **Ochsner-LSU Health Sciences Center Partnership** will spend another $15 million in the area over 2022-23 on new community health centers, new orthopedic and rehab clinics, and expansion of emergency, trauma, and stroke services. The Partnership expects to add about 30 jobs a year over 2022-23.

Two other key employers are planning for job growth over our forecast period. **Edwards Via College of Osteopathic Medicine** (VCOM) will be adding a second class of 150 freshmen this year and additional faculty. **Chase Mortgage** has a processing facility in Monroe that employs 912 people. Chase plans to add 50 new positions over 2022-23 and is working with the local community college to train entrants.

One of the real job-generators in the area in the past couple of years has been **Coastal Professional**, a company that does student loan collections for the U.S. Department of Education. Starting at 146 people about two years ago, we understand the firm now employs about 400+ people. **Foster Farms** in Union Parish provides a solid 1,200-person base to employment in the region. That employment number does not include the chicken farmers and transporters. Also holding steady is hand sanitizer maker **Angus Chemical**. As expected, this company's workforce of 120 company personnel and 50-75 contract workers has held up well during COVID.

Employment at two other significant firms remained relatively stable and are expected to stay stable over 2022-23. **Steel Fabricators of Monroe** was sold to Lexicon in 2020. While somewhat cyclical, its employment has hovered in the 120 range. **Gardner Denver** manufactures pumps that go into medical equipment such as ventilators. The company was sold to a venture capital group and has a new general manager. Employment is at about 250 and is expected to remain stable.

This region will get a small amount of stimulus from a slight bump in **state road lettings** for the region. The dollar amount allocated rose from $73.3 million last year to $120.4 million this year, a nice 64% increase. The two biggest projects are (1) $48.7 million on the Kansas Lane – Garrett Road connector and (2) $18 million on widening I-20 from Garrett Road to US165.

THE ALEXANDRIA MSA

No Minus + No Plus = Stable

Louisiana's second smallest MSA is located in the dead center of the state (see Figure 11) and is comprised of Rapides and Grant Parishes. There were 61,500 non-farm employees in the MSA in 2021. While there are some notably large manufacturing firms in this MSA, the manufacturing and mining sectors are small compared to other MSAs in Louisiana.

Some large firms add an important private sector base to this MSA. The 1,200-person **Procter & Gamble** is the largest manufacturer in the region, and nearby **PlastiPak** (nearly 300 jobs) makes the containers to hold P&G's products. Equivalent in employment size to P&G, utility company **Cleco** is headquartered in Pineville and is an important economic driver for the community. **Crest Industries** is a 700-800-person conglomerate that is engineering focused but also has a major subsidiary manufacturing equipment for the utility industry. England Airpark is host to **Union Tank Car** (350 employees), which manufactures railroad tank cars to primarily transport chemical products.

Alexandria has a very significant government base (23% of its employment), second only to Hammond in its dependency on this sector. **Pinecrest Support and Services Center**, which provides care for the mentally disabled and **Central State Hospital---**a facility for the mentally ill---are both located in the MSA and between them employ about 1,800 people. That is more than Cleco and Union Tank Car combined.

Just outside the borders of this MSA are very large employers with close economic ties to the MSA. **Fort Polk**, in Vernon Parish to the west, is the largest military installation in the state, with over 14,000 permanent troops/civilians on site and another 6,000 troops rotating through nine months out of the year. This makes the base the largest single employer in Louisiana. **Roy O. Martin** employs just over 900 at two wood processing sites a couple of miles outside of Rapides Parish to the north and south.

2020-21: COVID & Start of Recovery

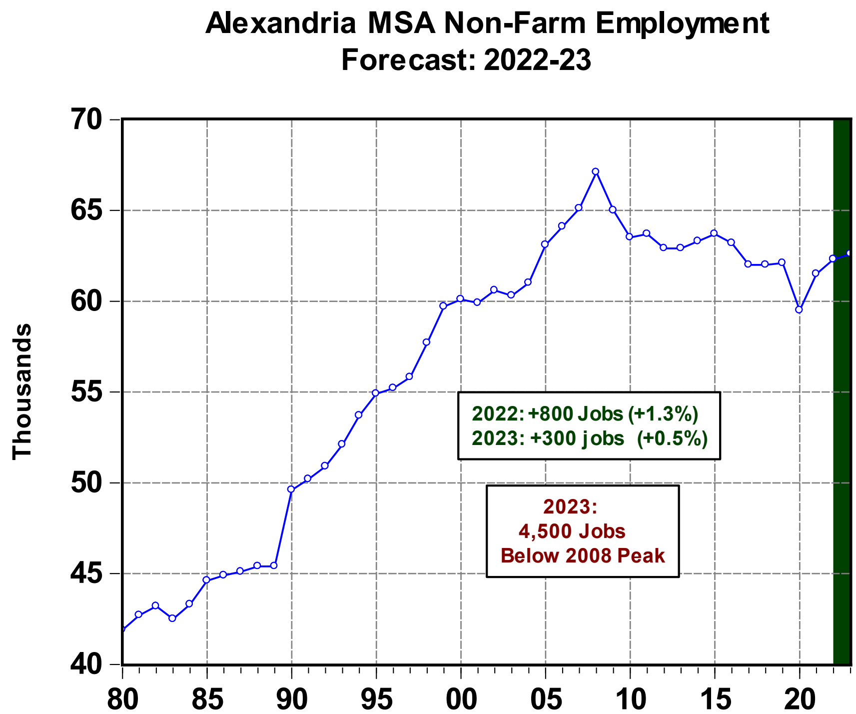
A track of the history of employment in the Alexandria MSA over 1980-2021 is shown in Figure 34 along with our forecasts for 2022-23. Readers who are interested in the history of this economy from 1980-2019 are referred to Appendix H. Among the state's nine MSAs, Alexandria was one of the lightest hit by the

COVID shutdown. **In April 2020 the MSA's employment fell by 6,000 jobs or 10%**---four percentage points lower than the statewide average. It helped that the MSA had no casinos within its boundaries, no major construction jobs to be paused, no oil and gas exploration in duress, and no significant convention business that dissolved. Still, that job loss took the MSA's employment back to where it was in 2000 (see Figure 34)! By June 2021, the MSA had recovered 58% of its COVID job losses, nine percentage points better than the 49% statewide recovery and tied for the third best record in the state.

Forecast for 2022-23: Not Much Growth Potential

Looking out over the next two years, Alexandria finds itself in somewhat the same situation as its sister MSA to the northeast---Monroe. While its existing companies are solidly in place, there are no major growth initiatives coming from them nor are there any announced prospects on the horizon. As seen in Figure 34, **we are projecting 800 new jobs (+1.3%) for this MSA in 2022 and another 300 jobs (+0.3%) in 2023**. Most of the growth in 2022 will come from restoring COVID-lost jobs. The good news is that Alexandria will be one of the few MSA's in the state to have fully recovered its COVID losses in 2022. The not so good news is that even with adding 1,100 jobs over the next two years, the MSA will still be 4,500 jobs below its 2008 peak.

Figure 34



Data Source: Bureau of Labor Statistics

Key Players: Steady but No Real Growth

There is good news and not so good news when it comes to the immediate future for the Alexandria MSA. The really good news is that all the top players in this economy seem to be rock-solid with no real serious threats on the horizon. The bad news is that none of them plan major expansions and there have been no announcements of new firms coming to the area.

Note back in Figure 34 that it appears the serious bloodletting is over for government entities in the region. Importantly, the word from the huge state complexes---**Pinecrest and Central State Hospital**---is that their 1,762-person workforce is not expected to change over the next two years.

Similarly, **Cleco** holds constant at 1,200 personnel, but a drop of 50-60 from their corporate group is scheduled for November. In fact, part of the agreement with the Public Service Commission that allowed Macquarie to purchase Cleco was that employment at the company would at least be maintained. There are 540 **P&G** employees and 700 contractors at that company's plant in the MSA. P&G

`

has filed an application for an industrial tax exemption on a $30 million investment at the plant that would add two new jobs. We understand that this plant, which makes liquid soaps and pods, will be adding 30 jobs a year over 2022-23. **PlastiPak**, which manufactures containers for P&G, is planning a $14 million expansion that is scheduled to create 10 new jobs. **Gilchrist Construction**, with 340 employees statewide and about 170 in the Alexandria area, constructs roads across the state. Under the $1 trillion federal infrastructure bill, Gilchrist would be poised for a serious bump in business.

.Two other large employers in the area are also on a stable track for our forecast period. **Crest Industries**, which primarily manufactures steel transmission poles for the utility industry, is enjoying a very good market. Its employment is projected to stay in the 700-800 range over 2022-23. Crest did create a new company---**Avant Organics**---to manufacture a product to enhance flavor and fragrances in food and beverage products. About $4 million is expected to be spent on the facility this year, creating 10-12 new jobs at a location in the Central Louisiana Regional Port. Fortunately for Alexandria, all of **Union Tank Car's** new tank car production has been consolidated into the UTC site at England Airpark. This consolidation will be complete by the end of 2021 and will keep 350 people busy for the next two years.

England Airpark & State Road Lettings

England Airpark will be the source of a nice injection of construction spending over the next two years. The Airpark will be spending $28 million on several projects in 2022, the largest being extending <u>secondary</u> runway 1836 from 7,002 feet to 8,500 feet so that <u>primary</u> runway 1436 can be ultimately upgraded. There will also be work on noise mitigation and runway safety. Work is also advancing with LSU-A on a now approved 4-year aviation management degree. Engineering work will start in 2022 on a hangar conversion into the **ACE Aviation Center** for pilot training and flight simulations. Plans are underway to establish an FAA approved AP mechanic training and certification through the local community college, with a student class in 2024. This will require construction of a new wide-bodied hangar for training and to ultimately attract MRO (maintenance/repair/overhaul) firms. Construction would start on this hangar next summer if capital outlays are approved. Finally, the Airpark did attract two smaller tenants recently. **Microabrasives** spent $1.2 million at the Airpark to set up an operation to source alumina from Honeywell, super heat it, and produces numerous different products. The firm will hire six people. **Azeoforms** is spending $1 million on CMC stamping machines that will take steel sourced from Shreveport and stamp it into machine parts for Stihl (chain saws, etc.). This firm will hire five people.

The region will also get a bump from an increase in **state road lettings**, which will rise from $36.9 million last year to $49.1 million this year. The two biggest projects are (1) $15.4 million on the Calcasieu Bridge replacement and (2) $6 million on a major rehab of US167 from I-49 to US165.

Help from Nearby

We expect this MSA to benefit from significant economic activity just outside its borders. The **Roy O. Martin** Company has OSB and plywood mills just outside the northern and southern borders of this MSA. The housing boom has sent the price of ROM's products skyrocketing. The mill in Chopin is at 750 employees and poised to add another 15-20 slots, and ROM's plant in Oakdale is holding steady at 175 jobs.

Just to the west, in Vernon Parish, is the state's single largest employer---**Fort Polk**. There are 8,137 permanent military troops at the base and 6,138 civilian employees. Another 5,776 troops rotate through nine months out of the year for training. A huge flow of money moves from these folks' pocketbooks to retailers, service firms and entertainment venues in nearby Alexandria. About $43 million will be spent at the base over our forecast period on quality-of-life projects on the base. Looking further out, the **Multi-Role Bridge Company** is coming to Fort Polk in October 2024, bringing with it an additional 183 troops.

An Encouraging Word: I-14 "Authorized"

At this writing, a vote is near on the Biden Administration's trillion-dollar infrastructure bill. If finally passed, the bill contains language that authorizes **Interstate 14** between Odessa, Texas and Augusta, Georgia, and designates it as a high priority corridor."

The name "Interstate 14" honors the 14th amendment of the constitution, which provides for equal rights for all persons in the U.S. and is of particular importance to the Deep South, through which the highway will run. Note in Figure 35 that this interstate would traverse the center of Louisiana and specifically run through Alexandria. It would also have national security benefits because it would link military bases in Georgia (Fort Benton, Robins AFB, Fort Gordon) with Fort Polk in

Louisiana and Fort Hood in Texas. This interstate would be a huge economic boon for this MSA.

Figure 35

Interstate 14 Corridor

Source: Gulf Coast Strategic Highway Coalition

Being "authorized" does not of course mean "funded." There is a great deal of work to be done, both in terms of legislation, engineering, right-of-way acquisition, etc., before construction can start, but at least an important step has been taken.

THE HAMMOND MSA

Medline to the Rescue

About 40 miles due east of Baton Rouge is Tangipahoa Parish (see Figure 11) which is the newest and smallest MSA in the state with 46,200 nonfarm employees in 2021. MSA data on this MSA only start in 1990, so our review of its employment history is more limited than for the other eight.

Some 22% of this parish's residents earn their income outside of the parish. Downtown New Orleans is a short commute away as are the plants along the Mississippi River, the State Capitol in Baton Rouge, and Slidell to the west. This, plus the lack of underlying basic industries, has turned Tangipahoa Parish into a commuter parish.

Because it is smaller, its economy is in most ways simpler. Its largest city is Hammond, which is a college town, home of **Southeastern Louisiana University** (1,429 employees). In most cities the hospital is the largest employer because the facility employs people 24/7, 365 days a year. This MSA is no different. Its largest employer (aside from the School Board) is **North Oaks Medical Center** (2,558 employees). Combined with SLU, these two players and associated clinics represent almost a fifth of employment in this MSA. G**overnment employment** (24.1%) is tied with Alexandria in terms of its dominance in the economy. **North Lake Division Evergreen Life Services** (300 employees) provides services to over 200 residents with intellectual and developmental disabilities.

Distribution centers have also found a good home here, as Hammond abuts both north-south and east-west interstate highways. An 800-person **Walmart Distribution Center** is located in Tangipahoa Parish, as is the 375-person **C&S Wholesale Grocers**. A new $45 million **Medline** distribution center is being built near Hammond that will ultimately bring 450 new jobs. **Scarinao Wholesale Foods** is another distributor located in Baptist.

Manufacturing is not as large an element in this MSA (5.3% of employment) as is the case at the state level (7.0%). Manufacturing is dominated by food processing such as the 550-person **Sanderson Farms** poultry processing plant and the 164-person (and growing) **Elmer's Candy** plant. **Smitty Supply** of Roseland is a motor oil blending, packaging and distribution firm that employs 400.

2020-21: COVID Effects & Recovery

The history of employment trends over 1990-21 along with our forecasts for 2022-23 for this MSA are illustrated in Figure 36. Readers who are interested in a write up of the history of this MSA over 1990-2019 are referred to Appendix I. As seen back in Table 3, the COVID shutdown impact in 2020 cost this MSA 1,300 jobs (-2.8%). Hammond was among the mildest hit by the shutdown, losing 4,700 jobs in April 2020 or 10% of its jobs (compared to the statewide average of 14%). The absence of a significant leisure/hospitality sector or a robust construction sector shielded this MSA from some of the worst effects of the shutdown. Note back in Table 3 that by June 2021 Hammond had experienced the best recovery among the state's nine MSAs at 96%.

Hurricane Ida pummeled this MSA with the eye coming only a few miles to the west of Hammond, meaning the MSA was on the side of the eye with the strongest winds and severest rainfall.

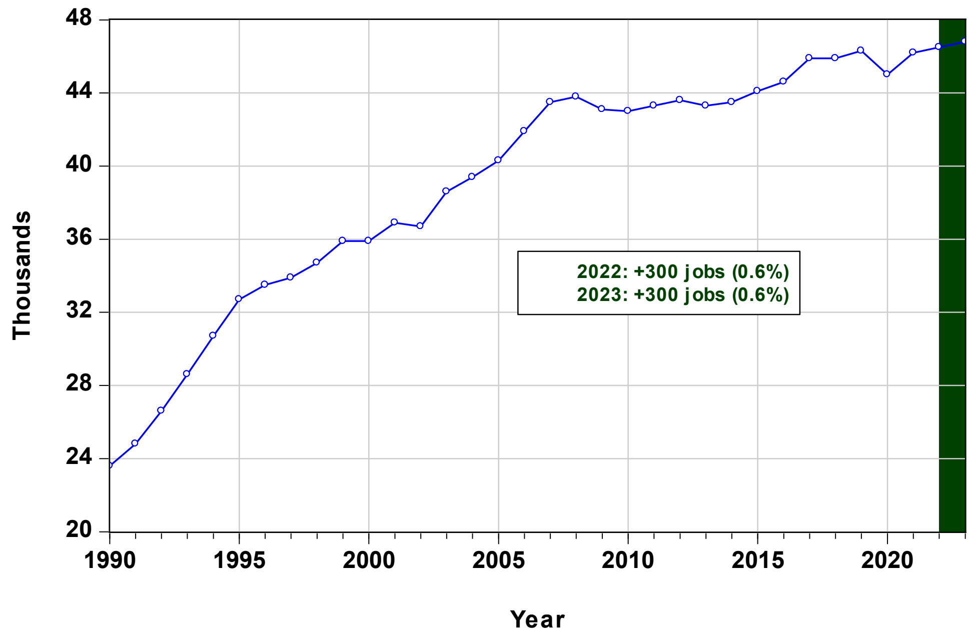
Forecast for 2022-23: Medline Adds a Bump

Our projection for the Hammond MSA is for the region to add **300 jobs per year over 2022-23, which is about 0.3% annually**. This is obviously not a very special prognostication for the MSA. Two factors in particular are of concern for the future. First, an examination of employment trends at **North Oaks Medical Center** (see Figure I-5 in Appendix I) suggests that this hospital system will at best not arrest growth in the MSA. Medicaid expansion will continue to exert financial pressures on this well-run company and limit its employment growth.

`

Figure 36

Hammond MSA Nonfarm Employment Forecast
2022-23



Data Source: Bureau of Labor Statistics

The second major employer in the region---**SLU**---is facing enrollment challenges as seen in Figure I-2 in Appendix I. From the economy's standpoint there is the compounding problem that more and more classes are being held <u>online</u>. That means the students are not regularly in Hammond as they used to be, spending money at restaurants, theaters, and retail stores.

There is one major bright light in this MSA's economic future. Hammond recently landed the huge $45 million, 800,000 square foot **Medline Distribution Center**. Construction is to begin on the facility near the Hammond Airport in March 2022 and will take about 12 months to complete. The company expects to employ 170 people within two years of opening and 450 ultimately.

A second boost to the economy will come from an increase in **state road lettings** in the MSA. The state estimates this amount at $27.5 million over 2022-23 as compared to $16.4 million last year. The largest project in the state list is $1.8 million to overlay LA22 from Dunson to 7th Street. There is another $17.5 million in **local public infrastructure projects** underway in the MSA. The largest of these is $10.4 million to widen Club Deluxe Road. Finally, Tangipahoa Parish will be receiving 880,267 in **GOMESA monies** for coastal restoration and hurricane protection projects.

`

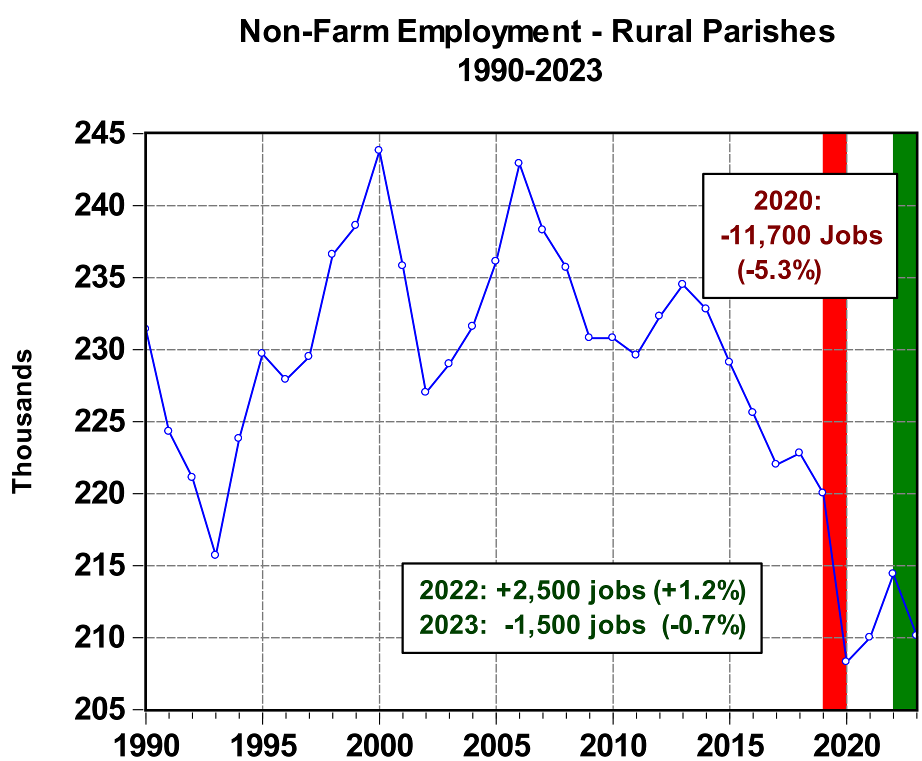
RURAL LOUISIANA

Invasion of the Sawmills

There are 35 of the state's 64 parishes located in the nine MSAs that have been covered to this point. The remaining 29 parishes are designated as "**rural**." In 2019 (latest data available) just under $1.1 billion was earned by farm owners and workers in Louisiana. Forestry and logging added another $235 million.[11] Virtually all of that money was earned in these 29 rural parishes. Agriculture is its dominate economic base.

There are some outliers, however. As mentioned in the Alexandria write up, the largest single employer in the state is **Fort Polk** in Vernon Parish next to the Texas border.

Figure 37



Data Source: Bureau of Labor Statistics

[11] www.bea.gov.

Natchitoches Parish contains a university town, Natchitoches, which is the home of Northwest Louisiana University, but also is the headquarters of the Red River Waterway Commission and enjoys a tip of the Haynesville Shale within its borders. Lincoln Parish also has a large university base with Louisiana Tech located in Ruston. There are few rural parishes along the Louisiana coast (see Figure 11) but one is St. Mary Parish which is dominated by industries serving the offshore exploration/production industry.

About 11.1% of the state's employment (210,000 jobs) exists in these 29 parishes. Figure 37 tracks employment trends since 1990 in these rural parishes and provides forecasts for 2022-23. Readers interested in reading about the history of these parishes over 1990-2019 are referred to Appendix J.

2020-21: COVID Impact

Like its MSA counterparts, rural Louisiana took a hit from COVID. In April 2020 rural Louisiana saw 22,200 jobs vanish----a drop of about 10%. This was well below the statewide average of 14%, reflective of the absence of substantial leisure/hospitality and construction dominance in this region. There was sufficient recovery by year-end that the region was down 11,700 jobs (-5.3%) on the net for the year. By June 2021 rural Louisiana had regained about 82% of those losses, one of the better performances in the state (see Table 3).

It should be noted that rural Louisiana has been experiencing an **underlying downward trend** since about 2006. Much of this downward pull is no doubt associated with out-migration from rural areas to the MSAs where greater economic opportunities are perceived. For example, of Louisiana's 29 rural parishes only three experienced population gains between 2010-2020---Lincoln, Beauregard, and Jeff Davis---while ten rural parishes found their populations fell by 10% or more.[12] We expect this out-migration to continue over our forecast period.

Forecast for 2022-23: Sawmills, 3 Nice Wins & Solar Farms

As seen in Figure 37, we are projecting that rural parishes will have an **unusual growth year in 2022 and add 2,500 new jobs (+1.2%). However, in 2023, we expect the downward pull of out-migration to dominate, and the region will return to a negative growth trend, losing 1,500 jobs or -0.7%**.

[12] www.bea.gov

The more positive picture for 2022 is largely driven by at least five new sawmills coming on board. A steaming housing market is driving lumber prices through the ceiling, leading to these new, or improved, projects. They include:

- **Home Forest Products** is planning a $240 million sawmill to produce 320 million board feet annually. The plant will use local timber and employ 130 people at $57,400 annually.

- **Canfor** in Deridder will build a $160 million facility at the Beauregard Regional Airport and will hire 130 people at $59,921 annually.

- **Interfor Corporation** bought an old, closed Georgia Pacific sawmill in Dequincy and should restart that mill. Before closure the mill employed 188 people.

- In Bogalusa, **International Paper** will be spending $52.2 million on projects to improve efficiency at the plant. The investment will result in five new jobs added to the company's 492-person workforce.

- **Weyerhaeuser** will be investing $16.1 million in its plant in Natchitoches on major equipment upgrades over the next several years. The firm will retain its present workforce of 200 and add 20 jobs at $45,000 annually.

- **Roy O. Martin** has two facilities in rural Louisiana. Its plywood plant in Chopin employs 735 at the present, with plans to add another 15-20 positions. Its oriented strand board facility in Oakdale employs 175 and should be stable over 2022-23.

It is unusual for us to be able to report three substantial, new non-agricultural projects in rural Louisiana. **Strategic Biofuels** has announced plan for a new $700 million renewable biodiesel plant on a 75-acre tract at the Port of Columbia in Caldwell Parish. The plant would use locally-sourced forest waste as its basic material source and would employ 76 people at $68,000 a year. The firm would also capture its carbon and store it in salt domes. An FID is projected by yearend 2022, with operational to start in 2024 or 2025.

Syrah Resources has already invested $37.6 million in the initial phase of a graphite manufacturing facility in Vidalia. An FID on a much larger $121.9 million expansion is expected before yearend 2021. Phase two would move the firm's employment from 20 to 80jobs with an average annual salary of $87,500. The graphite produced would be used in electric vehicle batteries. In Ville Platte, **Cabot Corporation** plans to invest $90 million in a plant to manufacture carbon black for use in tires and other rubber products. Currently at 90 employees, this new investment would generate 15 new jobs at $73,000.

While not expanding its Franklin facility in St. Mary Parish, **Metal Shark Boats** should be adding as many as 50 people to its 110-person workforce at this site. Metal Shark has delivered the first six of 18 45-foot patrol boats to the Vietnam Coast Guard and vessels 6-8 of up to 14 larger patrol boats for the Navy. In January, the company was chosen to build, test, and implement a Long Range Unmanned Surface Vessel System for the Marines.

New solar farms are cropping up all over the state, and rural Louisiana has landed at least four of these, including:

- **Bogalusa West PV1** is planning a $200 million farm in Bogalusa that should finish in 2024 and employ 5 people.

- Also in the Bogalusa area, **Sunlight Roads Solar** has announced a $56 mm farm to open in 2023 employing one person.

- **Kontiki Holdings** plans to start a one-year construction project in 2023 on a $145 million solar farm in Beauregard Parish that would result in one new job.

- In Morehouse Parish, **Bayou Galion Solar** has announced a $98 million farm on 1,000 acres that will create three jobs. Construction start is scheduled for July 2022 and opening December 2024.

The largest single employer in Louisiana is actually located in rural Louisiana. **Fort Polk** in Vernon Parish has 8,137 permanent military personal and 6,138 permanent civilian employees with an additional 5,776 troops rotating through nine months of the year. These numbers are not expected to change much over the next two years. There are 62,900 retirees/veterans residing within a 5-parish area of the Fort to take advantage of the healthcare and commissary located on the base. The

Army will be spending $43 million over 2020-22 on quality of life projects (better housing, bowling alley, swimming pool, etc.)

It is worth noting that some $15 million will be spent at Louisiana Tech on a 60,000 square foot commercial office building. Called **Tech Pointe II**, the facility will join Tech Pointe I and be part of a research park for technology transfer and private sector tenants. Construction will be complete this year and is expected to result in 750 new jobs over 10 years.

Rural Louisiana will also get an extra boost from **state road lettings** which are posted at $515.5 million, up from $450.2 million last year. The three largest projects are:

- $52.7 million for an I-10 overpass bridge at LA165.
- $27.9 million US190 Union Pacific railroad overpass near Opelousas.
- $26.3 Million for a Union Pacific overpass near Bonita.

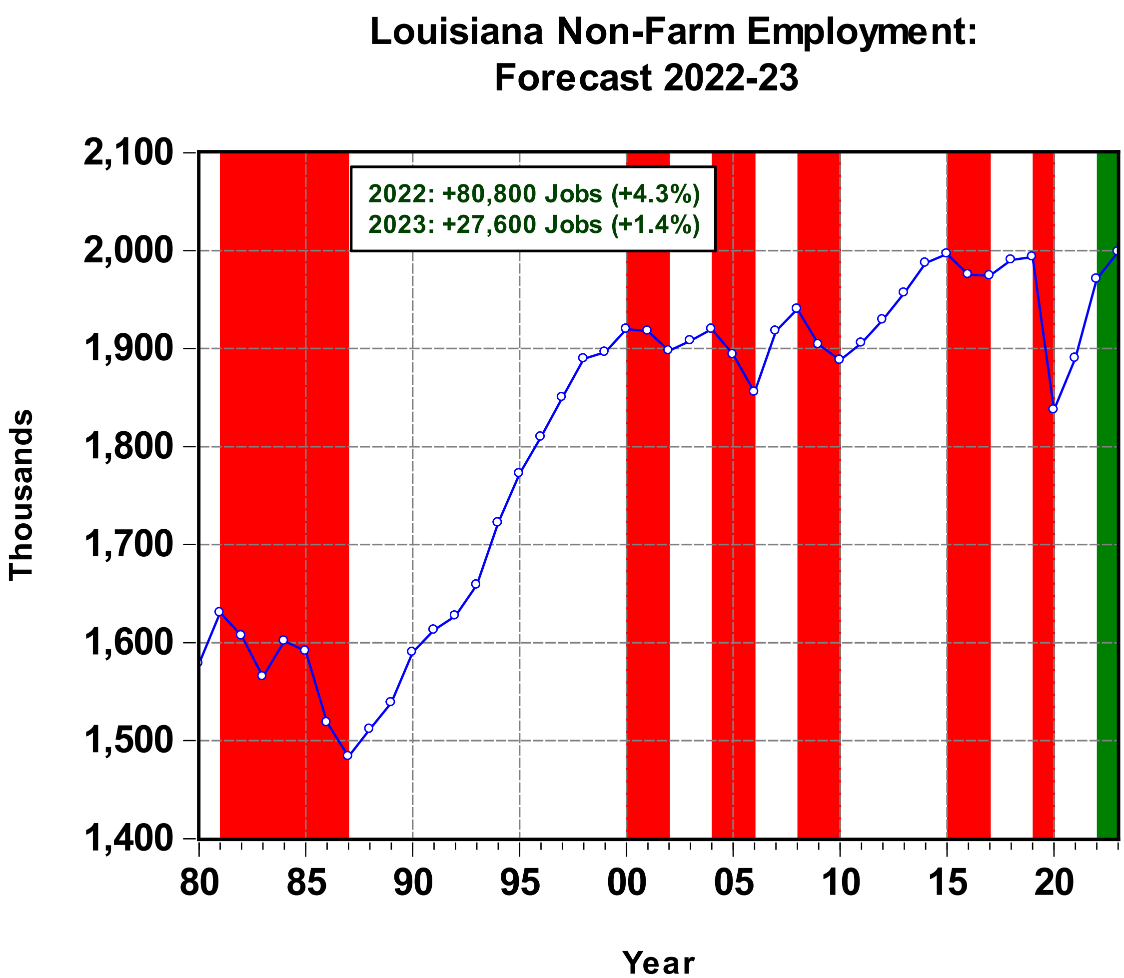
St. Mary Parish has $80 million in **coastal restoration projects** underway and $6.35 million still to be let out. **GOMESA** coastal restoration and hurricane protection monies are headed to St. Mary Parish ($963,784) and Assumption Parish ($730,415).

THE LOUISIANA ECONOMY: 2022-23

In the sections above we described the forecast for the state's nine MSAs and its rural region. Figure 38 adds these forecasts together to get the state total. We are projecting that pushed by COVID recovery-jobs, the state will add 80,800 jobs in 2022 (+4.3%) and a more standard 27,600 jobs in 2023 (+1.4%). By 2023 that state will have barely (by 5,400 jobs) beaten the old 2019 record and reached a new record of 1,998,700 jobs.

Readers are asked to look carefully at the employment data in Figure 38 from 2015 forward. Notice how close the state has come to that magical 2,000,000 mark before some untoward event pulled it up short. Hopefully such nemeses are in our rearview mirror and that ceiling will be broken through soon.

Figure 38



Data Source: Bureau of Labor Statistics

`

APPENDIX

Economic History of Louisiana MSAs

APPENDIX A: *History of the New Orleans MSA*

1980-2004: Lead Up to the Hurricanes

The non-farm employment history in the New Orleans MSA from 1980 through 2021 is shown in Figure A-1. Louisiana experienced its longest and deepest recessions over 1981-87 during which the New Orleans MSA lost a stunning 40,400 jobs. This recession was driven by a plummeting oil and gas extraction sector. This MSA's heavy reliance on this industry (20,600 jobs in 1981) led to the heavy direct job losses accompanied by the further multiplier effect of those losses. Newspapers headlined many oil companies and service firms moving operations to Houston. By 1987, New Orleans had only 14,600 people employed in this industry.

The "multiplier effect" was mentioned in that last paragraph. For example, shipbuilding in the region was very energy-focused, so as oil and gas plummeted, this sector took a beating. Many fabricators were also in the same predicament. The result is manufacturing employment dropped from 61,300 workers in 1981 to 41,700 by 1987. Similarly, the MSA's real estate, retail, services, and financial markets endured layoffs through 1987.

Once the dust had cleared from this recession, New Orleans began to grow again until a combination of unusual events sent the region into a short recession (-3,500 jobs) in 1990. First, a period of weak natural gas prices slowed the energy sector even more. Then, the Challenger spacecraft disaster led to fewer flights and fewer external fuel tanks to be built at Martin Marietta in New Orleans East. Then another round of layoffs at Avondale Shipyards initiated another significant reduction in force.

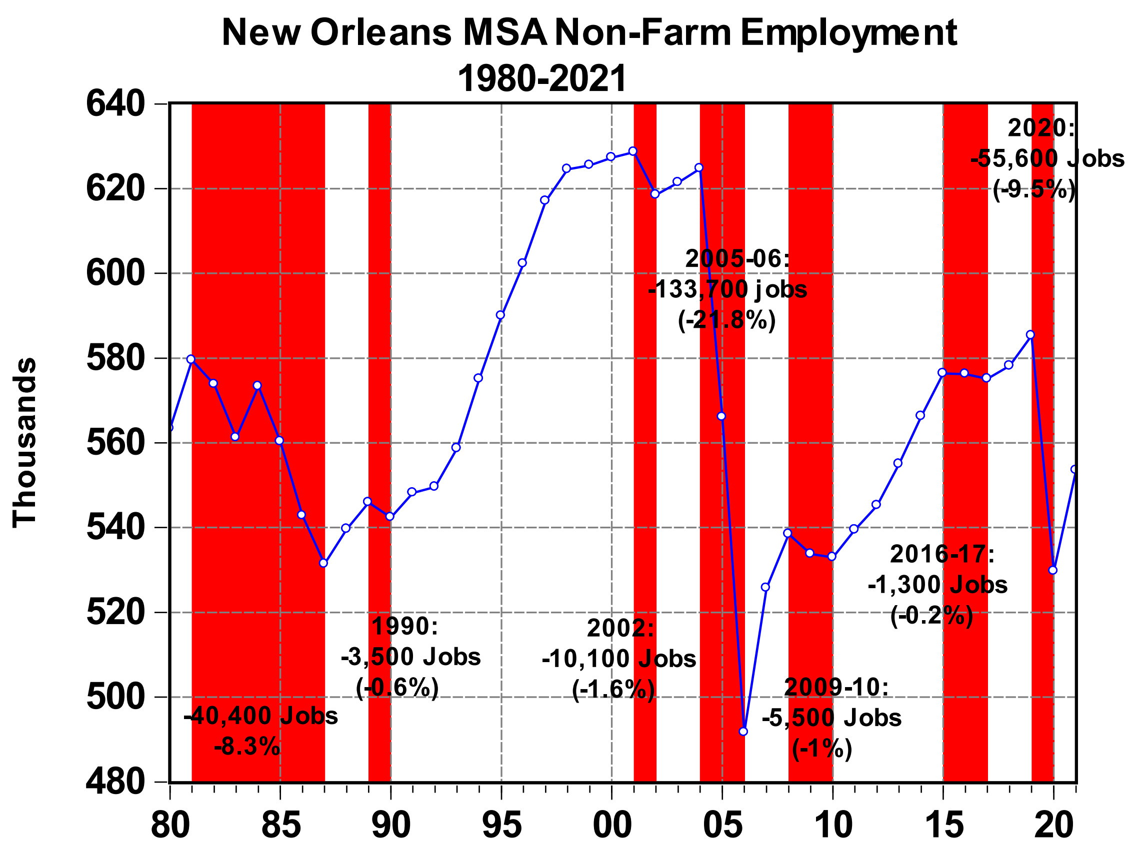
This MSA entered an envious growth period of 2.6% annually from 1994-97. A big driver was the introduction of the gaming industry to the economy. About 3,300 jobs were created at the four new riverboat casinos and the state's only land-based casino opened at a temporary site while construction began on a permanent location on Canal Street.

Growth tapered off over the next three years, before the region experienced the impact of the 2001 national recession (-10,100 jobs). Growth was lackluster over the next two years because high natural gas prices caused shuttering of some ammonia fertilizer plants in the area and led to serious cost issues in the region's large chemical industry. Readers should note that in the six years preceding Hurricanes Katrina and Rita this MSA's economy was moribund.

Katrina & Rita: The Most Profound Events

There is a sense in which this MSA's modern economy can be divided into two distinct parts: pre-Katrina and post-Katrina. It is hard to overstate the magnitude of this calamity on the MSA. Over 2005-06, the effect of Hurricanes Katrina and Rita was to drive employment down by an almost unimaginable 133,700 jobs or 21.8%. As seen in Figure A-1, on an average annual basis these two storms removed three decades of economic growth, plunging the economy back to where it was in 1977.

Figure A-1



Data Source: Bureau of Labor Statistics

Looking at the data on a monthly basis reveals a much uglier picture. The region had lost 177,900 jobs, an astounding 29.5 percent decline, after Rita had hit.

Often times when storms hit, the recovery is rather swift. The economy falls drastically at first, and then rebounds just as quickly as massive federal recovery and private insurance monies flow into the area for the re-build effort. Indeed,

`

this is the pattern seen in Lake Charles and Pascagoula, Mississippi after the hurricanes.

Not so in New Orleans. As can be observed in Figure A-1, the picture is akin to a "kindergarten L." Housing issues prevented the V-shaped recovery. Partly this can be traced to the incredible magnitude of the destruction. By one estimate, there were seven times more homes destroyed than in any other natural disaster in our country's history. Almost 182,000 homes in the New Orleans MSA incurred either severe or major damage, i.e. damage bad enough to render the home uninhabitable.

A real key to the slow recovery was that the homes were rendered uninhabitable due to flood waters. Damage from flood waters is typically not covered unless the owner purchased national flood insurance. Unfortunately, only 26% of these homeowners had flood insurance. Even so, national flood insurance only covered 80 percent of the pre-flood value of the home up to a maximum of $250,000. Consequently, most homeowners in the area were staring at a major gap in their coverage.

Happily, U.S. taxpayers came to the rescue to cover this gap in coverage in the form of "Road Home" monies to rebuild their homes. Unfortunately, the financial barriers to rebuilding were so severe for some that there are large swaths of New Orleans to the East where people have simply chosen not to return.

Other serious issues prevented a full and fast recovery in the region. Readers were asked earlier to remember the weak economy in the six years preceding these storms. These displaced people had endured public schools in the New Orleans area that were among the worst in the state (if not the nation). Their new location has much better schools for their children. Prior to the storms the economy in New Orleans was stuck in the doldrums. Families transported out of New Orleans to Texas or even other parts of Louisiana, typically found themselves in much more vibrant economies. That meant more, and higher-paying, jobs---a serious deterrent to returning. Finally, the crime rate escalated in New Orleans after the storm, further impeding the desire of dispersed families to return.

Great Recession Precedes Remarkable Growth

Note back in Figure A-1 that the combination of massive amounts of construction spending to rebuild houses, levees, etc., and the Go Zone funding, spurred some growth in the region's economy in 2007-08. Then the Great Recession caused the national economy to plunge by 6.1%. This MSA lost 5,500 jobs---a 1.0% decline which was a much more favorable result for New Orleans. In fact, this MSA had the best performance among the state's nine MSA during this national downturn.

In the aftermath of the national recession, the New Orleans MSA rallied with five straight years of solid growth from 2011 to 2015, and by 2011 had recovered all the jobs lost during the recession. What makes this performance especially remarkable is that the growth occurred despite three significant blows to the economy. One was a marked reduction in the Army Corps spending to reinforce the levee system. The real stunner was the 4,500 layoffs at Huntington Avondale Shipyards. Equally bad, the Michoud Assembly Facility reduced its workforce by about 3,000.

Oil & Gas Problems Reappear

In our write up of key drivers in the body of this report readers were shown a picture of oil prices movements since 1980 (Figure 5). In late 2014, the Saudis decided to try to destroy the fracking business in the U.S. by driving oil prices down to under $30 a barrel at one point. The New Orleans MSA still had a substantial energy base that was harmed by Saudi Arabia's actions. Hornbeck stacked 45 of its 62 boats and terminated 1,000 mariners and 150 onshore workers due to a reduced demand for supply boat services in the Gulf of Mexico. Chevron initiated a temporary reduction in force at its Covington office. Layoffs reverberated across the region as Hexion closed a facility at Norco (-97 jobs), Shell moved 95 people to Houston, and Freeport McMoran dropped 32 jobs.

The Army Corps reduced even further its spending on the levee system (-$311 million). Adding to woes on the Northshore, Trinity Yachts shut down its site in Madisonville (-60 jobs). Further upriver, Louis Dreyfus shuttered its packaging facility in Gramercy (-49 jobs). Chiquita moved from the Port of New Orleans to Gulfport (-100 longshoremen), and Macy's closed its store in Esplanade Mall (-116 jobs).

There were more positive moves in the MSA to help offset the energy-related losses somewhat so that the MSA suffered a net loss of only 1,300 jobs over 2016-17. For example:

- Construction started on the huge $11 billion new University Medical Center Hospital to replace the Charity Hospital.
- The new VA Hospital was in final construction.
- Zen-Noh Grain finished its $150 million dock extension and continuous barge unloading system (+15 jobs).

- In St. John the Baptist Parish, work was completed on the $66 million Pin Oaks Terminal (+70 jobs).
- TCI Plastics completed its $36 million logistics facility at the Port of New Orleans (+160 jobs).
- Millennium Galvanizing (a Crest company) opened its new facility in Convent (+65 jobs).
- The A.B. Freeman School of Business at Tulane completed construction of its $35 million addition.

Back to Growth in 2018-19

Despite the drag from an oil and gas industry that was still in the doldrums, the region began to modestly expand again, adding 8,300 jobs (+1.4%) over 2018-19. The now much lower natural gas prices in the U.S. compared to those in Europe and Asia spurred a strong surge in investments in the petrochemical industry in the region, including:

- Yuhang Chemical started construction of its $1.9 billion chemical plant.
- Monsanto launched construction on a $975 million addition to its plant.
- Cornerstone Chemicals continued its $120 million expansion.
- W.R. Grace completed its $41 million capital expansion.
- **Noranda Bauxite** finished its $35 million expansion in 2020.

Major additions at area refineries provided another much-needed boost, such as:

- **Valero** began about $1.8 billion in construction, including its Diamond Green project.
- **PBF Refinery** in Chalmette began work on $600 million in enhancements.
- **Shell** refinery began about $360 million in expansions.
- **Ergon** completed a $200 million project to add 20 new tanks to its storage farm.
- **Fuji Oil** began construction of its new $77 million facility.

The region also got a huge new addition to its burgeoning tech sector. **DXC Technology** opened in downtown New Orleans with plans to grow to 2,000 workers.

Influence of COVID

The years 2020-21 are covered in the body of the report.

`

& Associates Inc.

APPENDIX B: History of the Baton Rouge MSA

Figure B-1 illustrates employment trends in the Baton Rouge MSA over 1980-21. The Department of Labor added 5 parishes to this MSA in 1990 resulting in a notable jump in the employment trend line in Figure B-1. Fortunately, the Baton Rouge MSA was barely touched by the 6-year statewide downturn in the early 80s. That recession was driven heavily by an oil and gas extraction industry being pummeled by a major price drop. This MSA was protected somewhat from these maladies because few extraction firms are located within its boundaries.

The MSA then entered a spectacular period of growth---averaging 7,700 jobs a year--- which lasted for 13 full years. It was primarily a burgeoning chemical industry that fed this fire of growth. In this MSA if the chemical industry expands, so does the industrial contraction side.

A short national recession tapped this region with a 1.1% job loss in 2001. Then the chemical industry---the source of the huge growth in the previous 13 years---ran into headwinds. An increase in the value of the dollar in international trade dinged the industry's foreign sales. Then its major input, natural gas, experienced a serious upward crawl that lasted through 2008. The industry had to respond by looking for ways to cut costs. That meant labor-saving technology, which meant fewer jobs

Hurricane Katrina's Impact

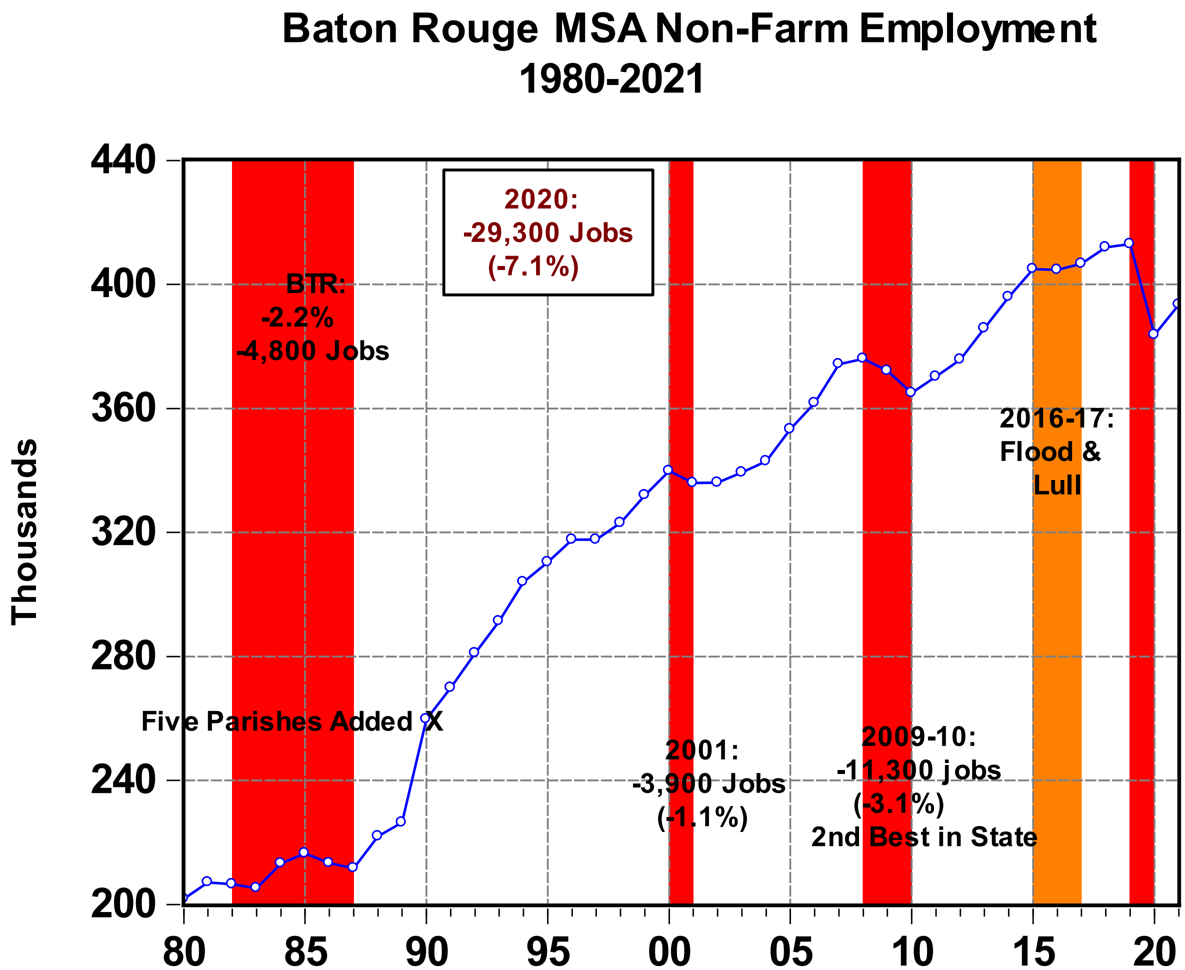
When Hurricane Katrina broke the levees and flooded New Orleans, its residents fled mainly to the largest place available that had potential housing. That turned out to be Baton Rouge and nearby parishes. FEMA estimated that 248,386 evacuees came to these communities in just a few hours. Every rental unit in the area was quickly occupied and the demand for housing pushed home prices up 27% overnight. Traffic came to a standstill, and store shelves and gasoline stations were depleted.

Of course, most evacuees eventually left, because it was impossible for the MSA to permanently absorb a quarter of a million people, particularly without enough available jobs. The U.S. Bureau of the Census estimated the area's population had grown by a remarkable 39,921 in one year. As seen in Table B-1, the bulk of that population increase occurred in East Baton Rouge (18,121), Ascension (10,000) and Livingston (9,100) Parishes. As impressive as that growth record was, it was much less than the number of evacuees that had initially come to the

`

region. Communities all around New Orleans saw this same pattern, whether in Louisiana, Mississippi, or Arkansas. Buttressed by the influx of business associated with the new Katrina evacuees, employment in the MSA spiked upward in 2005 and 2006 (see Figure B-1).

Figure B-1



Data Source: Bureau of Labor Statistics

Table B-1
Population Change by Parish
July 2005 – July 2007

Parish	Absolute Change	Percent Change
East Baton Rouge	18,121	**4.4%**
Ascension	10,000	**11.2%**
Livingston	9,100	**8.5%**
West Baton Rouge	1,091	**5.1%**
Pointe Coupee	564	**2.6%**
St. Helena	437	**4.3%**
East Feliciana	276	**1.3%**
Iberville	272	**0.8%**
West Feliciana	**60**	**0.4%**

Data Source: U.S. Census Bureau

2007-10: Go Zone Incentivizes, Construction and Strong Growth & Then Recession

Note in Figure B-1 that this economy was whipsawed over the next four years. One method the federal government used to help rebuild from the impacts of Katrina was the so-called Go Zone legislation. This immense injection of construction dollars continued this MSA's rapid growth post-Katrina. Go Zone monies were a primary reason the Baton Rouge MSA held up much better than the rest of the country during the Great Recession, when this MSA shed 3.1% of its jobs versus 6.1% at the national level. Among the more serious job losses in the area were:

- **Chase Bank** closed its operations center – terminated 247 people
- **Dow Chemical** closed a facility - terminated 160 people, plus 400 contract workers
- **Excide Batteries** temporarily closed - terminated 132 people
- **Trinity Marine** closed its barge manufacturing facility – terminated 190 people
- **Capital One Bank** closed its call center – terminated 180 people
- **Wells Fargo** closed a call center – terminated 70 people
- **IEM** relocated its headquarters – terminated locally 50 very high-paying jobs

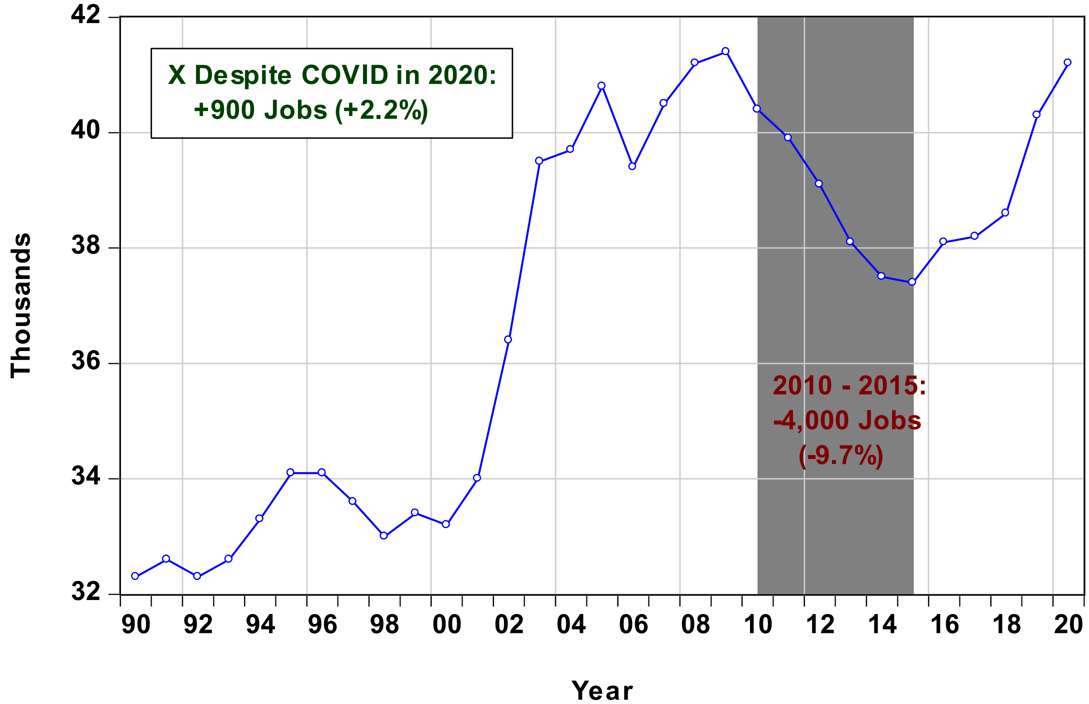
Solid Recovery Restrained by State Government

Note in Figure B-1 that beginning in 2011 the Baton Rouge MSA entered another period of solid growth of about 2% per year. By late 2012 it had begun setting new employment records after the Great Recession impacts. Beginning in 2012 a series of events led to an industrial construction boom that is still impacting the region in the early 2020s. Two things happened simultaneously. First, the fracking revolution resulted in an abundance of natural gas in the U.S. driving this country's natural gas prices below $3 per MMBtu. Secondly, a dearth of natural gas in Europe and Asia caused their natural gas prices to rise substantially. This created a very wide competitive advantage for U.S. Chemical firms over their competitors in Europe and Asia. Because this price gap was not thought to be temporary, chemical firms began building new operations in the U.S. to take advantage of the lower price of their key input. Suddenly there was $11.5 billion in new industrial projects in the region, and industrial construction employment began a meteoric climb. So great was this boom that the region's employment grew strongly despite the following:

- Kellogg Distributors terminated 208 people.
- Trinity Marine closed it 288-person facility.
- Albermarle announced it was moving 200 jobs to Kings Mountain, NC.
- 925 call center and distribution center jobs were eliminated, including the Home Depot call center (-400 jobs).

The power of the industrial boom is also illustrated by its ability to overcome a drastic drop in state government as shown in Figure B-2. What caused this drop? State government faced some challenging financial issues during this period as a result of some cuts in the personal income tax rates. Then Governor Jindal chose to solve these deficits by cutting costs instead of raising tax rates. About the only way to cut costs in state government is by reducing the workforce.

Figure B-2
Baton Rouge MSA State Government Employment



Data Source: Bureau of Labor Statistics

Interestingly, state government employment has increased steadily under Governor John Bel Edwards and is now only 200 jobs below the previous peak in 2009 as shown in Figure B-2. It is also instructive to note that state government employment in the Baton Rouge MSA increased by 900 jobs during the 2020 COVID shutdown year, and state government workers got a raise.

The Big "Lull" of 2016-17

Over 2016-17, this MSA entered a 2-year "lull." Note the orange bar back in in Figure B-1. Baton Rouge was hit with a rainstorm that stalled over the area for two days. The resulting flooding left the MSA's employment flat for two straight years, even with its strong industrial construction base. To put this in perspective consider the data in Table B-2. The first two rows show the rainfall expectations for a 100-year event (14.2 inches) and for a 1,000-year event (21.3 inches) over two days. All four Baton Rouge area communities shown in the next four rows significantly exceeded the 1,000-year event. Even nearby Lafayette nearly matched the 1,000-year event.

`

Overall, the damaged home count was staggering. FEMA reported an alarming 65,829 homes in just three parishes that were damaged by flood waters. To add to the disaster, many workers were focused on repairing their homes and did not return to work right away. As a result, many businesses closed---both temporarily and permanently---due to flooding. Job losses were recorded in every month from August through December in 2017.

Table B-2

2-Day Rainfall Totals: August 2016

Area	2-Day Rainfall Inches
1,000 Year Event	**21.3**
100-Year Event	**14.2**
Watson	**31.4**
Brownfields	**26.8**
Denham Springs	**26.5**
Monticello	**24.0**
New Iberia	**21.5**
Lafayette	**20.8**

Data Source: Advocate Newspaper, August 6, 2017 p. 1

2018-19: Significant Closures & Disappearing Pickups

This MSA's rather anemic growth continued into 2018-19 as well. Two broad factors contributed to this weak employment trend. First, there were some significant closures in the area, including the following:

- Georgia Pacific closed its paper division (-700 jobs).
- Thompson Pipe Group in Zachary closed its facility and moved operations to Texas (-120 jobs).
- BASF shuttered a north Baton Rouge plant (-54 jobs).
- Direct Auto & Life closed its call center (-127 jobs).
- State Farm reduced employment at its operations center (-47 jobs).

Secondly, during this period construction of at least seven major industrial projects that were started earlier in the decade, were completed. On a positive note, each of these projects led to new high-paying, permanent jobs that the MSA did not have before. However, truckloads of construction workers left these construction sites for the last time. These factors are the primary reasons the MSA's employment continued in a lull mode through 2019.

2020-21: The COVID Impact & Recovery

This period is covered in the body of the report

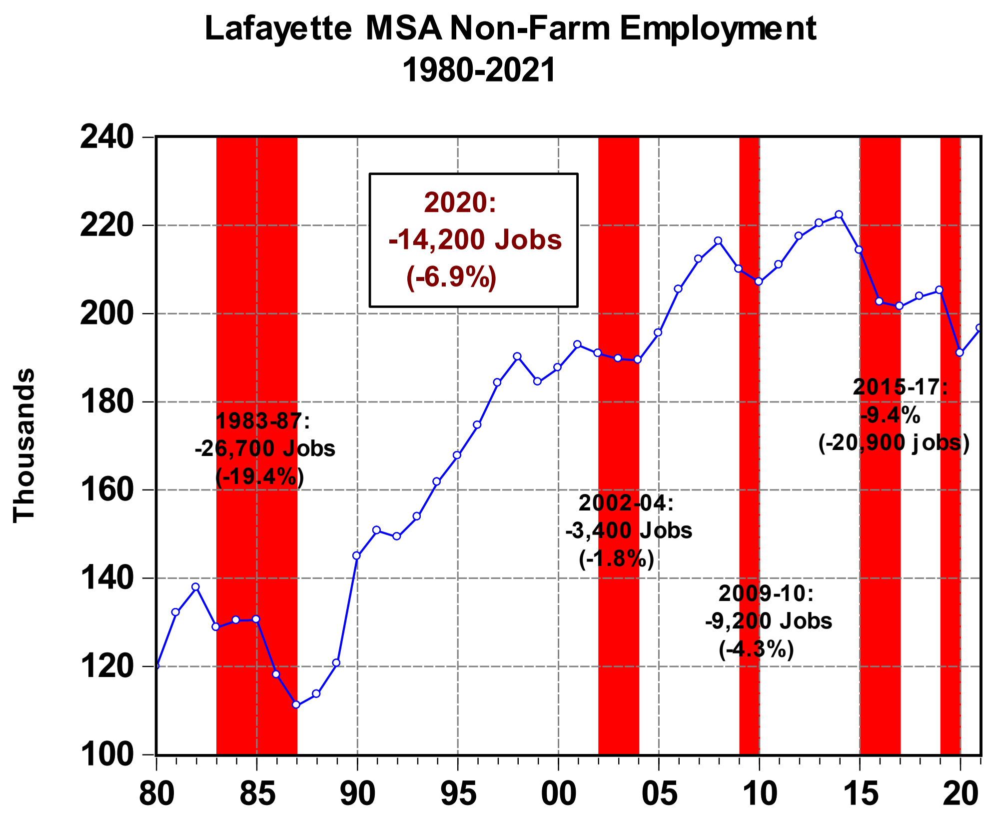
APPENDIX C: History of the Lafayette MSA

Figure C-1 displays the recent employment history in Lafayette. Readers can see immediately how this area's strong connection to the oil and gas industry has affected its employment. The big oil price decline in the early 80s absolutely creamed this MSA. An almost incomprehensible one fifth of the MSA's jobs vanished, a downturn that not even COVID could match.

Surprisingly, the MSA recovered those losses in only three years. It began with the MSA's first major venture into attracting non-energy related sectors. In the late 1980s, **Fruit-of-the-Loom** constructed very large facilities in the area and became the state's largest manufacturing employer. Fruit-of-the-Loom's impact was so large that by 1994, Lafayette had recovered all its jobs lost in the early 80s.

The energy sector began a series of blows starting with soft gas prices in 1992 that led to a minor employment drop. This blow to the energy sector was somewhat muted by surging employment at Fruit-of-the-Loom.

Figure C-1



Data Source: Bureau of Labor Statistics

However, the Fruit-of-the-Loom boom did not last. When the North American Free Trade Agreement passed, Fruit-of-the-Loom began a round of massive layoffs that ultimately led to full closure of the firm. Remarkably, Lafayette grew right through those layoffs. First, a nice rise in oil and gas prices sent the exploration industry on a hiring spree. Even more importantly in terms of growth and diversification, the MSA gained a new entrant---**Stuller Inc**. Stuller expanded so much that it became the largest jewelry settings manufacturer in the U.S.

The year 1999 was yet another poor energy year for Lafayette. When oil prices fell to under $10 a barrel, the extraction industry began its usual pattern of layoffs. As seen in Figure C-1, the region lost about 4,300 jobs. This downturn was followed by two pretty good growth years, which is unusual because the rest of the MSAs in the state were being influenced by the national recession. This growth spurt came from three sources:

- **Wal-Mart** opened a large distribution center near Opelousas.
- **Magnolia Distribution Center** opened in Lafayette,.
- **Cingular Wireless** call center was attracted to Lafayette, hiring 1,200 employees.

Fruit-of-the-Loom's Martin Mills plant was shuttered in November 2001 (-1,300 jobs), and the national recession was dealing Stuller, Inc. a lick, leading to a loss of 175 employees. In 2003, **Devon Energy** transferred 60 employees out of Lafayette, and **Fleming Company**---a wholesaler supplying the troubled K-Mart---closed its distribution center there as well. All of these factors sent Lafayette into a 3-year decline over 2002-04.

The Hurricane Effects

Those three funk years were followed by four very good years. Non-farm employment rose by an admirable 10,800 jobs or 8.2% in the first two of those years alone. The energy sector took off during this period, with the rig count rising from about 165 to over 201, which meant (1) new exploration jobs, (2) new exploration servicing jobs, and (3) new oilfield-fabrication-associated jobs for the Lafayette area.

However, the impacts of Hurricanes Katrina and Rita were the primary drivers behind this excellent job performance, creating jobs via two different vehicles. First, there was all the work required to repair damage to the **offshore energy infrastructure.** Both on-water and under-water assets were pummeled. On the surface, a total of 115 offshore platforms were destroyed and another 52 were seriously impaired. Down underwater, pipeline systems were strewn about and damaged. Repairing those damages is the bread and butter of the firms in this region. Fabricators and oilfield service firms salivated over all the repair work on these facilities.

The hurricanes had a second impact on the MSA---the attraction of evacuees---about 34,336 by one estimate. Between July 2005 and July 2007, the **Lafayette MSA population increased by 9,033**---a startling 3.7% increase in only two years.

2007 to 2010: A Roller Coaster Ride

Note in Figure C-1 that this MSA experienced a nice growth bump in the next two years. Lafayette's growth rate began to slow a bit in 2008 as the rebuild in the Gulf wound down, but a spike in oil prices re-energized the offshore exploration industry. A combination of a $15 million capital expansion that led to 300 more jobs at Acadian Ambulance and Nucomm opened a 500-person call center which helped offset the Gulf repair slowdown.

It seems there is always a downside of the roller coaster hill when it comes to this economy, and the years 2009-10 proved that to be the case. Really high oil prices, like the $132.61 a barrel in late 2008 rarely last and this time was no exception. In just six months oil prices fell by $94 a barrel. The statewide rig count fell by 20 rigs and the Lafayette region headed into a 2-year recession that resulted in 9,200 jobs vanishing.

In the middle of this downturn something very odd occurred. In early 2009 oil prices began to rise again and hit a very profitable $70+ by August 2009. Typically, prices at that level would send the Lafayette roller coaster heading back up the hill, but not this time. The rig count in south Louisiana actually fell even more, and Lafayette continued to go downhill. Certainly, the BP oil spill figured into this peculiar behavior, but so did the attack on the industry by the Obama Administration. While it never came to fruition, the President was constantly pushing for a $36 billion tax on the oil sector, sending a chill through the industry.

2011-17: Up One Hill, Then Down Again

The roller coaster ride for this MSA continued over 2011-17 with the up again, down again fluctuations in employment. The nice upside occurred in the first four years, as high oil prices did their usual work of sparking this region's employment. The MSA added almost 3,600 jobs a year over 2011-14, which in percentage terms was one of the best performances in Louisiana.

At the risk of being repetitious, oil prices in excess of $100 a barrel seem not destined to last. This time the Saudis brought these unusually high prices to an end. The country had been losing worldwide market share to the booming U.S. shale industry, so the country decided to try to drive that industry out of business by pumping large amounts of oil into the market. Oil prices quickly dropped to just under $28 a barrel, and Lafayette started down the hill again into a 3-year recession that would cost it 20,900 jobs. Among the key losses were:

- **Dynamic Industries** reduced its workforce from 500 to 350.
- **Baker Hughes** closed a division that employed 200 people.
- **Chevron's Shelf Office** was shuttered.
- **Blue Sky Innovations**---a firm providing support to helicopters servicing offshore work shed 58 jobs.
- **Stone Energy** was acquired by Talos Energy (a private equity firm) and the firm was moved to Houston.

2018-19: A Recovery at Last

While growth returned to Lafayette over 2018-19 it could best be described as modest (see Figure C-1). The diversification efforts in the region were paying off as LHC, Waitr and CGI went on hiring binges. However, despite the fact that oil prices had returned to the $60s lease sales in the Gulf barely moved and the rig count barely nudged upward. The region expanded but at a rather slow pace.

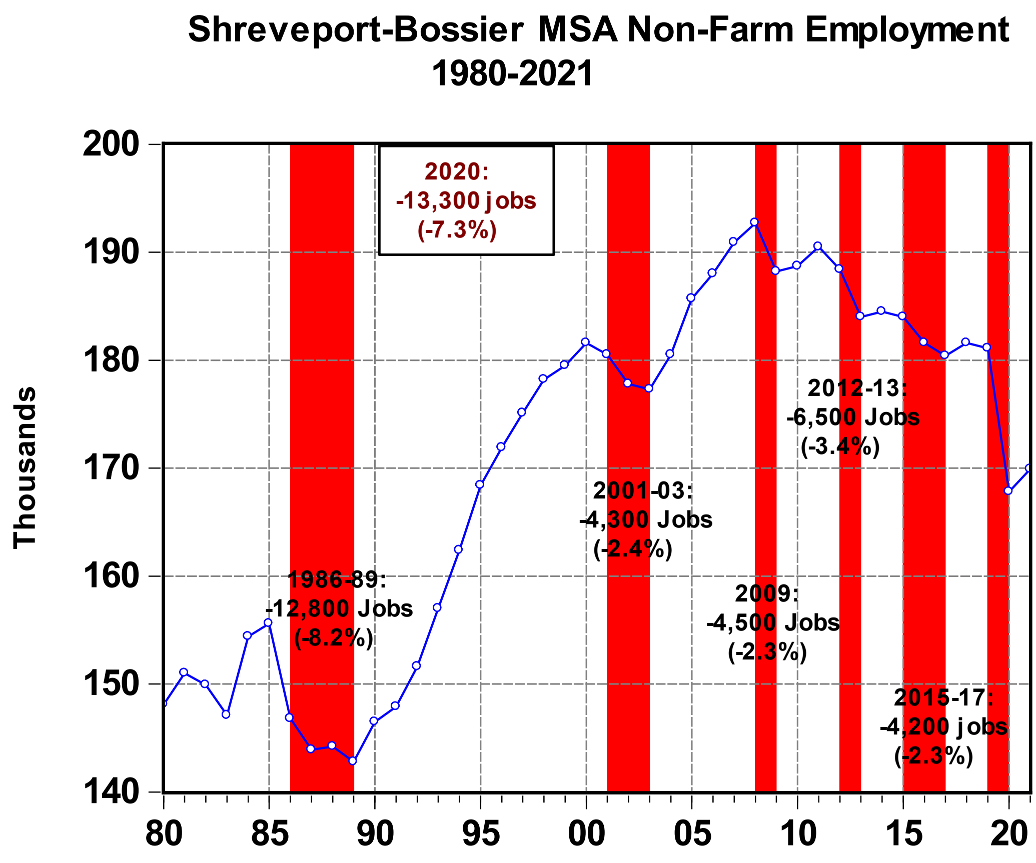
2020-21: COVID Impact & Recovery

These two years are discussed in the body of the report.

APPENDIX D: History of the Shreveport-Bossier MSA

The employment history of this the Shreveport-Bossier MSA over 1980-2021 is shown in Figure D-1. Like most of its sister MSAs, the Shreveport-Bossier region experienced a rather unhappy 1980s. A long and deep recession was laid on the MSA from 1985-89. Some of this decline can be traced to the battered energy sector, but there was a far larger factor involved. The depth and length (this MSA was the last in the state to begin the recovery process) of the recession can be laid in the lap of **AT&T**. The company had a large 7,450-person phone equipment manufacturing facility in Shreveport in 1984. By 1989 that employee count was down to only 1,100, which adding in the negative multiplier effect, delivered a monstrous blow to this region.

Figure D-1



Data Source: Bureau of Labor Statistics

`

Rebound: Casinos Starting 1994

As seen in Figure D-1, that awful period was followed by a prolonged, healthy decade of recovery. Between 1988 and 2000, the MSA added 38,800 jobs (+27%). In 1994, its employment began to rise especially rapidly---by an average of 4,600 jobs a year---fueled by the introduction of **riverboat casinos**. This MSA remains the second most successful casino market in the state, because the casinos draw a huge clientele from the Dallas-Ft. Worth metroplex.

Casinos also came with large **hotels**. Hotels are very labor-intensive operations, so the MSA picked up a significant employment boost here as well. For example:

- Horseshoe Casino built a 25-story, 606-suite hotel.
- Casino Magic operated a 94-room, 94-suite hotel.
- Isle of Capri constructed a 300-suite hotel.

Recession #2: 2002-03

Recessionary pressures fell on this region, causing its second recession over 2001-03. About 3,900 jobs were lost over this three-year period---a non-trivial decline of 2.3%. Given the regions' heavy dependency on durable goods manufacturing, it was no surprise that it had the worst performance in the state. Consider these hits to the region:

- **Avaya Communications** (formerly, Lucent Technologies) closed its Shreveport plant, (-900 jobs).
- **Boeing** closed its facility at the airport (-162).
- **Pennzoil Refinery** cut back from 230 workers to only 85 when it was sold.
- **Precision Response** closed its call center (-250 jobs).
- **General Electric** began transferring 400 positions from its industrial systems plant to Monterrey.
- **Hollywood Casino** reduced its workforce from 2,200 to 1,800.
- **Beaird** went from a 700-employee to a 30-person workforce.

Finally, a mixture of other firms, including **Frymasters**, **Beaird**, and **Exide Technologies** imposed significant layoffs in 2002. That is an imposing list for an MSA of this size. Note that this list shows only the direct job losses, not those of the multiplier effect.

`

2004-2008: Breaking New Records

Once past that recession, the MSA entered a new period of recording breaking employment years. Over 2004-09, the MSA added an impressive 3,200 jobs a year. At the outset, it was the durable goods sector that led the charge back. Note the following:

- **General Motors** was a key company in this recovery. GM opened its new facility, adding 600 workers (total of 3,600). In 2007, employee retirement buyouts lowered employment back down to 2,153.
- **Eakin Company** acquired Beaird and bumped employment from 30 to about 570.
- **Frymaster** roared back at an all-time high employment level of 600+ employees.
- **Steelscape** (now **Ternium**) opened at the Port of Caddo-Bossier,with 240 new jobs.

The Haynesville Rush

Note in Figure D-1 that this MSA---this durable goods dependent MSA---grew right through the first year of the Great Recession (2008). The U.S. economy lost 6.1 % of its jobs over 2008-09. The Shreveport-Bossier MSA lost only 2.3 % and it only lost jobs in one year---the only MSA in Louisiana to pull that off. How was this possible?

The most important recession-offsetting factor during 2008-09 was the massive amount of money from the **Haynesville Shale** exploration over 2008-09. There was an enormous injection of $3.5 billion in 2008 and $7 billion in 2009 into this economy.

A nice reference point as to the importance of this monetary injection is shown in local government sales tax collections, which are illustrated for four northwest Haynesville parishes in Table D-1. To put these numbers in perspective data are provided on the rate of sales tax collections during the previous short recession in 2001. All of these parishes experienced an expected decline in collections (we were unable to get the earlier data for Bossier Parish) as in any recessionary environment. Even in the face of a much longer, and much deeper Great

`

Recession over 2008-09 (it was called the Great Recession for a reason), sales tax collection in these parishes note only rose, but they rose spectacularly. For example:

- Red River Parish: +205.1%
- DeSoto Parish + 82.2%

Table D-1
Sales Tax Collections in Selected North Louisiana Parishes

Parish	Percent Change In Sales Taxes
Red River	
2001	**-3.1%**
2008	**71.1%**
2009	**205.1%**
DeSoto	
2001	**-0.8%**
2008	**3.6%**
2009	**82.2%**
Caddo	
2001	**-0.8%**
2008	**7.0%**
2009	**1.4%**
Bossier	
2002	**NA**
2008	**4.1%**
2009	**5.5%**

Data Source: Author's Survey of Parish Finance Offices

Property taxes reflected the same pattern as seen in Table D-2. Property taxes increased at historically high rates in all five parishes despite the intensity of the Great Depression. Further, the data in the last two columns confirms that almost all of that growth was energy related. Note especially the huge increase in Desoto and Red River Parishes.

`

Table D-2
Property Tax Collections in 5 Haynesville Shale-Impacted Parishes: 2005 Versus 2013

Parish	Property Taxes 2005	Property Taxes 2013	% Energy-Related 2005	% Energy-Related 2013
Desoto	$22,395,351	$78,432,531	**18.9%**	**62.4%**
Red River	$3,549,617	$21,927,425	**3.6%**	**47.8%**
Webster	$15,728,690	$25,342,948	**17.1%**	**26.0%**
Bossier	$52,449,881	$97,054,727	**8.5%**	**16.1%**
Caddo	**$158,347,601**	**$230,350,740**	**2.8%**	**10.5%**

Data Source: Louisiana Tax Commission

While the Haynesville Play development was an overwhelming factor in this MSA's 2008 performance, it would be a gross error to omit the influence of the awarding of the **Global Strike Command** to Barksdale Air Force Base. The GSF brought 900 new jobs to Barksdale. Barksdale gained another 700 positions for flight training and the reopening of a weapons storage area. Barksdale was an important factor in the unexpected 2008-09 performance of this MSA.

The large gains from the Haynesville Shale activity and the additions at Barksdale were especially important given the recession-related hits the rest of the MSA's economy was taking. Five firms--- **General Motors, Capital One Bank, Verizon, Beaird Industries, and Georgia Pacific**---combined together to terminate 2,730 people from their facilities. That is quite a blow for the Haynesville and Barksdale to overcome.

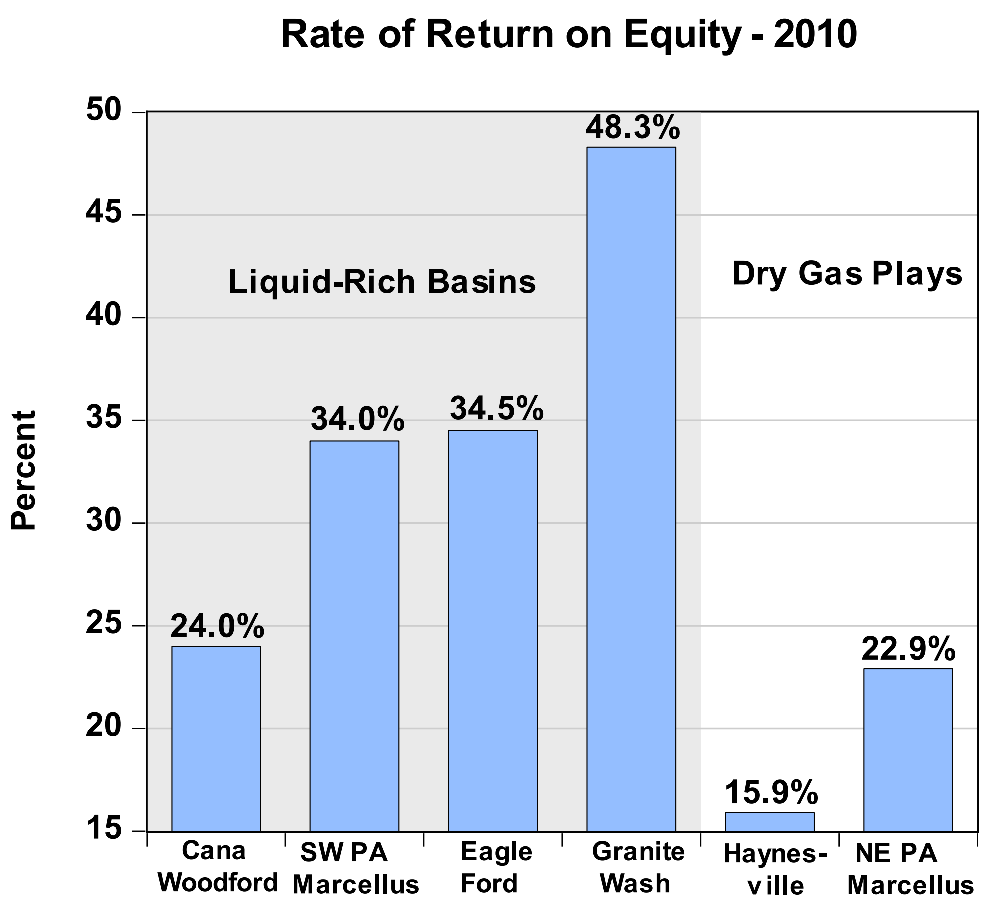
2009-Present: Not the Picture You Want

Basically, since 2008, the good news has stopped for this region of the state. As seen in Figure D-1, this region has been in a downward slide that began in 2009. There have been one or two years of growth since 2009, but by 2019---11 years later---the MSA was 11,600 jobs below its 2008 peak, a decline of 6%.

The slide can be traced to several factors. First, the **GM plant** closed in August 2012, costing the region 800 high-paying jobs. This is a great site to offer a potential new entrant to the area, but only one rather small player has been found for the site to date.

A much bigger factor in the slide was the radical reduction in activity in the **Haynesville Shale.** The rig count in the Play tells the story, going from a peak of 142 rigs in April 2010, to only 23 in July 2013, a striking 84% decline. Rig activity continued to fall into the high teens until about 2020.

Figure D-2



Data Source: Credit Suisse

What caused the Haynesville to fall from grace? Basically, the answer is it could not compete with the "wetter," cheaper plays in the U.S. This is vividly shown in Figure D-2 which shows the rate of return on equity (ROE) on the various plays in the country. The ROE in the Haynesville is far lower than in the other plays.

There are two reasons for this poor competitive position. First, the wells in the Haynesville Play are very deep, so it costs more to drill a typical well ($9.5 million per well) versus in the Eagle Ford or Marcellus Plays ($6 million). Even more importantly, the Haynesville Shale is a "dry" play, meaning drillers only harvest natural gas from the well. The Eagle Ford, Marcellus, Bakken, and Permian are "wet." Exploration companies hit both natural gas and the more favorably priced oil. Those are competitive disadvantages the Haynesville could simply not overcome.

A significant reduction in forces at **Barksdale AFB** also contributed to the negative employment trend in the MSA. The troop count at the base declined from 8,655 in 2012 to 6,609, driven by the loss of 24-plane A-10C Wing in 2013.

Associated with all these reductions was obviously a reduction in spending in the MSA that contributed to the region's poor job performance over 2012-17.

Two other important closures added to the problem:

- **Libbey Glass** reduced its workforce by 200 in early 2013.
- **Express Jet** closed its 250-person maintenance facility at the Shreveport Airport.

Finally, it was during this period that Native American-run casinos began to open in Oklahoma near the Dallas-Ft. Worth metroplex. That bled off a goodly number of clients from the casinos in Shreveport and Bossier City. Note in Table D-3 that this competition reduced employment at MSA casinos by **1,468 jobs** between 2014-I and 2019-IV. The trends in Table D-3 leave little reason for hope that this situation might improve.

Table D-3

Shreveport-Bossier Gaming Employment: 2014-I to 2019-4

	14QI	19Q4	Change: 14Q1 to 19Q4
DiamondJack	653	396	(257)
Sam's	1,086	702	(384)
Horseshoe	1,212	1,052	(160)
Margaritaville	1,070	1,051	(19)
Boomtown	626	453	(173)
El Dorado	1,187	888	(299)
TOTAL CASINO	**5,834**	**4,542**	**(1,292)**
Harrah's	**364**	**188**	**(176)**

Data Source: Louisiana Gaming Control Board

`

2018-19: The Slide Stops

Fortunately, this MSA's employment slide halted in 2018-19, as seen back in Figure D-1. The MSA picked up only 700 jobs over those two years, but at least the bloodletting had stopped. A loss of 245 jobs in the MSA's gaming sector and a drop of 263 military/civilian slots at Barksdale somewhat stymied growth.

Three key factors helped mitigate the decline. **Ochsner Healthcare** formed a partnership with the **LSU Health Sciences Center** in 2019 that almost immediately created 1,000 new jobs in Caddo Parish alone. The **Cyber Research Center** is a new, exciting, <u>growing</u> component of this region's economy, with 1,400 people employed at its three centers. At last, at least one new tenant was found for the old GM site. **Glovis America** is a subsidiary of Hyundai and brought 156 jobs to the community.

2020-21: The COVID Impact & Recovery

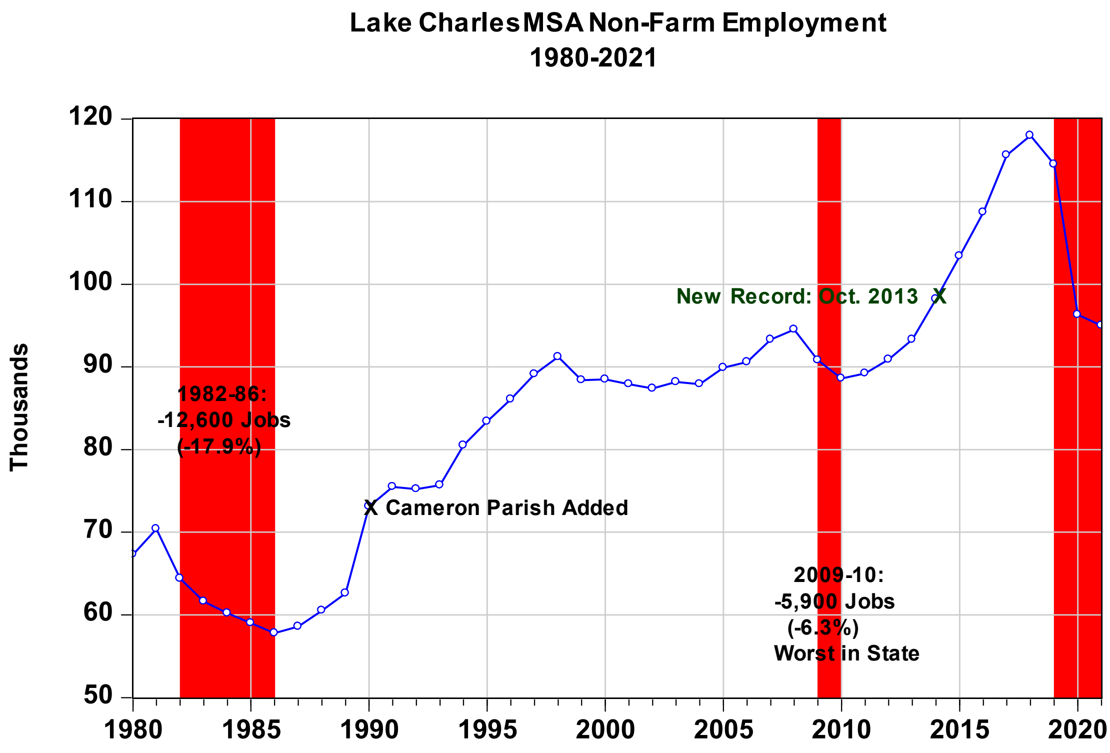
This period is covered in the body of the report

APPENDIX E: History of the Lake Charles MSA

Figure E-1 depicts the employment history in this MSA over 1980-21. Like the rest of the state, Lake Charles was hammered by the recession of the early 80s. An unfortunate swing in the value of the dollar cost this region's chemical industry dearly in sales. The loss of 12,600 jobs (-17.9%) over 1982-86 was actually worse in percentage terms than the hit the region took from the COVID shutdown. As always happens, when the chemical industry suffers, it takes the industrial construction sector down with it.

At the same time, the Reagan administration fully deregulated the price of crude oil in the early 1980s. The practical effect of this move was that several marginal refineries found it impossible to remain competitive and shut down. Plummeting two of the largest, highest-wage industries in the region sent the area into a deep and prolonged recession.

Figure E-1



Data Source: Bureau of Labor Statistics

Fortunately, in 1987, Lake Charles landed a huge new player at Chennault Airpark--- **Boeing Aircraft**. Boeing's 2,000 new jobs enabled this MSA to be the first in the state to start to recover from the early 80s recession. Boeing refurbished K-135 transport airplanes for the Air Force. Further help came from a sudden drop in the exchange value of the dollar. This made U.S. chemicals more competitive in foreign markets and revived the local chemical industry

Note in Figure E-1 that this economy's employment went sideways over 1991-93. This weak performance was due primarily to the closure of Boeings facility at Chennault in 1992. Those three poor years were followed by five excellent ones, fueled by the following:

- Major new capital projects were initiated in the area, especially combined expansions by Citgo and Conoco/Pennzoil that totaled $1.6 billion.
- Boeing was replaced at Chennault Airpark by Northrop Grumman--- a 1,900-job facility that took 707s, stripped them down, and installed the Joint System Target Attack Radar System (JSTARS) in them.
- Starting in 1994 riverboat casinos came to Lake Charles with their very labor-intensive operations.

A Decade of Stagnation

From 1999-2009 this MSA essentially entered a decade of stagnation (see Figure E-1). A number of important events led to this stagnation. By far the most important contributor to the downturn was, once again, deterioration in the chemical industry market. This time the culprit was unusually high natural gas prices (see Figure 7 in the main text). Faced with a huge jump in the price of its major input, the industry entered a serious cost-cutting mode. Capital expansion projects were put on hold and maintenance/repair work was delayed as much as was safely feasible. This meant fewer industrial construction jobs as well.

At Chennault Airpark, Northrop Grumman was finishing its JSTARS contract. The firm began handling fewer aircraft and consequently began terminating workers. NG changed to doing maintenance, repair, and overhaul (MRO) work on the JSTARS aircraft, and its workforce plummeted to 350. NG's losses were partially offset by the attraction of EADS, but EADS ultimately sold to Aeroframe Services reducing that workforce to only 160.

A combination of 9/11 and the national recession hammered the tourism industry and led to significant layoffs at area casinos. Xspedius moved its headquarters office in Lake Charles to St. Louis.

Hurricane Rita Effect

In 2005, the Lake Charles area was hit by a monstrous hurricane named Rita. Despite projections (including ours) that the damage inflicted would lead to serious job losses, employment in this MSA actually rose slightly over 2005-06 (+2,700 jobs) with the larger growth in the year of the hurricane---2005.

An estimated 47,384 homes were damaged by the hurricane, but, unlike when Katrina hit New Orleans, of this total only 2,284 incurred severe damage and another 6,673 incurred major damage. This was good news because residents could return to the Lake Charles area fairly quickly. Luckily, there was virtually no flood water damage in Lake Charles proper, though there was in Cameron Parish. Regular homeowner's insurance was available to repair the damage, which tremendously aided in the recovery speed. Importantly, most housing remained intact in Lake Charles so staffing was not as difficult a problem as in New Orleans.

The large and very exposed hangars at Chennault Airpark had about $40 million in damages but survived the storm. Both firms continued operations. The Port of Lake Charles experience about $40 million in wind damage and initially had no power but there was no flooding at the Port. In short order shallow water vessels were able to access the port.

Of course, most of the petrochemical industry is outside and exposed to the weather. Three refineries in the area were damaged and shut down temporarily: (1) Citgo (324,000 b/d); (2) ConocoPhillips (239,400 b/d), and (3) Calcasieu (30,000 b/d). To the surprise of some---given the intensity of the storm---all three were up and operational within three months.

The two Harrah's riverboat casinos were badly damaged by the hurricane. The owner of L'Auberge du Lac---Pinnacle Entertainment---purchased the licenses of both of the badly damaged Harrah's riverboat casinos and returned one license to the Gaming Control Commission and moved the other license to Baton Rouge. Rita laid only minor damage on the two Isle of Capri-owned casinos and the L'Auberge du Lac, so by November 2005, they were reopened.

Generally speaking, the other sectors of the Lake Charles economy recovered fairly quickly from the storm. Within just one month, all of the **public schools** in the MSA had reopened, and virtually all hotel room space was back to normal by the end of 2006. Within four months, all hospitals in the MSA except one in Cameron Parish were fully operational, and the Lake Charles Regional Airport began operating at an even higher level than pre-Rita.

Construction associated with the storm recovery continued well into 2007, lifting this MSA to a new employment record (see Figure E-1). That storm-related construction boost eventually came to an end, putting a bit of a damper on 2008 employment growth.

Hammered by the Great Recession

Lake Charles was the hardest hit by the Great Recession among the nine MSAs in the state. Employment did not begin to decline until February 2009, but when it started down it did so with a vengeance. Lake Charles lost 6,100 jobs (-6.5%) over 2009-10, a worse performance than the national economy.

Several events ushered in this decline, including:

- Pinnacle announced that it was stopping construction on the Sugarcane Bay Casino and was turning in that license to the Gaming Control Board.
- Petrochemical firms in the area seriously cut back on capital projects. There was an almost 3,000-job decline in contractor jobs at area plants over 2007-10.
- FedEx and US Airways idled many of their jets due to the poor global economy, so Aeroframe, which maintained those aircraft, had to reduce its workforce from 475 to 250.
- **Citgo** closed its 192-person lube plant.

2012: The Beginning of the Industrial Boom

A quick look back at Figure E-1 will reveal why the Lake Charles MSA was labeled one of the fastest growing MSAs in the nation. Starting with mild growth in 2011, the region entered an almost decade long boom of outstanding growth. The MSA even grew in 2013, despite the fact that a major employer---Dynamic Industries---effectively shut down its 500-person operation.

In these initial years of the boom, several pieces of good news were at work:

- A whopping $5.6 billion worth of work began on the first two "trains" at Cheniere's new LNG export terminal.
- Turnover work at petrochemical firms rose from $350 million in 2010 to over $800 million in 2012.
- Lake Area Industrial Alliance (LAIA) surveys indicated <u>direct</u> (non-contract) employment in petrochemical firms jumped by 793 employees over 2010-12 and contract employment rose a whopping 1,817 jobs over that same time period.

- Work began on a $176 million expansion at Sasol.
- Ground-breaking took place on the $500 million Golden Nugget Casino.
- Shaw Modular Solutions opened its new 300-worker facility.
- IFG started construction on phase I of a new $59.5 million grain elevator.
- Aeroframe added employees as one of its key customers---FedEx---began to fly more planes.

2014-18: The Real Boom Begins

In 2014, evidence began to show a massive employment boom in this MSA. Employment in Figure E-1 really spiked over the next five years. In 2014, employment in the Lake Charles MSA set a record for the first time since 2008, and in 2015 the MSA's employment passed the magical 100,000 mark for the first time. The MSA moved past Houma to fourth place among the largest MSAs in the state. For five straight years, Lake Charles was the fastest growing (in percentage terms) MSA in the state, adding 26,800 jobs and expanding by a stunning 5.4% a year. It was a record unmatched by any we have seen in four decades of watching the Louisiana economy.

This growth spike was spurred by a phenomenal increase in capital spending in the petrochemical sector of the Lake Charles MSA economy. The overall story is detailed in Table E-1. An unprecedented $109.9 billion in industrial announcements occurred between 2012 and 2019, and $48.1 billion were already underway or completed.

Table E-1
Lake Charles MSA Industrial Announcements: 2012 – 2019
(Billions of Dollars)

Total Announcements:	**$109.9**
Completed or Underway:	$48.1
Potential:	$61.8

Data Source: Greater Baton Rouge Industrial Alliance

By 2019, the project list was as follows:

- Cheniere Energy began construction on the largest single capital investment project in Louisiana's history---a $20 billion, 6-train LNG export plant called Sabine Pass LNG. Once complete, 431 people will be employed at this facility earning an average of $100,000 a year.

`

- Sasol began work on a $12.9 billion ethane cracker and derivatives complex. Sasol added 700 Sasol jobs (at $88,000 yearly) and 358 contractor jobs with this new complex, and its headquarters and R&D facilities are now in Lake Charles.
- Construction was started in August 2014 on **S**empra's $10 billion Cameron LNG project---a 3-train facility. Expected employment is 190 jobs at $80,000 a year.
- Axiall and Lotte Chemical began construction of a $3 billion suite of facilities that will be a world-scale ethane cracker and ethylene derivatives plant. The plant housed 215 permanent employees once completed in 2019.
- Lotte moved its headquarters to Lake Charles (+50 jobs).
- Entergy built two large electric power projects for this area---(1) a $187 million transmission project, and (2) a new $872 million power plant with transmission interconnections in Westlake.
- Westlake Chemicals built a $350 million ethylene expansion at its Petro 1 plant.
- Matheson Tri-Gas constructed a $130 million state-of-the-art air separation unit to supply gas to Sasol.
- Indorama Ventures finished a $175 million renovation of a dormant ethane cracker at the old OxyChem site.
- Advanced Refining Technologies---a joint venture between WR Grace and Chevron---built a $135 million residue hydro-processing catalyst production plant and additional aluminum capacity at the Grace plant.
- Dongsung Finetee spent $5 million on a new cryogenic insulation manufacturing plant.

From this impressive list, one can see why the employment line back in Figure E-1 shot straight up over 2013-18. In fact, a USA Today piece indicated that over 2013-18 Lake Charles was the fastest growing MSA in the nation.

The 2019 Slowdown

The news did not continue in a real rosy fashion as the MSA entered 2019, as seen back in Figure E-1. In 2019, employment declined in this MSA by about 3% or 3,500 jobs. This reversal in fortunes was actually expected by the region. In the voluminous aforementioned list of projects, many were completed by 2018. That means thousands of pickups left the construction site, not to return the next day. Fortunately, the completed plants came with a large number of permanent new, high-wage employees. Thus, the MSA entered a construction lull, waiting for the "potential" projects in Table E-1 to trigger an FID and bring those pickups back.

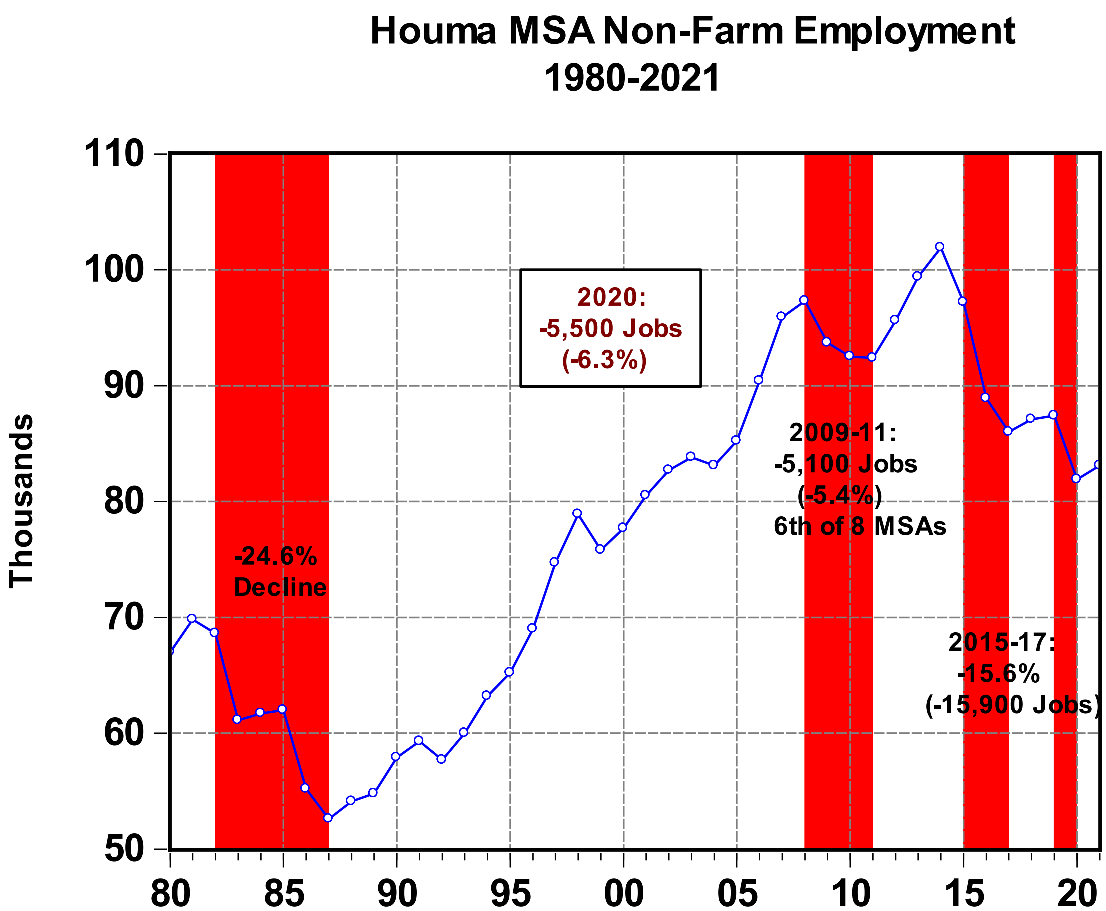
2020-21: Impacts of COVID & Recovery

These years are covered in the body of the report.

APPENDIX F: History of the Houma MSA Economy

In Figure F-1 we show the non-farm employment history of this MSA over 1980-2021. There is a lot of movement in this chart, some of it pretty extreme. Recall that this is the most energy dependent MSA in the state. That means when oil and/or natural gas prices change, this economy gets whipsawed. It only takes a glance at Figure F-1 to see this.

Figure F-1



Data Source: Bureau of Labor Statistics

The first huge red bar in Figure F-1 occurred after one of the greatest bull runs for any MSA in Louisiana history. While not shown in its entirety in the graph, from 1975-81, the Houma MSA enjoyed an envious period of rapid growth in response to oil prices that peaked at $37.50 a barrel for Louisiana crude in 1981 ($113.86 a barrel in today's prices). That ride to the top of the roller coaster led almost inevitably to a long and deep slide starting in 1982. By the time the MSA reached bottom in 1987, it had lost a stunning 24.6% of its jobs. An estimated 17,200 jobs vanished over six years. Every business imaginable in the MSA suffered major losses. It would be 1997---- a full decade---before those jobs were recovered.

As happens when you get to the bottom of a roller coaster hill, there is another one to climb. Note in Figure F-1 that in 1988 employment in the Houma MSA began to rise again. A modest recovery in oil and natural gas prices (see Figures 5 and 7 in the body of the text) spurred the beginnings of the run up the next hill. Exploration activity in Louisiana had been moving southward across the state since the 1950s, indeed, heading further and further offshore in the Gulf. Houma's geographic location on the coast made it the perfect locale for servicing that offshore industry.

Unlike a typical roller coaster, the recovery did not occur in a straight line, however, because those energy price changes---however small, still delivered a blow to the region. Note in Figure F-1 that in 1992 the MSA lost 1,500 jobs when natural gas prices declined due to low demand in unusually warm winters. Also, in 1999 when oil prices fell, the MSA lost 3,100 jobs. Interestingly, Houma was untouched by the 9/11 U.S. recession, adding 5,000 new jobs while others were losing them.

Just as on a roller coaster, the drops in Figure F-1 have been getting smaller. That is because the energy companies began running much tighter financial ships than in the late 70s, a discipline that was strongly imposed on the industry by the financial markets. Historically, the extraction industry reenters the oil patch once energy prices reach sustained highs. That changed in 2004, when the oil patch did not respond to higher oil prices. Sadly, there was little change in the rig count, resulting in Houma being the worst performing MSA in the state in 2004.

We believe this poor response resulted from industry fears generated by "legacy" lawsuits, in this case the Corbello lawsuit. The Corbello case alleged that drilling impaired ground water supplies, but the case did not require the plaintiff to spend the award to repair any damages. After a successful lobbying campaign, Act 1166 corrected this problem and now requires these repairs to be made with monies awarded to the plaintiff. Since the monies awarded could no longer be "pocketed" by the plaintiff, the number of similar lawsuits against extraction companies significantly declined.

However, these legacy lawsuit fears continued with the Terrebonne Parish School Board v Castex case. Here, the School Board sued to require the oil company to backfill canals that were dredged years ago. This caused a panic given the thousands of miles of these Louisiana canals. Fortunately, the Louisiana Supreme Court over-ruled this judgment and said the firms cannot be required to backfill a canal unless it was specified in the original drilling contract. In addition, a designated "reasonable footprint" will be initially established and the landowner may sue only if it is excessive and not reasonable to the drilling activity. Despite the 2006 reforms several legacy lawsuits are still active and the rig count on land in south Louisiana is moribund.

2005-07: Hurricanes Generate Positive Effects

Hurricanes Katrina and Rita actually sparked the Houma MSA. Note the spike in the employment line in Figure F-1 over 2005-07. Houma picked up 12,400 jobs over these three years, an impressive 5% per year, making it by far the fastest growing area of the state. This injection of activity was so large that Houma moved past Lake Charles to become the fifth largest MSA in the state. Unfortunately, recent events have caused that ranking improvement to be reversed.

Three key factors drove this performance. First, Houma experienced a large influx of evacuees from hurricane-ravaged New Orleans. Houma, at 58 miles, is the closest MSA to New Orleans. As such, in the first two weeks after Katrina, this MSA's population exploded with an additional 62,810 people. Only the Baton Rouge MSA drew more. These gains of necessity were short-lived, because there were not enough jobs or living accommodations for the evacuees. As a result, the Houma MSA population increased by 3,449 people or about 1.7% between July 2005 and July 2007, which is about equal to its historical growth rate. Some evacuees did stay, benefitting local retailers, real estate firms, and service providers in the area.

Secondly, this MSA includes many fabricating and repair/maintenance firms that benefitted from the Katrina and Rita related storms by rebuilding the offshore energy infrastructure. Finally, as seen in Figures 5 and 7 in the main text, both oil and natural gas prices started to climb markedly over these three years. The oil patch entered a boom period and pulled this energy dependent MSA with it.

2008-09: Obama Energy Policies versus High Oil Prices

A review of Figures F-1 shows that 2008 started out well for Houma as oil prices climbed to a high of $132.61 a barrel in September 2008. Then the price of oil began a rapid decline, falling about $94 in the next six months. Beginning in April

`

2009, oil prices began to rise again and were at a very profitable $46.72 by May 2009. Throughout all of 2013 and the first half of 2014, oil prices continued to rise.

The response in the Houma MSA over these two years pretty much mimics that of the Lafayette MSA. Despite these very profitable energy prices, the Houma MSA was the first MSA in the state to begin losing jobs during the Great Recession, dropping 4,800 jobs (-4.9%). Like Lafayette, this MSA had never lost jobs during a period of relatively high energy prices. We believe the reason for this poor performance mirrors a similar weak performance in nearby Lafayette: the chilling effect of President Obama's proposed new taxes on the extraction industry. In addition to the extraction firms cutting back, fabricators were shedding workers as well because of their close ties to the exploration sector.

2011: Mistaken Expectations about BP Spill Effects

The performance of the Houma economy in 2011 was a huge surprise to those of us who watch this economy carefully. We were expecting major job losses for the area. And for good reason: the press reported that 11 deep-water drill ships left the Gulf, and activity at Port Fourchon dropped 35-40% below pre-spill levels. How could that not translate into a major decline in employment in the MSA?

What was not anticipated was the massive amount of money that BP spent for the cleanup effort and to pay out on claims for losses due to the spill. In short order, BP shelled out $132.1 million in claims in Terrebonne Parish (about 3.1% of Parish personal income) and $81 million in claims in Lafourche Parish (about 2.1% of Parish personal income)---a huge influx of money into the economy. All of BP's huge expenditures and its payouts were enough to overcome the exploration industry's slowdown and cause a modest 100-job loss in 2011 instead of the much bigger job loss expected.

2012-14: Return to Record-Setting Employment

The next three years were very good years for the Houma MSA with the addition of 8,700 jobs or an enviable growth rate of 3.1% a year---exceeded only by the booming Lake Charles and Baton Rouge MSAs. In 2013, the Houma MSA began to set new employment records, and crossed that magical 100,000 employment mark for the very first time. High oil prices were spurring a surge in activity in the Gulf, which meant Port Fourchon was flush with activity. Edison Chouest opened a huge new (LaShip) shipyard with 1,200 employees, and Gulf Island Fabricators added several hundred workers.

2015-17: Another Oil Price Bust

A scan of the oil price trends in Figure 5 in the main text will convince a reader that high oil prices never seem to stick around. At the end of 2014, the Saudis felt it was time to try to squash the shale industry in the U.S. That country pumped a large amount of oil into the market, driving the price to under $30 a barrel in one month. The impact on the Houma MSA was predictable. Over 2015-17, Houma lost 15,800 jobs, a staggering 16.1% decline.

The bloodbath was not confined solely to those directly involved in drilling and production. Several companies in the region felt that blow, including:

- Chett Morrison's employment dropped from 515 to 320.
- Edison Chouest's employment at LaShip declined from over 1,000 down to 500. One hundred of the company's 250 ships were stacked and its mariners were working about half the time as before the collapse.
- Offshore Specialty Fabricators had layoffs (-67 jobs).
- Baker Hughes closed its wireline facility (-50 jobs).
- Hercules Offshore shed 50 workers.
- National Oilwell Varco closed its facility in Houma (- 80 jobs).
- CCHI Aviation in Galliano closed its facility shedding 74 pilots, mechanics, and support staff.

2018-19: A Few Baby Steps Forward

For the next two years, the Houma MSA began to take baby steps towards recovery. Oil prices crept up into the $60 range---plenty high for profitable drilling in the Gulf. The MSA added 700 jobs a year over 2018-19, which is not great, but at least the bloodbath seemed to be over.

It was not.

2020-21: COVID Effects & Recovery

These two years are covered in the main body of the text.

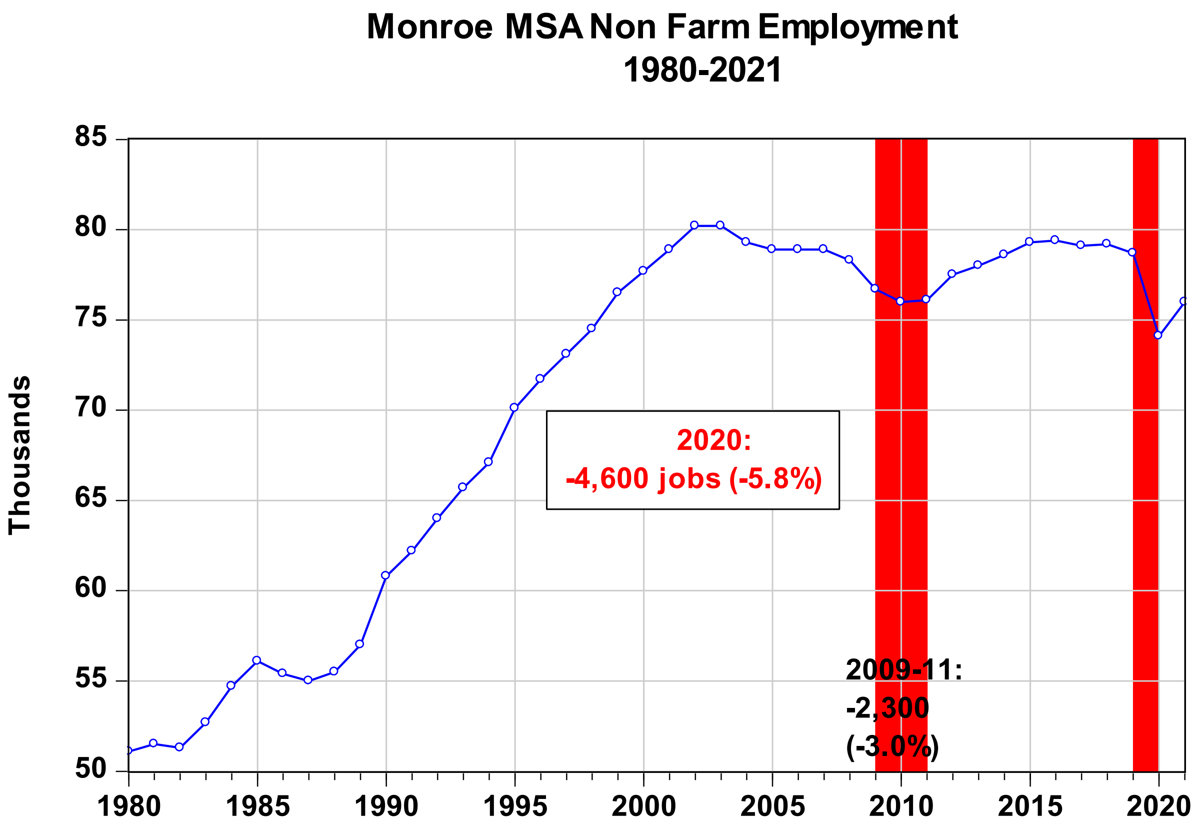
`

APPENDIX G: History of the Monroe MSA

A history of the Monroe MSA economy is depicted in Figure G-1 for the period from 1980 through 2021. Unlike most of the larger MSAs in the state Monroe went through the terrible statewide recession in the early 80s relatively unscathed. Only in 1986 and 1987 did the MSA post job losses. But in view of the 9% statewide job loss, this MSA's 2% decline was quite modest. That recession was caused by very big hits to the extraction industry and the chemical industry, two sectors that are largely absent in the Northeast corner of the state.

It took only two years for Monroe to recover the 80's recession job losses. The region began to grow again in 1988 and a year later was setting new employment records. The MSA entered an impressive 14-year stretch of growth. It was impressive growth indeed, with over a third of the years showing 2.5% job increases or more.

Figure G-1



Data Source: Bureau of Labor Statistics

`

Monroe MSA residents now look back on that 14-year period wistfully. Nothing comparable has been seen since. After peaking in 2002-03, the region began a slide that lasted all the way through 2011---basically a decade of decline. It should be noted that the decline was mild in terms of total job losses---4,200 jobs or a total 5.2 % decline. During the "Great Recession" the MSA lost 2,300 jobs, a decline of 3.0% ---less than half that of the U.S. decline.

What caused this unfortunate recessionary period? The economy experienced an extraordinary number of major firm closures without any new firms to take their place. Among the closures were:

- Pilgrim's Pride closed a chicken processing plant in Union Parish (-1,500 jobs).
- State Farm Insurance closed its claim office (-1,100+ jobs).
- Guide Corporation shuttered its facility (-650 jobs).
- International Paper closed its paper mill (-550 jobs).
- Accent Marketing lost a major client and reduced workers at its call center (-340 jobs).
- Holsum Bakery closed its facility (-50 jobs).
- Shaw closed a pipe fabrication plant (-202 jobs).
- Coca Cola closed its bottling plant (-85 Jobs).
- Graphic Packaging engaged in workforce reductions.

It was the equivalent of one major closure a year for nine years. In one sense it is amazing that the region was only down 4,200 jobs over this period.

2012-15: Modest Growth Returns

When Monroe finally returned to a job-growth mode it did so with a sparkling 1,000 job jump in 2012. Growth continued through 2016, but at a much more modest rate. Indeed, employment did not expand enough to return Monroe to its previous 2002 peak. Good news came from a number of different sources including:

- CenturyLink (now Lumen) was ravenous in its acquisition efforts and steadily added jobs.
- Foster Farms reopened the Pilgrim's Pride plant and now employs about 1,200.
- Gardner Denver Thomas relocated operations in Wisconsin to the Monroe area, and now employs about 250.

`

- Graphic Packaging committed heavily to the area when it brought in new equipment to increase productivity of its workforce.
- Angus Chemical invested about $100 million in its plant, improving productivity and retaining 174 jobs.

2016-19: A Flat Period

As seen back in Figure G-1, this MSA's record was flat to falling for the next four years from 2016 through 2019. Wingspan Portfolio Advisors closed at the cost of 400 jobs, and then CenturyLink began slowly lowering its job count. With the exception of the strongly emerging Vantage Health Plan and the revitalizations associated with the Ochsner/LSU health Science Center Partnership, there were virtually no new entrants to this economy.

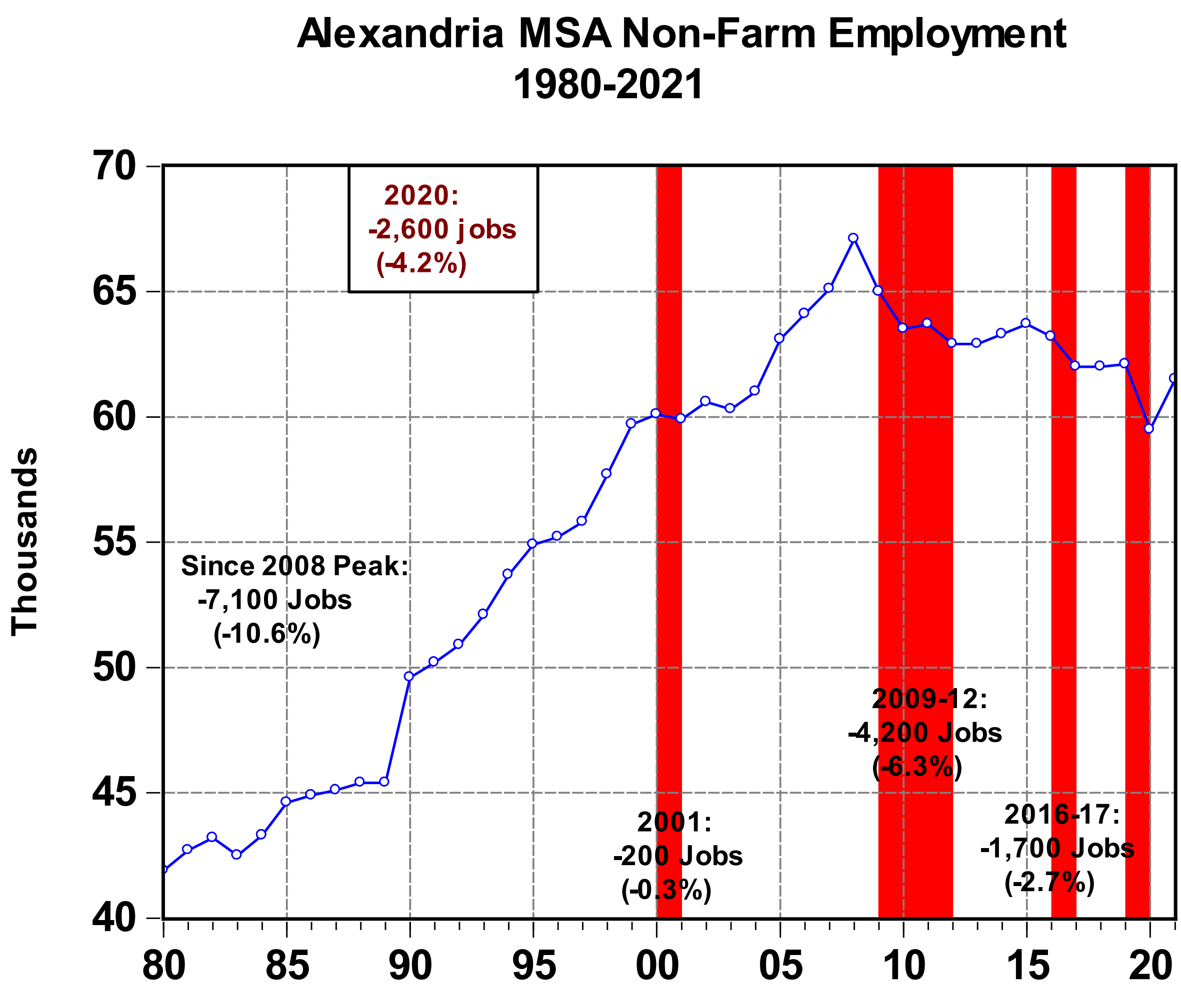
2020-21: Effects of COVID & Recovery

These two years are covered in the body of the text.

APPENDIX H: A History of the Alexandria MSA

Figure H-1 tracks the employment history of the Alexandria economy from 1980 through 2021. Note that there was a slight bump upwards in 1990 when the U.S. Bureau of Economic Analysis revised the employment statistics only back to that year to take into account the addition of Grant Parish to this MSA.

Figure H-1



Data Source: Bureau of Labor Statistics

Perhaps the most impressive thing about this graph is that Alexandria enjoyed almost 30 years without a meaningful recession from 1980 through 2008. While the state was enduring a horrific recession in the early 80s, Alexandria lost jobs in only one year and that loss was only 700 jobs. The post-9/11 national recession in 2001 barely tapped Alexandria, causing a loss of only 200 jobs, hardly a significant decline. The Alexandria MSA was the second-least impacted among the state's nine MSAs. The MSA has a relatively high government-base and low manufacturing base, a combination that tends to isolate an area from the most harmful effects of national downturns.

Better Growth Post 1990

Alexandria's growth rate actually picked up starting in 1990. Two very significant events were behind this improving rate. Huge construction monies were pumped into the local economy when **I-49 was being constructed** through the heart of the city. It would be hard to underestimate the impact of this spending on an MSA of this size.

The second event was initially a scary prospect---the closure of England Air Force Base. Civic and governmental leaders turned this event---which could have cost the region a decade of job growth---into an economic development asset by converting the area into an industrial park/retirement village. **England Industrial Airpark** is now almost totally reoccupied. Several businesses have moved to the site, and the regional airport has been relocated there. A new, 150-person **Immigration and Customs Transfer** facility was opened at the Airpark in the summer of 2014 and serves as a domestic transportation hub for moving detainees. In 1996-97 one of England's newest and largest tenants---J.B. Hunt Trucking---closed creating a slight slowdown.

The Alexandria economy kind of sputtered in the first three years after the 9/11 recession. But that was followed by four very good years. In fact, it was one of the best performances in the state during that time. Employment spiked by 6,100, a strong 2.5% annually, fueled by six nice economic wins:

- Cleco Rodemacher plant ($1 billion+) was constructed, generating 1,700 construction jobs.
- Union Tank Car spent $132 million on its new facility adding 670 permanent jobs.
- England Airpark made sizeable capital expenditures.
- The federal prison at Pollock doubled in size.

  Even more stimulus came from just outside the MSA's boundaries.

- To the east in Avoyelles Parish, Paragon Casino spent $100 million on a new addition.

`

- Roy O. Martin built a new $60 million oriented strand board facility in Oakdale close to the southern border of the MSA.
- Fort Polk had a major capital spending program underway.

Not all the news was good. Parta Systems closed its 110-person pharmaceutical parts manufacturing plant, an important loss for a community of this size.

2009-19: A Shrinking Economy

Sadly, 2008 was this MSA's last good year. By the end of 2021, the MSA's employment was 7,100 jobs below the 2008 peak, a drop of 10.6%. Between 2009 and 2019---an 11-year period---Alexandria experienced only three growth years, and those were very modest ones. As clearly seen in Figure H-1 the Great Recession dealt the economy its biggest blow during this period. Alexandria's employment dropped for three full years (versus two for the national economy) and its job losses totaled 4,200 jobs or -6.3%.

Several firms in the Alexandria MSA were pounded by this recession.

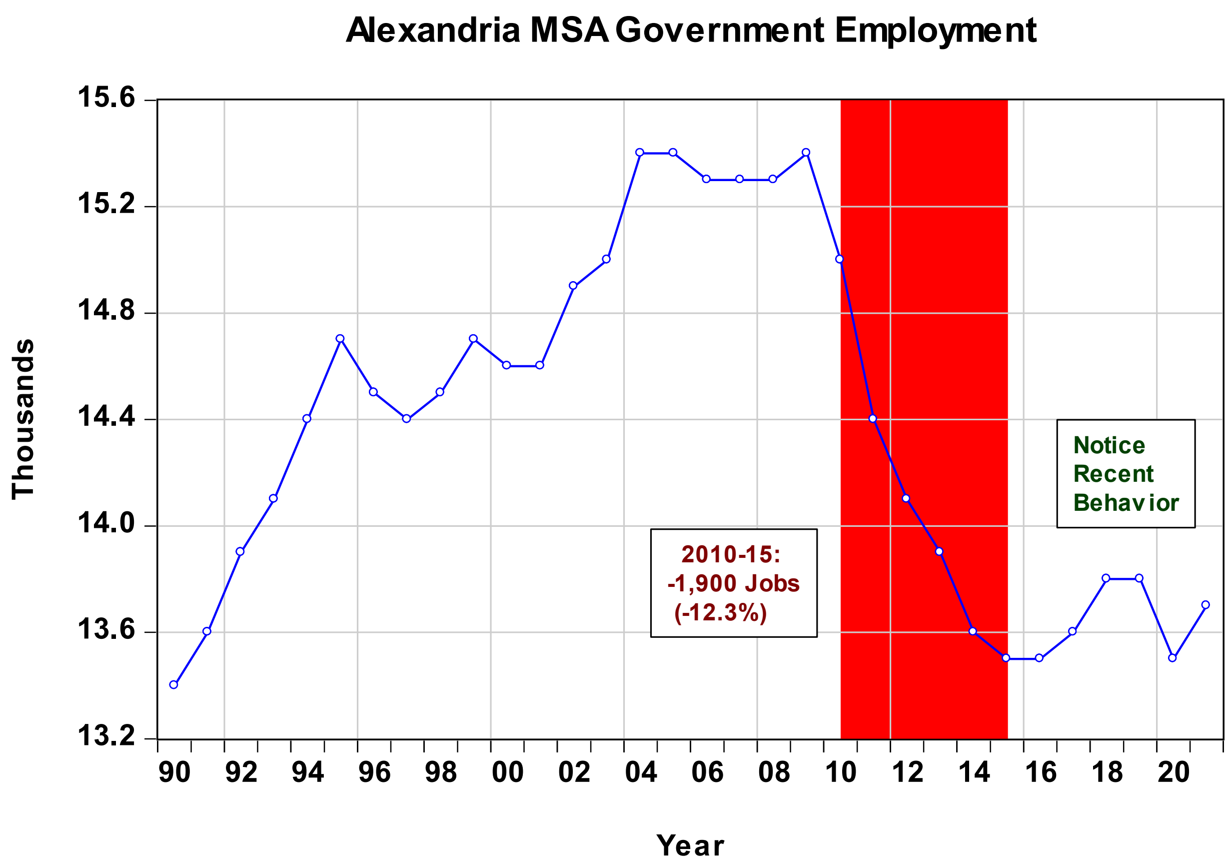
- Louisiana Hardwood in Lemoyen halted its second shift.
- International Paper shut its container board plant, terminating 230 people.
- Upon completion of the $1 billion+ Cleco Rodemacher plant in 2009, 1,700 construction jobs disappeared.
- Star-Tech dismissed 300 people.
- Dresser Industries closed its facility, costing the MSA 364 jobs.

A recession is hard on durable goods manufacturers like **Union Tank Car**. After 2008, orders for UTC tank cars plummeted and UTC's employment fell by 400 jobs (down from a 670 peak). As an indicator of economic sensitivity, before the Great Recession about 60,000 rail cars were idled; by early 2009 this number was up to 540,000.

The one positive thing going for the economy was a new 46,000 square foot, class II casino opened by the Jena Indian Tribe in February 2014 that employed 300 people.

There was another key problem sector for Alexandria during this period. Typically having a large government base adds an element of insulation to an economy from recessionary swings, but not when budget cuts are the order of the day. **Government employment in the MSA declined by a total of 1,900 jobs (-12.3%)** in the six years between 2010 and 2015 (see Figure H-2). That alone was enough to drag down an economy of this size. The good news, as seen in Figure H-2 is that in the last six years, government employment has been flat to rising slightly---no longer a drag on the economy.

Figure H-2



Data Source: Bureau of Labor Statistics

On the bright side, **Cleco** helped lead the way to modest job growth in 2018 with the initiation of its $130 million "Start" technology project. This multi-year project brought 100 new, high-wage, IT workers to Alexandria. While Start was an important job producer, it was not near enough to mitigate the layoffs tabulated above. Also, Cleco donated $6 million to the Louisiana Department of Economic Development to invest in economic development projects to increase jobs in their service territories.

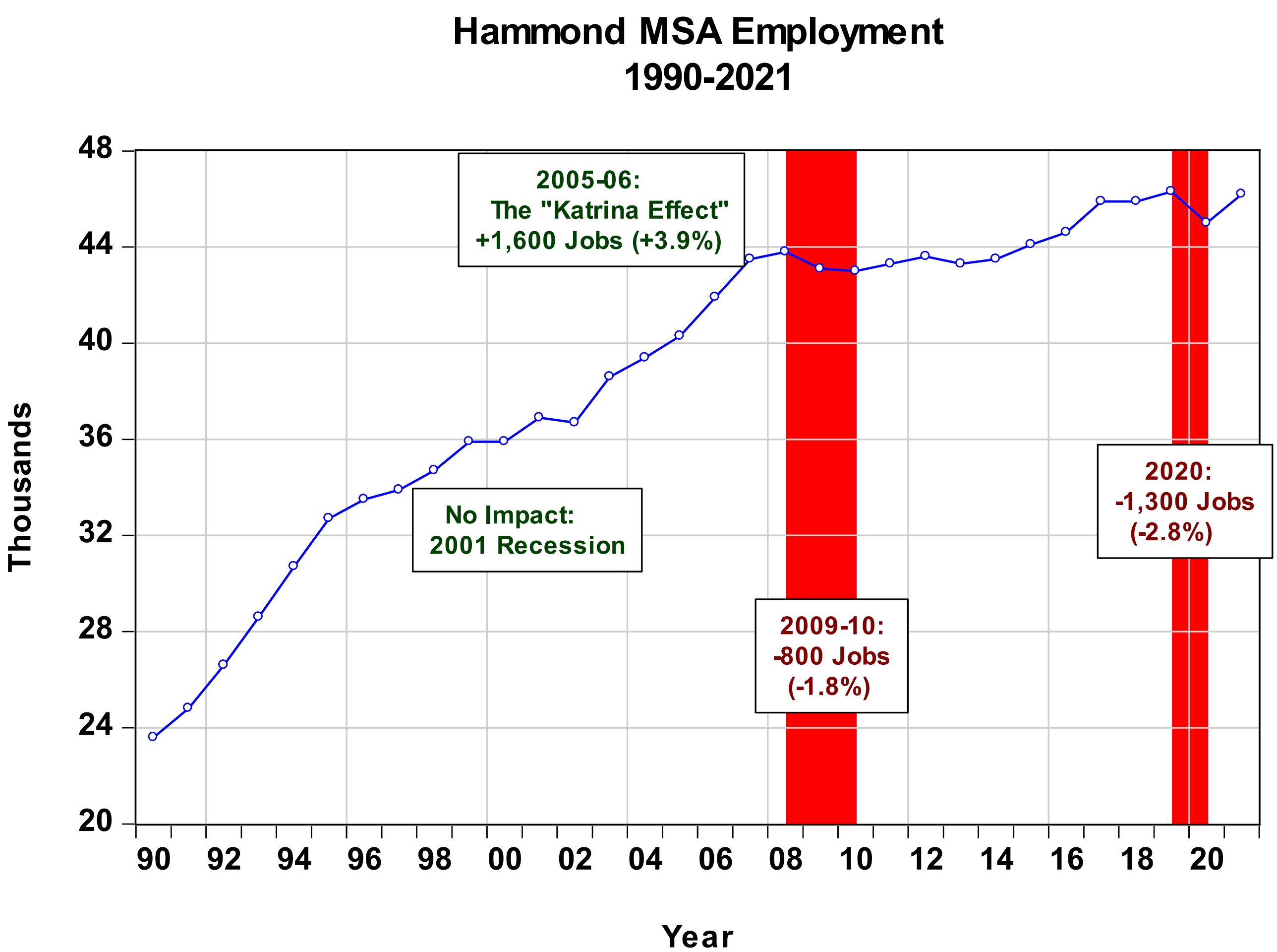
2020-21: Effects of COVID & Recovery

These two years are covered in the main body of this report.

APPENDIX I: History of the Hammond MSA

Figure I-1 traces the history of this MSA from 1990 through 2017. Because it is so new, data on this MSA are not available pre-1990. The Hammond MSA has been through three distinct periods---(1) the 1990-2007 period of solid upward growth, (2) a recession over 2009-10 associated with the Great Recession, and (3) eleven years of relative stagnation from 2011-21, including a dip associated with the COVID shutdown.

Figure I-1



Data Source: Bureau of Labor Statistics

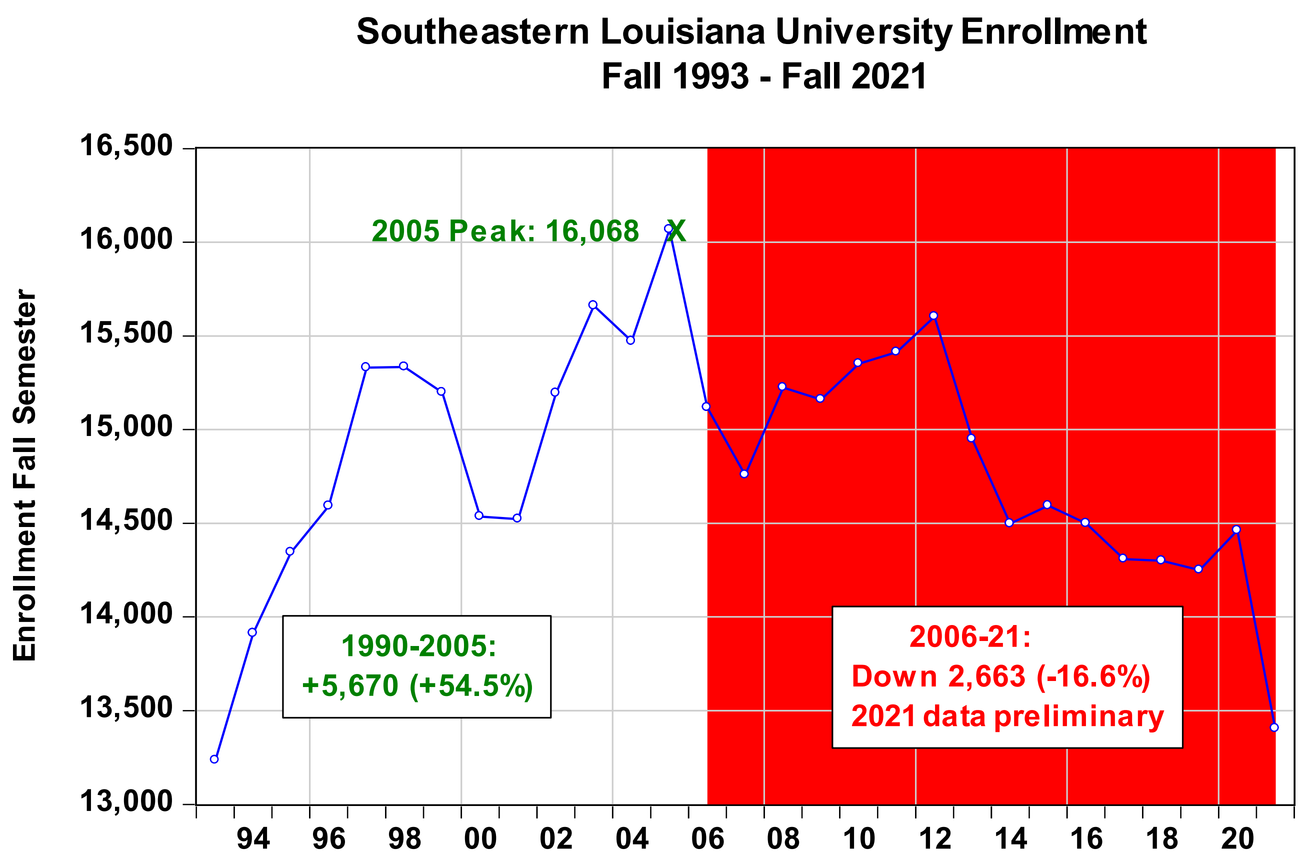
SLU 's Heavy Influence

What is behind these three movements in the Hammond MSA's employment? The key is to note that there are two major players that dominate this economy---Southeastern Louisiana University (SLU) and North Oaks Medical System. SLU is

`

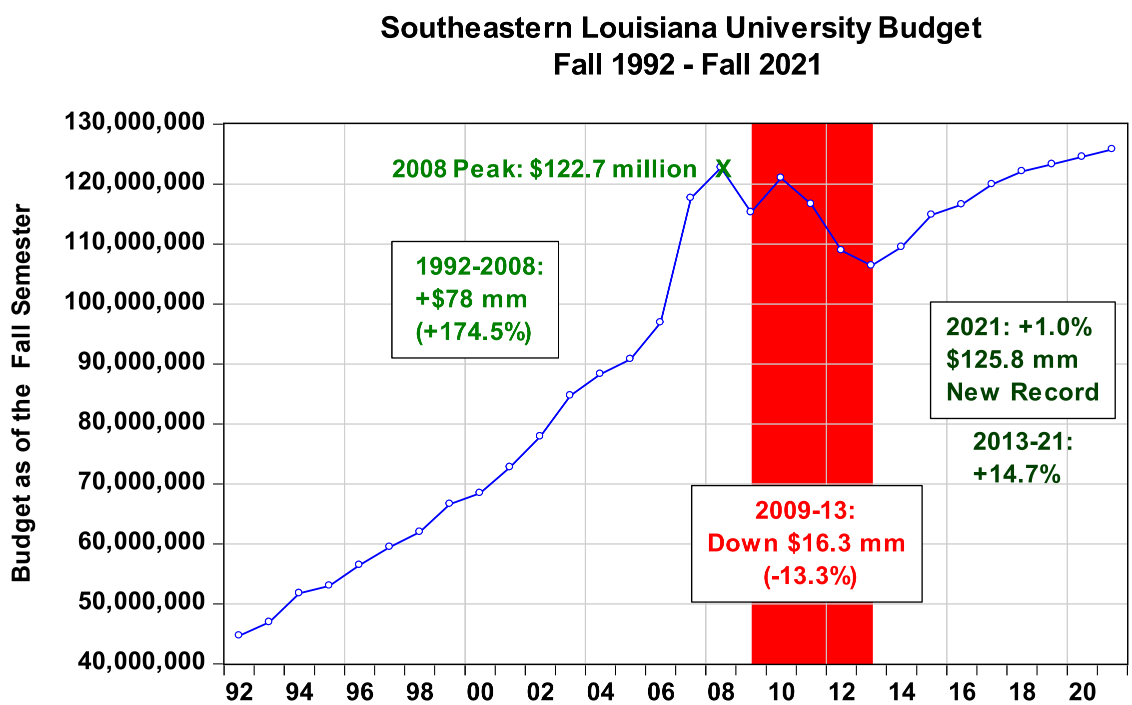
located in Hammond, which makes this city a university town much like Lafayette. **SLU** is a very large employer at 1,429 faculty and staff. The university brings significant spending power to the community because it attracts nearly ten times more students (13,405) than faculty/staff to the region (see Figure I-2).

Figure I-2



Data Source: SLU Office of Institutional Research & Assessment

Figure I-3

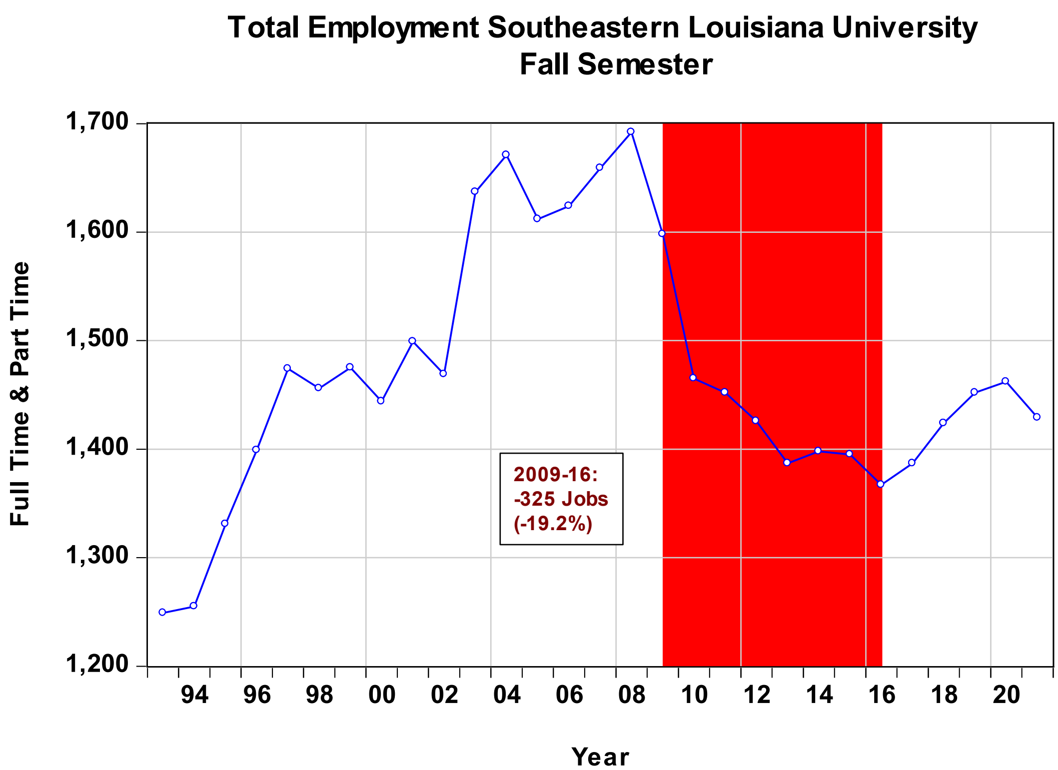


Data Source: John Paul Domiano, Budget Director, SLU

Figure I-3 tracks SLU's budget over time since 1992. Readers will note the relatively high correlation between what happens at SLU, whether enrollments or budget, and what happens to overall employment in the MSA. The powerful influence that SLU has on this MSA is seen when comparing the MSA employment data in Figure I-1 with SLU's enrollment data in Figure I-2 and the university's budget data in Figure I-3. When the university's budget (+174.5%) and enrollment (+54.5%) exploded in the 90s and early 2000s, that mega increase correlated with steady gains in employment in the MSA. Similarly, when things flattened out at the university so did the MSA's employment. The years of budgetary declines (-13.3%) over 2009-2013 track the very flat employment period in Figure I-1. The enrolment reduction shown in Figure I-2 meant fewer students to spend money in the MSA, contributing further to the flat period in Figure I-1.

While enrollment trends and actual employment trends at the university (see Figure I-4) have not supported employment growth overall in this region recently, there has been a period of significant recovery in SLU's budget, of about 14.7% since 2013, enabling the university to fully recover all the losses between 2009 and 2013. That budgetary infusion has helped promote some of the very modest growth in employment in the MSA the last five years.

. **Figure I-4**



Data Source: SLU Office of Institutional Research & Assessment

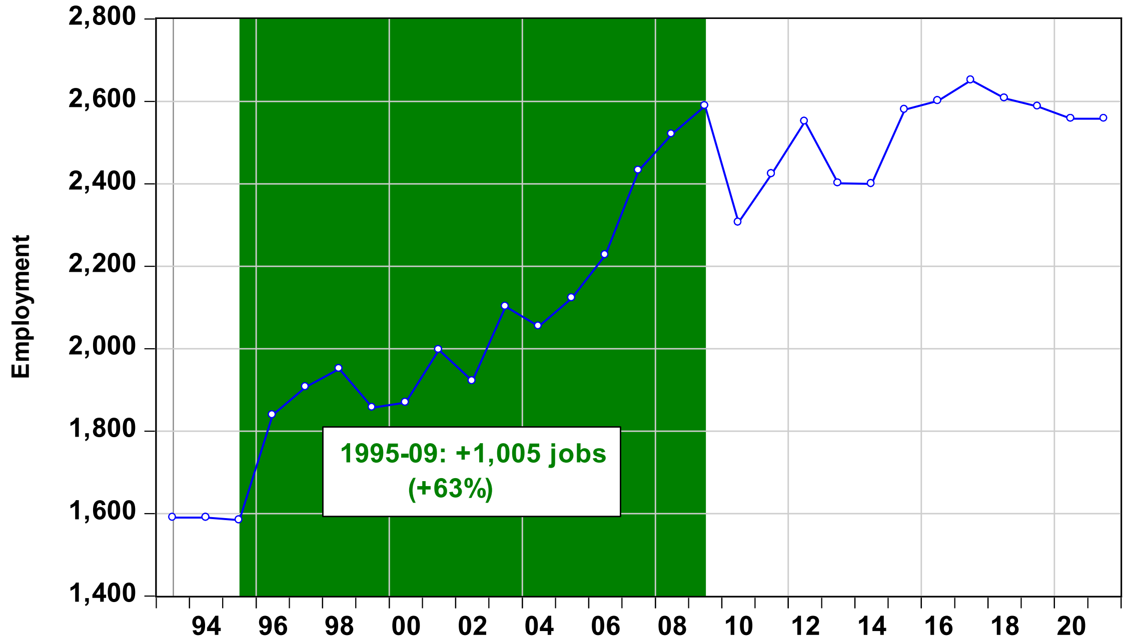
Healthcare Employment Also Mirrors the MSA

The second major player in this MSA is the **North Oaks Medical System**. As was the case with SLU, trends in this large system are highly correlated with trends in overall employment in the MSA. The history of employment at North Oaks is shown in Figure I-5. Just as with total employment in the MSA, North Oak's employment grew rapidly (+63%) over 1995-2009, adding over 1,000 jobs.

Since then, employment at North Oaks has been essentially flat, settling in at about 2,600 employees. This correlates almost perfectly with the rather lethargic trend in the MSA's employment during that same period. The hospital's problem recently can be traced back to Governor Edwards' Medicaid expansion program. The expansion caused the hospital's percent of Medicaid patients to double, a patient load on which hospital is paid only 38 cents on the dollar of costs. The absence of a medical education element at the hospital and the absence of a "rural" designation results in the hospital receiving only the lowest per diem reimbursements.

Figure I-5

North Oaks Medical System Employment



Data Source: North Oaks Medical System Human Resources Division

To sum up, what happens to employment in this MSA depends largely on what happens at SLU and North Oaks. Over time, other additions or departures from this economy may move the needle a little around the trends in these two systems, but by and large, they drive the economy.

2017: A Variation from the SLU & North Oaks Trends

In the paragraph above it was mentioned that sometimes there are additions/deductions that move the needle a bit round the SLU/North Oaks trend line. The year 2017 is just such a year as seen back in Figure I-1. The MSA gained 1,300 jobs that year. The MSA's small manufacturing and distribution centers added an unusual spark to the region. These included the following:

- Smitty Supply made some significant investments.
- Intralox initiated capital and employment expansions.
- The Walmart Distribution Center added 70 jobs.
- Southern Foods added 206 jobs through expansion and the relocation of its Brown's Dairy milk processing facility to Hammond.

Recessions Mean Little Here

There is one characteristic of this MSA that it shares with the Alexandria MSA---national recessions ding this economy very little. As seen back in Figure I-1, Hammond actually grew through the short U.S. recession in 1990 and also during the 2001 recession. The MSAs employment did fall modestly (-1.8%) during the Great Recession, but at less than a third of the rate of decline nationally.

Like its sister MSA, Alexandria, in central Louisiana, there is a heavy governmental influence in the Hammond MSA (SLU) and a virtual absence of durable goods manufacturing. The latter tends to get creamed during recessions while the governmental sector is only lightly tagged. Too, the huge North Oaks healthcare system is another sector that typically holds up well even during recessionary times. This is clearly seen in North Oaks' employment line in Figure I-5.

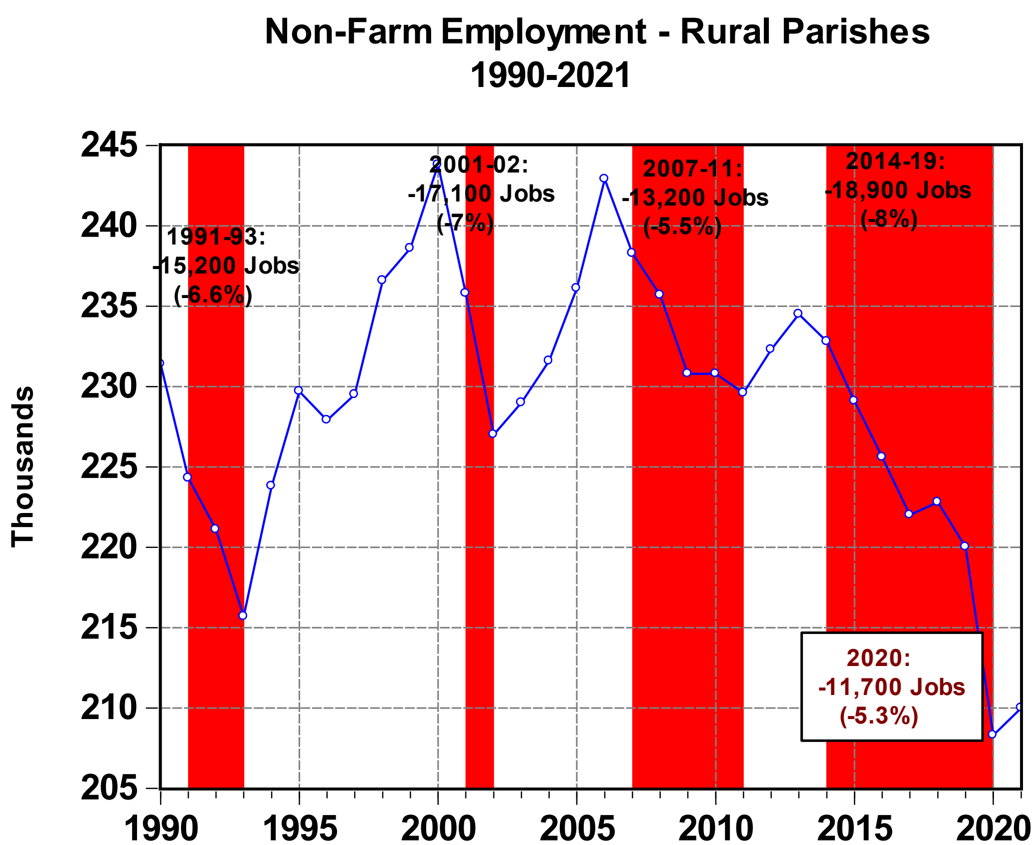
2020-21: COVID Effects & Recovery

These two years are discussed in the body of the report.

APPENDIX J: History of Louisiana's Rural Parishes

Figure J-1 tracks the history of nonfarm employment in Louisiana's rural parishes from 1990 through 2021. These parishes are shown in Figure 11 of the body of the report as the parishes in white. Over the past three decades employment in this region has only varied over a range from a low of 210,000 to a high of 243,800 (it may appear to be more, but the Y axis does not start at zero).

Figure J-1



Data Source: Bureau of Labor Statistics

Recessions Do Matter to Rural Louisiana

Unlike the Hammond and Alexandria MSAs, the economies of the rural parishes do feel the brunt of national recessions as seen in Figure J-1. In fact, these parishes tend to feel the recessions even more than usual. Note that the very short national recession in 1990 resulted in a 3-year employment decline in the rural parishes that was quite deep (-6.6%). Similarly, the short national recession in 2001, was two years long, and deep (-7%) in rural Louisiana. Whereas, the Great

Recession lasted 18 months long at the national level, rural Louisiana employment declined for four full years.

A key reason for this hypersensitivity to recessionary influences is that recessions hit the housing industry particularly hard. When the economy is bad, the last thing people think about is buying a home. Rural Louisiana is well-populated with logging and sawmill companies, especially in central and north Louisiana. A classic case of this phenomenon was the bursting of the housing bubble that led to the great recession. Note what happened in rural Louisiana:

- Weyerhaeuser Corporation reduced its workforce at its facilities in Lincoln, Bienville, and Winn Parishes (-224).
- Boise Cascade laid off workers at its plywood veneer plant in Allen Parish (-130).
- Hunt Forest Products temporarily closed its Natalbany facility in Tangipahoa Parish.

Not all the news from the Great Recession was bad for rural Louisiana, mainly because of the influence of the energy sector. Down on the coast, St. Mary Parish was booming due to the large sums of money flowing into the parish for cleanup work from the BP oil spill and claims payments made to businesses and individuals as a result of the spill. This period also coincided with the boom in the Haynesville Shale in northwest Louisiana, which powered a flourishing Red River Parish.

2011-12: +5,000 Jobs

Rural Louisiana did not bounce back fully from the hit of the Great Recession. In the two years of 2011-12 the region added back about 5,000 jobs, still well below the pre-recession peak in 2006. There were several nice economic wins for the rural parishes over these two years, including:

- In Richland Parish, Conagra built a 2-phase sweet potato processing plant adding several hundred jobs.
- General Dynamics opened a 600-person call center in Bogalusa.
- Metal Shark Boats in Jeanerette won a $192 million contract with the Coast Guard to construct 500 patrol boats (+100 jobs).

- In Ruston, Mortgage Contracting Services added 90 employees.
- In Urania, German Pellets GmbH began construction on the world's largest wood pellets manufacturing plant (+150 jobs).
- Universal Plant Services built a $3.9 million, 95-person welding, fabrication, and equipment overhaul and repair plant in LaSalle Parish.

Back to 1991: the 2014-19 Decline

The period from 2014 to 2019 were recession-free years at the national level, but not so for rural Louisiana. Note in Figure J-1 that these 29 parishes lost a shattering 8% of its jobs or 18,900 jobs in total. There was only one slight growth year among these six years.

Partly this decline was driven by problems at individual firms across these parishes. For example:

- German Pellets GmbH plant in LaSalle Parish went into bankruptcy.
- Fruit-of-the-Loom closed its Vidalia plant (-167 jobs).
- Life Care Specialty Hospital in Ruston closed (-167 jobs).

Shipyards in these rural parishes in south Louisiana took it on the chin as well. Bollinger Shipyards in the Amelia and Morgan City areas cut their employment from 700 to 350, and shipyards and fabricators in St. Mary Parish also initiated cutbacks. All of these shipyards began to look beyond work for offshore oil exploration/production to other sectors like government, brown water vessels and research ships.

Red River Parish, which enjoyed such a spark from the Haynesville Shale boom, went into a tailspin as the rig count in that play dropped from 142 to fewer than 20 rigs. St. Mary Parish had benefitted mightily from high oil prices, but now felt the brunt of prices below $30 a barrel.

All of these factors contributed to the funk rural Louisiana has been in since 2014.

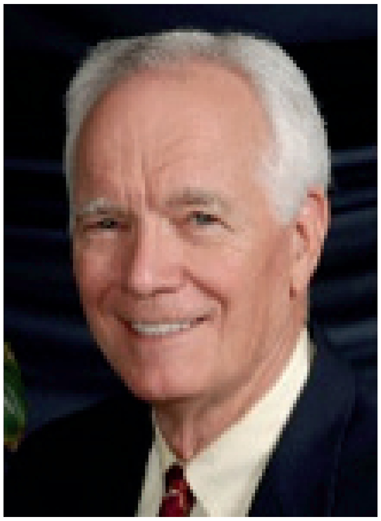
Underlying It All: Population Out-Migration

A quick peek back at Figure J-1 reveals that rural Louisiana has basically been in a downward slide since 2006. Generally speaking, we expect this to continue because of the underlying problem of out-migration of population from these parishes. For example, of Louisiana's 29 rural parishes only three experienced population gains between 2010-2020---Lincoln, Beauregard, and Jeff Davis---while ten rural parishes found their populations fell by 10% or more.[13] We expect this out-migration to continue over the foreseeable future.

2020-21: Effects of COVID & Recovery

These years are covered in the main body of the text.

[13] www.bea.gov



Dr. Loren C. Scott, President
Loren C. Scott & Associates, Inc.

Website: www.lorencscottassociates.com
Email: LScottecon@gmail.com
Cell: (225)-937-4283

Dr. Scott is the President of Loren C. Scott & Associates, Inc., a 40-year old economic consulting firm that currently conducts impact studies, policy analyses, and litigation support for various size private/public companies and governmental bodies. The firm's clients span diverse industries and have included national firms such as BP, Capital One Financial, Entergy, ExxonMobil, J.P. Morgan Chase, Nucor, Sasol, Chesapeake Energy. A frequent public speaker, Dr. Scott gives 50-70 speeches a year across the country on the state of the economy.

Dr. Scott is an energy specialist on the National Business Economic Issues Council. NBEIC is a 52-member council, which meets quarterly to collaborate on issues of state, national, and international interest. The group includes experts who cover international trade, Washington economic policy, retail trade, trucking, steel, chemicals, etc.

He has been interviewed on CNBC, MSNBC, and Bloomberg TV, in addition to several local TV stations, and his work has been cited in such publications as the *Wall Street Journal*, *Forbes*, the *Los Angeles Times*, the *New York Times*, *USA Today*, the *Moscow Times*, and the *Financial Times*, to name a few.

His career started at Louisiana State University in 1969 where he spent 33 years, rising through the ranks from assistant professor to the prestigious Freeport McMoran Endowed Chair of Economics and the Director of the Division of Economic Development and Forecasting. Over the thirteen-year period from 1983-96, he was the chairman of the LSU Economics Department. During that time, the Department's ranking among the 3,000 economics departments in the U.S. rose from 101st to 38th. He is presently Professor Emeritus at LSU. He received seven awards at LSU for outstanding classroom teaching and authored numerous peer reviewed publications.

Prepared By:

Dr. Loren C. Scott, President
Loren C. Scott & Associates, Inc.

Contact Information:

Cell: 225-937-4283
Office: 225-751-1707
Fax: 225-751-2350
Lscottecon@gmail.com