





# Dean's Message

I am pleased to share the very first Louisiana Economic Abstract produced by Louisiana Tech University's Center for Economic Research and written by the Center's director, Dr. Patrick Scott. With a goal of providing state-wide analysis and forecasts, this report should benefit the strategic work of our lawmakers, economists, community leaders, and business owners.

The Louisiana Economic Abstract builds on other Center efforts—like the quarterly Regional Economic Analysis of Louisiana (REAL) Report, a series of publications designed to provide insight into recent economic developments in Louisiana. This report is written by faculty and students within the College of Business, providing an invaluable learning experience for our economics undergraduates. The Center also serves as a hub of industry and research expertise, consulting with local and regional governments on projects and providing analysis to media. If you are interested in partnering with the Center for Economic Research on a consulting project, I encourage you to reach out to Dr. Patrick Scott at pscott@latech.edu to see how the Center can serve your specific needs.

This publication and others produced by the Center are available for download at **business.latech.edu/cer**. Please feel free to contact Dr. Scott for more information on this analysis. Media inquiries can be directed to waldroup@latech.edu.

I hope the Louisiana Economic Abstract serves as a valuable tool for your efforts in our state.

Sincerely,

CHRISTOPHER L. MARTIN, PH.D. Dean and Chase Endowed Professor College of Business Louisiana Tech University



The Center for Economic Research (CER) provides economic analysis to private businesses and government agencies in the greater Louisiana region. Housed within the College of Business at Louisiana Tech University, the Center serves to connect the university community with economic development efforts in the state by supplying detailed economic impact analysis of both private enterprise and government policy initiatives. The Center is a member of the Association for University Business and Economic Research (AUBER), the premier professional organization for regional economics centers across the U.S.

As a part of its community outreach, the CER partners with businesses and local area chambers of commerce to provide updates of the ever-changing economic landscape and forecasts for the greater Louisiana area. The Center also collaborates with faculty in co-curricular efforts by producing the quarterly Regional Economic Analysis of Louisiana (REAL) Report with College of Business economics and finance students.

Dr. Patrick Scott is an assistant professor of economics and director of the Center For Economic Research. He teaches macroeconomics, monetary theory, and research methods at Louisiana Tech University. His research interests include optimal monetary



policy models, dynamic general equilibrium models, time series forecasting, and Bayesian econometrics.

Contact Patrick at pscott@latech.edu for more information on this report or the Center for Economic Research.

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# Preface

This publication is the first in an ongoing annual series designed to report statelevel economic developments and the impact of policies within Louisiana. In my capacity as an assistant professor and director of the Center for Economic Research, I am frequently asked to provide context and analysis pertaining to the broader state economy. To better understand the present, we must also understand the past. As an academician and macroeconomist, I prefer to teach economic theory and concepts through data science. This feels more intellectually honest since so much of macroeconomic theory is motivated by empirical observations and stylized facts.

The Center for Economic Research has been publishing the Regional Economic Analysis of Louisiana (REAL) Report quarterly for three years. As I talked with numerous business leaders, policymakers, and news outlets about the report, it became clear that a more comprehensive picture of the state economy could and should be painted. There are many other reports that discuss the state of Louisiana's economic situation produced by academics, private-sector professionals, and government officials alike. The purpose of this report is not to replace these other resources but to provide another dimension to the discussion of economic welfare in the Bayou State. This report sits squarely at the intersection of economic rationale and data science.

The Louisiana Economic Abstract takes a bird's-eye view of the economy from a distinctly macroeconomic perspective. With that in mind, three distinct areas of the economy are analyzed. First, output/income measures are universally considered the primary metric for describing the wellbeing of a state or region. This section includes discussions of total and industry level output as well as personal income measures. Second, because traditional output measures tend to only focus on final goods and services production, labor market indicators are favored by many regional economists over output measures. This section includes a detailed analysis of employment trends and dynamics alongside wage outcomes. Finally, homeownership is such a large part of wealth building that it would be remiss to not discuss it here. House prices as well as shifting real estate market movements are explored to better understand personal wealth drivers in the state.

The data used in this report are mostly available from public (open) sources. Most of the public data are provided from the Bureau of Economic Analysis, the U.S. Census, the Bureau of Labor Statistics, and the Federal Reserve Economic Data Base. Additionally, some other data mentioned are from proprietary sources. All publicly available data are recent at the time of publication (October 1, 2021), but these data are bound by release dates beyond my control. Some data are at the annual frequency and are subject to relatively long lag times to release as well.

This report contains some forecasts of economic indicators for the state and local region. These forecasts are made utilizing multiple modeling methodologies. Some models utilized are structural time series models while others are relatively atheoretical models (i.e., VARs, VECMs, vector ARMA models, etc.). Regardless of modeling method, most forecasts are generally made employing a Bayesian model averaging approach where many models are considered and the forecasts from relatively better performing models are given disproportionately more importance in the weighting algorithm. In this way, the forecasts better summarize the probabilistic uncertainty that any one model is not properly specified. All forecasts are provided with a region of uncertainty around the point estimates. Depending upon the variable being forecasted, the upper bound and lower bound are frequently interpreted as optimistic or pessimistic cases of the forecast. This is not entirely accurate though as they represent the upper and lower bounds of statistically equivalent forecasts. In general, the point estimate of the forecast within the band of uncertainty is the most likely to occur. At the time that this report is being produced, Hurricane Ida made landfall on the 16th anniversary of Hurricane Katrina. It is possible that Hurricane Ida may produce considerable economic disruptions that are not reflected in the forecasts published here. However, there have been three large scale disruptions etched within the topography of Louisiana's economic data. The precedent of these disruptions over the past 16 years means that they are not wholly unpredictable, and thus the forecasts do accommodate the nonzero probability of another hurricane-sized economic event.

# Output & Income

In the overarching historical context of measuring economic welfare for nations and states, production levels are the first indicator of income and prosperity. Output and income levels are so closely approximated by one another that in just about every principles of economics classroom in America we teach that output equals income (assuming Walras' Law holds). Measurement error problems for both production and income data reduce the helpfulness of relying solely on these variables for state level and local area economies. Nonetheless, income and output estimators are all primary economic indicators and usually are the first stop in gauging economic performance. Different estimators exist to capture either different features of the economy, or to reflect methodological nuances among other estimators. Generally, most estimators communicate the same qualitative result. The data described below are intended to provide multiple points of view in an effort to supply context to the evolving Louisiana economy.



## Gross State Product

Gross state product (GSP) is a primary economic indicator and is broadly considered to be the most important barometer of economic welfare in a state. For Louisiana, GSP is more nuanced than comparative state economies of similar size. Since Louisiana produces a relatively higher proportion of intermediate goods than final goods, this indicator does not fully communicate underlying economic dynamics or diversity of industries within the state. The proportion of value added to total economic value for Louisiana is approximately 48%. This means that just over half of what is produced in Louisiana supports the production of final goods and services in other states<sup>1</sup>. Lower values indicate reduced opportunity for the state economy since the production of final goods and services represents the largest component of value added. Understanding this about Louisiana helps to explain labor market dynamics at the state level during the financial crisis of 2007-2009—more on that below.

While the COVID recession nationally was the shortest in U.S. history, Louisiana real GSP still has not recovered from this shock. The magnitude of this shock is the worst we have observed in over 50 years.

**Figure 1** depicts nominal and real GSP for the past 15 years in the state. Real GSP accounts for changes in the price level and is chained to 2012 dollars.

Nominal GSP is always expressed in current dollars. Nominal GSP is clearly trending upwards despite the short run drop off during the COVID-19 recession. This largely reflects the effect of inflation during the 21st Century. Real GSP exhibits a moderate downward trend which reflects reduced incomes either from lower economic prosperity or state level production shifting even more to intermediate goods production. Like national gross domestic product data, real GSP for LA inherits reduced volatility. Unlike national numbers though, real and nominal GSP overlap three times (two times beyond the base year) for the state. This indicates an economy that stagnated for around the five-year period of 2012-2017.

The peak of economic performance before the recession hit had not been felt in Louisiana since about 2011. The full magnitude of the decline in real economic activity was almost 13% over a six-month period. While the COVID recession nationally was the shortest in U.S. history, Louisiana real GSP still has not recovered from this shock. The magnitude of this shock is the worst we have observed in over 50 years, though this is not shown here. Louisiana has recovered about 70% of the lost income, but unemployment remains persistently high and inflation compounds employment recovery efforts.

## Coincident Index

The coincident economic index is a generated variable that is produced from a statistical model that combines nonfarm employment, average manufacturing hours worked, the unemployment rate, real wage and salary disbursements, and long run GSP trends (in this case, nominal given the positive trend). This indicator is beneficial for two distinct reasons. First, estimates are provided at the monthly frequency. This is helpful since GSP numbers are only produced quarterly. Second, since the variable weighs employment and labor market outcomes disproportionately more than final goods and services, the data more accurately reflect underlying income dynamics for the state. Because some states are similar to Louisiana in terms of the proportion of final to intermediate goods produced, it is frequently argued by regional economists that more emphasis should be placed on labor market outcomes to gauge economic performance. It is for these two reasons that the coincident index is helpful for gauging output/income performance.

1 In comparison, this proportion is almost 66% for Texas.



The aggregate impact of stimulative fiscal policy on household incomes combined with the relatively lopsided nature of jobs losses in the economy, have pushed these two indicators apart from one another. **Figure 2** shows Louisiana's coincident index value monthly since 2000. At the beginning of the COVID-19 recession, it was hoped that the state would act in a similar fashion to the shock we observed during the state recession due to Hurricane Katrina (August to October 2005). In that case, LA exhibited a sharp decline which recovered and resumed the long-run positive trend within a few months. The COVID recession is showing different dynamics that reflect the general sense of uncertainty across the state. This recession is also impacting every corner of the state, which Katrina did not. The coincident index has declined nearly 15% from pre-pandemic highs and has not recovered those highs. In order to return back to the long-run growth trend, it will need to climb another 11%. At the time of publication, the fourth surge of this virus in Louisiana is still under way, and recovery back to the trend does not appear likely for at least another 12 months.

#### Personal Income

Over the past year and a half, we have seen a divergence in output and personal income data in Louisiana. This divergence is apparent in the federal level data as well. Usually, personal income and GDP data coincide with one another, but the aggregate impact of stimulative fiscal policy on household incomes combined with the relatively lopsided nature of jobs losses in the economy, have pushed these two indicators apart from one another. Stimulative fiscal policy both direct household stimulus payments and historically generous unemployment benefits have served to prop up household balance sheets despite job losses. Additionally, job losses have disproportionately impacted low-wage earners nationwide. This means that even though we are still in an employment crisis, the aggregate personal income data are not impacted as much as they would if employment losses occurred at the median wage level.



#### Per Capita Personal Income Growth

**Figure 3** reflects per capita personal income growth for the past 20 years. The average growth rate is a bright spot for Louisiana at 3.88% on an annual basis. This is tempered with a declining growth rate in population since 2007. While personal income per capita is the ratio of personal income to resident population, this number can increase by either growing the numerator (good growth) or shrinking the denominator (not good growth). 2010 was the last year that the population grew above 1%. Since 2017, the population has declined every year in Louisiana. The peak in per capita personal income growth occurs in 2006 due to the exodus of LA residents that occurred in the aftermath of Katrina. This serves to pull up the average growth rate, but is not caused by sustained growth in the economy. Since the recession caused by the financial crisis of 2007 to 2009 (what economists have dubbed the *Great Recession* since it followed a period identified as the *Great Moderation*), there have only been four annual data points of per capita personal income growth above the long-run average. This is a warning sign for the Louisiana economy over the long-term. In the short-term, this indicator is above the long-run average, thus for now, it is a strength.



#### **Personal Income Growth**

**Figure 4** depicts the growth rate of personal income for Louisiana. This metric tells us how incomes grew from sources like paychecks, employer benefits, business equity, rental property incomes, and transfer payments<sup>2</sup>. The long-term growth rate for personal income is higher than the average growth rate for gross state product at about 1.4%. The past four quarters, starting in the second quarter of 2020, exhibit considerable disruption to the long-run dynamics of this variable. This is the dual effect of both the economic crisis brought on by COVID-19 as well as the policy response to it on a federal level. Policy responses in the second quarter of 2020 and the first quarter of 2021 boosted aggregate income levels above the long-run trend. The severity of the economic crisis, combined with tepid policy actions in the waning months of the Trump administration, brought decreases in personal income in the third and fourth quarters of 2020 that were lower than what we have experienced over the last 20 years<sup>3</sup>. The magnitude of the gains in personal income are great for the state, but the lows that we are also experiencing are well below normal considering traditional economic recessions.

#### Median Household Income

Median household income estimates are produced by the U.S. Census and are subject to swiftly changing methodological differences in the calculated estimates. Currently, state estimates are made using a method referred to as linear interpolation, which assumes a constant population density within defined income intervals. Given the relatively static nature of

<sup>2</sup> Though this statistic excludes capital gains from stocks, bonds, and other financial assets.

<sup>3</sup> This growth is also seasonally adjusted, so this is not a function of seasonality in the data.

population growth in recent years for Louisiana, this is not likely to be a problem. Figure 5 highlights the relative volatility of growth of median household income estimates. 2019 (the last observation since these annual estimates are produced with a longer lag) brought with it the highest annual median income of nearly \$52,000. 2020 is likely to show a decrease for this, but generous federal benefits may prevent this from dropping below trend. The growth rate from 2018 to 2019 was barely above the long-run trend, but still above it. Figures 3-5 all show an income picture for the state that is relatively strong despite the losses in employment and worker productivity.



#### Industry Level Output

Gross state product estimates by major industries are produced at the quarterly frequency by the Bureau of Economic Analysis. Some less major industries are also available, but only at the annual frequency. This degree of granularity about production in Louisiana is helpful since broad GSP estimates are relatively noisy (not all industries move in tandem with one another). Economists frequently single out specific industries to better gauge economic movements, long-term strengths and weaknesses, and sources of potential volatility that can spill over into other sectors. For example, relatively strong growth in construction might signal future growth in retail sales, financing, and insurance, as well as manufacturing.



**Figure 6** shows production growth rates for six major industries in Louisiana that are not necessarily mutually exclusive to one another. For example, private-goods production encompasses all of the other five sectors shown but is less than total GSP. The other five sectors, manufacturing production (including petrochemical manufacturing), retail trade, construction, agriculture, and financing, comprise nearly 60% of private goods production and almost half of all GSP. As with the other figures so far, the red line denotes the long-run average growth rate. All six industry growth rates are currently at or above their long-run trend. While in general, this is good news for the state, it is also cause for concern since the volatility we are currently seeing may not be over yet until we reach full employment. Private-goods production, retail trade, and agriculture, forestry, and fishing all have recently experienced severe economic disruptions that rival, if not are explicitly, the worst historical disruptions in 20 years in those sectors. As the health crisis continues to be a long-term problem, the economic consequences will remain a concern.

### Forecasts

Output and income forecasts are based on the estimation of 132 empirical models. These models include univariate and multivariate time series models, as well as theoretical economic models. In some cases, the models utilize just past lags of themselves, and in some cases, additional economic variables are treated both exogenously and endogenously. Because the Louisiana economy has experienced multiple large-scale disruptions, a few stochastic volatility models are considered as well. All models are raced against a training data sample to determine relative forecasting performance. The algorithm is constructed to measure forecasting efficacy and not necessarily fit of the underlying data generating process. Models that forecast better are given priority over models that do not perform as well. The weighted average of these forecasts generates the distribution shown below in the context of the data being forecasted.



**Figure 7** combines both observed and forecasted real GSP growth rates for Louisiana. The average of all the forecasts denoted by the red dashed line represents the most likely outcome. Real GSP is expected to revert to its mean growth rate for the next four quarters. The long-run growth rate (denoted by the horizontal solid red line) is positive for the past eight years but is not substantively different from zero. Two quarterly growth rates are expected to be below the long-run growth rate, but they are not sequential. This graph characterizes the main thrust of Louisiana's economic problem. The real economy is effectively not growing while other states around us are. While this is disheartening, this represents an opportunity to benefit from keen policymaking as the Louisiana economy pivots into the third decade of the 21st Century.



**Figure 8** quantifies the growth rate of total personal income along with forecasted growth. Like with Figure 7, the horizontal solid red line represents the long-run average growth rate, and the red shaded region describes the range of statistically equivalent forecasts. After historically high personal income gains, growth is expected to decline in the next quarter and correct into negative territory for the third quarter of 2021. Following that, personal income growth is expected to exceed its long-run trend for the remainder of 2021 and into 2022.

# Employment & Unemployment

Labor markets are arguably the preferred indicator of state and sub-state level economic activity. Labor market data provides relatively more clarity since they are less volatile than output data. They usually are updated at a higher frequency as well. The only drawback to this is that labor market data are not directly (but indirectly) related to economic wealth. One must infer that more employment leads to increased wages and thus income. By this train of thought, workforce data are not primary economic indicators. But at the regional level, these variables communicate more since they are not subject to the noise of output and income data. Additionally, revisions to employment/unemployment data are generally smaller and less persistent than output data. As a result, these data are available for a more disaggregated cross section of the region.

## Total Nonfarm Employment

Nonfarm employment is generally goods and services employment which includes both construction and manufacturing hiring. It does not include private household employment, nonprofit employment, or farm workers. This is the broadest level indicator of private hiring we have available to us. Estimates are produced monthly by the Bureau of Labor statistics. Relatively sharp movements in nonfarm employment signal economic uncertainty. Long run trends of this data are important because it indicates long run growth or potential. Nonfarm employment does not necessarily correlate to population trends in a given area.





**Figure 9** depicts monthly nonfarm employment from 2000 to present in thousands of workers. Generally, nonfarm employment decreases during recessionary periods. We can see this in the 2001 recession, the 2007 to 2009 financial crisis, as well as the 2020 to 2021 COVID recession. It's been previously mentioned above that Louisiana produces disproportionately more intermediate goods then final goods. As a result, during these recession any phases, the trough in employment activity usually hits a local minimum after the recession ends for Louisiana. This is exhibited both during the 2001 recession as well as the 2007 to 2009 financial crisis, what economists frequently referred to as the Great Recession since it followed the period of Great Moderation from the mid 1980s to mid 2000s. The exception to this, however, is the COVID recession. During the COVID recession, employment hit a local minimum in the middle of the two-month period that has been identified by the National Bureau of Economic Research for

this recession. Louisiana has also experienced an additional shock from Hurricane Katrina that is etched across the economic landscape. Overall, we see three national crises and one large scale regional disruption to employment over the past 20 years that alter the long-run dynamics of this data. In all four cases, employment drops and then takes disproportionately longer to recover. During this more recent crisis, employment has recovered approximately half of the initial losses in private sector hiring. At the time of publication, Louisiana is still down approximately 144,000 jobs compared to pre-pandemic levels. Some of these individuals have left the labor force altogether. The relatively slow nature of job growth after a given economic shock indicates an area of opportunity for local and state policymakers during this time.

During this more recent crisis, employment has recovered approximately half of the initial losses in private sector hiring.

Figure 10 shows the same nonfarm employment data (in thousands) broken down by major economic shocks for Louisiana. Here the blue line represents the level of employment before, during, and after the Hurricane Katrina shock. The pink line indicates employment during the Great Recession. The red line indicates nonfarm employment during the COVID recession. Unlike Figure 9, here the horizontal axis represents months into each economic shock, not a specific point in time. This allows us to plot these three lines together. It is important to note that for all three of these economic shocks before the period of crisis starts, employment is approximately the same. This indicates that over the long run, employment has not substantively grown for the past 15 years once Louisiana has recovered from each economic shock. Both Katrina and COVID were direct economic shocks to this area. Thus, the drop in employment is relatively steep and the recovery is relatively long. During the Great Recession, consumers nationwide reduced discretionary spending. Because Louisiana produces disproportionately more intermediate goods than final goods, the drop in employment corresponds more to the decrease in demand for final goods and services. As mentioned before, employment hits a local minimum at the beginning of 2010 (month 14 for the pink line), after the recession had already officially ended. If Louisiana private sector hiring follows the same trajectory for the COVID recession as it did for the Hurricane Katrina shock, Louisiana will not reach its pre-COVID level of employment until at least the end of 2023.

**Figure 11** presents nonfarm employment growth over time in blue and the long-run average growth rate in red. While the long-run growth rate appears to visually be zero, it is actually just above zero at 0.047%. This extended long-run average is higher than the 20-year average growth rate of employment which is -0.007%<sup>4</sup>. One can easily see the sharp decline in employment as a result of Katrina (about 6.593% decline) and COVID (approximately 13.267% decline). In both cases, the sharp decline is not followed by an equally matched increase. They are both followed by observations that are above the long-run growth rate, which slowly reverses the overall job losses from these two events over many months. While the economy takes time to recover, overall economic prosperity suffers for all.



Figure 11: Total Nonfarm Employment GROWTH RATE

4 Statistically speaking though, these two numbers are probably not different from one another or zero.

#### **MSA Level Employment**

All states in the U.S. have economic centers of gravity that represent the majority of economic activity captured by state level indicators. These economic centers are categorized as metropolitan statistical areas (MSAs). While there are specific criteria that must be met to be classified as an MSA, these are usually colloquially referred to as the relative population centers as well. In the case of Louisiana, there are nine MSAs that are comprised from 36 parishes within the state. These 36 of the 64 total parishes within the state account for approximately 91% of output and 88% of total employment in the state. The nine MSAs drive most of the volatility within the macroeconomic data, but there is considerable disparity among them as well.



**Figure 12** includes nine subplots that correspond to the nonfarm employment described in Figure 10 broken down by MSA. Each area MSA inherits its own unique data generating process. The largest, New Orleans-Metairie, exhibits relatively stable growth until Hurricane Katrina. Employment improves after this but did not fully recover in the following 15 years until the COVID-19 pandemic sent many workers home. The drop in employment that we observe from that MSA alone is the size of all pre-COVID employment in the Monroe MSA. HoumaThibodaux and Lafayette MSAs display a downward employment trajectory before COVID, which only exacerbated matters. In both cases, that downward trend combined with COVID has wiped away all employment gains for the past 20 years. Alexandria has come the closest to recovering to pre-pandemic employment, but Baton Rouge, Lake Charles, Monroe, and Shreveport-Bossier City have all struggled to replace even half of the employment losses in the past year.

**Figure 13** displays the growth rates of nonfarm employment by MSA. Nearly every MSA experienced a decline in employment of 10% or greater (except for Alexandria which declined 8.9% and Houma-Thibodaux that declined 9.6%). During the Hurricane Katrina crisis, nearly all of the employment shock occurred in the New Orleans-Metairie MSA. The impact was relatively localized within the state economy. At the height of the Great Recession, nearly all MSAs were experiencing employment losses, but they were not severe. The past 16 months have brought Katrina-level employment shocks to every MSA. The only reason that this is not worse for the state is two-fold. First, those individuals that could work from home during the lockdown phase of their jobs. Second, federal unemployment assistance combined with federal stimulus payments have propped up personal incomes, especially for relatively low-wage earners. As federal monies dry up, the full impact of these losses will be felt in urban and rural areas alike.



#### **Unemployment Rate**

The surveys used to compute the unemployment rate allow for a relatively wide statistical sample at the national level. For state and local regional economies, the data are still relatively sparse. While we are able to estimate the unemployment rate for women over the age of 25 with a bachelor's degree for the U.S., this is not available within Louisiana because the sample size is not wide enough to trust the statistical inference. What we do have are relatively robust overall unemployment rates even at the parish level, though these are updated less frequently. It is important to keep in mind that these are still statistical estimates. The more we drill down to specific locales (especially rural areas), the wider our uncertainty around that estimate is. To combat this, our discussion of parish level data is cast within the context of the surrounding region.



Figure 14 is a plot of both U.S. and Louisiana unemployment rates. For much of the last 20 years, the unemployment rates for the U.S. and Louisiana have been co-moving processes. Indeed prior to COVID, the last ten years have seen a particular phenomenon where the highs experienced by the U.S. have not been matched by Louisiana, but the lows of the U.S. have also not been matched. In this way, Louisiana has been insulated from the worst of economic recessionary phases but has not shared in the benefits of the expansionary phases. Given that the recovery phase of the COVID recession truly is upon us, then this pattern still holds true today. In the context of the labor force participation rate, both unemployment rates are probably underestimated due to the existence of discouraged and marginally attached workers.

Figure 15 illustrates a parish level heat map of Louisiana where each color of a parish represents the percent above or below the state average unemployment for the past 12 months. The color spectrum defines areas most impacted by COVID specific labor market outcomes. Lighter colored parishes represent regions of relatively higher unemployment compared to the state (positive numbers). Likewise, darker colored parishes represent relatively lower unemployment with respect to the state average.

Rate



Figure 15: Deviations from State Unemployment Rate – Parish Level PERCENT

## Labor Force Participation Rate

The labor force participation rate gives us a sense of labor market engagement among working age individuals. It is often used in conjunction with the unemployment rate, since the denominator of the unemployment rate is the same as the numerator of the labor force participation rate. When worker engagement in the labor market changes, this can drive both numbers. The labor force participation rate tends to be more stable than the unemployment rate over the long term.

**Figure 16**, similar to Figure 14, depicts both U.S. and Louisiana labor force participation rate data. Both labor force participation rate numbers exhibited downward trends over the past 20 years. In the case of Louisiana, the effects of both Hurricane Katrina and COVID-19 substantively changed the trajectory of this data. The decline in labor market engagement for Louisiana is nearly double that of the United States, however Louisiana has also recovered relatively more of that workforce than the U.S. has on average. Despite





this, Louisiana still is well below the national average in terms of worker engagement. Of the 144,000 workers still not employed from this recession, approximately 81,000 have left the labor force (unemployed and stopped looking for work). This does not bode well for future economic growth in the Pelican State. Reengaging this sector of the population is crucial for everyone's wellbeing in Louisiana.

## Initial Unemployment Claims

Initial unemployment claims are our most frequently updated labor market indicator. This metric tabulates first-time claims for unemployment benefits and is released weekly both at the U.S. and state level. This relatively high frequency is helpful during times of economic uncertainty to define/redefine labor market expectations, especially in the weeks in between headline labor market report releases. Since these data are unadjusted for population, urbanized regions tend to observe higher first-time filings than relatively sparsely populated areas. This is a real-time indicator of economic prosperity/hurt since individuals have an incentive to file for jobless benefits as soon as they are unemployed. First-time claims tend to pick up both structural unemployment as well as cyclical unemployment.

**Figure 17** is a plot of first-time unemployment claims at the weekly frequency. During normal economic times, the state may observe approximately 2,000 claims a week for the whole state. This captures mostly structural unemployment churn within the economy as the state easily creates and destroys that many jobs given our size. The large scale in nonfarm employment shocks (Figure 9) during Hurricane Katrina, the Great Recession, and the COVID-19 recession are mirrored here in unemployment claims. The COVID-19 recessionary claims are greater

in magnitude and taper off relatively slower due to the evolving nature of the health emergency. The economy has faced multiple waves of infection that act as feeder bands of uncertainty to the state economy that translate into lost employment and economic hardship for Louisiana. The most recent weekly observation in the figure is within the normal range and provides a glimmer of hope that we are starting to transition to more traditional labor market dynamics.



**Figure 18** depicts first time unemployment benefits claims aggregated at the monthly frequency, similar to Figure 10. The Hurricane Katrina numbers are expressed in the dark blue, the Great Recession numbers are expressed in the light pink, and the COVID-19 recession estimates are expressed in red. As before, the horizontal axis is expressed in months into the recessionary shock. During the Great Recession, initial unemployment claims observed in Louisiana are not substantively different than during normal times. The Hurricane Katrina shock peaks rapidly but then tapers off within three months into the shock. The COVID-19 recession numbers are almost double that of Hurricane Katrina at the monthly frequency and remain persistently high more than one year out.

### **Continued Unemployment Claims**

Continuing unemployment claims are those claims that extend beyond the initial four-week time frame of initial claims. This is often frequently referred to as insured unemployment as it represents joblessness that occurs beyond the first-time decision to provide unemployment benefits. Continued unemployment claims tend to lag initial unemployment claims. Additionally, the magnitudes tend to be greater because of the aggregate nature of unemployment during times of economic uncertainty. Insured unemployment also inherits more persistence as we recover from economic shocks. It tends to capture more accurately the full picture of the long term unemployed within a geographic region.



**Figure 19** illustrates continued unemployment claims reported at the weekly frequency. While the dynamics are similar to initial unemployment claims (Figure 17), we can see the persistence from Hurricane Katrina, the Great Recession, as well as the COVID-19 recession. While this number is still reported at the weekly frequency, we can see the cumulative nature of additional unemployment benefits for the long term unemployed within the data. The peak of the COVID-19 recession lasts more than twice as long when examining continued unemployment claims compared to initial unemployment claims. While the initial shock has tapered off, the more recent observations of continued unemployment claims still indicate abnormally high levels of unemployment within the Louisiana economy. These levels are similar to the peak of the Great Recession data in magnitude and indicate an economy still in crisis mode.

#### MSA Level Unemployment

**Figure 20** breaks down where Louisiana's unemployment occurs by MSA. Please note that this data only accounts for those still considered in the labor force. Cumulatively, all nine MSAs represent approximately 55,000 individuals that are unemployed compared to pre-pandemic levels. This number is in keeping with the estimates outlined above. Combined with the approximately 81,000 workers that are either discouraged or marginally attached, we are down approximately 144,000 (which would include all non-MSA unemployment as well). The New Orleans-Metairie MSA comprises nearly half of all unemployment in the state currently. This particular MSA is one to keep an eye on given that it will be recovering from the joint effects of Hurricane Ida as well as adjusting to the end of enhanced federal unemployment benefits. Both effects will impact this labor market in competing ways. The Houma-Thibodaux MSA is also recovering from Hurricane Ida, but the relatively small size of that MSA is not likely to substantively move state numbers. Despite the size of any given MSA, we are still experiencing persistent labor market inefficiencies except perhaps Alexandria and Monroe, where current unemployment conditions are within historically normal bounds.



### Wages

Inflationary pressures over the past 12 months have generated increased discussions about the effects of wages on prices. This is a long-term historical discussion within the economic literature given persistent double-digit inflation that we observed during the 1970s. The current conditions of this economic climate are somewhat different than they were then. Here, output and employment are relatively low combined with oil prices that are below fundamentals (at least for much of the past year). As firms bid up the price of labor in order to encourage more employment, they weigh the choice of having to pass those wage increases on to consumers through higher prices or to keep prices low and not sacrifice market share. This is testing the traditional connection between price inflation and wage inflation but will likely only do so in the short-term. In the long-term, price inflation will adjust to fully compensate for the increased wages because firm owners will only sacrifice their profit margin for market share in the short term.

#### Figure 21: Deviations of Wages from Long-Run Trends by MSA PERCENT



Wage growth is good for wealth building, but some of the increased earnings may be allocated to higher prices of final goods and services. Is wage inflation good or bad for the state or local economy? The answer is a bit mixed. Wage growth is good for wealth building, but some (and possibly all) of the increased earnings may be allocated to higher prices of final goods and services. Additionally, if local regions experience higher wage growth than surrounding areas, this could create arbitrage opportunities for a relatively mobile workforce. Wage growth coupled with sustained economic growth is important to combating these issues.

**Figure 21** displays wage growth according to each MSA. These are not just standard growth rates, however. The blue line for each MSA represents the percent deviation of current wages from their respective long-run trend. Each MSA experiences generally upward sloping wages. By expressing wage growth in this fashion, we can see when

wages have been relatively higher or lower for their own respective region. The Alexandria, New Orleans-Metairie, and Shreveport-Bossier City MSAs are currently experiencing wage growth above long-run trends of about 5% or greater. For Alexandria and Shreveport-Bossier City, these current conditions are historic highs for the past 20 years. All eight MSAs listed are experiencing elevated wage growth above their long-run trends. Note that the Hammond MSA is excluded from this since it was only recently categorized as an MSA. Their long-run growth rate was not trustworthy for these calculations.

#### Forecasts

Labor market forecasts are based on the estimation of 192 statistical models. The algorithm for these forecasts is similar in nature to the output and income forecasts discussed above. Please see the discussion on page 13 and in the preface on page 5 for more details of this procedure.



Figure 22: Forecasted Total Nonfarm Employment THOUSANDS OF WORKERS

**Figure 22** reports forecasts for total nonfarm employment (in thousands) alongside data starting in 2013. In the middle of the statistical forecast range, employment is expected to grow by approximately 19,500 employees over the next year. This will only cumulatively recover about 64% of the employment losses from COVID-19. If these forecasts hold true, the remainder of the employment losses will have to come from reengaging discouraged workers that have left the labor force. The upper bound of the forecast range suggests an addition of approximately 29,600 jobs, while the lower bound of the forecast range suggests a more modest employment growth of 9,300 jobs.

**Figure 23** enumerates employment forecasts at the MSA level, similar to the state level forecast in Figure 22. The employment dynamics for each MSA are treated separately, however the forecasts for all are bound to reflect the state-wide forecasts in Figure 22. The forecast range is relatively flat for some MSAs (New Orleans-Metairie and Houma-Thibodaux) and wider for others (Baton Rouge, Monroe, and Shreveport-Bossier City). These forecasts represent a shifting of labor force dynamics for New Orleans-Metairie and Houma-Thibodaux in the face of recovery from Hurricane Ida. The proportion of total state employment that each contributes is expected to decline by 1.2% for New Orleans-Metairie and increase modestly by 0.12% for Houma-Thibodaux. Though it is not reported here, total employment in non-MSA parishes is expected to contribute about 11% to total state employment.





**Figure 24** provides forecasts of the state headline unemployment rate. The jobless rate is expected to continue to modestly decline over the next six months. Bringing workers back into the labor market that have left will take time. As such, large swings in the unemployment rate are not likely over this period. Over the intermediate to long-term, this rate is expected to oscillate a bit following the intuition discussed for Figure 16. In the middle of the forecast range, the unemployment rate is expected to drop about 0.5% over the next half year.





# Housing Market

For most consumers, the house represents the largest financial investment in their asset portfolio. For real estate in particular, the capital gain (the real difference in price between acquisition and liquidation) disproportionately dominates the total return for this asset. Households receive a wealth bump when house prices appreciate and a reduction of wealth when they depreciate. Additionally, the long-term investment in a home is an important component of generational wealth building via forced savings. As a result, consumer real estate markets serve as a bellwether for regional economies.

At the beginning of the COVID-19 recession, the Federal Reserve enacted numerous policies to encourage adequate flow of financial capital in the banking system. Among these policies was a reduction of its key benchmark interest rate. Because all interest rates tend to move together, the average yield on a 30-year fixed mortgage loan dropped over 1% for 2020. This reduction in the opportunity cost of buying a home led to a flurry of house buying activity, and in some areas of the country house prices have risen faster than they did during the early 2000s. The housing bubble that occurred then was the perfect storm of loose monetary policy, rapid deregulation of capital adequacy requirements for banks, and innovation in financial asset that warped economic and investor decisions. The hot housing market today does not quite meet the formal definition of a bubble, but there are some shades of similarities (even though housing markets in some areas are already showing signs of cooling).

#### House Price Index

The house price index (HPI) is a quality controlled composite measure of house prices similar in nature to the more popular consumer price index (CPI). CPI measures the cost of a fixed basket or grouping of goods for consumers, therefore the share of relative spending on certain items is controlled for. Since most home-buying individuals don't own more than one home at a time, this does not make sense for HPI. Thus, HPI controls the quality variation of homes so that values can be compared to one another in a meaningful way. This is important because all price indices are unitless variables. An individual observation only has meaning when compared to its immediate or distant neighbor.



**Figure 25** reflects quarterly observations of quality adjusted Louisiana house price index. The growth rate of housing prices during the housing bubble of the early 2000s is reflected in the convex curvature of the line preceding the 2007-2009 recession. House prices tapered off leading into the recession and then dropped moderately until 2011, erasing gains from 2006 for Louisiana. After 2011, house prices followed a relatively constant growth rate until the end of our sample. It is difficult to see in this figure, but house prices began to pick up steam in the past two years of this sample, increasing on average 1.3% every quarter since the start of COVID. In contrast, during the years of the previous housing bubble, prices increased on average 2.2% every quarter.

**Figure 26** expresses the same housing price data in percent deviations from a long-run growth trend. This identifies periods of growth and contraction relative to the long-term trajectory of house prices which may be a function of growing standards of living. This not only identifies potential periods of bubble-like market behavior, but also places the relative scale of these periods in context with others in the past. The current uptick in home prices is dwarfed by the scale and duration of the housing market bubble of 2002-2007. While some areas of the state are experiencing some irrational exuberance, this is not borne out by the state level data. Separately, Figures 25 and 26 exhibit how Louisiana house prices follow much of the national trajectory in real time. Louisiana HPI and U.S. HPI tend to co-move together (possibly sharing a similar stochastic process).

#### **MSA Level House Price Index**

**Figure 27** shows MSA level HPI estimates that provide a more regional specific snapshot of housing market dynamics. As we expand our area of study to the state level, micro variations at the MSA level are smoothed out. Here, HPI estimates are expressed in percent deviations from their long-run growth trends like in Figure 26. The Alexandria, Baton Rouge, Hammond, Houma-Thibodaux, and New Orleans-Metairie MSAs all experience more volatility in home price to long-run growth deviations than state level estimates. The Monroe MSA shows the most stable growth over the 20-year horizon, but it does not share in the relatively large gains

Figure 26: House Price Index – Deviation from Long Run Growth PERCENT



that other MSAs enjoy. Examining the most recent data, the Alexandria, Baton Rouge and New Orleans-Metairie MSAs appear to have peaked relative to their long-run trends. Houma-Thibodaux and Lafayette appear to be falling relative to trend. Shreveport-Bossier City is the only MSA that appears to be experiencing a housing bubble now that is similar in both dynamics and magnitude to the bubble of the early 2000s.

### Homeownership Rates

In the early days of the COVID-19 recession and the corresponding policy response, a moratorium on evictions and foreclosures was implemented to stymie a potential wave of mortgage write downs that might rival what was seen during the Great Recession. A lot of underlying risk that was inherent in the banking system during that time is still there today. Any relatively large disruptions in economic activity are concerning then for homeownership rates. Now that the policy has ended, combined with elevated homeownership rates that are due at least in some part to low interest rates and fiscal stimulus monies, the concern is that homeownership may decline rapidly again and wipe away a new generation of consumer wealth.

Shreveport-Bossier City is the only MSA that appears to be experiencing a housing bubble now that is similar in both dynamics and magnitude to the bubble of the early 2000s. **Figure 28** graphs annual homeownership rates for Louisiana since 2000. Louisiana's peak homeownership occurs in 2009, a full five years after the U.S. Louisiana rates stop falling in 2015, a full year before they stop falling nationally. Additionally, the minimum is slightly better in LA than the U.S. Currently, homeownership rates have already started to decline for the U.S. (about 2.5%), but Louisiana does not share this trend.



### MSA Level Market Turnover

While COVID-19 has exposed more than a few weaknesses in global supply chains, it has also impacted new home construction. This is a multi-faceted problem from raw materials to labor constraints. As a result, existing home sales have driven most of the housing market transactions of the past year. New housing starts declined 19.6% in March 2020 followed by 26.5% in April 2020 (the worst since March 1984)<sup>5</sup>. Most MSAs in Louisiana have experienced declining average days on the market and increasing median listing prices. All of which is expected when new home construction is stagnating. Some MSAs are already showing signs of cooling. The ending of most federal assistance programs in response to COVID, increased inflationary pressures, and the prospect of relatively tighter monetary policy via increased interest rates means that further irrational exuberance may be limited.

5 These are annually adjusted percent changes.



Figure 29: House Listings on Market -Median Days above/below State by MSA DAYS

**Figure 29** explores the median number of days a listing stays on the market in a given MSA less the state median. Numbers that are consistently above zero indicate that a particular MSA is less fluid than the state, while numbers consistently below zero indicate an MSA that is more dynamic than the state. Generally, the median number of days a house stays on the market in Louisiana has declined by almost half post-COVID. This is why the data are expressed in this way. Alexandria, Baton Rouge, Lafayette, Monroe, New Orleans-Metairie, and Shreveport-Bossier City are all showing signs of strong housing market activity relative to the state.

### Forecasts

Housing market forecasts are based on the estimation of 86 statistical models. The algorithm for these forecasts is similar in nature to the output and income and labor market forecasts discussed previously. Please see the discussion on page 13 and in the preface on page 5 for more details of this procedure.



**Figure 30** forecasts state level house prices until the second quarter of 2022. Forecasted house price index is expected to continue its upward trajectory but slow down relative to the pace it was growing at. There are two main factors contributing to this. First, the lack of new home construction to fuel speculative demand will tap the breaks on bubble-like behavior. Second, as policy conditions shift, so too will the calculus change for optimal home-buying activity. In nominal terms, quality adjusted home prices are expected to grow at an historically elevated, albeit slightly slower, rate for the next year. With mortgage rates still relatively low, at least at the time of this publication, conditions for selling a home may still be favorable to many.



**Figure 31** displays observed and expected HPI growth rates alongside the quarterly longrun average growth rate. The last observation of HPI is characterized by a 1.5% decease from the previous quarter. This is historically above the long-run trend of HPI growth and is not expected to continue. For the next year, HPI is expected to remain elevated above the long-run average for the reasons enumerated above, but will taper out and eventually return to that long-run average. Since personal incomes have not fallen with employment during this recessionary-type phase (which is not normal for severe economic disruptions), a sharp correction in home prices is not expected. House prices on average are expected to grow in excess of 1% every quarter for the next year, which at least keeps pace with most broad inflation indicators.



#### MISSION STATEMENT

Through market-responsive academic programs, impactful scholarship, and a student-focused culture, Louisiana Tech University's College of Business graduates business and academic leaders who are innovative, entrepreneurially minded, and analytically and technologically skilled for a globally competitive marketplace. Building on a vibrant community of lifelong learners, our graduates are prepared to positively impact business and society.





