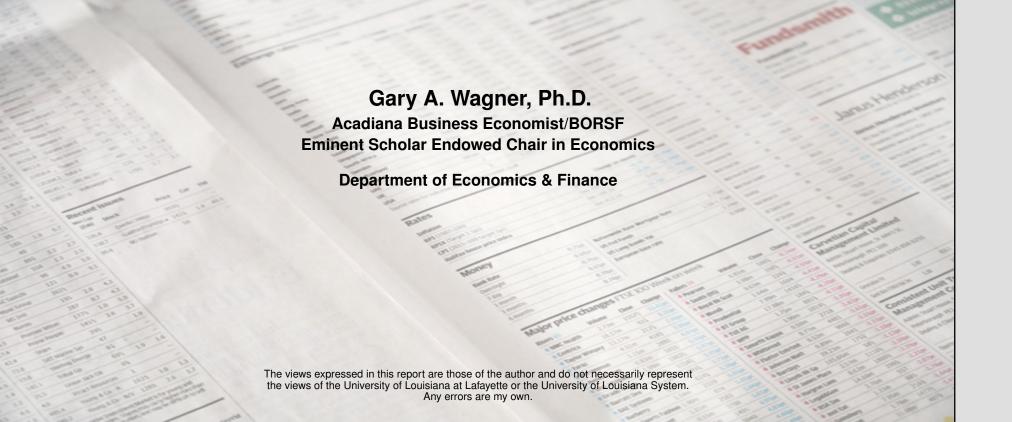
# **Louisiana Economic Activity Forecast** 2024:Q2



## **Executive Summary**

While the near-term outlook for the U.S. economy has improved slightly over the past three months, the outlook for Louisiana has deteriorated. Statewide job growth is now projected to be flat over the next twelve months and the unemployment rate is expected to increase in each of the next four quarters. Several metro areas in the state are now expected to experience modest job losses in the coming year. The major downward revision in Louisiana's outlook is driven by revised employment data that was recently released by the Bureau of Labor Statistics (BLS). While the BLS's preliminary data (used in last quarter's report) showed strong job gains in 2023, the more-accurate revised data indicate that job growth was much weaker than the preliminary data indicated. For instance, statewide job growth in 2023 was revised from +39,366 to only +9,900, a reduction of more than 29,000. Seven of the nine state's metro regions saw their job growth figures revised downward, with four metro areas experiencing job losses last year.

## 2024 Report Release Schedule:

First Quarter: February 16, 2024 Second Quarter: May 17, 2024

Third Quarter: August 16, 2024 (no report) Fourth Quarter: November 22, 2024

### 2.28%

Average home price growth projected over the next five quarters.

## 7

Number of metro regions in the state where employment gains for 2023 were revised downward by the Bureau of Labor Statistics.

## 4.43%

Projected average unemployment rate over the next year.

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## Introduction

For the second consecutive quarter, the near-term outlook for the U.S. economy has improved. Professional forecasters now expect inflation-adjusted U.S. Gross Domestic Product (GDP) to expand at an average rate of 1.86% over the next year, up from last quarter's projection of 1.73%. In contrast to the national outlook, the short-term outlook for Louisiana is significantly weaker than last quarter's report. This is primarily based on revised employment data that were recently released by the Bureau of Labor Statistics (BLS) showing that job gains during 2023 were much lower than preliminary data indicated. Rather than gaining almost 40,000 jobs in 2023 (based on the preliminary data), the revised data show gains of 9,900, a downward revision of more than 29,000. Employment growth was also revised down, sometimes substantially, in seven of the state's nine metro areas. This research brief uses the latest projections for U.S. economic activity to present Baseline, Optimistic, and Pessimistic scenarios for key Louisiana economic indicators through the first quarter of 2025.

Forecasting models make projections on the most likely path of future variables based on historical data, past trends, and the expected future path of other critical variables. Because these relationships change over time, no model is able to perfectly incorporate unexpected changes in economic conditions, policy decisions at the federal or state level, or shifts in consumer or firm behavior. This means that every model is embedded with uncertainty. For this reason, the projection scenarios provided in this report should be interpreted as providing broad guidance on the most probable path for economic activity in Louisiana if the underlying assumptions of the model evolve as anticipated. For example, all of the scenarios in this report depend strongly on how the growth in U.S. gross domestic product (GDP) evolves over the next 3 to 18 months. If U.S. growth turns out to be much stronger *or* much weaker than is currently envisioned, then the expected accuracy of the Louisiana projections decrease. To simplify the presentation of multiple scenarios, the figures in this report do not show the confidence intervals around the scenario point estimates. One should always bear in mind that a point estimate of (say) 1.1% for employment growth in the next quarter is the mid-point of a range of potential values.

The Louisiana Forecast Model (LFM) projects employment, unemployment rate, home prices, and gross domestic product using a Vector Autoregression (VAR) framework (see the Technical Appendix for more details). The model also takes other variables into account and assumes that their future values are given with certainty. These external variables include real U.S. gross domestic product, U.S. unemployment rate, oil prices, the state's real trade-weighted exchange rate, and the global prices of soybeans and rice.

Results from a regional employment model are also presented. The Louisiana Regional Employment Model (LREM) nests the Louisiana Forecast Model by adding statewide employment projections to the external variables in order to generate projections for each of the state's metropolitan statistical areas (MSAs). Employment in these nine metro areas account for approximately 90% of non-agricultural jobs in the state.

## **Alternative Economic Scenarios**

Three alternative scenarios are considered in this report: Baseline, Optimistic, and Pessimistic. The scenarios differ only in how they treat the future values of selected variables external to the Louisiana Forecast Model, namely U.S. gross domestic product, U.S. unemployment rate, and oil prices. The projected future values of other external variables to the model - Louisiana's trade-weighted exchange rate and the prices of soybeans and rice - are identical across scenarios so they are omitted from the table below.

Table 1 shows the future expected values for U.S. GDP, unemployment rate, and oil prices under each scenario. 2024:Q1 values for the Baseline, Optimistic, and Pessimistic scenarios are identical because this quarter has already occurred. This row is shaded gray. Values for 2024:Q2 to 2025:Q1 have yet to be realized.

U.S. GDP (% SAAR) U.S. Unemployment Rate (%) Oil Prices (\$ per barrel) Quarter Baseline Optimistic Pessimistic Baseline Optimistic Pessimistic Baseline Optimistic Pessimistic 2024:Q1 1.60 1.60 1.60 3.80 3.80 3.80 77.50 77.50 77.50 2024:Q2 2.13 2.50 1.61 3.90 3.86 3.90 84.76 75.03 91.22 2024:Q3 2.00 2.20 1.49 3.99 3.90 85.50 73.07 93.70 4.00 2024:Q4 1.53 2.15 1.50 4.00 3.93 4.10 84.17 67.38 98.93 2025:Q1 1.84 2.26 1.71 4.09 3.96 4.14 83.50 63.69 102.85

Table 1: Assumed Future Values of External Variables

The Baseline scenario in Table 1 shows the most likely path for U.S. GDP, unemployment rate, and oil prices based on the most current information. The expected future path for U.S. GDP and the U.S. unemployment rate are the median projections from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters outlook released on May 10, 2024. The Baseline expected path of oil prices is from the U.S. Energy Information Administration's Short-Term Economic Outlook released on May 7, 2024.

The US economy continues to experience broad-based growth across most sectors. Through April of this year, the national economy is gaining an average of 245,500 net new jobs per month, on par with 2023's average of 251,100. Consumer confidence has risen for five consecutive months and wage growth across major industries is outpacing inflation. For the first time in more than two years, the median respondent to the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters (SPF) now places recession risks over the next two quarters at less than 20% (see Figure 9).



The significant downgrading of Louisiana's economic outlook is based on revised employment data from the Bureau of Labor Statistics (BLS) indicating that job growth over the past year was much weaker than preliminary data suggested. State and metro area preliminary employment data released by the BLS are derived from a national survey of roughly 120,000 employers. Figures from previous years are revised in the first quarter of each year using actual employment counts based on state unemployment insurance tax records. Since more than 95% of all workers nationwide are part of a state unemployment insurance program, these data are the most accurate and comprehensive measure of employment available.

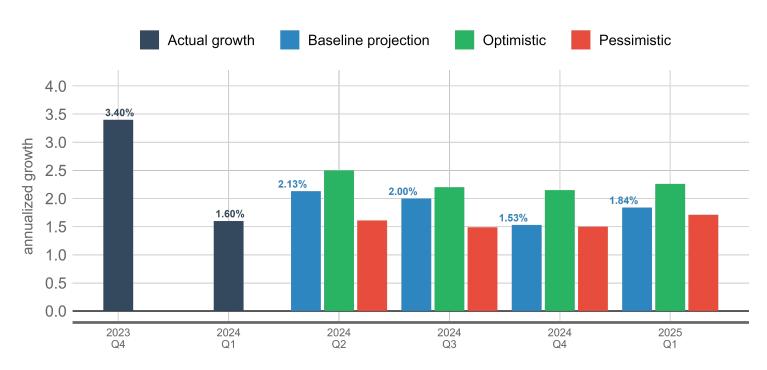
The revised employment data showed that employment growth in seven of Louisiana's nine metro areas was slower in 2023 than the preliminary data suggested, with only the Hammond and Houma-Thibadoux regions growing faster than previously estimated. While overall statewide job growth increased by 9,900 in 2023 (revised down from 39,366), the revised data reveal that the Alexandria, Monroe, New Orleans, and Shreveport-Bossier regions all lost jobs in 2023. Table 2 reports the preliminary job counts, final job counts, and differences for 2023 for Louisiana and each of the nine metro regions.

The Optimistic and Pessimistic scenarios for the national economy, which I would assign a 25% and 15% probability respectively, vary the severity and recovery time for oil prices, unemployment, and U.S. GDP growth. The Optimistic scenario assumes that U.S. GDP growth will be higher than the Baseline projection, while the Pessimistic scenario assumes that GDP growth will be slower than projected. I would assign a 60% probability to the Baseline forecast.

The Baseline scenario projects U.S. GDP to grow at an annual pace of 1.86% over the next four quarters, reflecting a modest upward revision from last quarter's outlook. Using data released through May 8, the Federal Reserve Bank of Atlanta's real-time GDP forecast – GDPNow – is 4.2% for the second quarter. Figure 1 on the next page shows U.S. GDP under the three scenarios considered. For the second consecutive quarter, all three scenarios point to the U.S. economy expanding at an inflation-adjusted pace of more than 1% in each of the next four quarters.

Figure 1: U.S. Economic Growth Scenarios

## **U.S. GDP Scenarios**



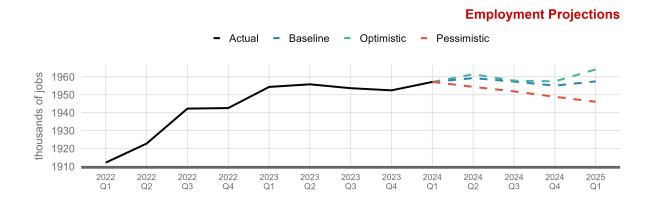
# **Louisiana Employment Projections**

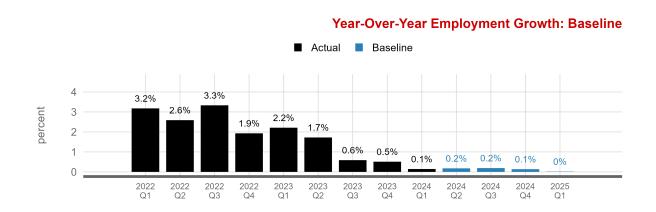
Based on the revised employment data, job growth is now projected to remain essentially flat for the next four quarters. Rather than gaining almost 40,000 jobs in 2023, the revised employment data show gains of 9,900. This is roughly half of the state's normal pace of job growth dating back to 1990.

In contrast to last quarter's report, the job outlook is being downgraded in most metro regions. The Alexandria, Houma-Thibadoux, Lake Charles, Monroe, New Orleans, and Shreveport-Bossier regions all lost jobs between 2023:Q4 and 2024:Q1. Over the next four quarters, Baton Rouge and Lafayette are expected to experience modest job gains.

The employment forecast error from the previous report was 1.25%. See Table 3 for forecast errors from the previous report.

Figure 2: Louisiana Employment Projections



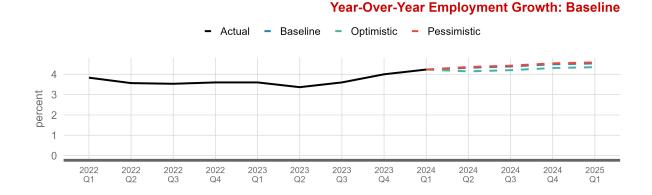


# **Louisiana Unemployment Rate Projections**

Figure 3: Louisiana Unemployment Rate Projections

Louisiana's unemployment rate averaged 4.2% in the first quarter, rising much more sharply than the 3.5% projected in last quarter's report. Over the next year, the state's unemployment is now projected to increase every quarter and average 4.5% in 2025:Q1.

The unemployment rate forecast error from the previous report was 16.7%. See Table 3 for forecast errors from the previous report.



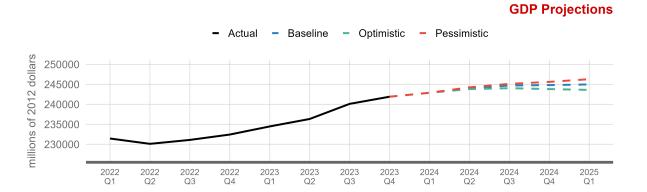
#### **Year-Over-Year Employment Growth: Baseline** ■ Actual ■ Baseline 4.2% 4.3% 4.4% 4.5% 4.5% 5 3.4% 3.6% 3.6% 3.5% 3.6% 3.6% percent 3 2 2023 Q3 2024 Q2 Q4 Q1 Q2 Q4 Q1 Q2

# **Louisiana GDP Projections**

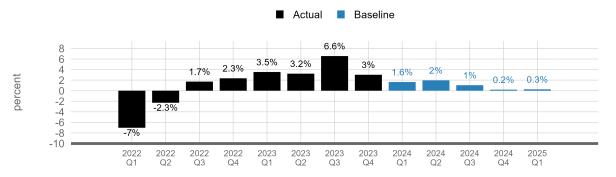
Unlike labor markets, inflation-adjusted GDP growth is expected to remain solid over the next year. The Baseline projection points to average annual growth of 1.44%, largely consistent with last quarter's report.

The GDP forecast error from the previous report was 0.02%. See Table 3 for forecast errors from the previous report.

# Figure 4: Louisiana GDP Projections



#### **Annualized GDP Growth: Baseline**





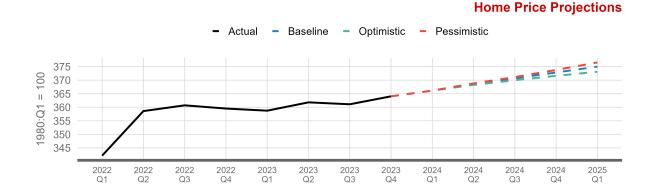
# **Louisiana Home Price Projections**

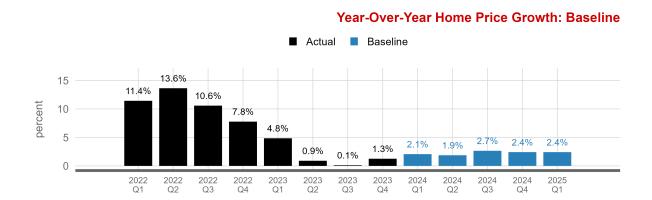
Figure 5: Louisiana Home Price Projections

Year-over-year home price growth rebounded to 1.25% in 2023:Q4 following two consecutive quarters of slowing growth. The revised Baseline forecast now projects that year-over-year price growth will avoid negative territory over the next five quarters. Over the next five quarters, the Baseline projection implies an average year-over-year growth rate of 2.28%.

Additional housing charts are provided for each metro region to track individual market corrections.

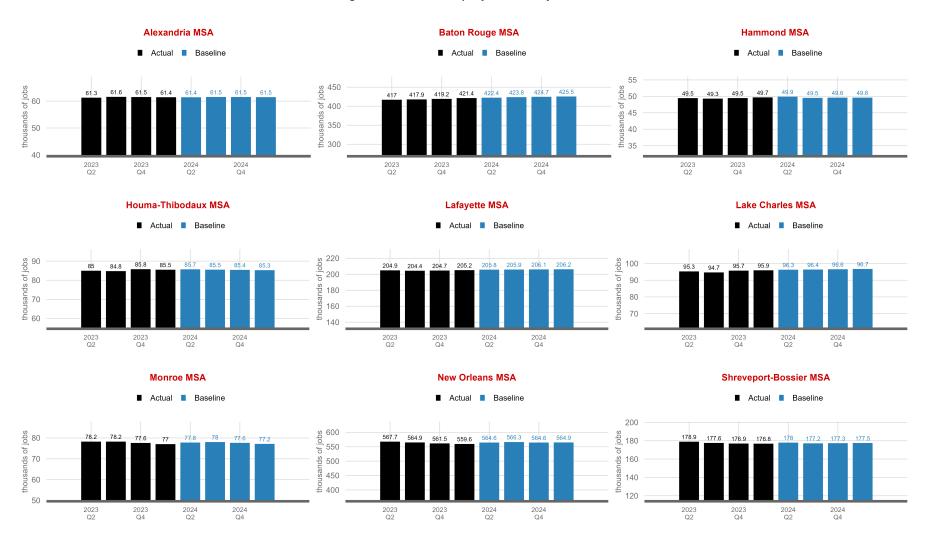
The previous LEAF report's forecast error for home prices was 1.02%. See Table 3 for forecast errors from the previous report.





# **Metro Area Employment Projections**

Figure 6: Metro Employment Projections



# Metro Area Employment Projections: Year-over-Year Growth

Figure 7: Metro Area Employment Projections: Year-over-Year Growth

#### **Employment Projections in Louisiana Metro Areas** Year-over-Year Change: Next 4 Quarters 2024:Q2 2024:Q3 2025:Q1 2024:Q4 1.8 1.6 year-over-year percentage change 1.4 1.2 1.0 0.9% 0.8% 8.0 0.6 0.5% 0.4% 0.4 0.2 0.2% 0.0 -0.2 -0.3% -0.4 -0.6 Lafayette MSA Alexandria Baton Hammond Houma Lake Monroe New Shreveport MSA MSA MSA MSA MSA Rouge Charles Orleans

MSA



MSA

Source: Raw data from the Bureau of Labor Statistics. Projections by Gary A. Wagner, Ph.D.

MSA

# Metro Area Employment: COVID Job Losses and Recovery Relative to 2019:Q4

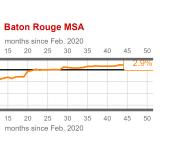
2019:Q4

Figure 8: Metro Area Employment: COVID Job Losses and Recovery Relative to 2019:Q4

Employment data through Mar 2024



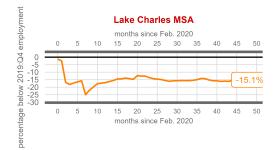




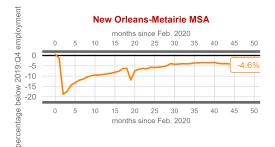














Source: Raw data from the Bureau of Labor Statistics.

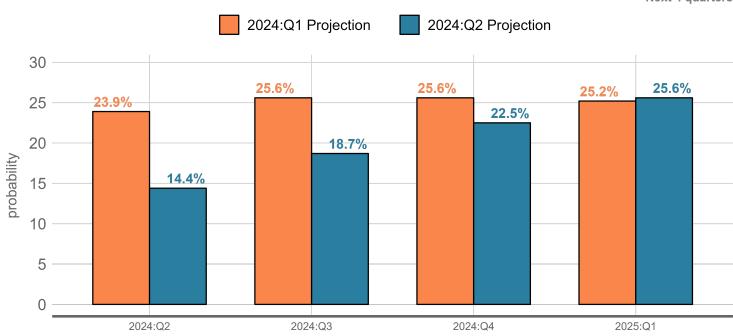


# **Recession Probabilities Over the Next Year**

Figure 9: Recent Recession Probabilities

## U.S. Odds of Recession

Next 4 quarters



Source: Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia.

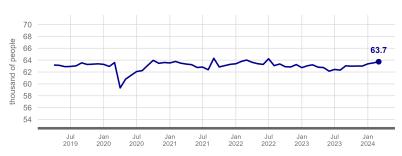


# **Alexandria MSA: Additional Charts**

Figure 10: Alexandria Metro Area: Additional Charts

#### Alexandria MSA Labor Force (Seasonally Adjusted)

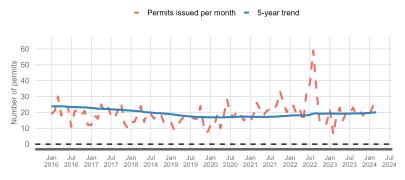
Apr 2019 to Mar 2024



Source: Bureau of Labor Statistics.

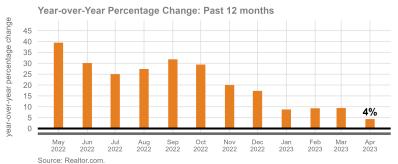
#### Alexandria MSA: Single-Family Building Permits Issued

Jan 2016 to Mar 2024

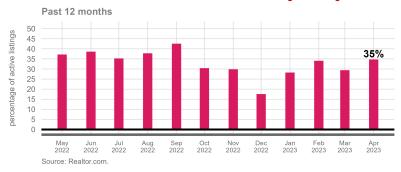


Source: Census Bureau

#### Alexandria MSA: Median Residential Home List Price



#### Alexandria MSA: Share of Active Residential Listings Lowering Price

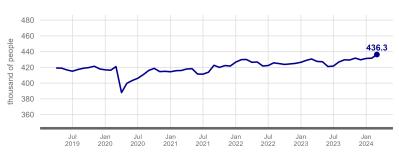


# **Baton Rouge MSA: Additional Charts**

Figure 11: Baton Rouge Metro Area: Additional Charts

#### Baton Rouge MSA Labor Force (Seasonally Adjusted)

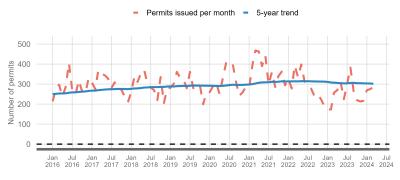
Apr 2019 to Mar 2024



Source: Bureau of Labor Statistics

#### Baton Rouge MSA: Single-Family Building Permits Issued

Jan 2016 to Mar 2024

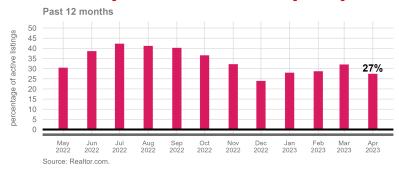


Source: Census Bureau.

#### **Baton Rouge MSA: Median Residential Home List Price**



#### **Baton Rouge MSA: Share of Active Residential Listings Lowering Price**

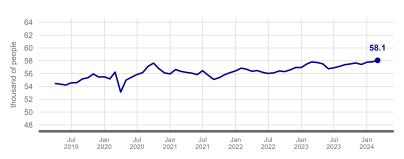


# **Hammond MSA: Additional Charts**

Figure 12: Hammond Metro Area: Additional Charts

#### Hammond MSA Labor Force (Seasonally Adjusted)

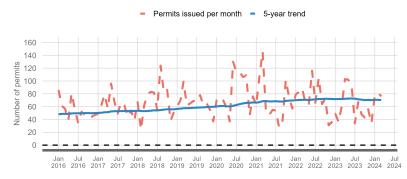
Apr 2019 to Mar 2024



Source: Bureau of Labor Statistics.

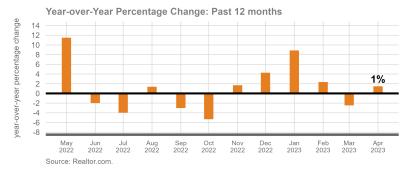
#### Hammond MSA: Single-Family Building Permits Issued

Jan 2016 to Mar 2024

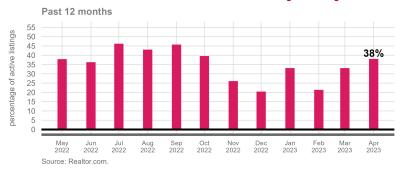


Source: Census Bureau.

#### Hammond MSA: Median Residential Home List Price



#### Hammond MSA: Share of Active Residential Listings Lowering Price

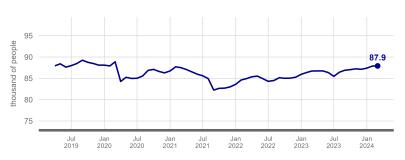


# Houma-Thibodaux MSA: Additional Charts

Figure 13: Houma-Thibodaux Metro Area: Additional Charts

#### Houma-Thibodaux MSA Labor Force (Seasonally Adjusted)

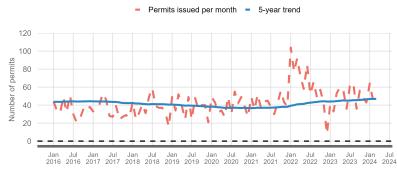
Apr 2019 to Mar 2024



Source: Bureau of Labor Statistics.

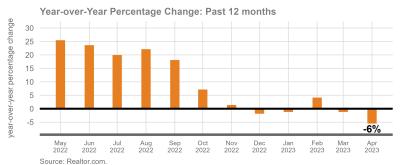
#### Houma-Thibodaux MSA: Single-Family Building Permits Issued

Jan 2016 to Mar 2024

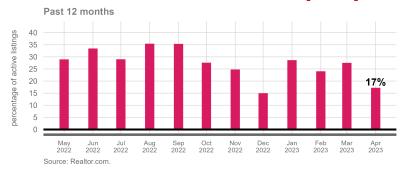


Source: Census Bureau.

#### Houma-Thibodaux MSA: Median Residential Home List Price



#### Houma-Thibodaux MSA: Share of Active Residential Listings Lowering Price

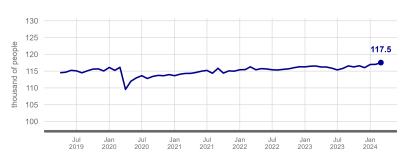


# **Lafayette MSA: Additional Charts**

Figure 14: Lafayette Metro Area: Additional Charts

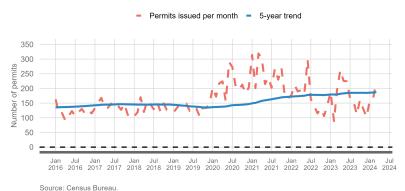
#### Lafayette MSA Labor Force (Seasonally Adjusted)

Apr 2019 to Mar 2024



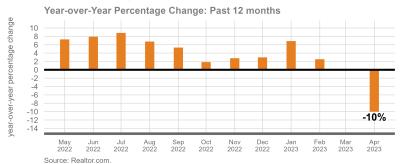
#### Lafayette MSA: Single-Family Building Permits Issued

Jan 2016 to Mar 2024

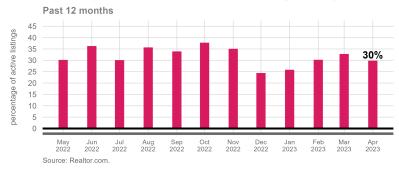


Source: Bureau of Labor Statistics.

#### Lafayette MSA: Median Residential Home List Price



#### Lafayette MSA: Share of Active Residential Listings Lowering Price



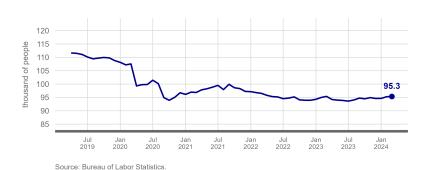


## Lake Charles MSA: Additional Charts

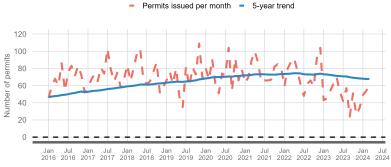
Figure 15: Lake Charles Metro Area: Additional Charts

#### Lake Charles MSA Labor Force (Seasonally Adjusted)

Apr 2019 to Mar 2024



Lake Charles MSA: Single-Family Building Permits Issued



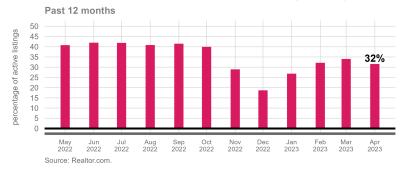
Source: Census Bureau.

Jan 2016 to Mar 2024

#### Lake Charles MSA: Median Residential Home List Price



#### Lake Charles MSA: Share of Active Residential Listings Lowering Price



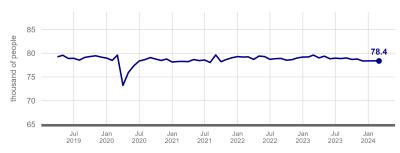


# **Monroe MSA: Additional Charts**

Figure 16: Monroe Metro Area: Additional Charts

#### Monroe MSA Labor Force (Seasonally Adjusted)

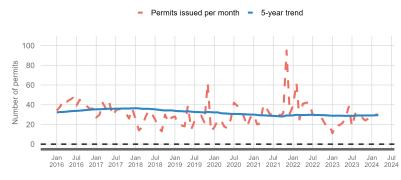
Apr 2019 to Mar 2024



Source: Bureau of Labor Statistics

#### Monroe MSA: Single-Family Building Permits Issued

Jan 2016 to Mar 2024

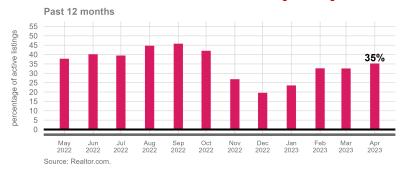


Source: Census Bureau.

#### Monroe MSA: Median Residential Home List Price



#### Monroe MSA: Share of Active Residential Listings Lowering Price

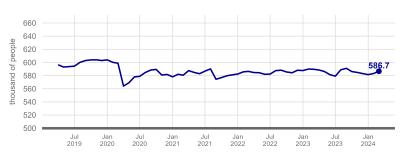


# **New Orleans MSA: Additional Charts**

Figure 17: New Orleans Metro Area: Additional Charts

#### New Orleans MSA Labor Force (Seasonally Adjusted)

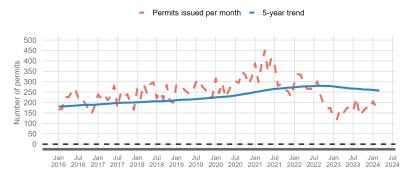
Apr 2019 to Mar 2024



Source: Bureau of Labor Statistics

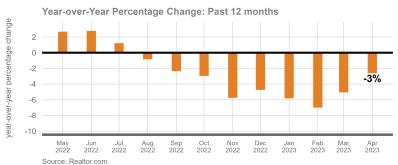
#### New Orleans MSA: Single-Family Building Permits Issued

Jan 2016 to Mar 2024

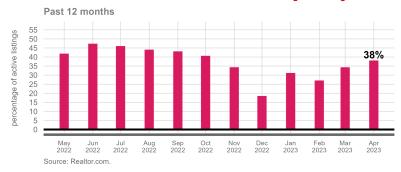


Source: Census Bureau.

#### New Orleans MSA: Median Residential Home List Price



#### New Orleans MSA: Share of Active Residential Listings Lowering Price



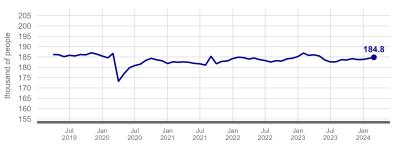


# **Shreveport-Bossier MSA: Additional Charts**

Figure 18: Shreveport-Bossier Metro Area: Additional Charts

#### Shreveport-Bossier MSA Labor Force (Seasonally Adjusted)

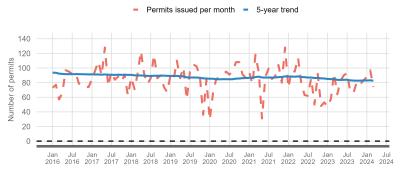
Apr 2019 to Mar 2024



## Source: Bureau of Labor Statistics.

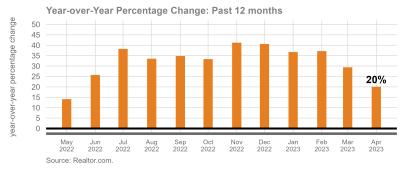
#### Shreveport-Bossier MSA: Single-Family Building Permits Issued

Jan 2016 to Mar 2024

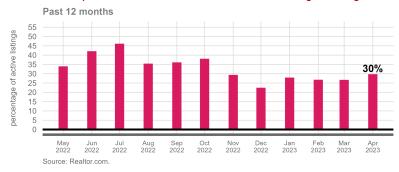


Source: Census Bureau.

#### Shreveport-Bossier MSA: Median Residential Home List Price



#### Shreveport-Bossier MSA: Share of Active Residential Listings Lowering Price





# Job Growth in 2023 Based on Revised Employment Datat

In the first quarter of each year, the Bureau of Labor Statistics (BLS) revises historical payroll employment data for states and metropolitan statistical areas. The preliminary data, released with a two-month time lag, are based on a national survey of roughly 120,000 employers.

Revisions are based on state unemployment insurance tax records, which cover approximately 95% of all payroll jobs. Given the extensive coverage of unemployment insurance tax records, this is the most accurate source of employment data available.

The table below shows how the benchmark employment revisions affected Louisiana's job growth. For instance, the preliminary data showed that Louisiana gained 39,366.7 job between 2022:Q4 and 2023:Q4. In contrast, the more accurate revised data show that the state gained only 9,900 jobs over this period, a difference of -29,466.7.

Employment growth was slower than initially estimated by the BLS in seven of the state's nine metro areas. Of the seven regions with slower growth than projected, four regions (Alexandria, Monroe, New Orleans, and Shreveport-Bossier) actually lost jobs in 2023.

Table 2: Change in Jobs from 2022:Q4 to 2023:Q4

| Region                 | Preliminary Estimates | Actual Change | Difference |
|------------------------|-----------------------|---------------|------------|
| Alexandria MSA         | 566.7                 | -133.3        | -700.0     |
| Baton Rouge MSA        | 12100.0               | 5066.7        | -7033.3    |
| Hammond MSA            | 908.2                 | 1128.8        | 220.6      |
| Houma-Thibodaux MSA    | -66.7                 | 2366.7        | 2433.4     |
| Lafayette MSA          | 3166.7                | 1133.3        | -2033.4    |
| Lake Charles MSA       | 2333.3                | 466.7         | -1866.6    |
| Monroe MSA             | 666.7                 | -333.3        | -1000.0    |
| New Orleans MSA        | 13300.0               | -2766.7       | -16066.7   |
| Shreveport-Bossier MSA | 2000.0                | -366.7        | -2366.7    |
| Statewide              | 39366.7               | 9900.0        | -29466.7   |

# **Projection Errors from Previous Louisiana Economic Activity Forecast**

Table 3: One-Quarter Ahead Projection Errors: 2023:Q4 Projections for 2024:Q1

| Variable                          | <b>Baseline Projection</b> | <b>Actual Value</b> | <b>Absolute % Error</b> |
|-----------------------------------|----------------------------|---------------------|-------------------------|
| employment (statewide)            | 1981.70                    | 1957.20             | 1.25                    |
| unemployment rate                 | 3.50                       | 4.20                | 16.67                   |
| GDP                               | 241844.40                  | 241895.10           | 0.02                    |
| FHFA home price index             | 360.30                     | 364.00              | 1.02                    |
| Alexandria MSA employment         | 63.70                      | 61.40               | 3.75                    |
| Baton Rouge MSA employment        | 424.70                     | 421.40              | 0.78                    |
| Hammond MSA employment            | 48.90                      | 49.70               | 1.61                    |
| Houma-Thibodaux MSA employment    | 82.50                      | 85.50               | 3.51                    |
| Lafayette MSA employment          | 205.90                     | 205.20              | 0.34                    |
| Lake Charles MSA employment       | 97.80                      | 95.90               | 1.98                    |
| Monroe MSA employment             | 78.80                      | 77.00               | 2.34                    |
| New Orleans MSA employment        | 580.00                     | 559.60              | 3.65                    |
| Shreveport-Bossier MSA employment | 179.20                     | 176.80              | 1.36                    |

# **Technical Appendix**

The Louisiana Forecast Model (LFM) is based on a Vector Autoregression (VAR) system of equations. VAR models can be used to generate forecasts of the future values of multiple variables simultaneously (called endogenous variables) based on the past behavior of these variables and on the behavior of other variables whose values are taken as given (called exogenous variables). Endogenous variables (or the variables ones wishes to forecast) in the LFM include gross domestic product (or total production), non-farm payroll employment, unemployment rate, home prices, and state tax collections. Exogenous variables in the current version of the LFM include U.S. gross domestic product, U.S. unemployment rate, oil prices, the state's real trade-weighted exchange rate, and the global prices of soybeans and rice. Hence, the forecast or projection of each endogenous variable is based on the historical relationship with its own past values, the past values of every other endogenous variable, and the values of every exogenous variable. The Louisiana Regional Employment Model (LREM) is a nested Vector Autoregression (VAR) of total payroll employment in the state's nine MSAs. In addition to the exogenous variables used in the LFM, the Louisiana Regional Employment Model incorporates statewide employment projections and statewide GDP projections as additional external variables.

The VAR methodology is a widely-accepted approach for generating economic and business forecasts. Academic studies have repeatedly shown that small-scale VAR models perform well in terms of prediction errors relative to alternative forecasting models. VAR systems also model the underlying dynamics of economic relationships in the system without imposing behavioral assumptions about the relationships between the variables or how they evolve over time.

The model is estimated using quarterly data beginning in 1994:Q1. Quarterly average values are used for data series that are available at a weekly or monthly frequency. All variables enter the model in log difference form. Real quarterly Louisiana gross domestic product, which the Bureau of Economic Analysis did not begin reporting until 2005, is backcasted using the estimated relationship between the observable data on state GDP and real U.S. quarterly gross domestic product and real quarterly state personal income.

Future values of the exogenous variables are required to make projections for the endogenous variables. The future growth rate in real U.S. GDP and the future level of the U.S. unemployment rate are the median median projections from the Survey of Professional Forecasters. Future projections for oil prices are from the U.S. Energy Information Administration. Future trade-weighted exchange rates and the prices of soybeans and rice were estimated using an Akaike Information Criterion (AIC) weighted average of univariate autoregressive moving-average (ARMA) models that range from (0,0) to (4,4). The data appendices provide complete documentation for all underlying source data used in the model.

# **Data Appendix: Endogenous Variables**

## Employment (statewide)

Total seasonally adjusted non-farm payroll employment. Source: Bureau of Labor Statistics via the Federal Reserve Bank of St. Louis FRED database (mnemonic = LANA). Units: thousands of individuals.

## Unemployment rate

Seasonally adjusted unemployment rate. Source: Bureau of Labor Statistics via the Federal Reserve Bank of St. Louis FRED database (mnemonic = LAUR). Units: percent.

## · Home prices

All-transactions home price index. Source: U.S. Federal Housing Finance Agency via the Federal Reserve Bank of St. Louis FRED database (mnemonic = LASTHPI). Units: 1980:Q1 = 100. Seasonally adjusted prior to estimation.

#### GDP

Total Real Gross Domestic Product for Louisiana (seasonally adjusted annual rate). Source: U.S. Bureau of Economic Analysis via the Federal Reserve Bank of St. Louis FRED database (mnemonic = LARQGSP). Units: Millions of chained 2012 dollars. Pre-2005 figures were backcasted following the approach described in the Technical Appendix.

# Employment (metro area)

Total seasonally adjusted non-farm payroll employment. Source: Bureau of Labor Statistics via the Federal Reserve Bank of St. Louis FRED database. Units: thousands of individuals. Alexandria (ALEX722NA), Baton Rouge (BATO922NA), Hammond (SMU222522000000000001SA), Houma (HOUM322NA), Lafayette (LAFA122NA), Lake Charles (LAKE322NA), Monroe (MONR722NA), New Orleans (NEWO322NA), and Shreveport (SHRE322NA).

# **Data Appendix: Exogenous Variables**

#### · U.S. GDP

Total Real Gross Domestic Product for the U.S. (seasonally adjusted annual rate). Source: U.S. Bureau of Economic Analysis via the Federal Reserve Bank of St. Louis FRED database (mnemonic = GDPC1). Units: Millions of chained 2012 dollars. Future values are from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters.

## Oil prices

West Texas intermediate crude oil price. Source: U.S. Energy Information Administration via the Federal Reserve Bank of St. Louis FRED database (mnemonic = DCOILWTICO). Units: dollars per barrel. Future values are from the U.S. Energy Information Administration Short-Term Energy Outlook. Seasonally adjusted prior to estimation.

## Trade-weighted exchange rate

Real trade-weighted exchange rate for Louisiana's major trading partners relative to the U.S. dollar. Source: Federal Reserve Bank of Dallas. Units: January 1988 = 100.

#### Price of rice

Global price of rice. Source: International Monetary Fund via the Federal Reserve Bank of St. Louis FRED database (mnemonic = PRICENPQUSDM). Units: U.S. dollars per metric ton. Seasonally adjusted prior to estimation.

## · Price of soybeans

Global price of soybeans. Source: International Monetary Fund via the Federal Reserve Bank of St. Louis FRED database (mnemonic = PSOYBUSDM). Units: U.S. dollars per metric ton. Seasonally adjusted prior to estimation.

# Unemployment rate

U.S. unemployment rate (seasonally adjusted). Source: U.S. Bureau of Economic Analysis via the Federal Reserve Bank of St. Louis FRED database (mnemonic = UNRATE). Units: Percent. Future values are from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters.

## **About the Author**

Dr. Gary A. Wagner currently holds the Acadiana Business Economist/BORSF Eminent Scholar Endowed Chair in Economics at the University of Louisiana at Lafayette. In this role, he monitors the region's economic environment, conducts research and analysis, and engages with external stakeholders on behalf of the Moody College of Business and University.

His research interests range from regional economics to state and local public finance issues, with a particular focus on tax structures and economic development. He has authored or coauthored more than 60 professional articles and reports, and has delivered more than 300 presentations to public audiences on national and regional economic conditions. Dr. Wagner served on the Governor's Council of Economic Advisors in Arkansas from 2008-2011, and he is a quarterly participant in the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters projecting national economic conditions.

Dr. Wagner holds a Ph.D. in Economics from West Virginia University. His professional research has appeared in many leading economics journals including *The Journal of Law and Economics, Journal of Economic Behavior and Organization, National Tax Journal, Economics and Politics, Regional Science and Urban Economics, Papers in Regional Science, Public Choice, and Public Finance Review.* Prior to joining the University of Louisiana at Lafayette, he was Vice-President & Senior Regional Officer for the Federal Reserve Bank of Cleveland.

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