



B.I. Moody III College of Business Administration

Louisiana Economic Activity Forecast 2023:Q2

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The views expressed in this report are those of the author and do not necessarily represent the views of the University of Louisiana at Lafayette or the University of Louisiana System. Any errors are my own.

Executive Summary

As expected, inflation-adjusted U.S. Gross Domestic Product (GDP) slowed to 1.1% in the first quarter. Over the next year, national growth is expected to average 0.57% per quarter, largely unchanged from the outlook three months ago. Economic conditions are also expected to slow in Louisiana, particularly in the second half of 2023. The (statewide) number of new jobs is now projected to be 7,000 over the next year, a downward revision of 3,000 from last quarter's report. Job growth is expected to positive (but slower) in each of the state's metro regions over the next four quarters, with the New Orleans and Baton Rouge regions expected to experience the fastest gains.

12,800

Statewide job gains in the first quarter of 2023.

2.2%

Inflation-adjusted GDP growth in Louisiana in 2022:Q4. The second consecutive quarter exceeding 2% since 2016.

4.5%

Projected average home price growth in Louisiana over the next 4 quarters.

2023 Report Release Schedule:

Third Quarter: August 18, 2023

Fourth Quarter: November 17, 2023



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Introduction

According to professional forecasters, the economic outlook for the national economy is largely unchanged from last quarter. After expanding at an annualized rate of 1.1% in the first quarter, inflation-adjusted U.S. Gross Domestic Product (GDP) is projected to grow at average of 0.57% over the next four quarters. Consistent with last quarter's report, recession risks are most elevated in the second half of 2023. At the national level, forecasters have increased projected monthly job gains by 40,000 over the past quarter. Louisiana is projected to gain approximately 7,000 jobs over the next four quarters, with the New Orleans and Baton Rouge metro areas experiencing the fastest growth. 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 end of 2023. The outlook for Louisiana is largely unchanged from the previous LEAF report. GDP growth in the state is expected to remain close to zero for the next year, and job growth in every metropolitan area is expected to slow in the second half of the year.

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. 2023:Q1 values for the Baseline, Optimistic, and Pessimistic scenarios are identical because this quarter has already occurred. This row is shaded gray. Values for 2023:Q2 to 2023:Q4 have yet to be realized.

Table 1: Assumed Future Values of External Variables

Quarter	U.S. GDP (% SAAR)			U.S. Unemployment Rate (%)			Oil Prices (\$ per barrel)		
	Baseline	Optimistic	Pessimistic	Baseline	Optimistic	Pessimistic	Baseline	Optimistic	Pessimistic
2023:Q1	1.10	1.10	1.10	3.50	3.50	3.50	75.96	75.96	75.96
2023:Q2	0.99	1.76	0.00	3.60	3.49	3.70	72.50	62.96	85.35
2023:Q3	0.56	1.32	-0.80	3.76	3.60	4.03	73.00	60.44	88.96
2023:Q4	-0.05	1.40	0.00	4.00	3.78	4.25	73.00	55.13	98.70
2024:Q1	1.00	2.18	1.10	4.10	3.90	4.48	72.00	51.70	105.16

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 12, 2023. The Baseline expected path of oil prices is from the U.S. Energy Information Administration's Short-Term Economic Outlook released on May 9, 2023.

Unchanged from last quarter, labor market conditions remain incredibly tight. As of the most recent data from the Bureau of Labor Statistics (February 2023), there are 1.7 and 2.0 job openings per unemployed person nationally and in Louisiana, respectively. This is slightly below peak values from last quarter and may be an early indication that labor market conditions are easing. Louisiana's quarterly average unemployment rate clocked in at 3.5% in the first quarter. Following seven consecutive quarters of reductions, the state's unemployment rate has been, effectively, flat for the past year.

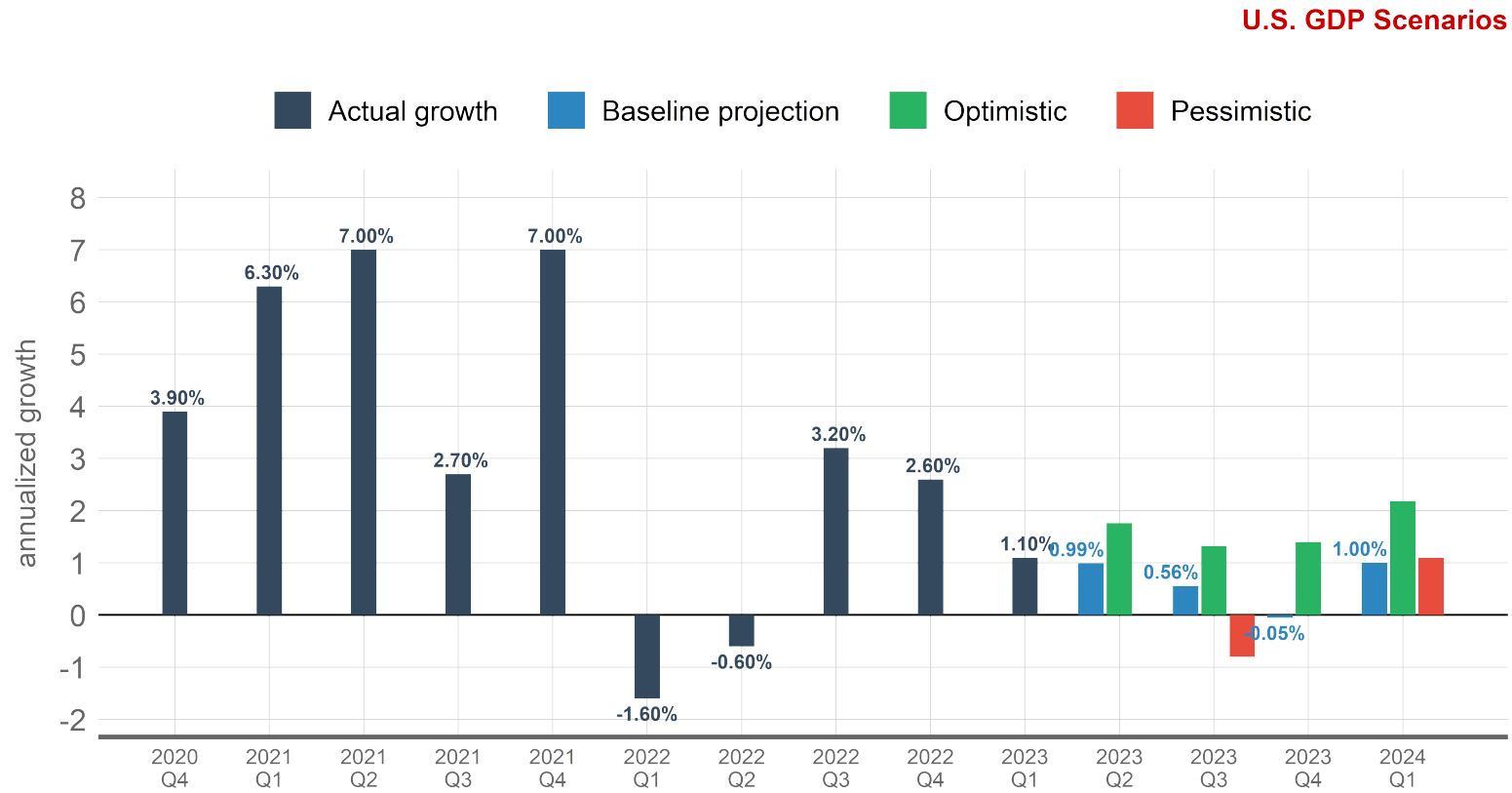
Although national recession risks remain higher than normal, respondents to the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters (SPF) lowered their estimates of the probability of a national recession for the second consecutive quarter. Forecasters continue to see the second half of 2023 as the most likely period for a downturn (see Figure 9). Inflation remains the primary concern. Despite the Federal Reserve increasing interest rates very aggressively over the past twelve months, many measures of overall and core inflation remain stubbornly high. In fact, the median SPF respondent expects inflation to increase over each of the next four quarters. Long-term inflation expectations, normally sticky at 2 percent, are at risk of becoming unanchored.

Consumer spending, which constitutes roughly 70% of economic activity nationally, continues to hold firm. Inflation adjusted expenditures on services exceeded 2% over the past year, while purchases of durable goods (expected to last an average of three years) rebounded sharply in Q1 after three consecutive quarters of declines. Consumer confidence has also rebounded over the past quarter. Consistent with last quarter, investments in structures – both residential and commercial – remain the major sources of drag in the economy.

The Optimistic and Pessimistic scenarios, which I would assign a 10% and 20% 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 70% probability to the Baseline forecast.

Over the next four quarters, the Baseline scenario projects U.S. GDP to grow at an annual pace of 0.57%, a slight reduction from last quarter. Figure 1 on the next page shows U.S. GDP under the three scenarios considered. Unlike last quarter's report, all three scenarios now have the U.S. economy avoiding a recession this year.

Figure 1: U.S. Economic Growth Scenarios



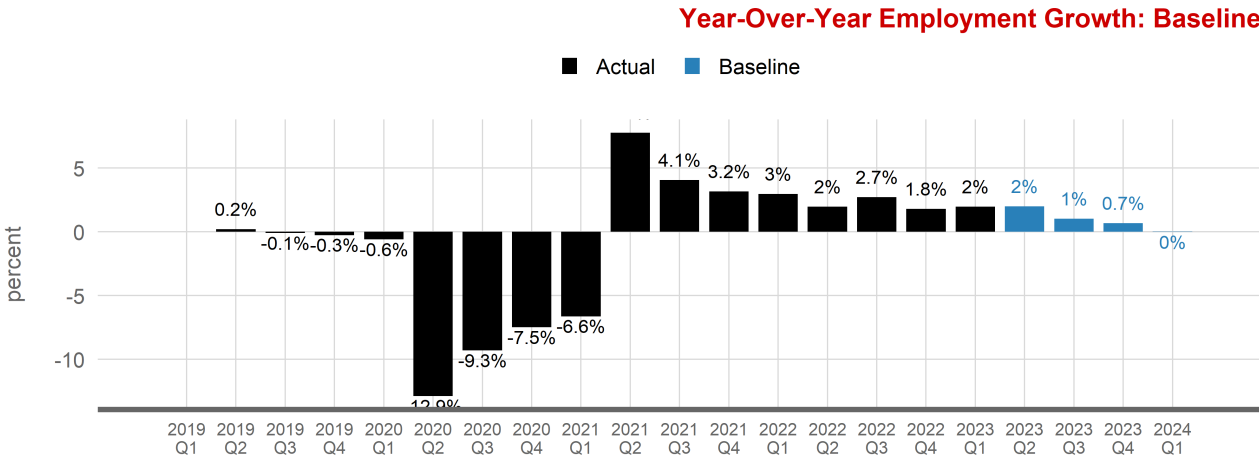
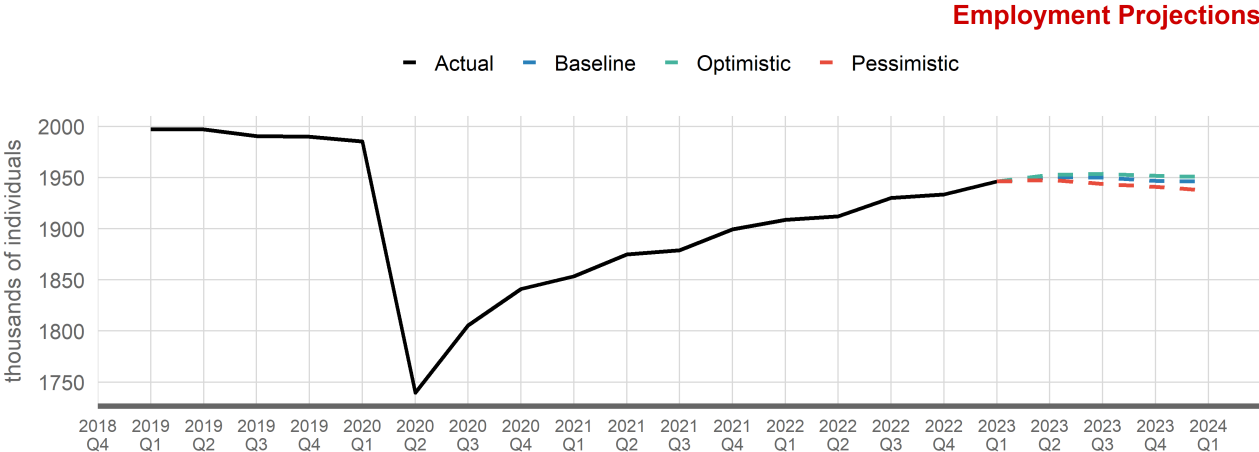
Louisiana Employment Projections

Following a downward revision in job growth for Q4 from 7,200 to just over 3,000, Louisiana added more than 12,800 payroll jobs in Q1 and more than 37,000 over the past year. Consistent with last quarter's report, the Baseline scenario now points to job gains of about 7,000 this year (revised down from 10,000).

Year-over-year job growth was positive in every metro region in the state except Lake Charles. While job growth is expected to slow around the state, particularly in the latter half of 2023, the outlook for most metro area is marginally better than last quarter's report. Over the next year, New Orleans and Baton Rouge are expected to experience the strongest job gains.

The employment forecast error from the previous report was 0.07%. See Table 2 for forecast errors from the previous report.

Figure 2: Louisiana Employment Projections



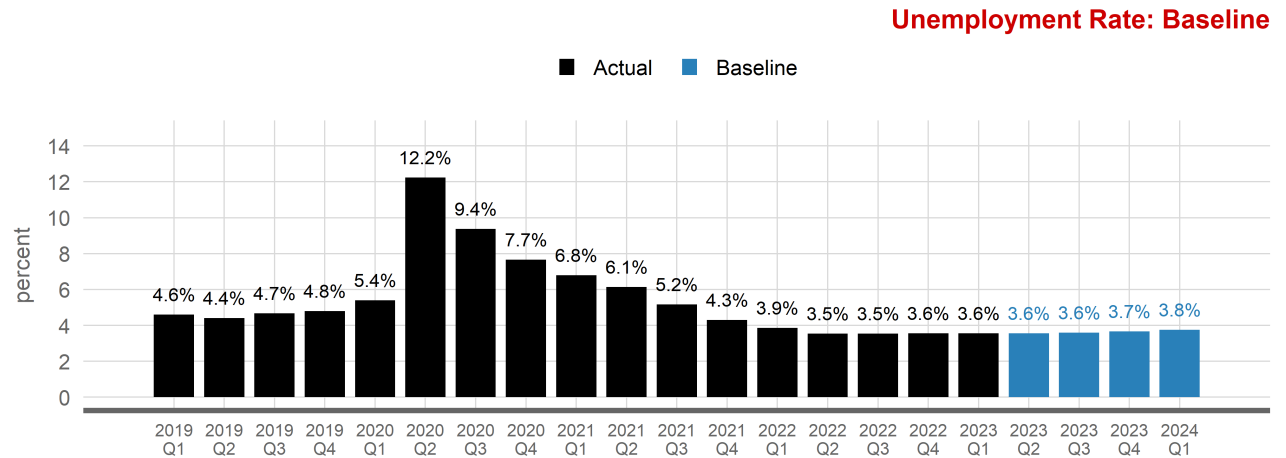
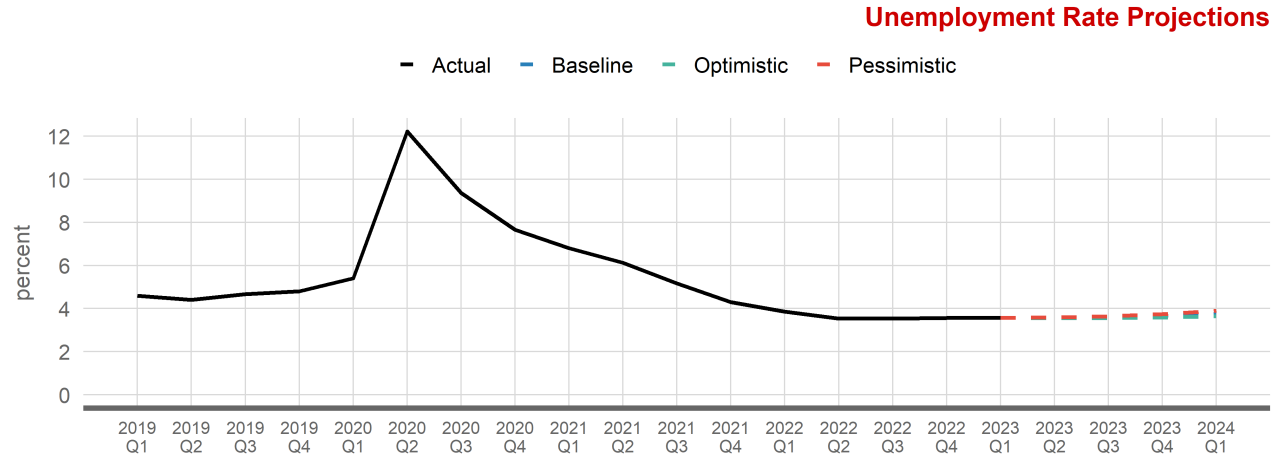
Louisiana Unemployment Rate Projections

Figure 3: Louisiana Unemployment Rate Projections

Louisiana unemployment rate held steady at 3.5% in the first quarter. Following data revisions, the state's unemployment rate has remained unchanged at 3.5% for the past four quarters.

With economic activity projected to slow, the Baseline scenario is for the unemployment to gradually *increase* to 3.75% in the first quarter of 2024.

The unemployment rate forecast error from the previous report was 11.11%. See Table 2 for forecast errors from the previous report.



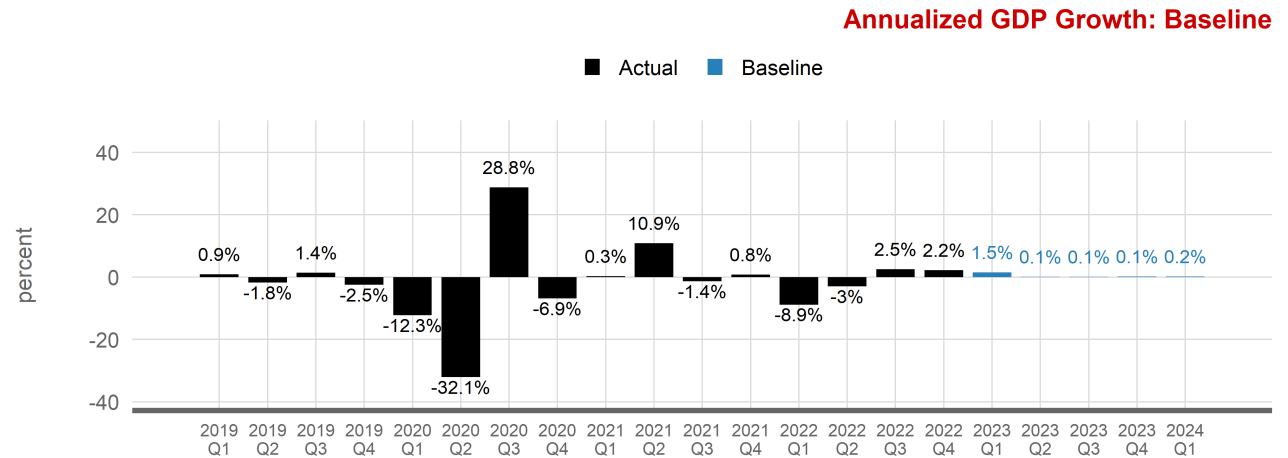
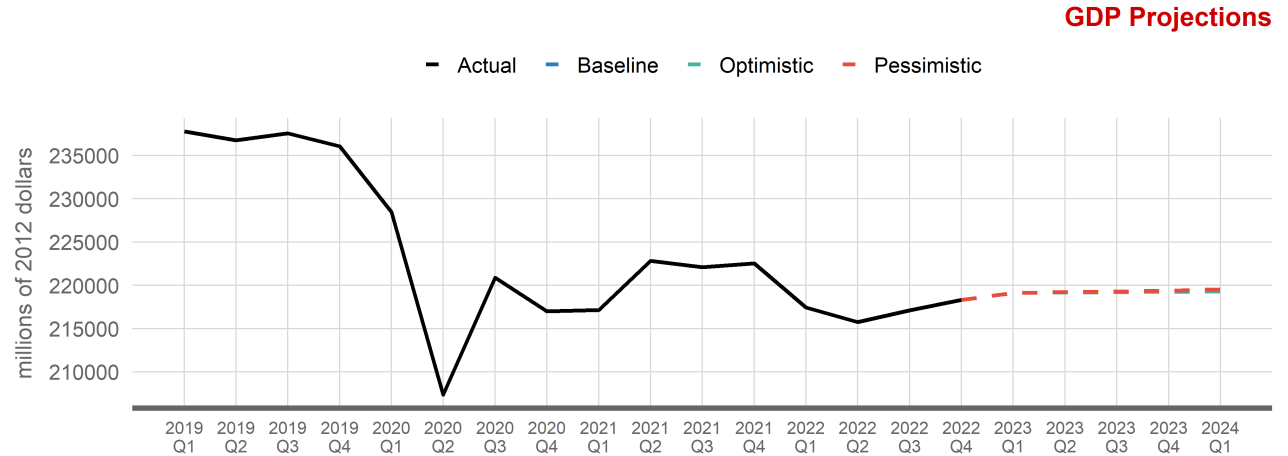
Louisiana GDP Projections

Inflation adjusted-GDP for Louisiana expanded at a 2.2% clip in the fourth quarter of 2022. This was the second consecutive quarter exceeding 2%, the first time this has occurred (ignoring COVID) since late 2016.

Under the Baseline scenario, inflation-adjusted GDP is expected to essentially be zero for the next five quarters.

The GDP forecast error from the previous report was 0.44%. See Table 2 for forecast errors from the previous report.

Figure 4: Louisiana GDP Projections



Louisiana Home Price Projections

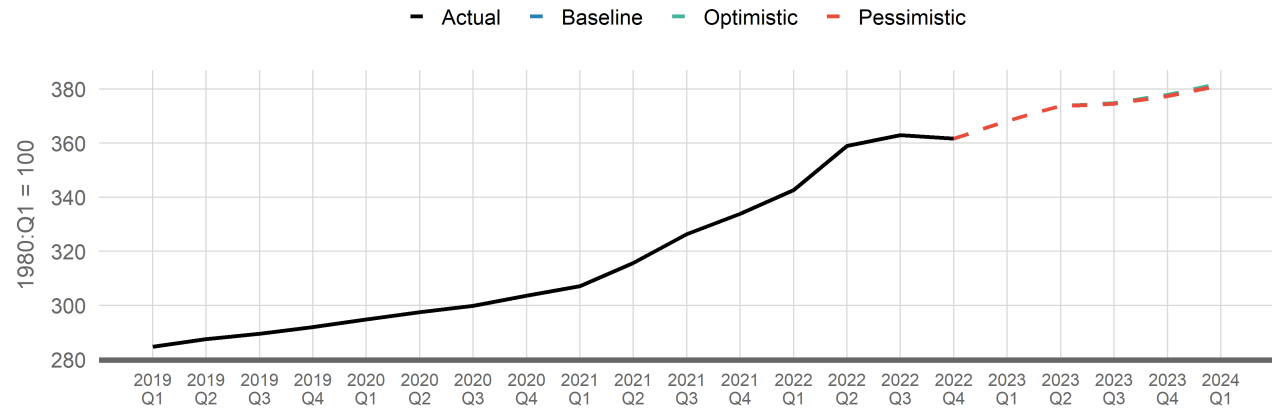
Figure 5: Louisiana Home Price Projections

Although home prices in Louisiana slowed more than projected over the past quarter, growth remains solid from a historical perspective. Year-over-year growth exceeded 8% in 2022:Q4 and is expected to gradually slow to roughly 4% by the end of this year.

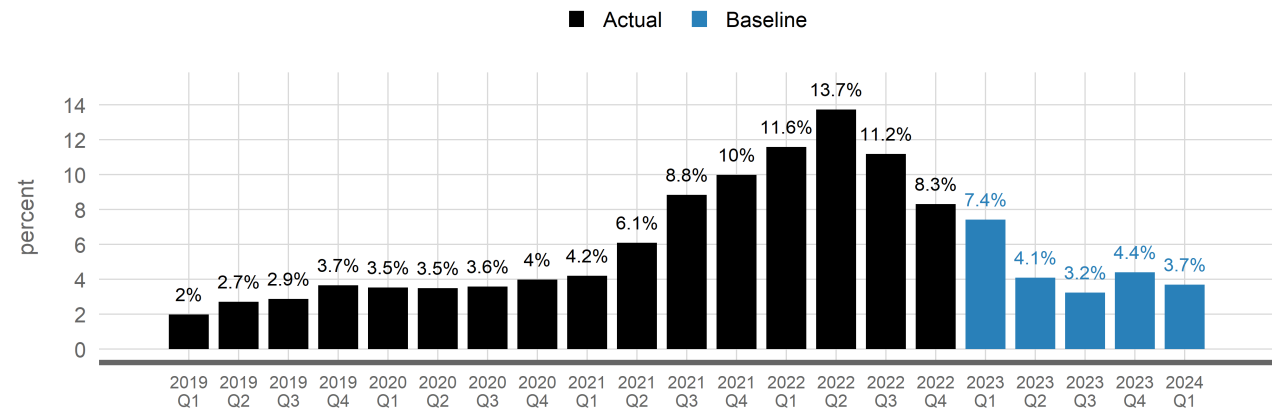
Additional housing charts are provided for each metro region to track individual market corrections.

The previous LEAF report's forecast error for home prices was 2.68%. See Table 2 for forecast errors from the previous report.

Home Price Projections

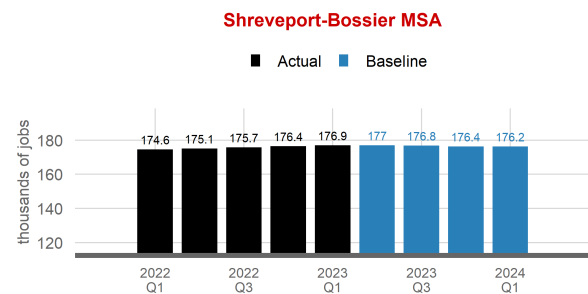
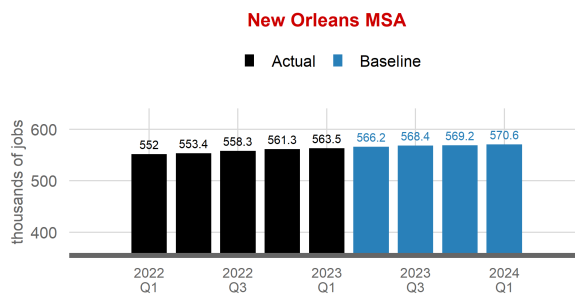
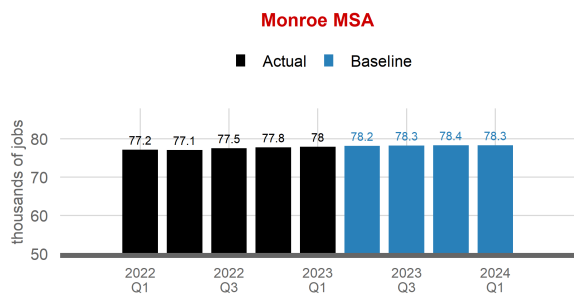
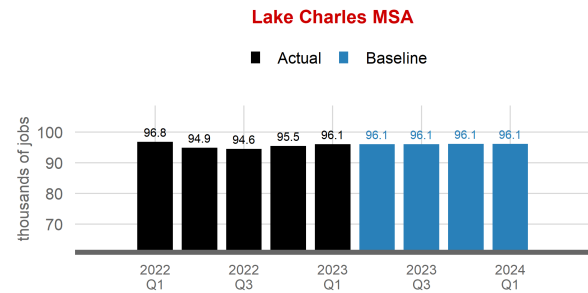
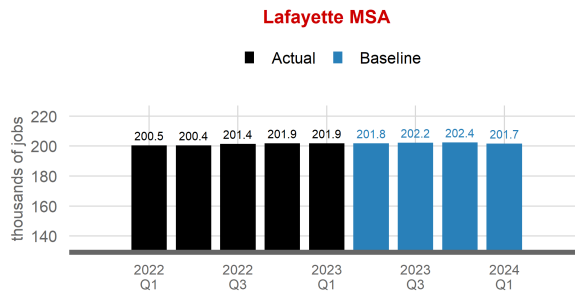
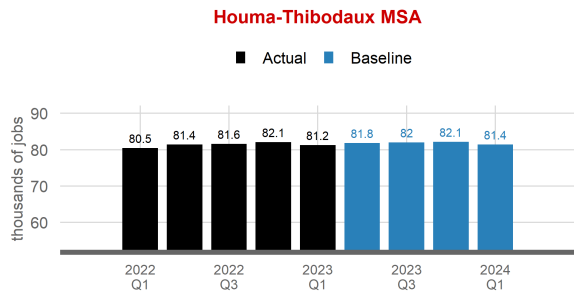
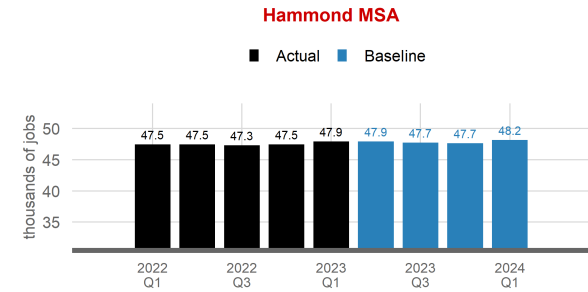
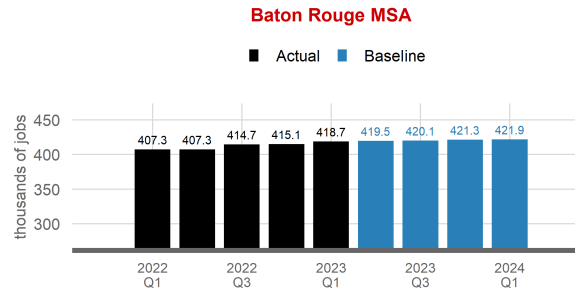
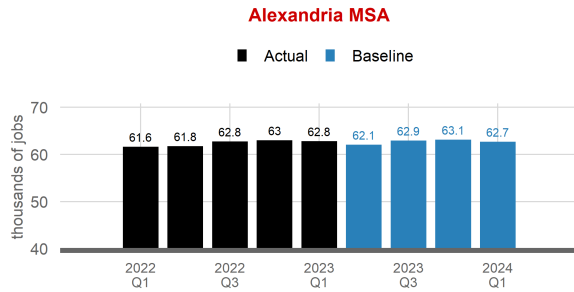


Year-Over-Year Home Price Growth: Baseline



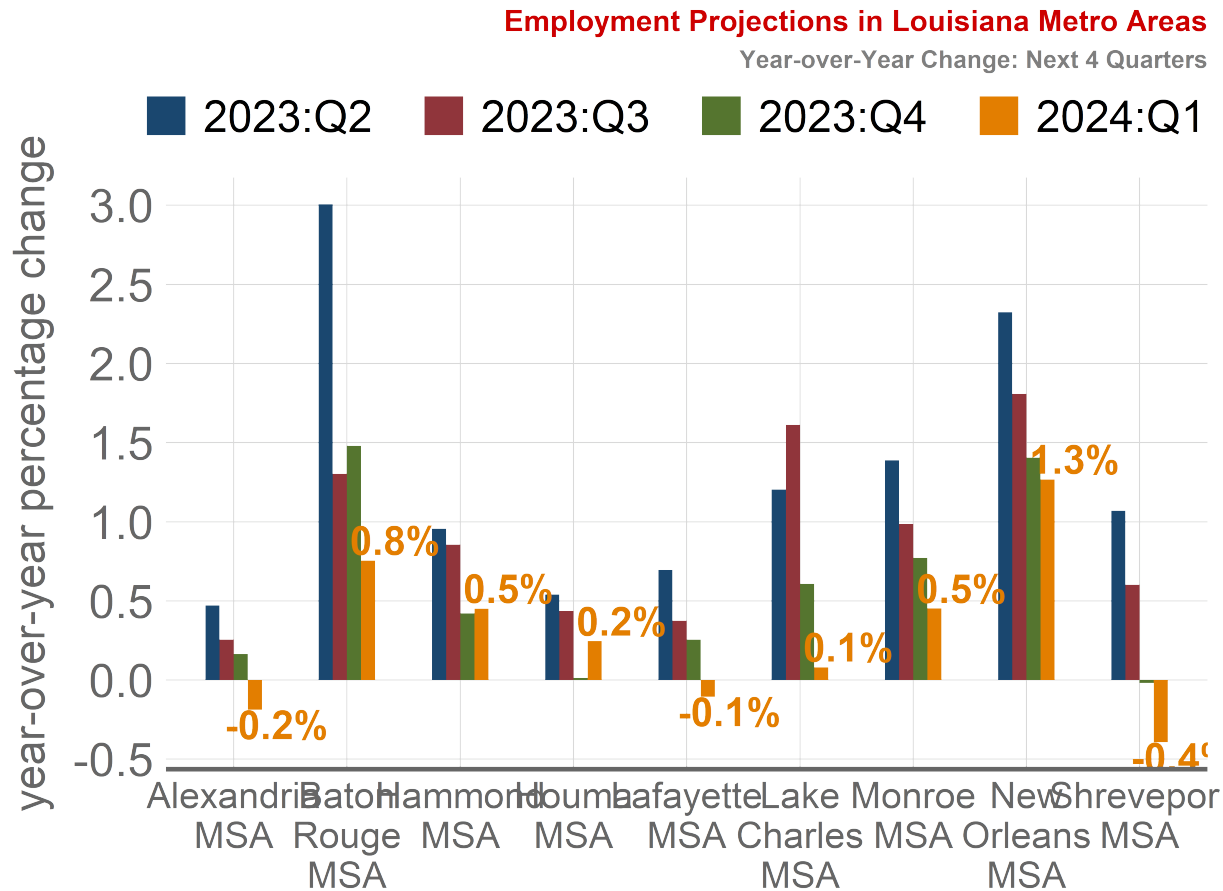
Metro Area Employment Projections

Figure 6: Metro Employment Projections



Metro Area Employment Projections: Year-over-Year Growth

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

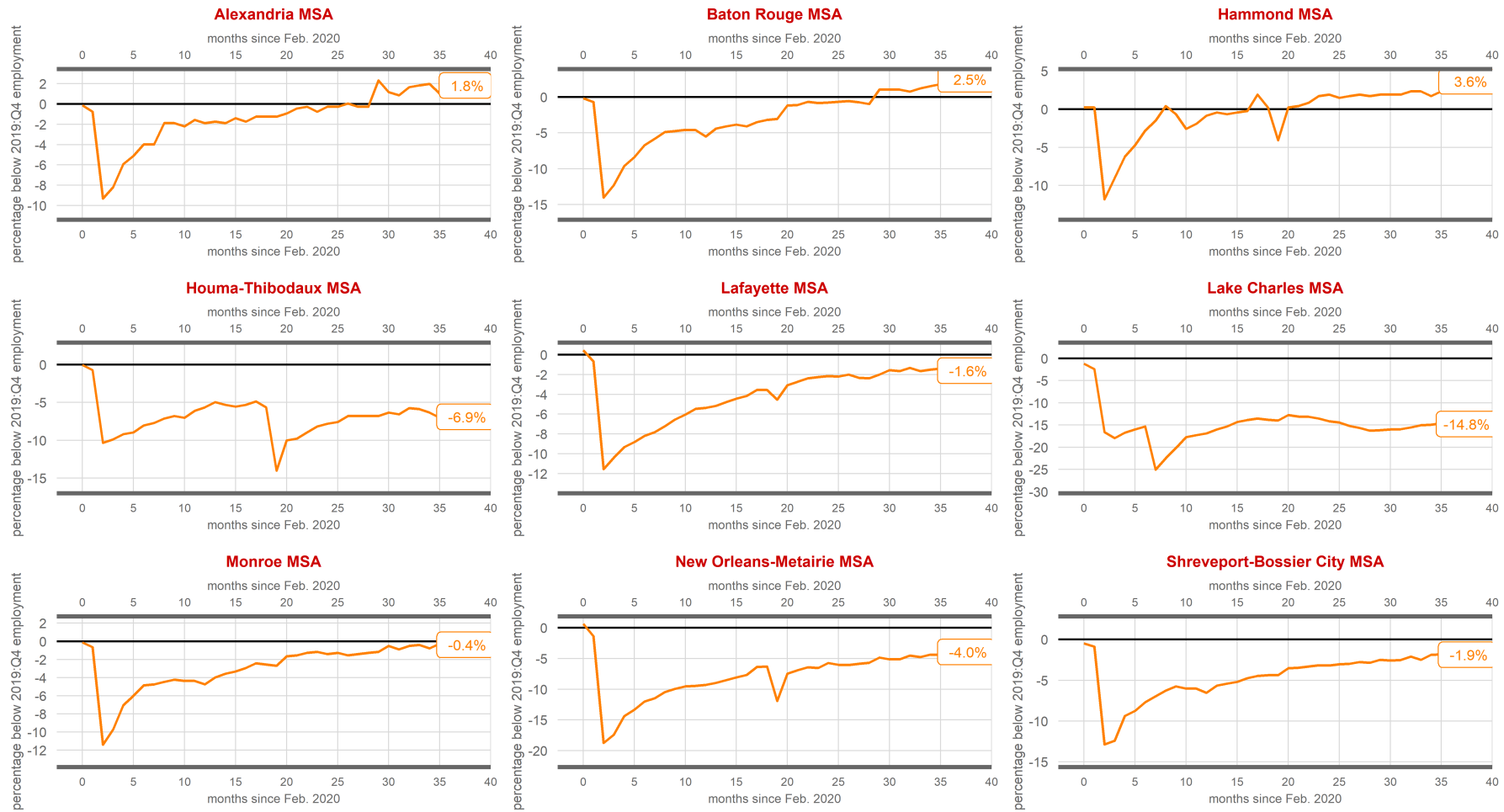


Source: Raw data from the Bureau of Labor Statistics. Projections by Gary

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

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

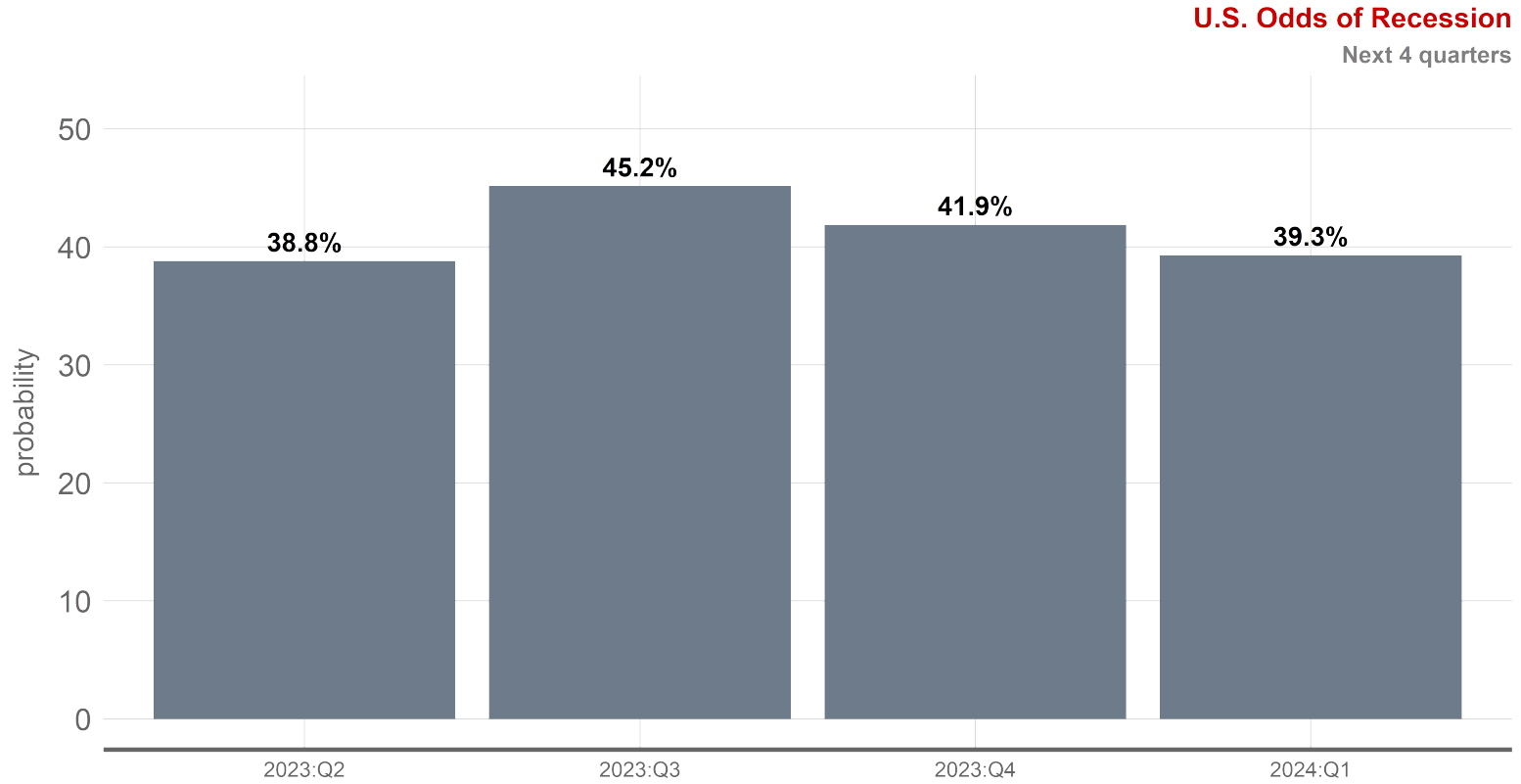
Employment data through Mar 2023



Source: Raw data from the Bureau of Labor Statistics.

Recession Probabilities Over the Next Year

Figure 9: Recent Recession Probabilities



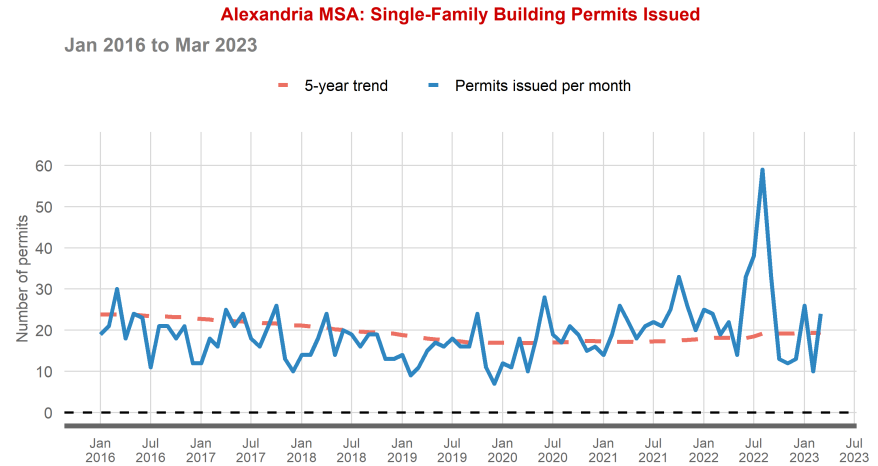
Source: Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia.

Alexandria MSA: Additional Charts

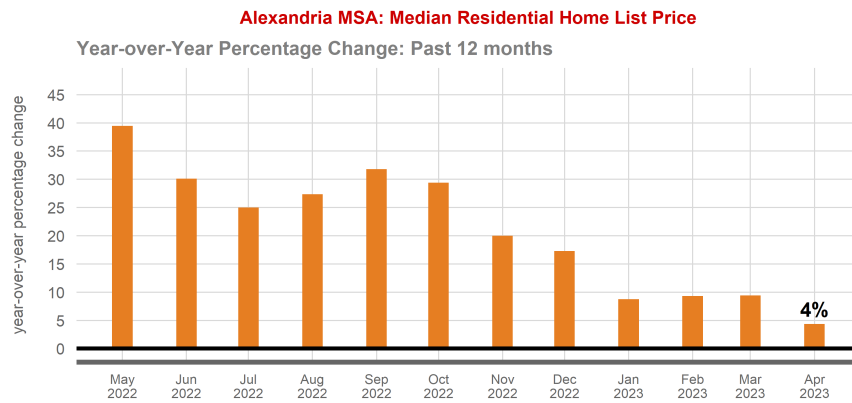
Figure 10: Alexandria Metro Area: Additional Charts



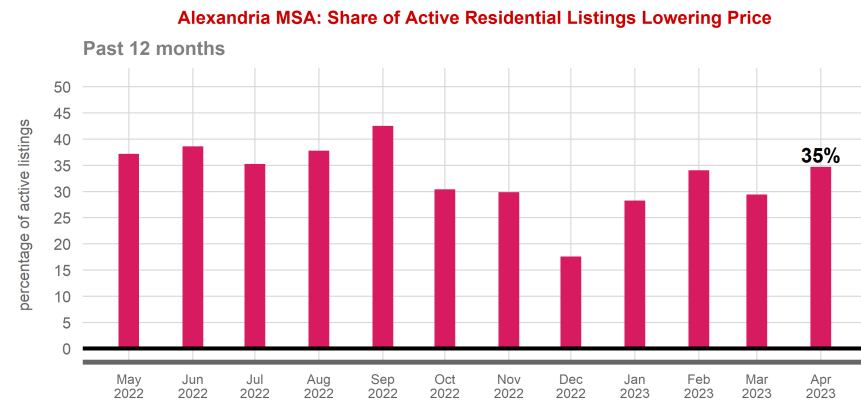
Source: Bureau of Labor Statistics.



Source: Census Bureau.



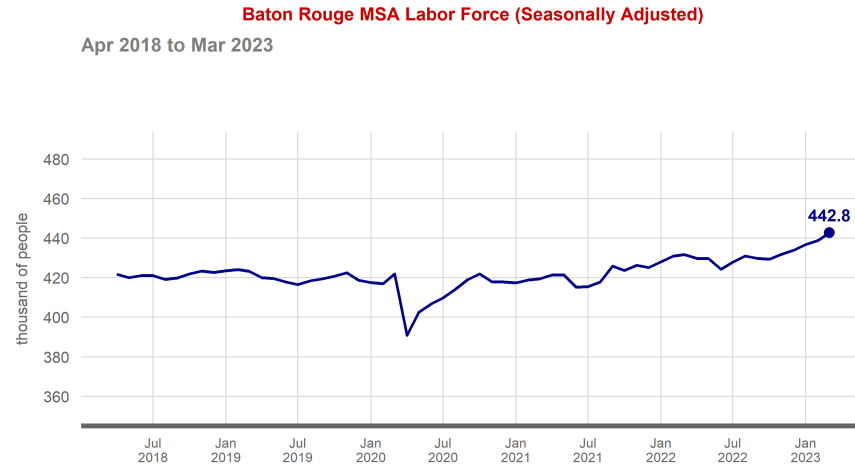
Source: Realtor.com.



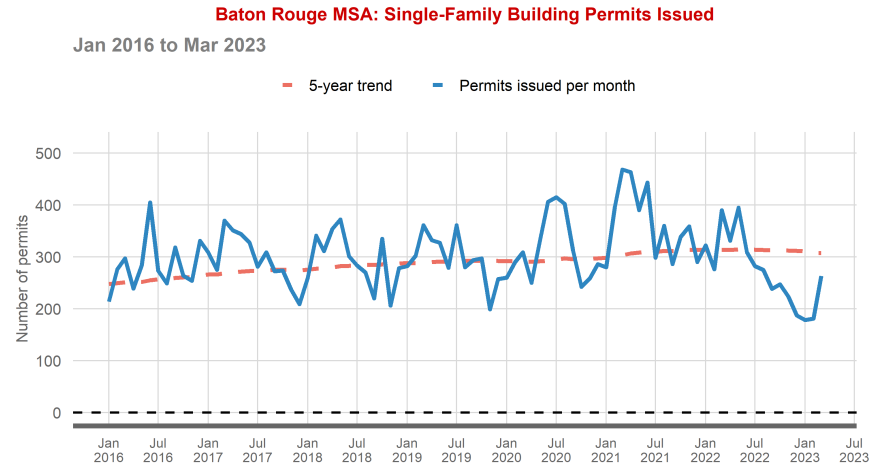
Source: Realtor.com.

Baton Rouge MSA: Additional Charts

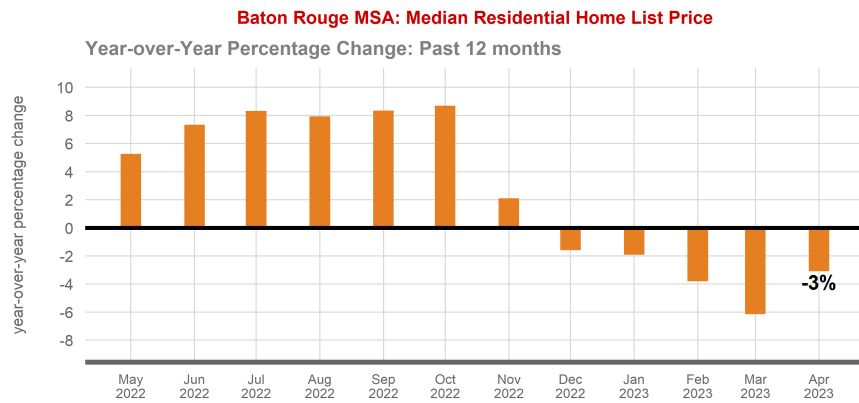
Figure 11: Baton Rouge Metro Area: Additional Charts



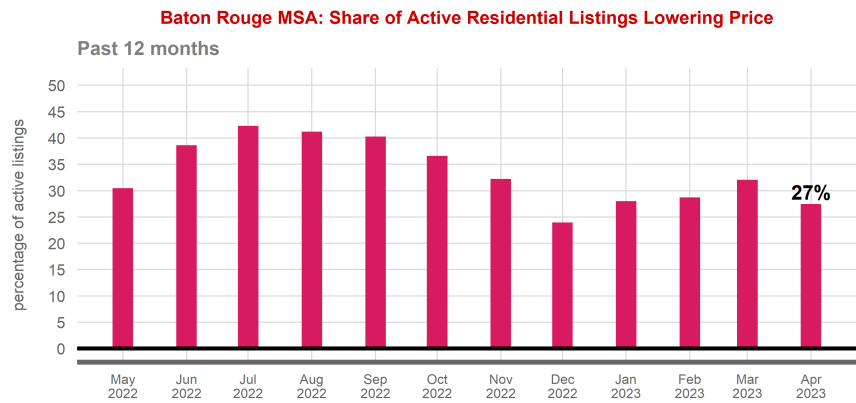
Source: Bureau of Labor Statistics.



Source: Census Bureau.



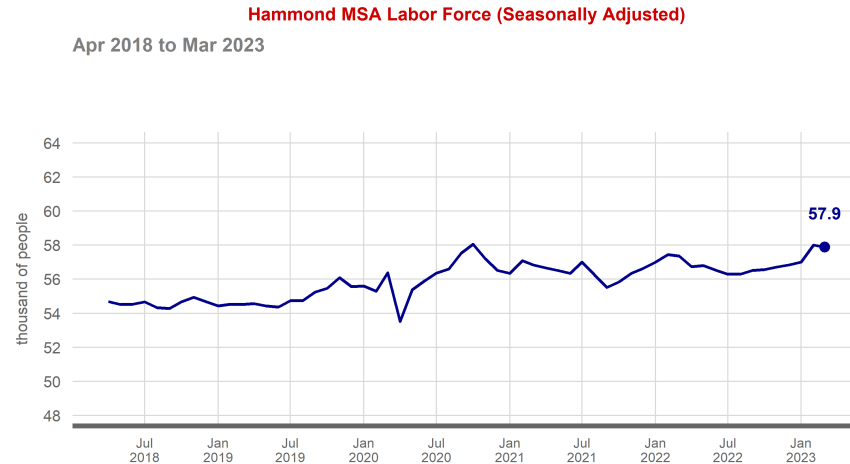
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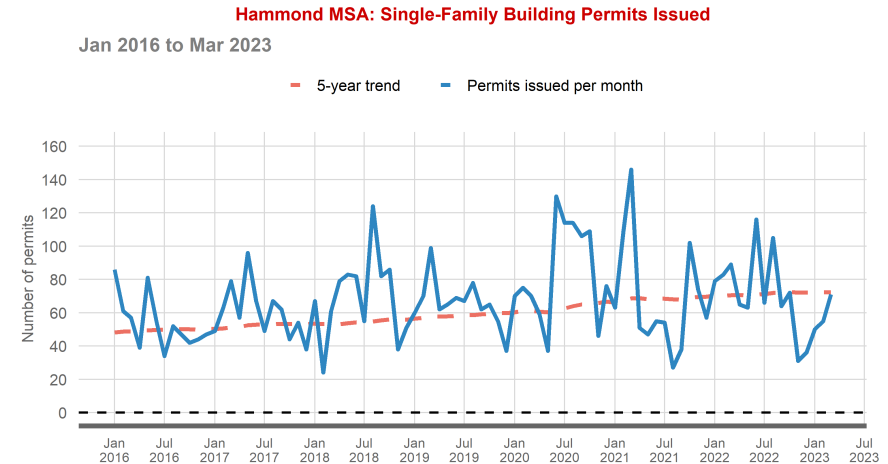
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Hammond MSA: Additional Charts

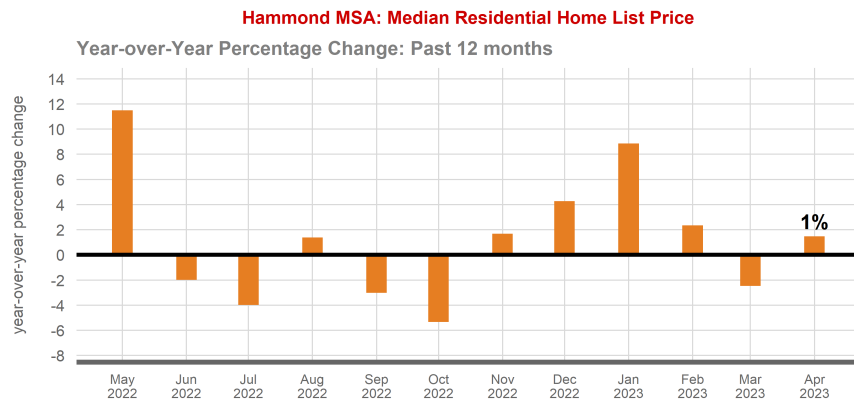
Figure 12: Hammond Metro Area: Additional Charts



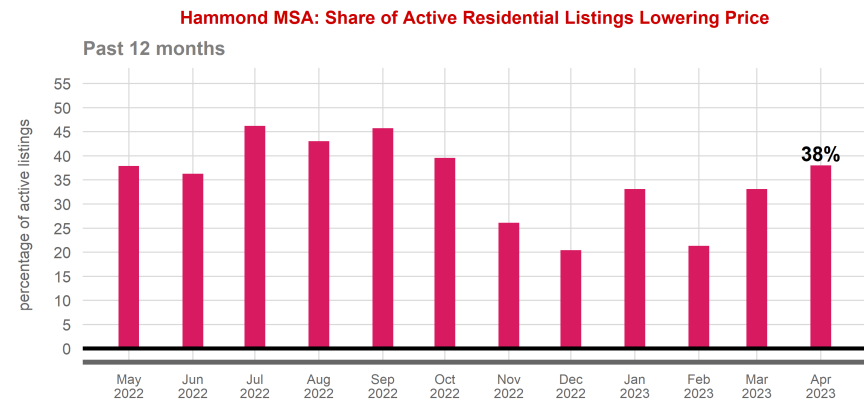
Source: Bureau of Labor Statistics.



Source: Census Bureau.



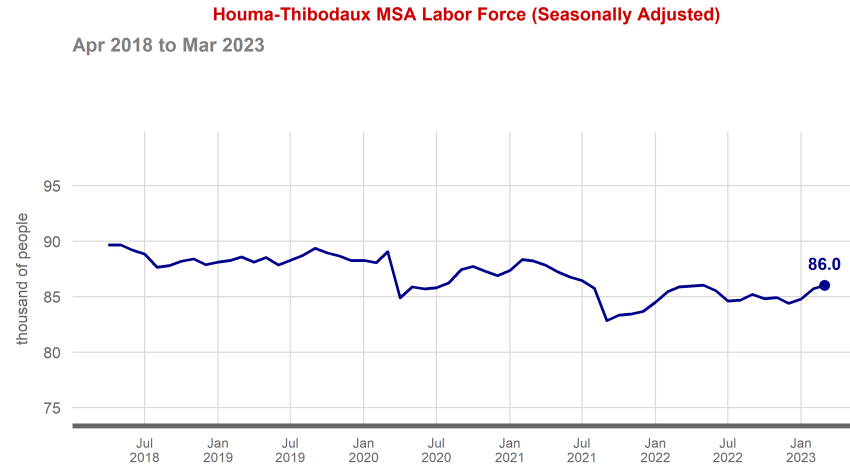
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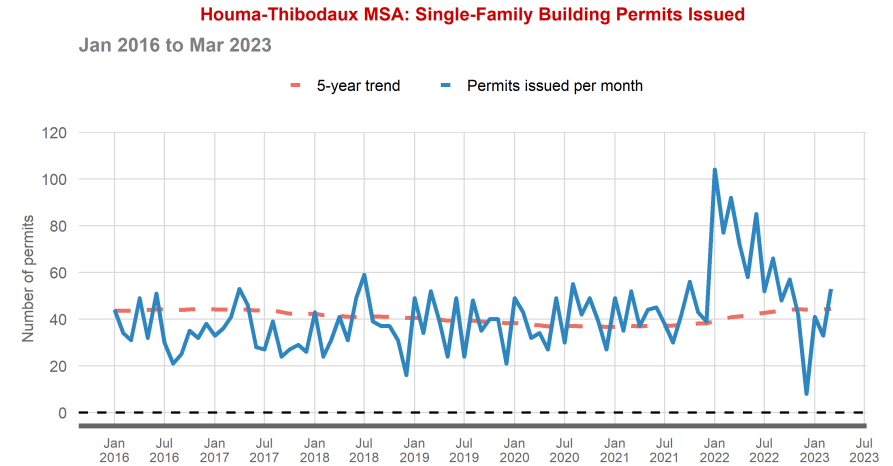
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Houma-Thibodaux MSA: Additional Charts

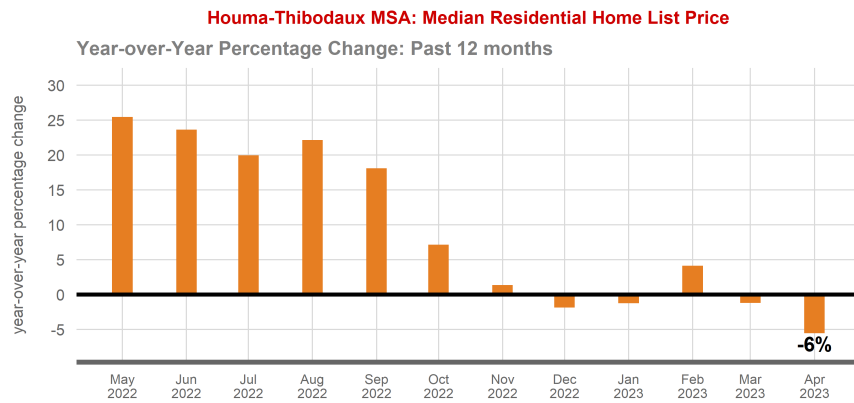
Figure 13: Houma-Thibodaux Metro Area: Additional Charts



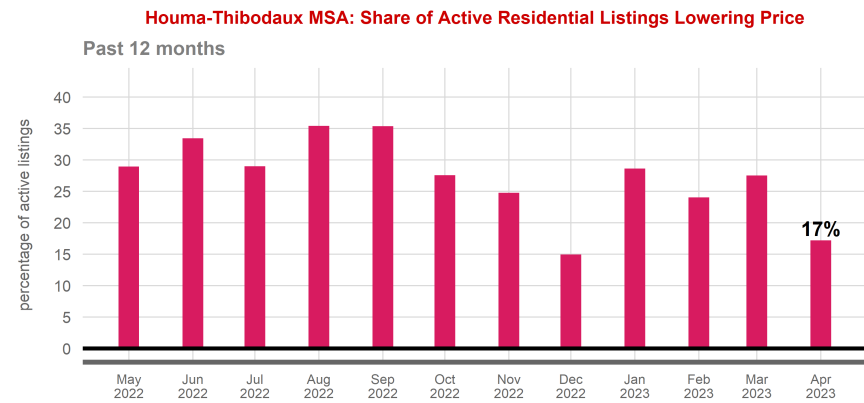
Source: Bureau of Labor Statistics.



Source: Census Bureau.



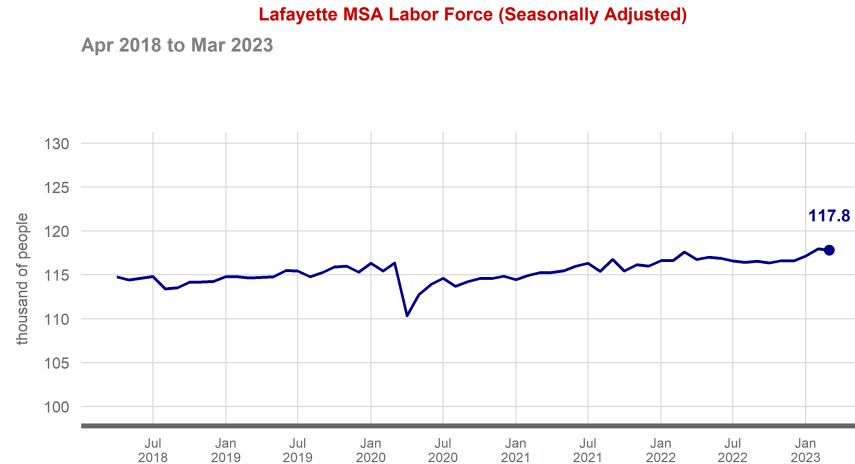
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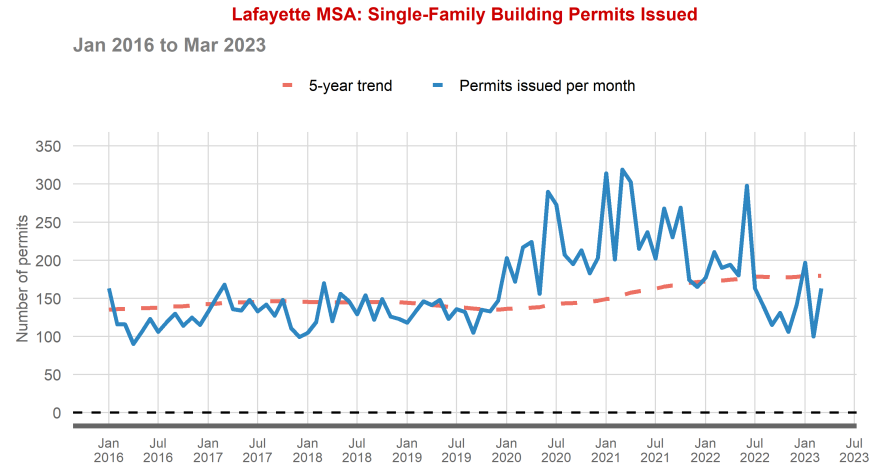
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Lafayette MSA: Additional Charts

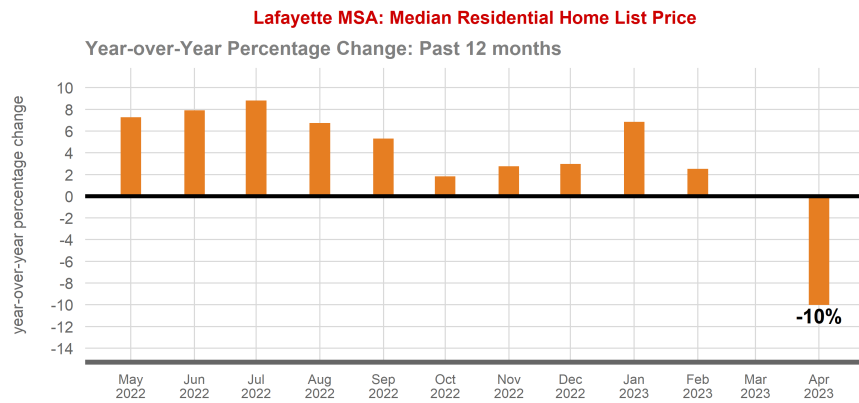
Figure 14: Lafayette Metro Area: Additional Charts



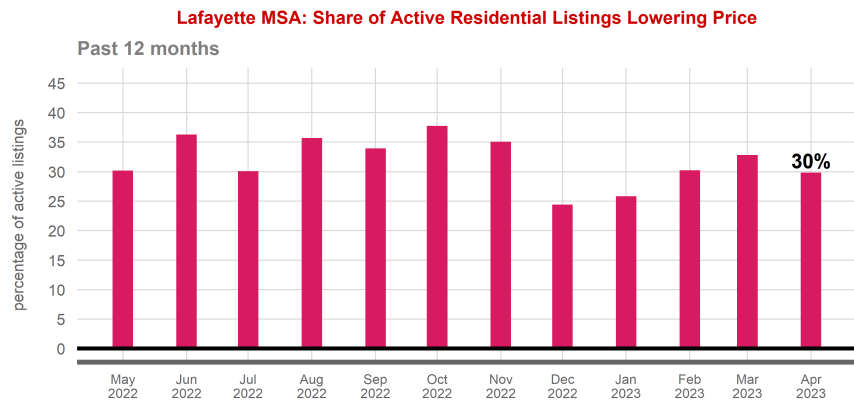
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Source: Census Bureau.



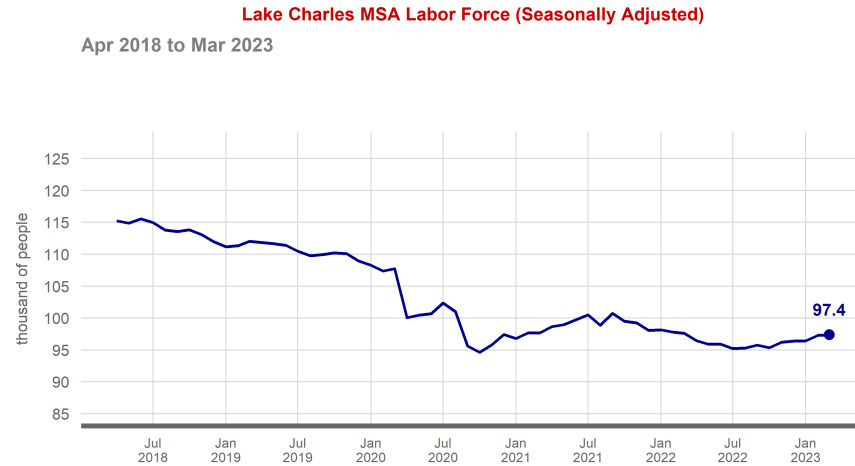
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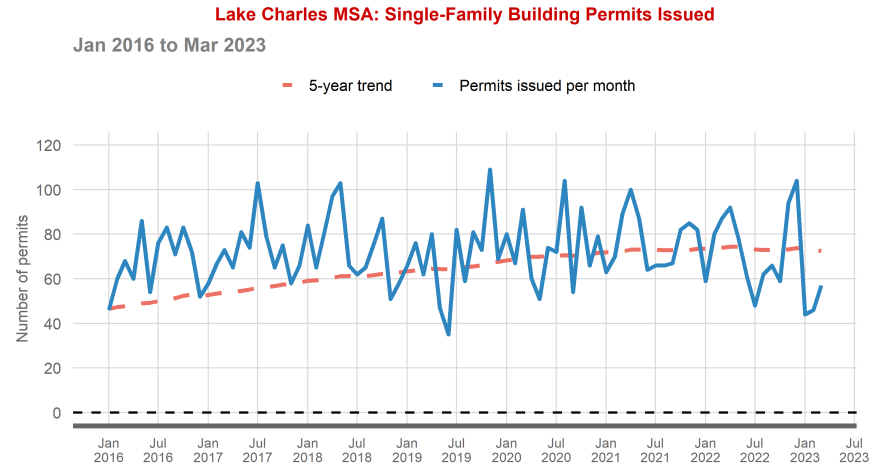
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Lake Charles MSA: Additional Charts

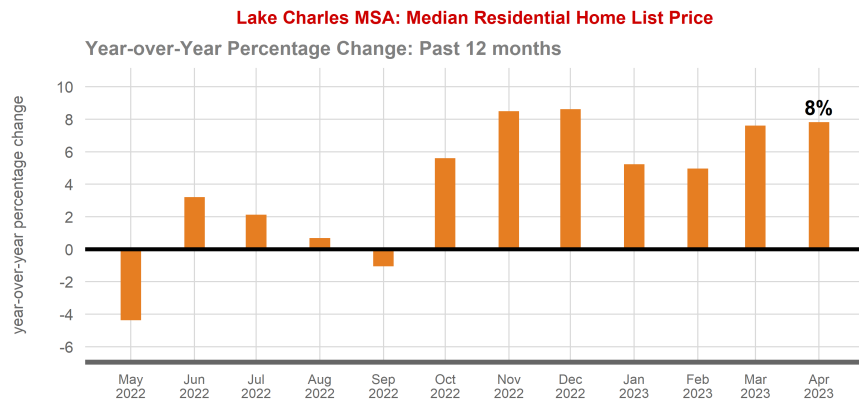
Figure 15: Lake Charles Metro Area: Additional Charts



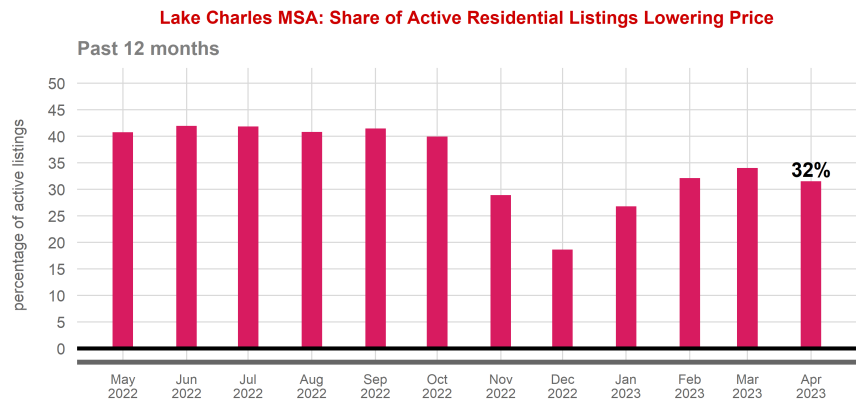
Source: Bureau of Labor Statistics.



Source: Census Bureau.



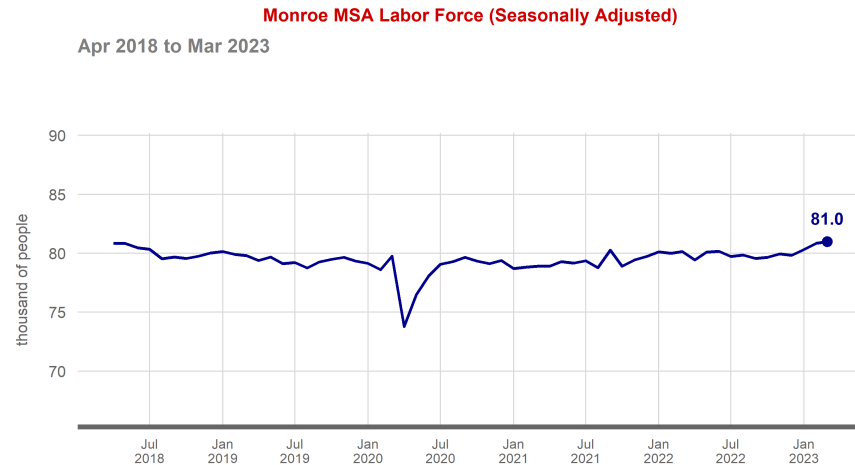
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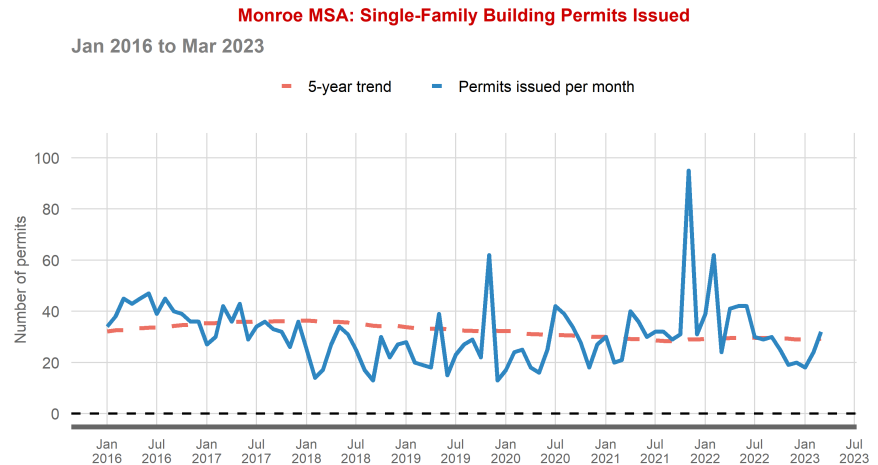
Source: Realtor.com.

Monroe MSA: Additional Charts

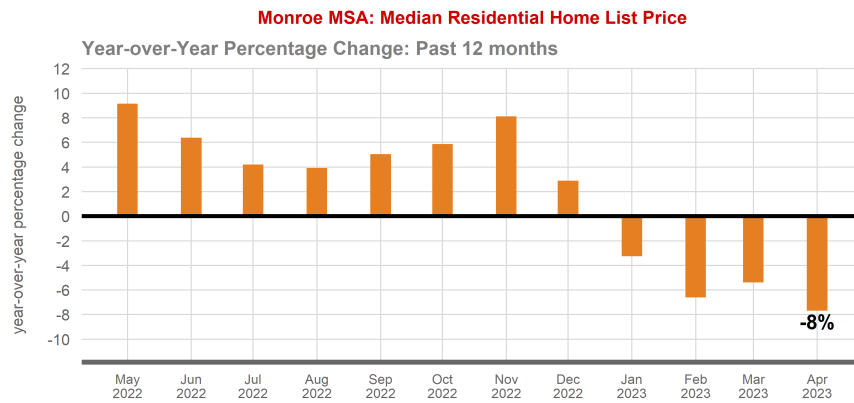
Figure 16: Monroe Metro Area: Additional Charts



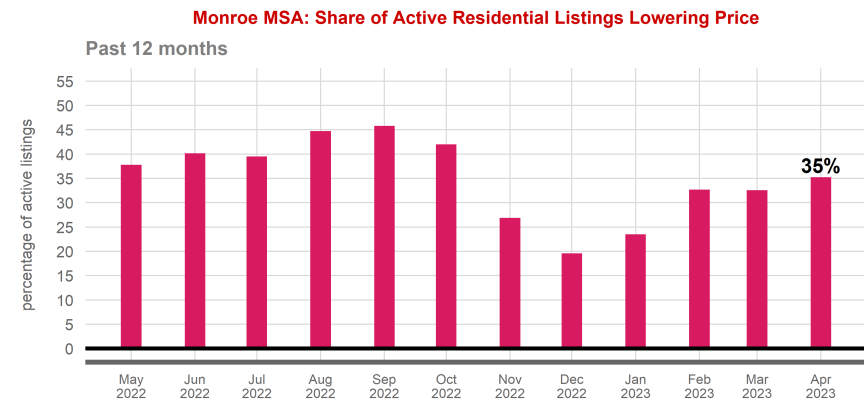
Source: Bureau of Labor Statistics.



Source: Census Bureau.



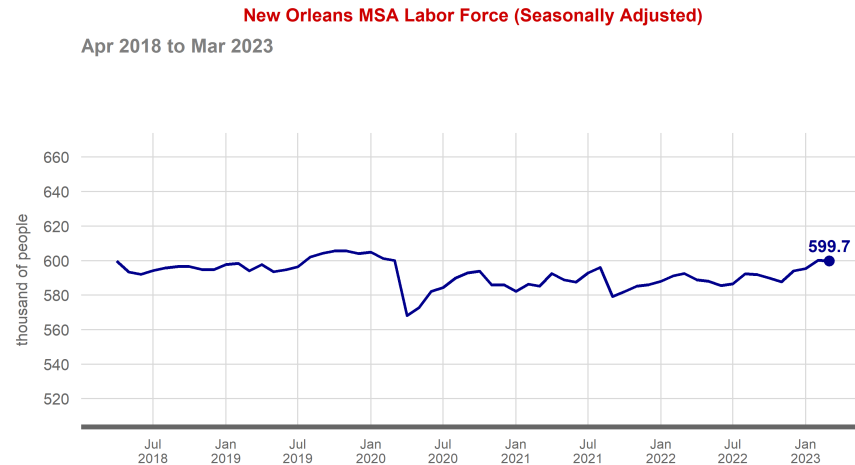
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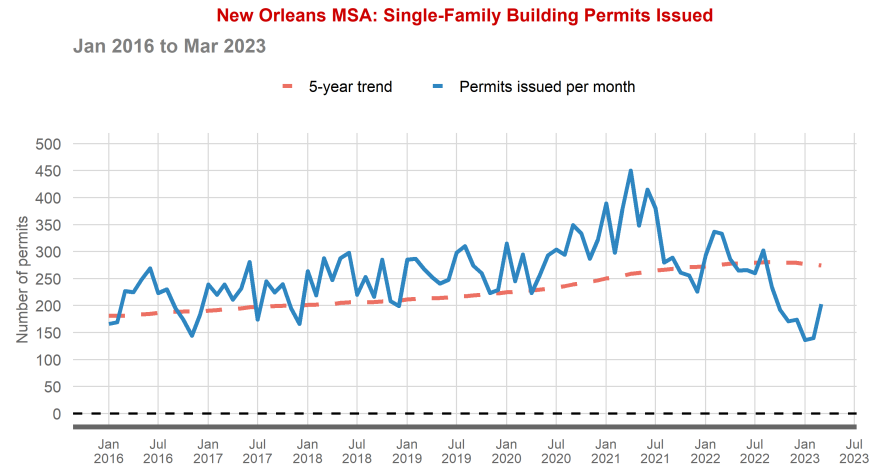
Source: Realtor.com.

New Orleans MSA: Additional Charts

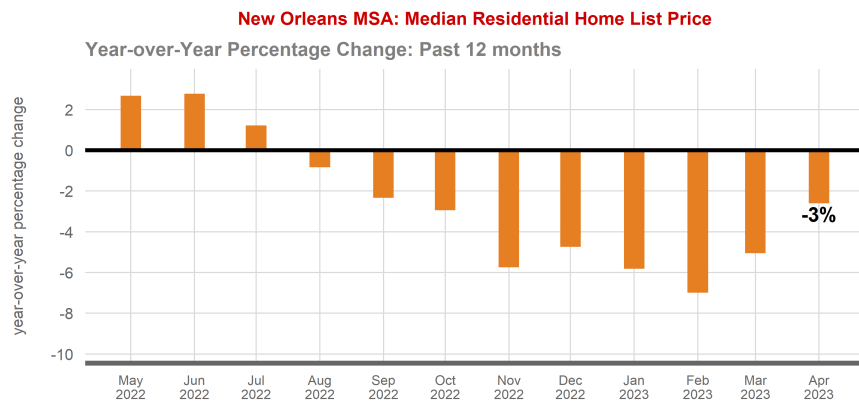
Figure 17: New Orleans Metro Area: Additional Charts



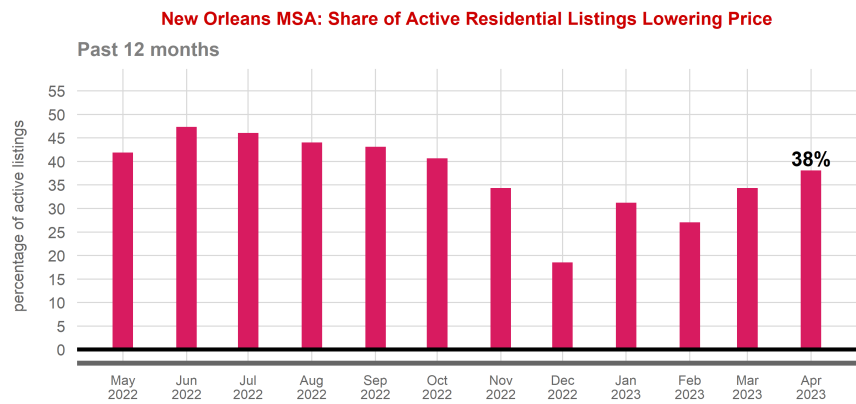
Source: Bureau of Labor Statistics.



Source: Census Bureau.



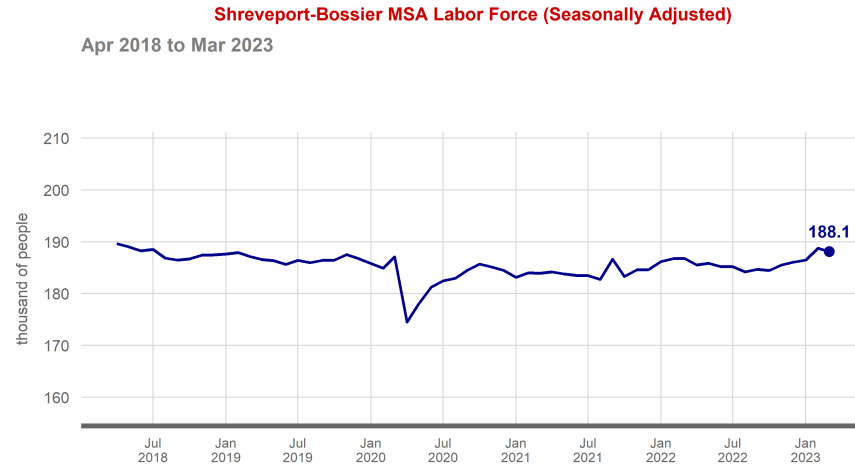
Source: Realtor.com.



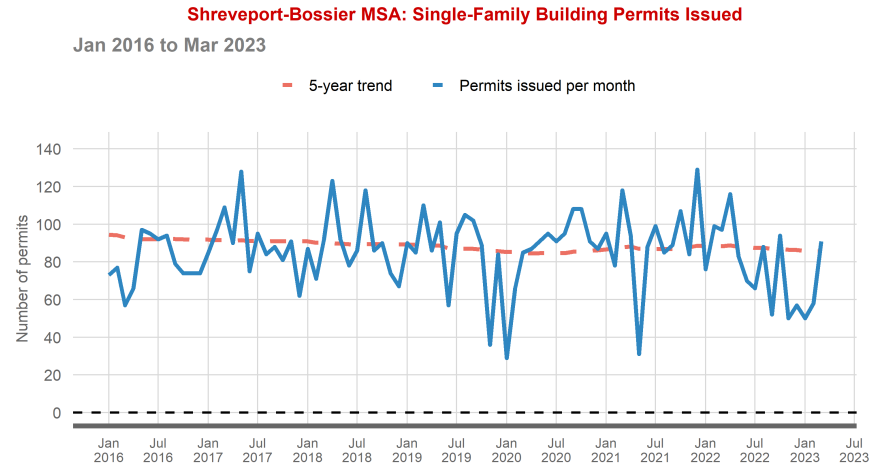
Source: Realtor.com.

Shreveport-Bossier MSA: Additional Charts

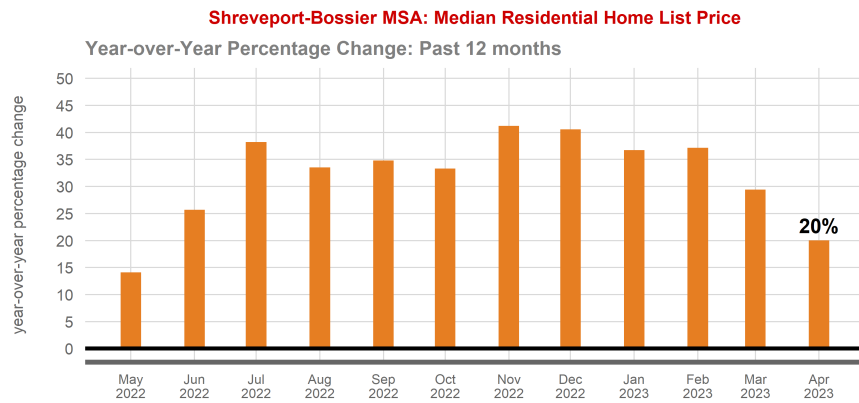
Figure 18: Shreveport-Bossier Metro Area: Additional Charts



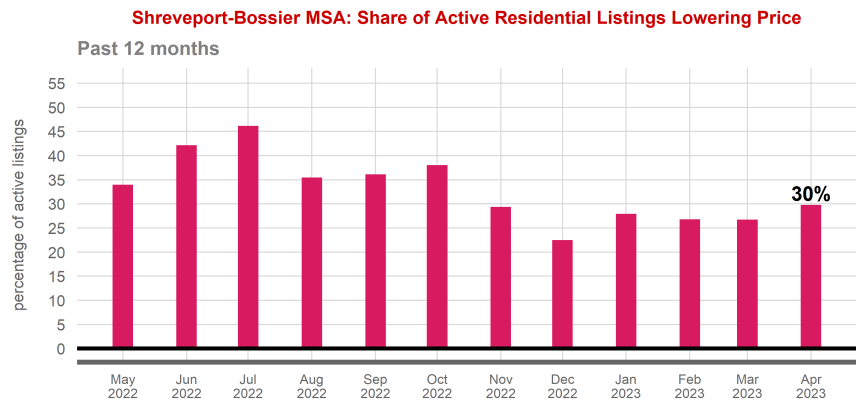
Source: Bureau of Labor Statistics.



Source: Census Bureau.



Source: Realtor.com.



Source: Realtor.com.

Projection Errors from Previous Louisiana Economic Activity Forecast

Table 2: One-Quarter Ahead Projection Errors: 2022:Q4 Projections for 2023:Q1

Variable	Baseline Projection	Actual Value	Absolute % Error
employment (statewide)	1944.90	1946.30	0.07
unemployment rate	3.20	3.60	11.11
GDP	217354.00	218318.40	0.44
FHFA home price index	371.40	361.70	2.68
Alexandria MSA employment	63.10	62.80	0.48
Baton Rouge MSA employment	403.10	418.70	3.73
Hammond MSA employment	47.20	47.90	1.46
Houma-Thibodaux MSA employment	79.50	81.20	2.09
Lafayette MSA employment	203.20	201.90	0.64
Lake Charles MSA employment	102.60	96.10	6.76
Monroe MSA employment	75.90	78.00	2.69
New Orleans MSA employment	570.60	563.50	1.26
Shreveport-Bossier MSA employment	176.00	176.90	0.51

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 (SMU2225220000000001SA), 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 = PRICENPQUSD). 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 Endowed Chair 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, borrowing costs, and pension systems. 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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