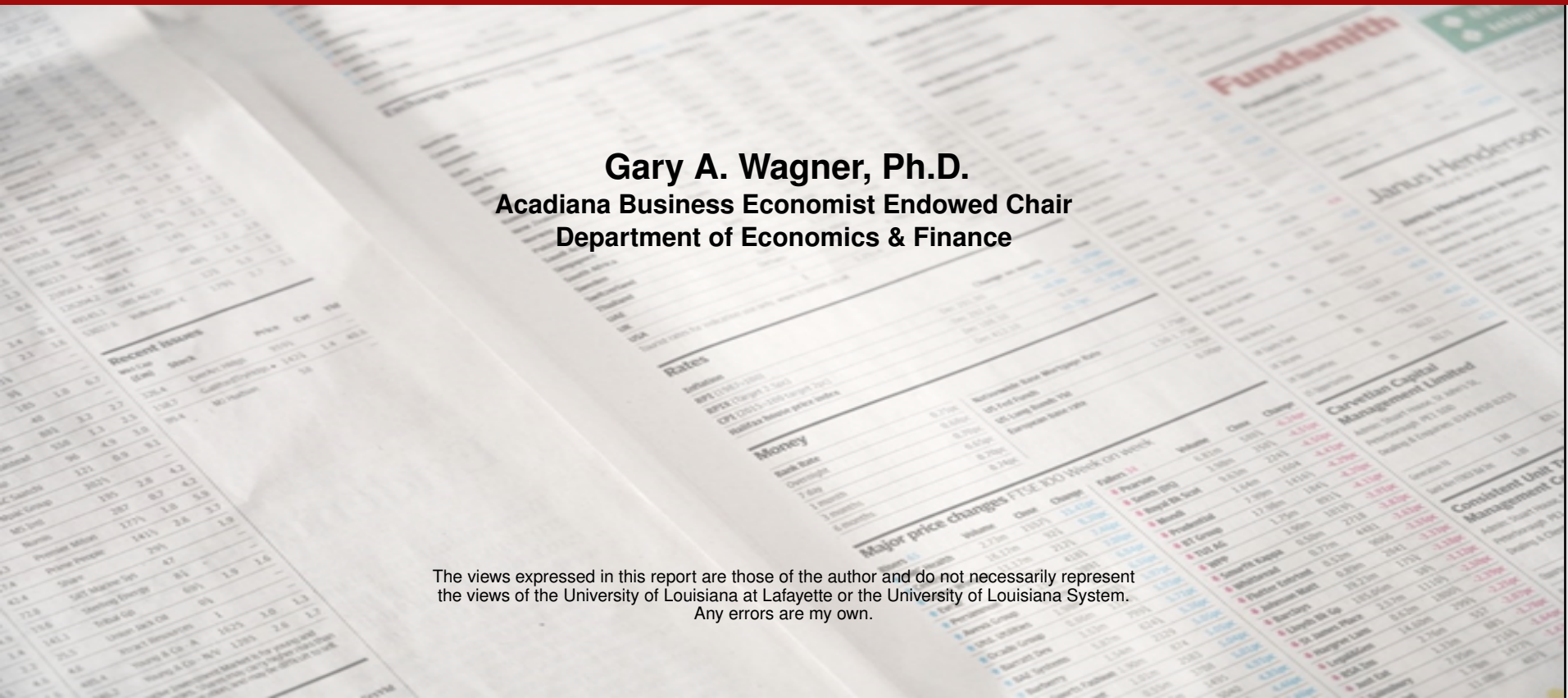
February 17, 2023

UNIVERSITY of LOUISIANA LAFAYETTE

B.I. Moody III College of Business Administration

Louisiana Economic Activity Forecast

2023:Q1



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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

The U.S. economy expanded at a 3% (annualized) clip over the past six months. While professional forecasters continue to expect slower growth in the second half of 2023, the national outlook has (slightly) improved for the first time in nearly two years. The outlook for Louisiana is largely unchanged from the previous report. While growth in statewide inflation-adjusted GDP is expected to remain close to zero for the next year and housing price growth is now expected to slow more rapidly, the state is expected to gain 6,000 more jobs in 2023 than previously projected. The New Orleans and Lake Charles regions are expected to gain the most jobs (in percentage terms) this year, but every region is projected to experience slower growth than last year.

2023 Report Release Schedule:
Second Quarter: May 19, 2023
Third Quarter: August 18, 2023
Fourth Quarter: November 17, 2023

10,000

Statewide job gains projected in 2023. An upward revision of 6,000 from the previous report.

3.4%

Average Q4 unemployment rate in Louisiana, an all-time low.

11.4%

Q3 year-over-year statewide home price growth.

Contents

Introduction 4
Alternative Economic Scenarios 5
Louisiana Employment Projections 8
Louisiana Unemployment Rate Projections 9
Louisiana GDP Projections 10
Louisiana Home Price Projections 11
Metro Area Employment Projections 12
Metro Area Employment Projections: Year-over-Year Growth 13
Metro Area Employment: COVID Job Losses and Recovery Relative to 2019:Q4 14
Technical Appendix 26
Data Appendix: Endogenous Variables 27
Data Appendix: Exogenous Variables 28
About the Author 29

List of Tables

1 Assumed Future Values of External Variables 5
2 One-Quarter Ahead Projection Errors: 2022:Q3 Projections for 2022:Q4 25

List of Figures

1 U.S. Economic Growth Scenarios 7
2 Louisiana Employment Projections 8
3 Louisiana Unemployment Rate Projections 9
4 Louisiana GDP Projections 10
5 Louisiana Home Price Projections 11
6 Metro Employment Projections 12
7 Metro Area Employment Projections: Year-over-Year Growth 13

8 Metro Area Employment: COVID Job Losses and Recovery Relative to 2019:Q4 14
9 Recent Recession Probabilities 15
10 Alexandria Metro Area: Additional Charts 16
11 Baton Rouge Metro Area: Additional Charts 17
12 Hammond Metro Area: Additional Charts 18
13 Houma-Thibodaux Metro Area: Additional Charts 19
14 Lafayette Metro Area: Additional Charts 20
15 Lake Charles Metro Area: Additional Charts 21
16 Monroe Metro Area: Additional Charts 22
17 New Orleans Metro Area: Additional Charts 23
18 Shreveport-Bossier Metro Area: Additional Charts 24

Introduction

For the first time in nearly two years, professional forecasters have upgraded the national economic outlook. Inflation-adjusted U.S. Gross Domestic Product (GDP) expanded at a 2.9% annual clip in the fourth quarter, and third quarter growth was revised up from 2.6% to a robust 3.2%. Labor markets, both nationally and in Louisiana, remain tight. The U.S. economy gained an average of 401,000 net new jobs per month in 2022, which is more than double the normal pace. In Louisiana, monthly payroll job gains averaged more than 3,800 a month, more than three times the normal rate. However, the risk of a national recession in 2023 remains elevated. 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. 2022:Q4 values for the Baseline, Optimistic, and Pessimistic scenarios are identical because this quarter has already occurred. This row is shaded gray. Values for 2023:Q1 to 2023:Q4 have yet to be realized.

Table 1: Assumed Future Values of External Variables

	U.S. GDP (% SAAR)			U.S. Unemployment Rate (%)			Oil Prices ($ per barrel)		
Quarter	Baseline	Optimistic	Pessimistic	Baseline	Optimistic	Pessimistic	Baseline	Optimistic	Pessimistic
2022:Q4	2.90	2.90	2.90	3.60	3.60	3.60	82.69	82.69	82.69
2023:Q1	0.58	1.47	-0.39	3.50	3.44	3.74	79.73	68.64	94.15
2023:Q2	1.02	1.51	-0.22	3.70	3.55	4.03	79.30	65.25	97.75
2023:Q3	-0.12	1.67	-0.19	3.92	3.70	4.33	77.00	58.72	108.77
2023:Q4	1.16	1.90	0.50	4.05	3.85	4.63	75.35	53.77	117.69

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 February 10, 2023. The Baseline expected path of oil prices is from the U.S. Energy Information Administration's Short-Term Economic Outlook released on February 7, 2023.

As previously noted, labor market conditions remain historically tight nationally and in Louisiana. According to the Bureau of Labor Statistics, the number of job openings per unemployed person recently reached an all-time high of 2.5 in Louisiana (data through November 2022). The state's (seasonally adjusted) unemployment rate also reached an all-time low, averaging just 3.4% during the fourth quarter. Labor markets are expected to soften later this year as the Federal Reserve continues to increase interest rates to further slow inflation.

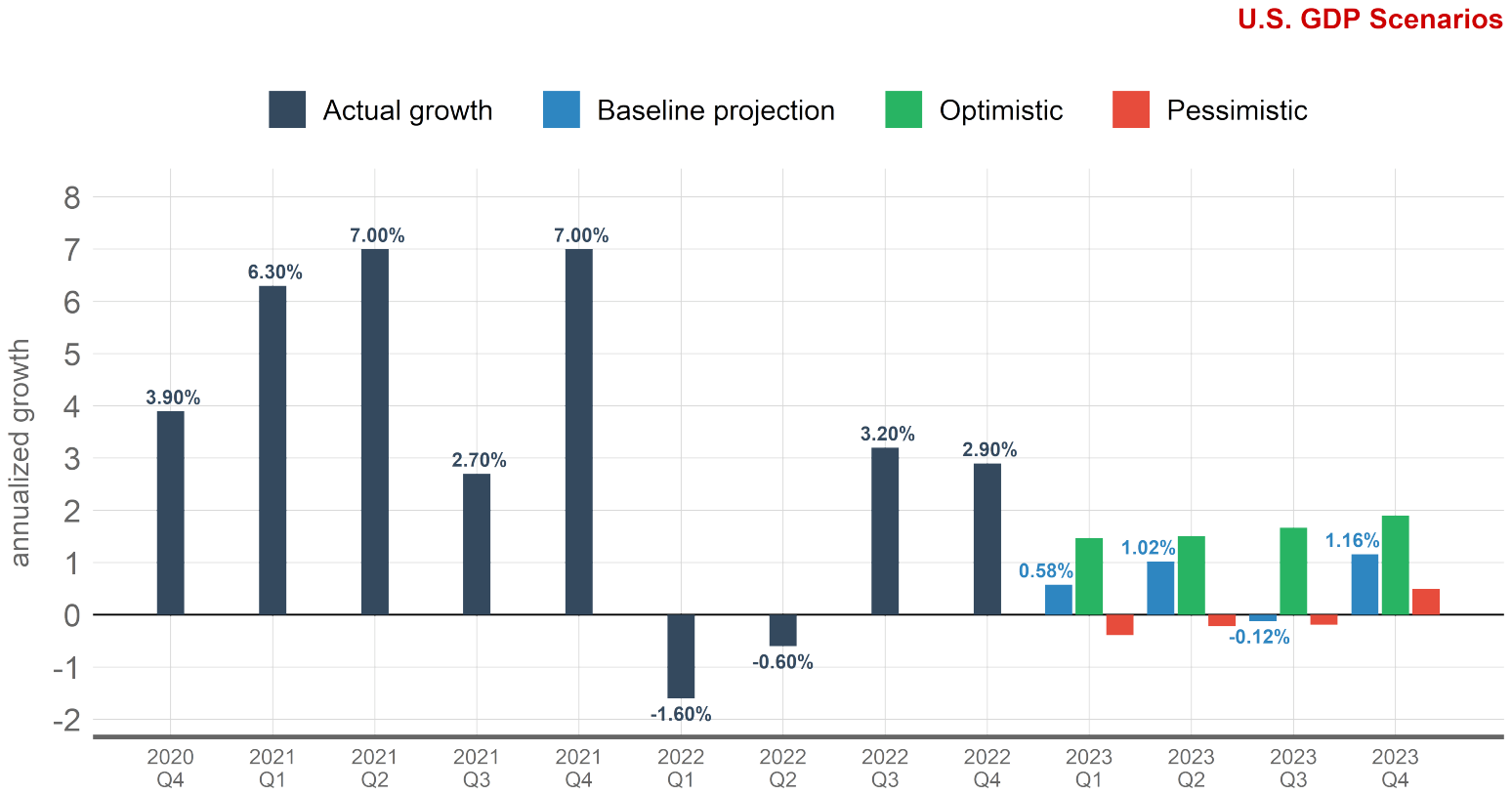
Respondents to the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters estimate the probability of a national recession to be above 40% for each of the next four quarters (see Figure 9). This risk is significantly higher than normal, but it also reflects a reduced risk from one quarter ago. Much of the recent recession discussion reflects changes in financial markets. Under normal conditions, short-term interest rates are lower than long-term interest rates. If this situation reverses and long-term rates fall below short-term rates, it is known as a yield curve inversion. The yield curve has inverted before every national recession since 1970. The yield curve inverted in mid-2022, and the gap between short- and long-term interest rates has widened. It is important to note that an inverted yield curve is not a guarantee of a future recession. While the yield curve has inverted *before* every recession since 1970, it has also inverted on several occasions that were not followed by a recession. The risks of a recession in 2023 are elevated, but they are also far from certain given the strength in labor markets and, to a lesser extent, household financial positions.

Consumer spending was strong in October, before falling in both November and December. Consistent with last quarter's report, purchases of goods, particularly durable goods, remains weak. Over the past 12 months, spending on commercial and residential buildings have been the largest drag on overall economic growth. On the residential side, for example, inflation-adjusted spending averages 4.4% per quarter. In 2022, inflation-adjusted spending on residential structures contracted more than 20% in the third *and* fourth quarter.

The Optimistic and Pessimistic scenarios, which I would assign a 10% and 25% 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 65% probability to the Baseline forecast.

Over the next four quarters, the Baseline scenario projects U.S. GDP to grow at an annual pace of 0.66%, a slight improvement from three months ago. Figure 1 on the next page shows U.S. GDP under the three scenarios considered. The Pessimistic scenario, which is the 25th percentile from the most recent Survey of Professional Forecasters, now points to negative GDP growth in the first nine months of 2023, a downward revision from last quarter.

Figure 1: U.S. Economic Growth Scenarios



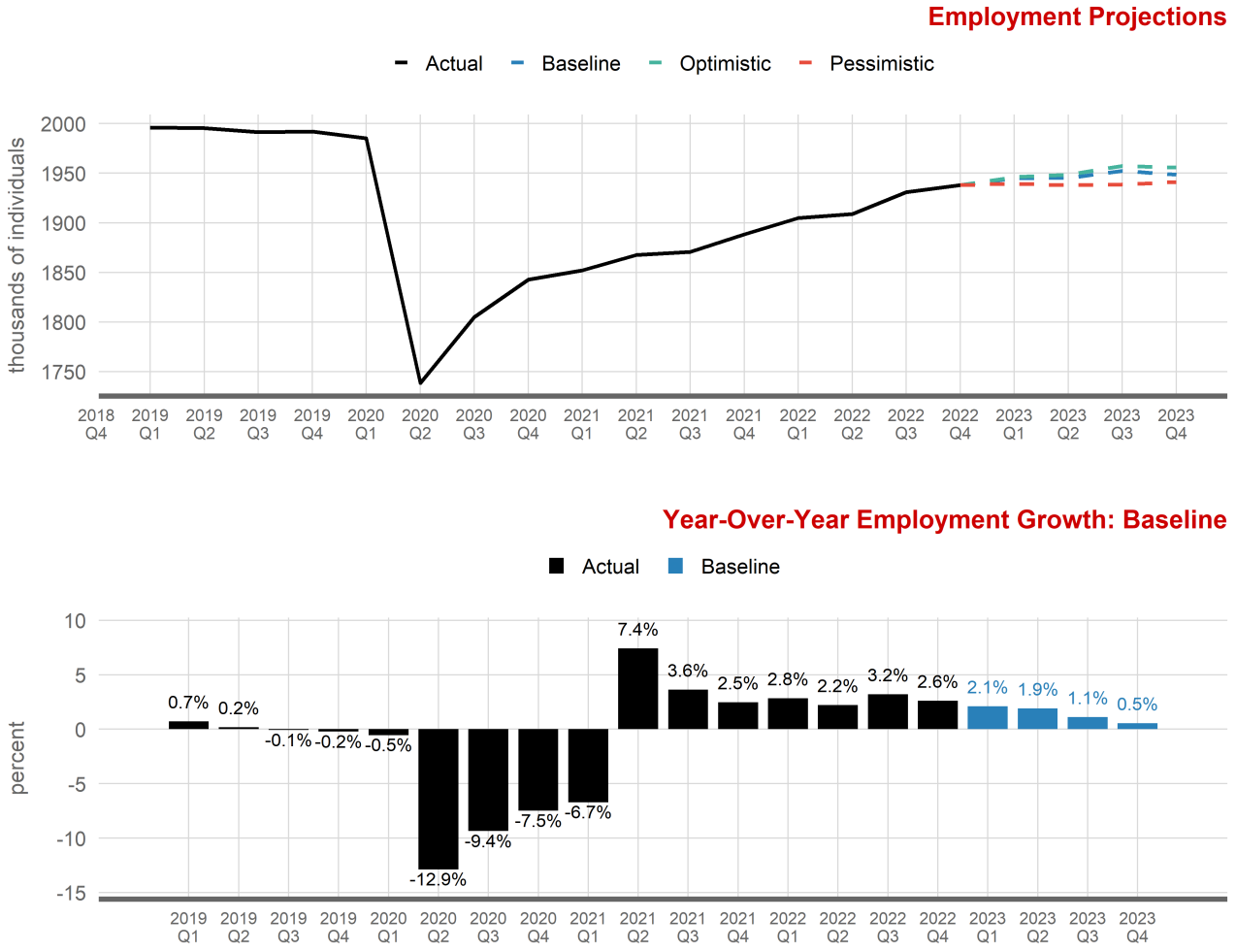
Louisiana Employment Projections

Louisiana added more than 7,200 payroll jobs in Q4, the second consecutive quarter of solid gains. Statewide (net) job gains for the year equaled 49,600. Despite the growth, the total number of jobs in Louisiana remains 2.7% below pre-COVID levels (about 54,000 jobs). The Baseline scenario points to somewhat slower growth in 2023, with job gains of roughly 10,000 for the year. This is an upward revision from last quarter's report that projected gains of 4,000 jobs in 2023.

While every metro area in the state experienced job gains between Q3 and Q4, the strongest year-over-year gains were in New Orleans (4.3%), Houma (3.1%), and Lafayette (2.5%). Consistent with the statewide projections, the Baseline metro area projections point to slower employment growth this year, particularly in the second-half of the year. New Orleans and Lake Charles are expected to experience the strongest job gains in 2023.

The employment forecast error from the previous report was 0.71%. See Table 2 for forecast errors from the previous report.

Figure 2: Louisiana Employment Projections



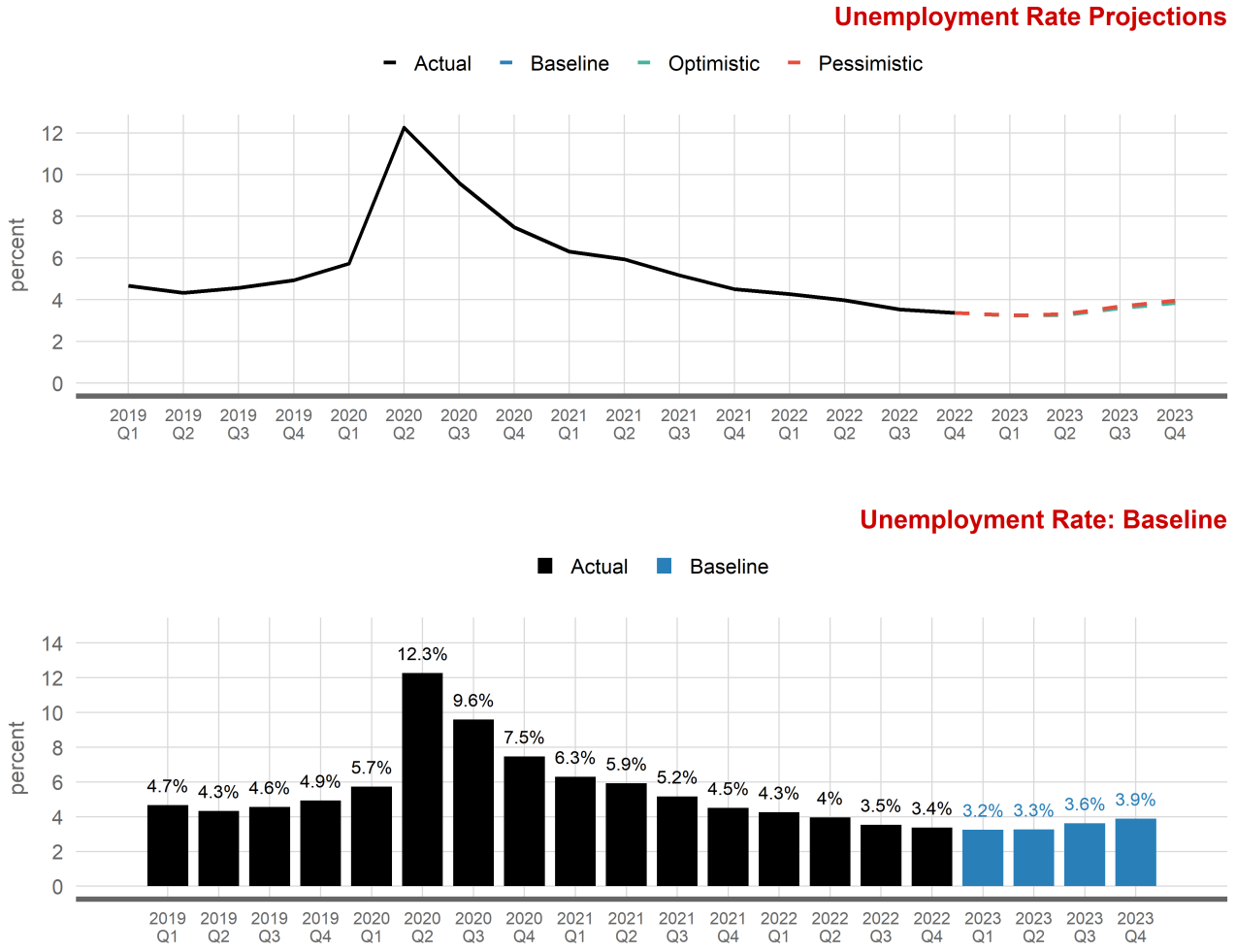
Louisiana Unemployment Rate Projections

Louisiana's unemployment rate reached another all-time low in Q4, averaging 3.4%. This is the lowest recorded quarterly average since 1976 (as far back as these data exist).

Under the Baseline scenario, the state's unemployment rate is project to fall slightly in Q1 before gradually increasing to 3.9% at the end of 2023.

The unemployment rate forecast error from the previous report was 5.88%. See Table 2 for forecast errors from the previous report.

Figure 3: Louisiana Unemployment Rate Projections



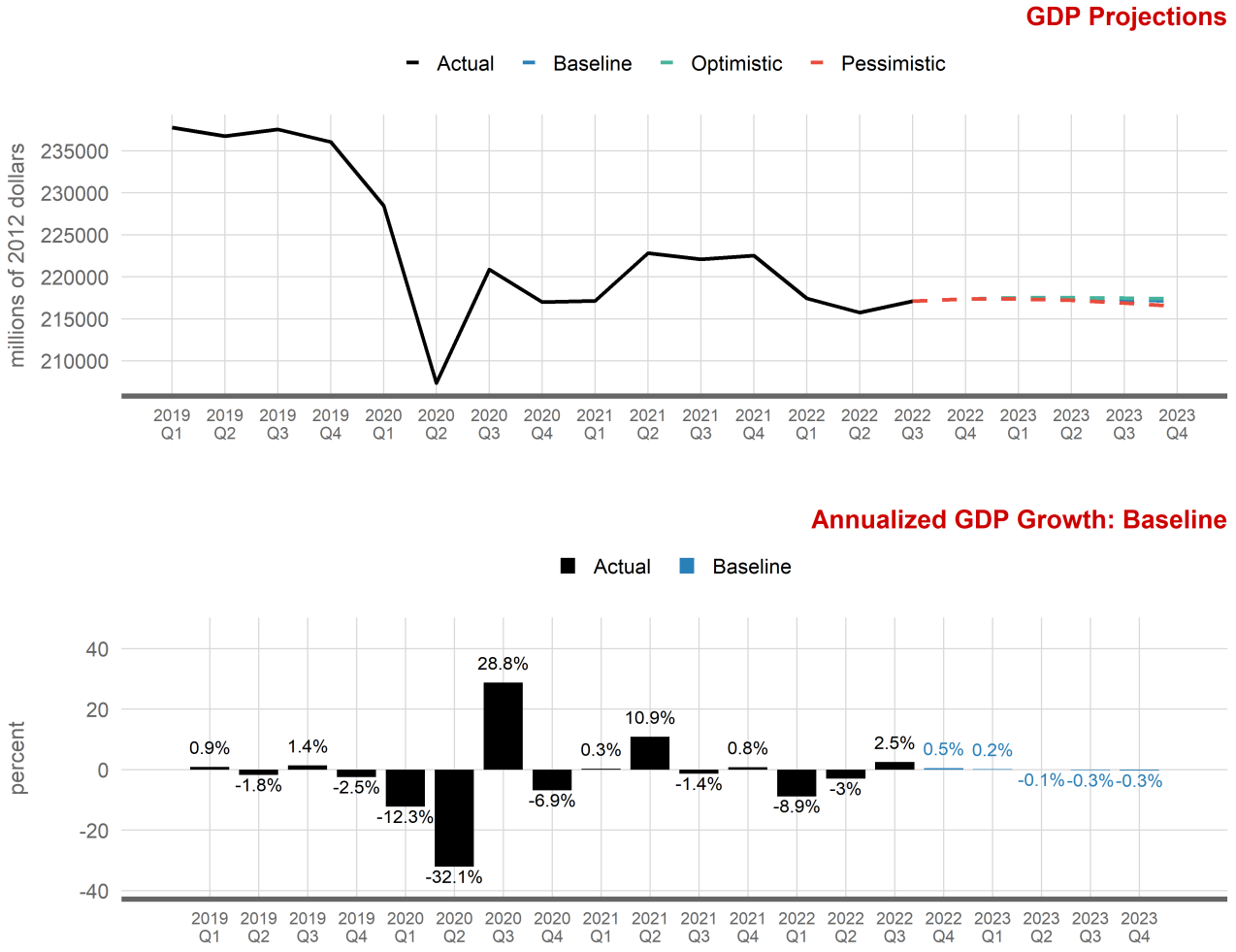
Louisiana GDP Projections

Following sizable contractions of 8.9% and 3.0% in Q1 and Q2, growth in (inflation-adjusted) GDP rebounded to +2.5% in Q3. This was the first solid quarterly reading in statewide economic output in more than one year.

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 0.53%. See Table 2 for forecast errors from the previous report.

Figure 4: Louisiana GDP Projections



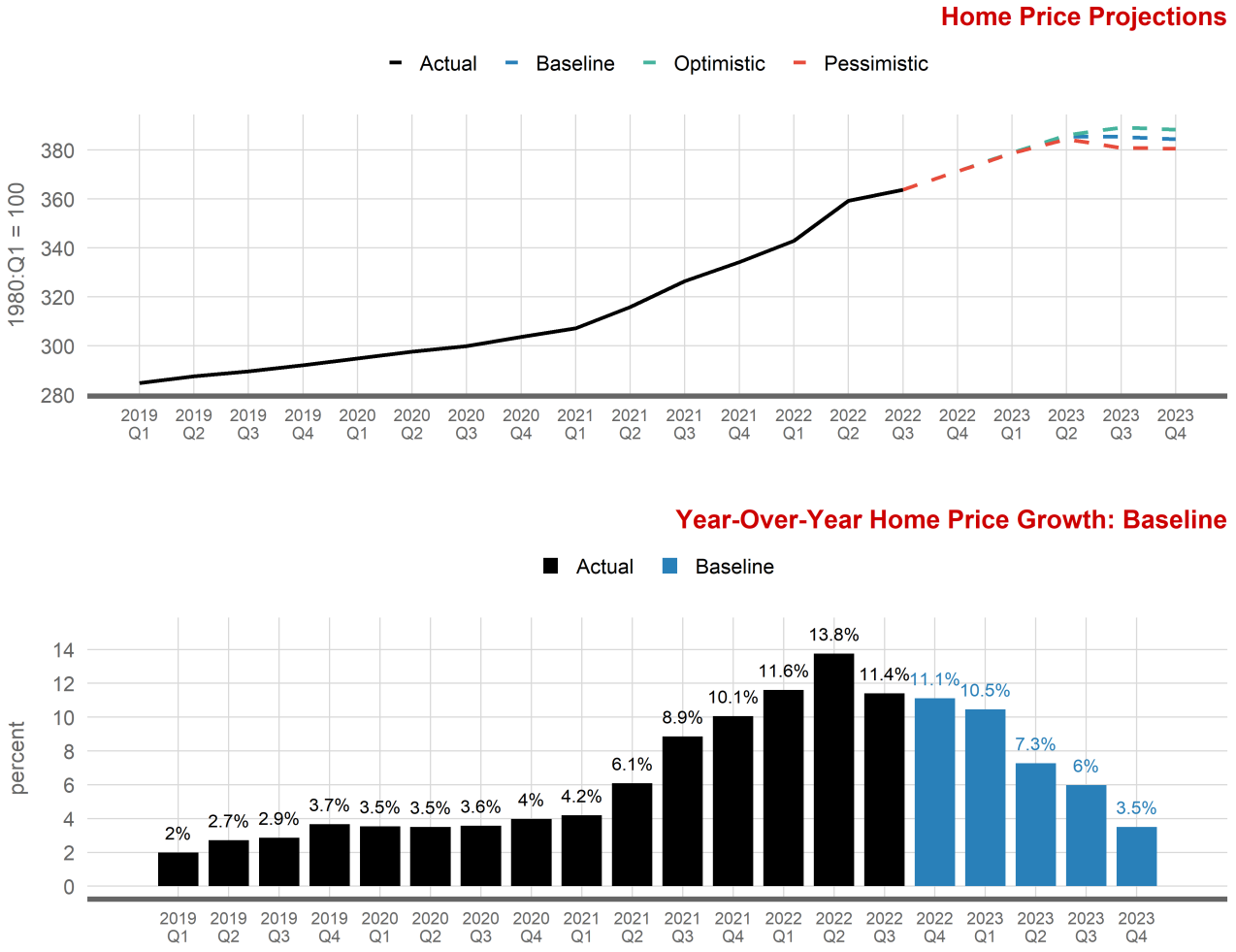
Louisiana Home Price Projections

Despite a correction in housing markets, statewide home price growth remains well above pre-COVID norms. Year-over-year growth slowed to 11.4% in Q3, down from a high of more than 13% in Q2. The Baseline scenario now points to a more rapid slow down in housing prices from last quarter's report. Year-over-year home prices are now expected to fall below 4% by the end of 2023.

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

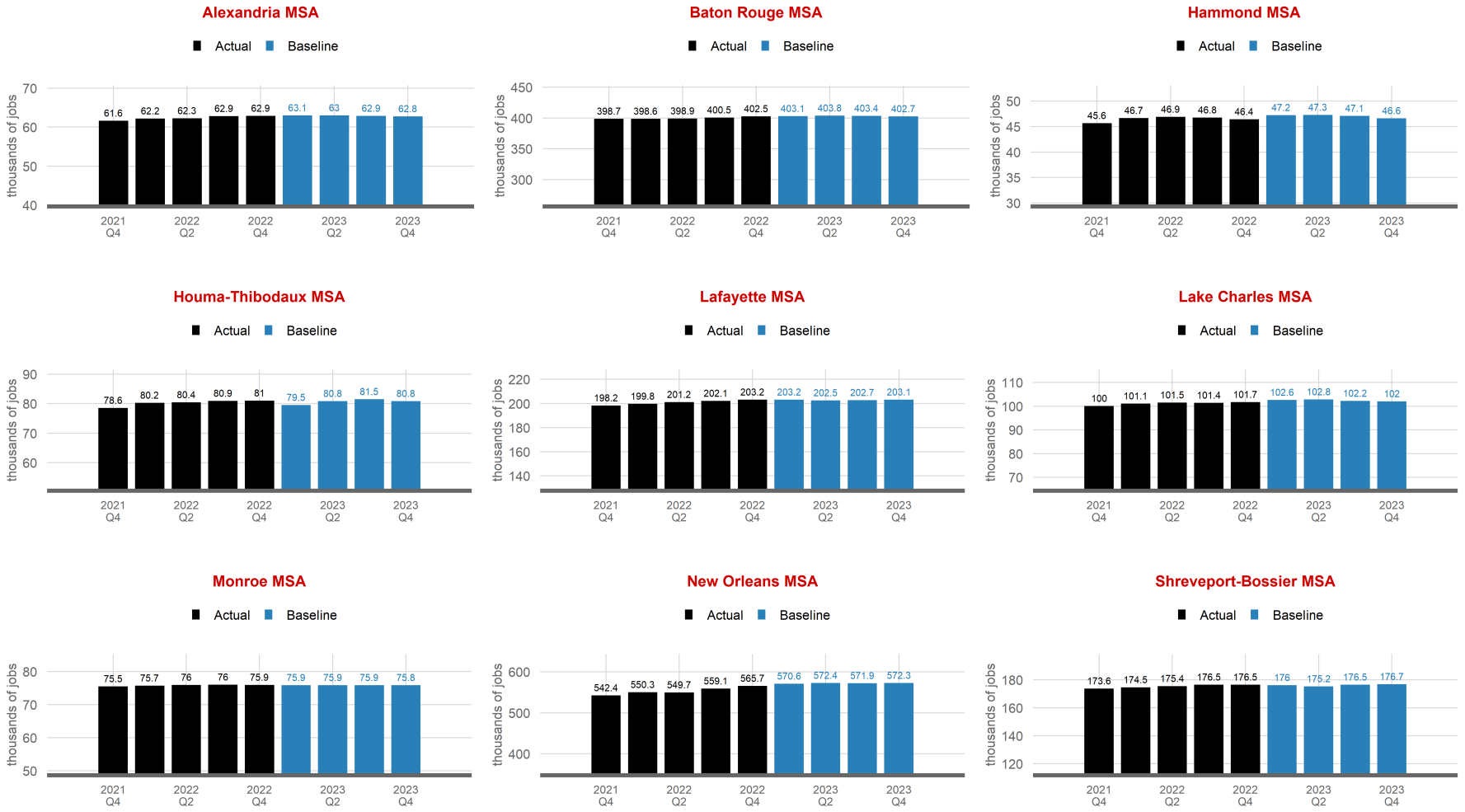
The previous LEAF report's forecast error for home prices was 1.26%. See Table 2 for forecast errors from the previous report.

Figure 5: Louisiana Home Price Projections



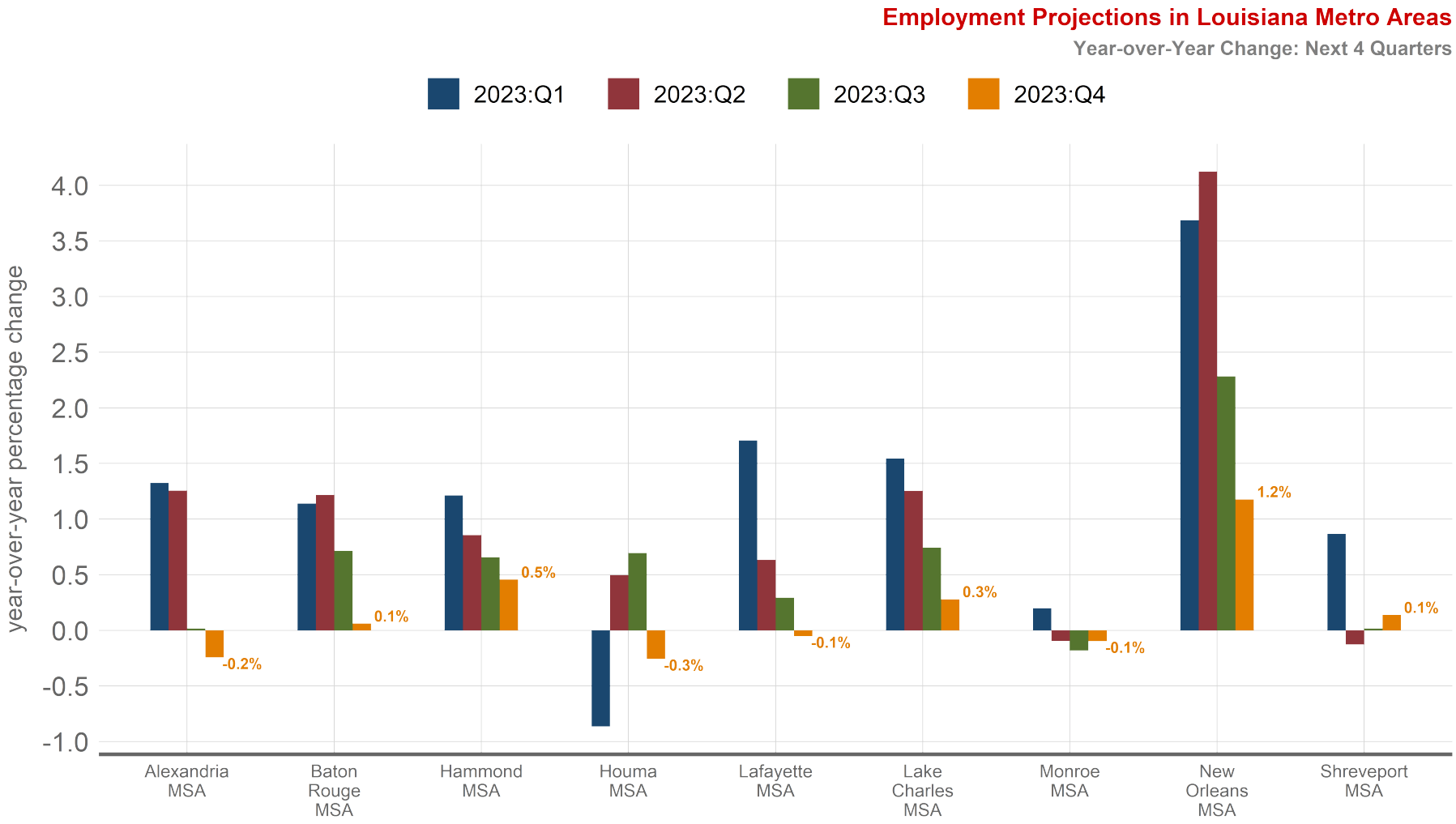
Metro Area Employment Projections

Figure 6: Metro Employment Projections



Metro Area Employment Projections: Year-over-Year Growth

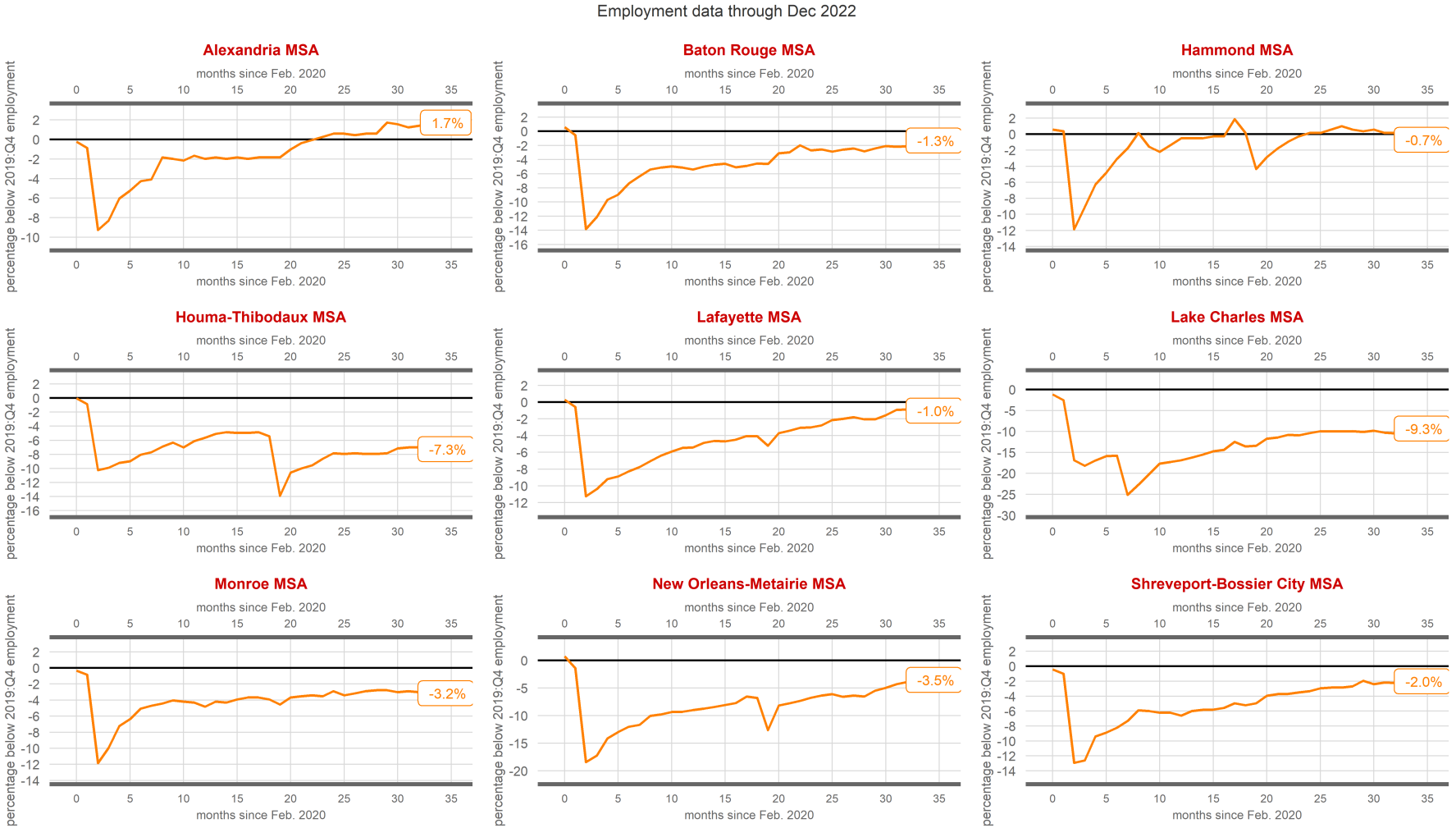
Figure 7: Metro Area Employment Projections: Year-over-Year Growth



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

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

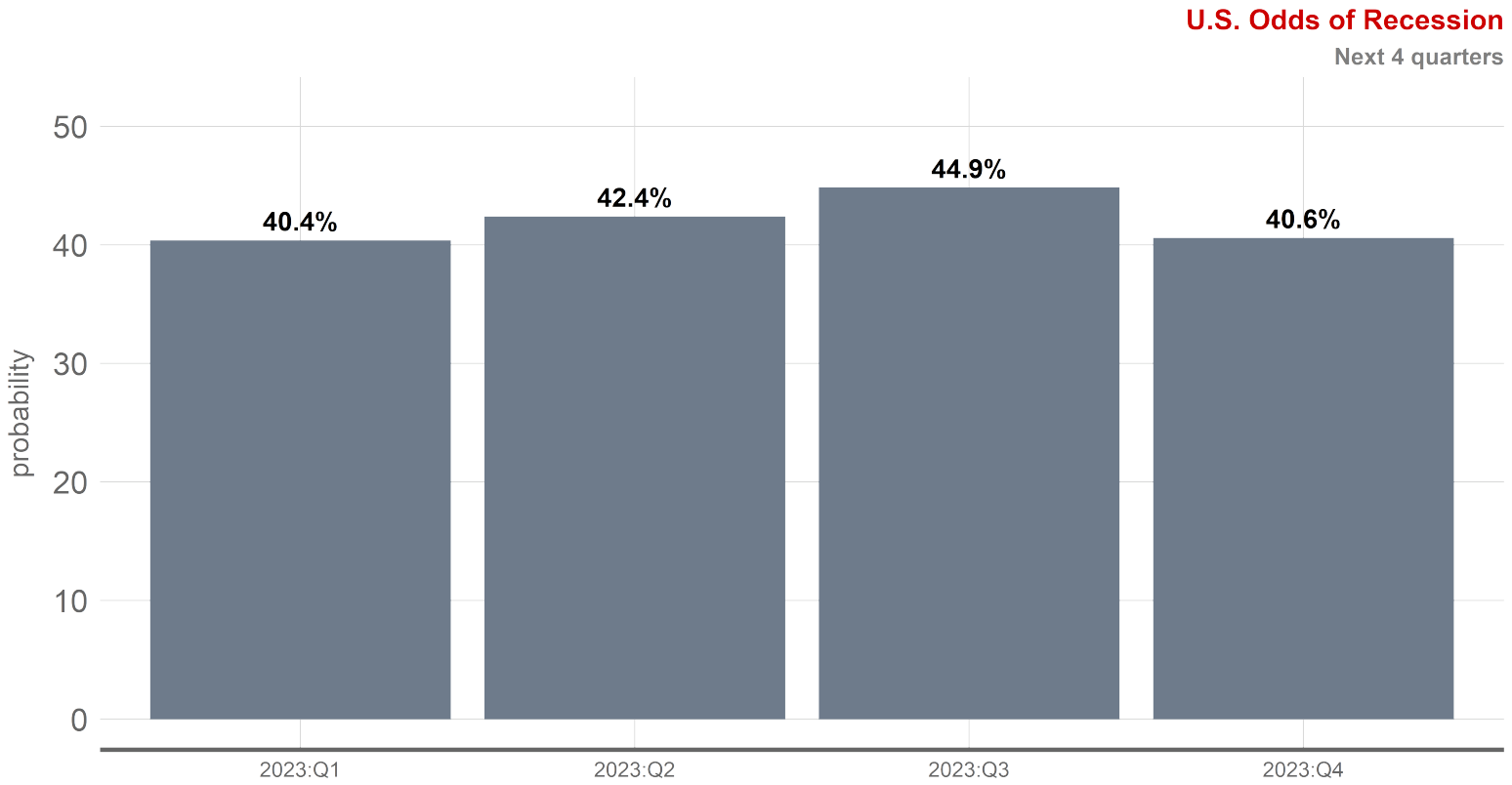
Figure 8: Metro Area Employment: COVID Job Losses and Recovery Relative to 2019:Q4



Source: Raw data from the Bureau of Labor Statistics.

Recession Probabilities Over the Next Year

Figure 9: Recent Recession Probabilities

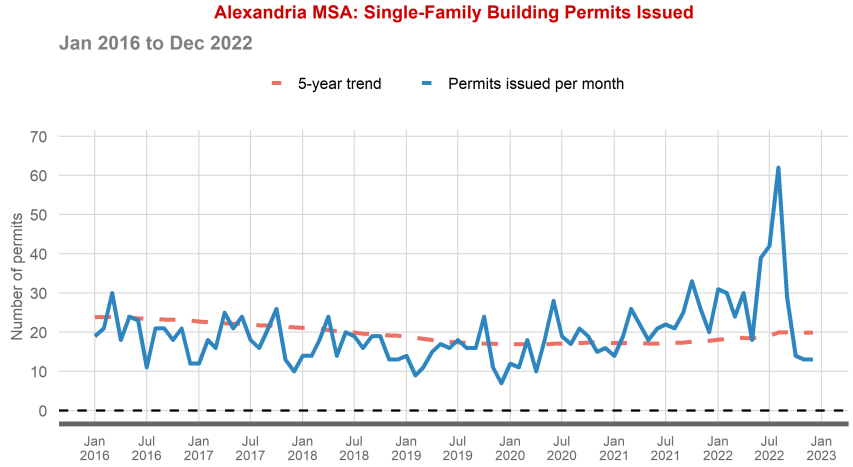


Source: Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia.

Alexandria MSA: Additional Charts

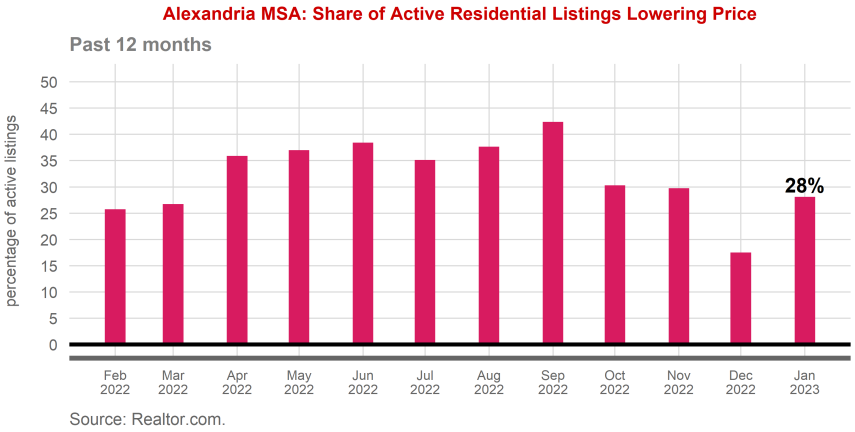
Figure 10: Alexandria Metro Area: Additional Charts

Source: Bureau of Labor Statistics.



Source: Census Bureau.

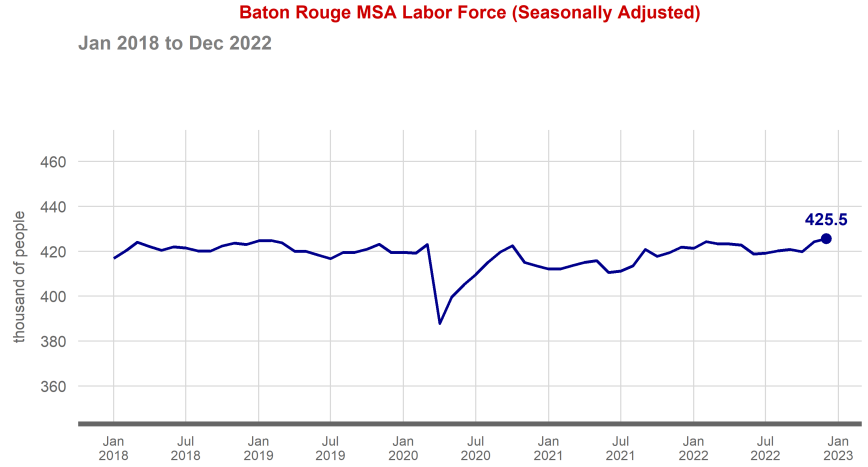
Source: Realtor.com.



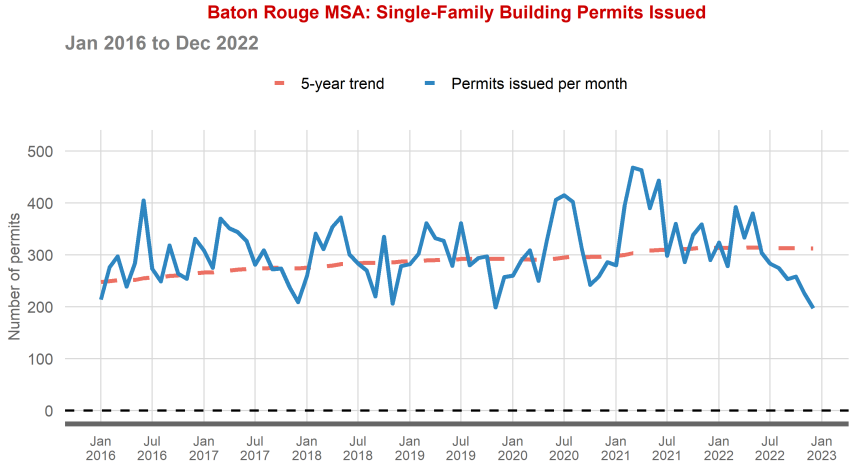
Source: Realtor.com.

Baton Rouge MSA: Additional Charts

Figure 11: Baton Rouge Metro Area: Additional Charts



Source: Bureau of Labor Statistics.



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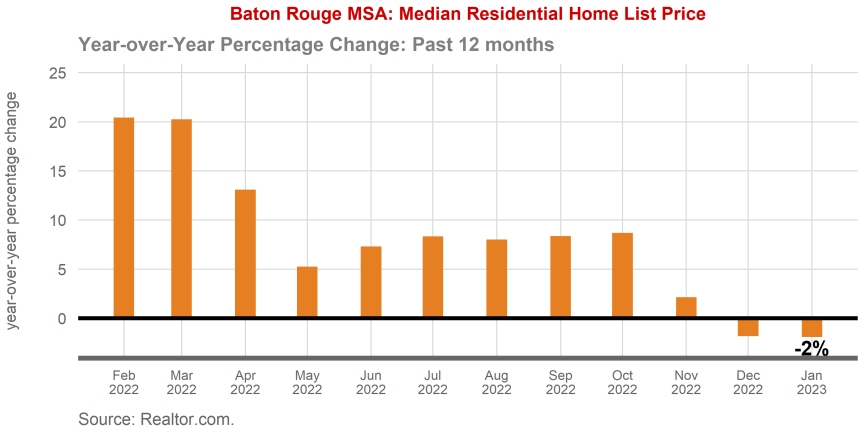

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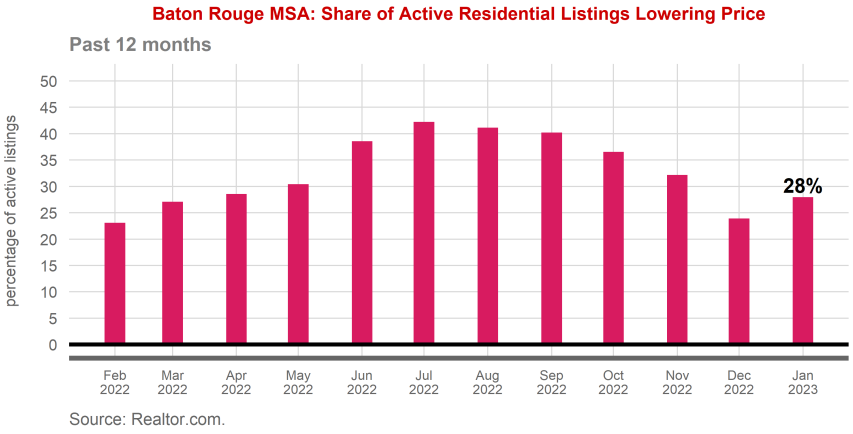
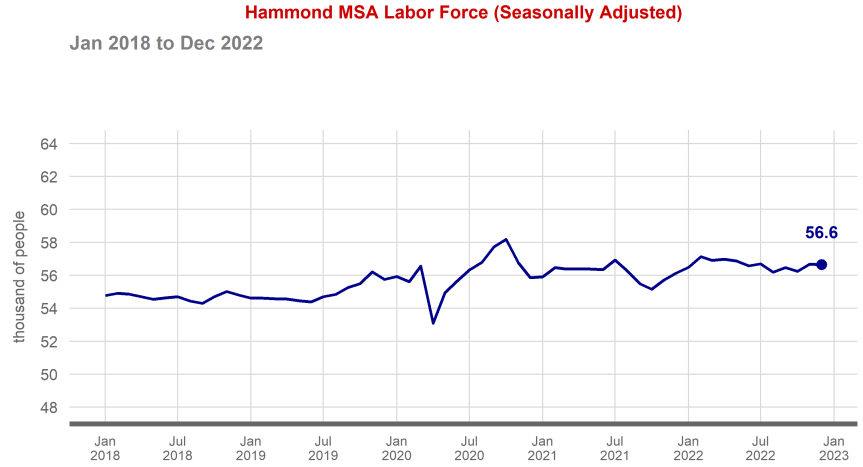


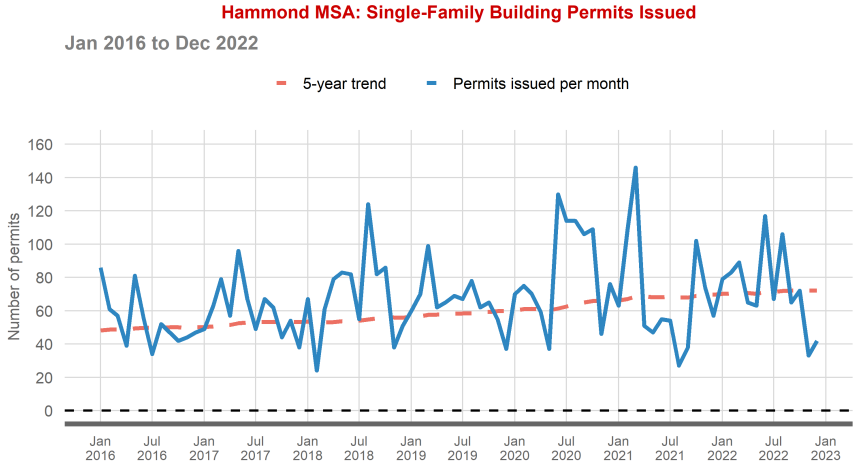
Source: Realtor.com.

Hammond MSA: Additional Charts

Figure 12: Hammond Metro Area: Additional Charts



Source: Bureau of Labor Statistics.



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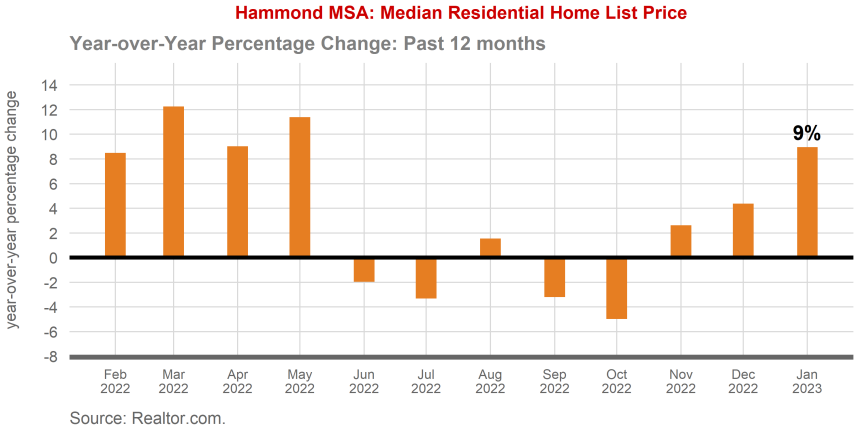

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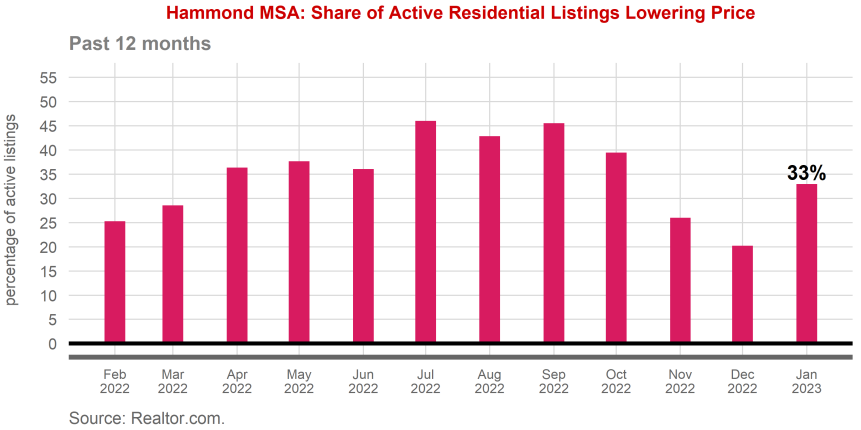
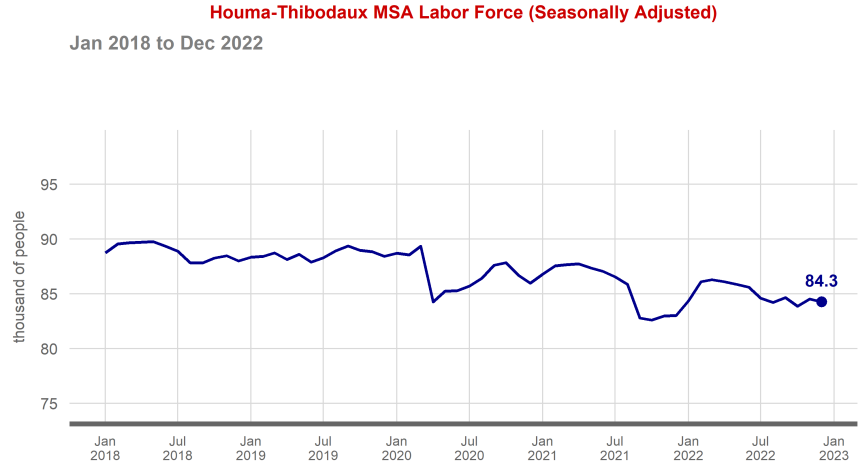


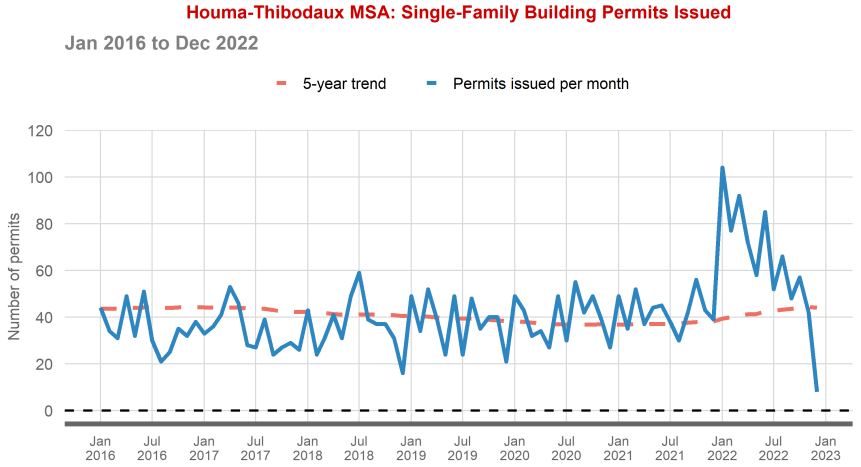
Source: Realtor.com.

Houma-Thibodaux MSA: Additional Charts

Figure 13: Houma-Thibodaux Metro Area: Additional Charts



Source: Bureau of Labor Statistics.



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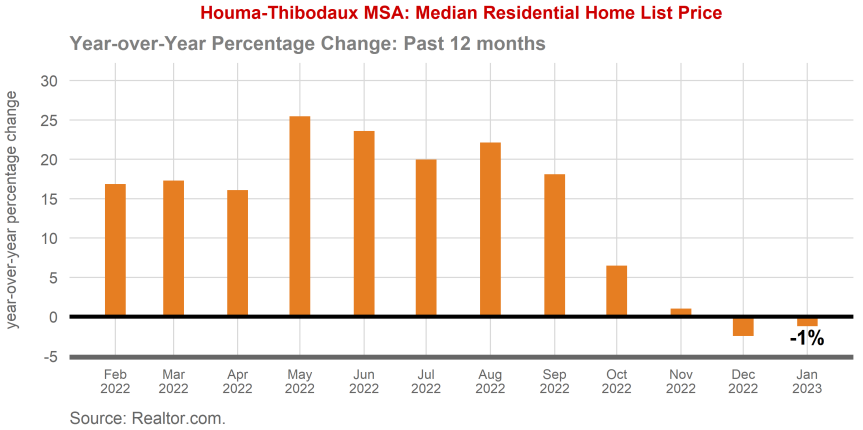
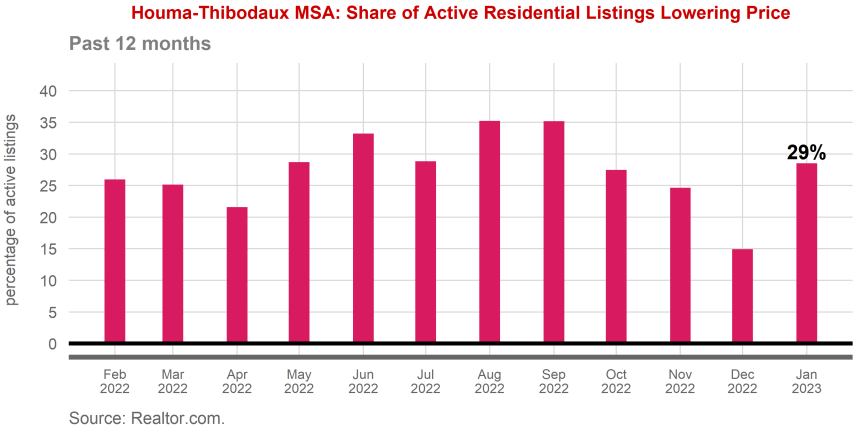


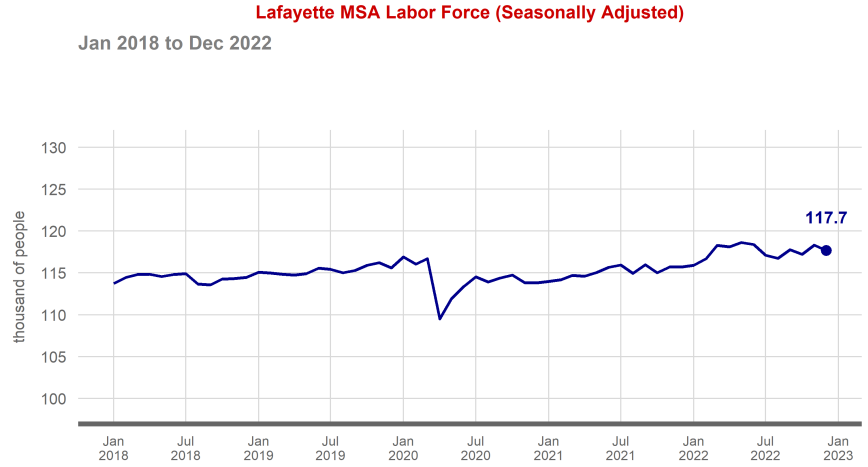
Source: Realtor.com.



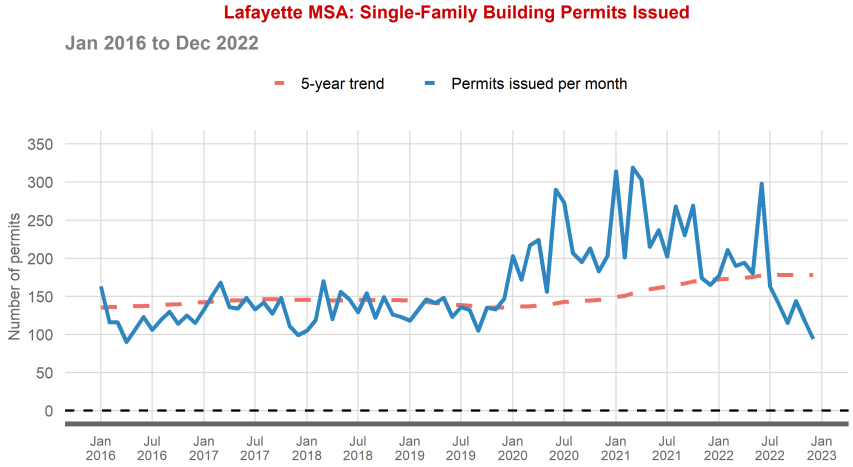
Source: Realtor.com.

Lafayette MSA: Additional Charts

Figure 14: Lafayette Metro Area: Additional Charts



Source: Bureau of Labor Statistics.



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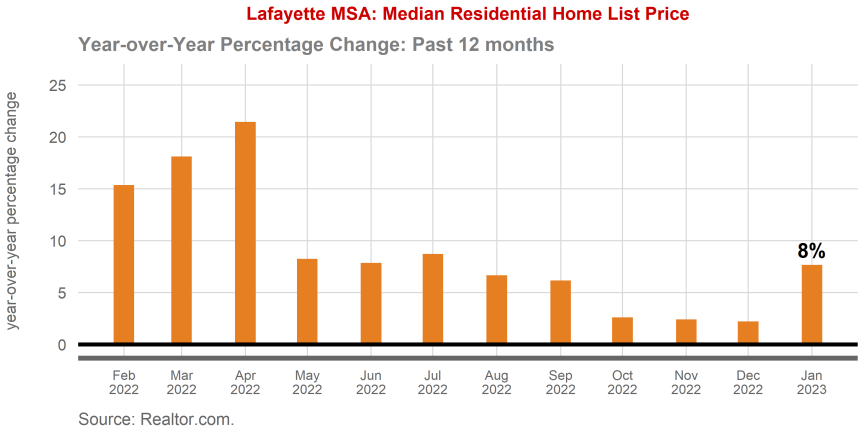

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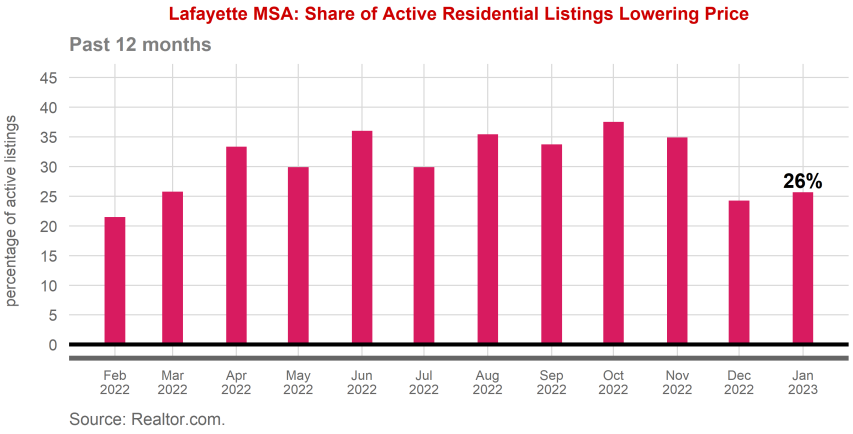
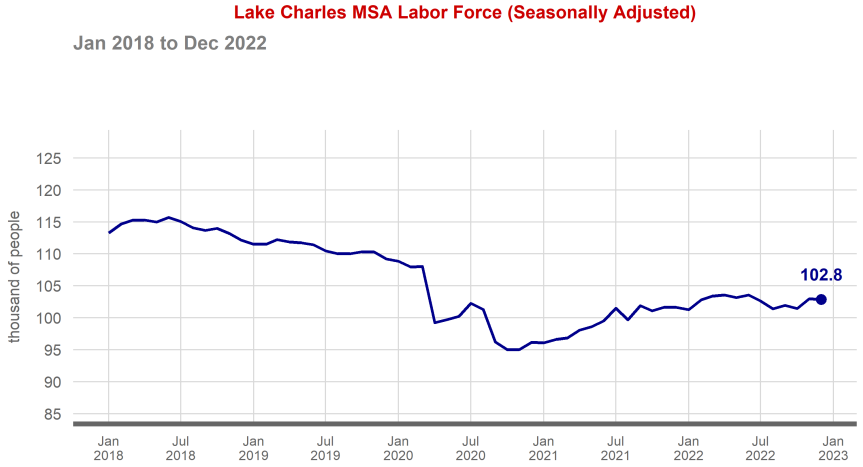


Source: Realtor.com.

Lake Charles MSA: Additional Charts

Figure 15: Lake Charles Metro Area: Additional Charts



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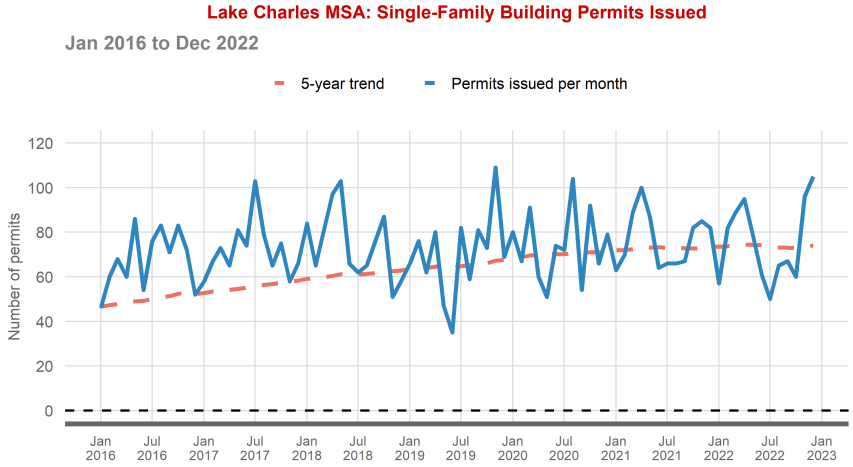
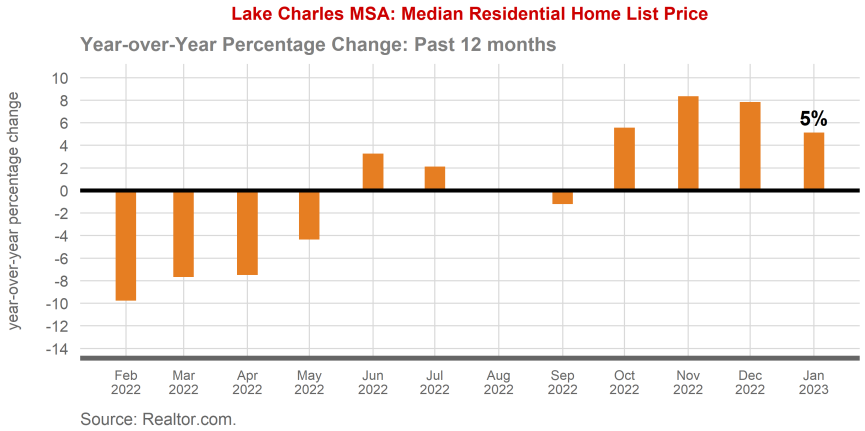
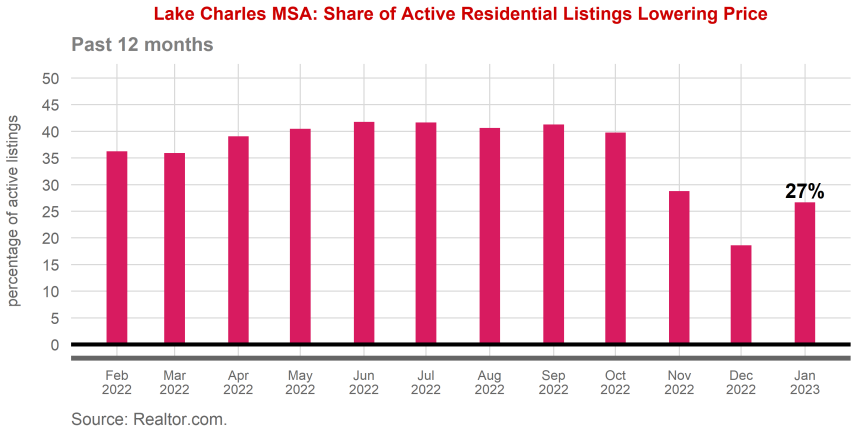


Source: Census Bureau.



Source: Realtor.com.

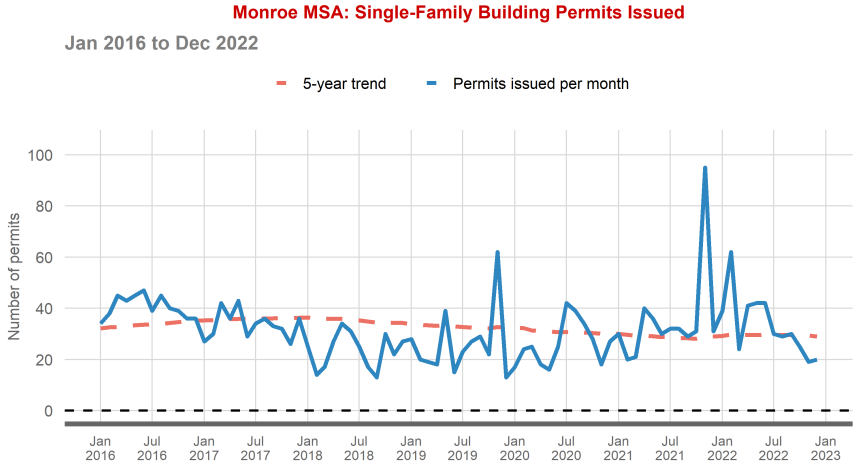


Source: Realtor.com.

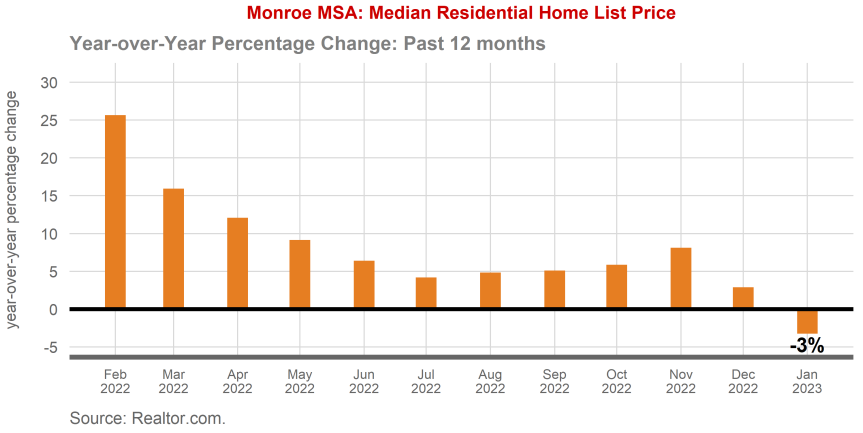
Monroe MSA: Additional Charts

Figure 16: Monroe Metro Area: Additional Charts

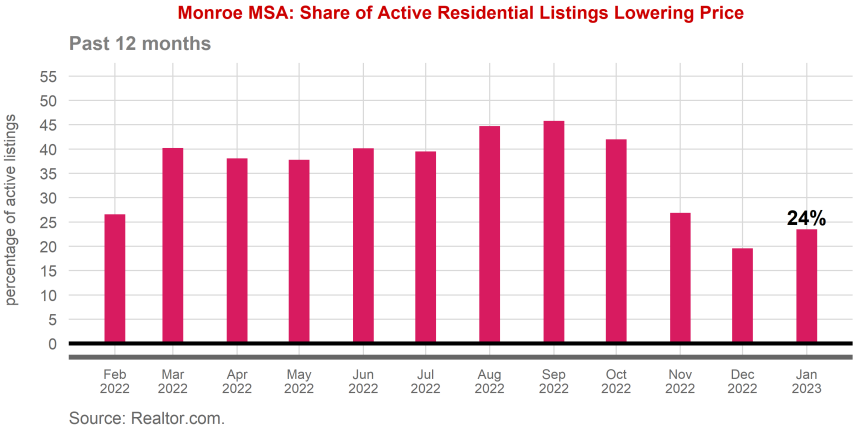
Source: Bureau of Labor Statistics.



Source: Census Bureau.



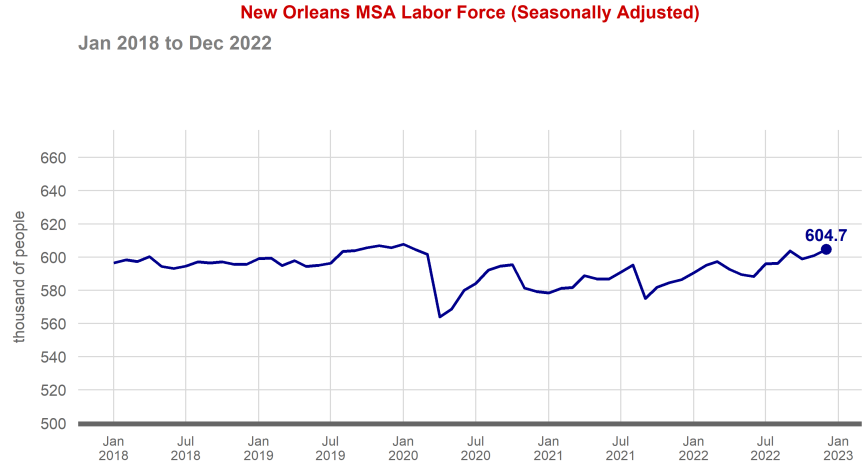
Source: Realtor.com.



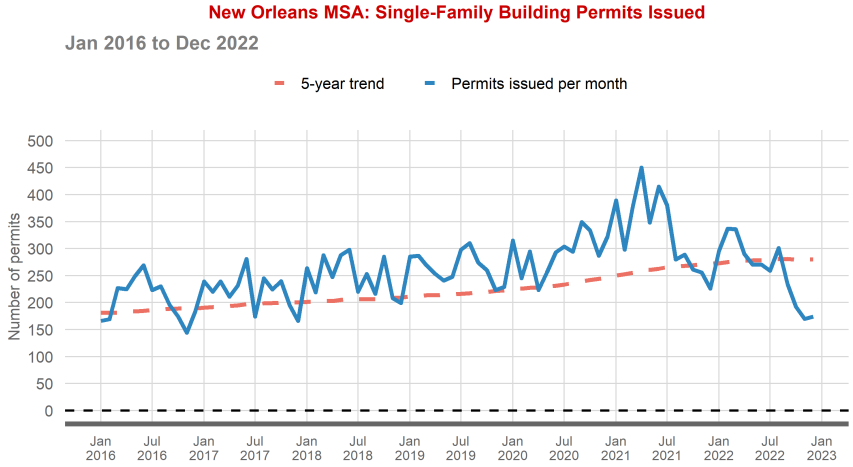
Source: Realtor.com.

New Orleans MSA: Additional Charts

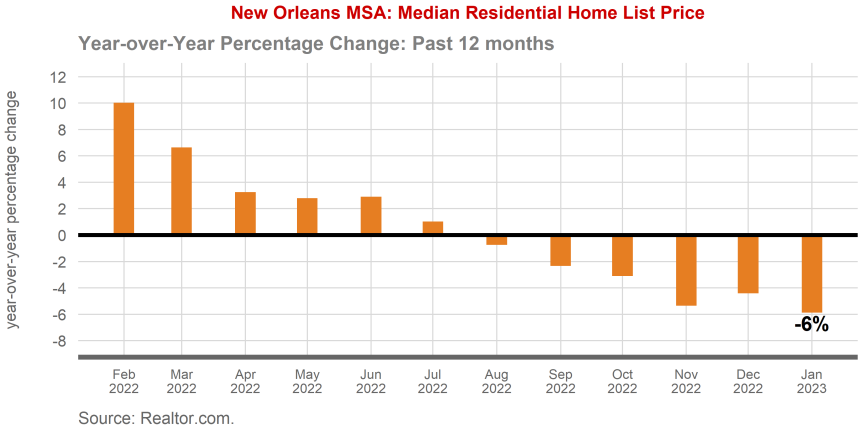
Figure 17: New Orleans Metro Area: Additional Charts



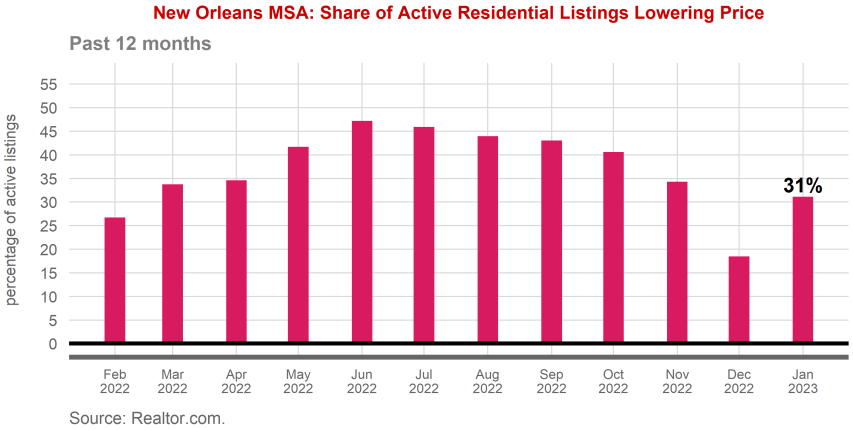
Source: Bureau of Labor Statistics.



Source: Census Bureau.



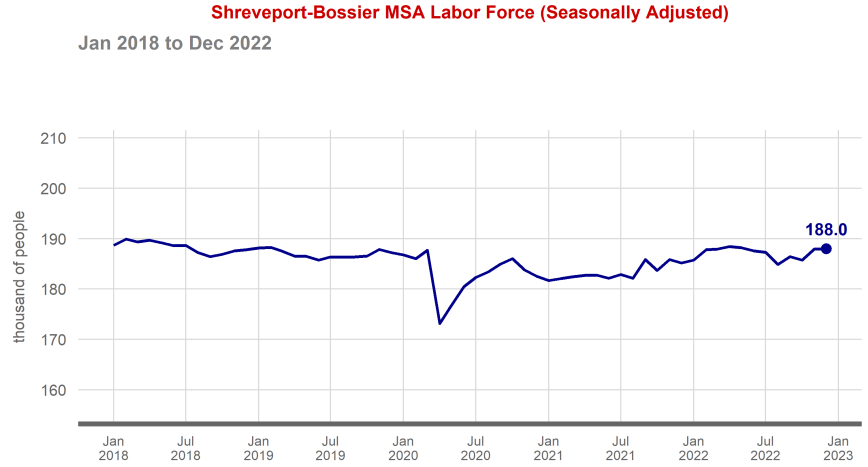
Source: Realtor.com.



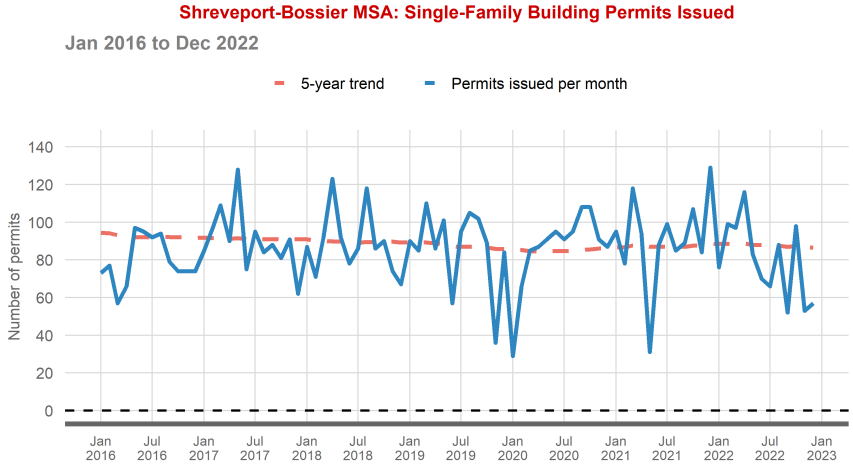
Source: Realtor.com.

Shreveport-Bossier MSA: Additional Charts

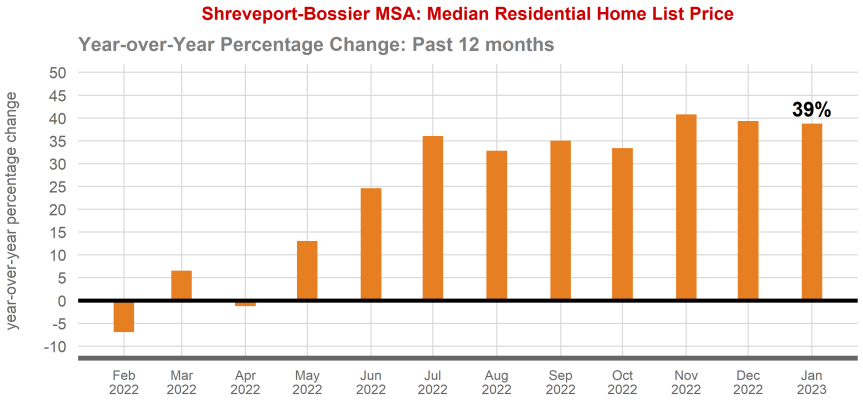
Figure 18: Shreveport-Bossier Metro Area: Additional Charts



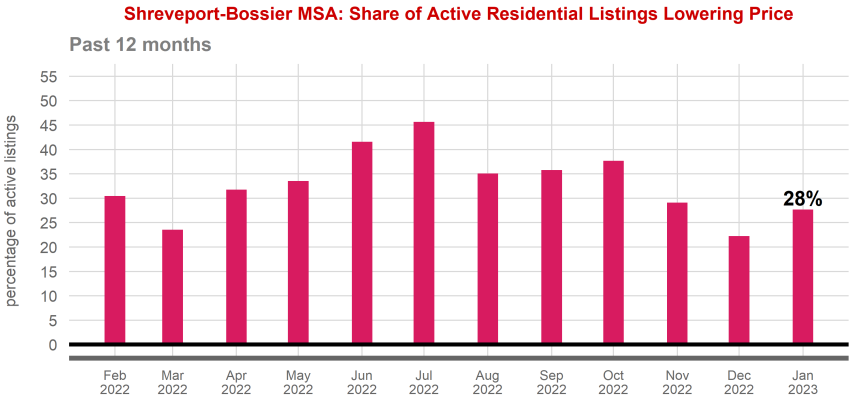
Source: Bureau of Labor Statistics.



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:Q3 Projections for 2022:Q4

Variable	Baseline Projection	Actual Value	Absolute % Error
employment (statewide)	1924.20	1938.00	0.71
unemployment rate	3.60	3.40	5.88
GDP	215954.80	217109.30	0.53
FHFA home price index	359.20	363.80	1.26
Alexandria MSA employment	63.00	62.90	0.16
Baton Rouge MSA employment	401.60	402.50	0.22
Hammond MSA employment	45.90	46.40	1.08
Houma-Thibodaux MSA employment	79.60	81.00	1.73
Lafayette MSA employment	202.40	203.20	0.39
Lake Charles MSA employment	102.30	101.70	0.59
Monroe MSA employment	76.00	75.90	0.13
New Orleans MSA employment	564.40	565.70	0.23
Shreveport-Bossier MSA employment	176.90	176.50	0.23

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 (SMU22252200000000001SA), 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 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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