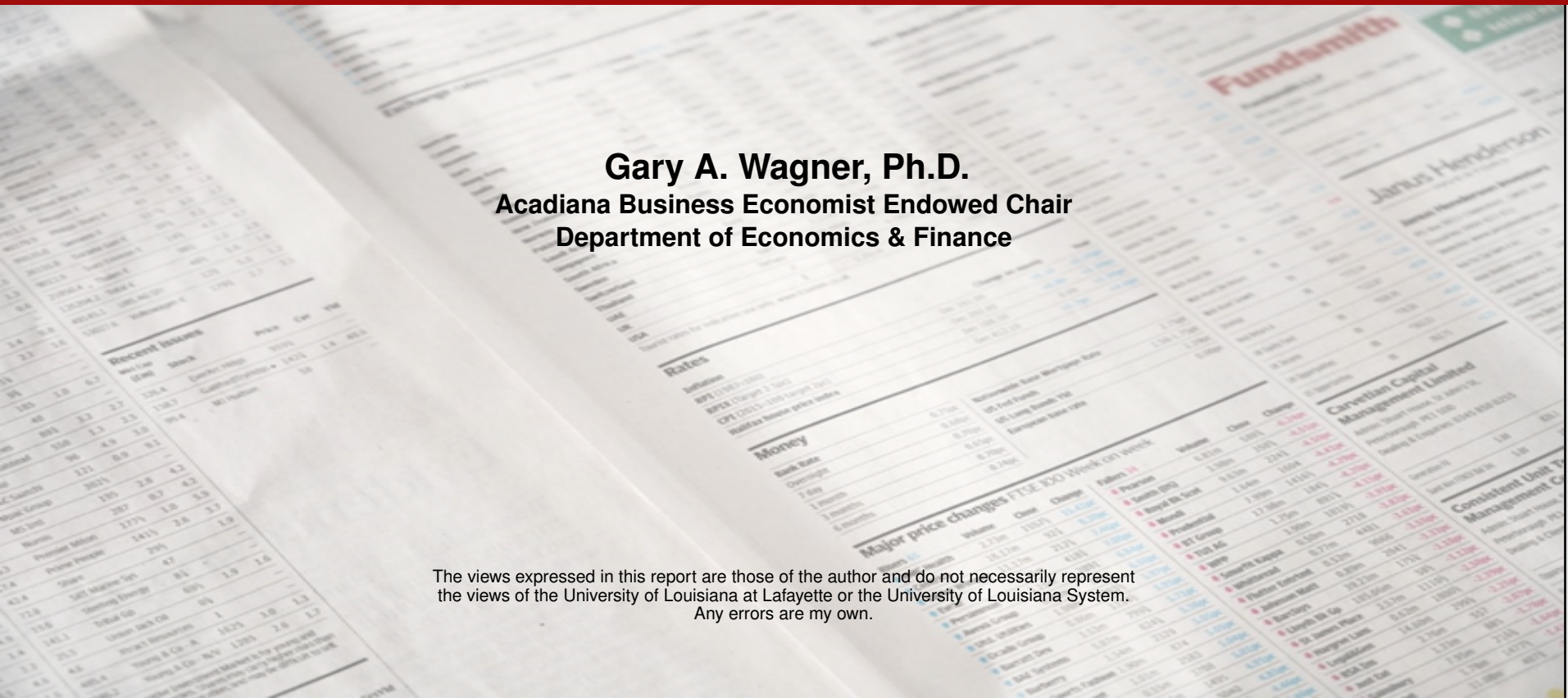
November 18, 2022

UNIVERSITY of LOUISIANA LAFAYETTE

B.I. Moody III College of Business Administration

Louisiana Economic Activity Forecast

2022:Q4



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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

After contracting in the first and second quarters of the year, growth in inflation-adjusted U.S. Gross Domestic Product (GDP) rebounded at a healthy 2.6% clip in the third quarter. Despite the strong showing, professional forecasters now expect the U.S. economy to grow at half the pace that was projected three months ago because of lingering inflation. As a result, the economic outlook for Louisiana is also being downgraded from last quarter's report. Louisiana's inflation-adjusted GDP is projected to contract in four of the next five quarters. Labor and housing markets, which have been bright spots, are also expected to slow. Statewide job gains are projected to be "flat" over the next year, and the unemployment rate is projected to begin gradually increasing. Home price growth expected to slow sharply – but remain positive – in 2023. Job growth is also expected to slow in every metro area of the state, particularly in the second-half of 2023.

Every forecasting model contains uncertainty.The results in this report are intended to provide broad guidance and should not be a direct cause for decision-making.

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

21,500

Statewide job gains between Q2 and Q3.

-1.3%

Louisiana's projected average GDP growth rate over the next 5 quarters.

4.5%

Projected home price growth (statewide) in 2023.

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Introduction

After contracting in the first and second quarters of the year, growth in inflation-adjusted U.S. Gross Domestic Product (GDP) rebounded at a healthy 2.6% clip in the third quarter. The U.S. economy has added an average of 406,000 new jobs per month in 2022, about 60% higher than the normal pace. Despite the strong showing in the past quarter, respondents to the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters have downgraded the national economic outlook for the sixth consecutive quarter. GDP is now expected to grow an average of 0.57% over the next four quarters, roughly half the rate that was projected three months ago. 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 third quarter of 2023. The outlook for the state is once again being downgraded because of the weakened national outlook. GDP growth in the state is expected to contract over the next year, which will further dampen job growth and lead to higher unemployment.

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:Q3 values for the Baseline, Optimistic, and Pessimistic scenarios are identical because this quarter has already occurred. This row is shaded gray. Values for 2022:Q4 to 2023:Q3 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:Q3	2.60	2.60	2.60	3.57	3.57	3.57	93.07	93.07	93.07
2022:Q4	1.00	2.00	-0.07	3.70	3.65	3.80	86.51	72.42	105.67
2023:Q1	0.19	1.39	-0.50	3.82	3.72	4.00	87.67	69.71	112.06
2023:Q2	0.22	1.40	-0.50	4.04	3.85	4.36	88.00	62.18	126.51
2023:Q3	0.87	1.92	0.18	4.27	3.97	4.68	90.00	58.96	137.36

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 November 14, 2022. The Baseline expected path of oil prices is from the U.S. Energy Information Administration's Short-Term Economic Outlook released on November 3, 2022.

Labor markets conditions remain extremely tight both nationally and in Louisiana. Based upon the most recent state data (August 2022), the Bureau of Labor Statistics reported that there are 2 job openings per unemployed person in the state. This is the same degree of tightness experienced nationally, and it reflects one of the most worker-friendly labor markets in the state in the past twenty years. Given the strong rebound in U.S. (inflation-adjusted) GDP in Q3 and the healthy labor market, the U.S. economy likely averted a recession in the first six months of the year.

The U.S. economic outlook continues to be downgraded by professional forecasters because of lingering inflation. While some of the most recent monthly inflation reports have been yielded positive news, it is too early to draw any conclusions about whether or not this will signal a permanent reduction in inflation. Most inflation metrics continue to remain at, or-near, 40-year highs. Given the continued strength in national labor markets, the Federal Reserve will likely increase interest rates another 50 basis points at their December meeting. They will also release guidance on their expected path of interest rates in 2023 at this meeting, and I expect this guidance to signal several (smaller) rate hikes next year.

Growth in consumer spending, which is responsible for roughly 70% of economic activity, remains positive but has slowed to below-average rates in each the past three quarters. Purchases of services remain robust, but spending on durable goods has been dampened by inflation. The modest strength in consumer spending has been enough to offset large contractions in economic activity in residential structures, non-residential structures, and national defense spending. Energy purchases have also fallen sharply over the past two quarters.

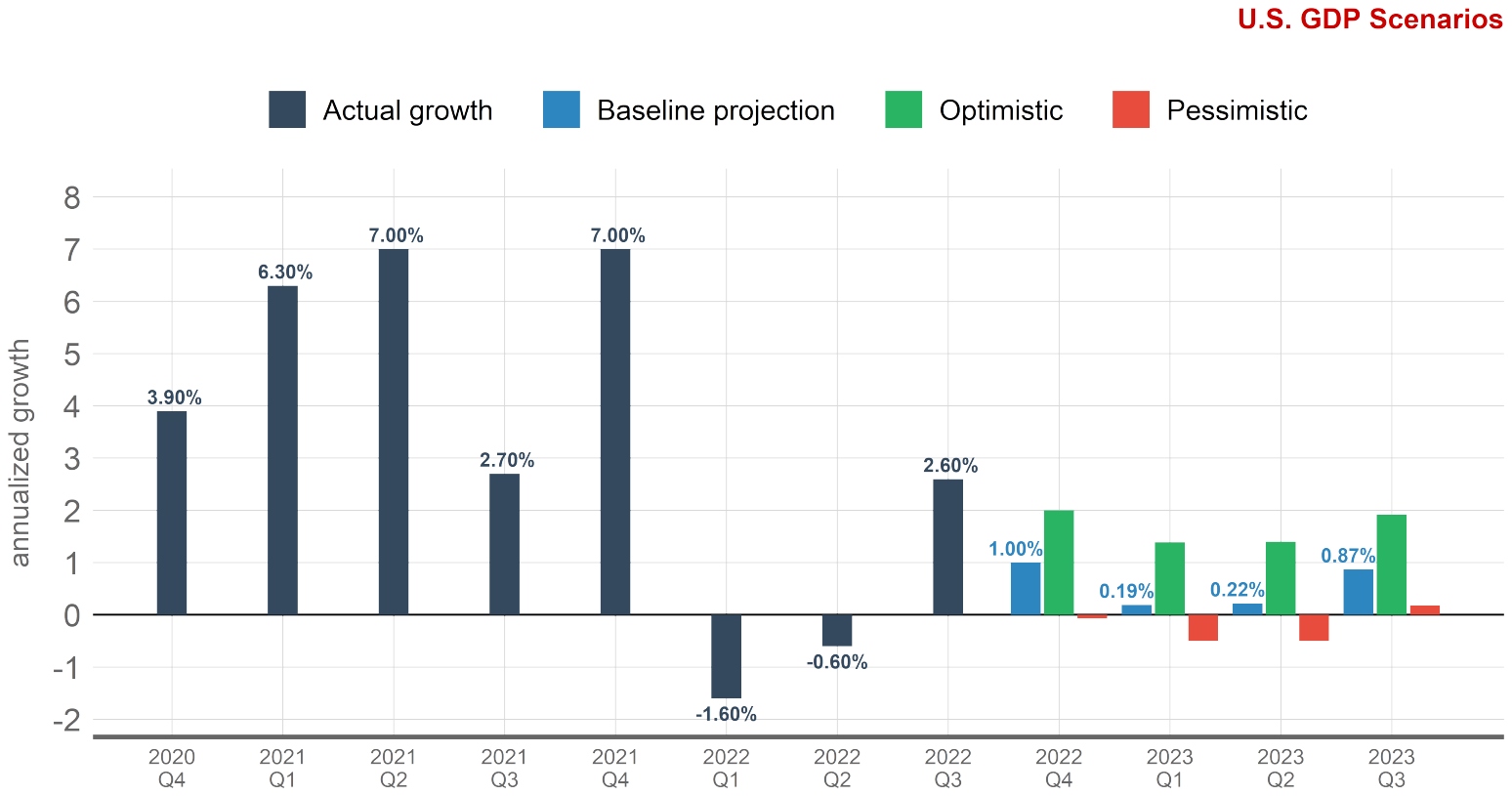
The Federal Reserve Bank of New York's Household Debt and Credit Report, released this month, showed that (aggregate) household debt balances increased by $351 billion in Q3. This is the largest one-quarter increase since 2007. A large portion of this additional debt was mortgage debt, which is the consequence of tight housing markets resulting from the pandemic.

Concerns over the future path of interest rates and the sustainability of consumer spending have elevated the risk of a national recession to levels not seen since 2008. As Figure 9 shows, professional forecasters are now placing the risk of a national recession at roughly 50% in mid-2023.

The Optimistic and Pessimistic scenarios, which I would assign a 15% and 35% 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 50% 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%. 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, points to negative GDP growth in the first six months of 2023.

Figure 1: U.S. Economic Growth Scenarios



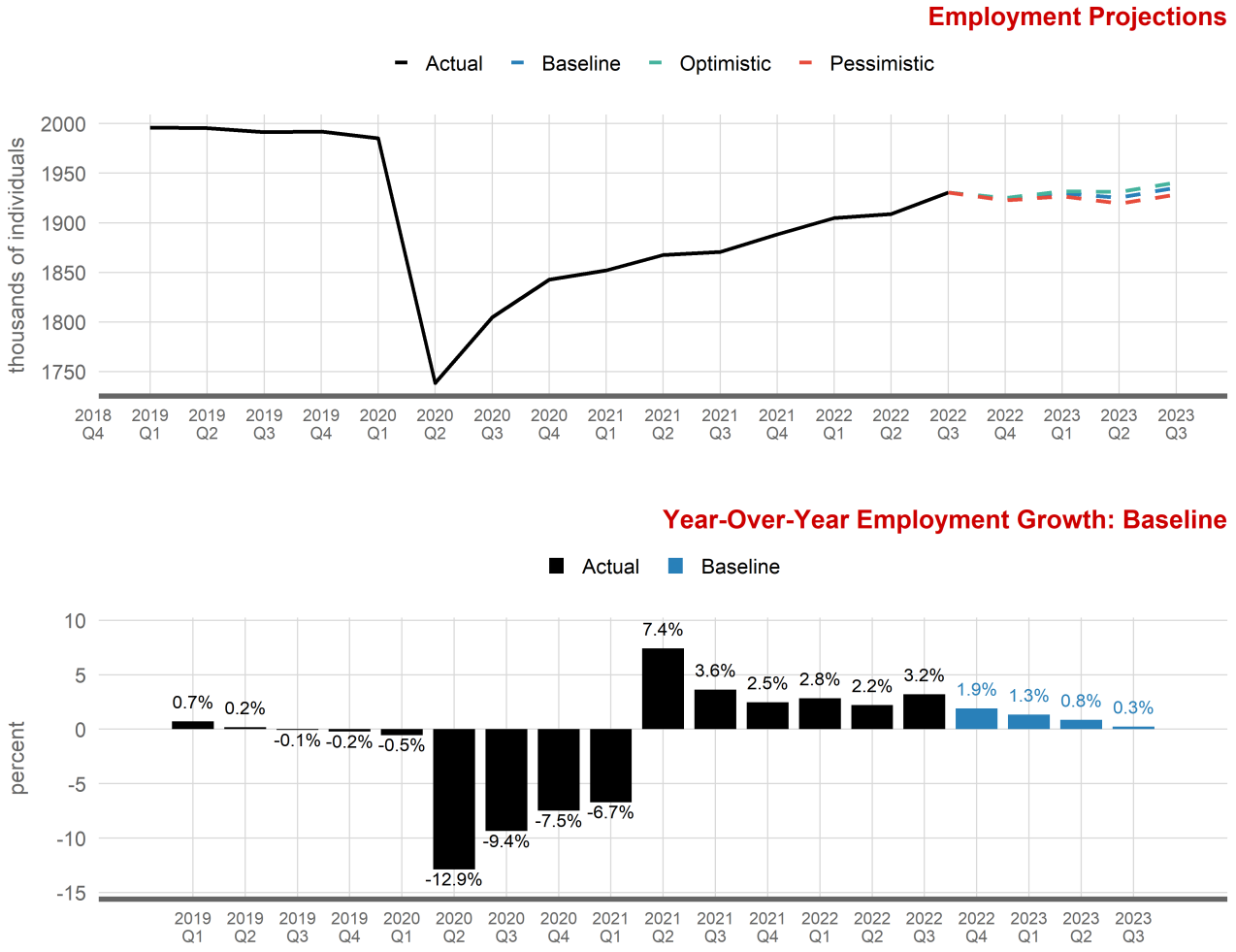
Louisiana Employment Projections

Statewide job gains exceeded 21,000 in Q3, following modest gains of only 4,300 jobs in Q2. Job growth is expected to remain somewhat "flat" over the next four quarters. Statewide, the Baseline scenario projects job gains of roughly 4,000 over the next year.

More than 40% of the statewide job gains in Q3 occurred in the New Orleans metro area, which experienced the fastest pace of job growth in nearly 3 years. The Alexandria, Baton Rouge, and Shreveport regions also posted solid job gains between the second and third quarters. There are, however, signs of slowing. Job gains were effectively zero in Hammond, Lake Charles, and Monroe. Consistent with last quarter's report, every region is expected to slow over the next four quarters.

The employment forecast error from the previous report was 1.14%. See Table 2 for forecast errors from the previous report.

Figure 2: Louisiana Employment Projections



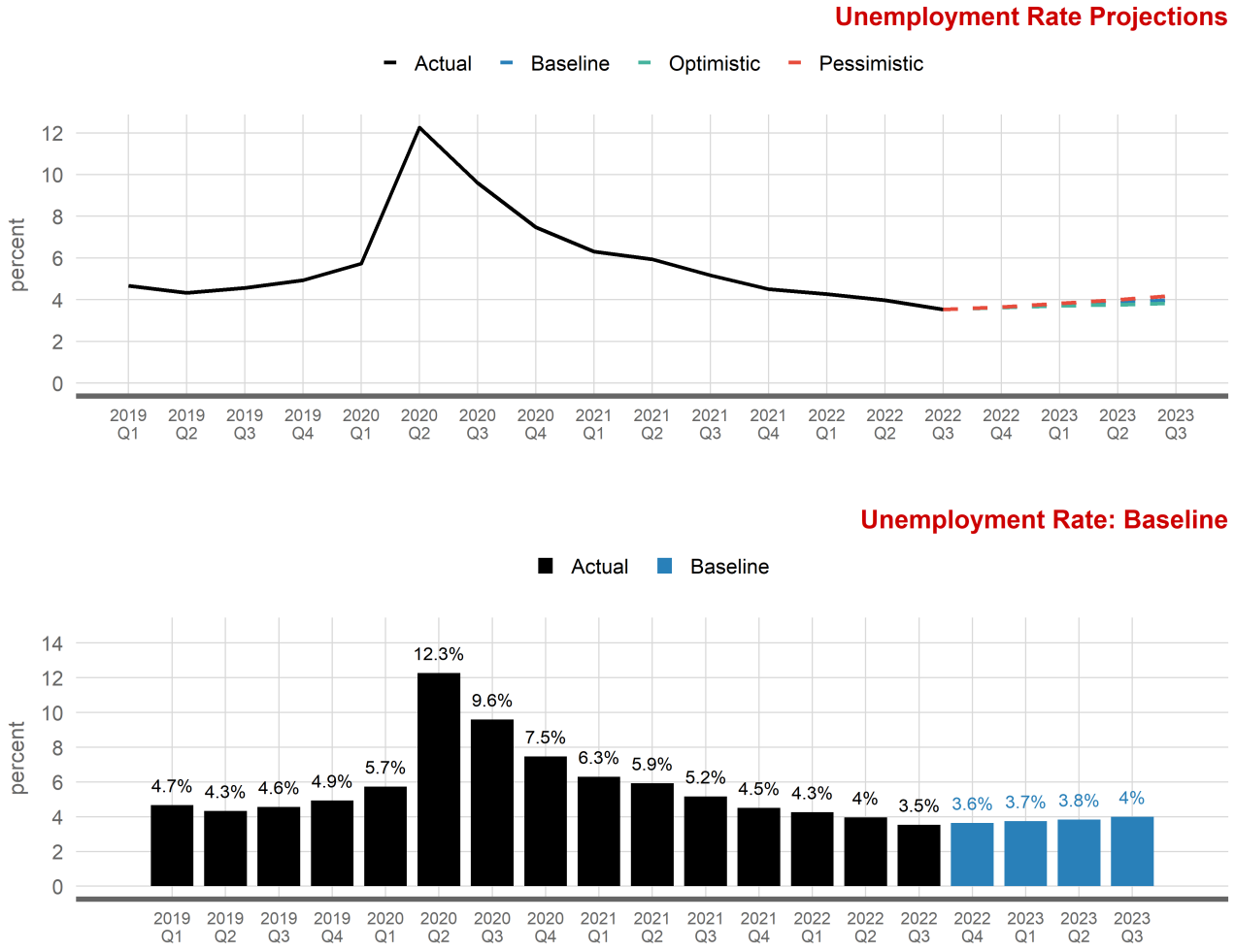
Louisiana Unemployment Rate Projections

Like the nation, Louisiana's unemployment rate has once again fallen more sharply than anticipated, averaging 3.5% in Q3. This is the state's lowest quarterly unemployment rate since 1976 (as far back as these data exist).

With slowing statewide GDP, the state's unemployment rate is now projected to begin gradually increasing over each of the next four quarters. The Baseline projection points to 4% unemployment – still a very low figure – at the end of 2023.

The unemployment rate forecast error from the previous report was 20.00%. See Table 2 for forecast errors from the previous report.

Figure 3: Louisiana Unemployment Rate Projections



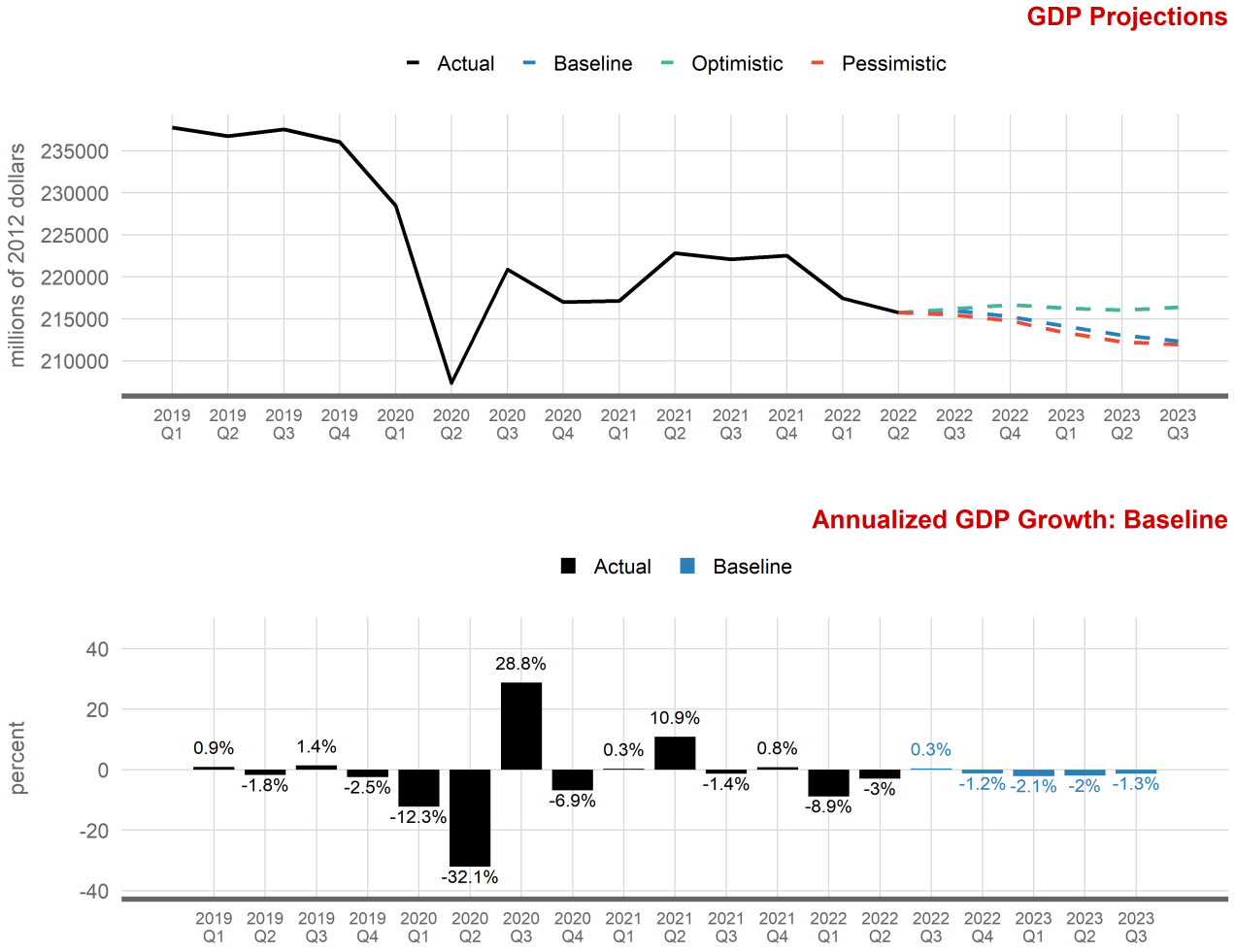
Louisiana GDP Projections

Louisiana's GDP contracted 3% in Q2, more than the 1.8% it was projected to contract in last quarter's report. Q1 GDP growth was also revised down to -8.9% from an initial estimate of -4.8%, further signaling considerable weakness in the state's economy.

Over the next five quarters, inflation-adjusted GDP is expected to contract in four of the next five quarters under the Baseline projection.

The GDP forecast error from the previous report was 5.19%. See Table 2 for forecast errors from the previous report.

Figure 4: Louisiana GDP Projections



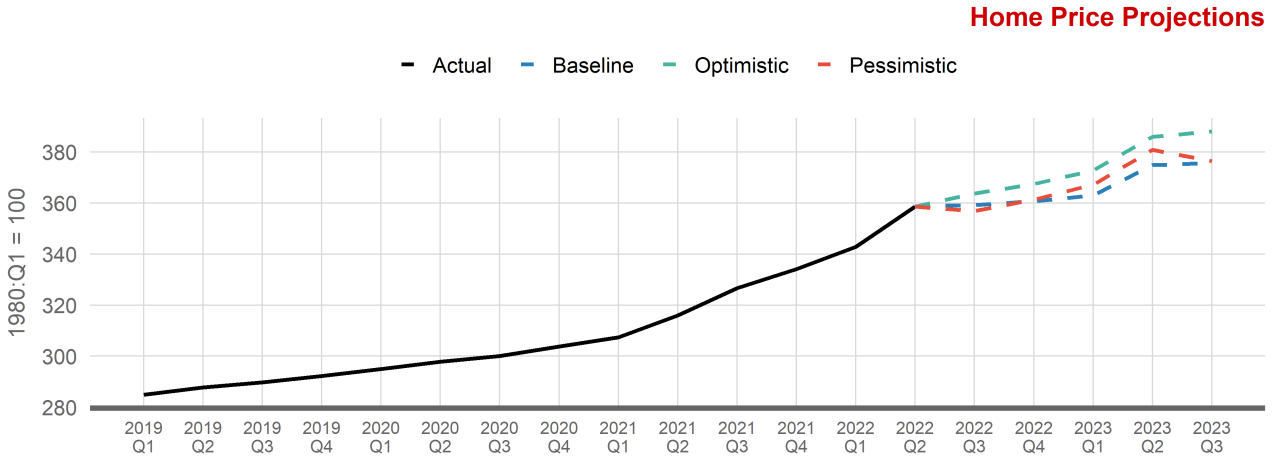
Louisiana Home Price Projections

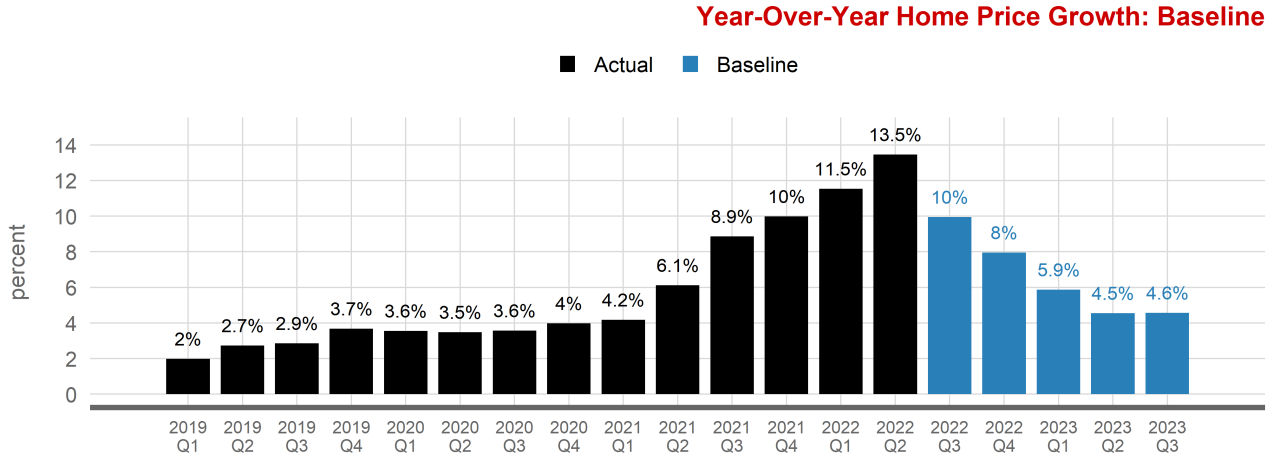
Figure 5: Louisiana Home Price Projections

Statewide year-over-year home price growth topped 13% in Q2, the highest recorded pace since 1980:Q1. With national mortgage rates rising above 7% because of efforts to curtail inflation, a housing market “correction" has begun. The Baseline projection is for year-over-year home price growth to slow to about 4.5% by mid-2023.

New additional housing charts are provided for each metro region. Year-over-year median list prices for available homes has normalized. In addition, roughly one-third of homes currently for sale reduced their asking price in October.

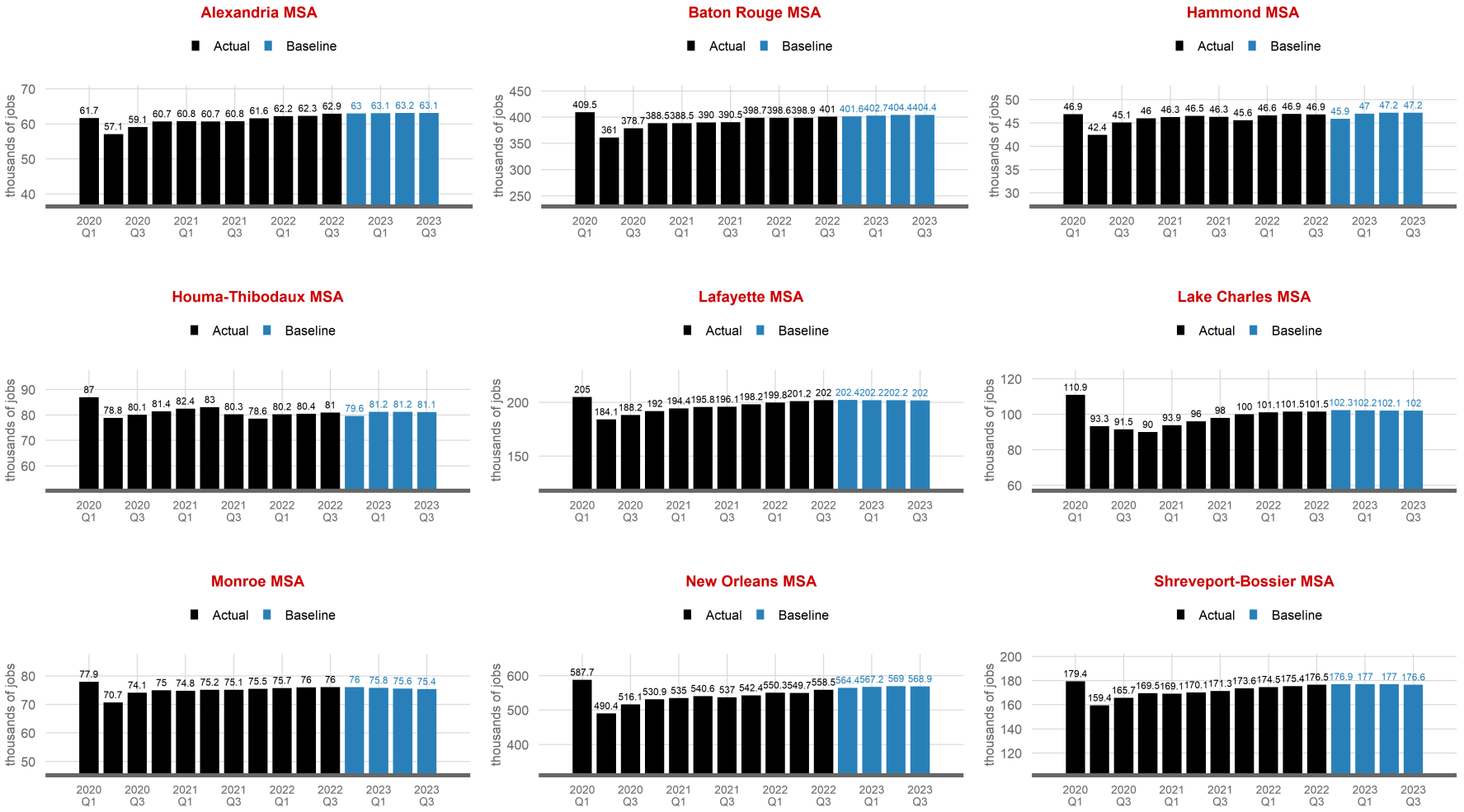
The previous LEAF report’s forecast error for home prices was 2.54%. See Table 2 for forecast errors from the previous report.





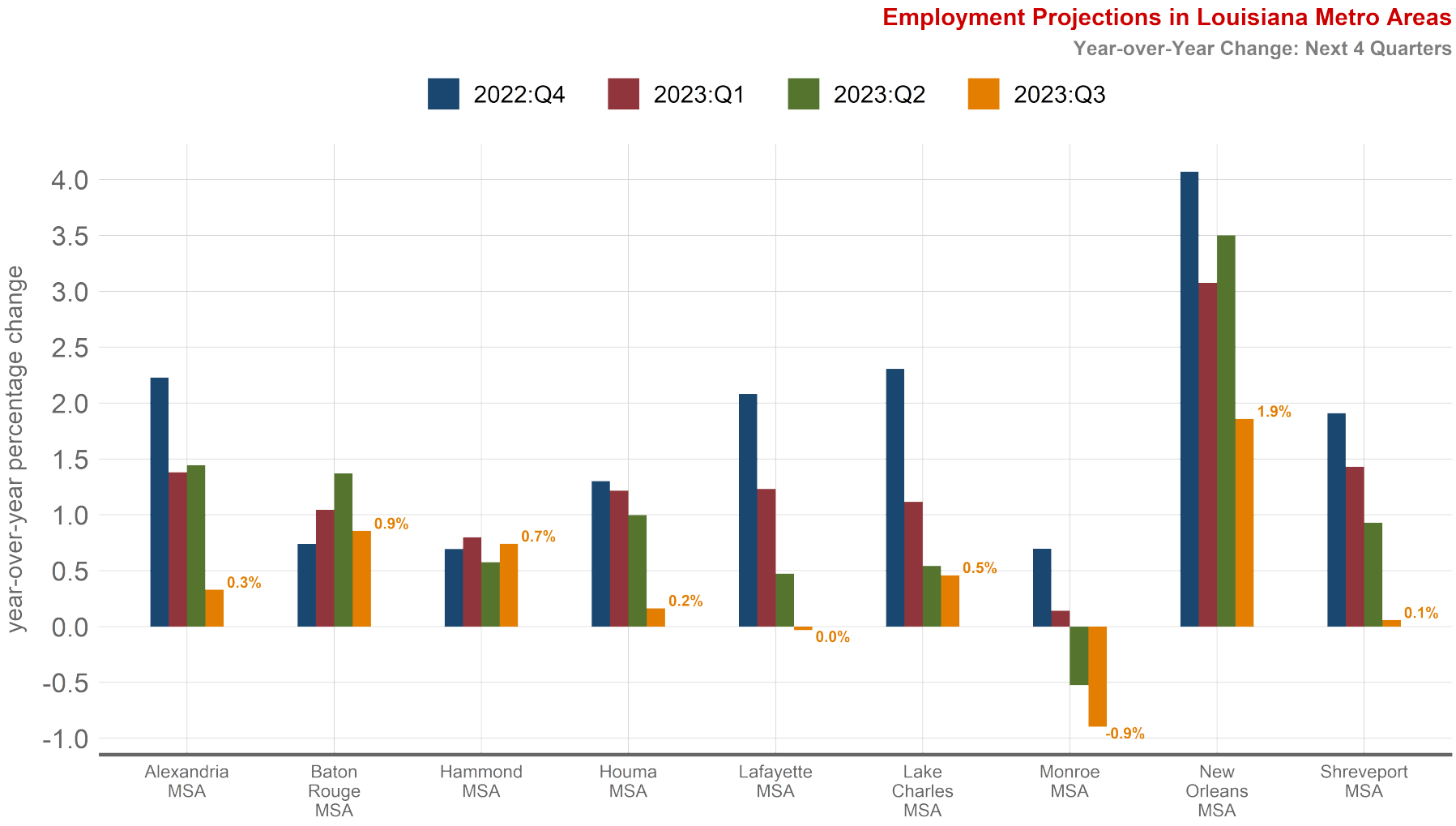
Metro Area Employment Projections

Figure 6: Metro Employment Projections



Metro Area Employment Projections: Year-over-Year Growth

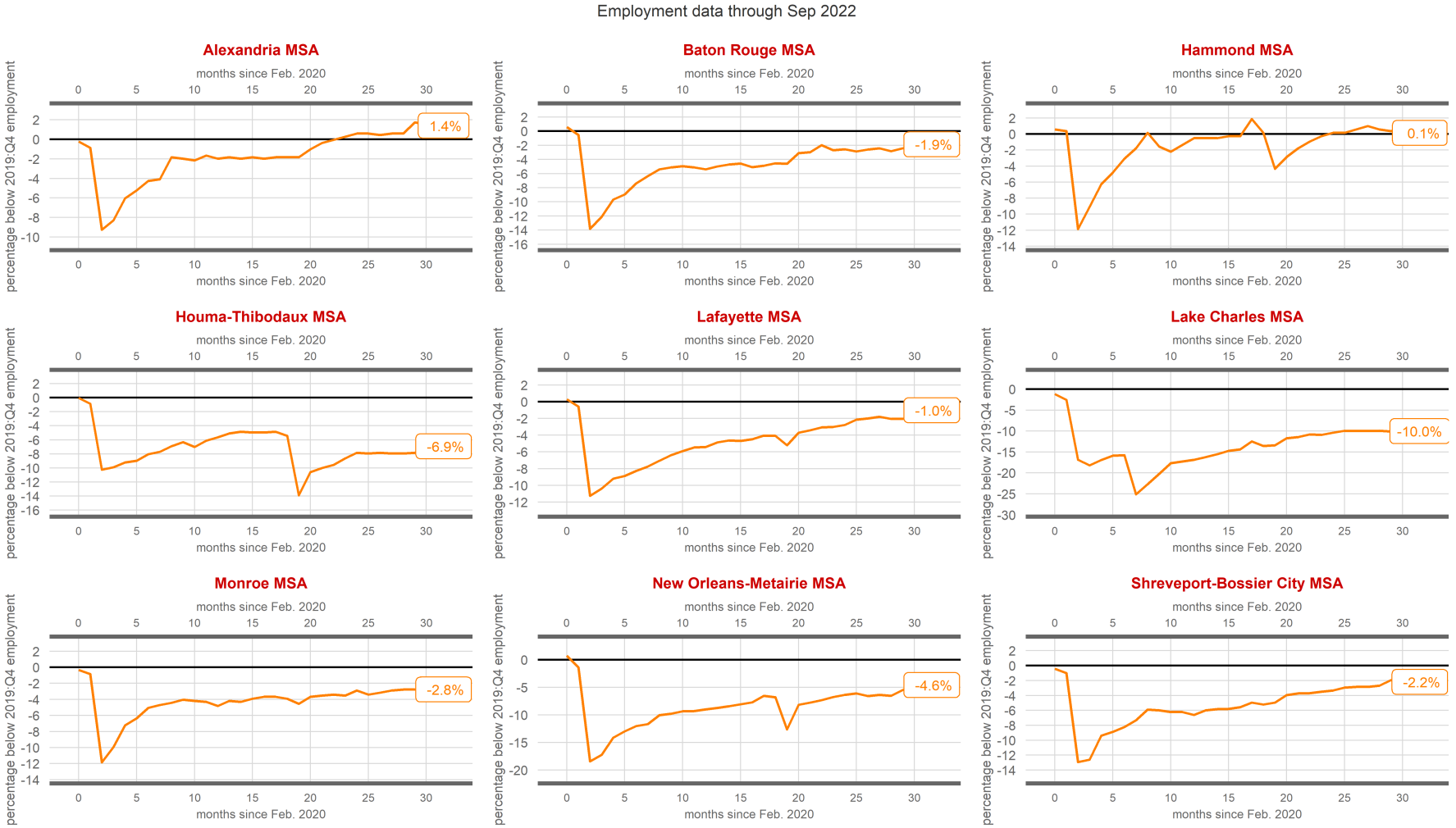
Figure 7: Metro Area Employment Projections: Year-over-Year Growth



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

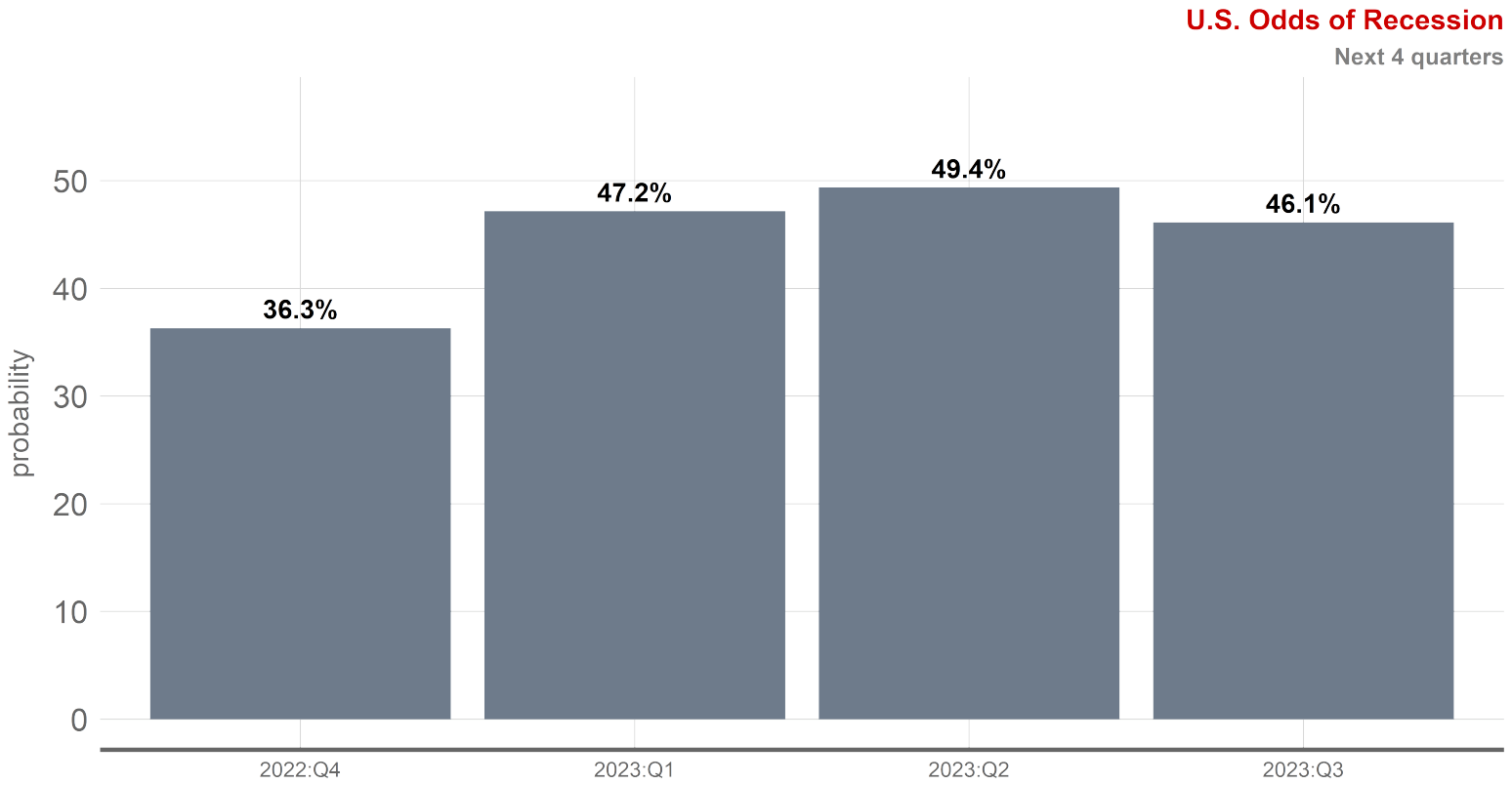
Figure 8: Metro Area Employment: COVID Job Losses and Recovery Relative to 2019:Q4



Source: Raw data from the Bureau of Labor Statistics.

Recession Probabilities Over the Next Year

Figure 9: Recent Recession Probabilities

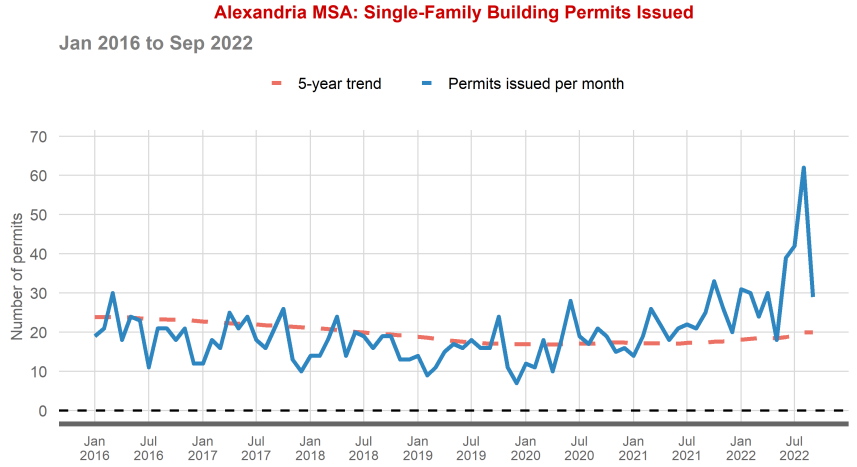


Source: Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia.

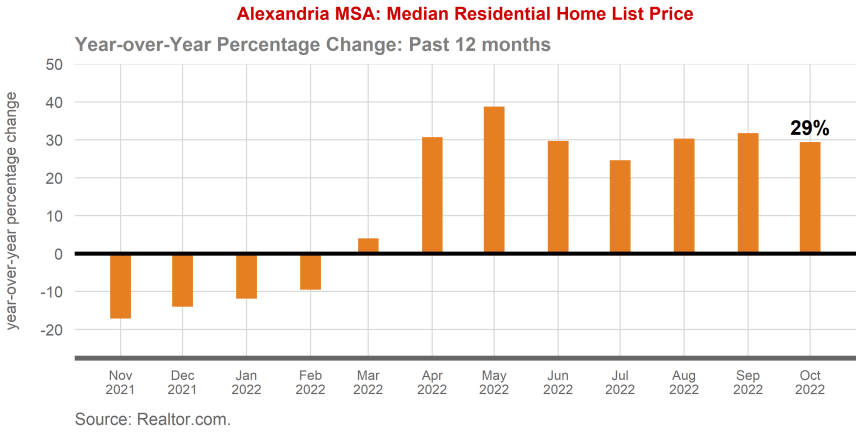
Alexandria MSA: Additional Charts

Figure 10: Alexandria Metro Area: Additional Charts

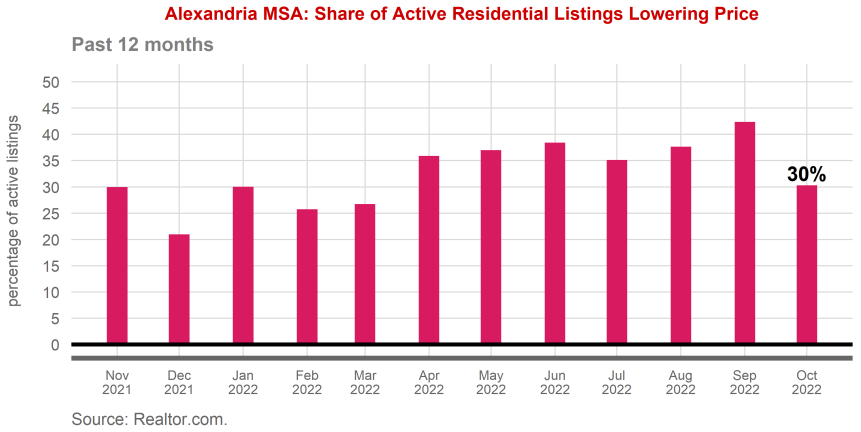
Source: Bureau of Labor Statistics.



Source: Census Bureau.



Source: Realtor.com.



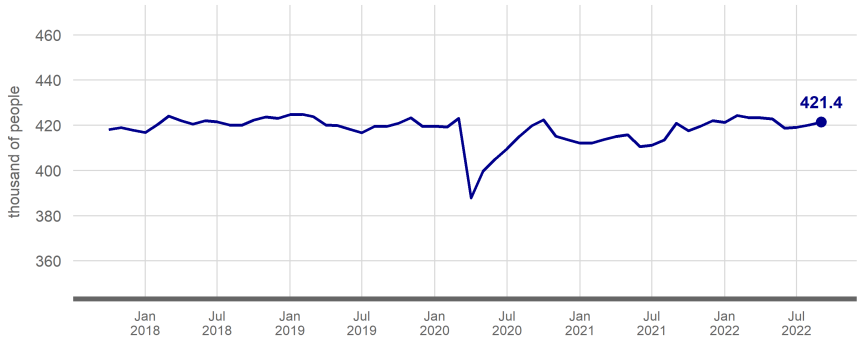
Source: Realtor.com.

Baton Rouge MSA: Additional Charts

Figure 11: Baton Rouge Metro Area: Additional Charts

Baton Rouge MSA Labor Force (Seasonally Adjusted)

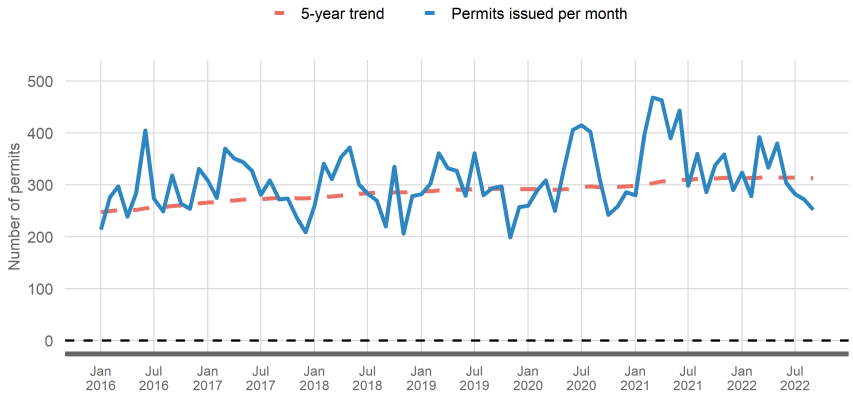
Oct 2017 to Sep 2022



Source: Bureau of Labor Statistics.

Baton Rouge MSA: Single-Family Building Permits Issued

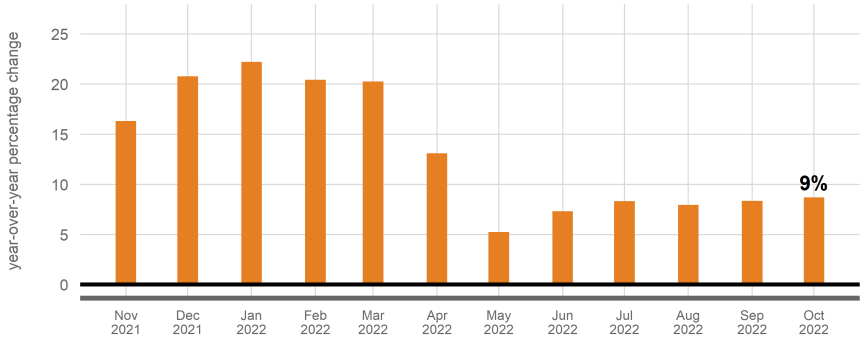
Jan 2016 to Sep 2022



Source: Census Bureau.

Baton Rouge MSA: Median Residential Home List Price

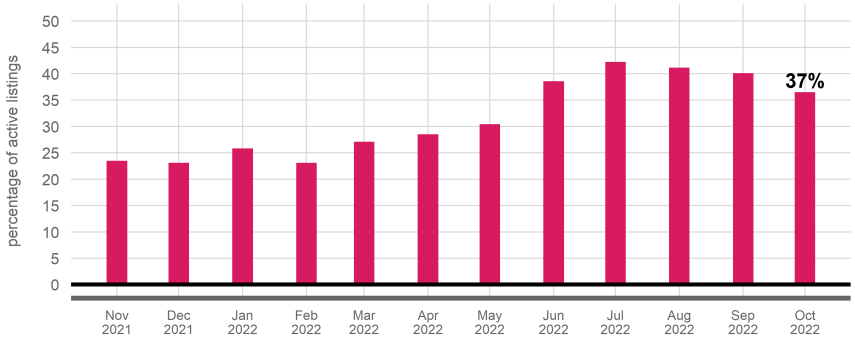
Year-over-Year Percentage Change: Past 12 months



Source: Realtor.com.

Baton Rouge MSA: Share of Active Residential Listings Lowering Price

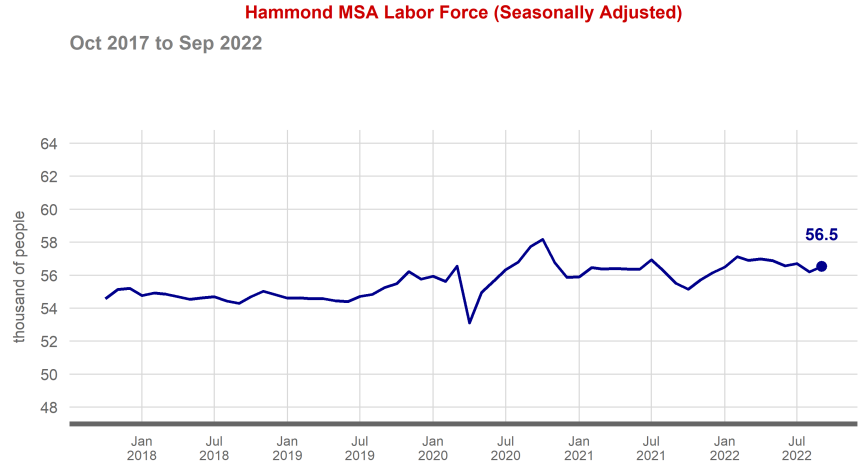
Past 12 months



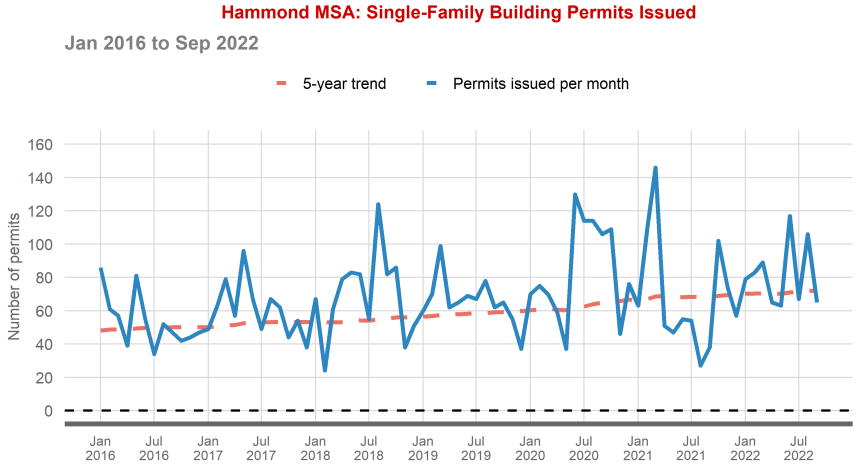
Source: Realtor.com.

Hammond MSA: Additional Charts

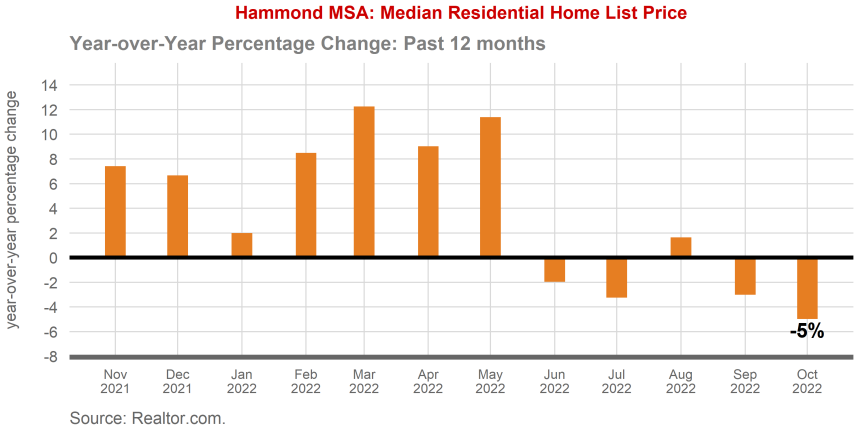
Figure 12: Hammond Metro Area: Additional Charts



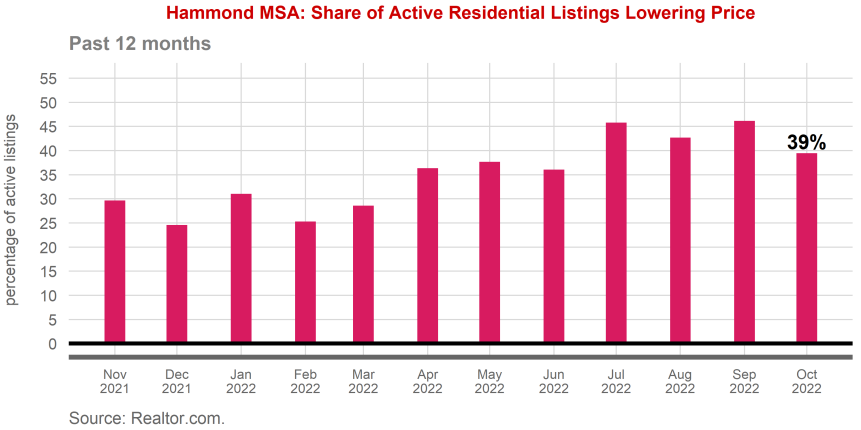
Source: Bureau of Labor Statistics.



Source: Census Bureau.



Source: Realtor.com.



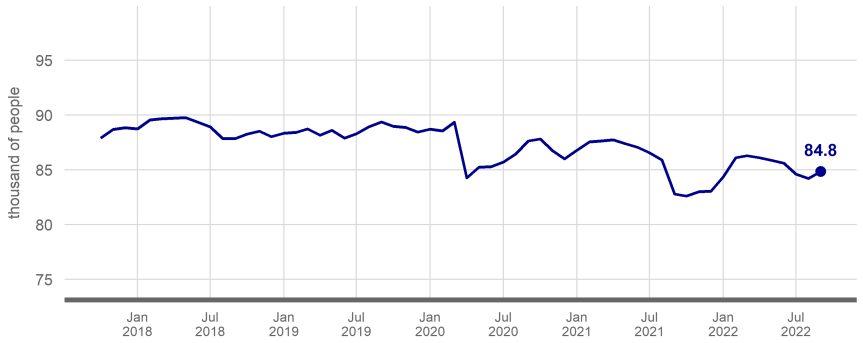
Source: Realtor.com.

Houma-Thibodaux MSA: Additional Charts

Figure 13: Houma-Thibodaux Metro Area: Additional Charts

Houma-Thibodaux MSA Labor Force (Seasonally Adjusted)

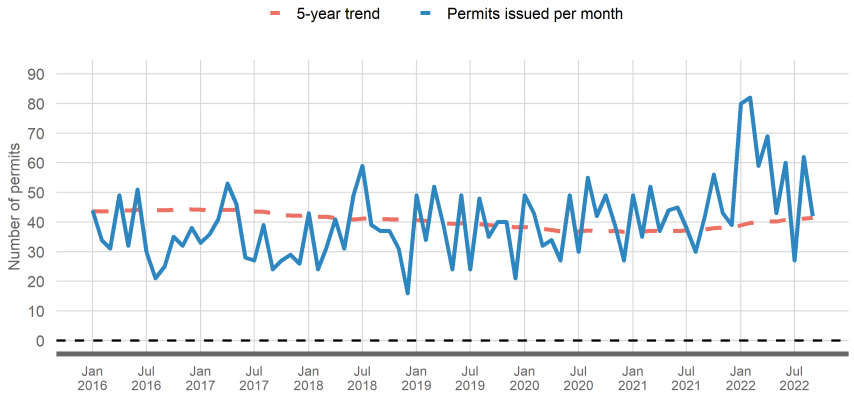
Oct 2017 to Sep 2022



Source: Bureau of Labor Statistics.

Houma-Thibodaux MSA: Single-Family Building Permits Issued

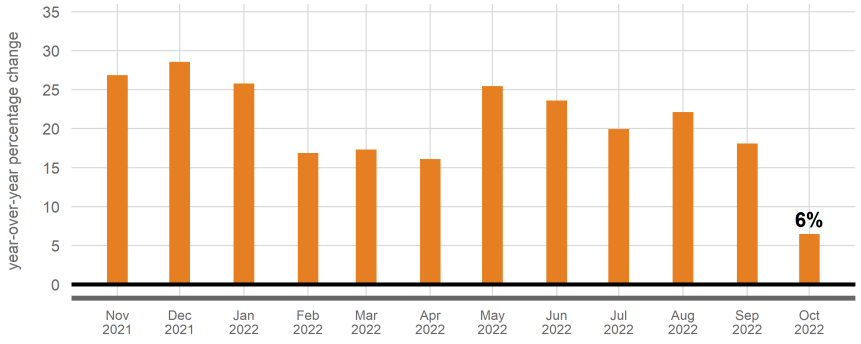
Jan 2016 to Sep 2022



Source: Census Bureau.

Houma-Thibodaux MSA: Median Residential Home List Price

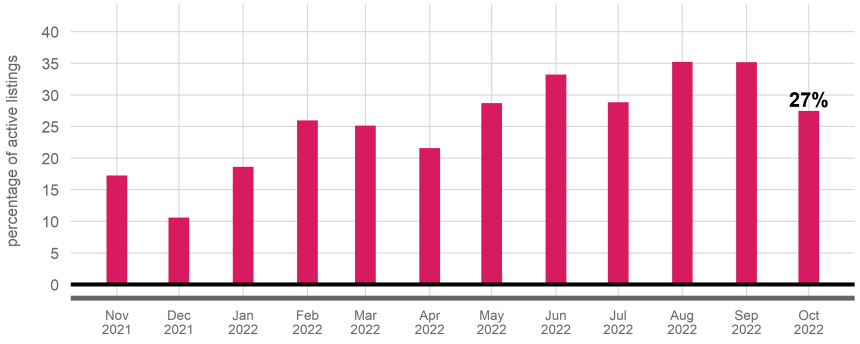
Year-over-Year Percentage Change: Past 12 months



Source: Realtor.com.

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

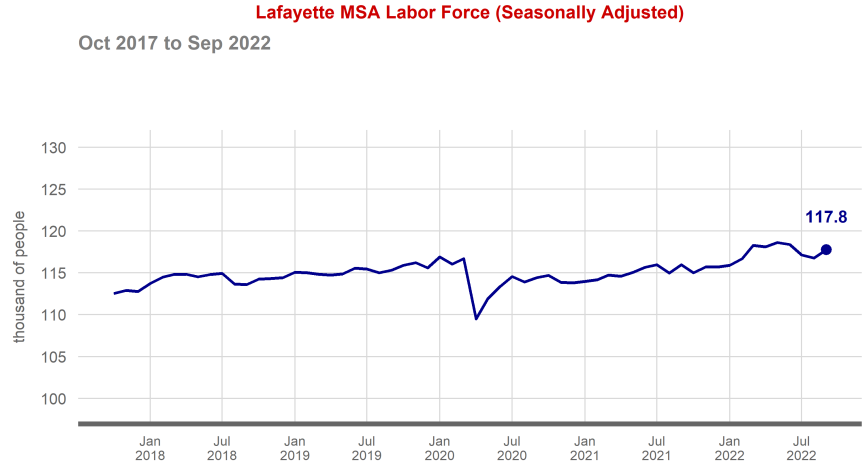
Past 12 months



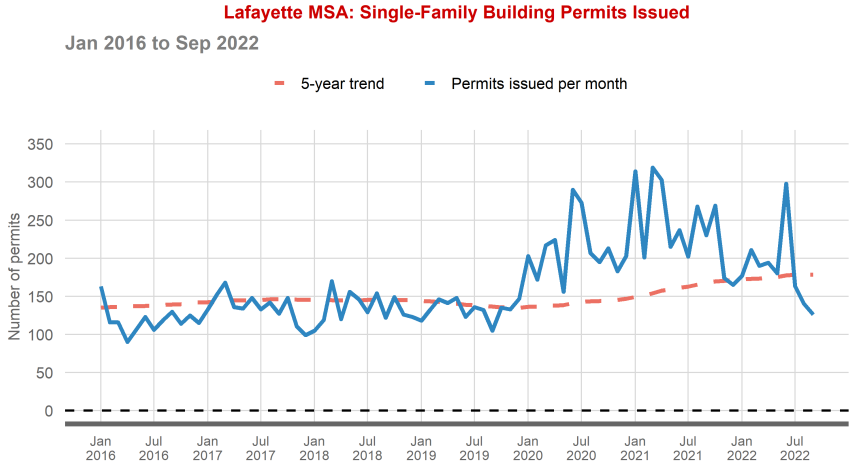
Source: Realtor.com.

Lafayette MSA: Additional Charts

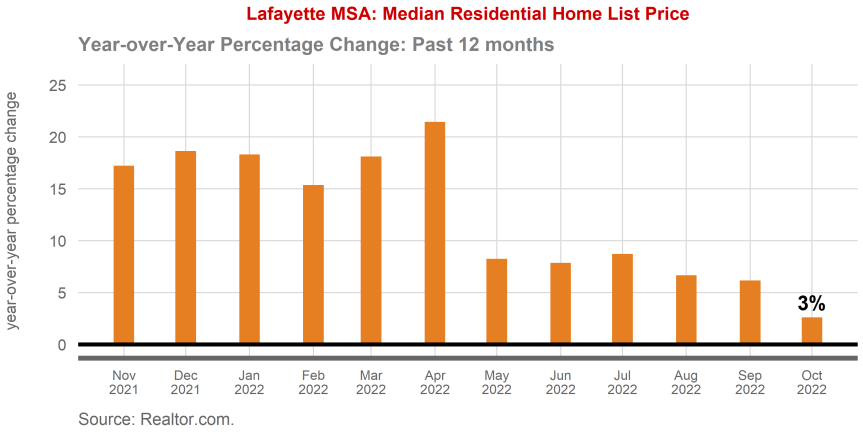
Figure 14: Lafayette Metro Area: Additional Charts



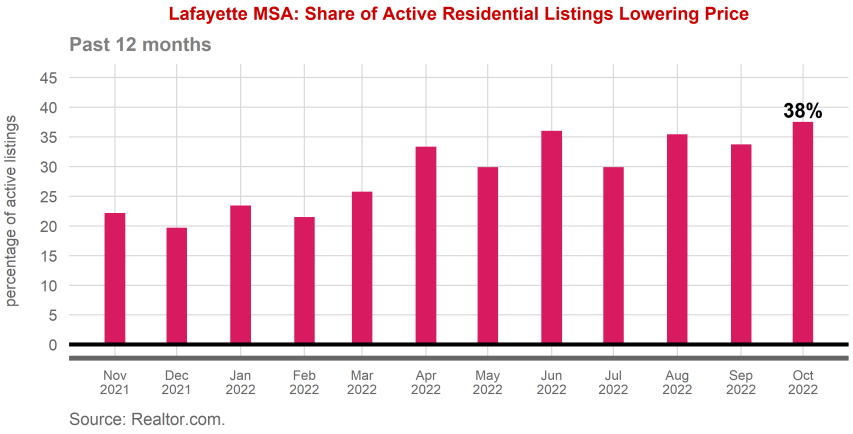
Source: Bureau of Labor Statistics.



Source: Census Bureau.



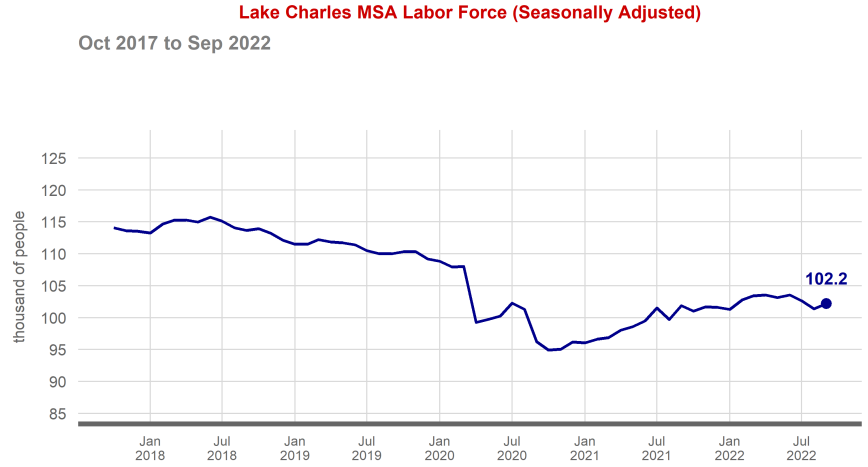
Source: Realtor.com.



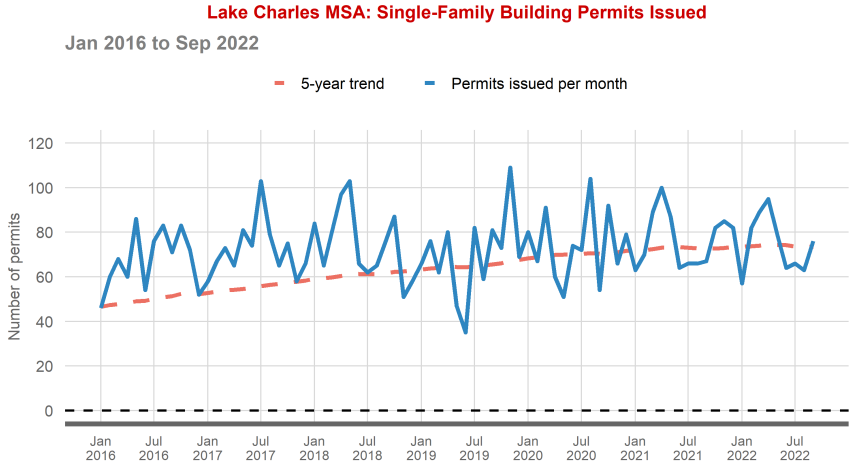
Source: Realtor.com.

Lake Charles MSA: Additional Charts

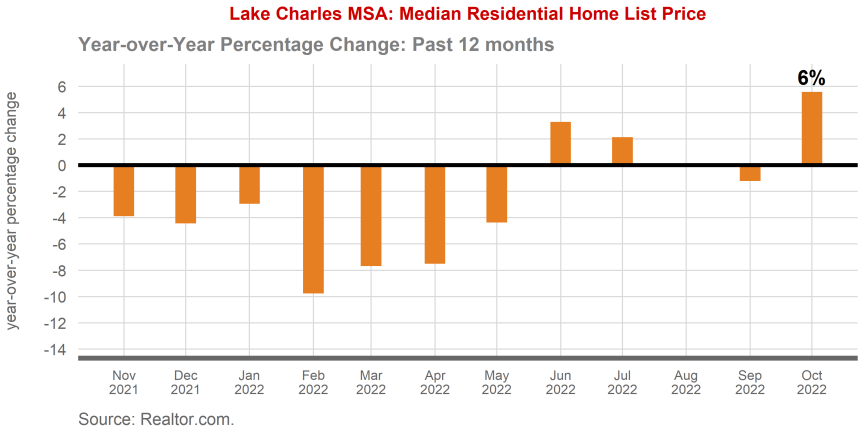
Figure 15: Lake Charles Metro Area: Additional Charts



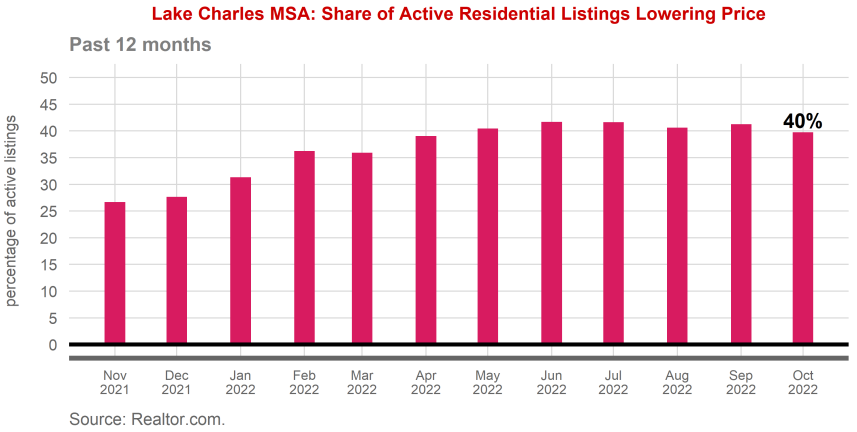
Source: Bureau of Labor Statistics.



Source: Census Bureau.



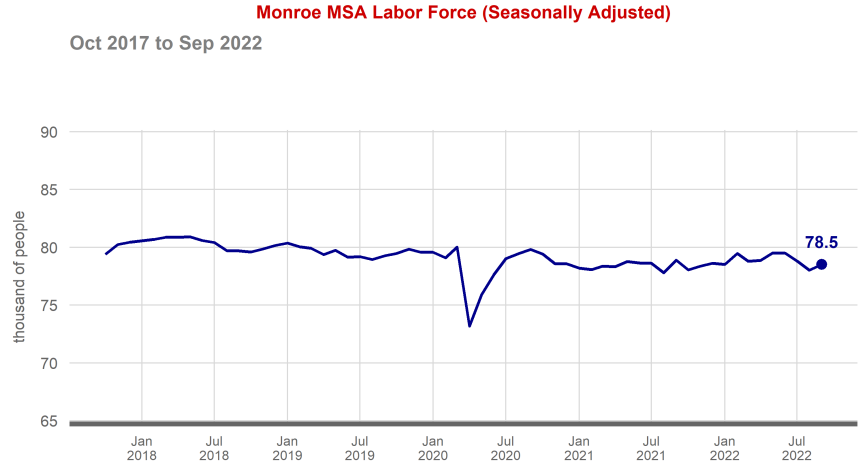
Source: Realtor.com.



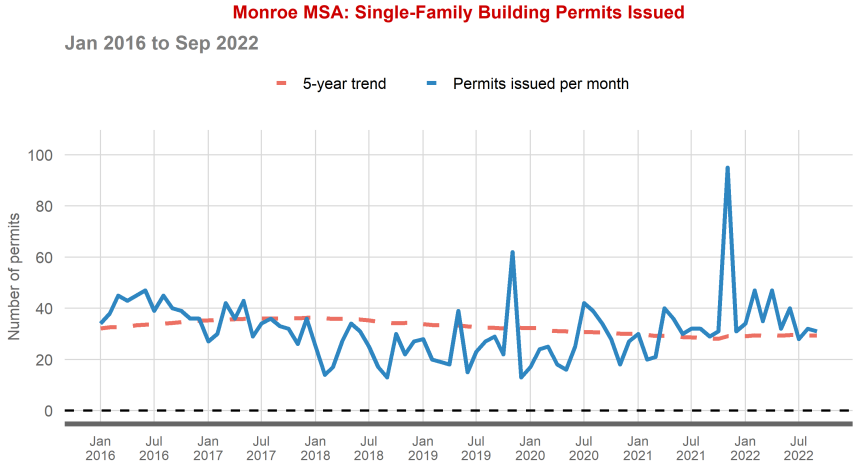
Source: Realtor.com.

Monroe MSA: Additional Charts

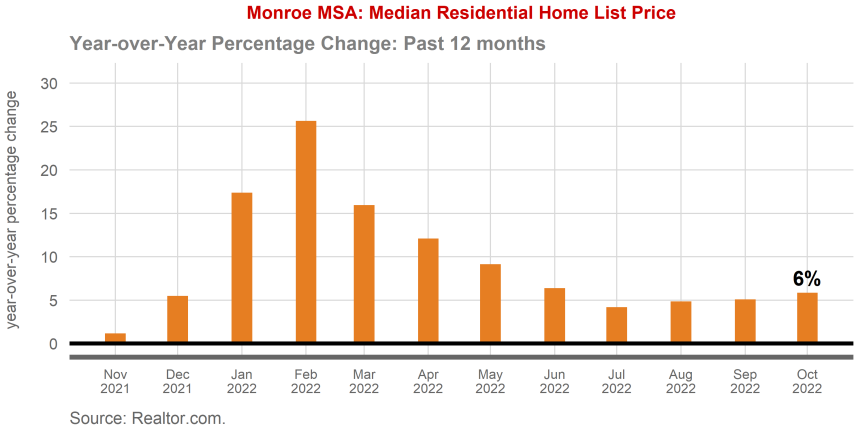
Figure 16: Monroe Metro Area: Additional Charts



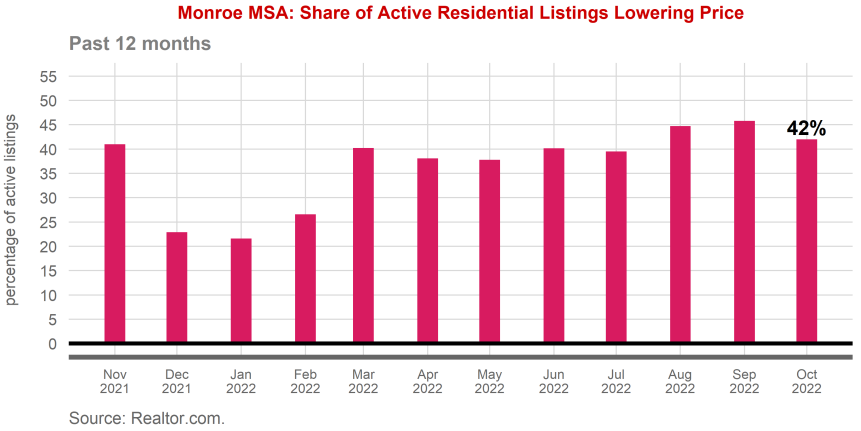
Source: Bureau of Labor Statistics.



Source: Census Bureau.



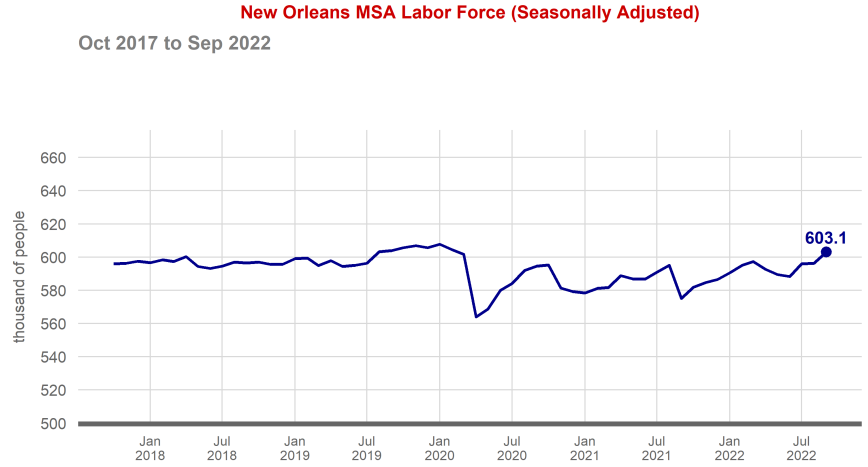
Source: Realtor.com.



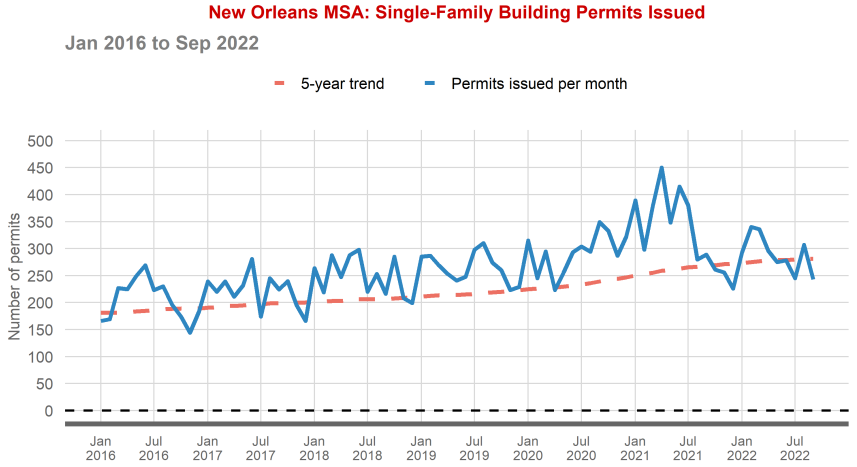
Source: Realtor.com.

New Orleans MSA: Additional Charts

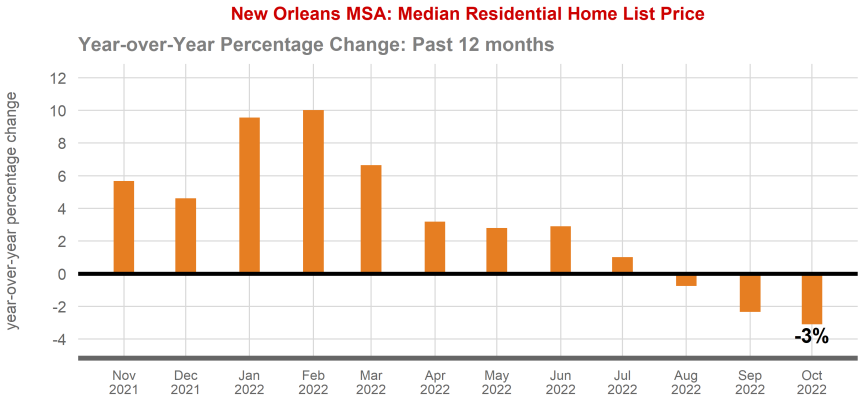
Figure 17: New Orleans Metro Area: Additional Charts



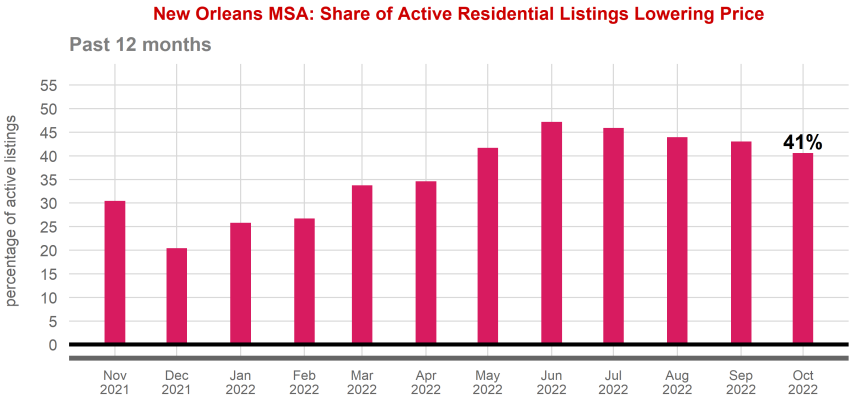
Source: Bureau of Labor Statistics.



Source: Census Bureau.



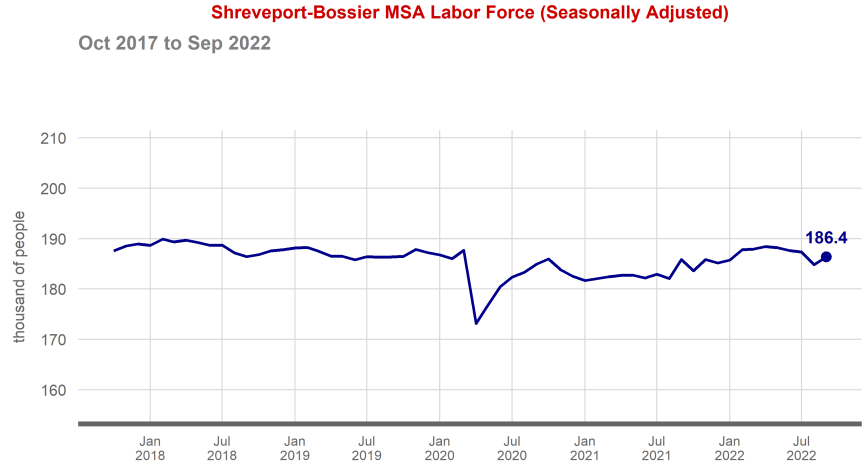
Source: Realtor.com.



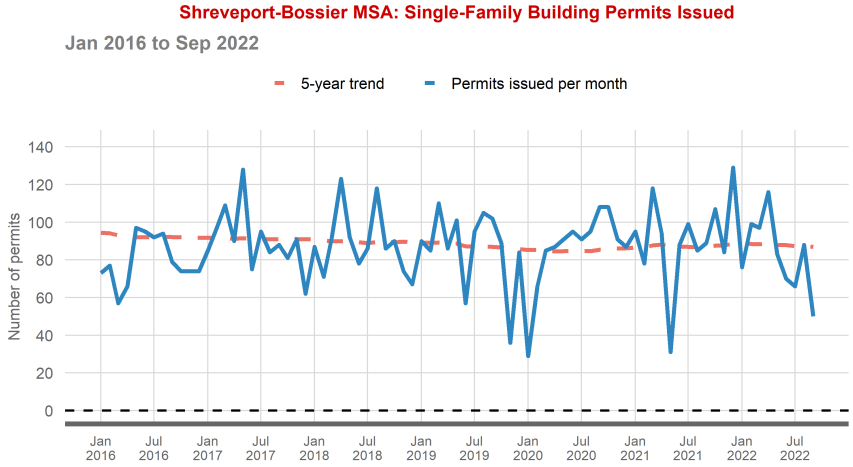
Source: Realtor.com.

Shreveport-Bossier MSA: Additional Charts

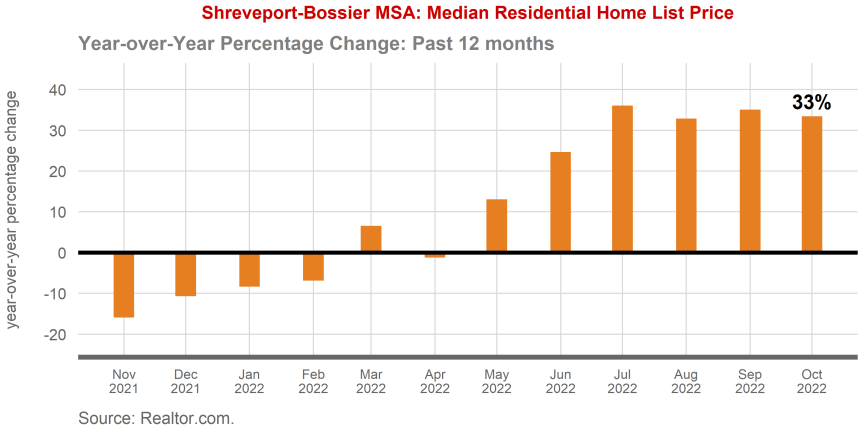
Figure 18: Shreveport-Bossier Metro Area: Additional Charts



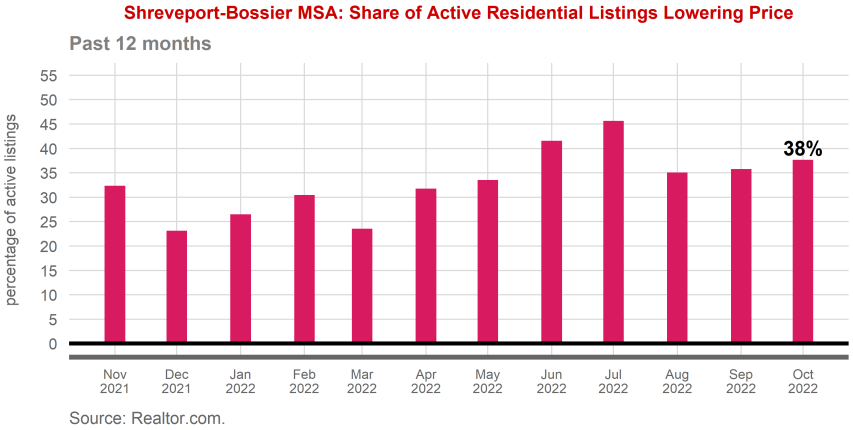
Source: Bureau of Labor Statistics.



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:Q2 Projections for 2022:Q3

Variable	Baseline Projection	Actual Value	Absolute % Error
employment (statewide)	1908.50	1930.60	1.14
unemployment rate	4.20	3.50	20.00
GDP	226976.40	215768.50	5.19
FHFA home price index	349.40	358.50	2.54
Alexandria MSA employment	62.30	62.90	0.95
Baton Rouge MSA employment	399.40	401.00	0.40
Hammond MSA employment	47.80	46.90	1.92
Houma-Thibodaux MSA employment	80.10	81.00	1.11
Lafayette MSA employment	202.00	202.00	0.00
Lake Charles MSA employment	101.60	101.50	0.10
Monroe MSA employment	75.80	76.00	0.26
New Orleans MSA employment	550.40	558.50	1.45
Shreveport-Bossier MSA employment	176.00	176.50	0.28

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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