



B.I. Moody III College of Business Administration

Louisiana Economic Activity Forecast 2022:Q3

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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

Inflation-adjusted U.S. GDP declined for the second consecutive quarter, raising concerns that we are already in, or headed for, a recession. Apart from the labor market where national job gains remain robust, most national economic indicators weakened significantly between Q1 and Q2. While forecasters are not currently expecting additional declines in economic activity, GDP is now expected to grow only 1.3% over the next year. Based on the deteriorating national economic outlook, the outlook for Louisiana and all metro areas is also being downgraded. After gaining only 2,700 jobs between Q1 and Q2, the Baseline projection is for the state to lose 2,400 jobs over the next four quarters. Statewide inflation-adjusted GDP is expected to contract again in Q2, bringing the state to the edge of an economic downturn. Employment growth is expected to be very weak in every metro area in the next year. The housing market remains a bright spot, with prices expected to remain above average until mid-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. This is particularly true now in light of the evolving global pandemic surrounding COVID-19.

2022 Report Release Schedule:
Fourth Quarter: November 18, 2022

-2,400

The number of jobs the state is expected to lose over the next four quarters.

-4.3%

Louisiana's inflation-adjusted GDP growth in 2022:Q1; about three times slower than the nation.

11.5%

Year-over-year home price growth in 2022:Q1. Only the second time since the 1970s that home price growth has exceeded 11%.

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Introduction

Inflation-adjusted Gross Domestic Product (GDP) growth contracted for the second consecutive quarter in 2022, shrinking at an annual rate of 0.93% in Q2. Respondents to the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters downgraded the national economic outlook for the fifth consecutive quarter. Growth is expected to "bound back" into the positive territory in Q3, but average only 1.3% over the next year. Given the current and projected weakness, there is an active debate about whether the national economy is already in, or headed for, a recession. 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 being downgraded considerably from last quarter's report based on deteriorating national conditions. Over the next four quarters, the Baseline projections point to statewide losses of roughly 2,400 jobs and flat GDP growth. Growth is expected to be modest in the third quarter before slowing in late 2022 and 2023.

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:Q2 values for the Baseline, Optimistic, and Pessimistic scenarios are identical because this quarter has already occurred. This row is shaded gray. Values for 2022:Q3 to 2023:Q3 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
2022:Q2	-0.93	-0.93	-0.93	3.60	3.60	3.60	108.93	108.93	108.93
2022:Q3	1.40	1.61	0.77	3.53	3.53	3.70	98.77	79.02	138.28
2022:Q4	1.24	1.42	0.68	3.70	3.65	3.90	92.30	73.84	129.23
2023:Q1	1.11	1.28	0.61	3.80	3.70	4.10	91.00	72.80	127.40
2023:Q2	1.45	1.67	0.80	3.90	3.75	4.15	90.00	72.00	126.00
2023:Q3	1.49	1.72	0.82	3.95	3.80	4.15	89.00	71.20	124.60

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 August 12, 2022. The Baseline expected path of oil prices is from the U.S. Energy Information Administration's Short-Term Economic Outlook released on August 9, 2022.

Apart from the labor market where job growth remains solid, most national (and state) economic indicators slowed notably between the first and second quarter. Home prices, inflation-adjusted disposable personal income, business spending on equipment, and manufacturing activity slowed, to name a few. The broadest economic indicator, inflation-adjusted GDP growth, declined for the second consecutive quarter raising concerns about a recession.

The National Bureau of Economic Research (NBER), located in Cambridge, Massachusetts, is the organization that officially defines the starting and ending date of recessions in the United States. While two consecutive quarters of declining real GDP is often cited as the definition of a recession, it is not the definition used in practice. The formal definition of a recession is “a significant decline in economic activity that is spread across the economy and that lasts more than a few months.” GDP figures have been calculated using the same methodology since 1947. Only once since then (in 1947) has the U.S. economy experienced a decline in real GDP in two consecutive quarters that was not ultimately determined to be a recession. Considering that the NBER does not declare recessions in “real time,” it seems more likely than not that we are in the early stages of a national recession. However, as Figure 9 shows, professional forecasters did not significantly increase their recession risk outlook over the next year following GDP’s contraction in the second quarter, illustrating the high degree of uncertainty the moment.

The combination of slow (or negative) economic growth and abnormally high inflation – called stagflation – has not occurred in the U.S. since the 1970s. The particular challenge with periods of stagflation is that the use fiscal or monetary policy aimed at stimulating economic activity – such as lowering interest rates – would likely contribute to even greater inflationary pressure. As long as the national economy continues to add jobs, the Federal Reserve will likely continue increasing interest rates because inflationary pressures have not weakened in any meaningful way since last quarter’s report.

Four times each year – March, June, September, and December – the Federal Reserve releases their expected year-end interest rates. Their expected 2022 year-end interest rate projections for the past four meetings are shown in Figure 10. In September 2021, the Federal Reserve expected interest rates to be roughly 0.5% at the end of 2022. In June, their latest guidance, the Fed expected interest rates to be around 3.5% by the end of this year. With current rates in the 2.25 to 2.50% range (shown as the dashed red line), interest rates will likely increase by *at least* 1 percentage point (or 100 basis points) between now and the end of the year. Given the underlying weakness in many economic indicators, I think it is unlikely that the Federal Reserve will change their expected year-end interest rate when they release their September guidance.

Louisiana has not been immune to the national slowdown in economic activity. Inflation-adjusted (statewide) GDP contracted at an annual rate of 4.3% in Q1, about three times worse than the nation. The state gained 2,700 jobs between Q1 and Q2, the lowest quarterly gains since the pandemic recovery began in early 2020. The state’s two largest metropolitan statistical areas – New Orleans and Baton Rouge – both experienced modest job losses between Q1 and Q2. The Lafayette MSA was the only subregion in the state to experience any meaningful job gains since the last report, gaining more than 1,500 jobs. Unfortunately, the outlook for the state is for economic activity and job gains to essentially be “flat” over the next year.

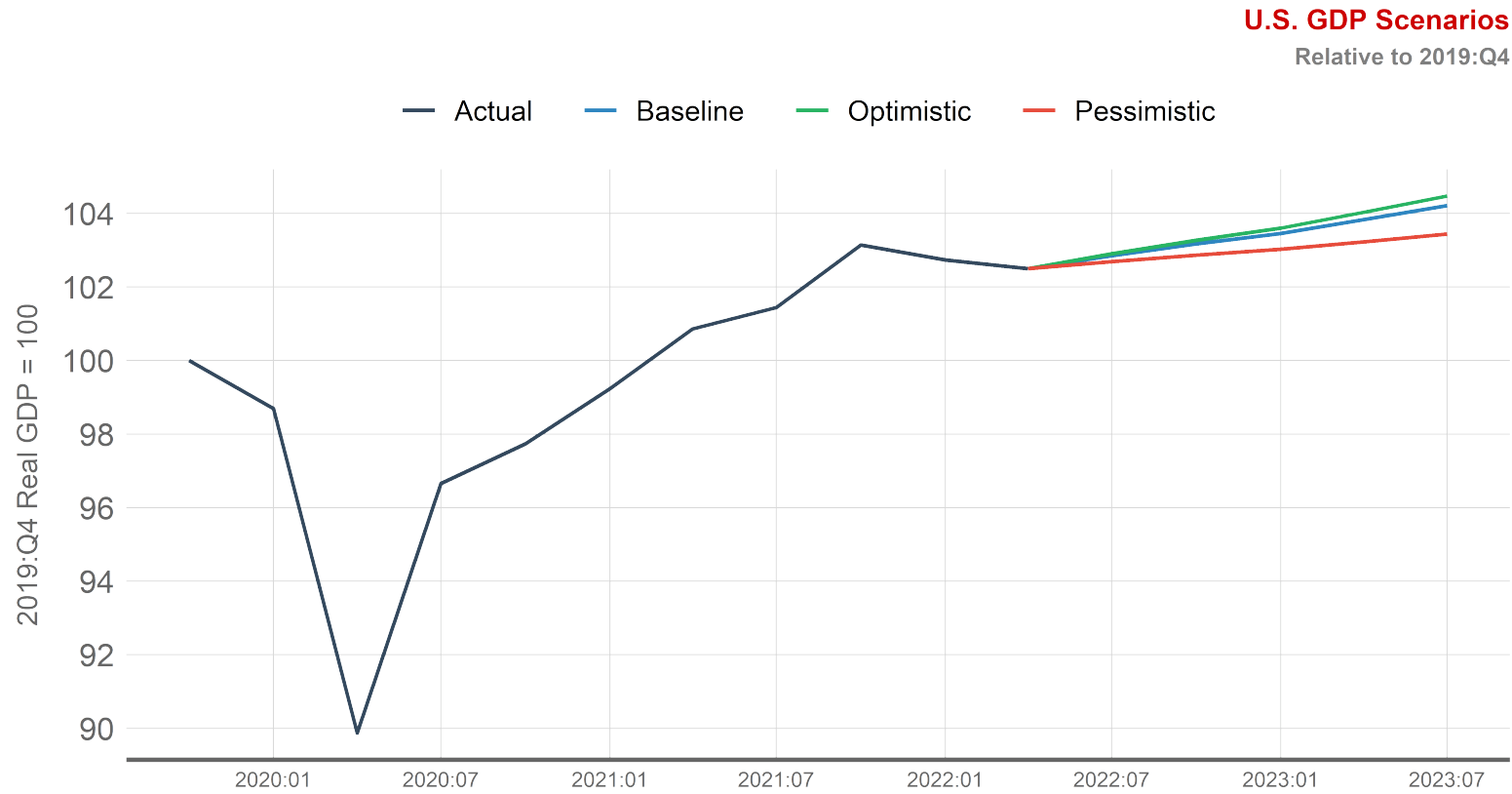
The Optimistic and Pessimistic scenarios, which I would assign a 10% and 45% probability respectively, vary the severity and recovery time for oil

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 45% probability to the Baseline forecast.

Over the next four quarters, the Baseline scenario projects U.S. GDP to grow at an annual pace of 1.3%. Figure 1 on the next page shows U.S. GDP under the three scenarios considered. The chart is indexed so that each scenario begins relative to 2019:Q4 and is assigned a base value of 100. Despite two consecutive quarters of declining growth, U.S. GDP is projected to end 2022 about 3% higher than the pre-COVID peak in 2019:Q4.



Figure 1: U.S. Economic Recovery Scenarios



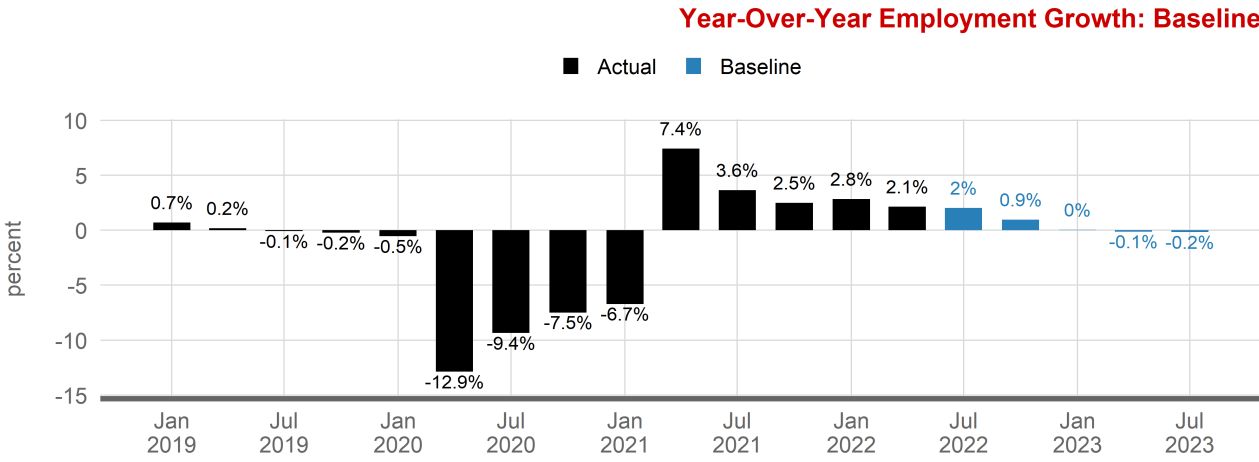
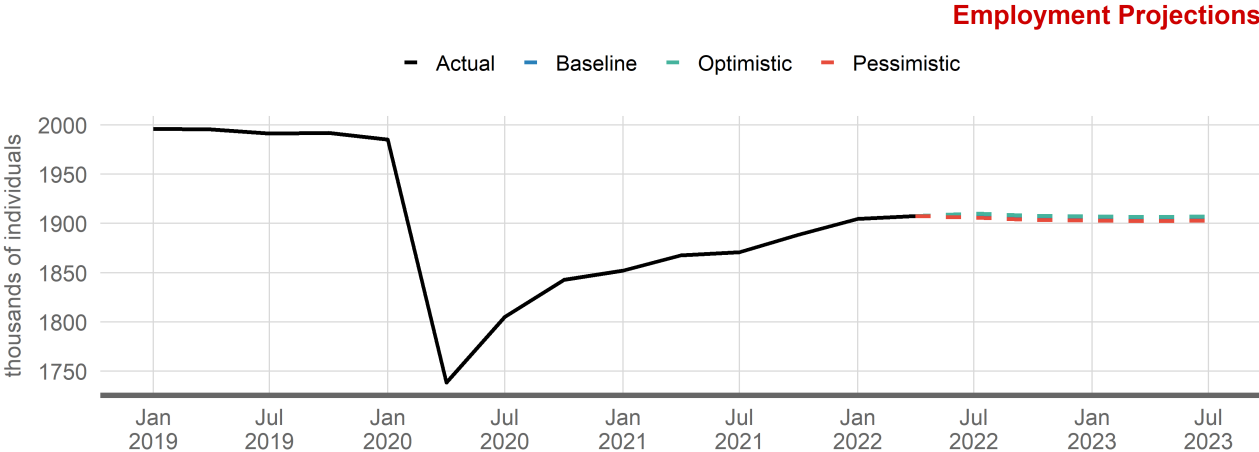
Louisiana Employment Projections

Figure 2: Louisiana Employment Projections

Unlike the last two quarters in which the state experienced job gains of 17,000 and 16,000, respectively, job gains slowed to 2,700 in the second quarter. Over the next five quarters, year-over-year employment growth is now expected to be “flat” because of slowing national growth. Statewide, the Baseline scenario projects job losses of 2,400 over the next year.

Like the state, job growth slowed in most metro areas between Q1 and Q2. In fact, apart from the Hammond and Lafayette regions, every other metro area in the state experienced “essentially zero” job gains over the past three months. Every region is expected to slow over the next four quarters.

The employment forecast error from the previous report was 0.23%. See Table 2 for forecast errors from the previous report.

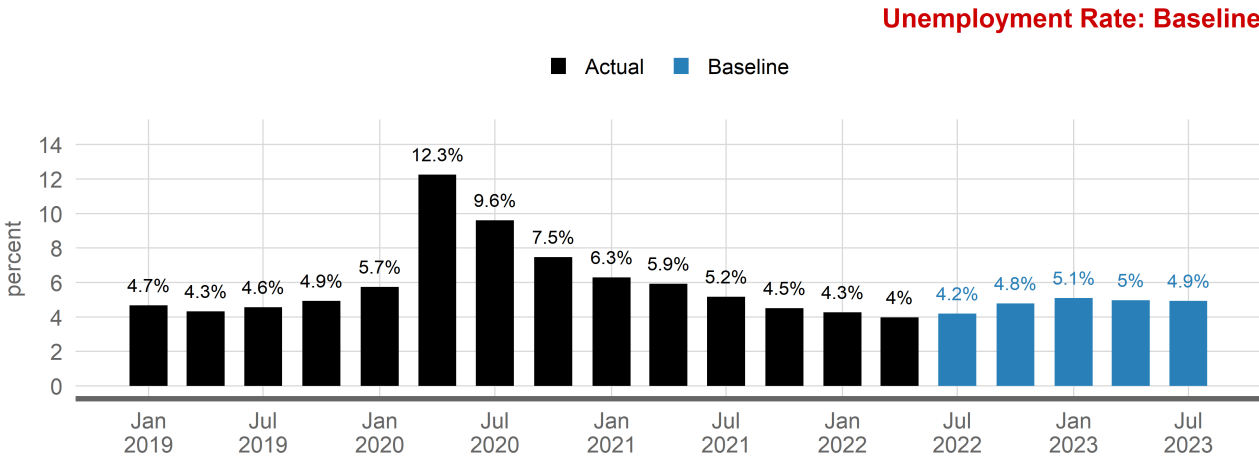
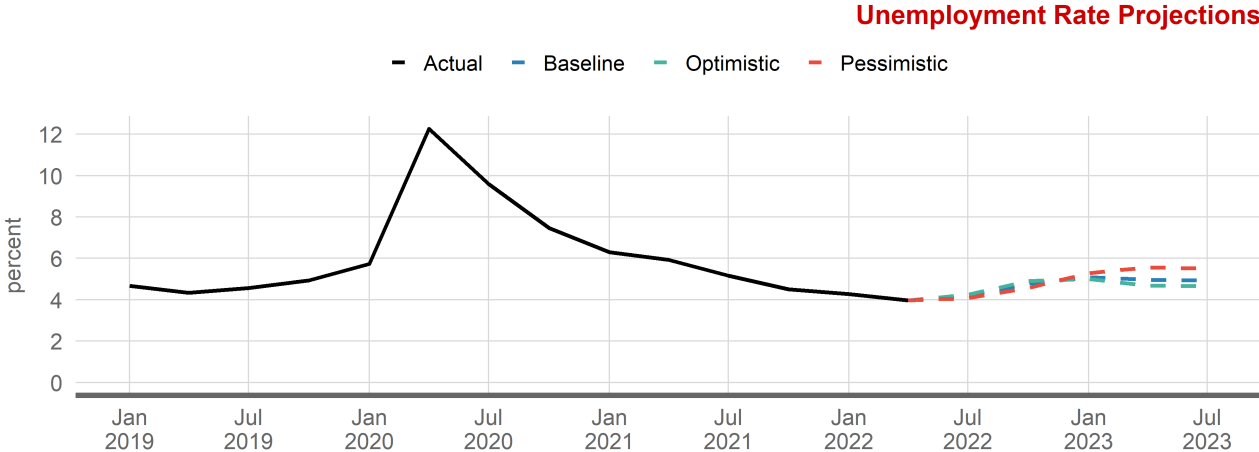


Louisiana Unemployment Rate Projections

Figure 3: Louisiana Unemployment Rate Projections

Louisiana’s unemployment rate declined less than predicted for the first time in the post-COVID era, falling to an average of 4.0% in Q2. With the weakened economic outlook, the Louisiana Forecasting Model is projecting that the unemployment rate will begin increasing starting in Q3 before rising above 5% in mid-2023. This is a significant upward revision from last quarter’s report.

The unemployment rate forecast error from the previous report was 5.00%. See Table 2 for forecast errors from the previous report.

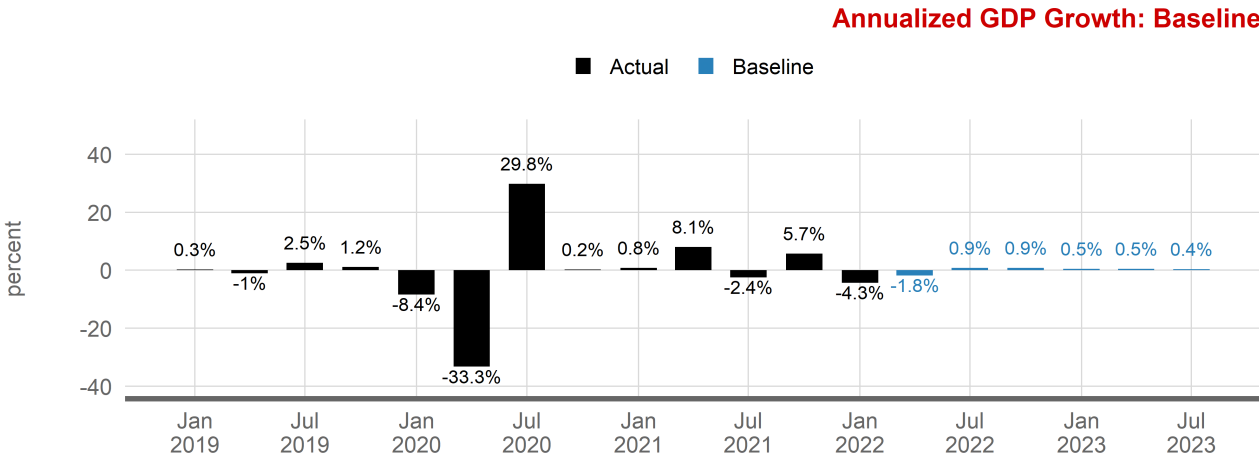
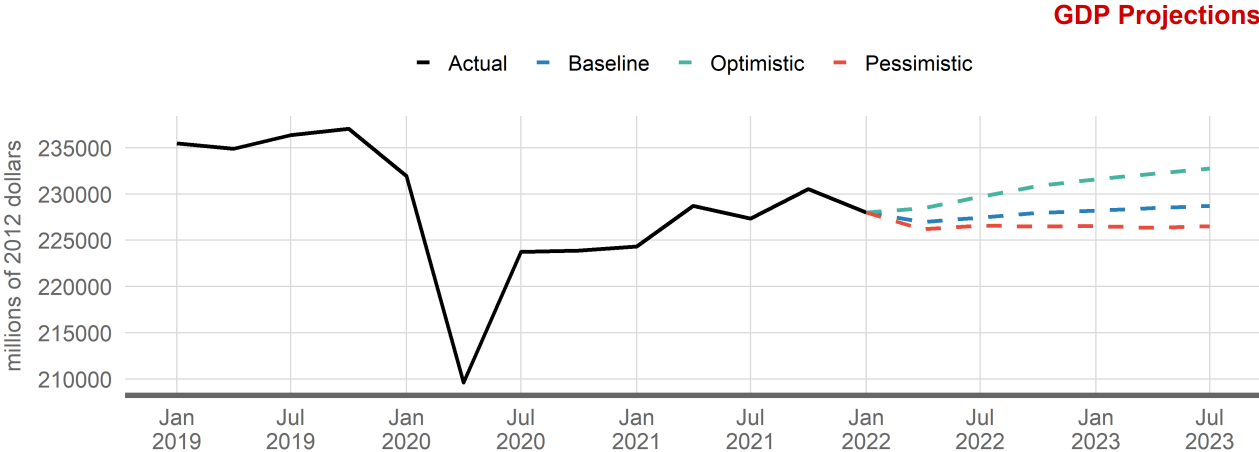


Louisiana GDP Projections

Louisiana's GDP contracted at an annualized rate of 4.3% in the first quarter 2022 and is expected to contract by 1.8% in the second quarter. Over the next five quarters, inflation-adjusted GDP is expected to be essentially zero. While no government or private sector agency formally defines statewide recessions, it is likely that the state is currently in an economic downturn.

The GDP forecast error from the previous report was 1.43%. See Table 2 for forecast errors from the previous report.

Figure 4: Louisiana GDP Projections



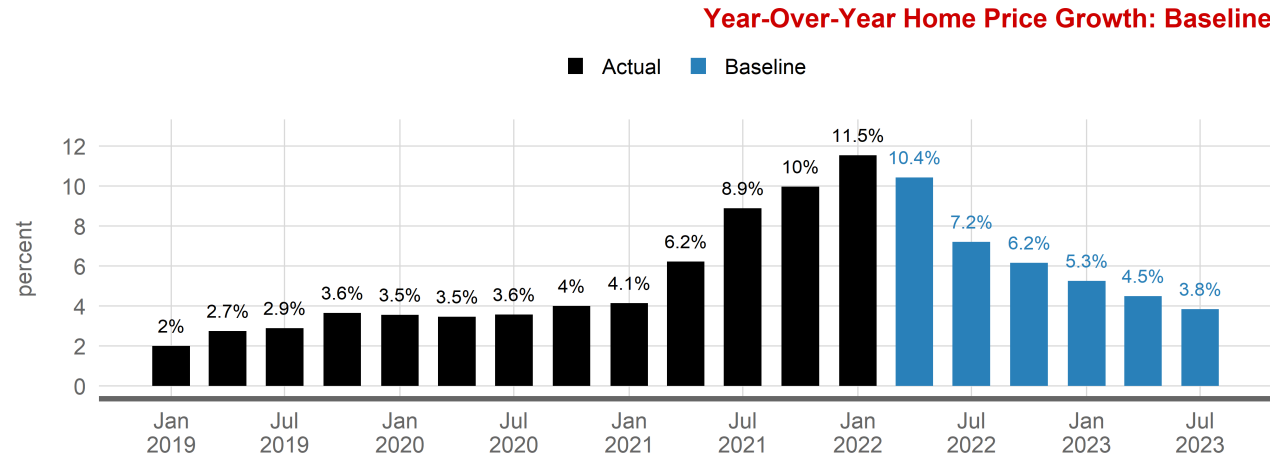
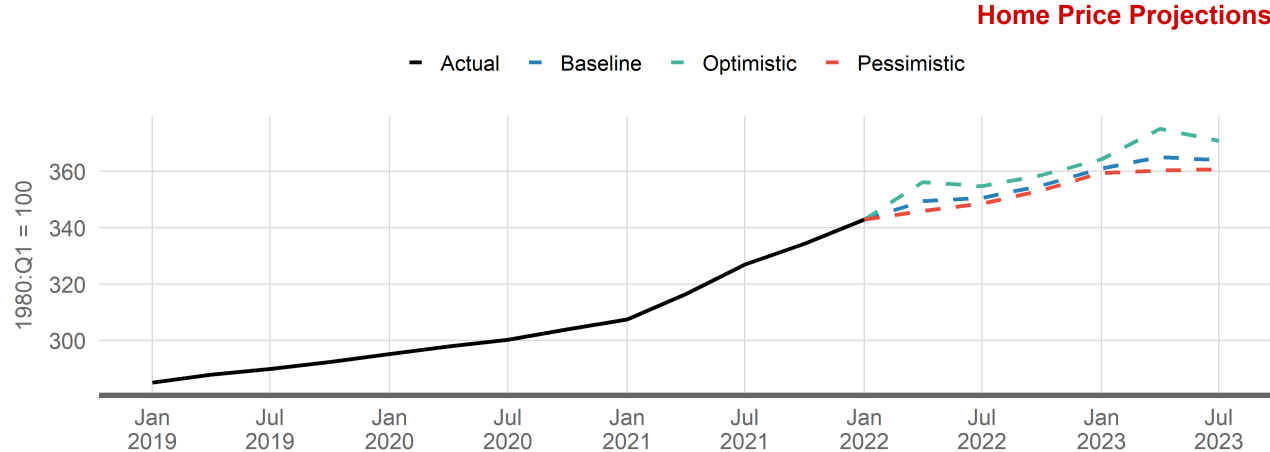
Louisiana Home Price Projections

Home price growth remained robust in Q1 growing at a year-over-year pace of 11.5%. This was only the second time year-over-year home prices in the state exceeded 11% since the late 1970s. Much like the national economy, however, home prices are expected to slow sharply in late 2022 and early 2023 as the Federal Reserve continues to increase interest rates. The Baseline projection points to annualized home price growing falling below 5% in the second quarter of 2023.

Signs of slowing are apparent in the state's metro areas as well. Inventory levels are up double-digits on a year-over-year basis in Alexandria, Hammond, Lake Charles, and New Orleans, which also contributes to downward pressure on sale prices. According to data from Redfin, more than 20% of homes listed for sale in Baton Rouge, Lafayette, Monroe, and New Orleans reduced their list price in June, consistent with a slowing market.

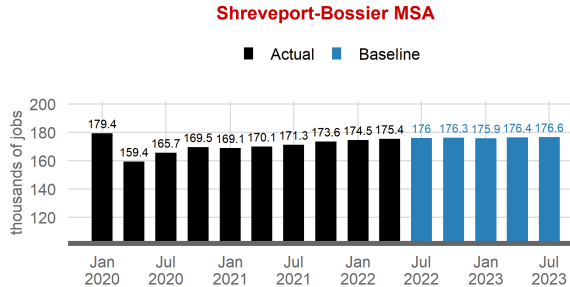
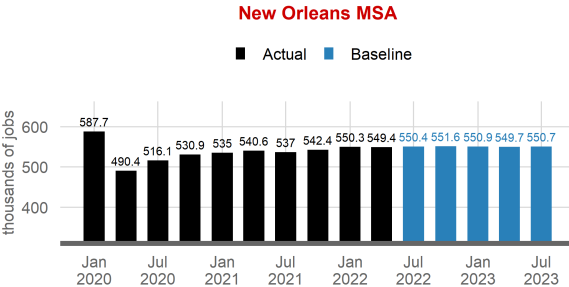
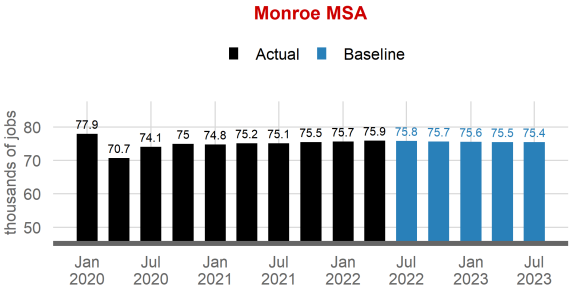
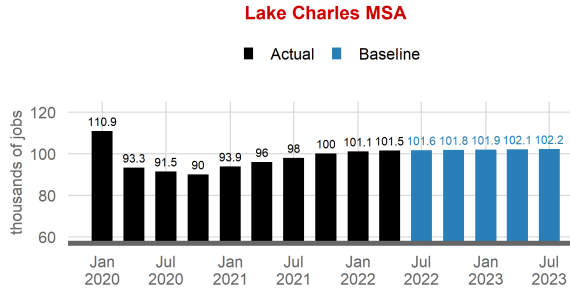
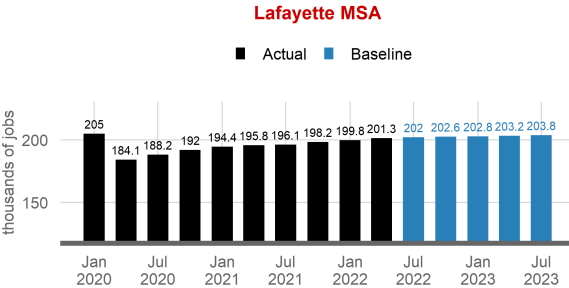
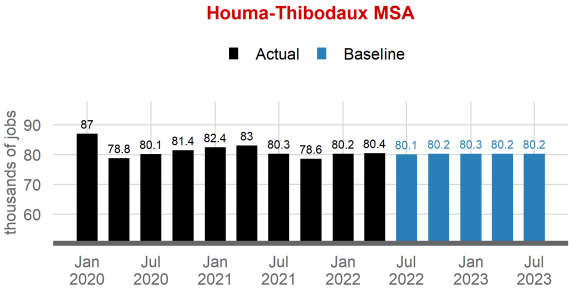
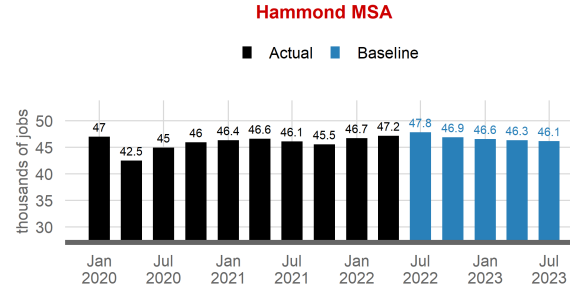
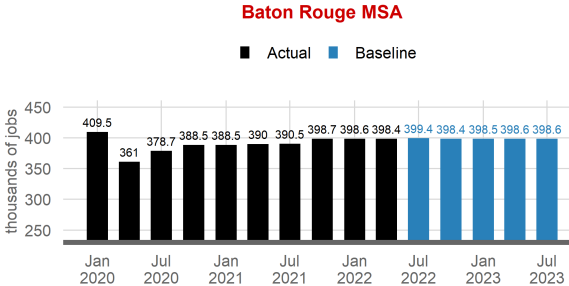
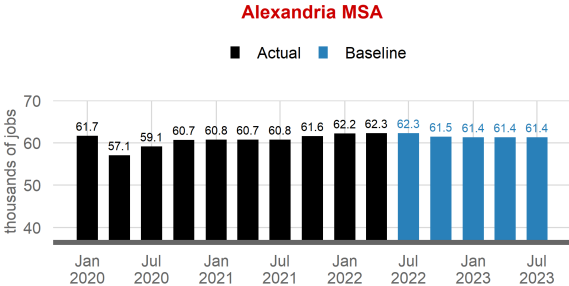
The previous LEAF report's forecast error for home prices was 0.87%. See Table 2 for forecast errors from the previous report.

Figure 5: Louisiana Home Price Projections



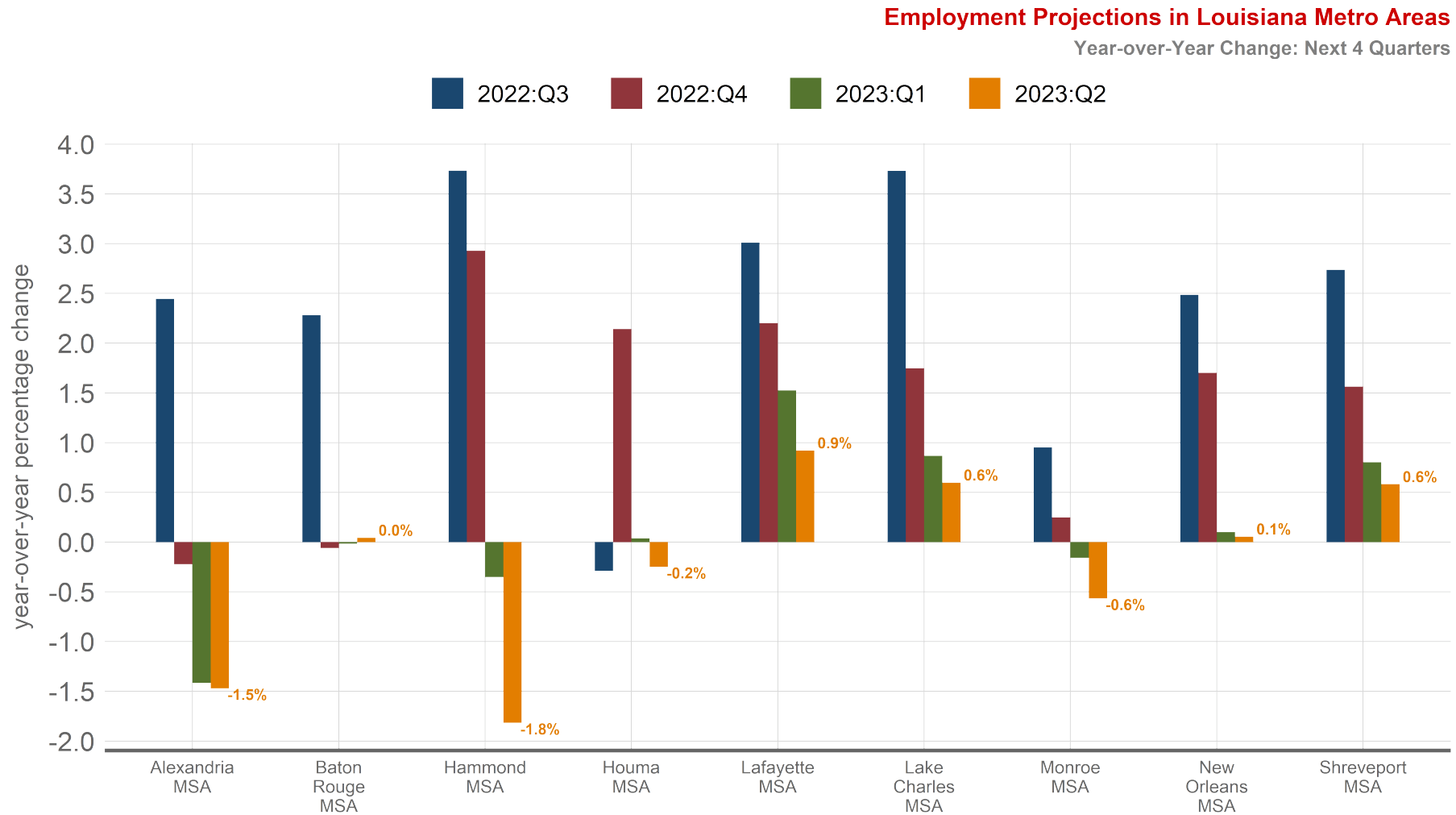
Metro Area Employment Projections

Figure 6: Metro Employment Projections



Metro Area Employment Projections: Year-over-Year Growth

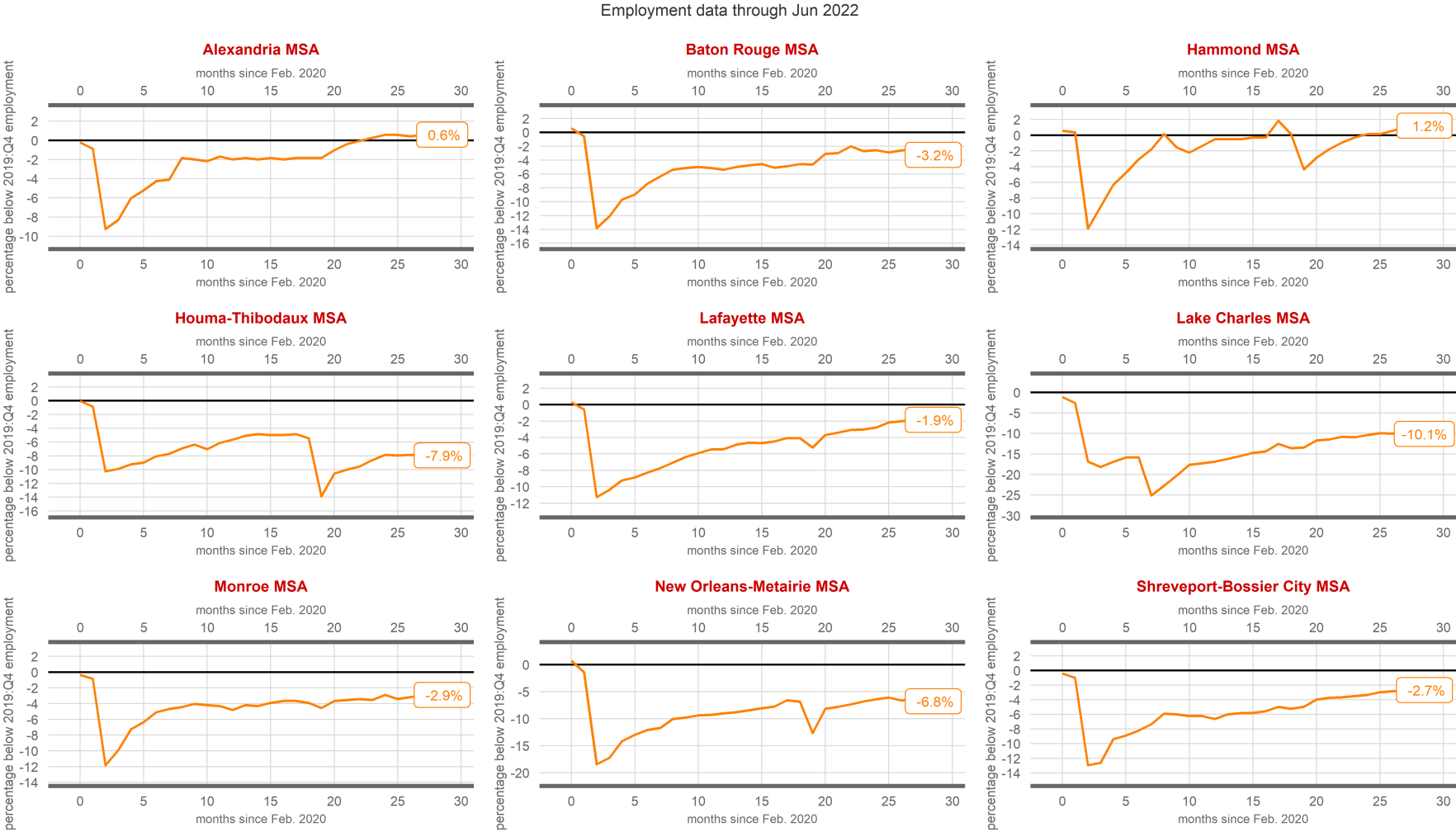
Figure 7: Metro Area Employment Projections: Year-over-Year Growth



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



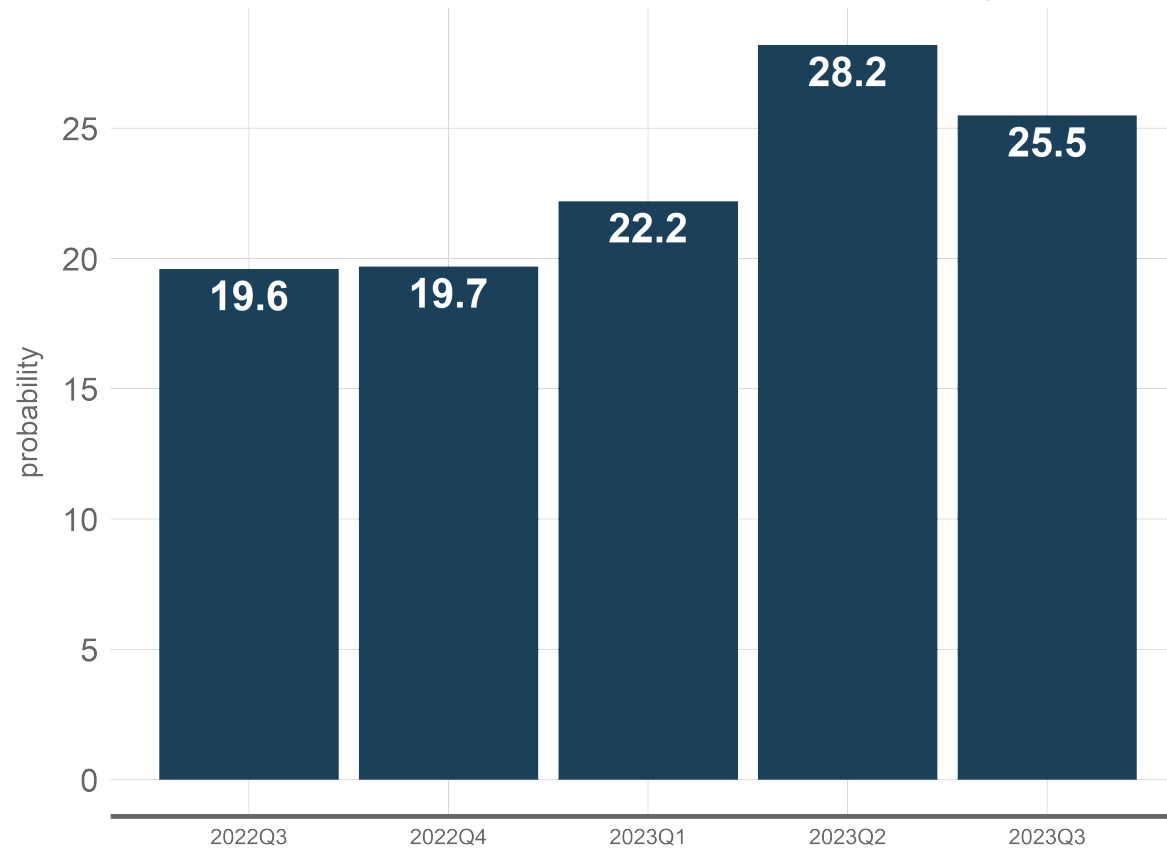
Source: Raw data from the Bureau of Labor Statistics.

Recession Probabilities Over the Next Year

Figure 9: Recent Recession Probabilities

Survey of Professional Forecasters: Recession Probabilities for Future Quarters

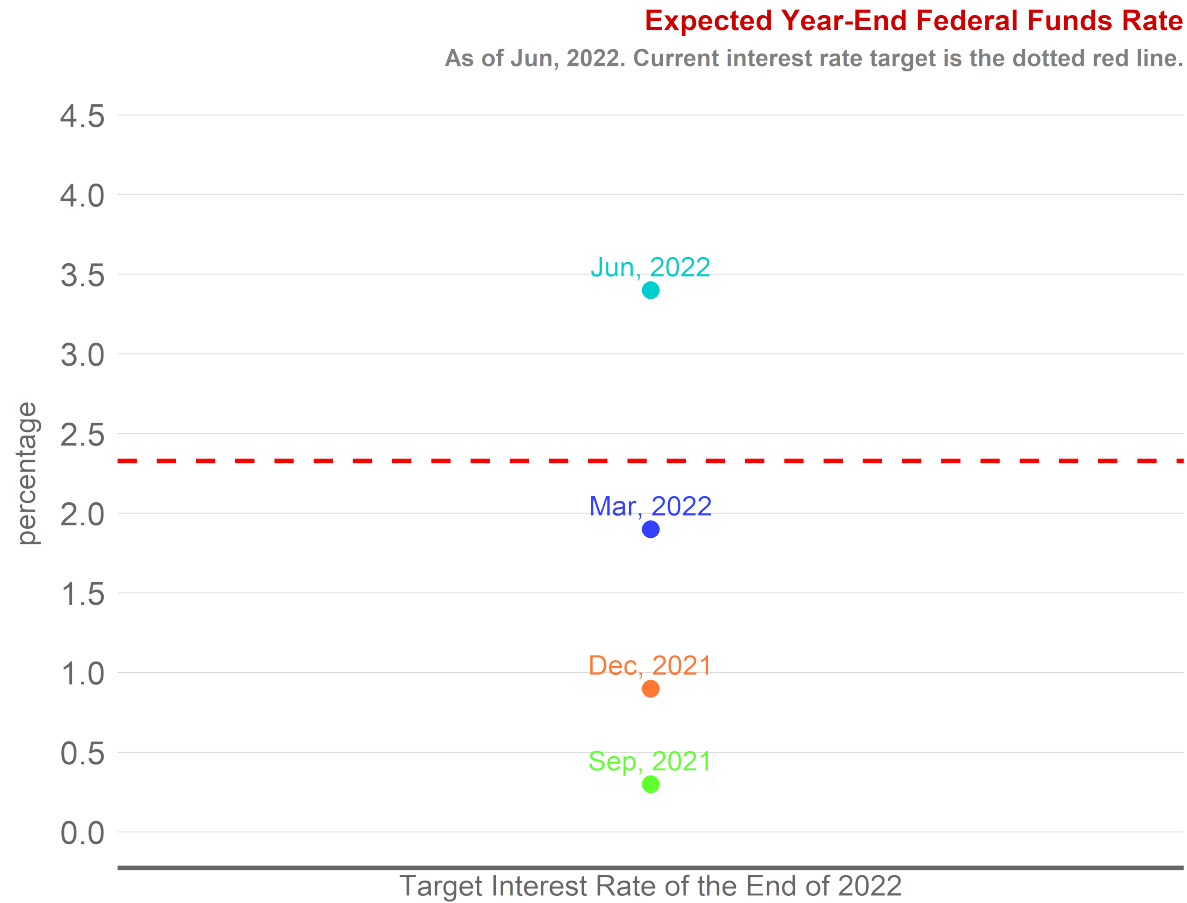
Date of projections: 2022:Q2



Source: Federal Reserve Bank of Philadelphia

Expected Path of Interest Rates

Figure 10: Expected Year-End Federal Funds Rate 2022: Last 4 FOMC Projections



Source: Federal Open Market Committee

Projection Errors from Previous Louisiana Economic Activity Forecast

Table 2: One-Quarter Ahead Projection Errors: 2022:Q1 Projections for 2022:Q2

Variable	Baseline Projection	Actual Value	Absolute % Error
employment (statewide)	1911.80	1907.40	0.23
unemployment rate	3.80	4.00	5.00
GDP	231254.10	228002.30	1.43
FHFA home price index	339.90	342.90	0.87
Alexandria MSA employment	62.50	62.30	0.32
Baton Rouge MSA employment	399.30	398.40	0.23
Hammond MSA employment	46.20	47.20	2.12
Houma-Thibodaux MSA employment	80.80	80.40	0.50
Lafayette MSA employment	201.20	201.30	0.05
Lake Charles MSA employment	103.30	101.50	1.77
Monroe MSA employment	75.90	75.90	0.00
New Orleans MSA employment	558.80	549.40	1.71
Shreveport-Bossier MSA employment	175.70	175.40	0.17

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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