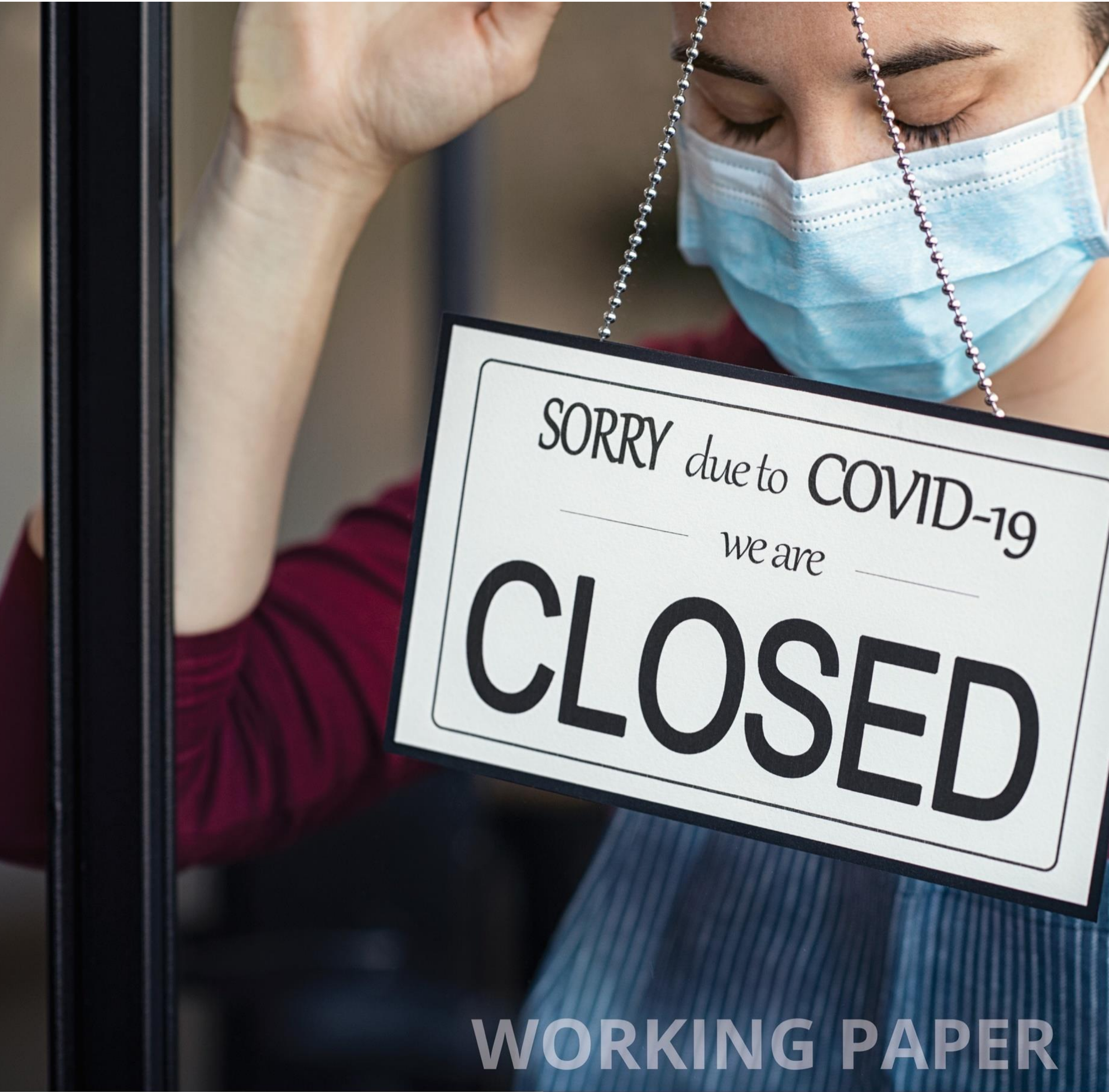

WORKING PAPER

GEORGIA CENTER FOR OPPORTUNITY

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ASSESSING EACH STATE'S RESPONSE TO THE PANDEMIC

Understanding The Impact On Employment & Work

December 3, 2021

Abstract

Introduction

During the depth of the COVID-19 pandemic, state governments and numerous local governments implemented actions to reduce economic activities in order to fight the public health threat from the SARS-CoV-2 virus and its variants. These actions varied significantly among the states. The hypothesis of this study is that governmental actions by the states and their localities whose actions were more severe in shutting down their economies caused greater harm to employment more than a year after the initiation of the pandemic when compared to states whose actions were less severe. Because the hypothesis focuses on variations among the states, national actions consistent across the states were safely ignored.

Method

The study used an abridged version of the Stringency Index from the Coronavirus Government Response Tracker of the Blavatnik School of Government, Oxford University, to measure the governmental responses of the states. In addition, this study created its own index, called the Government Severity Index, to measure a smaller subset of governmental actions thought to have salient economic impacts and also to bring more structure to how local actions are measured. The study considered five confounding variables: the importance of the tourism industrial sector, the importance of the agricultural industrial sector, population density, the prevalence of COVID-19 cases, and the severity of COVID-19 infections, (i.e., those requiring hospitalization). Sixteen separate multiple regression analyses were performed with either the Abridged Oxford Stringency Index or the Government Severity Index along with the five confounding variables for each of the dependent variables specifically for the months of March 2021 and June 2021 for the employment variables or 2021:Q1 and 2021:Q2 for the state Real Gross Domestic Product variables. In addition, six bivariate regressions were preformed to test relationships between the severity of governmental actions with COVID cases, hospitalizations, and deaths.

Results

There is statistically significant evidence that the severity of governmental actions was negatively associated with employment 12 months and 15 months after the initiation of the pandemic (i.e., March 2020). Likewise, it can be concluded that the proportion of the tourism and related industries to the overall size of the states' economies and the population densities also are significant factors associated with influencing employment. The influence of the prevalence of COVID-19 cases had a possible but questionable association. Only COVID cases showed a statistically significant association with the severity of governmental actions.

Conclusion

Naturally, there is a long list of caveats with real-world empirical studies. Being cognizant of those caveats, negative employment outcomes were associated with more severe governmental actions in shutting down economies due to the COVID-19 pandemic, and these results are statistically significant. The associated loss in employment ranged from 0.5 percent to 1.3 percent with one standard deviation movement in

severity. The economic benefits from more severe actions seem to be related only to reduced COVID cases and not hospitalizations or deaths. Policymakers and governmental authorities need to take this statistical evidence into consideration and be more mindful and cautious when imposing economic restrictions during times of prolonged crises to avoid impacting employment more than necessary and to minimize the harm on people's livelihoods. In practice, the evidence suggests that policies need to be more targeted and allow for more flexibility so business operations and employment may continue as much as possible.

Contents

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Executive Summary

During the depth of the COVID-19 pandemic, state governments and numerous local governments sought to reduce economic activities in order to fight the public health threat from the SARS-CoV-2 virus and its variants. These actions varied significantly among the states.

The hypothesis of this study is that the severity of state and local governmental restrictions on economic activity (in response to the COVID-19 pandemic) was negatively associated with employment more than a year after the initiation of the pandemic when compared to states whose actions were less severe. Because the hypothesis focuses on variations among the states, national actions consistent across the states were safely ignored.

The study used an abridged version of the Stringency Index from the Coronavirus Government Response Tracker of the Blavatnik School of Government, Oxford University, to measure the governmental responses of the states. In addition, this study created its own index, called the Government Severity Index, to measure a smaller subset of governmental actions thought to have salient economic impacts and also to bring more structure to how local actions are measured.

For the dependent variables being tested, three different employment metrics from the U.S. Bureau of Labor Statistics were used: nonfarm employment per the Current Establishment Survey, employment levels from the Current Population Survey (CPS), and Employment-Population Ratios also from the Current Population Survey. In addition, state Real Gross Domestic Product (RGDP) was used to test impact on economic performance. Two hundred and four ARIMA model forecasts were performed to provide comparison points for the impact on these variables. Visual inspection of the forecasts indicated that the ARIMA modeling generated reasonable nonfarm employment forecasts. However, the ARIMA modeling generated problematic forecasts for some of CPS metrics. For example, the CPS employment level forecasts for nine states would mean employment exceeded or nearly exceeded their pre-pandemic trajectories by June 2021, which were considered to be unreasonable results. Additionally, all forecasts were compared to geometrical mean forecasts, and for seven of those nine forecasts deemed problematic, the ARIMA model forecasts diverged widely from the geometric mean forecasts. For RGDP, the forecasts were even more problematic. Therefore, no conclusion was made on the impact on RGDP.

The study considered five confounding variables: the importance of the tourism industrial sector, the importance of the agricultural industrial sector, population density, the prevalence of COVID-19 cases, and the severity of COVID-19 infections (i.e., those requiring hospitalization). Sixteen separate multiple regression analyses were performed with either the Abridged Oxford Stringency Index or the Government Severity Index along with the five confounding variables for each of the dependent variables specifically for the months of March 2021 and June 2021 for the employment variables or 2021:Q1 and 2021:Q2 for the state Real Gross Domestic Product variable.

Nonfarm employment is considered to be the most reliable employment metric, suggesting its findings are the most relevant. Table 4 reproduces key stepwise regression results for nonfarm employment. The marginal effects (that measure economic influence) are significant. They indicate that a one standard deviation movement in governmental stringency per the Abridged Oxford Stringency Index would be associated with 1.3 percent less in overall employment in March 2021 and 1.2 percent less in June 2021. For the Government Severity Index, the associated employment impact would be 0.7 percent less for

March 2021 and 0.5 percent less for June 2021. To put these effects in perspective, 1.3 percent less in jobs for the United States in March 2021 would mean 2,017,000 less jobs.

Compared to the Government Severity Index, the Abridged Oxford Stringency Index had lower p-values and higher t-statistics—although it is unknown which of the indexes is better. Both governmental response metrics associated tourism and population density as contributing factors helping to explain the impact on employment. COVID-19 prevalence was rejected for the Abridged Oxford Stringency Index regressions but barely made the cut for the Government Severity Index runs using alpha = 0.2. Had alpha = 0.15 been used instead, it would have been rejected as well.

Therefore, to summarize these points, there is statistically significant evidence that the severity of governmental actions was negatively associated with employment 12 months and 15 months after the initiation of the pandemic (i.e., March 2020). The estimated economic impact is associated with an estimated 0.5 percent to 1.3 percent loss in total jobs per one standard deviation movement in severity of governmental actions. Likewise, it can be concluded that the proportion of the tourism and related industries to the overall size of the state's economies and the population density are also significant factors associated with impacting employment. The influence of the prevalence of COVID-19 cases had a questionable influence as it was rejected for two regressions and barely made the other two regressions.

Table 4: Summary of Key Regression Results for Nonfarm Employment

Description	Government Severity Index		Abridged Oxford Stringency Index	
	March 2021	June 2021	March 2021	June 2021
Government response statistics per regression analyses with alpha = 0.2 and HC3:				
t-statistic	-2.25	-1.58	-4.96	-4.55
p-value	2.93E-02	1.22E-01	1.01E-05	3.87E-05
marginal effects	-0.007	-0.005	-0.013	-0.012
Linear equation statistics per the same regression analyses:				
multiple R	0.770	0.704	0.815	0.769
R square	0.593	0.495	0.665	0.592
Adjusted R square	0.557	0.450	0.643	0.565
Other factors in linear equation	Tourism Proportion Population Density Covid Prevalence		Tourism Proportion Population Density	

Because several ARIMA model forecasts for the CPS employment metrics were too problematic, as already explained, the author does not believe they can be relied on with the regression analyses. Other researchers reviewing the data may disagree. If those forecasting problems are ignored, the CPS metrics would also support the hypothesis but to a lesser degree.

Six bivariate regressions were run to test correlations between the severity of governmental actions in shutting down their economies with COVID cases, hospitalizations, and deaths. These results imply that the economic tradeoff of higher job loss due to more severe governmental actions were suppressed COVID cases. COVID hospitalizations and deaths failed the statistical tests for correlations, i.e., the relationships appear to be random.

Naturally, there is a long list of caveats with real-world empirical studies. Being cognizant of those caveats, and in summary, the empirical evidence gives an indication of the nature of the economic tradeoff from state governments and their political subdivisions due to their actions to shut down their economies to fight the COVID-19 pandemic. This study used two different indexes on the severity of governmental actions and controlled for the proportion of the tourism industry to the states' economies, the proportion of agriculture to the states' economies, population density, the prevalence of COVID-19 cases, and the severity of those cases. The evidence shows an associated harmful and measurable impact on nonfarm employment more than a year after the initiation of the pandemic. However, the evidence suggests that the economic tradeoff was not for less COVID hospitalizations and deaths as many would have hoped. Only COVID cases have an association with the severity of governmental actions.

In conclusion, policymakers and governmental authorities need to take this evidence into consideration when crafting policies and imposing economic restrictions during times of prolonged crises so that their actions are more mindful to reduce the impact on employment that can harm people's livelihoods and have long-term consequences. In practice, the evidence suggests that policies need to be more targeted and allow for more flexibility so business operations and employment may continue as much as possible.

Acronyms

For a list of statistical acronyms and terms, see Appendix A24.

ARIMA	Autoregression integrated moving average
BEA	Bureau of Economic Analysis, U.S. Department of Commerce
BLS	Bureau of Labor Statistics, U.S. Department of Labor
BCDC	Business Cycle Dating Committee, National Bureau of Economic Research
CDC	Centers for Disease Control and Prevention, U.S. Dept. of Health and Human Services
COVID-19	Coronavirus disease—19
CES	Current Establishment Survey
CPS	Current Population Survey
SARS-CoV-2	Severe acute respiratory syndrome—coronavirus—2
GCO	The Georgia Center for Opportunity
GDP	Gross Domestic Product
HHS	U.S. Department of Health and Human Services
MAF/TIGER	Master Address File/Topologically Integrated Geographic Encoding and Referencing, national geospatial database of the U.S. Census Bureau
NAICS	North American Industrial Classification System
NBER	National Bureau of Economic Research, a nonprofit research association
RGDP	Real Gross Domestic Product (adjusted for inflation)

Introduction

During the depth of the COVID-19 pandemic, state governments and numerous local governments implemented actions to reduce economic activities in order to fight the public health threat from the SARS-CoV-2 virus and its variants. These actions among the states have been shown "to display significant variations."[1] Moreover, throughout the pandemic, there has been much speculation that the variance of those actions—such as stay-at-home orders, shutting down businesses, and restrictions on gathering sizes—caused the states with more severe policies to experience more harm to employment compared to states that were more cautious. For example, the Wall Street Journal published several editorials making that exact case.[2] However, the author is unaware that anyone has yet put this question to an empirical test to see whether there is a statistically significant association between more severe governmental actions and employment.

Knowing whether an association exists is important for public policy at all levels of government. The COVID-19 pandemic started with unprecedented governmental actions to shut down economies for just a few weeks that morphed into prolonged orders of intrusive actions that in many cases lasted for more than a year. Pandemics have been a fact of life over the centuries, and the world will most certainly encounter others at some undetermined time in the future. Therefore, it will be important for policymakers to know whether an association exists to guide them in being more mindful and cautious in how they structure their responses to future pandemics.

Negative long-term consequences from governmental actions addressing economic crises are common, and it is not the intention of this paper to enumerate or review those studies. However, one paper comes to mind that will serve as an example. During America's Great Depression, some state governments imposed mortgage foreclosure moratoria with varying degrees of severity. An economic paper[3] published by the Federal Reserve Bank of St. Louis in 2008 reviewed economic studies of this question. Several studies demonstrated how those moratorium policies delayed economic recovery by reducing the supply of loans and credit, giving evidence that an economic tradeoff existed between immediate alleviation of pain and future economic costs. In many ways, governmental responses to the COVID-19 pandemic have similar tradeoffs, requiring authorities to balance immediate relief with future negative economic impact.

The hypothesis of this study is straightforward: Governmental actions by the states and their localities whose actions were more severe in shutting down the economies of their respective areas caused greater harm to employment when compared to states whose actions were less severe, when viewed more than a year after the initiation of the pandemic. The null hypothesis to be tested then becomes that there is no difference between the severity of governmental actions and the impact on employment. Because the

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[1] Laura Hallas, Ariq Hatibie, Saptarshi Majumdar, Monika Pyarali, and Thomas Hale, *Variation in US states' responses to COVID-19*, Blavatnik School of Government, University of Oxford, BSG Working Paper Series, BSG-WP-2020/034, Version 2.0, December 2020. This paper has been since updated and Version 3.0 is available online: https://www.bsg.ox.ac.uk/research/publications/variation-us-states-responses-covid-19.

[2] See, for example, the article "The Two-Track Jobs Recovery" by The Wall Street Journal Editorial Board on January 27, 2021: https://www.wsj.com/articles/the-two-track-jobs-recovery-11611790680.

[3] David C. Wheelock, "Changing the Rules: State Mortgage Foreclosure Moratoria During the Great Depression," Federal Reserve Bank of St. Louis Review, November/December 2008, pp. 569-583: https://files.stlouisfed.org/files/htdocs/publications/review/08/11/Wheelock.pdf.

hypothesis focuses on the variation among the states, national actions that are consistent across the states can be safely ignored as factors.

This study ran twelve scenarios on three employment metrics for March 2021 and June 2021 using two different indexes on the severity of governmental actions, including one developed specifically for this study. To control for confounding variables, the multiple regression analyses included metrics on the importance of the tourism industrial sector, the importance of the agricultural industrial sector, population density, the prevalence of COVID-19 cases, and the severity of COVID-19 infections. In every case, the null hypothesis was rejected, demonstrating with statistical confidence an association that the more severe governmental actions were taken, the greater was the negative impact on employment. However, there were significant nuances with the forecasting data whereby the nonfarm employment metric was determined to be the only one reliable enough to use. This study also ran regressions on state Real Gross Domestic Product, but worse forecasting issues forced no conclusion.

This study also ran six bivariate regressions between the severity of governmental actions using two indexes against COVID cases, COVID hospitalizations, and COVID deaths. The results showed a negative correlation between government severity and COVID cases, but no correlations with hospitalizations and deaths. It can be concluded that while the more severe governmental actions are associated with job loss, the only statistically significant evidence of the benefits of the economic tradeoff was with suppressed COVID case numbers during the crisis.

Naturally, there is a long list of caveats with real-world empirical studies. There can be problems with the data themselves, especially during times of economic distress. The indexes measuring government severity of actions are based on subjective judgements of the researchers who must assign values to actions. There may be additional confounding variables that were not considered. These and other caveats will be elaborated on in the last section of this paper

Data and Method

Regression Analyses and Statistical Package

Multiple regression analyses were used as the primary tool to test the null hypothesis. The study used the Real Statistics Resource Pack software developed by Charles Zaiontz,[4] which is an add-in to Microsoft Excel. This software package has several advantages over other packages for this type of study. Foremost, all results are generated in Excel, enabling the user to see the actual formulae and calculations that are often invisible with other statistical packages. It allows easy updates to the analyses when there are small changes without having to run the whole analyses over again. Also, having the results in Excel allows users to perform analyses and manipulate the data for presentation more quickly.

The analyses were run on the dependent and independent variables, displayed in Appendix A1, including the confounding variables identified below, using the Multiple Linear Regression tool first as a stepwise regression[5] with alpha = 0.2, which is a standard, and, because some heteroskedasticity was optically

[4] Charles Zaiontz, Real Statistics Resource Pack software (Release 7.6), copyright 2013 – 2021: www.real-statistics.com .

[5] The stepwise regression process is available online at Charles Zaiontz (2020) Real Statistics Using Excel: https://www.real-statistics.com/multiple-regression/stepwise-regression.

detected in preliminary tests, Robust Standard Error Type 3 (HC3)[6]. Thereafter, the analyses were run a second time using alpha = 0.5 and HC3 just for those factors successfully identified by the stepwise regression.

Dependent Variables

Seasonally-adjusted nonfarm employment per Current Establishment Survey

National data

Series ID #: CES0000000001
Period: Monthly
Source: Labor Force Statistics from the Current Population Survey (CPS), U.S. Bureau of Labor Statistics (BLS)

State data

Series ID #s: prefix "SMS" + area code for state (e.g., "13" for Georgia") + "000000000000001"
Period: Monthly
Source: Local Area Unemployment Statistics from the Current Population Survey, U.S. Bureau of Labor Statistics

Discussion

Total Nonfarm employment per the Current Employment Survey is normally the preferred measure for employment partially because its sampling size is larger and the data are checked against administrative data. For example, it is what the National Bureau of Economic Research (NBER) Business Cycle Dating Committee (BCDC) normally prefers and believes to be the most reliable of the employment metrics.[7] The establishment survey is conducted monthly based on "145,000 businesses and governmental agencies, representing 697,000 individual worksites."[8] Each year, BLS benchmarks the data to the states' unemployment insurance systems, giving more confidence to the reliability. Every March, BLS recalibrates the data based on benchmarks. Because the data series is seasonally adjusted, no further seasonal were made for this project. The Confidence interval is 90%.[9]

However, because of the pandemic, there are reasons to question its reliability in determining business cycles. The pandemic has been particularly challenging for data collection efforts and the definitions used for certain data series. Note the following statement from the Business Cycle Dating Committee in explaining the situation when it announced its decision to choose February 2020 as a peak of another business cycle.

> *The committee recognized that this survey was affected by special circumstances associated with the pandemic of early 2020. In the survey, individuals who are paid but not at work are counted as employed, even though they are not in fact working or producing. Workers on paid furlough, who became more numerous during the pandemic, thus resulted in an overcount of people working in*

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[6] The HC3 formula and explanation are available online at Charles Zaiontz (2020) Real Statistics Using Excel: https://www.real-statistics.com/multiple-regression/robust-standard-errors.

[7] Business Cycle Dating Committee, National Bureau of Economic Research, "NBER Determination of the February 2020 Peak in Economic Activity," June 8, 2020: https://www.nber.org/sites/default/files/2020-11/june2020.pdf, accessed January 25, 2020.

[8] State and Metro Area Employment, Hours, and Earnings (SAE), Bureau of Labor Statistics: https:/www.bls.gov/sae.

[9] *Idem*.

> *recent months. Accordingly, the committee also considered the employment measure from the Bureau of Labor Statistics household survey, which excludes individuals who are paid but on furlough.*[10]

This distinction is important to note for the purpose of identifying business cycle peaks, and it highlights some of the data challenges due to the pandemic. However, the circumstances for testing the hypothesis of this project are different. The regression analyses used March 2021 and June 2021 as the test dates, twelve and fifteen months after the start the pandemic. These months are significantly later than the initial months of the pandemic. Therefore, it was assumed that the paid-but-not-at-work status of some employees had worked its way through the system to become nonfactors, although this specific assumption had not been specifically tested.

Seasonally-adjusted employment per Current Population Survey

National data

Data Series: LNS12000000
Period: Monthly
Source: Labor Force Statistics from the Current Population Survey (CPS), U.S. Bureau of Labor Statistics

State data

Data Series: prefix “LASST” + area code for state (e.g., “13” for Georgia”) + “0000000000005”
Period: Monthly
Source: Local Area Unemployment Statistics from the Current Population Survey, U.S. Bureau of Labor Statistics

Discussion

As also used by the NBER BCDC, the CPS employment level is another gauge for employment that will be used to test the hypothesis. Although the skewing of the payroll data is assumed not to be a problem for the regression analyses, this was never an issue with the CPS estimates because, unlike the CES measure, the CPS metric does not count paid furloughed workers as employed.[11] This fact was confirmed by the Current Population Survey Interview Manual.[12] The CPS numbers offer other advantages as well, including not counting multiple jobholders and counting the self-employed. However, there are disadvantages to using the CPS, including a smaller sample size of just 60,000 that gets less accurate when divvied up among the 50 states, and the fact that the CPS is a self-reported survey drawn from the general population without the benefit of cross-referencing to administrative data, such as the states’ unemployment insurance systems used to check the survey for nonfarm employment.[13]

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[10] Business Cycle Dating Committee, June 8, 2020.

[11] Business Cycle Dating Committee, National Bureau of Economic Research, “NBER Determination of the February 2020 Peak in Economic Activity,” June 8, 2020: https://www.nber.org/sites/default/files/2020-11/june2020.pdf, accessed January 25, 2020.

[12] U.S. Census Bureau, Current population Survey Interviewing Manual, CPS-2015 (4/2015), April 2015, pp. C4-11, C4-14: https://www2.census.gov/programs-surveys/cps/methodology/intman/CPS_Manual_April2015.pdf, accessed January 25, 2020.

[13] For a further discussion on the differences, advantages, and disadvantages of the CES and CPS, *q.v.* Mary Bowler and Teresa L. Morisi, “Understanding the employment measures from the CPS and CES survey,” Monthly Labor Review, February 2006: https://www.bls.gov/opub/mlr/2006/02/art2full.pdf.

Counting employment levels as opposed to unemployment rates, also derived from the CPS, is far better because unemployment rates ignore changes in labor force participation that would skew the results. It is well known among economists that labor force participation is a procyclical loose link that fluctuates upwards during good economic times and downwards during times of economic distress.[14] In contrast, changes in employment levels will capture at least some of the loss. As with CES employment numbers, BLS recalibrates CPS employment data and releases the revisions in March. Likewise, the pandemic has been challenging for data collection. Because the data series are seasonally adjusted, no further seasonal adjustments were made for this project. Confidence interval is 90%.

Seasonally-adjusted employment-to-population ratio per Current Population Survey

National data

Data Series: LNS12300000
Period: Monthly
Source: Labor Force Statistics from the Current Population Survey (CPS), U.S. Bureau of Labor Statistics

State data

Data Series: prefix “LASST” + area code for state (e.g., “13” for Georgia”) + “0000000000007”
Period: Monthly
Source: Local Area Unemployment Statistics from the Current Population Survey, U.S. Bureau of Labor Statistics

Discussion

Because employment levels do not account for changes in population, the additional metric of employment-to-population ratio was used. Because it is also derived from the Current Population Survey, this metric would have the same considerations and caveats as the CPS employment level.

State Real Gross Domestic Product

National data

Data Series: SQGDP9 Real GDP by state
Period: Quarterly
Source: Bureau of Economic Analysis (BEA), U.S. Department of Commerce

State data

Data Series: SQGDP9 Real GDP by state
Period: Quarterly
Source: Bureau of Economic Analysis, U.S. Department of Commerce

Discussion

State Real Gross Domestic Product (RGDP) was also run through the analysis as an additional test. Although it does not measure employment, it was used to check if there were any impacts on production as a proxy for economic activity. It is reported quarterly, adjusted for inflation, and seasonally adjusted.[15]

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[14] For example, q.v. Michael Elsby, Bart Hobijn, Fatih Karahan, Gizem Koşar, and Ayşegül Şahi, “Flow Origins of Labor Force Participation Fluctuations,” American Economic Association (AEA) Papers and Proceedings, Vol. 109, May 2019, pp. 461-64: https://www.aeaweb.org/articles?id=10.1257/pandp.20191054.

[15] When downloading the data series from the website, it does not identify the data as seasonally adjusted. However, an email inquiry was sent to BEA, and they confirmed that the data are indeed seasonally adjusted.

Time Series Analyses

All dependent variables were forecasted using an ARIMA(12, 1, 0) model. For the employment variables, the forecasts started in March 2020 through August 2021. The start date for the range of the observed data used in the model varied by state for nonfarm employment and the CPS employment level metric following this rule: the low point in the metric following June 2009, the trough of the Great Recession designated by the NBER Business Cycle Dating Committee.[16] In the case of the employment-to-population ratio, the start date was June 2009 because data for some states did not provide enough observations for the ARIMA model. For example, Vermont's employment-to-population ratio had steadily declined right up until the start of the pandemic. The end date for all observed employment data was February 2020 (the month before the impact of the pandemic in the United States).

For state RGDP, the observed data rule for the variable was the same as with the employment-to-population ratio. Because the data were reported quarterly and not monthly, there were only 43 periods of data from 2009:Q2, the trough of the Great Recession. In contrast, the average number of observed data for the states was 123.7 for the employment metrics. Additionally, as with the employment-to-population ratio, some states had significant declines in RGDP that were insufficient for the ARIMA model. Therefore, all states had the same start quarter of 2009:Q2. The end quarter used was 2019:Q4, prior to the impact of the pandemic. The forecasts, therefore, started in 2020:Q1 through the end of 2021.

The total ARIMA models run for this study totaled 204, four variables for each state plus the United States as a whole. The results of the modeling can be found in Appendix Category E, i.e., E1 through E200 and Appendix Category F, i.e., F1 through F4.

As with the regression analyses, the Real Statistics Resource Pack software was used for the ARIMA model forecasting. Because all data for all variables were seasonally adjusted by the BLS or the BEA, the moving average order of the models was zeroed out, i.e., q =-0, leaving only the autoregression component to make the forecasts. Preliminary tests were unable to reject the hypothesis of nonstationary. Therefore, a differencing factor (d) of 1 was chosen. For the parameter order (p) of lags for the autoregression, p = 12 was chosen to capture a full year from the monthly data or three years of RDGP.

The purpose of forecasting time series data for each dependent variable was to calculate new data series to be used in the regression analyses. The ARIMA model forecasts for March 2021 and June 2021, or 2021:Q1 and 2021:Q2, were compared to the observed data as released by BLS or BEA, giving relative measures of the impact of the pandemic. It was decided that using the ARIMA model forecasts were superior to simply comparing the observed data to the last period prior to the pandemic, which would traditionally mark the recovery period. As can be observed by scanning through all 204 forecasts in the Appendixes, the trends among the states varied, and the ARIMA modeling enabled capturing the trajectories. Otherwise, by not capturing the trajectories, the comparisons would be skewed. For example, while nonfarm employment was growing for most states, there were important exceptions. Alaska, North Dakota, Oklahoma, Vermont, West Virginia, and Wyoming had contrary trends. Moreover, the growth rates and consistency of the fluctuations varied considerably.

[16] "US Business Cycle Expansions and Contractions" webpage, Business Cycle Dating Committee, National Bureau of Economic Research: https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions, accessed last on October 13, 2021.

Independent Variables Measuring Governmental Actions

Abridged Oxford Stringency Index

The Blavatnik School of Government, Oxford University, created a Coronavirus Government Response Tracker, the first known one of its kind.[17] The Oxford team collects and analyzes data from publicly available sources, such as newspapers, legislation, and briefings. Initially, the data were only available at the national level, but they expanded the tracker to include subnational level data for Brazil, Canada, China, the United Kingdom, and the United States.

As of this writing, the tracker consists of 23 indicators used to comprise five indexes. Of these, the stringency index, called herein the Oxford Stringency Index, is of interest. This index measures the severity of governmental actions to lockdown the economies. It consists of the following ordinal scale indicators:

- C1--school closings*
- C2--workplace closings*
- C3--cancelling public events*
- C4--limits on private gatherings*
- C5--public transportation closings*
- C6--stay at home orders*
- C7--restrictions on internal movement (between cities/regions)*
    - Flag for targeted (0) or general (1) geographic scope
- C8--restrictions on international travel, or in the case of subnational data, into the state
- H1--public information campaigns*

For the indicators in the list above marked with an asterisk, they include "flags" to adjust for the school/university or for local actions. Appendix C2 gives the definitions and ordinal scales for the indicators, which range from three to five. Each indicator's score is adjusted on a daily basis to a value between 0 and 100, defined as I for indicator, using the following formula:

$$I = 100 * \frac{v - 0.5 * (F - f)}{N}$$

where v is the recorded policy value from the ordinal scale; F is either the value of 1, if the indicator has a flag for local actions, which is true for all indicators except C8; otherwise it is equal to 0; f is the value of the flag, which is either 1, if the action is statewide, or 0 if it is a local action; and N is the maximum value of the ordinal scale.

The Oxford Stringency Index is then created by adding the nine indicator scores together and dividing by nine to derive the final score. For purposes of this study, the stringency index was abridged by eliminating the indicator for public information campaigns (H1) so that the actions being scored were all restrictions imposed on the economy. In order to maintain a maximum score of 100, the sum of the indicators for the Abridged Oxford Stringency Index was divided by eight instead of by nine.

From this index, a score was created by simply summing the total index scores for the days under consideration. It also could have been divided by the number of days for an average daily score. Both

[17] Oxford University's Governmental Response Tracker website: https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker.

methods would work the same because the averages were calculated using the same denominator. The time period used in this study was the 13-month period between March 1, 2020, and March 31, 2021, for all states.

Government Severity Index

Reviewing the Abridged Oxford Stringency Index more closely, it was decided to undertake a project of creating a new index to define more narrowly those economic actions with the most potential to harm employment and to provide an alternative methodology to account for local actions. On the latter, there were concerns over the systematic approach used in adjusting state scores for local actions that potentially inflated scores due to those local actions. For example, on August 24, 2020, the City of Tuscaloosa, Alabama, closed bars due to the pandemic. Despite having only 2 percent of the state's population, it caused the C2 indicator to increase 50 percent, from 33.33 to 50. On the former issue, the Oxford Stringency index is broader in scope and was created based on national-level actions in mind. The interest in this paper's study lies with understanding the difference among states to test the hypothesis.

The new index is based on the following indicators:

- School closures, focusing on just K through 12th grade.
- Workplace closures
- Gathering restrictions
- Capacity limits
- Stay-at-home mandates.

The ordinal scores and scaling descriptions are found in Appendix C1.

To bring more structure to the local actions and keep the scoring project manageable, it was decided to score actions—whether initiated by the governor for a region of the state or by local authorities—only impacting metropolitan statistical areas as defined by the U.S. Census Bureau that met the threshold of having at least 5 percent of the state's population. Because metropolitan statistical areas cover multiple counties and municipalities, it was narrowed even more to focus only on those actions impacting the most populous city and county within those metropolitan areas. Moreover, the scoring of local actions was applied only if the local score exceeded that of the statewide score. Although local actions were scored for four of the indicators, it was not used for school closures. A review of school district actions found not only too wide of a disparity on the actions taken, but also a general lack of consistency and accessibility on exactly what actions were taken. It would have required too many research hours to collect and organize the data, which was beyond the resources dedicated to this project.

The indicator formula ($[Indicator]$) for each the four non-school indicators is as follows:

$$[Indicator] = 100 * \frac{[state] + [\%pop] * ([local] \ - [state])}{N}$$

where $[state]$ is the recorded statewide policy value; $[\%pop]$ is percent population of the metropolitan statistical area to the state's total, $[local]$ is the local score, and N is the maximum amount of the ordinal scale. The primary difference from the Oxford formula is how local actions are treated. The new indicator adds more severe local actions to the overall statewide score in proportion to the population of the relevant statistical metropolitan area that meets the threshold of 5 percent. In the Oxford formula, there is no threshold, and the total score assumes the local value minus 0.5 no matter the proportion of the population impacted. Note that the indicator for school closings does not have a local component. Therefore, the state action scores are adjusted to equal a scale of 100, consistent with the other indicators.

The Government Severity Index was created by adding the five indicator scores together and dividing by five making 1 the minimum score and 100 the maximum score for any given day. As with the Oxford Stringency Index, the scores used in the regression analyses were created by simply summing the total index scores for the days under consideration. The time period used was the thirteen month period between March 1, 2020, and March 31, 2021, for all states.

Implementation of scoring the index took a team of seventeen individuals whose names are listed under the Acknowledgements.

Other Independent Variables

Proportion of economy based on tourism

Metric: Real GDP for Industrial section for arts, entertainment, recreation, accommodation, and food services divided by the total real GDP for 2019
Data Series: SAGDP9N Real GDP by State
Industry Line Item and North American Industrial Classification System (NAICS) industrial sectors:
75—Arts, entertainment, recreation, accommodation, and food services
1—All industry total
Period: 2019 Calendar Year
Source: Bureau of Economic Analysis, U.S. Department of Commerce

Discussion

The difference in the impact on employment among the states due to the pandemic may have been related to the degree to which a state's economy is dependent on the tourism industry. For example, it would make sense that Hawaii and Nevada, which rely more heavily on tourism, would be impacted more. To test for this confounding variable, the proportion of the NAICS industrial sector of arts, entertainment, recreation, accommodation, and food services, loosely called the tourism industry, found on line 75 of the BEA list of industries, was divided by the overall production (i.e., all industry total) for each state. The annual data for 2019 were selected because they preceded the impact of the pandemic. Appendix D1 gives the industrial confounding variables, including the numerators and denominators used in the calculation.

Population density

Metric: Population density as of July 1, 2020
Population Estimate: Annual Estimates of State Resident Populations, July 1, 2020
Source: U.S. Census Bureau, Population Division

Land Area: State Area Measurements and Internal Point Coordinates
Source: U.S. Census Bureau, unpublished data from the MAF/TIGER database

Discussion

Another confounding variable could be population density. It is not unreasonable to expect that those states with higher population densities would be more heavily impacted due to how viruses spread more quickly when people are closer together. The population density was calculated by dividing each state's residential population estimate for July 1, 2020, by the land area in square miles. Appendix D2 gives the land area, population, and population density for each state.

Proportion of economy based on agriculture

Metric: Real GDP for Industrial section for agriculture, forestry, fishing, and hunting divided by the total real GDP for 2019
Data Series: SAGDP9N Real GDP by State
Industry Line Item and North American Industrial Classification System Code industrial sector:
3—Agriculture, forestry, fishing, and hunting
1—All industry total
Period: 2019 Calendar Year
Source: Bureau of Economic Analysis, U.S. Department of Commerce

Discussion

The difference may be related to the degree to which a state's economy is dependent on agriculture and related industries. For example, it could be expected that states relying more heavily on agriculture and related industries would be impacted less. To test for this, the proportion of NAICS industrial sector of agriculture, forestry, fishing, and hunting (shortened to agriculture for brevity and found on line three of the BEA report) was divided by the overall production of the state. As with the tourism industry, the annual data for 2019 was selected because it preceded the impact of the pandemic. Appendix D1 gives the industrial confounding variables, including the numerators and denominators used in the calculation.

Prevalence of COVID-19 infections

Metric: Average Daily Confirmed Cases Per Day per 100,000 through March 31, 2021
Data Series: Daily confirmed COVID-19 cases
Data Source: Time series summary from daily case reports from state agencies, Johns Hopkins University of Medicine, Coronavirus Resource Center

Population Estimate: Annual Estimates of State Resident Populations, July 1, 2020
Source: U.S. Census Bureau, Population Division

Discussion

Another confounding variable could be the prevalence of COVID-19 infections that vary by state. The Johns Hopkins University of Medicine provides a Coronavirus Resource Center that allows access to time series data from daily case reports of the states as reported by the state health agencies. Known errors include differences among the states in definitions, collection, and reporting. The metric used in the regression analyses was derived by summing the confirmed cases from January 22, 2020, when the first case in the U.S. was reported in King County, Washington State, through March 31, 2021, divided by the number of days, i.e., 435, and divided by the population of the state. This quotient was then multiplied by 100,000 to give us the metric. Appendix D3 gives the factors used and final calculation for the COVID-19 prevalence variable.

Severity of COVID-19 infections

Metric: Hospital inpatient bed days with suspected or confirmed COVID-19 infection per 100,000 from March 1, 2020, through March 31, 2021
Data Series: Hospital inpatient beds with suspected or confirmed COVID-19 infection
Dataset: COVID-19 Reported Patient Impact and Hospital Capacity by State Timeseries
Data Source: U.S. Department of Health & Human Services (HHS)

Population Estimate: Annual Estimates of State Resident Populations, July 1, 2020
Source: U.S. Census Bureau, Population Division

Discussion

The last confounding variable considered was the severity of infections of COVID-19 among the states. Conceivably, demographic differences resulting from numerous factors—such as health conditions and co-morbidities of the population, age, race and ethnicity, poverty, etc.—may cause different economic impacts resulting in differences in employment. Data from the U.S. Department of Health and Human Services on hospital inpatient bed days with suspected or confirmed COVID-19 infections were used to measure these potential differences. According to HHS, the data sources were from the department's Teletracking, direct reporting through HHS Protect by state departments of health, and the National Healthcare Safety Network. The completeness and consistency of reporting are obvious caveats with this dataset. Using the total number of days from March 1, 2020, to March 31, 2021, and population for each state, the total inpatient beds were converted to the metric of bed days per 100,000. Appendix D4 gives the factors used and final calculation for the COVID-19 severity variable.

COVID Deaths

Metric: Total COVID-19 Deaths through March 31, 2021, per 100,000 population
Data Series: U.S. COVID-19 Cases and Deaths by State over Time
Source: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services

Population Estimate: Annual Estimates of State Resident Populations, July 1, 2020
Source: U.S. Census Bureau, Population Division

Discussion

The CDC tracks both COVID-19 cases and deaths as reported by the states. The reliability of the data depends on the accuracy and timing of the reporting by the states. The population data were used to calculate deaths per 100,000 through March 31, 2021.

Results

ARIMA Model Forecasting

As already indicated, the results of the ARIMA forecast modeling can be found in Appendixes E1 through E200 under Appendix Category E for each of the states and Appendix F1 through F4 under Appendix Category F for the United States. The first charts for each state and the United States graph the following data:

- **Pre-basis observed data** are the data of the series starting in December 2007 for the three employment series and 2005:Q1 of the real GDP data series through the Great Recession and ending in the period just prior to the low point when the data series recovers.
- **Autoregression basis observed data** for each data series start immediately after the pre-basis observed data (see above) until February 2020. As described in the section on Time Series Analyses, these coincide with the basis for the ARIMA(12,1,0) Model for nonfarm employment and CPS employment. However, they do not correspond to the ARIMA(12,1,0) Model basis for employment-to- population ratio and RGDP. The data displays were left this way to allow the reader to see the reasons why the rule was applied only to the two employment level metrics.

- **Post-basis observed data** are the observed data starting in March 2020 for the three employment metrics and 2020:Q1 for RGDP, and they end either June 2021 or 2021:Q2.
- **ARIMA model forecast** is the forecast used for this study.
- **Geometrical mean growth factor forecast** is simply a forecast using the same time period as used for the ARIMA model using the geometric mean as a reference line for the ARIMA model forecast.

In addition, the appendixes also give the coefficients, standard errors, t-statistics, and p-values of the twelve ARIMA Model parameters as well as charts graphing the model data, i.e., the differences of the data in order of the time series.

Severity of Governmental Actions

Appendix C3 gives the results of the two governmental action indexes side-by-side. There is considerable overlap with the indexes, which are for the same period of time. However, there are a few surprises. First, the similarity between the indexes: 21 states (i.e., 42 percent) fall either exactly or relatively close in their rankings in both indexes. For example, California, Hawaii, and New York State all rank high in severity in both indexes. Likewise, Iowa, North Dakota, and South Dakota all rank low. On the other end, 11 states rank significantly differently in the two indexes, defined as being at least 15 places apart. These states are, in order of increasing differences, Nevada, Texas, Alabama, Oregon, Delaware, Arizona, Colorado, Arkansas, Alaska, Rhode Island, and Ohio.

The exact reasons for the differences are unclear. Clearly there are methodological differences between indexes that must account for at least some of the differences. The Government Severity Index is more structured in the way local actions are handled, and it is not as broad, attempting to focus on the more salient economic actions. The Government Severity Index also excludes local school or university actions. There may also be implementation issues that might explain some of the differences. While care was taken in creating the Government Severity Index to give precise instructions on how to score actions as well as how to find executive orders, there are inevitably unavoidable differences in judgement among the scorers and their ability to obtain the information. However, these same issues reside with the Oxford Stringency Index. Without a more extensive review, there is no way of knowing all the reasons for the differences

Regression Analyses

Employment Runs

The stepwise regression using alpha = 0.2 and HC3 resulted in either three or four variables as factors associated with impacting employment for all twelve analyses, as shown in Table 1.The factors are listed in order of their economic significance as measured by the marginal effects, described later in this subsection. In every case, government actions were significant factors. In four of the runs, governmental actions had the greatest marginal effect scores.

Table 1: Significant factors from stepwise regression with alpha = 0.20 and HC3

Index Month	Nonfarm Employment	CPS Employment	Employment to Population Ratio
Government Severity Index March 2021	Tourism Proportion Population Density **Governmental Actions** Covid Prevalence	**Governmental Actions** Population Density Tourism Proportion	Population Density Tourism Proportion **Governmental Actions** Covid Prevalence
Abridged Oxford Stringency Index March 2021	Tourism Proportion **Governmental Actions** Population Density	Population Density **Governmental Actions** Tourism Proportion	Tourism Proportion Population Density **Governmental Actions**
Government Severity Index June 2021	Tourism Proportion Population Density **Governmental Actions** Covid Prevalence	Population Density Tourism Proportion **Governmental Actions** Covid Prevalence	Population Density Tourism Proportion **Governmental Actions** Covid Prevalence
Abridged Oxford Stringency Index June 2021	**Governmental Actions** Tourism Proportion Population Density	**Governmental Actions** Population Density Tourism Proportion	**Governmental Actions** Tourism Proportion Population Density

These variables are part of the linear equation

$$y = \beta_0 + \beta_1 * x_1 + \beta_2 * x_2 + .. + \beta_n * X_n + \epsilon$$

where y equals the dependent variable, i.e., the employment metric; and x_1, x_2 .. x_n are the independent variables, i.e., the governmental actions, tourism proportion, population density, and COVID-19 prevalence; β_0 is the value of the intercept; β_1, β_2 .. β_n are the coefficients of the variables, and ϵ is the error term. The intercept and coefficients of the variables can be found in Appendixes A1 through A12 (under Appendix Category A) along with their standard errors, t statistics, p-values, lower and upper bounds, and variance inflation factors (*vif*).

The multiple R values, indicating the strength of the correlations, ranged from 0.66 to 0.82. R squares ranged from 0.44 to 0.67. The adjusted R square ranged from 0.39 to 0.64. The *vif* metrics, used to indicate correlations among the factors, ranged from 1.13 to 1.39. (Note: The closer to one, the better.)

Of all the identified factors, COVID-19 prevalence had the weakest p-values. The lower the p-value, the more likely the results were not a random chance, allowing researchers to reject the null hypothesis. The COVID prevalence factor only made it through the stepwise analysis in five of the 12 runs. Had an alpha of 0.15 been chosen instead of the 0.20, it would have made it only once. Knowing this, and then as expected, COVID-19 prevalence also had the lowest absolute value t statistics, indicating less statistical significance, ranging from 1.37 to 1.93. The variable measuring the proportion of the tourism industry had the greatest absolute value t statistic scores, ranging from −2.25 to −5.66, following by governmental actions, ranging from −1.46 to −4.96.

Marginal effects (ᴍᴇ) indicate the economic influence of a factor on the dependent variable. For example, a ᴍᴇ of −0.01 would indicate a 0.01 decrease in a dependent variable based on a standard deviation unit change in the independent variable. Table 2 gives the marginal effects and p-values for the governmental actions, i.e., the Government Severity Index and the Abridged Oxford Stringency Index for March 2021 and

June 2021, vis-à-vis the three employment metrics. The marginal effects vary from −0.005 for the Government Severity Index for June 2021 with nonfarm employment and the employment-population ratio, to −0.013 for the Abridged Oxford Stringency Index and nonfarm employment for March 2021. The p-values vary from 0.15 for the Government Severity Index and the employment-population ratio for June 2021 (which is less than the alpha = 0.20 used in the stepwise regression but still considerably high indicating less statistical confidence that the results are not random) to the very high confidence of 1.01E−5 for the Abridged Oxford Stringency Index and nonfarm employment for March 2021.

Table 2: Marginal effects (ME) and p-values for governmental action indexes

Index Month	Nonfarm Employment		CPS Employment		Employment to Population Ratio	
	ME	p-value	ME	p-value	ME	p-value
Government Severity Index March 2021	-0.007	2.93E-02	-0.011	3.71E-03	-0.008	2.73E-02
Abridged Oxford Stringency Index March 2021	-0.013	1.01E-05	-0.010	1.61E-02	-0.010	1.26E-02
Government Severity Index June 2021	-0.005	1.22E-01	-0.006	1.22E-01	-0.005	1.50E-01
Abridged Oxford Stringency Index June 2021	-0.012	3.87E-05	-0.010	8.12E-03	-0.010	5.27E-03

Scatterplot graphs showing the governmental actions versus the employment metrics are found in Appendixes B1 through B12 under Appendix Category B.

GDP Runs

Surprisingly, or perhaps not so surprisingly given the ARIMA model forecast problems, only one of the four runs showed governmental response as a factor when RGDP was the dependent variable. These results are available for inspection in Appendixes A14, A15, A16, and A17. Scatterplot graphs of governmental actions versus RGDP are found in Appendixes B13, B14, B15, and B16. Note that no conclusion was made on the impact of governmental actions on RGDP from this study.

Governmental Actions versus COVID Indicators Runs

The two bivariate regressions using the Government Severity Index or the Abridged Oxford Stringency Index with COVID cases yielded negative associations. These results can be found in Appendixes A18, A19, B17, and B18. However, the other four bivariate regressions failed to find any statistically significant associations for the governmental action indexes with either COVID hospitalizations or deaths. These results are found in Appendixes A20, A21, A22, A23, B19, B20, B21, and B22.

Discussion, Conclusions, and Caveats

A visual inspection of the ARIMA model forecasts is both encouraging and discouraging. The results for the United States as a whole, found in Appendixes F1, F2, F3, and F4, appear to be reasonable and believable, giving confidence in the ARIMA modeling. Clearly, the U.S. as a whole has an advantage over individual states given its sample size and better reliability with statistical sampling.

The forecasts for nonfarm employment are also believable. A visual inspection of the results indicates the ARIMA model gave reasonable answers and handled more difficult data patterns nicely. While visual inspections are clearly subjective and opinions will vary, a reader inspecting Appendixes E1 through E50 likely may come to the same conclusion as the author. North Dakota (Appendix E34), Oklahoma (Appendix E36), and Wyoming (Appendix E50) are perhaps the three best examples of difficult patterns being handled nicely.

A reader may also share the same judgement that the forecasting for CPS employment at the state level raises concerns. Unlike with nonfarm employment that has an advantage of a larger sample size and where all forecasts appear reasonable through visual inspection, six CPS employment forecasts appear questionable and nine appear problematic. The problematic forecasts are for the states of Indiana (Appendix E64), Kansas (Appendix E66) Mississippi (Appendix E74), Oklahoma (Appendix E86), Oregon (Appendix E87), South Dakota (Appendix E91), Tennessee (Appendix E92), Wisconsin (Appendix E99), and Wyoming (Appendix E100). Take the forecast for Indiana as an example. It shows employment now exceeds what it would have been given its prior trajectory, which is also significantly different than the geometric mean growth forecast. Six other ARIMA model forecasts deemed problematic also diverged greatly from the geometric mean growth forecasts. The six questionable states are Alabama (Appendix A51), Alaska (Appendix E52), Idaho (Appendix E62), Massachusetts (Appendix E71), Ohio (Appendix E85), and South Carolina (Appendix E90). These are questionable not because there is a red flag like with the ones categorized as problematic, but because of some inconsistency or something with the pattern that looks unusual. Take the forecast for Alabama as an example. The post-pandemic observed data look unusual. This is not to say they are wrong, but the pattern suggests something requiring further inquiry.

A reader may also agree that adjusting CPS employment for population (i.e., the employment-population ratio) eases the problematic and questionable forecasts somewhat. Instead of nine problematic forecasts, there are eight: Kansas (Appendix E116), Mississippi (Appendix E124), Oklahoma (Appendix E136), Oregon (Appendix E137), South Carolina (Appendix E140), South Dakota (Appendix E141), Tennessee (Appendix E142), and Wisconsin (Appendix E149). The three questionable forecasts—instead of six—are for Alaska (Appendix E102), Arkansas (Appendix E104), and Indiana (Appendix E114).

In the case for RGDP, the forecasts appear worse than for CPS employment. Only 23 states appear to have reasonable forecasts. In the opinion of the author, there are 16 problematic forecasts and 11 questionable ones. The problematic forecasts are for Arkansas (Appendix E154), Delaware (Appendix E158), Indiana (Appendix E164), Iowa (Appendix E165), Kansas (Appendix E166), Kentucky (Appendix E167), Mississippi (Appendix E174), Missouri (Appendix E175), Montana (Appendix E176), Nebraska (Appendix E177), North Carolina (Appendix E183), North Dakota (Appendix E184), South Carolina (Appendix E190), South Dakota (Appendix E191), Tennessee (Appendix E192), and Vermont (Appendix E195). The questionable forecasts are for Alabama (Appendix E151), Arizona (Appendix E153), Idaho (Appendix E162), Massachusetts (Appendix E171), Nevada (Appendix E178), New Hampshire (Appendix E179), Ohio (Appendix E185), Oregon (Appendix E187), West Virginia (Appendix E198), Wisconsin (Appendix E199), and Wyoming (Appendix E200).

Notwithstanding that visual inspections are subjective and opinions will inevitably vary on which forecasts are problematic and questionable, most observers will likely agree with the general assessment that the forecast for nonfarm employment are most reliable, followed by the employment-population ratio, then by the CPS employment, and lastly by RGDP. Table 3 summarizes the author's assessment on which forecasts look good, are questionable, and are problematic for the four dependent variables. The table also includes key statistics from the stepwise regression analyses. The first statistic, i.e., the t-statistic, is specific to the independent variables measuring governmental actions as part of the hypothesis being tested. The remaining three statistics speak to the linear equation resulting from the stepwise regression analyses. With one exception, all statistics are averaged from the four tested scenarios run through the stepwise regression analyses. For example, for nonfarm employment, the four scenarios were the Government Severity Index for March 2021, the Abridged Oxford Stringency Index for March 2021, Government Severity Index for June 2021, and the Abridged Oxford Stringency Index for June 2021. The single exception is the t-statistic for RGDP, which is only for the single scenario of Government Severity Index for 2021:Q1 because for the other three scenarios, the stepwise regression analyses eliminated governmental actions as a factor given alpha = 0.2.

Close examination of Table 3 reveals that the nonfarm employment statistics with the most reliable ARIMA model forecasts also have the highest correlations, goodness of fit to the linear equation, and the most statistical significance. Although the regression statistics for CPS Employment and Employment-Population Ratio still give evidence to reject the null hypothesis, the problems with the forecasts raise questions on the overall reliability. After all, only 50 observations were run through the analyses, meaning problems with just a few states could undermine confidence in the results. Finally, the forecast problems with RGDP are reasons enough to disregard its results. Therefore, from this research project, no conclusion can be made about any impact of governmental actions on RGDP.

Table 3: Problematic and Questionable Forecasts Along with Key Statistics

Author's Assessment of the ARIMA Model Forecasts via Visual Inspection	Nonfarm Employment	CPS Employment	Employment-Population Ratio	RGDP*
Looks good	100%	70%	78%	46%
Questionable	0%	12%	6%	22%
Problematic	0%	18%	16%	32%
Average t-statistic*	-3.3352	-2.4749	-2.3178	-1.8931
Average multiple R	0.7647	0.6683	0.6890	0.6590
Average R square	0.5863	0.4467	0.4749	0.4352
Average adjusted R square	0.5539	0.4074	0.4347	0.3923

Note: * The t-statistic for RGDP is not an average butthe stepwise regression analysis per the Government Severity Index for 2021 Q1.

As already discussed under the section on Data and Method, nonfarm employment is considered to be the most reliable metric making its findings the most relevant. Table 4 reproduces key results using just the four regression runs for nonfarm employment. The Abridged Oxford Stringency Index has the better correlations and statistics, although it is unknown which of the indexes is better at measuring governmental actions. Both governmental response metrics show tourism and population density also as contributing factors explaining the impact on employment. However, as explained under the section on Results, the COVID prevalence barely made the cut for the Government Severity Index runs using alpha = 0.2 and would have been eliminated if a factor of alpha = 0.15 had been chosen. In conclusion, the null hypothesis is rejected, giving statistical evidence that the severity of governmental actions is negatively associated with employment 12 and 15 months after the initiation of the pandemic (i.e., March 2020). Likewise, it can be concluded that the proportion of the tourism and related industries to the overall size of the state’s economies as well as the population density are also significant factors associated with influencing employment. The influence of the prevalence of COVID cases had a questionable association.

Its null hypothesis was not rejected using the Abridged Oxford Stringency Index but barely rejected using the Government Severity Index.

The marginal effects (that measure economic influence) appear to be significant. Focusing on nonfarm employment, they indicate that a one standard deviation movement in governmental stringency per the Abridged Oxford Stringency Index would be associated with 1.3 percent less in overall employment in March 2021 and 1.2 percent less in June 2021. For the Government Severity Index, the associated employment impact would be 0.7 percent less for March 2021 and a 0.5 percent less for June 2021. To put these effects in perspective, 1.3 percent less in jobs for March 2021 means 2,017,000 lost jobs for the United States as a whole.

As already explained, the author believes the ARIMA model forecasts for the CPS employment metrics are too problematic to be relied on. Other researchers reviewing the data may disagree. If those forecasting problems are ignored, the CPS metrics would also support the hypothesis but to a lesser degree.

Table 4: Summary of Key Regression Results for Nonfarm Employment

Description	**Government Severity Index**		**Abridged Oxford Stringency Index**	
	March 2021	**June 2021**	**March 2021**	**June 2021**
Government response statistics per regression analyses with alpha = 0.2 and HC3:				
t-statistic	-2.25	-1.58	-4.96	-4.55
p-value	2.93E-02	1.22E-01	1.01E-05	3.87E-05
marginal effects	-0.007	-0.005	-0.013	-0.012
Linear equation statistics per the same regression analyses:				
multiple R	0.770	0.704	0.815	0.769
R square	0.593	0.495	0.665	0.592
Adjusted R square	0.557	0.450	0.643	0.565
Other factors in linear equation	Tourism Proportion Population Density Covid Prevalence		Tourism Proportion Population Density	

The six bivariate regressions between the severity of governmental action indexes with COVID cases, hospitalizations, and deaths showed negative correlations for cases but not for hospitalizations and deaths. These results imply that the economic tradeoff of higher job loss from the more severe actions were suppressed COVID cases. The lack of a statistical association with COVID hospitalizations or COVID deaths is disturbing. It would be more comforting if the tradeoff were with lives saved or fewer hospitalizations, but this study failed to find empirical evidence to support that claim. However, there are complications in attempting to delve deeper into this question. A recent NBER working paper concluded that high-quality nursing homes were more successful in containing the spread of COVID-19 and deaths than lower quality homes, which would be a confounding variable, but, surprisingly, the higher quality nursing homes also witnessed higher non-COVID deaths. The authors hypothesized that the higher non-COVID deaths may have been due to loneliness indicating other costs of the lockdowns.[18] Other complicating factors include the disastrous decisions among some states early in the pandemic to move COVID patients to nursing homes, the inconsistency of data, and the potential falsification of the data by at least one state.

As with any econometric study, there are caveats. The forecasts renew the initial question on the best way to measure the pandemic's impact on employment. The author maintains that using a static pre-pandemic value for February 2020 would have been worse than using statistical models to forecast those values because there would be no accounting for the trajectory of those numbers. Perhaps other researchers can refine the forecasting or develop a better alternative method for comparison.

Measuring the severity of governmental actions is also difficult, and it is reasonable to ask if the essence of the actions were successfully captured. The Blavatnik School of Government deserves praise for being the first to create such an index that gave an excellent starting point. However, in general, and this is not a criticism of their effort, the limitations need to be acknowledged. Indexing is labor intensive, requiring research skills to find and interpret governmental actions. There are also implementation challenges, such as consistency across scoring with multiple researchers as well as controlling for biases. Surely, there is room for improvement for both the Oxford Stringency Index and the Government Severity Index. Peer review of the methodologies and implementation may yield important insights in this regard. Over time, if these indexing projects continue, they may improve in their accuracy. Also, others may design better indexes that could be used.

Standard economic datasets are not exempt from the challenges of empirical studies in the real world, especially, during times of pandemics when the normal assumptions and definitions are challenged, and collection methods are disrupted, as already noted earlier in this paper.

There is the additional problem of identifying confounding variables, which a researcher can never be certain that all salient variables were identified. There are also limitations in finding metrics to use as factors or proxies as factors. For example, during pandemics, how does one measure fear as a confounding variable? Moreover, even when factors are controlled at the initiation of a project, circumstances can change. An example that almost impacted this project was the unemployment insurance rules not requiring the unemployed to look for work, which was nationally consistent at the beginning of this project but began to unravel this summer. The unraveling just missed the June 2021 comparison used in this paper, but it would need to be considered for subsequent months if and when states vary in their policies.

Of course, there are the redundant-sounding unknown unknowns that plague all real world research projects.

Finally, future research may be developed to test the correlation as time progresses. The pandemic may be winding down, but all restrictions have not yet been lifted, and some governments may impose new restrictions. The repercussions will likely linger for a very long time.

Given these caveats, the empirical evidence gives an indication of the nature of the economic tradeoff from state governments and their political subdivisions due to their actions to shut down their economies to fight the COVID-19 pandemic. This study used two different indexes on the severity of governmental

[18] Christopher J. Cronin and William N. Evans, "Nursing Home Quality, COVID-19 Deaths, and Excess Mortality," National Bureau of Economic Research, NBER Working Paper Series, Working Paper 281012, October 2020: http://www.nber.org/papers/w28012.

actions and controlled for the proportion of the tourism industry to the states' economies, the proportion of agriculture to the states' economies, population density, the prevalence of COVID-19 cases, and the severity of those cases. The evidence shows an associated harmful and measurable impact on nonfarm employment more than a year after the initiation of the pandemic. However, the evidence suggests that the tradeoff was not for less COVID hospitalizations and deaths. Only COVID cases have an association with the severity of governmental actions.

In conclusion, policymakers and governmental authorities need to take this evidence into consideration when crafting policies and imposing economic restrictions during times of prolonged crises so that their actions are more mindful to reduce the impact on employment that can harm people's livelihoods and have long-term consequences. In practice, the evidence suggests that policies need to be more targeted and allow for more flexibility so business operations and employment may continue as much as possible.

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About the Author

Erik Randolph is the Director of Research for the Georgia Center for Opportunity. Erik has authored studies, blogs, and op-eds on the topics of employment, inflation, safety net programs, and criminal justice. He also leads efforts to improve computational models on safety net benefit cliffs and marriage penalties.

Prior to coming to GCO, Erik worked as a Senior Fellow with both the Illinois Policy Institute and Pennsylvania's Commonwealth Foundation. He also testified before Congress, once while at GCO, and two state legislatures, and he gave presentations before the Secretaries' Innovation Group. As a consultant, he had provided services to organizations in seven different states plus the Heritage Foundation and the Secretaries Innovation Group.

Erik Randolph began his professional career in 1986 at the U.S. General Accounting Office, where he was trained as a program evaluator. He coauthored the GAO Staff Study U.S. Science and Engineering Base: A Synthesis of Concerns About Budget and Policy Development and received a "Special Commendation Award" for "outstanding contributions" to the staff study.

Afterwards, Erik became a senior fellow with the University-Industry Programs division at the New York State Science and Technology Foundation. In 1989, Erik moved back to his native Pennsylvania to work for the Office of Technology Development at Pennsylvania's Department of Commerce, helped solidify the newly formed Industrial Resource Center program and produced a statistical report profiling defense spending and contractors in the state.

In 1991, Erik became a budget analyst with the Committee on Appropriations, Pennsylvania House of Representatives. He developed expertise in the legislative process, the drafting of legislation, fiscal analysis, forecasting costs of proposed legislation, budgeting, revenue forecasting, debt analysis, and capital budgeting. Erik wrote bill analyses, hundreds of fiscal notes, budget briefings, and white papers. He was given responsibility of special projects on behalf of the chairman. He organized forums and hearings on areas of public policy, participated on task forces, worked on bipartisan issues, and negotiated legislation.

In 2011, Erik became a special assistant to the Pennsylvania Secretary of Public Welfare. He led teams of executive staff on numerous projects, including preparing congressional testimony and recommendations for changes in federal law. He developed a Welfare Cliff model—a precursor to GCO's benefits cliff model—that demonstrated the economic impact of the welfare system on specific household types, and led a team of staff that developed a prototype solution. He led another group of staff that developed options relating to linking child support to subsidized childcare services, addressing a conflict between Court Rules of Civil Procedure on child support and departmental regulations.

From 1996 to 2013, Erik taught economics on a part-time basis for the Harrisburg Area Community College, and from 2015 to 2020 he taught economics at the York College of Pennsylvania

Erik received a Master of Science degree in science and technology studies from the College of Humanities at Rensselaer Polytechnic Institute in 1988. He has two Bachelor degrees from the Pennsylvania State University: a Bachelor of Science degree from the University's College of Science (mathematics) and a Bachelor of Arts degree from its College of Liberal Arts (political science).

APPENDIXES

Empirical Analyses of Governmental Actions to Shut Down the Economy Due to the COVID-19 Pandemic and the Impact on Employment

Erik Randolph
Director of Research

Georgia Center for Opportunity

December 3, 2021

LIST OF APPENDIXES

APPENDIXES A: MULTIPLE REGRESSION ANALYSIS RESULTS

Appendix A1: Variables Used in Regression Analyses

State	Government Severity Index	Abridged Oxford Stringency Index	Total Nonfarm Employment March 2021	Total Nonfarm Employment June 2021	Total CPS Employment Level March 2021	Total CPS Employment Level June 2021	Employment to Population March 2021	Employment to Population June 2021
Alabama	52.81	11,218.9	-4.2%	-4.4%	-1.7%	-2.5%	-1.6%	-2.5%
Alaska	33.38	18,389.4	-7.0%	-8.5%	-2.4%	-1.7%	-1.8%	-1.3%
Arizona	54.16	13,497.7	-6.1%	-4.7%	-3.2%	-2.7%	-3.4%	-3.1%
Arkansas	59.6	14,501.1	-3.6%	-3.6%	-2.0%	-2.2%	-1.6%	-1.8%
California	70.13	22,080.2	-10.6%	-9.6%	-7.2%	-6.9%	-7.0%	-6.7%
Colorado	72.9	16,897.2	-7.3%	-6.2%	-4.0%	-3.8%	-3.9%	-3.7%
Connecticut	65.2	21,886.8	-7.2%	-6.6%	-14.6%	-10.1%	-13.5%	-8.6%
Delaware	51.66	19,968.0	-6.1%	-5.6%	-3.5%	-3.4%	-3.9%	-3.5%
Florida	53.91	15,764.1	-8.0%	-7.0%	-6.2%	-4.7%	-5.7%	-4.3%
Georgia	47.53	15,374.8	-5.8%	-5.3%	-2.7%	-2.5%	-2.5%	-2.3%
Hawaii	77.16	26,249.6	-17.6%	-14.8%	-10.1%	-9.5%	-9.3%	-8.3%
Idaho	47.29	15,032.9	-1.4%	-1.6%	-0.8%	-0.8%	-2.1%	-2.3%
Illinois	70	18,499.4	-7.4%	-7.0%	-6.5%	-6.0%	-6.5%	-6.0%
Indiana	45.74	14,690.5	-5.3%	-4.9%	0.4%	0.2%	-0.7%	-0.8%
Iowa	15.68	8,584.9	-4.9%	-5.0%	-4.4%	-4.3%	-5.1%	-4.8%
Kansas	46.6	15,406.1	-4.6%	-4.6%	-0.1%	0.0%	0.2%	0.2%
Kentucky	59.88	19,882.6	-5.9%	-6.0%	-4.6%	-4.8%	-4.6%	-4.8%
Louisiana	56.21	16,874.7	-8.4%	-8.5%	-5.2%	-5.2%	-5.1%	-4.8%
Maine	59.2	22,204.0	-5.2%	-4.8%	-5.1%	-5.0%	-5.5%	-5.3%
Maryland	65.16	20,136.2	-6.4%	-6.3%	-8.7%	-8.6%	-8.9%	-8.5%
Massachusetts	62.24	21,679.8	-9.5%	-9.0%	-2.4%	-2.1%	-2.8%	-2.5%
Michigan	65.91	17,927.8	-7.9%	-8.0%	-5.8%	-5.5%	-6.4%	-6.2%
Minnesota	62.52	19,140.8	-7.5%	-6.9%	-4.7%	-4.6%	-4.4%	-4.1%
Mississippi	53.2	13,642.4	-4.1%	-3.6%	0.6%	0.6%	0.6%	0.8%
Missouri	23.12	14,415.6	-4.9%	-4.9%	-2.1%	-2.0%	-2.1%	-2.1%
Montana	43.96	15,336.4	-3.0%	-3.3%	-3.0%	-2.2%	-3.3%	-2.3%
Nebraska	21.65	13,605.2	-3.5%	-3.5%	-2.6%	-2.2%	-2.4%	-1.9%
Nevada	57.69	14,941.9	-12.5%	-11.0%	-9.1%	-8.3%	-10.0%	-9.5%
New Hampshire	38.9	16,023.6	-5.4%	-6.2%	-2.6%	-3.5%	-2.7%	-3.7%
New Jersey	62.65	17,787.6	-8.8%	-8.1%	-7.3%	-7.2%	-7.4%	-7.1%
New Mexico	67.78	26,592.9	-9.0%	-8.3%	-4.1%	-4.4%	-4.3%	-4.5%
New York	74.12	25,507.6	-11.3%	-11.2%	-4.7%	-5.0%	-3.8%	-3.9%
North Carolina	57.77	20,295.9	-5.3%	-4.8%	-4.5%	-5.0%	-4.6%	-4.7%
North Dakota	11.56	8,694.5	-6.0%	-5.9%	-3.2%	-3.3%	-2.8%	-2.5%
Ohio	5.76	19,592.2	-6.1%	-6.2%	-2.7%	-6.4%	-2.6%	-6.2%
Oklahoma	29.22	10,950.2	-4.8%	-4.7%	0.0%	-0.2%	0.2%	0.3%
Oregon	47.18	19,222.8	-8.4%	-8.1%	0.2%	1.0%	-0.5%	0.2%
Pennsylvania	56.18	17,111.1	-7.7%	-7.3%	-5.6%	-5.6%	-5.1%	-5.1%
Rhode Island	46.82	23,325.4	-8.6%	-8.0%	-7.9%	-7.9%	-6.7%	-6.7%
South Carolina	51.67	13,596.2	-5.3%	-5.7%	-3.1%	-2.9%	-2.7%	-2.1%
South Dakota	8.79	4,756.4	-2.7%	-2.8%	0.6%	0.7%	1.1%	1.2%
Tennessee	24.84	15,628.7	-5.0%	-4.1%	0.5%	1.3%	-0.9%	-0.5%
Texas	67.58	17,039.6	-5.6%	-5.2%	-6.1%	-5.9%	-5.7%	-5.5%
Utah	46.79	10,282.3	-1.8%	-1.6%	-2.4%	-1.8%	-2.4%	-1.8%
Vermont	63.17	22,305.6	-8.2%	-6.4%	-6.8%	-5.9%	-8.4%	-8.1%
Virginia	52.27	16,498.3	-6.1%	-6.0%	-7.8%	-7.5%	-7.6%	-7.3%
Washington	81.17	19,731.1	-7.3%	-6.4%	-5.7%	-4.9%	-6.0%	-5.2%
West Virginia	55.25	18,023.9	-5.0%	-4.3%	-1.9%	-1.6%	-2.1%	-1.7%
Wisconsin	53.95	14,750.2	-5.6%	-5.1%	0.8%	2.0%	0.0%	1.0%
Wyoming	36.82	15,075.9	-3.8%	-4.4%	-0.1%	0.1%	-1.3%	-1.3%

Continued on next page

State	Real State Domestic Product 2021: Q1	Real State Domestic Product 2021: Q2	Line 75 Industry (Arts, rec, etc)	Line 3 Industry (Ag, etc)	Population Density	COVID inpatient bed days per 100,000	Average Daily Confirmed COVID Cases Per 100,000	Total COVID Deaths Per 100,000
Alabama	-2.4%	0.0	2.8%	1.3%	97.2	9,911	3,473	222.3
Alaska	-4.7%	0.0	2.9%	0.7%	1.3	2,682	2,495	46.5
Arizona	-2.2%	0.0	4.4%	1.2%	65.3	10,381	3,578	228.6
Arkansas	0.8%	0.0	3.1%	2.3%	58.2	8,521	3,452	185.6
California	-4.2%	0.0	4.0%	1.8%	252.7	7,084	2,782	147.2
Colorado	-4.9%	0.0	4.6%	1.2%	56.0	3,913	2,383	105.2
Connecticut	-4.8%	0.0	3.1%	0.2%	734.6	7,328	2,635	221.7
Delaware	-3.9%	0.0	2.7%	1.2%	506.3	7,993	2,894	158
Florida	-3.3%	0.0	5.6%	0.9%	405.3	8,655	3,159	158.4
Georgia	-5.0%	0.0	3.1%	0.9%	186.2	9,547	3,188	177.9
Hawaii	-12.4%	-0.1	10.5%	0.7%	219.1	2,163	752	32.7
Idaho	-4.3%	0.0	3.6%	7.9%	22.1	3,849	3,204	107.4
Illinois	-2.8%	0.0	3.8%	1.0%	226.7	7,648	3,374	187.3
Indiana	-0.1%	0.0	3.5%	1.5%	188.5	7,572	3,148	194.8
Iowa	0.2%	0.0	2.6%	7.7%	56.6	4,993	3,818	181.5
Kansas	-1.5%	0.0	2.6%	4.6%	35.6	6,023	3,255	168.6
Kentucky	-1.6%	0.0	3.3%	2.1%	113.4	7,236	2,672	155.1
Louisiana	-3.5%	0.0	3.8%	0.9%	107.5	7,689	3,544	218.3
Maine	-2.6%	0.0	5.2%	1.7%	43.8	2,617	889	55
Maryland	-4.1%	0.0	3.6%	0.4%	623.9	7,670	2,339	145.8
Massachusett	-3.4%	0.0	3.9%	0.2%	883.8	6,389	2,861	250.1
Michigan	-4.8%	0.0	3.3%	0.9%	176.3	6,150	2,285	173.6
Minnesota	-3.9%	0.0	3.1%	2.3%	71.0	4,451	2,940	122.4
Mississippi	0.2%	0.0	4.1%	2.8%	63.2	10,245	3,529	242.7
Missouri	-1.1%	0.0	3.8%	1.6%	89.5	8,016	3,016	143.1
Montana	-0.9%	0.0	4.5%	6.0%	7.4	5,056	2,901	133
Nebraska	0.7%	0.0	2.5%	8.1%	25.2	6,600	3,627	112.5
Nevada	-10.3%	-0.1	15.2%	0.4%	28.6	10,513	3,189	167.3
New Hampsh	-1.4%	0.0	5.0%	0.3%	152.6	3,150	1,507	90.6
New Jersey	-4.0%	0.0	3.1%	0.2%	1,207.8	7,975	3,257	276.5
New Mexico	-4.2%	0.0	3.6%	2.2%	17.4	5,983	2,780	181.6
New York	-4.7%	0.0	4.5%	0.3%	410.3	9,744	3,109	97.1
North Carolin	-1.6%	0.0	3.5%	1.1%	218.0	5,457	2,549	119.8
North Dakota	-2.0%	0.0	2.4%	7.5%	11.1	7,289	4,669	191.6
Ohio	-2.2%	0.0	3.3%	0.7%	286.2	6,618	2,499	159.2
Oklahoma	-7.7%	-0.1	2.9%	2.1%	58.0	7,877	3,249	179.6
Oregon	-2.7%	0.0	4.0%	2.4%	44.2	2,450	1,168	56.2
Pennsylvania	-3.9%	0.0	3.2%	0.7%	285.7	7,560	2,272	196.3
Rhode Island	-5.2%	0.0	4.8%	0.2%	1,022.4	7,908	3,924	248.7
South Carolin	-1.9%	0.0	4.5%	0.6%	173.6	6,868	3,139	173.9
South Dakota	2.7%	0.0	3.5%	10.5%	11.8	7,104	4,408	216.8
Tennessee	-1.2%	0.0	5.4%	0.6%	167.0	7,253	3,716	172.9
Texas	-4.0%	0.0	2.9%	0.8%	112.4	8,528	2,990	165.9
Utah	-6.7%	-0.1	3.3%	0.9%	39.6	3,502	3,656	65.3
Vermont	-2.3%	0.0	6.3%	2.2%	67.6	1,240	657	35.8
Virginia	-3.3%	0.0	3.1%	0.5%	217.5	5,688	2,142	119.5
Washington	-6.2%	-0.1	3.4%	1.8%	115.8	2,914	1,508	68.2
West Virginia	-3.7%	0.0	3.4%	0.6%	74.2	6,945	2,031	149.9
Wisconsin	-2.8%	0.0	2.9%	2.3%	107.7	5,241	3,594	125.4
Wyoming	-4.5%	0.0	3.5%	2.8%	6.0	4,148	2,885	120.2

Appendix A2: Nonfarm Employment Mar 2021 using Government Severity Index

X = Government Severity Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

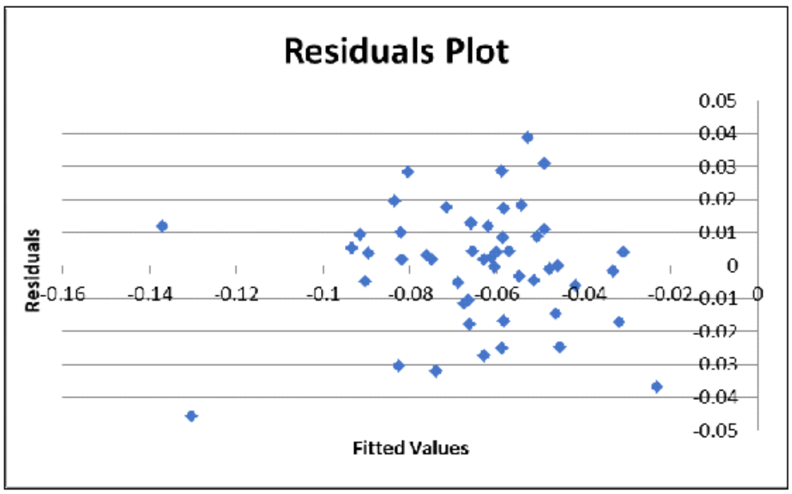
Multiple R	0.770128
R Square	0.593097
Adjusted R Square	0.556928
Standard Error	0.018557
Observations	50

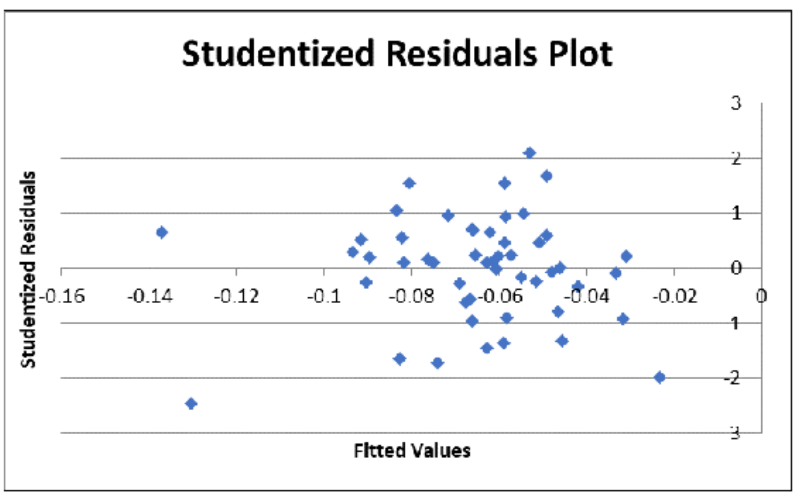
AIC	-393.9614
AICc	-392.0079
SBC	-384.4013

ANOVA — Alpha 0.2

	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	4	0.022586	0.005647	16.39789	2.35E-08	yes
Residual	45	0.015496	0.000344			
Total	49	0.038082				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	-0.02444	0.017005	-1.437232	0.157569	-0.046557	-0.002323	
X	-0.000393	0.000175	-2.251378	0.029291	-0.00062	-0.000166	1.393384
Line 75 Industry (Arts, rec, etc)	-0.687663	0.134735	-5.10382	6.51E-06	-0.862906	-0.51242	1.098096
Population Density	-3.21E-05	1.05E-05	-3.072895	0.003593	-4.57E-05	-1.85E-05	1.101288
Average Daily Confirmed Cases Per 100,000	4.85E-06	3.54E-06	1.369973	0.177492	2.46E-07	9.46E-06	1.324821





Appendix A3: Nonfarm Employment Jun 2021 using Government Severity Index

X = Government Severity Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

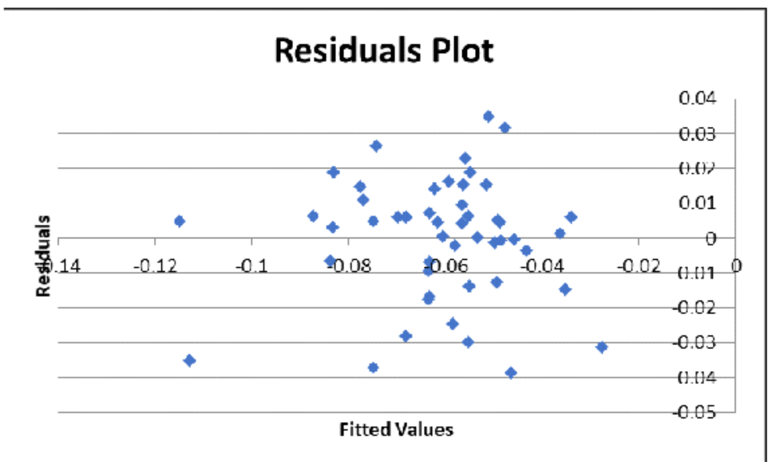
Multiple R	0.703798
R Square	0.495331
Adjusted R Square	0.450472
Standard Error	0.01804
Observations	50

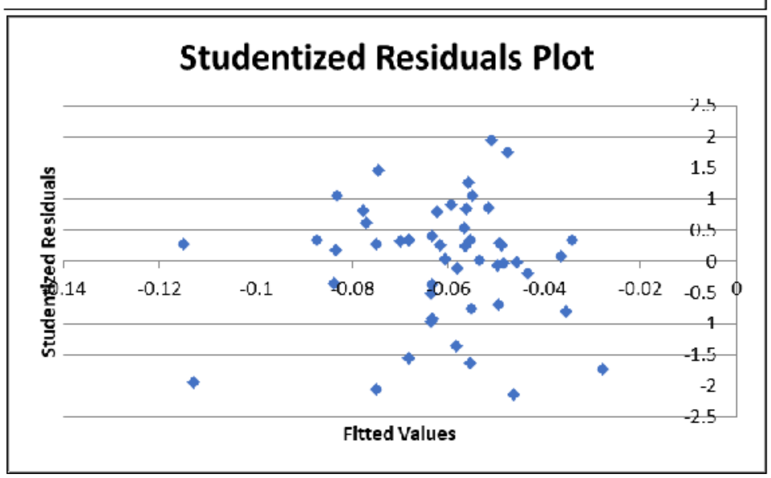
AIC	-396.7823
AICc	-394.8288
SBC	-387.2222

ANOVA — Alpha 0.2

	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	4	0.014375	0.003594	11.04185	2.52E-06	yes
Residual	45	0.014645	0.000325			
Total	49	0.02902				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	-0.034175	0.016532	-2.067233	0.044493	-0.055677	-0.012673	0
X	-0.000268	0.00017	-1.577747	0.121628	-0.000489	-4.7E-05	1.393384
Line 75 Industry (Arts, rec, etc)	-0.525554	0.130987	-4.01225	0.000225	-0.695923	-0.355185	1.098096
Population Density	-2.95E-05	1.02E-05	-2.905984	0.005661	-4.27E-05	-1.63E-05	1.101288
Average Daily Confirmed Cases Per 100,000	4.8E-06	3.44E-06	1.394766	0.169934	3.24E-07	9.29E-06	1.324821





Appendix A4: Nonfarm Employment Mar 2021 using Abridged Oxford Stringency Index

X = Abridged Oxford Stringency Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

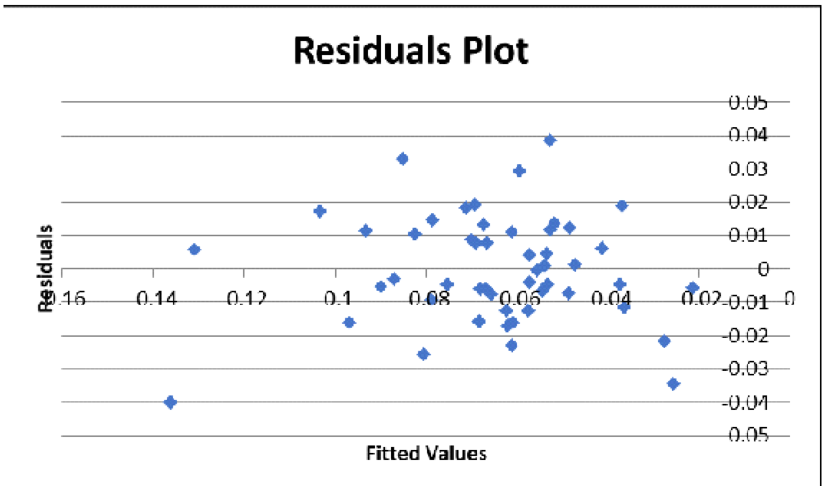
Multiple R	0.81548
R Square	0.665007
Adjusted R Square	0.64316
Standard Error	0.016653
Observations	50

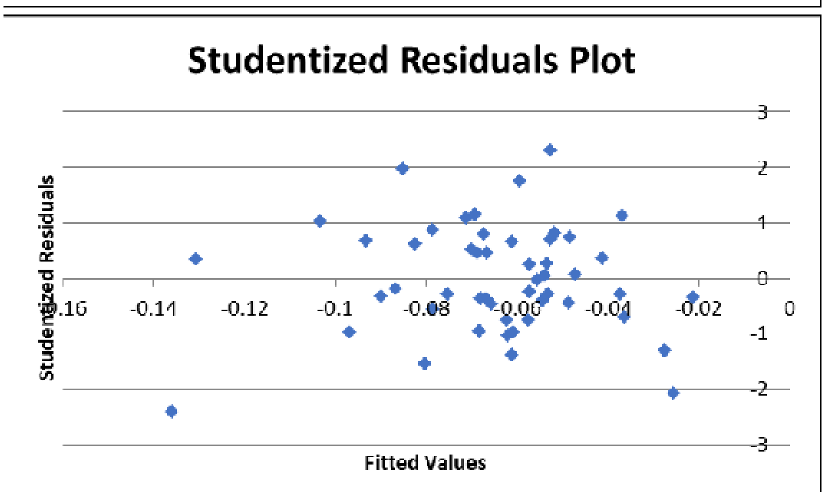
AIC	-405.6847
AICc	-404.321
SBC	-398.0366

ANOVA — Alpha 0.2

	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	3	0.025325	0.008442	30.43881	5.4E-11	yes
Residual	46	0.012757	0.000277			
Total	49	0.038082				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	0.016593	0.009876	1.680107	0.099717	0.003752	0.029434	
X	-2.97E-06	5.98E-07	-4.958308	1.01E-05	-3.74E-06	-2.19E-06	1.270427
Line 75 Industry (Arts, rec, etc)	-0.674864	0.119234	-5.66	9.33E-07	-0.829895	-0.519833	1.067775
Population Density	-1.79E-05	9.86E-06	-1.819056	0.075416	-3.07E-05	-5.11E-06	1.21569





Appendix A5: Nonfarm Employment Jun 2021 using Abridged Oxford Stringency Index

X = Abridged Oxford Stringency Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

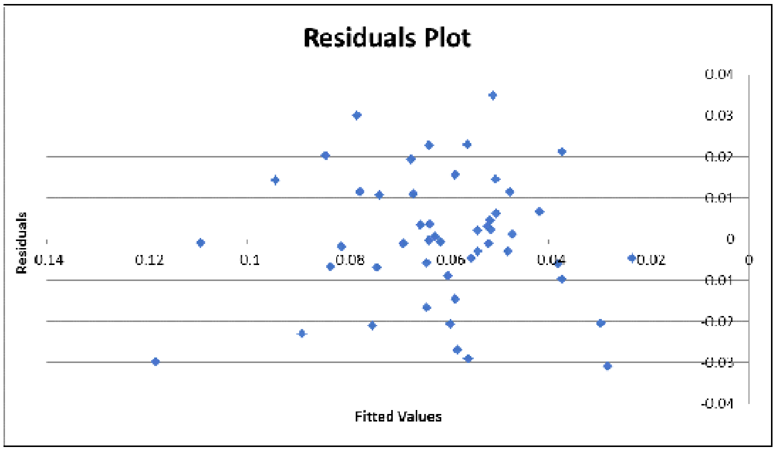
Multiple R	0.769251
R Square	0.591746
Adjusted R Square	0.565121
Standard Error	0.016049
Observations	50

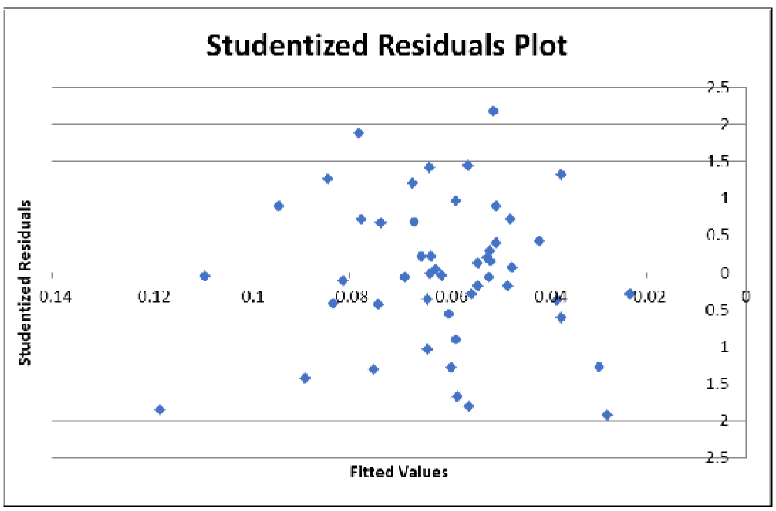
AIC	-409.383
AICc	-408.0193
SBC	-401.7349

ANOVA — Alpha 0.2

	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	3	0.017172	0.005724	22.22502	4.83E-09	yes
Residual	46	0.011848	0.000258			
Total	49	0.02902				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	0.006926	0.009517	0.727761	0.470448	-0.005448	0.019301	
X	-2.63E-06	5.77E-07	-4.553506	3.87E-05	-3.38E-06	-1.88E-06	1.270427
Line 75 Industry (Arts, rec, etc)	-0.503306	0.114905	-4.380198	6.79E-05	-0.652708	-0.353903	1.067775
Population Density	-1.56E-05	9.5E-06	-1.637393	0.108372	-2.79E-05	-3.2E-06	1.21569





Appendix A6: CPS Employed Mar 2021 using Government Severity Index

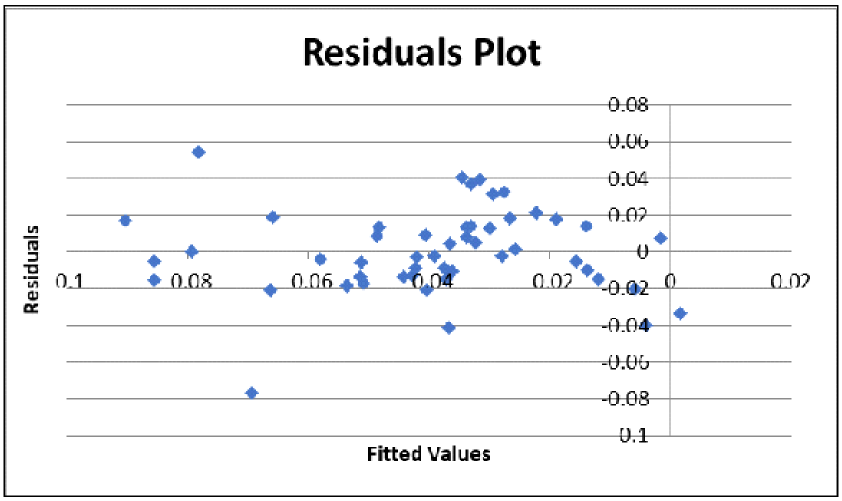
X = Government Severity Index

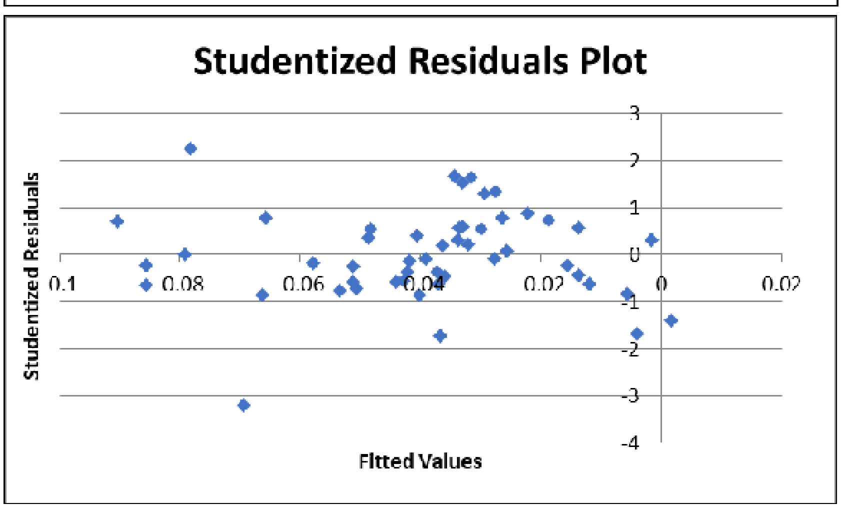
Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT			
Multiple R	0.684632	AIC	-369.0626
R Square	0.468721	AICc	-367.699
Adjusted R Square	0.434072	SBC	-361.4145
Standard Error	0.024018		
Observations	50		

ANOVA				Alpha	0.2	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	3	0.023412	0.007804	13.52783	1.85E-06	yes
Residual	46	0.026537	0.000577			
Total	49	0.049949				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	0.020175	0.011303	1.784925	0.080869	0.005478	0.034871	
X	-0.000623	0.000204	-3.057356	0.003713	-0.000888	-0.000358	1.131434
Line 75 Industry (Arts, rec, etc)	-0.450265	0.171766	-2.621389	0.011831	-0.673599	-0.22693	1.065266
Population Density	-4.76E-05	1.34E-05	-3.560493	0.000873	-6.5E-05	-3.02E-05	1.075076





Appendix A7: CPS Employed Jun 2021 using Government Severity Index

X = Government Severity Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

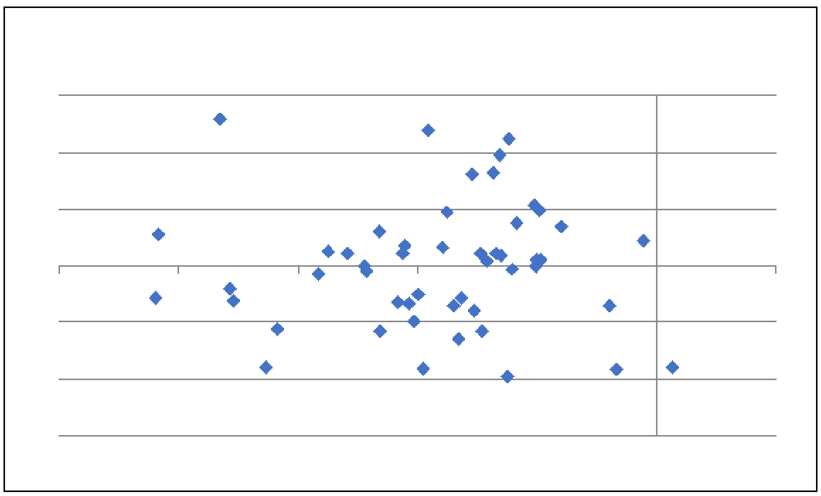
Multiple R	0.664639
R Square	0.441745
Adjusted R Square	0.392122
Standard Error	0.023004
Observations	50

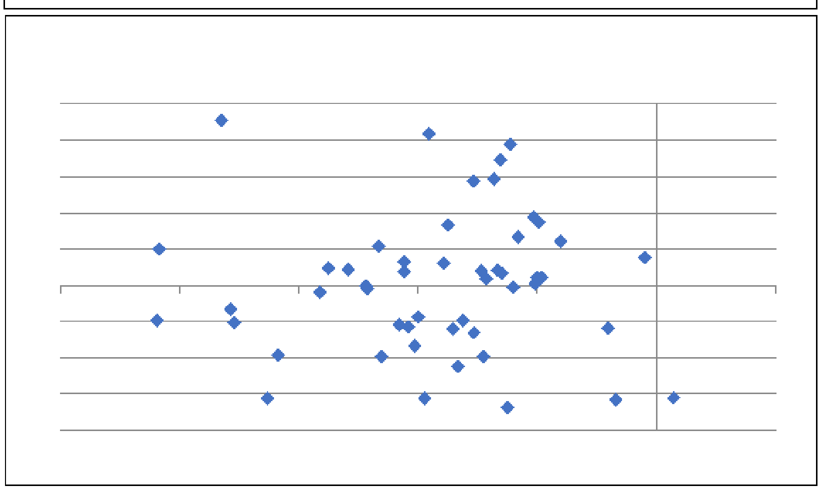
AIC	-372.4788
AICc	-370.5254
SBC	-362.9187

ANOVA — Alpha 0.2

	df	SS	MS	F	p-value	sig
Regression	4	0.018843	0.004711	8.902069	2.2E-05	yes
Residual	45	0.023812	0.000529			
Total	49	0.042655				

	coeff	std err	t stat	p-value	lower	upper	vif
Intercept	-0.012067	0.02108	-0.572425	0.569883	-0.039484	0.015351	
X	-0.000341	0.000216	-1.575089	0.122241	-0.000623	-5.94E-05	1.398384
Line 75 Industry (Arts, rec, etc)	-0.376544	0.167024	-2.254434	0.029084	-0.593783	-0.159305	1.098096
Population Density	-4.8E-05	1.3E-05	-3.705027	0.000576	-6.49E-05	-3.12E-05	1.101288
Average Daily Confirmed Cases Per 100,000	6.06E-06	4.39E-06	1.380136	0.174363	3.49E-07	1.18E-05	1.324821





Appendix A8: CPS Employed Mar 2021 using Abridged Oxford Stringency Index

X = Abridged Oxford Stringency Index

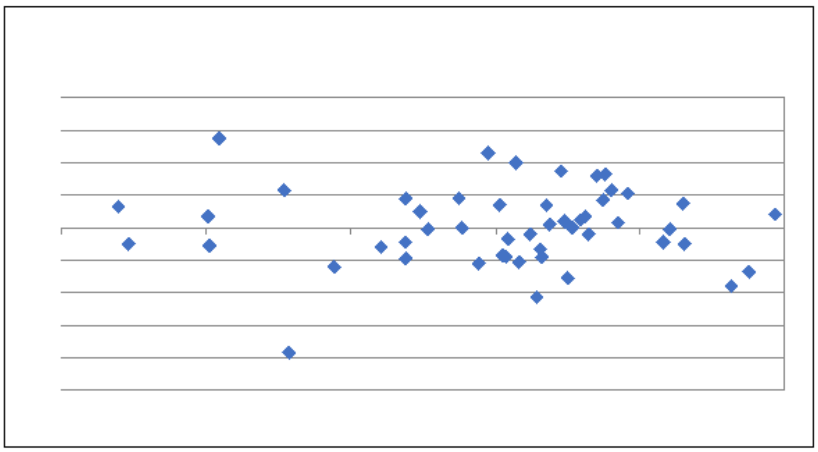
Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

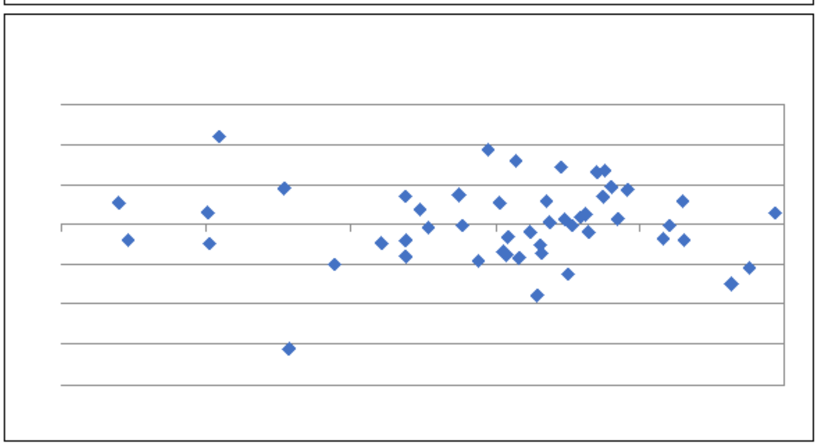
OVERALL FIT

Multiple R	0.661228	AIC	-366.1827
R Square	0.437222	AICc	-364.8191
Adjusted R Square	0.400519	SBC	-358.5346
Standard Error	0.02472		
Observations	50		

ANOVA				Alpha	0.2	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	3	0.021839	0.00728	11.91247	6.75E-06	yes
Residual	46	0.02811	0.000611			
Total	49	0.049949				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	0.026166	0.01466	1.784895	0.080874	0.007105	0.045228	
X	-2.22E-06	8.88E-07	-2.499927	0.01605	-3.38E-06	-1.07E-06	1.270427
Line 75 Industry (Arts, rec, etc)	-0.468485	0.176992	-2.646921	0.011085	-0.698615	-0.238354	1.067775
Population Density	-4.29E-05	1.46E-05	-2.934241	0.005201	-6.19E-05	-2.39E-05	1.21569





Appendix A9: CPS Employed Jun 2021 using Abridged Oxford Stringency Index

X = Abridged Oxford Stringency Index

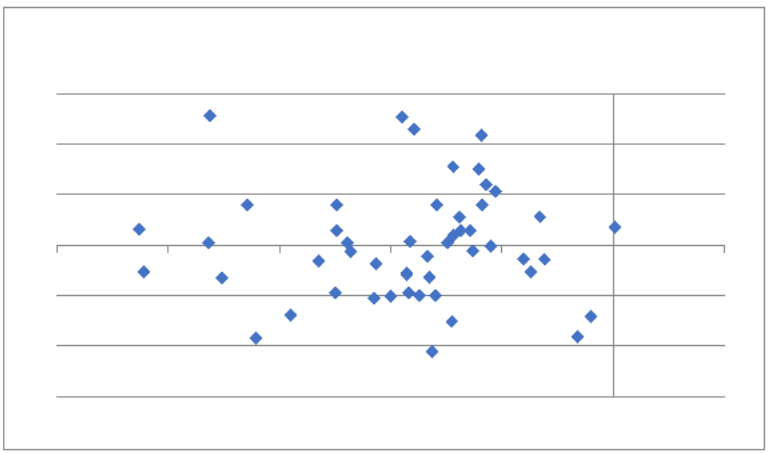
Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

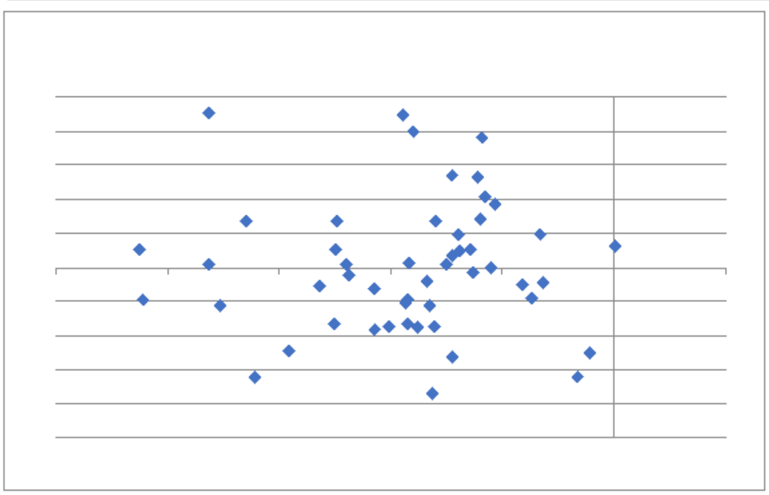
OVERALL FIT	
Multiple R	0.662775
R Square	0.439271
Adjusted R Square	0.402702
Standard Error	0.022802
Observations	50

AIC	-374.2578
AICc	-372.8942
SBC	-366.6097

ANOVA				Alpha	0.2	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	3	0.018737	0.006246	12.01203	6.22E-06	yes
Residual	46	0.023918	0.00052			
Total	49	0.042655				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	0.025443	0.013523	1.881515	0.066239	0.007861	0.043026	
X	-2.27E-06	8.19E-07	-2.767029	0.008121	-3.33E-06	-1.2E-06	1.270427
Line 75 Industry (Arts, rec, etc)	-0.40095	0.163262	-2.45587	0.017891	-0.613228	-0.188672	1.067775
Population Density	-3.76E-05	1.35E-05	-2.789978	0.007646	-5.52E-05	-2.01E-05	1.21569





Appendix A10: Employed-Pop. Ratio Mar 2021 using Government Severity Index

X = Government Severity Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

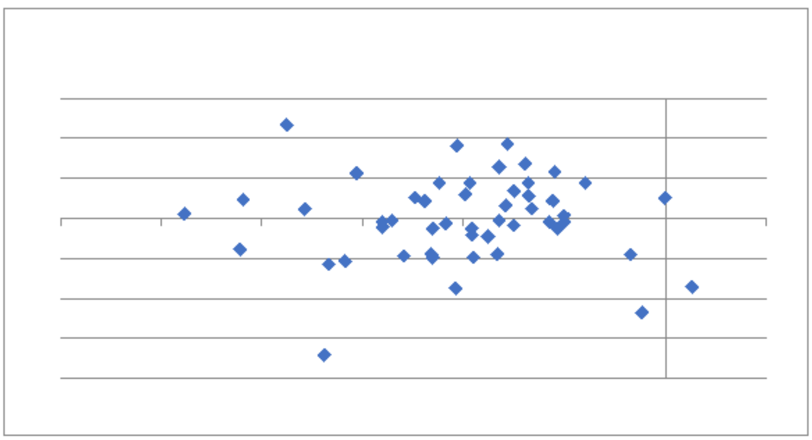
Multiple R	0.711612
R Square	0.506392
Adjusted R Square	0.462515
Standard Error	0.022201
Observations	50

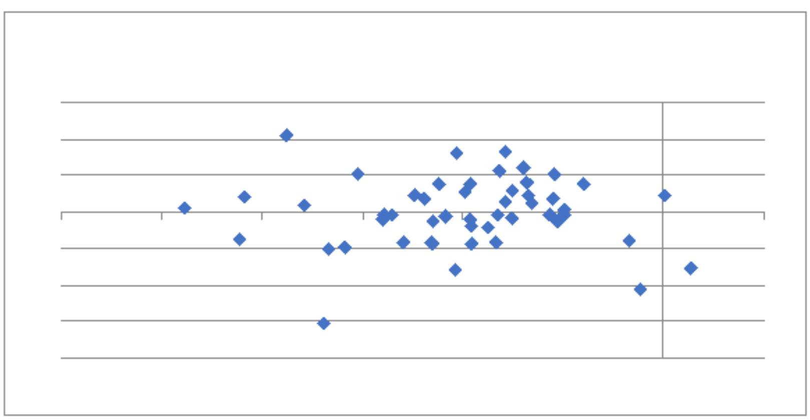
AIC	-376.0302
AICc	-374.0767
SBC	-366.4701

ANOVA — Alpha 0.2

	df	SS	MS	F	p-value	sig
Regression	4	0.022754	0.005689	11.54135	1.56E-06	yes
Residual	45	0.02218	0.000493			
Total	49	0.044934				

	coeff	std err	t stat	p-value	lower	upper	vif
Intercept	-0.005606	0.020344	-0.275577	0.784134	-0.032067	0.020854	
X	-0.000477	0.000209	-2.282027	0.027268	-0.000749	-0.000205	1.393384
Line 75 Industry (Arts, rec, etc)	-0.454933	0.161196	-2.822235	0.007076	-0.664593	-0.245274	1.098096
Population Density	-4.44E-05	1.25E-05	-3.547225	0.000923	-6.06E-05	-2.81E-05	1.101288
Average Daily Confirmed Cases Per 100,000	6.02E-06	4.24E-06	1.418951	0.162803	5.02E-07	1.15E-05	1.324821





Appendix A11: Employed-Pop. Ratio Jun 2021 using Government Severity Index

X = Government Severity Index

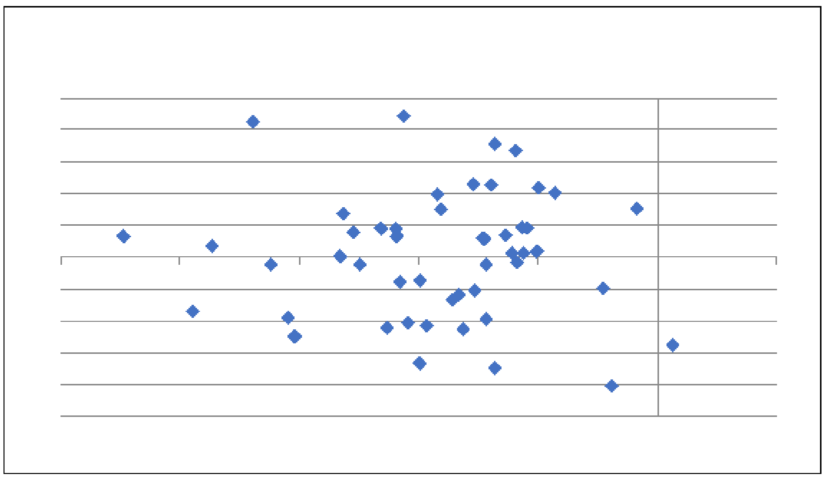
Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

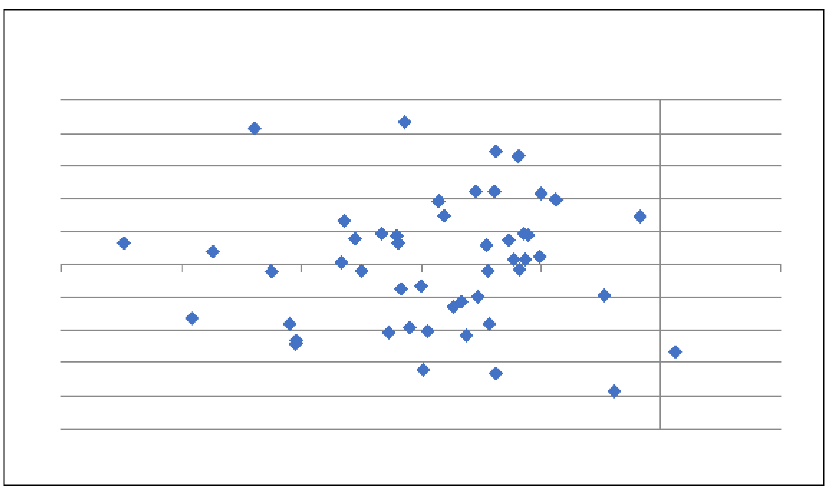
OVERALL FIT

Multiple R	0.692764		AIC	-383.0708
R Square	0.479921		AICc	-381.1173
Adjusted R Square	0.433692		SBC	-373.5107
Standard Error	0.020692			
Observations	50			

ANOVA				Alpha	0.2	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	4	0.017779	0.004445	10.38134	4.82E-06	yes
Residual	45	0.019266	0.000428			
Total	49	0.037045				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	-0.018838	0.018961	-0.993512	0.325773	-0.0435	0.005824	
X	-0.000285	0.000195	-1.463395	0.15031	-0.000538	-3.17E-05	1.393384
Line 75 Industry (Arts, rec, etc)	-0.433146	0.150237	-2.883084	0.006019	-0.628552	-0.237741	1.098096
Population Density	-4.09E-05	1.17E-05	-3.509268	0.001033	-5.61E-05	-2.57E-05	1.101288
Average Daily Confirmed Cases Per 100,000	7.62E-06	3.95E-06	1.92987	0.059941	2.49E-06	1.28E-05	1.324821





Appendix A12: Employed-Pop. Ratio Mar 2021 using Abridged Oxford Stringency Index

X = Abridged Oxford Stringency Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

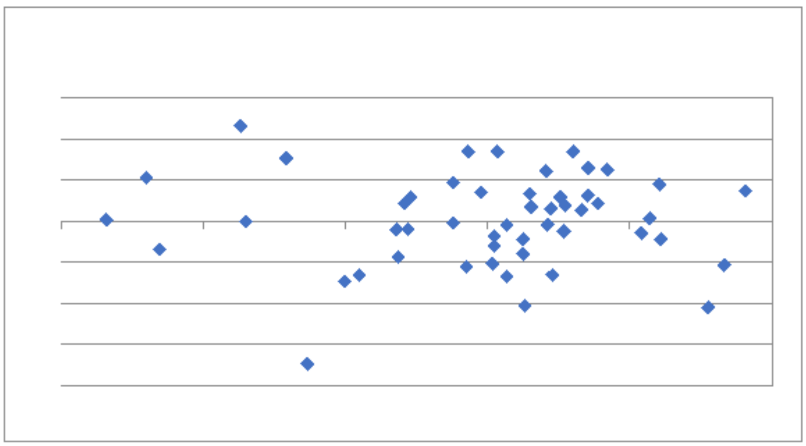
Multiple R	0.671804
R Square	0.45132
Adjusted R Square	0.415537
Standard Error	0.023151
Observations	50

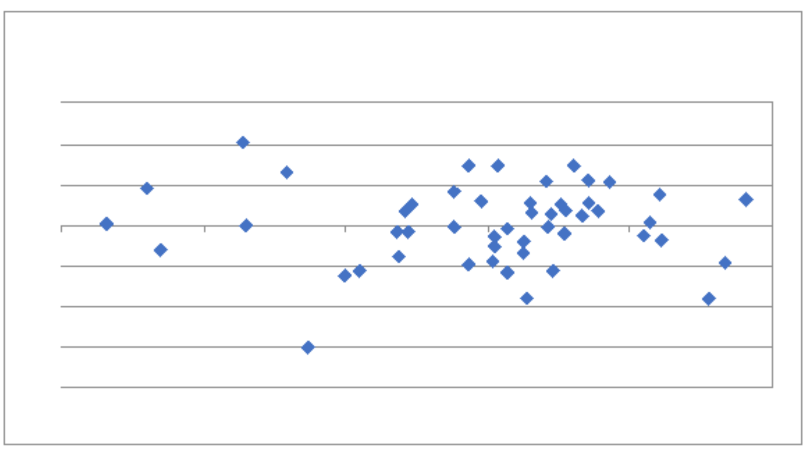
AIC	-372.7416
AICc	-371.3779
SBC	-365.0935

ANOVA — Alpha 0.2

	df	SS	MS	F	p-value	sig
Regression	3	0.020279	0.00676	12.61255	3.82E-06	yes
Residual	46	0.024654	0.000536			
Total	49	0.044934				

	coeff	std err	t stat	p-value	lower	upper	vif
Intercept	0.025006	0.013729	1.821361	0.075059	0.007155	0.042857	
X	-2.16E-06	8.32E-07	-2.596374	0.012607	-3.24E-06	-1.08E-06	1.270427
Line 75 Industry (Arts, rec, etc)	-0.512128	0.165756	-3.089647	0.003395	-0.727649	-0.296607	1.067775
Population Density	-3.71E-05	1.37E-05	-2.706128	0.009518	-5.49E-05	-1.93E-05	1.21569





Appendix A13: Employed-Pop. Ratio Jun 2021 using Abridged Oxford Stringency Index

X = Abridged Oxford Stringency Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

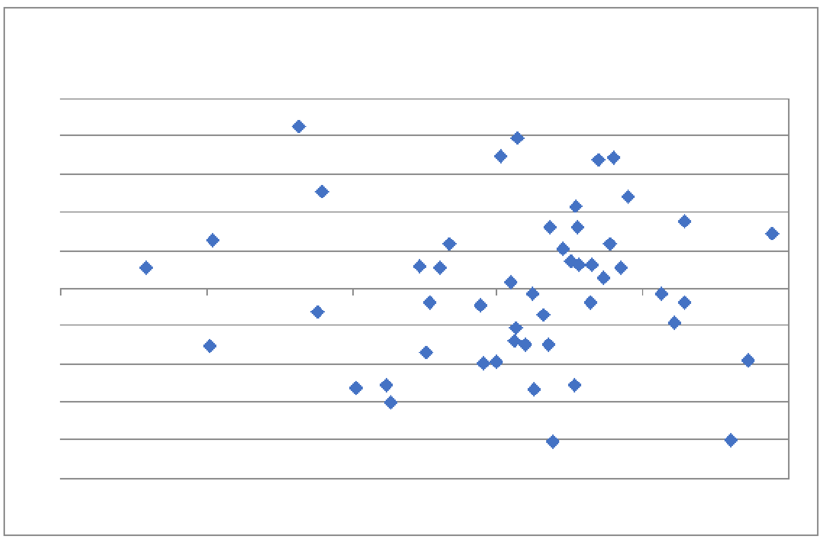
Multiple R	0.679676
R Square	0.461959
Adjusted R Square	0.426869
Standard Error	0.020816
Observations	50

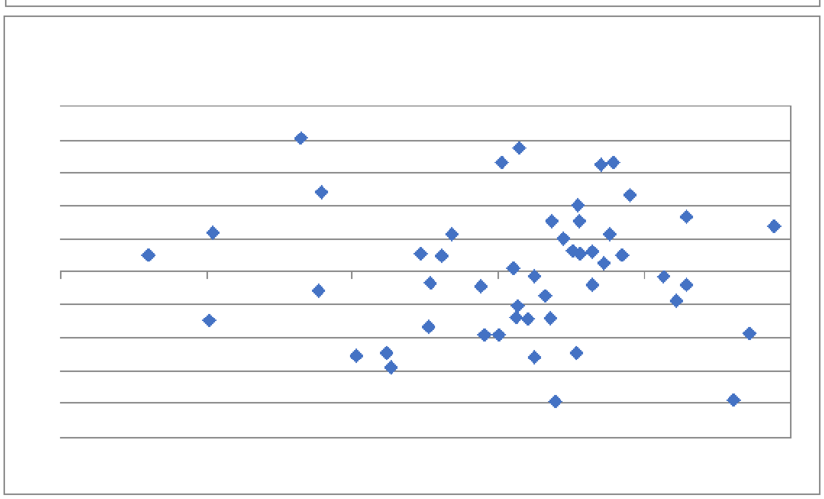
AIC	-383.3731
AICc	-382.0095
SBC	-375.725

ANOVA — Alpha 0.2

	df	SS	MS	F	p-value	sig
Regression	3	0.017113	0.005704	13.16512	2.46E-06	yes
Residual	46	0.019932	0.000433			
Total	49	0.037045				

	coeff	std err	t stat	p-value	lower	upper	vif
Intercept	0.024954	0.012345	2.021424	0.049077	0.008903	0.041004	
X	-2.19E-06	7.48E-07	-2.929582	0.005267	-3.16E-06	-1.22E-06	1.270427
Line 75 Industry (Arts, rec, etc)	-0.466931	0.149038	-3.13296	0.003009	-0.660714	-0.273147	1.067775
Population Density	-3E-05	1.23E-05	-2.432746	0.018932	-4.6E-05	-1.4E-05	1.21569





Appendix A14: State Real GDP 2021:Q1 using Government Severity Index

X = Government Severity Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

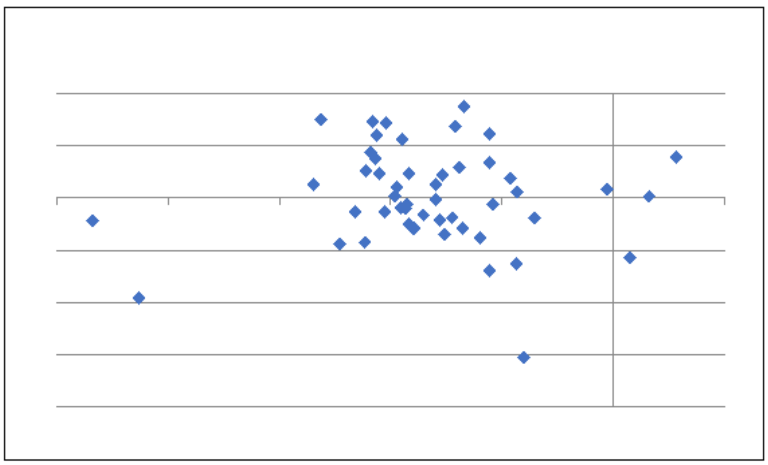
OVERALL FIT

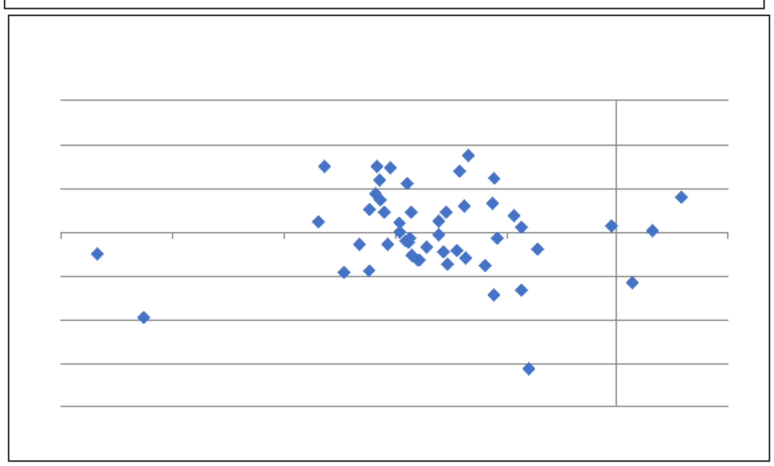
Multiple R	0.704427
R Square	0.496218
Adjusted R Square	0.43897
Standard Error	0.019614
Observations	50

AIC	-387.5431
AICc	-384.8765
SBC	-376.071

ANOVA				Alpha	0.2	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	5	0.016673	0.003335	8.667859	8.86E-06	yes
Residual	44	0.016927	0.000385			
Total	49	0.0336				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	-0.001631	0.01886	-0.086487	0.931471	-0.026169	0.022907	
X	-0.000373	0.000197	-1.89313	0.064929	-0.00063	-0.000117	1.591933
Line 75 Industry (Arts, rec, etc)	-0.571852	0.144596	-3.954833	0.000275	-0.759985	-0.38372	1.132022
Line 3 Industry (Ag, etc)	0.415944	0.158134	2.630331	0.011712	0.210198	0.62169	1.835178
Average Daily Confirmed Cases Per 100,000	-7.69E-06	5.63E-06	-1.365586	0.17901	-1.5E-05	-3.63E-07	2.991697
Covid inpatient bed days per 100,000 population	3.74E-06	1.83E-06	2.042781	0.047093	1.36E-06	6.13E-06	2.332019





Appendix A15: State Real GDP 2021:Q2 using Government Severity Index

X = Government Severity Index

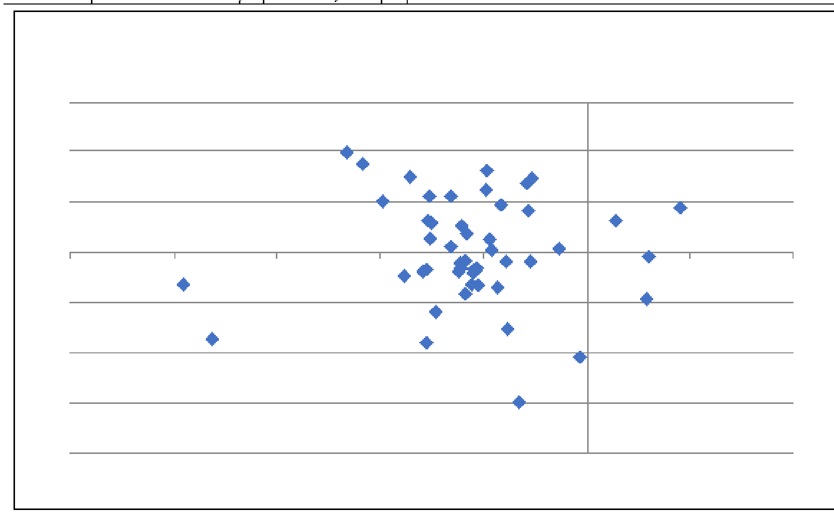
Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

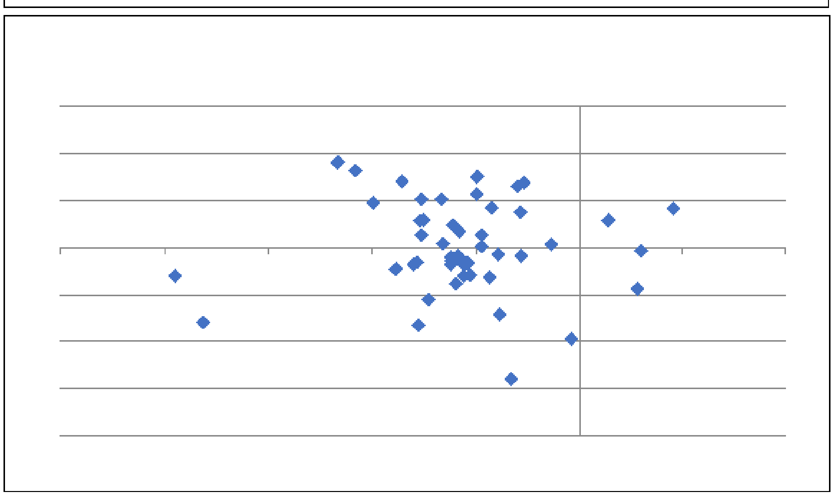
OVERALL FIT	
Multiple R	0.631686
R Square	0.399028
Adjusted R Square	0.359834
Standard Error	0.021496
Observations	50

AIC	-380.1583
AICc	-378.7946
SBC	-372.5102

ANOVA				Alpha	0.2	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	3	0.014113	0.004704	10.18088	2.93E-05	yes
Residual	46	0.021255	0.000462			
Total	49	0.035368				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	-0.026133	0.012092	-2.161186	0.035922	-0.041855	-0.010411	
Line 75 Industry (Arts, rec, etc)	-0.519961	0.152934	-3.399914	0.001402	-0.71881	-0.321113	1.054307
Line 3 Industry (Ag, etc)	0.432889	0.132723	3.261594	0.002091	0.260319	0.605459	1.076316
Covid inpatient bed days per 100,000 population	2.43E-06	1.33E-06	1.827285	0.074148	7.01E-07	4.16E-06	1.021842





Appendix A16: State Real GDP 2021:Q1 using Abridged Oxford Stringency Index

X = Abridged Oxford Stringency Index

SGDP&Oxf-2021Q1

X = Abridged Oxford Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

OVERALL FIT

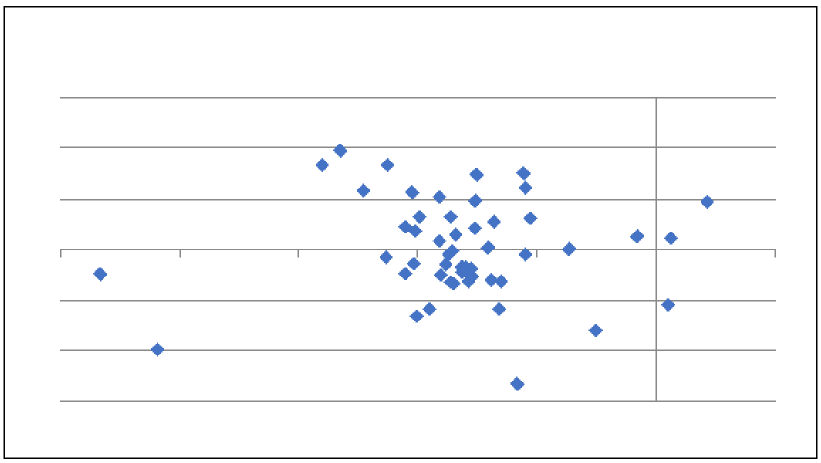
Multiple R	0.668297
R Square	0.446621
Adjusted R Square	0.410531
Standard Error	0.020105
Observations	50

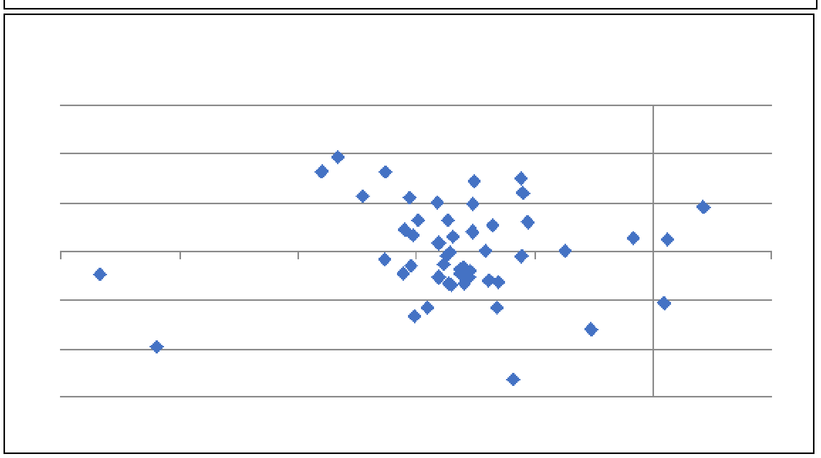
AIC	-386.8481
AICc	-385.4845
SBC	-379.2001

ANOVA — Alpha 0.2

	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	3	0.015006	0.005002	12.3752	4.63E-06	yes
Residual	46	0.018594	0.000404			
Total	49	0.0336				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	-0.033466	0.011309	-2.959097	0.004862	-0.04817	-0.018761	
Line 75 Industry (Arts, rec, etc)	-0.553671	0.143037	-3.870816	0.000341	-0.739652	-0.36769	1.054307
Line 3 Industry (Ag, etc)	0.441	0.124135	3.552596	0.000894	0.279597	0.602403	1.076316
Covid inpatient bed days per 100,000 population	2.14E-06	1.24E-06	1.719718	0.092206	5.22E-07	3.76E-06	1.021842





Appendix A17: State Real GDP 2021:Q2 using Abridged Oxford Stringency Index

X = Abridged Oxford Stringency Index

Results from Stepwise Regression using alpha = 0.2 and Robust Standard Error Type HC3

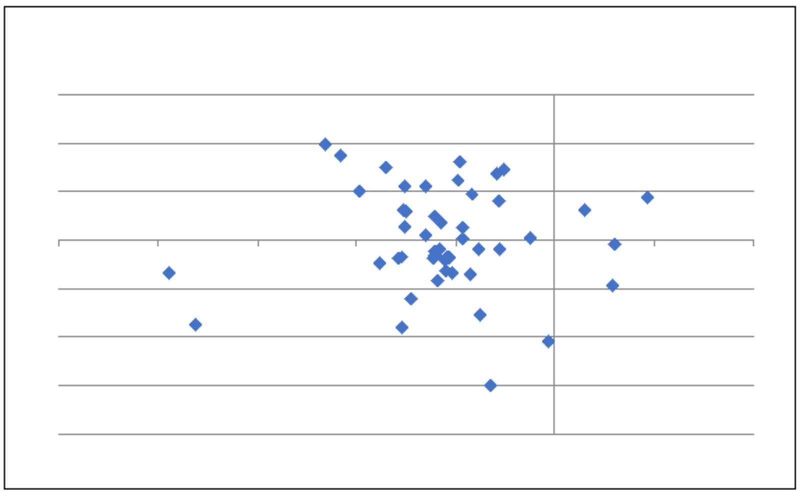
OVERALL FIT

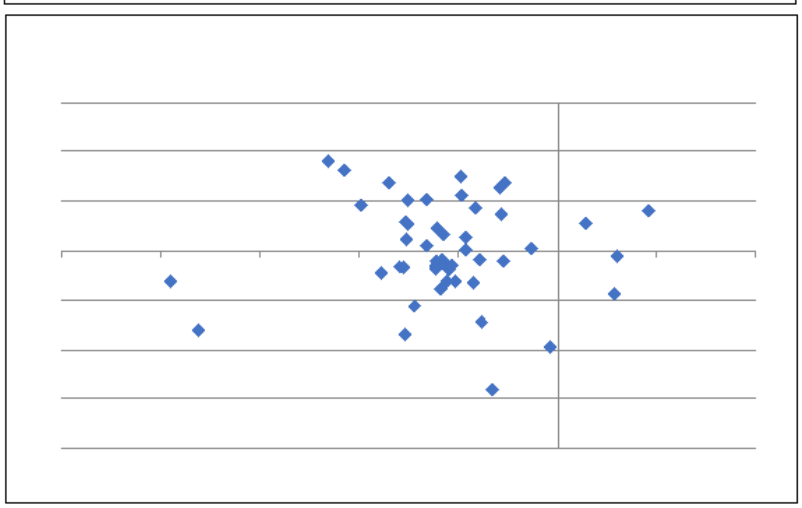
Multiple R	0.631686
R Square	0.399028
Adjusted R Square	0.359834
Standard Error	0.021496
Observations	50

AIC	-380.1583
AICc	-378.7946
SBC	-372.5102

ANOVA				Alpha	0.2	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	3	0.014113	0.004704	10.18088	2.93E-05	yes
Residual	46	0.021255	0.000462			
Total	49	0.035368				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*	*vif*
Intercept	-0.026133	0.012092	-2.161186	0.035922	-0.041855	-0.010411	
Line 75 Industry (Arts, rec, etc)	-0.519961	0.152934	-3.399914	0.001402	-0.71881	-0.321113	1.054307
Line 3 Industry (Ag, etc)	0.432889	0.132723	3.261594	0.002091	0.260319	0.605459	1.076316
Covid inpatient bed days per 100,000 population	2.43E-06	1.33E-06	1.827285	0.074148	7.01E-07	4.16E-06	1.021842





Appendix A18: Government Severity Index vs. Confirmed COVID Cases per 100,000

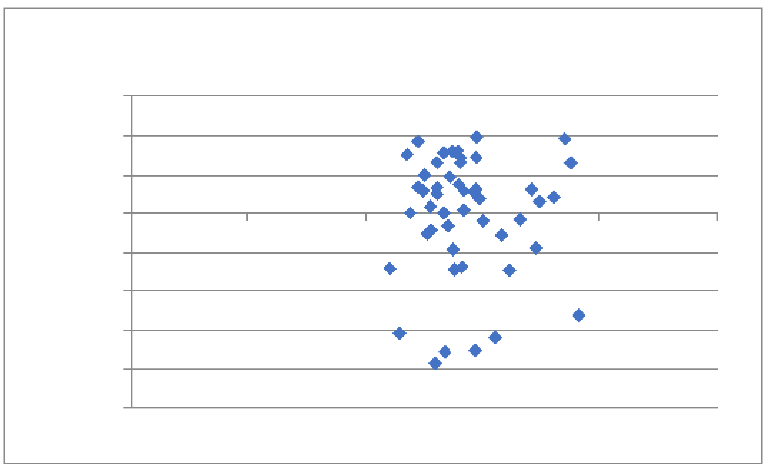
Regression with alpha = .05 and no HC
Regression Analysis

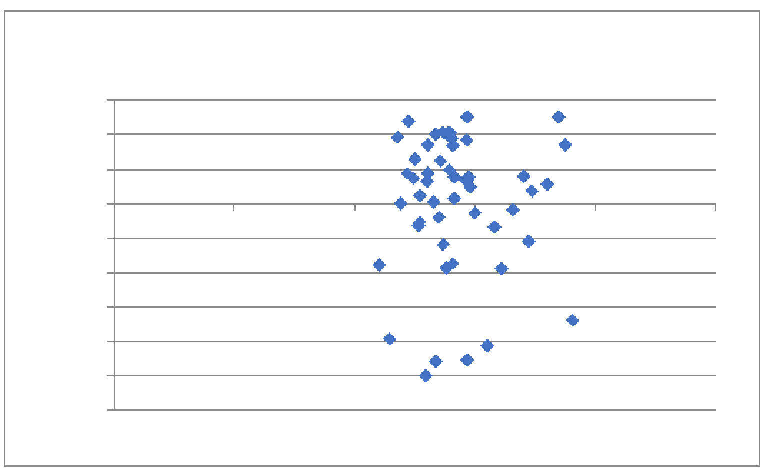
OVERALL FIT	
Multiple R	0.445881065
R Square	0.198809924
Adjusted R Square	0.182118464
Standard Error	778.7769898
Observations	50

AIC	667.731373
AICc	668.253112
SBC	671.555419

ANOVA				Alpha	0.05	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	1	7223871	7223870.589	11.9108769	0.001174	yes
Residual	48	29111693	606493.5998			
Total	49	36335563				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*
Intercept	3948.057047	333.4539	11.83988853	7.5847E-16	3277.603	4618.511
X	-21.427076	6.208562	-3.451213825	0.00117367	-33.9102	-8.94392





Appendix A19: Abridged Oxford Stringency Index vs. Confirmed COVID Cases per 100,000

Regression with alpha = .05 and no HC

Regression Analysis

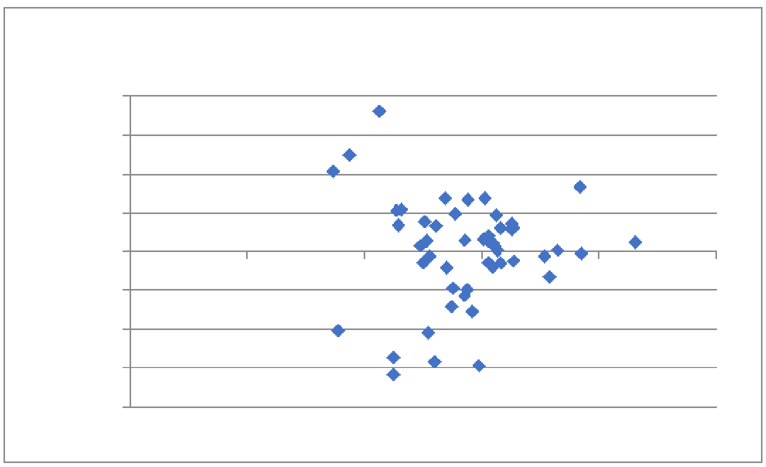
OVERALL FIT	
Multiple R	0.610052677
R Square	0.372164268
Adjusted R Square	0.359084357
Standard Error	689.3953422
Observations	50

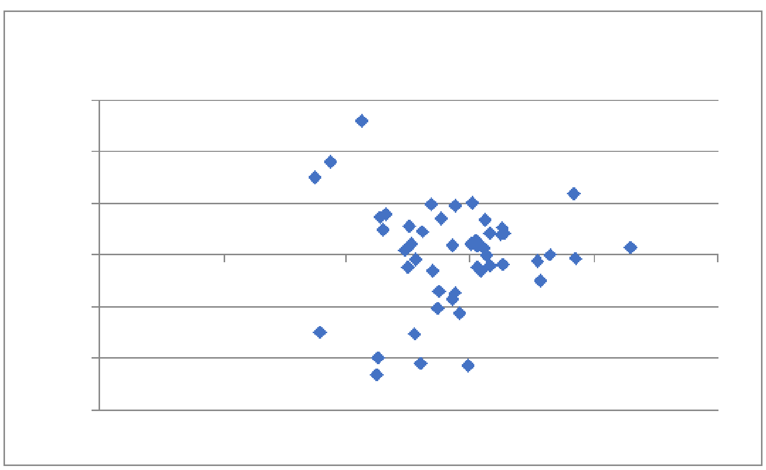
AIC	655.54039
AICc	656.062129
SBC	659.364436

ANOVA — Alpha 0.05

	df	SS	MS	F	p-value	sig
Regression	1	13522798	13522798.36	28.4531192	2.56E-06	yes
Residual	48	22812765	475265.9879			
Total	49	36335563				

	coeff	std err	t stat	p-value	lower	upper
Intercept	4855.930871	386.3428	12.56896955	8.5528E-17	4079.137	5632.725
X	-0.117215	0.021974	-5.334146526	2.5608E-06	-0.1614	-0.07303





Appendix A20: Government Severity Index vs. COVID Inpatient Bed Days per 100,000

Regression alpha = .05 and no HC
Regression Analysis

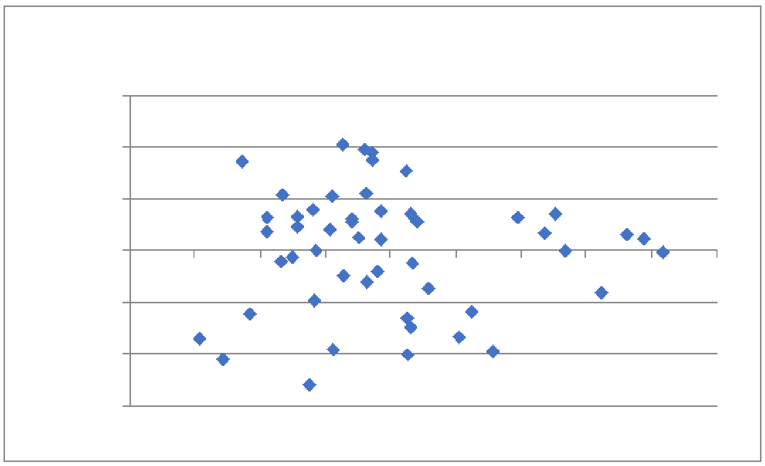
OVERALL FIT	
Multiple R	0.036213071
R Square	0.001311386
Adjusted R Square	-0.01949463
Standard Error	2357.57271
Observations	50

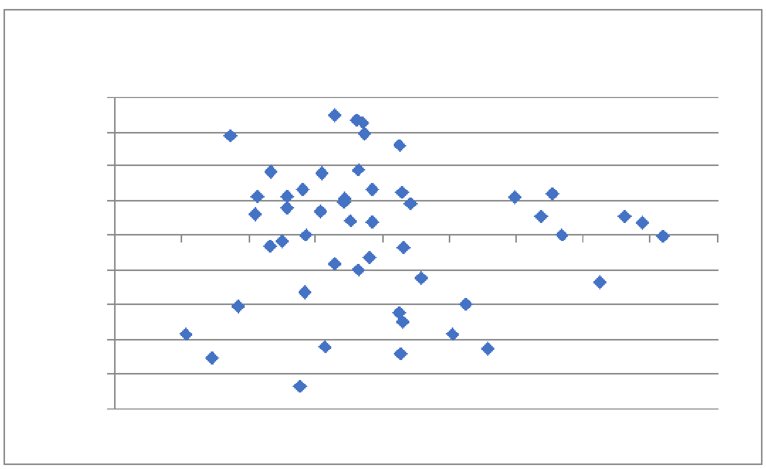
AIC	778.497686
AICc	779.019425
SBC	782.321732

ANOVA   Alpha 0.05

	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	1	350325.7	350325.7315	0.06302921	0.802842	no
Residual	48	2.67E+08	5558149.081			
Total	49	2.67E+08				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*
Intercept	6685.947973	1009.457	6.623311833	2.7818E-08	4656.299	8715.597
X	-4.71860855	18.79503	-0.251056184	0.80284232	-42.5085	33.07133





Appendix A21: Abridged Oxford Stringency Index vs. COVID Inpatient Bed Days per 100,000

Regression alpha = .05 and no HC
Regression Analysis

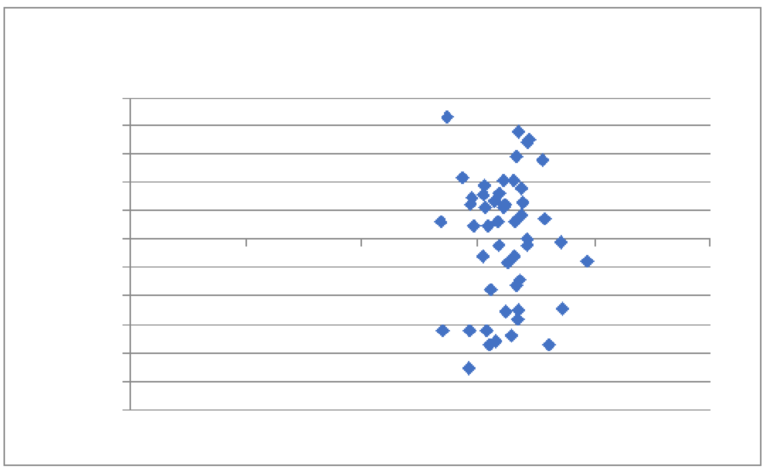
OVERALL FIT	
Multiple R	0.222516043
R Square	0.049513389
Adjusted R Square	0.029711585
Standard Error	2299.974644
Observations	50

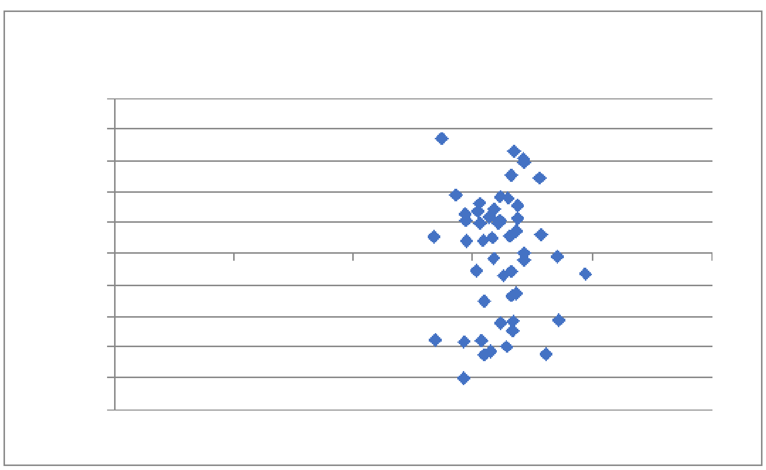
AIC	776.024238
AICc	776.545977
SBC	779.848284

ANOVA — Alpha 0.05

	df	SS	MS	F	p-value	sig
Regression	1	13227080	13227080.16	2.50044836	0.120382	no
Residual	48	2.54E+08	5289883.364			
Total	49	2.67E+08				

	coeff	std err	t stat	p-value	lower	upper
Intercept	8418.926618	1288.925	6.531744667	3.8445E-08	5827.37	11010.48
X	-0.11592628	0.073312	-1.581280607	0.12038167	-0.26333	0.031477





Appendix A22: Government Severity Index vs. COVID Deaths per 100,000

Regression alpha = .05 and no HC

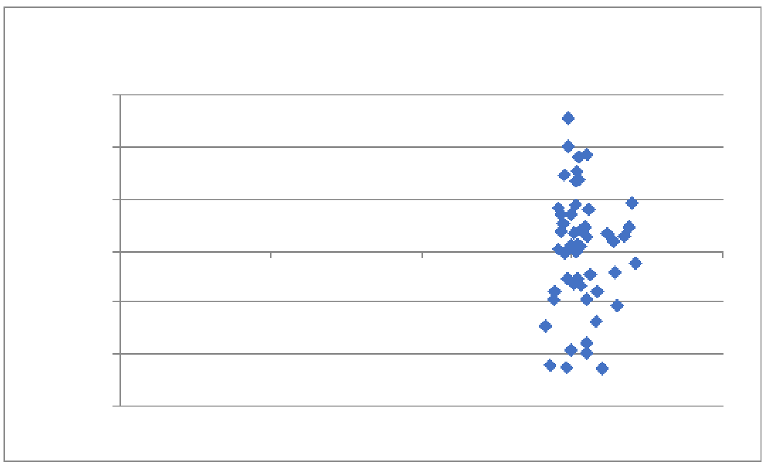
Regression Analysis

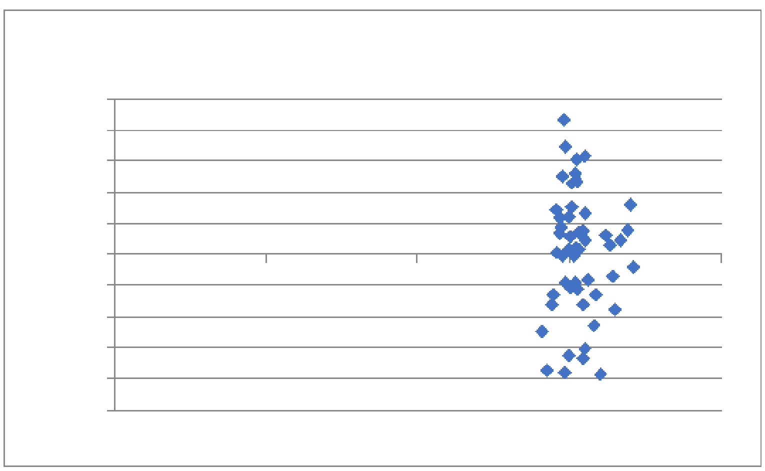
OVERALL FIT	
Multiple R	0.121042394
R Square	0.014651261
Adjusted R Square	-0.00587684
Standard Error	59.03191266
Observations	50

AIC	409.766719
AICc	410.288458
SBC	413.590765

ANOVA				Alpha	0.05	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	1	2487.139	2487.138622	0.7137174	0.402404	no
Residual	48	167268.8	3484.766712			
Total	49	169755.9				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*
Intercept	173.2273168	25.27607	6.853411816	1.2338E-08	122.4064	224.0483
X	-0.39758311	0.470614	-0.844817966	0.40240381	-1.34382	0.54865





Appendix A23: Abridged Oxford Stringency Index vs. COVID Deaths per 100,000

Regression alpha = .05 and no HC

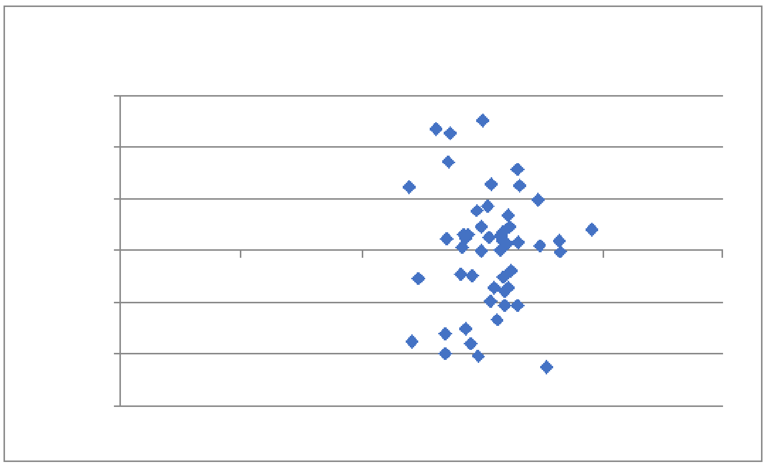
Regression Analysis

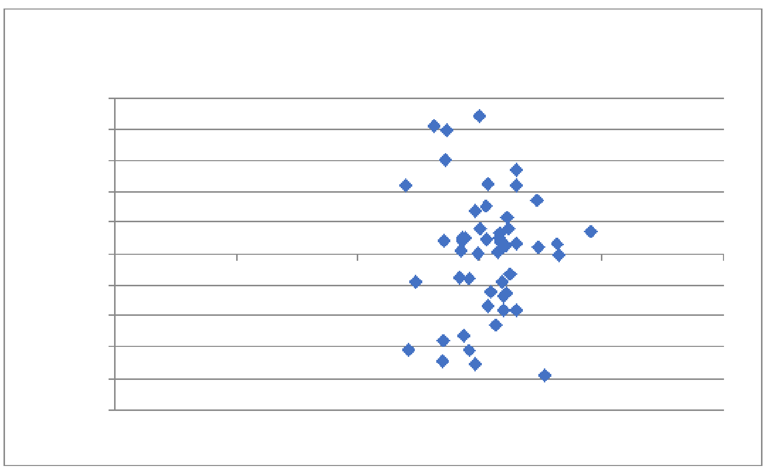
OVERALL FIT	
Multiple R	0.265914014
R Square	0.070710263
Adjusted R Square	0.05135006
Standard Error	57.32808605
Observations	50

AIC	406.837966
AICc	407.359706
SBC	410.662012

ANOVA				Alpha	0.05	
	df	*SS*	*MS*	*F*	*p-value*	*sig*
Regression	1	12003.49	12003.48718	3.65235134	0.061972	no
Residual	48	157752.5	3286.50945			
Total	49	169755.9				

	coeff	*std err*	*t stat*	*p-value*	*lower*	*upper*
Intercept	212.4833925	32.12713	6.61383068	2.8766E-08	147.8875	277.0793
X	-0.00849224	0.001827	-1.911112591	0.06197169	-0.00717	0.000182





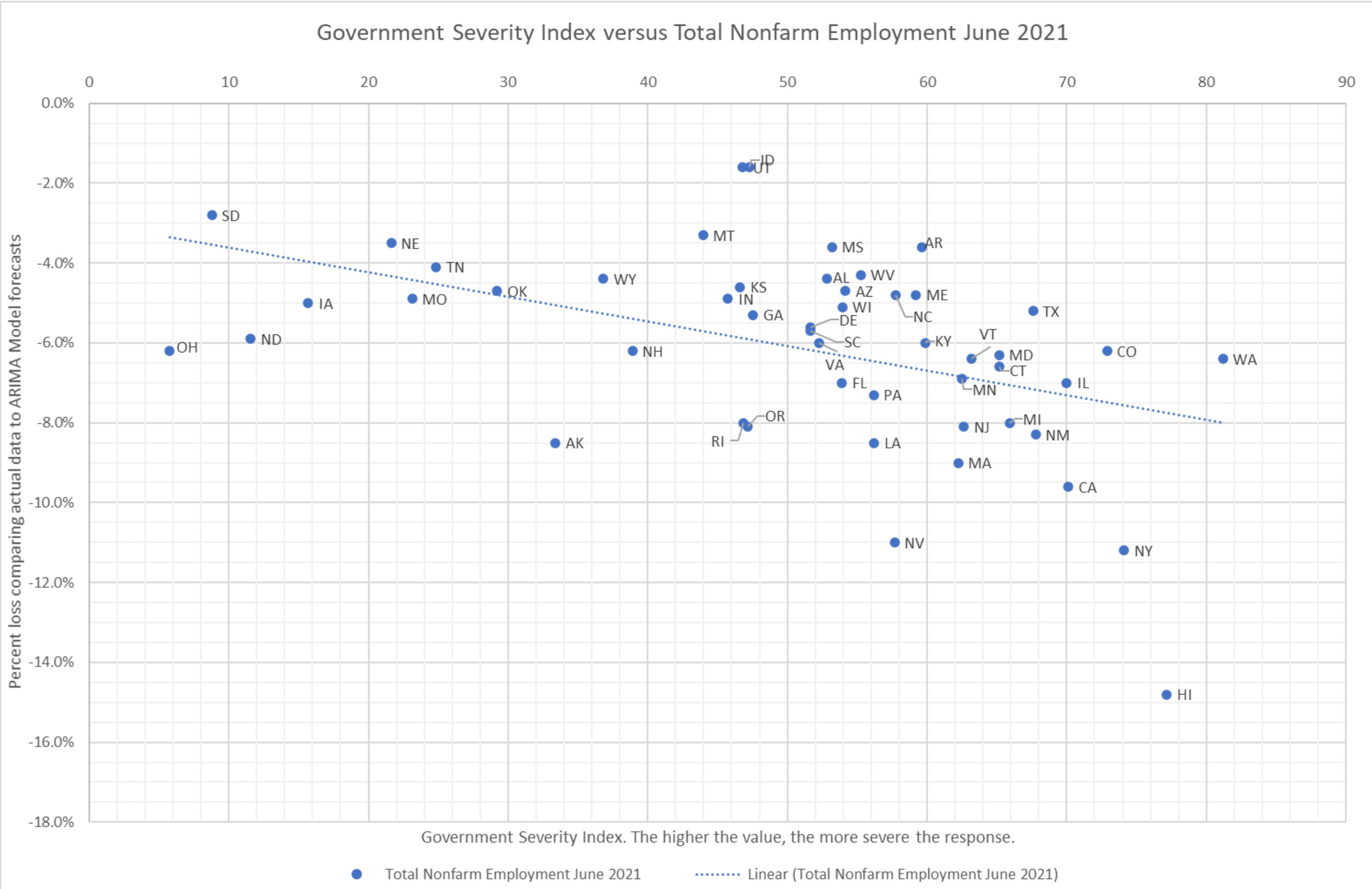
Appendix A24: Statistical Acronyms and Terms

Stepwise regression	Multiple factor regression procedure to weed out confounding variables with low probability of having impact on the equation. For procedure see: https://www.real-statistics.com/multiple-regression/stepwise-regression
HC3	Robust standard error test for heteroskedasticity (HC) 3. See https://www.real-statistics.com/multiple-regression/robust-standard-errors
Multiple R	Multiple Correlation Coefficient: $0 \le R \le 1$ where 1 is perfect correlation
R square	Used to determine goodness of fit
Adjusted R square	R square adjusted for degrees of freedom
Standard error (s.e.)	Average distance of observed values from regression line.
Observations	Number of observations.
AIC	Akaike's Information Criterion used to evaluate different models for best fit. Lower scores are better.
AICc	Corrected AIC for when $n < 40(k+2)$
SBC	Schwarz Bayesian Criterion also for evaluating best fit
ANOVA	Analysis of variance
Alpha	Selected criteria used to disprove the null hypothesis, i.e., the observations can be explained by random chance
Regression	Linear formula that best fits the values
Residual	Difference of observed value from predicted value from best fit linear formula
df	Degrees of freedom
SS	Sum of squares
MS	Mean squared
F	F statistic used to test the significance of the model
p-value	Probability of the observed values being outside the confidence interval, i.e., being a random chance
Sig	Whether results are significant
Intercept	The intercept term in the linear equation per the regression analysis
X	The primary factor used in the hypothesis, i.e., either the Government Severity Index or the Abridged Oxford Stringency Index
Line 75 Industry (Arts, rec, etc)	Confounding variable: "the proportion of the arts, entertainment, recreation, accommodation, and food services industrial sector to a state's GDP "
Population Density	Tested confounding variable: "population density"
Ave. Daily Confirmed Cases Per 100,000	Confounding variable: "average daily confirmed cases of COVID-19 infection per 100,000 population
coeff	Coefficient of specific factor in linear equation
std err	Standard error of factor
t stat	T statistic
lower	Lower 95%
upper	Upper 95%
vif	Variance inflation factor testing correlation between factor and other factors: 1 = no correlation; up to 5 = moderate correlation; over 5 severe correlation. The closer to 1 the better.
ME	Marginal effect = coefficient multiplied by the standard deviation
Studentized residuals	Standardized residuals by dividing the residuals by the standard deviation

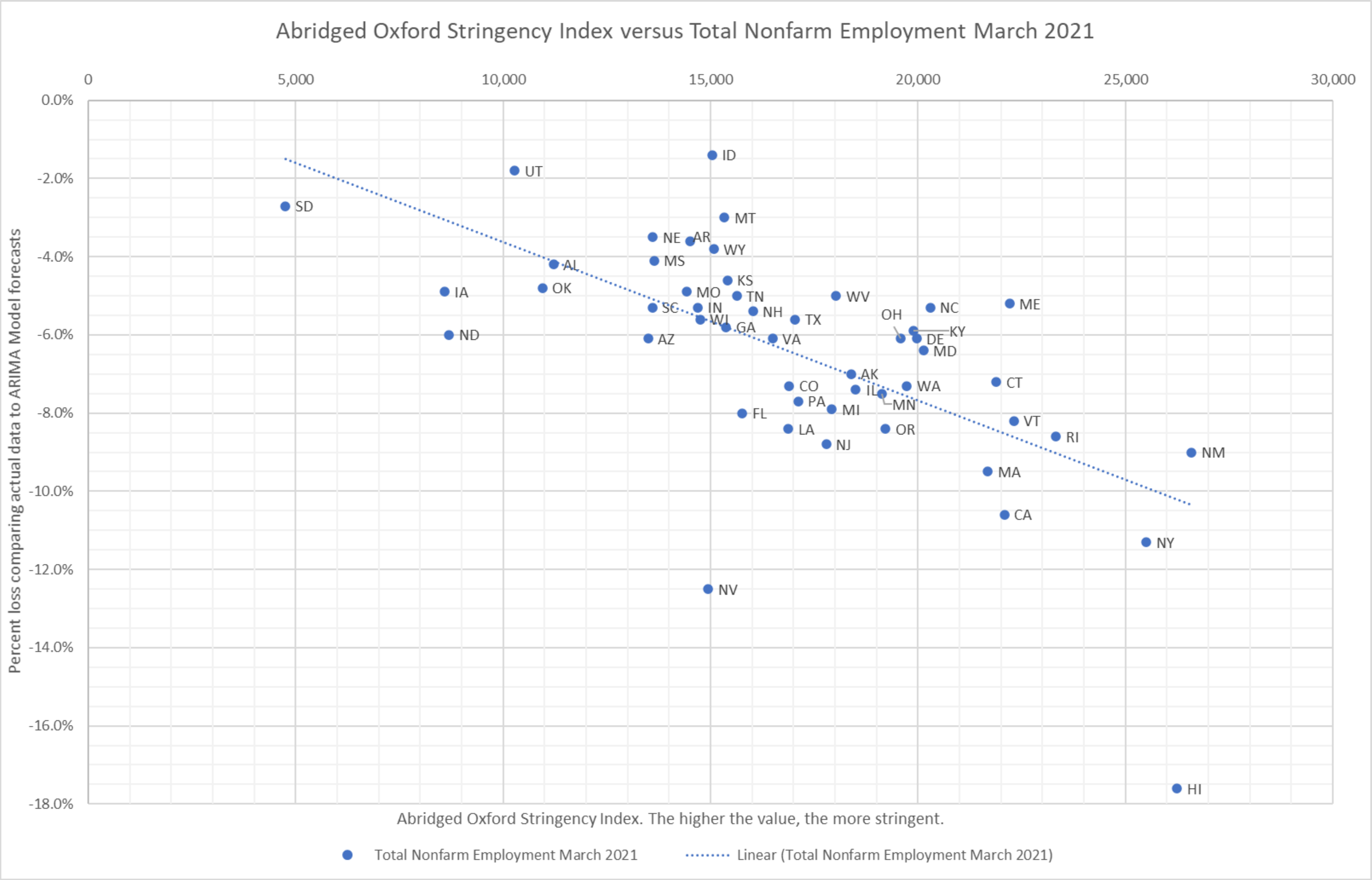
APPENDIXES B: CHARTS ON GOVERNMENTAL RESPONSES VERSUS DEPENDENT VARIABLES

Appendix B1: Chart Government Severity Index vs Nonfarm Employment March 2021

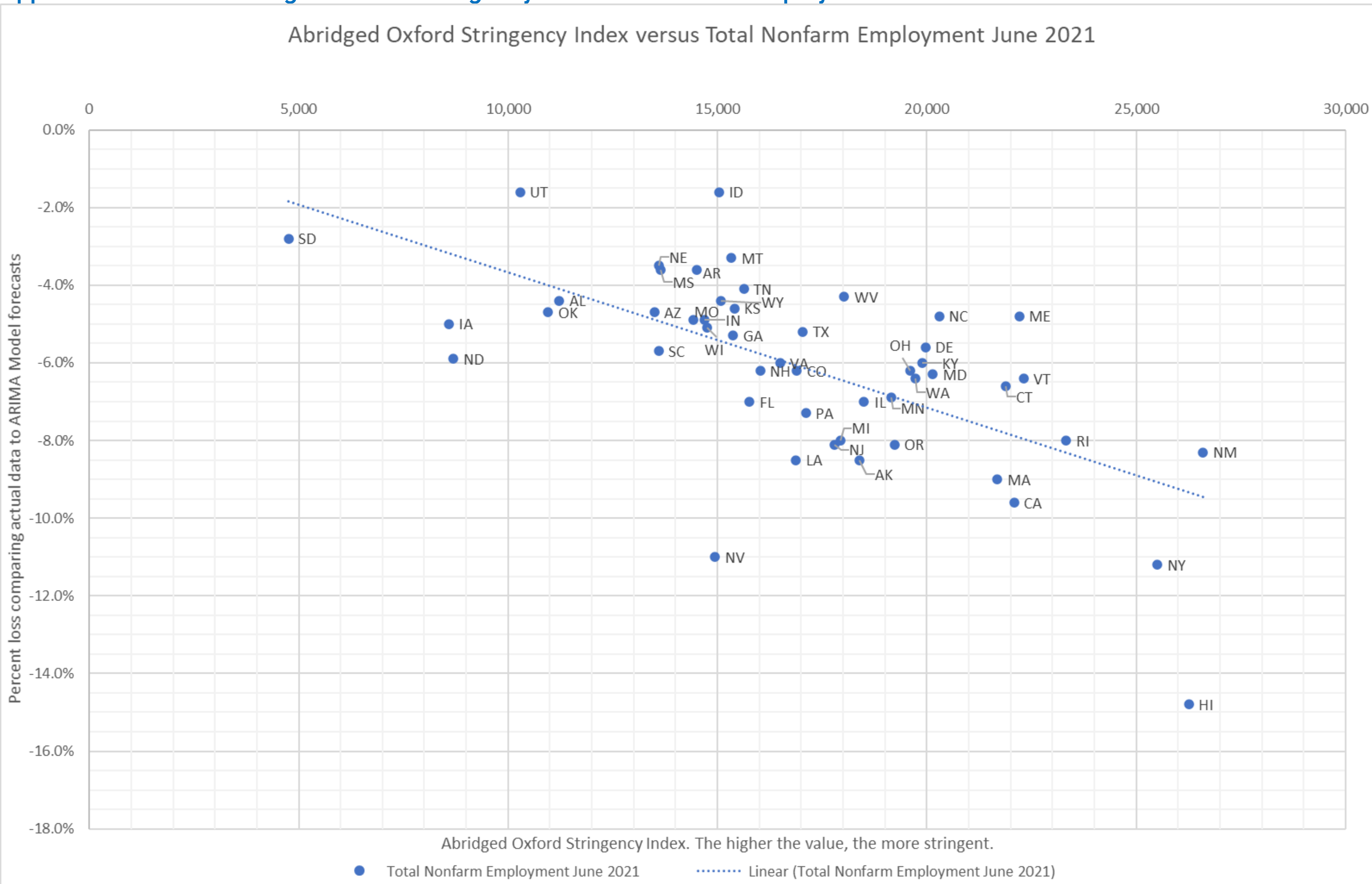
Appendix B2: Chart Government Severity Index vs Nonfarm Employment June 2021



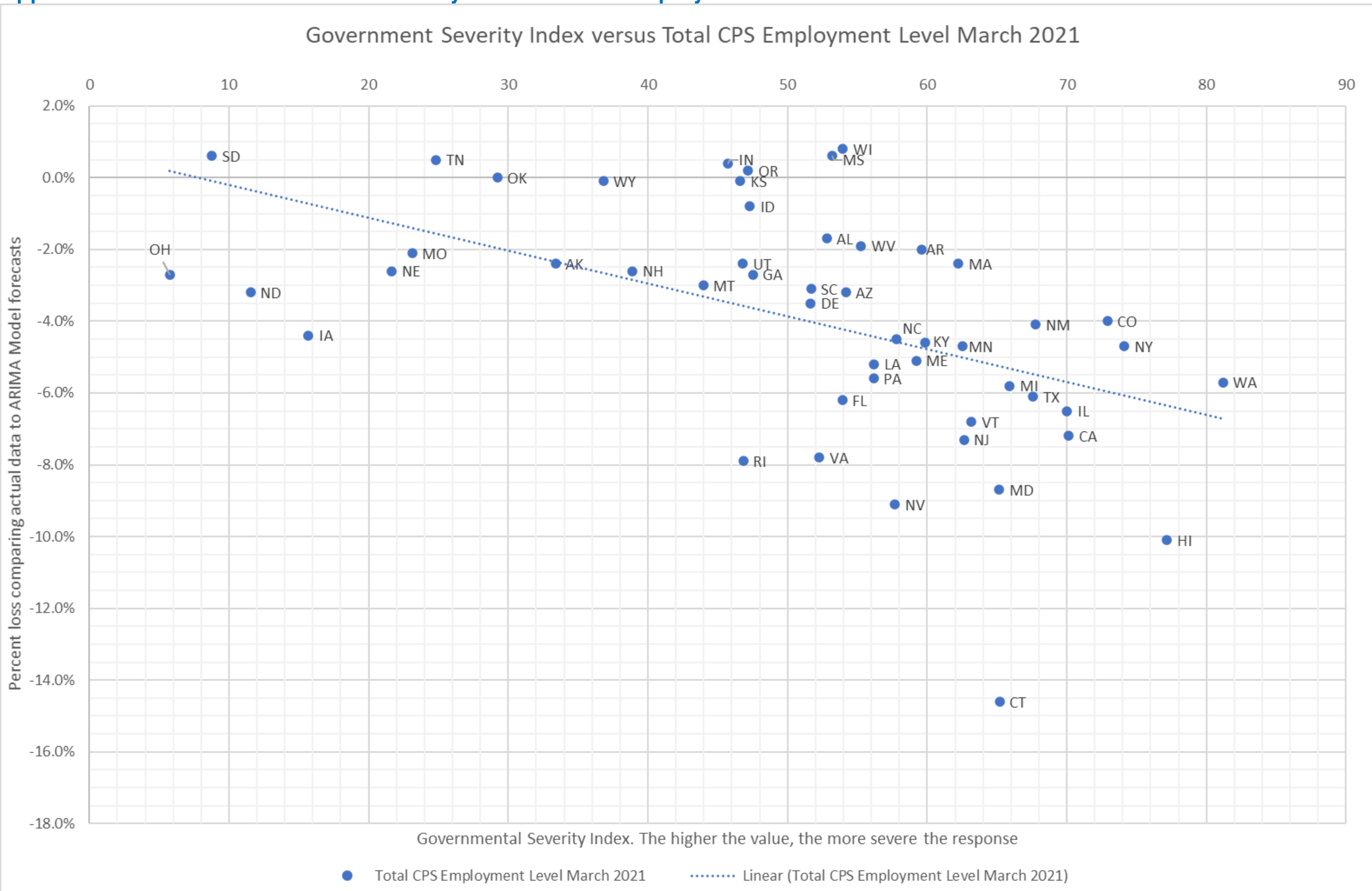
Appendix B3: Chart Abridged Oxford Stringency Index vs Nonfarm Employment March 2021



Appendix B4: Chart Abridged Oxford Stringency Index vs Nonfarm Employment June 2021

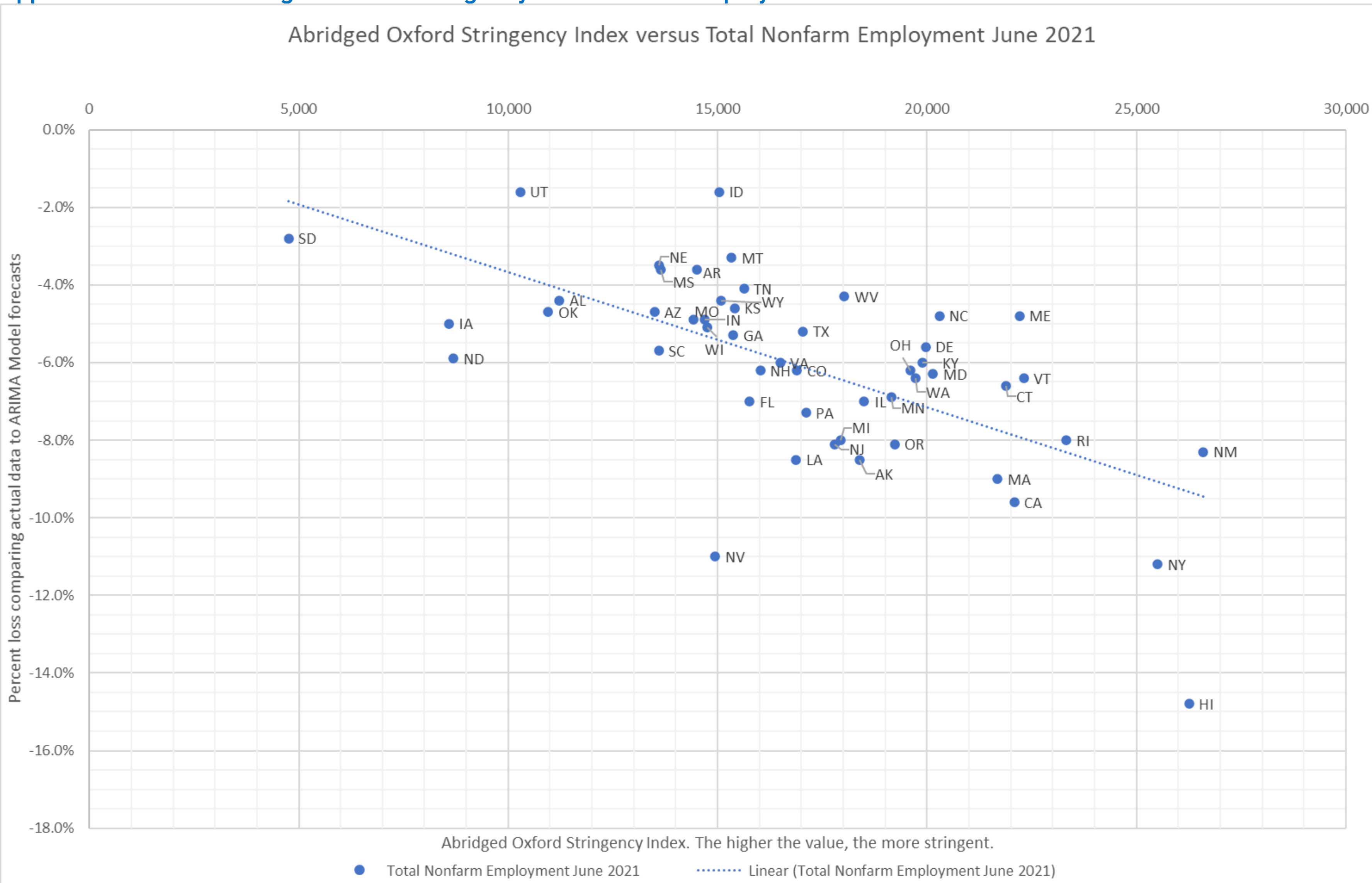


Appendix B5: Chart Government Severity Index vs CPS Employment March 2021

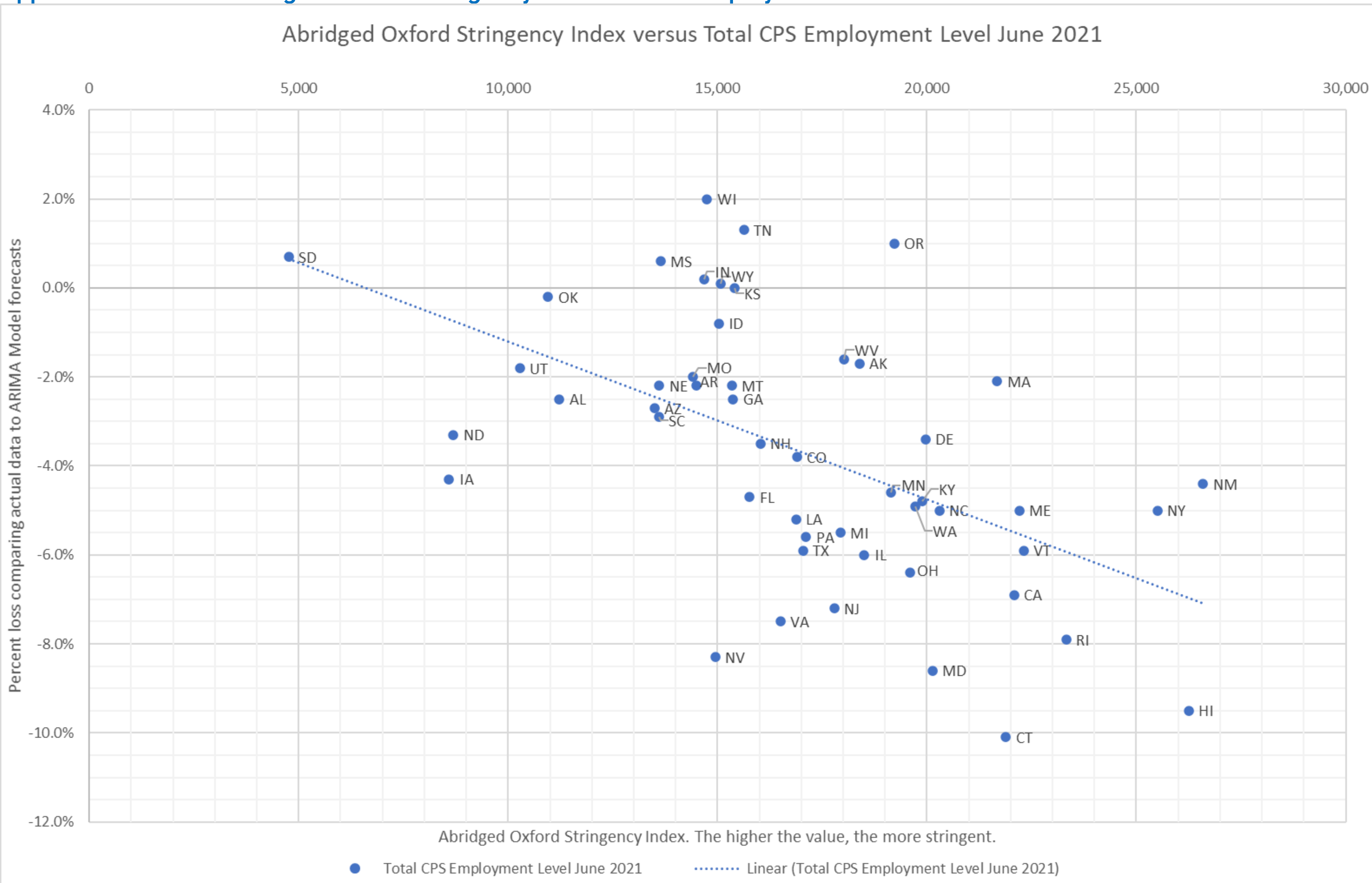


Appendix B6: Chart Government Severity Index vs CPS Employment June 2021

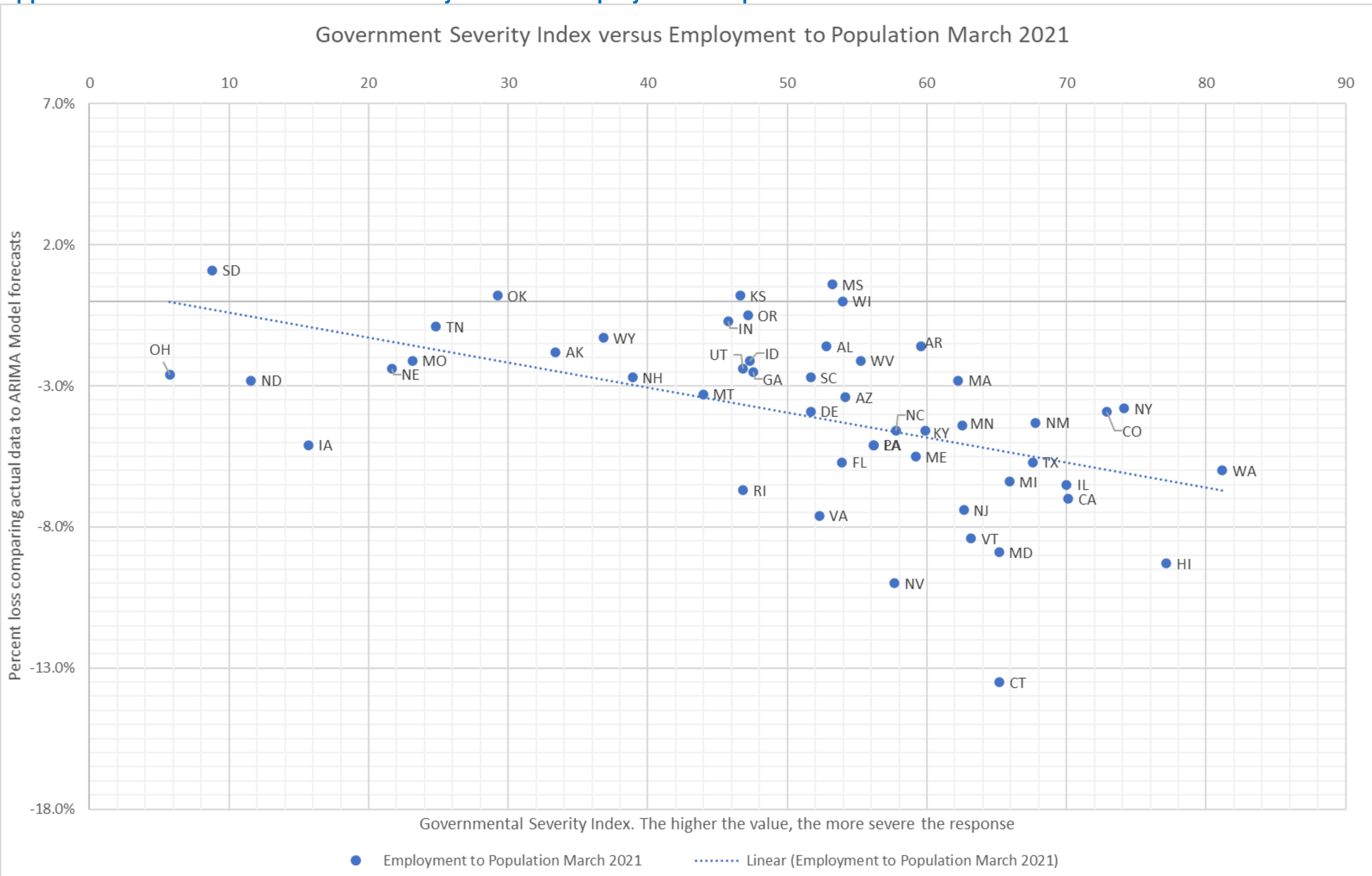
Appendix B7: Chart Abridged Oxford Stringency Index vs CPS Employment March 2021



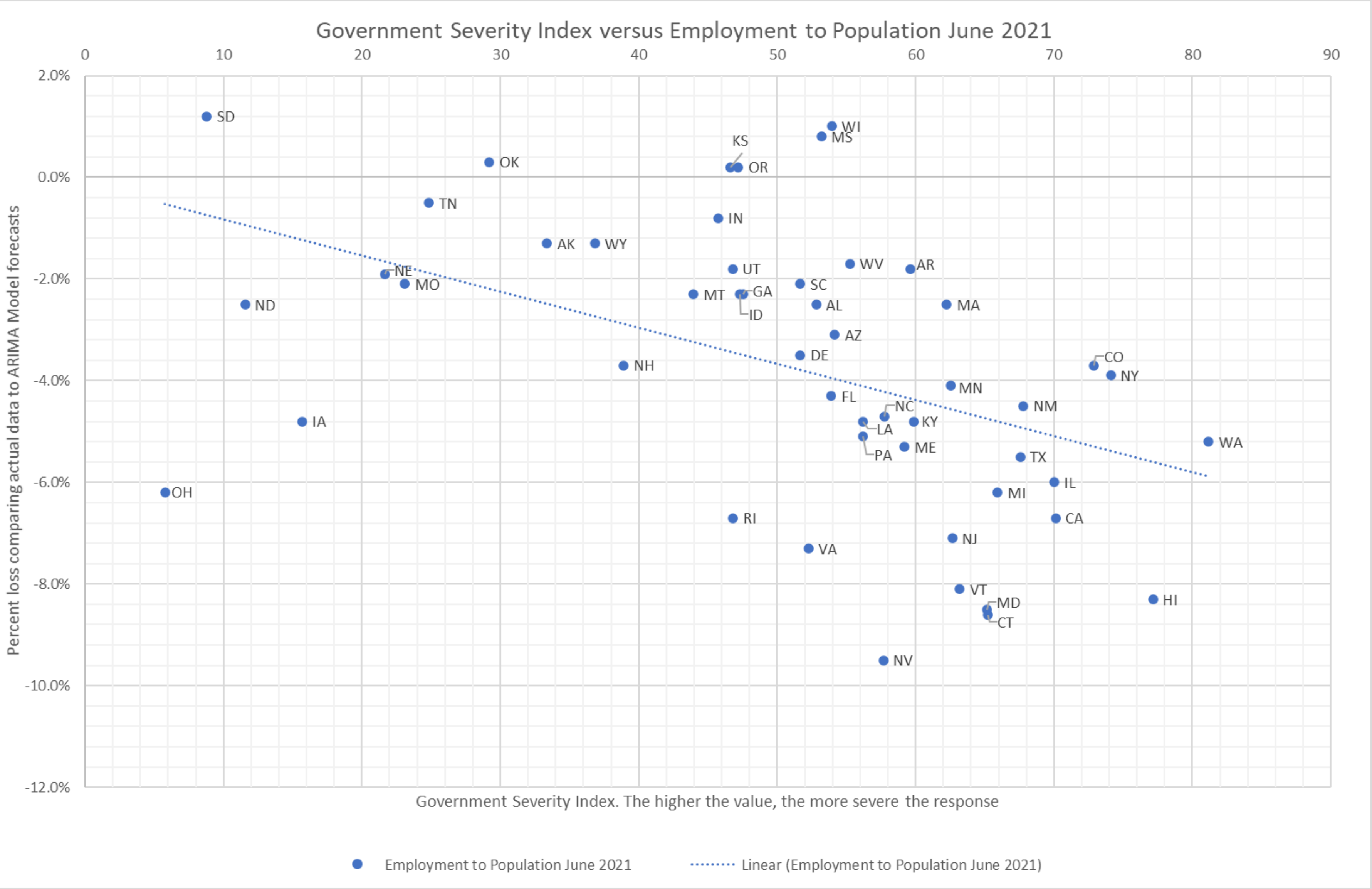
Appendix B8: Chart Abridged Oxford Stringency Index vs CPS Employment June 2021



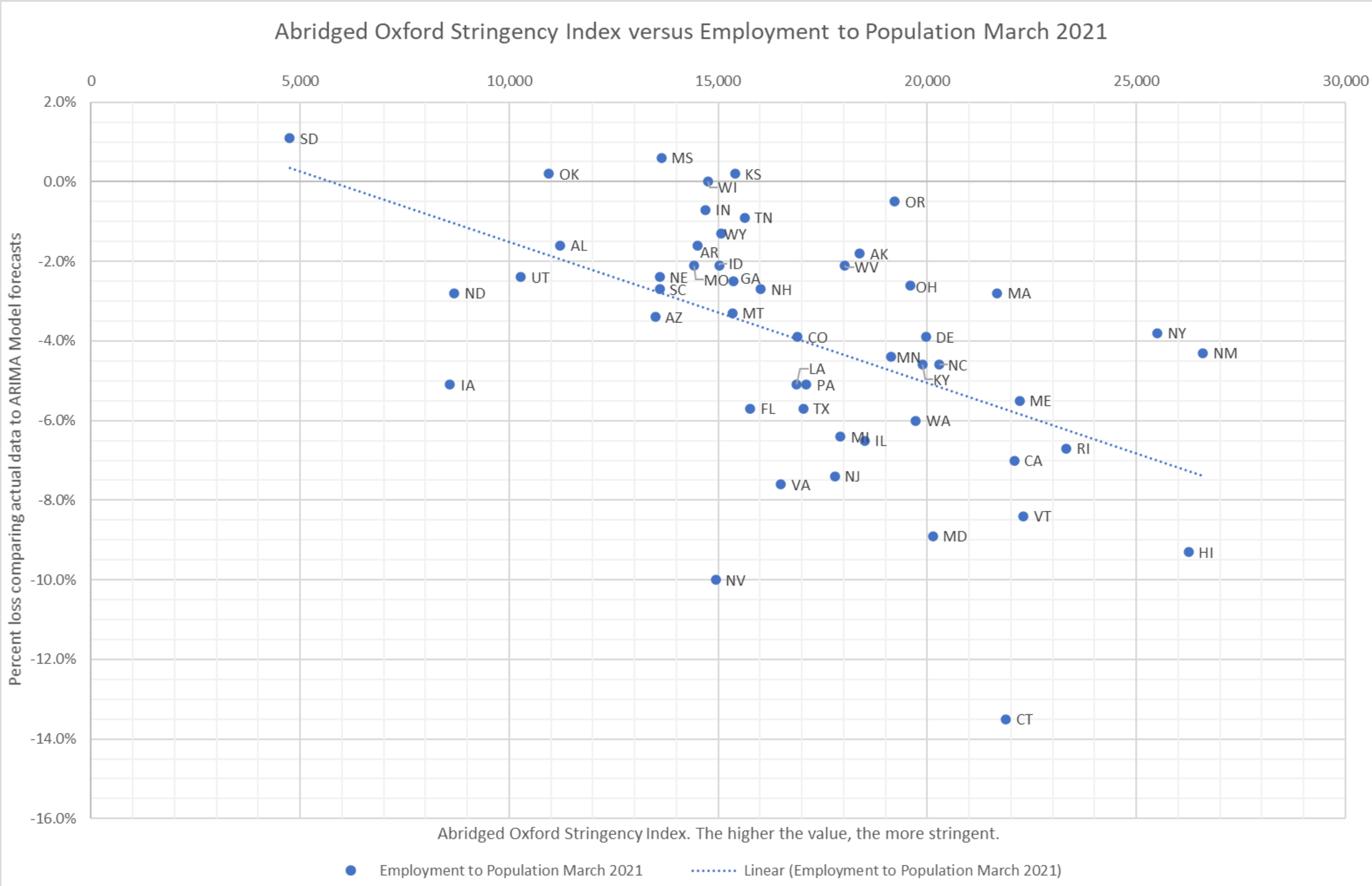
Appendix B9: Chart Government Severity Index vs Employment-Population Ratio March 2021



Appendix B10: Chart Government Severity Index vs Employment-Population Ratio June 2021

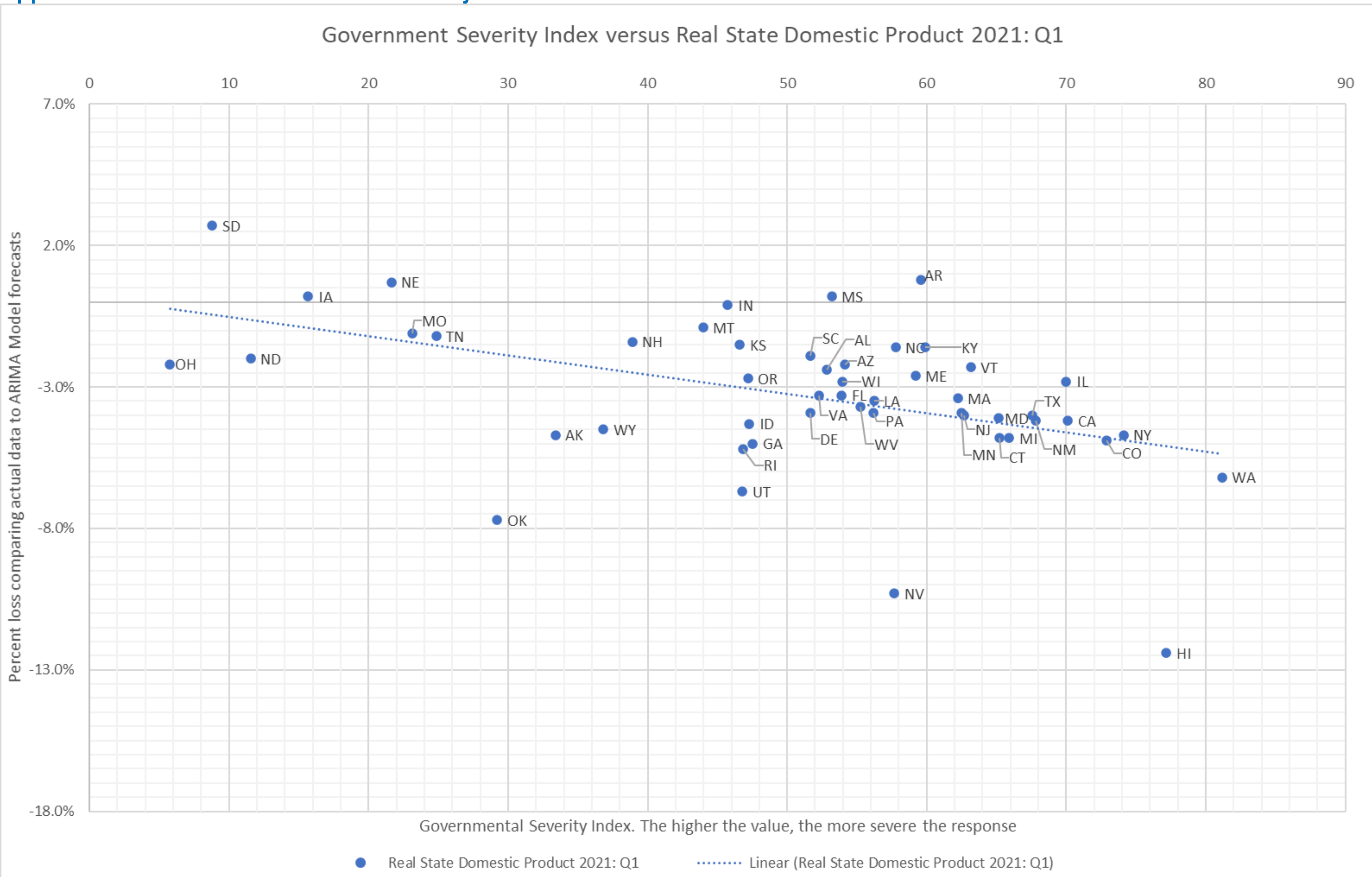


Appendix B11: Chart Abridged Oxford Stringency Index vs Employment-Population Ratio March 2021

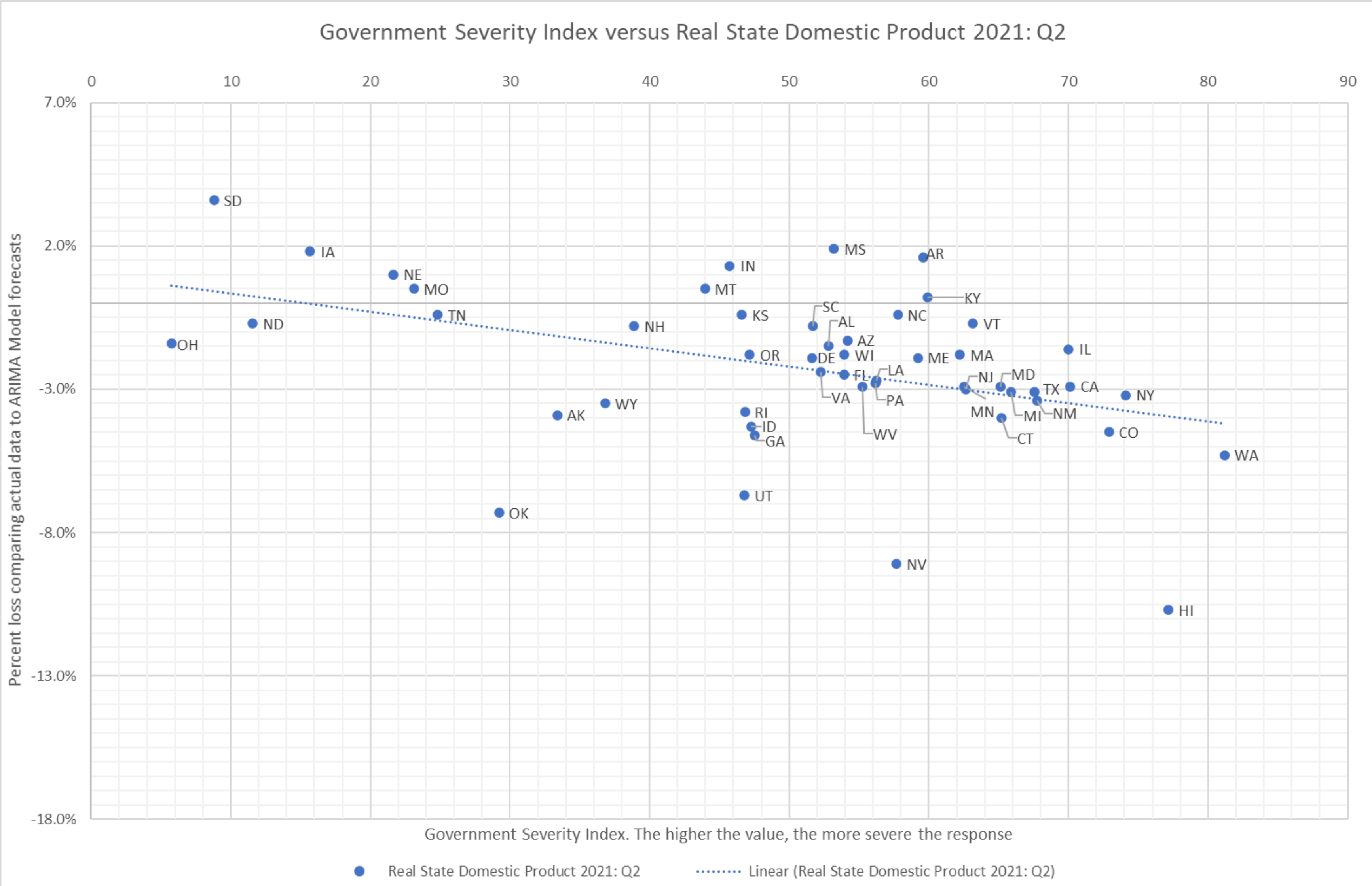


Appendix B12: Chart Abridged Oxford Stringency Index vs Employment-Population Ratio June 2021

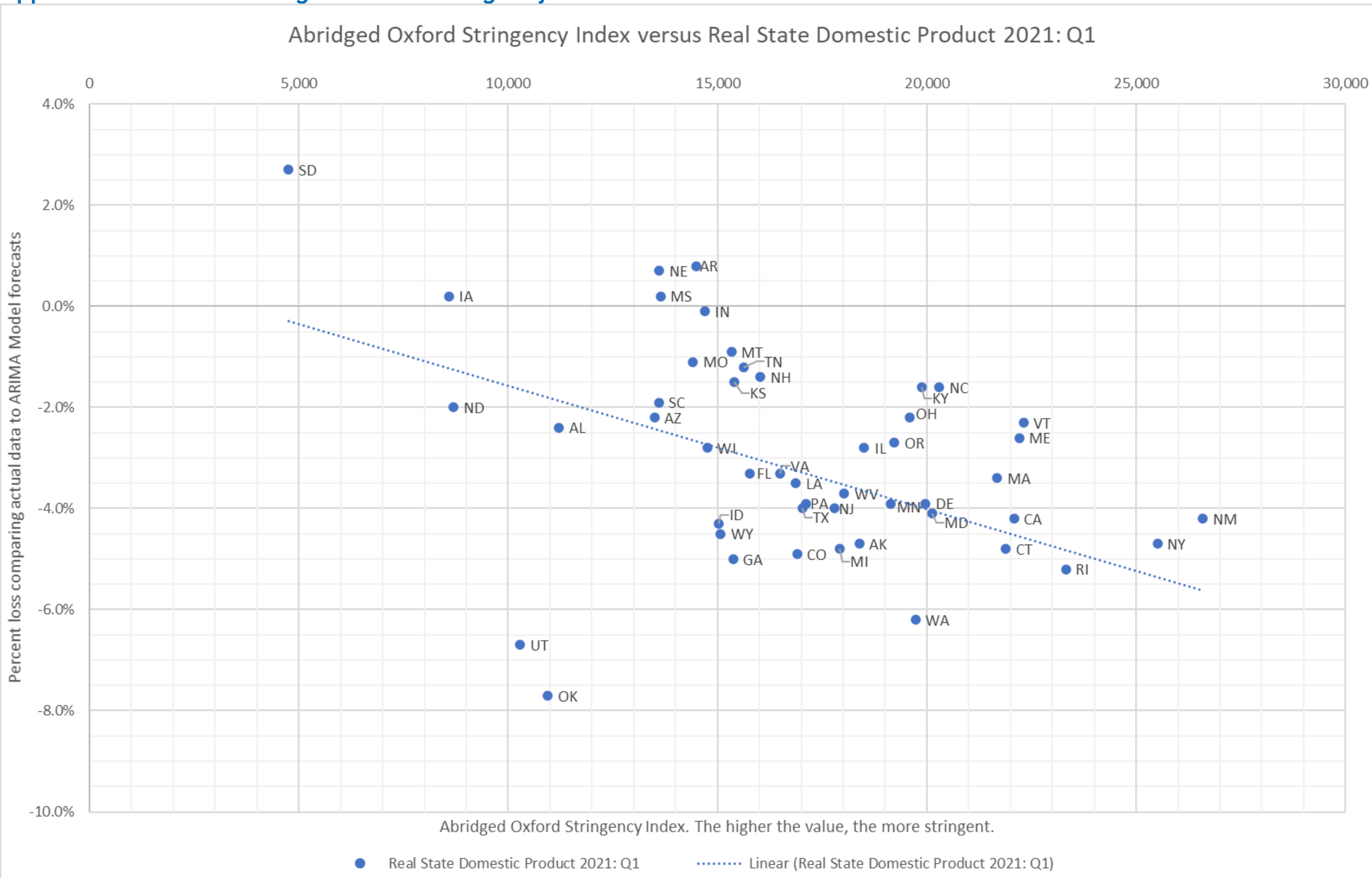
Appendix B13: Chart Government Severity Index vs State Real GDP 2021:Q1



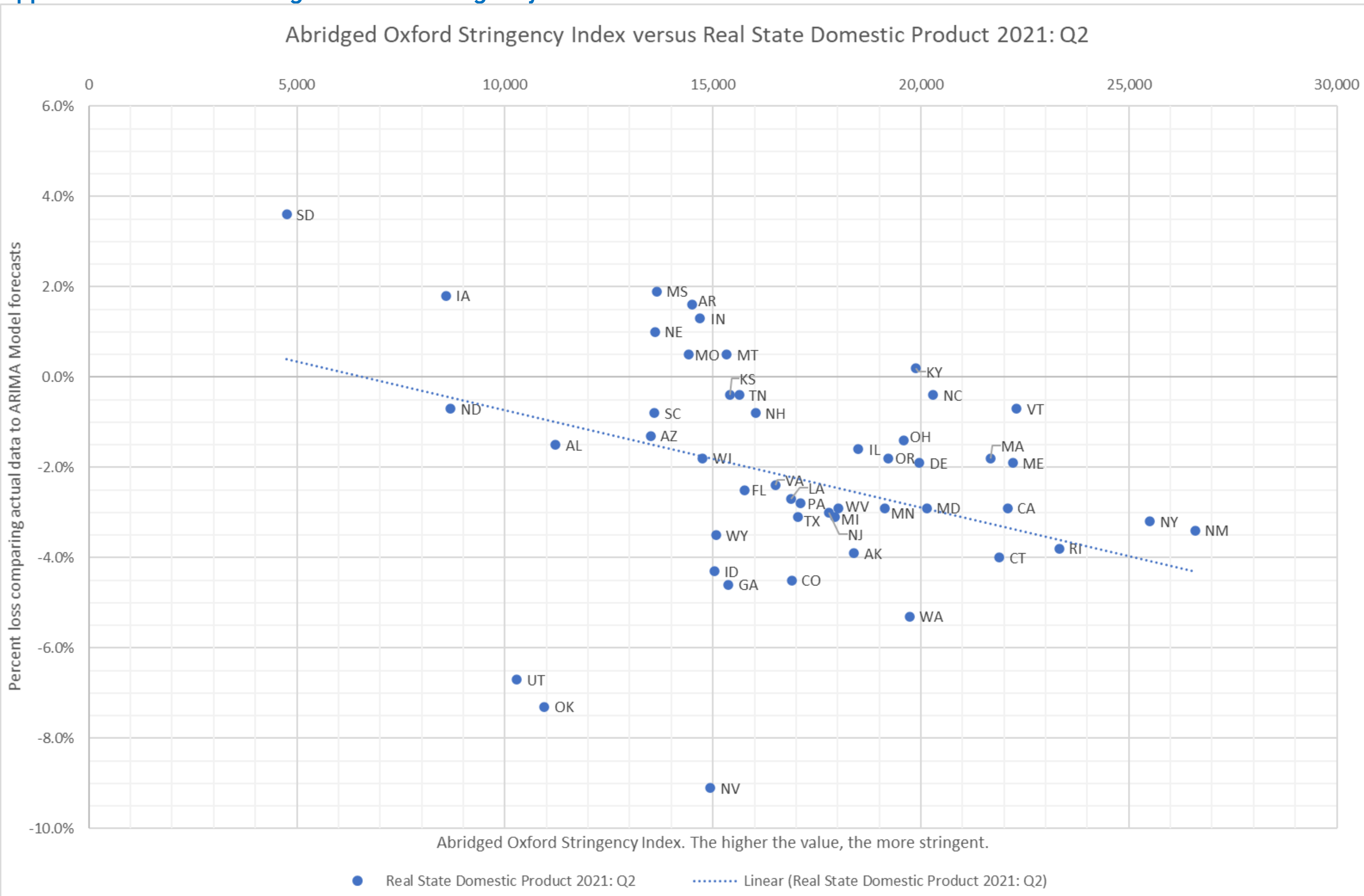
Appendix B14: Chart Government Severity Index vs State Real GDP 2021:Q2



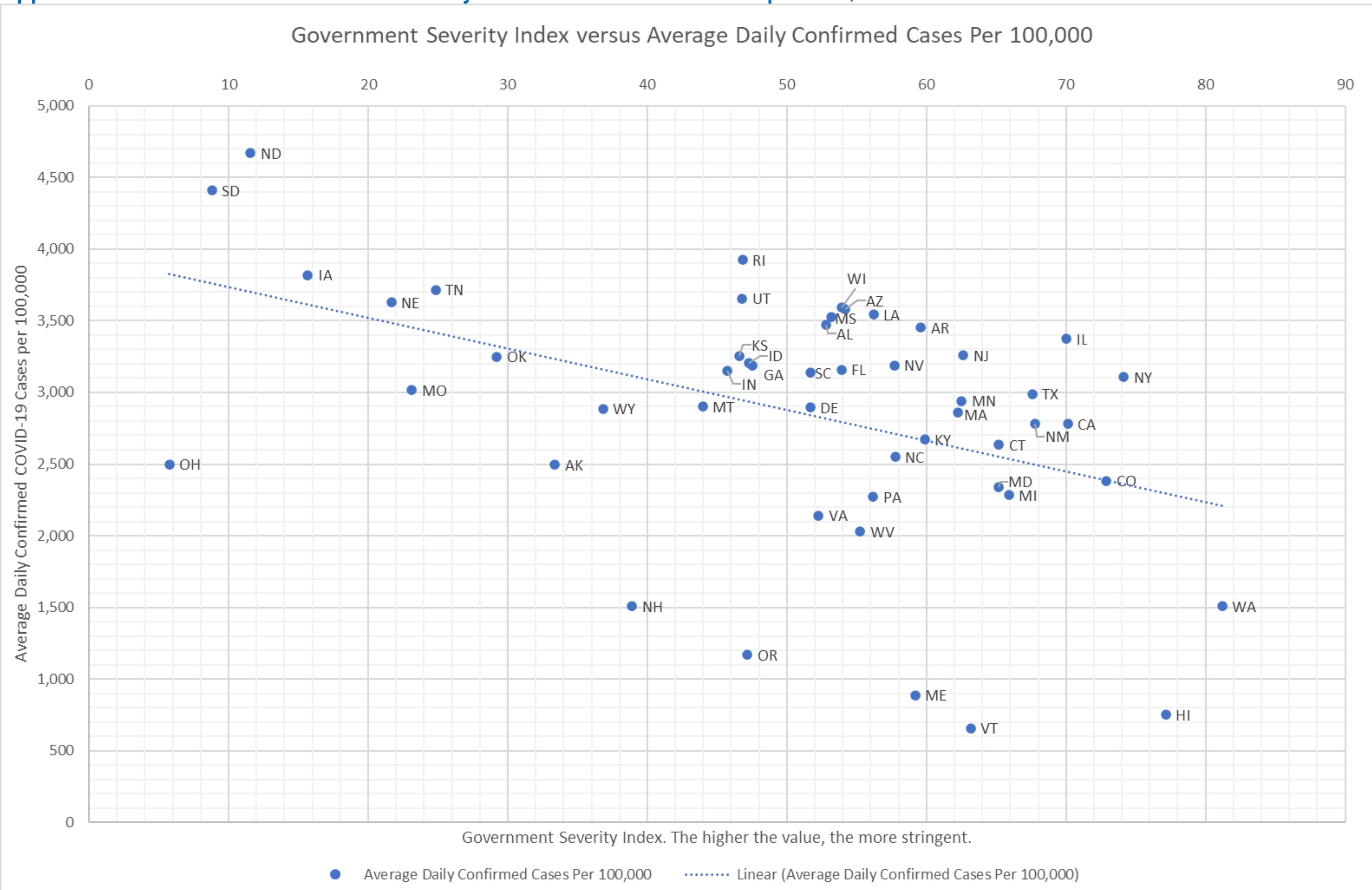
Appendix B15: Chart Abridged Oxford Stringency Index vs State Real GDP 2021:Q1



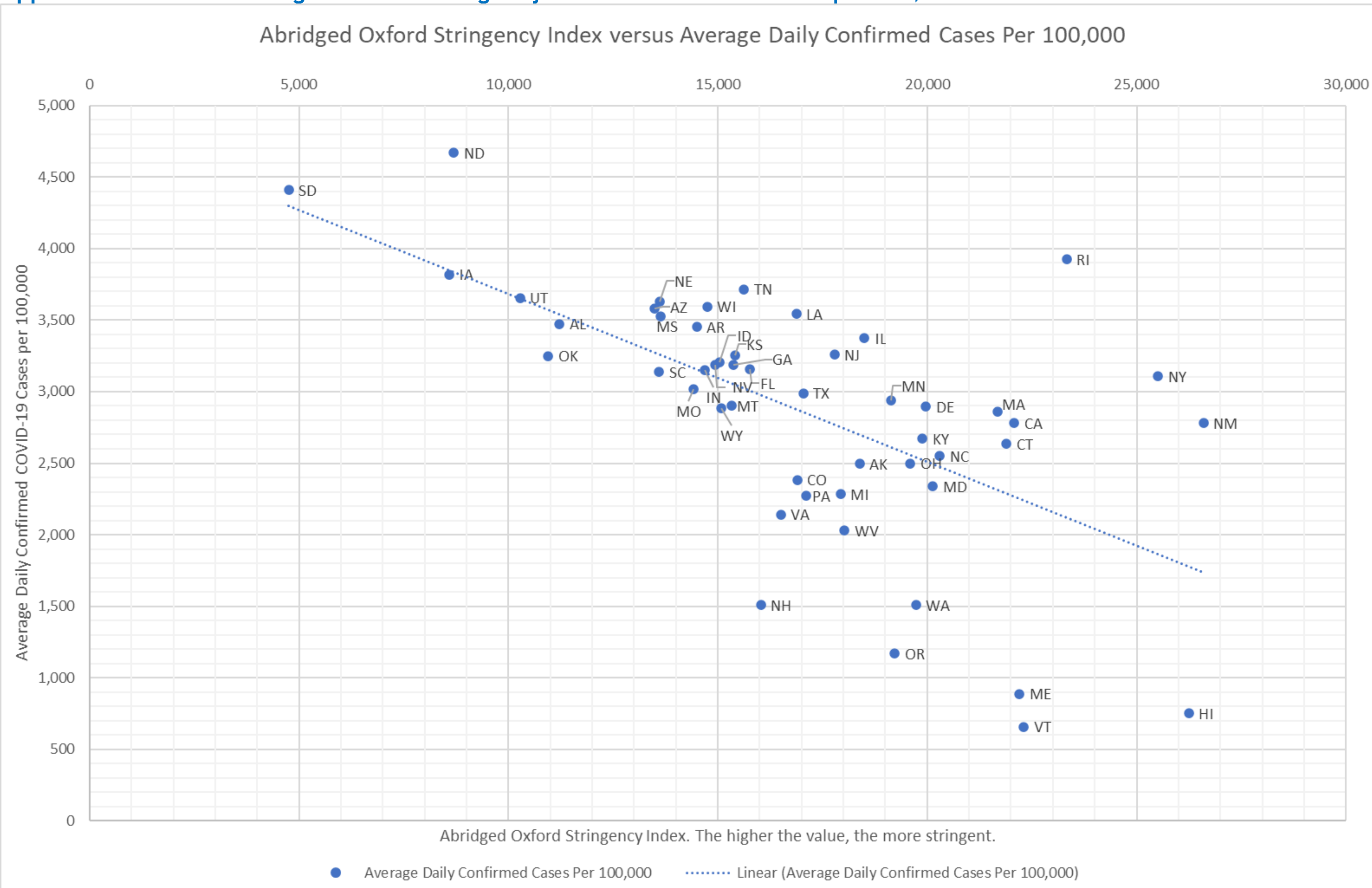
Appendix B16: Chart Abridged Oxford Stringency Index vs State Real GDP 2021:Q2



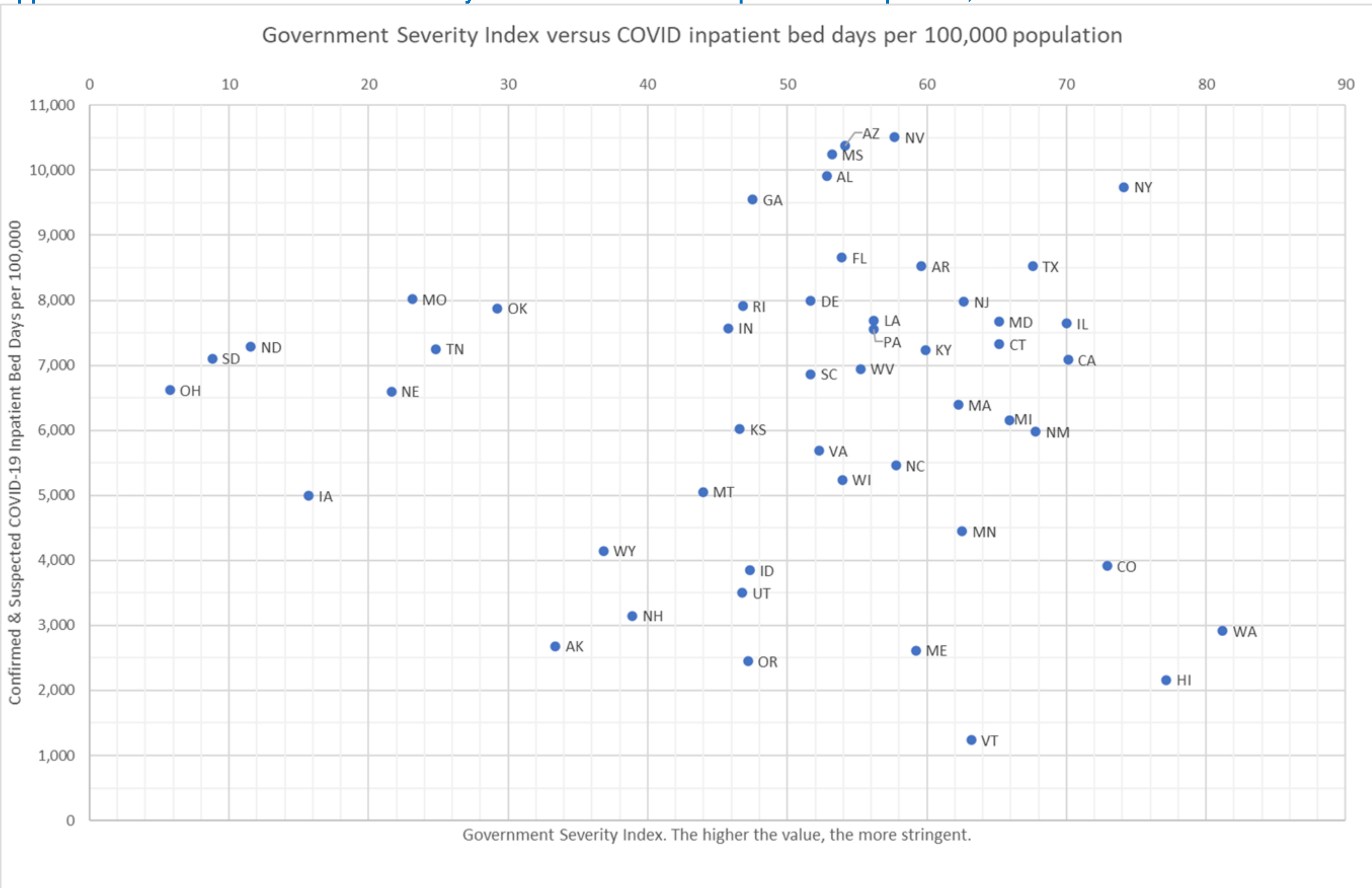
Appendix B17: Chart Government Severity Index vs COVID-19 Cases per 100,000



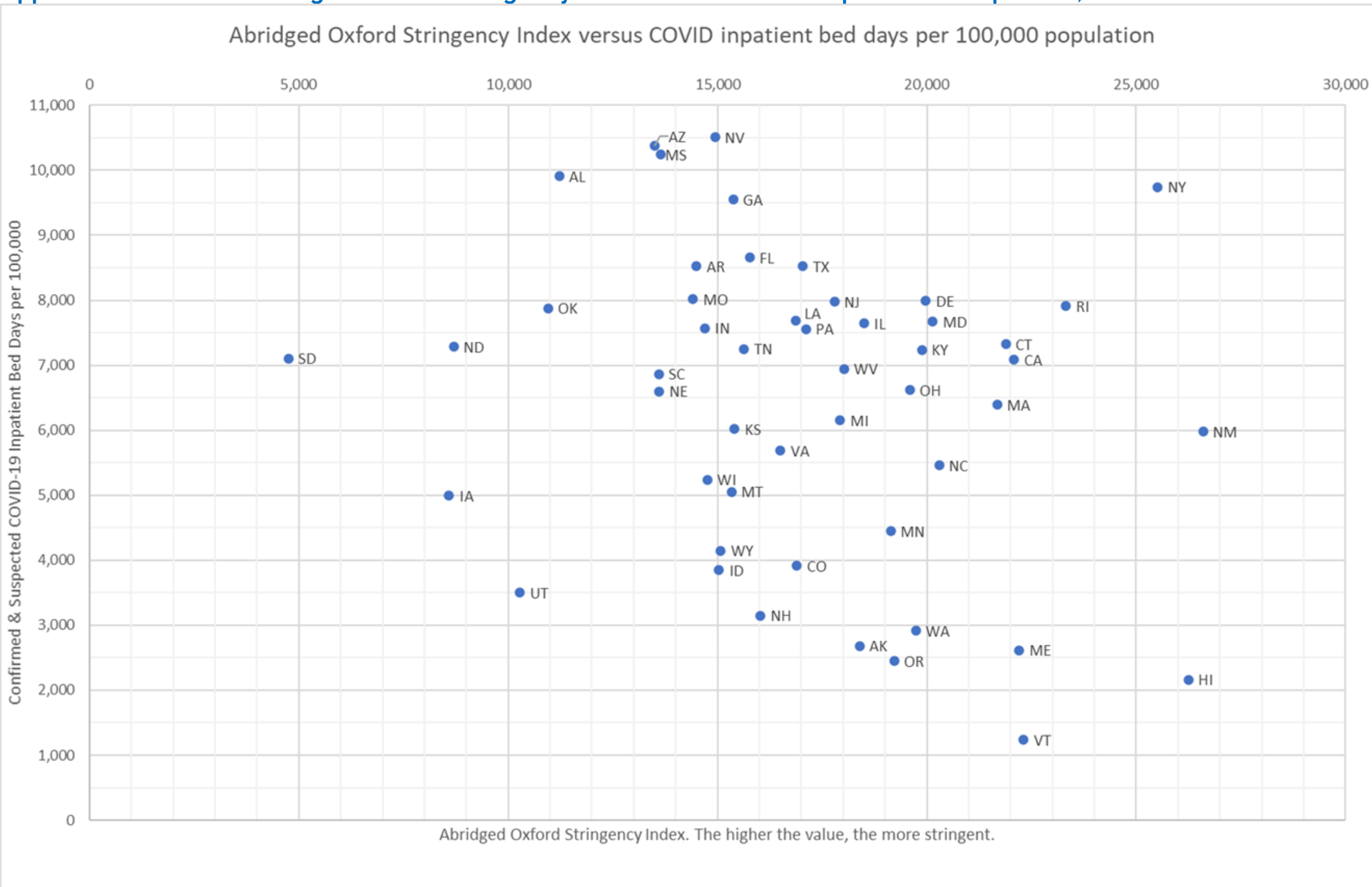
Appendix B18: Chart Abridged Oxford Stringency Index vs COVID-19 Cases per 100,000



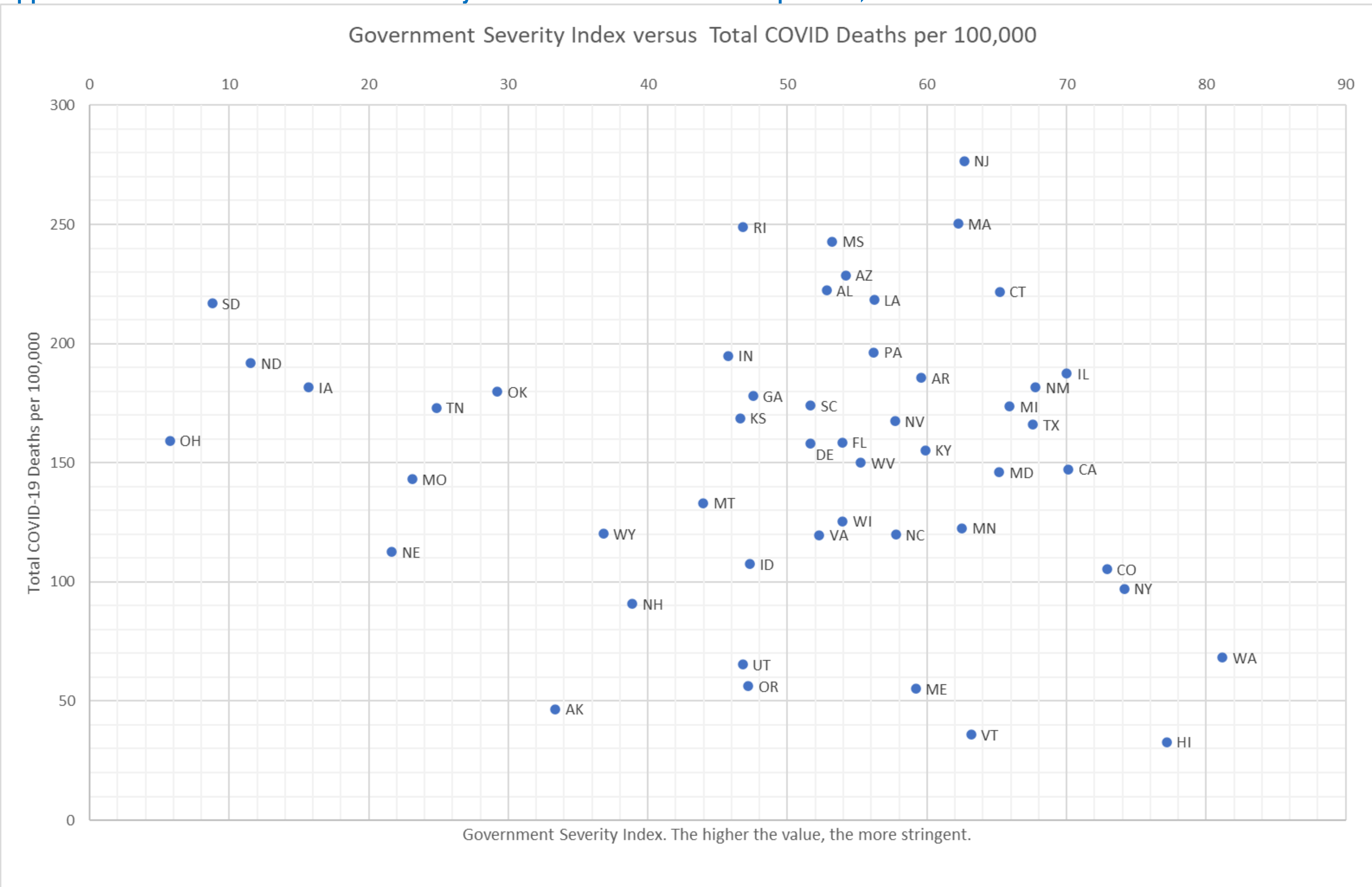
Appendix B19: Chart Government Severity Index vs COVID-19 Hospitalizations per 100,000



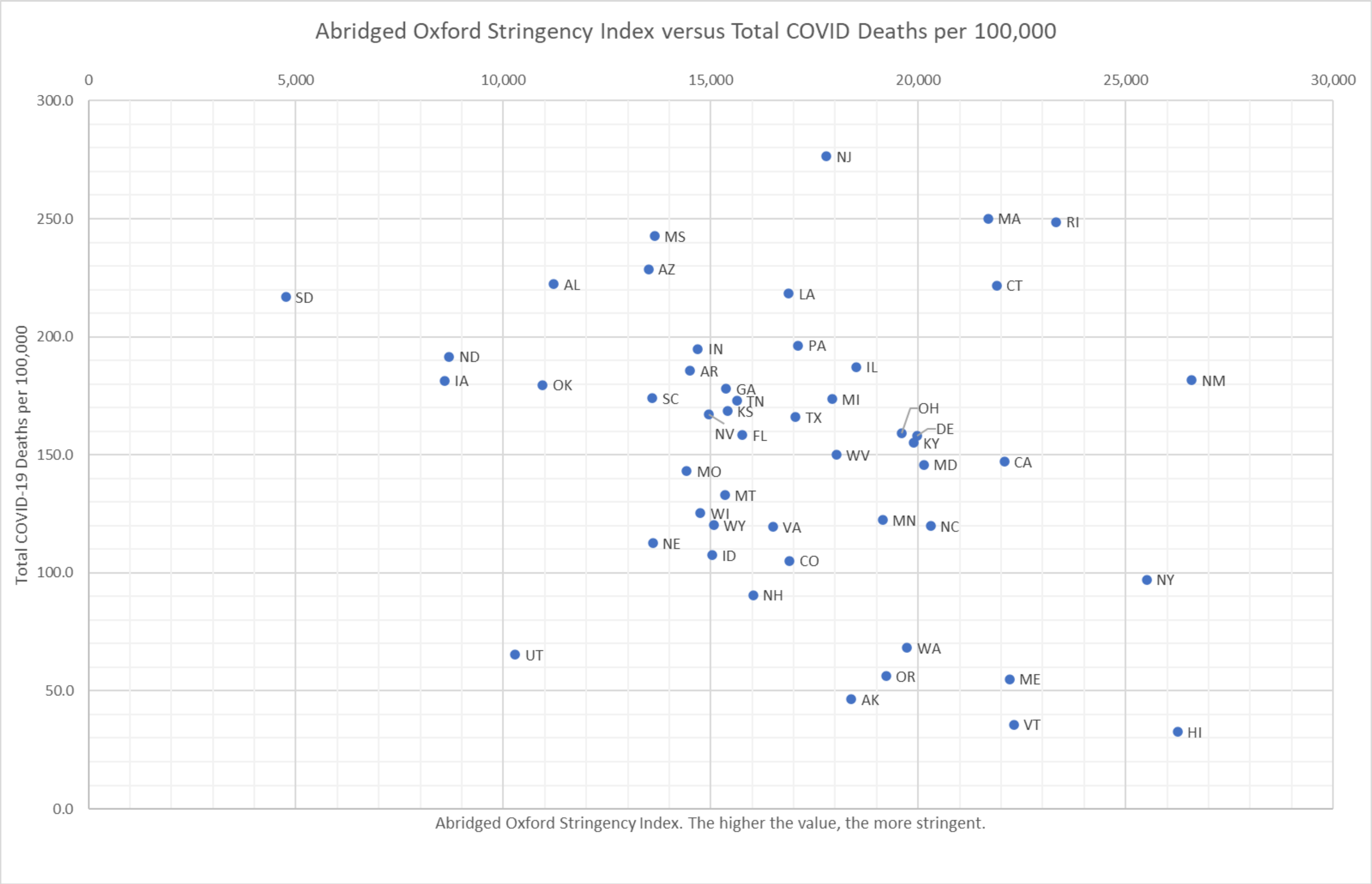
Appendix B20: Chart Abridged Oxford Stringency Index vs COVID-19 Hospitalizations per 100,000



Appendix B21: Chart Government Severity Index vs COVID-19 Deaths per 100,000



Appendix B22: Chart Abridged Oxford Stringency Index vs COVID-19 Deaths per 100,000



APPPENDIXES C: MEASURING GOVERNMENTAL RESPONSES

Appendix C1: Government Severity Index Scoring Scale

Indicator Description	Scale	Scaling Description
School closures	0	no measures
School closures	1	recommend closing or all schools open with alterations resulting in significant differences compared to non-Covid-19 operations
School closures	2	require closing (only some levels or categories, e.g., just high school, or just public schools)
School closures	3	require closing all levels
School closures		Blank = no data
Workplace closures	0	no measures
Workplace closures	1	recommend closing (or recommend work from home)
Workplace closures	2	require closing (or work from home) for some sectors or categories of workers
Workplace closures	3	require closing (or work from home) for all-but-essential workplaces (e.g., grocery stores, doctors)
Workplace closures		Blank = no data
Gathering restrictions	0	no restrictions
Gathering restrictions	1	restrictions on very large gatherings (the limit is above 1000 people) or limits capacity from 76% to 99%
Gathering restrictions	2	restrictions on gatherings between 101-1000 people or limits from 51% to 75% capacity
Gathering restrictions	3	restrictions on gatherings between 11-100 people or limits from 26% to 50% capacity
Gathering restrictions	4	restrictions on gatherings of 10 people or less or limits from 1% to 25% capacity
Gathering Restrictions		Blank = no data
Capacity Limits	0	no restrictions
Capacity Limits	1	limits to 76% to 99% capacity
Capacity Limits	2	limits from 51% to 75% capacity
Capacity Limits	3	limits from 26% to 50% capacity
Capacity Limits	4	limits from 1% to 25% capacity
Capacity Limits		Blank = no data
Stay at home mandates	0	no measures
Stay at home mandates	1	recommend not leaving house
Stay at home mandates	2	require not leaving house with exceptions for daily exercise, grocery shopping, and 'essential' trips
Stay at home mandates	3	require not leaving house with minimal exceptions (e.g., allowed to leave once a week, or only one person can leave at a time, etc.)
Stay at home mandates		Blank = no data

Appendix C2: Oxford Stringency Index Scoring Scale

The following table is extracted directly from the Blavatnik School of Government, Oxford University, COVID-19 Policy Responses Project.

Code	Name	Description	Measurement	Scaling
C1	C1_School closing	Record closings of schools and universities	Ordinal scale	0 - no measures 1 - recommend closing or all schools open with alterations resulting in significant differences compared to non-Covid-19 operations 2 - require closing (only some levels or categories, eg just high school, or just public schools) 3 - require closing all levels Blank - no data
	C1_Flag		Binary flag for geographic scope	0 - targeted 1- general Blank - no data
C2	C2_Workplace closing	Record closings of workplaces	Ordinal scale	0 - no measures 1 - recommend closing (or recommend work from home) or all businesses open with alterations resulting in significant differences compared to non-Covid-19 operation 2 - require closing (or work from home) for some sectors or categories of workers 3 - require closing (or work from home) for all-but-essential workplaces (eg grocery stores, doctors) Blank - no data
	C2_Flag		Binary flag for geographic scope	0 - targeted 1- general Blank - no data
C3	C3_Cancel public events	Record cancelling public events	Ordinal scale	0 - no measures 1 - recommend cancelling 2 - require cancelling Blank - no data
	C3_Flag		Binary flag for geographic scope	0 - targeted 1- general Blank - no data
C4	C4_Restrictions on gatherings	Record limits on gatherings	Ordinal scale	0 - no restrictions 1 - restrictions on very large gatherings (the limit is above 1000 people) 2 - restrictions on gatherings between 101-1000 people 3 - restrictions on gatherings between 11-100 people 4 - restrictions on gatherings of 10 people or less Blank - no data
	C4_Flag		Binary flag for geographic scope	0 - targeted 1- general Blank - no data
C5	C5_Close public transport	Record closing of public transport	Ordinal scale	0 - no measures 1 - recommend closing (or significantly reduce volume/route/means of transport available) 2 - require closing (or prohibit most citizens from using it) Blank - no data
	C5_Flag		Binary flag for geographic scope	0 - targeted 1- general Blank - no data

Continued on next page

Code	Name	Description	Measurement	Scaling
C6	C6_Stay at home requirements	Record orders to "shelter-in-place" and otherwise confine to the home	Ordinal scale	0 - no measures 1 - recommend not leaving house 2 - require not leaving house with exceptions for daily exercise, grocery shopping, and 'essential' trips 3 - require not leaving house with minimal exceptions (eg allowed to leave once a week, or only one person can leave at a time, etc) Blank - no data
	C6_Flag		Binary flag for geographic scope	0 - targeted 1- general Blank - no data
C7	C7_Restrictions on internal movement	Record restrictions on internal movement between	Ordinal scale	0 - no measures 1 - recommend not to travel between regions/cities 2 - internal movement restrictions in place Blank - no data
	C7_Flag		Binary flag for geographic scope	0 - targeted 1- general Blank - no data
C8	C8_International travel controls	Record restrictions on international travel Note: this records policy for foreign travellers, not citizens	Ordinal scale	0 - no restrictions 1 - screening arrivals 2 - quarantine arrivals from some or all regions 3 - ban arrivals from some regions 4 - ban on all regions or total border closure Blank - no data
H1	H1_Public information campaigns	Record presence of public info campaigns	Ordinal scale	0 - no Covid-19 public information campaign 1 - public officials urging caution about Covid-19 2- coordinated public information campaign (eg across traditional and social media) Blank - no data
	H1_Flag		Binary flag for geographic scope	0 - targeted 1- general Blank - no data

Source: Codebook for the Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, Oxford University: https://github.com/OxCGRT/covid-policy-tracker/blob/master/documentation/codebook.md, downloaded July 15, 2021.

Appendix C3: Governmental Response Indexes Results

Time period is from March 1, 2020 to March 31, 2021.

Government Severity Index				Abridged Oxford Stringency Index			
State	Total Severity Score	Average Daily Score	Rank	State	Total Stringency Score	Average Daily Score	Rank
Washington	32,145	81.17	1	New Mexico	26,598	67.15	1
Hawaii	30,555	77.16	2	Hawaii	26,250	66.29	2
New York	29,350	74.12	3	New York	25,508	64.41	3
Colorado	28,870	72.90	4	Rhode Island	23,325	58.90	4
California	27,772	70.13	5	Vermont	22,306	56.33	5
Illinois	27,721	70.00	6	Maine	22,204	56.07	6
New Mexico	26,840	67.78	7	California	22,080	55.76	7
Texas	26,762	67.58	8	Connecticut	21,887	55.27	8
Michigan	26,100	65.91	9	Massachusetts	21,680	54.75	9
Connecticut	25,818	65.20	10	North Carolina	20,296	51.25	10
Maryland	25,803	65.16	11	Maryland	20,136	50.85	11
Vermont	25,016	63.17	12	Delaware	19,968	50.42	12
New Jersey	24,810	62.65	13	Kentucky	19,883	50.21	13
Minnesota	24,758	62.52	14	Washington	19,731	49.83	14
Massachusetts	24,648	62.24	15	Ohio	19,592	49.48	15
Kentucky	23,713	59.88	16	Oregon	19,223	48.54	16
Arkansas	23,603	59.60	17	Minnesota	19,141	48.34	17
Maine	23,441	59.20	18	Illinois	18,499	46.72	18
North Carolina	22,878	57.77	19	Alaska	18,389	46.44	19
Nevada	22,844	57.69	20	West Virginia	18,024	45.51	20
Louisiana	22,257	56.21	21	Michigan	17,928	45.27	21
Pennsylvania	22,249	56.18	22	New Jersey	17,788	44.92	22
West Virginia	21,880	55.25	23	Pennsylvania	17,111	43.21	23
Arizona	21,448	54.16	24	Texas	17,040	43.03	24
Wisconsin	21,364	53.95	25	Colorado	16,897	42.67	25
Florida	21,349	53.91	26	Louisiana	16,875	42.61	26
Mississippi	21,067	53.20	27	Virginia	16,498	41.66	27
Alabama	20,913	52.81	28	New Hampshire	16,024	40.46	28
Virginia	20,698	52.27	29	Florida	15,764	39.81	29
South Carolina	20,461	51.67	30	Tennessee	15,629	39.47	30
Delaware	20,459	51.66	31	Kansas	15,406	38.90	31
Georgia	18,821	47.53	32	Georgia	15,375	38.83	32
Idaho	18,725	47.29	33	Montana	15,336	38.73	33
Oregon	18,683	47.18	34	Wyoming	15,076	38.07	34
Rhode Island	18,539	46.82	35	Idaho	15,033	37.96	35
Utah	18,528	46.79	36	Nevada	14,942	37.73	36
Kansas	18,454	46.60	37	Wisconsin	14,750	37.25	37
Indiana	18,114	45.74	38	Indiana	14,691	37.10	38
Montana	17,409	43.96	39	Arkansas	14,501	36.62	39
New Hampshire	15,405	38.90	40	Missouri	14,416	36.40	40
Wyoming	14,580	36.82	41	Mississippi	13,642	34.45	41
Alaska	13,219	33.38	42	Nebraska	13,605	34.36	42
Oklahoma	11,570	29.22	43	South Carolina	13,596	34.33	43
Tennessee	9,838	24.84	44	Arizona	13,498	34.09	44
Missouri	9,155	23.12	45	Alabama	11,219	28.33	45
Nebraska	8,574	21.65	46	Oklahoma	10,950	27.65	46
Iowa	6,208	15.68	47	Utah	10,282	25.97	47
North Dakota	4,580	11.56	48	North Dakota	8,694	21.96	48
South Dakota	3,480	8.79	49	Iowa	8,585	21.68	49
Ohio	2,280	5.76	50	South Dakota	4,756	12.01	50

APPENDIXES D: CONFOUNDING VARIABLES

Appendix D1: Industrial Sector Confounding Variables

Proportion (decimal) of industrial sector to overview State Real GDP for Calendar Year 2019

Code 75 = Arts, entertainment, recreation, accommodation, and food services

Code 3 = Agriculture, forestry, fishing and hunting; Code 1 = All industries

Geographical Area		Industry Codes (In millions $)			Proportion Industry	
GeoFips	GeoName	75	3	1	75	3
01000	Alabama	5,625.8	2,618.1	200,829.4	0.028	0.013
02000	Alaska	1,570.3	358.1	53,255.2	0.029	0.007
04000	Arizona	14,151.9	3,788.3	323,597.6	0.044	0.012
05000	Arkansas	3,665.0	2,649.4	117,447.1	0.031	0.023
06000	California	112,663.1	51,797.2	2,800,505.4	0.040	0.018
08000	Colorado	16,262.4	4,242.4	356,280.2	0.046	0.012
09000	Connecticut	7,667.7	542.3	251,329.8	0.031	0.002
10000	Delaware	1,766.2	739.8	64,319.3	0.027	0.012
12000	Florida	54,162.8	8,325.4	963,255.9	0.056	0.009
13000	Georgia	16,934.1	4,918.0	547,422.7	0.031	0.009
15000	Hawaii	8,689.4	573.0	82,471.4	0.105	0.007
16000	Idaho	2,725.6	5,926.5	74,937.1	0.036	0.079
17000	Illinois	29,041.2	7,431.5	773,135.5	0.038	0.010
18000	Indiana	11,653.9	4,909.7	337,636.1	0.035	0.015
19000	Iowa	4,552.7	13,370.1	173,515.4	0.026	0.077
20000	Kansas	4,219.6	7,314.3	160,059.3	0.026	0.046
21000	Kentucky	6,288.5	3,955.2	190,811.5	0.033	0.021
22000	Louisiana	9,205.2	2,119.9	239,967.2	0.038	0.009
23000	Maine	3,078.5	977.4	58,793.3	0.052	0.017
24000	Maryland	13,349.4	1,374.8	374,039.3	0.036	0.004
25000	Massachusetts	20,341.5	815.2	519,961.6	0.039	0.002
26000	Michigan	15,369.4	4,343.8	471,648.1	0.033	0.009
27000	Minnesota	10,578.3	7,913.5	341,041.4	0.031	0.023
28000	Mississippi	4,238.1	2,866.1	102,656.4	0.041	0.028
29000	Missouri	11,065.5	4,664.0	287,659.3	0.038	0.016
30000	Montana	2,167.5	2,856.2	47,916.3	0.045	0.060
31000	Nebraska	2,896.3	9,526.4	117,395.2	0.025	0.081
32000	Nevada	23,370.7	558.2	153,728.6	0.152	0.004
33000	New Hampshire	3,870.3	252.4	77,240.3	0.050	0.003
34000	New Jersey	17,396.3	1,291.4	556,731.0	0.031	0.002
35000	New Mexico	3,570.5	2,219.9	98,765.7	0.036	0.022
36000	New York	66,901.5	4,280.7	1,490,678.5	0.045	0.003
37000	North Carolina	18,150.1	5,470.6	511,539.9	0.035	0.011
38000	North Dakota	1,287.0	4,069.8	53,930.2	0.024	0.075
39000	Ohio	20,477.6	4,458.5	615,474.4	0.033	0.007
40000	Oklahoma	5,674.6	4,140.2	197,900.4	0.029	0.021
41000	Oregon	8,976.3	5,381.1	225,336.8	0.040	0.024
42000	Pennsylvania	23,315.8	4,893.0	726,165.9	0.032	0.007
44000	Rhode Island	2,558.2	120.5	53,668.0	0.048	0.002
45000	South Carolina	9,674.7	1,331.3	214,933.7	0.045	0.006
46000	South Dakota	1,673.2	5,001.7	47,559.7	0.035	0.105
47000	Tennessee	17,787.6	1,918.8	328,406.3	0.054	0.006
48000	Texas	50,633.4	13,521.9	1,764,357.2	0.029	0.008
49000	Utah	5,527.9	1,510.2	168,792.7	0.033	0.009
50000	Vermont	1,873.0	647.2	29,806.2	0.063	0.022
51000	Virginia	15,110.2	2,266.9	489,168.4	0.031	0.005
53000	Washington	18,550.2	10,099.8	548,686.7	0.034	0.018
54000	West Virginia	2,453.4	448.6	72,340.4	0.034	0.006
55000	Wisconsin	8,952.2	7,182.4	308,044.7	0.029	0.023
56000	Wyoming	1,368.8	1,084.4	39,214.0	0.035	0.028

Date Source: Real State Gross Domestic Product, Bureau of Economic Analysis for Calendar Year 2019: Interactive tables: https://www.bea.gov/data/gdp/gdp-state.

Appendix D2: Population Density Confounding Variable

Population Density using total land area per state and estimated population for July 1, 2020

State	Land Area (Sq. Miles)	Population Estimate July 1, 2020	Population Density
Alabama	50,645	4,921,532	97.2
Alaska	570,641	731,158	1.3
Arizona	113,594	7,421,401	65.3
Arkansas	52,035	3,030,522	58.2
California	155,779	39,368,078	252.7
Colorado	103,642	5,807,719	56.0
Connecticut	4,842	3,557,006	734.6
Delaware	1,949	986,809	506.3
Florida	53,625	21,733,312	405.3
Georgia	57,513	10,710,017	186.2
Hawaii	6,423	1,407,006	219.1
Idaho	82,643	1,826,913	22.1
Illinois	55,519	12,587,530	226.7
Indiana	35,826	6,754,953	188.5
Iowa	55,857	3,163,561	56.6
Kansas	81,759	2,913,805	35.6
Kentucky	39,486	4,477,251	113.4
Louisiana	43,204	4,645,318	107.5
Maine	30,843	1,350,141	43.8
Maryland	9,707	6,055,802	623.9
Massachusetts	7,800	6,893,574	883.8
Michigan	56,539	9,966,555	176.3
Minnesota	79,627	5,657,342	71.0
Mississippi	46,923	2,966,786	63.2
Missouri	68,742	6,151,548	89.5
Montana	145,546	1,080,577	7.4
Nebraska	76,824	1,937,552	25.2
Nevada	109,781	3,138,259	28.6
New Hampshire	8,953	1,366,275	152.6
New Jersey	7,354	8,882,371	1,207.8
New Mexico	121,298	2,106,319	17.4
New York	47,126	19,336,776	410.3
North Carolina	48,618	10,600,823	218.0
North Dakota	69,001	765,309	11.1
Ohio	40,861	11,693,217	286.2
Oklahoma	68,595	3,980,783	58.0
Oregon	95,988	4,241,507	44.2
Pennsylvania	44,743	12,783,254	285.7
Rhode Island	1,034	1,057,125	1,022.4
South Carolina	30,061	5,218,040	173.6
South Dakota	75,811	892,717	11.8
Tennessee	41,235	6,886,834	167.0
Texas	261,232	29,360,759	112.4
Utah	82,170	3,249,879	39.6
Vermont	9,217	623,347	67.6
Virginia	39,490	8,590,563	217.5
Washington	66,456	7,693,612	115.8
West Virginia	24,038	1,784,787	74.2
Wisconsin	54,158	5,832,655	107.7
Wyoming	97,093	582,328	6.0

Sources: Land area data source: State Area Measurements and Internal Point Coordinates, U.S. Census Bureau: https://www.census.gov/geographies/reference-files/2010/geo/state-area.html and State Population Totals: 2010-2020, U.S. Census Bureau: https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx.

Appendix D3: COVID-19 Prevalence Confounding Variable

Average daily confirmed cases per 100,000 population from January 1, 2020 to March 31, 2021

State	Confirmed Cases Days	Average Confirmed Cases Per Day	Population July 1, 2020	Percent Population	Average Daily Confirmed Cases Per 100,000 Population
Alabama	74,353,114	170,927	4,921,532	3.47%	3,473
Alaska	7,935,021	18,241	731,158	2.49%	2,495
Arizona	115,512,762	265,547	7,421,401	3.58%	3,578
Arkansas	45,506,072	104,612	3,030,522	3.45%	3,452
California	476,368,708	1,095,100	39,368,078	2.78%	2,782
Colorado	60,191,913	138,372	5,807,719	2.38%	2,383
Connecticut	40,765,472	93,714	3,557,006	2.63%	2,635
Delaware	12,422,326	28,557	986,809	2.89%	2,894
Florida	298,671,708	686,602	21,733,312	3.16%	3,159
Georgia	148,532,830	341,455	10,710,017	3.19%	3,188
Hawaii	4,600,059	10,575	1,407,006	0.75%	752
Idaho	25,464,101	58,538	1,826,913	3.20%	3,204
Illinois	184,769,589	424,758	12,587,530	3.37%	3,374
Indiana	92,507,039	212,660	6,754,953	3.15%	3,148
Iowa	52,543,972	120,791	3,163,561	3.82%	3,818
Kansas	41,256,936	94,844	2,913,805	3.25%	3,255
Kentucky	52,045,444	119,645	4,477,251	2.67%	2,672
Louisiana	71,612,346	164,626	4,645,318	3.54%	3,544
Maine	5,220,646	12,001	1,350,141	0.89%	889
Maryland	61,605,977	141,623	6,055,802	2.34%	2,339
Massachusetts	85,781,219	197,198	6,893,574	2.86%	2,861
Michigan	99,070,345	227,748	9,966,555	2.29%	2,285
Minnesota	72,352,841	166,328	5,657,342	2.94%	2,940
Mississippi	45,546,670	104,705	2,966,786	3.53%	3,529
Missouri	80,713,698	185,549	6,151,548	3.02%	3,016
Montana	13,634,603	31,344	1,080,577	2.90%	2,901
Nebraska	30,572,891	70,283	1,937,552	3.63%	3,627
Nevada	43,533,505	100,077	3,138,259	3.19%	3,189
New Hampshire	8,957,712	20,592	1,366,275	1.51%	1,507
New Jersey	125,837,396	289,281	8,882,371	3.26%	3,257
New Mexico	25,473,437	58,560	2,106,319	2.78%	2,780
New York	261,553,244	601,272	19,336,776	3.11%	3,109
North Carolina	117,553,546	270,238	10,600,823	2.55%	2,549
North Dakota	15,542,684	35,730	765,309	4.67%	4,669
Ohio	127,087,478	292,155	11,693,217	2.50%	2,499
Oklahoma	56,256,334	129,325	3,980,783	3.25%	3,249
Oregon	21,553,329	49,548	4,241,507	1.17%	1,168
Pennsylvania	126,363,012	290,490	12,783,254	2.27%	2,272
Rhode Island	18,044,375	41,481	1,057,125	3.92%	3,924
South Carolina	71,258,912	163,814	5,218,040	3.14%	3,139
South Dakota	17,119,323	39,355	892,717	4.41%	4,408
Tennessee	111,310,334	255,886	6,886,834	3.72%	3,716
Texas	381,837,841	877,788	29,360,759	2.99%	2,990
Utah	51,680,836	118,807	3,249,879	3.66%	3,656
Vermont	1,780,304	4,093	623,347	0.66%	657
Virginia	80,052,412	184,029	8,590,563	2.14%	2,142
Washington	50,470,235	116,024	7,693,612	1.51%	1,508
West Virginia	15,770,484	36,254	1,784,787	2.03%	2,031
Wisconsin	91,182,748	209,616	5,832,655	3.59%	3,594
Wyoming	7,307,539	16,799	582,328	2.88%	2,885

Sources: John Hopkins University of Medicine, Coronavirus Resource Center, covid-19 cases time series: Covid-19/csse_covid_19_data at master · CSSEGISandData/Covid-19 · GitHub, and State Population Totals: 2010-2020, U.S. Census Bureau: https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx.

Appendix D4: COVID-19 Severity Confounding Variable

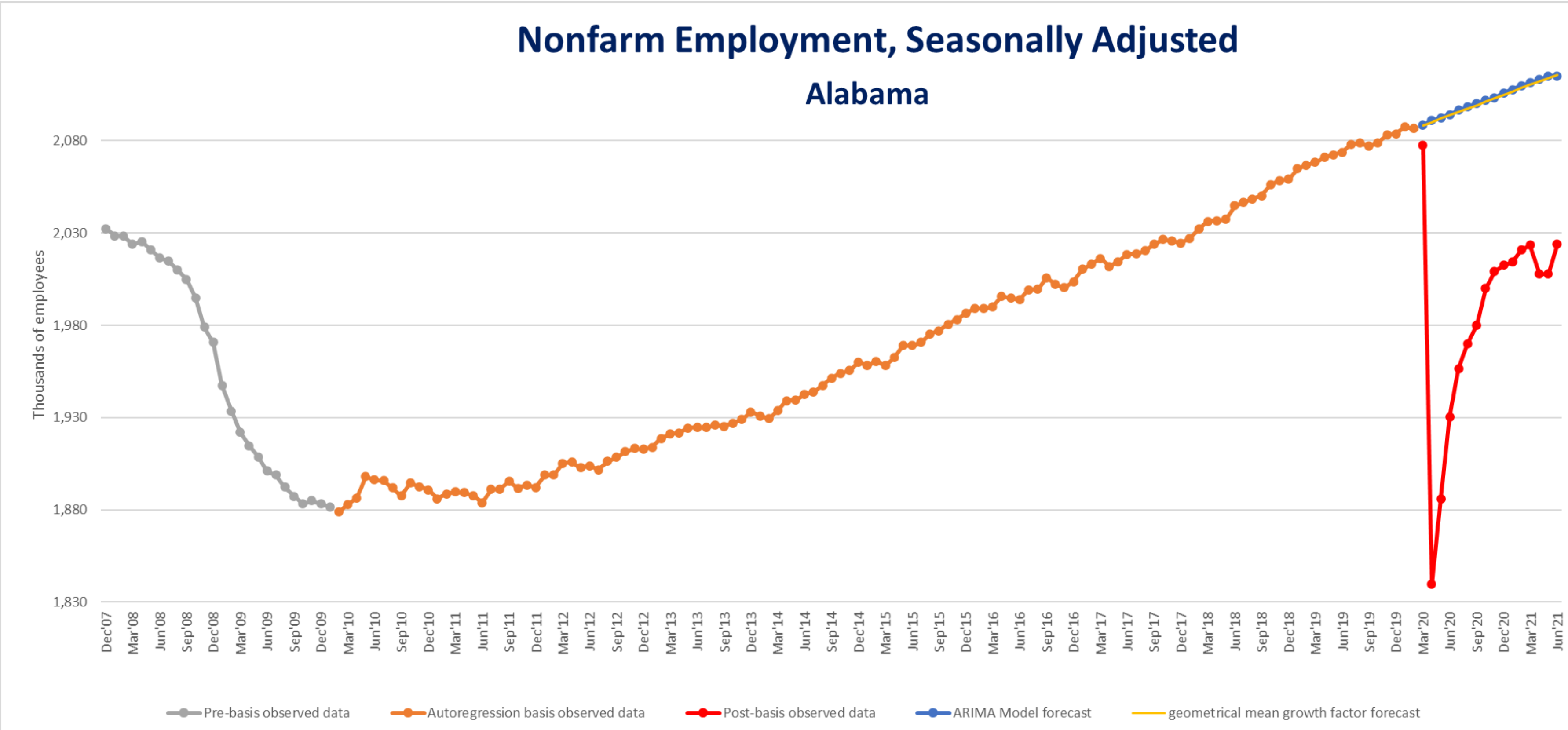
Daily covid inpatient bed days per 100,000 population March 1, 2020 to March 31, 2021

State	Total Inpatient Beds Used	Average Inpatient Beds Used Per Day	Population July 1, 2021	Covid inpatient bed days per 100,000 population
Alaska	19,608	49.5	731,158	2,682
Alabama	487,776	1,231.8	4,921,532	9,911
Arkansas	258,229	652.1	3,030,522	8,521
Arizona	770,446	1,945.6	7,421,401	10,381
California	2,788,719	7,042.2	39,368,078	7,084
Colorado	227,229	573.8	5,807,719	3,913
Connecticut	260,643	658.2	3,557,006	7,328
Delaware	78,877	199.2	986,809	7,993
Florida	1,880,926	4,749.8	21,733,312	8,655
Georgia	1,022,449	2,581.9	10,710,017	9,547
Hawaii	30,431	76.8	1,407,006	2,163
Iowa	157,958	398.9	3,163,561	4,993
Idaho	70,320	177.6	1,826,913	3,849
Illinois	962,647	2,430.9	12,587,530	7,648
Indiana	511,493	1,291.6	6,754,953	7,572
Kansas	175,489	443.2	2,913,805	6,023
Kentucky	323,965	818.1	4,477,251	7,236
Louisiana	357,163	901.9	4,645,318	7,689
Massachusetts	440,454	1,112.3	6,893,574	6,389
Maryland	464,486	1,172.9	6,055,802	7,670
Maine	35,327	89.2	1,350,141	2,617
Michigan	612,906	1,547.7	9,966,555	6,150
Minnesota	251,816	635.9	5,657,342	4,451
Missouri	493,081	1,245.2	6,151,548	8,016
Mississippi	303,962	767.6	2,966,786	10,245
Montana	54,629	138.0	1,080,577	5,056
North Carolina	578,460	1,460.8	10,600,823	5,457
North Dakota	55,786	140.9	765,309	7,289
Nebraska	127,875	322.9	1,937,552	6,600
New Hampshire	43,034	108.7	1,366,275	3,150
New Jersey	708,392	1,788.9	8,882,371	7,975
New Mexico	126,015	318.2	2,106,319	5,983
Nevada	329,912	833.1	3,138,259	10,513
New York	1,884,200	4,758.1	19,336,776	9,744
Ohio	773,838	1,954.1	11,693,217	6,618
Oklahoma	313,563	791.8	3,980,783	7,877
Oregon	103,917	262.4	4,241,507	2,450
Pennsylvania	966,472	2,440.6	12,783,254	7,560
Rhode Island	83,595	211.1	1,057,125	7,908
South Carolina	358,395	905.0	5,218,040	6,868
South Dakota	63,417	160.1	892,717	7,104
Tennessee	499,477	1,261.3	6,886,834	7,253
Texas	2,503,773	6,322.7	29,360,759	8,528
Utah	113,795	287.4	3,249,879	3,502
Virginia	488,621	1,233.9	8,590,563	5,688
Vermont	7,727	19.5	623,347	1,240
Washington	224,228	566.2	7,693,612	2,914
Wisconsin	305,688	771.9	5,832,655	5,241
West Virginia	123,950	313.0	1,784,787	6,945
Wyoming	24,153	61.0	582,328	4,148

Sources: COVID-19 Reported Patient Impact and Hospital Capacity by State Timeseries, U.S. Department of Health and Human Services: https://beta.healthdata.gov/Hospital/Covid-19-Reported-Patient-Impact-and-Hospital-Capa/g62h-syeh, and State Population Totals: 2010-2020, U.S. Census Bureau: https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx.

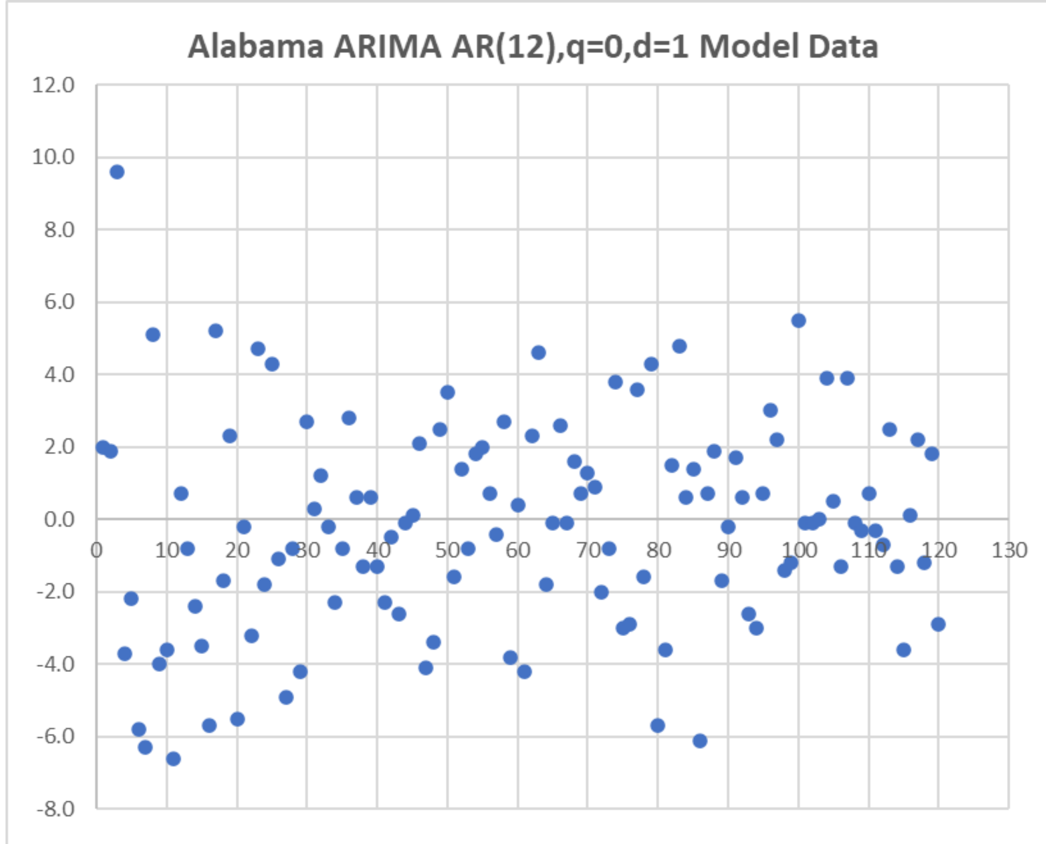
APPENDIXES E: DEPENDENT VARIABLE ARIMA MODEL FORECASTS BY STATE

Appendix E1: Alabama Nonfarm Employment ARIMA Model Forecast

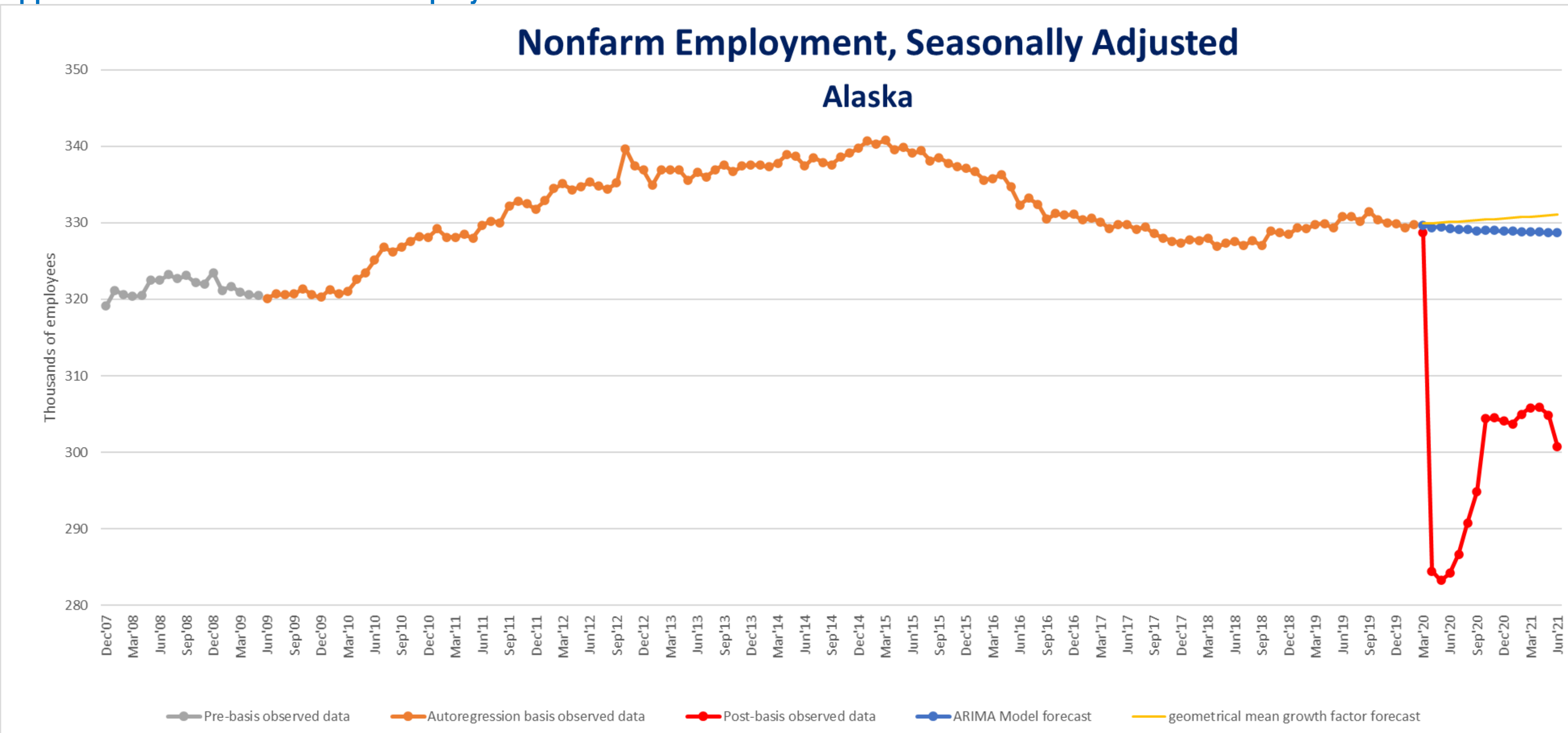


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*2.080636*	*0.57781*	*3.600898*	*0.000507*
phi 1	-0.26861	0.10173	*-2.64043*	*0.00968*
phi 2	-0.18421	0.102816	*-1.7917*	*0.076366*
phi 3	-0.19897	0.098961	*-2.01055*	*0.047208*
phi 4	0.030192	0.098361	*0.306952*	*0.759552*
phi 5	0.235928	0.098197	*2.402608*	*0.018222*
phi 6	0.248896	0.096025	*2.591986*	*0.011048*
phi 7	0.093021	0.096034	*0.968626*	*0.335191*
phi 8	0.165772	0.092428	*1.793529*	*0.07607*
phi 9	0.122163	0.093601	*1.305145*	*0.194996*
phi 10	-0.16896	0.087136	*-1.93902*	*0.055466*
phi 11	-0.06082	0.086468	*-0.70334*	*0.483566*
phi 12	-0.11337	0.085061	*-1.33282*	*0.185777*

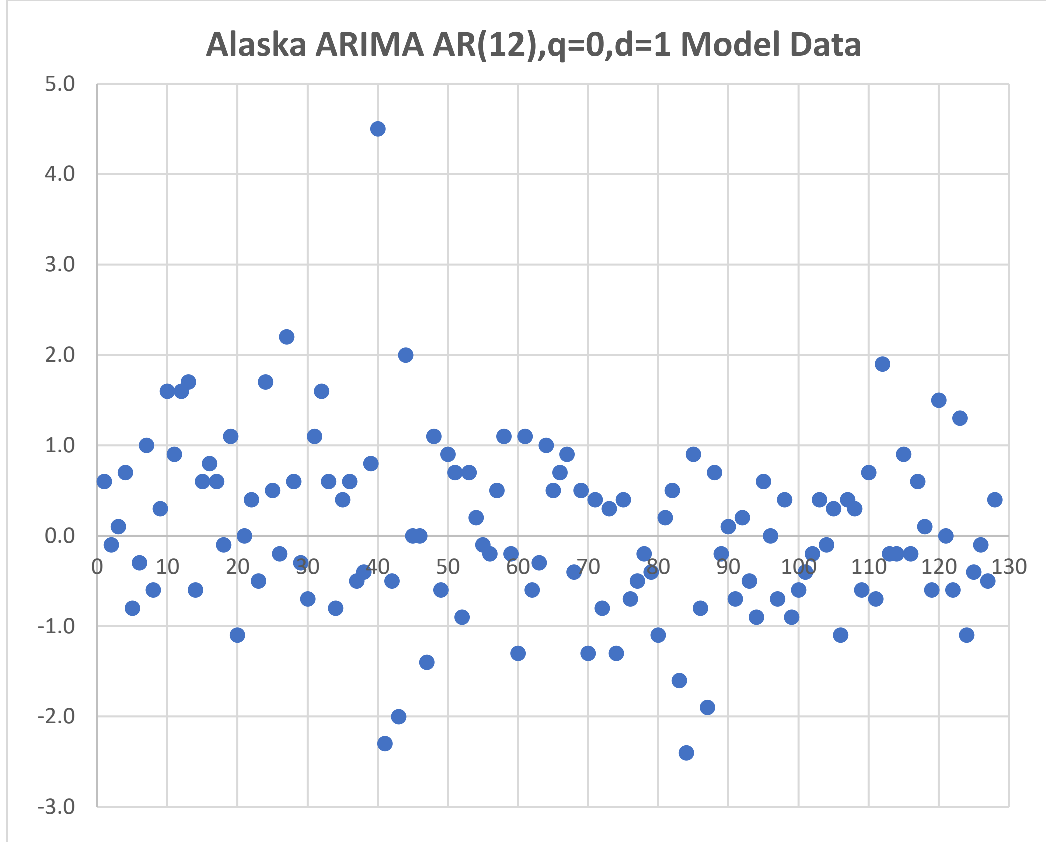


Appendix E2: Alaska Nonfarm Employment ARIMA Model Forecast

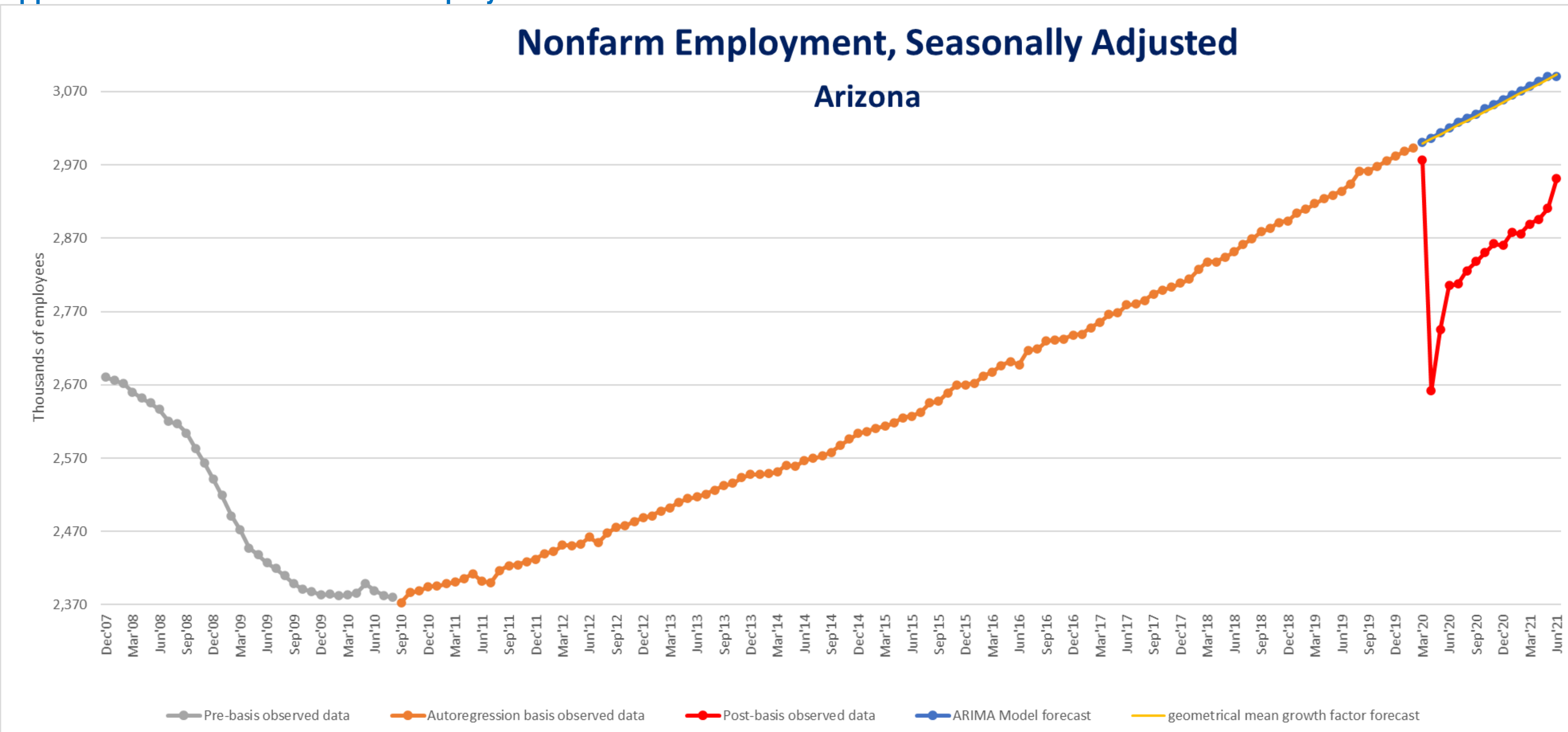


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.000266	0.091458	0.002909	0.997685
phi 1	-0.24126	0.096726	-2.49429	0.014211
phi 2	-0.08605	0.098481	-0.87373	0.384296
phi 3	0.046539	0.09712	0.479193	0.632817
phi 4	0.186418	0.097337	1.915172	0.058244
phi 5	0.139827	0.097728	1.430776	0.155521
phi 6	0.122444	0.098928	1.237708	0.218638
phi 7	0.054149	0.098658	0.548857	0.584292
phi 8	0.194918	0.097381	2.001596	0.047958
phi 9	0.058159	0.098495	0.590474	0.556166
phi 10	-0.01336	0.098556	-0.13561	0.892395
phi 11	-0.04013	0.098392	-0.40785	0.68423
phi 12	-0.05935	0.096634	-0.61413	0.54048

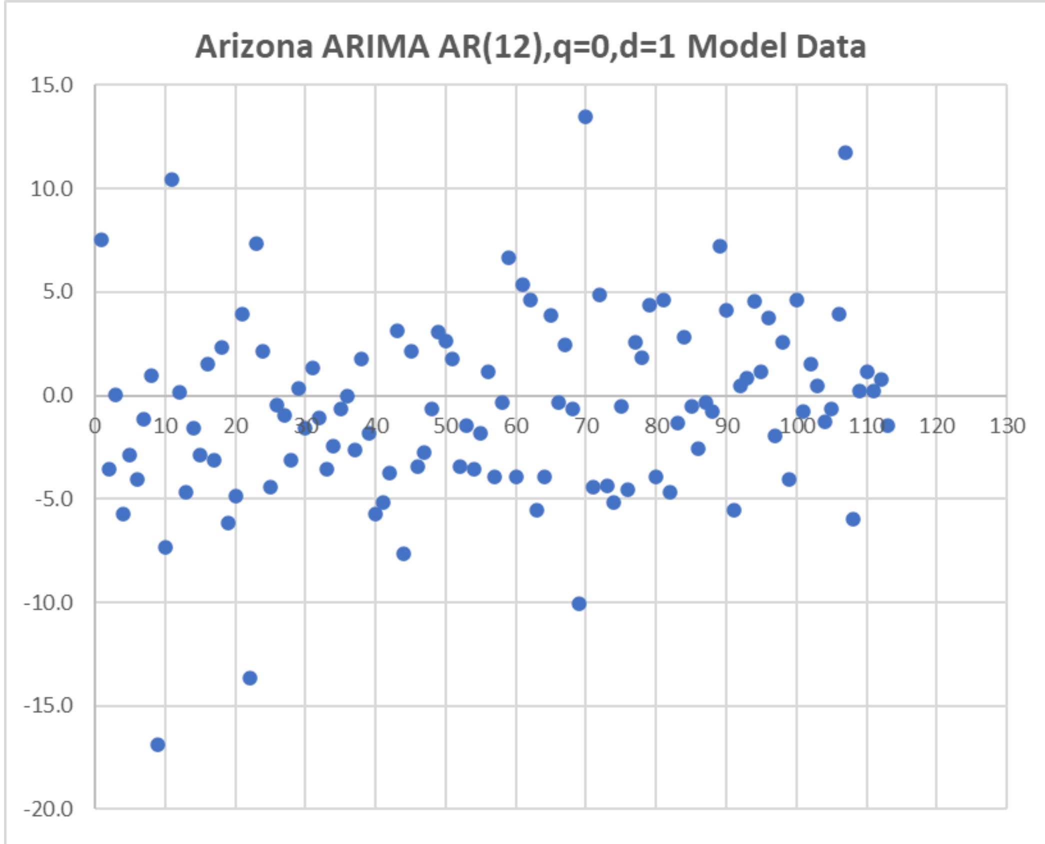


Appendix E3: Arizona Nonfarm Employment ARIMA Model Forecast

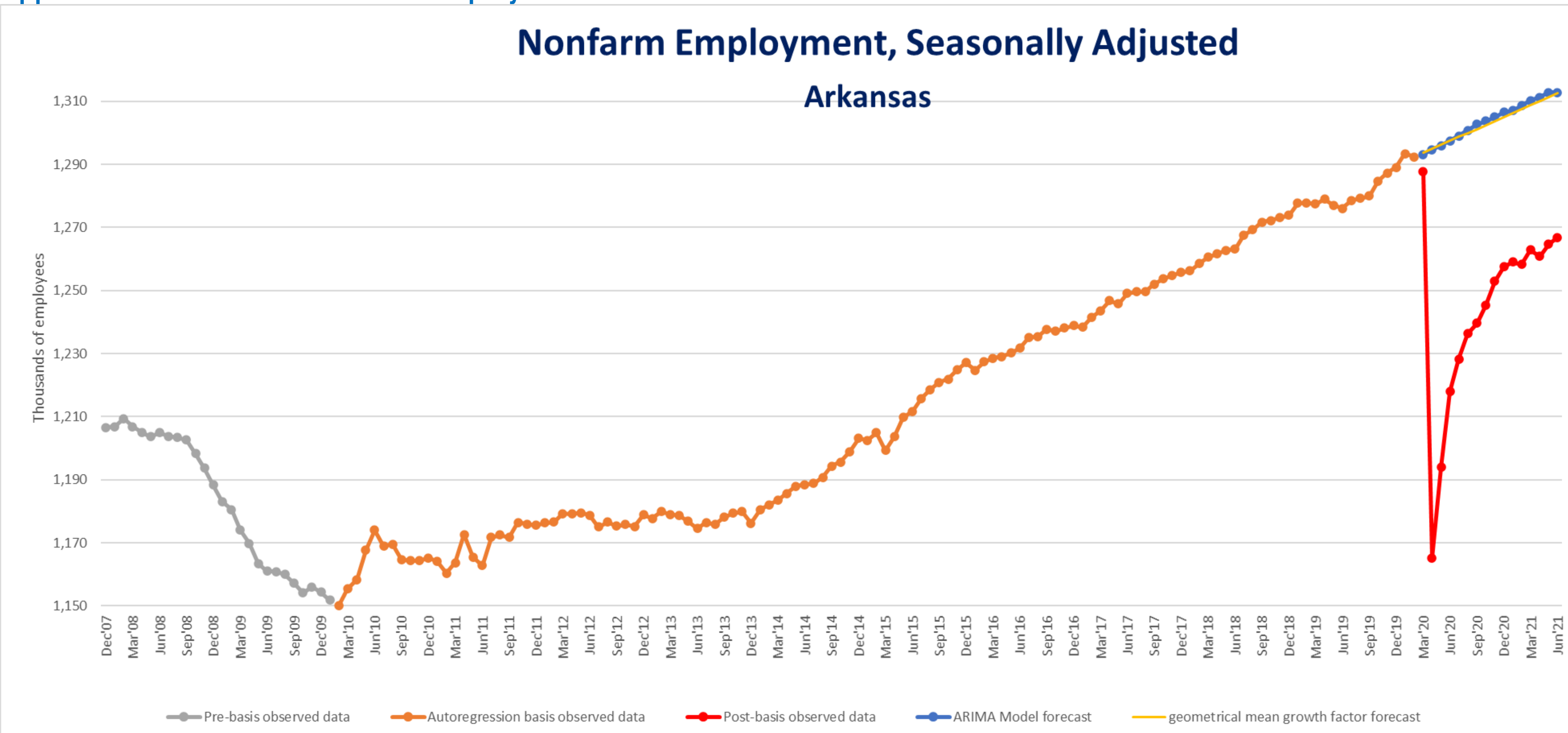


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*3.761946*	*1.947076*	*1.9321*	*0.056564*
phi 1	-0.35599	0.105656	*-3.36932*	*0.00112*
phi 2	-0.09238	0.106453	*-0.8678*	*0.387865*
phi 3	0.00645	0.104351	*0.06181*	*0.950854*
phi 4	-0.05191	0.096184	*-0.53971*	*0.590761*
phi 5	0.118529	0.095633	*1.239415*	*0.218487*
phi 6	0.105587	0.095584	*1.104658*	*0.272319*
phi 7	0.108804	0.098006	*1.110174*	*0.269948*
phi 8	0.052609	0.099041	*0.531178*	*0.596634*
phi 9	0.119515	0.098998	*1.207246*	*0.230572*
phi 10	0.046485	0.099629	*0.466575*	*0.641957*
phi 11	0.208518	0.098884	*2.108705*	*0.037812*
phi 12	0.112125	0.09493	*1.181132*	*0.240732*

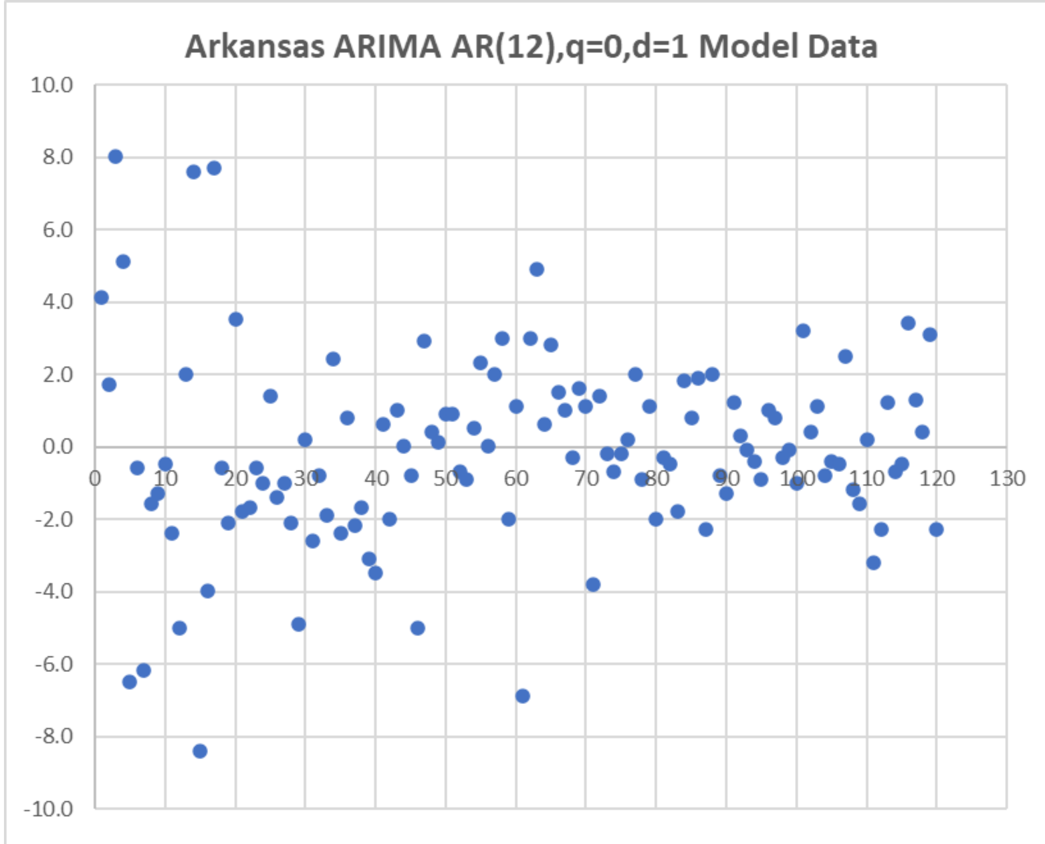


Appendix E4: Arkansas Nonfarm Employment ARIMA Model Forecast

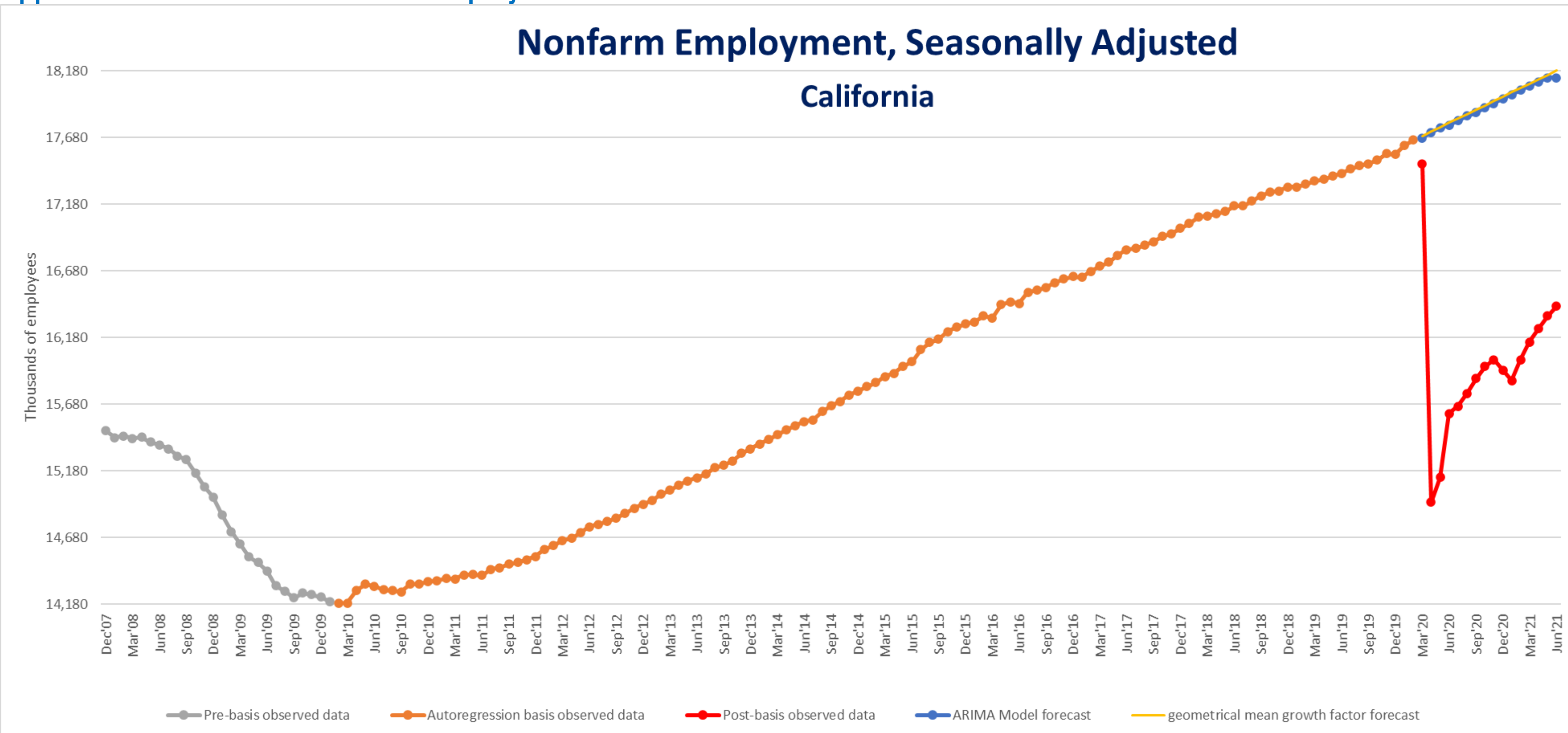


Model parameters

param	coeff	s.e.	t-stat	p-value
const	1.168993	0.423754	2.758661	0.006963
phi 1	-0.15137	0.099111	-1.52731	0.130008
phi 2	-0.16176	0.099887	-1.61945	0.108666
phi 3	0.159151	0.101194	1.572733	0.119105
phi 4	0.009226	0.103113	0.08947	0.928897
phi 5	-0.0628	0.103979	-0.60393	0.547331
phi 6	-8.8E-05	0.098216	-0.00089	0.999289
phi 7	0.039423	0.0979	0.402686	0.688084
phi 8	0.075518	0.096361	0.783697	0.435167
phi 9	0.077464	0.09299	0.833041	0.406911
phi 10	0.090167	0.087462	1.030933	0.30519
phi 11	0.11278	0.086411	1.305162	0.19499
phi 12	-0.10343	0.085752	-1.20617	0.230746

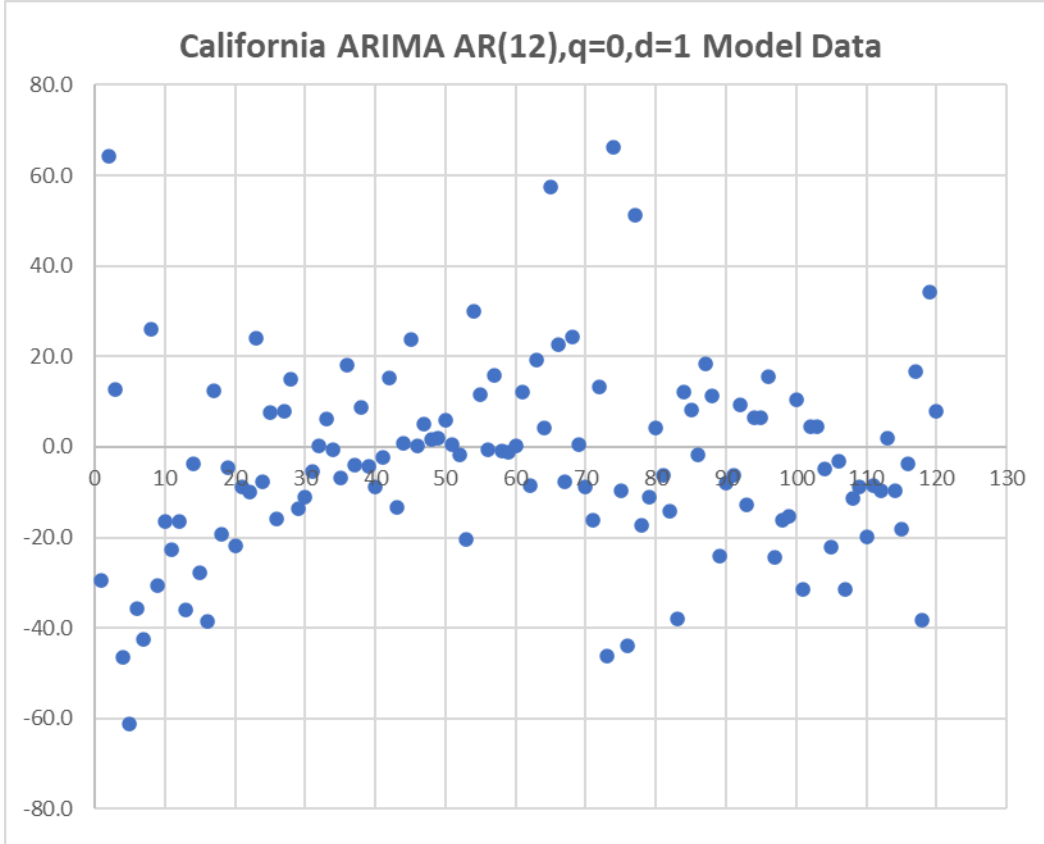


Appendix E5: California Nonfarm Employment ARIMA Model Forecast

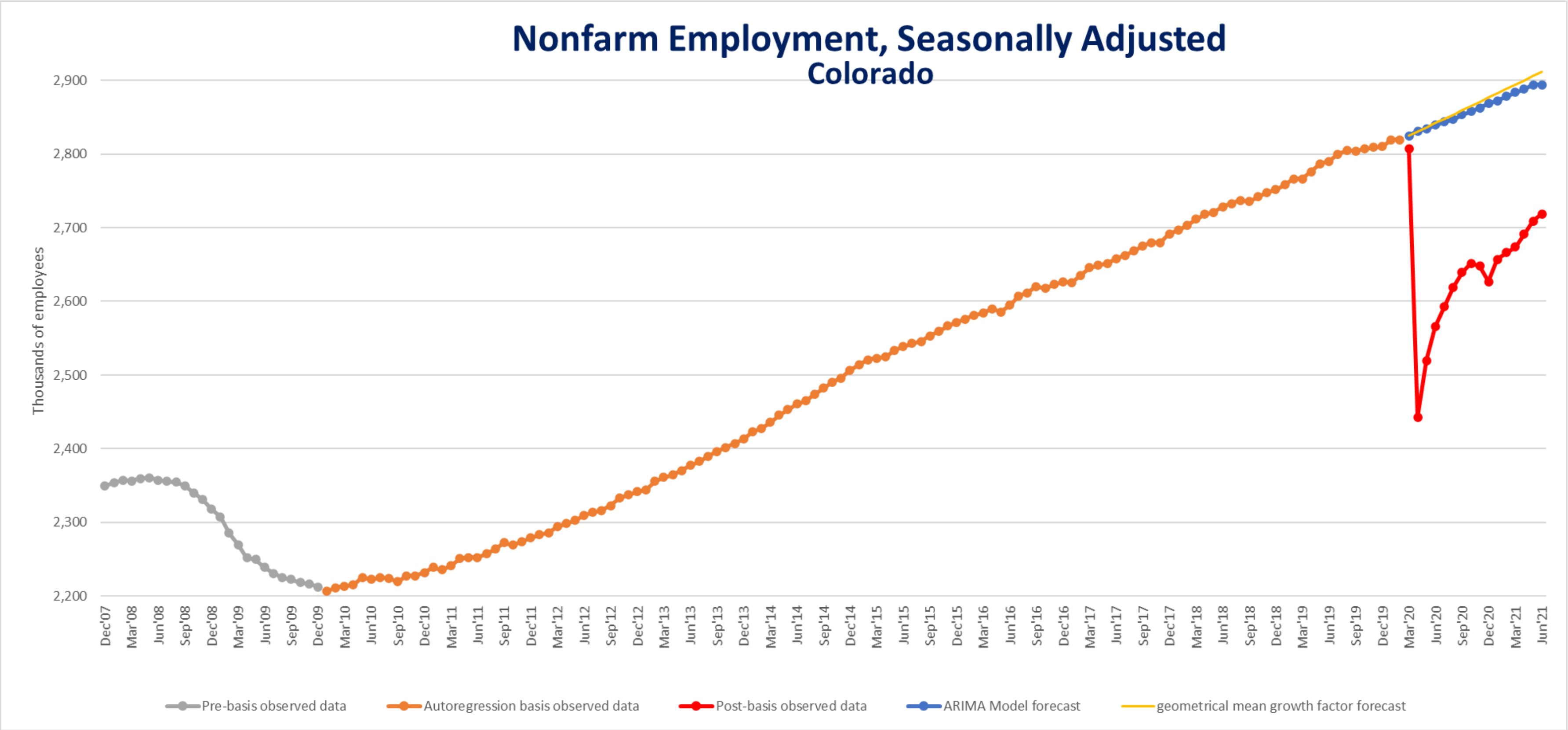


Model parameters

param	coeff	s.e.	t-stat	p-value
const	17.68572	6.537251	2.705376	0.008087
phi 1	-0.27724	0.101965	-2.71895	0.007786
phi 2	0.023383	0.104982	0.22273	0.824224
phi 3	0.297217	0.10421	2.852101	0.005329
phi 4	0.07317	0.106378	0.687833	0.493234
phi 5	-0.09839	0.103565	-0.95007	0.344488
phi 6	-0.01428	0.103655	-0.13781	0.890684
phi 7	0.021372	0.099699	0.21436	0.830726
phi 8	0.097668	0.091522	1.067148	0.28861
phi 9	0.228479	0.091088	2.508342	0.013825
phi 10	0.102611	0.090854	1.129405	0.261571
phi 11	0.086413	0.083856	1.030498	0.305393
phi 12	-0.09004	0.083953	-1.07254	0.286195

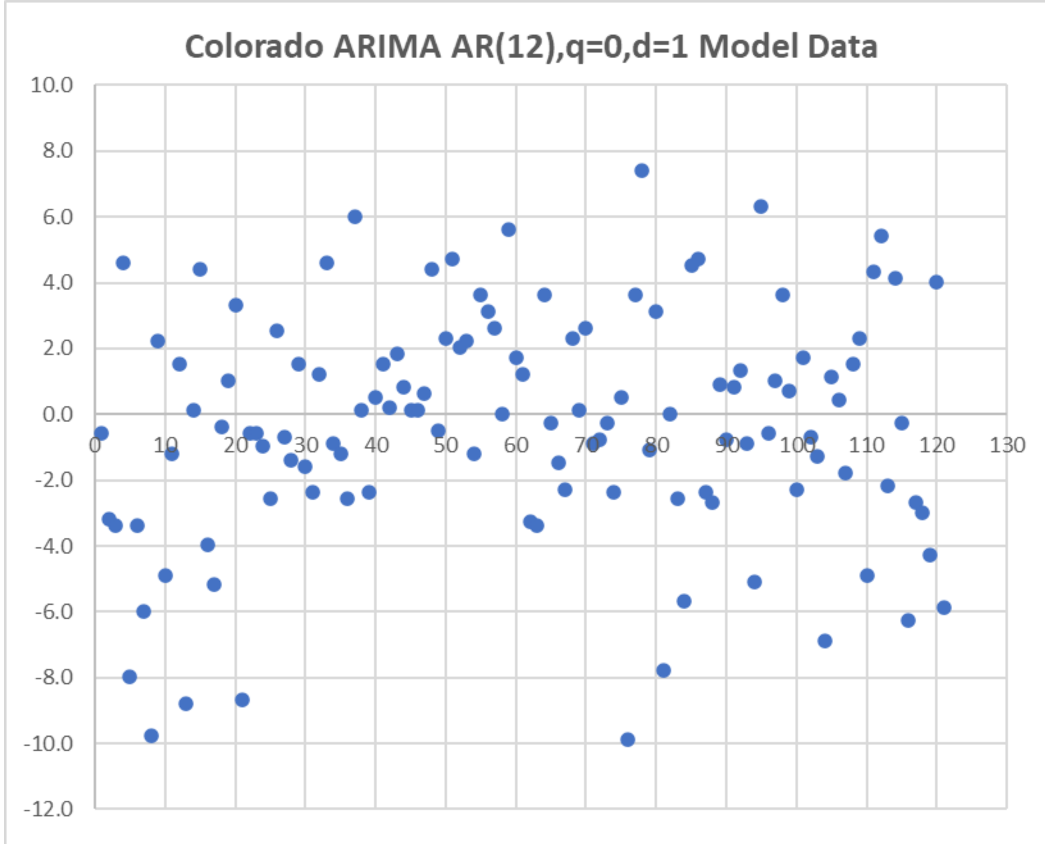


Appendix E6: Colorado Nonfarm Employment ARIMA Model Forecast

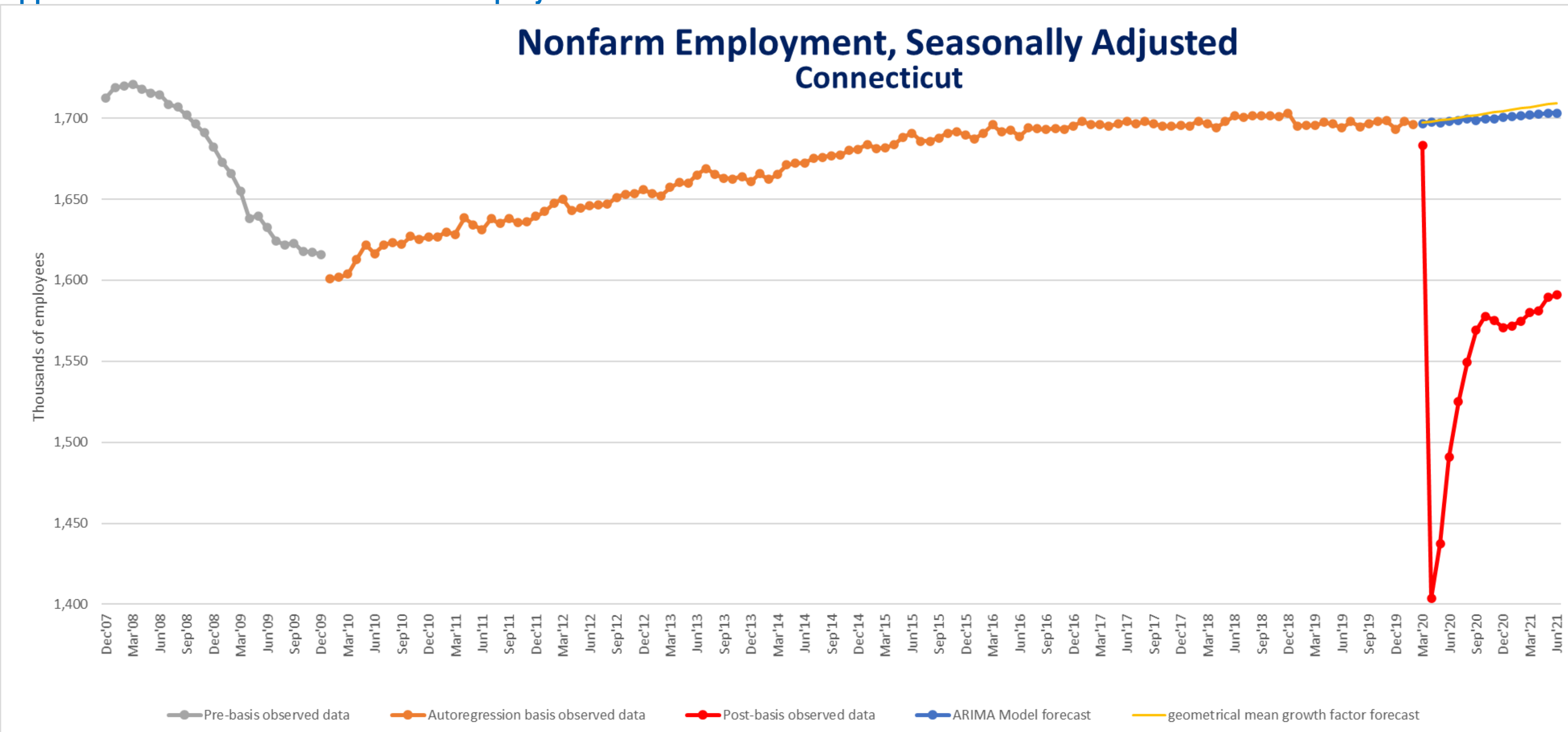


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*3.823578*	*1.535168*	*2.490657*	*0.014468*
phi 1	-0.09662	0.102996	*-0.93813*	*0.350532*
phi 2	-0.15339	0.103182	*-1.4866*	*0.140398*
phi 3	0.125357	0.104956	*1.194386*	*0.23527*
phi 4	0.018275	0.105997	*0.172412*	*0.863477*
phi 5	0.099332	0.102901	*0.965315*	*0.336813*
phi 6	0.047385	0.102289	*0.463246*	*0.644237*
phi 7	0.014234	0.101391	*0.140386*	*0.888649*
phi 8	0.123507	0.098961	*1.248036*	*0.215053*
phi 9	0.060939	0.098676	*0.617569*	*0.538322*
phi 10	0.038229	0.099363	*0.384742*	*0.70128*
phi 11	0.098116	0.100393	*0.977319*	*0.330867*
phi 12	-0.08627	0.100642	*-0.85723*	*0.393452*

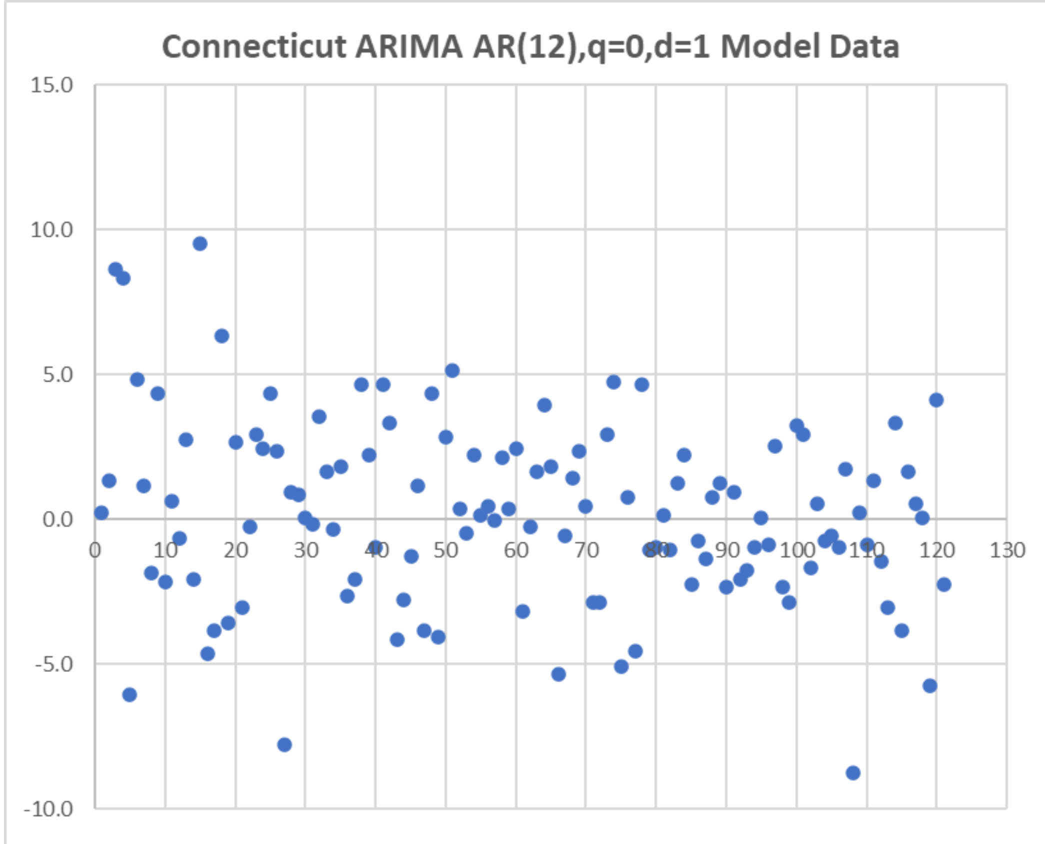


Appendix E7: Connecticut Nonfarm Employment ARIMA Model Forecast

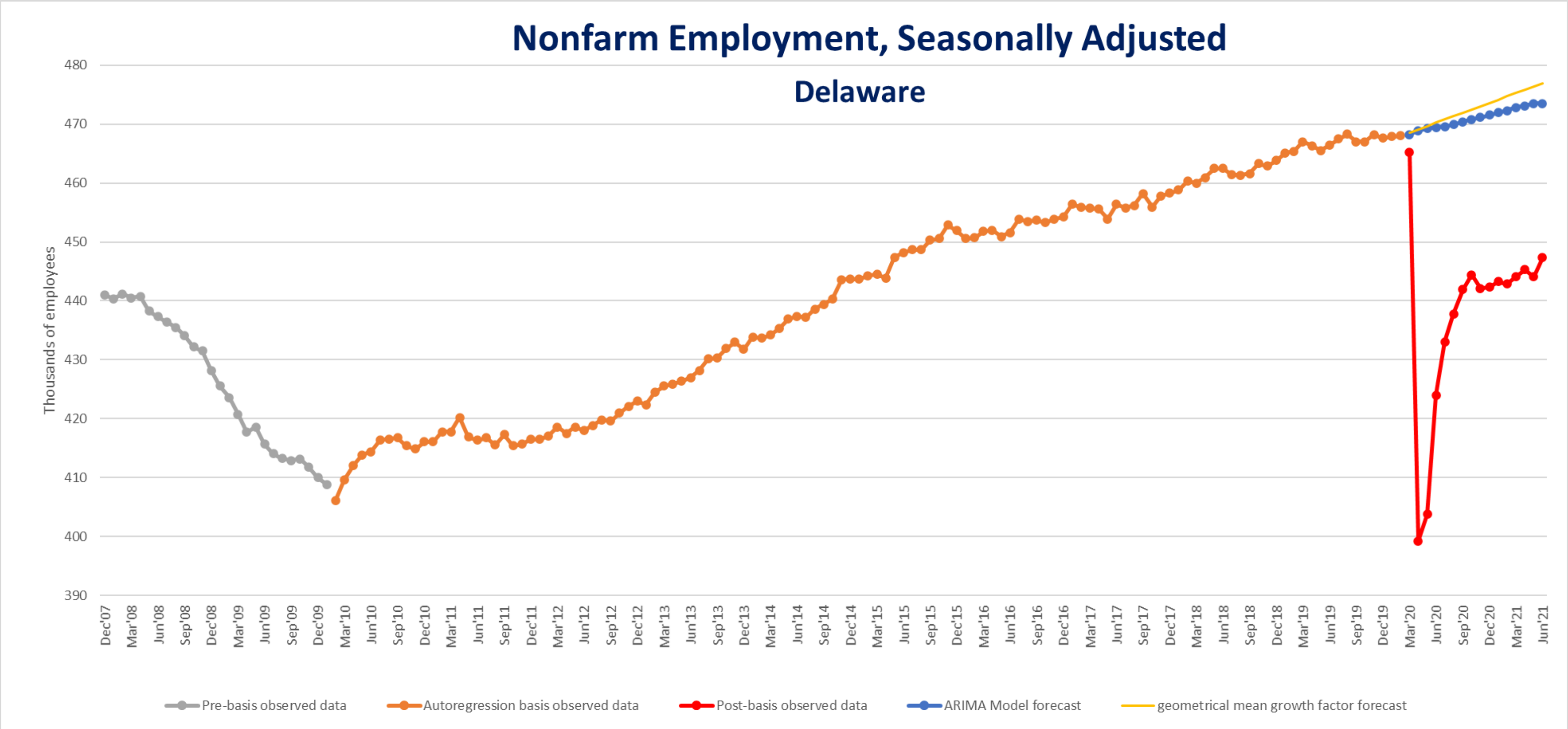


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.592933	0.423862	1.398881	0.165071
phi 1	-0.36992	0.101874	-3.63113	0.000455
phi 2	-0.19036	0.106903	-1.7807	0.078125
phi 3	-0.06691	0.107717	-0.62114	0.535981
phi 4	-0.05461	0.105455	-0.51789	0.605724
phi 5	0.02482	0.105361	0.235569	0.814269
phi 6	0.095067	0.105139	0.904195	0.368155
phi 7	-0.01797	0.104273	-0.17236	0.863519
phi 8	-0.07316	0.103945	-0.70384	0.483235
phi 9	0.197063	0.099295	1.984622	0.050041
phi 10	0.205271	0.094871	2.163676	0.032971
phi 11	0.182658	0.095171	1.919275	0.057919
phi 12	-0.01472	0.09343	-0.1575	0.875183

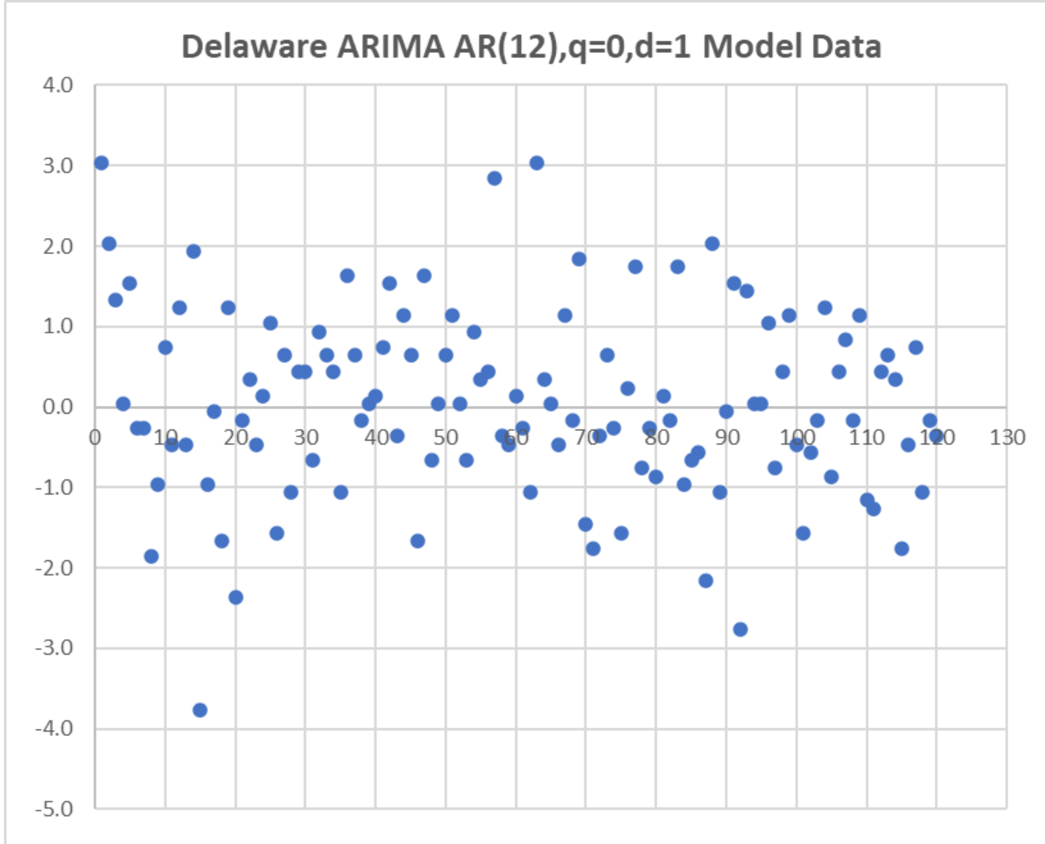


Appendix E8: Delaware Nonfarm Employment ARIMA Model Forecast

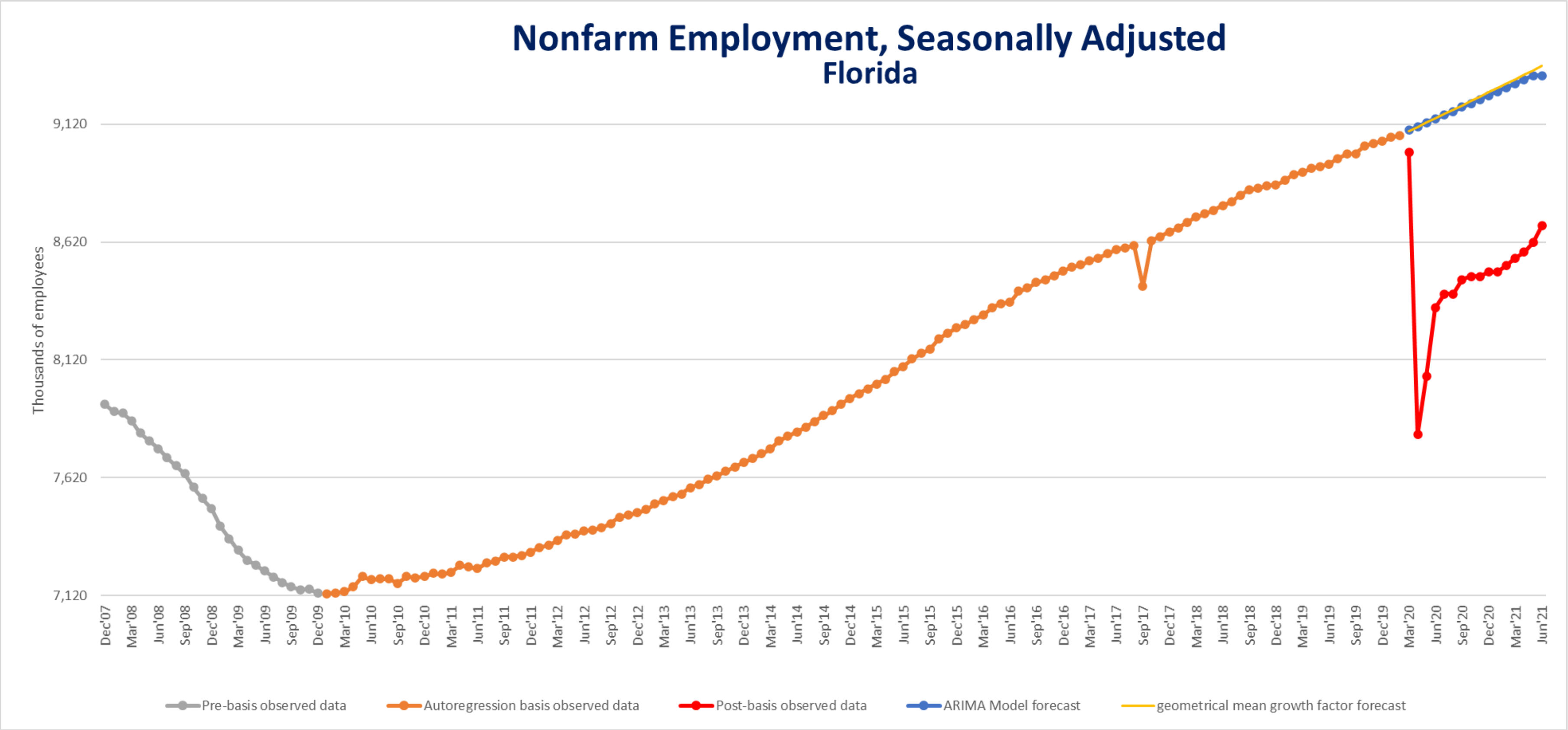


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.352603*	*0.216102*	*1.631655*	*0.106063*
phi 1	-0.29566	0.102428	*-2.88654*	*0.004822*
phi 2	-0.09819	0.106532	*-0.92169*	*0.359024*
phi 3	0.026344	0.106912	*0.246409*	*0.805898*
phi 4	-0.07142	0.104885	*-0.68094*	*0.497564*
phi 5	0.184481	0.102457	*1.800575*	*0.074943*
phi 6	0.112453	0.104785	*1.073172*	*0.285912*
phi 7	0.073467	0.105407	*0.696985*	*0.487514*
phi 8	0.08876	0.104309	*0.850934*	*0.396946*
phi 9	0.123986	0.103893	*1.193403*	*0.235683*
phi 10	0.091092	0.103375	*0.881175*	*0.380447*
phi 11	0.03708	0.100268	*0.369807*	*0.71235*
phi 12	-0.03601	0.09462	*-0.38061*	*0.704343*

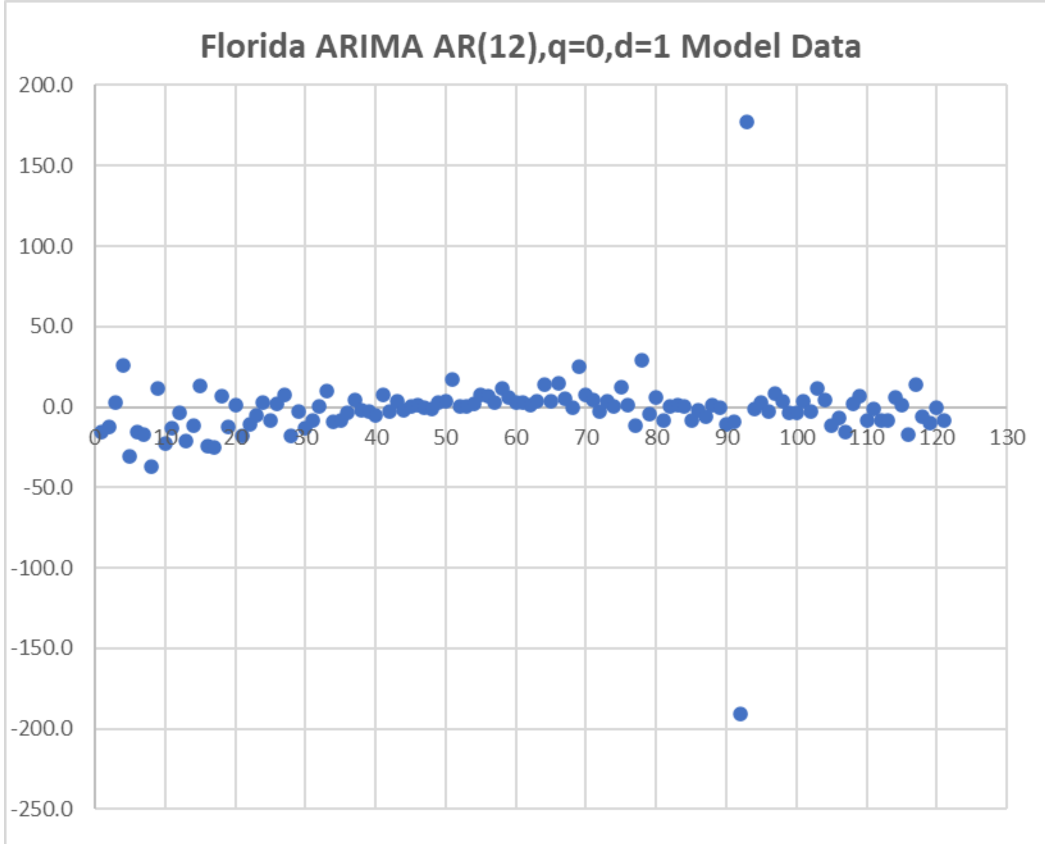


Appendix E9: Florida Nonfarm Employment ARIMA Model Forecast

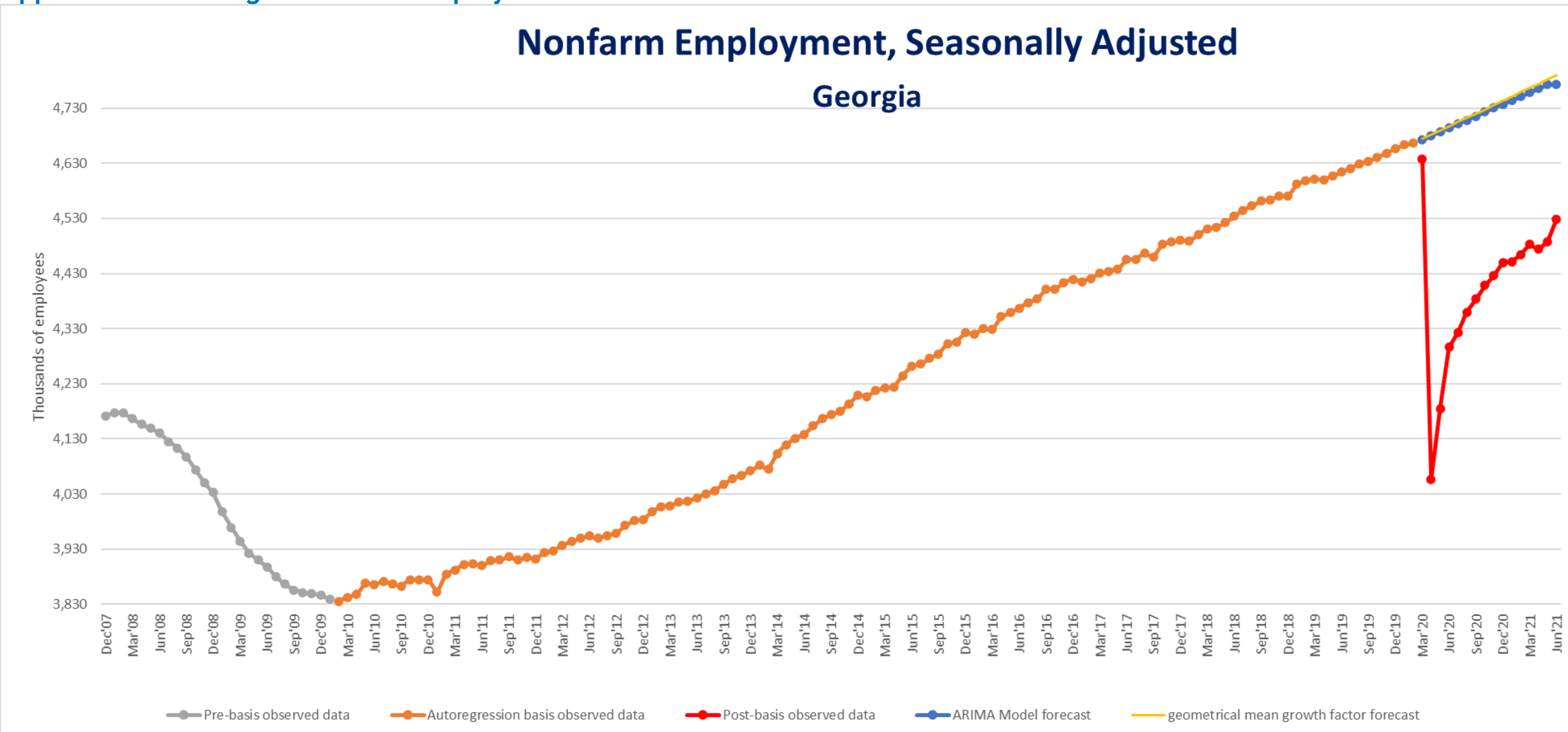


Model parameters

param	coeff	s.e.	t-stat	p-value
const	16.75362	7.305899	2.293163	0.024021
phi 1	-0.56735	0.102069	-5.55845	2.44E-07
phi 2	-0.29266	0.116301	-2.5164	0.013514
phi 3	-0.13411	0.118146	-1.13515	0.259138
phi 4	0.007408	0.117014	0.063309	0.949652
phi 5	0.1108	0.113136	0.979346	0.32987
phi 6	0.152445	0.110631	1.377959	0.171419
phi 7	0.166372	0.109597	1.51803	0.132293
phi 8	0.172212	0.109873	1.567381	0.120316
phi 9	0.165678	0.110461	1.499878	0.136928
phi 10	0.150658	0.110955	1.357825	0.177702
phi 11	0.117647	0.109616	1.073259	0.285845
phi 12	0.007003	0.097956	0.071496	0.943152

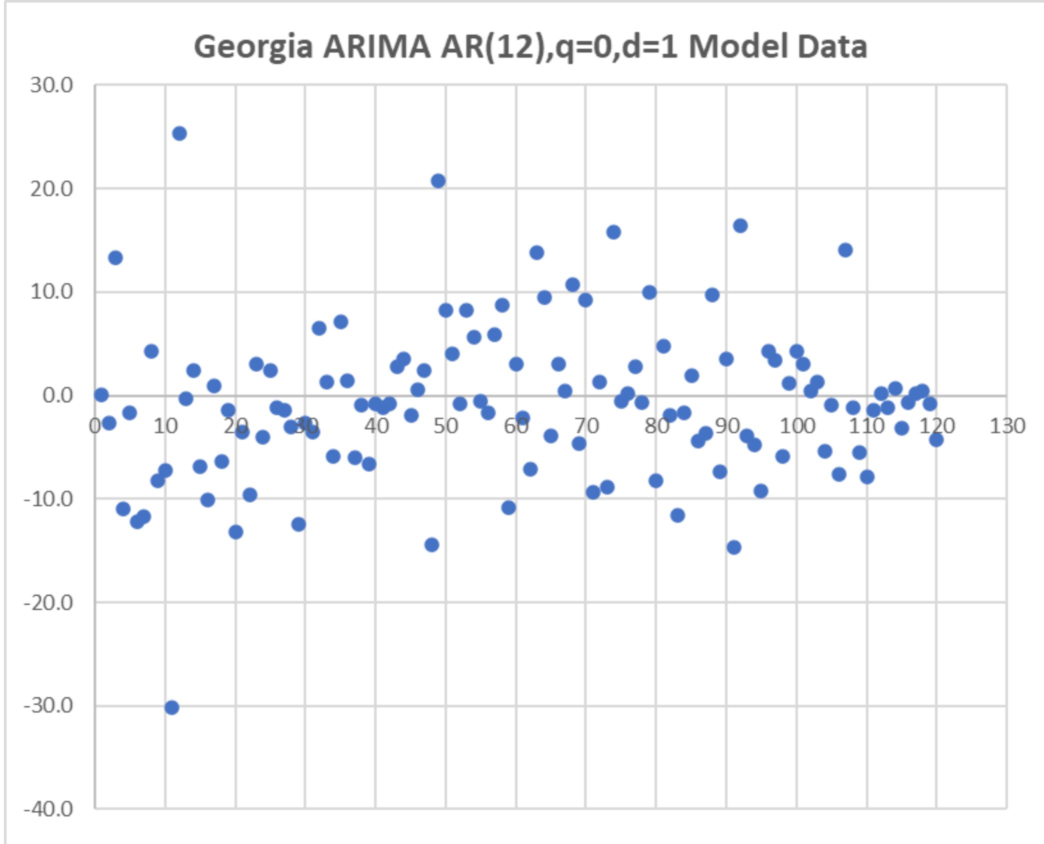


Appendix E10: Georgia Nonfarm Employment ARIMA Model Forecast

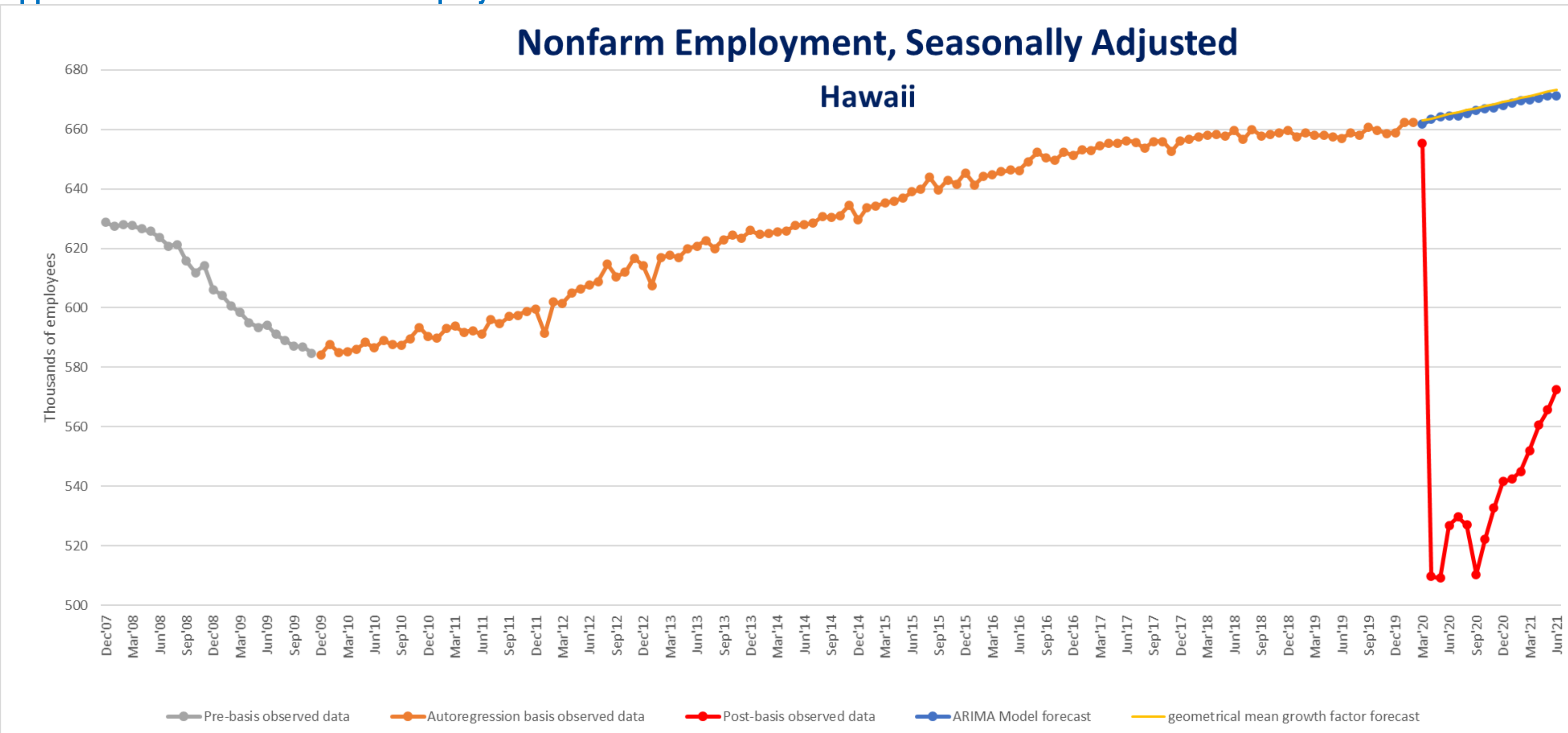


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*4.37933*	*2.05569*	*2.130346*	*0.035726*
phi 1	-0.20203	0.098922	*-2.04229*	*0.043894*
phi 2	-0.02795	0.091002	*-0.30717*	*0.759389*
phi 3	-0.06833	0.088221	*-0.77451*	*0.440553*
phi 4	0.078937	0.087591	*0.9012*	*0.369761*
phi 5	0.09452	0.087742	*1.077239*	*0.284102*
phi 6	-0.01663	0.086452	*-0.19239*	*0.847851*
phi 7	0.061934	0.085941	*0.720656*	*0.472891*
phi 8	0.037767	0.085278	*0.442872*	*0.658865*
phi 9	0.06633	0.084298	*0.786846*	*0.433331*
phi 10	0.086659	0.083207	*1.041491*	*0.300291*
phi 11	0.298587	0.083842	*3.561296*	*0.000579*
phi 12	0.015127	0.086865	*0.174142*	*0.862124*

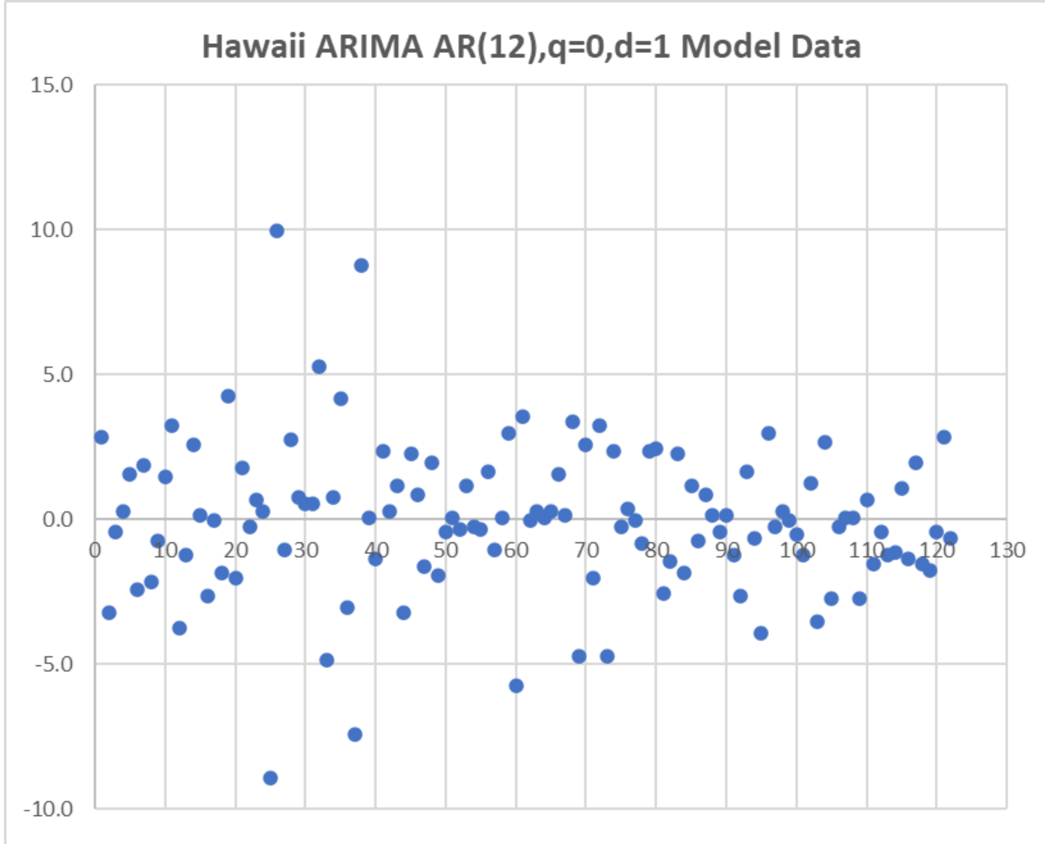


Appendix E11: Hawaii Nonfarm Employment ARIMA Model Forecast

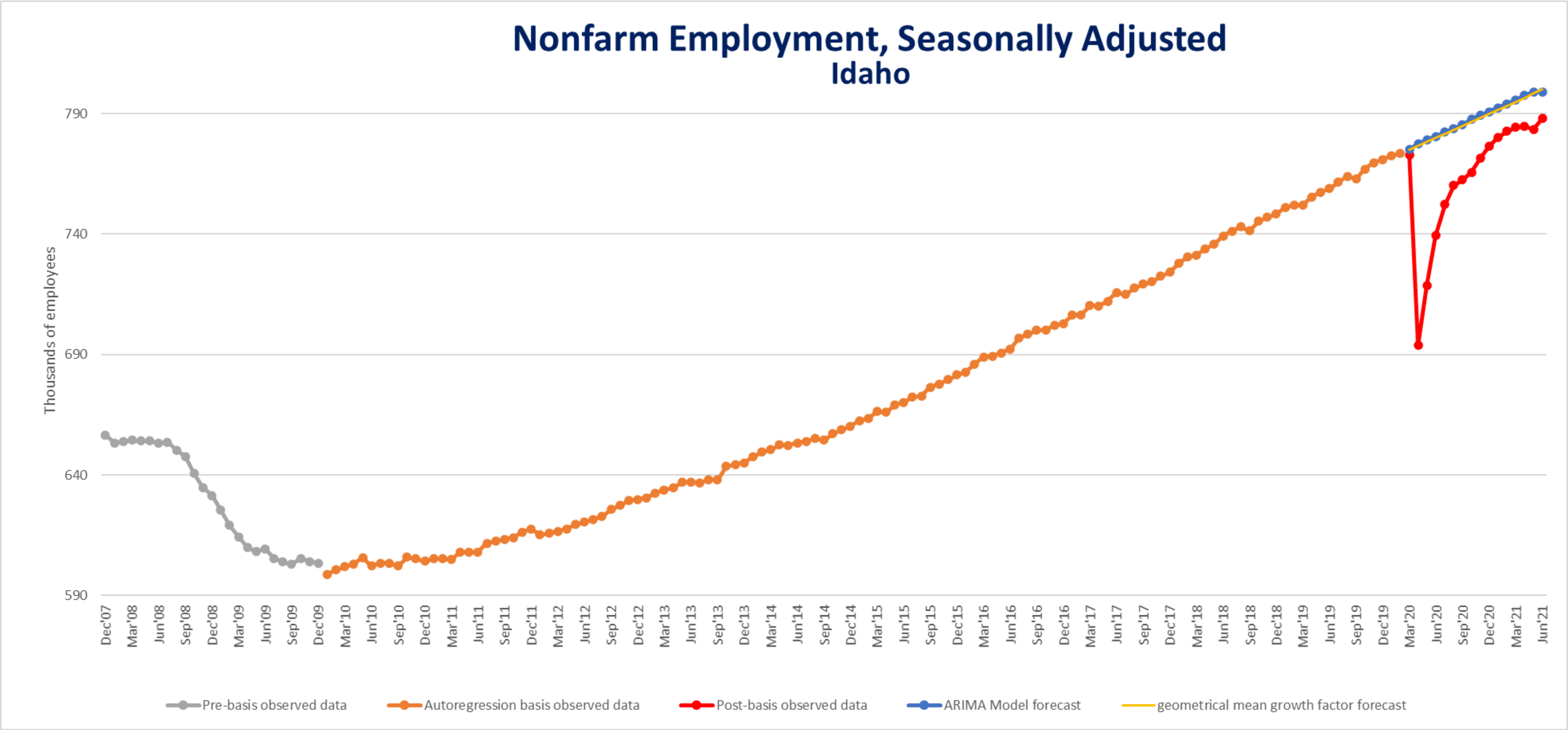


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.852319	0.428496	1.989096	0.049507
phi 1	-0.6885	0.101943	-6.75372	1.07E-09
phi 2	-0.33258	0.123157	-2.70046	0.008172
phi 3	0.025822	0.126107	0.204766	0.838184
phi 4	0.18585	0.124755	1.489722	0.139542
phi 5	0.040481	0.125856	0.321647	0.748412
phi 6	-0.04158	0.125641	-0.33098	0.741372
phi 7	-0.01491	0.125607	-0.11867	0.90578
phi 8	0.12615	0.125461	1.005492	0.317162
phi 9	0.230764	0.125158	1.843776	0.068269
phi 10	0.099638	0.128535	0.775179	0.44012
phi 11	0.0261	0.12337	0.211563	0.832892
phi 12	-0.0038	0.100693	-0.03774	0.969976

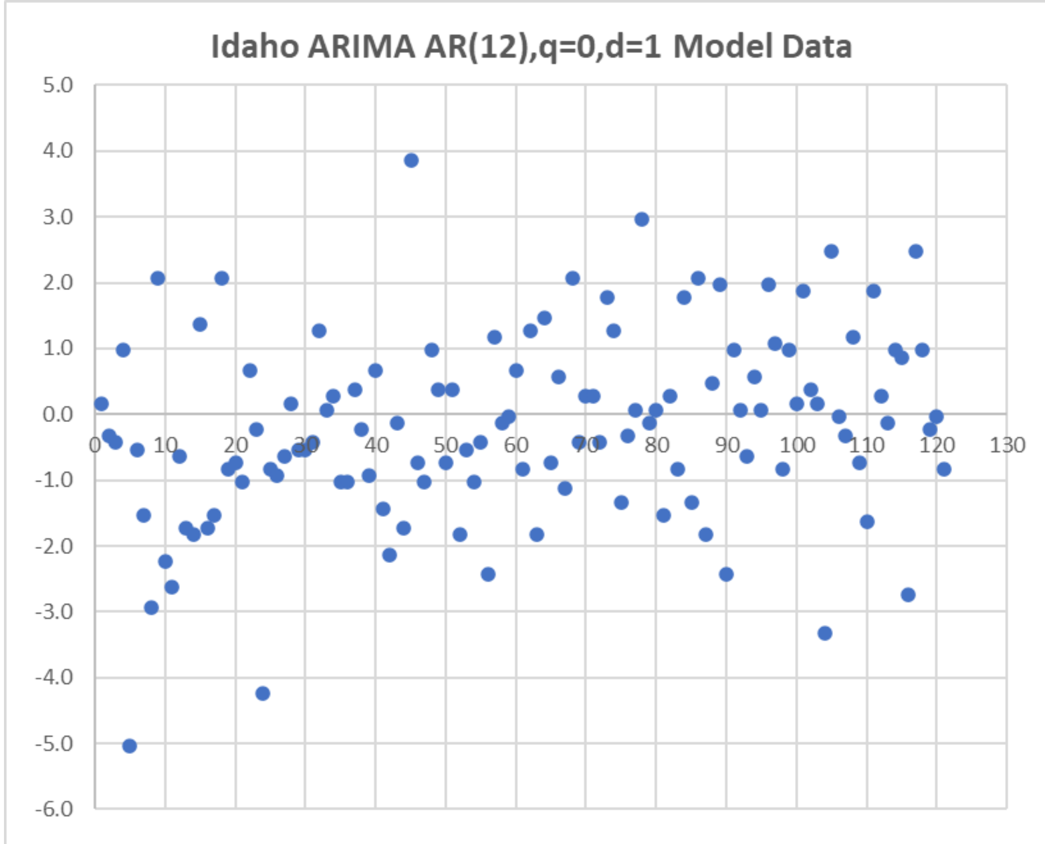


Appendix E12: Idaho Nonfarm Employment ARIMA Model Forecast

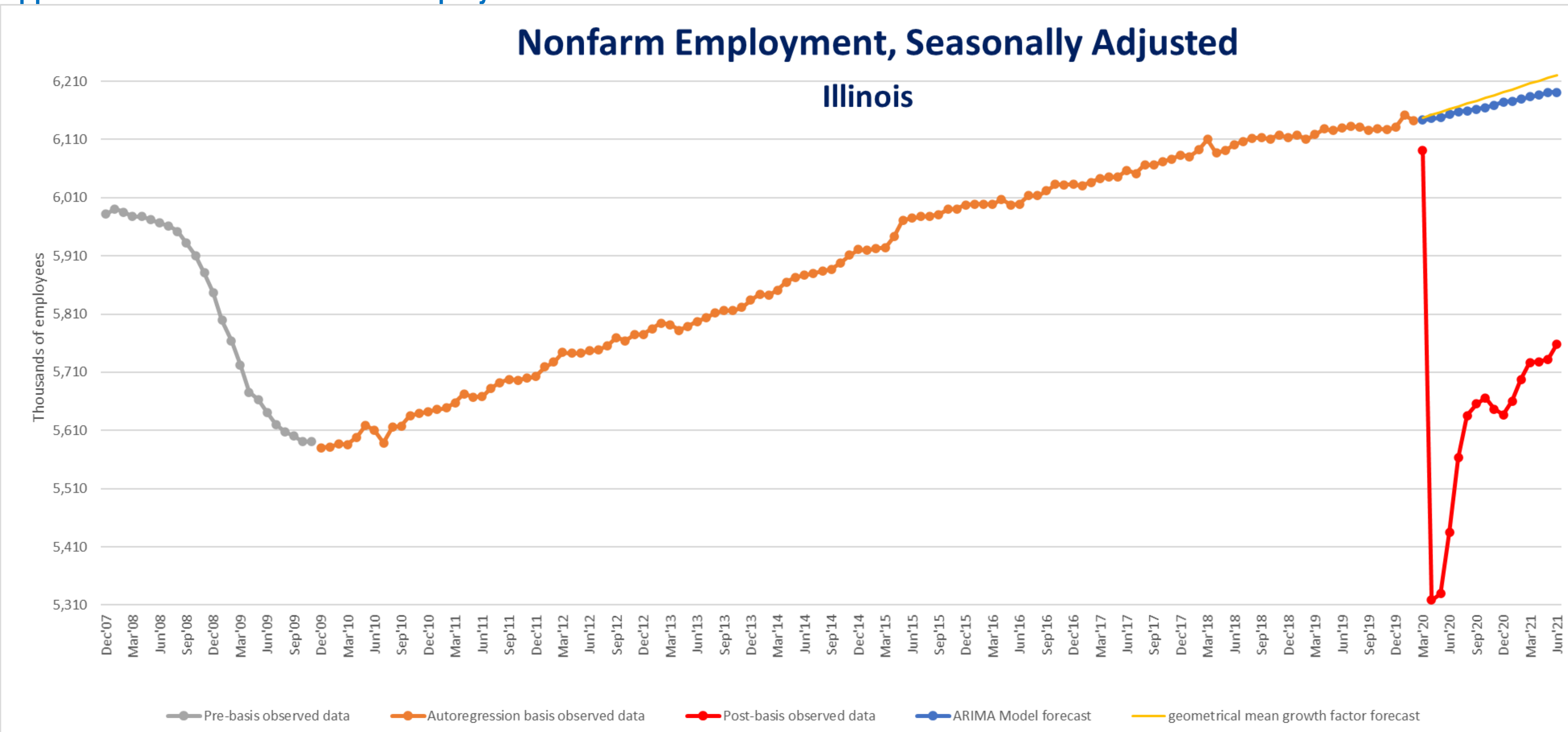


Model parameters

param	coeff	s.e.	t-stat	p-value
const	1.080187	0.423634	2.549812	0.012361
phi 1	-0.3159	0.100182	-3.15324	0.002155
phi 2	-0.01664	0.103813	-0.16031	0.872973
phi 3	0.100733	0.103363	0.974557	0.332229
phi 4	0.077354	0.103942	0.744202	0.458572
phi 5	0.131737	0.103627	1.271258	0.206709
phi 6	0.180919	0.104269	1.735112	0.08593
phi 7	-0.05192	0.103526	-0.50147	0.617188
phi 8	-0.07514	0.098817	-0.7604	0.448878
phi 9	-0.01917	0.09898	-0.19371	0.846809
phi 10	0.034787	0.097858	0.355489	0.723003
phi 11	0.114236	0.097664	1.169689	0.245022
phi 12	0.176808	0.094491	1.871164	0.064368

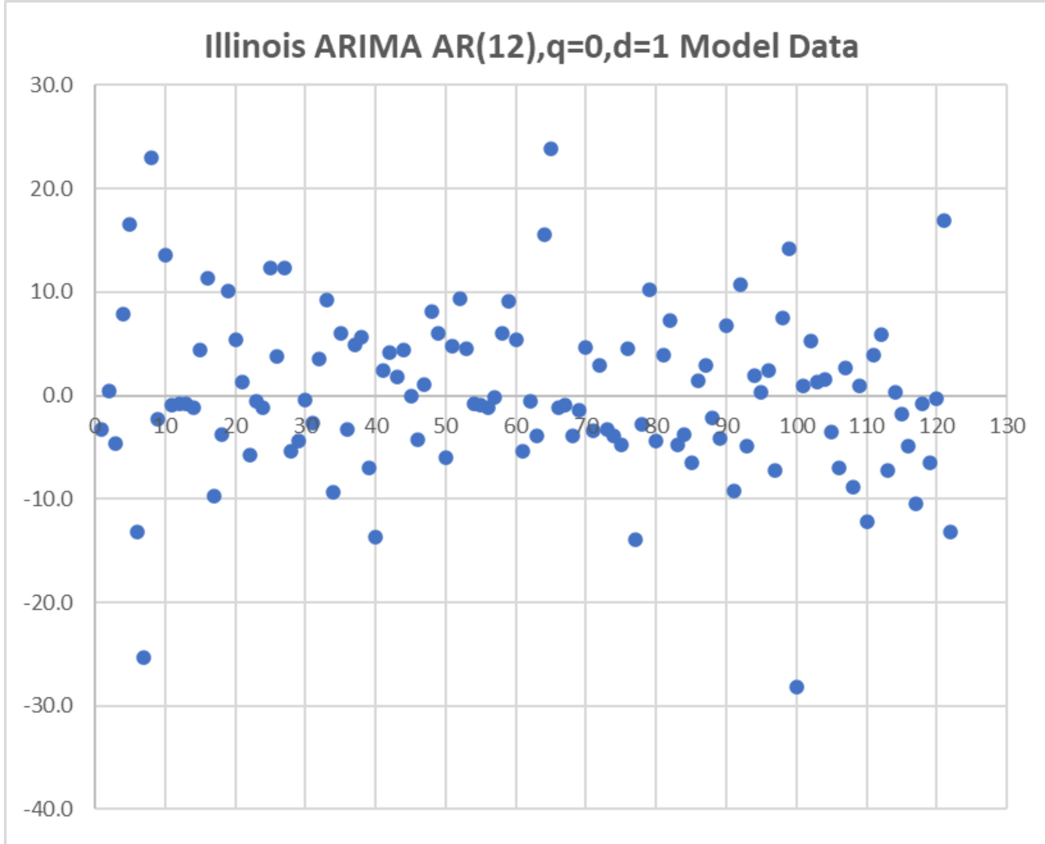


Appendix E13: Illinois Nonfarm Employment ARIMA Model Forecast

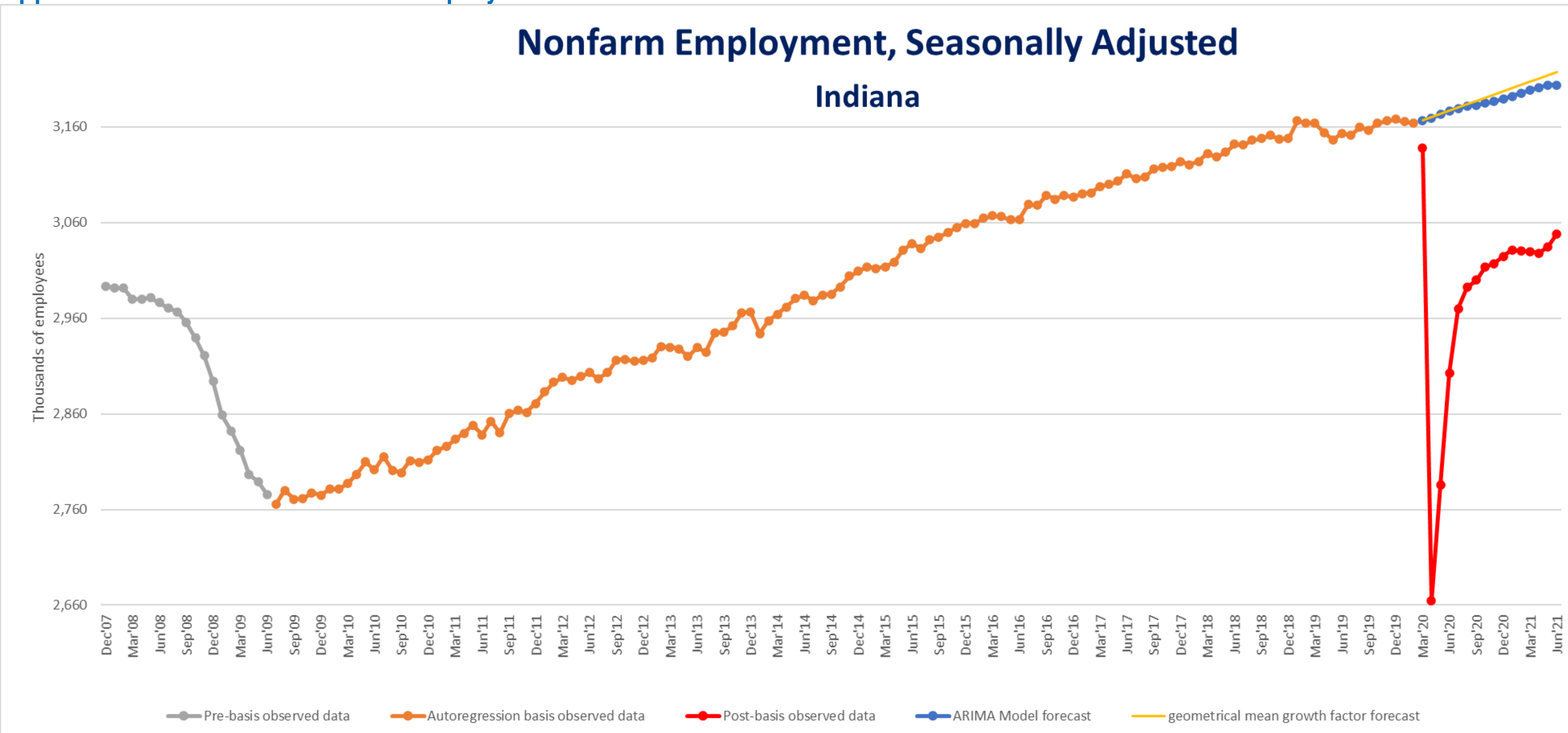


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*2.762945*	*1.987904*	*1.389878*	*0.167747*
phi 1	-0.17619	0.102238	*-1.72335*	*0.088011*
phi 2	-0.20825	0.104605	*-1.99084*	*0.049312*
phi 3	-0.04952	0.104918	*-0.47202*	*0.637972*
phi 4	-0.09541	0.105369	*-0.90545*	*0.367469*
phi 5	0.092307	0.101772	*0.906997*	*0.366656*
phi 6	0.230065	0.099263	*2.317723*	*0.022566*
phi 7	0.140426	0.09888	*1.420157*	*0.158768*
phi 8	0.115888	0.10012	*1.157493*	*0.249913*
phi 9	0.06272	0.100545	*0.623801*	*0.534223*
phi 10	0.093844	0.099974	*0.938689*	*0.350222*
phi 11	0.146291	0.097018	*1.507873*	*0.134837*
phi 12	-0.00459	0.095422	*-0.04812*	*0.961717*

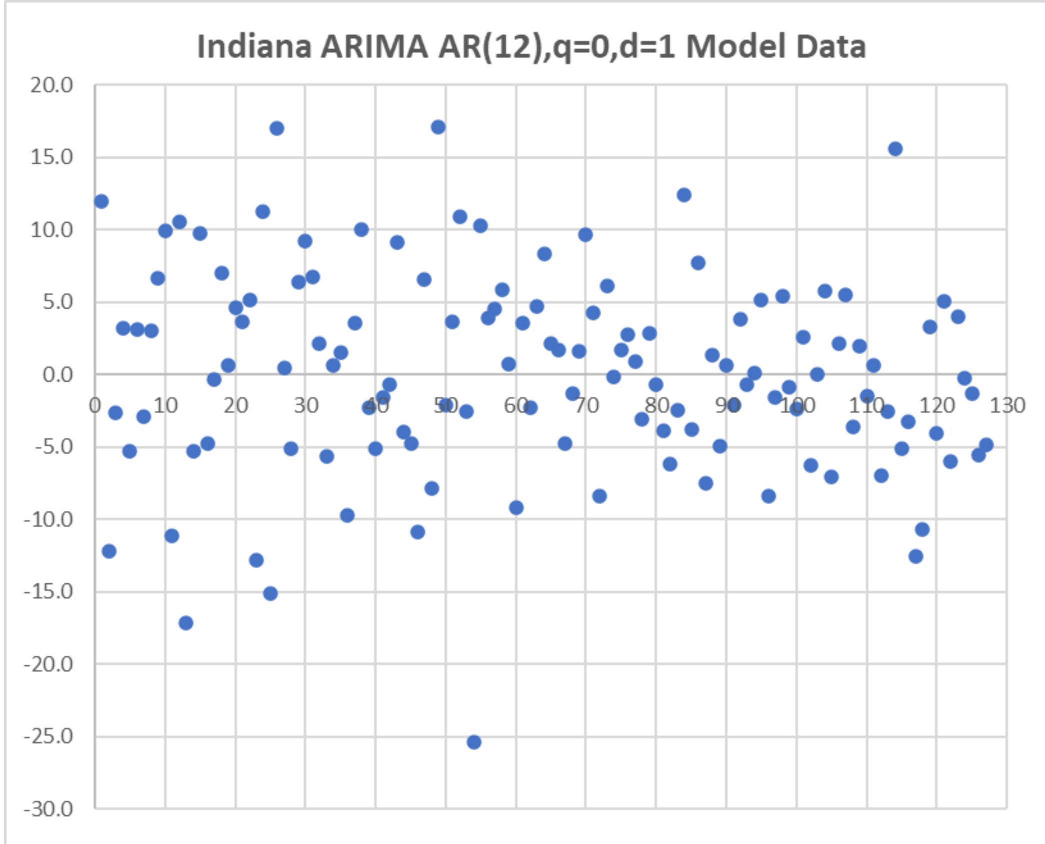


Appendix E14: Indiana Nonfarm Employment ARIMA Model Forecast

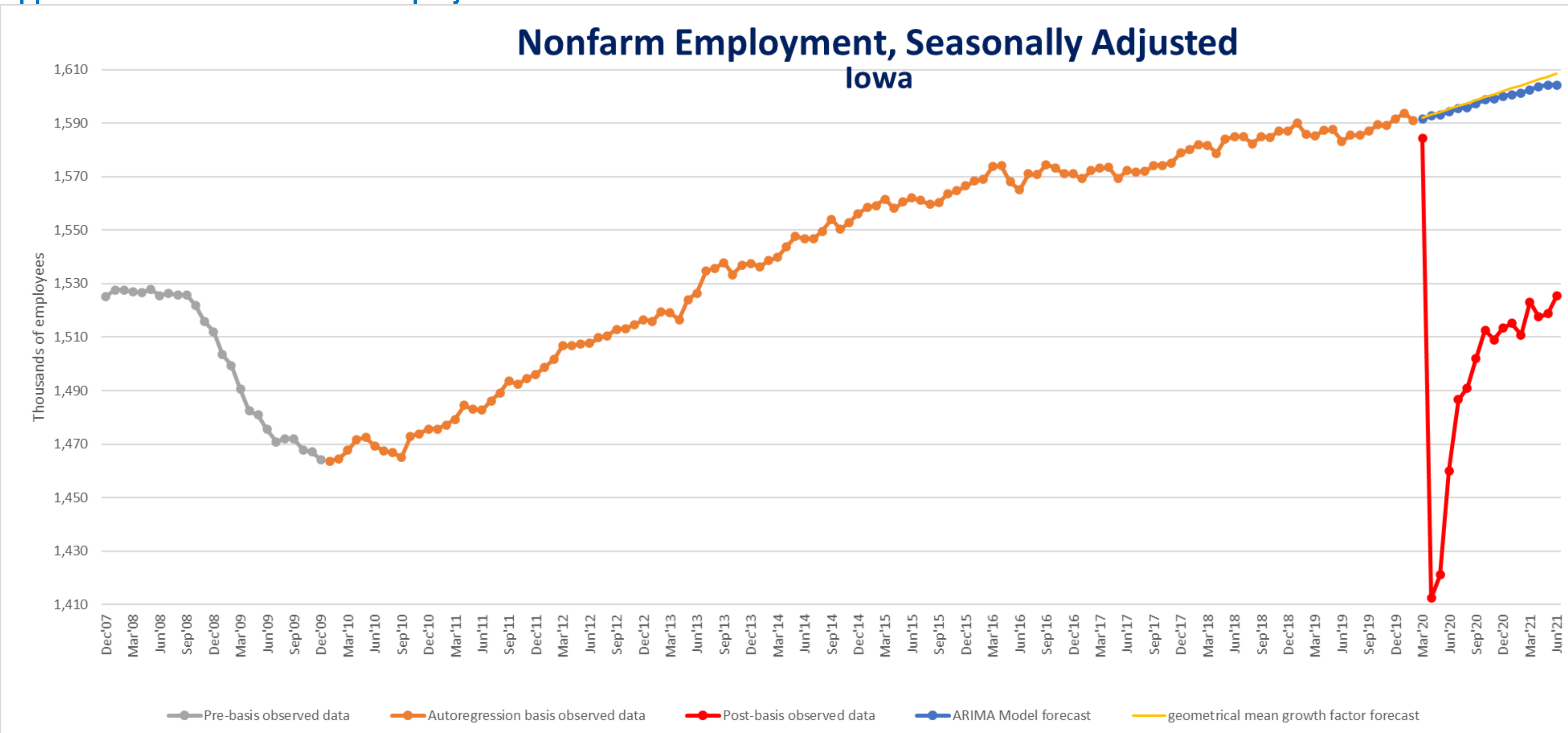


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*3.287574*	*1.92443*	*1.708337*	*0.090615*
phi 1	-0.33103	0.096983	*-3.41331*	*0.000922*
phi 2	-0.15134	0.102399	*-1.47791*	*0.142512*
phi 3	-0.2171	0.102481	*-2.11844*	*0.036567*
phi 4	-0.21206	0.101647	*-2.08619*	*0.039456*
phi 5	-0.07837	0.102899	*-0.76159*	*0.448062*
phi 6	0.125724	0.103972	*1.209205*	*0.22938*
phi 7	0.039889	0.104724	*0.380899*	*0.704071*
phi 8	0.136837	0.10446	*1.309945*	*0.193157*
phi 9	0.238592	0.102479	*2.328198*	*0.021875*
phi 10	0.09909	0.104624	*0.947105*	*0.345824*
phi 11	0.074757	0.105674	*0.707424*	*0.480916*
phi 12	0.161963	0.098374	*1.6464*	*0.102759*

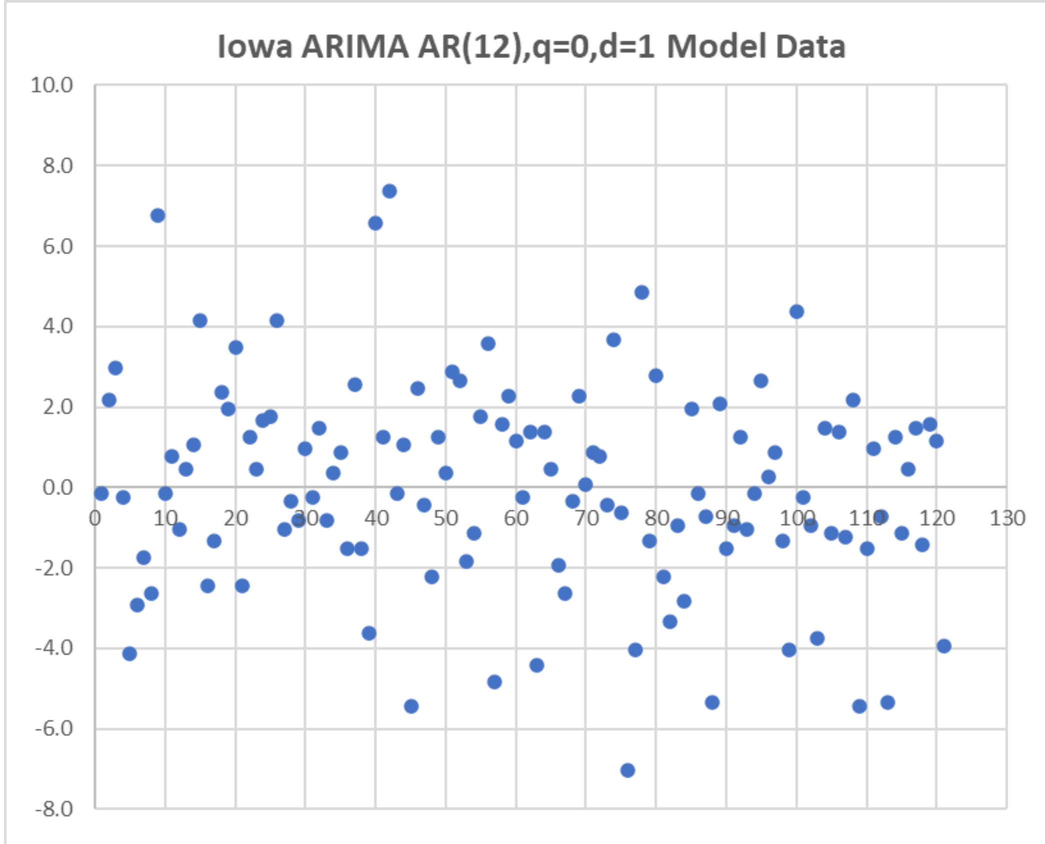


Appendix E15: Iowa Nonfarm Employment ARIMA Model Forecast

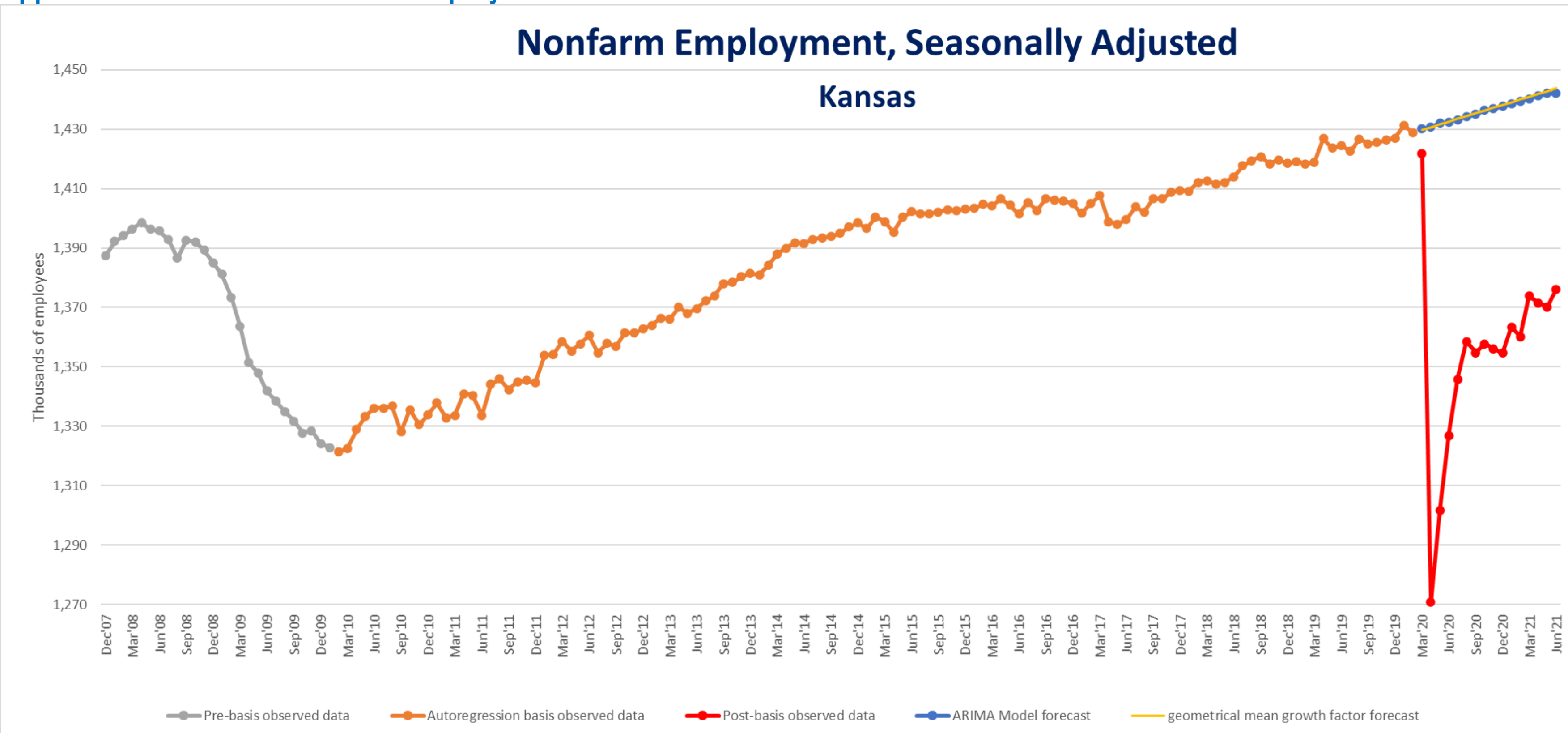


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.743096*	*0.480741*	*1.545731*	*0.12546*
phi 1	-0.17	0.102692	*-1.6554*	*0.101109*
phi 2	-0.09648	0.1031	*-0.93574*	*0.351754*
phi 3	-0.1098	0.103559	*-1.06027*	*0.291682*
phi 4	0.035363	0.099974	*0.35372*	*0.724324*
phi 5	0.011886	0.099482	*0.119476*	*0.905148*
phi 6	0.177891	0.098961	*1.797594*	*0.075385*
phi 7	-0.04112	0.098636	*-0.41688*	*0.677696*
phi 8	-0.00833	0.096887	*-0.08594*	*0.931694*
phi 9	0.177077	0.099376	*1.781889*	*0.077929*
phi 10	0.081409	0.099171	*0.8209*	*0.413737*
phi 11	0.141214	0.098723	*1.430411*	*0.155846*
phi 12	0.081863	0.099311	*0.824312*	*0.411806*

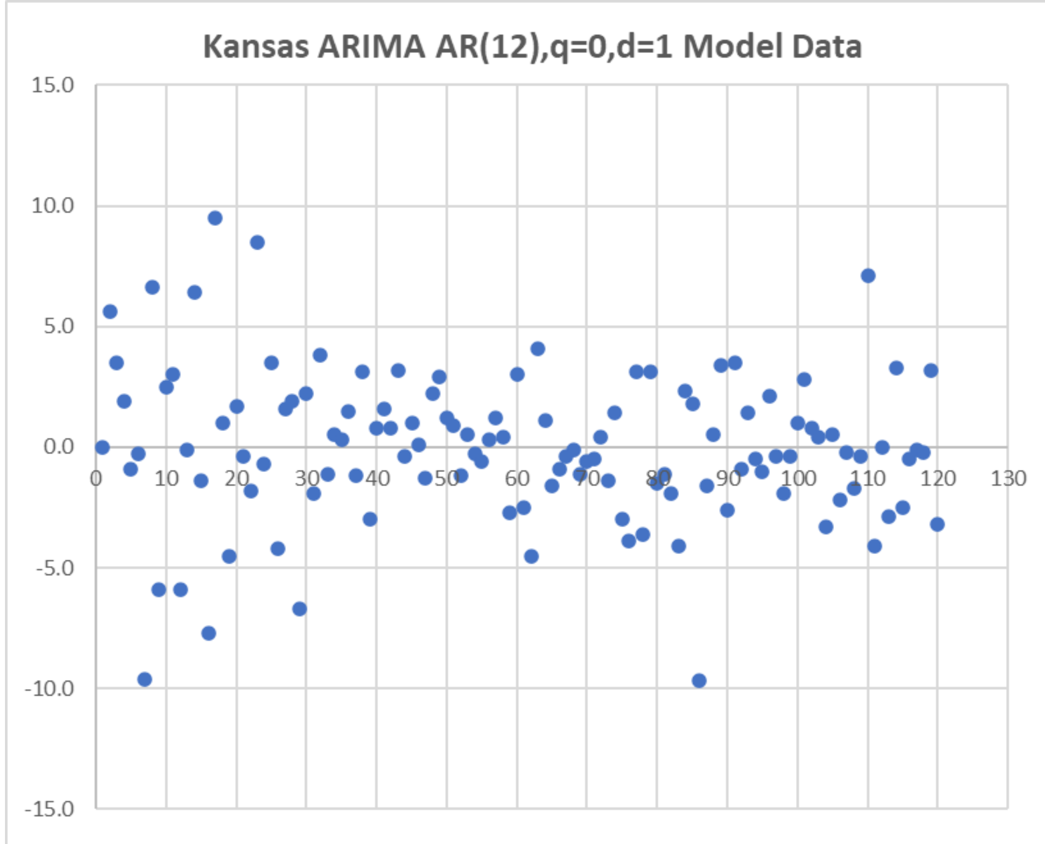


Appendix E16: Kansas Nonfarm Employment ARIMA Model Forecast

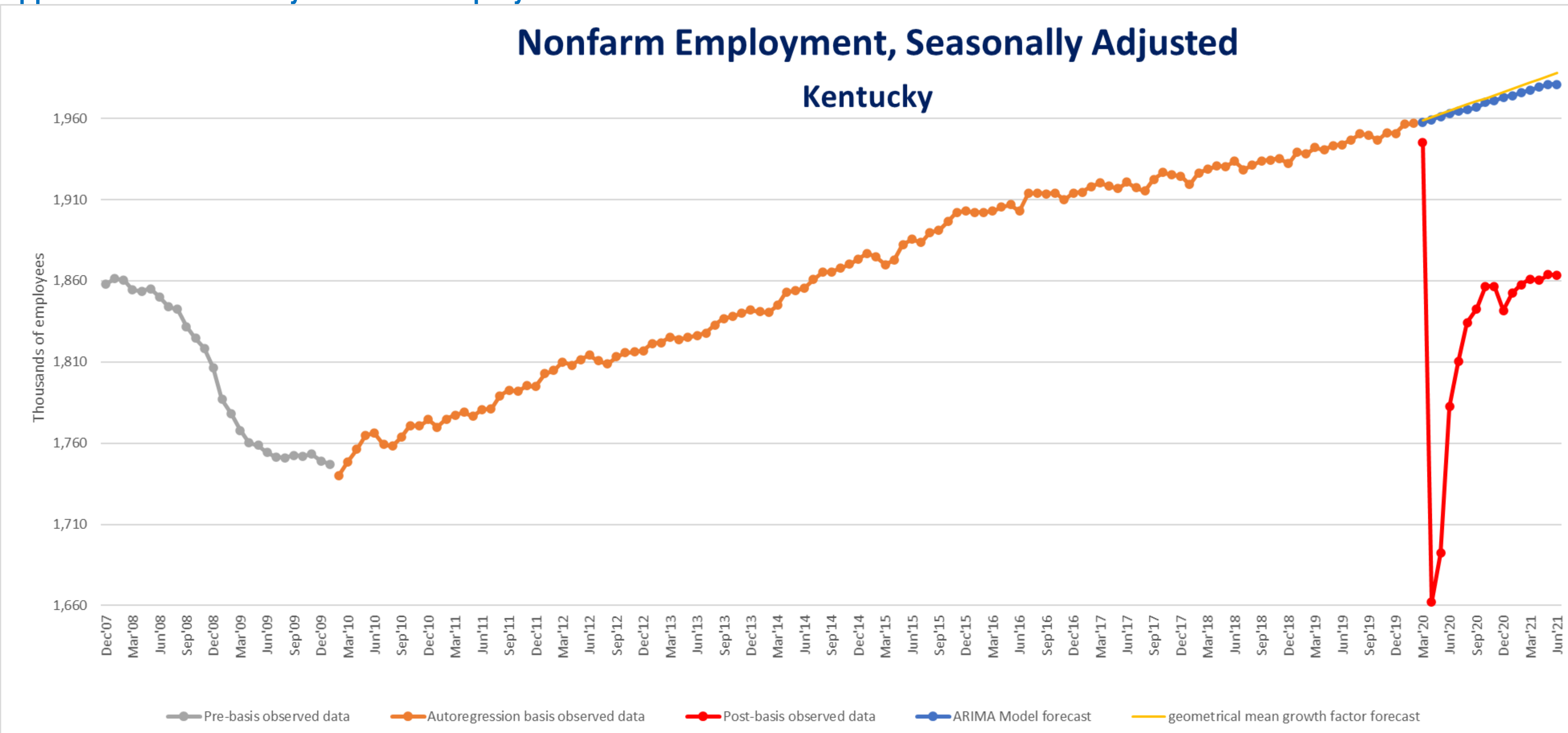


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.966764	0.485952	1.989422	0.04953
phi 1	-0.42026	0.100991	-4.1614	6.95E-05
phi 2	-0.26575	0.109864	-2.41892	0.017471
phi 3	-0.01044	0.112622	-0.09266	0.926368
phi 4	0.065059	0.110248	0.590119	0.556512
phi 5	0.008797	0.110348	0.079722	0.936626
phi 6	0.02888	0.105026	0.274976	0.783932
phi 7	0.081763	0.104475	0.782605	0.435806
phi 8	0.054446	0.104961	0.518731	0.605154
phi 9	0.184765	0.103796	1.780084	0.078259
phi 10	0.133402	0.101963	1.308334	0.193917
phi 11	0.059167	0.099092	0.597091	0.551867
phi 12	-0.00208	0.092415	-0.02246	0.982128

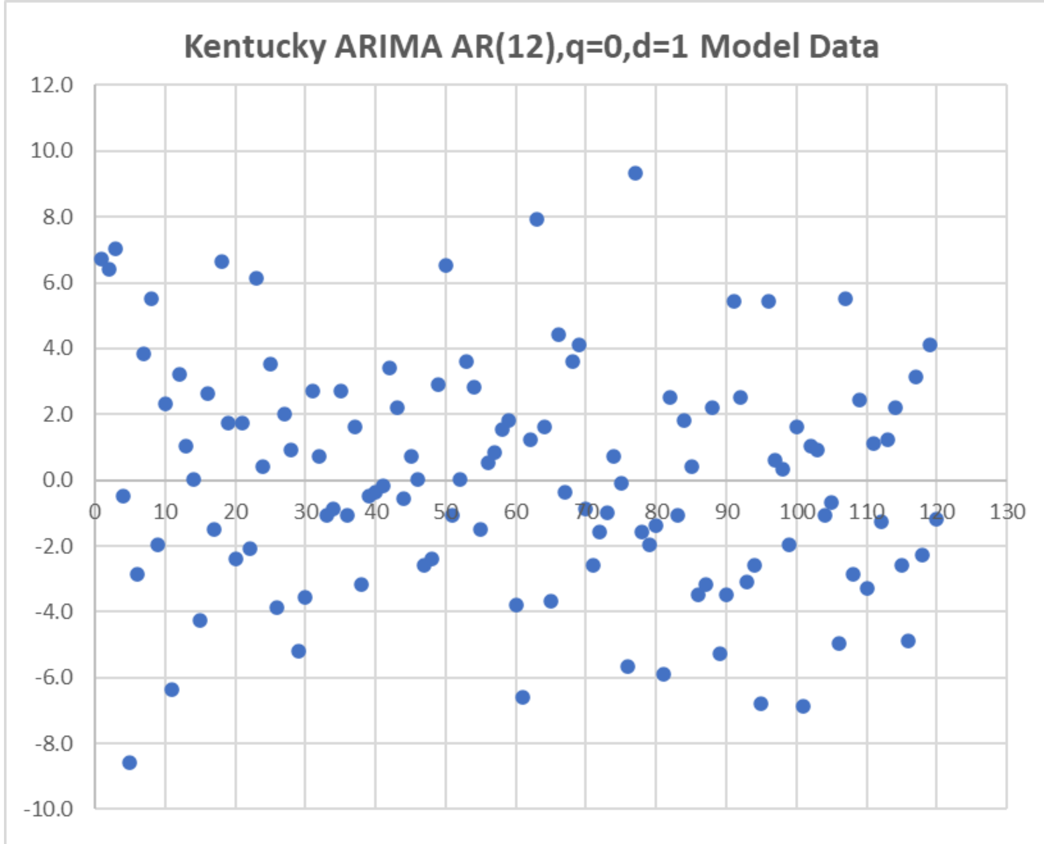


Appendix E17: Kentucky Nonfarm Employment ARIMA Model Forecast

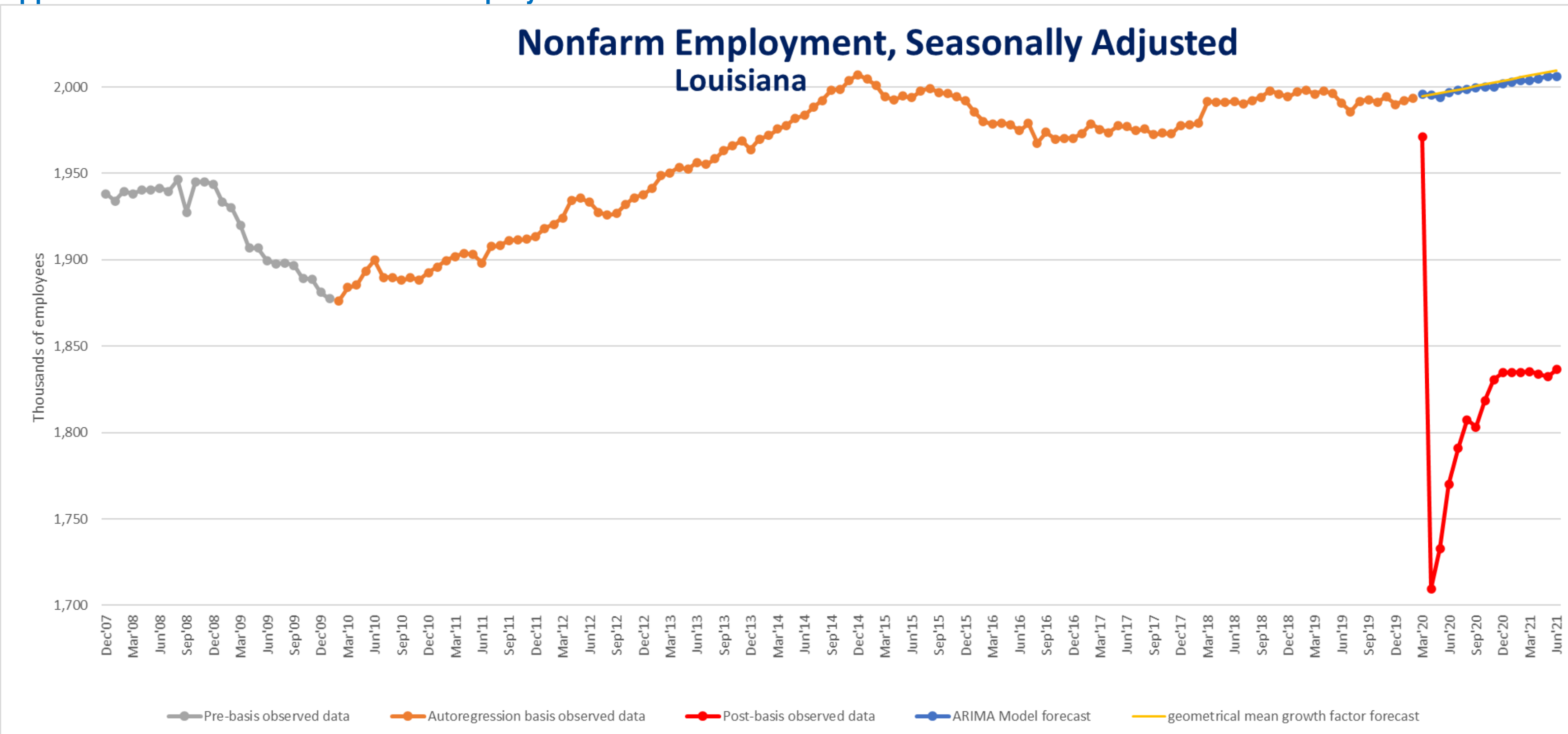


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*1.919457*	*0.858378*	*2.236143*	*0.027683*
phi 1	-0.23079	0.102281	*-2.25638*	*0.026339*
phi 2	-0.18728	0.10349	*-1.80965*	*0.073512*
phi 3	-0.17468	0.105296	*-1.65898*	*0.100417*
phi 4	-0.01324	0.105971	*-0.12496*	*0.900819*
phi 5	0.060267	0.106421	*0.56631*	*0.572519*
phi 6	0.096019	0.106806	*0.899007*	*0.370922*
phi 7	0.028291	0.106156	*0.266506*	*0.790427*
phi 8	0.075555	0.104962	*0.719839*	*0.473391*
phi 9	0.114179	0.104978	*1.087646*	*0.279503*
phi 10	0.033736	0.100436	*0.335895*	*0.737691*
phi 11	0.126478	0.096941	*1.304696*	*0.195148*
phi 12	-0.07337	0.094304	*-0.77799*	*0.438507*

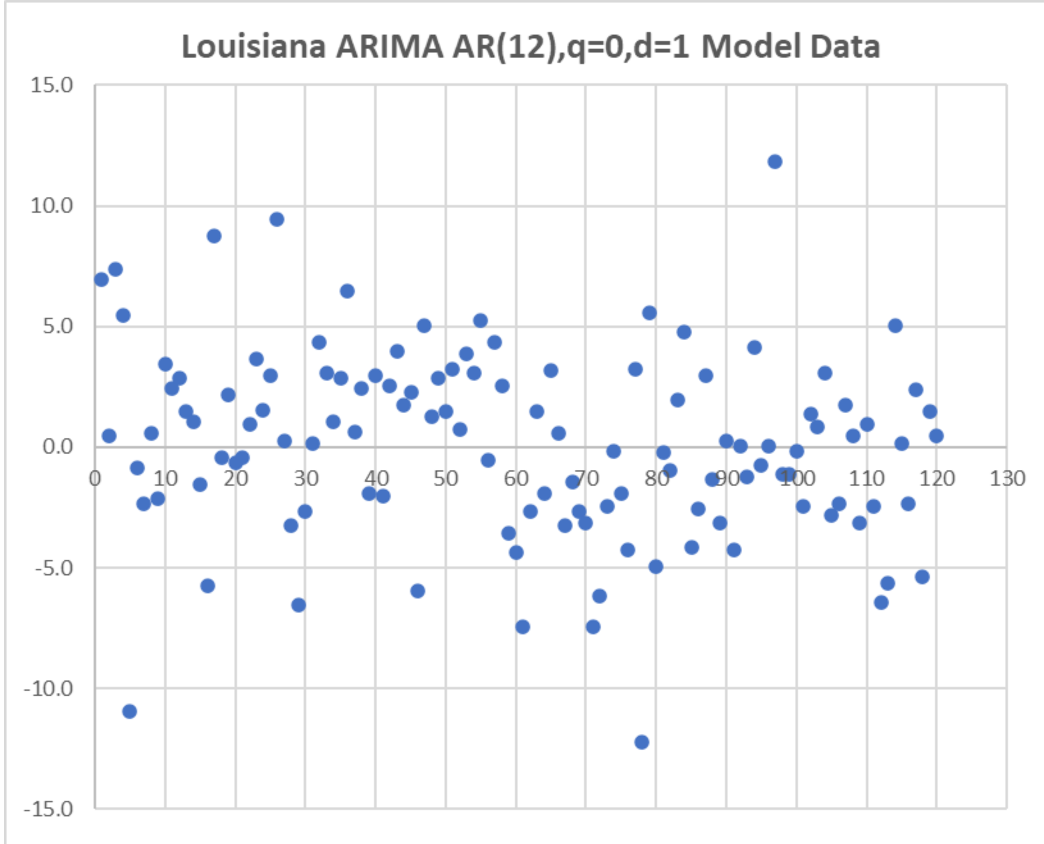


Appendix E18: Louisiana Nonfarm Employment ARIMA Model Forecast

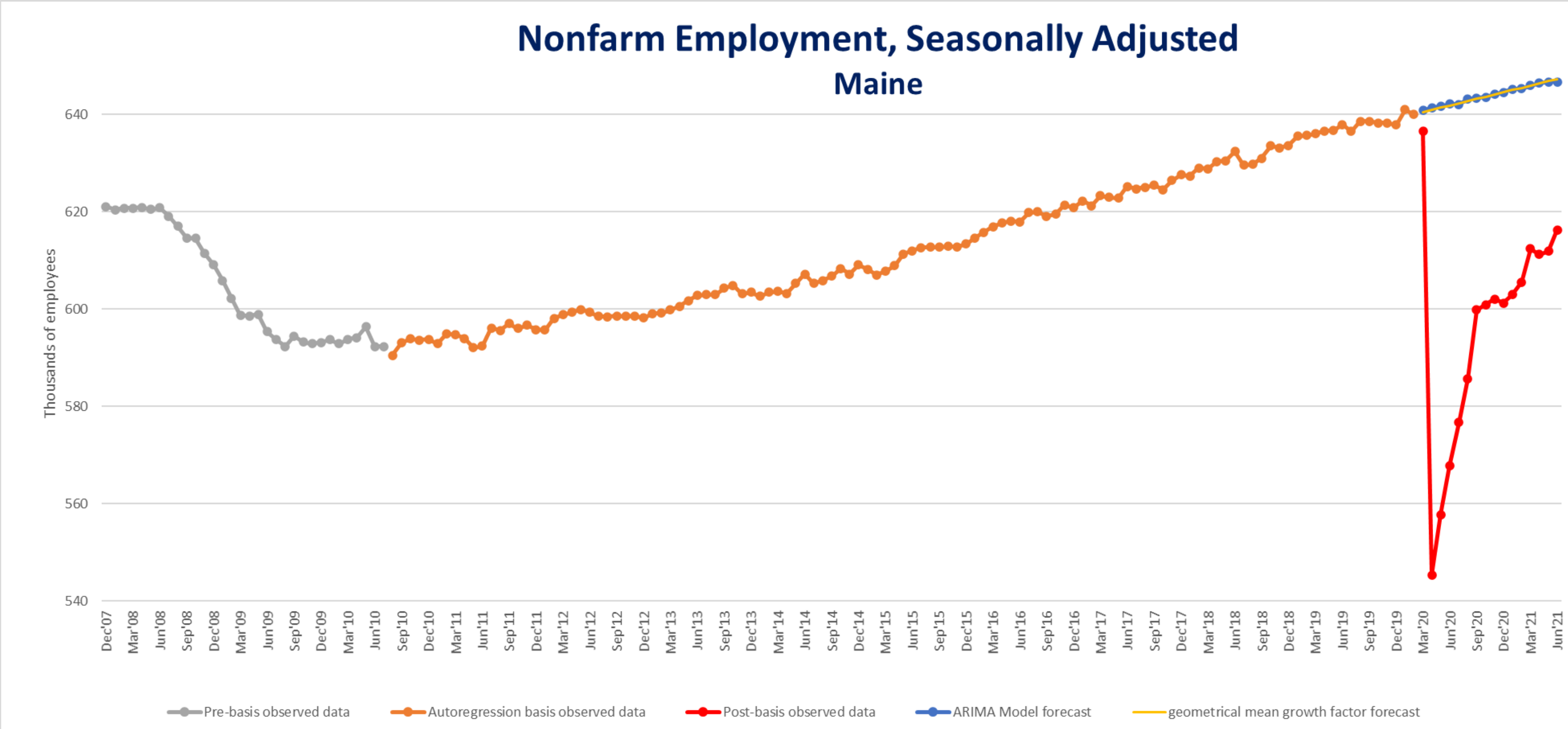


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.465296	0.428412	1.086096	0.280185
phi 1	0.03275	0.100013	0.327456	0.744043
phi 2	0.192696	0.099208	1.942337	0.055058
phi 3	0.006188	0.099669	0.062089	0.950623
phi 4	-0.05592	0.09964	-0.5612	0.575981
phi 5	0.05673	0.099888	0.567935	0.571419
phi 6	-0.00236	0.098448	-0.024	0.980906
phi 7	0.165167	0.0999	1.653324	0.101566
phi 8	-0.06338	0.097404	-0.65069	0.516819
phi 9	-0.00933	0.098031	-0.09518	0.924371
phi 10	0.204361	0.096165	2.125103	0.036173
phi 11	0.125048	0.096331	1.298101	0.197395
phi 12	-0.20535	0.096941	-2.11829	0.03676

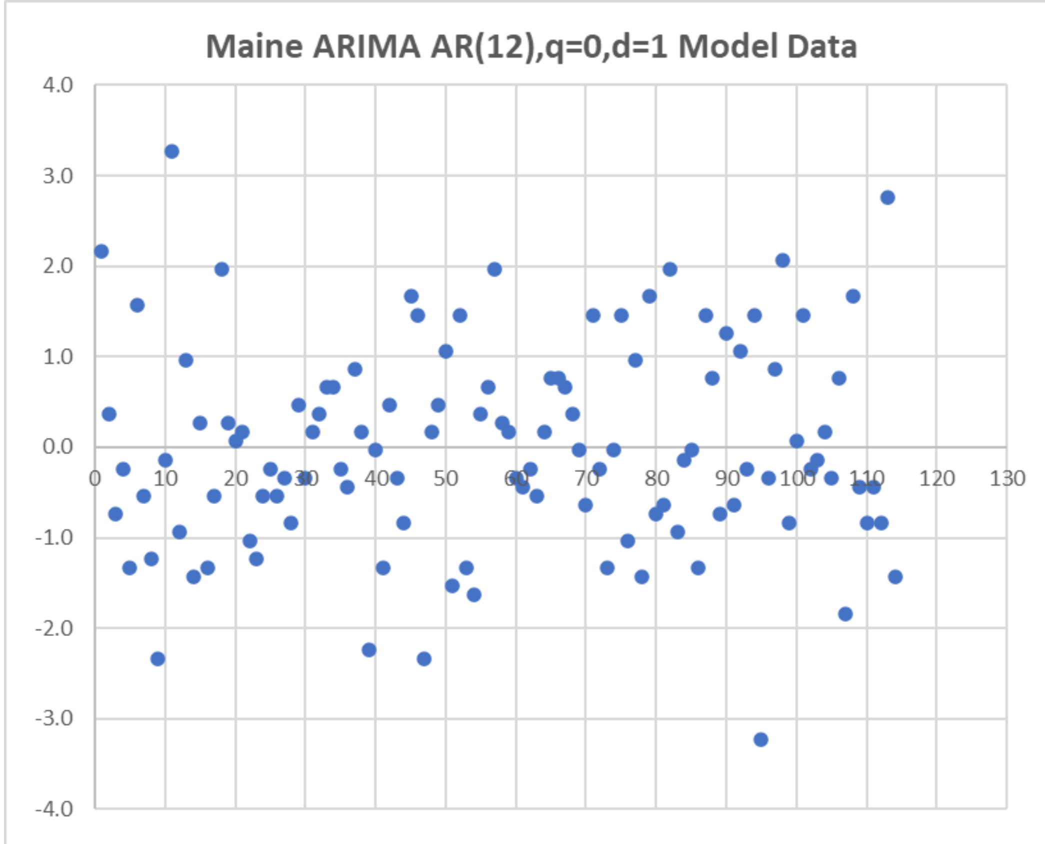


Appendix E19: Maine Nonfarm Employment ARIMA Model Forecast

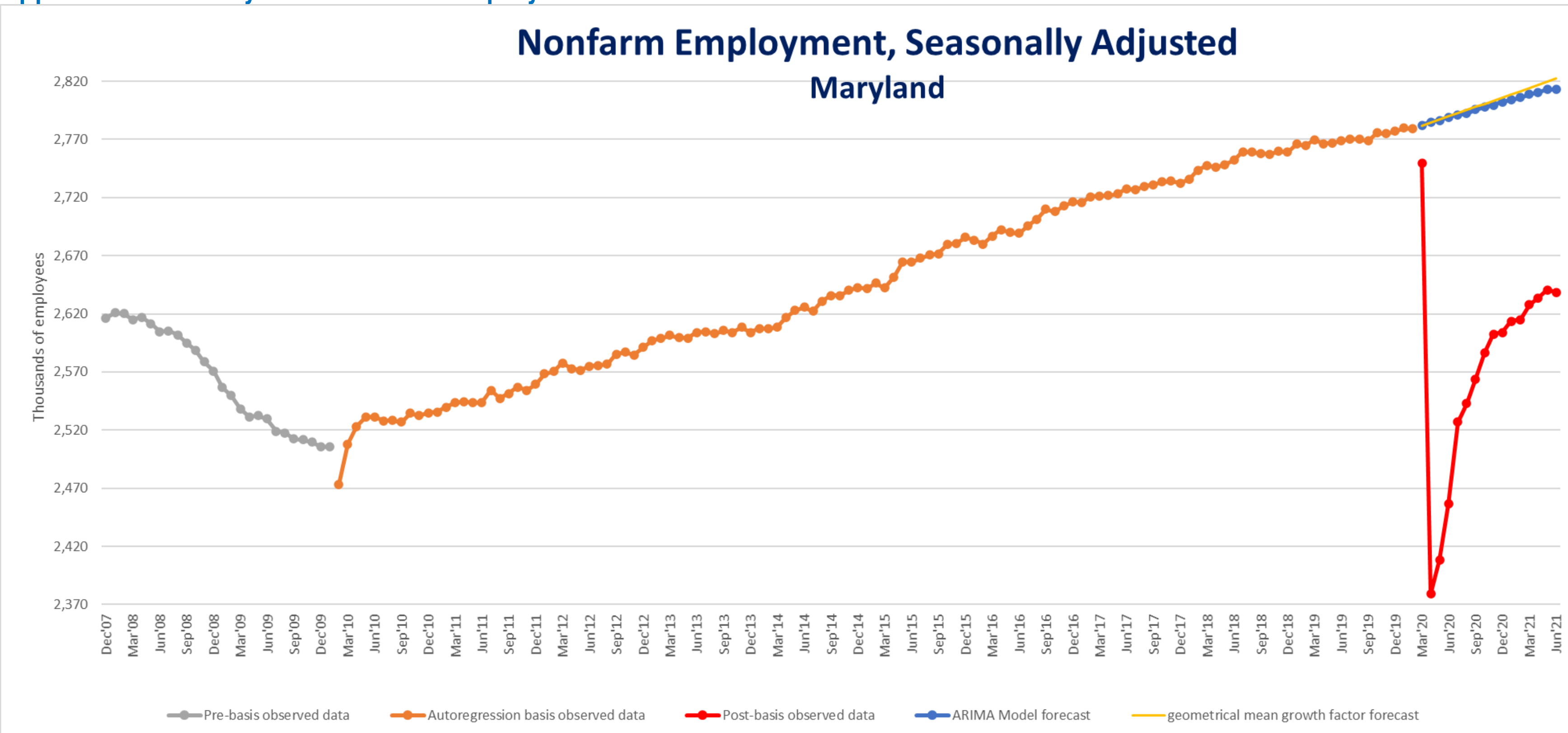


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.911199	0.302713	3.010104	0.003398
phi 1	-0.35271	0.10568	-3.33749	0.001235
phi 2	-0.15527	0.110817	-1.40115	0.164646
phi 3	-0.18202	0.112111	-1.62357	0.108004
phi 4	-0.14436	0.109752	-1.31534	0.191774
phi 5	-0.11394	0.109478	-1.04075	0.300811
phi 6	-0.20164	0.109895	-1.83489	0.069863
phi 7	0.017794	0.110455	0.161093	0.872386
phi 8	0.056409	0.11003	0.512669	0.609453
phi 9	-0.09185	0.108773	-0.84445	0.400683
phi 10	-0.02831	0.106159	-0.26667	0.790338
phi 11	0.020582	0.104041	0.197825	0.843633
phi 12	0.08715	0.098777	0.882294	0.379995

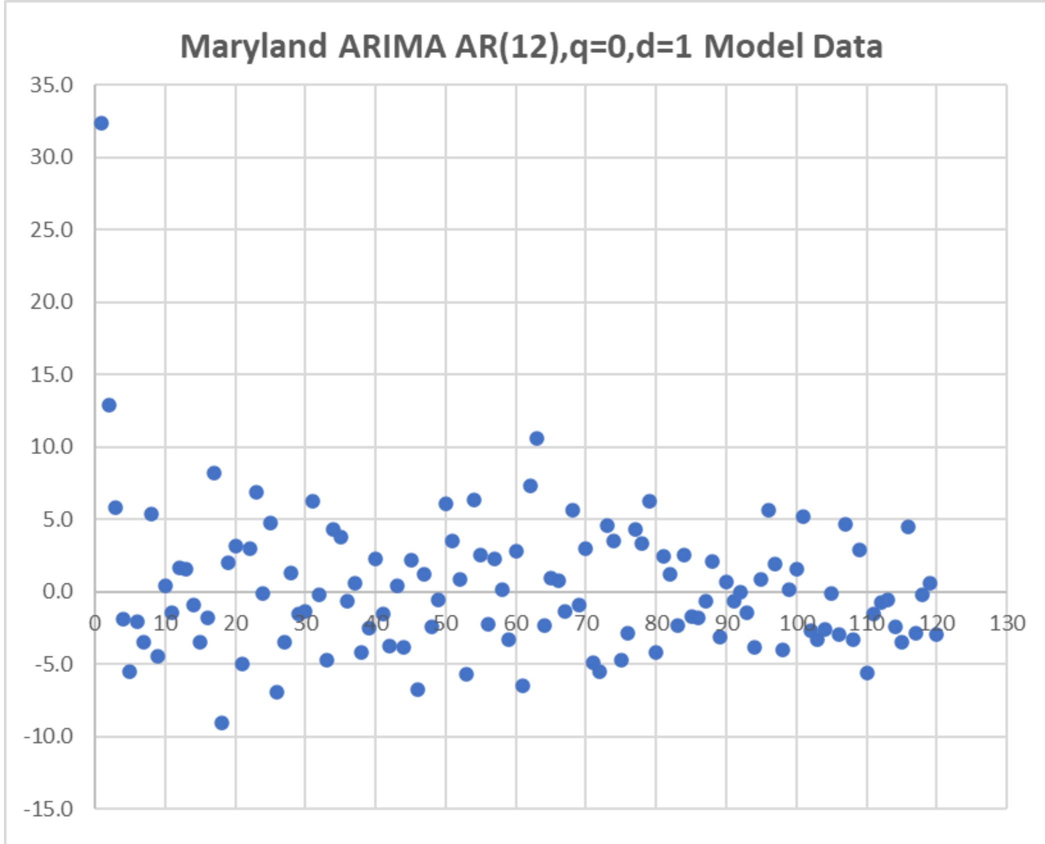


Appendix E20: Maryland Nonfarm Employment ARIMA Model Forecast

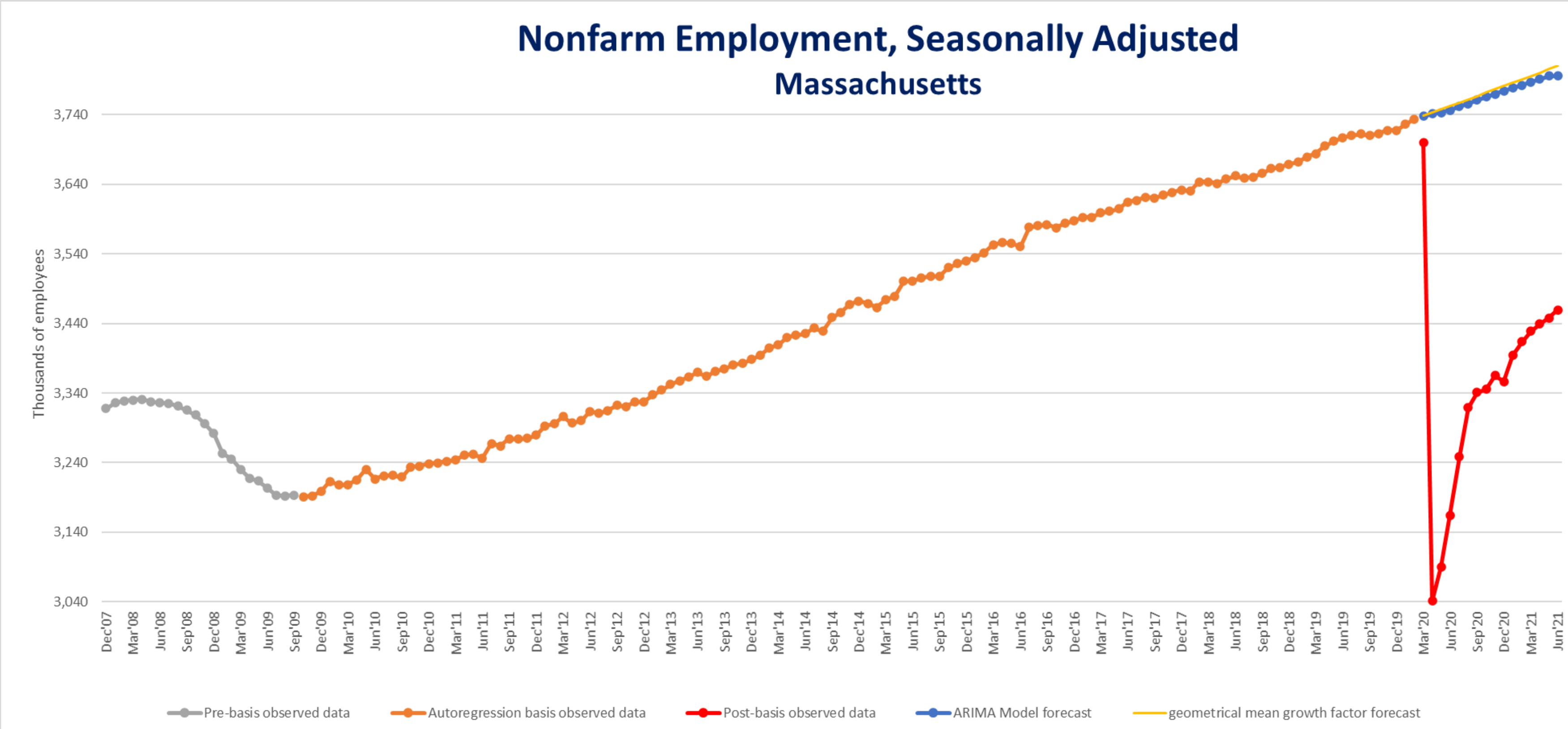


Model parameters

param	coeff	s.e.	t-stat	p-value
const	3.191092	1.157163	2.757685	0.006982
phi 1	-0.21803	0.102978	-2.11719	0.036856
phi 2	-0.20162	0.103772	-1.94291	0.054988
phi 3	-0.00869	0.105101	-0.08266	0.934292
phi 4	-0.03525	0.105448	-0.33432	0.738875
phi 5	0.112378	0.104528	1.075101	0.285052
phi 6	0.045775	0.1038	0.440994	0.66022
phi 7	-0.09887	0.103731	-0.95315	0.342934
phi 8	-0.02933	0.10439	-0.281	0.779319
phi 9	-0.02657	0.103251	-0.25736	0.797461
phi 10	-0.1318	0.099843	-1.32006	0.189985
phi 11	0.106946	0.095653	1.118064	0.266359
phi 12	0.035554	0.073398	0.4844	0.629217

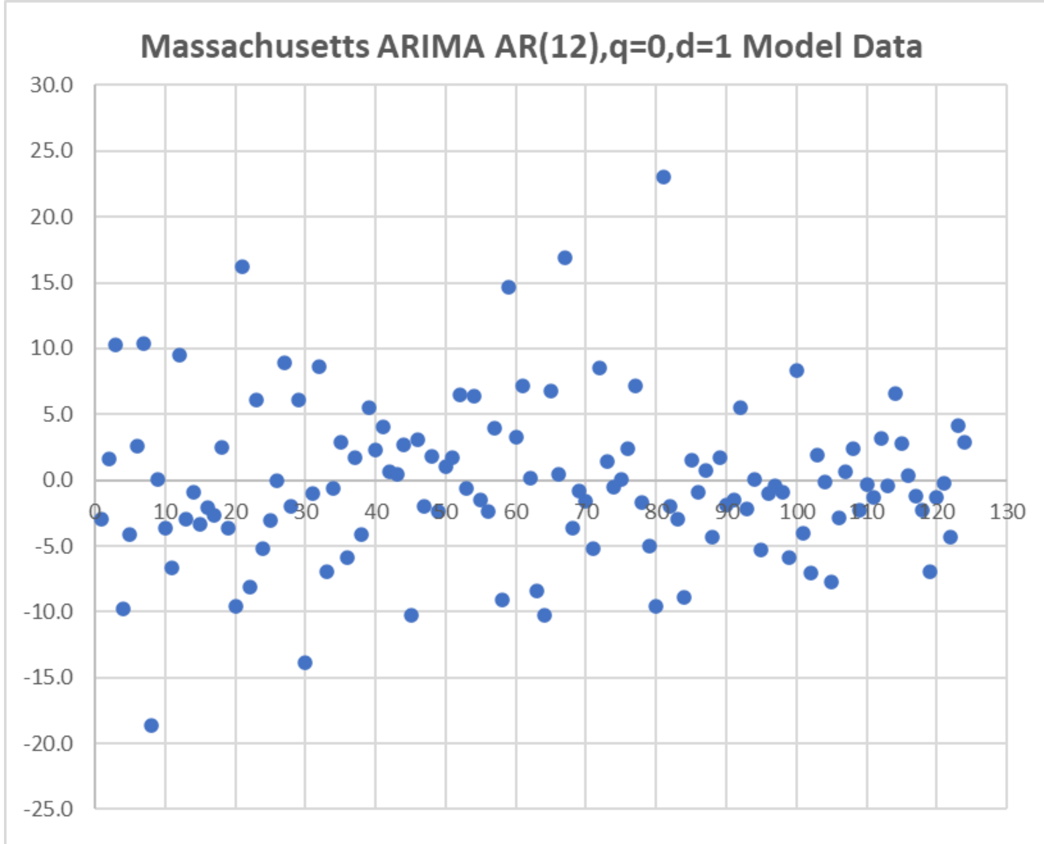


Appendix E21: Massachusetts Nonfarm Employment ARIMA Model Forecast

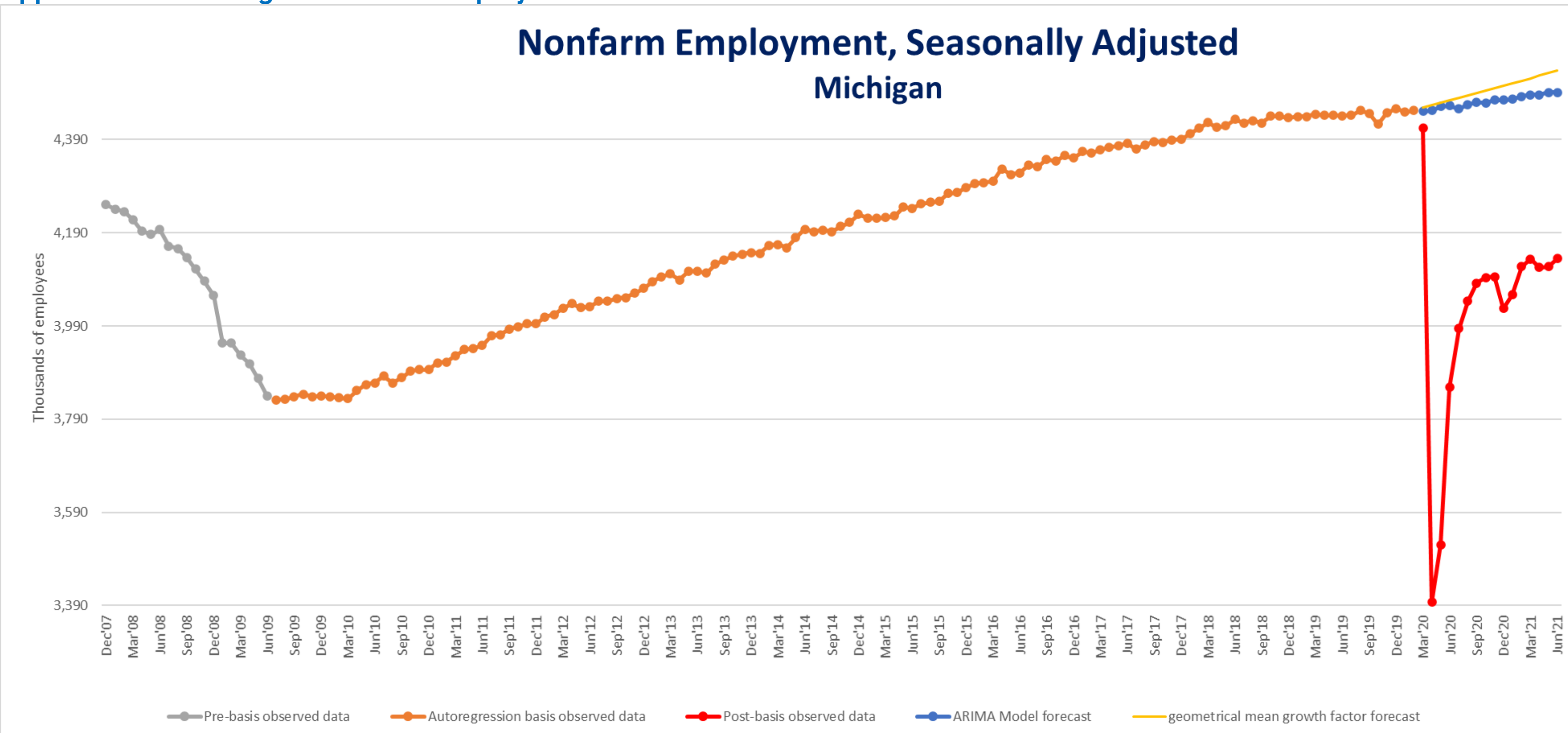


Model parameters

param	coeff	s.e.	t-stat	p-value
const	5.452315	2.217162	2.459141	0.015662
phi 1	-0.31834	0.100433	-3.16965	0.002031
phi 2	-0.1367	0.10277	-1.33013	0.186532
phi 3	-0.274	0.103979	-2.6351	0.009764
phi 4	-0.14345	0.106336	-1.34906	0.180394
phi 5	0.038351	0.100311	0.382317	0.703045
phi 6	0.107398	0.101659	1.056451	0.293334
phi 7	0.014924	0.102001	0.14631	0.883974
phi 8	0.183937	0.101487	1.81241	0.072954
phi 9	0.140078	0.101851	1.375325	0.172135
phi 10	0.006775	0.09902	0.068425	0.945586
phi 11	0.154047	0.097755	1.575848	0.118251
phi 12	0.014166	0.092383	0.15334	0.878442

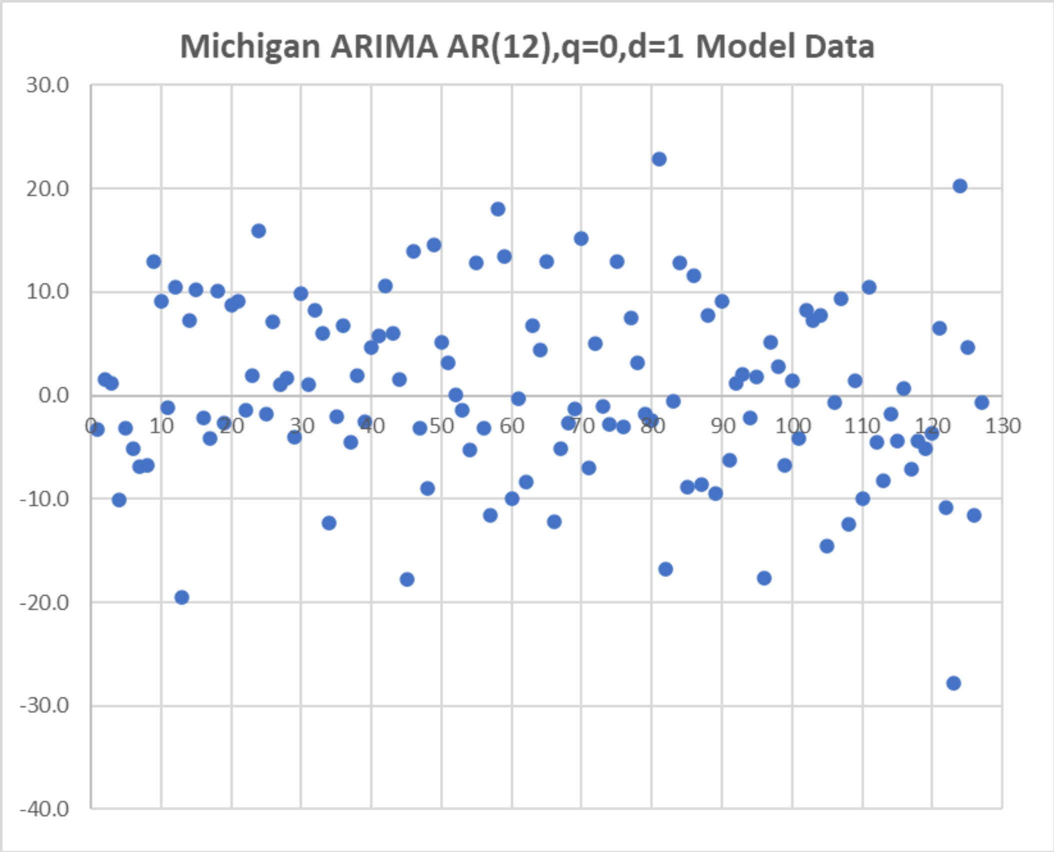


Appendix E22: Michigan Nonfarm Employment ARIMA Model Forecast

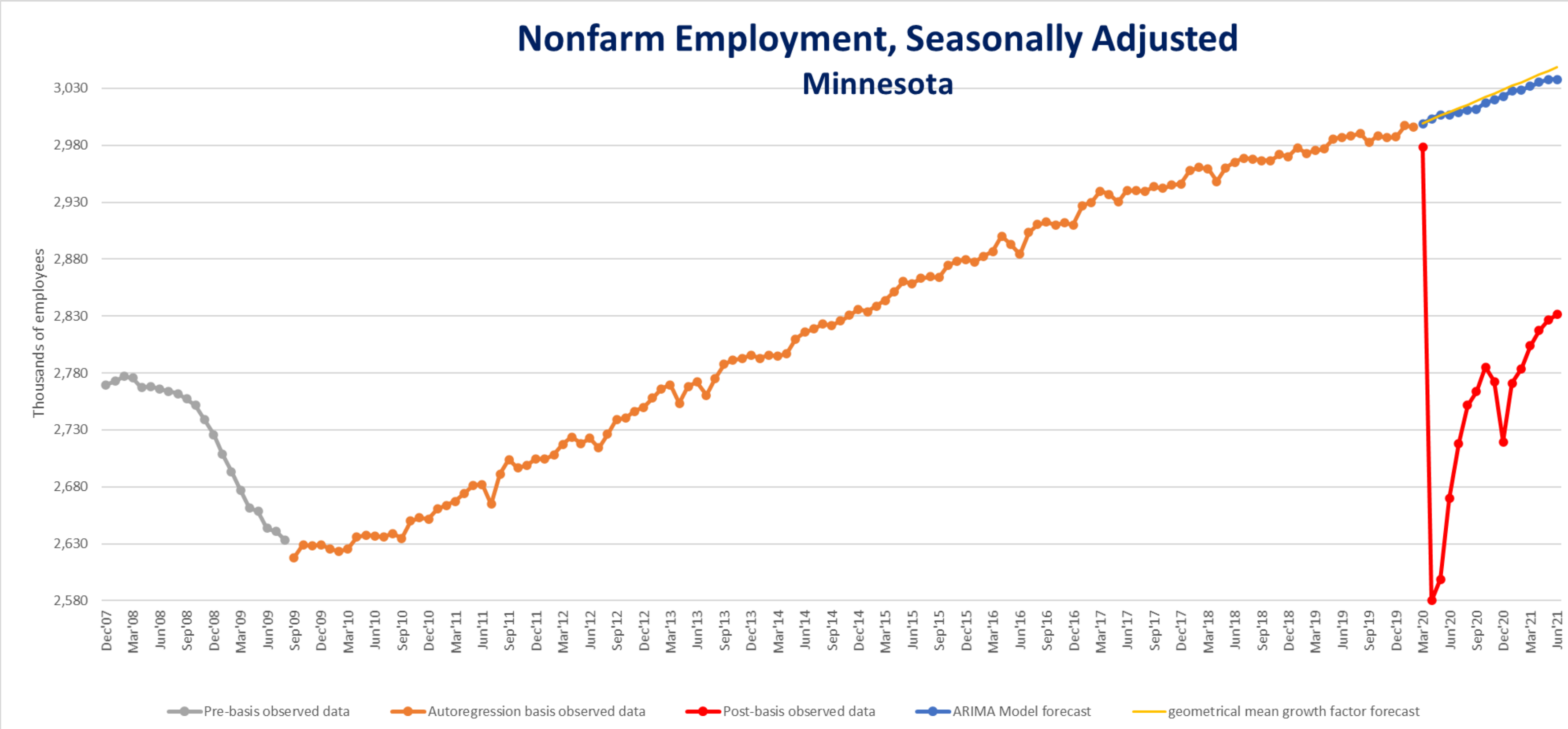


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*2.150148*	*2.157406*	*0.996636*	*0.3213*
phi 1	-0.40344	0.097287	*-4.14691*	*6.98E-05*
phi 2	-0.27026	0.103908	*-2.60099*	*0.010677*
phi 3	-0.01796	0.10411	*-0.17246*	*0.863416*
phi 4	0.031141	0.099795	*0.31205*	*0.75564*
phi 5	0.230056	0.10329	*2.227272*	*0.028127*
phi 6	0.25595	0.105675	*2.422041*	*0.017198*
phi 7	0.171982	0.105594	*1.628702*	*0.106461*
phi 8	0.023634	0.10462	*0.225908*	*0.821725*
phi 9	0.30394	0.103092	*2.948237*	*0.003962*
phi 10	0.098519	0.10728	*0.918335*	*0.36061*
phi 11	0.058369	0.106582	*0.547647*	*0.585131*
phi 12	0.028612	0.100805	*0.283835*	*0.777112*

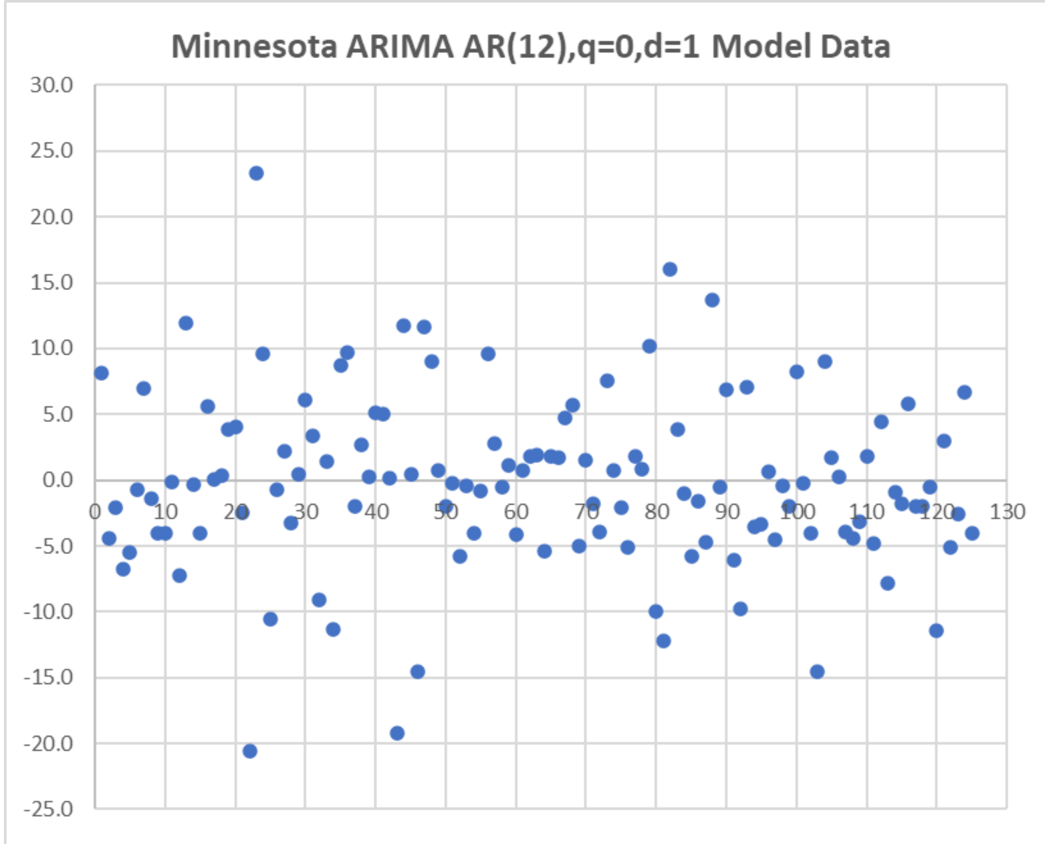


Appendix E23: Minnesota Nonfarm Employment ARIMA Model Forecast

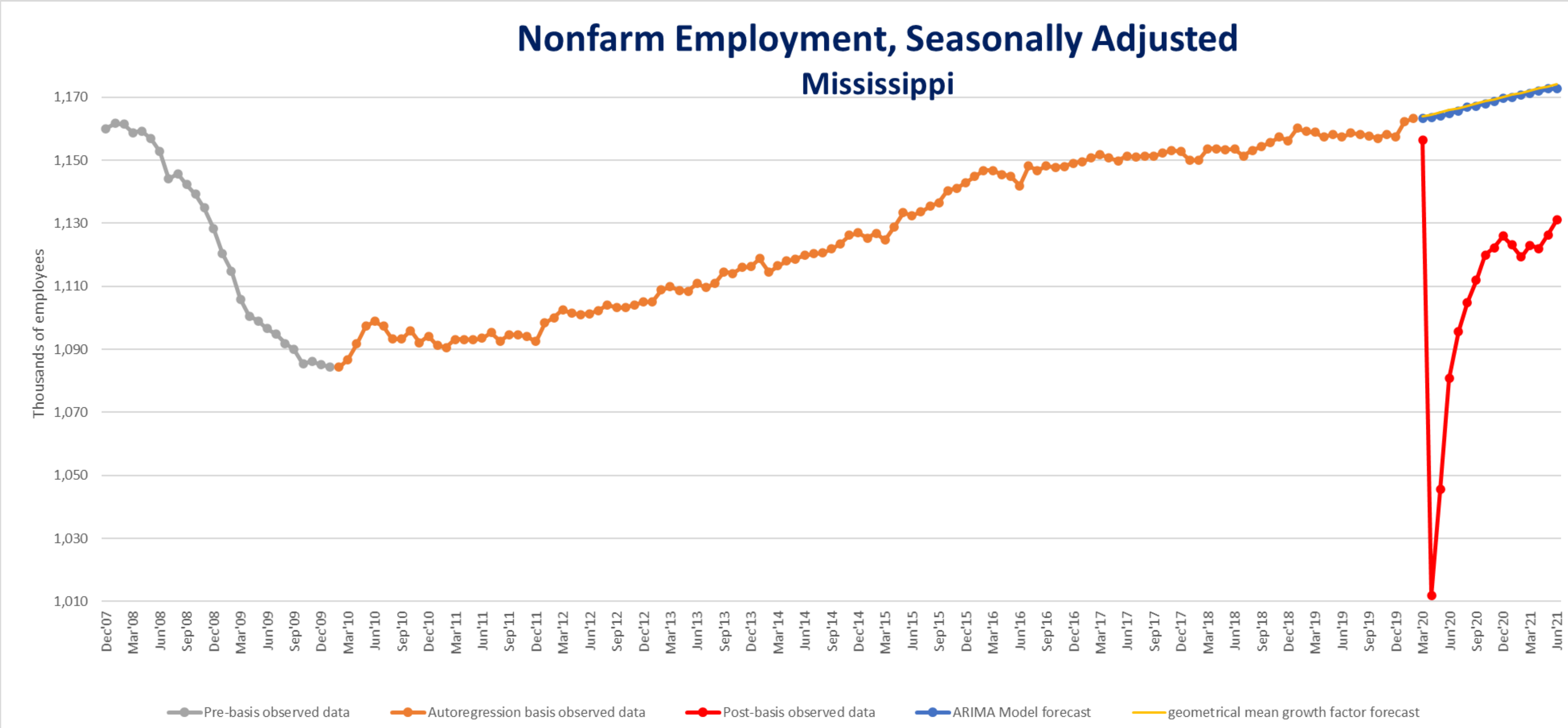


Model parameters

param	coeff	s.e.	t-stat	p-value
const	4.666371	2.110718	2.210797	0.029328
phi 1	-0.41561	0.093792	-4.43115	2.4E-05
phi 2	-0.47274	0.099566	-4.74801	6.87E-06
phi 3	-0.22461	0.108406	-2.0719	0.040848
phi 4	-0.201	0.110956	-1.81155	0.073057
phi 5	-0.08761	0.112758	-0.77698	0.439002
phi 6	0.017067	0.11596	0.147183	0.883284
phi 7	0.06764	0.115995	0.583124	0.561123
phi 8	0.034707	0.115627	0.300165	0.764675
phi 9	0.10998	0.112738	0.975536	0.331648
phi 10	0.150614	0.11015	1.367351	0.174581
phi 11	0.236046	0.100069	2.358826	0.020277
phi 12	0.31517	0.094473	3.336092	0.001193

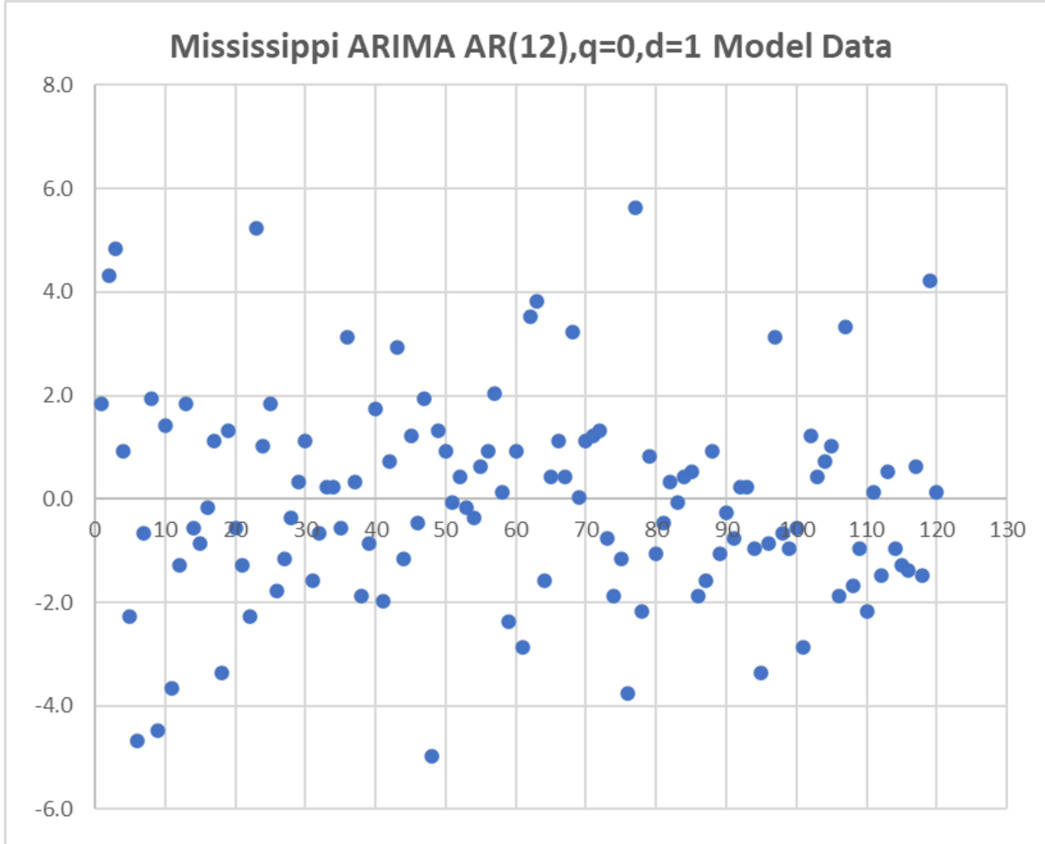


Appendix E24: Mississippi Nonfarm Employment ARIMA Model Forecast

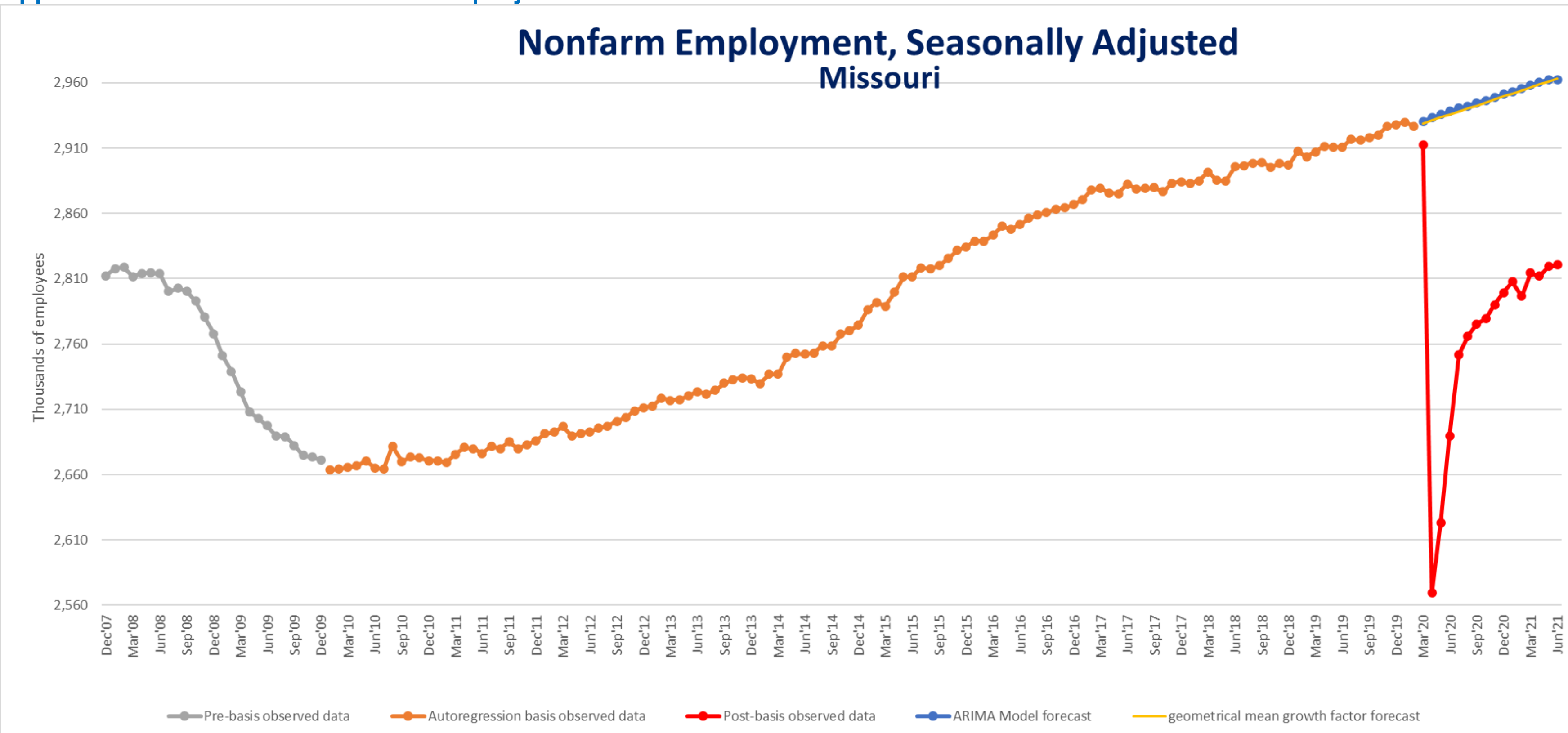


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.860723*	*0.302544*	*2.844951*	*0.00544*
phi 1	-0.2646	0.101788	*-2.5995*	*0.010825*
phi 2	-0.05832	0.106782	*-0.54619*	*0.586217*
phi 3	-0.1008	0.106602	*-0.94559*	*0.346755*
phi 4	-0.10483	0.102951	*-1.01822*	*0.31116*
phi 5	-0.01192	0.102087	*-0.11679*	*0.907271*
phi 6	0.160474	0.101631	*1.578977*	*0.117665*
phi 7	0.10654	0.099778	*1.067775*	*0.288328*
phi 8	-0.07028	0.100362	*-0.70024*	*0.485488*
phi 9	0.019741	0.099228	*0.198941*	*0.842734*
phi 10	0.086452	0.094151	*0.918227*	*0.360825*
phi 11	0.045491	0.091663	*0.496283*	*0.620841*
phi 12	-0.09325	0.090507	*-1.03035*	*0.305461*

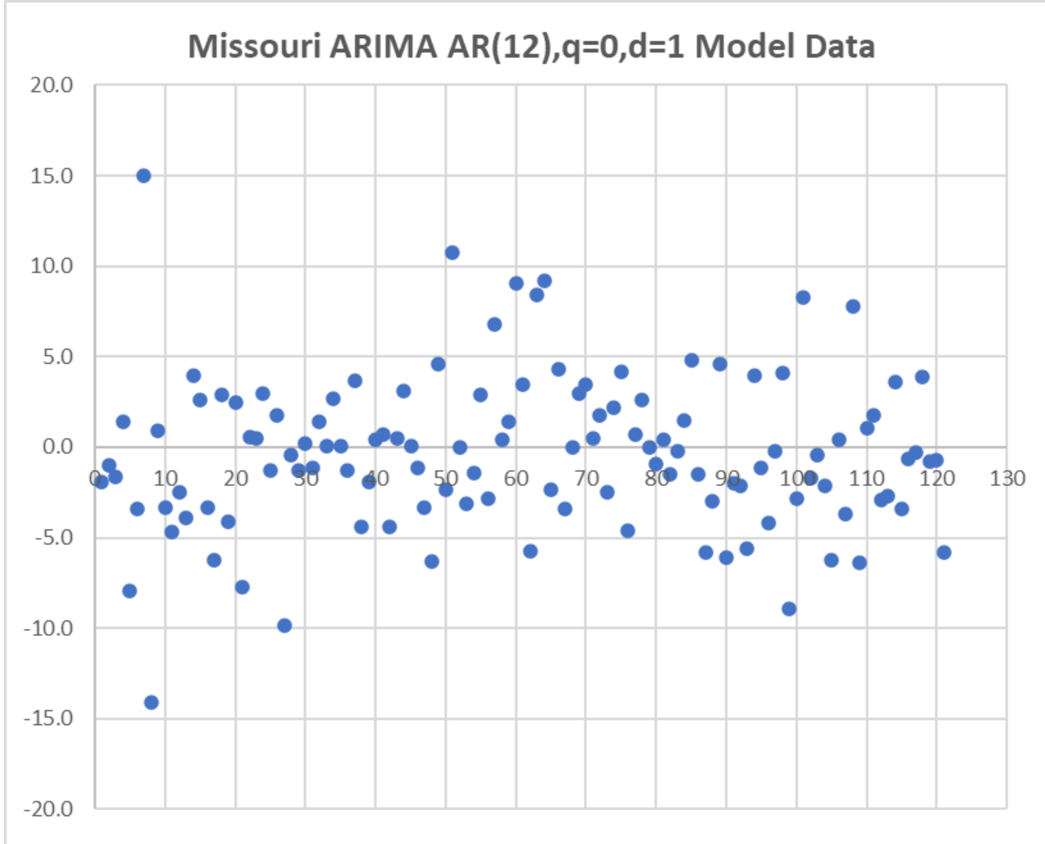


Appendix E25: Missouri Nonfarm Employment ARIMA Model Forecast

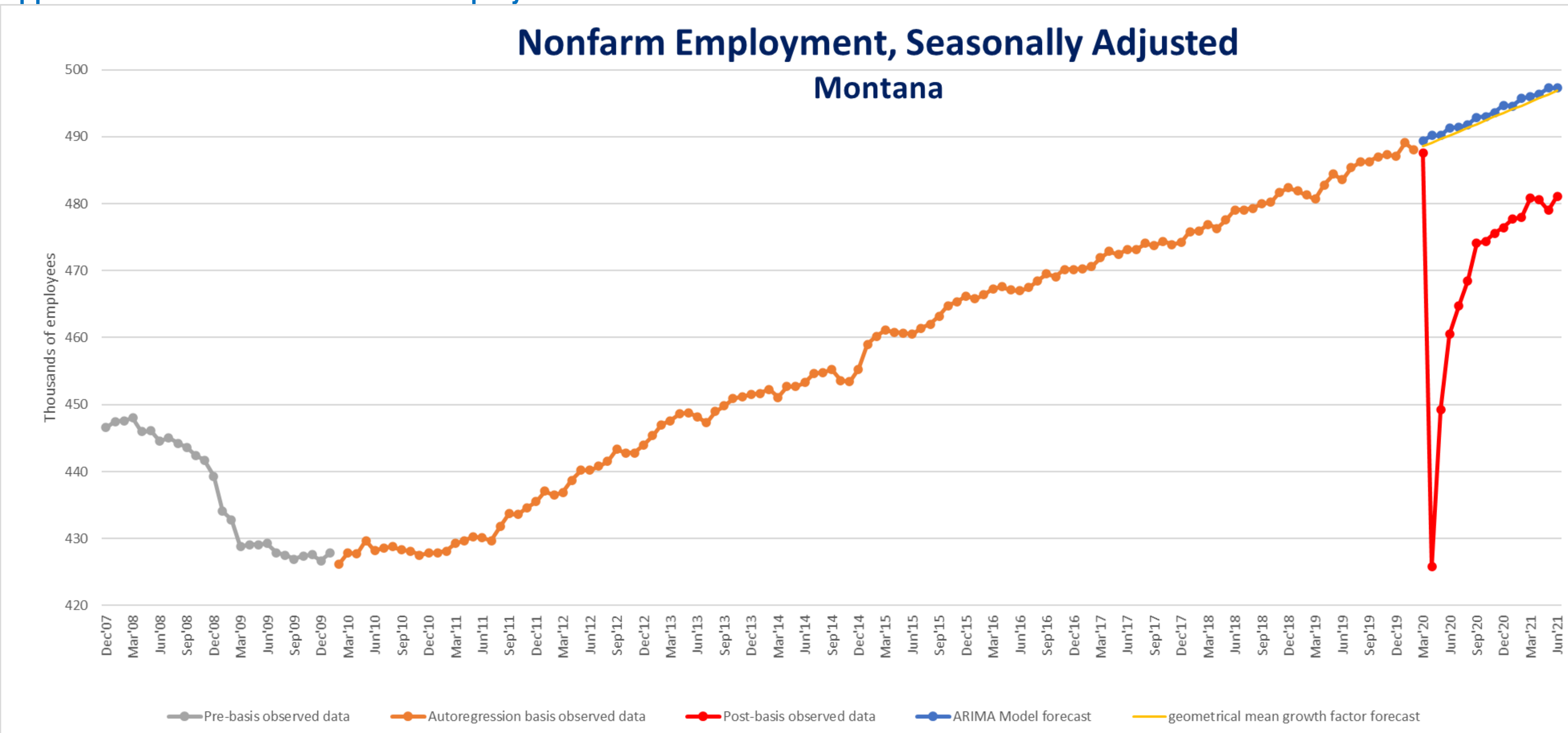


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*1.385459*	*0.77251*	*1.79345*	*0.07605*
phi 1	-0.2566	0.1028	*-2.49609*	*0.014262*
phi 2	-0.17294	0.105042	*-1.64636*	*0.102959*
phi 3	-0.0275	0.105198	*-0.2614*	*0.794347*
phi 4	0.043764	0.104808	*0.41757*	*0.677194*
phi 5	0.038106	0.100523	*0.379078*	*0.705467*
phi 6	0.225231	0.095734	*2.352667*	*0.02068*
phi 7	0.105668	0.095788	*1.103146*	*0.272721*
phi 8	0.182775	0.095888	*1.906141*	*0.059623*
phi 9	0.141351	0.097668	*1.447259*	*0.151082*
phi 10	0.070503	0.098852	*0.713216*	*0.477442*
phi 11	0.086244	0.097556	*0.884042*	*0.378882*
phi 12	0.011919	0.09248	*0.128884*	*0.897719*

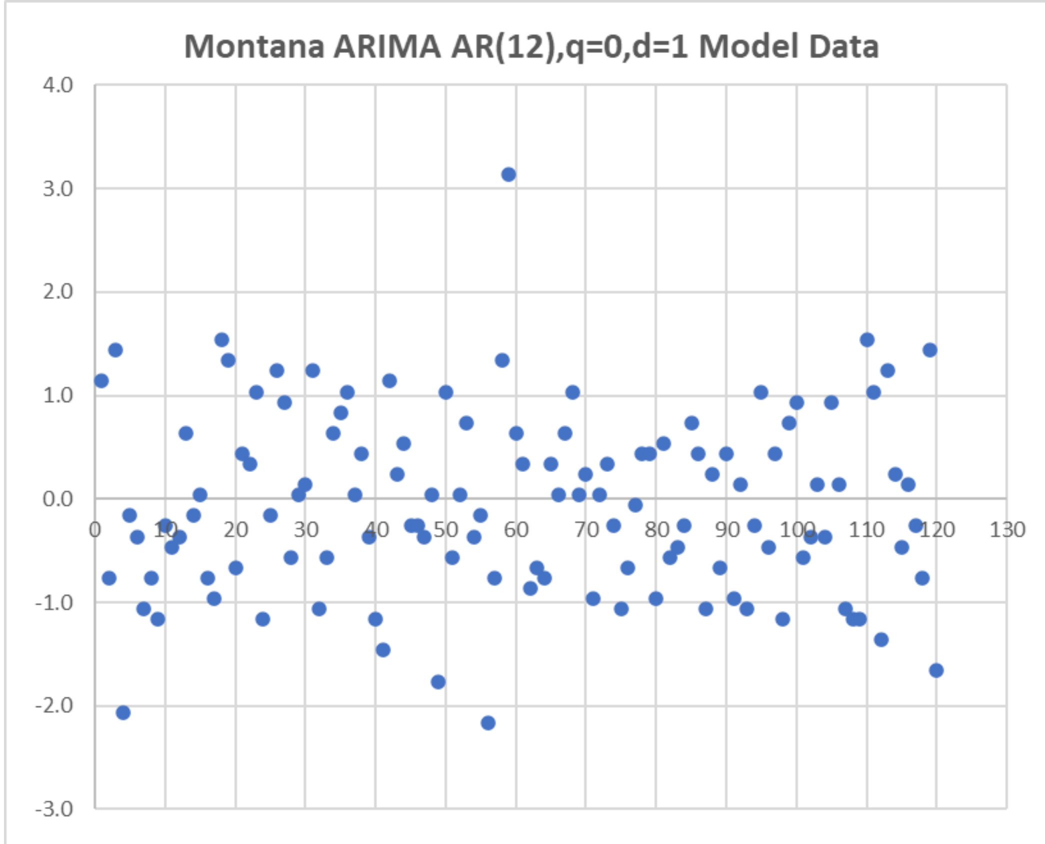


Appendix E26: Montana Nonfarm Employment ARIMA Model Forecast

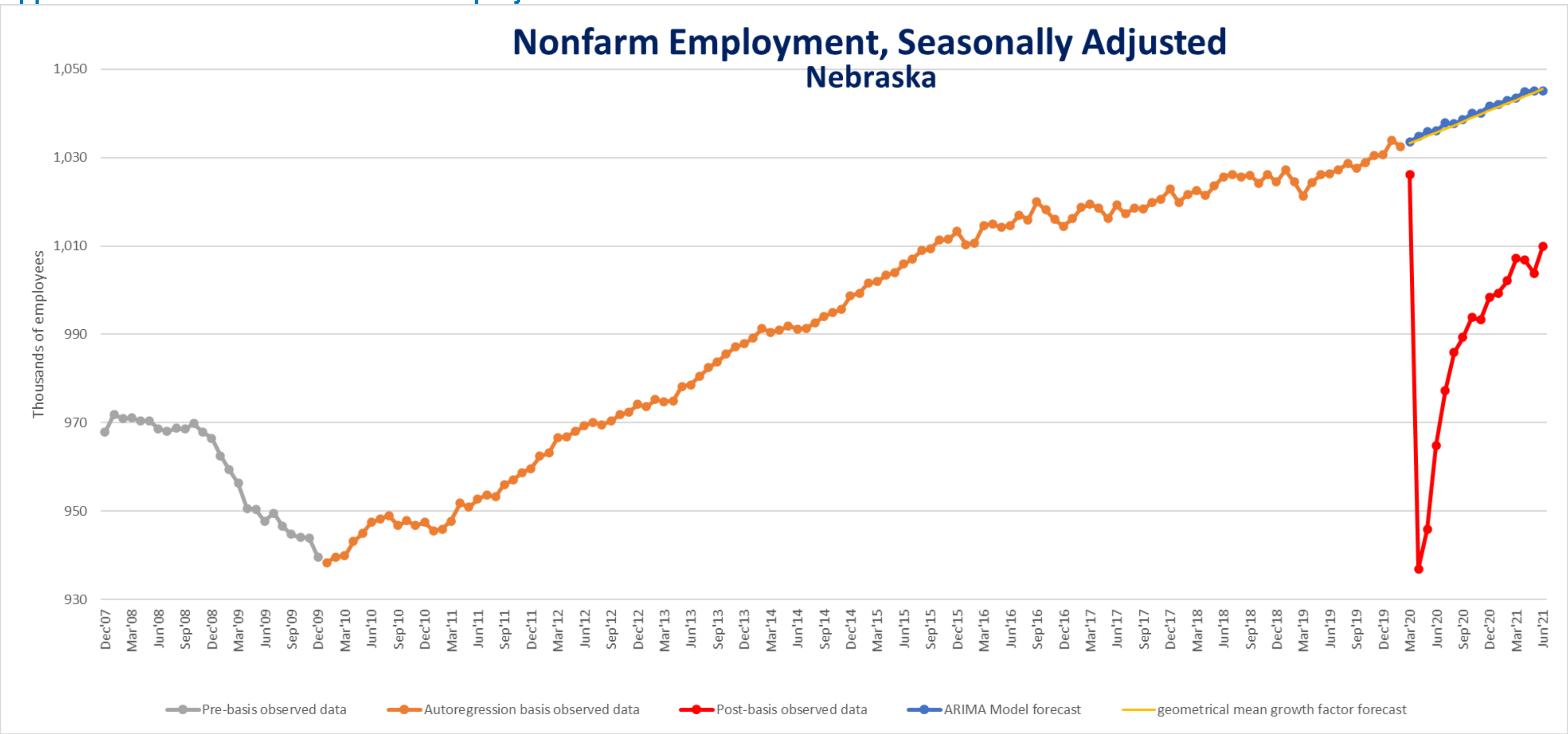


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.857373*	*0.237631*	*3.608005*	*0.000494*
phi 1	-0.07047	0.102322	*-0.68871*	*0.492683*
phi 2	-0.1716	0.100719	*-1.70378*	*0.09169*
phi 3	-0.29792	0.102914	*-2.89486*	*0.004706*
phi 4	-0.15141	0.105195	*-1.43936*	*0.153335*
phi 5	0.039428	0.101472	*0.388563*	*0.698469*
phi 6	-0.12244	0.099868	*-1.22599*	*0.223232*
phi 7	-0.06008	0.098899	*-0.60749*	*0.544974*
phi 8	0.291929	0.100646	*2.90056*	*0.004628*
phi 9	0.035263	0.103673	*0.340134*	*0.734507*
phi 10	-0.10307	0.097135	*-1.06112*	*0.291325*
phi 11	0.197563	0.099572	*1.98412*	*0.050128*
phi 12	-0.11204	0.101593	*-1.10288*	*0.272867*

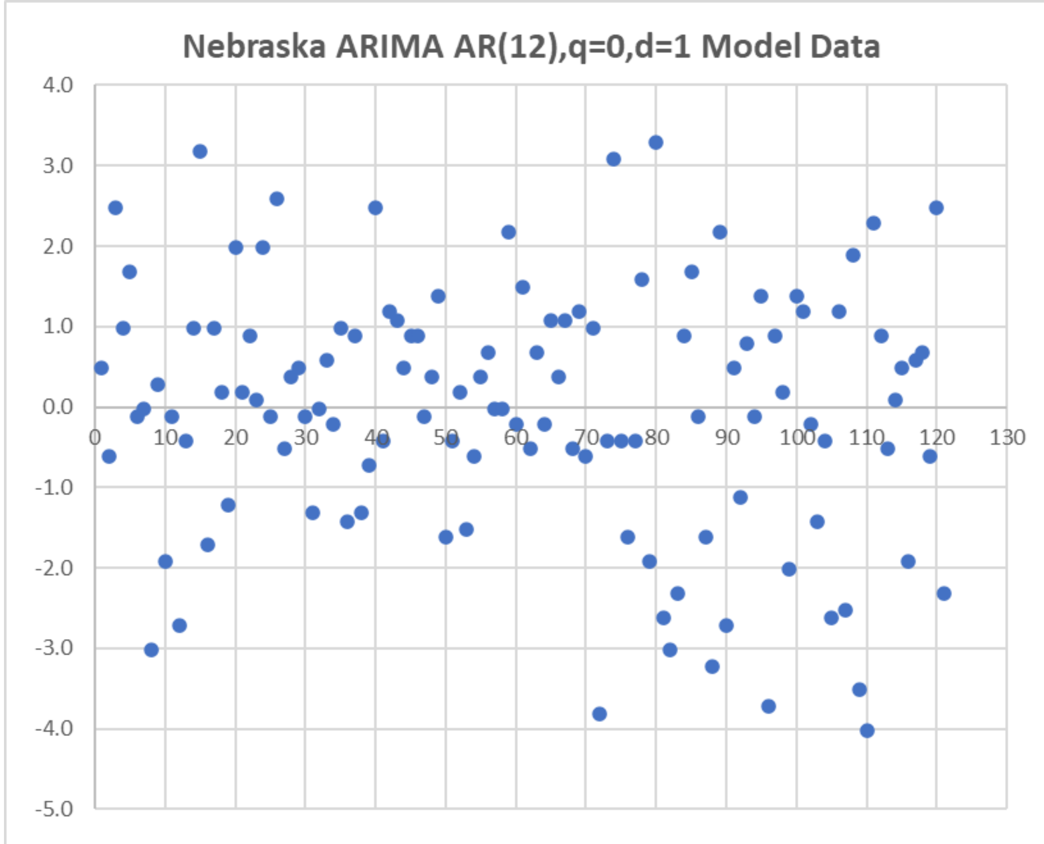


Appendix E27: Nebraska Nonfarm Employment ARIMA Model Forecast

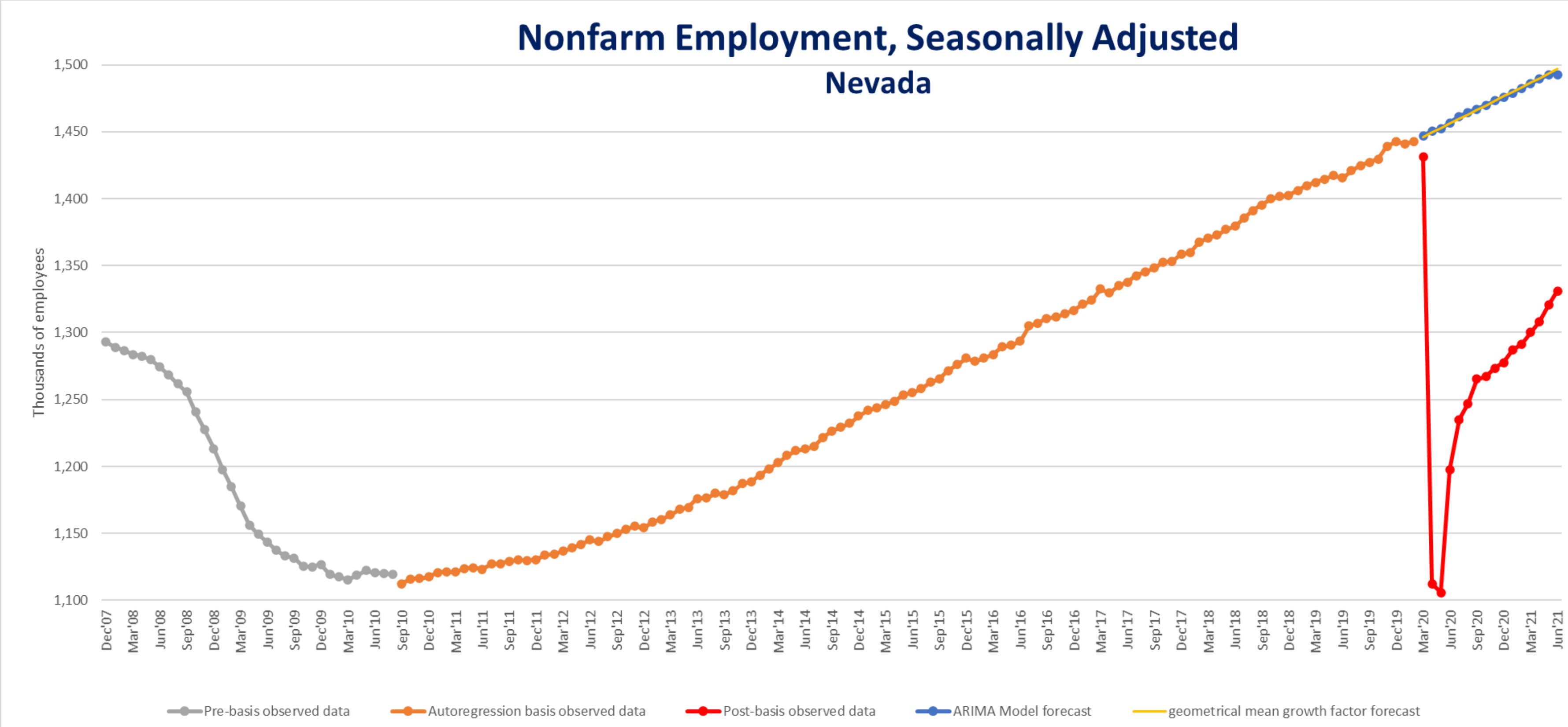


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.74681*	*0.299411*	*2.494267*	*0.014331*
phi 1	-0.1592	0.100335	*-1.58664*	*0.115884*
phi 2	-0.07946	0.100306	*-0.79215*	*0.430227*
phi 3	-0.00748	0.09904	*-0.07548*	*0.939988*
phi 4	0.077533	0.098472	*0.787361*	*0.43301*
phi 5	0.001826	0.096387	*0.018944*	*0.984925*
phi 6	0.224335	0.0965	*2.324717*	*0.022194*
phi 7	-0.00823	0.097649	*-0.08425*	*0.933034*
phi 8	-0.08131	0.096848	*-0.83957*	*0.403234*
phi 9	0.101069	0.095801	*1.05498*	*0.294082*
phi 10	-0.13906	0.095408	*-1.45752*	*0.148235*
phi 11	0.214588	0.096821	*2.21634*	*0.02903*
phi 12	-0.05785	0.10033	*-0.57662*	*0.565548*

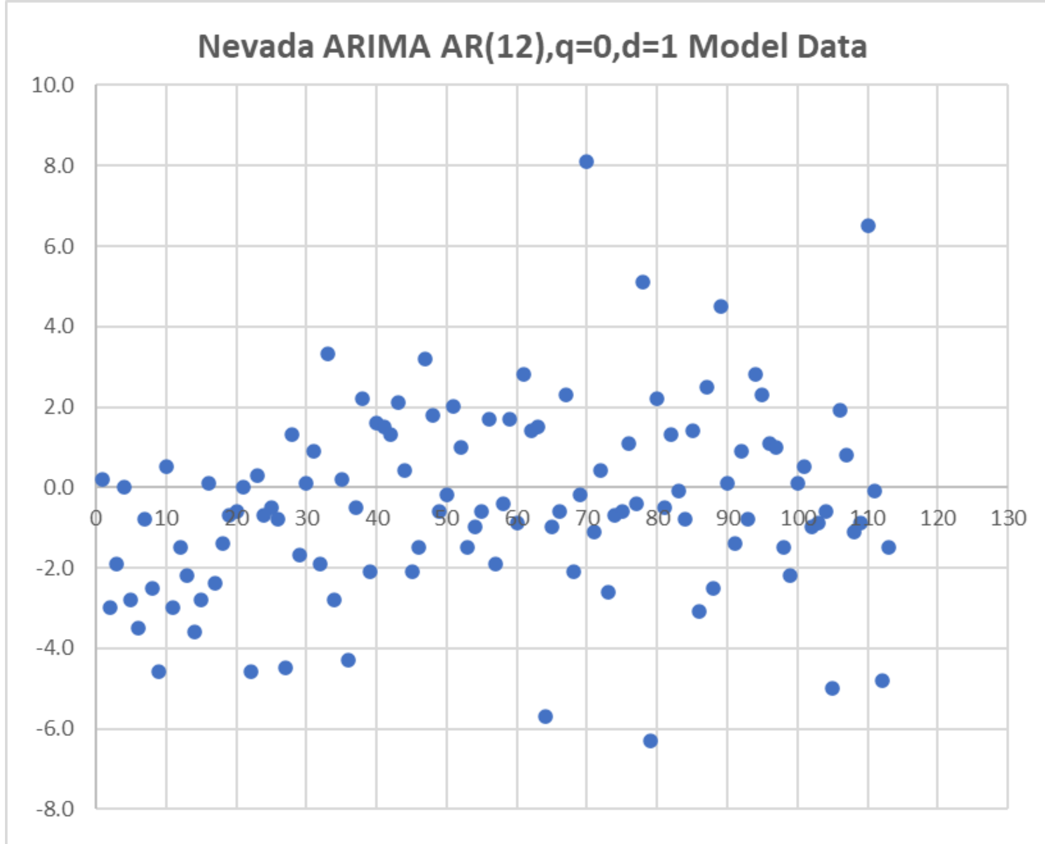


Appendix E28: Nevada Nonfarm Employment ARIMA Model Forecast

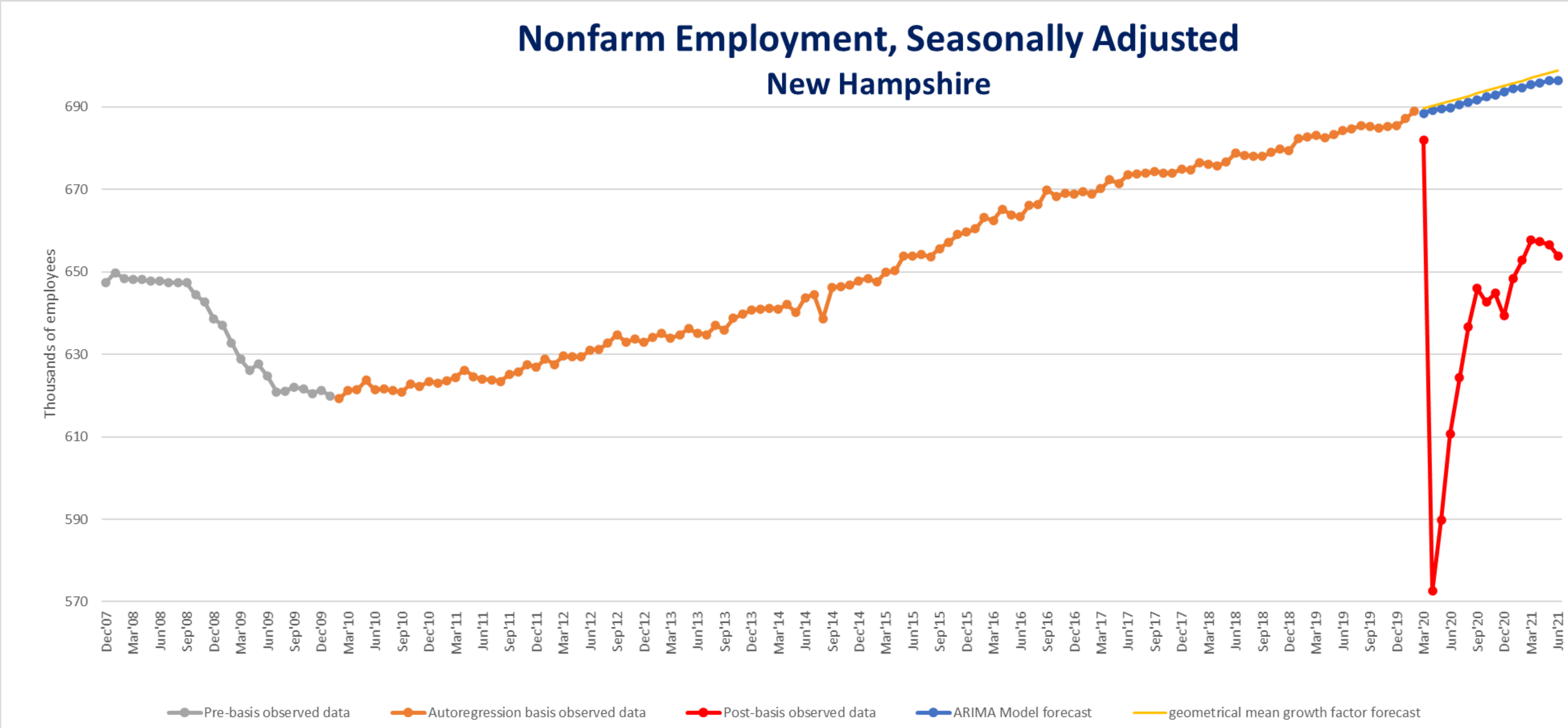


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*2.22248*	*0.900967*	*2.466773*	*0.015571*
phi 1	-0.22354	0.106343	*-2.10208*	*0.038404*
phi 2	-0.0786	0.10888	*-0.72185*	*0.472299*
phi 3	-0.1172	0.108845	*-1.07675*	*0.284534*
phi 4	0.024488	0.111823	*0.218992*	*0.827163*
phi 5	0.0582	0.109011	*0.533895*	*0.59476*
phi 6	-0.13593	0.107107	*-1.26911*	*0.207748*
phi 7	0.194655	0.107341	*1.813432*	*0.073174*
phi 8	0.188062	0.10755	*1.748589*	*0.083849*
phi 9	0.165772	0.110924	*1.494472*	*0.13863*
phi 10	0.10561	0.11223	*0.941012*	*0.349275*
phi 11	0.126449	0.112684	*1.122158*	*0.264848*
phi 12	0.016768	0.111016	*0.151041*	*0.880289*

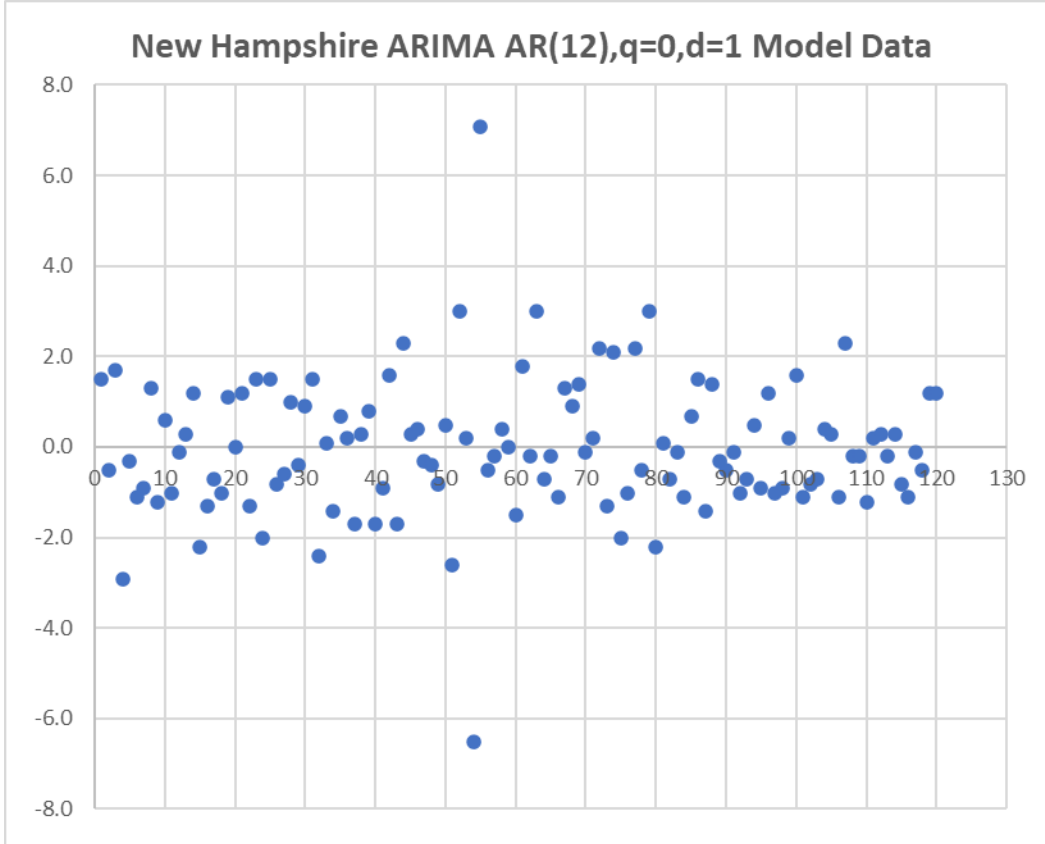


Appendix E29: New Hampshire Nonfarm Employment ARIMA Model Forecast

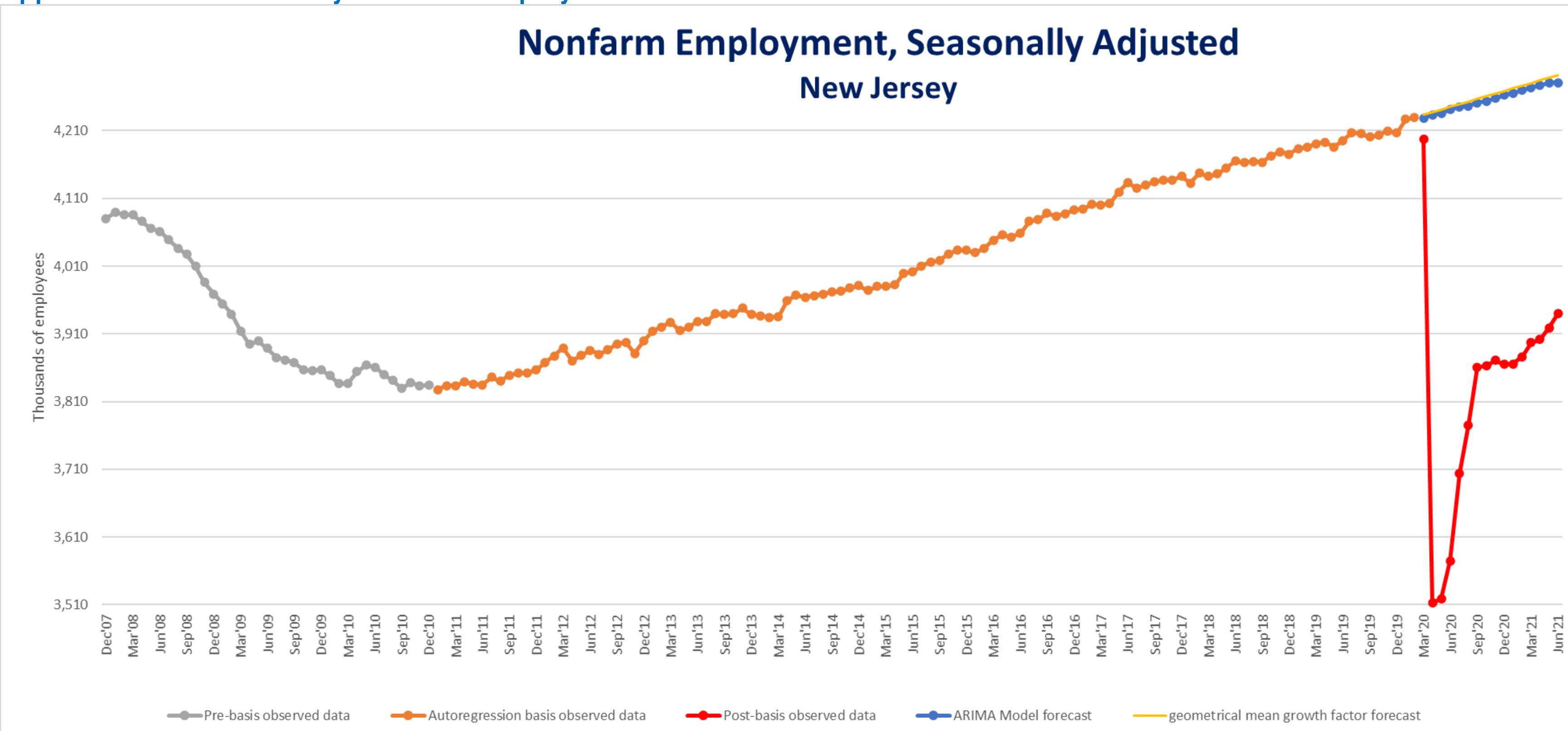


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.746832	0.344242	2.1695	0.03254
phi 1	-0.55627	0.102689	-5.41704	4.56E-07
phi 2	-0.23673	0.113951	-2.07752	0.040452
phi 3	-0.09532	0.116228	-0.82008	0.414226
phi 4	-0.1859	0.115976	-1.60291	0.112274
phi 5	-0.08522	0.116882	-0.72908	0.467749
phi 6	0.08525	0.115708	0.736768	0.463079
phi 7	0.147897	0.114383	1.293	0.199147
phi 8	0.161822	0.113867	1.421148	0.158548
phi 9	0.087198	0.111866	0.779485	0.437632
phi 10	0.064682	0.111955	0.577756	0.564796
phi 11	0.284912	0.110576	2.57662	0.011517
phi 12	0.10326	0.09948	1.037997	0.301906

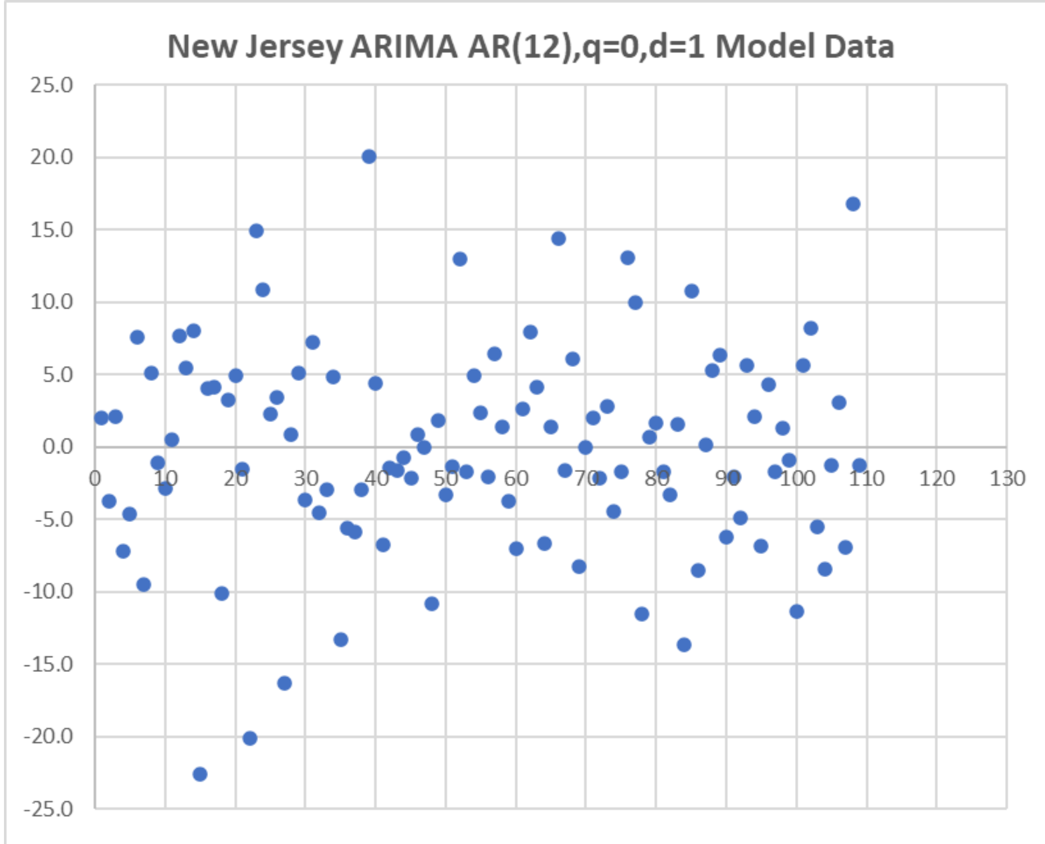


Appendix E30: New Jersey Nonfarm Employment ARIMA Model Forecast

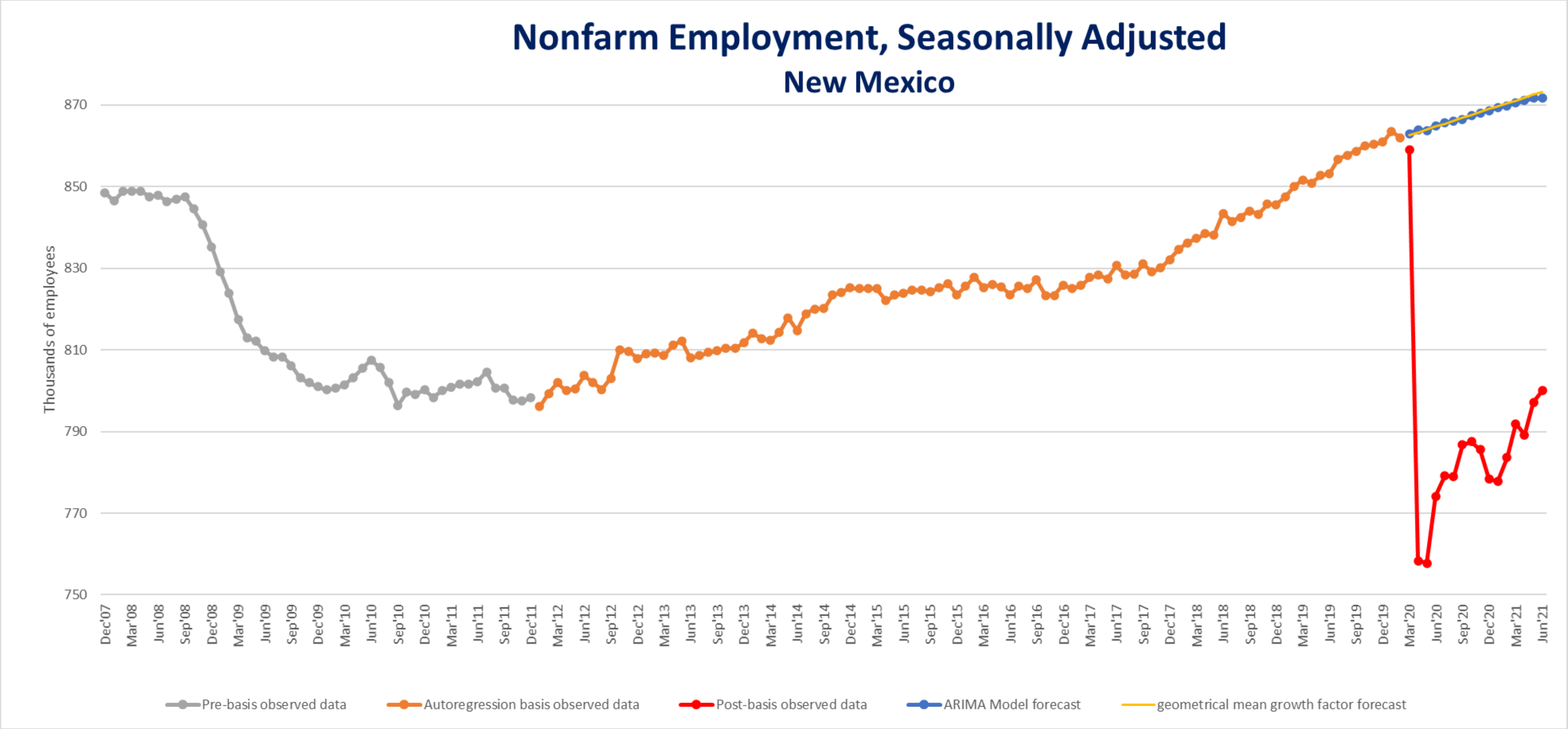


Model parameters

param	coeff	s.e.	t-stat	p-value
const	10.46439	2.994986	3.49397	0.000762
phi 1	-0.29481	0.108508	-2.71692	0.008
phi 2	-0.39002	0.115637	-3.37277	0.001127
phi 3	-0.1978	0.123529	-1.60126	0.113073
phi 4	-0.28482	0.124498	-2.28775	0.024665
phi 5	-0.07593	0.128263	-0.59195	0.555477
phi 6	-0.12623	0.126236	-0.99993	0.320217
phi 7	-0.15189	0.127	-1.19594	0.235083
phi 8	-0.08274	0.127232	-0.65028	0.517285
phi 9	-0.13182	0.123149	-1.07038	0.287516
phi 10	-0.04919	0.123518	-0.39825	0.691454
phi 11	-0.01455	0.117135	-0.12425	0.901413
phi 12	-0.01951	0.112639	-0.17324	0.862881

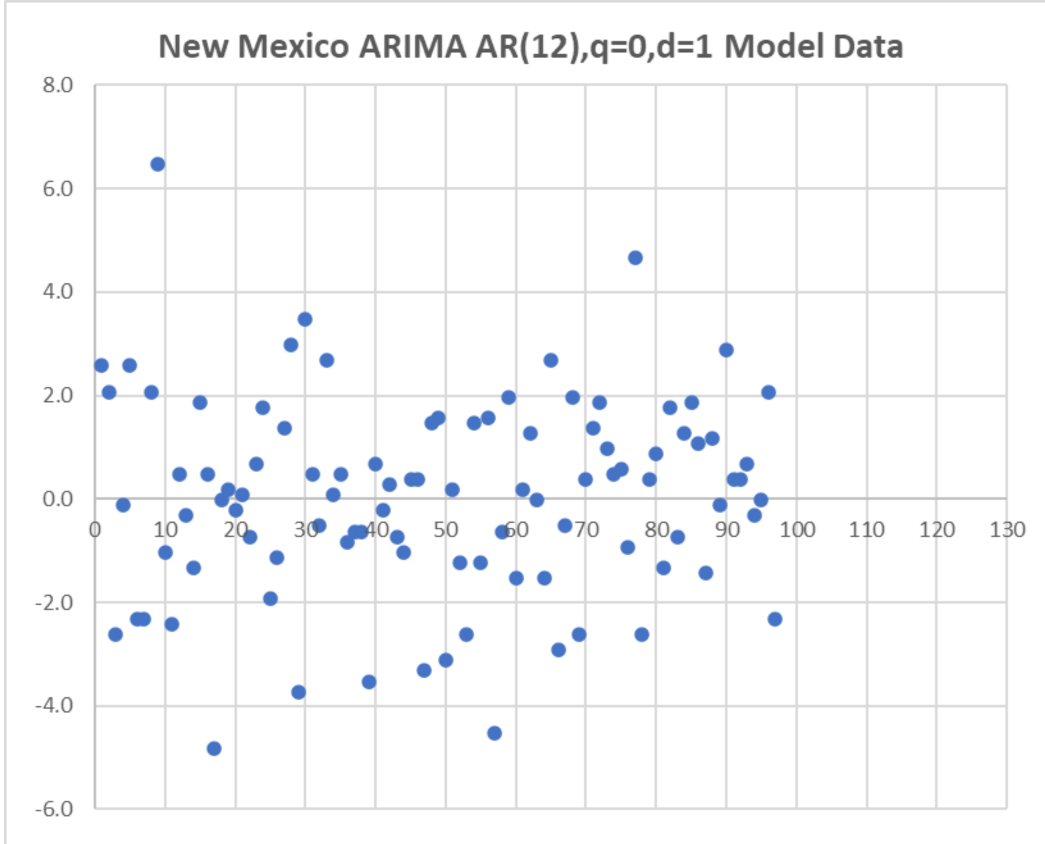


Appendix E31: New Mexico Nonfarm Employment ARIMA Model Forecast

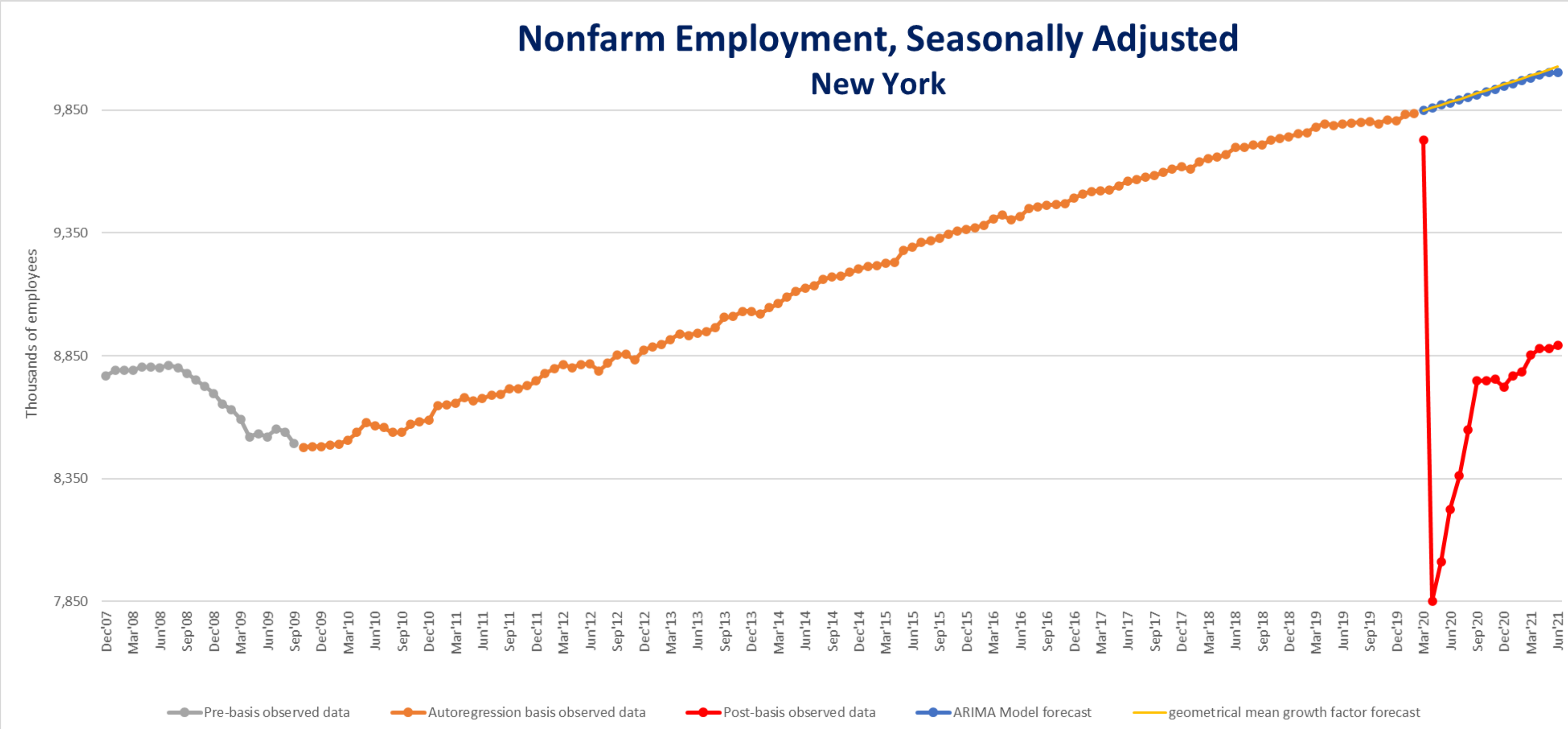


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.568849*	*0.321481*	*1.769463*	*0.081051*
phi 1	-0.36488	0.117551	*-3.10403*	*0.002728*
phi 2	-0.09298	0.123431	*-0.75326*	*0.45375*
phi 3	0.297862	0.12315	*2.418702*	*0.018105*
phi 4	0.087447	0.114995	*0.760436*	*0.449477*
phi 5	0.116756	0.113041	*1.032857*	*0.305128*
phi 6	0.072874	0.112409	*0.648293*	*0.518858*
phi 7	0.094292	0.111405	*0.846392*	*0.400139*
phi 8	-0.10936	0.113855	*-0.96051*	*0.340015*
phi 9	-0.0722	0.113947	*-0.63361*	*0.528343*
phi 10	-0.03504	0.11281	*-0.31062*	*0.756985*
phi 11	0.046274	0.108824	*0.425221*	*0.671944*
phi 12	0.04966	0.103709	*0.478838*	*0.633505*

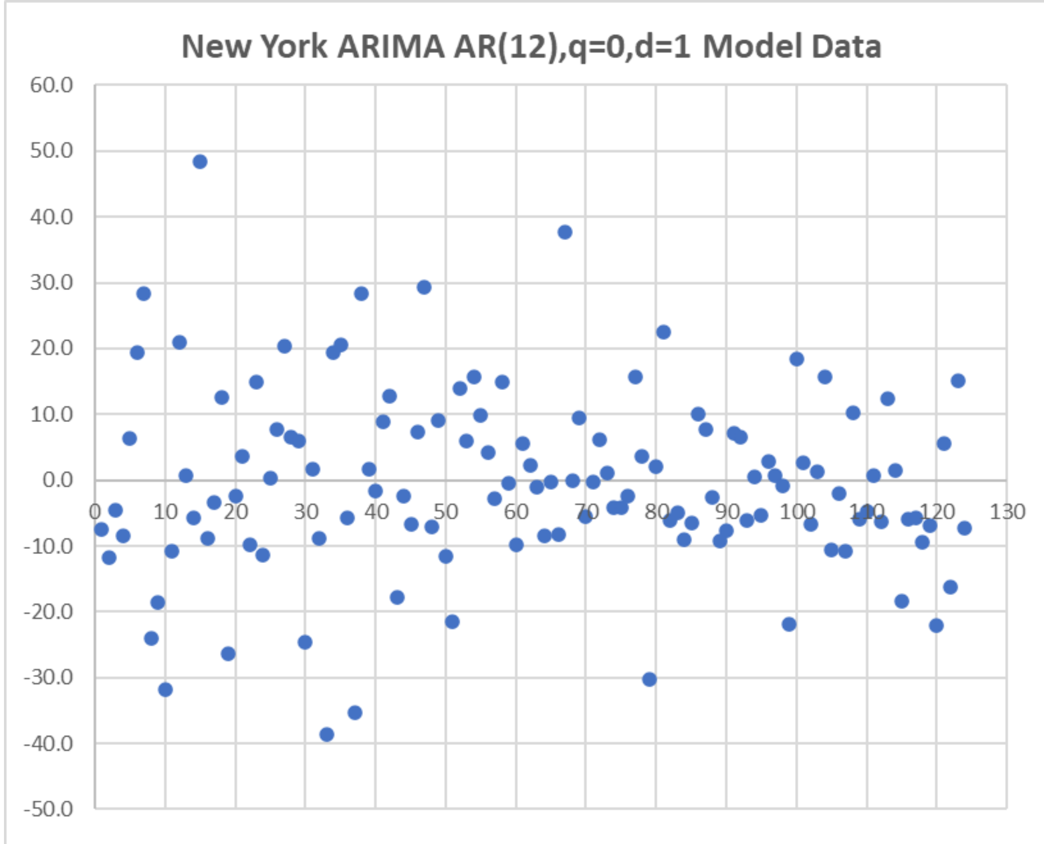


Appendix E32: New York Nonfarm Employment ARIMA Model Forecast

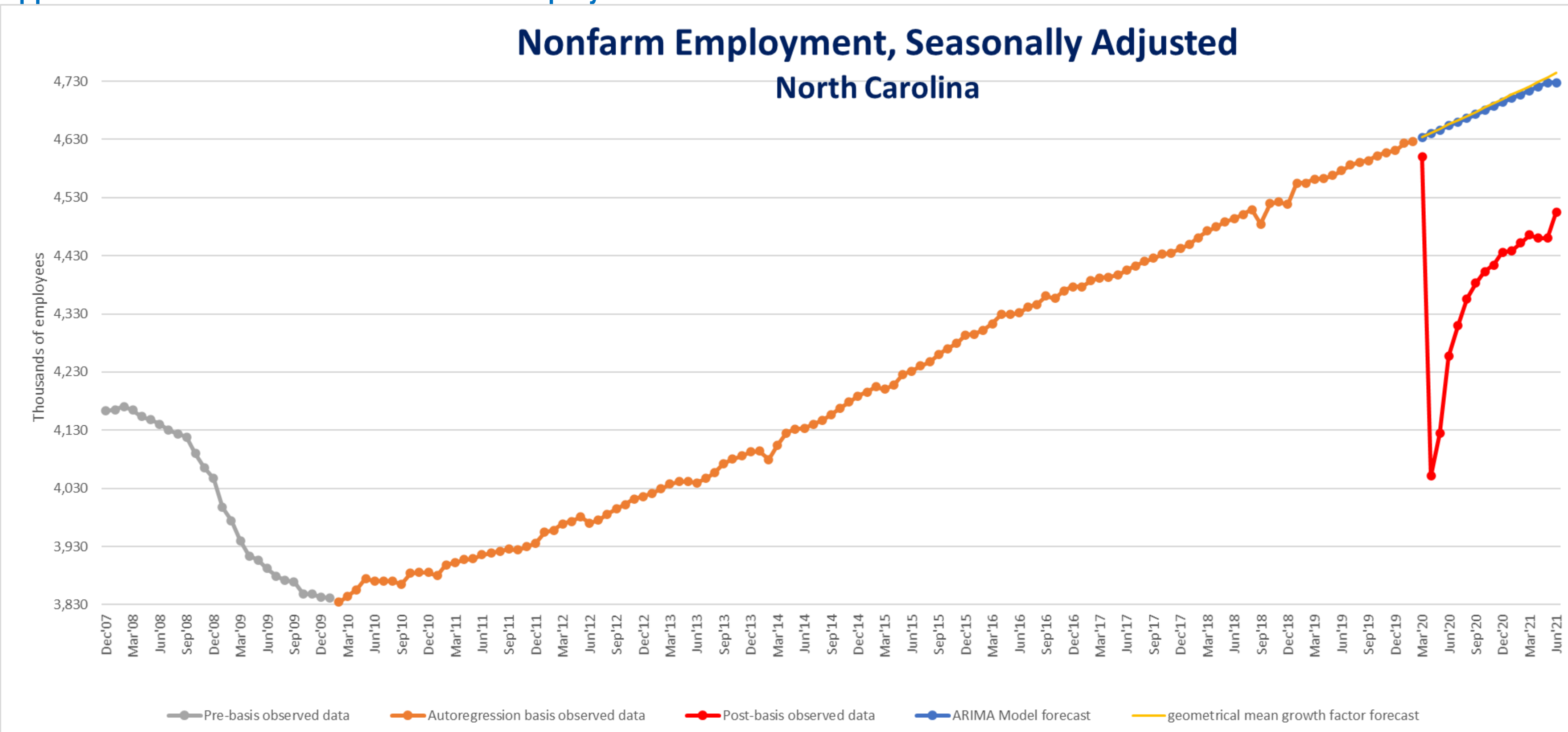


Model parameters

param	coeff	s.e.	t-stat	p-value
const	17.8795	6.6865	2.67397	0.00877
phi 1	-0.19329	0.100262	-1.92781	0.056745
phi 2	-0.21339	0.101043	-2.11186	0.037216
phi 3	-0.03992	0.102106	-0.39094	0.696685
phi 4	-0.05912	0.100811	-0.58644	0.558917
phi 5	-0.13869	0.102275	-1.35608	0.178158
phi 6	0.010126	0.102194	0.099084	0.921272
phi 7	-0.12906	0.103787	-1.24356	0.2166
phi 8	0.056941	0.103709	0.549043	0.584212
phi 9	0.036307	0.101845	0.35649	0.722232
phi 10	-0.00213	0.103064	-0.02071	0.983516
phi 11	0.1265	0.098463	1.284744	0.20188
phi 12	-0.04191	0.097741	-0.42878	0.669018

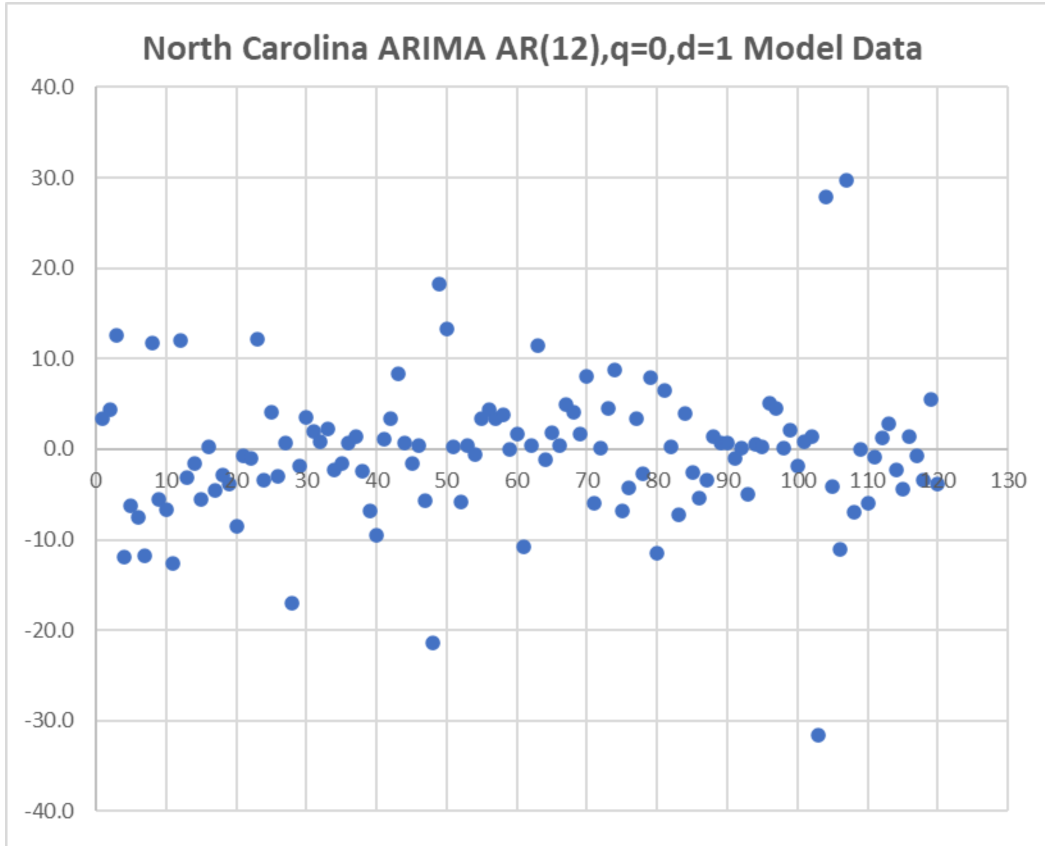


Appendix E33: North Carolina Nonfarm Employment ARIMA Model Forecast

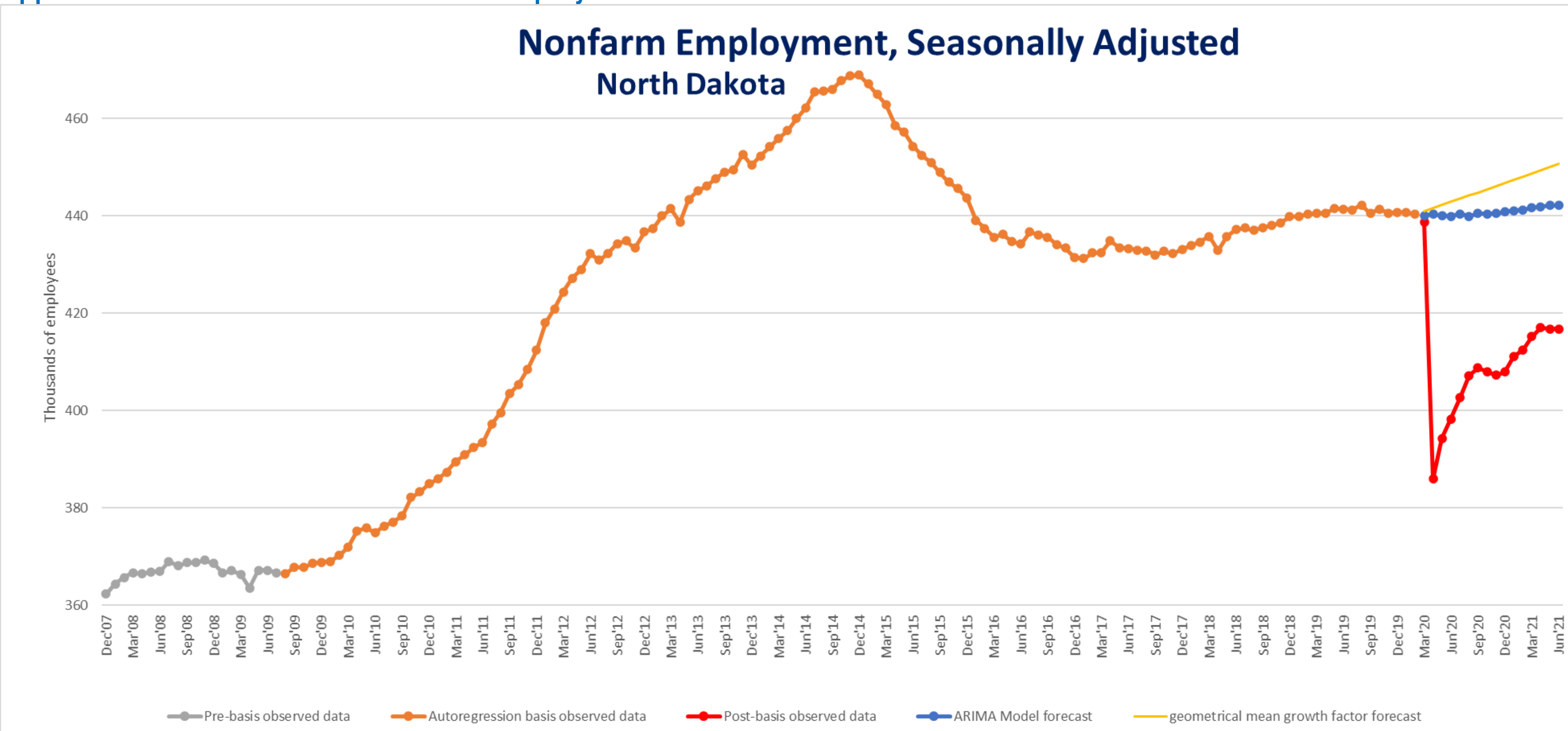


Model parameters

param	coeff	s.e.	t-stat	p-value
const	*8.751417*	*3.370399*	*2.596553*	*0.010912*
phi 1	-0.38619	0.101876	*-3.79077*	*0.000264*
phi 2	-0.27191	0.105965	*-2.56608*	*0.011849*
phi 3	-0.07477	0.106994	*-0.69882*	*0.48637*
phi 4	-0.22405	0.104578	*-2.14244*	*0.034714*
phi 5	-0.07616	0.106357	*-0.71607*	*0.475702*
phi 6	-0.02225	0.103217	*-0.21555*	*0.829804*
phi 7	0.149653	0.101328	*1.476925*	*0.143003*
phi 8	0.170022	0.100839	*1.686072*	*0.095064*
phi 9	0.155933	0.09981	*1.562297*	*0.121543*
phi 10	0.110954	0.099807	*1.111679*	*0.269082*
phi 11	0.117753	0.097415	*1.208771*	*0.229751*
phi 12	0.077415	0.092643	*0.835628*	*0.405461*

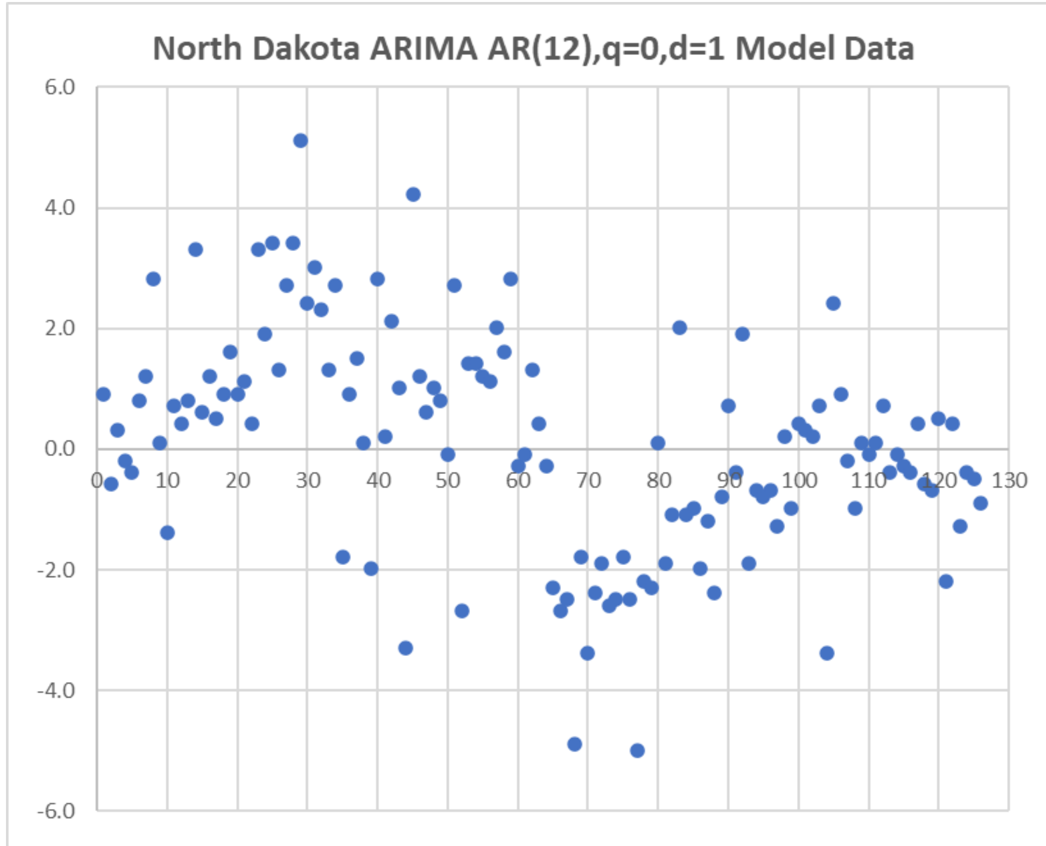


Appendix E34: North Dakota Nonfarm Employment ARIMA Model Forecast



Model parameters

param	coeff	s.e.	t-stat	p-value
const	*0.094745*	*0.148869*	*0.636435*	*0.525933*
phi 1	0.165784	0.099125	*1.672472*	*0.097526*
phi 2	0.34869	0.100018	*3.486273*	*0.000726*
phi 3	0.169731	0.102102	*1.662368*	*0.09954*
phi 4	0.06248	0.10189	*0.613207*	*0.541118*
phi 5	0.127115	0.098507	*1.290421*	*0.199851*
phi 6	-0.0398	0.098314	*-0.4048*	*0.686479*
phi 7	-0.16387	0.098454	*-1.66445*	*0.099122*
phi 8	0.149791	0.09879	*1.516262*	*0.132577*
phi 9	0.201588	0.099576	*2.024464*	*0.045562*
phi 10	-0.22175	0.100473	*-2.20702*	*0.029577*
phi 11	0.092051	0.098486	*0.934665*	*0.35219*
phi 12	-0.08705	0.096468	*-0.90238*	*0.369002*



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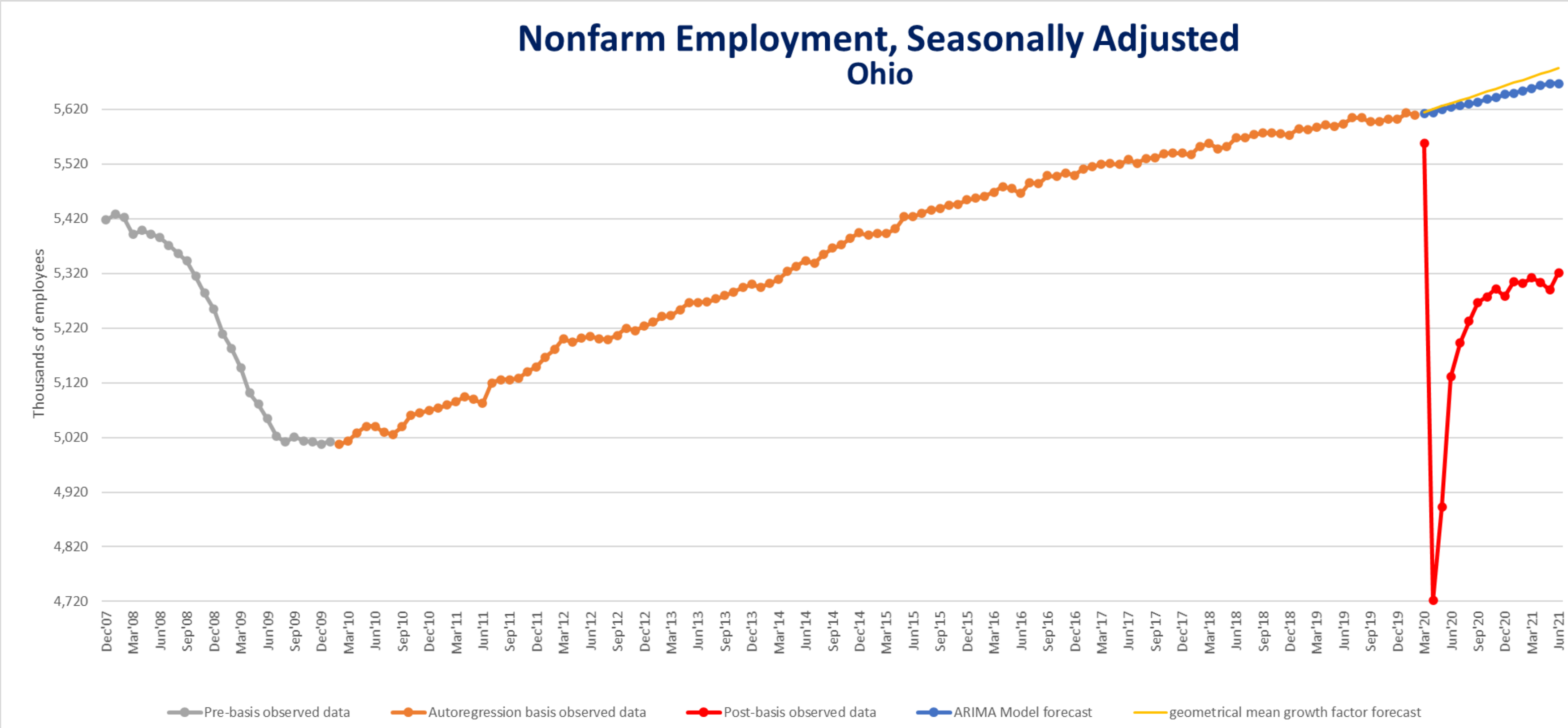
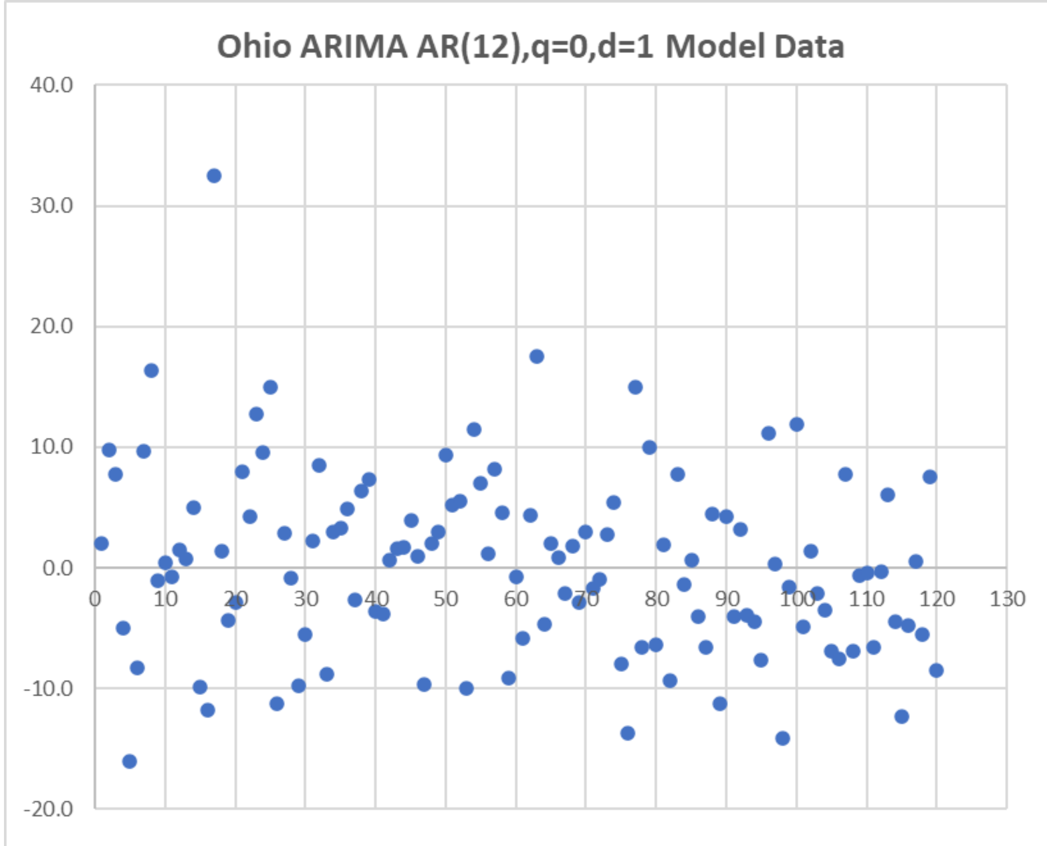
Appendix E35: Ohio Nonfarm Employment ARIMA Model Forecast

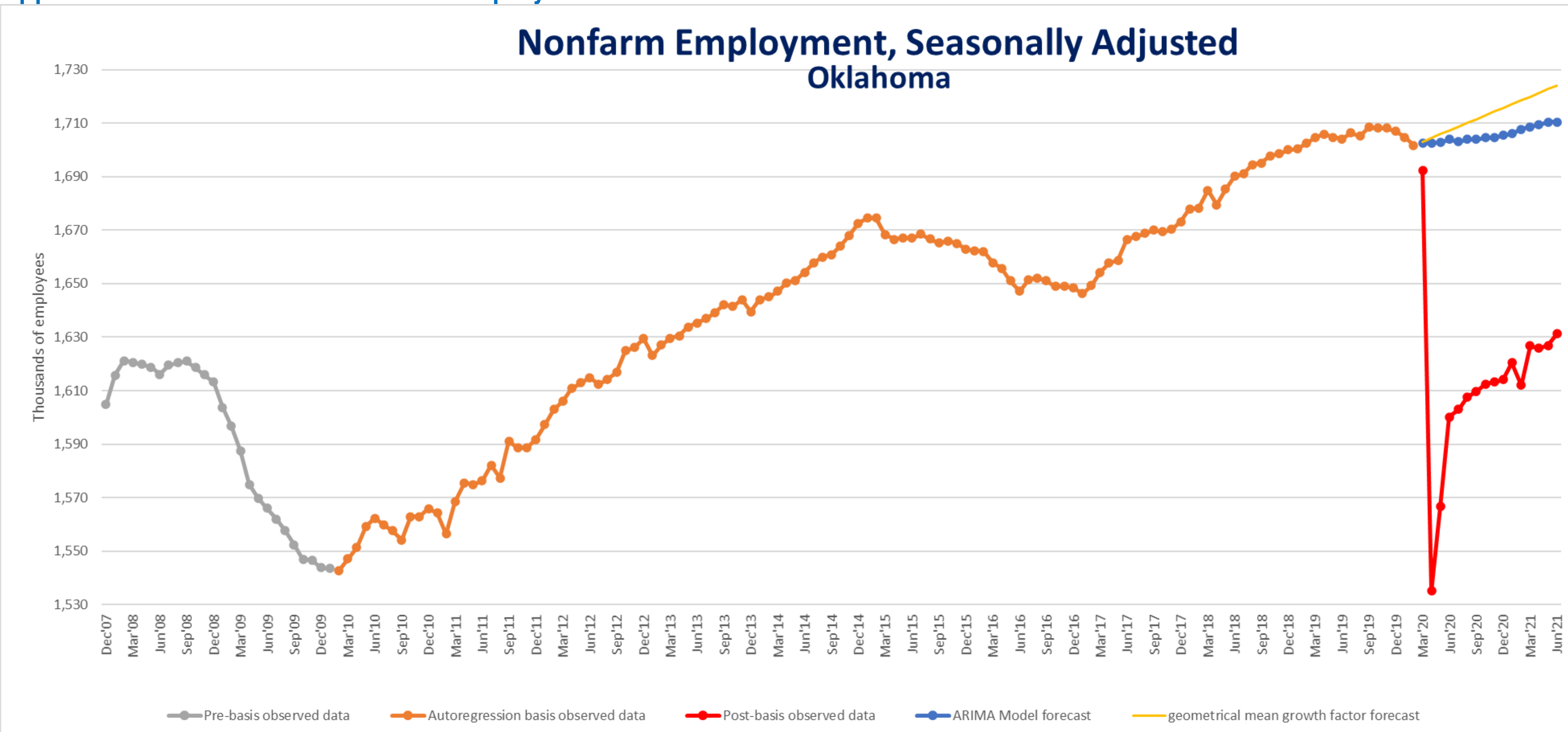


Model parameters

param	coeff	s.e.	t-stat	p-value
const	3.461532	2.090834	1.655575	0.101108
phi 1	-0.17373	0.102499	-1.69495	0.093361
phi 2	-0.12552	0.103084	-1.21764	0.226375
phi 3	-0.04093	0.103818	-0.39425	0.69428
phi 4	0.100202	0.103711	0.966163	0.336416
phi 5	0.010412	0.102684	0.101401	0.919446
phi 6	0.175483	0.103326	1.698335	0.092718
phi 7	0.147095	0.102949	1.428808	0.156339
phi 8	0.019982	0.101934	0.196026	0.845008
phi 9	0.056284	0.101312	0.555554	0.579822
phi 10	0.035896	0.100593	0.356841	0.722003
phi 11	0.154225	0.098711	1.562396	0.12152
phi 12	-0.09953	0.099116	-1.00415	0.317859

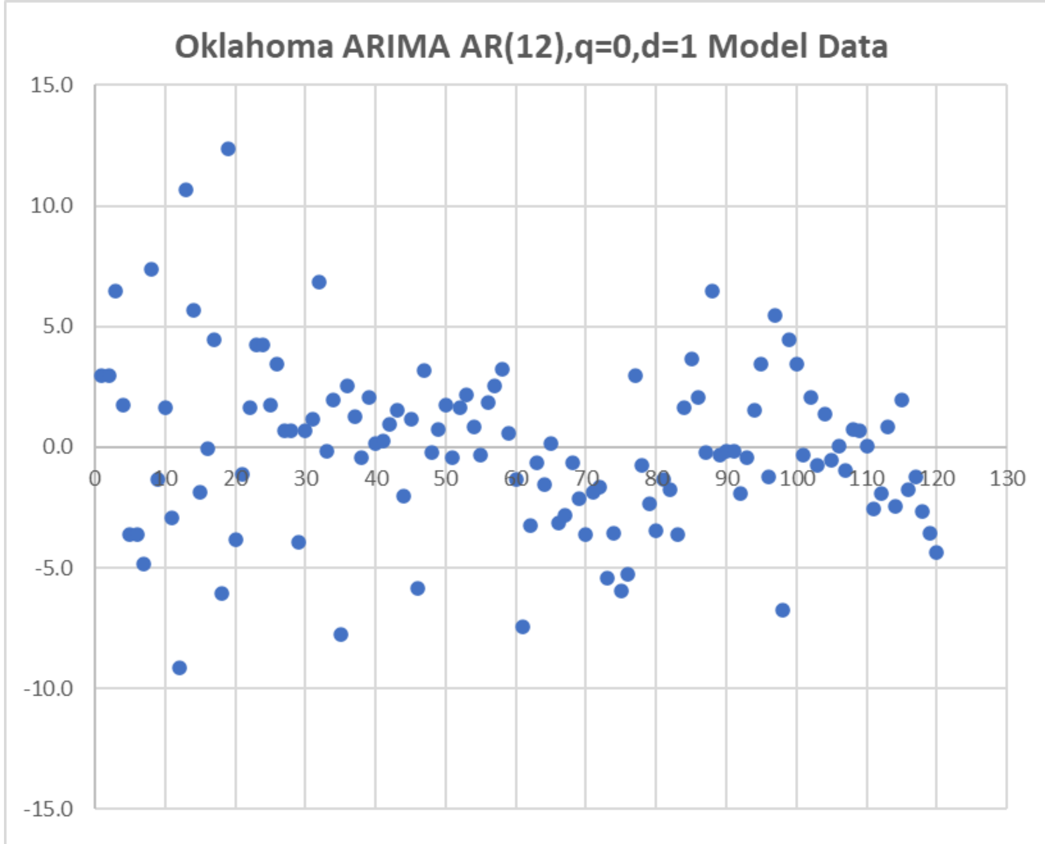


Appendix E36: Oklahoma Nonfarm Employment ARIMA Model Forecast

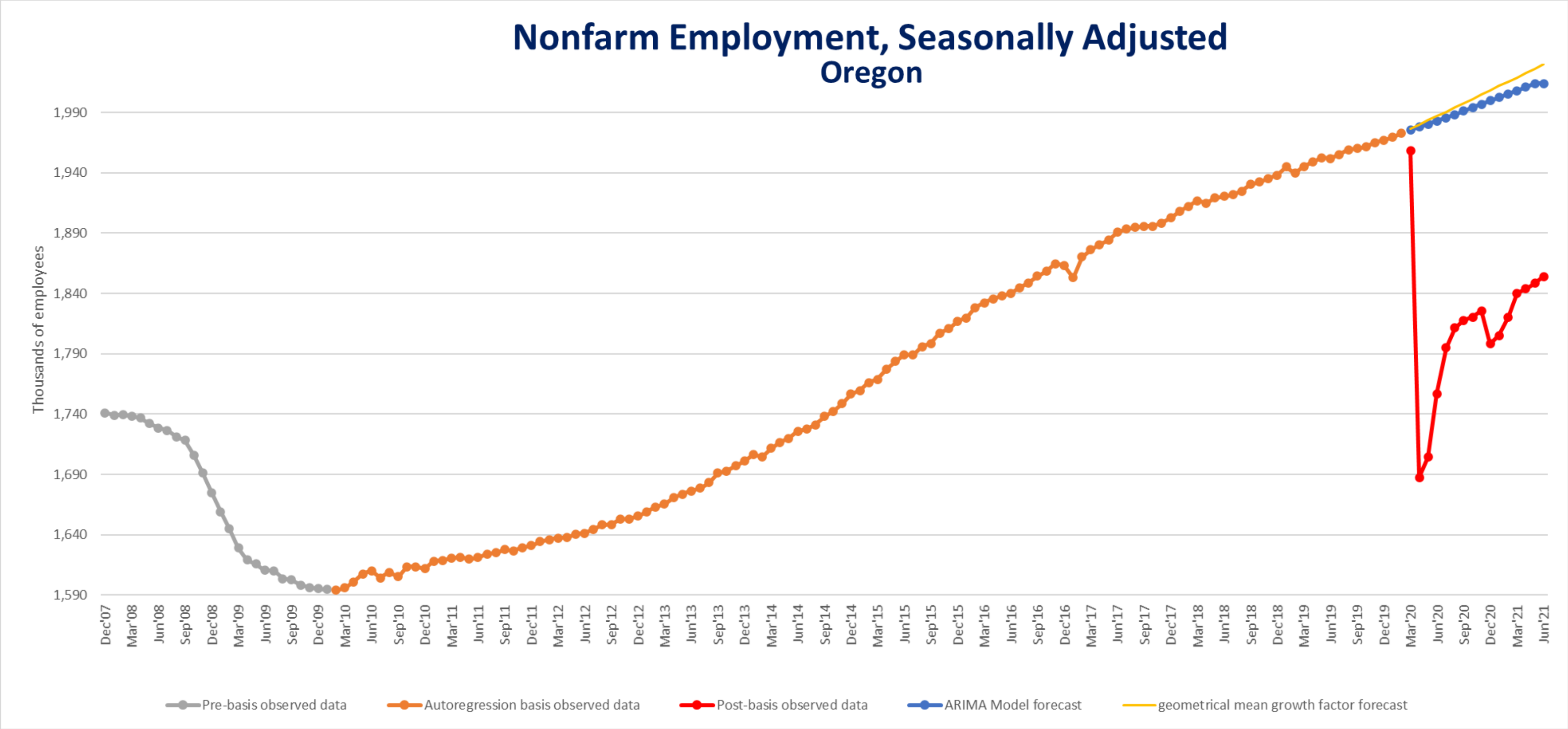


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.629947	0.442015	1.425171	0.157385
phi 1	-0.04823	0.096816	-0.49815	0.619531
phi 2	0.123702	0.097219	1.272409	0.206333
phi 3	0.049838	0.09815	0.507776	0.612787
phi 4	-0.02148	0.096448	-0.22266	0.824276
phi 5	0.114256	0.09504	1.202187	0.232279
phi 6	0.273122	0.095264	2.866996	0.005104
phi 7	-0.02948	0.094379	-0.31234	0.755468
phi 8	-0.0709	0.092628	-0.76544	0.445908
phi 9	0.214936	0.092546	2.322468	0.022343
phi 10	0.010809	0.093183	0.115994	0.907902
phi 11	0.099601	0.092396	1.077987	0.283769
phi 12	-0.18658	0.091933	-2.02955	0.045199

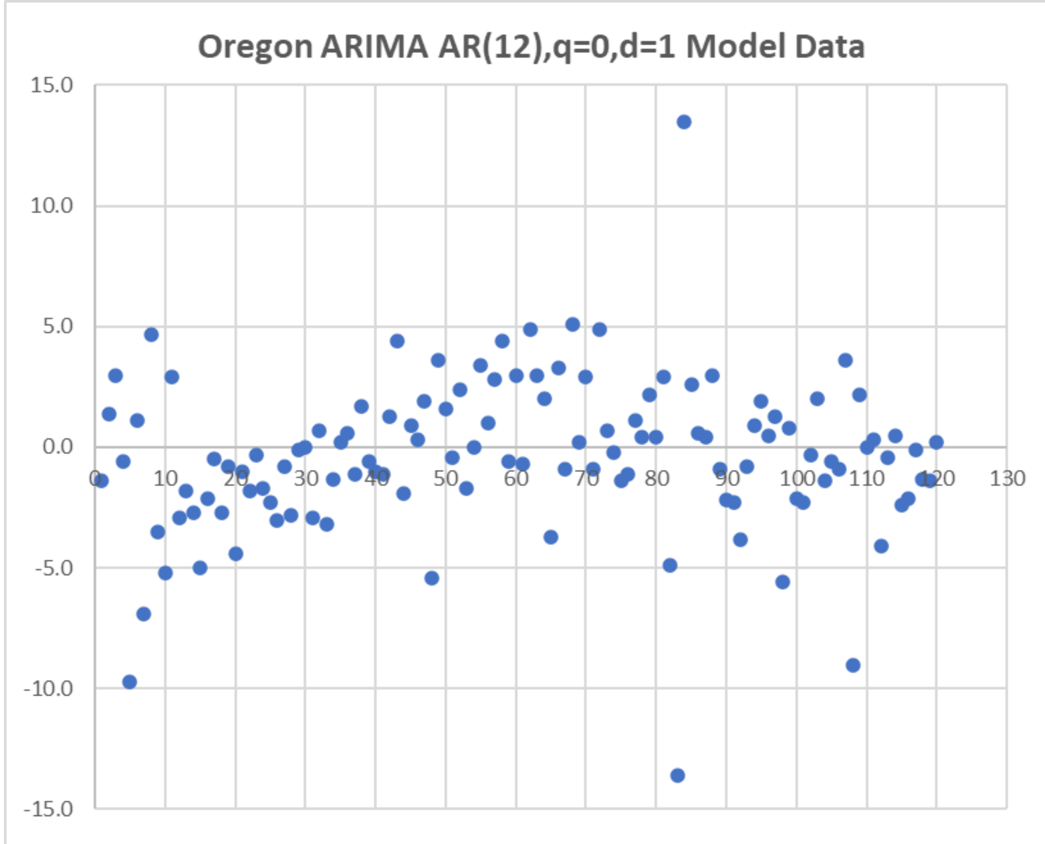


Appendix E37: Oregon Nonfarm Employment ARIMA Model Forecast

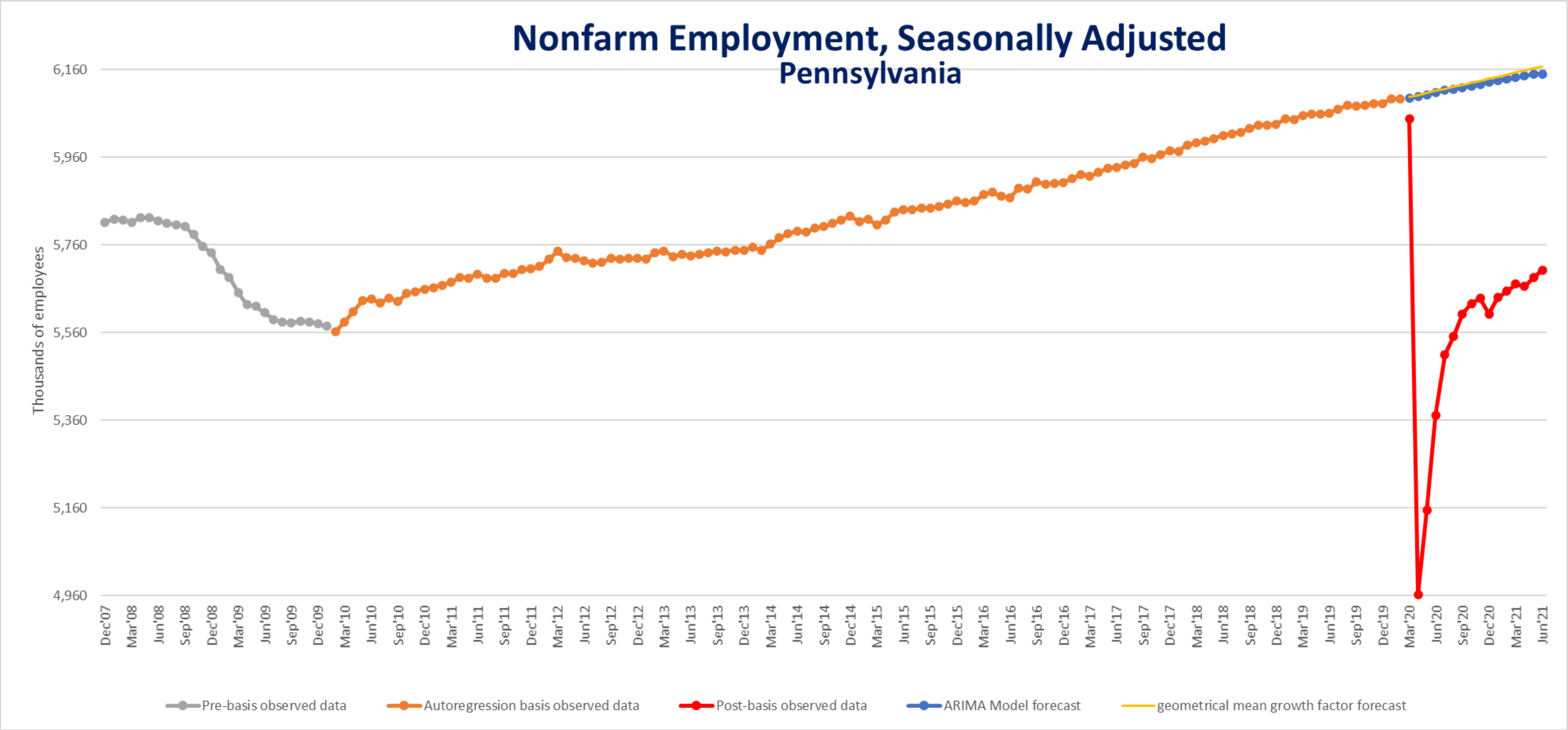


Model parameters

param	coeff	s.e.	t-stat	p-value
const	1.115227	0.81015	1.376568	0.171881
phi 1	-0.28277	0.102319	-2.76361	0.006866
phi 2	-0.14921	0.105446	-1.41502	0.160331
phi 3	-0.075	0.103199	-0.72672	0.469187
phi 4	0.072504	0.100607	0.720665	0.472885
phi 5	-0.00641	0.096629	-0.06631	0.947268
phi 6	0.134875	0.093356	1.444749	0.151819
phi 7	0.186862	0.093465	1.999283	0.048434
phi 8	0.266488	0.092236	2.889198	0.004784
phi 9	0.208999	0.096473	2.166411	0.032782
phi 10	0.187885	0.097151	1.93395	0.056096
phi 11	0.121034	0.097299	1.243936	0.216584
phi 12	0.016582	0.093711	0.176948	0.859926

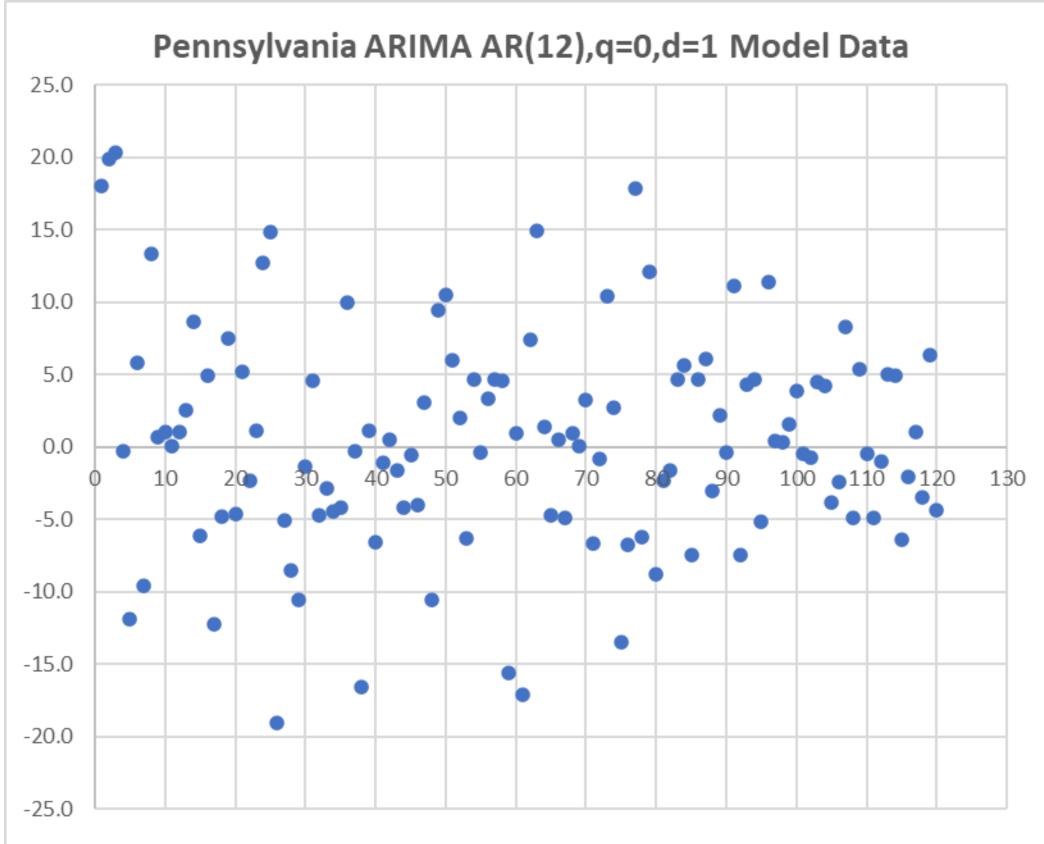


Appendix E38: Pennsylvania Nonfarm Employment ARIMA Model Forecast

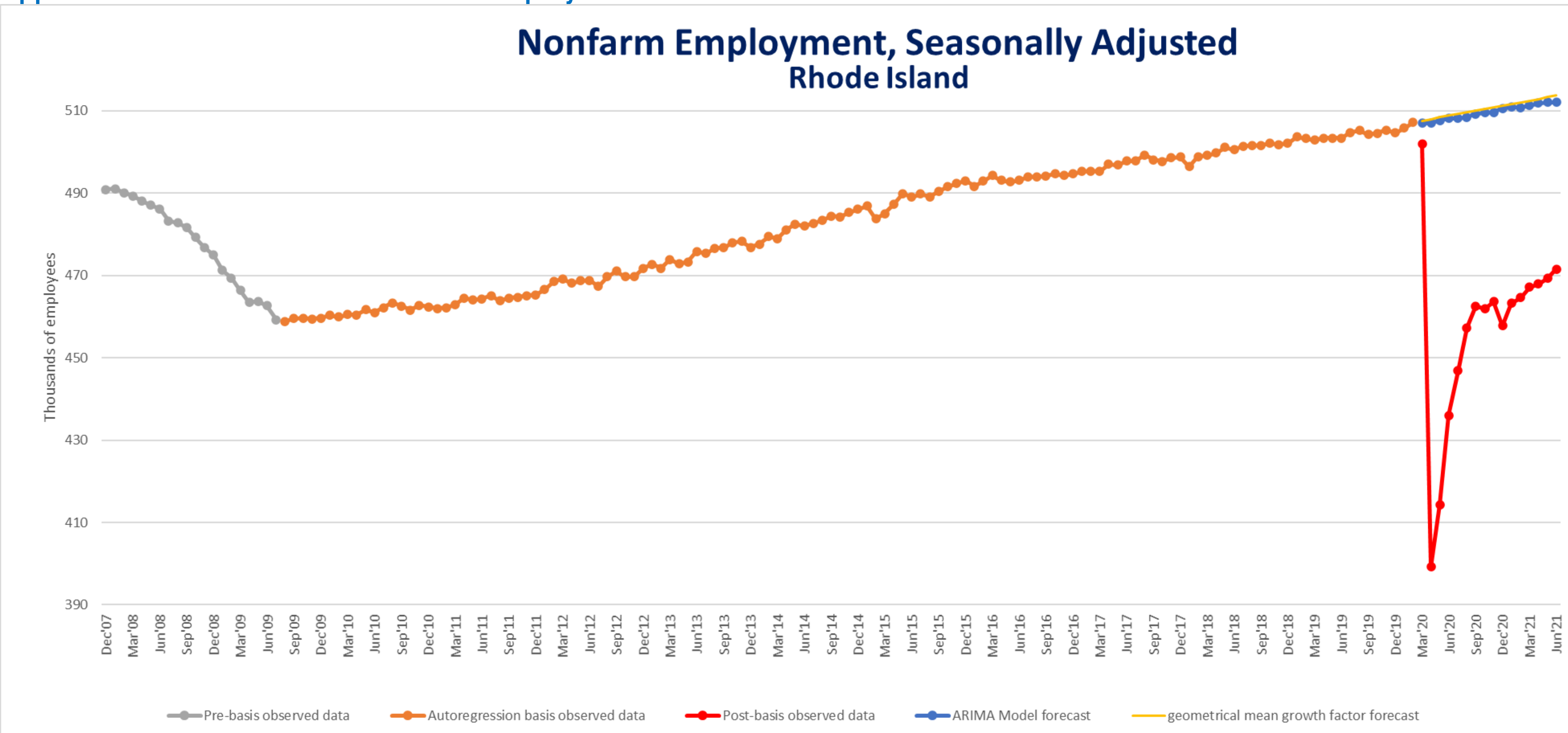


Model parameters

param	coeff	s.e.	t-stat	p-value
const	4.597518	1.916937	2.398366	0.018422
phi 1	-0.20176	0.10287	-1.96129	0.052773
phi 2	-0.11502	0.104421	-1.10154	0.273445
phi 3	-0.08016	0.104236	-0.769	0.443802
phi 4	-0.11537	0.104557	-1.10342	0.272634
phi 5	0.017258	0.104884	0.164545	0.869652
phi 6	0.13239	0.104242	1.270024	0.207178
phi 7	0.040873	0.103781	0.393844	0.694579
phi 8	-0.02042	0.103782	-0.19681	0.8444
phi 9	-0.02907	0.102447	-0.28371	0.777248
phi 10	0.105374	0.097554	1.080156	0.282807
phi 11	0.09107	0.093486	0.974157	0.332453
phi 12	-0.01156	0.090743	-0.12742	0.898878

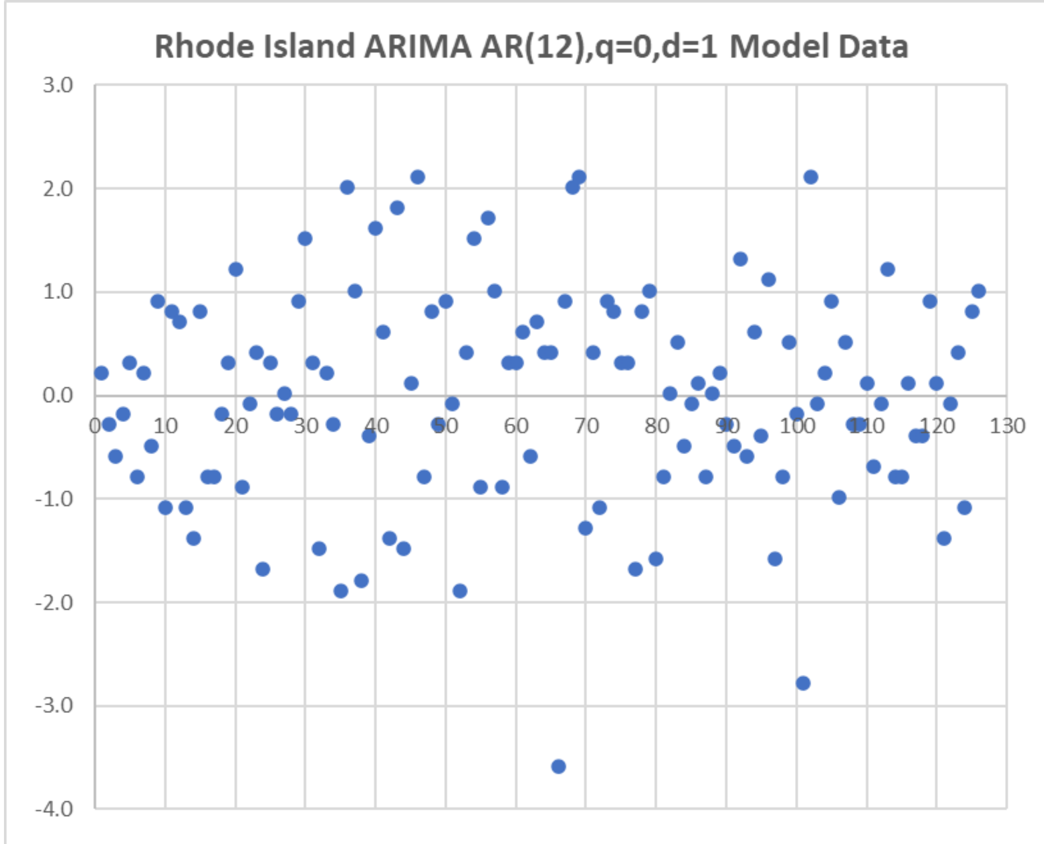


Appendix E39: Rhode Island Nonfarm Employment ARIMA Model Forecast

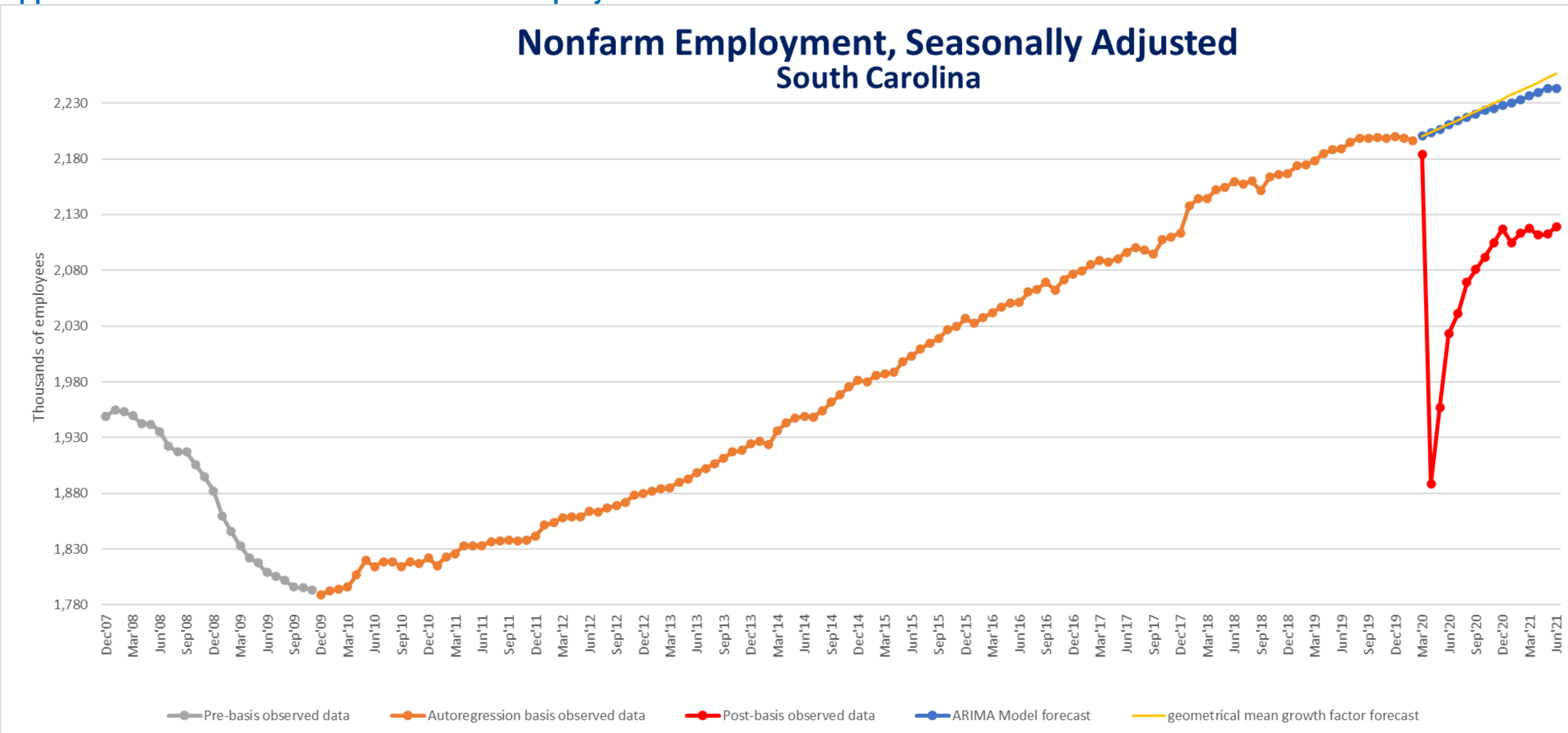


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.573959	0.240214	2.389361	0.018733
phi 1	-0.33634	0.099427	-3.38281	0.001022
phi 2	-0.34555	0.102494	-3.37141	0.001061
phi 3	-0.1106	0.10663	-1.0372	0.302119
phi 4	-0.09532	0.106934	-0.89139	0.374837
phi 5	-0.1037	0.10713	-0.96796	0.335378
phi 6	0.063383	0.108199	0.585802	0.559315
phi 7	0.031662	0.10789	0.293467	0.769767
phi 8	0.085406	0.107402	0.795195	0.428365
phi 9	-0.00635	0.107284	-0.05914	0.952955
phi 10	0.183756	0.106435	1.726453	0.087323
phi 11	0.216799	0.102949	2.105882	0.037694
phi 12	-0.07747	0.099772	-0.7765	0.439266

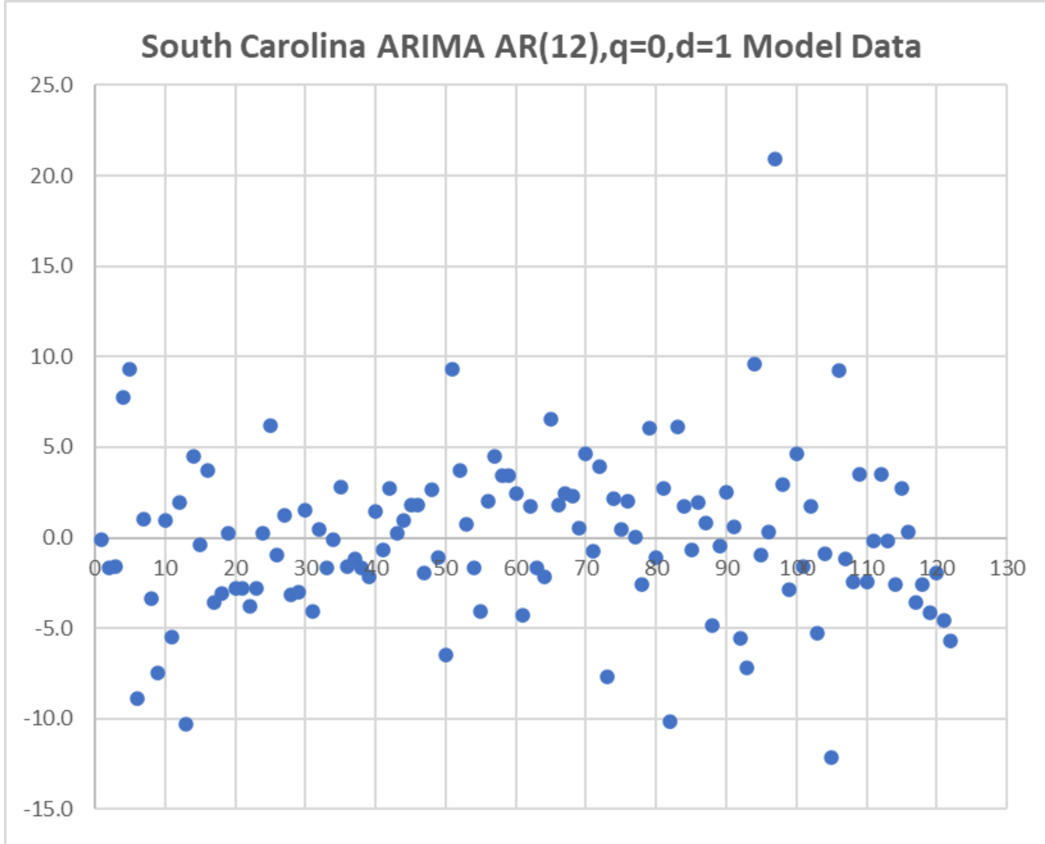


Appendix E40: South Carolina Nonfarm Employment ARIMA Model Forecast

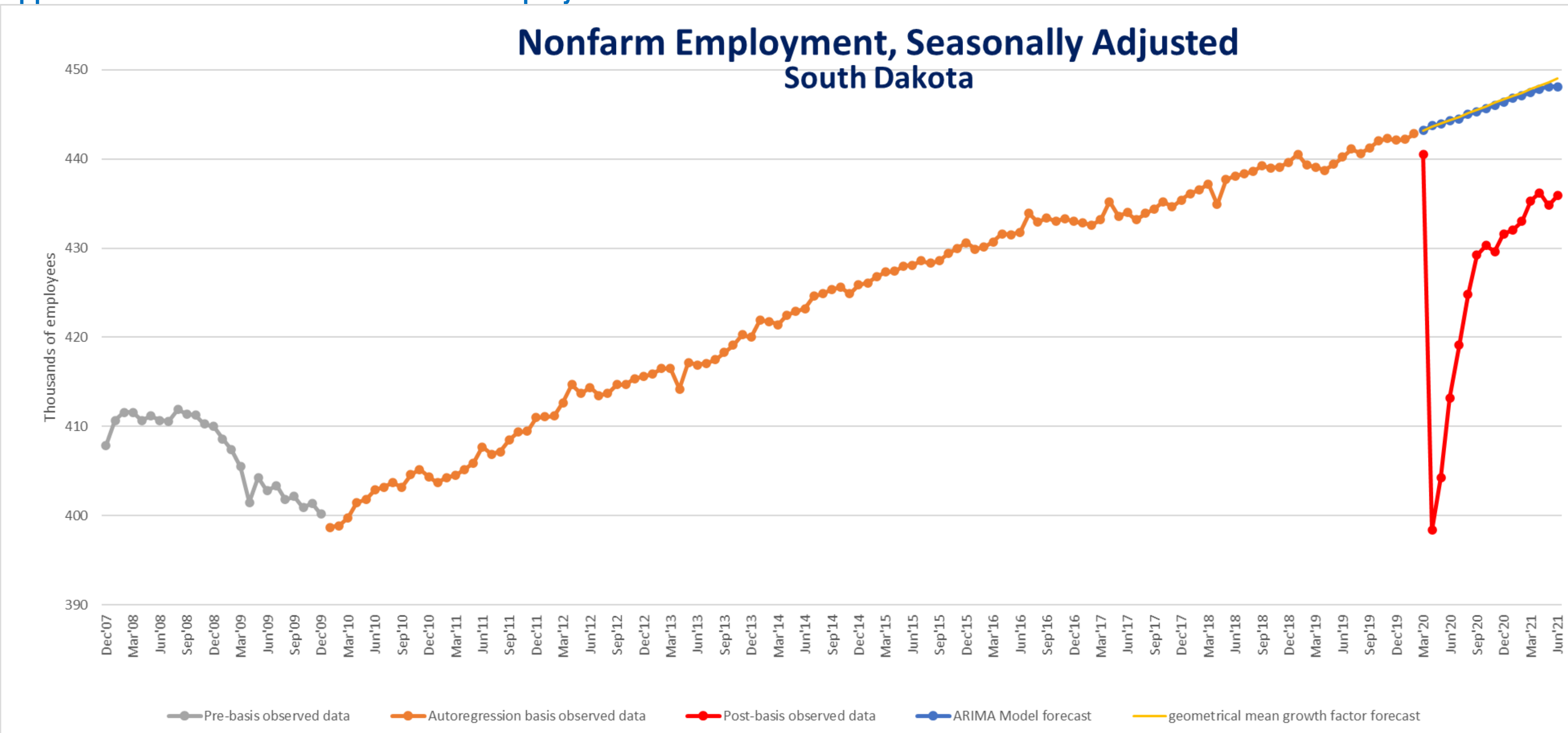


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*2.867946*	*1.456152*	*1.969538*	*0.051744*
phi 1	-0.13159	0.102446	*-1.28444*	*0.202047*
phi 2	0.011072	0.101804	*0.10876*	*0.913618*
phi 3	0.117954	0.101804	*1.158638*	*0.249448*
phi 4	-0.01425	0.101432	*-0.14045*	*0.888597*
phi 5	-0.02192	0.099865	*-0.21954*	*0.826688*
phi 6	-0.00605	0.100141	*-0.06046*	*0.951915*
phi 7	0.026111	0.09885	*0.264152*	*0.792223*
phi 8	-0.17234	0.097088	*-1.77511*	*0.079017*
phi 9	0.067913	0.096743	*0.701998*	*0.484362*
phi 10	0.043783	0.096601	*0.453231*	*0.651394*
phi 11	0.182518	0.096649	*1.888466*	*0.061951*
phi 12	0.045763	0.097074	*0.471426*	*0.638395*

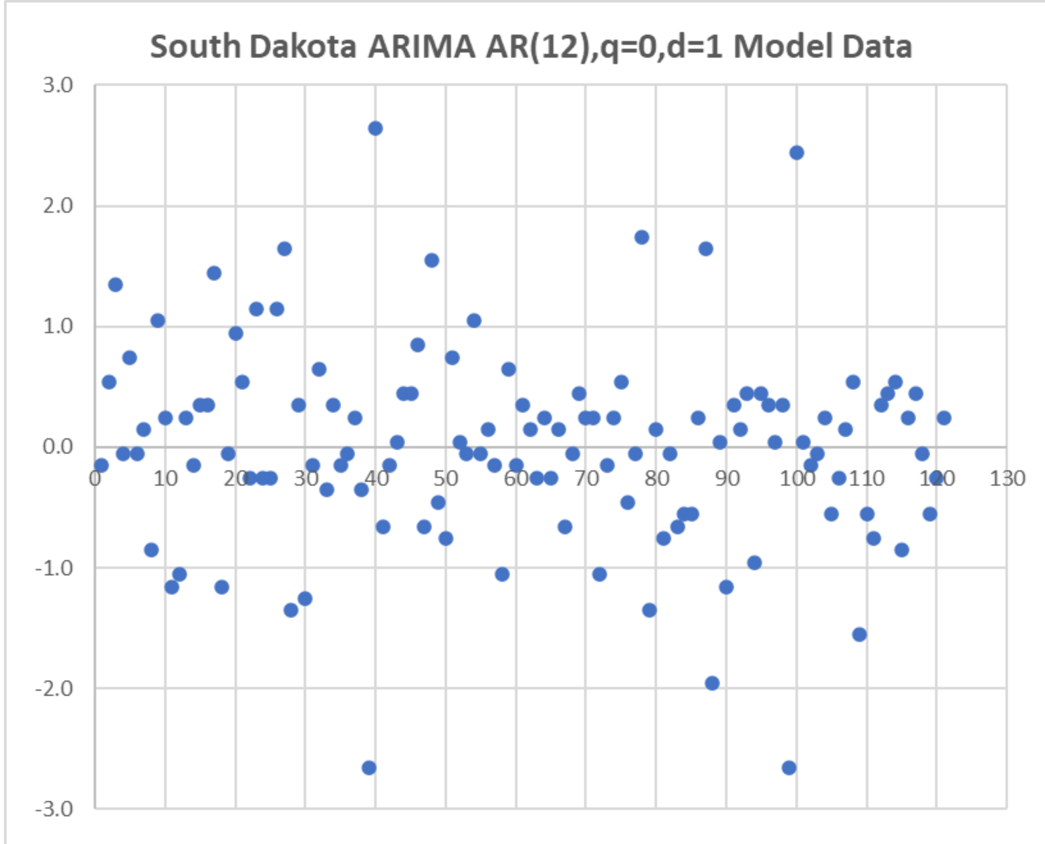


Appendix E41: South Dakota Nonfarm Employment ARIMA Model Forecast

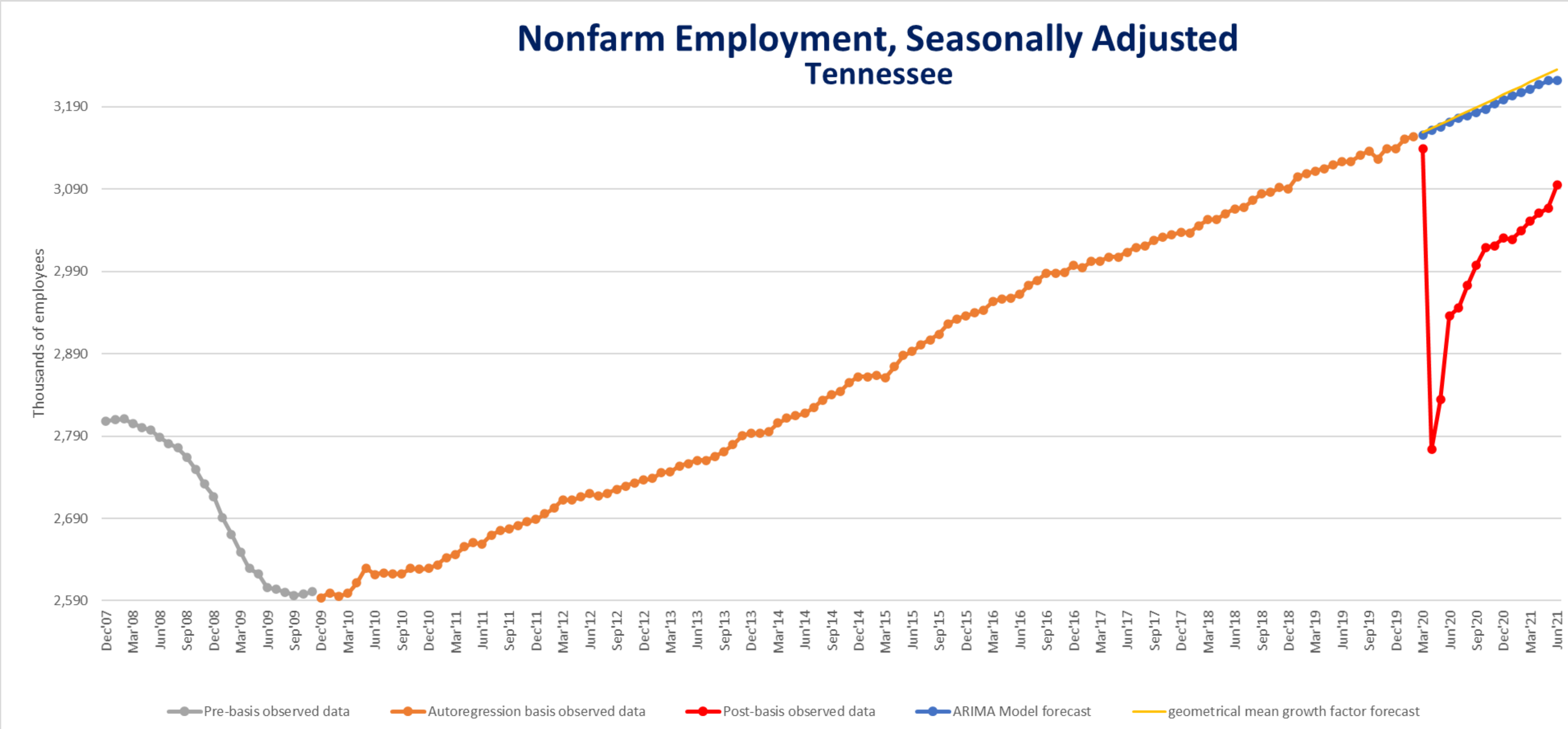


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.532006	0.197383	2.695296	0.008304
phi 1	-0.38139	0.099725	-3.82443	0.000233
phi 2	-0.18258	0.104901	-1.74055	0.084967
phi 3	-0.09127	0.106638	-0.85589	0.394192
phi 4	-0.00798	0.106869	-0.07468	0.940626
phi 5	-0.00245	0.106758	-0.02291	0.981772
phi 6	0.085287	0.10679	0.79864	0.42647
phi 7	-0.00682	0.106689	-0.06395	0.949147
phi 8	0.068825	0.106021	0.649169	0.517779
phi 9	0.053844	0.105761	0.509107	0.611846
phi 10	-0.02539	0.103211	-0.24602	0.806191
phi 11	0.112942	0.101699	1.11055	0.269536
phi 12	-0.12457	0.097099	-1.28294	0.202603

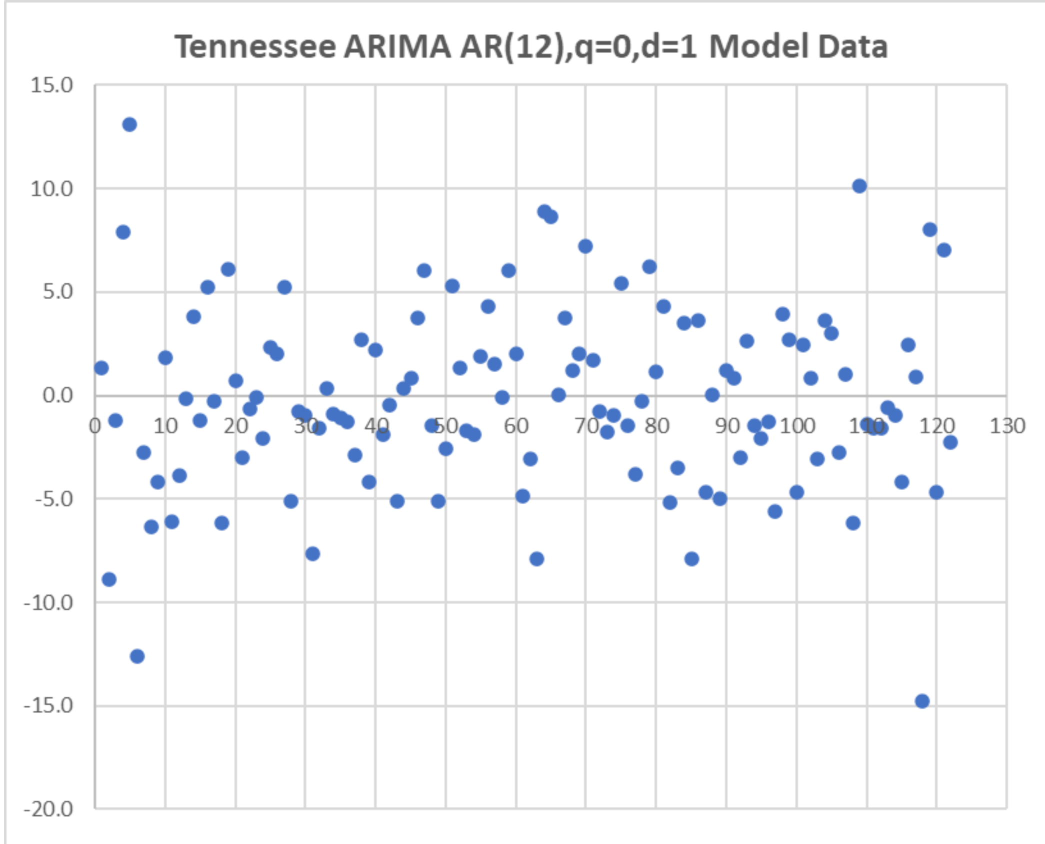


Appendix E42: Tennessee Nonfarm Employment ARIMA Model Forecast

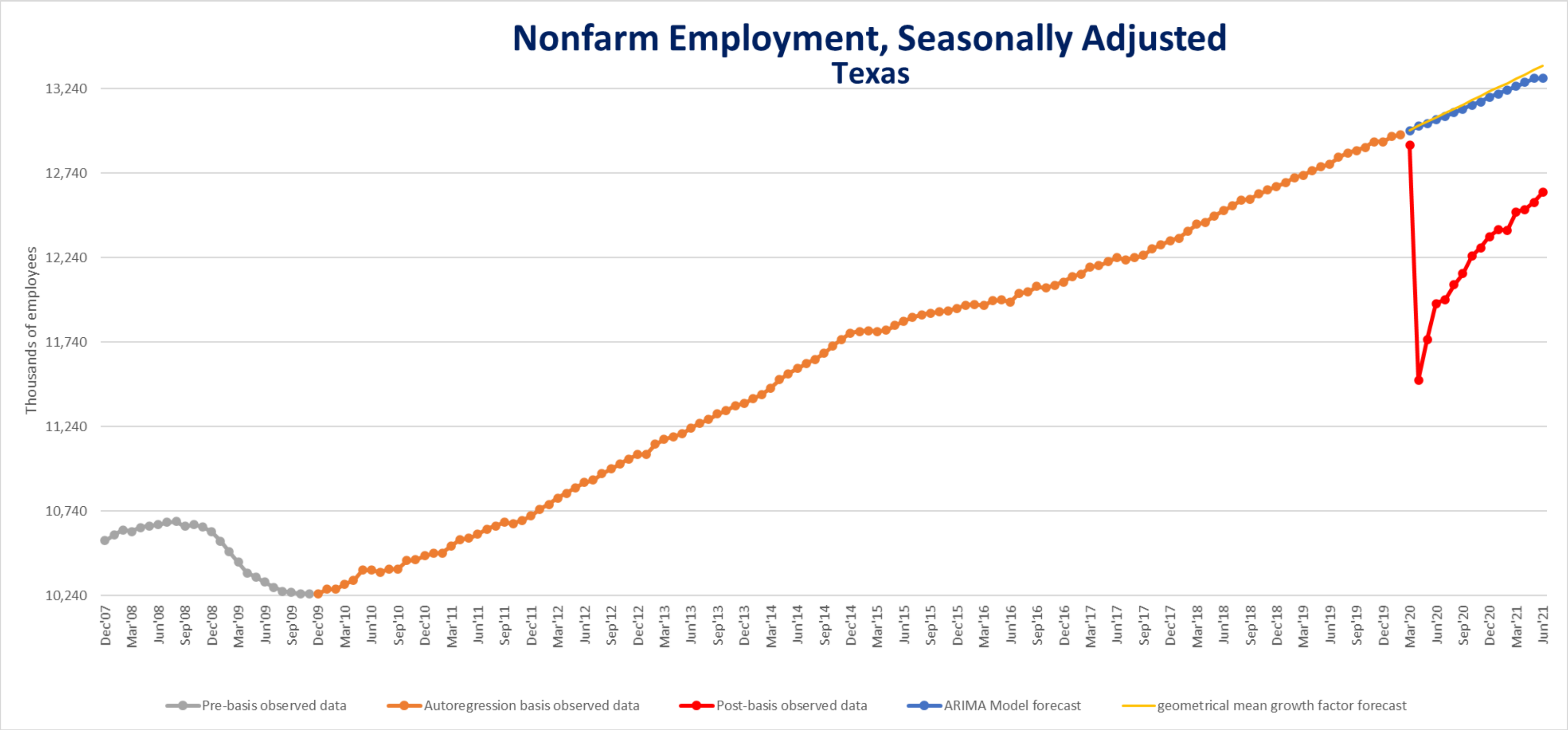


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*4.826761*	*1.872681*	*2.57746*	*0.011458*
phi 1	-0.24226	0.100341	*-2.41433*	*0.01764*
phi 2	-0.07407	0.102716	*-0.72113*	*0.472566*
phi 3	-0.06051	0.102198	*-0.59205*	*0.555193*
phi 4	-0.05551	0.102252	*-0.54285*	*0.588478*
phi 5	0.131785	0.107025	*1.23135*	*0.221169*
phi 6	0.030102	0.107361	*0.280378*	*0.779784*
phi 7	-0.02792	0.103421	*-0.26999*	*0.787745*
phi 8	-0.02468	0.098268	*-0.25113*	*0.802242*
phi 9	0.000369	0.09701	*0.003807*	*0.99697*
phi 10	0.076714	0.096736	*0.793026*	*0.429698*
phi 11	0.111837	0.095088	*1.176134*	*0.24242*
phi 12	0.123599	0.094875	*1.302755*	*0.195743*

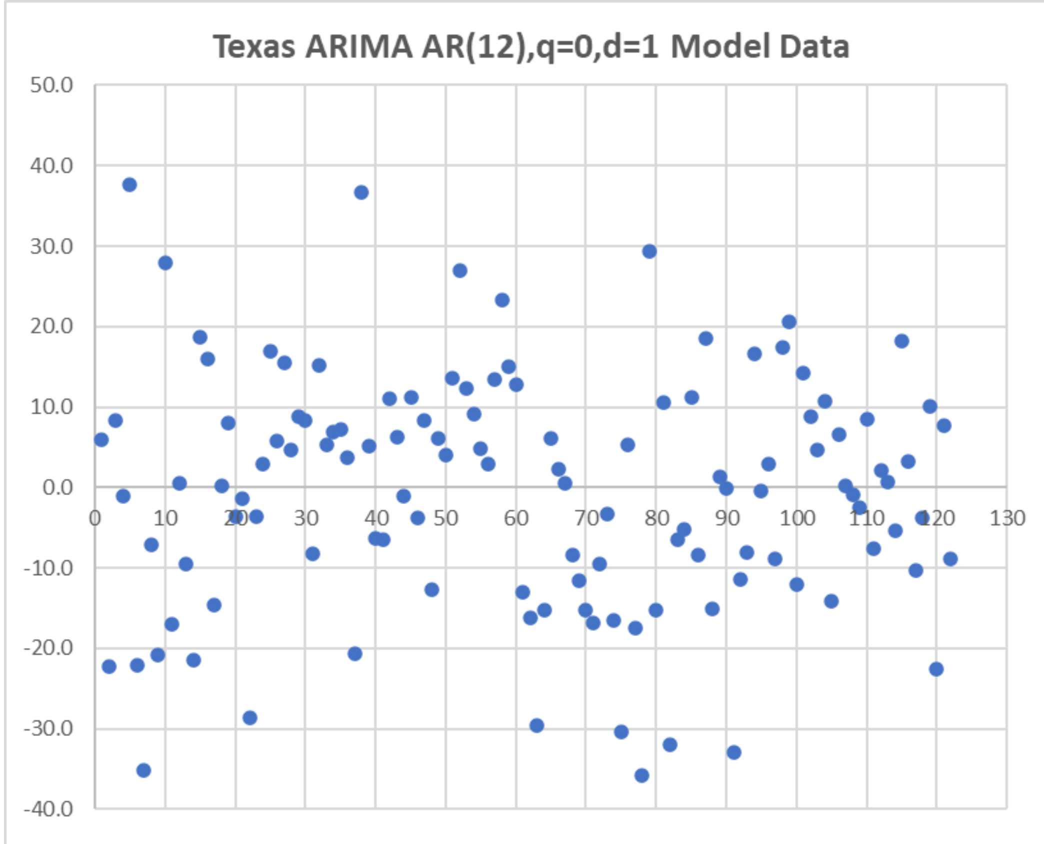


Appendix E43: Texas Nonfarm Employment ARIMA Model Forecast

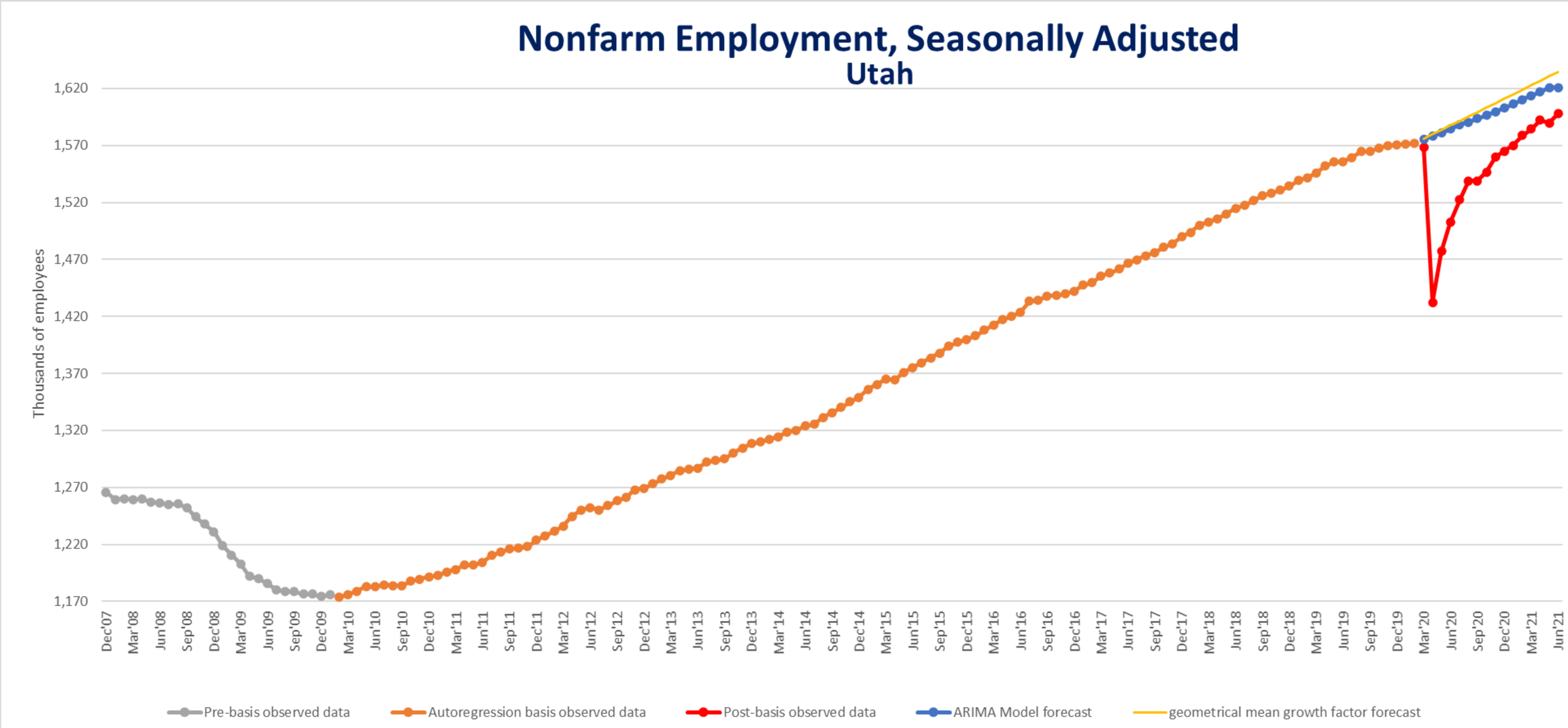


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*13.72834*	*5.413068*	*2.536147*	*0.012804*
phi 1	0.02906	0.100462	*0.289267*	*0.772994*
phi 2	0.109121	0.099856	*1.092783*	*0.277196*
phi 3	0.039624	0.099254	*0.399221*	*0.690608*
phi 4	0.000843	0.098765	*0.008534*	*0.993209*
phi 5	0.099492	0.098341	*1.011701*	*0.314198*
phi 6	0.118762	0.096464	*1.231156*	*0.221241*
phi 7	0.044111	0.095955	*0.459709*	*0.646754*
phi 8	0.096864	0.092036	*1.052465*	*0.295201*
phi 9	0.062508	0.092579	*0.675181*	*0.501167*
phi 10	-0.12021	0.092619	*-1.29794*	*0.197385*
phi 11	0.053965	0.092585	*0.582876*	*0.56133*
phi 12	-0.13775	0.092555	*-1.4883*	*0.139915*

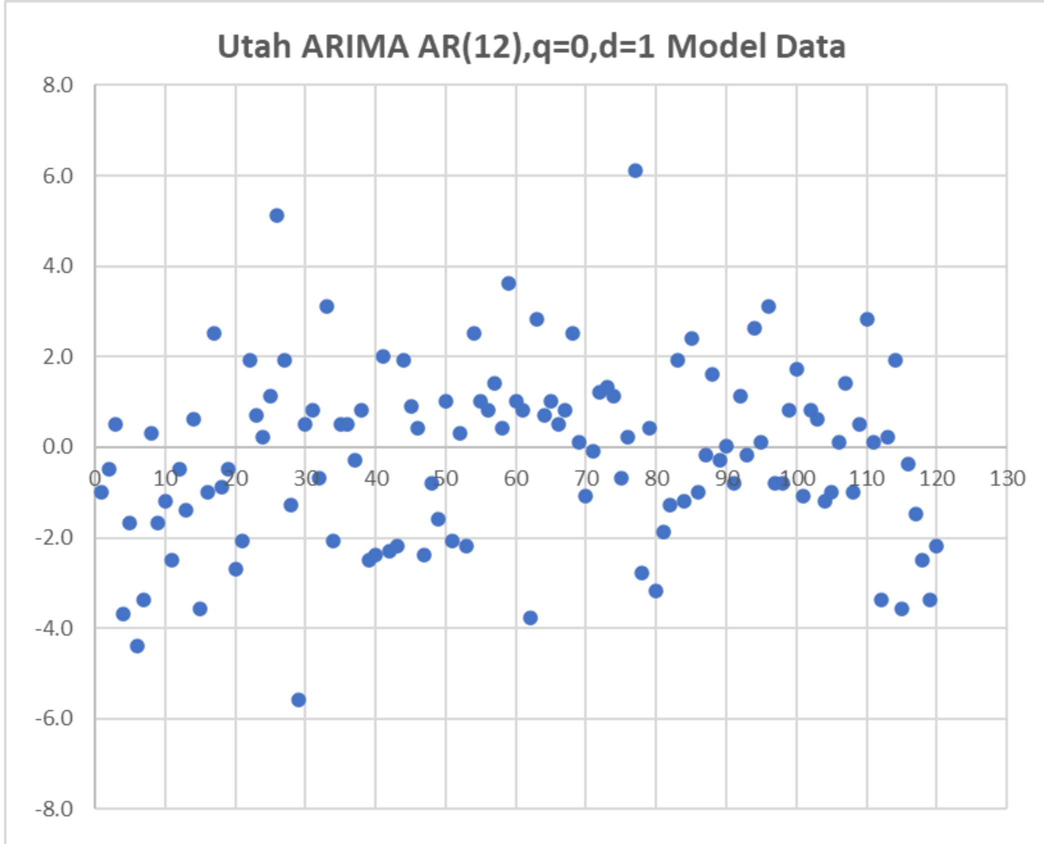


Appendix E44: Utah Nonfarm Employment ARIMA Model Forecast

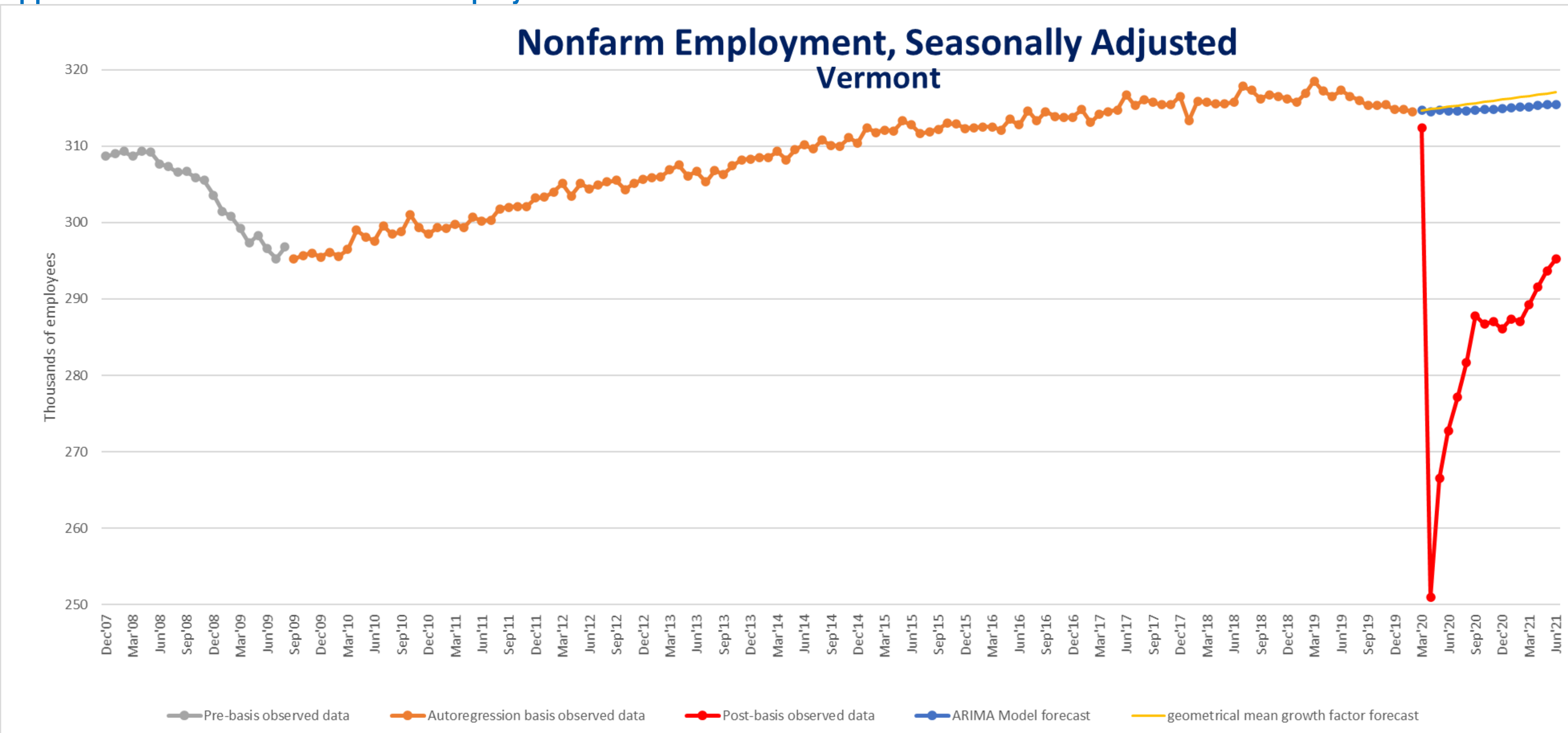


Model parameters

param	coeff	s.e.	t-stat	p-value
const	2.631605	1.035215	2.542084	0.012637
phi 1	0.037687	0.100062	0.376639	0.707282
phi 2	-0.02756	0.099727	-0.27631	0.782908
phi 3	0.011114	0.101404	0.109599	0.912959
phi 4	0.113746	0.09836	1.156429	0.250405
phi 5	-0.00383	0.097895	-0.03912	0.968874
phi 6	-0.01704	0.097906	-0.17407	0.862184
phi 7	-0.06933	0.095976	-0.72234	0.471859
phi 8	0.116271	0.09585	1.213059	0.228115
phi 9	0.171127	0.095953	1.783437	0.077709
phi 10	-0.03743	0.097508	-0.38385	0.701948
phi 11	0.198946	0.099567	1.9981	0.048565
phi 12	-0.24943	0.101767	-2.45101	0.016074

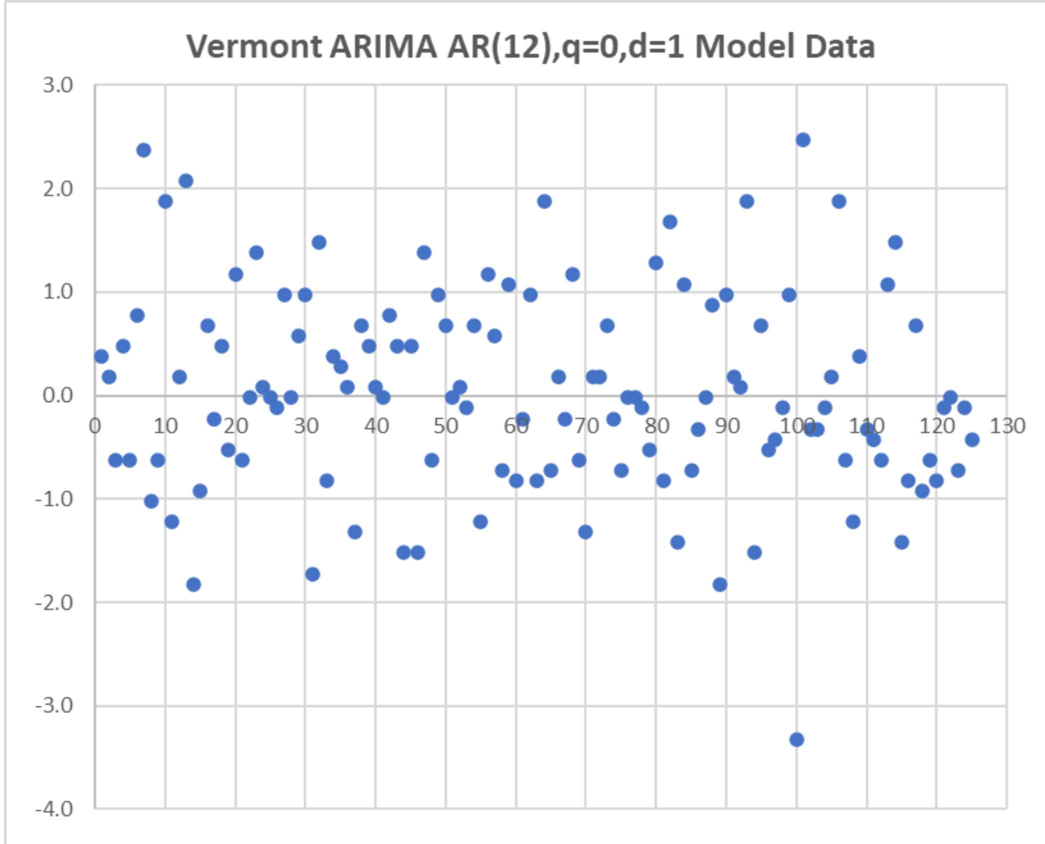


Appendix E45: Vermont Nonfarm Employment ARIMA Model Forecast

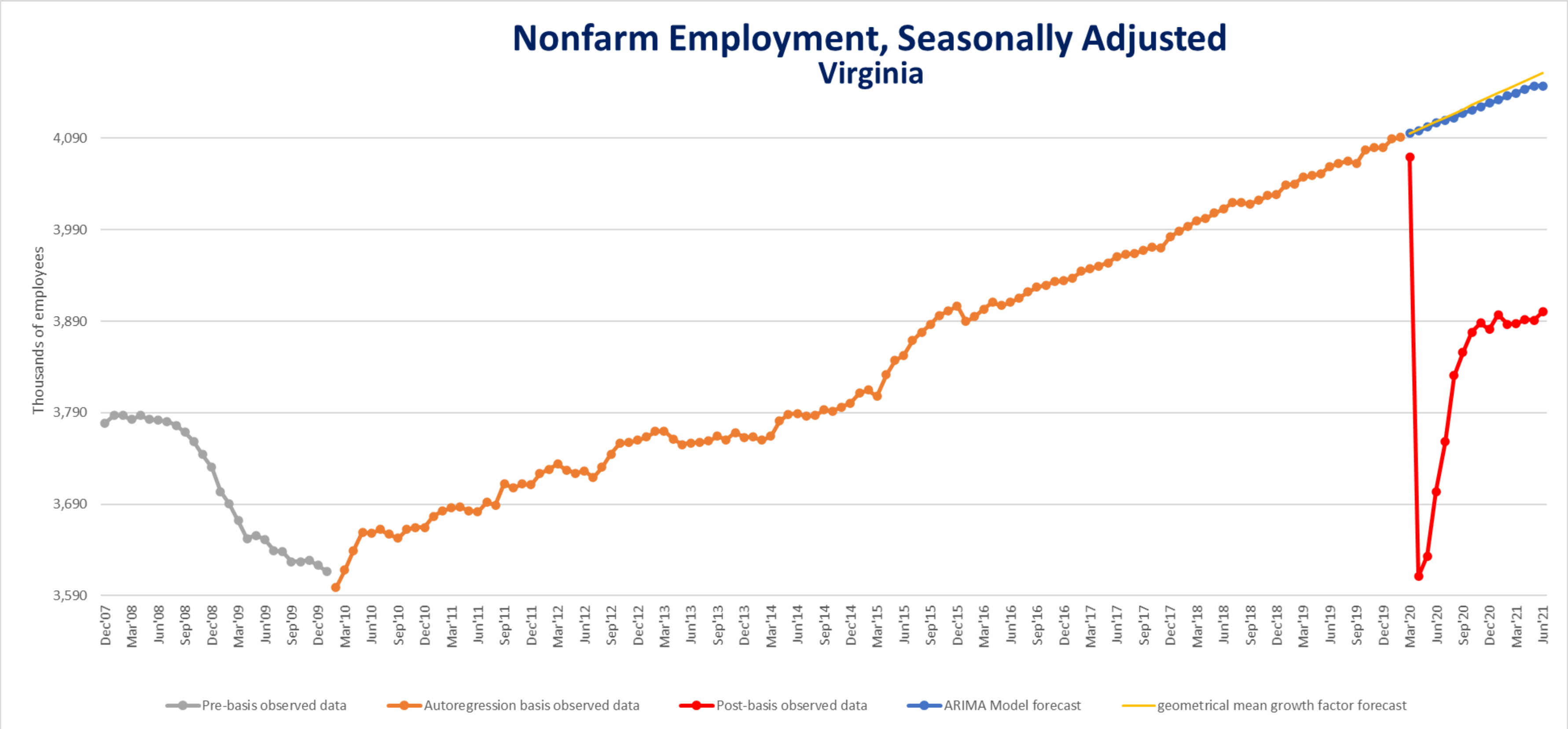


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.161498	0.146372	1.103341	0.272527
phi 1	-0.57481	0.100323	-5.72956	1.07E-07
phi 2	-0.20479	0.115359	-1.77525	0.0789
phi 3	0.005425	0.117722	0.046086	0.963333
phi 4	0.034833	0.118597	0.293706	0.769592
phi 5	-0.00396	0.12008	-0.03297	0.973767
phi 6	-0.02337	0.119121	-0.19621	0.844845
phi 7	0.007395	0.119652	0.061806	0.95084
phi 8	0.088698	0.121482	0.730139	0.467012
phi 9	0.099651	0.122425	0.813975	0.417593
phi 10	0.048154	0.124664	0.386266	0.70012
phi 11	0.148238	0.121688	1.218178	0.226023
phi 12	0.056646	0.101749	0.556724	0.57896

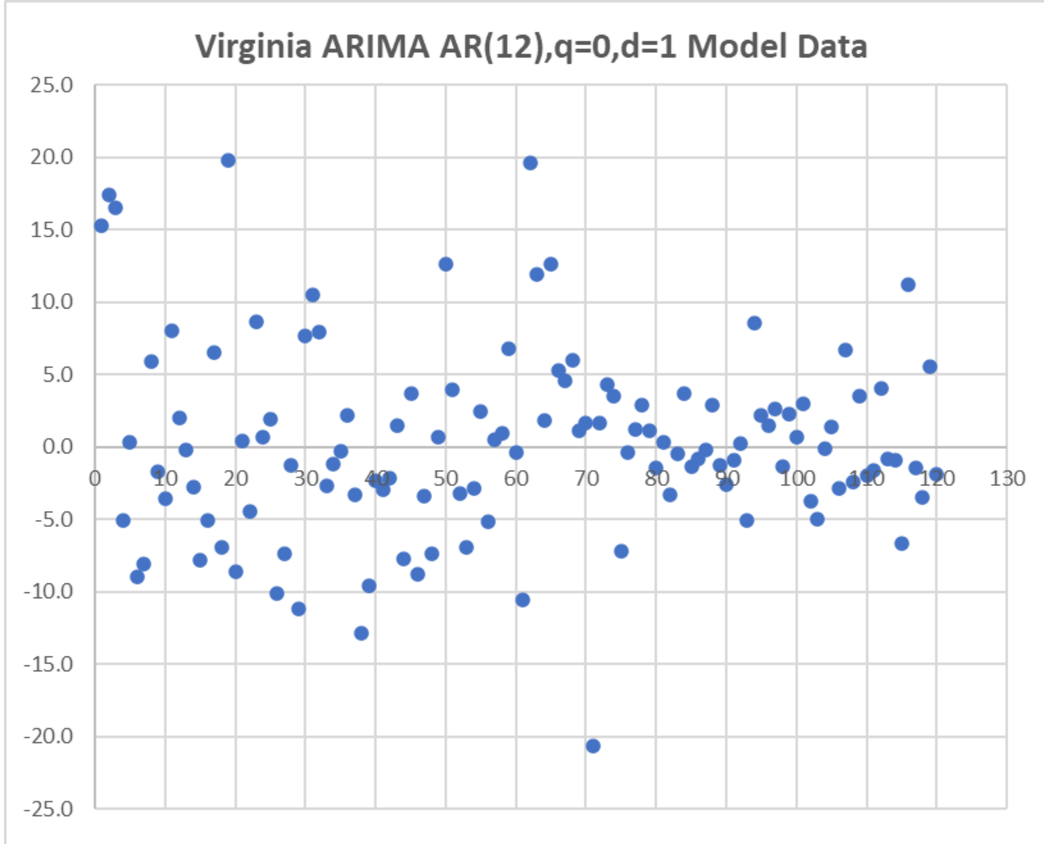


Appendix E46: Virginia Nonfarm Employment ARIMA Model Forecast

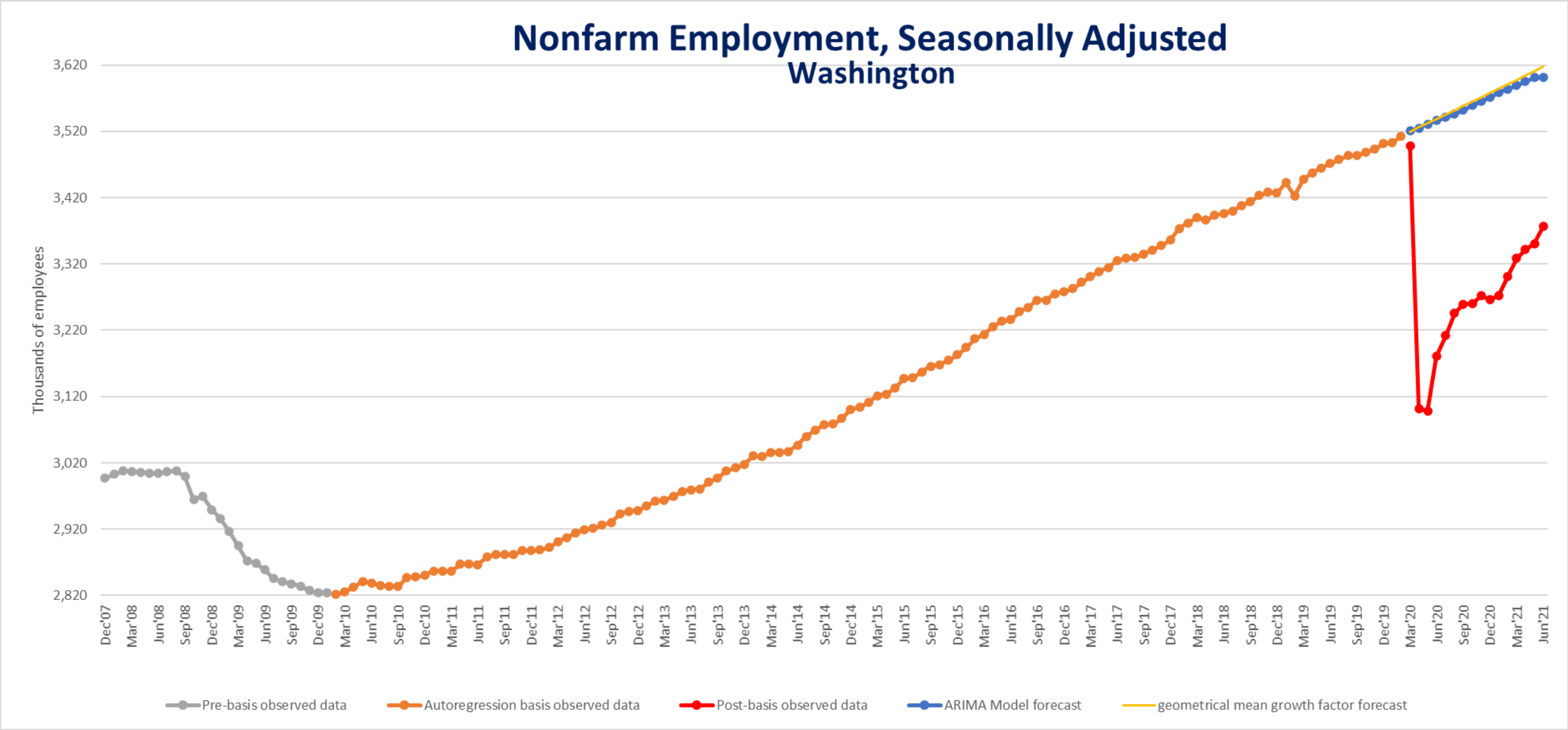


Model parameters

param	coeff	s.e.	t-stat	p-value
const	4.162291	1.509621	2.757175	0.006992
phi 1	-0.0004	0.102565	-0.00389	0.996905
phi 2	0.0494	0.101451	0.486934	0.627426
phi 3	-0.08816	0.101571	-0.86795	0.387606
phi 4	0.020968	0.101958	0.205652	0.837503
phi 5	0.044373	0.102939	0.431062	0.667399
phi 6	-0.07253	0.102478	-0.70772	0.480854
phi 7	-0.01762	0.101983	-0.17276	0.863207
phi 8	0.010306	0.101848	0.101189	0.919613
phi 9	-0.07309	0.101607	-0.71938	0.473673
phi 10	-0.03987	0.098963	-0.40287	0.687948
phi 11	0.093417	0.09577	0.97543	0.331824
phi 12	-0.03211	0.094364	-0.34026	0.734409

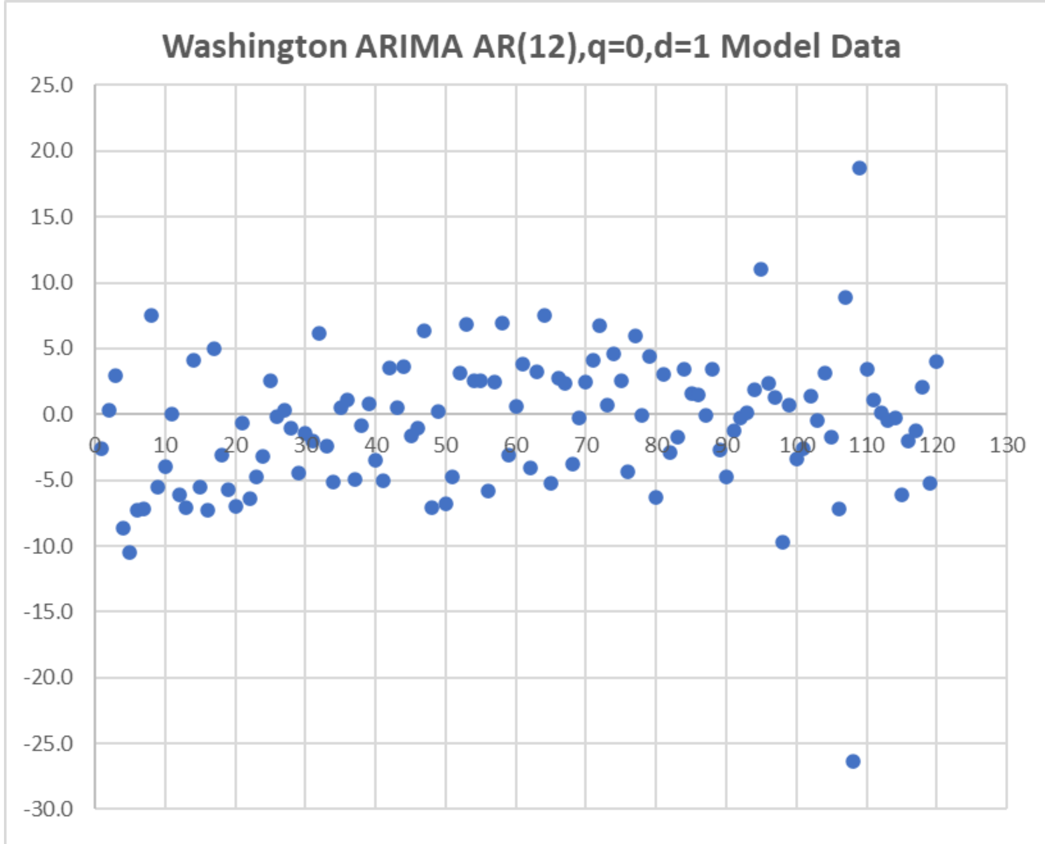


Appendix E47: Washington Nonfarm Employment ARIMA Model Forecast

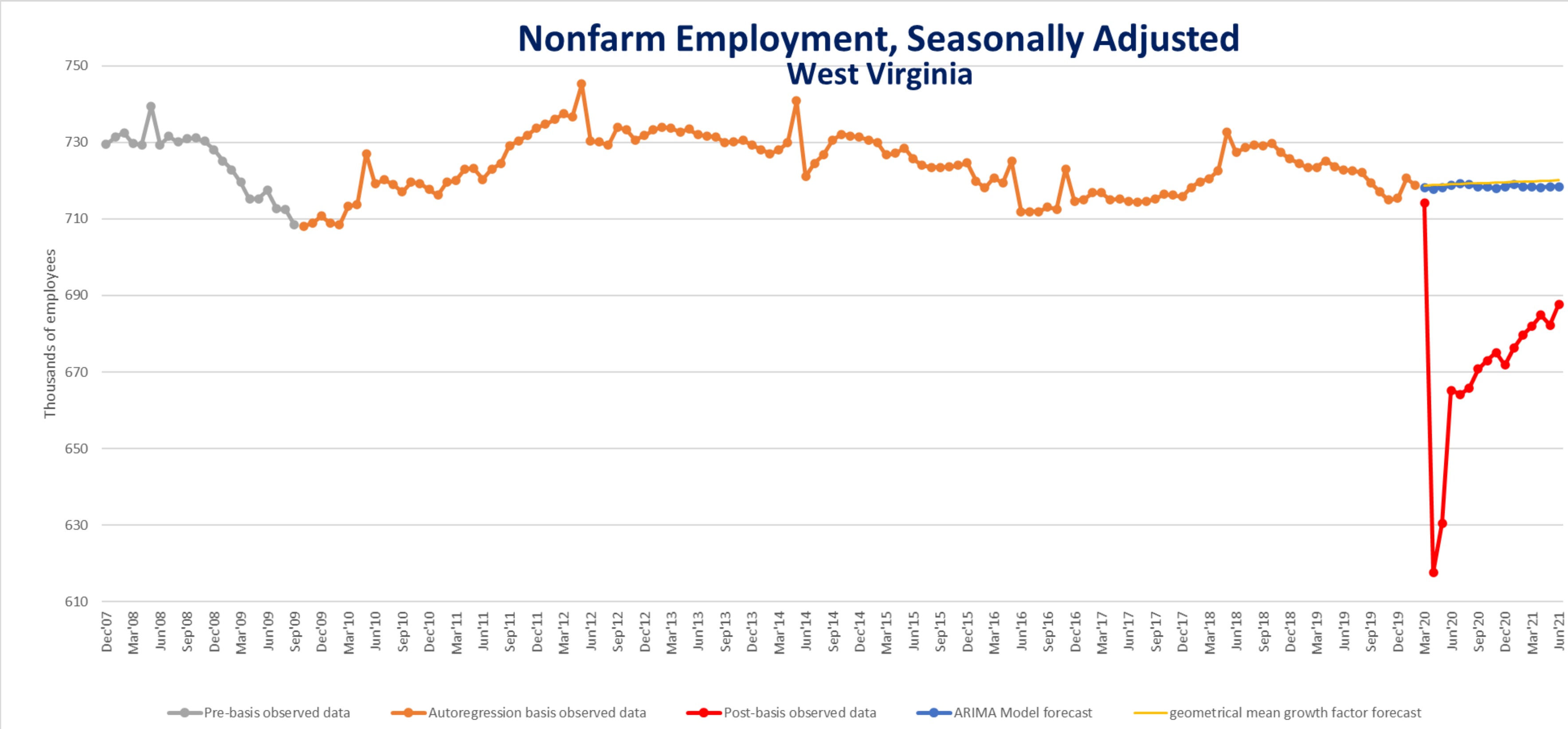


Model parameters

param	coeff	s.e.	t-stat	p-value
const	4.151206	1.881508	2.206318	0.029772
phi 1	-0.36569	0.102727	-3.5598	0.000582
phi 2	-0.04162	0.107363	-0.38769	0.699109
phi 3	0.019817	0.104316	0.18997	0.849738
phi 4	-0.12123	0.103393	-1.17252	0.243919
phi 5	-0.12712	0.101973	-1.2466	0.215611
phi 6	0.013905	0.099623	0.139581	0.889287
phi 7	0.215818	0.09618	2.243898	0.027161
phi 8	0.191563	0.095498	2.005941	0.047706
phi 9	0.123536	0.095963	1.287328	0.201107
phi 10	0.143793	0.096362	1.492212	0.138957
phi 11	0.242198	0.099565	2.432552	0.016865
phi 12	0.05362	0.106378	0.504056	0.615389

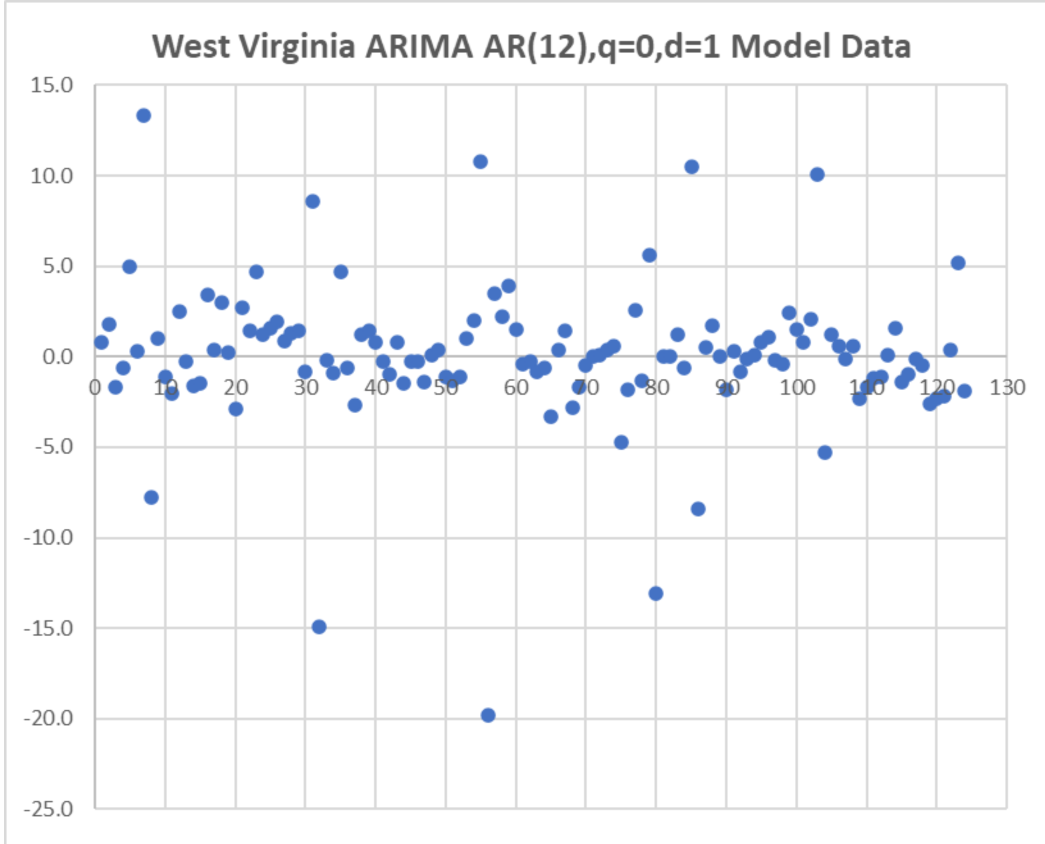


Appendix E48: West Virginia Nonfarm Employment ARIMA Model Forecast

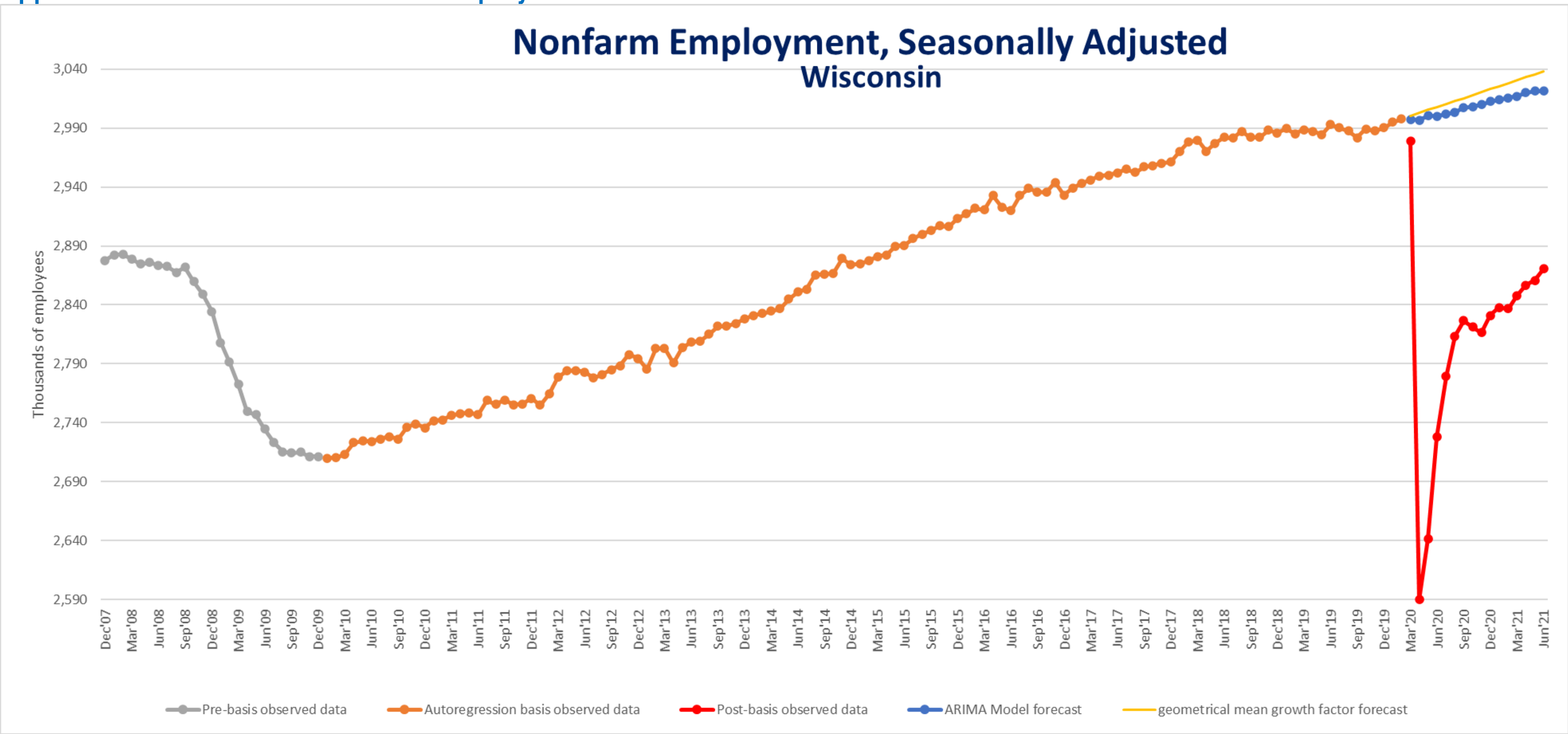


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.00329	0.349375	-0.00941	0.99251
phi 1	-0.40226	0.099762	-4.03225	0.000109
phi 2	-0.1525	0.108	-1.41204	0.161074
phi 3	-0.12687	0.108747	-1.16668	0.246144
phi 4	0.033149	0.109685	0.302214	0.763123
phi 5	0.093134	0.110176	0.845323	0.399969
phi 6	0.126047	0.106272	1.186086	0.238427
phi 7	0.006447	0.104944	0.061431	0.95114
phi 8	-0.04958	0.102926	-0.48168	0.631093
phi 9	-0.02935	0.102894	-0.28523	0.776064
phi 10	-0.07179	0.102299	-0.70178	0.484465
phi 11	-0.01877	0.101936	-0.18411	0.854304
phi 12	0.114186	0.093967	1.215178	0.227188

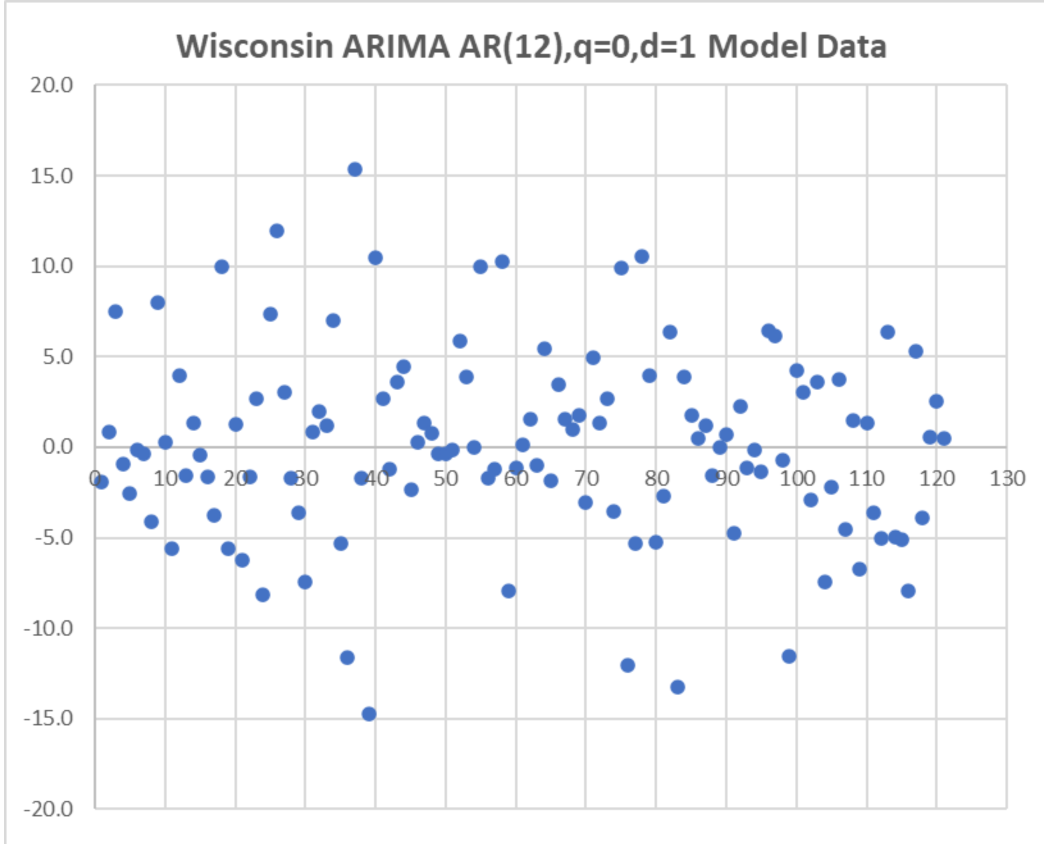


Appendix E49: Wisconsin Nonfarm Employment ARIMA Model Forecast

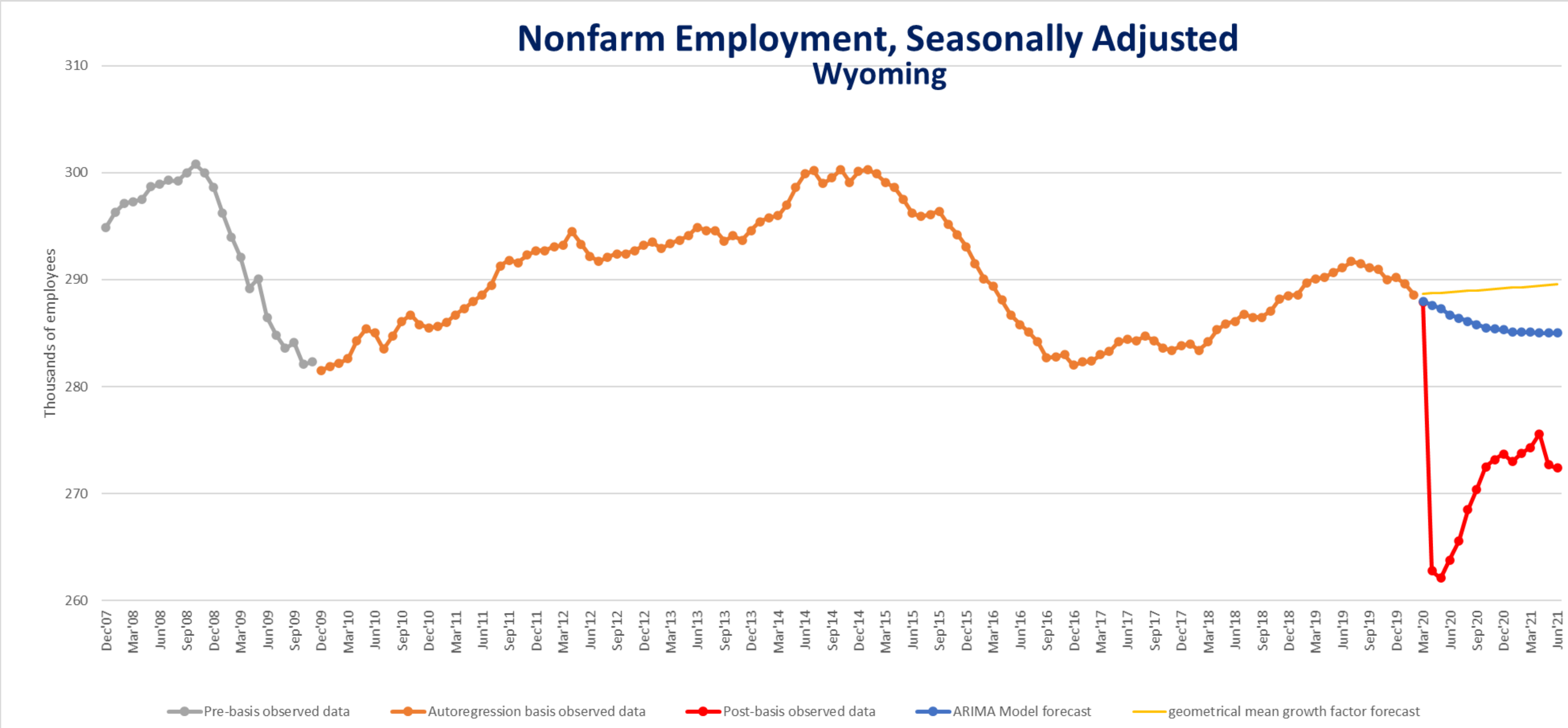


Model parameters

param	coeff	s.e.	t-stat	p-value
const	1.973611	1.316876	1.498707	0.137231
phi 1	-0.32689	0.102107	-3.20142	0.001855
phi 2	-0.31304	0.104517	-2.99515	0.00349
phi 3	0.01804	0.109382	0.164928	0.869348
phi 4	-0.09577	0.107589	-0.89011	0.37563
phi 5	-0.07171	0.107573	-0.66662	0.506617
phi 6	0.065888	0.109045	0.604227	0.547118
phi 7	0.204349	0.110302	1.852623	0.067009
phi 8	0.118446	0.114032	1.03871	0.301549
phi 9	0.189973	0.113178	1.678538	0.096495
phi 10	0.033431	0.11542	0.289643	0.772714
phi 11	0.241704	0.108891	2.219695	0.028793
phi 12	0.050211	0.105564	0.475648	0.635406

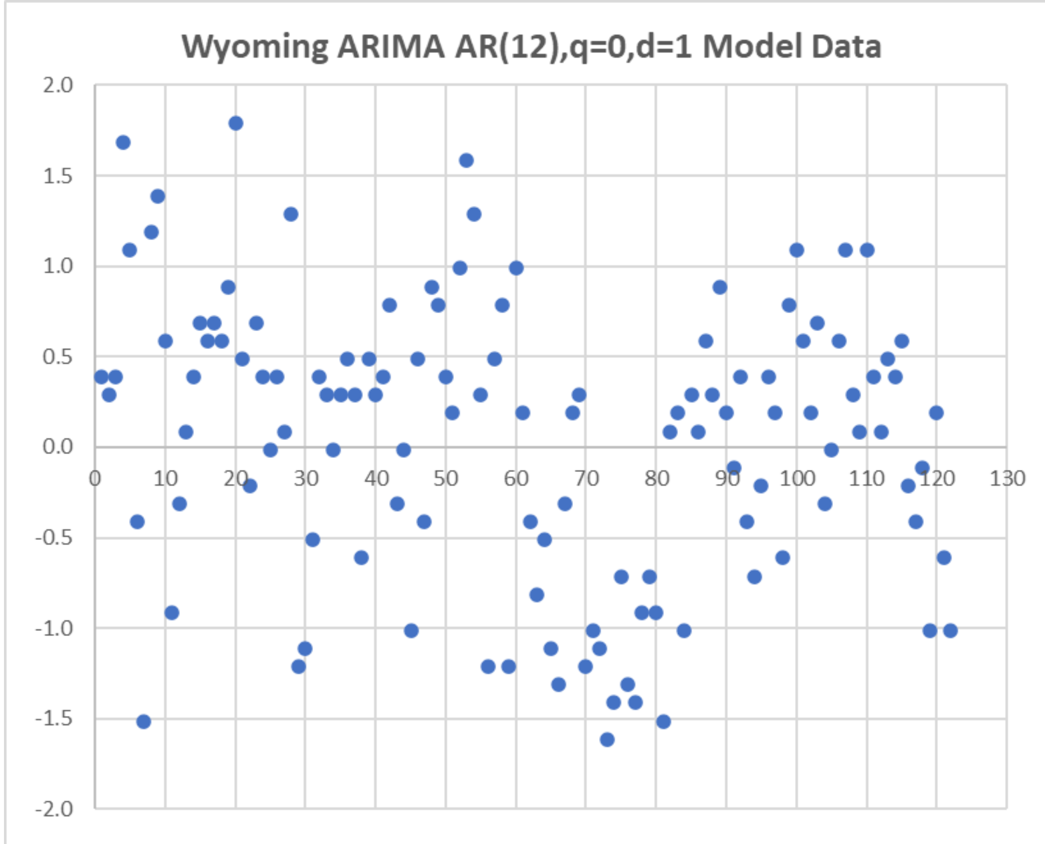


Appendix E50: Wyoming Nonfarm Employment ARIMA Model Forecast

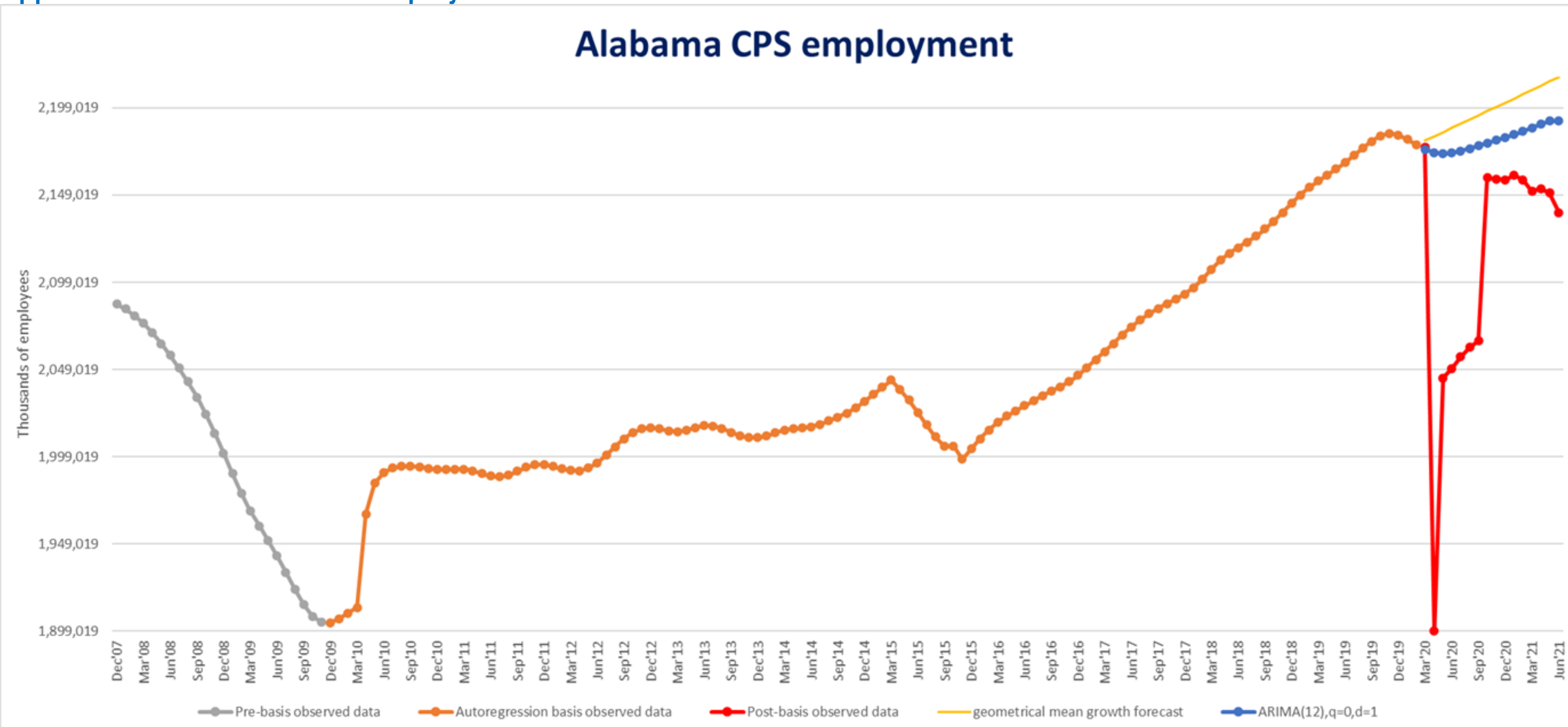


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.004071	0.06338	0.06423	0.948919
phi 1	0.355147	0.10096	3.517703	0.000664
phi 2	0.042277	0.105422	0.401025	0.689284
phi 3	0.151645	0.105536	1.436906	0.153963
phi 4	0.09858	0.107354	0.918265	0.360758
phi 5	0.053468	0.106414	0.502452	0.616489
phi 6	-0.05972	0.101892	-0.58609	0.559176
phi 7	0.176969	0.102057	1.734022	0.086091
phi 8	-0.0398	0.103874	-0.38319	0.702421
phi 9	-0.03789	0.100618	-0.3766	0.707294
phi 10	-0.0404	0.100503	-0.40198	0.688586
phi 11	0.095386	0.100304	0.950967	0.343984
phi 12	-0.13076	0.09398	-1.39139	0.16729

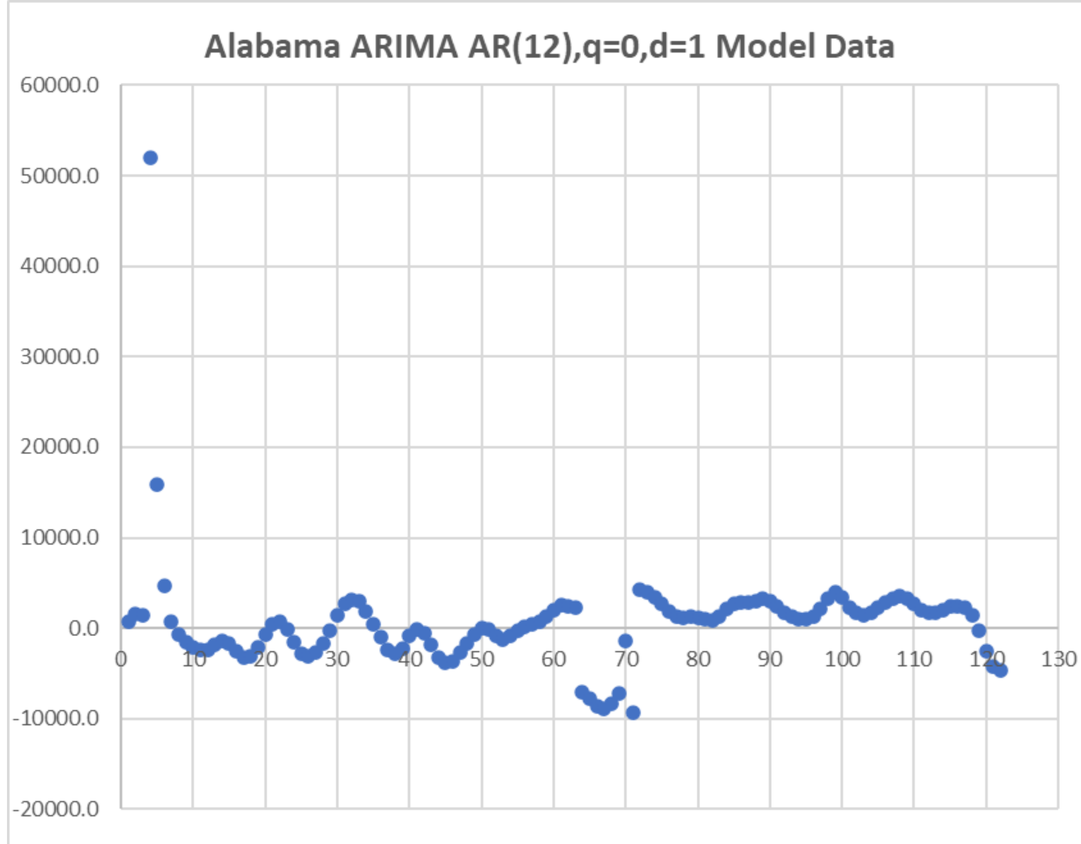


Appendix E51: Alabama CPS Employment ARIMA Model Forecast

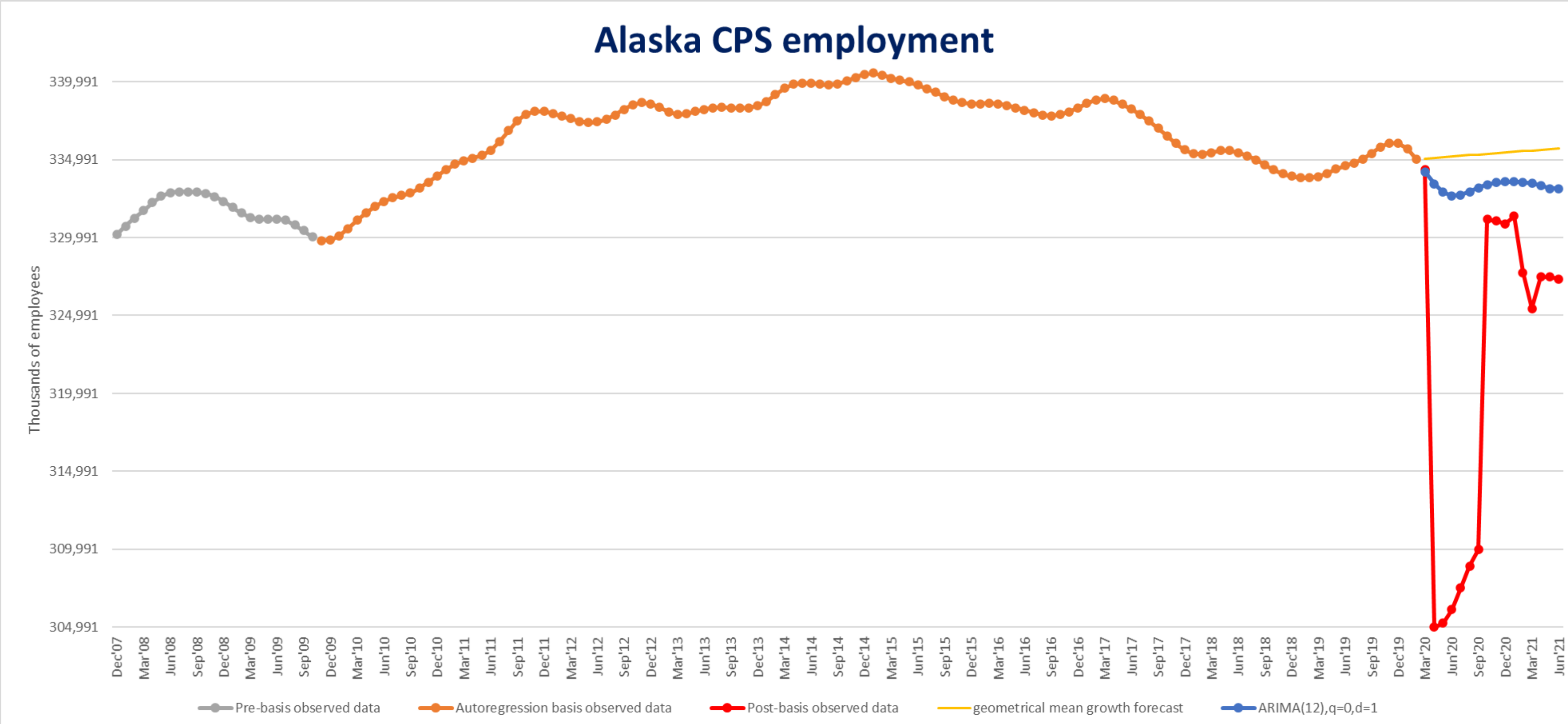


Model parameters

param	coeff	s.e.	t-stat	p-value
const	434.4597	236.8831	1.834068	0.06971
phi 1	0.709843	0.1001	7.091325	2.16E-10
phi 2	0.375727	0.118988	3.15768	0.00212
phi 3	-0.1244	0.12438	-1.00016	0.319721
phi 4	-0.24977	0.123678	-2.0195	0.046195
phi 5	-0.10585	0.124986	-0.84691	0.399132
phi 6	0.068431	0.124718	0.548685	0.584483
phi 7	0.277384	0.116242	2.386256	0.018962
phi 8	-0.25477	0.118287	-2.15385	0.03373
phi 9	0.057167	0.048852	1.170219	0.24478
phi 10	0.020235	0.035138	0.575875	0.566034
phi 11	-0.00747	0.034777	-0.21492	0.830281
phi 12	-0.02854	0.032338	-0.88268	0.379591

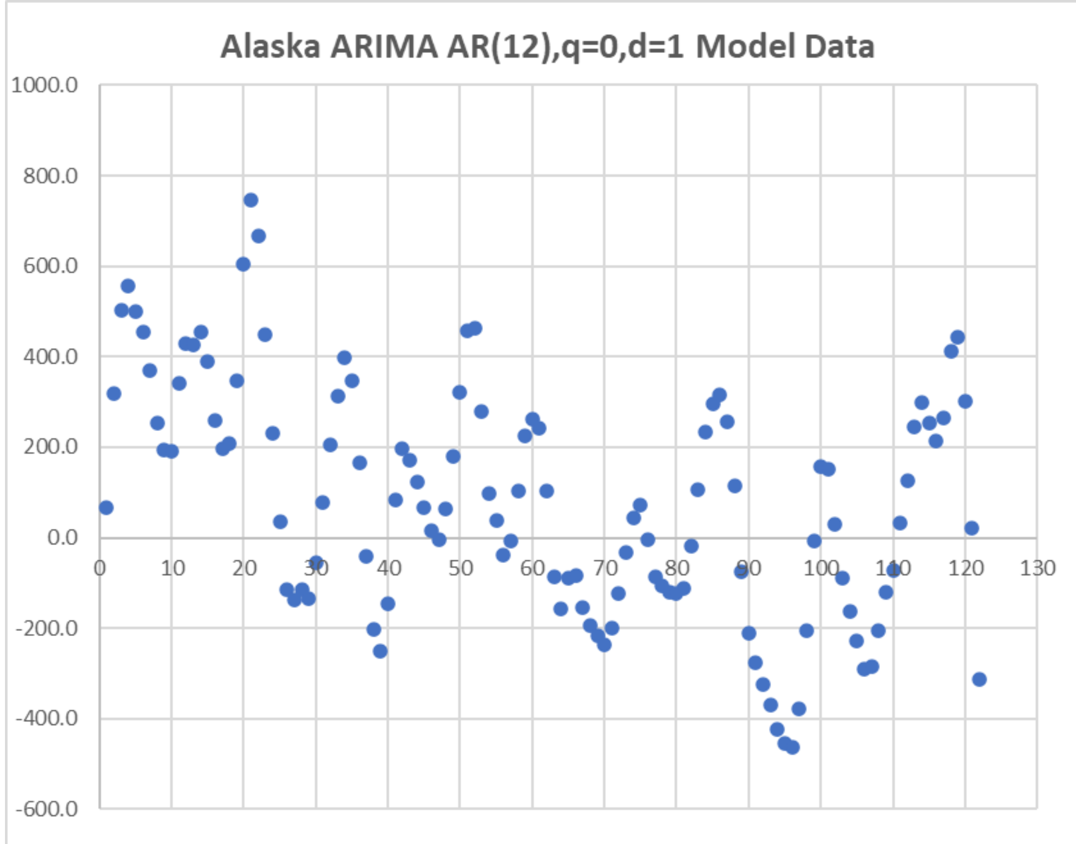


Appendix E52: Alaska CPS Employment ARIMA Model Forecast

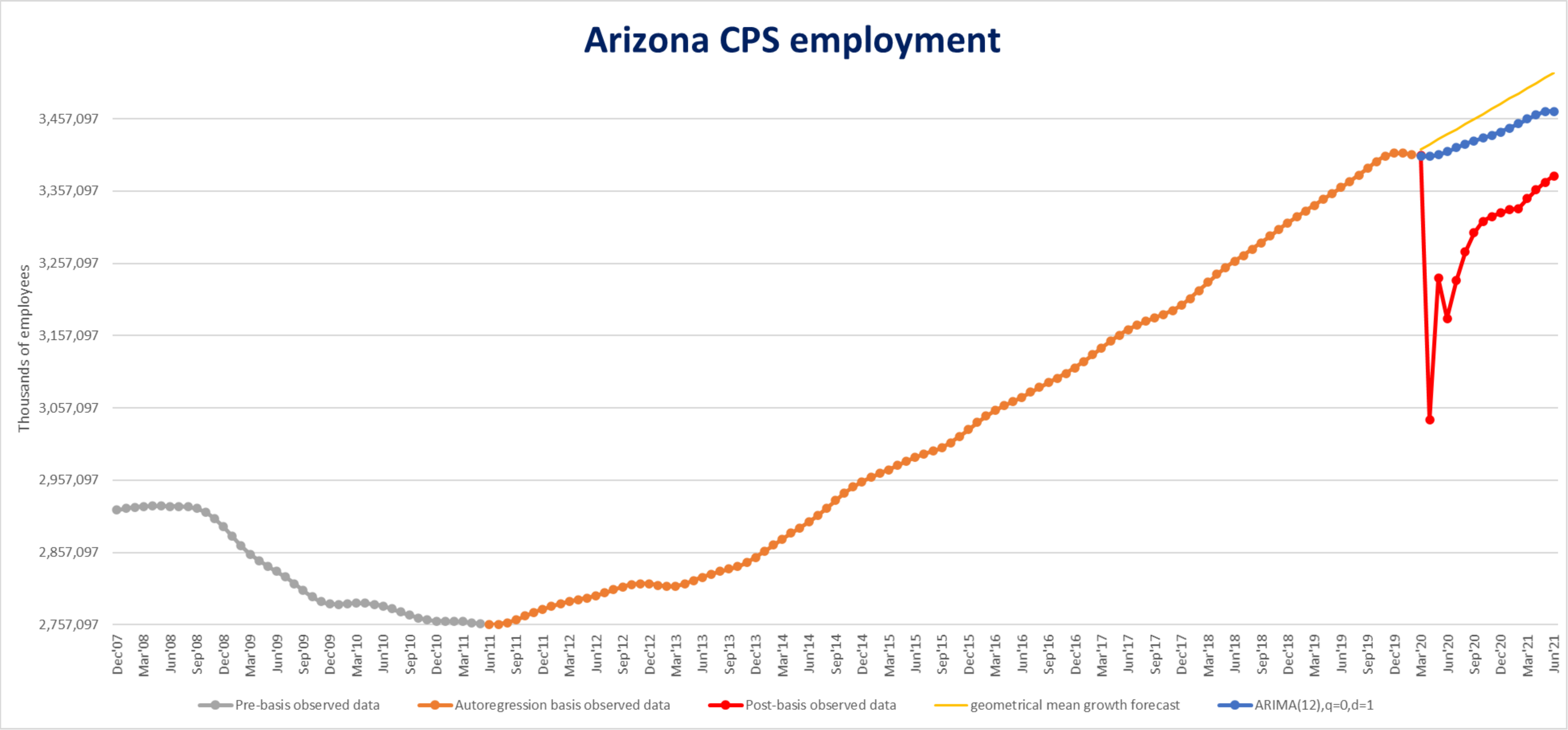


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	-1.93055	4.920144	-0.39238	0.695632
phi 1	2.29793	0.10078	22.80144	5.71E-41
phi 2	-2.33975	0.245815	-9.51835	1.34E-15
phi 3	1.481247	0.326025	4.54335	1.58E-05
phi 4	-0.84613	0.345555	-2.4486	0.016118
phi 5	0.333282	0.350418	0.9511	0.343894
phi 6	0.100376	0.354259	0.283341	0.777513
phi 7	-0.09484	0.358016	-0.26492	0.791631
phi 8	-0.19801	0.354811	-0.55806	0.578077
phi 9	0.373911	0.346313	1.079691	0.28293
phi 10	-0.264	0.323656	-0.81569	0.416658
phi 11	0.029792	0.243398	0.1224	0.902833
phi 12	0.072044	0.100589	0.716218	0.47556

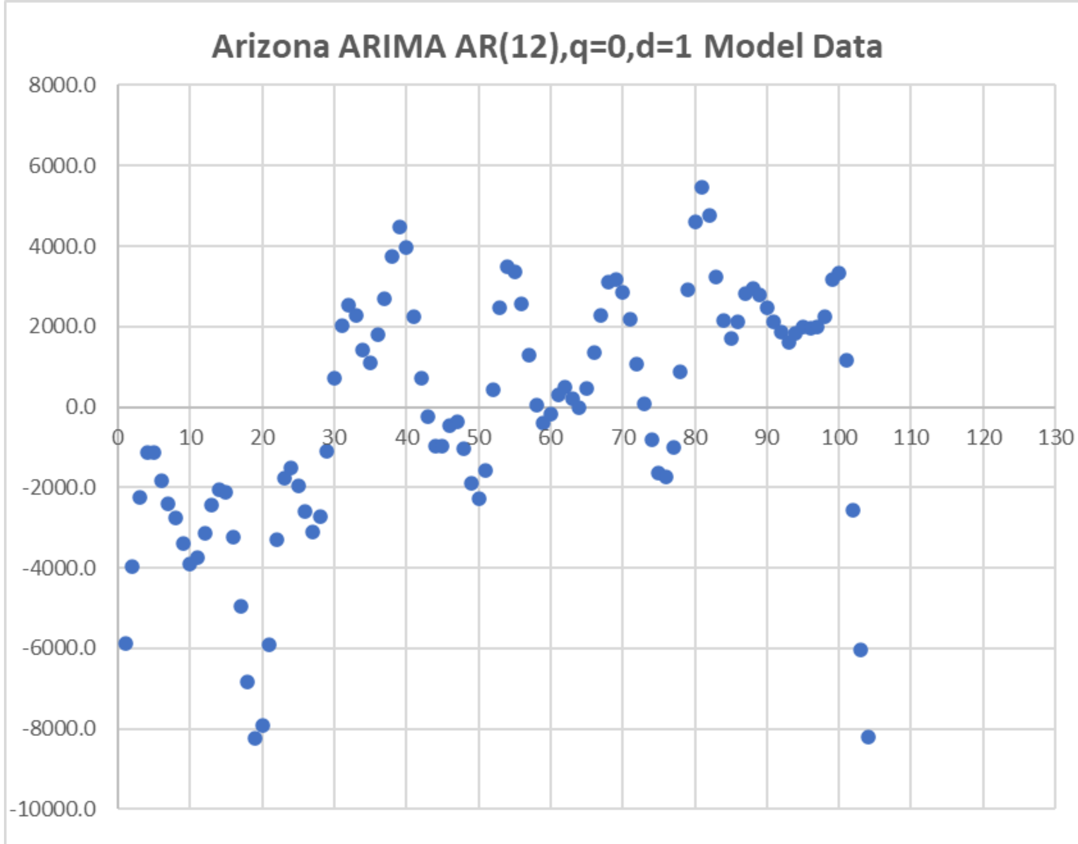


Appendix E53: Arizona CPS Employment ARIMA Model Forecast

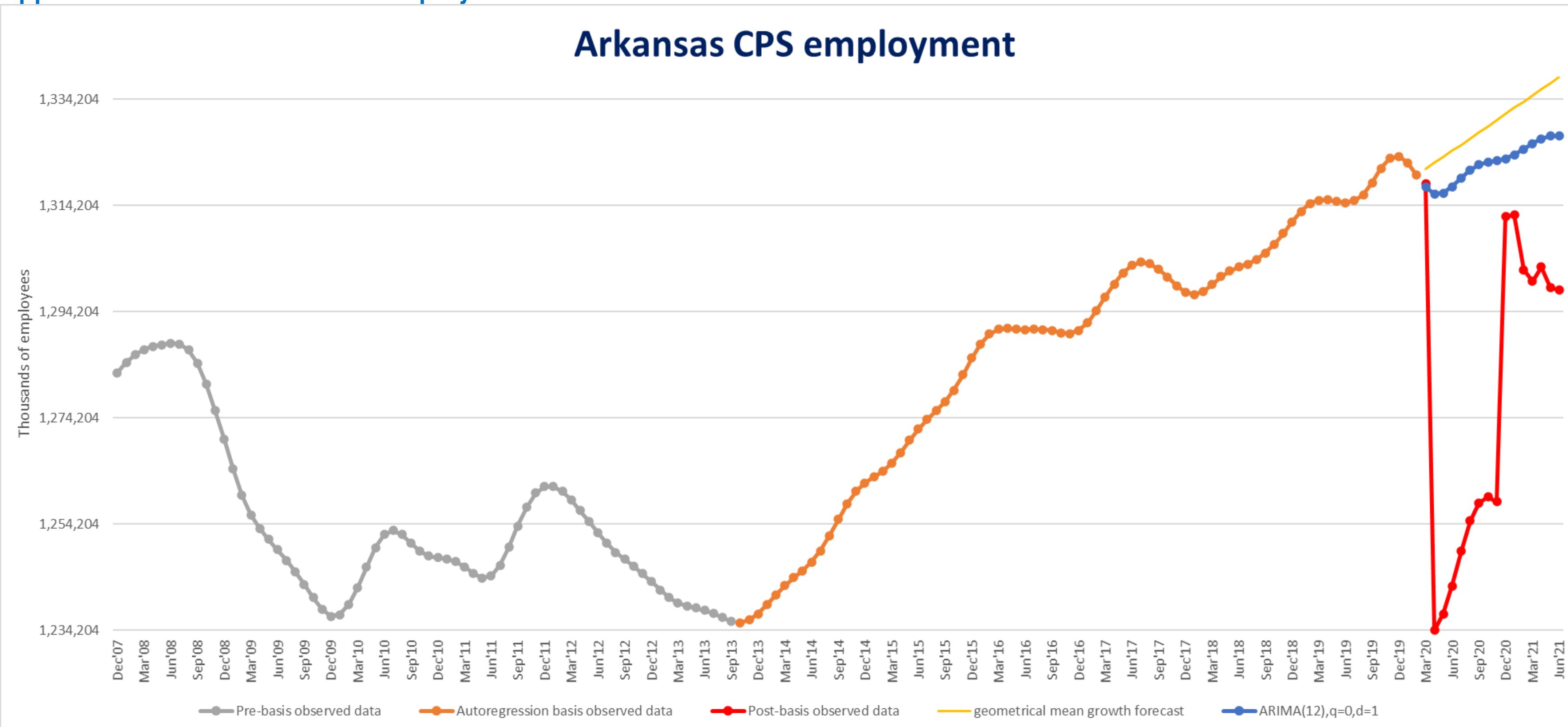


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	209.7299	129.4841	1.619735	0.109275
phi 1	2.718067	0.113215	24.00797	4.83E-38
phi 2	-3.33135	0.326928	-10.1899	4.74E-16
phi 3	2.616192	0.496553	5.268702	1.16E-06
phi 4	-1.89681	0.566033	-3.35107	0.001237
phi 5	1.503943	0.587944	2.557972	0.012441
phi 6	-1.08823	0.602349	-1.80665	0.074624
phi 7	0.968074	0.61211	1.581536	0.117751
phi 8	-1.09738	0.603318	-1.8189	0.072716
phi 9	1.016778	0.578129	1.758738	0.082494
phi 10	-0.71661	0.51312	-1.39658	0.166452
phi 11	0.376763	0.347742	1.083454	0.281903
phi 12	-0.10262	0.122833	-0.83544	0.405991

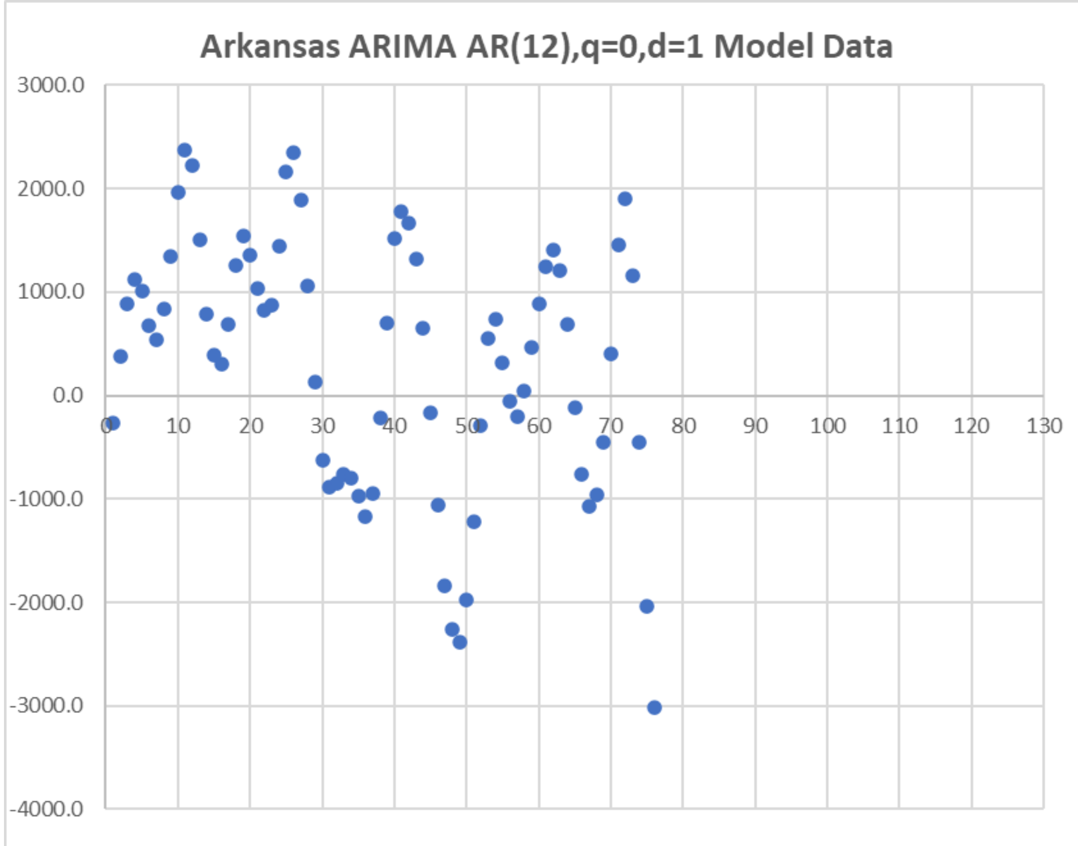


Appendix E54: Arkansas CPS Employment ARIMA Model Forecast

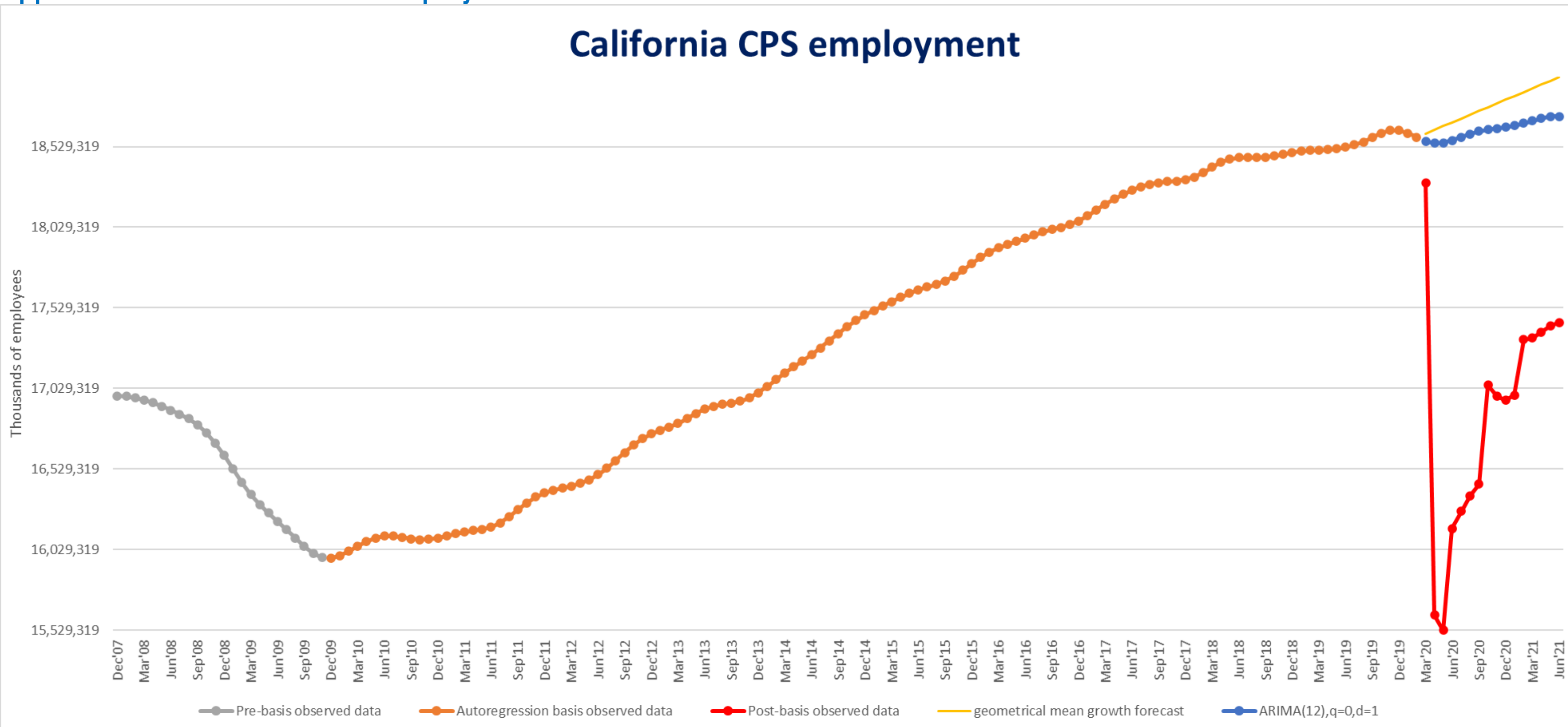


Model parameters

param	coeff	s.e.	t-stat	p-value
const	37.51183	47.75638	0.785483	0.435805
phi 1	2.734393	0.141349	19.34504	3.85E-25
phi 2	-3.37912	0.413921	-8.16369	8.07E-11
phi 3	2.544563	0.638354	3.98613	0.000214
phi 4	-1.73235	0.727154	-2.38237	0.020968
phi 5	1.390592	0.74993	1.854297	0.069483
phi 6	-1.00818	0.767769	-1.31314	0.195015
phi 7	0.716804	0.781166	0.917609	0.363143
phi 8	-0.6281	0.763222	-0.82296	0.414365
phi 9	0.381139	0.729925	0.522161	0.603819
phi 10	0.013278	0.652233	0.020358	0.983837
phi 11	-0.18053	0.444599	-0.40605	0.686407
phi 12	0.099213	0.157208	0.63109	0.5308

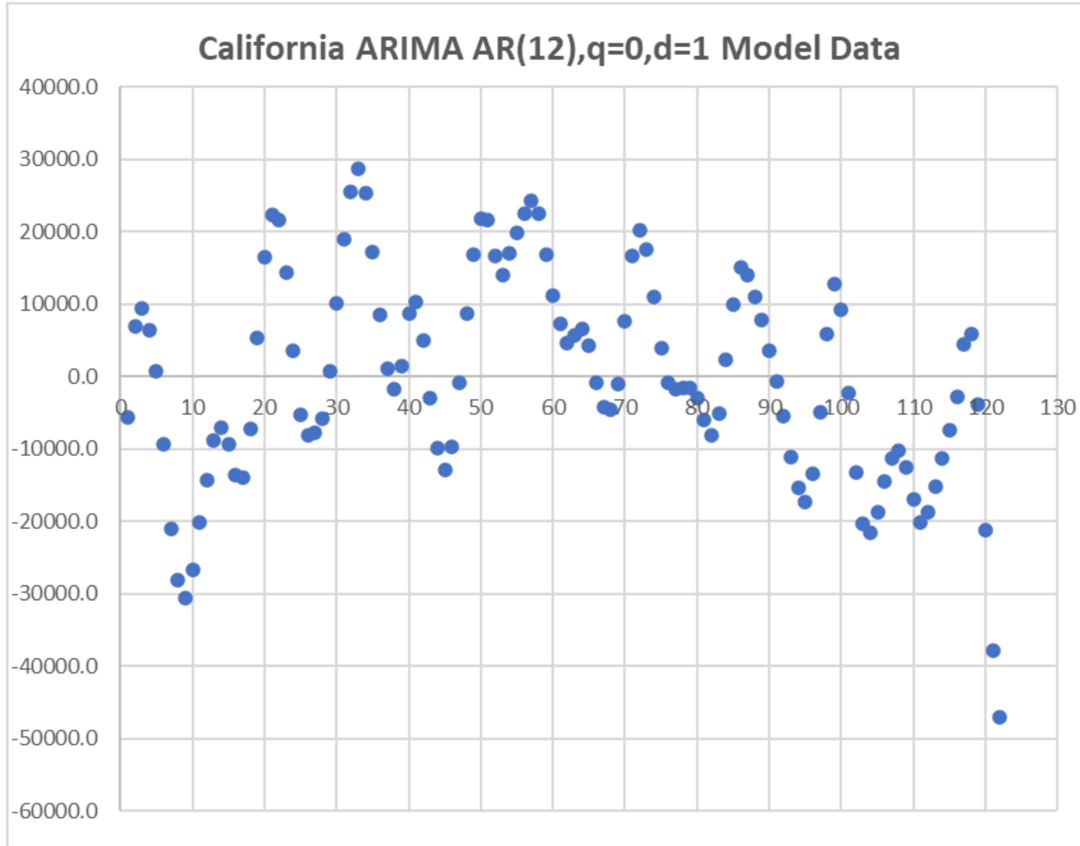


Appendix E55: California CPS Employment ARIMA Model Forecast

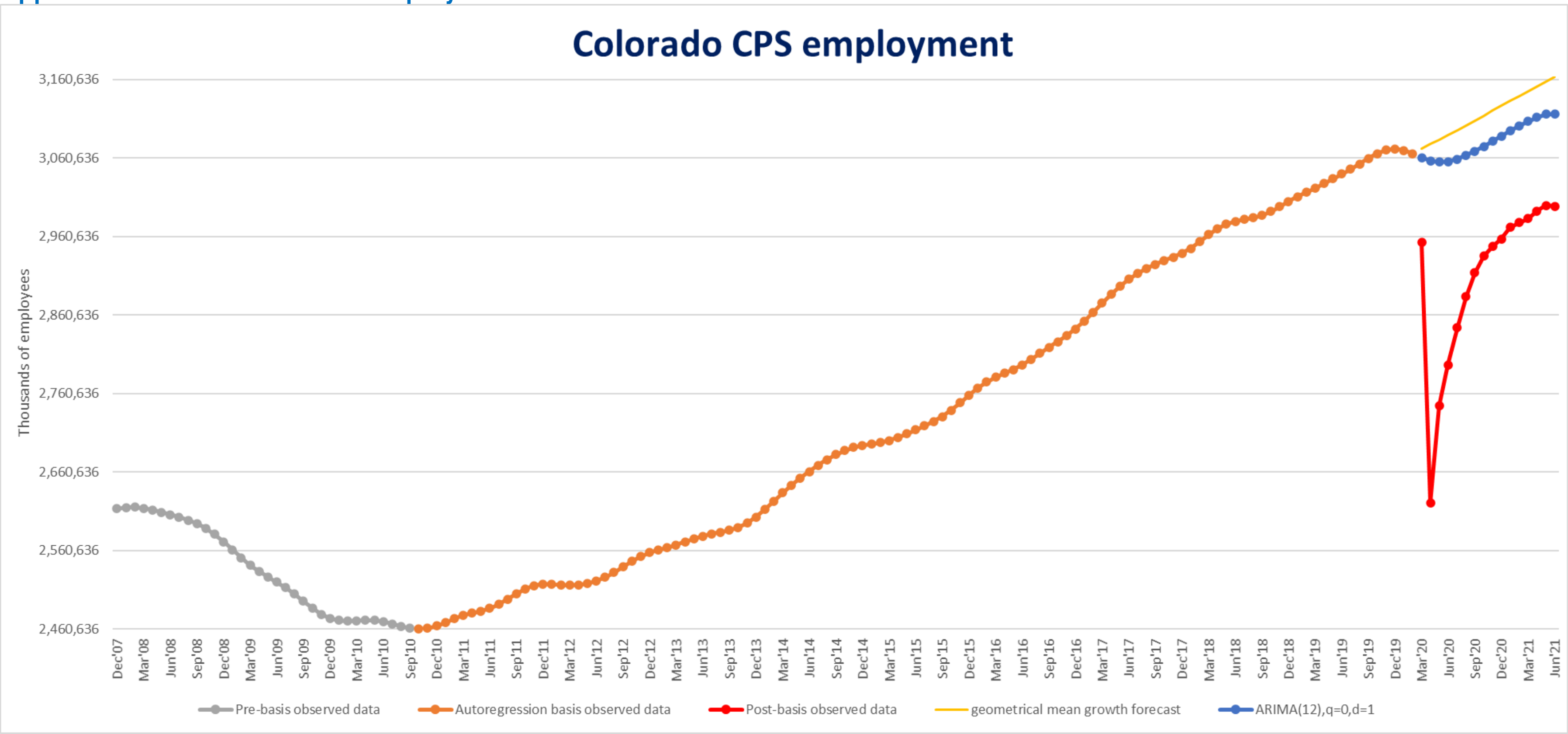


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	590.775	508.4441	1.161927	0.248116
phi 1	2.715849	0.101634	26.72193	1.6E-46
phi 2	-3.30871	0.291583	-11.3474	1.71E-19
phi 3	2.397968	0.435796	5.502503	3.05E-07
phi 4	-1.37897	0.481197	-2.86571	0.005102
phi 5	0.822223	0.485531	1.69345	0.093579
phi 6	-0.45451	0.488164	-0.93105	0.354139
phi 7	0.46528	0.49705	0.936084	0.351554
phi 8	-0.8027	0.497182	-1.61449	0.109669
phi 9	0.973307	0.483371	2.01358	0.046824
phi 10	-0.71915	0.431833	-1.66535	0.099069
phi 11	0.307899	0.287907	1.069438	0.287526
phi 12	-0.04609	0.100849	-0.45707	0.648646

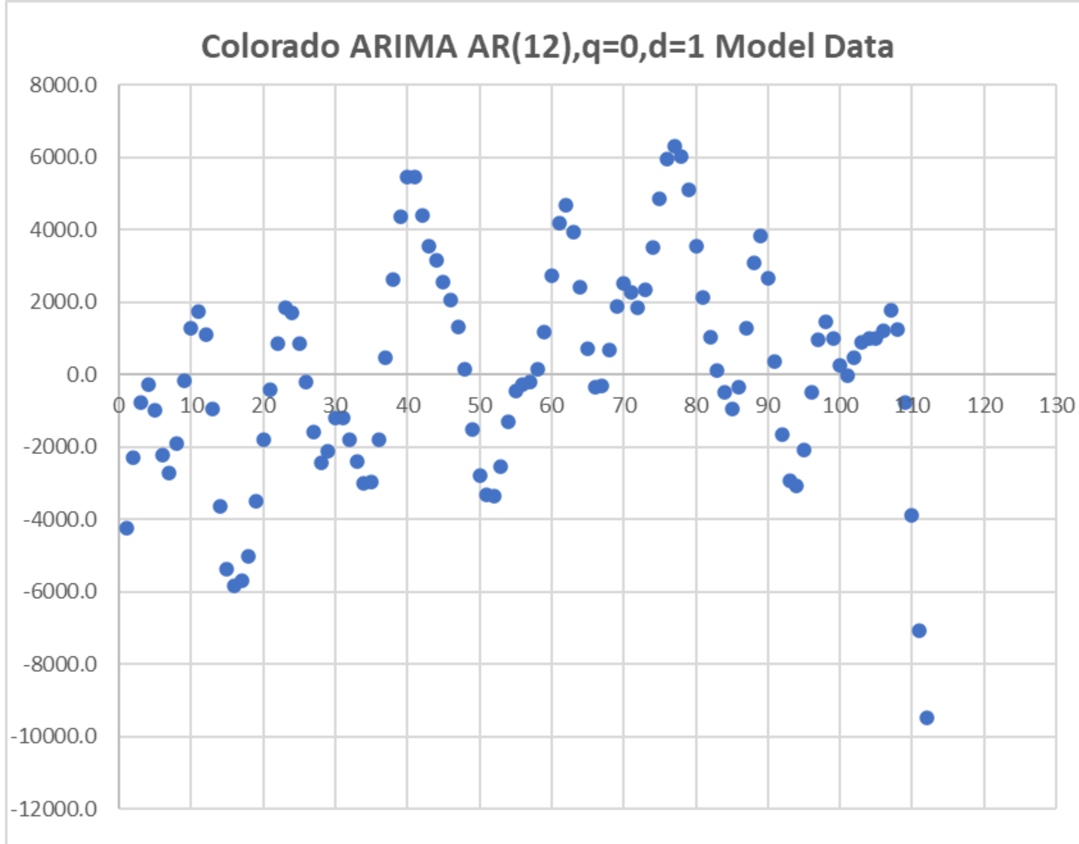


Appendix E56: Colorado CPS Employment ARIMA Model Forecast

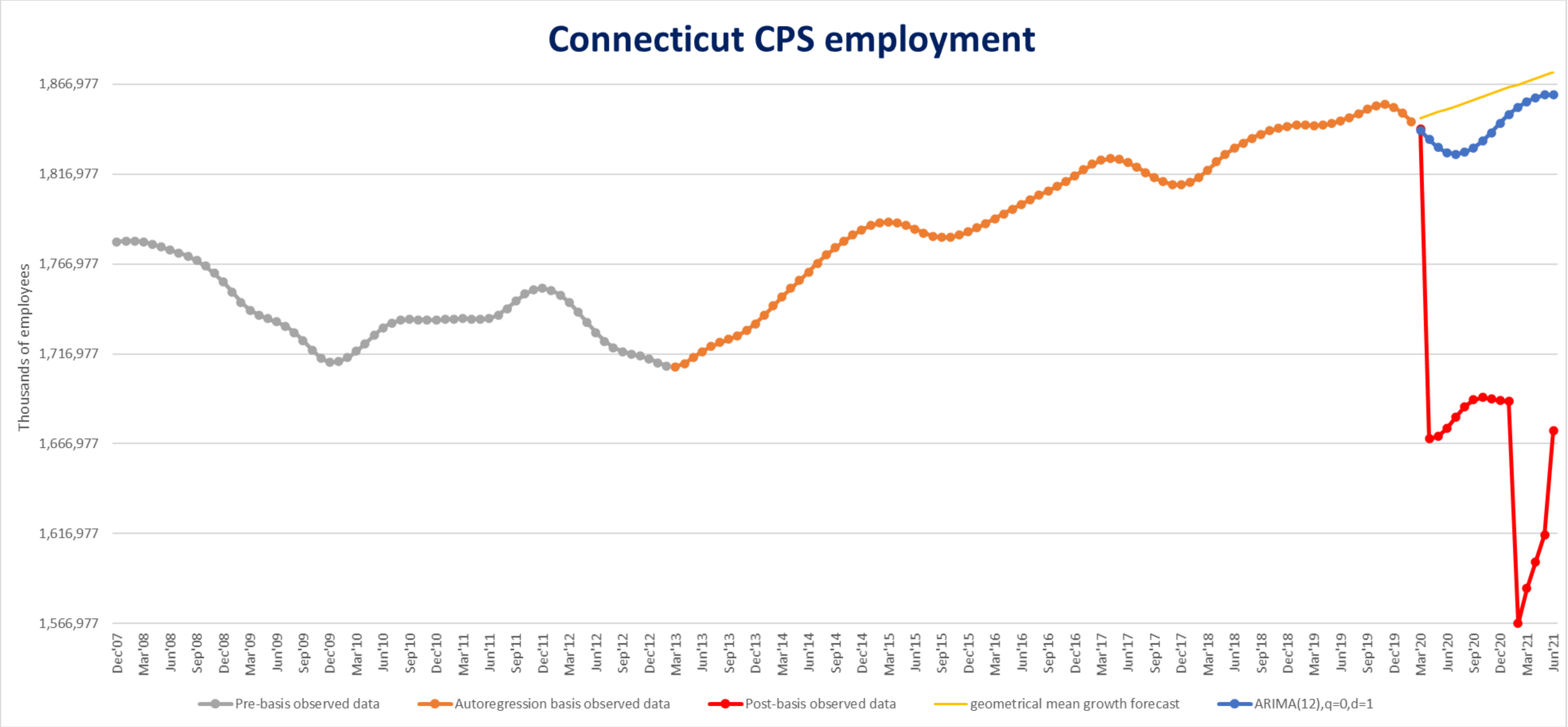


Model parameters

param	coeff	s.e.	t-stat	p-value
const	159.3958	134.1669	1.188041	0.23805
phi 1	2.795792	0.108094	25.86438	1.29E-42
phi 2	-3.47067	0.320596	-10.8257	8.51E-18
phi 3	2.628256	0.489156	5.373046	6.39E-07
phi 4	-1.65008	0.54874	-3.00704	0.003448
phi 5	1.060408	0.562338	1.885714	0.062671
phi 6	-0.70149	0.579617	-1.21027	0.229455
phi 7	0.864612	0.594707	1.453846	0.149587
phi 8	-1.37661	0.595532	-2.31156	0.023165
phi 9	1.367373	0.583386	2.343857	0.021364
phi 10	-0.71468	0.517576	-1.38082	0.170871
phi 11	0.117215	0.338012	0.346777	0.729597
phi 12	0.049367	0.114133	0.432539	0.66642

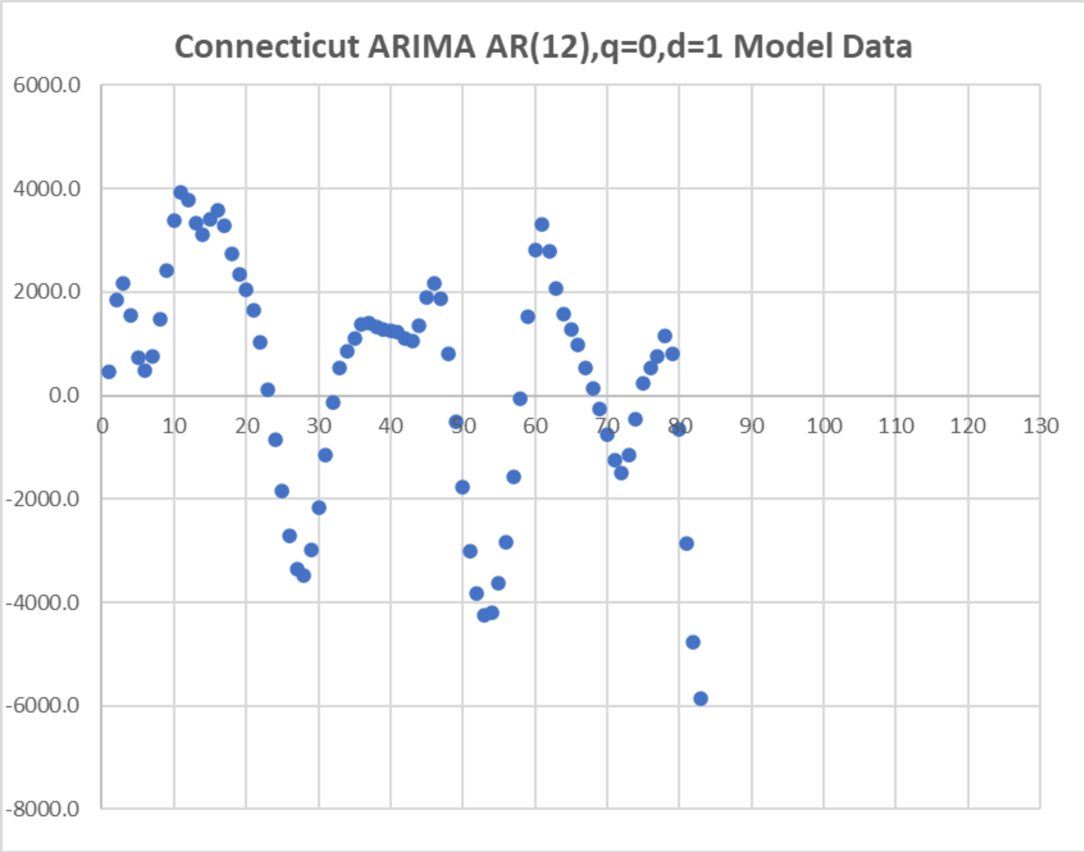


Appendix E57: Connecticut CPS Employment ARIMA Model Forecast

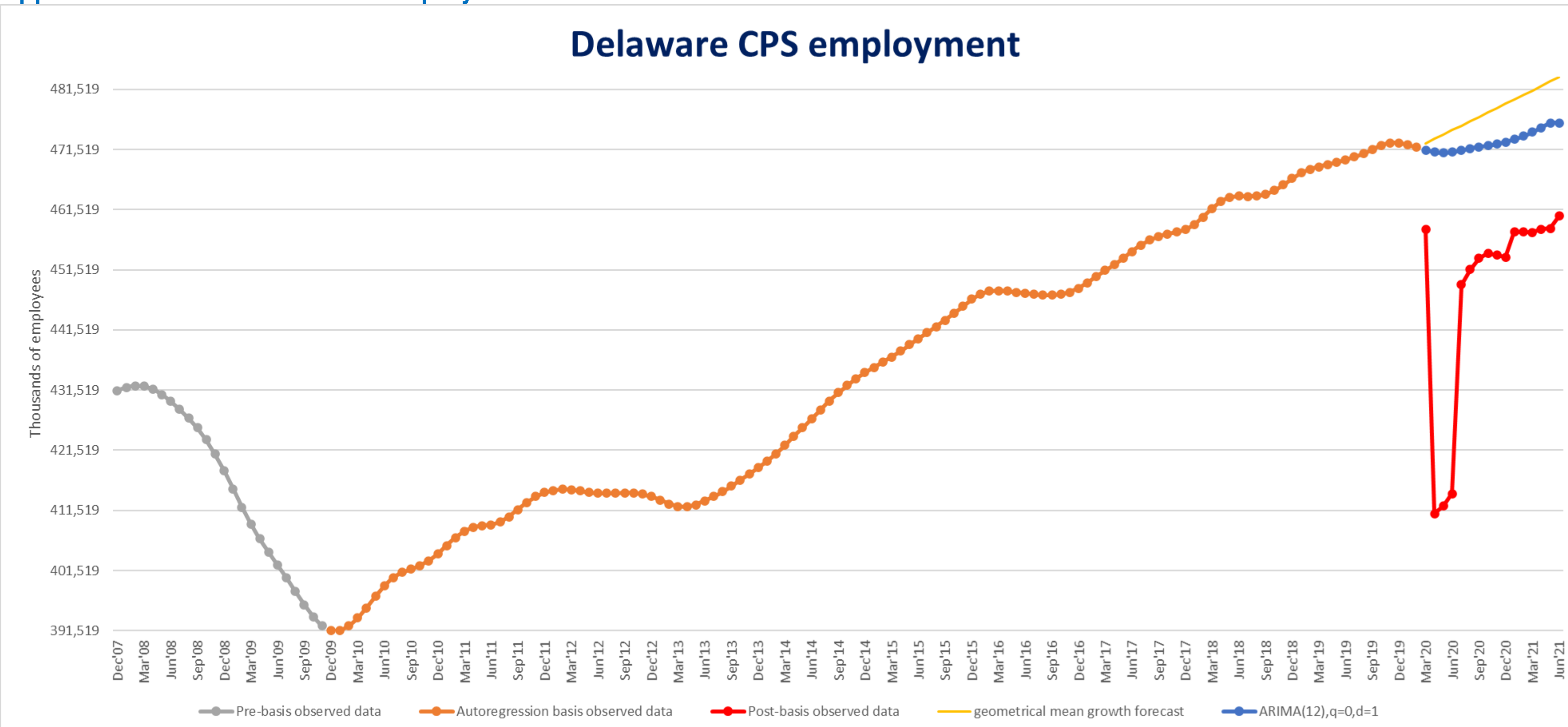


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	74.20211	47.70457	1.555451	0.125279
phi 1	2.761156	0.127388	21.6751	1.7E-29
phi 2	-3.14422	0.376903	-8.34225	1.64E-11
phi 3	1.797451	0.555087	3.238144	0.001992
phi 4	-0.48233	0.601	-0.80254	0.425515
phi 5	0.356546	0.60047	0.593778	0.554969
phi 6	-1.05242	0.597968	-1.76	0.083681
phi 7	1.217925	0.615878	1.977543	0.052739
phi 8	-0.5904	0.630576	-0.93629	0.353006
phi 9	0.229834	0.633767	0.362648	0.718186
phi 10	-0.50491	0.593216	-0.85114	0.398193
phi 11	0.623469	0.402554	1.548783	0.126874
phi 12	-0.26834	0.135452	-1.98104	0.052335

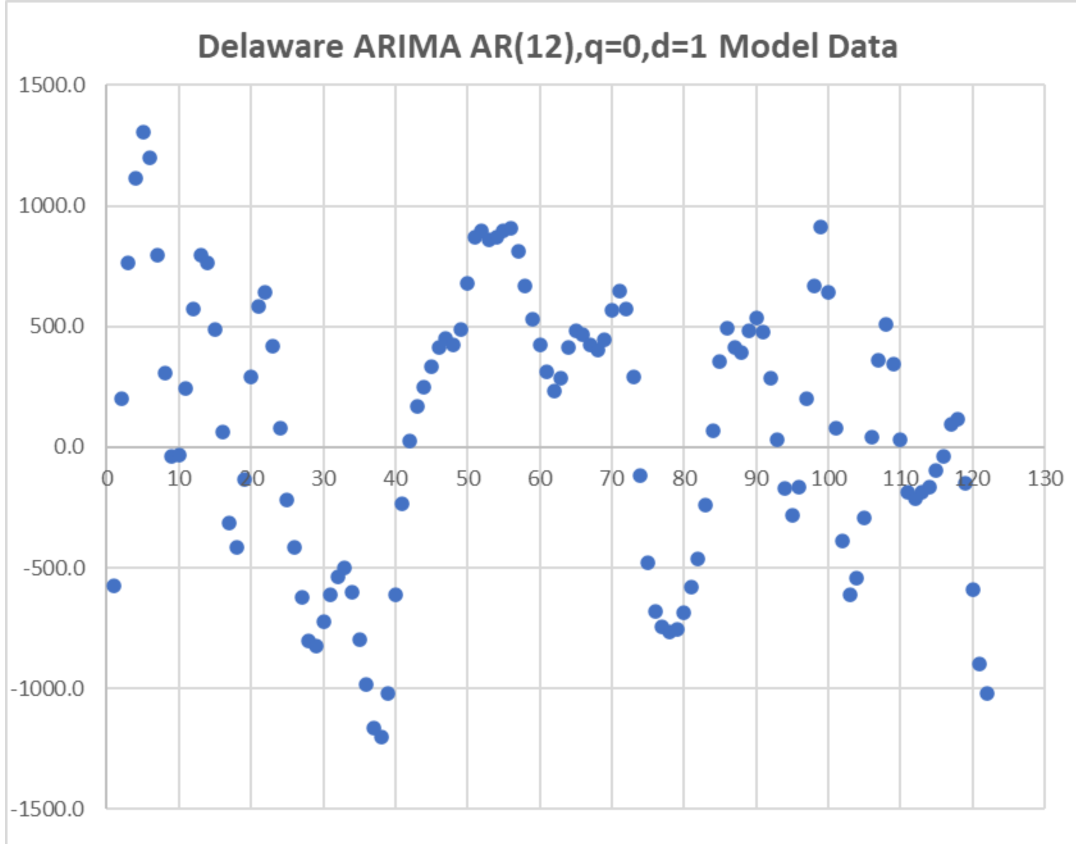


Appendix E58: Delaware CPS Employment ARIMA Model Forecast

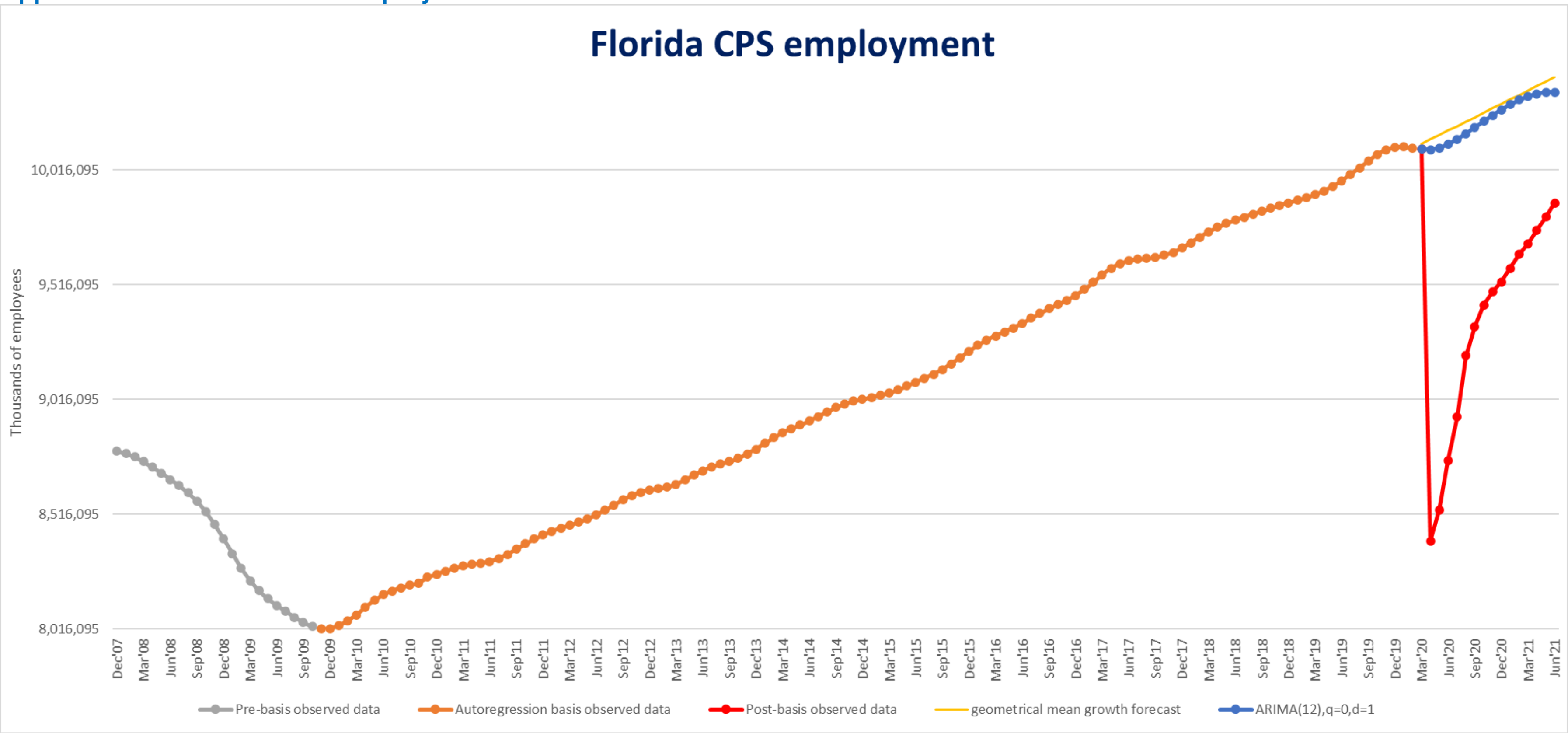


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	30.73416	13.57733	2.263638	0.025824
phi 1	2.74638	0.100472	27.33468	2.29E-47
phi 2	-3.43442	0.293302	-11.7095	2.9E-20
phi 3	2.542156	0.451317	5.632747	1.73E-07
phi 4	-1.26751	0.51131	-2.47894	0.014903
phi 5	0.5823	0.514674	1.131395	0.260678
phi 6	-0.45427	0.509986	-0.89074	0.375272
phi 7	0.585579	0.52156	1.122745	0.264317
phi 8	-0.73239	0.54349	-1.34756	0.180939
phi 9	0.942612	0.54291	1.736223	0.085699
phi 10	-1.05187	0.471421	-2.23128	0.027965
phi 11	0.715016	0.296337	2.412851	0.017707
phi 12	-0.2268	0.097107	-2.33556	0.021574

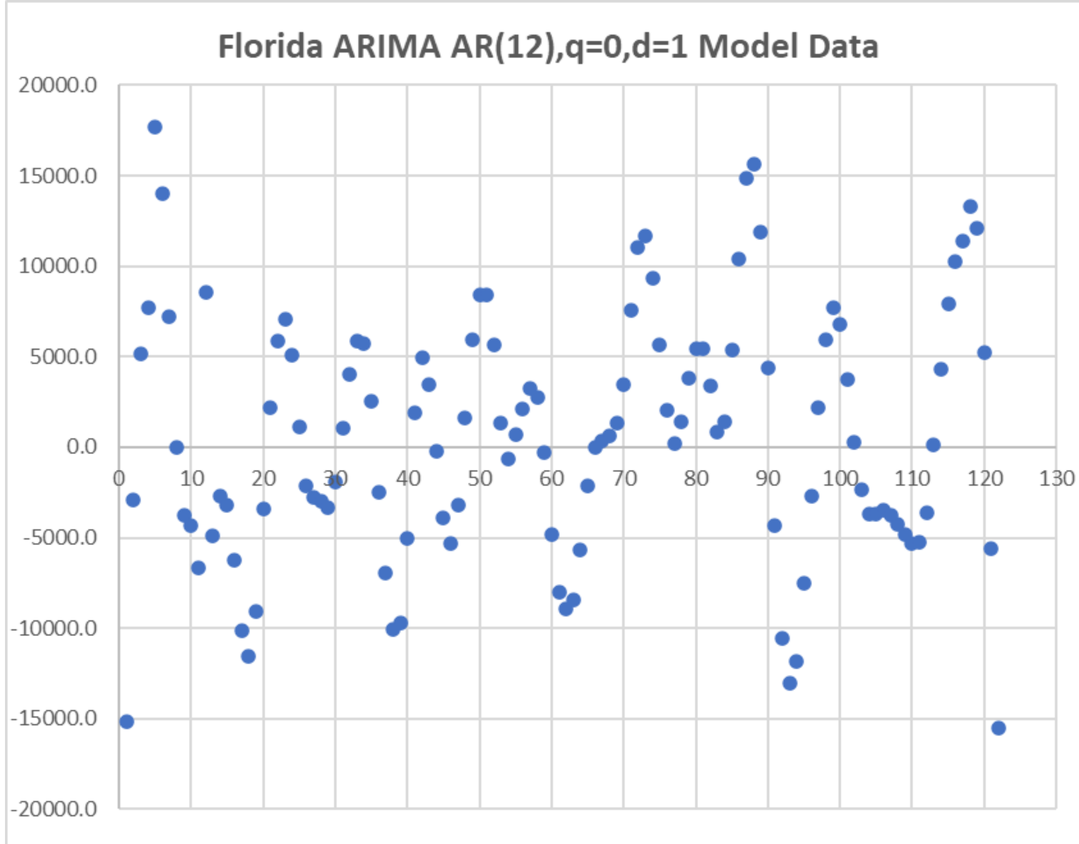


Appendix E59: Florida CPS Employment ARIMA Model Forecast

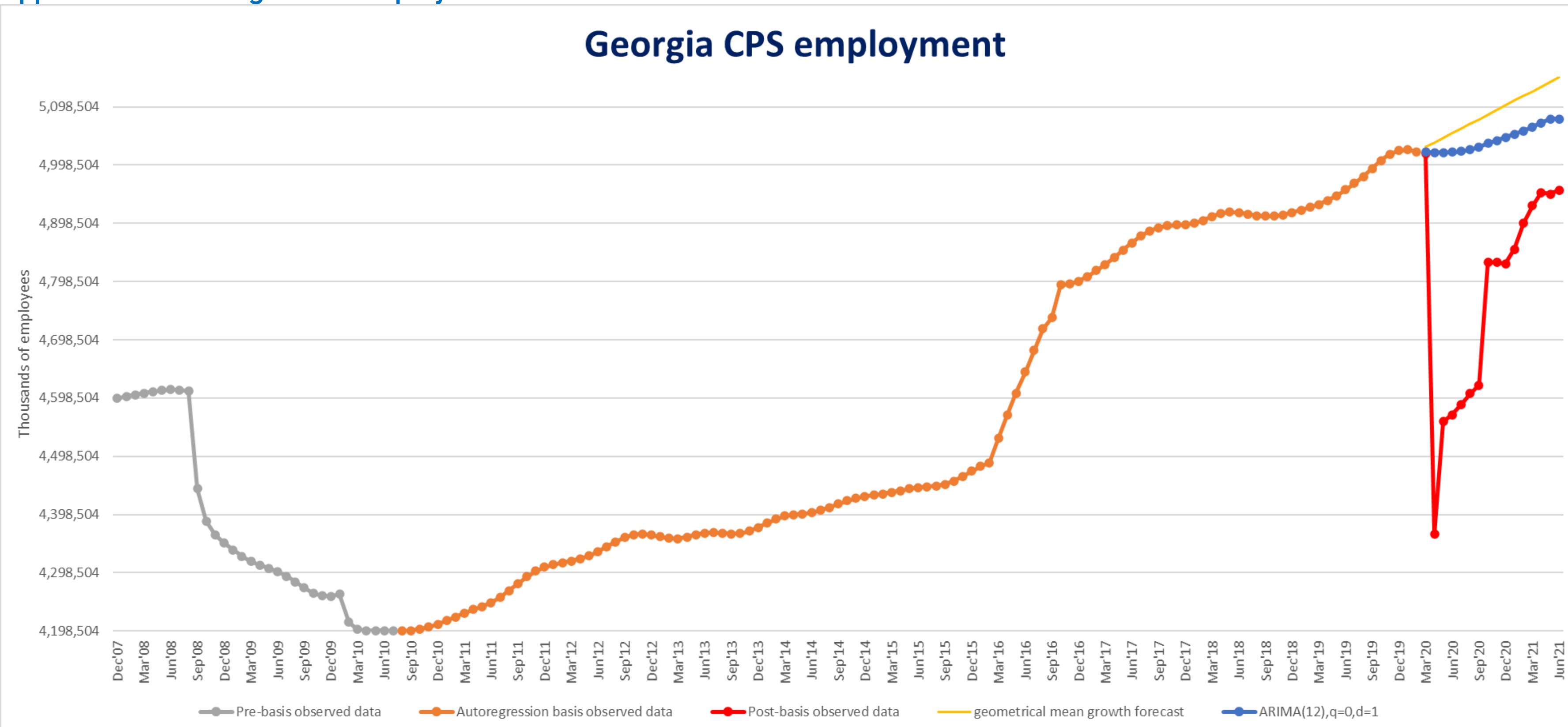


Model parameters

param	coeff	s.e.	t-stat	p-value
const	4792.931	1693.8	2.829691	0.005652
phi 1	1.231924	0.090341	13.63642	2.27E-24
phi 2	-0.05971	0.136535	-0.43735	0.662818
phi 3	-0.5293	0.134303	-3.94108	0.000152
phi 4	-0.08752	0.143072	-0.61172	0.542142
phi 5	0.14106	0.137296	1.027417	0.306753
phi 6	0.155414	0.136296	1.140273	0.256952
phi 7	-0.07992	0.136215	-0.58669	0.558758
phi 8	-0.22186	0.133759	-1.65864	0.100387
phi 9	0.226663	0.130532	1.736462	0.085625
phi 10	-0.0559	0.127607	-0.43809	0.662285
phi 11	-0.20543	0.123793	-1.65947	0.100217
phi 12	0.19431	0.086203	2.254095	0.026417

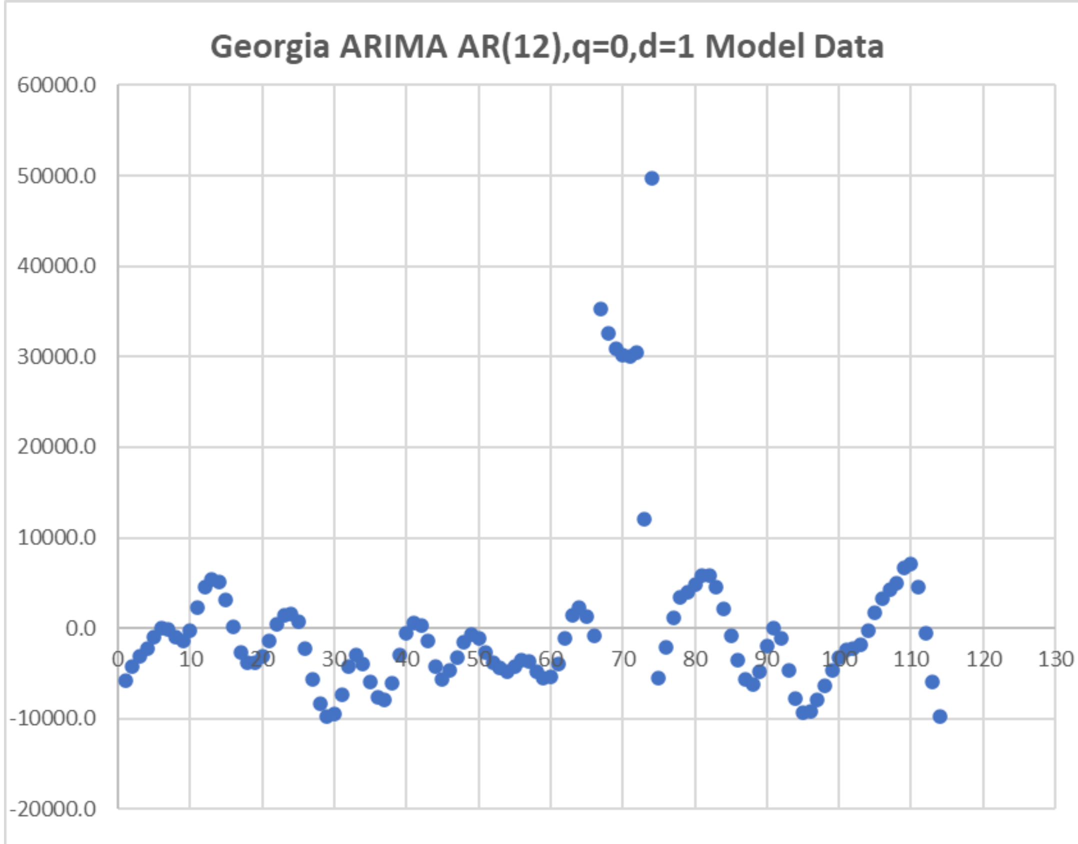


Appendix E60: Georgia CPS Employment ARIMA Model Forecast

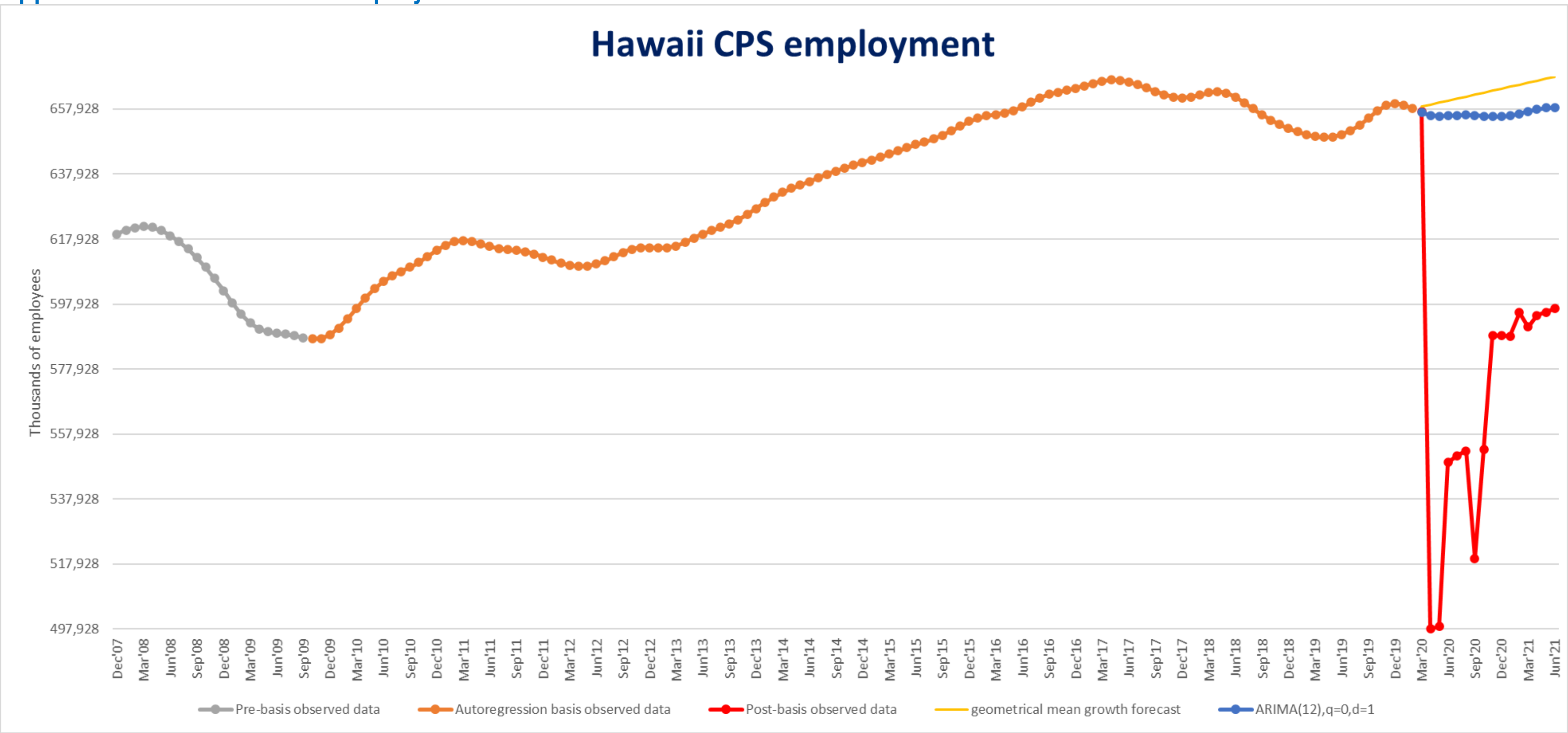


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	1705.966	1026.396	1.662094	0.100012
phi 1	0.484929	0.105054	4.616013	1.31E-05
phi 2	0.421703	0.117044	3.602927	0.000518
phi 3	0.012853	0.122826	0.10464	0.916897
phi 4	-0.1021	0.122859	-0.83108	0.408155
phi 5	-0.03113	0.118248	-0.26329	0.792932
phi 6	0.000246	0.117061	0.002103	0.998327
phi 7	0.156067	0.117046	1.333381	0.185809
phi 8	-0.33807	0.118176	-2.86073	0.005267
phi 9	0.016977	0.123098	0.137913	0.890621
phi 10	0.237858	0.123071	1.932683	0.056455
phi 11	0.040612	0.11722	0.346455	0.729818
phi 12	-0.15117	0.105977	-1.42648	0.157229

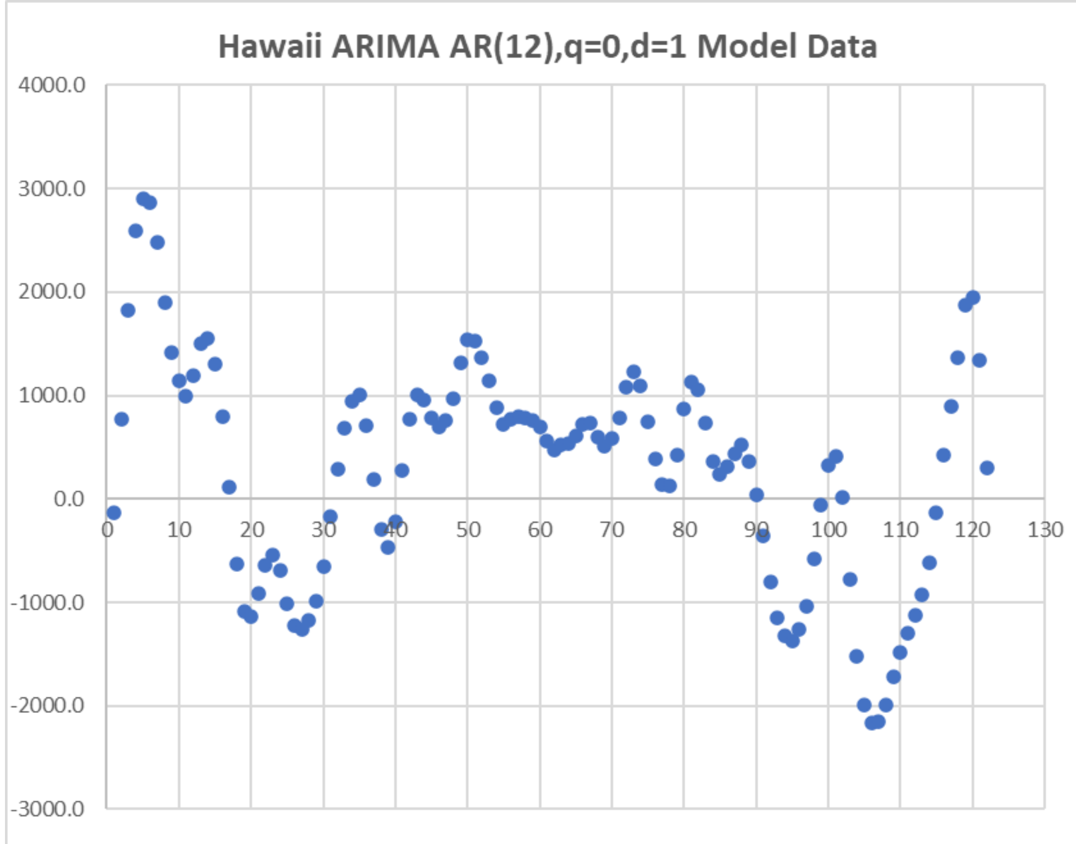


Appendix E61: Hawaii CPS Employment ARIMA Model Forecast

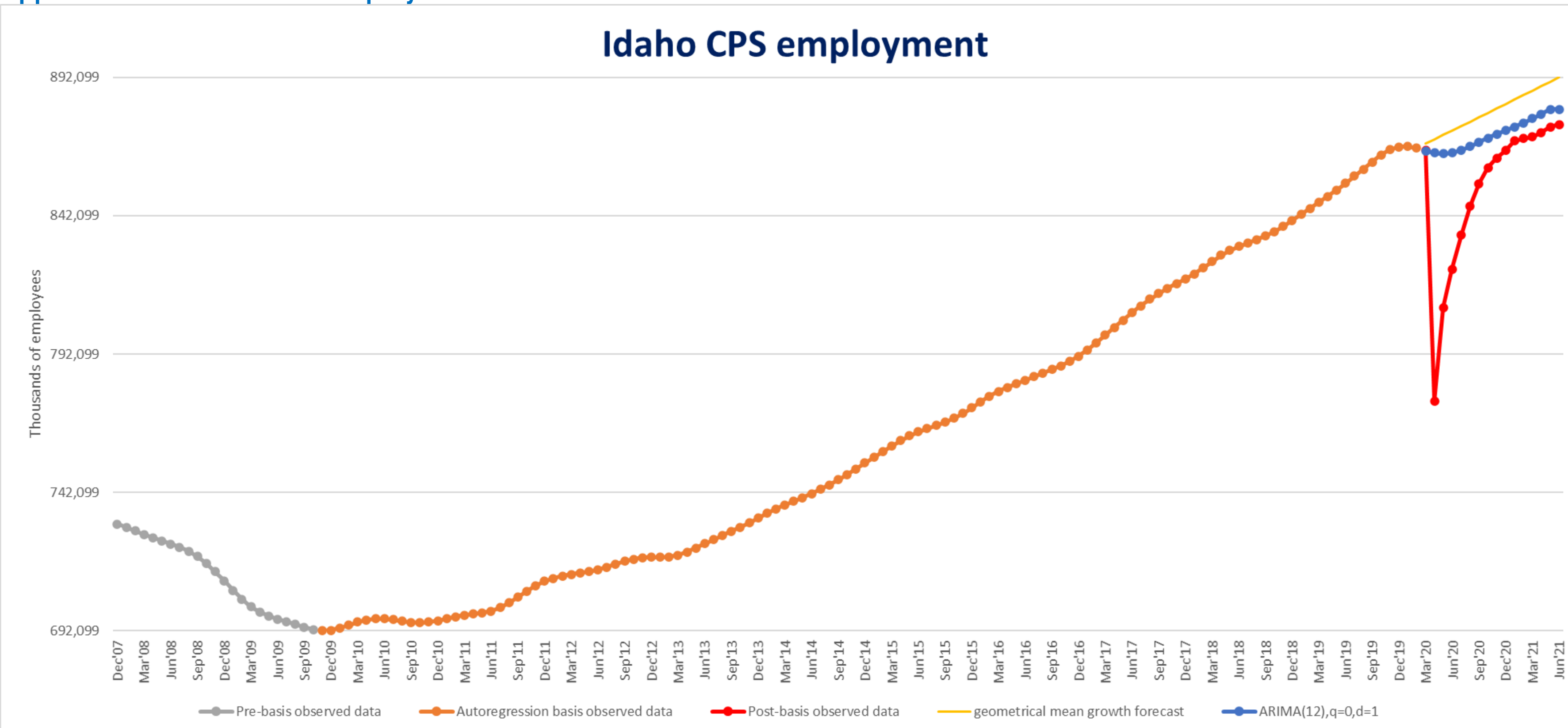


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	9.934388	10.21294	0.972726	0.33306
phi 1	2.903451	0.096498	30.08807	1.31E-51
phi 2	-3.68637	0.293884	-12.5436	3.58E-22
phi 3	2.727169	0.451229	6.043864	2.66E-08
phi 4	-1.55515	0.507714	-3.06304	0.002822
phi 5	0.944974	0.523742	1.804275	0.074229
phi 6	-0.53775	0.53787	-0.99977	0.319859
phi 7	0.516736	0.549473	0.940421	0.349291
phi 8	-1.01739	0.54212	-1.87669	0.063506
phi 9	1.348537	0.524874	2.569258	0.011683
phi 10	-1.03083	0.471739	-2.18516	0.031236
phi 11	0.416141	0.31302	1.329436	0.186759
phi 12	-0.06228	0.103544	-0.6015	0.548881

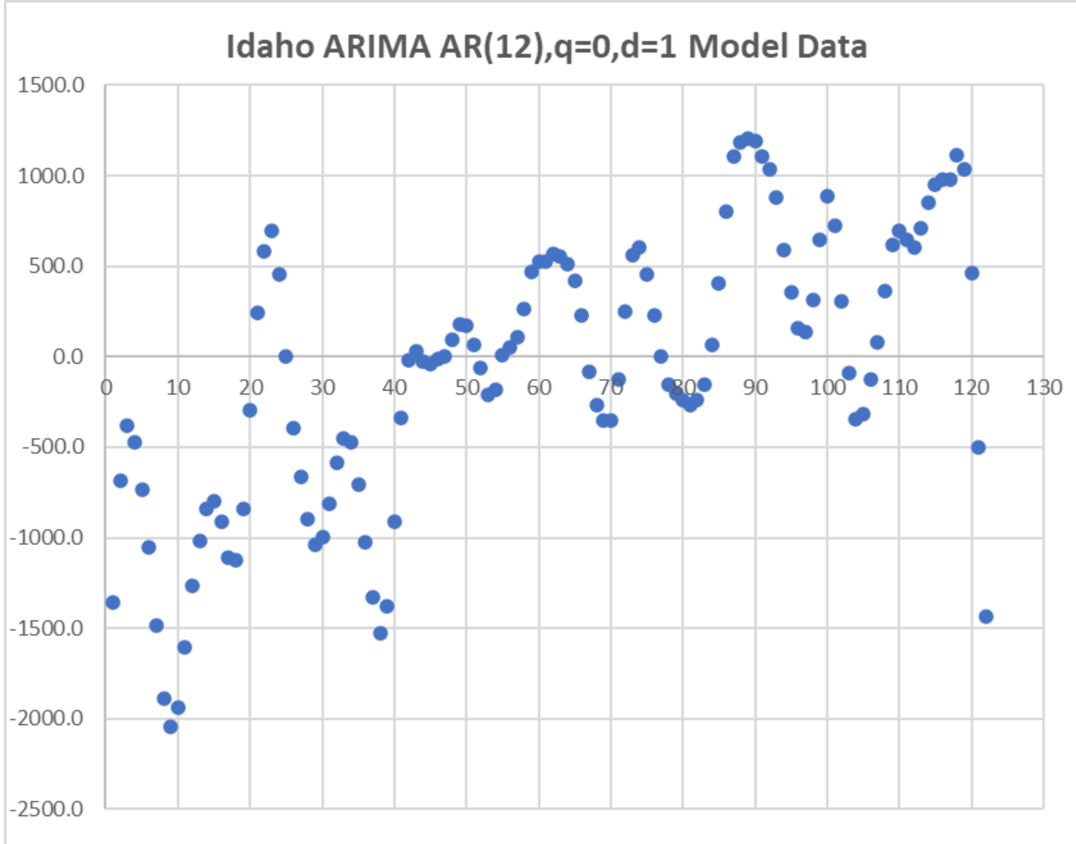


Appendix E62: Idaho CPS Employment ARIMA Model Forecast

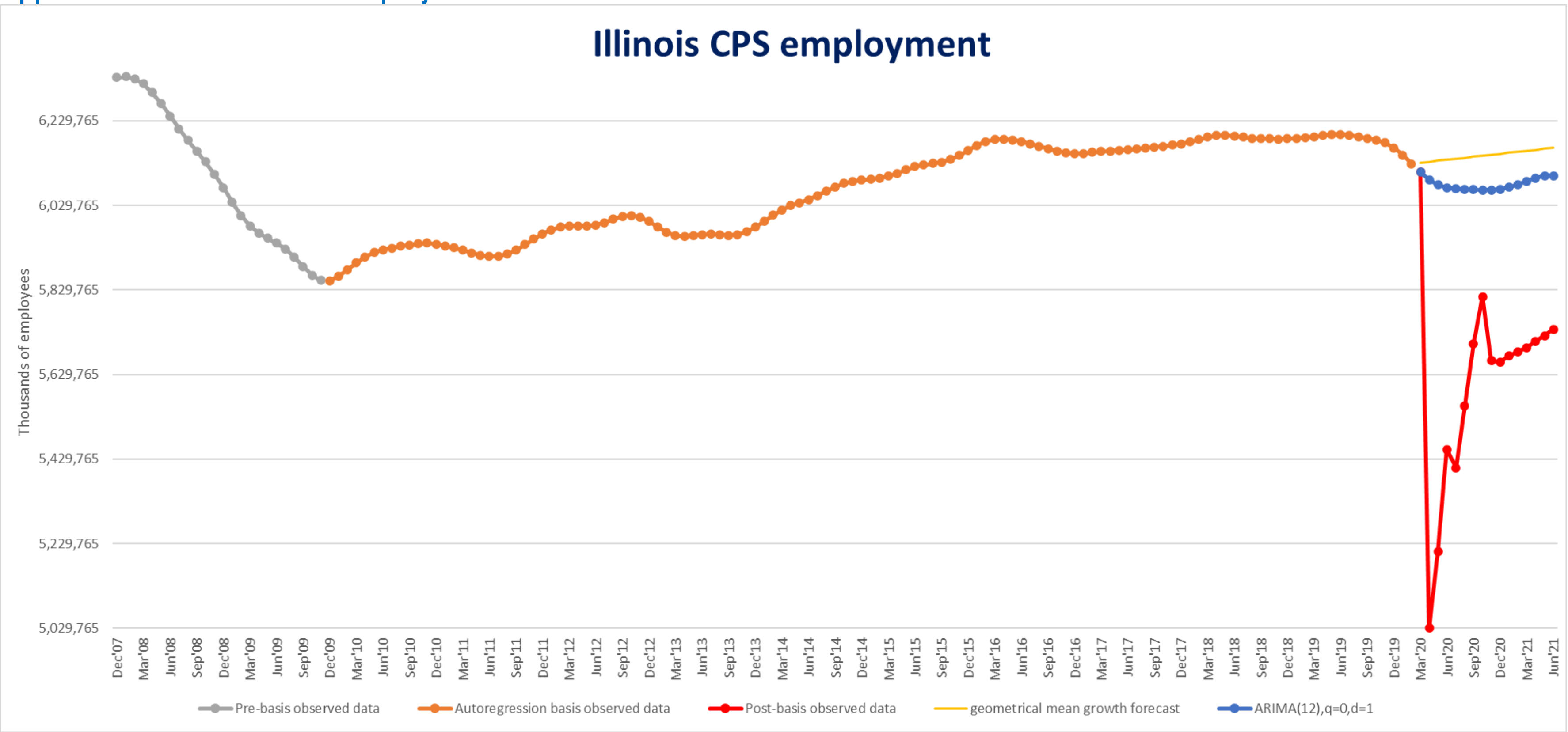


Model parameters

param	coeff	s.e.	t-stat	p-value
const	61.58971	25.5803	2.407701	0.017924
phi 1	2.673852	0.101478	26.34909	2.87E-46
phi 2	-3.14228	0.286278	-10.9763	9.33E-19
phi 3	2.234896	0.420388	5.316265	6.67E-07
phi 4	-1.29734	0.466218	-2.7827	0.006468
phi 5	0.808275	0.474009	1.705189	0.091327
phi 6	-0.64188	0.478061	-1.34267	0.182481
phi 7	0.745191	0.486928	1.530392	0.129141
phi 8	-0.90381	0.490316	-1.84331	0.068305
phi 9	0.971895	0.480634	2.022112	0.04589
phi 10	-0.81677	0.432445	-1.88873	0.061885
phi 11	0.406306	0.296506	1.370315	0.173719
phi 12	-0.07914	0.105844	-0.74767	0.456451

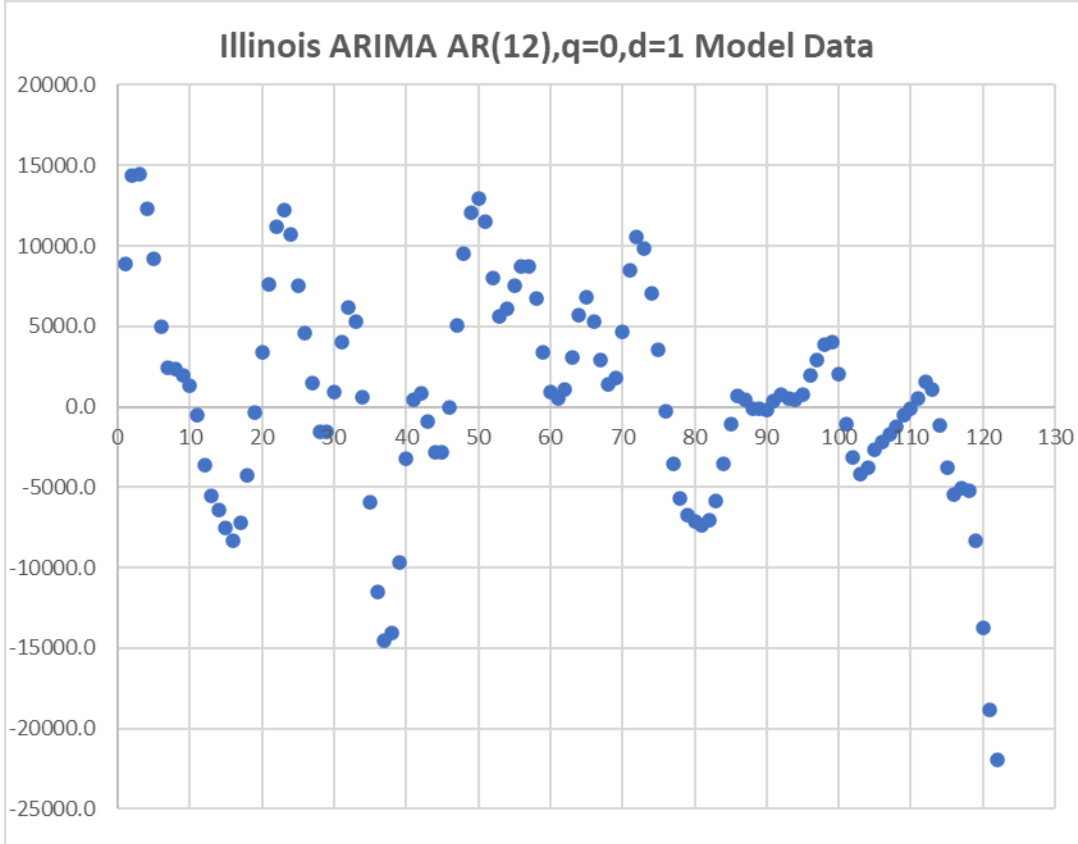


Appendix E63: Illinois CPS Employment ARIMA Model Forecast

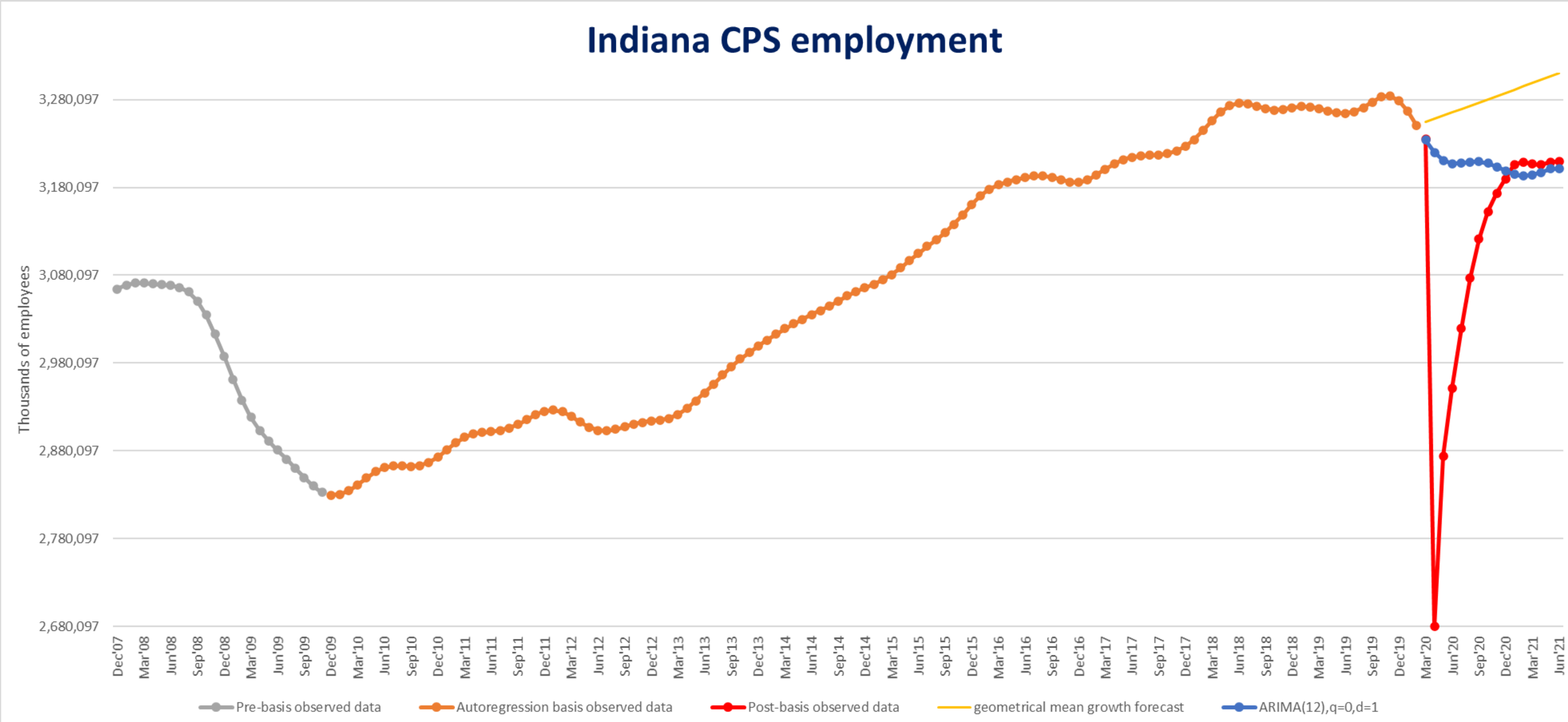


Model parameters

param	coeff	s.e.	t-stat	p-value
const	74.65938	102.2101	0.73045	0.466876
phi 1	2.698497	0.101754	26.51981	3.06E-46
phi 2	-3.24986	0.29147	-11.1499	4.51E-19
phi 3	2.471091	0.436035	5.667192	1.49E-07
phi 4	-1.64075	0.490633	-3.34415	0.001174
phi 5	1.094999	0.502102	2.18083	0.031614
phi 6	-0.62837	0.507371	-1.23849	0.218524
phi 7	0.526803	0.513197	1.026511	0.307204
phi 8	-0.66364	0.504775	-1.31473	0.191701
phi 9	0.607746	0.478621	1.269784	0.207199
phi 10	-0.4197	0.417667	-1.00486	0.317465
phi 11	0.196889	0.279981	0.703223	0.483601
phi 12	-0.04132	0.100811	-0.40985	0.682818

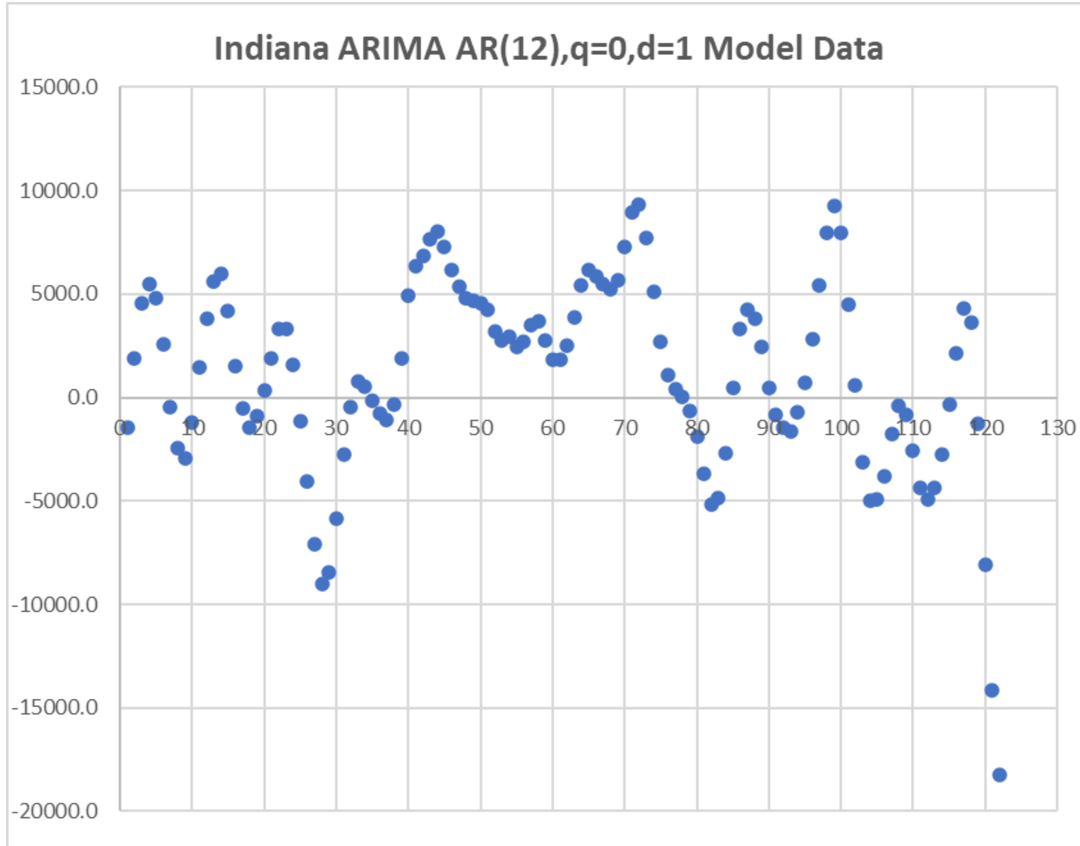


Appendix E64: Indiana CPS Employment ARIMA Model Forecast

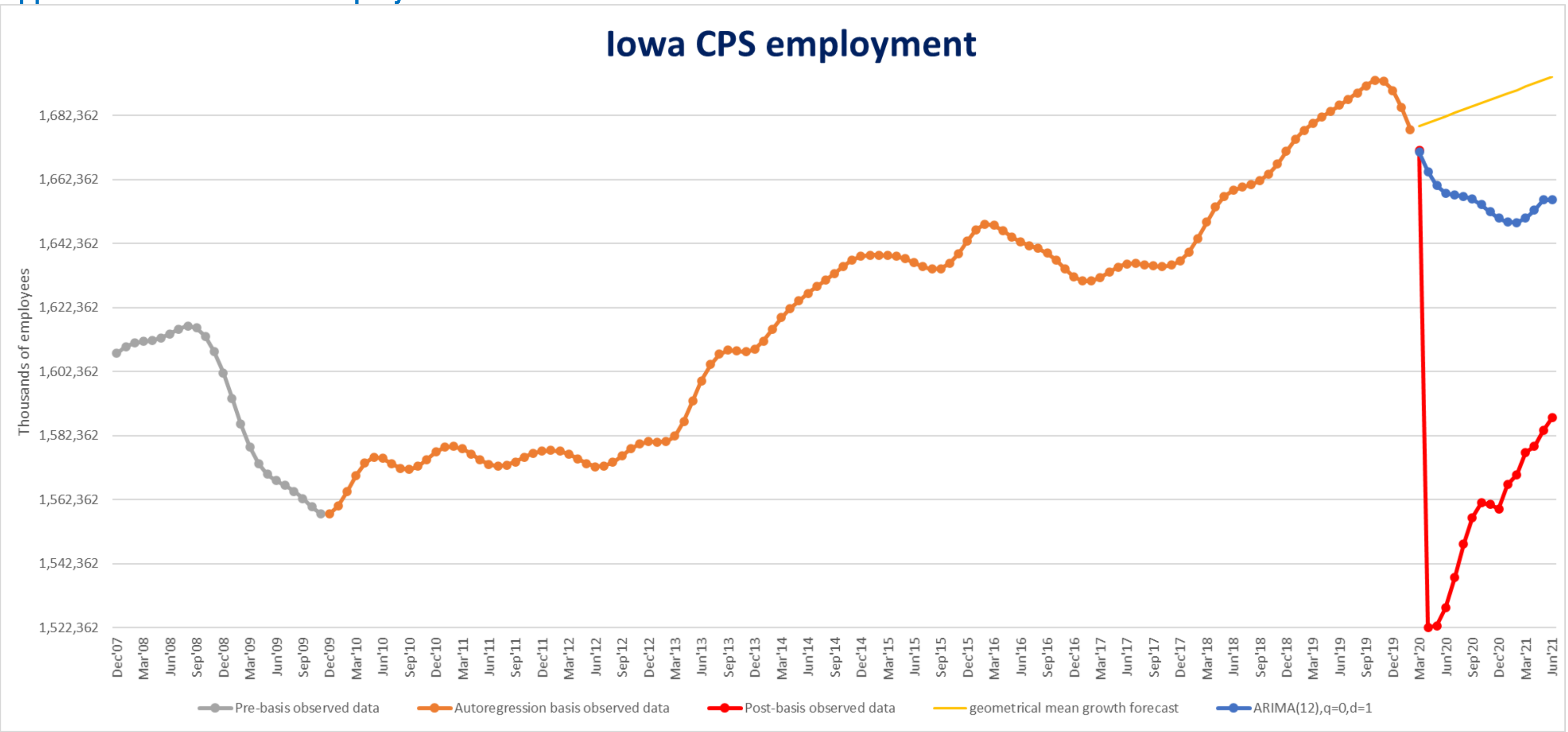


Model parameters

param	coeff	s.e.	t-stat	p-value
const	59.95014	101.2338	0.592195	0.555098
phi 1	2.78543	0.102082	27.28627	2.67E-47
phi 2	-3.50164	0.299679	-11.6846	3.27E-20
phi 3	2.925192	0.45787	6.388703	5.81E-09
phi 4	-2.3029	0.529189	-4.35175	3.34E-05
phi 5	1.823763	0.556271	3.278552	0.001449
phi 6	-1.30747	0.565066	-2.31384	0.022787
phi 7	1.061994	0.566377	1.875067	0.063792
phi 8	-0.88047	0.55684	-1.58118	0.117092
phi 9	0.552563	0.530579	1.041434	0.300263
phi 10	-0.23609	0.465536	-0.50714	0.613206
phi 11	0.038897	0.314965	0.123497	0.901969
phi 12	0.014275	0.112758	0.126594	0.899524

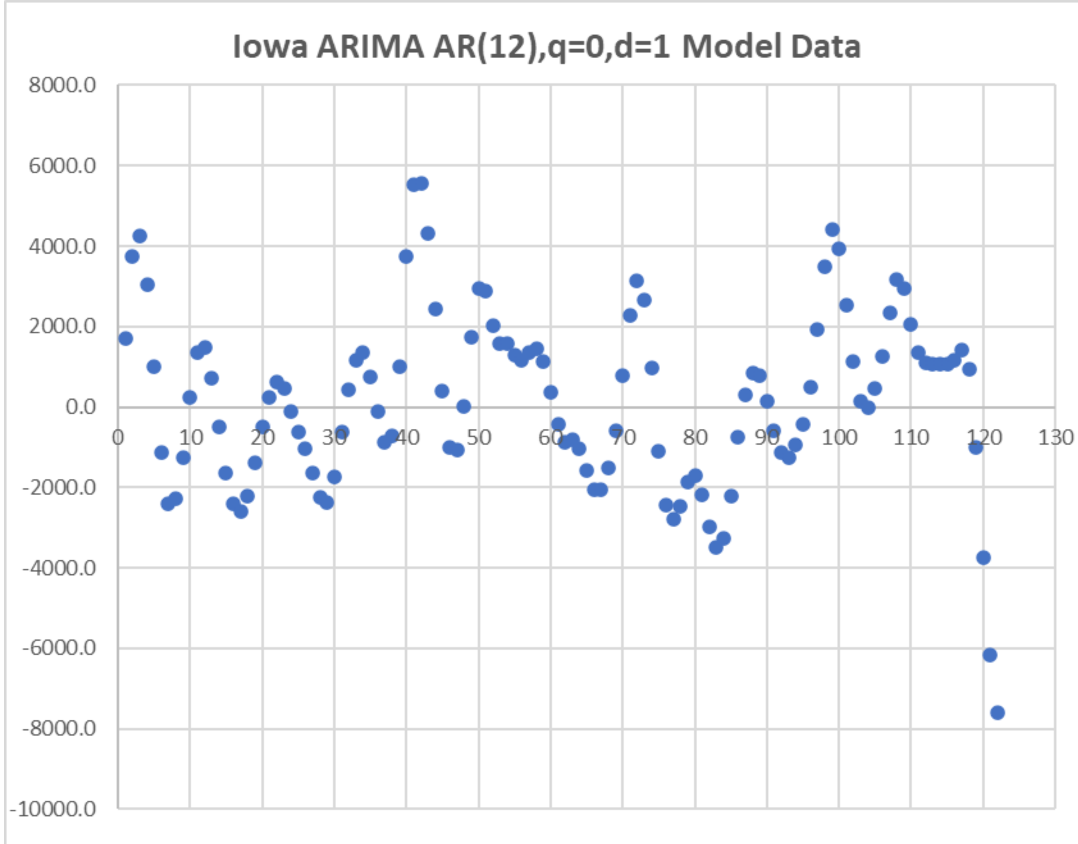


Appendix E65: Iowa CPS Employment ARIMA Model Forecast

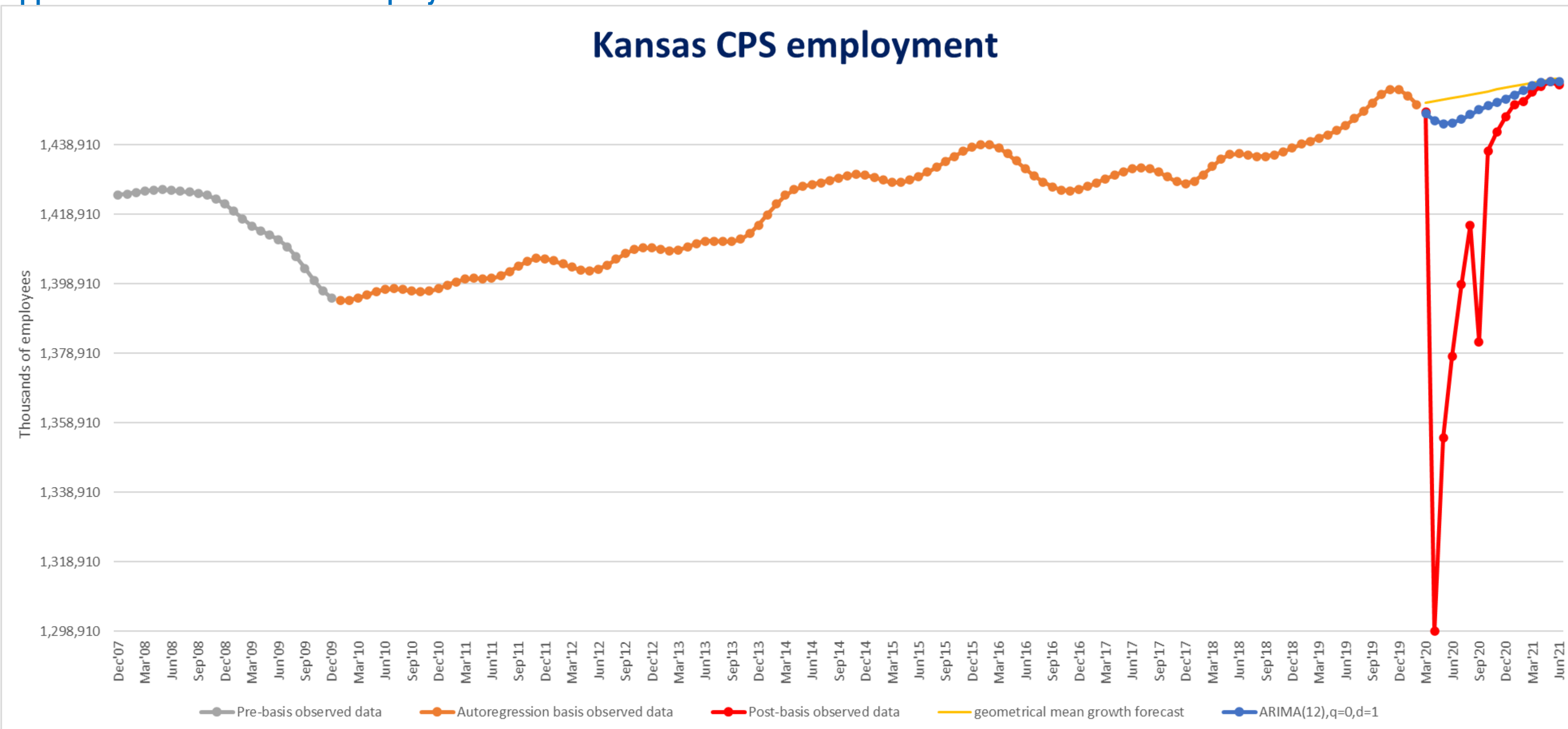


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	47.04694	32.31865	1.455721	0.148699
phi 1	2.921246	0.094521	30.90566	5.19E-52
phi 2	-3.91695	0.287322	-13.6326	2.85E-24
phi 3	3.18985	0.459828	6.937048	4.5E-10
phi 4	-1.8338	0.540415	-3.39332	0.001001
phi 5	0.798801	0.5586	1.430006	0.155928
phi 6	-0.29192	0.560402	-0.52091	0.603615
phi 7	0.301968	0.566318	0.533213	0.595106
phi 8	-0.60986	0.565736	-1.078	0.283707
phi 9	1.169146	0.540687	2.162336	0.033051
phi 10	-1.58261	0.459849	-3.44159	0.000855
phi 11	1.200439	0.291259	4.121559	7.93E-05
phi 12	-0.40538	0.098459	-4.11727	8.06E-05

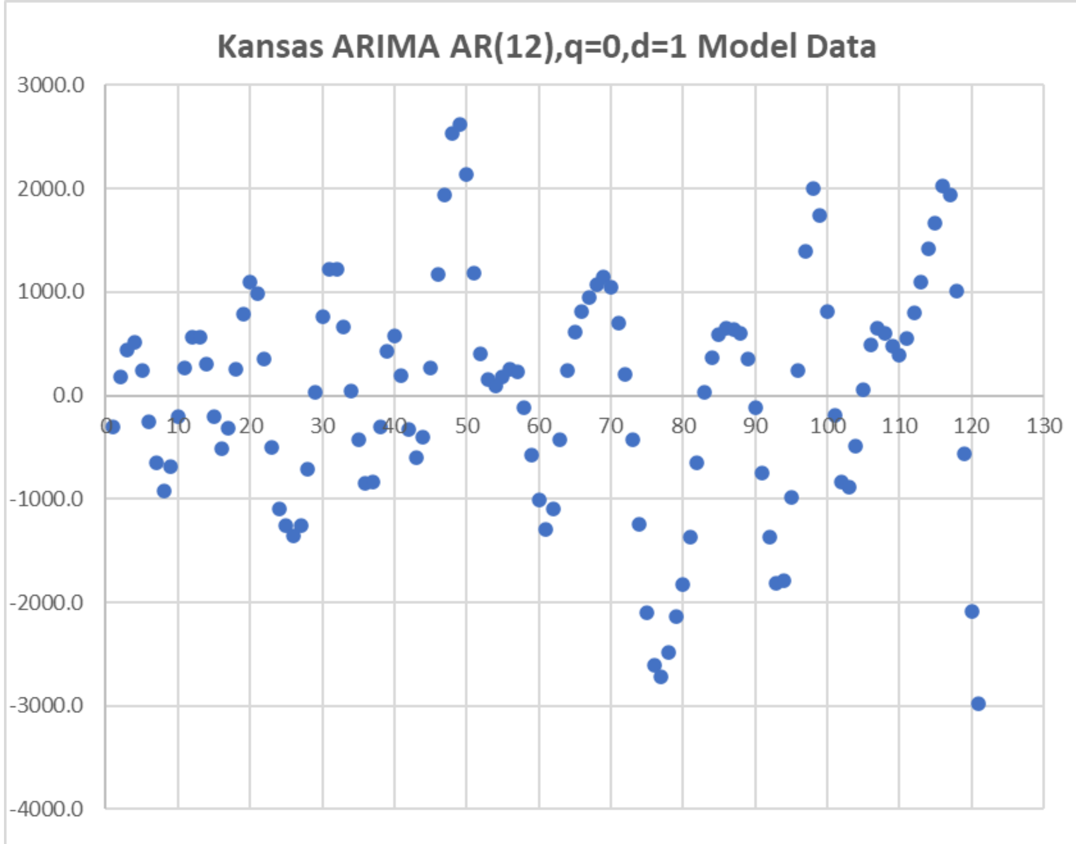


Appendix E66: Kansas CPS Employment ARIMA Model Forecast

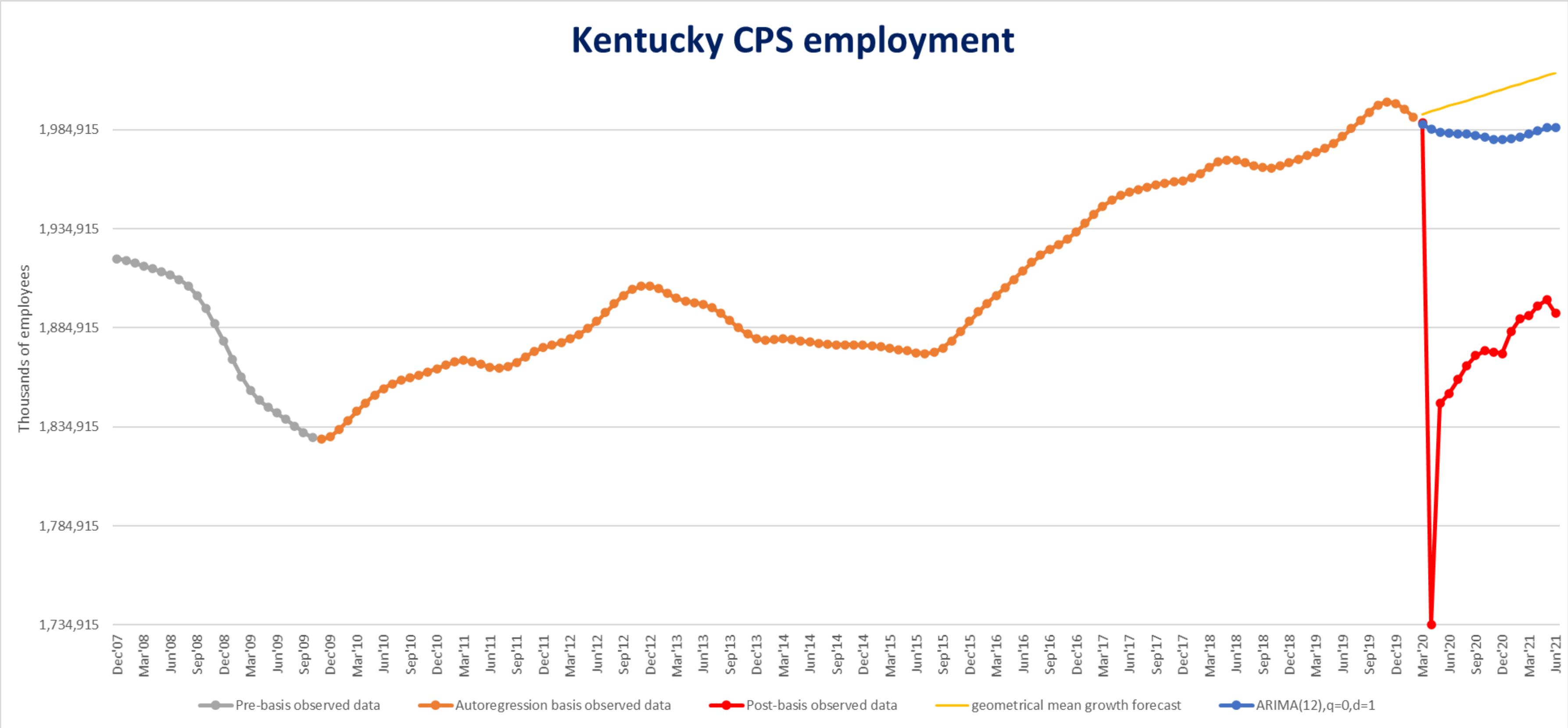


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	32.47634	19.80445	1.639851	0.104309
phi 1	2.709249	0.101712	26.6364	3.93E-46
phi 2	-3.28009	0.290584	-11.2879	2.63E-19
phi 3	2.255621	0.428908	5.258982	8.77E-07
phi 4	-1.02244	0.461271	-2.21658	0.029013
phi 5	0.331979	0.443648	0.748295	0.456112
phi 6	-0.22157	0.427314	-0.51852	0.605291
phi 7	0.613314	0.430021	1.426243	0.157042
phi 8	-1.19666	0.440382	-2.71733	0.007808
phi 9	1.457451	0.447022	3.260353	0.00154
phi 10	-1.14096	0.418468	-2.72652	0.007609
phi 11	0.464544	0.29228	1.589383	0.115262
phi 12	-0.04452	0.105869	-0.42055	0.675025

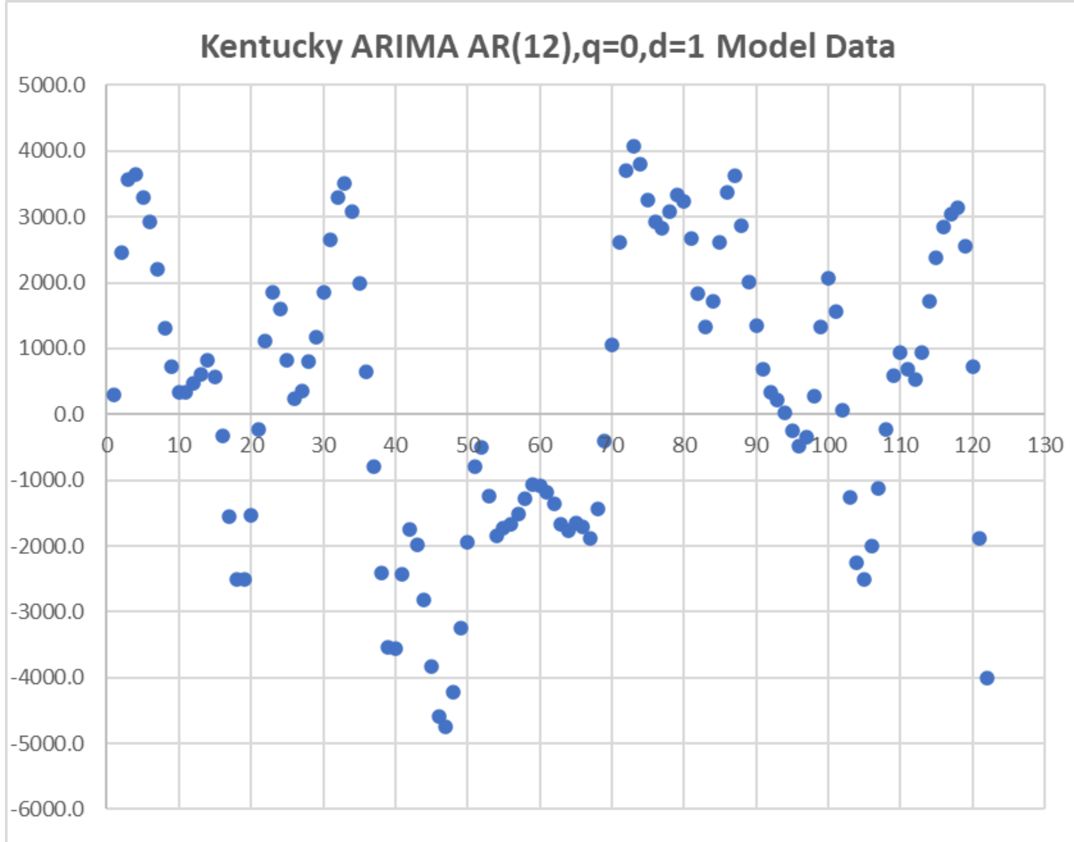


Appendix E67: Kentucky CPS Employment ARIMA Model Forecast

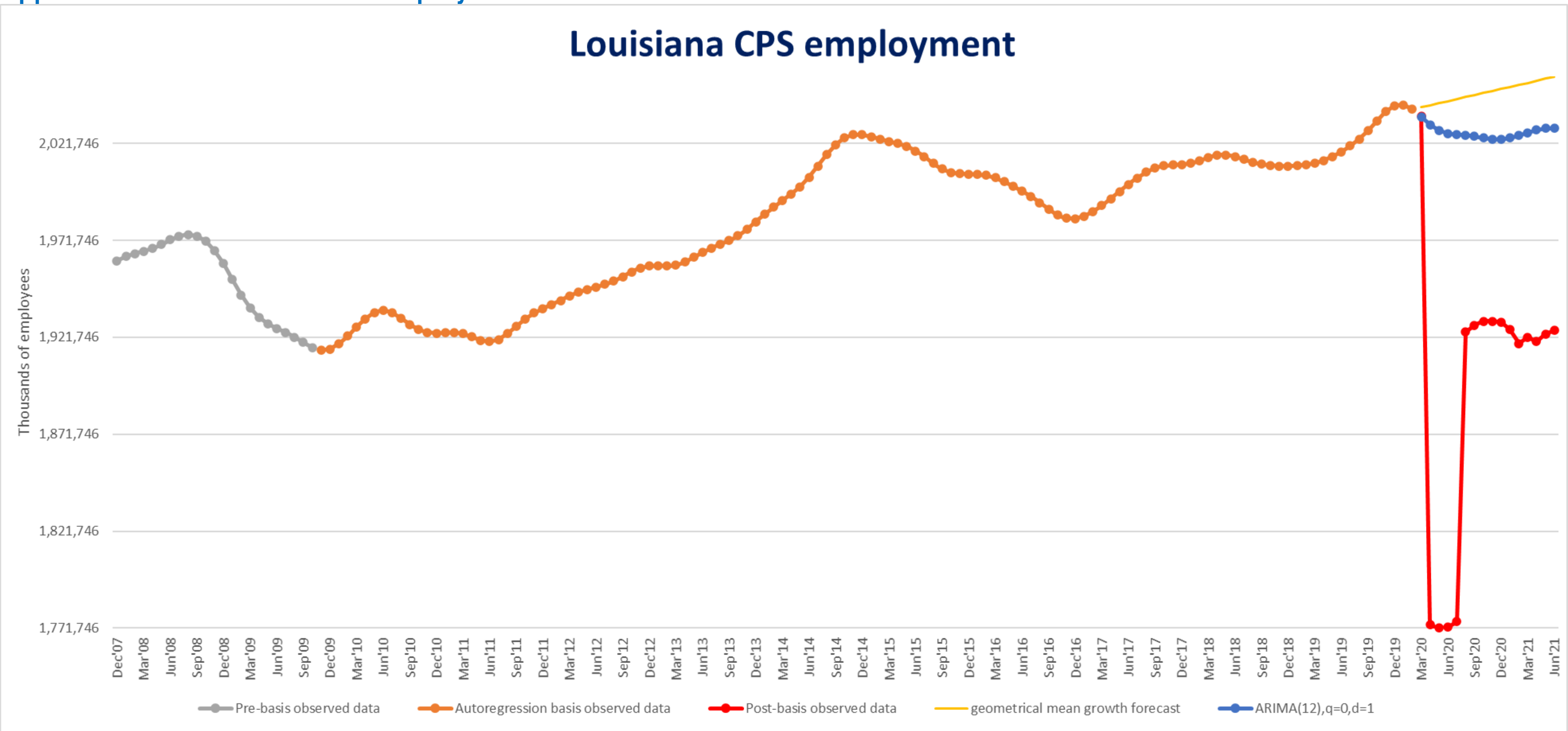


Model parameters

param	coeff	s.e.	t-stat	p-value
const	47.8496	35.24715	1.357545	0.177726
phi 1	2.677253	0.100572	26.62014	1.19E-46
phi 2	-3.1885	0.285876	-11.1535	3.88E-19
phi 3	2.25912	0.424725	5.319025	6.59E-07
phi 4	-1.17015	0.474678	-2.46515	0.015435
phi 5	0.567295	0.483361	1.173648	0.243381
phi 6	-0.28467	0.485556	-0.58628	0.559033
phi 7	0.245603	0.487403	0.503901	0.615462
phi 8	-0.32516	0.485436	-0.66983	0.504542
phi 9	0.443883	0.473259	0.937928	0.350587
phi 10	-0.49569	0.421928	-1.17482	0.242914
phi 11	0.312049	0.284947	1.095112	0.276152
phi 12	-0.08705	0.100964	-0.86216	0.390703

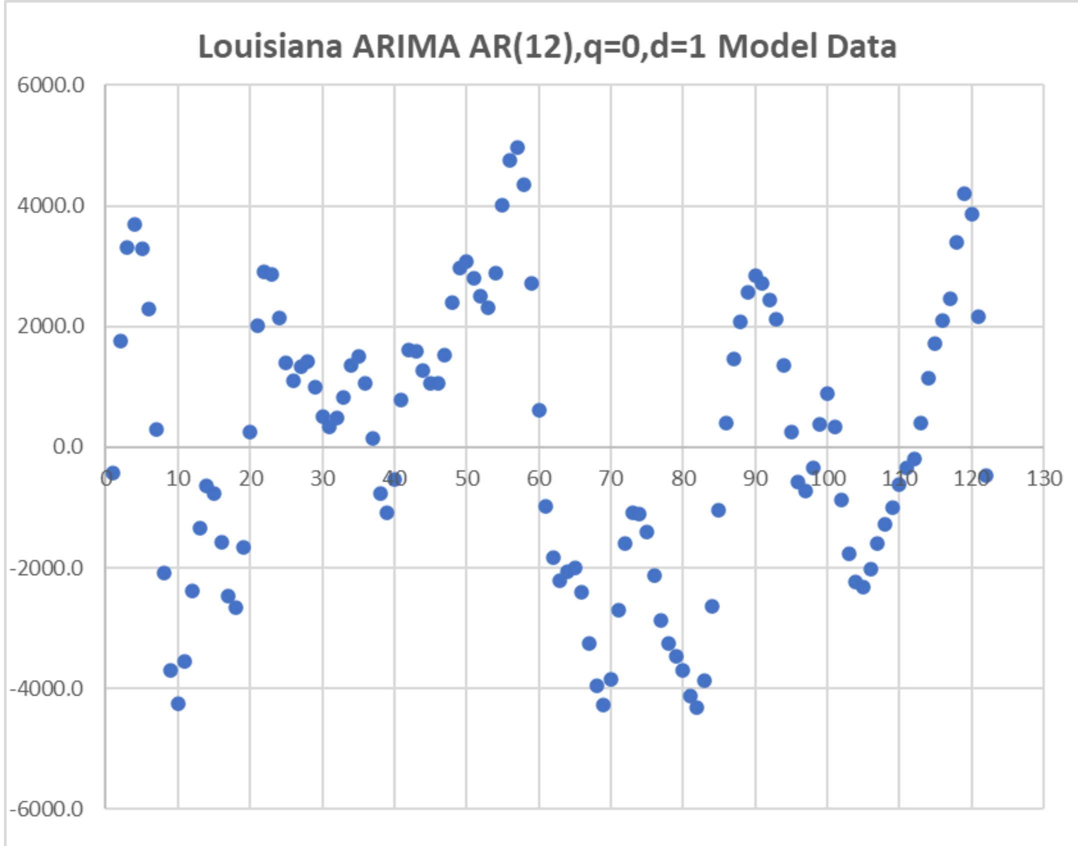


Appendix E68: Louisiana CPS Employment ARIMA Model Forecast

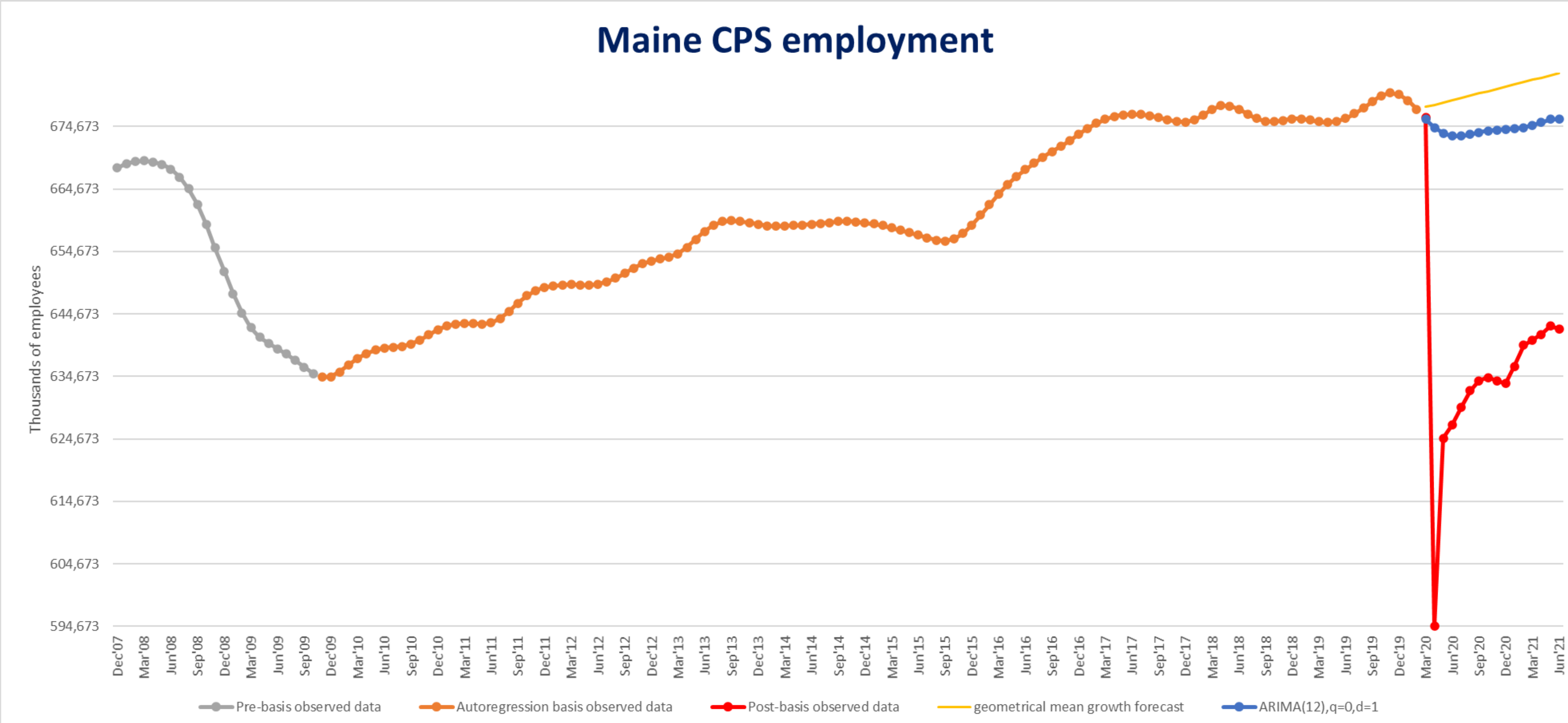


Model parameters

param	coeff	s.e.	t-stat	p-value
const	46.45632	27.89656	1.665307	0.099045
phi 1	2.827747	0.097929	28.87539	1.01E-49
phi 2	-3.58281	0.287636	-12.456	6.5E-22
phi 3	2.7963	0.433572	6.449445	4.26E-09
phi 4	-1.79887	0.485891	-3.7022	0.000353
phi 5	1.183483	0.497018	2.381168	0.01919
phi 6	-0.72903	0.50396	-1.44661	0.151198
phi 7	0.729581	0.508847	1.433791	0.154815
phi 8	-1.19712	0.504492	-2.37292	0.0196
phi 9	1.415562	0.487965	2.900953	0.004594
phi 10	-1.12912	0.428959	-2.63222	0.009856
phi 11	0.602919	0.281361	2.142867	0.0346
phi 12	-0.16975	0.095216	-1.78275	0.077723

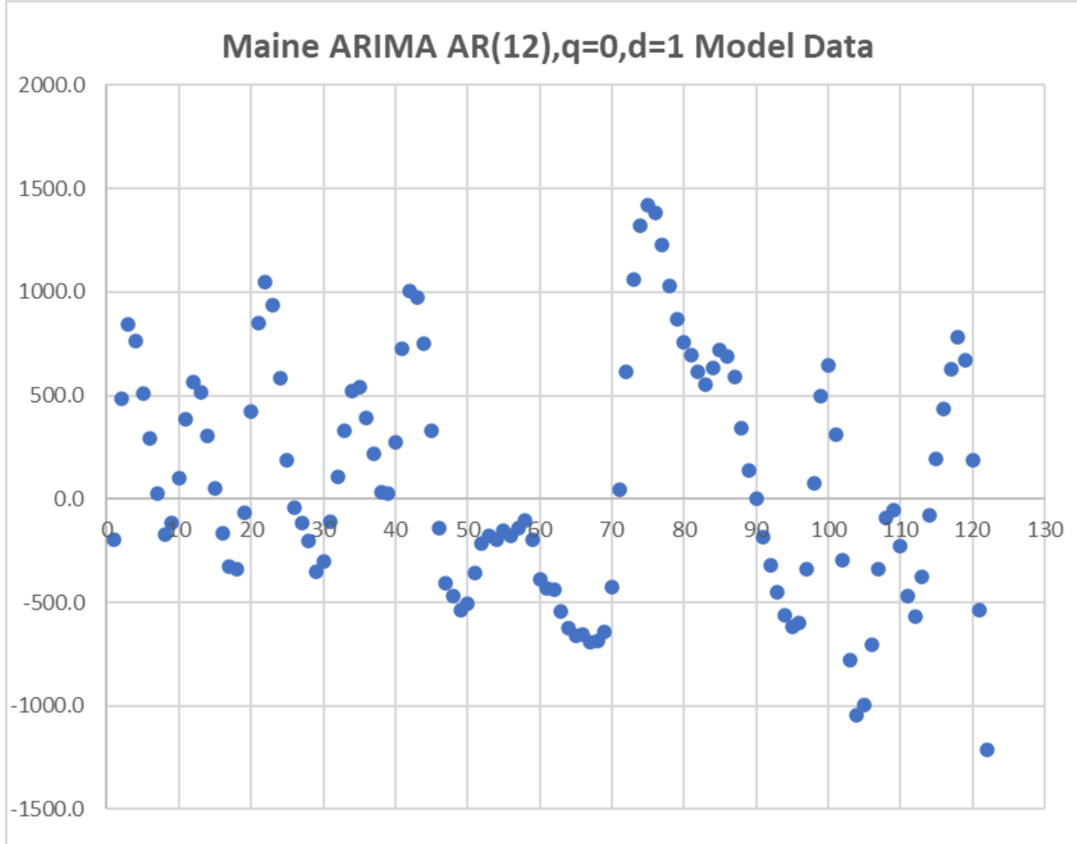


Appendix E69: Maine CPS Employment ARIMA Model Forecast

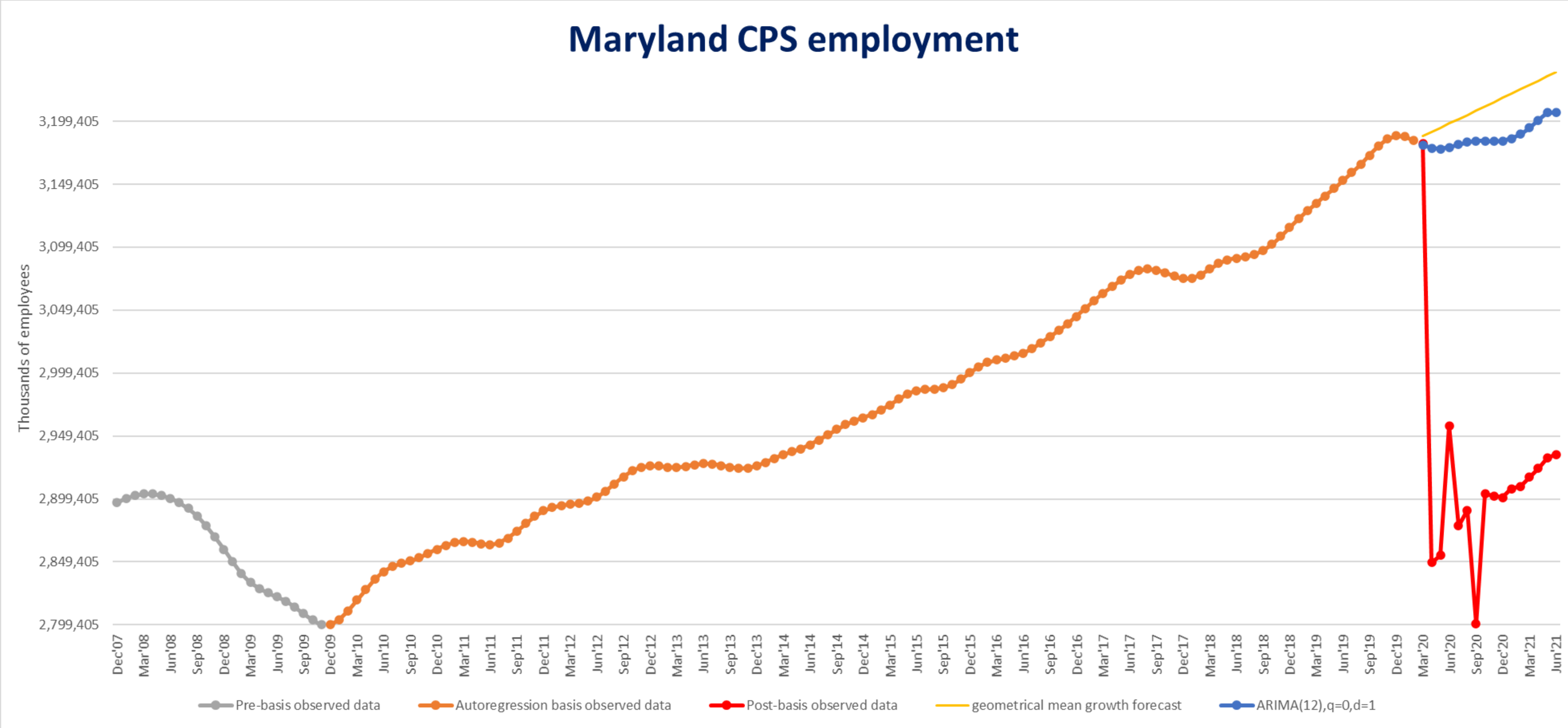


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	13.79711	11.94455	1.155097	0.250859
phi 1	2.611654	0.101431	25.748	2.08E-45
phi 2	-2.98277	0.282464	-10.5598	7.4E-18
phi 3	2.034963	0.411354	4.946986	3.13E-06
phi 4	-1.14553	0.454839	-2.51854	0.013403
phi 5	0.613815	0.464574	1.321242	0.189497
phi 6	-0.18769	0.470648	-0.39879	0.690913
phi 7	0.073072	0.477042	0.153177	0.878574
phi 8	-0.27606	0.476073	-0.57988	0.563329
phi 9	0.396667	0.462127	0.858351	0.392793
phi 10	-0.19977	0.41263	-0.48413	0.629371
phi 11	-0.04659	0.28216	-0.16511	0.869195
phi 12	0.057799	0.10231	0.564938	0.573407

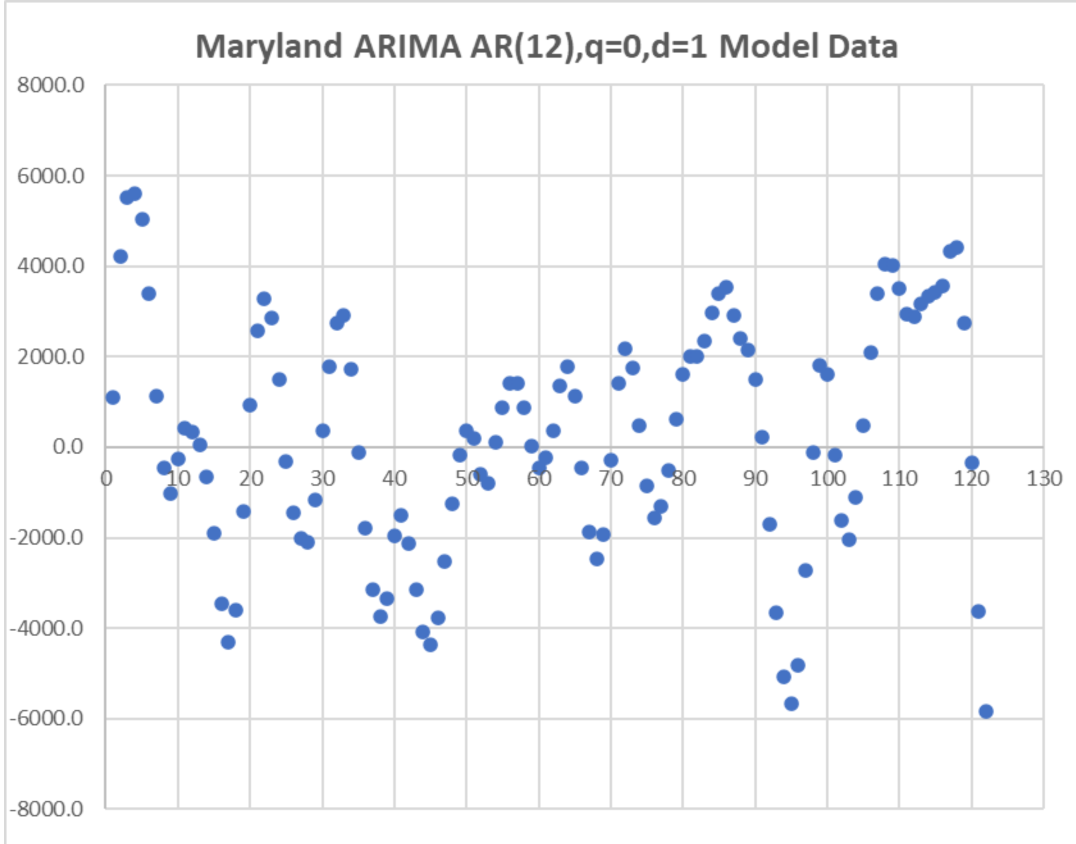


Appendix E70: Maryland CPS Employment ARIMA Model Forecast

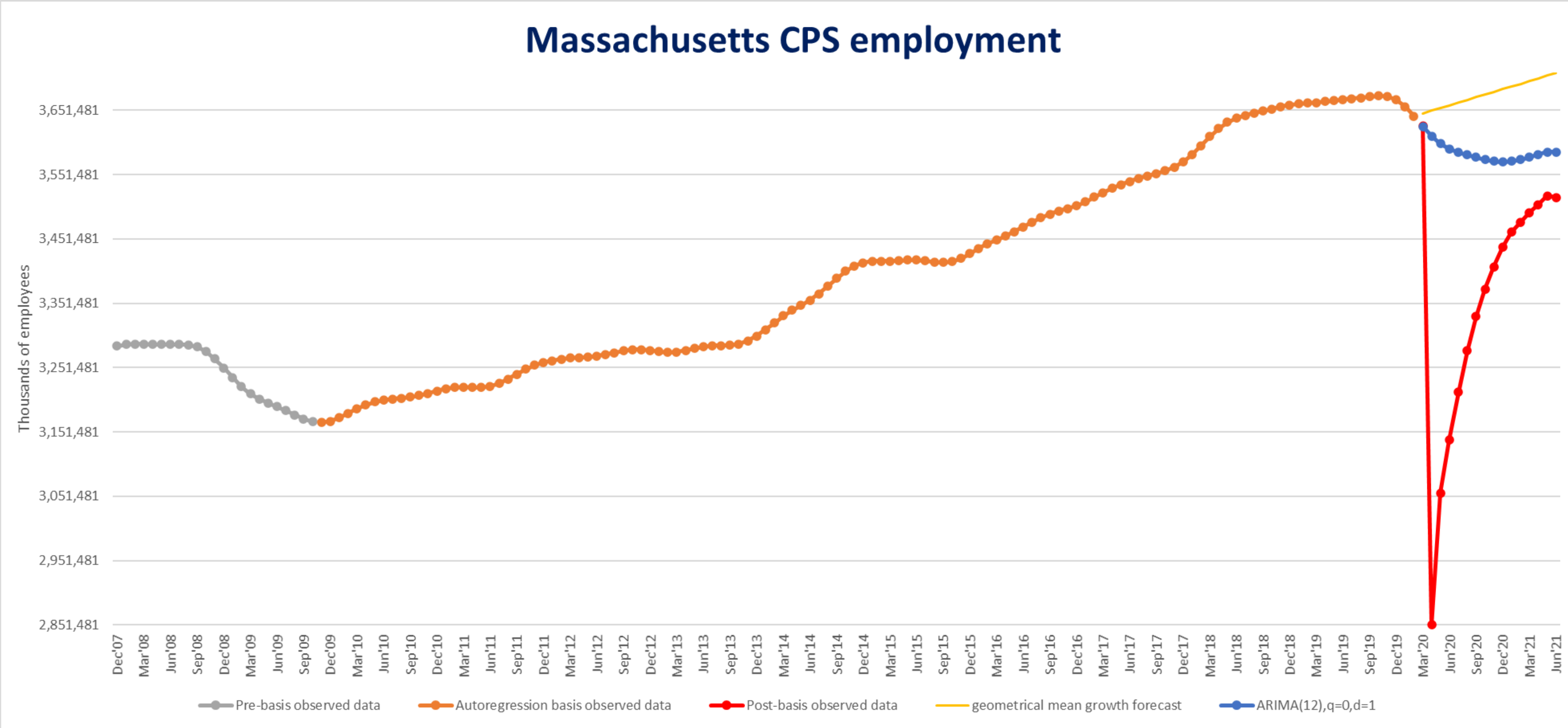


Model parameters

param	coeff	s.e.	t-stat	p-value
const	339.2349	91.49194	3.707812	0.000348
phi 1	2.592923	0.099603	26.0327	1.48E-45
phi 2	-3.03384	0.275614	-11.0076	9.1E-19
phi 3	2.100938	0.401558	5.231967	9.68E-07
phi 4	-1.19839	0.437785	-2.7374	0.007367
phi 5	0.842733	0.437308	1.927092	0.056894
phi 6	-0.72863	0.434105	-1.67846	0.096476
phi 7	0.75587	0.43875	1.722782	0.088115
phi 8	-0.78656	0.442015	-1.77949	0.078291
phi 9	0.760316	0.433534	1.753763	0.08263
phi 10	-0.72737	0.390486	-1.86273	0.065527
phi 11	0.496332	0.265634	1.868479	0.064713
phi 12	-0.19094	0.096679	-1.97495	0.051116

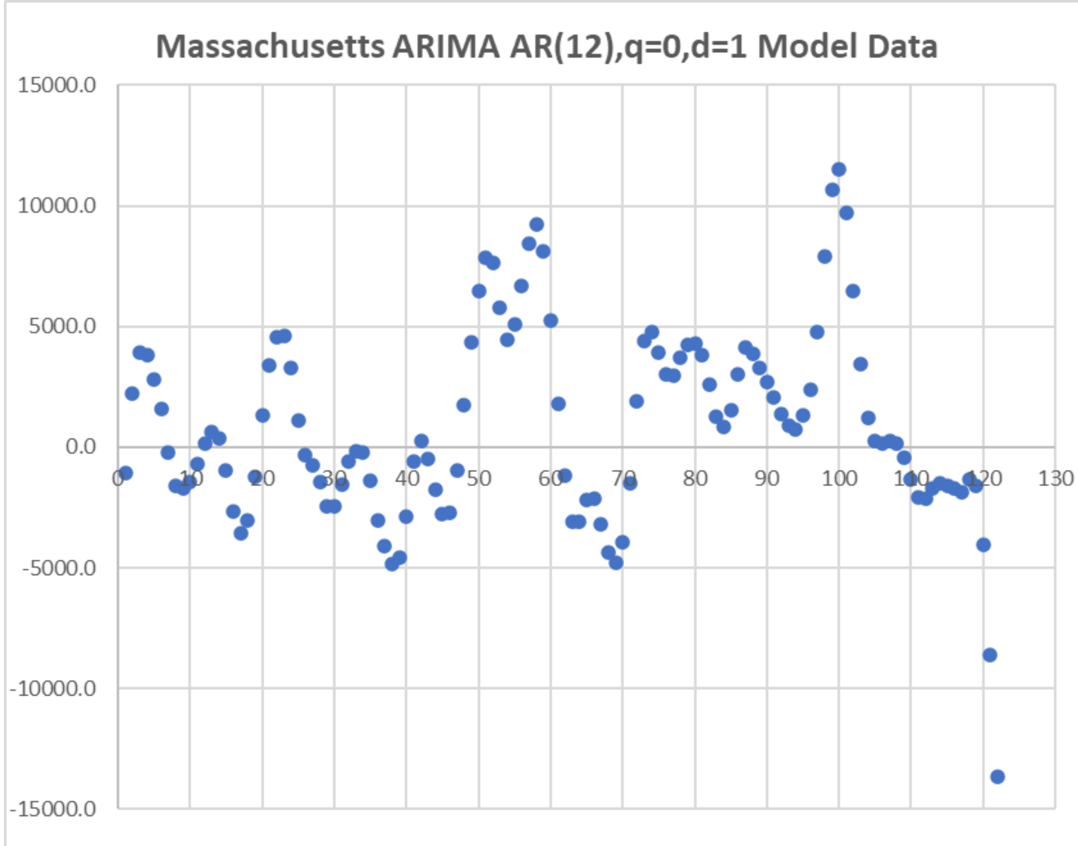


Appendix E71: Massachusetts CPS Employment ARIMA Model Forecast

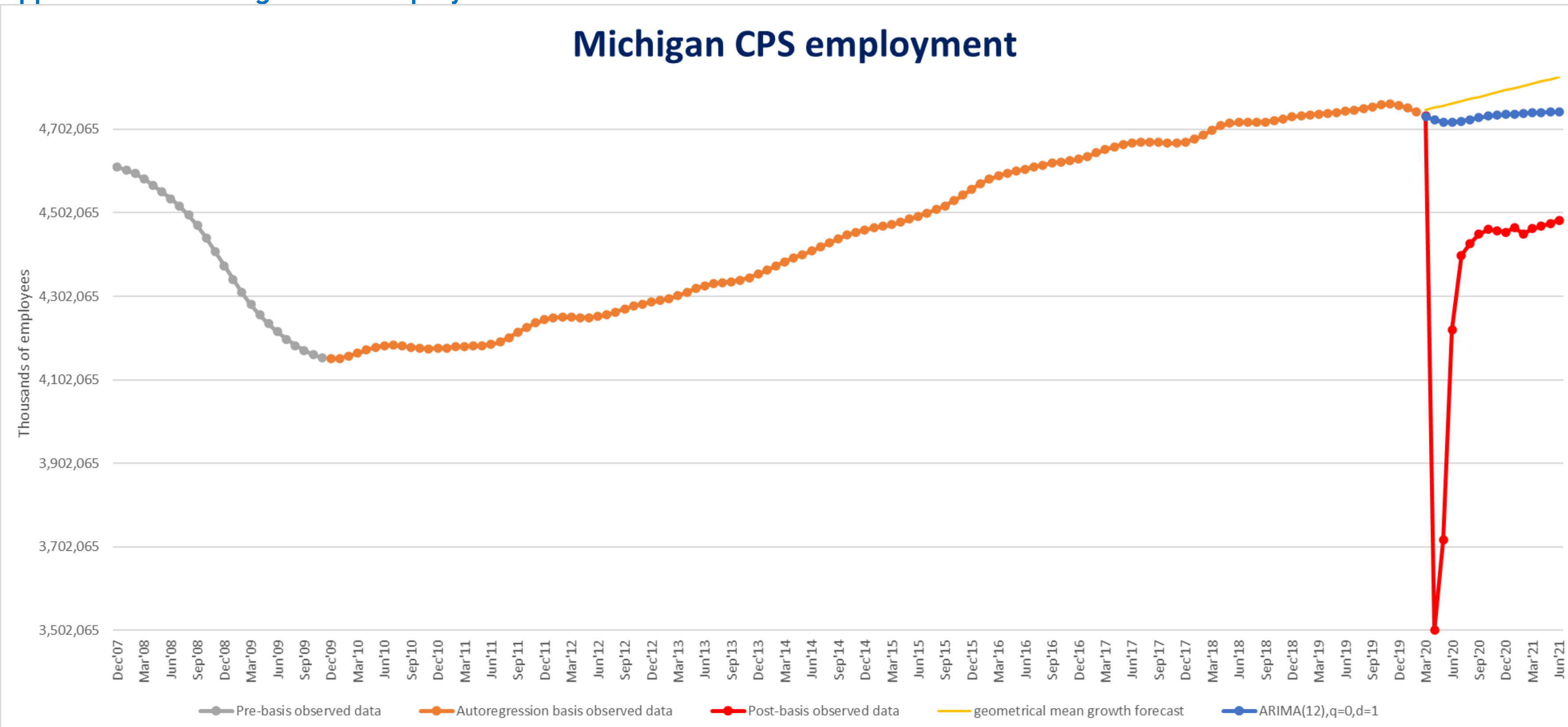


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	84.82728	102.9094	0.824291	0.411776
phi 1	2.946324	0.101102	29.14202	4.48E-50
phi 2	-3.90175	0.312122	-12.5007	5.24E-22
phi 3	3.187927	0.496307	6.423302	4.81E-09
phi 4	-1.99557	0.582773	-3.42427	0.000901
phi 5	1.042668	0.61267	1.701843	0.091955
phi 6	-0.26517	0.629971	-0.42092	0.674733
phi 7	-0.05152	0.643689	-0.08004	0.936365
phi 8	-0.04494	0.641361	-0.07008	0.944275
phi 9	0.058784	0.607129	0.096822	0.923065
phi 10	0.020745	0.51204	0.040515	0.967765
phi 11	-0.02784	0.324192	-0.08587	0.931744
phi 12	0.003092	0.109116	0.028334	0.977454

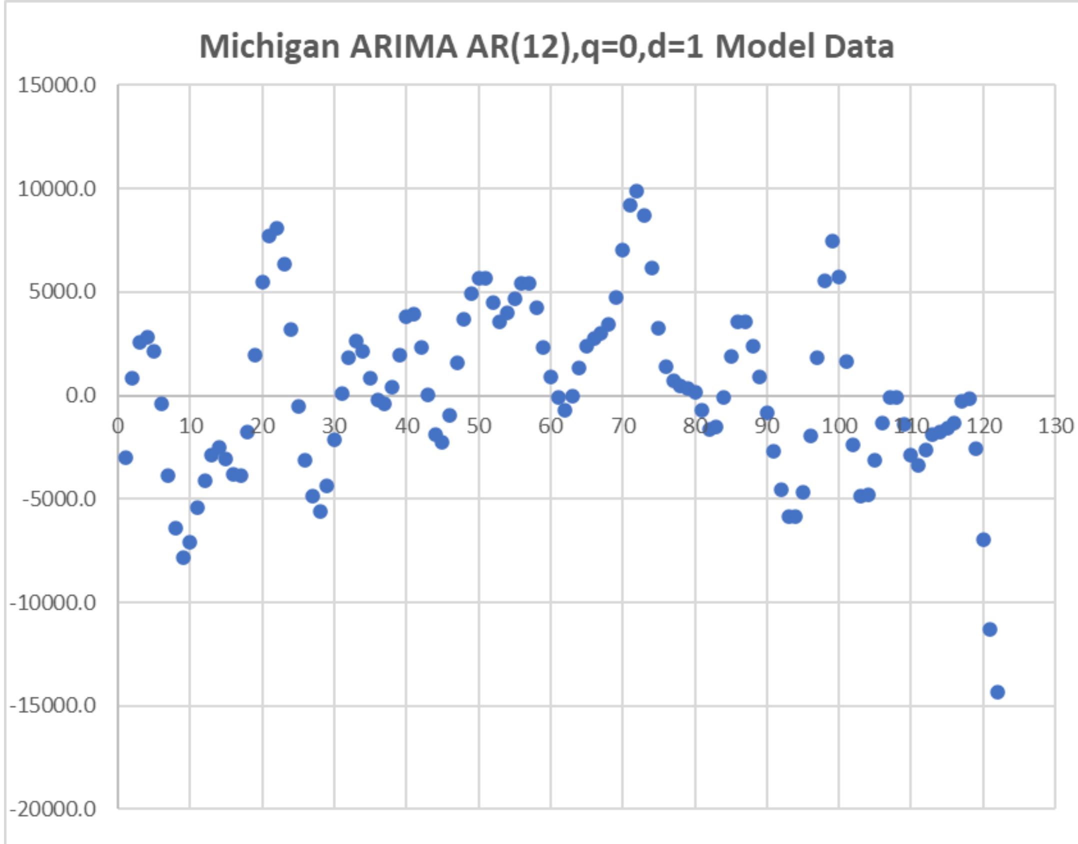


Appendix E72: Michigan CPS Employment ARIMA Model Forecast

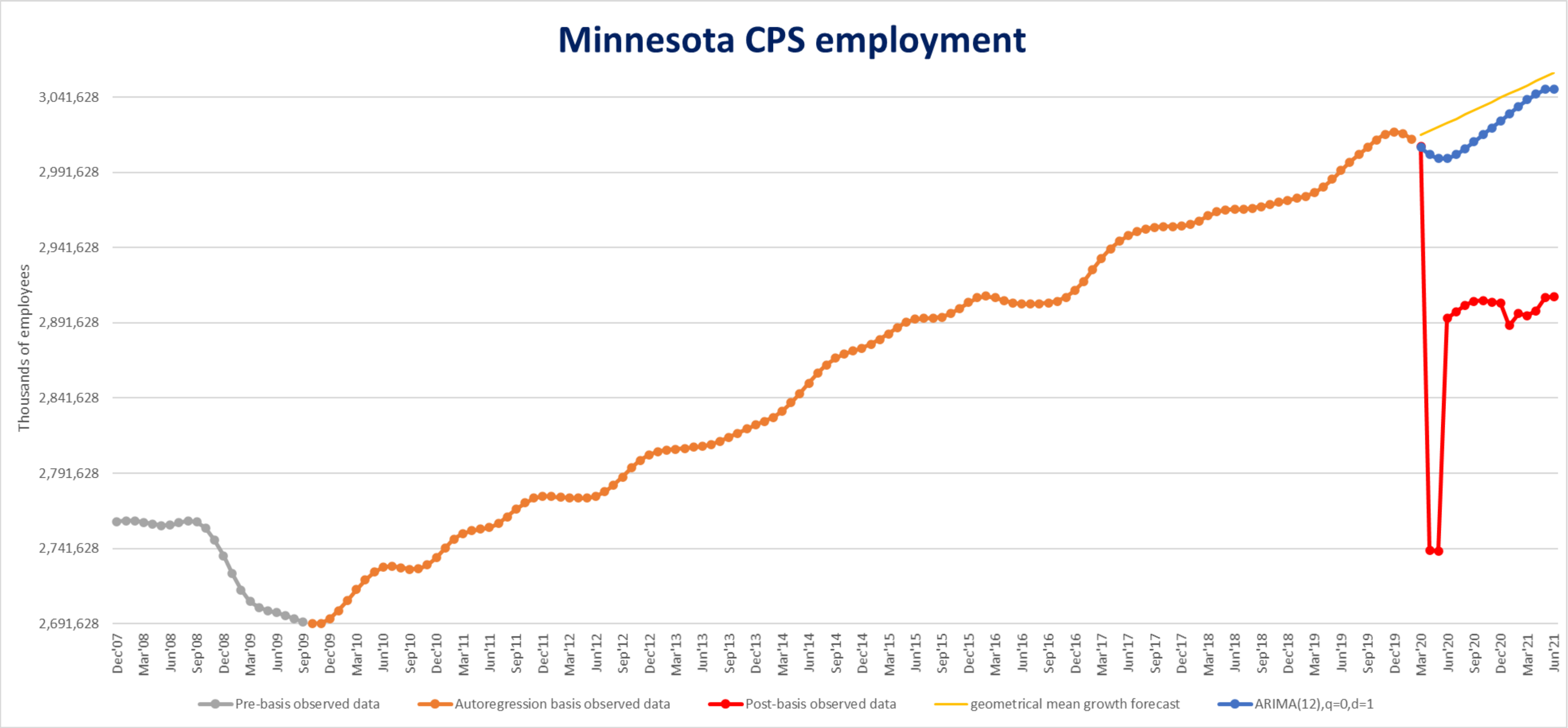


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	114.5427	134.9898	0.848529	0.398233
phi 1	2.72148	0.103464	26.30371	6.15E-46
phi 2	-3.23934	0.299661	-10.81	2.41E-18
phi 3	2.282701	0.447844	5.097086	1.7E-06
phi 4	-1.4541	0.495835	-2.93262	0.004193
phi 5	1.176974	0.505166	2.329876	0.021886
phi 6	-0.84678	0.514355	-1.6463	0.102938
phi 7	0.557381	0.525147	1.06138	0.291153
phi 8	-0.52177	0.521655	-1.00023	0.319688
phi 9	0.498675	0.504172	0.989097	0.325077
phi 10	-0.28801	0.448663	-0.64193	0.522435
phi 11	0.057142	0.298273	0.191576	0.848475
phi 12	0.030534	0.103353	0.29544	0.76829

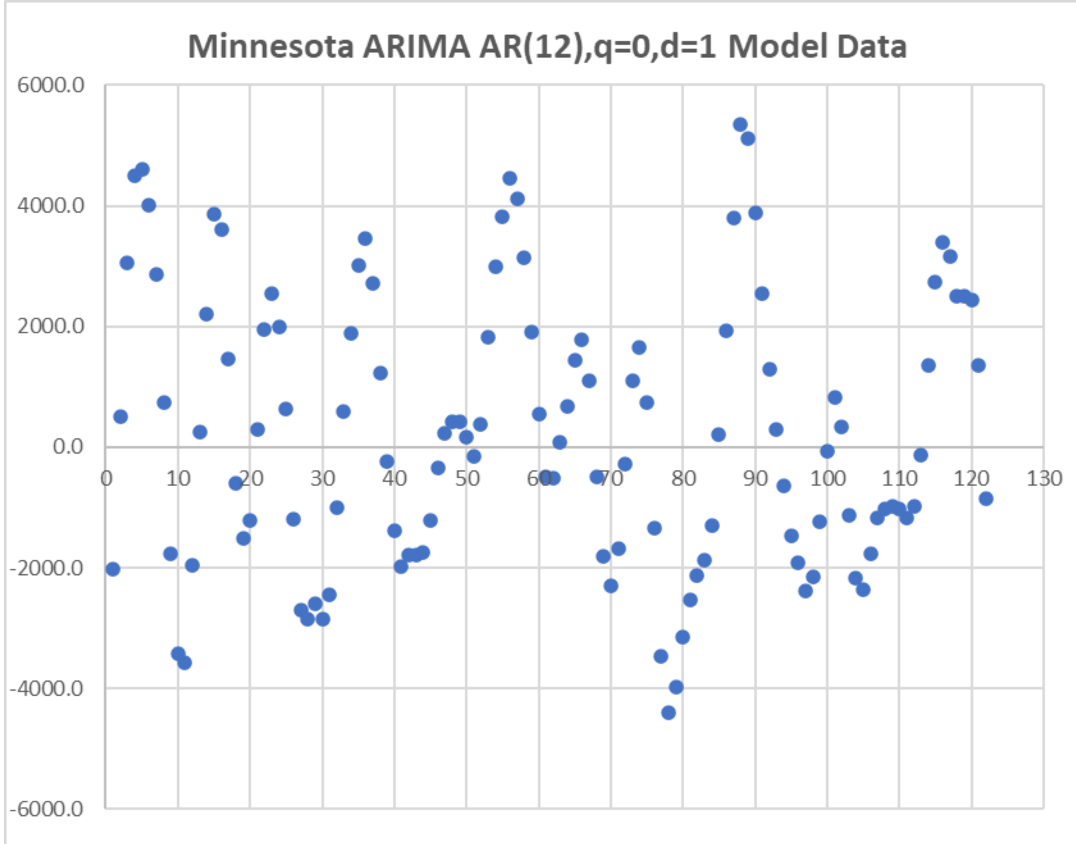


Appendix E73: Minnesota CPS Employment ARIMA Model Forecast

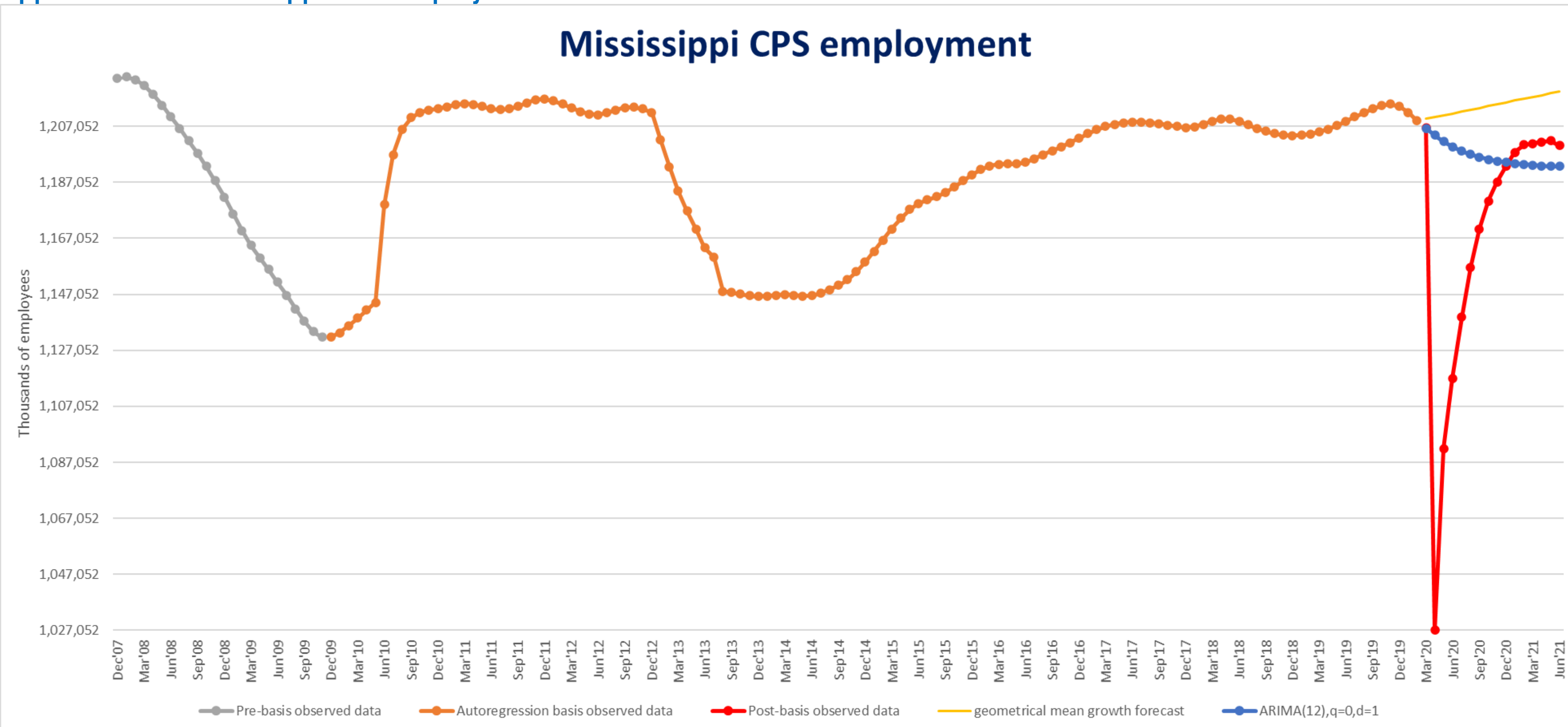


Model parameters

param	coeff	s.e.	t-stat	p-value
const	375.5511	109.0845	3.442753	0.000845
phi 1	2.560199	0.099825	25.64693	1.62E-45
phi 2	-3.13258	0.275119	-11.3863	1.07E-19
phi 3	2.694459	0.419121	6.42883	4.56E-09
phi 4	-2.32541	0.499379	-4.65659	1E-05
phi 5	1.89427	0.549641	3.446376	0.000835
phi 6	-1.24554	0.581222	-2.14296	0.034567
phi 7	0.82156	0.588435	1.396176	0.165784
phi 8	-0.69729	0.564787	-1.2346	0.219901
phi 9	0.44595	0.513937	0.867714	0.387649
phi 10	-0.26288	0.430197	-0.61108	0.542547
phi 11	0.197184	0.280963	0.701814	0.484442
phi 12	-0.10507	0.10165	-1.03364	0.303821

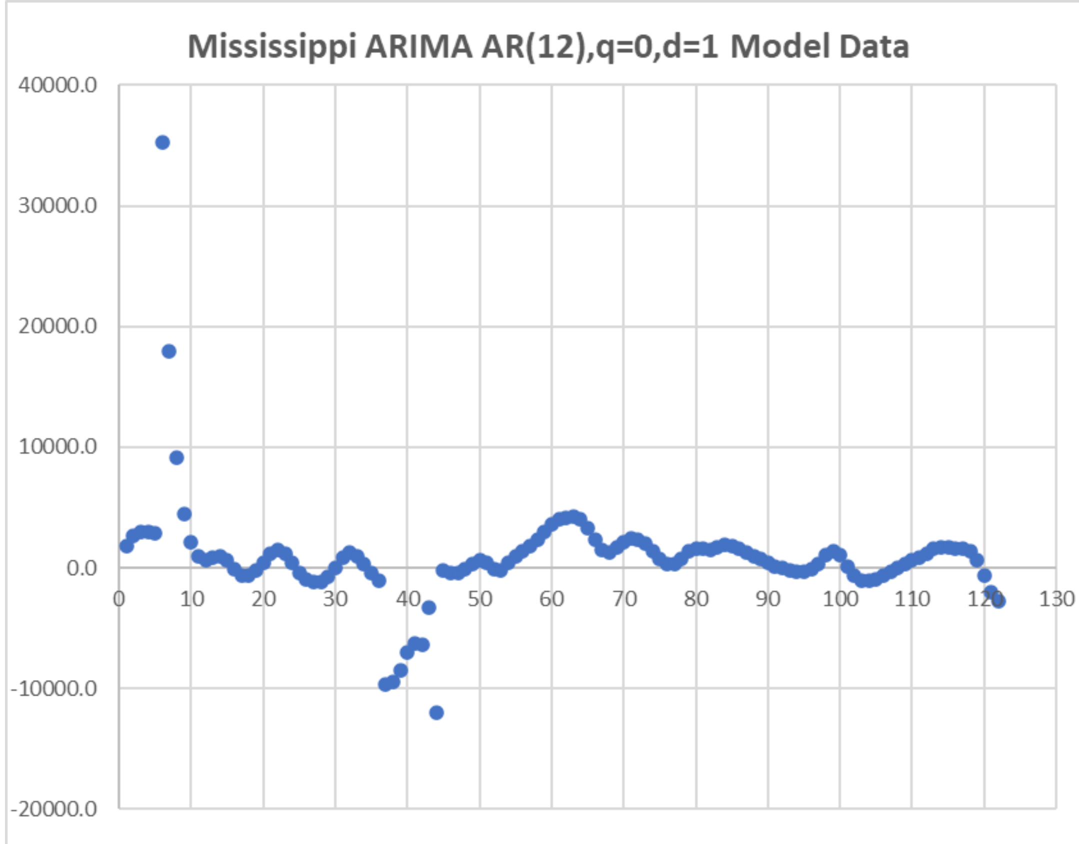


Appendix E74: Mississippi CPS Employment ARIMA Model Forecast

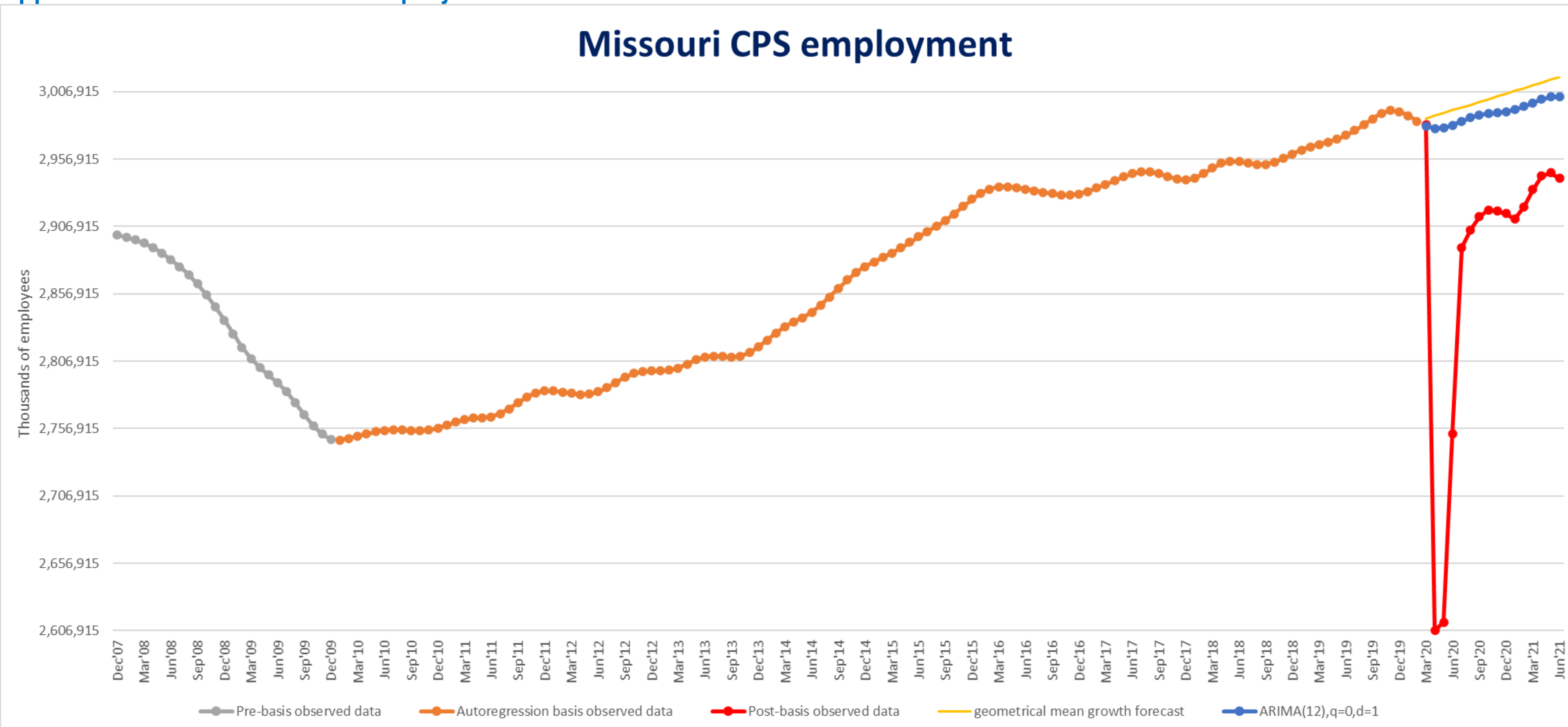


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-36.6902	159.8026	-0.2296	0.818888
phi 1	0.611891	0.101569	6.024397	3.05E-08
phi 2	0.344579	0.119161	2.891715	0.004729
phi 3	-0.03947	0.124142	-0.31797	0.751193
phi 4	-0.06787	0.123341	-0.55028	0.583396
phi 5	-0.02577	0.120189	-0.21444	0.830651
phi 6	-0.05507	0.118976	-0.46285	0.64451
phi 7	0.075645	0.069831	1.083258	0.281379
phi 8	-0.0485	0.05062	-0.95815	0.340371
phi 9	0.007404	0.050579	0.146382	0.883924
phi 10	0.002399	0.050578	0.047431	0.962268
phi 11	-0.00844	0.050474	-0.1673	0.867486
phi 12	0.010854	0.043822	0.247682	0.804904

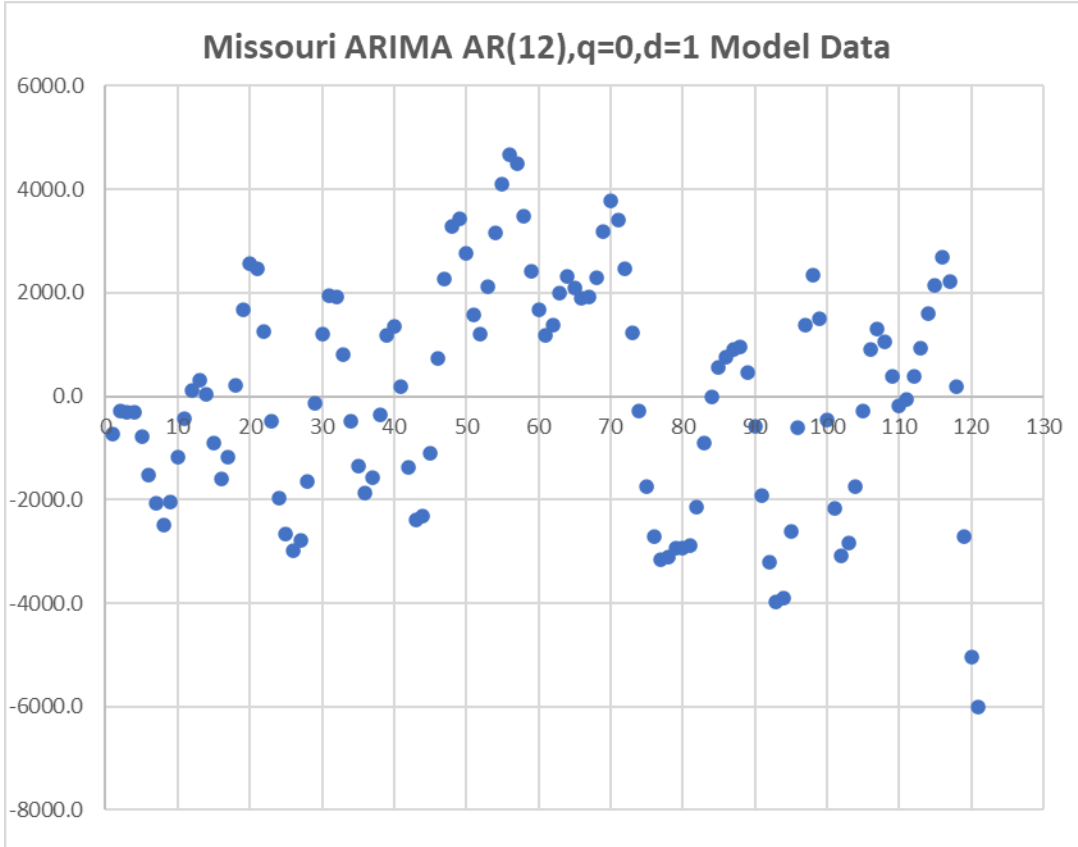


Appendix E75: Missouri CPS Employment ARIMA Model Forecast

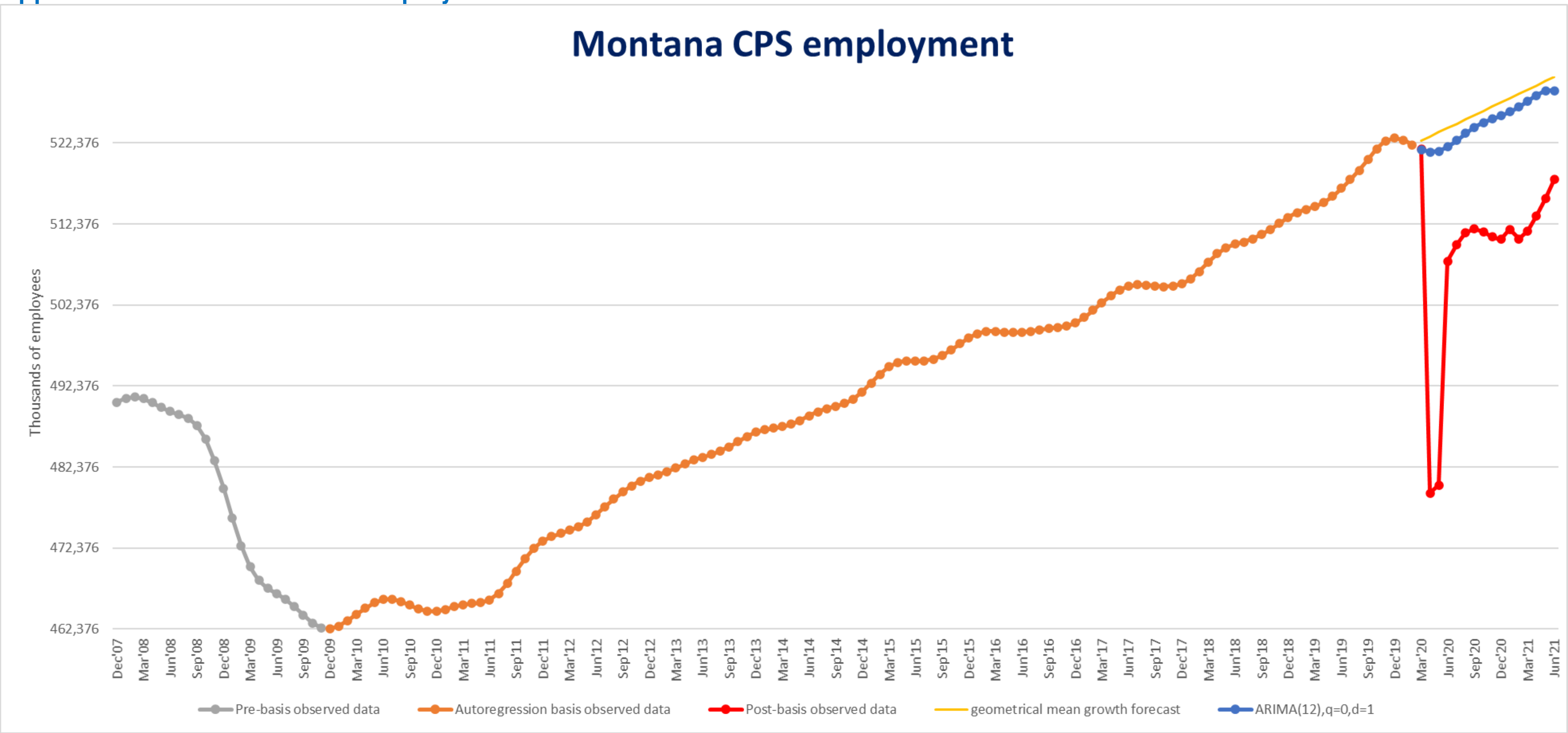


Model parameters

param	coeff	s.e.	t-stat	p-value
const	74.93955	53.68983	1.395787	0.165999
phi 1	2.728414	0.101136	26.97758	1.34E-46
phi 2	-3.35025	0.289346	-11.5787	6.37E-20
phi 3	2.425018	0.430234	5.636513	1.74E-07
phi 4	-1.2626	0.470063	-2.68602	0.008521
phi 5	0.536757	0.460911	1.164556	0.247085
phi 6	-0.25219	0.449306	-0.56129	0.575911
phi 7	0.572228	0.450581	1.269979	0.207162
phi 8	-1.21989	0.454743	-2.68259	0.008603
phi 9	1.579184	0.45193	3.494308	0.000721
phi 10	-1.27602	0.413427	-3.08644	0.002647
phi 11	0.566467	0.285279	1.985659	0.049924
phi 12	-0.0863	0.103169	-0.83652	0.404941

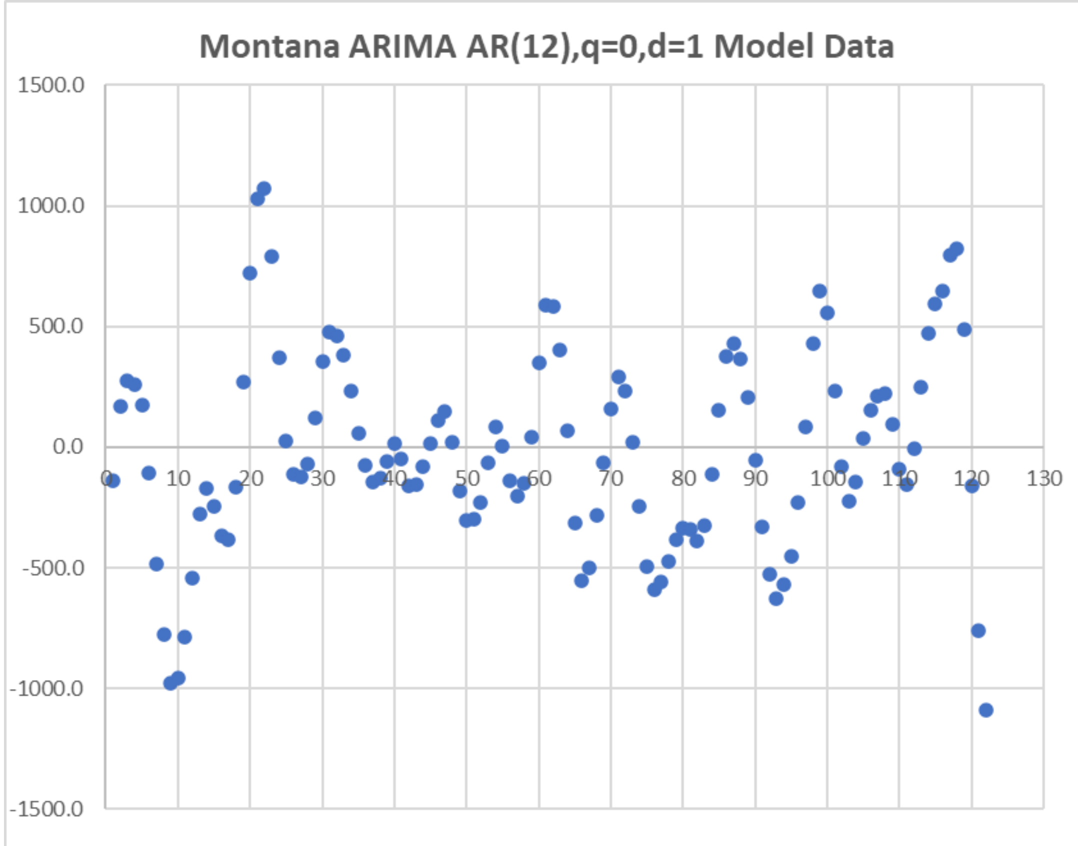


Appendix E76: Montana CPS Employment ARIMA Model Forecast

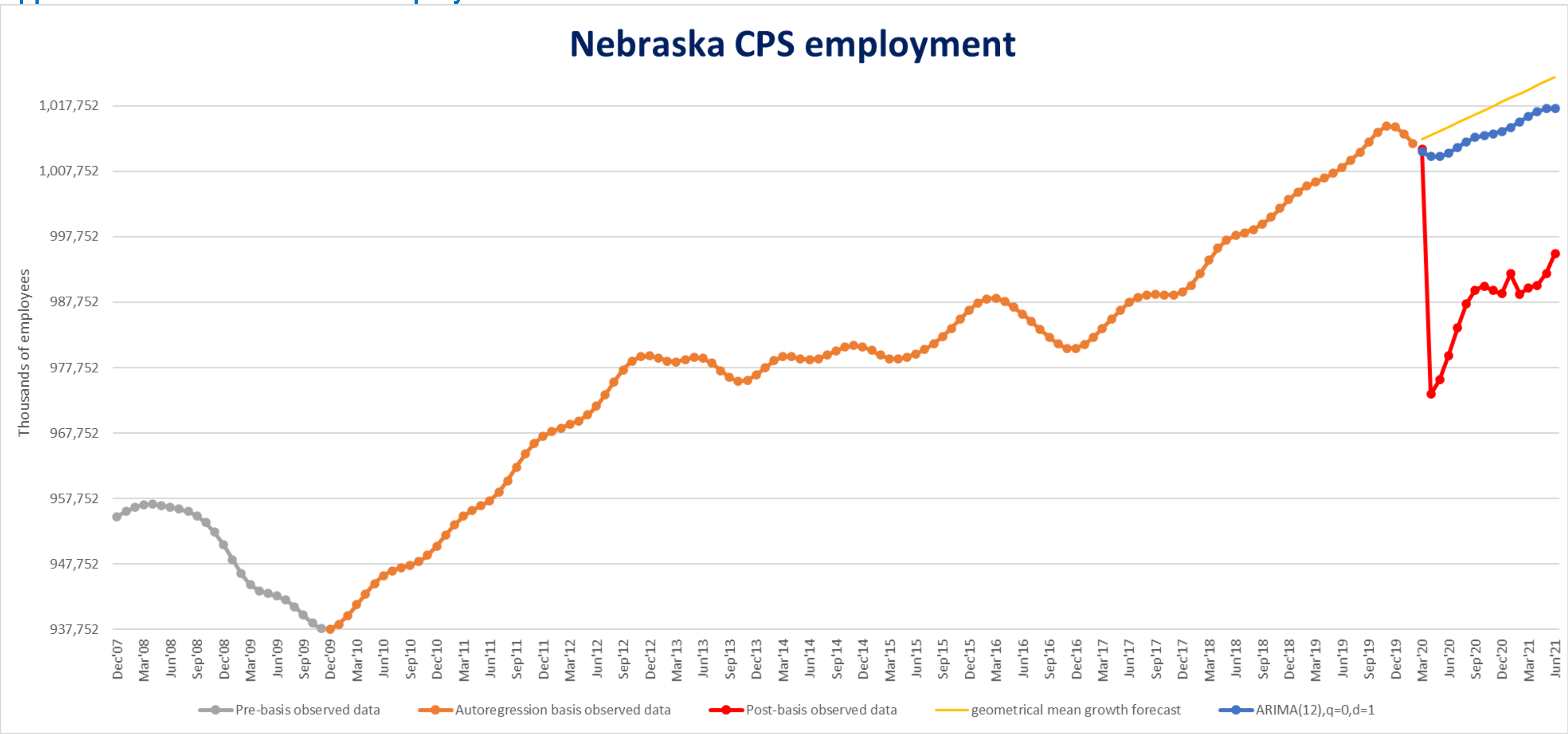


Model parameters

param	coeff	s.e.	t-stat	p-value
const	51.14941	17.68538	2.892186	0.004723
phi 1	2.656135	0.101673	26.12438	1.1E-45
phi 2	-3.3385	0.285135	-11.7085	2.91E-20
phi 3	2.662356	0.434066	6.133527	1.86E-08
phi 4	-1.77389	0.492676	-3.60053	0.000503
phi 5	1.135217	0.503456	2.254848	0.026391
phi 6	-0.72437	0.508582	-1.42429	0.157573
phi 7	0.624816	0.522334	1.196201	0.234534
phi 8	-0.78534	0.521997	-1.50448	0.135706
phi 9	0.931635	0.49819	1.87004	0.064494
phi 10	-0.81162	0.438047	-1.85283	0.066947
phi 11	0.405219	0.294364	1.37659	0.171808
phi 12	-0.08292	0.10593	-0.7828	0.435653

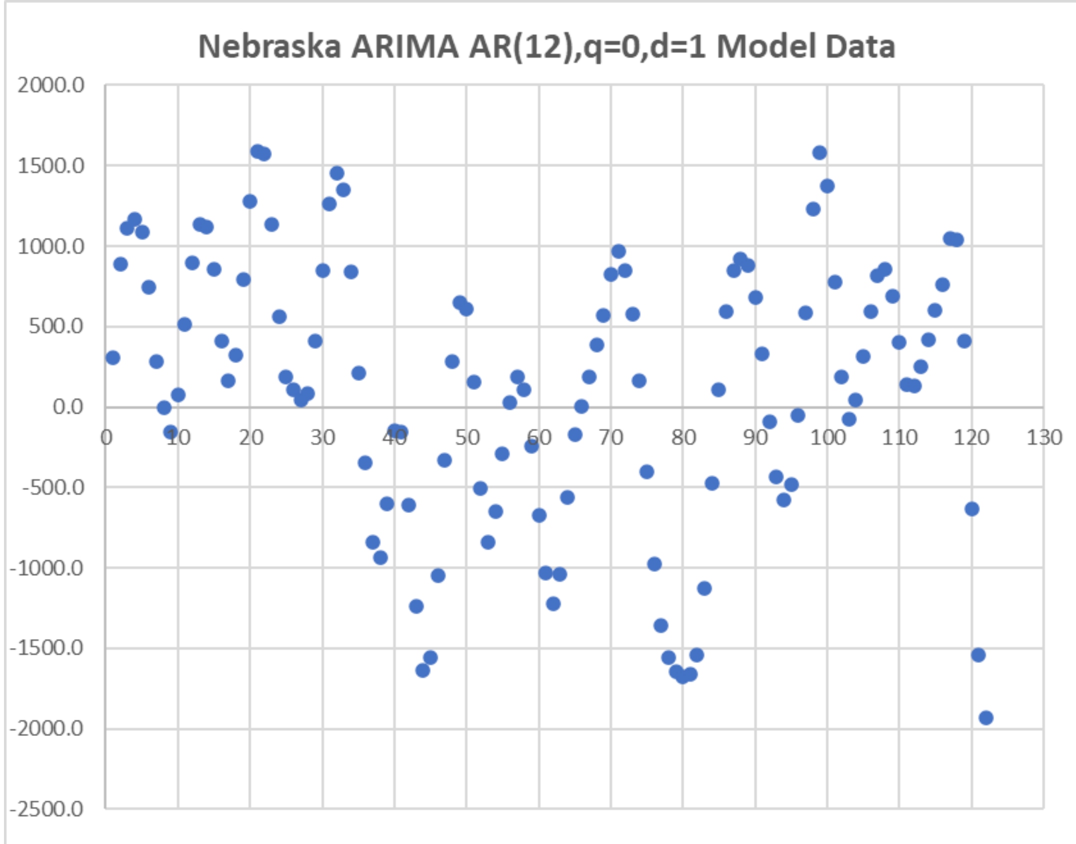


Appendix E77: Nebraska CPS Employment ARIMA Model Forecast

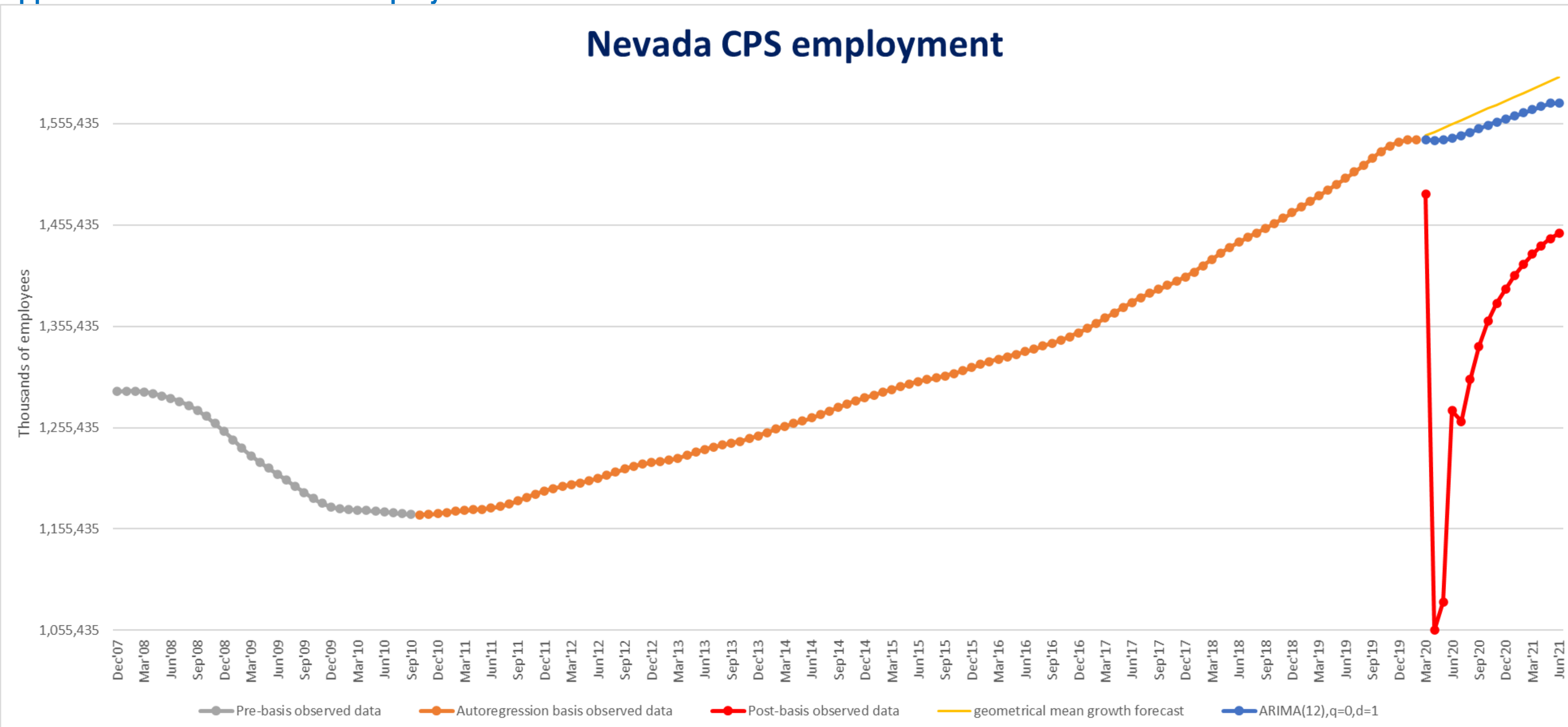


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	22.70186	16.19914	1.401424	0.164279
phi 1	2.803181	0.099293	28.23136	1.41E-48
phi 2	-3.59325	0.287786	-12.4858	6.69E-22
phi 3	2.793748	0.430376	6.491411	3.62E-09
phi 4	-1.62658	0.468931	-3.46869	0.000782
phi 5	0.882253	0.460209	1.91707	0.058172
phi 6	-0.59803	0.453914	-1.3175	0.190776
phi 7	0.785152	0.462547	1.697452	0.092818
phi 8	-1.27732	0.470348	-2.71569	0.007831
phi 9	1.667101	0.466357	3.57473	0.000548
phi 10	-1.49781	0.421826	-3.55079	0.000595
phi 11	0.769709	0.284088	2.7094	0.00797
phi 12	-0.15484	0.099611	-1.55448	0.123326

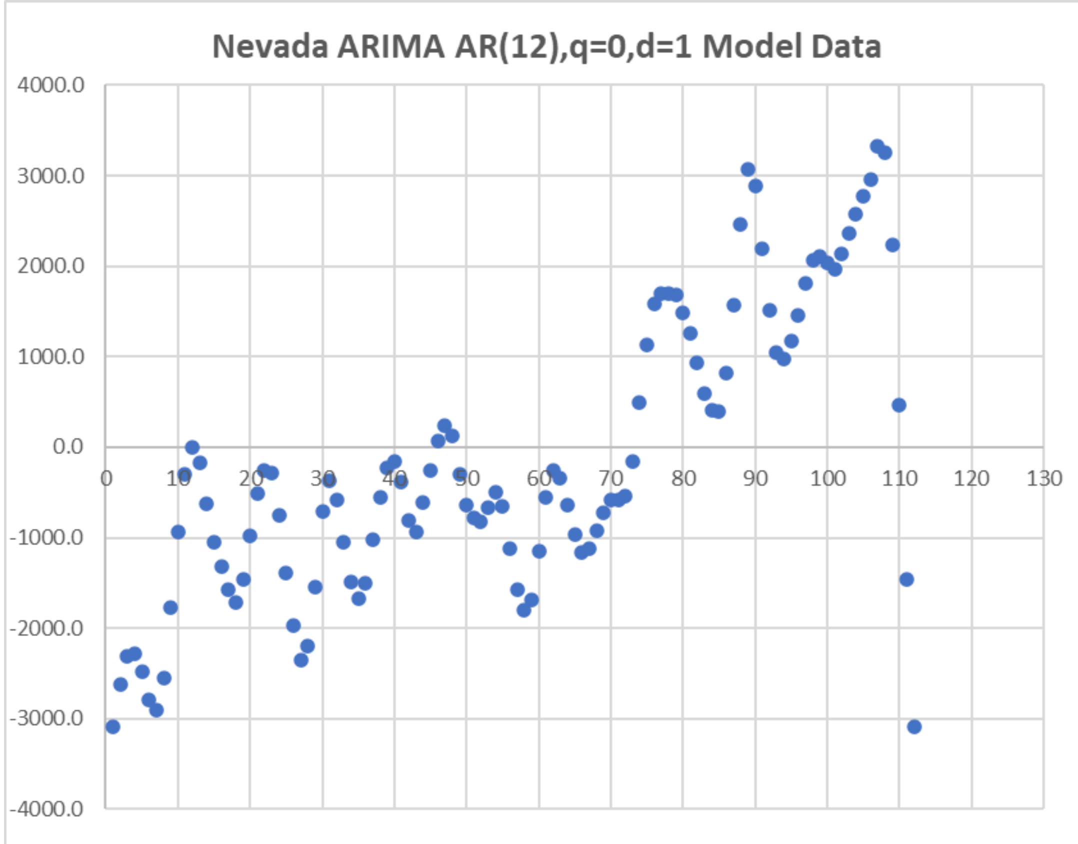


Appendix E78: Nevada CPS Employment ARIMA Model Forecast

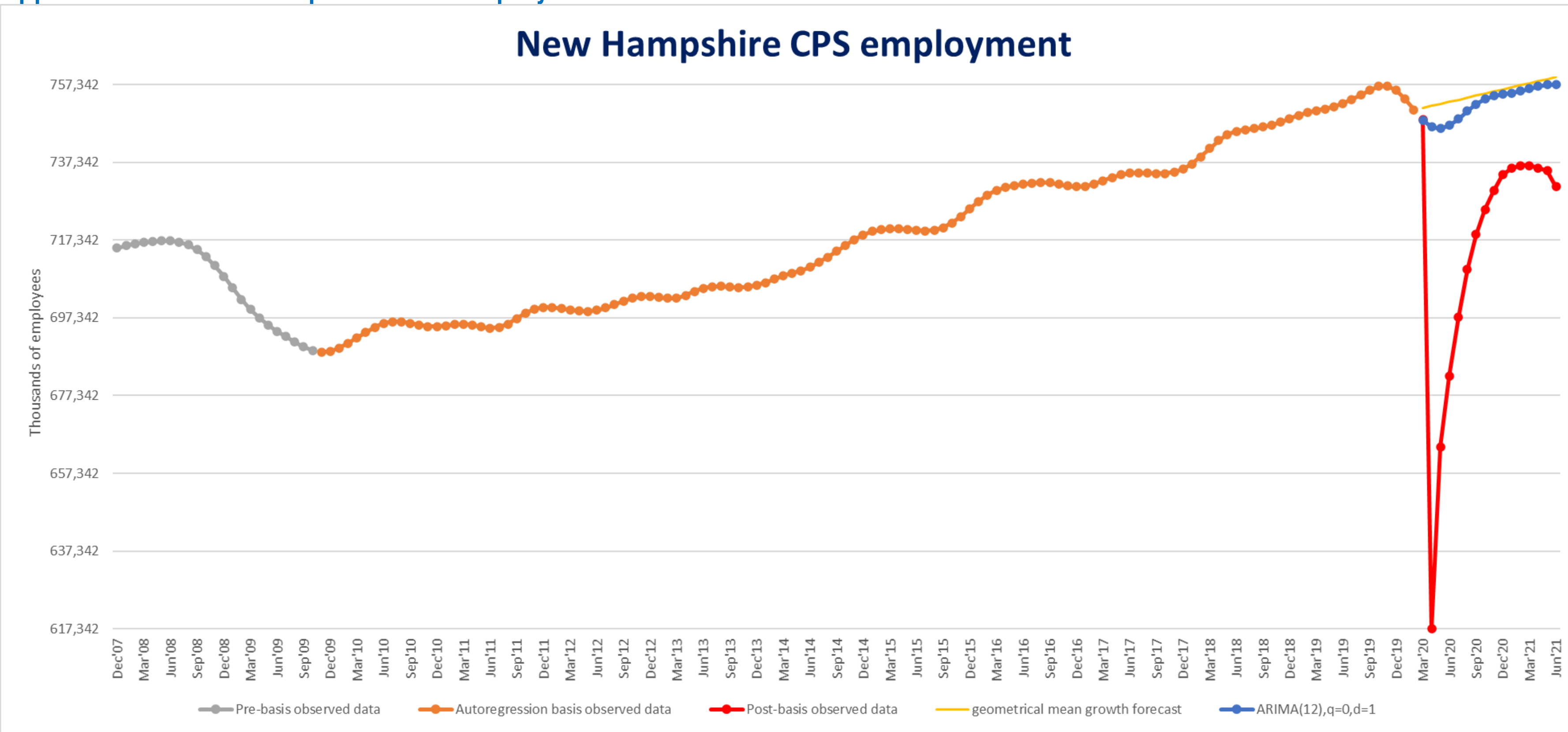


Model parameters

param	coeff	s.e.	t-stat	p-value
const	66.28714	43.7932	1.51364	0.133742
phi 1	2.827659	0.110952	25.48548	4.02E-42
phi 2	-3.4896	0.328161	-10.6338	2.08E-17
phi 3	2.577799	0.49705	5.186191	1.38E-06
phi 4	-1.62941	0.550825	-2.95812	0.003985
phi 5	1.218922	0.558231	2.183545	0.031687
phi 6	-0.95525	0.572383	-1.66889	0.098733
phi 7	1.00484	0.593894	1.691952	0.094234
phi 8	-1.33992	0.599888	-2.23362	0.028073
phi 9	1.4128	0.591899	2.386892	0.019158
phi 10	-0.9944	0.53913	-1.84445	0.068521
phi 11	0.424316	0.368345	1.151952	0.252497
phi 12	-0.07697	0.130936	-0.58786	0.55815

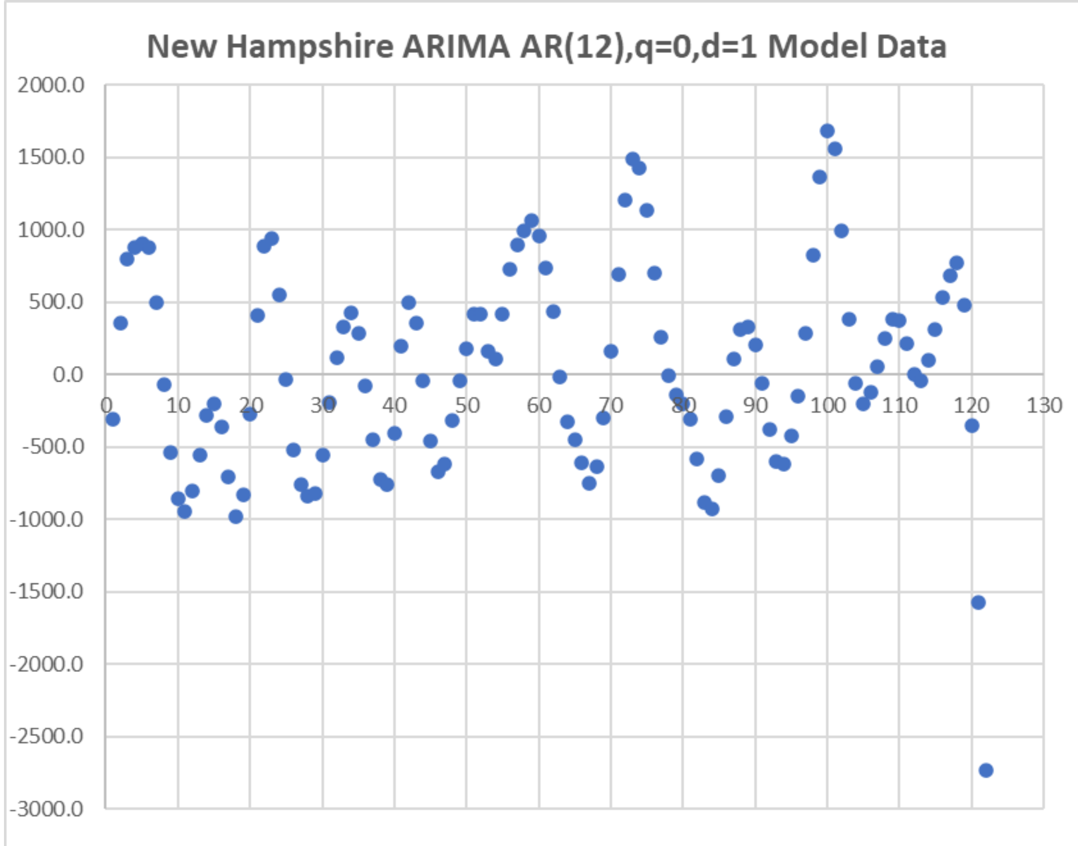


Appendix E79: New Hampshire CPS Employment ARIMA Model Forecast

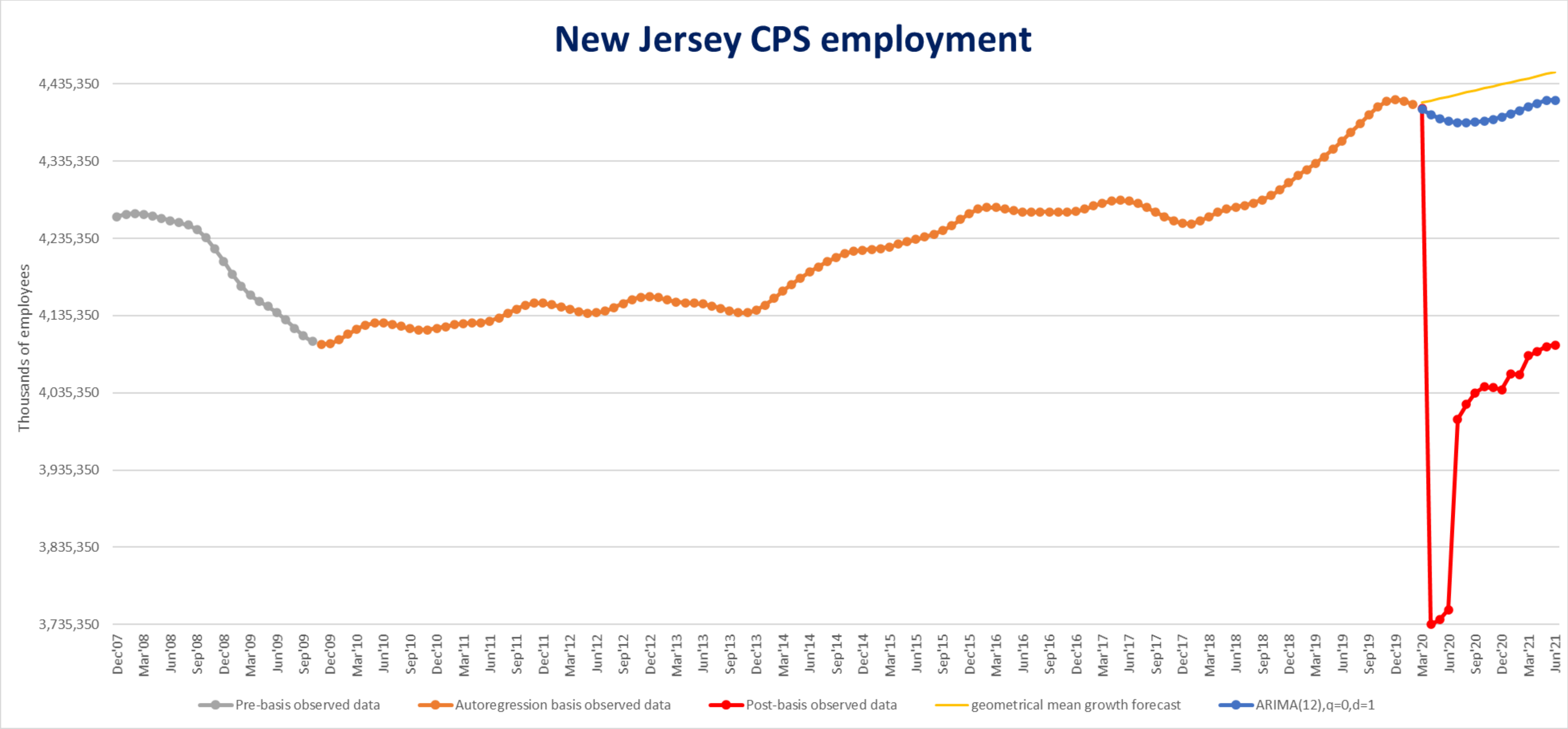


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	35.64858	21.34066	1.670453	0.098021
phi 1	2.812914	0.100767	27.9151	1.94E-48
phi 2	-3.65488	0.300507	-12.1624	2.71E-21
phi 3	2.960172	0.47342	6.252738	1.05E-08
phi 4	-1.92534	0.556728	-3.45831	0.000806
phi 5	1.085752	0.589294	1.842462	0.068431
phi 6	-0.45374	0.605469	-0.74939	0.455415
phi 7	0.215038	0.614391	0.350001	0.727089
phi 8	-0.33404	0.606797	-0.55049	0.583234
phi 9	0.423325	0.56789	0.745435	0.457793
phi 10	-0.27129	0.476749	-0.56904	0.570629
phi 11	0.021972	0.30539	0.071948	0.94279
phi 12	0.046653	0.106455	0.438238	0.662178

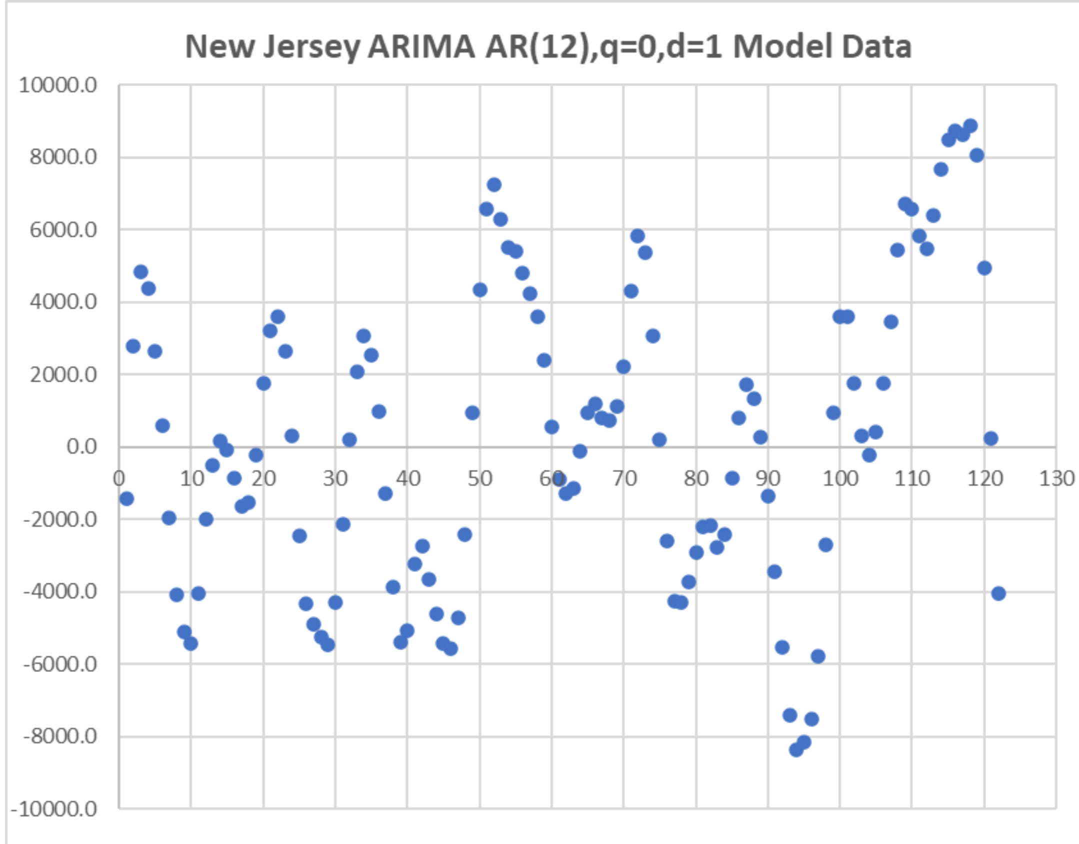


Appendix E80: New Jersey CPS Employment ARIMA Model Forecast

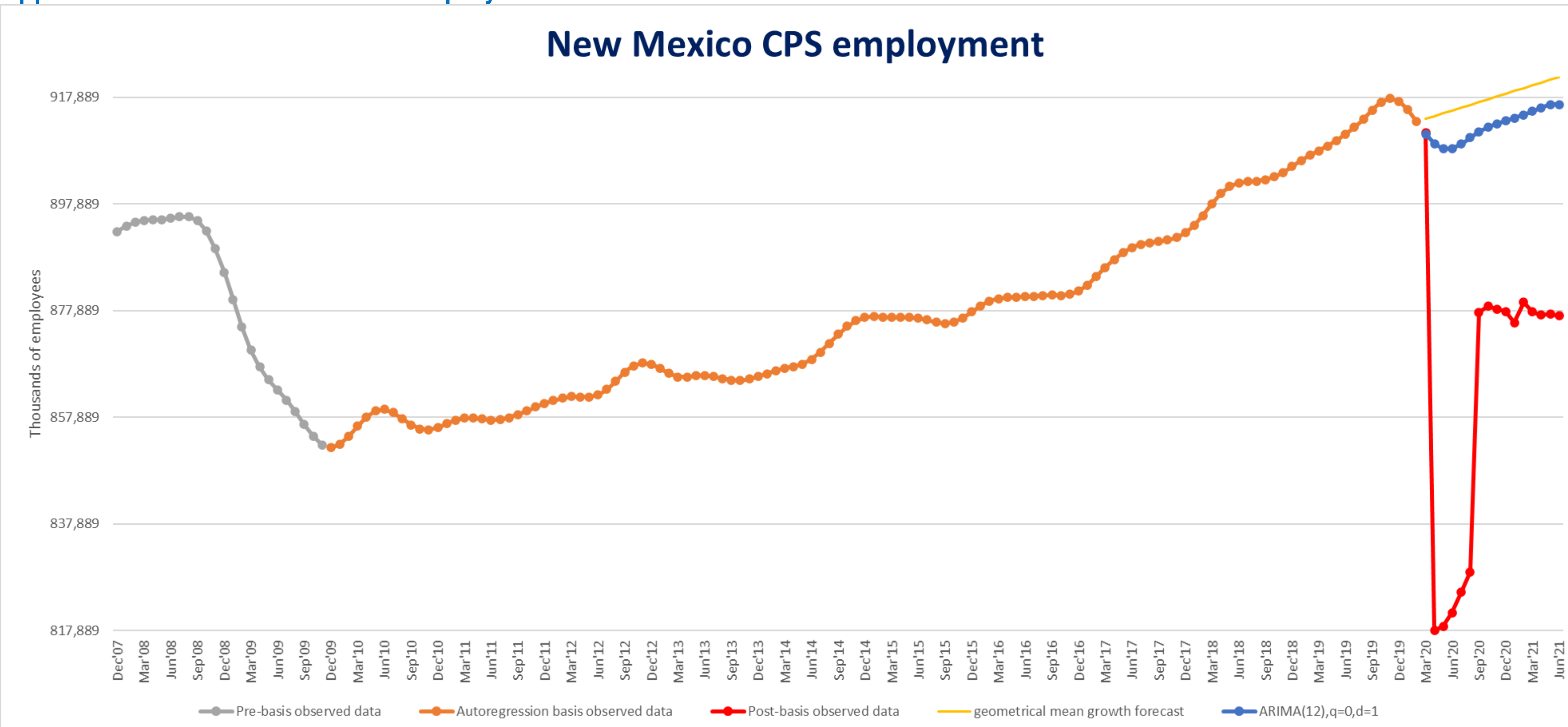


Model parameters

param	coeff	s.e.	t-stat	p-value
const	121.1541	67.9895	1.781954	0.077854
phi 1	2.768028	0.100477	27.54896	6.12E-48
phi 2	-3.47772	0.290718	-11.9625	7.21E-21
phi 3	2.774479	0.438705	6.324246	7.6E-09
phi 4	-1.85158	0.497903	-3.71876	0.000334
phi 5	1.301208	0.51359	2.533553	0.012877
phi 6	-1.08527	0.520188	-2.08631	0.039547
phi 7	1.081214	0.524794	2.060263	0.042023
phi 8	-1.0946	0.521282	-2.09982	0.038313
phi 9	1.052276	0.500413	2.102816	0.038044
phi 10	-0.92641	0.436307	-2.1233	0.036248
phi 11	0.544167	0.288349	1.887184	0.062095
phi 12	-0.13846	0.100674	-1.37532	0.172167

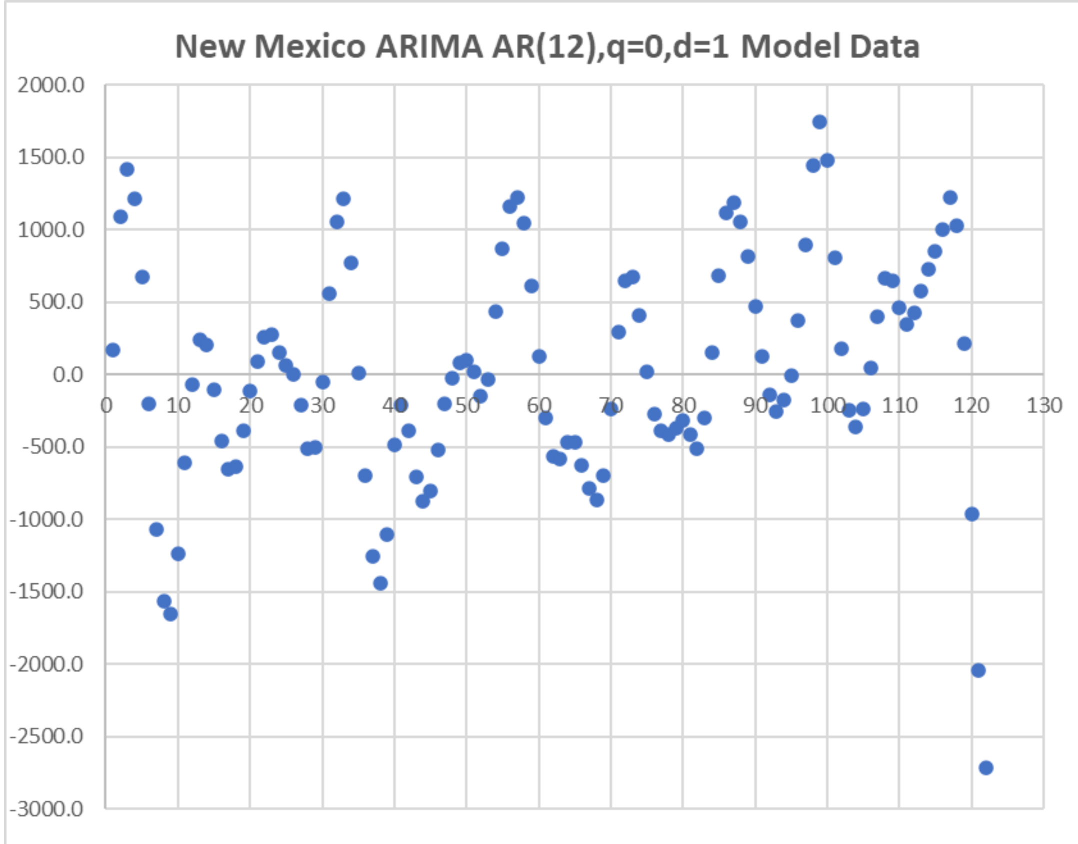


Appendix E81: New Mexico CPS Employment ARIMA Model Forecast

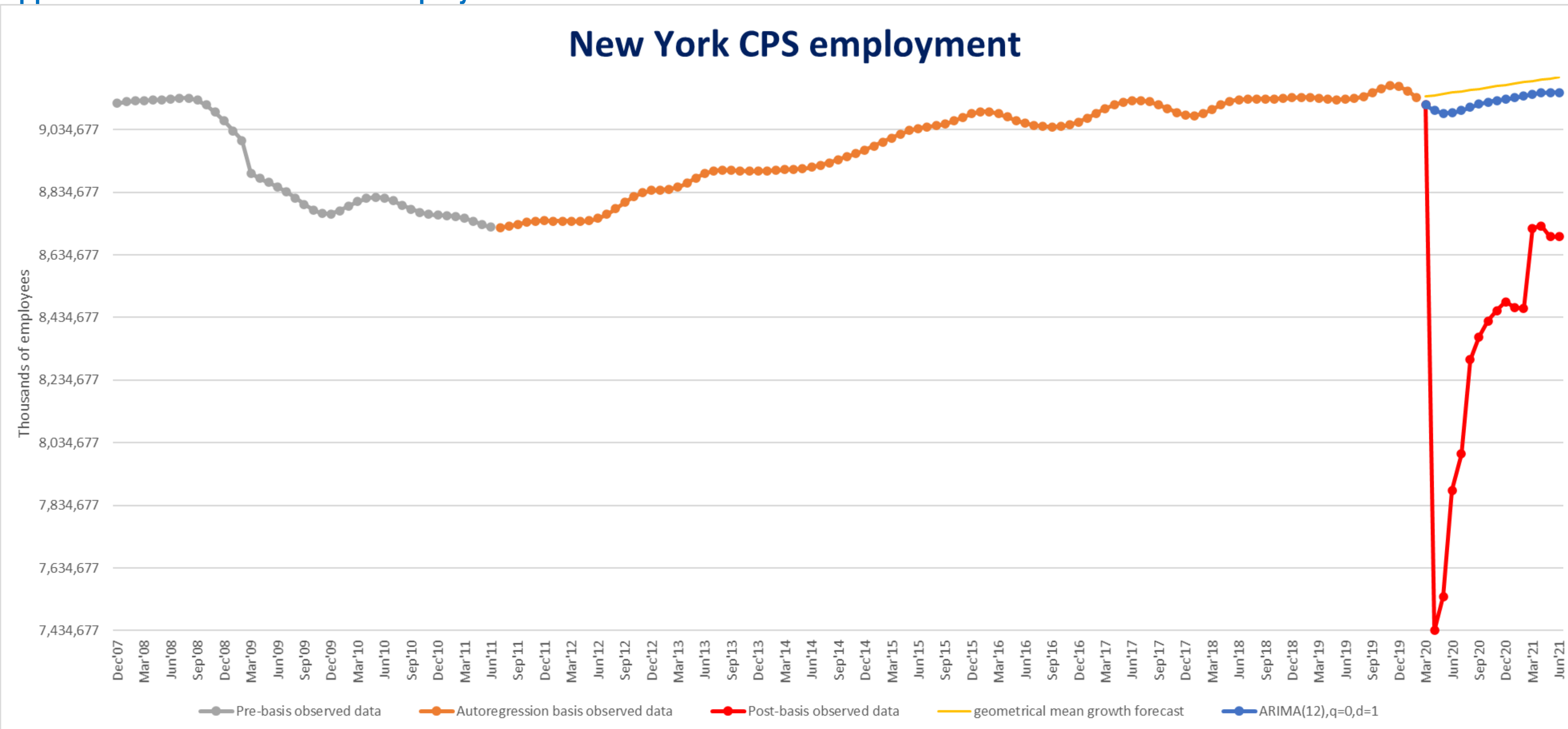


Model parameters

param	coeff	s.e.	t-stat	p-value
const	36.64274	18.45591	1.98542	0.049921
phi 1	2.787899	0.10195	27.34567	2.21E-47
phi 2	-3.62572	0.297892	-12.1713	3.06E-21
phi 3	3.008549	0.465005	6.469935	4E-09
phi 4	-2.1224	0.541242	-3.92135	0.000164
phi 5	1.507198	0.568639	2.650534	0.009386
phi 6	-1.05488	0.585993	-1.80015	0.074945
phi 7	0.806207	0.598074	1.348004	0.180797
phi 8	-0.77779	0.58799	-1.3228	0.189013
phi 9	0.842799	0.550896	1.529869	0.129304
phi 10	-0.81176	0.468232	-1.73368	0.086152
phi 11	0.502921	0.300771	1.672104	0.097727
phi 12	-0.14112	0.104178	-1.35457	0.178701

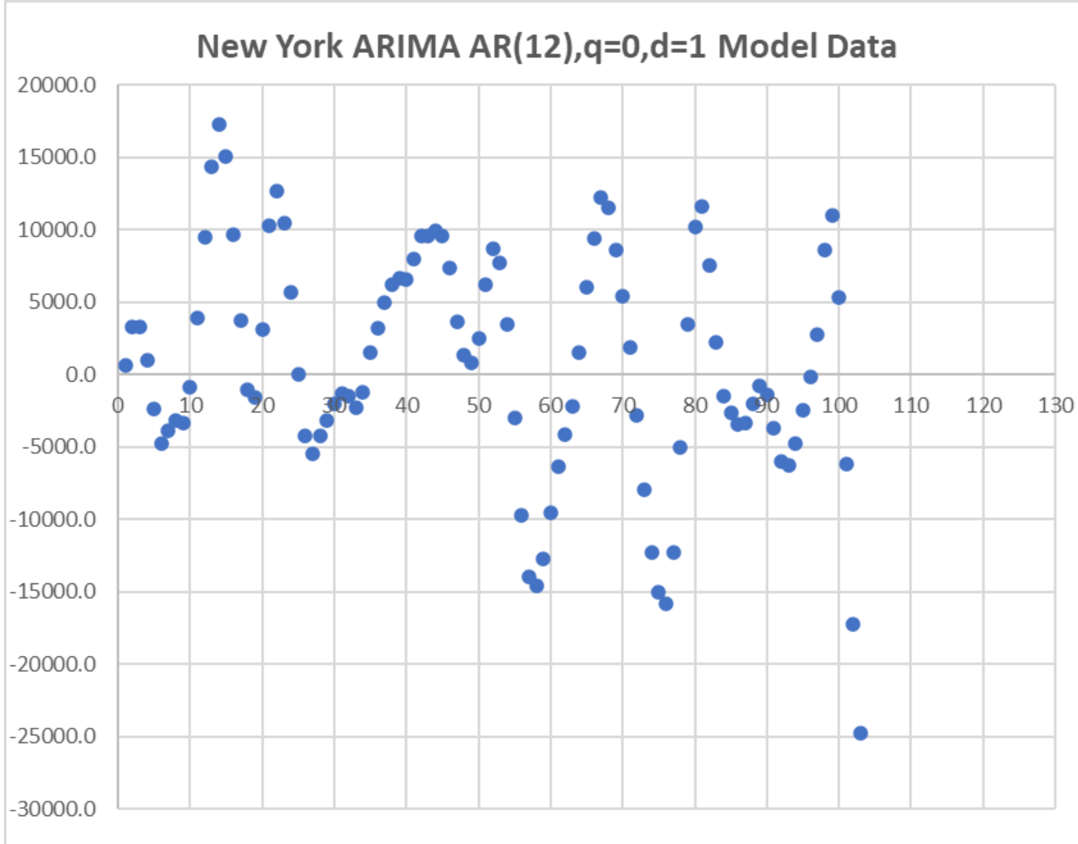


Appendix E82: New York CPS Employment ARIMA Model Forecast

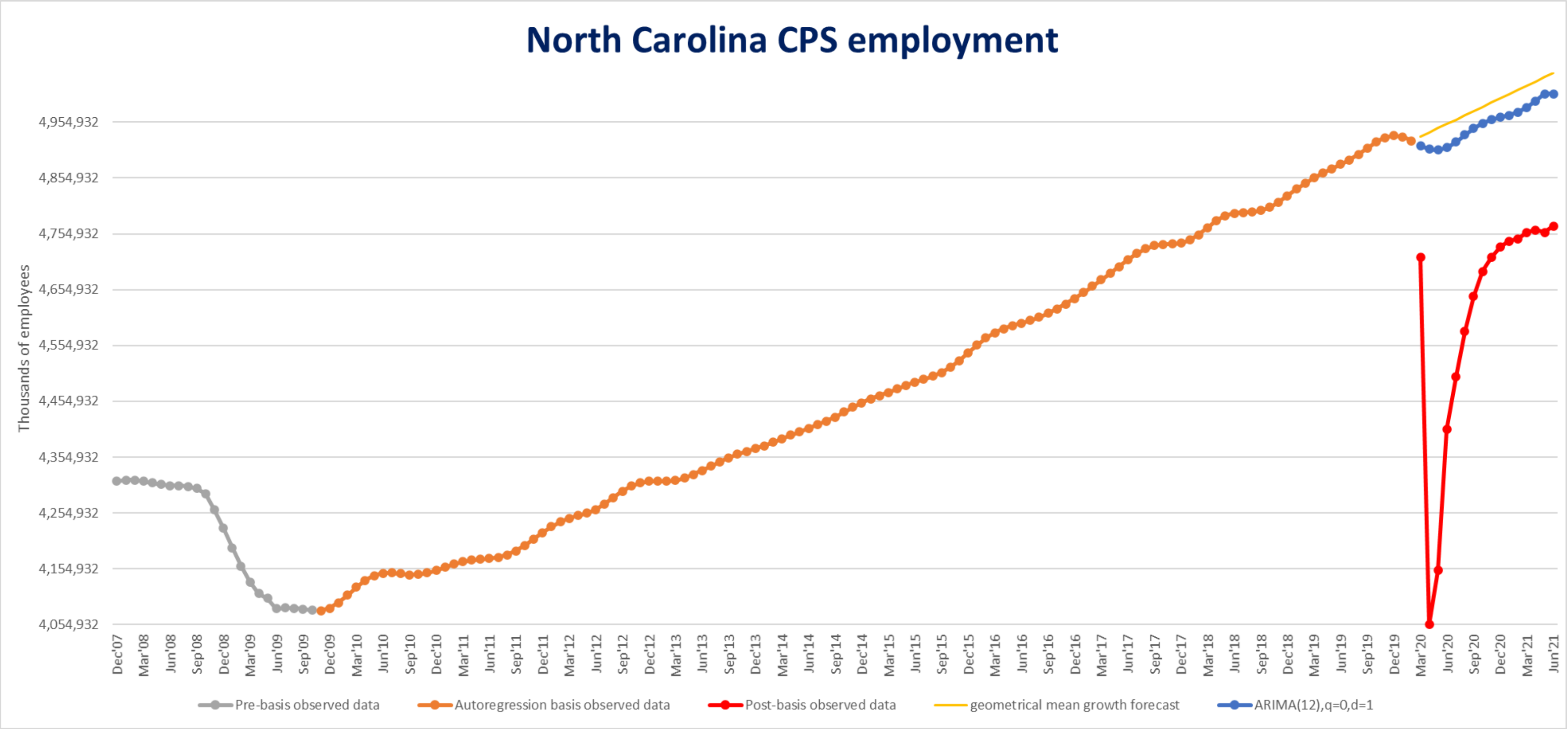


Model parameters

param	coeff	s.e.	t-stat	p-value
const	245.0352	215.8272	1.13533	0.259714
phi 1	2.675948	0.111803	23.93441	1.11E-37
phi 2	-3.23521	0.313071	-10.3338	2.89E-16
phi 3	2.273359	0.454907	4.997415	3.48E-06
phi 4	-1.05764	0.486705	-2.17305	0.032811
phi 5	0.163653	0.487161	0.335932	0.737824
phi 6	0.296345	0.4906	0.604047	0.547565
phi 7	-0.02831	0.497801	-0.05688	0.954789
phi 8	-0.80746	0.499333	-1.61709	0.109897
phi 9	1.462109	0.494629	2.955972	0.004121
phi 10	-1.39631	0.464386	-3.00679	0.003552
phi 11	0.741017	0.330003	2.245489	0.027568
phi 12	-0.16352	0.12199	-1.34043	0.183998

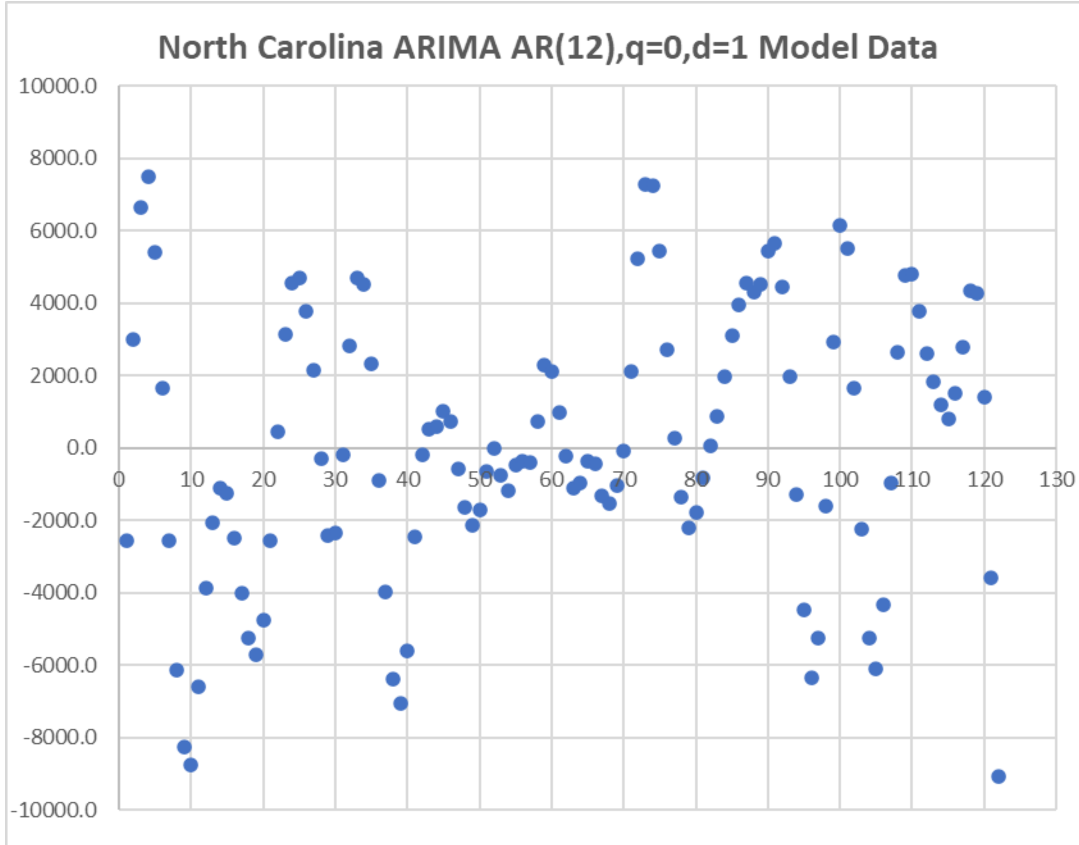


Appendix E83: North Carolina CPS Employment ARIMA Model Forecast

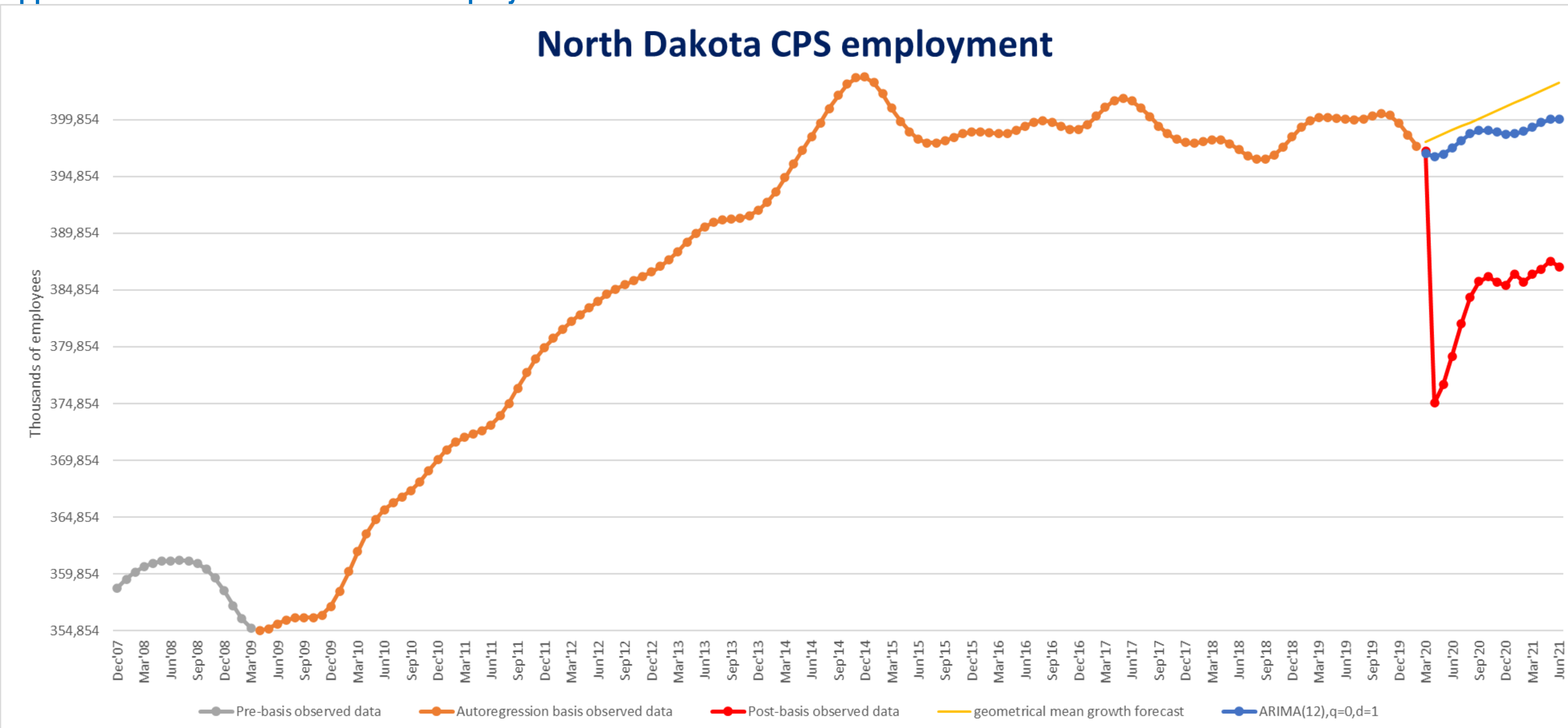


Model parameters

param	coeff	s.e.	t-stat	p-value
const	712.6666	240.9639	2.957566	0.003886
phi 1	2.687835	0.098469	27.29639	1.36E-47
phi 2	-3.36784	0.273816	-12.2996	1.39E-21
phi 3	2.664661	0.407127	6.545032	2.74E-09
phi 4	-1.72745	0.461497	-3.74313	0.000307
phi 5	0.954253	0.480014	1.98797	0.049605
phi 6	-0.41273	0.486491	-0.84838	0.398297
phi 7	0.308885	0.490328	0.629955	0.53019
phi 8	-0.52328	0.488535	-1.07113	0.286741
phi 9	0.820831	0.470225	1.745615	0.084012
phi 10	-0.92106	0.412479	-2.23299	0.027825
phi 11	0.591305	0.275462	2.146592	0.034294
phi 12	-0.18016	0.099614	-1.80863	0.073576

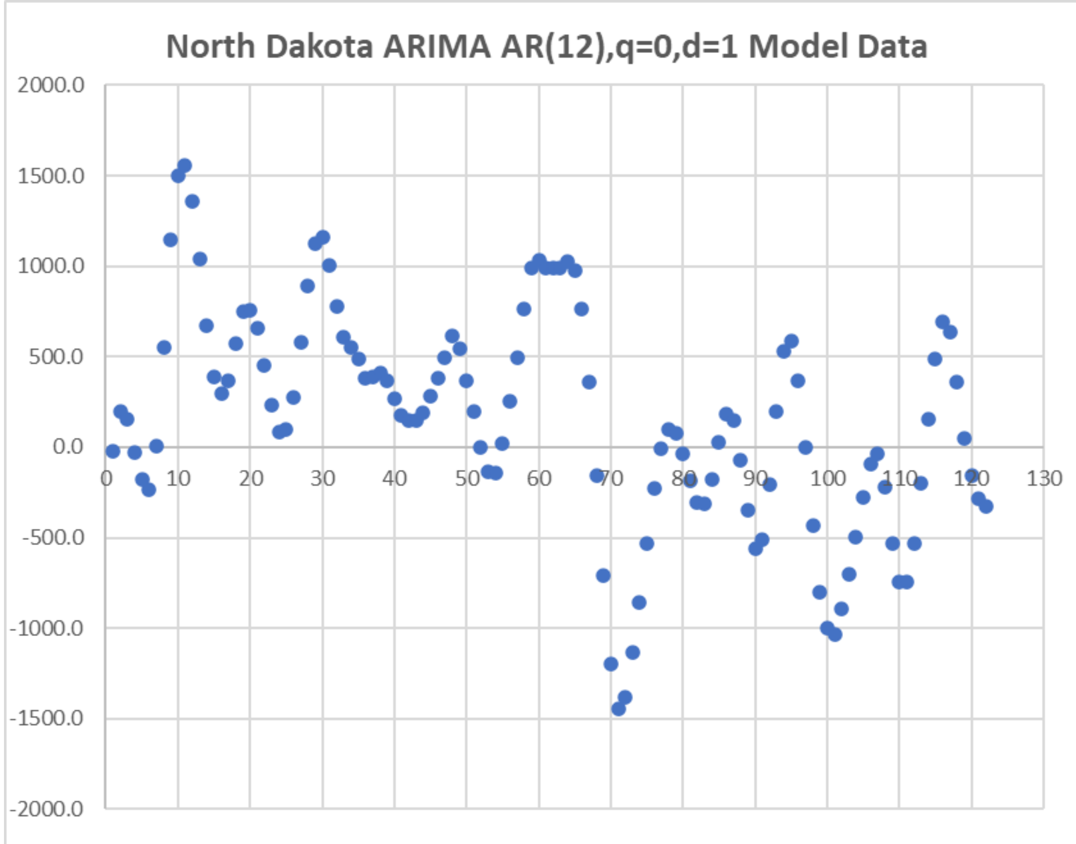


Appendix E84: North Dakota CPS Employment ARIMA Model Forecast

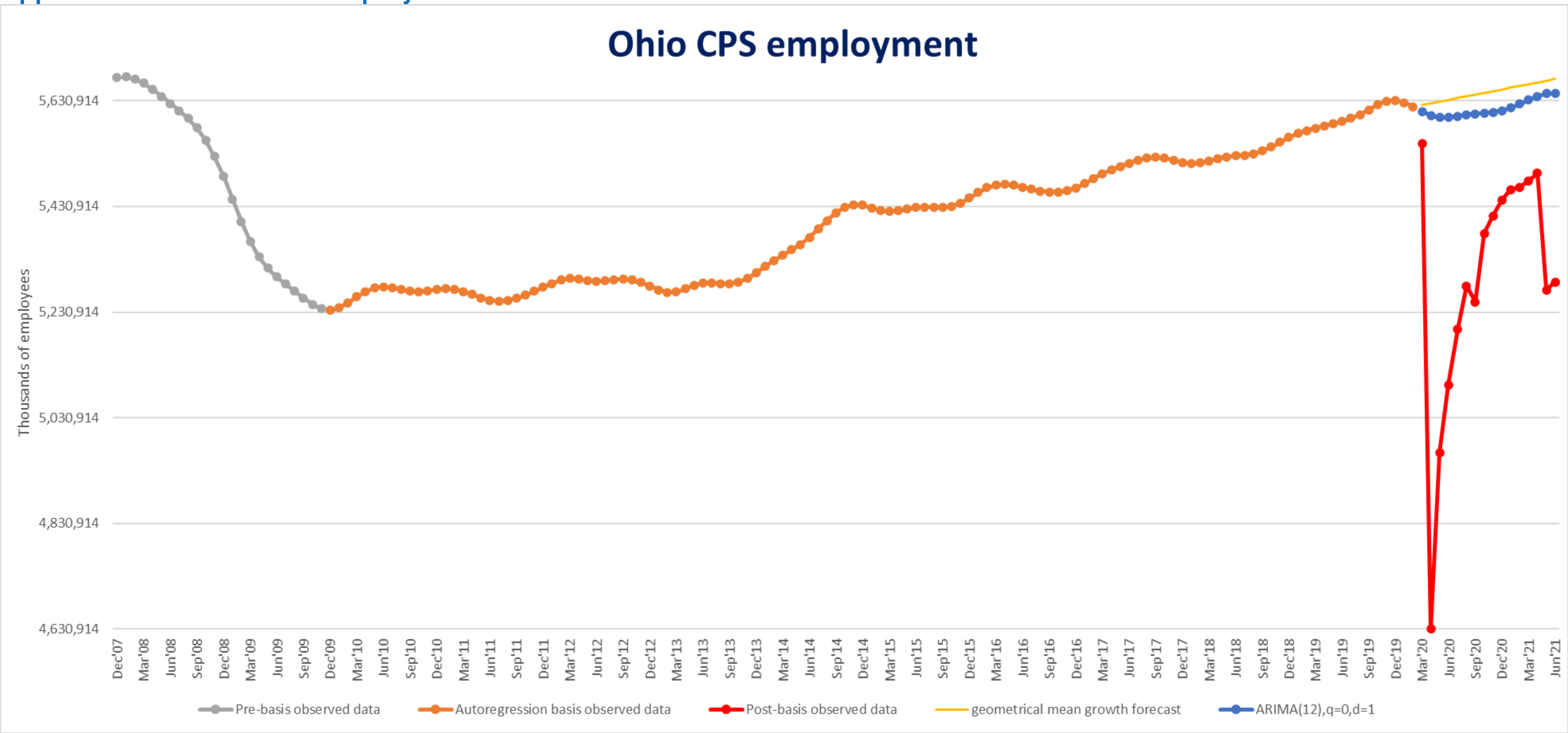


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	4.946775	7.471588	0.662078	0.509372
phi 1	2.73929	0.09717	28.19067	8.68E-51
phi 2	-3.28245	0.285302	-11.5052	2.61E-20
phi 3	2.386202	0.433688	5.502114	2.67E-07
phi 4	-1.47408	0.493192	-2.98886	0.003488
phi 5	1.07299	0.511488	2.097782	0.038325
phi 6	-0.90273	0.518942	-1.73955	0.084868
phi 7	0.705874	0.522121	1.351936	0.179301
phi 8	-0.3329	0.510248	-0.65243	0.515551
phi 9	0.061817	0.483917	0.127743	0.898597
phi 10	0.018069	0.426639	0.042351	0.966299
phi 11	-0.10122	0.286118	-0.35379	0.724209
phi 12	0.085635	0.097898	0.874735	0.383715

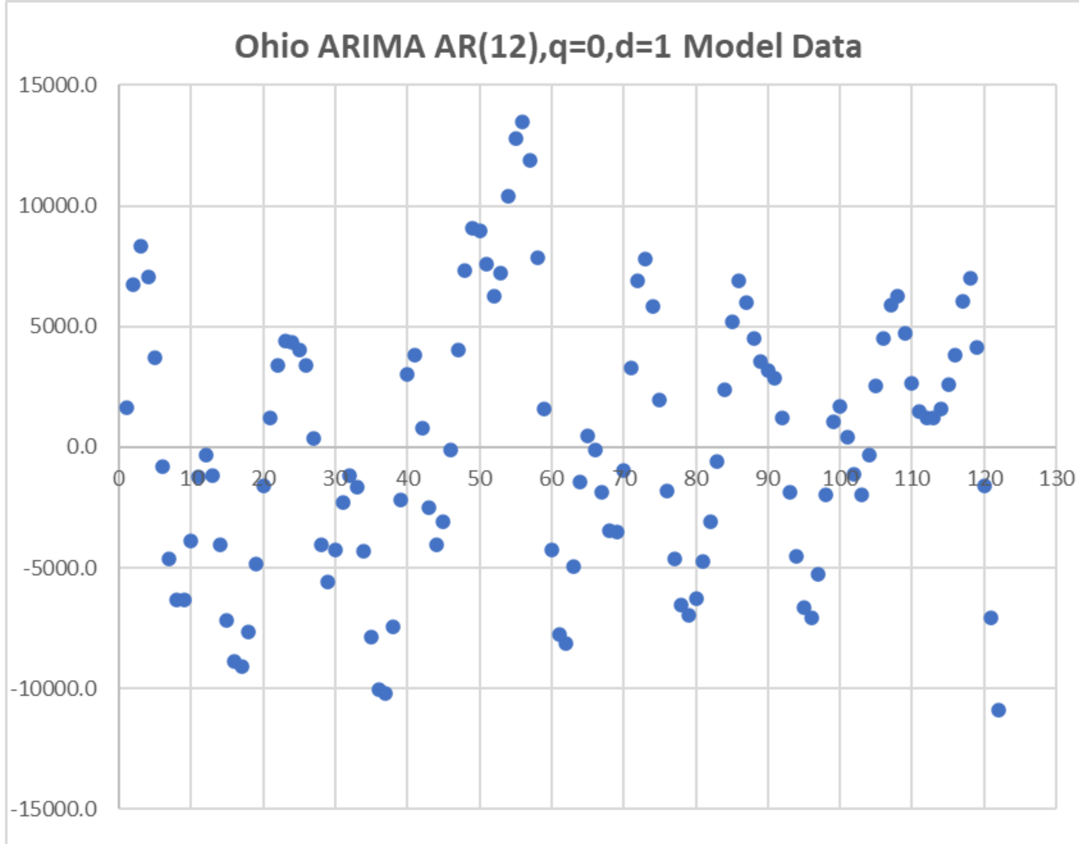


Appendix E85: Ohio CPS Employment ARIMA Model Forecast

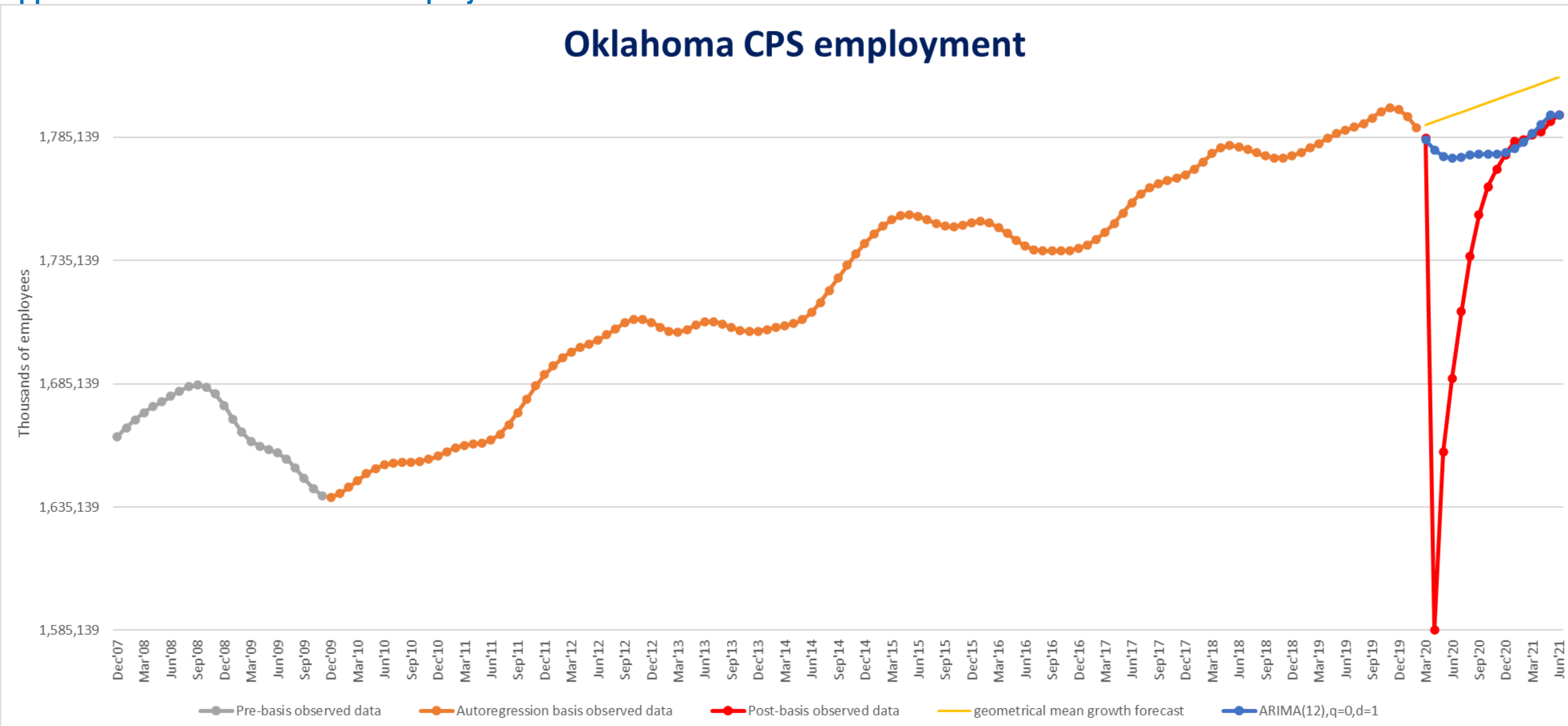


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	251.6594	113.5512	2.216264	0.029011
phi 1	2.681092	0.101596	26.38986	4.65E-46
phi 2	-3.29202	0.287582	-11.4472	1.05E-19
phi 3	2.507039	0.430588	5.822355	7.51E-08
phi 4	-1.57031	0.482161	-3.25682	0.001553
phi 5	0.951465	0.492451	1.932101	0.056265
phi 6	-0.50668	0.495687	-1.02218	0.309237
phi 7	0.431372	0.500092	0.862584	0.390494
phi 8	-0.70252	0.499187	-1.40734	0.162524
phi 9	0.915496	0.484146	1.89095	0.061615
phi 10	-0.86532	0.428561	-2.01914	0.046232
phi 11	0.492059	0.285712	1.722219	0.088217
phi 12	-0.12711	0.100902	-1.25971	0.210798

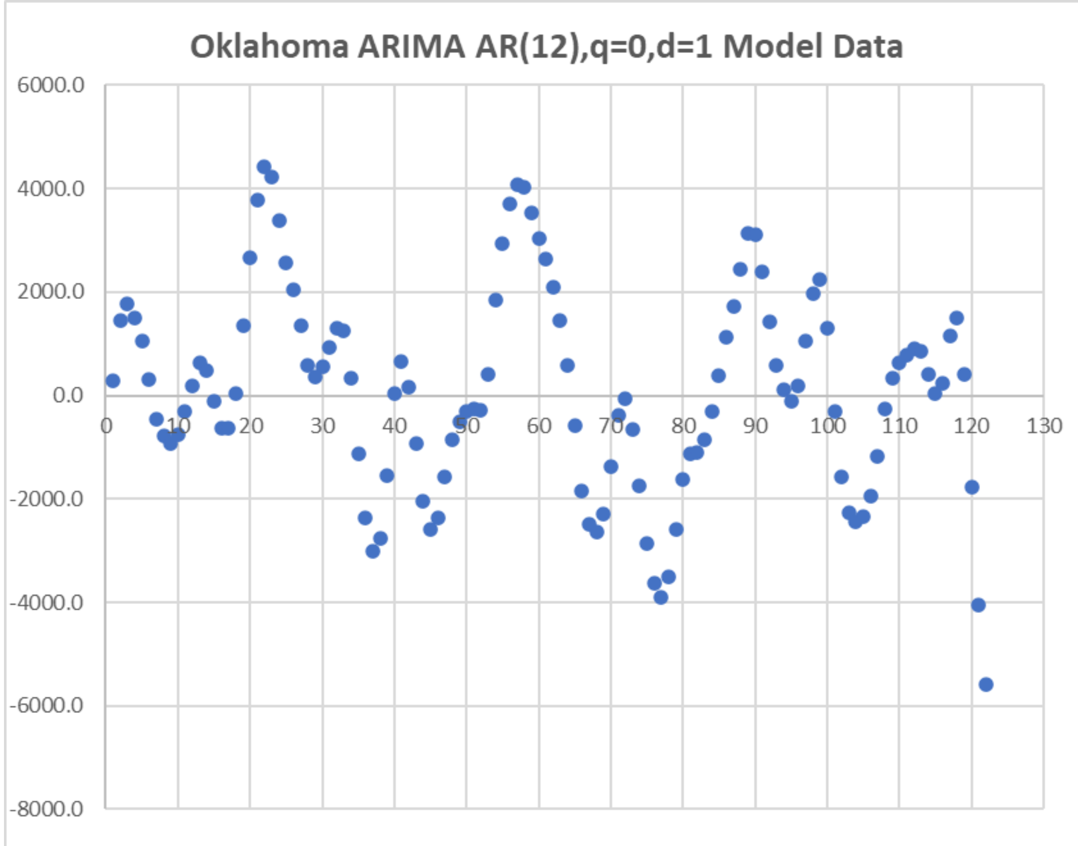


Appendix E86: Oklahoma CPS Employment ARIMA Model Forecast

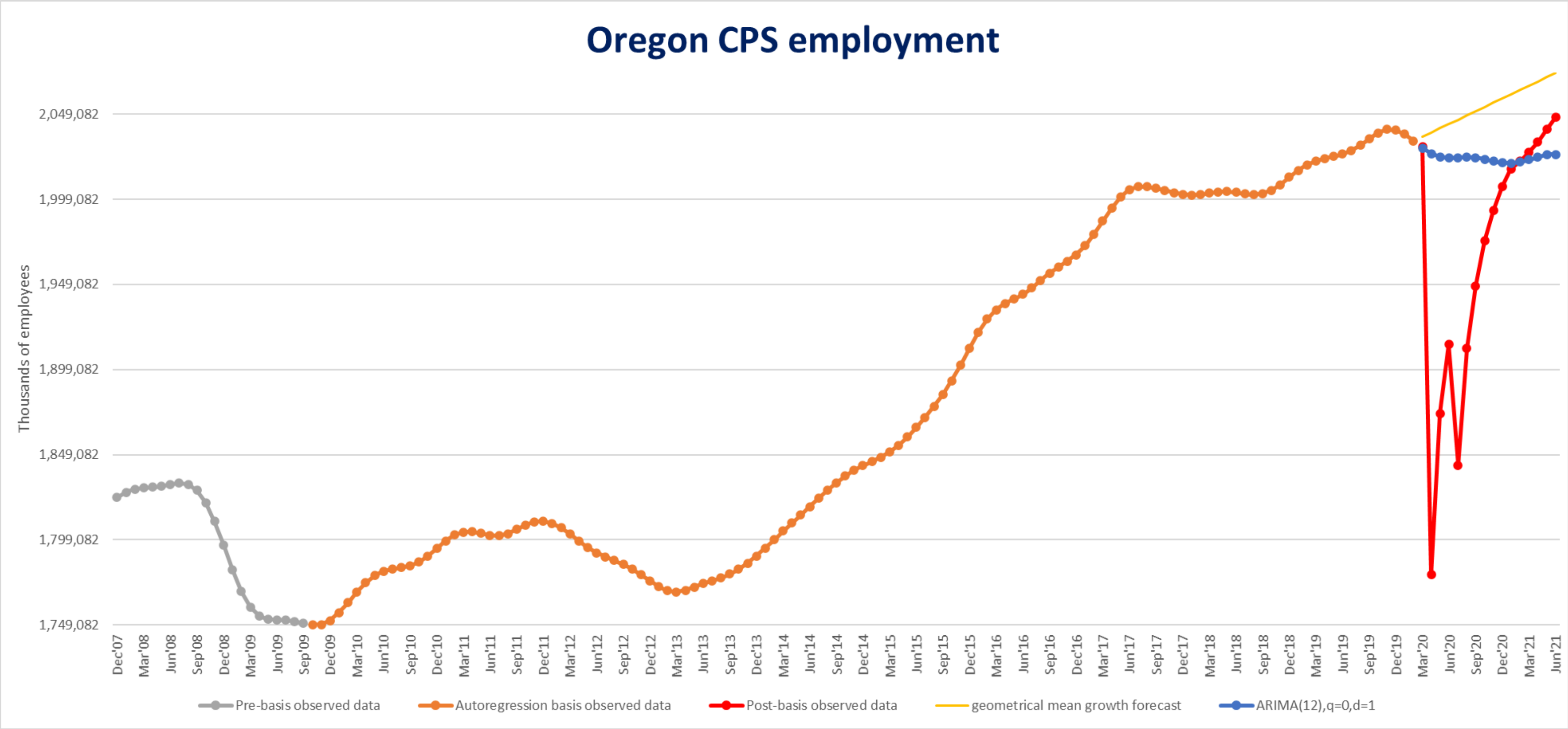


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	80.29506	37.86163	2.12075	0.036493
phi 1	2.790007	0.101	27.62396	9.25E-48
phi 2	-3.60722	0.297703	-12.1168	3.99E-21
phi 3	2.97399	0.465114	6.394116	5.67E-09
phi 4	-1.9689	0.542389	-3.63004	0.000455
phi 5	1.230227	0.563341	2.183805	0.031388
phi 6	-0.81183	0.574092	-1.41412	0.16053
phi 7	0.769996	0.588464	1.308484	0.193801
phi 8	-0.86824	0.58805	-1.47647	0.143056
phi 9	0.866856	0.560129	1.547601	0.124975
phi 10	-0.7471	0.480728	-1.5541	0.123417
phi 11	0.419152	0.312786	1.340061	0.183356
phi 12	-0.11909	0.108379	-1.09883	0.274562

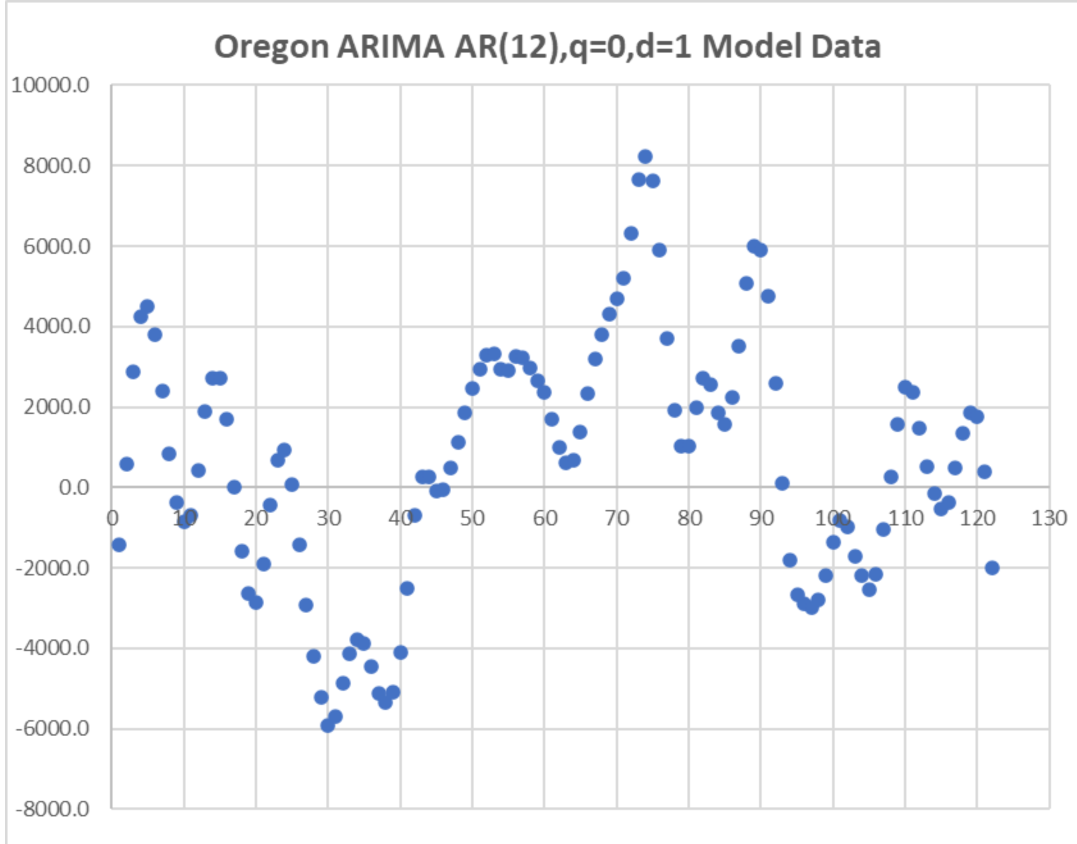


Appendix E87: Oregon CPS Employment ARIMA Model Forecast

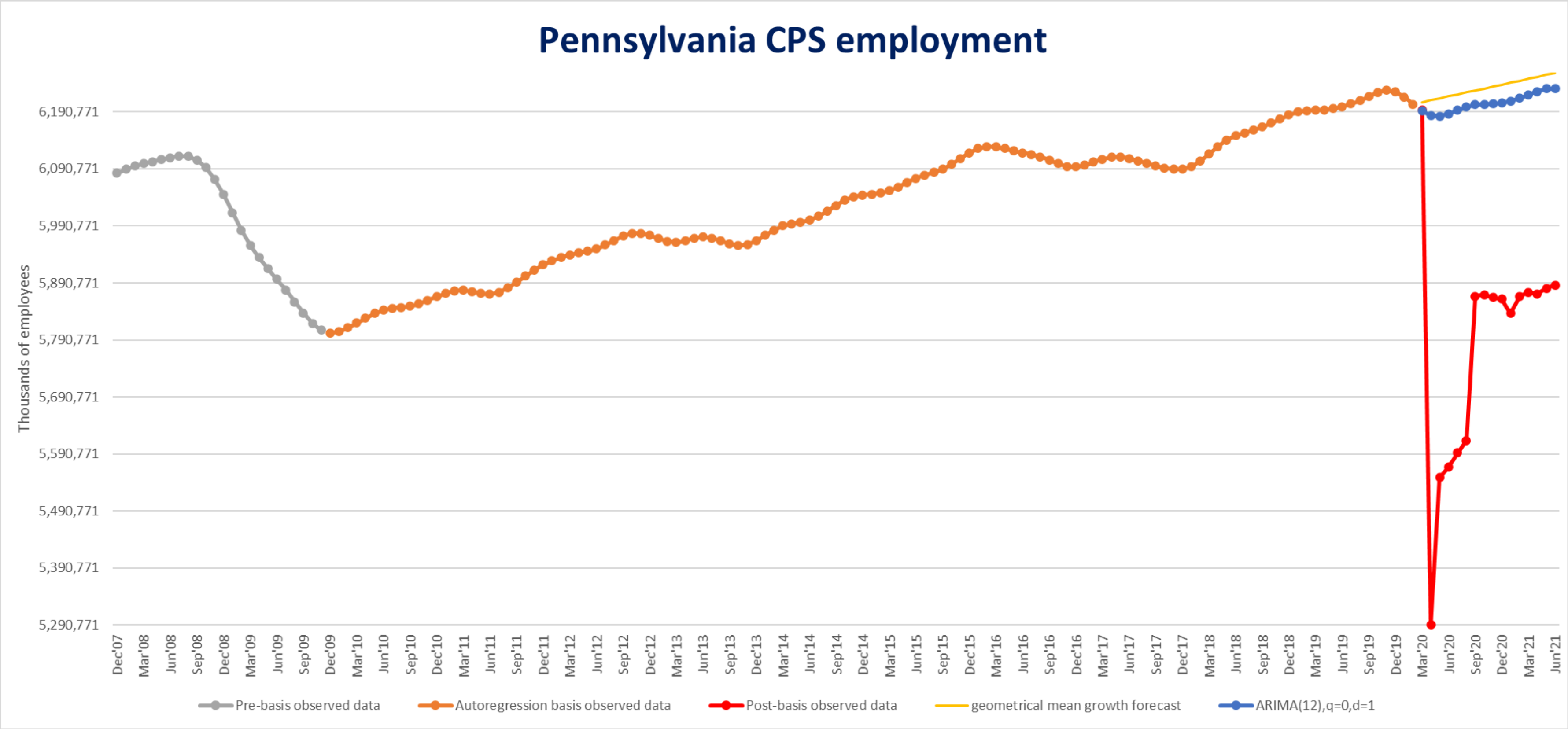


Model parameters

param	coeff	s.e.	t-stat	p-value
const	37.94803	37.15951	1.02122	0.309639
phi 1	2.791488	0.09709	28.75142	7.45E-50
phi 2	-3.32834	0.283792	-11.7281	1.96E-20
phi 3	2.268203	0.419663	5.404816	4.49E-07
phi 4	-1.13714	0.464056	-2.45045	0.016022
phi 5	0.529251	0.473811	1.117009	0.266694
phi 6	-0.14663	0.476751	-0.30756	0.759066
phi 7	0.127137	0.476516	0.266805	0.790174
phi 8	-0.46584	0.477447	-0.97568	0.331601
phi 9	0.906036	0.473149	1.914906	0.058391
phi 10	-1.06666	0.429748	-2.48205	0.014746
phi 11	0.685434	0.290494	2.359543	0.02026
phi 12	-0.18504	0.099164	-1.86602	0.064999

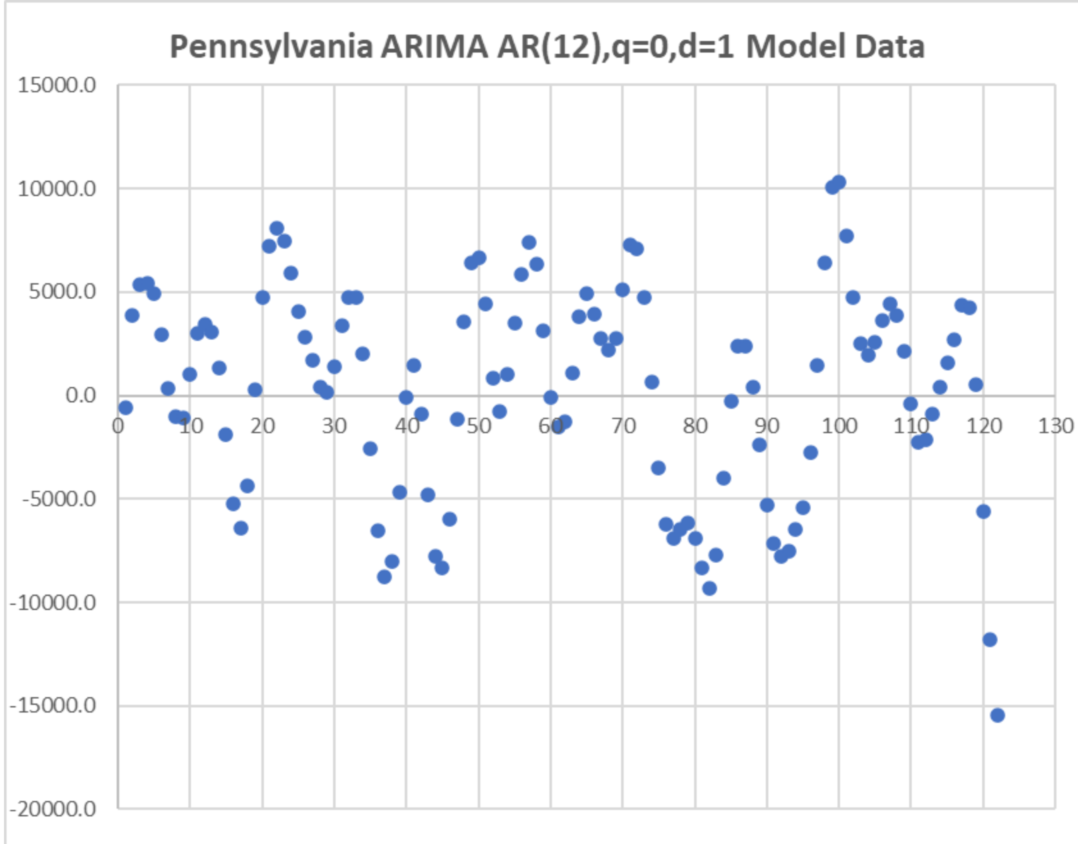


Appendix E88: Pennsylvania CPS Employment ARIMA Model Forecast

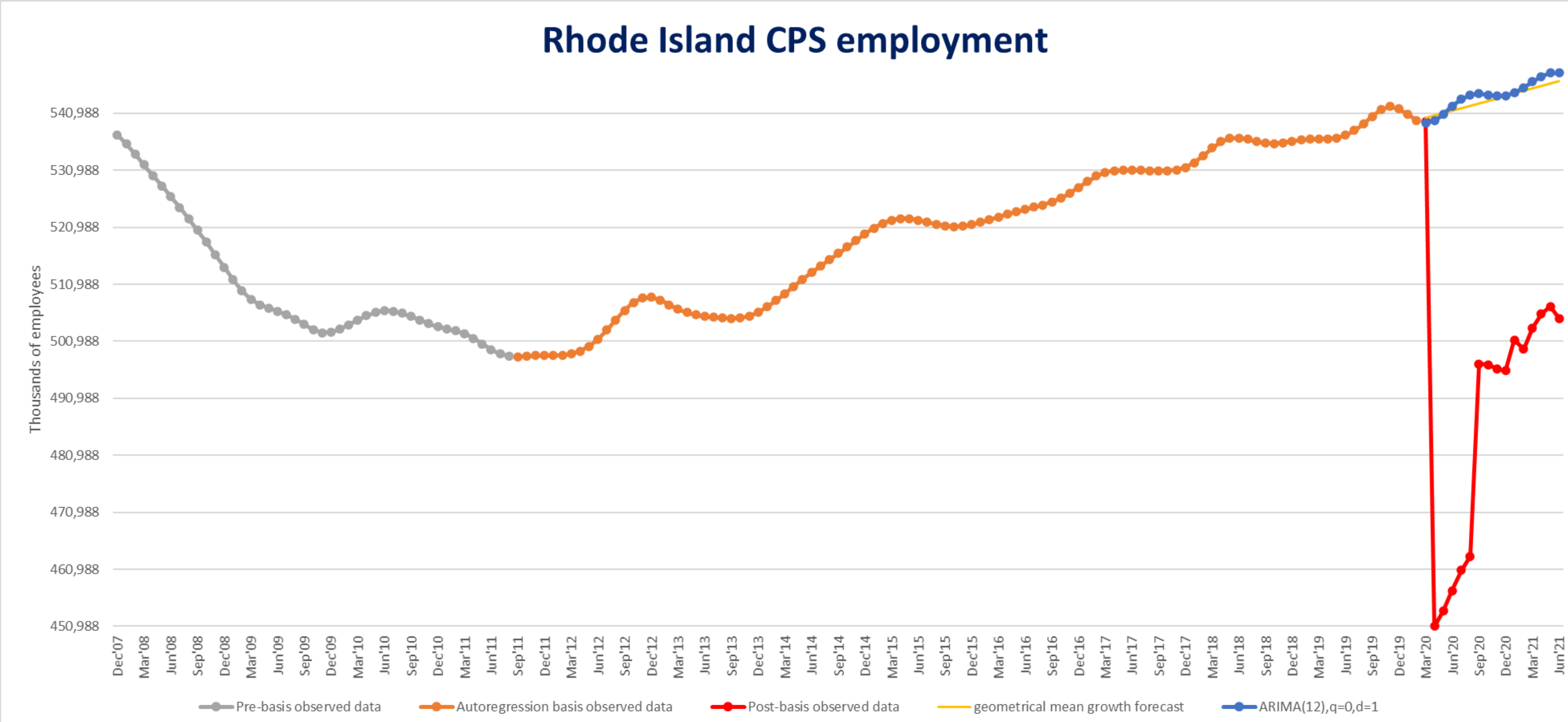


Model parameters

param	coeff	s.e.	t-stat	p-value
const	226.7646	113.6261	1.995708	0.04877
phi 1	2.733715	0.100599	27.1744	3.79E-47
phi 2	-3.37308	0.290418	-11.6146	4.61E-20
phi 3	2.540432	0.434897	5.841457	6.9E-08
phi 4	-1.70618	0.482723	-3.53448	0.000628
phi 5	1.308542	0.492319	2.657913	0.009197
phi 6	-0.8999	0.497539	-1.8087	0.073595
phi 7	0.737332	0.502036	1.468684	0.145154
phi 8	-0.9287	0.497387	-1.86715	0.064901
phi 9	0.986346	0.480319	2.053524	0.042713
phi 10	-0.76012	0.424686	-1.78984	0.0766
phi 11	0.41973	0.280936	1.494041	0.138411
phi 12	-0.13444	0.098577	-1.36375	0.175802

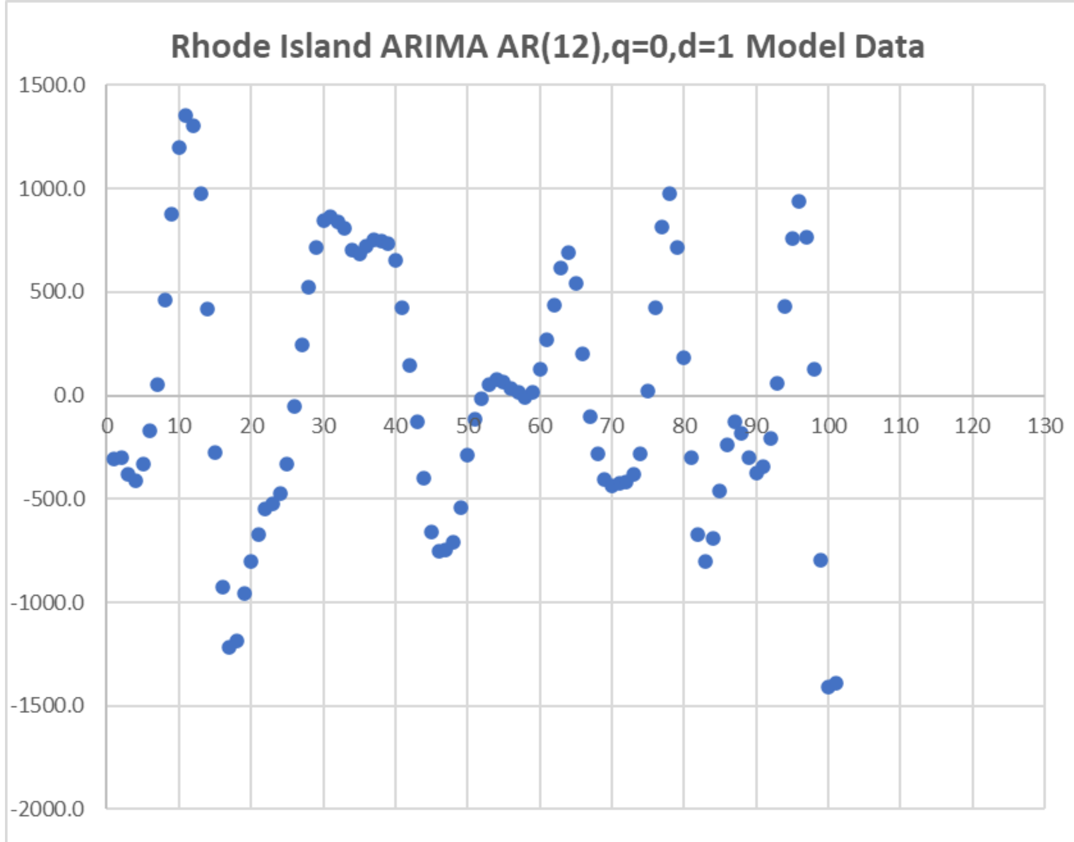


Appendix E89: Rhode Island CPS Employment ARIMA Model Forecast

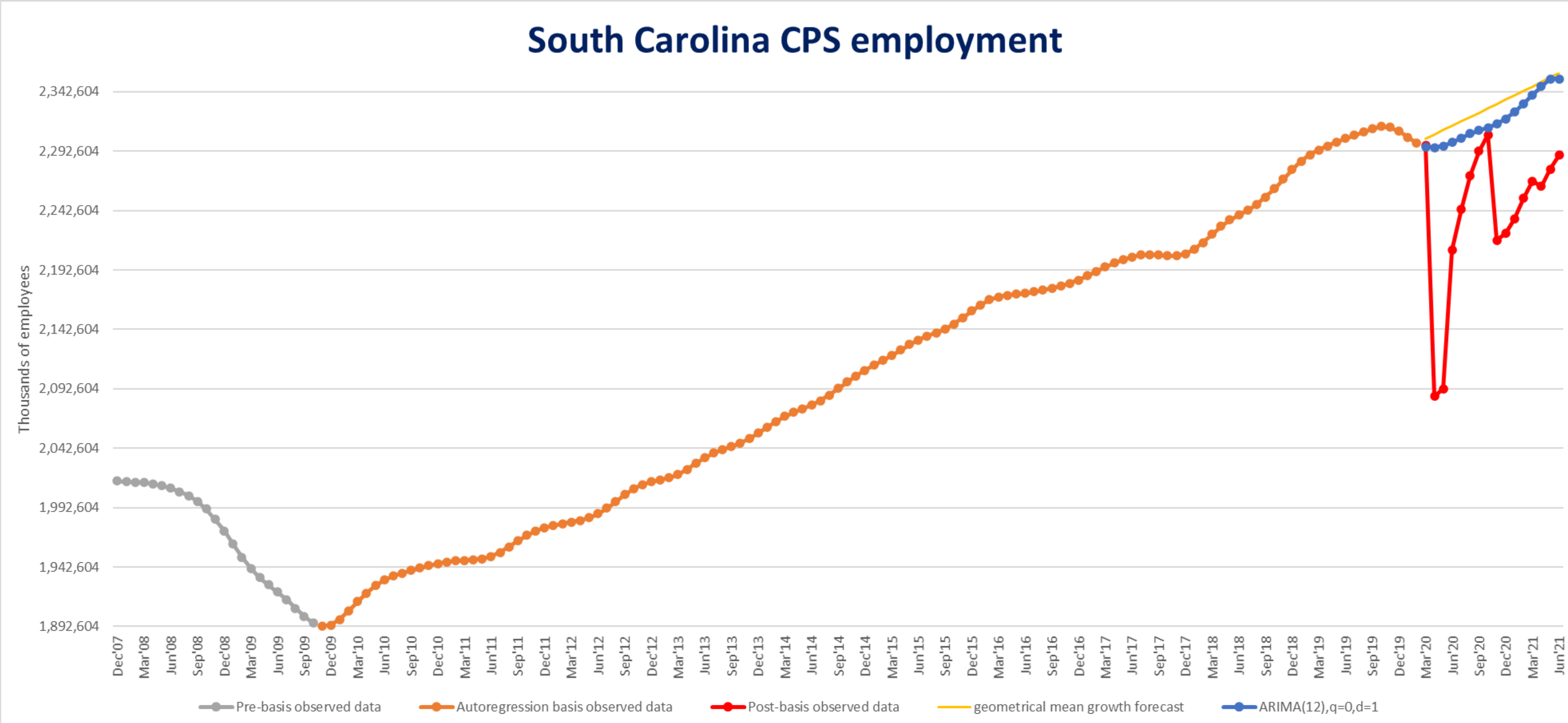


Model parameters

param	coeff	s.e.	t-stat	p-value
const	48.88187	16.9741	2.879792	0.005167
phi 1	2.6397	0.114382	23.078	4.52E-36
phi 2	-3.03289	0.322362	-9.40833	2.21E-14
phi 3	1.854772	0.476165	3.895233	0.000209
phi 4	-0.72363	0.516087	-1.40214	0.164944
phi 5	0.152884	0.505781	0.302274	0.763269
phi 6	0.090383	0.488825	0.184899	0.853801
phi 7	0.146825	0.480019	0.305873	0.760538
phi 8	-0.68495	0.480328	-1.426	0.157963
phi 9	0.87625	0.483265	1.813188	0.073751
phi 10	-0.64966	0.462174	-1.40565	0.163902
phi 11	0.280751	0.337138	0.832748	0.407596
phi 12	-0.07292	0.12555	-0.58084	0.563064

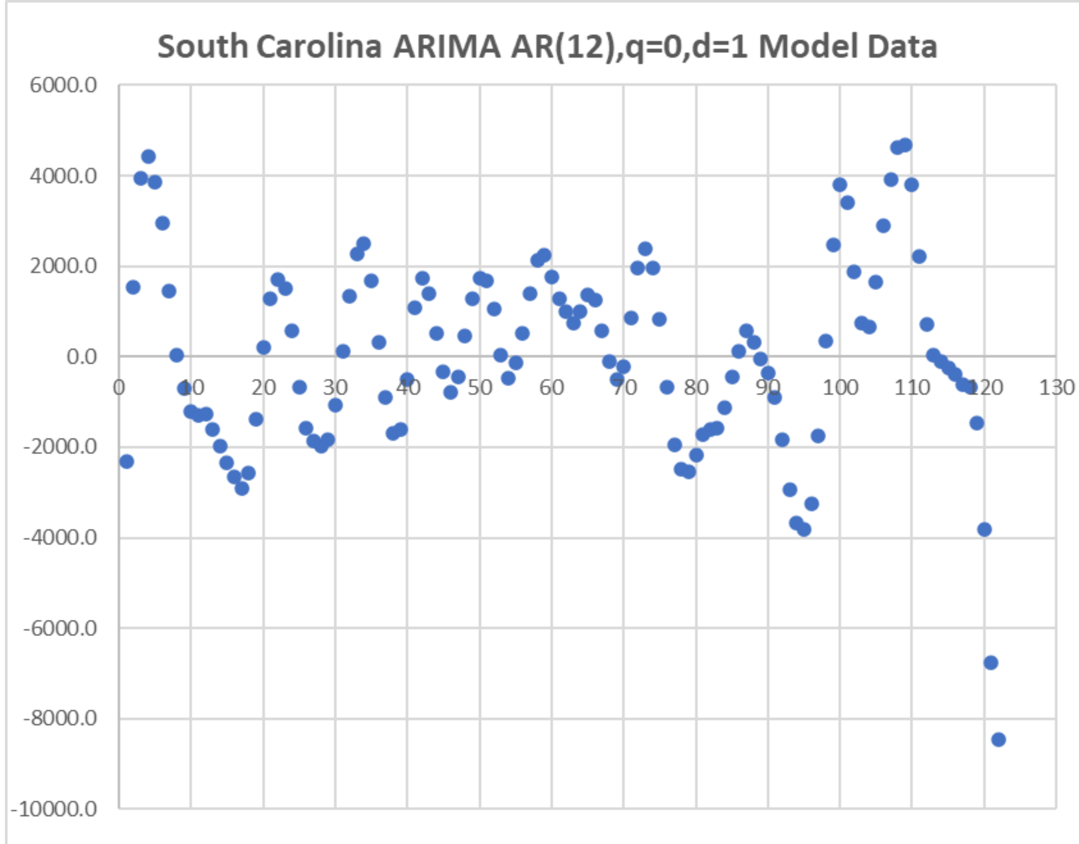


Appendix E90: South Carolina CPS Employment ARIMA Model Forecast

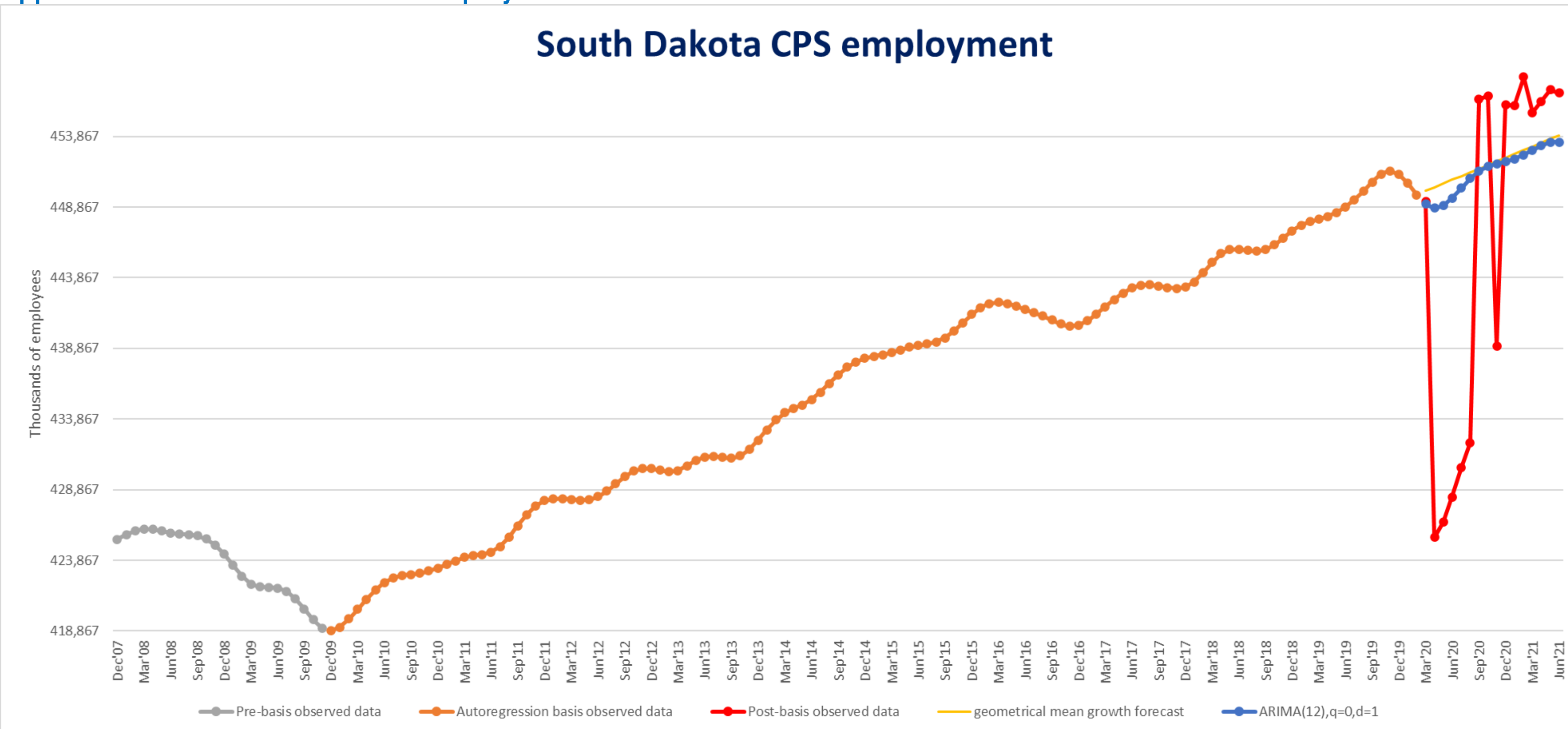


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	259.8581	96.72144	2.686664	0.008479
phi 1	2.831217	0.097958	28.90242	9.26E-50
phi 2	-3.73754	0.2903	-12.8747	8.6E-23
phi 3	3.095797	0.454294	6.814526	7.74E-10
phi 4	-1.96401	0.526107	-3.73309	0.000317
phi 5	1.100113	0.546238	2.013982	0.046753
phi 6	-0.61475	0.555009	-1.10764	0.270728
phi 7	0.559307	0.55995	0.998852	0.320326
phi 8	-0.78688	0.551555	-1.42666	0.156855
phi 9	1.078161	0.52389	2.057994	0.042245
phi 10	-1.13389	0.451006	-2.51414	0.013561
phi 11	0.704638	0.290864	2.42257	0.017248
phi 12	-0.21084	0.098421	-2.1422	0.034655

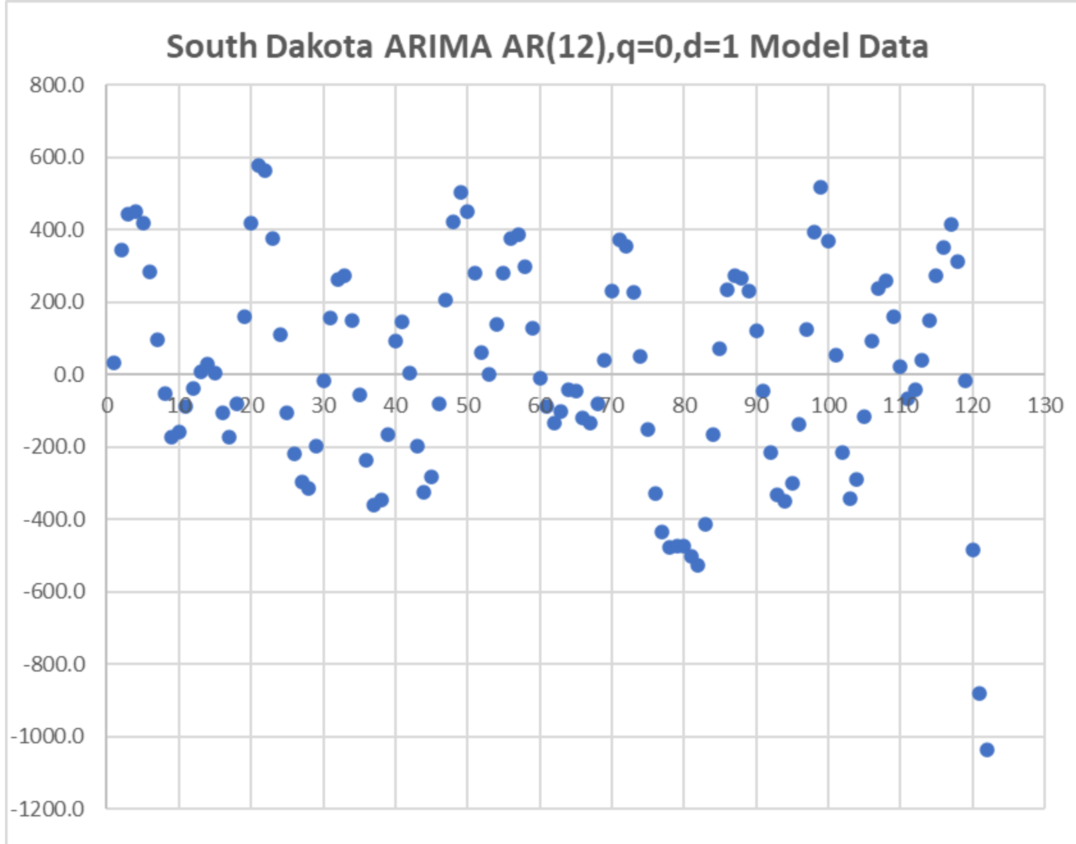


Appendix E91: South Dakota CPS Employment ARIMA Model Forecast

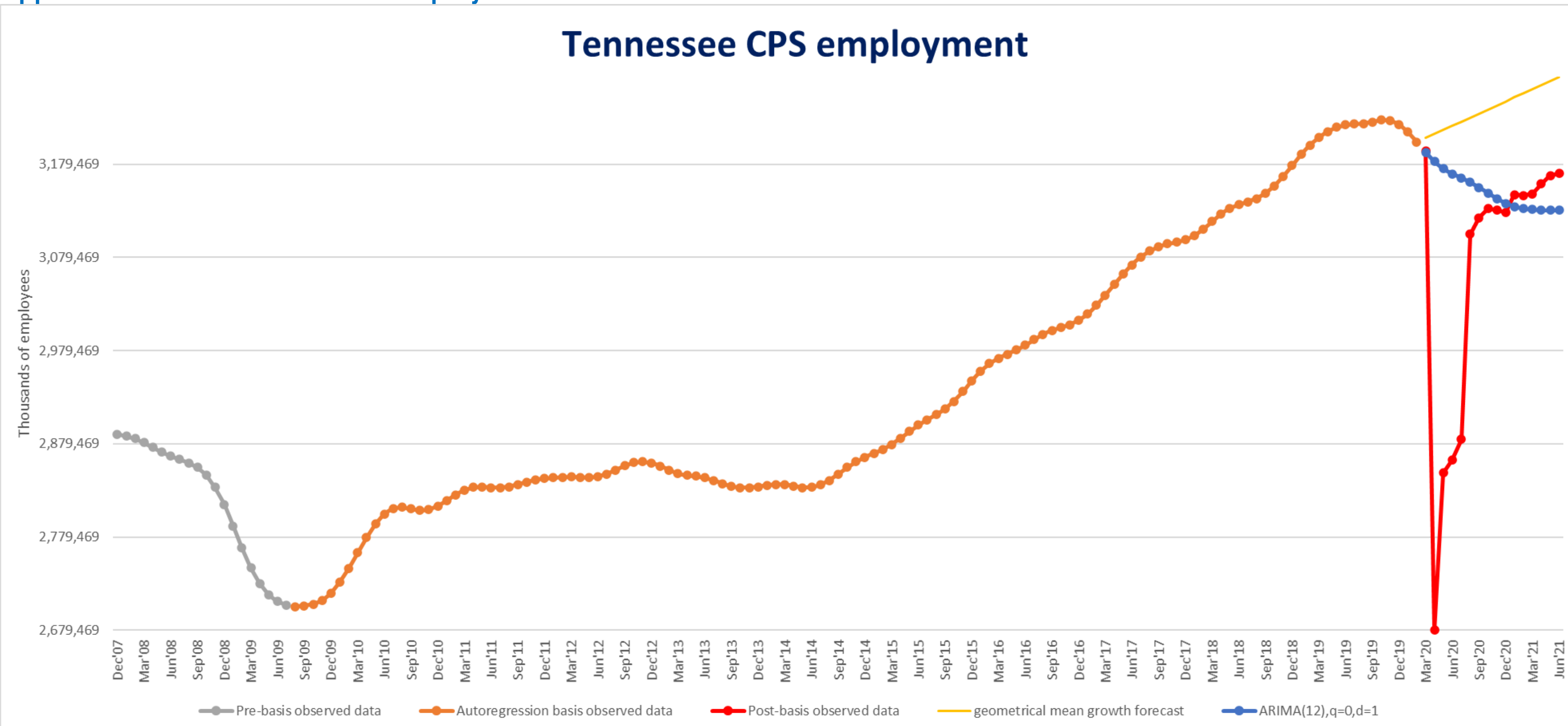


Model parameters

param	coeff	s.e.	t-stat	p-value
const	26.95387	11.3157	2.38199	0.01917
phi 1	2.676648	0.100925	26.52121	3.04E-46
phi 2	-3.29306	0.283202	-11.628	4.32E-20
phi 3	2.347353	0.417754	5.618986	1.84E-07
phi 4	-1.1987	0.45029	-2.66206	0.009092
phi 5	0.514792	0.443389	1.161039	0.248475
phi 6	-0.27668	0.441858	-0.62618	0.532665
phi 7	0.494754	0.452542	1.093278	0.276979
phi 8	-1.01423	0.461655	-2.19694	0.030406
phi 9	1.326585	0.458328	2.894402	0.004692
phi 10	-1.12151	0.413086	-2.71495	0.007847
phi 11	0.545625	0.276117	1.976066	0.050988
phi 12	-0.11411	0.099534	-1.14645	0.254429

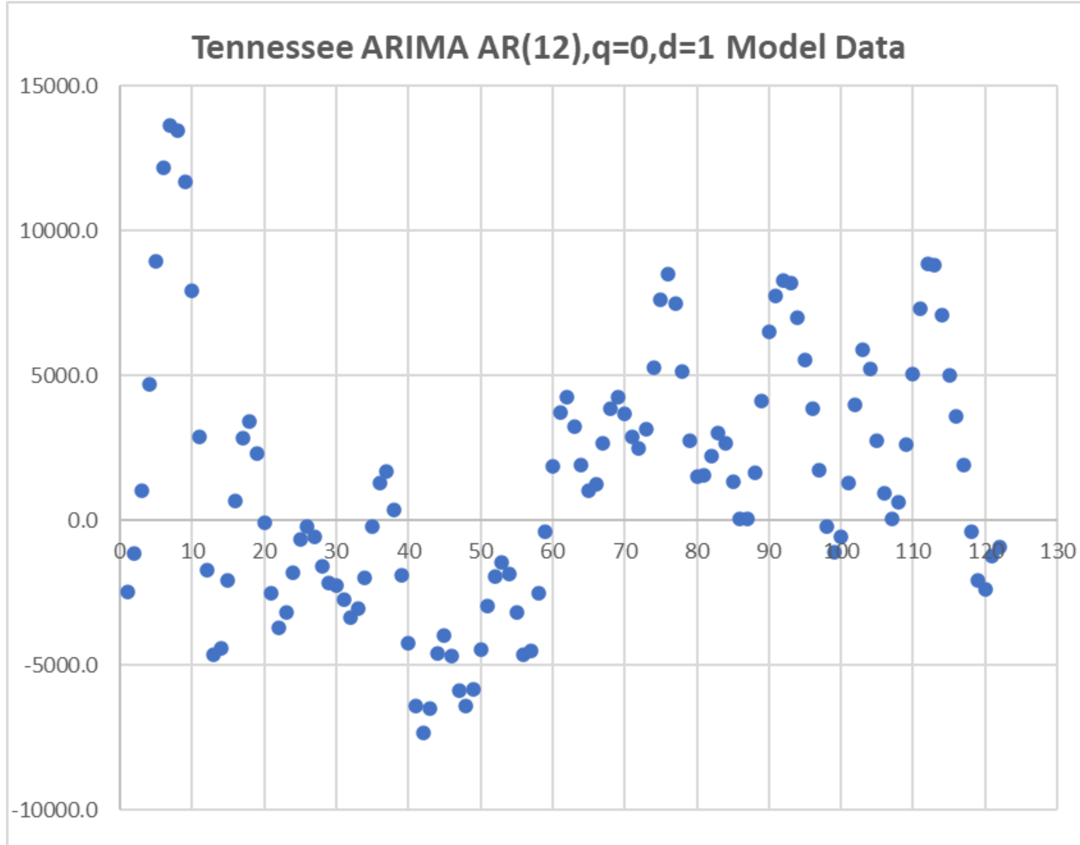


Appendix E92: Tennessee CPS Employment ARIMA Model Forecast

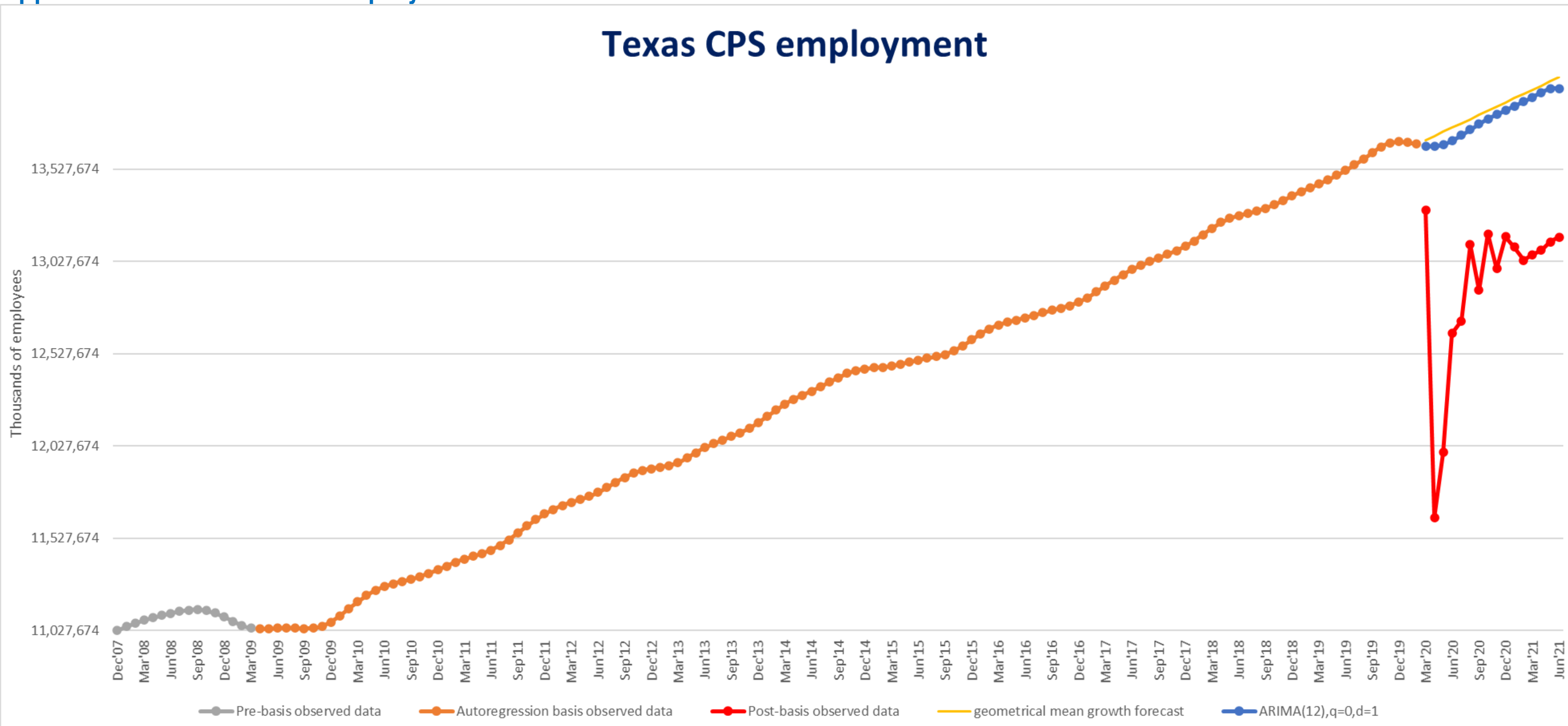


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	78.71883	76.94178	1.023096	0.308707
phi 1	2.815951	0.097328	28.9327	1.1E-50
phi 2	-3.58598	0.288613	-12.4249	4.58E-22
phi 3	2.796718	0.446574	6.262601	9.32E-09
phi 4	-1.68136	0.514353	-3.26888	0.001477
phi 5	1.036377	0.53384	1.941362	0.055001
phi 6	-0.65011	0.542085	-1.19928	0.233226
phi 7	0.530957	0.548682	0.967694	0.335509
phi 8	-0.6825	0.547462	-1.24666	0.215405
phi 9	0.958943	0.530433	1.807851	0.073606
phi 10	-1.04136	0.462916	-2.24957	0.026647
phi 11	0.693541	0.298037	2.327034	0.02196
phi 12	-0.21803	0.099063	-2.20091	0.03002

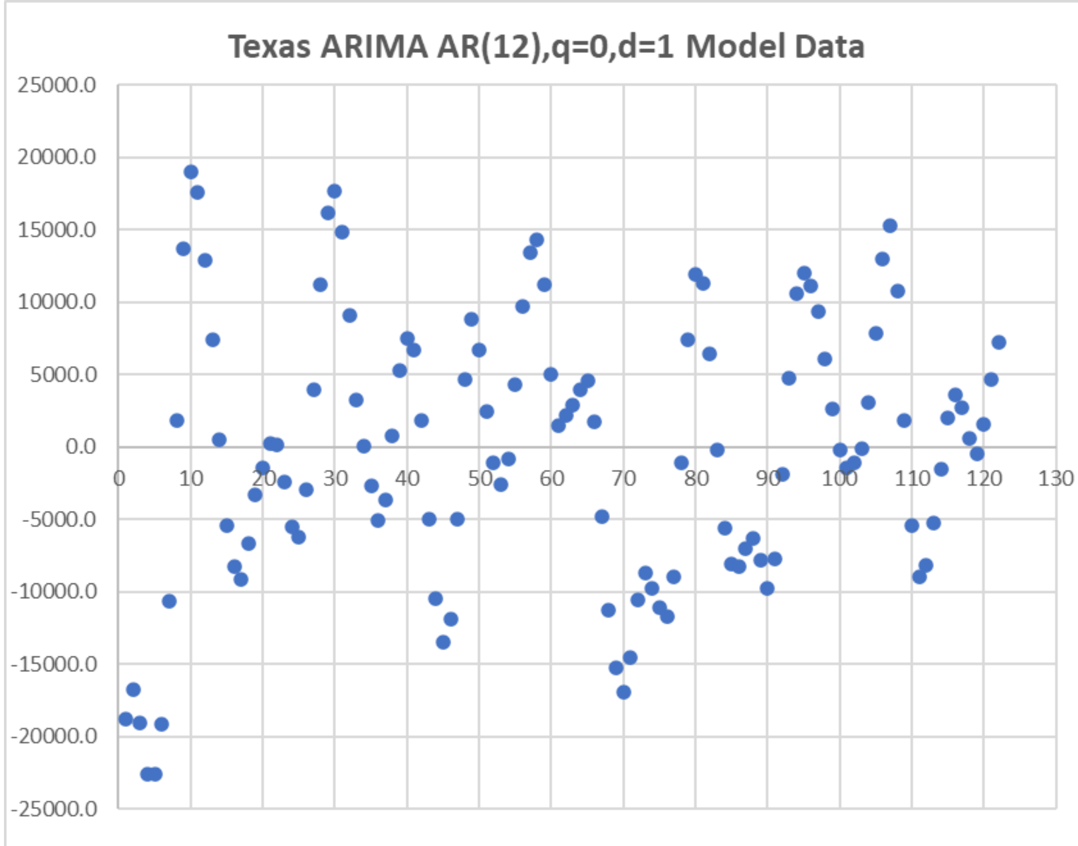


Appendix E93: Texas CPS Employment ARIMA Model Forecast

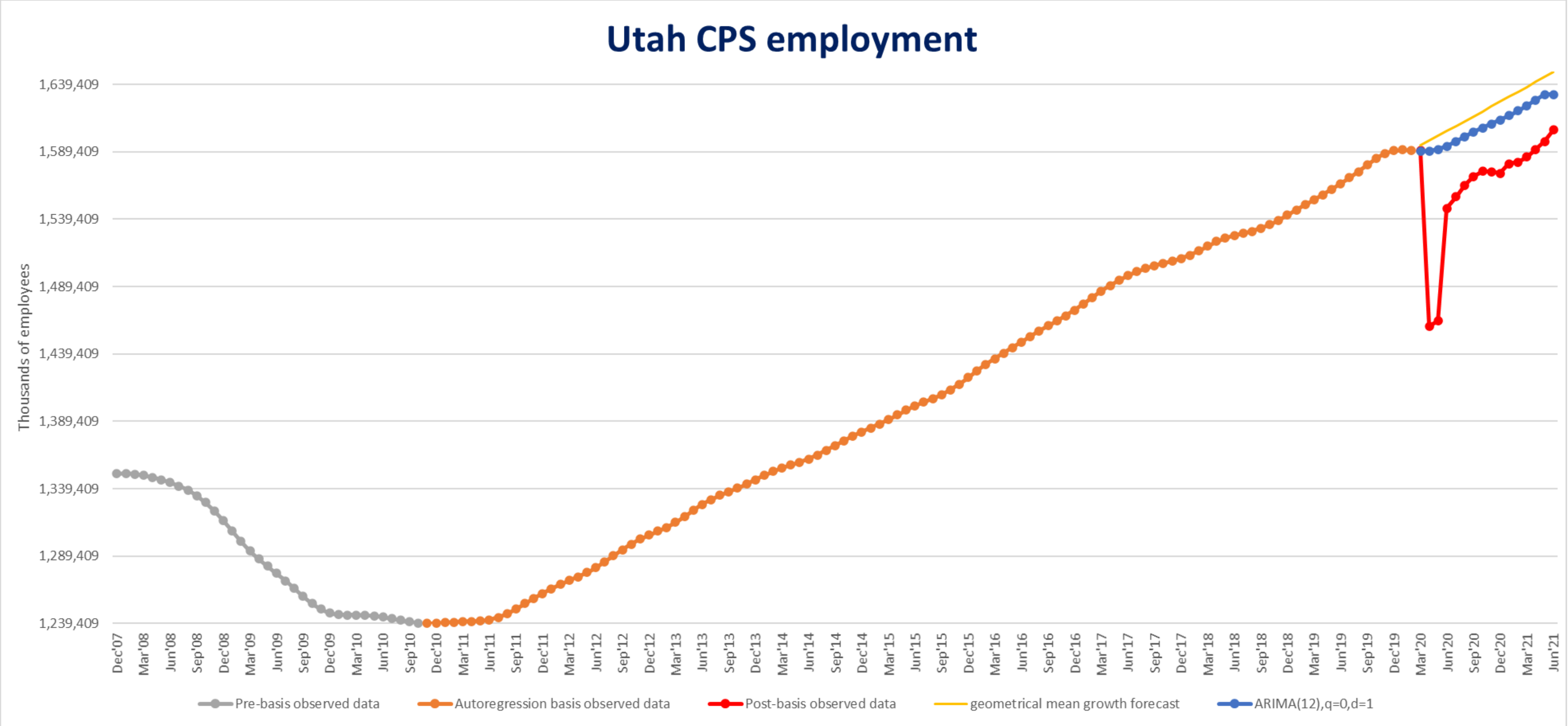


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	2398.494	797.2037	3.008634	0.003285
phi 1	2.625717	0.098025	26.78615	9.71E-49
phi 2	-3.20758	0.273839	-11.7134	8.99E-21
phi 3	2.480772	0.413287	6.002547	2.81E-08
phi 4	-1.69229	0.472188	-3.58393	0.000515
phi 5	1.174096	0.493806	2.377648	0.019233
phi 6	-0.79768	0.509271	-1.56632	0.120282
phi 7	0.673791	0.521046	1.293152	0.198797
phi 8	-0.79394	0.514949	-1.54178	0.126135
phi 9	0.862004	0.487573	1.767949	0.079974
phi 10	-0.72039	0.423539	-1.70089	0.091924
phi 11	0.367414	0.280216	1.311182	0.192656
phi 12	-0.08854	0.098704	-0.89699	0.371774

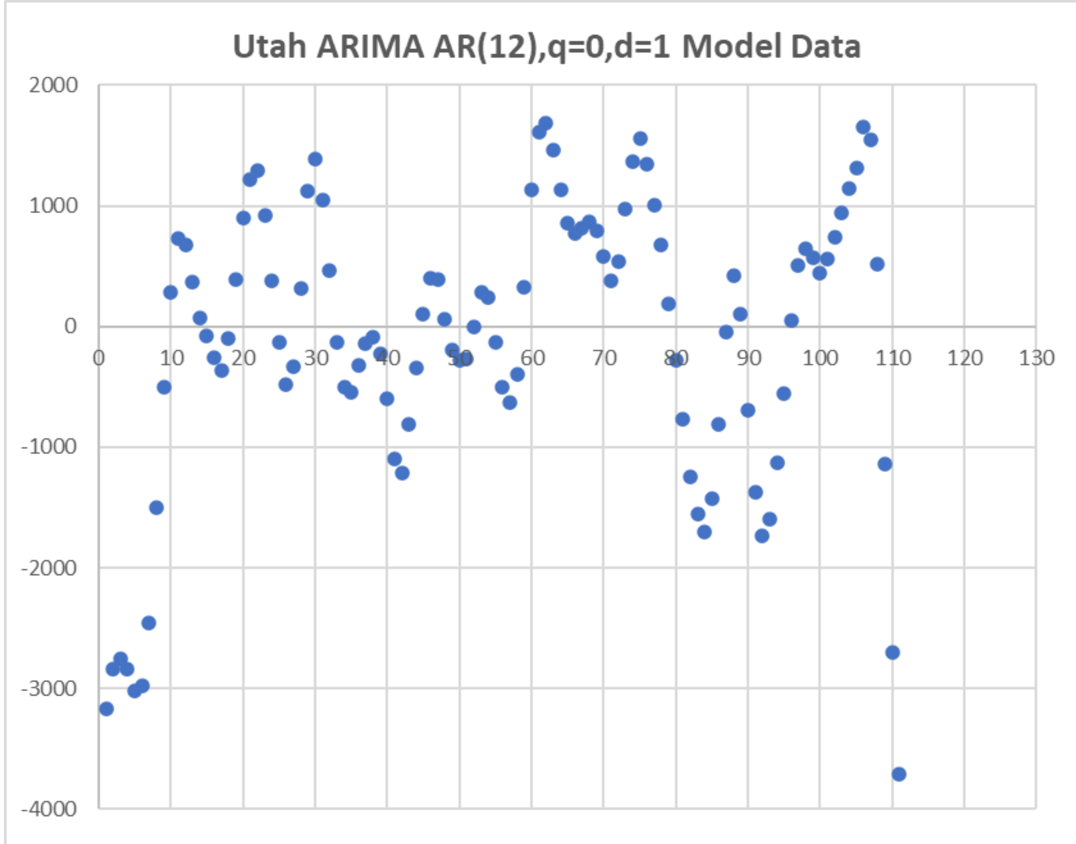


Appendix E94: Utah CPS Employment ARIMA Model Forecast

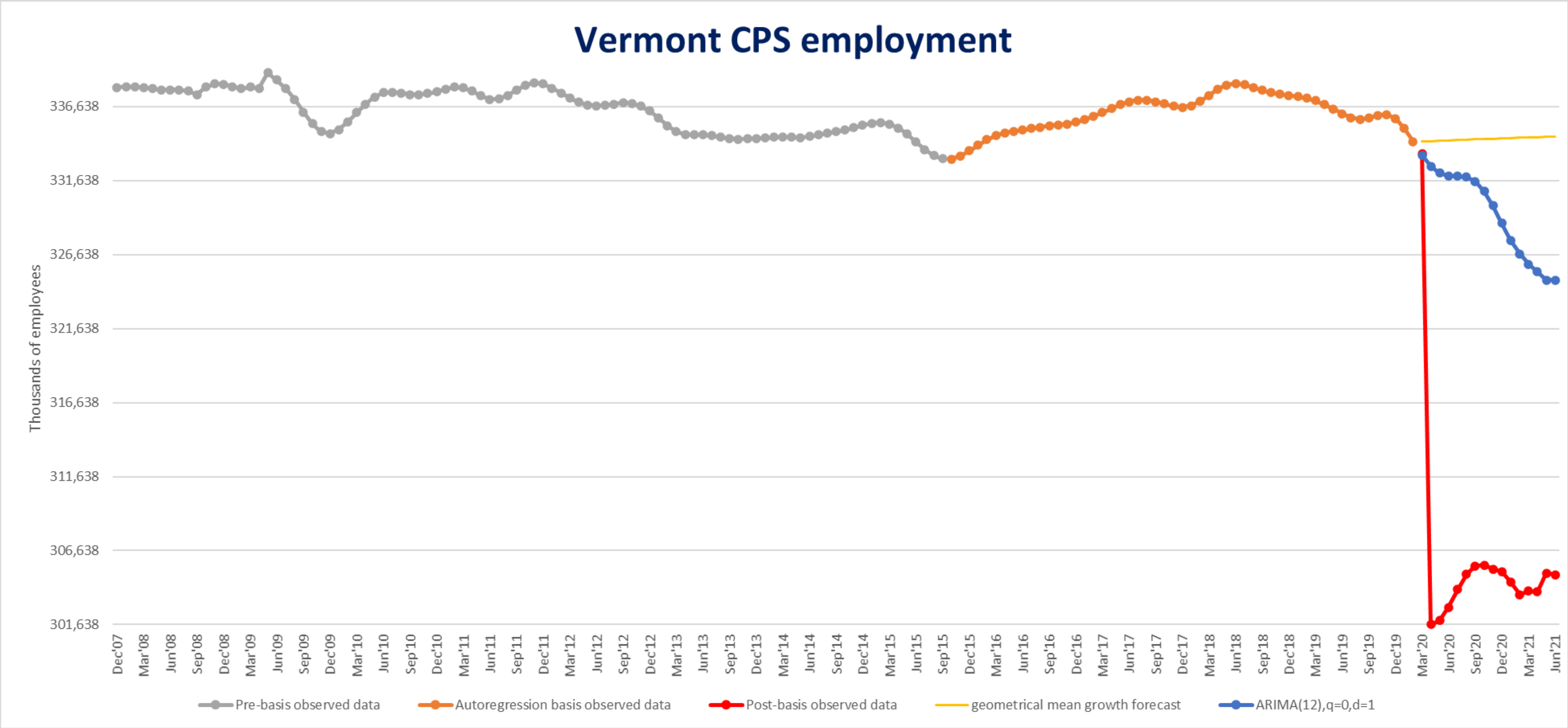


Model parameters

param	coeff	s.e.	t-stat	p-value
const	244.3508	94.11663	2.596256	0.011082
phi 1	2.693687	0.109413	24.61943	1.04E-40
phi 2	-3.26303	0.311555	-10.4733	5.03E-17
phi 3	2.398089	0.46575	5.148874	1.64E-06
phi 4	-1.52333	0.515811	-2.95328	0.004054
phi 5	1.140311	0.521704	2.185743	0.031552
phi 6	-0.94132	0.531359	-1.77154	0.080013
phi 7	1.017083	0.550198	1.848575	0.067956
phi 8	-1.31325	0.557678	-2.35486	0.020807
phi 9	1.367596	0.551032	2.481879	0.015014
phi 10	-0.99874	0.498551	-2.00328	0.048296
phi 11	0.454143	0.33762	1.345128	0.18212
phi 12	-0.10628	0.117363	-0.90558	0.367689

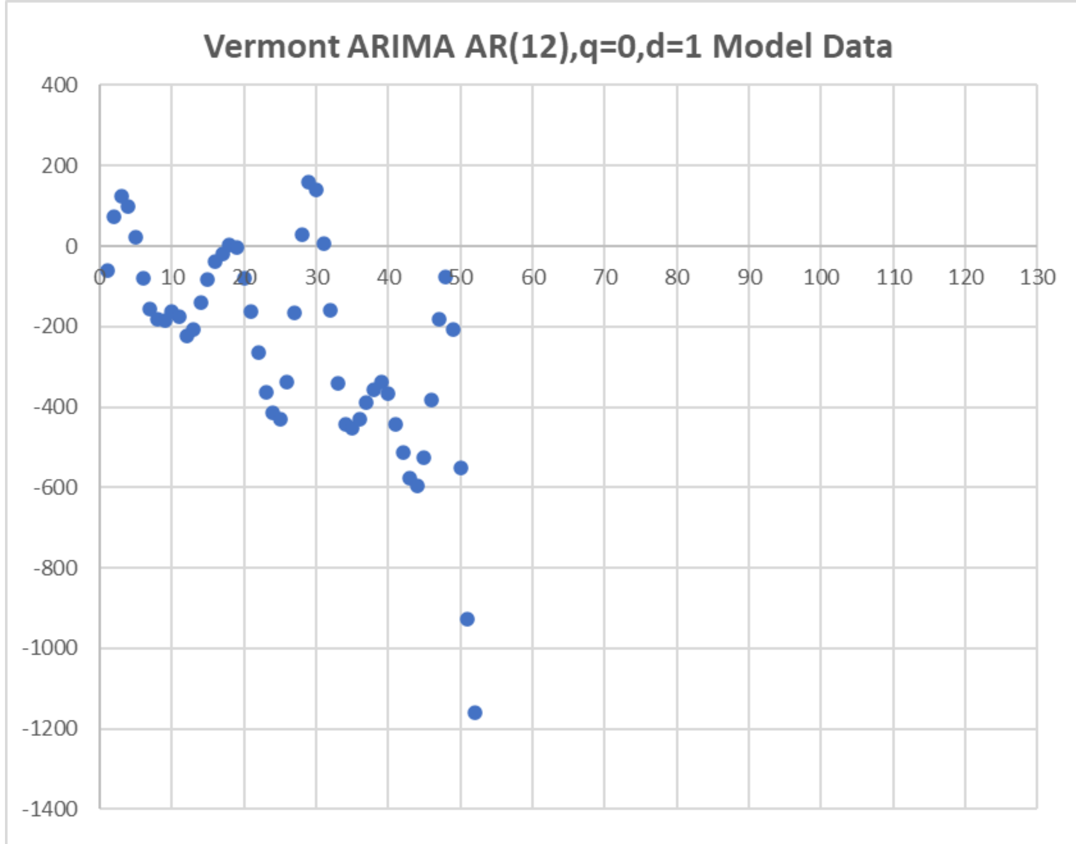


Appendix E95: Vermont CPS Employment ARIMA Model Forecast

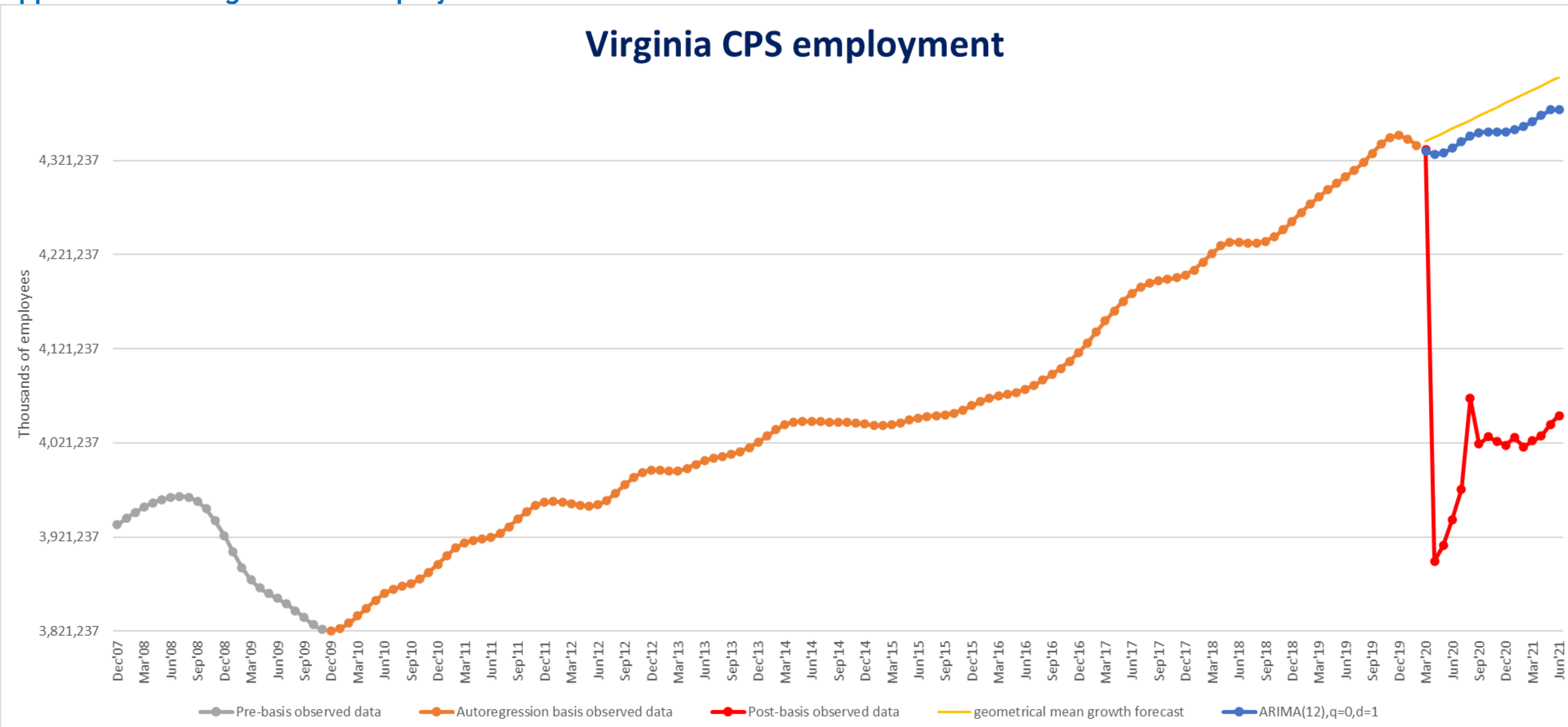


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-14.1798	7.423992	-1.91	0.06681
phi 1	2.64775	0.186562	14.19232	4.88E-14
phi 2	-3.18815	0.536998	-5.93698	2.5E-06
phi 3	2.186788	0.828026	2.640966	0.013576
phi 4	-1.23944	0.94067	-1.31762	0.198704
phi 5	1.143998	0.965585	1.184772	0.246432
phi 6	-1.31623	0.972813	-1.35302	0.187272
phi 7	1.086041	0.999556	1.086523	0.286853
phi 8	-0.21247	1.011318	-0.21009	0.835174
phi 9	-0.61591	0.983982	-0.62593	0.536614
phi 10	1.045059	0.897383	1.164563	0.254383
phi 11	-0.85511	0.637307	-1.34175	0.190854
phi 12	0.37083	0.241926	1.532823	0.136954

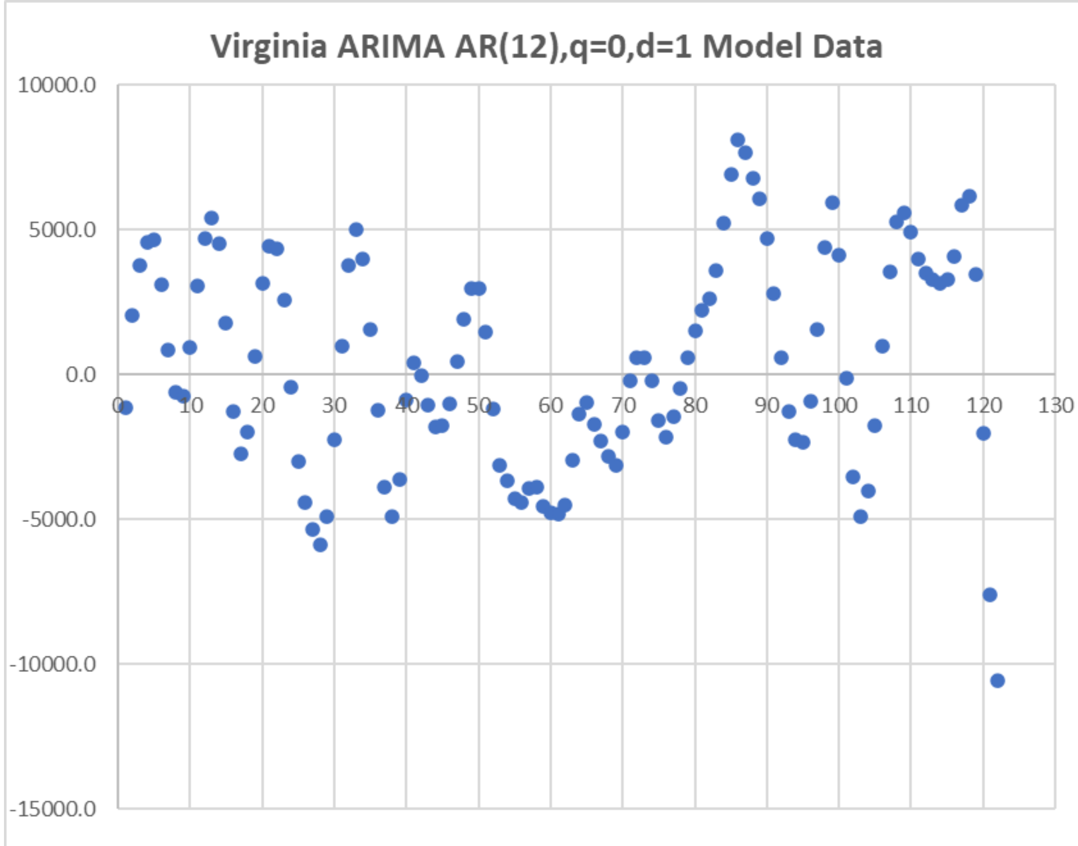


Appendix E96: Virginia CPS Employment ARIMA Model Forecast

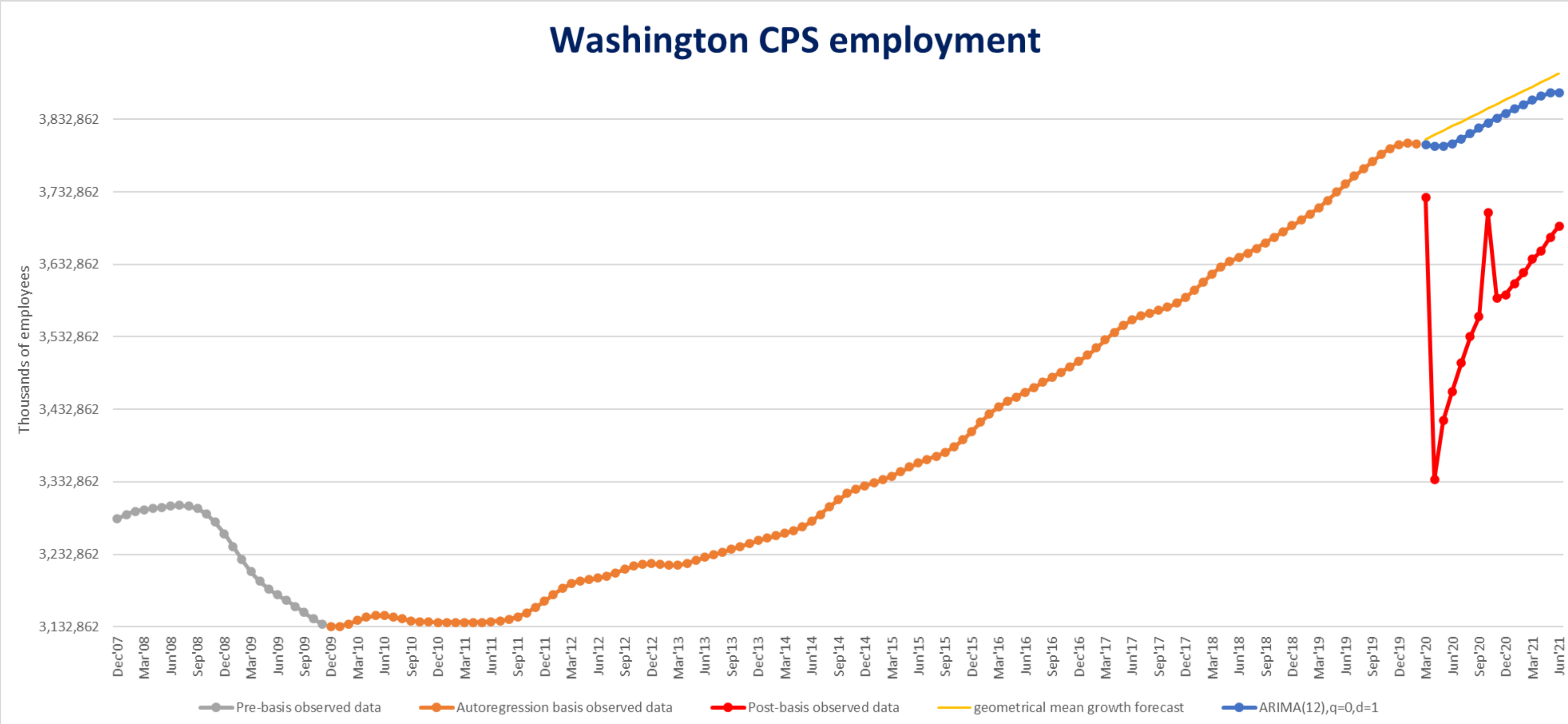


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	272.329	119.0979	2.286597	0.024394
phi 1	2.730256	0.099395	27.4687	1.5E-47
phi 2	-3.50335	0.286179	-12.2418	2.17E-21
phi 3	2.856531	0.441722	6.466807	4.05E-09
phi 4	-1.90088	0.515415	-3.68806	0.000373
phi 5	1.162922	0.545163	2.133162	0.035435
phi 6	-0.59354	0.562817	-1.05458	0.294237
phi 7	0.397323	0.574737	0.691313	0.49102
phi 8	-0.56306	0.567439	-0.99229	0.323525
phi 9	0.831853	0.532667	1.561677	0.121621
phi 10	-0.87088	0.454047	-1.91803	0.058048
phi 11	0.546251	0.296306	1.843539	0.068303
phi 12	-0.16509	0.105119	-1.57048	0.119561

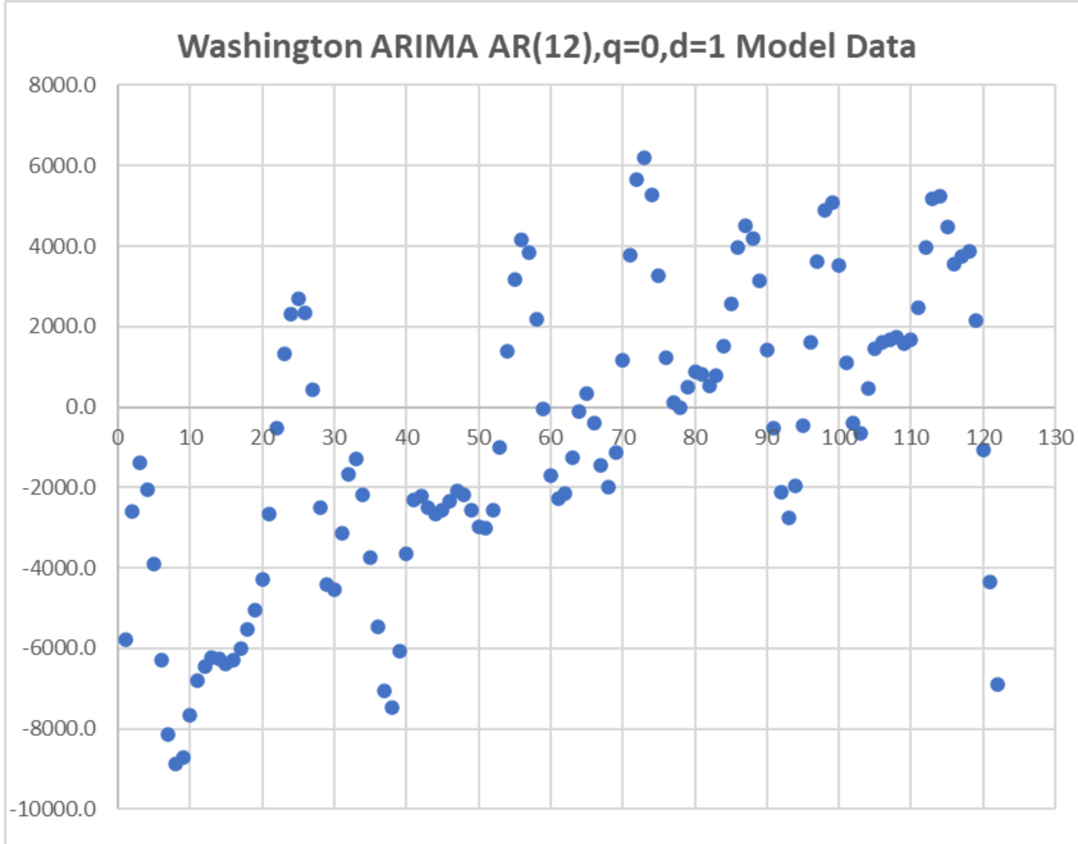


Appendix E97: Washington CPS Employment ARIMA Model Forecast

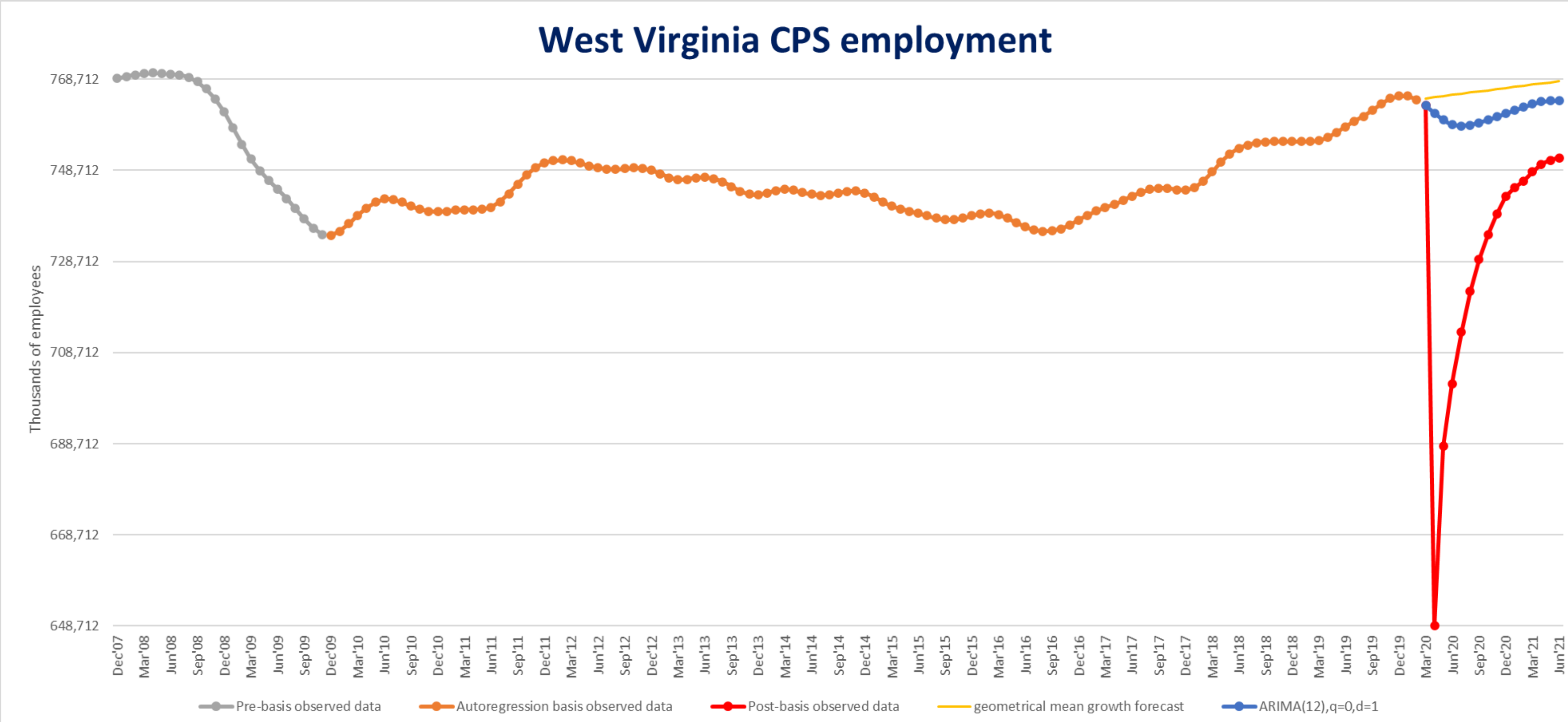


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	199.3339	91.21343	2.185357	0.03127
phi 1	2.765587	0.102825	26.89609	9.17E-47
phi 2	-3.46502	0.300906	-11.5153	7.49E-20
phi 3	2.651279	0.463585	5.719074	1.19E-07
phi 4	-1.62019	0.531129	-3.05047	0.002946
phi 5	1.118517	0.548785	2.038169	0.044255
phi 6	-0.95722	0.555715	-1.72249	0.088167
phi 7	0.764908	0.570276	1.341295	0.182957
phi 8	-0.30898	0.579033	-0.53362	0.594828
phi 9	-0.05068	0.563396	-0.08996	0.928503
phi 10	-0.01275	0.493627	-0.02583	0.979444
phi 11	0.132005	0.321117	0.411081	0.68192
phi 12	-0.04938	0.108584	-0.45473	0.650322

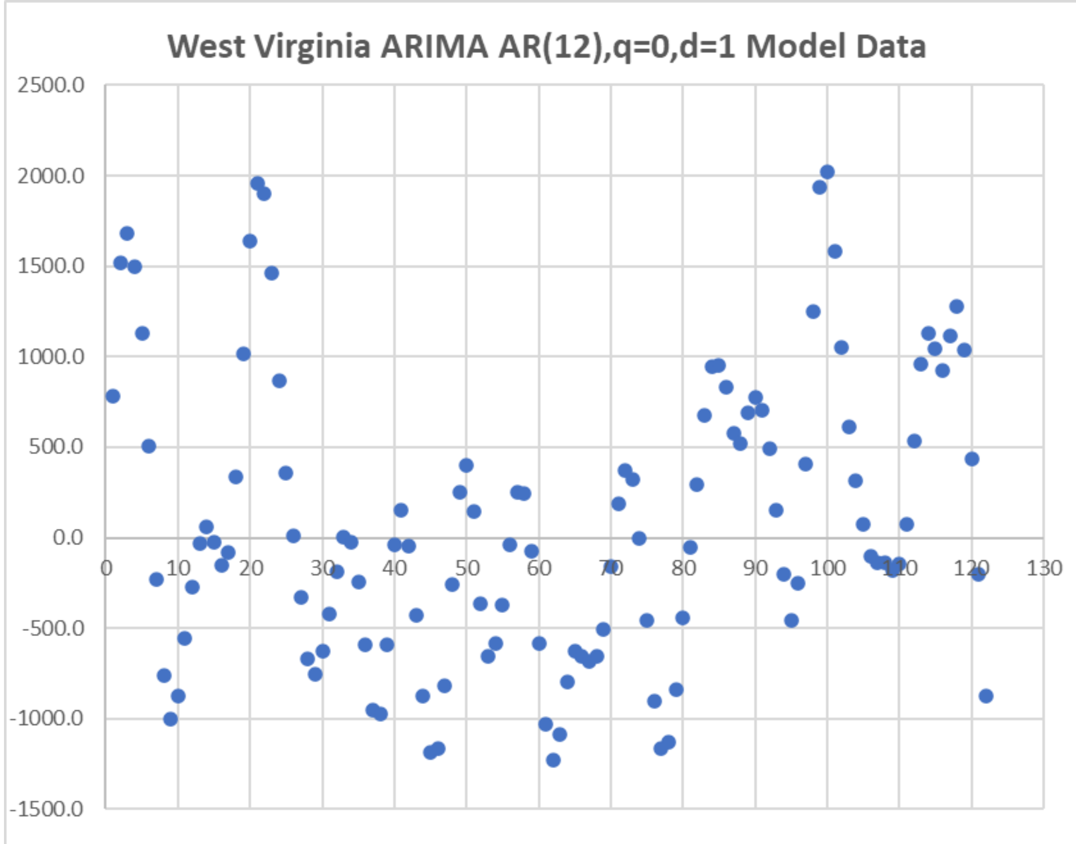


Appendix E98: West Virginia CPS Employment ARIMA Model Forecast

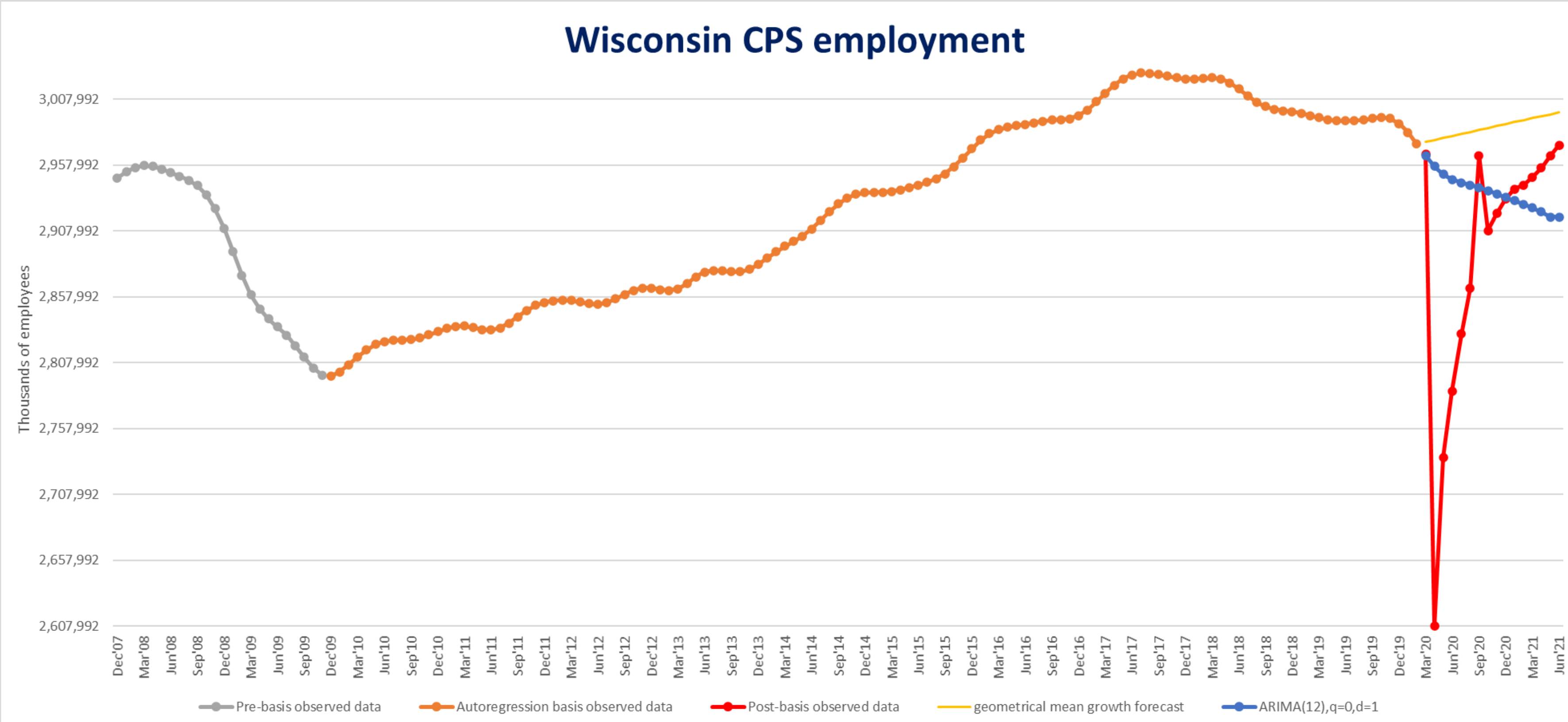


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	5.680911	10.59178	0.536351	0.592944
phi 1	2.727666	0.105883	25.76114	3.61E-45
phi 2	-3.43122	0.308774	-11.1124	5.43E-19
phi 3	2.706791	0.479986	5.639309	1.68E-07
phi 4	-1.77751	0.557898	-3.18609	0.00194
phi 5	1.328679	0.580504	2.288835	0.024258
phi 6	-1.17544	0.589016	-1.99561	0.048781
phi 7	0.987142	0.602305	1.638939	0.104466
phi 8	-0.61421	0.604009	-1.0169	0.311733
phi 9	0.264621	0.57669	0.458862	0.64736
phi 10	-0.14239	0.492938	-0.28886	0.773302
phi 11	0.056828	0.313692	0.181158	0.856622
phi 12	0.031344	0.105964	0.295802	0.768013

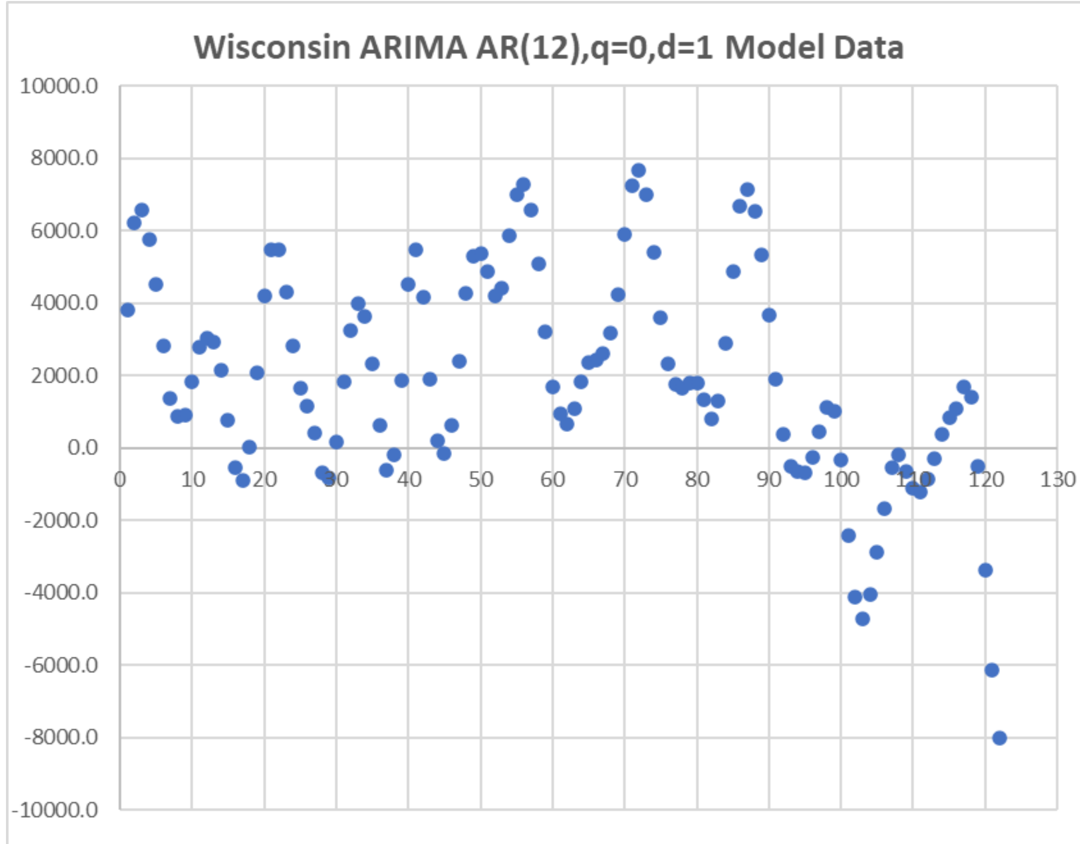


Appendix E99: Wisconsin CPS Employment ARIMA Model Forecast

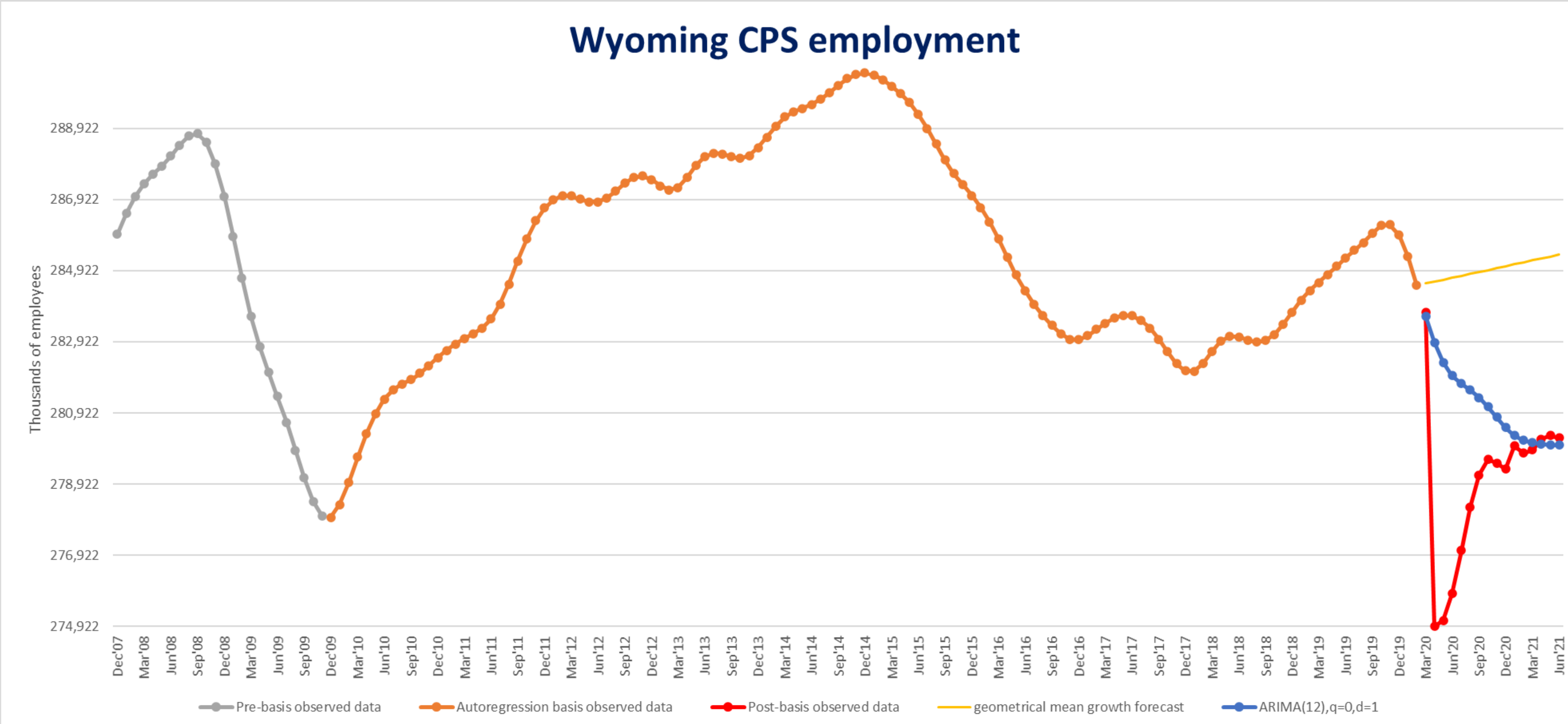


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	-7.45804	46.00532	-0.16211	0.871554
phi 1	2.808133	0.101604	27.63798	8.85E-48
phi 2	-3.51369	0.29833	-11.7778	2.07E-20
phi 3	2.613406	0.451272	5.791203	8.63E-08
phi 4	-1.55099	0.500169	-3.10094	0.002526
phi 5	1.092988	0.499978	2.186073	0.031216
phi 6	-0.84868	0.497548	-1.70572	0.091261
phi 7	0.728352	0.504367	1.44409	0.151936
phi 8	-0.82175	0.505069	-1.627	0.106981
phi 9	0.982143	0.492418	1.994533	0.0489
phi 10	-0.89921	0.437073	-2.05735	0.042336
phi 11	0.512255	0.287906	1.779243	0.078332
phi 12	-0.11637	0.099862	-1.16531	0.246751

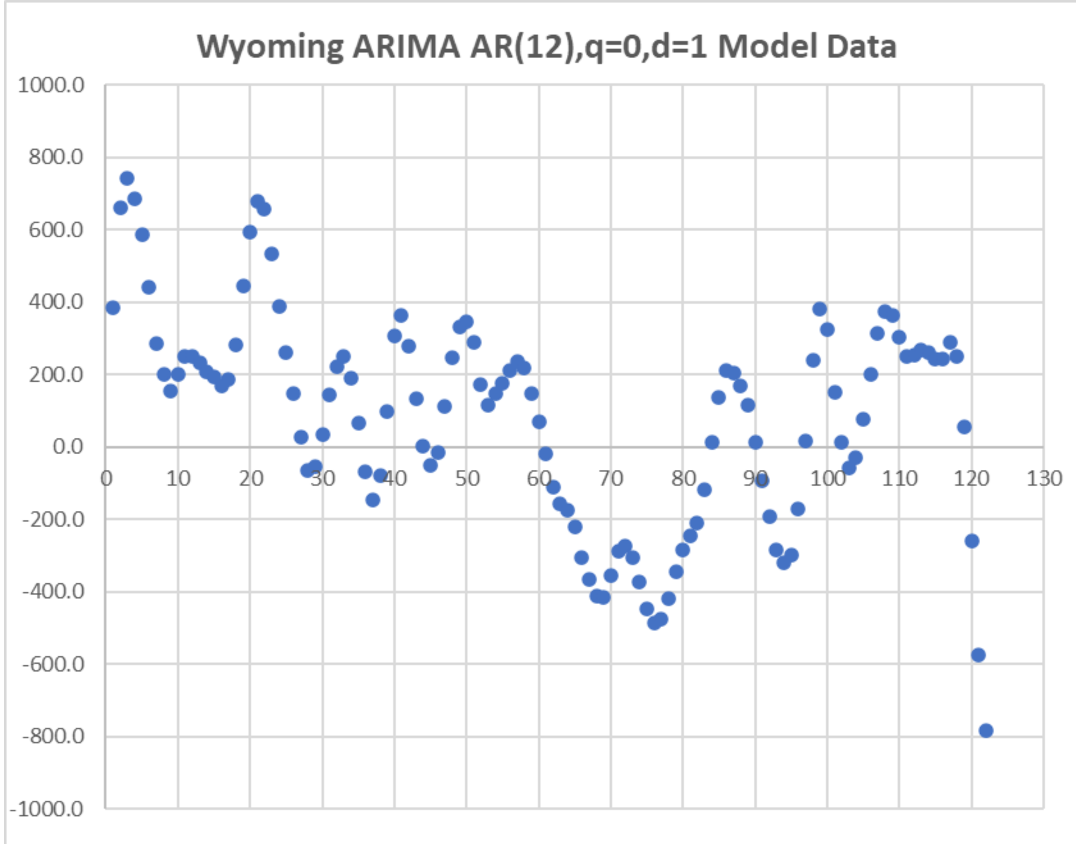


Appendix E100: Wyoming CPS Employment ARIMA Model Forecast

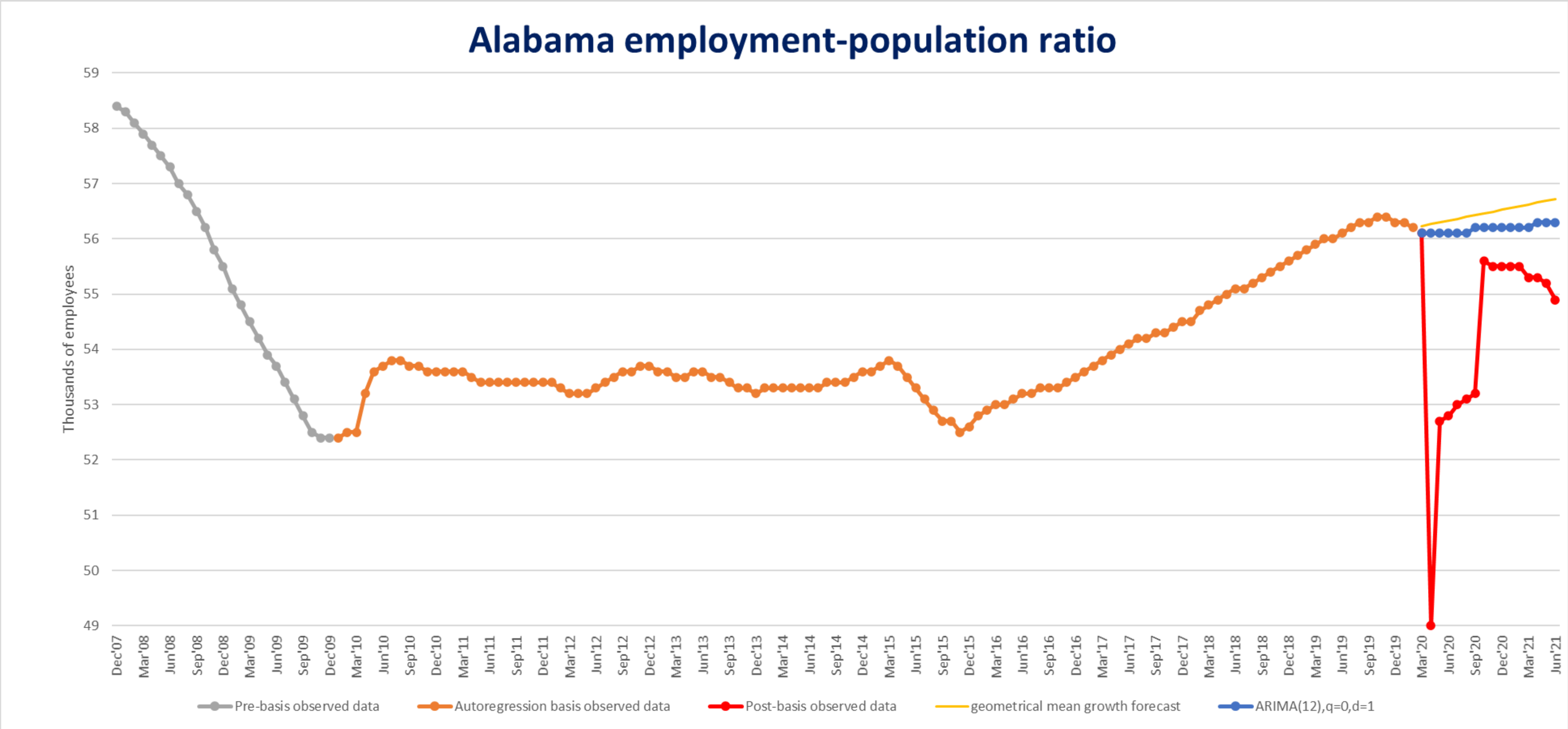


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.85086	3.138128	-0.27114	0.786862
phi 1	2.763725	0.101224	27.30299	2.53E-47
phi 2	-3.33739	0.293353	-11.3767	1.48E-19
phi 3	2.363989	0.431449	5.47919	3.37E-07
phi 4	-1.36039	0.463648	-2.9341	0.004175
phi 5	1.008806	0.451821	2.232754	0.027865
phi 6	-0.86379	0.443084	-1.94949	0.054125
phi 7	0.816523	0.445536	1.832676	0.069918
phi 8	-0.91196	0.446852	-2.04084	0.043983
phi 9	0.997177	0.442119	2.255447	0.026352
phi 10	-0.8254	0.40505	-2.03776	0.044296
phi 11	0.404924	0.276325	1.465389	0.146049
phi 12	-0.08397	0.096968	-0.86592	0.388673

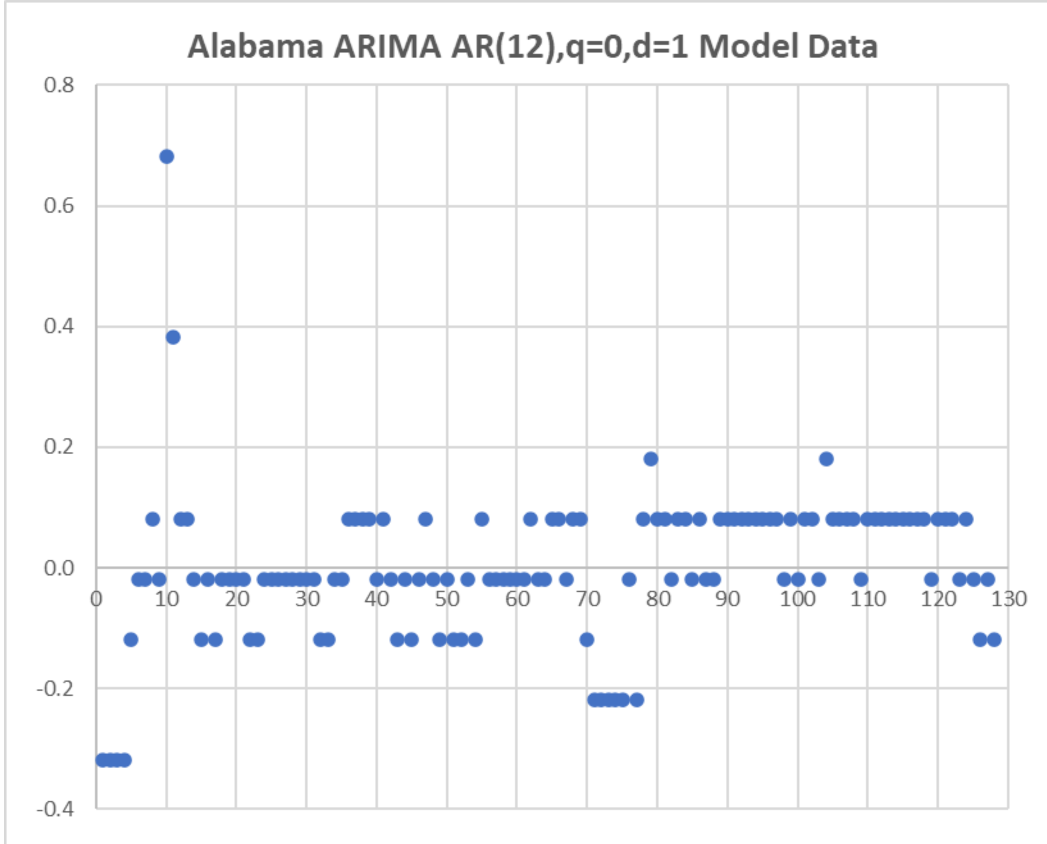


Appendix E101: Alabama Employment-Population Ratio ARIMA Model Forecast

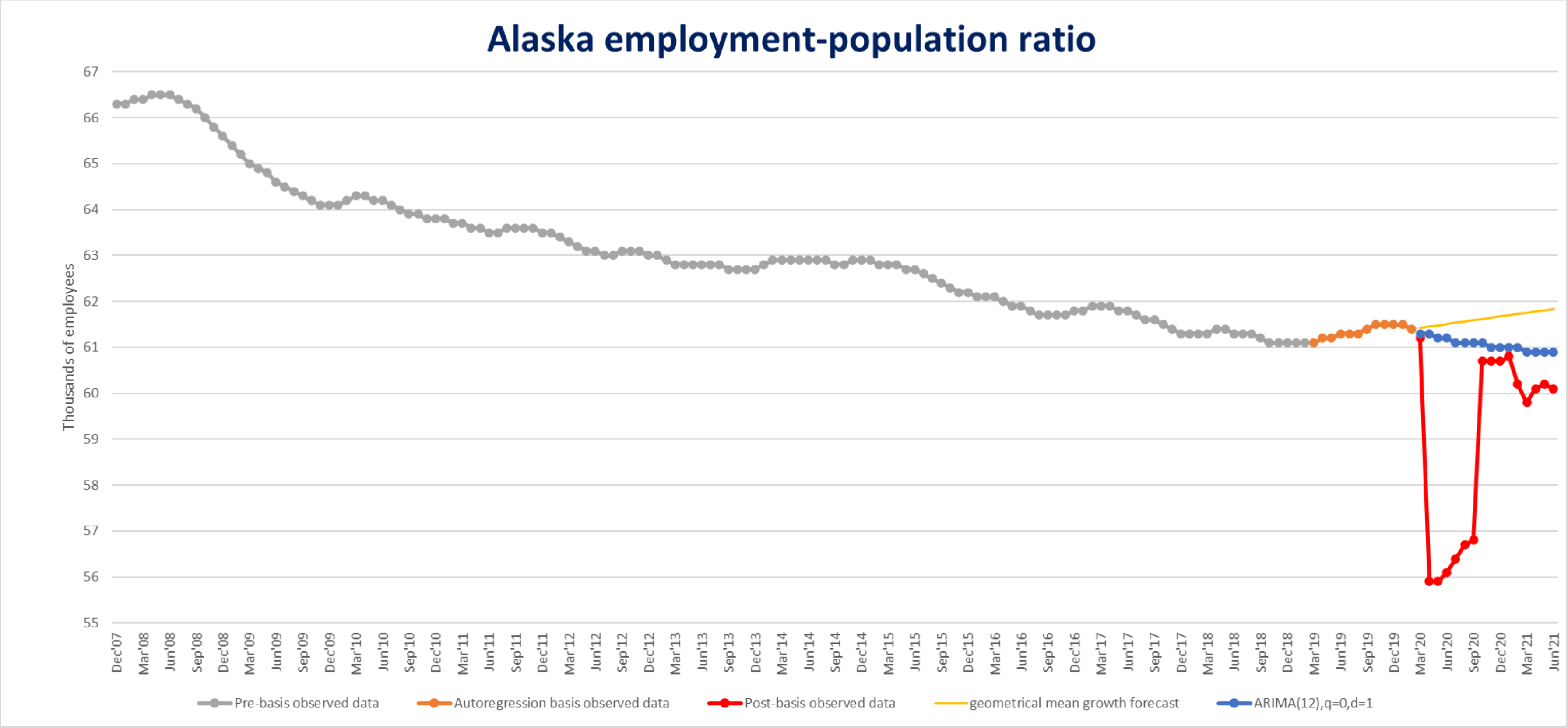


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.007558	0.007687	0.98311	0.327857
phi 1	0.425447	0.096275	4.419101	2.46E-05
phi 2	0.249783	0.103436	2.414849	0.017505
phi 3	0.113525	0.086303	1.31542	0.191289
phi 4	-0.17615	0.079731	-2.20928	0.02937
phi 5	-0.04617	0.081579	-0.56592	0.572681
phi 6	0.012476	0.08055	0.154886	0.877214
phi 7	-0.0214	0.078916	-0.27114	0.786823
phi 8	-0.01171	0.078935	-0.14832	0.882382
phi 9	-0.01327	0.077927	-0.1703	0.865111
phi 10	0.137067	0.077588	1.766592	0.080259
phi 11	0.037507	0.078181	0.47974	0.63243
phi 12	-0.11878	0.070051	-1.69555	0.092992

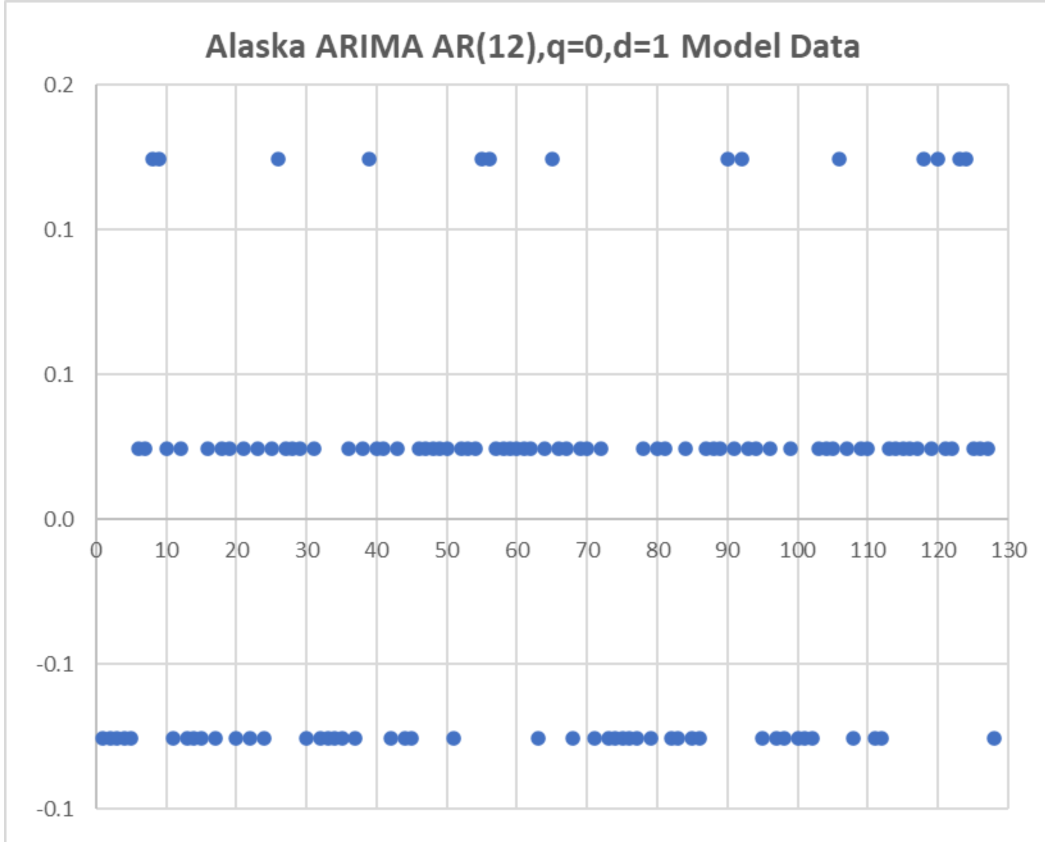


Appendix E102: Alaska Employment-Population Ratio ARIMA Model Forecast

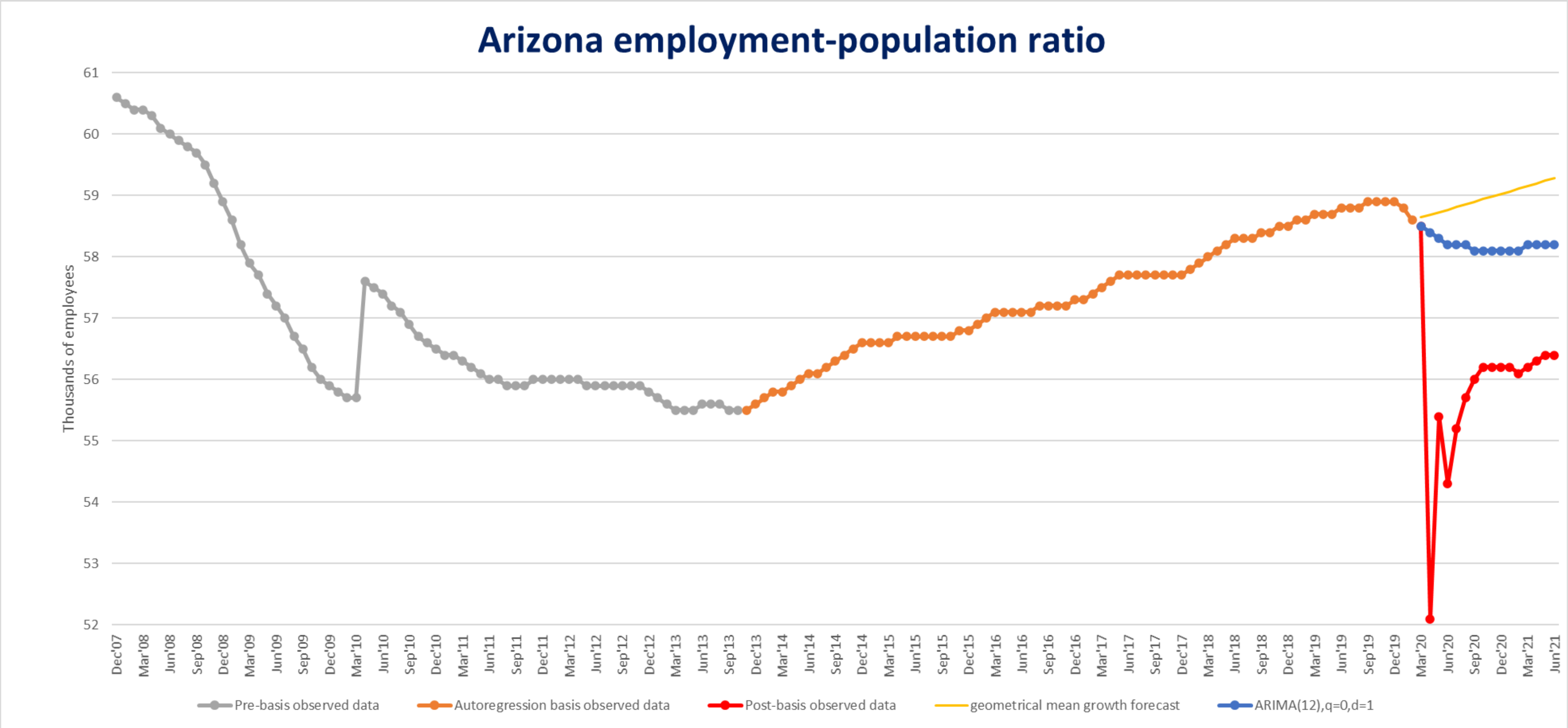


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.01837	0.008407	-2.1849	0.031163
phi 1	0.184387	0.098966	1.863131	0.065293
phi 2	0.188139	0.098317	1.913596	0.058448
phi 3	0.217456	0.0993	2.189895	0.030788
phi 4	-0.0807	0.100285	-0.80472	0.422836
phi 5	-0.13428	0.100521	-1.33585	0.184543
phi 6	-0.14193	0.102306	-1.38729	0.168349
phi 7	0.042465	0.102071	0.416033	0.678251
phi 8	-0.025	0.100231	-0.24947	0.803492
phi 9	0.059041	0.10064	0.586657	0.558718
phi 10	0.086079	0.099382	0.866148	0.388422
phi 11	-0.08189	0.101268	-0.80862	0.4206
phi 12	-0.06081	0.099774	-0.60949	0.543543

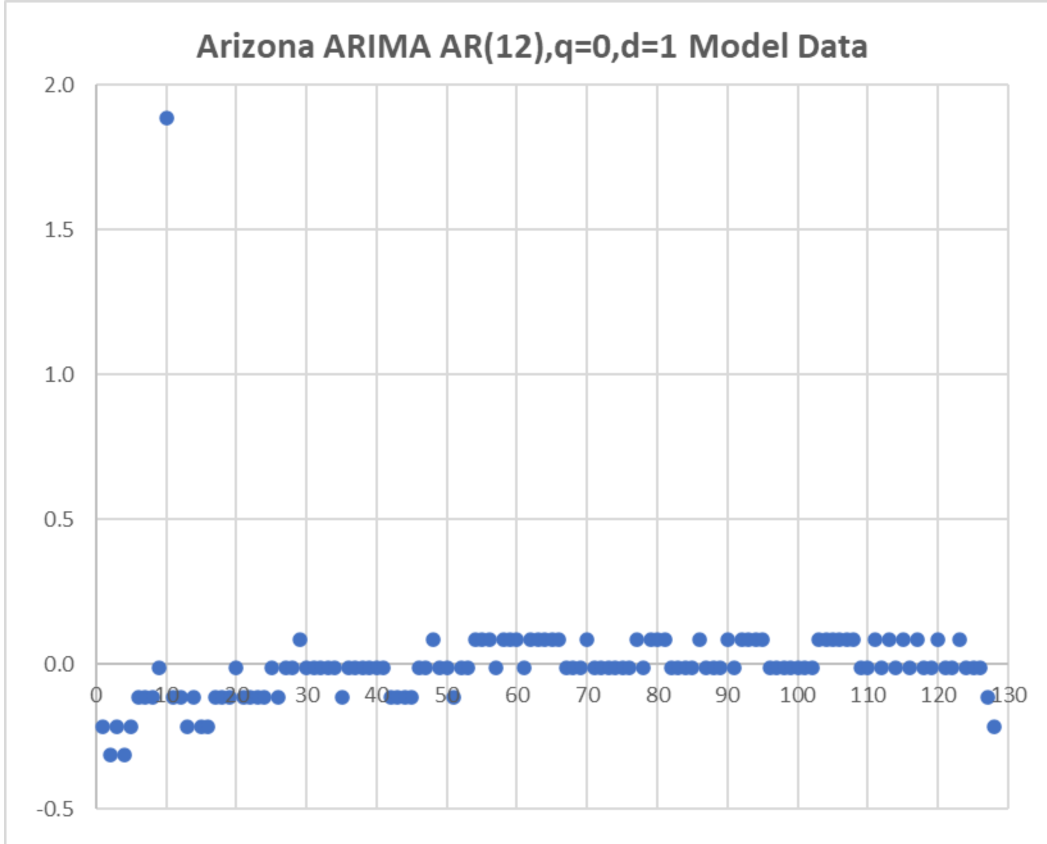


Appendix E103: Arizona Employment-Population Ratio ARIMA Model Forecast

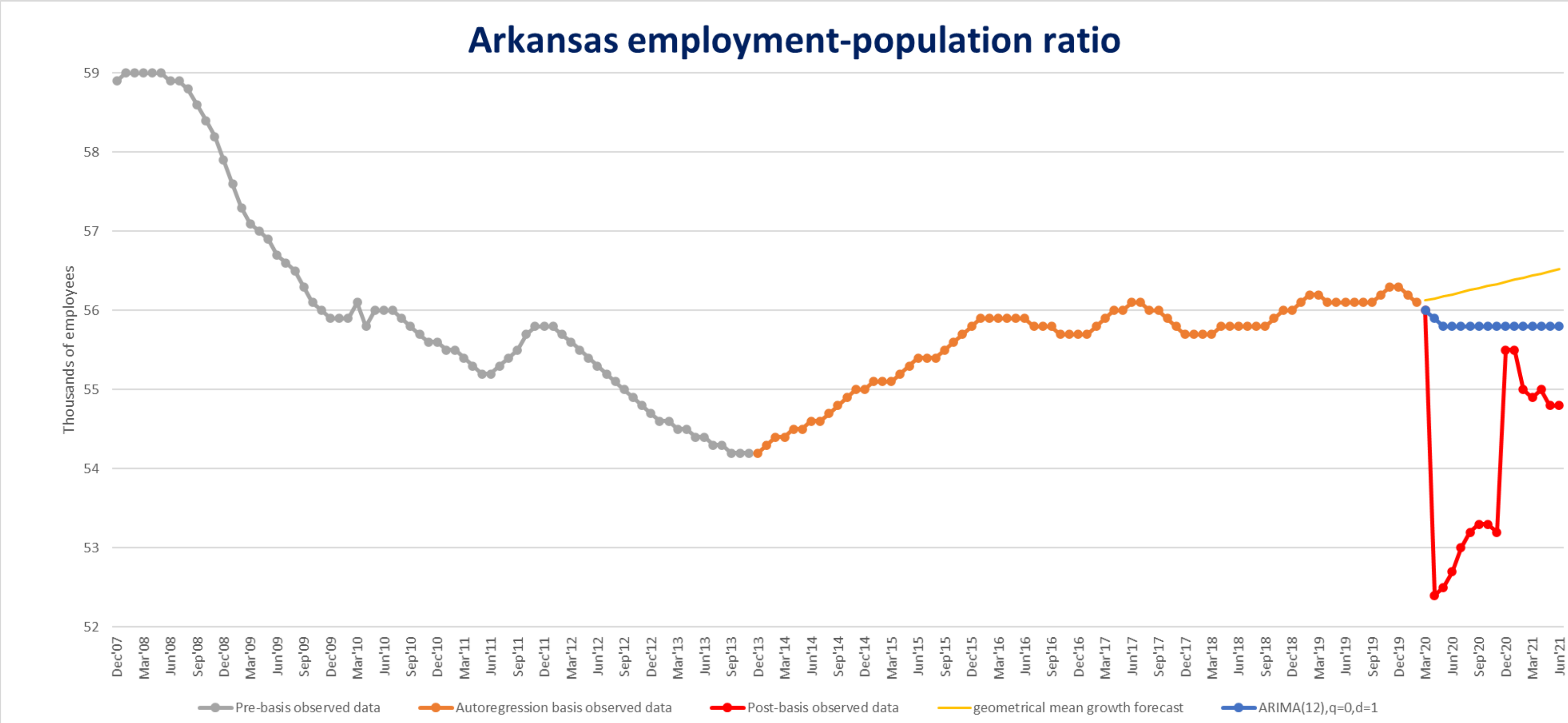


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.004226*	*0.005813*	*0.726998*	*0.468877*
phi 1	0.421277	0.093968	*4.483204*	*1.91E-05*
phi 2	0.382417	0.095486	*4.004968*	*0.000117*
phi 3	-0.06944	0.029276	*-2.37192*	*0.019553*
phi 4	0.014568	0.029574	*0.492594*	*0.623348*
phi 5	-0.04265	0.028681	*-1.487*	*0.140069*
phi 6	-0.04298	0.028961	*-1.48412*	*0.140831*
phi 7	0.039118	0.028077	*1.393216*	*0.166554*
phi 8	0.005464	0.028201	*0.193747*	*0.846756*
phi 9	-0.00835	0.028157	*-0.29661*	*0.767363*
phi 10	0.042787	0.027876	*1.534893*	*0.127876*
phi 11	-0.03309	0.028195	*-1.17367*	*0.243236*
phi 12	-0.02663	0.028375	*-0.93837*	*0.350248*

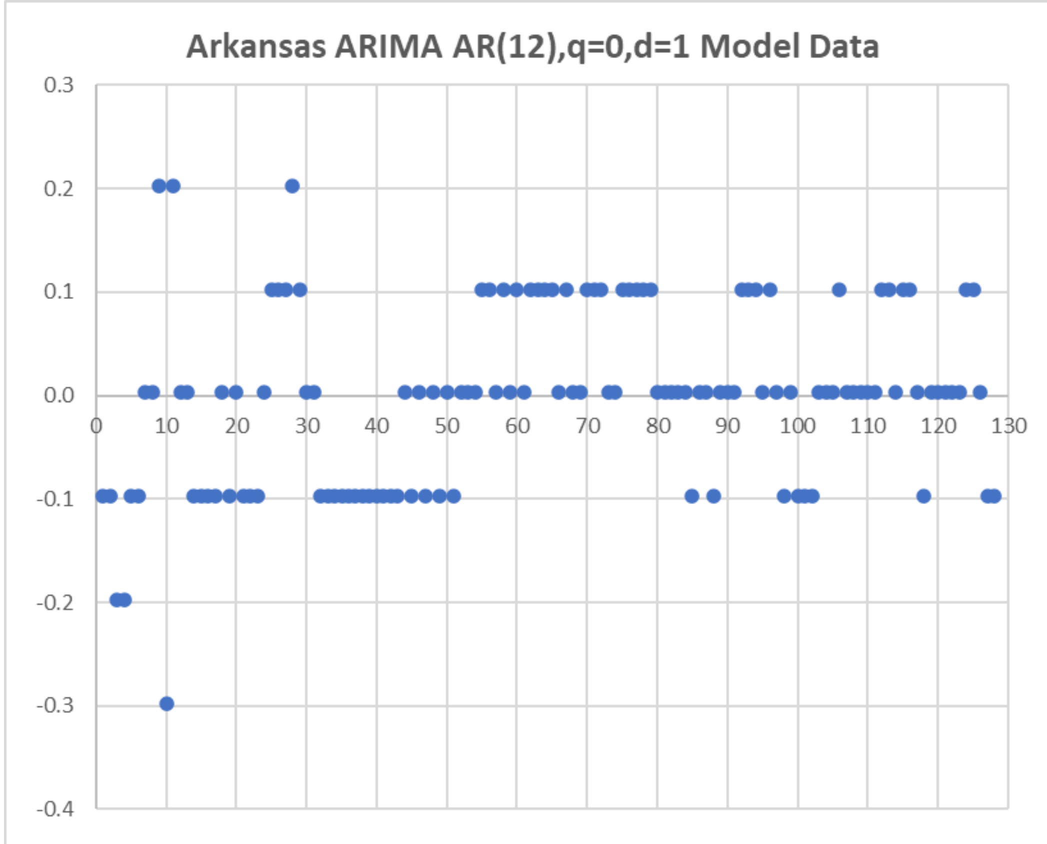


Appendix E104: Arkansas Employment-Population Ratio ARIMA Model Forecast

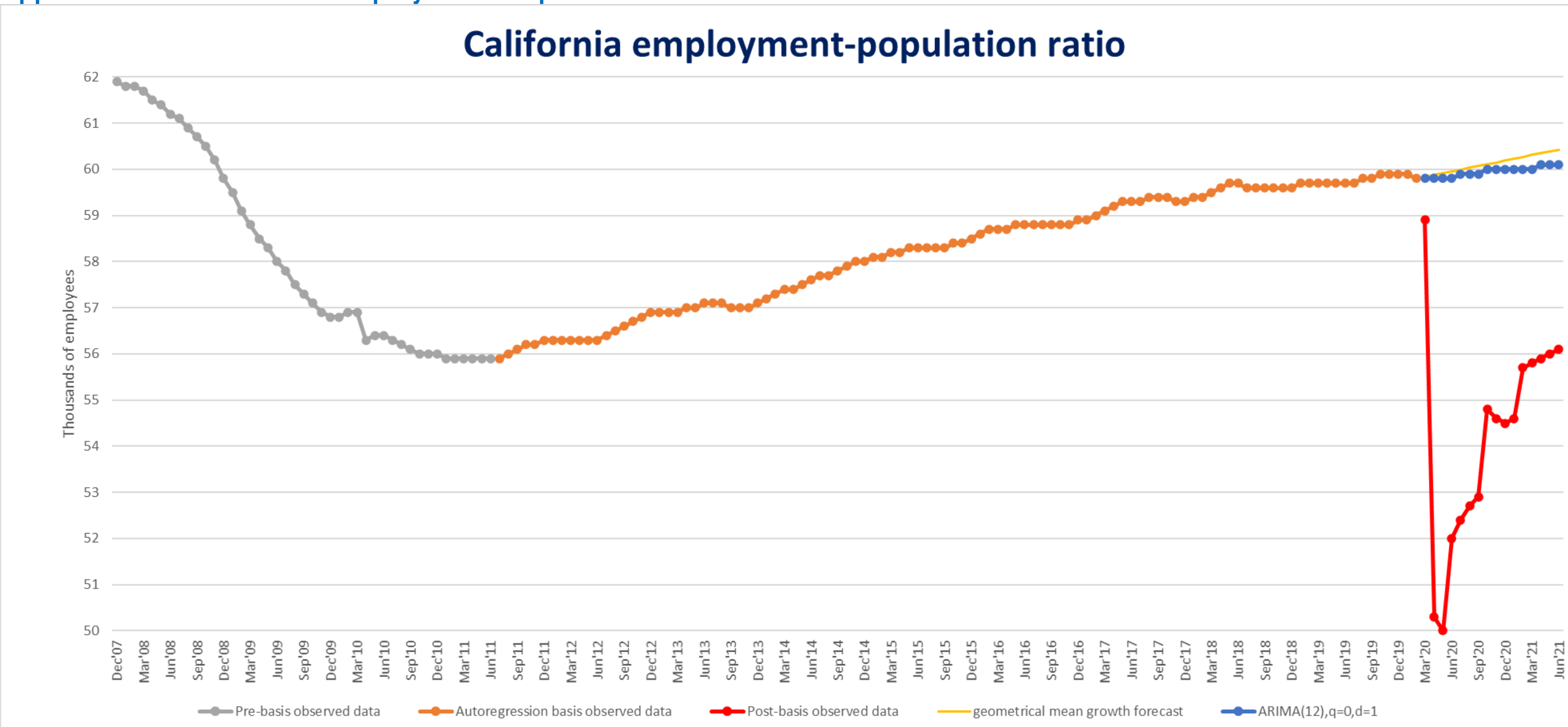


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.00081	0.005768	-0.14049	0.888547
phi 1	0.482473	0.098523	4.89706	3.62E-06
phi 2	0.27723	0.104284	2.658415	0.009104
phi 3	0.003306	0.091045	0.036309	0.971106
phi 4	0.00547	0.091226	0.059966	0.952299
phi 5	-0.16803	0.090865	-1.84922	0.067293
phi 6	-0.08588	0.091421	-0.93935	0.34975
phi 7	0.132272	0.092101	1.43616	0.153987
phi 8	-0.01752	0.090512	-0.19353	0.846921
phi 9	0.121277	0.089204	1.359544	0.176943
phi 10	-0.03379	0.089766	-0.3764	0.707391
phi 11	-0.10381	0.081792	-1.26923	0.207221
phi 12	0.073302	0.080191	0.914095	0.362802

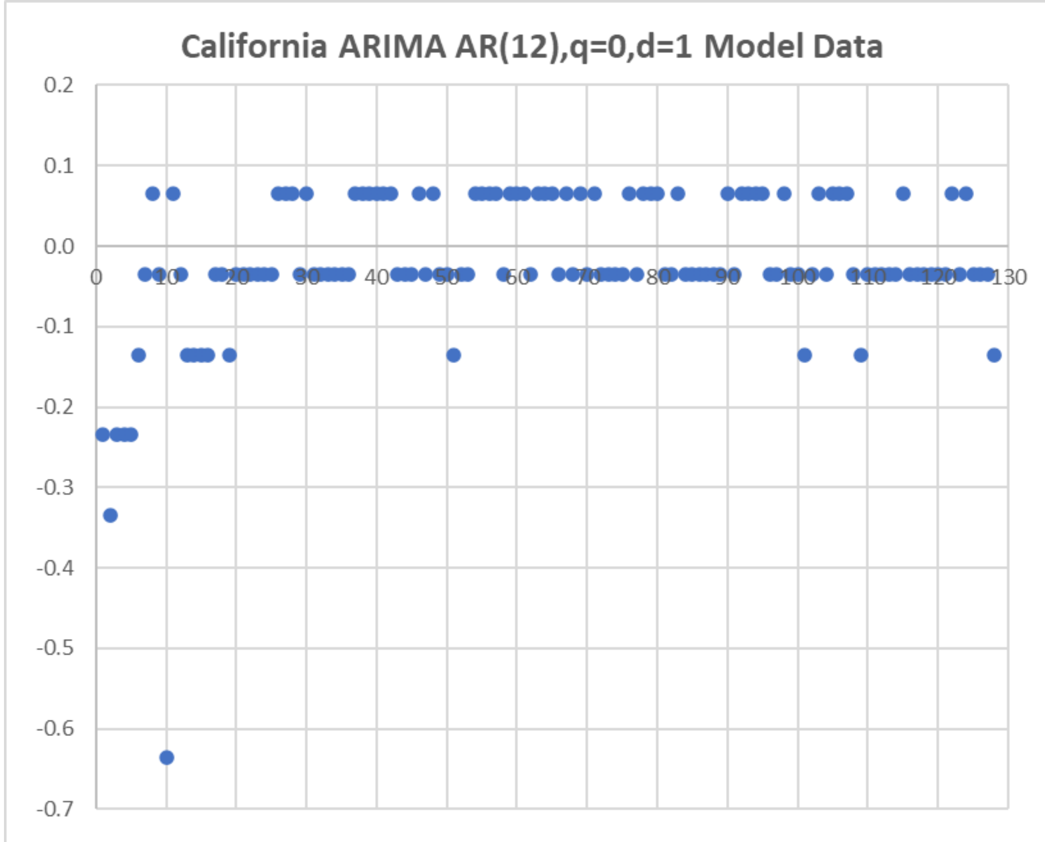


Appendix E105: California Employment-Population Ratio ARIMA Model Forecast

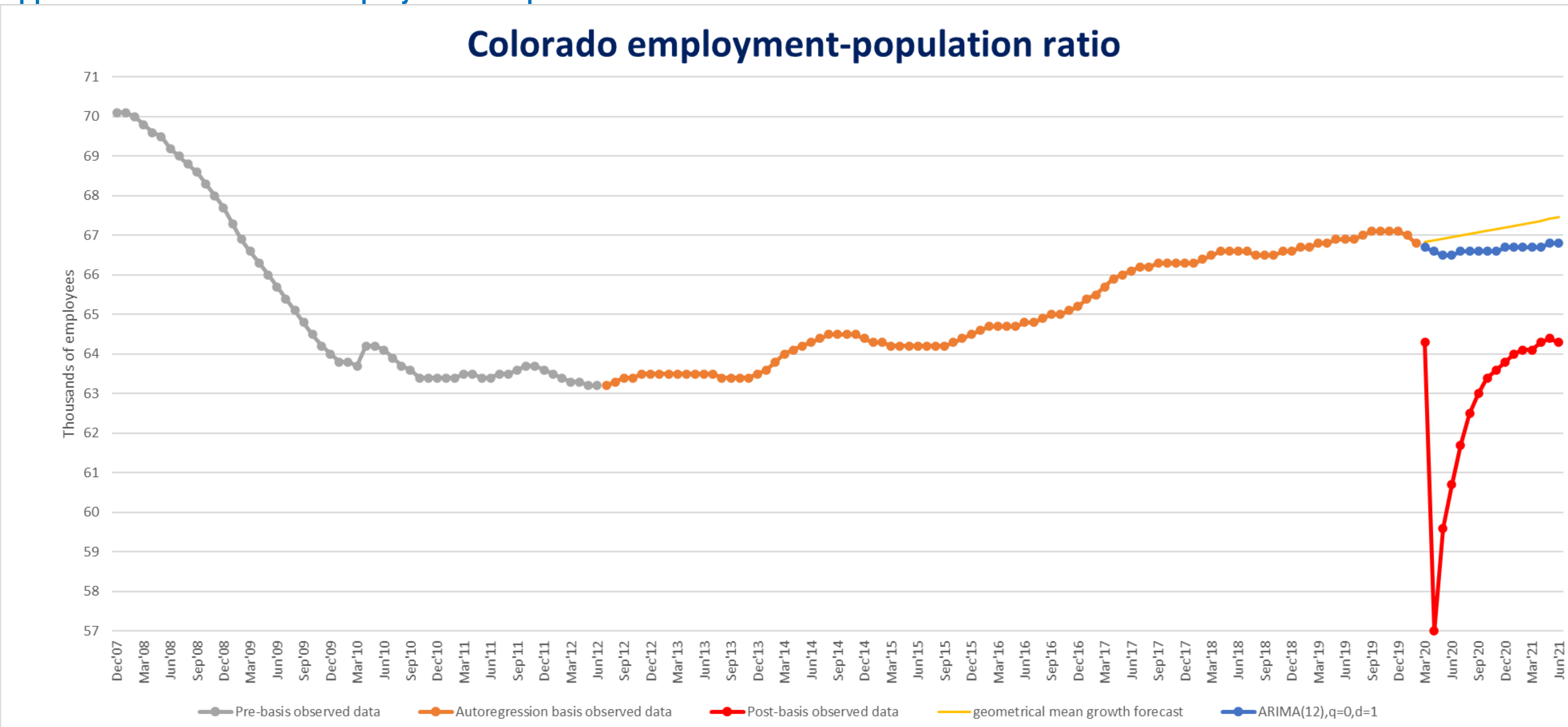


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.01338	0.006509	2.055585	0.042352
phi 1	0.204041	0.098926	2.062556	0.041671
phi 2	0.212828	0.097734	2.177618	0.031717
phi 3	0.012572	0.069402	0.181144	0.856611
phi 4	0.017304	0.068418	0.252917	0.800837
phi 5	-0.038	0.066183	-0.57421	0.567078
phi 6	-0.06579	0.065782	-1.00007	0.319622
phi 7	-0.01014	0.066059	-0.15344	0.878351
phi 8	0.008584	0.065507	0.131046	0.895994
phi 9	0.146396	0.063963	2.288769	0.024134
phi 10	0.042799	0.064438	0.664184	0.508057
phi 11	0.020765	0.062526	0.3321	0.740488
phi 12	0.064932	0.061813	1.050468	0.295961

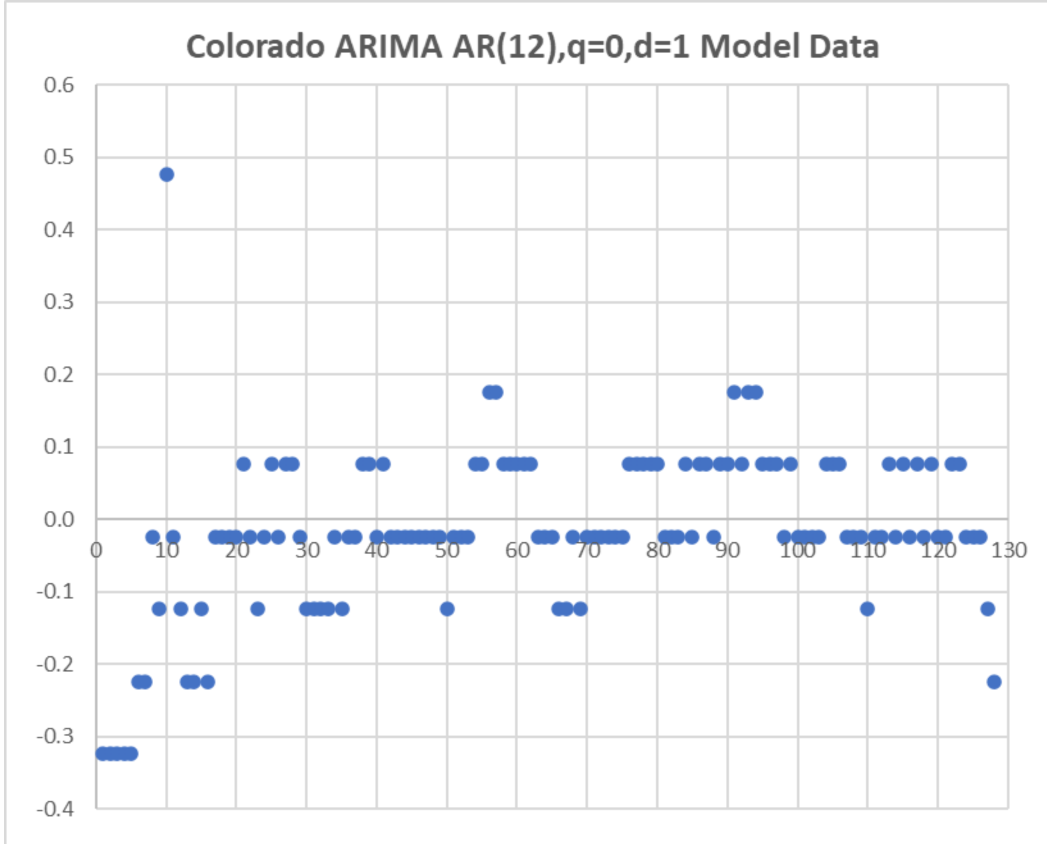


Appendix E106: Colorado Employment-Population Ratio ARIMA Model Forecast

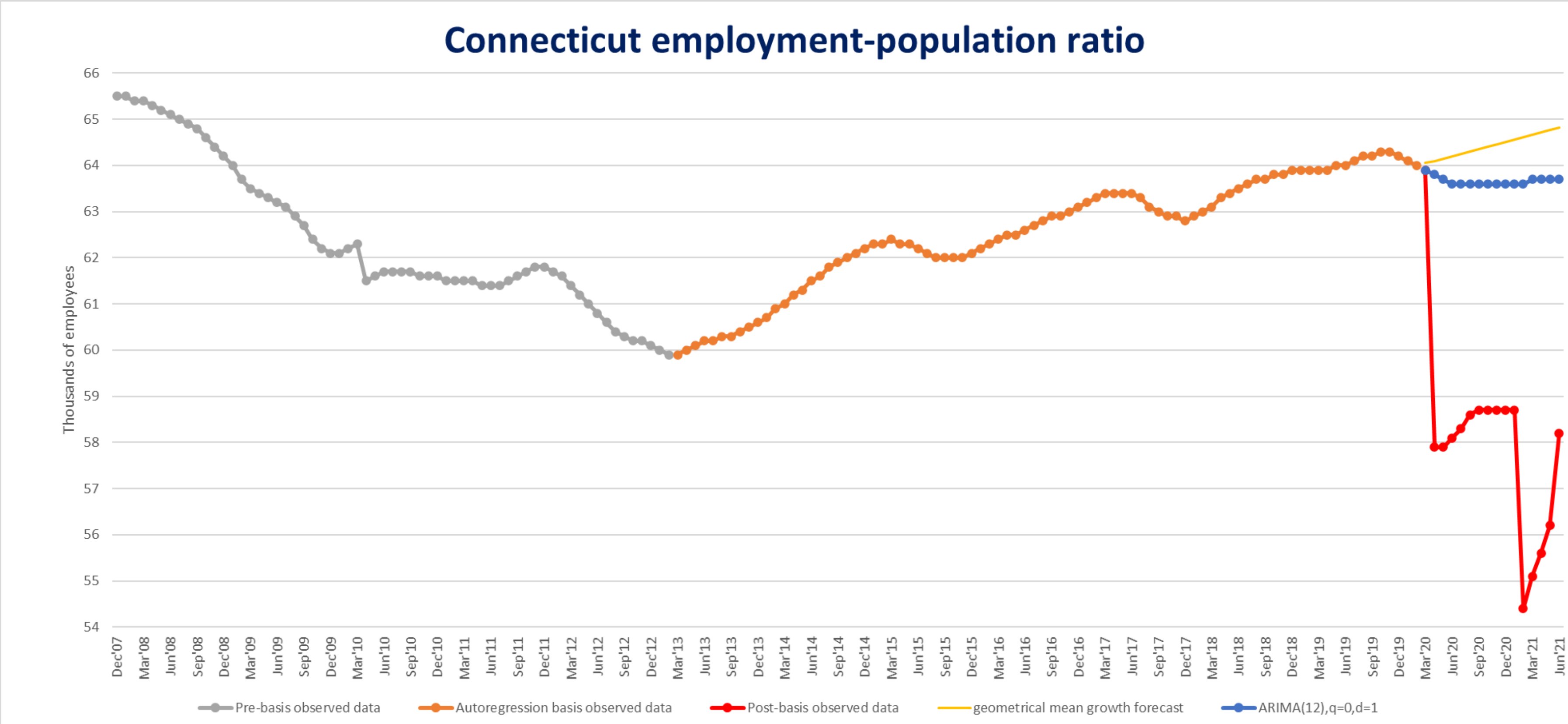


Model parameters

param	coeff	s.e.	t-stat	p-value
const	*0.008666*	*0.006669*	*1.299555*	*0.196655*
phi 1	0.492322	0.095766	*5.140905*	*1.31E-06*
phi 2	0.364422	0.106127	*3.433828*	*0.000859*
phi 3	-0.11562	0.083781	*-1.37997*	*0.170584*
phi 4	-0.07301	0.079674	*-0.91636*	*0.361617*
phi 5	-0.08597	0.07985	*-1.07671*	*0.284127*
phi 6	-0.07858	0.078335	*-1.00314*	*0.318145*
phi 7	0.224723	0.078526	*2.861773*	*0.005103*
phi 8	-0.02525	0.081599	*-0.30949*	*0.757575*
phi 9	-0.13545	0.081459	*-1.66275*	*0.099402*
phi 10	0.075042	0.080524	*0.931923*	*0.353556*
phi 11	0.071548	0.075882	*0.942893*	*0.347942*
phi 12	-0.07656	0.069721	*-1.09805*	*0.274741*

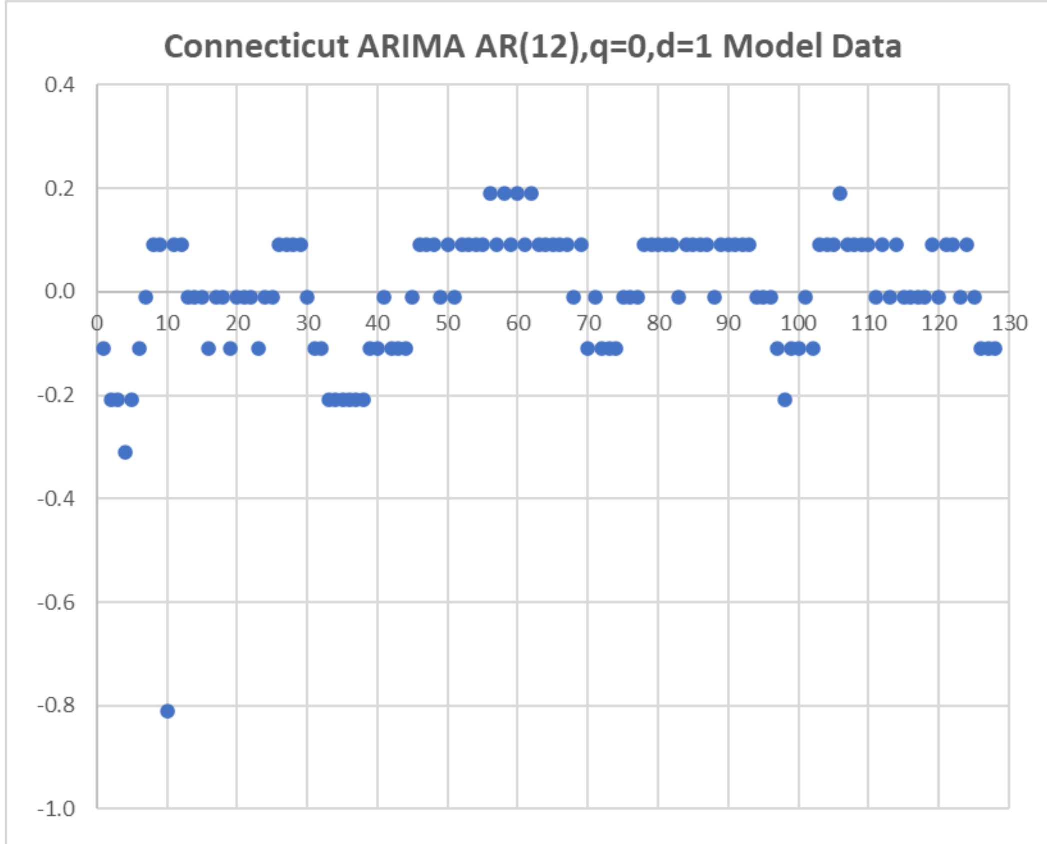


Appendix E107: Connecticut Employment-Population Ratio ARIMA Model Forecast

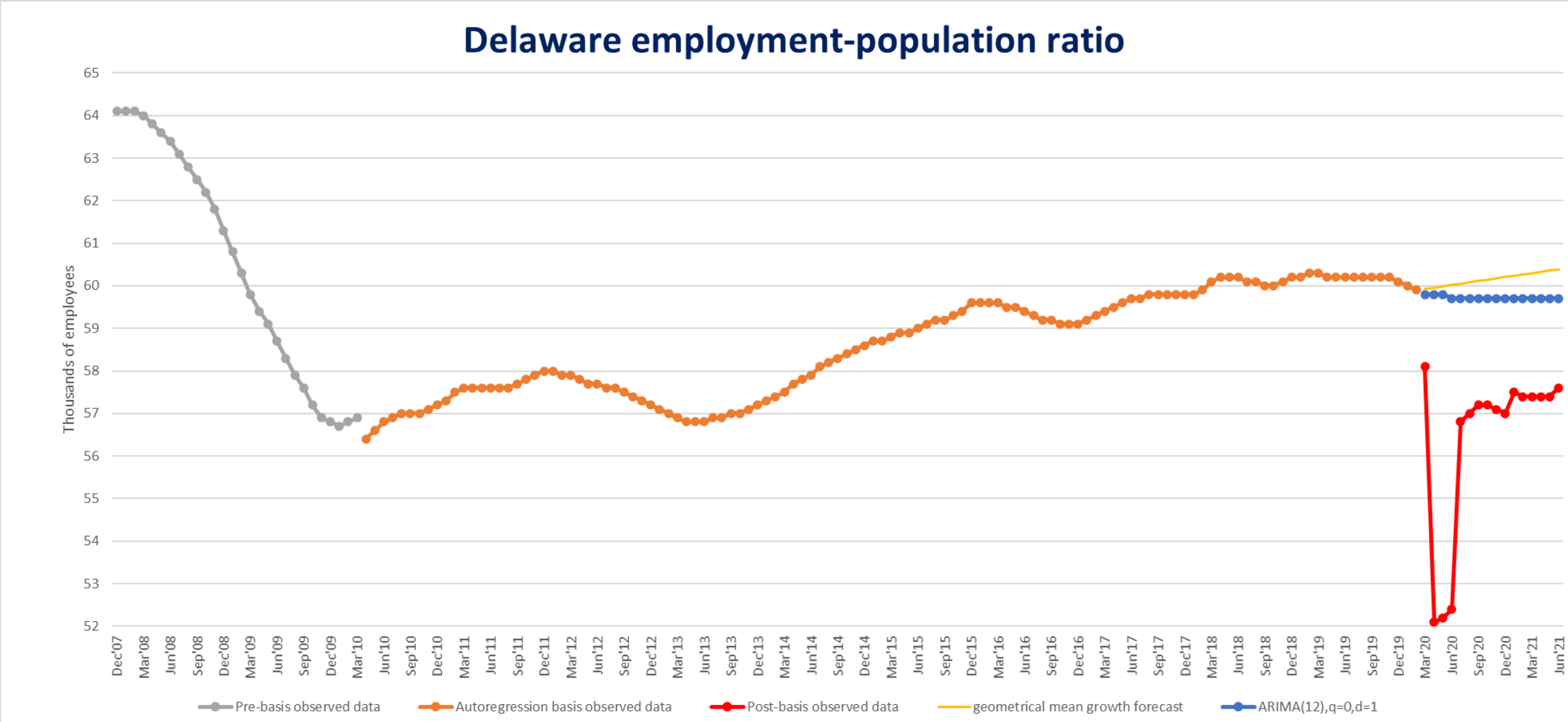


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.002117*	*0.006219*	*0.340371*	*0.73427*
phi 1	0.466696	0.092919	*5.022602*	*2.15E-06*
phi 2	0.463069	0.101267	*4.572749*	*1.34E-05*
phi 3	0.006084	0.062713	*0.097006*	*0.92291*
phi 4	-0.04696	0.061681	*-0.7614*	*0.448155*
phi 5	-0.09755	0.058984	*-1.65384*	*0.101204*
phi 6	0.023069	0.058284	*0.395802*	*0.69307*
phi 7	-0.07624	0.057734	*-1.32047*	*0.189605*
phi 8	-0.09066	0.058124	*-1.55979*	*0.121876*
phi 9	0.128797	0.058636	*2.196572*	*0.030293*
phi 10	-0.00446	0.058852	*-0.07577*	*0.939748*
phi 11	0.017743	0.056359	*0.314819*	*0.753536*
phi 12	-0.00998	0.054032	*-0.1847*	*0.853831*

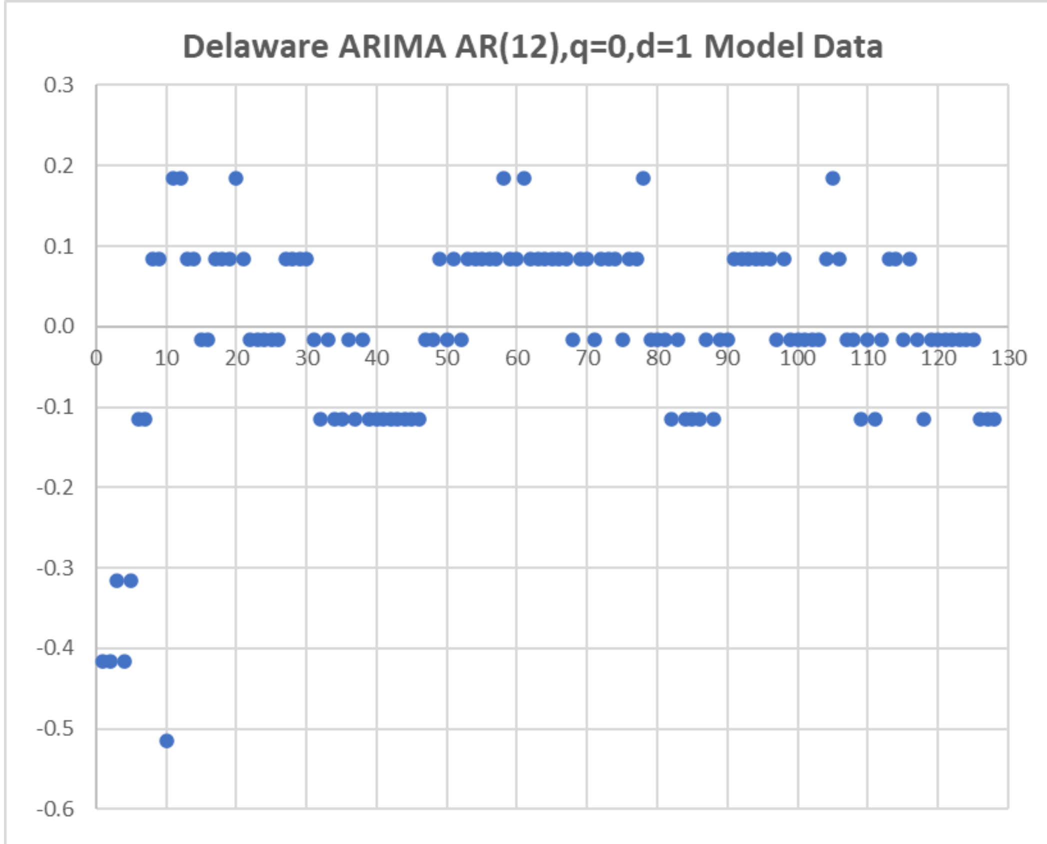


Appendix E108: Delaware Employment-Population Ratio ARIMA Model Forecast

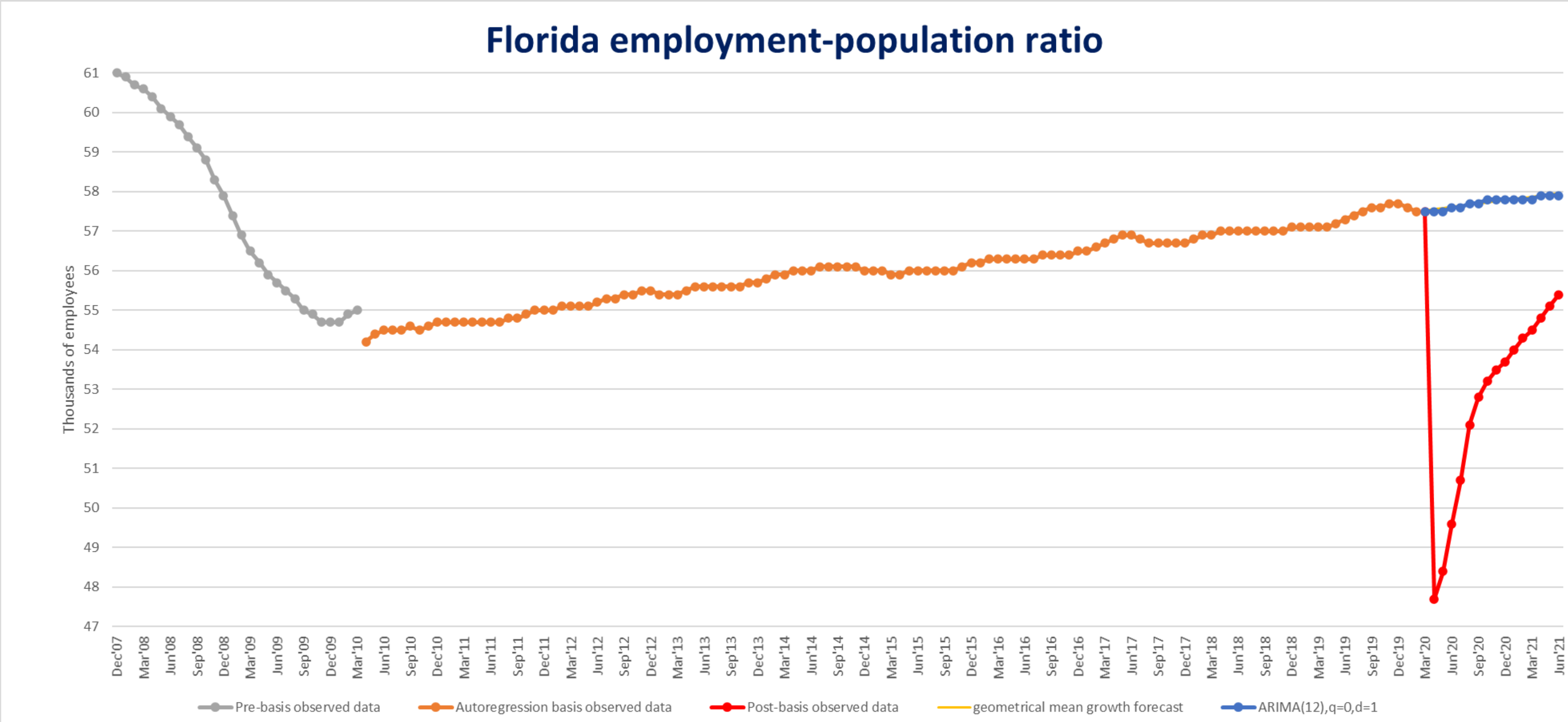


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.004018*	*0.006677*	*0.6018*	*0.54863*
phi 1	0.495831	0.096048	*5.162301*	*1.19E-06*
phi 2	0.230375	0.103232	*2.231632*	*0.027806*
phi 3	-0.00739	0.074112	*-0.0997*	*0.920779*
phi 4	-0.05927	0.071894	*-0.82434*	*0.411652*
phi 5	0.00568	0.070295	*0.080804*	*0.935755*
phi 6	0.036707	0.069931	*0.524894*	*0.600785*
phi 7	0.007765	0.069814	*0.111228*	*0.911652*
phi 8	0.039766	0.069018	*0.576168*	*0.565759*
phi 9	0.130333	0.068454	*1.903952*	*0.059707*
phi 10	-0.16121	0.067829	*-2.37678*	*0.019311*
phi 11	0.061451	0.069033	*0.890177*	*0.375445*
phi 12	-0.0369	0.063306	*-0.58293*	*0.561212*

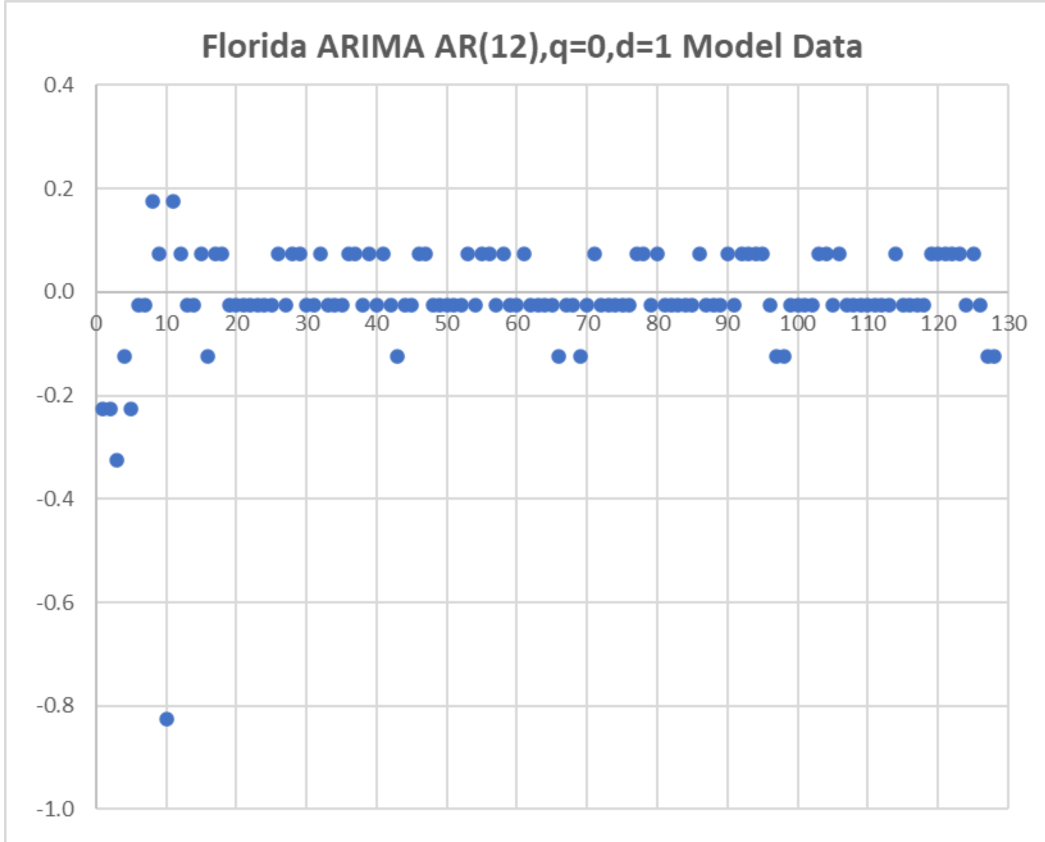


Appendix E109: Florida Employment-Population Ratio ARIMA Model Forecast

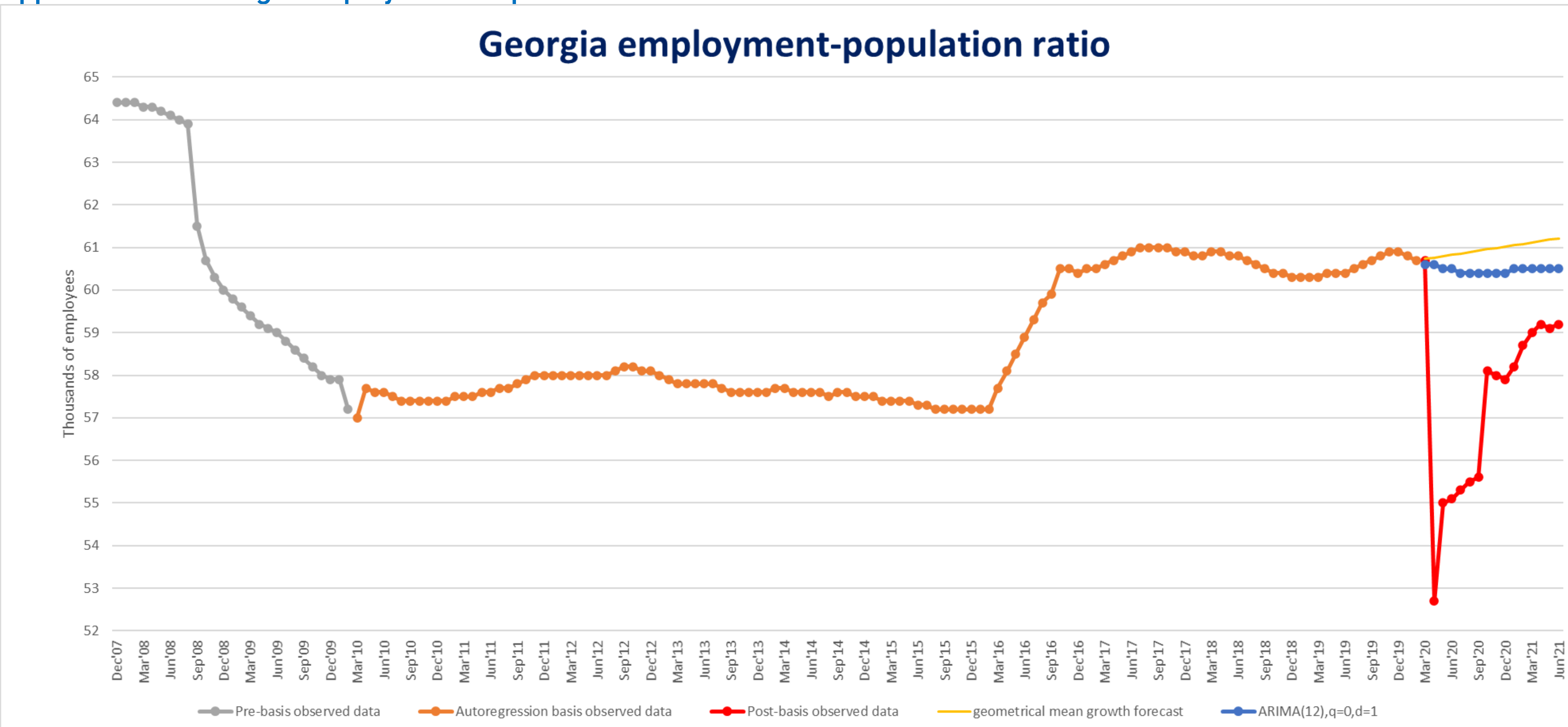


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.026942	0.008106	3.323603	0.001231
phi 1	0.17797	0.099332	1.791664	0.076123
phi 2	0.028281	0.098726	0.28646	0.775102
phi 3	0.017038	0.057793	0.294801	0.768739
phi 4	-0.05841	0.057045	-1.024	0.308235
phi 5	-0.15304	0.056786	-2.69508	0.008219
phi 6	0.035513	0.058256	0.6096	0.543469
phi 7	-0.12126	0.058174	-2.0844	0.039597
phi 8	-0.08226	0.05611	-1.4661	0.145668
phi 9	0.046958	0.056678	0.828498	0.409304
phi 10	0.027592	0.053031	0.520291	0.603977
phi 11	0.045651	0.050021	0.912634	0.363566
phi 12	-0.02771	0.049653	-0.55809	0.577992

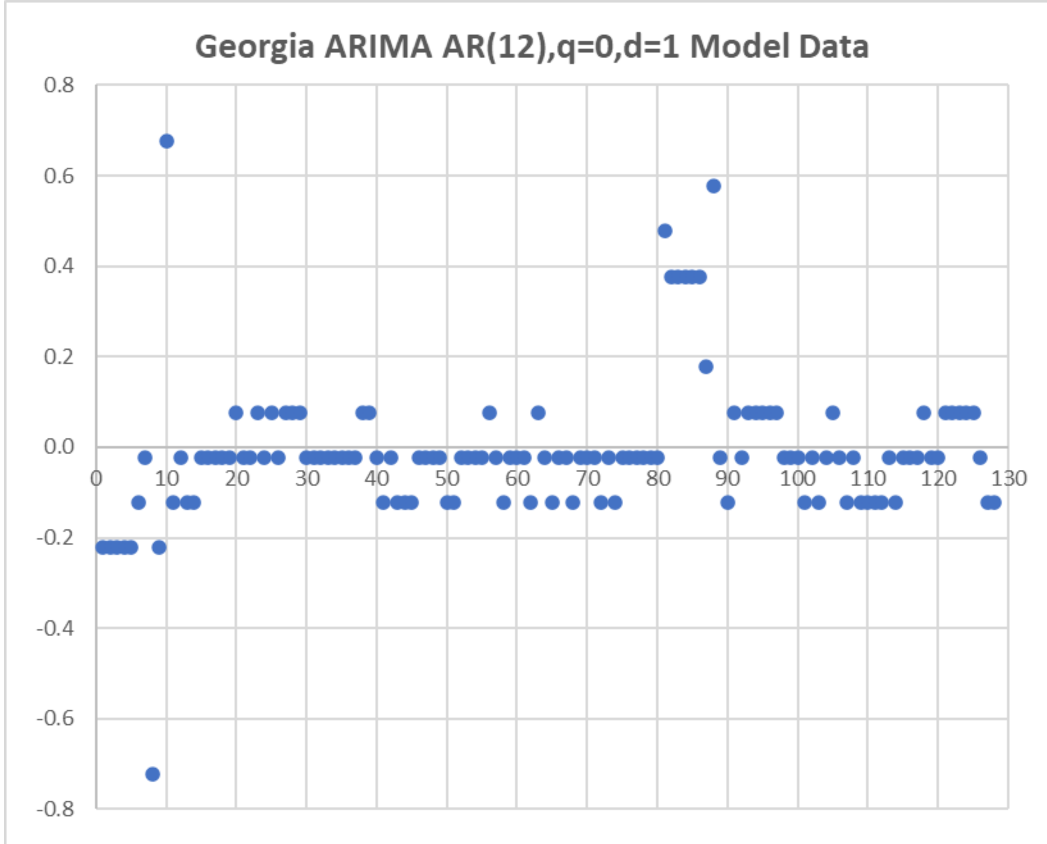


Appendix E110: Georgia Employment-Population Ratio ARIMA Model Forecast

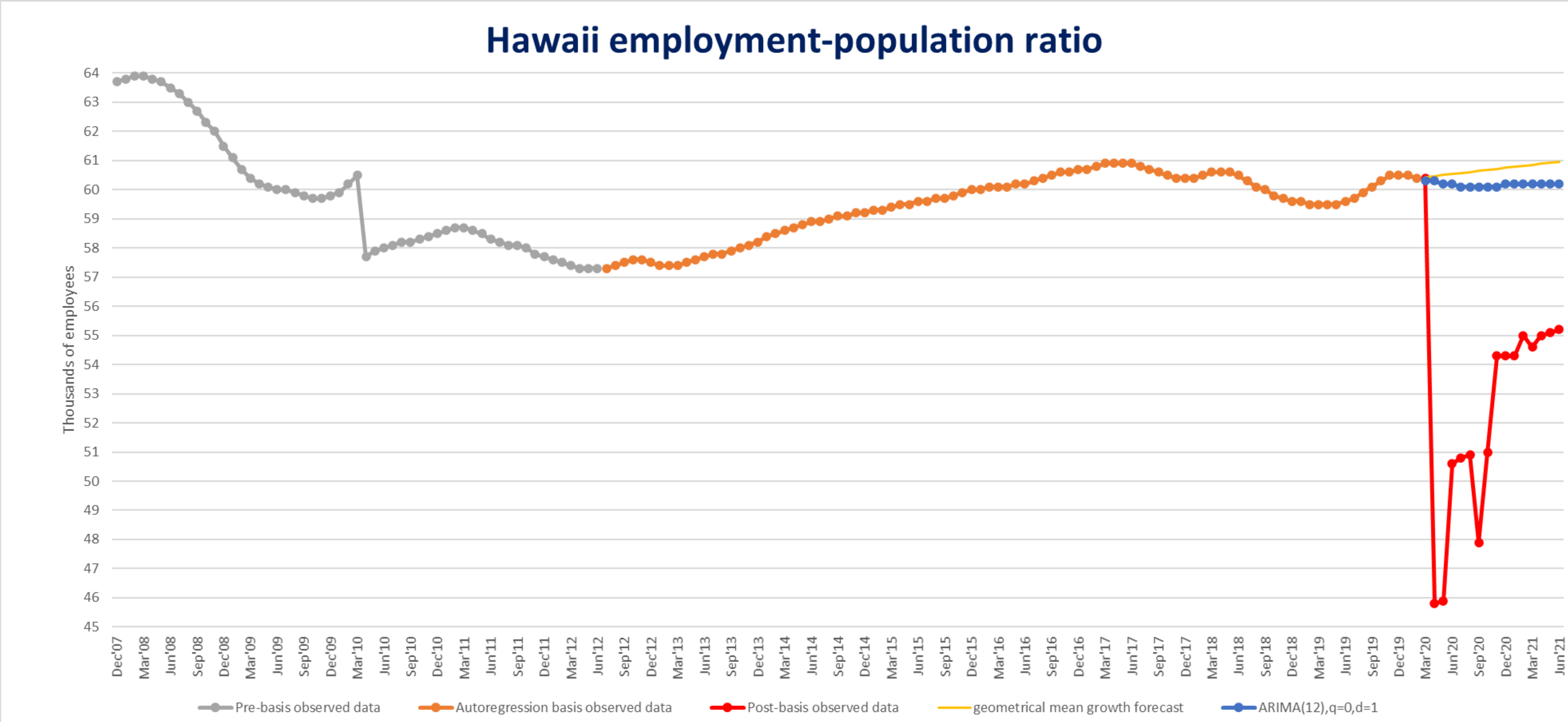


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.006725*	*0.009694*	*0.693756*	*0.489397*
phi 1	0.453083	0.097927	*4.626722*	*1.08E-05*
phi 2	0.247626	0.106903	*2.31636*	*0.022519*
phi 3	0.096264	0.084731	*1.136118*	*0.258544*
phi 4	-0.08753	0.084549	*-1.03525*	*0.302977*
phi 5	0.07493	0.075854	*0.987819*	*0.325556*
phi 6	-0.05044	0.076208	*-0.66191*	*0.509506*
phi 7	0.026735	0.076193	*0.350881*	*0.726394*
phi 8	-0.08155	0.075385	*-1.08176*	*0.281886*
phi 9	-0.00628	0.075785	*-0.08283*	*0.934144*
phi 10	0.064476	0.071625	*0.900182*	*0.370123*
phi 11	0.008801	0.071906	*0.122396*	*0.902824*
phi 12	-0.04652	0.068135	*-0.68269*	*0.496334*

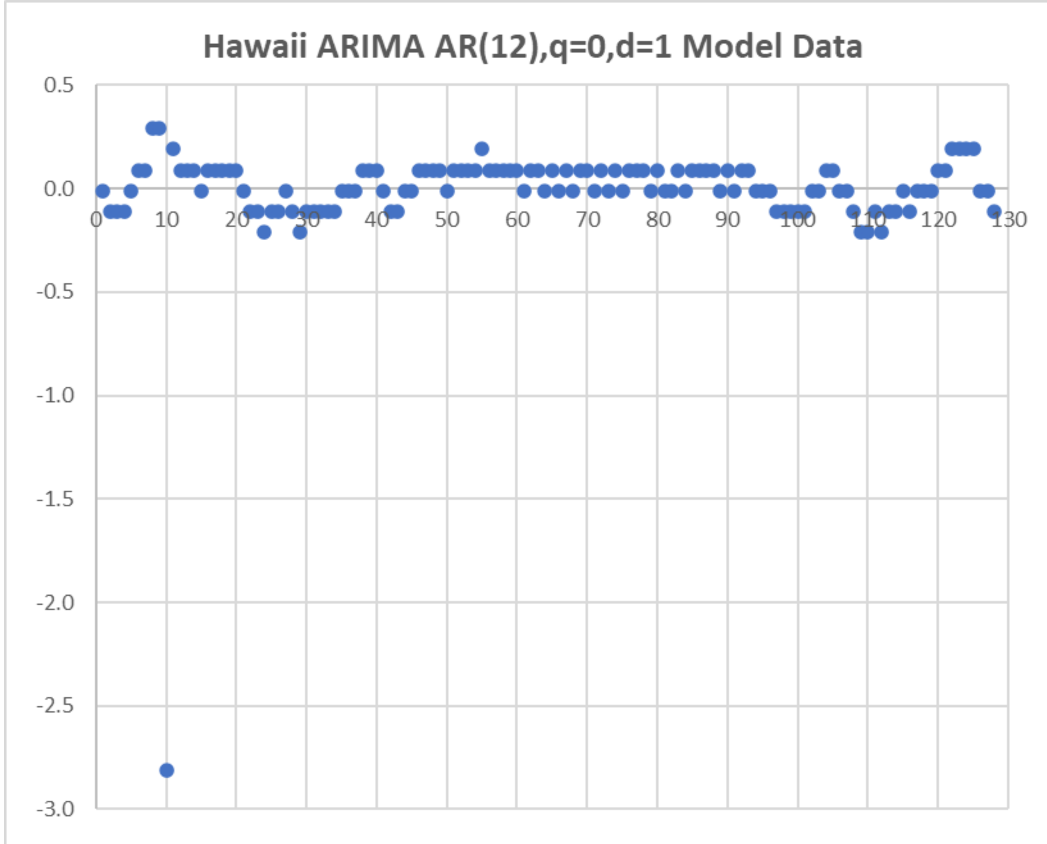


Appendix E111: Hawaii Employment-Population Ratio ARIMA Model Forecast

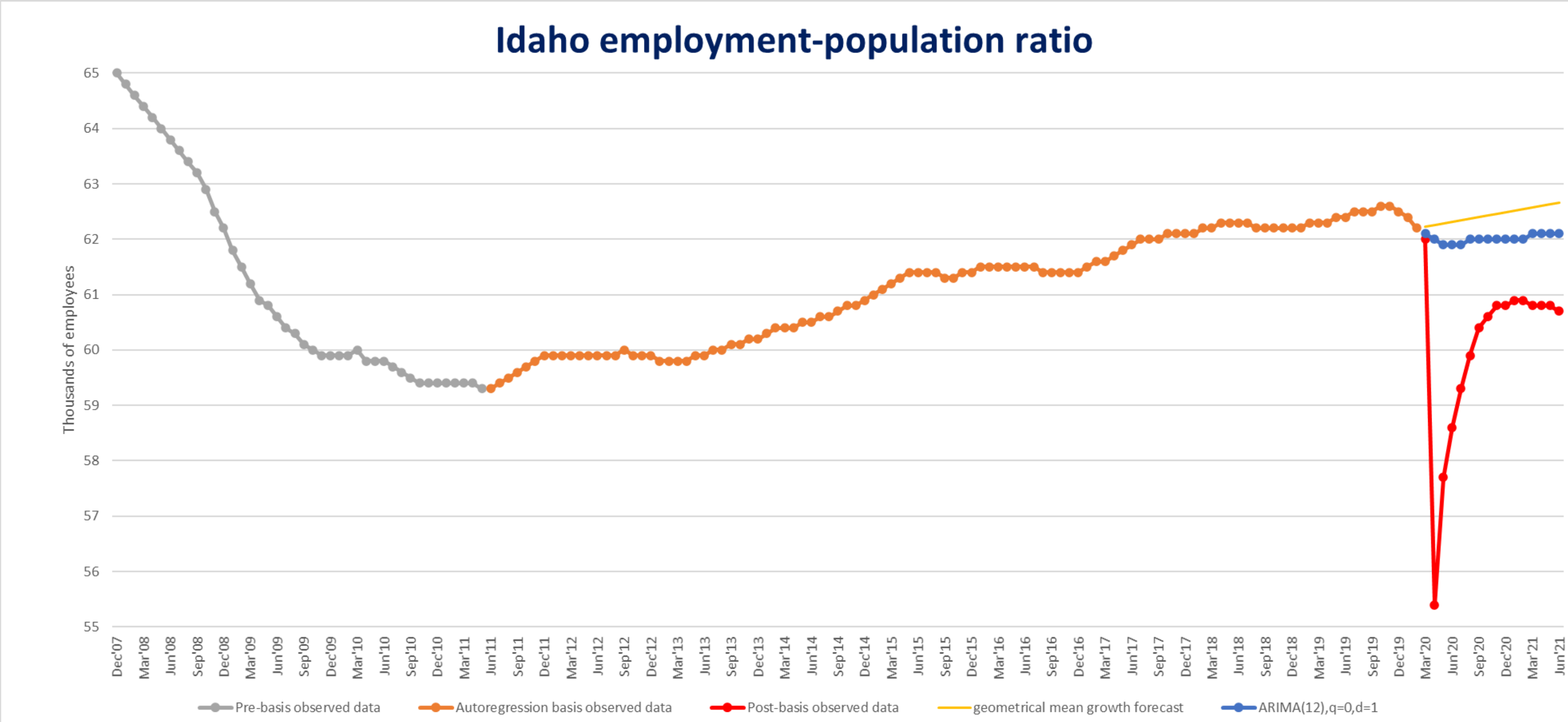


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.002373*	*0.006485*	*0.365983*	*0.715128*
phi 1	0.509103	0.095041	*5.356645*	*5.19E-07*
phi 2	0.295845	0.094754	*3.122246*	*0.00233*
phi 3	-0.00903	0.022899	*-0.39431*	*0.69417*
phi 4	-0.0273	0.02298	*-1.18805*	*0.237546*
phi 5	0.010163	0.022767	*0.446387*	*0.656255*
phi 6	-0.03708	0.022719	*-1.63199*	*0.105735*
phi 7	-0.01524	0.023032	*-0.66175*	*0.509608*
phi 8	-0.00857	0.022655	*-0.37819*	*0.70607*
phi 9	-0.00591	0.022678	*-0.26053*	*0.794973*
phi 10	-0.00823	0.022684	*-0.36284*	*0.717466*
phi 11	0.023469	0.022674	*1.035064*	*0.303063*
phi 12	0.034262	0.022702	*1.509222*	*0.134304*

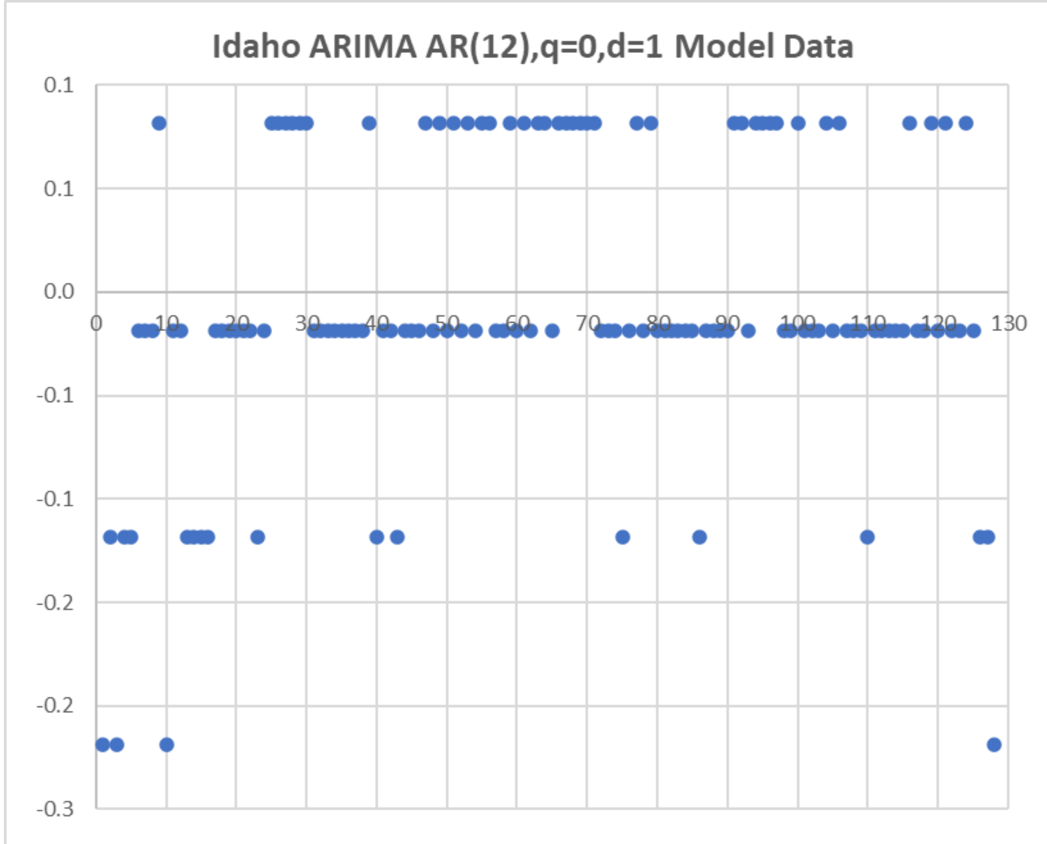


Appendix E112: Idaho Employment-Population Ratio ARIMA Model Forecast

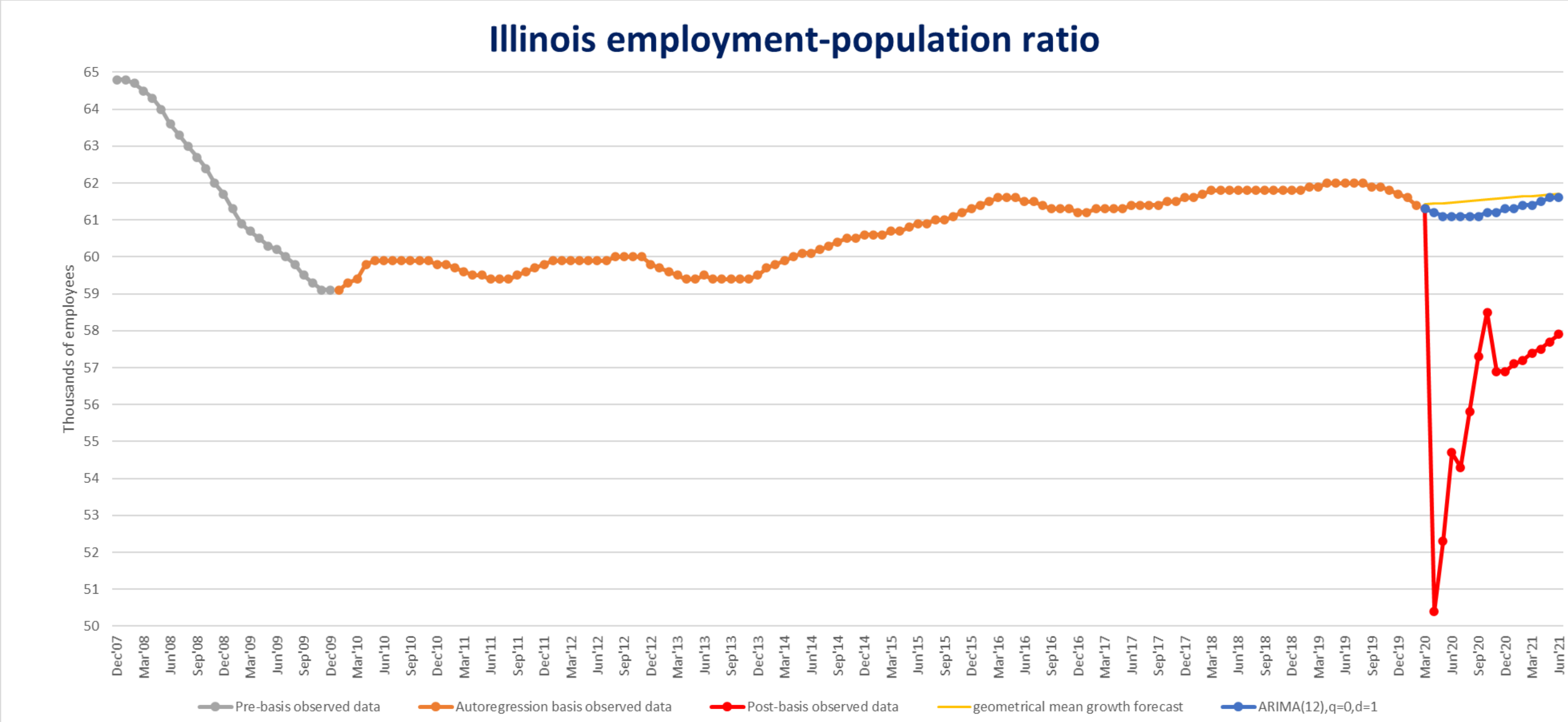


Model parameters

param	coeff	s.e.	t-stat	p-value
const	*0.007493*	*0.006487*	*1.154968*	*0.250776*
phi 1	0.270647	0.101175	*2.675046*	*0.008693*
phi 2	0.310668	0.10391	*2.989767*	*0.003492*
phi 3	0.205508	0.101214	*2.030433*	*0.04489*
phi 4	-0.09467	0.102004	*-0.92806*	*0.355546*
phi 5	-0.07645	0.101681	*-0.75189*	*0.45383*
phi 6	-0.12125	0.101729	*-1.1919*	*0.236038*
phi 7	-0.12785	0.102687	*-1.24502*	*0.21595*
phi 8	0.246936	0.102718	*2.404025*	*0.018002*
phi 9	0.023513	0.104467	*0.225078*	*0.822365*
phi 10	0.038214	0.100408	*0.38059*	*0.704291*
phi 11	-0.16213	0.094222	*-1.72075*	*0.0883*
phi 12	0.082925	0.09273	*0.894263*	*0.373266*

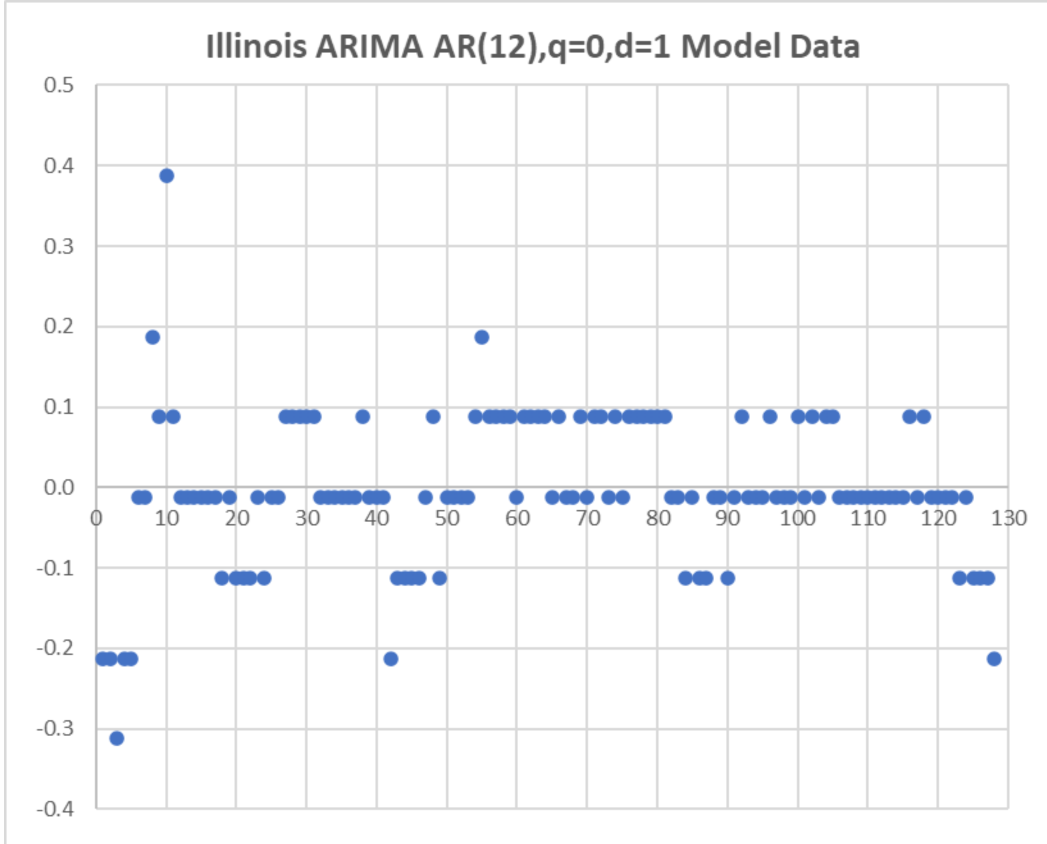


Appendix E113: Illinois Employment-Population Ratio ARIMA Model Forecast

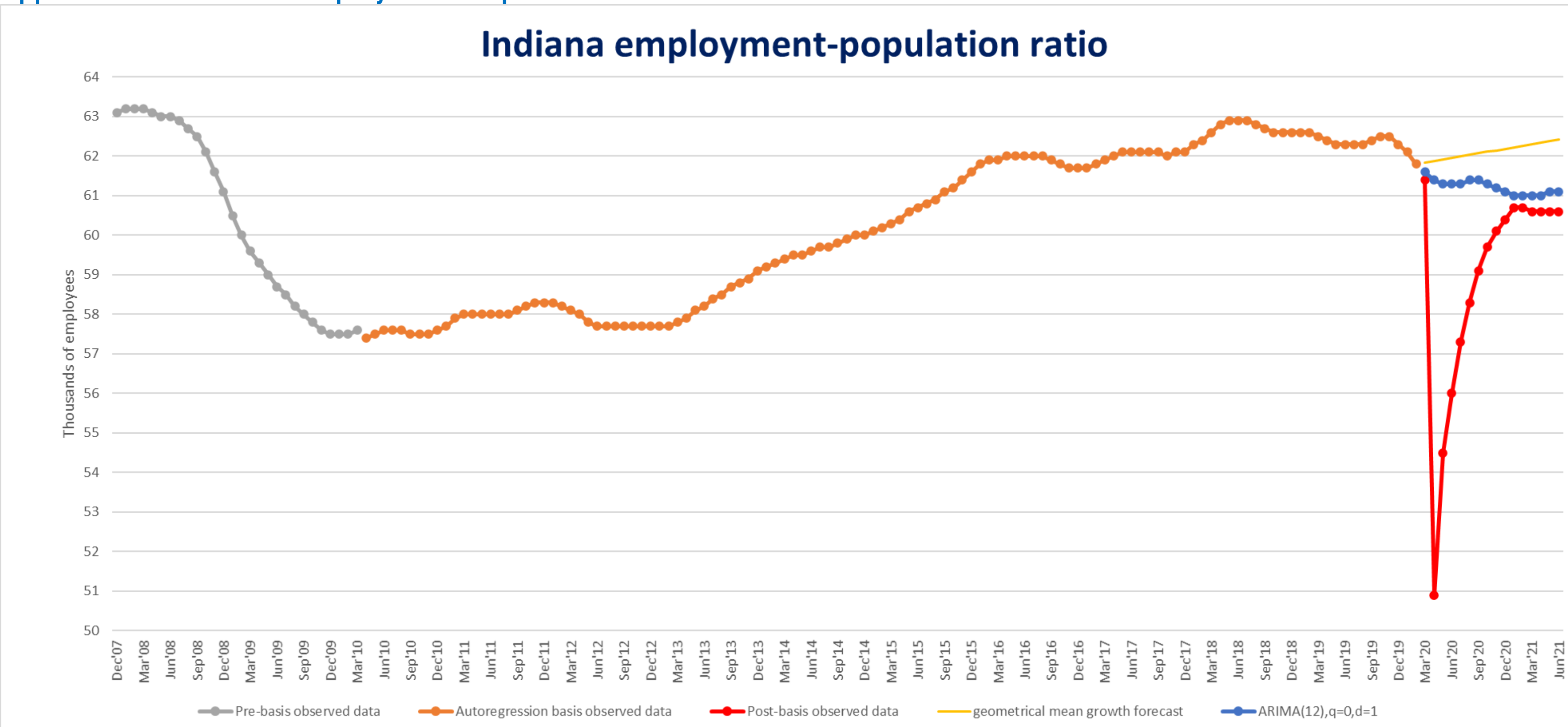


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.006414*	*0.00637*	*1.006892*	*0.316346*
phi 1	0.293119	0.097181	*3.016209*	*0.003224*
phi 2	0.409823	0.101372	*4.042762*	*0.000102*
phi 3	0.156185	0.095391	*1.63732*	*0.104615*
phi 4	-0.05153	0.09646	*-0.53419*	*0.594358*
phi 5	-0.23386	0.095878	*-2.43915*	*0.016431*
phi 6	-0.13533	0.097444	*-1.38876*	*0.167903*
phi 7	0.142427	0.09722	*1.46499*	*0.14597*
phi 8	0.152081	0.094129	*1.61566*	*0.109227*
phi 9	-0.03725	0.095107	*-0.39165*	*0.696126*
phi 10	-0.16202	0.093676	*-1.72961*	*0.086695*
phi 11	-0.002	0.087832	*-0.02277*	*0.981877*
phi 12	-0.04992	0.083399	*-0.59854*	*0.550796*

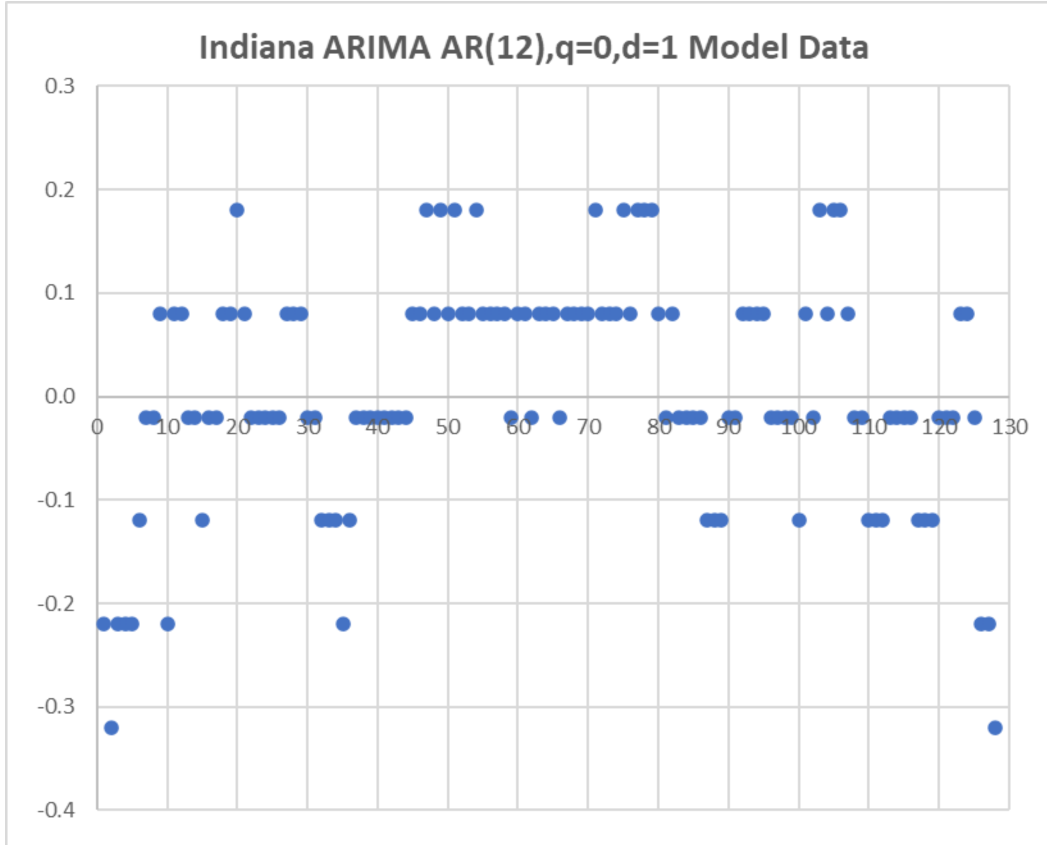


Appendix E114: Indiana Employment-Population Ratio ARIMA Model Forecast

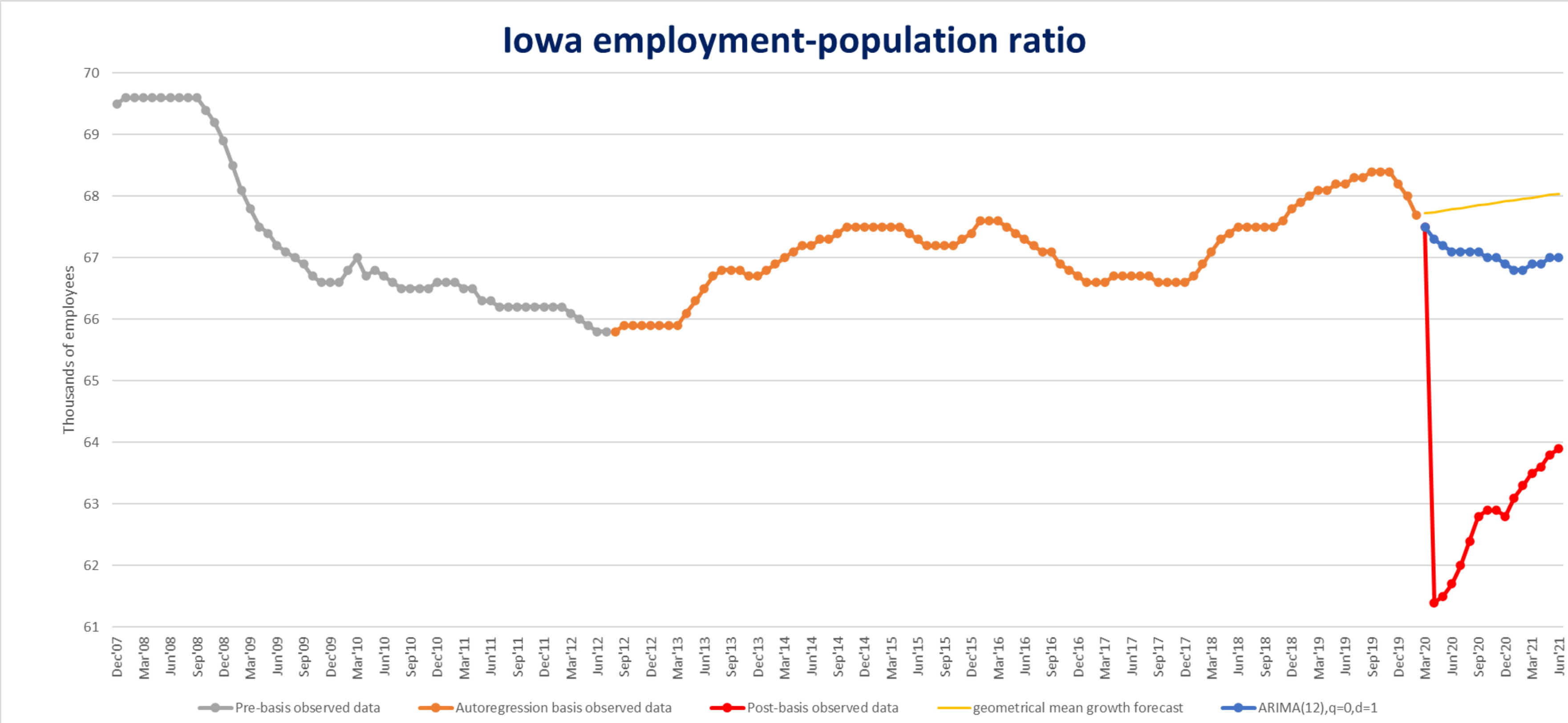


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.003806	0.007594	0.501206	0.617296
phi 1	0.587876	0.096992	6.061084	2.25E-08
phi 2	0.393566	0.112398	3.501542	0.000685
phi 3	-0.12558	0.105994	-1.18478	0.238831
phi 4	-0.06872	0.104563	-0.65717	0.512536
phi 5	-0.23664	0.104681	-2.2606	0.025887
phi 6	-0.03999	0.105845	-0.37786	0.706313
phi 7	0.296238	0.106608	2.778766	0.006486
phi 8	0.095816	0.106448	0.900122	0.370155
phi 9	-0.00164	0.106682	-0.01541	0.987739
phi 10	-0.08956	0.106189	-0.84337	0.400978
phi 11	0.061308	0.098659	0.621414	0.5357
phi 12	-0.06393	0.08916	-0.71698	0.475008

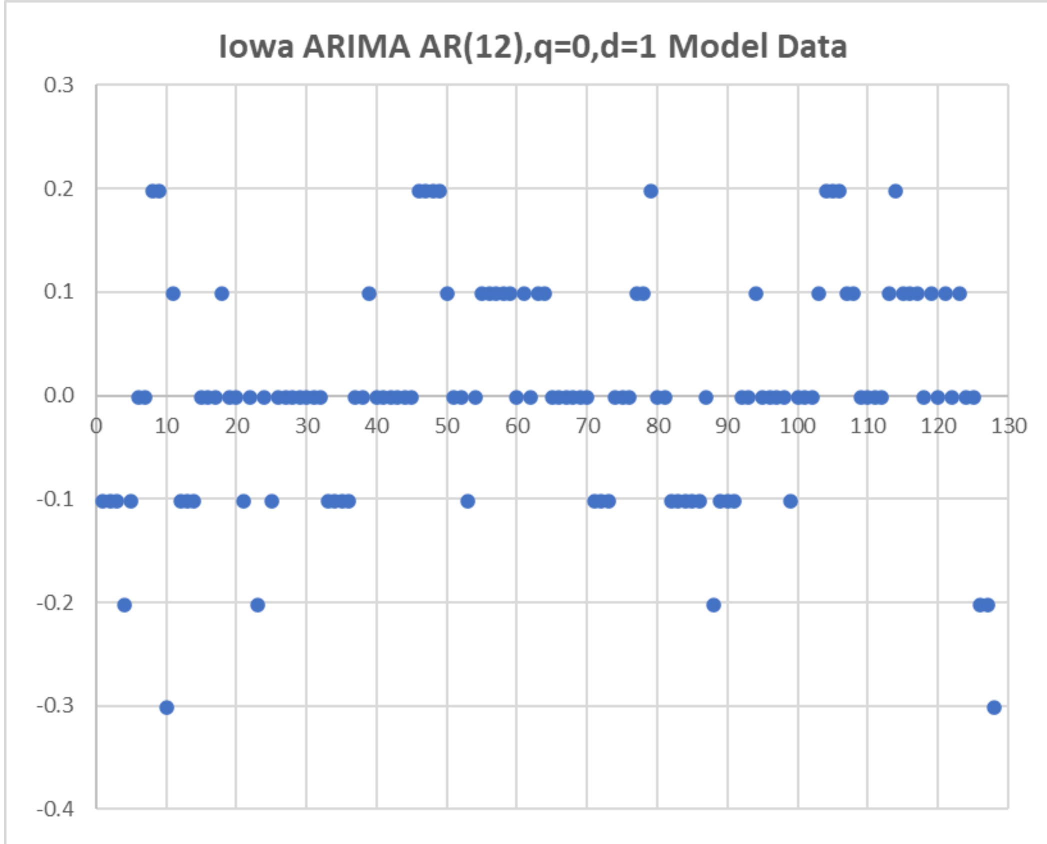


Appendix E115: Iowa Employment-Population Ratio ARIMA Model Forecast

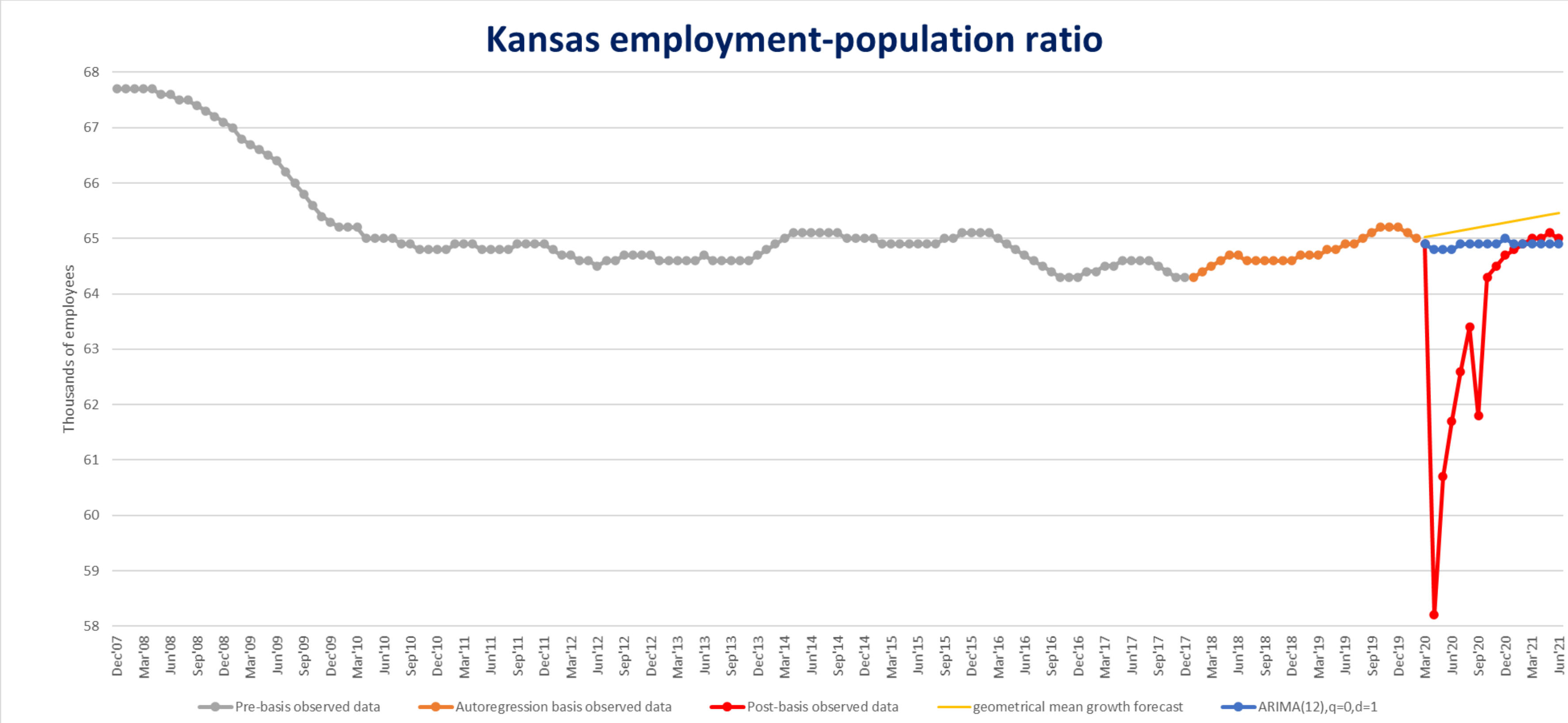


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.000649	0.006266	0.103564	0.917717
phi 1	0.520184	0.097142	5.354868	5.23E-07
phi 2	0.505271	0.107712	4.69097	8.38E-06
phi 3	-0.13032	0.097949	-1.3305	0.186291
phi 4	-0.20617	0.097298	-2.11891	0.036503
phi 5	-0.1805	0.090928	-1.98505	0.049798
phi 6	0.105695	0.092516	1.142453	0.255915
phi 7	0.153599	0.092963	1.652259	0.101527
phi 8	-0.01032	0.091548	-0.11274	0.91046
phi 9	0.038562	0.089152	0.432538	0.666255
phi 10	-0.00336	0.088825	-0.03788	0.96986
phi 11	0.040768	0.083656	0.487335	0.627057
phi 12	-0.16588	0.079929	-2.07533	0.040448

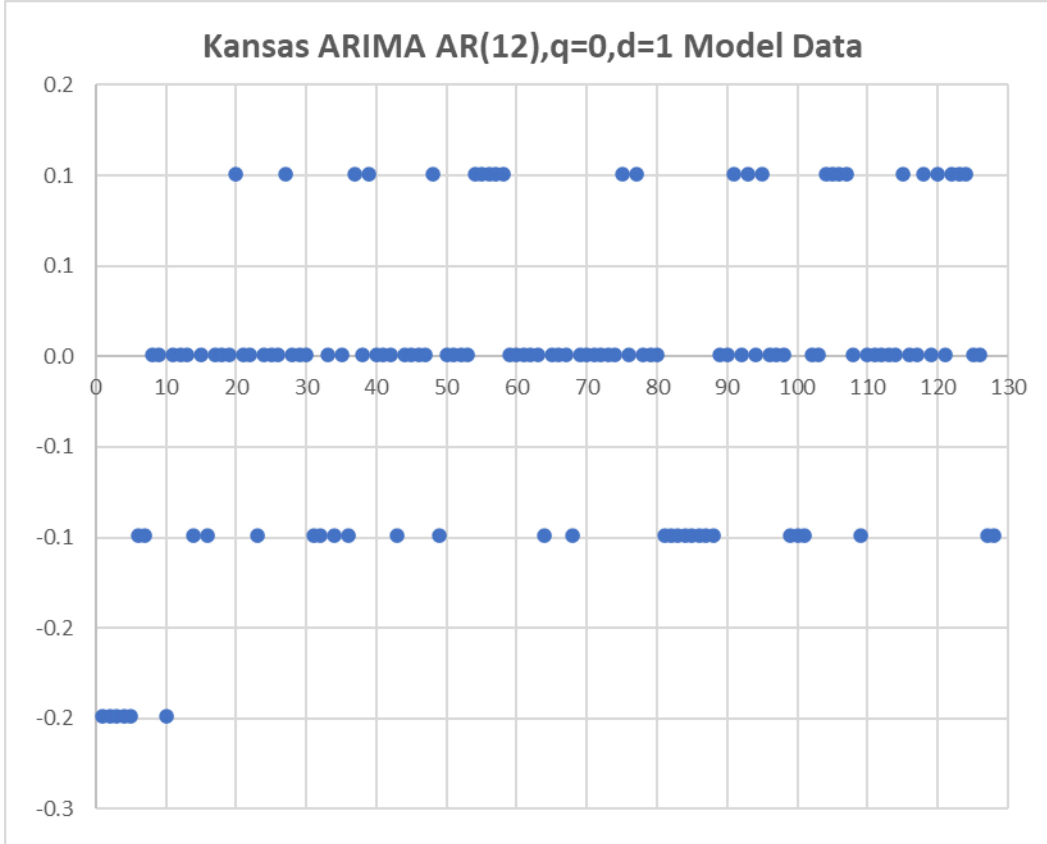


Appendix E116: Kansas Employment-Population Ratio ARIMA Model Forecast

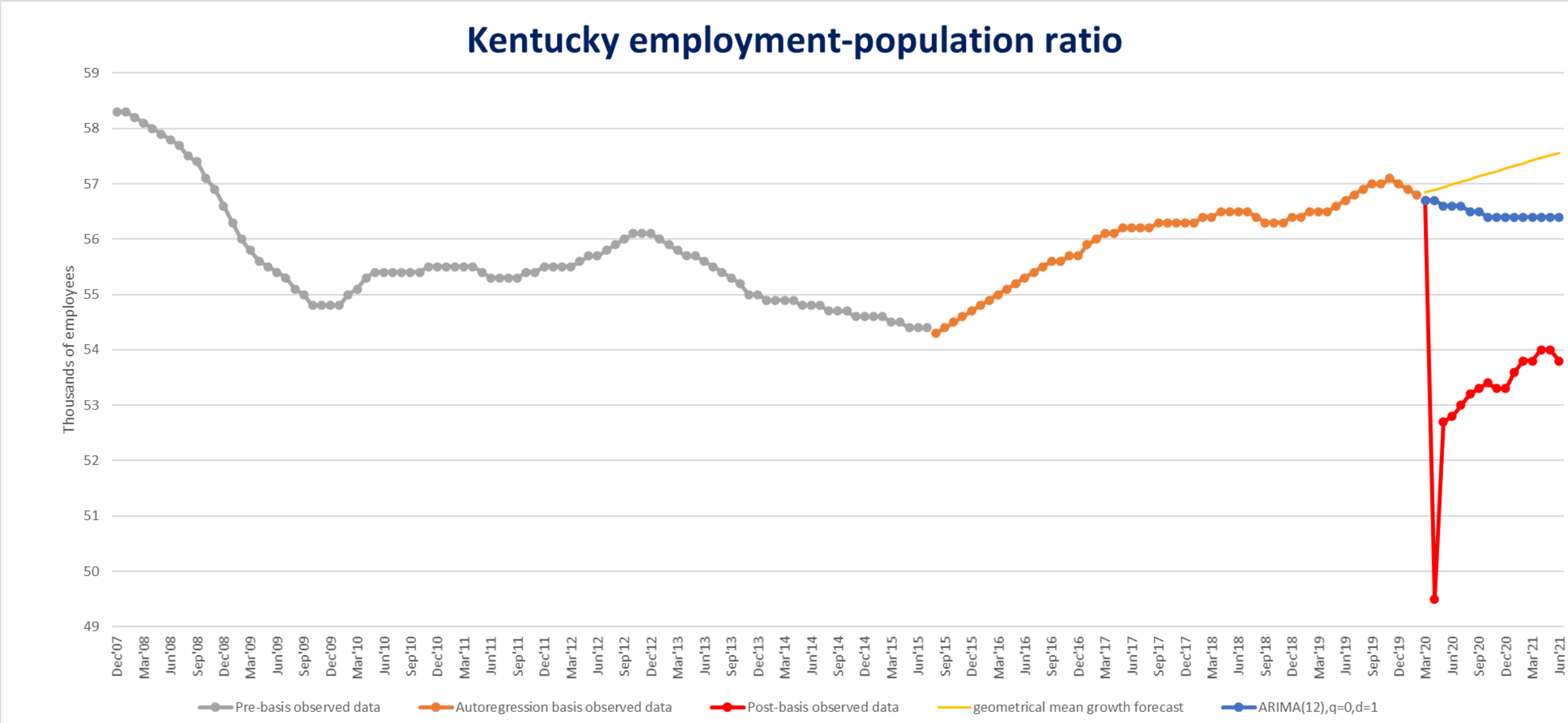


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*-0.00058*	*0.005443*	*-0.10616*	*0.91566*
phi 1	0.257247	0.097542	*2.637304*	*0.009651*
phi 2	0.458957	0.101533	*4.520281*	*1.65E-05*
phi 3	-0.06668	0.101934	*-0.6541*	*0.514502*
phi 4	-0.1095	0.10082	*-1.08612*	*0.279962*
phi 5	-0.17859	0.099774	*-1.7899*	*0.076409*
phi 6	-0.08125	0.101829	*-0.79794*	*0.426742*
phi 7	0.053257	0.101942	*0.522423*	*0.602497*
phi 8	0.05983	0.100445	*0.595651*	*0.552715*
phi 9	0.085017	0.099886	*0.851135*	*0.396669*
phi 10	-0.14783	0.10023	*-1.47493*	*0.14328*
phi 11	-0.02056	0.094314	*-0.21796*	*0.82789*
phi 12	0.086721	0.089235	*0.971822*	*0.333416*

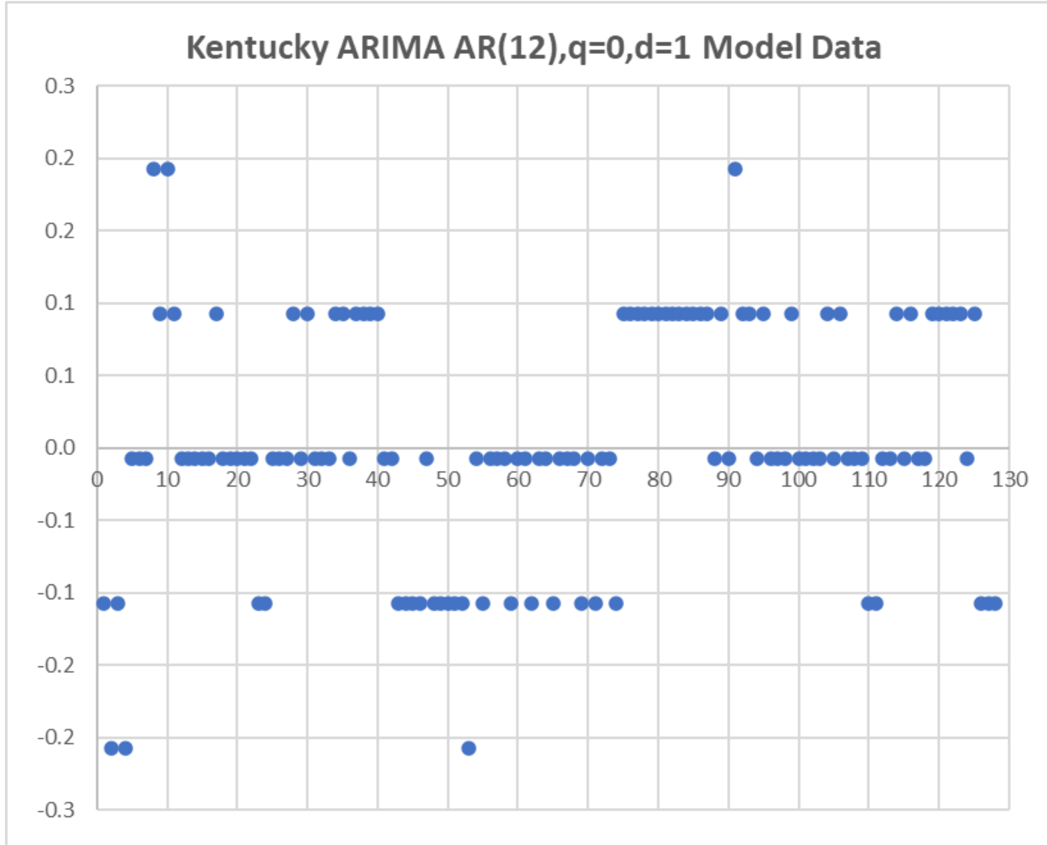


Appendix E117: Kentucky Employment-Population Ratio ARIMA Model Forecast

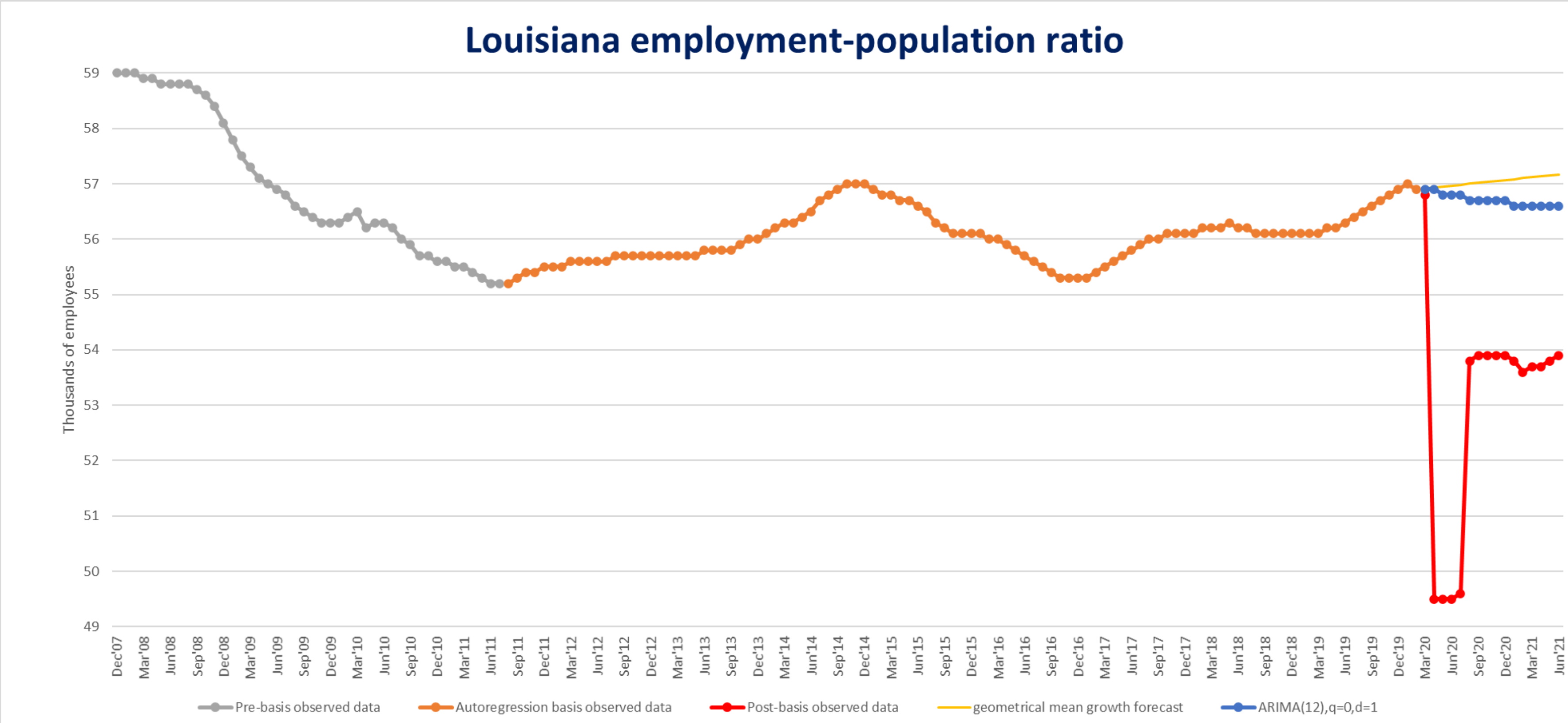


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.0025	0.006043	0.413659	0.679984
phi 1	0.293106	0.097329	3.011504	0.00327
phi 2	0.42652	0.100061	4.2626	4.49E-05
phi 3	0.070906	0.106911	0.663223	0.508669
phi 4	-0.02813	0.108548	-0.25915	0.796036
phi 5	-0.12911	0.107361	-1.20258	0.231897
phi 6	-0.00997	0.106616	-0.0935	0.925687
phi 7	0.079444	0.106415	0.74655	0.457036
phi 8	0.007998	0.105809	0.075587	0.939895
phi 9	0.161304	0.10398	1.551294	0.123899
phi 10	-0.04656	0.105678	-0.44058	0.660439
phi 11	-0.20382	0.095401	-2.13642	0.035014
phi 12	0.038457	0.09312	0.412981	0.680479

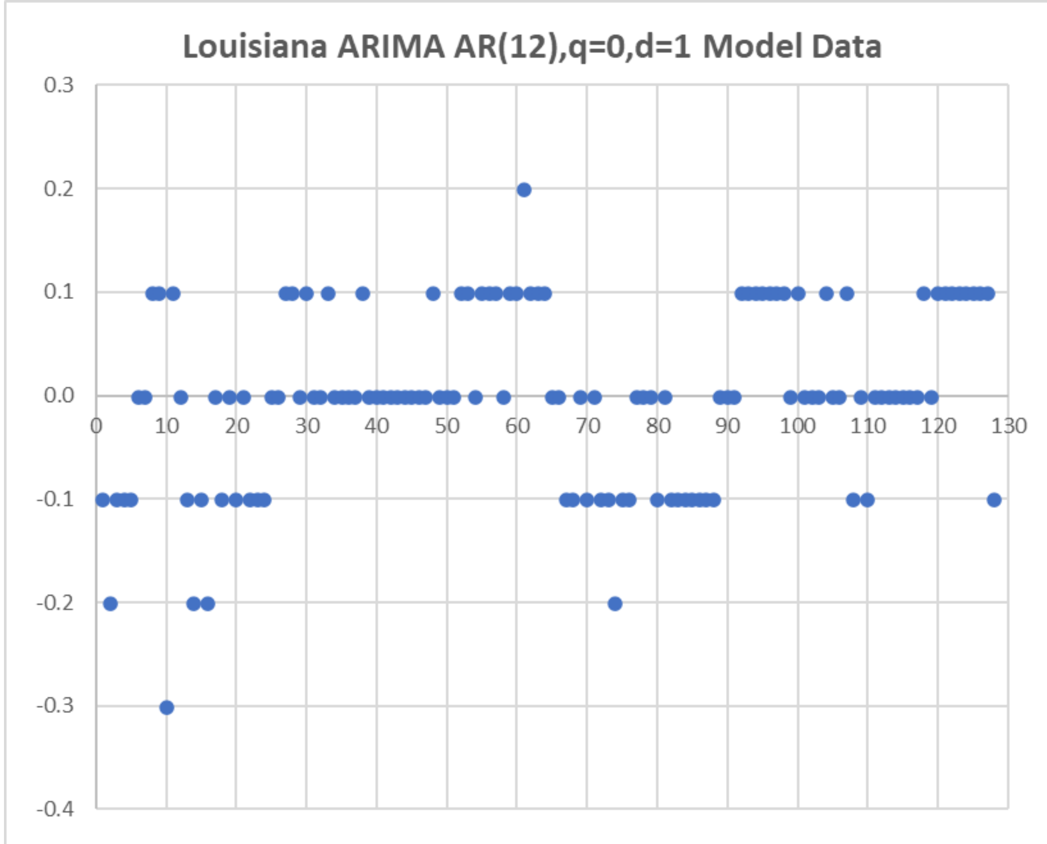


Appendix E118: Louisiana Employment-Population Ratio ARIMA Model Forecast

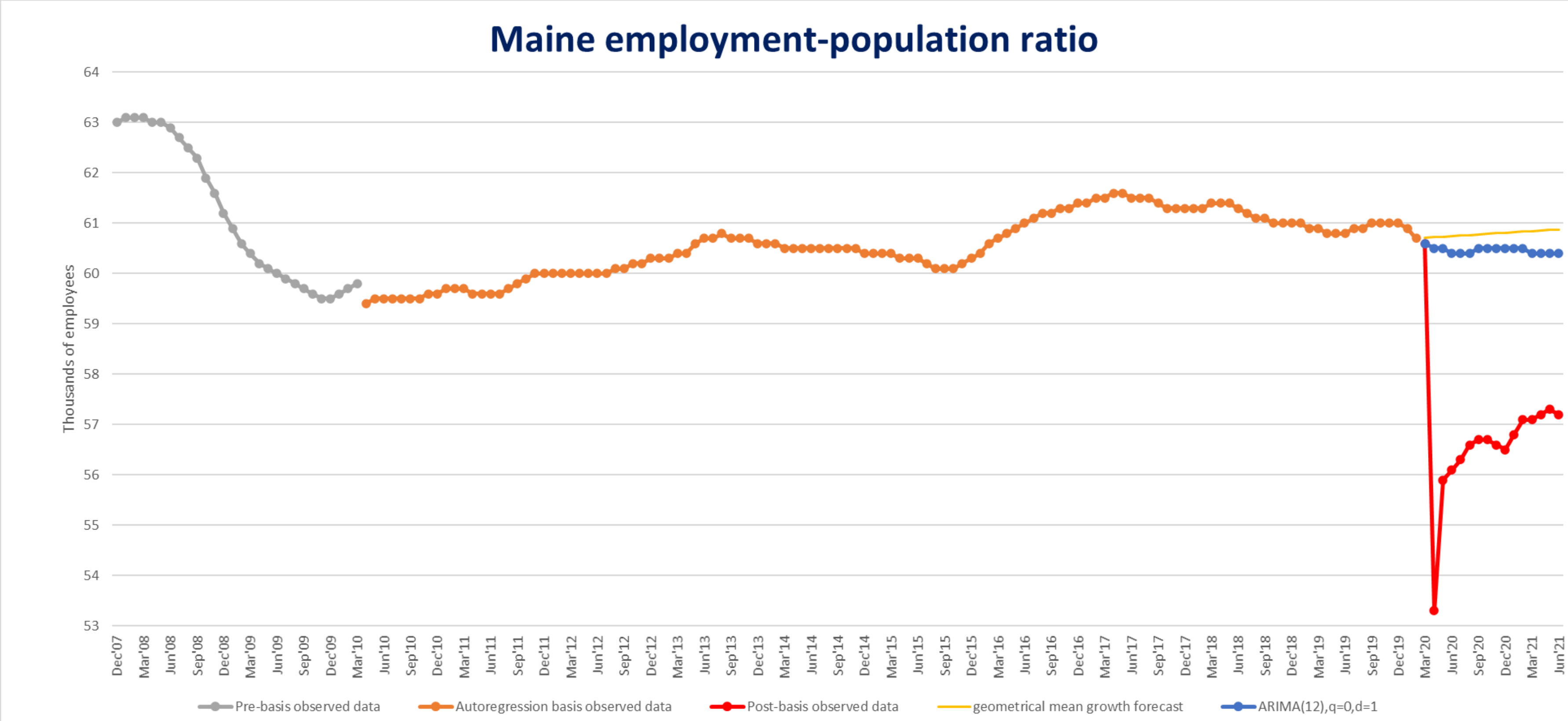


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.000485*	*0.005915*	*0.082026*	*0.934785*
phi 1	0.346848	0.101748	*3.408883*	*0.000932*
phi 2	0.392593	0.106445	*3.688228*	*0.000363*
phi 3	0.050357	0.096981	*0.519241*	*0.604707*
phi 4	0.063612	0.096505	*0.65916*	*0.511264*
phi 5	-0.1304	0.091759	*-1.42112*	*0.158304*
phi 6	0.002389	0.09218	*0.025916*	*0.979374*
phi 7	-0.08818	0.09183	*-0.96029*	*0.339157*
phi 8	0.094154	0.091238	*1.031961*	*0.304507*
phi 9	0.064927	0.091842	*0.706939*	*0.481201*
phi 10	-0.07909	0.091269	*-0.86657*	*0.388192*
phi 11	-0.01237	0.086993	*-0.14221*	*0.887188*
phi 12	-0.03497	0.084298	*-0.41482*	*0.679135*

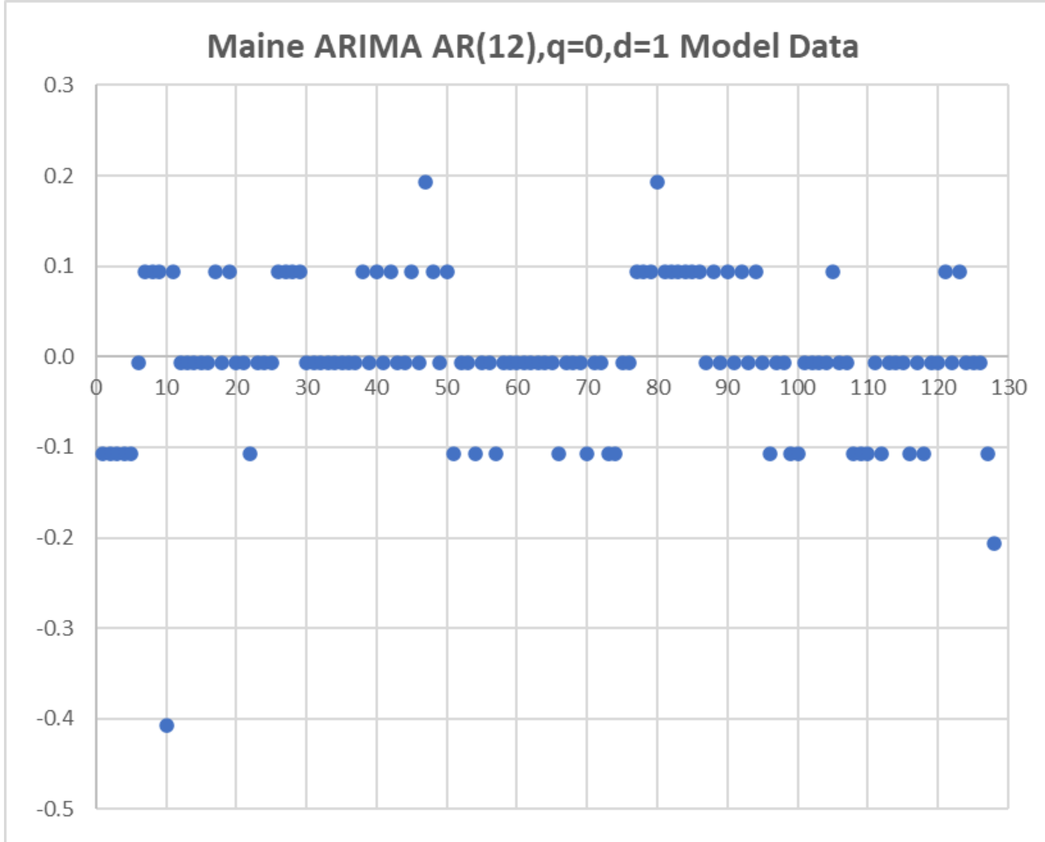


Appendix E119: Maine Employment-Population Ratio ARIMA Model Forecast

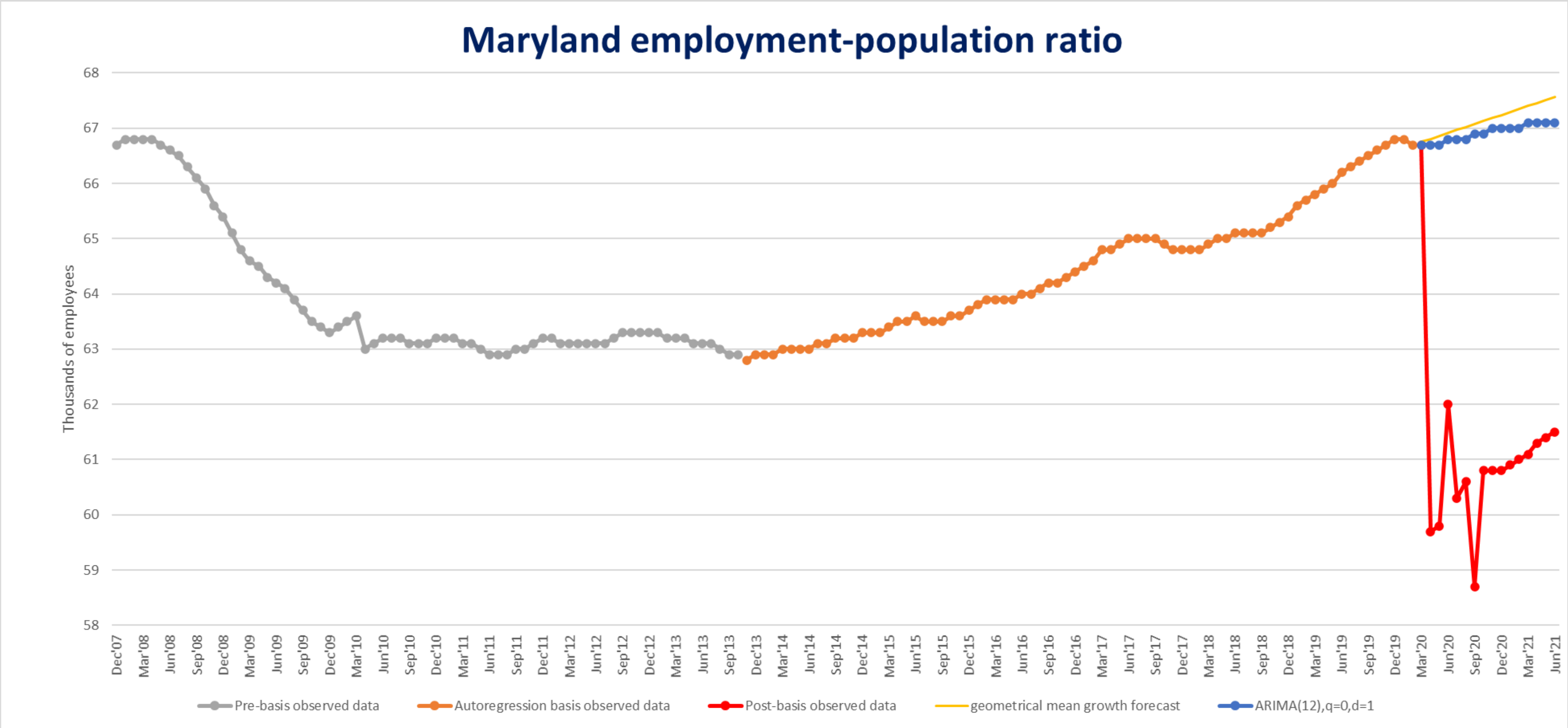


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.002385*	*0.005956*	*0.400494*	*0.689622*
phi 1	0.266088	0.099313	*2.679281*	*0.008591*
phi 2	0.413327	0.101114	*4.087733*	*8.65E-05*
phi 3	0.086858	0.085584	*1.014878*	*0.312542*
phi 4	-0.11604	0.085717	*-1.35375*	*0.178781*
phi 5	-0.10568	0.081627	*-1.29463*	*0.198343*
phi 6	-0.01469	0.080064	*-0.18344*	*0.85481*
phi 7	-0.10536	0.080123	*-1.31496*	*0.191444*
phi 8	0.17538	0.08034	*2.182973*	*0.031309*
phi 9	0.042545	0.081693	*0.520785*	*0.603634*
phi 10	0.01978	0.08038	*0.246087*	*0.806105*
phi 11	-0.09672	0.078212	*-1.23658*	*0.219054*
phi 12	0.079757	0.077635	*1.02734*	*0.306667*

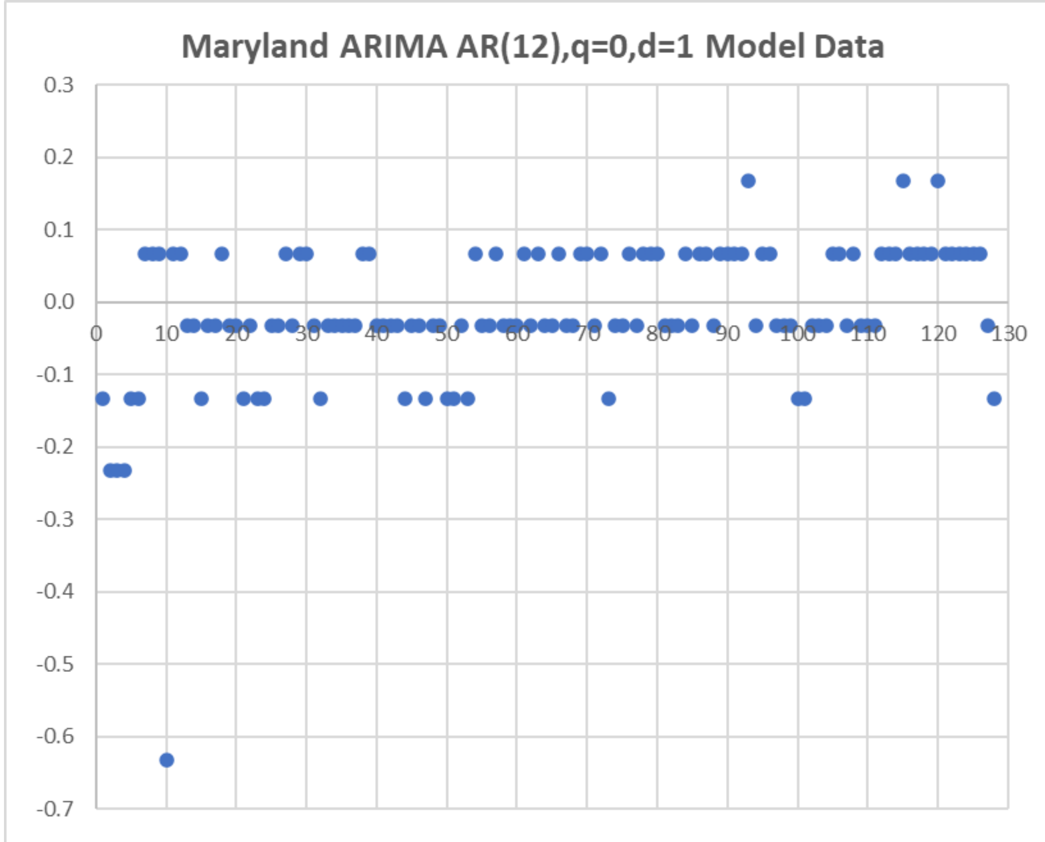


Appendix E120: Maryland Employment-Population Ratio ARIMA Model Forecast

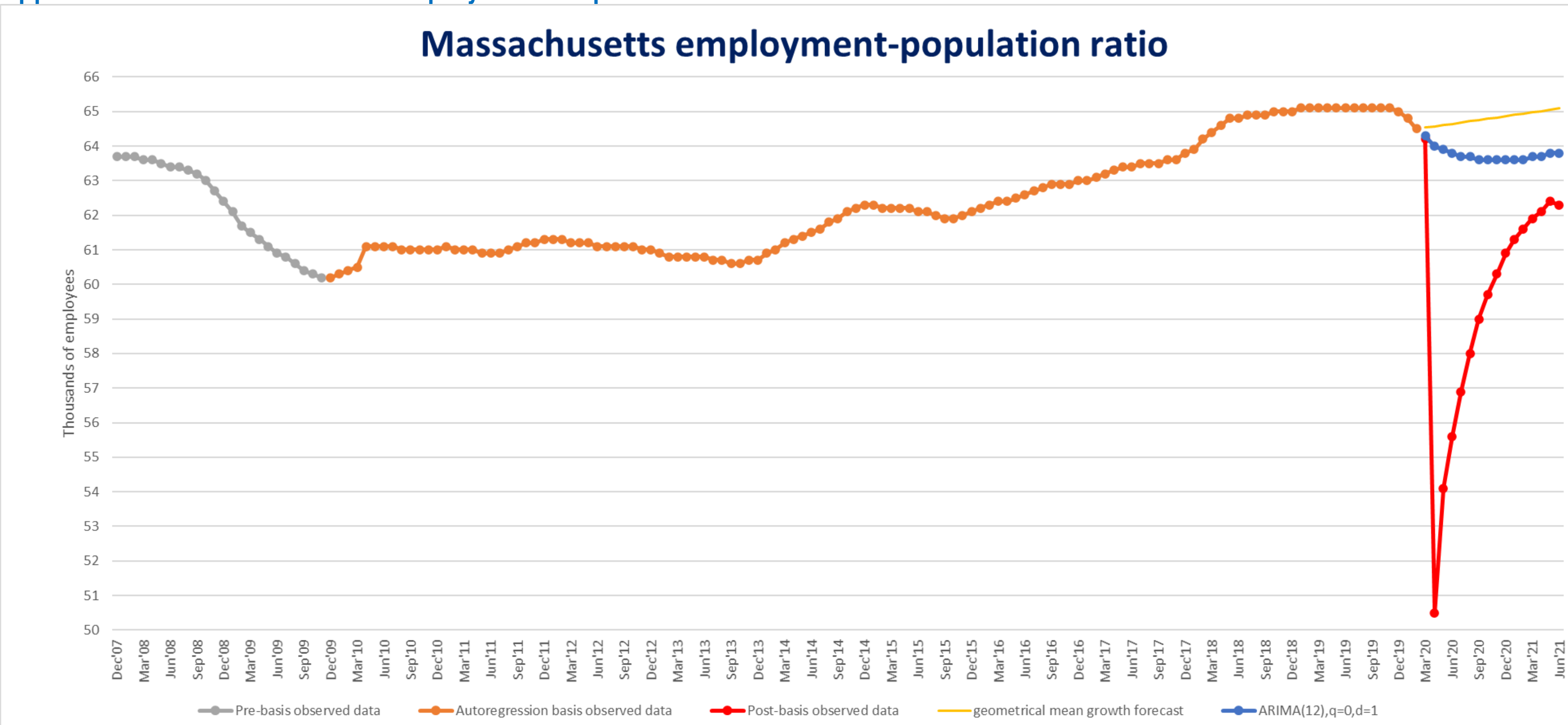


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.010879*	*0.007208*	*1.509146*	*0.134323*
phi 1	0.296197	0.098537	*3.005963*	*0.003326*
phi 2	0.190016	0.099691	*1.906043*	*0.059432*
phi 3	0.082095	0.072515	*1.132107*	*0.260218*
phi 4	-0.01672	0.071024	*-0.23542*	*0.814354*
phi 5	-0.01602	0.069932	*-0.22914*	*0.819214*
phi 6	0.031932	0.068158	*0.468494*	*0.640421*
phi 7	-0.01376	0.067962	*-0.20248*	*0.839944*
phi 8	-0.08228	0.067886	*-1.21208*	*0.228254*
phi 9	0.172802	0.068284	*2.530644*	*0.012898*
phi 10	-0.02073	0.069301	*-0.29917*	*0.765411*
phi 11	0.081568	0.066793	*1.221214*	*0.224793*
phi 12	-0.04297	0.066461	*-0.64649*	*0.5194*

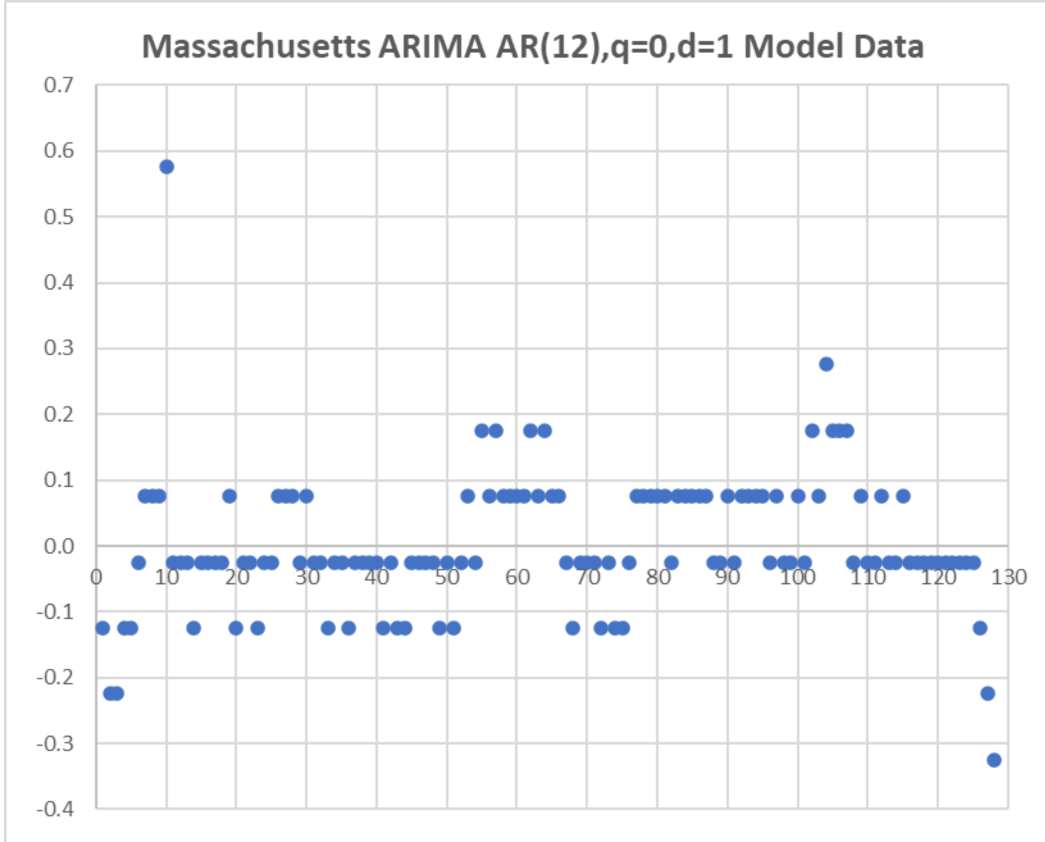


Appendix E121: Massachusetts Employment-Population Ratio ARIMA Model Forecast

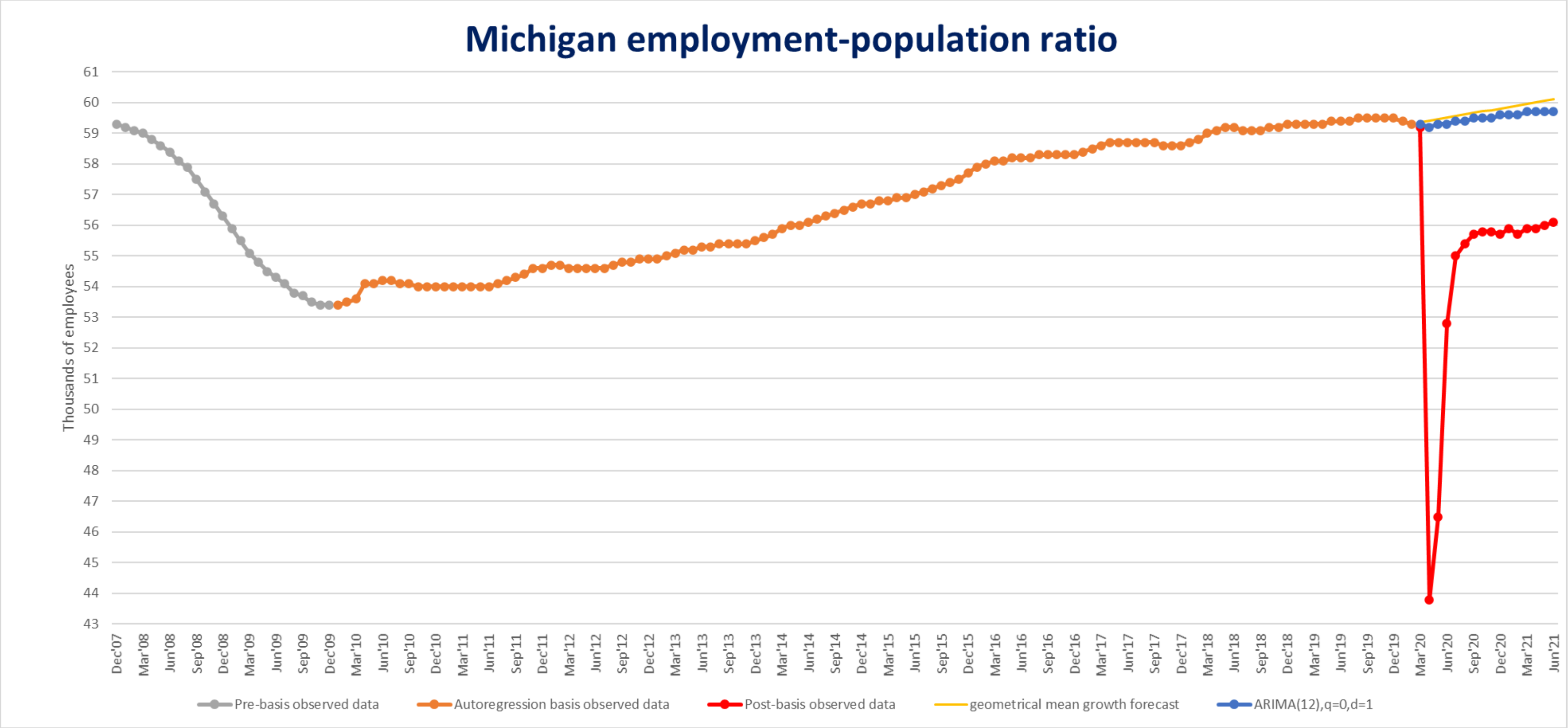


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.006982	0.008172	0.854376	0.39488
phi 1	0.428089	0.097125	4.407597	2.57E-05
phi 2	0.508795	0.105427	4.826049	4.85E-06
phi 3	0.04799	0.084315	0.569176	0.570475
phi 4	-0.30047	0.084354	-3.56205	0.000559
phi 5	0.003968	0.086866	0.045682	0.963652
phi 6	-0.03302	0.085996	-0.38401	0.70176
phi 7	0.166463	0.085315	1.951158	0.053755
phi 8	0.029913	0.086666	0.345153	0.730683
phi 9	0.05321	0.083968	0.6337	0.527681
phi 10	-0.18084	0.082097	-2.20279	0.029838
phi 11	-0.04577	0.078499	-0.58312	0.561084
phi 12	0.037464	0.074757	0.50115	0.617335

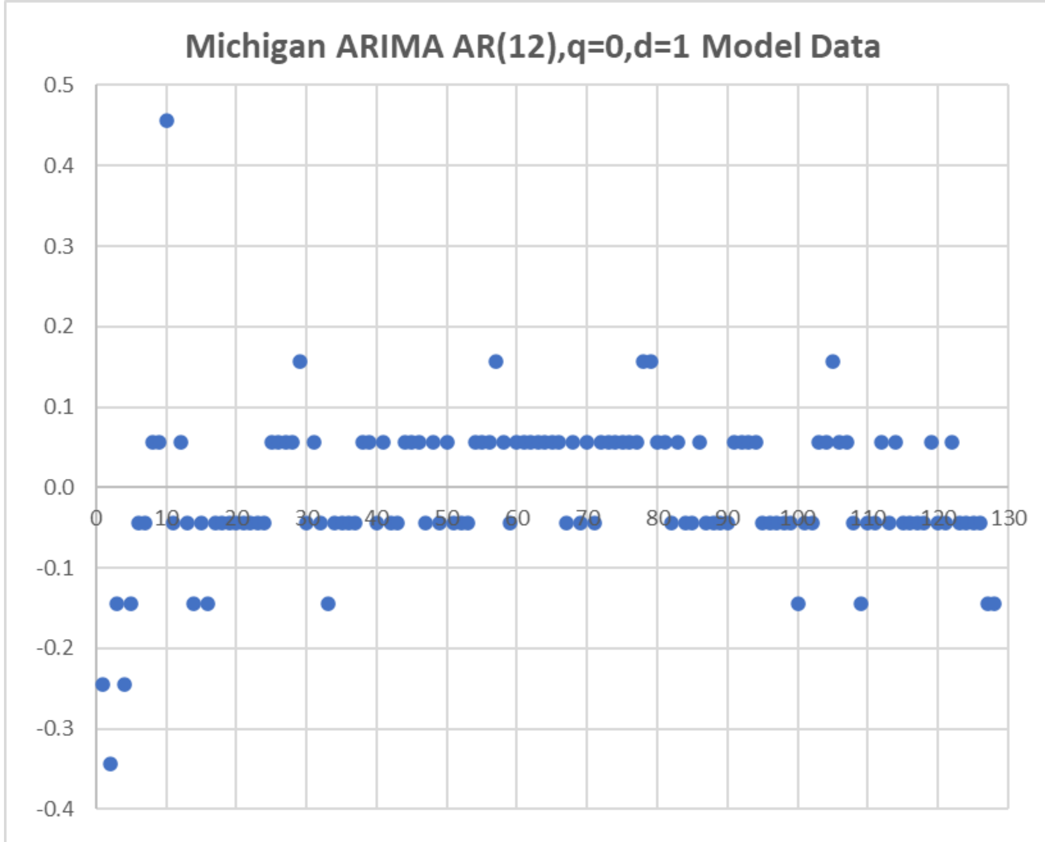


Appendix E122: Michigan Employment-Population Ratio ARIMA Model Forecast

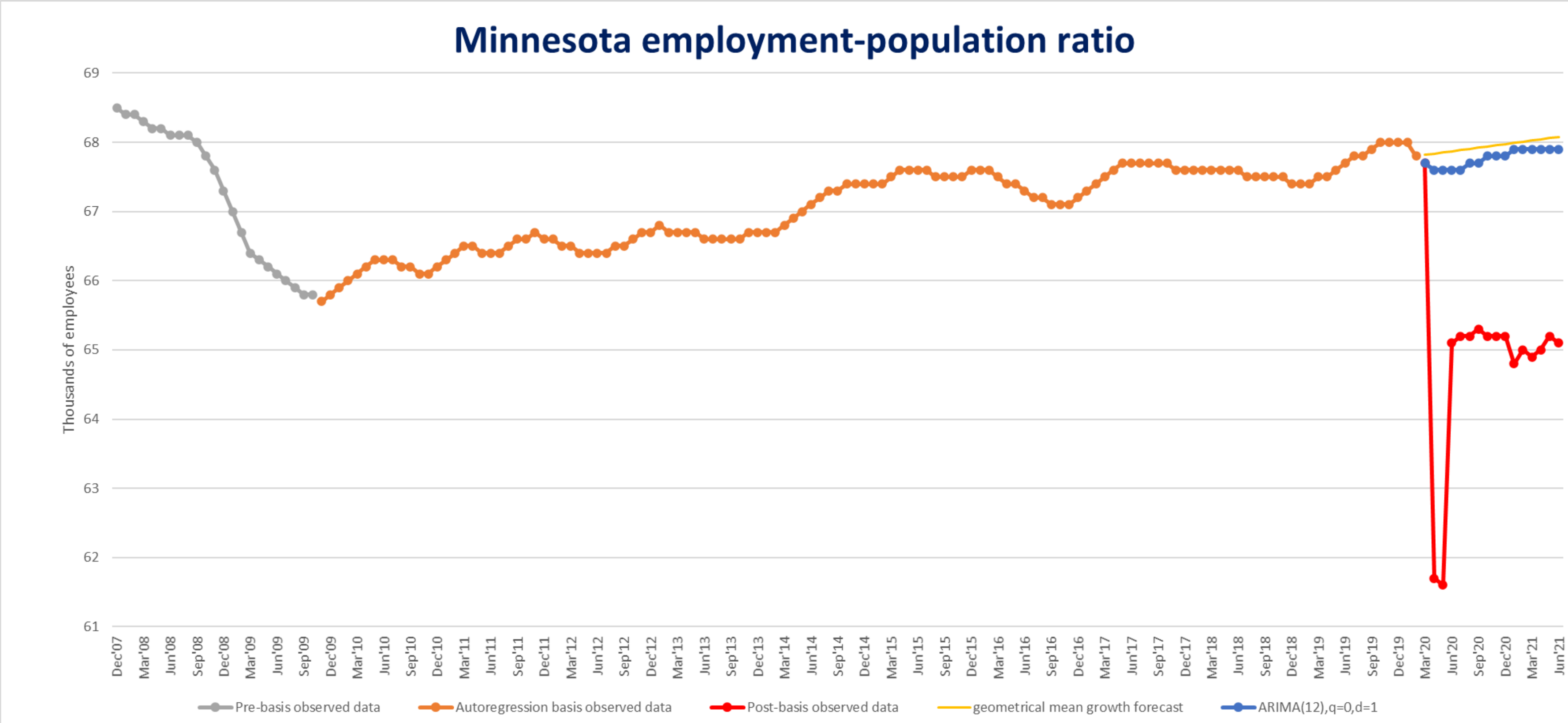


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.019816	0.011646	1.701601	0.091847
phi 1	0.311814	0.09886	3.154091	0.00211
phi 2	0.343435	0.102382	3.354433	0.001114
phi 3	0.006279	0.089647	0.070039	0.944298
phi 4	-0.20837	0.089372	-2.33154	0.021672
phi 5	-0.05331	0.089274	-0.59714	0.551722
phi 6	-0.01441	0.087637	-0.16446	0.869692
phi 7	0.146438	0.087496	1.673666	0.097231
phi 8	-0.01702	0.08847	-0.1924	0.847808
phi 9	-0.04509	0.086663	-0.52029	0.603978
phi 10	-0.00986	0.087184	-0.11314	0.910143
phi 11	0.021999	0.080133	0.274526	0.78423
phi 12	0.067819	0.076048	0.891797	0.37458

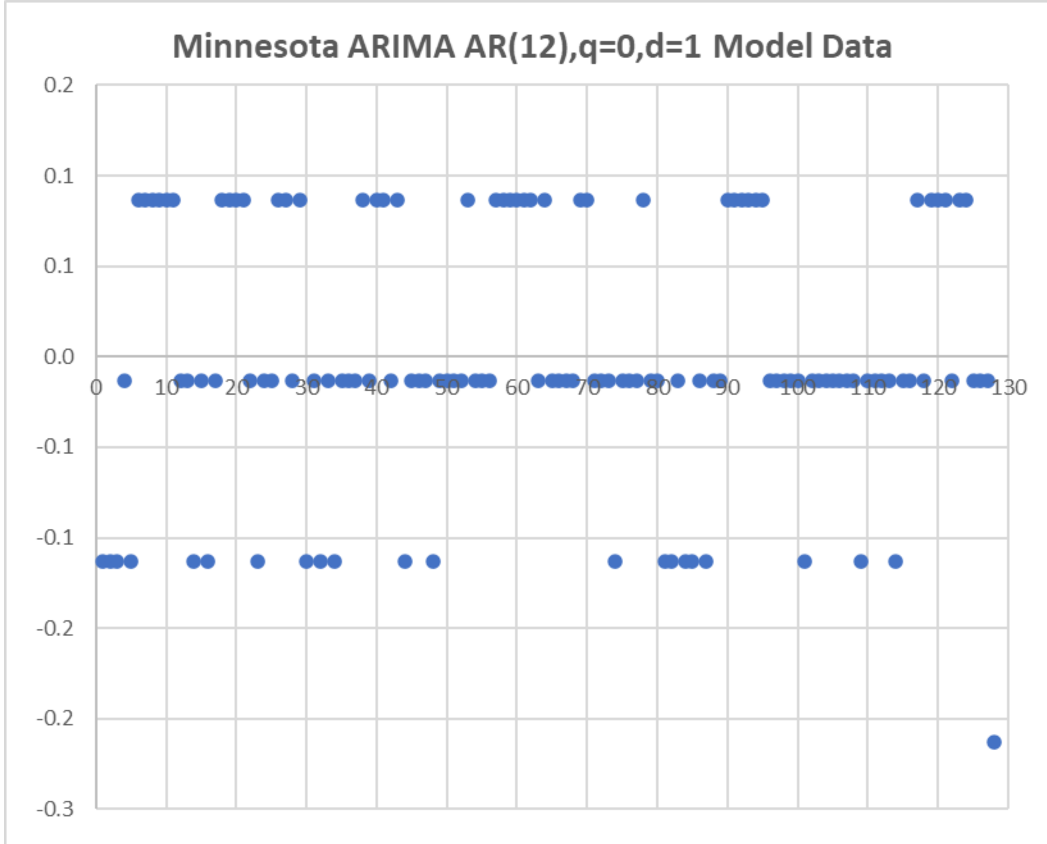


Appendix E123: Minnesota Employment-Population Ratio ARIMA Model Forecast

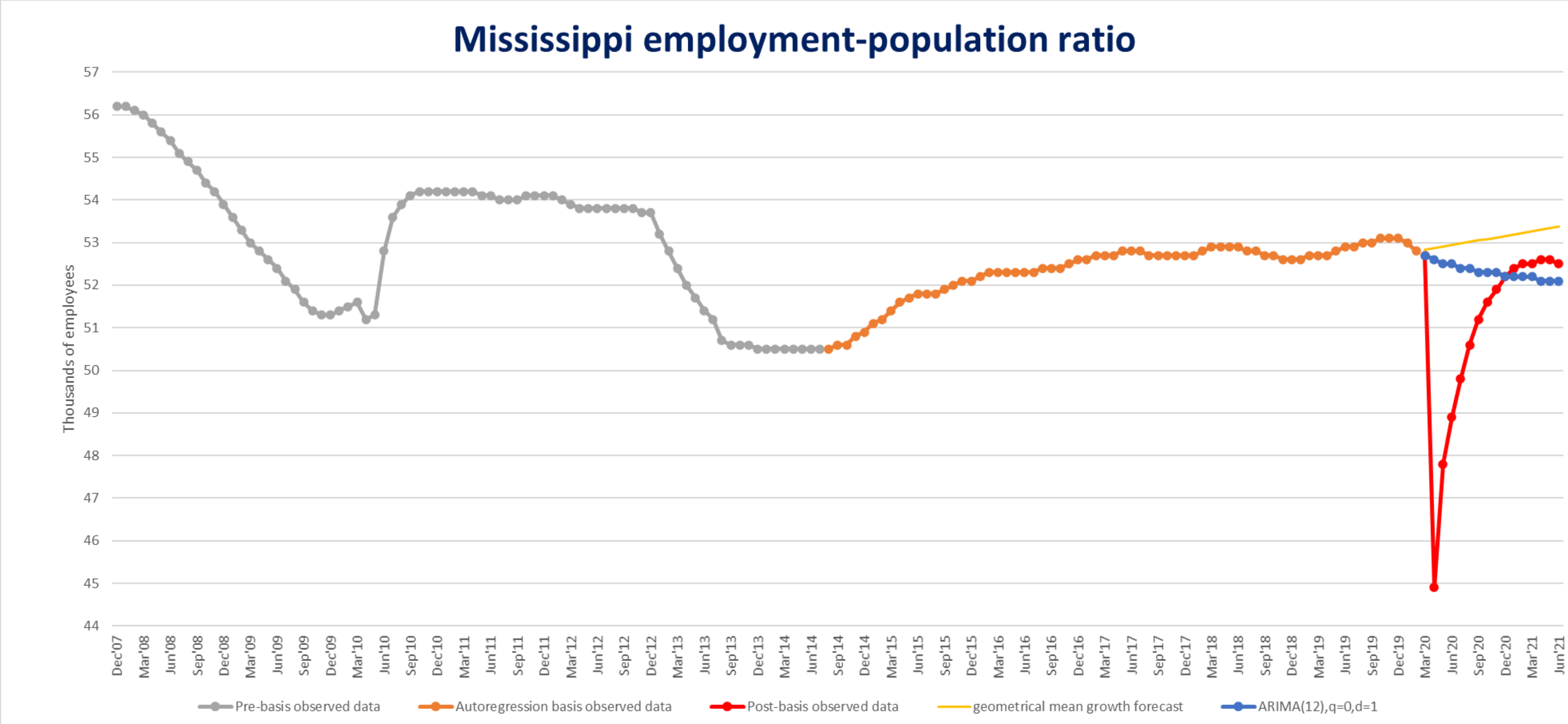


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.010571*	*0.006812*	*1.551791*	*0.12378*
phi 1	0.229795	0.103533	*2.219526*	*0.028644*
phi 2	0.39116	0.106136	*3.685458*	*0.000366*
phi 3	-0.00294	0.110108	*-0.02673*	*0.978724*
phi 4	-0.22189	0.110238	*-2.01284*	*0.046741*
phi 5	-0.12427	0.112054	*-1.10901*	*0.270009*
phi 6	-0.07234	0.112393	*-0.64363*	*0.521243*
phi 7	0.071515	0.11354	*0.629863*	*0.530179*
phi 8	0.105092	0.111633	*0.941406*	*0.3487*
phi 9	-0.06498	0.111034	*-0.58523*	*0.559673*
phi 10	-0.20385	0.1111	*-1.83484*	*0.069416*
phi 11	0.013393	0.105736	*0.126667*	*0.899451*
phi 12	0.072921	0.103062	*0.707544*	*0.480826*

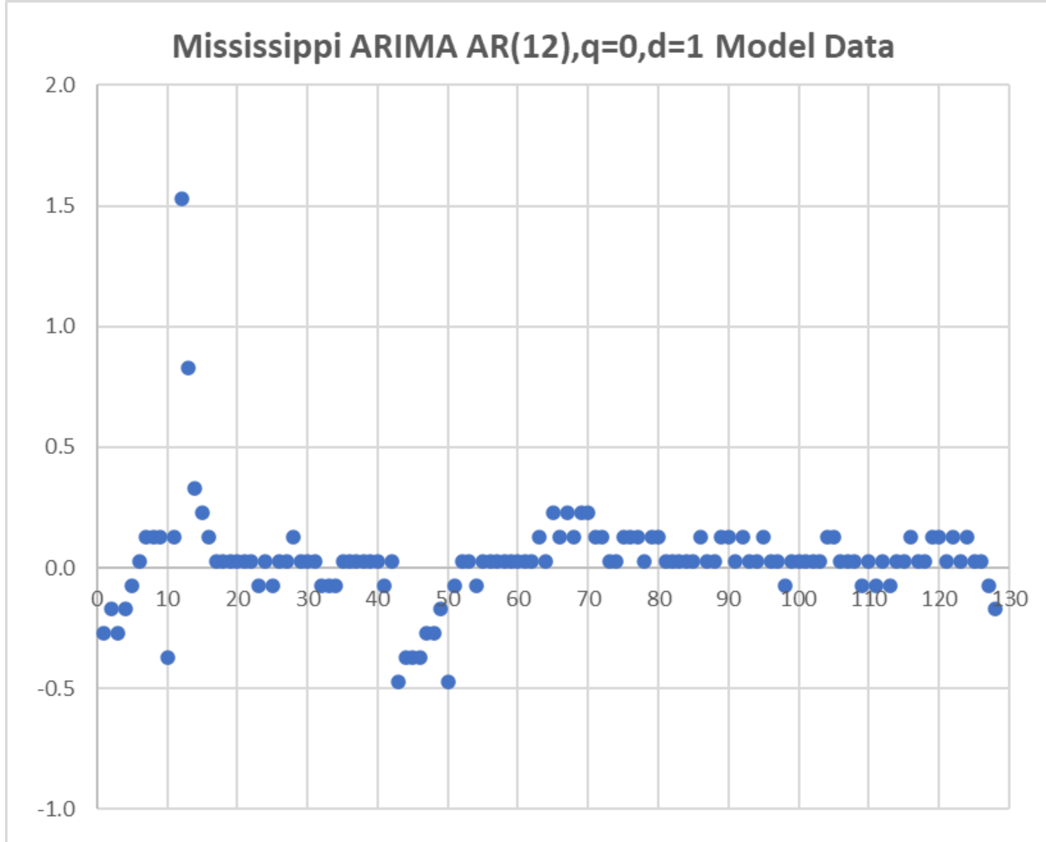


Appendix E124: Mississippi Employment-Population Ratio ARIMA Model Forecast

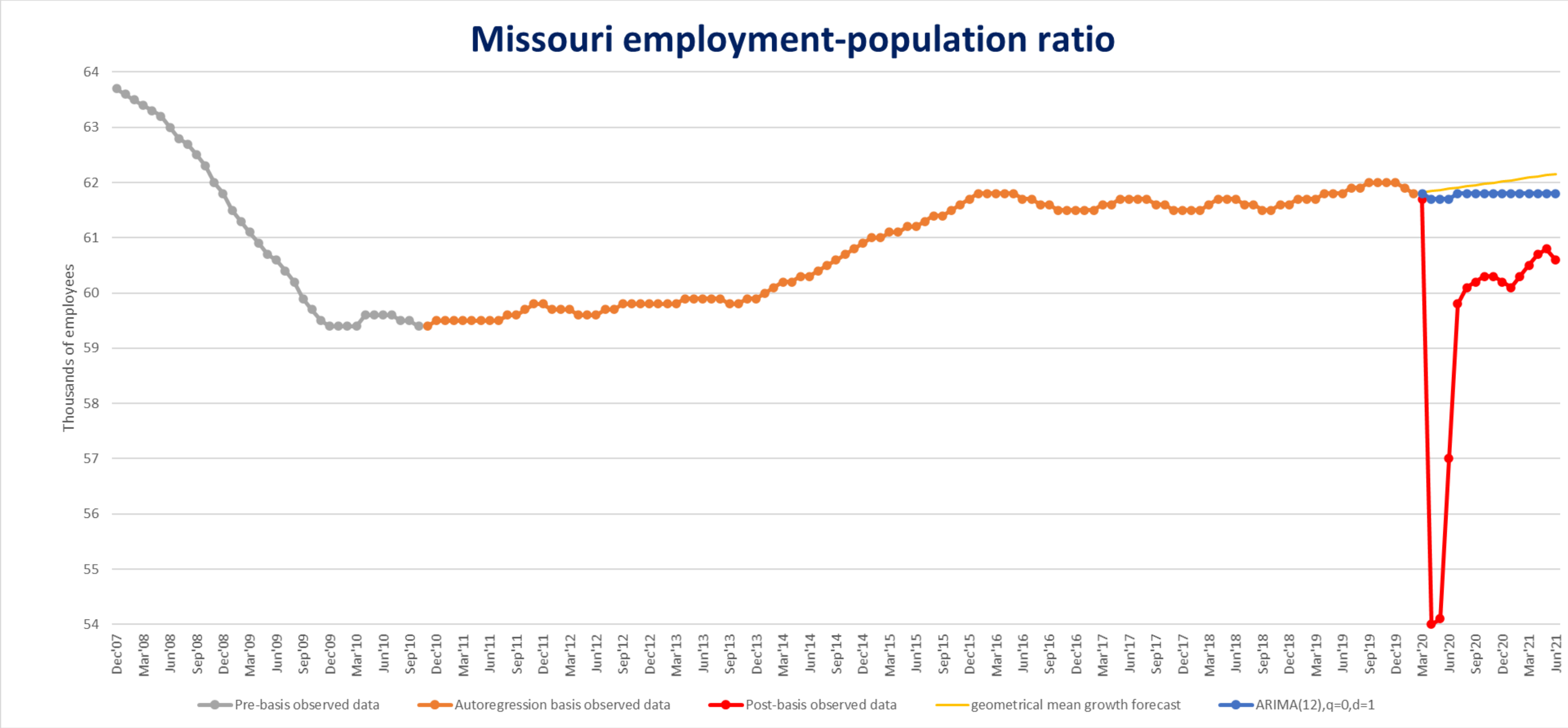


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.00944	0.008813	-1.07147	0.286462
phi 1	0.527969	0.056391	9.362671	1.93E-15
phi 2	0.074843	0.066998	1.11709	0.266555
phi 3	-0.01185	0.064872	-0.18267	0.855417
phi 4	0.092042	0.064419	1.428804	0.156086
phi 5	-0.05062	0.064186	-0.7887	0.432098
phi 6	-0.00413	0.064081	-0.06443	0.948755
phi 7	0.063018	0.064344	0.979383	0.329685
phi 8	-0.09681	0.064527	-1.50038	0.136576
phi 9	0.048064	0.064817	0.741532	0.460058
phi 10	0.006902	0.064075	0.107719	0.914429
phi 11	-0.03016	0.063054	-0.47828	0.633463
phi 12	0.044656	0.052898	0.844176	0.400528

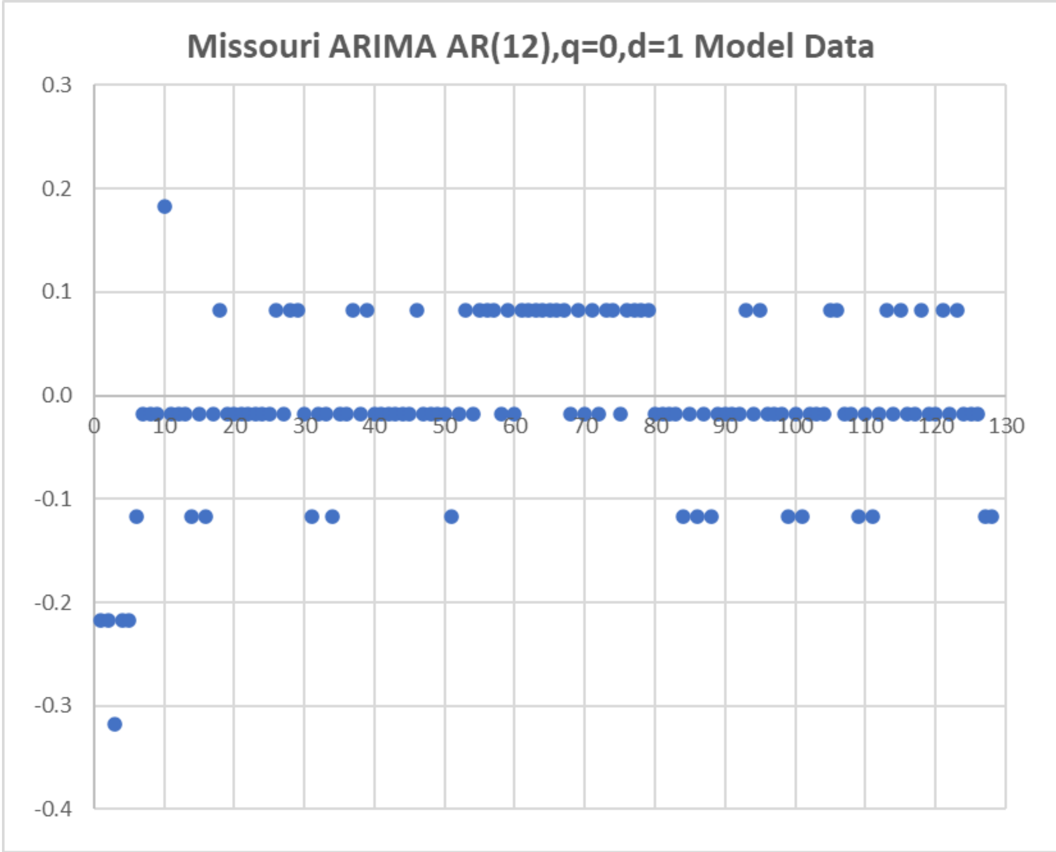


Appendix E125: Missouri Employment-Population Ratio ARIMA Model Forecast

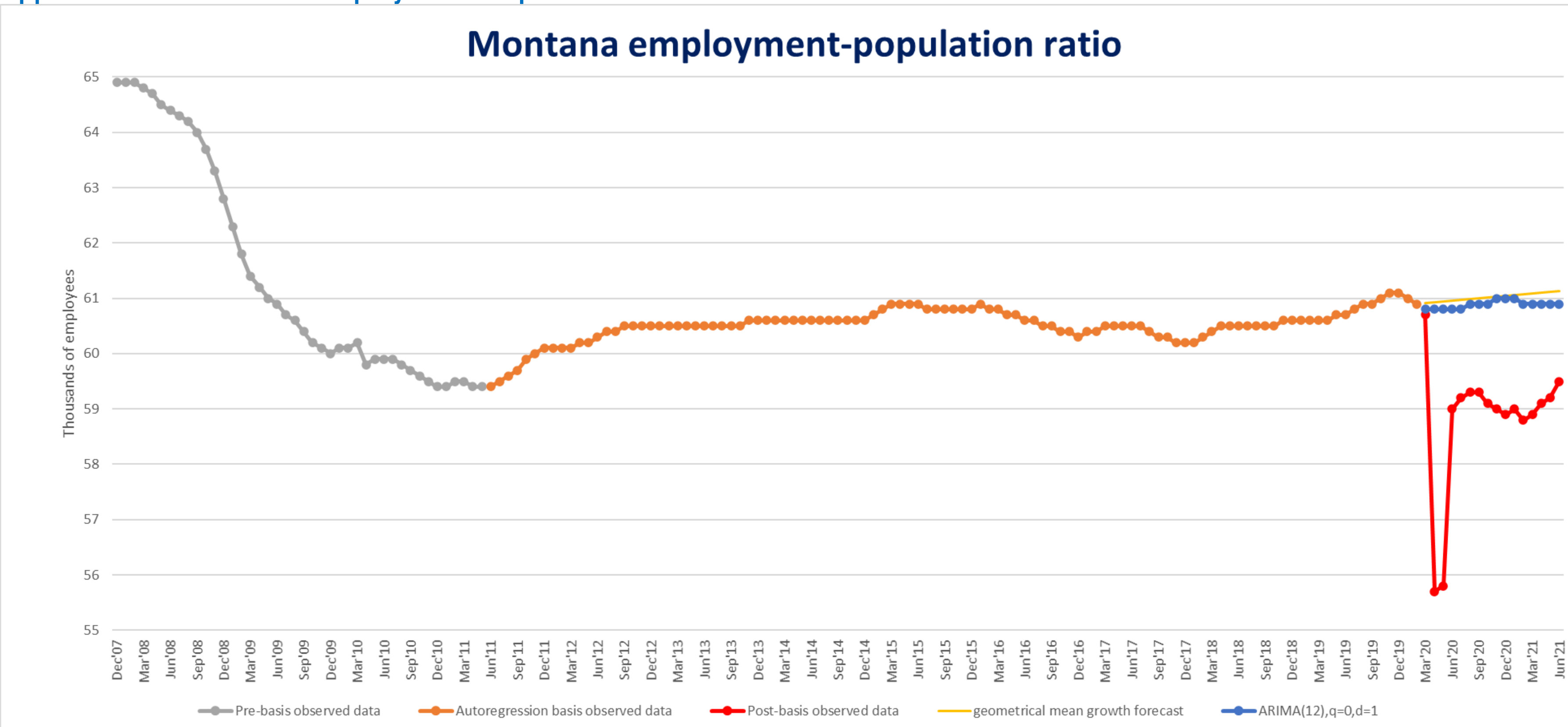


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.007453	0.006152	1.211465	0.228489
phi 1	0.093211	0.098842	0.943025	0.347875
phi 2	0.467476	0.099679	4.689835	8.42E-06
phi 3	0.218166	0.10491	2.079559	0.040049
phi 4	-0.14985	0.106428	-1.40803	0.162133
phi 5	-0.22905	0.102402	-2.23677	0.027457
phi 6	-0.16508	0.104339	-1.58217	0.116677
phi 7	0.134017	0.10473	1.279646	0.203545
phi 8	0.304469	0.10254	2.969269	0.003714
phi 9	-0.02598	0.105775	-0.24557	0.806504
phi 10	-0.02628	0.101263	-0.25954	0.795734
phi 11	0.057542	0.089849	0.640429	0.523316
phi 12	-0.10426	0.08745	-1.19221	0.235918

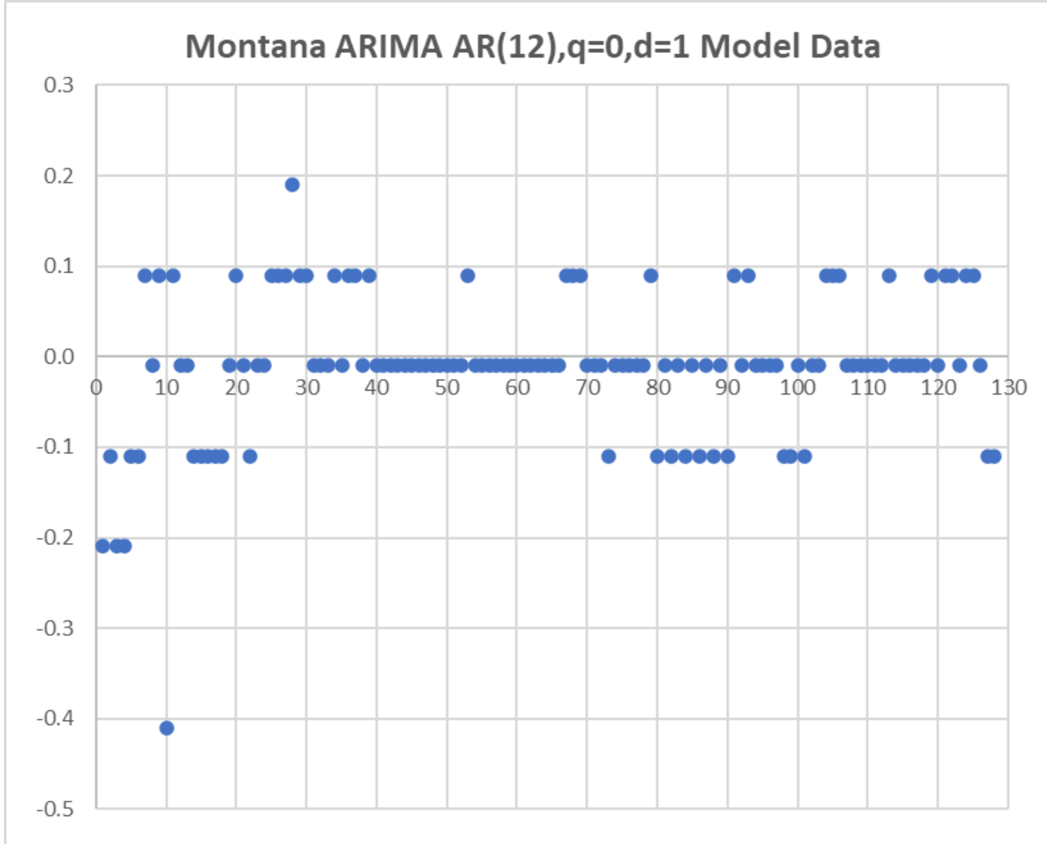


Appendix E126: Montana Employment-Population Ratio ARIMA Model Forecast

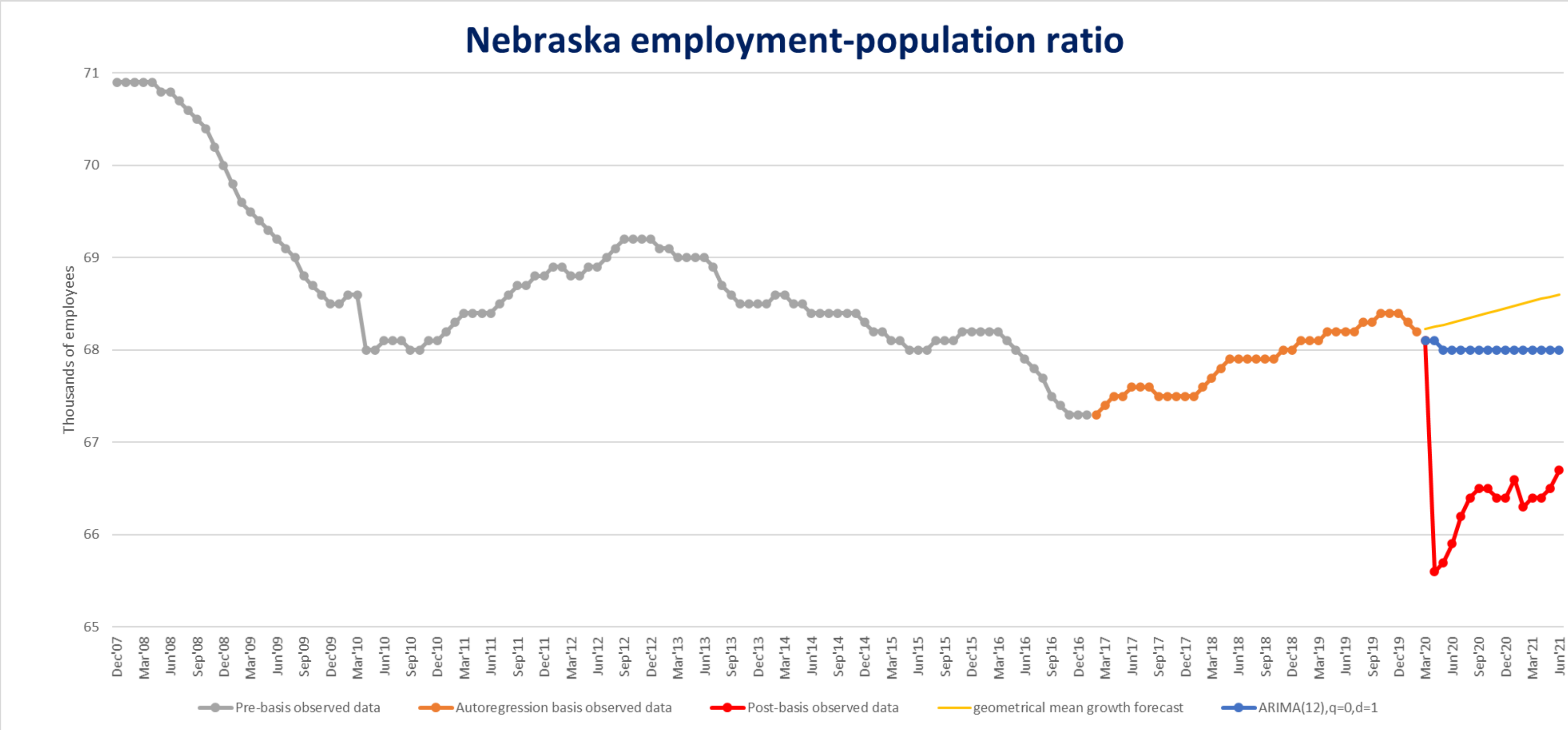


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.003404	0.005358	0.635355	0.526606
phi 1	0.30499	0.094852	3.215412	0.00174
phi 2	0.364136	0.099533	3.658463	0.000402
phi 3	-0.13035	0.082051	-1.58866	0.115203
phi 4	-0.01337	0.082256	-0.16249	0.871241
phi 5	-0.08622	0.080659	-1.06893	0.287598
phi 6	-0.02902	0.081021	-0.35821	0.720917
phi 7	-0.02036	0.081472	-0.24989	0.803171
phi 8	0.149106	0.081491	1.829728	0.070183
phi 9	0.061802	0.081615	0.757234	0.450639
phi 10	-0.18916	0.080181	-2.3591	0.020205
phi 11	0.064735	0.076251	0.848978	0.397863
phi 12	0.172243	0.074983	2.297076	0.023638

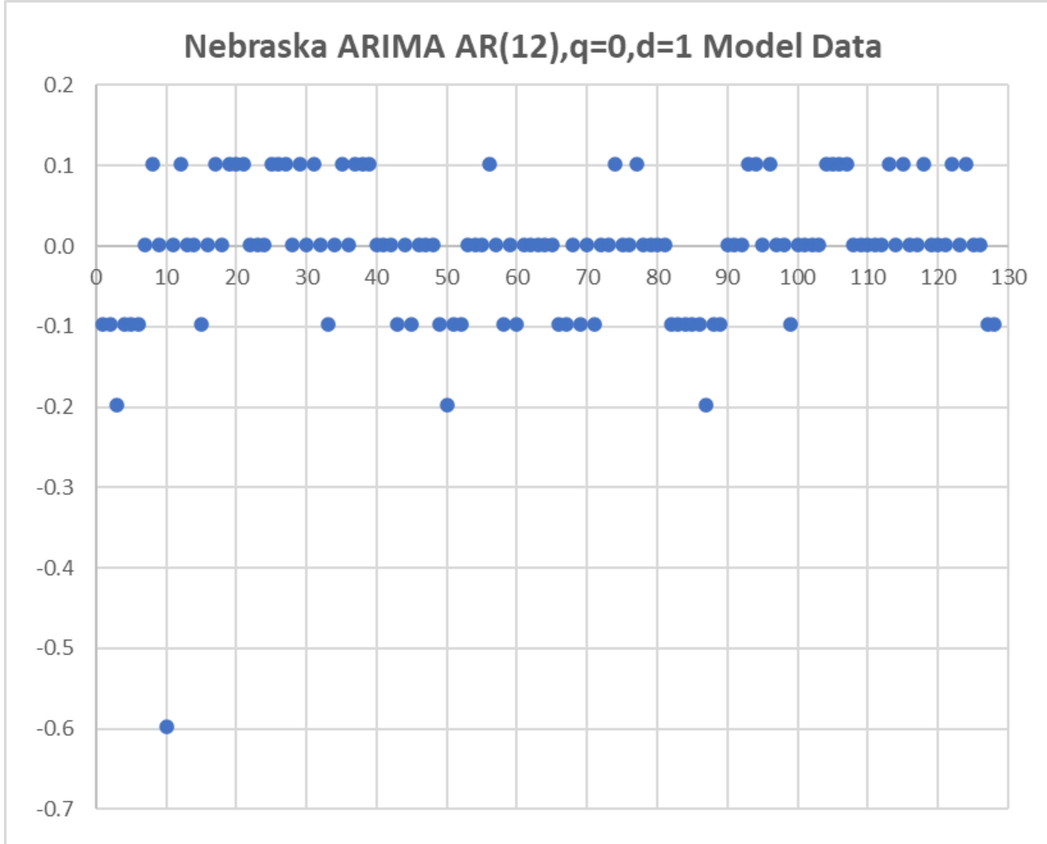


Appendix E127: Nebraska Employment-Population Ratio ARIMA Model Forecast

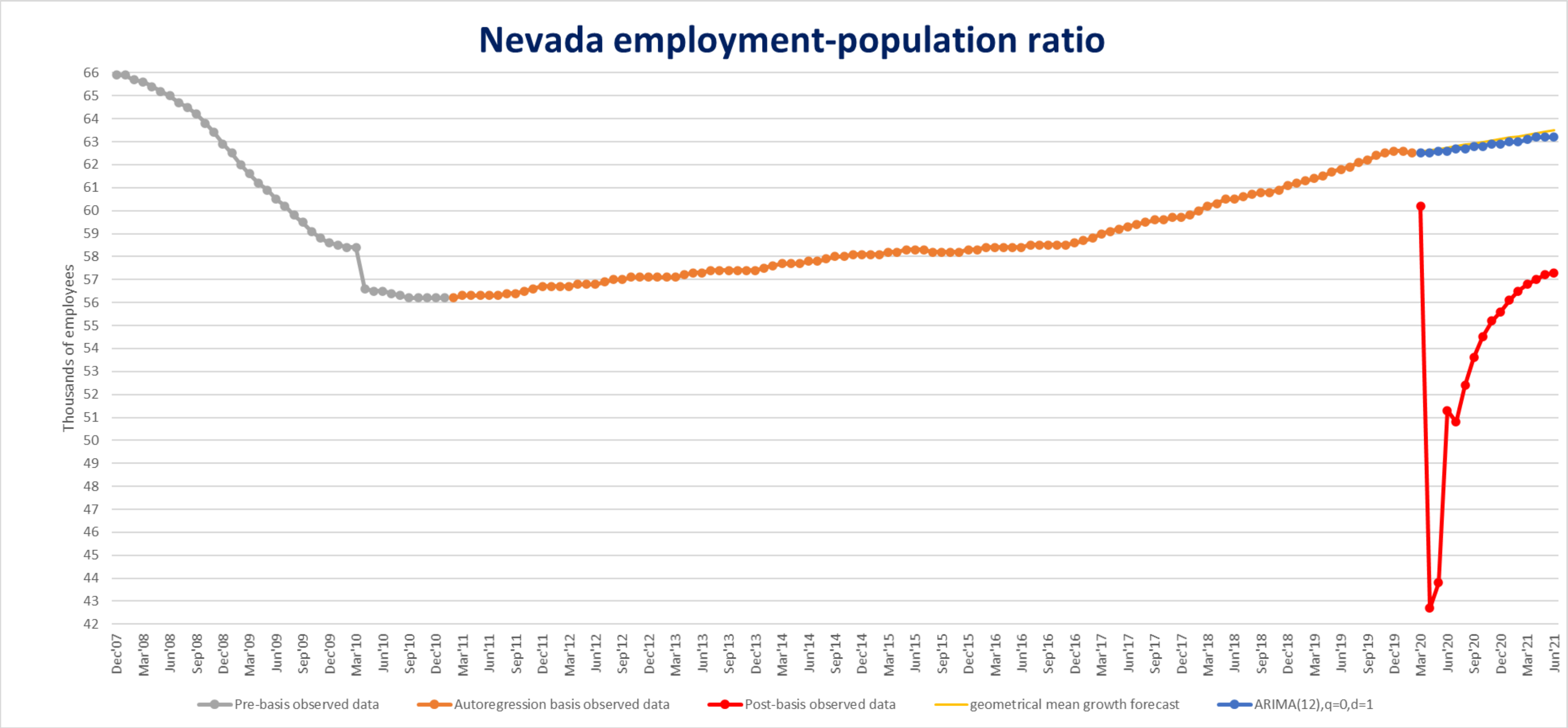


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*-0.00092*	*0.005999*	*-0.15267*	*0.878961*
phi 1	0.33658	0.094297	*3.569372*	*0.000545*
phi 2	0.296671	0.099906	*2.969513*	*0.003711*
phi 3	-0.01215	0.073233	*-0.16596*	*0.86851*
phi 4	-0.03911	0.072206	*-0.54161*	*0.589254*
phi 5	0.028051	0.071529	*0.392154*	*0.695754*
phi 6	-0.04424	0.071529	*-0.61846*	*0.537637*
phi 7	-0.08407	0.072037	*-1.16707*	*0.245876*
phi 8	0.085226	0.072287	*1.178995*	*0.241116*
phi 9	0.05645	0.072527	*0.778338*	*0.438154*
phi 10	-0.06808	0.070542	*-0.96511*	*0.336752*
phi 11	-0.02381	0.071226	*-0.33431*	*0.738829*
phi 12	0.056656	0.068654	*0.82524*	*0.411143*

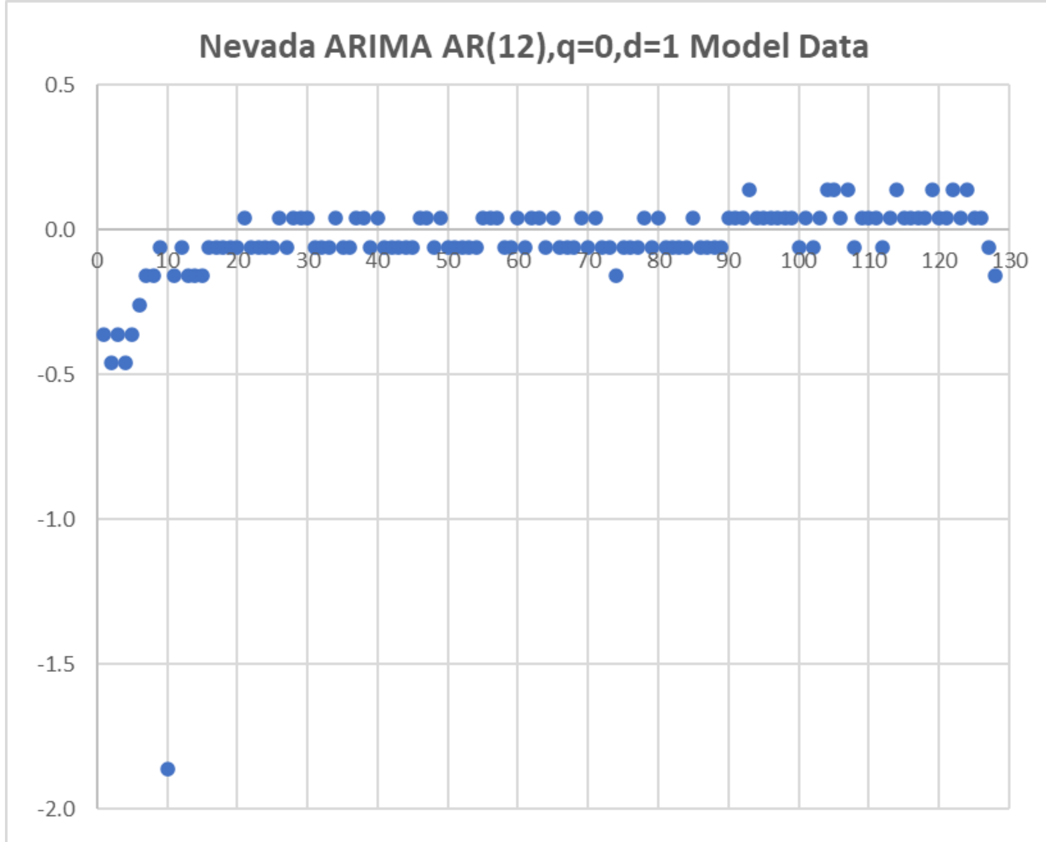


Appendix E128: Nevada Employment-Population Ratio ARIMA Model Forecast

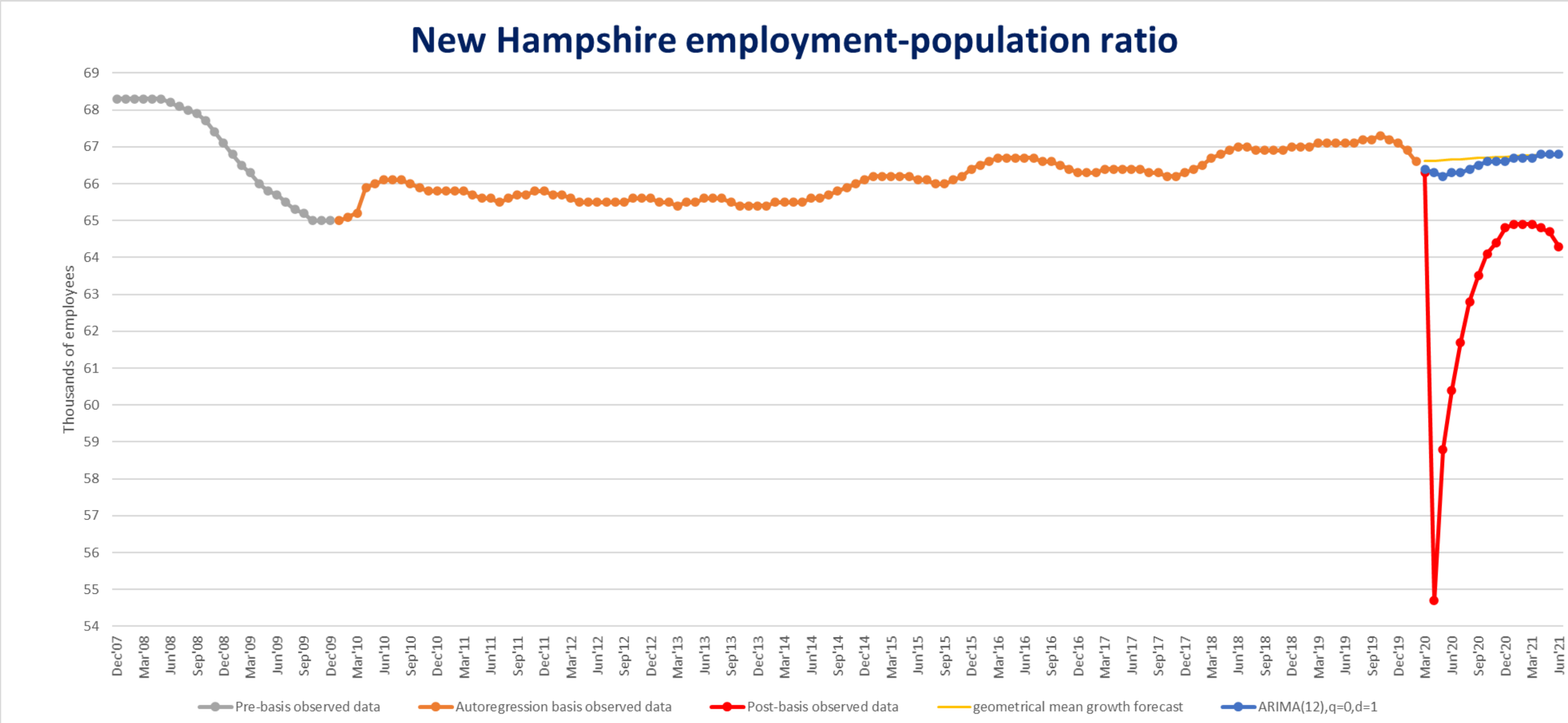


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.024429	0.008066	3.028709	0.003104
phi 1	0.217956	0.099213	2.196857	0.030272
phi 2	0.220759	0.100787	2.190358	0.030754
phi 3	0.044517	0.034669	1.284064	0.202001
phi 4	0.02779	0.034413	0.807543	0.421215
phi 5	0.035029	0.034265	1.0223	0.309034
phi 6	-0.01164	0.033988	-0.34255	0.732632
phi 7	0.00079	0.033403	0.02365	0.981178
phi 8	0.025654	0.032763	0.783011	0.435417
phi 9	0.026145	0.032673	0.800206	0.425433
phi 10	0.017029	0.032819	0.51887	0.604965
phi 11	-0.04191	0.032846	-1.27591	0.204857
phi 12	0.027178	0.032939	0.825104	0.411219

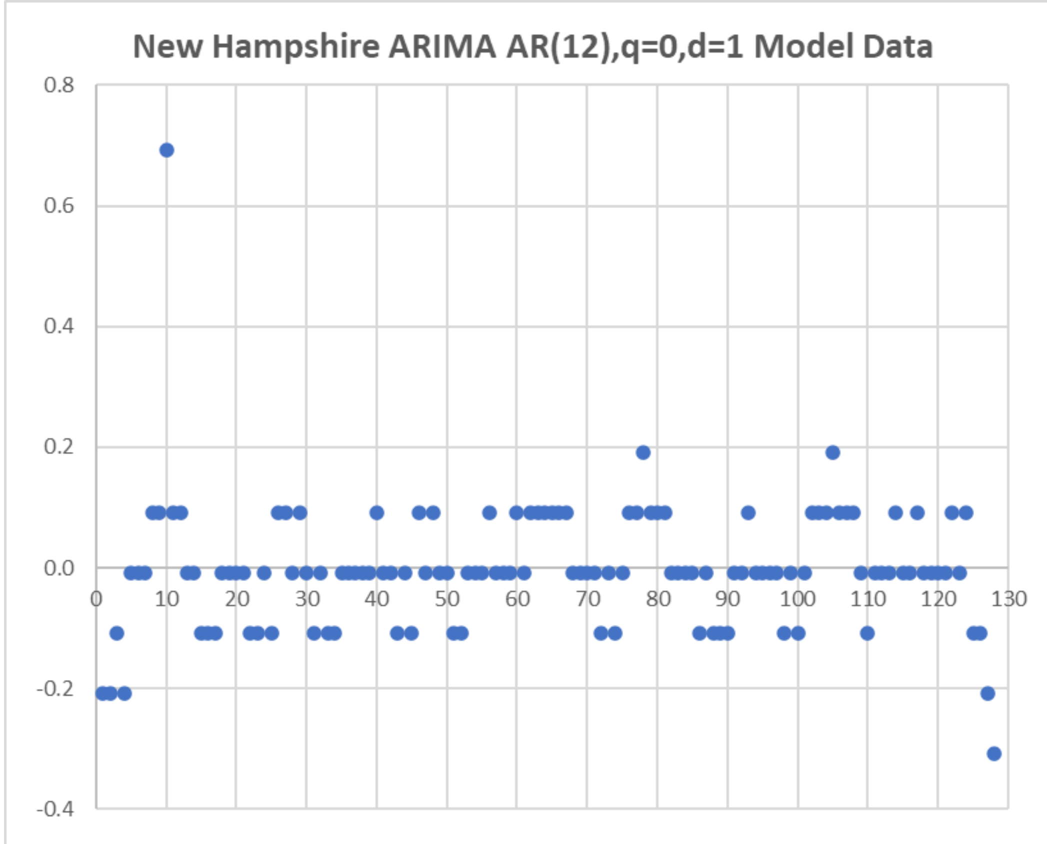


Appendix E129: New Hampshire Employment-Population Ratio ARIMA Model Forecast

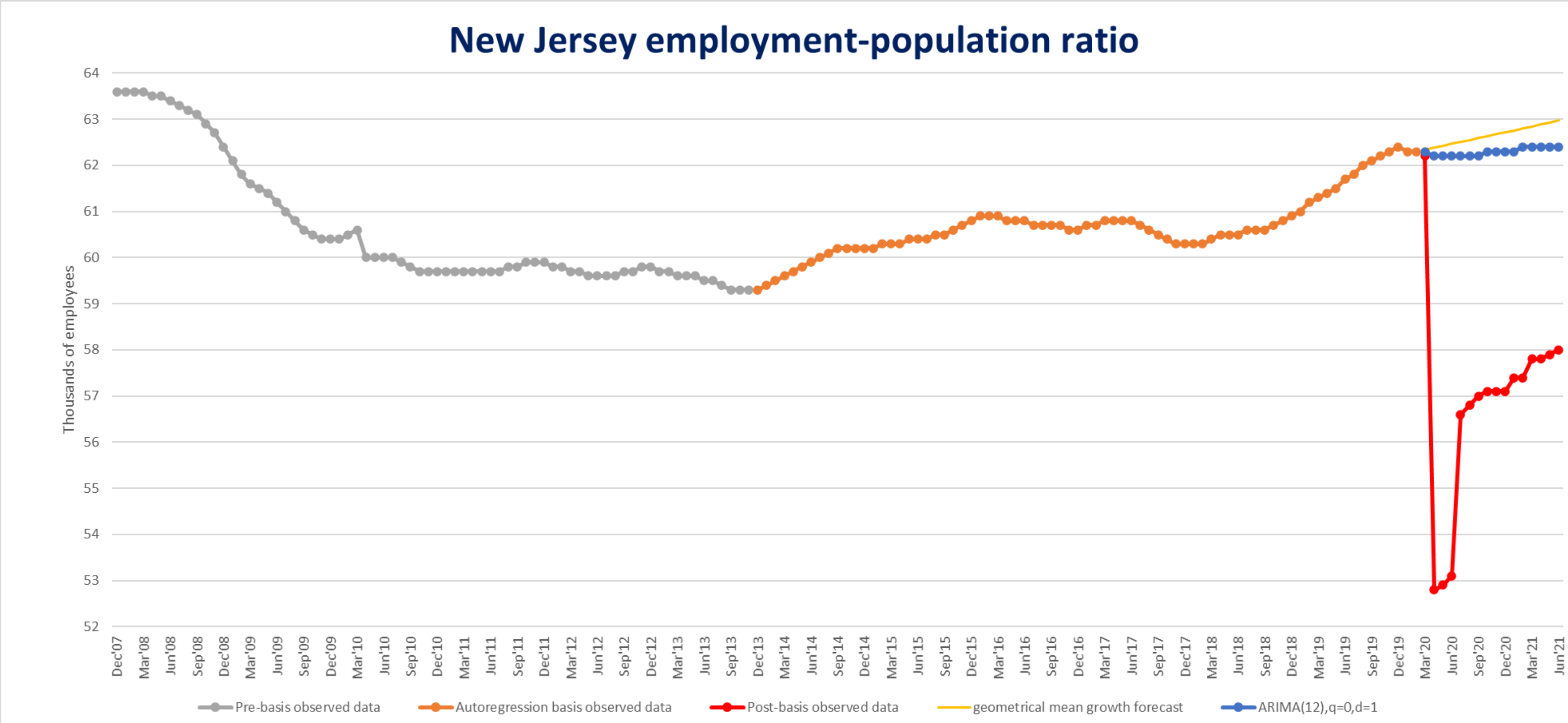


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.005574*	*0.006825*	*0.816678*	*0.415997*
phi 1	0.371397	0.099824	*3.720504*	*0.000324*
phi 2	0.418849	0.105921	*3.954346*	*0.000141*
phi 3	-0.04603	0.078662	*-0.58515*	*0.559726*
phi 4	-0.20972	0.078383	*-2.6756*	*0.008679*
phi 5	-0.17507	0.078503	*-2.23005*	*0.027914*
phi 6	0.060807	0.079362	*0.7662*	*0.44531*
phi 7	-0.06866	0.079176	*-0.8672*	*0.38785*
phi 8	0.064526	0.077826	*0.829103*	*0.408963*
phi 9	0.068705	0.076759	*0.895073*	*0.372835*
phi 10	-0.05647	0.076457	*-0.73862*	*0.461818*
phi 11	-0.09083	0.073383	*-1.23775*	*0.218623*
phi 12	-0.04115	0.07109	*-0.57885*	*0.563953*

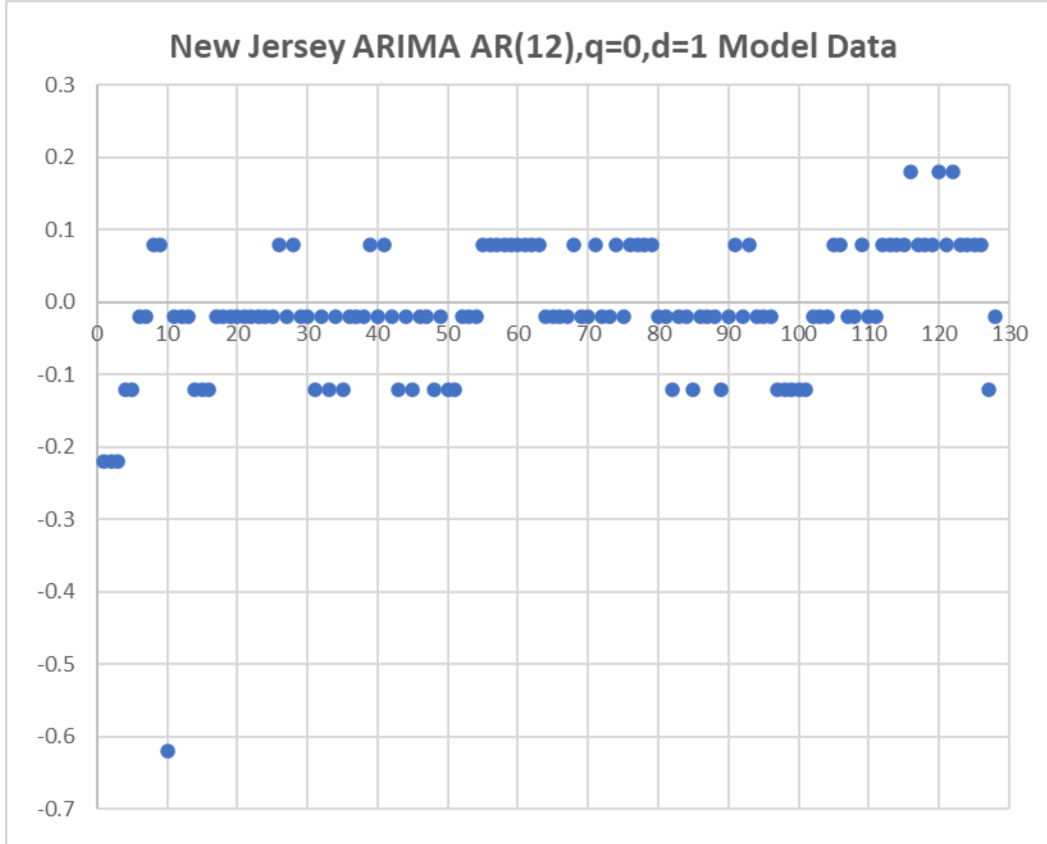


Appendix E130: New Jersey Employment-Population Ratio ARIMA Model Forecast

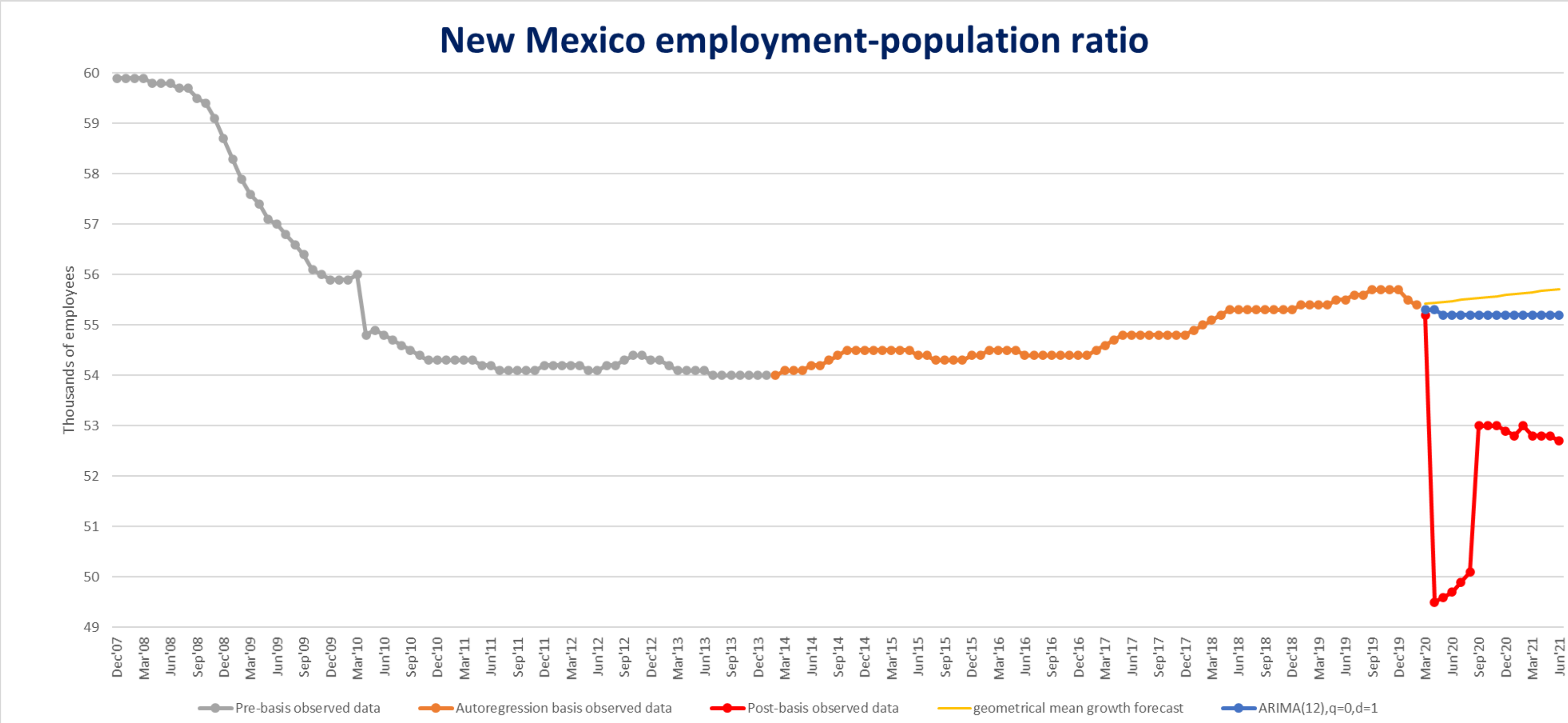


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.006691*	*0.006115*	*1.094146*	*0.276443*
phi 1	0.316027	0.096654	*3.269656*	*0.001465*
phi 2	0.346929	0.104043	*3.334473*	*0.001189*
phi 3	0.074828	0.075498	*0.99113*	*0.323945*
phi 4	0.025396	0.073965	*0.343358*	*0.732029*
phi 5	-0.02034	0.071394	*-0.28495*	*0.776251*
phi 6	-0.02667	0.070754	*-0.37688*	*0.707039*
phi 7	-0.08815	0.070986	*-1.2418*	*0.217129*
phi 8	-0.02084	0.071449	*-0.29166*	*0.771134*
phi 9	-0.01484	0.071797	*-0.20665*	*0.836691*
phi 10	0.056665	0.070333	*0.805668*	*0.42229*
phi 11	-0.00331	0.069164	*-0.04793*	*0.961868*
phi 12	0.019883	0.067014	*0.296695*	*0.767297*

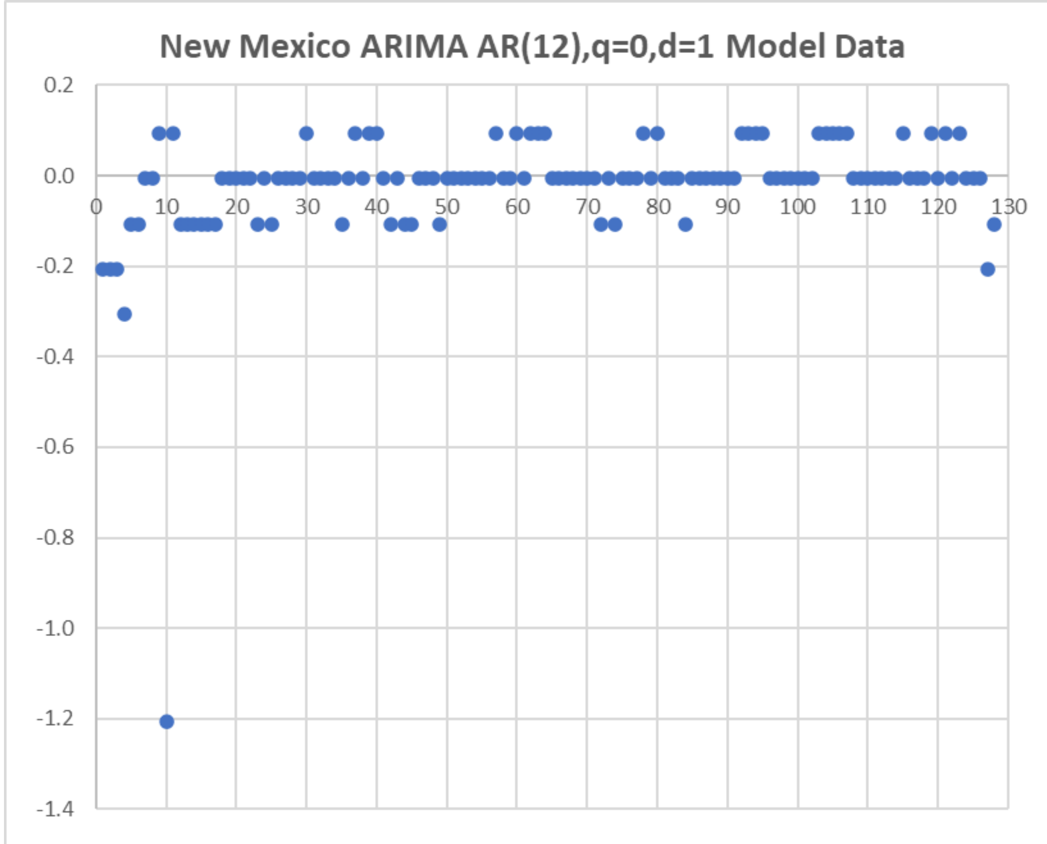


Appendix E131: New Mexico Employment-Population Ratio ARIMA Model Forecast

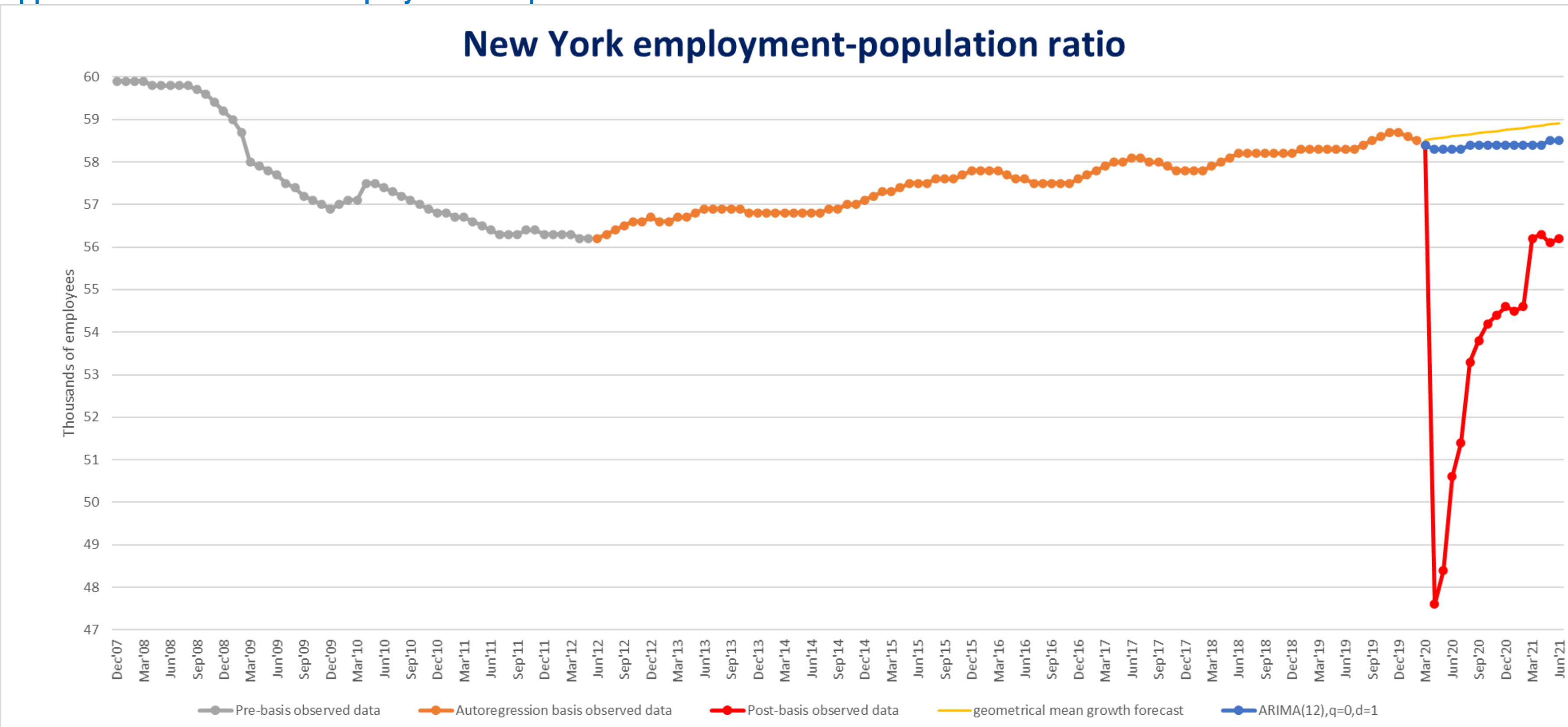


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.002521*	*0.005339*	*0.472147*	*0.637821*
phi 1	0.283954	0.09772	*2.905791*	*0.004485*
phi 2	0.280368	0.10257	*2.733431*	*0.007379*
phi 3	0.049066	0.046572	*1.053566*	*0.294547*
phi 4	-0.02881	0.046869	*-0.61461*	*0.540165*
phi 5	-0.03735	0.045113	*-0.828*	*0.409582*
phi 6	0.003708	0.043656	*0.084944*	*0.932471*
phi 7	0.043191	0.042749	*1.010344*	*0.314698*
phi 8	-0.05279	0.04304	*-1.22645*	*0.222825*
phi 9	-0.00116	0.04322	*-0.02673*	*0.978729*
phi 10	0.048908	0.043029	*1.136634*	*0.258329*
phi 11	0.037829	0.042525	*0.889569*	*0.37577*
phi 12	0.01018	0.04229	*0.240708*	*0.81026*

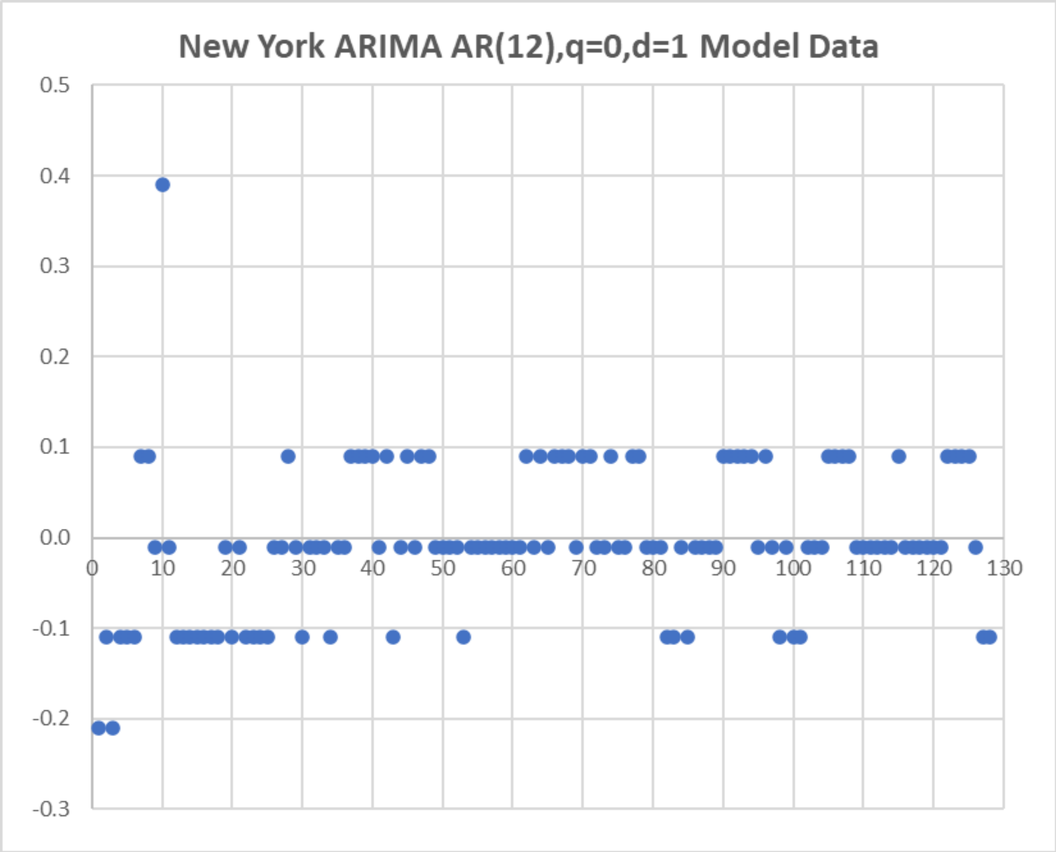


Appendix E132: New York Employment-Population Ratio ARIMA Model Forecast

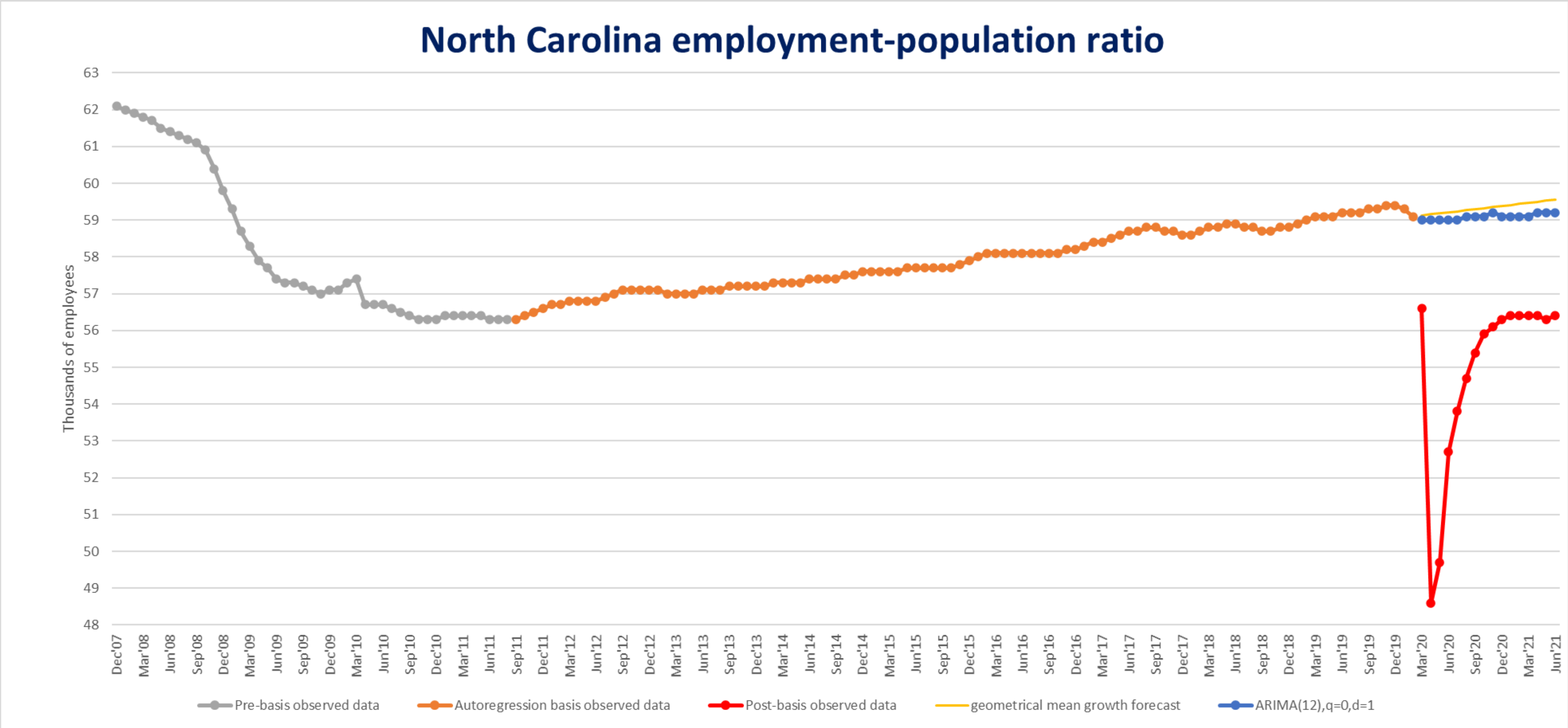


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.004754	0.005801	0.819473	0.414409
phi 1	0.389747	0.096274	4.048307	0.0001
phi 2	0.267118	0.103697	2.575945	0.011415
phi 3	0.083034	0.088955	0.933442	0.352775
phi 4	-0.1211	0.088447	-1.3692	0.173915
phi 5	-0.14456	0.089566	-1.61406	0.109575
phi 6	-0.03244	0.090743	-0.35749	0.721455
phi 7	0.079012	0.090434	0.873697	0.384316
phi 8	-0.05946	0.089644	-0.66324	0.508658
phi 9	0.097203	0.088608	1.096997	0.275201
phi 10	0.03439	0.086635	0.396953	0.692223
phi 11	-0.05501	0.08362	-0.6579	0.51207
phi 12	-0.0194	0.07884	-0.24603	0.806148

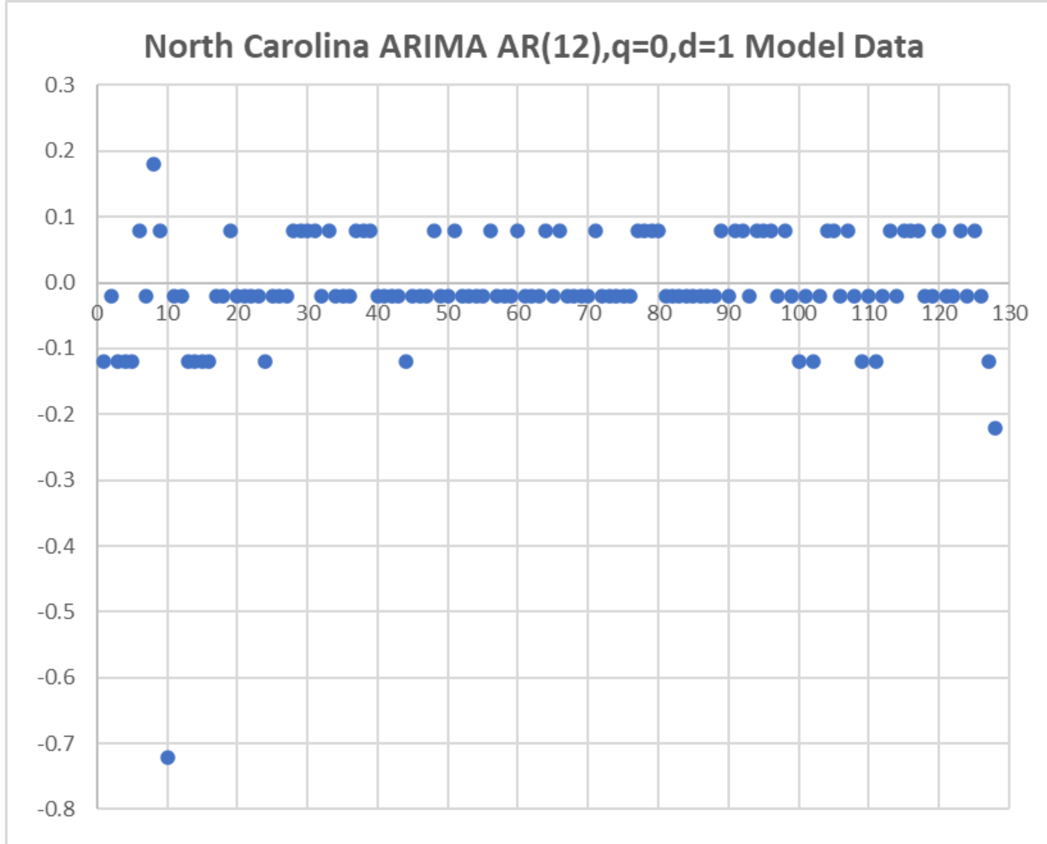


Appendix E133: North Carolina Employment-Population Ratio ARIMA Model Forecast

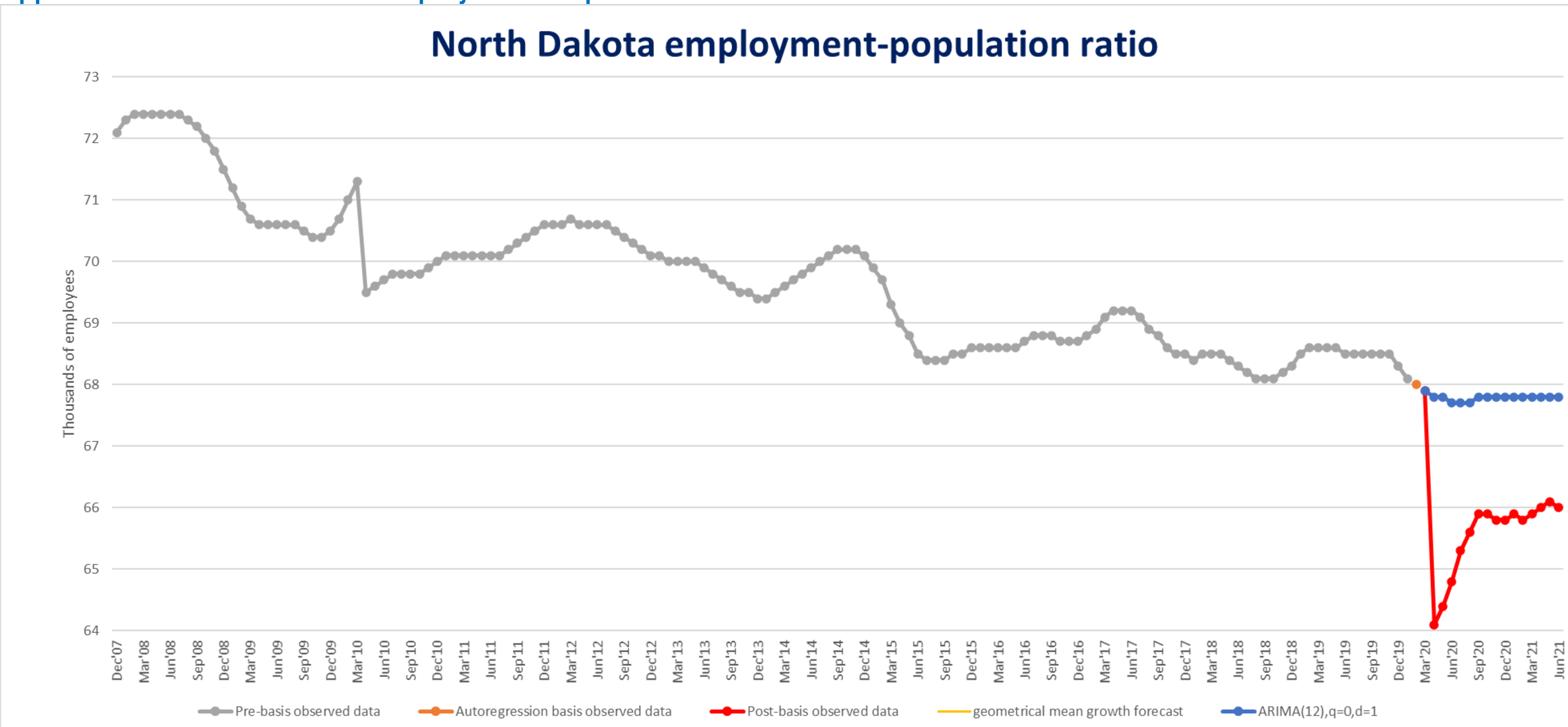


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.010534	0.006856	1.536543	0.127472
phi 1	0.279534	0.103365	2.704325	0.008009
phi 2	0.130184	0.107236	1.214001	0.227524
phi 3	0.06835	0.068234	1.001702	0.318835
phi 4	-0.05286	0.06826	-0.77443	0.440448
phi 5	-0.05268	0.066677	-0.79011	0.431281
phi 6	0.014266	0.066409	0.214818	0.830334
phi 7	-0.06891	0.066368	-1.03826	0.30158
phi 8	0.029925	0.066082	0.452846	0.651612
phi 9	0.025199	0.065795	0.383001	0.702508
phi 10	0.096393	0.064174	1.502044	0.136145
phi 11	0.000856	0.06483	0.013204	0.989491
phi 12	0.012859	0.064751	0.198599	0.842968

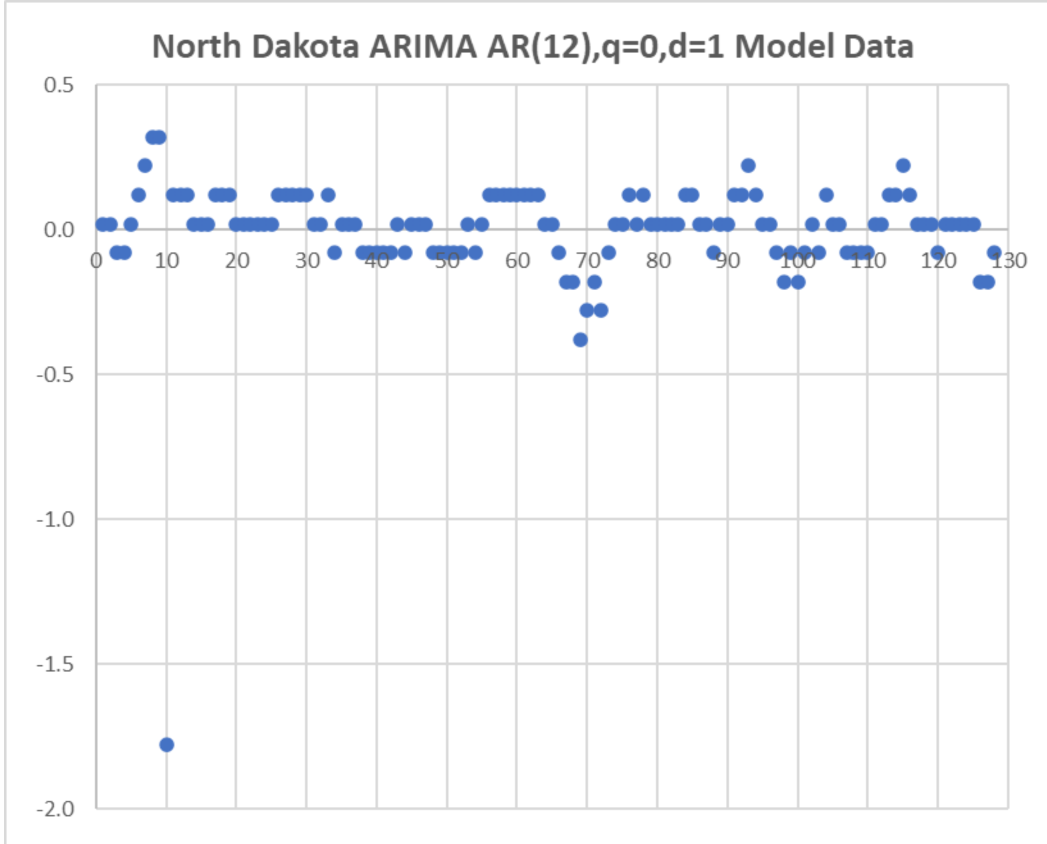


Appendix E134: North Dakota Employment-Population Ratio ARIMA Model Forecast

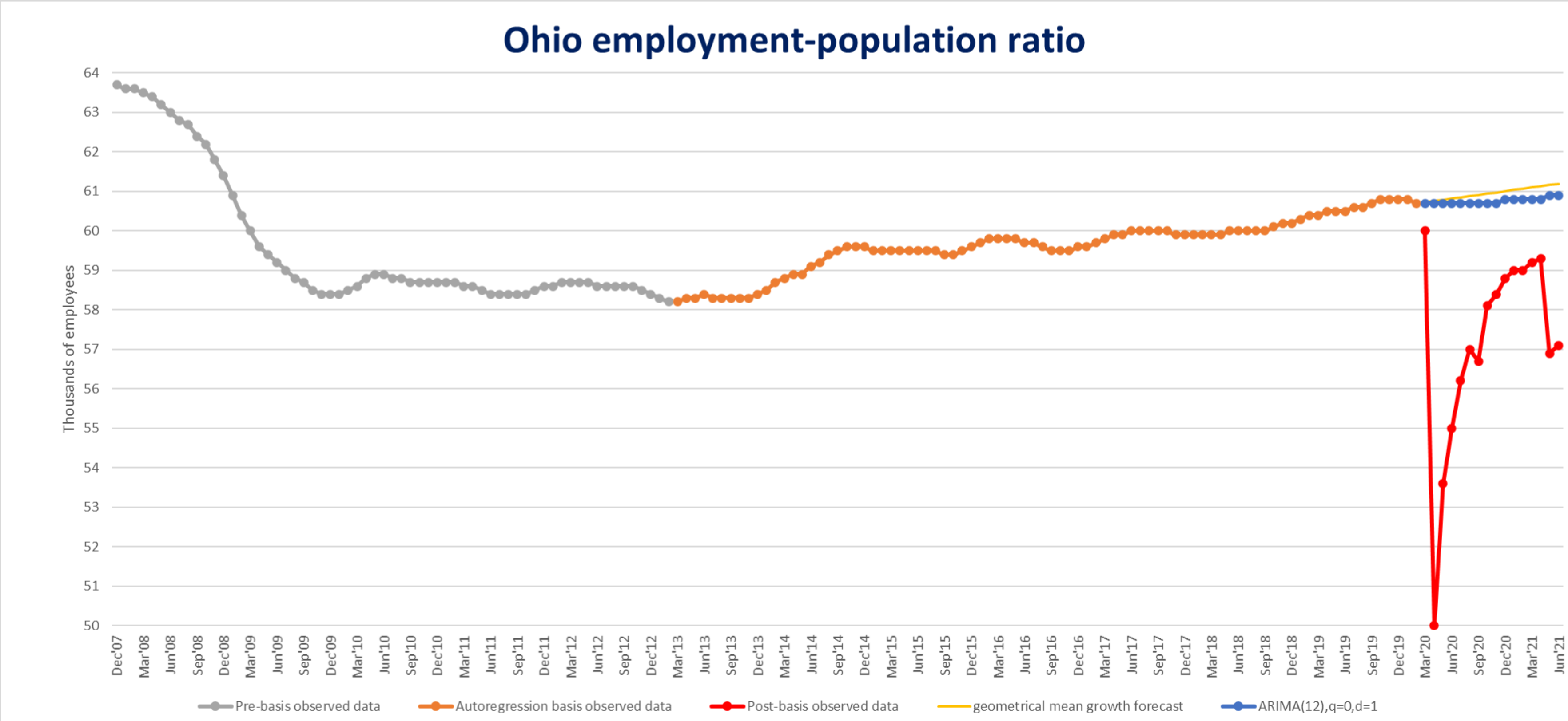


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.01054	0.007083	-1.48829	0.13973
phi 1	0.564681	0.095613	5.905892	4.55E-08
phi 2	0.22296	0.10105	2.206433	0.029575
phi 3	-0.0507	0.03636	-1.39434	0.166216
phi 4	-0.03539	0.035435	-0.99872	0.320272
phi 5	-0.04559	0.034236	-1.33165	0.185916
phi 6	-0.03387	0.034028	-0.99537	0.32189
phi 7	-0.06501	0.033812	-1.92271	0.057279
phi 8	-0.02268	0.034274	-0.66166	0.509667
phi 9	-0.00822	0.034303	-0.23949	0.811205
phi 10	0.036027	0.034145	1.055112	0.293843
phi 11	-0.01887	0.034222	-0.55129	0.582631
phi 12	-0.04549	0.034066	-1.33542	0.184682

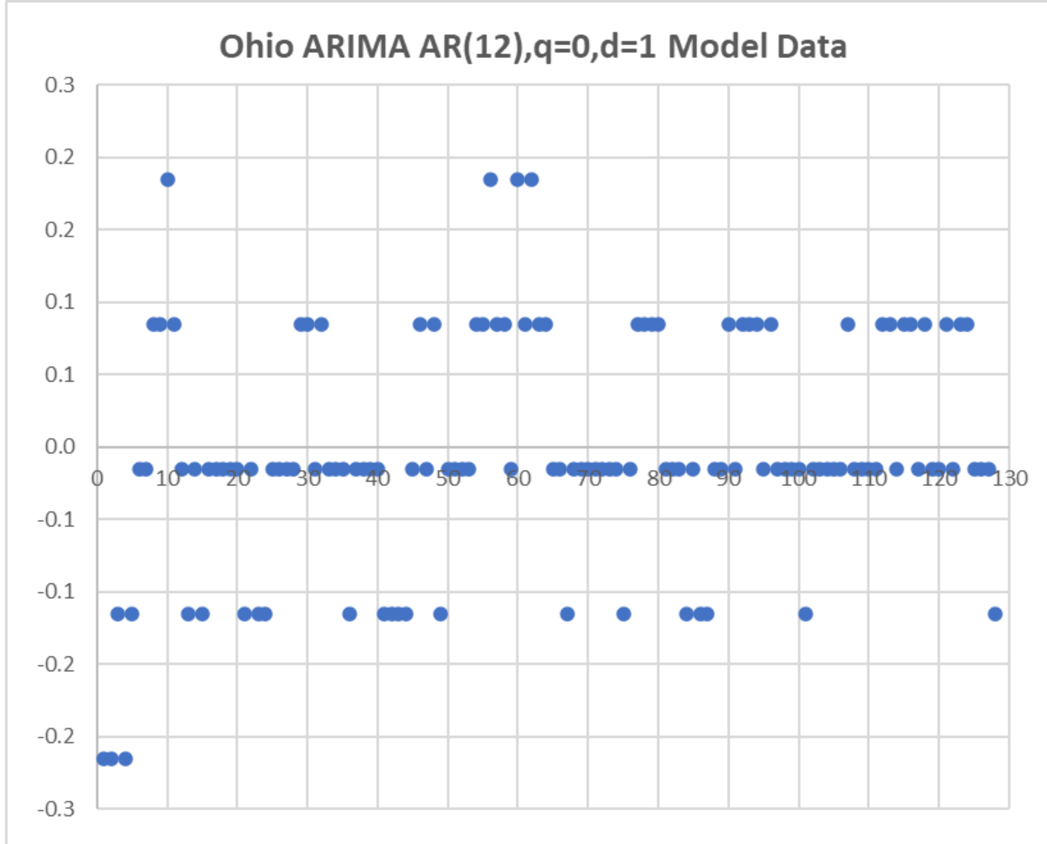


Appendix E135: Ohio Employment-Population Ratio ARIMA Model Forecast

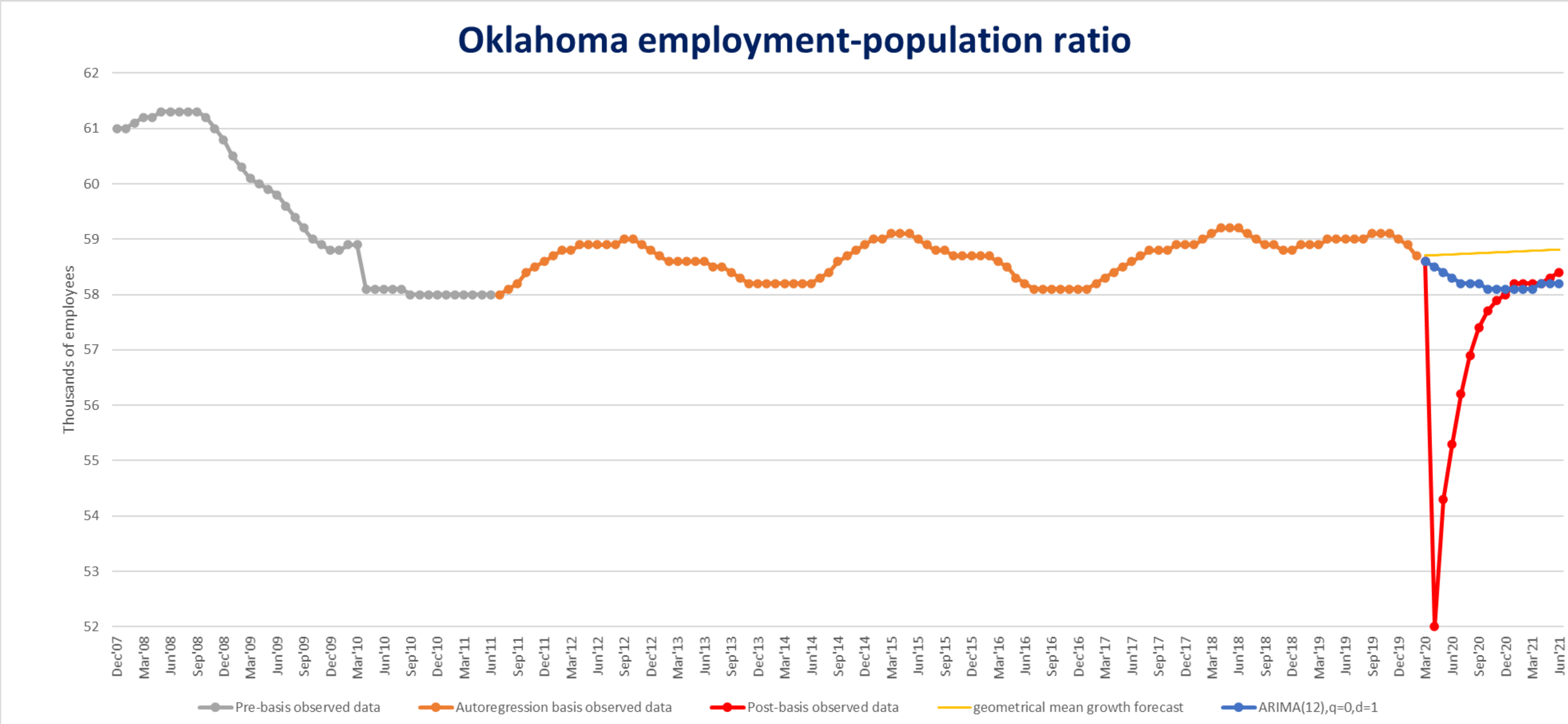


Model parameters

param	coeff	s.e.	t-stat	p-value
const	*0.009037*	*0.006187*	*1.460738*	*0.147131*
phi 1	0.353719	0.09775	*3.618588*	*0.000461*
phi 2	0.363083	0.103825	*3.497076*	*0.000696*
phi 3	-0.03345	0.10495	*-0.3187*	*0.750597*
phi 4	-0.19127	0.104722	*-1.82647*	*0.070675*
phi 5	-0.07058	0.103597	*-0.68133*	*0.497194*
phi 6	0.135206	0.102884	*1.314162*	*0.191711*
phi 7	-0.22101	0.103627	*-2.13271*	*0.035325*
phi 8	0.273567	0.105383	*2.595925*	*0.010811*
phi 9	-0.00492	0.10673	*-0.04608*	*0.963338*
phi 10	-0.15663	0.105514	*-1.48448*	*0.140735*
phi 11	-0.03371	0.101181	*-0.33315*	*0.739697*
phi 12	-0.00565	0.091349	*-0.06185*	*0.950804*

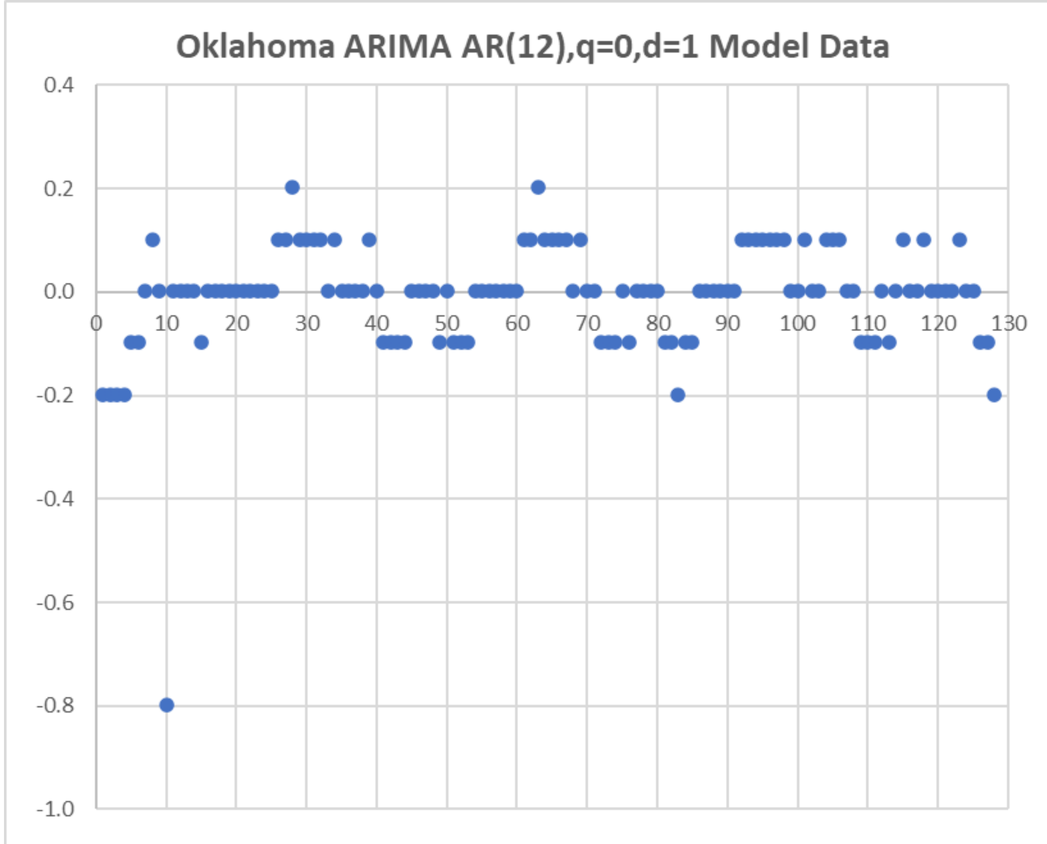


Appendix E136: Oklahoma Employment-Population Ratio ARIMA Model Forecast

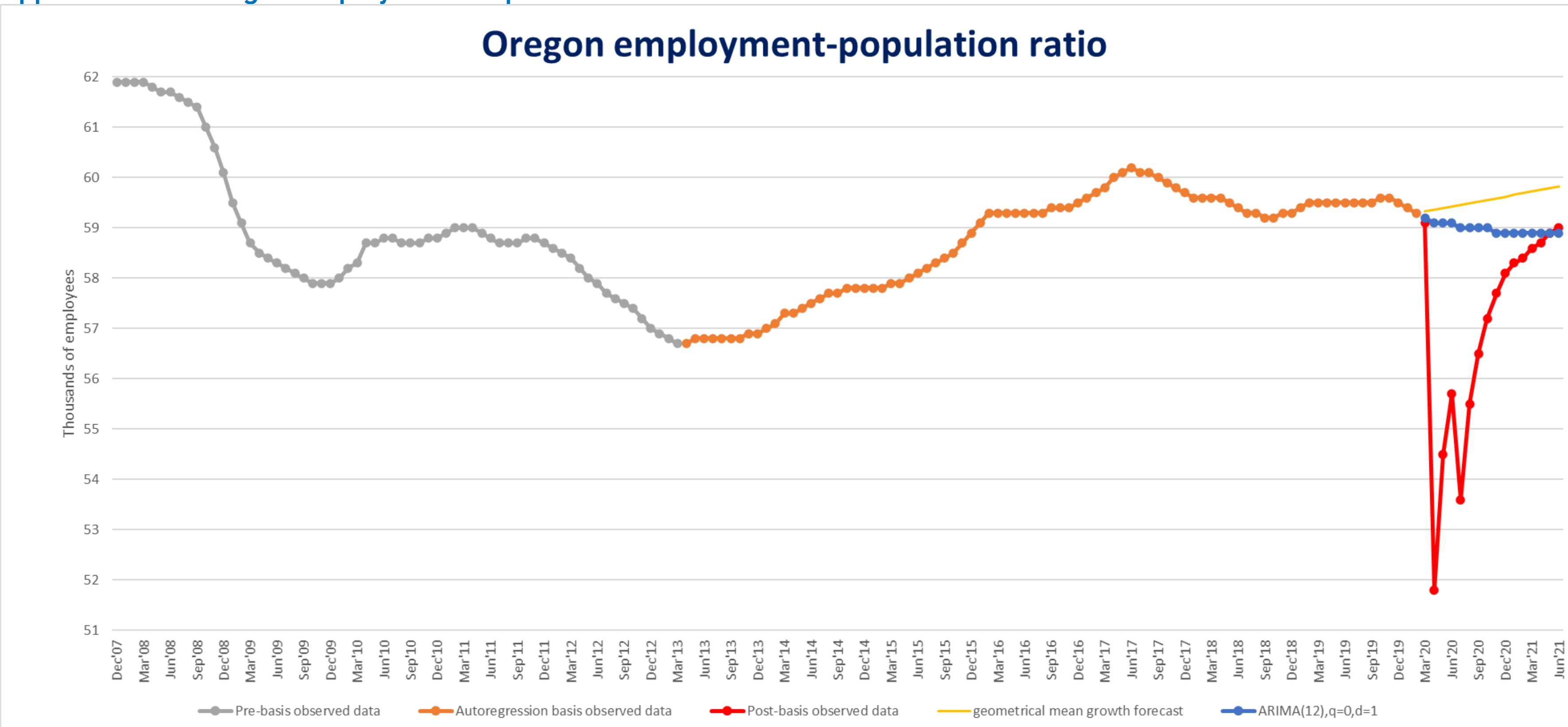


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.00085	0.005591	-0.15162	0.879782
phi 1	0.518409	0.098339	5.27168	7.48E-07
phi 2	0.256592	0.106615	2.406723	0.017877
phi 3	-0.03268	0.062409	-0.52361	0.601677
phi 4	-0.03223	0.061006	-0.52838	0.59837
phi 5	0.032334	0.058711	0.550725	0.583015
phi 6	-0.01997	0.058996	-0.33855	0.735635
phi 7	-0.03178	0.058913	-0.53951	0.590697
phi 8	0.046376	0.05879	0.788831	0.432023
phi 9	-0.00177	0.058698	-0.03015	0.976009
phi 10	-0.0524	0.058135	-0.90141	0.369473
phi 11	0.025627	0.058356	0.439139	0.661481
phi 12	-0.06639	0.055915	-1.18731	0.237838

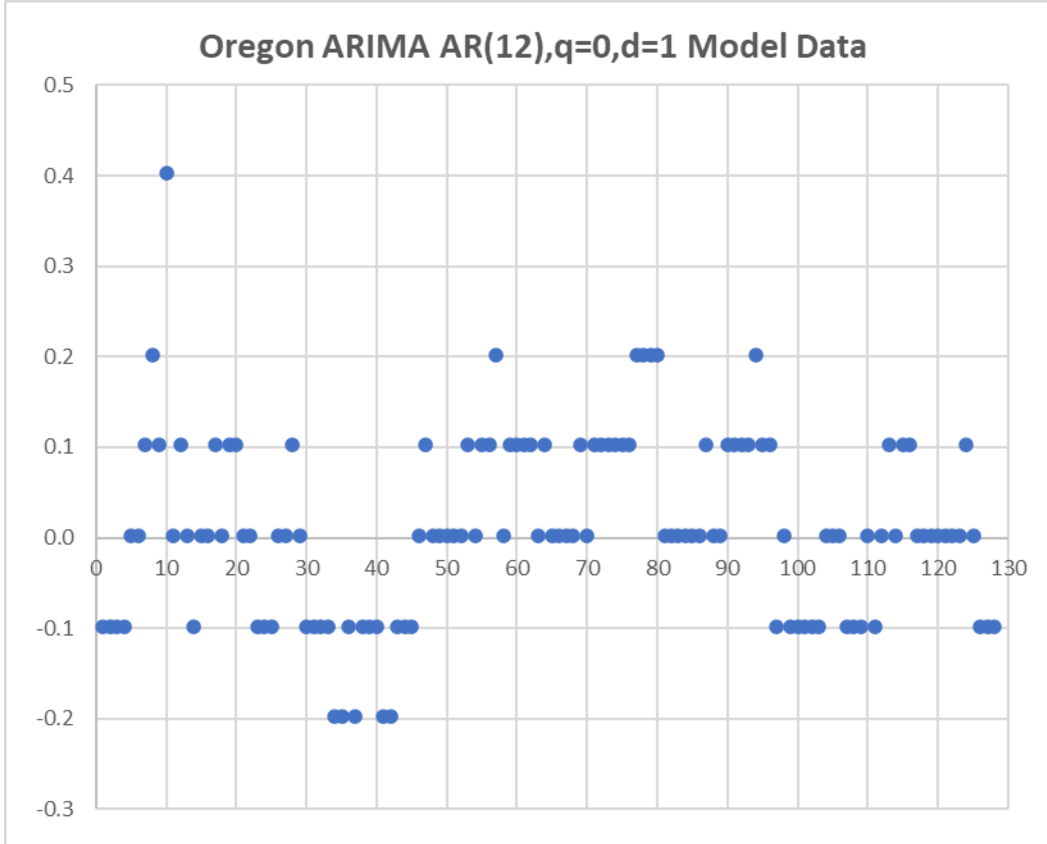


Appendix E137: Oregon Employment-Population Ratio ARIMA Model Forecast

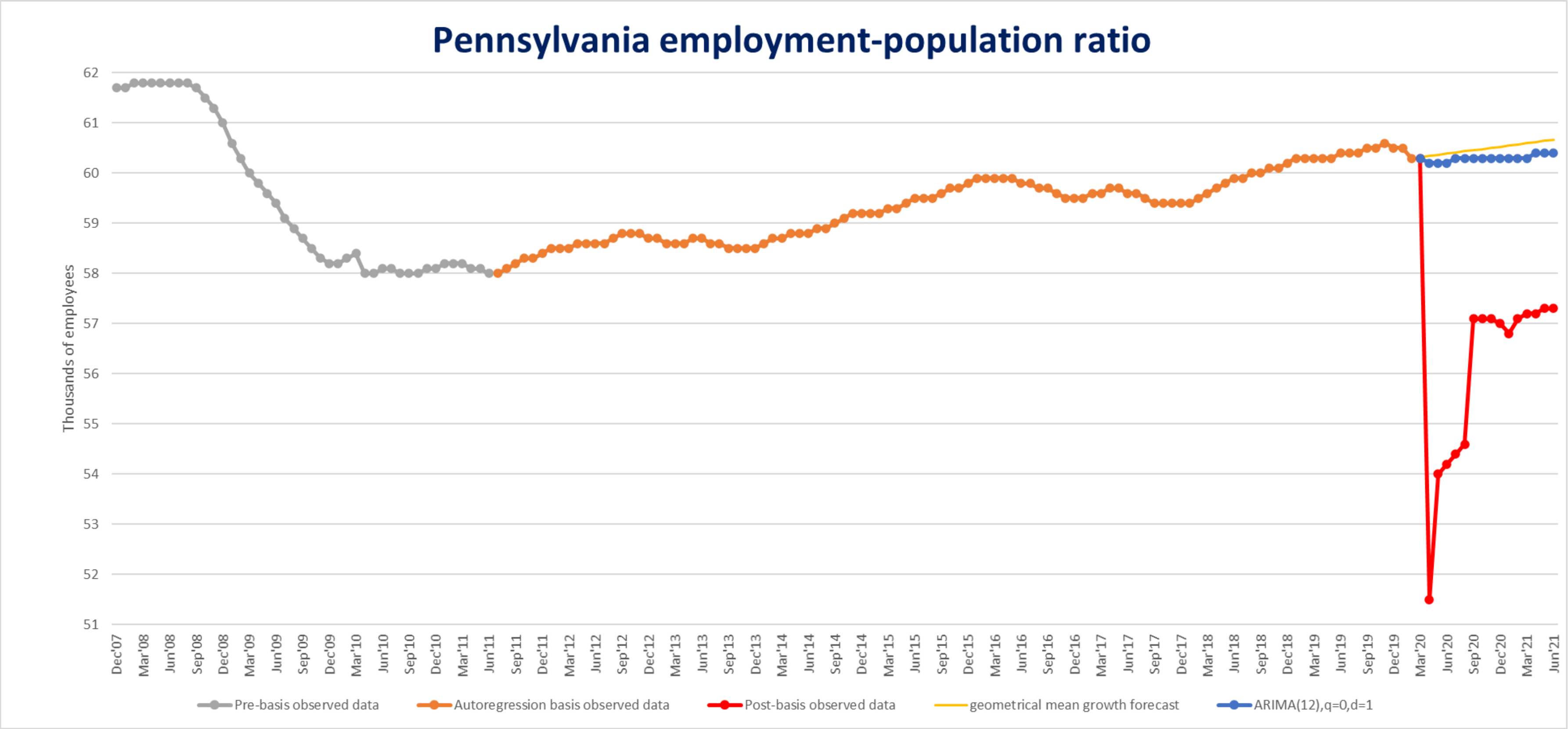


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.00055	0.006332	-0.08724	0.930647
phi 1	0.527043	0.098375	5.357495	5.17E-07
phi 2	0.291059	0.108165	2.690875	0.008317
phi 3	0.03395	0.101461	0.334613	0.738598
phi 4	-0.07533	0.101246	-0.74406	0.458537
phi 5	-0.09977	0.10323	-0.96649	0.336064
phi 6	-0.11048	0.101668	-1.08667	0.27972
phi 7	0.235335	0.101512	2.318289	0.02241
phi 8	0.030204	0.103839	0.290874	0.771732
phi 9	0.023719	0.102831	0.230656	0.81804
phi 10	-0.00168	0.10248	-0.01639	0.986959
phi 11	-0.0358	0.094622	-0.37836	0.705941
phi 12	-0.05124	0.087116	-0.58822	0.557672

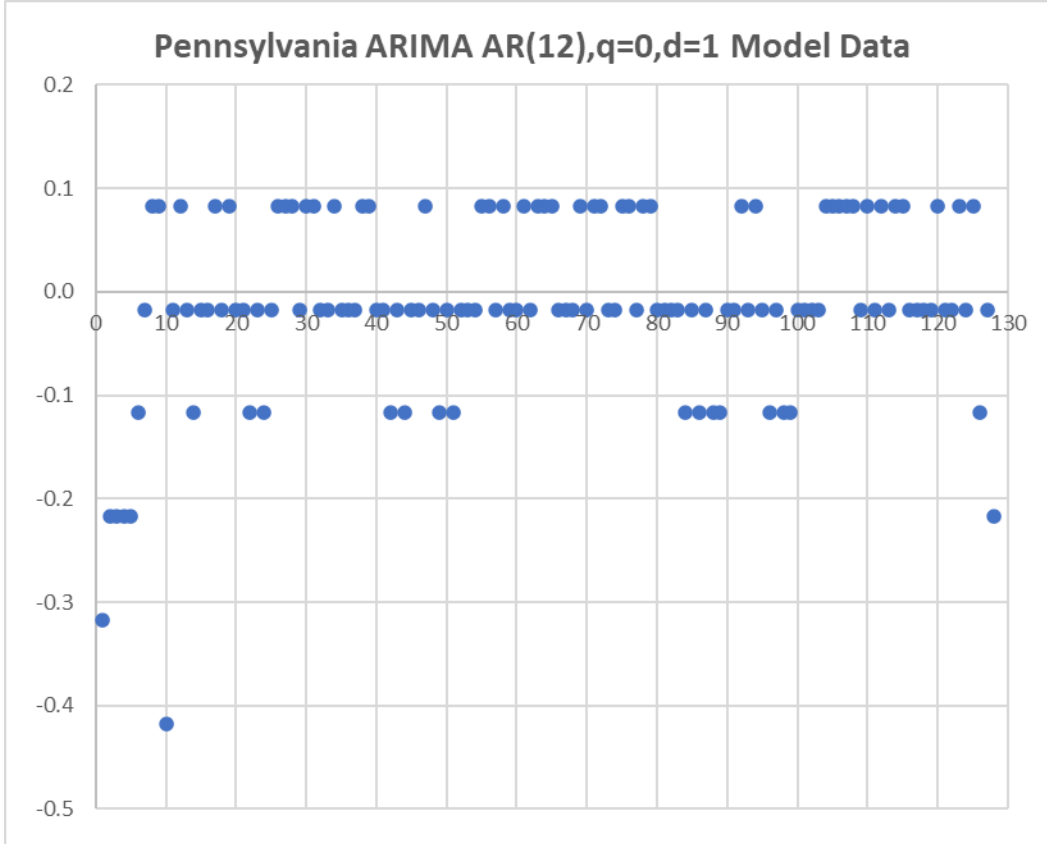


Appendix E138: Pennsylvania Employment-Population Ratio ARIMA Model Forecast

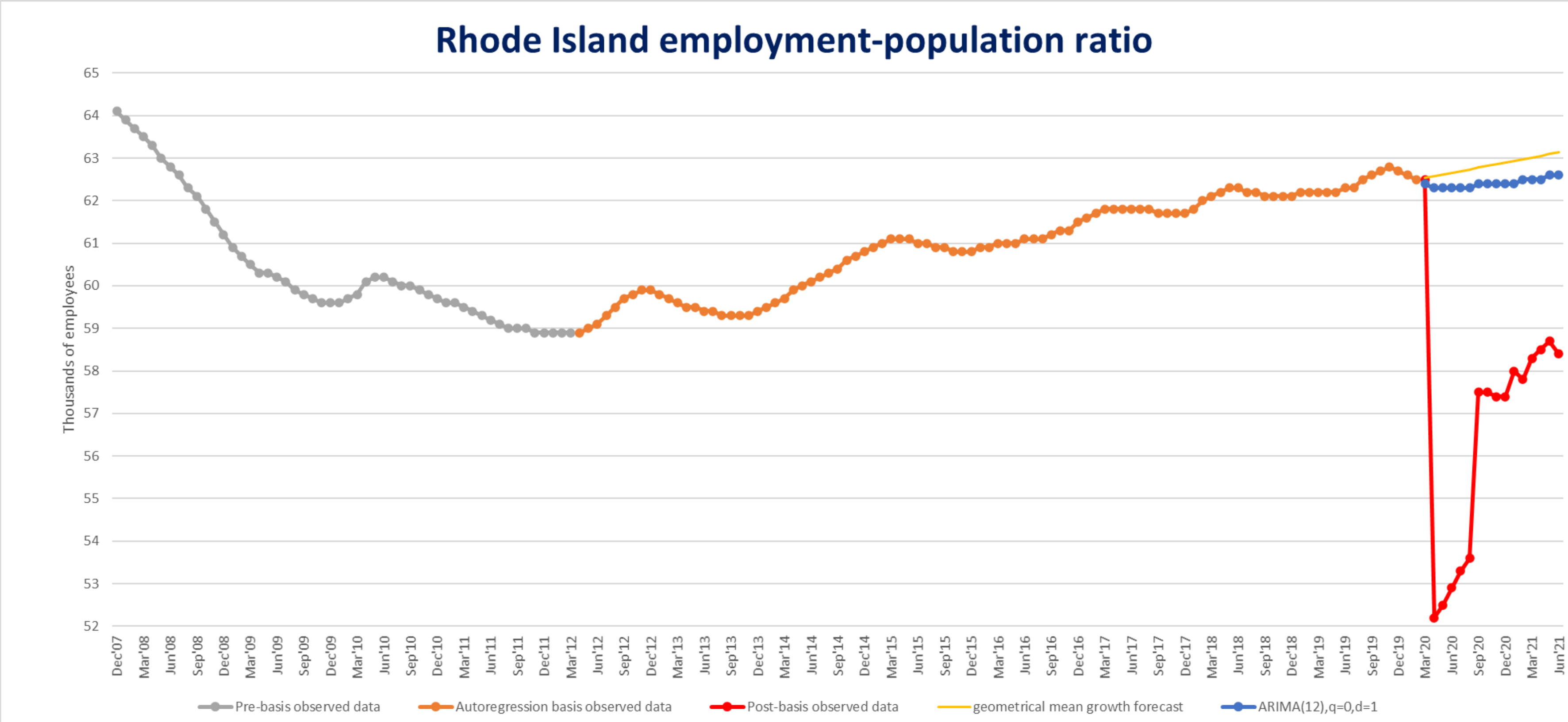


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.009163	0.007162	1.279506	0.203594
phi 1	0.174127	0.098905	1.760548	0.081283
phi 2	0.31213	0.100374	3.10968	0.002422
phi 3	-0.02331	0.087505	-0.26636	0.790493
phi 4	0.040089	0.085311	0.469917	0.639408
phi 5	-0.1085	0.08345	-1.30016	0.196448
phi 6	-0.10298	0.084254	-1.22229	0.224388
phi 7	0.035639	0.084904	0.419759	0.675536
phi 8	0.125021	0.083421	1.498666	0.137019
phi 9	0.011108	0.082386	0.134825	0.893013
phi 10	0.015489	0.081657	0.189684	0.84993
phi 11	0.061538	0.081018	0.759568	0.449248
phi 12	-0.07233	0.07628	-0.94819	0.345252

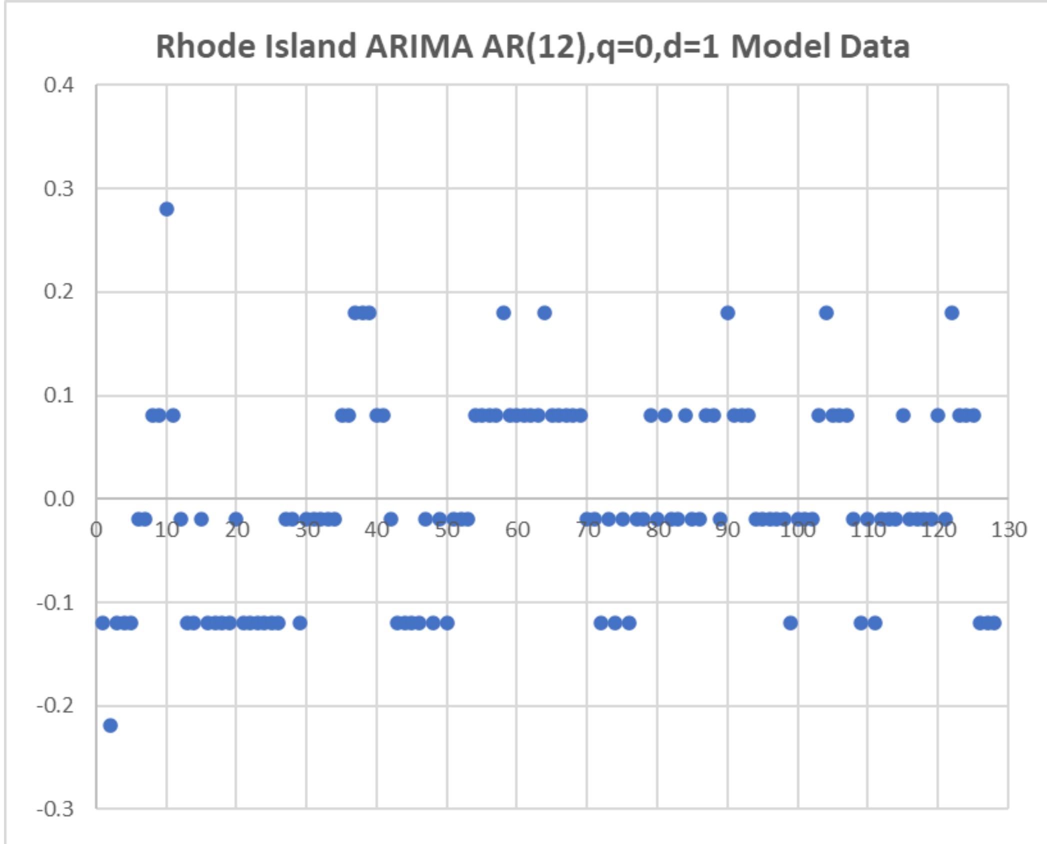


Appendix E139: Rhode Island Employment-Population Ratio ARIMA Model Forecast

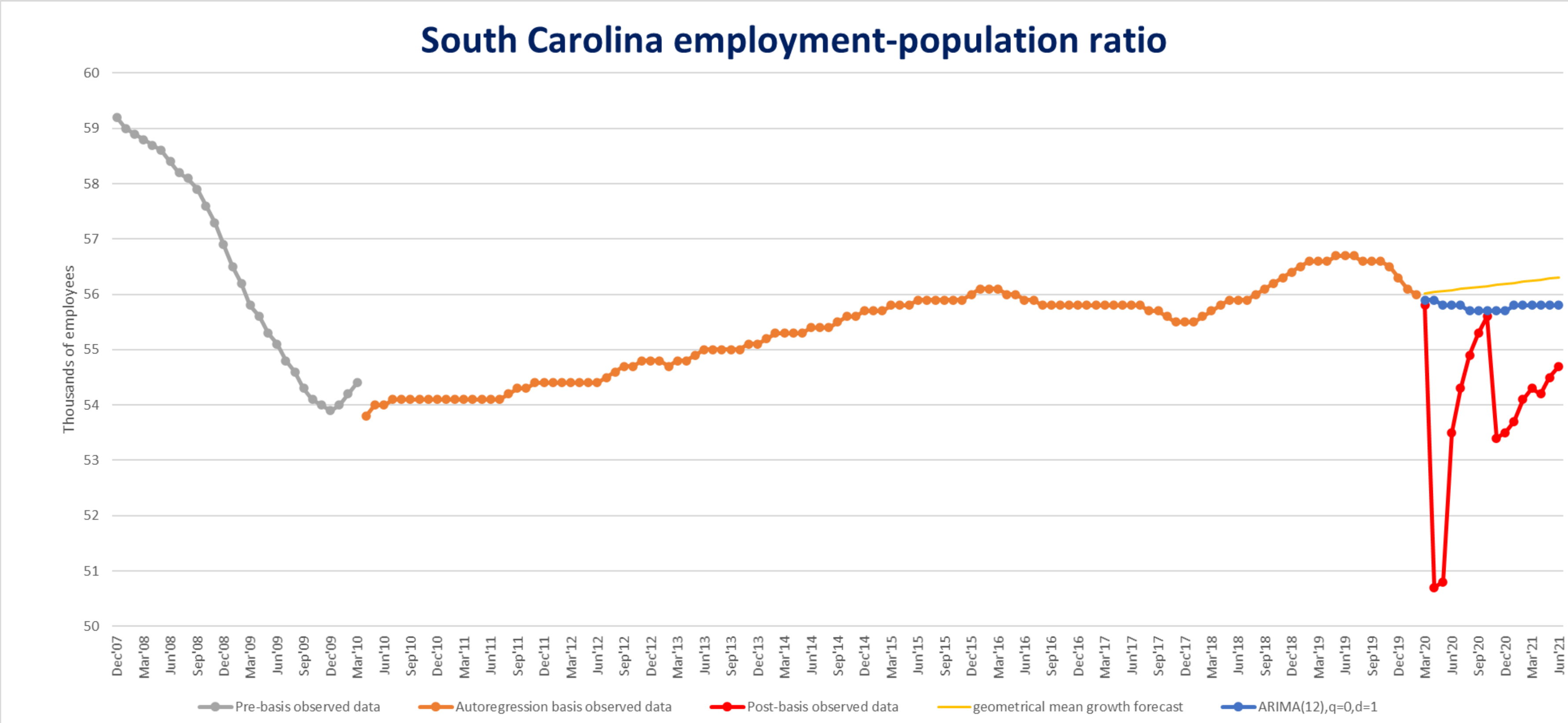


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.009499*	*0.006726*	*1.41219*	*0.160908*
phi 1	0.430529	0.095447	*4.510683*	*1.72E-05*
phi 2	0.462735	0.104529	*4.426847*	*2.38E-05*
phi 3	-0.0004	0.106719	*-0.00379*	*0.996987*
phi 4	-0.22921	0.10734	*-2.13536*	*0.035102*
phi 5	-0.05642	0.1089	*-0.51813*	*0.60548*
phi 6	0.013515	0.108627	*0.124417*	*0.901227*
phi 7	-0.0518	0.10975	*-0.47198*	*0.637943*
phi 8	-0.04541	0.110641	*-0.41043*	*0.68234*
phi 9	0.070687	0.109971	*0.642779*	*0.521796*
phi 10	0.134991	0.110119	*1.225868*	*0.223044*
phi 11	-0.0987	0.103361	*-0.95488*	*0.341876*
phi 12	-0.11712	0.094136	*-1.24412*	*0.216278*

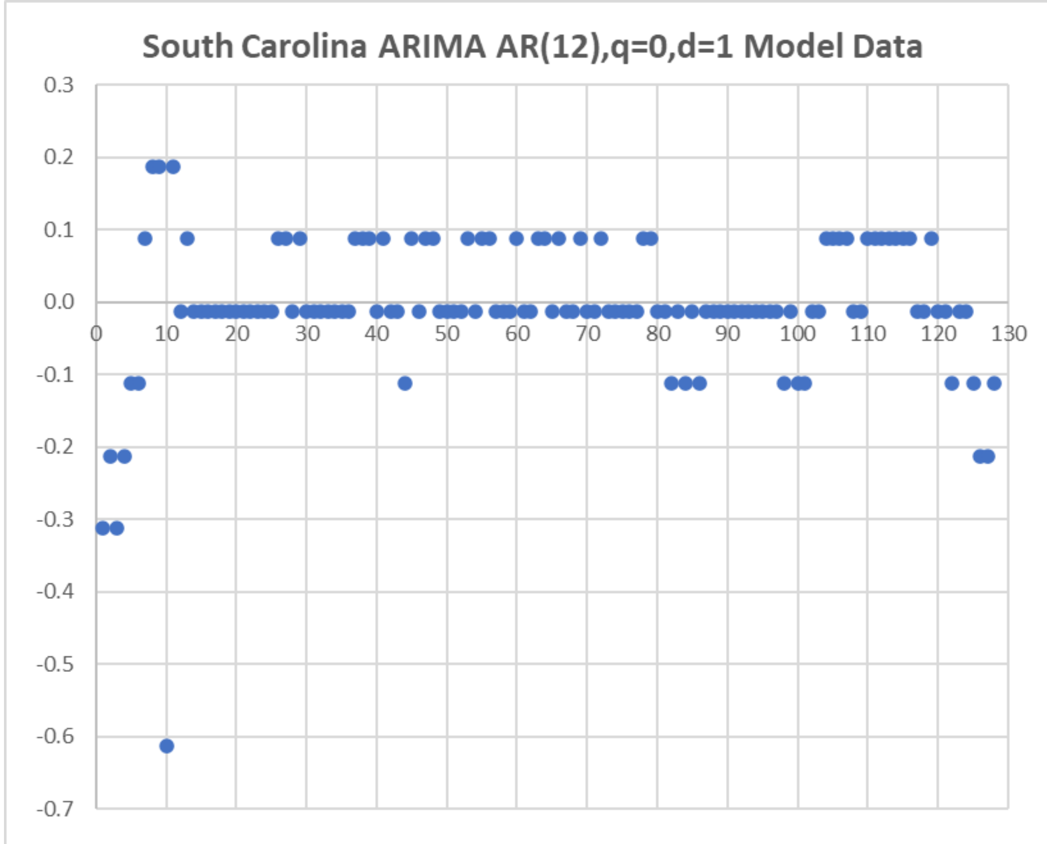


Appendix E140: South Carolina Employment-Population Ratio ARIMA Model Forecast

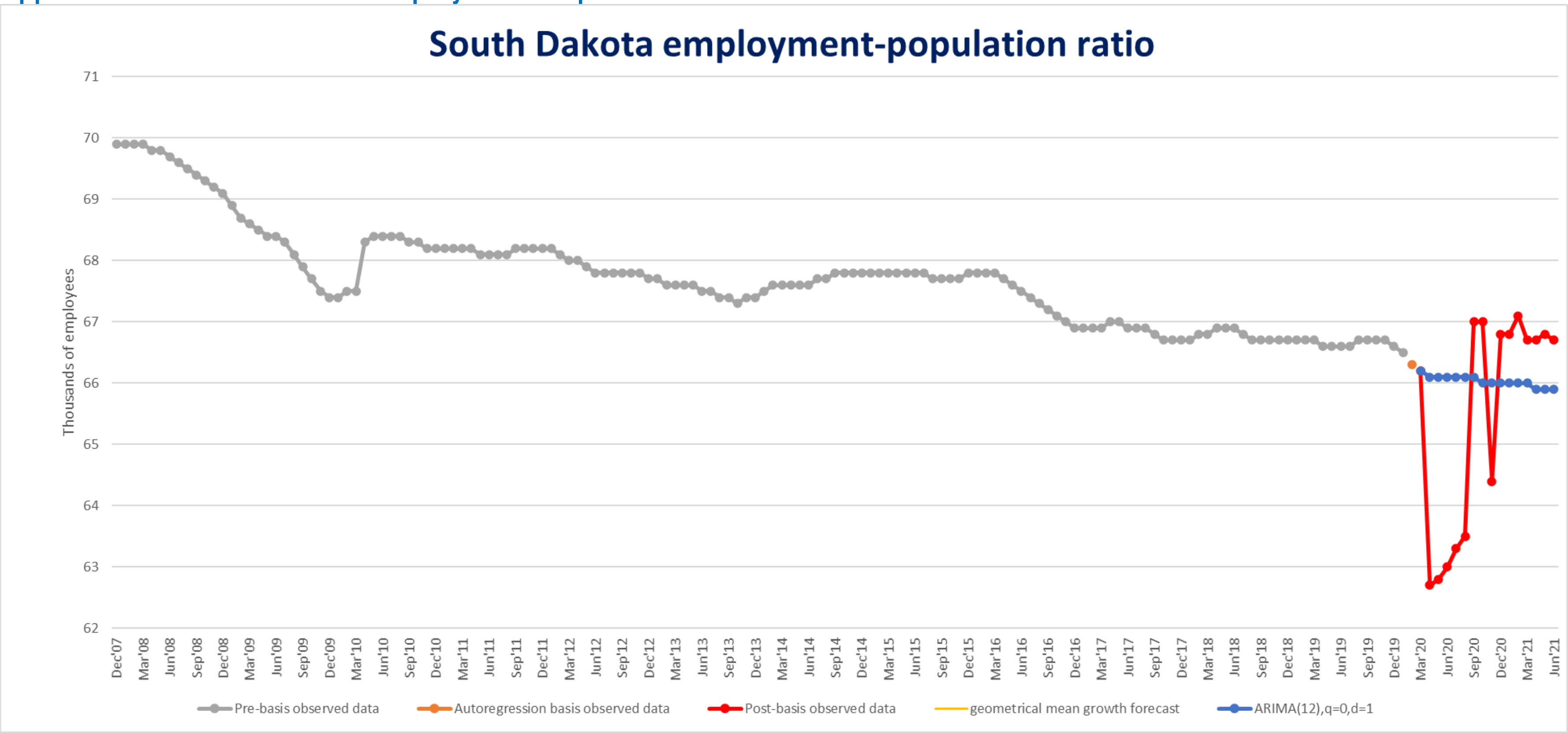


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.005105*	*0.006902*	*0.739561*	*0.461249*
phi 1	0.340068	0.098261	*3.460879*	*0.000785*
phi 2	0.240884	0.101493	*2.373407*	*0.019479*
phi 3	-0.01568	0.075249	*-0.20834*	*0.835376*
phi 4	0.03135	0.072947	*0.429765*	*0.668265*
phi 5	0.026498	0.066627	*0.39771*	*0.691667*
phi 6	6.5E-05	0.066054	*0.000984*	*0.999216*
phi 7	-0.01801	0.066156	*-0.27231*	*0.785931*
phi 8	0.054314	0.065775	*0.825755*	*0.410852*
phi 9	0.025555	0.064563	*0.395817*	*0.693059*
phi 10	-0.02656	0.062001	*-0.42835*	*0.669293*
phi 11	-0.04454	0.060296	*-0.73861*	*0.461826*
phi 12	-0.02702	0.059135	*-0.4569*	*0.648704*

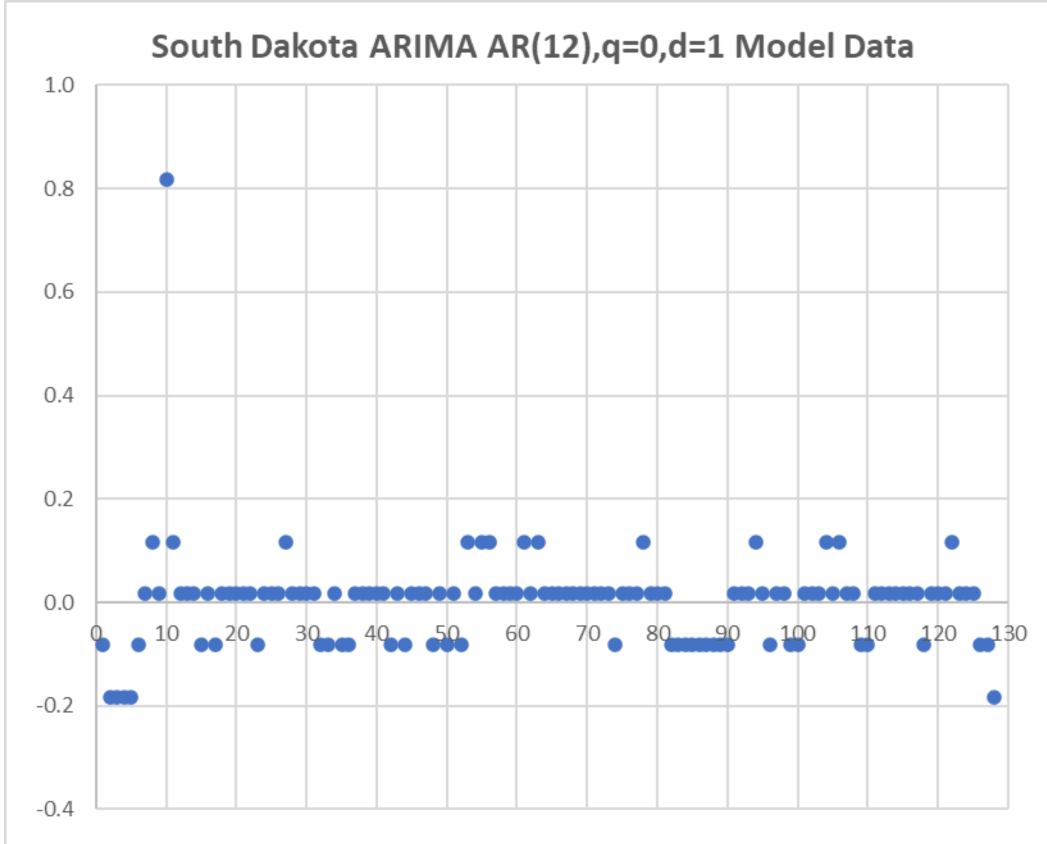


Appendix E141: South Dakota Employment-Population Ratio ARIMA Model Forecast

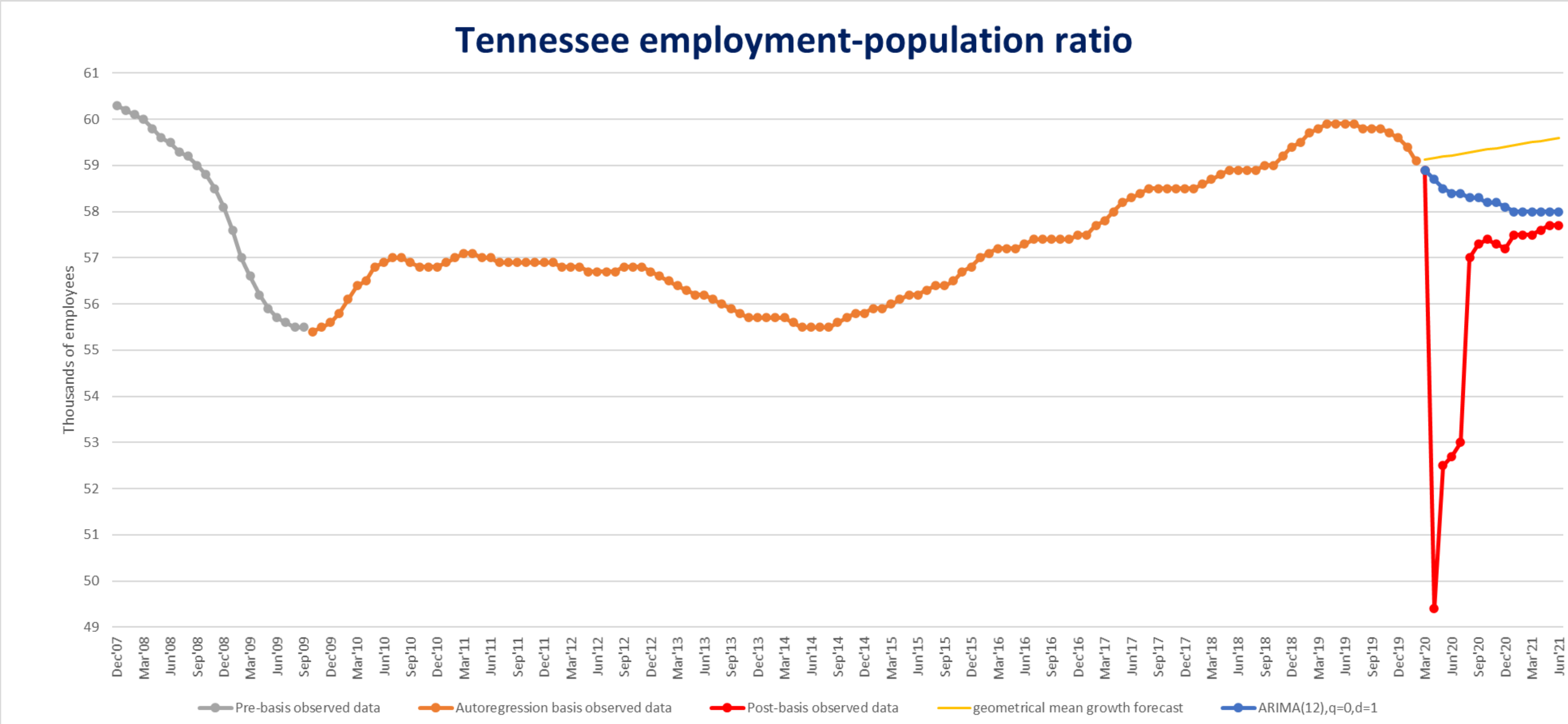


Model parameters

param	coeff	s.e.	t-stat	p-value
const	*-0.01104*	*0.005615*	*-1.96608*	*0.051981*
phi 1	0.25237	0.099297	*2.541577*	*0.012525*
phi 2	0.293501	0.102116	*2.874201*	*0.004921*
phi 3	0.02398	0.062118	*0.386035*	*0.700267*
phi 4	-0.05622	0.060456	*-0.92996*	*0.354564*
phi 5	-0.14148	0.060409	*-2.34209*	*0.021099*
phi 6	0.027373	0.06119	*0.447333*	*0.655574*
phi 7	-0.06098	0.061453	*-0.99225*	*0.323401*
phi 8	0.074224	0.059958	*1.237934*	*0.218555*
phi 9	0.017889	0.059944	*0.298433*	*0.765974*
phi 10	0.033964	0.059636	*0.569525*	*0.57024*
phi 11	-0.05932	0.057905	*-1.02435*	*0.308072*
phi 12	-0.03492	0.057324	*-0.6092*	*0.543732*

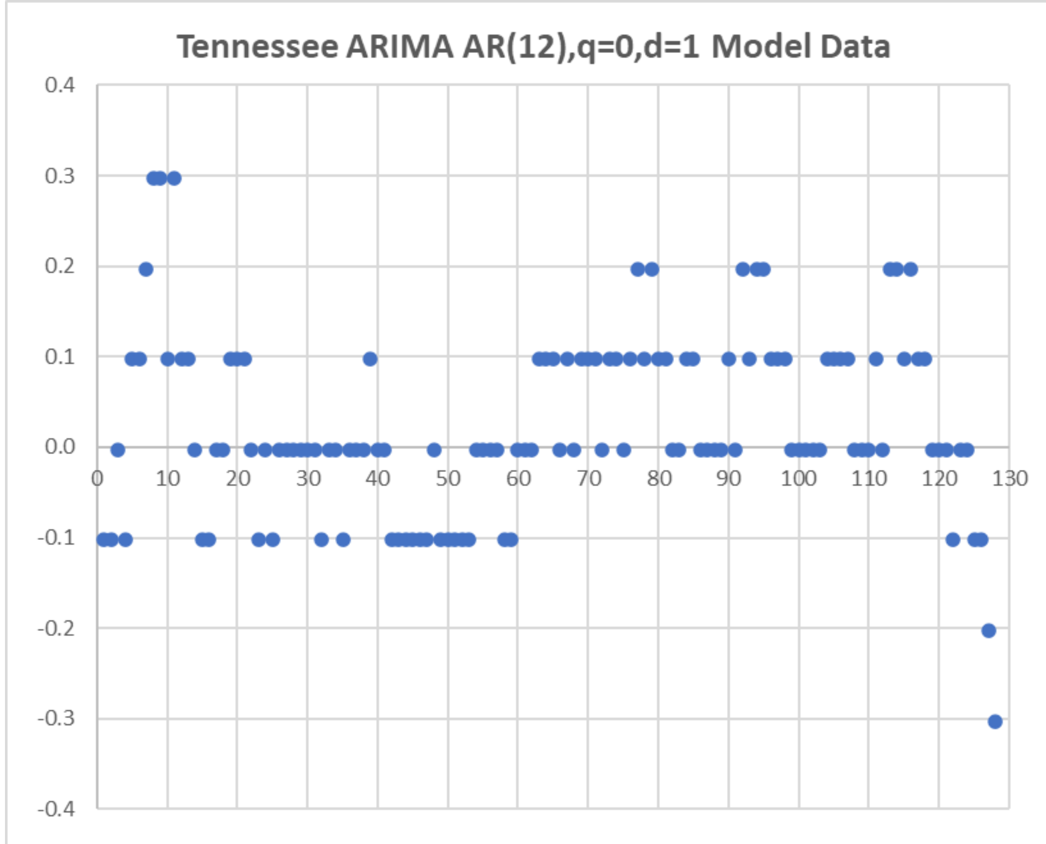


Appendix E142: Tennessee Employment-Population Ratio ARIMA Model Forecast

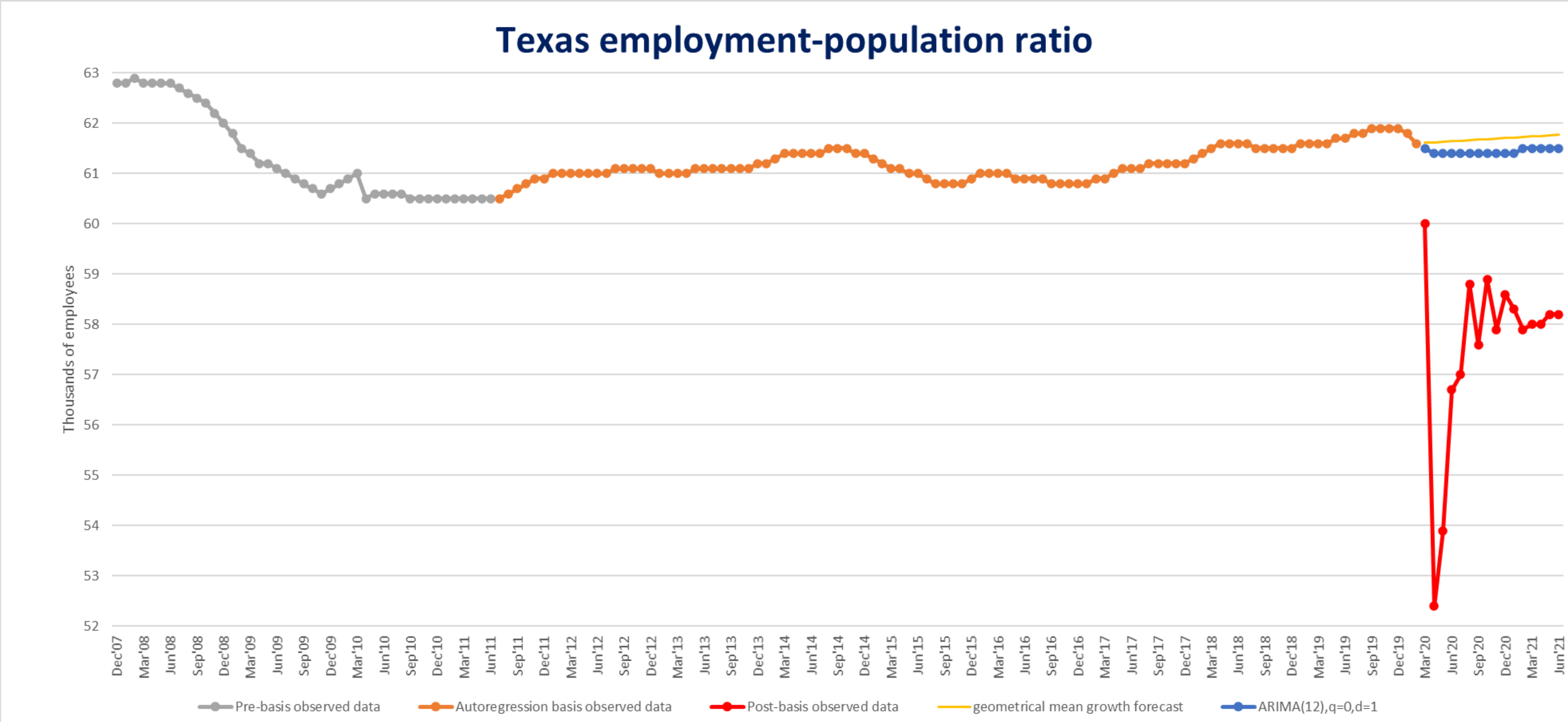


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.000623*	*0.007222*	*0.086226*	*0.931454*
phi 1	0.524108	0.100849	*5.196972*	*1.03E-06*
phi 2	0.410492	0.109993	*3.731987*	*0.000311*
phi 3	0.038035	0.113341	*0.33558*	*0.73787*
phi 4	-0.34073	0.112797	*-3.02076*	*0.00318*
phi 5	-0.09688	0.116067	*-0.83471*	*0.405811*
phi 6	0.164023	0.115802	*1.416402*	*0.159675*
phi 7	0.159885	0.1163	*1.374764*	*0.172188*
phi 8	-0.04889	0.116259	*-0.42049*	*0.675*
phi 9	-0.06075	0.111693	*-0.54388*	*0.587702*
phi 10	0.114958	0.110642	*1.039007*	*0.301235*
phi 11	-0.06792	0.102368	*-0.6635*	*0.508491*
phi 12	-0.02759	0.093205	*-0.29606*	*0.767782*

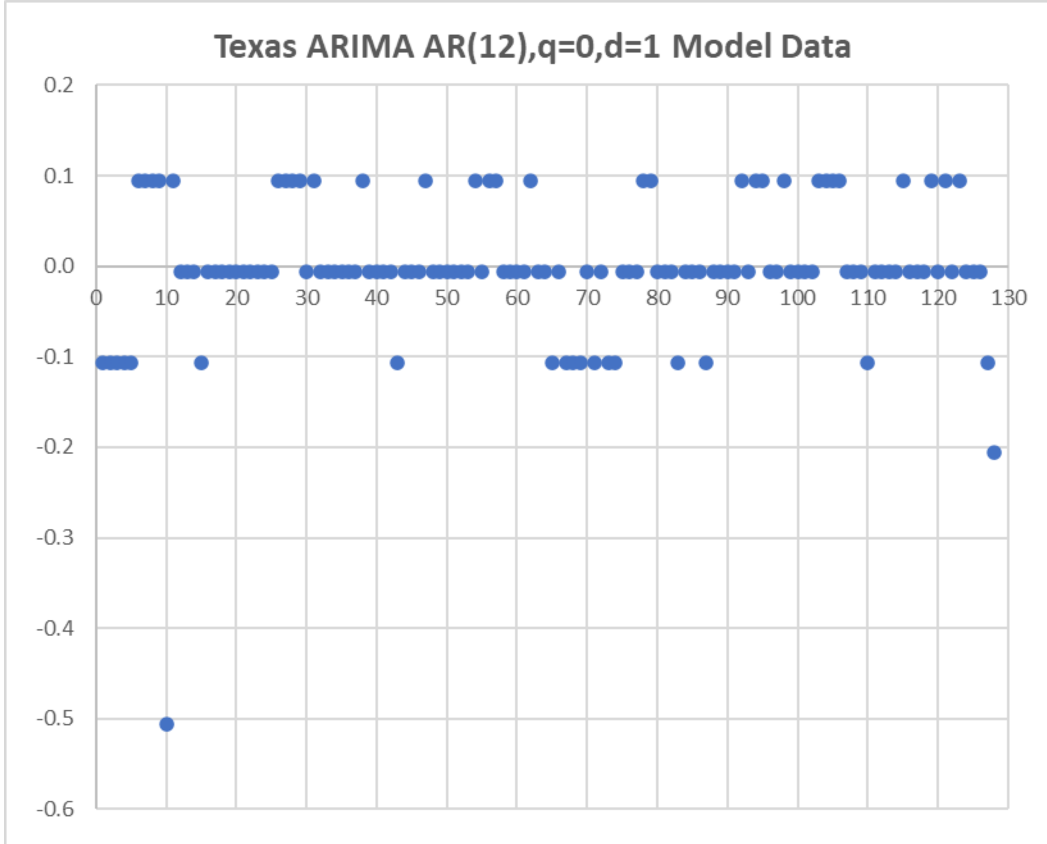


Appendix E143: Texas Employment-Population Ratio ARIMA Model Forecast

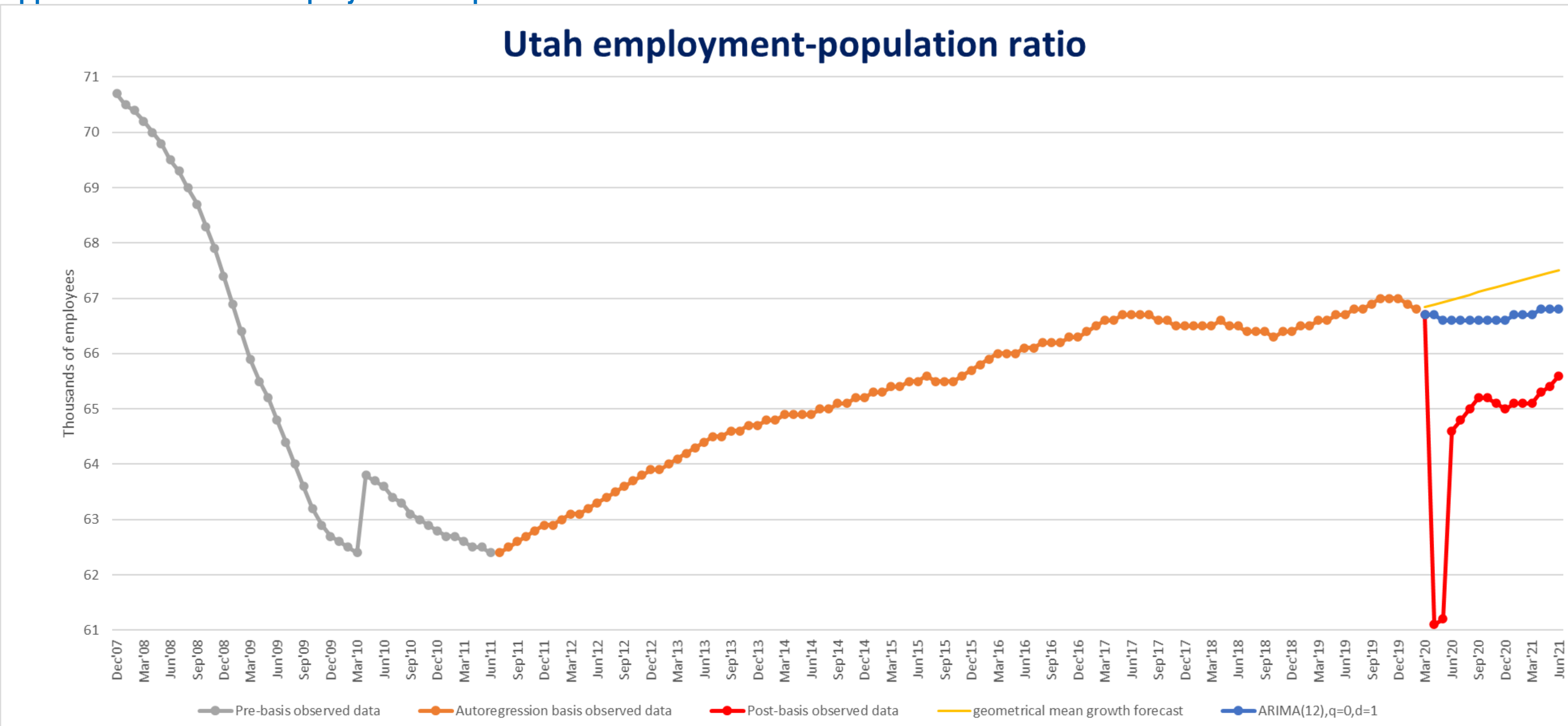


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.00392*	*0.005539*	*0.707635*	*0.48077*
phi 1	0.27307	0.102297	*2.669395*	*0.00883*
phi 2	0.281037	0.102916	*2.730747*	*0.007435*
phi 3	0.048604	0.076121	*0.638517*	*0.524554*
phi 4	-0.07619	0.07559	*-1.00794*	*0.315847*
phi 5	-0.04408	0.073669	*-0.59831*	*0.550946*
phi 6	0.038106	0.072708	*0.524093*	*0.60134*
phi 7	-0.07115	0.072455	*-0.98201*	*0.328395*
phi 8	-0.0421	0.07239	*-0.58154*	*0.562146*
phi 9	0.011407	0.071835	*0.158794*	*0.874142*
phi 10	0.090264	0.071872	*1.255889*	*0.211998*
phi 11	-0.10361	0.070885	*-1.46162*	*0.146891*
phi 12	-0.04119	0.070924	*-0.5807*	*0.562709*

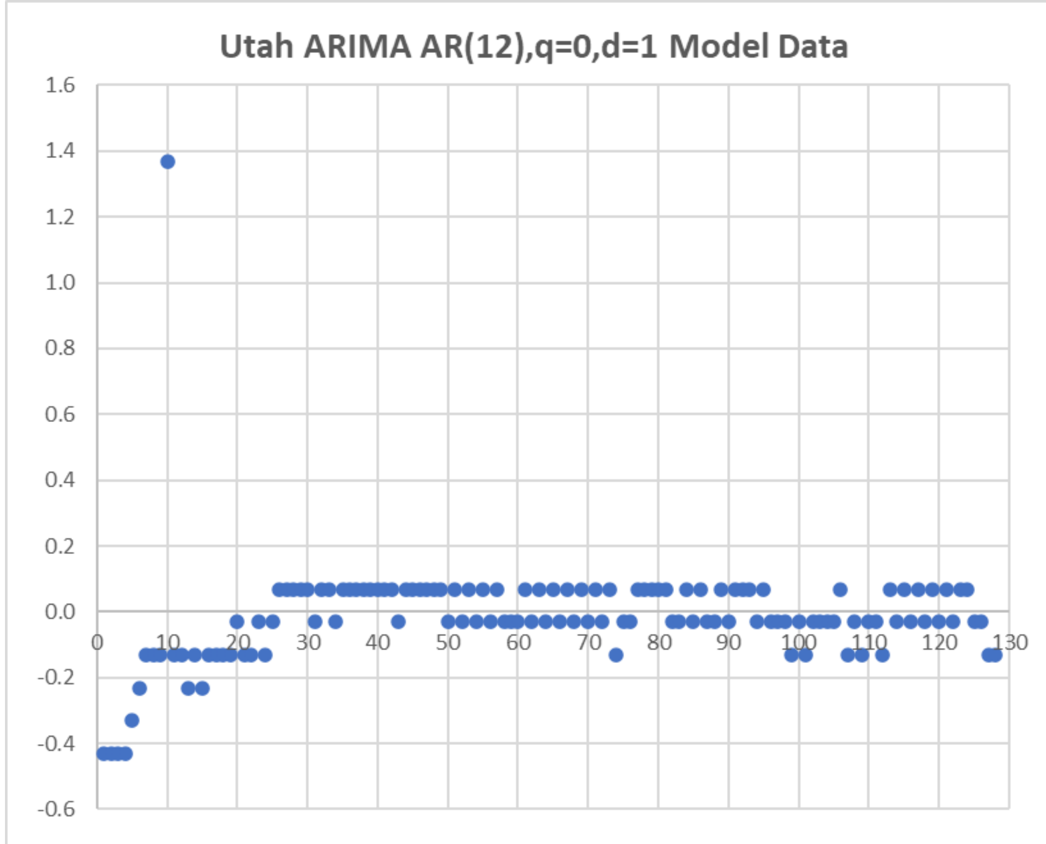


Appendix E144: Utah Employment-Population Ratio ARIMA Model Forecast

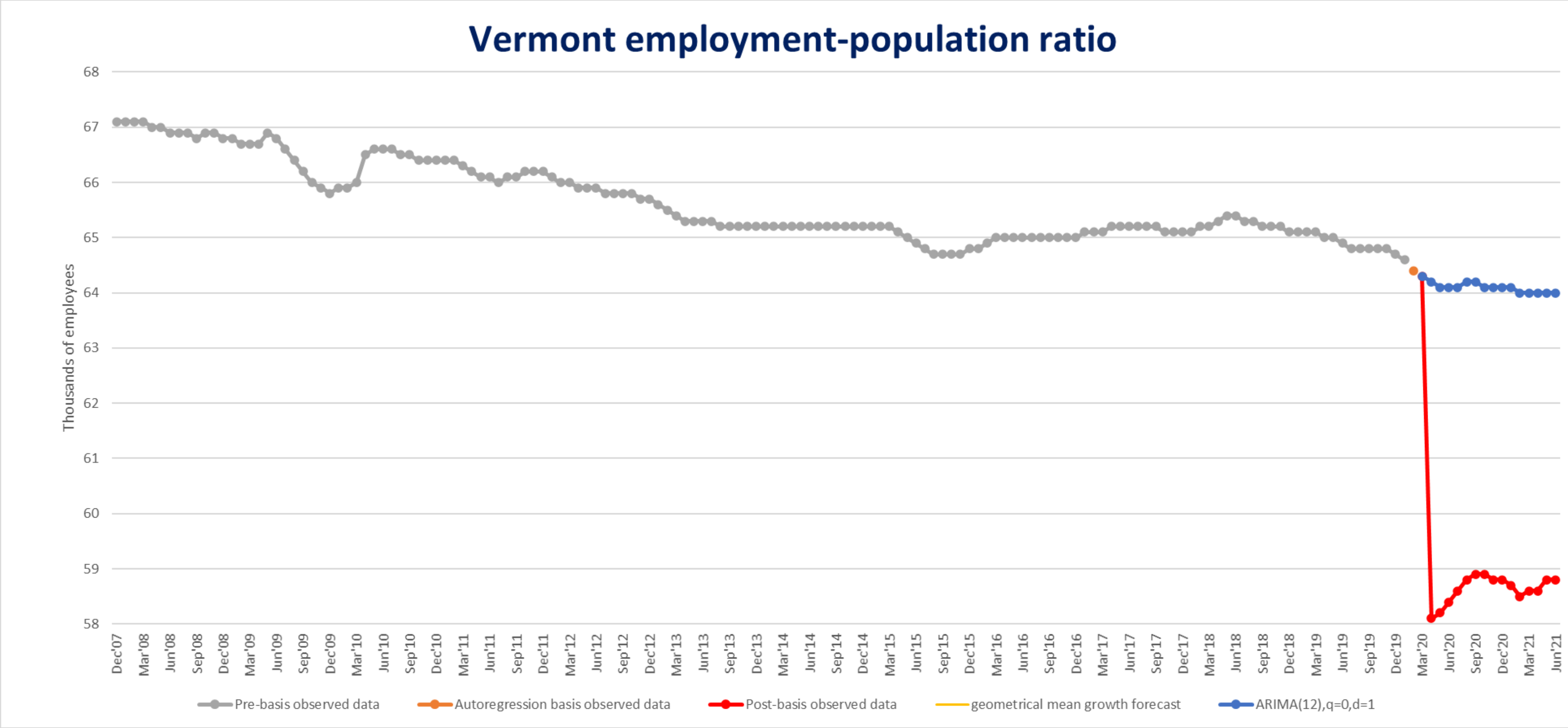


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.011036	0.006679	1.652387	0.101501
phi 1	0.19369	0.082459	2.348916	0.020737
phi 2	0.634527	0.08467	7.494125	2.4E-11
phi 3	-0.07973	0.039791	-2.00358	0.047741
phi 4	-0.02374	0.038923	-0.61001	0.543195
phi 5	-0.05601	0.036827	-1.52091	0.131346
phi 6	-0.00437	0.036897	-0.11844	0.905947
phi 7	0.022166	0.035948	0.616607	0.538854
phi 8	-0.01812	0.035886	-0.50489	0.614716
phi 9	-0.00087	0.035238	-0.02473	0.980318
phi 10	0.042083	0.034937	1.204545	0.231139
phi 11	-0.01918	0.034651	-0.55356	0.581083
phi 12	-0.05039	0.034061	-1.47927	0.14212

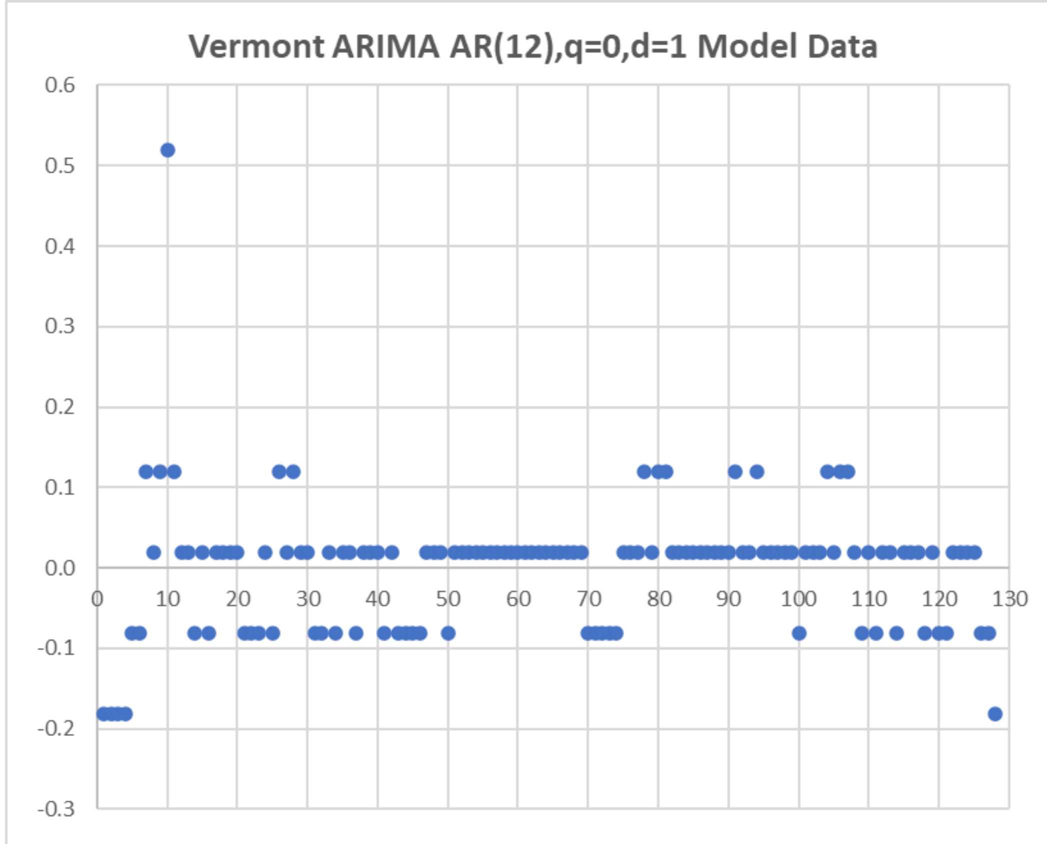


Appendix E145: Vermont Employment-Population Ratio ARIMA Model Forecast

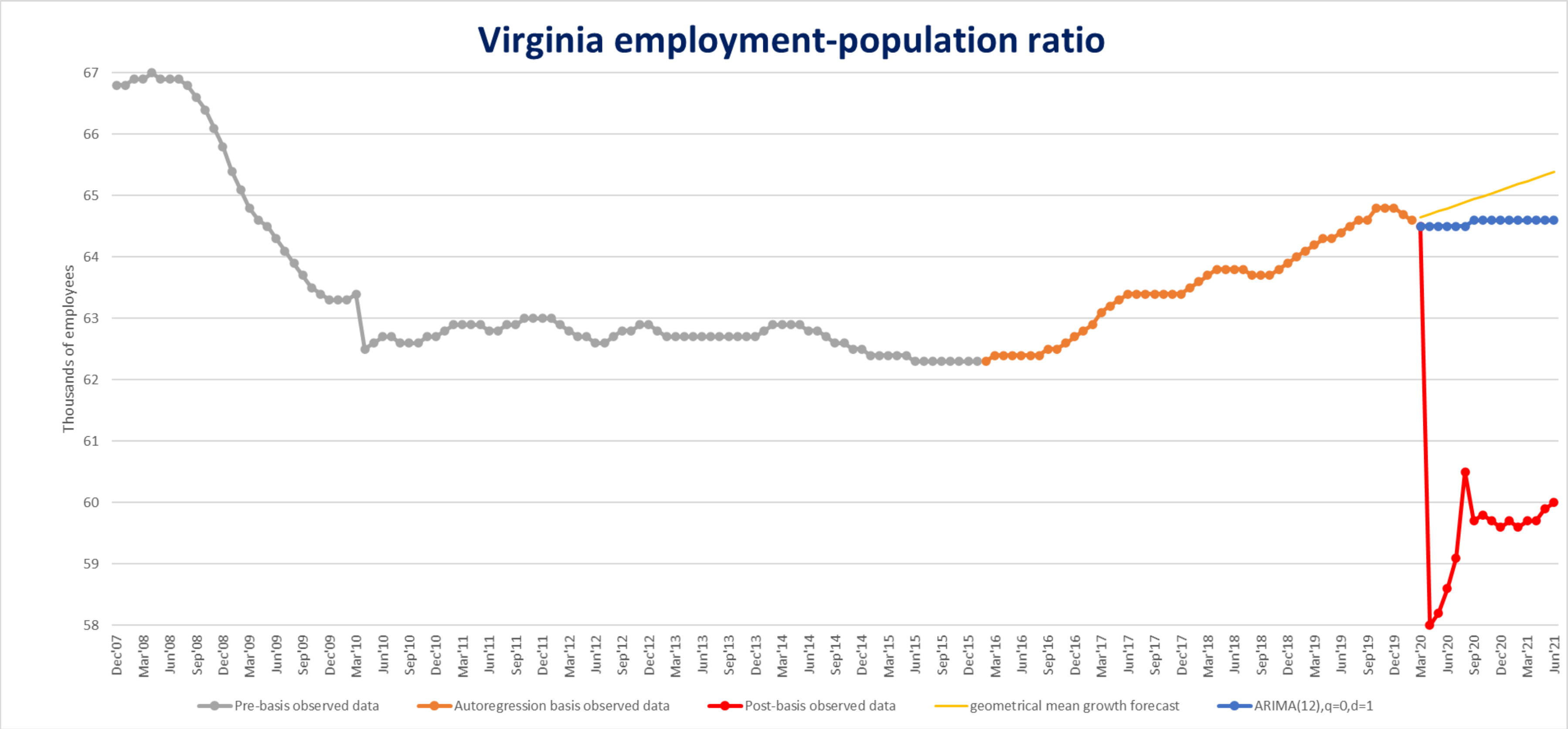


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*-0.01201*	*0.005628*	*-2.13361*	*0.035249*
phi 1	0.230833	0.098466	*2.344285*	*0.020982*
phi 2	0.35382	0.100471	*3.52161*	*0.000641*
phi 3	0.053043	0.081808	*0.648386*	*0.518178*
phi 4	-0.20057	0.081093	*-2.47337*	*0.01502*
phi 5	-0.0249	0.080285	*-0.3101*	*0.757114*
phi 6	-0.08142	0.080342	*-1.01341*	*0.313237*
phi 7	0.054985	0.079163	*0.694578*	*0.488884*
phi 8	-0.01295	0.079504	*-0.16292*	*0.870904*
phi 9	0.147236	0.078091	*1.885452*	*0.062187*
phi 10	-0.00202	0.078949	*-0.02553*	*0.979679*
phi 11	-0.09531	0.077936	*-1.22295*	*0.224139*
phi 12	-0.06046	0.073487	*-0.82275*	*0.412548*

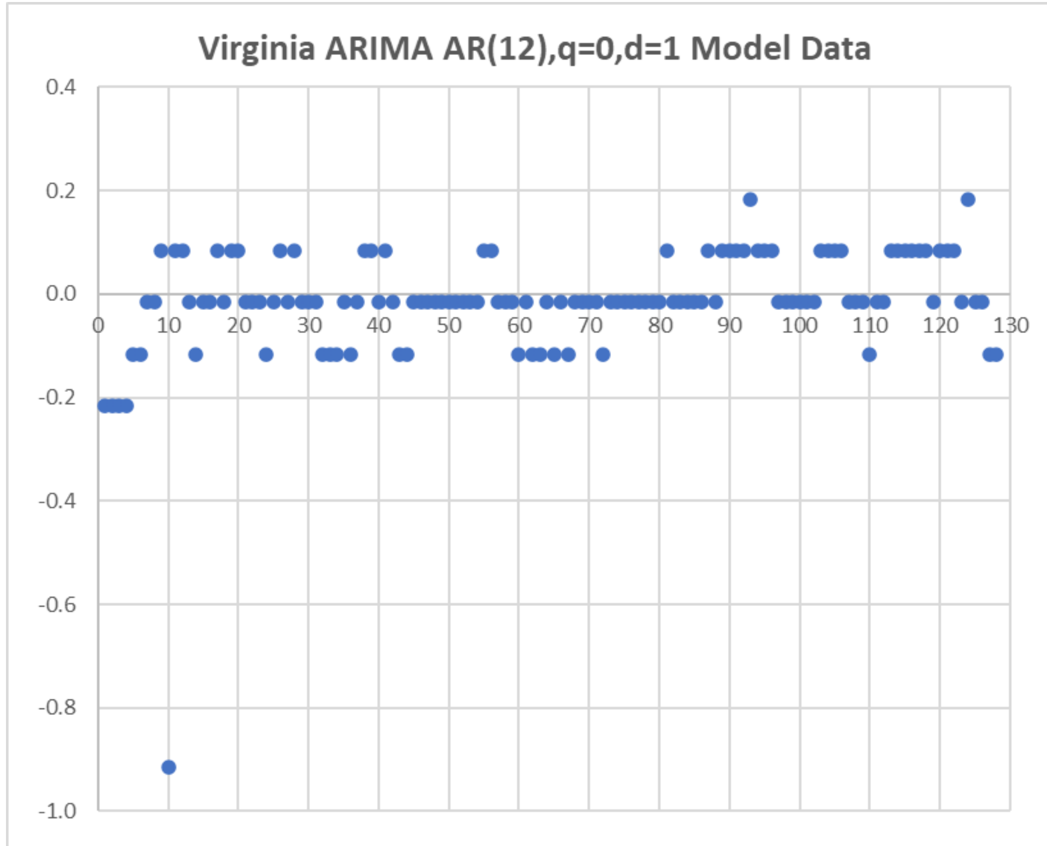


Appendix E146: Virginia Employment-Population Ratio ARIMA Model Forecast

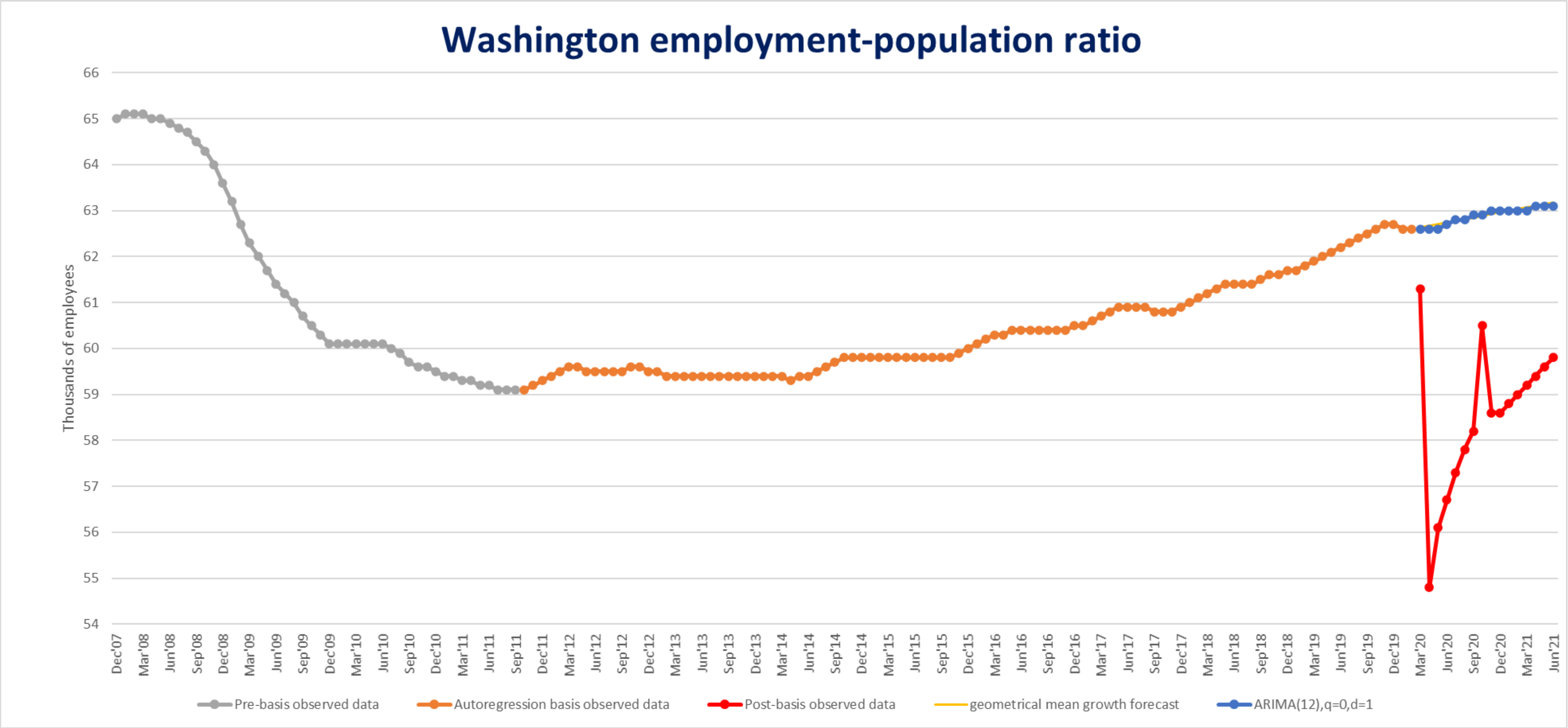


Model parameters

param	coeff	s.e.	t-stat	p-value
const	0.005776	0.00601	0.960975	0.338815
phi 1	0.356674	0.096296	3.703925	0.000343
phi 2	0.230227	0.098347	2.340963	0.02116
phi 3	0.033079	0.055089	0.600457	0.54952
phi 4	0.025106	0.054227	0.462977	0.644358
phi 5	-0.10225	0.054679	-1.87005	0.064316
phi 6	-0.03437	0.054903	-0.626	0.532701
phi 7	-0.06166	0.054438	-1.13262	0.260005
phi 8	0.090644	0.054677	1.657801	0.1004
phi 9	0.022219	0.0546	0.406933	0.684901
phi 10	0.019047	0.052863	0.360312	0.719352
phi 11	0.071867	0.052667	1.364572	0.175361
phi 12	-0.01609	0.052758	-0.30504	0.760952

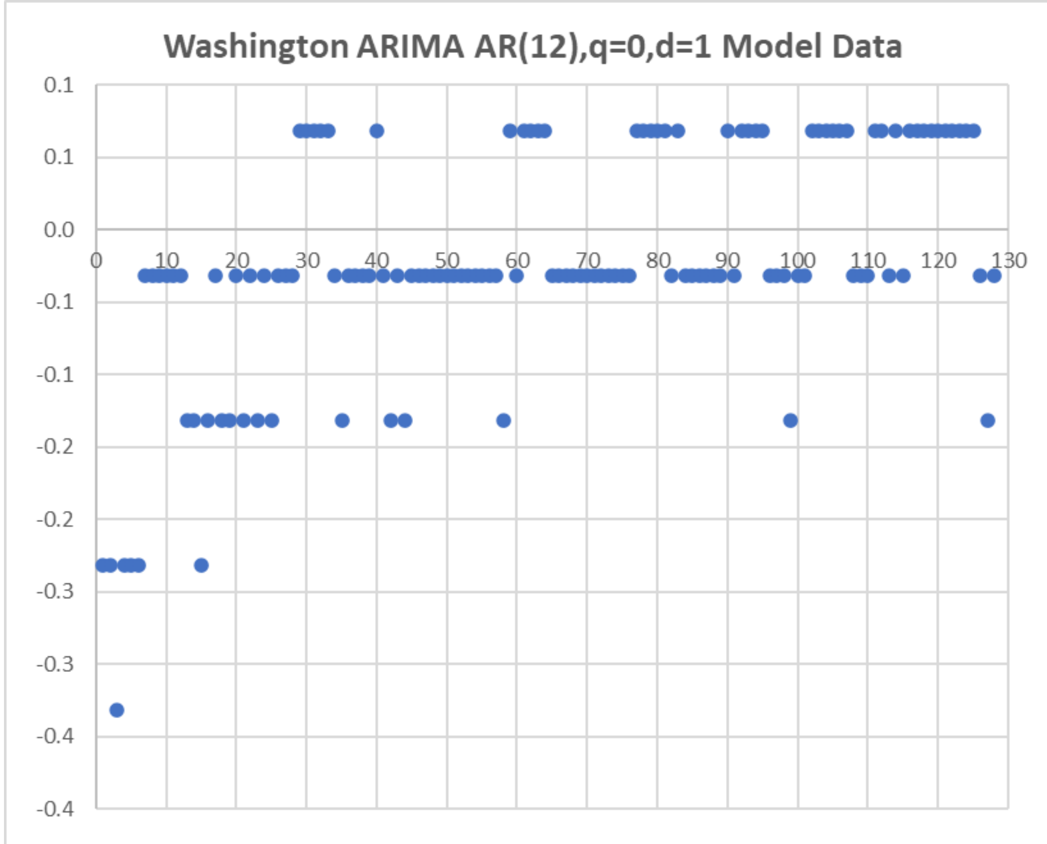


Appendix E147: Washington Employment-Population Ratio ARIMA Model Forecast

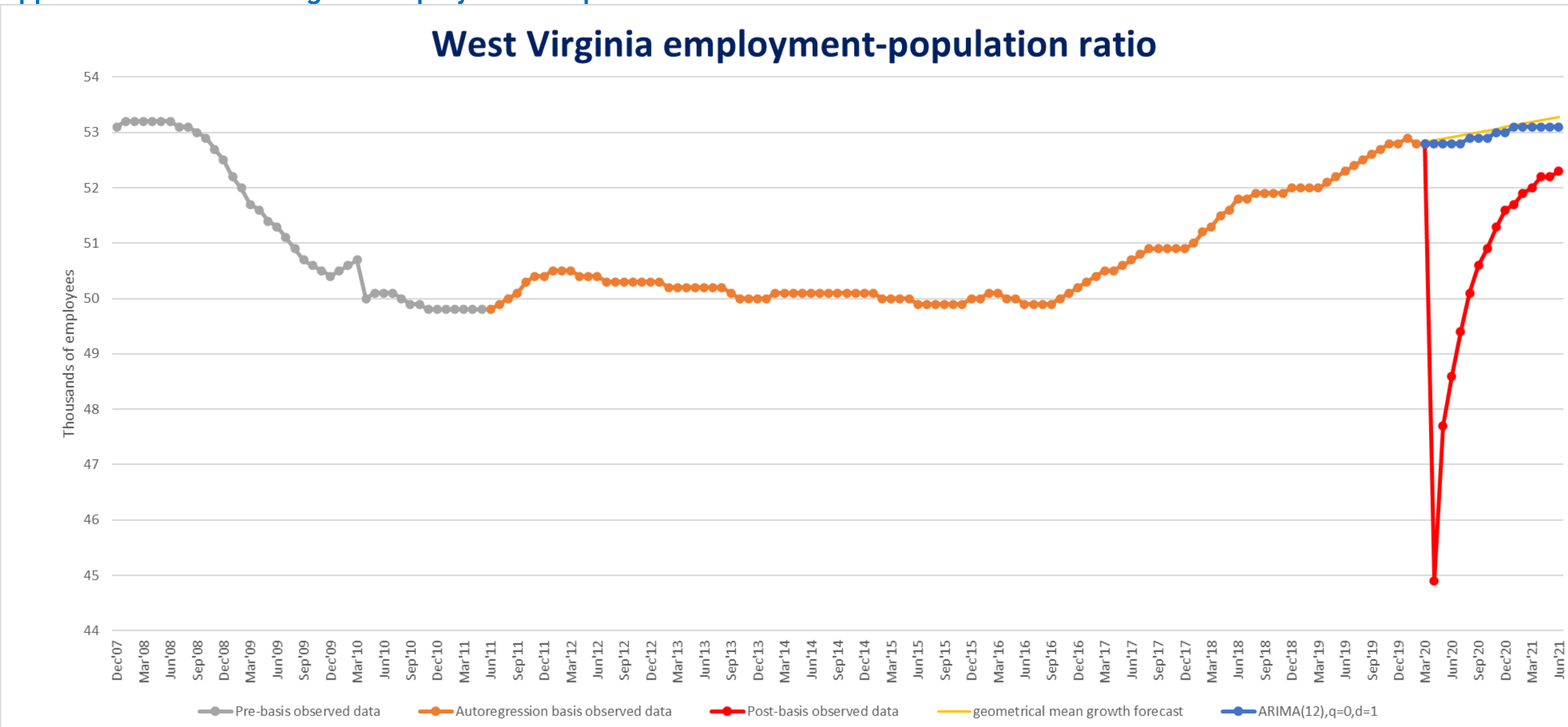


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.007983*	*0.005622*	*1.419824*	*0.158679*
phi 1	0.358169	0.097619	*3.66904*	*0.000388*
phi 2	0.336071	0.106934	*3.142801*	*0.002186*
phi 3	0.00942	0.111582	*0.08442*	*0.932886*
phi 4	-0.1197	0.112112	*-1.0677*	*0.288153*
phi 5	-0.07485	0.112575	*-0.6649*	*0.5076*
phi 6	-0.06933	0.111034	*-0.62442*	*0.533736*
phi 7	0.114602	0.108392	*1.057297*	*0.292849*
phi 8	-0.01347	0.108202	*-0.12447*	*0.901189*
phi 9	0.111501	0.107227	*1.039868*	*0.300836*
phi 10	0.092035	0.106385	*0.865108*	*0.38899*
phi 11	-0.12158	0.100105	*-1.21455*	*0.227315*
phi 12	0.123291	0.093222	*1.322554*	*0.188913*

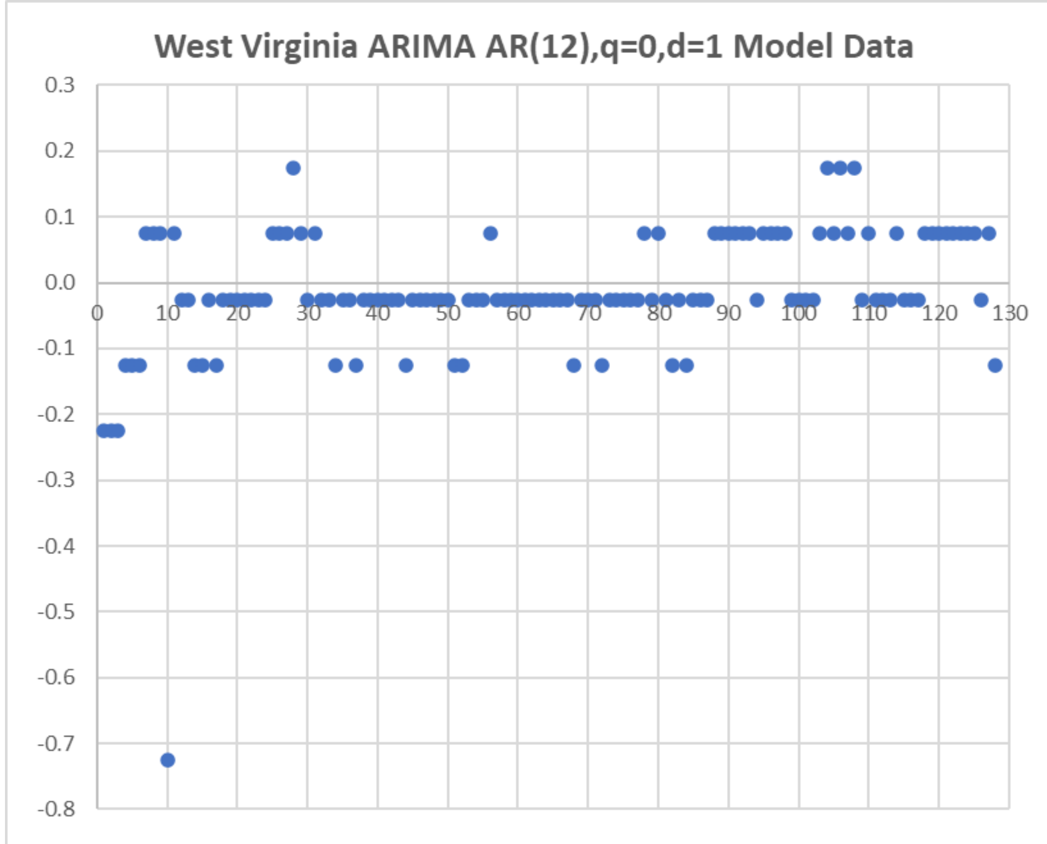


Appendix E148: West Virginia Employment-Population Ratio ARIMA Model Forecast

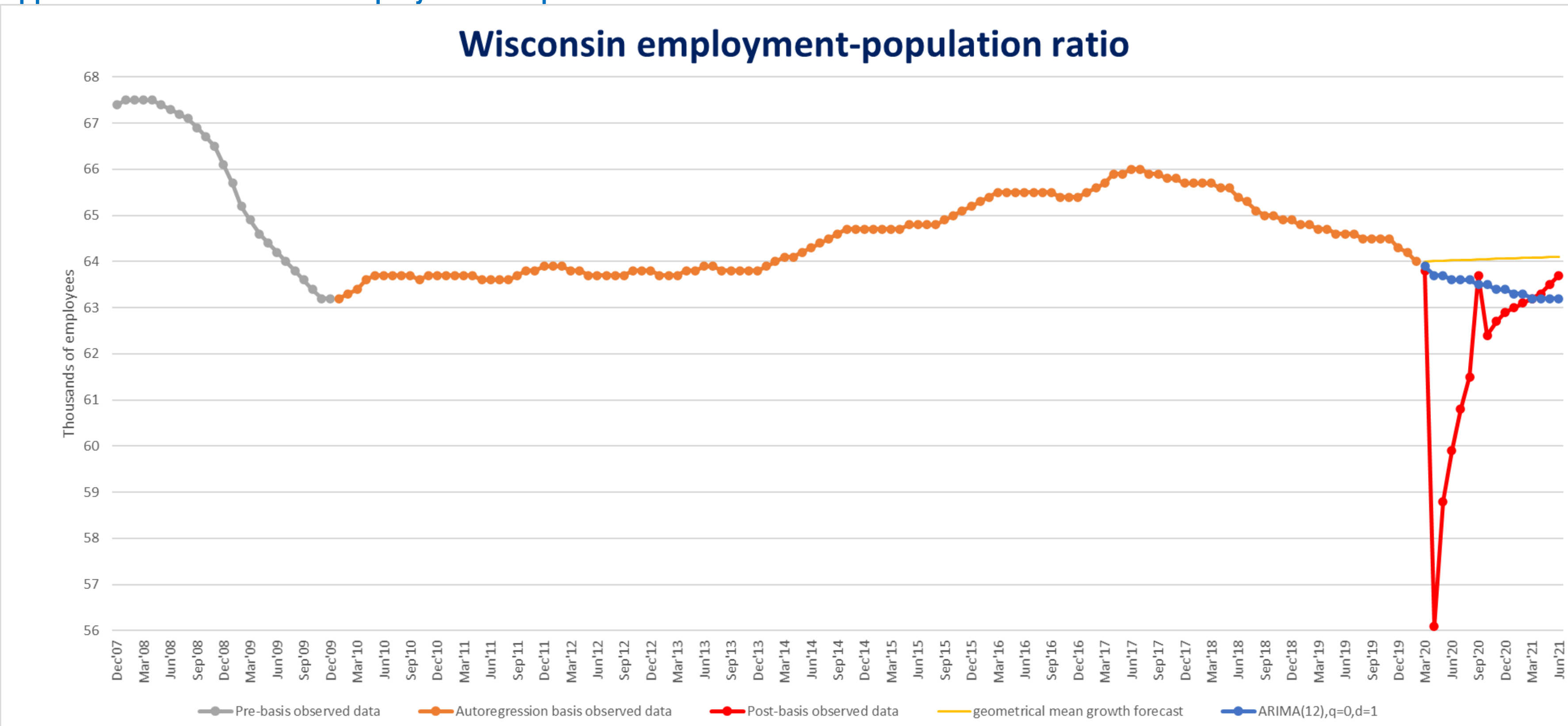


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.007326*	*0.005915*	*1.238651*	*0.21829*
phi 1	0.315428	0.099657	*3.165147*	*0.002039*
phi 2	0.365694	0.102535	*3.566522*	*0.00055*
phi 3	-0.01713	0.065714	*-0.2607*	*0.794844*
phi 4	0.037006	0.064975	*0.569537*	*0.570232*
phi 5	-0.00918	0.062325	*-0.14726*	*0.883213*
phi 6	-0.13613	0.061315	*-2.22013*	*0.028601*
phi 7	0.076419	0.061837	*1.235802*	*0.219343*
phi 8	-0.00914	0.062587	*-0.14597*	*0.884229*
phi 9	-0.05131	0.060157	*-0.85298*	*0.395647*
phi 10	0.089575	0.060444	*1.48194*	*0.141409*
phi 11	0.041905	0.059984	*0.698597*	*0.486378*
phi 12	0.012167	0.058162	*0.20919*	*0.834713*

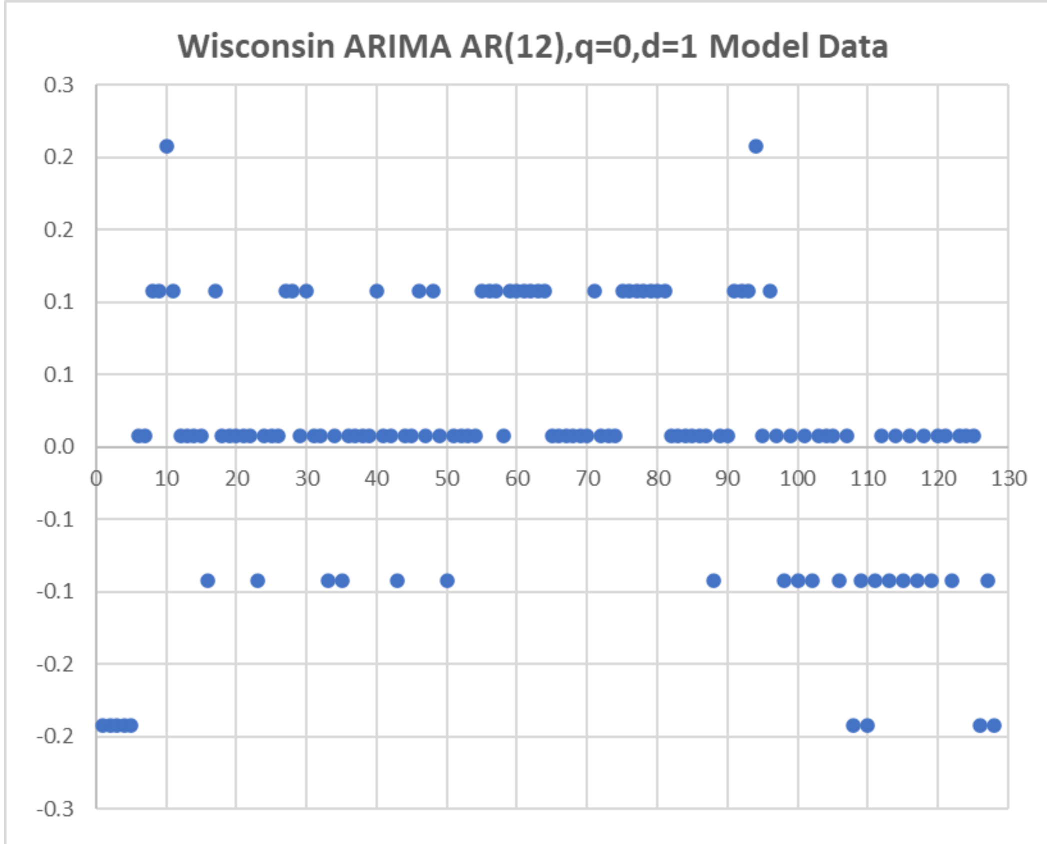


Appendix E149: Wisconsin Employment-Population Ratio ARIMA Model Forecast

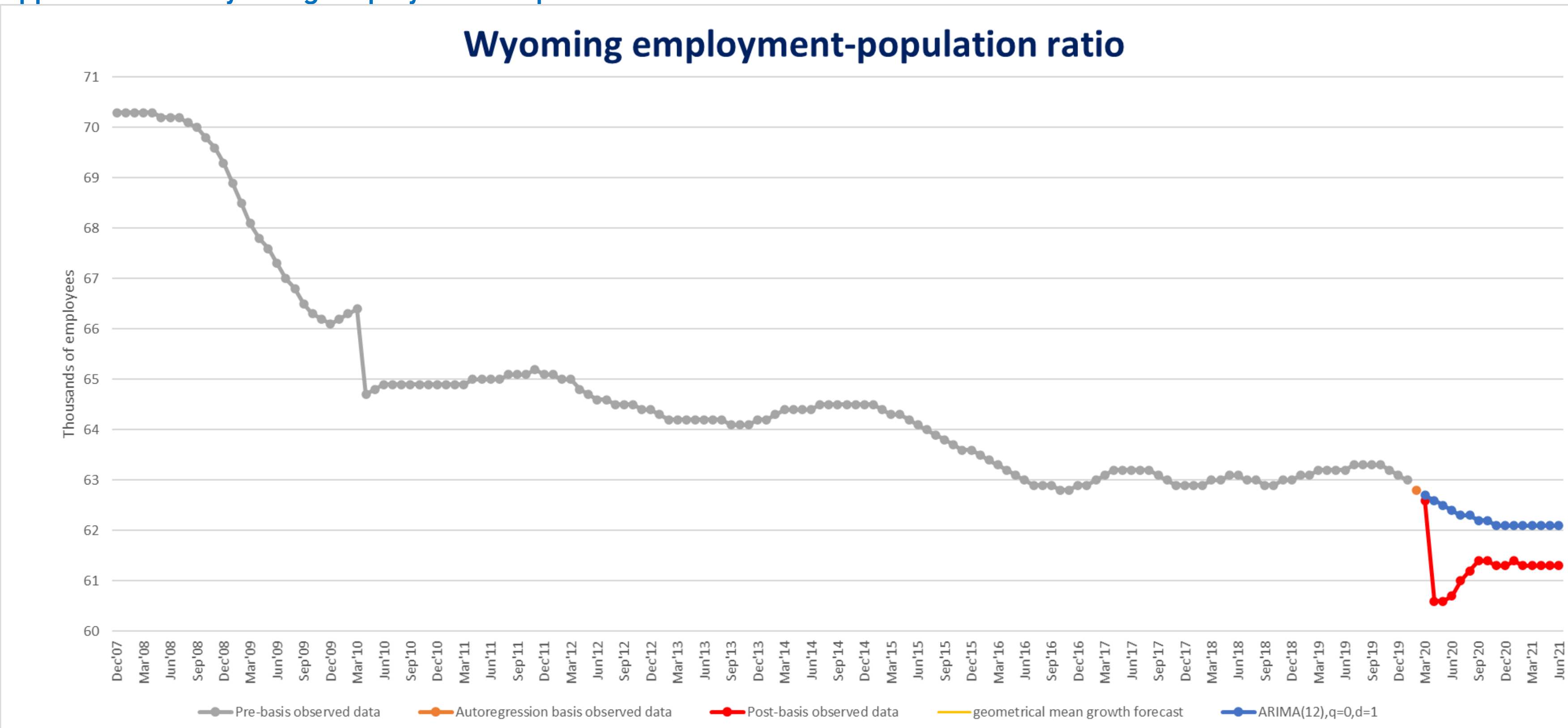


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*-0.00178*	*0.006011*	*-0.2966*	*0.767369*
phi 1	0.265236	0.099091	*2.6767*	*0.008653*
phi 2	0.502418	0.102024	*4.924507*	*3.23E-06*
phi 3	-0.00962	0.113206	*-0.08498*	*0.932439*
phi 4	-0.02891	0.113271	*-0.25519*	*0.799084*
phi 5	-0.13477	0.114534	*-1.17672*	*0.242019*
phi 6	-0.1433	0.112805	*-1.27034*	*0.206827*
phi 7	0.22495	0.115166	*1.953262*	*0.053502*
phi 8	0.127329	0.114452	*1.11251*	*0.268509*
phi 9	-0.03274	0.114778	*-0.28528*	*0.776006*
phi 10	-0.04558	0.114816	*-0.39695*	*0.692224*
phi 11	0.09404	0.103192	*0.911309*	*0.36426*
phi 12	-0.0509	0.097102	*-0.52418*	*0.601281*

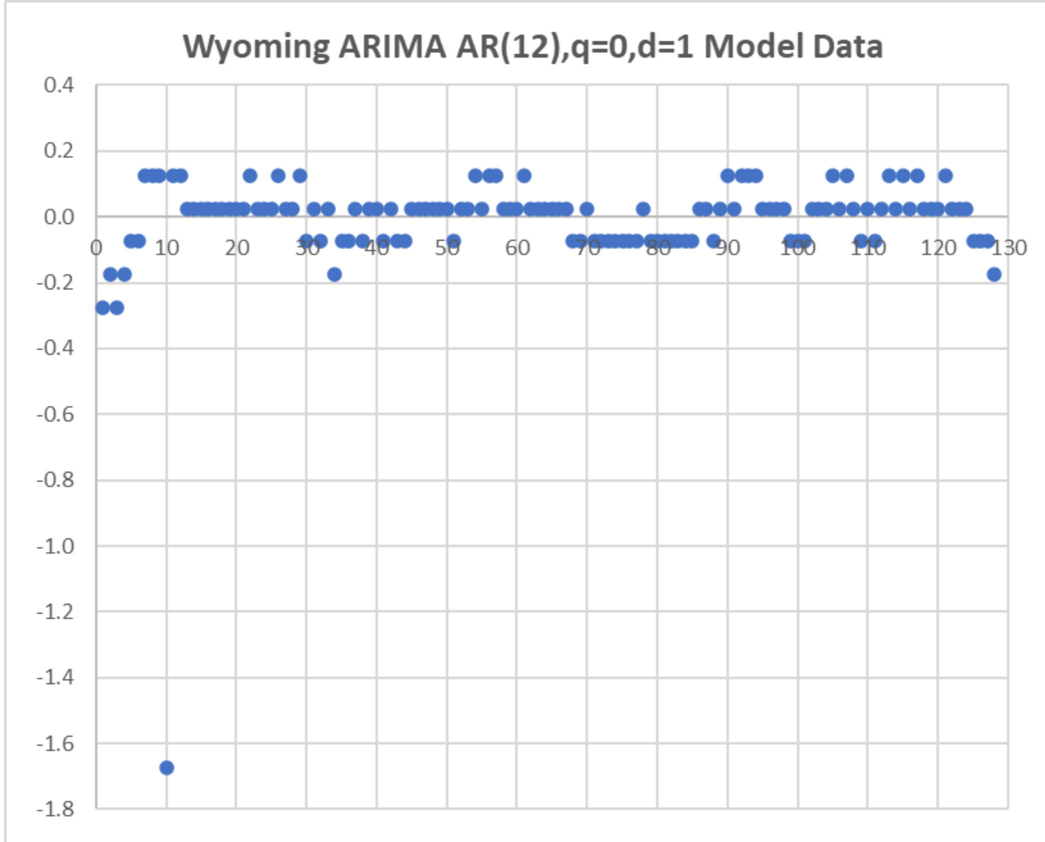


Appendix E150: Wyoming Employment-Population Ratio ARIMA Model Forecast

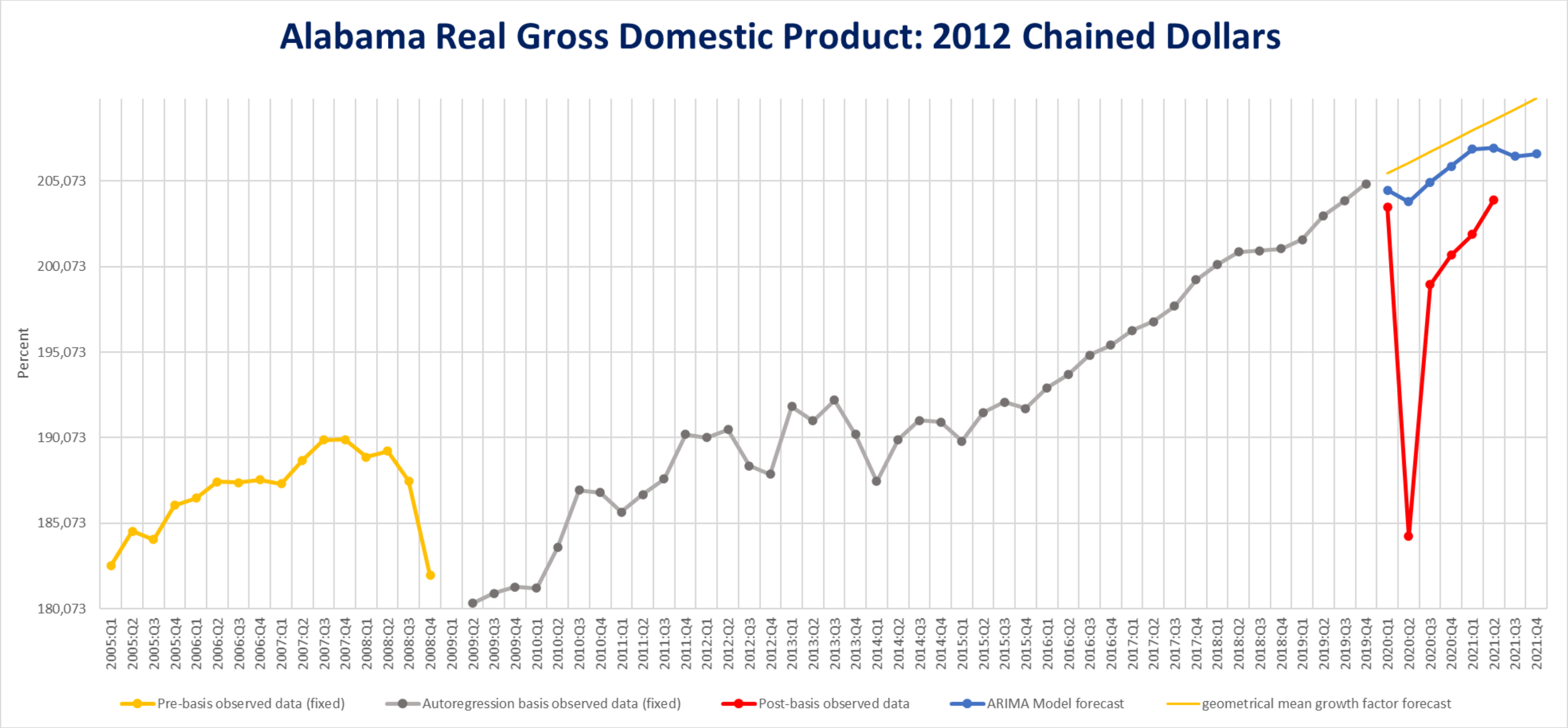


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-0.01199	0.006489	-1.84863	0.06738
phi 1	0.256581	0.092344	2.778521	0.006491
phi 2	0.332894	0.092175	3.611557	0.000472
phi 3	0.052236	0.034645	1.507761	0.134677
phi 4	0.020649	0.034558	0.597517	0.551474
phi 5	-0.00515	0.034405	-0.1498	0.881218
phi 6	-0.01472	0.03372	-0.43668	0.663258
phi 7	-0.00432	0.033525	-0.12875	0.897808
phi 8	0.000392	0.033584	0.011686	0.990699
phi 9	-0.011	0.033503	-0.32845	0.743236
phi 10	-0.01757	0.033444	-0.52549	0.600375
phi 11	-0.00972	0.033378	-0.29127	0.77143
phi 12	-0.07405	0.033258	-2.2264	0.028165

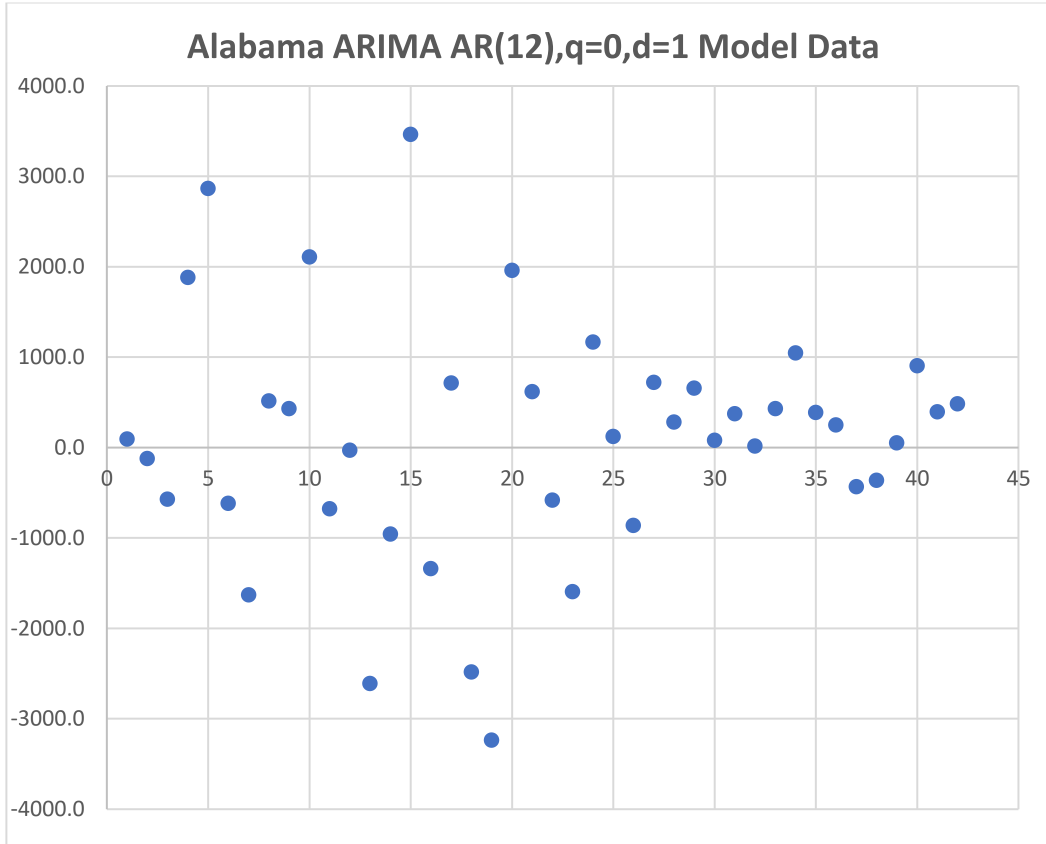


Appendix E151: Alabama State Real GDP ARIMA Model Forecast

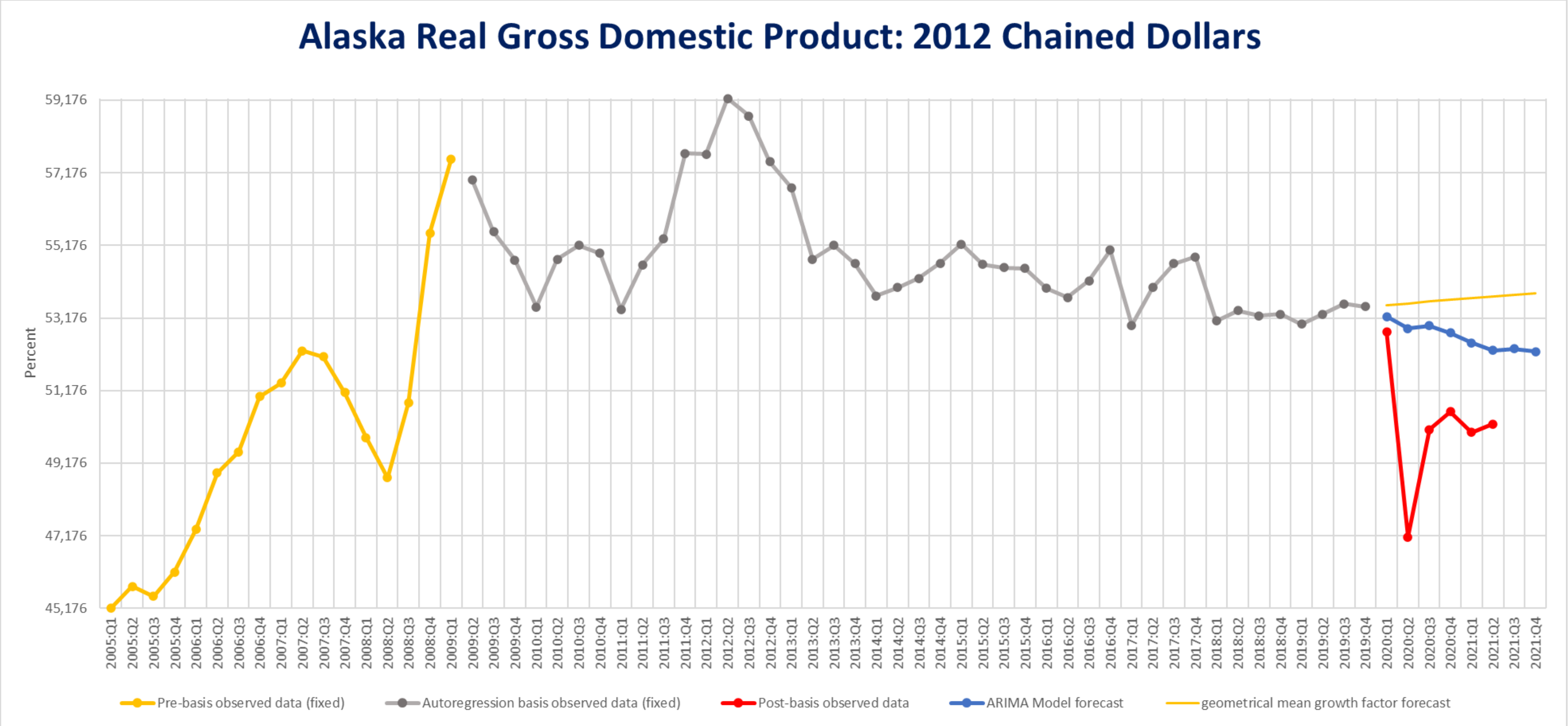


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	871.1821	433.629	2.00905	0.060684
phi 1	-0.16866	0.22731	-0.74199	0.468223
phi 2	-0.54824	0.220687	-2.48424	0.0237
phi 3	0.080629	0.228187	0.353345	0.728173
phi 4	-0.23062	0.226574	-1.01787	0.323007
phi 5	0.657013	0.2134	3.078781	0.006807
phi 6	0.198939	0.230136	0.864441	0.39938
phi 7	0.527404	0.224894	2.345125	0.031416
phi 8	-0.36179	0.20437	-1.77028	0.094611
phi 9	0.004212	0.208652	0.020184	0.984131
phi 10	-0.4035	0.209201	-1.92877	0.070628
phi 11	-0.22153	0.19443	-1.1394	0.270336
phi 12	-0.31523	0.196269	-1.60611	0.126664

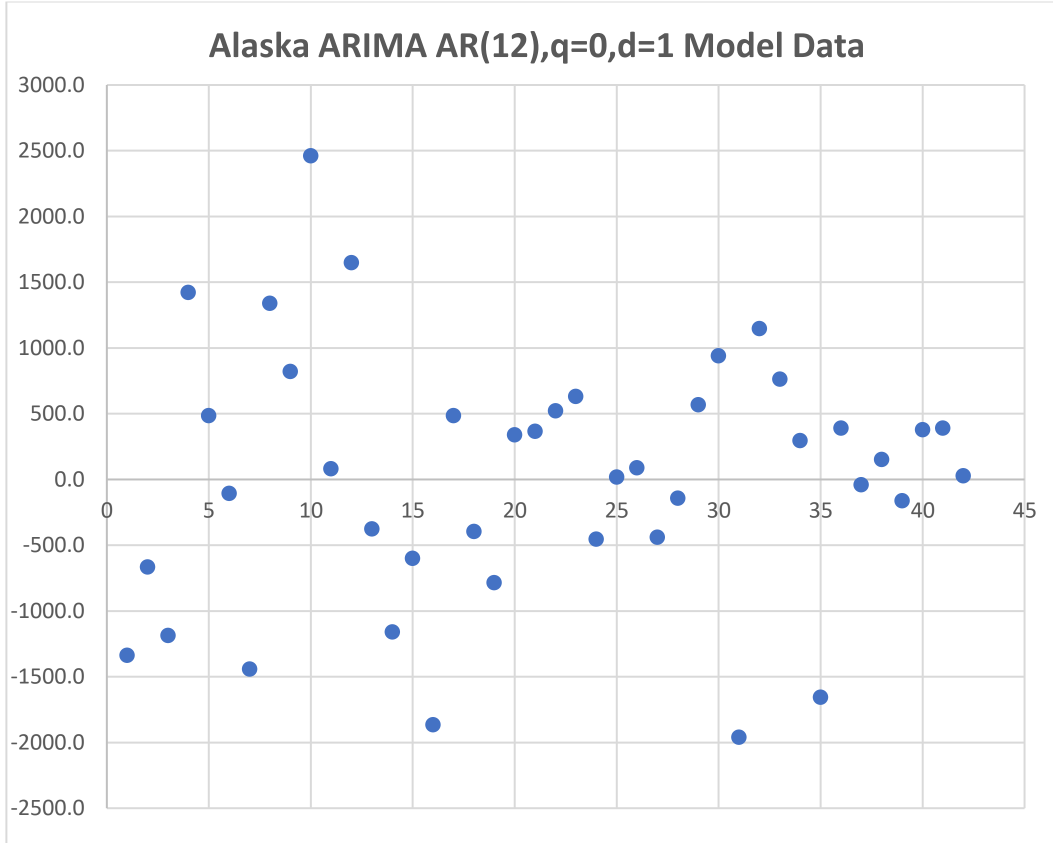


Appendix E152: Alaska State Real GDP ARIMA Model Forecast

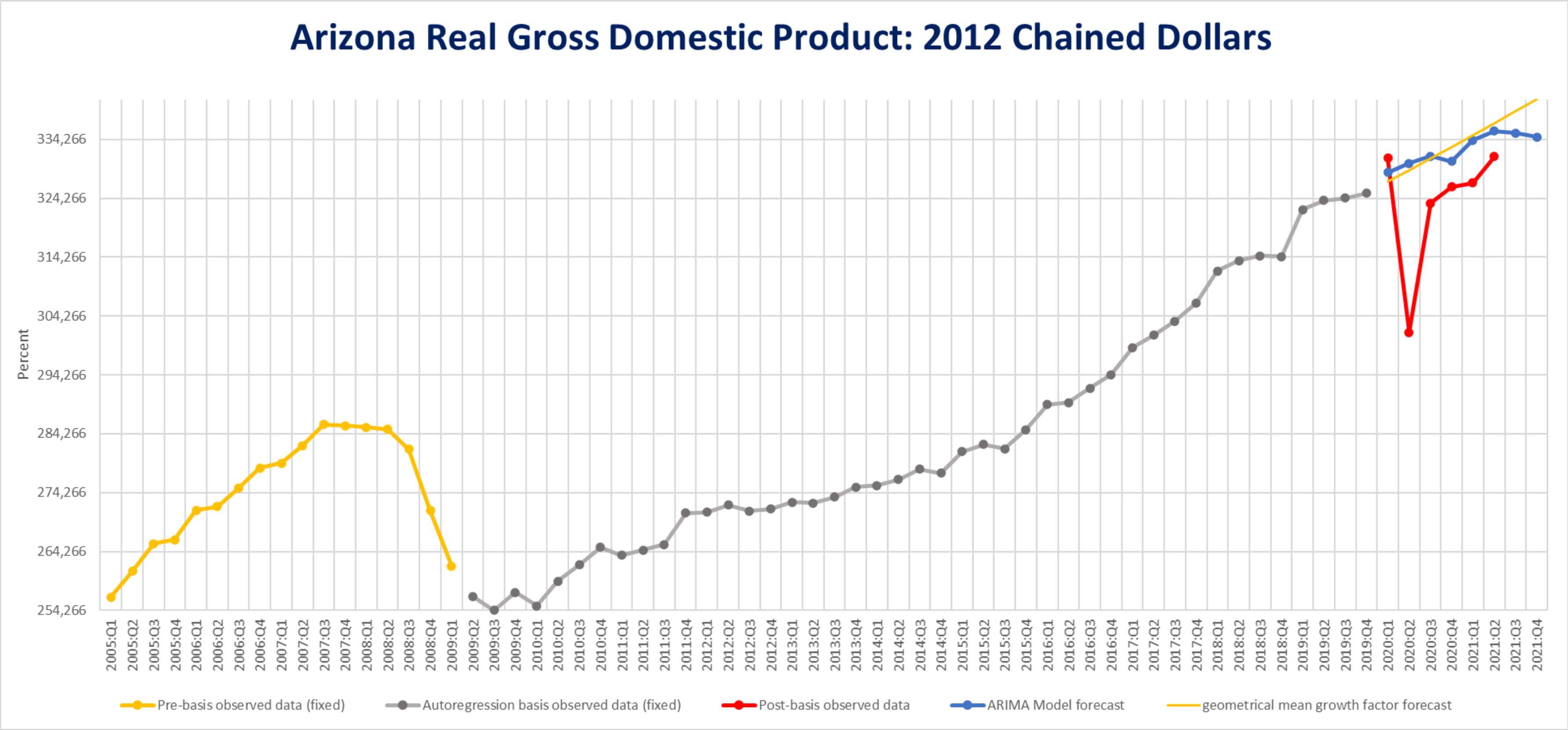


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	-397.709	159.2157	-2.49793	0.023045
phi 1	-0.50038	0.212392	-2.35591	0.030743
phi 2	-0.39619	0.221513	-1.78856	0.09152
phi 3	-0.17437	0.174618	-0.99856	0.332008
phi 4	-0.06429	0.159198	-0.40384	0.691366
phi 5	-0.21759	0.157119	-1.38485	0.184004
phi 6	-0.45985	0.163431	-2.81372	0.011955
phi 7	-0.3095	0.180692	-1.71287	0.104914
phi 8	-0.17507	0.172384	-1.0156	0.324055
phi 9	-0.07196	0.154583	-0.46548	0.647496
phi 10	-0.13095	0.151731	-0.86306	0.400118
phi 11	-0.11901	0.156195	-0.76195	0.45653
phi 12	-0.08443	0.169676	-0.4976	0.625142

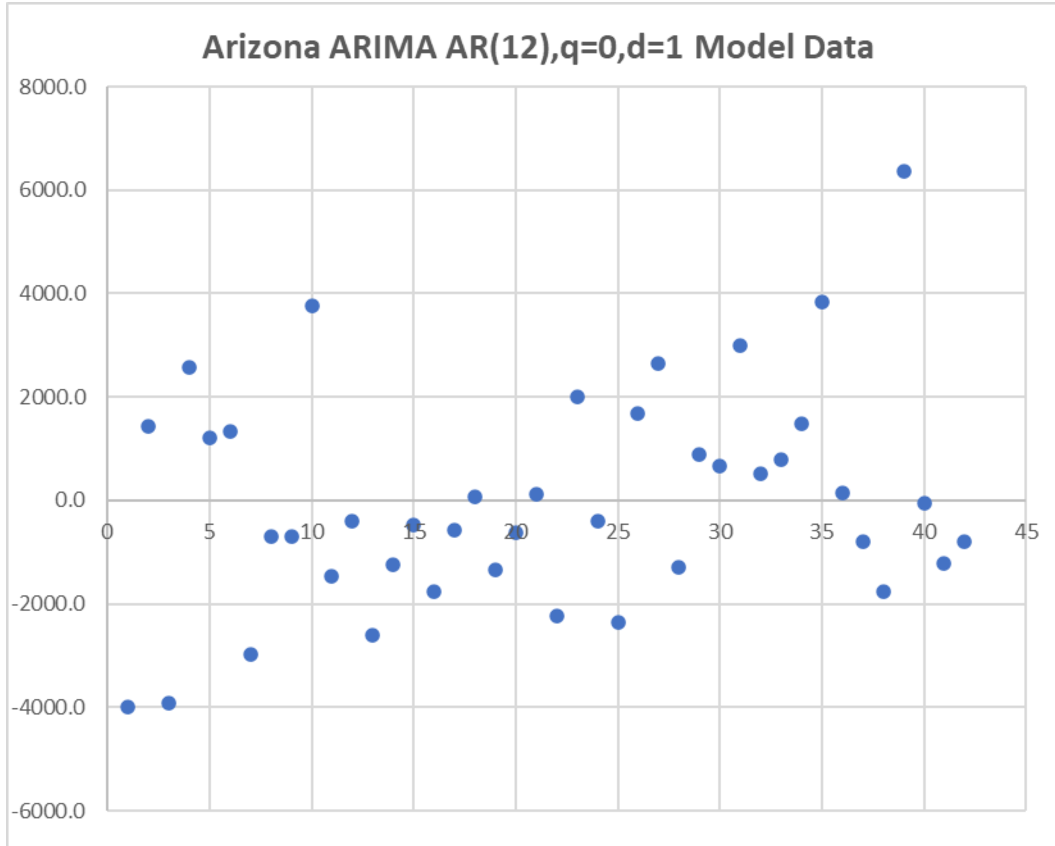


Appendix E153: Arizona State Real GDP ARIMA Model Forecast

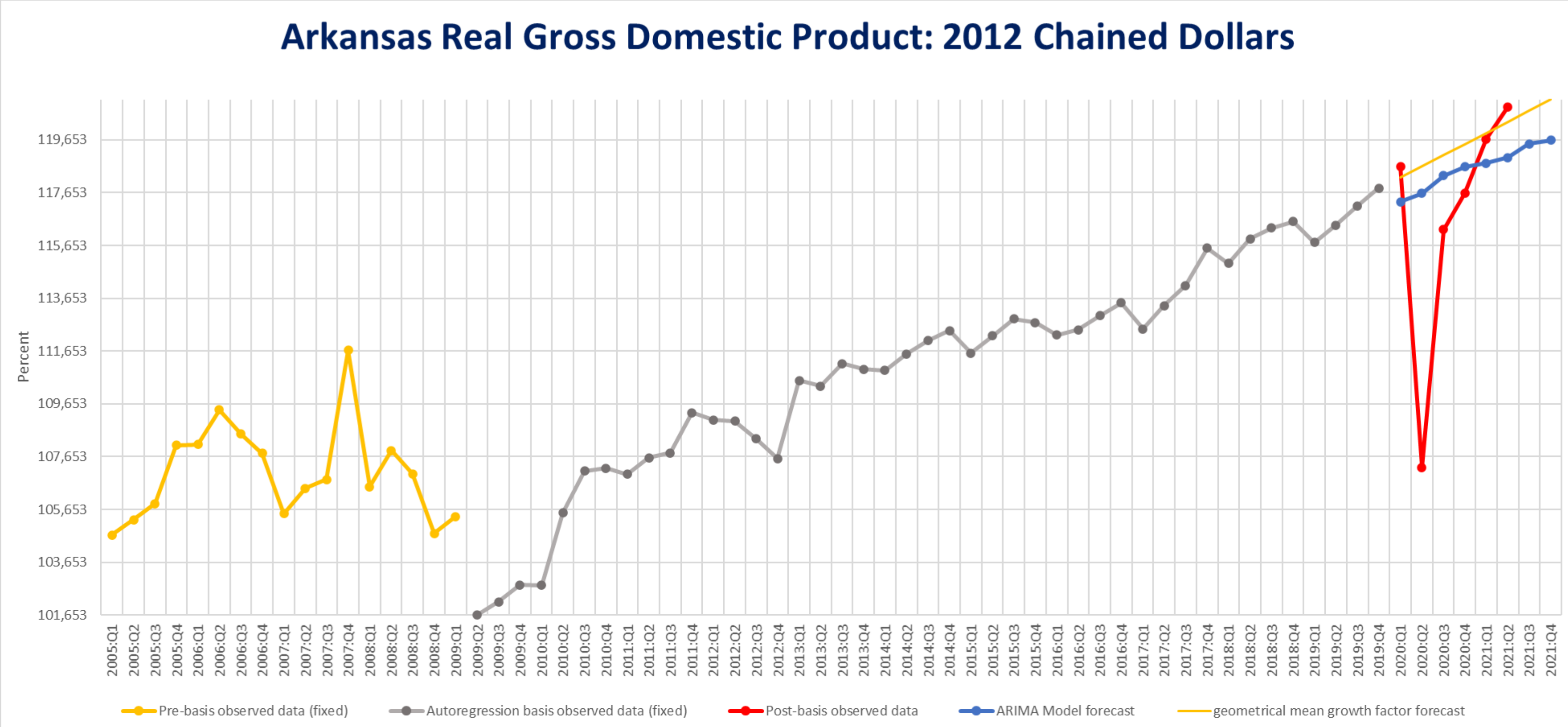


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	1350.444	969.3409	1.393157	0.181523
phi 1	-0.20123	0.242077	-0.83125	0.417358
phi 2	-0.18697	0.239986	-0.7791	0.446633
phi 3	0.132295	0.230417	0.574156	0.573382
phi 4	0.487794	0.250392	1.94812	0.068106
phi 5	0.418937	0.2789	1.502103	0.151418
phi 6	0.412677	0.301427	1.369075	0.188794
phi 7	-0.0886	0.267543	-0.33118	0.744557
phi 8	0.15935	0.254379	0.626425	0.539357
phi 9	-0.22725	0.247548	-0.91801	0.371456
phi 10	-0.3681	0.243962	-1.50885	0.149698
phi 11	-0.27362	0.278953	-0.98089	0.340403
phi 12	-0.10519	0.261062	-0.40292	0.692027

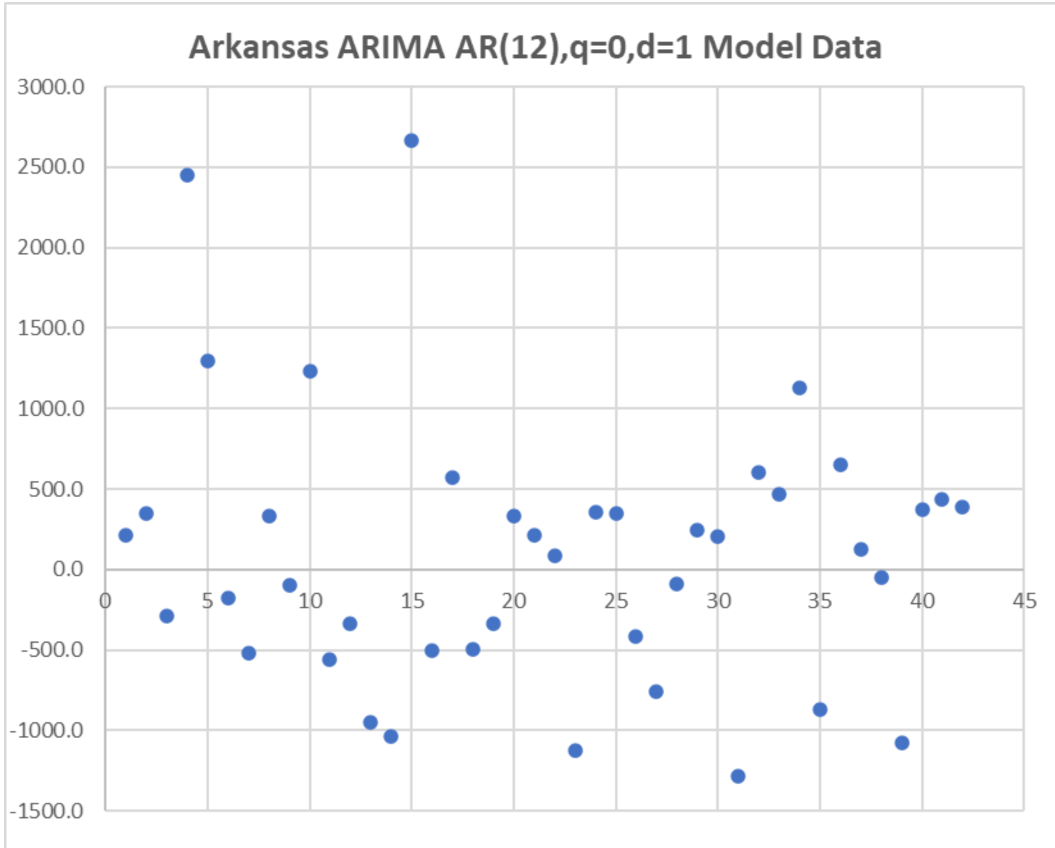


Appendix E154: Arkansas State Real GDP ARIMA Model Forecast

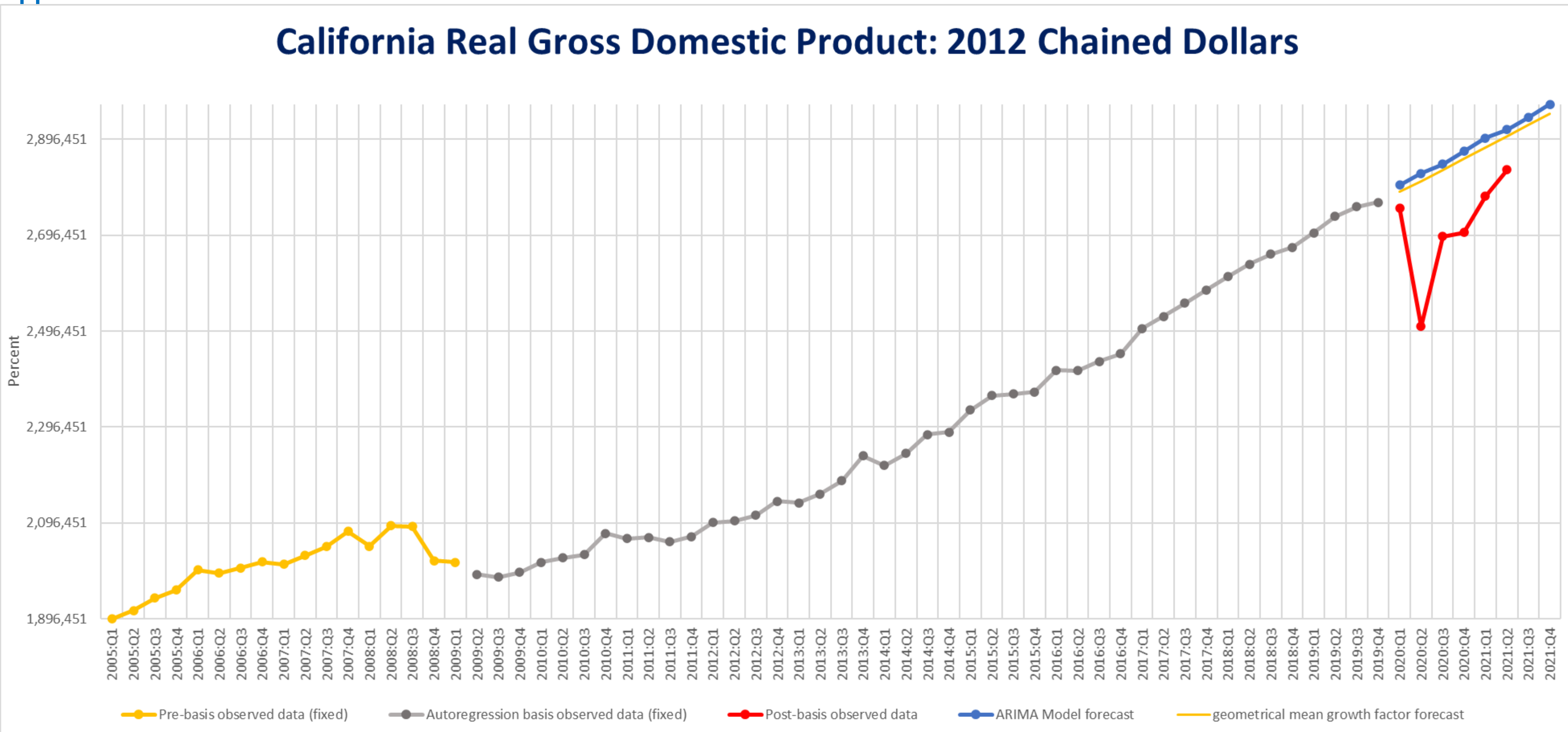


Model parameters

param	coeff	s.e.	t-stat	p-value
const	1017.239	480.7306	2.116028	0.049401
phi 1	-0.48657	0.24761	-1.96509	0.065961
phi 2	-0.345	0.267768	-1.28843	0.214855
phi 3	-0.54265	0.256748	-2.11357	0.049637
phi 4	-0.1804	0.2839	-0.63542	0.533613
phi 5	-0.00663	0.271343	-0.02444	0.980787
phi 6	-0.36981	0.26151	-1.41412	0.175381
phi 7	-0.18086	0.279096	-0.648	0.525638
phi 8	-0.06863	0.237257	-0.28927	0.775872
phi 9	-0.28338	0.190353	-1.48871	0.154881
phi 10	-0.13955	0.205388	-0.67947	0.505987
phi 11	0.060532	0.197257	0.306868	0.76267
phi 12	0.006749	0.198576	0.033986	0.973284

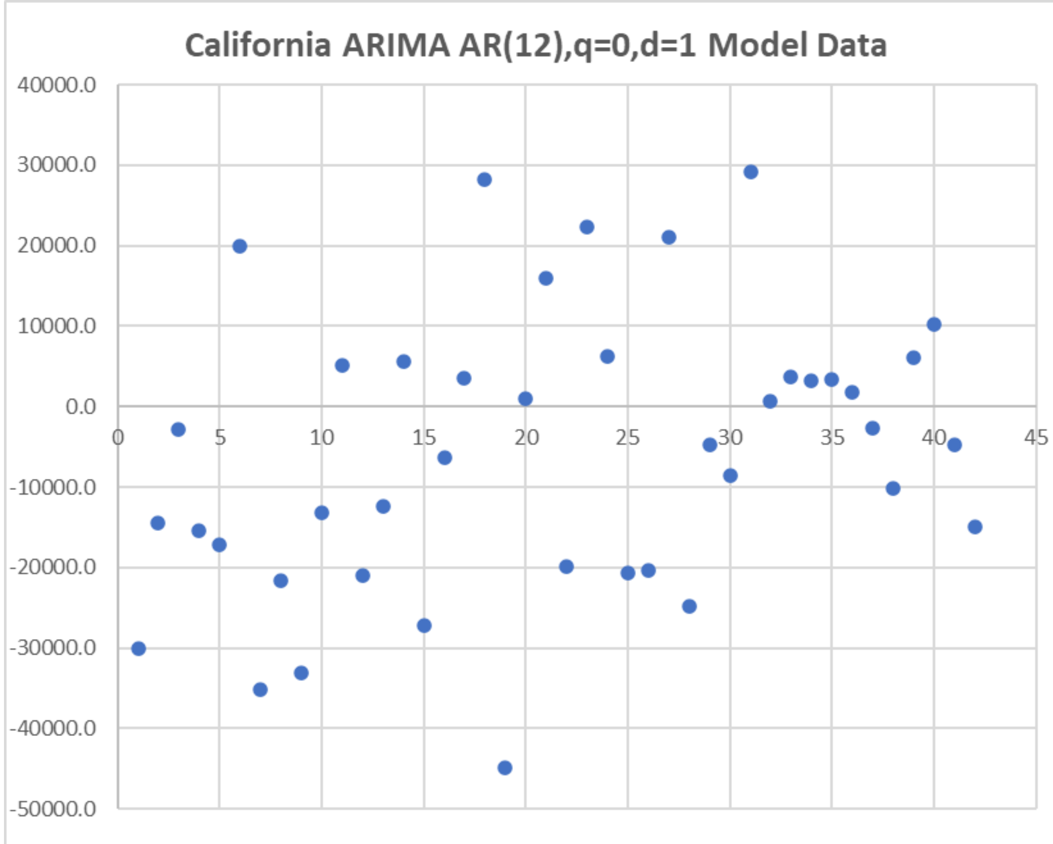


Appendix E155: California State Real GDP ARIMA Model Forecast

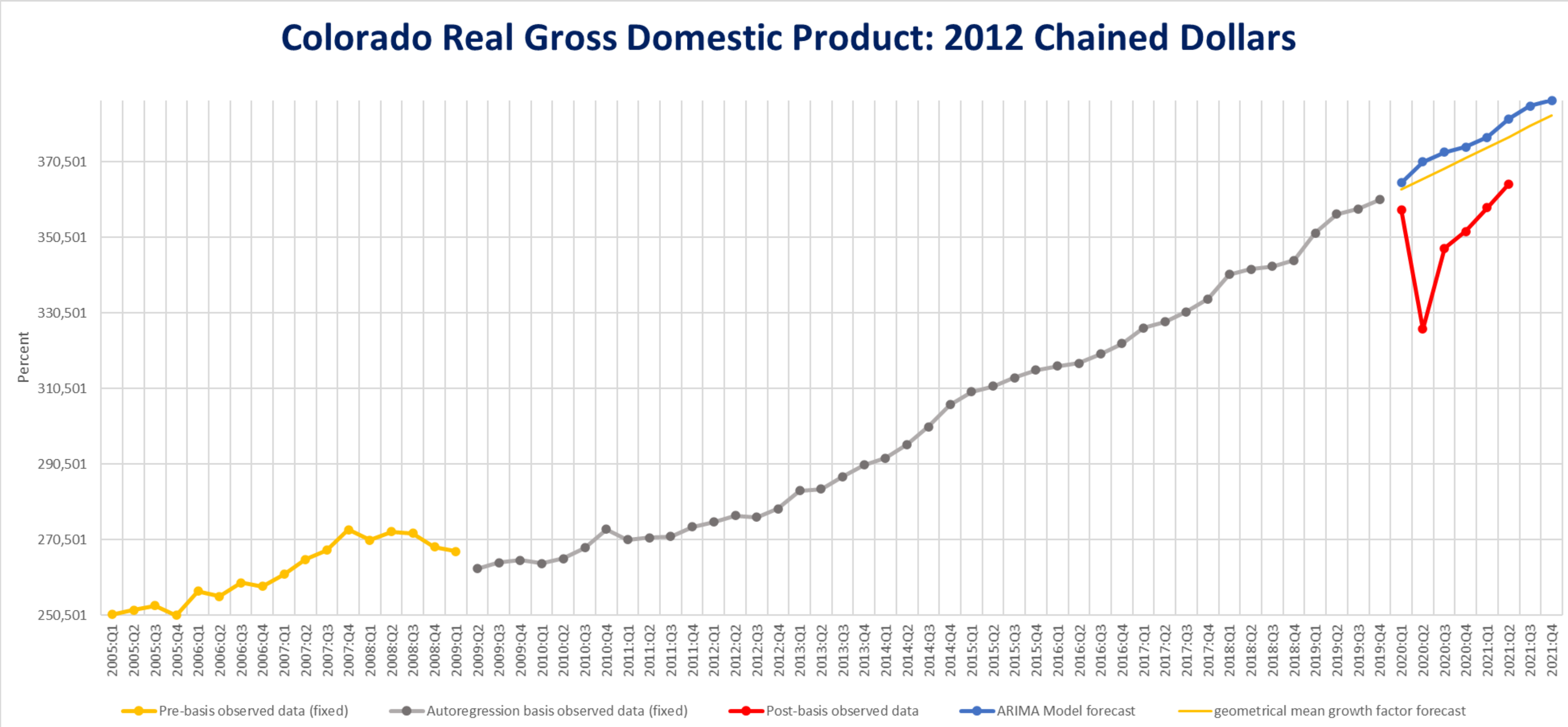


Model parameters

param	coeff	s.e.	t-stat	p-value
const	27078.77	14156.14	1.912864	0.072763
phi 1	-0.40994	0.240288	-1.70603	0.106203
phi 2	-0.30129	0.258602	-1.16506	0.260085
phi 3	-0.01431	0.256225	-0.05584	0.95612
phi 4	0.167173	0.228709	0.730942	0.474769
phi 5	-0.05167	0.222775	-0.23192	0.819369
phi 6	0.142216	0.211122	0.673618	0.50961
phi 7	0.125556	0.200561	0.626022	0.539616
phi 8	-0.01821	0.202572	-0.0899	0.929419
phi 9	0.020008	0.202148	0.098979	0.922313
phi 10	0.08069	0.204021	0.395501	0.697392
phi 11	0.026982	0.206331	0.13077	0.897492
phi 12	0.111146	0.210883	0.527051	0.604969

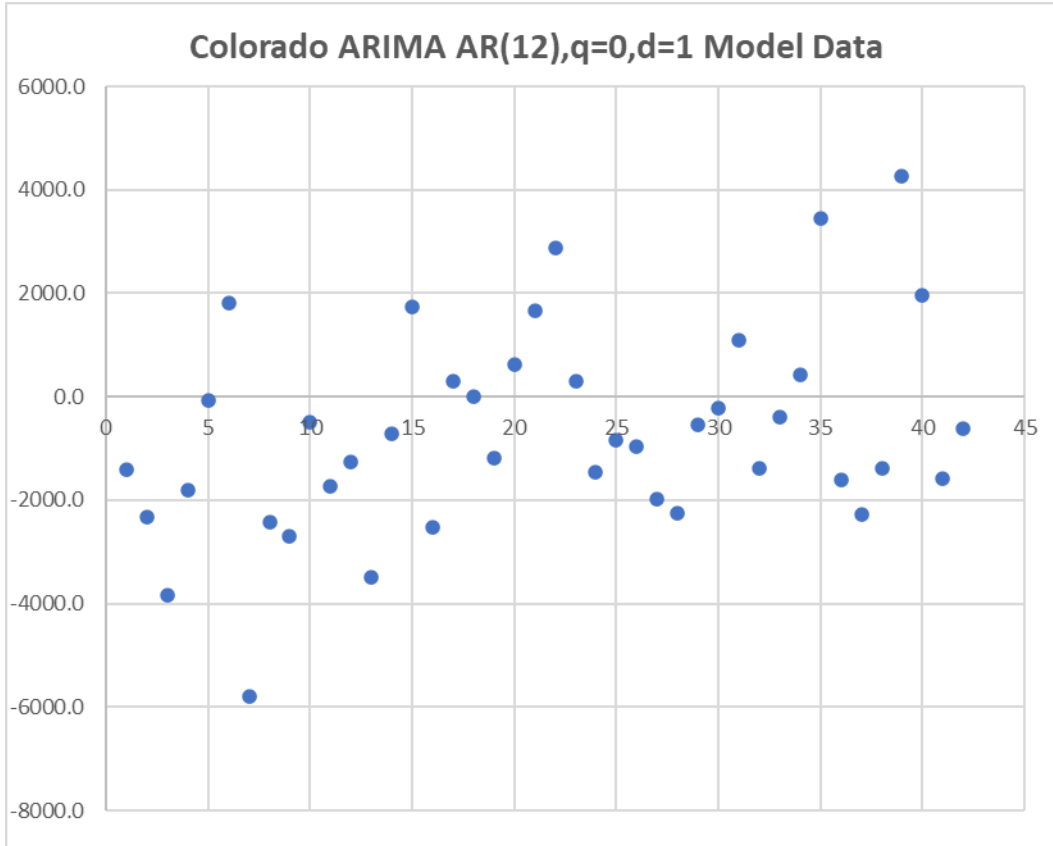


Appendix E156: Colorado State Real GDP ARIMA Model Forecast

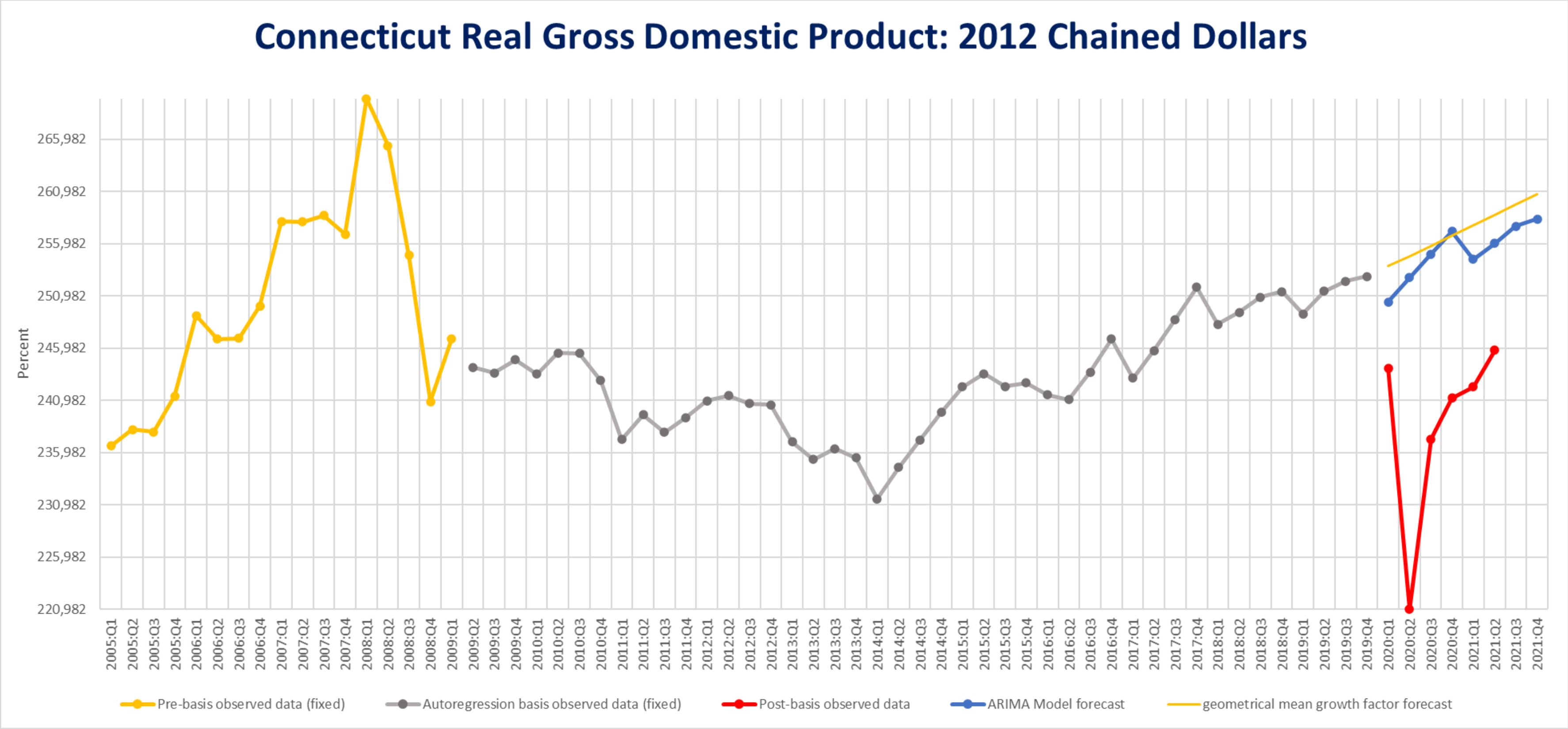


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	2087.894	1606.445	1.299699	0.211053
phi 1	0.217671	0.245825	0.885472	0.388256
phi 2	-0.16674	0.249779	-0.66754	0.513386
phi 3	-0.06014	0.25047	-0.24011	0.813114
phi 4	0.317339	0.259917	1.220925	0.238778
phi 5	0.074802	0.269252	0.277814	0.784506
phi 6	-0.04521	0.240251	-0.18818	0.852967
phi 7	-0.18821	0.220692	-0.8528	0.405624
phi 8	-0.10187	0.232367	-0.43839	0.666622
phi 9	0.202203	0.227943	0.887076	0.387416
phi 10	-0.12523	0.228614	-0.5478	0.590953
phi 11	0.075881	0.228946	0.331437	0.744365
phi 12	0.105711	0.227157	0.465368	0.647574

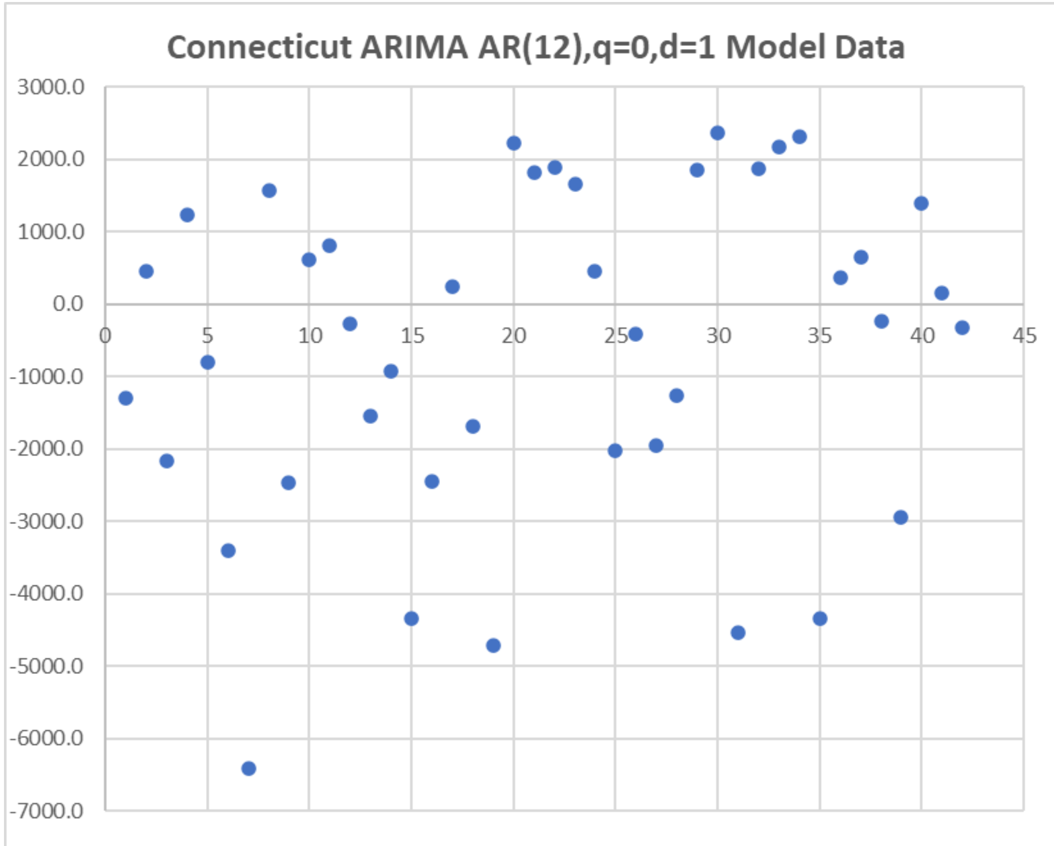


Appendix E157: Connecticut State Real GDP ARIMA Model Forecast

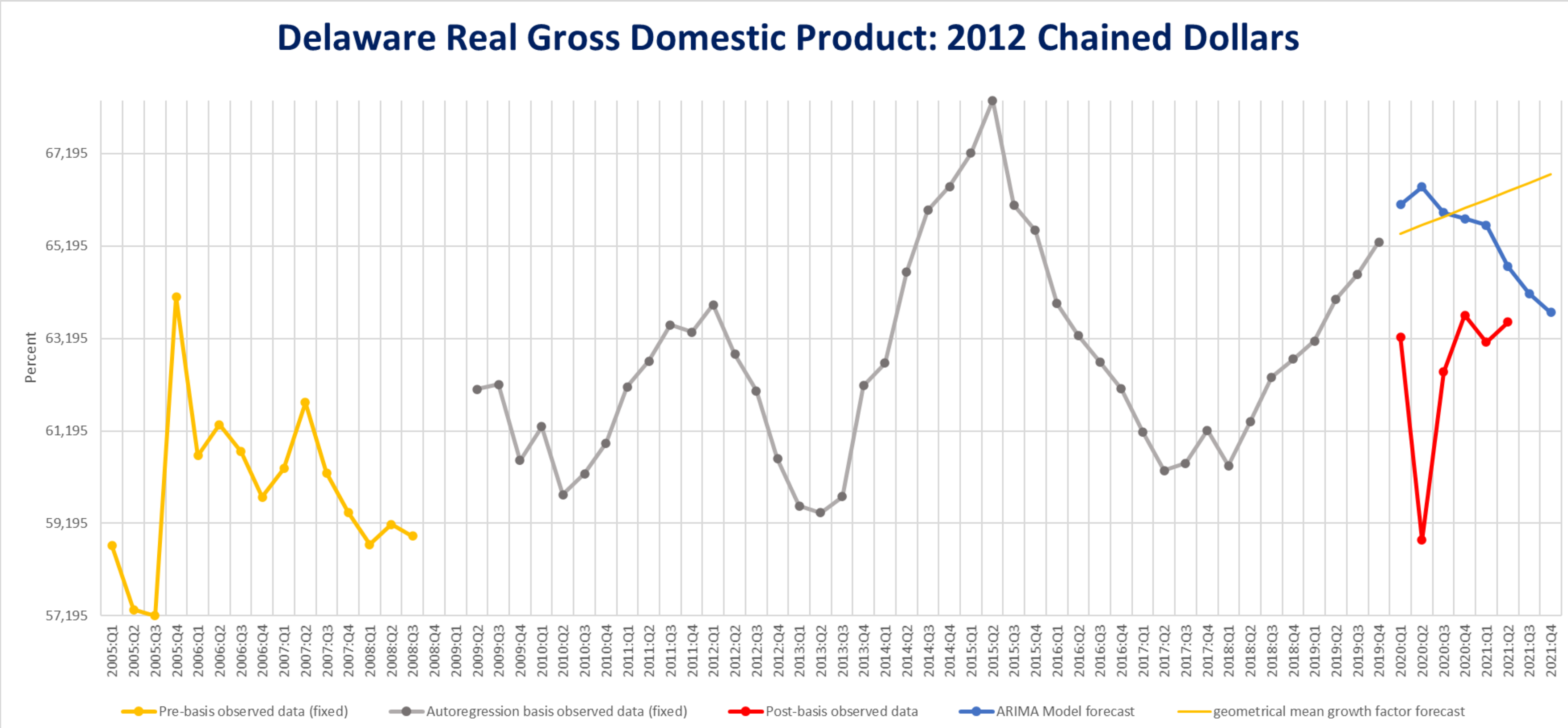


Model parameters

param	coeff	s.e.	t-stat	p-value
const	455.1623	386.1728	1.178649	0.254773
phi 1	0.11666	0.192814	0.605037	0.553146
phi 2	-0.20214	0.192563	-1.04974	0.308534
phi 3	-0.09708	0.196384	-0.49434	0.627394
phi 4	0.224901	0.188044	1.195999	0.248113
phi 5	-0.41355	0.191504	-2.1595	0.04539
phi 6	0.000583	0.184476	0.003162	0.997514
phi 7	0.033349	0.180462	0.184798	0.855574
phi 8	0.088166	0.16915	0.521228	0.608932
phi 9	0.152837	0.17454	0.875655	0.393423
phi 10	0.014692	0.179484	0.081857	0.935717
phi 11	-0.03225	0.181401	-0.17779	0.860988
phi 12	0.537084	0.186754	2.875891	0.010484

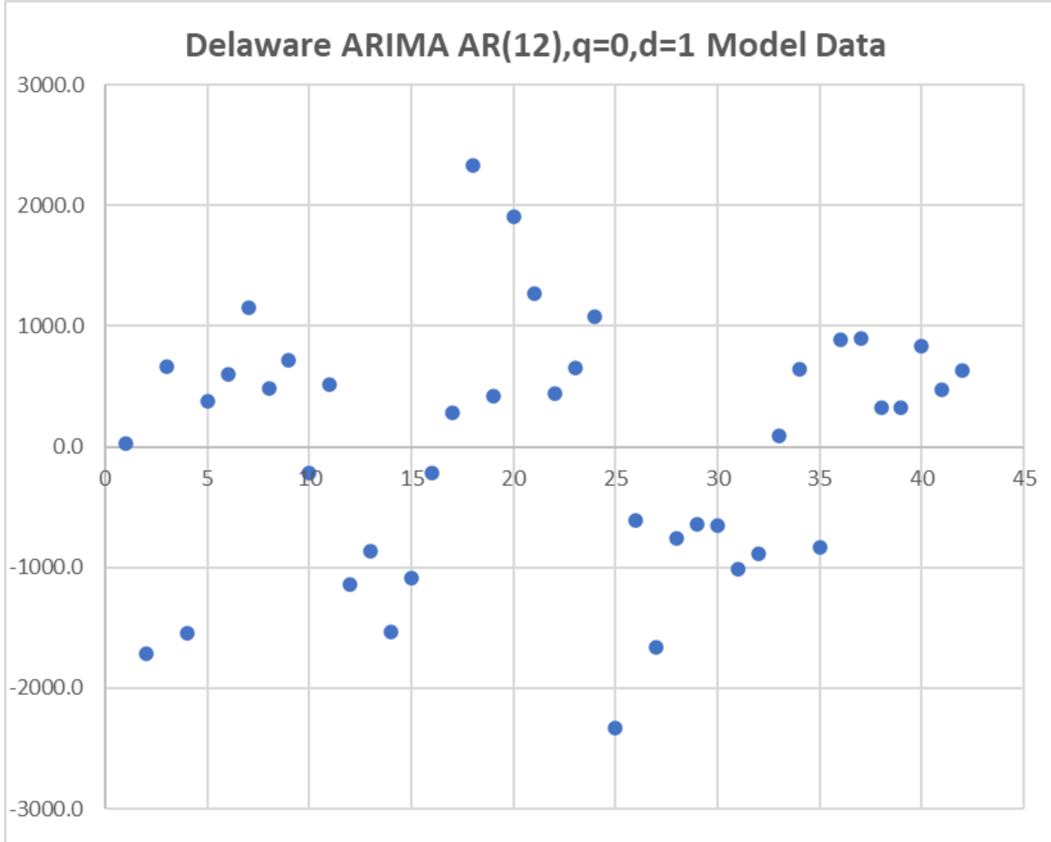


Appendix E158: Delaware State Real GDP ARIMA Model Forecast

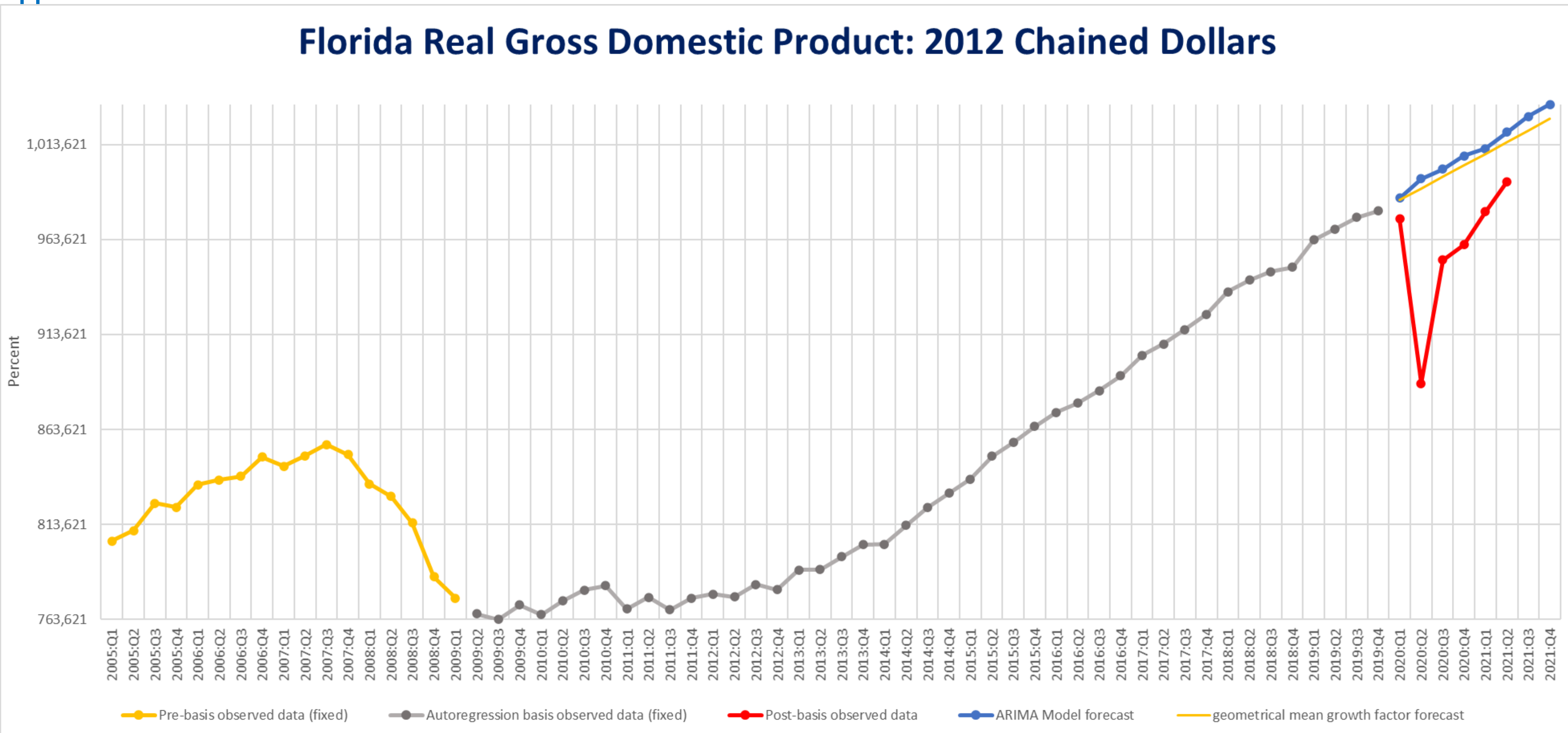


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	86.68512	170.5475	0.508276	0.617792
phi 1	0.170742	0.225256	0.757989	0.458837
phi 2	0.416267	0.231834	1.795539	0.090365
phi 3	0.101795	0.234035	0.434956	0.669066
phi 4	-0.24259	0.237837	-1.01998	0.322036
phi 5	-0.25812	0.237562	-1.08655	0.292404
phi 6	0.110054	0.236784	0.464784	0.647983
phi 7	-0.23414	0.233056	-1.00466	0.329149
phi 8	-0.31179	0.246748	-1.26361	0.223424
phi 9	-0.05089	0.235854	-0.21578	0.83173
phi 10	0.383015	0.242673	1.578322	0.132917
phi 11	0.006697	0.221558	0.030229	0.976237
phi 12	-0.36102	0.227273	-1.5885	0.130597

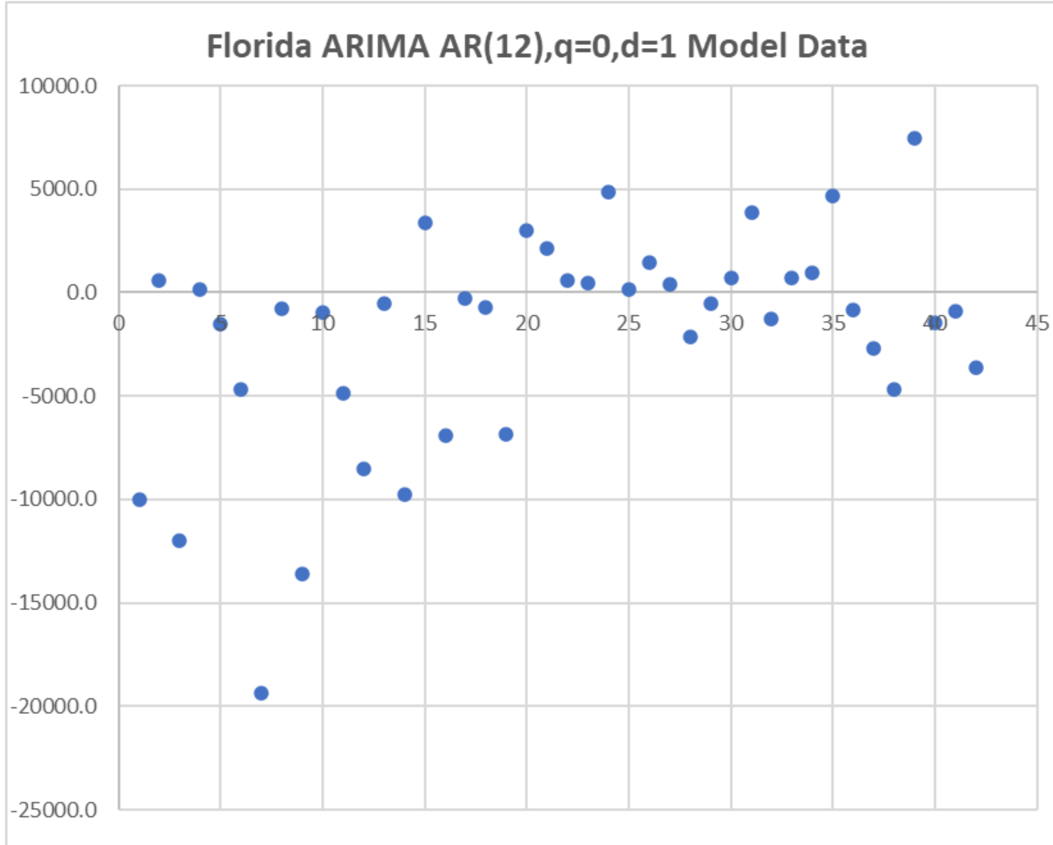


Appendix E159: Florida State Real GDP ARIMA Model Forecast

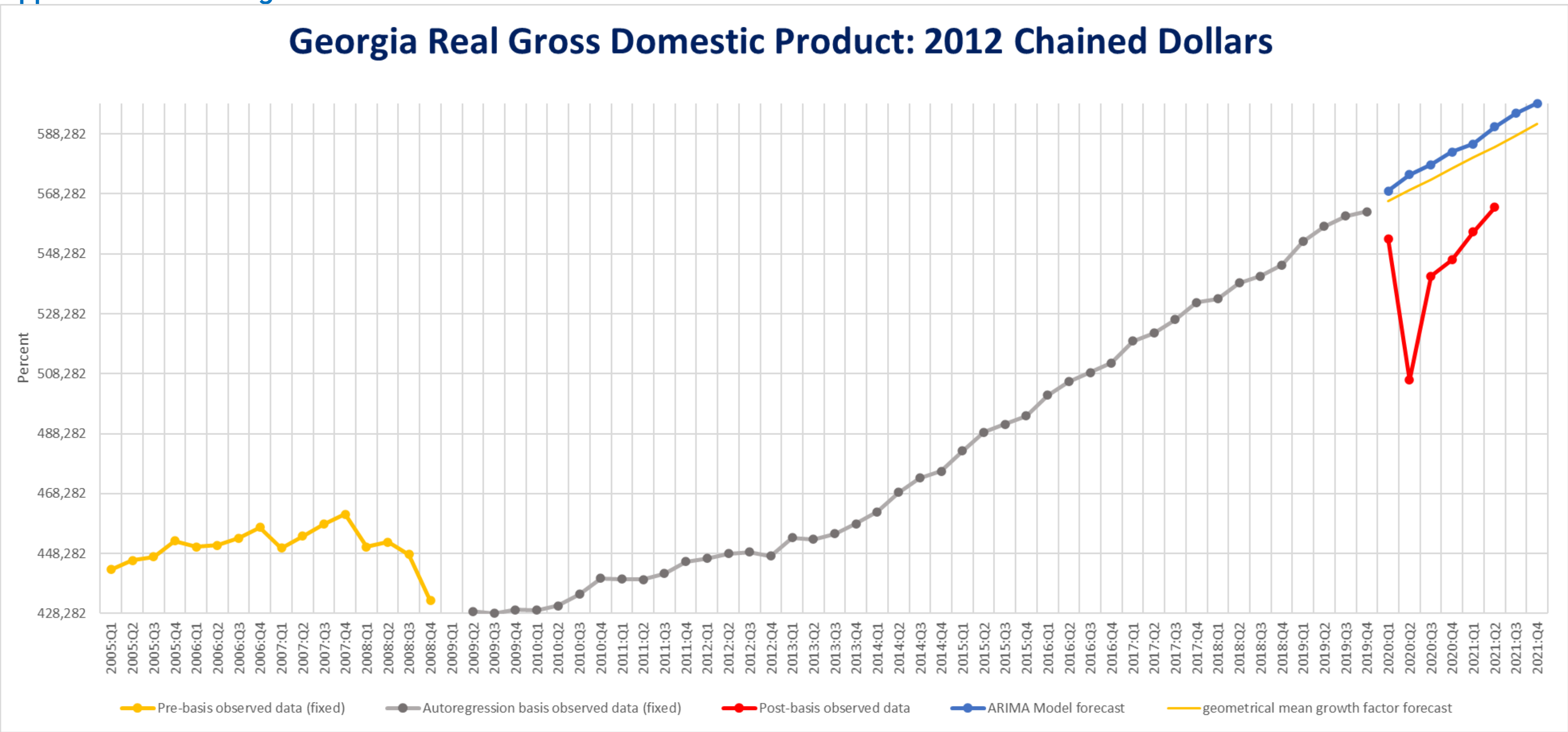


Model parameters

param	coeff	s.e.	t-stat	p-value
const	4790.717	2410.558	1.987389	0.063235
phi 1	-0.22997	0.238991	-0.96226	0.34941
phi 2	-0.00183	0.245184	-0.00747	0.994123
phi 3	0.05446	0.24681	0.220655	0.827989
phi 4	0.226019	0.240504	0.939773	0.360496
phi 5	0.401479	0.251531	1.596137	0.128879
phi 6	-0.01753	0.231357	-0.07579	0.940474
phi 7	0.066977	0.224969	0.297716	0.769528
phi 8	-0.09314	0.202665	-0.45957	0.651647
phi 9	0.040632	0.17935	0.22655	0.823475
phi 10	0.057702	0.168827	0.341784	0.736702
phi 11	-0.02737	0.156817	-0.17452	0.863519
phi 12	-0.15727	0.155657	-1.01038	0.326477

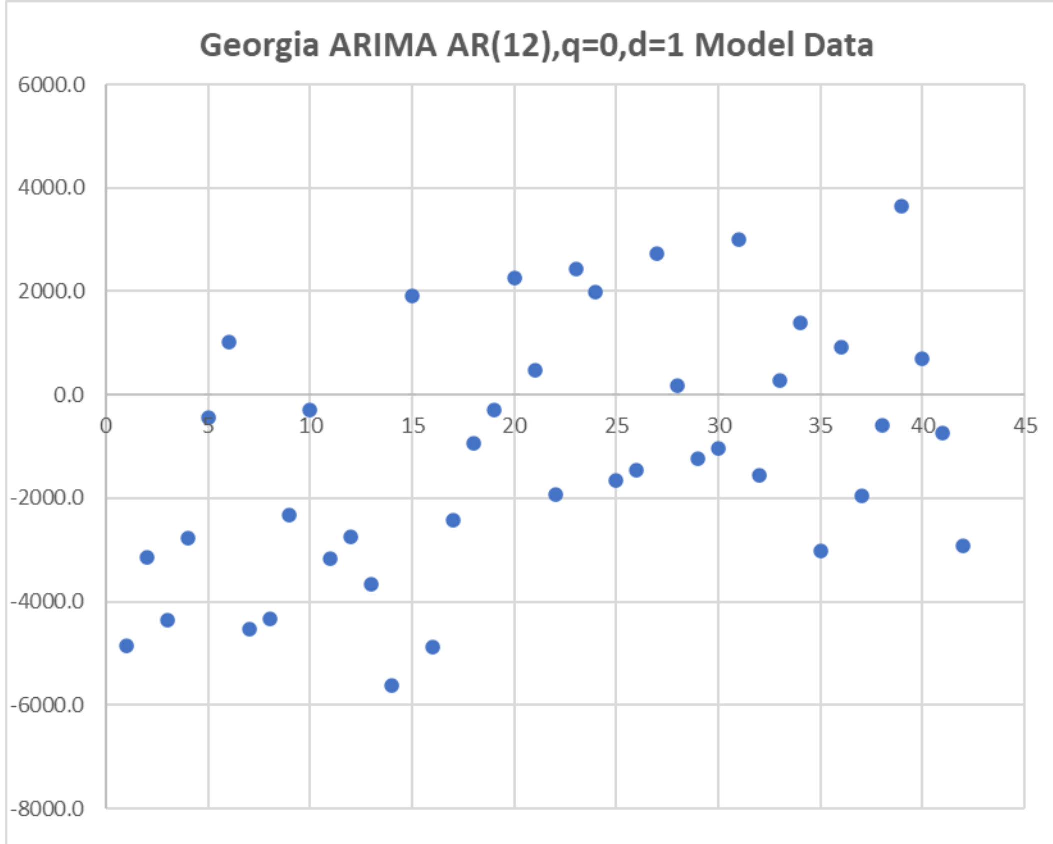


Appendix E160: Georgia State Real GDP ARIMA Model Forecast

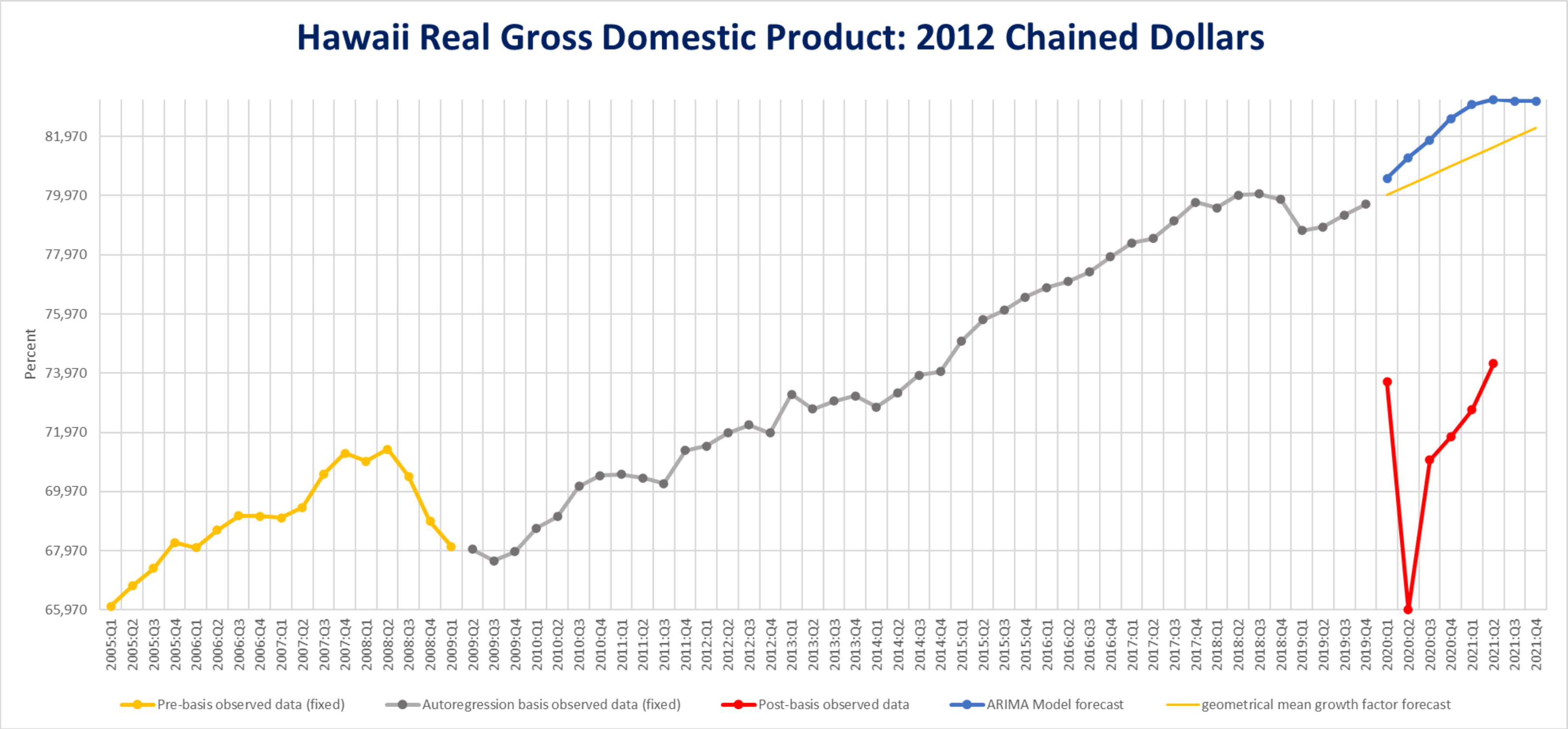


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	2322.064	1629.332	1.425163	0.172212
phi 1	-0.13677	0.254177	-0.53808	0.597497
phi 2	-0.112	0.253792	-0.44131	0.664549
phi 3	0.332447	0.261293	1.272315	0.22039
phi 4	0.246396	0.298095	0.826568	0.419933
phi 5	0.401568	0.286325	1.402492	0.178766
phi 6	-0.05169	0.299519	-0.17258	0.865021
phi 7	-0.11177	0.273409	-0.40879	0.6878
phi 8	-0.26456	0.280978	-0.94155	0.359611
phi 9	-0.01924	0.262047	-0.0734	0.942342
phi 10	-0.00457	0.249171	-0.01836	0.985567
phi 11	-0.01282	0.245976	-0.0521	0.959054
phi 12	0.188857	0.244658	0.771923	0.450758

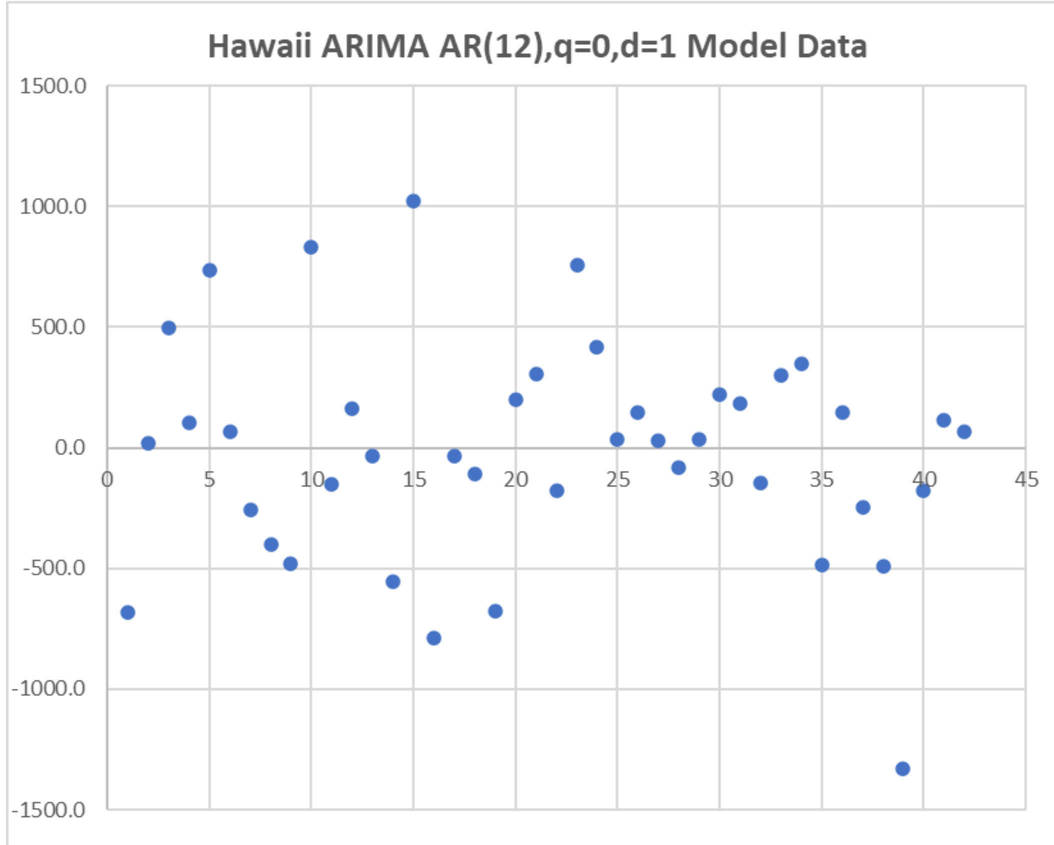


Appendix E161: Hawaii State Real GDP ARIMA Model Forecast

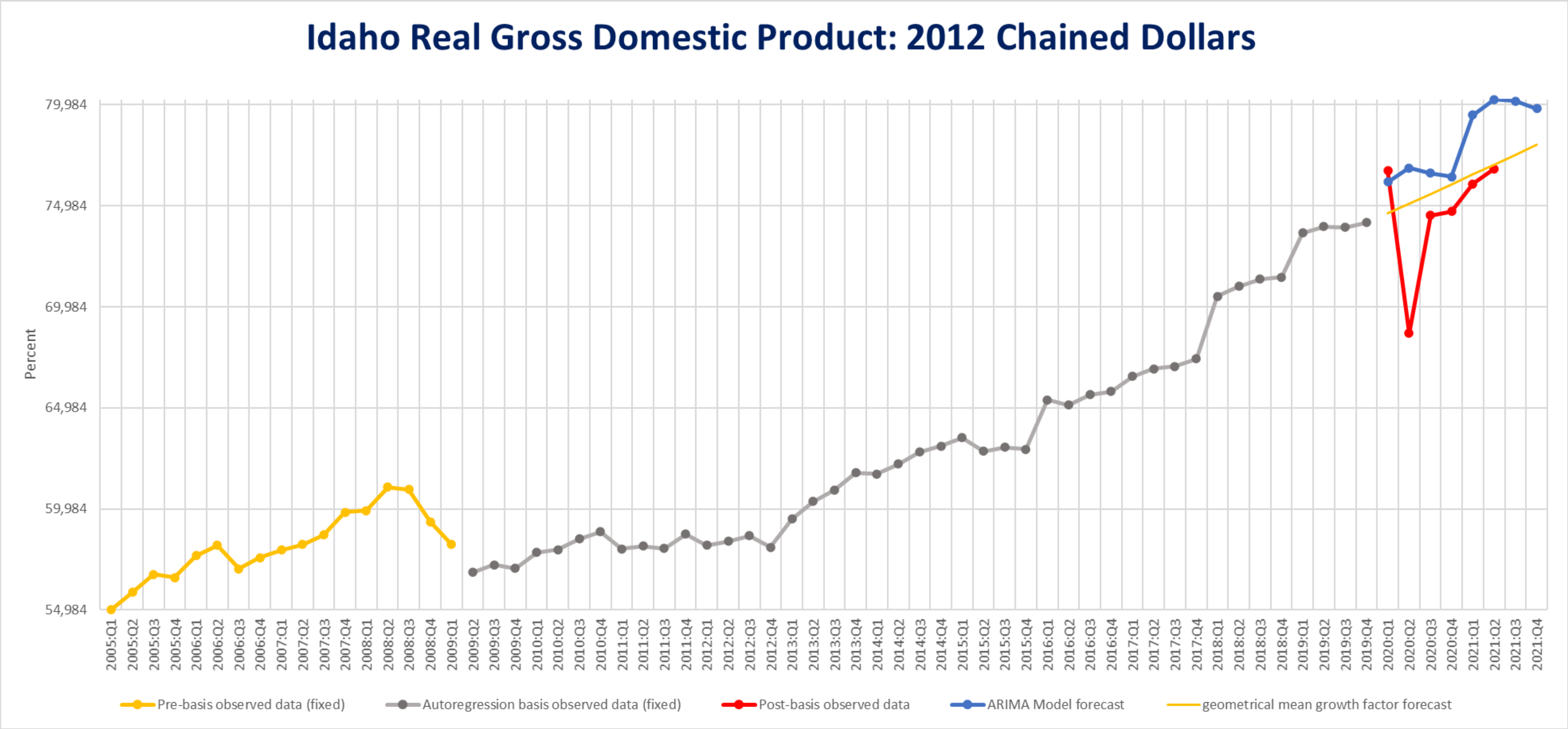


Model parameters

param	coeff	s.e.	t-stat	p-value
const	507.1028	443.2178	1.144139	0.268421
phi 1	-0.04237	0.242819	-0.17451	0.863526
phi 2	0.112836	0.245803	0.459051	0.652012
phi 3	0.160742	0.225757	0.712014	0.486114
phi 4	-0.31594	0.304111	-1.0389	0.313404
phi 5	-0.12085	0.304114	-0.39738	0.69603
phi 6	-0.18046	0.302252	-0.59706	0.558338
phi 7	-0.15773	0.299299	-0.52699	0.60501
phi 8	-0.19507	0.318877	-0.61173	0.548812
phi 9	-0.05871	0.280117	-0.20958	0.836489
phi 10	0.151336	0.275348	0.549617	0.58973
phi 11	-0.01337	0.279674	-0.0478	0.96243
phi 12	-0.0861	0.275511	-0.3125	0.758464

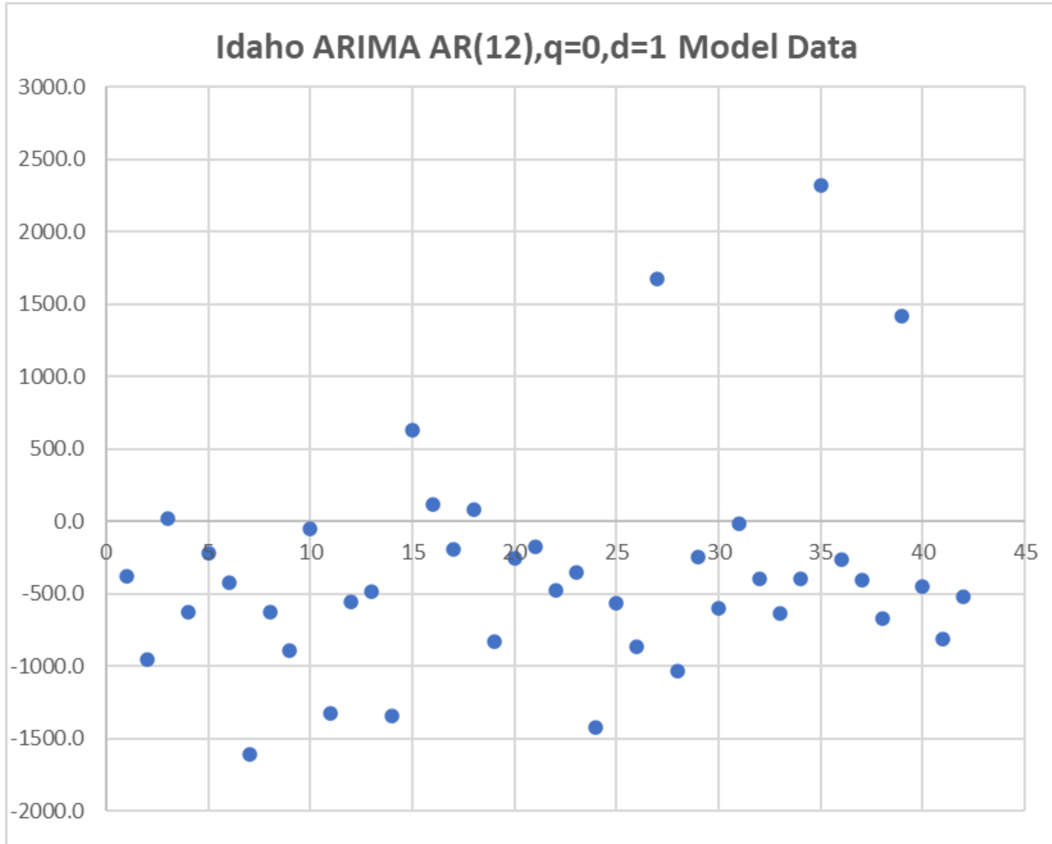


Appendix E162: Idaho State Real GDP ARIMA Model Forecast

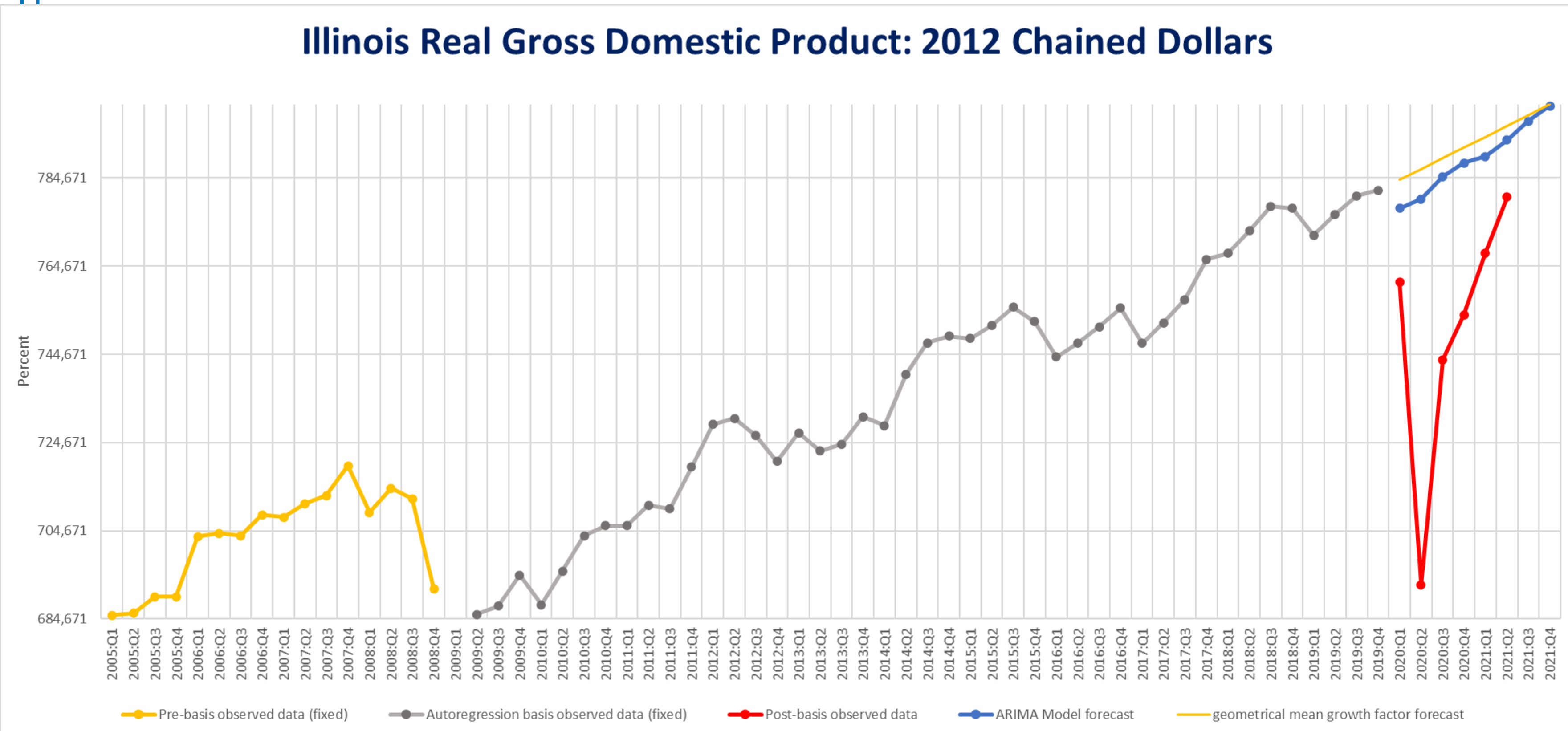


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	433.1672	367.0712	1.180063	0.254225
phi 1	-0.07075	0.214047	-0.33052	0.745043
phi 2	-0.05595	0.206449	-0.27099	0.78966
phi 3	-0.10411	0.208009	-0.50052	0.623124
phi 4	0.127431	0.211025	0.603868	0.553905
phi 5	0.108762	0.209923	0.518102	0.611064
phi 6	-0.09536	0.20584	-0.46325	0.64906
phi 7	-0.10001	0.209269	-0.47789	0.638815
phi 8	0.343183	0.260674	1.316526	0.205472
phi 9	-0.04697	0.266753	-0.1761	0.862298
phi 10	-0.14106	0.262258	-0.53788	0.597635
phi 11	-0.1046	0.262919	-0.39784	0.695697
phi 12	0.573423	0.263102	2.179468	0.04365

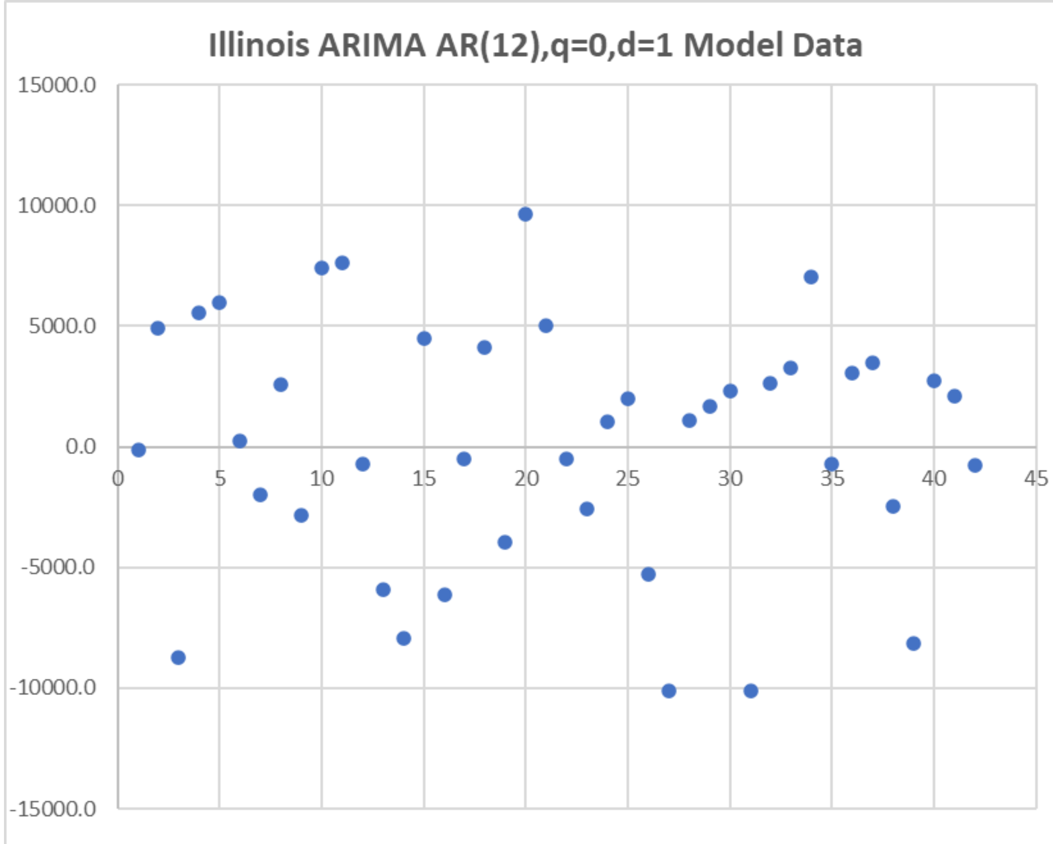


Appendix E163: Illinois State Real GDP ARIMA Model Forecast

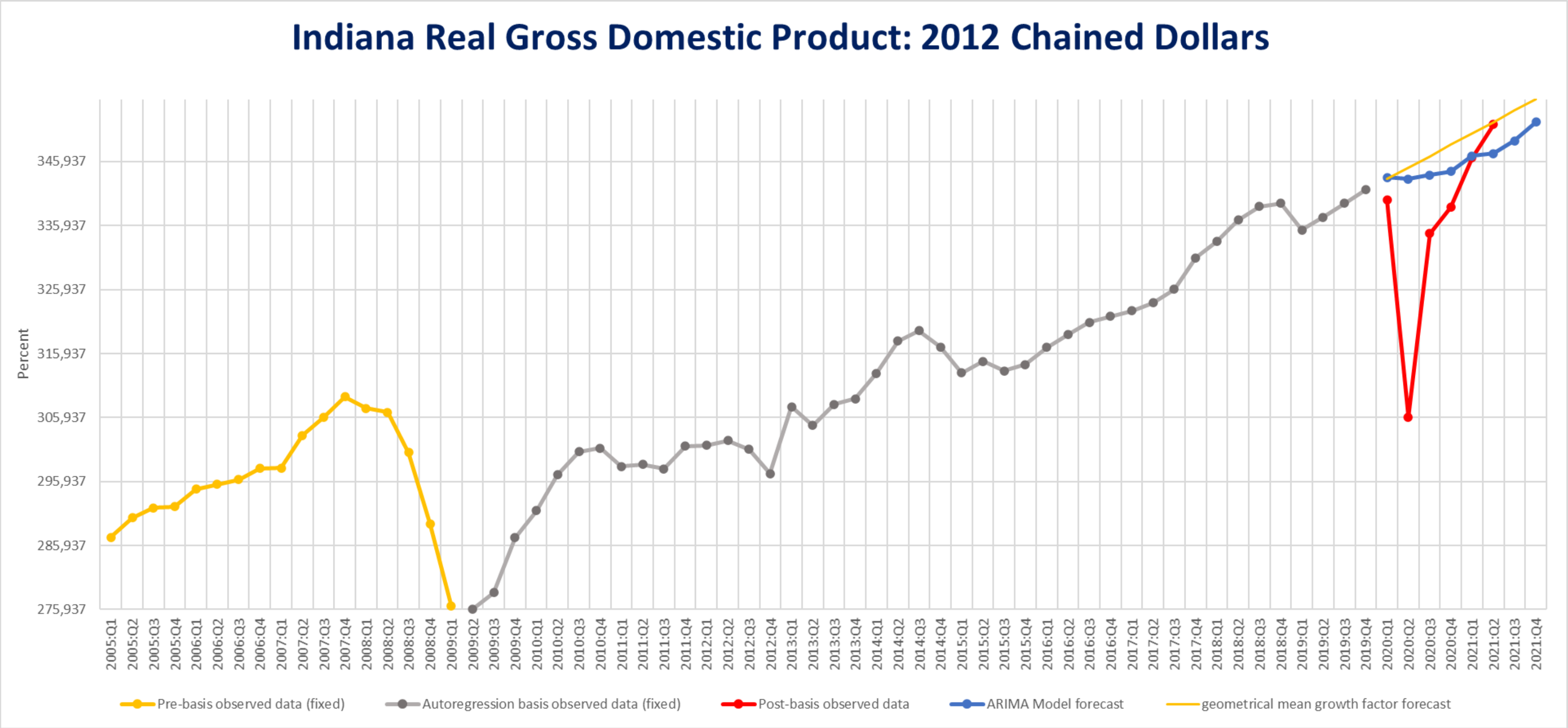


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	9657.367	3206.361	3.01194	0.007852
phi 1	-0.33708	0.238275	-1.41467	0.17522
phi 2	-0.38554	0.207896	-1.85447	0.081102
phi 3	-0.41897	0.204285	-2.05092	0.056016
phi 4	-0.17213	0.21955	-0.78402	0.443817
phi 5	-0.22405	0.195413	-1.14653	0.267459
phi 6	-0.56027	0.18905	-2.9636	0.008704
phi 7	-0.41552	0.220671	-1.88297	0.076932
phi 8	-0.26615	0.211008	-1.26134	0.224222
phi 9	-0.45269	0.200991	-2.25227	0.037812
phi 10	-0.16959	0.223871	-0.75752	0.459109
phi 11	-0.23293	0.190962	-1.21975	0.239213
phi 12	-0.09839	0.201326	-0.4887	0.631297

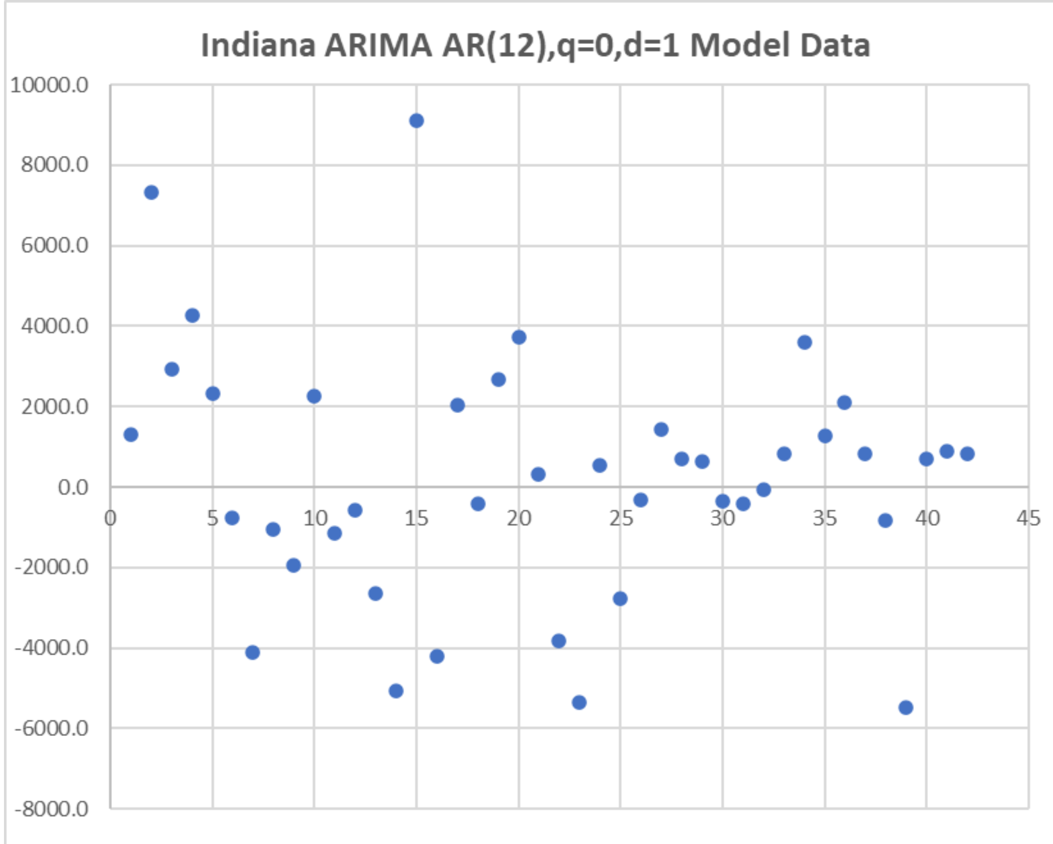


Appendix E164: Indiana State Real GDP ARIMA Model Forecast

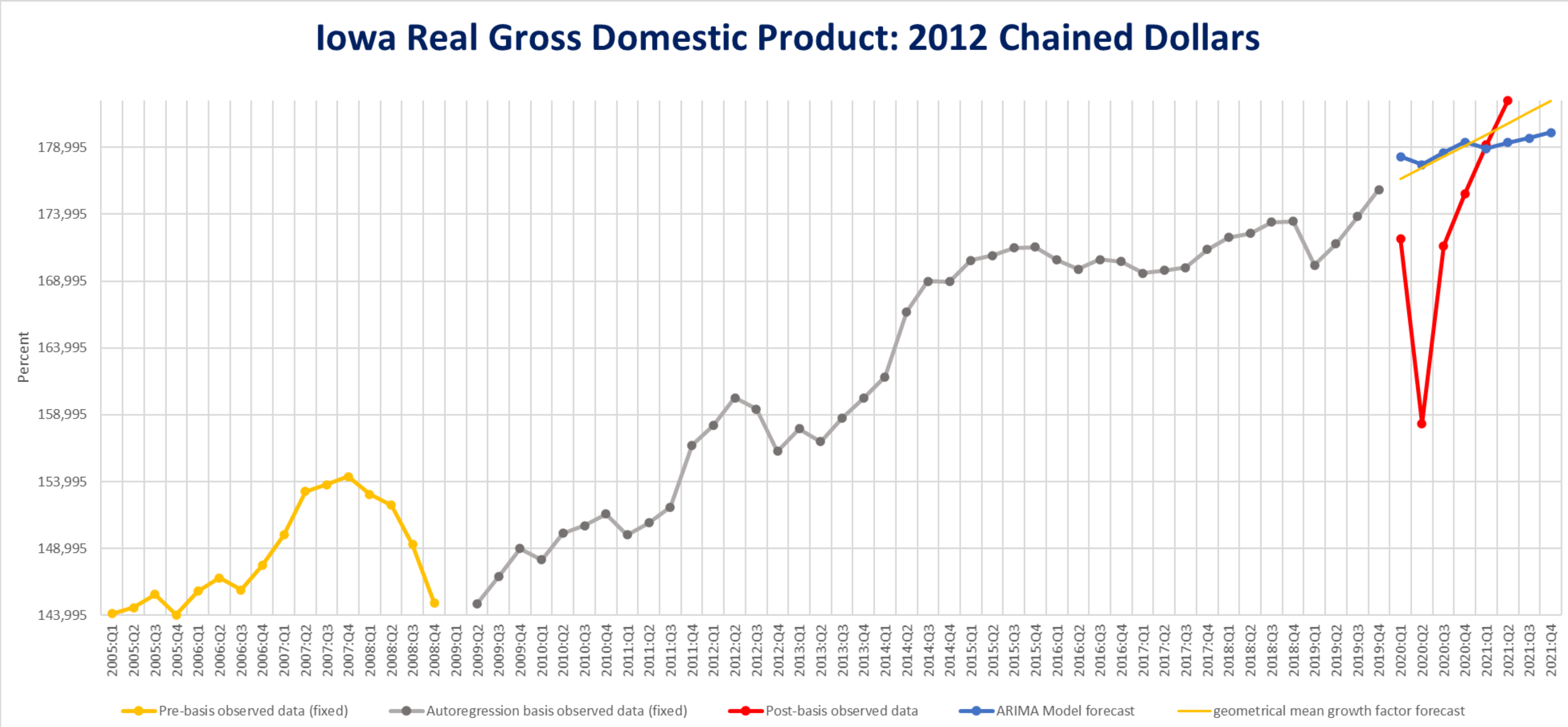


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	5104.624	1655.725	3.083015	0.006746
phi 1	-0.29357	0.22358	-1.31303	0.206621
phi 2	-0.12655	0.219381	-0.57687	0.571591
phi 3	-0.27983	0.210791	-1.3275	0.201895
phi 4	-0.42624	0.229929	-1.85379	0.081204
phi 5	-0.1521	0.232555	-0.65402	0.521848
phi 6	-0.24525	0.227142	-1.07972	0.295348
phi 7	-0.22506	0.226599	-0.99322	0.334532
phi 8	-0.42646	0.221451	-1.92574	0.07103
phi 9	-0.02468	0.225165	-0.10961	0.914001
phi 10	-0.11625	0.217261	-0.53509	0.599519
phi 11	-0.28899	0.191205	-1.5114	0.149051
phi 12	-0.34455	0.199958	-1.72313	0.103004

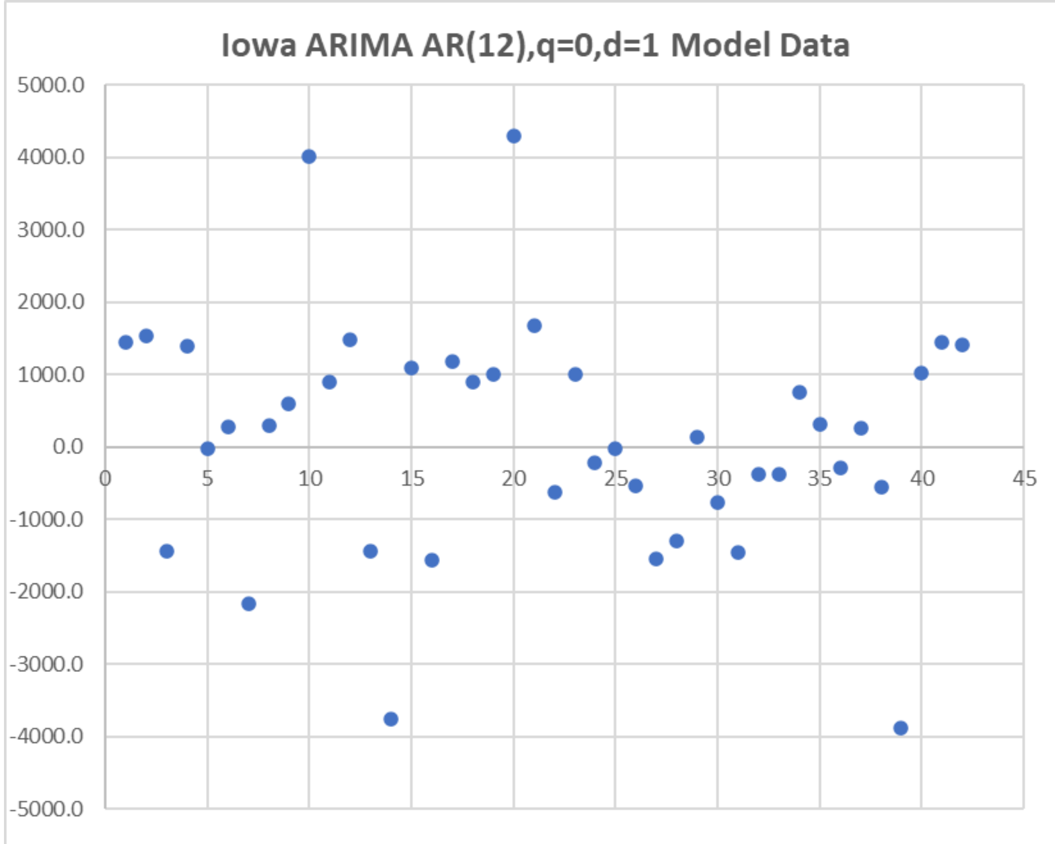


Appendix E165: Iowa State Real GDP ARIMA Model Forecast

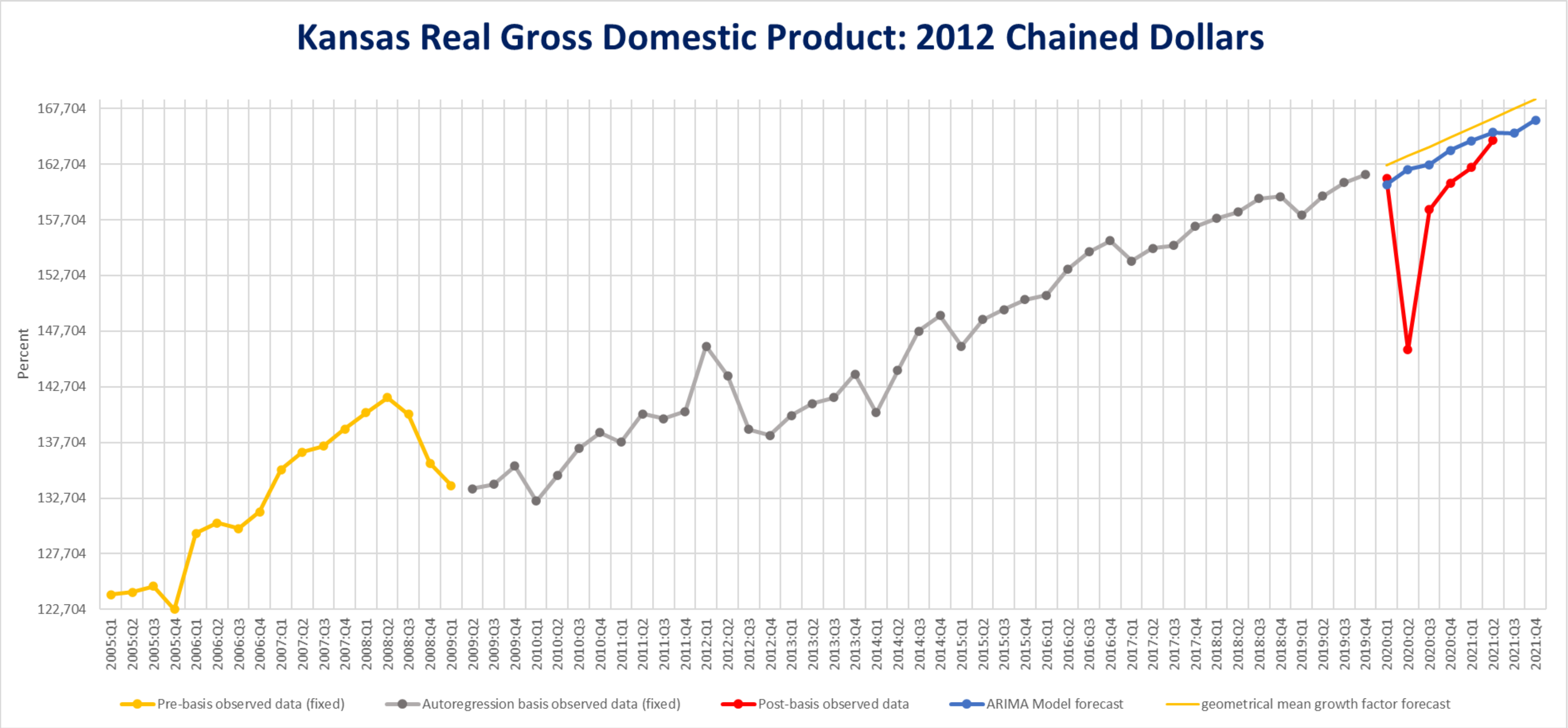


Model parameters

param	coeff	s.e.	t-stat	p-value
const	826.8962	628.5161	1.315633	0.205765
phi 1	0.281074	0.231323	1.215072	0.240946
phi 2	-0.0806	0.24409	-0.33021	0.745273
phi 3	-0.04517	0.227331	-0.19868	0.844873
phi 4	-0.39608	0.260753	-1.51898	0.147146
phi 5	0.291829	0.270987	1.076911	0.296566
phi 6	-0.26391	0.253828	-1.03972	0.313031
phi 7	-0.12443	0.250755	-0.49621	0.6261
phi 8	0.034497	0.250006	0.137983	0.891875
phi 9	0.119867	0.245339	0.488578	0.631383
phi 10	-0.18497	0.230701	-0.80179	0.433738
phi 11	0.083296	0.231764	0.359402	0.72372
phi 12	-0.1048	0.230776	-0.4541	0.6555

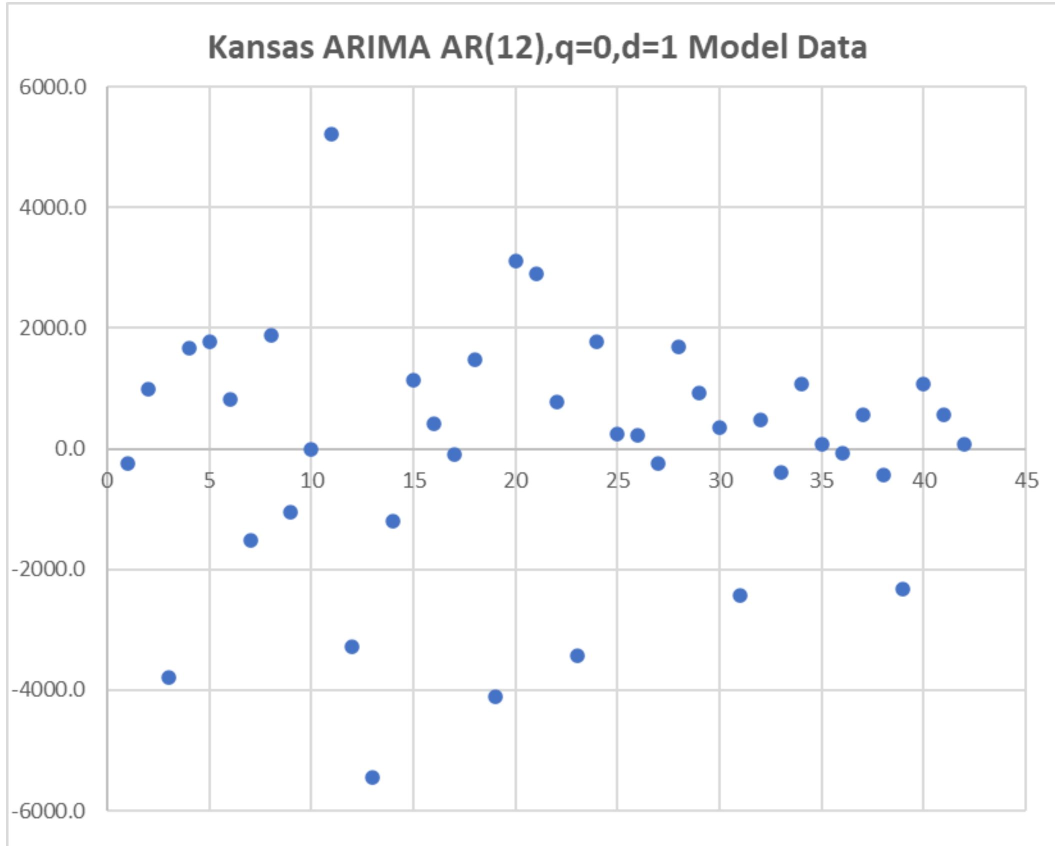


Appendix E166: Kansas State Real GDP ARIMA Model Forecast

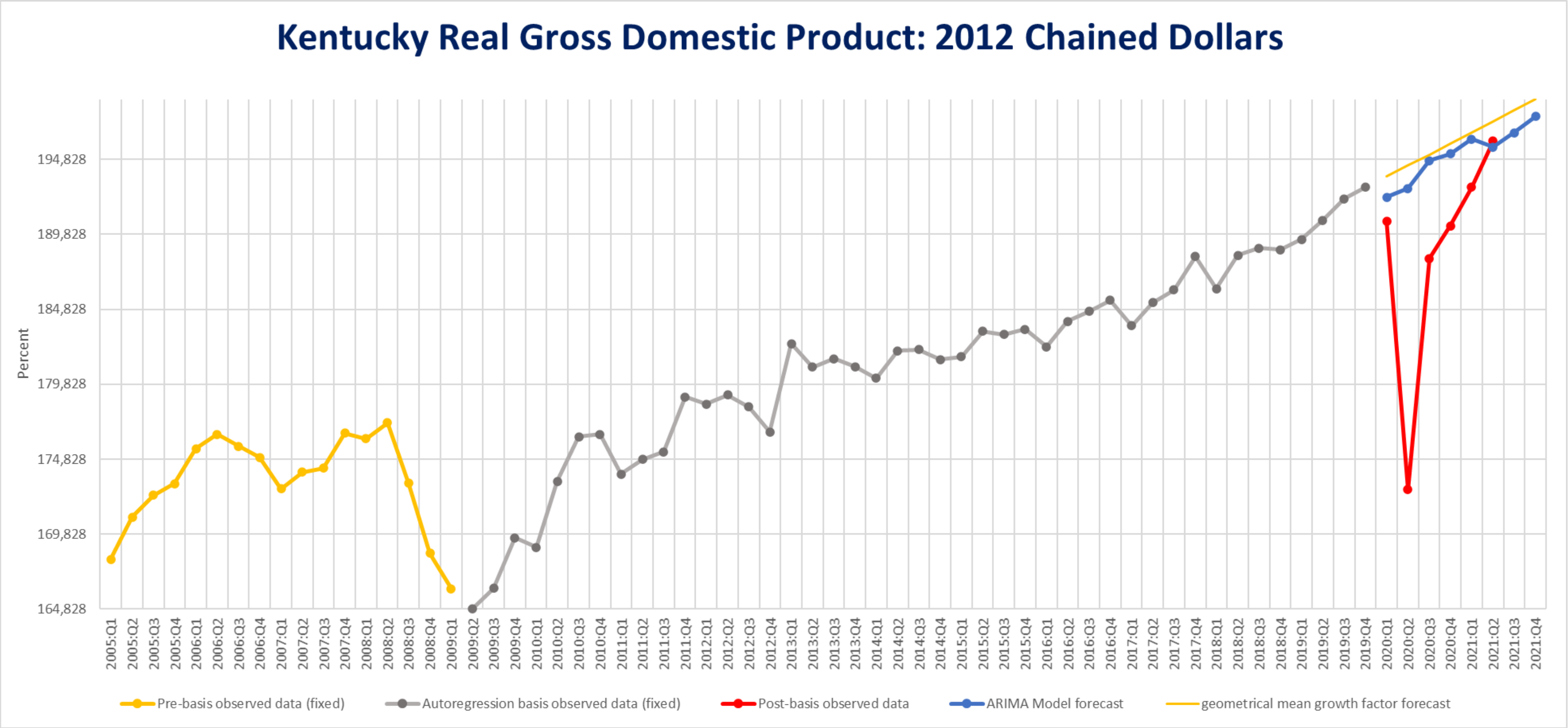


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	1290.56	927.2299	1.391845	0.181913
phi 1	0.047373	0.21597	0.219351	0.828988
phi 2	-0.28233	0.187981	-1.50189	0.151473
phi 3	-0.36423	0.200141	-1.81988	0.086432
phi 4	0.198606	0.228093	0.870724	0.396034
phi 5	-0.26118	0.191961	-1.36061	0.191405
phi 6	0.023485	0.200283	0.117258	0.90803
phi 7	-0.04813	0.197242	-0.24401	0.810144
phi 8	-0.29831	0.189736	-1.57222	0.134325
phi 9	-0.05146	0.20243	-0.25423	0.80237
phi 10	0.050637	0.19149	0.264437	0.794622
phi 11	-0.20976	0.178703	-1.17381	0.256653
phi 12	0.188313	0.19223	0.979624	0.341008

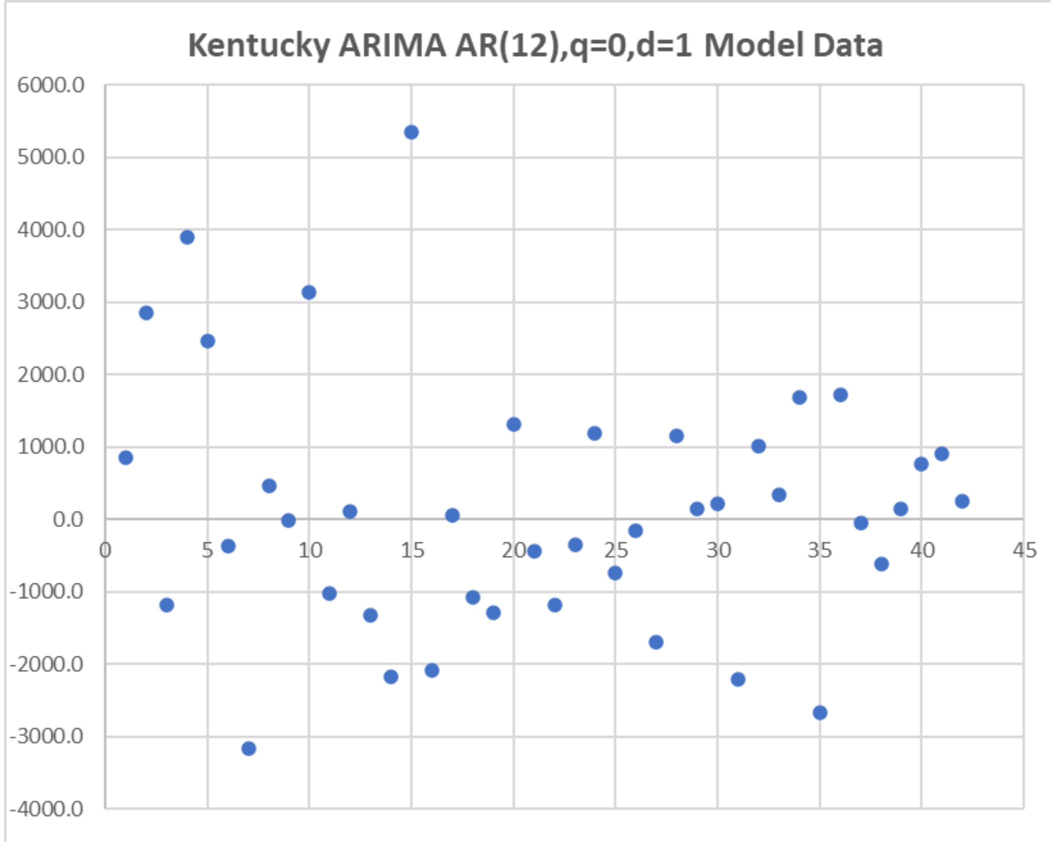


Appendix E167: Kentucky State Real GDP ARIMA Model Forecast

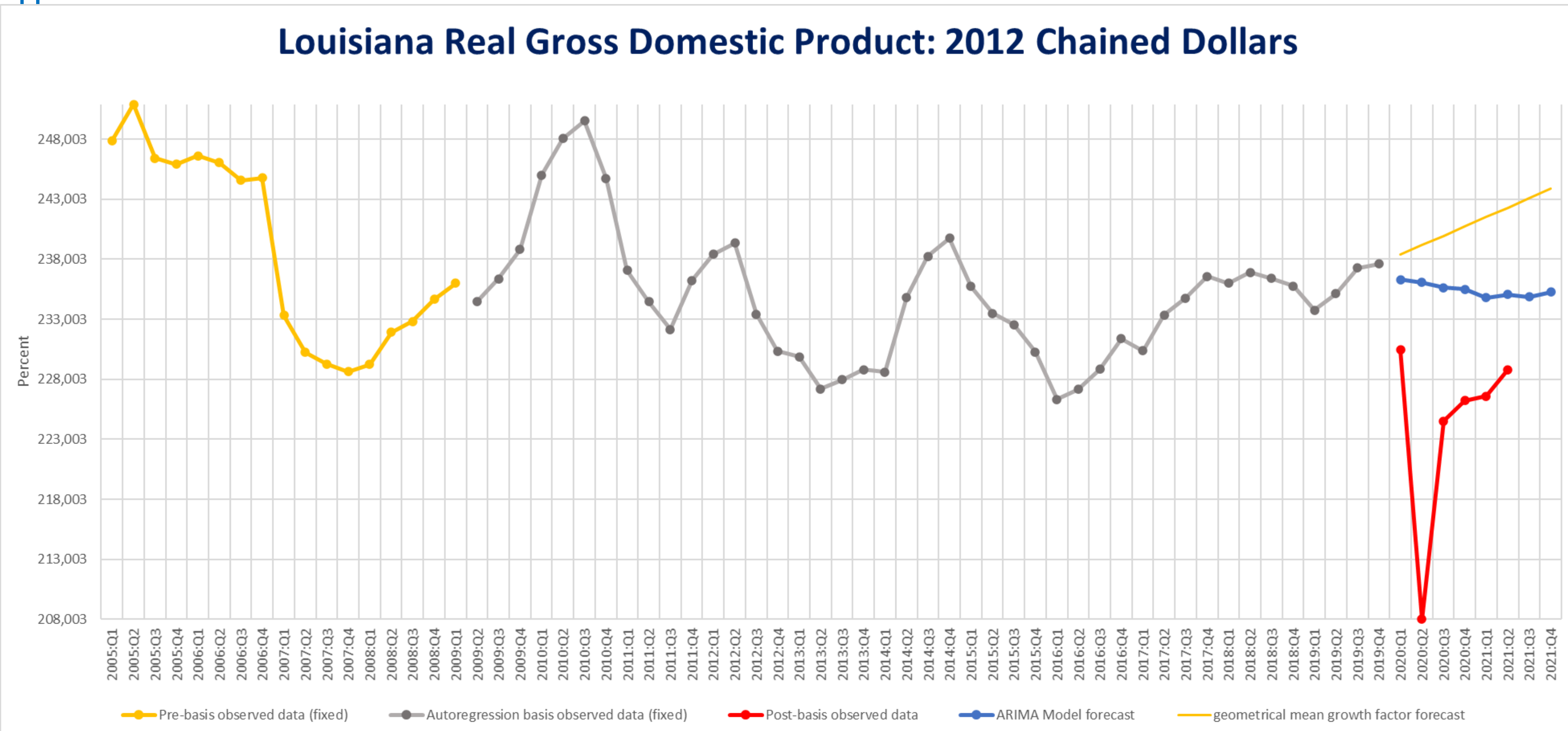


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	702.5669	769.8725	0.912576	0.374226
phi 1	-0.85209	0.232618	-3.66306	0.001926
phi 2	-0.62587	0.323081	-1.93718	0.069522
phi 3	-0.35369	0.377966	-0.93578	0.36249
phi 4	0.087492	0.392757	0.222764	0.826374
phi 5	0.659938	0.379024	1.741153	0.099722
phi 6	0.62835	0.381842	1.645574	0.118213
phi 7	0.401489	0.380919	1.054001	0.306633
phi 8	0.229341	0.320264	0.7161	0.483651
phi 9	0.010105	0.267094	0.037834	0.970261
phi 10	-0.21398	0.233459	-0.91658	0.372181
phi 11	-0.13101	0.16885	-0.77589	0.448474
phi 12	-0.18194	0.155833	-1.16755	0.259103

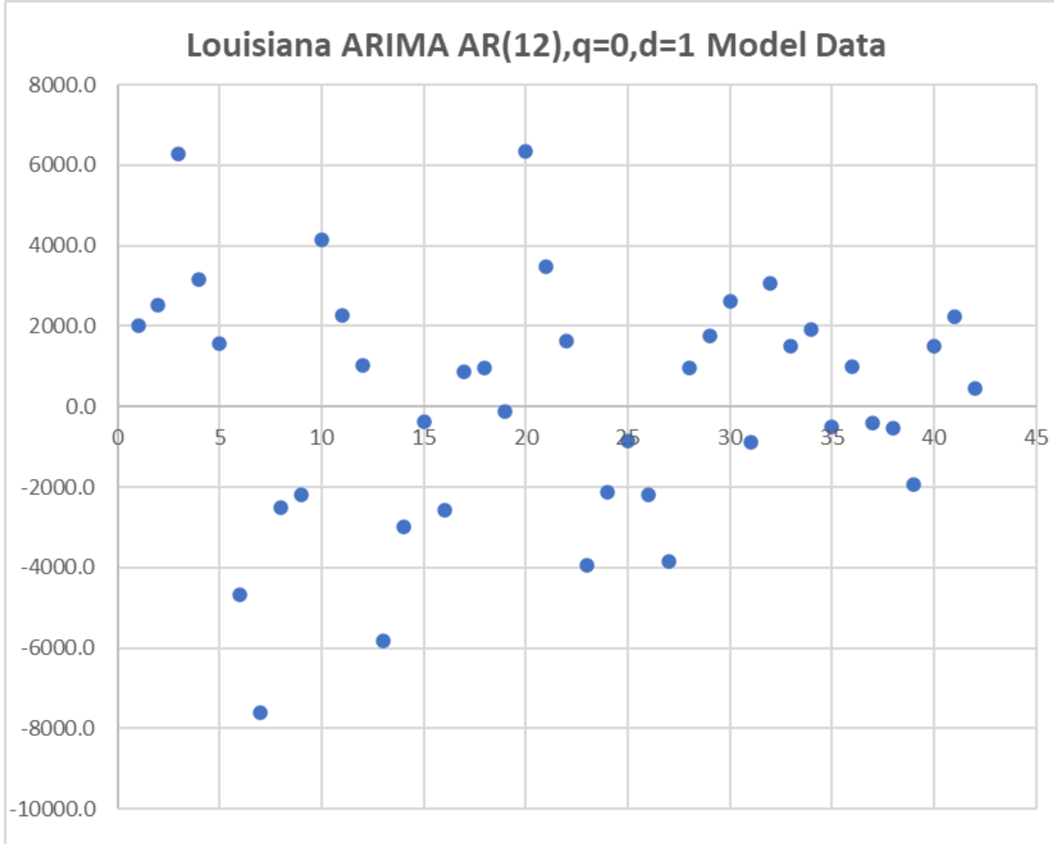


Appendix E168: Louisiana State Real GDP ARIMA Model Forecast

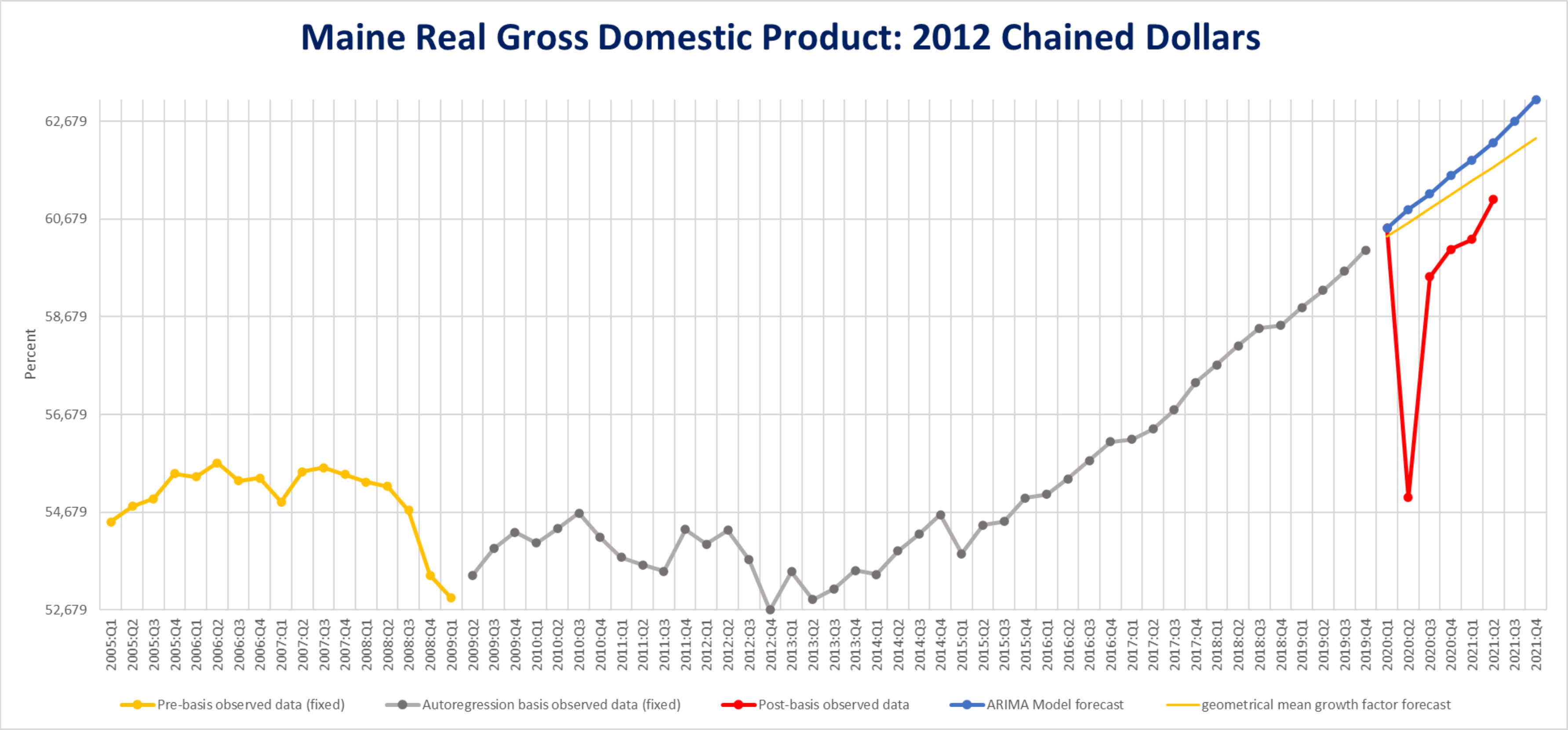


Model parameters

param	coeff	s.e.	t-stat	p-value
const	-122.24	543.1449	-0.22506	0.824617
phi 1	0.383847	0.242647	1.581916	0.132094
phi 2	-0.14196	0.258217	-0.54977	0.589625
phi 3	-0.23843	0.246448	-0.96746	0.346876
phi 4	0.128558	0.243545	0.527861	0.604418
phi 5	-0.23172	0.244044	-0.9495	0.35567
phi 6	-0.10092	0.241432	-0.41799	0.681185
phi 7	-0.00248	0.234677	-0.01058	0.991685
phi 8	0.000647	0.22745	0.002845	0.997763
phi 9	-0.13101	0.22733	-0.5763	0.571967
phi 10	0.163148	0.213568	0.763914	0.455391
phi 11	-0.19483	0.2211	-0.88117	0.390513
phi 12	0.049826	0.207516	0.240107	0.813119

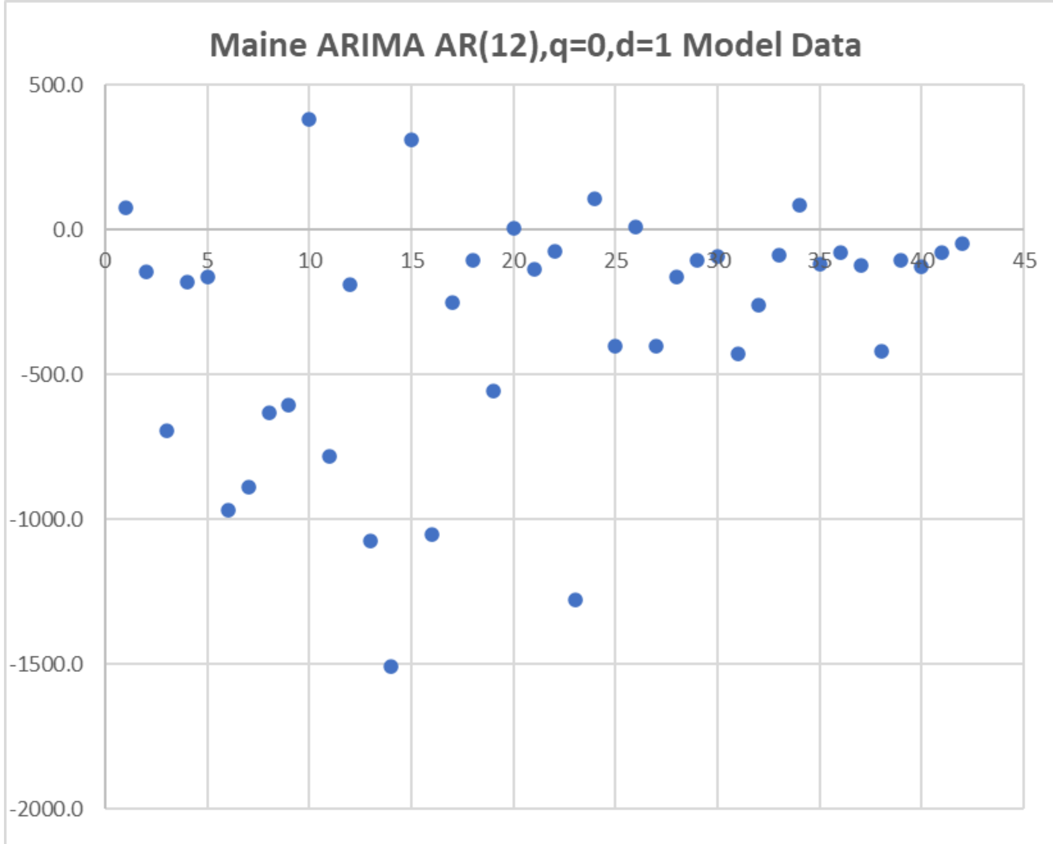


Appendix E169: Maine State Real GDP ARIMA Model Forecast

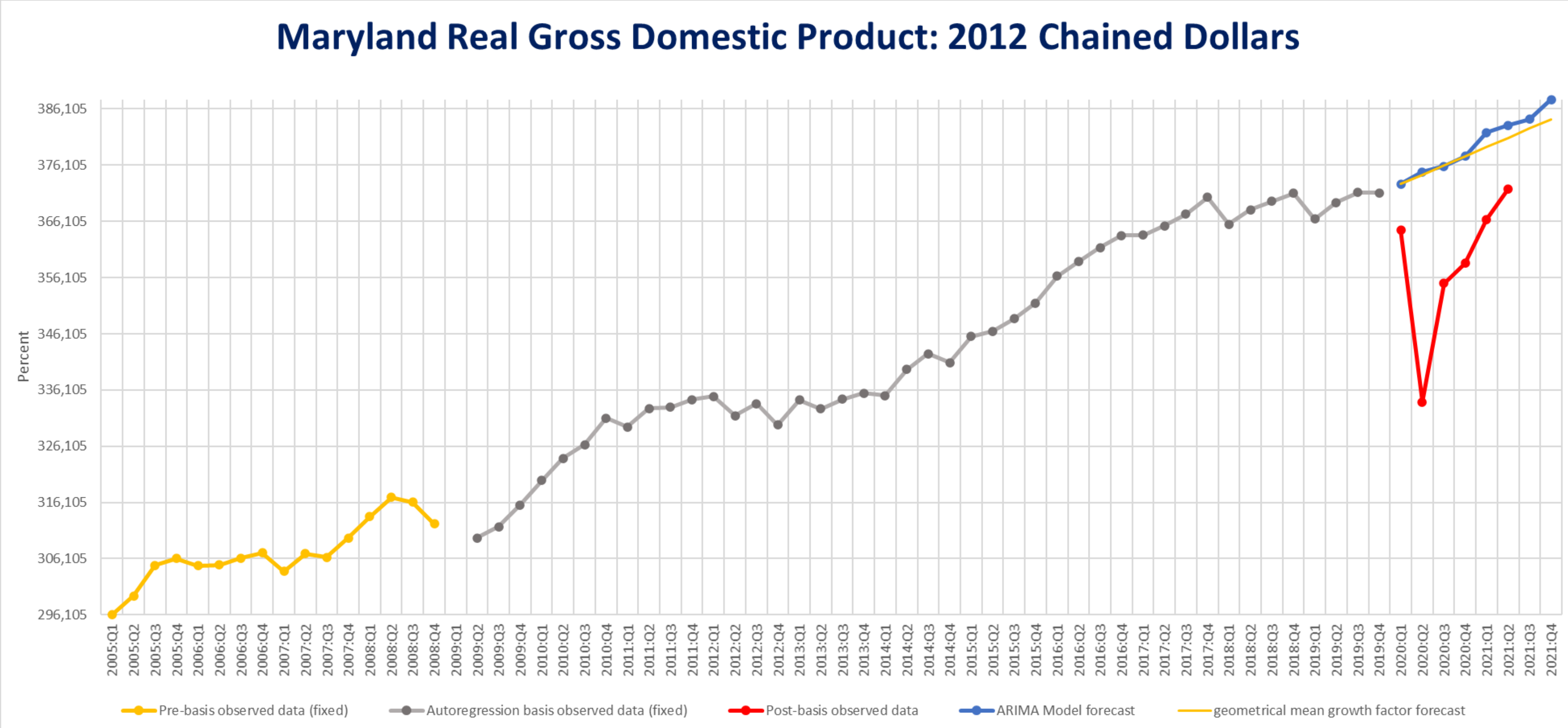


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	129.4279	113.5849	1.139481	0.270304
phi 1	-0.24786	0.236232	-1.04921	0.308767
phi 2	0.101392	0.237447	0.427009	0.674732
phi 3	0.109196	0.229928	0.474913	0.640893
phi 4	-0.19235	0.22066	-0.87172	0.395507
phi 5	0.14043	0.221653	0.633557	0.534802
phi 6	0.235173	0.202622	1.160649	0.261825
phi 7	0.279453	0.206826	1.351151	0.194356
phi 8	0.006914	0.213248	0.032422	0.974513
phi 9	0.217005	0.207685	1.044874	0.310712
phi 10	0.231514	0.215602	1.073802	0.297918
phi 11	0.037109	0.217533	0.17059	0.86656
phi 12	-0.18954	0.197707	-0.9587	0.351149

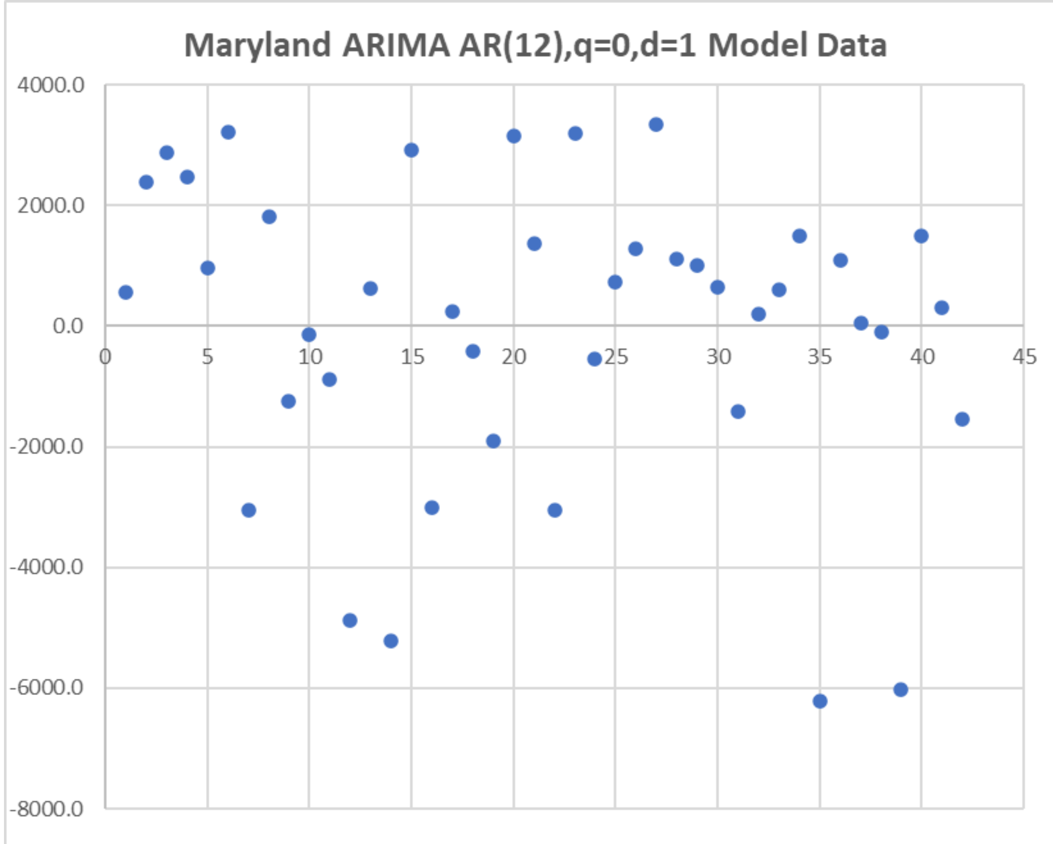


Appendix E170: Maryland State Real GDP ARIMA Model Forecast

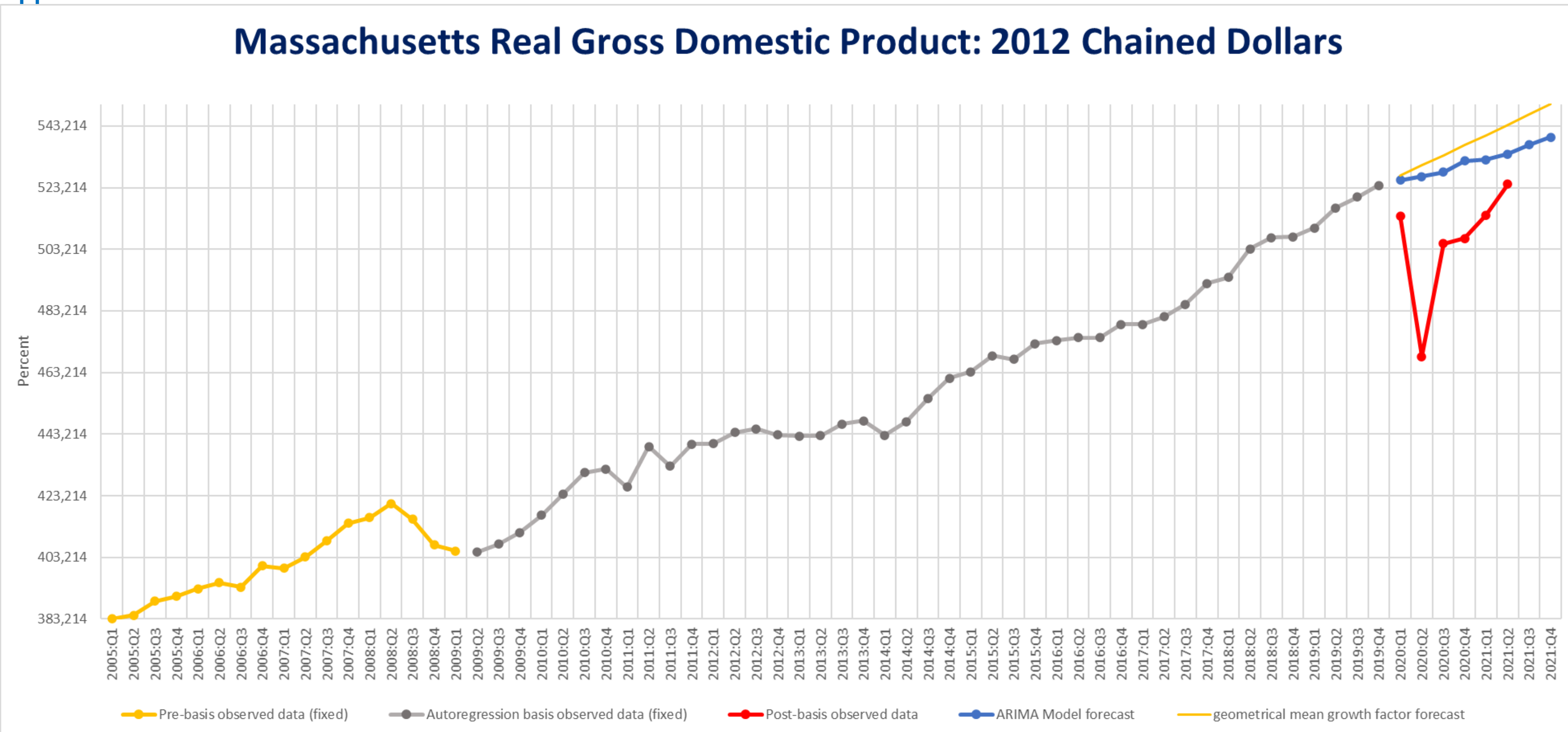


Model parameters

param	coeff	s.e.	t-stat	p-value
const	3459.061	1329.855	2.601081	0.018638
phi 1	-0.5737	0.226063	-2.53781	0.021236
phi 2	-0.20903	0.259428	-0.80575	0.431513
phi 3	-0.03015	0.256316	-0.11762	0.907745
phi 4	0.33039	0.25405	1.300491	0.210787
phi 5	0.233927	0.2512	0.931241	0.364766
phi 6	0.068647	0.256771	0.267346	0.792419
phi 7	0.115187	0.254093	0.453325	0.656048
phi 8	-0.22446	0.265386	-0.8458	0.409412
phi 9	-0.31899	0.269609	-1.18316	0.25303
phi 10	-0.13245	0.28291	-0.46817	0.645607
phi 11	-0.28962	0.277624	-1.04321	0.311462
phi 12	-0.3147	0.266092	-1.18268	0.253212

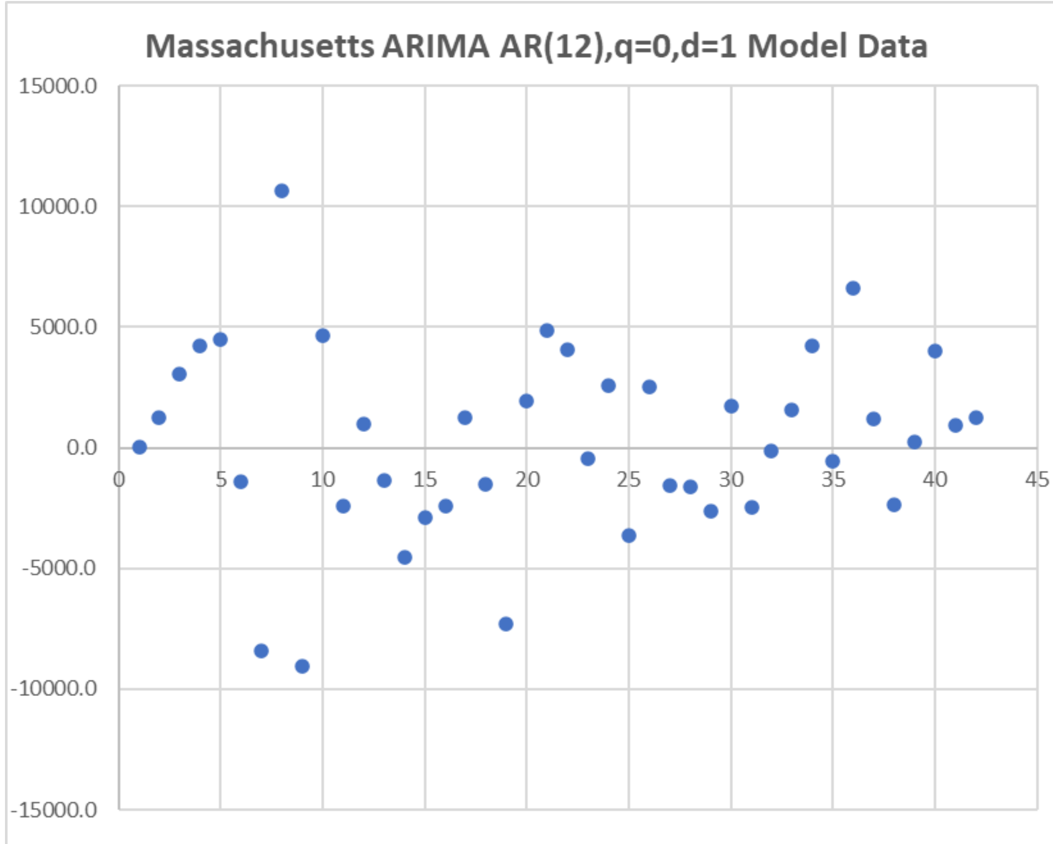


Appendix E171: Massachusetts State Real GDP ARIMA Model Forecast

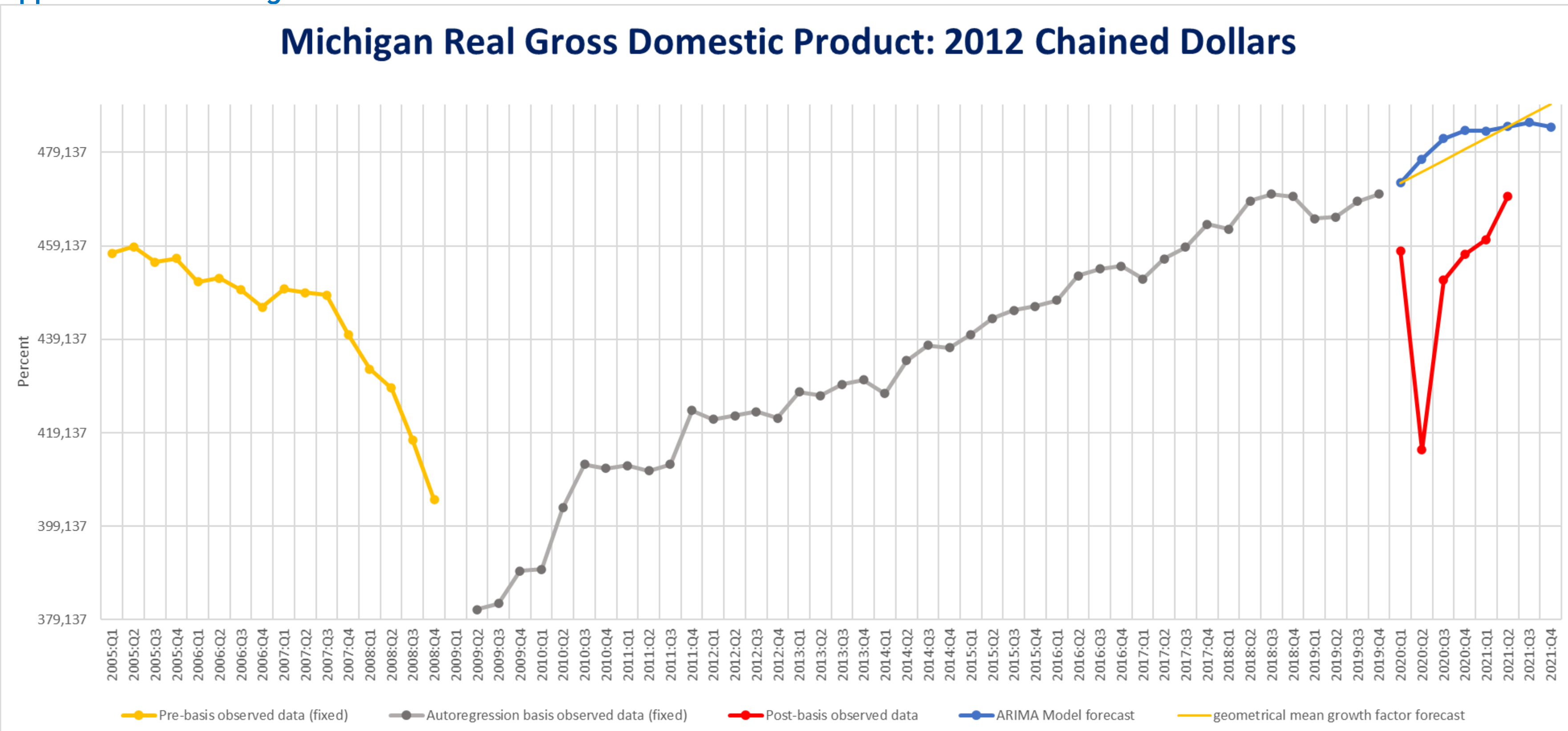


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	3118.219	2328.217	1.339316	0.1981
phi 1	0.226001	0.240462	0.939861	0.360453
phi 2	-0.09845	0.227194	-0.43333	0.670223
phi 3	-0.02358	0.218653	-0.10786	0.91537
phi 4	0.119933	0.208735	0.574572	0.573107
phi 5	-0.0299	0.19313	-0.15482	0.878785
phi 6	-0.02825	0.186317	-0.15161	0.881283
phi 7	-0.11596	0.192276	-0.60309	0.55441
phi 8	-0.1585	0.187106	-0.84711	0.408702
phi 9	-0.00035	0.186062	-0.00188	0.998522
phi 10	-0.00957	0.182499	-0.05245	0.958785
phi 11	-0.25405	0.178127	-1.4262	0.171916
phi 12	0.153659	0.183451	0.837602	0.413875

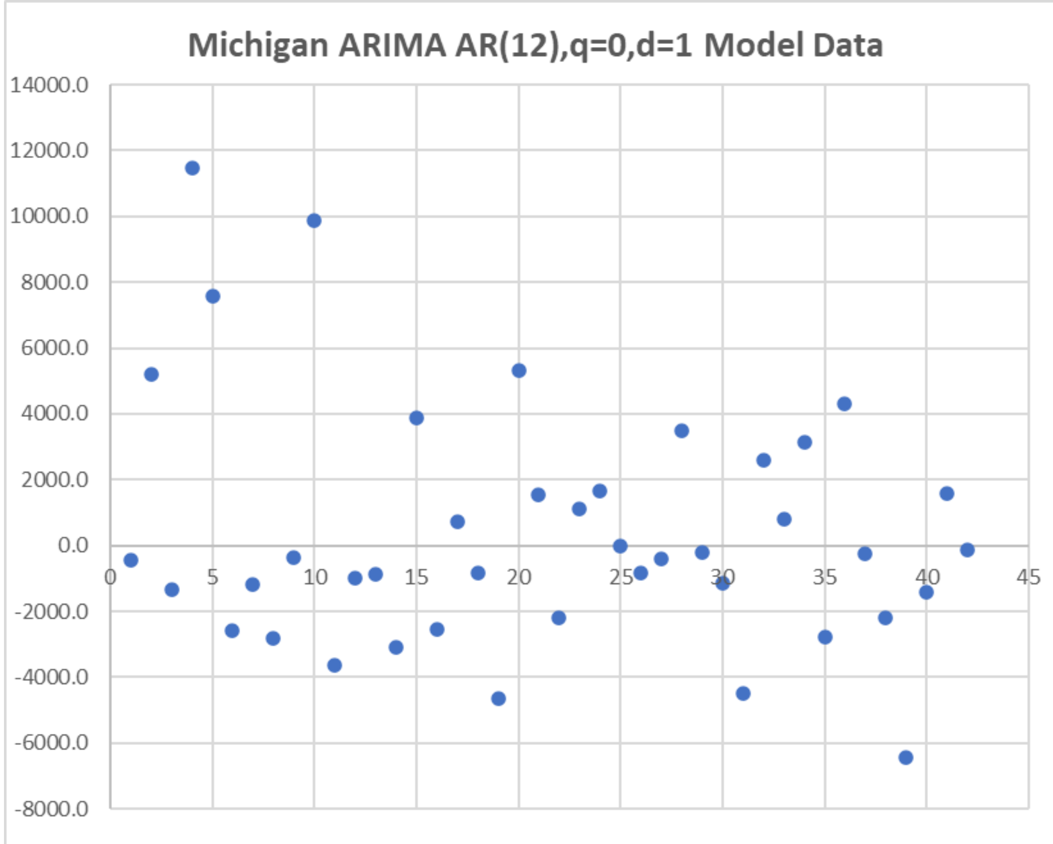


Appendix E172: Michigan State Real GDP ARIMA Model Forecast

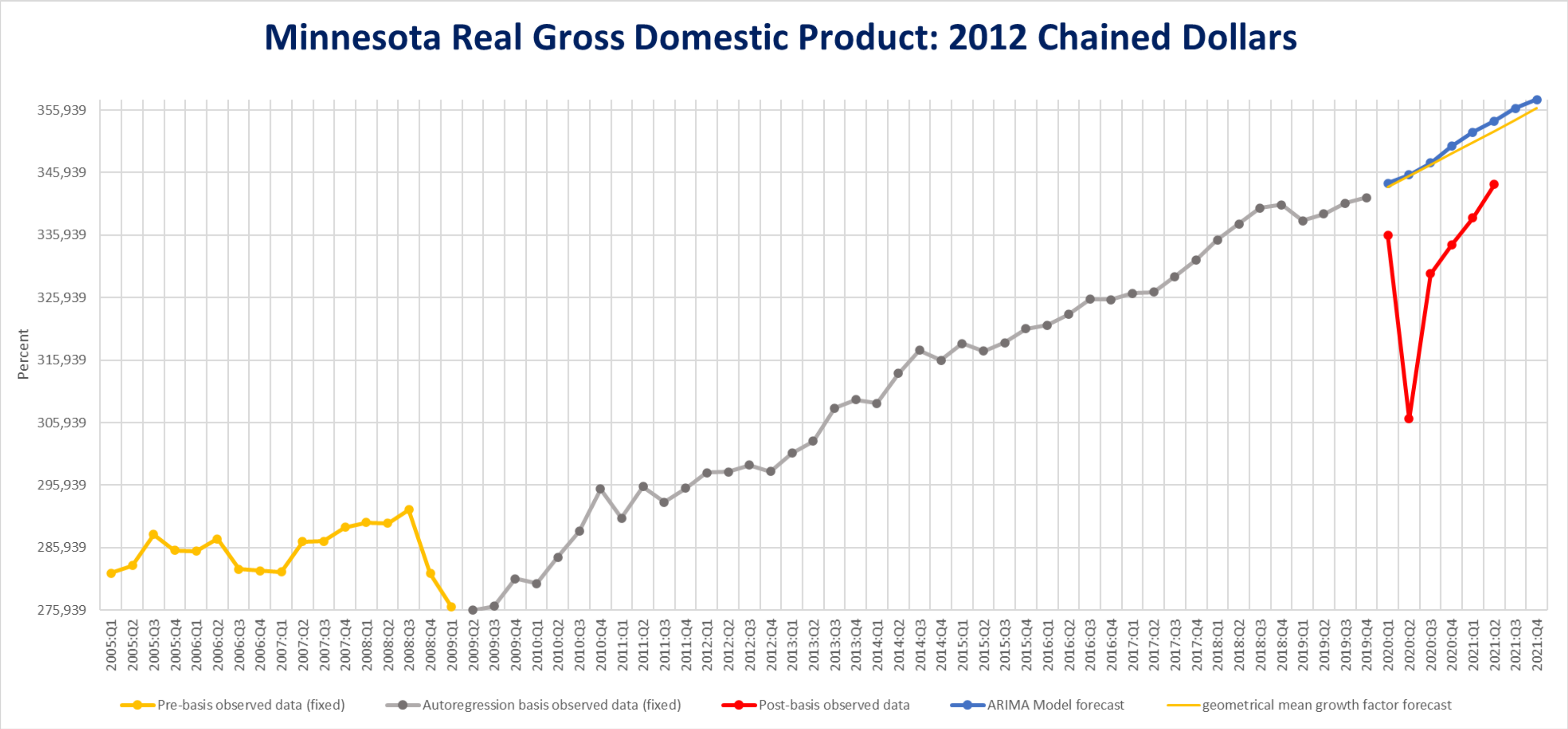


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	5646.646	3106.687	1.817578	0.086797
phi 1	-0.22798	0.245778	-0.92757	0.366615
phi 2	-0.22354	0.246515	-0.90682	0.377179
phi 3	-0.418	0.246298	-1.69714	0.1079
phi 4	-0.23844	0.301156	-0.79175	0.439416
phi 5	-0.26754	0.325322	-0.82238	0.422246
phi 6	-0.50842	0.333291	-1.52544	0.145538
phi 7	-0.31864	0.333323	-0.95595	0.352493
phi 8	0.07557	0.255468	0.295809	0.770959
phi 9	-0.23079	0.184543	-1.2506	0.22802
phi 10	-0.03958	0.182355	-0.21707	0.830739
phi 11	0.144693	0.181706	0.796303	0.436835
phi 12	-0.02001	0.186339	-0.10737	0.915753

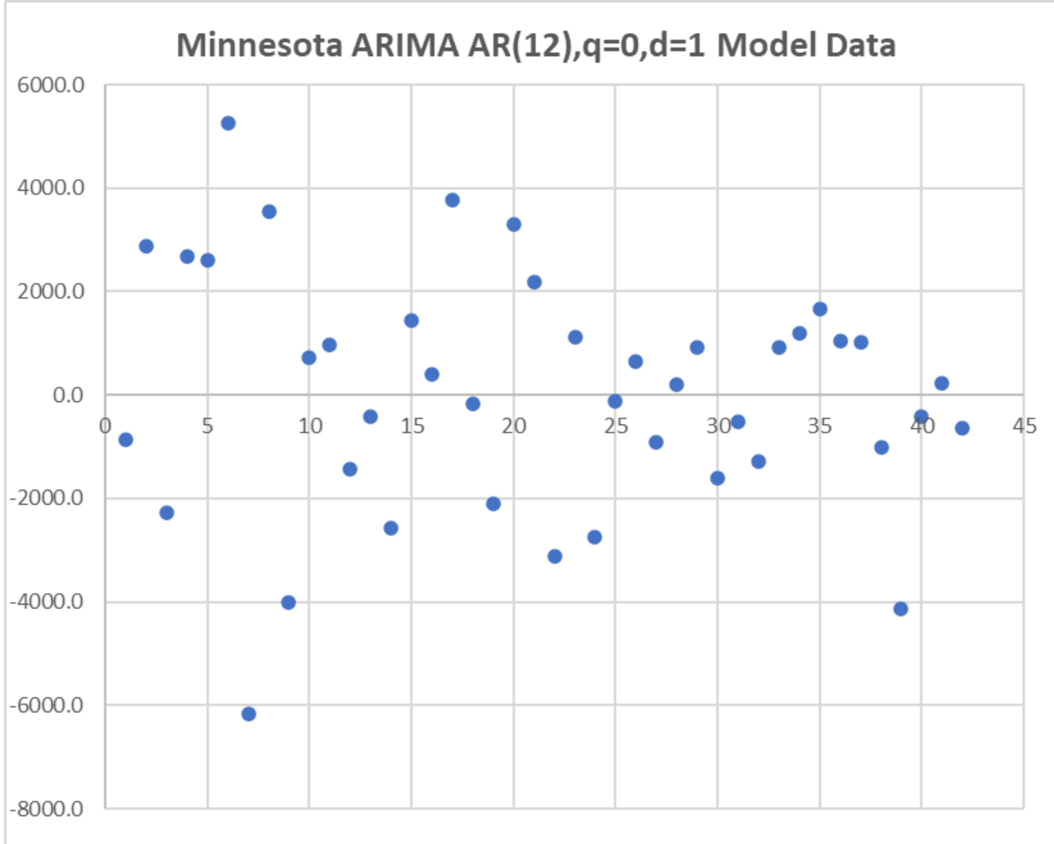


Appendix E173: Minnesota State Real GDP ARIMA Model Forecast

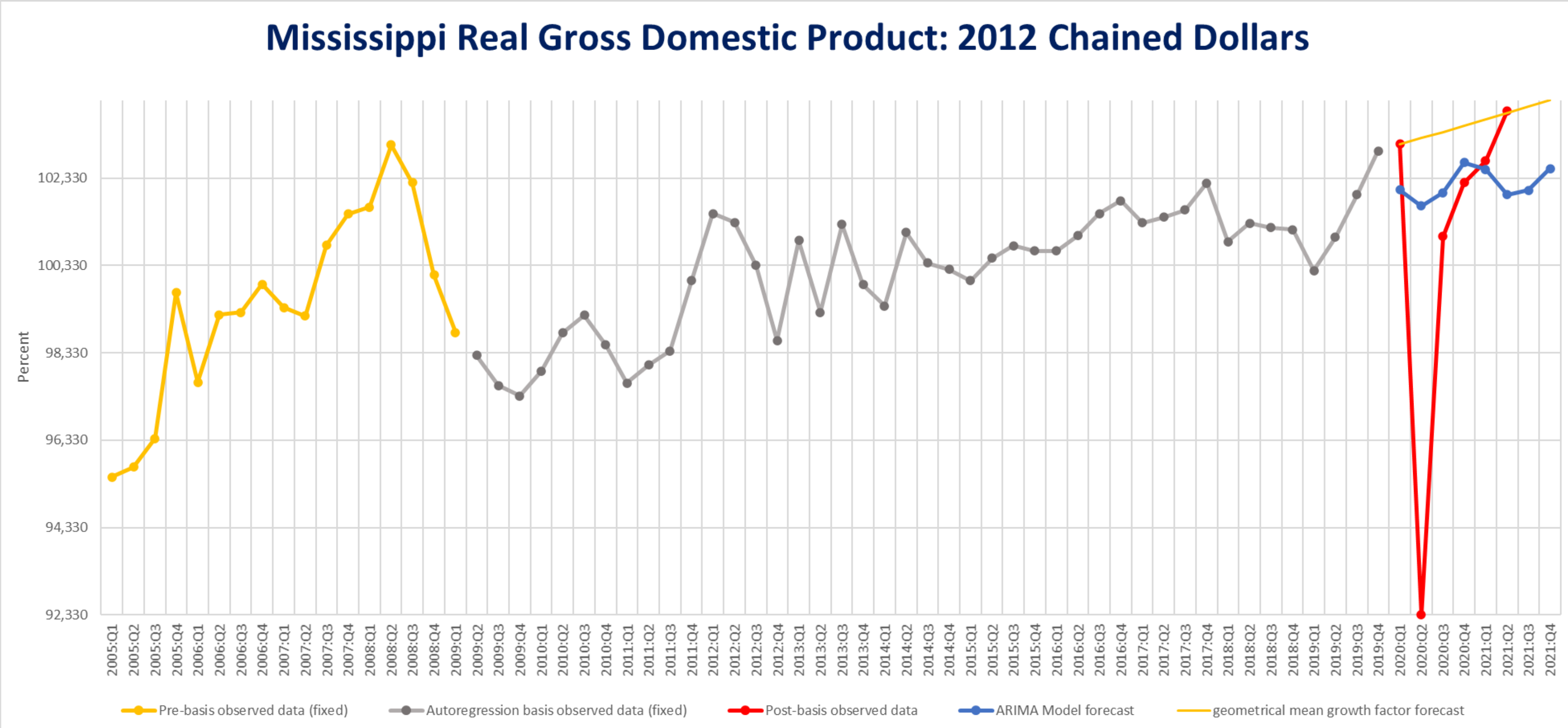


Model parameters

param	coeff	s.e.	t-stat	p-value
const	6300.162	2548.98	2.471641	0.024317
phi 1	-0.21379	0.240421	-0.88922	0.386297
phi 2	-0.32941	0.239032	-1.37809	0.186044
phi 3	-0.2163	0.237657	-0.91015	0.37547
phi 4	-0.46635	0.266582	-1.74937	0.098256
phi 5	-0.20656	0.258697	-0.79845	0.435624
phi 6	-0.33214	0.242959	-1.36706	0.189412
phi 7	-0.35654	0.232293	-1.53489	0.143213
phi 8	-0.37073	0.210311	-1.76275	0.095909
phi 9	-0.17297	0.204165	-0.8472	0.408651
phi 10	-0.26589	0.201716	-1.31815	0.20494
phi 11	-0.19015	0.2037	-0.93348	0.363645
phi 12	-0.0385	0.183924	-0.20932	0.836686

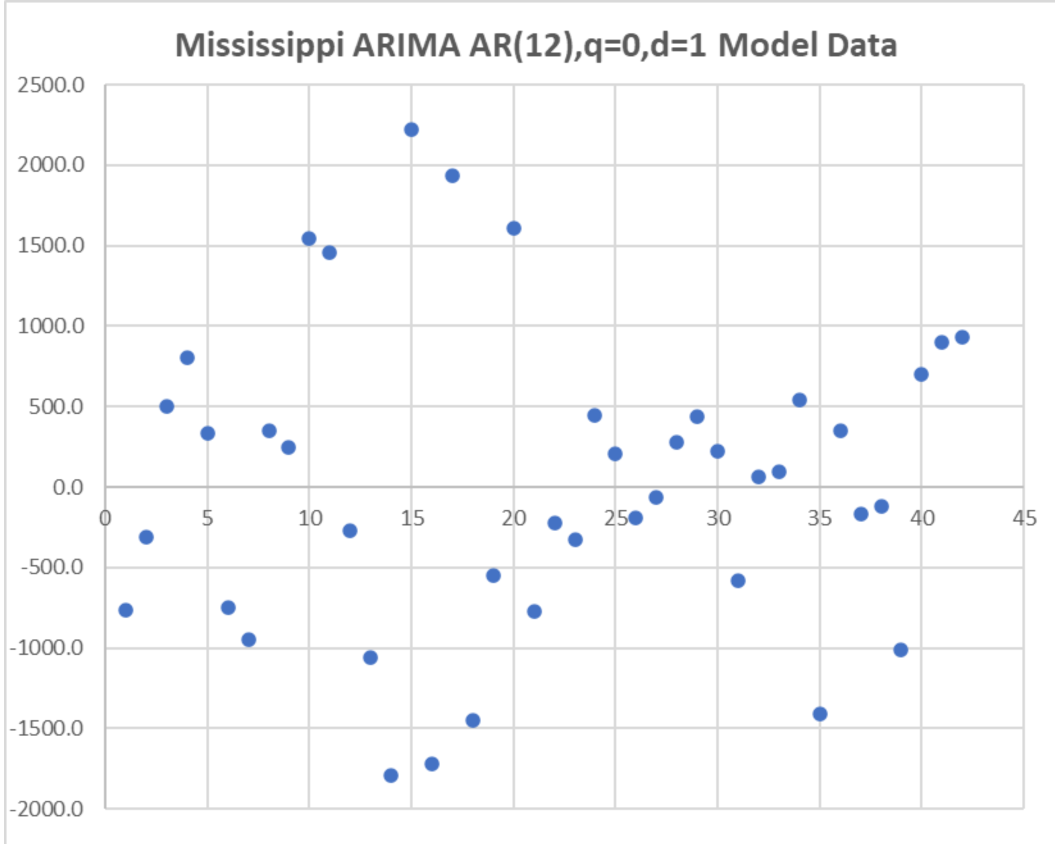


Appendix E174: Mississippi State Real GDP ARIMA Model Forecast

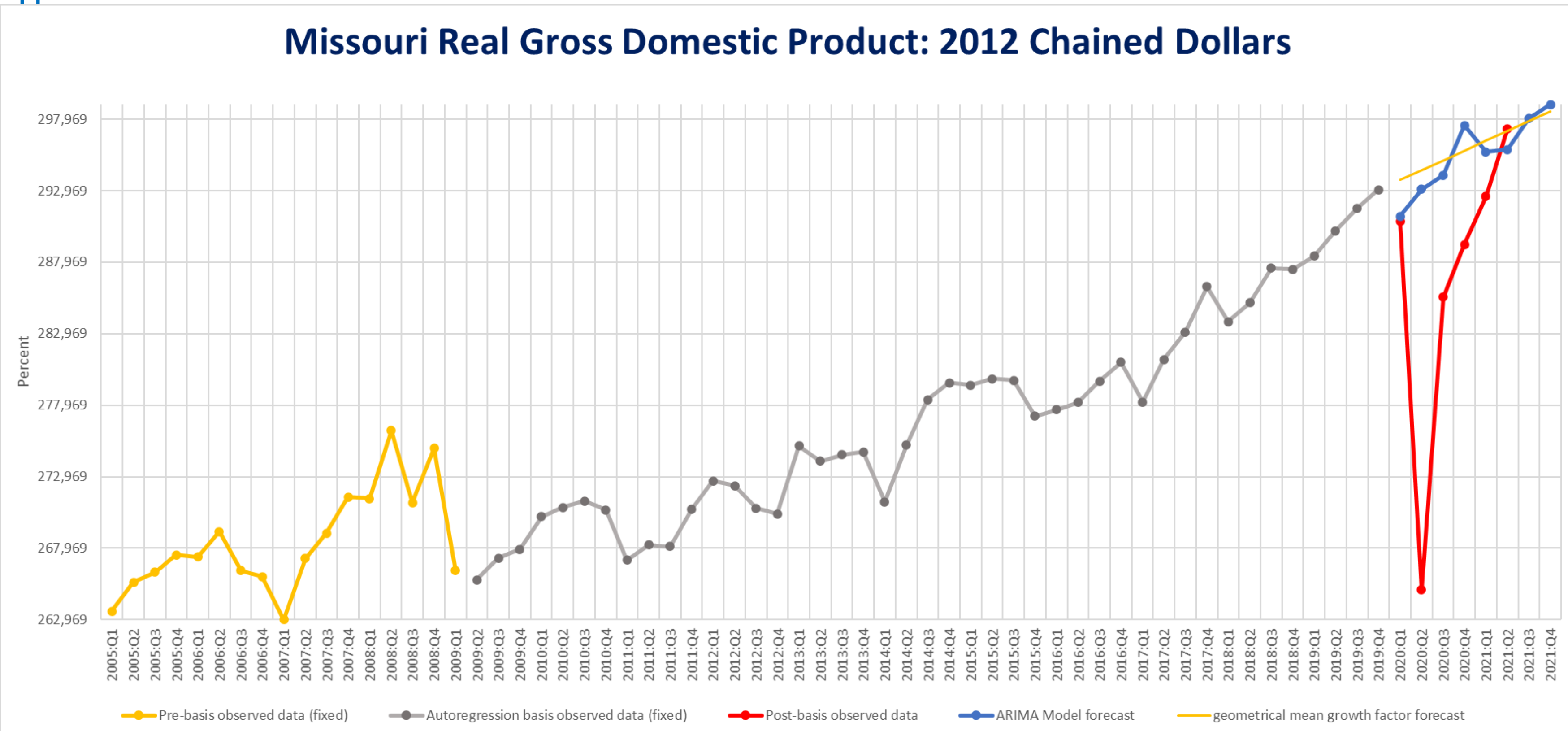


Model parameters

param	coeff	s.e.	t-stat	p-value
const	425.9465	232.8271	1.829454	0.084927
phi 1	-0.89546	0.224324	-3.99181	0.000944
phi 2	-0.61627	0.240355	-2.56401	0.020121
phi 3	-0.69751	0.222046	-3.14129	0.005953
phi 4	-0.5705	0.245523	-2.32361	0.032802
phi 5	-0.22248	0.251615	-0.88421	0.388918
phi 6	-0.35033	0.248698	-1.40867	0.176961
phi 7	-0.46928	0.258704	-1.81394	0.087377
phi 8	-0.34846	0.285586	-1.22016	0.239061
phi 9	-0.1757	0.257052	-0.68353	0.503483
phi 10	-0.24816	0.225924	-1.09841	0.28734
phi 11	-0.33776	0.223948	-1.50823	0.149856
phi 12	-0.12076	0.205315	-0.58817	0.564149

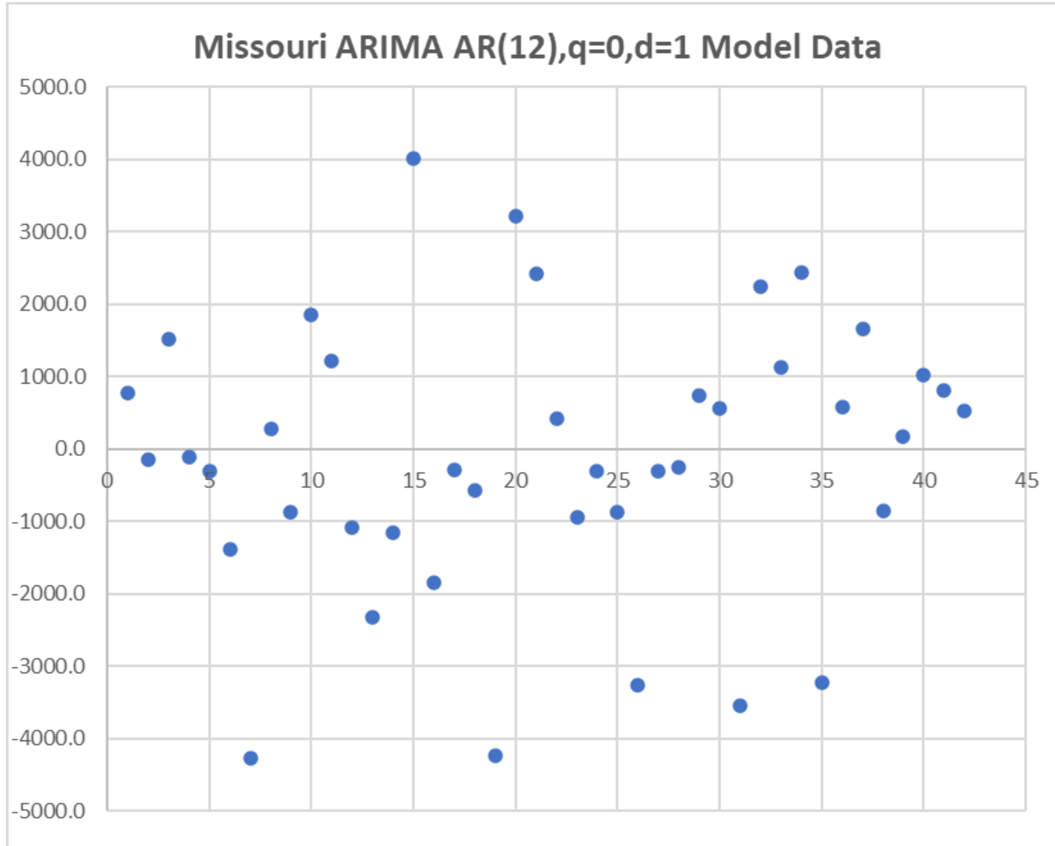


Appendix E175: Missouri State Real GDP ARIMA Model Forecast

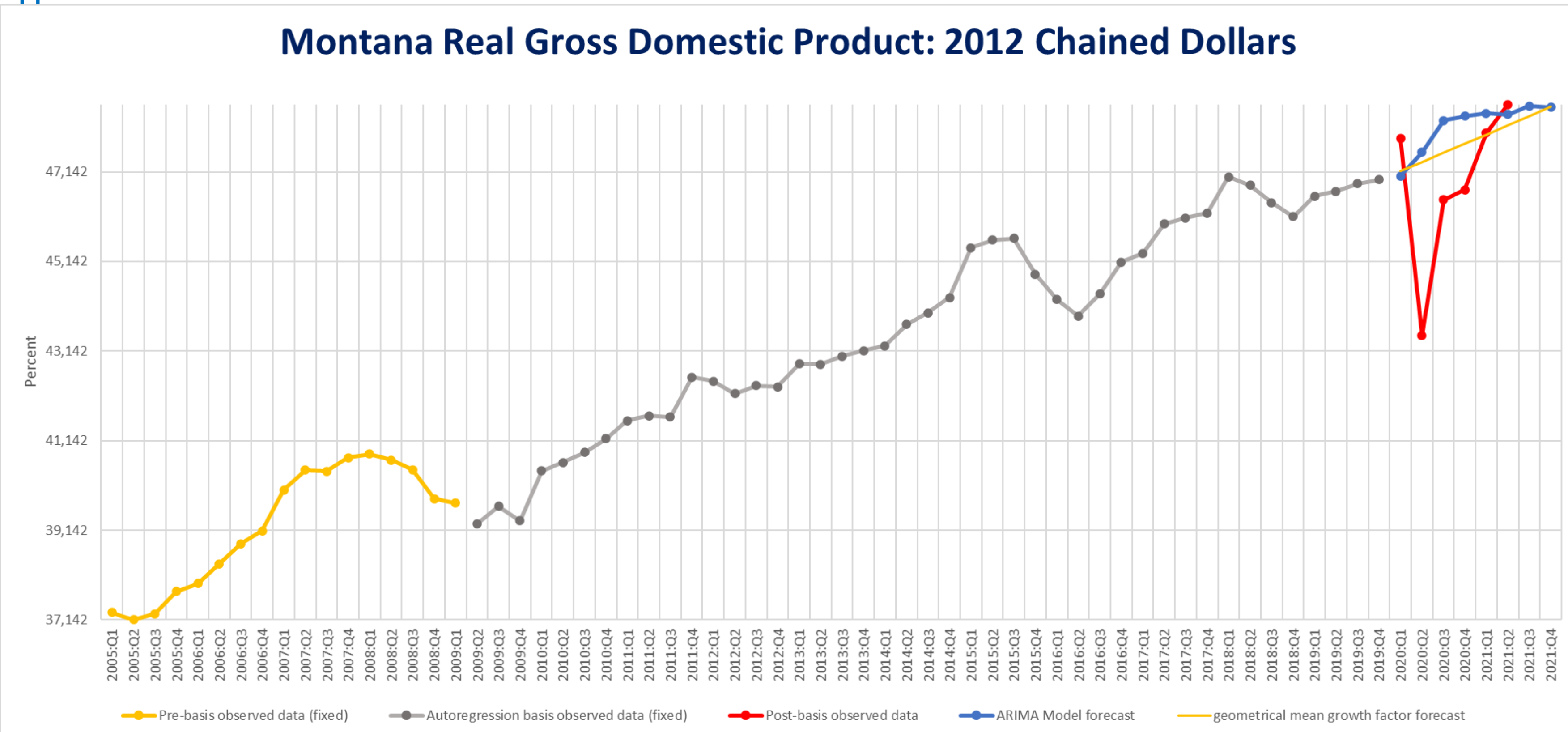


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	806.2695	947.5942	0.850859	0.406673
phi 1	-0.11877	0.21445	-0.55381	0.586917
phi 2	-0.31152	0.215018	-1.44882	0.165582
phi 3	-0.25752	0.244005	-1.05539	0.306018
phi 4	0.052773	0.25014	0.210974	0.835415
phi 5	-0.01226	0.237199	-0.0517	0.959372
phi 6	0.015491	0.229598	0.067472	0.946993
phi 7	0.087689	0.233195	0.376034	0.711543
phi 8	-0.04016	0.230485	-0.17423	0.863746
phi 9	0.082593	0.23449	0.352223	0.729
phi 10	0.102279	0.229756	0.445165	0.661817
phi 11	-0.23437	0.227437	-1.03048	0.317222
phi 12	0.573466	0.237479	2.414804	0.027296

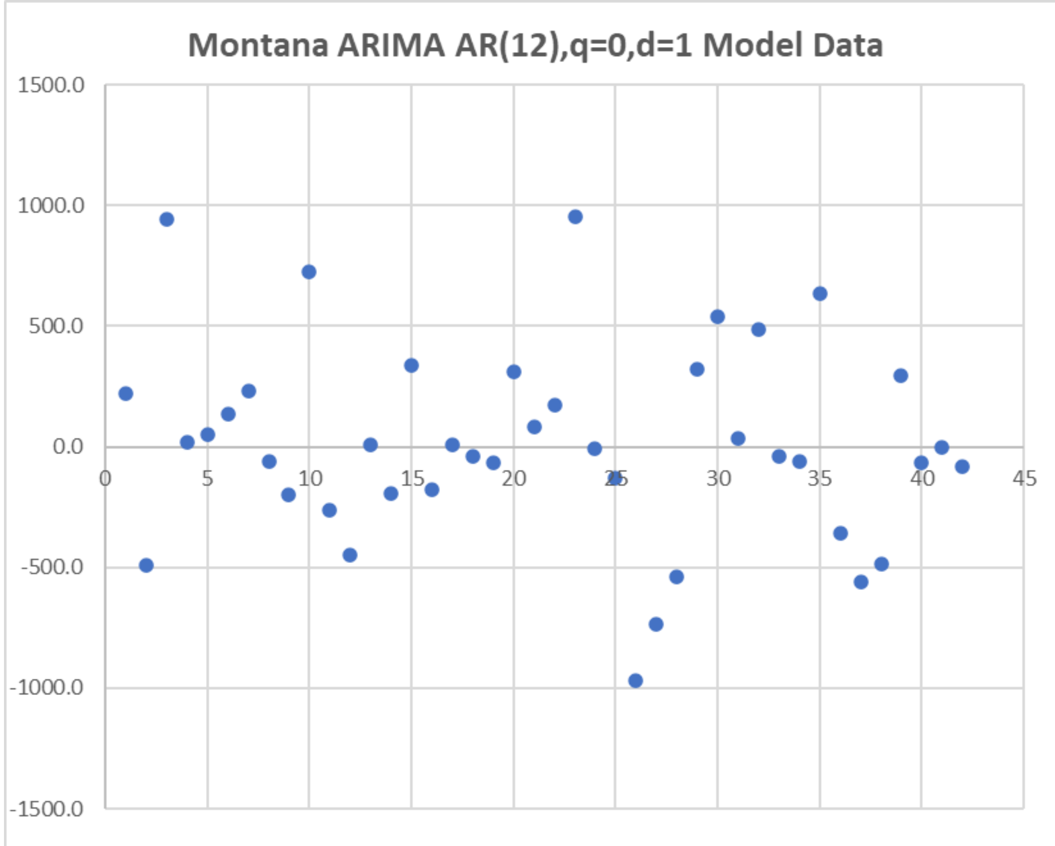


Appendix E176: Montana State Real GDP ARIMA Model Forecast

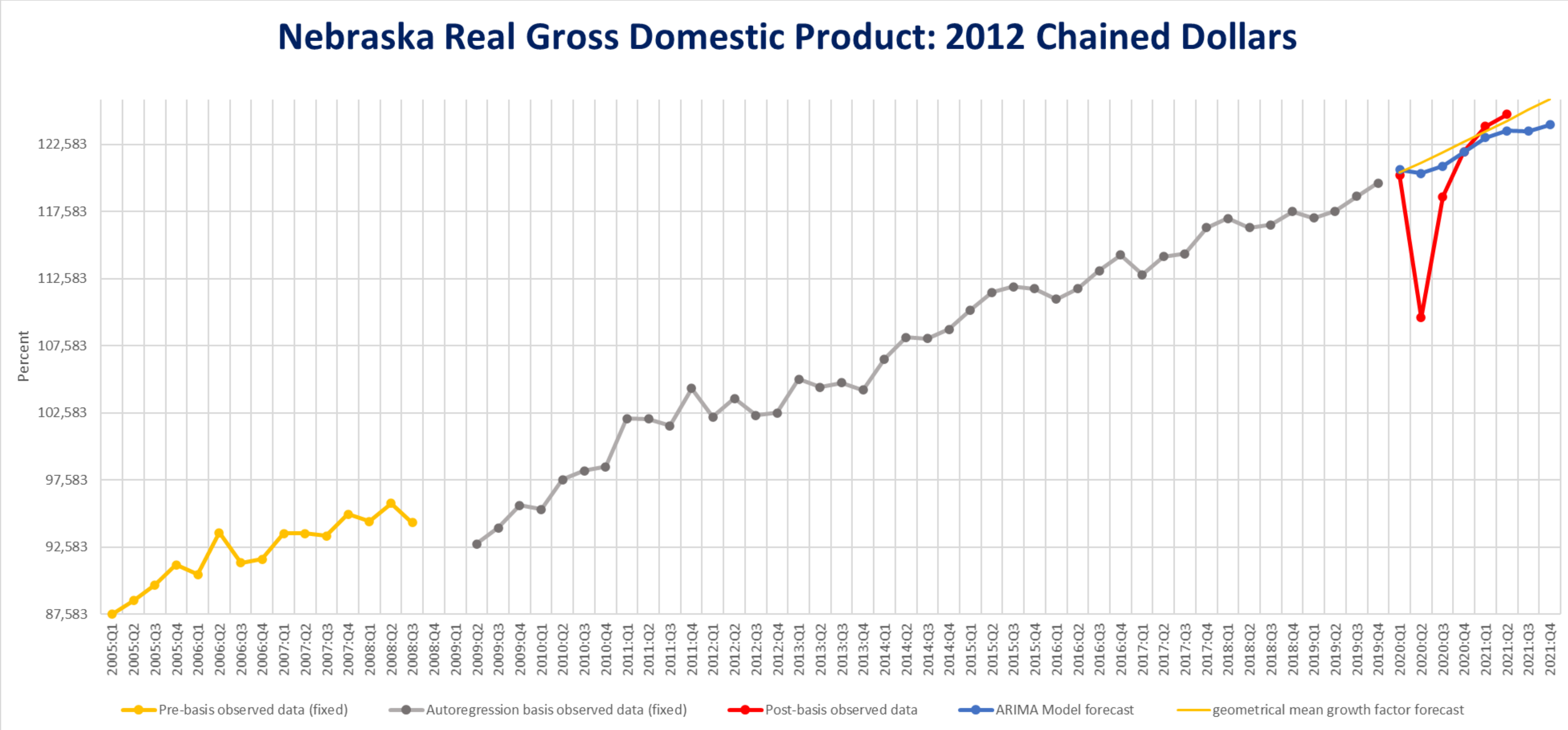


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	601.7816	277.9317	2.165214	0.044886
phi 1	0.121477	0.24493	0.495967	0.626269
phi 2	-0.22863	0.22467	-1.01764	0.323114
phi 3	-0.45728	0.214362	-2.13321	0.047778
phi 4	-0.34816	0.239694	-1.45254	0.164561
phi 5	-0.21972	0.235586	-0.93263	0.364066
phi 6	-0.29316	0.230255	-1.27319	0.220087
phi 7	-0.35719	0.236217	-1.51211	0.148873
phi 8	-0.34041	0.253385	-1.34346	0.196783
phi 9	-0.16912	0.24421	-0.69254	0.497953
phi 10	0.094008	0.208761	0.450315	0.658173
phi 11	-0.40461	0.207672	-1.9483	0.068083
phi 12	0.065146	0.224079	0.290727	0.774777

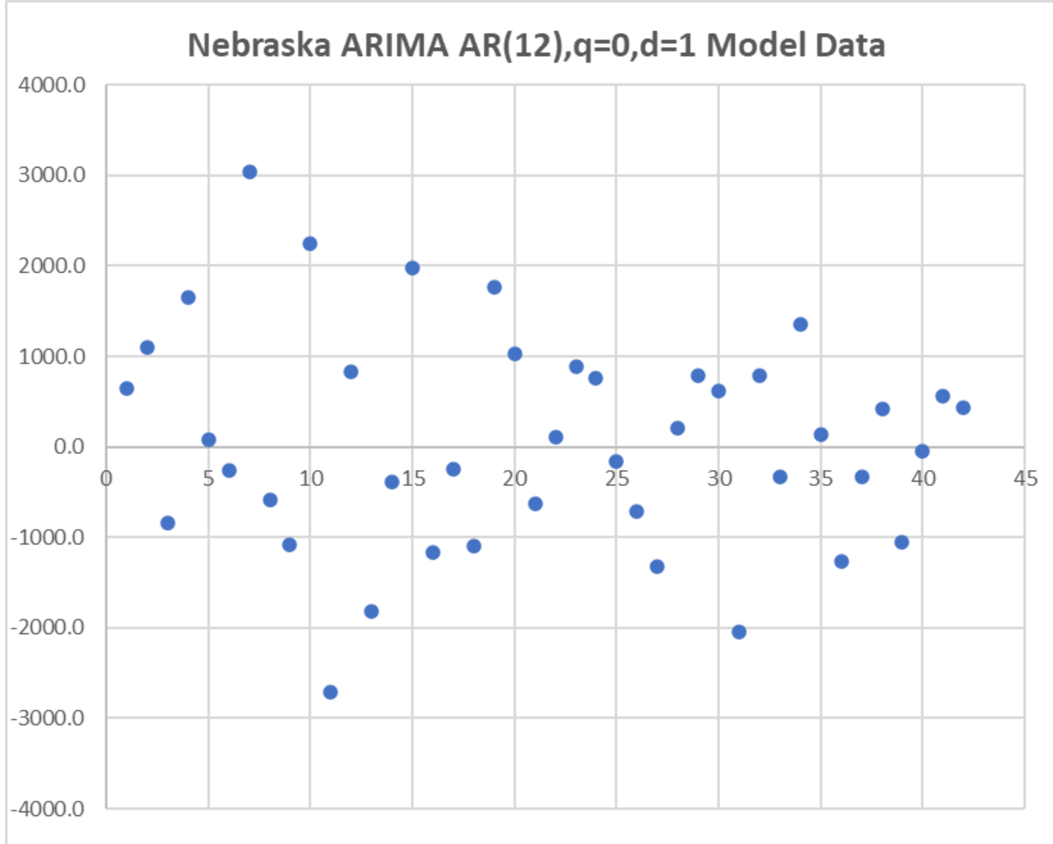


Appendix E177: Nebraska State Real GDP ARIMA Model Forecast

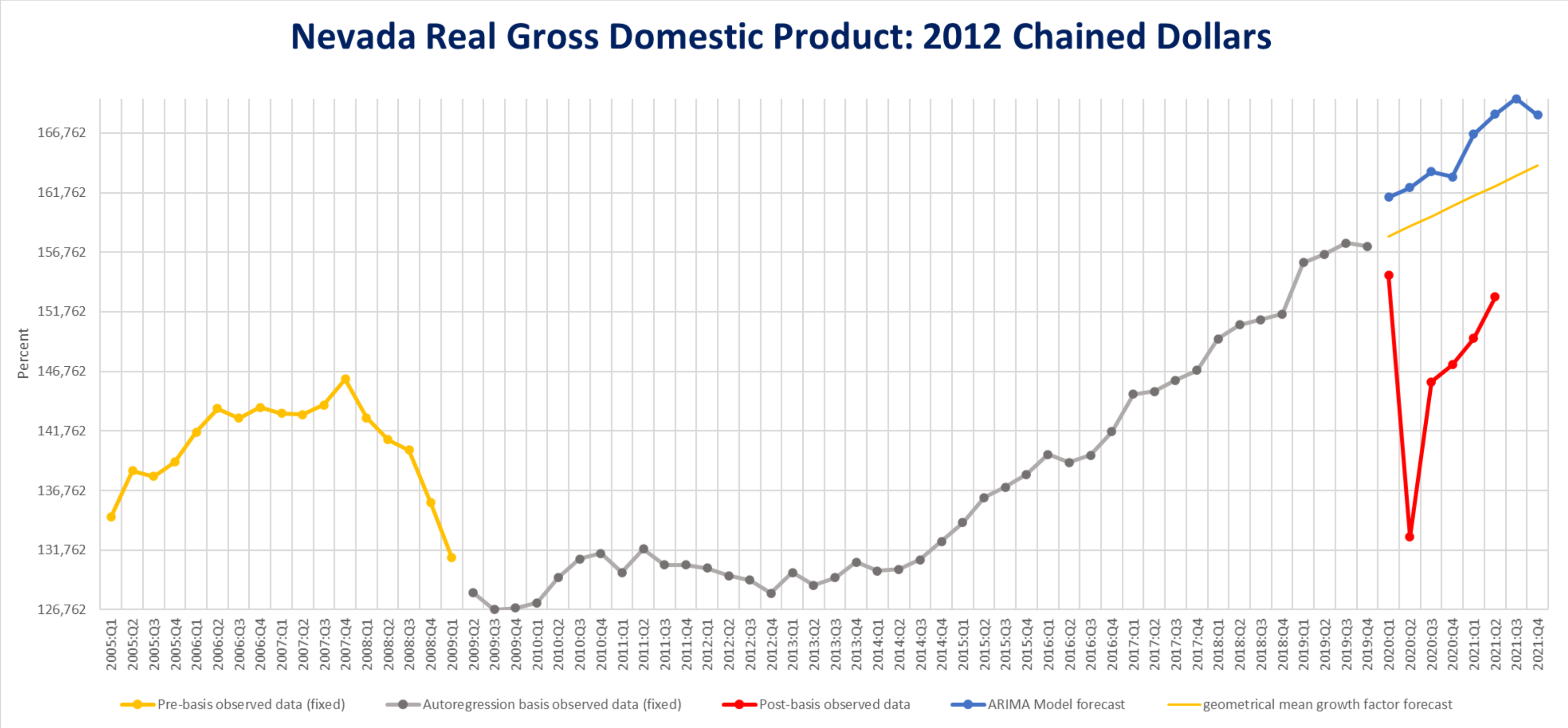


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	2592.05	925.3086	2.801282	0.012272
phi 1	-0.44119	0.237963	-1.85402	0.081169
phi 2	-0.41928	0.253774	-1.65219	0.116845
phi 3	-0.54101	0.240986	-2.24498	0.038362
phi 4	-0.35779	0.270631	-1.32208	0.203657
phi 5	0.008328	0.251037	0.033174	0.973922
phi 6	-0.31088	0.186562	-1.66636	0.113959
phi 7	-0.35459	0.187385	-1.89232	0.075606
phi 8	-0.25923	0.206141	-1.25755	0.225555
phi 9	-0.22755	0.204935	-1.11033	0.282314
phi 10	-0.30761	0.206736	-1.48795	0.15508
phi 11	-0.24629	0.212302	-1.1601	0.262041
phi 12	-0.15785	0.192195	-0.82131	0.42284

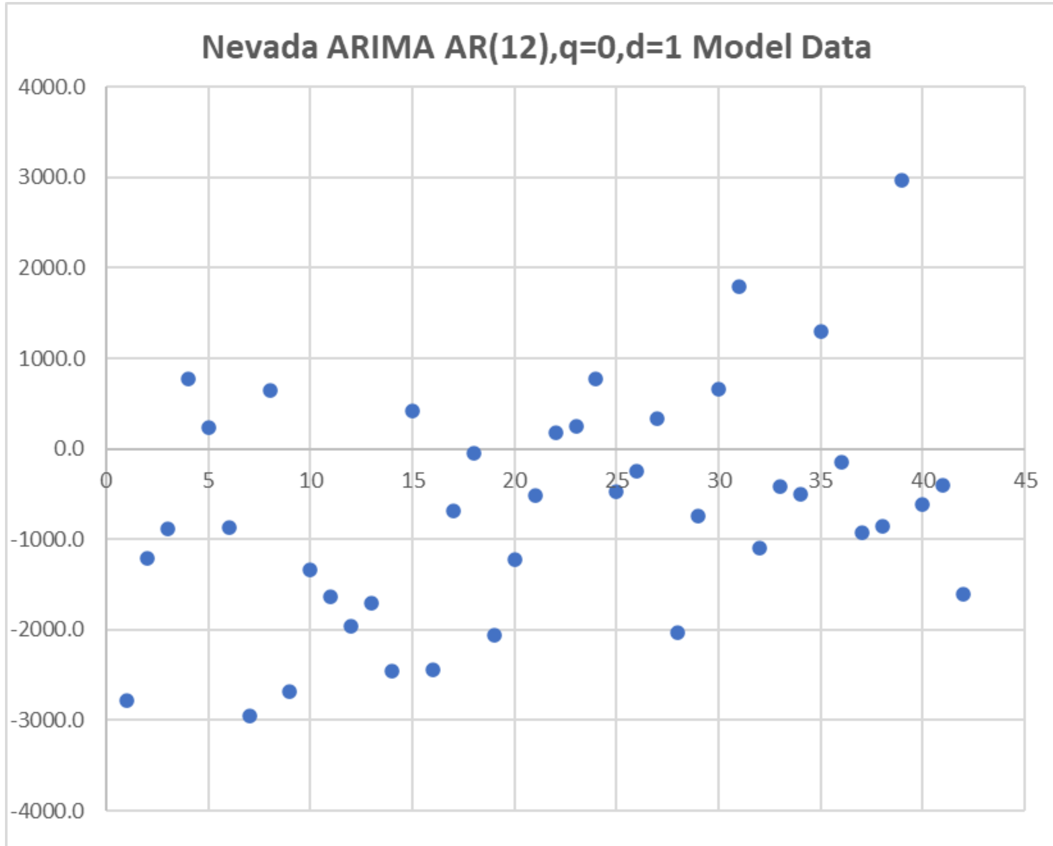


Appendix E178: Nevada State Real GDP ARIMA Model Forecast

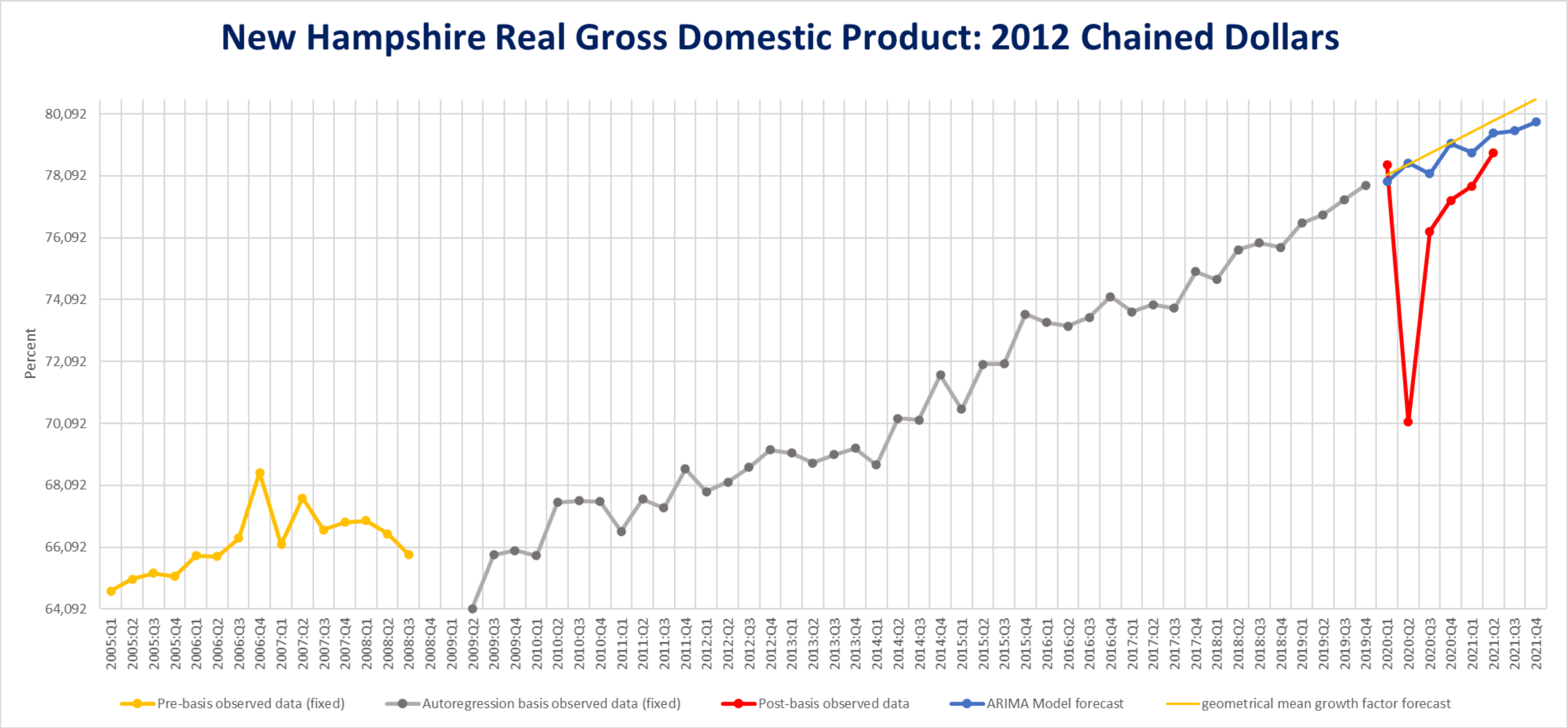


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	672.4286	341.1806	1.970888	0.065242
phi 1	-0.07899	0.204753	-0.38579	0.704437
phi 2	0.064723	0.195425	0.331191	0.744547
phi 3	-0.16935	0.20054	-0.84446	0.410142
phi 4	0.505406	0.20375	2.480522	0.02388
phi 5	-0.01796	0.216074	-0.08314	0.93471
phi 6	-0.02168	0.20282	-0.10688	0.916133
phi 7	0.210261	0.202189	1.039924	0.31294
phi 8	0.165491	0.195048	0.84846	0.40797
phi 9	0.207726	0.182676	1.137132	0.271258
phi 10	-0.04093	0.18763	-0.21814	0.829916
phi 11	-0.52634	0.190903	-2.75711	0.013466
phi 12	0.199932	0.203321	0.983331	0.339233

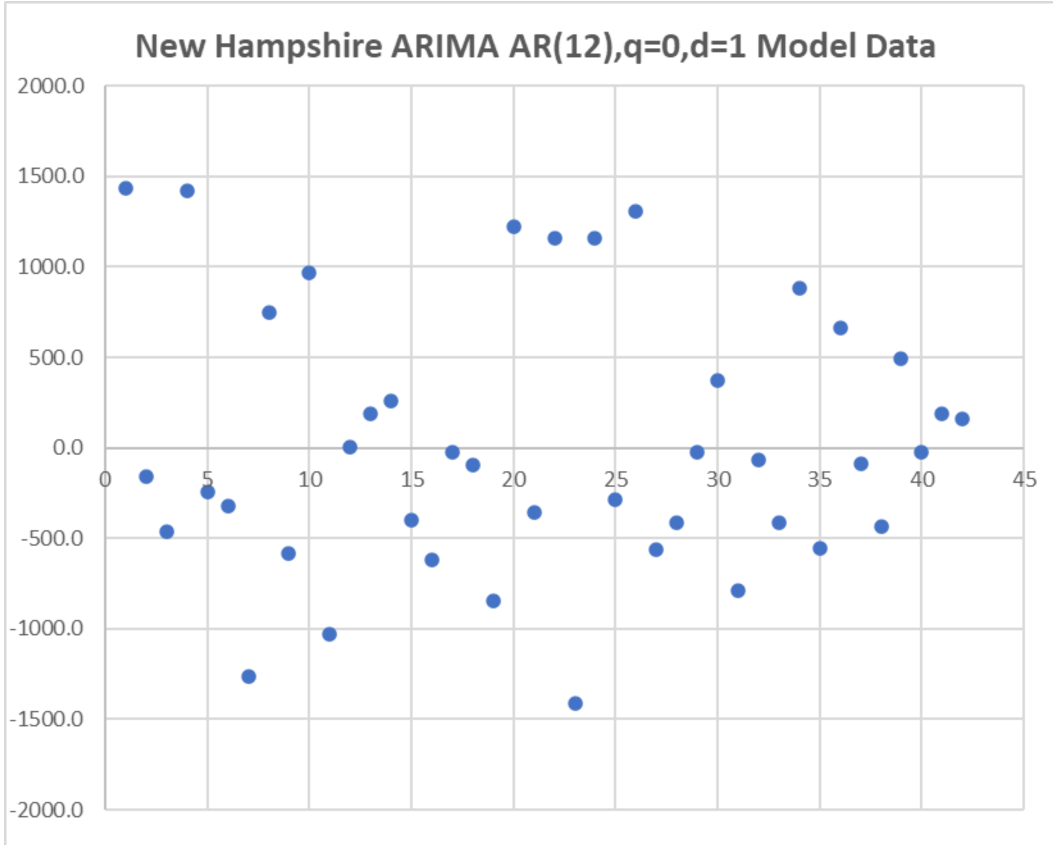


Appendix E179: New Hampshire State Real GDP ARIMA Model Forecast

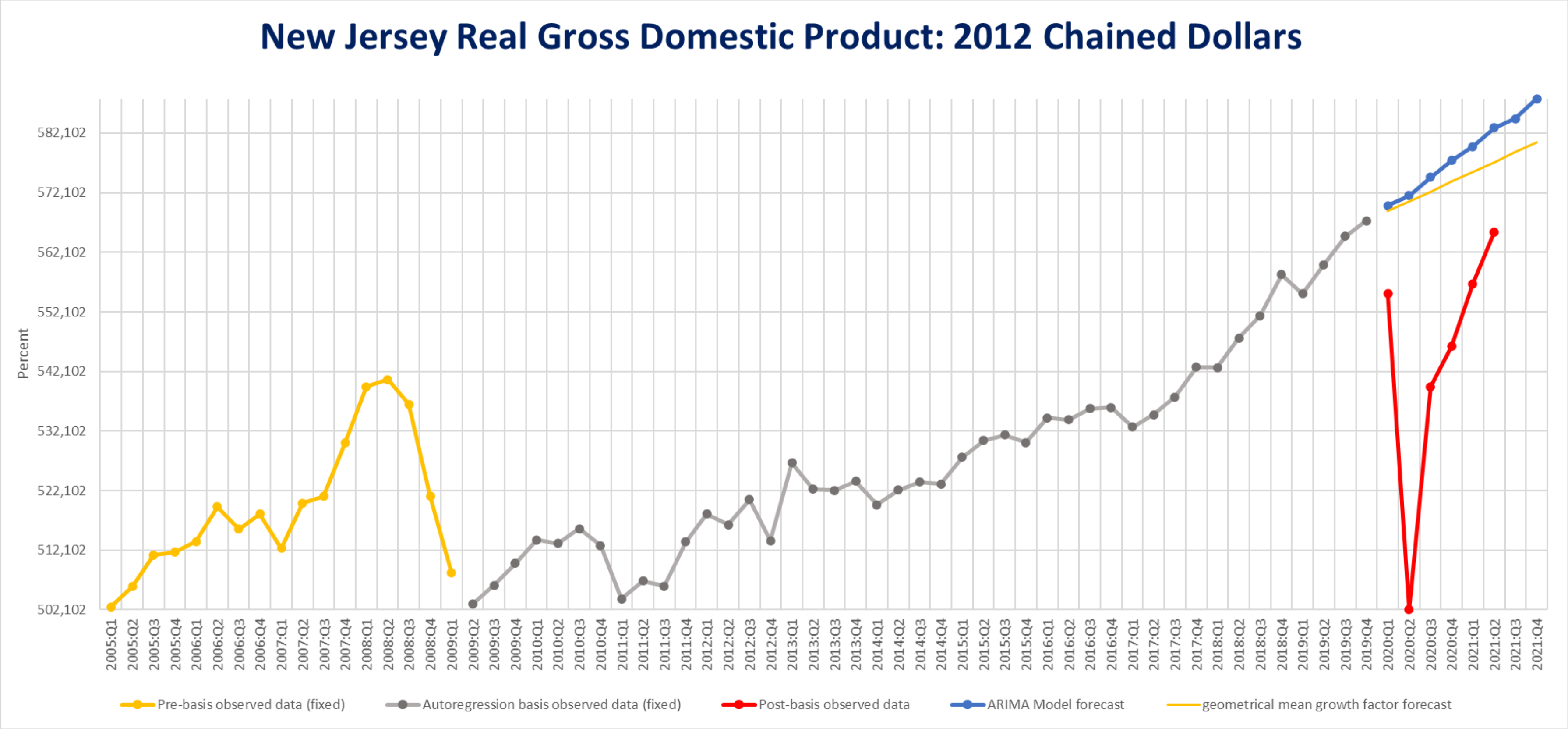


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	613.5882	398.0852	1.541349	0.14164
phi 1	-0.33128	0.245463	-1.3496	0.194843
phi 2	-0.02217	0.24744	-0.08959	0.929663
phi 3	-0.27465	0.239019	-1.14907	0.266437
phi 4	0.158364	0.252177	0.627989	0.538357
phi 5	0.051269	0.252475	0.203065	0.841495
phi 6	-0.2962	0.251718	-1.17672	0.255522
phi 7	-0.01469	0.250721	-0.05858	0.953972
phi 8	-0.1765	0.247075	-0.71436	0.484697
phi 9	-0.18031	0.224163	-0.80435	0.4323
phi 10	0.098176	0.223879	0.438524	0.666529
phi 11	-0.20393	0.224459	-0.90854	0.376295
phi 12	0.133306	0.188276	0.708035	0.488519

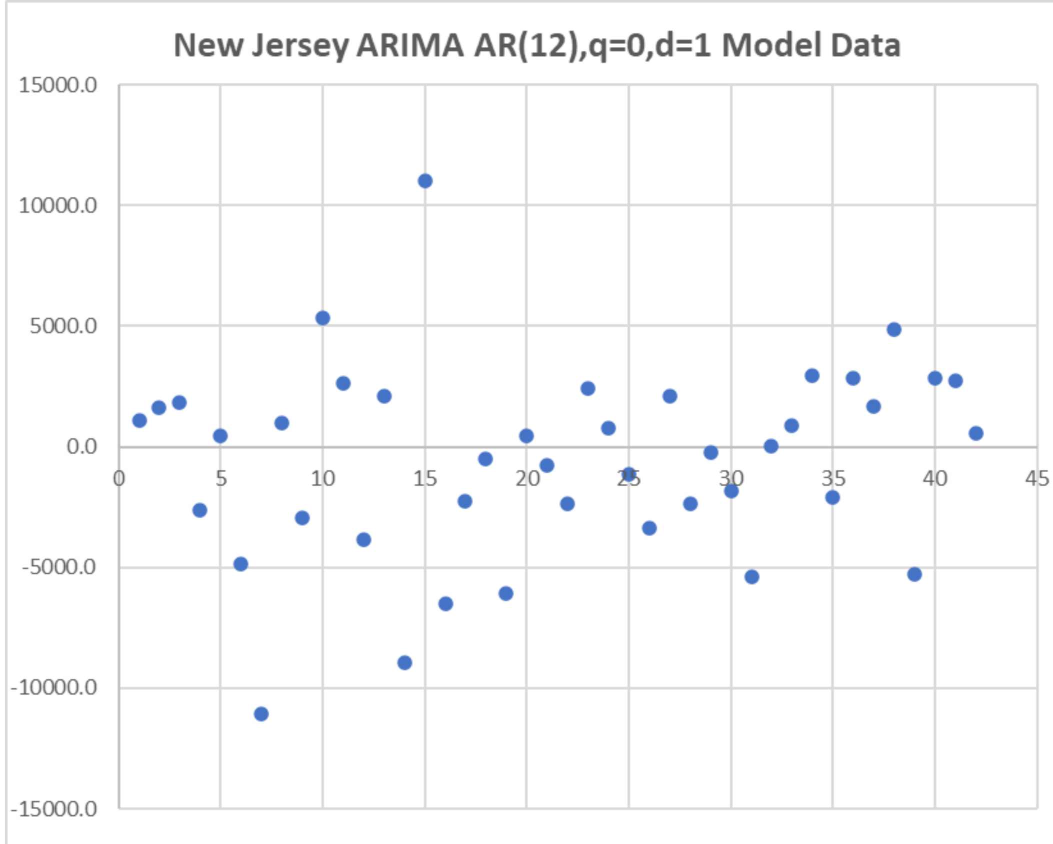


Appendix E180: New Jersey State Real GDP ARIMA Model Forecast

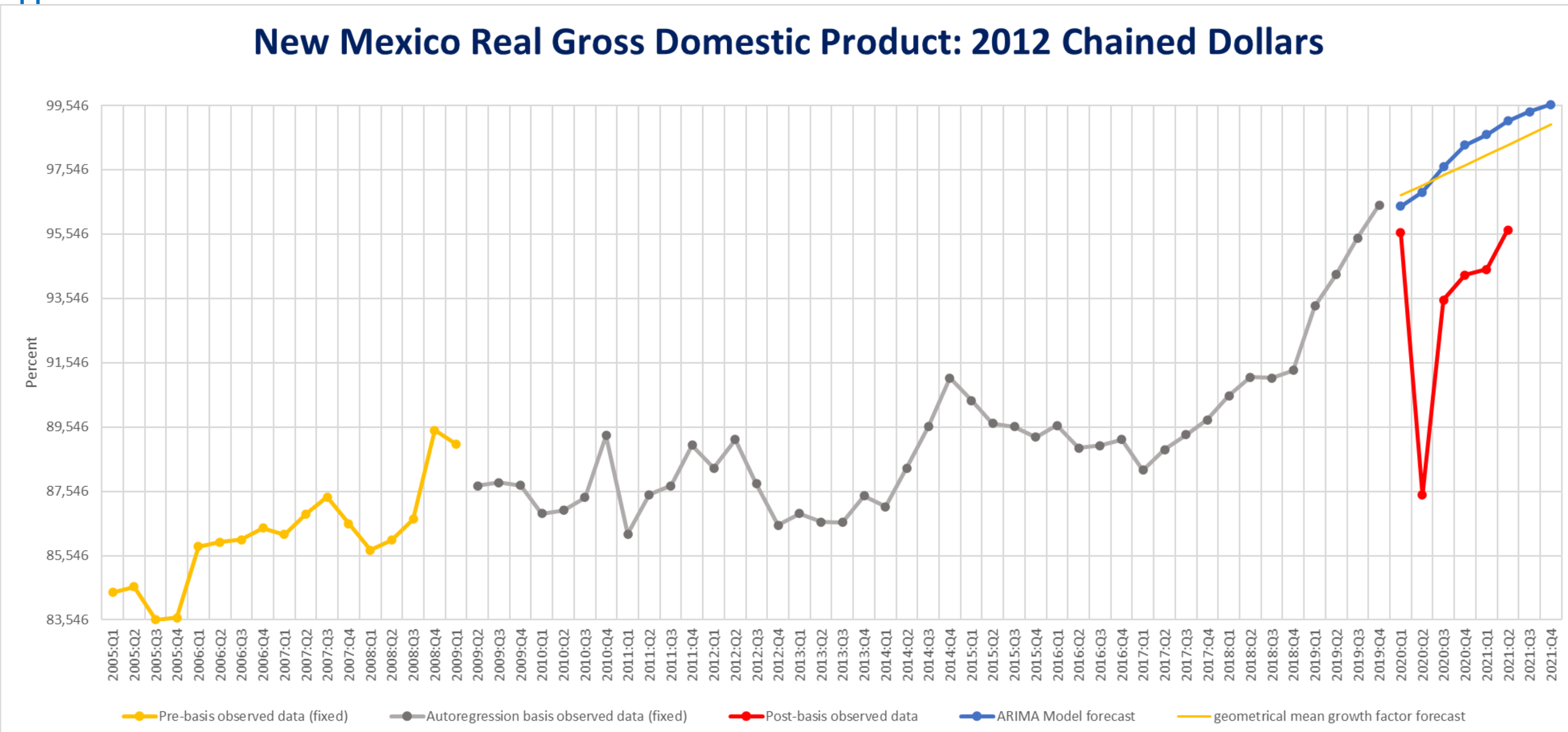


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	1246.229	2270.019	0.548995	0.590148
phi 1	-0.41719	0.243053	-1.71646	0.104241
phi 2	0.065187	0.276345	0.235891	0.816336
phi 3	0.084725	0.285049	0.297228	0.769894
phi 4	0.093024	0.285022	0.326375	0.748124
phi 5	0.237454	0.28058	0.846298	0.409142
phi 6	0.048773	0.27738	0.175836	0.8625
phi 7	0.024505	0.281678	0.086996	0.931691
phi 8	-0.02377	0.276079	-0.08608	0.932408
phi 9	0.004784	0.256768	0.018633	0.985351
phi 10	0.104374	0.273518	0.381599	0.707487
phi 11	0.041043	0.274973	0.149261	0.883104
phi 12	0.132508	0.249235	0.531659	0.601841

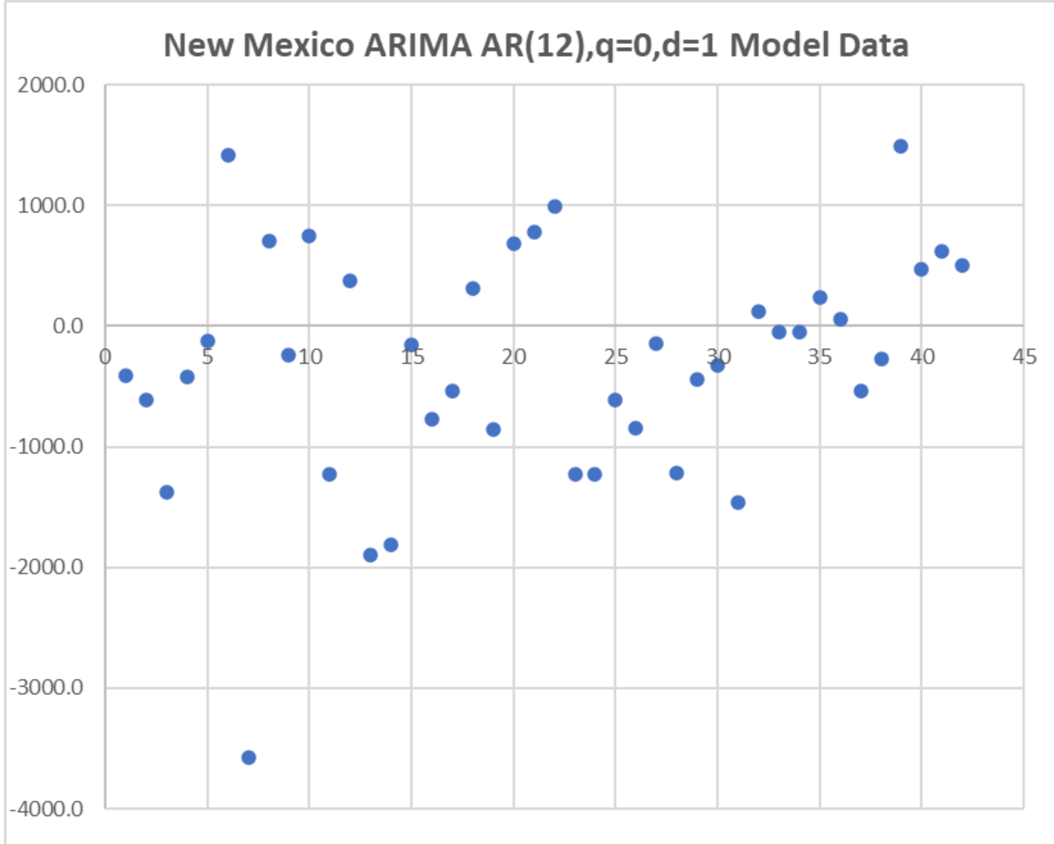


Appendix E181: New Mexico State Real GDP ARIMA Model Forecast

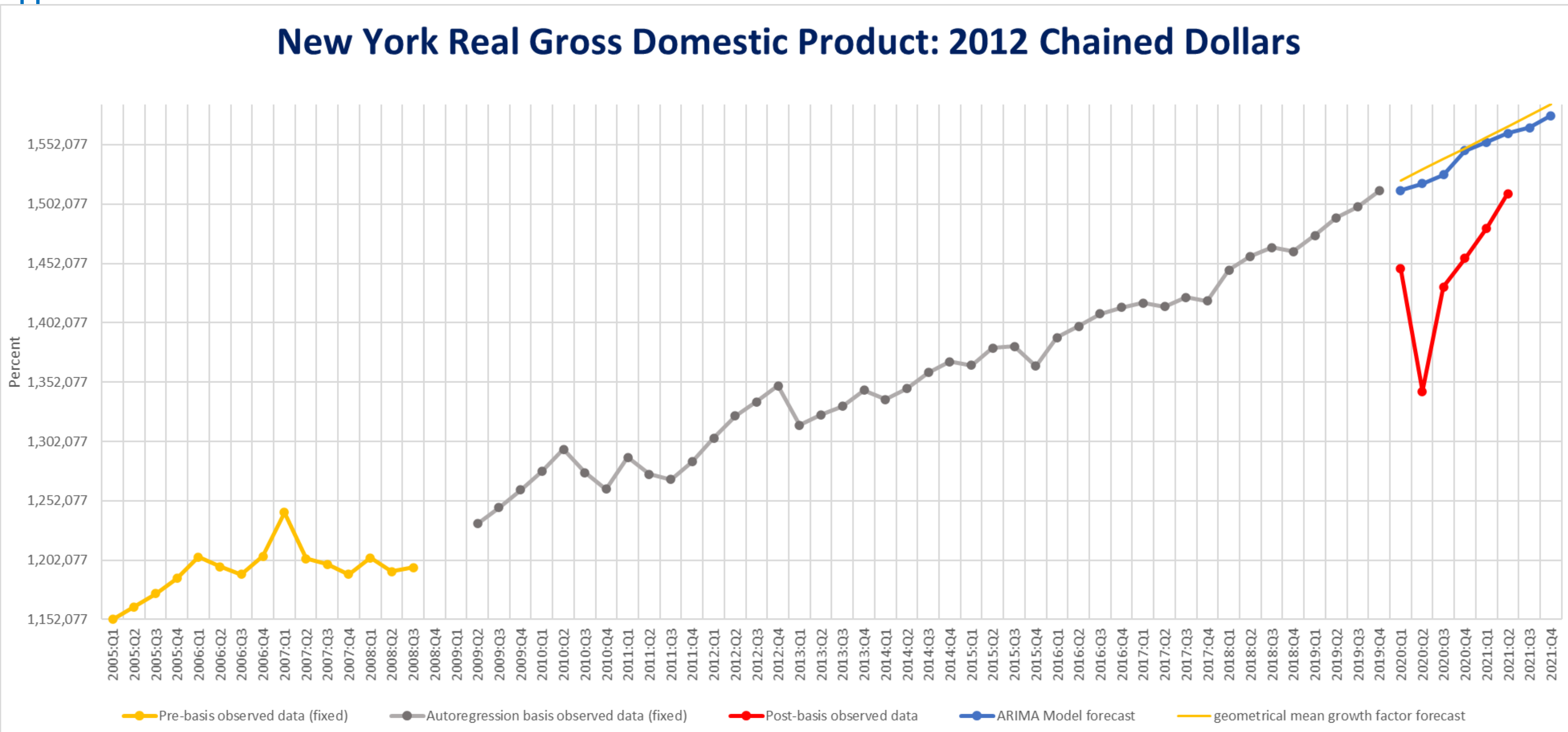


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	130.604	188.5409	0.692709	0.497847
phi 1	0.369429	0.225769	1.636317	0.120151
phi 2	0.138796	0.214205	0.647957	0.525668
phi 3	0.009067	0.218405	0.041513	0.967371
phi 4	-0.15518	0.235617	-0.6586	0.518977
phi 5	0.093852	0.216622	0.433251	0.670279
phi 6	0.153041	0.170782	0.89612	0.382703
phi 7	-0.01363	0.173695	-0.07849	0.938356
phi 8	-0.30849	0.169702	-1.81786	0.086752
phi 9	0.0537	0.194043	0.276742	0.785315
phi 10	0.186589	0.185821	1.004137	0.329392
phi 11	-0.05471	0.195988	-0.27915	0.7835
phi 12	0.274137	0.185198	1.480239	0.157104

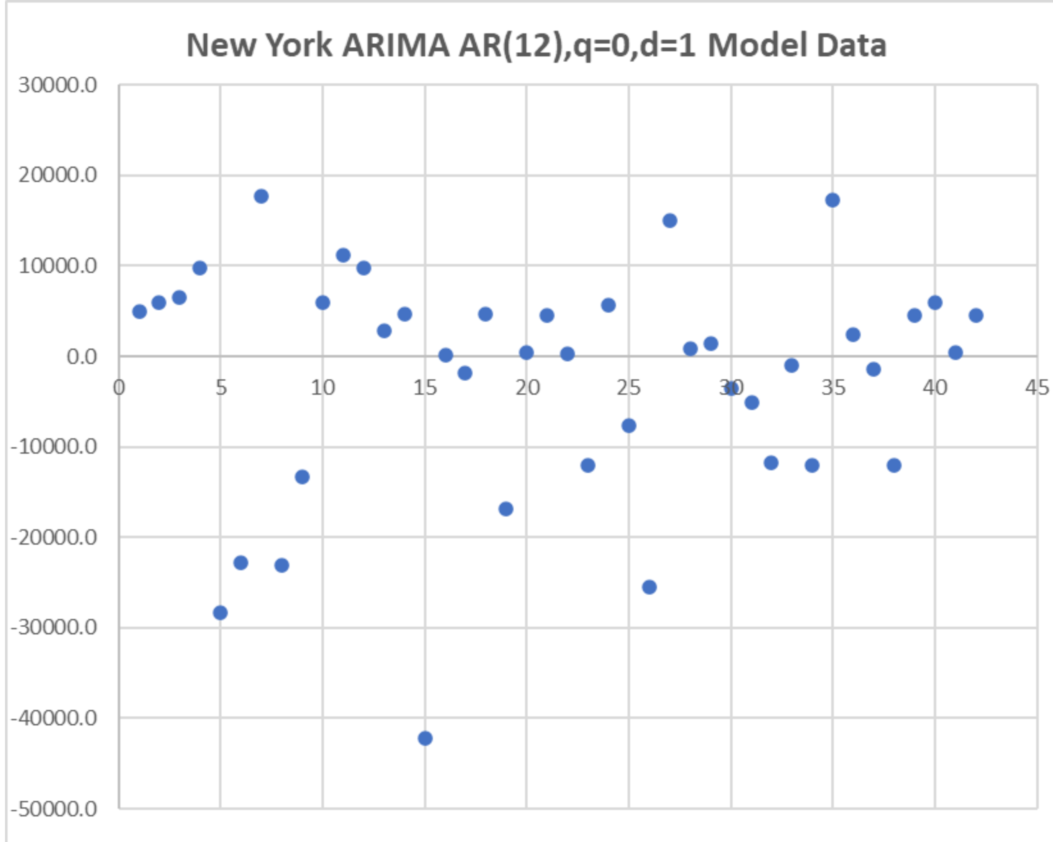


Appendix E182: New York State Real GDP ARIMA Model Forecast

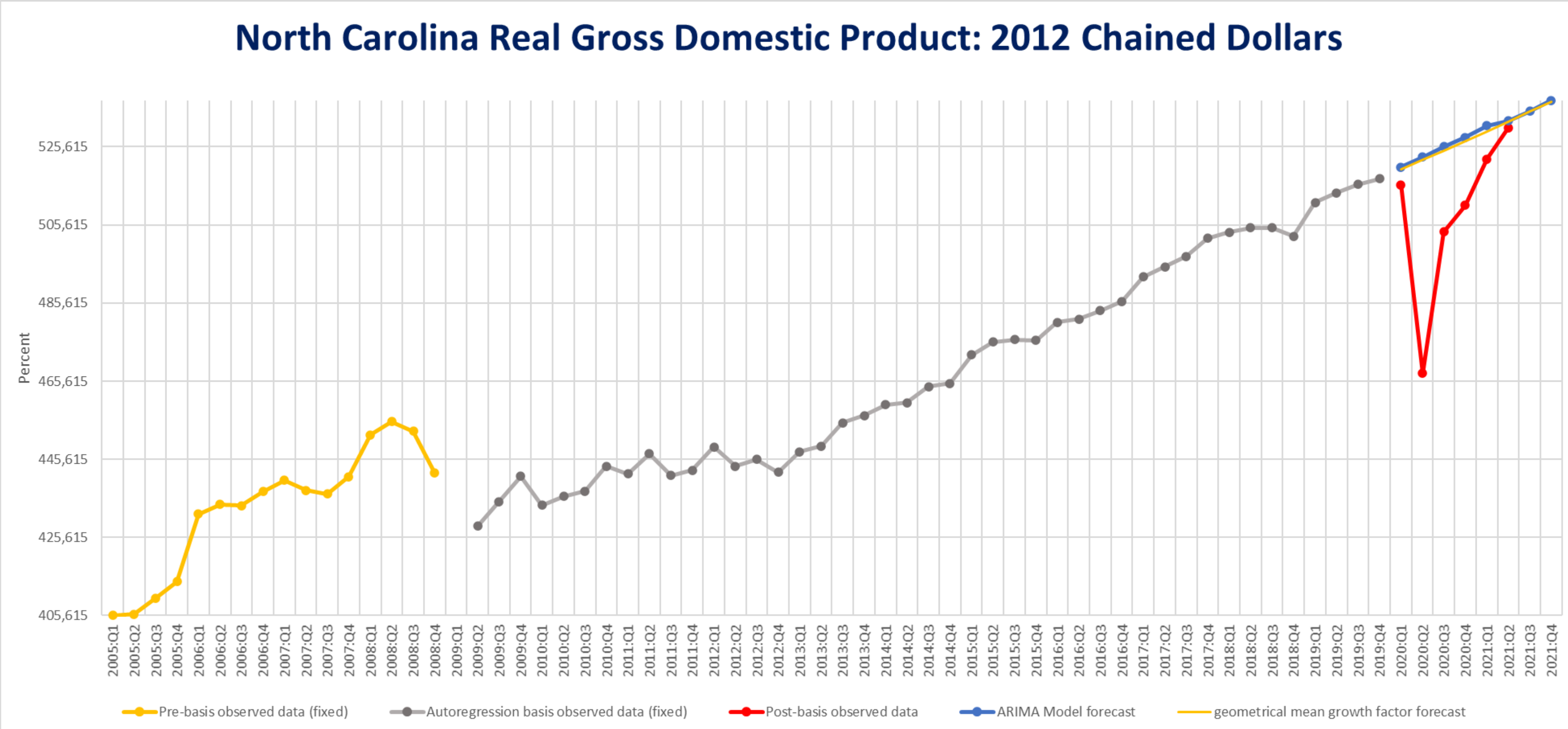


Model parameters

param	coeff	s.e.	t-stat	p-value
const	4583.533	14442.82	0.317357	0.754837
phi 1	-0.38879	0.235482	-1.65103	0.117084
phi 2	-0.2175	0.25213	-0.86266	0.40033
phi 3	-0.23985	0.2871	-0.83543	0.415064
phi 4	-0.04463	0.316558	-0.14098	0.889544
phi 5	-0.13859	0.308704	-0.44893	0.65915
phi 6	0.214752	0.333095	0.644717	0.527715
phi 7	0.309072	0.321082	0.962595	0.349244
phi 8	0.038893	0.296977	0.130964	0.897341
phi 9	0.188227	0.276254	0.681354	0.504824
phi 10	0.275098	0.25892	1.062484	0.302877
phi 11	0.399203	0.23304	1.713026	0.104884
phi 12	0.087919	0.215371	0.408219	0.688208

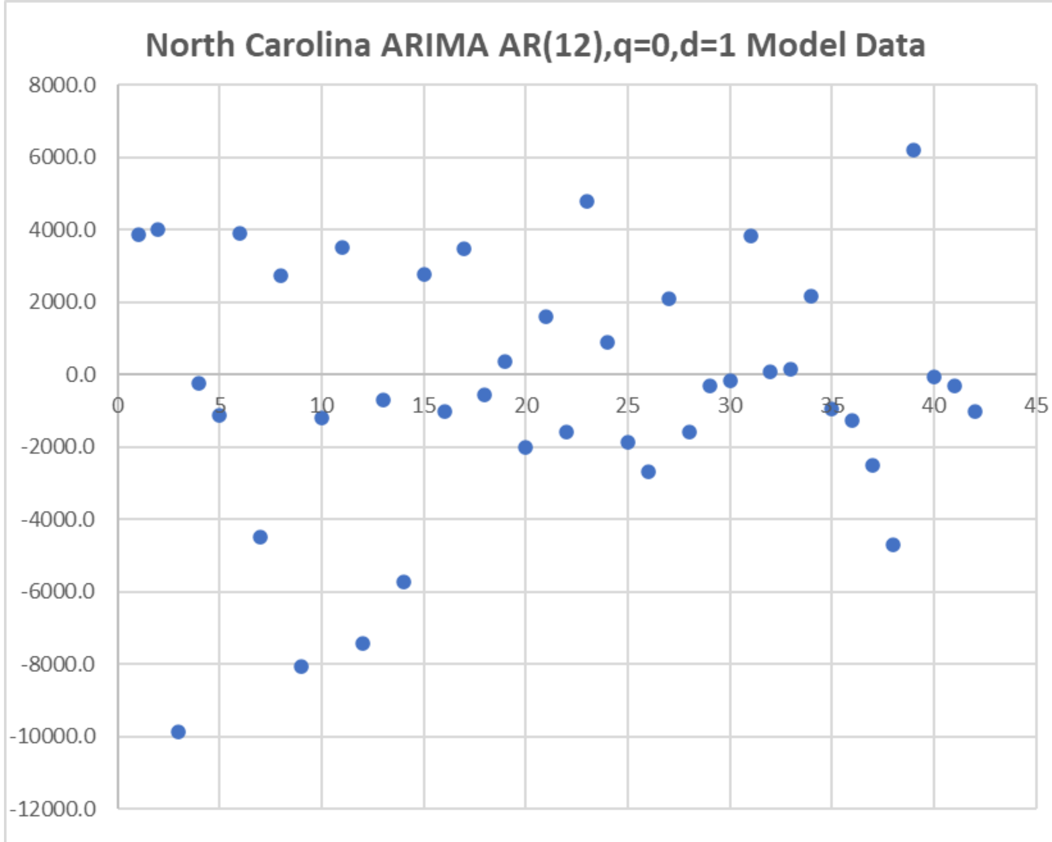


Appendix E183: North Carolina State Real GDP ARIMA Model Forecast

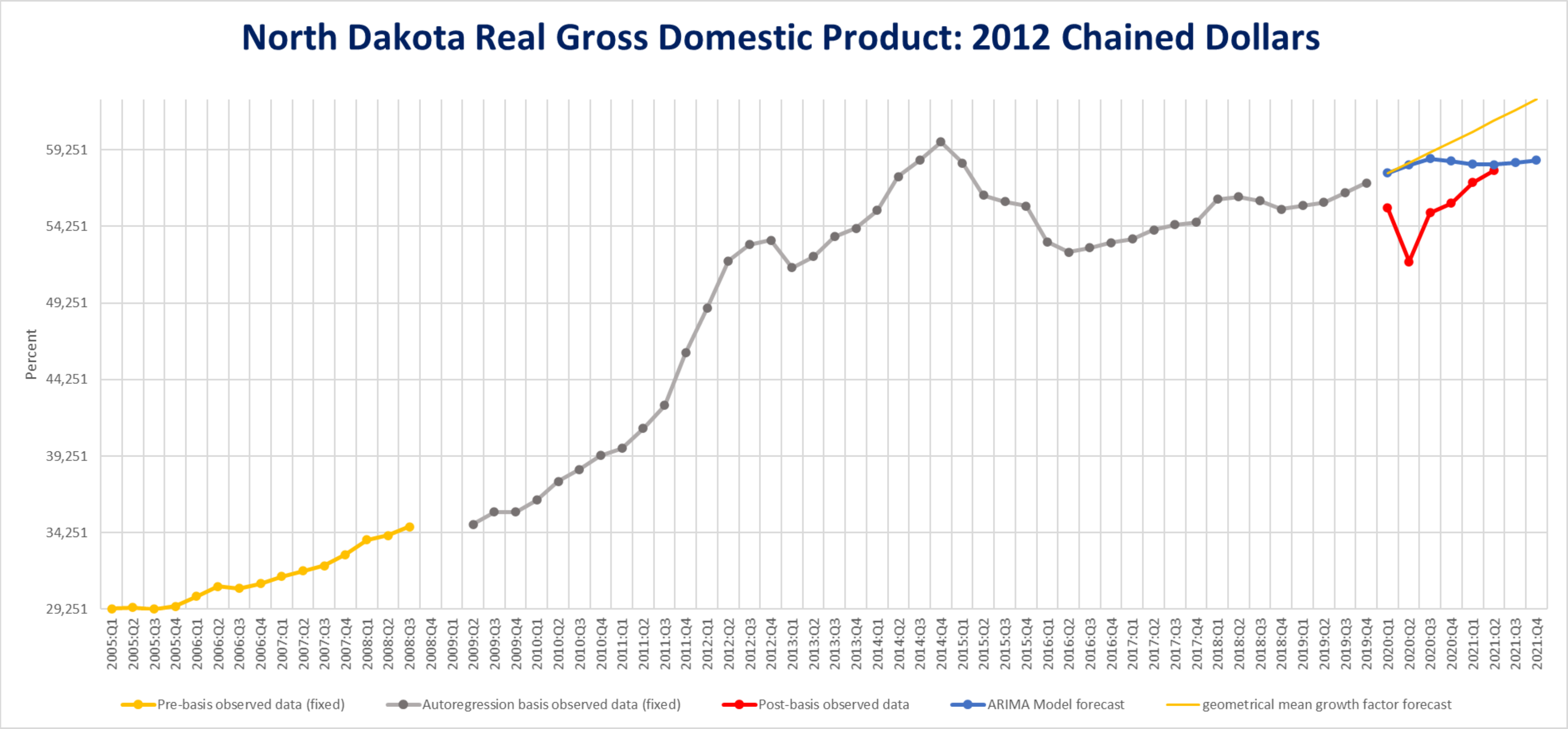


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	3139.756	1649.701	1.903227	0.074084
phi 1	-0.0927	0.20449	-0.45332	0.656051
phi 2	0.02232	0.204354	0.109224	0.914304
phi 3	-0.32251	0.201794	-1.59819	0.12842
phi 4	0.07693	0.206297	0.372909	0.713825
phi 5	-0.03549	0.201589	-0.17605	0.862334
phi 6	-0.03325	0.207035	-0.1606	0.874301
phi 7	0.033443	0.202806	0.164901	0.870967
phi 8	0.035789	0.200368	0.178615	0.860352
phi 9	-0.10467	0.201612	-0.51916	0.61034
phi 10	0.054716	0.179106	0.305495	0.763698
phi 11	0.087207	0.182026	0.479094	0.637976
phi 12	0.01225	0.179201	0.068362	0.946295

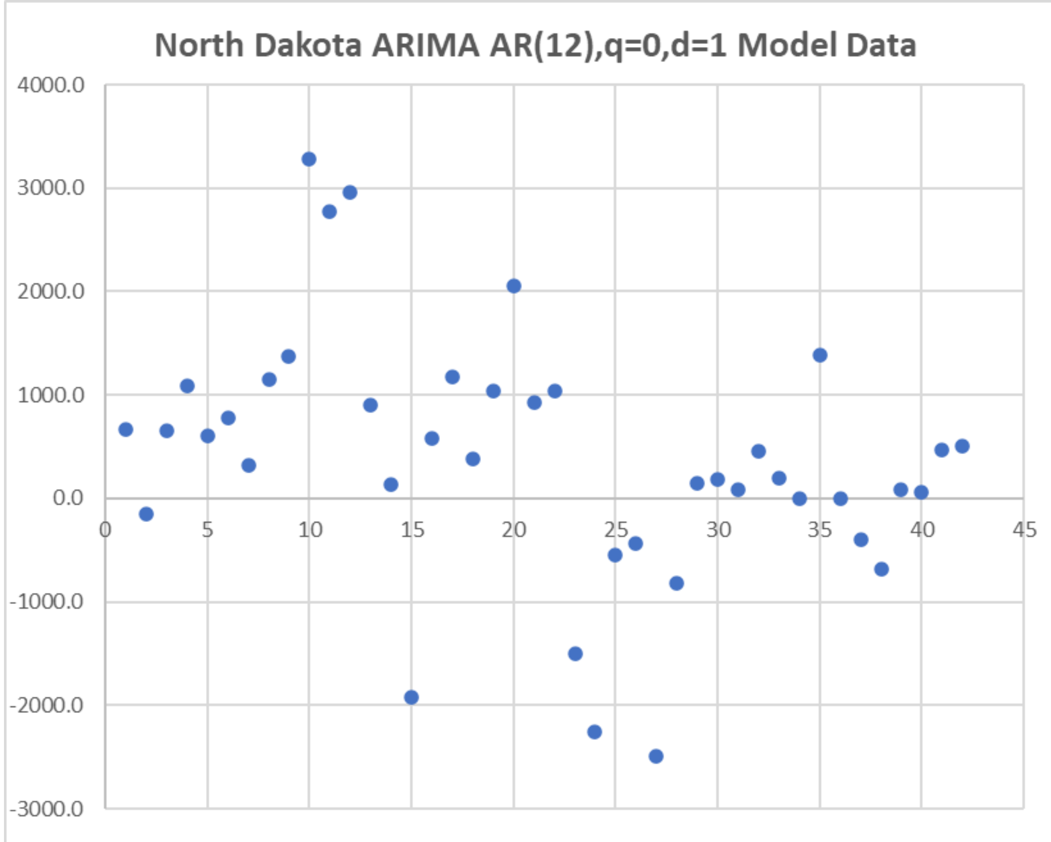


Appendix E184: North Dakota State Real GDP ARIMA Model Forecast

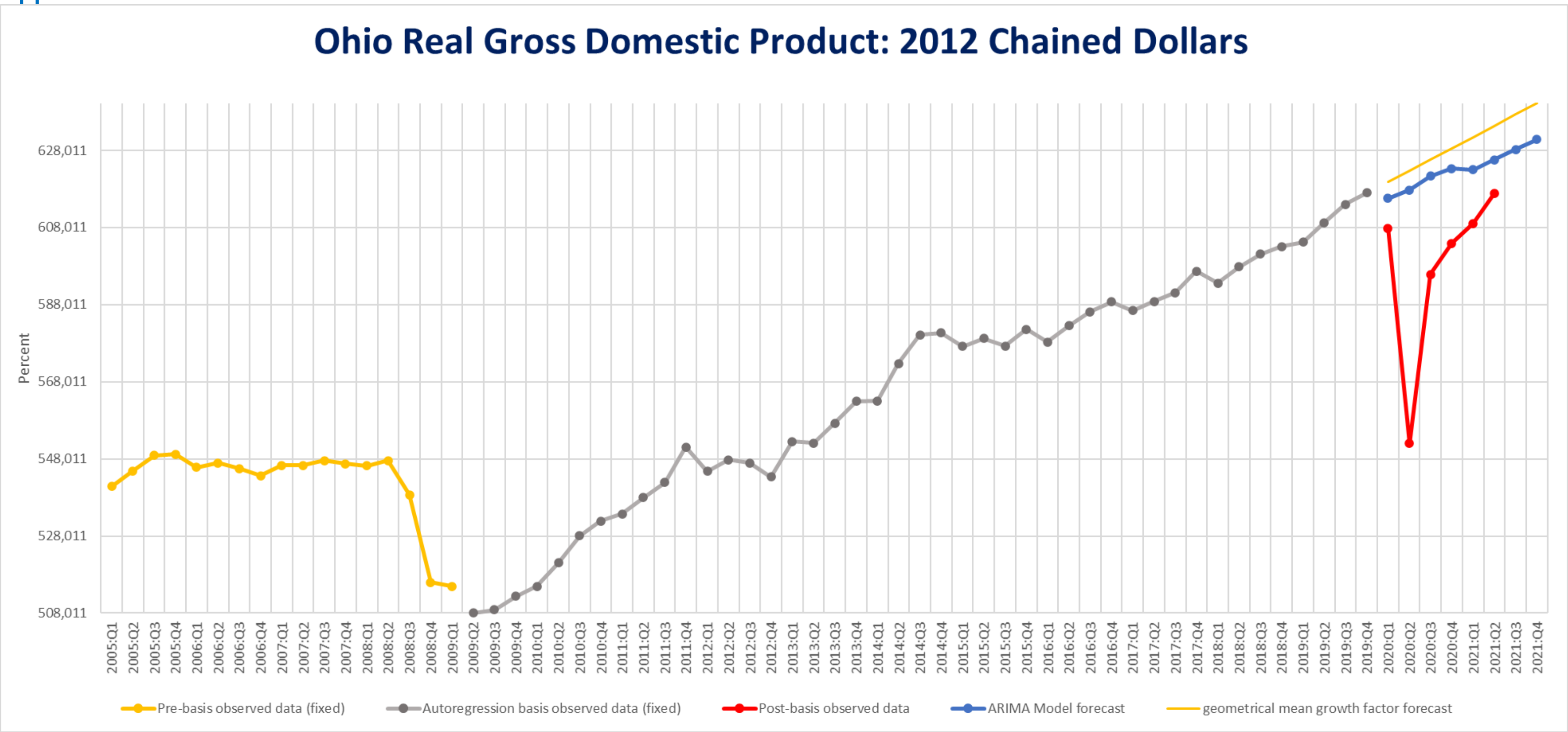


Model parameters

param	coeff	s.e.	t-stat	p-value
const	93.16471	242.9045	0.383545	0.70607
phi 1	0.493667	0.230527	2.141471	0.047016
phi 2	-0.2228	0.260434	-0.85551	0.404167
phi 3	0.117119	0.252811	0.46327	0.649047
phi 4	0.065348	0.24176	0.270302	0.790182
phi 5	-0.3039	0.239298	-1.26995	0.221212
phi 6	0.249076	0.240733	1.034655	0.315325
phi 7	-0.32816	0.241483	-1.35892	0.19193
phi 8	0.194793	0.251744	0.773777	0.44969
phi 9	0.200873	0.257114	0.78126	0.445394
phi 10	-0.02137	0.261336	-0.08178	0.935778
phi 11	-0.06295	0.248142	-0.25367	0.802793
phi 12	-0.03194	0.199307	-0.16024	0.874582

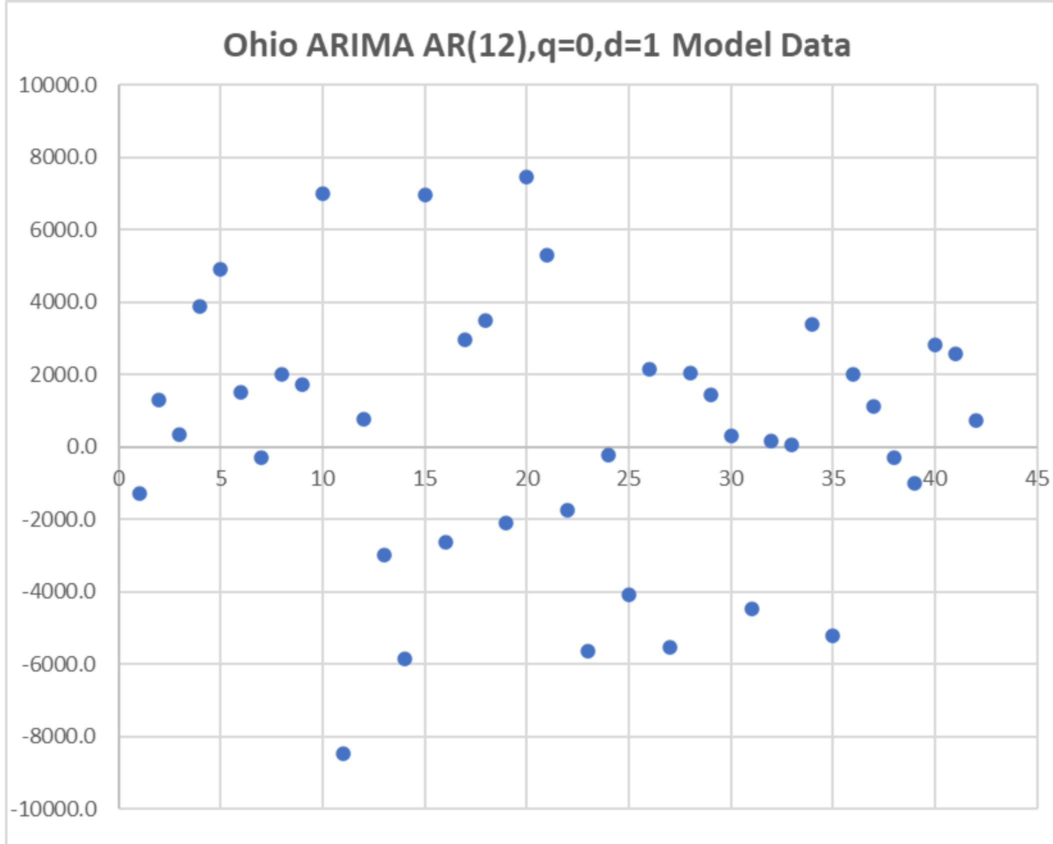


Appendix E185: Ohio State Real GDP ARIMA Model Forecast

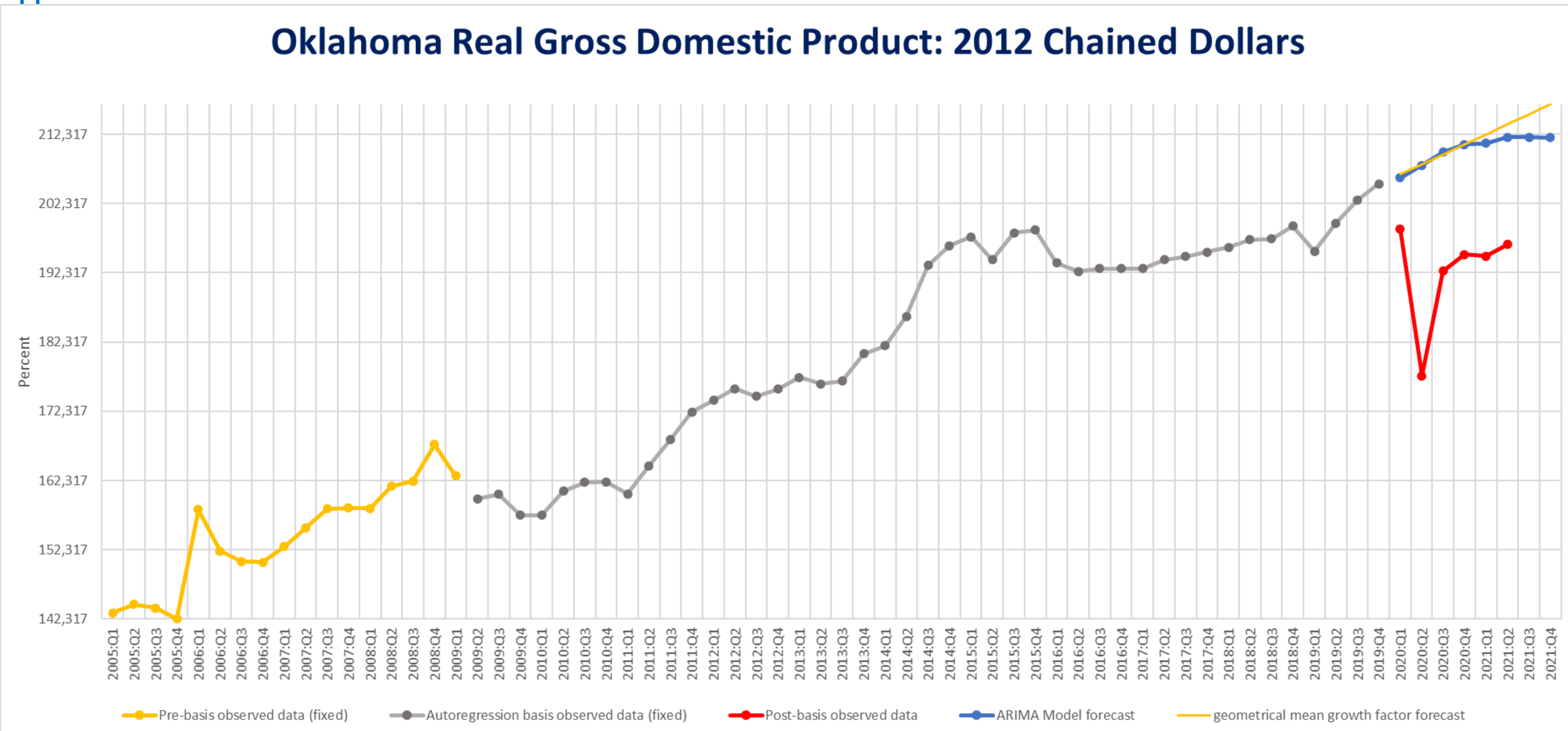


Model parameters

param	coeff	s.e.	t-stat	p-value
const	4290.602	2895.305	1.481917	0.156661
phi 1	-0.26238	0.225187	-1.16517	0.26004
phi 2	-0.02438	0.23166	-0.10523	0.917424
phi 3	-0.1114	0.214932	-0.5183	0.610931
phi 4	-0.17924	0.204955	-0.87452	0.394021
phi 5	0.063598	0.207485	0.306516	0.762934
phi 6	-0.18752	0.19129	-0.98027	0.340697
phi 7	-0.35851	0.192075	-1.8665	0.079319
phi 8	0.066868	0.20313	0.329187	0.746035
phi 9	-0.14891	0.198726	-0.74932	0.463907
phi 10	-0.23184	0.196854	-1.17771	0.255137
phi 11	0.10771	0.201542	0.534431	0.599964
phi 12	0.32082	0.2036	1.575735	0.133512

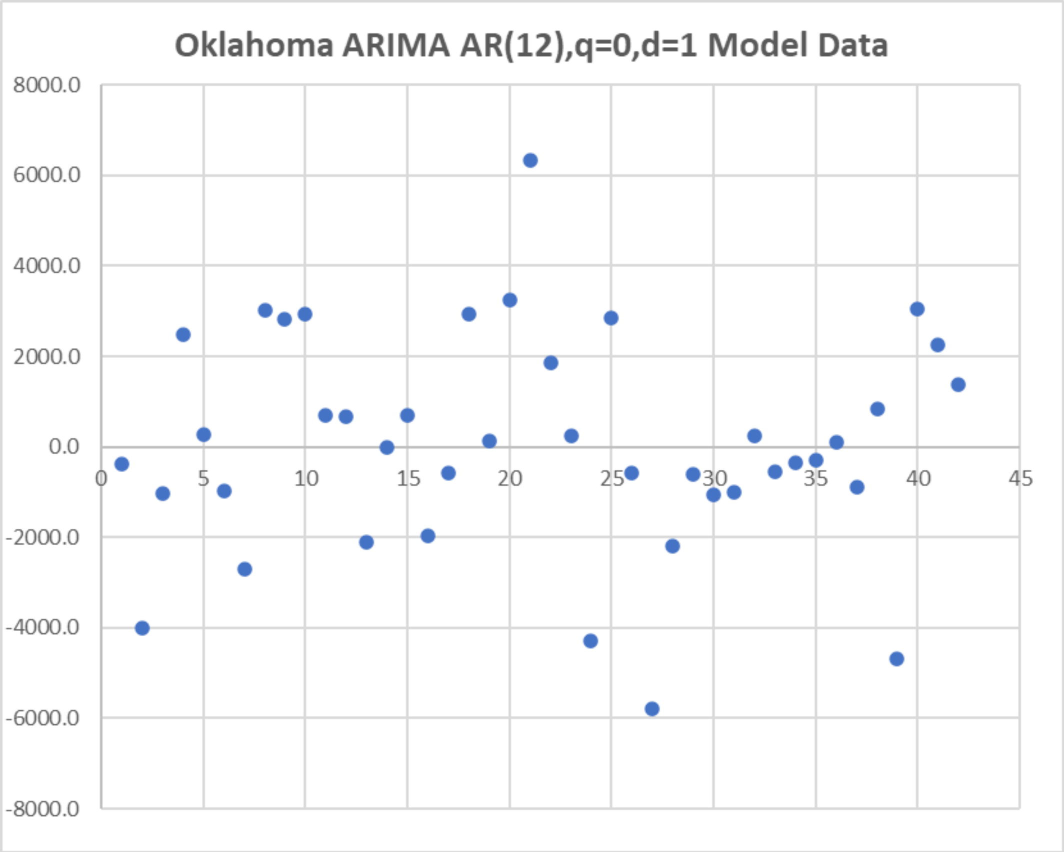


Appendix E186: Oklahoma State Real GDP ARIMA Model Forecast

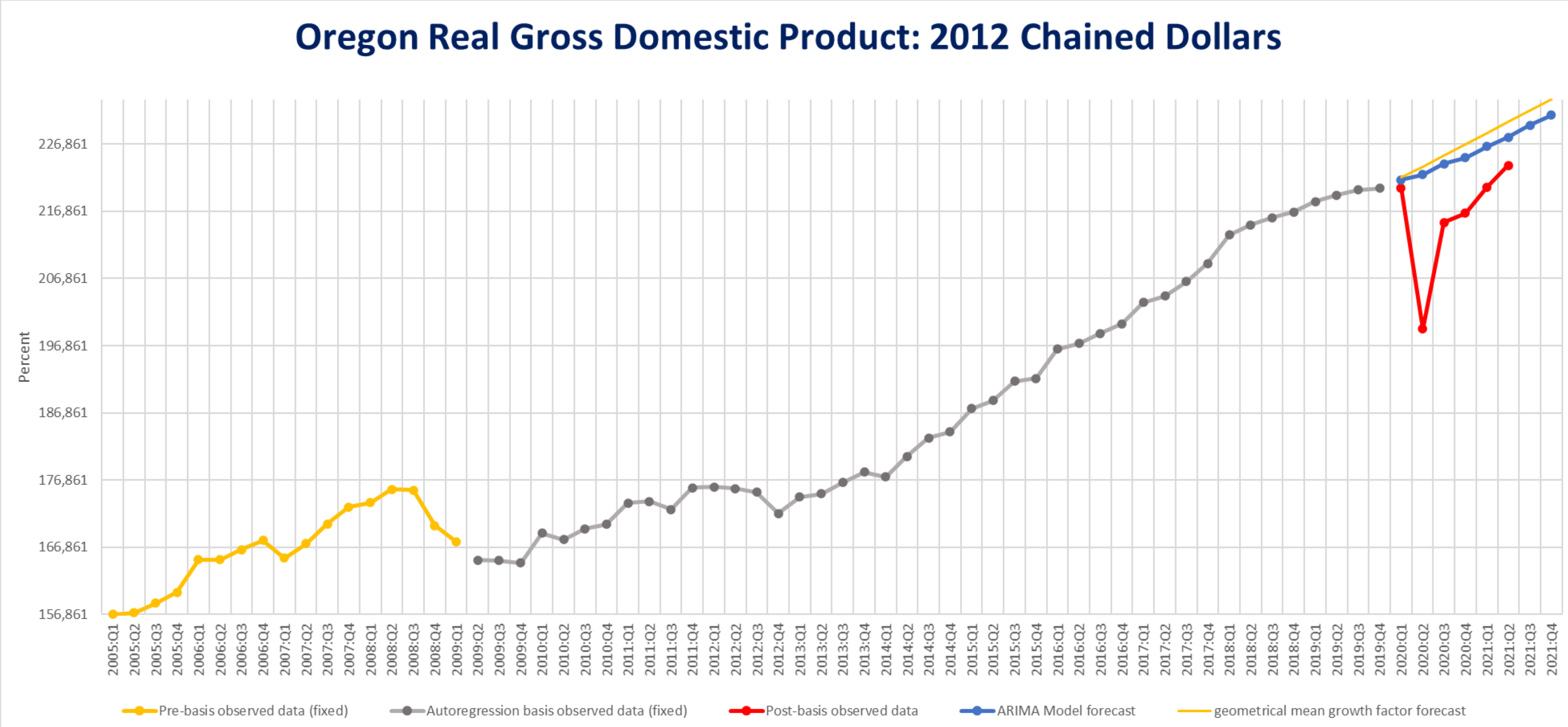


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	825.3883	1003.831	0.822238	0.422325
phi 1	0.041434	0.246737	0.167926	0.868623
phi 2	-0.03357	0.241813	-0.13884	0.891208
phi 3	0.137964	0.239016	0.577216	0.571359
phi 4	0.125381	0.271333	0.462092	0.649874
phi 5	-0.06611	0.265384	-0.24909	0.806273
phi 6	-0.17633	0.254899	-0.69175	0.498436
phi 7	-0.13395	0.254951	-0.52541	0.606084
phi 8	-0.03996	0.256832	-0.15557	0.878204
phi 9	-0.08443	0.247794	-0.34071	0.737496
phi 10	0.149923	0.247827	0.604951	0.553201
phi 11	0.212814	0.241392	0.881613	0.390281
phi 12	0.049875	0.247509	0.20151	0.842692

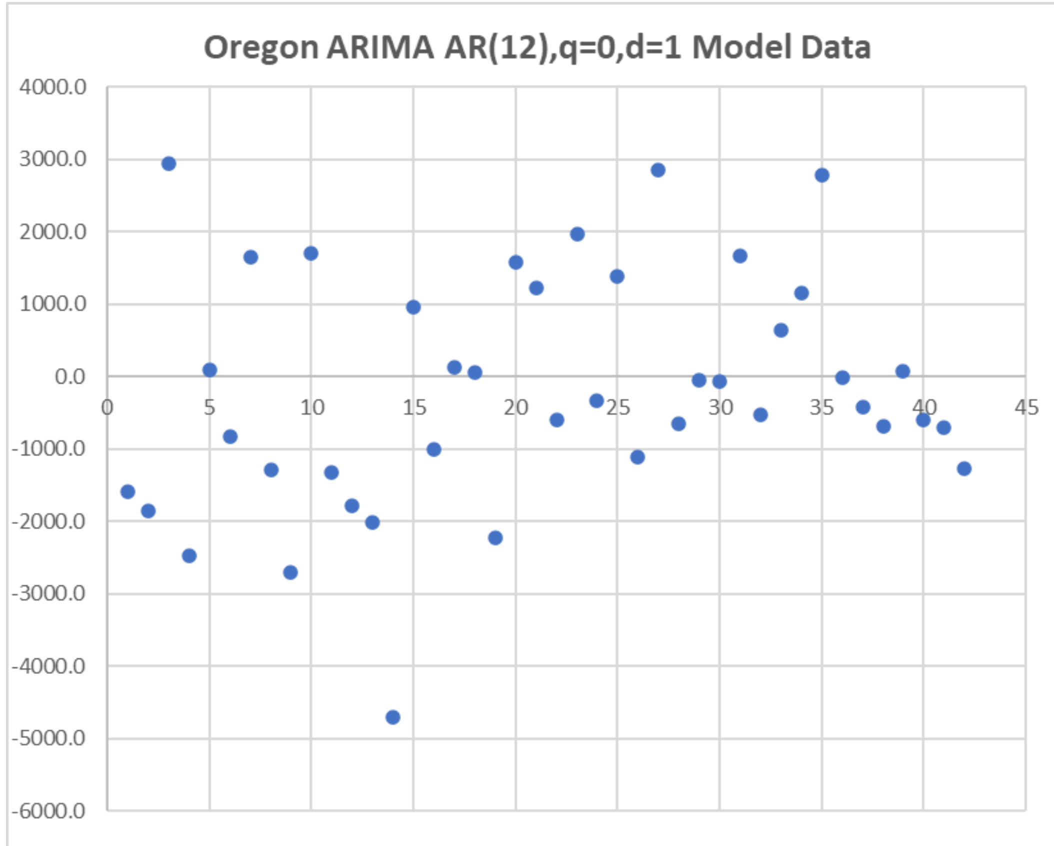


Appendix E187: Oregon State Real GDP ARIMA Model Forecast

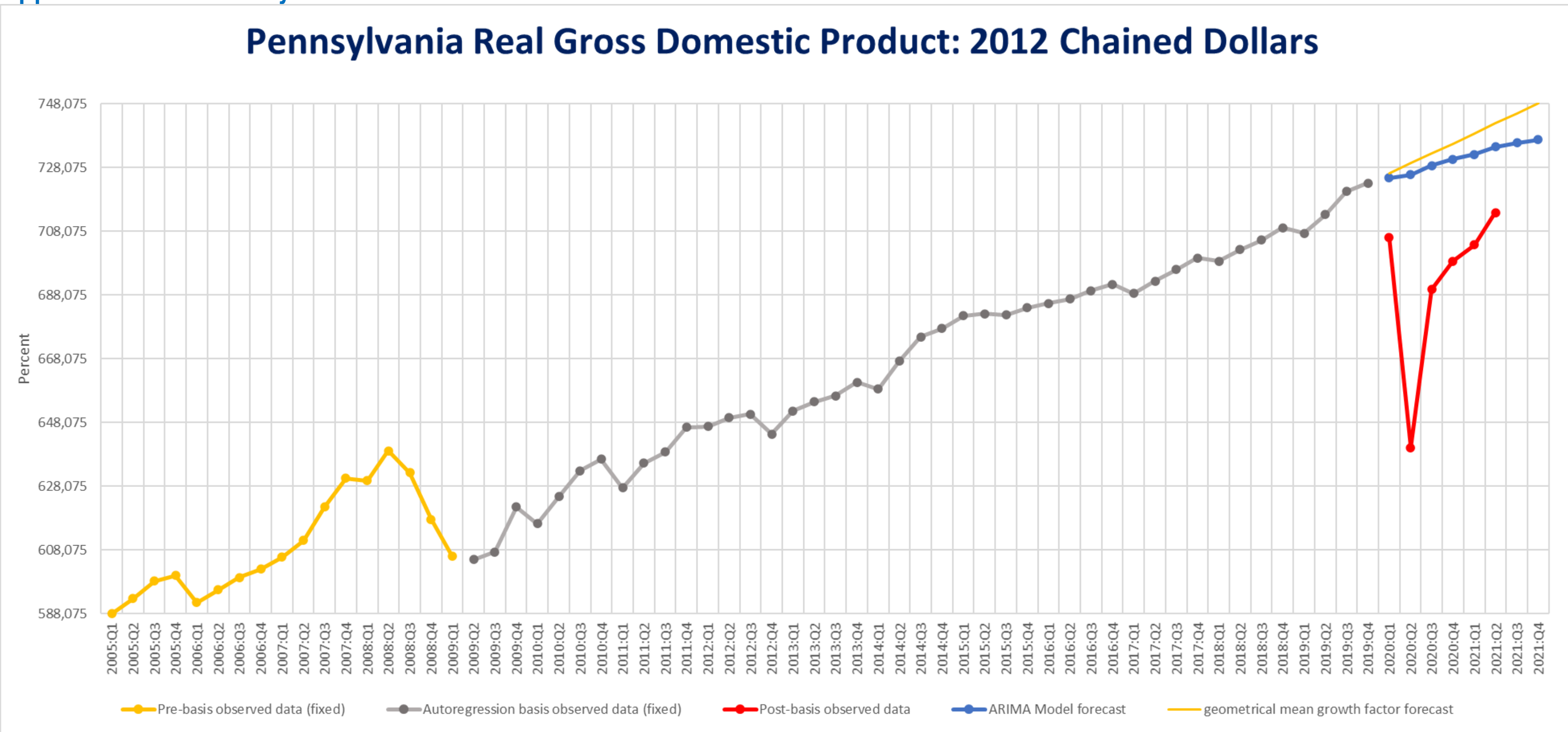


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	944.3769	735.2837	1.284371	0.21624
phi 1	0.140458	0.238226	0.589598	0.563215
phi 2	0.206851	0.23417	0.883339	0.389374
phi 3	-0.02743	0.222397	-0.12333	0.903291
phi 4	0.154927	0.208082	0.744548	0.466714
phi 5	0.233213	0.206852	1.127438	0.275219
phi 6	-0.08055	0.206624	-0.38986	0.701482
phi 7	-0.22254	0.205742	-1.08165	0.294513
phi 8	0.061896	0.217769	0.284229	0.779668
phi 9	-0.21728	0.216105	-1.00545	0.328778
phi 10	0.137609	0.210448	0.653885	0.521933
phi 11	-0.08826	0.208785	-0.42273	0.677791
phi 12	0.075441	0.208646	0.361577	0.722123

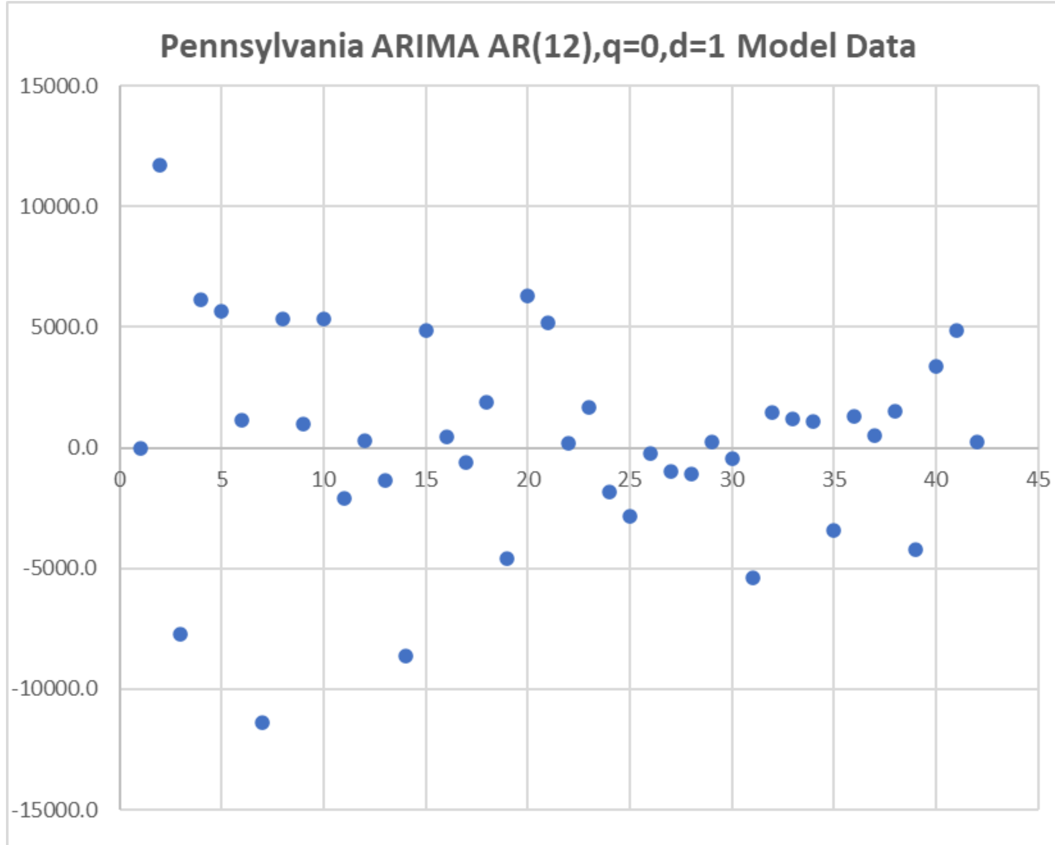


Appendix E188: Pennsylvania State Real GDP ARIMA Model Forecast

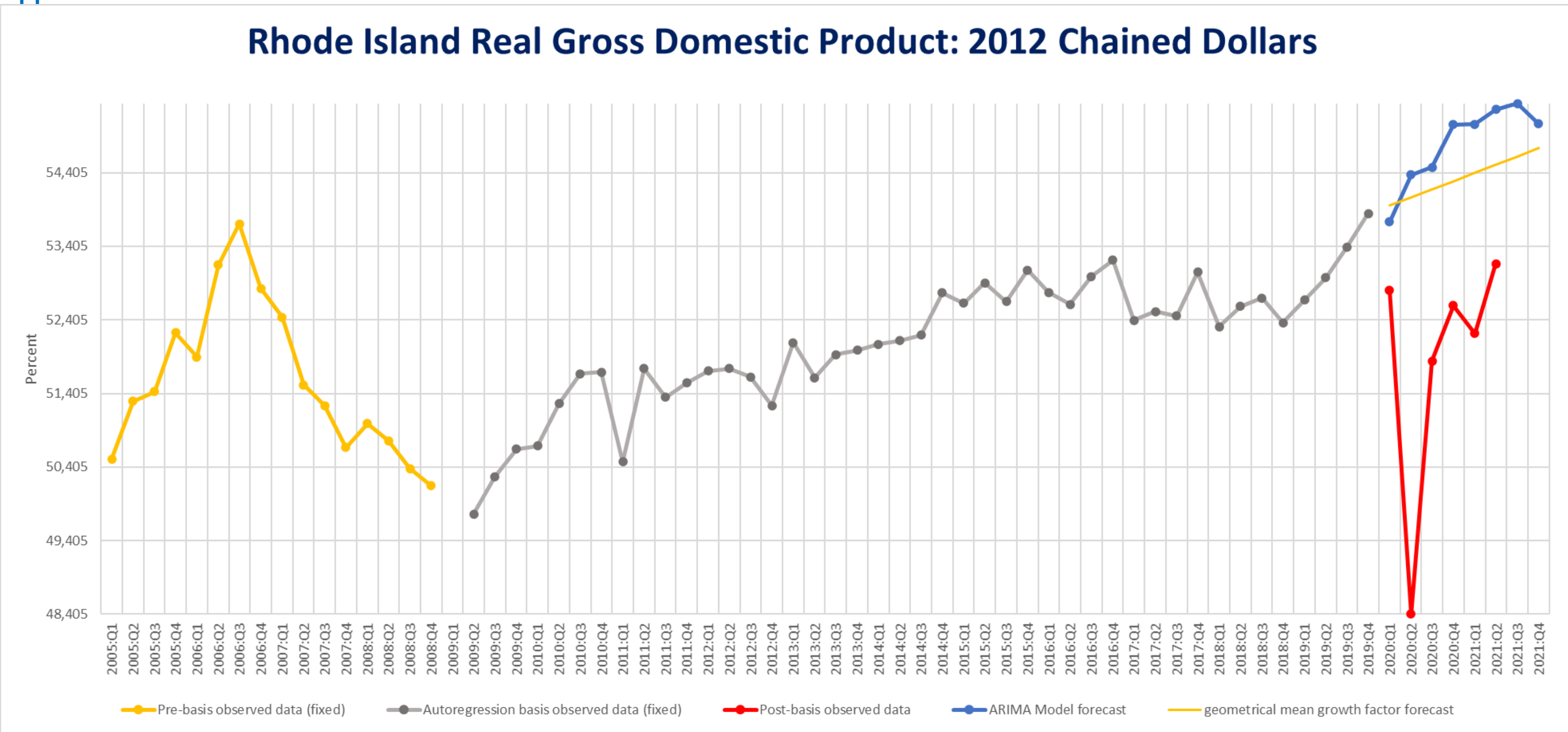


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	8413.577	3330.627	2.526124	0.021751
phi 1	-0.26488	0.240717	-1.10037	0.286509
phi 2	-0.32641	0.264495	-1.23409	0.233957
phi 3	-0.09025	0.24584	-0.36711	0.718068
phi 4	-0.27052	0.22309	-1.21259	0.241868
phi 5	0.026782	0.215734	0.124142	0.902659
phi 6	-0.25381	0.205637	-1.23426	0.233898
phi 7	-0.15809	0.209321	-0.75526	0.460428
phi 8	-0.27877	0.193619	-1.4398	0.168084
phi 9	-0.37468	0.185819	-2.01637	0.059844
phi 10	-0.31628	0.208079	-1.51999	0.146893
phi 11	-0.11488	0.184739	-0.62186	0.542284
phi 12	-0.04389	0.160146	-0.27404	0.787355

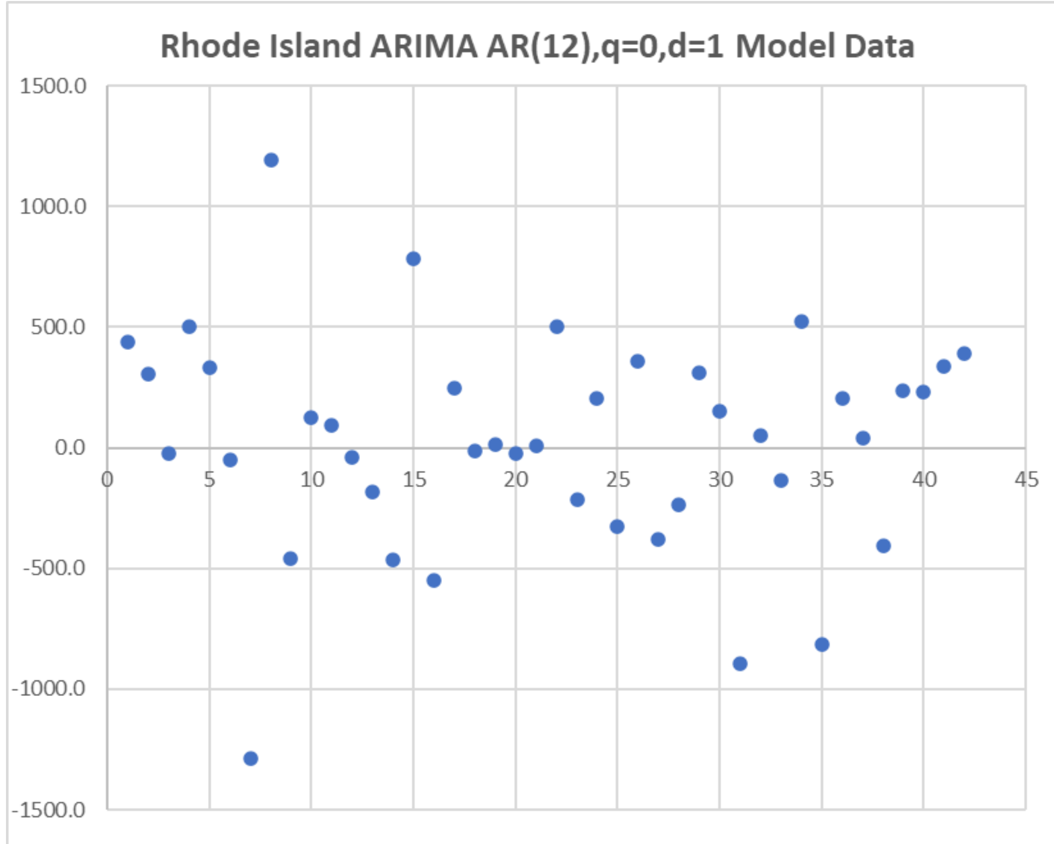


Appendix E189: Rhode Island State Real GDP ARIMA Model Forecast

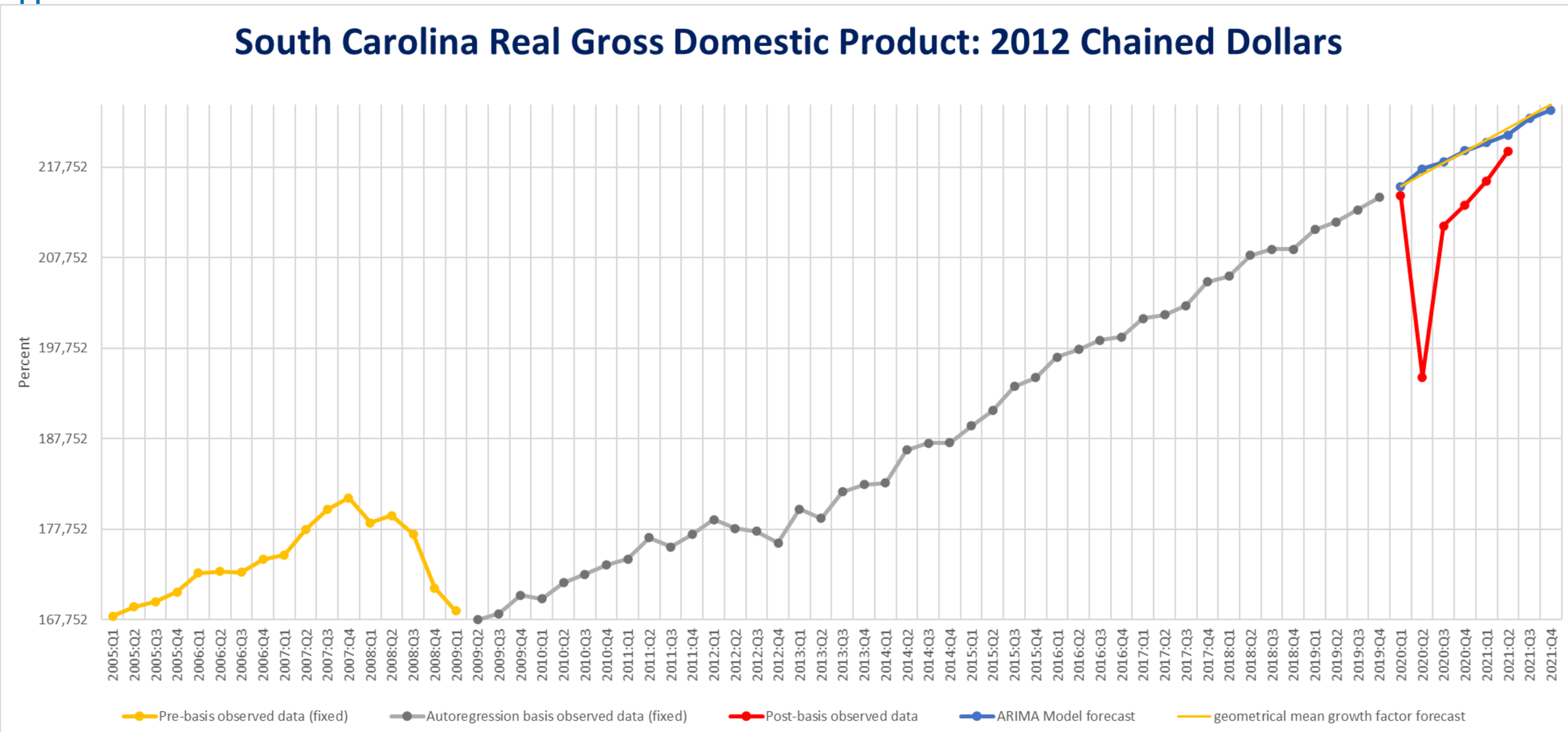


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	231.4774	93.73228	2.469559	0.02442
phi 1	-0.71862	0.273512	-2.62739	0.01765
phi 2	-0.15342	0.304003	-0.50466	0.620279
phi 3	0.132884	0.296784	0.447748	0.659988
phi 4	0.534108	0.295916	1.80493	0.088829
phi 5	0.38406	0.324704	1.182799	0.253167
phi 6	-0.06662	0.26755	-0.24901	0.806338
phi 7	-0.00722	0.262936	-0.02746	0.978411
phi 8	-0.35392	0.266122	-1.32991	0.201116
phi 9	-0.67019	0.259679	-2.58084	0.019434
phi 10	-0.62148	0.260035	-2.38999	0.028702
phi 11	-0.52644	0.239107	-2.2017	0.041785
phi 12	-0.17918	0.206099	-0.86939	0.396745

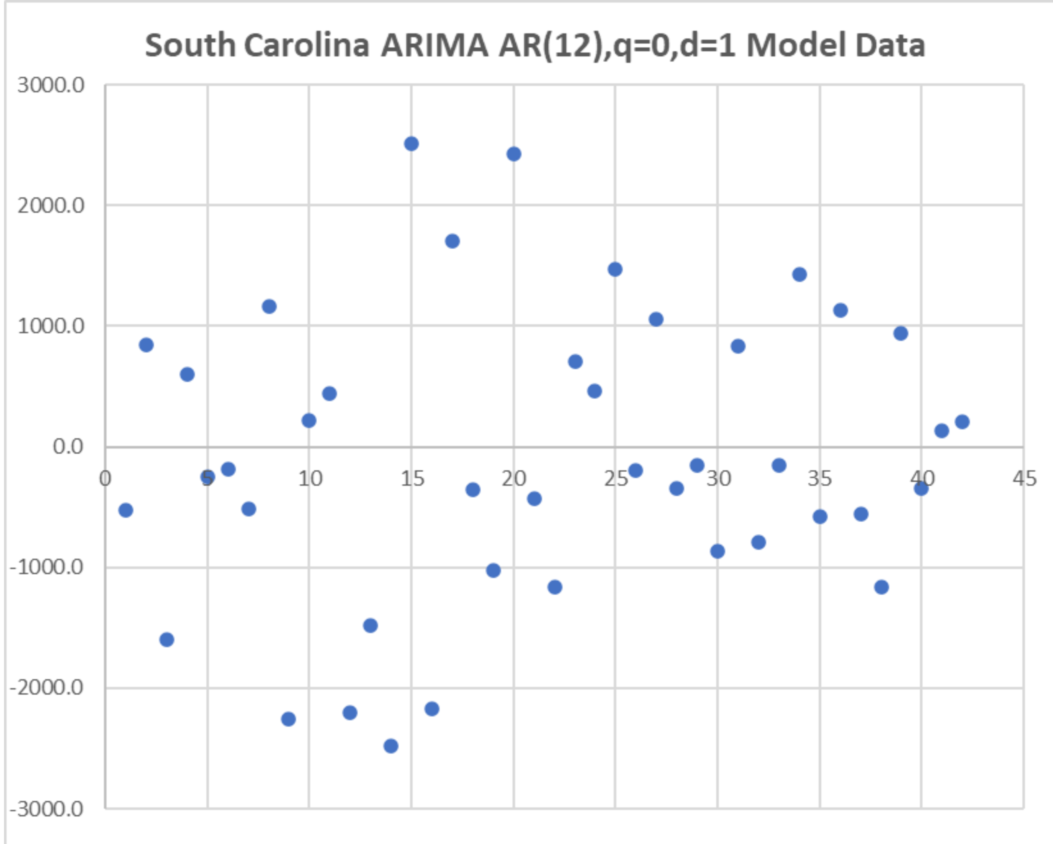


Appendix E190: South Carolina State Real GDP ARIMA Model Forecast

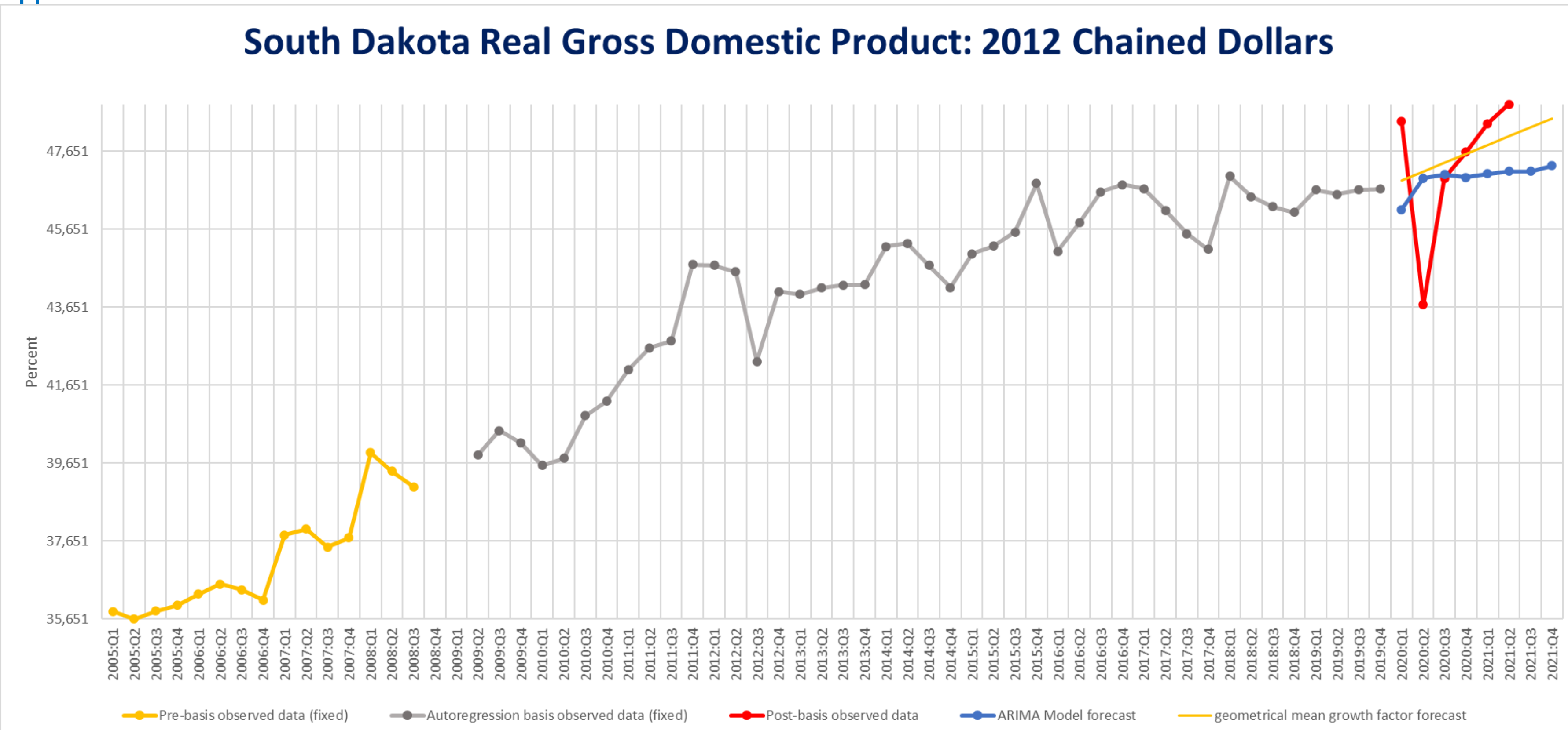


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	1471.168	908.7056	1.618971	0.123855
phi 1	-0.30287	0.219084	-1.38243	0.184734
phi 2	0.147398	0.229096	0.643387	0.528557
phi 3	0.138821	0.225939	0.614417	0.547076
phi 4	-0.01002	0.216708	-0.04623	0.963669
phi 5	0.076296	0.218562	0.349081	0.731315
phi 6	-0.15013	0.220733	-0.68015	0.505566
phi 7	-0.03984	0.223454	-0.17831	0.860587
phi 8	-0.01809	0.224985	-0.0804	0.936858
phi 9	0.186262	0.22954	0.811457	0.428319
phi 10	0.225982	0.22565	1.001471	0.330642
phi 11	-0.1594	0.229313	-0.69513	0.496363
phi 12	-0.32741	0.213526	-1.53334	0.143592

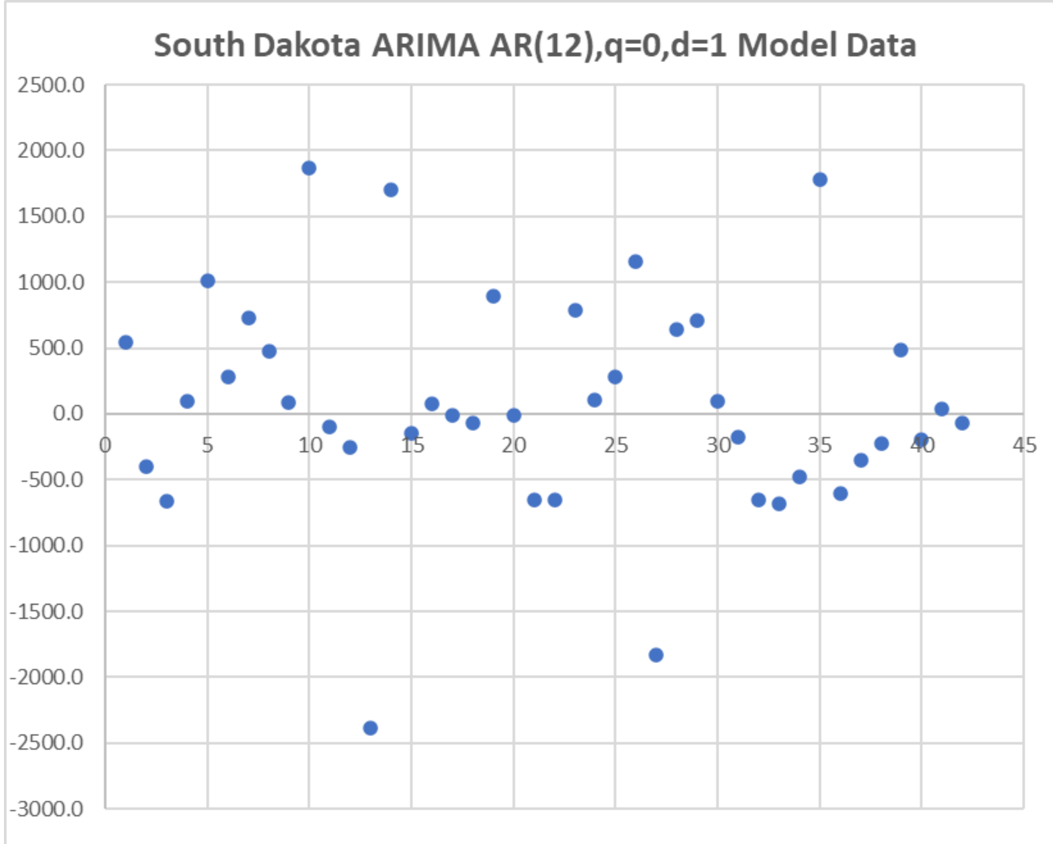


Appendix E191: South Dakota State Real GDP ARIMA Model Forecast

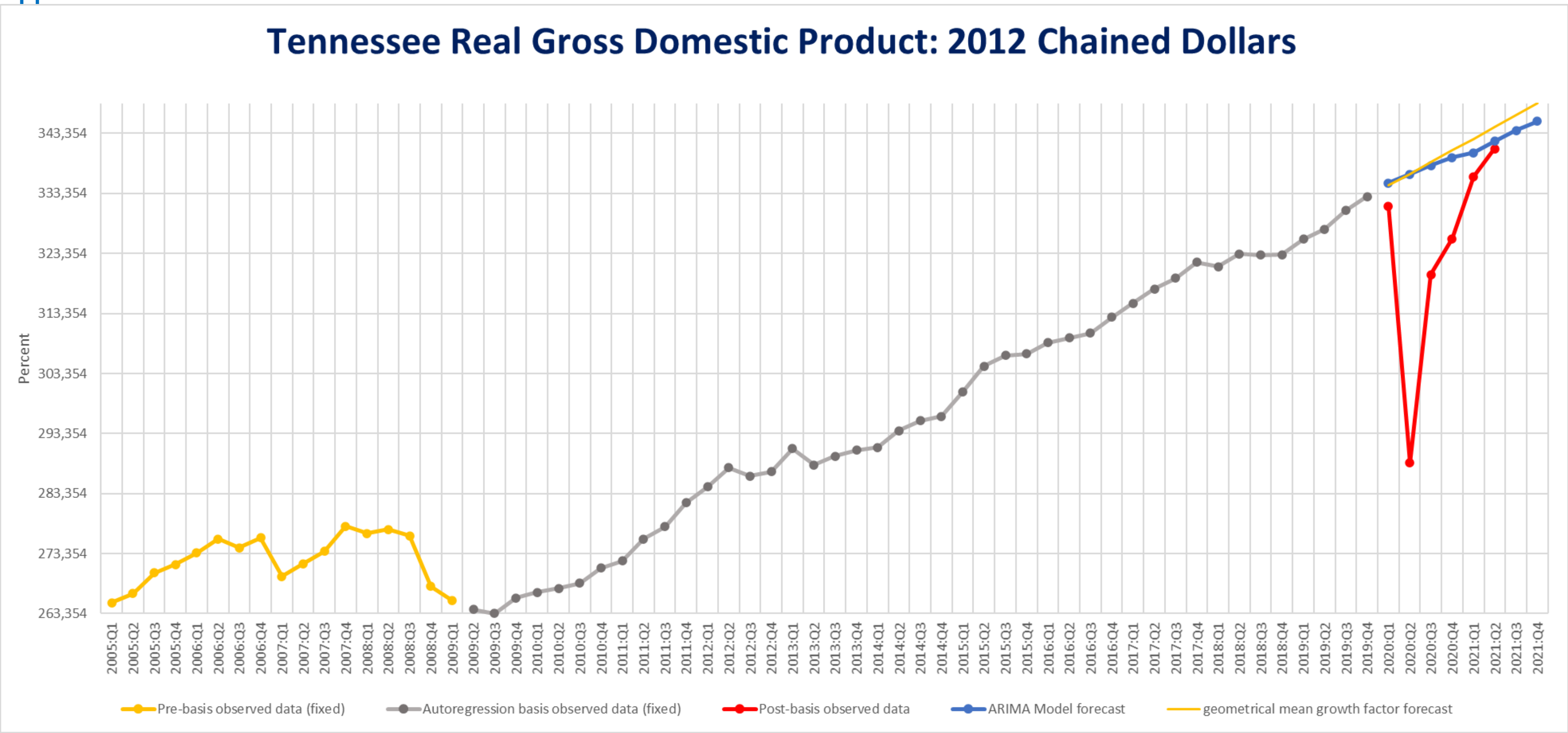


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	335.9093	219.7468	1.52862	0.144752
phi 1	-0.72651	0.211874	-3.42899	0.0032
phi 2	-0.72804	0.238234	-3.05601	0.007147
phi 3	-0.71848	0.216925	-3.31212	0.004121
phi 4	-0.42133	0.219777	-1.91709	0.072191
phi 5	-0.33176	0.192299	-1.72523	0.102616
phi 6	-0.16747	0.171697	-0.97536	0.343058
phi 7	-0.09756	0.165797	-0.58844	0.563974
phi 8	-0.2989	0.160243	-1.86528	0.079498
phi 9	0.168597	0.174083	0.968488	0.346379
phi 10	0.116646	0.179972	0.648134	0.525556
phi 11	0.052055	0.185352	0.280844	0.782219
phi 12	0.211018	0.178842	1.179914	0.254283

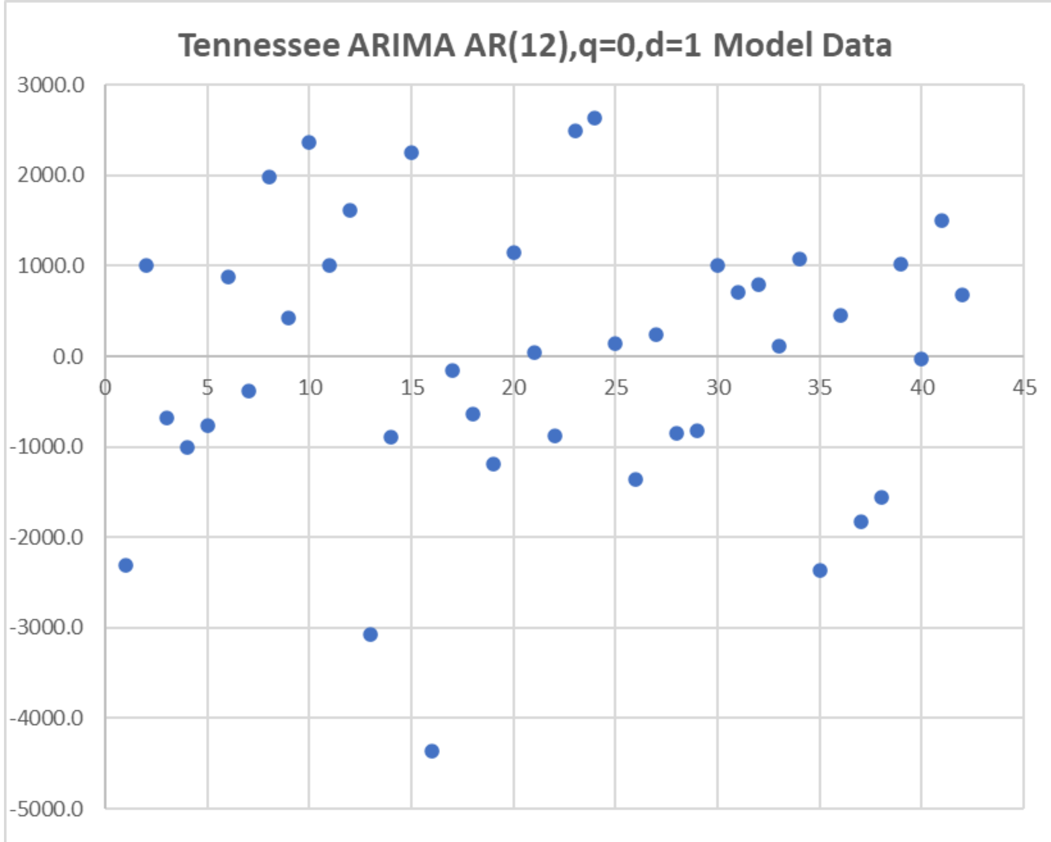


Appendix E192: Tennessee State Real GDP ARIMA Model Forecast

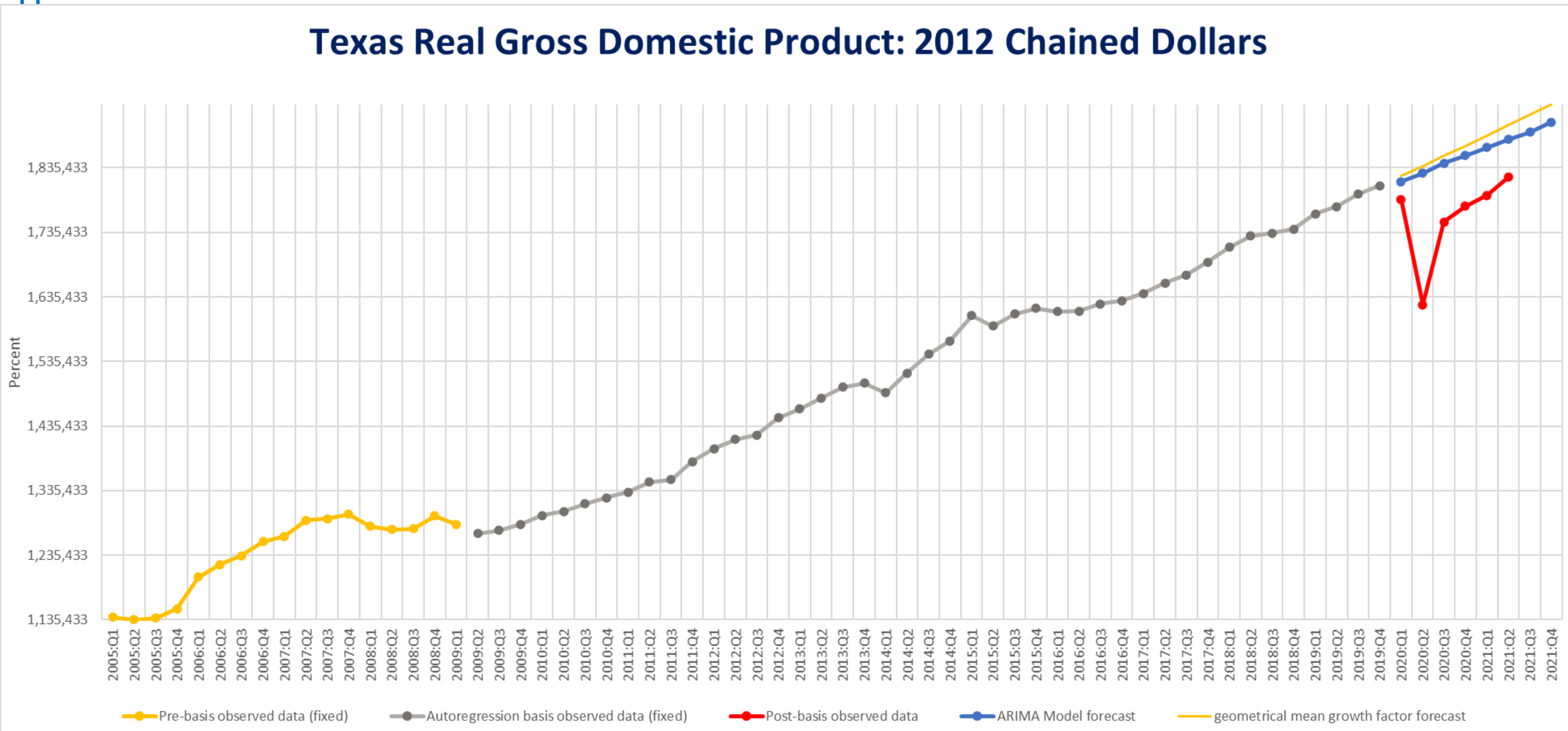


Model parameters

param	coeff	s.e.	t-stat	p-value
const	6164.109	1969.046	3.130505	0.006093
phi 1	-0.35113	0.222971	-1.5748	0.133729
phi 2	-0.1898	0.212436	-0.89345	0.384091
phi 3	0.073222	0.197516	0.370713	0.71543
phi 4	-0.36306	0.198178	-1.832	0.084531
phi 5	-0.34028	0.204779	-1.66169	0.114903
phi 6	-0.48278	0.2023	-2.38646	0.028907
phi 7	-0.30369	0.207564	-1.46309	0.161686
phi 8	-0.23921	0.203324	-1.17652	0.255598
phi 9	0.15378	0.206206	0.745759	0.466
phi 10	-0.13212	0.208497	-0.63369	0.534714
phi 11	-0.36605	0.205947	-1.7774	0.093397
phi 12	-0.24676	0.21151	-1.16664	0.259462

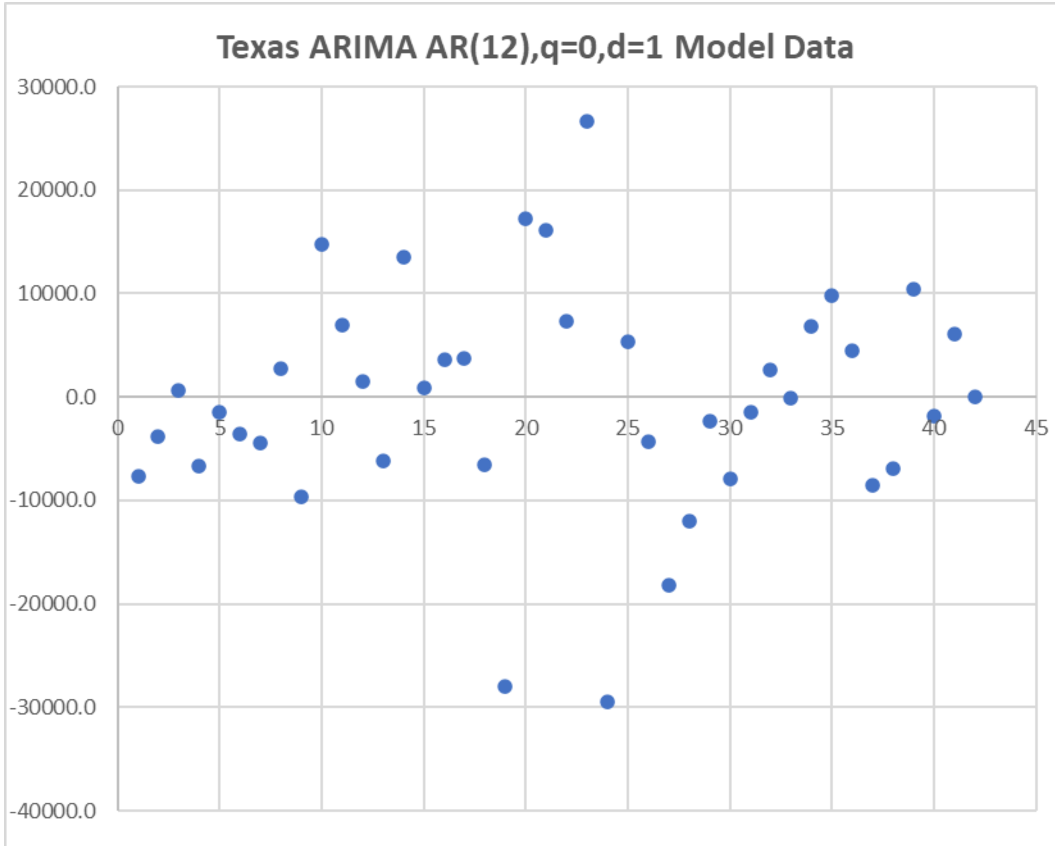


Appendix E193: Texas State Real GDP ARIMA Model Forecast

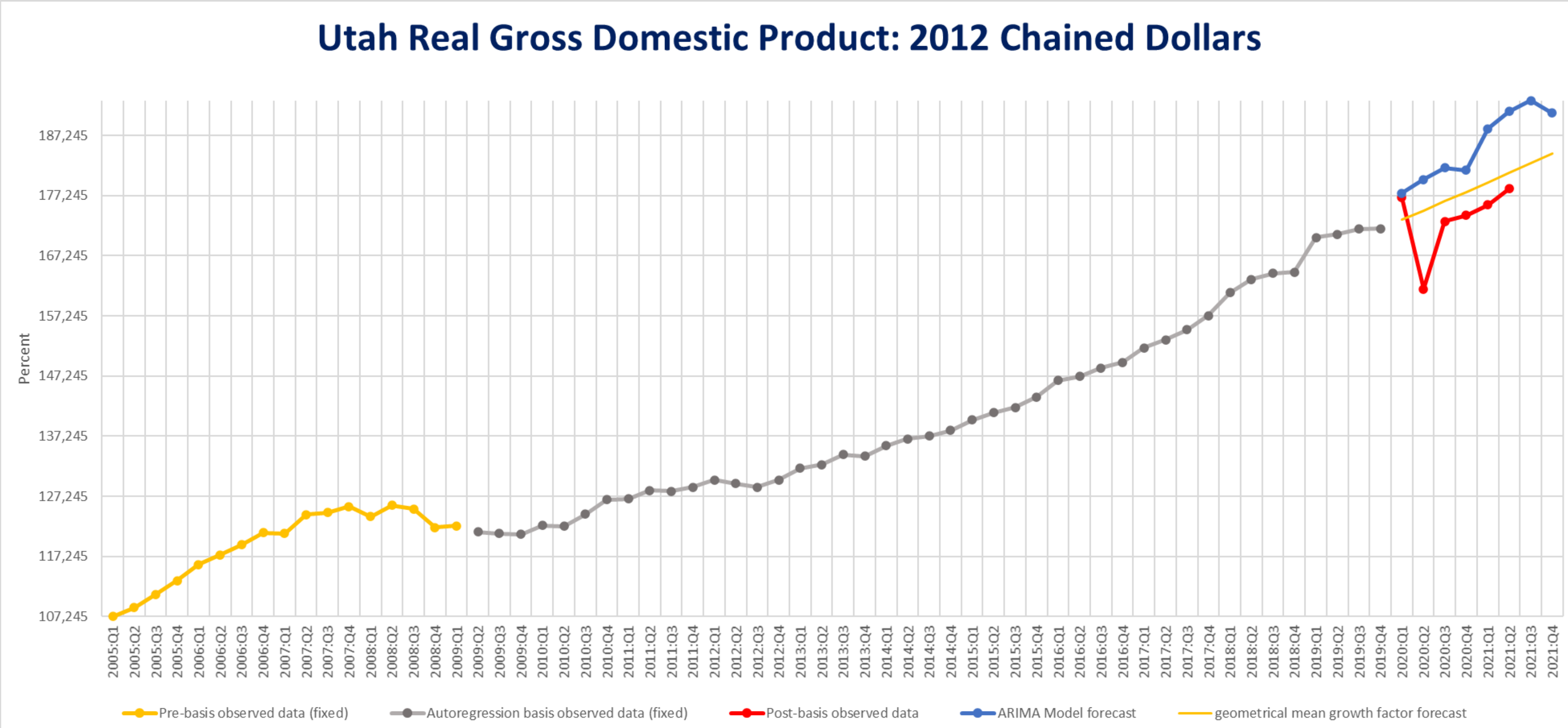


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	27928.1	17147.99	1.628651	0.121776
phi 1	-0.12942	0.241862	-0.53509	0.599517
phi 2	-0.01858	0.243362	-0.07636	0.940025
phi 3	-0.06549	0.239247	-0.27372	0.787601
phi 4	-0.35381	0.241767	-1.46345	0.161588
phi 5	-0.09482	0.247923	-0.38246	0.706859
phi 6	0.051578	0.245528	0.210071	0.836109
phi 7	-0.18896	0.246891	-0.76537	0.454546
phi 8	-0.2763	0.254486	-1.08574	0.292752
phi 9	0.012649	0.247629	0.05108	0.959857
phi 10	0.019069	0.247188	0.077144	0.939409
phi 11	-0.01532	0.247751	-0.06183	0.951423
phi 12	-0.07882	0.242236	-0.32537	0.748873

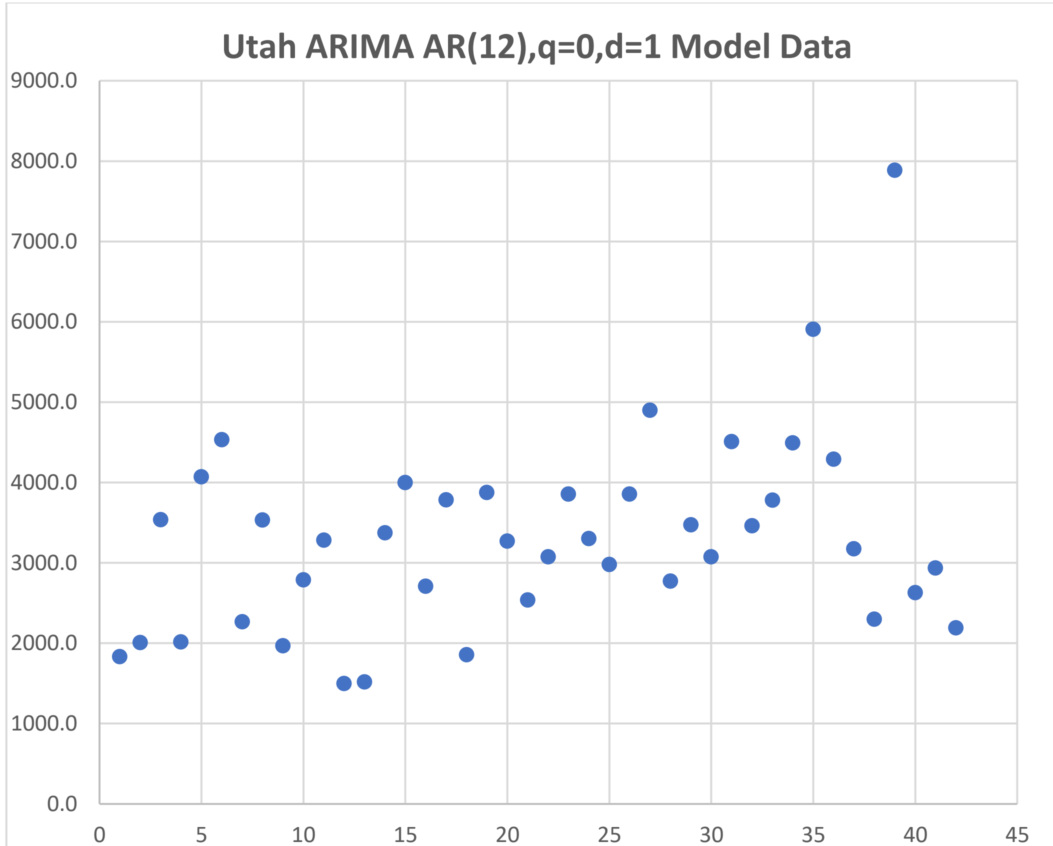


Appendix E194: Utah State Real GDP ARIMA Model Forecast

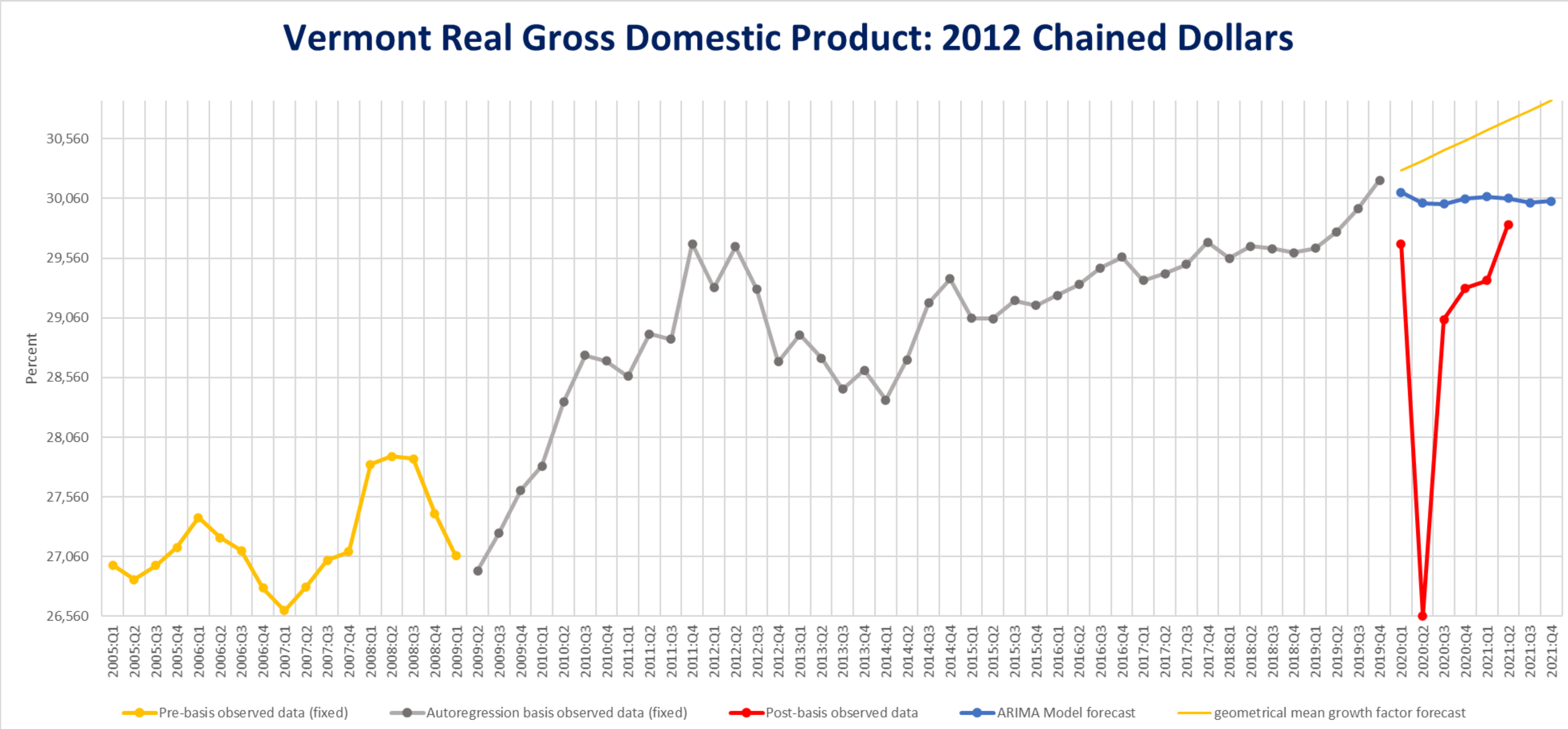


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	347.68	587.2929	0.592004	0.561639
phi 1	-0.24942	0.209771	-1.18899	0.250789
phi 2	-0.13348	0.217139	-0.61472	0.546881
phi 3	-0.19773	0.222058	-0.89043	0.385664
phi 4	0.493231	0.236926	2.081796	0.052785
phi 5	0.133043	0.265523	0.501059	0.622755
phi 6	0.000685	0.255727	0.00268	0.997893
phi 7	-0.22881	0.244801	-0.93466	0.363051
phi 8	0.293707	0.248814	1.180429	0.254083
phi 9	0.230225	0.257888	0.892733	0.384463
phi 10	0.135596	0.268636	0.504757	0.620209
phi 11	0.113673	0.268118	0.423968	0.676905
phi 12	0.573765	0.2618	2.191614	0.042622

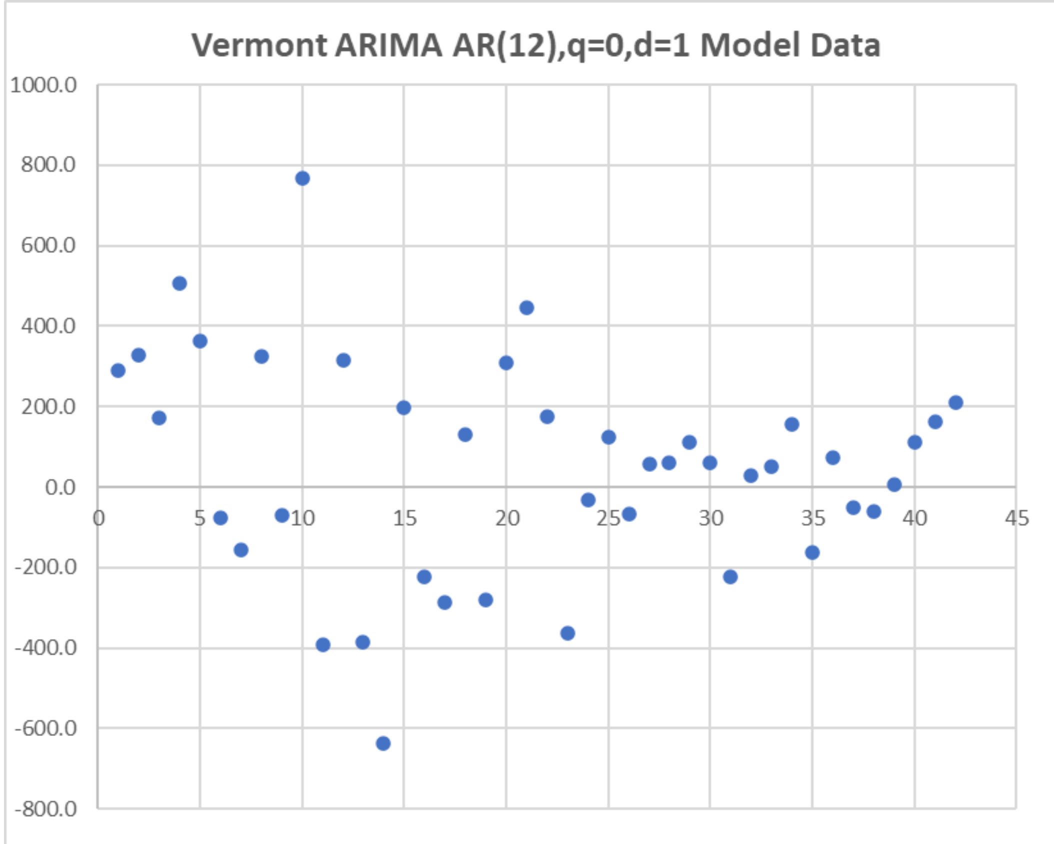


Appendix E195: Vermont State Real GDP ARIMA Model Forecast

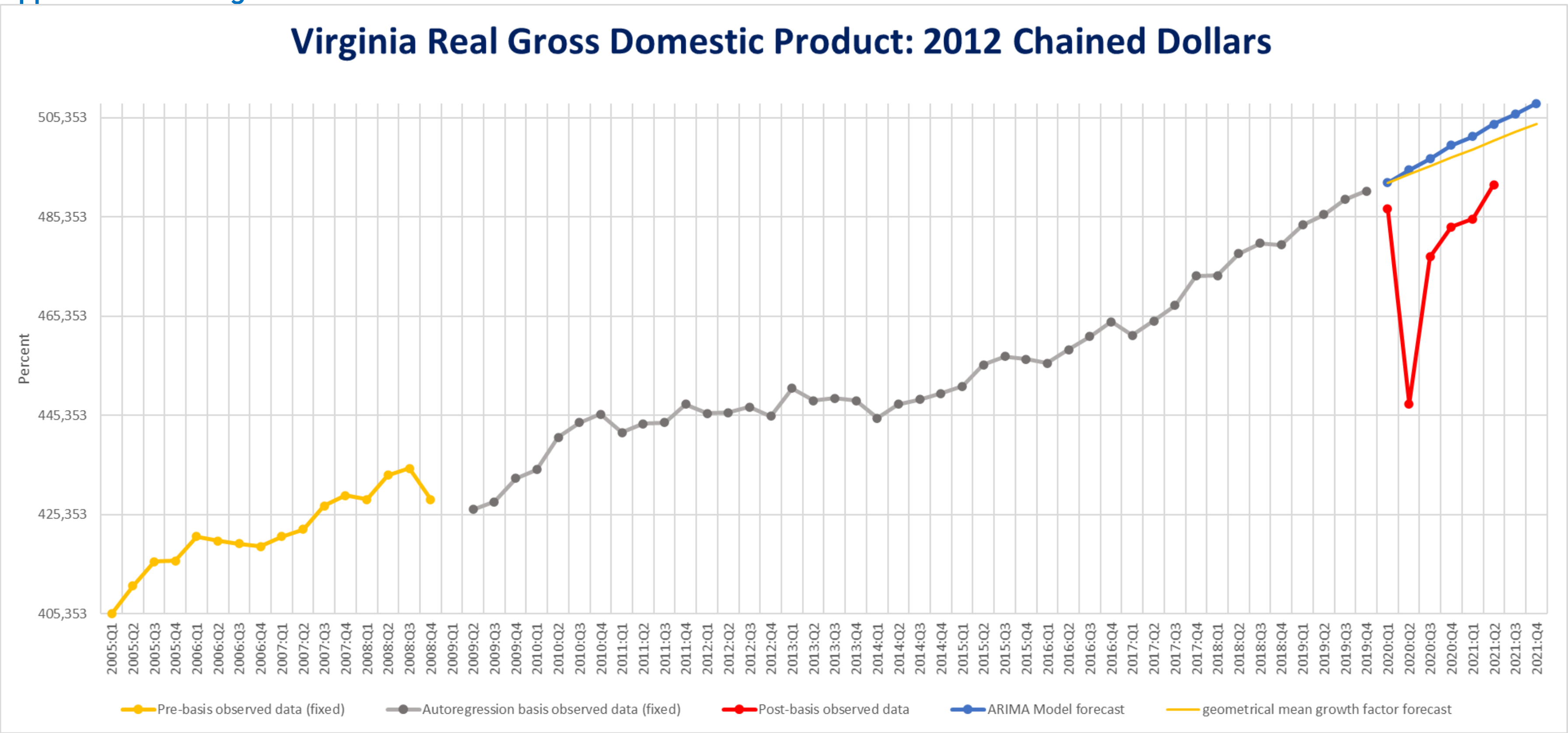


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	97.9074	49.48031	1.978714	0.064283
phi 1	-0.10718	0.192576	-0.55656	0.585079
phi 2	-0.41177	0.196418	-2.09638	0.051318
phi 3	-0.11975	0.162519	-0.73685	0.471264
phi 4	-0.38579	0.158426	-2.43513	0.026193
phi 5	-0.0795	0.159396	-0.49874	0.624353
phi 6	-0.18908	0.159938	-1.18218	0.253407
phi 7	-0.31972	0.161679	-1.97747	0.064435
phi 8	-0.24448	0.15384	-1.58915	0.130449
phi 9	-0.22221	0.140948	-1.57656	0.133322
phi 10	-0.12016	0.143884	-0.83514	0.415221
phi 11	-0.2596	0.140626	-1.846	0.082381
phi 12	0.031902	0.136154	0.234306	0.817546

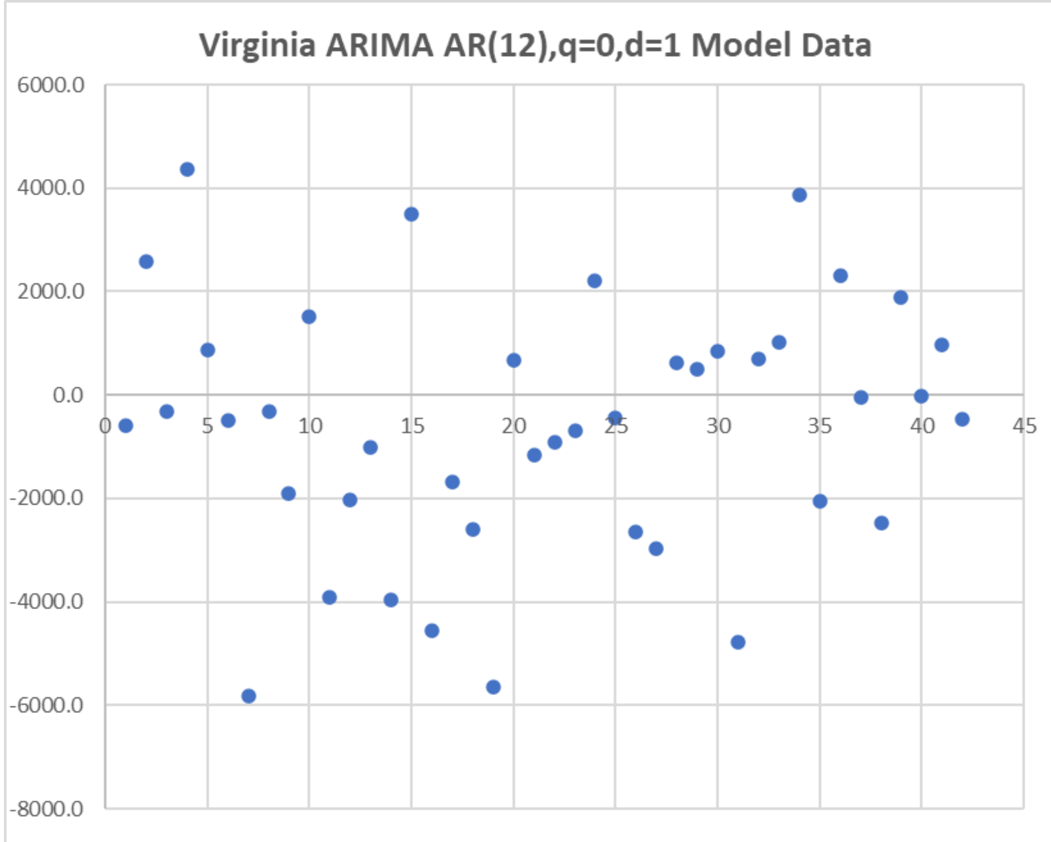


Appendix E196: Virginia State Real GDP ARIMA Model Forecast

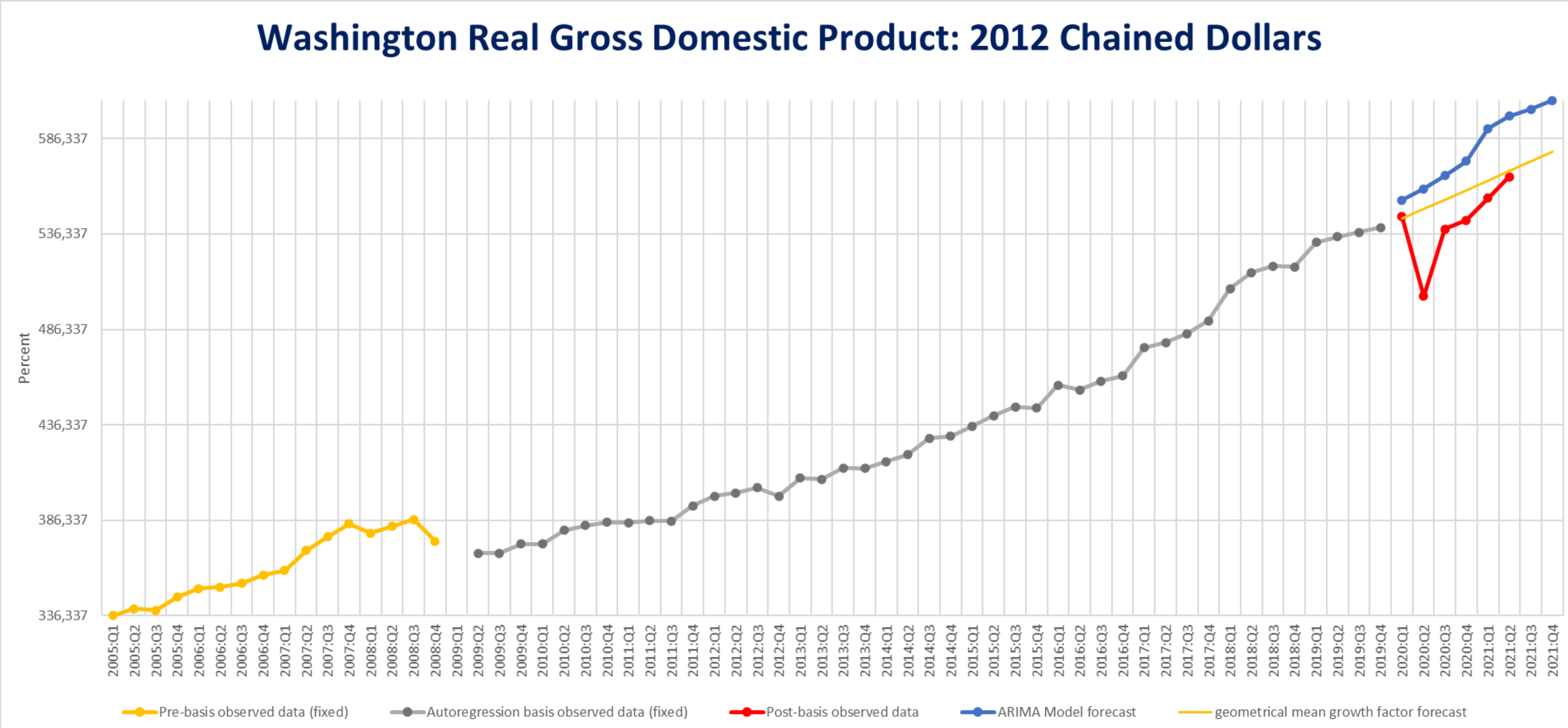


Model parameters

param	coeff	s.e.	t-stat	p-value
const	799.6553	1049.025	0.762284	0.456338
phi 1	-0.16959	0.241318	-0.70276	0.491719
phi 2	0.04729	0.236567	0.199903	0.843928
phi 3	0.000935	0.237636	0.003935	0.996906
phi 4	0.014929	0.23744	0.062875	0.950599
phi 5	0.3202	0.245365	1.304992	0.209285
phi 6	0.084032	0.241033	0.348631	0.731646
phi 7	0.119445	0.259631	0.460057	0.651305
phi 8	0.030863	0.238743	0.129273	0.898658
phi 9	0.075717	0.229201	0.330353	0.74517
phi 10	-0.00321	0.244084	-0.01316	0.989654
phi 11	0.035629	0.216926	0.164246	0.871475
phi 12	0.066966	0.227305	0.294609	0.77186

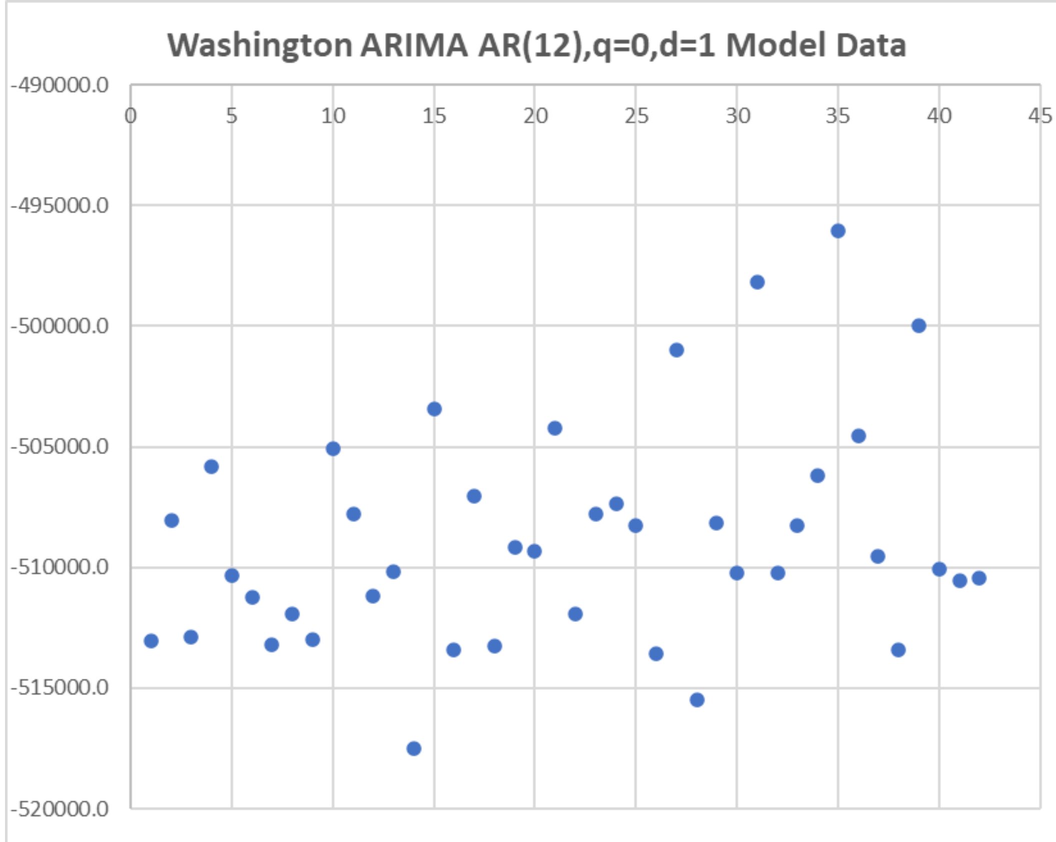


Appendix E197: Washington State Real GDP ARIMA Model Forecast

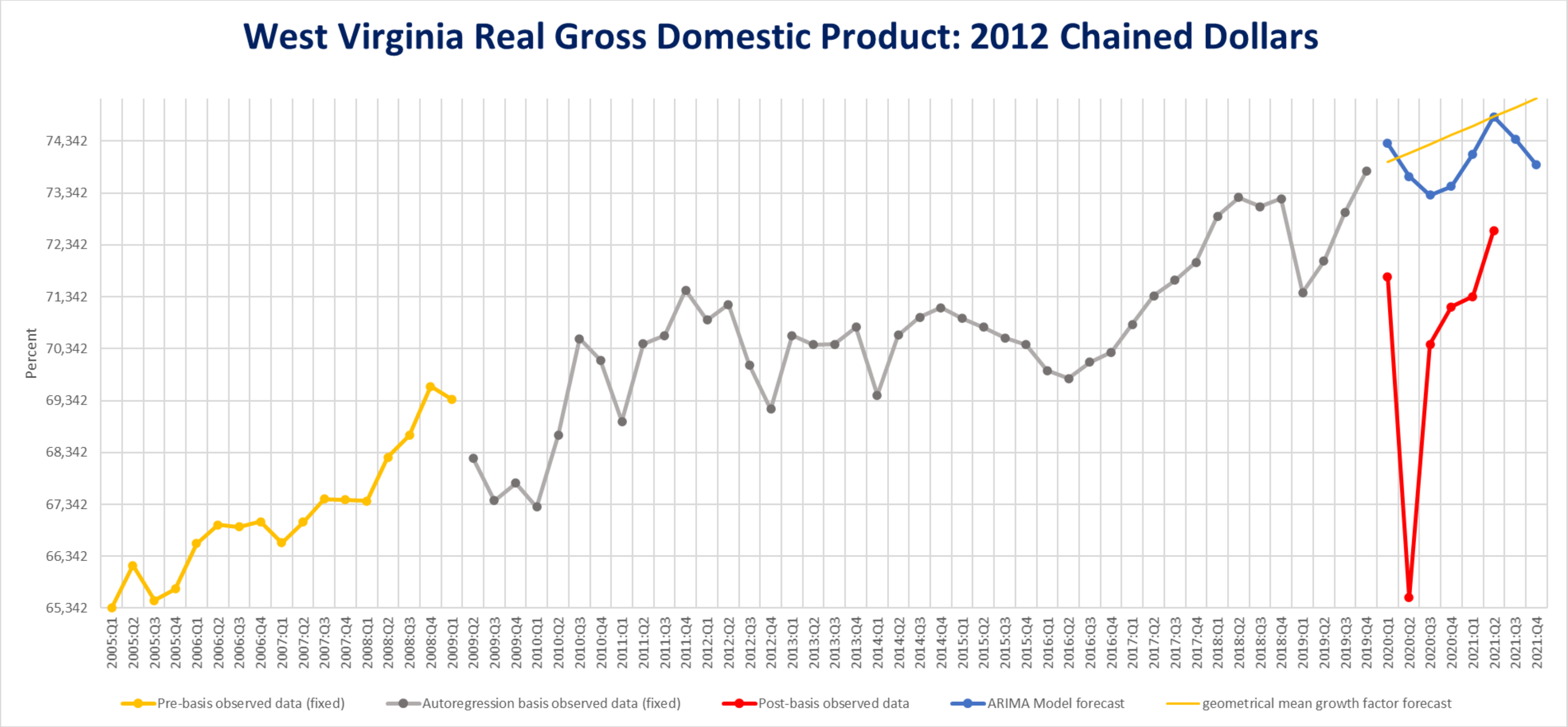


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	1368.428	2878.564	0.475386	0.640563
phi 1	-0.20221	0.228127	-0.8864	0.38777
phi 2	0.023736	0.229089	0.103609	0.918693
phi 3	-0.11795	0.238151	-0.49527	0.626748
phi 4	0.429464	0.232235	1.849269	0.081885
phi 5	0.116454	0.26137	0.445553	0.661542
phi 6	-0.18239	0.263028	-0.69343	0.497407
phi 7	-0.15809	0.257258	-0.61451	0.547013
phi 8	0.087627	0.28551	0.306915	0.762635
phi 9	0.05271	0.306721	0.171851	0.865584
phi 10	0.135957	0.298323	0.455735	0.654348
phi 11	0.355973	0.301605	1.180263	0.254148
phi 12	0.456051	0.309809	1.472042	0.159281

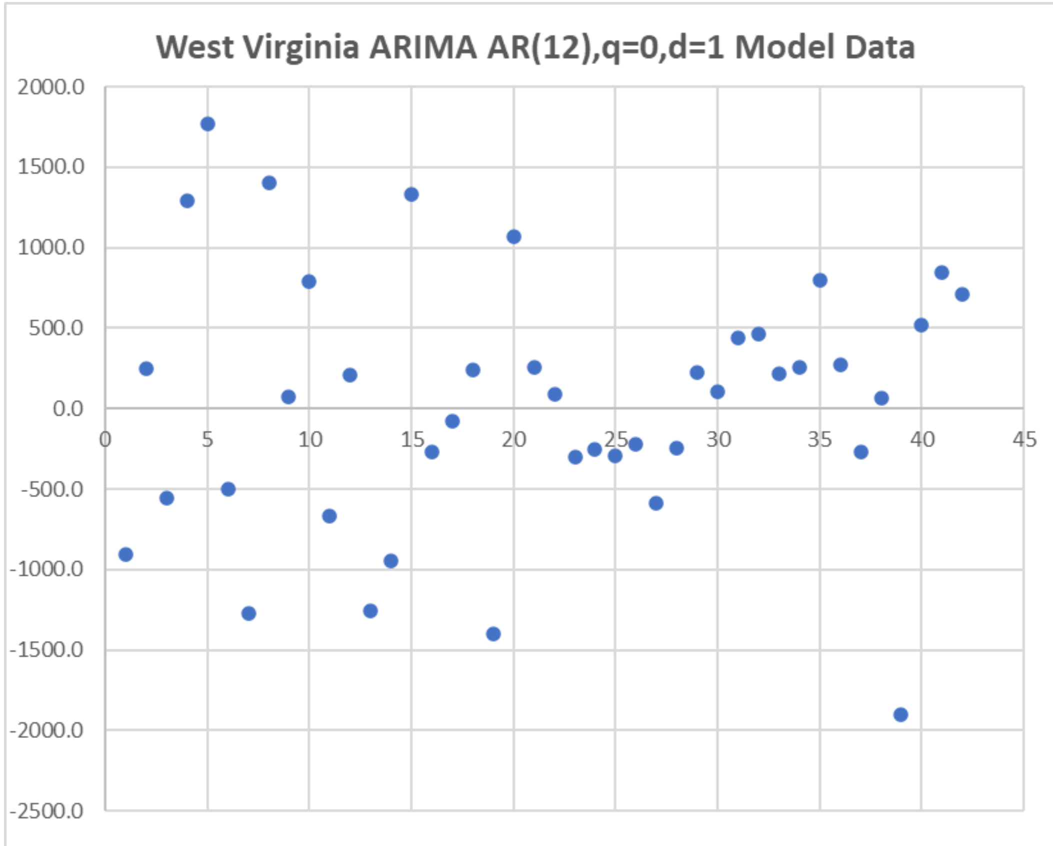


Appendix E198: West Virginia State Real GDP ARIMA Model Forecast

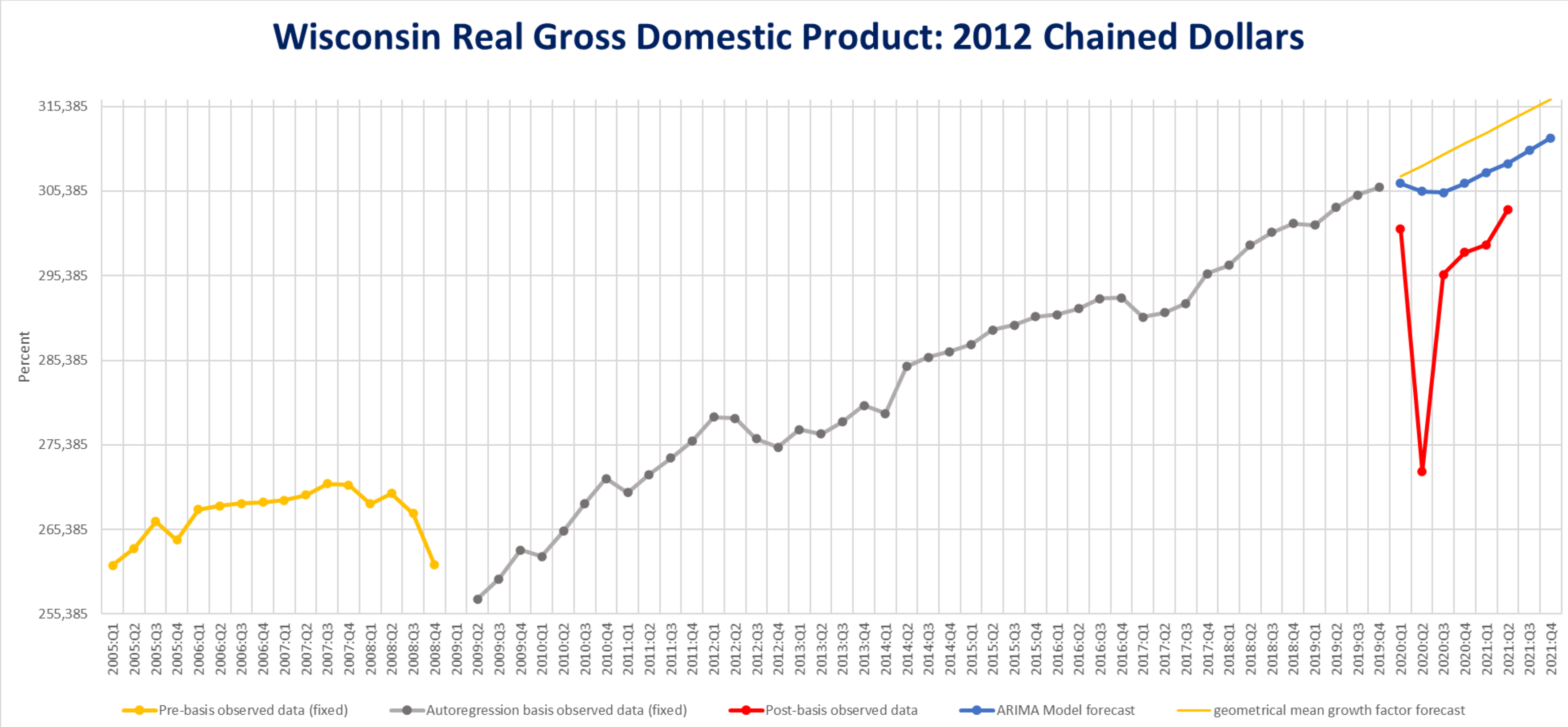


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	202.9488	183.9044	1.103556	0.285163
phi 1	-0.08785	0.244239	-0.35969	0.723509
phi 2	-0.10161	0.272843	-0.37243	0.714176
phi 3	-0.08576	0.287528	-0.29826	0.769117
phi 4	-0.50341	0.249094	-2.02098	0.05932
phi 5	0.046343	0.23385	0.198173	0.84526
phi 6	0.039843	0.221985	0.179485	0.859679
phi 7	-0.12069	0.226508	-0.53282	0.601057
phi 8	-0.32489	0.20598	-1.57729	0.133154
phi 9	-0.24595	0.206522	-1.19092	0.25005
phi 10	0.053739	0.234902	0.228773	0.821775
phi 11	-0.01255	0.235872	-0.05321	0.958184
phi 12	0.085432	0.21915	0.389833	0.701501

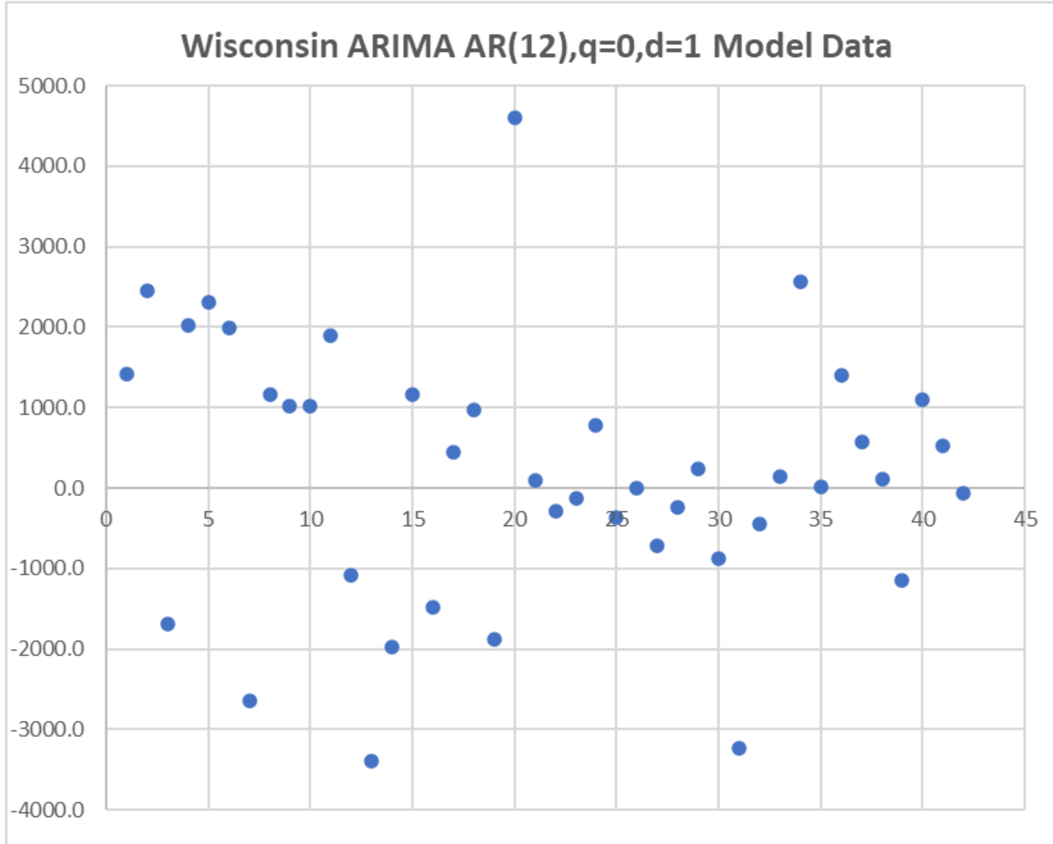


Appendix E199: Wisconsin State Real GDP ARIMA Model Forecast

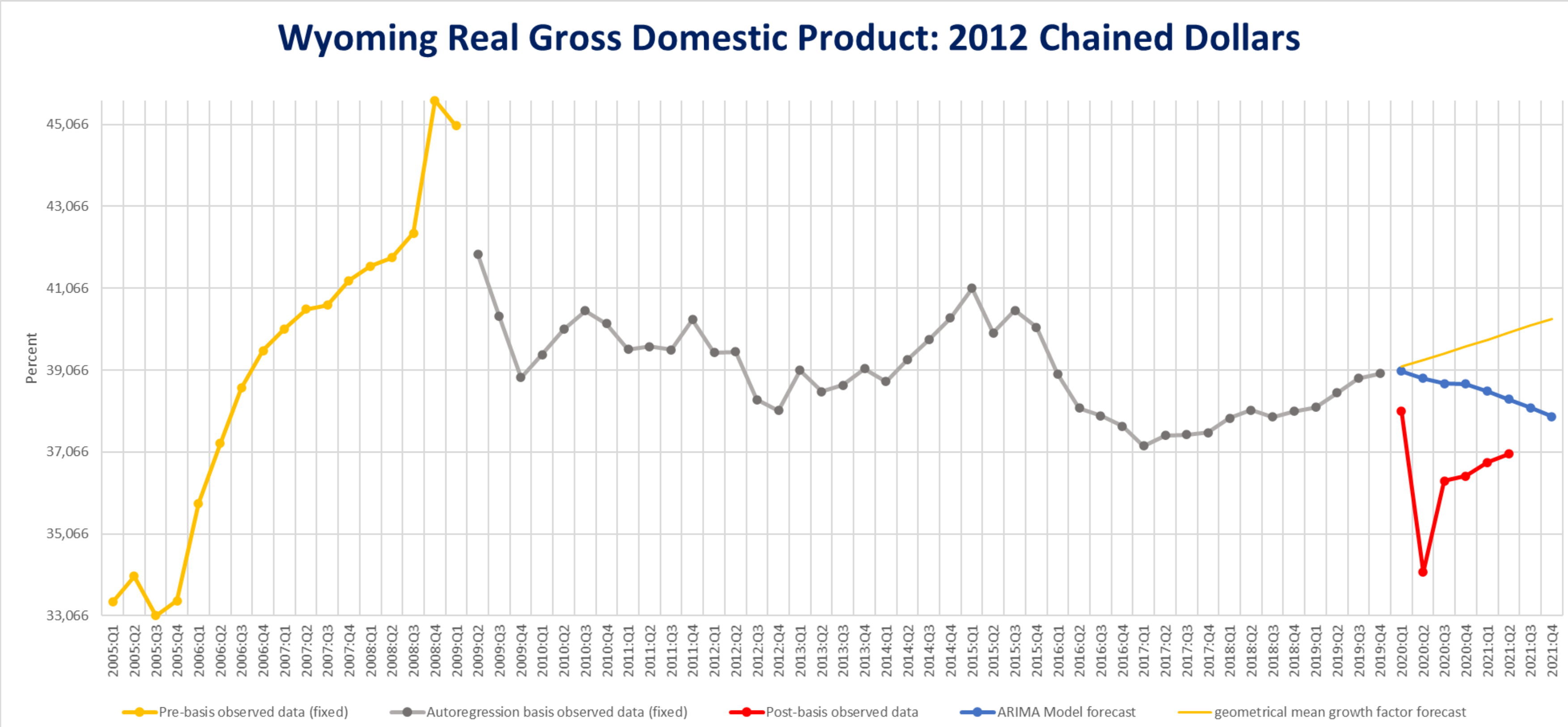


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	4496.337	1123.488	4.002121	0.000923
phi 1	-0.36163	0.222155	-1.62781	0.121955
phi 2	-0.20366	0.200851	-1.01397	0.32481
phi 3	-0.38978	0.199766	-1.95117	0.067716
phi 4	-0.39534	0.197909	-1.99761	0.06202
phi 5	-0.21984	0.181604	-1.21052	0.24264
phi 6	-0.19682	0.180098	-1.09284	0.289708
phi 7	-0.39935	0.170639	-2.34032	0.031721
phi 8	-0.46388	0.171601	-2.70324	0.015073
phi 9	-0.14711	0.180908	-0.81316	0.42737
phi 10	-0.30699	0.183074	-1.67684	0.111864
phi 11	-0.44606	0.168677	-2.64448	0.017035
phi 12	-0.15929	0.190402	-0.83661	0.414417

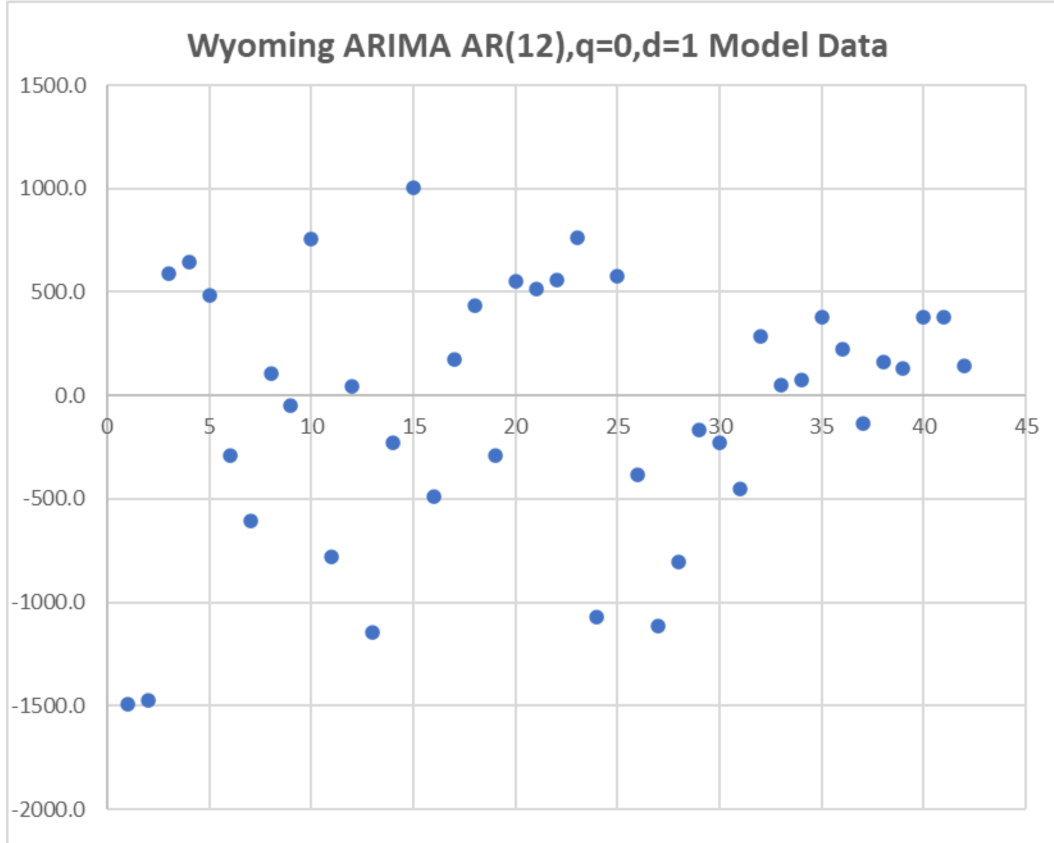


Appendix E200: Wyoming State Real GDP ARIMA Model Forecast



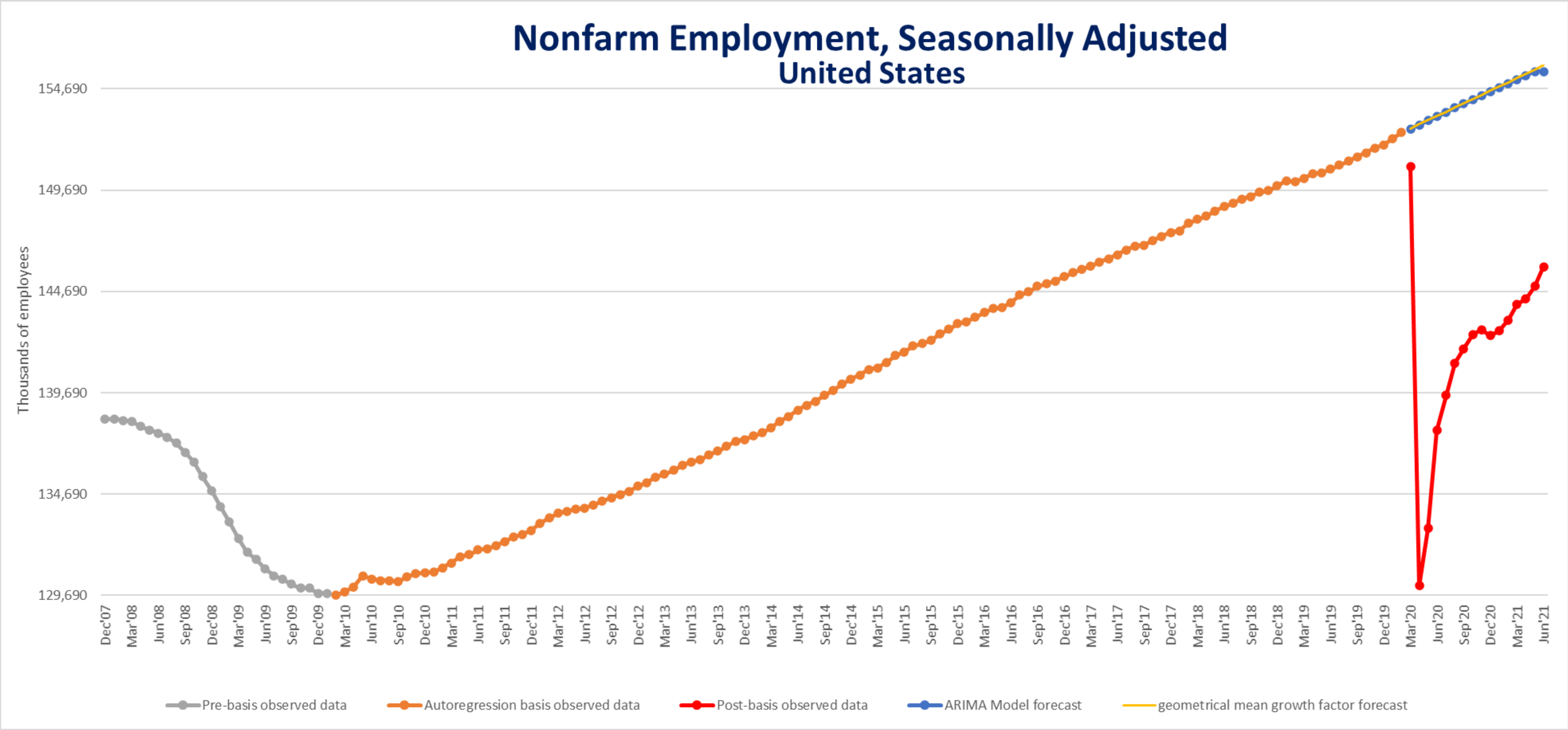
Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	-38.6659	123.8183	-0.31228	0.758626
phi 1	-0.05887	0.242853	-0.24241	0.811366
phi 2	0.09852	0.223924	0.43997	0.665501
phi 3	0.26962	0.231482	1.164757	0.260202
phi 4	-0.15831	0.215396	-0.73498	0.47237
phi 5	-0.03217	0.194326	-0.16556	0.870459
phi 6	-0.14028	0.187995	-0.74619	0.465747
phi 7	0.008038	0.192865	0.041676	0.967242
phi 8	-0.18613	0.192402	-0.96742	0.346897
phi 9	-0.37893	0.188976	-2.00515	0.061136
phi 10	-0.07318	0.211409	-0.34614	0.733485
phi 11	0.232797	0.194929	1.194268	0.248771
phi 12	0.001649	0.188379	0.008755	0.993117



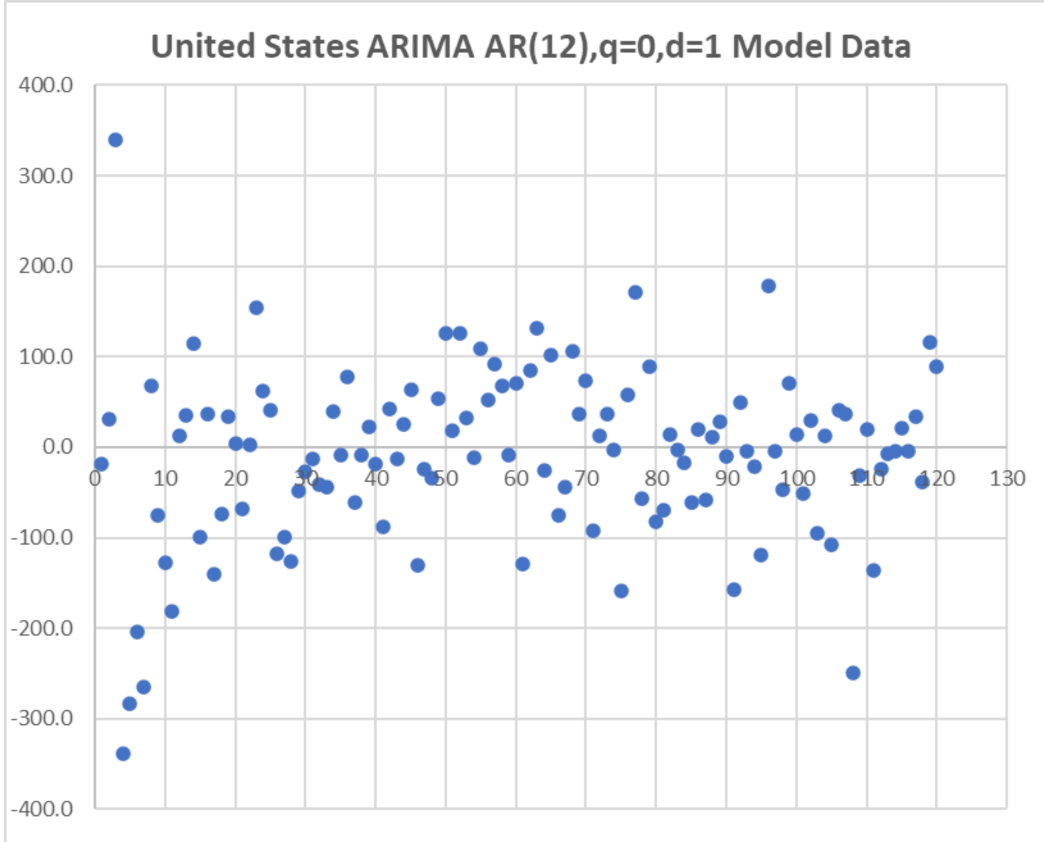
APPENDIXES F: DEPENDENT VARIABLE ARIMA MODEL FORECASTS FOR THE UNITED STATES

Appendix F1: United States Nonfarm Employment ARIMA Model Forecast

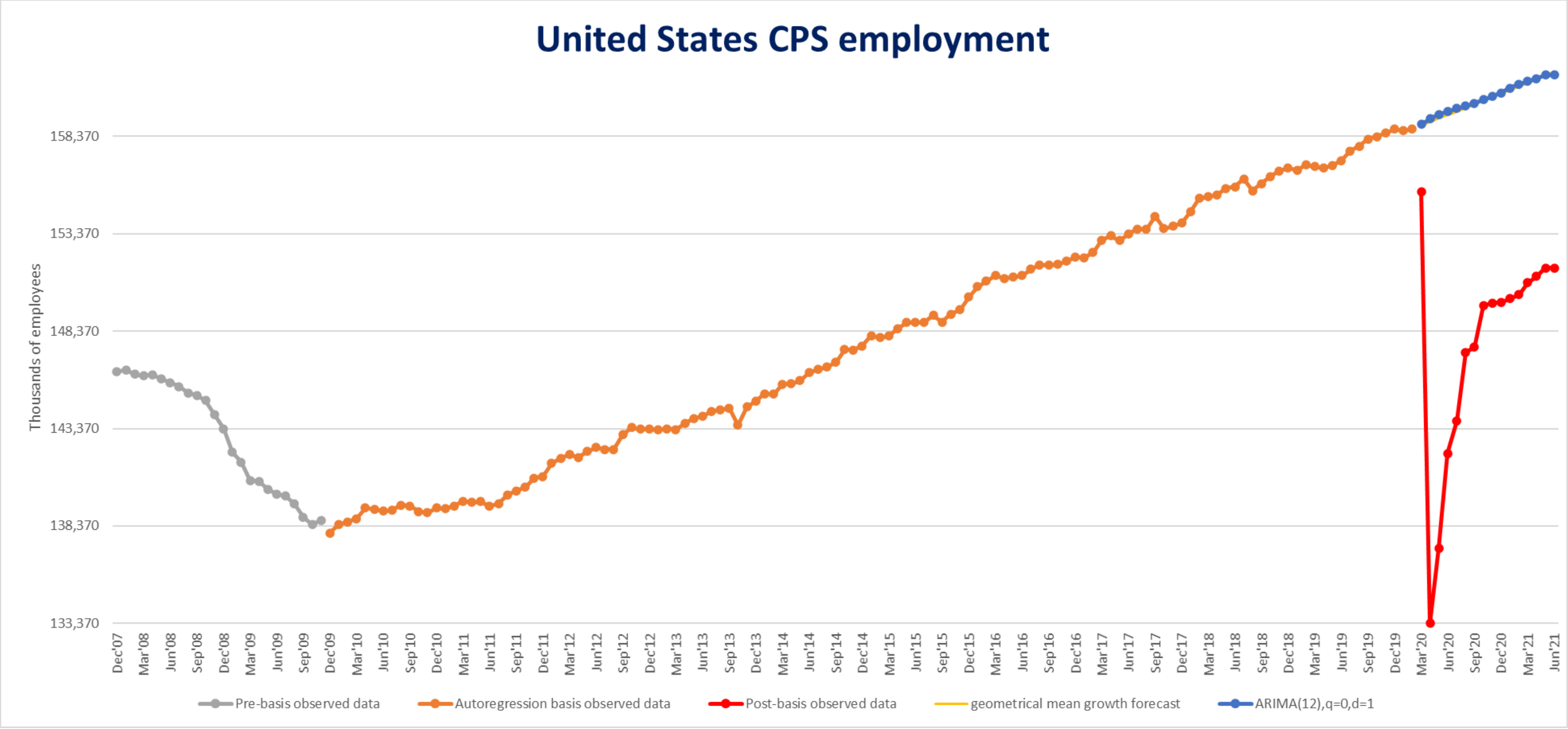


Model parameters

param	coeff	s.e.	t-stat	p-value
const	161.0471	49.58372	3.247983	0.001607
phi 1	-0.02358	0.101344	-0.23265	0.816533
phi 2	0.047349	0.099764	0.474607	0.636156
phi 3	0.089129	0.097725	0.912047	0.364053
phi 4	-0.07322	0.097507	-0.75093	0.454549
phi 5	0.027758	0.097083	0.285924	0.775559
phi 6	0.064078	0.093868	0.682641	0.496495
phi 7	0.066719	0.091134	0.732092	0.465914
phi 8	-0.01276	0.087174	-0.14633	0.883969
phi 9	-0.12743	0.083609	-1.5241	0.130805
phi 10	0.136427	0.077786	1.753872	0.082677
phi 11	0.129557	0.078861	1.642855	0.103719
phi 12	-0.13048	0.079848	-1.63412	0.105543

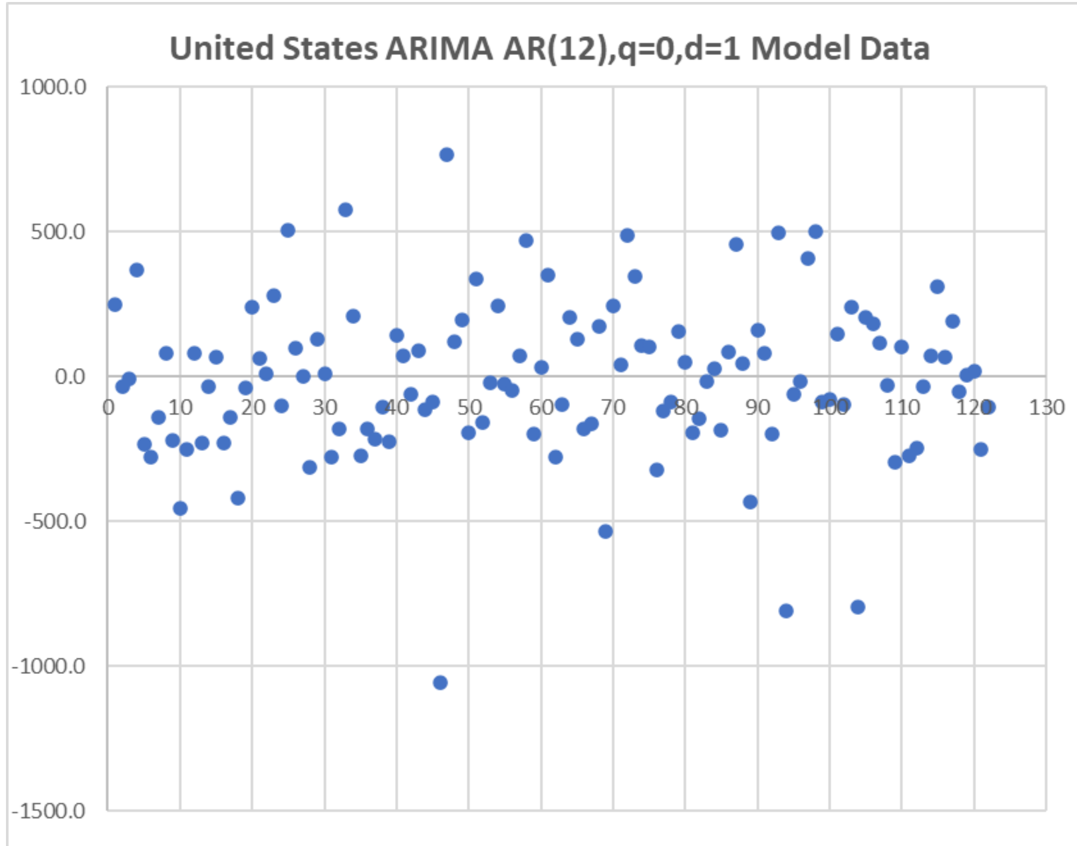


Appendix F2: United States CPS Employment ARIMA Model Forecast

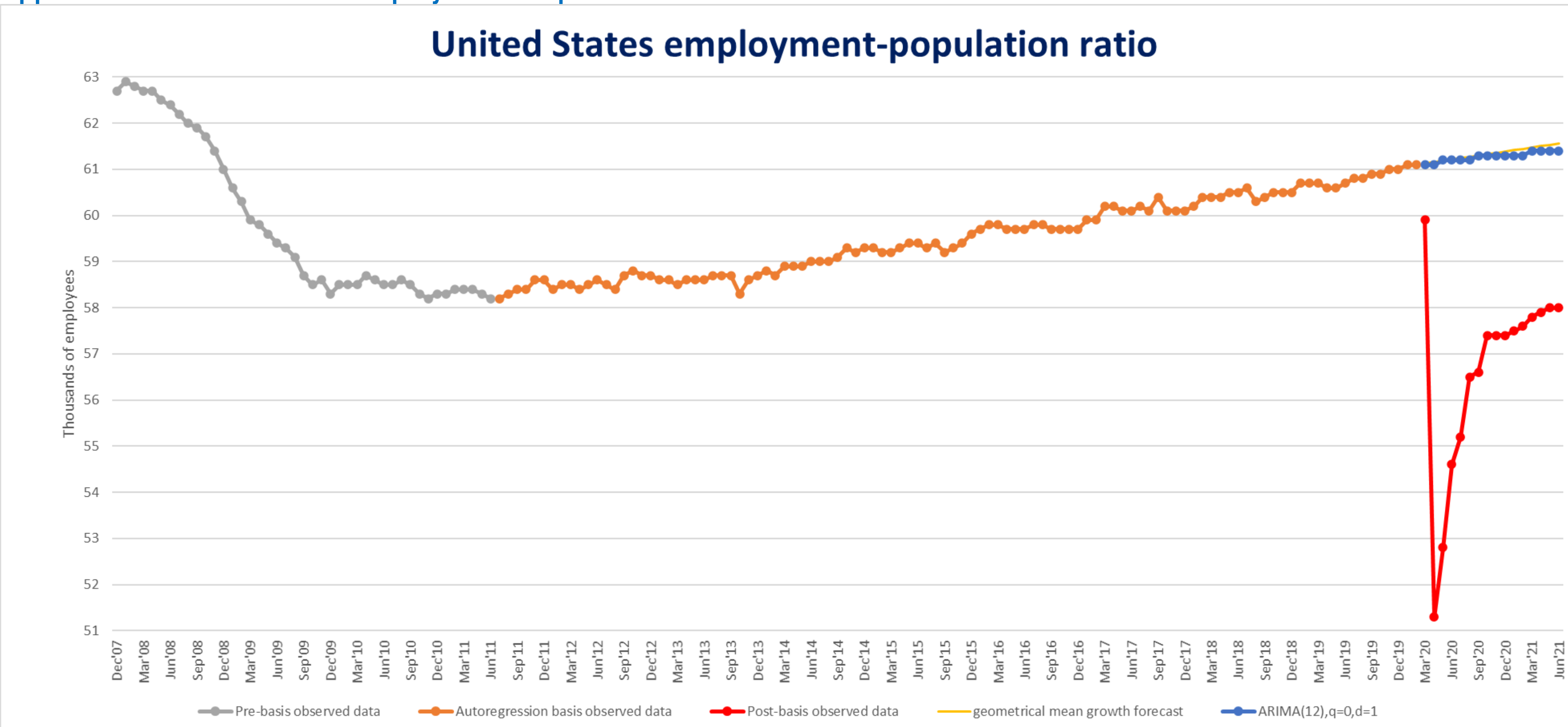


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	296.6739	80.7707	3.673038	0.000392
phi 1	-0.18303	0.099832	-1.83342	0.069806
phi 2	-0.06565	0.099966	-0.65674	0.512906
phi 3	-0.1646	0.097533	-1.68761	0.094699
phi 4	-0.02283	0.098143	-0.23261	0.816556
phi 5	-0.06979	0.098047	-0.71175	0.478325
phi 6	-0.16847	0.097836	-1.72197	0.088262
phi 7	0.099654	0.097397	1.023176	0.30877
phi 8	0.016719	0.097956	0.170681	0.86483
phi 9	-0.02285	0.09749	-0.23443	0.815148
phi 10	0.152511	0.096669	1.577663	0.117899
phi 11	-0.07119	0.097982	-0.72655	0.469253
phi 12	-0.18187	0.096758	-1.87968	0.063153

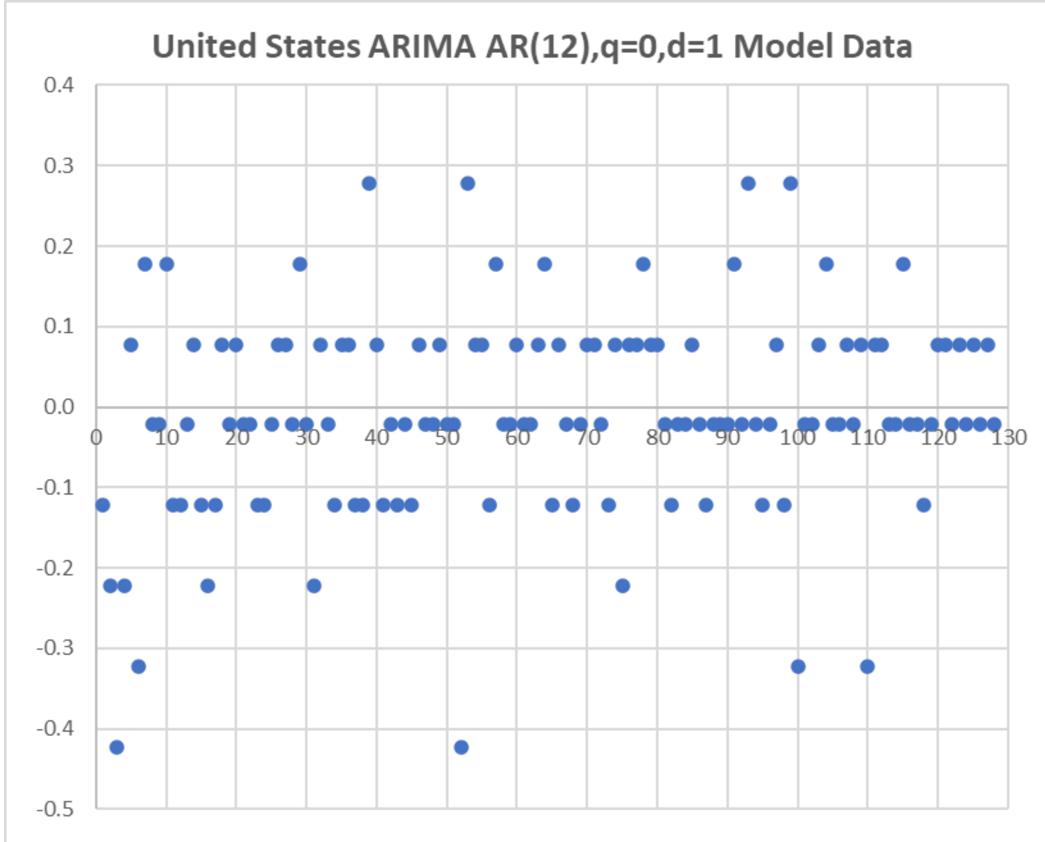


Appendix F3: United States Employment-Population Ratio ARIMA Model Forecast

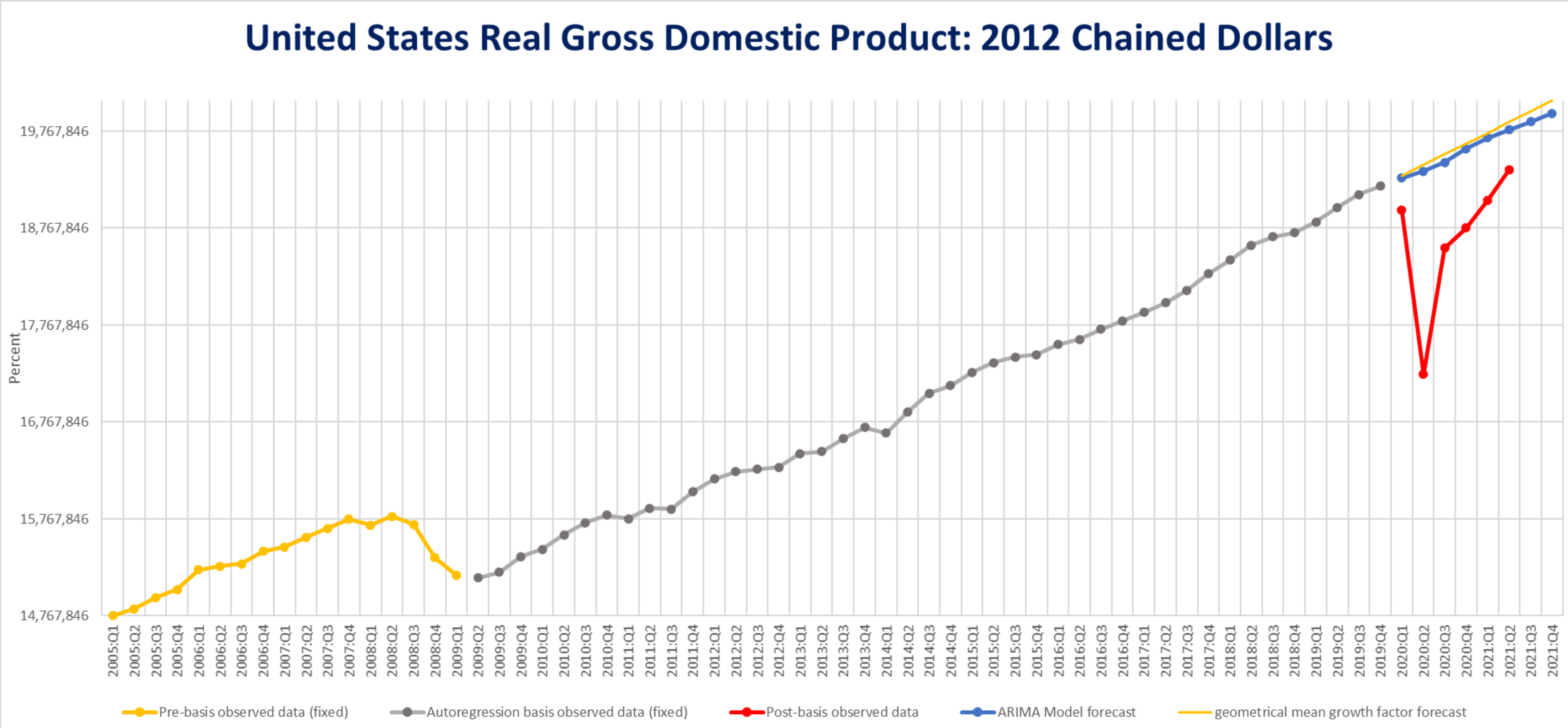


Model parameters

param	*coeff*	*s.e.*	*t-stat*	*p-value*
const	*0.039391*	*0.014551*	*2.707076*	*0.007948*
phi 1	-0.24234	0.098182	*-2.46825*	*0.015224*
phi 2	-0.14914	0.100997	*-1.47672*	*0.142802*
phi 3	-0.18234	0.100537	*-1.81368*	*0.072639*
phi 4	-0.07527	0.102537	*-0.73403*	*0.464597*
phi 5	-0.17765	0.102119	*-1.7396*	*0.084917*
phi 6	-0.06441	0.103761	*-0.62076*	*0.53613*
phi 7	0.054925	0.098815	*0.55583*	*0.579532*
phi 8	0.025791	0.098746	*0.261181*	*0.794474*
phi 9	-0.04638	0.095367	*-0.48636*	*0.627743*
phi 10	0.08837	0.08729	*1.012373*	*0.313732*
phi 11	0.008942	0.085279	*0.104859*	*0.916692*
phi 12	-0.02395	0.084018	*-0.28502*	*0.776198*



Appendix F4: United States Real GDP ARIMA Model Forecast



Model parameters

param	coeff	s.e.	t-stat	p-value
const	97410.35	96988.22	1.004352	0.329291
phi 1	0.134941	0.239579	0.563242	0.580624
phi 2	-0.15878	0.242428	-0.65496	0.521259
phi 3	0.227319	0.228378	0.995363	0.333517
phi 4	-0.32908	0.213459	-1.54164	0.14157
phi 5	0.139393	0.218548	0.637817	0.53209
phi 6	0.042046	0.197731	0.212644	0.834133
phi 7	0.158858	0.20352	0.780554	0.445798
phi 8	-0.37609	0.207188	-1.81519	0.087177
phi 9	-0.03564	0.213844	-0.16664	0.869616
phi 10	0.092844	0.217956	0.425977	0.675469
phi 11	0.006102	0.216236	0.028221	0.977815
phi 12	0.095721	0.209588	0.456708	0.653662