In Class Part A: Time Series Basics and Static Models (4 points per question)

- 1) The first model in the Stata output regresses employment in amusement parks and arcades on nonfarm employment. The second adds month indicators and a linear time trend.
- a) What is the purpose of adding the month indicators and the time trend?
- The monthly indicators control for predictable seasonal fluctuations. The time trend is to allow for a (more or less constant) growth rate over time.
- b) What do you make of the change in the coefficient on nonfarm employment that occurred when month indicators and a time trend were added?
- The general upward time trend in employment is present in total non-farm employment and amusement park employment, as likely are various seasonal patterns. The time trend captures that upward trend and the monthly indicators capture predictable seasonal factors. That leaves non-farm employment to provide information for the model on only variability around the predictable trend and seasonal effects in the second model.

2) Nonstationarity

- 2a) What is a non-stationary process and why do we need to be wary of them?
- Speaking loosely, a non-stationary process does not have a constant mean or variance—they change over time. Among the troubles: 1) we need to model a process that we expect to be the same in the future as in the data being used or what is the point, and 2) two non-stationary series that are completely independent are almost certain to show strong statistically significant correlation with one another due only to the non-stationarity.
- 2b) Why include lagged differences of the dependent variable in a Dickey-Fuller test?
- To control for serial correlation likely to interfere with statistical inference.
- 2c) Interpret the partial autocorrelogram and Dickey-Fuller test results for employment in amusement parks and arcades.
- The first order partial autocorrelation coefficient is essentially 1. And the null hypothesis it is one cannot be rejected. Thus the log of amusement park employment is I(1).
- 3) The third regression model in the output regresses the first difference of amusement park and arcade employment on nonfarm employment, including month indicators and a time trend.
- a) The time trend was statistically significant in the second model but not the third. What do you make of that?
- Any time trend reflected a constant growth rate. When we take the first difference, this is then captured in the constant in the model.
- b) Compare the coefficients on nonfarm employment in the second and third models. What likely explains the difference?
- The part of the correlation due to the non-stationarity, particularly strong first order autocorrelation, was removed by differencing.
- c) Interpret the Breusch-Godfrey test results that follow estimation of the third model.
- Even after differencing and controlling for movements in total non-farm employment, amusement part employment continues to show autocorrelation.

- 4) The fourth regression model is just like the third, but with Newey-West standard errors.
- a) Why use Newey-West standard errors?

To correct the coefficient standard errors for the presence of autocorrelation.

b) What are Newey-West standard errors anyway? How do they work?

They use the pattern of residual correlation in the sample, up to L lags and structured so the size of the correlation decays the further the lag from the present, to correct the coefficient covariance matrix for the presence of autocorrelation.

c) Why can't we use lots and lots of lags for the Newey-West standard errors?

Because it amounts to asking to estimate more parameters than the data available, since the residual covariance matrix has potentially n(n-1)/2 > n elements to estimate.

d) Why were 5 lags used in this case?

Just because the rule of thumb for the bet tradeoff between accounting for autocorrelation and adding complexity to the model, L=0.75T^(1/3), suggests the number.

e) Interpret the difference Newey-West standard errors make in the findings on the relationship between employment in amusement parks and arcades and nonfarm employment.

In the third regression, the standard error was 0.22. In the fourth, after allowing for serial correlation, it is 0.196. In this case, the difference is minor, but it is large in some cases.

In Class Part B: One Period Ahead Forecasting (8 points)

The Stata output for Part B contains three models that are potentially appropriate for making a one period ahead forecast of (the difference in the log of) amusement park and arcade employment. Using the output provided, make the case that Model 2 is the best of them.

The out of sample RMSE using leave one out cross validation and the last year that was held out is lower for model 2 than both others—though only slightly lower than in model 3.

Model 1 also contains a number of lags that do not appear to be systematically related to employment (as indicated by the joint F test) and for which there is no good reason to expect effects to persist that long into the future.

Model 3 leaves out the US unemployment rate. However, since amusement park employment depends heavily on visitors from out of state, it stands to reason that national economic conditions may provide important information this model leaves out.

Take home component (3 points additional content, 3 points for quality of the report)

This should be a formal report corresponding in large part to part B, though you may have used different models or independent variables, including the output you generated from estimating your versions of the models. In addition to that, it should include performing the forecast for the preferred model and generating figures with the actuals and the prediction and the forecast interval for evaluation and discussing them (figures for this additional work appear at the end of the log file). The report should have been formatted according to the instructions given. Here are the major points your report should have covered:

- 1. What is the purpose?
- 2. Should you difference and why?
- 3. Model Specification
 - 3.1. Which variables should you use? Why?
 - 3.2. How many lags? Why
 - 3.3. Use of cross validation and complete out of sample testing.
- 4. Actual Forecast for Selected Model, Charts, Discussion
 - 4.1. The prediction closely tracks the actual.
 - 4.2. The predicted difference almost always turns up when the actual difference turns up (which could include simply a smaller decline) and down when the actual difference turns down.
 - 4.3. The actual is almost always within the approximate 95% forecast interval.

Stata do file

```
*Midterm Work
*March 25, 2018
clear
set more off
cd "C:\Users\jdewey\Documents\A S18 Adv Topics\Midterm\"
log using "Midterm Work", replace
import delimited using "fl and us monthly data.csv"
** data prep
gen date=ym(year,month)
tsset date
format date %tm
gen ln_fl_amsparksarcadesemp_m = ln(fl_amsparksarcadesemp_m)
gen ln_fl_nonfarmemp_m = ln(fl_nonfarmemp_m)
gen ln_fl_laborforce_m = ln(fl_laborforce_m)
gen ln_fl_unemprate_m = ln(fl_unemprate_m)
gen ln_fl_bldpmt_m = ln(fl_bldpmt_m)
gen ln_us_civillianemptopopratio_m = ln(us_civillianemptopopratio_m)
gen ln_us_emptopopratio25to54_m = ln(us_emptopopratio25to54_m)
gen ln_us_bldpmt_m = ln(us_bldpmt_m)
gen ln_us_unemprate_m = ln(us_unemprate_m)
**Part A: Time Series Modeling
reg ln_fl_amsparksarcadesemp_m ln_fl_nonfarmemp_m
reg ln_fl_amsparksarcadesemp_m ln_fl_nonfarmemp_m i.month date
pac ln fl amsparksarcadesemp m
dfuller ln fl amsparksarcadesemp m, trend regress lags(12)
reg d.ln_fl_amsparksarcadesemp_m d.ln_fl_nonfarmemp_m i.month date
estat bgodfrey, lags(12)
newey d.ln_fl_amsparksarcadesemp_m d.ln_fl_nonfarmemp_m i.month date, lag(5)
**Part B: One Period Forecasting
***The last year is held out for a test set
**Model 1: Many lags of Y and X
loocv reg d.ln_fl_amsparksarcadesemp_m ///
          1(1/24)d.ln_fl_amsparksarcadesemp_m ///
          1(1/12)d.ln_us_unemprate_m i.month if tin(1990m1,2016m12)
reg d.ln_fl_amsparksarcadesemp_m ///
    1(1/24)d.ln_fl_amsparksarcadesemp_m ///
    1(1/12)d.ln_us_unemprate_m i.month if tin(1990m1,2016m12)
predict p_model_1
predict res model 1 , residual
gen ressq_model_1=res_model_1^2
summ ressq_model_1 if tin(2017m1, )
gen rmse_1=r(mean)^0.5
summ rmse 1
pac res_model_1
testparm 1(2/12)d.ln_us_un
```

```
testparm 1(2/11)d.ln_fl_am
*Model 2: Parsimonious Lag Structure in Y and X
loocv reg d.ln_fl_amsparksarcadesemp_m ///
          1(1,12,24)d.ln fl amsparksarcadesemp m ///
          1(1)d.ln us unemprate m i.month if tin(1990m1,2016m12)
req d.ln fl amsparksarcadesemp m ///
    1(1,12,24)d.ln_fl_amsparksarcadesemp_m ///
    1(1)d.ln_us_unemprate_m i.month if tin(1990m1,2016m12)
predict p model 2
predict res_model_2, residual
gen ressq_model_2=res_model_2^2
summ ressq_model_2 if tin(2017m1, )
gen rmse_2=r(mean)^0.5
summ rmse_2
pac res_model_2
*Model 3: Y only
loocv reg d.ln_fl_amsparksarcadesemp_m ///
          1(1,12,24)d.ln_fl_amsparksarcadesemp_m ///
          i.month if tin(1990m1,2016m12)
reg d.ln_fl_amsparksarcadesemp_m ///
    1(1,12,24)d.ln fl amsparksarcadesemp m ///
    i.month if tin(1990m1,2016m12)
predict p_model_3
predict res_model_3 , residual
gen ressg model 3=res model 3^2
summ ressq_model_3 if tin(2017m1, )
gen rmse_3=r(mean)^0.5
summ rmse_3
pac res_model_3
*Forecast and graphs for Model 2
reg d.ln_fl_amsparksarcadesemp_m ///
    1(1,12,24)d.ln fl amsparksarcadesemp m ///
    1(1)d.ln us unemprate m i.month if tin(1990m1, )
predict Predicted_DLN
predict stdf2_model2, stdf
gen FIUB=Predicted_DLN+2*stdf2_model2
gen FILB=Predicted_DLN-2*stdf2_model2
tsline d.ln fl amsparksarcade Predicted DLN if tin(2010ml, ) , ///
       title("Employment Amusement Parks and Arcades in Florida") ///
       scheme(s2mono) ytitle("Log Difference from Previous Month") ///
       xtitle("") legend(label(1 "Actual") label(2 "Predicted" ))
tsline d.ln_fl_amsparksarcade FIUB FILB if tin(2010m1, ) , ///
       title("Employment Amusement Parks and Arcades in Florida") ///
       scheme(s2mono) ytitle("Log Difference from Previous Month") ///
       xtitle("") legend(label(1 "Actual") ///
         label(2 "Upper Bound" ) label(3 "Lower Bound"))
```

Stata Log File - Graphs Added

```
name: <unnamed>
      log: C:\Users\jdewey\Documents\A S18 Adv Topics\Midterm\Midterm Work.smcl
 log type: smcl
 opened on: 25 Mar 2018, 13:51:46
. import delimited using "fl and us monthly data.csv"
(11 vars, 338 obs)
. ** data prep
. gen date=ym(year,month)
. tsset date
      time variable: date, 360 to 697 delta: 1 unit
. format date %tm
. gen ln_fl_amsparksarcadesemp_m = ln(fl_amsparksarcadesemp_m)
(2 missing values generated)
. gen ln_fl_nonfarmemp_m = ln(fl_nonfarmemp_m)
(2 missing values generated)
. gen ln_fl_laborforce_m = ln(fl_laborforce_m)
(2 missing values generated)
. gen ln_fl_unemprate_m = ln(fl_unemprate_m)
(2 missing values generated)
. gen ln_fl_bldpmt_m = ln(fl_bldpmt_m)
(1 missing value generated)
. gen ln_us_civillianemptopopratio_m = ln(us_civillianemptopopratio_m)
. gen ln_us_emptopopratio25to54_m = ln(us_emptopopratio25to54_m)
. gen ln_us_bldpmt_m = ln(us_bldpmt_m)
(1 missing value generated)
. gen ln_us_unemprate_m = ln(us_unemprate_m)
. **Part A: Time Series Modeling
. reg ln_fl_amsparksarcadesemp_m ln_fl_nonfarmemp_m
    Source
                            df
                                   MS
                                          Number of obs =
                SS
                                                                 336
=
                                                             0.0000
  Residual | 2.73319729
                                                         = 0.7958
------ Adj R-squared = 0.7952
     Total | 13.3826311
                           335 .039948152 Root MSE
ln_fl_amsparksar~m | Coef. Std. Err. t P>|t| [95% Conf. Interval]
-----
ln_fl_nonfarmemp_m | 1.26385 .0350344 36.07 0.000 1.194934 1.332766

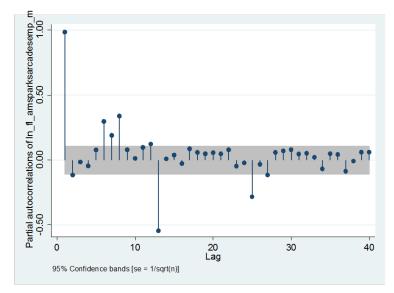
_cons | -7.192252 .3099447 -23.20 0.000 -7.801942 -6.582563
```

. reg ln_fl_amsparksarcadesemp_m ln_fl_nonfarmemp_m i.month date

| Source | SS | df | MS | Number of obs | = | 336 |
|----------|------------|-----|------------|---------------|---|--------|
| | | | | F(13, 322) | = | 233.13 |
| Model | 12.0973567 | 13 | .930565899 | Prob > F | = | 0.0000 |
| Residual | 1.28527439 | 322 | .003991535 | R-squared | = | 0.9040 |
| | | | | Adj R-squared | = | 0.9001 |
| Total | 13.3826311 | 335 | .039948152 | Root MSE | = | .06318 |

| ln_fl_amsparksar~m | Coef. | Std. Err. | t | P> t | [95% Conf. | Interval] |
|--------------------|----------|-----------|-------|-------|------------|-----------|
| ln_fl_nonfarmemp_m | .4405917 | .0588552 | 7.49 | 0.000 | .3248024 | .556381 |
| month | | | | | | |
| 2 | .0189225 | .0168911 | 1.12 | 0.263 | 0143083 | .0521533 |
| 3 | .0423161 | .0169062 | 2.50 | 0.013 | .0090556 | .0755766 |
| 4 | .0554543 | .0168992 | 3.28 | 0.001 | .0222074 | .0887011 |
| 5 | .061782 | .0168978 | 3.66 | 0.000 | .028538 | .0950261 |
| 6 | .1065679 | .0168863 | 6.31 | 0.000 | .0733466 | .1397893 |
| 7 | .1083098 | .0169 | 6.41 | 0.000 | .0750615 | .1415581 |
| 8 | .0797846 | .0168885 | 4.72 | 0.000 | .0465589 | .1130104 |
| 9 | .055445 | .0168877 | 3.28 | 0.001 | .0222209 | .0886691 |
| 10 | .0381391 | .0168912 | 2.26 | 0.025 | .004908 | .0713702 |
| 11 | .0171462 | .0169105 | 1.01 | 0.311 | 0161227 | .0504152 |
| 12 | .0232929 | .0169307 | 1.38 | 0.170 | 0100159 | .0566016 |
| | | | | | | |
| date | .0013297 | .0000853 | 15.59 | 0.000 | .0011618 | .0014975 |
| _cons | 6619079 | .4798783 | -1.38 | 0.169 | -1.606001 | .2821848 |
| | | | | | | |

. pac ln_fl_amsparksarcadesemp_m



. dfuller $ln_fl_amsparksarcadesemp_m$, trend regress lags(12)

| Augmented Dic | key-Ful | ller tes | | | | terno | | Number of ted Dickey | | | 323 |
|---------------------------------|--|---|--|---------------------|--|--|--|--|--|--|--|
| | | est Istic | | % Cri | tical lue | CCIPC | | Critical Value | | % Crit Val | ical |
| Z(t) | -2 | 2.212 | | | 3.987 | | | -3.427 | | -3 | .130 |
| MacKinnon app | | e p-valı | | | | 831 | | | | | |
| O.ln_fl_am~m | + | Coef. | Std. | Err. | t | . F | > | t [95 | % Conf. | Inter | val] |
| ln_fl_amsp~m | | 002070 | 0.1 | 7207 | 2 2 | 1 0 | | 00 07 | 04001 | 0.0.4 | 2226 |
| L1. LD. | ! | 383278)28895 | | 7327 8609 | -2.2 -0.5 | | 0.0 | | 24221 45428 | 004 | 7528 |
| L2D. | | 374161 | .048 | | -0.5 | |).4 | | 22704 | | 4382 |
| L3D. | 1 | | .047 | | 0.6 | |).5 | | 49128 | | 6671 |
| L4D. | ! | 203811 | .047 | | -0.4 | |).6 | | 40287 | | 2665 |
| L5D. | 11 | L57919 | .047 | 3818 | -2.4 | | 0.0 | | 90249 | 02 | 2559 |
| L6D. | 09 | 04795 | .046 | 6345 | -1.9 | 4 (| 0.0 | 5318 | 22421 | .001 | .2831 |
| L7D. | 13 | 399554 | .046 | | -3.0 | | 0.0 | | 12827 | 048 | 6282 |
| L8D. | | 297848 | .044 | | -0.6 | | .5 | | 79022 | | 3327 |
| L9D. | ! | 142856 | .04 | | -0.1 | |).9 | | 91976 | | 4048 |
| L10D. | 1 | 313607 | .044 | | -0.7 | | .4 | | 87164 | | 9949 |
| L11D. | 1 | 548674 | .044 | | -1.4 | |).1 | | 21097 | | 3749 |
| L12D. | 1 | 551247 | .04 | | 12.3 | | 0.0 | | 36766 | | 8173 |
| _trend _cons | ! | 00768 117888 | .000 | 0347 4466 | 2.2 | | 0.0 | | 4e-06 69451 | | 0145 6325 |
| Source Model Residual | 1 | SS 2043278 2578679 | | df 13 321 | .01169 | 5637 | | Number of (F(13, 321) Prob > F R-squared | = | 0. | 335 9.85 0000 5473 |
| Residuai | •±4 + | | | | .00039 | | | R-squared Adj R-squa: | | | 5289 |
| Total | .275 | 7830068 | | | .00083 | | | Root MSE | = | | 0198 |
|). ln_fl_amspark | sar~m | Co | oef. | Std | . Err. | | t | P> t | [95% | Conf. | Interval |
| ln_fl_nonfarm | emp_m D1. | .296 | | | | | | | | | |
| | | | 3923 | .22 | 04301 | 1. | 34 | 0.180 | 137 | 2778 | .730062 |
| 1 | month | | 3923 | . 22 | 04301 | 1. | 34 | 0.180 | 137 | 2778 | .730062 |
| 1 | month 2 | .040 | | | 04301 78251 | | 34 | 0.180 | | 2778 1963 | .730062 |
| 1 | 2 | .040 | 5913 | .00 | 78251 07687 | 5. | | 0.000 | .025 | | .055986 |
| 1 | 2 3 4 | .0449 | 5913 9418 3373 | .00 | 78251 07687 63634 | 5. 5. 5. | .19 .85 | 0.000 0.000 0.000 | .025 | 1963 8184 8181 | .055986 .060065 |
| 1 | 2 3 4 5 | .0449 | 5913 9418 3373 8119 | .00 | 78251 07687 63634 66069 | 5. 5. 4. | .19 .85 .24 | 0.000 0.000 0.000 0.000 | .025 .029 .020 | 1963 8184 8181 8137 | .055986 .060069 .045856 |
| 1 | 2 3 4 5 6 | .0449 .0333 .0268 .0639 | 5913 9418 3373 8119 | .00 | 78251 07687 63634 66069 56779 | 5. 5. 5. 4. | .19 .85 .24 .06 | 0.000 0.000 0.000 0.000 | .025 .029 .020 .013 | 1963 8184 8181 8137 8212 | .055986 .060065 .045856 .039810 |
| 1 | 2 3 4 5 6 7 | .0449 .0333 .0268 .0639 | 5913 9418 3373 8119 9918 5223 | .00 | 78251 07687 63634 66069 56779 54894 | 5. 5. 4. 11. | 19 85 24 06 27 | 0.000 0.000 0.000 0.000 0.000 | .025 .029 .020 .013 .052 | 1963 8184 8181 8137 8212 7225 | .055986 .060065 .045856 .039810 .075162 |
| 1 | 2 3 4 5 6 7 8 | .0449 .033 .0268 .0639 .0209 | 5913 9418 3373 8119 9918 5223 8206 | .00 | 78251 07687 63634 66069 56779 54894 78386 | 5. 5. 4. 11. 3. | 19 85 24 06 27 74 | 0.000 0.000 0.000 0.000 0.000 0.000 0.385 | .025 .029 .020 .013 .052 .009 | 1963 8184 8181 8137 8212 7225 2422 | .055986 .060065 .045856 .039810 .075162 .031322 |
| 1 | 2 3 4 5 6 7 8 9 | .0449 .0333 .0269 .0639 .0209 0068 | 5913 9418 3373 8119 9918 5223 8206 0493 | .000 | 78251 07687 63634 66069 56779 54894 78386 73834 | 5. 5. 4. 11. 3. | 19 85 24 06 27 74 87 | 0.000 0.000 0.000 0.000 0.000 0.000 0.385 0.680 | .025 .029 .020 .013 .052 .009 | 1963 8184 8181 8137 8212 7225 2422 5753 | .055986 .060069 .045856 .039810 .075162 .031322 .00860 |
| 1 | 2 3 4 5 6 7 8 9 | .0449 .0333 .0269 .0639 .0209 0069 0030 | 5913 9418 3373 8119 9918 5223 8206 0493 | .000 | 78251 07687 63634 66069 56779 54894 78386 73834 07346 | 5. 5. 4. 11. 3. -0. | 19 85 24 06 27 74 87 41 | 0.000 0.000 0.000 0.000 0.000 0.000 0.385 0.680 0.591 | .025 .029 .020 .013 .052 .009 022 017 | 1963 8184 8181 8137 8212 7225 2422 5753 4997 | .055980 .060069 .045850 .039810 .075169 .031329 .00860 .011470 |
| 1 | 2 3 4 5 6 7 8 9 | .0449 .0333 .0269 .0639 .0209 0068 | 5913 9418 3373 8119 9918 5223 8206 0493 9528 9348 | .000 | 78251 07687 63634 66069 56779 54894 78386 73834 | 5. 5. 4. 11. 3. -0. 0. | 19 85 24 06 27 74 87 | 0.000 0.000 0.000 0.000 0.000 0.000 0.385 0.680 | .025 .029 .020 .013 .052 .009 022 017 | 1963 8184 8181 8137 8212 7225 2422 5753 4997 | .055986 .060069 .045856 .039810 .075162 .031322 |
| 1 | 2 3 4 5 6 7 8 9 10 | .044 .033 .026 .063 .020 006 003 | 5913 9418 3373 8119 9918 5223 8206 0493 9528 9348 5626 | .000 | 78251 07687 63634 66069 56779 54894 78386 73834 07346 80783 | 5. 5. 4. 11. 3. -0. 0. | 19 85 24 06 27 74 87 41 54 12 | 0.000 0.000 0.000 0.000 0.000 0.000 0.385 0.680 0.591 0.908 | .025 .029 .020 .013 .052 .009 022 017 | 1963 8184 8181 8137 8212 7225 2422 5753 4997 9582 7977 | .055986 .060069 .045856 .039810 .075162 .031322 .00866 .011476 .018409 |

. estat bgodfrey, lags(12)

Breusch-Godfrey LM test for autocorrelation

| lags(p) | chi2 | df | Prob > chi2 |
|---------|--------|----|-------------|
| 12 | 37.976 | 12 | 0.0002 |

HO: no serial correlation

| . newey d.ln_fl_amsparksarcadesemp_m d.ln_fl_nc | onfarmemp_m | i.month | date, | lag(5) |
|---|-------------|---------|-------|--------|
| Regression with Newey-West standard errors | Number of | obs | = | 335 |
| maximum lag: 5 | F(13, | 321) | = | 38.65 |
| | Prob > F | | = | 0.0000 |

| D. | | Newey-West | | _ 1.1 | | |
|--------------------|-----------|------------|-------|-------|------------|-----------|
| ln_fl_amsparksar~m | Coef. | Std. Err. | t | P> t | [95% Conf. | Interval] |
| ln_fl_nonfarmemp_m | | | | | | |
| D1. | .2963923 | .1957429 | 1.51 | 0.131 | 0887088 | .6814934 |
| 21. | 12703723 | .1737127 | 1.31 | 0.151 | .0007000 | .0011731 |
| month | | | | | | |
| 2 | .0405913 | .0087143 | 4.66 | 0.000 | .023447 | .0577356 |
| 3 | .0449418 | .0078255 | 5.74 | 0.000 | .0295461 | .0603374 |
| 4 | .0333373 | .007943 | 4.20 | 0.000 | .0177104 | .0489642 |
| 5 | .0268119 | .0068342 | 3.92 | 0.000 | .0133665 | .0402573 |
| 6 | .0639918 | .0066808 | 9.58 | 0.000 | .0508482 | .0771354 |
| 7 | .0205223 | .0061924 | 3.31 | 0.001 | .0083395 | .0327051 |
| 8 | 0068206 | .0074224 | -0.92 | 0.359 | 0214233 | .0077822 |
| 9 | 0030493 | .0078552 | -0.39 | 0.698 | 0185034 | .0124049 |
| 10 | .0039528 | .0092023 | 0.43 | 0.668 | 0141517 | .0220572 |
| 11 | .0009348 | .0075343 | 0.12 | 0.901 | 013888 | .0157577 |
| 12 | .0275626 | .0069349 | 3.97 | 0.000 | .0139189 | .0412062 |
| | | | | | | |
| date | -4.23e-06 | .0000105 | -0.40 | 0.687 | 0000249 | .0000164 |
| _cons | 0168444 | .0085823 | -1.96 | 0.051 | 0337292 | .0000403 |

. **Part B: One Period Forecasting

. ***The last year is held out for a test set

. **Model 1: Many lags of Y and X

```
. loocv reg d.ln_fl_amsparksarcadesemp_m ///
```

> l(1/24)d.ln_fl_amsparksarcadesemp_m ///

> l(1/12)d.ln_us_unemprate_m i.month if tin(1990m1,2016m12)

Leave-One-Out Cross-Validation Results

| · | Method | Value |
|---|----------------------|-----------|
| Root Mean Squared Errors .01930523 Mean Absolute Errors .01485857 Pseudo-R2 .48661599 | Mean Absolute Errors | .01485857 |

- . reg d.ln_fl_amsparksarcadesemp_m ///
- > l(1/24)d.ln_fl_amsparksarcadesemp_m ///
- > l(1/12)d.ln_us_unemprate_m i.month if tin(1990m1,2016m12)

| Model .140385958 | Source | S | SS | df | | MS | | | er of obs | = | 2 | |
|--|-----------------|--------------|----------|-------|------|----------|----|------|-----------|------|-------|----------------------|
| Total .21817606 298 .000732134 Root MSE | Model | .14038 | | 47 | .00 |)2986935 | ; | | | | | |
| Total 21817606 298 .000732134 Root MSE = .0176 | Residual | | 0102 | 251 | .00 | 0309921 | | R-sq | | | 0.64 | |
| D. In.fl_amsparksarca-m | + | | | | | | | | | | | |
| In_fl_amsparksarca-m Coef. Std. Err. t P- t [95% Conf. Interval] | Total | .2181 | .7606 | 298 | .00 | 00732134 | : | Root | MSE | = | .01 | 76 |
| In_fl_amsparksarca-m | D. | | | | | | | | | | | |
| LD. 1052156 .0619833 -1.70 0.091 2272892 0.16858 0.650859 0.666638 -1.04 0.300 188498 0.583279 0.130 0.113327 0.623814 0.18 0.856 1115249 1.341904 1.450 0356583 0.622978 -0.57 0.566 1135249 1.341904 1.450 0721342 0.614085 -1.17 0.241 1930758 0.488074 0.16 0.002964 0.618638 -0.05 0.963 1247446 1.189319 0.16 0.002964 0.16 0.002964 0.16 0.002964 0.14985 -0.99 0.325 -1830793 0.609308 0.15 0.002964 0.0614581 -0.46 0.645 -1.495688 0.929117 0.920401 0.614581 -0.46 0.645 -1.495688 0.929117 0.1001 0.0227261 0.0601375 -0.38 0.706 -1.4101645 0.957723 0.1100 -0.227261 0.0601375 -0.38 0.706 -1.4101645 0.957723 0.1100 -0.227261 0.0601375 -0.38 0.706 -1.4101645 0.9577123 0.1120 1.1887552 0.0601010 3.11 0.002 0.069386 3.081245 0.1300 0.0618843 0.18 0.861 -1109986 1.327589 0.1400 -0.050538 0.615985 -0.41 0.684 -1.1409302 0.962227 0.15507 0.0614662 0.86 0.389 -0.679981 1.741124 0.1600 -0.10063 0.607259 -1.65 0.101 -2.196602 0.195333 0.1170 0.0565976 0.061151 1.09 0.276 -0.552697 0.803217 0.1140749 0.575934 0.575934 -0.77 0.440 -1.579704 0.688301 0.1210 -0.0445701 0.575974 -0.77 0.440 -1.579704 0.688301 0.1210 -0.0445701 0.575974 -0.77 0.440 -1.579704 0.688301 0.1210 -0.047499 0.575933 -0.71 0.480 -1.541745 0.726847 0.1210 -0.055697 0.061015 0.90 0.550 -0.052658 0.043131 0.005258 0.0532 0.05258 0.043131 0.055258 0.0532 0.05258 0.0532 0.05258 0.043313 0.055258 0.0533 0.0532 0.05258 0.0533 0.05258 0.0533 0.05258 0.0533 0.05258 0.0533 0.05258 0.0533 0.05258 0.0533 0.0543313 0.005558 0.0533 0.05558 0.0533 0.05558 0.0533 0.05558 0.0533 0.05558 0.055938 0.05558 0.055938 0.05558 0.055938 0.05558 0.05558 0.05558 0.05559 | ln_fl_amsparks | sarca~m | Coef | St | td. | Err. | | t | P> t | [95% | Conf. | <pre>Interval]</pre> |
| LD. 1052156 .0619833 -1.70 0.091 2272892 0.16858 0.650859 0.666638 -1.04 0.300 188498 0.583279 0.130 0.113327 0.623814 0.18 0.856 1115249 1.341904 1.450 0356583 0.622978 -0.57 0.566 1135249 1.341904 1.450 0721342 0.614085 -1.17 0.241 1930758 0.488074 0.16 0.002964 0.618638 -0.05 0.963 1247446 1.189319 0.16 0.002964 0.16 0.002964 0.16 0.002964 0.14985 -0.99 0.325 -1830793 0.609308 0.15 0.002964 0.0614581 -0.46 0.645 -1.495688 0.929117 0.920401 0.614581 -0.46 0.645 -1.495688 0.929117 0.1001 0.0227261 0.0601375 -0.38 0.706 -1.4101645 0.957723 0.1100 -0.227261 0.0601375 -0.38 0.706 -1.4101645 0.957723 0.1100 -0.227261 0.0601375 -0.38 0.706 -1.4101645 0.9577123 0.1120 1.1887552 0.0601010 3.11 0.002 0.069386 3.081245 0.1300 0.0618843 0.18 0.861 -1109986 1.327589 0.1400 -0.050538 0.615985 -0.41 0.684 -1.1409302 0.962227 0.15507 0.0614662 0.86 0.389 -0.679981 1.741124 0.1600 -0.10063 0.607259 -1.65 0.101 -2.196602 0.195333 0.1170 0.0565976 0.061151 1.09 0.276 -0.552697 0.803217 0.1140749 0.575934 0.575934 -0.77 0.440 -1.579704 0.688301 0.1210 -0.0445701 0.575974 -0.77 0.440 -1.579704 0.688301 0.1210 -0.0445701 0.575974 -0.77 0.440 -1.579704 0.688301 0.1210 -0.047499 0.575933 -0.71 0.480 -1.541745 0.726847 0.1210 -0.055697 0.061015 0.90 0.550 -0.052658 0.043131 0.005258 0.0532 0.05258 0.043131 0.055258 0.0532 0.05258 0.0532 0.05258 0.043313 0.055258 0.0533 0.0532 0.05258 0.0533 0.05258 0.0533 0.05258 0.0533 0.05258 0.0533 0.05258 0.0533 0.05258 0.0533 0.0543313 0.005558 0.0533 0.05558 0.0533 0.05558 0.0533 0.05558 0.0533 0.05558 0.055938 0.05558 0.055938 0.05558 0.055938 0.05558 0.05558 0.05558 0.05559 | ln fl amenarke | + :arca~m | | | | | | | | | | |
| L2D. .0650859 .0626638 .1.04 0.300 .1884998 .0583279 L3D. .0113327 .0623814 .0.18 0.886 .1115249 .1341904 L4D. .0356583 .0622978 .0.57 0.568 .1583513 .0870346 L5D. .0721342 .0614085 .1.17 0.241 .1930758 .048074 L6D. .0029064 .0618638 .0.05 .0.963 .1247446 .1189319 L7D. .0610742 .0619485 .0.99 0.325 .1830793 .0693308 L8D. .0283865 .0615996 .0.46 .0.645 .1496848 .0929117 L9D. .0280401 .0614581 .0.46 .0.645 .14969793 .0929917 L1DD. .0227261 .0610375 .0.38 .0706 .1411645 .0957123 L1DL .1101929 .0601762 .1.83 .0.68 .2287075 .0083217 L1DL .1101929 .0601762 .1.83 .0.68 .2287075 .0083217 L1DL .1008801 .0618843 .0.18 0.861 .1109986 .3307845 L14D. .0.050538 .0615795 .0.41 .0.68 .1.109986 .1327589 L14D. .0.5050538 .0615795 .0.41 .0.68 .1.109986 .1327589 L14D. .0.5050571 .0614662 0.86 0.399 .0679981 .1741124 L16D. .0.530571 .0614662 0.86 0.399 .0679981 .1741124 L16D. .0.505976 .0601151 1.09 0.276 .0526967 .1840919 L18D. .0.350884 .0591959 0.59 0.554 .0.081955 .1516723 L2DD. .0445701 .0575794 .0.77 0.440 .1579704 .0688301 L2DD. .0684074 .0563874 .1.21 0.226 .0.026453 .1794601 L2DD. .0684074 .0563874 .1.21 0.226 .0.026453 .1794601 L2DD. .005341 .0394213 .1.08 0.279 .1203702 .0349073 L3DD. .0117992 .0396611 0.30 0.766 .0426453 .079406 L2DD. .0447714 .0394213 .1.08 0.279 .1203702 .0349073 L3DD. .01757904 .00403716 .1.9 .0.88 .0.005 .0493131 .2700906 L2DD. .0047714 .0394213 .1.08 0.279 .1203702 .0049074 LDD. .0049312 .0040744 .0560578 .0.3 .0.9 .1697376 .0.0154143 L6DD. .0775704 .00403716 .1.9 .0.88 .0.005 .0.005177 .0.005975 L1DD. .0.0158879 .0.396611 0.30 0.766 .0.063117 .0.0891 LDD. .0158879 .0391649 0.40 0.691 | III_II_amspaiks | | 1052156 | 5 .(| 0619 | 9833 | -1 | .70 | 0.091 | 227 | 2892 | .016858 |
| L4D. -0.356583 .0622978 -0.57 0.568 -1.583513 .0870346 L5D. -0.0721342 .0614085 -1.17 0.241 -1.930758 .0488074 L6D. -0.0029064 .0618638 -0.05 0.963 -1.247446 .1189319 L7D. -0.610742 .0619485 -0.99 0.325 -1.830793 .0609308 L8D. -0.283865 .0615896 -0.46 .0.645 -1.4969848 .0929117 L9D. -0.227661 .0616375 -0.38 .0706 -1.411645 .0957123 .1002 .061375 .038 .0706 .1411645 .0957123 .1002 .061375 .038 .0706 .1411645 .0957123 .11D. -1.011929 .0601762 -1.83 .0.068 -2.287075 .0083217 .12D. .188752 .066101 .3.11 .0.02 .069386 .3081245 .12D. .0108801 .0618843 0.18 0.861 -1.109986 .1327589 .1410. -0.250538 .0615755 -0.41 .0.684 -1.63302 .0962227 .12D. .0530571 .0614662 0.86 0.389 -0.679981 .1741124 .11D. .0556976 .061151 .09 .0276 .0.568697 .1840919 .11D. .0556976 .0601151 .09 .0276 .0.568697 .1840919 .1410. .0.12924 .0599232 -0.22 0.829 -1.309404 .1050923 .150414 .12D. .0.407449 .05755943 -0.77 0.440 -1.579704 .0688301 .12D. .0.050884 .0591599 .059 .0.554 .0.814955 .1516723 .12D. .0.0564074 .0553874 -0.77 0.440 -1.579704 .0688301 .12D. .0.0553428 .0.562758 0.63 .0.532 .0.0554053 .1749601 .12D. .0.075577 .0.950503 .285 .0.05 .0.493131 .2700906 .12D. .0.075577 .0.395101 0.19 0.848 .0.0702558 .0.853713 .12D. .0.17992 .0.396611 0.30 0.766 .0.663117 .0.08913 .1400756 .0.061575 .0.0407449 .0.075774 .0.075744 .0.067 .0.040745 .0.075794 . | | | 0650859 | | | | | | | 188 | 4998 | |
| L5D. | | L3D. | .0113327 | 7 . (| 0623 | 3814 | 0 | .18 | 0.856 | 111 | 5249 | .1341904 |
| L6D. 0029064 | | L4D. | 0356583 | 3 . (| 0622 | 2978 | -0 | .57 | 0.568 | 158 | 3513 | .0870346 |
| L7D. 0610742 .0619485 -0.99 0.325 1830793 .0609308 L8D. 0283865 .0615896 -0.46 0.645 1496848 .0929117 L9D. 0280401 .0614581 -0.46 0.649 1490793 .0929992 L1DD. 0227261 .0601375 -0.38 0.706 1411645 .0957123 L1DD. 110929 .0601375 -0.38 0.706 1411645 .0957123 L1DD. .1887552 .0606101 3.11 0.002 .069386 .3081245 L13D. .0108801 .0618843 0.18 0.861 1109986 .1327589 L14D. 0250538 .0615795 -0.41 0.684 1463302 .0962227 L15D. .0530571 .0614662 0.86 0.389 0679981 1.741124 L16D. 100063 .0607259 -1.65 0.101 2196602 .0195343 L17D. .0656976 .0601151 1.09 0.276 0526967 .1840919 L18D. 012924 .0599232 -0.22 0.829 1309404 .1050923 L19D. 0350884 .0591959 0.559 0.554 0814955 .1516723 L2DD. 0445701 .0575794 -0.77 0.440 1579704 0.688301 L2DD. 0445701 .0553874 1.21 0.226 0426453 1.794601 L23D. .035428 .0562758 0.63 0.532 0755901 1460756 L24D. .1597019 .0560503 2.85 0.005 0.493131 .2700906 L2D. 0427314 .0383489 -1.84 0.067 -1460607 .08991 L4D. 0705341 .0383489 -1.84 0.067 -1460607 .08991 L4D. 075577 .0395010 0.19 0.848 0702558 0.0853713 L5D. 092576 .0391791 -2.36 0.019 -1.697376 -0.0154143 L6D. 0775704 .0403716 -1.92 0.056 -1.570807 0.019399 L4D. .0438713 .038679 0.49 0.626 0573014 0.99504 Month .0158879 .038968 -0.31 0.754 -0.912779 0.66153 L1DD. .0158879 .038968 -0.31 0.754 -0.912779 0.661653 L1DD. .0158879 .038968 -0.31 0.754 -0.9912779 0.661653 L1DD. .0158871 .038968 0.34 0.667 -0.059988 0.935668 L1DD. .0158879 .038968 -0.31 0.754 -0.9912779 0.661653 L1DD. .0158871 .038968 0.49 0.626 -0.573014 0.99504 Month .00004566 .0143671 0.02 0.981 -0.079356 0.046974 A | | L5D. | 0721342 | 2 . (| 0614 | 1085 | -1 | .17 | 0.241 | 193 | 0758 | |
| L8D. 0283865 .0615896 -0.46 0.645 1496848 .0929117 L9D. 0280401 .0614581 -0.46 0.649 1490793 .0929992 L10D. 0227261 .0601375 -0.38 0.706 1411645 .0957123 L11D. 1887552 .06016101 3.11 .002 .069386 .3081245 L12D. .1887552 .0606101 3.11 .002 .069386 .3081245 L13D. .0108801 .0618843 0.18 0.861 1109986 .1327589 L14D. -0.250538 .0615785 -0.41 .0.684 1463302 .0962227 L15D. .0530571 .0614662 0.86 0.389 0679981 .1741124 L16D. 100063 .0607259 -1.65 0.101 2196602 .0195343 L17D. .0656976 .0601151 1.09 0.276 0526967 .1840919 L18D. -0.012924 .0599232 -0.22 0.829 1309404 .1050923 L19D. .0350884 .0591959 .059 0.554 814955 .1516723 L2DD. 0445701 .0575794 -0.77 0.440 1579704 .0688301 L2DD. 0445701 .0575943 -0.71 0.480 1541745 .0726847 L22D. .0684074 .0563874 1.21 0.226 0426453 1.794601 L23D. .0352428 .0562758 0.63 0.532 0755901 1.460756 L24D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 ln_us_unemprate_m LD 0705341 .0383489 -1.84 0.067 1460607 .004926 L2D. 0427314 .0383489 -1.84 0.067 1460607 .004926 L2D. 0427314 .0394213 -1.08 0.279 1203702 .0349073 L3D. .0117992 .0396611 0.39 0.766 0663117 .08991 L4D. .0075577 .0391791 -2.36 0.019 -1.697376 -0.0154143 L6D. 0775704 .0403716 -1.92 .056 1570807 .0019399 L7D. .0439132 .0406744 1.08 0.281 361935 .1240198 L8D. 0174837 .0399365 -0.44 .0.662 0961252 .0611578 L1DD. .0158879 .039968 -0.31 .0754 0912779 .066153 L8D. .015873 .039968 -0.31 .0754 0912779 .066153 L8D. .015873 .039968 .0300 .024400 .00777570 .040940 .00777570 .040940 .00777570 .00977570 .00977570 .00977570 .00977570 .00977570 .00977570 .00977570 .0 | | L6D. | 0029064 | | | | -0 | .05 | | | | .1189319 |
| L9D. | | L7D. | 0610742 | 2 . (| 0619 | 485 | -0 | .99 | 0.325 | 183 | 0793 | .0609308 |
| L10D. 0227261 .0601375 -0.38 0.706 1411645 .0957123 L11D. .1101929 .0601762 -1.83 0.068 2287075 .0083217 L12D. .1887552 .0606101 3.11 0.002 .069386 .3081245 .3 | | L8D. | 0283865 | | | | -0 | .46 | | 149 | 6848 | .0929117 |
| L11D. 1101929 | | L9D. | | | 0614 | 1581 | | | 0.649 | 149 | 0793 | .0929992 |
| L12D. .1887552 .0606101 3.11 0.002 .069386 .3081245 L13D. .0108801 .0618843 0.18 0.8661 .1109986 .1327589 L14D. .0250538 .0615785 -0.41 0.684 -1463302 .0962227 L15D. .0530571 .0614662 0.86 0.389 -0.679981 .1741124 .16160 -1.00063 .0607259 -1.65 0.101 -2196602 .019534 .117D. .0656976 .0601151 1.09 0.276 -0526967 .1840919 .18D. -0.12924 .0599232 -0.22 0.829 -1.309404 .1050923 .1919 .0350884 .0591959 0.59 0.554 .0814955 .1516723 .120D. -0.445701 .0575794 -0.77 0.440 -1579704 .0688301 .121D. -0.407449 .0575943 -0.71 0.440 -1579704 .0688301 .123D. .0352428 .0562758 0.63 0.552 -0.0426453 .1794601 .123D. .0352428 .0562758 0.63 0.552 -0.0755901 .1460756 .124D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 .124D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 .124D. .1097374 .0394213 -1.08 0.279 -1203702 .0349073 .13D. .0117992 .0396611 0.30 0.766 -0.663117 .08991 .14D. .0075577 .0395101 0.19 0.848 .0702558 .0853713 .15D. -0.92576 .0391791 -2.36 0.019 -1.697376 -0.154143 .16D. -0.075576 .0391791 -2.36 0.019 -1.697376 -0.154143 .16D. -0.075879 .039968 -0.31 0.754 -0.912779 .066153 .15900 .15879 .039689 -0.31 0.754 -0.912779 .066153 .15900 .15879 .039689 -0.31 0.754 -0.912779 .066153 .14000 .158879 .039968 -0.31 0.754 -0.912779 .066153 .038929 0.43 0.667 -0.059838 .0927217 .11D. .0167915 .038929 0.43 0.667 -0.059838 .0927217 .11D. .0167915 .038929 0.43 0.667 -0.059838 .0927217 .11D. .0168713 .0386769 0.49 0.626 -0.0573014 .0995044 .00087 .066163 .043694 .00087 .066163 .043694 .00087 .066163 .0663459 .0467974 .00087 .066163 .0663459 .0467974 .00087 .066163 .0663459 .0467974 .0008660 .0467974 .000860 .0008600 .00 | | L10D. | | | 0601 | 1375 | -0 | .38 | 0.706 | 141 | 1645 | .0957123 |
| L13D. .0108801 .0618843 0.18 0.861 1109986 .1327589 L14b. 0250538 .0615785 -0.41 0.664 1463302 .0962227 L15D. .0530571 .0614662 0.86 0.389 0679981 .1741124 L16D. 100063 .0607259 -1.65 0.101 2196602 .0195343 L17D. .0656976 .0601151 1.09 0.276 0526967 .1840919 L18D. 012924 .0599232 -0.22 0.829 1309404 .1050923 L19D. .0350884 .0591959 0.59 0.554 0814955 .1516723 L2DD. 0445701 .0575794 -0.77 0.440 1579704 .0688301 L21D. 0407449 .05755943 -0.71 0.480 1541745 .0726847 L22D. .0684074 .0563874 1.21 0.226 0426453 .1794601 L23D. .0352428 .0562758 0.63 0.532 0755901 .1460756 L24D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 L1_000000000000000000000000000000000000 | | L11D. | | | 0601 | 762 | -1 | .83 | | | | .0083217 |
| L13D. .0108801 .0618843 0.18 0.861 1109986 .1327589 L14b. 0250538 .0615785 -0.41 0.664 1463302 .0962227 L15D. .0530571 .0614662 0.86 0.389 0679981 .1741124 L16D. 100063 .0607259 -1.65 0.101 2196602 .0195343 L17D. .0656976 .0601151 1.09 0.276 0526967 .1840919 L18D. 012924 .0599232 -0.22 0.829 1309404 .1050923 L19D. .0350884 .0591959 0.59 0.554 0814955 .1516723 L2DD. 0445701 .0575794 -0.77 0.440 1579704 .0688301 L21D. 0407449 .05755943 -0.71 0.480 1541745 .0726847 L22D. .0684074 .0563874 1.21 0.226 0426453 .1794601 L23D. .0352428 .0562758 0.63 0.532 0755901 .1460756 L24D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 L1_000000000000000000000000000000000000 | | L12D. | .1887552 | 2 . (| 0606 | 5101 | 3 | .11 | | .06 | 9386 | .3081245 |
| L15D. .0530571 | | L13D. | | | | 3843 | 0 | .18 | | | | |
| L17D. 0.656976 0.601151 1.09 0.276 -0.526967 1.840919 L18D. -0.012924 0.5599232 -0.22 0.829 -1.309404 1.050923 L19D. 0.350884 0.5591959 0.59 0.554 -0.0814955 1.516723 L20D. -0.445701 0.575794 -0.77 0.440 -1.579704 0.688301 L21D. -0.407449 0.5759543 -0.71 0.480 -1.541745 0.726847 L22D. 0.684074 0.5653874 1.21 0.226 -0.426453 1.794601 L23D. 0.352428 0.562758 0.63 0.532 -0.755901 1.460756 L24D. 1.597019 0.560503 2.85 0.005 0.493131 2.700906 ln_us_unemprate m | | L14D. | | | | 785 | -0 | .41 | | | | |
| L17D. 0.656976 0.601151 1.09 0.276 -0.526967 1.840919 L18D. -0.012924 0.5599232 -0.22 0.829 -1.309404 1.050923 L19D. 0.350884 0.5591959 0.59 0.554 -0.0814955 1.516723 L20D. -0.445701 0.575794 -0.77 0.440 -1.579704 0.688301 L21D. -0.407449 0.5759543 -0.71 0.480 -1.541745 0.726847 L22D. 0.684074 0.5653874 1.21 0.226 -0.426453 1.794601 L23D. 0.352428 0.562758 0.63 0.532 -0.755901 1.460756 L24D. 1.597019 0.560503 2.85 0.005 0.493131 2.700906 ln_us_unemprate m | | L15D. | | | | 1662 | 0 | .86 | | | | |
| L18D. 012924 .0599232 -0.22 0.829 1309404 .1050923 L19D. .0350884 .0591959 0.59 0.554 0814955 .1516723 L2DD. 0445701 .0575794 -0.77 0.440 1579704 .0688301 L21D. 0407449 .0575943 -0.71 0.480 1541745 .0726847 L22D. .0684074 .0563874 1.21 0.226 0426453 .1794601 L23D. .0352428 .0562758 0.63 0.532 0755901 1.460756 L24D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 ln_us_unemprate_m LD. 0705341 .0383489 -1.84 0.067 1460607 .0049926 L2D. 0427314 .0394213 -1.08 0.279 1203702 .0349073 L3D. .0117992 .0396611 0.30 0.766 0663117 .08991 L4D. .0075577 .0395101 0.19 0.848 0702558 .0853713 L5D. 092576 .0391791 -2.36 0.019 1697376 0154143 L6D. 0775704 .0403716 -1.92 0.056 1570807 .0019399 L7D. .0439132 .0406744 1.08 0.281 0361935 1.240198 L8D. 0125625 .039968 -0.31 0.754 0912779 .066153 L9D. 0174837 .0399305 -0.44 0.662 0961252 .0611578 L10D. .0155879 .0391649 0.40 0.691 0615459 0.927217 L11D. .0167915 .0389829 0.43 0.667 0599838 0.935668 L12D. .0188713 .0386769 0.49 0.626 0573014 0.95044 month 2 .0471029 .013005 3.62 0.000 .0214902 .0727157 3 .0448213 .0155651 2.88 0.004 .0141664 0.754762 4 .0329593 .0162935 2.02 0.044 .00087 .0650487 5 .0186156 .0143094 1.30 0.194 0095662 0.467974 6 .0570619 .0146967 3.88 0.000 .0281174 .086065 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0003456 .0143571 0.02 0.981 0227055 .041947 11 .0213091 .0156879 2.30 0.002 .0042088 .0541852 | | L16D. | | | 0607 | 7259 | -1 | .65 | | | | .0195343 |
| L19D. .0350884 .0591959 0.59 0.554 0814955 .1516723 L20D. 0445701 .0575794 -0.77 0.440 1579704 .0688301 L21D. 0407449 .0575943 -0.71 0.480 1514745 .0726847 L22D. .0684074 .0563874 1.21 0.226 0426453 .1794601 L23D. .0352428 .0562758 0.63 0.532 0755901 .1460756 L24D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 L22D. 0427314 .0383489 -1.84 0.067 1460607 .0049926 L2D. 0427314 .0383489 -1.84 0.067 1460607 .0049926 L2D. 0427314 .0383489 -1.84 0.067 1460607 .08991 L4D. 0705577 .0395101 0.19 0.848 0702558 .0853713 L5D. 092576 .0391791 -2.36 0.019 -1.697376 0154143 L6D. 0775704 .0403716 -1.92 0.056 -1.570807 .0019399 L7D. .0439132 .0406744 1.08 0.281 0361935 .1240198 L8D. 0125625 .039968 -0.31 0.754 0912779 .066153 L9D. 0174837 .0399305 -0.44 0.662 0961252 .0611578 L1DD. .0157879 .0391649 0.40 0.691 0615459 .0927217 L11D. .0167915 .0389829 0.43 0.667 0599838 .0935668 L12D. .0188713 .0386769 0.49 0.626 0573014 .095044 month 2 .0471029 .013005 3.62 0.000 .0214902 .0727157 3 .0448213 .0155651 2.88 0.004 .0141664 .0754762 .0757740 .0435412 .0148522 2.93 0.004 .0142904 .0727921 .066153 .066156 .0143094 1.30 0.194 0095662 .0467974 .066156 .0467974 .066156 .0467974 .066156 .0143094 1.30 0.194 0095662 .0467974 .066156 .057619 .0146967 3.88 0.000 .0281174 .0860065 .057619 .0146967 3.88 0.000 .0281174 .0860065 .057619 .0146967 3.88 0.000 .0281174 .0860065 .057619 .0146967 3.88 0.000 .0281174 .0860065 .057619 .0146967 3.88 0.000 .0281174 .0560065 .057619 .0146967 3.88 .0000 .0281174 .0560065 .057619 .0146967 3.88 .0000 .0281174 .0560065 .057619 .0661638 .057619 | | L17D. | .0656976 | 5 . (| 0601 | 151 | 1 | .09 | | 052 | 6967 | .1840919 |
| L20D. 0445701 .0575794 -0.77 0.440 1579704 .0688301 L21D. 0407449 .0575943 -0.71 0.480 1541745 .0726847 L22D. .0684074 .0563874 1.21 0.226 0426453 1.794601 L23D. .0352428 .0562758 0.63 0.532 0755901 .1460756 L24D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 L2D. 0705341 .0383489 -1.84 0.067 1460607 .0049926 L2D. 0427314 .0394213 -1.08 0.279 -1203702 .0349073 L3D. .0117992 .0396611 0.30 0.766 0663117 .08991 L4D. .0075577 .0395101 0.19 0.848 0702558 .0853713 L5D. 092576 .0391791 -2.36 0.019 1697376 0154143 L6D. 0775704 .0403716 -1.92 0.056 1570807 .0019399 L7D. .0439132 .0406744 1.08 0.281 0361935 .1240198 L8D. 0125625 .039968 -0.31 0.754 0912779 .066153 L10D. .0155879 .0391649 0.40 0.662 0961252 .0611578 L10D. .0155879 .0391649 0.40 0.662 0573014 .095044 month 2 .0471029 .013005 3.62 0.000 .0214902 .0727157 3 .0448213 .0156615 2.88 0.004 .0141664 .0754762 4 .0329593 .0162935 2.02 0.044 .00087 .0650487 5 .0186156 .0143094 1.30 0.194 0095662 .0467974 6 .0570619 .0146967 3.88 0.000 .0281174 .0860065 7 .0435412 .0148522 2.93 .0004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 -0.210585 0.377403 .0991079 .0146967 3.88 .0000 .0281174 .0860065 7 .0435412 .0148522 2.93 .0004 .0142904 .0727921 .0096207 .0164138 0.59 0.558 0227055 .041947 .0096207 .0164138 0.59 0.558 0227055 .041947 .0099107 .0126879 .029197 .0126879 .0300022 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .00442088 .0541852 .0044 | | L18D. | | | | | | | | | | |
| L21D. | | L19D. | .0350884 | . (| 0591 | 1959 | 0 | .59 | | 081 | 4955 | .1516723 |
| L22D. | | L20D. | | | | | | | | | | .0688301 |
| L24D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 | | : | | | | | | | | | | |
| L24D. .1597019 .0560503 2.85 0.005 .0493131 .2700906 | | : | .0684074 | | | 3874 | 1 | .21 | | | | |
| In_us_unemprate_m | | : | | | | | | | | | | |
| LD. | | | .1597019 | . (| 0560 |)503 | 2 | .85 | 0.005 | .049 | 3131 | .2700906 |
| L2D. | ln_us_unemp | : | | | | | | | | | | |
| L3D. | | | | | | | | | | | | |
| L4D. .0075577 .0395101 0.19 0.848 0702558 .0853713 L5D. 092576 .0391791 -2.36 0.019 1697376 0154143 L6D. 0775704 .0403716 -1.92 0.056 1570807 .0019399 L7D. .0439132 .0406744 1.08 0.281 0361935 .1240198 L8D. 0125625 .039968 -0.31 0.754 0912779 .066153 L9D. 0174837 .0399305 -0.44 0.662 0961252 .0611578 L10D. .0155879 .0391649 0.40 0.691 0615459 .0927217 L11D. .0167915 .0389829 0.43 0.667 0599838 .0935668 L12D. .0188713 .0386769 0.49 0.626 0573014 .095044 month 2 .0471029 .013005 3.62 0.000 .0214902 .0727157 3 .0448213 .0155651 2.88 0.004 .0141664 .0754762 4 .0329593 .0162935 2.02 0.044 .00087 .0650487 5 .0186156 .0143094 1.30 0.194 0095662 .0467974 6 .0570619 .0146967 3.88 0.000 .0281174 .0860065 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 .0541852 .0042088 .05418 | | | | | | | | | | | | |
| L5D. | | | | | | | | | | | | |
| L6D. | | | | | | | | | | | | |
| L7D. | | : | | | | | | | | | | |
| L8D. | | | | | | | | | | | | |
| L9D. | | : | | | | | | | | | | |
| L10D. .0155879 | | | | | | | | | | | | |
| L11D. | | | | | | | | | | | | |
| L12D. .0188713 | | | | | | | | | | | | |
| month 2 .0471029 .013005 3.62 0.000 .0214902 .0727157 3 .0448213 .0155651 2.88 0.004 .0141664 .0754762 4 .0329593 .0162935 2.02 0.044 .00087 .0650487 5 .0186156 .0143094 1.30 0.194 0095662 .0467974 6 .0570619 .0146967 3.88 0.000 .0281174 .0860065 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 | | | | | | | | | | | | |
| 2 .0471029 .013005 3.62 0.000 .0214902 .0727157 3 .0448213 .0155651 2.88 0.004 .0141664 .0754762 4 .0329593 .0162935 2.02 0.044 .00087 .0650487 5 .0186156 .0143094 1.30 0.194 0095662 .0467974 6 .0570619 .0146967 3.88 0.000 .0281174 .0860065 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | .0100/13 | | 0300 | 709 | U | .49 | 0.020 | 05/ | 3014 | .095044 |
| 3 .0448213 .0155651 2.88 0.004 .0141664 .0754762 4 .0329593 .0162935 2.02 0.044 .00087 .0650487 5 .0186156 .0143094 1.30 0.194 0095662 .0467974 6 .0570619 .0146967 3.88 0.000 .0281174 .0860065 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | 0471000 | , | 017 | 2005 | 2 | 62 | 0 000 | 001 | 1000 | 0727157 |
| 4 .0329593 .0162935 2.02 0.044 .00087 .0650487 5 .0186156 .0143094 1.30 0.194 0095662 .0467974 6 .0570619 .0146967 3.88 0.000 .0281174 .0860065 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | | | | | | | | | | |
| 5 .0186156 .0143094 1.30 0.194 0095662 .0467974 6 .0570619 .0146967 3.88 0.000 .0281174 .0860065 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | | | | | | | | | | |
| 6 .0570619 .0146967 3.88 0.000 .0281174 .0860065 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | | | | | | | | | | |
| 7 .0435412 .0148522 2.93 0.004 .0142904 .0727921 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | | | | | | | | | | |
| 8 .0083409 .0149277 0.56 0.577 0210585 .0377403 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | | | | | | | | | | |
| 9 .0003456 .0143571 0.02 0.981 02793 .0286213 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | | | | | | | | | | |
| 10 .0096207 .0164138 0.59 0.558 0227055 .041947 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | | | | | | | | | | |
| 11 .0213091 .0153637 1.39 0.167 008949 .0515672 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | : | | | | | | | | | | |
| 12 .029197 .0126879 2.30 0.022 .0042088 .0541852 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| _cons 0239654 .0100705 -2.38 0.0180437988004132 | | | . 5 | • ` | | | | • | | | | |
| | | _cons | 0239654 | | 0100 | 705 | -2 | .38 | 0.018 | 043 | 7988 | 004132 |
| | | I | | | | | | | | | | |

```
. predict p_model_1
(option xb assumed; fitted values)
(26 missing values generated)
```

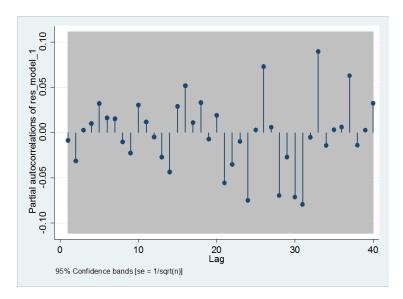
- . predict res_model_1 , residual (27 missing values generated)
- . gen ressq_model_1=res_model_1^2 (27 missing values generated)
- . summ ressq_model_1 if tin(2017m1,)

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|--------------|-----|----------|-----------|----------|---------|
| | + | | | | |
| ressq_mode~1 | 12 | .0000333 | .0000277 | 1.00e-06 | .000073 |

- . gen rmse_1=r(mean)^0.5
- . summ rmse_1

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------|-----|----------|-----------|----------|----------|
| + | | | | | |
| rmse_1 | 338 | .0057736 | 0 | .0057736 | .0057736 |

. pac res_model_1



- . testparm 1(2/12)d.ln_us_un
- (1) L2D.ln_us_unemprate_m = 0
- (2) L3D.ln_us_unemprate_m = 0
- (3) L4D.ln_us_unemprate_m = 0
- (4) L5D.ln_us_unemprate_m = 0
- (5) L6D.ln_us_unemprate_m = 0
- (6) L7D.ln_us_unemprate_m = 0
- (7) L8D.ln_us_unemprate_m = 0
- (8) L9D.ln_us_unemprate_m = 0
- (9) $L10D.ln_us_unemprate_m = 0$ (10) L11D.ln_us_unemprate_m = 0
- (11) L12D.ln_us_unemprate_m = 0

$$F(11, 251) = 1.10$$

 $Prob > F = 0.3656$

```
. testparm 1(2/11)d.ln_fl_am
(1) L2D.ln_fl_amsparksarcadesemp_m = 0
(2) L3D.ln_fl_amsparksarcadesemp_m = 0
( 3) L4D.ln_fl_amsparksarcadesemp_m = 0
( 4) L5D.ln_fl_amsparksarcadesemp_m = 0
(5) L6D.ln_fl_amsparksarcadesemp_m = 0
(6) L7D.ln_fl_amsparksarcadesemp_m = 0
( 7) L8D.ln_fl_amsparksarcadesemp_m = 0
( 8) L9D.ln_fl_amsparksarcadesemp_m = 0
( 9) L10D.ln_fl_amsparksarcadesemp_m = 0
     L10D.ln_fl_amsparksarcadesemp_m = 0
(10) L11D.ln_fl_amsparksarcadesemp_m = 0
     F(10, 251) =
                   0.67
         Prob > F = 0.7518
. *Model 2: Parsimonious Lag Structure in Y and X
. loocv reg d.ln_fl_amsparksarcadesemp_m ///
    1(1,12,24)d.ln_fl_amsparksarcadesemp_m ///
         1(1)d.ln_us_unemprate_m i.month if tin(1990m1,2016m12)
Leave-One-Out Cross-Validation Results
._____
             | Value
      Method
-----
Root Mean Squared Errors | .01757819
Mean Absolute Errors
                      .01357635
                   .56252575
Pseudo-R2
  _____
. reg d.ln_fl_amsparksarcadesemp_m ///
    1(1,12,24)d.ln_fl_amsparksarcadesemp_m ///
    1(1)d.ln_us_unemprate_m i.month if tin(1990m1,2016m12)
    Source | SS df MS Number of obs =
                                                          299
-----
                                       F(15, 283) =
                                                        28.48
    =
                                                       0.0000
  Residual | .086930005
                                                        0.6016
                                                    =
  -----
                                       Adj R-squared =
    Total | .21817606 298 .000732134 Root MSE
                                                        .01753
 _____
                                                  [95% Conf. Interval]
ln_fl_amsparksarca~m
                    Coef. Std. Err.
                                      t P>|t|
______
ln_fl_amsparksarca~m |
            LD. | -.0953068 .055729 -1.71 0.088 -.2050026 .0143891
                   .227269 .0564004 4.03 0.000 .1162515 .3382864
           L12D.
           L24D.
                  .1414653 .0531426
                                     2.66 0.008
                                                  .0368603 .2460703
  ln_us_unemprate_m
                  -.070526 .0331445 -2.13
                                            0.034
                                                  -.135767 -.0052849
             LD.
           month
                  .0354322
                           .0076361 4.64
.0060431 5.03
.0057076 4.18
.005978 2.28
                                            0.000 .0204015
0.000 .0184973
                                                            .0504628
              2
                  .0303924
                                                            .0422876
              3
                  .0238767
                                                  .012642
.0018434
.0248302
.0093679
                                                            .0351114
                                            0.000
              4
                  .0136104
                                                            .0253774
              5
                                            0.024
                            .0064853
                                     5.80
                                          0.000
              6
                  .0375956
                                                             .0503611
              7 |
                           .0060842 3.51 0.001
                   .021344
                                                             .0333201
                           .0050557 -0.07 0.941
              8 | -.0003765
                                                  -.0103281
                                                             .0095751
                           .0055171 -0.04 0.967
              9 | -.0002258
                                                  -.0110854
                                                             .0106339
                  .0016958
                            .005397 0.31 0.754 -.0089276
             10
                                                            .0123191
             11 | -.0007945
                           .0052529 -0.15 0.880 -.0111343
                 .0186375
             12
                           .0055823 3.34 0.001
                                                  .0076494
                                                            .0296256
```

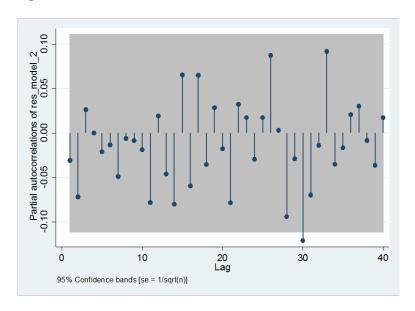
_cons | -.013696 .0038649 -3.54 0.000 -.0213036 -.0060884

```
. predict p_model_2
(option xb assumed; fitted values)
(26 missing values generated)
```

- . predict res_model_2, residual
 (27 missing values generated)
- . gen ressq_model_2=res_model_2^2
 (27 missing values generated)
- . summ ressq_model_2 if tin(2017m1,)

| Variable | Obs | Mean | Std. Dev | . Min | Max |
|--------------|-----|----------|----------|----------|----------|
| + | | | | | |
| ressq_mode~2 | 12 | .0000255 | .0000173 | 1.54e-07 | .0000512 |

. pac res_model_2



. *Model 3: Y only

. loocv reg d.ln_fl_amsparksarcadesemp_m ///

> 1(1,12,24)d.ln_fl_amsparksarcadesemp_m ///

> i.month if tin(1990m1,2016m12)

Leave-One-Out Cross-Validation Results

| Method | Value |
|--------------------------|-----------|
| | |
| Root Mean Squared Errors | .01764286 |
| Mean Absolute Errors | .01360036 |
| Pseudo-R2 | .55920894 |
| · | • |

. reg d.ln_fl_amsparksarcadesemp_m ///

> l(1,12,24)d.ln_fl_amsparksarcadesemp_m ///

> i.month if tin(1990m1,2016m12)

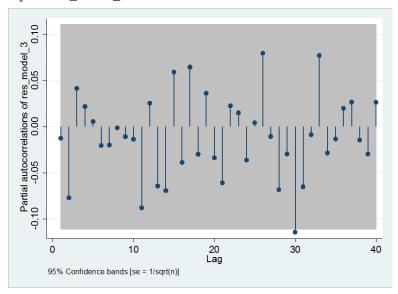
| SS | df | MS | Number of obs | = | 299 |
|------------|------------|---------------------------------|---|--|-------------------------|
| | | | F(14, 284) | = | 29.83 |
| .129855275 | 14 | .009275377 | Prob > F | = | 0.0000 |
| .088320785 | 284 | .000310989 | R-squared | = | 0.5952 |
| | | | Adj R-squared | = | 0.5752 |
| .21817606 | 298 | .000732134 | Root MSE | = | .01763 |
| | .129855275 | .129855275 14 .088320785 284 | .129855275 14 .009275377 .088320785 284 .000310989 | F(14, 284) .129855275 14 .009275377 Prob > F .088320785 284 .000310989 R-squared | F(14, 284) = .129855275 |

| D. | | | | | | |
|----------------------|----------|-----------|-------|-------|------------|----------------------|
| ln_fl_amsparksarca~m | Coef. | Std. Err. | t | P> t | [95% Conf. | <pre>Interval]</pre> |
| | | | | | | |
| ln_fl_amsparksarca~m | | | | | | |
| LD. | 0906301 | .0560304 | -1.62 | 0.107 | 2009177 | .0196574 |
| L12D. | .2327216 | .056691 | 4.11 | 0.000 | .1211338 | .3443093 |
| L24D. | .1452058 | .0534424 | 2.72 | 0.007 | .0400123 | .2503992 |
| month | | | | | | |
| 2 | .0252489 | .0059871 | 4.22 | 0.000 | .0134641 | .0370337 |
| 3 | .0314385 | .0060604 | 5.19 | 0.000 | .0195096 | .0433675 |
| 4 | .025831 | .0056681 | 4.56 | 0.000 | .0146742 | .0369878 |
| 5 | .0193461 | .0053688 | 3.60 | 0.000 | .0087784 | .0299138 |
| 6 | .0369461 | .0065182 | 5.67 | 0.000 | .0241161 | .0497762 |
| 7 | .0156275 | .0054928 | 2.85 | 0.005 | .0048158 | .0264392 |
| 8 | 0005625 | .0050863 | -0.11 | 0.912 | 0105741 | .009449 |
| 9 | .0028453 | .0053579 | 0.53 | 0.596 | 007701 | .0133915 |
| 10 | .0045235 | .0052632 | 0.86 | 0.391 | 0058364 | .0148833 |
| 11 | .0010961 | .0052093 | 0.21 | 0.833 | 0091576 | .0113498 |
| 12 | .0180395 | .0056098 | 3.22 | 0.001 | .0069975 | .0290814 |
| _cons | 0135536 | .0038883 | -3.49 | 0.001 | 0212071 | 0059001 |

- . predict p_model_3
 (option xb assumed; fitted values)
 (26 missing values generated)
- . predict res_model_3 , residual
 (27 missing values generated)
- . gen ressq_model_3=res_model_3^2
 (27 missing values generated)
- . summ ressq_model_3 if tin(2017m1,)

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|--------------|-----|----------|-----------|----------|----------|
| | | | | | |
| ressg mode~3 | 12 | .0000261 | .0000238 | 4.07e-07 | .0000733 |

. pac res_model_3



*Forecast and graphs for Model 2

- . reg d.ln_fl_amsparksarcadesemp_m ///
 - l(1,12,24)d.ln_fl_amsparksarcadesemp_m ///
- > l(1)d.ln_us_unemprate_m i.month if tin(1990m1,)

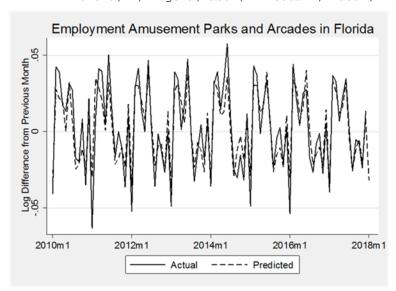
| Source | SS | df | MS | | r of obs | | 311 |
|----------------|------------|----------|------------|-------|-----------------|------------|----------------------|
| + | 100054151 | | | F(15, | / | = | 31.13 |
| Model | .138074151 | | .009204943 | | > F | | 0.0000 |
| Residual | .087221187 | 295 | .000295665 | _ | ared | | 0.6129 |
| Total | .225295338 | 310 | .000726759 | Root | -squared MSE | = = | 0.5932 .01719 |
| D. | | | | | | | |
| ln_fl_amspar~m | Coef. | Std. Err | . t | P> t | [95% | Conf. | <pre>Interval]</pre> |
| ln_fl_amspar~m | -+ ı | | | | | | |
| LD. | 0961684 | .0544288 | -1.77 | 0.078 | 2032 | 864 | .0109497 |
| L12D. | .2287114 | .0548868 | 4.17 | 0.000 | .120 | 692 | .3367307 |
| L24D. | .1454639 | .0517991 | 2.81 | 0.005 | .0435 | 212 | .2474066 |
| ln_us_unempr~m | ı İ | | | | | | |
| LD. | 0698555 | .0321401 | -2.17 | 0.031 | 1331 | 084 | 0066026 |
| month | . [| | | | | | |
| 2 | .0354068 | .007407 | 4.78 | 0.000 | .0208 | 296 | .049984 |
| 3 | .0305979 | .0058712 | 5.21 | 0.000 | .0190 | 431 | .0421526 |
| 4 | .023691 | .0055281 | 4.29 | 0.000 | .0128 | 115 | .0345705 |
| 5 | .0139549 | .0058158 | 2.40 | 0.017 | .0025 | | .0254006 |
| 6 | .0375024 | .0062791 | 5.97 | 0.000 | .025 | 145 | .0498599 |
| 7 | .0216364 | .0058919 | 3.67 | 0.000 | .0100 | 409 | .0332319 |
| 8 | 0002146 | .0048596 | -0.04 | 0.965 | 0097 | 785 | .0093493 |
| 9 | .000227 | .005316 | 0.04 | 0.966 | 0102 | 351 | .0106891 |
| 10 | .0017266 | .0052204 | 0.33 | 0.741 | 0085 | 473 | .0120006 |
| 11 | 0008245 | .0050656 | -0.16 | 0.871 | 0107 | 937 | .0091447 |
| 12 | .0187906 | .0053953 | 3.48 | 0.001 | .0081 | 724 | .0294088 |
| _cons | 013753 | .0037432 | -3.67 | 0.000 | 0211 | 197 | 0063863 |

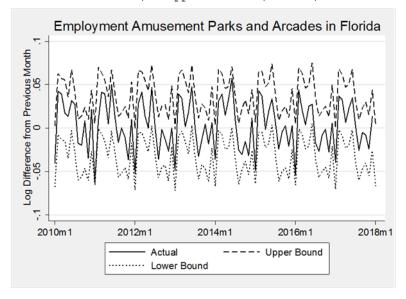
[.] predict Predicted_DLN
(option xb assumed; fitted values)
(26 missing values generated)

[.] predict stdf2_model2, stdf
(26 missing values generated)

[.] gen FIUB=Predicted_DLN+2*stdf2_model2
(26 missing values generated)

[.] gen FILB=Predicted_DLN-2*stdf2_model2
(26 missing values generated)





. log close

name: <unnamed>

log: C:\Users\jdewey\Documents\A S18 Adv Topics\Midterm\Midterm Work.smcl

log type: smcl

closed on: 25 Mar 2018, 13:52:01