

Problem Set 4

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Problems

1. Drop any observations after December 2019.

```
1 | drop if tin(2020m1,)
```

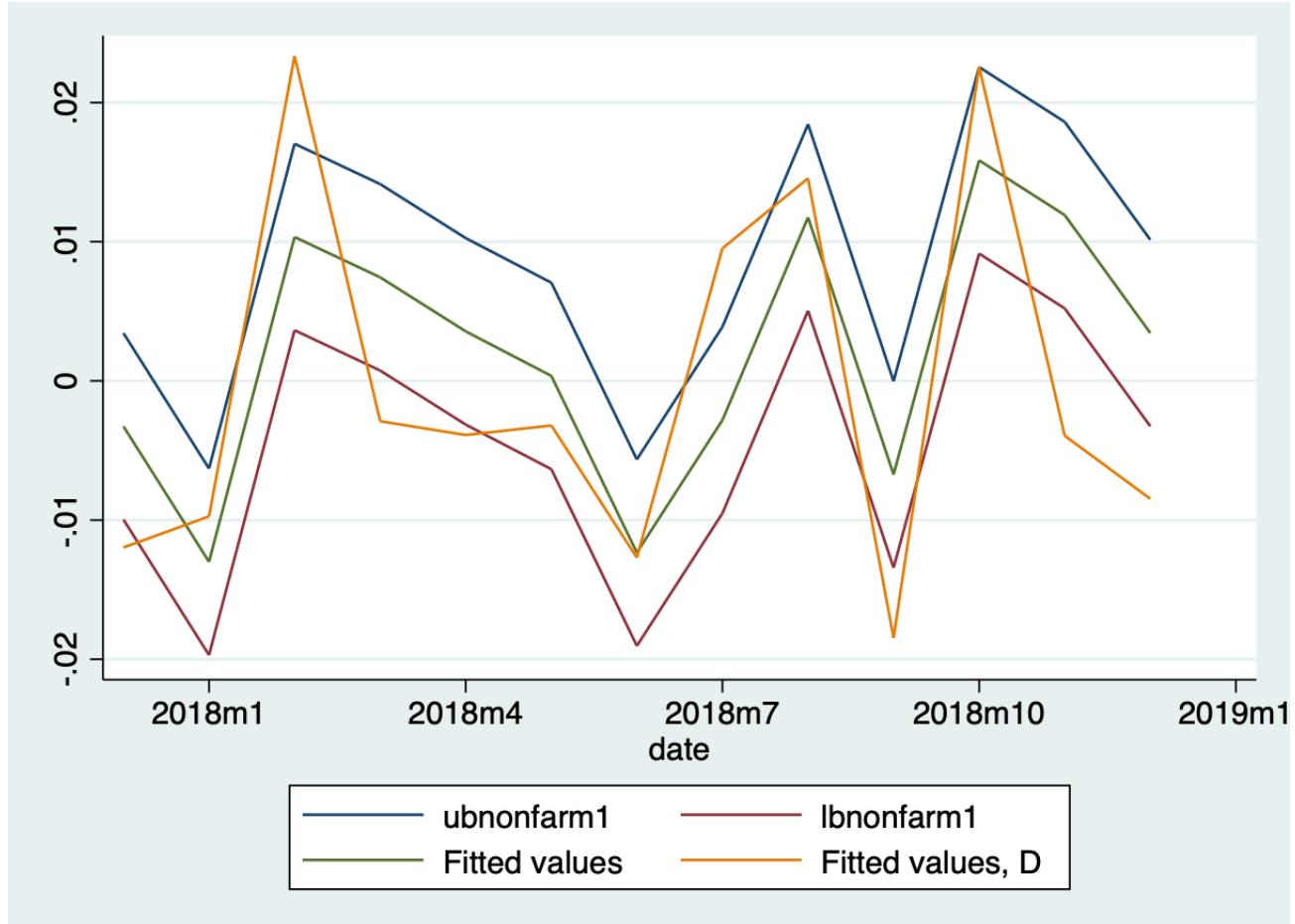
2. Refer to homework 3, question 2. Adapt the four models used there so they will be appropriate for making a one period ahead forecast.

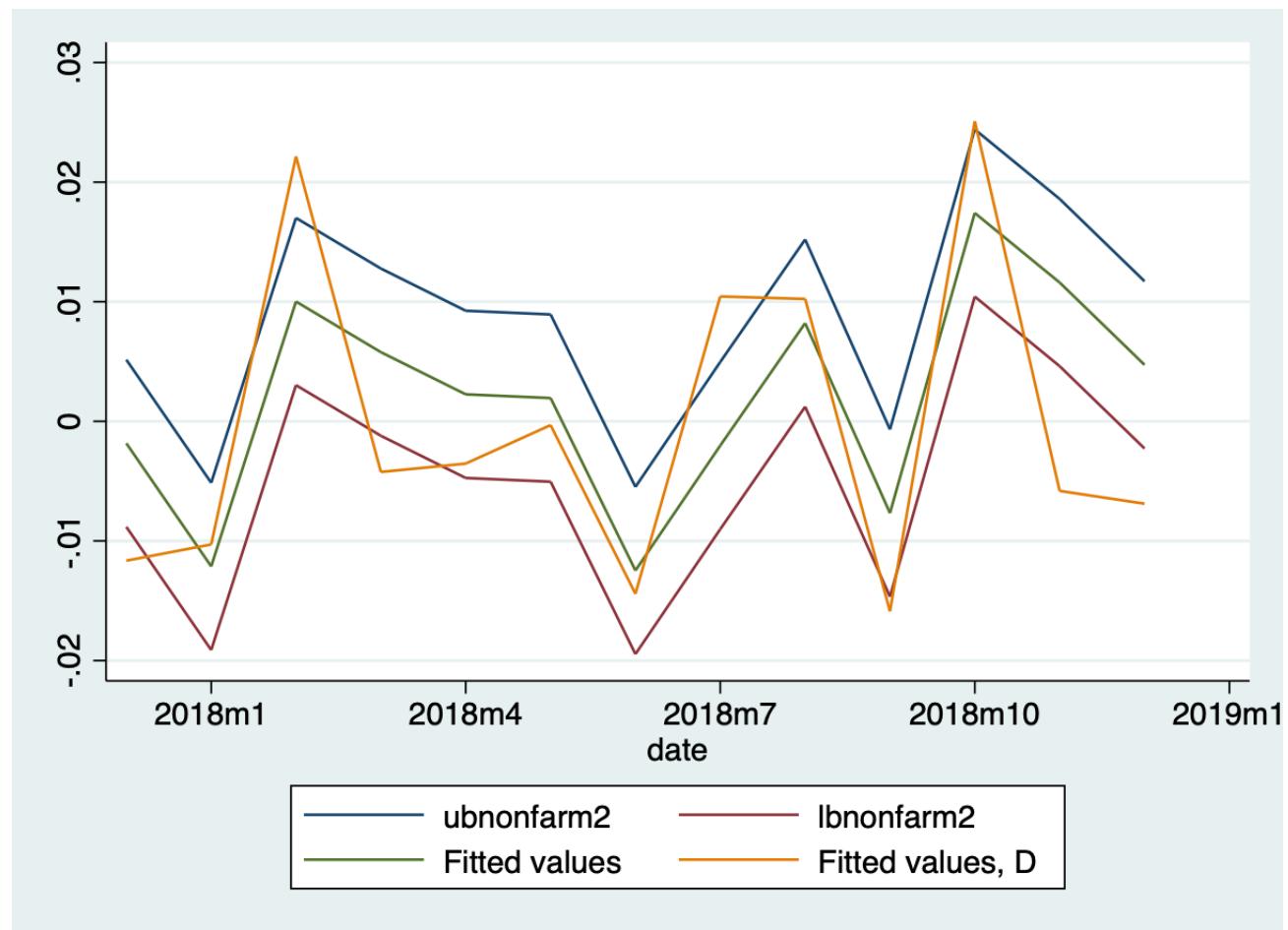
```
1 | reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/12)d.lnfllf l(1/12)d.lnusepr  
1(1/12)d.lnflbp i.month date  
2 | reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2)d.lnfllf l(1/2)d.lnusepr l(1/2)d.lnflbp  
i.month date  
3 | reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2,12)d.lnfllf l(1/2,12)d.lnflbp i.month  
date  
4 | reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr  
i.month
```

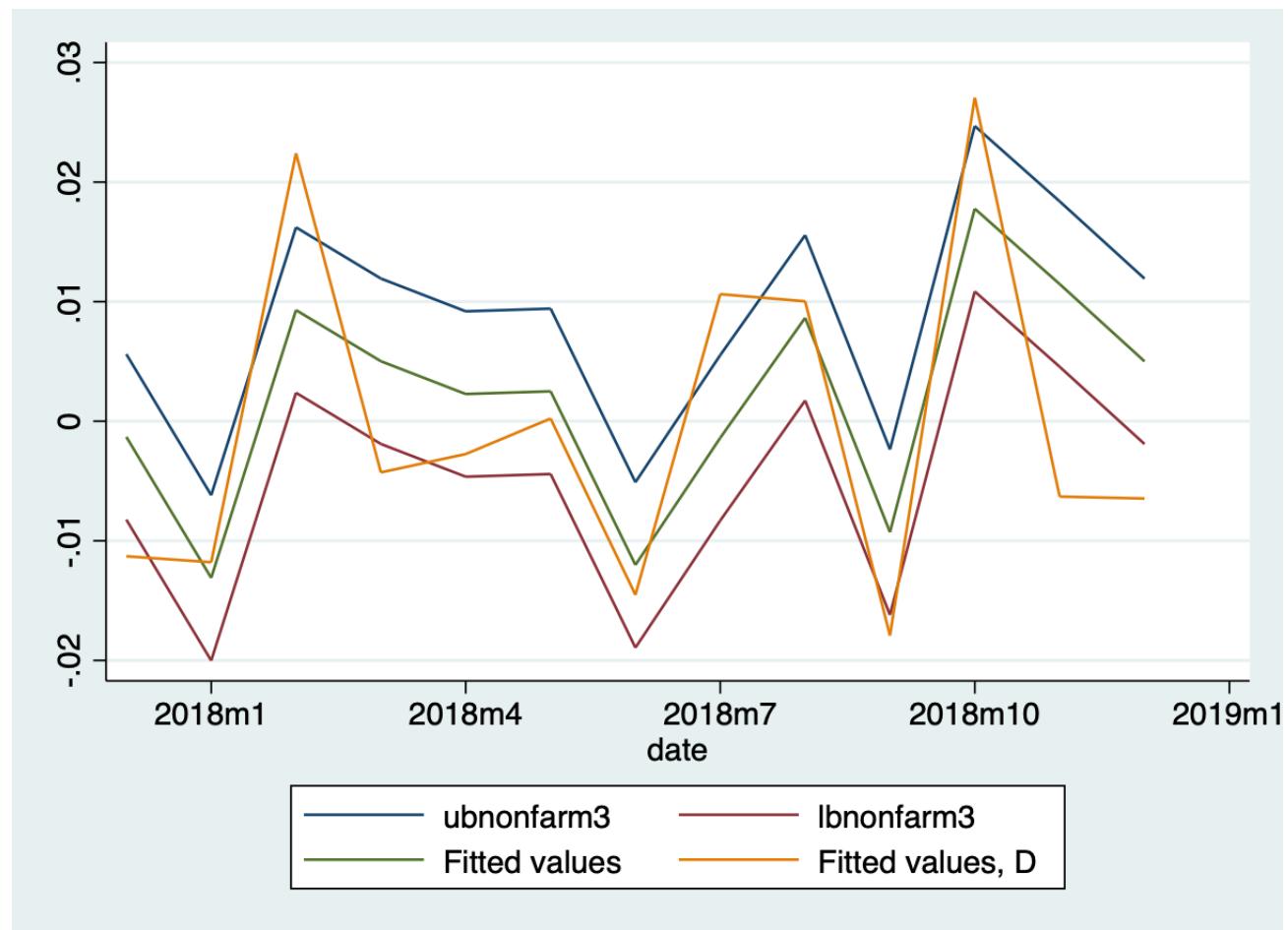
3. For each model, calculate the out of sample RMSE for the last year of observations (last 12 observations). To do this, you must not include these observations in the model estimation.

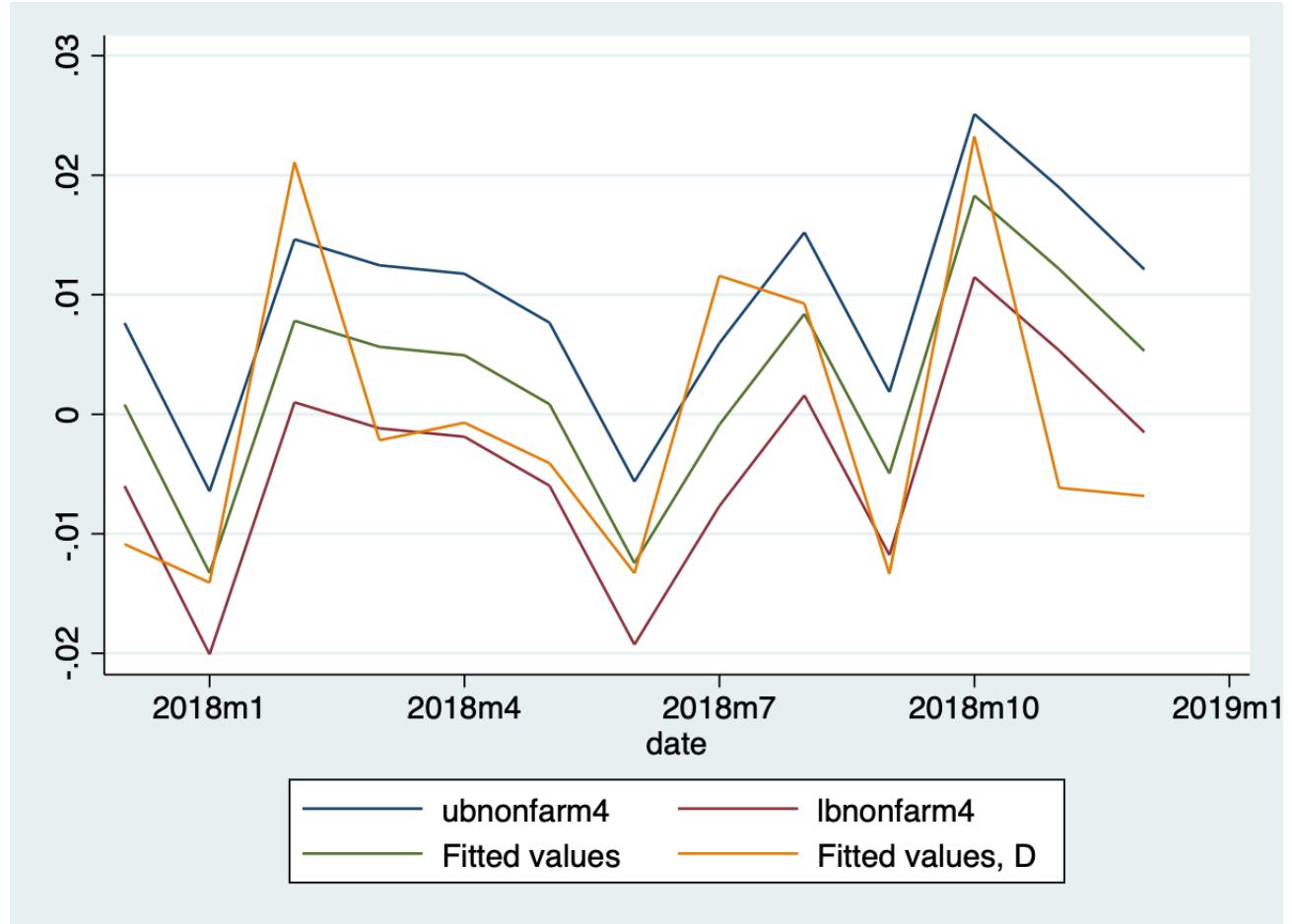
	c1	c2	c3	c4
r1	.00341856	.00356652	.00352901	.00347889

4. For each model, prepare a figure with the actual change in the log of nonfarm employment for the last 24 months, and for the last year the point forecast and the forecast interval, again using the model fit excluding the last 12 months.







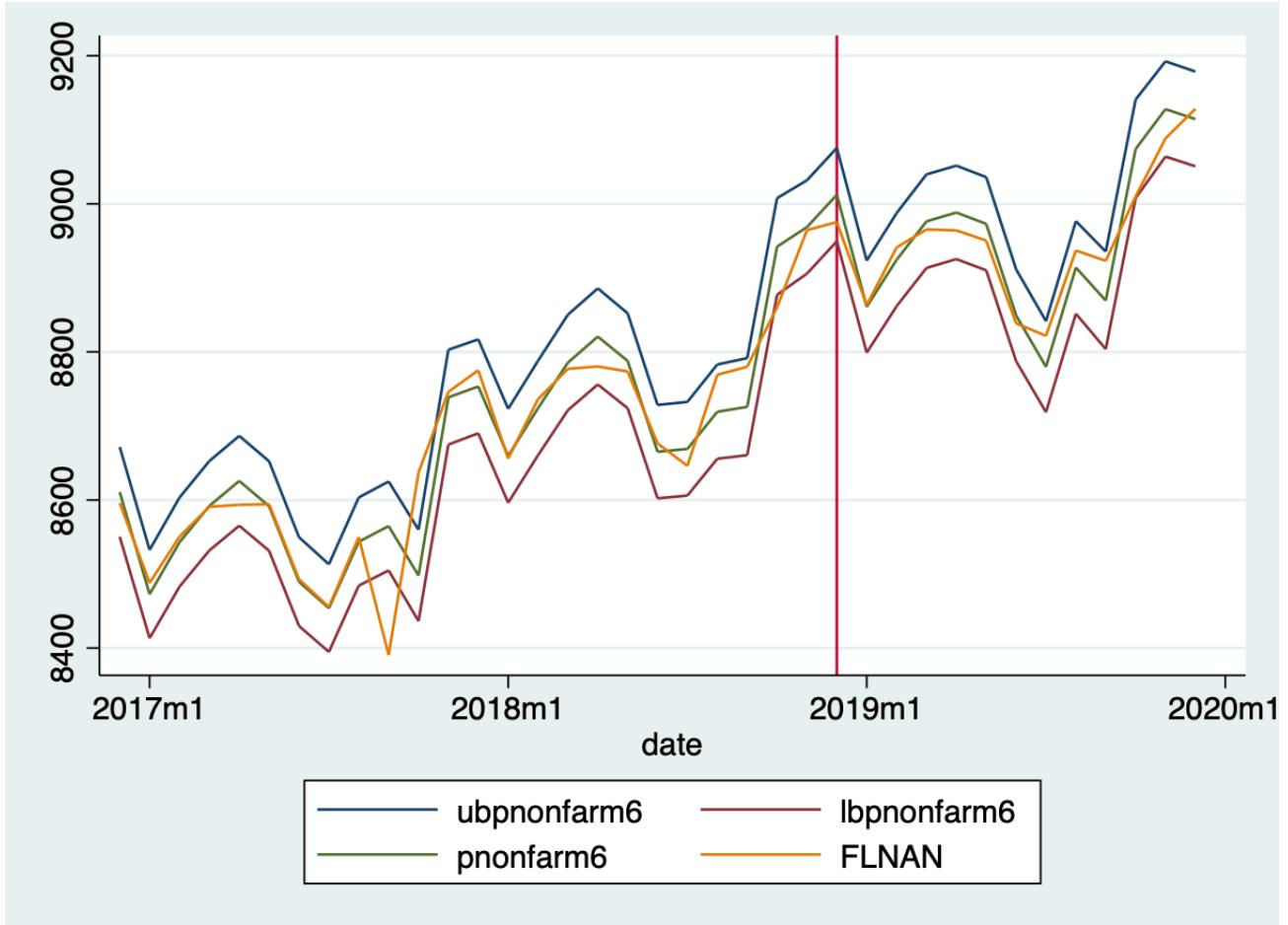


5. Select the best model for forecasting purposes based on AIC, BIC, LOOCV, and out of sample RMSE for the final year of data. Justify your choice.

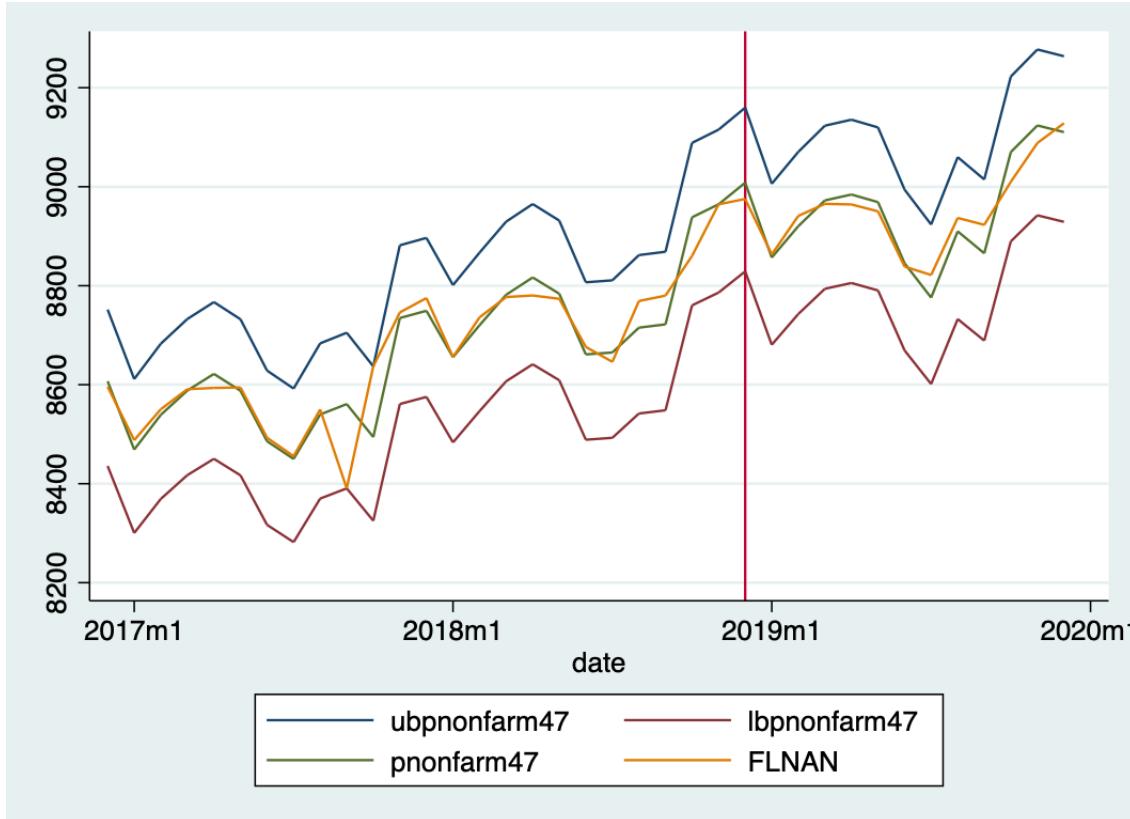
	df	AIC	BIC	RMSE	LOORMSE
Model 1	61	-3114.0527	-2875.1644	.00341856	.00380836
Model 2	31	-3190.9568	-3068.7301	.00356652	.00371849
Model 3	31	-3115.1451	-2993.7429	.00352901	.00375319
Model 4	33	-4236.6004	-4097.3209	.00347889	.00355785

I chose model four because the AIC, BIC, and LOORMSE were the lowest. The only difference was that the lowest RMSE was model 1. However, the difference in RMSE for model 1 and model 4 is very low so I'm comfortable choosing model 4 over model 3.

6. For the best model, transform the values appropriately and prepare a figure with the actual level of nonfarm employment (not the log) for the last 24 months, and for the last 12 months the point forecast and the forecast interval for nonfarm employment. For the interval forecast, assume approximate normality, and use the standard error of the forecast.



7. Now prepare another figure, again for the best model, with the actual level of nonfarm employment for the last 24 months, and for the last 12 months the point forecast and the forecast interval for nonfarm employment. This time, use the empirical approach, based on the data used to fit the model, to construct the forecast interval.

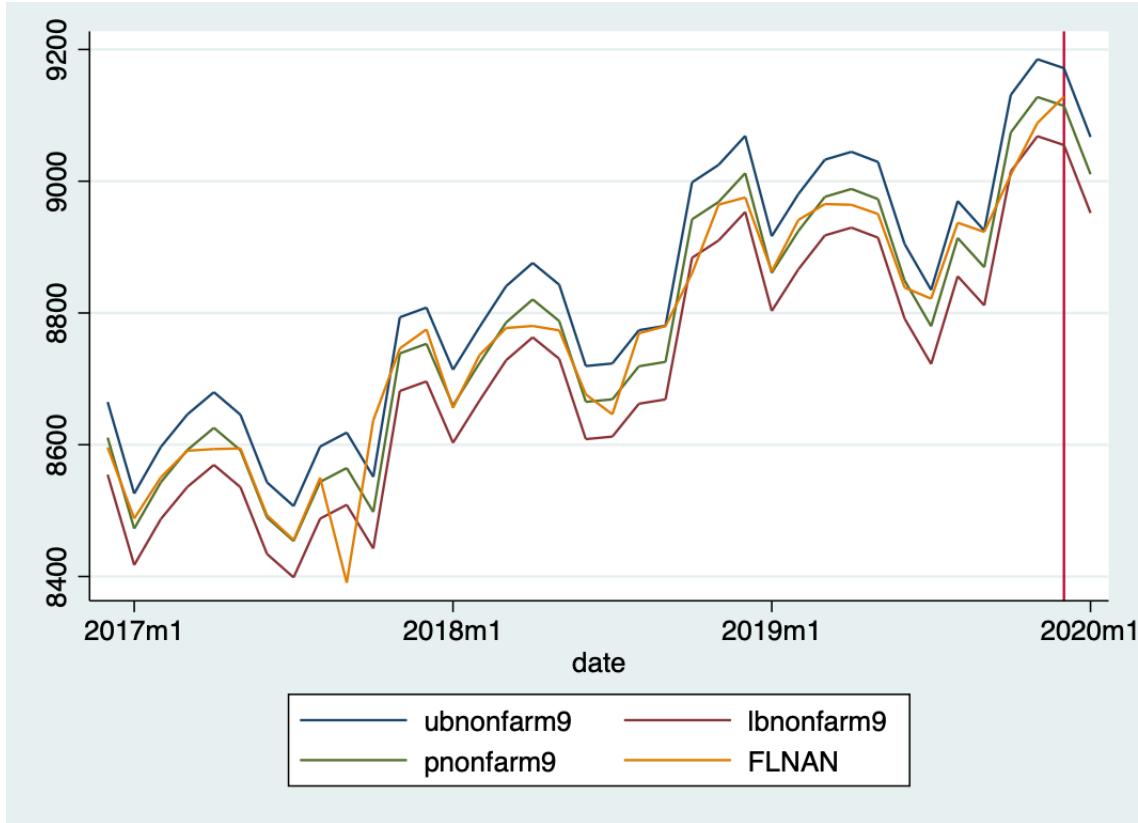


8. Run these commands to add January 2020 to the data (for which you will generate a forecast) and fill in the corresponding values for year and month:

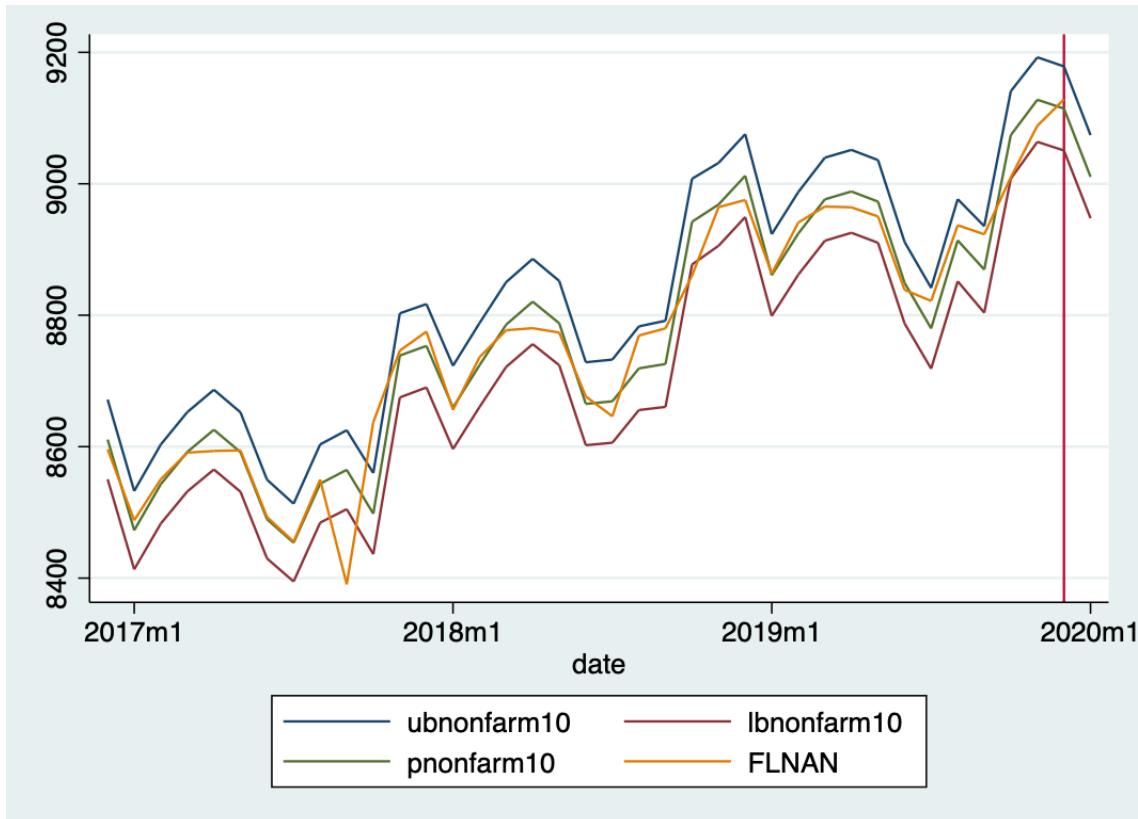
```
tsappend, add(1)
replace month=month(dofm(date)) if month==.
```

```
1 | tsappend, add(1)
2 | replace month=month(dofm(date)) if month==.
```

9. Run your selected model on the full sample and use it to forecast January 2020. Create point and interval forecasts for the change in the log of non-farm employment. Use the empirical approach.

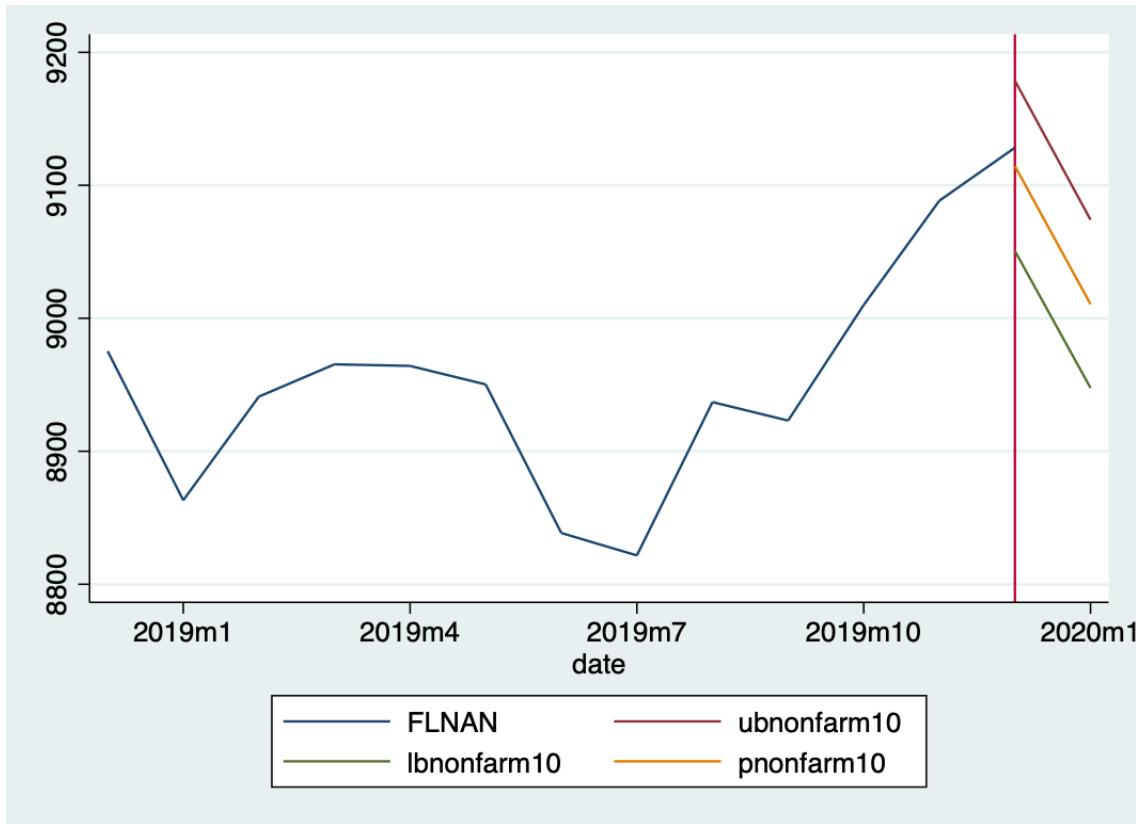


10. Transform the point and interval forecast of the January 2020 change in the log of non-farm employment to create a point and interval forecast of non-farm employment for January 2020.



11. Generate a figure showing the last 12 months of non-farm employment and the January 2020 point and interval forecasts. (The figure shows actual for January 2019 through December 2019 and then the point

and interval forecast for January 2020.)



Appendix A

```
1 clear
2 set more off
3
4 cd "/Users/guslipkin/Documents/Spring2020/CAP 4763 ~ Time Series/Problem
Sets/Problem Set 4"
5
6 *2a
7 *Done
8
9 *2b Load the data
10 import delimited "Assignment_1_Monthly.txt"
11
12 rename lnu02300000 us_epr
13 rename flnan fl_nonfarm
14 rename fllfn fl_lf
15 rename flbpriv fl_bp
16 rename date datestring
17
18 *2c Turn on a log file
19 log using "Problem Set 4", replace
20
21 *2d Generate a monthly date variable (make its display format monthly time, %tm)
22 gen datec=date(datestring, "YMD")
```

```

23 gen date=mofd(datec)
24 gen month=month(datec)
25 format date %tm
26
27 *2e tsset your data
28 tsset date
29
30 *2f
31 gen lnusepr=log(us_epr)
32 gen lnflnonfarm=log(f1_nonfarm)
33 gen lnfllf=log(f1_lf)
34 gen lnflbp=log(f1_bp)
35
36 *1
37 drop if tin(2020m1,,)
38
39 *2
40 reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/12)d.lnfllf l(1/12)d.lnusepr
41   l(1/12)d.lnflbp i.month date
41 reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2)d.lnfllf l(1/2)d.lnusepr l(1/2)d.lnflbp
42   i.month date
42 reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2,12)d.lnfllf l(1/2,12)d.lnflbp i.month
43   date
43 reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr
44   i.month
44
45 *3
46 reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/12)d.lnfllf l(1/12)d.lnusepr
47   l(1/12)d.lnflbp i.month date if tin(,2018m12)
47 scalar define rmsel=e(rmse)
48 reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2)d.lnfllf l(1/2)d.lnusepr l(1/2)d.lnflbp
49   i.month date if tin(,2018m12)
50 scalar define rmse2=e(rmse)
50 reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2,12)d.lnfllf l(1/2,12)d.lnflbp i.month
51   date if tin(,2018m12)
51 scalar define rmse3=e(rmse)
52 reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr
53   i.month if tin(,2018m12)
53 scalar define rmse4=e(rmse)
54
55 matrix drop _all
56 matrix row=(rmsel, rmse2, rmse3, rmse4)
57 matrix RMSE = row
58 matrix list RMSE
59
60 *4
61 reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/12)d.lnfllf l(1/12)d.lnusepr
62   l(1/12)d.lnflbp i.month date if tin(,2018m12)
62 predict nonfarm1
63 gen ubnonfarm1=nonfarm1+1.96*e(rmse)
64 gen lbnonfarm1=nonfarm1-1.96*e(rmse)

```

```

65 tsline ubnonfarm1 lbnonfarm1 nonfarm1 d.nonfarm1 if tin(2017m12, 2018m12)
66 reg d.lnflnonfarm 1(1/12)d.lnflnonfarm 1(1/2)d.lnfllf 1(1/2)d.lnusepr 1(1/2)d.lnflbp
   i.month date if tin(,2018m12)
67 predict nonfarm2
68 gen ubnonfarm2=nonfarm2+1.96*e(rmse)
69 gen lbnonfarm2=nonfarm2-1.96*e(rmse)
70 tsline ubnonfarm2 lbnonfarm2 nonfarm2 d.nonfarm2 if tin(2017m12, 2018m12)
71 reg d.lnflnonfarm 1(1/12)d.lnflnonfarm 1(1/2,12)d.lnfllf 1(1/2,12)d.lnflbp i.month
   date if tin(,2018m12)
72 predict nonfarm3
73 gen ubnonfarm3=nonfarm3+1.96*e(rmse)
74 gen lbnonfarm3=nonfarm3-1.96*e(rmse)
75 tsline ubnonfarm3 lbnonfarm3 nonfarm3 d.nonfarm3 if tin(2017m12, 2018m12)
76 reg d.lnflnonfarm 1(1/12,24)d.lnflnonfarm 1(1/2,12,24)d.lnfllf 1(1/2,12,24)d.lnusepr
   i.month if tin(,2018m12)
77 predict nonfarm4
78 gen ubnonfarm4=nonfarm4+1.96*e(rmse)
79 gen lbnonfarm4=nonfarm4-1.96*e(rmse)
80 tsline ubnonfarm4 lbnonfarm4 nonfarm4 d.nonfarm4 if tin(2017m12, 2018m12)
81
82 *5
83 reg d.lnflnonfarm 1(1/12)d.lnflnonfarm 1(1/12)d.lnfllf 1(1/12)d.lnusepr
   1(1/12)d.lnflbp i.month date
84 estat ic
85 scalar define df1=el(r(S),1,4)
86 scalar define aic1=el(r(S),1,5)
87 scalar define bic1=el(r(S),1,6)
88 loocv reg d.lnflnonfarm 1(1/12)d.lnflnonfarm 1(1/12)d.lnfllf 1(1/12)d.lnusepr
   1(1/12)d.lnflbp i.month date
89 scalar define loormsel=r(rmse)
90
91 reg d.lnflnonfarm 1(1/12)d.lnflnonfarm 1(1/2)d.lnfllf 1(1/2)d.lnusepr 1(1/2)d.lnflbp
   i.month date
92 estat ic
93 scalar define df2=el(r(S),1,4)
94 scalar define aic2=el(r(S),1,5)
95 scalar define bic2=el(r(S),1,6)
96 loocv reg d.lnflnonfarm 1(1/12)d.lnflnonfarm 1(1/2)d.lnfllf 1(1/2)d.lnusepr
   1(1/2)d.lnflbp i.month date
97 scalar define loormse2=r(rmse)
98
99 reg d.lnflnonfarm 1(1/12)d.lnflnonfarm 1(1/2,12)d.lnfllf 1(1/2,12)d.lnflbp i.month
   date
100 estat ic
101 scalar define df3=el(r(S),1,4)
102 scalar define aic3=el(r(S),1,5)
103 scalar define bic3=el(r(S),1,6)
104 loocv reg d.lnflnonfarm 1(1/12)d.lnflnonfarm 1(1/2,12)d.lnfllf 1(1/2,12)d.lnflbp
   i.month date
105 scalar define loormse3=r(rmse)
106

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107 reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr
108 i.month
109 estat ic
110 scalar define df4=el(r(S),1,4)
111 scalar define aic4=el(r(S),1,5)
112 scalar define bic4=el(r(S),1,6)
113 loocv reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf
114 l(1/2,12,24)d.lnusepr i.month
115 scalar define loormse4=r(rmse)
116 matrix drop _all
117 matrix fit1=(df1,aic1,bic1,rmse1,loormse1)
118 matrix fit2=(df2,aic2,bic2,rmse2,loormse2)
119 matrix fit3=(df3,aic3,bic3,rmse3,loormse3)
120 matrix fit4=(df4,aic4,bic4,rmse4,loormse4)
121 matrix FIT=fit1\fit2\fit3\fit4
122 matrix rownames FIT="Model 1" "Model 2" "Model 3" "Model 4"
123 matrix colnames FIT=df AIC BIC RMSE LOORMSE
124 matrix list FIT
125
126 *6
127 reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr
128 i.month if tin(,2018m12)
129 predict nonfarm6
130 predict stdfore6, stdf
131 gen pnonfarm6=exp(l.lnflnonfarm+nonfarm6)*exp(.5*e(rmse)^2)
132 gen ubpnonfarm6=exp(l.lnflnonfarm+nonfarm6+1.96*stdfore6)*exp(.5*e(rmse)^2)
133 gen lbpnonfarm6=exp(l.lnflnonfarm+nonfarm6-1.96*stdfore6)*exp(.5*e(rmse)^2)
134 tsline ubpnonfarm6 lbpnonfarm6 pnonfarm6 fl_nonfarm if tin(2016m12,2019m12),
135 tline(2018m12)
136
137 *7
138 reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr
139 i.month if tin(,2018m12)
140 predict nonfarm47
141 predict pres47 if tin(2016m12,2018m12), residual
142 gen expres47=exp(pres47) if tin(2016m12,2018m12)
143 summ expres47
144 gen pnonfarm47=r(mean)*exp(l.lnflnonfarm+nonfarm47)
145 _pctile expres47, percentile(2.5,97.5)
146 gen lbpnonfarm47=r(r1)*exp(l.lnflnonfarm+nonfarm47)
147 gen ubpnonfarm47=r(r2)*exp(l.lnflnonfarm+nonfarm47)
148 tsline ubpnonfarm47 lbpnonfarm47 pnonfarm47 fl_nonfarm if tin(2016m12,2019m12),
149 tline(2018m12)
150
151 *8
152 tsappend, add(1)
153 replace month=month(dofm(date)) if month==.
154
155 *9

```

```

151 reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr
152 i.month if tin(,2018m12)
153 predict nonfarm9
154 predict pres9 if tin(,2019m12), residual
155 gen exppres9=exp(pres9) if tin(,2019m12)
156 summ exppres9
157 gen pnonfarm9=r(mean)*exp(l.lnflnonfarm+nonfarm9)
158 _pctile exppres9, percentile(2.5,97.5)
159 gen lbnonfarm9=r(r1)*exp(l.lnflnonfarm+nonfarm9)
160 gen ubnonfarm9=r(r2)*exp(l.lnflnonfarm+nonfarm9)
161 tsline ubnonfarm9 lbnonfarm9 pnonfarm9 fl_nonfarm if tin(2016m12,2020m1),
162 tline(2019m12)
163
164 *10
165 reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr
166 i.month if tin(,2018m12)
167 predict nonfarm10
168 predict stdfore10, stdf
169 gen pnonfarm10=exp(l.lnflnonfarm+nonfarm10)*exp(.5*e(rmse)^2)
170 gen ubnonfarm10=exp(l.lnflnonfarm+nonfarm10+1.96*stdfore10)*exp(.5*e(rmse)^2)
171 gen lbnonfarm10=exp(l.lnflnonfarm+nonfarm10-1.96*stdfore10)*exp(.5*e(rmse)^2)
172 tsline ubnonfarm10 lbnonfarm10 pnonfarm10 fl_nonfarm if tin(2016m12,2020m1),
173 tline(2019m12)
174 log close

```

Appendix B

```

name: <unnamed>
log: /Users/guslipkin/Documents/Spring2020/CAP 4763 ~ Time Series/Problem Sets/Problem Set 4/Problem Set 4.smcl
log type: smcl
opened on: 23 Mar 2021, 21:24:45

.
. *2d Generate a monthly date variable (make its display format monthly time, %tm)
. gen datec=date(datestring, "YMD")
. gen date=mofd(datec)
. gen month=month(datec)
. format date %tm

.
. *2e tsset your data
. tsset date
    time variable: date, 1939m1 to 2020m12
    delta: 1 month

.
. *2f
. gen lnusepr=log(us_epr)
(108 missing values generated)

. gen lnflnonfarm=log(f1_nonfarm)
. gen lnfllf=log(f1_lf)
(444 missing values generated)

. gen lnflbp=log(f1_bp)
(588 missing values generated)

.
. *1
. drop if tin(2020m1, )
(12 observations deleted)

```

```

. *2
. reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/12)d.lnfllf l(1/12)d.lnusepr l(1/12)d.lnflbp i.month date

```

Source	SS	df	MS	Number of obs	=	371
Model	.033628663	60	.000560478	F(60, 310)	=	49.11
Residual	.003538817	310	.000011413	Prob > F	=	0.0000
Total	.03716668	370	.00010045	R-squared	=	0.9948
				Adj R-squared	=	0.8864
				Root MSE	=	.00338

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.1709382	.0544484	-3.14	0.002	-.2780734 -.063803
L2D.	-.1482615	.0563272	-2.63	0.009	-.2590935 -.0374296
L3D.	.162612	.057373	2.83	0.005	.0497221 .2755018
L4D.	.1338157	.0578492	2.31	0.021	.0199889 .2476424
L5D.	.0485865	.0586353	0.83	0.408	-.066787 .1639599
L6D.	.1034826	.0583736	1.77	0.077	-.0113761 .2183412
L7D.	-.0017194	.0587065	-0.03	0.977	-.1173393 .1139805
L8D.	-.0661616	.0589687	-1.12	0.263	-.1821911 .049868
L9D.	.0703003	.0570451	1.23	0.219	-.0419442 .1825448
L10D.	-.2131464	.0557377	-3.82	0.000	-.3228184 -.1034745
L11D.	-.0492711	.0559229	-0.88	0.379	-.1593075 .0607653
L12D.	.3160254	.0547464	5.77	0.000	.2083039 .4237469
lnfllf					
LD.	-.14466453	.0983821	-1.47	0.143	-.3382263 .0489358
L2D.	-.1262282	.0987995	-1.28	0.282	-.3206305 .0681742
L3D.	-.0938871	.0998186	-0.94	0.348	-.2902948 .1025206
L4D.	-.0237969	.1021375	-0.23	0.816	-.2247673 .1771735
L5D.	.009078	.1014128	0.09	0.929	-.1904666 .2086226
L6D.	-.1064011	.1005346	-1.06	0.291	-.3042177 .0914155
L7D.	-.0363673	.1001261	-0.36	0.717	-.2333881 .1606454
L8D.	-.0227181	.0999056	-0.23	0.820	-.219289 .1738688
L9D.	.1419096	.0991963	1.43	0.154	-.0532736 .3379929
L10D.	.2356432	.0995816	2.37	0.019	.0397018 .4315847
L11D.	-.0156215	.1005373	-0.16	0.877	-.2134433 .1822003
L12D.	-.1496896	.0991977	-1.51	0.132	-.3448754 .0454963
lnusepr					
LD.	.2160403	.1318859	1.64	0.102	-.0434644 .4755451
L2D.	.0596176	.1342172	0.44	0.657	-.2044743 .3237096
L3D.	.1365192	.1332945	1.02	0.307	-.1255752 .3987956
L4D.	.1405566	.1327082	1.06	0.291	-.1206748 .4018068
L5D.	-.0429764	.1313989	-0.33	0.744	-.3015071 .2155544
L6D.	.3174743	.1307471	2.43	0.016	.0602104 .5747382
L7D.	.1643272	.1319288	1.25	0.214	-.0952619 .4239164
L8D.	-.0363099	.1308986	-0.28	0.782	-.2938562 .2212364
L9D.	-.1104225	.1311797	-0.84	0.491	-.3685377 .1476927
L10D.	-.3143018	.1317767	-2.39	0.018	-.5735916 -.0558012
L11D.	.1870841	.1321575	1.42	0.158	-.072955 .4471232
L12D.	.1595031	.127988	1.25	0.214	-.092332 .4113382
lnflbp					
LD.	.0014899	.0015781	0.94	0.346	-.0016152 .0046595
L2D.	.0048244	.0018575	2.60	0.010	.0011694 .0084793
L3D.	.0065472	.0019601	3.34	0.001	.0026984 .0184040
L4D.	.0049279	.001984	2.48	0.014	.0010242 .0088316
L5D.	.0050421	.0019821	2.54	0.011	.001142 .0089422
L6D.	.0049581	.0020017	2.48	0.014	.0010194 .0088969
L7D.	.0043549	.0020066	2.17	0.031	.0004067 .0083031
L8D.	.0036467	.0020847	1.78	0.077	-.0003985 .0076719
L9D.	.0033308	.0020403	1.63	0.104	-.0006839 .0073454
L10D.	.004421	.0020819	2.21	0.028	.000482 .00836
L11D.	.0031925	.0019124	1.67	0.096	-.0005706 .0069555
L12D.	.0030942	.0015709	1.97	0.050	3.18e-06 .0061852
month					
2	.0096471	.0035242	2.74	0.007	.0027127 .0165816
3	.0085261	.003368	2.32	0.021	.0012851 .0157671
4	.0092646	.0040143	2.31	0.022	.0013658 .0171635
5	.0035453	.0031449	1.13	0.200	-.0026427 .0097333
6	-.0026169	.0037248	-0.70	0.483	-.0099459 .0047121
7	.0042003	.0035921	1.17	0.243	-.0028678 .0112683
8	.0133789	.0037305	3.59	0.000	.0060387 .0207191
9	.0108298	.0031587	3.43	0.001	.0046146 .0170465
10	.0165185	.0040273	4.10	0.000	.0085942 .0244428
11	.0090475	.0037037	2.44	0.015	.0017599 .0163351
12	.0154964	.0034704	4.47	0.000	.0086679 .022325
date	-3.66e-06	1.92e-06	-1.90	0.058	-7.43e-06 1.22e-07
cons	-.0044454	.0028196	-1.58	0.116	-.0099933 .0011025

```

. reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2)d.lnfllf l(1/2)d.lnusepr l(1/2)d.lnflbp i.month date

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Source	SS	df	MS	Number of obs	=	381
Model	.033990108	30	.001133004	F(30, 350)	=	90.75
Residual	.004369699	350	.000012485	Prob > F	=	0.0000
Total	.038359977	380	.000100947	R-squared	=	0.8861
				Adj R-squared	=	0.8763
				Root MSE	=	.00353

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.1252994	.0491434	-2.55	0.011	-.2219529 -.0286459
L2D.	-.0958692	.0518133	-1.85	0.065	-.1977648 .0068443
L3D.	.2398422	.0515342	4.65	0.000	.1384866 .3411978
L4D.	.1789118	.0489573	3.49	0.001	.0746243 .2671992
L5D.	.1515931	.0495961	3.06	0.002	.0540493 .249137
L6D.	.1371627	.0507474	2.70	0.007	.0373545 .2369708
L7D.	.0720218	.0527616	1.37	0.173	-.0317478 .1757914
L8D.	.0100807	.0513147	0.20	0.844	-.0908432 .1110047

L9D.	.0796876	.0488054	1.63	0.103	-.0163013	.1756764
L10D.	-.1886884	.047519	-3.97	0.000	-.2821391	-.0952217
L11D.	-.0844174	.0497603	-1.70	0.091	-.1822842	.0134493
L12D.	.388731	.0497483	7.81	0.000	.2908879	.4865741
lnfl1f						
LD.	-.19426	.0941693	-2.06	0.040	-.3794688	-.0098513
L2D.	-.1402653	.0944467	-1.49	0.138	-.3260199	.0454893
lnusepr						
LD.	.2273847	.1224594	1.86	0.064	-.0134641	.4682334
L2D.	.0344122	.123157	0.28	0.780	-.2078086	.276633
lnflbp						
LD.	.0002646	.0014455	0.18	0.855	-.0025784	.0031076
L2D.	.0014358	.0014491	0.99	0.322	-.0014143	.0042858
month						
2	.0089123	.0022594	3.94	0.000	.0044686	.0133561
3	.0063439	.0027078	2.34	0.020	.0010183	.0116696
4	.0081387	.0027662	2.94	0.003	.0026983	.0135792
5	.002026	.0026956	0.75	0.453	-.0032757	.0073277
6	.0005971	.0024291	0.25	0.806	-.0041884	.0053746
7	.0012385	.0021082	0.59	0.557	-.0029078	.0053847
8	.011499	.0024647	4.67	0.000	.0066515	.0163465
9	.0150089	.002545	5.98	0.000	.0100036	.0200143
10	.0207091	.0025776	8.03	0.000	.0156395	.0257787
11	.0124833	.0024281	5.14	0.000	.0077077	.0172588
12	.0125059	.0019735	6.34	0.000	.0086245	.0163873
date	-9.91e-07	1.73e-06	-0.57	0.568	-4.40e-06	2.42e-06
_cons	-.0069309	.0019081	-3.63	0.000	-.0106838	-.0031781

. reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2,12)d.lnfl1f l(1/2,12)d.lnflbp i.month date

Source	SS	df	MS	Number of obs	=	371
Model	.033019839	30	.001100661	F(30, 340)	=	90.24
Residual	.004146841	340	.000012197	Prob > F	=	0.0000
Total	.03716668	370	.00010045	R-squared	=	0.8884
				Adj R-squared	=	0.8786
				Root MSE	=	.00349

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnflnonfarm						
LD.	-.1007022	.0496694	-2.03	0.043	-.1984002	-.0030042
L2D.	-.0776112	.0500347	-1.55	0.122	-.1760278	.0208054
L3D.	.2495718	.0489276	5.10	0.000	.153333	.3458107
L4D.	.1659053	.0490998	3.38	0.001	.0693277	.2624828
L5D.	.1576085	.0494045	3.19	0.002	.0604315	.2547854
L6D.	.1606861	.0504142	3.19	0.002	.0615231	.2598491
L7D.	.0920285	.0512561	1.80	0.073	-.0087985	.1928394
L8D.	.0257082	.0504855	0.51	0.611	-.073595	.1250115
L9D.	.0816557	.0485929	1.68	0.094	-.013925	.1772363
L10D.	-.1982253	.0474658	-4.18	0.000	-.2915889	-.1048616
L11D.	-.1022931	.049168	-2.08	0.038	-.199005	-.0055813
L12D.	.3672239	.0495416	7.41	0.000	.2697773	.4646706
lnfl1f						
LD.	-.0415721	.0517745	-0.80	0.423	-.1434108	.0602666
L2D.	-.1119071	.0515073	-2.17	0.030	-.2132283	-.0105939
L12D.	-.1255582	.0492626	-2.55	0.011	-.2224562	-.0286603
lnflbp						
LD.	.0007479	.0014387	0.52	0.604	-.0020821	.0035778
L2D.	.0019096	.0014405	1.33	0.186	-.0009239	.004743
L12D.	.0016474	.0012703	1.30	0.196	-.0008512	.0041461
month						
2	.0086958	.0020531	4.24	0.000	.0046573	.0127342
3	.0077648	.0024066	3.23	0.001	.0030311	.0124985
4	.0089026	.0027229	3.27	0.001	.0035469	.0142584
5	.0038752	.0026664	1.45	0.147	-.0013695	.0091199
6	.0010548	.0023999	0.44	0.661	-.0036658	.0057754
7	.0040191	.0020623	1.95	0.052	-.0000374	.0088755
8	.0127434	.0023612	5.48	0.000	.0088099	.0173878
9	.0156048	.0025314	6.16	0.000	.0186256	.0205839
10	.0204691	.0025295	8.09	0.000	.0154936	.0254446
11	.0136586	.0022928	5.96	0.000	.0091487	.0181685
12	.0133881	.001901	7.04	0.000	.0096488	.0171194
date	-6.31e-07	1.73e-06	-0.37	0.715	-4.03e-06	2.76e-06
_cons	-.0082167	.0018377	-4.47	0.000	-.0118314	-.0046019

. reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfl1f l(1/2,12,24)d.lnusepr i.month

Source	SS	df	MS	Number of obs	=	503
Model	.043188967	32	.001349655	F(32, 470)	=	111.72
Residual	.005677954	470	.000012081	Prob > F	=	0.0000
Total	.048866921	502	.000097344	R-squared	=	0.8838
				Adj R-squared	=	0.8759
				Root MSE	=	.00348

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnflnonfarm						
LD.	-.0255499	.03766	-0.68	0.498	-.0995527	.0484528
L2D.	-.0022421	.038345	-0.06	0.953	-.0775989	.0731068
L3D.	.1749722	.0380384	4.60	0.000	.1002259	.2497186
L4D.	.1177758	.0368875	3.19	0.002	.045291	.1902607
L5D.	.1127275	.0389003	2.90	0.004	.0362875	.1891675
L6D.	.099976	.0486874	2.24	0.026	.0110242	.1709278
L7D.	.0099996	.0405277	0.22	0.822	-.0705384	.0887376
L8D.	-.0366038	.0392974	-0.93	0.352	-.1138241	.0406165

L9D.	.0766282	.0372788	2.06	0.040	.0033744	.1498819
L10D.	-.1156119	.0372913	-3.10	0.002	-.1888982	-.0423337
L11D.	-.0153338	.0383706	-0.49	0.690	-.090737	.0600611
L12D.	.3692339	.0461555	8.00	0.000	.2785372	.4599307
L24D.	.1970316	.0414188	4.76	0.000	.1156426	.2784205
lnfl1f						
LD.	-.1283352	.068539	-1.87	0.062	-.263016	.0063457
L2D.	-.2120246	.0677924	-3.13	0.002	-.3452383	-.0788109
L12D.	-.032049	.0699833	-0.46	0.647	-.1695679	.18547
L24D.	.2125143	.0650669	3.27	0.001	.0846562	.3403724
lnusepr						
LD.	.1405225	.0907752	1.55	0.122	-.0378531	.318898
L2D.	.2347858	.0984615	2.08	0.010	.0570268	.4125448
L12D.	-.0236969	.0938261	-0.25	0.801	-.2088674	.1606736
L24D.	-.4061036	.0863262	-4.70	0.000	-.5757366	-.2364706
month						
2	.0130388	.0021912	5.95	0.000	.0087331	.0173445
3	.0143267	.0024097	5.95	0.000	.0095916	.0196018
4	.0133539	.0024757	5.39	0.000	.008489	.0182188
5	.0079333	.0022518	3.52	0.000	.0035084	.0123582
6	.0089776	.0023234	3.86	0.000	.004412	.0135431
7	.007944	.0019343	4.11	0.000	.0041431	.011745
8	.0126699	.0019881	6.87	0.000	.0081632	.0159766
9	.0139913	.0019658	7.12	0.000	.0101286	.0178541
10	.0232689	.0024957	9.32	0.000	.0183568	.028165
11	.0157873	.0022757	6.94	0.000	.0113154	.0202591
12	.0128709	.0018317	7.03	0.000	.0092715	.0164702
_cons	-.01163	.0016815	-6.92	0.000	-.0149341	-.0083258

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*#3
reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/12)d.lnfl1f l(1/12)d.lnusepr l(1/12)d.lnflbp i.month date if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	359
Model	.032942734	60	.000549046	F(68, 298)	=	46.98
Residual	.063482599	298	.000011687	Prob > F	=	0.0000
Total	.036425333	358	.000101747	R-squared	=	0.9944
				Adj R-squared	=	0.8851
				Root MSE	=	.008342

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnflnonfarm						
LD.	-.1785286	.0557606	-3.20	0.002	-.2882631	-.0687941
L2D.	-.1456054	.0575841	-2.53	0.012	-.2589285	-.0322823
L3D.	.1670832	.0584604	2.86	0.005	.0520358	.2821307
L4D.	.1354903	.0590676	2.29	0.023	.0191684	.2516456
L5D.	.0424067	.0600114	0.71	0.480	-.0756932	.1608066
L6D.	.0976656	.0600038	1.63	0.185	-.0204193	.2157504
L7D.	-.0007543	.0605067	-0.01	0.990	-.1198289	.1183204
L8D.	-.0676289	.0607766	-1.11	0.267	-.1872346	.0519769
L9D.	.0724574	.0588007	1.23	0.219	-.0432598	.1881745
L10D.	-.2140965	.0571111	-3.75	0.000	-.3264888	-.1017043
L11D.	-.0560776	.0572337	-0.98	0.328	-.168711	.0565558
L12D.	.3073789	.0560997	5.48	0.000	.1969771	.4177807
lnfl1f						
LD.	-.14462	.1008735	-1.43	0.153	-.3431346	.0538946
L2D.	-.1332598	.1011166	-1.32	0.189	-.3322529	.0657332
L3D.	-.0755605	.1025333	-0.74	0.462	-.2772826	.126276
L4D.	.0025049	.1051978	0.02	0.981	-.2045197	.2095296
L5D.	.0257598	.1045744	0.25	0.806	-.1800381	.2315577
L6D.	-.1051399	.1040557	-1.01	0.313	-.309917	.0996372
L7D.	-.0521678	.1035685	-0.50	0.615	-.2559861	.1516505
L8D.	-.0353629	.1034667	-0.34	0.733	-.238981	.1682251
L9D.	.1257419	.1027424	1.22	0.222	-.0764587	.3279346
L10D.	.2264423	.102592	2.21	0.028	.0245458	.4283389
L11D.	-.0115823	.1034951	-0.11	0.911	-.2152562	.1928917
L12D.	-.1366552	.1019729	-1.34	0.181	-.3373335	.0640231
lnusepr						
LD.	.2199635	.1351476	1.63	0.185	-.0460011	.4859281
L2D.	.0824764	.1374525	0.68	0.549	-.1880241	.3529769
L3D.	.1238781	.1364468	0.91	0.365	-.1446433	.3923995
L4D.	.1231339	.1357511	0.91	0.365	-.1440181	.390286
L5D.	-.0608881	.1344611	-0.45	0.651	-.3255017	.2037254
L6D.	.3128869	.1348904	2.32	0.021	.0474224	.5783393
L7D.	.1899949	.1365232	1.39	0.165	-.0786769	.4586667
L8D.	-.0190292	.1356228	-0.14	0.889	-.285929	.2478707
L9D.	-.0831357	.1358476	-0.61	0.541	-.3504779	.1842066
L10D.	-.3110896	.1355495	-2.30	0.022	-.5778451	-.0443342
L11D.	.186931	.1358319	1.38	0.170	-.0803884	.4542423
L12D.	.1507345	.1311892	1.15	0.251	-.1074482	.4089092
lnflbp						
LD.	.0018889	.0016344	1.16	0.249	-.0013275	.0051053
L2D.	.0052181	.0019412	2.68	0.008	.00139	.0098303
L3D.	.0065958	.0020468	3.22	0.001	.0025678	.0106239
L4D.	.0046902	.0020526	2.28	0.023	.0006508	.0087297
L5D.	.0048948	.0020293	2.41	0.016	.0009013	.0088882
L6D.	.0051713	.0020424	2.53	0.012	.0011519	.0091908
L7D.	.0045419	.0020457	2.22	0.027	.000516	.0085678
L8D.	.0034397	.002088	1.65	0.181	-.0006694	.0075488
L9D.	.0030855	.0020819	1.48	0.139	-.0010115	.0071825
L10D.	.0043761	.0020469	2.14	0.033	.0003479	.0084043
L11D.	.0033752	.0019615	1.72	0.086	-.000485	.0072353
L12D.	.0034007	.0016181	2.10	0.036	.0002164	.0065849
month						
2	.0099863	.0036814	2.71	0.007	.0027416	.0172311
3	.0093392	.0038138	2.45	0.015	.0018338	.0168446
4	.0098465	.0042053	2.34	0.020	.0015647	.0181163

5	.0035298	.00325246	1.08	0.279	-.0028781	.0099340
6	-.0029861	.0038815	-0.77	0.442	-.0106247	.0046525
7	.0039186	.0036724	1.06	0.288	-.0033164	.0111377
8	.0138735	.0038896	3.57	0.000	.0002188	.0215281
9	.0114154	.0032689	3.49	0.001	.0049823	.0178485
10	.017388	.004233	4.11	0.000	.0098577	.0257183
11	.0094232	.0038365	2.46	0.015	.0018732	.0169733
12	.0153423	.0036493	4.20	0.000	.0081687	.0225239
date	-3.47e-06	2.01e-06	-1.73	0.085	-7.42e-06	4.85e-07
_cons	-.0047857	.0029217	-1.64	0.102	-.0105354	.0009641

```
. scalar define rmse1=e(rmse)

. reg d.lnflnonfarm l(1/12).lnflnonfarm l(1/2)d.lnfllf l(1/2).lnusepr l(1/2)d.lnflbp i.month date if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	369
Model	.033319208	30	.00111064	F(30, 338)	=	87.31
Residual	.004299377	338	.00001272	Prob > F	=	0.0000
Total	.037618585	368	.000102224	R-squared	=	0.8857
				Adj R-squared	=	0.8756
				Root MSE	=	.00357

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnflnonfarm						
LD.	-.133326	.0503841	-2.65	0.009	-.2324319	-.03422
L2D.	-.0952298	.0529421	-1.80	0.073	-.1993672	.0089076
L3D.	.2422019	.0525438	4.61	0.000	.1388477	.345556
L4D.	.1739116	.0500588	3.47	0.001	.0754456	.2723777
L5D.	.1496013	.0509462	2.94	0.004	.0493898	.2498129
L6D.	.1332644	.0521479	2.56	0.011	.0306891	.2358398
L7D.	.0730712	.0540717	1.35	0.177	-.0332882	.1794305
L8D.	.0161971	.0524574	0.31	0.758	-.086987	.1193812
L9D.	.0861744	.0499333	1.73	0.085	-.0120448	.1843937
L10D.	-.1843262	.048657	-3.79	0.000	-.2800348	-.0886175
L11D.	-.0933289	.0508082	-1.84	0.067	-.1932573	.0065995
L12D.	.3768875	.0508592	7.41	0.000	.276847	.476928
lnfllf						
LD.	-.1958536	.096245	-2.03	0.043	-.3851683	-.0065389
L2D.	-.1507978	.0964317	-1.56	0.119	-.3404796	.038884
lnusepr						
LD.	.231098	.1251978	1.85	0.066	-.0151669	.477363
L2D.	.0576833	.1260438	0.46	0.648	-.1902458	.3056124
lnflbp						
LD.	.0006178	.0014964	0.41	0.680	-.0023257	.0035613
L2D.	.0017963	.0014942	1.20	0.230	-.0011428	.0047354
month						
2	.0092417	.0023322	3.96	0.000	.0046542	.0138292
3	.0070536	.0028086	2.51	0.012	.0015291	.0125782
4	.0084227	.0028514	2.95	0.003	.0028141	.0149314
5	.0020872	.0027842	0.75	0.454	-.0033893	.0075638
6	.0002948	.0025009	0.12	0.986	-.0046246	.0052141
7	.0008253	.0021584	0.38	0.702	-.0034284	.0059709
8	.011443	.0025191	4.54	0.000	.0004878	.0163981
9	.0154884	.002613	5.93	0.000	.0103487	.0206282
10	.0212612	.0026556	8.01	0.000	.0160376	.0264847
11	.0130249	.0025092	5.19	0.000	.0088894	.0179605
12	.0123947	.0020234	6.13	0.000	.0084147	.0163747
date						
date	-1.01e-06	1.84e-06	-0.55	0.581	-4.62e-06	2.60e-06
_cons	-.0070518	.0019605	-3.60	0.000	-.010908	-.0031955

```
. scalar define rmse2=e(rmse)

. reg d.lnflnonfarm l(1/12).lnflnonfarm l(1/2,12).lnfllf l(1/2,12).lnflbp i.month date if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	359
Model	.032340453	30	.001078015	F(30, 328)	=	86.56
Residual	.00408488	328	.000012454	Prob > F	=	0.0000
Total	.036425333	358	.000101747	R-squared	=	0.8879
				Adj R-squared	=	0.8776
				Root MSE	=	.00353

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnflnonfarm						
LD.	-.1087415	.050957	-2.13	0.034	-.2089852	-.0084978
L2D.	-.0783122	.0511855	-1.53	0.127	-.1790055	.0223811
L3D.	.2541334	.0499623	5.09	0.000	.1558465	.3524202
L4D.	.1689731	.0502832	3.36	0.001	.0700548	.2678914
L5D.	.1560811	.0507562	3.08	0.002	.0562324	.2559298
L6D.	.1559988	.0518295	3.01	0.003	.0540388	.2579509
L7D.	.094377	.0527031	1.79	0.074	-.0093018	.1988557
L8D.	.0330789	.0518367	0.64	0.524	-.0688954	.1350533
L9D.	.0893751	.0498407	1.79	0.074	-.0086727	.1874229
L10D.	-.1928458	.0486049	-3.97	0.000	-.2884625	-.0972291
L11D.	-.1106264	.0502767	-2.20	0.028	-.2095318	-.0117209
L12D.	.3558321	.0506087	7.02	0.000	.2561195	.4555448
lnfllf						
LD.	-.0438007	.0531291	-0.82	0.410	-.1483174	.0607159
L2D.	-.1078659	.0528228	-2.04	0.042	-.2117983	-.0039414
L12D.	-.1213337	.0512128	-2.37	0.018	-.2220841	-.020859
lnflbp						
LD.	.0010857	.0014897	0.73	0.467	-.001845	.0040163
L2D.	.0022613	.0014885	1.52	0.130	-.0006669	.0051896
L12D.	.0017602	.0012989	1.36	0.176	-.0007949	.0043154

month	2	.0088945	.0021089	4.22	0.000	.0047459	.0130431
3	.0081923	.0024954	3.28	0.001	.0032832	.0131013	
4	.0093013	.0028146	3.30	0.001	.0037643	.0148382	
5	.0039203	.0027567	1.42	0.156	-.0015028	.0093433	
6	.0008197	.0024749	0.33	0.743	-.004058	.0056794	
7	.0035339	.0021131	1.67	0.095	-.0006179	.0076959	
8	.0127989	.0024143	5.30	0.000	.0080414	.0175403	
9	.0160119	.0026	6.16	0.000	.0108971	.0211268	
10	.0209367	.0026079	8.03	0.000	.0158063	.026067	
11	.0141242	.0023058	5.97	0.000	.0094702	.0187783	
12	.0133079	.0019471	6.83	0.000	.0094775	.0171383	
date	-6.00e-07	1.84e-06	-0.33	0.742	-4.22e-06	3.01e-06	
_cons	-.0083676	.0018948	-4.42	0.000	-.012095	-.0046401	

```
. scalar define rmse3=e(rmse)

. reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnflif l(1/2,12,24)d.lnusepr i.month if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	491
Model	.042575775	32	.001330493	F(32, 458)	=	109.93
Residual	.005543023	458	.000012103	Prob > F	=	0.0000
Total	.048118799	490	.000098202	R-squared	=	0.8848
				Adj R-squared	=	0.8768
				Root MSE	=	.00348

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.0311684	.0380987	-0.82	0.414	-.1060383 .0437014
L2D.	.0011589	.0387186	0.03	0.976	-.0749371 .077239
L3D.	.1810109	.0383354	4.72	0.000	.1057668 .2564371
L4D.	.122168	.0372877	3.28	0.001	.0488919 .195444
L5D.	.1131335	.0394764	2.87	0.004	.0355562 .1907107
L6D.	.0897111	.0411525	2.18	0.030	.0088481 .1705822
L7D.	.0046318	.0409493	0.11	0.910	-.0758481 .0851037
L8D.	-.0345244	.0396846	-0.87	0.385	-.1125189 .043462
L9D.	.0809663	.0376451	2.15	0.032	.0069878 .1549448
L10D.	-.1108451	.0375797	-2.95	0.003	-.1846951 -.0369951
L11D.	-.0221162	.03865	-0.57	0.567	-.0981196 .0537872
L12D.	.3376832	.0476368	7.09	0.000	.2440695 .4312969
L24D.	.2364096	.04478	5.28	0.000	.14841 .3244093
lnflif					
LD.	-.1300766	.0692757	-1.88	0.061	-.2662142 .0068609
L2D.	-.2188669	.0684865	-3.20	0.001	-.3534536 -.0842802
L12D.	-.0319786	.070685	-0.45	0.651	-.1708776 .1069365
L24D.	.2248965	.06562	3.43	0.001	.0959428 .3538501
lnusepr					
LD.	.1537422	.092086	1.67	0.096	-.0272212 .3347056
L2D.	.2542549	.0916164	2.78	0.006	.0742143 .4342955
L12D.	-.0218538	.0949163	-0.23	0.818	-.2083793 .1646718
L24D.	-.4432243	.0880674	-5.03	0.000	-.6162985 -.2701581
month					
2	.0133765	.002229	6.00	0.000	.0089962 .0177569
3	.0150211	.0024611	6.10	0.000	.0101847 .0198576
4	.0140381	.0025223	5.57	0.000	.0098814 .0189949
5	.0082786	.0023045	3.59	0.000	.0037499 .0128072
6	.0092759	.0023797	3.90	0.000	.0045993 .0139524
7	.0081629	.0019705	4.14	0.000	.0042905 .0128353
8	.0119157	.0020208	5.98	0.000	.0079446 .0158868
9	.0141217	.0020005	7.06	0.000	.0101984 .018053
10	.0242635	.0025397	9.55	0.000	.0192726 .0292543
11	.0162918	.0023257	7.01	0.000	.0117215 .0208621
12	.012759	.0018654	6.84	0.000	.0090932 .0164248
_cons	-.011962	.0017171	-6.99	0.000	-.0153705 -.0086219

```
. scalar define rmse4=e(rmse)

. matrix drop _all

. matrix row=(rmse1, rmse2, rmse3, rmse4)

. matrix RMSE = row

. matrix list RMSE

RMSE[1,4]
      c1          c2          c3          c4
r1  .00341856  .00356652  .00352901  .00347889
```

```
. *4
. reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/12)d.lnflif l(1/12)d.lnusepr l(1/12)d.lnflbp i.month date if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	359
Model	.032942734	60	.000549046	F(60, 298)	=	46.98
Residual	.003482599	298	.000011687	Prob > F	=	0.0000
Total	.036425333	358	.000101747	R-squared	=	0.9044
				Adj R-squared	=	0.8851
				Root MSE	=	.00342

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.1785286	.0557606	-3.20	0.002	-.2882631 -.0687941
L2D.	-.1456054	.0575841	-2.53	0.012	-.2589285 -.0322823
L3D.	.1670832	.0584604	2.86	0.005	.0520358 .2821307
L4D.	.135403	.0500676	2.29	0.023	.0101604 .0516456

	L5D.	L6D.	L7D.	L8D.	L9D.	L10D.	L11D.	L12D.		L5D.	L6D.	L7D.	L8D.	L9D.	L10D.	L11D.	L12D.		L5D.	L6D.	L7D.	L8D.	L9D.	L10D.	L11D.	L12D.	
lnfl1f									LD.	.0424067	.0600114	0.71	0.488	-.0756932	.1605066				L5D.	.0424067	.0600114	0.71	0.488	-.0756932	.1605066		
									L2D.	.0976656	.0600038	1.63	0.185	-.0294193	.2157504				L3D.	-.0007543	.0605067	-0.01	0.998	-.1198289	.1183204		
									L4D.	-.0676289	.0607766	-1.11	0.267	-.1872346	.0519769				L5D.	.0724574	.0588007	1.23	0.219	-.0432598	.1881745		
									L6D.	-.2140965	.0571111	-3.75	0.000	-.3204888	-.1017043				L7D.	-.0560776	.0572337	-0.98	0.328	-.168711	.0565558		
									L8D.	.3073789	.0560997	5.48	0.000	.1969771	.4177807				L9D.	-.0560776	.0572337	-0.98	0.328	-.168711	.0565558		
									L10D.	.3073789	.0560997	5.48	0.000	.1969771	.4177807				L11D.	-.0560776	.0572337	-0.98	0.328	-.168711	.0565558		
									L12D.	-.0560776	.0572337	-0.98	0.328	-.168711	.0565558				L11D.	-.0560776	.0572337	-0.98	0.328	-.168711	.0565558		
lnusepr									LD.	-.144462	.1008735	-1.43	0.153	-.3431346	.0538946				L5D.	.2199635	.1351476	1.63	0.105	-.0460011	.4859281		
									L2D.	-.1332598	.1011166	-1.32	0.189	-.3322529	.0657332				L3D.	-.075585	.1025333	-0.74	0.462	-.277286	.126276		
									L4D.	.0025049	.1051978	0.02	0.981	-.2045197	.2095296				L5D.	.0257598	.1045744	0.25	0.886	-.1800381	.2315577		
									L6D.	-.1051399	.1040557	-1.01	0.313	-.309917	.0996372				L7D.	-.0521678	.1035685	-0.50	0.615	-.2559861	.1516505		
									L8D.	-.0353629	.1034667	-0.34	0.733	-.238981	.1682561				L9D.	.1257419	.1027424	1.22	0.222	-.0764507	.3279346		
									L10D.	.2264423	.102592	2.21	0.028	.0245458	.4283389				L11D.	-.0115823	.1034951	-0.11	0.911	-.2152562	.1928917		
									L12D.	-.1366552	.1019729	-1.34	0.181	-.3373335	.0640231				L11D.	-.0115823	.1034951	-0.11	0.911	-.2152562	.1928917		
lnflbp									LD.	.0018889	.0016344	1.16	0.249	-.0013275	.0051053				L5D.	.0018889	.0016344	1.16	0.249	-.0013275	.0051053		
									L2D.	.0052101	.0019412	2.68	0.008	.00139	.00980303				L3D.	.0065958	.00240468	3.22	0.001	.0025678	.0106239		
									L4D.	.0046982	.00208526	2.28	0.023	.0006588	.0087297				L5D.	-.0048948	.0020293	2.41	0.016	.0009013	.0088882		
									L6D.	.0051713	.00208424	2.53	0.012	.0011519	.0091908				L7D.	.0045419	.00208457	2.22	0.027	.000516	.0085678		
									L8D.	.0034397	.0020888	1.65	0.181	-.0066694	.0075488				L9D.	-.0031357	.00208476	-0.61	0.541	-.3504779	.1842066		
									L10D.	-.00310896	.00205495	-2.30	0.022	-.5778451	-.0443342				L11D.	.186931	.10358319	1.38	0.170	-.0803804	.4542423		
									L12D.	.1507345	.1011892	1.15	0.251	-.1074402	.4089092				L11D.	.1507345	.1011892	1.15	0.251	-.1074402	.4089092		
month									LD.	.00199863	.0036814	2.71	0.007	.0027416	.0172311				L5D.	.00199863	.0036814	2.71	0.007	.0027416	.0172311		
									L2D.	.0093392	.0038138	2.45	0.015	.0018338	.0168446				L3D.	.0098485	.0042053	2.34	0.020	.0015647	.0181163		
									L4D.	.0035298	.0032546	1.08	0.279	-.0028751	.0099346				L5D.	-.0029861	.0038815	-0.77	0.442	-.016247	.0046525		
									L6D.	-.0039186	.0036724	1.06	0.288	-.0033164	.0111377				L7D.	.0138735	.0038896	3.57	0.000	.0062188	.0215281		
									L8D.	.0114154	.0032689	3.49	0.001	.0049823	.0178485				L9D.	.017388	.004233	4.11	0.000	.0098577	.0257183		
									L10D.	.0094232	.0038365	2.46	0.015	.0018732	.0169733				L11D.	.0153423	.0036493	4.20	0.000	.0081607	.0225239		
									L12D.	-.3.47e-06	.2.01e-06	-1.73	0.085	-.7.42e-06	4.85e-07				L11D.	-.0047857	.0029217	-1.64	0.102	-.0105354	.0009641		

```
. predict nonfarm1
(option xb assumed; fitted values)
(601 missing values generated)

. gen ubnonfarm1=nonfarm1+1.96*e(rmse)
(601 missing values generated)

. gen lbnonfarm1=nonfarm1-1.96*e(rmse)
(601 missing values generated)

. tsline ubnonfarm1 lbnonfarm1 nonfarm1 d.nonfarm1 if tin(2017m12, 2018m12)

. reg d.lnflnonfarm l(1/12).d.lnflnonfarm l(1/2).d.lnfl1f l(1/2).d.lnusepr l(1/2).d.lnflbp i.month date if tin(,2018m12)
```

Source	SS	df	MS	Number of obs =	369
Model	.033319208	30	.00111064	F(30, 338) =	87.31
Residual	.004299377	338	.00001272	Prob > F =	0.0000
Total	.037618585	368	.000102224	R-squared =	0.8857
				Adj R-squared =	0.8756
				Root MSE =	.06357

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnflnonfarm						
LD.	-.133326	.0503841	-2.65	0.009	-.2324319	-.03422
L2D.	-.0952298	.0529421	-1.80	0.073	-.1993672	.0089076
L3D.	.2422019	.0525438	4.61	0.000	.1388477	.345556
L4D.	.1739116	.0500588	3.47	0.001	.0754456	.2723777
L5D.	.1496013	.0509462	2.94	0.004	.0493898	.2498129
L6D.	.1332644	.0521479	2.56	0.011	.0306891	.2358398
L7D.	.0730712	.0540717	1.35	0.177	-.0332882	.1794305
L8D.	.0161971	.0524574	0.31	0.758	-.086987	.1193812
L9D.	.0861744	.0499333	1.73	0.085	-.0120448	.1843937
L10D.	-.1843262	.048657	-3.79	0.000	-.2800348	-.0886175
L11D.	-.0933289	.0508822	-1.84	0.067	-.1932573	.0065995
L12D.	.3768875	.0508592	7.41	0.000	.276847	.476928
lnfl1f						
LD.	-.1958536	.096245	-2.03	0.043	-.3851683	-.0065389

L2D.	-.1507978	.0964317	-1.56	0.119	-.3404796	.038884
lnusepr						
LD.	.231098	.1251978	1.85	0.066	-.0151669	.477363
L2D.	.0576833	.1260438	0.46	0.648	-.1902458	.3056124
lnflbp						
LD.	.0006178	.0014964	0.41	0.680	-.0023257	.0035613
L2D.	.0017963	.0014942	1.20	0.230	-.0011428	.0047354
month						
2	.0092417	.0023322	3.96	0.000	.0046542	.0138292
3	.0070536	.0028086	2.51	0.012	.0015291	.0125782
4	.0084227	.0028514	2.95	0.003	.0028141	.0149314
5	.0020872	.0027842	0.75	0.454	-.0033893	.0075638
6	.0002948	.0025009	0.12	0.986	-.0046246	.0052141
7	.0008253	.0021584	0.38	0.702	-.0034284	.0058709
8	.011443	.0025191	4.54	0.000	.0004878	.0163981
9	.0154884	.002613	5.93	0.000	.0193487	.0206282
10	.0212612	.0026556	8.01	0.000	.0168376	.0264847
11	.0130249	.0025092	5.19	0.000	.0080894	.0179605
12	.0123947	.0020234	6.13	0.000	.0084147	.0163747
date	-1.01e-06	1.84e-06	-0.55	0.581	-4.62e-06	2.60e-06
_cons	-.0070518	.0019605	-3.60	0.000	-.010908	-.0031955

```
. predict nonfarm2
(option xb assumed; fitted values)
(591 missing values generated)

. gen ubnonfarm2=nonfarm2+1.96*e(rmse)
(591 missing values generated)

. gen lbnonfarm2=nonfarm2-1.96*e(rmse)
(591 missing values generated)

. tsline ubnonfarm2 lbnonfarm2 nonfarm2 d.nonfarm2 if tin(2017m12, 2018m12)

. reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2,12)d.lnflif l(1/2,12)d.lnflbp i.month date if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	359
Model	.032340453	30	.001078015	F(30, 328)	=	.86.56
Residual	.00408488	328	.000012454	Prob > F	=	0.0000
Total	.036425333	358	.000101747	R-squared	=	0.8879
				Adj R-squared	=	0.8776
				Root MSE	=	.00353

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.1087415	.050957	-2.13	0.034	-.2089852
L2D.	-.0783122	.0511855	-1.53	0.127	-.1790055
L3D.	.2541334	.0499623	5.09	0.000	.1558465
L4D.	.1689731	.0502832	3.36	0.001	.0700548
L5D.	.1560811	.0507562	3.08	0.002	.0562324
L6D.	.1559988	.0518295	3.01	0.003	.0540398
L7D.	.094377	.0527031	1.79	0.074	-.0093018
L8D.	.0330789	.0518367	0.64	0.524	-.0688954
L9D.	.0893751	.0498407	1.79	0.074	-.0086727
L10D.	-.1928458	.0486049	-3.97	0.000	-.2884625
L11D.	-.1106264	.0502767	-2.20	0.028	-.2095318
L12D.	.3598321	.0500687	7.02	0.000	.2561195
lnflif					
LD.	-.0438007	.0531291	-0.82	0.410	-.1483174
L2D.	-.1078659	.052828	-2.04	0.042	-.2117983
L12D.	-.121337	.0512128	-2.37	0.018	-.2220841
lnflbp					
LD.	.0010857	.0014897	0.73	0.467	-.001845
L2D.	.0022613	.0014885	1.52	0.130	-.0006669
L12D.	.0017602	.0012989	1.36	0.176	-.0007949
month					
2	.0088945	.0021089	4.22	0.000	.0047459
3	.0081923	.0024954	3.28	0.001	.0032832
4	.0093013	.0028146	3.30	0.001	.0037643
5	.0039203	.0027567	1.42	0.156	-.0015028
6	.0008107	.0024749	0.33	0.743	-.004058
7	.0035359	.0021131	1.67	0.095	-.0006179
8	.0127989	.0024143	5.30	0.000	.0088414
9	.0160119	.0026	6.16	0.000	.0108971
10	.0209367	.0026079	8.83	0.000	.0158063
11	.0141242	.0023658	5.97	0.000	.0094782
12	.0133079	.0019471	6.83	0.000	.0094775
date	-6.06e-07	1.84e-06	-0.33	0.742	-4.22e-06
_cons	-.0083676	.0018948	-4.42	0.000	-.012095

```
. predict nonfarm3
(option xb assumed; fitted values)
(601 missing values generated)

. gen ubnonfarm3=nonfarm3+1.96*e(rmse)
(601 missing values generated)

. gen lbnonfarm3=nonfarm3-1.96*e(rmse)
(601 missing values generated)

. tsline ubnonfarm3 lbnonfarm3 nonfarm3 d.nonfarm3 if tin(2017m12, 2018m12)

. reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnflif l(1/2,12,24)d.lnusepr i.month if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	491
Model	.042575775	32	.001330493	F(32, 458)	=	109.93
				Prob > F	=	0.0000

Residual	.005543023	458	.000012103	R-squared	=	0.8848
Total	.048118799	490	.000098202	Adj R-squared	=	0.8768
				Root MSE	=	.00348

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.0311684	.0380987	-0.82	0.414	-.1060383 .0437014
L2D.	.0011589	.0387186	0.03	0.976	-.0749371 .077239
L3D.	.1810109	.0383354	4.72	0.000	.1057668 .2564371
L4D.	.122168	.0372877	3.28	0.001	.0488919 .195444
L5D.	.1131335	.0394764	2.87	0.004	.0355562 .1907107
L6D.	.0897111	.0411525	2.18	0.030	.0088401 .1705822
L7D.	.0046318	.0409493	0.11	0.910	-.0758401 .0851037
L8D.	-.0345244	.0396846	-0.87	0.385	-.1125189 .043462
L9D.	.0809663	.0376451	2.15	0.032	.0069878 .1549448
L10D.	-.1108451	.0375797	-2.95	0.003	-.1846951 -.0369951
L11D.	-.0221662	.03865	-0.57	0.567	-.0981196 .0537872
L12D.	.3376832	.0476368	7.09	0.000	.2440695 .4312969
L24D.	.2364096	.04478	5.28	0.000	.14841 .3244093
lnflif					
LD.	-.1300766	.0692757	-1.88	0.061	-.2662142 .0066069
L2D.	-.2188669	.0684865	-3.28	0.001	-.3534536 -.0842802
L12D.	-.0319706	.070685	-0.45	0.651	-.1708776 .1069365
L24D.	.2248965	.06562	3.43	0.001	.0959428 .3538501
lnusepr					
LD.	.1537422	.092086	1.67	0.096	-.0272212 .3347056
L2D.	.2542549	.0916164	2.78	0.006	.0742143 .4342955
L12D.	-.0218538	.0949163	-0.23	0.818	-.2083793 .1646718
L24D.	-.4432243	.0880674	-5.03	0.000	-.6162905 -.2701581
month					
2	.0133765	.002229	6.00	0.000	.0889962 .0177569
3	.0150211	.0024611	6.10	0.000	.0161847 .0198576
4	.0140381	.0025223	5.57	0.000	.0098814 .0189949
5	.0082786	.0023045	3.59	0.000	.0037499 .0128072
6	.0092759	.0023797	3.90	0.000	.0045993 .0139524
7	.0081629	.0019705	4.14	0.000	.0042905 .0120353
8	.0119157	.0020208	5.98	0.000	.0079446 .0158868
9	.0141217	.0020005	7.06	0.000	.0181984 .0180853
10	.0242635	.0025397	9.55	0.000	.0192726 .0292543
11	.0162918	.0023257	7.01	0.000	.0117215 .0208621
12	.012759	.0018054	6.84	0.000	.0090932 .0164248
_cons	-.0119962	.0017171	-6.99	0.000	-.0153705 -.0086219

```

. predict nonfarm4
(option xb assumed; fitted values)
(469 missing values generated)

. gen ubnonfarm4=nonfarm4+1.96*e(rmse)
(469 missing values generated)

. gen lbnonfarm4=nonfarm4-1.96*e(rmse)
(469 missing values generated)

. tsline ubnonfarm4 lbnonfarm4 nonfarm4 d.nonfarm4 if tin(2017m12, 2018m12)

.

. *5
. reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/12)d.lnflif l(1/12)d.lnusepr l(1/12)d.lnflbp i.month date

```

Source	SS	df	MS	Number of obs	=	371
Model	.033628663	60	.000560478	F(60, 310)	=	49.11
Residual	.003538017	310	.000011413	Prob > F	=	0.0000
Total	.03716668	370	.00010045	R-squared	=	0.9948
				Adj R-squared	=	0.8864
				Root MSE	=	.00338

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.1709382	.0544484	-3.14	0.002	-.2780734 -.063803
L2D.	-.1482615	.0563272	-2.63	0.009	-.2599935 -.0374296
L3D.	.162612	.057373	2.83	0.005	.0497221 .2755018
L4D.	.1338157	.0578492	2.31	0.021	.0199889 .2476442
L5D.	.0485865	.0586353	0.83	0.408	-.066787 .1639599
L6D.	.1034826	.0583736	1.77	0.077	-.0113761 .2183412
L7D.	-.0017194	.0587005	-0.03	0.977	-.1173393 .1139905
L8D.	-.0661616	.0589687	-1.12	0.263	-.1821911 .049868
L9D.	.0703003	.0570451	1.23	0.219	-.0419442 .1825448
L10D.	-.2131464	.0557377	-3.82	0.000	-.3228184 -.1034745
L11D.	-.0492711	.0559229	-0.88	0.379	-.1593075 .0607653
L12D.	.310254	.0547464	5.77	0.000	.2083039 .4237469
lnflif					
LD.	-.1446453	.0983821	-1.47	0.143	-.3382263 .0489358
L2D.	-.1262282	.0987995	-1.28	0.292	-.3206305 .0681742
L3D.	-.0938871	.0998186	-0.94	0.348	-.2902948 .1025206
L4D.	-.0237969	.1021375	-0.23	0.816	-.2247673 .1771735
L5D.	.009978	.1014128	0.09	0.929	-.1994666 .2086226
L6D.	-.1064011	.1005346	-1.06	0.291	-.3042177 .0914155
L7D.	-.0363673	.1001261	-0.36	0.717	-.2333881 .1606454
L8D.	-.0227181	.0999056	-0.23	0.820	-.219289 .1738688
L9D.	.1419096	.0991963	1.43	0.154	-.0532736 .3379029
L10D.	.2356432	.0995816	2.37	0.019	.0397018 .4315847
L11D.	-.0156215	.1005373	-0.16	0.877	-.2134433 .1822003
L12D.	-.1496896	.0991977	-1.51	0.132	-.3448754 .0454963
lnusepr					
LD.	.2160403	.1318859	1.64	0.102	-.0434644 .4755451
L2D.	.0596176	.1342172	0.44	0.657	-.2044743 .3237096
L3D.	-.0245102	.1332024	1.42	0.267	-.1257572 .2007054

L5U.	.1300172	.1332749	1.04	0.397	-1.129794	.3307790
L4D.	.140566	.1327682	1.06	0.291	-.1206748	.4018068
L5D.	-.0429764	.1313909	-0.33	0.744	-.3015071	.2155544
L6D.	.3174743	.1387471	2.43	0.016	.0662184	.5747382
L7D.	.1643272	.1319288	1.25	0.214	-.0952619	.4239164
L8D.	-.0363099	.1308996	-0.28	0.782	-.2938562	.2212364
L9D.	-.1104225	.1311797	-0.84	0.401	-.3685377	.1476927
L10D.	-.3143018	.1317767	-2.39	0.018	-.5735916	-.055012
L11D.	.1870841	.1321575	1.42	0.158	-.072955	.4471232
L12D.	.1595031	.127988	1.25	0.214	-.092332	.4113382
<hr/>						
lnflbp						
LD.	.0014899	.0015781	0.94	0.346	-.0016152	.004595
L2D.	.0048244	.0018575	2.68	0.010	.0011694	.0084793
L3D.	.0005472	.0019001	3.34	0.001	.0026984	.018404
L4D.	.0049279	.001984	2.48	0.014	.0018242	.0088316
L5D.	.0050421	.0019821	2.54	0.011	.001142	.0089422
L6D.	.0049581	.0020017	2.48	0.014	.0010194	.0088969
L7D.	.0043549	.0020066	2.17	0.031	.0004067	.0083831
L8D.	.0036497	.0020487	1.78	0.077	-.0003985	.0076719
L9D.	.0033308	.0020403	1.63	0.184	-.0006839	.0073454
L10D.	.004421	.0020019	2.21	0.028	.000482	.00836
L11D.	.0031925	.0019124	1.67	0.096	-.0005706	.0069556
L12D.	.0030942	.0015709	1.97	0.050	3.18e-06	.0061852
<hr/>						
month						
2	.0064671	.0035242	2.74	0.007	.0027127	.0165816
3	.0085261	.003368	2.32	0.021	.0012851	.0157671
4	.0092646	.0040143	2.31	0.022	.0013658	.0171635
5	.0035453	.0031449	1.13	0.260	-.0026427	.0097333
6	-.0026169	.0037248	-0.70	0.483	-.0099459	.0047121
7	.0042083	.0035921	1.17	0.243	-.0028678	.0112683
8	.0133789	.0037385	3.59	0.000	.0006387	.0207191
9	.0108298	.0031587	3.43	0.001	.0046146	.0170465
10	.0165185	.0040273	4.18	0.000	.0085942	.0244428
11	.0090475	.0037037	2.44	0.015	.0017599	.0163351
12	.0154964	.0034704	4.47	0.000	.0086679	.022325
date	-3.66e-06	1.92e-06	-1.00	0.058	-7.43e-06	1.22e-07
cons	-.0044454	.0028196	-1.58	0.116	-.0099933	.0011025

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Akaike's information criterion and Bayesian information criterion

Model	N	ll(null)	ll(model)	df	AIC	BIC
.	371	1181.759	1618.026	61	-3114.053	-2875.164

Note: BIC uses N = number of observations. See [R] BIC note.

```
. scalar define df1=el(r(S),1,4)
.scalar define aic1=el(r(S),1,5)
.scalar define bic1=el(r(S),1,6)

.loocv reg d.lnflnonfarm l(1/12).lnflnonfarm l(1/12).lnflifl l(1/12).lnusepr l(1/12).lnflbp i.month date
```

Leave-One-Out Cross-Validation Results

Method	Value
Root Mean Squared Errors	.00380836
Mean Absolute Errors	.00278549
Pseudo-R2	.85500572

. scalar define loormse1=r(rmse)

. reg d.lnflnonfarm l(1/12).lnflnonfarm l(1/2).lnflifl l(1/2).lnusepr l(1/2).lnflbp i.month date

Source	SS	df	MS	Number of obs	=	381
Model	.033990108	30	.001133004	F(30, 350)	=	90.75
Residual	.004369869	350	.000012485	Prob > F	=	0.0000
Total	.038359977	380	.000100947	R-squared	=	0.8861
				Adj R-squared	=	0.8763
				Root MSE	=	.00353

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lnflnonfarm						
LD.	-.1252994	.0491434	-2.55	0.011	-.2219529	-.0286459
L2D.	-.0958692	.0518133	-1.85	0.065	-.1977648	.0068443
L3D.	.2398422	.0515342	4.65	0.000	.1384866	.3411978
L4D.	.1799118	.0489573	3.49	0.001	.0746243	.2671992
L5D.	.1515931	.0495961	3.06	0.002	.0540493	.249137
L6D.	.1371627	.0507474	2.70	0.007	.0373545	.2369708
L7D.	.0720218	.0527616	1.37	0.173	-.0317478	.1757914
L8D.	.0100807	.0513147	0.20	0.844	-.0998432	.1110047
L9D.	.0796876	.0488054	1.63	0.103	-.0163013	.1756764
L10D.	-.1886884	.047519	-3.97	0.000	-.2821391	-.0952217
L11D.	-.0844174	.0497603	-1.70	0.091	-.1822842	.0134493
L12D.	.388731	.0497483	7.81	0.000	.2908879	.4865741
lnflifl						
LD.	-.19426	.0941693	-2.06	0.040	-.3794688	-.0090513
L2D.	-.1402653	.0944467	-1.49	0.138	-.3260199	.0454893
lnusepr						
LD.	.2273847	.1224594	1.86	0.064	-.0134641	.4682334
L2D.	.0344122	.123157	0.28	0.780	-.2078086	.276633
lnflbp						

LD.	.0002646	.0014455	0.18	0.855	-.0025784	.0031076
L2D.	.0014358	.0014491	0.99	0.322	-.0014143	.0042858
month						
2	.0089123	.0022594	3.94	0.000	.0044686	.0133561
3	.0063439	.0027078	2.34	0.020	.0010183	.0116696
4	.0081387	.0027662	2.94	0.003	.0026983	.0135792
5	.002026	.0026956	0.75	0.453	-.0032757	.0073277
6	.0005971	.0024291	0.25	0.886	-.0041884	.0053746
7	.0012385	.0021082	0.59	0.557	-.0029078	.0053847
8	.011499	.0024647	4.67	0.000	.0066515	.0163465
9	.0150089	.002545	5.98	0.000	.0100036	.0200143
10	.0207091	.0025776	8.03	0.000	.0156395	.0257787
11	.0124833	.0024281	5.14	0.000	.0077077	.0172588
12	.0125059	.0019735	6.34	0.000	.0086245	.0163873
date	-9.91e-07	1.73e-06	-0.57	0.568	-4.40e-06	2.42e-06
_cons	-.0069309	.0019081	-3.63	0.000	-.0106838	-.0031781

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Akaike's information criterion and Bayesian information criterion

Model	N	ll(null)	ll(model)	df	AIC	BIC
.	381	1212.659	1626.478	31	-3190.957	-3068.73

Note: BIC uses N = number of observations. See [R] BIC note.

```
. scalar define df2=el(r(S),1,4)
. scalar define aic2=el(r(S),1,5)
. scalar define bic2=el(r(S),1,6)
. loocv reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2)d.lnfllf l(1/2)d.lnusepr l(1/2)d.lnflbp i.month date
```

Leave-One-Out Cross-Validation Results

Method	Value
Root Mean Squared Errors	.00371849
Mean Absolute Errors	.00266976
Pseudo-R2	.86242412

. scalar define loormse2=r(rmse)

. reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2,12)d.lnfllf l(1/2,12)d.lnflbp i.month date

Source	SS	df	MS	Number of obs	=	371
Model	.033019839	30	.001100661	F(30, 340)	=	.98.24
Residual	.004146841	340	.000012197	Prob > F	=	0.0000
Total	.03716668	370	.00010045	R-squared	=	0.8884
				Adj R-squared	=	0.8786

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
<i>lnflnonfarm</i>						
LD.	-.1007022	.0496694	-2.03	0.043	-.1984002	-.0030042
L2D.	-.0776112	.0500347	-1.55	0.122	-.1760278	.0208054
L3D.	.2495718	.0489276	5.10	0.000	.153333	.3458107
L4D.	.1659053	.0490998	3.38	0.001	.0693277	.2624828
L5D.	.1576085	.0494045	3.19	0.002	.0604315	.2547854
L6D.	.1606861	.0504142	3.19	0.002	.0615231	.2598491
L7D.	.0920285	.0512561	1.88	0.073	-.0087985	.1928394
L8D.	.0257082	.0504855	0.51	0.611	-.073595	.1250115
L9D.	.0816557	.0485929	1.68	0.094	-.013925	.1772363
L10D.	-.1982253	.0474658	-4.18	0.000	-.2915889	-.1048616
L11D.	-.1022931	.049168	-2.08	0.038	-.199005	-.0055813
L12D.	.3672239	.0495416	7.41	0.000	.2697773	.4646706
<i>lnfllf</i>						
LD.	-.0415721	.0517745	-0.80	0.423	-.1434108	.0602666
L2D.	-.1119071	.0515073	-2.17	0.030	-.2132283	-.0105939
L12D.	-.1255582	.0492026	-2.55	0.011	-.2224562	-.0286603
<i>lnflbp</i>						
LD.	.0007479	.0014387	0.52	0.604	-.0020821	.0035778
L2D.	.0019096	.0014405	1.33	0.186	-.0009239	.004743
L12D.	.0016474	.0012703	1.30	0.196	-.0008512	.0041461
<i>month</i>						
2	.0086958	.0020531	4.24	0.000	.0046573	.0127342
3	.0077648	.0024066	3.23	0.001	.0030311	.0124985
4	.0089026	.0027229	3.27	0.001	.0035469	.0142584
5	.0038752	.0026664	1.45	0.147	-.0013695	.0091199
6	.0010548	.0023999	0.44	0.661	-.0036658	.0057754
7	.0040191	.0020623	1.95	0.052	-.0000374	.0088755
8	.0127434	.0023612	5.40	0.000	.008099	.0173878
9	.0156048	.0025314	6.16	0.000	.0106256	.0205839
10	.0204691	.0025295	8.89	0.000	.0154936	.0254446
11	.0136586	.0022928	5.96	0.000	.0091487	.0181685
12	.0133881	.001901	7.04	0.000	.0096408	.0171194
date	-6.31e-07	1.73e-06	-0.37	0.715	-4.03e-06	2.76e-06
_cons	-.0082167	.0018377	-4.47	0.000	-.0118314	-.0046019

. estat ic

Akaike's information criterion and Bayesian information criterion

Model	N	ll(null)	ll(model)	df	AIC	BIC
.	371	1181.759	1588.573	31	-3115.145	-2993.743

Note: BIC uses N = number of observations. See [R] BIC note.

```
. scalar define df3=el(r(S),1,4)
. scalar define aic3=el(r(S),1,5)
. scalar define bic3=el(r(S),1,6)
. loocv reg d.lnflnonfarm l(1/12)d.lnflnonfarm l(1/2,12)d.lnfllf l(1/2,12)d.lnflbp i.month date
```

Leave-One-Out Cross-Validation Results

Method	Value
Root Mean Squared Errors	.00375319
Mean Absolute Errors	.0026647
Pseudo-R2	.85864965

```
. scalar define loormse3=r(rmse)

. reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr i.month
```

Source	SS	df	MS	Number of obs	=	503
Model	.043188967	32	.001349655	F(32, 470)	=	111.72
Residual	.005677954	470	.000012081	Prob > F	=	0.0000
Total	.048866921	502	.000097344	R-squared	=	0.8838
				Adj R-squared	=	0.8759
				Root MSE	=	.00348

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.0255499	.03766	-0.68	0.498	-.0995527 .0484528
L2D.	-.0022421	.038345	-0.96	0.953	-.0775989 .0731068
L3D.	.1749722	.0380384	4.68	0.000	.1002259 .2497186
L4D.	.1177758	.0368875	3.19	0.002	.045291 .1902607
L5D.	.1127275	.0389003	2.98	0.004	.0362875 .1891675
L6D.	.099976	.0486874	2.24	0.026	.0110242 .1709278
L7D.	.0099996	.0485277	0.22	0.822	-.0705384 .0887376
L8D.	-.0366038	.0392974	-0.93	0.352	-.1138241 .0406165
L9D.	.0766282	.0372788	2.06	0.040	.0033744 .1498819
L10D.	-.1156119	.0372913	-3.10	0.002	-.1888982 -.0423337
L11D.	-.015338	.0383706	-0.40	0.690	-.098737 .0600611
L12D.	.3692339	.0461555	8.00	0.000	.2785372 .4599307
L24D.	.1970316	.0414188	4.76	0.000	.1156426 .2784205
lnfllf					
LD.	-.1283352	.068539	-1.87	0.062	-.263016 .0063457
L2D.	-.2120246	.0677924	-3.13	0.002	-.3452383 -.0788189
L12D.	-.032049	.0699833	-0.46	0.647	-.1695679 .160547
L24D.	.2125143	.0650669	3.27	0.001	.0846562 .3403724
lnusepr					
LD.	.1405225	.0907752	1.55	0.122	-.0378531 .318898
L2D.	.2347858	.0904615	2.60	0.010	.0570268 .4125448
L12D.	-.0236969	.0938261	-0.25	0.801	-.2080674 .1606736
L24D.	-.4061036	.0863262	-4.70	0.000	-.5757366 -.2364706
month					
2	.0130388	.0021912	5.95	0.000	.0087331 .0173445
3	.0143267	.0024097	5.95	0.000	.0095916 .0198618
4	.0133539	.0024757	5.39	0.000	.008489 .0182188
5	.0079333	.0022518	3.52	0.000	.0035084 .0123582
6	.0089776	.0023234	3.86	0.000	.004412 .0135431
7	.007944	.0019343	4.11	0.000	.0041431 .011745
8	.0120699	.0019881	6.07	0.000	.0081632 .0159766
9	.0139913	.0019658	7.12	0.000	.0101286 .0178541
10	.0232689	.0024957	9.32	0.000	.0183568 .028165
11	.0157873	.0022757	6.94	0.000	.0113154 .0202591
12	.0128789	.0018317	7.03	0.000	.0092715 .0164702
_cons	-.01163	.0016815	-6.92	0.000	-.0149341 -.0083258

```
. estat ic
```

Akaike's information criterion and Bayesian information criterion

Model	N	ll(null)	ll(model)	df	AIC	BIC
.	503	1609.944	2151.3	33	-4236.6	-4097.321

Note: BIC uses N = number of observations. See [R] BIC note.

```
. scalar define df4=el(r(S),1,4)
. scalar define aic4=el(r(S),1,5)
. scalar define bic4=el(r(S),1,6)
. loocv reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr i.month
```

Leave-One-Out Cross-Validation Results

Method	Value
Root Mean Squared Errors	.00355785

Mean Absolute Errors	.08260948
Pseudo-R2	.86890652

```

. scalar define loormse4=r(rmse)

.
. matrix drop _all

. matrix fit1=(df1,aic1,bic1,rmse1,loormse1)
. matrix fit2=(df2,aic2,bic2,rmse2,loormse2)
. matrix fit3=(df3,aic3,bic3,rmse3,loormse3)
. matrix fit4=(df4,aic4,bic4,rmse4,loormse4)
. matrix FIT=fit1\fit2\fit3\fit4
. matrix rownames FIT="Model 1" "Model 2" "Model 3" "Model 4"
. matrix colnames FIT=df AIC BIC RMSE LOORMSE
. matrix list FIT

FIT[4,5]
      df          AIC          BIC          RMSE        LOORMSE
Model 1    61 -3114.0527 -2875.1644 .00341856 .00380836
Model 2    31 -3190.9568 -3068.7381 .00356652 .00371849
Model 3    31 -3115.1451 -2993.7429 .00352901 .00375319
Model 4    33 -4236.6004 -4097.3289 .00347889 .00355785

.
. *6
. reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr i.month if tin(,2018m12)

Source |   SS       df      MS   Number of obs =   491
        | .042575775   32 .001330493   F(32, 458) = 109.93
        | .005543023   458 .000012103   Prob > F  = 0.0000
        |                               R-squared = 0.8848
        |                               Adj R-squared = 0.8768
        |                               Root MSE  = .00348

Total | .048118799   490 .000098202

D.
lnflnonfarm |   Coef.  Std. Err.      t     P>|t|  [95% Conf. Interval]
lnflnonfarm | LD. -.0311684 .0380987 -0.82  0.414 -.1060383 .0437014
              | L2D. .0011589 .0387186  0.03  0.976 -.0749371 .077239
              | L3D. .1810109 .0383354  4.72  0.000 .1057668 .2564371
              | L4D. .122168 .0372877  3.28  0.001 .0488919 .195444
              | L5D. .1131335 .0394764  2.87  0.004 .0355562 .1907187
              | L6D. .0897111 .0411525  2.18  0.030 .0088401 .1705822
              | L7D. .0046318 .0409493  0.11  0.910 -.0758481 .0851037
              | L8D. -.0345244 .0396846 -0.87  0.385 -.1125189 .043462
              | L9D. .0809663 .0376451  2.15  0.032 .0069878 .1549448
              | L10D. -.1108451 .0375797 -2.95  0.003 -.1846951 -.0369951
              | L11D. -.0221662 .03865 -0.57  0.567 -.0981196 .0537872
              | L12D. .3376832 .0476368  7.09  0.000 .2440695 .4312969
              | L24D. .2364096 .04478  5.28  0.000 .14841 .3244093

lnfllf | LD. -.1300766 .0692757 -1.88  0.061 -.2662142 .0060609
        | L2D. -.2188669 .0684865 -3.20  0.001 -.3534536 -.0842802
        | L12D. -.0319786 .070085  0.45  0.651 -.1708776 .1069365
        | L24D. .2248965 .06562  3.43  0.001 .0959428 .3538501

lnusepr | LD. .1537422 .092086  1.67  0.096 -.0272212 .3347056
        | L2D. .2542549 .0916164  2.78  0.006 .0742143 .4342955
        | L12D. -.0218538 .0949163 -0.23  0.818 -.2083793 .1646718
        | L24D. -.4432243 .0880674 -5.03  0.000 -.6162905 -.2701581

month | 2 .0133765 .002229  6.00  0.000 .0089962 .0177569
      | 3 .0150211 .0024611  6.10  0.000 .0101847 .0198576
      | 4 .0140381 .0025223  5.57  0.000 .0090814 .0189949
      | 5 .0082786 .0023045  3.59  0.000 .0037499 .0128072
      | 6 .0002759 .0023797  3.90  0.000 .0045993 .0139524
      | 7 .0081629 .0019705  4.14  0.000 .0042985 .0120353
      | 8 .0119157 .0020208  5.90  0.000 .0079446 .0158868
      | 9 .0141217 .0020005  7.06  0.000 .0101984 .018053
      | 10 .0242635 .0025397  9.55  0.000 .0192726 .0292543
      | 11 .0162918 .0023257  7.01  0.000 .0117215 .0208621
      | 12 .012759 .0018054  6.84  0.000 .0090932 .0164248

_cons | -.0119962 .0017171 -6.99  0.000 -.0153705 -.0086219

```

```

. predict nonfarm6
(option xb assumed; fitted values)
(469 missing values generated)

. predict stdfore6, stdf
(469 missing values generated)

. gen pnonfarm6=exp(l.lnflnonfarm+nonfarm6)*exp(.5*e(rmse)^2)
(469 missing values generated)

. gen ubpnonfarm6=exp(l.lnflnonfarm+nonfarm6+1.96*stdfore6)*exp(.5*e(rmse)^2)
(469 missing values generated)

. gen lbpnonfarm6=exp(l.lnflnonfarm+nonfarm6-1.96*stdfore6)*exp(.5*e(rmse)^2)
(469 missing values generated)

. tsline ubpnonfarm6 lbpnonfarm6 pnonfarm6 fl_nonfarm if tin(2016m12,2019m12), tline(2018m12)

.
. *7

```

```
. reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnfllf l(1/2,12,24)d.lnusepr i.month if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	491
Model	.042575775	32	.001330493	F(32, 458)	=	109.93
Residual	.005543823	458	.000012103	Prob > F	=	0.0000
Total	.048118799	490	.0000098202	R-squared	=	0.8848
				Adj R-squared	=	0.8768
				Root MSE	=	.00348

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.0311684	.0380987	-0.82	0.414	-.1060383 .0437014
L2D.	.0011589	.0387186	0.03	0.976	-.0749371 .077239
L3D.	.1811019	.0383354	4.72	0.000	.1057668 .2564371
L4D.	.122168	.0372877	3.28	0.001	.0488919 .195444
L5D.	.1131335	.0394764	2.87	0.004	.0355562 .1907107
L6D.	.0897111	.0411525	2.18	0.030	.0888481 .1705822
L7D.	.0046318	.0489493	0.11	0.910	-.0758481 .0851037
L8D.	-.0345244	.0396846	-0.87	0.385	-.1125189 .043462
L9D.	.0809663	.0376451	2.15	0.032	.0869878 .1549448
L10D.	-.1108451	.0375797	-2.95	0.003	-.1846951 -.0369951
L11D.	-.0221162	.03865	-0.57	0.567	-.0981196 .0537872
L12D.	.3376832	.0476368	7.09	0.000	.2440695 .4312969
L24D.	.2364096	.04478	5.28	0.000	.14841 .3244093
lnflif					
LD.	-.1300766	.0692757	-1.88	0.061	-.2662142 .0066609
L2D.	-.2188669	.0684865	-3.20	0.001	-.3534536 -.0842802
L12D.	-.0319786	.070685	-0.45	0.651	-.1708776 .1069365
L24D.	.2248965	.06562	3.43	0.001	.0959428 .3538501
lnusepr					
LD.	.1537422	.092086	1.67	0.096	-.0272212 .3347056
L2D.	.2542549	.0916164	2.78	0.006	.0742143 .4342955
L12D.	-.0218538	.0949163	-0.23	0.818	-.2083793 .1646718
L24D.	-.4432243	.0880074	-5.03	0.000	-.6162985 -.2701581
month					
2	.0133765	.002229	6.00	0.000	.0089962 .0177569
3	.0150211	.0024611	6.10	0.000	.0101847 .0198576
4	.0140381	.0025223	5.57	0.000	.0098814 .0189949
5	.0082786	.0023045	3.59	0.000	.0037499 .0128072
6	.0092759	.0023797	3.90	0.000	.0045993 .0139524
7	.0081629	.0019705	4.14	0.000	.0042905 .0120353
8	.0119157	.0020208	5.98	0.000	.0079446 .0158868
9	.0141217	.0020005	7.06	0.000	.0101984 .0180053
10	.0242635	.0025397	9.55	0.000	.0192726 .0292543
11	.0162918	.0023257	7.01	0.000	.0117215 .0208621
12	.012759	.0018654	6.84	0.000	.0090932 .0164248
_cons	-.0119962	.0017171	-6.99	0.000	-.0153705 -.0086219

```
. predict nonfarm47  
(option xb assumed; fitted values)  
(469 missing values generated)
```

```
. predict pres47 if tin(2016m12,2018m12), residual  
(947 missing values generated)
```

```
. gen expres47=exp(pres47) if tin(2016m12,2018m12)  
(947 missing values generated)
```

```
. summ expres47
```

Variable	Obs	Mean	Std. Dev.	Min	Max
expres47	25	.9995604	.0061667	.9796714	1.016379

```
. gen pnonfarm47=r(mean)*exp(1.lnflnonfarm+nonfarm47)  
(469 missing values generated)
```

```
. _pctile expres47, percentile(2.5,97.5)
```

```
. gen lbpnonfarm47=r(r1)*exp(1.lnflnonfarm+nonfarm47)  
(469 missing values generated)
```

```
. gen ubpnonfarm47=r(r2)*exp(1.lnflnonfarm+nonfarm47)  
(469 missing values generated)
```

```
. tsline ubpnonfarm47 lbpnonfarm47 pnonfarm47 fl_nonfarm if tin(2016m12,2019m12), tline(2018m12)
```

```
. *8  
. tsappend, add(1)
```

```
. replace month=month(dofm(date)) if month==.  
(1 real change made)
```

```
.
```

```
. *9
```

```
. reg d.lnflnonfarm l(1/12,24)d.lnflnonfarm l(1/2,12,24)d.lnflif l(1/2,12,24)d.lnusepr i.month if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	491
Model	.042575775	32	.001330493	F(32, 458)	=	109.93
Residual	.005543823	458	.000012103	Prob > F	=	0.0000
Total	.048118799	490	.0000098202	R-squared	=	0.8848
				Adj R-squared	=	0.8768
				Root MSE	=	.00348

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.0311684	.0380987	-0.82	0.414	-.1060383 .0437014
L2D.	.0011589	.0387186	0.03	0.976	-.0749371 .077239

	L2U	.00011687	.00017404	0.00	0.7740	-1.00/7740	.00/17407
L3D.	.1811019	.0383354	4.72	0.000	.1057668	.2564371	
L4D.	.122168	.0372877	3.28	0.001	.0488919	.195444	
L5D.	.1131335	.0394764	2.87	0.004	.0355562	.1907107	
L6D.	.0897111	.0411525	2.18	0.030	.0088481	.1705822	
L7D.	.0046318	.0409493	0.11	0.910	-.0758481	.0851037	
L8D.	-.0345244	.0396846	-0.87	0.385	-.1125189	.043462	
L9D.	.0809663	.0376451	2.15	0.032	.0069878	.1549448	
L10D.	-.1108451	.0375797	-2.95	0.003	-.1846951	-.0369951	
L11D.	-.0221162	.03865	-0.57	0.567	-.0981196	.0537872	
L12D.	.3376832	.0476368	7.09	0.000	.2440695	.4312969	
L24D.	.2364096	.04478	5.28	0.000	.14841	.3244093	
<i>lnfilt</i>							
LD.	-.1300766	.0692757	-1.88	0.061	-.2662142	.0060609	
L2D.	-.2188669	.0684865	-3.20	0.001	-.3534536	-.0842802	
L12D.	-.0319786	.070085	-0.45	0.651	-.1708776	.1069365	
L24D.	.2248965	.06562	3.43	0.001	.0959428	.3538501	
<i>lnusepr</i>							
LD.	.1537422	.092086	1.67	0.096	-.0272212	.3347056	
L2D.	.2542549	.0916164	2.78	0.006	.0742143	.4342955	
L12D.	-.0218538	.0949163	-0.23	0.818	-.2083793	.1646718	
L24D.	-.4432243	.0880674	-5.03	0.000	-.6162905	-.2701581	
month							
2	.0133765	.002229	6.00	0.000	.0009962	.0177569	
3	.0150211	.0024611	6.10	0.000	.0101847	.0198576	
4	.0140381	.0025223	5.57	0.000	.0098814	.0189949	
5	.0082786	.0023045	3.59	0.000	.0037499	.0128072	
6	.0092759	.0023797	3.90	0.000	.0045993	.0139524	
7	.0081629	.0019705	4.14	0.000	.0042905	.0120353	
8	.0119157	.0020208	5.98	0.000	.0079446	.0158868	
9	.0141217	.0020005	7.06	0.000	.0101984	.018053	
10	.0242635	.0025397	9.55	0.000	.0192726	.0292543	
11	.0162918	.0023257	7.01	0.000	.0117215	.0208621	
12	.012759	.0018654	6.84	0.000	.0090932	.0164248	
_cons	-.0119962	.0017171	-6.99	0.000	-.0153705	-.0086219	

```
. predict nonfarm9
(option xb assumed; fitted values)
(469 missing values generated)

. predict pres9 if tin(,2019m12), residual
(470 missing values generated)

. gen expres9=exp(pres9) if tin(,2019m12)
(470 missing values generated)

. summ expres9

      Variable        Obs        Mean       Std. Dev.        Min        Max
expres9          503    1.000002     .0033683     .9796714    1.016379

. gen phonfarm9=r(mean)*exp(1.lnflnonfarm+nonfarm9)
(469 missing values generated)

. _pctile expres9, percentile(2.5,97.5)

. gen lbnonfarm9=r(r1)*exp(1.lnflnonfarm+nonfarm9)
(469 missing values generated)

. gen ubnonfarm9=r(r2)*exp(1.lnflnonfarm+nonfarm9)
(469 missing values generated)

. tsline ubnonfarm9 lbnonfarm9 phonfarm9 fl_nonfarm if tin(2016m12,2020m1), tline(2019m12)

.

. *10
. reg d.lnflnonfarm l(1/2,24)d.lnflnonfarm l(1/2,12,24)d.lnfl1f l(1/2,12,24)d.lnusepr i.month if tin(,2018m12)
```

Source	SS	df	MS	Number of obs	=	491
Model	.042575775	32	.001330493	F(32, 458)	=	109.93
Residual	.005543023	458	.000012103	Prob > F	=	0.0000
Total	.048118799	490	.000098202	R-squared	=	0.8848
				Adj R-squared	=	0.8768
				Root MSE	=	.00348

D. lnflnonfarm	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lnflnonfarm					
LD.	-.0311684	.0380987	-0.82	0.414	-.1060383 .0437014
L2D.	.0011509	.0387186	0.03	0.976	-.0749371 .077239
L3D.	.1811019	.0383354	4.72	0.000	.1057668 .2564371
L4D.	.122168	.0372877	3.28	0.001	.0488919 .195444
L5D.	.1131335	.0394764	2.87	0.004	.0355562 .1907107
L6D.	.0897111	.0411525	2.18	0.030	.0088481 .1705822
L7D.	.0046318	.0409493	0.11	0.910	-.0758481 .0851037
L8D.	-.0345244	.0396846	-0.87	0.385	-.1125189 .043462
L9D.	.0809663	.0376451	2.15	0.032	.0069878 .1549448
L10D.	-.1108451	.0375797	-2.95	0.003	-.1846951 -.0369951
L11D.	-.0221162	.03865	-0.57	0.567	-.0981196 .0537872
L12D.	.3376832	.0476368	7.09	0.000	.2440695 .4312969
L24D.	.2364096	.04478	5.28	0.000	.14841 .3244093
<i>lnfilt</i>					
LD.	-.1300766	.0692757	-1.88	0.061	-.2662142 .0060609
L2D.	-.2188669	.0684865	-3.20	0.001	-.3534536 -.0842802
L12D.	-.0319786	.070085	-0.45	0.651	-.1708776 .1069365
L24D.	.2248965	.06562	3.43	0.001	.0959428 .3538501
<i>lnusepr</i>					
LD.	.1537422	.092086	1.67	0.096	-.0272212 .3347056
L2D.	.2542549	.0916164	2.78	0.006	.0742143 .4342955
L12D.	-.0218538	.0949163	-0.23	0.818	-.2083793 .1646718

L24D.	-.4432243	.0880674	-5.03	0.000	-.6162905	-.2701581
month						
2	.0133765	.002229	6.00	0.000	.0089962	.0177569
3	.0150211	.0024611	6.10	0.000	.0191847	.0198576
4	.0140381	.0025223	5.57	0.000	.0099814	.0189949
5	.0082786	.0023045	3.59	0.000	.0037499	.0128072
6	.0092759	.0023797	3.98	0.000	.0045993	.0139524
7	.0081629	.0019705	4.14	0.000	.0042985	.0128353
8	.0119157	.0020208	5.98	0.000	.0079446	.0158868
9	.0141217	.0020005	7.06	0.000	.0101904	.018053
10	.0242635	.0025397	9.55	0.000	.0192726	.0292543
11	.0162918	.0023257	7.01	0.000	.0117215	.0208621
12	.012759	.0018654	6.84	0.000	.0090932	.0164248
_cons	-.0119962	.0017171	-6.99	0.000	-.0153705	-.0086219

```

. predict nonfarm10
(option xb assumed; fitted values)
(469 missing values generated)

. predict stdfore10, stdf
(469 missing values generated)

. gen pnonfarm10=exp(1.lnflnonfarm+nonfarm10)*exp(.5*e(rmse)^2)
(469 missing values generated)

. gen ubnonfarm10=exp(1.lnflnonfarm+nonfarm10+1.96*stdfore10)*exp(.5*e(rmse)^2)
(469 missing values generated)

. gen lbnonfarm10=exp(1.lnflnonfarm+nonfarm10-1.96*stdfore10)*exp(.5*e(rmse)^2)
(469 missing values generated)

. tsline ubnonfarm10 lbnonfarm10 pnonfarm10 fl_nonfarm if tin(2016m12,2020m1), tline(2019m12)

.
. *11
. tsline fl_nonfarm if tin(2018m12,2020m1) || tsline ubnonfarm10 lbnonfarm10 pnonfarm10 if tin(2019m12,), tline(2019m12)

.
. log close
    name: <unnamed>
    log: /Users/guslipkin/Documents/Spring2020/CAP 4763 ~ Time Series/Problem Sets/Problem Set 4/Problem Set 4.smcl
log type: smcl
closed on: 23 Mar 2021, 21:25:10

```
