HW10

Omair Shafi Ahmed

15.1

a) Mean p-growth is 0.24 and the standard deviation is 0.95.

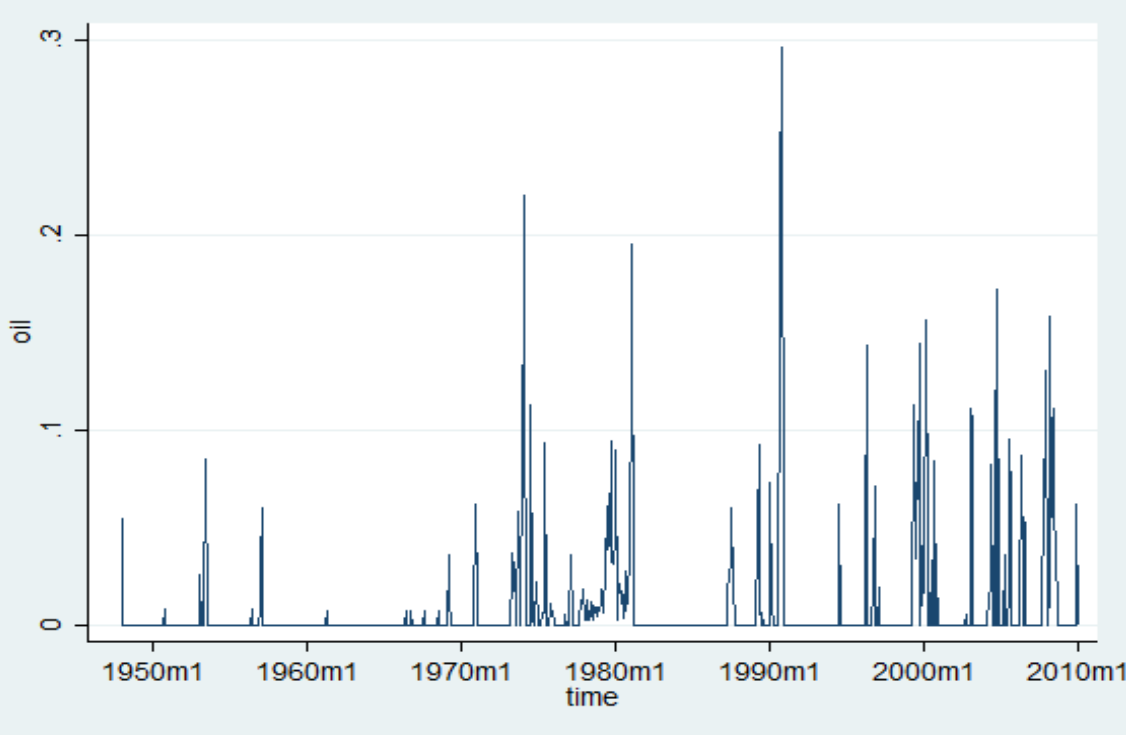
```
db tsset

tsset time, monthly
      time variable:  time, 1947m1 to 2009m12
              delta:  1 month

sum ip_growth if tin(1952m1,2009m12)
```

Variable	Obs	Mean	Std. Dev.	Min	Max
ip_growth	696	.2384907	.9481538	-4.035854	6.232524

b) O_r represents the monthly value of oil price shocks. O_t being 0 represents the lack of a price shock. The lack of negative values could be explained by increasing global demand for oil from 1950 to 2010.



C) HAC standard truncation parameter m = 7 as t = 726

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. newey ip_growth oil L(1/18).oil, lag(7)

Regression with Newey-West standard errors      Number of obs     =        726
maximum lag: 7                                  F( 19,       706) =       1.74
                                                Prob > F          =     0.0261
```

ip_growth	Coef.	Newey-West Std. Err.	t	P>|t|	[95% Conf.	Interval]
oil						
--.	.1553645	.8532191	0.18	0.856	-1.519786	1.830515
L1.	-.9760318	.9558845	-1.02	0.308	-2.852748	.9006848
L2.	-1.403049	.7917996	-1.77	0.077	-2.957613	.1515146
L3.	-.8315492	.929517	-0.89	0.371	-2.656498	.9933992
L4.	-.4064367	.8823552	-0.46	0.645	-2.138791	1.325918
L5.	-.4202242	.7929388	-0.53	0.596	-1.977024	1.136576
L6.	-2.555034	1.471512	-1.74	0.083	-5.444098	.3340307
L7.	-.2285943	.9797301	-0.23	0.816	-2.152128	1.694939
L8.	.8799747	1.008319	0.87	0.383	-1.099689	2.859638
L9.	-1.639278	1.028495	-1.59	0.111	-3.658553	.3799971
L10.	-3.923345	1.872146	-2.10	0.036	-7.598984	-.2477057
L11.	-2.607406	1.953949	-1.33	0.182	-6.443652	1.22884
L12.	-.2247669	1.292092	-0.17	0.862	-2.761569	2.312035
L13.	-1.554671	1.131039	-1.37	0.170	-3.775274	.6659327
L14.	-1.48314	.9119497	-1.63	0.104	-3.273598	.3073182
L15.	-1.478823	.8443121	-1.75	0.080	-3.136487	.1788397
L16.	-.1001869	.9036636	-0.11	0.912	-1.874377	1.674003
L17.	.4980588	.7492753	0.66	0.506	-.9730157	1.969133
L18.	.0096007	.9699487	0.01	0.992	-1.894729	1.91393
_cons	.4275474	.0674593	6.34	0.000	.2951025	.5599923

D) The null hypothesis can be rejected at the 5% significance level as the p value is 0.026.

```
. test oil L.oil L2.oil L3.oil L4.oil L5.oil L6.oil L7.oil L8.oil L9.oil L10.oil L11.oil L12.oil L13.oil L14.oil L15.oi
> L16.oil L17.oil L18.oil

 ( 1)  oil = 0
 ( 2)  L.oil = 0
 ( 3)  L2.oil = 0
 ( 4)  L3.oil = 0
 ( 5)  L4.oil = 0
 ( 6)  L5.oil = 0
 ( 7)  L6.oil = 0
 ( 8)  L7.oil = 0
 ( 9)  L8.oil = 0
 (10)  L9.oil = 0
 (11)  L10.oil = 0
 (12)  L11.oil = 0
 (13)  L12.oil = 0
 (14)  L13.oil = 0
 (15)  L14.oil = 0
 (16)  L15.oil = 0
 (17)  L16.oil = 0
 (18)  L17.oil = 0
 (19)  L18.oil = 0

       F( 19,   706) =    1.74
            Prob > F =    0.0261

.
```

E) The dynamic multipliers are smaller relative to the cumulative multipliers as shown below.

```
. newey ip_growth do L(1/17).do L18.oil, lag(7)

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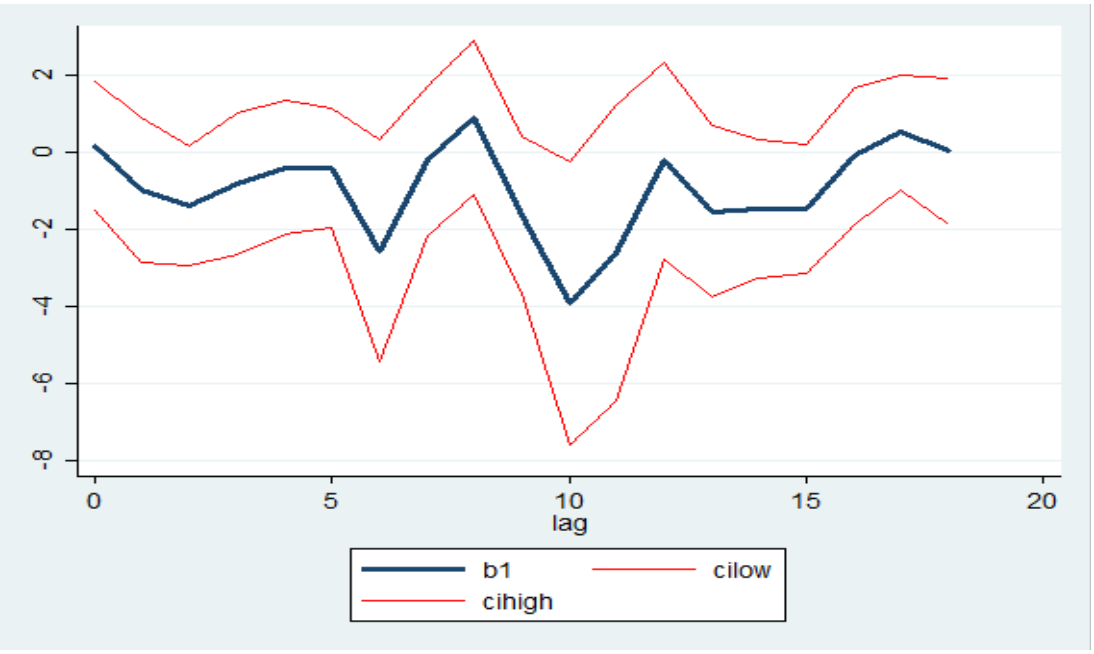
maximum lag: 7                                  F( 19,       706) =       1.74
                                                Prob > F          =     0.0261
```

ip_growth	Coef.	Newey-West Std. Err.	t	P>|t|	[95% Conf.	Interval]
do						
--.	.1553646	.8532191	0.18	0.856	-1.519786	1.830515
L1.	-.8206671	1.150363	-0.71	0.476	-3.079209	1.437875
L2.	-2.223716	1.391207	-1.60	0.110	-4.955114	.5076811
L3.	-3.055266	1.786077	-1.71	0.088	-6.561924	.4513927
L4.	-3.461702	1.963938	-1.76	0.078	-7.31756	.3941559
L5.	-3.881926	2.297547	-1.69	0.092	-8.392768	.6289158
L6.	-6.43696	2.884133	-2.23	0.026	-12.09946	-.7744559
L7.	-6.665554	2.813156	-2.37	0.018	-12.18871	-1.1424
L8.	-5.78558	2.707561	-2.14	0.033	-11.10142	-.4697437
L9.	-7.424857	2.903328	-2.56	0.011	-13.12505	-1.724666
L10.	-11.3482	3.579162	-3.17	0.002	-18.37528	-4.321127
L11.	-13.95561	3.917229	-3.56	0.000	-21.64642	-6.264795
L12.	-14.18038	4.258571	-3.33	0.001	-22.54135	-5.819397
L13.	-15.73505	4.472011	-3.52	0.000	-24.51508	-6.955013
L14.	-17.21819	4.682394	-3.68	0.000	-26.41127	-8.025102
L15.	-18.69701	4.653306	-4.02	0.000	-27.83298	-9.561035
L16.	-18.7972	4.493093	-4.18	0.000	-27.61862	-9.975773
L17.	-18.29914	4.441049	-4.12	0.000	-27.01838	-9.579894
oil						
L18.	-18.28954	4.478201	-4.08	0.000	-27.08172	-9.497352
_cons	.4275474	.0674593	6.34	0.000	.2951025	.5599923




```
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maximum lag: 7                                  F( 19,       706) =       1.74
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L10.	-11.3482	3.579162	-3.17	0.002	-18.37528	-4.321127
L11.	-13.95561	3.917229	-3.56	0.000	-21.64642	-6.264795
L12.	-14.18038	4.258571	-3.33	0.001	-22.54135	-5.819397
L13.	-15.73505	4.472011	-3.52	0.000	-24.51508	-6.955013
L14.	-17.21819	4.682394	-3.68	0.000	-26.41127	-8.025102
L15.	-18.69701	4.653306	-4.02	0.000	-27.83298	-9.561035
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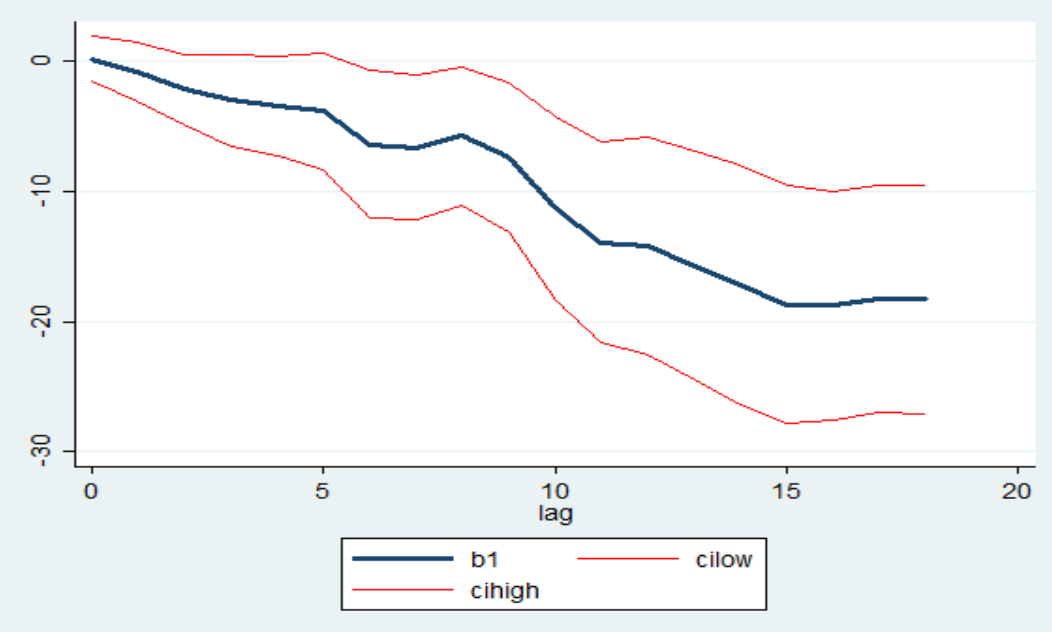

F) The disturbance term being related to the O_t makes O_t endogenous. This makes it likely that the multiples are biased.