

Menzie Chinn, 9/11/2016

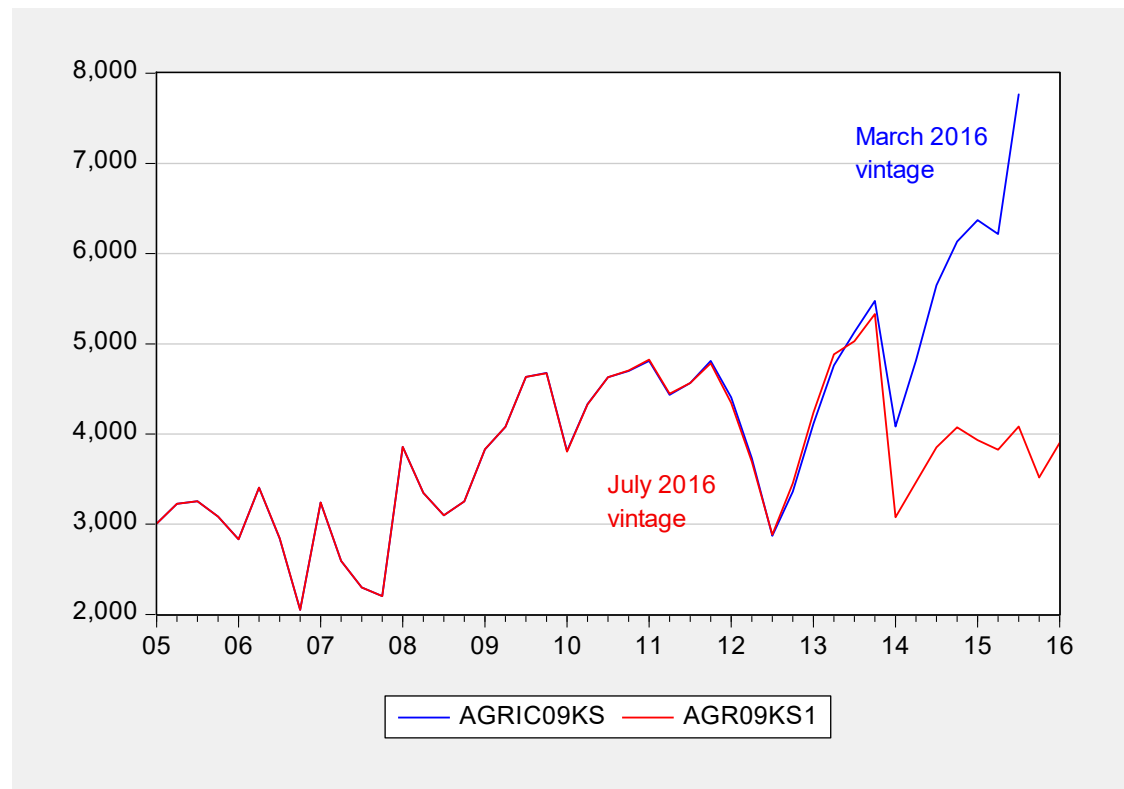
AGRIC09KS is March 2016 vintage

AGR09KS1 is July 2016 vintage

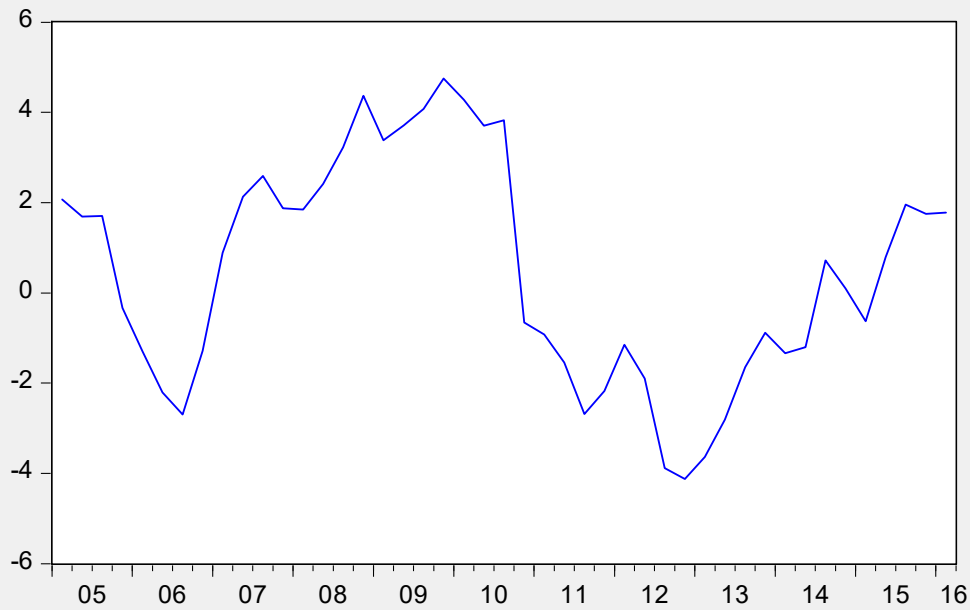
PDSI\_KS\_NEW is PDSI for Kansas

	ADF	KPSS
Agriculture (March '16 vintage)	Fail to reject unit root null	Fail to reject trend stationary null
Agriculture (July '16 vintage)	Fail to reject unit root null (ERS rejects)	Reject trend stationary null
PDSI for Kansas	Fail to reject unit root null	Fail to reject trend stationary null

Using eviews defaults, 5% msl.



### PDSI\_KS\_NEW



Null Hypothesis: AGRIC09KS has a unit root  
 Exogenous: Constant, Linear Trend  
 Lag Length: 0 (Automatic - based on AIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.306026	0.4216
Test critical values: 1% level	-4.192337	
5% level	-3.520787	
10% level	-3.191277	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(AGRIC09KS)  
 Method: Least Squares  
 Date: 09/11/16 Time: 21:46  
 Sample (adjusted): 2005Q2 2015Q3  
 Included observations: 42 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGRIC09KS(-1)	-0.327155	0.141870	-2.306026	0.0265
C	733.6700	401.1461	1.828935	0.0751
@TREND("2005Q1")	32.00812	12.58008	2.544349	0.0150

R-squared	0.146656	Mean dependent var	113.2857
Adjusted R-squared	0.102895	S.D. dependent var	637.7901
S.E. of regression	604.0869	Akaike info criterion	15.71406
Sum squared resid	14231918	Schwarz criterion	15.83818
Log likelihood	-326.9953	Hannan-Quinn criter.	15.75956
F-statistic	3.351279	Durbin-Watson stat	1.807217
Prob(F-statistic)	0.045386		

Null Hypothesis: AGRIC09KS has a unit root  
 Exogenous: Constant, Linear Trend  
 Lag Length: 0 (Automatic - based on AIC, maxlag=9)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-2.522520
Test critical values:	
1% level	-3.770000
5% level	-3.190000
10% level	-2.890000

\*Elliott-Rothenberg-Stock (1996, Table 1)  
 Warning: Test critical values calculated for 50 observations  
 and may not be accurate for a sample size of 42

DF-GLS Test Equation on GLS Detrended Residuals  
 Dependent Variable: D(GLSRESID)  
 Method: Least Squares  
 Date: 09/11/16 Time: 21:46  
 Sample (adjusted): 2005Q2 2015Q3  
 Included observations: 42 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.328790	0.130342	-2.522520	0.0156

R-squared	0.132098	Mean dependent var	32.12297
Adjusted R-squared	0.132098	S.D. dependent var	637.7901
S.E. of regression	594.1733	Akaike info criterion	15.63574
Sum squared resid	14474718	Schwarz criterion	15.67711
Log likelihood	-327.3506	Hannan-Quinn criter.	15.65091
Durbin-Watson stat	1.775173		

Null Hypothesis: AGRIC09KS is stationary  
 Exogenous: Constant, Linear Trend  
 Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

	LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic	0.085017
Asymptotic critical values*:	
1% level	0.216000
5% level	0.146000
10% level	0.119000

\*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	529414.1
HAC corrected variance (Bartlett kernel)	1234046.

KPSS Test Equation

Dependent Variable: AGRIC09KS

Method: Least Squares

Date: 09/11/16 Time: 21:46

Sample (adjusted): 2005Q1 2015Q3

Included observations: 43 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2463.408	223.3592	11.02891	0.0000
@TREND("2005Q1")	77.33162	9.156836	8.445233	0.0000
R-squared	0.634978	Mean dependent var		4087.372
Adjusted R-squared	0.626075	S.D. dependent var		1218.562
S.E. of regression	745.1437	Akaike info criterion		16.11043
Sum squared resid	22764806	Schwarz criterion		16.19234
Log likelihood	-344.3742	Hannan-Quinn criter.		16.14063
F-statistic	71.32197	Durbin-Watson stat		0.734999
Prob(F-statistic)	0.000000			

Null Hypothesis: AGR09KS1 has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on AIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.231905	0.0916
Test critical values:		
1% level	-4.180911	
5% level	-3.515523	
10% level	-3.188259	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(AGR09KS1)

Method: Least Squares

Date: 09/11/16 Time: 21:46

Sample (adjusted): 2005Q2 2016Q1

Included observations: 44 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGR09KS1(-1)	-0.413147	0.127834	-3.231905	0.0024
C	1303.912	423.3091	3.080284	0.0037
@TREND("2005Q1")	11.62495	8.026685	1.448287	0.1551
R-squared	0.204140	Mean dependent var		20.34091
Adjusted R-squared	0.165317	S.D. dependent var		632.6595

S.E. of regression	578.0039	Akaike info criterion	15.62278
Sum squared resid	13697631	Schwarz criterion	15.74443
Log likelihood	-340.7013	Hannan-Quinn criter.	15.66790
F-statistic	5.258283	Durbin-Watson stat	1.919125
Prob(F-statistic)	0.009272		

Null Hypothesis: AGR09KS1 has a unit root  
Exogenous: Constant, Linear Trend  
Lag Length: 0 (Automatic - based on AIC, maxlag=9)

	t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic	-3.319508
Test critical values:	
1% level	-3.770000
5% level	-3.190000
10% level	-2.890000

\*Elliott-Rothenberg-Stock (1996, Table 1)  
Warning: Test critical values calculated for 50 observations  
and may not be accurate for a sample size of 44

DF-GLS Test Equation on GLS Detrended Residuals  
Dependent Variable: D(GLSRESID)  
Method: Least Squares  
Date: 09/11/16 Time: 21:47  
Sample (adjusted): 2005Q2 2016Q1  
Included observations: 44 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.412614	0.124300	-3.319508	0.0018
R-squared	0.203834	Mean dependent var	-8.639367	
Adjusted R-squared	0.203834	S.D. dependent var	632.6595	
S.E. of regression	564.5103	Akaike info criterion	15.53226	
Sum squared resid	13702893	Schwarz criterion	15.57281	
Log likelihood	-340.7097	Hannan-Quinn criter.	15.54730	
Durbin-Watson stat	1.919389			

Null Hypothesis: AGR09KS1 is stationary  
Exogenous: Constant, Linear Trend  
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

	LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic	0.159025
Asymptotic critical values*:	
1% level	0.216000
5% level	0.146000
10% level	0.119000

\*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction) 460933.1

## KPSS Test Equation

Dependent Variable: AGR09KS1

Method: Least Squares

Date: 09/11/16 Time: 21:47

Sample: 2005Q1 2016Q1

Included observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3063.276	203.6647	15.04078	0.0000
@TREND("2005Q1")	30.91976	7.972051	3.878520	0.0004
R-squared	0.259169	Mean dependent var		3743.511
Adjusted R-squared	0.241940	S.D. dependent var		797.6994
S.E. of regression	694.5299	Akaike info criterion		15.96777
Sum squared resid	20741988	Schwarz criterion		16.04807
Log likelihood	-357.2749	Hannan-Quinn criter.		15.99771
F-statistic	15.04292	Durbin-Watson stat		0.830008
Prob(F-statistic)	0.000355			

Null Hypothesis: PDSI\_KS\_NEW has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Automatic - based on AIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.952605	0.6106
Test critical values:		
1% level	-4.175640	
5% level	-3.513075	
10% level	-3.186854	

\*MacKinnon (1996) one-sided p-values.

## Augmented Dickey-Fuller Test Equation

Dependent Variable: D(PDSI\_KS\_NEW)

Method: Least Squares

Date: 09/11/16 Time: 21:47

Sample: 2005Q1 2016Q1

Included observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PDSI_KS_NEW(-1)	-0.143852	0.073672	-1.952605	0.0577
D(PDSI_KS_NEW(-1))	0.292263	0.151703	1.926545	0.0610
C	0.144761	0.353510	0.409497	0.6843
@TREND("2005Q1")	-0.003347	0.013615	-0.245829	0.8070
R-squared	0.131288	Mean dependent var		0.008148
Adjusted R-squared	0.067723	S.D. dependent var		1.158008
S.E. of regression	1.118109	Akaike info criterion		3.145842
Sum squared resid	51.25688	Schwarz criterion		3.306434

Log likelihood	-66.78145	Hannan-Quinn criter.	3.205709
F-statistic	2.065430	Durbin-Watson stat	2.003607
Prob(F-statistic)	0.119695		

Null Hypothesis: PDSI\_KS\_NEW has a unit root  
 Exogenous: Constant, Linear Trend  
 Lag Length: 1 (Automatic - based on AIC, maxlag=9)

	t-Statistic
Elliott-Rootenber-Stock DF-GLS test statistic	-2.049299
Test critical values:	
1% level	-3.770000
5% level	-3.190000
10% level	-2.890000

\*Elliott-Rootenber-Stock (1996, Table 1)

Warning: Test critical values calculated for 50 observations  
 and may not be accurate for a sample size of 45

DF-GLS Test Equation on GLS Detrended Residuals

Dependent Variable: D(GLSRESID)

Method: Least Squares

Date: 09/11/16 Time: 21:48

Sample: 2005Q1 2016Q1

Included observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.145463	0.070982	-2.049299	0.0466
D(GLSRESID(-1))	0.294844	0.146982	2.005990	0.0512

R-squared	0.130896	Mean dependent var	0.043095
Adjusted R-squared	0.110684	S.D. dependent var	1.158008
S.E. of regression	1.092043	Akaike info criterion	3.057405
Sum squared resid	51.28001	Schwarz criterion	3.137701
Log likelihood	-66.79160	Hannan-Quinn criter.	3.087338
Durbin-Watson stat	2.004759		

Null Hypothesis: PDSI\_KS\_NEW is stationary

Exogenous: Constant, Linear Trend

Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

	LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic	0.095953
Asymptotic critical values*:	
1% level	0.216000
5% level	0.146000
10% level	0.119000

\*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	5.665377
HAC corrected variance (Bartlett kernel)	23.84804

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KPSS Test Equation

Dependent Variable: PDSI\_KS\_NEW

Method: Least Squares

Date: 09/11/16 Time: 21:48

Sample: 2005Q1 2016Q1

Included observations: 45

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Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.548119	0.714021	2.168169	0.0357
@TREND("2005Q1")	-0.049524	0.027949	-1.771942	0.0835

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R-squared	0.068049	Mean dependent var	0.458593
Adjusted R-squared	0.046376	S.D. dependent var	2.493434
S.E. of regression	2.434930	Akaike info criterion	4.661139
Sum squared resid	254.9420	Schwarz criterion	4.741435
Log likelihood	-102.8756	Hannan-Quinn criter.	4.691073
F-statistic	3.139780	Durbin-Watson stat	0.230069
Prob(F-statistic)	0.083490		

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