

Série de TD N°2

Exercice 1: L'application du test ADF, sous eviews, sur le taux d'inflation (INF) donne les principaux résultats suivants:

Modèle 3 :

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

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.263395	0.4448
Test critical values:		
1% level	-4.165756	
5% level	-3.508508	
10% level	-3.184230	

*Mackinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 01/17/24 Time: 11:45
Sample (adjusted): 1971 2017
Included observations: 47 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.202812	0.089605	-2.263395	0.0286
C	2.780444	1.730682	1.606560	0.1153
@TREND("1970")	-0.040326	0.050540	-0.797894	0.4292
R-squared	0.106190	Mean dependent var	-0.021466	

Modèle 2 :

Null Hypothesis: INF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.151321	0.2264
Test critical values:		
1% level	-3.577723	
5% level	-2.925169	
10% level	-2.600658	

*Mackinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 01/17/24 Time: 11:47
Sample (adjusted): 1971 2017
Included observations: 47 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.187585	0.087195	-2.151321	0.0369
C	1.674924	1.032876	1.621611	0.1119
R-squared	0.093257	Mean dependent var	-0.021466	

T^{ADF} de la constante = 2.89

Modèle 1

Null Hypothesis: INF has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.389669	0.1509
Test critical values:		
1% level	-2.615093	
5% level	-1.947975	
10% level	-1.612408	

*Mackinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 01/17/24 Time: 11:48
Sample (adjusted): 1971 2017
Included observations: 47 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF(-1)	-0.079638	0.057307	-1.389669	0.1713
R-squared	0.040271	Mean dependent var	-0.021466	

Modèle 1 (première différence)

Null Hypothesis: D(INF) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.494413	0.0000
Test critical values:		
1% level	-2.616203	
5% level	-1.948140	
10% level	-1.612320	

*Mackinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF,2)
Method: Least Squares
Date: 01/17/24 Time: 11:49
Sample (adjusted): 1972 2017
Included observations: 46 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF(-1))	-0.960271	0.147861	-6.494413	0.0000
R-squared	0.483754	Mean dependent var	0.068843	

NB : Les valeurs lues dans la table ADF de la tendance et la constante sont comme suit :

T^{ADF} de la tendance = T^{ADF} = 3.18

Travail à faire : Après avoir expliqué brièvement la stratégie séquentielle du test de stationnarité ADF, commenter les résultats de l'application du test ADF la stationnarité de la série (INF)

Exercice 02

L'application du test ADF, sous eviews, sur la Croissance de la masse Monétaire notée (CMM), nous donne les principaux résultats suivants:

Modèle 3 sur la série CMM

ADF Test Statistic	-4.626775	1% Critical Value*	-4.1678	
		5% Critical Value	-3.5088	
		10% Critical Value	-3.1840	
*MacKinnon critical values for rejection of hypothesis of a unit root.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(CMM)				
Method: Least Squares				
Date: 05/26/21 Time: 11:30				
Sample(adjusted): 1972 2017				
Included observations: 46 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CMM(-1)	-0.925630	0.200059	-4.626775	0.0000
D(CMM(-1))	0.007516	0.150603	0.049903	0.9604
C	21.89356	5.166767	4.237381	0.0001
@TREND(1970)	-0.260598	0.108679	-2.397871	0.0210

Modèle 2 sur la série CMM

ADF Test Statistic	-3.828057	1% Critical Value*	-3.5778	
		5% Critical Value	-2.9256	
		10% Critical Value	-2.6005	
*MacKinnon critical values for rejection of hypothesis of a unit root.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(CMM)				
Method: Least Squares				
Date: 05/26/21 Time: 11:31				
Sample(adjusted): 1972 2017				
Included observations: 46 after adjusting endpoints				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CMM(-1)	-0.752896	0.196678	-3.828057	0.0004
D(CMM(-1))	-0.063629	0.155593	-0.408948	0.6846
C	12.60418	3.602572	3.498661	0.0011

Travail à faire :

- Commenter les résultats de l'application du test ADF sur la série(CMM)
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Exercice 03 : commenter les résultats de l'application du test ADF sur la série
L'Application du test ADF, modèle 3, sur la série Y donne les résultats de l'estimation sous eviews, sont consignés dans le tableau suivant :

Null Hypothesis: Y has a unit root Exogenous: Constant, Linear Trend Lag Length: 6 (Automatic - based on SIC, maxlag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-5.041157	0.0016
Test critical values:	1% level		-4.284580	
	5% level		-3.562882	
	10% level		-3.215267	
*MacKinnon (1996) one-sided p-values. Augmented Dickey-Fuller Test Equation Dependent Variable: D(Y) Method: Least Squares Date: 04/27/19 Time: 19:13 Sample (adjusted): 1987 2017 Included observations: 31 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Y(-1)	-0.534336	0.105995	-5.041157	0.0000
D(Y(-1))	0.430805	0.145076	2.969523	0.0071
D(Y(-2))	-0.031805	0.169304	-0.187860	0.8527
D(Y(-3))	0.557266	0.206000	2.705175	0.0129
D(Y(-4))	0.331010	0.244879	1.351729	0.1902
D(Y(-5))	0.402116	0.215548	1.865552	0.0755
D(Y(-6))	0.674157	0.232865	2.895058	0.0084
C	-9.686533	2.969369	-3.262152	0.0036
@TREND("1980")	1.692245	0.340462	4.970432	0.0001
R-squared	0.650021	Mean dependent var		3.428087
Adjusted R-squared	0.522755	S.D. dependent var		5.468270
S.E. of regression	3.777639	Akaike info criterion		5.733776
Sum squared resid	313.9523	Schwarz criterion		6.150095
Log likelihood	-79.87353	Hannan-Quinn criter.		5.869486
F-statistic	5.107604	Durbin-Watson stat		2.155190
Prob(F-statistic)	0.001106			

L'estimation de l'équation de la tendance (par les (MCO) ,
Les résultats de l'estimation sont donnés dans le tableau ci-apres :

Dependent Variable: T Method: Least Squares Date: 04/27/19 Time: 19:45 Sample: 1980 2017 Included observations: 38				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
@TREND(1980)	0.241394	0.036592	6.596920	0.0000
R-squared	-1.043790	Mean dependent var		6.217105
Adjusted R-squared	-1.043790	S.D. dependent var		3.393242
S.E. of regression	4.851019	Akaike info criterion		6.022218
Sum squared resid	870.6983	Schwarz criterion		6.065312

Log likelihood	-113.4221	Hannan-Quinn criter.	6.037551
Durbin-Watson stat	0.059825		

- **Test de la stationnarité des résidus en menant le test ADF avec le premier modèle.**

Null Hypothesis: RESID01Y has a unit root Exogenous: None Lag Length: 3 (Automatic - based on SIC, maxlag=9)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-2.762418	0.0072
Test critical values:	1% level		-2.634731	
	5% level		-1.951000	
	10% level		-1.610907	
*Mackinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation Dependent Variable: D(RESID01Y) Method: Least Squares Date: 04/27/19 Time: 20:53 Sample (adjusted): 1984 2017 Included observations: 34 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID01Y(-1)	-0.201467	0.072931	-2.762418	0.0097
D(RESID01Y(-1))	0.466225	0.155104	3.005886	0.0053
D(RESID01Y(-2))	-0.124718	0.168120	-0.741838	0.4640
D(RESID01Y(-3))	0.584671	0.196173	2.980377	0.0057
R-squared	0.381199	Mean dependent var		0.375246
Adjusted R-squared	0.319319	S.D. dependent var		5.308341
S.E. of regression	4.379561	Akaike info criterion		5.901905
Sum squared resid	575.4166	Schwarz criterion		6.081477
Log likelihood	-96.33238	Hannan-Quinn criter.		5.963144
Durbin-Watson stat	2.060358			