ภาคผนวก

ผลการวิเคราะห์ข้อมูล

ผลการทดสอบ **Unit root test** ของข้อมูล ณ ระดับ **I(0)** กรณีไม่มีค่าคงที่และแนวโน้มของเวลา **(Level without Trend and Intercept)** กรณีมีค่าคงที่แต่ไม่มีแนวโน้มเวลา **(Level with Intercept)** และกรณีมีค่าคงที่และแนวโน้มเวลา **(Level with Trend and Intercept)**

East Asia

Null Hypothesis: EAST ASIA has a unit root
Exogenous: Constant
Lag Length: 3 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		3.119914	1.0000
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EAST ASIA)
Method: Least Squares
Date: 09/26/13   Time: 17:58
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EAST ASIA(-1)	0.393890	0.126250	3.119914	0.0039
D(EAST ASIA(-1))	-0.860175	0.207310	-4.149222	0.0002
D(EAST ASIA(-2))	-0.592441	0.236820	-2.501652	0.0179
D(EAST ASIA(-3))	-0.669883	0.193630	-3.459600	0.0016
C	-16521.34	6354.243	-2.600049	0.0142

R-squared	0.453033	Mean dependent var	1678.133
Adjusted R-squared	0.382456	S.D. dependent var	9083.433
S.E. of regression	7138.121	Akaike info criterion	20.71253
Sum squared resid	1.58E+09	Schwarz criterion	20.93247
Log likelihood	-367.8256	Hannan-Quinn criter.	20.78930
F-statistic	6.419036	Durbin-Watson stat	1.837888
Prob(F-statistic)	0.000696		

Null Hypothesis: EAST ASIA has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 3 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.714685	1.0000
Test critical values:	1% level	-4.234972	
	5% level	-3.540328	
	10% level	-3.202445	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EAST ASIA)
Method: Least Squares
Date: 09/26/13   Time: 17:59
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EAST ASIA(-1)	0.281987	0.164454	1.714685	0.0967
D(EAST ASIA(-1))	-0.787806	0.217901	-3.615425	0.0011
D(EAST ASIA(-2))	-0.535174	0.242466	-2.207207	0.0351
D(EAST ASIA(-3))	-0.629277	0.197021	-3.193968	0.0033
C	-14429.31	6642.466	-2.172282	0.0379
@TREND(2003Q1)	174.9300	165.2006	1.058895	0.2981

R-squared	0.472739	Mean dependent var	1678.133
Adjusted R-squared	0.384862	S.D. dependent var	9083.433
S.E. of regression	7124.201	Akaike info criterion	20.73139
Sum squared resid	1.52E+09	Schwarz criterion	20.99531
Log likelihood	-367.1651	Hannan-Quinn criter.	20.82351
F-statistic	5.379567	Durbin-Watson stat	1.840381
Prob(F-statistic)	0.001200		

Null Hypothesis: EAST ASIA has a unit root
Exogenous: None
Lag Length: 5 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.956270	0.9064
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(EAST ASIA)
Method: Least Squares
Date: 09/26/13   Time: 18:00
Sample (adjusted): 2004Q3 2012Q4
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EAST ASIA(-1)	0.027463	0.028718	0.956270	0.3471
D(EAST ASIA(-1))	-0.456843	0.183338	-2.491807	0.0189
D(EAST ASIA(-2))	0.025387	0.184940	0.137272	0.8918
D(EAST ASIA(-3))	-0.113326	0.179129	-0.632650	0.5321
D(EAST ASIA(-4))	0.628185	0.198815	3.159645	0.0038
D(EAST ASIA(-5))	0.489718	0.197543	2.479046	0.0195

R-squared	0.532407	Mean dependent var	1722.724
Adjusted R-squared	0.448908	S.D. dependent var	9345.599
S.E. of regression	6937.759	Akaike info criterion	20.68613
Sum squared resid	1.35E+09	Schwarz criterion	20.95549
Log likelihood	-345.6642	Hannan-Quinn criter.	20.77799
Durbin-Watson stat	2.008462		

South Asia

Null Hypothesis: SOUTH ASIA has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.901840	0.0047
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SOUTH ASIA)
Method: Least Squares
Date: 09/26/13   Time: 18:04
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SOUTH_ASIA(-1)	-0.349181	0.089491	-3.901840	0.0004
D(SOUTH_ASIA(-1))	-0.036258	0.142229	-0.254925	0.8003
C	2464.960	1331.411	1.851388	0.0726

R-squared	0.307742	Mean dependent var	-864.8250
Adjusted R-squared	0.268184	S.D. dependent var	7165.960
S.E. of regression	6130.209	Akaike info criterion	20.35550
Sum squared resid	1.32E+09	Schwarz criterion	20.48478
Log likelihood	-383.7545	Hannan-Quinn criter.	20.40150
F-statistic	7.779585	Durbin-Watson stat	2.120710

Null Hypothesis: SOUTH ASIA has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.312617	0.0795
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SOUTH ASIA)
Method: Least Squares
Date: 09/26/13   Time: 18:04
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SOUTH ASIA(-1)	-0.321042	0.096915	-3.312617	0.0022
D(SOUTH ASIA(-1))	-0.069505	0.149205	-0.465833	0.6443
C	539.0166	2802.562	0.192330	0.8486
@TREND(2003Q1)	79.11674	101.1408	0.782243	0.4395

R-squared	0.319980	Mean dependent var	-864.8250
Adjusted R-squared	0.259979	S.D. dependent var	7165.960
S.E. of regression	6164.481	Akaike info criterion	20.39030
Sum squared resid	1.29E+09	Schwarz criterion	20.56267
Log likelihood	-383.4156	Hannan-Quinn criter.	20.45163
F-statistic	5.332849	Durbin-Watson stat	2.148284
Prob(F-statistic)	0.004039		

Null Hypothesis: SOUTH ASIA has a unit root
Exogenous: None
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.447091	0.0010
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SOUTH_ASIA)
Method: Least Squares
Date: 09/26/13   Time: 18:04
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SOUTH ASIA(-1)	-0.240401	0.069740	-3.447091	0.0015
D(SOUTH ASIA(-1))	-0.078102	0.145079	-0.538343	0.5937
R-squared	0.239947	Mean dependent var		-864.8250
Adjusted R-squared	0.218835	S.D. dependent var		7165.960
S.E. of regression	6333.530	Akaike info criterion		20.39630
Sum squared resid	1.44E+09	Schwarz criterion		20.48249
Log likelihood	-385.5297	Hannan-Quinn criter.		20.42696
Durbin-Watson stat	2.055419			

Europe

Null Hypothesis: EUROPE has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.543190	0.9861
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EUROPE)
Method: Least Squares
Date: 09/26/13   Time: 18:10
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EUROPE(-1)	0.047281	0.087043	0.543190	0.5904
D(EUROPE(-1))	-0.439772	0.168700	-2.606826	0.0133
C	-1329.647	5184.056	-0.256488	0.7991

R-squared	0.167877	Mean dependent var	1062.812
Adjusted R-squared	0.120327	S.D. dependent var	6091.696
S.E. of regression	5713.454	Akaike info criterion	20.21469
Sum squared resid	1.14E+09	Schwarz criterion	20.34397
Log likelihood	-381.0791	Hannan-Quinn criter.	20.26069
F-statistic	3.530551	Durbin-Watson stat	2.011698
Prob(F-statistic)	0.040112		

Null Hypothesis: EUROPE 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		-1.963493	0.6024
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EUROPE)
Method: Least Squares
Date: 09/26/13   Time: 18:10
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EUROPE(-1)	-0.233821	0.119084	-1.963493	0.0573
C	9485.341	5570.633	1.702740	0.0972
@TREND(2003Q1)	268.7293	121.6114	2.209738	0.0336

R-squared	0.124701	Mean dependent var	1049.461
Adjusted R-squared	0.076073	S.D. dependent var	6011.586
S.E. of regression	5778.403	Akaike info criterion	20.23545
Sum squared resid	1.20E+09	Schwarz criterion	20.36341
Log likelihood	-391.5912	Hannan-Quinn criter.	20.28136
F-statistic	2.564401	Durbin-Watson stat	2.500248

Null Hypothesis: EUROPE has a unit root
Exogenous: None
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.629014	0.9727
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EUROPE)
Method: Least Squares
Date: 09/26/13   Time: 18:11
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EUROPE(-1)	0.025324	0.015546	1.629014	0.1120
D(EUROPE(-1))	-0.424273	0.155450	-2.729329	0.0098

R-squared	0.166313	Mean dependent var	1062.812
Adjusted R-squared	0.143155	S.D. dependent var	6091.696
S.E. of regression	5638.834	Akaike info criterion	20.16394
Sum squared resid	1.14E+09	Schwarz criterion	20.25013
Log likelihood	-381.1148	Hannan-Quinn criter.	20.19460
Durbin-Watson stat	1.994708		

America

Null Hypothesis: AMERICAS has a unit root
Exogenous: Constant
Lag Length: 3 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.593878	0.9992
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AMERICAS)
Method: Least Squares
Date: 09/26/13   Time: 18:14
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AMERICAS(-1)	0.441846	0.277214	1.593878	0.1211
D(AMERICAS(-1))	-1.137231	0.259925	-4.375231	0.0001
D(AMERICAS(-2))	-0.792157	0.250731	-3.159387	0.0035
D(AMERICAS(-3))	-0.777271	0.174856	-4.445197	0.0001
C	-5116.296	3502.341	-1.460821	0.1541

R-squared	0.698356	Mean dependent var	184.1825
Adjusted R-squared	0.659434	S.D. dependent var	2751.054
S.E. of regression	1605.462	Akaike info criterion	17.72846
Sum squared resid	79902712	Schwarz criterion	17.94839
Log likelihood	-314.1122	Hannan-Quinn criter.	17.80522
F-statistic	17.94250	Durbin-Watson stat	1.719504

Null Hypothesis: AMERICAS has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 3 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.766771	0.9996
Test critical values:	1% level	-4.234972	
	5% level	-3.540328	
	10% level	-3.202445	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AMERICAS)
Method: Least Squares
Date: 09/26/13   Time: 18:15
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AMERICAS(-1)	0.238719	0.311331	0.766771	0.4492
D(AMERICAS(-1))	-0.996193	0.276434	-3.603731	0.0011
D(AMERICAS(-2))	-0.701263	0.256129	-2.737928	0.0103
D(AMERICAS(-3))	-0.726727	0.176407	-4.119601	0.0003
C	-3404.079	3675.449	-0.926167	0.3618
@TREND(2003Q1)	39.90244	29.24155	1.364580	0.1825

R-squared	0.715984	Mean dependent var	184.1825
Adjusted R-squared	0.668648	S.D. dependent var	2751.054
S.E. of regression	1583.593	Akaike info criterion	17.72379
Sum squared resid	75233050	Schwarz criterion	17.98771
Log likelihood	-313.0283	Hannan-Quinn criter.	17.81591
F-statistic	15.12558	Durbin-Watson stat	1.727084

Null Hypothesis: AMERICAS has a unit root
Exogenous: None
Lag Length: 3 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.736100	0.9779
Test critical values:	1% level	-2.630762	
	5% level	-1.950394	
	10% level	-1.611202	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AMERICAS)
Method: Least Squares
Date: 09/26/13   Time: 18:16
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AMERICAS(-1)	0.038113	0.021953	1.736100	0.0922
D(AMERICAS(-1))	-0.822323	0.147778	-5.564594	0.0000
D(AMERICAS(-2))	-0.537101	0.183110	-2.933212	0.0062
D(AMERICAS(-3))	-0.632290	0.146490	-4.316257	0.0001

R-squared	0.677591	Mean dependent var	184.1825
Adjusted R-squared	0.647365	S.D. dependent var	2751.054
S.E. of regression	1633.661	Akaike info criterion	17.73947
Sum squared resid	85403109	Schwarz criterion	17.91542
Log likelihood	-315.3105	Hannan-Quinn criter.	17.80088
Durbin-Watson stat	1.525794		

Oceania

Null Hypothesis: OCEANIA has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.080754	0.9439
Test critical values:	1% level	-3.632900	
	5% level	-2.948404	
	10% level	-2.612874	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OCEANIA)
Method: Least Squares
Date: 09/26/13   Time: 18:33
Sample (adjusted): 2004Q2 2012Q4
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OCEANIA(-1)	-0.014047	0.173951	-0.080754	0.9362
D(OCEANIA(-1))	-0.368651	0.256313	-1.438285	0.1611
D(OCEANIA(-2))	-0.097794	0.250663	-0.390143	0.6993
D(OCEANIA(-3))	0.008091	0.238769	0.033888	0.9732
D(OCEANIA(-4))	0.607076	0.189844	3.197762	0.0033
C	333.0047	1906.368	0.174680	0.8625

R-squared	0.591957	Mean dependent var	261.8649
Adjusted R-squared	0.521604	S.D. dependent var	1920.299
S.E. of regression	1328.197	Akaike info criterion	17.37584
Sum squared resid	51159098	Schwarz criterion	17.64247
Log likelihood	-298.0771	Hannan-Quinn criter.	17.46788
F-statistic	8.414180	Durbin-Watson stat	2.091198
Prob(F-statistic)	0.000052		

Null Hypothesis: OCEANIA has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 4 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.045259	0.9241
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OCEANIA)
Method: Least Squares
Date: 09/26/13   Time: 18:34
Sample (adjusted): 2004Q2 2012Q4
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OCEANIA(-1)	-0.185705	0.177664	-1.045259	0.3048
D(OCEANIA(-1))	-0.319224	0.239434	-1.333245	0.1932
D(OCEANIA(-2))	-0.084819	0.233311	-0.363543	0.7189
D(OCEANIA(-3))	0.015796	0.222203	0.071089	0.9438
D(OCEANIA(-4))	0.595054	0.176727	3.367075	0.0022
C	988.7122	1795.834	0.550559	0.5863
@TREND(2003Q1)	59.86568	25.54369	2.343658	0.0264

R-squared	0.658875	Mean dependent var	261.8649
Adjusted R-squared	0.585777	S.D. dependent var	1920.299
S.E. of regression	1235.908	Akaike info criterion	17.25386
Sum squared resid	42769121	Schwarz criterion	17.56493
Log likelihood	-294.9425	Hannan-Quinn criter.	17.36124
F-statistic	9.013556	Durbin-Watson stat	2.237175
Prob(F-statistic)	0.000016		

Null Hypothesis: OCEANIA has a unit root
Exogenous: None
Lag Length: 4 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.742688	0.8703
Test critical values:	1% level	-2.632688	
	5% level	-1.950687	
	10% level	-1.611059	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OCEANIA)
Method: Least Squares
Date: 09/26/13   Time: 18:34
Sample (adjusted): 2004Q2 2012Q4
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OCEANIA(-1)	0.016094	0.021670	0.742688	0.4634
D(OCEANIA(-1))	-0.402474	0.165201	-2.436266	0.0210
D(OCEANIA(-2))	-0.128409	0.176290	-0.728395	0.4720
D(OCEANIA(-3))	-0.019697	0.175155	-0.112455	0.9112
D(OCEANIA(-4))	0.589190	0.157262	3.746562	0.0008

R-squared	0.591527	Mean dependent var	261.8649
Adjusted R-squared	0.537064	S.D. dependent var	1920.299
S.E. of regression	1306.559	Akaike info criterion	17.31975
Sum squared resid	51212926	Schwarz criterion	17.54194
Log likelihood	-298.0956	Hannan-Quinn criter.	17.39645
Durbin-Watson stat	2.074542		

Middle East

Null Hypothesis: MIDDLE EAST has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.523059	0.8755
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MIDDLE EAST)
Method: Least Squares
Date: 09/26/13   Time: 18:40
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MIDDLE EAST(-1)	-0.050036	0.095660	-0.523059	0.6042
D(MIDDLE EAST(-1))	-0.367071	0.165213	-2.221802	0.0329
C	504.1395	606.0507	0.831844	0.4111

R-squared	0.163816	Mean dependent var	144.3187
Adjusted R-squared	0.116034	S.D. dependent var	939.4676
S.E. of regression	883.2825	Akaike info criterion	16.48082
Sum squared resid	27306577	Schwarz criterion	16.61011
Log likelihood	-310.1357	Hannan-Quinn criter.	16.52682
F-statistic	3.428404	Durbin-Watson stat	2.130802
Prob(F-statistic)	0.043680		

Null Hypothesis: MIDDLE EAST 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		-3.262545	0.0876
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MIDDLE EAST)
Method: Least Squares
Date: 09/26/13   Time: 18:41
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MIDDLE EAST(-1)	-0.475361	0.145702	-3.262545	0.0024
C	1834.297	622.4051	2.947110	0.0056
@TREND(2003Q1)	62.25614	20.78496	2.995249	0.0049

R-squared	0.233266	Mean dependent var	140.2874
Adjusted R-squared	0.190670	S.D. dependent var	927.3655
S.E. of regression	834.2836	Akaike info criterion	16.36483
Sum squared resid	25057051	Schwarz criterion	16.49279
Log likelihood	-316.1141	Hannan-Quinn criter.	16.41074
F-statistic	5.476213	Durbin-Watson stat	2.202528
Prob(F-statistic)	0.008387		

Null Hypothesis: MIDDLE EAST has a unit root
Exogenous: None
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.197539	0.9379
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MIDDLE EAST)
Method: Least Squares
Date: 09/26/13   Time: 18:41
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MIDDLE EAST(-1)	0.027237	0.022744	1.197539	0.2389
D(MIDDLE EAST(-1))	-0.409351	0.156527	-2.615207	0.0129
R-squared	0.147284	Mean dependent var		144.3187
Adjusted R-squared	0.123598	S.D. dependent var		939.4676
S.E. of regression	879.4954	Akaike info criterion		16.44777
Sum squared resid	27846439	Schwarz criterion		16.53396
Log likelihood	-310.5076	Hannan-Quinn criter.		16.47844
Durbin-Watson stat	2.175804			

Africa

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.250396	0.1927
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AFRICA)
Method: Least Squares
Date: 09/26/13   Time: 18:43
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AFRICA(-1)	-0.238893	0.106156	-2.250396	0.0305
C	1108.311	769.0092	1.441220	0.1579

R-squared	0.120394	Mean dependent var	-153.8862
Adjusted R-squared	0.096621	S.D. dependent var	3456.793
S.E. of regression	3285.552	Akaike info criterion	19.08238
Sum squared resid	3.99E+08	Schwarz criterion	19.16769
Log likelihood	-370.1064	Hannan-Quinn criter.	19.11299
F-statistic	5.064280	Durbin-Watson stat	2.086617

Null Hypothesis: AFRICA 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		-2.693110	0.2448
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AFRICA)
Method: Least Squares
Date: 09/26/13   Time: 18:43
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AFRICA(-1)	-0.336862	0.125083	-2.693110	0.0107
C	3202.354	1648.160	1.942987	0.0599
@TREND(2003Q1)	-78.82092	55.08064	-1.431010	0.1611

R-squared	0.167736	Mean dependent var	-153.8862
Adjusted R-squared	0.121499	S.D. dependent var	3456.793
S.E. of regression	3239.996	Akaike info criterion	19.07834
Sum squared resid	3.78E+08	Schwarz criterion	19.20630
Log likelihood	-369.0275	Hannan-Quinn criter.	19.12425
F-statistic	3.627741	Durbin-Watson stat	1.998171
Prob(F-statistic)	0.036703		

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.728591	0.0794
Test critical values:	1% level	-2.625606	
	5% level	-1.949609	
	10% level	-1.611593	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AFRICA)
Method: Least Squares
Date: 09/26/13   Time: 18:43
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AFRICA(-1)	-0.127306	0.073647	-1.728591	0.0920
R-squared	0.071014	Mean dependent var		-153.8862
Adjusted R-squared	0.071014	S.D. dependent var		3456.793
S.E. of regression	3331.792	Akaike info criterion		19.08571
Sum squared resid	4.22E+08	Schwarz criterion		19.12837
Log likelihood	-371.1714	Hannan-Quinn criter.		19.10102
Durbin-Watson stat	2.212220			

GDP

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.310619	0.9141
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 09/26/13   Time: 18:45
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.011938	0.038434	-0.310619	0.7578
C	63686.23	83375.23	0.763851	0.4498
R-squared	0.002601	Mean dependent var		38264.59
Adjusted R-squared	-0.024356	S.D. dependent var		98210.39
S.E. of regression	99399.19	Akaike info criterion		25.90160
Sum squared resid	3.66E+11	Schwarz criterion		25.98691
Log likelihood	-503.0811	Hannan-Quinn criter.		25.93220
F-statistic	0.096484	Durbin-Watson stat		2.429198
Prob(F-statistic)	0.757833			

Null Hypothesis: GDP 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		-4.379778	0.0065
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 09/26/13   Time: 18:45
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	-0.715179	0.163291	-4.379778	0.0001
C	1033782.	231326.2	4.468937	0.0001
@TREND(2003Q1)	26370.64	6008.581	4.388831	0.0001

R-squared	0.350250	Mean dependent var	38264.59
Adjusted R-squared	0.314153	S.D. dependent var	98210.39
S.E. of regression	81333.80	Akaike info criterion	25.52431
Sum squared resid	2.38E+11	Schwarz criterion	25.65228
Log likelihood	-494.7241	Hannan-Quinn criter.	25.57023
F-statistic	9.702970	Durbin-Watson stat	1.854113

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		2.313268	0.9941
Test critical values:	1% level	-2.625606	
	5% level	-1.949609	
	10% level	-1.611593	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 09/26/13   Time: 18:46
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	0.016879	0.007297	2.313268	0.0262

R-squared	-0.013127	Mean dependent var	38264.59
Adjusted R-squared	-0.013127	S.D. dependent var	98210.39
S.E. of regression	98852.92	Akaike info criterion	25.86596
Sum squared resid	3.71E+11	Schwarz criterion	25.90862
Log likelihood	-503.3862	Hannan-Quinn criter.	25.88126
Durbin-Watson stat	2.459486		

ผลการทดสอบ Unit root test ของข้อมูล ณ ระดับ I(1) กรณีไม่มีค่าคงที่และแนวโน้มของเวลา (Level without Trend and Intercept) กรณีมีค่าคงที่แต่ไม่มีแนวโน้มเวลา (Level with Intercept) และกรณีมีค่าคงที่และแนวโน้มเวลา (Level with Trend and Intercept)

East Asia

Null Hypothesis: D(EAST ASIA) has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.477423	0.8837
Test critical values:	1% level	-3.639407	
	5% level	-2.951125	
	10% level	-2.614300	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EAST ASIA,2)
Method: Least Squares
Date: 09/26/13   Time: 18:02
Sample (adjusted): 2004Q3 2012Q4
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EAST ASIA(-1))	-0.244528	0.512182	-0.477423	0.6368
D(EAST ASIA(-1),2)	-1.174055	0.476280	-2.465050	0.0201
D(EAST ASIA(-2),2)	-1.101224	0.395752	-2.782609	0.0095
D(EAST ASIA(-3),2)	-1.173124	0.316941	-3.701395	0.0009
D(EAST ASIA(-4),2)	-0.509448	0.194593	-2.618022	0.0141
C	1164.932	1374.043	0.847813	0.4037

R-squared	0.837076	Mean dependent var	335.3068
Adjusted R-squared	0.807982	S.D. dependent var	15886.29
S.E. of regression	6961.352	Akaike info criterion	20.69292
Sum squared resid	1.36E+09	Schwarz criterion	20.96228
Log likelihood	-345.7796	Hannan-Quinn criter.	20.78478
F-statistic	28.77177	Durbin-Watson stat	2.018888
Prob(F-statistic)	0.000000		

Null Hypothesis: D(EAST ASIA) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 2 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.880698	0.0001
Test critical values:	1% level	-4.234972	
	5% level	-3.540328	
	10% level	-3.202445	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EAST ASIA,2)
Method: Least Squares
Date: 10/06/13   Time: 10:37
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EAST ASIA(-1))	-2.205222	0.374993	-5.880698	0.0000
D(EAST ASIA(-1),2)	0.679034	0.295724	2.296179	0.0286
D(EAST ASIA(-2),2)	0.427656	0.162957	2.624351	0.0134
C	-4096.485	2880.529	-1.422129	0.1650
@TREND(2003Q1)	356.9592	130.4769	2.735804	0.0102

R-squared	0.800284	Mean dependent var	81.21472
Adjusted R-squared	0.774515	S.D. dependent var	15465.32
S.E. of regression	7343.753	Akaike info criterion	20.76933
Sum squared resid	1.67E+09	Schwarz criterion	20.98927
Log likelihood	-368.8480	Hannan-Quinn criter.	20.84610
F-statistic	31.05519	Durbin-Watson stat	1.753709
Prob(F-statistic)	0.000000		

Null Hypothesis: D(EAST ASIA) has a unit root
Exogenous: None
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.360815	0.0000
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EAST ASIA,2)
Method: Least Squares
Date: 10/06/13   Time: 10:34
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EAST ASIA(-1))	-1.425758	0.152311	-9.360815	0.0000

R-squared	0.703018	Mean dependent var	261.8447
Adjusted R-squared	0.703018	S.D. dependent var	15173.71
S.E. of regression	8269.070	Akaike info criterion	20.90440
Sum squared resid	2.53E+09	Schwarz criterion	20.94749
Log likelihood	-396.1835	Hannan-Quinn criter.	20.91973
Durbin-Watson stat	1.846377		

South Asia

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.462831	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SOUTH ASIA,2)
Method: Least Squares
Date: 09/26/13   Time: 18:05
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SOUTH ASIA(-1))	-1.082018	0.167422	-6.462831	0.0000
C	-945.8177	1186.177	-0.797367	0.4305

R-squared	0.537086	Mean dependent var	122.6742
Adjusted R-squared	0.524227	S.D. dependent var	10497.39
S.E. of regression	7240.710	Akaike info criterion	20.66402
Sum squared resid	1.89E+09	Schwarz criterion	20.75021
Log likelihood	-390.6164	Hannan-Quinn criter.	20.69469
F-statistic	41.76819	Durbin-Watson stat	1.983011
Prob(F-statistic)	0.000000		

Null Hypothesis: D(SOUTH ASIA) 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		-6.959476	0.0000
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SOUTH ASIA,2)
Method: Least Squares
Date: 09/26/13   Time: 18:05
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SOUTH ASIA(-1))	-1.158040	0.166398	-6.959476	0.0000
C	-5192.121	2499.266	-2.077458	0.0452
@TREND(2003Q1)	203.4747	106.4590	1.911297	0.0642

R-squared	0.580835	Mean dependent var	122.6742
Adjusted R-squared	0.556883	S.D. dependent var	10497.39
S.E. of regression	6987.801	Akaike info criterion	20.61738
Sum squared resid	1.71E+09	Schwarz criterion	20.74666
Log likelihood	-388.7301	Hannan-Quinn criter.	20.66337
F-statistic	24.24970	Durbin-Watson stat	2.036927

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.446109	0.0000
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(SOUTH ASIA,2)
Method: Least Squares
Date: 09/26/13   Time: 18:06
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(SOUTH ASIA(-1))	-1.063411	0.164969	-6.446109	0.0000

R-squared	0.528910	Mean dependent var	122.6742
Adjusted R-squared	0.528910	S.D. dependent var	10497.39
S.E. of regression	7204.986	Akaike info criterion	20.62890
Sum squared resid	1.92E+09	Schwarz criterion	20.67199
Log likelihood	-390.9491	Hannan-Quinn criter.	20.64423
Durbin-Watson stat	1.985538		

Europe

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.129517	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EUROPE,2)
Method: Least Squares
Date: 09/26/13   Time: 18:12
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EUROPE(-1))	-1.404000	0.153787	-9.129517	0.0000
C	1439.789	928.8766	1.550033	0.1299

R-squared	0.698361	Mean dependent var	129.7003
Adjusted R-squared	0.689982	S.D. dependent var	10160.41
S.E. of regression	5657.238	Akaike info criterion	20.17046
Sum squared resid	1.15E+09	Schwarz criterion	20.25664
Log likelihood	-381.2386	Hannan-Quinn criter.	20.20112
F-statistic	83.34807	Durbin-Watson stat	1.972018
Prob(F-statistic)	0.000000		

Null Hypothesis: D(EUROPE) 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		-9.469888	0.0000
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EUROPE,2)
Method: Least Squares
Date: 09/26/13   Time: 18:13
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EUROPE(-1))	-1.440856	0.152151	-9.469888	0.0000
C	-1273.542	1906.592	-0.667968	0.5085
@TREND(2003Q1)	134.0353	82.79931	1.618797	0.1145

R-squared	0.719372	Mean dependent var	129.7003
Adjusted R-squared	0.703336	S.D. dependent var	10160.41
S.E. of regression	5534.054	Akaike info criterion	20.15089
Sum squared resid	1.07E+09	Schwarz criterion	20.28017
Log likelihood	-379.8668	Hannan-Quinn criter.	20.19688
F-statistic	44.86020	Durbin-Watson stat	2.044344

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.832231	0.0000
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EUROPE,2)
Method: Least Squares
Date: 09/26/13   Time: 18:14
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EUROPE(-1))	-1.367174	0.154794	-8.832231	0.0000

R-squared	0.678230	Mean dependent var	129.7003
Adjusted R-squared	0.678230	S.D. dependent var	10160.41
S.E. of regression	5763.468	Akaike info criterion	20.18243
Sum squared resid	1.23E+09	Schwarz criterion	20.22552
Log likelihood	-382.4662	Hannan-Quinn criter.	20.19776
Durbin-Watson stat	1.921919		

America

Null Hypothesis: D(AMERICAS) has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.784696	0.0000
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AMERICAS,2)
Method: Least Squares
Date: 09/26/13   Time: 18:16
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AMERICAS(-1))	-2.915550	0.374523	-7.784696	0.0000
D(AMERICAS(-1),2)	1.125242	0.292486	3.847164	0.0005
D(AMERICAS(-2),2)	0.616211	0.146096	4.217839	0.0002
C	449.0774	279.0572	1.609267	0.1174

R-squared	0.901521	Mean dependent var	55.11833
Adjusted R-squared	0.892288	S.D. dependent var	5008.155
S.E. of regression	1643.650	Akaike info criterion	17.75167
Sum squared resid	86450730	Schwarz criterion	17.92761
Log likelihood	-315.5300	Hannan-Quinn criter.	17.81308
F-statistic	97.64709	Durbin-Watson stat	1.506862
Prob(F-statistic)	0.000000		

Null Hypothesis: D(AMERICAS) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 2 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.334624	0.0000
Test critical values:	1% level	-4.234972	
	5% level	-3.540328	
	10% level	-3.202445	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AMERICAS,2)
Method: Least Squares
Date: 09/26/13   Time: 18:16
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AMERICAS(-1))	-3.018584	0.362174	-8.334624	0.0000
D(AMERICAS(-1),2)	1.204869	0.282782	4.260775	0.0002
D(AMERICAS(-2),2)	0.646023	0.140625	4.593958	0.0001
C	-624.6098	603.4032	-1.035145	0.3086
@TREND(2003Q1)	50.62285	25.51128	1.984332	0.0561

R-squared	0.912620	Mean dependent var	55.11833
Adjusted R-squared	0.901345	S.D. dependent var	5008.155
S.E. of regression	1573.033	Akaike info criterion	17.68765
Sum squared resid	76707461	Schwarz criterion	17.90758
Log likelihood	-313.3776	Hannan-Quinn criter.	17.76441
F-statistic	80.94266	Durbin-Watson stat	1.631125

Null Hypothesis: D(AMERICAS) has a unit root
Exogenous: None
Lag Length: 3 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.701689	0.0084
Test critical values:	1% level	-2.632688	
	5% level	-1.950687	
	10% level	-1.611059	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AMERICAS,2)
Method: Least Squares
Date: 09/26/13   Time: 18:16
Sample (adjusted): 2004Q2 2012Q4
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AMERICAS(-1))	-1.750641	0.647980	-2.701689	0.0111
D(AMERICAS(-1),2)	0.223677	0.504739	0.443153	0.6607
D(AMERICAS(-2),2)	-0.054611	0.355643	-0.153556	0.8790
D(AMERICAS(-3),2)	-0.366193	0.186342	-1.965168	0.0584

R-squared	0.902741	Mean dependent var	192.0231
Adjusted R-squared	0.893328	S.D. dependent var	5012.456
S.E. of regression	1637.099	Akaike info criterion	17.74645
Sum squared resid	83082933	Schwarz criterion	17.92420
Log likelihood	-306.5629	Hannan-Quinn criter.	17.80781
Durbin-Watson stat	2.072186		

Oceania

Null Hypothesis: D(OCEANIA) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.21250	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OCEANIA,2)
Method: Least Squares
Date: 10/06/13   Time: 10:39
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OCEANIA(-1))	-1.604187	0.143071	-11.21250	0.0000
C	370.5624	261.2469	1.418438	0.1647

R-squared	0.777393	Mean dependent var	60.11342
Adjusted R-squared	0.771210	S.D. dependent var	3347.892
S.E. of regression	1601.364	Akaike info criterion	17.64630
Sum squared resid	92317195	Schwarz criterion	17.73248
Log likelihood	-333.2796	Hannan-Quinn criter.	17.67696
F-statistic	125.7203	Durbin-Watson stat	1.921400

Null Hypothesis: D(OCEANIA) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 2 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.428704	0.0000
Test critical values:	1% level	-4.234972	
	5% level	-3.540328	
	10% level	-3.202445	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OCEANIA,2)
Method: Least Squares
Date: 09/27/13   Time: 14:22
Sample (adjusted): 2004Q1 2012Q4
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OCEANIA(-1))	-2.439229	0.379428	-6.428704	0.0000
D(OCEANIA(-1),2)	0.764697	0.299073	2.556892	0.0157
D(OCEANIA(-2),2)	0.414572	0.158648	2.613150	0.0137
C	-867.3151	550.1204	-1.576592	0.1250
@TREND(2003Q1)	62.60484	23.76182	2.634682	0.0130

R-squared	0.841081	Mean dependent var	33.76944
Adjusted R-squared	0.820575	S.D. dependent var	3367.428
S.E. of regression	1426.395	Akaike info criterion	17.49193
Sum squared resid	63072727	Schwarz criterion	17.71187
Log likelihood	-309.8548	Hannan-Quinn criter.	17.56870
F-statistic	41.01687	Durbin-Watson stat	1.604484
Prob(F-statistic)	0.000000		

Null Hypothesis: D(OCEANIA) has a unit root
Exogenous: None
Lag Length: 3 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.767754	0.0734
Test critical values:	1% level	-2.632688	
	5% level	-1.950687	
	10% level	-1.611059	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(OCEANIA,2)
Method: Least Squares
Date: 09/27/13   Time: 14:14
Sample (adjusted): 2004Q2 2012Q4
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(OCEANIA(-1))	-0.773717	0.437684	-1.767754	0.0869
D(OCEANIA(-1),2)	-0.584765	0.350668	-1.667573	0.1055
D(OCEANIA(-2),2)	-0.661781	0.262253	-2.523451	0.0170
D(OCEANIA(-3),2)	-0.629202	0.146673	-4.289829	0.0002

R-squared	0.859805	Mean dependent var	174.2617
S.D. dependent var	3307.812	S.E. of regression	1297.075
Akaike info criterion	17.28082	Sum squared resid	52154535
Schwarz criterion	17.45858	Log likelihood	-298.4144
Hannan-Quinn criter.	17.34218	Durbin-Watson stat	2.104531

Middle East

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.117301	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MIDDLE EAST,2)
Method: Least Squares
Date: 09/26/13   Time: 18:41
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MIDDLE EAST(-1))	-1.397237	0.153251	-9.117301	0.0000
C	196.3091	143.2455	1.370438	0.1790
R-squared	0.697797	Mean dependent var		13.43842
Adjusted R-squared	0.689402	S.D. dependent var		1568.824
S.E. of regression	874.3256	Akaike info criterion		16.43598
Sum squared resid	27520029	Schwarz criterion		16.52217
Log likelihood	-310.2836	Hannan-Quinn criter.		16.46664
F-statistic	83.12518	Durbin-Watson stat		2.165923

Null Hypothesis: D(MIDDLE EAST) 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		-9.071411	0.0000
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MIDDLE EAST,2)
Method: Least Squares
Date: 09/26/13   Time: 18:42
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MIDDLE EAST(-1))	-1.404101	0.154783	-9.071411	0.0000
C	18.17915	303.0494	0.059987	0.9525
@TREND(2003Q1)	8.733090	13.06347	0.668512	0.5082

R-squared	0.701607	Mean dependent var	13.43842
S.D. dependent var	1568.824	S.E. of regression	881.1204
Akaike info criterion	16.47592	Sum squared resid	27173061
Schwarz criterion	16.60521	Log likelihood	-310.0425
Hannan-Quinn criter.	16.52192	F-statistic	41.14749
Durbin-Watson stat	2.182494		

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.909116	0.0000
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(MIDDLE EAST,2)
Method: Least Squares
Date: 09/26/13   Time: 18:42
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MIDDLE EAST(-1))	-1.367829	0.153531	-8.909116	0.0000

R-squared	0.682031	Mean dependent var	13.43842
Adjusted R-squared	0.682031	S.D. dependent var	1568.824
S.E. of regression	884.6397	Akaike info criterion	16.43420
Sum squared resid	28955733	Schwarz criterion	16.47730
Log likelihood	-311.2498	Hannan-Quinn criter.	16.44953
Durbin-Watson stat	2.104807		

Africa

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.110973	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AFRICA,2)
Method: Least Squares
Date: 09/26/13   Time: 18:44
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AFRICA(-1))	-1.168660	0.164346	-7.110973	0.0000
C	-184.1942	568.5657	-0.323963	0.7478

R-squared	0.584132	Mean dependent var	13.94868
S.D. dependent var	5354.549	S.E. of regression	3500.663
Akaike info criterion	19.21049	Sum squared resid	4.41E+08
Schwarz criterion	19.29668	Log likelihood	-362.9993
Hannan-Quinn criter.	19.24115	F-statistic	50.56593
Durbin-Watson stat	1.988365		

Null Hypothesis: D(AFRICA) 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		-7.011811	0.0000
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AFRICA,2)
Method: Least Squares
Date: 09/26/13   Time: 18:44
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AFRICA(-1))	-1.168660	0.166670	-7.011811	0.0000
C	-242.4661	1221.321	-0.198528	0.8438
@TREND(2003Q1)	2.842528	52.51882	0.054124	0.9571

R-squared	0.584167	Mean dependent var	13.94868
Adjusted R-squared	0.560405	S.D. dependent var	5354.549
S.E. of regression	3550.171	Akaike info criterion	19.26304
Sum squared resid	4.41E+08	Schwarz criterion	19.39232
Log likelihood	-362.9977	Hannan-Quinn criter.	19.30903
F-statistic	24.58418	Durbin-Watson stat	1.988521

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.191143	0.0000
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AFRICA,2)
Method: Least Squares
Date: 09/26/13   Time: 18:44
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(AFRICA(-1))	-1.166050	0.162151	-7.191143	0.0000

R-squared	0.582920	Mean dependent var	13.94868
Adjusted R-squared	0.582920	S.D. dependent var	5354.549
S.E. of regression	3458.062	Akaike info criterion	19.16077
Sum squared resid	4.42E+08	Schwarz criterion	19.20386
Log likelihood	-363.0546	Hannan-Quinn criter.	19.17610
Durbin-Watson stat	1.987966		

GDP

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.792492	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP,2)
Method: Least Squares
Date: 09/26/13   Time: 18:47
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.267359	0.162638	-7.792492	0.0000
C	49870.33	16628.89	2.999018	0.0049

R-squared	0.627803	Mean dependent var	5515.500
Adjusted R-squared	0.617464	S.D. dependent var	155725.0
S.E. of regression	96315.11	Akaike info criterion	25.83983
Sum squared resid	3.34E+11	Schwarz criterion	25.92602
Log likelihood	-488.9568	Hannan-Quinn criter.	25.87050
F-statistic	60.72294	Durbin-Watson stat	2.117523
Prob(F-statistic)	0.000000		

Null Hypothesis: D(GDP) 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		-7.687608	0.0000
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP,2)
Method: Least Squares
Date: 09/26/13   Time: 18:47
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.267554	0.164883	-7.687608	0.0000
C	44890.52	34038.95	1.318799	0.1958
@TREND(2003Q1)	243.2515	1444.482	0.168400	0.8672

R-squared	0.628104	Mean dependent var	5515.500
Adjusted R-squared	0.606853	S.D. dependent var	155725.0
S.E. of regression	97641.81	Akaike info criterion	25.89166
Sum squared resid	3.34E+11	Schwarz criterion	26.02094
Log likelihood	-488.9415	Hannan-Quinn criter.	25.93765
F-statistic	29.55619	Durbin-Watson stat	2.118774

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.529980	0.0000
Test critical values:	1% level	-2.627238	
	5% level	-1.949856	
	10% level	-1.611469	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP,2)
Method: Least Squares
Date: 09/26/13   Time: 18:47
Sample (adjusted): 2003Q3 2012Q4
Included observations: 38 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	-1.100402	0.168515	-6.529980	0.0000

R-squared	0.534814	Mean dependent var	5515.500
Adjusted R-squared	0.534814	S.D. dependent var	155725.0
S.E. of regression	106211.5	Akaike info criterion	26.01022
Sum squared resid	4.17E+11	Schwarz criterion	26.05331
Log likelihood	-493.1941	Hannan-Quinn criter.	26.02555
Durbin-Watson stat	1.935780		

ผลการทดสอบ Cointegration กำหนดให้ผลิตภัณฑ์มวลรวมภายในประเทศเป็นตัวแปรต้นและ
รายได้จากการท่องเที่ยวจากนักท่องเที่ยวชาวต่างชาติจำแนกตามภูมิภาคเป็นตัวแปรตาม

Dependent Variable: GDP
Method: Least Squares
Date: 09/20/13   Time: 13:52
Sample: 2003Q1 2012Q4
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1033023.	219509.4	4.706052	0.0000
EAST ASIA	-3.180930	5.518389	-0.576424	0.5684
SOUTH ASIA	-5.049597	2.166646	-2.330606	0.0262
EUROPE	10.99907	7.849704	1.401209	0.1708
AMERICAS	3.768852	22.58453	0.166878	0.8685
OCEANIA	-42.40437	31.39390	-1.350720	0.1863
MIDDLE EAST	204.2470	34.57094	5.908054	0.0000
AFRICA	-28.97355	5.810472	-4.986437	0.0000

R-squared	0.902481	Mean dependent var		2150305.
Adjusted R-squared	0.881148	S.D. dependent var		434649.3
S.E. of regression	149844.9	Akaike info criterion		26.84945
Sum squared resid	7.19E+11	Schwarz criterion		27.18722
Log likelihood	-528.9889	Hannan-Quinn criter.		26.97157
F-statistic	42.30565	Durbin-Watson stat		1.416469
Prob(F-statistic)	0.000000			

**ผลการทดสอบ Unit root ของค่าคลาดเคลื่อน ณ ระดับ I(0) ที่กำหนดให้ผลิตภัณฑ์มวลรวมภายใน
ประเทศเป็นตัวแปรต้นและรายได้จากการท่องเที่ยวจากนักท่องเที่ยวชาวต่างชาติจำแนกตาม
ภูมิภาคเป็นตัวแปรตาม**

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

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.563621	0.0000
Test critical values:	1% level	-2.625606	
	5% level	-1.949609	
	10% level	-1.611593	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ERR)
Method: Least Squares
Date: 10/04/13   Time: 00:11
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ERR(-1)	-0.721361	0.158068	-4.563621	0.0001
R-squared	0.353039	Mean dependent var		6334.071
Adjusted R-squared	0.353039	S.D. dependent var		163528.9
S.E. of regression	131532.6	Akaike info criterion		26.43720
Sum squared resid	6.57E+11	Schwarz criterion		26.47986
Log likelihood	-514.5255	Hannan-Quinn criter.		26.45251
Durbin-Watson stat	2.034701			

**ผลการทดสอบ Error Correction Mechanism (ECM) ที่กำหนดให้ผลิตภัณฑ์มวลรวมภายใน
ประเทศเป็นตัวแปรต้นและรายได้จากการท่องเที่ยวจากนักท่องเที่ยวชาวต่างชาติจำแนกตาม
ภูมิภาคเป็นตัวแปรตาม**

Dependent Variable: D(GDP)
Method: Least Squares
Date: 09/20/13   Time: 20:15
Sample (adjusted): 2003Q2 2012Q4
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25859.63	15590.35	1.658694	0.1076
D(AFRICA)	-4.134857	5.928245	-0.697484	0.4909
D(AMERICAS)	-15.27939	12.57091	-1.215456	0.2337
D(EAST ASIA)	5.808598	3.100593	1.873383	0.0708
D(EUROPE)	1.652443	3.773632	0.437892	0.6646
D(MIDDLE EAST)	57.37529	26.21994	2.188231	0.0366
D(OCEANIA)	-12.97138	15.04047	-0.862432	0.3953
D(SOUTH ASIA)	1.621036	2.297170	0.705667	0.4858
ERR(-1)	-0.242161	0.131196	-1.845802	0.0748

R-squared	0.331551	Mean dependent var		38264.59
Adjusted R-squared	0.153298	S.D. dependent var		98210.39
S.E. of regression	90369.69	Akaike info criterion		25.86038
Sum squared resid	2.45E+11	Schwarz criterion		26.24428
Log likelihood	-495.2774	Hannan-Quinn criter.		25.99812
F-statistic	1.860000	Durbin-Watson stat		2.160321
Prob(F-statistic)	0.104463			

ประวัติผู้เขียน

ชื่อ - สกุล   นางสาวชนม์ชนัมม์ สุวรรณโภคัย

วัน เดือน ปี เกิด   20 ธันวาคม 2531

ประวัติการศึกษา   สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนเรยีนาเชลีวิทยาลัย
                          จังหวัดเชียงใหม่ ปีการศึกษา 2549

                          สำเร็จการศึกษาปริญญาตรีเศรษฐศาสตรบัณฑิต มหาวิทยาลัยเชียงใหม่
                          ปีการศึกษา 2553