

## ภาคผนวก ก

## ข้อมูลดัชนีผลผลิตพืชผลและปริมาณการส่งออกข้าวออกมะลิจของประเทศไทย

Obs.	Month	crop index	Rice	In Crop	In Rice
1	2545_1	199.22	11866	5.29441	9.381432
2	2545_2	182.51	23190	5.206805	10.05148
3	2545_3	177.13	36283	5.176884	10.4991
4	2545_4	119.03	17849	4.779376	9.789703
5	2545_5	105.88	56717	4.662306	10.94583
6	2545_6	126.78	161158	4.842453	11.99014
7	2545_7	129.59	198624	4.864376	12.19917
8	2545_8	136.7	206344	4.917789	12.2373
9	2545_9	151.42	144649	5.020057	11.88207
10	2545_10	133.71	175953	4.895673	12.07797
11	2545_11	309.37	196935	5.734538	12.19063
12	2545_12	307.79	260034	5.729418	12.46857
13	2546_1	227.03	206398	5.425082	12.23756
14	2546_2	185.21	207563	5.22149	12.24319
15	2546_3	196.85	179684	5.282442	12.09896
16	2546_4	157.81	178542	5.061392	12.09258
17	2546_5	139.47	228636	4.93785	12.33989
18	2546_6	137.67	139447	4.92486	11.84544
19	2546_7	125.71	154078	4.833978	11.94521
20	2546_8	136.71	132910	4.917862	11.79743
21	2546_9	142.81	158445	4.961515	11.97316
22	2546_10	141.27	203109	4.950673	12.2215
23	2546_11	330.07	162769	5.799305	12.00009
24	2546_12	334.55	298488	5.812786	12.60649

Obs.	Month	crop index	Rice	In Crop	In Rice
25	2547_1	215.6	168669	5.373425	12.03569
26	2547_2	201.52	185252	5.305889	12.12947
27	2547_3	195.13	204838	5.273666	12.22997
28	2547_4	131.13	202323	4.876189	12.21762
29	2547_5	143.63	144812	4.967241	11.88319
30	2547_6	143.63	153502	4.967241	11.94147
31	2547_7	131.58	182825	4.879615	12.11628
32	2547_8	140.52	145540	4.94535	11.88821
33	2547_9	153.32	157715	5.032527	11.96854
34	2547_10	155.94	186793	5.049471	12.13776
35	2547_11	332.68	256218	5.807181	12.45378
36	2547_12	335.92	262568	5.816873	12.47827
37	2548_1	213.73	187823	5.364714	12.14326
38	2548_2	173.28	172323	5.154909	12.05713
39	2548_3	150.9	170240	5.016617	12.04496
40	2548_4	117.79	149871	4.768903	11.91753
41	2548_5	126.05	213364	4.836679	12.27075
42	2548_6	143.36	137178	4.965359	11.82903
43	2548_7	132.31	162535	4.885148	11.99865
44	2548_8	143.91	201229	4.969188	12.2122
45	2548_9	149.77	190807	5.009101	12.15902
46	2548_10	167.46	173936	5.120745	12.06644
47	2548_11	358.47	259872	5.881845	12.46794
48	2548_12	287.98	255121	5.662891	12.44949
49	2549_1	217.65	187304.32	5.382888	12.14049
50	2549_2	186.6	199185.11	5.228967	12.20199
51	2549_3	181.95	267803.97	5.203732	12.49801
52	2549_4	141.15	235077.15	4.949823	12.36767

<b>Obs.</b>	<b>Month</b>	<b>crop index</b>	<b>Rice</b>	<b>ln Crop</b>	<b>ln Rice</b>
53	2549_5	131.91	151188.98	4.88212	11.92629
54	2549_6	144.33	222180.96	4.972102	12.31125
55	2549_7	139.3	174155.82	4.93663	12.06771
56	2549_8	157.02	185623.51	5.056373	12.13148
57	2549_9	167.97	189735.57	5.123785	12.15339
58	2549_10	177.91	218430.97	5.181278	12.29423
59	2549_11	368.24	257638.54	5.908735	12.45931
60	2549_12	297.27	286253.33	5.694641	12.56463
61	2550_1	223.36	296528.31	5.408785	12.5999
62	2550_2	189.73	225963.46	5.245602	12.32813
63	2550_3	183.54	280000.11	5.212433	12.54255
64	2550_4	151.14	195041.3	5.018207	12.18097
65	2550_5	134.09	207072.74	4.898511	12.24083
66	2550_6	137.34	244899.77	4.92246	12.4086
67	2550_7	136.48	204434.89	4.916178	12.228
68	2550_8	150.62	206037.21	5.01476	12.23581
69	2550_9	163.74	184207.7	5.09828	12.12382
70	2550_10	181.42	245023.41	5.200815	12.40911
71	2550_11	373.14	275556.3	5.921954	12.52655
72	2550_12	319.02	335314.06	5.765254	12.72282
73	2551_1	235.54	306643.79	5.461881	12.63344
74	2551_2	209.84	296780.41	5.346345	12.60075
75	2551_3	184.1	239251.73	5.215479	12.38527
76	2551_4	155.09	182614.62	5.044006	12.11513
77	2551_5	173.77	240287.12	5.157733	12.38959
78	2551_6	165.15	166536.86	5.106854	12.02297
79	2551_7	164.83	152635.37	5.104915	11.93581
80	2551_8	186.15	194964.3	5.226553	12.18057

Obs.	Month	crop index	Rice	ln Crop	ln Rice
81	2551_9	189.91	153309.03	5.24655	11.94021
82	2551_10	194.63	199150.29	5.2711	12.20182
83	2551_11	391.91	147357.28	5.971032	11.90062
84	2551_12	336.89	219625.22	5.819756	12.29968



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## ภาคผนวก ข

## ผลการทดสอบความนิ่งของข้อมูลหรือยูนิทรูท (Unit Root Test)

ดัชนีผลผลิตพืชผล ระดับ level ,I(0) แบบจำลองปราศจากจุดตัดแกนและแนวโน้ม

Null Hypothesis: LN\_CROP has a unit root

Exogenous: None

Lag Length: 11 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	3.054486	0.9993
Test critical values:		
1% level	-2.597476	
5% level	-1.945389	
10% level	-1.613838	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_CROP)

Method: Least Squares

Date: 04/20/09 Time: 10:11

Sample (adjusted): 13 84

Included observations: 72 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_CROP(-1)	0.006826	0.002235	3.054486	0.0034
D(LN_CROP(-1))	-0.861222	0.070617	-12.19569	0.0000
D(LN_CROP(-2))	-0.914597	0.057956	-15.78088	0.0000
D(LN_CROP(-3))	-0.896228	0.066652	-13.44630	0.0000
D(LN_CROP(-4))	-0.915626	0.064230	-14.25535	0.0000
D(LN_CROP(-5))	-0.919722	0.056865	-16.17384	0.0000
D(LN_CROP(-6))	-0.855800	0.065541	-13.05757	0.0000
D(LN_CROP(-7))	-0.917440	0.056425	-16.25943	0.0000
D(LN_CROP(-8))	-0.888766	0.063279	-14.04520	0.0000
D(LN_CROP(-9))	-0.871817	0.065623	-13.28527	0.0000
D(LN_CROP(-10))	-0.894382	0.057465	-15.56402	0.0000
D(LN_CROP(-11))	-0.809394	0.067851	-11.92903	0.0000
R-squared	0.888888	Mean dependent var	0.001255	
Adjusted R-squared	0.868517	S.D. dependent var	0.268324	
S.E. of regression	0.097296	Akaike info criterion	-1.671112	
Sum squared resid	0.567987	Schwarz criterion	-1.291668	
Log likelihood	72.16003	Durbin-Watson stat	1.072552	

ดัชนีผลผลิตพืชผล ระดับ level ,I(0) แบบจำลองที่มีจุดตัดแกนแต่ปราศจากแนวโน้ม

Null Hypothesis: LN\_CROP has a unit root

Exogenous: Constant

Lag Length: 11 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.852739	0.9943
Test critical values:		
1% level	-3.524233	
5% level	-2.902358	
10% level	-2.588587	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_CROP)

Method: Least Squares

Date: 04/20/09 Time: 10:12

Sample (adjusted): 13 84

Included observations: 72 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_CROP(-1)	0.207201	0.242983	0.852739	0.3973
D(LN_CROP(-1))	-1.049868	0.239458	-4.384354	0.0000
D(LN_CROP(-2))	-1.078331	0.206872	-5.212544	0.0000
D(LN_CROP(-3))	-1.045846	0.193344	-5.409250	0.0000
D(LN_CROP(-4))	-1.047053	0.171889	-6.091466	0.0000
D(LN_CROP(-5))	-1.034116	0.149975	-6.895280	0.0000
D(LN_CROP(-6))	-0.953990	0.135996	-7.014853	0.0000
D(LN_CROP(-7))	-0.997566	0.112432	-8.872635	0.0000
D(LN_CROP(-8))	-0.953135	0.100588	-9.475593	0.0000
D(LN_CROP(-9))	-0.920375	0.088297	-10.42362	0.0000
D(LN_CROP(-10))	-0.926458	0.069517	-13.32701	0.0000
D(LN_CROP(-11))	-0.827569	0.071513	-11.57225	0.0000
C	-1.039775	1.260824	-0.824679	0.4129

R-squared	0.890154	Mean dependent var	0.001255
Adjusted R-squared	0.867812	S.D. dependent var	0.268324
S.E. of regression	0.097556	Akaike info criterion	-1.654795
Sum squared resid	0.561515	Schwarz criterion	-1.243731
Log likelihood	72.57263	F-statistic	39.84292
Durbin-Watson stat	1.091301	Prob(F-statistic)	0.000000



ดัชนีผลผลิตพืชผล ระดับ level ,I(0) แบบจำลองที่มีจุดตัดแกนและแนวโน้ม

Null Hypothesis: LN\_CROP has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 11 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.007712	0.9957
Test critical values:		
1% level	-4.090602	
5% level	-3.473447	
10% level	-3.163967	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_CROP)

Method: Least Squares

Date: 04/20/09 Time: 10:13

Sample (adjusted): 13 84

Included observations: 72 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_CROP(-1)	0.003101	0.402041	0.007712	0.9939
D(LN_CROP(-1))	-0.862574	0.379226	-2.274567	0.0266
D(LN_CROP(-2))	-0.908727	0.337139	-2.695408	0.0092
D(LN_CROP(-3))	-0.893050	0.308099	-2.898578	0.0053
D(LN_CROP(-4))	-0.911451	0.273621	-3.331073	0.0015
D(LN_CROP(-5))	-0.916180	0.238279	-3.844989	0.0003
D(LN_CROP(-6))	-0.853057	0.208869	-4.084164	0.0001
D(LN_CROP(-7))	-0.913282	0.173674	-5.258584	0.0000
D(LN_CROP(-8))	-0.886070	0.145717	-6.080774	0.0000
D(LN_CROP(-9))	-0.870107	0.118585	-7.337417	0.0000
D(LN_CROP(-10))	-0.893087	0.087225	-10.23888	0.0000
D(LN_CROP(-11))	-0.810458	0.076700	-10.56660	0.0000
C	-0.008883	2.051321	-0.004330	0.9966
@TREND(1)	0.000591	0.000925	0.639069	0.5253
R-squared	0.890922	Mean dependent var		0.001255
Adjusted R-squared	0.866473	S.D. dependent var		0.268324
S.E. of regression	0.098049	Akaike info criterion		-1.634034
Sum squared resid	0.557588	Schwarz criterion		-1.191349
Log likelihood	72.82524	F-statistic		36.44073
Durbin-Watson stat	1.083788	Prob(F-statistic)		0.000000

ดัชนีผลผลิตพืชผล ระดับ I(1) แบบจำลองปราศจากจุดตัดแกนและแนวโน้ม

Null Hypothesis: D(LN\_CROP) has a unit root

Exogenous: None

Lag Length: 11 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.653519	0.0004
Test critical values:		
1% level	-2.597939	
5% level	-1.945456	
10% level	-1.613799	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_CROP,2)

Method: Least Squares

Date: 04/20/09 Time: 10:20

Sample (adjusted): 14 84

Included observations: 71 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_CROP(-1))	-4.233692	1.158798	-3.653519	0.0006
D(LN_CROP(-1),2)	2.892550	1.064635	2.716941	0.0086
D(LN_CROP(-2),2)	2.512717	0.966968	2.598553	0.0118
D(LN_CROP(-3),2)	2.156758	0.870783	2.476802	0.0161
D(LN_CROP(-4),2)	1.787651	0.772049	2.315464	0.0241
D(LN_CROP(-5),2)	1.441760	0.672540	2.143753	0.0362
D(LN_CROP(-6),2)	1.121970	0.575586	1.949265	0.0560
D(LN_CROP(-7),2)	0.739619	0.480901	1.537985	0.1294
D(LN_CROP(-8),2)	0.394645	0.384547	1.026259	0.3090
D(LN_CROP(-9),2)	0.057897	0.288240	0.200864	0.8415
D(LN_CROP(-10),2)	-0.287986	0.191980	-1.500086	0.1389
D(LN_CROP(-11),2)	-0.579202	0.098765	-5.864453	0.0000
R-squared	0.957617	Mean dependent var		0.002156
Adjusted R-squared	0.949715	S.D. dependent var		0.369120
S.E. of regression	0.082773	Akaike info criterion		-1.992555
Sum squared resid	0.404226	Schwarz criterion		-1.610131
Log likelihood	82.73572	Durbin-Watson stat		1.924615



ดัชนีผลผลิตพืชผล ระดับ I(1) แบบจำลองที่มีจุดตัดแกนแต่ปราศจากแนวโน้ม

Null Hypothesis: D(LN\_CROP) has a unit root

Exogenous: Constant

Lag Length: 11 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.946002	0.0029
Test critical values:		
1% level	-3.525618	
5% level	-2.902953	
10% level	-2.588902	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_CROP,2)

Method: Least Squares

Date: 04/20/09 Time: 10:21

Sample (adjusted): 14 84

Included observations: 71 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_CROP(-1))	-4.910194	1.244346	-3.946002	0.0002
D(LN_CROP(-1),2)	3.513025	1.142946	3.073658	0.0032
D(LN_CROP(-2),2)	3.078433	1.038681	2.963792	0.0044
D(LN_CROP(-3),2)	2.665167	0.935082	2.850196	0.0060
D(LN_CROP(-4),2)	2.238658	0.829123	2.700031	0.0091
D(LN_CROP(-5),2)	1.834261	0.722156	2.539978	0.0138
D(LN_CROP(-6),2)	1.457589	0.617969	2.358677	0.0217
D(LN_CROP(-7),2)	1.019892	0.516275	1.975482	0.0530
D(LN_CROP(-8),2)	0.617629	0.412527	1.497183	0.1398
D(LN_CROP(-9),2)	0.224073	0.308954	0.725263	0.4712
D(LN_CROP(-10),2)	-0.178180	0.205543	-0.866877	0.3896
D(LN_CROP(-11),2)	-0.525405	0.105040	-5.001956	0.0000
C	0.014955	0.010558	1.416454	0.1620

R-squared	0.959034	Mean dependent var	0.002156
Adjusted R-squared	0.950558	S.D. dependent var	0.369120
S.E. of regression	0.082076	Akaike info criterion	-1.998394
Sum squared resid	0.390711	Schwarz criterion	-1.584100
Log likelihood	83.94297	F-statistic	113.1511
Durbin-Watson stat	1.883921	Prob(F-statistic)	0.000000

ดัชนีผลผลิตพืชผล ระดับ I(1) แบบจำลองที่มีจุดตัดแกนและแนวโน้ม

Null Hypothesis: D(LN\_CROP) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 11 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.021149	0.0122
Test critical values:		
1% level	-4.092547	
5% level	-3.474363	
10% level	-3.164499	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_CROP,2)

Method: Least Squares

Date: 04/20/09 Time: 10:22

Sample (adjusted): 14 84

Included observations: 71 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_CROP(-1))	-5.045831	1.254823	-4.021149	0.0002
D(LN_CROP(-1),2)	3.634666	1.152195	3.154559	0.0026
D(LN_CROP(-2),2)	3.187438	1.046894	3.044663	0.0035
D(LN_CROP(-3),2)	2.763938	0.942555	2.932388	0.0048
D(LN_CROP(-4),2)	2.326332	0.835761	2.783488	0.0073
D(LN_CROP(-5),2)	1.911086	0.727996	2.625132	0.0111
D(LN_CROP(-6),2)	1.523406	0.622976	2.445371	0.0176
D(LN_CROP(-7),2)	1.075328	0.520515	2.065894	0.0434
D(LN_CROP(-8),2)	0.663091	0.416065	1.593721	0.1165
D(LN_CROP(-9),2)	0.258956	0.311713	0.830749	0.4096
D(LN_CROP(-10),2)	-0.154354	0.207462	-0.744013	0.4599
D(LN_CROP(-11),2)	-0.513363	0.106003	-4.842925	0.0000
C	-0.005930	0.025121	-0.236071	0.8142
@TREND(1)	0.000444	0.000484	0.916529	0.3633
R-squared	0.959629	Mean dependent var		0.002156
Adjusted R-squared	0.950422	S.D. dependent var		0.369120
S.E. of regression	0.082189	Akaike info criterion		-1.984854
Sum squared resid	0.385036	Schwarz criterion		-1.538692
Log likelihood	84.46233	F-statistic		104.2237
Durbin-Watson stat	1.883949	Prob(F-statistic)		0.000000

### ปริมาณการส่งออกข้าวหอมมะลิ

ระดับ level ,I(0) แบบจำลองปราศจากจุดตัดแกนและแนวโน้ม

Null Hypothesis: LN\_RICE has a unit root

Exogenous: None

Lag Length: 1 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.796355	0.8828
Test critical values:		
1% level	-2.593468	
5% level	-1.944811	
10% level	-1.614175	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_RICE)

Method: Least Squares

Date: 04/20/09 Time: 10:16

Sample (adjusted): 3 84

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_RICE(-1)	0.002214	0.002780	0.796355	0.4282
D(LN_RICE(-1))	-0.173917	0.108288	-1.606061	0.1122
R-squared	0.028177	Mean dependent var		0.027417
Adjusted R-squared	0.016030	S.D. dependent var		0.306002
S.E. of regression	0.303539	Akaike info criterion		0.477475
Sum squared resid	7.370877	Schwarz criterion		0.536176
Log likelihood	-17.57648	Durbin-Watson stat		2.072146

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### ปริมาณการส่งออกข้าวหอมมะลิ

ระดับ level ,I(0) แบบจำลองที่มีจุดตัดแกนแต่ปราศจากแนวโน้ม

Null Hypothesis: LN\_RICE has a unit root  
Exogenous: Constant  
Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.745108	0.0000
Test critical values:		
1% level	-3.511262	
5% level	-2.896779	
10% level	-2.585626	

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

Augmented Dickey-Fuller Test Equation  
Dependent Variable: D(LN\_RICE)  
Method: Least Squares  
Date: 04/20/09 Time: 10:16  
Sample (adjusted): 2 84  
Included observations: 83 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_RICE(-1)	-0.302538	0.052660	-5.745108	0.0000
C	3.688151	0.636508	5.794354	0.0000
R-squared	0.289513	Mean dependent var		0.035160
Adjusted R-squared	0.280741	S.D. dependent var		0.312203
S.E. of regression	0.264776	Akaike info criterion		0.203939
Sum squared resid	5.678630	Schwarz criterion		0.262225
Log likelihood	-6.463476	F-statistic		33.00627
Durbin-Watson stat	2.348613	Prob(F-statistic)		0.000000

### ปริมาณการส่งออกข้าวหอมมะลิ

ระดับ level ,I(0) แบบจำลองที่มีจุดตัดแกนและแนวโน้ม

Null Hypothesis: LN\_RICE has a unit root  
Exogenous: Constant, Linear Trend  
Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.563413	0.0001
Test critical values:		
1% level	-4.072415	
5% level	-3.464865	
10% level	-3.158974	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_RICE)

Method: Least Squares

Date: 04/20/09 Time: 10:17

Sample (adjusted): 2 84

Included observations: 83 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN_RICE(-1)	-0.332744	0.059809	-5.563413	0.0000
C	3.991392	0.697124	5.725510	0.0000
@TREND(1)	0.001464	0.001378	1.062325	0.2913

R-squared	0.299396	Mean dependent var	0.035160
Adjusted R-squared	0.281881	S.D. dependent var	0.312203
S.E. of regression	0.264567	Akaike info criterion	0.214027
Sum squared resid	5.599637	Schwarz criterion	0.301455
Log likelihood	-5.882140	F-statistic	17.09359
Durbin-Watson stat	2.308903	Prob(F-statistic)	0.000001

### ปริมาณการส่งออกข้าวหอมมะลิ

ระดับ First Difference , I(1) แบบจำลองปราศจากจุดตัดแกนและแนวโน้ม

Null Hypothesis: D(LN\_RICE) has a unit root

Exogenous: None

Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-10.83968	0.0000
Test critical values:		
1% level	-2.593468	
5% level	-1.944811	
10% level	-1.614175	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_RICE,2)

Method: Least Squares

Date: 04/20/09 Time: 10:23

Sample (adjusted): 3 84

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_RICE(-1))	-1.165330	0.107506	-10.83968	0.0000
R-squared	0.591917	Mean dependent var		-0.003305
Adjusted R-squared	0.591917	S.D. dependent var		0.474086
S.E. of regression	0.302853	Akaike info criterion		0.460981
Sum squared resid	7.429308	Schwarz criterion		0.490331
Log likelihood	-17.90021	Durbin-Watson stat		2.067319



### ปริมาณการส่งออกข้าวหอมมะลิ

ระดับ First Difference , I(1) แบบจำลองที่มีจุดตัดแกนแต่ปราศจากแนวโน้ม

Null Hypothesis: D(LN\_RICE) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-10.87995	0.0001
Test critical values:		
1% level	-3.512290	
5% level	-2.897223	
10% level	-2.585861	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_RICE,2)

Method: Least Squares

Date: 04/20/09 Time: 10:23

Sample (adjusted): 3 84

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_RICE(-1))	-1.175748	0.108065	-10.87995	0.0000
C	0.032816	0.033619	0.976138	0.3319
R-squared	0.596720	Mean dependent var		-0.003305
Adjusted R-squared	0.591679	S.D. dependent var		0.474086
S.E. of regression	0.302941	Akaike info criterion		0.473531
Sum squared resid	7.341862	Schwarz criterion		0.532231
Log likelihood	-17.41477	F-statistic		118.3734
Durbin-Watson stat	2.072346	Prob(F-statistic)		0.000000

### ปริมาณการส่งออกข้าวหอมมะลิ

ระดับ First Difference , I(1) แบบจำลองที่มีจุดตัดแกนและแนวโน้ม

Null Hypothesis: D(LN\_RICE) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-11.06873	0.0000
Test critical values:		
1% level	-4.073859	
5% level	-3.465548	
10% level	-3.159372	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LN\_RICE,2)

Method: Least Squares

Date: 04/20/09 Time: 10:23

Sample (adjusted): 3 84

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LN_RICE(-1))	-1.209511	0.109273	-11.06873	0.0000
C	0.128634	0.069863	1.841239	0.0693
@TREND(1)	-0.002230	0.001429	-1.560435	0.1227

R-squared	0.608778	Mean dependent var	-0.003305
Adjusted R-squared	0.598874	S.D. dependent var	0.474086
S.E. of regression	0.300260	Akaike info criterion	0.467564
Sum squared resid	7.122336	Schwarz criterion	0.555615
Log likelihood	-16.17014	F-statistic	61.46580
Durbin-Watson stat	2.074361	Prob(F-statistic)	0.000000

### ผลการวิเคราะห์ความสัมพันธ์เชิงดุลยภาพในระยะยาว (Cointegration)

กรณีปริมาณการส่งออกข้าวหอมมะลิเป็นตัวแปรอิสระ และดัชนีผลผลิตพืชผลเป็นตัวแปรตาม

Dependent Variable: LN\_CROP  
 Method: Least Squares  
 Date: 04/20/09 Time: 10:25  
 Sample: 1 84  
 Included observations: 84

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.136217	0.750317	4.179854	0.0001
LN_RICE	0.170391	0.062063	2.745456	0.0074
R-squared	0.084183	Mean dependent var		5.194055
Adjusted R-squared	0.073014	S.D. dependent var		0.324431
S.E. of regression	0.312363	Akaike info criterion		0.534217
Sum squared resid	8.000770	Schwarz criterion		0.592094
Log likelihood	-20.43712	F-statistic		7.537530
Durbin-Watson stat	0.725787	Prob(F-statistic)		0.007424

กรณีดัชนีผลผลิตพืชผลเป็นตัวแปรอิสระ และปริมาณการส่งออกข้าวหอมมะลิเป็นตัวแปรตาม

Dependent Variable: LN\_RICE  
 Method: Least Squares  
 Date: 04/20/09 Time: 10:32  
 Sample: 1 84  
 Included observations: 84

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.510992	0.936494	10.15596	0.0000
LN_CROP	0.494058	0.179955	2.745456	0.0074
R-squared	0.084183	Mean dependent var		12.07715
Adjusted R-squared	0.073014	S.D. dependent var		0.552444
S.E. of regression	0.531893	Akaike info criterion		1.598774
Sum squared resid	23.19866	Schwarz criterion		1.656650
Log likelihood	-65.14850	F-statistic		7.537530
Durbin-Watson stat	0.351964	Prob(F-statistic)		0.007424

ผลการทดสอบความนิ่งของส่วนที่เหลือ (Residual) จากสมการถดถอยในการ  
ทดสอบ Cointegration โดยการทดสอบ Unit Root ด้วยวิธีการ ADF

กรณีปริมาณการส่งออกข้าวหอมมะลิเป็นตัวแปรอิสระ และดัชนีผลผลิตพืชผลเป็นตัวแปรตาม

Null Hypothesis: ERROR has a unit root

Exogenous: None

Lag Length: 1 (Fixed)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.802871	0.0000
Test critical values:		
1% level	-2.593468	
5% level	-1.944811	
10% level	-1.614175	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ERROR)

Method: Least Squares

Date: 04/20/09 Time: 10:30

Sample (adjusted): 3 84

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ERROR(-1)	-0.474565	0.098809	-4.802871	0.0000
D(ERROR(-1))	0.232873	0.111568	2.087283	0.0400

R-squared	0.223984	Mean dependent var	0.002803
Adjusted R-squared	0.214284	S.D. dependent var	0.266794
S.E. of regression	0.236488	Akaike info criterion	-0.021753
Sum squared resid	4.474116	Schwarz criterion	0.036948
Log likelihood	2.891870	Durbin-Watson stat	2.061765

**กรณีดัชนีผลผลิตพืชผลเป็นตัวแปรอิสระ และปริมาณการส่งออกข้าวหอมมะลิเป็นตัวแปรตาม**

Null Hypothesis: ERROR1 has a unit root

Exogenous: None

Lag Length: 1 (Fixed)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.882964	0.0000
Test critical values:		
1% level	-2.593468	
5% level	-1.944811	
10% level	-1.614175	

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

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(ERROR1)

Method: Least Squares

Date: 04/20/09 Time: 10:33

Sample (adjusted): 3 84

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ERROR1(-1)	-0.370549	0.062987	-5.882964	0.0000
D(ERROR1(-1))	-0.245384	0.088439	-2.774622	0.0069

R-squared	0.347791	Mean dependent var	0.023724
Adjusted R-squared	0.339638	S.D. dependent var	0.306516
S.E. of regression	0.249083	Akaike info criterion	0.082025
Sum squared resid	4.963381	Schwarz criterion	0.140726
Log likelihood	-1.363043	Durbin-Watson stat	2.058142

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### ผลการทดสอบความสัมพันธ์เชิงดุลยภาพในระยะสั้น (ECM)

กรณีปริมาณการส่งออกข้าวหอมมะลิเป็นตัวแปรอิสระ และดัชนีผลผลิตพืชผลเป็นตัวแปรตาม

Dependent Variable: D(LN\_CROP)

Method: Least Squares

Date: 04/20/09 Time: 10:39

Sample (adjusted): 3 84

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.005962	0.026397	-0.225863	0.8219
D(LN_RICE)	0.163110	0.087309	1.868191	0.0655
D(LN_CROP(-1))	0.259498	0.110594	2.346413	0.0215
ERROR(-1)	-0.487645	0.099365	-4.907607	0.0000
R-squared	0.271837	Mean dependent var		0.007475
Adjusted R-squared	0.243831	S.D. dependent var		0.273194
S.E. of regression	0.237564	Akaike info criterion		0.010788
Sum squared resid	4.402045	Schwarz criterion		0.128189
Log likelihood	3.557689	F-statistic		9.706293
Durbin-Watson stat	2.078126	Prob(F-statistic)		0.000016

กรณีดัชนีผลผลิตพืชผลเป็นตัวแปรอิสระ และปริมาณการส่งออกข้าวหอมมะลิเป็นตัวแปรตาม

Dependent Variable: D(LN\_RICE)

Method: Least Squares

Date: 04/21/09 Time: 19:32

Sample (adjusted): 3 84

Included observations: 82 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.043227	0.027282	1.584465	0.1172
D(LN_CROP)	0.327092	0.100793	3.245191	0.0017
D(LN_RICE(-1))	-0.231913	0.089886	-2.580072	0.0118
D(LN_CROP(-1))	0.182979	0.102221	1.790024	0.0774
ERROR1(-1)	-0.366014	0.062548	-5.851729	0.0000
R-squared	0.390231	Mean dependent var		0.027417
Adjusted R-squared	0.358555	S.D. dependent var		0.306002
S.E. of regression	0.245077	Akaike info criterion		0.084553
Sum squared resid	4.624849	Schwarz criterion		0.231304
Log likelihood	1.533338	F-statistic		12.31933
Durbin-Watson stat	2.076742	Prob(F-statistic)		0.000000



### ผลการทดสอบการหาช่วงเวลาที่เหมาะสม

VAR Lag Order Selection Criteria

Endogenous variables: LN\_CROP LN\_RICE

Exogenous variables: C

Date: 04/28/09 Time: 00:20

Sample: 1 84

Included observations: 76

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2.667379	NA	0.003876	0.122826	0.184161	0.147338
1	21.64386	46.70316	0.002271	-0.411680	-0.227675*	-0.338143
2	29.87746	15.38384	0.002033	-0.523091	-0.216416	-0.400529*
3	33.46355	6.511583	0.002056	-0.512199	-0.082853	-0.340611
4	41.35548	13.91471	0.001858	-0.614618	-0.062602	-0.394006
5	44.69439	5.711292	0.001894	-0.597221	0.077465	-0.327584
6	48.20052	5.812809	0.001924	-0.584224	0.213132	-0.265562
7	58.84220	17.08269*	0.001622*	-0.759005*	0.161021	-0.391318
8	61.88450	4.723566	0.001671	-0.733803	0.308894	-0.317091

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

### ผลการทดสอบ Granger Causality

Pairwise Granger Causality Tests

Date: 04/28/09 Time: 00:29

Sample: 1 84

Lags: 7

Null Hypothesis:	Obs	F-Statistic	Probability
LN_RICE does not Granger Cause LN_CROP	77	1.27321	0.27835
LN_CROP does not Granger Cause LN_RICE		4.78933	0.00024

## Pairwise Granger Causality Tests

Date: 04/20/09 Time: 10:47

Sample: 1 84

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
LN_RICE does not Granger Cause LN_CROP	82	1.07383	0.34676
LN_CROP does not Granger Cause LN_RICE		3.76056	0.02765

## Pairwise Granger Causality Tests

Date: 05/03/09 Time: 21:06

Sample: 1 84

Lags: 3

Null Hypothesis:	Obs	F-Statistic	Probability
LN_RICE does not Granger Cause LN_CROP	81	1.32058	0.27413
LN_CROP does not Granger Cause LN_RICE		2.83347	0.04399

## Pairwise Granger Causality Tests

Date: 05/03/09 Time: 21:07

Sample: 1 84

Lags: 4

Null Hypothesis:	Obs	F-Statistic	Probability
LN_RICE does not Granger Cause LN_CROP	80	1.11863	0.35462
LN_CROP does not Granger Cause LN_RICE		4.13060	0.00458

## Pairwise Granger Causality Tests

Date: 05/03/09 Time: 21:07

Sample: 1 84

Lags: 5

Null Hypothesis:	Obs	F-Statistic	Probability
LN_RICE does not Granger Cause LN_CROP	79	1.35998	0.25034
LN_CROP does not Granger Cause LN_RICE		3.98002	0.00317

## ประวัติผู้เขียน

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