

มหาวิทยาลัยเชียงใหม่  
Chiang Mai University

ภาคผนวก

## ภาคผนวก ก

ตารางค่าสถิติทดสอบ unit root ของ Dickey-Fuller

Model	Hypothesis	Test Statistic	Critical values for 95% and 99% Confidence Intervals
$\Delta y_t = \alpha_0 + \gamma y_{t-1} + \alpha_2 t + \varepsilon_t$	$\gamma = 0$	$\tau_\tau$	-3.45 and -4.04
	$\alpha_0 = 0$ given $\gamma = 0$	$\tau_{\alpha\tau}$	3.11 and 3.78
	$\alpha_2 = 0$ given $\gamma = 0$	$\tau_{\beta\tau}$	2.79 and 3.53
	$\gamma = \alpha_2 = 0$	$\phi_3$	6.49 and 8.73
	$\alpha_0 = \gamma = \alpha_2 = 0$	$\phi_2$	4.88 and 6.50
$\Delta y_t = \alpha_0 + \gamma y_{t-1} + \varepsilon_t$	$\gamma = 0$	$\tau_\mu$	-2.89 and -3.51
	$\alpha_0 = 0$ given $\gamma = 0$	$\tau_{\alpha\mu}$	2.54 and 3.22
	$\alpha_0 = \gamma = 0$	$\phi_1$	4.71 and 6.70
$\Delta y_t = \gamma y_{t-1} + \varepsilon_t$	$\gamma = 0$	$\tau$	-1.95 and -2.60

ที่มา : Walter Enders, 1995

หมายเหตุ : Critical values are for a sample size of 100

## ภาคผนวก ข

ตาราง 14 Empirical Cumulative Distribution of  $\tau$ 

Sample Size	Probability of a Smaller Value							
	0.01	0.025	0.05	0.10	0.90	0.95	0.975	0.99
Empirical Distribution of $\tau$ for $(\gamma) = (1)$								
$\ln Y_t = \gamma Y_{t-1} + \epsilon_t$								
25	-2.66	-2.26	-1.95	-1.60	0.92	1.33	1.70	2.16
50	-2.62	-2.25	-1.95	-1.61	0.91	1.31	1.66	2.08
100	-2.60	-2.24	-1.95	-1.61	0.90	1.29	1.64	2.03
250	-2.58	-2.23	-1.95	-1.62	0.89	1.29	1.63	2.01
500	-2.58	-2.23	-1.95	-1.62	0.89	1.28	1.62	2.00
$\infty$	-2.58	-2.23	-1.95	-1.62	0.89	1.28	1.62	2.00
Empirical Distribution of $\tau_\mu$ for $(a_0, \gamma) = (a_0, 1)$								
$\ln Y_t = a_0 + \gamma Y_{t-1} + \epsilon_t$								
25	-3.75	-3.33	-3.00	-2.62	-0.37	0.00	0.34	0.72
50	-3.58	-3.22	-2.93	-2.60	-0.40	-0.03	0.29	0.66
100	-3.51	-3.17	-2.89	-2.58	-0.42	-0.05	0.26	0.63
250	-3.46	-3.14	-2.88	-2.57	-0.42	-0.06	0.24	0.62
500	-3.44	-3.13	-2.87	-2.57	-0.43	-0.07	0.24	0.61
$\infty$	-3.43	-3.12	-2.86	-2.57	-0.44	-0.07	0.03	0.60
Empirical Distribution of $\tau_\tau$ for $(a_0, \gamma, a_2) = (a_0, 1, a_2)$								
$\ln Y_t = a_0 + \gamma Y_{t-1} + a_2 t + \epsilon_t$								
25	-4.38	-3.95	-3.60	-3.24	-1.14	-0.80	-0.50	-0.15
50	-4.15	-3.80	-3.50	-3.18	-1.19	-0.87	-0.58	-0.24
100	-4.04	-3.73	-3.45	-3.15	-1.22	-0.90	-0.62	-0.28
250	-3.99	-3.69	-3.43	-3.13	-1.23	-0.92	-0.64	-0.31
500	-3.98	-3.68	-3.42	-3.13	-1.24	-0.93	-0.65	-0.32
$\infty$	-3.96	-3.66	-3.41	-3.12	-1.25	-0.94	-0.66	-0.33

Empirical Cumulative Distribution of  $\tau$  (continued)

Sample Size	Probability of a Smaller Value			
	0.90	0.95	0.975	0.99
Empirical Distribution of $\tau_{\alpha\mu}$ for $(a_0, \gamma) = (0, 1)$				
in $Y_t = a_0 + \gamma Y_{t-1} + \varepsilon_t$				
25	2.20	2.61	2.97	2.41
50	2.18	2.56	2.89	3.28
100	2.17	2.54	2.86	3.22
250	2.16	2.53	2.84	3.19
500	2.16	2.52	2.83	3.18
$\infty$	2.16	2.52	2.83	3.18
Empirical Distribution of $\tau_{\alpha\tau}$ for				
$(a_0, \gamma, a_2) = (0, 1, a_2)$				
in $Y_t = a_0 + \gamma Y_{t-1} + a_2 t + \varepsilon_t$				
25	2.77	3.20	3.59	4.05
50	2.75	3.14	3.47	3.87
100	2.73	3.11	3.42	3.78
250	2.73	3.09	3.39	3.74
500	2.72	3.08	3.38	3.72
$\infty$	2.72	3.08	3.38	3.71
Empirical Distribution of $\tau_{\beta\tau}$ for				
$(a_0, \gamma, a_2) = (a_0, 1, 0)$				
in $Y_t = a_0 + \gamma Y_{t-1} + a_2 t + \varepsilon_t$				
25	2.39	2.85	3.25	3.74
50	2.38	2.81	3.18	3.60
100	2.38	2.79	3.14	3.53
250	2.38	2.79	3.12	3.49
500	2.38	2.78	3.11	3.48
$\infty$	2.38	2.78	3.11	3.46

Source: Walter Enders, 1995 and David A. Dickey and Wayne A. Fuller, 1981

## ภาคผนวก ก

ตารางแสดงค่าสถิติของ Maximal Eigenvalue and Trace Statistics.

	.80	.90	.95	.975	.99
$\lambda_{\max}$ and $\lambda_{\text{trace}}$ Statistics with trend drift					
n-r			$\lambda_{\max}$		
1	1.699	2.816	3.962	5.332	6.936
2	10.125	12.099	14.036	15.810	17.936
3	16.324	18.697	20.778	23.002	25.521
4	22.113	24.712	27.169	29.335	31.943
5	27.889	30.774	33.178	35.546	38.341
			$\lambda_{\text{trace}}$		
1	1.699	2.816	3.962	5.332	6.936
2	11.164	13.338	15.197	17.299	19.310
3	23.868	26.791	29.509	32.313	35.397
4	40.250	43.964	47.181	50.424	53.792
5	60.215	65.063	68.905	72.140	76.955
$\lambda_{\max}$ and $\lambda_{\text{trace}}$ Statistics without trend or constant					
			$\lambda_{\max}$		
1	4.905	6.691	8.083	9.658	11.576
2	10.666	12.783	14.595	16.403	18.782
3	16.521	18.959	21.279	23.362	26.154
4	22.341	24.917	27.341	29.599	32.616
5	27.953	30.818	33.262	35.700	38.858
			$\lambda_{\text{trace}}$		
1	4.905	6.691	8.083	9.658	11.576
2	13.038	15.583	17.844	19.611	21.962
3	25.445	28.436	31.256	34.062	37.291
4	41.623	45.248	48.419	51.801	55.551
5	61.566	65.956	69.977	73.031	77.911
$\lambda_{\max}$ and $\lambda_{\text{trace}}$ Statistics a constant In the cointegrating vector					
			$\lambda_{\max}$		
1	5.877	7.563	9.094	10.709	12.740
2	11.628	13.781	15.752	17.622	19.834
3	17.474	19.796	21.894	23.836	26.409
4	22.938	25.611	28.167	30.262	33.121
5	28.643	31.592	34.397	36.625	39.672
			$\lambda_{\text{trace}}$		
1	5.877	7.563	9.094	10.709	12.741
2	15.359	17.957	20.168	22.202	24.988
3	28.768	32.093	35.068	37.603	40.198
4	45.635	49.925	53.347	56.449	60.054
5	66.624	71.472	75.328	78.857	82.969

ที่มา: Walter Enders, 1995

## ภาคผนวก ง

## List of Variables

BLOAG	=	Bills, Loans and Overdrafts of Commercial Banks of Agricultural sector
BLOC	=	Bills, Loans and Overdrafts of Commercial Banks of Construction Sector
BLOCOM	=	Bills, Loans and Overdrafts of Commercial Banks of Commerce Sector
BLOI	=	Bills, Loans and Overdrafts of Commercial Banks of Investment
BLOP	=	Bills, Loans and Overdrafts of Commercial Banks classified by purpose
BLOS	=	Bills, Loans and Overdrafts of Commercial Banks of Services Sector
BOT	=	Balance of Trade
CPI	=	Consumer Price Index
DGDP	=	GDP Deflator
DGFC	=	Investment Deflator
DGDPS	=	GDP Deflator of Service Sector
DJSI	=	Dow Jones Stock Index
E	=	Exchange Rate (BHT/USD)
FL	=	Foreign Loans
GFC	=	Gross Fixed Capital Formation
GFCAG	=	Gross Fixed Capital Formation in Agricultural Sector
GFCC	=	Gross Fixed Capital Formation in Construction Sector
GFCCOM	=	Gross Fixed Capital Formation in Commerce Sector
GFCE	=	Gross Fixed Capital Formation in Electricity and Water Supply Sector
GFCM	=	Gross Fixed Capital Formation in Manufacturing Sector
GFCOTHER	=	Gross Fixed Capital Formation in Other Sector
GFCS	=	Gross Fixed Capital Formation in Service Sector
GREV	=	Government Revenue

I	=	Total Investment
IG	=	Government Investment Expenditure
IMLR	=	Minimum Loan Rate
IMLRUS	=	Minimum Loan Rate compare with FED Fund Rate
INF	=	Inflation Rate
INV	=	Inventory
INVSG	=	Investment Saving Gap
IP	=	Private Investment
IUS	=	FED Fund Rate
MDGDP	=	Money Supply compare with GDP Deflator
NCI	=	Net Capital Inflow
NFDI	=	Net Foreign Direct Investment
NFFDI <sub>AG</sub>	=	Net Flow of Foreign Direct Investment in Agricultural Sector
NFFDI <sub>C</sub>	=	Net Flow of Foreign Direct Investment in Construction Sector
NFFDI <sub>COM</sub>	=	Net Flow of Foreign Direct Investment in Commerce Sector
NFFDI <sub>E</sub>	=	Net Flow of Foreign Direct Investment in Electricity and Water Supply Sector
NFFDI <sub>M</sub>	=	Net Flow of Foreign Direct Investment in Manufacturing Sector
NFFDI <sub>S</sub>	=	Net Flow of Foreign Direct Investment in Service Sector
NIKKEI	=	Nikkei Stock Index
PFI	=	Portfolio Foreign Investment
POP	=	Populations
SET	=	Stock Exchange of Thailand Index
W	=	Minimum Wage Rate
WSPI	=	Wholesale Price Index
WSPIAG	=	Wholesale Price Index in Agricultural Sector
WSPIC	=	Wholesale Price Index in Construction Sector
WSPIOIL	=	Wholesale Price Index for Petroleum Products

## ประวัติผู้เขียน

ชื่อ	นายภคพงษ์ พุ่มอากรณ์
วัน เดือน ปี เกิด	18 มิถุนายน พ.ศ. 2519
ประวัติการศึกษา	สำเร็จการศึกษามัธยมศึกษาตอนต้น โรงเรียนสาธิตมหาวิทยาลัยศรีนครินทรวิโรฒ ปทุมวัน ปีการศึกษา 2534 สำเร็จการศึกษามัธยมศึกษาตอนปลาย การศึกษานอกโรงเรียน ปีการศึกษา 2536 สำเร็จการศึกษาปริญญาเศรษฐศาสตรบัณฑิต มหาวิทยาลัยเชียงใหม่ สาขาเศรษฐศาสตร์ ปีการศึกษา 2540
ทุนการศึกษา	ทุนการศึกษาสำหรับนักศึกษาบัณฑิตศึกษาจากเงินค่าบำรุงพิเศษ ประจำปี 2544 คณะเศรษฐศาสตร์ มหาวิทยาลัยเชียงใหม่