Supplementary Materials

Contents

Terms:

Var	Variable
Resid	Residual
Log L	Log likelihood
SIC	Schwarz information criterion
MAXLAG	Max Lag
S.E.	Standard Error
S.D.	Standard Deviation
LR	sequential modified LR test statistic (each test at 5% level)
FPE	Final prediction error
AIC	Akaike information criterion
SC	Schwarz criterion
HQ	Hannan-Quinn information criterion

France

1. Unit Root Test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.103703	0.7041
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

PCO_2 first order difference

Null Hypothesis: D (PCO_2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−7.153480	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.542352	0.5014
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

ECI first order difference

Null Hypothesis: D (ECI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−6.867354	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		1.360879	0.9985
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

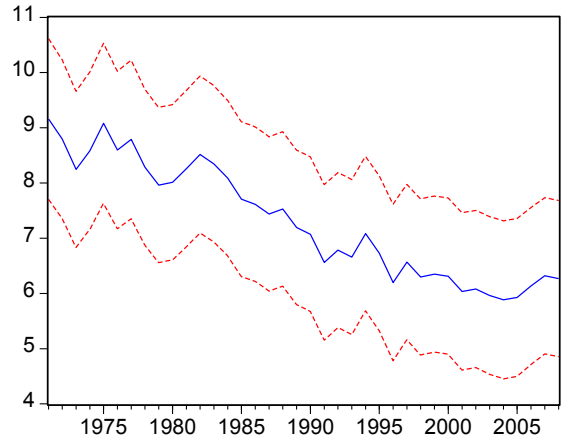
GDPP first order difference

Null Hypothesis: D (GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

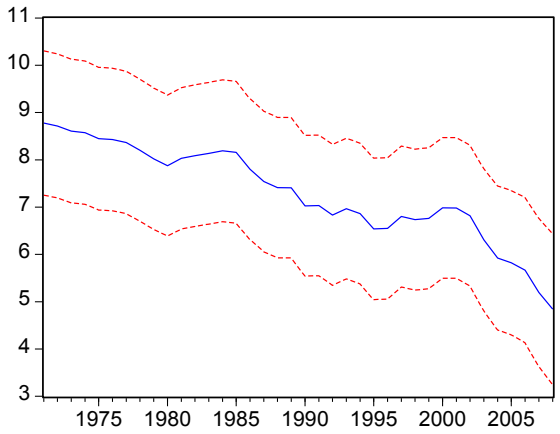
		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−4.012102	0.0037
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

2 Co-Integration Test



PCO_2-ECI



PCO_2-GDPP

3 Granger Causality

Lags 5

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2 ; ECI; GDPP
Exogenous variables: C
Date: 2 September 2012 Time: 22:14
Sample: 1971–2008
Included Observation: 33

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−598.4066	NA	1.36×10^{12}	36.44889	36.58493	36.49466
1	−488.3364	193.4567	2.97×10^{9}	30.32342	30.86761 *	30.50652
2	−479.0554	14.62469	2.97×10^{9}	30.30639	31.25871	30.62682
3	−466.7279	17.18377	2.53×10^{9}	30.10472	31.46518	30.56248
4	−452.5051	17.23978	1.99×10^{9}	29.78819	31.55679	30.38327
5	−433.1493	19.94231 *	1.21×10^{9} *	29.16056 *	31.33730	29.89297 *

* 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

PCO_2-ECI

Pairwise Granger Causality Tests
Date: 2 September 2012 Time: 22:18
Sample: 1971–2008
Lags: 5

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	33	6.65201	0.00065
PCO_2 does not Granger Cause ECI		2.82848	0.04043

PCO_2 - GDPP

Pairwise Granger Causality Tests
Date: 2 September 2012 Time: 22:19
Sample: 1971–2008
Lags: 5

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	33	0.92345	0.48451
PCO_2 does not Granger Cause GDPP		0.52934	0.75166

United Kingdom

Unit Root Test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.693368	0.4262
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

PCO_2 first order difference

Null Hypothesis: D (PCO_2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−7.372454	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.989587	0.2899
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

ECI first order difference

Null Hypothesis: D (ECI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−6.297198	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		1.495017	0.9990
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

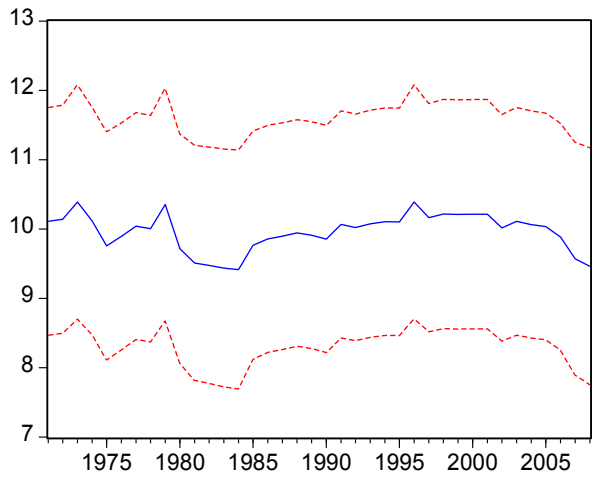
GDPP first order difference

Null Hypothesis: D (GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

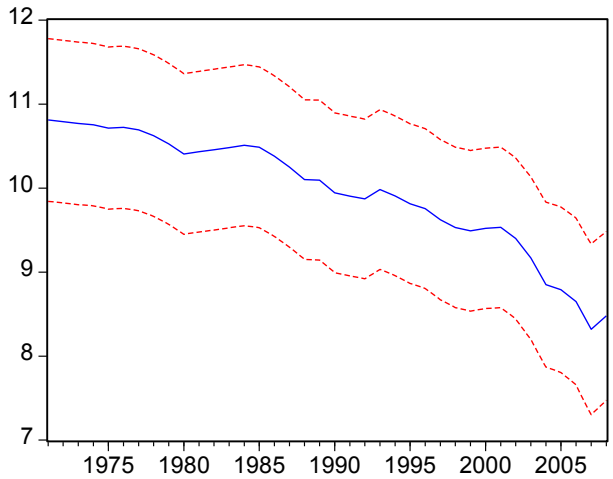
		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−4.531092	0.0009
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

2Co-integration test



PCO_2-ECI



PCO_2-GDPP

3 Granger causality

Lags 1

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2; ECI; GDPP
Exogenous variables: C
Date: 2 October 2012 Time: 09:19
Sample: 1971–2008
Included Observation: 33

Lag	LogL	LR	FPE	AIC	SC
0	−573.4948	NA	3.00×10^{11}	34.93908	35.07512
1	−464.3535	191.8240 *	6.95×10^{8} *	28.86991 *	29.41409 *
2	−460.6724	5.800630	9.75×10^{8}	29.19226	30.14459
3	−459.6070	1.485015	1.64×10^{9}	29.67315	31.03361
4	−449.1703	12.65062	1.62×10^{9}	29.58608	31.35468
5	−443.2243	6.126170	2.23×10^{9}	29.77117	31.94791

* 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

PCO_2-ECI

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 09:33
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	37	2.82977	0.10170
PCO_2 does not Granger Cause ECI		0.01032	0.91968

PCO_2 GDPP

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 09:33
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	37	7.00927	0.01220
PCO_2 does not Granger Cause GDPP		0.00292	0.95720

Italy

1. Unit Root Test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−2.141880	0.2302
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

PCO_2 first order difference

Null Hypothesis: D (PCO2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−6.002688	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.438033	0.5532
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

ECI first order difference

Null Hypothesis: D (ECI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−5.980147	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		1.238030	0.9978
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

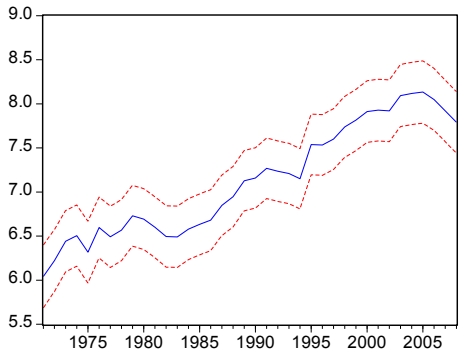
GDPP first order difference

Null Hypothesis: D(GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

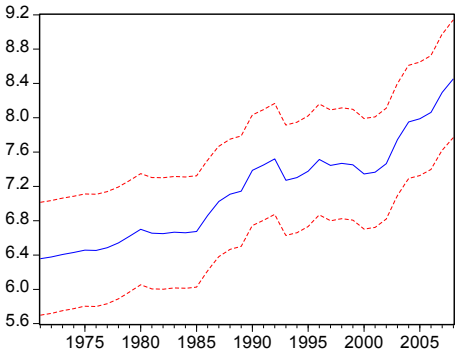
		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−4.253516	0.0019
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

2 Co-integration test



PCO_2-ECI



PCO_2-GDPP

3 Granger causality

Lags 3

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2;ECI;GDPP
Exogenous variables: C
Date: 2 October 2012 Time: 10:11
Sample: 1971–2008
Included Observations: 33

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−545.8974	NA	5.62×10^{10}	33.26651	33.40255	33.31228
1	−440.1585	185.8441	1.60×10^{8}	27.40354	27.94773 *	27.58665
2	−434.2367	9.331358	1.96×10^{8}	27.59010	28.54242	27.91053
3	−416.1383	25.22800 *	1.18×10^{8} *	27.03869 *	28.39915	27.49644 *
4	−407.8327	10.06745	1.33×10^{8}	27.08077	28.84937	27.67585
5	−406.0667	1.819476	2.34×10^{8}	27.51919	29.69593	28.25160

* 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

PCO_2 ECI

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 10:12
Sample: 1971–2008
Lags: 3

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	35	0.91294	0.44730
PCO_2 does not Granger Cause ECI		1.34415	0.28009

PCO_2 GDPP

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 10:12
Sample: 1971–2008
Lags: 3

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	35	0.46991	0.70566
PCO_2 does not Granger Cause GDPP		1.29007	0.29716

Spain

1. Unit Root Test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.867800	0.3433
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

PCO_2 first order difference

Null Hypothesis: D (PCO_2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−5.153212	0.0002
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.289394	0.6242
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

ECI first order difference

Null Hypothesis: D(ECI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−4.212148	0.0021
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		1.410422	0.9987
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Non-stationary

GDPP first order difference

Null Hypothesis: D (GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−3.303194	0.0221
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

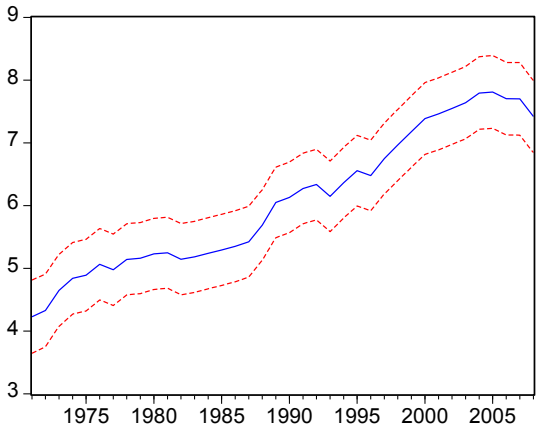
2 Co-integration test

PCO_2-ECI

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 10:18
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
ECI	0.001771	7.31E-05	24.23212	0.0000
C	2.024052	0.173060	11.69568	0.0000

R-squared	0.942233	Mean dependent var	6.073439
Adjusted R-squared	0.940629	S.D. dependent var	1.138317
S.E. of regression	0.277365	Akaike info criterion	0.324232
Sum squared resid	2.769532	Schwarz criterion	0.410421
Log likelihood	−4.160417	F-Statistic	587.1955
Durbin-Watson stat	0.471983	Probability(F-Statistic)	0.000000



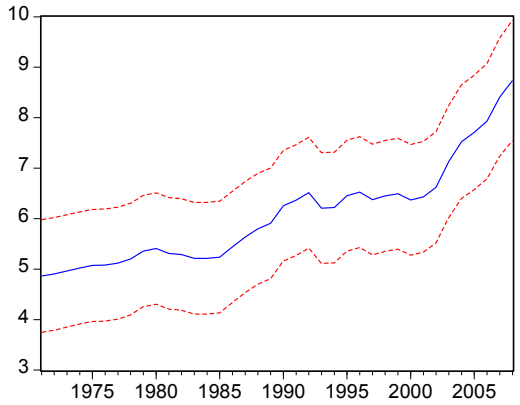
PCO_2-ECI

PCO_2-GDPP

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 10:20
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
GDPP	0.000115	1.02×10^{-5}	11.30863	0.0000
C	4.712016	0.148969	31.63087	0.0000

R-squared	0.780334	Mean dependent var	6.073439
Adjusted R-squared	0.774232	S.D. dependent var	1.138317
S.E. of regression	0.540872	Akaike info criterion	1.659927
Sum squared resid	10.53152	Schwarz criterion	1.746116
Log likelihood	−29.53861	F-Statistic	127.8852
Durbin-Watson stat	0.363029	Probability(F-Statistic)	0.000000



PCO_2-GDPP

3 Granger causality

Lags 1

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2; ECI; GDPP
Exogenous variables: C
Date: 2 October 2012 Time: 10:21
Sample: 1971–2008
Included Observations: 33

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−577.3508	NA	3.78×10^{11}	35.17278	35.30882	35.21855
1	−450.4745	222.9947 *	3.00×10^{8} *	28.02876 *	28.57294 *	28.21186 *
2	−446.8061	5.780434	4.21×10^{8}	28.35189	29.30421	28.67231
3	−441.3167	7.651921	5.42×10^{8}	28.56465	29.92511	29.02240
4	−437.1299	5.074930	7.82×10^{8}	28.85636	30.62496	29.45144
5	−422.0479	15.53898	6.17×10^{8}	28.48775	30.66449	29.22016

* 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

PCO_2-ECI

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 10:29
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	37	10.4269	0.00275
PCO_2 does not Granger Cause ECI		13.7206	0.00075

PCO_2-GDPP

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 10:30
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	37	0.00693	0.93415
PCO_2 does not Granger Cause GDPP		0.01997	0.88845

Sweden

1 unit root test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.369435	0.5865
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

PCO_2 first order difference

Null Hypothesis: D (PCO_2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−7.583188	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−2.457041	0.1339
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

ECI first order difference

Null Hypothesis: D (ECI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−6.749118	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		0.828649	0.9932
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

GDPP first order difference

Null Hypothesis: D (GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−4.314677	0.0016
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

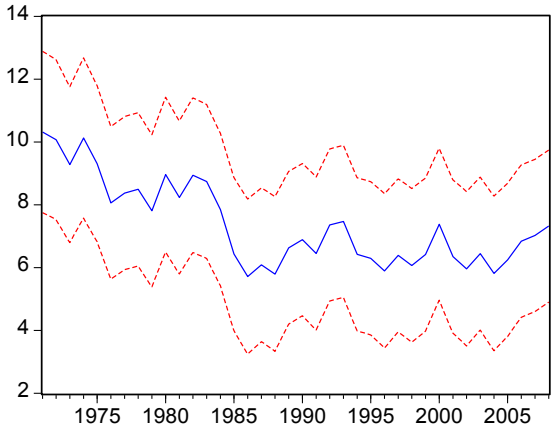
2. Co-Integration Test

PCO_2 - ECI

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 10:52
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
ECI	−0.003221	0.000470	−6.849152	0.0000
C	24.65528	2.530220	9.744325	0.0000

R-squared	0.565799	Mean dependent var	7.376267
Adjusted R-squared	0.553738	S.D. dependent var	1.787189
S.E. of regression	1.193893	Akaike info criterion	3.243512
Sum squared resid	51.31373	Schwarz criterion	3.329701
Log likelihood	−59.62674	F-Statistic	46.91089
Durbin-Watson stat	0.854421	Probability(F-Statistic)	0.000000



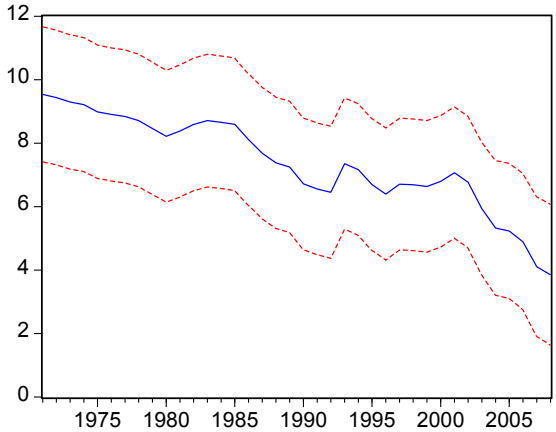
PCO_2-ECI

PCO_2-GDPP

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 10:54
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
GDPP	−0.000119	1.35E-05	−8.795678	0.0000
C	10.10243	0.351424	28.74713	0.0000

R-squared	0.682439	Mean dependent var	7.376267
Adjusted R-squared	0.673618	S.D. dependent var	1.787189
S.E. of regression	1.021019	Akaike info criterion	2.930675
Sum squared resid	37.52927	Schwarz criterion	3.016864
Log likelihood	−53.68283	F-Statistic	77.36396
Durbin-Watson stat	0.388532	Probability (F-Statistic)	0.000000



PCO_2-GDPP

3 Granger causality

Lags 1

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2; ECI; GDPP
Exogenous variables: C
Date: 2 October 2012 Time: 10:56
Sample: 1971–2008
Included Observations: 33

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−628.8678	NA	8.59×10^{12}	38.29502	38.43107	38.34080
1	−531.2645	171.5452 *	4.01×10^{10} *	32.92512	33.46931 *	33.10822 *
2	−526.2273	7.937418	5.18×10^{10}	33.16529	34.11762	33.48572
3	−516.8995	13.00246	5.29×10^{10}	33.14542	34.50588	33.60318
4	−507.4287	11.47970	5.54×10^{10}	33.11689	34.88549	33.71197
5	−494.7374	13.07594	5.06×10^{10}	32.89317 *	35.06991	33.62558

* 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

PCO_2-ECI

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 10:57
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	37	5.16707	0.02946
PCO_2 does not Granger Cause ECI		7.32624	0.01055

PCO_2-GDPP

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 10:57
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	37	2.80925	0.10290
PCO_2 does not Granger Cause GDPP		8.4×10^{-7}	0.99928

Portugal

1. Unit Root Test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.290287	0.6238
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

PCO_2 first order difference

Null Hypothesis: D (PCO_2) has a unit root
Exogenous: Constant
Lag Length: 3 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−2.164541	0.2223
Test critical values:	1% level	−3.646342	
	5% level	−2.954021	
	10% level	−2.615817	

Non-stationary

PCO_2 second order difference

Null Hypothesis: D (PCO_2, 2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−10.13053	0.0000
Test critical values:	1% level	−3.639407	
	5% level	−2.951125	
	10% level	−2.614300	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−0.818831	0.8019
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

ECI first order difference

Null Hypothesis: D (ECI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−5.728709	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		2.737724	1.0000
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

GDPP first order difference

Null Hypothesis: D(GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−3.852015	0.0056
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

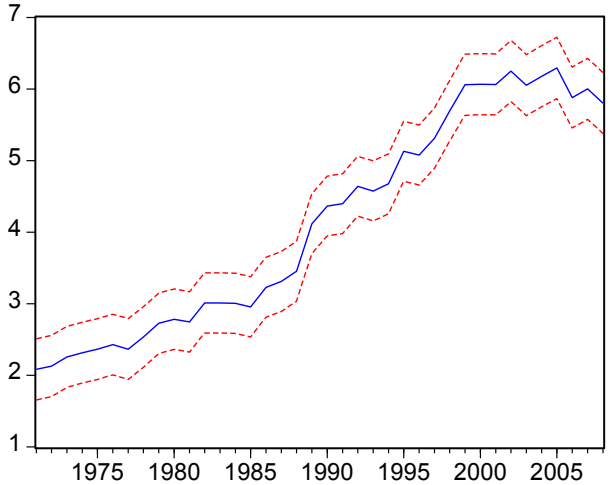
2. Co-Integration Test

PCO_2-ECI

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 11:08
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
ECI	0.002361	5.32×10^{-5}	44.40611	0.0000
C	0.369958	0.091251	4.054266	0.0003

R-squared	0.982071	Mean dependent var	4.140645
Adjusted R-squared	0.981573	S.D. dependent var	1.517369
S.E. of regression	0.205978	Akaike info criterion	−0.270899
Sum squared resid	1.527369	Schwarz criterion	−0.184711
Log likelihood	7.147088	F-Statistic	1971.903
Durbin-Watson stat	0.612275	Probability(F-Statistic)	0.000000



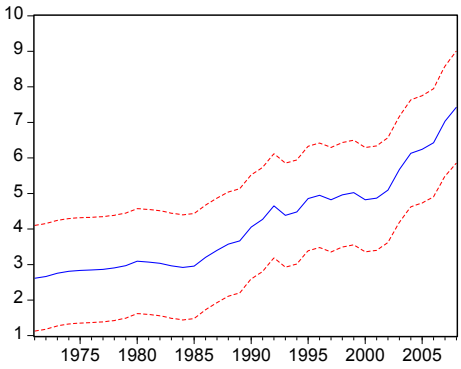
PCO_2-ECI

PCO_2-GDPP

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 11:09
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
GDPP	0.000212	1.88×10^{-5}	11.27927	0.0000
C	2.391017	0.194414	12.29861	0.0000

R-squared	0.779441	Mean dependent var	4.140645
Adjusted R-squared	0.773315	S.D. dependent var	1.517369
S.E. of regression	0.722442	Akaike info criterion	2.238836
Sum squared resid	18.78919	Schwarz criterion	2.325024
Log likelihood	−40.53788	F-Statistic	127.2220
Durbin-Watson stat	0.234657	Probability(F-Statistic)	0.000000



PCO_2-GDPP

Causality

Lags 5

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2; ECI; GDPP
Exogenous variables: C
Date: 2 October 2012 Time: 11:10
Sample: 1971–2008
Included Observations: 33

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−552.7847	NA	8.54×10^{10}	33.68392	33.81997	33.72970
1	−441.1606	196.1878	1.70×10^{8}	27.46428	28.00847 *	27.64738 *
2	−438.6273	3.992008	2.56×10^{8}	27.85620	28.80852	28.17662
3	−430.5530	11.25496	2.82×10^{8}	27.91231	29.27277	28.37006
4	−418.9247	14.09491	2.60×10^{8}	27.75301	29.52161	28.34809
5	−399.0957	20.42994 *	1.54×10^{8} *	27.09671 *	29.27345	27.82911

* 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

PCO_2-ECI

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 11:13
Sample: 1971–2008
Lags: 5

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	33	2.05856	0.10960
PCO_2 does not Granger Cause ECI		1.50857	0.22773

PCO_2-GDPP

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 11:13
Sample: 1971–2008
Lags: 5

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	33	1.99719	0.11887
PCO_2 does not Granger Cause GDPP		1.08321	0.39693

Netherlands

1. Unit Root Test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−2.365042	0.1583
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

PCO_2 first order difference

Null Hypothesis: D (PCO_2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−6.008932	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−2.917065	0.0530
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		2.695907	1.0000
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

GDPP first order difference

Null Hypothesis: D (GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−3.443417	0.0158
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

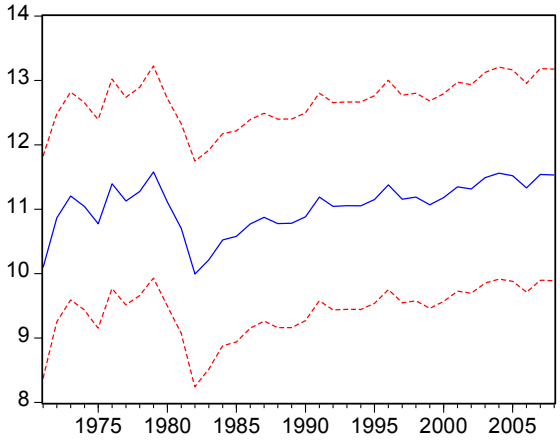
2. Co-Integration Test

PCO_2 - ECI

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 11:16
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
ECI	0.001460	0.000483	3.025925	0.0046
C	4.468209	2.177112	2.052356	0.0475

R-squared	0.202768	Mean dependent var	11.04444
Adjusted R-squared	0.180622	S.D. dependent var	0.877629
S.E. of regression	0.794425	Akaike info criterion	2.428801
Sum squared resid	22.72002	Schwarz criterion	2.514989
Log likelihood	−44.14721	F-Statistic	9.156220
Durbin-Watson stat	0.304269	Probability (F-Statistic)	0.004557



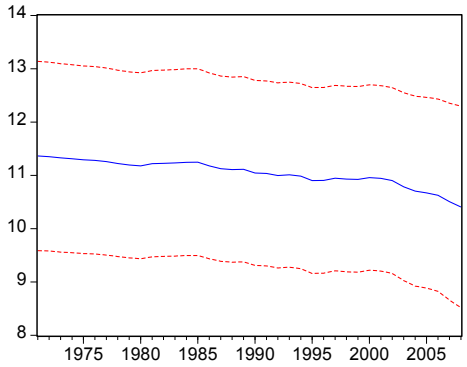
PCO_2-ECI

PCO_2-GDPP

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 11:18
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
GDPP	-1.92×10^{-5}	1.13E-05	−1.696000	0.0985
C	11.42369	0.263238	43.39675	0.0000

R-squared	0.073989	Mean dependent var	11.04444
Adjusted R-squared	0.048266	S.D. dependent var	0.877629
S.E. of regression	0.856187	Akaike info criterion	2.578541
Sum squared resid	26.39004	Schwarz criterion	2.664729
Log likelihood	−46.99227	F-Statistic	2.876417
Durbin-Watson stat	0.610869	Probability (F-Statistic)	0.098519



PCO_2-GDPP

3 Granger causality

Lags 1

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2; ECI; GDPP
Exogenous variables: C
Date: 2 October 2012 Time: 11:19
Sample: 1971–2008
Included Observations: 33

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−600.5156	NA	1.54×10^{12}	36.57671	36.71275	36.62248
1	−511.2697	156.8565 *	1.19×10^{10} *	31.71332 *	32.25750 *	31.89642 *
2	−502.9649	13.08638	1.27×10^{10}	31.75545	32.70777	32.07588
3	−495.7839	10.00986	1.47×10^{10}	31.86569	33.22615	32.32345
4	−485.8078	12.09231	1.50×10^{10}	31.80653	33.57513	32.40161
5	−477.4950	8.564635	1.78×10^{10}	31.84818	34.02492	32.58059

* 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

PCO_2-ECI

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 11:20
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	37	0.47594	0.49495
PCO_2 does not Granger Cause ECI		3.02977	0.09079

PCO_2-GDPP

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 11:20
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	37	1.12933	0.29541
PCO_2 does not Granger Cause GDPP		0.29590	0.59001

Greece

1. Unit Root Test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−2.071901	0.2566
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

PCO_2 first order difference

Null Hypothesis: D (PCO_2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−6.806899	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−1.493872	0.5256
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

ECI first order difference

Null Hypothesis: D (ECI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−5.768574	0.0000
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		1.832680	0.9996
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Non-stationary

GDPP first order difference

Null Hypothesis: D (GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−2.438023	0.1389
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Non-stationary

GDPP second order difference

Null Hypothesis: D (GDPP, 2) has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−5.421465	0.0001
Test critical values:	1% level	−3.646342	
	5% level	−2.954021	
	10% level	−2.615817	

Stationary

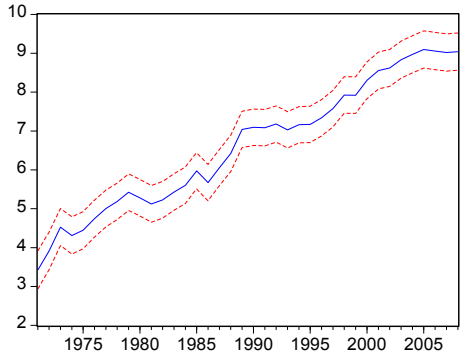
2. Co-Integration Test

PCO_2-ECI

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 13:12
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
ECI	0.003260	7.40×10^{-5}	44.05047	0.0000
C	0.215186	0.150251	1.432181	0.1607

R-squared	0.981785	Mean dependent var	6.626094
Adjusted R-squared	0.981280	S.D. dependent var	1.682529
S.E. of regression	0.230208	Akaike info criterion	−0.048467
Sum squared resid	1.907854	Schwarz criterion	0.037722
Log likelihood	2.920874	F-Statistic	1940.444
Durbin-Watson stat	0.508023	Probability (F-Statistic)	0.000000



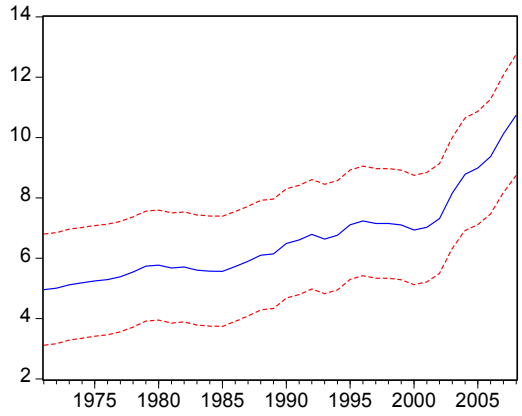
PCO_2-ECI

PCO_2-GDPP

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 13:30
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
GDPP	0.000201	2.06×10^{-5}	9.747957	0.0000
C	4.644222	0.249746	18.59576	0.0000

R-squared	0.725238	Mean dependent var	6.626094
Adjusted R-squared	0.717606	S.D. dependent var	1.682529
S.E. of regression	0.894109	Akaike info criterion	2.665217
Sum squared resid	28.77949	Schwarz criterion	2.751406
Log likelihood	−48.63912	F-Statistic	95.02267
Durbin-Watson stat	0.187295	Probability (F-Statistic)	0.000000



PCO_2-GDPP

3. Granger Causality

Lags 1

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2; ECI; GDPP
Exogenous variables: C
Date: 2 October 2012 Time: 13:35
Sample: 1971–2008
Included Observations: 33

Lag	Log L	LR	FPE	AIC	SC	HQ
0	−547.8776	NA	6.34×10^{10}	33.38652	33.52257	33.43229
1	−434.6727	198.9661	1.15×10^{8} *	27.07107	27.61526 *	27.25417 *
2	−429.9228	7.484675	1.51×10^{8}	27.32866	28.28098	27.64908
3	−416.9041	18.14725 *	1.23×10^{8}	27.08510	28.44556	27.54285
4	−408.4301	10.27160	1.37×10^{8}	27.11697	28.88557	27.71205
5	−398.5295	10.20056	1.48×10^{8}	27.06240 *	29.23913	27.79480

* 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

PCO_2-ECI

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 13:36
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	37	0.09839	0.75569
PCO_2 does not Granger Cause ECI		0.77782	0.38400

PCO_2-GDPP

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 13:36
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	37	0.00297	0.95684
PCO_2 does not Granger Cause GDPP		0.24599	0.62311

Denmark

1. Unit Root Test

PCO_2 Level of sequence

Null Hypothesis: PCO_2 has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−2.638900	0.0945
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Stationary

ECI Level of sequence

Null Hypothesis: ECI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−3.416645	0.0166
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Stationary

GDPP Level of sequence

Null Hypothesis: GDPP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		1.995124	0.9998
Test critical values:	1% level	−3.621023	
	5% level	−2.943427	
	10% level	−2.610263	

Non-stationary

GDPP first order difference

Null Hypothesis: D (GDPP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG = 3)

		t-Statistic	Probability
Augmented Dickey-Fuller test statistic		−3.723685	0.0078
Test critical values:	1% level	−3.626784	
	5% level	−2.945842	
	10% level	−2.611531	

Stationary

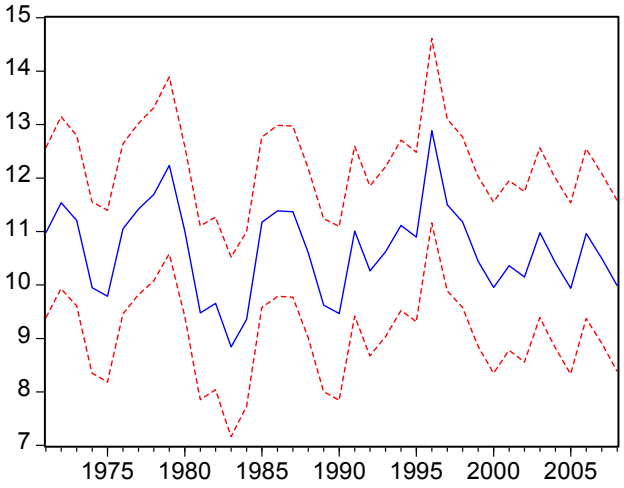
2. Co-Integration Test

PCO_2-ECI

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 13:44
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
ECI	0.004315	0.000654	6.598465	0.0000
C	−5.108639	2.392720	−2.135076	0.0396

R-squared	0.547396	Mean dependent var	10.65740
Adjusted R-squared	0.534824	S.D. dependent var	1.147387
S.E. of regression	0.782562	Akaike info criterion	2.398709
Sum squared resid	22.04653	Schwarz criterion	2.484898
Log likelihood	−43.57547	F-Statistic	43.53974
Durbin-Watson stat	0.270355	Probability (F-Statistic)	0.000000



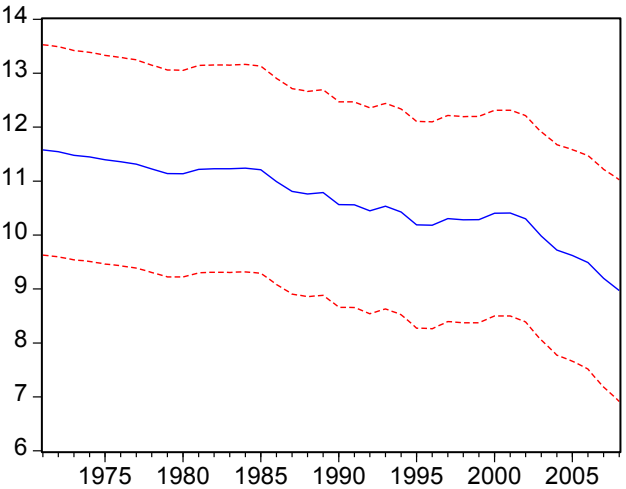
PCO_2-ECI

PCO_2-GDPP

Dependent Variable: PCO_2
Method: Least Squares
Date: 2 October 2012 Time: 13:45
Sample: 1971–2008
Included Observations: 38

Variable	Coefficient	Standard Error	t-Statistic	Probability
GDPP	-4.46×10^{-5}	1.02×10^{-5}	−4.379815	0.0001
C	11.74449	0.291263	40.32268	0.0000

R-squared	0.347623	Mean dependent var	10.65740
Adjusted R-squared	0.329501	S.D. dependent var	1.147387
S.E. of regression	0.939527	Akaike info criterion	2.764315
Sum squared resid	31.77758	Schwarz criterion	2.850504
Log likelihood	−50.52199	F-Statistic	19.18278
Durbin-Watson stat	1.200443	Probability (F-Statistic)	0.000098



PCO_2-GDPP

3. Granger Causality

Lags 1

VAR Lag Order Selection Criteria
Endogenous variables: PCO_2; ECI; GDPP
Exogenous variables: C
Date: 2 October 2012 Time: 13:51
Sample: 1971–2008
Included Observations: 33

Lag	Log L	LR	FPE	AIC	SC	HQ
0	−601.8648	NA	1.67×10^{12}	36.65847	36.79452	36.70425
1	−530.6301	125.2003 *	3.86×10^{10}	32.88667	33.43086 *	33.06978 *
2	−520.1076	16.58092	3.58×10^{10} *	32.79440	33.74672	33.11483
3	−514.1123	8.357110	4.46×10^{10}	32.97650	34.33696	33.43426
4	−506.4702	9.263178	5.23×10^{10}	33.05880	34.82740	33.65388
5	−492.9842	13.89460	4.55×10^{10}	32.78692 *	34.96366	33.51933

* 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

PCO_2-ECI

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 13:54
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
ECI does not Granger Cause PCO_2	37	4.89681	0.03372
PCO_2 does not Granger Cause ECI		0.09204	0.76345

PCO_2-GDPP

Pairwise Granger Causality Tests
Date: 2 October 2012 Time: 13:54
Sample: 1971–2008
Lags: 1

Null Hypothesis:	Observations	F-Statistic	Probability
GDPP does not Granger Cause PCO_2	37	6.99012	0.01231
PCO_2 does not Granger Cause GDPP		0.03004	0.86342