1. **The Dataset:** Definition of the variable

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **Definition** | | **Source** | |
| **GDP** | Gross Domestic Product | | World Development Indicators | |
| **GNP** | Gross National Product | | World Development Indicators | |
| **GDI** | Gross Disposable Income | | GNP + | |
| **C** | Total Consumption | | GDI - | |
|  |  |  |  |  |

**Notes:**

1. All the variables are calculated in real per capita terms (in 2010 U.S. dollars)
2. ToT = Terms of Trade, sourced from the World Bank Development Indicators
3. GNS = Gross National Savings, sourced from the World Bank Development Indicators
4. **Tables**

**TABLE 1:** *International Risk Sharing Estimates through Various Smoothing Channels*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Channel** | **1986-2018** | | **1986-1993** | | **1994-1999** | | **2000-2018** | |
| **SSCA** | **DPVAR** | **SSCA** | **DPVAR** | **SSCA** | **DPVAR** | **SSCA** | **DPVAR** |
| **CAP** | **0.1461** | **0.1148** | **0.1406** | **-0.1197** | **0.165** | **-0.3707** | **0.0477** | **-0.3057** |
| (0.0979) | (0.1032) | (0.2101) | (0.2587) | (0.2339) | (0.0579) | (0.1728) | (0.1739) |
| **FIS** | **0.0291** | **-0.0316** | **0.079** | **-0.0918** | **-0.0495** | **0.0538** | **0.0525** | **-0.1094** |
| (0.0674) | (0.0658) | (0.1030) | (0.0854) | (0.1817) | (0.1722) | (0.1501) | (0.1652) |
| **CRE** | **0.1522** | **0.1959** | **0.1277** | **0.4488** | **-0.0709** | **0.0868** | **0.4585** | **0.3955** |
| (0.1482) | (0.0906) | (0.2517) | (0.2161) | (0.1962) | (0.0247) | (0.3136) | (0.1801) |
| **UNS** | **0.6761** | **0.7209** | **0.7236** | **0.7627** | **0.8845** | **1.2301** | **0.455** | **1.0196** |
|

*Source: Author’s elaboration*

**Notes:**

a. Static Smoothing Channel Approach (SSCA) refers the estimation of the system of equations (4) using Generalized Least Squares and fixed effects modeling and auto-correlated AR (1) errors; Dynamic Panel VAR (DPVAR) refers to the estimation of equation (8), impact responses to GDP shock (impact GDP change =100)

b. “CAP”, “FIS”, “CRE” and “UNS” denotes respectively amounts smoothed through the capital market channel, fiscal channel, credit market channel and the amount of unsmoothed shocks.

c. Standard errors are reported in parentheses

**TABLE 2:***Impulse Responses to Output Shock, CEMAC, 1986- 2018*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | GDP | CAP | FIS | CRE |
| **0** | **1.0000** | **0.1148** | **-0.0316** | **0.1959** |
|  | (0.005) | (0.103) | (0.065) | (0.090) |
| **1** | **0.1082** | **0.0124** | **-0.0038** | **0.0194** |
|  | (0.005) | (0.011) | (0.007) | (0.015) |
| **2** | **0.0331** | **0.0074** | **0.0138** | **-0.0052** |
|  | (0.008) | (0.011) | (0.007) | (0.015) |
| **3** | **0.0287** | **-0.0038** | **-0.0055** | **0.0102** |
|  | (0.008) | (0.010) | (0.007) | (0.014) |
| **4** | **0.0143** | **-0.0004** | **0.0025** | **0.0006** |
|  | (0.006) | (0.005) | (0.002) | (0.005) |

*Source: Author’s elaboration*

**Notes:**

a. Standard errors are reported in parentheses.

b. “CAP”, “FIS”, “CRE” denote respectively the amount of shocks smoothed by capital markets, fiscal transfers and credit markets channels, “Cum” denotes cumulative responses to GDP shock.

**TABLE 3:** *Comparison of Smoothing Channels Estimates for CEMAC*

*(% of total shock to output)*

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **CAP** | **14.00** | **14.61** | **11.48** |
|  | (0.95) | (0.09) | (0.10) |
| **FIS** | **2.00** | **2.91** | **-3.16** |
|  | (0.56) | (0.06) | (0.06) |
| **CRE** | **8.00** | **15.22** | **19.59** |
|  | (0.54) | (0.14) | (0.09) |
| **UNS** | **85** | **67.61** | **72.09** |
|  |  |  |  |

*Source: Author’s elaboration following the description in the notes*

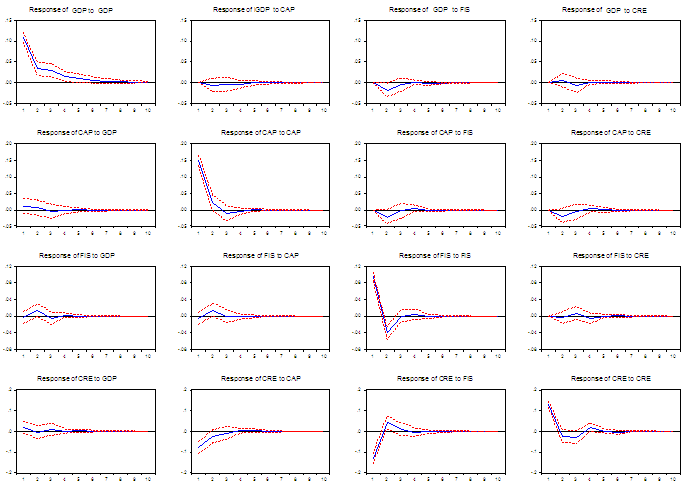
**Notes:**

a. Yehoue (2005) analyzes international risk sharing for CEMAC from 1980 to 2000.T-statistics are in parentheses

b. Static smoothing channel approach for CEMAC from 1986 to 2018. Standard errors are in parentheses

c. Dynamic panel VAR for CEMAC from 1986 to 2018, impact responses to GDP shock (impact GDP change = 100). Standard errors are in parentheses

1. **Graphs**

****

**GRAPH1:** *Impulse ResponsesFunctions of Output and Smoothing Channels within CEMAC, 1986-2018*

**Notes:**

a. Graph 1 reports impulse responses with two standard errors bands (at 95% probability) over 10 years in the system with SR restrictions. The scale of all the graphs in each column is the same.

b. Standard errors are reported in parentheses.

**GRAPH 2:***Dynamic Risk Sharing Through Different Smoothing Channels*

*(% of total shock to output)*

**Notes:**

1. Estimates reported for CEMAC are obtained using dynamic panel VAR (Impact GDP change=100)
2. Estimates reported for OECD and the US are sourced from Asdrubali and Kim (2004), and obtained using dynamic panel VAR. (Impact GDP c hange = 100 and Impact GSP change = 100, respectively)
3. **Supplementary Material**

**I-UNIT ROOT TESTS**

**GDP (Gross domestic product) is I(1)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: Unit root (individual unit root process) | | | | |
| Series: LNGDP | |  |  |  |
| Date: 12/31/19 Time: 06:52 | | |  |  |
| Sample: 1986 2018 | | |  |  |
| Exogenous variables: None | | |  |  |
| Automatic selection of maximum lags | | | |  |
| Automatic lag length selection based on AIC: 0 to 1 | | | | |
| Total number of observations: 190 | | | |  |
| Cross-sections included: 6 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Method | |  | Statistic | Prob.\*\* |
| ADF - Fisher Chi-square | | | 5.55340 | 0.9369 |
| ADF - Choi Z-stat | | | 1.28294 | 0.9002 |
|  |  |  |  |  |
|  |  |  |  |  |
| \*\* Probabilities for Fisher tests are computed using an asymptotic Chi | | | | |
| -square distribution. All other tests assume asymptotic normality. | | | | |
|  |  |  |  |  |
| Intermediate ADF test results LNGDP | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross |  |  |  |  |
| section | Prob. | Lag | Max Lag | Obs |
| Cameroon | 0.6770 | 1 | 7 | 31 |
| C.A.R | 0.7222 | 0 | 7 | 32 |
| Chad | 0.9085 | 0 | 7 | 32 |
| Congo | 0.4464 | 0 | 7 | 32 |
| Eq. Guinea | 0.9009 | 1 | 7 | 31 |
| Gabon | 0.3485 | 0 | 7 | 32 |
|  |  |  |  |  |
|  |  |  |  |  |

**Probability > 5% >>>>>> we cannot reject Null hypothesis that GDP has unit root at level**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: Unit root (individual unit root process) | | | | |
| Series: D(LNGDP) | | |  |  |
| Date: 12/31/19 Time: 06:53 | | |  |  |
| Sample: 1986 2018 | | |  |  |
| Exogenous variables: None | | |  |  |
| Automatic selection of maximum lags | | | |  |
| Automatic lag length selection based on AIC: 0 to 6 | | | | |
| Total number of observations: 180 | | | |  |
| Cross-sections included: 6 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Method | |  | Statistic | Prob.\*\* |
| ADF - Fisher Chi-square | | | 132.097 | 0.0000 |
| ADF - Choi Z-stat | | | -9.02976 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| \*\* Probabilities for Fisher tests are computed using an asymptotic Chi | | | | |
| -square distribution. All other tests assume asymptotic normality. | | | | |
|  |  |  |  |  |
| Intermediate ADF test results D(LNGDP) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross |  |  |  |  |
| section | Prob. | Lag | Max Lag | Obs |
| Cameroon | 0.0221 | 0 | 7 | 31 |
| C.A.R | 0.0000 | 0 | 7 | 31 |
| Chad | 0.0000 | 0 | 7 | 31 |
| Congo | 0.0892 | 6 | 7 | 25 |
| Eq. Guinea | 0.0078 | 0 | 7 | 31 |
| Gabon | 0.0000 | 0 | 7 | 31 |
|  |  |  |  |  |
|  |  |  |  |  |

**Probability < 5% >>>>>> we reject Null hypothesis that GDP has unit root at first difference**

**GNP (Gross national product) is I(1)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: Unit root (individual unit root process) | | | | |
| Series: LNGNP | |  |  |  |
| Date: 12/31/19 Time: 06:54 | | |  |  |
| Sample: 1986 2018 | | |  |  |
| Exogenous variables: None | | |  |  |
| Automatic selection of maximum lags | | | |  |
| Automatic lag length selection based on AIC: 0 to 4 | | | | |
| Total number of observations: 186 | | | |  |
| Cross-sections included: 6 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Method | |  | Statistic | Prob.\*\* |
| ADF - Fisher Chi-square | | | 4.65552 | 0.9685 |
| ADF - Choi Z-stat | | | 1.69520 | 0.9550 |
|  |  |  |  |  |
|  |  |  |  |  |
| \*\* Probabilities for Fisher tests are computed using an asymptotic Chi | | | | |
| -square distribution. All other tests assume asymptotic normality. | | | | |
|  |  |  |  |  |
| Intermediate ADF test results LNGNP | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross |  |  |  |  |
| section | Prob. | Lag | Max Lag | Obs |
| Cameroon | 0.6739 | 1 | 7 | 31 |
| C.A.R | 0.7984 | 0 | 7 | 32 |
| Chad | 0.8628 | 4 | 7 | 28 |
| Congo | 0.5138 | 0 | 7 | 32 |
| Eq. Guinea | 0.9738 | 0 | 7 | 32 |
| Gabon | 0.4198 | 0 | 7 | 31 |
|  |  |  |  |  |
|  |  |  |  |  |
| **Probability > 5% >>>>>> we cannot reject Null hypothesis that GNP has unit root at level**  Null Hypothesis: Unit root (individual unit root process) | | | | |
| Series: D(LNGNP) | | |  |  |
| Date: 12/31/19 Time: 06:55 | | |  |  |
| Sample: 1986 2018 | | |  |  |
| Exogenous variables: None | | |  |  |
| Automatic selection of maximum lags | | | |  |
| Automatic lag length selection based on AIC: 0 to 4 | | | | |
| Total number of observations: 181 | | | |  |
| Cross-sections included: 6 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Method | |  | Statistic | Prob.\*\* |
| ADF - Fisher Chi-square | | | 124.683 | 0.0000 |
| ADF - Choi Z-stat | | | -9.10615 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| \*\* Probabilities for Fisher tests are computed using an asymptotic Chi | | | | |
| -square distribution. All other tests assume asymptotic normality. | | | | |
|  |  |  |  |  |
| Intermediate ADF test results D(LNGNP) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross |  |  |  |  |
| section | Prob. | Lag | Max Lag | Obs |
| Cameroon | 0.0269 | 0 | 7 | 31 |
| C.A.R | 0.0000 | 0 | 7 | 31 |
| Chad | 0.0437 | 4 | 7 | 27 |
| Congo | 0.0001 | 0 | 7 | 31 |
| Eq. Guinea | 0.0002 | 0 | 7 | 31 |
| Gabon | 0.0000 | 0 | 7 | 30 |
|  |  |  |  |  |
|  |  |  |  |  |

**Probability < 5% >>>>>> we reject Null hypothesis that GNP has unit root at first difference**

**GDI (Gross disposable income) is I(1)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: Unit root (individual unit root process) | | | | |
| Series: LNGDI | |  |  |  |
| Date: 12/31/19 Time: 06:57 | | |  |  |
| Sample: 1986 2018 | | |  |  |
| Exogenous variables: None | | |  |  |
| Automatic selection of maximum lags | | | |  |
| Automatic lag length selection based on AIC: 0 to 1 | | | | |
| Total number of observations: 191 | | | |  |
| Cross-sections included: 6 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Method | |  | Statistic | Prob.\*\* |
| ADF - Fisher Chi-square | | | 6.65713 | 0.8794 |
| ADF - Choi Z-stat | | | 0.95882 | 0.8312 |
|  |  |  |  |  |
|  |  |  |  |  |
| \*\* Probabilities for Fisher tests are computed using an asymptotic Chi | | | | |
| -square distribution. All other tests assume asymptotic normality. | | | | |
|  |  |  |  |  |
| Intermediate ADF test results LNGDI | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross |  |  |  |  |
| section | Prob. | Lag | Max Lag | Obs |
| Cameroon | 0.4550 | 0 | 7 | 32 |
| C.A.R | 0.6709 | 0 | 7 | 32 |
| Chad | 0.8281 | 1 | 7 | 31 |
| Congo | 0.5368 | 0 | 7 | 32 |
| Eq. Guinea | 0.9407 | 0 | 7 | 32 |
| Gabon | 0.2808 | 0 | 7 | 32 |
|  |  |  |  |  |
|  |  |  |  |  |

**Probability > 5% >>>>>> we cannot reject Null hypothesis that GDI has unit root at level**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: Unit root (individual unit root process) | | | | |
| Series: D(LNGDI) | | |  |  |
| Date: 12/31/19 Time: 06:58 | | |  |  |
| Sample: 1986 2018 | | |  |  |
| Exogenous variables: None | | |  |  |
| Automatic selection of maximum lags | | | |  |
| Automatic lag length selection based on AIC: 0 to 7 | | | | |
| Total number of observations: 178 | | | |  |
| Cross-sections included: 6 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Method | |  | Statistic | Prob.\*\* |
| ADF - Fisher Chi-square | | | 108.839 | 0.0000 |
| ADF - Choi Z-stat | | | -8.57534 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| \*\* Probabilities for Fisher tests are computed using an asymptotic Chi | | | | |
| -square distribution. All other tests assume asymptotic normality. | | | | |
|  |  |  |  |  |
| Intermediate ADF test results D(LNGDI) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross |  |  |  |  |
| section | Prob. | Lag | Max Lag | Obs |
| Cameroon | 0.0197 | 1 | 7 | 30 |
| C.A.R | 0.0000 | 0 | 7 | 31 |
| Chad | 0.0001 | 0 | 7 | 31 |
| Congo | 0.0000 | 0 | 7 | 31 |
| Eq. Guinea | 0.0000 | 0 | 7 | 31 |
| Gabon | 0.0404 | 7 | 7 | 24 |
|  |  |  |  |  |
|  |  |  |  |  |

**Probability < 5% >>>>>> we reject Null hypothesis that GDI has unit root at first difference**

**LNC (consumption) is I(1)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: Unit root (individual unit root process) | | | | |
| Series: LNC | |  |  |  |
| Date: 12/31/19 Time: 07:00 | | |  |  |
| Sample: 1986 2018 | | |  |  |
| Exogenous variables: None | | |  |  |
| Automatic selection of maximum lags | | | |  |
| Automatic lag length selection based on AIC: 0 to 2 | | | | |
| Total number of observations: 185 | | | |  |
| Cross-sections included: 6 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Method | |  | Statistic | Prob.\*\* |
| ADF - Fisher Chi-square | | | 7.15961 | 0.8469 |
| ADF - Choi Z-stat | | | 1.27215 | 0.8983 |
|  |  |  |  |  |
|  |  |  |  |  |
| \*\* Probabilities for Fisher tests are computed using an asymptotic Chi | | | | |
| -square distribution. All other tests assume asymptotic normality. | | | | |
|  |  |  |  |  |
| Intermediate ADF test results LNC | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross |  |  |  |  |
| section | Prob. | Lag | Max Lag | Obs |
| Cameroon | 0.5684 | 1 | 7 | 31 |
| C.A.R | 0.7333 | 0 | 7 | 32 |
| Chad | 0.8413 | 2 | 7 | 30 |
| Congo | 0.3811 | 2 | 7 | 30 |
| Eq. Guinea | 0.9924 | 0 | 7 | 32 |
| Gabon | 0.2102 | 2 | 7 | 30 |
|  |  |  |  |  |
|  |  |  |  |  |

**Probability > 5% >>>>>> we cannot reject Null hypothesis that consumption has unit root at level**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: Unit root (individual unit root process) | | | | |
| Series: D(LNC) | |  |  |  |
| Date: 12/31/19 Time: 07:01 | | |  |  |
| Sample: 1986 2018 | | |  |  |
| Exogenous variables: None | | |  |  |
| Automatic selection of maximum lags | | | |  |
| Automatic lag length selection based on AIC: 0 to 3 | | | | |
| Total number of observations: 181 | | | |  |
| Cross-sections included: 6 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Method | |  | Statistic | Prob.\*\* |
| ADF - Fisher Chi-square | | | 147.301 | 0.0000 |
| ADF - Choi Z-stat | | | -10.6166 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| \*\* Probabilities for Fisher tests are computed using an asymptotic Chi | | | | |
| -square distribution. All other tests assume asymptotic normality. | | | | |
|  |  |  |  |  |
| Intermediate ADF test results D(LNC) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross |  |  |  |  |
| section | Prob. | Lag | Max Lag | Obs |
| Cameroon | 0.0012 | 0 | 7 | 31 |
| C.A.R | 0.0000 | 0 | 7 | 31 |
| Chad | 0.0000 | 1 | 7 | 30 |
| Congo | 0.0012 | 3 | 7 | 28 |
| Eq. Guinea | 0.0000 | 0 | 7 | 31 |
| Gabon | 0.0000 | 1 | 7 | 30 |
|  |  |  |  |  |
|  |  |  |  |  |

**Probability < 5% >>>>>> we reject Null hypothesis that consumption has unit root at first difference**

**II- CO-INTEGRATION TEST**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pedroni Residual Cointegration Test | | | | | | |  | |  |
| Series: LNGDP LNGNP LNGDI LNC | | | | | | |  | |  |
| Date: 12/31/19 Time: 07:03 | | | | | | |  | |  |
| Sample: 1986 2018 | | | | |  | |  | |  |
| Included observations: 198 | | | | | | |  | |  |
| Cross-sections included: 6 | | | | | | |  | |  |
| Null Hypothesis: No cointegration | | | | | | |  | |  |
| Trend assumption: No deterministic intercept or trend | | | | | | | | | |
| Automatic lag length selection based on SIC with a max lag of 7 | | | | | | | | | |
| Newey-West automatic bandwidth selection and Bartlett kernel | | | | | | | | | |
|  |  | |  | |  | |  | |  |
|  |  | |  | |  | |  | |  |
| Alternative hypothesis: common AR coefs. (within-dimension) | | | | | | | | | |
|  |  | |  | |  | | Weighted | |  |
|  |  | | Statistic | | Prob. | | Statistic | | Prob. |
| Panel v-Statistic | | | -0.340627 | | 0.6333 | | -1.178051 | | 0.8806 |
| Panel rho-Statistic | | | 1.243522 | | 0.8932 | | -0.654173 | | 0.2565 |
| Panel PP-Statistic | | | 1.400680 | | 0.9193 | | -1.511238 | | 0.0654 |
| Panel ADF-Statistic | | | 0.988235 | | 0.8385 | | -1.122694 | | 0.1308 |
|  |  | |  | |  | |  | |  |
| Alternative hypothesis: individual AR coefs. (between-dimension) | | | | | | | | | |
|  |  | |  | |  | |  | |  |
|  |  | | Statistic | | Prob. | |  | |  |
| Group rho-Statistic | | | -0.818935 | | 0.2064 | |  | |  |
| Group PP-Statistic | | | -2.599626 | | 0.0047 | |  | |  |
| Group ADF-Statistic | | | -2.072096 | | 0.0191 | |  | |  |
|  |  | |  | |  | |  | |  |
|  |  | |  | |  | |  | |  |
|  |  | |  | |  | |  | |  |
| Cross section specific results | | | | | | |  | |  |
|  |  | |  | |  | |  | |  |
|  |  | |  | |  | |  | |  |
| Phillips-Peron results (non-parametric) | | | | | | | | |  |
|  |  | |  | |  | |  | |  |
| Cross ID | AR(1) | | Variance | | HAC | | Bandwidth | | Obs |
| Cameroon | 0.597 | | 0.000181 | | 0.000192 | | 1.00 | | 32 |
| C.A.R | 0.356 | | 0.000190 | | 0.000190 | | 0.00 | | 32 |
| Chad | 0.215 | | 0.006235 | | 0.006125 | | 1.00 | | 32 |
| Congo | 0.679 | | 0.012162 | | 0.012522 | | 1.00 | | 32 |
| Eq. Guinea | 0.822 | | 0.136785 | | 0.110684 | | 3.00 | | 32 |
| Gabon | 0.306 | | 0.001021 | | 0.001025 | | 2.00 | | 31 |
|  |  | |  | |  | |  | |  |
| Augmented Dickey-Fuller results (parametric) | | | | | | | | |  |
|  |  | |  | |  | |  | |  |
| Cross ID | AR(1) | | Variance | | Lag | | Max lag | | Obs |
| Cameroon | 0.720 | | 0.000157 | | 2 | | 7 | | 30 |
| C.A.R | 0.356 | | 0.000190 | | 0 | | 7 | | 32 |
| Chad | 0.215 | | 0.006235 | | 0 | | 7 | | 32 |
| Congo | 0.679 | | 0.012162 | | 0 | | 7 | | 32 |
| Eq. Guinea | 0.822 | | 0.136785 | | 0 | | 7 | | 32 |
| Gabon | 0.306 | | 0.001021 | | 0 | | 7 | | 31 |
|  |  | |  | |  | |  | |  |
|  |  | |  | |  | |  | |  |
|  | |  | |  | |  | |  | | |

**Probability > 5% >>>>>> we cannot reject Null hypothesis of no cointegration**

**III- DYNAMIC PANEL VAR (1986-2018)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |
| Date: 01/01/20 Time: 04:54 | | |  |  |
| Sample (adjusted): 1989 2018 | | |  |  |
| Included observations: 179 after adjustments | | | |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_LNGDP(-1) | 0.296661 | 0.072244 | 0.108962 | 0.018991 |
|  | (0.07609) | (0.10548) | (0.06699) | (0.14183) |
|  | [ 3.89907] | [ 0.68492] | [ 1.62659] | [ 0.13390] |
|  |  |  |  |  |
| D\_LNGDP(-2) | 0.205943 | 0.001286 | -0.048188 | 0.139187 |
|  | (0.07536) | (0.10447) | (0.06635) | (0.14048) |
|  | [ 2.73273] | [ 0.01231] | [-0.72627] | [ 0.99081] |
|  |  |  |  |  |
| CAP(-1) | -0.023536 | 0.062911 | 0.069189 | -0.248231 |
|  | (0.06533) | (0.09057) | (0.05752) | (0.12178) |
|  | [-0.36025] | [ 0.69461] | [ 1.20287] | [-2.03834] |
|  |  |  |  |  |
| CAP(-2) | -0.037294 | -0.100435 | 0.053836 | -0.216217 |
|  | (0.06308) | (0.08744) | (0.05553) | (0.11758) |
|  | [-0.59125] | [-1.14856] | [ 0.96942] | [-1.83893] |
|  |  |  |  |  |
| FIS(-1) | -0.133538 | -0.415302 | -0.465319 | 0.214459 |
|  | (0.12292) | (0.17041) | (0.10822) | (0.22913) |
|  | [-1.08638] | [-2.43714] | [-4.29966] | [ 0.93597] |
|  |  |  |  |  |
| FIS(-2) | -0.170434 | -0.200994 | -0.086019 | -0.171810 |
|  | (0.12454) | (0.17266) | (0.10965) | (0.23215) |
|  | [-1.36847] | [-1.16413] | [-0.78448] | [-0.74007] |
|  |  |  |  |  |
| CRE(-1) | 0.040866 | -0.141855 | -0.030139 | -0.173428 |
|  | (0.06265) | (0.08685) | (0.05516) | (0.11678) |
|  | [ 0.65231] | [-1.63335] | [-0.54643] | [-1.48510] |
|  |  |  |  |  |
| CRE(-2) | -0.065898 | -0.069889 | 0.041939 | -0.281631 |
|  | (0.06618) | (0.09175) | (0.05827) | (0.12336) |
|  | [-0.99572] | [-0.76176] | [ 0.71977] | [-2.28292] |
|  |  |  |  |  |
| C | 0.009525 | -0.004832 | 0.003449 | 0.003424 |
|  | (0.00828) | (0.01147) | (0.00729) | (0.01543) |
|  | [ 1.15076] | [-0.42109] | [ 0.47328] | [ 0.22190] |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.193311 | 0.063309 | 0.192844 | 0.093703 |
| Adj. R-squared | 0.155349 | 0.019230 | 0.154860 | 0.051054 |
| Sum sq. resids | 1.992303 | 3.828940 | 1.544345 | 6.922611 |
| S.E. equation | 0.108256 | 0.150077 | 0.095312 | 0.201795 |
| F-statistic | 5.092256 | 1.436249 | 5.077012 | 2.197058 |
| Log likelihood | 148.5895 | 90.11940 | 171.3843 | 37.11706 |
| Akaike AIC | -1.559659 | -0.906362 | -1.814350 | -0.314157 |
| Schwarz SC | -1.399399 | -0.746102 | -1.654090 | -0.153897 |
| Mean dependent | 0.017783 | -0.006174 | 0.001853 | 0.007858 |
| S.D. dependent | 0.117792 | 0.151541 | 0.103677 | 0.207152 |
|  |  |  |  |  |
|  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 4.05E-08 |  |  |
| Determinant resid covariance | | 3.30E-08 |  |  |
| Log likelihood | | 525.9107 |  |  |
| Akaike information criterion | | -5.473863 |  |  |
| Schwarz criterion | | -4.832825 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Impulse Responses (1986-2018)**



Impulse Response to Cholesky (d.f. adjusted) One S.D. Innovations

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
| Response of D\_LNGDP: |  |  |  |  |
| Period | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 | **0.108256** | 0.000000 | 0.000000 | 0.000000 |
|  | (0.00572) | (0.00000) | (0.00000) | (0.00000) |
| 2 | 0.033128 | -0.006072 | -0.018054 | 0.005342 |
|  | (0.00837) | (0.00837) | (0.00834) | (0.00819) |
| 3 | 0.028791 | -0.004946 | -0.005298 | -0.006994 |
|  | (0.00803) | (0.00854) | (0.00803) | (0.00870) |
| 4 | 0.014322 | -0.004535 | -0.000104 | -0.000159 |
|  | (0.00603) | (0.00458) | (0.00289) | (0.00222) |
|  |  |  |  |  |
|  |  |  |  |  |
| Response of CAP: |  |  |  |  |
| Period | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 | 0.012437 | **0.149561** | 0.000000 | 0.000000 |
|  | (0.01120) | (0.00790) | (0.00000) | (0.00000) |
| 2 | 0.007434 | 0.022472 | -0.020920 | -0.018544 |
|  | (0.01148) | (0.01168) | (0.01161) | (0.01140) |
| 3 | -0.003850 | -0.010336 | -0.001958 | -0.005065 |
|  | (0.01060) | (0.01144) | (0.01078) | (0.01169) |
| 4 | -0.000423 | -0.003403 | 0.005192 | 0.004508 |
|  | (0.00549) | (0.00475) | (0.00502) | (0.00490) |
|  |  |  |  |  |
|  |  |  |  |  |
| Response of FIS: |  |  |  |  |
| Period | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 | -0.003824 | -0.004786 | **0.095115** | 0.000000 |
|  | (0.00712) | (0.00711) | (0.00503) | (0.00000) |
| 2 | 0.013850 | 0.014928 | -0.040311 | -0.003940 |
|  | (0.00782) | (0.00790) | (0.00760) | (0.00721) |
| 3 | -0.005566 | -0.000122 | 0.000368 | 0.007298 |
|  | (0.00750) | (0.00784) | (0.00765) | (0.00800) |
| 4 | 0.002546 | -0.001777 | 0.003856 | -0.005501 |
|  | (0.00259) | (0.00295) | (0.00611) | (0.00587) |
|  |  |  |  |  |
|  |  |  |  |  |
| Response of CRE: |  |  |  |  |
| Period | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 | 0.019442 | -0.078077 | -0.130989 | **0.130726** |
|  | (0.01505) | (0.01443) | (0.01197) | (0.00691) |
| 2 | -0.005223 | -0.024611 | 0.043115 | -0.022671 |
|  | (0.01555) | (0.01584) | (0.01569) | (0.01531) |
| 3 | 0.010220 | -0.007750 | 0.009277 | -0.029025 |
|  | (0.01473) | (0.01562) | (0.01497) | (0.01591) |
| 4 | 0.000631 | 0.002452 | -0.004351 | 0.019538 |
|  | (0.00506) | (0.00556) | (0.01032) | (0.00997) |
|  |  |  |  |  |
|  |  |  |  |  |
| Cholesky Ordering: D\_LNGDP CAP FIS CRE |  |  |  |  |
| Standard Errors: Analytic |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Accumulated Response to Cholesky (d.f. adjusted) One S.D. Innovations**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
| Accumulated Response of D\_LNGDP: |  |  |  |  |
| Period | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 | 0.108256 | 0.000000 | 0.000000 | 0.000000 |
|  | (0.00572) | (0.00000) | (0.00000) | (0.00000) |
| 2 | 0.141384 | -0.006072 | -0.018054 | 0.005342 |
|  | (0.01108) | (0.00837) | (0.00834) | (0.00819) |
| 3 | 0.170176 | -0.011018 | -0.023352 | -0.001651 |
|  | (0.01566) | (0.01363) | (0.01306) | (0.01355) |
| 4 | 0.184497 | -0.015553 | -0.023456 | -0.001810 |
|  | (0.02078) | (0.01739) | (0.01378) | (0.01398) |
|  |  |  |  |  |
|  |  |  |  |  |
| Accumulated Response of CAP: |  |  |  |  |
| Period | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 | 0.012437 | 0.149561 | 0.000000 | 0.000000 |
|  | (0.01120) | (0.00790) | (0.00000) | (0.00000) |
| 2 | 0.019870 | 0.172033 | -0.020920 | -0.018544 |
|  | (0.01718) | (0.01475) | (0.01161) | (0.01140) |
| 3 | 0.016020 | 0.161698 | -0.022878 | -0.023609 |
|  | (0.02041) | (0.01952) | (0.01680) | (0.01750) |
| 4 | 0.015597 | 0.158295 | -0.017686 | -0.019101 |
|  | (0.02364) | (0.02081) | (0.01381) | (0.01423) |
|  |  |  |  |  |
|  |  |  |  |  |
| Accumulated Response of FIS: |  |  |  |  |
| Period | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 | -0.003824 | -0.004786 | 0.095115 | 0.000000 |
|  | (0.00712) | (0.00711) | (0.00503) | (0.00000) |
| 2 | 0.010025 | 0.010142 | 0.054804 | -0.003940 |
|  | (0.00824) | (0.00836) | (0.00785) | (0.00721) |
| 3 | 0.004460 | 0.010020 | 0.055172 | 0.003358 |
|  | (0.00870) | (0.00925) | (0.00832) | (0.00839) |
| 4 | 0.007006 | 0.008242 | 0.059028 | -0.002143 |
|  | (0.00902) | (0.00795) | (0.00512) | (0.00377) |
|  |  |  |  |  |
|  |  |  |  |  |
| Accumulated Response of CRE: |  |  |  |  |
| Period | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 | 0.019442 | -0.078077 | -0.130989 | 0.130726 |
|  | (0.01505) | (0.01443) | (0.01197) | (0.00691) |
| 2 | 0.014219 | -0.102688 | -0.087873 | 0.108054 |
|  | (0.01982) | (0.01934) | (0.01802) | (0.01630) |
| 3 | 0.024439 | -0.110439 | -0.078597 | 0.079029 |
|  | (0.02194) | (0.02238) | (0.02027) | (0.02056) |
| 4 | 0.025071 | -0.107987 | -0.082948 | 0.098568 |
|  | (0.02458) | (0.02197) | (0.01516) | (0.01374) |
|  |  |  |  |  |
|  |  |  |  |  |
| Cholesky Ordering: D\_LNGDP CAP FIS CRE |  |  |  |  |
| Standard Errors: Analytic |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Structural Factorization (1986-2018)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Structural VAR Estimates | | |  |  |
| Date: 01/01/20 Time: 04:54 | | |  |  |
| Sample (adjusted): 1989 2018 | | |  |  |
| Included observations: 179 after adjustments | | | |  |
| Estimation method: method of scoring (analytic derivatives) | | | | |
| Convergence achieved after 8 iterations | | | |  |
| Structural VAR is just-identified | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Model: Ae = Bu where E[uu']=I | | |  |  |
| Restriction Type: short-run text form | | | |  |
| @e1 = C(1)\*@u1 | |  |  |  |
| @e2 = C(2)\*@e1 + C(3)\*@u2 | | |  |  |
| @e3 = C(4)\*@e1 + C(5)\*@e2 + C(6)\*@u3 | | | |  |
| @e4 = C(7)\*@e1 + C(8)\*@e2 + C(9)\*@e3 + C(10)\*@u4 | | | |  |
| Where | |  |  |  |
| @e1 represents D\_LNGDP residuals | | |  |  |
| @e2 represents CAP residuals | | |  |  |
| @e3 represents FIS residuals | | |  |  |
| @e4 represents CRE residuals | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C(2) | 0.114881 | 0.103262 | 1.112525 | 0.2659 |
| C(4) | -0.031650 | 0.065897 | -0.480296 | 0.6310 |
| C(5) | -0.032003 | 0.047534 | -0.673259 | 0.5008 |
| C(7) | 0.195979 | 0.090627 | 2.162480 | 0.0306 |
| C(8) | -0.566114 | 0.065413 | -8.654446 | 0.0000 |
| C(9) | -1.377162 | 0.102727 | -13.40601 | 0.0000 |
| C(1) | 0.108256 | 0.005722 | 18.92089 | 0.0000 |
| C(3) | 0.149561 | 0.007905 | 18.92089 | 0.0000 |
| C(6) | 0.095115 | 0.005027 | 18.92089 | 0.0000 |
| C(10) | 0.130726 | 0.006909 | 18.92089 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Log likelihood | 507.4425 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Estimated A matrix: | | |  |  |
| 1.000000 | 0.000000 | 0.000000 | 0.000000 |  |
| -0.114881 | 1.000000 | 0.000000 | 0.000000 |  |
| 0.031650 | 0.032003 | 1.000000 | 0.000000 |  |
| -0.195979 | 0.566114 | 1.377162 | 1.000000 |  |
| Estimated B matrix: | | |  |  |
| **0.108256** | 0.000000 | 0.000000 | 0.000000 |  |
| 0.000000 | **0.149561** | 0.000000 | 0.000000 |  |
| 0.000000 | 0.000000 | **0.095115** | 0.000000 |  |
| 0.000000 | 0.000000 | 0.000000 | **0.130726** |  |
|  |  |  |  |  |
|  |  |  |  |  |

**IV- DYNAMIC PANEL VAR (1986-1993)**

|  |  |  |
| --- | --- | --- |
| Vector Autoregression Estimates |  |  |
| Date: 01/01/20 Time: 05:31 |  |  |
| Sample (adjusted): 1989 1993 |  |  |
| Included observations: 30 after adjustments |  |
| Standard errors in ( ) & t-statistics in [ ] |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_LNGDP(-1) | 0.090995 | 0.410791 | 0.018578 | 0.110453 |
|  | (0.19649) | (0.27944) | (0.09342) | (0.29886) |
|  | [ 0.46309] | [ 1.47004] | [ 0.19887] | [ 0.36958] |
|  |  |  |  |  |
| D\_LNGDP(-2) | 0.143053 | -0.011214 | -0.054213 | 0.213463 |
|  | (0.21126) | (0.30044) | (0.10044) | (0.32132) |
|  | [ 0.67714] | [-0.03733] | [-0.53977] | [ 0.66433] |
|  |  |  |  |  |
| CAP(-1) | -0.163790 | -0.298696 | -0.048805 | -0.032145 |
|  | (0.14982) | (0.21306) | (0.07123) | (0.22787) |
|  | [-1.09327] | [-1.40194] | [-0.68521] | [-0.14107] |
|  |  |  |  |  |
| CAP(-2) | -0.453269 | -0.263469 | -0.058559 | 0.170049 |
|  | (0.13940) | (0.19825) | (0.06627) | (0.21202) |
|  | [-3.25155] | [-1.32899] | [-0.88360] | [ 0.80203] |
|  |  |  |  |  |
| FIS(-1) | -1.113487 | -0.679399 | -0.537019 | -0.019029 |
|  | (0.54531) | (0.77550) | (0.25925) | (0.82939) |
|  | [-2.04195] | [-0.87608] | [-2.07145] | [-0.02294] |
|  |  |  |  |  |
| FIS(-2) | -0.531382 | -0.268846 | -0.000216 | 0.065881 |
|  | (0.32849) | (0.46715) | (0.15617) | (0.49962) |
|  | [-1.61767] | [-0.57550] | [-0.00138] | [ 0.13186] |
|  |  |  |  |  |
| CRE(-1) | -0.045330 | -0.149213 | 0.063629 | -0.685484 |
|  | (0.17244) | (0.24523) | (0.08198) | (0.26227) |
|  | [-0.26288] | [-0.60846] | [ 0.77615] | [-2.61365] |
|  |  |  |  |  |
| CRE(-2) | -0.078203 | -0.241139 | 0.113021 | -0.299051 |
|  | (0.16754) | (0.23826) | (0.07965) | (0.25482) |
|  | [-0.46678] | [-1.01208] | [ 1.41897] | [-1.17359] |
|  |  |  |  |  |
| C | -0.012504 | 0.006727 | 0.002989 | 0.019014 |
|  | (0.01641) | (0.02333) | (0.00780) | (0.02495) |
|  | [-0.76211] | [ 0.28831] | [ 0.38322] | [ 0.76196] |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.434469 | 0.225035 | 0.443432 | 0.408663 |
| Adj. R-squared | 0.219029 | -0.070189 | 0.231406 | 0.183391 |
| Sum sq. resids | 0.117992 | 0.238637 | 0.026669 | 0.272957 |
| S.E. equation | 0.074958 | 0.106600 | 0.035636 | 0.114009 |
| F-statistic | 2.016658 | 0.762251 | 2.091403 | 1.814091 |
| Log likelihood | 40.50690 | 29.94200 | 62.81373 | 27.92643 |
| Akaike AIC | -2.100460 | -1.396133 | -3.587582 | -1.261762 |
| Schwarz SC | -1.680101 | -0.975774 | -3.167223 | -0.841403 |
| Mean dependent | -0.015286 | 0.004026 | 0.004931 | 0.000242 |
| S.D. dependent | 0.084820 | 0.103045 | 0.040648 | 0.126163 |
|  |  |  |  |  |
|  |  |  |  |  |
| Determinant resid covariance (dof adj.) | 5.83E-10 |  |  |
| Determinant resid covariance | 1.40E-10 |  |  |
| Log likelihood | 170.0648 |  |  |
| Akaike information criterion | -8.937655 |  |  |
| Schwarz criterion | -7.256218 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Structural Factorization (1986-1993)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Structural VAR Estimates | | |  |  |
| Date: 01/01/20 Time: 05:31 | | |  |  |
| Sample (adjusted): 1989 1993 | | |  |  |
| Included observations: 30 after adjustments | | | |  |
| Estimation method: method of scoring (analytic derivatives) | | | | |
| Convergence achieved after 7 iterations | | | |  |
| Structural VAR is just-identified | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Model: Ae = Bu where E[uu']=I | | |  |  |
| Restriction Type: short-run text form | | | |  |
| @e1 = C(1)\*@u1 | |  |  |  |
| @e2 = C(2)\*@e1 + C(3)\*@u2 | | |  |  |
| @e3 = C(4)\*@e1 + C(5)\*@e2 + C(6)\*@u3 | | | |  |
| @e4 = C(7)\*@e1 + C(8)\*@e2 + C(9)\*@e3 + C(10)\*@u4 | | | |  |
| Where | |  |  |  |
| @e1 represents D\_LNGDP residuals | | |  |  |
| @e2 represents CAP residuals | | |  |  |
| @e3 represents FIS residuals | | |  |  |
| @e4 represents CRE residuals | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C(2) | -0.119722 | 0.258725 | -0.462740 | 0.6436 |
| C(4) | -0.091802 | 0.085441 | -1.074458 | 0.2826 |
| C(5) | -0.015470 | 0.060079 | -0.257499 | 0.7968 |
| C(7) | 0.448880 | 0.216149 | 2.076710 | 0.0378 |
| C(8) | -0.195259 | 0.149311 | -1.307732 | 0.1910 |
| C(9) | -1.572797 | 0.453242 | -3.470106 | 0.0005 |
| C(1) | 0.074958 | 0.009677 | 7.745967 | 0.0000 |
| C(3) | 0.106222 | 0.013713 | 7.745967 | 0.0000 |
| C(6) | 0.034954 | 0.004513 | 7.745967 | 0.0000 |
| C(10) | 0.086774 | 0.011202 | 7.745967 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Log likelihood | 148.6643 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Estimated A matrix: | | |  |  |
| 1.000000 | 0.000000 | 0.000000 | 0.000000 |  |
| 0.119722 | 1.000000 | 0.000000 | 0.000000 |  |
| 0.091802 | 0.015470 | 1.000000 | 0.000000 |  |
| -0.448880 | 0.195259 | 1.572797 | 1.000000 |  |
| Estimated B matrix: | | |  |  |
| 0.074958 | 0.000000 | 0.000000 | 0.000000 |  |
| 0.000000 | 0.106222 | 0.000000 | 0.000000 |  |
| 0.000000 | 0.000000 | 0.034954 | 0.000000 |  |
| 0.000000 | 0.000000 | 0.000000 | 0.086774 |  |
|  |  |  |  |  |
|  |  |  |  |  |

**V- DYNAMIC PANEL VAR (1994-1999)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |
| Date: 01/01/20 Time: 05:46 | | |  |  |
| Sample (adjusted): 1997 1999 | | |  |  |
| Included observations: 18 after adjustments | | | |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_LNGDP(-1) | 0.422625 | 0.622856 | -0.027808 | -0.028729 |
|  | (0.25738) | (0.11451) | (0.10481) | (0.11526) |
|  | [ 1.64202] | [ 5.43924] | [-0.26531] | [-0.24926] |
|  |  |  |  |  |
| D\_LNGDP(-2) | -0.213142 | -0.012955 | 0.382962 | 0.408187 |
|  | (0.49156) | (0.21870) | (0.20018) | (0.22012) |
|  | [-0.43360] | [-0.05924] | [ 1.91310] | [ 1.85438] |
|  |  |  |  |  |
| CAP(-1) | 1.045777 | -0.473731 | -0.710010 | -0.753852 |
|  | (0.87700) | (0.39019) | (0.35714) | (0.39272) |
|  | [ 1.19244] | [-1.21411] | [-1.98802] | [-1.91956] |
|  |  |  |  |  |
| CAP(-2) | -1.946452 | -0.972749 | 0.043124 | 0.026901 |
|  | (1.15528) | (0.51399) | (0.47047) | (0.51733) |
|  | [-1.68483] | [-1.89253] | [ 0.09166] | [ 0.05200] |
|  |  |  |  |  |
| FIS(-1) | -0.881483 | 0.425149 | -0.813062 | -0.039608 |
|  | (3.03409) | (1.34990) | (1.23558) | (1.35867) |
|  | [-0.29053] | [ 0.31495] | [-0.65804] | [-0.02915] |
|  |  |  |  |  |
| FIS(-2) | -2.868752 | -0.908342 | 3.344160 | 3.881073 |
|  | (3.80697) | (1.69376) | (1.55032) | (1.70476) |
|  | [-0.75355] | [-0.53629] | [ 2.15708] | [ 2.27661] |
|  |  |  |  |  |
| CRE(-1) | 0.720266 | -0.631876 | 0.612036 | -0.224477 |
|  | (2.61704) | (1.16434) | (1.06574) | (1.17191) |
|  | [ 0.27522] | [-0.54269] | [ 0.57428] | [-0.19155] |
|  |  |  |  |  |
| CRE(-2) | 1.445499 | 0.257762 | -3.370287 | -3.977531 |
|  | (3.51573) | (1.56418) | (1.43172) | (1.57435) |
|  | [ 0.41115] | [ 0.16479] | [-2.35401] | [-2.52647] |
|  |  |  |  |  |
| C | 0.063378 | -0.001820 | -0.015064 | -0.015787 |
|  | (0.05939) | (0.02642) | (0.02419) | (0.02660) |
|  | [ 1.06711] | [-0.06889] | [-0.62282] | [-0.59360] |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.552238 | 0.861450 | 0.667347 | 0.685296 |
| Adj. R-squared | 0.154227 | 0.738294 | 0.371656 | 0.405559 |
| Sum sq. resids | 0.360290 | 0.071317 | 0.059750 | 0.072247 |
| S.E. equation | 0.200081 | 0.089018 | 0.081479 | 0.089596 |
| F-statistic | 1.387496 | 6.994804 | 2.256906 | 2.449789 |
| Log likelihood | 9.660067 | 24.23800 | 25.83076 | 24.12141 |
| Akaike AIC | -0.073341 | -1.693111 | -1.870085 | -1.680156 |
| Schwarz SC | 0.371845 | -1.247925 | -1.424899 | -1.234971 |
| Mean dependent | 0.059158 | 0.020396 | -0.002835 | -0.000252 |
| S.D. dependent | 0.217559 | 0.174008 | 0.102789 | 0.116208 |
|  |  |  |  |  |
|  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 8.46E-11 |  |  |
| Determinant resid covariance | | 5.28E-12 |  |  |
| Log likelihood | | 131.5322 |  |  |
| Akaike information criterion | | -10.61469 |  |  |
| Schwarz criterion | | -8.833950 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Structural Factorization (1994-1999)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Structural VAR Estimates | | |  |  |
| Date: 01/01/20 Time: 05:46 | | |  |  |
| Sample (adjusted): 1997 1999 | | |  |  |
| Included observations: 18 after adjustments | | | |  |
| Estimation method: method of scoring (analytic derivatives) | | | | |
| Convergence achieved after 9 iterations | | | |  |
| Structural VAR is just-identified | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Model: Ae = Bu where E[uu']=I | | |  |  |
| Restriction Type: short-run text form | | | |  |
| @e1 = C(1)\*@u1 | |  |  |  |
| @e2 = C(2)\*@e1 + C(3)\*@u2 | | |  |  |
| @e3 = C(4)\*@e1 + C(5)\*@e2 + C(6)\*@u3 | | | |  |
| @e4 = C(7)\*@e1 + C(8)\*@e2 + C(9)\*@e3 + C(10)\*@u4 | | | |  |
| Where | |  |  |  |
| @e1 represents D\_LNGDP residuals | | |  |  |
| @e2 represents CAP residuals | | |  |  |
| @e3 represents FIS residuals | | |  |  |
| @e4 represents CRE residuals | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C(2) | -0.370784 | 0.057958 | -6.397516 | 0.0000 |
| C(4) | 0.053878 | 0.172252 | 0.312788 | 0.7544 |
| C(5) | 0.005143 | 0.387161 | 0.013283 | 0.9894 |
| C(7) | 0.086827 | 0.024706 | 3.514438 | 0.0004 |
| C(8) | 0.248316 | 0.055380 | 4.483871 | 0.0000 |
| C(9) | 1.081174 | 0.033715 | 32.06817 | 0.0000 |
| C(1) | 0.200081 | 0.033347 | 6.000000 | 0.0000 |
| C(3) | 0.049198 | 0.008200 | 6.000000 | 0.0000 |
| C(6) | 0.080813 | 0.013469 | 6.000000 | 0.0000 |
| C(10) | 0.011559 | 0.001927 | 6.000000 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Log likelihood | 106.5789 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Estimated A matrix: | | |  |  |
| 1.000000 | 0.000000 | 0.000000 | 0.000000 |  |
| 0.370784 | 1.000000 | 0.000000 | 0.000000 |  |
| -0.053878 | -0.005143 | 1.000000 | 0.000000 |  |
| -0.086827 | -0.248316 | -1.081174 | 1.000000 |  |
| Estimated B matrix: | | |  |  |
| 0.200081 | 0.000000 | 0.000000 | 0.000000 |  |
| 0.000000 | 0.049198 | 0.000000 | 0.000000 |  |
| 0.000000 | 0.000000 | 0.080813 | 0.000000 |  |
| 0.000000 | 0.000000 | 0.000000 | 0.011559 |  |
|  |  |  |  |  |
|  |  |  |  |  |

**VI- DYNAMIC PANEL VAR (2000-2018)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |
| Date: 01/01/20 Time: 05:54 | | |  |  |
| Sample (adjusted): 2003 2018 | | |  |  |
| Included observations: 95 after adjustments | | | |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | D\_LNGDP | CAP | FIS | CRE |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_LNGDP(-1) | 0.169951 | -0.449410 | 0.498935 | -0.085959 |
|  | (0.11185) | (0.19273) | (0.17824) | (0.36313) |
|  | [ 1.51942] | [-2.33176] | [ 2.79923] | [-0.23672] |
|  |  |  |  |  |
| D\_LNGDP(-2) | 0.190458 | -0.100697 | 0.001558 | 0.106292 |
|  | (0.10209) | (0.17591) | (0.16268) | (0.33143) |
|  | [ 1.86562] | [-0.57244] | [ 0.00958] | [ 0.32071] |
|  |  |  |  |  |
| CAP(-1) | -0.021569 | 0.411021 | 0.297009 | -0.599697 |
|  | (0.08345) | (0.14379) | (0.13298) | (0.27092) |
|  | [-0.25846] | [ 2.85847] | [ 2.23353] | [-2.21358] |
|  |  |  |  |  |
| CAP(-2) | -0.037193 | 0.071865 | 0.040578 | -0.259299 |
|  | (0.06721) | (0.11582) | (0.10711) | (0.21821) |
|  | [-0.55334] | [ 0.62050] | [ 0.37885] | [-1.18828] |
|  |  |  |  |  |
| FIS(-1) | -0.084692 | -0.135716 | -0.434688 | 0.128782 |
|  | (0.10480) | (0.18058) | (0.16700) | (0.34024) |
|  | [-0.80812] | [-0.75155] | [-2.60289] | [ 0.37851] |
|  |  |  |  |  |
| FIS(-2) | -0.146409 | 0.143276 | -0.010745 | -0.407231 |
|  | (0.10533) | (0.18150) | (0.16785) | (0.34196) |
|  | [-1.38997] | [ 0.78941] | [-0.06401] | [-1.19087] |
|  |  |  |  |  |
| CRE(-1) | 0.059710 | 0.080805 | -0.005502 | -0.234459 |
|  | (0.06034) | (0.10397) | (0.09615) | (0.19589) |
|  | [ 0.98961] | [ 0.77721] | [-0.05723] | [-1.19692] |
|  |  |  |  |  |
| CRE(-2) | -0.047855 | 0.204786 | 0.029406 | -0.384082 |
|  | (0.06272) | (0.10808) | (0.09995) | (0.20363) |
|  | [-0.76295] | [ 1.89479] | [ 0.29421] | [-1.88617] |
|  |  |  |  |  |
| C | 0.006789 | -0.004911 | 0.007987 | -0.009201 |
|  | (0.00864) | (0.01490) | (0.01377) | (0.02806) |
|  | [ 0.78534] | [-0.32970] | [ 0.57983] | [-0.32786] |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.194036 | 0.261458 | 0.296179 | 0.140355 |
| Adj. R-squared | 0.119063 | 0.192757 | 0.230707 | 0.060388 |
| Sum sq. resids | 0.503894 | 1.496092 | 1.279540 | 5.310919 |
| S.E. equation | 0.076546 | 0.131895 | 0.121977 | 0.248505 |
| F-statistic | 2.588067 | 3.805710 | 4.523766 | 1.755158 |
| Log likelihood | 114.0660 | 62.37431 | 69.80119 | 2.196163 |
| Akaike AIC | -2.211916 | -1.123670 | -1.280025 | 0.143239 |
| Schwarz SC | -1.969969 | -0.881723 | -1.038079 | 0.385185 |
| Mean dependent | 0.014806 | -0.030610 | 0.003459 | 0.016207 |
| S.D. dependent | 0.081554 | 0.146801 | 0.139070 | 0.256366 |
|  |  |  |  |  |
|  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 2.53E-08 |  |  |
| Determinant resid covariance | | 1.70E-08 |  |  |
| Log likelihood | | 310.6121 |  |  |
| Akaike information criterion | | -5.781306 |  |  |
| Schwarz criterion | | -4.813522 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Structural Factorization (2000-2018)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Structural VAR Estimates | | |  |  |
| Date: 01/01/20 Time: 05:54 | | |  |  |
| Sample (adjusted): 2003 2018 | | |  |  |
| Included observations: 95 after adjustments | | | |  |
| Estimation method: method of scoring (analytic derivatives) | | | | |
| Convergence achieved after 7 iterations | | | |  |
| Structural VAR is just-identified | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Model: Ae = Bu where E[uu']=I | | |  |  |
| Restriction Type: short-run text form | | | |  |
| @e1 = C(1)\*@u1 | |  |  |  |
| @e2 = C(2)\*@e1 + C(3)\*@u2 | | |  |  |
| @e3 = C(4)\*@e1 + C(5)\*@e2 + C(6)\*@u3 | | | |  |
| @e4 = C(7)\*@e1 + C(8)\*@e2 + C(9)\*@e3 + C(10)\*@u4 | | | |  |
| Where | |  |  |  |
| @e1 represents D\_LNGDP residuals | | |  |  |
| @e2 represents CAP residuals | | |  |  |
| @e3 represents FIS residuals | | |  |  |
| @e4 represents CRE residuals | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C(2) | -0.305784 | 0.173980 | -1.757580 | 0.0788 |
| C(4) | -0.109417 | 0.165219 | -0.662255 | 0.5078 |
| C(5) | -0.084993 | 0.095885 | -0.886402 | 0.3754 |
| C(7) | 0.395556 | 0.180137 | 2.195858 | 0.0281 |
| C(8) | -0.949529 | 0.104733 | -9.066209 | 0.0000 |
| C(9) | -1.402556 | 0.111605 | -12.56718 | 0.0000 |
| C(1) | 0.076546 | 0.005553 | 13.78405 | 0.0000 |
| C(3) | 0.129802 | 0.009417 | 13.78405 | 0.0000 |
| C(6) | 0.121309 | 0.008801 | 13.78405 | 0.0000 |
| C(10) | 0.131958 | 0.009573 | 13.78405 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Log likelihood | 291.7014 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Estimated A matrix: | | |  |  |
| 1.000000 | 0.000000 | 0.000000 | 0.000000 |  |
| 0.305784 | 1.000000 | 0.000000 | 0.000000 |  |
| 0.109417 | 0.084993 | 1.000000 | 0.000000 |  |
| -0.395556 | 0.949529 | 1.402556 | 1.000000 |  |
| Estimated B matrix: | | |  |  |
| 0.076546 | 0.000000 | 0.000000 | 0.000000 |  |
| 0.000000 | 0.129802 | 0.000000 | 0.000000 |  |
| 0.000000 | 0.000000 | 0.121309 | 0.000000 |  |
| 0.000000 | 0.000000 | 0.000000 | 0.131958 |  |
|  |  |  |  |  |
|  |  |  |  |  |

**B- STATIC SMOOTHING CHANNEL APPROACH**

**1986-2018**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CAP | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:30 | | |  |  |
| Sample (adjusted): 1987 2018 | | |  |  |
| Periods included: 32 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (unbalanced) observations: 191 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.010953 | 0.010941 | -1.001125 | 0.3181 |
| D\_LNGDP | 0.146196 | 0.097913 | 1.493121 | 0.1371 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.018668 | Mean dependent var | | -0.008657 |
| Adjusted R-squared | -0.013332 | S.D. dependent var | | 0.148717 |
| S.E. of regression | 0.149705 | Akaike info criterion | | -0.924336 |
| Sum squared resid | 4.123744 | Schwarz criterion | | -0.805143 |
| Log likelihood | 95.27413 | Hannan-Quinn criter. | | -0.876058 |
| F-statistic | 0.583373 | Durbin-Watson stat | | 1.756568 |
| Prob(F-statistic) | 0.743323 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: FIS | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:21 | | |  |  |
| Sample (adjusted): 1987 2018 | | |  |  |
| Periods included: 32 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (unbalanced) observations: 191 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.002677 | 0.007538 | 0.355172 | 0.7229 |
| D\_LNGDP | 0.029155 | 0.067463 | 0.432166 | 0.6661 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.006663 | Mean dependent var | | 0.003135 |
| Adjusted R-squared | -0.025728 | S.D. dependent var | | 0.101847 |
| S.E. of regression | 0.103149 | Akaike info criterion | | -1.669324 |
| Sum squared resid | 1.957707 | Schwarz criterion | | -1.550131 |
| Log likelihood | 166.4205 | Hannan-Quinn criter. | | -1.621045 |
| F-statistic | 0.205712 | Durbin-Watson stat | | 2.756580 |
| Prob(F-statistic) | 0.974683 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CRE | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:26 | | |  |  |
| Sample (adjusted): 1987 2018 | | |  |  |
| Periods included: 32 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 192 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.001128 | 0.016519 | -0.068272 | 0.9456 |
| D\_LNGDP | 0.152276 | 0.148240 | 1.027226 | 0.3057 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.010854 | Mean dependent var | | 0.001241 |
| Adjusted R-squared | -0.021227 | S.D. dependent var | | 0.224287 |
| S.E. of regression | 0.226655 | Akaike info criterion | | -0.095002 |
| Sum squared resid | 9.503879 | Schwarz criterion | | 0.023761 |
| Log likelihood | 16.12015 | Hannan-Quinn criter. | | -0.046902 |
| F-statistic | 0.338326 | Durbin-Watson stat | | 2.104395 |
| Prob(F-statistic) | 0.915924 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: D\_LNC | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:37 | | |  |  |
| Sample (adjusted): 1987 2018 | | |  |  |
| Periods included: 32 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 192 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.001805 | 0.011335 | 0.159257 | 0.8736 |
| D\_LNGDP | 0.676115 | 0.101721 | 6.646754 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.250633 | Mean dependent var | | 0.012321 |
| Adjusted R-squared | 0.226329 | S.D. dependent var | | 0.176821 |
| S.E. of regression | 0.155529 | Akaike info criterion | | -0.848193 |
| Sum squared resid | 4.475010 | Schwarz criterion | | -0.729430 |
| Log likelihood | 88.42653 | Hannan-Quinn criter. | | -0.800093 |
| F-statistic | 10.31251 | Durbin-Watson stat | | 2.391528 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**1986-1993**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CAP | | |  |  |
| Method: Panel EGLS (Cross-section random effects) | | | | |
| Date: 01/03/20 Time: 06:42 | | |  |  |
| Sample (adjusted): 1987 1993 | | |  |  |
| Periods included: 7 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 42 | | | |  |
| Swamy and Arora estimator of component variances | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.009270 | 0.016590 | -0.558762 | 0.5794 |
| D\_LNGDP | 0.059617 | 0.194224 | 0.306951 | 0.7605 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  | S.D. | Rho |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | | 0.000000 | 0.0000 |
| Idiosyncratic random | | | 0.105783 | 1.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Weighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.002475 | Mean dependent var | | -0.010181 |
| Adjusted R-squared | -0.022463 | S.D. dependent var | | 0.101934 |
| S.E. of regression | 0.103073 | Sum squared resid | | 0.424961 |
| F-statistic | 0.099238 | Durbin-Watson stat | | 2.209975 |
| Prob(F-statistic) | 0.754384 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Unweighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.002475 | Mean dependent var | | -0.010181 |
| Sum squared resid | 0.424961 | Durbin-Watson stat | | 2.209975 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: FIS | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:44 | | |  |  |
| Sample (adjusted): 1987 1993 | | |  |  |
| Periods included: 7 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 42 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.011091 | 0.008159 | 1.359335 | 0.1827 |
| D\_LNGDP | 0.079094 | 0.103088 | 0.767246 | 0.4481 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.088123 | Mean dependent var | | 0.009883 |
| Adjusted R-squared | -0.068199 | S.D. dependent var | | 0.050202 |
| S.E. of regression | 0.051885 | Akaike info criterion | | -2.928557 |
| Sum squared resid | 0.094222 | Schwarz criterion | | -2.638946 |
| Log likelihood | 68.49970 | Hannan-Quinn criter. | | -2.822403 |
| F-statistic | 0.563728 | Durbin-Watson stat | | 2.403050 |
| Prob(F-statistic) | 0.756099 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CRE | | |  |  |
| Method: Panel EGLS (Cross-section random effects) | | | | |
| Date: 01/03/20 Time: 06:46 | | |  |  |
| Sample (adjusted): 1987 1993 | | |  |  |
| Periods included: 7 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 42 | | | |  |
| Swamy and Arora estimator of component variances | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.006842 | 0.019869 | 0.344351 | 0.7324 |
| D\_LNGDP | 0.139833 | 0.232611 | 0.601144 | 0.5511 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  | S.D. | Rho |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | | 0.000000 | 0.0000 |
| Idiosyncratic random | | | 0.126690 | 1.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Weighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.010111 | Mean dependent var | | 0.004706 |
| Adjusted R-squared | -0.014636 | S.D. dependent var | | 0.118285 |
| S.E. of regression | 0.119147 | Sum squared resid | | 0.567844 |
| F-statistic | 0.408574 | Durbin-Watson stat | | 3.208661 |
| Prob(F-statistic) | 0.526338 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Unweighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.010111 | Mean dependent var | | 0.004706 |
| Sum squared resid | 0.567844 | Durbin-Watson stat | | 3.208661 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: D\_LNC | | |  |  |
| Method: Panel EGLS (Cross-section random effects) | | | | |
| Date: 01/03/20 Time: 06:49 | | |  |  |
| Sample (adjusted): 1987 1993 | | |  |  |
| Periods included: 7 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 42 | | | |  |
| Swamy and Arora estimator of component variances | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.008630 | 0.018557 | -0.465038 | 0.6444 |
| D\_LNGDP | 0.723659 | 0.217253 | 3.330954 | 0.0019 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  | S.D. | Rho |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section random | | | 0.000000 | 0.0000 |
| Idiosyncratic random | | | 0.118325 | 1.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Weighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.225022 | Mean dependent var | | -0.019685 |
| Adjusted R-squared | 0.205648 | S.D. dependent var | | 0.129760 |
| S.E. of regression | 0.115651 | Sum squared resid | | 0.535003 |
| F-statistic | 11.61437 | Durbin-Watson stat | | 2.942111 |
| Prob(F-statistic) | 0.001505 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Unweighted Statistics | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.225022 | Mean dependent var | | -0.019685 |
| Sum squared resid | 0.535003 | Durbin-Watson stat | | 2.942111 |
|  |  |  |  |  |
|  |  |  |  |  |

**1994-1999**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CAP | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:51 | | |  |  |
| Sample (adjusted): 1995 1999 | | |  |  |
| Periods included: 5 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 30 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.003503 | 0.033579 | 0.104313 | 0.9178 |
| D\_LNGDP | 0.165092 | 0.233914 | 0.705782 | 0.4874 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.061314 | Mean dependent var | | 0.013542 |
| Adjusted R-squared | -0.183561 | S.D. dependent var | | 0.153141 |
| S.E. of regression | 0.166605 | Akaike info criterion | | -0.545422 |
| Sum squared resid | 0.638414 | Schwarz criterion | | -0.218476 |
| Log likelihood | 15.18133 | Hannan-Quinn criter. | | -0.440829 |
| F-statistic | 0.250389 | Durbin-Watson stat | | 2.442864 |
| Prob(F-statistic) | 0.954160 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: FIS | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:54 | | |  |  |
| Sample (adjusted): 1995 1999 | | |  |  |
| Periods included: 5 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 30 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.004243 | 0.026097 | 0.162586 | 0.8723 |
| D\_LNGDP | -0.049599 | 0.181789 | -0.272838 | 0.7874 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.017114 | Mean dependent var | | 0.001227 |
| Adjusted R-squared | -0.239291 | S.D. dependent var | | 0.116309 |
| S.E. of regression | 0.129479 | Akaike info criterion | | -1.049634 |
| Sum squared resid | 0.385590 | Schwarz criterion | | -0.722688 |
| Log likelihood | 22.74451 | Hannan-Quinn criter. | | -0.945041 |
| F-statistic | 0.066745 | Durbin-Watson stat | | 2.137546 |
| Prob(F-statistic) | 0.998584 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: CRE | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:56 | | |  |  |
| Sample (adjusted): 1995 1999 | | |  |  |
| Periods included: 5 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 30 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.005992 | 0.028169 | 0.212722 | 0.8334 |
| D\_LNGDP | -0.070937 | 0.196225 | -0.361512 | 0.7210 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019619 | Mean dependent var | | 0.001678 |
| Adjusted R-squared | -0.236132 | S.D. dependent var | | 0.125705 |
| S.E. of regression | 0.139761 | Akaike info criterion | | -0.896809 |
| Sum squared resid | 0.449259 | Schwarz criterion | | -0.569863 |
| Log likelihood | 20.45214 | Hannan-Quinn criter. | | -0.792216 |
| F-statistic | 0.076713 | Durbin-Watson stat | | 2.281872 |
| Prob(F-statistic) | 0.997908 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: D\_LNC | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 06:59 | | |  |  |
| Sample (adjusted): 1995 1999 | | |  |  |
| Periods included: 5 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 30 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.007746 | 0.034290 | -0.225884 | 0.8233 |
| D\_LNGDP | 0.884507 | 0.238868 | 3.702905 | 0.0012 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.552145 | Mean dependent var | | 0.046041 |
| Adjusted R-squared | 0.435313 | S.D. dependent var | | 0.226405 |
| S.E. of regression | 0.170133 | Akaike info criterion | | -0.503504 |
| Sum squared resid | 0.665744 | Schwarz criterion | | -0.176558 |
| Log likelihood | 14.55256 | Hannan-Quinn criter. | | -0.398911 |
| F-statistic | 4.725976 | Durbin-Watson stat | | 2.848748 |
| Prob(F-statistic) | 0.002847 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**2000-2018**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CAP | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 07:01 | | |  |  |
| Sample (adjusted): 2001 2018 | | |  |  |
| Periods included: 18 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (unbalanced) observations: 107 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.027079 | 0.015381 | -1.760577 | 0.0814 |
| D\_LNGDP | 0.047704 | 0.172821 | 0.276029 | 0.7831 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.032562 | Mean dependent var | | -0.026111 |
| Adjusted R-squared | -0.025484 | S.D. dependent var | | 0.152968 |
| S.E. of regression | 0.154904 | Akaike info criterion | | -0.828835 |
| Sum squared resid | 2.399536 | Schwarz criterion | | -0.653977 |
| Log likelihood | 51.34268 | Hannan-Quinn criter. | | -0.757950 |
| F-statistic | 0.560972 | Durbin-Watson stat | | 1.354595 |
| Prob(F-statistic) | 0.760385 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: FIS | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 07:04 | | |  |  |
| Sample (adjusted): 2001 2018 | | |  |  |
| Periods included: 18 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (unbalanced) observations: 107 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.003079 | 0.013367 | 0.230355 | 0.8183 |
| D\_LNGDP | 0.052576 | 0.150190 | 0.350060 | 0.7270 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.005443 | Mean dependent var | | 0.004147 |
| Adjusted R-squared | -0.054231 | S.D. dependent var | | 0.131111 |
| S.E. of regression | 0.134620 | Akaike info criterion | | -1.109544 |
| Sum squared resid | 1.812245 | Schwarz criterion | | -0.934686 |
| Log likelihood | 66.36060 | Hannan-Quinn criter. | | -1.038659 |
| F-statistic | 0.091205 | Durbin-Watson stat | | 2.866952 |
| Prob(F-statistic) | 0.997080 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CRE | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 07:06 | | |  |  |
| Sample (adjusted): 2001 2018 | | |  |  |
| Periods included: 18 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 108 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | -0.014455 | 0.027773 | -0.520450 | 0.6039 |
| D\_LNGDP | 0.458510 | 0.313686 | 1.461685 | 0.1469 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.036058 | Mean dependent var | | -0.005289 |
| Adjusted R-squared | -0.021205 | S.D. dependent var | | 0.278241 |
| S.E. of regression | 0.281176 | Akaike info criterion | | 0.362948 |
| Sum squared resid | 7.985061 | Schwarz criterion | | 0.536790 |
| Log likelihood | -12.59918 | Hannan-Quinn criter. | | 0.433434 |
| F-statistic | 0.629690 | Durbin-Watson stat | | 2.075582 |
| Prob(F-statistic) | 0.706158 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: D\_LNC | | |  |  |
| Method: Panel Least Squares | | |  |  |
| Date: 01/03/20 Time: 07:08 | | |  |  |
| Sample (adjusted): 2001 2018 | | |  |  |
| Periods included: 18 | | |  |  |
| Cross-sections included: 6 | | |  |  |
| Total panel (balanced) observations: 108 | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.024638 | 0.015565 | 1.582862 | 0.1166 |
| D\_LNGDP | 0.455023 | 0.175804 | 2.588235 | 0.0111 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Effects Specification | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cross-section fixed (dummy variables) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.105304 | Mean dependent var | | 0.033734 |
| Adjusted R-squared | 0.052154 | S.D. dependent var | | 0.161862 |
| S.E. of regression | 0.157584 | Akaike info criterion | | -0.795094 |
| Sum squared resid | 2.508111 | Schwarz criterion | | -0.621253 |
| Log likelihood | 49.93510 | Hannan-Quinn criter. | | -0.724608 |
| F-statistic | 1.981248 | Durbin-Watson stat | | 2.124625 |
| Prob(F-statistic) | 0.075227 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |