
210023

210023

2013

2017

16JDGC009

71573138 71874084
17ZTBC09

2016ZDIXM022

58 2019/3

^[1] 2007 ^[2] 2010
2011 ^[4] 2015 ^[3]
2014 ^[7] 2017 ^[5] 2018 ^[6]

GDP

Wilson 1999 ^[1]

2012 ^[2]

$$Cu_{it} = \frac{Y_{it}}{Y_{A_{it}}} = \frac{Y_{it}}{K_{it}} \times \frac{k + E_k \times \frac{P_E}{P_L} + M_k \times \frac{P_M}{P_L} + T_k \times t + \frac{P_K}{P_L}}{kk} \quad 5$$

Cu_{it} K_{it} Y_{it} $Y_{A_{it}}$
 t i t i t i t i
 P_L P_E
 P_M
 P_K
 k E_k M_k T_k kk 2011

3.
1

BTT

GDP

STT

GDP

2013^[4]

2

2006—2016

30

2006

2006

2007—2017

1.

ran sl

6

Mo

$$\text{Moran' sl} = \frac{\sum_{i=1}^n \sum_{j=1}^n w_{ij} (Y_i - \bar{Y})(Y_j - \bar{Y})}{S^2 \sum_{i=1}^n \sum_{j=1}^n w_{ij}}$$

6

6

S^2

$S^2 = \frac{1}{n} \sum_{i=1}^n (Y_i - \bar{Y})^2$

n

$n=30$ Y_i Y_j

i

j

\bar{Y} 30

w_{ij}

$w_{ij} =$

$w_{ij} = \frac{1}{n-1}$
 $w_{ij} = \frac{1}{n-1}$

[1] 2007—2017

1989

[2]

7

4

[3]

$$G_4 = \sqrt[4]{A_1 \times A_2 \times A_3 \times A_4}$$

A_i

2014

[4]

2013

9

	SAR		SEM		SAC		SDM	
	1	2	3	4	5	6	7	8
	0.45*** (9.08) /	0.43*** (8.65) /	/	/	0.63*** (10.55)	0.62*** (10.94)	0.33*** (5.27)	0.30*** (4.82)
	/	/	0.47*** (7.94)	0.43*** (6.87)	0.40*** (3.15)	0.44*** (3.65)	/	/
BTT	/	1.88*** (3.26)	/	1.91*** (3.05)	/	1.70*** (3.31)	/	1.14*** (2.83)
STT	1.27** (2.27)	/	1.87*** (2.87)	/	0.77* (1.71)	/	1.97** (2.44)	/
gdp	-0.07 (-1.00)	-0.11 (-1.59)	0.002 (0.02)	-0.05 (-0.55)	-0.07 (1.26)	-0.10* (-1.86)	-0.01* (-1.71)	-0.02* (-1.72)
Inr	0.11*** (8.62)	0.12*** (8.88)	0.12*** (7.39)	0.12*** (7.48)	0.09*** (7.13)	0.10*** (7.41)	0.11*** (6.91)	0.10*** (6.45)
Inland	0.01 (0.14)	0.01 (0.15)	0.01 (0.32)	0.01 (0.31)	0.001 (0.01)	0.004 (0.13)	0.01 (0.20)	0.01 (0.45)
Inis	-0.06** (-2.57)	-0.06** (-2.57)	-0.11** (-2.90)	-0.10** (-2.62)	-0.03* (-1.82)	-0.04** (-2.14)	-0.07** (-2.07)	-0.08** (-2.14)
Infp	0.09** (1.89)	0.16*** (2.87)	0.14** (2.33)	0.20*** (2.98)	0.06* (1.67)	0.12*** (2.78)	0.11** (2.17)	0.04** (2.58)
W*BTT	/	/	/	/	/	/	/	-0.73*** (-3.16)
W*STT	/	/	/	/	/	/	-1.06*** (-2.88)	/
R ²	0.73	0.74	0.69	0.70	0.73	0.75	0.79	0.81
Log-L	378.93	381.63	368.30	368.84	383.00	387.16	396.79	410.46
obs	330	330	330	330	330	330	330	330

Z

*** ** *

0.01 0.05 0.1 /

SDM

P 1% 10%

SDM

SDM

2 SDM

SDM

SDM

[1]

3 SDM

Lesage and Pace 2009

SDM

4 SDM

$$(I - \rho)CU_{it} = \rho_{it} + (\alpha + \beta)Tax_{it} + u_{it} \quad 7$$

7 I

$$CU_{it} = (I - \rho)^{-1} (\alpha + \beta)Tax_{it} + R_{it} \quad 8$$

$$8 R_{it} = \rho_{it} + u_{it}$$

8

t i

Tax

[1]

$$\frac{E(CU)}{(Tax_{it})} = \frac{E(CU_{it})}{(Tax_{it})} = (1 - \rho\omega) \frac{E(CU_{it})}{(Tax_{it})} + \rho\omega \frac{E(CU_{it-1})}{(Tax_{it-1})}$$

9

0 0

Tax

3 3

3

			Z	P
	STT	1.93**	2.46	0.01
	BTT	1.38**	2.21	0.03
	STT	-1.09***	-2.85	0.01
	BTT	-1.15**	-2.42	0.02
	STT	0.84***	2.73	0.01
	BTT	0.23***	2.87	0.00

*** ** *

0.01 0.05 0.1

4

	SAR		SEM		SAC		SDM	
	1	2	3	4	5	6	7	8
	0.44*** (8.75)	0.45*** (8.94)	/	/	0.63*** (10.96)	0.64*** (11.32)	0.31*** (4.96)	0.31*** (5.00)
	/	/	0.44*** (7.14)	0.46*** (7.44)	0.44*** (3.56)	0.44*** (3.63)	/	/
CITR	/	0.13** (2.42)	/	0.11*** (3.23)	/	0.39*** (3.16)	/	0.46*** (2.93)
AVTR	0.42** (2.42)	/	0.15*** (2.96)	/	0.23* (1.82)	/	0.33** (2.42)	/
gdp	-0.04 (-0.57)	-0.04 (-0.61)	0.06 (0.72)	-0.06 (-0.73)	-0.06 (-0.94)	-0.06* (-1.91)	-0.06* (-1.82)	-0.06* (-1.66)
Inr	0.11*** (8.45)	0.11*** (8.43)	0.12*** (7.78)	0.12*** (8.10)	0.12*** (9.31)	0.12*** (9.26)	0.11*** (5.96)	0.12*** (7.67)
Inland	0.01 (0.39)	0.03 (0.93)	0.01 (0.38)	0.01 (0.39)	0.03 (0.97)	0.03 (1.07)	0.02 (0.76)	0.02 (0.76)
Inis	-0.05** (-2.50)	-0.05** (-2.14)	-0.13** (-2.01)	-0.12** (-2.15)	-0.04* (-1.91)	-0.04** (-1.98)	-0.08** (-2.16)	-0.10*** (-3.14)
Infp	0.07 (1.41)	0.05* (1.77)	0.08** (2.38)	0.08** (2.36)	0.04** (1.98)	0.04*** (2.99)	0.01** (2.22)	0.07** (2.56)
W*CITR	/	/	/	/	/	/	/	-0.32*** (-3.85)
W*AVTR	/	/	/	/	/	/	-0.24** (-2.22)	/
R ²	0.73	0.73	0.69	0.69	0.74	0.74	0.79	0.79
Log-L	376.52	376.41	364.63	364.22	381.66	381.79	396.85	395.87
obs	330	330	330	330	330	330	330	330

Z

*** ** *

0.01 0.05 0.1 /

SDM

2013

CITR

AVTR

4 5
6 8
4

1 3 5 7

2 4