①　②

2003-2018　289　“

”

0

2009

1965　3

1995　12

[15-16] 2014 [17]

[18-19]

[20-21] [22] 2020 [23]

+ + (2019)[24]

19 30

2015 [25]

2012 [26]

2000-2010

2017 [27]

2020 [28]

2005-2015 2020 [29]

2019 [30]

2018 [31]

[32]

[33] [34]

Difference-in-Differences,DID

2011

16 16

2019 [35]

16 41

2011 2016

9 2018

49 DID

240

treat 1 0

year 1

0

$$\mathrm{gdp}_{i,t} = \alpha_0 + \alpha_1 treat_i \times year_t + \alpha_2 treat_i + \alpha_3 year_t + \alpha_4 x_{i,t} + \eta_t + \mu_i + \varphi_p + \varepsilon_{i,t} \quad 1$$

1 $\mathrm{gdp}_{i,t}$ i t

$x_{i,t}$

φ_p η_t μ_i

1 α_1

$\alpha_1 > 0$

$\alpha_1 < 0$

GDP

GDP

trade

GDP

gov

inform

retail

finance

2003-2018 289

EPS

1

gdp	4623	15.9997	15.9957	1.0943	12.6690	19.6049
trade	4624	0.2761	0.1319	0.3302	0.0168	1.7843
budget	4589	14.0894	14.1867	1.1080	10.4058	18.2405
retail	4580	14.9282	14.9261	1.2153	5.4723	18.6572
inform	4575	12.2830	12.2552	1.0818	8.8037	16.5024
finance	4589	15.7178	15.6079	1.3019	12.5477	20.3735

2 1 1

1%

2 6

1%

	1	2	3	4	5	6
treat×year	0.0841*** (3.0477)	0.1055*** (3.8130)	0.1064*** (5.5365)	0.1023*** (5.5737)	0.1024*** (5.5581)	0.0930*** (5.2886)
trade		0.1785*** (4.3368)	0.0776** (2.2748)	0.0643* (1.9223)	0.0632* (1.8608)	0.0606* (1.8872)
budget			0.4182*** (7.7047)	0.4068*** (7.6837)	0.3996*** (7.5625)	0.3634*** (7.1801)
retail				0.1225** (2.0027)	0.1198** (2.0273)	0.1070** (1.9996)
inform					0.0270*** (3.2288)	0.0226*** (2.8506)
finance						0.1333*** (5.9807)
Constant	14.8795*** (1306.1717)	14.8270*** (846.1168)	9.6108*** (14.0760)	8.0719*** (8.0997)	7.8909*** (8.1364)	6.6169*** (7.6331)
	YES	YES	YES	YES	YES	YES
	YES	YES	YES	YES	YES	YES
	NO	YES	YES	YES	YES	YES
Observations	4623	4623	4588	4579	4565	4565
R-squared	0.953	0.953	0.963	0.964	0.965	0.967
Number of id	289	289	289	289	289	289

t * ** *** 10% 5% 1%

DID

$$\mathrm{gdp}_{i,t} = \alpha_0 + \sum_{k\geq -7, k\neq -1}^{7} \alpha_k D_{i,t}^{\ k} + \gamma x_{i,t} + \eta_t + \mu_i + \varphi_p + \varepsilon_{i,t}$$

2

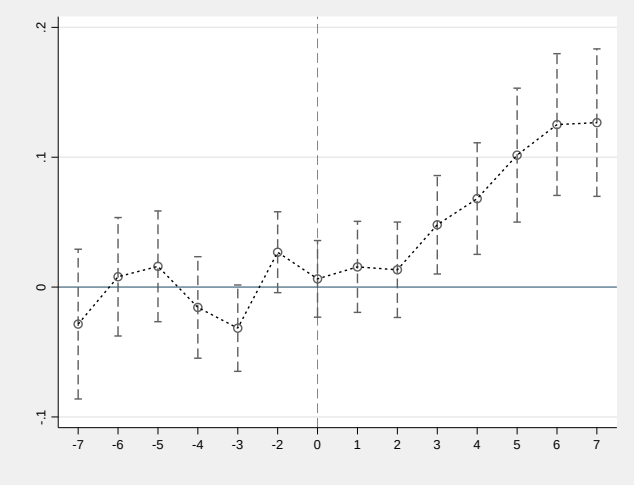
$D_{i,t}^{\ k}$ “ ”

i y_i $k = t - y_i$ $k \leq -7$ $D_{i,t}^{\ -7} = 1$

0 $D_{i,t}^{\ -7}$ k = - 6 $D_{i,t}^{\ -6} = 1$ 0

$D_{i,t}^{\ -6}$ $D_{i,t}^{\ -5}$ $D_{i,t}^{\ -4}$ ..... $D_{i,t}^{\ 6}$ $D_{i,t}^{\ 7}$

k= -1 $D_{i,t}^{-1}$ α_k



1 α_k

95% 0 0

2008

78 1

innocity , 1 0

1 innocity treat×year

treat×year

3 7 8

treat×year

1 1%

1%

1 treat×year

	7	8	9
treat×year	0.0794***	0.0756***	0.0920***
	(2.7564)	(4.1125)	(5.0708)
innocity	0.0107	0.0404**	
	(0.4641)	(2.5950)	
	NO	YES	YES
	YES	YES	YES
	YES	YES	YES
	NO	YES	YES
Constant	14.8795***	6.5648***	5.8891***
	(1305.8298)	(7.5675)	(8.7948)
Observations	4565	4565	4565
R-squared	0.977	0.931	0.912
Number of id	289	289	289

t * ** *** 10% 5% 1%

2015 [36]

grade

1 0

4 10 13

treat×year

	10	11	12	13
treat×year	0.0990** (2.2098)	0.8725*** (2.9709)	0.1008*** (2.8076)	0.0913*** (3.8708)

· 14

( )

	NO	YES	NO	YES
Constant	15.5310***	6.7974***	14.5294***	7.3883***
	(948.1517)	(7.0532)	(1021.1508)	(6.5981)
Observations	1616	1604	3007	2961
R-squared	0.9796	0.9421	0.9673	0.9219
Number of id	101	101	188	188

* ** *** 10% 5% 1%

2011 2016

49

[19] , , , . [J]. ,2011,19(03):134-140.

[20] , . [J]. ,2015(06):139-147.

[21] , . [J]. ,2015,33(02):177-184+214.

[22] , . [J]. ,2019,38(09):131-139.

[23] . [J]. ,2020(15):120-121.

[24] , . [J]. ,2019,38(04):50-56.

[25] , , . [J]. ,2015(06):37-53.

[26] , . [J]. ,2012(06):129-138.

[27] , , , . [J]. ,2017,31(04):19-22+36.

[28] , . [J]. ,2020,40(05):751-759.

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[30] . ? [J]. ,2019,39(14):42-47.

[31] , . [J]. ,2018(08):30-43.

[32]

Does Science and Technology Finance Policy Promoted Regional Economic Growth? Empirical Evidence From Prefecture-Level Cities

Zhuo Debao Liu Yunqin

Abstract: Under the background of innovation-driven development strategy, it is of great significance to study the influence of science and technology financial policies on regional economic growth. Based on the microcosmic data of 289 prefecture-level cities in China from 2003 to 2018, this paper took the pilot project of "Promoting the integration of science and Technology and finance" set up twice as a quasi-natural experiment, and analyzed the influence of the pilot establishment on the regional economic growth by using the double difference method. The empirical results showed that compared with the control group, the science and technology financial policies significantly promoted the economic growth of the experimental group. The results estimated by the benchmark model were still robust after considering a series of other interference factors. And based on the grouping test from the perspective of city level and city location, it is found that the pilot establishment can significantly promote the economic growth of both high-grade and low-grade cities, but the low-grade city pilot has more obvious promoting effect on economic growth. The pilot establishment can also significantly promote the economic growth of the developed cities in the east and the less developed cities in the central and western regions, but the pilot policies in the less developed cities in the central region have more obvious promoting effects on economic growth. Based on the above research conclusions, this paper further puts forward policy Suggestions to promote regional economic growth.

Keywords: science and technology finance; economic growth; difference-in-difference; quasi-natural experiment