

What Makes Local Governments More Accountable?

Evidence from a Website Reform

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Local Governments in Decentralized Economies

Responsible for investing in education, infrastructure, health services, welfare, etc

There is evidence, however, that local governments may take advantage of their power and collect bribes and build local empires

How Corrupt are Local Governments?

What Influences Local Governments to be Corrupt and/or Accountable to their Constituents

Ferraz and Finan (2012)

Documents that Brazil is a decentralized economy

Measures Local Government Corruption with Randomized Survey

1. Measures local corruption using a randomized survey
2. Shows that re-election incentives drive corruption: Mayors standing for re-elections misappropriate \$55,000 per year in resources more than mayors not running for re-election
3. Suggests that “Transparency” may mitigate corruption: When there is an active radio station and/or newspaper reporting on a municipality the corruption driven by re-election incentives vanishes

Brazil versus China

Like Brazil - China is highly decentralized (Qian, Roland and Xu, 2006; Xu, 2011)

Like Brazil – there is evidence of growing corruption – for example, corrupt land deals at the local level (Kung et al (2019); Cai et al (2011); Ang (Cornell Press, 2016))

In contrast to Brazil, voting and free press are much more limited in China.

Drivers of Corruption and Local Government Performance in China

China is more authoritarian than Brazil

1. **Corruption Incentives in Brazil versus China:** Replace re-election incentives with promotion incentives (see papers by Hongbin Li, Li-An Zhou, Melanie Manion and co-authors)
2. **Transparency in Brazil versus China:** Replace radios and newspapers with social media (see papers from Jennifer Pan and co-authors for social media)

To do this, we exploit a massive policy experiment enacted by the national government during the last years of the Hu Jintao and Wen Jiabao Leadership

County Website Reform

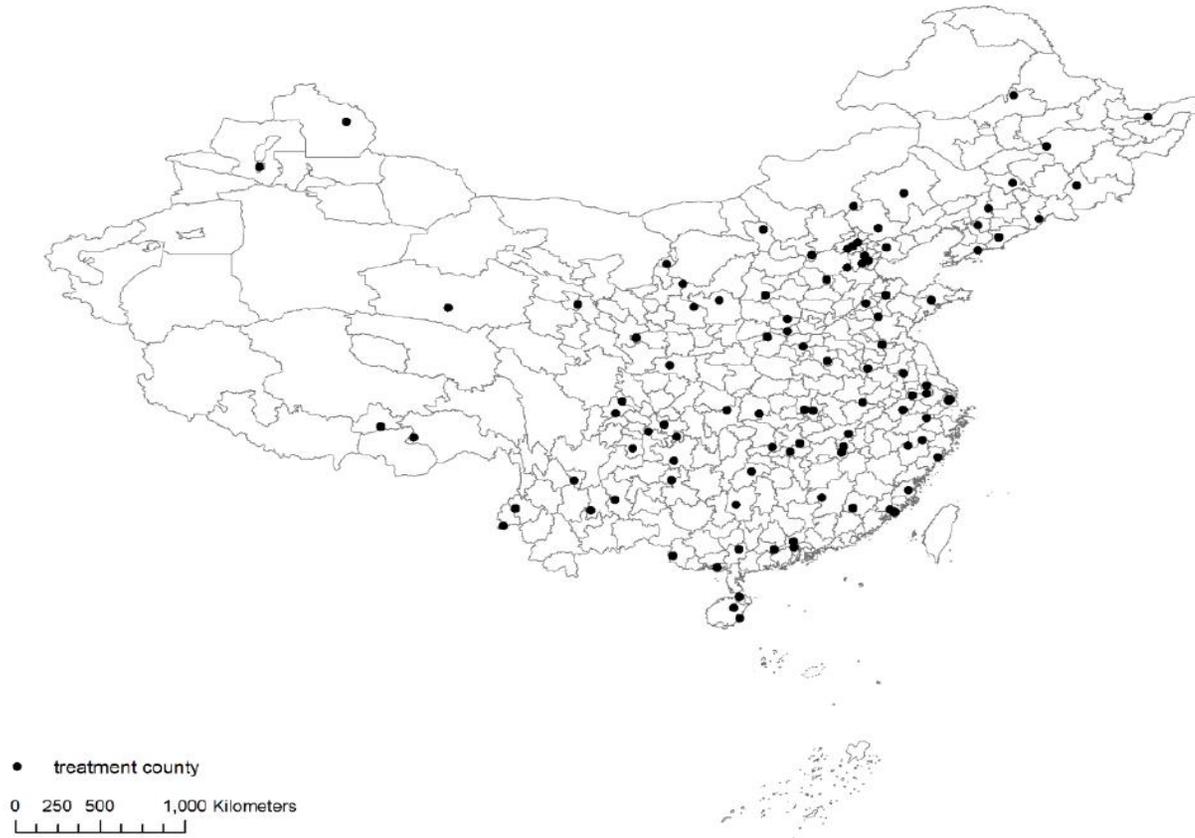
In 2011 National Government orders its 32 provincial level governments to pick 3-4 counties for a policy in which they are required to post their data on their websites

Treated counties are required to set up links on their websites enabling their constituents to send inquiries and grievances to their county govt which is expected to respond in a timely fashion.

In January 2012, program is enacted in 100 of China's roughly 2800 counties

Treated counties post their data; some counties set up online forums for their citizen attach a Sina Weibo link

Figure 1. Spatial Distribution of Treated Counties



Experimental Design and Data

Treatment is not randomly assigned. Provincial governments are required to select counties that have the best existing websites, best public finances, etc.

Can overcome non-random assignment using tquasi-experimental design using methods from Gentzkow (2006)

All treated counties comply

Can use standard diffs and diffs type estimation – and, for institutional reasons, pay attention to potential pre-trends

Webpage, Shunde district, Guangdong Province, Dec 21, 2012



Shunde People's Government Of Foshan
 Panoramic attention to three reforms in Shunde

Guangdong Province Online service
 hall (Shunde Branch) [click in](#)

Home Government Affairs Online Service Interaction between G&P Walk in Shunde Help

2012-12-21, Friday Weather: Cloudy & rainy Temperature: 12°C-15°C Wind power: 2-3 Humidity: 70%-90%

Shunde political style and behavior style hotline No. 194- Town gas Company and Xiwei Gas Company



Beijiao held safety exercise for school bus

- Leliu is efficient in fighting fake goods, and ... [12-21]
- The location of the New Year party of Daliang is [12-21]
- Completing facilities, helping villagers to settle... [12-21]
- Agricultural reform commission held the ... [12-20]
- Weidong Liang and Xizhong Huang did a field... [12-20]
- Beijiao keeps higher pressure, attack pyramid ... [12-20]
- Education Bureau held the experience exchange [12-20]
- Pay attention to preschool education, and build [12-20]
- Beijiao held safety exercise for school bus... [12-20]
- Chinese people's political cooperative conference [12-18]

Notice and announcement

- The result and inquiry of government... [12-18]
- The notice of government employees... [11-19]
- The notice of the issue of Social Credit [12-21]
- Transportation and urban management [12-21]
- The notice of environmental acceptance[12-21]
- The notice of the candidates of... [12-21]
- The announcement of market security. . [12-21]
- The notice for the seminar of "Design [12-21]
- Auction advertisement of Polaroid ... [12-21]
- The new list of retail enterprises in. . . [12-21]

Shunde government performance evaluation system

Rules for information openness

Guide for information openness

Mailbox of opinions for government information openness

Catalog for information openness

Administrative law enforcement authority and evidence

Government report for information openness

Function

Important areas

Video

Regulations

Business information

Emergency management

Planning

Audit information

Consultancy

Working status

Procurement

Government affairs in Shunde

Supervision information

Personnel information

Online service Administrative approval | Individual service | Company service | Investment service | Agriculture service | Tourism service | Fast channel | Scenes service

The guide for company

- Registration changes
- Annual audits
- Security
- Labor security
- Financial investment
- Knowledge property rights
- Environmental protection

The guide for individuals

- Permits
- Quality supervision
- Program declare
- Human resources
- Public security
- Inspection and quarantine
- Taxes
- Qualification confirmation
- Urban construction
- Business market
- Legal justices

The guide for services

 **Education & training** [More >>](#)

Preschool | Primary school | Middle school | High school

 **Social security** [More >>](#)

Social insurance | Social benefits | Special care placement

 **Employment** [More >>](#)

Occupation skills | Labor employment | Entrepreneurship | Labor benefits

 **Medical security** [More >>](#)

Medical service | Health service | medical security

 **Housing service** [More >>](#)

Application for indemnificatory apartment | Commercial apartment | housing provident fund service

 **Transportation service** [More >>](#)

Public transportation service | Road situation and transportation equipment | Motor vehicle driving service

Transparency Link



Shunde People's Government Of Foshan *Pioneer, The power of Reform*

- ◆ **The catalog of information openness:** Guide | Regulations | Catalog of Shunde government | Catalog of government department | Catalog of government in town and streets | Public company and public institution information openness | Construction projects information sharing | Annual report of information openness | Application for information | Supervision and complaints
- ◆ **Regulations:** Shunde government affairs | Law and regulations | Normative files | Other files | Policy explanations
- ◆ **Working status:** Government affairs status | Notice and announcement | Columns | Conference | Statistics | Funds
- ◆ **Important areas:** Education | Employment | Medicals and health | Social security | Urban and rural construction and management | Welfare | Land acquisition and demolition | Poverty alleviation
- ◆ **Trade of agricultural collective assets:** Notice and announcement | Trade results
- ◆ **Audit information:** Auditing results | Supervision
- ◆ **Function:** Government leaders | Function department | Leaders of towns and streets
- ◆ **Planning:** Development planning | Working planning and summary
- ◆ **Supervision:** Environmental protection | Public health | Safe production | food safety | Quality supervision
- ◆ **Business information:** List of administrative approval | Administrative law enforcement authority and evidence | Administrative fees
- ◆ **Procurement:** Government bidding procurement | Construction project trade | Procurement of each town and streets | Agency procurement | Fixed point procurement | Procurement law and rules | Guide for government procurement
- ◆ **Emergency management:** Emergency plan | Emergence call | Refuge place | Emergency knowledge | Emergency status
- ◆ **Personnel information:** Personnel appointment and dismissal | personnel recruitment
- ◆ **Video news**

Online Service Link

Shunde People's Government Of Foshan

Pioneer,
The power of Reform

- ◆ **Administrative approval**
- ◆ **Individual service:** Guide for individual service | Results of individual application | Community service | Other service
- ◆ **Investment service:** Investment status | Investment Policy | Investment projects | Investment guide | Service guide | Service agencies | Introduction of Shunde | Industry development | Company catalog | Investment costs | Industrial
- ◆ **Tourism service:** Tourism news | Tourism places | Customs | Food | Leisure and entertainment | Shopping | Hotels | Tourism agencies | Tourist guide | Tourism common knowledge | Tourism map
- ◆ **Social security:** Social insurance | social benefits | Special care placement | Social assistance
- ◆ **Health care system:** See a patient | Health services | Medical security | Drug inquiry
- ◆ **Transportation:** Public transportation service | Road situation and transportation equipment | Motor vehicle driving service | Non-motor vehicle driving service
- ◆ **Qualification confirmation:** Service to educational institution | Service to employment institution | Service to food security institution | Service to transportation institution | Service to construction industry | Service to other industry
- ◆ **Business registration:** Commercial corporation registration | Firm name registration | Business registration | Stamp approval | Fire certification | Organization code | Tax registration | Trade mark registration | Advertisement | Contract examples | Exhibition filing | Annual inspection | Invoice | Declaration and payment
- ◆ **Public affairs:** Urban public equipment | Leisure | Landscaping
- ◆ **Firm service:** Service guide | Inquiry of Firm approval | Recruitment | Logistics and custom
- ◆ **Agriculture service:** News | Law and regulations | Notice and announcement | Service guide | Supply and demand of agriculture goods | Agricultural knowledge | Agricultural information inquiry | Catalog of agricultural firms | Service platform
- ◆ **Education and training:** Preschool | Primary school | Middle school | High school | Education for migrated population | Education for foreign population | Training and continuing education | Special education | Foreign exchange and study abroad | Education aids | Public education institution
- ◆ **Employment:** Occupation skills | Employment | Entrepreneurship | Labor benefits
- ◆ **Housing service:** Indemnificatory apartment | Commercial apartment | housing provident fund
- ◆ **Certificate service:** Hukou | Immigration | Marriage registration | Family planning | Adoption registration | Social security | Education | Medical and health | Judicial certificate | Tourism related certificate | Trade certificate | Economic and Financial certificate | Construction certificate | Driving license | Occupation skill certificate | Other certificate
- ◆ **Inquiry:** Guide | Online service
- ◆ **Scenes service**
- ◆ **Administrative Reconsideration**

Interaction Links Between County Government and Citizens

Interaction between government & citizens | Mayer's mailbox | Opinions collection | Forum | Sina Weibo | Guide for inquiry | Online survey | Online interview | Consumption rights protection

Responses to Letters and Visits >>

| Type | Number | Topics | Time |
|----------|--------|--|------------|
| Inquiry | 50532 | The innovation of Desheng Square... | 2012-11-22 |
| Inquiry | 50531 | The division of property between husband and wife... | 2012-11-22 |
| Inquiry | 50058 | The contribution of pension in Shunde... | 2012-10-22 |
| Inquiry | 50057 | The application to the funds for middle and small firms... | 2012-10-22 |
| Opinions | 49732 | The 24 hours hotline... | 2012-10-08 |
| Inquiry | 49731 | The subsidies to families with only one child... | 2012-10-08 |
| Opinions | 49088 | The experiences of community medical service... | 2012-09-03 |
| Inquiry | 49087 | The contribution of social security... | 2012-09-03 |
| Inquiry | 49086 | The difference between scholarship and education loans... | 2012-09-03 |
| Inquiry | 48148 | The charges of swimming pools... | 2012-07-20 |

Forum More >>

- The environmental problem in Shangyong villages [2012-11-30]
- Consultation on Household Registration Migration [2012-11-30]
- Suggestion on adding traffic lights at intersections [2012-11-29]
- Suggestion and consultation on Ronggui road reconstruction [2012-11-29]
- File a complaint against 311 bus line [2012-11-29]
- Suggestions on care for public bicycles [2012-11-29]
- Red lights should be installed at T-junctions in front of the Meijiaotou Park gate [2012-11-29]

Opinions collection More >>

- The top 10 excellent migrants in Lunjiao in 2012... [2012-11-21]
- The notice of "serving for people" projects in 2013 in Ronggui... [2012-10-23]
- Collection of new names Xingtian central lake [2012-10-15]
- Collection of opinions for Shunde People's Political Consultative Conference... [2012-10-11]
- The evaluation for Shunde Government performance in 2012... [2012-09-28]
- The evaluation for in political style in Shunde in 2012 [2012-09-24]
- Survey for evaluation criterias for employees in Lecong government... [2012-09-14]



Happy Shunde | Department Weibo

Happy Shunde V: [Shunde released the information of admission of public schools] Four private middle schools provided 2900 positions. The quotas are 900, 600, 800 and 600 in each school.

Today 10:00 Forward | Comment

Happy Shunde V: [Liu Chuncao's public welfare story was put in a film]



Write a letter | Make a call

Regulations | Basic knowledge

Citizen Communications with Government

Shunde district: citizens use online forum to complain about poor quality of classrooms and medical services.

And, government responds using the online forum.

Shunde - Massive increase of clicks of online forum 460,000 in 2009 to 2.6 million in 2012 and 4.6 million in 2014

Not all counties have online forums;

But, all have transparency links and Sina-Weibo links

More Information from Government and More Citizen Communication

In treated versus control counties, there is a 22% increase in links on county webpages post-treatment. This is more than $1/4^{\text{th}}$ of a sample standard deviation!

On Sina-Weibo, there is a massive tweet storm in treated versus control counties post-treatment of words suggesting that citizens are increasing their monitoring of their county governments

We pick 14 key words related to corruption and 14 key word government investment

Corruption: all increase and 13/14 are significant at the 5-percent level

Some notable examples

Govt service – 19.5%

Corruption – 12%

Govt openness – 28%

Transparency – 14%

Monitoring – 22%

Investment: all increase and all significant at the 5-percent level

Highways – 26%

Railways – 16%

Airports – 37%

Power grid – 12%

CONCERN – do investments promote social welfare and growth?
Are they white elephants? Public image investments? We attempt
to deal with this

Social Media in Autocracies

Overseeing governments use posts in social media to evaluate lower level governments (see Pan and co-authors for China; and, Dmitrov 2014; Qin et al, 2017 for autocracies in general)

However, autocrats may post false and self-serving information (Earl and Kimport, 2011; Guriev and Treisman, 2015; Kalathil and Boas, 2010; MacKinnon, 2012).

This is not in issue for this particular reform in China:

Pan and Chen (2018) that while administrative organs that aggregate social media information in county and transmit the information to high level governments may strategically omit data, they do not grossly misrepresent or falsify grievances and inquiries.

Model for Empirical Work

Incorporates Promotion Incentives and Monitoring

Monitoring

π_{mg} = probability that government overseeing the county government detects G (public investments)

π_{mr} = probability that government overseeing the county government detects R (rent seeking)

Reform causes π_{mg} and π_{mr} to increase because citizens have more information and are more active on social media; and, also because government might increase its direct monitoring activities

Promotion Incentives

Investments, G , that promote growth and social stability are critical for promotions

Rent seeking activity, R , lowers promotion prospects

R and G are linked: $G = G(R, \dots)$, and

$G' < 0$: rent seeking is inefficient

$G' \cong 0$: rent seeking is neutral

$G' > 0$: rent seeking greases the wheels

The probability of promotion, $\pi_P(G)$, is increasing and weakly concave in the overseeing government's detection of investments:

$$\pi_{mg}\pi_P(G) = \pi_{mg}\pi_P(G(R)): \pi'_P > 0, \pi''_P \leq 0$$

And the decline in the probability of being promoted, $\pi_D(R)$, is increasing and convex in the overseeing government's detection of rent seeking:

$$\pi_{mr}\pi_d(R) = \pi_{mr}\pi_d(R): \pi'_d > 0, \pi''_d \geq 0$$

Thus, the probability of promotion, PP, is

$$PP(R) = \pi_{mg}\pi_P(G(R)) - \pi_{mr}\pi_d(R)$$

Let,

χ = penalty per unit when a rent seeking county leader gets caught

$(1 - \pi_{mr}\chi)R$ = expected personal benefit to a county leader from rent seeking, where $1 > \pi_{mr}\chi > 0$

U^P = expected utility to a county leader who from a promotion

$U^L = 0$ = expected utility to a county leader who is not promoted

Demotions are rare and ignored for simplicity

County leader chooses $R > 0$ in order to maximize

$$PP(G(R), R)^* U^P + (1 - \pi_{mr}\chi)R$$

Predictions (for $R^* > 0$)

Prediction 1. If $G' < 0$: rent seeking is inefficient, then more transparency (π_{mg} and/or π_{mr} increase) causes R to decline; and G to increase.

Prediction 2. If $G' > 0$: rent seeking greases the wheel, then the impact of more transparency is ambiguous. If the increase in π_{mr} is strong than of π_{mg} , the both R and G increase; however, if the increase in π_{mg} is strong, both R and G decline.

Prediction 3. If $G' < 0$, then an increase in transparency generally causes promotions of county leaders to increase

Results

Baseline measure uses a broad measure of government misspent funds in annual county audits administered by a government auditing agency: 2006-2015

Challenges

A potential confound is that the massive anti-corruption reform in China is enacted starting in 2012

Pre-trends

Non-random selection of treatment group

Table 2. Balance Tests

| Variable | Treatment | Control | Unconditional Difference | Conditional difference |
|---|-------------------|-------------------|--------------------------|------------------------|
| Panel A: Selection variables | | | | |
| Page size (log) | 9.977 (3.704) | 9.132 (4.508) | 0.845** (0.417) | |
| Images (log) | 3.678 (1.899) | 3.257 (2.080) | 0.420** (0.212) | |
| Links (log) | 4.460 (2.131) | 3.986 (2.442) | 0.474** (0.239) | |
| Public finance | 0.093 (0.036) | 0.120 (0.087) | -0.027*** (0.004) | |
| Mountain | 0.277 (0.450) | 0.393 (0.489) | -0.116** (0.050) | |
| Poverty | 0.145 (0.354) | 0.274 (0.446) | -0.129*** (0.040) | |
| Provincial capital | 0.181 (0.387) | 0.085 (0.279) | 0.096** (0.043) | |
| Panel B: Other characteristics | | | | |
| Agricultural grain output 2010 (log) | 12.234 (1.313) | 11.991 (1.201) | 0.243 (0.161) | 0.184 (0.149) |
| Government transferred funds 2009 (log) | 3.177 (3.603) | 2.752 (3.383) | 0.425 (0.413) | 0.206 (0.407) |

| | | | | |
|--|----------------------|----------------------|----------------------|-------------------|
| Average urban wage 2010 (log) | 10.361 (0.471) | 10.254 (0.359) | 0.107* (0.060) | 0.086 (0.059) |
| Financial deficit divided by total public income in 2009 | 0.672 (0.073) | 0.059 (0.074) | 0.008 (0.008) | 0.004 (0.008) |
| Average hectares of land transaction 2010 (log) | 9.892 (1.220) | 9.872 (1.202) | 0.020 (0.144) | -0.145 (0.132) |
| Average asset 2010 (million) | 131.757 (718.629) | 114.609 (968.646) | 17.147*** (6.442) | 2.858 (7.048) |
| Average firm output 2010 (million) | 119.547 (756.140) | 98.144 (796.856) | 21.403*** (6.708) | 8.388 (6.941) |
| Average firm net profit 2010 (million) | 6.964 (101.243) | 5.191 (116.215) | 1.773** (0.888) | 1.064 (0.907) |
| Number of firm employees 2010 | 181.409 (698.92) | 167.770 (646.550) | 13.639** (5.925) | 5.144 (6.057) |
| Panel C: County leaders characteristics | | | | |
| Average birth year of county leaders in 2010 | 1964.438 (1.991) | 1964.390 (3.475) | 0.048 (0.538) | 0.450 (0.506) |
| Average education of county leaders in 2010 | 18.078 (1.891) | 18.132 (1.711) | -0.055 (0.519) | 0.115 (0.541) |
| Number of new leaders in 2010 | 1.500 (0.516) | 1.400 (0.512) | 0.100 (0.129) | 0.080 (0.119) |

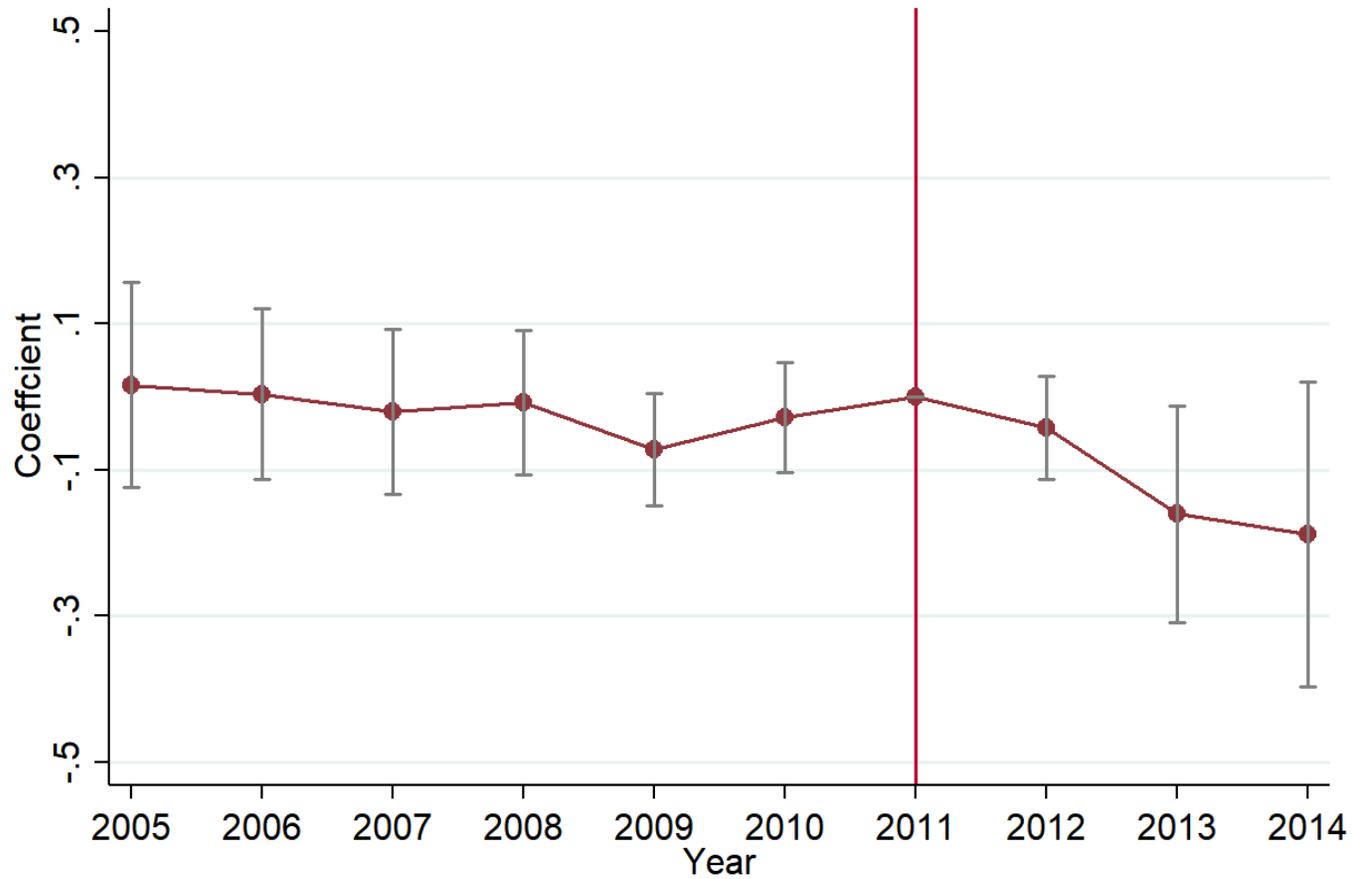
Panel D: Dependent variables

| | | | | |
|-------------------------|------------------|------------------|----------------------|----------------------|
| Corruption (2010) | 0.104 (0.207) | 0.162 (0.356) | -0.058** (0.024) | -0.031 (0.024) |
| Fixed investment (2010) | 1.632 (1.065) | 1.359 (1.752) | 0.273** (0.136) | 0.090 (0.136) |
| Land price (2009) | 4.904 (0.846) | 5.068 (0.947) | 0.164*** (0.033) | -0.035 (0.034) |
| Land allocation (2009) | 0.738 (0.40) | 0.679 (0.467) | -0.059*** (0.016) | -0.089*** (0.016) |
| EE_sales (2010) | 0.718 (2.040) | 0.720 (1.927) | -0.002 (0.018) | 0.021 (0.177) |
| Web construction (2010) | 5.707 (0.975) | 5.753 (0.836) | -0.046 (0.139) | -0.099 (0.078) |
| Promotion (2010) | 0.175 (0.382) | 0.138 (0.345) | 0.037 (0.043) | 0.035 (0.043) |

EFFECT OF TREATMENT ON CORRUPTION

| Dependent variable | (1) | (2) Corruption | (3) |
|------------------------------|----------------------|----------------------|----------------------|
| Treatment× post | -0.110*** (0.039) | -0.128*** (0.040) | -0.116*** (0.042) |
| Inspection | -0.286*** (0.038) | | |
| Treatment× year_2009_2010 | | -0.049 (0.033) | |
| County fixed effect | YES | YES | YES |
| Year fixed effect | YES | YES | YES |
| Control × T | YES | YES | YES |
| Control × T2 | YES | YES | YES |
| Control × T3 | YES | YES | YES |
| Control× Year dummy | | | YES |
| Year coverage | 2005-2014 | 2005-2014 | 2005-2014 |
| Observations | 20,359 | 20,359 | 20,359 |
| R-squared | 0.342 | 0.338 | 0.339 |
| Number of Clusters | 2165 | 2165 | 2165 |

Figure 2 Estimated Coefficients for Corruption – Baseline Measure



Notes: The points represent coefficients of treatment interacted with Year Dummies. The default year is 2011. The dependent variable is Corruption.

Placebo Test

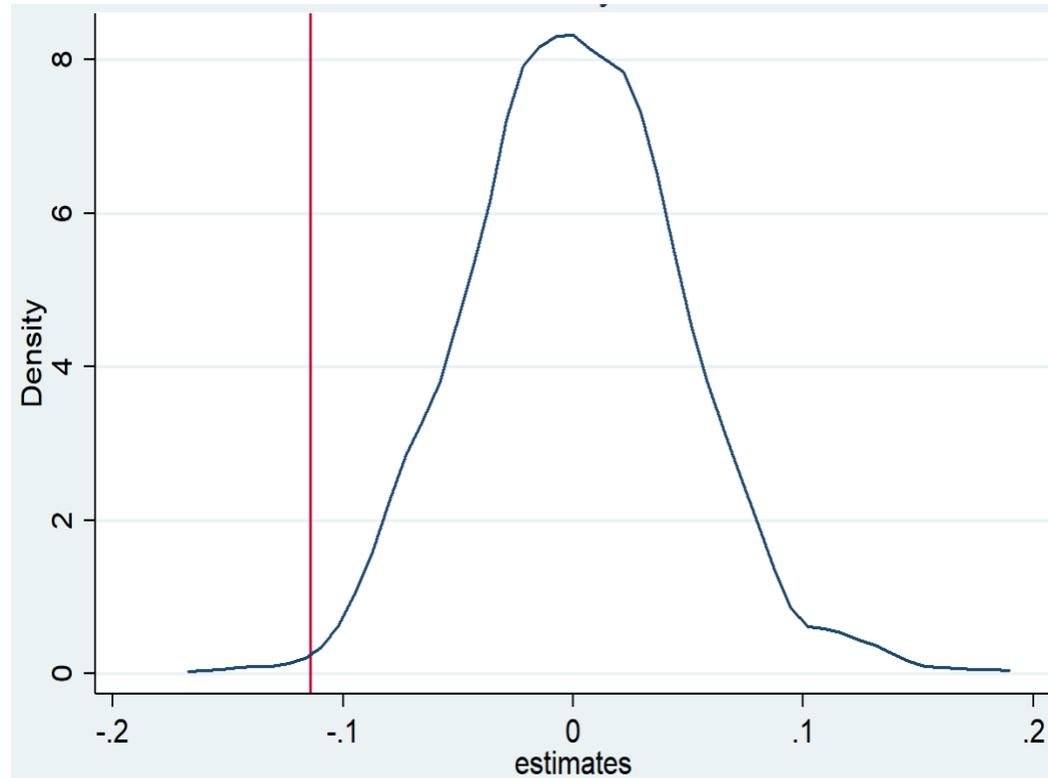
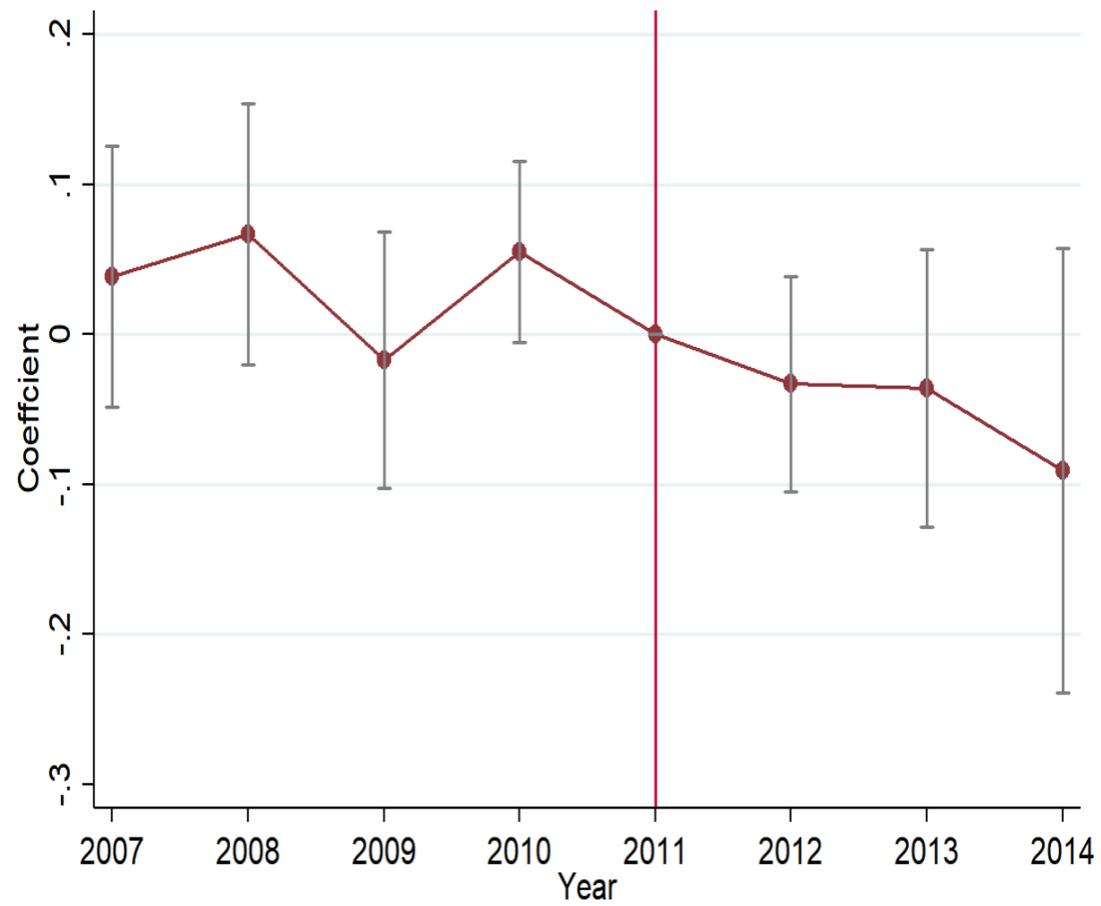
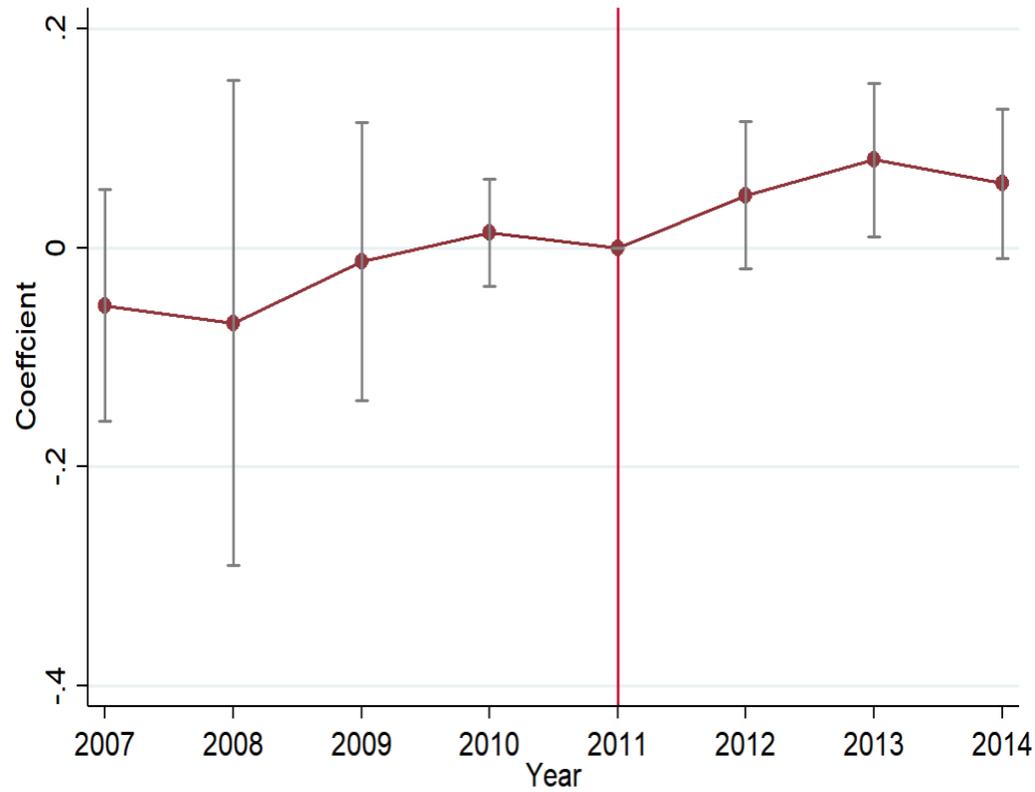


Figure shows the kernel density of the estimated coefficients from 1000 simulations randomly assignment treatment status to counties. The vertical line represents the point estimate of the baseline treatment.

Corruption Measured with Business Expenses



Corruption Measured with Land Sales (Share of Open versus Closed Transactions)



Investment

Primarily infrastructure

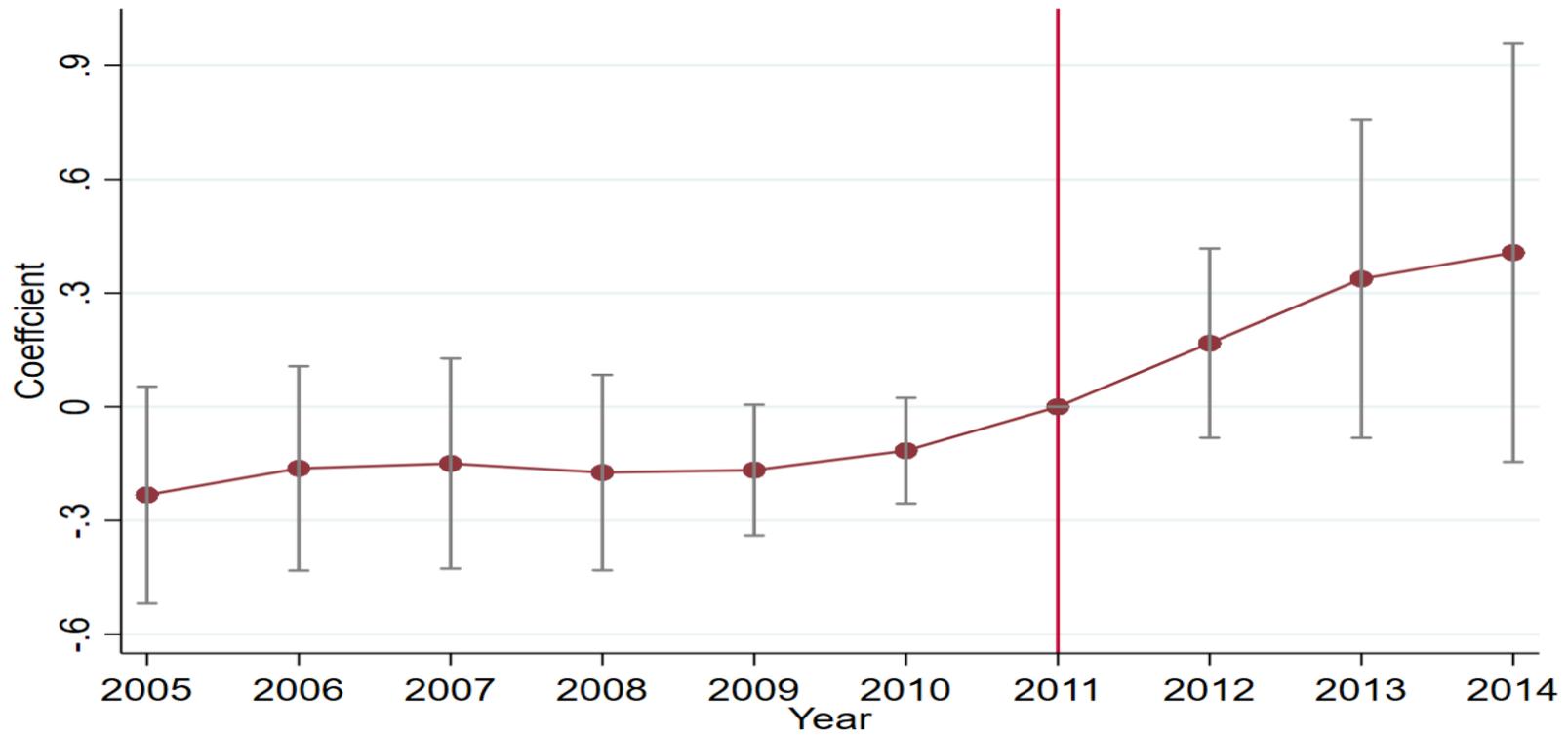
Pre-trends a concern: selection for treatment is on factors including good public finances that would predict investment

Thus, accounting for pre-trends and selection

Quantitative increase in investment is large: roughly $1/4^{\text{th}}$ of a sample standard deviation

Impact is bit noisy: roughly and 8-percent p-value

Estimated Coefficient for infrastructure

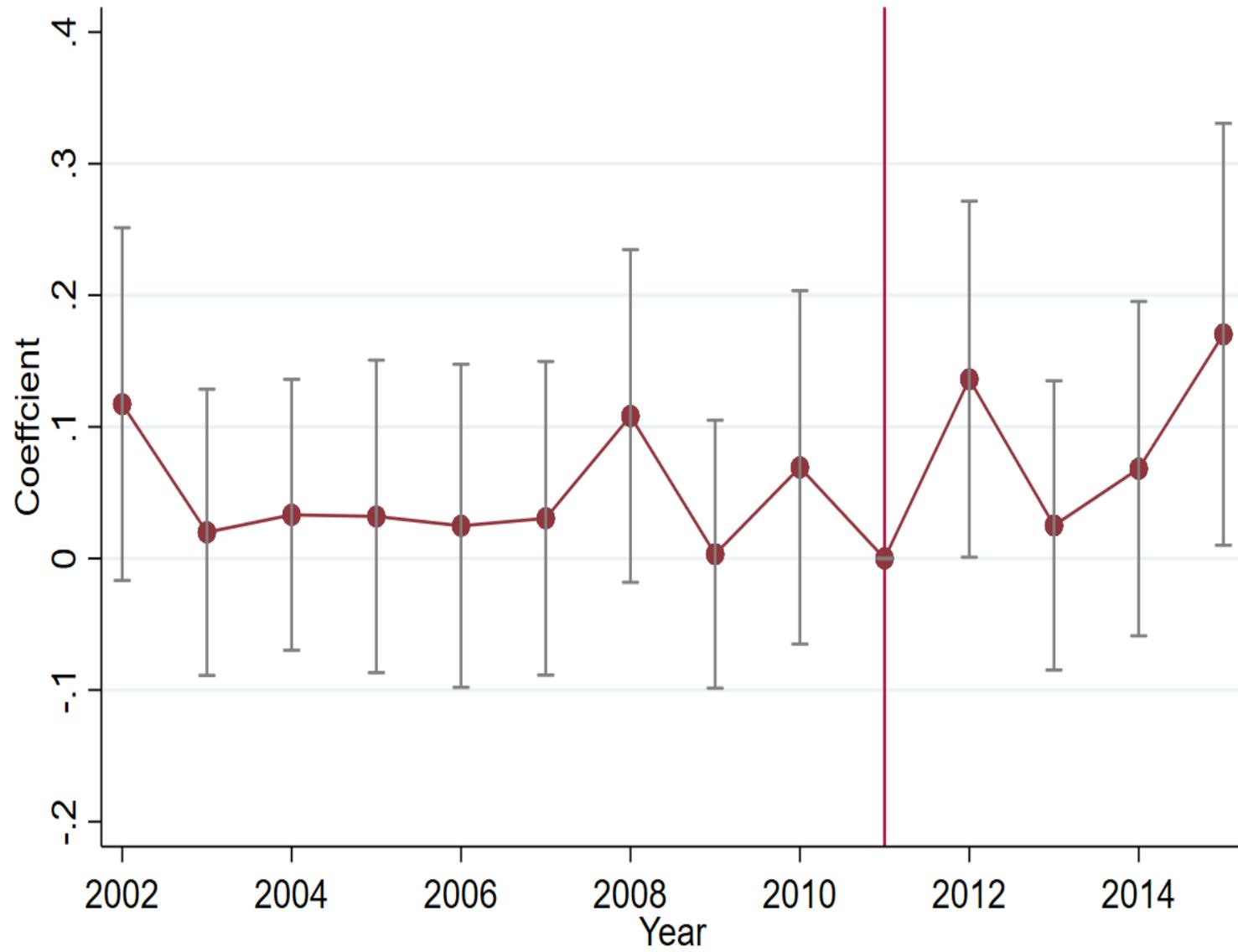


Promotions

Effects of treatment on the promotion of county party secretary

| Dependent variable | (3) Promotion |
|-------------------------|-------------------|
| Treatment \times post | 0.088* (0.048) |
| County fixed effect | YES |
| Year fixed effect | YES |
| Control \times T | YES |
| Control \times T2 | YES |
| Control \times T3 | YES |
| Treatment trend | YES |
| Year coverage | 2005-2014 |
| Observations | 15,207 |
| R-squared | 0.128 |
| Number of clusters | 1894 |

Estimated Coefficient for promotion of County party secretary



Evidence of Underlying Mechanism

Tweet Storm on Sina Weibo about Corruption and Government Accountability and Investments in Treated Counties

Suggests more monitoring from county constituents

Are Investments Growth Promoting?

Are They White Elephants? Public Image Projects

Words Capturing Quality of Investment from
Sina Weibo (log), 2009-2014

| Variable (Projects) | Mean | S.D. |
|---------------------|-------|-------|
| Image | 0.001 | 0.033 |
| Principle | 0.000 | 0.013 |
| White Elephant | 0.000 | 0.017 |

All 3 hardly change at all in treated counties post treatment

Conclusions

Online social media operates as a substitute for a free press and voting in a system where voting and the media are limited

Website increase citizen monitoring, and, therefore lowers government corruption and increases investments

Cut in corruption and increase investment and promotions of county party secretaries in treated versus control counties suggests that rent-seeking does not grease the wheels