

Government-firm relationship and capacity utilization in China: Evidence from enterprise surveys

by Group1

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Motivation

Excess capacity in China



图 2：利用设备能力利用水平推测的产能利用率

Industrial policies dealing with excess capacity

文件名	文件号
国务院关于发布实施《促进产业结构调整暂行规定》的决定	国发（2005）40 号
国务院关于加快推进产能过剩行业结构调整的通知	国发（2006）11 号
国务院关于印发节能减排综合性工作方案的通知	国发（2007）15 号
国务院批转发展改革委等部门关于抑制部分行业产能过剩和重复建设引导产业健康发展若干意见的通知	国发（2009）38 号
国务院关于进一步加强淘汰落后产能工作的通知	国发（2010）7 号
国务院关于化解产能严重过剩矛盾的指导意见	国发（2013）41 号
国务院关于钢铁行业化解过剩产能实现脱困发展的意见	国发（2016）6 号
国务院关于煤炭行业化解过剩产能实现脱困发展的意见	国发（2016）7 号

Data

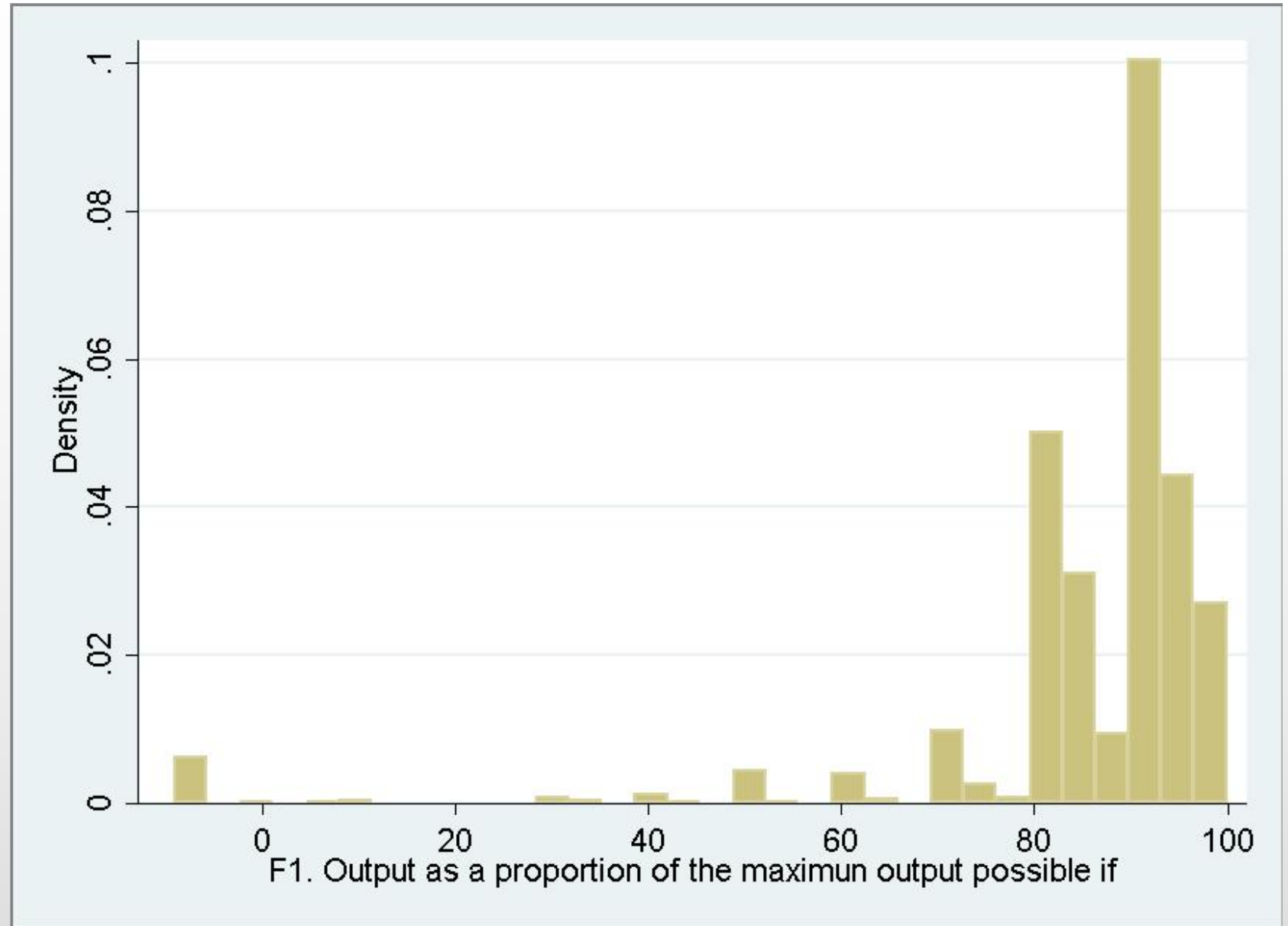
- 1. Enterprise survey from the World Bank;*
- 2. Firm-level microdata;*
- 3. cross-sectional data(2012);*
- 4. nationally representative firms in the sample;*
- 5. Around 1700 industria firms from 20 2-digit industrial sectors*

core					
variables	observation	mean	standard deviation	min	max
gover_share	1,575	3.56254	16.96771	0	95
gov_contract	1,553	1.882807	0.3217532	1	2
tax1	1550	0.9322581	1.065295	0	4
court	1532	2.639034	0.6690829	1	4
regulation	1492	0.6690829	3.096232	0	35

cities	capacity	utilization
Hefei City		88.85484
Beijing (municipalities)		82.846
Guangzhou City		72.859
Shenzhen City		88.9
Foshan City		86.188
Dongguan City		80.159
Shijiazhuang City		88.457
Tangshan City		89.073
Zhengzhou City		91.217
Luoyang City		90.621
Wuhan City		92.653
Wenzhou City		87.517

Nanjing City	91.69
Wuxi City	88.816
Suzhou City	88.977
Nantong City	90.898
Shenyang City	85.156
Dalian City	84.2
Jinan City	83.067
Qingdao City	84.691
Yantai City	80.861
Shanghai (municipalities)	89.8
Chengdu City	90.614
Hangzhou City	89.04
Ningbo City	82.574

Capacity utilization



Hypothesis

More government shares, less capacity utilization

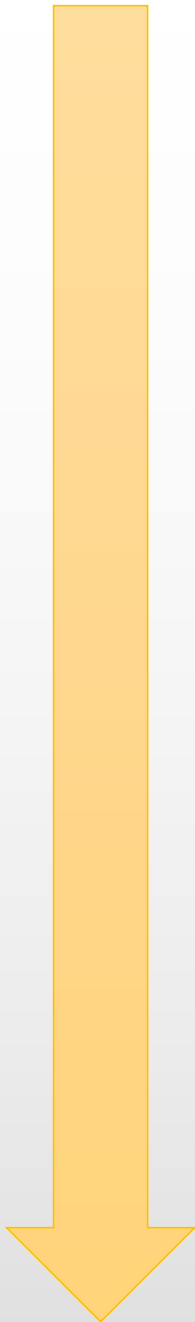
More government contracts, less capacity utilization

More tax-obstacles, less capacity utilization

More competition obstacles, less capacity utilization

More exports ratio, more capacity utilization

More labor regulation-obstacles, more capacity utilization



Collecting microcosmic statistic

Building multiple regression model

Considering comprehensive variables

Speculating and corroborating mechanism

Robustness analysis

Heterogeneity analysis

- Empirical specification

$$y = a + b_1 * x_1 + b_2 * x_2 + b_3 * x_3 \dots + \text{error term}$$

The Government-Corporation Relationship & Excess Capacity in Chinese Industry									
Y: capacity utilization									
	vareable	OLS(1)	OLS(2)	OLS(3)	OLS(4)	OLS(5)	OLS(6)	OLS(7)	
core independent variables	gov share	-0.053(0.013)***	-0.053 (0.013) ***	-0.049 (0 .013) ***	-0.051 (0.013) ***	-0.057 (0.013) ***	-0.055 (0 .013) ***	-0.055 (0 .013) ***	-0.055 (0.014) ***
	gov contract		-1.715 (0.856) **	-1.577 (0.859) *	-1.766 (0.860) **	-1.794 (0.857) **	-1.538 (0.848) *	-1.538 (0.848) *	-1.529 (0.858)*
	tax1		-0.946 (0.428) **	-1.158 (0.454) **	-0.934 (0.425) **	-0.849 (0.431) **	-0.865 (0.455) *	-0.865 (0.455) *	-0.971 (0.470) **
	court		0.336 (0.522)	0 .522 (0.528)	0.347 (0.523)	0.264 (0.535)	0.309 (0.530)	0.309 (0.530)	0.413 (0.550)
	regulation		0.309 (0 .154) **	0.291 (0.153) *	0.309 (0.154) **	0.311 (.152) **			0.312 (0.151) **
labor market	labor regu			1.290 (0 .428) ***					1.50 (0.463) ***
	high school ratio			0.001 (0 .012)					0.004 (0.012)
innovation	new product				0.754 (0.662)				0.728 (0.658)
	RD				-0.683 (0.660)				0.604 (0.673)
competition	informal					0.834 (0.668)			0.735 (0.667)
	competition					-1.216 (0.531) **			-1.275 (0.545) **
finance	loan ratio						-0.066 (0.029) **		-0.056 (0.030) *
	if loan						-0.390 (0.760)		-0.445 (0.780)
	obs finance						-0.027 (0.438)		-0.240 (0.462)
features	age	0.045(0.025)*	0.047 (0.026) *	0.045 (0.026) *	0.045 (0.026) *	0.049 (0.026) *	0.039 (0.026)		-0.040(0.027)
	labor	0.351(0.193)*	0.367 (0.205) *	0.358 (0.203) *	.379 (0.214) *	0.312 (0.203)	.505 (0.208) **		0.429 (0.213) **
	export	1.921(0.596)***	2.000 (0.617) ***	1.891 (0.615) ***	2.044 (0.616) ***	2.026 (0.618) ***	2.214 (0.626) ***		2.140 (0.623) ***
	sector dummies	Yes	Yes	Yes	Yes	Yes	Yes		Yes
	city dummies	Yes	Yes	Yes	Yes	Yes	Yes		Yes
	obervations	1,611	1543	1543	1543	1543	1,533		1555
	R-squared	0.192	0.211	0.215	0.211	0.215	0.216		0.227

Main variables :

- **Government Shareholding Ratio**
- **Regulation**
- **Tax Obstruction**
- **Gaining Contract**

Other Variables:

- **labor regulation**
- **competition**
- **loan from bank ratio**
- **enterprises export**
- **labor**

	1	2	3	4	5	6	7	8	9	10	11	12	
1 age	1	<i>correlation between variables</i>											
2labor	0.2178***	1											
3export	0.0461*	0.2530***	1										
4gov_share	0.0598**	0.0389	-0.1085***	1									
5gov_contract	0.0123	0.1570***	0.0958***	-0.0468*	1								
6tax1	-0.0161	0.0422*	0.0885***	-0.1404***	0.1595***	1							
7regulation	0.0062	0.0507**	0.1544***	-0.0623**	0.0116	0.0099	1						
8labor_regu	0.0164	0.0339	0.0896***	-0.1253***	-0.0345	0.2182***	0.1214***	1					
9new_product	0.0176	0.1768***	0.1475***	-0.1265***	0.1207***	0.1565***	0.1380***	0.0347	1				
10informal	-0.0130	-0.0811***	-0.0356	-0.1802***	-0.0492**	0.0564**	0.0868***	0.2065***	0.1686***	1			
11competition	0.0134	-0.1027***	0.023	-0.1637***	-0.0713***	0.1261***	0.0964***	0.2488***	0.1126***	0.6536***	1		
12loan_ratio	-0.044	0.1775***	0.1434***	-0.0696***	0.0611**	0.0574**	0.1163***	0.0451*	0.0612	-0.0293	0.0413*	1	

Measurement error

measurement
error:

	truthful	somewhat truthful			
age	0.27	0.113			
	0.402	0.048			
labor	0.213**	0.764	high_school_ratio	0.012	0.04
	0.429	0.137		0.004	0.037
export	0.623***	1.49	new_product	0.658	1.56
	2.14	-0.034		0.728	3.992
gov_share	0.138***	0.093	RD	0.672	1.388
	-0.055	-0.055		-0.604	-1.049
gov_contract	0.858*	3.894	informal	0.667	1.495
	-1.529	-5.086		0.735	0.479
tax1	0.470**	0.929*	competition	0.545**	0.854
	-0.971	-2.167		-1.275	-1.251
court	0.55	1.3	loan_ratio	0.029*	0.095
	0.412	1.649		-0.056	-0.09
regulation	0.151**	0.709	if_loan	0.78	1.539
	0.312	-0.017		-0.445	0.009
labor_regu	0.463***	1.276	obs_finance	0.461	0.973
	1.5	0.698		-0.24	0.01

产能过剩的地
方性差异分析

Y: capacity utilization			
	Classification:	Location	
	Sub-Sample	West & North	East& South
Core Independent Variables	gov share	-0.001 (0.001)**	0.000 (0.000)
	gov contract	0.005 (0.059)	-0.013 (0.044)
	tax1	-0.024 (0.028)	0.003 (0.018)
	court	0.046 (0.026) *	0.027 (0.026)
	regulation	0.0001(0.006)	0.003 (0.004)
labor Market	labor regu	0.051(0.051)	0.036 (0.037)
	high school ratio	0.001(0.001)	-0.001 (0.000) **
Innovation	new product	0.029(0.046)	0.038 (0.034)
	RD	0.088(0.055)	0.088 (0.037) **
Competition	informal	0.045(0.046)	0.048 (0.032)
	competition	0.048(0.043)	-0.010(0.021)
Finance	loan ratio	0.001(0.002	-0.002(0.001)
	if loan	0.014(0.054)	-0.002(0.045)
	obs finance	-0.021(.024)	0.002(0.020)
Features	age	-0.004 (0.001) **	-0.0065(0.0017)***
	labor	0.031 (0.016)*	0.024 (0.012) **
	export	-0.016 (0.046)	-0.021 (0.034)
	sector dummies	Yes	Yes
	city dummies	Yes	Yes
	Obervations	705	1154
	R-squared	0.567	0.473

Heterogeneity

	显著影响因素
Large Establish-ment	Gov share; Competition
Small Establish-ment	Gov share; Tax; Lab regu; Loan ratio; Age; Export

Y:capacity utilization		Firms' size			
	Classification				
	Criteria	-1	-2	-3	-4
	Sub-Sample	Small. (100)	Large. (100)	Small. (200)	Large (200)
Core Independent Variables	gov share	-.050(.019)**	-0.058(0.023)**	-.055 (.016) ***	-.059(.024)**
	gov contract	-2.049(1.548)	-0.878(0.900)	-2.047 (1.171) *	.175(.936)
	tax1	-1.318(.689)*	-0.6	-1.405 (.608) **	-.029(.449)
	court	.595(.822)	0.237(.725)	.173 (.674)	.223(.591)
	regulation	.402(.203)**	.179(.203)	.311 (.198)	.156(.100)
Labor Market	labor regu	2.357(.711)***	.917(.563)	.311 (.198)	.646(.526)
	high school ratio	.011(.017)	-.017(.016)	.001 (.015)	-.005(.015)
Innovation	new product	.614(.917)	.592(.888)	.296 (.789)	1.001(.965)
	RD	-1.124(.913)	-.147(1.052)	-.383 (.840)	-2.557(.955)**
Market Compet	informal	.733(1.031)	.795(.828)	.452 (.845)	1.345(.902)
	competition	-1.253(.777)	-1.310(.636)**	-1.038 (.673)	-1.459(.545)***
Finance	loan ratio	-.162(.059)***	.010(.028)	-.109 (.040) ***	.061(.029)**
	if loan	.875(1.257)	-1.643(1.042)	.228 (1.026)	.061(.029)***
	obs finance	-.853(.694)	.701(.581)	-.292 (.569)	.449(.636)
Features	age	.137(.057)**	.023 (.026)	.098 (.047) **	.047(.022)**
	labor	.450(.503)	.052 (.345)	.576 (.433)	-.524(.388)
	export	3.042(.948)***	1.227 (.963)	2.830 (.781) ***	.253(.807)
	sector dummies	Yes	Yes	Yes	Yes
	city dummies	Yes	Yes	Yes	Yes
observations		869	664	1162	371
R-squared		0.279	0.25	0.251	0.42

Notes: In columns 1 and 2, 100 in the bracket means that the threshold between small and large firms is 100 employees. In columns 3 and 4, 200 is the threshold

Mechanism

- Resource Availability

		Financial Accessibility v. Government-Business Relationship	Investment v. Government-Business Relationship
		Financial Accessibility	Investment from a financial institution
variables		y1: Access to Finance k30	y2: Financial Institutions k8
core independent variables	gov share	-0.003(.001) ***	0.0013(0.0005)***
	gov contract	0.063 (0.066)	-0.102(0.036)***
	tax1	0.132 (0.030) ***	-0.002(0.015)
	court	-0.065 (0.032) **	0.033(0.018)*
	regulation	0.006 (0.008)	-0.011(0.005)**
labor market	labor regulation	0.277(0.044)***	0.014(0.019)
	high school ratio	0.0002(0.0008)	0.0006(0.0004)
innovation	new product	0.078(0.052)	-0.040(0.027)
	RD	0.049(0.047)	-0.10(0.028)***
competition	informal	0.090(0.056)	0.0008(0.030)
	competition	0.046(0.035)	0.012(0.018)
Characteristics of Enterprises	age	-0.003(0.003)	0.000(0.0014)
	labor	0.0005(0.0155)	-0.062(0.009)***
	export	0.029(0.046)	-0.088(0.026)***
	sector dummies	Yes	Yes
	city dummies	Yes	Yes
observations		1,559	1524
R-squared		0.3509	0.3292

Mechanism

- Performance

		Performance		
		y4:Profitability	y5:labor productivity	y6:average productivity
core independent variables	gov share	.001(.003)	-19423.98 (18350.99)	-.001(.002)
	gov contract	-.031(.036)	1541830(1100504)	.193(.105)*
	tax1	-.001(.009)	-82897.94(331433.9)	.020(.046)
	court	-.019(.012)	-198534.5(443298.9)	.054(.060)
	regulation	-.006(.003)**	50865.21(121103.1)	.002(.014)
labor market	labor regulation	.009(.012)	904815.1(671312.9)	.124(.065)*
	high school ratio	.0004(.0003)	59.32892(10617.05)	-.001(.001)
innovation	new product	-.018(.016)	742000.6(588521.2)	.130(.079)
	RD	.026(.016)	1488097(581995.8)**	.268(.078)***
competition	informal	-.001(.020)	1566770(836865)*	.207(.099)**
	competition	-.002(.013)	-512700(405994)	-.055(.062)
Finance	loan ratio	.00006(.001)	63657.32(42390.14)	.006(.003)**
	if loan	-.002(.019)	-764955.2(830658.3)	.052(.096)
	obs finance	-.019(.011)	-622813.2(435639.8)	-.027(.050)
Characteristics of Enterprises	age	.001(.001)	78127.89(33403.62)**	.015(.004)***
	labor	.018(.007)**	1139931(396839.6)***	.240(.040)
	export	-.010(.014)	-472498.6 (603904.8)	-.058(.076)
	sector dummies	Yes	Yes	Yes
	city dummies	Yes	Yes	Yes
	obervations	1,034	1233	1458
	R-squared	0.225	0.127	0.256

***Policy implication and
future research***

Thanks

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