

China's Industrial Economy 2017 Q3 Report¹

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¹ This report is based on a nationwide quarterly survey of industrial firms, which is implemented by Beijing Allinfo Co., based on the questionnaire and sample provided by Professor Gan Jie, Director of the Center on Finance and Economic Growth. We thank Beijing Allinfo for its hard work and professionalism. We acknowledge the able research assistance of Harry Leung and Jessy Yao who provided support to the data analysis and presentation. Mark Dreyer provided excellent copy editing.

Executive Summary

The key findings about China's industrial economy in 2017 Q3 are as follows:

1. Although the Business Sentiment Index in the third quarter indicated a slight contraction, the industrial economy has shown signs of recovery.
2. Costs continued to rise significantly.
3. Overcapacity is still at a high level in terms of both its prevalence and magnitude.
4. Firms' concerns about environmental issues have intensified significantly.

Overall, supply-side reform has made positive progress in solving the structural problems of China's industrial economy. On the other hand, due to the persistent severity of overcapacity, there is still a need to reduce production capacity. In addition, persistent rises in raw material costs and the resulting price inflation may hinder the recovery of the industrial economy.

Introduction

This report is based on data collected from our quarterly surveys of around 2,000 industrial firms in China. Conducted through telephone interviews, this study is now in its fourth year, having launched in 2014 Q2. If we exclude the sectors of agriculture, real estate and finance from China's GDP, the industrial sector now accounts for 50% of non-agricultural sectors.

Our survey design ensures that our sample fully represents industry, region and company size. As a result, we are able to construct business indices that are, to the best of our knowledge, the most informative ones available about the Chinese economy. Furthermore, our survey questions allow us to understand the underlying mechanisms behind the data and analyze why the economy is doing well or not.

There were a total of 2,034 firms surveyed for our 2017 Q3 report, of which 1,678 firms were also polled in our 2017 Q2 survey. The initial survey sample was based on a stratified random sampling by industry, region and size from the 2008 Economic Census. Starting from 2017 Q2, we have also surveyed additional firms from the 2013 Industrial Enterprises database, which allows us to cover firms founded after 2008. Appendix A details the sampling procedure and compares our sample with the population.

I. 2017 Q3 Key Findings

I.1 Industrial Economy Is Showing Signs of Stabilizing

In Q3, the Business Sentiment Index² stood at 47, up from 46 in the previous quarter, but still indicating a slight contraction (Figure 1)³. In Q3, our index was mainly dragged down by investment. When asked whether it was currently a good time to make fixed investments, only 1% of the firms considered the timing to be "good", 73% of the firms replied "average" (Q2: 71%) and 26% of the firms declared the timing was "bad" (Q2: 28%); the corresponding diffusion index was 37, far below the turning point of 50. In reality, only 10% of firms made any fixed asset investments in

² Our BSI is the simple average of three diffusion indices, including current operating conditions, expected change in operating conditions and investment timing. Compared with other economic indices, our BSI is more forward-looking and is a reflection of the absolute level of economic activities.

³ Specifically, the three questions underlying our Business Sentiment Index are the following: 1. How are current operating conditions – "good", "neutral" or "difficult"? 2. What is the expected change in operating conditions during the next quarter – "up", "same" or "down"? 3. To what extent is it now a good time to invest – "good", "medium" or "bad?" The diffusion index is based on answers to multiple-choice questions, with the choices in analog to "good," "neutral" and "bad", or "up," "same" and "down." The diffusion index is computed as $100 * \% \text{ of firms answering "good"} + 50 * \% \text{ of firms answering "neutral"}$. The diffusion index ranges between 0 and 100. A larger value indicates better operating conditions, with 50 marking the turning point between expansion and contraction.

Q2 (Figure 2).

However, it is worth noting that the industrial economy has shown signs of recovery, manifested in the following aspects:

1. The proportion of firms with expansionary investment increased significantly, from 1% in the previous quarter to 4% in Q3 (Table 1).
2. Capacity utilization and gross margins also increased. The proportion of firms with capacity utilization above 90% increased from 44% in the previous quarter to 47% in Q3 (Figure 10). Meanwhile, the proportion of firms with gross margins above 15% increased from 28% in Q2 to 31% in this quarter (Figure 11).
3. Production expanded slightly. Our analyses are based on the diffusion indices of production and electricity consumption (both of which registered 51), as well as the distribution of production changes across firms in different size categories. Most noticeably, production at private firms stopped shrinking for the first time since Q4 2016 (and for just the second time since 2015 Q1) (Figure 4).

I.2 Costs Continued to Rise Significantly

Cost rises have been a prominent problem since 2016 Q4, mainly due to increases in raw materials and labor costs. Unit costs increased markedly again this quarter. Close to 50% of the firms reported unit cost rises, up from 32% in the previous quarter, with the diffusion index standing at 75, nine points up from Q2. The magnitude of cost rises was also significantly higher than the previous quarter. Firms with a significant increase in cost (that is, quarterly cost rises above 3%) accounted for 27%, far higher than the previous mark of 12% in Q2. Firms with unit cost increases above 5% accounted for 14% in Q3, also significantly higher than the previous quarter's mark of 9% (Figure 3).

Unit cost increases are mostly related to raw material costs. The diffusion index of raw material costs was 74. The proportion of firms that saw increases in raw material costs above 3% and 5% were, respectively, 19% and 12%.

When asked about the constraining factors of next quarter's production, the proportion of firms which mentioned "raw material costs" increased to 25% in Q3, up from the 15-19% range seen in the past few quarters (Figure 7).

I.3 Firms' Concerns About Environmental Issues Have Increased Significantly

The past four rounds of environmental supervision have resulted in a noticeable impact on our Q3 data. The proportion of firms listing environmental issues as an

important constraining factor for next quarter's production jumped from 5% in the previous quarter to 14% this quarter (Figure 7).

II. Challenges and Priorities

II.1 Overall Conditions and Industry & Regional Distribution

As shown in Figure 5, with the exception of the price index, our major indices revealed unchanged conditions, staying around 50, which marks the turning point between expansion and contraction. Product prices continued to rise in the third quarter at a speed consistent with the previous quarter. The proportion of firms reporting increases in product prices was 20%, slightly higher than the 17% in Q2, with a diffusion index of 59 (Q2: 57). The proportion of firms with substantial price increases (above 5%) was 5% in Q3, similar to the 7% found in the last quarter.

Cost rises have been the driving force behind the price rises in Q3. As shown in Figure 6, among firms with product cost inflation above 5%, cost rises were the most prominent. The proportion of firms with unit cost increases above 5% and 10% were 75% and 34%, respectively, while 69% reported raw material cost rises above 5%, all much higher than the sample average. Meanwhile, these firms gave similar responses to the whole sample in terms of production expansion and overcapacity. All these patterns in the data point towards price inflation driven by cost run-ups, rather than by increased demand.

As shown in Table 2.2, the top three industries included Gas Production & Supply (69), Production & Supply of Water (58) and Power Production & Supply (56). Gas Production & Supply has been on the list for two consecutive quarters. Production & Supply of Water and Power Production & Supply have each appeared in eight out of 11 quarters since 2015 Q1. On the other hand, the worst-performing industries were Mining & Processing of Ferrous Metal Ores (26), Non-metallic Mineral Products (37), Leather-Related Products (39), Smelting & Pressing of Ferrous Metals (39) and Coal Mining & Washing (40). In the 11 quarters since 2015 Q1, this is the first time that Mining & Processing of Ferrous Metal Ores has appeared on the list. Non-metallic Mineral Products has been persistently on this list for five consecutive quarters, while Leather-Related Products has featured on the list nine times.

Table 3.1 displays regional business conditions. In Q3, the BSI ranged from 38 (Ningxia) to 55 (Gansu). Inner Mongolia had been the top-performing province for the last six quarters but dropped off the list this quarter. The bottom five provinces were Ningxia (38), Beijing (42), Shanxi (42), Xinjiang (43) and Yunnan (44). Ningxia has appeared on the list five times out of the 11 quarters since 2015 Q1. Q3 was the first time that Beijing appeared on the list.

II.2 Challenges and Priorities

Weak demand is still by far the biggest challenge for the industrial economy (Figure 7). 59% of the firms surveyed in Q3 cited a lack of orders. Costs were listed as the second largest issue, with raw material and labor costs both cited by 25% and 14% of firms, respectively. 15% of firms cited macroeconomic and industrial policies as limiting factors. The proportion of firms citing environmental concerns increased significantly from 5% to 14% this quarter. In addition, financing was not found to be a bottleneck, with only 2% replying that financing was a limiting factor, a finding consistent with past surveys.

II.2.1 Overcapacity Still Near a Historical High

In 2017 Q3, close to two-thirds (64%) of the firms reported oversupply in the domestic market, with a diffusion index of 82 (Q2: 82), still close to historically high levels. The proportion of firms with severe overcapacity is similar to last quarter: 37% (Q2: 36%) of firms reported that their excess capacity was above 10%, while 16% (Q2: 16%) reported that their excess capacity was above 20% (Figure 8A).

We categorize an industry as having severe excess capacity if more than 10% of firms report excess capacity of more than 20%. There are 38 industries and 31 regions in total. In Q3, the number of industries and regions with severe excess capacity accounted for more than half of the total firms (20 industries and 21 regions in 2017 Q3 versus 22 industries and 21 regions in 2017 Q2) (Figure 8B). Overall, both the prevalence and severity of overcapacity are close to historically high levels. Moreover, these firms said they did not expect that overcapacity would improve in the next quarter.⁴

It is also worth noting that overcapacity in the international market is substantially better than in the domestic market, with the diffusion index 10 points lower (Figure 8A).

Weak demand has not caused inventory problems: thanks to the “order-based” production model adopted by many Chinese firms, the finished-goods inventory stayed largely flat. In Q3, for example, as many as 46% of firms said they did not have significant levels of inventory because they started production only after receiving orders. For those carrying inventories, 83% said they expected their inventory to be digested within three months, with a further 12% saying it would take between four to six months. This leaves only 5% of the whole sample who said they expected to carry inventory for more than six months.

⁴ We noticed that, when asked about factors restricting the next quarter’s production, the proportion of firms noting “a lack of orders” dropped significantly, from 70%-80% in the past quarters to 59% in Q3 (Figure 7). Our analysis suggests that this is due to the fact that firms facing closure due to environmental problems stopped listing overcapacity as their main concern, rather than a true easing of overcapacity concerns.

II.2.2 Curtailment of Overcapacity

Each quarter, we attempt to call back all the firms that have been surveyed in the previous quarter. In Q3, about 4% of firms had suspended production or were suspected to have suspended production, similar to the number in Q2. Those suspected of having suspended production included cases where, after between five to nine attempts to reach them, the phone number was either wrong, suspended or did not exist, and the line could not be connected or was busy (Figure 9A).

In Q3, the proportion of firms reducing workers by more than 10% was 0.8% (Q2: 0.9%), while the proportion of firms reducing workers by more than 20% was 0.5% (Q2: 0.7%) (Figure 9B). Based on the size distribution of firms with employment reduction and the number of industrial workers in 2015 being 220 million, we estimate that a total of 480,000 jobs were lost in 2017 Q3.

Consistent with an improved industrial structure, firms with severe overcapacity are more likely to reduce employment and production. Among those with severe overcapacity (above 20%), the proportion of firms reducing production by more than 5% and 10% was 27% and 18%, respectively, both significantly more than that of the whole sample (10% and 5%). Moreover, the proportion of firms reducing employment by more than 5% and 10% was 3% and 2.3%, respectively, also higher than that of the whole sample (1.3% and 0.8%).

Capacity utilization increased slightly in 2017 Q3. About 47% (Q2: 44%) of firms reported a capacity utilization rate above 90%, up from last quarter's 44%. Nevertheless, 16% of firms still reported levels of below 70% (Figure 10). There is no consensus as to what level of capacity utilization should be considered healthy. However, if we take the examples of the two largest western industrial nations, the US and Germany, their monthly average capacity utilizations were 79% (1994-2015) and 83% (1992-2015), respectively. Their lowest points after the financial crisis in 2008 were 67% and 70%, respectively, both measured in June 2009. Given the low profit margin of Chinese industrial firms, their sustainable utilization rate may be higher than that of their western counterparts.

Consistent with overcapacity and the resulting lack of orders, 30% of firms reported difficulties in collecting trade receivables from their customers in 2017 Q3, up slightly from 28% in 2017 Q2. This problem was more prominent among private firms (32%) and firms producing capital goods and intermediate goods (37% and 34%, respectively). SOEs were disproportionately more likely to delay payment, accounting for about 15.4% of all firms that have done so.

II.2.3 Rising Costs and Low Margins

Cost rises are the second biggest challenge facing the industrial economy. This has become a more prominent problem since 2016 Q4, mainly due to increases in raw materials and labor costs. In Q3, unit costs were still rising significantly again, with a diffusion index of 75 (Q2: 66) (Figure 3).

Although overcapacity, combined with rising costs, results in low profit margins in general, there was a slight improvement in margins in Q3. The proportion of firms with gross margins above 20% increased from 28% in Q2 to 31% in Q3 (Figure 11).

II.2.4 Financing is Not a Bottleneck

Our survey has consistently found, since its inception in the second quarter of 2014, that financing is not a bottleneck for the industrial economy. In Q3, only 2% of firms cited financing as a constraining factor (2016: 3-4%). 25% of firms said they had sufficient funds, 72% answered “neutral”, while only 3% reported insufficient funds (Figure 12A). Of those, the vast majority (95%) reported insufficient funds for production, not for expansion, while 1.6% reported insufficient funds due to operating losses.

As shown in Table 6.1 and Figure 12B, only a small fraction of firms (1.5%) obtained new loans in Q3. When asked about the reasons, the vast majority of firms without new loans (99%) reported that they did not have the need for capital. Moreover, the diffusion index reflecting an “accommodating” bank lending attitude was 70 (Q2: 74), while the percentage of firms reporting a “difficult” lending attitude dropped to 7% in Q3 (Q2: 9%) (Figure 12C). In fact, only one firm in our sample borrowed money from financial institutions other than banks in Q3.

Table 6.2 provides an overview of how Chinese firms have been financed. Internally-generated funds were, by far, the most important source of financing, with 98% of surveyed firms reporting this as their primary funding source. In Q3, 2% of firms reported the founder’s own capital as the primary source of funds, while 41% reported this as the second most important source of funds. 58% of firms indicated bank loans as their second most important source of funds. Sources of financing were highly concentrated in Chinese firms: in the case of internal funds, 94% of firms reported that this largest financing source accounted for more than 50% of their total funds. These patterns have been highly consistent over time.

Taken together, against the background of overcapacity, investment opportunity has been scarce, resulting in low loan demand. Thus, financing is not a bottleneck for the industrial economy at the moment.

III. Conclusion

Although our Business Sentiment Index in the third quarter indicated a slight contraction, the industrial economy has shown signs of recovery, manifested in the following aspects:

1. The proportion of firms with expansion investment increased significantly.
2. Although overcapacity is still near a historical high, when asked about factors restricting production in the next quarter, the proportion of firms responding “a lack of orders” has declined significantly.
3. Capacity utilization and gross margins have increased.
4. Production expanded slightly. Private firms have stopped shrinking for the first time since Q4 2016 (and for just the second time since Q1 2015).

Overall, supply-side reform has made positive progress in solving the structural problems of China’s industrial economy. On the other hand, due to the persistent severity of overcapacity, there is still a need to reduce production capacity. In addition, persistent rises in raw material costs and the resulting price inflation may hinder the recovery of the industrial economy.

Given the government’s strong commitment to economic development, we remain optimistic about the long-term outlook of the Chinese economy.

Figure 1. Business Sentiment Index

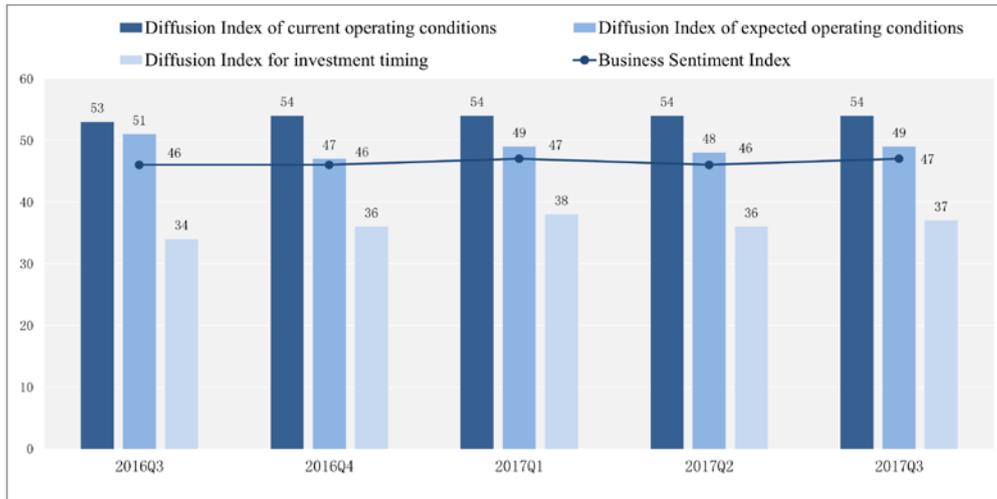


Figure 2. Investment

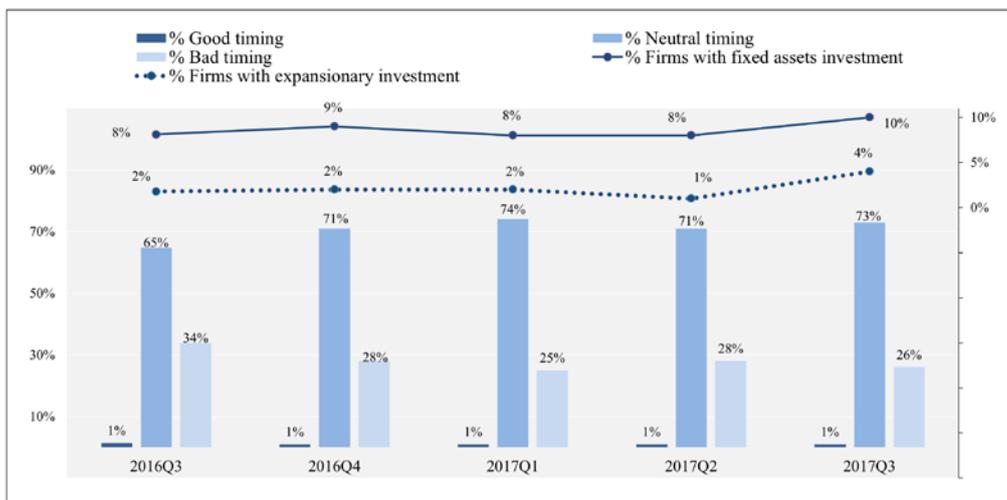


Figure 3. Costs

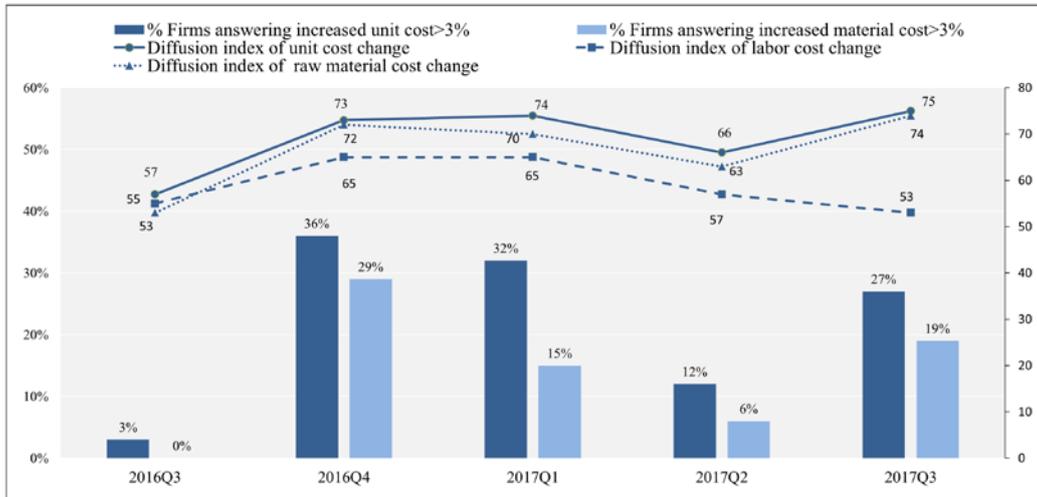


Figure 4. State-owned vs Private Firms
Diffusion Index of Production

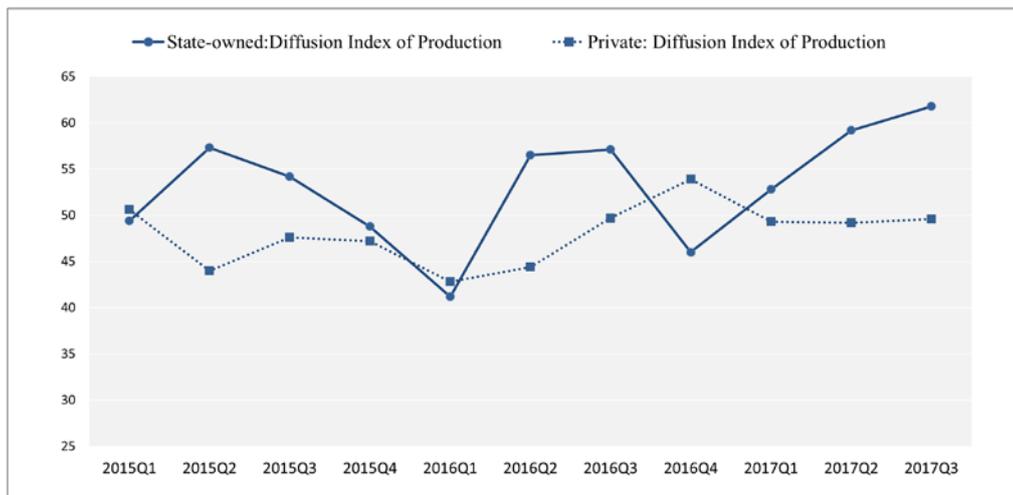


Figure 5. Other Main Economic Indices

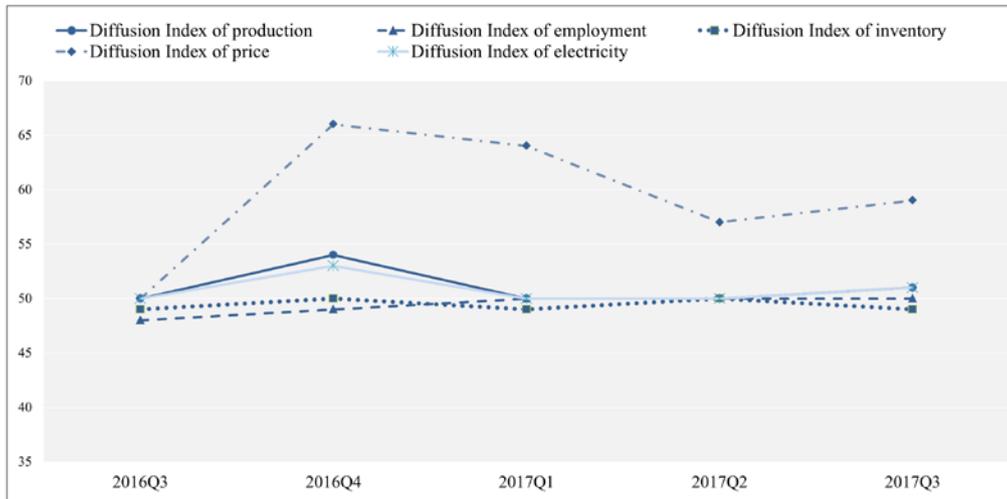


Figure 6. Cost Driven Price Increases

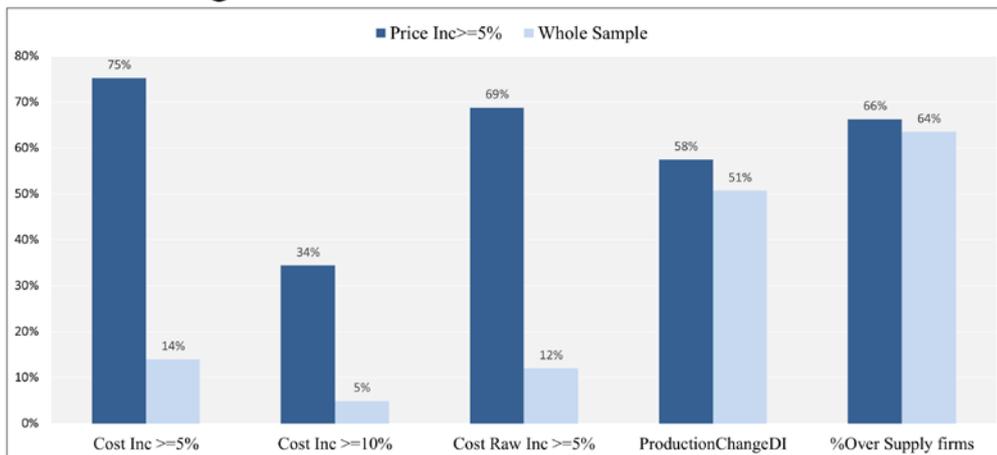


Figure 7. Factors Constraining Production of Next Quarter

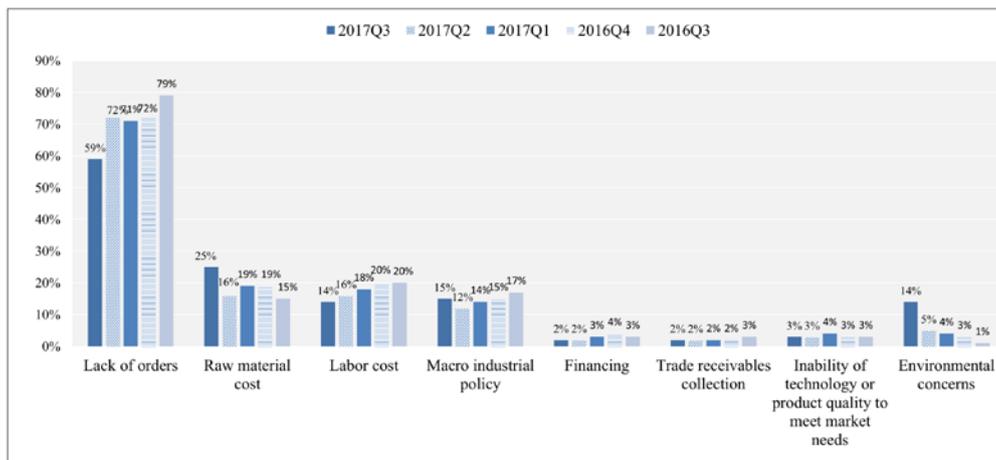


Figure 8A. Excess Capacity

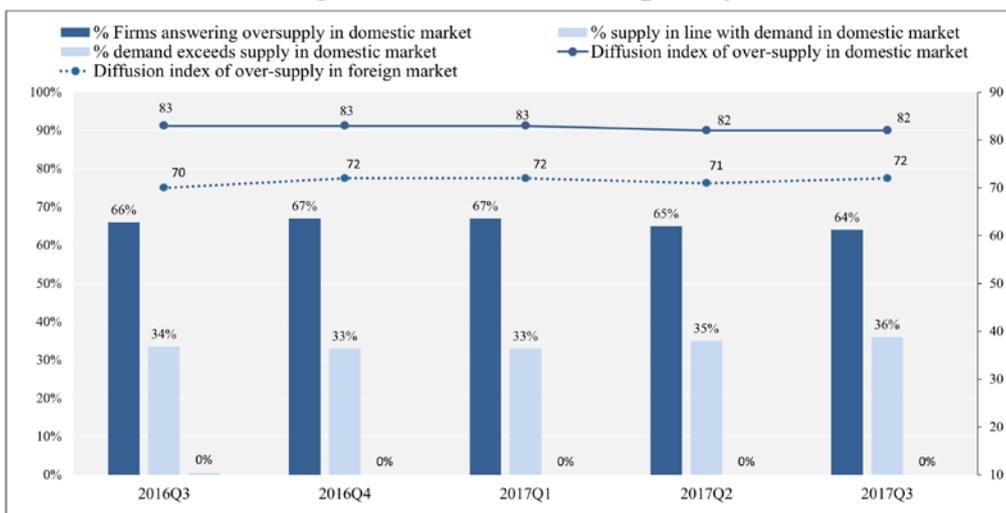


Figure 8B. Firms with Severe Excess Capacity

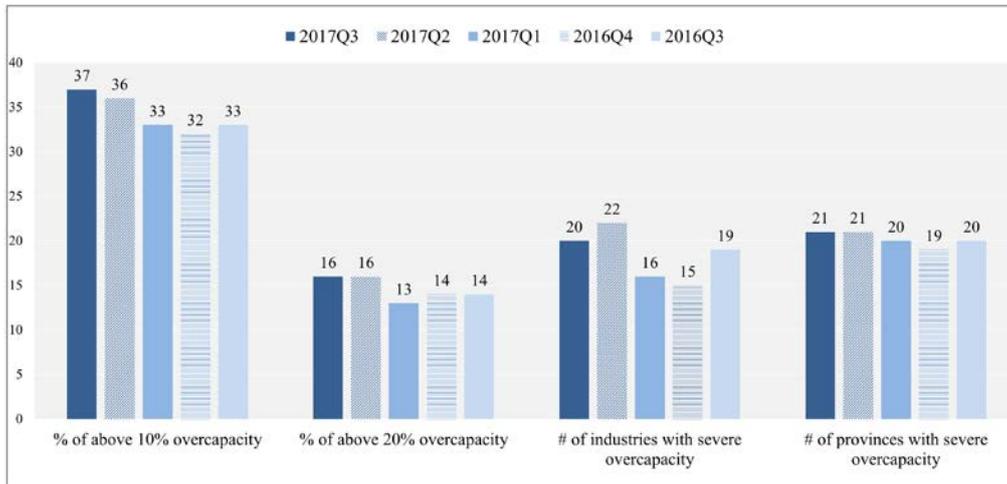


Figure 9A. Suspended Production

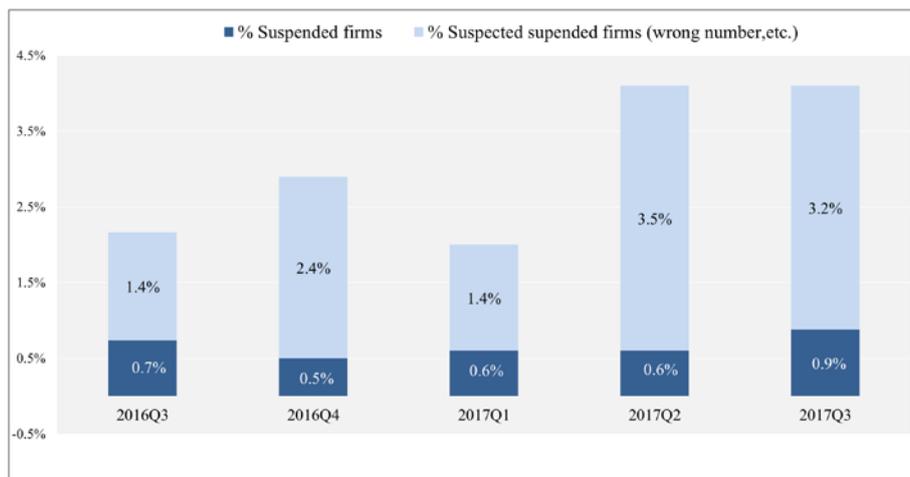


Figure 9B. Firms with Employment Reduction

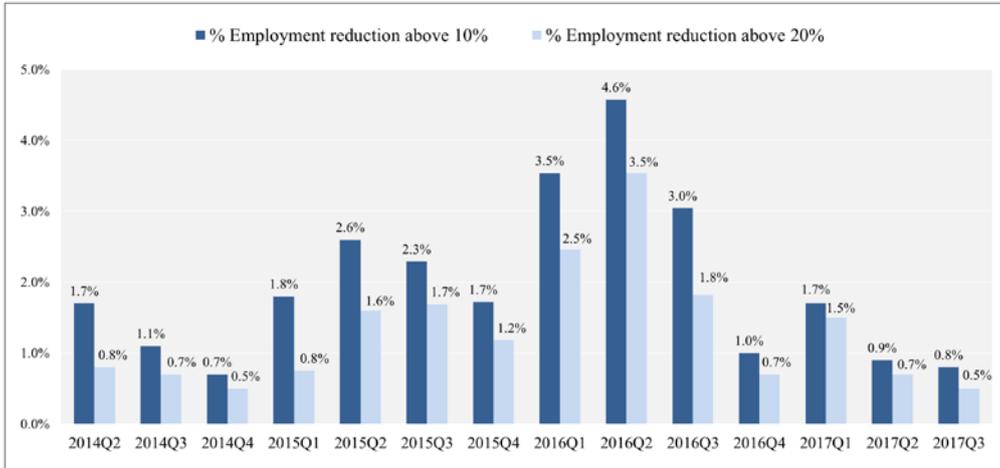


Figure 10. Capacity Utilization

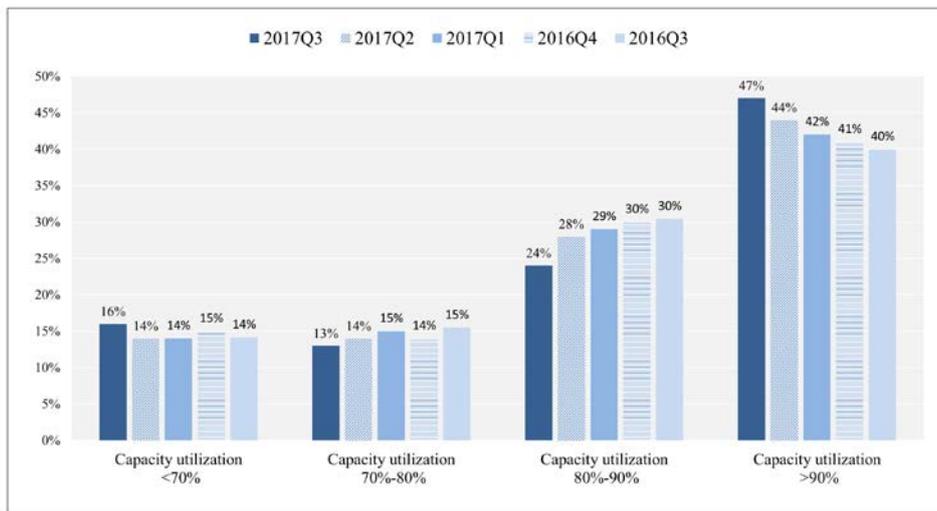


Figure 11. Gross Margins

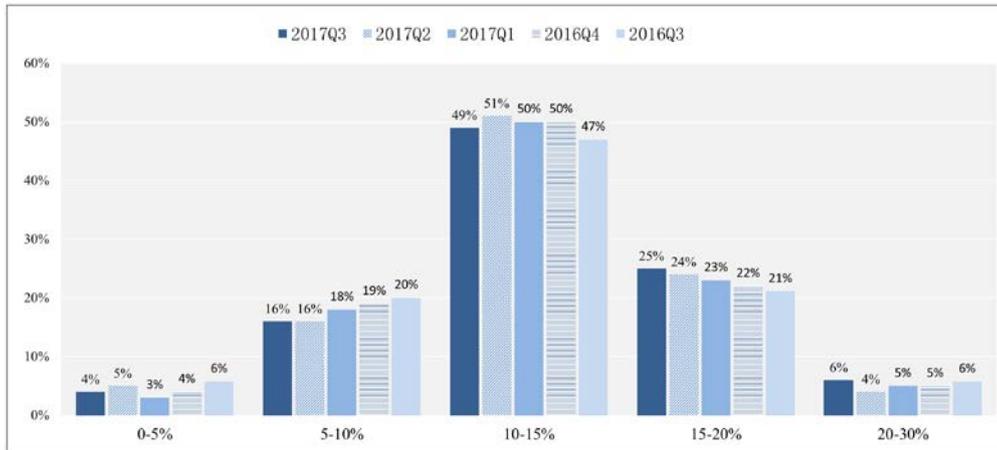


Figure 12. Financing
Figure 12A. Sufficient Capital

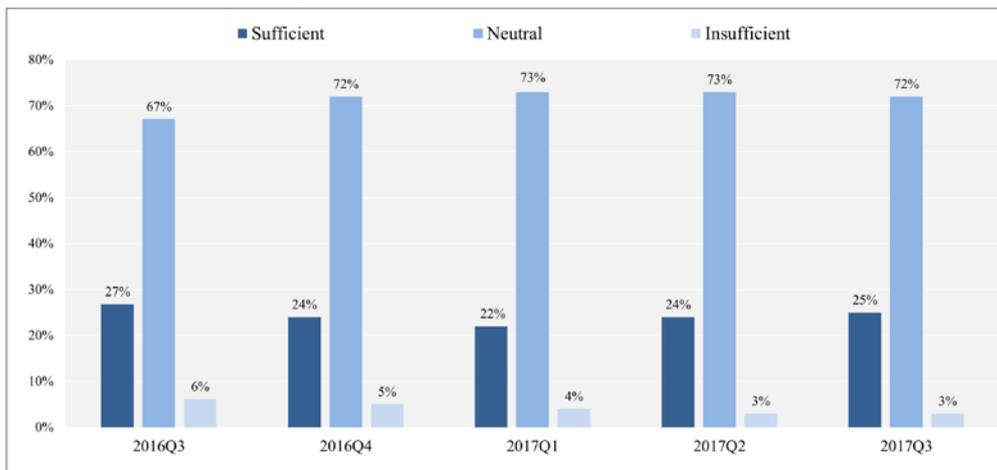


Figure 12B. New Loans

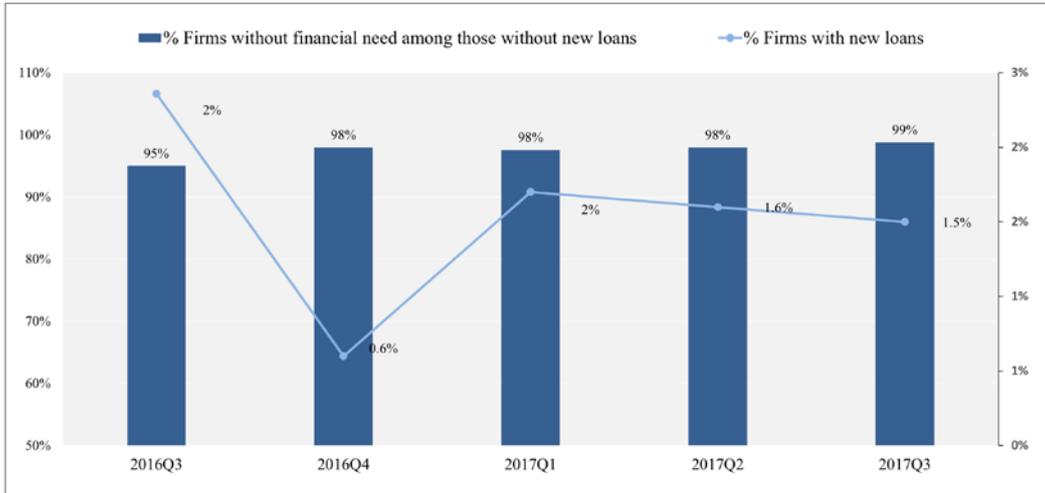


Figure 12C. Lending Attitude

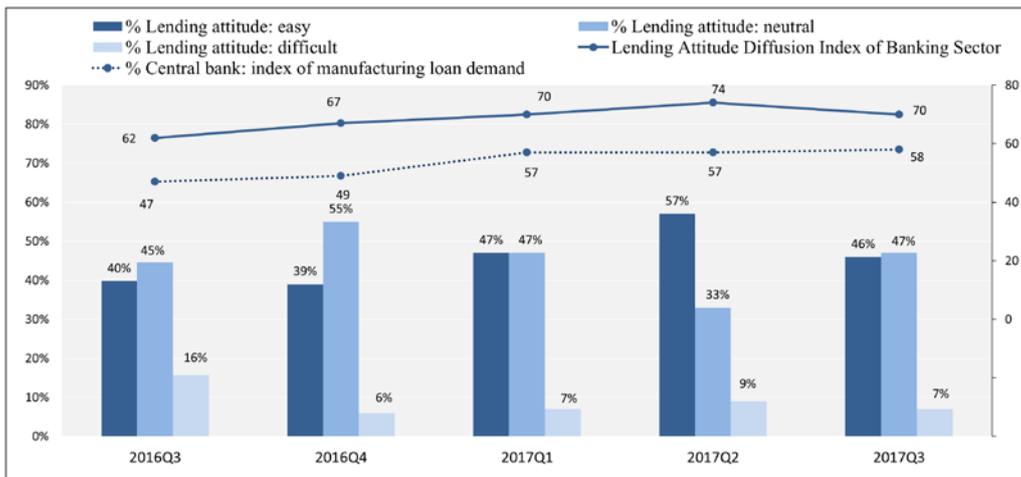


Table 1. Operating Conditions of Industrial Firms**Table 1.1**

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Change in Operating Conditions		Diffusion Index - Good Timing for Investment	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
<i>Nation</i>	2,034	2,050	47	46	54	54	49	48	37	36
<i>By Size</i>										
Large	678	684	49	49	56	57	49	48	41	41
Medium	678	683	47	46	56	55	50	48	37	36
Small	678	683	45	43	51	51	49	48	34	32
<i>By Ownership</i>										
State-owned	102	98	55	56	72	69	49	56	44	43
Collectively-owned	32	32	46	47	53	55	53	55	33	33
Private	1,709	1,704	46	45	53	53	49	47	37	36
Foreign-owned	191	216	50	49	59	58	51	49	41	39
<i>By Product Type</i>										
Consumer Goods - Durable	269	309	47	45	55	54	49	49	36	33
Consumer Goods - Nondurable	751	725	49	47	58	56	50	49	38	37
Capital Goods	148	136	49	47	54	51	50	51	42	39
Intermediate Goods	866	880	45	46	51	53	49	47	36	36

Table 1.2

	% of Firms with Fixed Investment		% of Firms with Expansionary Investment		Diffusion Index - Production		Diffusion Index - Employment		Diffusion Index - Price	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
<i>Nation</i>	10	8	4	1	51	50	50	50	59	57
<i>By Size</i>										
Large	12	10	3	1	53	51	50	50	57	57
Medium	10	9	4	1	50	50	51	50	59	58
Small	8	5	3	1	49	49	49	50	61	56
<i>By Ownership</i>										
State-owned	25	26	5	2	62	59	51	52	56	58
Collectively-owned	0	0	0	0	52	47	52	47	59	56
Private	9	7	4	1	50	49	50	50	59	56
Foreign-owned	12	10	2	2	54	52	51	51	59	60
<i>By Product Type</i>										
Consumer Goods - Durable	6	5	2	1	50	52	51	50	60	55
Consumer Goods - Nondurable	13	10	5	1	54	47	50	50	60	57
Capital Goods	9	7	1	1	54	56	51	50	57	55
Intermediate Goods	9	8	3	1	47	51	50	50	59	58

Notes:

1. Diffusion Index (DI) is computed using the percentage of firms that answer "increase" (% increase) and "same" (% same) according to the formula: (% increase + 0.5 * % same). The index ranges between 0 and 100. A larger value indicates a better operating condition.

2. Business Sentiment Index is the average of DIs for Operating Conditions, Expected Operating Conditions and Good Timing for Investment.

Table 2. Operating Conditions by Industry
Table 2.1 Operating Conditions of All Industries

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Change in Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation	2,034	2,050	47	46	54	54	49	48	10	8	37	36
<i>Mining</i>												
Coal Mining and Washing	12	5	40	37	42	30	42	30	25	0	38	50
Mining and Processing of Ferrous Metal Ores	7	2	26	50	7	50	21	50	14	0	50	50
Mining and Processing of Non-ferrous Metal	7	8	43	44	50	50	50	50	0	0	29	31
Mining and Processing of Nonmetal Ores	21	17	40	41	36	38	40	44	0	0	43	41
Other Ancillary Activities of Mining	1	1	50	33	50	50	100	50	0	0	0	0
<i>Production and Supply of Electricity, Heat, Gas and Water</i>												
Power Production and Supply	63	59	56	58	67	64	51	61	29	36	50	50
Gas Production and Supply	7	5	69	60	86	80	71	50	29	20	50	50
Production and Supply of Water	22	21	58	63	89	88	45	60	23	24	41	40
<i>Light Manufacturing</i>												
Processing of Agricultural and Related Products	101	113	43	41	54	53	49	47	4	8	26	24
Manufacturing of Foods	64	63	52	44	55	52	61	40	5	0	41	40
Manufacturing of Beverage	38	43	51	44	63	52	49	45	5	14	41	35
Textiles	103	94	47	46	55	51	51	48	17	3	35	40
Textile Wearing and Apparel	67	58	49	49	54	53	49	48	18	14	45	44
Leather Related Products and Footwear	34	39	39	38	50	50	44	38	0	0	24	24
Processing of Wood Products	34	34	49	46	54	54	51	49	15	0	41	35
Manufacturing of Furniture	32	30	48	48	56	57	48	48	6	0	39	38
Paper and Paper Products	55	52	48	46	57	54	54	54	7	8	35	29
Printing, Reproduction of Recording Media	44	57	47	51	58	58	47	55	14	5	36	39
Cultural and Sports Products	49	50	50	50	60	60	47	45	8	0	43	45
Manufacturing of Medicines	74	63	55	58	66	70	49	52	16	24	51	51
Manufacturing of Others	9	11	50	42	56	55	56	36	0	0	39	36
Recycling and Disposal of Wastes	4	2	42	50	38	50	38	50	0	0	50	50
<i>Chemical Industry</i>												
Processing of Petroleum and Nuclear Fuel	15	10	43	43	50	50	37	40	13	0	43	40
Manufacturing of Chemical Products	143	129	47	47	49	51	50	49	6	8	43	41
Manufacturing of Chemical Fibers	10	6	48	44	45	42	55	50	0	17	45	42
Rubber and Plastic Products	99	98	46	40	53	51	55	43	15	3	30	27
<i>Equipment Manufacturing</i>												
General-purpose Machinery	131	137	49	48	53	53	50	50	5	7	43	41
Special-purpose Machinery	111	92	49	47	56	52	50	51	8	4	42	39
Manufacturing of Automotive	64	85	48	45	60	63	52	44	8	6	31	30
Manufacturing of Railways, Ships and Other Transportation	18	36	50	50	56	61	53	49	0	0	42	40
Electric Machinery and Apparatus	134	160	49	48	62	57	52	50	19	20	32	36
Computers, Communication and Electric Equipment	70	85	50	47	56	55	51	49	6	11	43	36
Manufacturing of Measuring Instruments	42	40	49	50	61	55	46	56	0	3	40	40
Repair of Metal Products, Machinery and Equipment	5	5	47	47	50	50	50	50	0	0	40	40
<i>Other Heavy Manufacturing</i>												
Non-metallic Mineral Products	121	119	37	38	39	46	40	42	2	4	31	27
Smelting and Pressing of Ferrous Metals	62	65	39	42	34	41	43	44	13	2	41	40
Smelting and Pressing of Non-ferrous Metals	34	32	46	45	49	48	49	48	3	6	40	39
Metal Products	127	124	42	44	55	57	49	50	17	9	21	26

Table 2.2 Industry Ranking of Operating Conditions

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment		
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	
Nation	2,034	2,050	47	46	54	54	10	8	37	36	
<i>Top Five</i>											
Gas Production and Supply	7	5	69	60	86	80	29	20	50	50	
Production and Supply of Water	22	21	58	63	89	88	23	24	41	40	
Power Production and Supply	63	59	56	58	67	64	29	36	50	50	
Manufacturing of Medicines	74	63	55	58	66	70	16	24	51	51	
Manufacturing of Foods	64	63	52	44	55	52	5	0	41	40	
<i>Bottom Five</i>											
Mining and Processing of Ferrous Metal Ores	7	2	26	50	7	50	14	0	50	50	
Non-metallic Mineral Products	121	119	37	38	39	46	2	4	31	27	
Leather Related Products and Footwear	34	39	39	38	50	50	0	0	24	24	
Smelting and Pressing of Ferrous Metals	62	65	39	42	34	41	13	2	41	40	
Coal Mining and Washing	12	5	40	37	42	30	25	0	38	50	

Notes:

1. Ranking includes industries with more than three firms.

Table 3. Operating Conditions by Region
Table 3.1 Operating Conditions of All Regions

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation	2,034	2,050	47	46	54	54	49	48	10	8	37	36
<i>North China</i>												
Beijing	34	42	42	45	46	49	44	50	3	0	37	37
Tianjin	43	49	44	45	52	56	44	45	9	8	35	33
Hebei	86	87	44	44	51	53	47	46	16	5	33	33
<i>Northeast</i>												
Liaoning	93	95	47	47	55	55	49	49	8	2	39	37
Jilin	21	23	51	46	64	59	52	46	14	9	36	33
Heilongjiang	29	25	44	41	52	50	50	46	10	4	31	26
<i>Northwest</i>												
Inner Mongolia	28	20	48	53	48	50	50	60	18	20	46	48
Shaanxi	28	26	42	44	46	44	46	52	18	12	34	35
Gansu	11	11	55	44	59	55	64	41	27	45	41	36
Qinghai	1	NA	50	NA	50	NA	50	NA	0	NA	50	NA
Ningxia	4	4	38	46	50	50	38	63	0	25	25	25
Xinjiang	10	6	43	47	55	42	35	58	10	0	40	42
<i>Central North</i>												
Shanxi	21	23	45	41	50	50	45	37	10	9	40	37
Shandong	208	200	48	47	56	57	52	46	11	8	37	37
Henan	91	91	45	42	53	53	49	45	7	5	32	29
<i>Southwest</i>												
Chongqing	31	32	47	44	50	52	55	48	0	0	37	33
Sichuan	65	59	46	45	51	53	48	48	6	3	38	34
Guizhou	11	7	50	48	55	50	50	50	9	14	45	43
Yunnan	28	26	44	47	50	52	43	54	14	15	39	35
<i>East China</i>												
Shanghai	70	80	48	49	59	59	50	50	1	3	35	38
Jiangsu	274	283	49	48	55	54	50	51	10	11	41	39
Zhejiang	248	261	47	47	55	54	50	48	15	11	36	38
<i>South China</i>												
Fujian	94	102	49	46	57	55	50	45	15	10	38	37
Guangdong	219	232	47	47	54	54	50	49	9	7	39	37
Guangxi	38	38	48	48	58	54	45	53	8	13	42	37
Hainan	1	1	50	33	100	100	50	0	0	0	0	0
<i>Central South</i>												
Anhui	80	78	46	45	52	54	50	44	11	6	38	36
Jiangxi	53	47	47	47	56	55	46	48	4	13	40	37
Hubei	67	62	48	46	56	55	51	48	10	6	36	35
Hunan	47	40	46	48	56	56	49	59	6	13	34	29

Table 3.2 Regional Ranking of Operating Conditions

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation	2,034	2,050	47	46	54	54	10	8	37	36
<i>Top Five</i>										
Gansu	11	11	55	44	59	55	27	45	41	36
Jilin	21	23	51	46	64	59	14	9	36	33
Guizhou	11	7	50	48	55	50	9	14	45	43
Fujian	94	102	49	46	57	55	15	10	38	37
Jiangsu	274	283	49	48	55	54	10	11	41	39
<i>Bottom Five</i>										
Ningxia	4	4	38	46	50	50	0	25	25	25
Beijing	34	42	42	45	46	49	3	0	37	37
Shaanxi	28	26	42	44	46	44	18	12	34	35
Xinjiang	10	6	43	47	55	42	10	0	40	42
Yunnan	28	26	44	47	50	52	14	15	39	35

Notes:

1. Ranking includes regions with more than three firms.

Table 4. Oversupply
Table 4.1 Overall

	Number of Firms		Diffusion Index for Oversupply in Domestic Markets		Diffusion Index for Oversupply in Overseas Markets		Diffusion Index for Finished Goods		
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	
Nation	2,034	2,050	82	82	72	71	49	50	
<i>By Size</i>									
Large	678	684	79	80	71	71	49	50	
Medium	678	683	82	81	72	69	50	50	
Small	678	683	84	86	73	75	49	49	
<i>By Ownership</i>									
State-owned	102	98	65	68	58	61	50	52	
Collectively-owned	32	32	85	82	67	58	41	47	
Private	1,709	1,704	83	83	73	72	49	49	
Foreign -owned	191	216	81	84	68	70	52	51	
<i>By Product Type</i>									
Consumer Goods - Durable	269	309	76	79	65	65	51	50	
Consumer Goods - Nondurable	751	725	77	78	72	72	50	49	
Capital Goods	148	136	83	89	71	73	51	52	
Intermediate Goods	866	880	87	86	76	74	48	50	

Table 4.2 Industries with Severe Excess Capacity

Industry	Number of Firms	% of Firms with 20% excess capacity and above	% of Firms with 10% excess capacity and above
Mining and Processing of Ferrous Metal Ores	7	86	86
Processing of Petroleum and Nuclear Fuel	15	67	67
Mining and Processing of Nonmetal Ores	21	48	57
Non-metallic Mineral Products	121	38	49
Leather Related Products and Footwear	34	35	50
Smelting and Pressing of Ferrous Metals	62	34	44
Metal Products	127	27	57
Paper and Paper Products	55	25	49
Coal Mining and Washing	12	25	25
Recycling and Disposal of Wastes	4	25	25
Processing of Wood Products	34	24	47
Smelting and Pressing of Non-ferrous Metals	34	24	26
Manufacturing of Furniture	32	19	25
Manufacturing of Foods	64	19	23
Electric Machinery and Apparatus	134	19	41
Manufacturing of Medicines	74	15	22
Special-purpose Machinery	111	14	32
Textile Wearing and Apparel	67	13	37
Rubber and Plastic Products	99	13	43
Manufacturing of Others	9	11	56

Notes:

1. This table reports industries that have at least 10% of firms with 20% or above excess capacity.
2. This table includes industries with more than three firms.

Table 4.3 Regions with Severe Excess Capacity

Province	Number of Firms	% of Firms with 20% excess capacity and above	% of Firms with 10% excess capacity and above
Tianjin	43	28	51
Beijing	34	26	47
Sichuan	65	25	43
Hebei	86	24	53
Henan	91	24	44
Heilongjiang	29	24	31
Shanxi	21	24	52
Liaoning	93	20	41
Jiangxi	53	19	45
Guangxi	38	18	34
Gansu	11	18	18
Shaanxi	28	18	32
Shandong	208	18	33
Chongqing	31	16	35
Inner Mongolia	28	14	29
Jiangsu	274	13	35
Hunan	47	13	34
Anhui	80	13	36
Guangdong	219	12	29
Fujian	94	12	32
Yunnan	28	11	32

Notes:

1. This table reports regions that have at least 10% of firms with 20% or above excess capacity.
2. This table includes regions with more than three firms.

Table 5. Cost and Price
Table 5.1 Overall

		Diffusion Indices									
		Number of Firms		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation		2,034	2,050	75	66	53	57	74	63	59	57
<i>By Size</i>											
	Large	678	684	72	65	53	58	71	61	57	57
	Medium	678	683	75	67	53	57	74	64	59	58
	Small	678	683	78	67	53	55	77	64	61	56
<i>By Ownership</i>											
	State-owned	102	98	63	61	54	56	66	59	56	58
	Collectively-owned	32	32	73	70	55	59	69	67	59	56
	Private	1709	1704	76	66	54	56	75	63	59	56
	Foreign -owned	191	216	74	68	52	59	74	65	59	60
<i>By Product Type</i>											
	Consumer Goods - Durable	269	309	79	69	54	58	78	65	60	55
	Consumer Goods - Nondurable	751	725	74	65	54	56	73	62	60	57
	Capital Goods	148	136	76	67	53	58	74	65	57	55
	Intermediate Goods	866	880	75	65	53	56	74	63	59	58

Table 5.2 Industries with Unit Cost Increase More Significant than National Average

	Number of Firms	Diffusion Indices			Price Index
		Unit Cost Index	Labor Cost Index	Raw Material Cost Index	
Nation	2,034	75	53	74	59
Paper and Paper Products	55	99	53	98	85
Printing, Reproduction of Recording Media	44	97	66	95	82
Manufacturing of Railways, Ships and Other Transportation	18	92	53	86	64
Manufacturing of Automotive	64	92	62	90	61
Manufacturing of Furniture	32	91	53	86	55
Textiles	103	89	58	87	63
Rubber and Plastic Products	99	89	51	89	67
Smelting and Pressing of Ferrous Metals	62	82	51	80	60
Repair of Metal Products, Machinery and Equipment	5	80	60	80	70
Processing of Petroleum and Nuclear Fuel	15	80	53	80	53
Mining and Processing of Non-ferrous Metal	7	79	64	64	64
Electric Machinery and Apparatus	134	79	54	79	62
Special-purpose Machinery	111	79	53	77	56
Non-metallic Mineral Products	121	79	52	78	60
Manufacturing of Foods	64	77	52	73	56
Textile Wearing and Apparel	67	76	54	78	60

Notes:

1. Industries are sorted by Diffusion Index for Unit Cost in descending order.
2. This table includes regions with more than three firms.

Table 5.3 Regions with Unit Cost Increase More Significant than National Average

	Diffusion Indices				Price Index
	Number of Firms	Unit Cost Index	Labor Cost Index	Raw Material Cost Index	
Nation	2,034	75	53	74	59
Henan	91	81	52	78	59
Xinjiang	10	80	55	75	50
Shandong	208	78	54	78	61
Guangxi	38	78	55	77	57
Heilongjiang	29	78	52	68	66
Zhejiang	248	77	53	77	60
Guangdong	219	77	54	77	61
Jiangsu	274	76	53	75	59
Hebei	86	76	52	74	59
Hubei	67	75	54	73	59
Shaanxi	28	75	55	73	61
Ningxia	4	75	50	75	63
Sichuan	65	75	52	78	59
Anhui	80	75	55	73	60

Notes:

1. Provinces are sorted by Diffusion Index for Unit Cost in descending order.
2. This table includes regions with more than three firms.

Table 6. Financing Environment
Table 6.1 Overall

	Number of Firms		% Firms with Loans		% Firms with New Loans		Diffusion Index - Lending Attitude		Diffusion Index - Interest Rate	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation	2,034	2,050	24	23	2	2	70	74	50	50
<i>With or Without Investment</i>										
Firms with Investment	208	168	27	26	4	2	80	83	50	50
Firms without Investment	1,826	1,882	24	23	1	1	66	72	50	50
<i>By Size</i>										
Large	678	684	24	24	2	2	77	87	50	50
Medium	678	683	25	22	2	2	72	65	50	50
Small	678	683	23	22	1	1	60	65	50	50
<i>By Ownership</i>										
State-owned	102	98	16	21	2	0	70	83	50	50
Collectively-owned	32	32	16	16	0	0	NA	NA	NA	NA
Private	1,709	1,704	25	24	2	2	69	72	50	50
Foreign-owned	191	216	19	16	1	1	75	88	50	50
<i>By Product Type</i>										
Consumer Goods - Durable	269	309	22	21	1	1	71	80	50	50
Consumer Goods - Nondurable	751	725	25	23	2	1	66	73	50	50
Capital Goods	148	136	37	32	5	3	56	50	50	50
Intermediate Goods	866	880	21	22	1	2	78	76	50	50

Notes:

1. A higher Diffusion Index for lending attitude reflects easier lending.
2. A higher Diffusion Index for interest rate reflects higher interest rate.

Table 6.2 Sources of Financing

The most important source of financing

Sources	Number of Firms	% of Firms
Internal Funds	2000	98
Founder	43	2
Relatives and friends	0	0
Bank	6	0
Stock market	1	0
Non-official finance institution	0	0
Others	0	0

The second most important source of financing

Sources	Number of Firms	% of Firms
Bank	510	58
Founder	358	41
Relatives and friends	6	1
Internal Funds	2	0
Others	1	0
Stock market	1	0
Non-official finance institution	0	0

Appendix

Appendix 1. Industry and Regional Ranking of Excess Capacity

Table A1.1 Industry Ranking of Excess Capacity

Industry	Number of Firms		% of Firms with 20% excess capacity and above		% of Firms with 10% excess capacity and above	
	Q3	Q2	Q3	Q2	Q3	Q2
Mining and Processing of Ferrous Metal Ores	7	NA	86	NA	86	NA
Processing of Petroleum and Nuclear Fuel	15	10	67	30	67	40
Mining and Processing of Nonmetal Ores	21	17	48	41	57	53
Non-metallic Mineral Products	121	119	38	34	49	44
Leather Related Products and Footwear	34	39	35	33	50	54
Smelting and Pressing of Ferrous Metals	62	65	34	25	44	34
Metal Products	127	124	27	22	57	46
Paper and Paper Products	55	52	25	37	49	60
Coal Mining and Washing	12	5	25	60	25	60
Recycling and Disposal of Wastes	4	NA	25	NA	25	NA
Processing of Wood Products	34	34	24	12	47	29
Smelting and Pressing of Non-ferrous Metals	34	32	24	16	26	25
Manufacturing of Furniture	32	30	19	10	25	17
Manufacturing of Foods	64	63	19	24	23	37
Electric Machinery and Apparatus	134	160	19	26	41	49
Manufacturing of Medicines	74	63	15	13	22	27
Special-purpose Machinery	111	92	14	14	32	36
Textile Wearing and Apparel	67	58	13	12	37	26
Rubber and Plastic Products	99	98	13	16	43	46
Manufacturing of Others	9	11	11	9	56	55
Manufacturing of Automotive	64	85	9	14	52	56
Manufacturing of Beverage	38	43	8	2	24	33
Manufacturing of Measuring Instruments	42	40	7	10	14	15
Printing, Reproduction of Recording Media	44	57	7	5	34	35
Power Production and Supply	63	59	6	5	11	12
General-purpose Machinery	131	137	6	7	33	28
Manufacturing of Railways, Ships and Other Transportation	18	36	6	14	44	64
Textiles	103	94	5	12	16	14
Manufacturing of Chemical Products	143	129	3	2	38	26
Cultural and Sports Products	49	50	2	0	10	4
Processing of Agricultural and Related Products	101	113	2	4	13	20
Computers, Communication and Electric Equipment	70	85	1	4	30	22
Repair of Metal Products, Machinery and Equipment	5	5	0	0	40	40
Manufacturing of Chemical Fibers	10	6	0	0	40	17
Mining and Processing of Non-ferrous Metal	7	8	0	25	29	50
Gas Production and Supply	7	5	0	0	0	0
Production and Supply of Water	22	21	0	0	0	0

Notes:

Industries are sorted based on the percentage of firms with over 20% excess capacity in descending order. The ranking includes industries with more than three firms.

Appendix

Table A1.2 Regional Ranking of Excess Capacity

Province	Number of Firms		% of Firms with 20% excess capacity and above		% of Firms with 10% excess capacity and above	
	Q3	Q2	Q3	Q2	Q3	Q2
Tianjin	43	49	28	27	51	53
Beijing	34	42	26	21	47	40
Sichuan	65	59	25	24	43	41
Hebei	86	87	24	14	53	39
Henan	91	91	24	20	44	42
Heilongjiang	29	25	24	28	31	36
Shanxi	21	23	24	17	52	52
Liaoning	93	95	20	19	41	40
Jiangxi	53	47	19	15	45	34
Guangxi	38	38	18	21	34	39
Gansu	11	11	18	9	18	9
Shaanxi	28	26	18	19	32	35
Shandong	208	200	18	17	33	32
Chongqing	31	32	16	16	35	34
Inner Mongolia	28	20	14	10	29	25
Jiangsu	274	283	13	13	35	34
Hunan	47	40	13	20	34	38
Anhui	80	78	13	17	36	38
Guangdong	219	232	12	13	29	27
Fujian	94	102	12	9	32	34
Yunnan	28	26	11	23	32	35
Hubei	67	62	9	10	27	31
Shanghai	70	80	9	10	31	31
Zhejiang	248	261	8	11	26	28
Jilin	21	23	5	9	24	30
Ningxia	4	4	0	0	25	0
Guizhou	11	7	0	0	18	57
Xinjiang	10	6	0	0	10	17

Notes:

Provinces are sorted based on the percentage of firms with over 20% excess capacity in descending order.

Appendix

Appendix 2. Industry and Regional Diffusion Index for Cost and Price

Table A2.1 Industry Diffusion Index for Cost and Price

		Diffusion Indices									
		Number of Firms		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation		2034	2050	75	66	53	57	74	63	59	57
<i>Mining</i>											
	Coal Mining and Washing	12	5	54	50	46	50	54	50	63	50
	Mining and Processing of Ferrous Metal Ores	7	2	57	50	50	50	50	50	50	50
	Mining and Processing of Non-ferrous Metal	7	8	79	88	64	88	64	88	64	88
	Mining and Processing of Nonmetal Ores	21	17	52	53	50	50	50	50	55	56
	Other Ancillary Activities of Mining	1	1	100	50	50	50	100	50	100	50
<i>Production and Supply of Electricity, Heat, Gas and Water</i>											
	Power Production and Supply	63	59	51	50	50	50	51	50	50	50
	Gas Production and Supply	7	5	50	50	50	50	NA	NA	50	50
	Production and Supply of Water	22	21	50	50	50	50	NA	NA	50	50
<i>Light Manufacturing</i>											
	Processing of Agricultural and Related Products	101	113	69	67	57	58	58	56	57	55
	Manufacturing of Foods	64	63	77	56	52	52	73	56	56	52
	Manufacturing of Beverage	38	43	74	87	55	85	62	79	58	73
	Textiles	103	94	89	62	58	52	87	61	63	56
	Textile Wearing and Apparel	67	58	76	64	54	55	78	59	60	55
	Leather Related Products and Footwear	34	39	66	56	50	50	66	55	51	50
	Processing of Wood Products	34	34	63	66	51	54	63	62	54	54
	Manufacturing of Furniture	32	30	91	67	53	55	86	67	55	58
	Paper and Paper Products	55	52	99	83	53	54	98	77	85	71

Appendix

Table A2.1 Industry Diffusion Index for Cost and Price (Continued)

	Diffusion Indices									
	Number of Firms		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Printing, Reproduction of Recording Media	44	57	97	81	66	57	95	80	82	57
Cultural and Sports Products	49	50	73	60	55	56	71	57	55	52
Manufacturing of Medicines	74	63	54	54	50	50	53	53	53	52
Manufacturing of Others	9	11	61	55	50	55	61	50	50	50
Recycling and Disposal of Wastes	4	2	63	50	50	50	63	50	50	50
<i>Chemical Industry</i>										
Processing of Petroleum and Nuclear Fuel	15	10	80	65	53	55	80	65	53	60
Manufacturing of Chemical Products	143	129	68	60	51	52	68	59	56	55
Manufacturing of Chemical Fibers	10	6	70	83	50	50	70	83	60	75
Rubber and Plastic Products	99	98	89	68	51	54	89	63	67	49
<i>Equipment Manufacturing</i>										
General-purpose Machinery	131	137	71	61	52	53	70	59	55	55
Special-purpose Machinery	111	92	79	66	53	57	77	63	56	51
Manufacturing of Automotive	64	85	92	85	62	78	90	81	61	72
Manufacturing of Railways, Ships and Other Transportation	18	36	92	85	53	74	86	78	64	69
Electric Machinery and Apparatus	134	160	79	57	54	52	79	56	62	53
Computers, Communication and Electric Equipment	70	85	62	84	55	82	61	80	58	78
Manufacturing of Measuring Instruments	42	40	73	60	52	54	72	58	56	48
Repair of Metal Products, Machinery and Equipment	5	5	80	90	60	80	80	80	70	80
<i>Other Heavy Manufacturing</i>										
Non-metallic Mineral Products	121	119	79	66	52	52	78	66	60	56
Smelting and Pressing of Ferrous Metals	62	65	82	66	51	52	80	60	60	48
Smelting and Pressing of Non-ferrous Metals	34	32	74	63	56	56	74	63	56	53
Metal Products	127	124	74	69	52	52	74	68	61	59

Notes: The table includes industries with more than three firms.

Appendix

Table A2.2 Regional Diffusion Index for Cost and Price

		Diffusion Indices									
		Number of Firms		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation		2,034	2,050	75	66	53	57	74	63	59	57
<i>North China</i>											
	Beijing	34	42	72	69	54	60	71	67	59	56
	Tianjin	43	49	71	65	51	56	69	64	55	53
	Hebei	86	87	76	67	52	55	74	65	59	57
<i>Northeast</i>											
	Liaoning	93	95	68	64	53	55	65	59	60	57
	Jilin	21	23	67	57	52	57	65	50	62	50
	Heilongjiang	29	25	78	68	52	58	68	58	66	60
<i>Northwest</i>											
	Inner Mongolia	28	20	71	63	52	55	74	60	54	55
	Shaanxi	28	26	75	65	55	60	73	63	61	60
	Gansu	11	11	68	59	59	59	70	50	55	50
	Ningxia	4	4	75	63	50	50	75	63	63	50
	Xinjiang	10	6	80	75	55	58	75	58	50	42
<i>Central North</i>											
	Shanxi	21	23	71	74	52	57	69	72	52	52
	Shandong	208	200	78	66	54	56	78	64	61	58
	Henan	91	91	81	67	52	57	78	65	59	57
<i>Southwest</i>											
	Chongqing	31	32	73	66	55	56	70	61	53	50
	Sichuan	65	59	75	65	52	57	78	64	59	58
	Guizhou	11	7	55	57	55	57	50	50	55	57
	Yunnan	28	26	70	67	54	62	71	65	57	62
<i>East China</i>											
	Shanghai	70	80	74	63	56	56	73	61	61	55
	Jiangsu	274	283	76	67	53	57	75	64	59	58
	Zhejiang	248	261	77	65	53	55	77	63	60	56
<i>South China</i>											
	Fujian	94	102	74	63	53	55	72	61	58	54
	Guangdong	219	232	77	68	54	57	77	66	61	57
	Guangxi	38	38	78	68	55	62	77	66	57	62
<i>Central South</i>											
	Anhui	80	78	75	65	55	57	73	60	60	55
	Jiangxi	53	47	71	66	54	59	72	64	58	64
	Hubei	67	62	75	68	54	57	73	66	59	58
	Hunan	47	40	69	66	53	56	66	60	60	56

Notes:

The table includes provinces with more than three firms.

Appendix 3. Sampling Procedure

3.1 The Population

Starting from 2017Q2, we have included firms in the 2013 Industrial Enterprises database in our sampling. This is the most complete and reliable economic census data available.

Although the 2013 Industrial Enterprises database is our best option, it was still compiled four years ago. A firm's core characteristics, such as industry, might have changed significantly in that time. Thus, we also surveyed firms about their main products and product types.

3.2 Sampling Procedure

Before 2017Q2, our sampling was based on the population of sizable industrial firms (with sales above 5 million RMB) in the 2008 Economic Census. In order to ensure the comparability of this quarter's survey with those in the previous quarters, we used a sampling procedure as described below:

1. We started from the 2050 firms in our last response sample, which was the result of a random sampling stratified by industry, region and size (see our previous reports for details). Of those, we obtained responses from 1678 firms. Steps 2-3 below describe how we obtain a supplement sample of 1610 firms from the 2013 Industrial Enterprise database, which, assuming a 20% response rate, would yield an additional 322 firms so that the total size of the survey sample is 2,000 firms.
2. We stratified by three size categories, 41 industries and 31 provinces to obtain 3,813 strata in both the 2008 Economic Census and 2013 Industrial Enterprises database populations. Then we compute, in each stratum, the percentage of new firms founded after 2008.
3. Assuming random responses across the above 3,813 strata, we compute the number of firms across strata and the proportion of new firms (founded after 2008) in each stratum, so that the final response sample could match (or approach) the population in terms of industry, region and size, as well as the proportion of new firms. Out of the 1610 firms in our supplementary sample, we obtained 356 responses, resulting in a total of 2034 firms in our final survey sample.

However, we note that to ensure a smooth transition across quarters, this quarter's sample does not match well with the 2013 Industrial Enterprise database population in two dimensions. First, the weight of new firms founded after 2008 is lower. Second, given that the National Bureau of Statistics changed its definition of sizable firms between 2008 and 2013, from sales totaling 5 million RMB up to 20 million RMB, the average firm size is between the two databases. We will resolve these discrepancies gradually in the coming surveys. Moreover, in our data analysis, we have cross-checked that the results relative to those of the last quarter have not been driven by the new sample.

3.3 Survey Process

The survey is conducted through phone interviews. Figure A1 reports the distribution of the number of phone calls, duration of the calls and the interviewees' positions in their companies.

3.4. Sample Representativeness

Tables A3.1-A3.3 show the distribution of the population and the Q3 response sample, as well as the 1678 firms that were also in the Q2 sample, in terms of industry, region and size. Note that as we are sampling 2.1% of the population, some small strata may not be sampled. Specifically, Tibet is a region that has not been sampled, while Mining of other Ores, Extraction of Petroleum & Natural Gas and Manufacture of Tobacco are three industries not sampled. Overall, however, we feel our response sample represents the population quite well.

3.5 Seasonality

Theoretically, there are no obvious ways to adjust for seasonality, especially given the relatively small number of surveys we have conducted. We deal with this issue by directly asking the firms about seasonality and its impact. As shown in Figure A1.4, the majority of firms (81%) reported no seasonality, while for 10% of the firms, the seasonality impact was below 5%. Most importantly, the impact of seasonality is roughly distributed symmetrically. Thus, in aggregate, seasonality is not likely to bias our results and we do not adjust for seasonality.

Figure A1. Phone Interviews – number of calls, duration and interviewees

Figure A1.1 Number of Calls

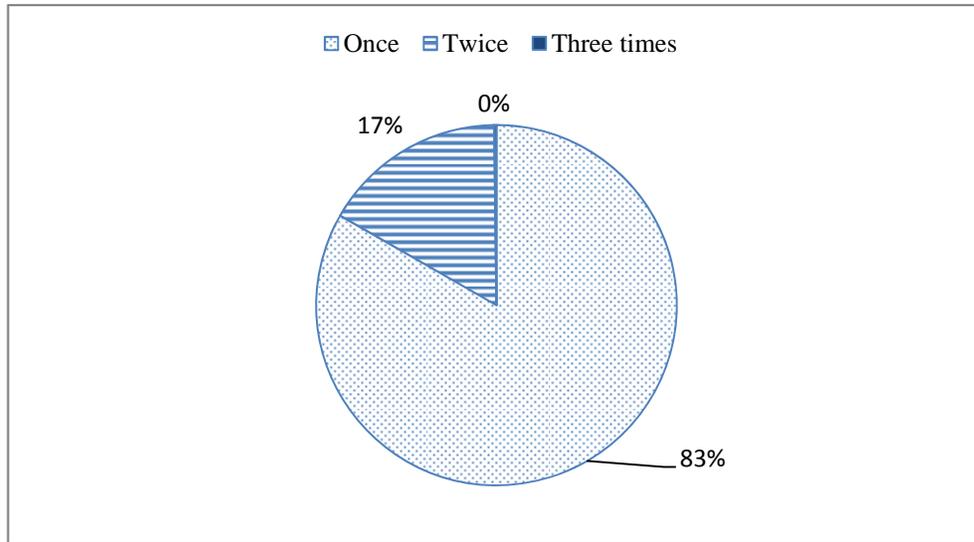


Figure A1.2 Duration of Calls

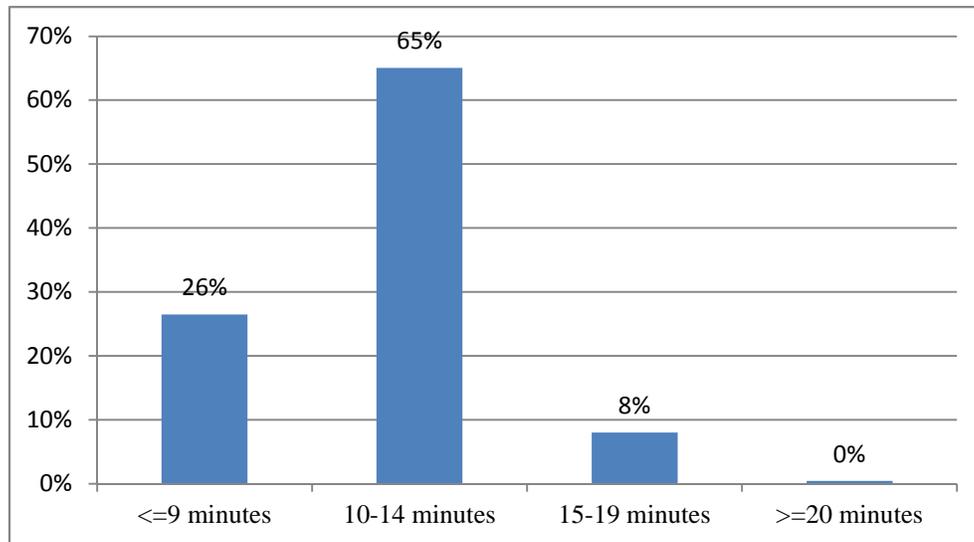


Figure A1.3 Interviewees' Positions

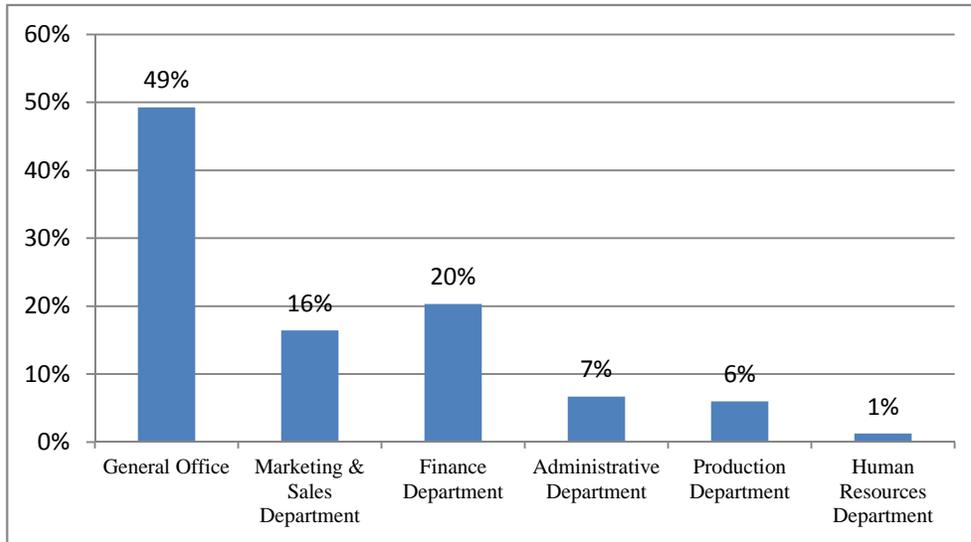
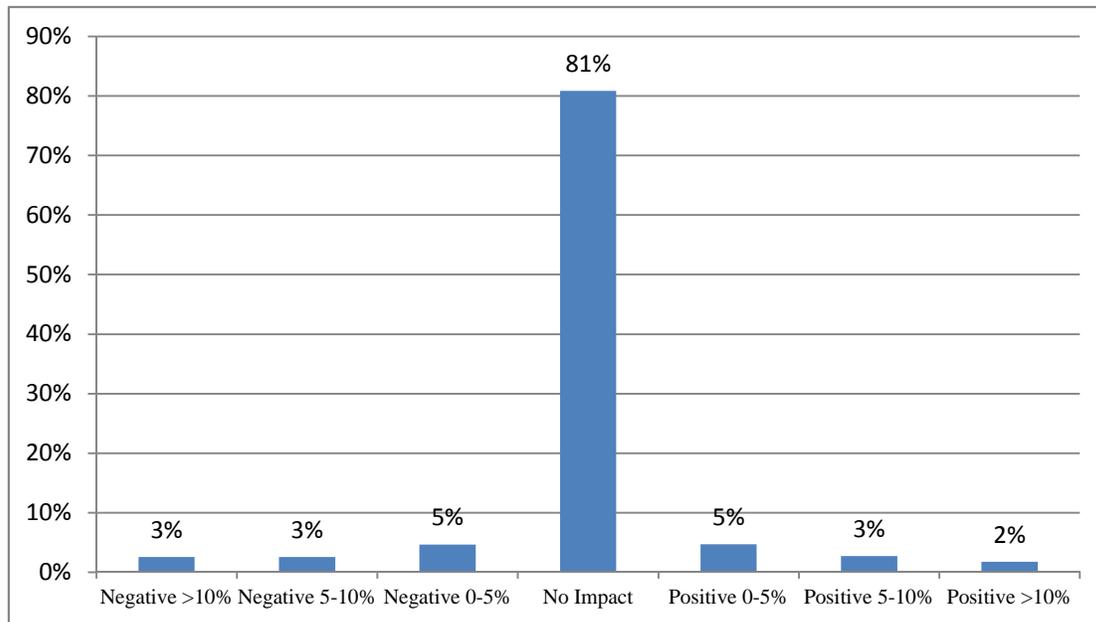


Figure A1.4 Seasonality



Appendix

Table A3. Comparisons between Survey Sample and the Population

Table A3.1 Industry Distribution

Industry	Population		1678 Firms From Q2 Survey		Final Q3 Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Power Production and Supply	5,701	1.7	53	3.2	63	3.1
Electric Machinery and Apparatus	21,012	6.2	127	7.6	134	6.6
Textile Wearing and Apparel	14,147	4.2	48	2.9	67	3.3
Textiles	19,591	5.8	68	4.1	103	5.1
Mining and Processing of Nonmetal Ores	3,363	1.0	15	0.9	21	1.0
Non-metallic Mineral Products	29,429	8.7	99	5.9	121	6.0
Recycling and Disposal of Wastes	1,256	0.4	1	0.1	4	0.2
Mining and Processing of Ferrous Metal Ores	3,100	0.9	2	0.1	7	0.3
Smelting and Pressing of Ferrous Metals	10,190	3.0	54	3.2	62	3.1
Manufacturing of Chemical Fibers	1,859	0.6	6	0.4	10	0.5
Manufacturing of Chemical Products	23,402	6.9	111	6.6	143	7.0
Computers, Communication and Electric Equipment	12,540	3.7	56	3.3	70	3.4
Manufacturing of Furniture	4,656	1.4	28	1.7	32	1.6
Repair of Metal Products, Machinery and Equipment	381	0.1	5	0.3	5	0.3
Metal Products	18,498	5.5	100	6.0	127	6.2
Manufacturing of Beverage	5,496	1.6	28	1.7	38	1.9
Other Ancillary Activities of Mining	153	0.1	1	0.1	1	0.1
Coal Mining and Washing	6,680	2.0	5	0.3	12	0.6
Processing of Wood Products	8,154	2.4	22	1.3	34	1.7
Processing of Agricultural and Related Products	22,485	6.7	98	5.8	101	5.0
Leather Related Products and Footwear	7,714	2.3	34	2.0	34	1.7
Mining of other Ores	17	0.0	0	0.0	0	0.0
Manufacturing of Others	1,527	0.5	9	0.5	9	0.4
Manufacturing of Automotive	11,733	3.5	64	3.8	64	3.2
Gas Production and Supply	1,095	0.3	5	0.3	7	0.3
Extraction of Petroleum and Natural Gas	135	0.0	0	0.0	0	0.0
Processing of Petroleum and Nuclear Fuel	1,941	0.6	10	0.6	15	0.7
Manufacturing of Foods	7,388	2.2	54	3.2	64	3.2
Production and Supply of Water	1,310	0.4	20	1.2	22	1.1
Manufacturing of Railways, Ships and Other Transportation	4,277	1.3	18	1.1	18	0.9
General-purpose Machinery	22,163	6.6	112	6.7	131	6.4
Cultural and Sports Products	7,513	2.2	43	2.6	49	2.4
Rubber and Plastic Products	16,327	4.8	78	4.7	99	4.9
Manufacture of Tobacco	122	0.0	0	0.0	0	0.0
Manufacturing of Medicines	6,483	1.9	61	3.6	74	3.6
Manufacturing of Measuring Instruments	3,805	1.1	34	2.0	42	2.1
Printing, Reproduction of Recording Media	4,734	1.4	44	2.6	44	2.2
Mining and Processing of Non-ferrous Metal	1,552	0.5	7	0.4	7	0.3
Smelting and Pressing of Non-ferrous Metals	3,728	1.1	32	1.9	34	1.7
Paper and Paper Products	6,580	2.0	43	2.6	55	2.7
Special-purpose Machinery	15,443	4.6	83	5.0	111	5.5
Total	337,680	100.0	1,678	100.0	2,034	100.0

Appendix

Table A3.2 Regional Distribution

Province	Population		1678 Firms From Q2 Survey		Final Q3 Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Anhui	14,533	4.3	65	3.9	80	3.9
Beijing	3,506	1.0	32	1.9	34	1.7
Fujian	15,206	4.5	83	5.0	94	4.6
Gansu	1,723	0.5	8	0.5	11	0.5
Guangdong	37,831	11.2	185	11.0	219	10.8
Guangxi	4,919	1.5	30	1.8	38	1.9
Guizhou	2,901	0.9	7	0.4	11	0.5
Hainan	358	0.1	1	0.1	1	0.1
Hebei	12,818	3.8	71	4.2	86	4.2
Henan	18,410	5.5	75	4.5	91	4.5
Heilongjiang	3,882	1.2	22	1.3	29	1.4
Hubei	13,520	4.0	56	3.3	67	3.3
Hunan	12,170	3.6	34	2.0	47	2.3
Jilin	5,136	1.5	16	1.0	21	1.0
Jiangsu	45,138	13.4	226	13.5	274	13.5
Jiangxi	7,424	2.2	41	2.4	53	2.6
Liaoning	15,591	4.6	82	4.9	93	4.6
Inner Mongolia	3,975	1.2	18	1.1	28	1.4
Ningxia	940	0.3	3	0.2	4	0.2
Qinghai	448	0.1	0	0.0	1	0.1
Shandong	37,272	11.0	174	10.4	208	10.2
Shanxi	3,433	1.0	18	1.1	21	1.0
Shaanxi	4,103	1.2	22	1.3	28	1.4
Shanghai	9,101	2.7	63	3.8	70	3.4
Sichuan	11,753	3.5	45	2.7	65	3.2
Tianjin	4,972	1.5	37	2.2	43	2.1
Tibet	54	0.0	0	0.0	0	0.0
Xinjiang	2,031	0.6	6	0.4	10	0.5
Yunnan	3,147	0.9	22	1.3	28	1.4
Zhejiang	36,363	10.8	213	12.7	248	12.2
Chongqing	5,022	1.5	23	1.4	31	1.5
Total	337,680	100	1,678	100.01	2,034	100

Appendix

Table A3.3 Comparison of Company Characteristics

	Population 2008		Population 2013		1678 Firms From Q2 Survey		Final Q3 Response Sample	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Assets	90,050	12,920	243,118	45,165	354,261	60,051	307,642	57,224
Sales	104,697	20,072	295,142	85,344	301,012	56,792	278,588	62,164
Total	488,017		337,680		1,678		2,034	