

# **China's Industrial Economy in 2017 Q4 Highlights and Annual Report<sup>1</sup>**

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<sup>1</sup> 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 industrial economy maintained an L-shaped growth in 2017, stable with noticeable signs of improvement. Based on electricity consumption and production, the scale of industrial production was stable during the first three quarters (with our diffusion indices staying between 50 and 51). In the fourth quarter, there were clear signs of expansion across firms. Notably, private firms expanded for the first time in the year (registering a mark of 56 in Q4). Meanwhile, there was increased optimism regarding the economic outlook over the next three to five years.

Our assessment is that the structural problems of China's industrial economy have now been mitigated and the fundamentals of the industrial sector have improved. Thus, the observed expansion is likely to continue.

On the other hand, due to the persistent severity of overcapacity and weak investments, the Business Sentiment Index has not yet entered a range of expansion, registering a mark of 48 in Q4. In addition, persistent rises in raw material costs and the resulting price inflation since 2016 Q4 may hinder the recovery of the industrial economy.

Finally, given the government's strong commitment to economic development, we remain optimistic about the long-term outlook of the Chinese 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 2,039 firms surveyed for our 2017 Q4 report, of which 1,673 firms were also polled in our 2017 Q3 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 Q4 Key Findings**

#### **I.1 Industrial Economy Showing Significant Signs of Improvement**

After a slight improvement in the industrial economy in the previous quarter, this quarter has shown apparent signs of recovery, manifested in the following aspects:

1. Production expanded modestly with a diffusion index of 56 (Q3: 51)<sup>2</sup> (Table 1). Based on the distribution of production changes across firms in different size categories, we find that the scale of industrial production also expanded. Most noticeably, unlike in the previous quarters, the increased production in Q4 has

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<sup>2</sup> 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.

been driven by private firms – the vast majority of industrial firms. The diffusion indices of both electricity consumption and domestic orders stood at 56. At the same time, capacity utilization increased. The proportion of firms with capacity utilization above 90% increased from 47% in the previous quarter to 54% in Q4 (Figure 9).

2. The diffusion index of foreign orders registered 57, similar to domestic orders in magnitude. As a result, the quarterly production expansion was not driven by exports, as reported by the general media.

3. The gross margins also improved. The proportion of firms with gross margins above 15% increased from 31% in Q3 to 35% in this quarter (Figure 10).

Despite the production expansion in Q4, the Business Sentiment Index<sup>3</sup> stood at 48 and has not entered the overall range of expansion, mainly dragged down by weak investment (Figure 1). When asked whether it was currently a good time to make fixed investments, only 1% of the firms considered the timing to be “good”, while 78% of the firms replied “average” (Q3: 73%) and 21% of the firms declared the timing was “bad” (Q3: 26%); the corresponding diffusion index was 40, still far below the turning point of 50. In reality, only 10% of firms made any fixed asset investments in Q4 (Figure 2). The proportion of firms with expansionary investment was 5% (Q3: 4%).

## **I.2 Costs Continued to Rise**

Unit costs continued to be on the rise, a trend we have witnessed since 2016 Q4. 43% of the firms reported unit cost rises (Q3: 50%), with the diffusion index standing at 71 (Q3: 75). Firms with a significant increase in costs, i.e. quarterly cost rises above 3% and 5%, accounted for 23% and 12% respectively, slightly lower than Q3 (27% and 14%) (Figure 3).

Unit cost increases are mostly related to raw material costs. The diffusion index of raw material costs was 72. The proportion of firms that saw increases in raw material costs above 3% and 5% were, respectively, 22% and 10%.

## **II. 2017 Annual Review**

### **II.1 Overall Conditions and Industry & Regional Distribution**

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<sup>3</sup> 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.

The industrial economy maintained an L-shaped growth in 2017, stable and with signs of improvement. Based on electricity consumption and production, the scale of industrial production remained largely flat during the first three quarters (with our diffusion indices staying between 50 and 51) (Figure 4). In the fourth quarter, there was a noticeable and moderate expansion across the board (Q4: 56). Our analysis shows that, contrary to reports in the general media, this production expansion was not driven by exports or by real estate. As a result, the improvement in Q4 signifies an improvement in the fundamentals of the industry sector, and thus may be sustained in the future.

Investment in fixed assets increased slightly throughout the year, with the proportion of firms with expansionary investment rising from 1-2% in the first half of the year to 5% in the fourth quarter. The numbers, however, still indicate that investment remained sluggish.

Due to rising costs, product prices continued to increase. Although inflation has slowed down gradually, it still remains at a high level. The corresponding diffusion index dropped slightly from above 60 at the beginning of the year to 56 in the fourth quarter.

Cost rises have been the driving force behind price rises (Figure 5). For example, among firms with product cost inflation above 5% in Q4, cost rises were the most prominent. The proportion of firms with unit cost increases above 5% and 10% were 63% and 29%, respectively, while 56% 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.

The best-performing industries in 2017 were Production & Supply of Water (Q4: 59) and Power Production & Supply (Q4: 57). Both of them were among the top five best-performing industries in each quarter of the year. The most difficult industries included Non-metallic Mineral Products (Q4: 36), Mining & Processing of Nonmetal Ores (Q4: 38) and Coal Mining & Washing (Q4: 40). Those industries were among the bottom five worst-performing industries for at least three quarters in 2017. Non-metallic Mineral Products and Mining & Processing of Nonmetal Ores were also among the industries with the most severe overcapacity.

Table 3.1 displays regional business conditions. In Q4, the BSI ranged from 38 (Ningxia) to 53 (Gansu). The regional business conditions also exhibit persistency. Specifically, among the top-performing list of Q4, Gansu, Fujian and Jilin appeared

for two consecutive quarters. The bottom five provinces were Ningxia (38), Beijing (41), Heilongjiang (44), Hebei (45) and Shaanxi (45). Ningxia and Heilongjiang have appeared on the list six times out of the 12 quarters since 2015 Q1, while Hebei has appeared on the list seven times.

## **II.2 Challenges and Priorities**

Weak demand is still by far the biggest challenge for the industrial economy (Figure 6). In Q4, for example, 62% of the firms surveyed cited a lack of orders<sup>4</sup>. Costs were listed as the second largest issue, with raw material and labor costs both cited by 22% and 13% of firms, respectively. 13% of firms cited macroeconomic and industrial policies as limiting factors. 12% of firms cited environmental concerns. 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**

Overcapacity was still at historically high levels throughout 2017. In each quarter, over 60% of the firms reported oversupply in the domestic market, with a diffusion index of above 80 (Figure 7A). Neither was there any significant improvement in the severity of overcapacity, measured by the proportion of firms reporting supply over demand by 10% and 20% (Figure 7B). Based on the firms' answer of the degree of overcapacity and their size distribution, we estimate that the aggregate overcapacity was 5.6% by the end of 2017.

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 Q4, the number of industries and regions with severe excess capacity accounted for more than half of the firms (19 industries and 23 regions) (Figure 7B).

It is also worth noting that overcapacity in the international market is substantially better than in the domestic market, with the diffusion index of about ten points lower (Figure 7A).

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. By Q4, as many as 42% of firms said they did not have significant levels of inventory because they started production only after receiving orders. For

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<sup>4</sup> 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 previous quarters to 62% in Q4 (Figure 6). 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.

those carrying inventories, 81% said they expected their inventory to be digested within three months, with a further 15% saying it would take between four to six months. This leaves only 4% of the whole sample who said they expected to carry inventory for more than six months.

## **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 Q4, there was a marked increase in firms that had suspended production or were suspected to have suspended production in the last three quarters of 2017 (Figure 8A), with the proportion ranging between 4.1% and 4.9% in each quarter. 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.

Employment reduction was significantly less in 2017 than in 2016. In the last three quarters, the proportion of firms reducing workers by more than 10% and 20% were both below 1%, and were trending downwards (Figure 8B). Based on the size distribution of firms with employment reduction and the number of industrial workers in 2015 being 220 million, we estimate that about two million jobs were lost throughout the year.

Consistent with an improved industrial structure, firms with severe overcapacity are more likely to reduce employment and production. In Q4, among those with severe overcapacity (above 20%), the proportion of firms reducing production by more than 5% and 10% was 34% and 23%, respectively, both significantly more than that of the whole sample (10% and 6%). Moreover, the proportion of firms reducing employment by more than 5% and 10% was 2.1% and 2.1%, respectively, also higher than that of the whole sample (0.9% and 0.5%).

Capacity utilization was on an upward track in 2017. About 54% of firms in Q4 reported a capacity utilization rate above 90%, up from 42% in the first two quarters. Nevertheless, 14% of firms still reported levels of below 70% in Q4 (Figure 9). 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, the problem of overdue

trade receivables was still quite serious in 2017. About 25-30% of firms reported difficulties in collecting trade receivables from their customers. This problem was more prominent among private firms and firms producing capital goods or intermediate goods, cited by about 30% and 35% of firms, respectively. SOEs were disproportionately more likely to delay payment, accounting for about 15% of all firms that did so in Q4 (SOE share in the overall sample: 5%).

### **II.2.3 Costs, Prices and Margins**

Cost rises are the second biggest challenge facing the industrial economy. While easing gradually in 2017, it was still a prominent issue with a diffusion index ranging between 66 and 75 (Figure 3). Cost rises also resulted in product price inflation throughout the year.

Overcapacity, combined with rising costs, resulted in low profit margins in general. In spite of a slight improvement in Q4, there were still 21% of firms with gross margins below 10%, while only 35% of firms registered gross margins above 15% (Figure 10). Taken together, low margins may make it difficult for firms to invest in R&D and industrial upgrading.

### **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 each quarter of 2017, only 2-3% of firms cited financing as a constraining factor (2016: 3-4%). In Q4, 25% of firms said they had “sufficient” funds, 72% answered “neutral”, while only 3% reported “insufficient” funds (Figure 11A). Of those, the vast majority (96%) reported insufficient funds for production – not for expansion – while none of them reported insufficient funds due to operating losses.

As shown in Table 6.1 and Figure 11B, only 1-2% of firms obtained new loans in each quarter of 2017. When asked about the reasons, the vast majority of firms without new loans (about 99%) reported that they did not have the need for capital. Moreover, the diffusion index reflecting an “accommodating” bank lending attitude was between 69 and 74, while the percentage of firms reporting a “difficult” lending attitude stayed at low level of 6-9% (Figure 11C). In addition, it was not common for firms to borrow from financial institutions other than banks. In fact, none of the firms in our sample borrowed money from financial institutions other than banks in Q4.

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 Q4, 2% of



firms reported the founder's own capital as the primary source of funds, while 38% reported this as the second most important source of funds. 61% 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, 95% 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.

### **III. Going Forward: Outlook, Institutions and Innovation**

#### **III.1 Economic Outlook**

There is a significantly stronger current of optimism regarding the economic outlook over the next three to five years. 82% of firms remain either "optimistic" (12%) or "cautiously optimistic" (70%) (2016: 9% and 53%) (Figure 12A). Among those who are "not optimistic", 41% said their top concern is competition and overcapacity (2016: 36%) (Figure 12B). Concerns over environmental issues (29%) have increased sharply and become the second reason for pessimism (2016: 4%). Finally, concerns over the macroeconomic environment have alleviated considerably in the past two years, being cited by 20% of firms, far below the 69% cited in 2015.

#### **III.2 Innovation**

Figure 13A shows that R&D spending in 2017 was noticeably higher than that in 2016. Meanwhile, the proportion of firms without any R&D spending dropped from 80% in 2016 to 66% in 2017. 9% of firms reported R&D spending totaled more than 5% of sales, as compared with 5% in 2016.

In our sample, 230 firms (11%) have obtained a high-tech status from their local government, meaning that their corporate taxes are significantly lower. Our data shows that high-tech firms are faring better than the whole sample in both operating conditions (55 versus 48) and overcapacity (77 versus 81). Their investments are also slightly better than the whole sample. Firms with R&D input exceeding 5% of their sales, though rare in number, also fare better in terms of operating conditions, with a diffusion index of 53 (versus 48 in the whole sample) and overcapacity (75 versus 81 in the whole sample) (Figure 13B).

### **III.3 Institutions**

Contrary to the skeptical opinions of some in the west, the legal institutions in China provide reasonably good protections for business operations. Figure 14A displays firms' responses to the question "On a scale of 0-10, what is the likelihood that the legal system will uphold your contract and property rights in business disputes (0 being the worst)?" 89% of firms gave the legal environment a rating above 7, and the average was 7.9 (2016: 7.7). There was not much variation in this rating across regions.

Compared with their western counterparts, Chinese firms rely more on informal procedures and on social networks than on formal legal action to handle business disputes (Figure 14B). 54% and 16% said they would use legal advisers to negotiate or rely on mutual friends or business partners to mediate, respectively, while 7% would go to court and 4% would contact local government or an NGO for help.

The Chinese government plays an active role in promoting growth. However, as the government has shifted its strategic priorities away from the manufacturing sector, industrial firms have received significantly less support from the government since 2015. Nevertheless, support from the government increased slightly to 16% in 2017 (2016: 13%) (Figure 14C). This is at least partially attributable to the fact that the proportion of firms receiving funding for innovation increased, from 1% in 2016 to 4% in 2017. The most common form of support was tax reduction, which was cited by 14% of firms in 2017 (2016: 9%). Funding for innovation ranked second. Other forms of support included project-based funding, guarantees for loans, etc., and accounted for 4% of firms in total.

## **IV. Conclusion**

The industrial economy maintained an L-shaped growth in 2017, stable and with noticeable signs of improvement. The scale of industrial production stayed largely flat during the first three quarters. In the fourth quarter, there were clear signs of expansion across firms. Notably, private firms expanded for the first time in the year. Meanwhile, there was increased optimism regarding the economic outlook over the next three to five years. Our assessment is that the structural problems of China's industrial economy have now been mitigated and the fundamentals of the industrial sector have improved. Thus, the observed expansion is likely to continue.

On the other hand, due to the persistent severity of overcapacity and weak investments, our Business Sentiment Index has not yet entered the range of expansion. In addition, persistent rises in raw material costs and the resulting price inflation since

2016 Q4 may hinder the recovery of the industrial economy.

Finally, 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

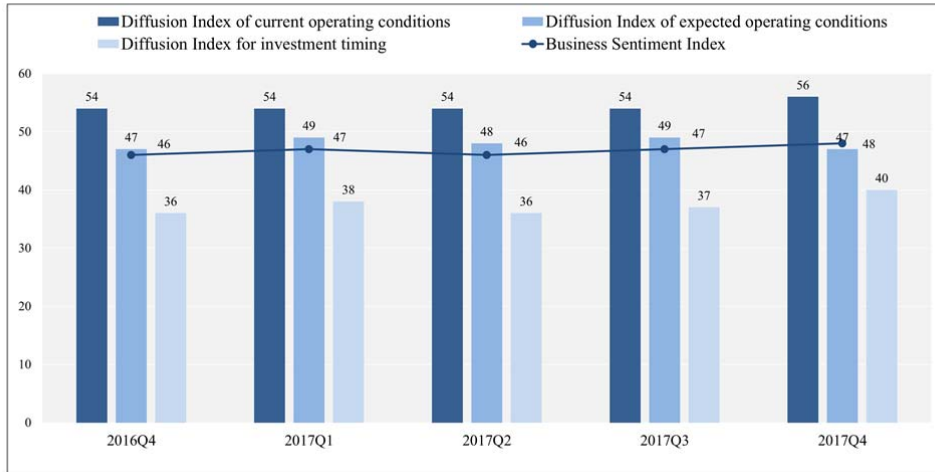


Figure 2. Investment

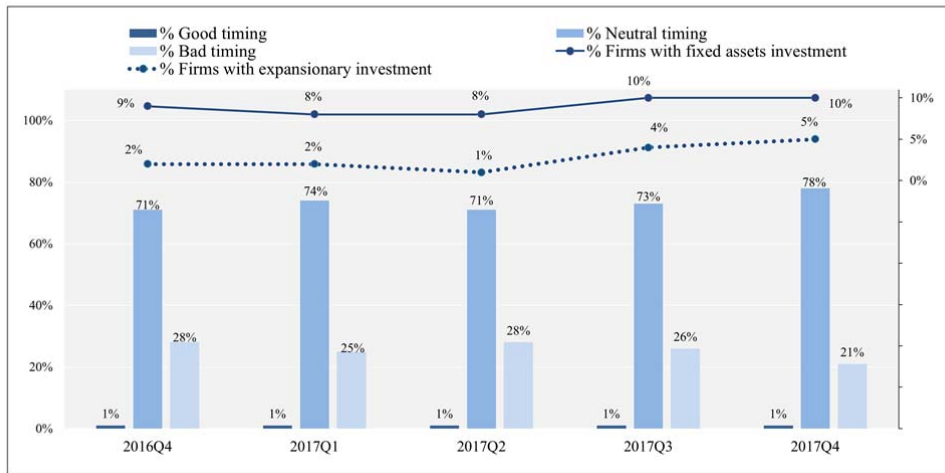


Figure 3. Costs

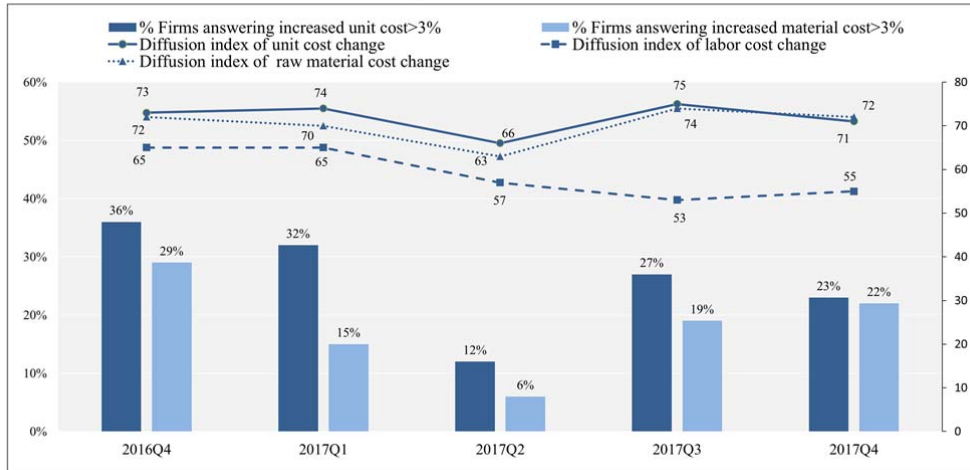


Figure 4. Other Main Economic Indices

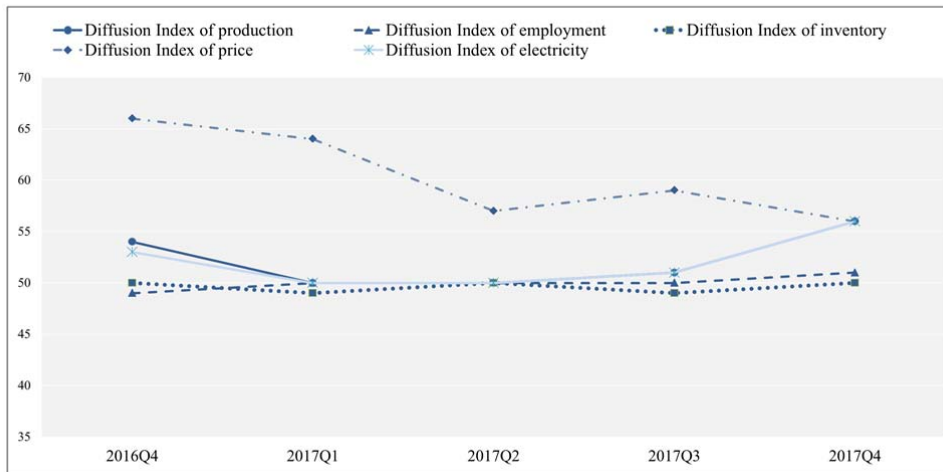


Figure 5. Cost Driven Price Increases

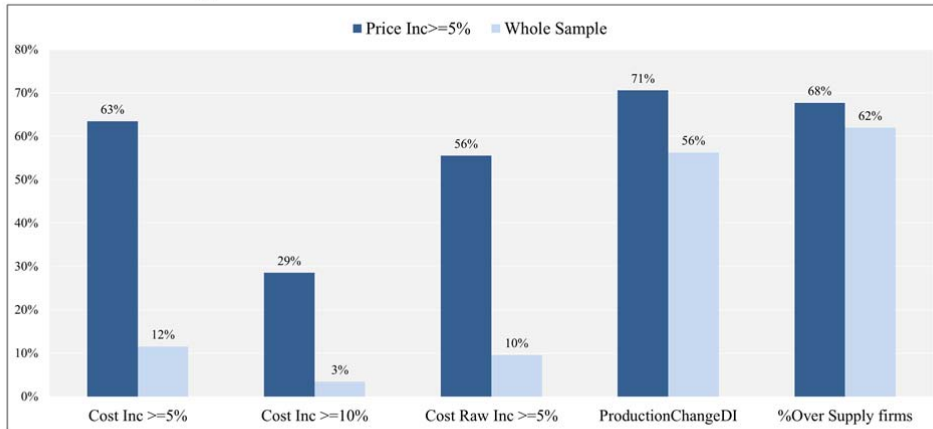


Figure 6. Factors Constraining Production of Next Quarter

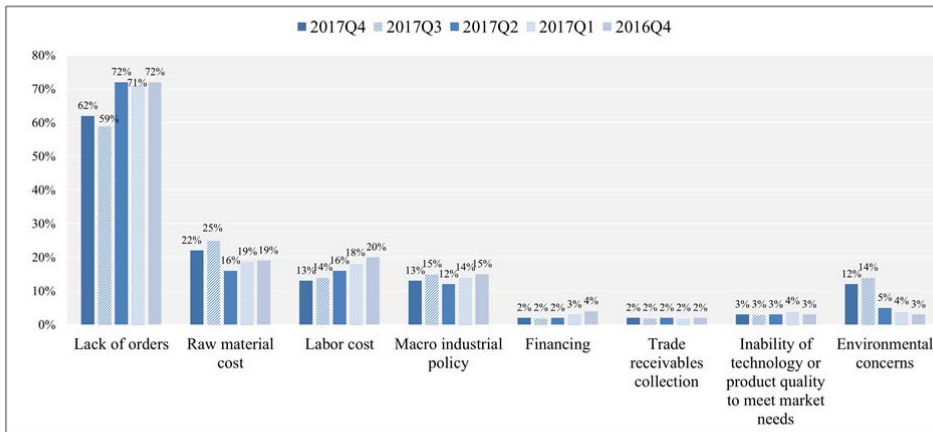


Figure 7A. Excess Capacity

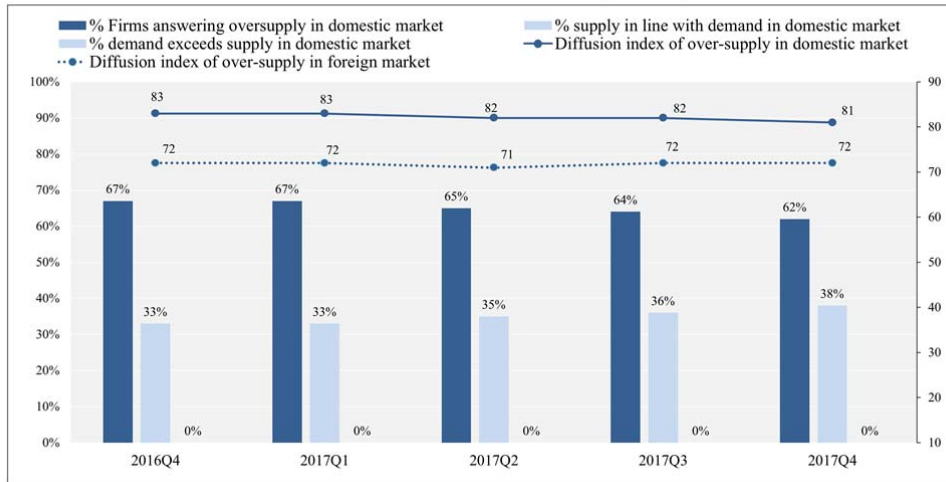


Figure 7B. Firms with Severe Excess Capacity

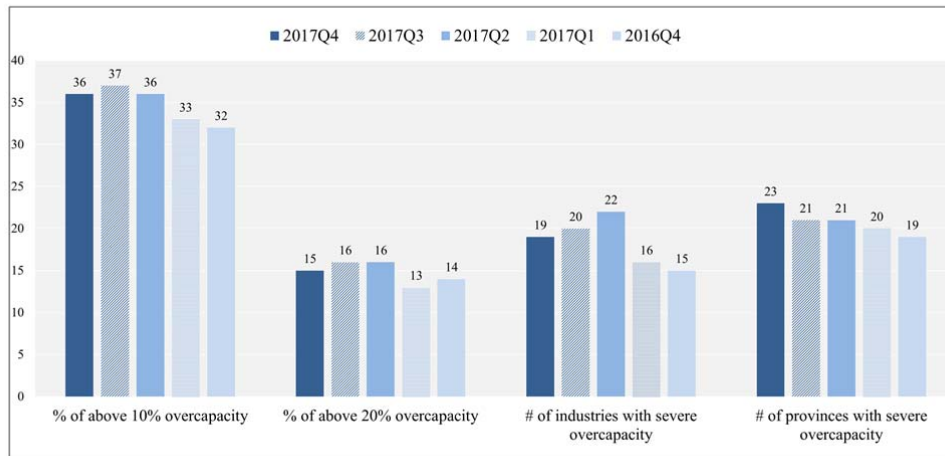


Figure 8A. Suspended Production

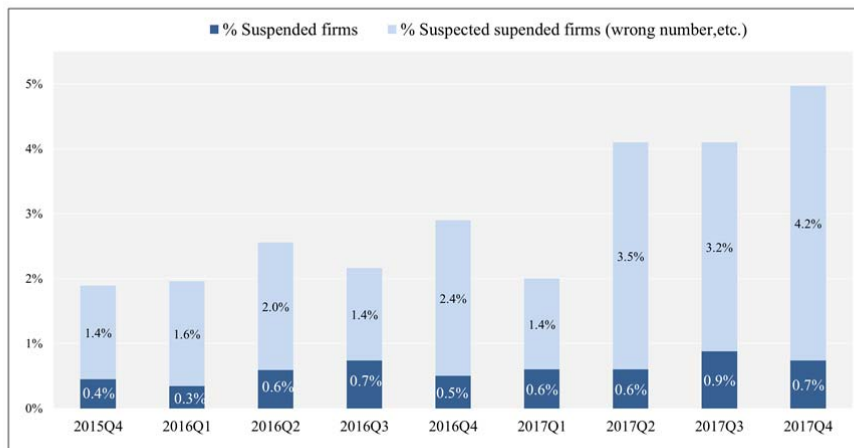


Figure 8B. Firms with Employment Reduction

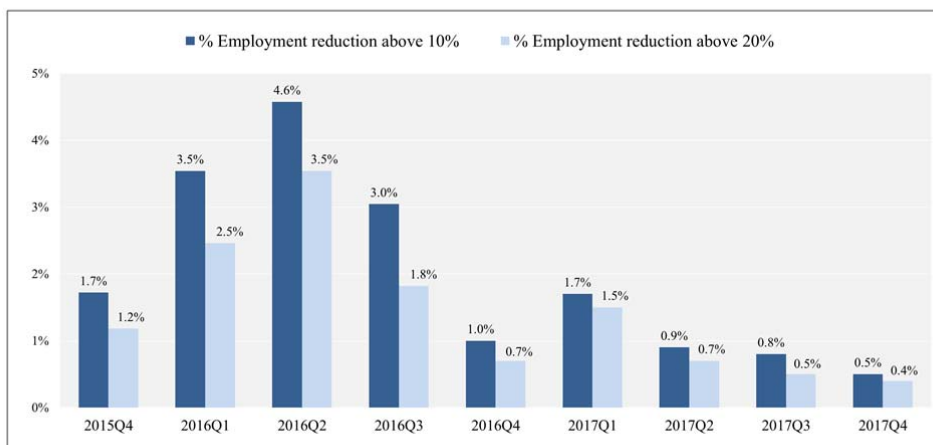




Figure 9. Capacity Utilization

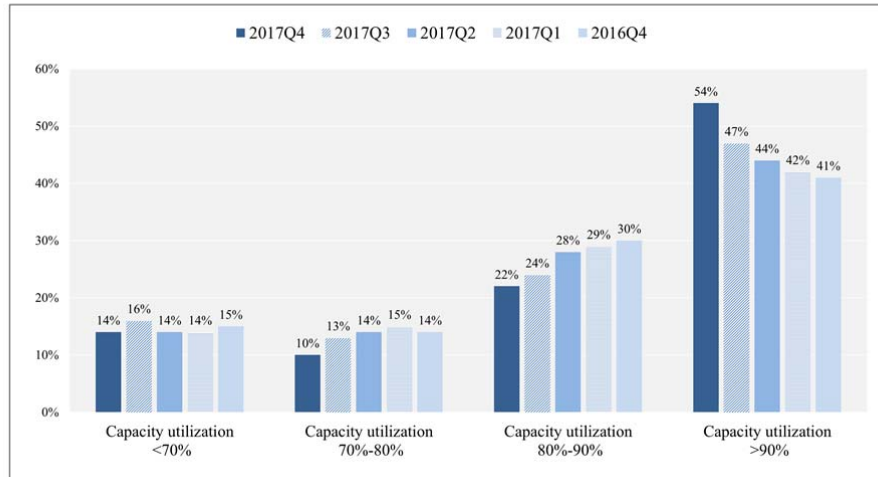


Figure 10. Gross Margins

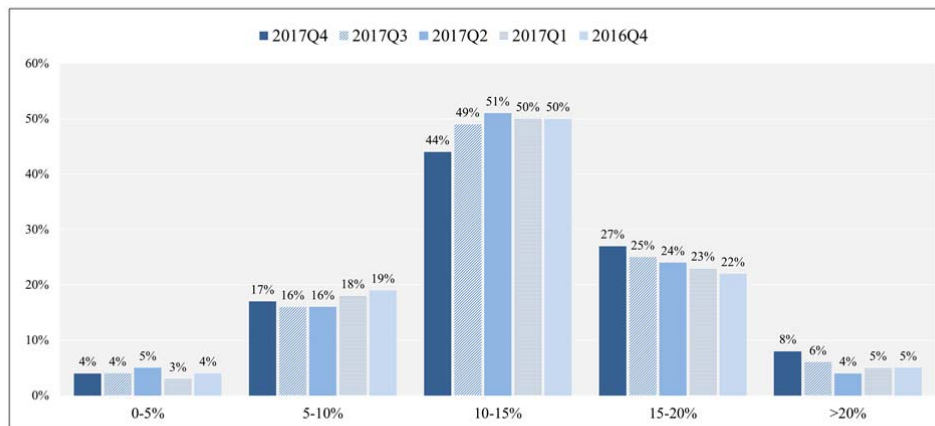


Figure 11. Financing  
 Figure 11A. Sufficient Capital

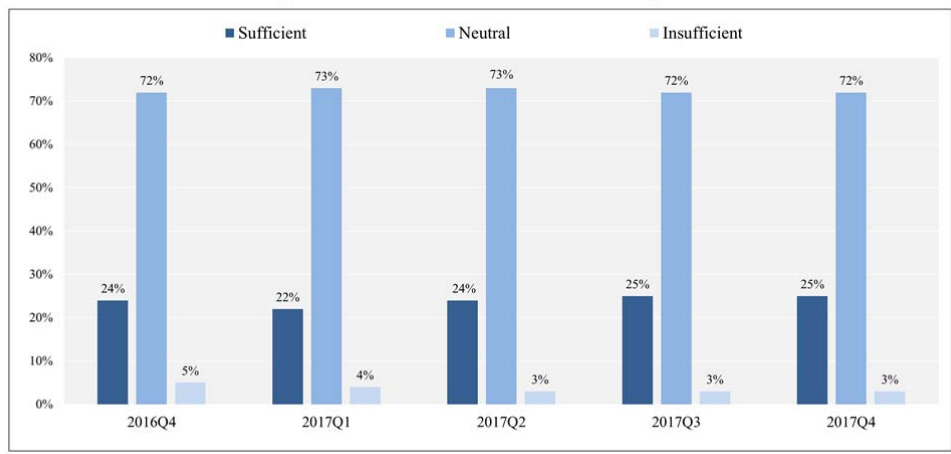


Figure 11B. New Loans

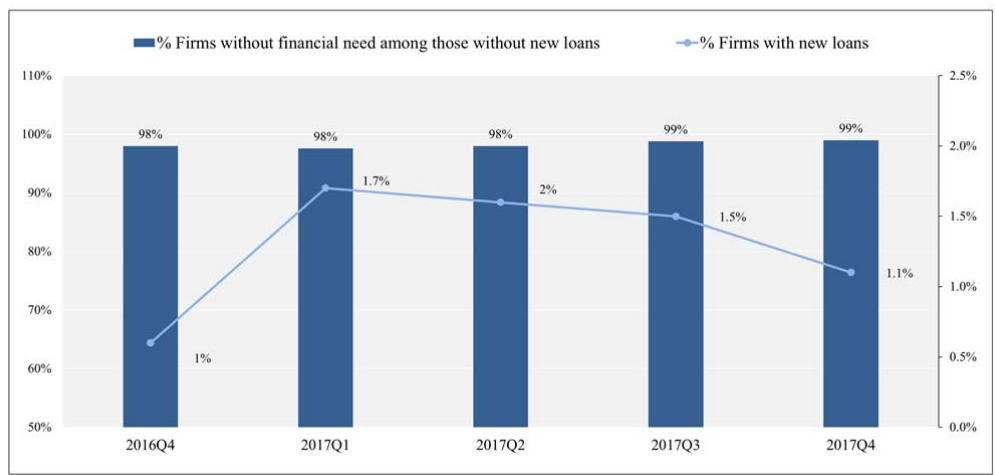


Figure 11C. Lending Attitude

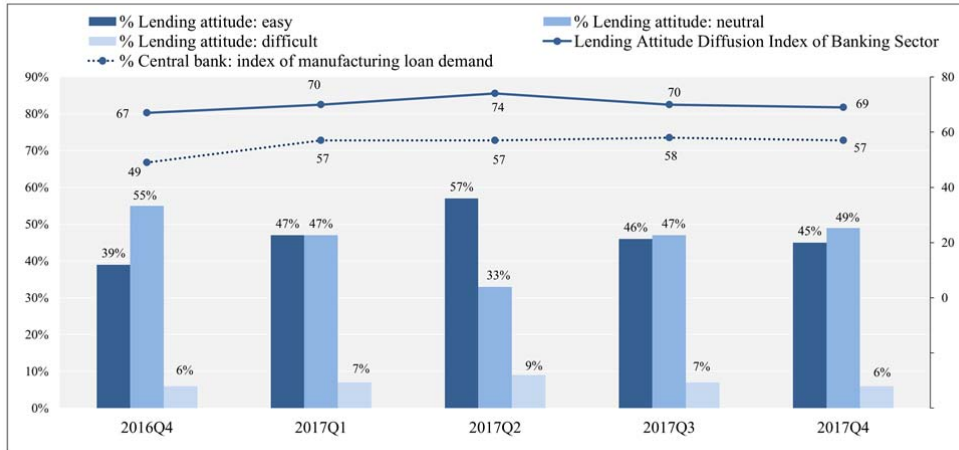


Figure 12. Business Outlook in 3-5 Years

Figure 12A. Business Outlook in 3-5 Years

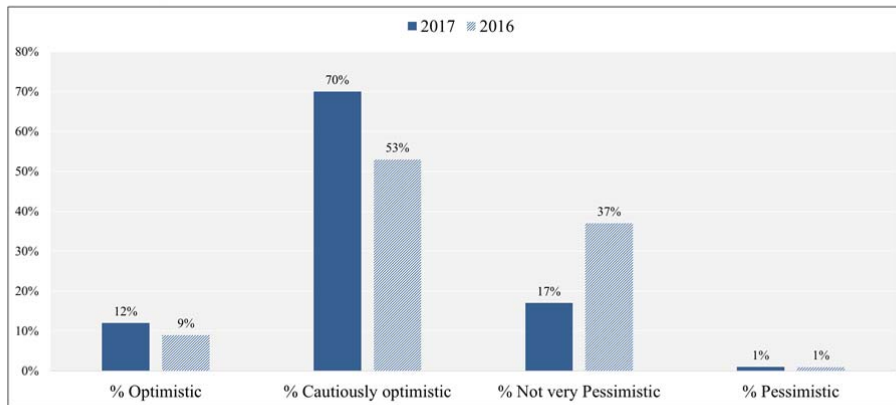


Figure 12B. Reasons for Pessimism

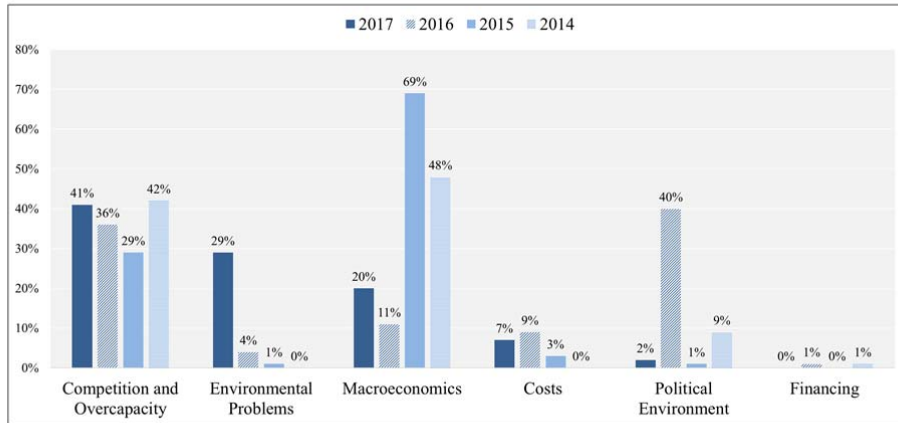


Figure 13. Innovation

Figure 13A. R&D Expenses of Chinese Firms

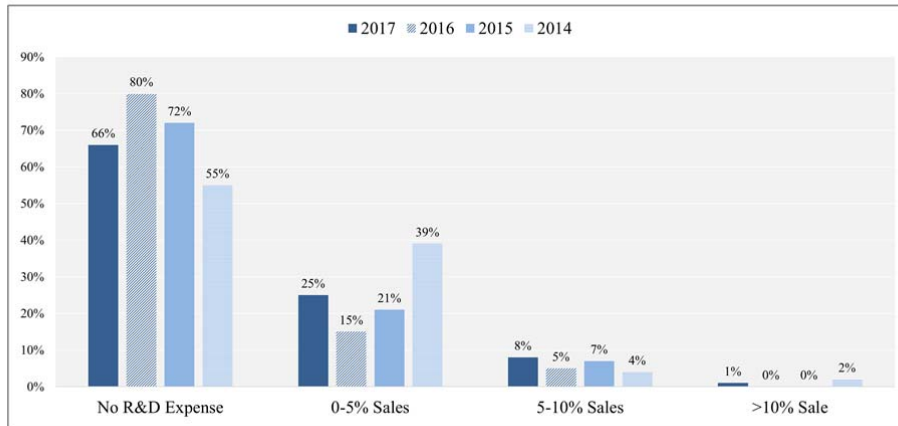


Figure 13B. Performance of Firms with significant R&D Expense

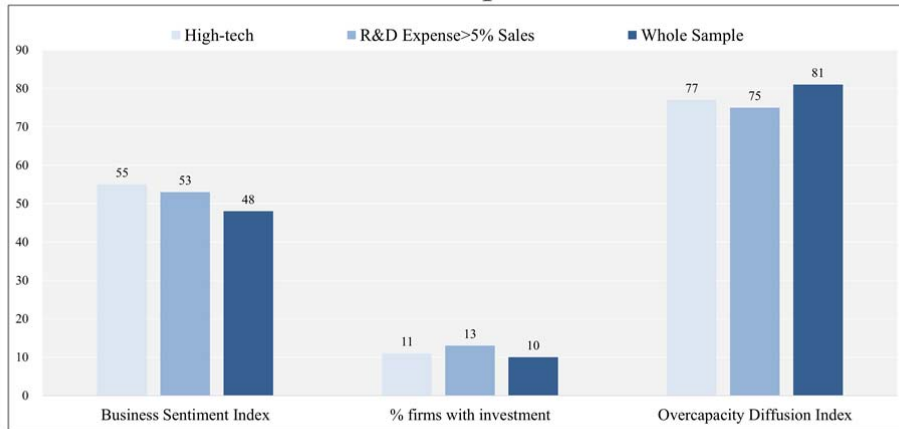


Figure 14. Legal Environment  
Figure 14A. Rating of Legal Environment

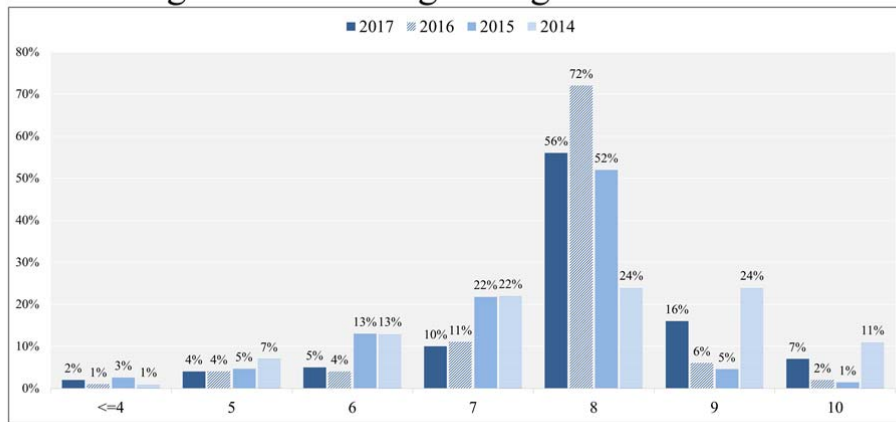


Figure 14B. Ways to Handle Business Disputes

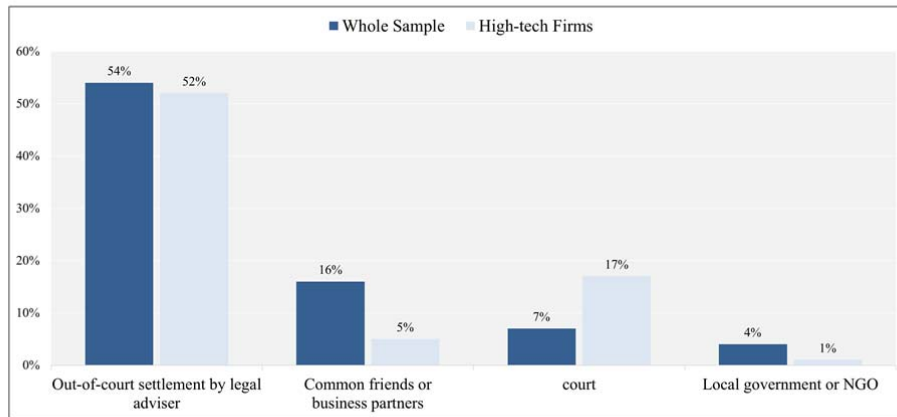
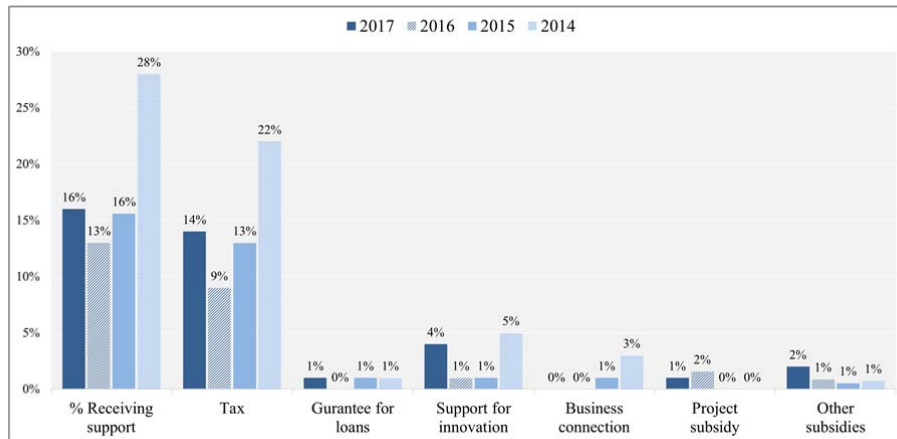


Figure 14C. Support from the Government



**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		
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	
Nation	2,039	2,034	48	47	56	54	47	49	40	37	
<i>By Size</i>											
Large	680	678	50	49	58	56	47	49	44	41	
Medium	679	678	48	47	57	56	47	50	40	37	
Small	680	678	46	45	54	51	47	49	37	34	
<i>By Ownership</i>											
State-owned	100	102	57	55	75	72	50	49	46	44	
Collectively-owned	29	32	47	46	55	53	52	53	33	33	
Private	1,727	1,709	47	46	55	53	47	49	40	37	
Foreign-owned	183	191	50	50	62	59	47	51	42	41	
<i>By Product Type</i>											
Consumer Goods - Durable	282	269	48	47	56	55	48	49	40	36	
Consumer Goods - Nondurable	732	751	50	49	60	58	49	50	40	38	
Capital Goods	150	148	51	49	59	54	49	50	44	42	
Intermediate Goods	875	866	46	45	53	51	45	49	39	36	

**Table 1.2**

	% of Firms with Fixed Investment		% of Firms with Expansionary Investment		Diffusion Index - Production		Diffusion Index - Employment		Diffusion Index - Price		
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	
Nation	10	10	5	4	56	51	51	50	56	59	
<i>By Size</i>											
Large	11	12	6	3	58	53	51	50	56	57	
Medium	10	10	4	4	56	50	50	51	56	59	
Small	9	8	4	3	55	49	51	49	57	61	
<i>By Ownership</i>											
State-owned	12	25	4	5	51	62	51	51	53	56	
Collectively-owned	3	0	3	0	59	52	48	52	59	59	
Private	10	9	5	4	56	50	51	50	57	59	
Foreign-owned	11	12	5	2	62	54	52	51	55	59	
<i>By Product Type</i>											
Consumer Goods - Durable	6	6	3	2	56	50	51	51	56	60	
Consumer Goods - Nondurable	12	13	6	5	60	54	51	50	58	60	
Capital Goods	3	9	1	1	56	54	52	51	53	57	
Intermediate Goods	11	9	5	3	53	47	50	50	56	59	

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	
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
Nation	2,039	2,034	48	47	56	54	47	49	10	10	40	37
<i>Mining</i>												
Coal Mining and Washing	16	12	40	40	47	42	25	42	6	25	47	38
Mining and Processing of Ferrous Metal Ores	8	7	42	26	25	7	50	21	13	14	50	50
Mining and Processing of Non-ferrous Metal	7	7	43	43	50	50	50	50	0	0	29	29
Mining and Processing of Nonmetal Ores	20	21	38	40	38	36	30	40	0	0	45	43
Other Ancillary Activities of Mining	1	1	33	50	50	50	50	100	0	0	0	0
<i>Production and Supply of Electricity, Heat, Gas and Water</i>												
Power Production and Supply	65	63	57	56	72	67	49	51	11	29	50	50
Gas Production and Supply	7	7	62	69	86	86	50	71	14	29	50	50
Production and Supply of Water	22	22	59	58	86	89	50	45	14	23	41	41
<i>Light Manufacturing</i>												
Processing of Agricultural and Related Products	127	101	46	43	54	54	50	49	15	4	34	26
Manufacturing of Foods	60	64	53	52	62	55	52	61	7	5	46	41
Manufacturing of Beverage	41	38	48	51	62	63	40	49	5	5	41	41
Textiles	113	103	47	47	57	55	46	51	17	17	40	35
Textile Wearing and Apparel	69	67	50	49	57	54	46	49	7	18	46	45
Leather Related Products and Footwear	36	34	45	39	51	50	51	44	11	0	32	24
Processing of Wood Products	38	34	50	49	59	54	49	51	8	15	43	41
Manufacturing of Furniture	37	32	48	48	55	56	47	48	5	6	41	39
Paper and Paper Products	57	55	49	48	60	57	50	54	5	7	36	35
Printing, Reproduction of Recording Media	41	44	48	47	61	58	46	47	27	14	38	36
Cultural and Sports Products	39	49	51	50	59	60	50	47	3	8	44	43
Manufacturing of Medicines	79	74	56	55	68	66	49	49	11	16	51	51
Manufacturing of Others	8	9	42	50	44	56	44	56	0	0	38	39
Recycling and Disposal of Wastes	5	4	50	42	50	38	50	38	0	0	50	50
<i>Chemical Industry</i>												
Processing of Petroleum and Nuclear Fuel	15	15	46	43	53	50	37	37	13	13	47	43
Manufacturing of Chemical Products	123	143	48	47	50	49	49	50	7	6	44	43
Manufacturing of Chemical Fibers	9	10	46	48	44	45	50	55	0	0	44	45
Rubber and Plastic Products	105	99	46	46	53	53	49	55	10	15	36	30
<i>Equipment Manufacturing</i>												
General-purpose Machinery	106	131	49	49	54	53	50	50	6	5	44	43
Special-purpose Machinery	98	111	53	49	61	56	51	50	5	8	46	42
Manufacturing of Automotive	76	64	48	48	55	60	51	52	14	8	38	31
Manufacturing of Railways, Ships and Other Transportation	27	18	57	50	70	56	52	53	4	0	50	42
Electric Machinery and Apparatus	139	134	49	49	67	62	47	52	19	19	34	32
Computers, Communication and Electric Equipment	59	70	51	50	56	56	50	51	5	6	47	43
Manufacturing of Measuring Instruments	43	42	50	49	62	61	48	46	2	0	42	40
Repair of Metal Products, Machinery and Equipment	4	5	46	47	50	50	50	50	0	0	38	40
<i>Other Heavy Manufacturing</i>												
Non-metallic Mineral Products	119	121	36	37	40	39	35	40	5	2	34	31
Smelting and Pressing of Ferrous Metals	67	62	40	39	37	34	39	43	9	13	43	41
Smelting and Pressing of Non-ferrous Metals	37	34	44	46	53	49	39	49	8	3	41	40
Metal Products	116	127	44	42	56	55	49	49	16	17	27	21



**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		
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	
	Nation	2,039	2,034	48	47	56	54	10	10	40	37
<i>Top Five</i>											
Gas Production and Supply	7	7	62	69	86	86	14	29	50	50	
Production and Supply of Water	22	22	59	58	86	89	14	23	41	41	
Power Production and Supply	65	63	57	56	72	67	11	29	50	50	
Manufacturing of Railways, Ships and Other Transportation	27	18	57	50	70	56	4	0	50	42	
Manufacturing of Medicines	79	74	56	55	68	66	11	16	51	51	
<i>Bottom Five</i>											
Non-metallic Mineral Products	119	121	36	37	40	39	5	2	34	31	
Mining and Processing of Nonmetal Ores	20	21	38	40	38	36	0	0	45	43	
Smelting and Pressing of Ferrous Metals	67	62	40	39	37	34	9	13	43	41	
Coal Mining and Washing	16	12	40	40	47	42	6	25	47	38	
Manufacturing of Others	8	9	42	50	44	56	0	0	38	39	

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	
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
Nation	2,039	2,034	48	47	56	54	47	49	10	10	40	37
<i>North China</i>												
Beijing	31	34	41	42	47	46	40	44	3	3	37	37
Tianjin	46	43	46	44	57	52	45	44	11	9	36	35
Hebei	92	86	45	44	54	51	45	47	14	16	35	33
<i>Northeast</i>												
Liaoning	97	93	48	47	55	55	47	49	10	8	42	39
Jilin	24	21	51	51	63	64	50	52	17	14	40	36
Heilongjiang	26	29	44	44	50	52	50	50	8	10	31	31
<i>Northwest</i>												
Inner Mongolia	29	28	49	48	53	48	43	50	7	18	50	46
Shaanxi	29	28	45	42	53	46	41	46	14	18	40	34
Gansu	10	11	53	55	60	59	55	64	10	27	45	41
Qinghai	1	1	50	50	50	50	50	50	0	0	50	50
Ningxia	4	4	38	38	38	50	38	38	0	0	38	25
Xinjiang	5	10	47	43	50	55	40	35	0	10	50	40
<i>Central North</i>												
Shanxi	19	21	48	45	53	50	47	45	16	10	45	40
Shandong	221	208	48	48	58	56	46	52	9	11	41	37
Henan	83	91	47	45	56	53	47	49	12	7	37	32
<i>Southwest</i>												
Chongqing	35	31	47	47	53	50	46	55	0	0	41	37
Sichuan	67	65	46	46	51	51	43	48	7	6	43	38
Guizhou	12	11	49	50	58	55	42	50	8	9	46	45
Yunnan	27	28	48	44	54	50	46	43	15	14	43	39
<i>East China</i>												
Shanghai	62	70	47	48	60	59	46	50	3	1	35	35
Jiangsu	261	274	48	49	57	55	47	50	9	10	42	41
Zhejiang	243	248	48	47	57	55	49	50	12	15	39	36
<i>South China</i>												
Fujian	94	94	49	49	57	57	51	50	14	15	40	38
Guangdong	213	219	49	47	56	54	48	50	10	9	41	39
Guangxi	41	38	52	48	62	58	50	45	12	8	43	42
Hainan	1	1	50	50	100	100	50	50	0	0	0	0
<i>Central South</i>												
Anhui	86	80	49	46	56	52	49	50	10	11	42	38
Jiangxi	54	53	48	47	57	56	44	46	13	4	42	40
Hubei	73	67	48	48	57	56	50	51	7	10	38	36
Hunan	53	47	48	46	60	56	45	49	6	6	38	34

**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	
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
Nation	2,039	2,034	48	47	56	54	10	10	40	37
<i>Top Five</i>										
Gansu	10	11	53	55	60	59	10	27	45	41
Guangxi	41	38	52	48	62	58	12	8	43	42
Jilin	24	21	51	51	63	64	17	14	40	36
Fujian	94	94	49	49	57	57	14	15	40	38
Guangdong	213	219	49	47	56	54	10	9	41	39
<i>Bottom Five</i>										
Ningxia	4	4	38	38	38	50	0	0	38	25
Beijing	31	34	41	42	47	46	3	3	37	37
Heilongjiang	26	29	44	44	50	52	8	10	31	31
Shaanxi	29	28	45	42	53	46	14	18	40	34
Hebei	92	86	45	44	54	51	14	16	35	33

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		
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	
Nation	2,039	2,034	81	82	72	72	50	49	
<i>By Size</i>									
Large	680	678	78	79	70	71	49	49	
Medium	679	678	82	82	74	72	50	50	
Small	680	678	83	84	73	73	49	49	
<i>By Ownership</i>									
State-owned	100	102	63	65	59	58	50	50	
Collectively-owned	29	32	81	85	70	67	44	41	
Private	1,727	1,709	82	83	73	73	49	49	
Foreign -owned	183	191	79	81	71	68	52	52	
<i>By Product Type</i>									
Consumer Goods - Durable	282	269	76	76	66	65	52	51	
Consumer Goods - Nondurable	732	751	77	77	71	72	50	50	
Capital Goods	150	148	76	83	66	71	49	51	
Intermediate Goods	875	866	86	87	78	76	48	48	

**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	8	63	63
Processing of Petroleum and Nuclear Fuel	15	53	53
Mining and Processing of Nonmetal Ores	20	50	60
Non-metallic Mineral Products	119	41	55
Processing of Wood Products	38	39	53
Smelting and Pressing of Ferrous Metals	67	36	43
Metal Products	116	23	58
Leather Related Products and Footwear	36	22	39
Manufacturing of Furniture	37	19	24
Smelting and Pressing of Non-ferrous Metals	37	19	24
Manufacturing of Foods	60	17	22
Textile Wearing and Apparel	69	16	33
Electric Machinery and Apparatus	139	16	42
Manufacturing of Beverage	41	15	32
Paper and Paper Products	57	14	40
Coal Mining and Washing	16	13	63
Manufacturing of Others	8	13	38
Manufacturing of Medicines	79	11	22
Special-purpose Machinery	98	10	21

## 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
Hebei	92	27	53
Shanxi	19	26	42
Beijing	31	26	42
Heilongjiang	26	23	35
Sichuan	67	22	45
Tianjin	46	22	46
Xinjiang	5	20	40
Shandong	221	18	34
Inner Mongolia	29	17	38
Shaanxi	29	17	38
Henan	83	17	37
Guizhou	12	17	33
Liaoning	97	16	39
Jiangxi	54	15	43
Jiangsu	261	13	33
Guangxi	41	12	37
Chongqing	35	11	31
Hunan	53	11	34
Shanghai	62	11	32
Guangdong	213	11	27
Fujian	94	11	30
Anhui	86	10	33
Gansu	10	10	20

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**

	Number of Firms	Diffusion Indices								
		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index		
		Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	
Nation	2,039	2,034	71	75	55	53	72	74	56	59
<i>By Size</i>										
Large	680	678	71	72	56	53	73	71	56	57
Medium	679	678	70	75	55	53	71	74	56	59
Small	680	678	72	78	56	53	73	77	57	61
<i>By Ownership</i>										
State-owned	100	102	60	63	54	54	65	66	53	56
Collectively-owned	29	32	72	73	59	55	71	69	59	59
Private	1727	1709	72	76	56	54	73	75	57	59
Foreign -owned	183	191	69	74	55	52	72	74	55	59
<i>By Product Type</i>										
Consumer Goods - Durable	282	269	71	79	57	54	75	78	56	60
Consumer Goods - Nondurable	732	751	69	74	56	54	73	73	58	60
Capital Goods	150	148	76	76	57	53	75	74	53	57
Intermediate Goods	875	866	71	75	54	53	71	74	56	59

**Table 5.2 Industries 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	2,039	71	55	72	56
Printing, Reproduction of Recording Media	41	93	68	90	66
Textiles	113	88	60	86	60
Mining and Processing of Non-ferrous Metal	7	86	71	79	64
Manufacturing of Furniture	37	85	53	81	53
Rubber and Plastic Products	105	84	54	88	59
Electric Machinery and Apparatus	139	84	55	84	65
Paper and Paper Products	57	80	55	79	53
Manufacturing of Railways, Ships and Other Transportation	27	80	69	81	54
Manufacturing of Foods	60	78	58	83	58
Special-purpose Machinery	98	78	55	78	51
Smelting and Pressing of Ferrous Metals	67	78	51	76	58
Manufacturing of Automotive	76	76	68	88	55
Non-metallic Mineral Products	119	75	52	74	59
Smelting and Pressing of Non-ferrous Metals	37	74	57	70	54
Cultural and Sports Products	39	72	63	77	53
Manufacturing of Beverage	41	72	52	63	57
Manufacturing of Chemical Fibers	9	72	50	67	56

## Notes:

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



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

Diffusion Indices					
	Number of Firms	Unit Cost Index	Labor Cost Index	Raw Material Cost Index	Price Index
Nation	2,039	71	55	72	56
Shanxi	19	76	50	74	55
Shandong	221	74	58	75	58
Zhejiang	243	74	56	76	58
Hebei	92	73	58	72	54
Beijing	31	73	58	73	55
Shanghai	62	73	56	76	56
Anhui	86	72	53	73	59
Guangdong	213	72	56	74	57
Guangxi	41	72	55	75	57
Tianjin	46	71	52	74	58
Jiangsu	261	71	55	73	56
Fujian	94	71	56	75	57
Henan	83	71	57	74	57
Hubei	73	71	56	70	51

Notes:

1. Provinces are sorted by Diffusion Index for Unit Cost in descending order. The table includes provinces 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	
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
Nation	2,039	2,034	23	24	1	2	69	70	50	50
<i>With or Without Investment</i>										
Firms with Investment	204	208	30	27	4	4	67	80	50	50
Firms without Investment	1,835	1,826	23	24	1	1	70	66	50	50
<i>By Size</i>										
Large	680	678	22	24	1	2	63	77	50	50
Medium	679	678	25	25	1	2	74	72	50	50
Small	680	678	24	23	1	1	70	60	50	50
<i>By Ownership</i>										
State-owned	100	102	19	16	1	2	57	70	50	50
Collectively-owned	29	32	14	16	0	0				
Private	1,727	1,709	24	25	1	2	71	69	50	50
Foreign -owned	183	191	18	19	1	1	63	75	50	50
<i>By Product Type</i>										
Consumer Goods - Durable	282	269	20	22	1	1	71	71	50	50
Consumer Goods - Nondurable	732	751	25	25	1	2	59	66	50	50
Capital Goods	150	148	40	37	3	5	58	56	50	50
Intermediate Goods	875	866	20	21	1	1	81	78	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**

<i>The most important source of financing</i>		
Sources	Number of Firms	% of Firms
Internal Funds	1999	98
Founder	48	2
Relatives and friends	0	0
Bank	5	0
Stock market	1	0
Non-official finance institution	0	0
Others	0	0

<i>The second most important source of financing</i>		
Sources	Number of Firms	% of Firms
Bank	470	61
Founder	292	38
Internal Funds	2	0
Others	1	0
Stock market	1	0
Non-official finance institution	0	0
Relatives and friends	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	
	Q4	Q3	Q4	Q3	Q4	Q3
Mining and Processing of Ferrous Metal Ores	8	7	63	86	63	86
Processing of Petroleum and Nuclear Fuel	15	15	53	67	53	67
Mining and Processing of Nonmetal Ores	20	21	50	48	60	57
Non-metallic Mineral Products	119	121	41	38	55	49
Processing of Wood Products	38	34	39	24	53	47
Smelting and Pressing of Ferrous Metals	67	62	36	34	43	44
Metal Products	116	127	23	27	58	57
Leather Related Products and Footwear	36	34	22	35	39	50
Manufacturing of Furniture	37	32	19	19	24	25
Smelting and Pressing of Non-ferrous Metals	37	34	19	24	24	26
Manufacturing of Foods	60	64	17	19	22	23
Textile Wearing and Apparel	69	67	16	13	33	37
Electric Machinery and Apparatus	139	134	16	19	42	41
Manufacturing of Beverage	41	38	15	8	32	24
Paper and Paper Products	57	55	14	25	40	49
Coal Mining and Washing	16	12	13	25	63	25
Manufacturing of Others	8	9	13	11	38	56
Manufacturing of Medicines	79	74	11	15	22	22
Special-purpose Machinery	98	111	10	14	21	32
Manufacturing of Measuring Instruments	43	42	9	7	12	14
Rubber and Plastic Products	105	99	9	13	48	43
Manufacturing of Railways, Ships and Other Transportation	27	18	7	6	26	44
Printing, Reproduction of Recording Media	41	44	7	7	34	34
General-purpose Machinery	106	131	6	6	35	33
Power Production and Supply	65	63	5	6	5	11
Textiles	113	103	4	5	32	16
Manufacturing of Automotive	76	64	4	9	33	52
Cultural and Sports Products	39	49	3	2	13	10
Manufacturing of Chemical Products	123	143	2	3	39	38
Processing of Agricultural and Related Products	127	101	2	2	14	13
Computers, Communication and Electric Equipment	59	70	2	1	29	30
Manufacturing of Chemical Fibers	9	10	0	0	44	40
Mining and Processing of Non-ferrous Metal	7	7	0	0	29	29
Repair of Metal Products, Machinery and Equipment	4	5	0	0	25	40
Production and Supply of Water	22	22	0	0	0	0
Gas Production and Supply	7	7	0	0	0	0
Recycling and Disposal of Wastes	5	4	0	25	0	25

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	
	Q4	Q3	Q4	Q3	Q4	Q3
Hebei	92	86	27	24	53	53
Shanxi	19	21	26	24	42	52
Beijing	31	34	26	26	42	47
Heilongjiang	26	29	23	24	35	31
Sichuan	67	65	22	25	45	43
Tianjin	46	43	22	28	46	51
Xinjiang	5	10	20	0	40	10
Shandong	221	208	18	18	34	33
Inner Mongolia	29	28	17	14	38	29
Shaanxi	29	28	17	18	38	32
Henan	83	91	17	24	37	44
Guizhou	12	11	17	0	33	18
Liaoning	97	93	16	20	39	41
Jiangxi	54	53	15	19	43	45
Jiangsu	261	274	13	13	33	35
Guangxi	41	38	12	18	37	34
Chongqing	35	31	11	16	31	35
Hunan	53	47	11	13	34	34
Shanghai	62	70	11	9	32	31
Guangdong	213	219	11	12	27	29
Fujian	94	94	11	12	30	32
Anhui	86	80	10	13	33	36
Gansu	10	11	10	18	20	18
Jilin	24	21	8	5	21	24
Yunnan	27	28	7	11	26	32
Hubei	73	67	7	9	19	27
Zhejiang	243	248	6	8	31	26
Ningxia	4	4	0	0	25	25

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	
		Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
Nation		2039	2034	71	75	55	53	72	74	56	59
<i>Mining</i>											
	Coal Mining and Washing	16	12	63	54	56	46	63	54	50	63
	Mining and Processing of Ferrous Metal Ores	8	7	56	57	50	50	50	50	50	50
	Mining and Processing of Non-ferrous Metal	7	7	86	79	71	64	79	64	64	64
	Mining and Processing of Nonmetal Ores	20	21	60	52	53	50	58	50	50	55
	Other Ancillary Activities of Mining	1	1	50	100	50	50	50	100	50	100
<i>Production and Supply of Electricity, Heat, Gas and Water</i>											
	Power Production and Supply	65	63	50	51	50	50	50	51	50	50
	Gas Production and Supply	7	7	50	50	50	50	NA	NA	50	50
	Production and Supply of Water	22	22	50	50	50	50	NA	NA	50	50
<i>Light Manufacturing</i>											
	Processing of Agricultural and Related Products	127	101	63	69	62	57	68	58	67	57
	Manufacturing of Foods	60	64	78	77	58	52	83	73	58	56
	Manufacturing of Beverage	41	38	72	74	52	55	63	62	57	58
	Textiles	113	103	88	89	60	58	86	87	60	63
	Textile Wearing and Apparel	69	67	62	76	54	54	63	78	55	60
	Leather Related Products and Footwear	36	34	67	66	58	50	82	66	57	51
	Processing of Wood Products	38	34	50	63	53	51	50	63	51	54
	Manufacturing of Furniture	37	32	85	91	53	53	81	86	53	55
	Paper and Paper Products	57	55	80	99	55	53	79	98	53	85

## 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	
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
Printing, Reproduction of Recording Media	41	44	93	97	68	66	90	95	66	82
Cultural and Sports Products	39	49	72	73	63	55	77	71	53	55
Manufacturing of Medicines	79	74	59	54	53	50	55	53	53	53
Manufacturing of Others	8	9	63	61	56	50	94	61	50	50
Recycling and Disposal of Wastes	5	4	60	63	50	50	60	63	50	50
<i>Chemical Industry</i>										
Processing of Petroleum and Nuclear Fuel	15	15	63	80	50	53	63	80	50	53
Manufacturing of Chemical Products	123	143	65	68	52	51	64	68	55	56
Manufacturing of Chemical Fibers	9	10	72	70	50	50	67	70	56	60
Rubber and Plastic Products	105	99	84	89	54	51	88	89	59	67
<i>Equipment Manufacturing</i>										
General-purpose Machinery	106	131	66	71	54	52	63	70	55	55
Special-purpose Machinery	98	111	78	79	55	53	78	77	51	56
Manufacturing of Automotive	76	64	76	92	68	62	88	90	55	61
Manufacturing of Railways, Ships and Other Transportation	27	18	80	92	69	53	81	86	54	64
Electric Machinery and Apparatus	139	134	84	79	55	54	84	79	65	62
Computers, Communication and Electric Equipment	59	70	59	62	53	55	59	61	53	58
Manufacturing of Measuring Instruments	43	42	67	73	51	52	67	72	55	56
Repair of Metal Products, Machinery and Equipment	4	5	63	80	50	60	63	80	50	70
<i>Other Heavy Manufacturing</i>										
Non-metallic Mineral Products	119	121	75	79	52	52	74	78	59	60
Smelting and Pressing of Ferrous Metals	67	62	78	82	51	51	76	80	58	60
Smelting and Pressing of Non-ferrous Metals	37	34	74	74	57	56	70	74	54	56
Metal Products	116	127	58	74	51	52	58	74	52	61

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	
		Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
Nation		2,039	2,034	71	75	55	53	72	74	56	59
<i>North China</i>											
	Beijing	31	34	73	72	58	54	73	71	55	59
	Tianjin	46	43	71	71	52	51	74	69	58	55
	Hebei	92	86	73	76	58	52	72	74	54	59
<i>Northeast</i>											
	Liaoning	97	93	68	68	54	53	63	65	56	60
	Jilin	24	21	56	67	54	52	57	65	52	62
	Heilongjiang	26	29	69	78	54	52	58	68	58	66
<i>Northwest</i>											
	Inner Mongolia	29	28	64	71	55	52	63	74	55	54
	Shaanxi	29	28	67	75	55	55	71	73	50	61
	Gansu	10	11	65	68	50	59	69	70	55	55
	Ningxia	4	4	63	75	63	50	63	75	50	63
	Xinjiang	5	10	60	80	50	55	70	75	60	50
<i>Central North</i>											
	Shanxi	19	21	76	71	50	52	74	69	55	52
	Shandong	221	208	74	78	58	54	75	78	58	61
	Henan	83	91	71	81	57	52	74	78	57	59
<i>Southwest</i>											
	Chongqing	35	31	66	73	54	55	74	70	51	53
	Sichuan	67	65	66	75	53	52	69	78	57	59
	Guizhou	12	11	58	55	54	55	59	50	54	55
	Yunnan	27	28	65	70	56	54	72	71	56	57
<i>East China</i>											
	Shanghai	62	70	73	74	56	56	76	73	56	61
	Jiangsu	261	274	71	76	55	53	73	75	56	59
	Zhejiang	243	248	74	77	56	53	76	77	58	60
<i>South China</i>											
	Fujian	94	94	71	74	56	53	75	72	57	58
	Guangdong	213	219	72	77	56	54	74	77	57	61
	Guangxi	41	38	72	78	55	55	75	77	57	57
<i>Central South</i>											
	Anhui	86	80	72	75	53	55	73	73	59	60
	Jiangxi	54	53	69	71	55	54	69	72	57	58
	Hubei	73	67	71	75	56	54	70	73	51	59
	Hunan	53	47	70	69	53	53	74	66	56	60

Notes:

The table includes provinces with more than three firms.



### **Appendix 3. Sampling Procedure**

#### **3.1 The Population**

Starting from this quarter, 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**

Previously, 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 2034 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 1673 firms. Steps 2-3 below describe how we obtain a supplement sample of 1635 firms from the 2013 Industrial Enterprise database, which, assuming a 20% response rate, would yield an additional 327 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 1635 firms in our supplementary sample, we obtained 366 responses, resulting in a total of 2039 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**

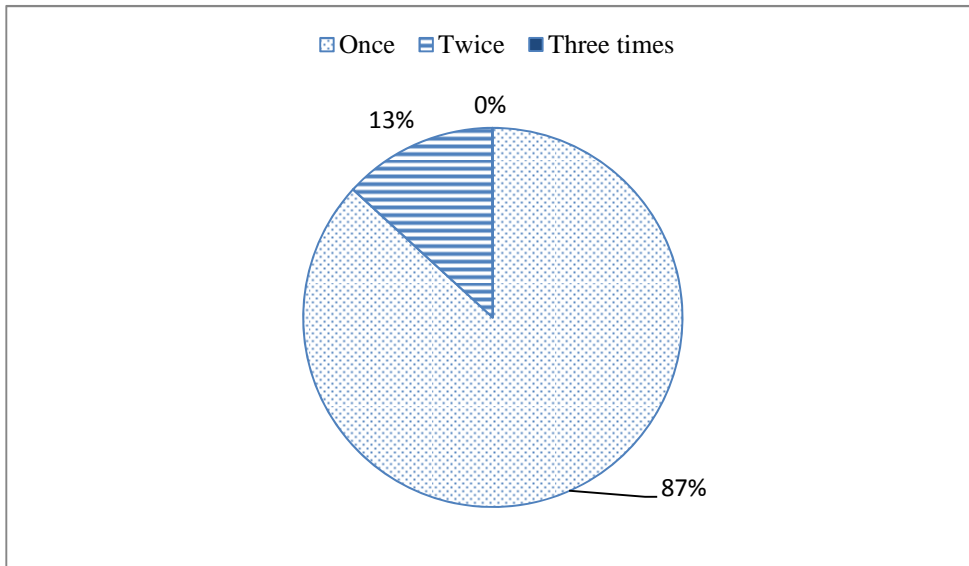
Tables A3.1-A3.3 show the distribution of the population and the Q4 response sample, as well as the 1673 firms that were also in the Q3 sample, in terms of industry, region and size. Note that as we are sampling 2.1% of the population, some small strata may not be sampled. Specifically, Tibet is a region 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**

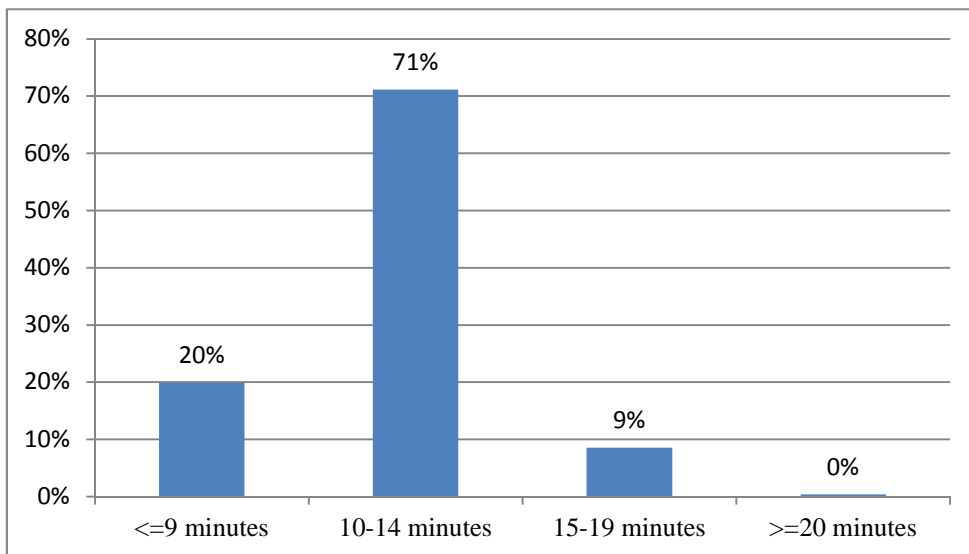
Theoretically, there are no obvious ways to adjust for seasonality, especially given the relatively small number of surveys we have conducted. We deal with this issue by directly asking the firms about seasonality and its impact. As shown in Figure A1.4, the majority of firms (81%) reported no seasonality, while for 9% 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**

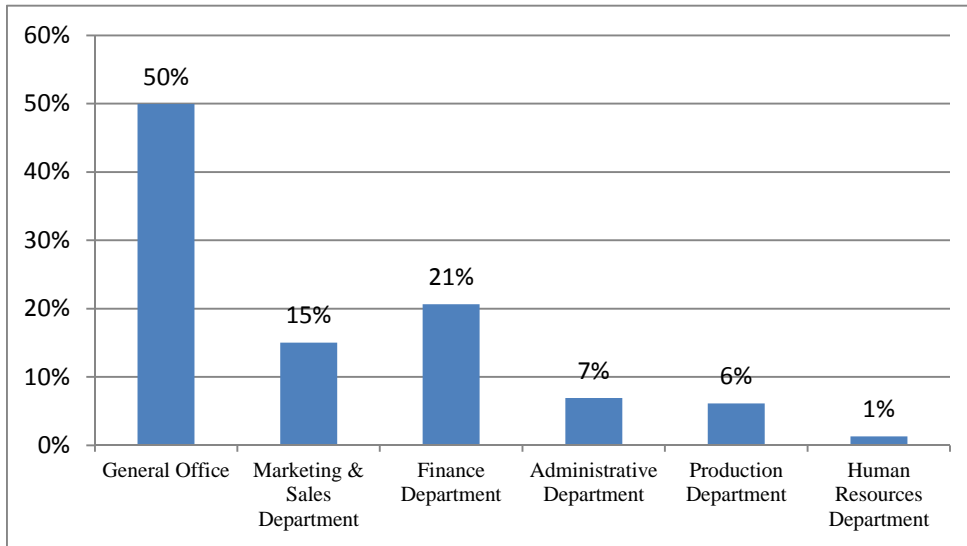
**Figure A1.1 Number of Calls**



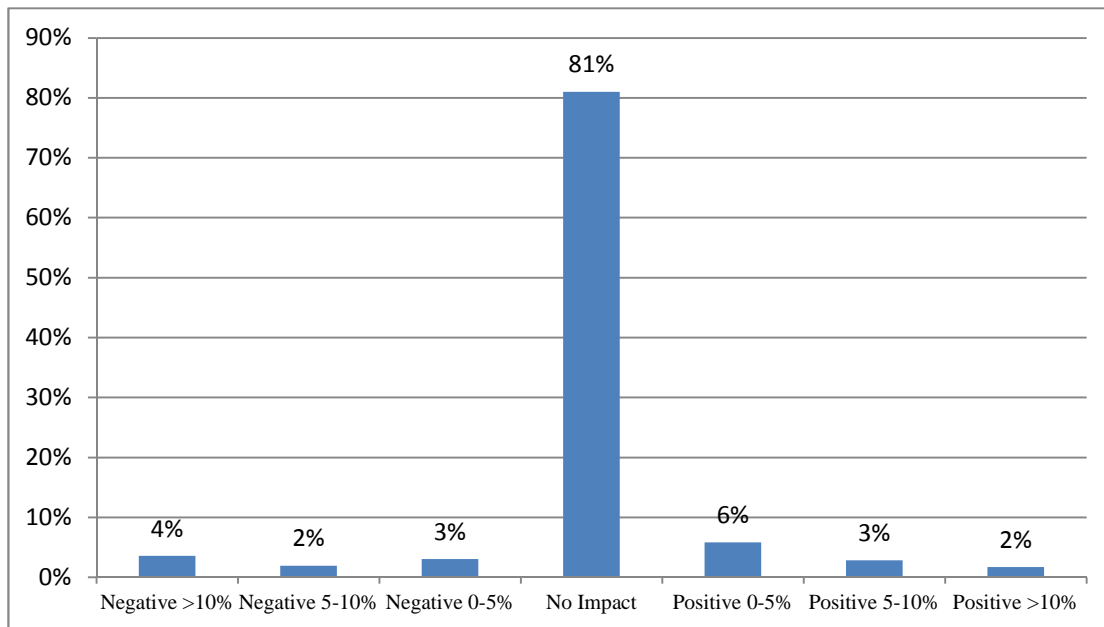
**Figure A1.2 Duration of Calls**



**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		1673 Firms From Q3 Survey		Final Q4 Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Power Production and Supply	5,701	1.7	61	3.7	65	3.2
Electric Machinery and Apparatus	21,012	6.2	122	7.3	139	6.8
Textile Wearing and Apparel	14,147	4.2	49	2.9	69	3.4
Textiles	19,591	5.8	85	5.1	113	5.5
Mining and Processing of Nonmetal Ores	3,363	1.0	16	1.0	20	1.0
Non-metallic Mineral Products	29,429	8.7	98	5.9	119	5.8
Recycling and Disposal of Wastes	1,256	0.4	2	0.1	5	0.3
Mining and Processing of Ferrous Metal Ores	3,100	0.9	5	0.3	8	0.4
Smelting and Pressing of Ferrous Metals	10,190	3.0	54	3.2	67	3.3
Manufacturing of Chemical Fibers	1,859	0.6	8	0.5	9	0.4
Manufacturing of Chemical Products	23,402	6.9	115	6.9	123	6.0
Computers, Communication and Electric Equipment	12,540	3.7	54	3.2	59	2.9
Manufacturing of Furniture	4,656	1.4	29	1.7	37	1.8
Repair of Metal Products, Machinery and Equipment	381	0.1	4	0.2	4	0.2
Metal Products	18,498	5.5	95	5.7	116	5.7
Manufacturing of Beverage	5,496	1.6	33	2.0	41	2.0
Other Ancillary Activities of Mining	153	0.1	1	0.1	1	0.1
Coal Mining and Washing	6,680	2.0	6	0.4	16	0.8
Processing of Wood Products	8,154	2.4	28	1.7	38	1.9
Processing of Agricultural and Related Products	22,485	6.7	86	5.1	127	6.2
Leather Related Products and Footwear	7,714	2.3	26	1.6	36	1.8
Mining of other Ores	17	0.0	0	0.0	0	0.0
Manufacturing of Others	1,527	0.5	6	0.4	8	0.4
Manufacturing of Automotive	11,733	3.5	57	3.4	76	3.7
Gas Production and Supply	1,095	0.3	7	0.4	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	12	0.7	15	0.7
Manufacturing of Foods	7,388	2.2	49	2.9	60	2.9
Production and Supply of Water	1,310	0.4	21	1.3	22	1.1
Manufacturing of Railways, Ships and Other Transportation	4,277	1.3	17	1.0	27	1.3
General-purpose Machinery	22,163	6.6	89	5.3	106	5.2
Cultural and Sports Products	7,513	2.2	35	2.1	39	1.9
Rubber and Plastic Products	16,327	4.8	81	4.8	105	5.2
Manufacture of Tobacco	122	0.0	0	0.0	0	0.0
Manufacturing of Medicines	6,483	1.9	70	4.2	79	3.9
Manufacturing of Measuring Instruments	3,805	1.1	35	2.1	43	2.1
Printing, Reproduction of Recording Media	4,734	1.4	38	2.3	41	2.0
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	31	1.9	37	1.8
Paper and Paper Products	6,580	2.0	53	3.2	57	2.8
Special-purpose Machinery	15,443	4.6	88	5.3	98	4.8
<b>Total</b>	<b>337,680</b>	<b>100.0</b>	<b>1,673</b>	<b>100.0</b>	<b>2,039</b>	<b>100.0</b>

## Appendix

**Table A3.2 Regional Distribution**

Province	Population		1673 Firms From Q3 Survey		Final Q4 Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Anhui	14,533	4.3	65	3.9	86	4.2
Beijing	3,506	1.0	29	1.7	31	1.5
Fujian	15,206	4.5	78	4.7	94	4.6
Gansu	1,723	0.5	9	0.5	10	0.5
Guangdong	37,831	11.2	188	11.2	213	10.5
Guangxi	4,919	1.5	34	2.0	41	2.0
Guizhou	2,901	0.9	9	0.5	12	0.6
Hainan	358	0.1	1	0.1	1	0.1
Hebei	12,818	3.8	79	4.7	92	4.5
Henan	18,410	5.5	67	4.0	83	4.1
Heilongjiang	3,882	1.2	25	1.5	26	1.3
Hubei	13,520	4.0	57	3.4	73	3.6
Hunan	12,170	3.6	41	2.5	53	2.6
Jilin	5,136	1.5	18	1.1	24	1.2
Jiangsu	45,138	13.4	223	13.3	261	12.8
Jiangxi	7,424	2.2	41	2.5	54	2.7
Liaoning	15,591	4.6	76	4.5	97	4.8
Inner Mongolia	3,975	1.2	24	1.4	29	1.4
Ningxia	940	0.3	2	0.1	4	0.2
Qinghai	448	0.1	0	0.0	1	0.1
Shandong	37,272	11.0	176	10.5	221	10.8
Shanxi	3,433	1.0	16	1.0	19	0.9
Shaanxi	4,103	1.2	21	1.3	29	1.4
Shanghai	9,101	2.7	54	3.2	62	3.0
Sichuan	11,753	3.5	52	3.1	67	3.3
Tianjin	4,972	1.5	39	2.3	46	2.3
Tibet	54	0.0	0	0.0	0	0.0
Xinjiang	2,031	0.6	4	0.2	5	0.3
Yunnan	3,147	0.9	23	1.4	27	1.3
Zhejiang	36,363	10.8	196	11.7	243	11.9
Chongqing	5,022	1.5	26	1.6	35	1.7
<b>Total</b>	<b>337,680</b>	<b>100</b>	<b>1,673</b>	<b>100</b>	<b>2,039</b>	<b>100.03</b>

## Appendix

**Table A3.3 Comparison of Company Characteristics**

	Population 2008		Population 2013		1673 Firms From Q3 Survey		Final Q4 Response Sample	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Assets	90,050	12,920	243,118	45,165	348,854	59,598	309,385	57,383
Sales	104,697	20,072	295,142	85,344	306,690	64,238	294,338	68,187
Total	488,017		337,680		1,673		2,039	