

China's Industrial Economy 2017 Q1 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 the industrial economy in 2017 Q1 are as follows:

1. Although official data for first quarter GDP and industrial growth exceeded expectations, we found that the industrial economy has not yet bottomed out. Our business sentiment index in the first quarter stood at 47 in Q1, one point above the previous quarter, but still indicating a slight contraction. Overcapacity continued to be at a historical high.
2. After a brief expansion in 2016 Q4, the production diffusion index stayed flat in 2017 Q1, registering a mark of 50. The expansion in total industrial production shown in the official data has mainly been driven by state-owned firms, whereas private firms – the vast majority of industrial firms – did not expand their production.
3. Product prices and costs continued to rise substantially, though to a lesser extent.
4. The gap between state-owned and private firms has shown a tendency to increase in recent quarters.
5. The contribution of real estate and related industries is not significant and cannot explain the industrial growth seen in Q1.

All these findings suggest that the structural problems of China's industrial economy remain a significant concern. Supply-side reform this year should focus on a reduction of overcapacity, while facilitating industrial consolidation to improve overall competitiveness. Moreover, against this background of overcapacity, the loosening of monetary policy would not revive the industrial economy, and has caused substantial inflationary pressure in the past two quarters, hindering the industrial recovery.

Introduction

This report is based on data collected from our quarterly surveys of around 2,000 industrial firms in China. This is the 12th such survey after it launched in 2014 Q2. Conducted through telephone interviews, 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.

It should be emphasized that, although our survey includes industrial companies with annual sales above five million RMB, given that this is not a high threshold, we cover the vast majority of companies. If we exclude the sectors of agriculture, real estate and finance from China's GDP, then the industrial sector accounts for 50% of everything else. Thus, the findings from this sample should not be ignored.

There were a total of 2,030 firms surveyed for our 2017 Q1 report, of which 1,738 firms were also polled in our 2016 Q4 survey. The initial survey sample was based on a stratified random sampling by industry, region and size from the National Bureau of Statistics' population of about 488,000 industrial firms that have sales of more than five million RMB. Appendix A details the sampling procedure and compares our sample with the NBS population.

I. 2017 Q1 Key Findings

I.1 The Industrial Economy Has Not Yet Bottomed Out

Although official data for first quarter GDP and industrial growth exceeded expectations, we found that the economy industry has not yet bottomed out. Our business sentiment index in the first quarter stood at 47 in Q1, one point above the previous quarter, but still indicating a slight contraction (Figure 1). Overcapacity remains at a historical high, both in terms of its prevalence and severity.^{2, 3}

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 a 100 * % of firms answering “good” + 50 * % 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.

The low BSI in Q1 was, again, a result of weak investment. Only 1% of the firms considered it a “good” time to make fixed investments, with a diffusion index of 38, far below the turning point of 50. In reality, only 8% of firms made any fixed investments in Q1 and a mere 2% made expansionary investments (Table 1). The sluggish investment is not likely to improve in the near future: only 12 firms (0.6 %) said they planned to make investments in the next quarter.

I.2 Product Prices and Costs Continued to Rise Substantially, though to a Lesser Extent

Product prices continued to rise in the first quarter, involving one third of the firms, and with a diffusion index of 64, similar to last quarter (66). The proportion of firms with substantial price increases (above 5%) was 21%, also similar to last quarter (25%). The overall degree of price increases, however, was substantially more moderate compared to last quarter: the percentage of firms with large price increases (above 10%) in Q1 was 5% (Figure 3A), much lower than the previous quarter (20%). A persistent loosening of monetary policy necessarily increases inflationary pressure, which results in cost rises for firms and may hinder an industrial recovery.

Production cost rises remained a prevalent phenomenon in Q1, involving close to half (48%) of the firms, with a diffusion index of 74 (compared with 73 in Q4). However, the degree of cost rises is easing slightly: the proportion of firms with substantial cost rises (above 5%) was 20% in Q1 (Figure 3B), lower than the previous quarter (26%). Both raw materials and labor costs increased significantly, with diffusion indices, respectively, of 70 and 65 (compared with 72 and 65 in Q4).

As in 2016 Q4, cost rises have been the driving force behind the price rises. As shown in Figure 4, among firms with product costs inflation above 5%, cost rises were the most prominent. The proportion of firms with unit cost increases above 5% and 10% were 87% and 8%, respectively, far above the whole sample (21% and 2%). Unit cost increases are mostly related to raw material costs. 16% of these firms reported raw material cost rises above 5%, three times more than the whole sample (5%). Meanwhile, these firms were similar 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.

I.3 Production Increases Driven by State-Owned and Foreign Firms

After a brief expansion in 2016 Q4, production stayed flat in 2017 Q1, as indicated by a diffusion index of 50. There were, however, significant variations among different types of firms. State-owned and foreign companies fared better, with diffusion indices

both standing at 53 (Table 1). Consistently, large firms were in a moderate expansion mode with a diffusion index of 53.

Given that diffusion indices do not reflect the magnitude of production change, Figure 5 displays the distribution of changes in production for different sizes of firms. It suggests an increase in the total amount of production, consistent with official data. Such an expansion in total production has mainly been driven by large firms, which are made up disproportionately of state-owned and foreign firms. Indeed, when we reproduced Figure 5 for private firms – the vast majority of industrial firms – we found that they did not increase their production from the level of the previous quarter.

I.4 Gap Between State-Owned and Private Firms Has Increased in Recent Quarters

As shown in Figure 6, the advantage of state-owned firms over private firms has increased in recent quarters, in terms of business sentiment and operating conditions. After two years of capacity curtailment, state-owned firms fared better in production and investment in Q1, as compared with private firms.

Figure 6 also suggests that the recent media reports of export expansion in Q1 has been due to the fact that exports of state-owned firms dropped in the past year before recovering significantly in Q1. As for private firms, their exports did not shrink last year and stayed flat in Q1. Private firms represent the vast majority, with overall exports staying flat in Q1.

I.5 Real Estate Cannot Explain Industrial Growth in Q1

Recent media discussions on industrial growth in Q1 have tended to attribute a significant role to real estate, but our survey does not support this view. First, as indicated in Figure 7, industries directly related to real estate, such as cement, construction-related metal products, iron & steel and coal mining only accounted for a small proportion (6%) of the overall sample. Second, except for construction-related metal products, the business sentiments of real estate and related industries were below the whole sample, whereas their production index either stayed flat or was in slight contraction. Meanwhile, their overcapacity problem was more severe than that for the overall sample.

II. Challenges and Priorities

II.1 Overall Conditions and Industry & Regional Distribution

Figure 8 shows that employment and electricity consumption, two of our major indices, remained flat in the first quarter, registering a mark of 50. Meanwhile, there was a slight decline in inventory, with a diffusion index of 49.

As shown in Table 2.2, the top three industries included Production & Supply of Water (62), Manufacture of Medicines (59) and Power Production & Supply (57). Manufacture of Medicines has been consistently at the top of this list since 2015 Q1. On the other hand, the worst-performing industries were Manufacture of Non-metallic Mineral Products (39), Mining & Processing of Nonmetal Ores (40), Manufacture of Leather, Fur, Feather, Related Products & Footwear (40), Processing of Wood Products (42) and Processing of Petroleum & Nuclear Fuel (42). During the nine quarters since 2015 Q1, Mining & Processing of Nonmetal Ores has been on the list seven times, and was the worst performing one on four occasions. Processing of Petroleum & Nuclear Fuel and Manufacture of Leather, Fur, Feather, Related Products & Footwear have each been on the list seven times.

Table 3.1 displays regional business conditions. In Q1, the BSI ranged from 41 (Heilongjiang) to 56 (Inner Mongolia). Inner Mongolia has been the top performing province for five consecutive quarters. The bottom five provinces are Heilongjiang (41), Ningxia (42), Tianjin (43), Henan (43) and Shanxi (44). Heilongjiang has been on the list for three consecutive quarters, while Q1 was the first time that Tianjin was on the list.

II.2 Challenges and Priorities

Weak demand is still by far the biggest challenge for the industrial economy. 71% of the firms surveyed in Q1 cited a lack of orders. Costs were listed as the second largest issue, with labor and raw material costs cited by 18% and 19% of firms, respectively. The proportion of firms citing macro and industrial policies as limiting factors continued to increase, registering 14% in Q1. In addition, financing was not found to be a bottleneck, with only 2.6% replying that financing was a limiting factor, a consistent finding in past surveys.

II.2.1 Overcapacity Still at a Historical High

In 2017 Q1, 67% of the firms reported oversupply in the domestic market, similar to 2016 Q4. The diffusion index was 83, marking five consecutive quarters that this index has been at a historical high. One third of the firms reported that their excess

capacity was above 10%, up from 32% in Q4, while 13% reported that their excess capacity was above 20% (compared with 14% in Q4) (Figure 10). Most of the firms said they expect that the problem of overcapacity will persist in Q2.

We categorize an industry as having severe excess capacity if more than 10% of the firms reported excess capacity of more than 20%. There were 35 industries and 31 regions in total. In Q1, the number of industries and regions with severe excess capacity accounted for more than half of the total firms, respectively (16 industries and 20 regions in 2017 Q1 versus 15 industries and 19 regions in 2016 Q4). All these numbers demonstrate that both the prevalence and severity of overcapacity are at historically high levels.

Moreover, overcapacity in the international market is substantially better than in the domestic market, with the diffusion index 10 points lower.

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 Q1, for example, as many as 47% of firms said they did not have significant levels of inventory, because they started production only after receiving orders. For those carrying inventories, 87% said they expected their inventory to be digested within three months, with a further 11% saying it would take between four to six months. This leaves only 2% 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 Q1, about 2% of firms had suspended production or were suspected to have suspended production. The latter 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 11A).

In Q1, the proportion of firms reducing workers by more than 10% was 1.7%, while the proportion of firms reducing workers by more than 20% was 1.5%, up from 1.0% and 0.7% in Q4 (Figure 11B). 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 650,000 jobs were lost in 2017 Q1.

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% were 26% and 17% 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% were 7% and 5% respectively, significantly higher than that of the whole sample (3% and 2%).

Capacity utilization remained stable in 2017 Q1. About 70% of firms reported a capacity utilization rate above 80%, while 14% were at levels of below 70% (Figure 11C). There is no consensus as to what level of capacity utilization should be considered healthy. Nevertheless, 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, 25% of firms reported difficulties in collecting trade receivables from their customers in 2017 Q1, down slightly from 26% in 2016 Q4. This problem was more prominent among private firms (27%) and firms producing capital goods (32%). SOEs were disproportionately more likely to delay payment, accounting for about 20% of all firms that have delayed payment.

II.2.3 Rising Costs and Low Margins

Cost rises are the second biggest challenge facing the industry economy. Unit costs have been increasing substantially since 2016 Q4, mainly due to increases in raw materials and labor costs. In Q1, the increase in raw materials was more prominent than the increase in labor costs.

Overcapacity means a lack of pricing power, which, combined with rising costs, results in low profit margins. As shown in Figure 13, as many as 22% of the firms surveyed had gross margins below 10%, while 72% of the firms had gross margins below 15%, but only 5% of the firms had gross margins above 20%. Low margins may make it difficult for the 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 Q1, only 3% of firms cited financing as a constraining factor (2016: 3-4%). 22% of the firms said they had sufficient funds, 73% answered “neutral”, while only 4% reported insufficient funds. Of those, the vast majority (96%) reported insufficient funds for production, not for expansion, while 3% reported insufficient funds due to operating losses.

As shown in Table 6.1 and Figure 14B, only a small fraction of 2% firms obtained new loans in Q1. When asked about the reasons, the vast majority (98%) of firms without new loans reported that they did not have the need for capital. Moreover, the diffusion index reflecting an “accommodating” bank lending attitude increased from 67 in 2016 Q4 to 70 in 2017 Q1 (Figure 14C), while the percentage of firms reporting a “difficult” lending attitude was rose to 7% in Q1, up from 6% in Q4. It was not common for firms to borrow from financial institutions other than banks in Q1, with only three firms (0.1%) doing so at interest rates of below 15%.

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 99% of surveyed firms reporting this as their primary funding source. In Q1, 1% of firms reported the founder’s own capital as the primary source of funds, while 55% reported this as the second most important source of funds. 44% 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, 91% 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.

In Q1, banks issued 220 billion RMB of new loans to industrial firms, which represented 5.4% of total new loans, a significant increase from past quarters (2016: 1-3%). The central bank’s loan demand index increased from 49% in Q4 to 57% in Q1. Meanwhile, new loans to the service sectors accounted for 48% of total new loans in Q1, up from 27% in Q4. It is clear that banks have started to shift their lending towards the real economy. On the other hand, many of the new loans still entered the real estate industry, with new real estate loans continuing to rise, from 1.35 trillion in Q4 to 1.7 trillion in Q1, accounting for 40% of the total new loans issued, compared with 54% in Q4.

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 official data for first quarter GDP and industrial growth exceeded expectations, we found that the industrial economy has not yet bottomed out. Our business sentiment index in the first quarter stood at 47, one point above the previous quarter, but still indicating a slight contraction.

Total industrial production increased, but it has mainly been driven by state-owned and foreign companies. Private firms – the vast majority of industrial firms – did not increase their production. Prices and costs continued to rise, although the degree of

risers has eased. Finally, it is noteworthy that the gap between state-owned and private firms has tended to increase in recent quarters.

The biggest challenge facing the industrial economy is still overcapacity. Both its prevalence and severity remain at historically high levels.

All these findings suggest that the structural problems of China's industrial economy are still concerning. Supply-side reform this year should still focus on the reduction of overcapacity, while facilitating industrial consolidation to improve overall competitiveness. Moreover, against this background of overcapacity, the loosening of monetary policy would not revive the industrial economy, and has caused significant inflationary pressure over the past two quarters, which may hinder the industrial recovery. 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

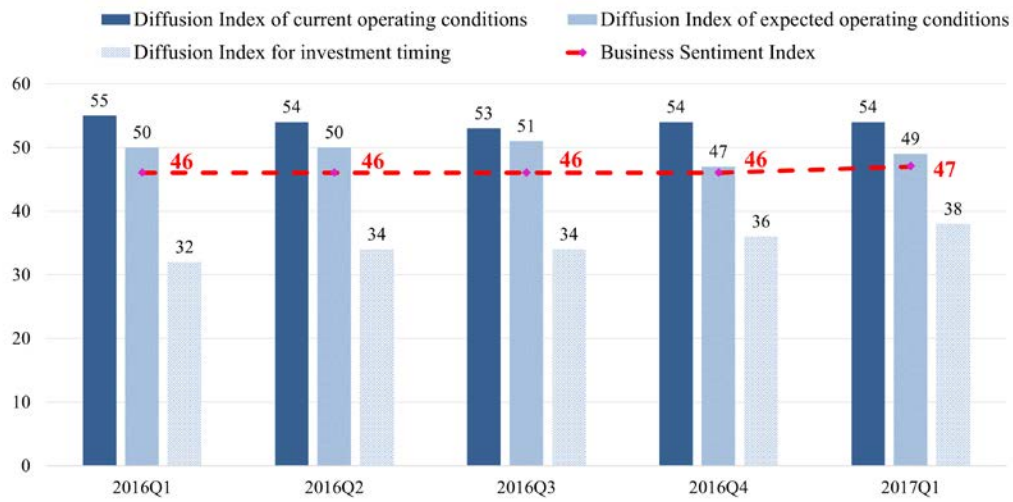


Figure 2. Investment

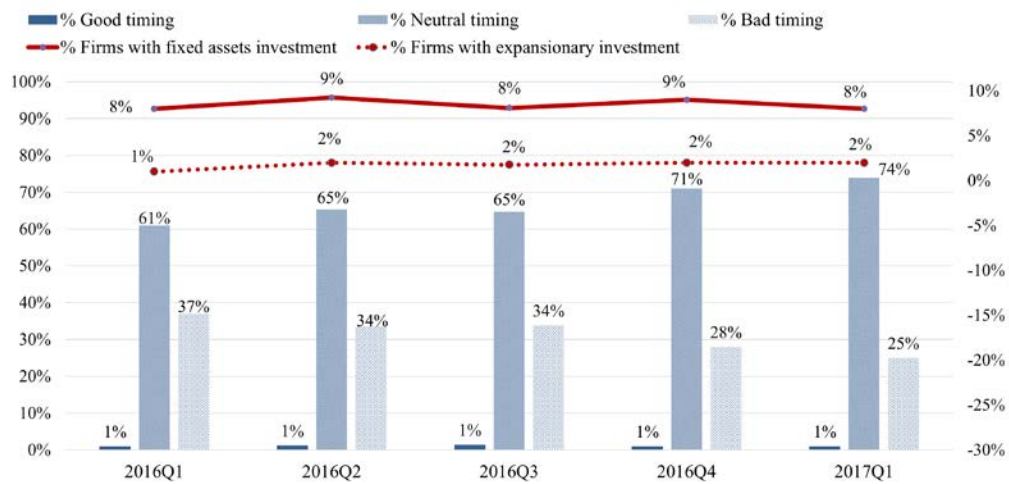


Figure 3A. Distribution of Price Changes

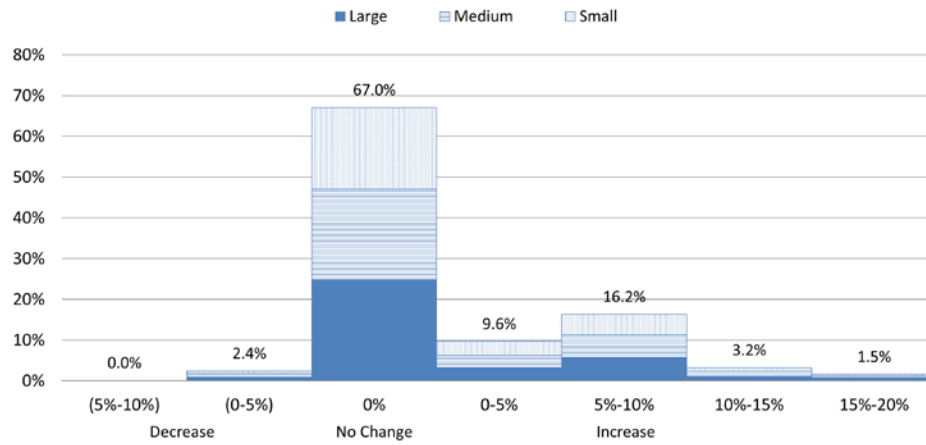


Figure 3B. Distribution of Unit Cost Changes

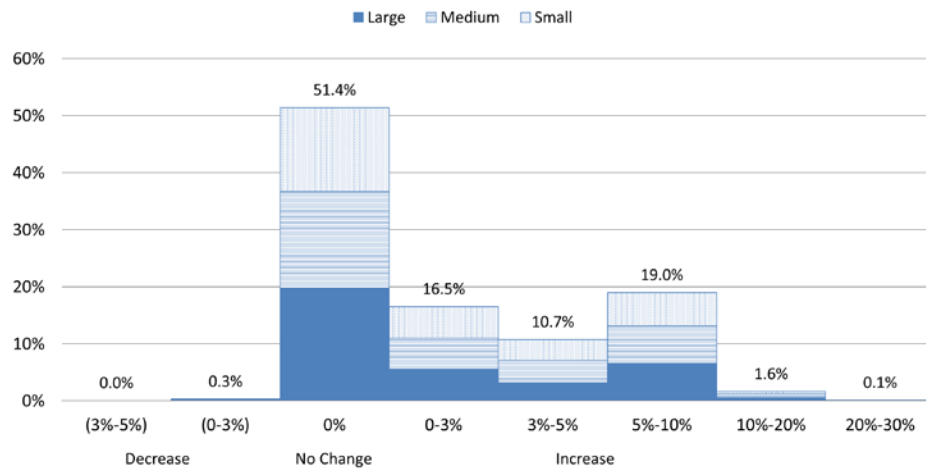


Figure 4. Cost Driven Price Increases

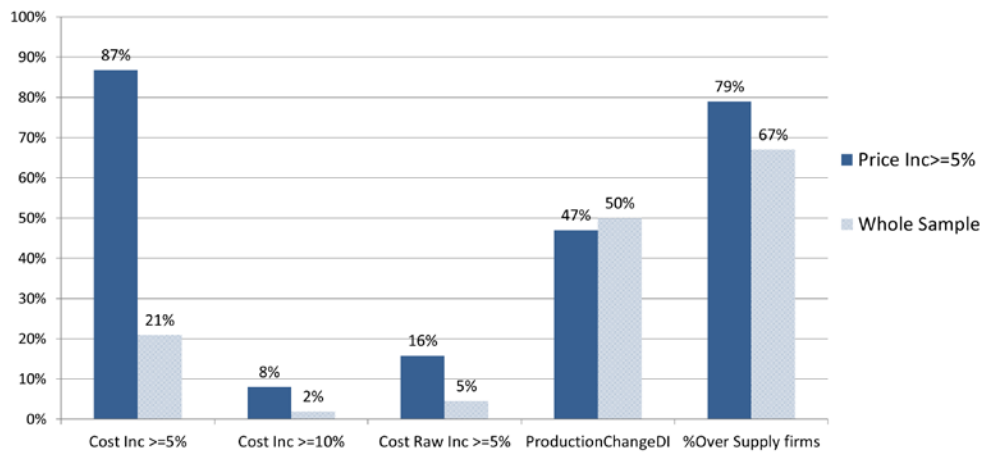


Figure 5. Distribution of Production Increases

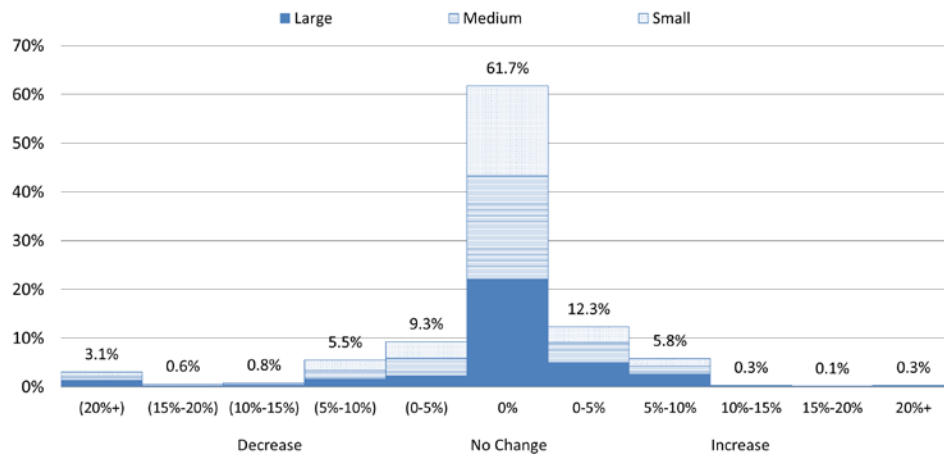


Figure 6. Comparison between State-owned and Private Firms

Figure 6A. Business Sentimental Index and Current Operating Condition

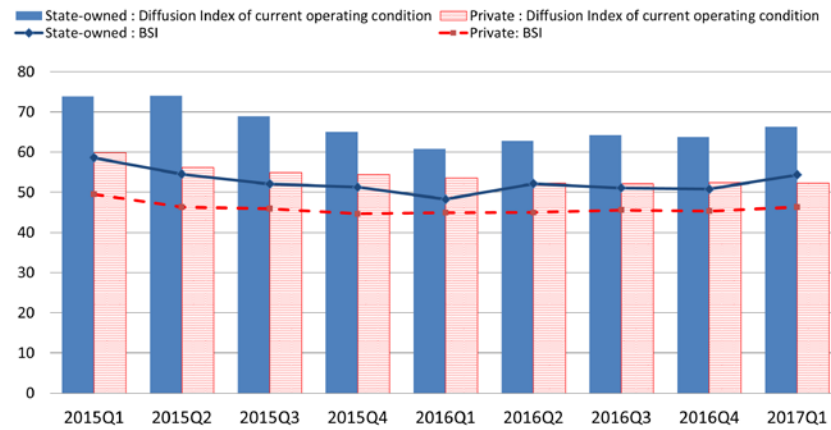


Figure 6B. Expansionary Investment and Production

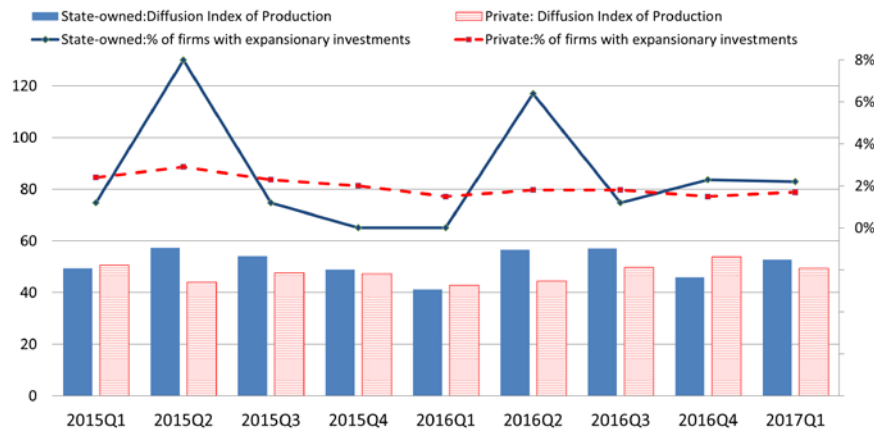


Figure 6C. Changes in Export

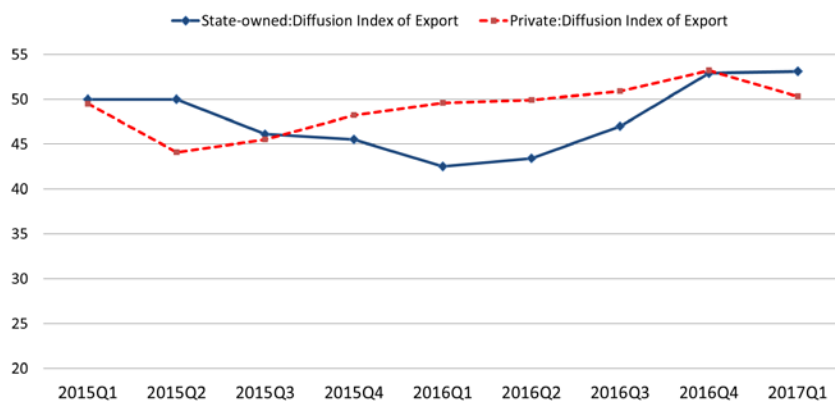


Figure 7. Comparison between Real-estate Related Industries and the whole sample

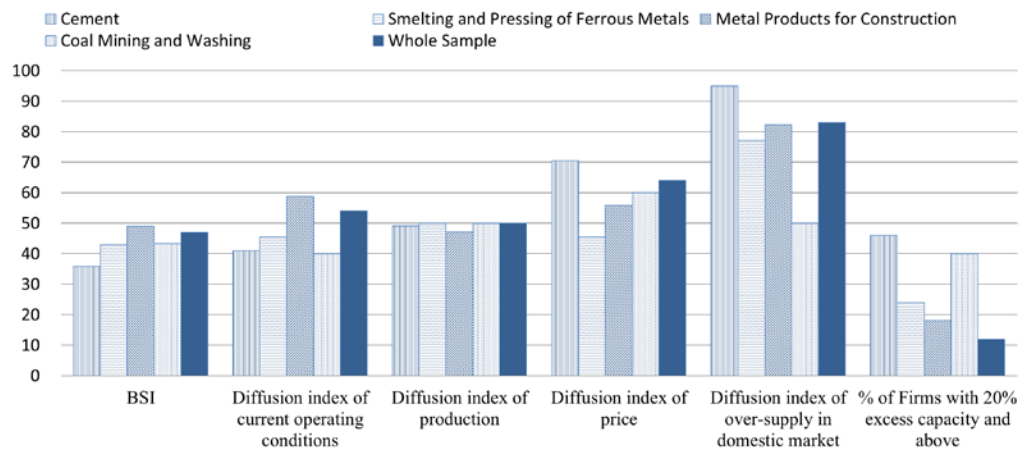


Figure 8. Other Main Economic Indices

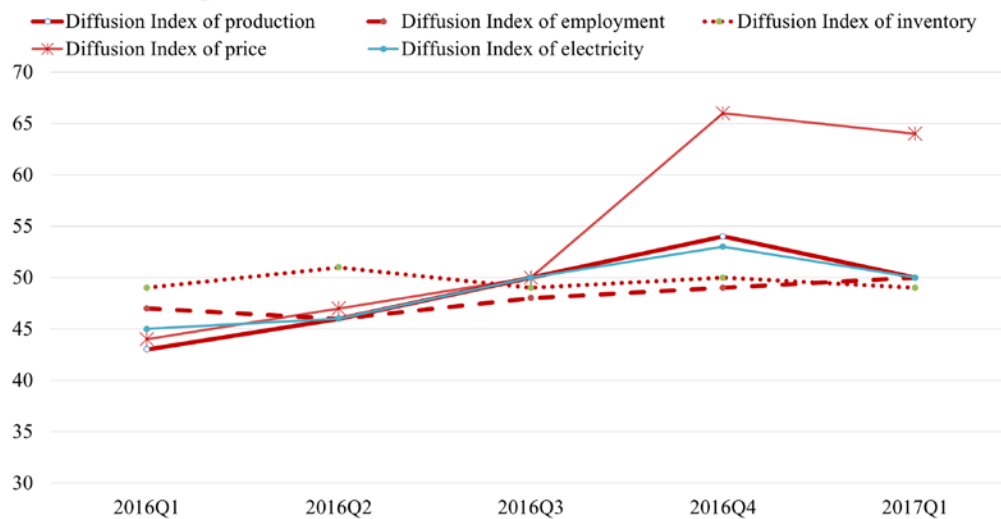


Figure 9. Factors Constraining Production of Next Quarter

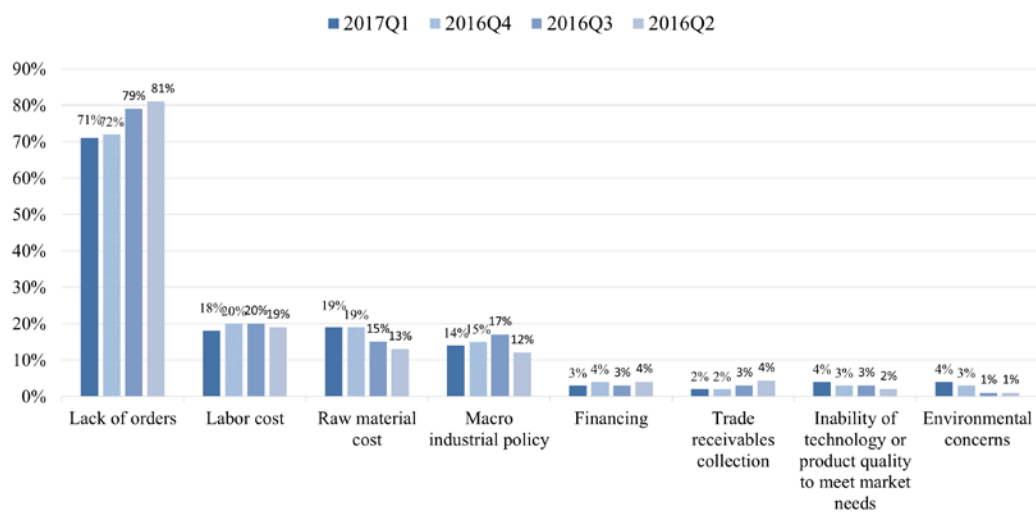


Figure 10A. Excess Capacity

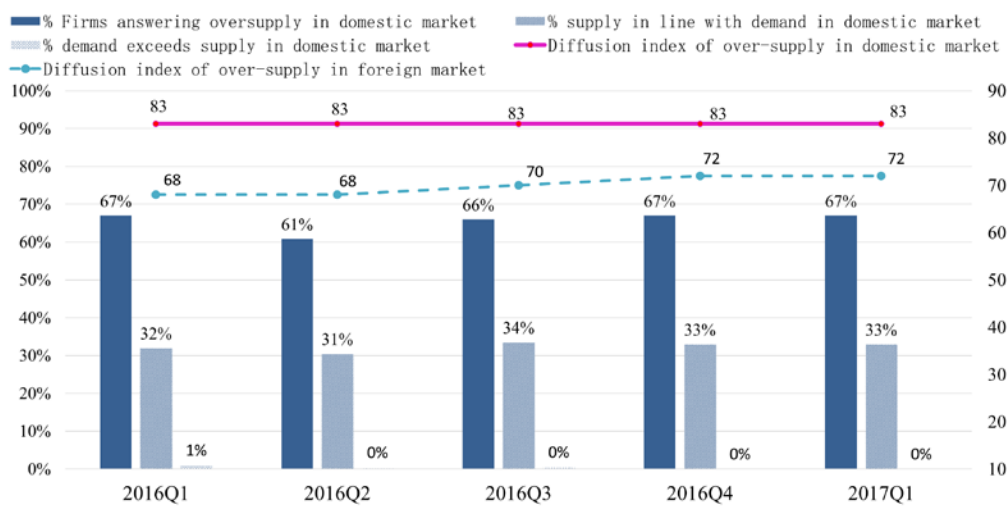


Figure 10B. Firms with Severe Excess Capacity

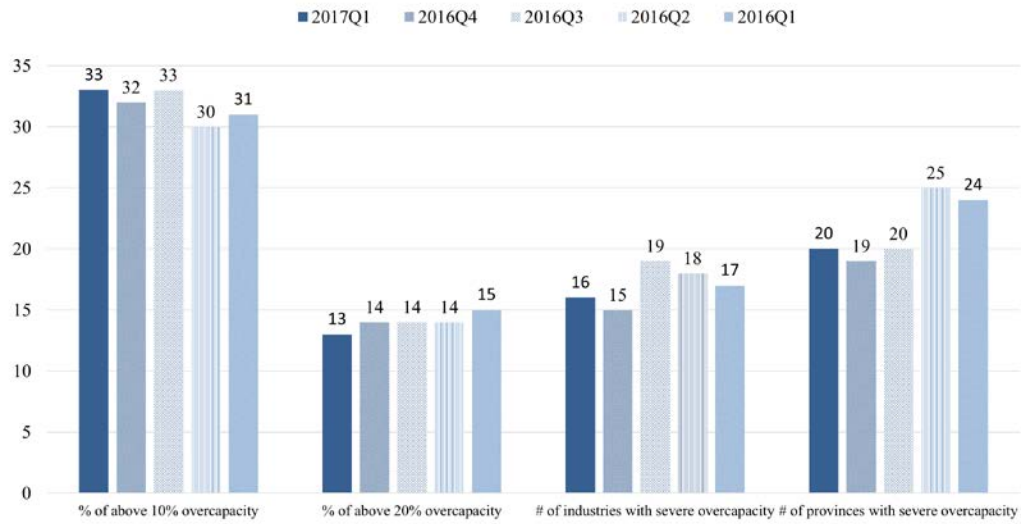


Figure 11A. Suspended Production

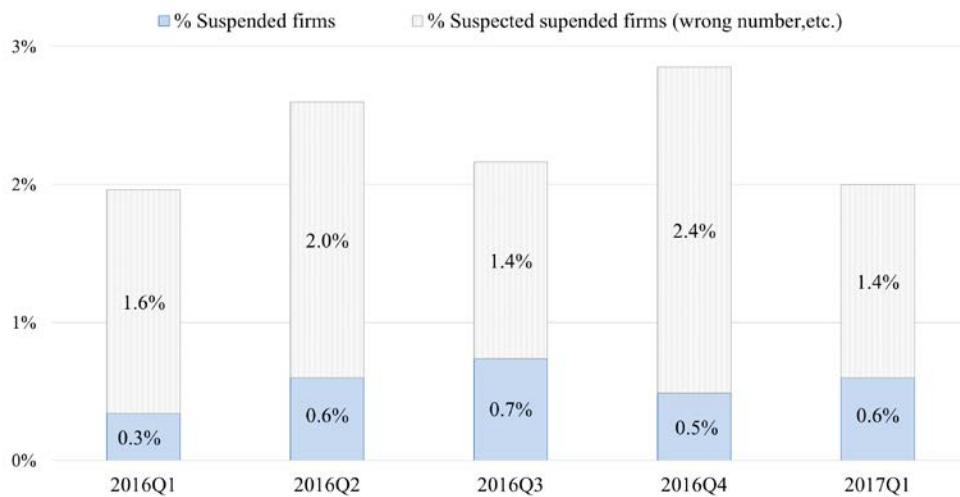


Figure 11B. Firms with Employment Reduction

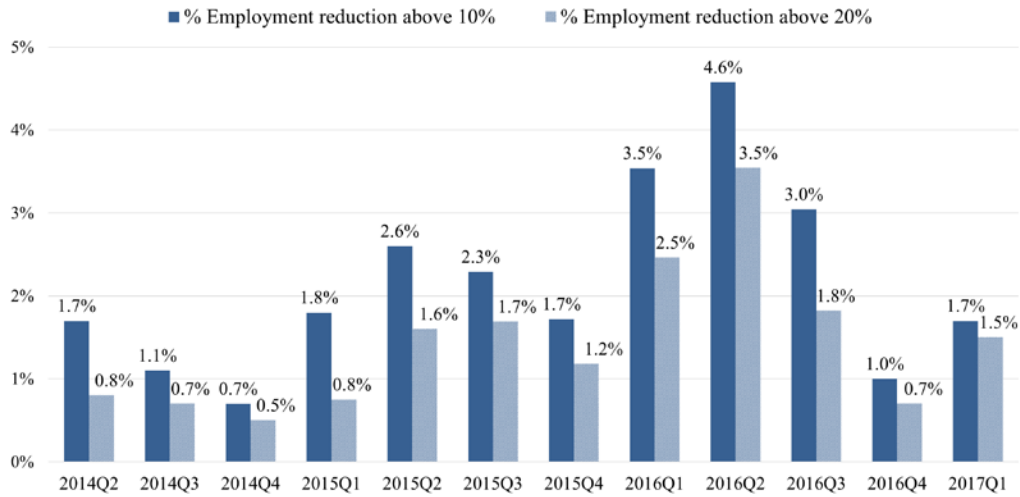


Figure 11C. Capacity Utilization

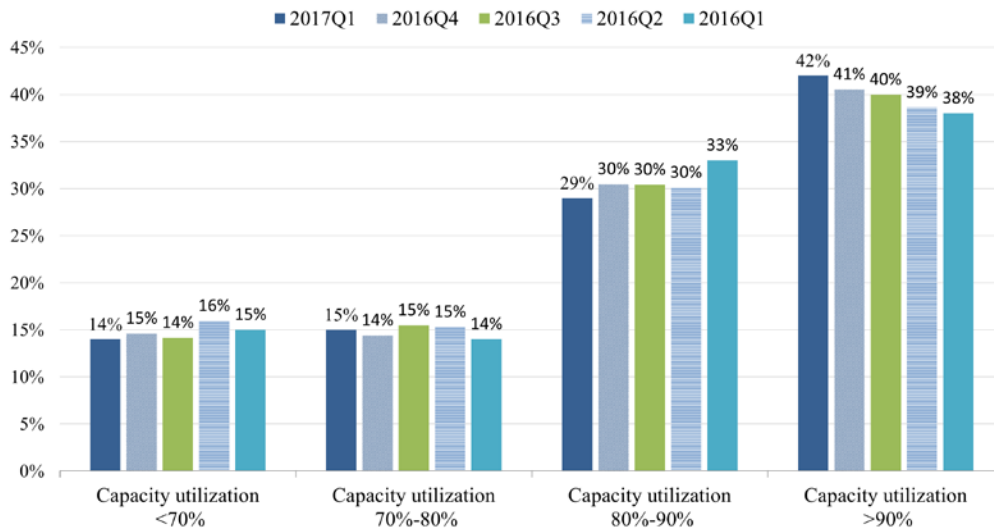


Figure 12. Costs

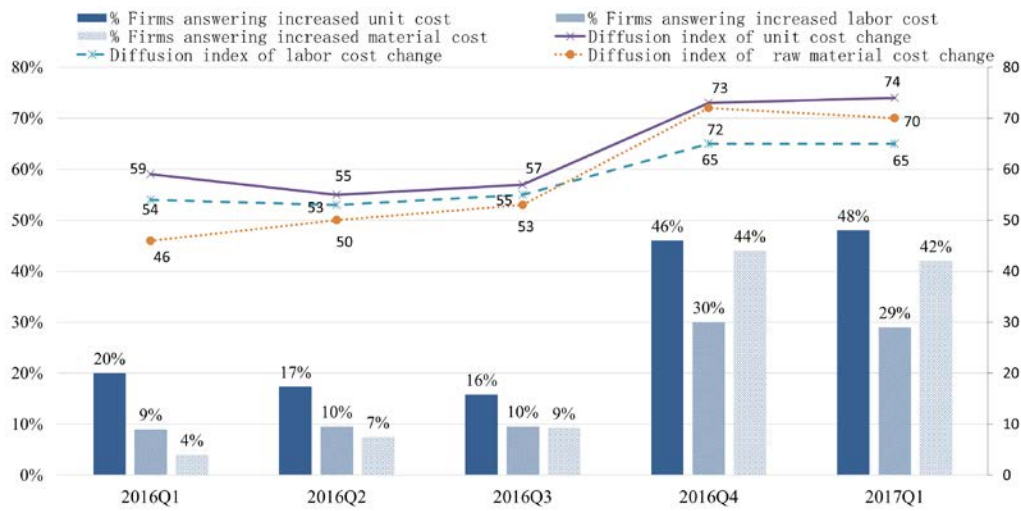


Figure 13. Gross Margins

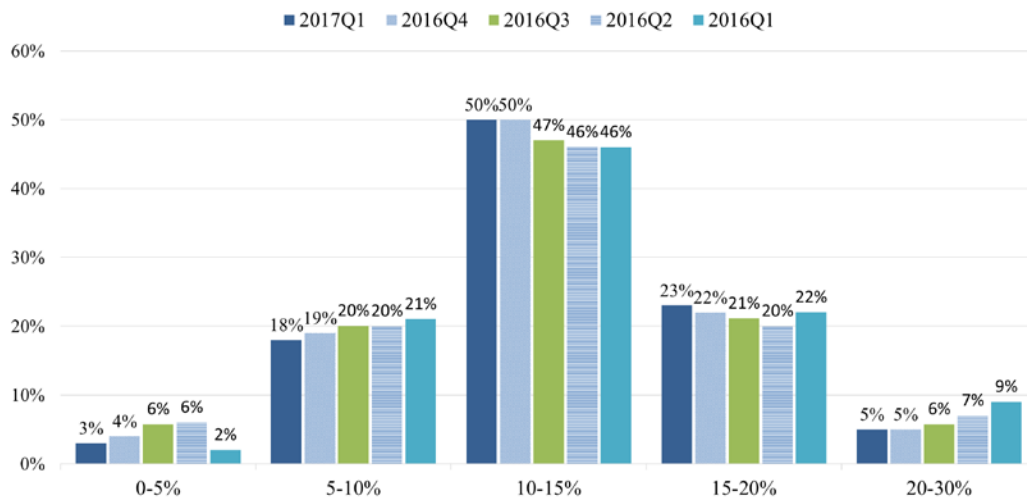


Figure 14. Financing
Figure 14A. Sufficient Capital

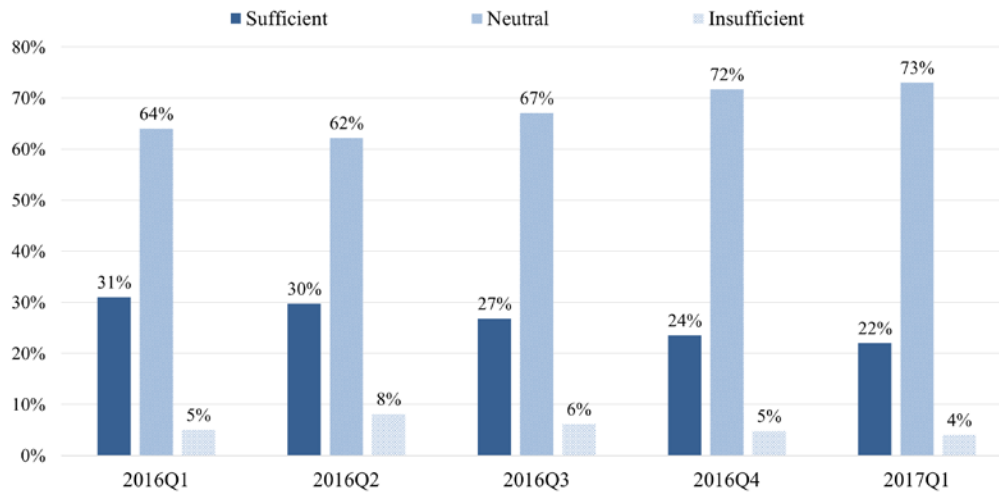


Figure 14B. New Loans

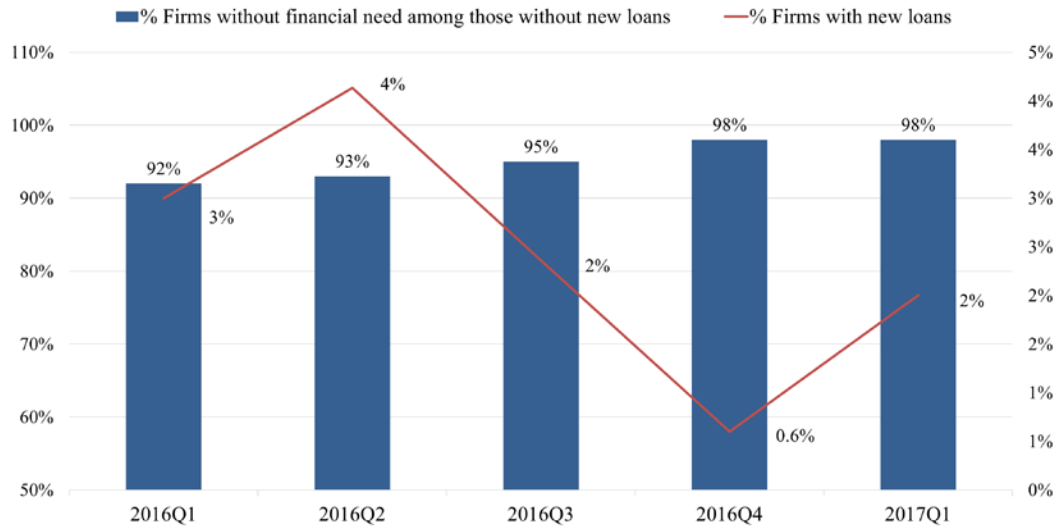


Figure 14C. Lending Attitude

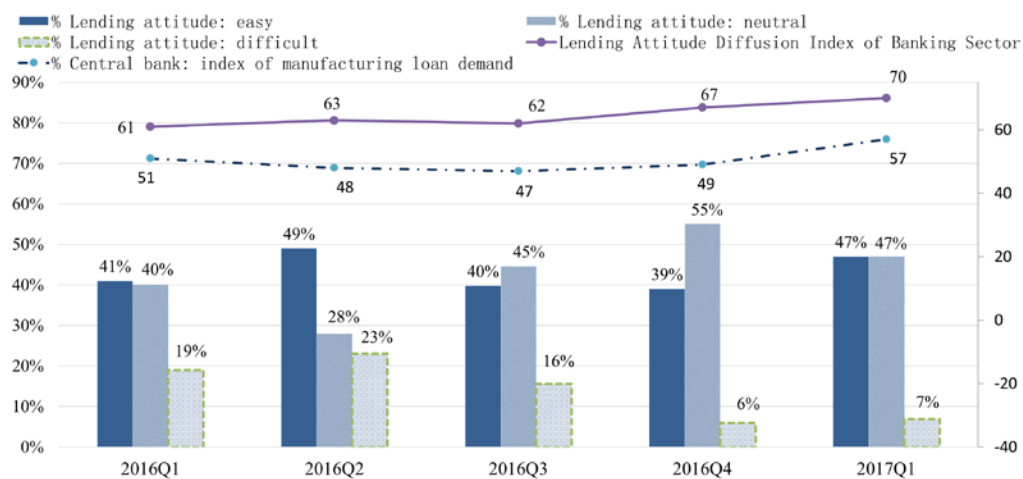


Table 1. Operating Conditions of Industrial Firms**Table 1.1**

		Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Change in Operating Conditions		Diffusion Index - Good Timing for Investment	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
	Nation	2,029	2,030	47	46	54	54	49	47	38	36
<i>By Size</i>											
	Large	730	742	48	47	55	55	49	47	40	38
	Medium	685	684	47	46	53	54	49	48	37	35
	Small	614	604	46	45	52	51	48	47	37	36
<i>By Ownership</i>											
	State-owned	89	87	54	51	66	64	54	47	42	42
	Collectively-owned	31	34	46	47	53	54	50	54	35	32
	Private	1,679	1,662	46	45	52	52	49	47	38	36
	Foreign-owned	230	247	48	48	58	58	48	46	38	38
<i>By Product Type</i>											
	Consumer Goods - Durable	299	328	46	45	53	53	49	48	35	33
	Consumer Goods - Nondurable	706	693	49	48	56	56	49	47	41	40
	Capital Goods	154	136	47	45	54	51	51	50	38	36
	Intermediate Goods	871	874	46	45	52	53	49	47	37	35

Table 1.2

		% of Firms with Fixed Investment		% of Firms with Expansionary Investment		Diffusion Index - Production		Diffusion Index - Employment		Diffusion Index - Price	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
	Nation	8	9	2	2	50	54	50	49	64	66
<i>By Size</i>											
	Large	9	9	3	2	53	55	50	49	63	66
	Medium	6	8	1	1	49	55	50	49	64	67
	Small	8	9	2	2	47	51	49	49	65	65
<i>By Ownership</i>											
	State-owned	20	23	2	2	53	46	51	51	61	61
	Collectively-owned	3	6	3	3	48	54	48	49	65	71
	Private	7	8	2	2	49	54	50	49	64	65
	Foreign-owned	9	9	3	2	53	58	49	50	68	72
<i>By Product Type</i>											
	Consumer Goods - Durable	6	5	1	2	55	57	50	50	63	63
	Consumer Goods - Nondurable	8	10	2	2	49	56	50	49	67	70
	Capital Goods	8	10	1	0	54	54	48	50	57	56
	Intermediate Goods	8	9	2	2	48	51	50	49	63	65

Notes:

1. Diffusion Index (DI) is computed using the percentage of firms that answer "increase" (% increase) and "same" (% same) according to the formula: $(\% \text{ increase} + 0.5 * \% \text{ same})$. 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	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
	Nation	2,029	2,030	47	46	54	54	49	47	8	9	38	36
<i>Mining</i>													
	Coal Mining and Washing	5	6	43	47	40	42	40	50	0	0	50	50
	Mining and Processing of Ferrous Metal Ores	3	3	50	39	33	33	67	33	0	0	50	50
	Mining and Processing of Non-ferrous Metal	8	8	44	44	50	50	50	50	0	0	31	31
	Mining and Processing of Nonmetal Ores	13	13	40	37	35	38	50	38	0	0	35	35
<i>Production and Supply of Electricity, Heat, Gas and Water</i>													
	Power Production and Supply	43	35	57	52	62	60	60	47	26	60	50	50
	Gas Production and Supply	3	1	44	50	50	50	33	50	0	100	50	50
	Production and Supply of Water	20	18	62	57	85	83	60	50	20	11	40	39
<i>Light Manufacturing</i>													
	Processing of Agricultural and Related Products	86	106	43	42	53	52	41	39	5	8	36	34
	Manufacture of Foods	60	56	45	46	53	54	46	48	0	0	37	38
	Manufacture of Beverage	45	41	49	49	54	55	49	46	13	12	44	46
	Manufacture of Textiles	131	130	47	44	50	49	50	44	3	5	42	38
	Manufacture of Textile Wearing and Apparel	48	67	50	48	55	53	49	49	2	3	45	41
	Manufacture of Leather, Fur, Feather, Related Products and Footwear	33	33	40	41	48	48	52	48	9	9	21	27
	Processing of Wood Products	45	34	42	39	52	54	44	43	0	0	29	21
	Manufacture of Furniture	32	26	48	48	58	60	50	50	0	4	38	35
	Manufacture of Paper and Paper Products	54	52	45	45	49	50	50	49	11	10	36	36
	Printing, Reproduction of Recording Media	59	54	48	48	58	59	46	44	12	7	41	42
	Manufacture of Cultural and Sports Products	21	23	51	51	57	57	52	52	0	0	43	43
	Manufacture of Medicines	58	59	59	58	72	71	53	50	12	24	53	52
	Manufacture of Handicrafts and Others	42	44	50	50	58	59	50	50	7	5	40	41
	Recycling and Disposal of Waste	1	3	50	44	50	50	50	50	0	0	50	33
<i>Chemical Industry</i>													
	Processing of Petroleum and Nuclear Fuel	8	7	42	40	50	50	44	43	0	0	31	29
	Manufacture of Chemical Products	121	127	48	47	52	52	52	50	11	13	41	38
	Manufacture of Chemical Fibers	8	8	54	52	63	56	50	50	25	25	50	50
	Manufacture of Rubber Products	32	31	44	46	53	60	47	48	3	3	33	31
	Manufacture of Plastics	77	86	46	46	53	53	50	48	6	1	34	36
<i>Equipment Manufacturing</i>													
	Manufacture of General-purpose Machinery	172	165	47	45	51	49	50	50	10	7	41	36
	Manufacture of Special-purpose Machinery	111	100	47	47	53	51	50	50	6	7	38	39
	Manufacture of Transport Equipment	94	93	46	47	51	52	48	48	9	9	40	40
	Manufacture of Electric Machinery and Apparatus	155	138	47	45	56	57	53	49	17	17	32	30
	Computers, Communication and Electric Equipment	78	83	51	51	57	58	49	50	10	10	47	46
	Manufacture of Measuring Instruments	38	38	47	46	54	54	49	51	0	0	38	34
<i>Other Heavy Manufacturing</i>													
	Manufacture of Non-metallic Mineral Products	137	135	39	38	46	46	43	42	4	1	28	27
	Smelting and Pressing of Ferrous Metals	33	25	43	44	45	46	44	50	0	0	39	36
	Smelting and Pressing of Non-ferrous Metals	32	34	44	43	45	46	48	47	3	3	38	37
	Manufacture of Metal Products	123	148	46	44	58	57	48	47	7	11	31	29

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	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2,029	2,030	47	46	54	54	8	9	38	36
<i>Top Five</i>										
	20	18	62	57	85	83	20	11	40	39
	58	59	59	58	72	71	12	24	53	52
	43	35	57	52	62	60	26	60	50	50
	8	8	54	52	63	56	25	25	50	50
	21	23	51	51	57	57	0	0	43	43
<i>Bottom Five</i>										
	137	135	39	38	46	46	4	1	28	27
	33	33	40	41	48	48	9	9	21	27
	13	13	40	37	35	38	0	0	35	35
	8	7	42	40	50	50	0	0	31	29
	45	34	42	39	52	54	0	0	29	21

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	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2,029	2,030	47	46	54	54	49	47	8	9	38	36
<i>North China</i>												
Beijing	43	44	46	45	49	49	49	47	5	9	41	40
Tianjin	45	47	43	45	50	52	44	48	7	9	34	35
Hebei	89	84	45	42	54	54	47	45	6	7	33	29
<i>Northeast</i>												
Liaoning	94	92	45	43	52	51	46	46	6	9	36	32
Jilin	17	18	49	45	59	56	50	44	6	6	38	36
Heilongjiang	26	26	41	42	50	52	44	48	0	8	29	25
<i>Northwest</i>												
Inner Mongolia	15	14	56	54	57	61	57	46	7	7	53	54
Shaanxi	22	20	44	40	45	40	50	48	14	10	36	33
Gansu	6	6	50	44	58	50	50	42	33	50	42	42
Qinghai	1	1	50	50	50	50	50	50	0	0	50	50
Ningxia	4	3	42	39	50	50	50	50	25	0	25	17
Xinjiang	6	3	50	33	42	33	67	33	0	0	42	33
<i>Central North</i>												
Shanxi	21	26	44	44	55	56	38	42	10	15	38	35
Shandong	195	196	47	46	56	55	48	47	7	7	38	36
Henan	74	80	43	43	53	53	43	44	5	6	34	33
<i>Southwest</i>												
Chongqing	28	27	49	48	55	57	52	48	4	11	41	39
Sichuan	58	54	45	44	49	48	51	49	3	15	35	35
Guizhou	9	9	50	48	50	50	56	50	11	0	44	44
Yunnan	22	22	47	45	52	50	52	50	14	27	36	34
<i>East China</i>												
Shanghai	85	89	48	48	56	59	49	48	4	6	37	37
Jiangsu	316	298	48	46	54	54	50	47	9	8	40	38
Zhejiang	284	292	47	46	53	53	49	49	9	9	38	37
<i>South China</i>												
Fujian	92	94	48	47	54	54	52	50	5	4	37	37
Guangdong	243	248	48	48	54	55	50	49	9	6	41	39
Guangxi	35	36	49	47	54	54	53	47	11	19	40	40
Hainan	1	1	50	50	100	100	50	50	0	0	0	0
<i>Central South</i>												
Anhui	70	75	45	44	52	53	48	44	7	7	36	35
Jiangxi	41	37	47	46	54	54	48	45	15	14	40	39
Hubei	53	50	48	45	55	54	51	45	13	14	38	35
Hunan	34	38	47	48	56	55	46	47	9	11	40	42

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	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2,029	2,030	47	46	54	54	8	9	38	36
<i>Top Five</i>										
	15	14	56	54	57	61	7	7	53	54
	6	6	50	44	58	50	33	50	42	42
	6	3	50	33	42	33	0	0	42	33
	9	9	50	48	50	50	11	0	44	44
	28	27	49	48	55	57	4	11	41	39
<i>Bottom Five</i>										
	26	26	41	42	50	52	0	8	29	25
	4	3	42	39	50	50	25	0	25	17
	74	80	43	43	53	53	5	6	34	33
	45	47	43	45	50	52	7	9	34	35
	22	20	44	40	45	40	14	10	36	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	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2,029	2,030	83	83	72	72	49	50
<i>By Size</i>								
Large	730	742	82	82	70	71	50	50
Medium	685	684	83	82	71	71	49	50
Small	614	604	85	85	74	76	49	49
<i>By Ownership</i>								
State-owned	89	87	67	68	63	65	48	44
Collectively-owned	31	34	81	79	71	75	50	47
Private	1,679	1,662	84	84	72	73	49	50
Foreign -owned	230	247	82	84	72	71	51	49
<i>By Product Type</i>								
Consumer Goods - Durable	299	328	76	76	67	66	46	47
Consumer Goods - Nondurable	706	693	82	82	72	73	51	49
Capital Goods	154	136	90	86	70	72	54	54
Intermediate Goods	871	874	85	85	74	75	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
Processing of Petroleum and Nuclear Fuel	8	50	63
Coal Mining and Washing	5	40	40
Manufacture of Non-metallic Mineral Products	137	39	47
Mining and Processing of Nonmetal Ores	13	38	69
Mining and Processing of Non-ferrous Metal	8	38	63
Manufacture of Metal Products	123	25	51
Smelting and Pressing of Ferrous Metals	33	24	27
Smelting and Pressing of Non-ferrous Metals	32	22	41
Manufacture of Electric Machinery and Apparatus	155	21	46
Processing of Wood Products	45	20	27
Manufacture of Rubber Products	32	16	31
Manufacture of Special-purpose Machinery	111	14	28
Manufacture of Measuring Instruments	38	13	18
Manufacture of Paper and Paper Products	54	13	37
Manufacture of Medicines	58	10	21
Manufacture of Foods	60	10	18

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
Xinjiang	6	50	67
Shaanxi	22	27	41
Heilongjiang	26	23	38
Yunnan	22	23	36
Liaoning	94	22	43
Sichuan	58	21	38
Inner Mongolia	15	20	27
Tianjin	45	18	42
Hunan	34	18	24
Guangxi	35	17	34
Beijing	43	16	37
Henan	74	16	43
Hebei	89	15	40
Shanxi	21	14	38
Chongqing	28	14	32
Anhui	70	14	31
Shandong	195	14	28
Jiangxi	41	12	29
Shanghai	85	12	29
Jilin	17	12	24

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	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation		2,029	2,030	74	73	65	65	70	72	64	66
<i>By Size</i>											
	Large	730	742	72	72	64	65	68	71	63	66
	Medium	685	684	74	74	65	66	70	73	64	67
	Small	614	604	75	73	65	65	73	72	65	65
<i>By Ownership</i>											
	State-owned	89	87	65	64	61	63	65	64	61	61
	Collectively-owned	31	34	73	78	66	68	71	76	65	71
	Private	1679	1662	74	73	64	65	70	72	64	65
	Foreign -owned	230	247	78	77	70	70	73	76	68	72
<i>By Product Type</i>											
	Consumer Goods - Durable	299	328	77	71	65	64	73	70	63	63
	Consumer Goods - Nondurable	706	693	78	78	69	69	72	77	67	70
	Capital Goods	154	136	70	60	59	57	69	59	57	56
	Intermediate Goods	871	874	70	72	61	63	68	71	63	65

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	2,029	74	65	70	64
Mining and Processing of Non-ferrous Metal	8	100	100	100	100
Manufacture of Handicrafts and Others	42	100	100	100	100
Manufacture of Transport Equipment	94	99	97	98	95
Printing, Reproduction of Recording Media	59	99	99	55	53
Computers, Communication and Electric Equipment	78	98	98	98	98
Manufacture of Paper and Paper Products	54	98	97	53	51
Manufacture of Textiles	131	97	71	95	93
Manufacture of Leather, Fur, Feather, Related Products and Footwear	33	95	95	95	95
Manufacture of Beverage	45	93	97	86	94
Manufacture of Plastics	77	87	60	77	57
Processing of Petroleum and Nuclear Fuel	8	81	56	81	75
Manufacture of Non-metallic Mineral Products	137	76	60	76	70

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

	Number of Firms	Diffusion Indices			Price Index
		Unit Cost Index	Labor Cost Index	Raw Material Cost Index	
Nation	2,029	74	65	70	64
Yunnan	22	80	66	80	77
Zhejiang	284	76	66	72	65
Henan	74	76	64	73	67
Jiangsu	316	76	64	72	66
Guangdong	243	76	68	72	64
Jiangxi	41	76	70	71	68
Hebei	89	75	65	71	64
Hubei	53	75	64	74	64
Fujian	92	75	65	71	63
Heilongjiang	26	75	62	75	63
Ningxia	4	75	50	75	75
Beijing	43	74	67	70	60
Guangxi	35	74	64	74	64
Shandong	195	74	62	70	66
Shanxi	21	74	60	75	52

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**

	% Firms with Loans		% Firms with New Loans		Collateralization Rate %		Diffusion Index - Lending Attitude		Diffusion Index - Interest Rate	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation	2,029	2,030	21	22	2	1	70	67	50	50
<i>With or Without Investment</i>										
Firms with Investment	158	173	25	23	4	2	63	61	50	50
Firms without Investment	1,871	1,857	21	22	1	0	72	69	50	50
<i>By Size</i>										
Large	730	742	25	25	1	1	63	65	50	50
Medium	685	684	21	21	2	1	75	72	50	50
Small	614	604	16	18	2	1	76	64	50	50
<i>By Ownership</i>										
State-owned	89	87	20	20	1	0	90		50	
Collectively-owned	31	34	19	24	0	0		100		50
Private	1,679	1,662	22	23	2	1	69	65	50	50
Foreign -owned	230	247	18	16	1	0	67	100	50	50
<i>By Product Type</i>										
Consumer Goods - Durable	299	328	24	25	2	0	70	83	50	50
Consumer Goods - Nondurable	706	693	22	21	1	1	70	63	50	50
Capital Goods	154	136	23	27	5	0	55	50	50	50
Intermediate Goods	871	874	19	20	2	0	74	69	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	2015	99
Founder	26	1
Relatives and friends	1	0
Bank	17	1
Stock market	2	0
Non-official finance institution	1	0
Others	1	0
<i>The second most important source of financing</i>		
Sources	Number of Firms	% of Firms
Founder	560	55
Bank	446	44
Internal Funds	8	1
Others	2	0
Relatives and friends	2	0
Non-official finance institution	1	0
Stock market	1	0

Appendix 1. Industry and Regional Ranking of Excess Capacity

Table A1. 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	
	Q1	Q4	Q1	Q4	Q1	Q4
Processing of Petroleum and Nuclear Fuel	8	7	50	57	63	71
Coal Mining and Washing	5	6	40	50	40	50
Manufacture of Non-metallic Mineral Products	137	135	39	37	47	45
Mining and Processing of Nonmetal Ores	13	13	38	31	69	46
Mining and Processing of Non-ferrous Metal	8	8	38	38	63	63
Manufacture of Metal Products	123	148	25	28	51	47
Smelting and Pressing of Ferrous Metals	33	25	24	28	27	40
Smelting and Pressing of Non-ferrous Metals	32	34	22	24	41	44
Manufacture of Electric Machinery and Apparatus	155	138	21	21	46	40
Processing of Wood Products	45	34	20	24	27	32
Manufacture of Rubber Products	32	31	16	6	31	23
Manufacture of Special-purpose Machinery	111	100	14	16	28	36
Manufacture of Measuring Instruments	38	38	13	13	18	18
Manufacture of Paper and Paper Products	54	52	13	8	37	38
Manufacture of Medicines	58	59	10	10	21	22
Manufacture of Foods	60	56	10	11	18	18
Manufacture of Furniture	32	26	9	15	13	19
Manufacture of Plastics	77	86	8	9	31	30
Printing, Reproduction of Recording Media	59	54	7	6	37	41
Manufacture of Leather, Fur, Feather and Footwear	33	33	6	6	30	24
Processing of Agricultural and Related Products	86	106	6	8	34	31
Manufacture of General-purpose Machinery	172	165	5	5	26	18
Manufacture of Cultural and Sports Products	21	23	5	4	10	9
Power Production and Supply	43	35	5	0	9	11
Computers, Communication and Electric Equipment	78	83	4	4	28	28
Manufacture of Chemical Products	121	127	3	6	25	24
Manufacture of Transport Equipment	94	93	3	2	35	34
Manufacture of Handicrafts and Others	42	44	2	2	31	30
Manufacture of Beverage	45	41	2	2	44	44
Manufacture of Textiles	131	130	2	2	2	2
Manufacture of Chemical Fibers	8	8	0	0	25	25
Manufacture of Textile Wearing and Apparel	48	67	0	3	10	7
Production and Supply of Water	20	18	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.

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	
	Q1	Q4	Q1	Q4	Q1	Q4
Xinjiang	6	NA	50	NA	67	NA
Shaanxi	22	20	27	35	41	45
Heilongjiang	26	26	23	27	38	42
Yunnan	22	22	23	27	36	45
Liaoning	94	92	22	22	43	43
Sichuan	58	54	21	20	38	35
Inner Mongolia	15	14	20	14	27	21
Tianjin	45	47	18	17	42	43
Hunan	34	38	18	18	24	26
Guangxi	35	36	17	14	34	31
Beijing	43	44	16	18	37	41
Henan	74	80	16	18	43	43
Hebei	89	84	15	18	40	40
Shanxi	21	26	14	15	38	42
Chongqing	28	27	14	15	32	33
Anhui	70	75	14	13	31	31
Shandong	195	196	14	12	28	26
Jiangxi	41	37	12	14	29	27
Shanghai	85	89	12	9	29	29
Jilin	17	18	12	17	24	33
Jiangsu	316	298	10	11	29	28
Guangdong	243	248	7	8	22	22
Zhejiang	284	292	7	7	26	20
Fujian	92	94	7	6	32	29
Hubei	53	50	4	4	19	20
Guizhou	9	9	0	0	33	33
Gansu	6	6	0	0	0	0
Ningxia	4	NA	0	NA	0	NA

Notes:

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

Appendix 2. Industry and Regional Ranking of Excess Capacity

Table A2. 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	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
	Nation	2029	2030	74	73	65	65	70	72	64	66
<i>Mining</i>											
	Coal Mining and Washing	5	6	50	50	50	50	50	50	60	50
	Mining and Processing of Ferrous Metal Ores	3	3	50	67	50	50	50	67	67	50
	Mining and Processing of Non-ferrous Metal	8	8	100	100	100	100	100	56	100	100
	Mining and Processing of Nonmetal Ores	13	13	54	50	54	50	55	50	46	50
<i>Production and Supply of Electricity, Heat, Gas and Water</i>											
	Power Production and Supply	43	35	50	50	50	50	50	50	50	50
	Production and Supply of Water	20	18	50	50	50	50		-	50	50
	Production and Supply of Gas	3	1	50	50	50	50		-	50	50
<i>Light Manufacturing</i>											
	Processing of Agricultural and Related Products	86	106	71	63	56	51	65	62	61	56
	Manufacture of Foods	60	56	60	67	51	56	60	63	53	54
	Manufacture of Beverage	45	41	93	100	97	100	86	91	94	100
	Manufacture of Textiles	131	130	97	95	71	83	95	93	93	86
	Manufacture of Textile Wearing and Apparel	48	67	66	62	57	55	62	57	55	53
	Manufacture of Leather, Fur, Feather, Related Products and Footwear	33	33	95	100	95	100	95	100	95	100
	Processing of Wood Products	45	34	67	69	52	57	66	65	56	62
	Manufacture of Furniture	32	26	67	65	55	58	67	65	58	58
	Manufacture of Paper and Paper Products	54	52	98	100	97	100	53	100	51	100

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

	Number of Firms		Diffusion Indices							
			Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Printing, Reproduction of Recording Media	59	54	99	100	99	100	55	100	53	100
Manufacture of Cultural and Sports Products	21	23	67	72	60	63	67	72	55	52
Manufacture of Medicines	58	59	53	54	50	50	53	54	53	53
Manufacture of Handicrafts and Others	42	44	100	100	100	100	100	100	100	100
Recycling and Disposal of Waste	1	3	50	67	50	50	50	67	100	67
<i>Chemical Industry</i>										
Processing of Petroleum and Nuclear Fuel	8	7	81	79	56	50	81	79	75	43
Manufacture of Chemical Products	121	127	59	58	54	52	60	57	54	53
Manufacture of Chemical Fibers	8	8	56	56	56	63	63	56	63	56
Manufacture of Rubber Products	32	31	72	77	59	60	70	76	52	53
Manufacture of Plastics	77	86	87	89	60	53	77	87	57	59
<i>Equipment Manufacturing</i>										
Manufacture of General-purpose Machinery	172	165	62	54	55	52	60	54	51	51
Manufacture of Special-purpose Machinery	111	100	72	57	57	53	70	57	51	49
Manufacture of Transport Equipment	94	93	99	100	97	100	98	100	95	100
Manufacture of Electric Machinery and Apparatus	155	138	54	56	51	50	56	56	53	54
Computers, Communication and Electric Equipment	78	83	98	99	98	99	98	99	98	99
Manufacture of Measuring Instruments	38	38	61	61	55	57	59	59	53	50
<i>Other Heavy Manufacturing</i>										
Manufacture of Non-metallic Mineral Products	137	135	76	76	60	66	76	76	70	61
Smelting and Pressing of Ferrous Metals	33	25	52	80	53	62	52	78	45	70
Smelting and Pressing of Non-ferrous Metals	32	34	70	69	56	57	70	68	52	47
Manufacture of Metal Products	123	148	72	68	52	50	72	68	61	63

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

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	
		Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4	Q1	Q4
Nation		2029	2030	74	73	65	65	70	72	64	66
<i>North China</i>											
	Beijing	43	44	74	73	67	66	70	72	60	66
	Tianjin	45	47	68	66	64	63	63	67	57	62
	Hebei	89	84	75	71	65	64	71	71	64	66
<i>Northeast</i>											
	Liaoning	94	92	68	67	63	63	64	66	58	63
	Jilin	17	18	65	67	62	61	65	67	62	64
	Heilongjiang	26	26	75	67	62	62	75	67	63	58
<i>Northwest</i>											
	Inner Mongolia	15	14	63	57	57	57	60	54	53	54
	Shaanxi	22	20	70	78	64	70	60	70	57	65
	Gansu	6	6	67	67	67	67	67	67	67	67
	Qinghai	1	1	50	50	50	50	50	50	50	50
	Ningxia	4	3	75	50	50	50	75	50	75	50
	Xinjiang	6	3	67	50	58	50	67	50	50	50
<i>Central North</i>											
	Shanxi	21	26	74	67	60	58	75	68	52	54
	Shandong	195	196	74	72	62	65	70	71	66	66
	Henan	74	80	76	74	64	63	73	73	67	66
<i>Southwest</i>											
	Chongqing	28	27	70	76	63	69	70	75	63	65
	Sichuan	58	54	73	67	64	63	68	66	65	61
	Guizhou	9	9	61	67	61	61	56	61	67	67
	Yunnan	22	22	80	82	66	75	80	80	77	75
<i>East China</i>											
	Shanghai	85	89	71	69	64	64	68	68	63	66
	Jiangsu	316	298	76	75	64	65	72	73	66	67
	Zhejiang	284	292	76	75	66	66	72	74	65	67
<i>South China</i>											
	Fujian	92	94	75	76	65	68	71	77	63	68
	Guangdong	243	248	76	77	68	68	72	77	64	69
	Guangxi	35	36	74	72	64	64	74	71	64	64
	Hainan	1	1	50	50	50	50	50	50	50	50
<i>Central South</i>											
	Anhui	70	75	71	75	64	65	65	73	64	67
	Jiangxi	41	37	76	77	70	69	71	72	68	69
	Hubei	53	50	75	71	64	62	74	71	64	63
	Hunan	34	38	68	70	63	62	64	68	62	64

Notes:

The table includes provinces with more than three firms.

Appendix 3. Sampling Procedure

3.1 The Population

The initial sample of our panel is taken from the 2008 Economic Census. This is the most complete and reliable economic census data available. A new round of Economic Census is currently ongoing.

Although the 2008 Economic Census is our best choice, it is done seven years ago. Firm characteristics, such as industry, might have changed significantly. Thus we ask firms about their main products and product types. But we cannot cover companies established after 2008 this problem can only be resolved when the latest Economic Census data (2013 are made available to the public).

2008 Economic Census database is made of provincial databases each containing two sets of data: one uses industrial units and the other uses legal person units.¹ We start with the legal person units in 2008 Economic Census database. We then drop non-industrial firms and firms with sales below five million RMB to obtain the population of what NBS terms as “sizable” industrial firms.

3.2 Sampling Procedure

Below is a step-by-step description of the procedure to obtain our initial survey sample in our first survey, that is, the 2014 Q2 survey.

1. Simplify industrial classification code. Using Industrial classification for national economic activities (GBT4754-2002)² as the standard, we only define firms' industry up to major groups (two digit code from 01 to 98)³.
2. Simplify area code. We use the first two digits to place firms in 31 provinces and municipalities.
3. Remove nonindustrial firms: using industry code specified in step 1, we remove those with code smaller than 6 or larger than 46, retaining 39 industry categories. Those left are mining (06-11), manufacturing (13-43) and electricity, gas and water production and processing (44-46).
4. Remove below-scale firms: we remove those with less than 5,000,000RMB in annual main business income, this step removed about $\frac{3}{4}$ of total firms. As of this step, we obtain the population of sizable industrial firms, which consists of 488,052 firms.
5. Classify firms by size into 3 categories using 33% and 66% percentiles in main business income.
6. Take a stratified random sample using size, region and industry as strata, taking 2.1% of the population. The final sample consists of 10,139 firms.

¹ Legal person units are composed of industrial activity units, industrial activity units are all under management and control of legal person units.

² Since the original database is based on census conducted in 2008, we use GBT4754-2002 industry classification rather than the newer GBT4754-2011 classification.

³ Industrial classification for national economic activities (GBT4754-2002) classifies firms into division, major group, minor group, subgroup, in order of increasing detail. For example, the subgroup 1361 seafood frozen processing belongs in division A (manufacturing), major group 13 (agriculture and by-product processing), and minor group 136 (seafood processing).

In our Q1 survey, we started from the 2,030 firms in our last response sample, and obtain responses from 1,738 firms. These firms match the population in terms of industry, region, and sizes reasonably well. Nevertheless, we draw an additional survey samples with an industry-region-size distribution such that the final response sample would match the population, assuming (1) random responses and (2) a 20% response rate. We obtained 291 responses from this new sample, resulting in a total of 2,029 firms in our final response sample.

3.3 Survey Process

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

3.4. Sample Representativeness

Tables A3.1-A3.3 show that the distribution of the population and the Q1 response sample, as well as the 1,738 firms that were also in the Q4 sample, in terms of industry, region, and sizes. Note that as we are sampling 2.1% of the population, some small strata may not be sampled. Specifically, Tibet is the region not sampled; and Mining of other Ores, Extraction of Petroleum and Natural Gas and Manufacture of Tobacco are three industries not sampled. Overall, 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 asking directly the firms about seasonality and its impact. As shown in Figure A1.4, the majority (87%) of firms report no seasonality; for 5% of the firms, seasonality impact is below 5%. Most importantly, the impact of seasonality is roughly symmetrical distributed. 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

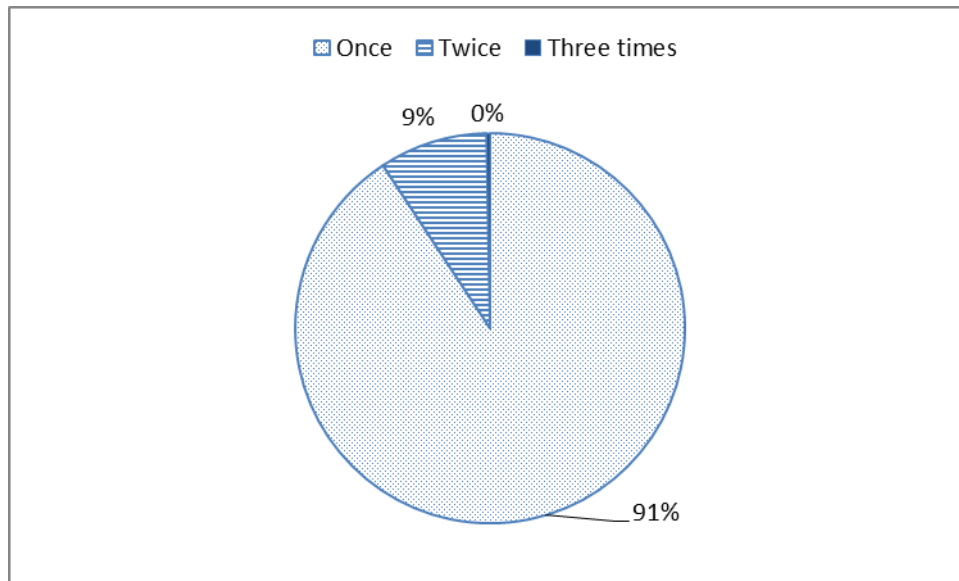


Figure A1.2 Duration of Calls

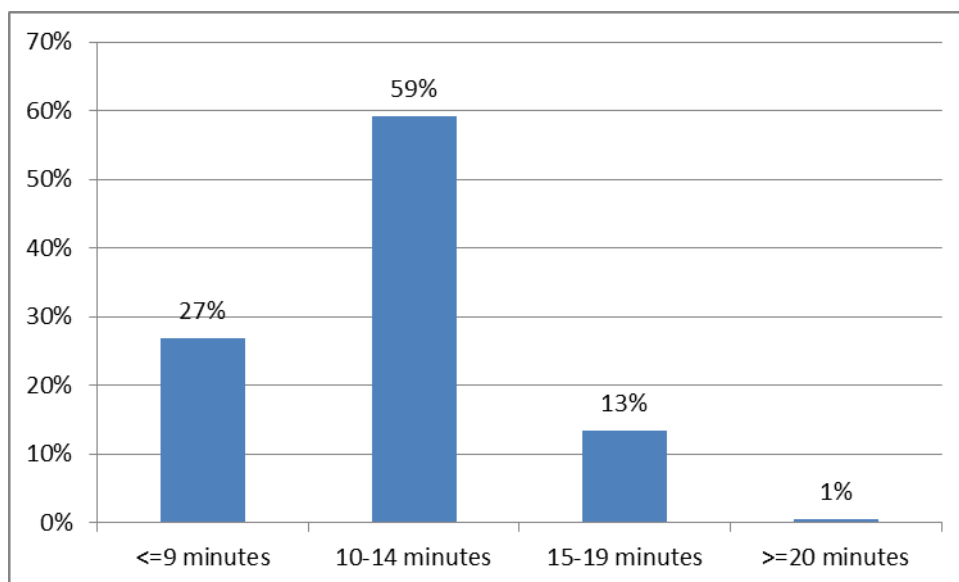


Figure A1.3 Interviewees' Positions

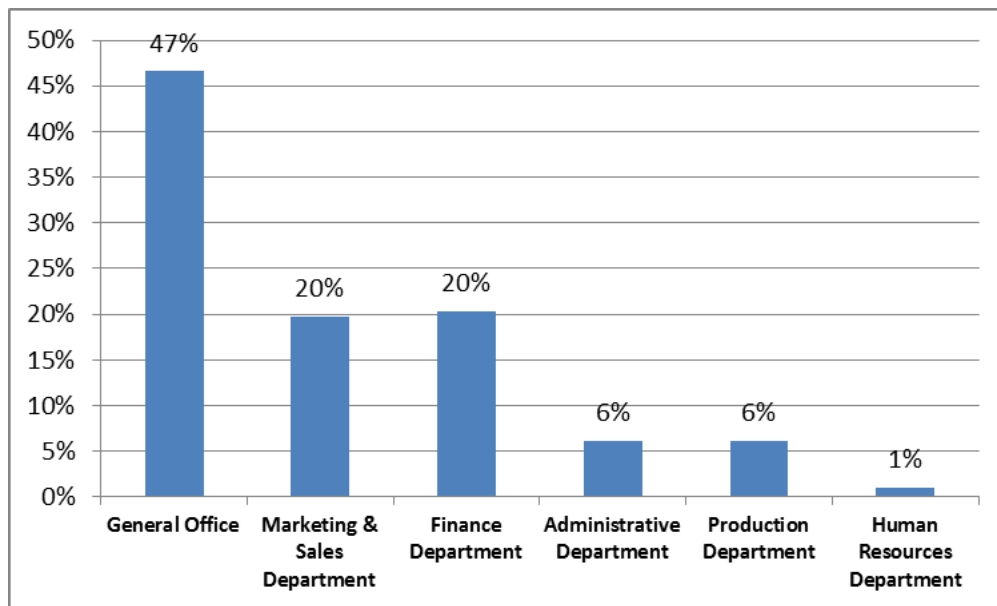


Figure A1.4 Seasonality

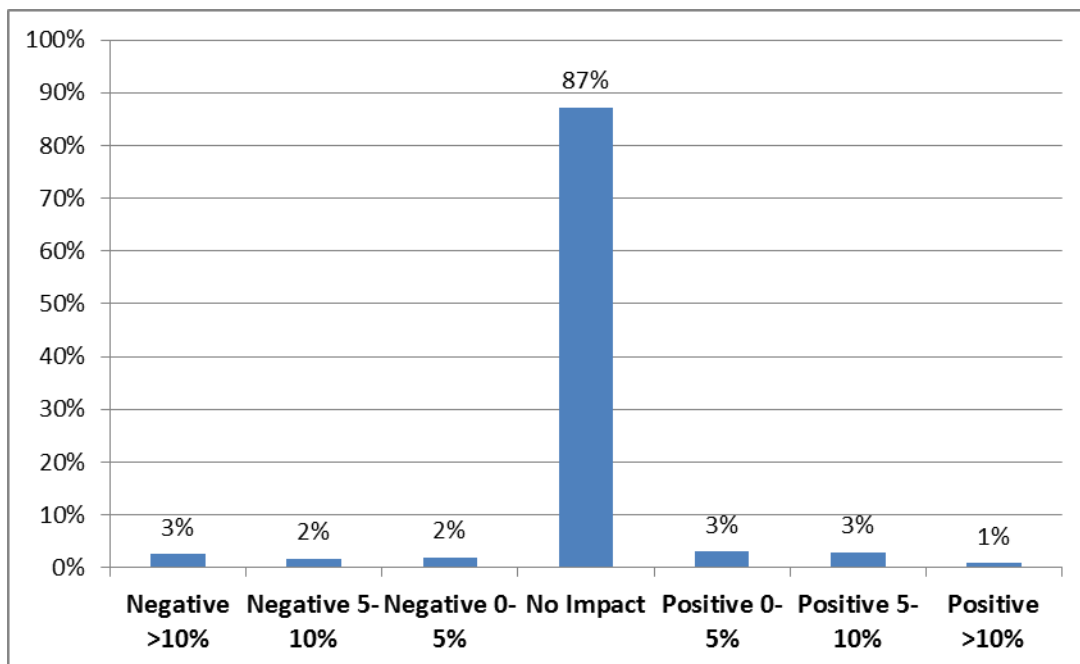


Table A3. Comparisons between Survey Sample and the Population**Table A3.1 Industry Distribution**

	Population		1,738 Firms From Q4 Survey		Final Q1 Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Power Production and Supply	6,719	1.38	34	1.96	43	2.12
Manufacture of Electric Machinery and Apparatus	28,972	5.94	129	7.42	155	7.64
Manufacture of Textile Wearing and Apparel	21,271	4.36	35	2.01	48	2.37
Manufacture of Textiles	38,945	7.98	92	5.29	131	6.46
Mining and Processing of Nonmetal Ores	4,900	1	12	0.69	13	0.64
Manufacture of Non-metallic Mineral Products	34,710	7.11	125	7.19	137	6.75
Recycling and Disposal of Waste	1,363	0.28	1	0.06	1	0.05
Manufacture of Handicrafts and Others	8,588	1.76	42	2.42	42	2.07
Mining and Processing of Ferrous Metal Ores	5,390	1.1	3	0.17	3	0.15
Smelting and Pressing of Ferrous Metals	8,893	1.82	23	1.32	33	1.63
Manufacture of Chemical Fibers	2,374	0.49	8	0.46	8	0.39
Manufacture of Chemical Products	30,568	6.26	99	5.7	121	5.96
Computers, Communication and Electric Equipment	16,338	3.35	74	4.26	78	3.84
Manufacture of Furniture	6,114	1.25	26	1.5	32	1.58
Manufacture of Transport Equipment	20,878	4.28	87	5.01	94	4.63
Manufacture of Metal Products	29,039	5.95	111	6.39	123	6.06
Manufacture of Beverage	5,824	1.19	40	2.3	45	2.22
Coal Mining and Washing	12,266	2.51	5	0.29	5	0.25
Processing of Wood Products	11,469	2.35	33	1.9	45	2.22
Processing of Agricultural and Related Products	25,501	5.23	74	4.26	86	4.24
Manufacture of Leather, Fur, Feather, Related Products and Footwear	9,932	2.04	29	1.67	33	1.63
Mining of other Ores	46	0.01	0	0	0	0
Gas Production and Supply	1,024	0.21	1	0.06	3	0.15
Extraction of Petroleum and Natural Gas	322	0.07	0	0	0	0
Processing of Petroleum and Nuclear Fuel	2,667	0.55	7	0.4	8	0.39
Manufacture of Foods	8,723	1.79	54	3.11	60	2.96
Production and Supply of Water	2,326	0.48	18	1.04	20	0.99
Manufacture of Plastics	22,984	4.71	77	4.43	77	3.79
Manufacture of General-purpose Machinery	42,879	8.79	137	7.88	172	8.48
Manufacture of Cultural and Sports Products	5,310	1.09	20	1.15	21	1.03
Manufacture of Rubber Products	5,277	1.08	27	1.55	32	1.58
Manufacture of Tobacco	163	0.03	0	0	0	0
Manufacture of Medicines	6,801	1.39	56	3.22	58	2.86
Manufacture of Measuring Instruments	6,474	1.33	33	1.9	38	1.87
Printing, Reproduction of Recording Media	7,681	1.57	52	2.99	59	2.91
Mining and Processing of Non-ferrous Metal	2,885	0.59	8	0.46	8	0.39
Smelting and Pressing of Non-ferrous Metals	9,175	1.88	32	1.84	32	1.58
Manufacture of Paper and Paper Products	11,389	2.33	47	2.7	54	2.66
Manufacture of Special-purpose Machinery	21,837	4.47	87	5.01	111	5.47
Total	488,017	100	1,738	100	2,029	100

Table A3.2 Regional Distribution

	Population		1,738 Firms From Q4 Survey		Final Q1 Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Anhui	13,600	2.79	63	3.62	70	3.45
Beijing	7,911	1.62	37	2.13	43	2.12
Fujian	19,528	4	82	4.72	92	4.53
Gansu	2,113	0.43	6	0.35	6	0.3
Guangdong	59,050	12.1	208	11.97	243	11.98
Guangxi	5,699	1.17	34	1.96	35	1.72
Guizhou	3,497	0.72	9	0.52	9	0.44
Hainan	657	0.13	1	0.06	1	0.05
Hebei	17,731	3.63	75	4.32	89	4.39
Henan	19,395	3.97	67	3.86	74	3.65
Heilongjiang	4,919	1.01	23	1.32	26	1.28
Hubei	13,058	2.68	45	2.59	53	2.61
Hunan	12,378	2.54	33	1.9	34	1.68
Jilin	5,328	1.09	15	0.86	17	0.84
Jiangsu	80,695	16.54	258	14.84	316	15.57
Jiangxi	10,145	2.08	36	2.07	41	2.02
Liaoning	22,335	4.58	77	4.43	94	4.63
Inner Mongolia	5,268	1.08	13	0.75	15	0.74
Ningxia	1,288	0.26	3	0.17	4	0.2
Qinghai	519	0.11	1	0.06	1	0.05
Shandong	43,369	8.89	178	10.24	195	9.61
Shanxi	7,128	1.46	20	1.15	21	1.03
Shaanxi	4,398	0.9	15	0.86	22	1.08
Shanghai	20,253	4.15	71	4.09	85	4.19
Sichuan	14,795	3.03	43	2.47	58	2.86
Tianjin	7,901	1.62	39	2.24	45	2.22
NA	112	0.02	0	0	0	0
Xinjiang	2,126	0.44	3	0.17	6	0.3
Yunnan	5,291	1.08	20	1.15	22	1.08
Zhejiang	69,935	14.33	238	13.69	284	14
Chongqing	7,595	1.56	25	1.44	28	1.38
Total	488,017	100	1,738	100	2,029	100

Table A3.3 Comparison of Company Characteristics

	Population		1,738 Firms From Q4 Survey		Final Q1 Response Sample	
	Mean	Median	Mean	Median	Mean	Median
Assets	90,050	12,920	105,068	17,810	112,593	17,197
Sales	104,697	20,072	127,151	24,182	121,026	23,096
Employment	182	70	203	80	197	80
Sales Per Capita	687	310	539	294	534	295
Total	488,017	100	1,738	100	2,029	100