

**China's Industrial Economy:
Report from 2015 Q2 Survey¹**

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¹ This survey is implemented by Beijing Allinfo Co., based on the questionnaire and sample provided by Professor Jie Gan, 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 Ren Zhibo, who provided support to the data analysis and presentation.

Executive Summary

As we made clear in the 2015 Q1 report, the recovery of China's industrial economy will be a long and slow process. After stabilizing in the first quarter, the industrial economy did not show further improvement in the second quarter. The Business Sentiment Index stood at 47, a decline from the first quarter's mark of 50, indicating a slight contraction. Fixed investments remained sluggish, with only 9% of firms making investments. Meanwhile, production, employment and inventory all largely stayed flat.

Excess capacity is still the biggest challenge facing the industrial economy today, and this was an issue that worsened in the second quarter. As many as 53% of the firms surveyed indicated that their supply exceeded demand with a diffusion index of 76, both figures being the highest since 2014 Q2, when we started the survey. Consistent with severe overcapacity, product prices declined in the second quarter with a diffusion index of 44. Thus, the economy is facing the possibility of deflation.

Due to overcapacity and sluggish investment, firms do not have much financing needs. Therefore, financing is still not a bottleneck for industrial growth at this stage. Loosening monetary policy cannot resolve the core problem of overcapacity and therefore will not revive the industrial economy. On the contrary, the government should focus on long-term policies to improve domestic demand and encourage both industry upgrade and technological innovation.

Introduction

Since 2014 Q2, we have conducted five quarterly large-sample surveys of about 2,000 industrial firms in China. Our survey design ensures that our sample fully represents industry, region (provinces) and company sizes. As a result, we are able to construct business indices that are, to the best of our knowledge, the most informative ones available on the Chinese economy. Furthermore, our survey questions allow us to understand the underlying mechanisms, and analyze why the economy is doing well or not.

There were a total of 1,998 firms in our 2015 Q2 survey, of which 1,488 firms were also questioned in our 2015 Q1 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 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. Our sample represents the population well in terms of industry, region, size and other company characteristics.

I. China's Industrial Economy in Slight Contraction Mode

After stabilizing in the first quarter, the second quarter's Business Sentiment Index (BSI) stood at 47, a decline from the first quarter's mark of 50, indicating a slight contraction. Our BSI is the simple average of three diffusion indices, including current operating conditions, expected change in operating conditions and investment timing.^{1, 2} The index construction resembles that of the US Consumer Sentiment Index, hence its name. It not only contains information on current operating conditions, but also includes measures that are forward-looking and reflects the absolute level of economic activities.³

As shown in Figure 1, there are significant variations among the three sub indicators that constitute the BSI. On current operating conditions (Figure 2), 22% of the firms replied "good", 72% replied "medium", while 6% replied "difficult". The diffusion index was 58. In terms of a trend, after a steady improvement from 2014 Q2 to 2015 Q1, the industrial economy declined slightly in the second quarter, with the

¹ Specifically, the three questions underlying our Business Sentiment Index are the following. 1. How are current operating conditions – "good", "medium" or "difficult"? 2. What is the expected change in operating conditions during the next quarter – "up", "same" or "down"? 3. To what extent it is now a good time to invest – "good", "medium" or "bad"?

² The diffusion index is based on answers to multiple-choice questions, with the choices in analog to "good," "medium," and "bad", or "up," "same," and "down." The diffusion index is computed as % of firms answering "good" + 0.5 * % of firms answering "medium". The diffusion index ranges between 0 and 100. A larger value indicates a better operating condition and 50 is the turning point between expansion and contraction.

³ Most existing indices, including the well-known PMI, are ex post and relative (to last quarter). Even when the absolute level of business conditions is gloomy, one may still observe a high diffusion index, as long as it is an improvement over the previous quarter.

diffusion index of 58 in Q2 down from 61 in Q1. The vast majority of firms expect the operating conditions to be similar in the next quarter, resulting in a diffusion index of 53.

The weakest indicator was investment sentiment. When asked to what extent it is now a good time to make fixed investments, only 3% considered the timing to be “good” and 40% responded “bad,” yielding a diffusion index of 32, lower than the first quarter’s 36, far below the turning point of 50 (Figure 3). Consistent with weak investment sentiment, only 9% of firms made fixed investments in Q2, as compared to 11% in Q1. The vast majority of firms invested less than 3% of their assets – a level that roughly covers depreciation, which leaves only 3.2% (2.4% in Q1) of firms in an expansion mode. The sluggish investment will not improve in the near future. Only 4% of the firms expected that they would make investment in the third quarter. Among these firms, more than half (56%) would make investment on maintenance of existing plants and equipment rather than expansion of production capacity.

Figure 4 shows that production, employment and inventory stayed flat with their respective diffusion indices remaining between 46 and 51. Product prices declined in the second quarter with a diffusion index of 44. Thus, the economy is faced with the risk of deflation.

Table 1 shows the performance of different types of firms in the last two quarters. In general, the most significant variation was in ownerships, with state-owned enterprises outperforming both collectively-owned enterprises and private-sector firms. There is no significant difference in performance among different products.

Table 2 further analyzes the business conditions of different industries, where industry classification is based on the 35 two-digit industries of the National Bureau of Statistics. Variation across industries was substantial, with the BSI ranging from 25 to 61. The top five industries included Medicines (with a BSI of 61), Rubber Products (60), Measuring Instruments (59), Cultural & Sports Products (59) and Printing & Recording Media (58). The bottom five were Processing of Nonmetal Ores (25), Petroleum (33), Pressing of Non-ferrous Metals (33), Agricultural & Related Product (37) and Fur Related Products (39). Among these industries, Petroleum has been on the list since 2014 Q4; Non-ferrous Metals has been on the list three times in the past four quarters; Agricultural & Related Products and Fur Related Products were both on the list in the past two quarters.⁴

Table 3 displays regional business conditions. Regional variations were not as large as across industries, with the BSI ranging from 31 to 52. The bottom five comprised of Guizhou (31), Yunnan (42), Shanxi (42), Shandong (45) and Hebei (45).

⁴ In our industry ranking, we include industries with more than three firms. The Coal Mining industry has a BSI of 11 but is excluded from the ranking as it contains only three firms in Q2.

Among these provinces, Guizhou has been on the list since 2014 Q3.

II. Understanding the Economy: Challenges and Priorities

Weak demand is still by far the biggest challenge for the industrial economy. 55% of the firms surveyed cited a lack of orders, while 32% considered markets as their most constraining factor (Figure 5). Costs come third, with labor and raw material costs listed by 14% and 10% of firms, respectively. Financing is not a bottleneck, with only 3% replying that financing is a limiting factor. These factors are highly consistent with findings in our previous surveys.

II.1 The Biggest Challenge: Weak Demand

As we pointed out in our 2015 Q1 report, after a few quarters' adjustment, excess capacity was partially absorbed, but it will take a long time for the economy to absorb the remaining capacity. In the second quarter, as demand further declined, excess capacity worsened. As many as 53% of firms reported that supply exceeded demand for their products in the domestic market (Figure 6A) and the diffusion index reflecting weak demand was 76 in Q2. Both figures are the highest since our survey began in 2014 Q2. Firms are faring worse in domestic markets than in overseas ones. Among the surveyed firms, 48% export to international markets. The diffusion index for international markets was 66, which was ten points below the domestic market, a pattern consistent with previous surveys.

As shown in Figure 6B, consistent with weak demand, one third of the firms utilized less than 90% of their full capacity. 32% of the firms reported that their excess capacity was above 10%, while 17% reported that their excess capacity was above 20% (Figure 6C). We categorize an industry as having severe excess capacity if more than 10% of the firms reported excess capacity of more than 20%. The number of industries and regions with severe excess capacity has increased by an alarming amount, with the number of industries rising from 1 in 2015 Q1 to 19 in 2015 Q2 (out of 35 industries); the number of regions increased from 2 to 23 in the same period (out of 31 regions).

As of 2015 Q2, the top three industries with severe overcapacity were Petroleum, Electric Machinery and Processing of Nonmetal Ores. Using the same criteria, Shanxi, Yunnan and Henan were provinces with the most severe excess capacity. (See Table 1.1 and 1.2 in the Appendix for excess capacity in all industries and regions).

Weak demand has not caused inventory problems, both because firms have responded by scaling down production and because of the "order-based" production model adopted by many Chinese firms. As shown earlier, finished-goods inventory stayed largely flat. As many as 45% of firms said they did not have significant levels

of inventory because they produce only after taking orders. For those with inventories, 79% expected the inventory to be digested within three months, with a further 15% saying it would take between three to six months. This leaves only 6% of the whole sample carrying inventory for more than six months.

II.2 The Second Challenge: Costs and Margins

In the second quarter, due to an overall decline in price levels, costs did not rise significantly. The percentage of firms reporting rising unit cost dropped from 27% in Q1 to 20% in Q2, while the diffusion index reflecting cost increases was 58 (Figure 7A). Costs rose in firms which increased investment and employment. For other firms, costs decreased. In other words, cost stabilized in Q2 due to a weak economy. When the economy recovers, rising costs should be watched closely.

Chronic overcapacity implies thin profit margins. Figure 8 reports the gross margin of Chinese firms. Indeed, close to one third of the firms reported extremely low margins – below 10%. 71% of the firms have profit margins below 15%, with only around 10% of the firms currently having profit margins above 20%.

II. 3 Financing is Not a Bottleneck

Table 6.1 and Figure 9 provide an overview of how Chinese firms were financed. Internally-generated funds were, by far, the most important source of financing, with 97% of the firms reporting this as their primary funding source. About 3% of the firms reported the founder's own capital as the primary source of funds, while 30% reported this as the second most important source of funds. 16% of the 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, 86% of the firms reported that this largest financing source accounts for more than 50% of their total funds.

In Q2, only 3% of the firms cited financing as the constraining factor. Meanwhile, 44% of the firms reported that funds were sufficient, while only 7% reported insufficient funding. A vast majority of the firms (83%) reported insufficient funds for production, but not for expansion.

Consistent with sluggish investment, only a small proportion of firms obtained new loans in the past quarters. Among these firms, 9% of them were SOEs, while 8% were collectively-owned and private enterprises. Firms found the banks' lending attitude to be generally accommodating, with only 5% reporting a "difficult" lending attitude, resulting in a diffusion index of 72. Among the firms without new loans, the vast majority (92%) reported that they did not have the need for capital. These results were highly consistent with the findings in the past few quarters, namely, financing is

not a bottleneck at this stage.

It was rare for firms to borrow from sources other than banks, consistent with anecdotal evidence that the low profit margins of industrial firms do not allow them to borrow from expensive, informal lending agencies. In Q2, only 12 firms (0.6%) reported borrowing from other financing institutions.

While our finding that financing is not a bottleneck may contrast with the common wisdom, it is consistent with the central bank's "Financial Institutions Lending Statistics" report. In 2014, new loans to industrial firms declined by, on average, 30% each quarter. While the amount of new loans went up substantially in Q1 this year, it dropped again in Q2 by 50%. Moreover, the index of loan demand dropped to 53% in 2015 Q2, the lowest on record.

Overall, the fact that financing is not a bottleneck must be set against the backdrop of an industrial economy in slight contraction. Investment opportunity is scarce; as long as a firm is profitable, retained earnings are sufficient for operation. Even if some loans are needed, the firms have fixed assets as collateral for borrowing. As weak demand is the key problem, injecting liquidity through loosening monetary policy cannot revive the industrial economy. Finally, it should be stressed that, although financing is not a main constraining factor, it does not mean that financial reform is not important. If the financial system cannot allocate resources in an efficient manner now, when the economy recovers, financing would likely then become a bottleneck.

IV. Conclusion

After stabilizing in the first quarter, the industrial economy did not show further improvement in the second quarter. The Business Sentiment Index stood at 47, a decline from the first quarter's mark of 50, indicating a slight contraction. Fixed investments remained sluggish, with only 9% of firms making investments, and even fewer (3%) had invested more than merely covering depreciation. Meanwhile, production, employment and inventory all largely stayed flat.

Excess capacity is still the biggest challenge facing the industrial economy. In the second quarter, as many as 53% of the firms surveyed indicated that their supply exceeded demand with a diffusion index of 76, both figures being the highest since 2014 Q2, when we started the survey. Product prices declined in the second quarter, with a diffusion index of 44. Thus, the economy is facing the possibility of deflation.

Due to chronic overcapacity and sluggish investment, firms do not have much financing needs. Therefore, financing is still not a bottleneck for industrial growth at this stage. Loosening monetary policy alone cannot resolve the core problem of

overcapacity and therefore will not revive the industrial economy. On the contrary, the government should focus on long-term policies to improve domestic demand and encourage both industry upgrade and technological innovation.

Figure 1. Business Sentiment Index

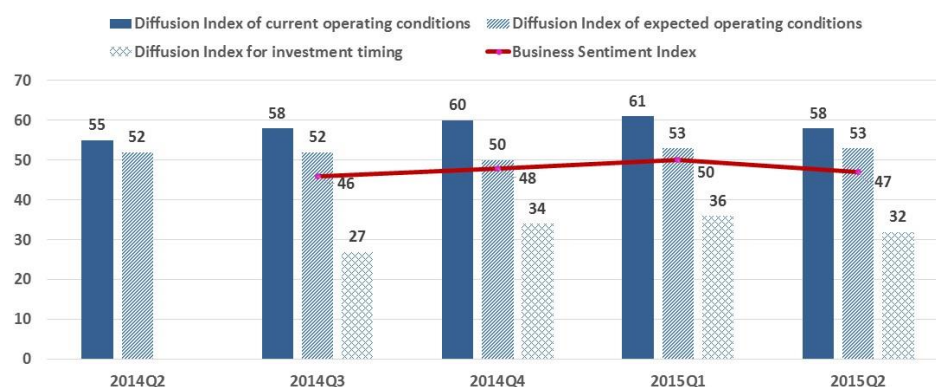


Figure 2. Current Operating Conditions

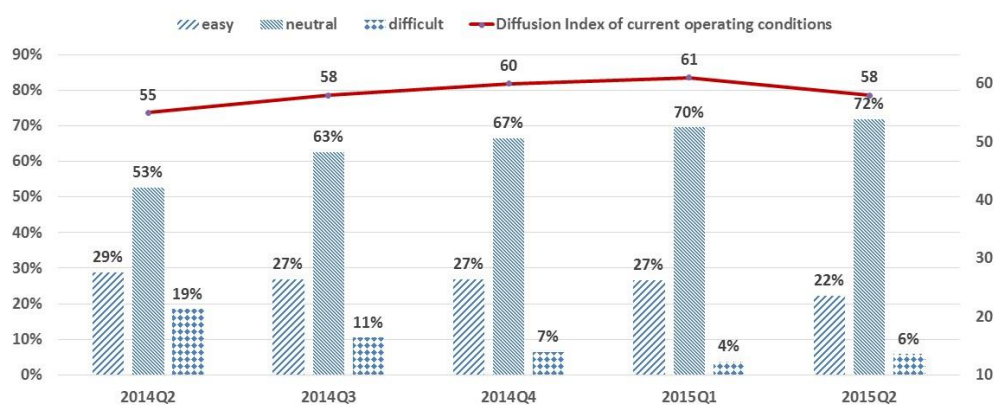


Figure 3. Investment

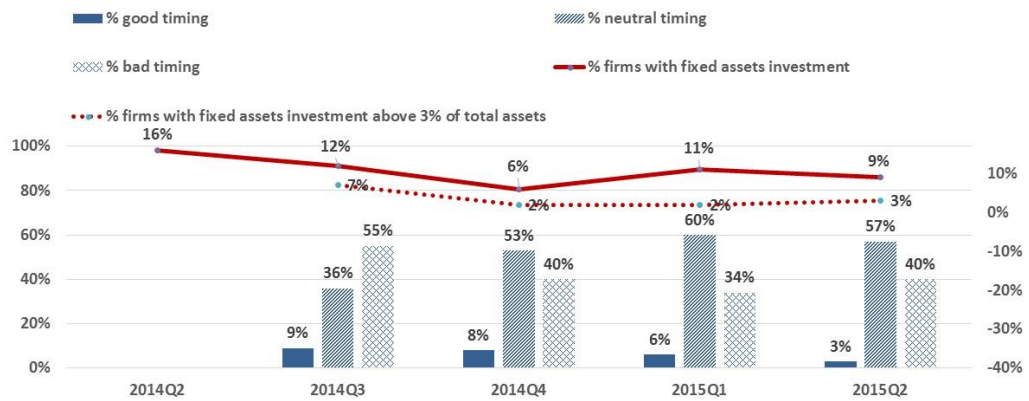


Figure 4. Other Main Economic Indices

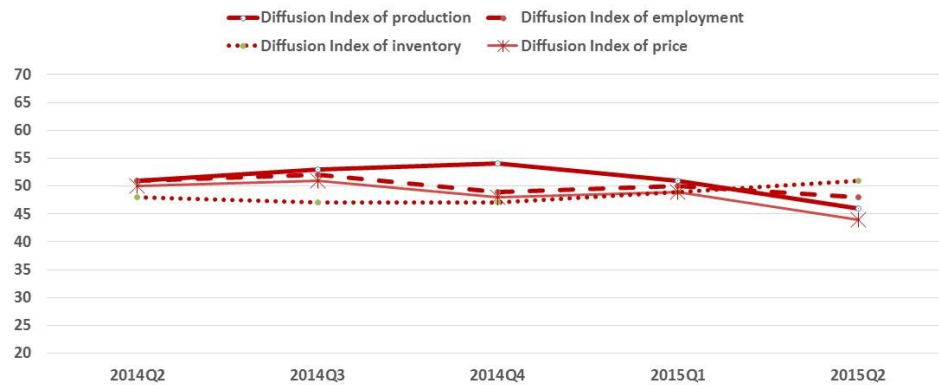


Figure 5. Factors Constraining Production

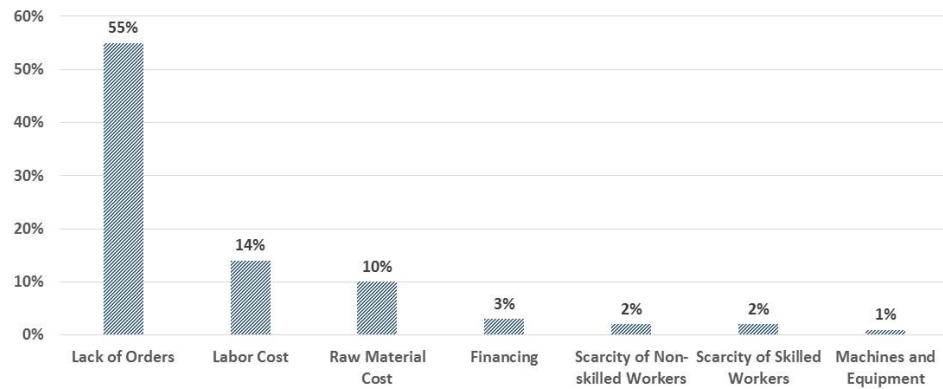


Figure 6A. Excess Capacity in Domestic Market

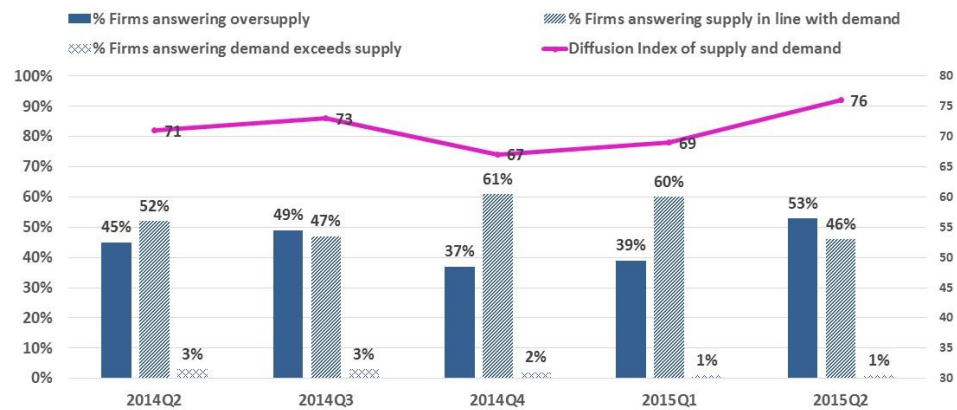


Figure 6B. Capacity Utilization Rate

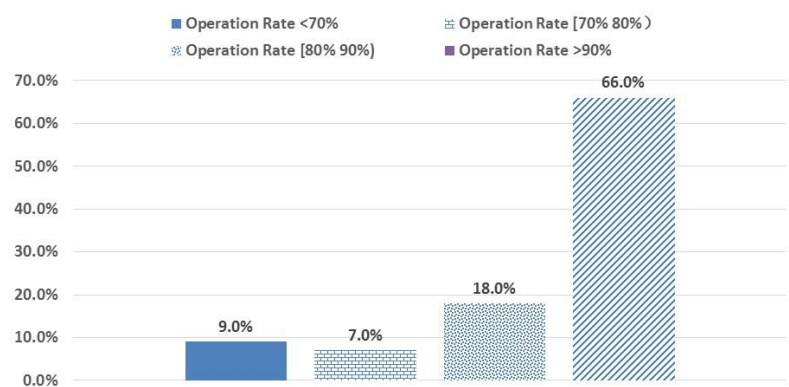


Figure 6C. Firms with Severe Excess Capacity

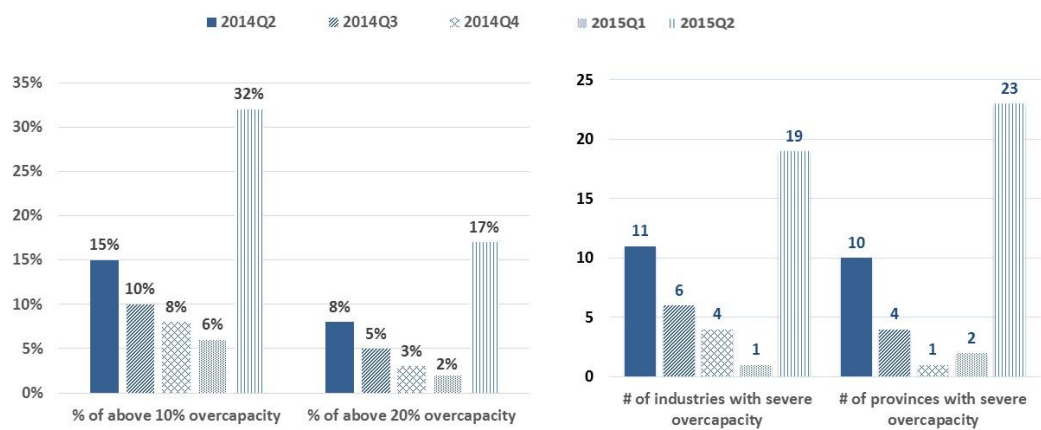


Figure 7A. Unit Cost, Labor Cost and Material Cost

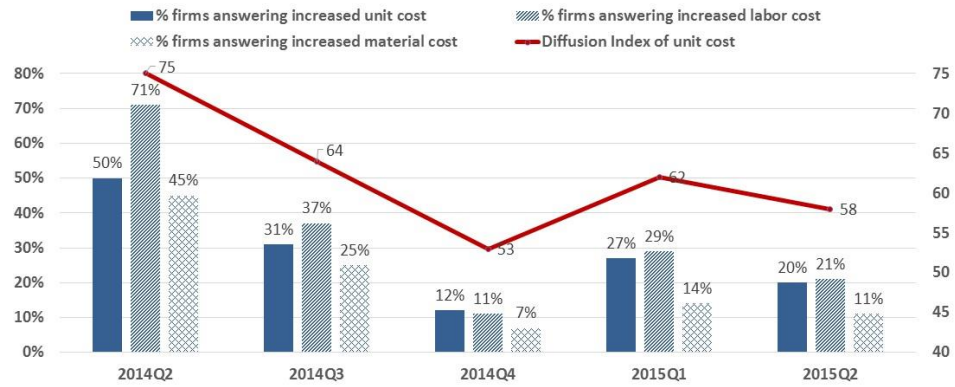


Figure 7B. Rise of Production Cost for Different Firms (2015Q2)

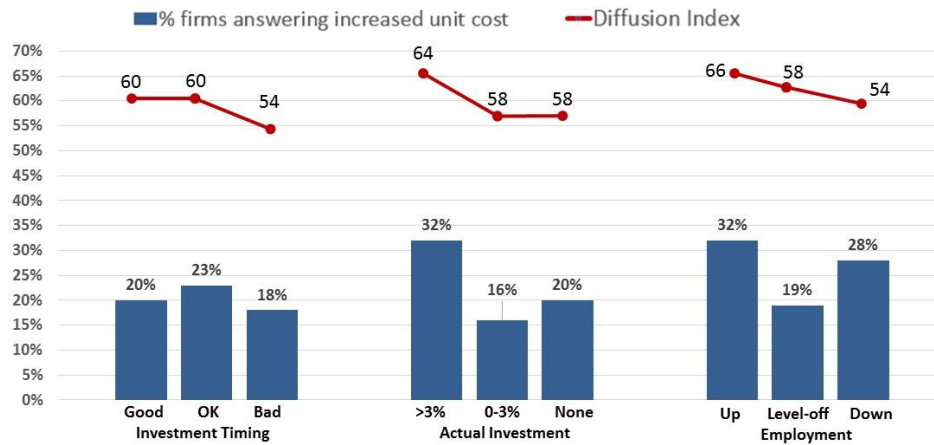


Figure 8. Gross Margins

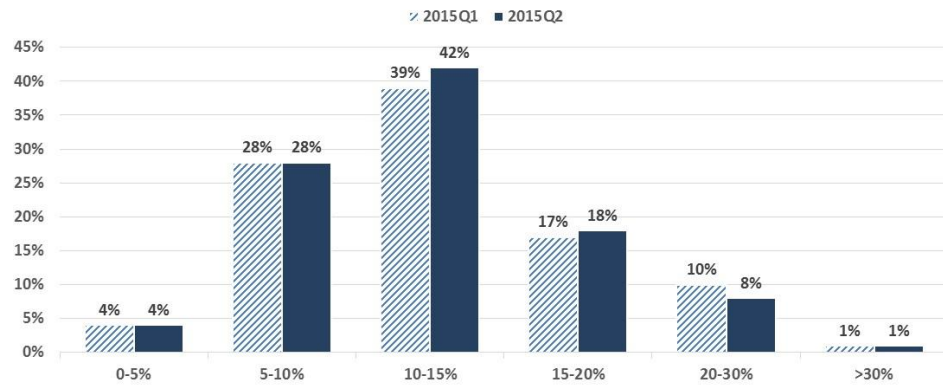


Figure 9. Financing

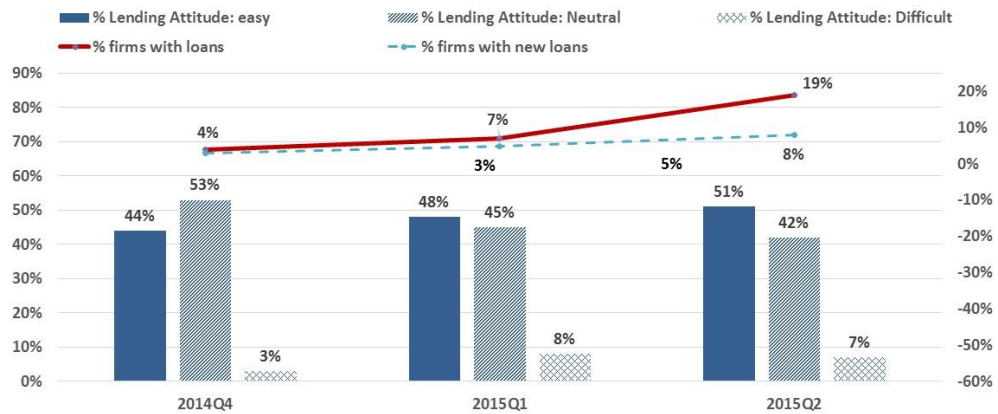


Table 1. Operating Conditions of Industrial Firms

		Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Change in Operating Conditions		Diffusion Index - Good Timing for Investment		% of Firms with Fixed Investment		Diffusion Index - Production		Diffusion Index - Employment		Diffusion Index - Price	
		Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
By Size	Nation	1998	1999	47	50	58	61	53	53	32	36	9	11	46	51	48	50	44	49
	Large	709	717	48	52	60	65	53	53	32	38	11	14	48	52	48	49	43	50
	Medium	696	656	48	50	58	60	53	53	32	37	9	11	45	51	48	50	43	49
	Small	593	626	46	49	56	59	52	53	30	35	8	9	45	50	47	50	44	50
By Ownership																			
	State-owned	77	80	54	59	73	74	52	58	38	44	19	11	58	50	49	51	48	47
	Collectively-owned	32	26	42	45	50	54	48	46	28	35	9	15	48	38	45	44	37	44
	Private	1587	1578	46	49	56	60	52	53	30	36	9	11	44	51	47	49	42	49
	Foreign-owned	334	315	52	52	64	66	55	51	36	39	10	12	54	55	48	51	48	51
By Product Type																			
	Consumer Goods - Durable	480	492	49	50	58	63	56	53	32	36	8	10	49	52	48	51	45	50
	Consumer Goods - Nondurable	566	568	48	50	60	63	53	54	31	32	10	11	46	49	48	49	47	53
	Capital Goods	167	166	48	51	59	61	50	54	35	38	10	19	49	51	49	49	42	47
	Intermediate Goods	789	773	47	50	57	59	51	52	31	39	10	10	44	52	47	49	41	47

- 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	
		Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
Nation		1998	1999	47	50	58	61	53	53	9	11	32	36
Mining													
	Coal Mining and Washing	3	5	11	7	33	20	0	0	0	0	0	0
	Mining and Processing of Ferrous Metal Ores	1	1	0	83	0	100	0	100	0	0	0	50
	Mining and Processing of Non-ferrous Metal	2	4	42	54	50	75	50	50	0	25	25	38
	Mining and Processing of Nonmetal Ores	8	6	25	50	25	50	38	58	0	0	13	42
Production and Supply of Electricity, Heat, Gas and Water													
	Power Production and Supply	32	26	54	65	72	88	38	56	19	0	52	50
	Production and Supply of Water	9	14	48	75	94	89	50	79	0	0	0	57
Light Manufacturing													
	Processing of Agricultural and Related Products	103	102	37	37	53	53	57	50	4	9	0	7
	Manufacture of Foods	55	49	53	48	54	72	61	54	4	18	44	17
	Manufacture of Beverage	42	42	48	48	65	67	56	60	21	5	21	18
	Manufacture of Textiles	134	119	42	38	52	55	49	55	2	4	25	4
	Manufacture of Textile Wearing and Apparel	87	79	51	52	56	61	59	52	8	11	39	42
	Manufacture of Leather, Fur, Feather, Related Products and Footwear	41	39	39	34	60	58	55	44	10	5	2	1
	Processing of Wood Products	41	41	39	38	54	52	61	56	15	15	2	5
	Manufacture of Furniture	29	28	56	56	57	66	69	50	0	4	41	52
	Manufacture of Paper and Paper Products	55	54	51	51	59	59	53	49	13	19	42	45
	Printing, Reproduction of Recording Media	45	39	58	57	67	65	54	51	7	33	53	54
	Manufacture of Cultural and Sports Products	23	26	59	62	67	69	61	56	0	27	48	60
	Manufacture of Medicines	63	65	61	69	73	77	53	58	24	28	56	73
	Manufacture of Handicrafts and Others	48	42	51	51	59	56	50	55	4	0	45	42
	Recycling and Disposal of Waste	2	2	50	50	50	50	50	50	0	0	50	50
Chemical Industry													
	Processing of Petroleum and Nuclear Fuel	10	13	33	33	55	54	45	46	0	8	0	0
	Manufacture of Chemical Products	124	125	47	53	52	56	50	54	11	8	38	49
	Manufacture of Chemical Fibers	6	6	47	39	50	33	58	50	0	0	33	33
	Manufacture of Rubber Products	25	31	60	61	64	63	58	56	8	16	58	65
	Manufacture of Plastics	89	92	48	50	60	68	47	53	1	9	37	28
Equipment Manufacturing													
	Manufacture of General-purpose Machinery	182	198	50	56	55	64	55	57	6	13	39	47
	Manufacture of Special-purpose Machinery	114	123	48	48	61	61	49	50	14	15	33	33
	Manufacture of Transport Equipment	78	76	49	51	63	53	42	48	21	5	41	51
	Manufacture of Electric Machinery and Apparatus	128	143	43	48	63	63	52	53	21	23	14	28
	Computers, Communication and Electric Equipment	78	73	57	56	66	68	61	52	0	12	46	48
	Manufacture of Measuring Instruments	34	34	59	66	68	75	47	50	21	0	62	72
Other Heavy Manufacturing													
	Manufacture of Non-metallic Mineral Products	111	122	46	49	55	59	58	51	7	1	25	37
	Smelting and Pressing of Ferrous Metals	39	30	33	44	36	47	53	42	0	0	10	43
	Smelting and Pressing of Non-ferrous Metals	27	24	51	49	59	60	50	50	0	33	44	38
	Manufacture of Metal Products	130	126	42	49	57	55	48	52	13	6	22	38

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	
	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
Nation	1998	1998	47	50	58	61	9	11	32	36
<i>Top Five</i>										
Manufacture of Medicines	63	65	61	69	73	77	24	28	56	73
Manufacture of Rubber Products	25	31	60	61	64	63	8	16	58	65
Manufacture of Measuring Instruments	34	34	59	66	68	75	21	0	62	72
Manufacture of Cultural and Sports Products	23	26	59	62	67	69	0	27	48	60
Printing, Reproduction of Recording Media	45	39	58	57	67	65	7	33	53	54
<i>Bottom Five</i>										
Mining and Processing of Nonmetal Ores	8	6	25	50	25	50	0	0	13	42
Processing of Petroleum and Nuclear Fuel	10	13	33	33	55	54	0	8	0	0
Smelting and Pressing of Ferrous Metals	39	30	33	44	36	47	0	0	10	43
Processing of Agricultural and Related Products	103	102	37	37	53	53	4	9	0	7
Manufacture of Leather, Fur, Feather, Related Products and Footwear	41	39	39	34	60	58	10	5	2	1

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	
	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
Nation	1998	1999	47	50	58	61	53	53	9	11	32	36
<i>North China</i>												
Beijing	35	35	52	52	60	61	56	54	3	6	40	40
Tianjin	47	45	47	54	56	63	52	53	9	16	32	44
Hebei	82	81	45	48	56	59	52	51	7	12	27	35
<i>Northeast</i>												
Liaoning	84	81	46	52	58	62	50	54	6	10	30	40
Jilin	23	21	47	52	63	62	48	52	17	10	30	40
Heilongjiang	22	23	50	54	68	72	52	54	5	13	30	35
<i>Northwest</i>												
Inner Mongolia	14	11	48	50	46	59	61	59	14	0	36	32
Shaanxi	22	20	48	50	59	63	57	58	18	5	27	30
Gansu	7	9	50	44	64	61	50	44	29	11	36	28
Ningxia	2	1	33	33	50	50	50	50	0	0	0	0
Xinjiang	4	3	46	44	50	67	75	50	0	0	13	17
<i>Central North</i>												
Shanxi	19	18	42	50	58	58	45	53	11	17	24	39
Shandong	186	180	45	48	56	59	51	52	3	10	30	32
Henan	70	70	46	50	54	55	55	56	13	16	28	41
<i>Southwest</i>												
Chongqing	34	37	46	52	57	65	49	49	9	14	32	43
Sichuan	55	59	49	53	59	68	55	56	15	8	35	36
Guizhou	8	8	31	46	44	69	38	44	13	25	13	25
Yunnan	16	17	42	48	56	62	41	47	13	18	28	35
<i>East China</i>												
Shanghai	91	95	51	51	62	65	55	51	8	11	36	38
Jiangsu	311	312	47	50	57	61	53	53	7	9	31	35
Zhejiang	293	311	46	49	58	61	50	52	12	14	31	35
<i>South China</i>												
Fujian	96	99	48	49	57	60	56	52	7	6	32	35
Guangdong	258	261	51	52	62	63	56	53	8	12	35	39
Guangxi	37	27	49	51	62	61	51	61	16	7	32	31
Hainan	1	1	33	83	100	100	0	50	100	100	0	100
<i>Central South</i>												
Anhui	62	59	49	48	61	58	54	56	13	15	31	30
Jiangxi	33	32	46	51	53	58	55	50	6	3	32	44
Hubei	51	48	48	53	57	61	53	54	22	10	35	45
Hunan	35	35	48	53	59	67	47	51	20	14	37	41

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	
	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
Nation	1998	1999	47	50	47	50	9	11	32	36
<i>Top Five</i>										
Beijing	35	35	52	52	52	52	3	6	40	40
Shanghai	91	95	51	51	51	51	8	11	36	38
Guangdong	258	261	51	52	51	52	8	12	35	39
Gansu	7	9	50	44	50	44	29	11	36	28
Heilongjiang	22	23	50	54	50	54	5	13	30	35
<i>Bottom Five</i>										
Guizhou	8	8	31	46	31	46	13	25	13	25
Yunnan	16	17	42	48	42	48	13	18	28	35
Shanxi	19	18	42	50	42	50	11	17	24	39
Shangdong	186	180	45	48	45	48	3	10	30	32
Heibei	82	70	45	50	45	50	7	16	27	41

Notes:

1. Ranking includes regions with more than three firms.

Table 3.2.1 Diffusion Index of Top Five and Bottom Five Regions: by Broad Industry

Mining						Production and Supply of Electricity, Heat, Gas and Water					Light Manufacturing				
	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Diffusion Index - Good Timing for Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Diffusion Index - Good Timing for Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Diffusion Index - Good Timing for Investment
Bottom Five															
Guizhou	1	17	50	0	0	0	0	0	0	0	6	31	42	17	8
Heibei	0	N.A.	N.A.	N.A.	N.A.	1	67	100	0	50	30	44	58	0	23
Shandong	2	25	25	0	0	5	50	80	0	40	76	46	57	4	26
Shanxi	0	0	0	0	0	0	0	0	0	0	3	56	83	0	33
Yunnan	1	0	0	0	0	1	50	50	0	50	8	48	69	13	31
Average		17	25	0	0		52	79	0	43		45	58	4	25
Chemical Industry						Equipment Manufacturing					Other Heavy Manufacturing				
	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Diffusion Index - Good Timing for Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Diffusion Index - Good Timing for Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Diffusion Index - Good Timing for Investment
Bottom Five															
Guizhou	1	50	50	0	50	0	N.A.	N.A.	N.A.	N.A.	0	N.A.	N.A.	N.A.	N.A.
Heibei	15	47	53	13	43	21	45	55	14	29	15	42	53	7	13
Shandong	21	48	55	5	36	56	46	55	4	35	26	42	54	0	25
Shanxi	4	42	50	0	38	7	45	64	29	21	5	30	40	0	10
Yunnan	2	33	25	0	25	1	50	100	100	0	3	39	50	0	33
Average		47	52	7	38		46	56	9	32		41	52	2	20

Table 4. Market Supply and Demand**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	
	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
Nation	1998	1999	76	69	66	59	51	49
<i>By Size</i>								
Large	709	717	75	68	66	58	50	48
Medium	696	656	76	69	65	59	51	50
Small	593	626	76	69	67	60	53	49
<i>By Ownership</i>								
State-owned	77	65	62	62	54	54	46	52
Collectively-owned	32	26	77	67	70	50	55	50
Private	1587	1578	78	70	67	60	51	49
Foreign -owned	334	315	69	60	62	57	50	48
<i>By Product Type</i>								
Consumer Goods - Durable	480	492	78	67	67	57	50	49
Consumer Goods - Nondurable	566	568	69	65	63	61	52	49
Capital Goods	167	166	71	61	64	54	53	48
Intermediate Goods	789	773	80	73	67	60	51	49

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	10	60	90
Manufacture of Electric Machinery and Apparatus	128	43	49
Mining and Processing of Nonmetal Ores	8	38	75
Manufacture of Metal Products	130	31	40
Manufacture of Chemical Products	124	26	39
Manufacture of Transport Equipment	78	24	27
Processing of Agricultural and Related Products	103	22	30
Manufacture of General-purpose Machinery	182	17	74
Manufacture of Chemical Fibers	6	17	33
Manufacture of Special-purpose Machinery	114	17	18
Manufacture of Rubber Products	25	16	24
Manufacture of Non-metallic Mineral Products	111	14	25
Smelting and Pressing of Ferrous Metals	39	13	46
Manufacture of Medicines	63	13	24
Power Production and Supply	32	13	13
Computers, Communication and Electric Equipment	78	12	74
Manufacture of Textile Wearing and Apparel	87	11	24
Smelting and Pressing of Non-ferrous Metals	27	11	15
Printing, Reproduction of Recording Media	45	11	11

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
Shanxi	19	32	42
Yunnan	16	31	50
Henan	70	24	39
Liaoning	84	24	45
Shaanxi	22	23	32
Shandong	186	22	35
Sichuan	55	22	33
Jiangxi	33	21	42
Hebei	82	21	33
Hunan	35	20	37
Guangxi	37	19	30
Heilongjiang	22	18	32
Hubei	51	18	33
Beijing	35	17	26
Tianjin	47	17	23
Jiangsu	311	17	33
Anhui	62	16	26
Zhejiang	293	15	33
Chongqing	34	15	32
Inner Mongolia	14	14	21
Shanghai	91	13	30
Guizhou	8	13	50
Guangdong	258	11	25

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	
		Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
<i>By Size</i>	Nation	1998	1999	58	62	60	64	48	51
	Large	709	717	57	62	59	63	48	53
	Medium	696	656	58	61	60	63	47	50
	Small	593	626	59	64	61	65	49	51
<i>By Ownership</i>									
	State-owned	77	65	57	61	57	57	51	52
	Collectively-owned	32	26	55	56	56	58	45	52
	Private	1587	1578	57	62	60	65	47	50
	Foreign -owned	334	315	61	62	60	61	54	56
<i>By Product Type</i>									
	Consumer Goods - Durable	480	492	62	63	63	65	50	53
	Consumer Goods - Nondurable	566	568	58	63	58	62	53	57
	Capital Goods	167	166	52	58	57	62	44	43
	Intermediate Goods	789	773	56	62	60	65	44	48

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	1998	58	60	48	44
Manufacture of Plastics	89	76	79	41	35
Manufacture of Textiles	134	74	78	49	38
Manufacture of Textile Wearing and Apparel	87	74	72	65	51
Manufacture of Medicines	63	65	66	63	53
Mining and Processing of Nonmetal Ores	8	63	56	63	38
Manufacture of Measuring Instruments	34	62	62	57	53
Manufacture of Foods	55	62	58	62	56
Computers, Communication and Electric Equipment	78	61	71	45	44
Power Production and Supply	32	61	61	60	41
Manufacture of Cultural and Sports Products	23	61	59	54	50
Processing of Wood Products	41	61	56	55	44
Manufacture of Rubber Products	25	60	60	58	46
Manufacture of Furniture	29	59	52	57	55
Manufacture of Chemical Fibers	6	58	58	58	58
Manufacture of Handicrafts and Others	48	58	58	50	50
Manufacture of Non-metallic Mineral Products	111	58	56	53	44

Notes:

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

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

	Number of Firms	Diffusion Indices			
		Unit Cost Index	Labor Cost Index	Raw Material Cost Index	Price Index
Nation	1998	58	60	48	44
Gansu	7	71	57	64	43
Xinjiang	4	63	50	63	63
Beijing	35	63	61	59	51
Jilin	23	61	57	54	48
Guangdong	258	61	62	54	48
Anhui	62	61	59	54	51
Fujian	96	59	59	52	50
Guangxi	37	59	58	46	46
Chongqing	34	59	62	49	43
Hunan	35	59	60	54	47
Jiangsu	311	59	62	46	42
Hebei	82	59	63	43	38
Shanghai	91	58	61	49	46

Notes:

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

Table 5.3 Cost with Investment and Employment

		Diffusion Indices				
		Number of Firms	Unit Cost Index	Labor Cost Index	Raw Material Cost Index	Price Index
Investment Timing	Nation	1998	58	60	48	44
	Positive	64	60	59	57	54
	Neutral	1136	60	62	50	45
	Negative	798	54	58	45	40
Investment as Ratio of Asset						
	No Investment	1811	58	60	47	43
	0%-3%	124	58	56	52	50
	3%-5%	42	64	65	60	49
	5%-10%	14	64	68	54	43
	10%-20%	5	70	80	50	50
	20%-30%	1	50	50	50	50
	30%+	1	50	50	50	50
Employment Change						
	Up	56	66	71	54	52
	Level off	1790	58	60	48	44
	Down	152	54	58	43	33

Table 6. Financing Environment
Table 6.1 Sources of Financing

The most important source of financing

Sources	Number of Firms	% of Firms
Internal Funds	1944	97
Founder	63	3
Relatives and friends	0	0
Bank	5	0
Stock market	2	0
Nonformal financial institute	0	0
Others	4	0

The second most important source of financing

Sources	Number of Firms	% of Firms
Internal Funds	23	1
Founder	597	30
Relatives and friends	6	0
Bank	322	16
Stock market	2	0
Nonformal financial institute	1	0
Others	7	0

Table 6.2 Overall

	% Firms with Loans		% Firms with New Loans		Collateralization Rate %		Diffusion Index - Lending Attitude		Diffusion Index - Interest Rate	
	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
Nation	19	7	8	5	69	71	72	70	49	50
Firms with Investment	33	20	19	13	69	71	80	78	53	51
Firms without Investment	18	6	7	4	69	71	70	67	47	49
<i>By Size</i>										
Large	22	9	9	5	69	71	74	67	49	48
Medium	19	7	8	5	70	71	72	73	47	50
Small	16	5	7	4	68	70	70	72	51	54
<i>By Ownership</i>										
State controlling	17	11	9	4	72	78	78	75	50	50
State holding	38	13	13	0	70	70	50	100	50	50
Collectively-owned	16	4	6	4	75	70	100	100	50	50
Private	20	8	8	5	69	70	73	69	48	50
Foreign -owned	13	4	7	3	66	71	65	75	50	46
<i>By Product Type</i>										
Consumer Goods - Durable	18	6	8	4	71	70	78	71	49	55
Consumer Goods - Nondurable	20	8	11	5	70	72	71	59	51	51
Capital Goods	19	8	7	3	66	71	79	68	46	54
Intermediate Goods	19	7	7	5	67	71	68	79	46	46

Notes:

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

Appendix A1. Industry and Regional Ranking of Excess Capacity

Appendix 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	
	Q2	Q1	Q2	Q1	Q2	Q1
Processing of Petroleum and Nuclear Fuel	10	13	60	0	90	0
Manufacture of Electric Machinery and Apparatus	128	143	43	1	49	7
Mining and Processing of Nonmetal Ores	8	6	38	0	75	33
Manufacture of Metal Products	130	126	31	4	40	8
Manufacture of Chemical Products	124	125	26	3	39	8
Manufacture of Transport Equipment	78	76	24	4	27	4
Processing of Agricultural and Related Products	103	102	22	2	30	6
Manufacture of General-purpose Machinery	182	198	17	2	74	4
Manufacture of Chemical Fibers	6	6	17	0	33	17
Manufacture of Special-purpose Machinery	114	123	17	6	18	9
Manufacture of Rubber Products	25	31	16	6	24	13
Manufacture of Non-metallic Mineral Products	111	122	14	2	25	10
Smelting and Pressing of Ferrous Metals	39	30	13	3	46	7
Manufacture of Medicines	63	65	13	0	24	3
Power Production and Supply	32	26	13	0	13	0
Computers, Communication and Electric Equipment	78	73	12	1	74	1
Manufacture of Textile Wearing and Apparel	87	79	11	0	24	3
Smelting and Pressing of Non-ferrous Metals	27	24	11	4	15	8
Printing, Reproduction of Recording Media	45	39	11	0	11	0
Manufacture of Foods	55	49	9	2	20	6
Manufacture of Measuring Instruments	34	34	9	0	12	0
Manufacture of Handicrafts and Others	48	42	8	2	19	5
Manufacture of Plastics	89	92	8	1	13	5
Manufacture of Textiles	134	119	7	0	10	0
Manufacture of Paper and Paper Products	55	54	7	0	9	0
Manufacture of Furniture	29	28	7	0	7	0
Manufacture of Beverage	42	42	5	0	12	2
Manufacture of Cultural and Sports Products	23	26	4	0	22	0
Manufacture of Leather, Fur, Feather, Related Products and Footwear	41	39	2	3	12	3
Processing of Wood Products	41	41	0	0	24	0
Production and Supply of Water	9	14	0	0	0	0

Notes:

1. 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 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	
	Q2	Q1	Q2	Q1	Q2	Q1
Shanxi	19	18	32	11	42	17
Yunnan	16	17	31	6	50	6
Henan	70	70	24	4	39	7
Liaoning	84	81	24	4	45	5
Shaanxi	22	20	23	5	32	15
Shandong	186	180	22	4	35	8
Sichuan	55	59	22	2	33	7
Jiangxi	33	32	21	0	42	0
Hebei	82	81	21	2	33	5
Hunan	35	35	20	0	37	6
Guangxi	37	27	19	4	30	7
Heilongjiang	22	23	18	0	32	0
Hubei	51	48	18	2	33	4
Beijing	35	35	17	3	26	6
Tianjin	47	45	17	0	23	0
Jiangsu	311	312	17	0	33	3
Anhui	62	59	16	0	26	7
Zhejiang	293	311	15	1	33	4
Chongqing	34	37	15	3	32	8
Inner Mongolia	14	11	14	0	21	9
Shanghai	91	95	13	2	30	3
Guizhou	8	8	13	13	50	13
Guangdong	258	261	11	3	25	7
Fujian	96	99	8	0	21	2
Jilin	23	21	4	10	17	10
Xinjiang	4	N.A.	0	N.A.	0	N.A.
Gansu	7	9	0	0	0	0

Notes:

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

Appendix A2. Industry and Regional Diffusion Index for Cost and Price

Appendix 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	
Nation			Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
Mining												
	Coal Mining and Washing	3	5	33	100	50	100	33	100	0	0	
	Mining and Processing of Ferrous Metal Ores	1	1	0	50	0	50	50	50	50	50	
	Mining and Processing of Non-ferrous Metal	2	4	25	50	25	50	25	50	50	50	
	Mining and Processing of Nonmetal Ores	8	6	63	58	56	58	63	58	38	50	
Production and Supply of Electricity, Heat, Gas and Water												
	Power Production and Supply	32	26	61	58	61	58	60	52	41	48	
	Production and Supply of Water	9	14	56	79	56	64	56	50	50	50	
Light Manufacturing												
	Processing of Agricultural and Related Products	103	102	51	57	50	54	51	58	48	57	
	Manufacture of Foods	55	49	62	61	58	56	62	57	56	55	
	Manufacture of Beverage	42	42	55	71	52	61	54	65	54	57	
	Manufacture of Textiles	134	119	74	84	78	82	49	55	38	49	
	Manufacture of Textile Wearing and Apparel	87	79	74	73	72	73	65	65	51	53	
	Manufacture of Leather, Fur, Feather, Related Products and Footwear	41	39	54	64	54	55	50	64	45	62	
	Processing of Wood Products	41	41	61	68	56	55	55	66	44	56	
	Manufacture of Furniture	29	28	59	54	52	52	57	52	55	44	
	Manufacture of Paper and Paper Products	55	54	49	56	48	56	50	54	48	50	
	Printing, Reproduction of Recording Media	45	39	53	63	50	60	52	59	49	50	
	Manufacture of Cultural and Sports Products	23	26	61	79	59	81	54	69	50	56	
	Manufacture of Medicines	63	65	65	75	66	76	63	67	53	58	
	Manufacture of Handicrafts and Others	48	42	58	57	58	63	50	46	50	45	
	Recycling and Disposal of Waste	2	2	50	75	50	75					
Chemical Industry												
	Processing of Petroleum and Nuclear Fuel	10	13	10	38	50	50	10	38	5	35	
	Manufacture of Chemical Products	124	125	57	59	55	54	53	55	50	52	
	Manufacture of Chemical Fibers	6	6	58	58	58	67	58	42	58	50	
	Manufacture of Rubber Products	25	31	60	77	60	77	58	65	46	44	
	Manufacture of Plastics	89	92	76	57	79	67	41	53	35	50	
Equipment Manufacturing												
	Manufacture of General-purpose Machinery	182	198	56	68	68	80	31	29	31	44	
	Manufacture of Special-purpose Machinery	114	123	46	48	50	50	46	49	44	49	
	Manufacture of Transport Equipment	78	76	56	57	55	57	48	49	44	46	
	Manufacture of Electric Machinery and Apparatus	128	143	51	52	51	52	48	51	48	49	
	Computers, Communication and Electric Equipment	78	73	61	64	71	78	45	50	44	51	
	Manufacture of Measuring Instruments	34	34	62	71	62	71	57	63	53	51	
Other Heavy Manufacturing												
	Manufacture of Non-metallic Mineral Products	111	122	58	63	56	66	53	52	44	51	
	Smelting and Pressing of Ferrous Metals	39	30	49	63	76	77	9	19	9	23	
	Smelting and Pressing of Non-ferrous Metals	27	24	56	46	56	50	40	46	40	41	
	Manufacture of Metal Products	130	126	49	50	50	56	40	45	40	46	

Notes:

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

Appendix 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	
		Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
Nation		1998	1999	58	62	60	64	48	51	44	49
North China											
Beijing		35	35	63	63	61	61	59	61	51	51
Tianjin		47	45	57	59	60	60	49	51	44	45
Hebei		82	81	59	62	63	65	43	48	38	48
Northeast											
Liaoning		84	81	56	58	57	64	43	42	40	42
Jilin		23	21	61	55	57	62	54	55	48	55
Heilongjiang		22	23	55	59	59	63	41	48	41	48
Northwest											
Inner Mongolia		14	11	57	55	61	55	54	50	46	41
Shaanxi		22	20	52	65	55	58	50	58	41	48
Gansu		7	9	71	61	57	61	64	39	43	44
Ningxia		2	1	50	50	50	50	50		25	
Xinjiang		4	3	63	50	50	50	63	50	63	50
Central North											
Shanxi		19	18	50	58	53	61	45	42	39	42
Shandong		186	180	57	62	58	63	46	53	41	48
Henan		70	70	52	62	59	61	44	54	40	50
Southwest											
Chongqing		34	37	59	65	62	65	49	50	43	47
Sichuan		55	59	54	61	54	62	50	49	45	47
Guizhou		8	8	56	69	50	69	57	71	43	57
Yunnan		16	17	44	68	47	68	40	59	38	47
East China											
Shanghai		91	95	58	60	61	64	49	48	46	50
Jiangsu		311	312	59	63	62	66	46	50	42	49
Zhejiang		293	311	56	64	61	66	45	50	41	49
South China											
Fujian		96	99	59	65	59	67	52	53	50	54
Guangdong		258	261	61	61	62	61	54	56	48	53
Guangxi		37	27	59	67	58	63	46	60	46	58
Hainan		1	1	100	100	100	100	100	100	100	50
Central South											
Anhui		62	59	61	64	59	61	54	52	51	49
Jiangxi		33	32	55	61	59	64	45	50	41	48
Hubei		51	48	56	60	59	63	47	55	42	56
Hunan		35	35	59	61	60	60	54	56	47	49

Notes:

1. Provinces are sorted by Diffusion Index for Unit Cost in a descending order. 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. There are two specific concerns. First, if many firms no longer exist and if those that disappear are concentrated in certain industry, region, or size categories, our final response sample may not be representative of the population. In our first survey, we find that only 91 firms, or 0.9% of the initial sample, went out of business or no longer exist. The second concern is that firm characteristics, such as industry, might have changed significantly. We deal with this concern by explicitly asking firms about their main products and product types.

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

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).

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.

In our Q1 survey, we started from the ~2,000 firms in our last response sample, and obtain responses from ~1,500 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 502 responses from this new sample, resulting in a total of ~2,000 firms in our final response sample.

3.3 Survey Process

The survey is through phone interviews. Figure A3 reports the distribution of the number of phone calls, duration of the calls, and the interviewees' positions in the companies.

3.4. Sample Representativeness

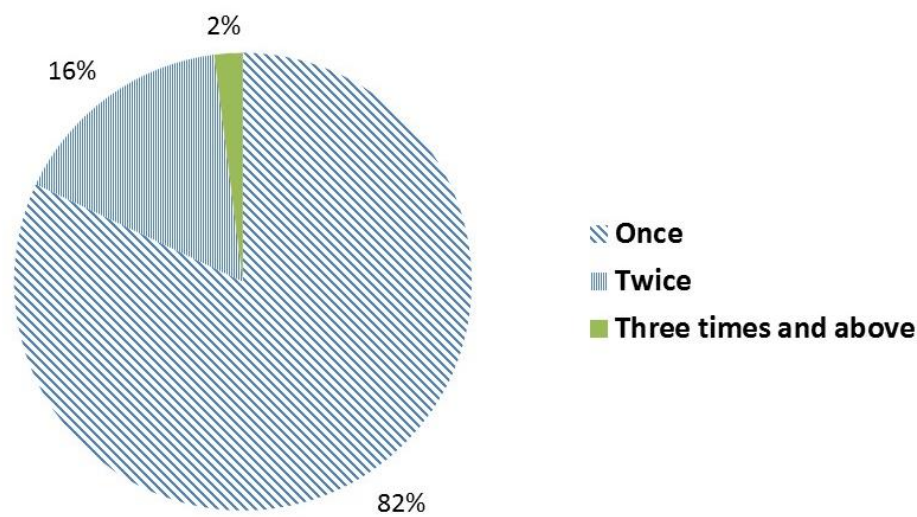
Tables A3.1-A3.3 show that the distribution of the population and the Q1 response sample, as well as the 1,497 firms that were also in the Q4 sample, in terms of industry, region, and sizes. Note that as we are sampling 2.1% of the population, some small strata may not be sampled. Specifically, tobacco and other mining are two industries not sampled and Tibet is not sampled as a region. Overall, our response sample represents the population well.

3.5 Seasonality

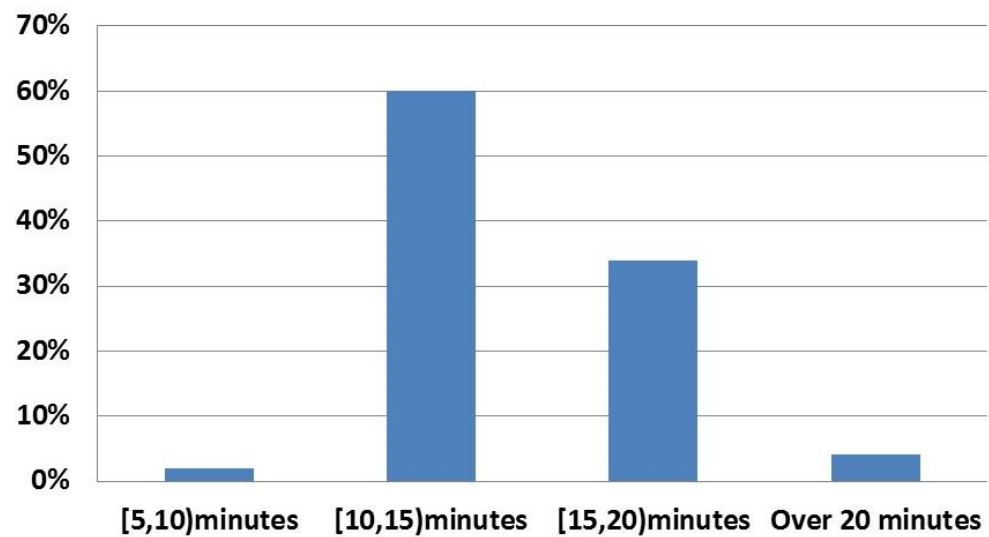
There are no obvious ways to adjust for seasonality, especially given the relatively small number of surveys we have. We deal with this issue by asking directly the firms about seasonality and its impact. As shown in Figure A4, the majority (67%) of firms report no seasonality. For 17% of the firms, seasonality impact is below 5%. Most importantly, the impact of seasonality is equally likely to be positive or negative. Thus, in aggregate, seasonality is not likely to bias our results and we do not adjust for seasonality.

Figure A3. Phone Interviews – number of calls, duration and interviewees

A3.1 Number of Calls



A3.2 Duration of Calls



A3.3 Interviewees' Positions

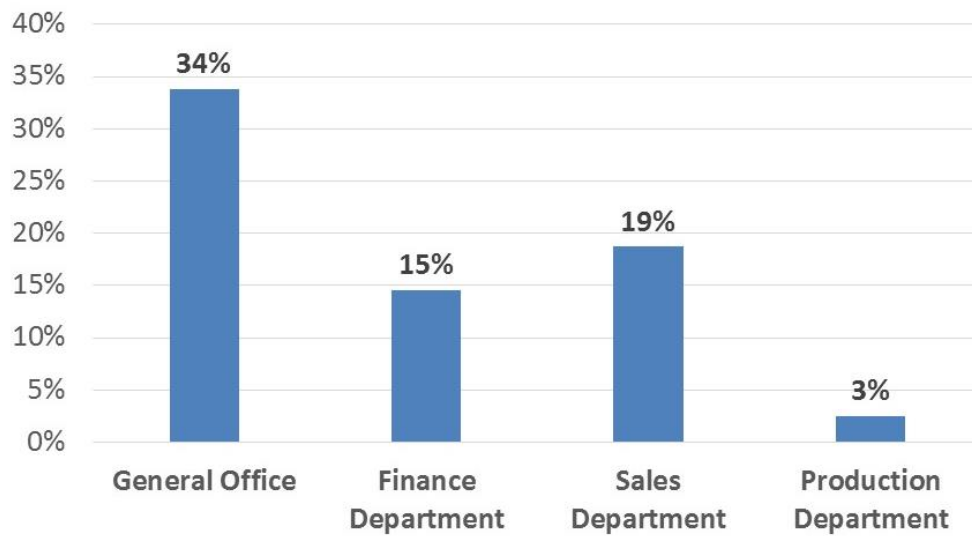


Figure A4. Seasonality

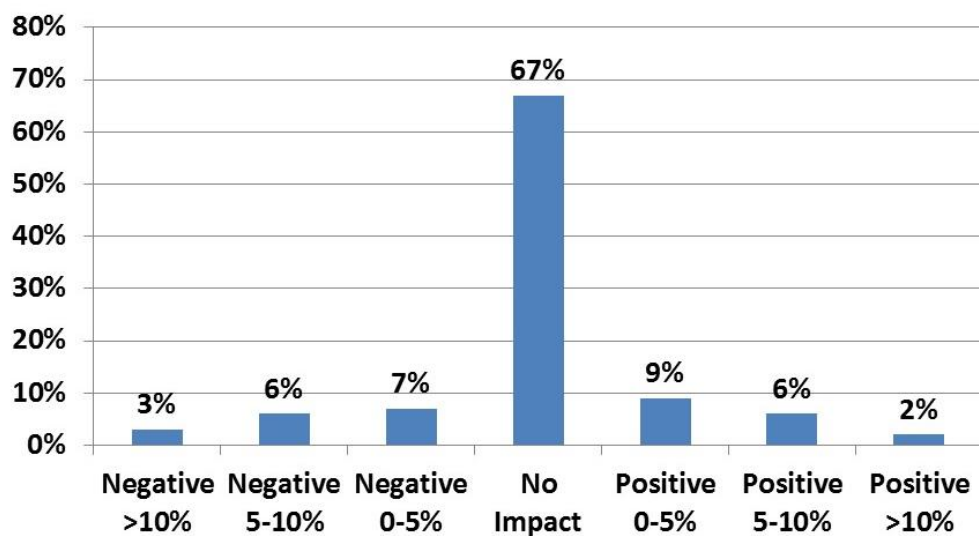


Table A. Comparisons between Survey Sample and the Population

Table A1. Industry Distribution

Industry	Population		1488 Firms From Q1 Survey		Final Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Coal Mining and Washing	12,267	2.5	3	0.2	3	0.2
Extraction of Petroleum and Natural Gas	323	0.1	0	0	0	0
Mining and Processing of Ferrous Metal Ores	5,391	1.1	1	0.1	1	0.1
Mining and Processing of Non-ferrous Metal	2,885	0.6	1	0.1	2	0.1
Mining and Processing of Nonmetal Ores	4,900	1.0	5	0.3	8	0.4
Mining of other Ores	46	0.0	0	0	0	0
Processing of Agricultural and Related Products	25,503	5.2	76	5.1	103	5.2
Manufacture of Foods	8,724	1.8	35	2.4	55	2.75
Manufacture of Beverage	5,824	1.2	35	2.4	42	2.1
Manufacture of Tobacco	163	0.0	0	0	0	0
Manufacture of Textiles	38,945	8.0	98	6.6	134	6.7
Manufacture of Textile Wearing and Apparel	21,272	4.4	58	3.9	87	4.4
Manufacture of Leather, Fur, Feather, Related Products and Footwear	9,932	2.0	33	2.2	41	2.1
Processing of Wood Products	11,471	2.4	30	2.0	41	2.1
Manufacture of Furniture	6,114	1.3	18	1.21	29	1.5
Manufacture of Paper and Paper Products	11,390	2.3	41	2.76	55	2.8
Printing, Reproduction of Recording Media	7,681	1.6	34	2.3	45	2.3
Manufacture of Cultural and Sports Products	5,310	1.1	20	1.3	23	1.2
Processing of Petroleum and Nuclear Fuel	2,669	0.5	8	0.5	10	0.5
Manufacture of Chemical Products	30,571	6.3	91	6.1	124	6.2
Manufacture of Medicines	6,802	1.4	52	3.5	63	3.2
Manufacture of Chemical Fibers	2,374	0.5	6	0.4	6	0.3
Manufacture of Rubber Products	5,277	1.1	23	1.6	25	1.3
Manufacture of Plastics	22,987	4.7	69	4.6	89	4.5
Manufacture of Non-metallic Mineral Products	34,714	7.1	76	5.1	111	5.6
Smelting and Pressing of Ferrous Metals	8,894	1.8	20	1.3	39	2.0
Smelting and Pressing of Non-ferrous Metals	9,176	1.9	17	1.14	27	1.4
Manufacture of Metal Products	29,042	6.0	95	6.4	130	6.5
Manufacture of General-purpose Machinery	42,882	8.8	156	10.5	182	9.1
Manufacture of Special-purpose Machinery	21,838	4.5	99	6.7	114	5.7
Manufacture of Transport Equipment	20,880	4.3	44	3.0	78	3.9
Manufacture of Electric Machinery and Apparatus	28,977	5.9	115	7.7	128	6.4
Computers, Communication and Electric Equipment	16,339	3.3	39	2.6	78	3.9
Manufacture of Measuring Instruments	6,475	1.3	24	1.6	34	1.7
Manufacture of Handicrafts and Others	8,588	1.8	35	2.4	48	2.4
Recycling and Disposal of Waste	1,363	0.3	2	0.1	2	0.1
Power Production and Supply	6,719	1.4	20	1.3	32	1.6
Production and Supply of Gas	1,024	0.2	0	0	0	0
Production and Supply of Water	2,327	0.5	9	0.6	9	0.5
Total	488,059	100.0	1,488	100.0	1,998	100.0

Table A2. Regional Distribution

Province	Population		1488 Firms From Q1 Survey		Final Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Beijing	7,913	1.6	20	1.3	35	1.8
Tianjin	7,902	1.6	33	2.2	47	2.4
Hebei	17,732	3.6	64	4.3	82	4.1
Shanxi	7,129	1.5	14	0.9	19	1.0
Inner Mongolia	5,269	1.1	8	0.5	14	0.7
Liaoning	22,336	4.6	65	4.4	84	4.2
Jilin	5,328	1.1	17	1.1	23	1.2
Heilongjiang	4,921	1.0	15	1.0	22	1.1
Shanghai	20,256	4.2	72	4.8	91	4.6
Jiangsu	80,696	16.5	220	14.8	311	15.6
Zhejiang	69,938	14.3	235	15.8	293	14.7
Anhui	13,600	2.8	50	3.4	62	3.1
Fujian	19,531	4.0	75	5.0	96	4.8
Jiangxi	10,150	2.1	26	1.8	33	1.7
Shandong	43,347	8.9	143	9.6	186	9.3
Henan	19,395	4.0	53	3.6	70	3.5
Hubei	13,056	2.7	31	2.1	51	2.6
Hunan	12,381	2.5	27	1.8	35	1.8
Guangdong	59,052	12.1	193	13.0	258	12.9
Guangxi	5,699	1.2	22	1.5	37	1.9
Hainan	657	0.1	1	0.1	1	0.1
Chongqing	7,596	1.6	24	1.6	34	1.7
Sichuan	14,796	3.0	39	2.6	55	2.8
Guizhou	3,498	0.7	5	0.3	8	0.4
Yunnan	5,291	1.1	13	0.9	16	0.8
Tibet	112	0.0	0	0	0	0
Shaanxi	4,398	0.9	16	1.1	22	1.1
Gansu	2,113	0.4	5	0.3	7	0.4
Qinghai	519	0.1	0	0	0	0
Ningxia	1,288	0.3	0	0	2	0.1
Xinjiang	2,126	0.4	2	0.1	4	0.2
Total	488,025	100.0	1,488	100.0	1,998	100.0

Table A3. A Comparison of Company Characteristics

	Population		1488 Firms From Q1 Survey		Final Response Sample	
	Mean	Median	Mean	Median	Mean	Median
Assets	90,050	12,920	89,500	17,936	120,280	16,862
Sales	104,739	20,073	94,890	23,926	135,969	22,962
Employment	182	70	210	84	202	84
Sales Per Capita	687	310	550	290	538	288