

China's Industrial Economy Report
2015 Q3 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 previous reports, the recovery of China's industrial economy will be a long and slow process. In the third quarter, the industrial economy further declined. The Business Sentiment Index stood at 47, indicating a slight contraction. Industrial production and employment also declined slightly. Fixed investments remained sluggish, with only 2% of firms making expansionary investments.

Excess capacity remains the biggest challenge facing the industrial economy today. Capacity utilization dropped significantly. As many as 56% of the firms surveyed indicated that their supply exceeded demand with a diffusion index of 77, both figures being the highest since 2014 Q2, when we started the survey. Consistent with severe overcapacity, product prices declined in the third quarter with a diffusion index of 42, indicating that the economy is in deflation. Price decline is most prominent in capital goods, with a diffusion index of 36, obviously connected to sluggish investment.

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

Introduction

Since 2014 Q2, we have conducted six 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 size. 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 2,007 firms in our 2015 Q3 survey, of which 1,495 firms were also questioned in our 2015 Q2 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.

I. China's Industrial Economy Continues to be in Contraction Mode

The industrial economy declined further in the third quarter with a Business Sentiment Index (BSI) of 47. 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), 19% of the firms replied "good", 76% replied "neutral", while 5% replied "difficult". The diffusion index was 57. The vast majority of firms expect the operating conditions to be similar in the next quarter, resulting in a diffusion index of 52.

¹ 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"?

² 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 % of firms answering "good" + 0.5 * % of firms answering "neutral". The diffusion index ranges between 0 and 100. A larger value indicates better operating conditions 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.

The weakest indicator was investment sentiment. When asked to what extent it is now a good time to make fixed investments, only 2% considered the timing to be “good”, while 60% responded “neutral” and 38% replied “bad,” yielding a diffusion index of 32, far below the turning point of 50 (Figure 3). Consistent with weak investment sentiment, only 10% of firms made fixed investments in Q3, as compared to 9% in Q2. The vast majority of firms invested less than 3% of their assets – a level that roughly covers depreciation, which leaves only 2% (3% in Q2) of firms in expansion mode. It is clear that the sluggish pace of investment will not improve in the near future. Only 1.4% of firms surveyed expected that they would make investment in the fourth quarter. Among these firms, most (70%) said they would make investments in the maintenance of existing plants and equipment rather than in the expansion of production capacity.

Production and employment declined mildly with diffusion indices for each at 48 (Figure 4). Product prices declined in the third quarter with a diffusion index of 42. Thus, the economy is in deflation. Price decline is most prominent in capital goods, with a diffusion index of 36.

Table 1 shows the performance of different types of firms over the last two quarters. The most significant variation was in different ownership categories, with state-owned enterprises outperforming both collectively-owned enterprises and private-sector firms. There is no significant difference in performance among different firm sizes and 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. Variations across industries were substantial, with the BSI ranging from 36 to 64. The top three industries included Medicines (with a BSI of 64), Printing & Recording Media (57) and Furniture (56). The bottom five were Processing of Nonmetal Ores (36), Smelting & Pressing of Ferrous Metals (38), Agricultural & Related Products (39), Processing of Wood Products (39) and Textiles (40). Among these industries, Smelting & Pressing of Ferrous Metals has been on the list four times since 2014 Q2; Processing of Nonmetal Ores and Textiles have each appeared on the list three times since 2014 Q4; Agricultural & Related Products has been on the list since 2015 Q1.⁴

Table 3 displays regional business conditions. Regional variations were much milder compared with industrial variations, with the BSI ranging from 40 to 57. The bottom five comprised of Guizhou (40), Shanxi (43), Henan (43), Hebei (43) and Jilin (44). Among these provinces, Guizhou has been on the list since 2014 Q3.

⁴ In our industry ranking, we include industries with more than three firms. The Coal Mining industry and Processing of Ferrous Metal Ores have a BSI of 8 and 17, respectively. They have been excluded from the ranking because they contained less than three firms in Q3.

II. Understanding the Economy: Challenges and Priorities

Weak demand is still by far the biggest challenge for the industrial economy. 70% of the firms surveyed cited a lack of orders, a further increase from 55% in the last quarter (Figure 5). Costs come second, with labor and raw material costs listed by 14% and 9% of firms, respectively. Other significant factors include macro and industrial policies (7%) and difficulties in collecting trade receivables (6%). Financing is not a bottleneck, with only 2% replying that financing is a limiting factor. These factors are highly consistent with findings in our previous surveys.

II.1 The Biggest Challenge: Overcapacity Further Worsened

As we pointed out in our previous reports, it will take a long time for the industrial economy to absorb the excess capacity. In the third quarter, the problem of excess capacity worsened, suggesting a further decline in demand. As many as 56% of firms reported that supply exceeded demand for their products in the domestic market (Figure 6A) and the diffusion index reflecting weak demand was 77 in Q3. 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, 46% export to international markets. The diffusion index for international markets was 68, which was ten points below the domestic market, a pattern consistent with previous surveys.

Capacity utilization rate dropped in Q3. 60% of the firms utilized less than 90% of their full capacity and the proportion of firms with a utilization rate below 70% increased from 9% in Q2 to 20% in Q3 (Figure 6B). 32% of the firms reported that their excess capacity was above 10%, while 18% 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 further increased from 19 in 2015 Q2 to 21 in 2015 Q3 (out of 35 industries); the number of regions increased from 23 to 24 in the same period (out of 31 regions).

As of 2015 Q3, the top three industries with severe overcapacity were Electric Machinery, Processing of Nonmetal Ores and Petroleum. Among the worst performing industries, except for Textiles and Processing of Wood Products, all are industries with severe overcapacity.

Consistent with overcapacity and the resulting tight cash position, about 1/3 of the firms, especially private sector firms, reported that they face difficulties in collecting trade receivables from their customers. State-owned enterprises are disproportionately more likely to delay payment. Therefore, the difficulty in collecting trade receivables is mainly due to a sluggish economy. A lack of pricing power is also one factor that contributes to the problem.

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 48% of firms said they did not have significant levels of inventory because they produce only after taking orders. For those with inventories, 80% expected the inventory to be digested within three months, with a further 14% saying it would take between three to six months. This leaves only 3% of the whole sample carrying inventory for more than six months.

II.2 The Second Challenge: Cost Rises Stabilized

The second challenge facing the industrial economy for a long time – cost rises – was not a main concern in the third quarter. Unit costs rose only slightly in the third quarter with a diffusion index of 54. The labor cost index was 56 (60 in Q2), whereas the cost of raw materials declined, with a diffusion index of 44. Cost rises mainly occurred in firms which increased investment or employment. In other words, costs stabilized in Q3 due to a weak economy. When the economy recovers, rising costs should be watched closely.

Chronic overcapacity implies a lack of pricing power and, thus, thin profit margins. Figure 8 reports the gross margin of Chinese firms. 31% of the firms reported extremely low margins (below 10%). 73% of the firms have profit margins below 15%, with just 8% of the firms currently having profit margins above 20%.

II. 3 Financing is Not a Bottleneck

As we pointed out in the past reports, financing is not a constraining factor for industrial growth at the current stage. As in Q3, only 2% of the firms cited financing as the constraining factor. Correspondingly, 38% of the firms reported that funds were sufficient, while only 6% reported insufficient funding. A vast majority of the firms (88%) reported insufficient funds for production, not for expansion. There is another 9% that was due to operating losses.

As shown in Table 6.1 and Figure 9, consistent with sluggish investment, only a small proportion of firms obtained new loans in the past quarter. In contrast with our previous findings that bank loans were skewed towards SOEs, 4% of SOEs had new loans in Q3, whereas this proportion was 7% for private sector firms, reflecting the government’s favorable policies towards private sector firms. Firms found the banks’ lending attitude to be generally accommodating, with only 10% reporting a “difficult” lending attitude, resulting in a diffusion index of 70. Among the firms without new loans, the vast majority (91%) 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.

Table 6.2 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 98% 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 26% reported this as the second most important source of funds. 21% 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, 85% of the firms reported that this largest financing source accounts for more than 50% of their total funds.

New industrial loans in the third quarter were all collateralized. The most common source of collateral was land and plants, used by 90% of the firms. Machine and equipment was another popular source of collateral, used by 21% of the firms.

It was rare for firms to borrow from sources other than banks, In Q3, only 10 firms (0.5%) reported borrowing from other financing institutions. Interest rates are all below 20%.

While our finding that financing is not a bottleneck may contrast with conventional wisdom, it is perfectly 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. The new industrial loans during the first three quarters totaled 329 billion, a further 27% drop from the same period last year. Moreover, the central bank's index of loan demand dropped to 49.9% in 2015 Q3, the lowest on record.

Overall, the fact that financing is not a bottleneck must be set against the backdrop of a declining industrial economy. Investment opportunity is scarce; as long as a firm is profitable, retained earnings are generally sufficient for operation.

IV. Conclusion

In the third quarter, the industrial economy continues to decline. The Business Sentiment Index stood at 47. Production and employment declined slightly. Fixed investments remained sluggish, with only 2% of firms making expansionary investments.

Overcapacity is still the biggest challenge facing the industrial economy. Capacity utilization dropped significantly in Q3. As many as 56% of the firms indicated that their supply exceeded demand with a diffusion index of 77, both figures being the highest since 2014 Q2, when we started the survey. Product prices declined in the third quarter, with a diffusion index of 42. Thus, the economy is in deflation.

Deflation is especially severe for capital goods with a diffusion index of 36. Moreover, close to 1/3 of the firms reported difficulty in collecting account receivables.

Policy recommendations

The current problem in China's industrial economy is due to over investment and a continuing lack of core competitiveness over many years. To solve the problem of overcapacity and to attain a full recovery will be a long-term process.

1. Long-term industrial policy is the key

For the industry to move out of the bottom, overcapacity has to be absorbed fully, which means that a significant proportion of firms would need to be closed or go bankrupt. The remaining companies can then have enough profit margins for R&D and industrial upgrading. Therefore, industrial policy should focus on three aspects: to ensure an orderly bankruptcy process, to help the remaining companies to upgrade their products, and to increase income and, thus, to enhance domestic demand.

Factory closings and bankruptcies mean lay-offs and foreclosures. If these are concentrated in any particular region, they might cause social instability. The local government should proactively help unemployed workers to find new jobs. Regarding debt problems, our data shows that bank loans may not be a significant problem as industrial firms do not borrow much and, even if they do, loans are generally collateralized. Repaying trade credit may be a bigger problem.

With regards to industrial upgrading, it should be noted that China's technology is far behind western countries. This requires careful studies in each industry to see how China might catch up. The government should then encourage technological innovation and product upgrade which can truly create markets and employment.

Income growth requires more highly-paid jobs. This calls for a deepening of economic reform, encouraging the growth of the private sector, and lowering the entry barrier in certain monopolistic industries. Given that the country is losing its labor cost advantage, low-end labor forces must be transformed to skilled workers. The government should encourage and support programs that produce and train skilled workers. The "One Belt, One Road" policy can potentially export the countries' excess capacity and, thus, is a wise long-term policy.

2. Fiscal policy should aim to increase domestic demand

We do not suggest uniform tax cuts, as these cannot solve the core problem of overcapacity. A more effective strategy is to improve social welfare through fiscal spending, which will reduce households' savings for retirement and medical expenses,

and, thus, increase domestic demand.

The tax burden of Chinese firms is quite heavy and value-added tax means that firms would need to pay taxes even if they do not earn profits. This may discourage investment. Therefore, the government should consider selectively reducing value-added tax for industries that are technologically advanced or can increase employment.

3. Loosening monetary policy should only be a short-term policy

This quarter's survey further confirms that financing is not a bottleneck and that loosening monetary policy cannot revive the industry. Judging from the current condition of the industrial economy, the loosening policies in place since last year have not reversed the decline of the industries. Loosening monetary policy can, at most, be a short-term policy to prevent a hard landing. If these policies are kept in place for too long, it would keep excess capacity afloat, thereby harming the long-term growth of the industry.

Of course, it is possible that firms that are outside our survey, such as those in the service industry and "micro" firms, may face a financing bottleneck. But this should be further confirmed through similar systematic and large-sample surveys. Even if financing is a bottleneck for these firms, given that they are not the regular customers of the state-owned banks, loosening policies alone is not sufficient.

Finally, the fact that financing is not a bottleneck doesn't mean that financial reform is not important. If the existing financial system cannot allocate resources in an efficient manner, financing will become a bottleneck as and when the economy recovers. Opening up the banking industry to the private sector, especially small and medium-sized banks, and lowering the entry barrier for foreign banks can potentially introduce competition and innovation, which would not only fill up the gaps in lending, but also force existing banks to transform themselves.

Figure 1. Business Sentiment Index

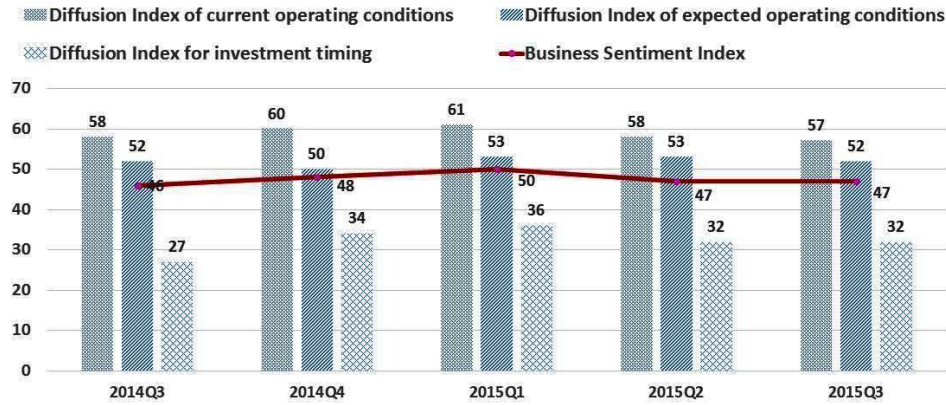


Figure 2. Current Operating Conditions

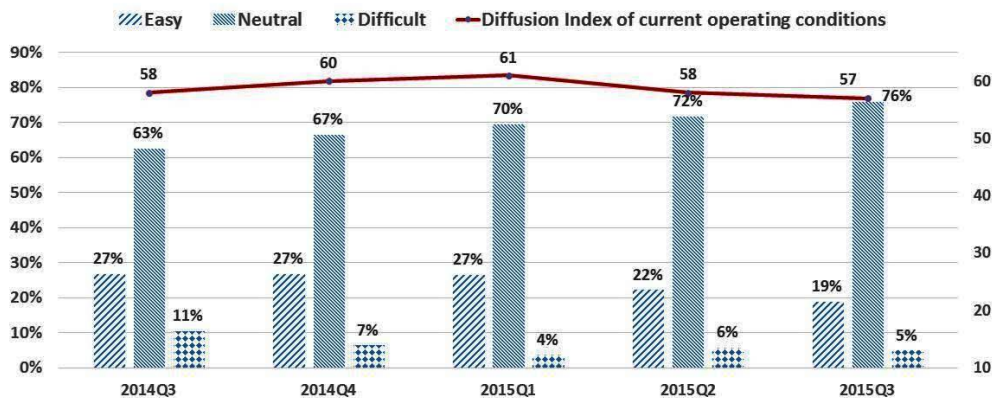


Figure 3. Investment

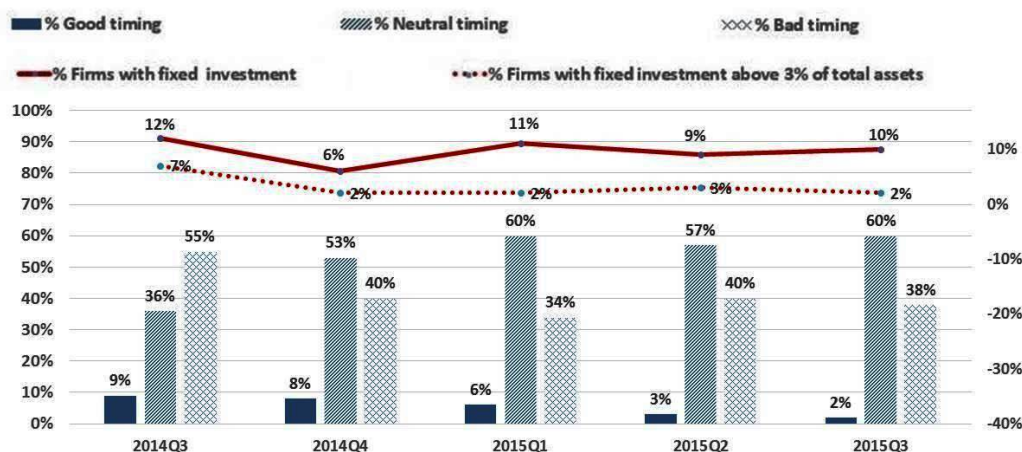


Figure 4. Other Main Economic Indices

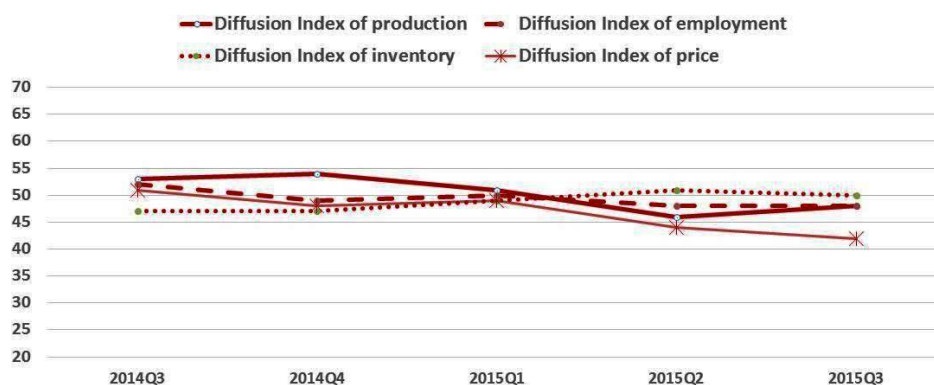


Figure 5. Factors Constraining Production

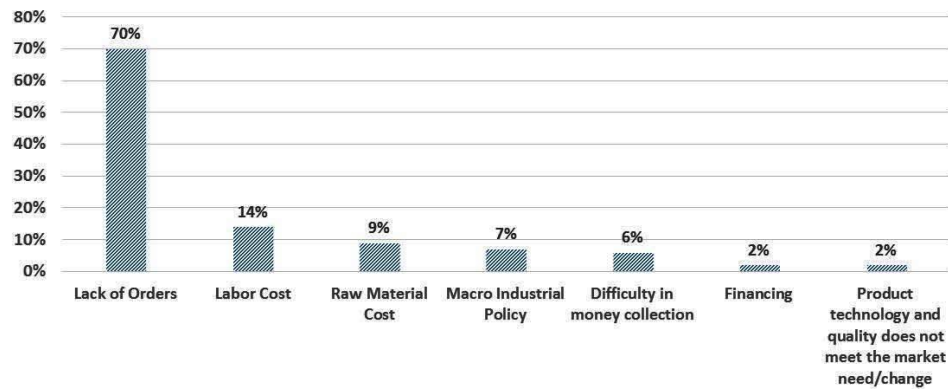


Figure 6A. Excess Capacity in Domestic Market

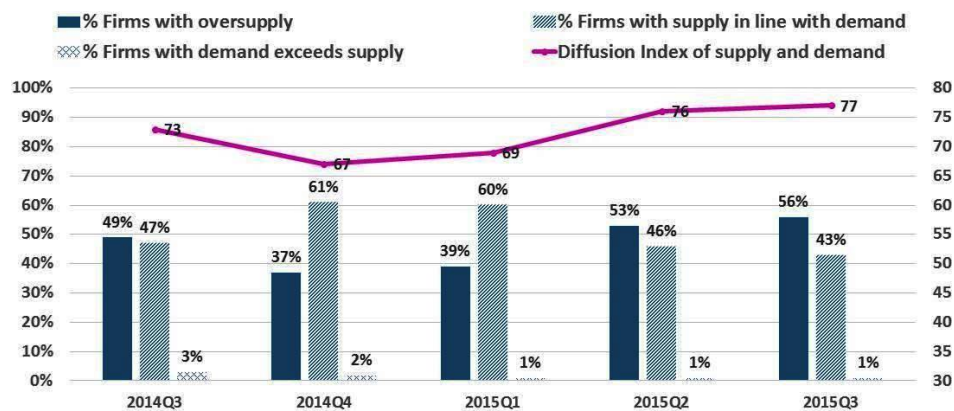


Figure 6B. Capacity Utilization Rate

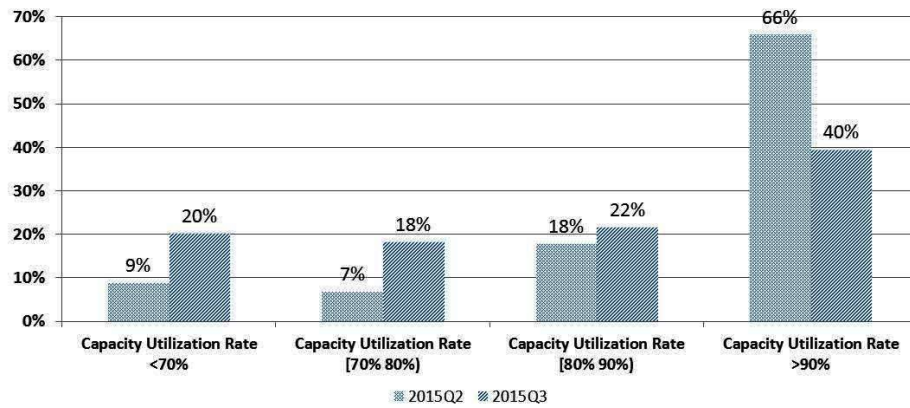


Figure 6C. Firms with Severe Excess Capacity

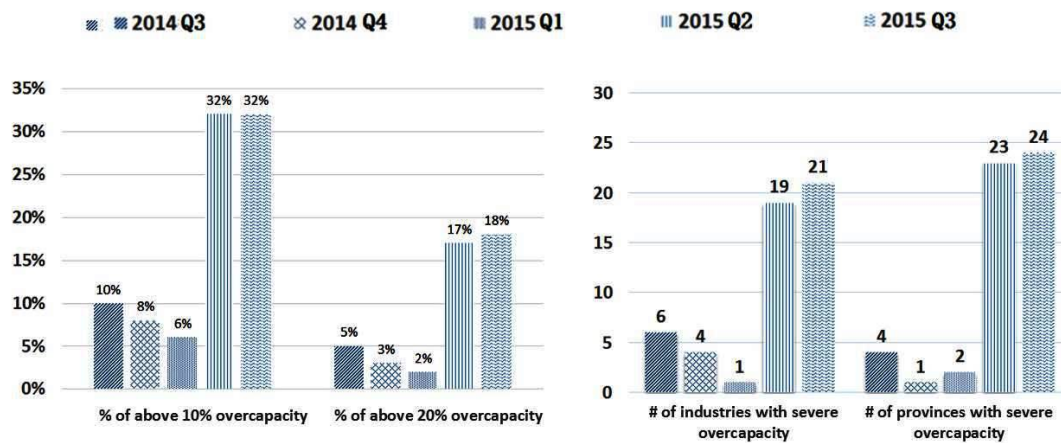


Figure 7A. Unit Cost, Labor Cost and Material Cost

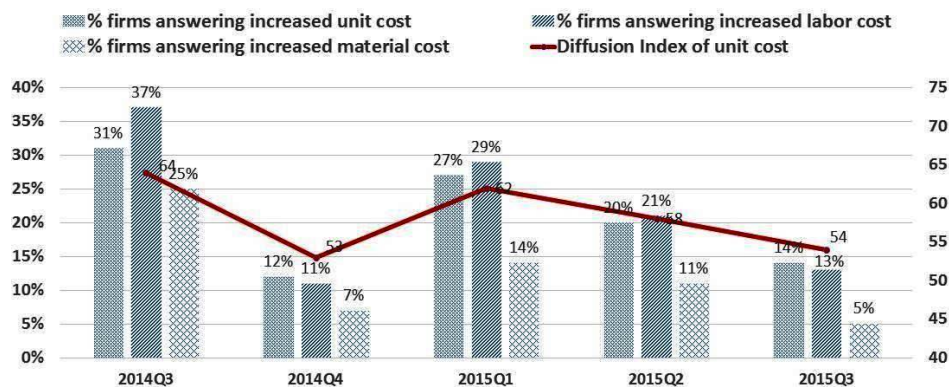


Figure 7B. Unit Cost Raises for Different Firms

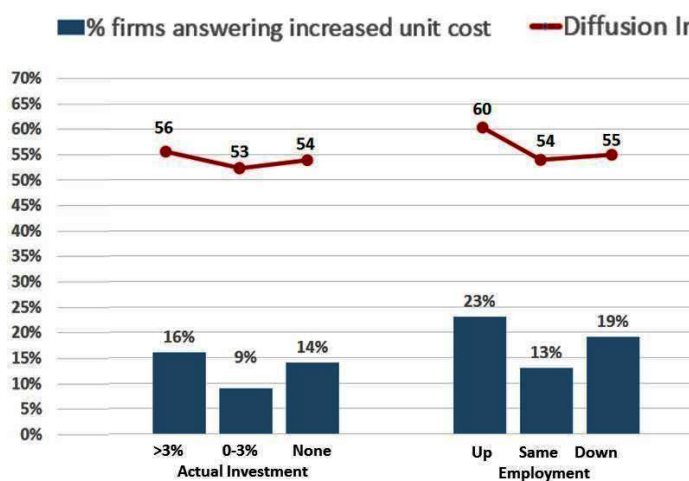


Figure 8. Gross Margins

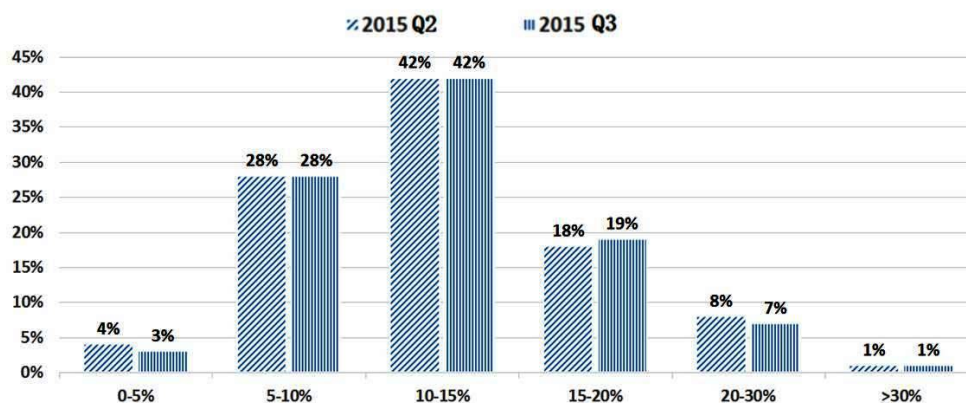


Figure 9. Financing

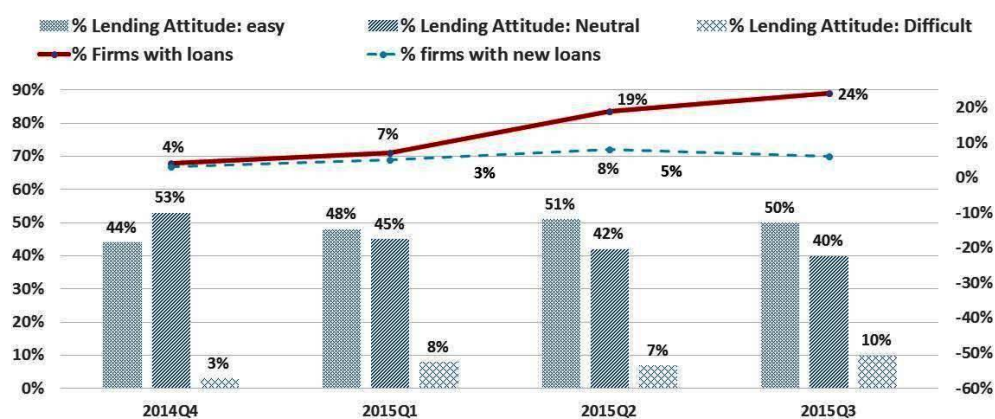


Table 1. Operating Conditions of Industrial Firms**Table 1.1**

		Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Change in Operating Conditions		Diffusion Index - Good Timing for Investment	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation		2007	1998	47	47	57	58	52	53	32	32
<i>By Size</i>											
	Large	723	709	47	48	59	60	51	53	33	32
	Medium	690	696	47	48	56	58	54	53	32	32
	Small	594	593	46	46	55	56	51	52	31	30
<i>By Ownership</i>											
	State-owned	83	77	52	54	69	73	50	52	38	38
	Collectively-owned	31	32	44	42	53	50	47	48	32	28
	Private	1598	1587	46	46	55	56	52	52	31	30
	Foreign-owned	336	334	50	52	62	64	54	55	35	36
<i>By Product Type</i>											
	Consumer Goods - Durable	439	480	47	49	55	58	54	56	32	32
	Consumer Goods - Nondurable	614	566	48	48	60	60	55	53	30	31
	Capital Goods	173	167	45	48	55	59	47	50	31	35
	Intermediate Goods	784	789	46	47	55	57	49	51	33	31

Table 1.2

		% of Firms with Fixed Investment		Diffusion Index - Production		Diffusion Index - Employment		Diffusion Index - Price	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation		10	9	48	46	48	48	42	44
<i>By Size</i>									
	Large	12	11	51	48	48	48	42	43
	Medium	10	9	46	45	48	48	41	43
	Small	8	8	47	45	48	47	42	44
<i>By Ownership</i>									
	State-owned	12	19	53	58	50	49	44	48
	Collectively-owned	13	9	47	48	50	45	47	37
	Private	10	9	48	44	48	47	41	42
	Foreign-owned	9	10	50	54	48	48	44	48
<i>By Product Type</i>									
	Consumer Goods - Durable	8	8	47	49	47	48	41	45
	Consumer Goods - Nondurable	12	10	54	46	50	48	46	47
	Capital Goods	13	10	41	49	47	49	36	42
	Intermediate Goods	9	10	45	44	48	47	40	41

Notes:

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

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

Table 2. Operating Conditions by Industry

Table 2.1 Operating Conditions of All Industries

		Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Change in Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation		2007	1998	47	47	57	58	52	53	10	9	32	32
<i>Mining</i>													
	Coal Mining and Washing	2	3	8	11	0	33	25	0	0	0	0	0
	Mining and Processing of Ferrous Metal Ores	1	1	17	0	0	0	50	0	0	0	0	0
	Mining and Processing of Non-ferrous Metal	3	2	44	42	50	50	50	50	33	0	33	25
	Mining and Processing of Nonmetal Ores	14	8	36	25	36	25	39	38	0	0	32	13
<i>Production and Supply of Electricity, Heat, Gas and Water</i>													
	Power Production and Supply	34	32	52	54	68	72	41	38	18	19	47	52
	Production and Supply of Water	9	9	43	48	83	94	39	50	0	0	6	0
<i>Light Manufacturing</i>													
	Processing of Agricultural and Related Products	114	103	39	37	53	53	61	57	5	4	2	0
	Manufacture of Foods	52	55	53	53	57	54	63	61	4	4	38	44
	Manufacture of Beverage	44	42	50	48	64	65	67	56	9	21	18	21
	Manufacture of Textiles	130	134	40	42	49	52	47	49	1	2	23	25
	Manufacture of Textile Wearing and Apparel	69	87	53	51	58	56	58	59	22	8	43	39
	Manufacture of Leather, Fur, Feather, Related Products and Footwear	41	41	40	39	59	60	60	55	12	10	2	2
	Processing of Wood Products	43	41	39	39	53	54	59	61	12	15	5	2
	Manufacture of Furniture	31	29	56	56	56	57	68	69	0	0	45	41
	Manufacture of Paper and Paper Products	57	55	53	51	61	59	54	53	33	13	45	42
	Printing, Reproduction of Recording Media	53	45	57	58	63	67	60	54	13	7	47	53
	Manufacture of Cultural and Sports Products	22	23	51	59	68	67	48	61	0	0	36	48
	Manufacture of Medicines	71	63	64	61	78	73	56	53	25	24	58	56
	Manufacture of Handicrafts and Others	46	48	51	51	60	59	49	50	4	4	45	45
	Recycling and Disposal of Waste	2	2	42	50	50	50	50	50	0	0	25	50
<i>Chemical Industry</i>													
	Processing of Petroleum and Nuclear Fuel	8	10	42	33	56	55	69	45	0	0	0	0
	Manufacture of Chemical Products	125	124	48	47	51	52	51	50	12	11	42	38
	Manufacture of Chemical Fibers	9	6	48	47	50	50	56	58	11	0	39	33
	Manufacture of Rubber Products	27	25	51	60	65	64	57	58	0	8	31	58
	Manufacture of Plastics	78	89	47	48	56	60	46	47	3	1	38	37
<i>Equipment Manufacturing</i>													
	Manufacture of General-purpose Machinery	182	182	43	50	49	55	49	55	3	6	31	39
	Manufacture of Special-purpose Machinery	113	114	48	48	61	61	47	49	19	14	36	33
	Manufacture of Transport Equipment	74	78	49	49	55	63	49	42	20	21	44	41
	Manufacture of Electric Machinery and Apparatus	135	128	45	43	61	63	51	52	18	21	23	14
	Computers, Communication and Electric Equipment	83	78	54	57	63	66	54	61	10	0	47	46
	Manufacture of Measuring Instruments	33	34	46	59	53	68	48	47	0	21	38	62
<i>Other Heavy Manufacturing</i>													
	Manufacture of Non-metallic Mineral Products	97	111	42	46	54	55	42	58	4	7	30	25
	Smelting and Pressing of Ferrous Metals	26	39	38	33	40	36	58	53	0	0	15	10
	Smelting and Pressing of Non-ferrous Metals	37	27	47	51	49	59	55	50	0	0	38	44
	Manufacture of Metal Products	142	130	43	42	58	57	48	48	11	13	24	22

Table 2.2 Industry Ranking of Operating Conditions

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation										
<i>Top Five</i>										
Manufacture of Medicines	71	63	64	61	78	73	25	24	58	56
Printing, Reproduction of Recording Media	53	45	57	58	63	67	13	7	47	53
Manufacture of Furniture	31	29	56	56	56	57	0	0	45	41
Computers, Communication and Electric Equipment	83	78	54	57	63	66	10	0	47	46
Manufacture of Paper and Paper Products	57	55	53	51	61	59	33	13	45	42
<i>Bottom Five</i>										
Mining and Processing of Nonmetal Ores	14	8	36	25	36	25	0	0	32	13
Smelting and Pressing of Ferrous Metals	26	39	38	33	40	36	0	0	15	10
Processing of Agricultural and Related Products	114	103	39	37	53	53	5	4	2	0
Processing of Wood Products	43	41	39	39	53	54	12	15	5	2
Manufacture of Textiles	130	134	40	42	49	52	1	2	23	25

Notes:

1. Ranking includes industries with more than three firms.

2. BSI for Coal Mining and Washing and Mining and Processing of Ferrous Metal Ores are 8 and 17 respectively.

Due to the the samples are less than 3, they are excluded from the list.

Table 3. Operating Conditions by Region

Table 3.1 Operating Conditions of All Regions

		Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
	Nation	2007	1998	47	47	57	58	52	53	10	9	32	32
<i>North China</i>													
	Beijing	38	35	50	52	59	60	53	56	5	3	39	40
	Tianjin	49	47	46	47	56	56	51	52	6	9	32	32
	Hebei	82	82	43	45	57	56	48	52	6	7	25	27
<i>Northeast</i>													
	Liaoning	81	84	45	46	56	58	49	50	12	6	31	30
	Jilin	24	23	44	47	60	63	44	48	8	17	29	30
	Heilongjiang	22	22	50	50	66	68	59	52	5	5	25	30
<i>Northwest</i>													
	Inner Mongolia	15	14	48	48	53	46	53	61	7	14	37	36
	Shaanxi	23	22	49	48	61	59	52	57	0	18	33	27
	Gansu	5	7	57	50	60	64	60	50	40	29	50	36
	Ningxia	3	2	39	33	50	50	50	50	33	0	17	0
	Xinjiang	3	4	39	46	50	50	50	75	0	0	17	13
<i>Central North</i>													
	Shanxi	22	19	43	42	55	58	52	45	9	11	23	24
	Shandong	183	186	45	45	56	56	48	51	8	3	31	30
	Henan	70	70	43	46	53	54	48	55	13	13	29	28
<i>Southwest</i>													
	Chongqing	35	34	46	46	53	57	54	49	3	9	30	32
	Sichuan	59	55	47	49	57	59	52	55	17	15	33	35
	Guizhou	7	8	40	31	43	44	64	38	14	13	14	13
	Yunnan	15	16	50	42	60	56	63	41	7	13	27	28
<i>East China</i>													
	Shanghai	88	91	49	51	59	62	53	55	9	8	35	36
	Jiangsu	311	311	46	47	56	57	51	53	9	7	32	31
	Zhejiang	299	293	46	46	56	58	54	50	11	12	30	31
<i>South China</i>													
	Fujian	83	96	47	48	57	57	52	56	7	7	33	32
	Guangdong	260	258	50	51	60	62	53	56	9	8	35	35
	Guangxi	36	37	49	49	61	62	53	51	22	16	33	32
	Hainan	2	1	50	33	75	100	75	0	50	100	0	0
<i>Central South</i>													
	Anhui	71	62	45	49	54	61	53	54	17	13	29	31
	Jiangxi	38	33	49	46	58	53	55	55	11	6	34	32
	Hubei	50	51	48	48	54	57	56	53	20	22	33	35
	Hunan	33	35	48	48	55	59	55	47	18	20	36	37

Table 3.2 Regional Ranking of Operating Conditions

	Number of Firms		Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment		Diffusion Index - Good Timing for Investment	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation	2007	1998	47	47	57	58	10	9	32	32
<i>Top Five</i>										
Gansu	5	7	57	50	60	64	40	29	50	36
Beijing	38	35	50	52	59	60	5	3	39	40
Guangdong	260	258	50	51	60	62	9	8	35	35
Heilongjiang	22	22	50	50	66	68	5	5	25	30
Yunnan	15	16	50	42	60	56	7	13	27	28
<i>Bottom Five</i>										
Guizhou	7	8	40	31	43	44	14	13	14	13
Shanxi	22	19	43	42	55	58	9	11	23	24
Henan	70	70	43	46	53	54	13	13	29	28
Hebei	82	82	43	45	57	56	6	7	25	27
Jilin	24	23	44	47	60	63	8	17	29	30

Notes:

1. Ranking includes regions with more than three firms.

Table 4. Oversupply**Table 4.1 Overall**

	Number of Firms		Diffusion Index for Oversupply in Domestic Markets		Diffusion Index for Oversupply in Overseas Markets		Diffusion Index for Finished Goods	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation	2007	1998	77	76	68	66	50	51
<i>By Size</i>								
Large	723	709	76	75	67	66	50	50
Medium	690	696	79	76	68	65	50	51
Small	594	593	78	76	69	67	51	53
<i>By Ownership</i>								
State-owned	83	77	65	62	55	54	53	46
Collectively-owned	31	32	77	77	80	70	50	55
Private	1598	1587	79	78	69	67	51	51
Foreign -owned	336	334	71	69	65	62	48	50
<i>By Product Type</i>								
Consumer Goods - Durable	439	480	78	78	67	67	51	50
Consumer Goods - Nondurable	614	566	72	69	66	63	50	52
Capital Goods	173	167	78	71	68	64	50	53
Intermediate Goods	784	789	81	80	70	67	50	51

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
Manufacture of Electric Machinery and Apparatus	135	43	52
Mining and Processing of Nonmetal Ores	14	43	71
Processing of Petroleum and Nuclear Fuel	8	38	75
Manufacture of Metal Products	142	35	43
Manufacture of Chemical Fibers	9	33	44
Manufacture of Special-purpose Machinery	113	28	36
Manufacture of Chemical Products	125	28	40
Smelting and Pressing of Ferrous Metals	26	27	46
Manufacture of Transport Equipment	74	26	31
Printing, Reproduction of Recording Media	53	23	25
Processing of Agricultural and Related Products	114	17	32
Manufacture of Furniture	31	16	23
Manufacture of General-purpose Machinery	182	16	62
Manufacture of Rubber Products	27	15	37
Manufacture of Non-metallic Mineral Products	97	14	30
Manufacture of Paper and Paper Products	57	14	14
Manufacture of Textile Wearing and Apparel	69	13	25
Manufacture of Medicines	71	13	17
Manufacture of Beverage	44	11	18
Computers, Communication and Electric Equipment	83	11	52
Smelting and Pressing of Non-ferrous Metals	37	11	24

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	22	41	55
Shaanxi	23	35	48
Beijing	38	29	37
Henan	70	29	49
Guangxi	36	28	42
Heilongjiang	22	27	32
Anhui	71	24	38
Sichuan	59	22	36
Hunan	33	21	30
Liaoning	81	21	42
Tianjin	49	20	20
Yunan	15	20	47
Shandong	183	19	34
Jiangxi	38	18	39
Hubei	50	18	22
Chongqing	35	17	31
Hebei	82	17	29
Zhejiang	299	17	32
Shanghai	88	16	34
Jiangsu	311	15	34
Guizhou	7	14	29
Guangdong	260	14	26
Inner Mongolia	15	13	13
Fujian	83	11	19

Notes:

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

Table 5. Cost and Price**Table 5.1 Overall**

		Diffusion Indices									
		Number of Firms		Unit Cost Index		Labor Cost Index		Raw Material Cost Index		Price Index	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation		2007	1998	54	58	56	60	44	48	42	44
<i>By Size</i>											
	Large	723	709	54	57	56	59	43	48	42	43
	Medium	690	696	54	58	56	60	44	47	41	43
	Small	594	593	54	59	57	61	44	49	42	44
<i>By Ownership</i>											
	State-owned	83	77	46	57	53	57	44	51	44	48
	Collectively-owned	31	32	55	55	53	56	52	45	47	37
	Private	1598	1587	54	57	57	60	43	47	41	42
	Foreign -owned	336	334	55	61	56	60	45	54	44	48
<i>By Product Type</i>											
	Consumer Goods - Durable	439	480	55	62	58	63	44	50	41	45
	Consumer Goods - Nondurable	614	566	55	58	55	58	47	53	46	47
	Capital Goods	173	167	54	52	56	57	36	44	36	42
	Intermediate Goods	784	789	53	56	56	60	42	44	40	41

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	2007	54	56	44	42
Manufacture of Textiles	130	75	78	29	24
Manufacture of Textile Wearing and Apparel	69	64	61	50	44
Manufacture of Rubber Products	27	63	63	54	46
Manufacture of Furniture	31	61	58	56	48
Manufacture of Foods	52	60	56	57	52
Manufacture of Measuring Instruments	33	59	61	55	48
Manufacture of Cultural and Sports Products	22	59	61	50	50
Manufacture of Plastics	78	59	71	23	21
Manufacture of Transport Equipment	74	57	53	51	47
Computers, Communication and Electric Equipment	83	57	55	49	47
Manufacture of Chemical Products	125	56	52	49	48
Mining and Processing of Nonmetal Ores	97	55	58	48	44
Manufacture of Paper and Paper Products	57	54	50	54	48

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			
		Unit Cost Index	Labor Cost Index	Raw Material Cost Index	Price Index
Nation	2007	54	56	44	42
Jilin	24	58	56	50	50
Beijing	38	57	54	53	53
Guangdong	260	57	57	47	44
Hubei	50	57	57	45	44
Inner Mongoli	15	57	57	50	43
Fujian	83	56	57	49	45
Tianjin	49	56	55	46	45
Zhejiang	299	56	58	41	37
Shanxi	22	55	55	41	41
Jiangsu	311	55	58	39	38
Shanghai	88	55	57	47	44
Guangxi	36	54	57	50	49
Hebei	82	54	57	41	37

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	
	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation	2007	1998	24	19	6	8	70	72	45	49
Firms with Investment	203	187	33	33	14	19	69	80	47	53
Firms without Investment	1804	1811	22	18	5	7	71	70	44	47
<i>By Size</i>										
Large	723	709	26	22	7	9	69	74	43	49
Medium	690	696	24	19	6	8	76	72	48	47
Small	594	593	19	16	5	7	65	70	43	51
<i>By Ownership</i>										
State-owned	83	77	24	19	4	9	90	75	45	50
Collectively-owned	31	32	23	16	6	6	50	100	25	50
Private	1598	1587	25	20	7	8	70	73	45	48
Foreign -owned	336	334	15	13	5	7	72	65	47	50
<i>By Product Type</i>										
Consumer Goods - Durable	439	480	23	18	6	8	71	78	48	49
Consumer Goods - Nondurable	614	566	22	20	5	11	70	71	41	51
Capital Goods	173	167	27	19	7	7	71	79	25	46
Intermediate Goods	784	789	25	19	7	7	69	68	50	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.

Table 6.2 Sources of Financing

<i>The most important source of financing</i>		
Sources	Number of Firms	% of Firms
Internal Funds	1964	98
Founder	54	3
Bank	4	0
Stock market	3	0
Others	8	0
<i>The second most important source of financing</i>		
Sources	Number of Firms	% of Firms
Internal Funds	18	1
Founder	526	26
Bank	423	21
Relatives and friends	6	0
Stock market	2	0
Others	9	0

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	
	Q3	Q2	Q3	Q2	Q3	Q2
Manufacture of Electric Machinery and Apparatus	135	128	43	43	52	49
Mining and Processing of Nonmetal Ores	14	8	43	38	71	75
Processing of Petroleum and Nuclear Fuel	8	10	38	60	75	90
Manufacture of Metal Products	142	130	35	31	43	40
Manufacture of Chemical Fibers	9	6	33	17	44	33
Manufacture of Special-purpose Machinery	113	114	28	17	36	18
Manufacture of Chemical Products	125	124	28	26	40	39
Smelting and Pressing of Ferrous Metals	26	39	27	13	46	46
Manufacture of Transport Equipment	74	78	26	24	31	27
Printing, Reproduction of Recording Media	53	45	23	11	25	11
Processing of Agricultural and Related Products	114	103	17	22	32	30
Manufacture of Furniture	31	29	16	7	23	7
Manufacture of General-purpose Machinery	182	182	16	17	62	74
Manufacture of Rubber Products	27	25	15	16	37	24
Manufacture of Non-metallic Mineral Products	97	111	14	14	30	25
Manufacture of Paper and Paper Products	57	55	14	7	14	9
Manufacture of Textile Wearing and Apparel	69	87	13	11	25	24
Manufacture of Medicines	71	63	13	13	17	24
Manufacture of Beverage	44	42	11	5	18	12
Computers, Communication and Electric Equipment	83	78	11	12	52	74
Smelting and Pressing of Non-ferrous Metals	37	27	11	11	24	15
Manufacture of Measuring Instruments	33	34	9	9	12	12
Power Production and Supply	34	32	9	13	12	13
Manufacture of Handicrafts and Others	46	48	9	8	28	19
Manufacture of Foods	52	55	8	9	13	20
Manufacture of Plastics	78	89	4	8	6	13
Processing of Wood Products	43	41	2	0	30	24
Manufacture of Textiles	130	134	2	7	7	10
Manufacture of Cultural and Sports Products	22	23	0	4	23	22
Manufacture of Leather, Fur, Feather, Related Products and Footwear	41	41	0	2	7	12
Production and Supply of Water	9	9	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	
	Q3	Q2	Q3	Q2	Q3	Q2
Shanxi	22	19	41	32	55	42
Shaanxi	23	22	35	23	48	32
Henan	70	70	29	24	49	39
Beijing	38	35	29	17	37	26
Guangxi	36	37	28	19	42	30
Heilongjiang	22	22	27	18	32	32
Anhui	71	62	24	16	38	26
Sichuan	59	55	22	22	36	33
Liaoning	81	84	21	24	42	45
Hunan	33	35	21	20	30	37
Yunan	15	16	20	31	47	50
Tainjin	49	47	20	17	20	23
Shandong	183	186	19	22	34	35
Jiangxi	38	33	18	21	39	42
Hubei	50	51	18	18	22	33
Hebei	82	82	17	21	29	33
Zhejiang	299	293	17	15	32	33
Chongqing	35	34	17	15	31	32
Shanghai	88	91	16	13	34	30
Jiangsu	311	311	15	17	34	33
Guizhou	7	8	14	13	29	50
Guangdong	260	258	14	11	26	25
Inner Mongolia	15	14	13	14	13	21
Fujian	83	96	11	8	19	21
Jilin	24	23	8	4	17	17
Gansu	5	7	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	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
Nation		2007	1998	54	58	56	60	44	48	42	44
<i>Mining</i>											
	Coal Mining and Washing	2	3	50	33	50	50	50	33	0	0
	Mining and Processing of Ferrous Metal Ores	1	1	50	0	50	0	50	50	50	50
	Mining and Processing of Non-ferrous Metal	3	2	33	25	33	25	33	25	67	50
	Mining and Processing of Nonmetal Ores	14	8	50	63	54	56	50	63	43	38
<i>Production and Supply of Electricity, Heat, Gas and Water</i>											
	Power Production and Supply	34	32	50	61	50	61	50	60	49	41
	Production and Supply of Water	9	9	50	56	50	56	50	56	50	50
<i>Light Manufacturing</i>											
	Processing of Agricultural and Related Products	114	103	50	51	51	50	50	51	49	48
	Manufacture of Foods	52	55	60	62	56	58	57	62	52	56
	Manufacture of Beverage	44	42	50	55	50	52	50	54	50	54
	Manufacture of Textiles	130	134	75	74	78	78	29	49	24	38
	Manufacture of Textile Wearing and Apparel	69	87	64	74	61	72	50	65	44	51
	Manufacture of Leather, Fur, Feather, Related Products and Footwear	41	41	49	54	50	54	49	50	44	45
	Processing of Wood Products	43	41	51	61	52	56	49	55	47	44
	Manufacture of Furniture	31	29	61	59	58	52	56	57	48	55
	Manufacture of Paper and Paper Products	57	55	54	49	50	48	54	50	48	48
	Printing, Reproduction of Recording Media	53	45	51	53	50	50	50	52	48	49
	Manufacture of Cultural and Sports Products	22	23	59	61	61	59	50	54	50	50
	Manufacture of Medicines	71	63	51	65	50	66	50	63	51	53
	Manufacture of Handicrafts and Others	46	48	50	58	51	58	50	50	49	50
	Recycling and Disposal of Waste	2	2	50	50	50	50	50		50	
<i>Chemical Industry</i>											
	Processing of Petroleum and Nuclear Fuel	8	10	0	10	50	50	0	10	25	5
	Manufacture of Chemical Products	125	124	56	57	52	55	49	53	48	50
	Manufacture of Chemical Fibers	9	6	50	58	56	58	44	58	39	58
	Manufacture of Rubber Products	27	25	63	60	63	60	54	58	46	46
	Manufacture of Plastics	78	89	59	76	71	79	23	41	21	35
<i>Equipment Manufacturing</i>											
	Manufacture of General-purpose Machinery	182	182	48	56	62	68	18	31	16	31
	Manufacture of Special-purpose Machinery	113	114	46	46	52	50	45	46	45	44
	Manufacture of Transport Equipment	74	78	57	56	53	55	51	48	47	44
	Manufacture of Electric Machinery and Apparatus	135	128	50	51	50	51	49	48	49	48
	Computers, Communication and Electric Equipment	83	78	57	61	55	71	49	45	47	44
	Manufacture of Measuring Instruments	33	34	59	62	61	62	55	57	48	53
<i>Other Heavy Manufacturing</i>											
	Manufacture of Non-metallic Mineral Products	97	111	55	58	58	56	48	53	44	44
	Smelting and Pressing of Ferrous Metals	26	39	44	49	52	76	30	9	29	9
	Smelting and Pressing of Non-ferrous Metals	37	27	50	56	66	56	33	40	32	40
	Manufacture of Metal Products	142	130	50	49	50	50	47	40	48	40

Notes:

1. 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	
		Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2	Q3	Q2
	Nation	2007	1998	54	58	56	60	44	48	42	44
<i>North China</i>											
	Beijing	38	35	57	63	54	61	53	59	53	51
	Tianjin	49	47	56	57	55	60	46	49	45	44
	Hebei	82	82	54	59	57	63	41	43	37	38
<i>Northeast</i>											
	Liaoning	81	84	48	56	53	57	41	43	39	40
	Jilin	24	23	58	61	56	57	50	54	50	48
	Heilongjiang	22	22	48	55	52	59	43	41	41	41
<i>Northwest</i>											
	Inner Mongolia	15	14	57	57	57	61	50	54	43	46
	Shaanxi	23	22	50	52	57	55	46	50	48	41
	Gansu	5	7	40	71	50	57	40	64	30	43
	Ningxia	3	2	50	50	50	50	50	50	50	25
	Xinjiang	3	4	50	63	50	50	50	63	33	63
<i>Central North</i>											
	Shanxi	22	19	55	50	55	53	41	45	41	39
	Shandong	183	186	52	57	55	58	42	46	42	41
	Henan	70	70	49	52	53	59	39	44	39	40
<i>Southwest</i>											
	Chongqing	35	34	53	59	56	62	44	49	43	43
	Sichuan	59	55	50	54	52	54	45	50	45	45
	Guizhou	7	8	43	56	50	50	42	57	42	43
	Yunnan	15	16	50	44	47	47	50	40	50	38
<i>East China</i>											
	Shanghai	88	91	55	58	57	61	47	49	44	46
	Jiangsu	311	311	55	59	58	62	39	46	38	42
	Zhejiang	299	293	56	56	58	61	41	45	37	41
<i>South China</i>											
	Fujian	83	96	56	59	57	59	49	52	45	50
	Guangdong	260	258	57	61	57	62	47	54	44	48
	Guangxi	36	37	54	59	57	58	50	46	49	46
	Hainan	2	1	50	100	50	100	50	100	50	100
<i>Central South</i>											
	Anhui	71	62	51	61	54	59	47	54	46	51
	Jiangxi	38	33	51	55	57	59	40	45	36	41
	Hubei	50	51	57	56	57	59	45	47	44	42
	Hunan	33	35	52	59	52	60	45	54	39	47

Notes:

1. 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 2015Q3 survey, we find that only 11 firms, or 0.55% of the initial sample, went out of business or no longer exist (2015Q2:1.151%, 2015Q2: 0.349%). 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 ¾ 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

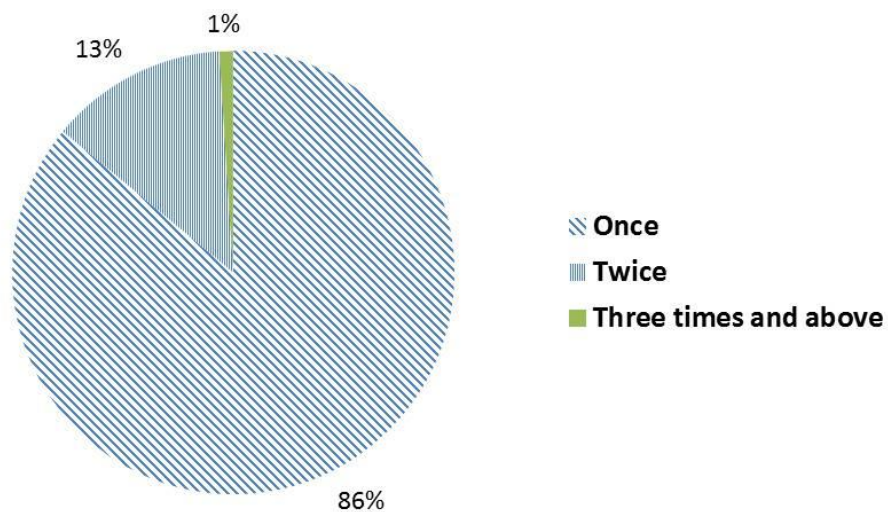
Tables A3.1-A3.3 show that the distribution of the population and the Q1 response sample, as well as the 1,497 firms that were also in the Q4 sample, in terms of industry, region, and sizes. Note that as we are sampling 2% of the population, some small strata may not be sampled. Specifically, tobacco 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

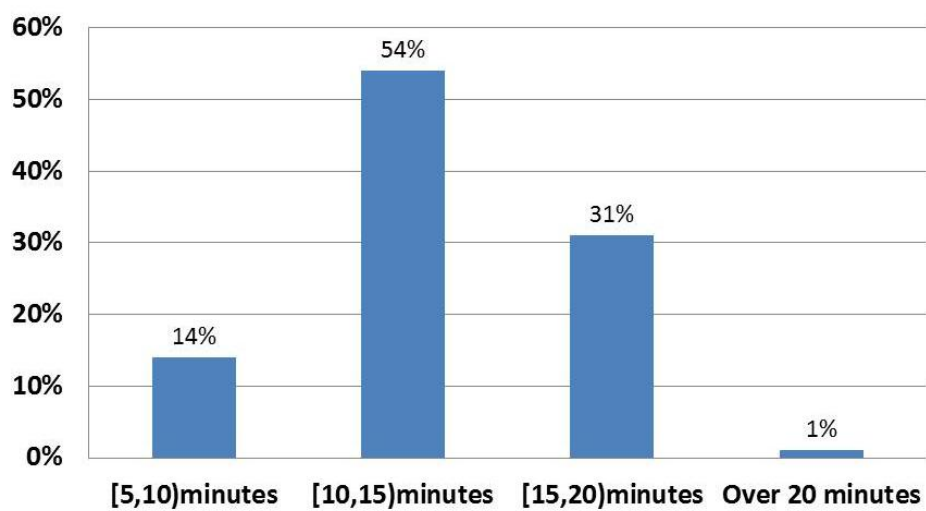
There are no obvious ways to adjust for seasonality, especially given the relatively small number of surveys we have. We deal with this issue by asking directly the firms about seasonality and its impact. As shown in Figure A4, the majority (75%) of firms report no seasonality. For 14% of the firms, 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

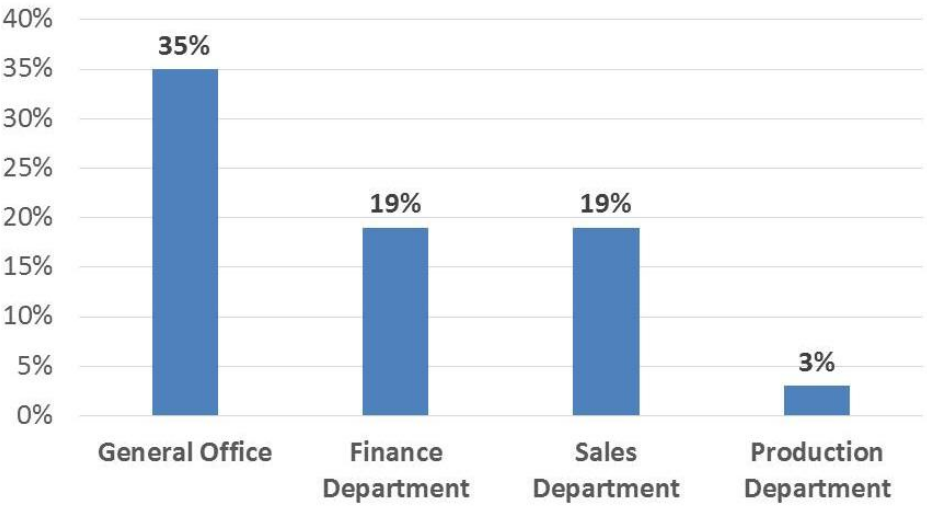


Figure A4. Seasonality

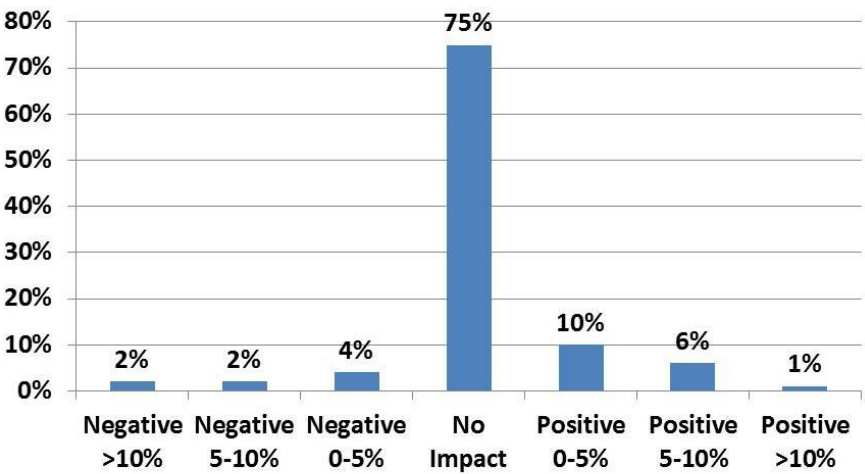


Table A. Comparisons between Survey Sample and the Population

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	0	0	2	0.10
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	0.07	1	0.05
Mining and Processing of Non-ferrous Metal	2,885	0.6	2	0.14	3	0.15
Mining and Processing of Nonmetal Ores	4,900	1.0	7	0.48	14	0.70
Mining of other Ores	46	0.0	0	0	0	0
Processing of Agricultural and Related Products	25,503	5.2	75	5.13	114	5.68
Manufacture of Foods	8,724	1.8	43	2.94	52	2.59
Manufacture of Beverage	5,824	1.2	33	2.26	44	2.19
Manufacture of Tobacco	163	0.0	0	0	0	0
Manufacture of Textiles	38,945	8.0	99	6.77	130	6.48
Manufacture of Textile Wearing and Apparel	21,272	4.4	55	3.76	69	3.44
Manufacture of Leather, Fur, Feather, Related Products and Footwear	9,932	2.0	29	1.98	41	2.04
Processing of Wood Products	11,471	2.4	33	2.26	43	2.14
Manufacture of Furniture	6,114	1.3	24	1.64	31	1.54
Manufacture of Paper and Paper Products	11,390	2.3	46	3.14	57	2.84
Printing, Reproduction of Recording Media	7,681	1.6	31	2.12	53	2.64
Manufacture of Cultural and Sports Products	5,310	1.1	19	1.30	22	1.10
Processing of Petroleum and Nuclear Fuel	2,669	0.5	5	0.34	8	0.40
Manufacture of Chemical Products	30,571	6.3	94	6.43	125	6.23
Manufacture of Medicines	6,802	1.4	61	4.17	71	3.54
Manufacture of Chemical Fibers	2,374	0.5	5	0.34	9	0.45
Manufacture of Rubber Products	5,277	1.1	16	1.09	27	1.35
Manufacture of Plastics	22,987	4.7	73	4.99	78	3.89
Manufacture of Non-metallic Mineral Products	34,714	7.1	74	5.06	97	4.83
Smelting and Pressing of Ferrous Metals	8,894	1.8	25	1.71	26	1.30
Smelting and Pressing of Non-ferrous Metals	9,176	1.9	22	1.50	37	1.84
Manufacture of Metal Products	29,042	6.0	116	7.93	142	7.08
Manufacture of General-purpose Machinery	42,882	8.8	92	6.29	182	9.07
Manufacture of Special-purpose Machinery	21,838	4.5	91	6.22	113	5.63
Manufacture of Transport Equipment	20,880	4.3	58	3.96	74	3.69
Manufacture of Electric Machinery and Apparatus	28,977	5.9	93	6.36	135	6.73
Computers, Communication and Electric Equipment	16,339	3.3	53	3.62	83	4.14
Manufacture of Measuring Instruments	6,475	1.3	20	1.37	33	1.64
Manufacture of Handicrafts and Others	8,588	1.8	38	2.60	46	2.29
Recycling and Disposal of Waste	1,363	0.3	1	0.07	2	0.10
Power Production and Supply	6,719	1.4	23	1.57	34	1.69
Production and Supply of Gas	1,024	0.2	0	0	0	0
Production and Supply of Water	2,327	0.5	6	0.41	9	0.45
Total	488,059	100.0	1463	100	2007	100

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	30	2.05	38	1.89
Tianjin	7,902	1.6	35	2.39	49	2.44
Hebei	17,732	3.6	63	4.31	82	4.09
Shanxi	7,129	1.5	11	0.75	22	1.10
Inner Mongolia	5,269	1.1	11	0.75	15	0.75
Liaoning	22,336	4.6	56	3.83	81	4.04
Jilin	5,328	1.1	21	1.44	24	1.20
Heilongjiang	4,921	1.0	15	1.03	22	1.10
Shanghai	20,256	4.2	68	4.65	88	4.38
Jiangsu	80,696	16.5	207	14.15	311	15.50
Zhejiang	69,938	14.3	222	15.17	299	14.90
Anhui	13,600	2.8	47	3.21	71	3.54
Fujian	19,531	4.0	68	4.65	83	4.14
Jiangxi	10,150	2.1	26	1.78	38	1.89
Shandong	43,347	8.9	139	9.50	183	9.12
Henan	19,395	4.0	49	3.35	70	3.49
Hubei	13,056	2.7	34	2.32	50	2.49
Hunan	12,381	2.5	22	1.50	33	1.64
Guangdong	59,052	12.1	199	13.60	260	12.95
Guangxi	5,699	1.2	30	2.05	36	1.79
Hainan	657	0.1	1	0.07	2	0.10
Chongqing	7,596	1.6	24	1.64	35	1.74
Sichuan	14,796	3.0	43	2.94	59	2.94
Guizhou	3,498	0.7	5	0.34	7	0.35
Yunnan	5,291	1.1	10	0.68	15	0.75
Tibet	112	0.0	0	0	0	0
Shaanxi	4,398	0.9	17	1.16	23	1.15
Gansu	2,113	0.4	5	0.34	5	0.25
Qinghai	519	0.1	0	0	0	0
Ningxia	1,288	0.3	2	0.14	3	0.15
Xinjiang	2,126	0.4	3	0.21	3	0.15
Total	488,025	100.0	1463	100	2007	100

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	83453	17511	96819	17460
Sales	104,739	20,073	93482	24625	100558	23096
Employment	182	70	193	86	190	85
Sales Per Capita	687	310	554	297	541	291