

China's Industrial Economy: 2014 Q4 and Beyond
Report from a Large-Sample Firm 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 Zhou Yi, who provided support to the data analysis and presentation.

Executive Summary

2014 was a rather difficult year for China's industrial economy. Due to chronic overcapacity, the economy is currently in a contraction mode. Investment was sluggish and declined persistently throughout 2014. Only 16% of firms surveyed made investment in Q2, with that number dropping to 6% in Q4, while only around half of the firms that invested did more than merely cover depreciation.

There is, however, not likely to be a hard landing, for three reasons. First, the operating conditions of firms are improving, with the diffusion index increasing from 55 in Q2 to 60 in Q4. Second, overcapacity – the biggest challenge facing the economy – stabilized towards the year-end: the percent of firms reporting oversupply in Q4 dropped to 36%, from 49% in Q3, while the number of industries and regions with severe overcapacity also dropped substantially. Third, costs, and especially labor costs – the second largest challenge in Q2 and Q3 – flattened in Q4. Additionally, financing is not a bottleneck for growth.

The vast majority of firms (82%) remain “optimistic” or “cautiously optimistic” about the business outlook over the next three to five years, and the institutional environment appears to be quite conducive to business: close to 80% of firms give the current legal environment a rating above 7 (out of 10), with the average rating at 7.7. Meanwhile, 28% of firms say they receive support from the government, spanning areas from tax breaks to building business connections.

While a hard landing is unlikely, a quick rebound is unrealistic, since the challenges facing the Chinese economy are structural and fundamental. The government should formulate long term policies to increase domestic demand and to promote industry upgrades and technological innovation. Finally, easing monetary policy would not boost the industrial economy, but would only sustain the excess capacity and thus hurt the industrial sector in the long run.

Introduction

To truly understand the opportunities and challenges facing the Chinese economy, it is essential to have timely and reliable data. We believe that the best way to obtain such data is through large-sample, micro-level company surveys.

We have now conducted three quarterly large-sample surveys of about 2,000 industrial firms in China, for the period of 2014 Q2 to Q4. 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.

In our fourth-quarter survey, we also asked a set of questions regarding the business outlook for the next three to five years, innovations and the institutional environment. The purpose of this report is to review the performance of the Chinese economy in 2014 and to discuss its outlook for 2015 and beyond.

There were a total of 2,006 firms in our Q4 survey, of which 1,571 firms were also questioned in our Q3 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 Q3 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 2014: Slight Contraction

2014 was a rather difficult year. The Business Sentiment Index (BSI) stood at 46 and 48 in the last two quarters respectively, indicating a slight contraction.

Our BSI is the simple average of three diffusion indices, including current operating conditions, expected operating conditions and investment timing. The index construction resembles that of the US Consumer Sentiment Index, hence its name. It not only contains information on current operating conditions, which is ex post and relative (to last quarter), but also includes forward-looking investment sentiment that indicates the absolute level of economic activities.²

² 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.

As shown in Figure 1 and 2, operating conditions of firms steadily improved in 2014, with the diffusion indices registering 55, 58 and 60 in the last three quarters.³ However, fixed investment, a measure closely related to perceived market condition and future production capacity, was strikingly low. When asked to what extent it is now a good time to make fixed investments, only 8% considered the timing to be “good” and 40% responded “bad,” resulting in a diffusion index of 34, far below the turning point of 50. The numbers were even worse in the previous quarter, when 55% firms responded with “bad” and the diffusion index stood at an alarming 27. Consistent with low investment sentiment, fixed investments declined persistently in 2014, with 16%, 12% and 6% of firms making investments in the last three quarters respectively. Among these firms, less than half invested more than 3% of their assets – a level that roughly covers depreciation – leaving only 7% and 2% of firms truly in expansion mode in Q3 and Q4.

Consistent with sluggish investment, inventory levels were largely stable with a slight decline and the diffusion indices stood at levels between 47 and 48 over the last three quarters. Production and employment also stayed quite flat, with diffusion indices within a range between 49 and 54 in 2014.

Table 1 shows the performance of different types of firms in the last two quarters. As in the whole of 2014, the most significant variation was in ownerships, with state-owned enterprises outperforming both collectively-owned enterprises and private-sector firms.

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 21 to 68. The top five industries included Medicines (with a BSI of 68), Cultural & Sports Products (64), Water Production & Supply (64), Power Production & Supply (64) and Printing & Reproduction of Recording Media (60). The bottom five were Coal Mining (21), Petroleum (35), Wood Products (35), Ferrous Metals (35) and Recycling & Disposal of Waste (38). Except for Recycling & Disposal of Waste, all are upstream industries. Among these firms, Coal Mining has been on the worst-performing list since Q2, while Ferrous Metals entered the list in Q3. Table 2.2.1 further illustrates that the best performing industries were concentrated on the production of nondurable consumption goods. Among the bottom five industries, firms were mostly in the production of intermediate goods.

Table 3 displays regional business conditions. Regional variations were not as large as across industries, with the BSI ranging from 42 to 55. The best and worst

³ Questions underlying the diffusion indices are multiple choices with three possible answers, “increase”, “the same”, and “decline,” or their analogies. The diffusion index is computed as: % of firms answering “increase” + 0.5 * % of firms answering “same.” The diffusion index ranges between 0 and 100. A larger value indicates a better condition and 50 is the turning point between expansion and contraction.

provinces were geographically dispersed (Table 3.2). The top five all had a BSI above 50 – Jilin (55), Hunan (53), Heilongjiang (53), Beijing (52) and Chongqing (52). The bottom five comprised of Gansu (42), Guizhou (43), Henan (46), Anhui (46) and Liaoning (46).⁴ Among these provinces, Guizhou and Liaoning have been on the list since 2014 Q3.

Table 3.2.1 illustrates that, within these provinces, there is significant variation across industries. The most troublesome are the mining industries in Anhui (17), light manufacturing in Guizhou (25) and Gansu (33) and other heavy industry in Liaoning (36). Among these, light manufacturing in Guizhou appeared on the list twice in 2014.

II. Understanding the Economy: Challenges and Priorities

We asked firms about the factors constraining production both in the next quarter and in the next year (Figure 4). Weak demand is still by far the biggest challenge for 2015, with 58% of the firms citing a lack of orders as their most constraining factor. Costs come second, with labor and raw material costs listed by 16% and 13% of firms, respectively. Financing is not a bottleneck, with only 2% replying that financing is a limiting factor. The replies regarding next quarter (2015 Q1) are very similar.

II.1 The Biggest Challenge: Weak Demand

Throughout 2014, the problem of oversupply was widespread and posed the largest challenge for the economy. In the last three quarters respectively, 45%, 49% and 36% of firms reported that supply exceeded demand for their products either domestically or internationally, with firms faring worse in domestic markets than in international ones. The diffusion indices reflecting weak demand were 71, 73 and 67 in the last three quarters (Figure 5A and Table 4.1). Among the surveyed firms, about 40% serve international markets. For these firms, the diffusion indices were 63, 63 and 58 (Table 4.1).

These numbers indicate that, due to a span of reduced investment, the severity of excess capacity has improved over time, especially in the fourth quarter, with the number of firms with excess capacity dropping by 9 percentage points. Moreover, 15%, 10% and 8% of firms reported excess capacity of over 10% in the last three quarters respectively, whereas 8%, 5%, and 3% had excess capacity exceeding 20% (Figure 5B). Both form a trend of steady decline.

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

⁴ Here we restrict our attention to provinces with at least four firms.

regions with severe excess capacity was also gradually decreasing: there were 11, 6 and 4 industries (out of 35) and 10, 4 and 1 regions (out of 31).

As of 2014 Q4, industries with severe overcapacity included Coal Mining, Water Production & Supply, Non-ferrous Metal, and Rubber Products (See Table 1.1 in the Appendix for excess capacity in all industries). Water Production & Supply and Rubber Products have been on the list since Q2, while Non-ferrous Metal, Chemical Fiber, Beverage, and Leather & Fur-Related Products appeared on the list twice in 2014. Using the same criteria, one province (Gansu) exhibited severe excess capacity. Shaanxi, Inner Mongolia, Henan and Yunnan each featured on the list twice in 2014.

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 with a slight decline. As many as 42% of firms said they did not have significant levels of inventory because they produce only after taking orders. For those with inventories, the majority (74%) expected the inventory to be digested within three months, with a further 17% saying between three to six months. This leaves only 4% of the whole sample carrying inventory for more than six months.

II.2 Costs and Margins are Stabilizing

Cost rises, especially increased labor costs, were ranked as the second biggest challenge facing industrial firms during Q2 and Q3. Fortunately, though, costs stabilized in the fourth quarter. As shown in Figure 6, the percent of firms reporting unit cost increases dropped from half in Q2 to 12% in Q4; the diffusion indices were 53 in Q4, close to the 50 turning point, and down from 75 in Q2. For labor costs, 11% reported cost increases in Q4, a large drop from 71% in Q2.

Throughout 2014, price levels stayed largely flat, with the diffusion indices remaining within a range of 48 to 51. This means that there was strong downward pressure on profit margins during Q2 and Q3, but those margins stabilized towards the year-end (Table 5.1).

Tables 5.2 and 5.3 report industries and provinces with significant cost increases. Cost indices for all regions and industries are listed in Appendices 2.1 and 2.2.

II. 3 Financing is Not a Bottleneck

Table 6.2 and Figure 7 provide an overview of how Chinese firms were financed at the end of 2014. Internally-generated funds were, by far, the most important source of financing, with 94% of the firms reporting this as their primary funding source. The next two factors were bank loans and the founder’s own capital, with each accounting

for 3% of firms. Sources of financing are highly concentrated in Chinese firms: in the case of internal funds, 84% of firms reported that this largest financing source accounts for more than 50% of their total funds.

Throughout 2014, and consistent with increasingly sluggish investment, a small, and declining, proportion of firms obtained new loans in each quarter; the numbers were 24%, 10% and 4% from Q2 to Q4. SOEs were disproportionately more likely to obtain new loans. Among the firms without new loans, the vast majority (ranging from 92% to 98% in Q2-Q4) reported that they did not have the need for capital.

Throughout the year, firms found the banks' lending attitude to be generally accommodating. In Q4, there were 44% firms answering "easy", 53% answering "moderate" and 3% answering "difficult". The diffusion index reflecting an easy lending attitude was 70. Most of the loans (70% in Q4) were collateralized, with typical sources of collateral being land and plants (used by 79% of firms) and machinery and equipment (used by 22% of firms). The cost of borrowing mostly stayed the same, with a diffusion index of 47.

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 Q4, only one firm reported borrowing from other financing institutions. The interest rate was below 10%.

While our finding that financing is not a bottleneck may contrast with the common wisdom, it is consistent with the central bank's "2014 Financial Institutions Lending Statistics" report. In 2014, new loans to industrial firms declined substantially quarter by quarter: they are 200.9, 155.5, 97.1, and 64.2 billion. The central bank's report points to a lack of demand for loans as the main reason for the decline. Moreover, in its Survey of Bankers, the index of loan demand were 78.2%, 71.6%, 66.6%, and 64.9% for the four quarters, with the Q4 index being the lowest since the inception year of 2004.

Overall, that financing is not a bottleneck is against the backdrop of an industrial economy in slight contraction. Investment opportunity is scarce; as long as the 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, unless the government starts another four-trillion rescue plan, as it did after the 2008 financial crisis. But that is not just increasing liquidity, it creates demand. Finally, although financing is not a main constraining factor, it does not mean that financial reform is not important.

III. Going Forward: Institutions and Innovation

III.1 Economic outlook

Despite a rather gloomy year, the vast majority of firms remain “optimistic” (18%) or “cautiously optimistic” (64%) about their economic outlook over the next three to five years. Among those who are “pessimistic” (18%), the main concerns cited include the macro economy (48%), competition (42%) and the political environment (9%). Only 1% believes financing is a major concern.

III.2 Innovation

As we discussed in our previous reports, technology innovation and industrial upgrading is an important way to deal with the problems of oversupply and cost rises. Figure 9A reports the state of innovative activity by Chinese industrial firms. More than half of the firms (55%) do not have any R&D input, 39% have R&D spending as 0-5% of sales, and a mere 6% of firms have R&D spending totaling more than 5% of their sales. It appears that Chinese companies are not yet up to the challenge of innovation and industrial upgrading.

In our sample, 252 firms, or 13%, have obtained a high-tech status from the local government so that their corporate taxes are significantly lower. To be granted a high-tech status, the firms have to (1) be in one of the high-tech areas specified by the central government; (2) own sufficient patents.⁵ Consistent with innovation as a viable strategy to deal with the challenges facing the industrial economy, high-tech firms and those with R&D spending above 5% of sales fare significantly better. In Q4, these firms were more likely to have improved operating conditions (36% and 43%, as opposed to 27% in the whole sample); they were also more likely to make fixed investment (10% and 14%, as opposed to 6% in the whole sample); and they were less likely to have overcapacity (27% and 24%, as opposed to 34% in the whole sample). As a result, their BSI were 55 and 58 (as opposed to 48 for the whole sample), indicating a mild expansion mode. High-tech firms are also more optimistic about the economic outlook over the next three to five years, with 30% “optimistic” and 65% “cautiously optimistic”.

III.3 Institutions

The legal environment for doing business in China appears to be better than many

⁵ Not surprisingly, there is a wide variation of innovative activities across industries and regions. For example, medical, computer and special equipment sectors are among the ones with the largest R&D input, whereas inland provinces have the least R&D spending. For the sake of brevity, we do not report the results here; but they are available upon request.

might think. Figure 10A displays firms' responses to the question "On a scale of 0-10, what is the likelihood that the legal system will uphold your contract and property rights in business disputes (0 being the worst)?" 79% of firms give the legal environment a rating above 7, and the average rating is 7.7. While the average score of high-tech firms is similar (7.5), they are much less likely to give full marks (1% vs 11% in the whole sample), likely reflecting their concerns about weak protection of intellectual property rights. Finally, there is little variation across regions in terms of the quality of the legal environment.⁶

Compared with their western counterparts, the way Chinese firms handle business disputes seems more reliant on informal procedures and on social networks than on formal legal actions. More than half of the firms (55%) say they would use legal advisers to negotiate and settle outside court, 16% would rely on mutual friends or business partners to mediate, while 13% would go to court. Interestingly, high-tech firms are more likely to use court (23%) and, in 2% of cases, rely on non-government organizations such as a trade association.

The Chinese government plays an active role in promoting growth. 28% of firms reported that they have received help and support from the government. The most common area is tax reduction, which was cited by 22% of firms. The next two factors were funding for innovation (5%) and business connections (3%). Not surprisingly, high-tech firms are substantially more likely to receive government support (55%). The most common areas of support for high-tech firms were tax reduction (38%) and funding for innovation (23%). Other government support came in the form of loan guarantees (5%), land subsidies (3%) and business connections (2%).

IV. Conclusion

2014 was a rather difficult year. The Business Sentiment Index stood at 48 at the year-end, indicating a slight contraction. Investment was sluggish and declined persistently through the year: 16% of firms made investment in Q2, but that number had dropped to 6% by Q4. Firms' operating conditions, however, improved over time, with the diffusion index increasing from 55 in Q2 to 60 in Q4. Meanwhile, production, employment and price levels all largely stayed flat.

Throughout 2014, the problem of oversupply was widespread and posted the largest challenge for China's economy, though the situation began to stabilize in the last quarter. The percent of firms to report oversupply dropped to 36% in Q4 from 49% in Q3, while the number of industries and regions with severe overcapacity also dropped substantially. Cost increases, especially rising labor costs, were the second

⁶ If we exclude provinces with less than three firms, the scores are within a narrow range of 7.0 to 8.1. Industrial variations are larger. The top three scores are from 9.0 to 9.1, while the bottom three are between 6.1 and 6.5. The rest are within a range of 6.6 to 8.8.

largest challenge in Q2 and Q3, but costs remained flat in Q4. Finally, it remains the case that financing is not a bottleneck for growth.

As a result, there is not likely to be a hard landing for the Chinese economy. In fact, the vast majority of firms (82%) are either optimistic or cautiously optimistic about the business outlook for the next three to five years. The Chinese government should be given credit for creating from scratch, more than 30 years ago, an institutional environment that is generally conducive to business. Close to 80% of firms give the current legal environment a rating above 7 (out of 10), and the average rating is 7.7. While this is still significantly below the western standard, the gap is not be as large as one might have thought. Furthermore, 28% of firms receive support from the government, from reduced tax to building business connections.

The challenges facing the Chinese economy are structural and there is no quick fix. The government should formulate long term policies along two dimensions. The first is to strengthen the policy of increasing domestic demand, which involves raising income and reducing household savings through public services. The other approach to dealing with weak demand and increased costs is industry upgrade and technological innovation. Finally, easing monetary policy would not boost the industrial economy, but would only sustain excess capacity and thus hurt the industrial sector in the long run.

Figure 1. Business Sentiment Index (2014Q2-Q4)

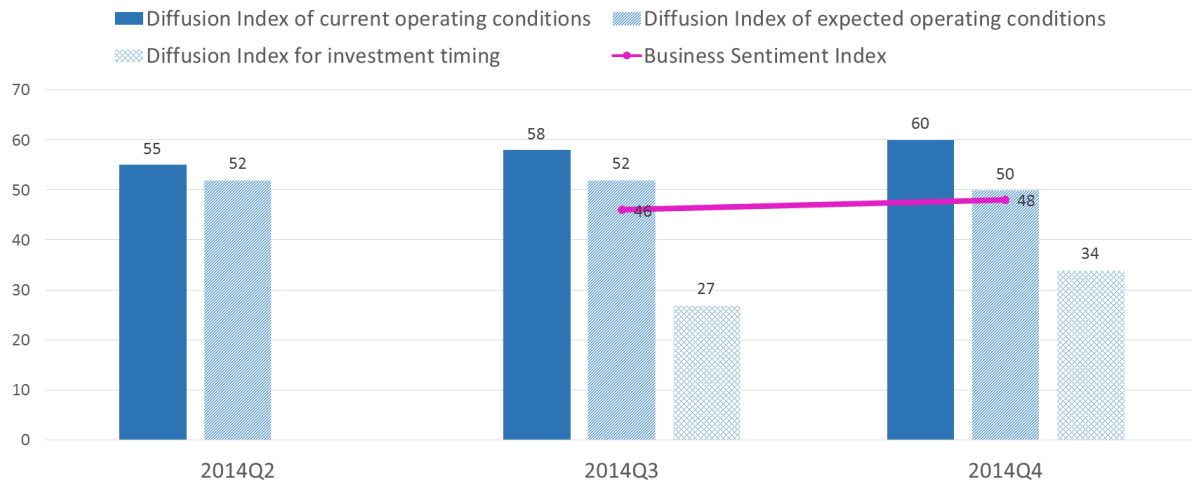


Figure 2. Investment

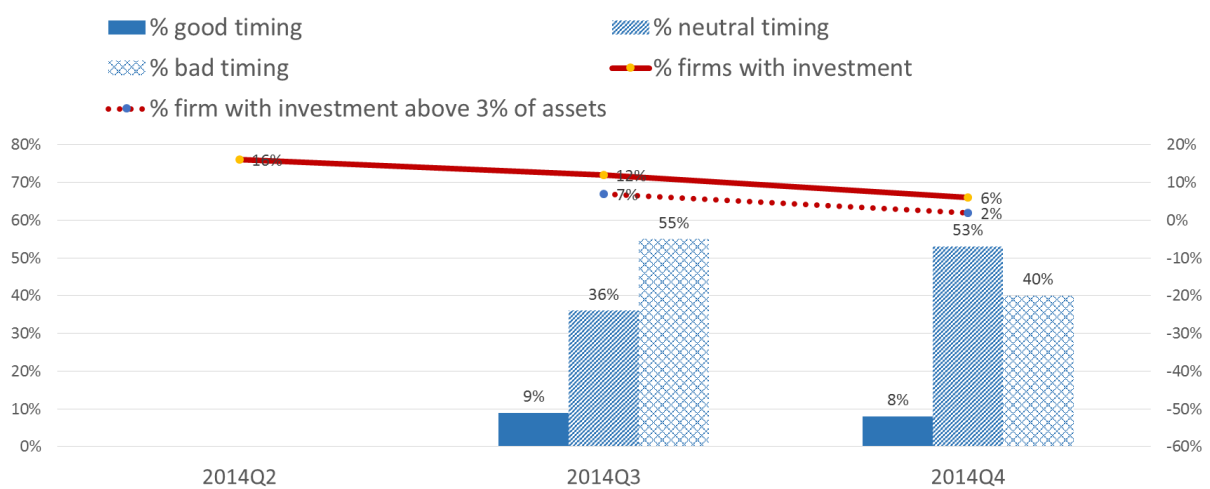


Figure 3. Other Main Economic Indices

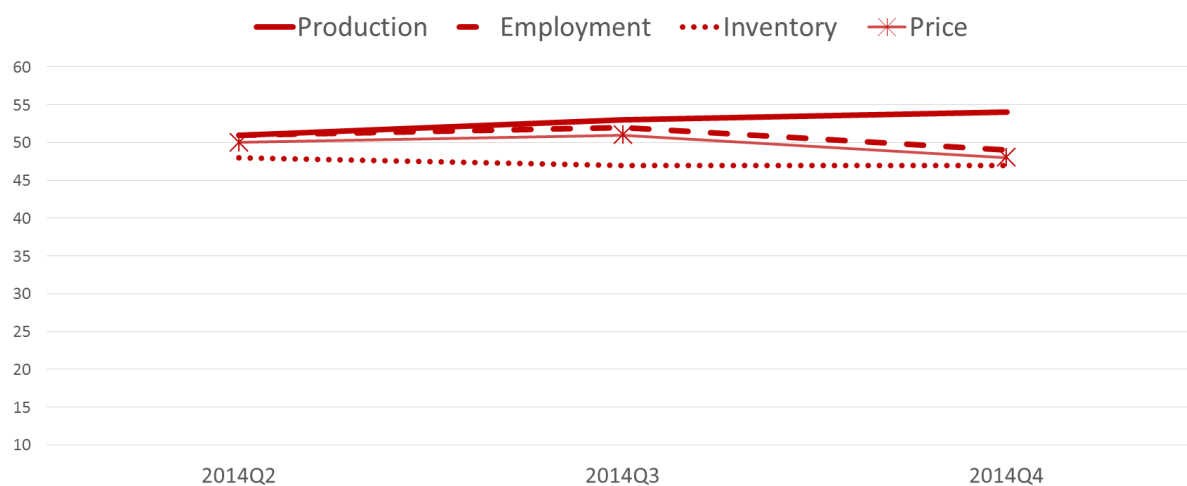


Figure 4. Factors Constraining Production

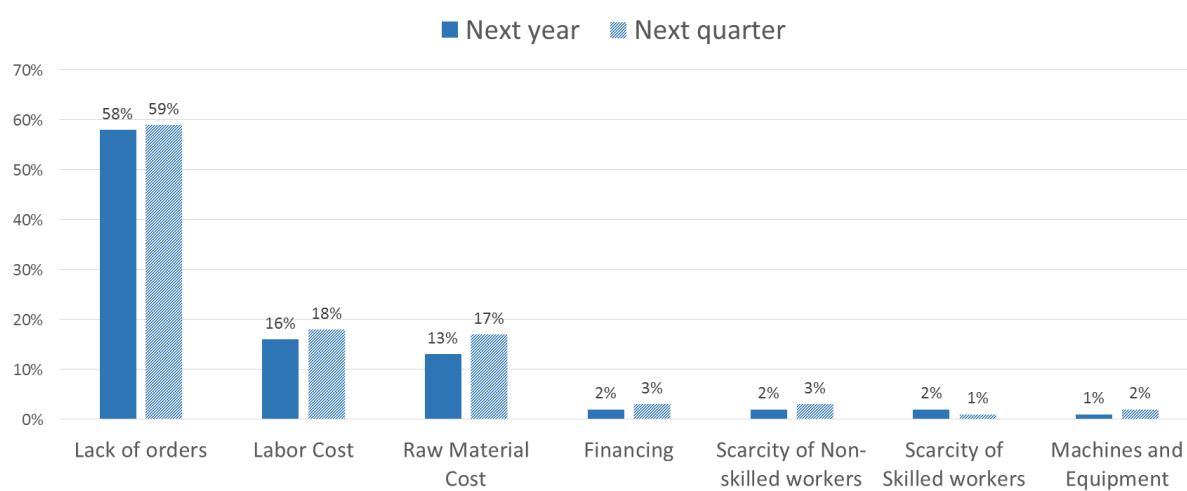
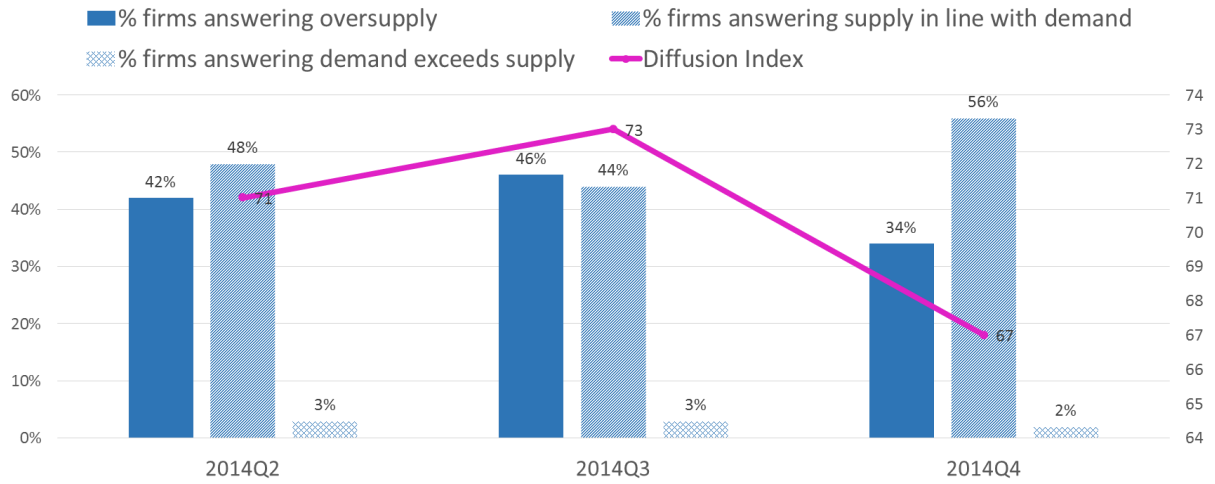


Figure 5

A. Excess Capacity in Domestic Market



B. Firms with Severe Excess Capacity

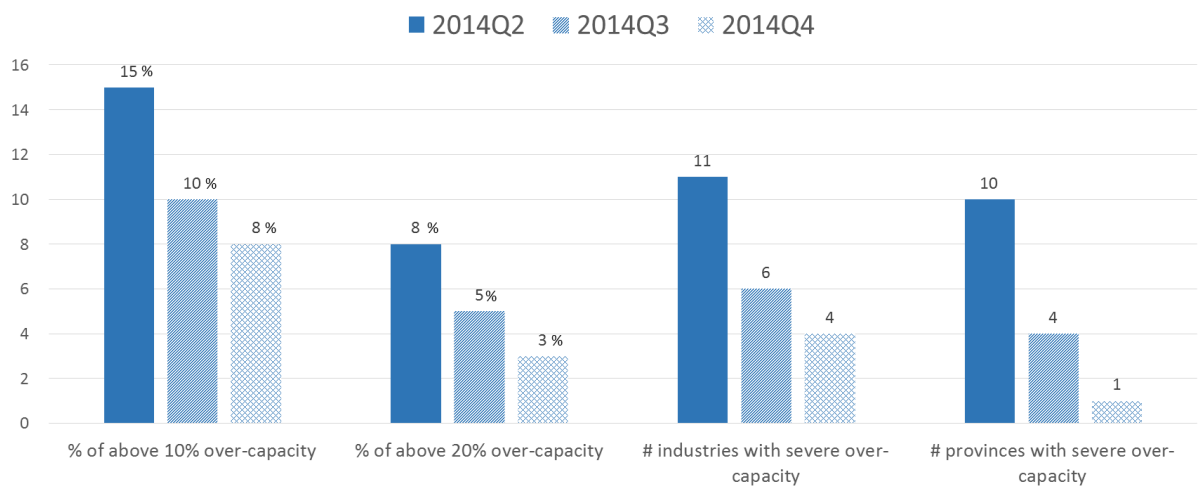


Figure 6. Production Costs

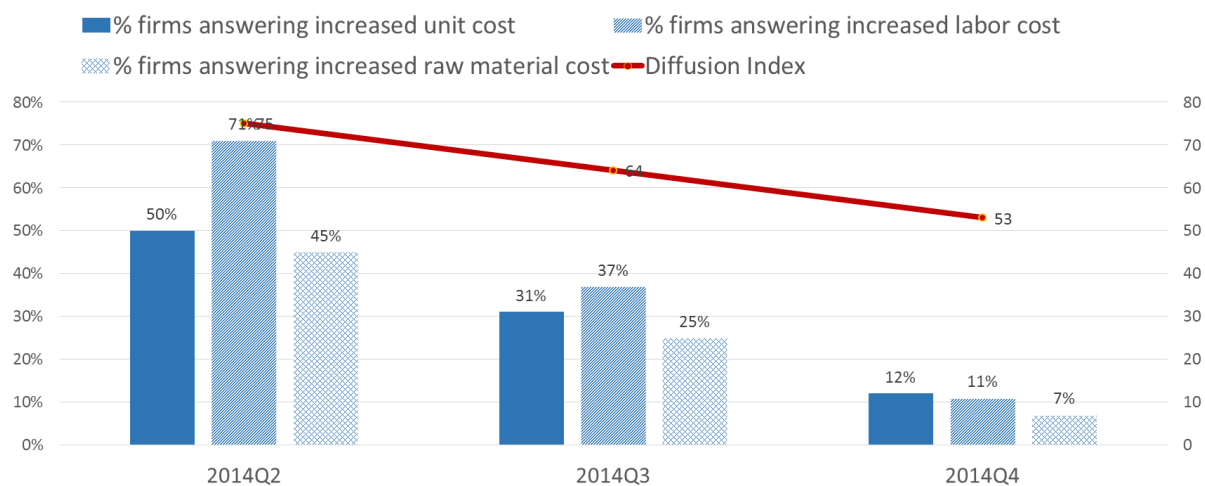


Figure 7. Financing

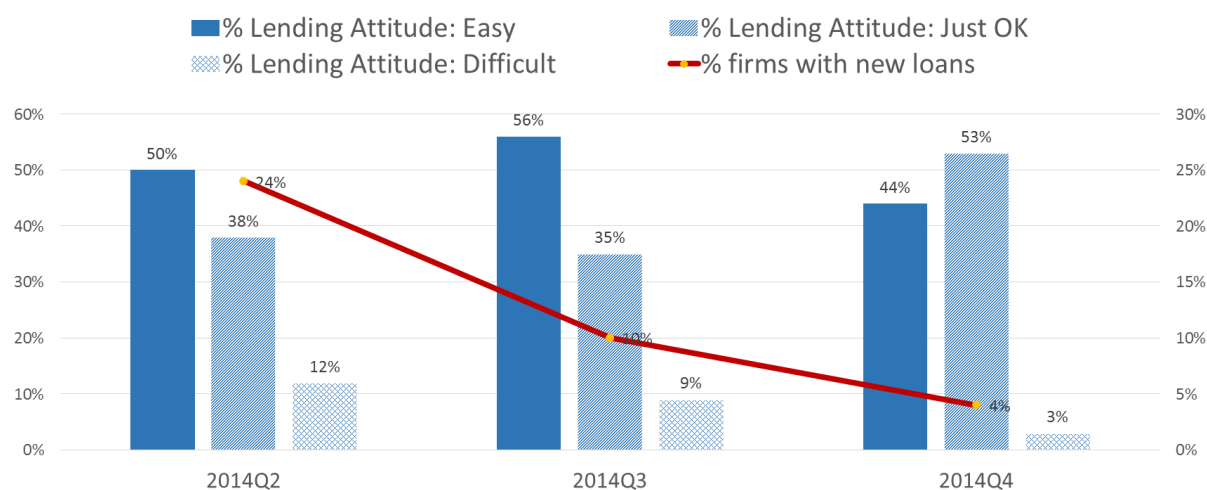
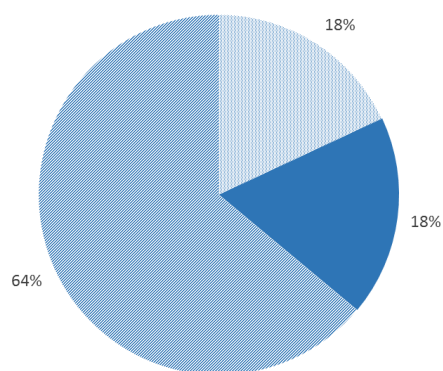


Figure 8

A. Business Outlook in 3-5 Years

■ % Optimistic ■ % Cautiously optimistic ■ % Pessimistic



B. Reasons for Pessimism

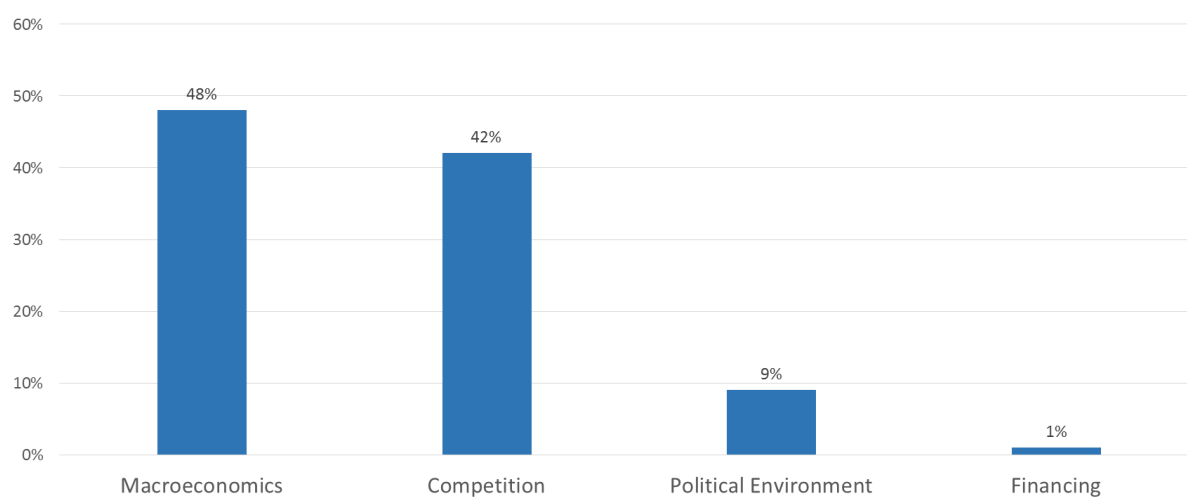
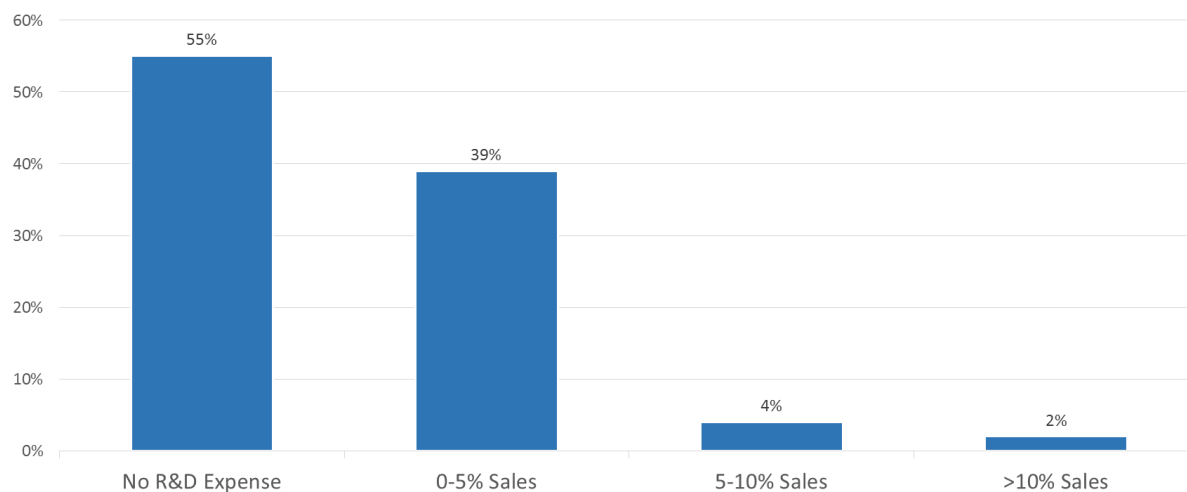


Figure 9

A. R&D Expenses of Chinese Firms



B. Performance of Firms with significant R&D Expenses (Q4)

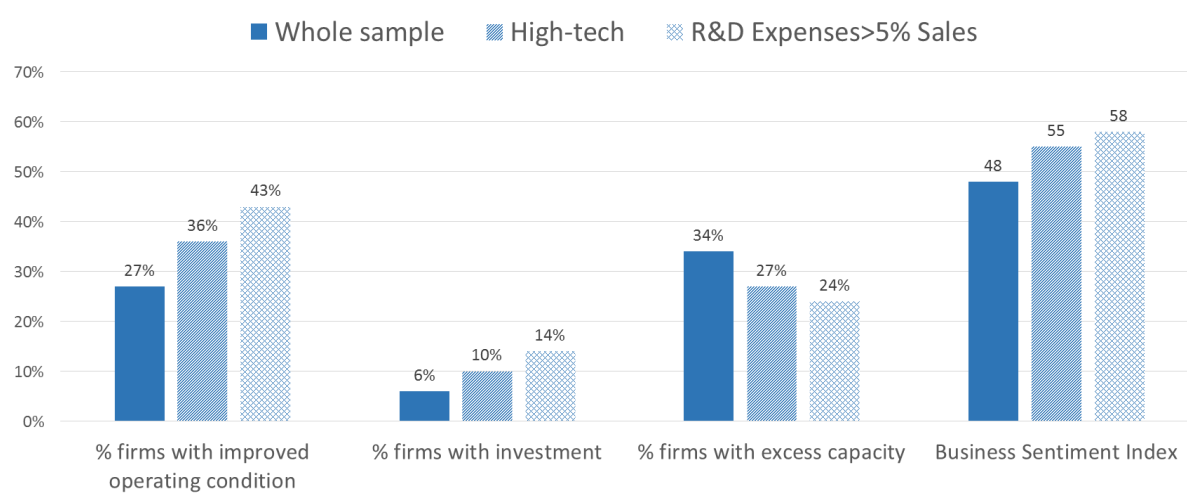
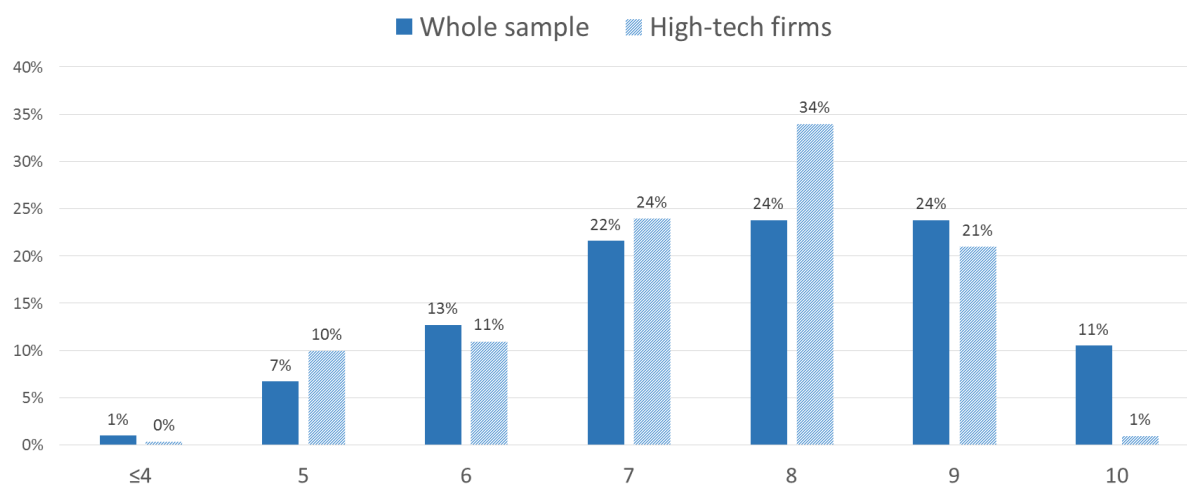
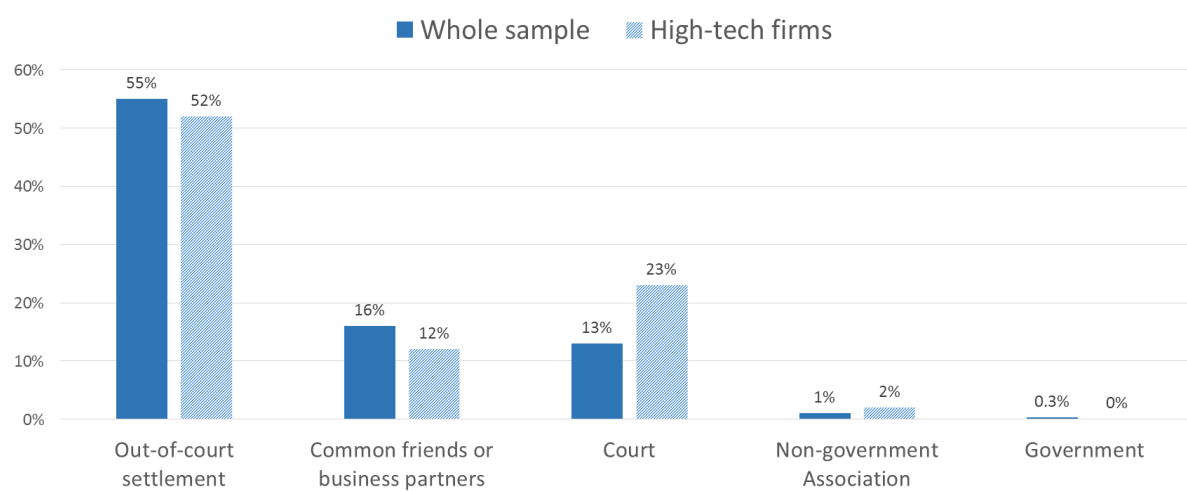


Figure 10
A. Rating of Legal Environment



B. Ways to Handle Business Disputes



C. Support from the Government

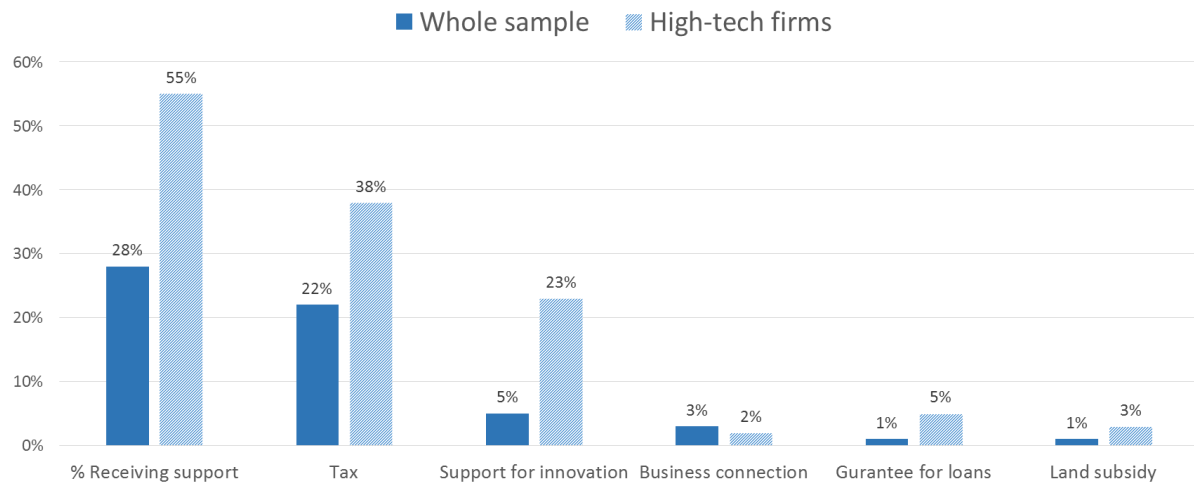


Table1. Operating Conditions of Industrial Firms

		Number of Firms	Business Sentiment Index		Diffusion Index - Operating Conditions		Diffusion Index - Expected Operating Conditions		Diffusion Index - Good Time for Investment		% of Firms with Fixed Investment		Diffusion Index - Production		Diffusion Index - Employment	
			Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
<i>By Size</i>	Nation	2006	48	46	60	58	50	52	34	27	6	12	54	53	49	52
	Large	742	49	46	63	61	50	50	36	28	7	13	54	55	49	54
	Medium	657	48	46	59	57	50	53	33	28	5	11	54	53	49	52
	Small	607	47	44	58	55	50	52	33	25	5	11	52	52	50	51
<i>By Ownership</i>	State controlling	89	55	52	72	68	51	52	43	37	2	12	53	58	50	54
	State holding	11	70		82		50		77		9		64		55	
	Collectively-owned	31	43	41	50	52	50	48	29	24	6	15	48	49	48	52
	Private	1570	47	45	59	58	50	52	33	27	6	11	53	53	49	52
	Foreign -owned	305	50	n.a.	63	n.a.	51	n.a.	36	n.a.	7	n.a.	57	n.a.	49	n.a.
<i>By Product Type</i>	Consumer Goods - Durable	472	49	47	62	55	51	56	32	30	5	8	53	53	50	53
	Consumer Goods - Nondurable	556	49	48	63	65	50	51	34	28	5	12	61	58	50	52
	Capital Goods	156	46	41	55	53	50	49	32	21	8	9	52	49	50	52
	Intermediate Goods	822	47	44	58	57	49	49	35	26	6	14	49	52	48	52

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 DI's for Operating Conditions, Expected Operating Conditions and Good Time 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		% of Firms with Fixed Investment	
		Q4	Q3	Q4	Q3	Q4	Q3
Nation	2006	48	46	60	58	6	12
<i>Mining</i>							
Coal Mining and Washing	4	21	15	25	10	0	30
Mining and Processing of Ferrous Metal Ores	1	0	6	0	17	0	0
Mining and Processing of Non-ferrous Metal	7	45	44	57	63	29	25
Mining and Processing of Nonmetal Ores	9	43	39	39	42	0	0
<i>Production and Supply of Electricity, Heat, Gas and Water</i>							
Power Production and Supply	35	64	61	86	80	3	16
Production and Supply of Gas	0	n.a.	39	n.a.	50	n.a.	0
Production and Supply of Water	24	64	63	92	88	0	10
<i>Light Manufacturing</i>							
Processing of Agricultural and Related Products	104	40	43	54	56	2	9
Manufacture of Foods	44	45	44	69	70	2	17
Manufacture of Beverage	32	46	47	66	71	0	17
Manufacture of Textiles	96	38	34	55	47	10	6
Manufacture of Textile Wearing and Apparel	69	40	36	56	44	13	4
Manufacture of Leather, Fur, Feather, Related Products and Footwear	31	41	60	60	66	3	4
Processing of Wood Products	29	35	42	52	50	0	13
Manufacture of Furniture	37	59	72	74	78	14	7
Manufacture of Paper and Paper Products	53	51	48	59	57	0	18
Printing, Reproduction of Recording Media	38	60	56	67	60	3	13
Manufacture of Cultural and Sports Products	28	64	52	73	68	14	10
Manufacture of Medicines	64	68	52	77	75	19	17
Manufacture of Handicrafts and Others	46	49	39	58	65	11	17
Recycling and Disposal of Waste	8	38	n.a.	31	n.a.	0	n.a.
<i>Chemical Industry</i>							
Processing of Petroleum and Nuclear Fuel	10	35	50	55	68	0	21
Manufacture of Chemical Products	139	51	48	56	58	6	14
Manufacture of Chemical Fibers	7	48	36	57	57	14	0
Manufacture of Rubber Products	35	59	41	63	65	3	10
Manufacture of Plastics	98	46	36	63	54	3	15
<i>Equipment Manufacturing</i>							
Manufacture of General-purpose Machinery	206	49	41	61	55	7	10
Manufacture of Special-purpose Machinery	128	47	45	58	56	2	14
Manufacture of Transport Equipment	66	51	52	58	60	14	7
Manufacture of Electric Machinery and Apparatus	135	46	44	65	58	7	14
Computers, Communication and Electric Equipment	79	51	54	61	63	10	10
Manufacture of Measuring Instruments	30	58	78	58	56	0	0
<i>Other Heavy Manufacturing</i>							
Manufacture of Non-metallic Mineral Products	129	46	45	56	60	0	16
Smelting and Pressing of Ferrous Metals	35	35	36	39	39	0	7
Smelting and Pressing of Non-ferrous Metals	30	51	42	60	46	0	3
Manufacture of Metal Products	120	44	45	53	53	4	10

Table 2.2 Industry Ranking of Operating Conditions

		Number of Firms	Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment	
			Q4	Q3	Q4	Q3	Q4	Q3
Nation		2006	48	46	60	58	6	12
Top Five								
	Manufacture of Medicines	64	68	52	77	75	19	17
	Manufacture of Cultural and Sports Products	28	64	52	73	68	14	10
	Production and Supply of Water	24	64	63	92	88	0	10
	Power Production and Supply	35	64	61	86	80	3	16
	Printing, Reproduction of Recording Media	38	60	56	67	60	3	13
Bottom Five								
	Coal Mining and Washing	4	21	15	25	10	0	30
	Processing of Petroleum and Nuclear Fuel	10	35	50	55	68	0	21
	Processing of Wood Products	29	35	42	52	50	0	13
	Smelting and Pressing of Ferrous Metals	35	35	36	39	39	0	7
	Recycling and Disposal of Waste	8	38	n.a.	31	n.a.	0	n.a.

Notes:

1. Ranking includes industries with more than five firms.

Table 2.2.1 Diffusion Index of Top Five and Bottom Five Industries: by Product Type

		Consumer Goods - Durable				Consumer Goods - Nondurable			
		Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment
<i>Top Five</i>									
	Manufacture of Medicines	0	n.a.	n.a.	n.a.	57	67	75	16
	Manufacture of Cultural and Sports Products	9	63	72	33	10	63	70	10
	Production and Supply of Water	0	n.a.	n.a.	n.a.	22	62	91	0
	Power Production and Supply	0	n.a.	n.a.	n.a.	30	66	87	3
	Media	0	n.a.	n.a.	n.a.	22	58	66	5
	<i>Average</i>		63	72	33		63	78	7
<i>Bottom Five</i>									
	Coal Mining and Washing	0	n.a.	n.a.	n.a.	0	n.a.	n.a.	n.a.
	Processing of Petroleum and Nuclear Fuel	0	n.a.	n.a.	n.a.	8	35	56	0
	Processing of Wood Products	23	36	52	0	3	22	17	0
	Smelting and Pressing of Ferrous Metals	0	n.a.	n.a.	n.a.	0	n.a.	n.a.	n.a.
	Recycling and Disposal of Waste	0	n.a.	n.a.	n.a.	0	n.a.	n.a.	n.a.
	<i>Average</i>		36	52	0		29	37	0
		Capital Goods				Intermediate Goods			
		Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment
<i>Top Five</i>									
	Manufacture of Medicines	0	n.a.	n.a.	n.a.	7	79	93	43
	Manufacture of Cultural and Sports Products	0	n.a.	n.a.	n.a.	9	65	78	0
	Production and Supply of Water	0	n.a.	n.a.	n.a.	2	83	100	0
	Power Production and Supply	1	33	50	0	4	63	88	0
	Media	0	n.a.	n.a.	n.a.	16	61	69	0
	<i>Average</i>		33	50	0		70	86	9
<i>Bottom Five</i>									
	Coal Mining and Washing	0	n.a.	n.a.	n.a.	4	21	25	0
	Processing of Petroleum and Nuclear Fuel	0	n.a.	n.a.	n.a.	2	33	50	0
	Processing of Wood Products	0	n.a.	n.a.	n.a.	3	44	83	0
	Smelting and Pressing of Ferrous Metals	0	n.a.	n.a.	n.a.	35	35	39	0
	Recycling and Disposal of Waste	0	n.a.	n.a.	n.a.	8	38	31	0
	<i>Average</i>		n.a.	n.a.	n.a.		34	46	0

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

		Number of Firms	Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment	
			Q4	Q3	Q4	Q3	Q4	Q3
North China	Nation	2006	48	46	60	58	6	12
	Beijing	32	52	52	66	66	3	11
	Hebei	82	48	45	60	58	5	13
	Tianjin	45	50	46	61	59	9	14
Northeast	Heilongjiang	19	53	55	71	76	5	26
	Jilin	20	55	48	73	71	5	18
	Liaoning	79	46	43	56	55	1	11
Northwest	Gansu	8	42	47	50	60	13	0
	Inner Mongolia	14	50	43	64	57	7	0
	Ningxia	2	58	44	75	50	0	0
	Qianhai	1	50	n.a.	50	n.a.	0	n.a.
	Shaanxi	20	51	47	63	58	10	22
	Xinjiang	2	25	28	50	33	0	0
	Central North							
	Henan	74	46	43	53	52	3	14
	Shandong	182	47	44	58	57	5	12
	Shanxi	21	49	40	60	50	5	19
Southwest	Guizhou	5	43	42	60	42	0	17
	Sichuan	57	49	44	61	58	4	15
	Yunnan	22	48	46	55	53	9	30
	Chongqing	30	52	48	65	62	3	0
East China	Jiangsu	317	47	45	58	57	6	10
	Shanghai	101	50	48	63	58	9	8
	Zhejiang	302	48	46	61	59	6	14
South China	Fujian	101	51	48	65	62	7	10
	Guangdong	260	48	46	61	58	7	11
	Guangxi	29	48	41	62	56	3	6
	Hainan	1	83	42	100	75	100	50
Central South	Anhui	57	46	48	56	59	7	19
	Hubei	52	49	49	61	60	8	12
	Hunan	40	53	47	68	60	3	10
	Jiangxi	31	49	45	60	60	0	0

Table 3.2 Regional Ranking of Operating Conditions

		Business Sentiment Index		Diffusion Index - Operating Conditions		% of Firms with Fixed Investment	
	Number of Firms	Q4	Q3	Q4	Q3	Q4	Q3
Nation	2006	48	46	60	58	6	12
<i>Top Five</i>							
Jilin	20	55	48	73	71	5	18
Hunan	40	53	47	68	60	3	10
Heilongjiang	19	53	55	71	76	5	26
Beijing	32	52	52	66	66	3	11
Chongqing	30	52	48	65	62	3	0
<i>Bottom Five</i>							
Gansu	8	42	47	50	60	13	0
Guizhou	5	43	42	60	42	0	17
Henan	74	46	43	53	52	3	14
Anhui	57	46	48	56	59	7	19
Liaoning	79	46	43	56	55	1	11

Notes:

1. Ranking includes regions with more than 5 firms.

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

Table 2.12: 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	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	
<i>Top Five</i>													
Jilin	0	n.a.	n.a.	n.a.	2	67	75	0	5	60	70	0	
Hunan	4	42	50	0	5	67	90	0	16	52	66	0	
Heilongjiang	0	n.a.	n.a.	n.a.	2	58	75	0	8	54	75	0	
Beijing	0	n.a.	n.a.	n.a.	0	n.a.	n.a.	n.a.	10	58	80	0	
Chongqing	1	50	50	0	2	67	100	0	8	46	56	0	
Average		46	50	0		65	85	0		54	69	0	
<i>Bottom Five</i>													
Gansu	0	n.a.	n.a.	n.a.	1	83	100	0	4	33	38	25	
Guizhou	0	n.a.	n.a.	n.a.	1	50	100	0	2	25	25	0	
Henan	1	0	0	0	1	50	50	0	27	48	52	7	
Anhui	2	17	0	0	1	33	50	0	18	42	50	0	
Liaoning	0	n.a.	n.a.	n.a.	2	75	100	0	21	44	60	0	
Average		9	0	0		58	80	0		38	45	6	

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

	Chemical Industry				Equipment Manufacturing				Other Heavy Manufacturing			
	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment	Number of Firms	Business Sentiment Index	Diffusion Index - Operating Conditions	% of Firms with Fixed Investment
<i>Top Five</i>												
Jilin	2	50	50	0	8	52	81	13	3	50	67	0
Hunan	5	57	80	0	7	48	57	14	3	50	67	0
Heilongjiang	1	33	50	0	4	58	63	25	4	46	75	0
Beijing	3	50	50	0	13	51	65	8	6	44	50	0
Chongqing	4	46	50	0	9	59	72	11	6	47	67	0
<i>Average</i>		47	56	0		54	68	14		47	65	0
<i>Bottom Five</i>												
Gansu	1	33	50	0	0	n.a.	n.a.	n.a.	2	42	50	0
Guizhou	1	67	100	0	0	n.a.	n.a.	n.a.	1	50	50	0
Henan	7	50	64	0	21	48	55	0	17	43	53	0
Anhui	11	53	55	18	17	48	65	12	8	52	69	0
Liaoning	12	50	67	0	26	49	60	4	18	36	36	0
<i>Average</i>		51	67	4		48	60	5		45	52	0

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	
			Q4	Q3	Q4	Q3	Q4	Q3
By Size	Nation	2006	67	73	58	63	47	47
	Large	742	66	72	58	62	47	46
	Medium	657	67	73	59	63	48	47
	Small	607	68	75	59	63	48	48
By Ownership								
	State controlling	89	57	63	56	61	48	47
	State holding	11	64		67		50	
	Collectively-owned	31	69	76	50	66	45	49
	Private	1570	69	74	59	63	48	47
	Foreign -owned	305	61	n.a.	57	n.a.	47	n.a.
By Product Type								
	Consumer Goods - Durable	472	64	72	57	60	49	54
	Consumer Goods - Nondurable	556	64	67	58	61	47	47
	Capital Goods	156	62	80	56	65	49	46
	Intermediate Goods	822	72	76	61	65	47	44

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
Coal Mining and Washing	4	50	100
Production and Supply of Water	24	17	42
Mining and Processing of Non-ferrous Metal	7	14	14
Manufacture of Rubber Products	35	11	29

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 five 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
Gansu	8	13	13

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 five 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	
				Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
By Size	Nation	2006	54	64	54	68	51	59	48	51	
	Large	742	55	66	55	69	50	60	47	51	
	Medium	657	55	63	55	67	51	58	49	51	
	Small	607	53	63	54	68	50	59	47	51	
By Ownership											
	State controlling	89	50	62	54	69	46	55	48	52	
	State holding	11	68		73		55		59		
	Collectively-owned	31	52	62	50	68	48	56	45	52	
	Private	1570	54	64	55	68	51	59	47	51	
	Foreign -owned	305	55	n.a.	54	n.a.	52	n.a.	49	n.a.	
By Product Type											
	Consumer Goods - Durable	472	54	63	54	65	52	58	50	52	
	Consumer Goods - Nondurable	556	55	67	56	70	52	65	50	53	
	Capital Goods	156	53	60	53	64	52	53	48	50	
	Intermediate Goods	822	54	64	55	69	49	57	45	49	

Table 5.2 Industries with Significant Unit Cost Increase

	Number of Firms	Diffusion Indices			
		Unit Cost Index	Labor Cost Index	Raw Material Cost Index	Price Index
Nation	2006	54	54	51	48
Recycling and Disposal of Waste	8	94	81	25	6
Manufacture of Chemical Fibers	7	71	71	14	21
Printing, Reproduction of Recording Media	38	70	68	58	50
Manufacture of Paper and Paper Products	53	63	64	59	48
Manufacture of Handicrafts and Others	46	63	61	53	43
Manufacture of Non-metallic Mineral Products	129	63	56	58	49
Manufacture of Measuring Instruments	30	62	63	58	50
Manufacture of Rubber Products	35	61	70	46	44

Notes:

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

Table 5.3 Regions with Significant Unit Cost Increase

	Number of Firms	Diffusion Indices			
		Unit Cost Index	Labor Cost Index	Raw Material Cost Index	Price Index
Nation	2006	54	54	51	48
Fujian	101	60	57	54	49
Shaanxi	20	60	60	55	55

Notes:

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

Table 6. Financing Environment**Table 6.1 Overall**

	% Firms with New Loans		Collateralization Rate %		Diffusion Index - Lending Attitude		Diffusion Index - Interest Rate	
	Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
Nation	4	10	70	69	70	73	47	54
Firms with Investment	12	24	68	71	71	74	46	54
Firms without Investment	4	8	70	69	70	73	47	54
<i>By Size</i>								
Large	6	12	69	69	72	67	44	54
Medium	4	9	69	70	69	80	48	54
Small	3	8	71	69	69	77	50	52
<i>By Ownership</i>								
State controlling	3	14	69	71	67	75	50	53
State holding	0		n.a.		n.a.		n.a.	
Collectively-owned	0	7	n.a.	70	n.a.	70	n.a.	50
Private	5	10	70	69	70	73	47	54
Foreign -owned	3	n.a.	67	n.a.	75	n.a.	44	n.a.
<i>By Product Type</i>								
Consumer Goods - Durable	3	9	72	68	50	69	47	54
Consumer Goods - Nondurable	5	9	69	69	76	72	54	52
Capital Goods	6	9	72	71	75	79	45	50
Intermediate Goods	4	11	68	69	75	76	41	55

Notes:

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

Table 6.2 Sources of Financing*The most important source of financing*

Sources	Number of Firms	% of Firms	
		Q4	Q3
Internal Funds	1877	94	91
Founder	70	3	4
Banks	52	3	5
Others	7	0	0

The second most important source of financing

Sources	Number of Firms	% of Firms	
		Q4	Q3
Banks	326	16	20
Founder	311	16	16
Internal Funds	40	2	3
Others	6	0	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	
		Q4	Q3	Q4	Q3
Coal Mining and Washing	4	50	0	100	10
Production and Supply of Water	24	17	24	42	67
Mining and Processing of Non-ferrous Metal	7	14	13	14	13
Manufacture of Rubber Products	35	11	15	29	34
Manufacture of Leather, Fur, Feather, Related Products and	31	10	11	10	14
Manufacture of Plastics	98	7	9	11	18
Manufacture of Special-purpose Machinery	128	6	8	11	13
Manufacture of Non-metallic Mineral Products	129	6	7	12	11
Manufacture of Textiles	96	5	4	13	9
Manufacture of Metal Products	120	5	6	9	11
Manufacture of Transport Equipment	66	3	3	3	7
Manufacture of Electric Machinery and Apparatus	135	3	3	10	10
Manufacture of General-purpose Machinery	206	3	8	8	14
Manufacture of Furniture	37	3	7	3	7
Computers, Communication and Electric Equipment	79	3	4	3	4
Manufacture of Handicrafts and Others	46	2	0	7	2
Processing of Agricultural and Related Products	104	2	6	5	9
Manufacture of Textile Wearing and Apparel	69	1	1	7	4
Manufacture of Chemical Products	139	1	2	8	9
Mining and Processing of Nonmetal Ores	9	0	0	22	17
Processing of Petroleum and Nuclear Fuel	10	0	0	10	7
Manufacture of Beverage	32	0	24	6	28
Smelting and Pressing of Non-ferrous Metals	30	0	5	3	8
Manufacture of Measuring Instruments	30	0	0	3	0
Manufacture of Medicines	64	0	0	3	3
Printing, Reproduction of Recording Media	38	0	0	3	0
Manufacture of Foods	44	0	0	2	0
Smelting and Pressing of Ferrous Metals	35	0	0	0	0
Manufacture of Cultural and Sports Products	28	0	6	0	16
Manufacture of Paper and Paper Products	53	0	0	0	2
Manufacture of Chemical Fibers	7	0	29	0	43
Power Production and Supply	35	0	0	0	0
Recycling and Disposal of Waste	8	0	n.a.	0	n.a.
Processing of Wood Products	29	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 five 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	
		Q4	Q3	Q4	Q3
Gansu	8	13	0	13	0
Henan	74	8	13	12	19
Guangxi	29	7	10	14	13
Jiangxi	31	6	6	10	11
Hebei	82	6	8	13	18
Shandong	182	5	8	13	15
Guangdong	260	5	6	9	11
Shannxi	20	5	17	10	22
Jilin	20	5	0	5	0
Shanghai	101	5	4	6	7
Shanxi	21	5	10	29	24
Yunnan	22	5	10	5	10
Sichuan	57	4	6	7	9
Liaoning	79	3	4	6	9
Hunan	40	3	5	8	10
Jiangsu	317	2	4	7	10
Zhejiang	302	2	3	5	7
Hubei	52	2	6	8	10
Anhui	57	2	4	11	9
Inner Mongolia	14	0	14	7	21
Heilongjiang	19	0	0	5	0
Fujian	101	0	2	5	9
Tianjin	45	0	0	4	2
Chongqing	30	0	4	3	8
Guizhou	5	0	0	0	17
Beijing	32	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 five firms.

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

Appendix A2.1 Industry Diffusion Index for Cost and Price

			Diffusion Indices							
			Unit Cost		Labor Cost		Raw			
			Index		Index		Material Cost		Price Index	
			Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
	Nation	2006	54	64	54	68	51	59	48	51
Mining										
	Coal Mining and Washing	4	50	55	50	55	50	50	50	35
	Mining and Processing of Ferrous Metal Ores	1	50	17	50	33	50	33	0	17
	Mining and Processing of Non-ferrous Metal	7	50	69	50	69	50	50	57	38
	Mining and Processing of Nonmetal Ores	9	56	50	44	50	61	42	44	50
Production and Supply of Electricity, Heat, Gas and Water										
	Power Production and Supply	35	53	59	50	66	54	53	50	52
	Production and Supply of Gas	n.a.	n.a.	67	n.a.	67	n.a.		n.a.	50
	Production and Supply of Water	24	56	57	58	57	50	57	50	55
Light Manufacturing										
	Processing of Agricultural and Related Products	104	54	66	52	68	55	65	50	55
	Manufacture of Foods	44	50	64	50	59	50	67	50	55
	Manufacture of Beverage	32	53	55	56	60	50	50	48	50
	Manufacture of Textiles	96	51	65	52	67	49	59	46	53
	Manufacture of Textile Wearing and Apparel	69	55	70	50	68	55	69	50	60
	Manufacture of Leather, Fur, Feather, Related Products and Footwear	31	52	63	53	63	52	59	52	54
	Processing of Wood Products	29	50	69	50	66	50	66	50	47
	Manufacture of Furniture	37	54	59	57	72	47	63	50	57
	Manufacture of Paper and Paper Products	53	63	74	64	78	59	65	48	46
	Printing, Reproduction of Recording Media	38	70	79	68	79	58	65	50	58
	Manufacture of Cultural and Sports Products	28	54	61	55	63	52	55	52	56
	Manufacture of Medicines	64	53	87	56	87	52	88	61	63
	Manufacture of Handicrafts and Others	46	63	67	61	67	53	60	43	57
	Recycling and Disposal of Waste	8	94	n.a.	81	n.a.	25	n.a.	6	n.a.
Chemical Industry										
	Processing of Petroleum and Nuclear Fuel	10	20	61	50	64	20	54	15	50
	Manufacture of Chemical Products	139	56	71	56	77	49	68	48	52
	Manufacture of Chemical Fibers	7	71	79	71	86	14	36	21	36
	Manufacture of Rubber Products	35	61	72	70	80	46	56	44	45
	Manufacture of Plastics	98	53	59	53	72	51	60	50	51
Equipment Manufacturing										
	Manufacture of General-purpose Machinery	206	50	55	53	62	49	47	49	45
	Manufacture of Special-purpose Machinery	128	55	61	55	67	52	55	47	52
	Manufacture of Transport Equipment	66	50	70	52	74	48	55	45	49
	Manufacture of Electric Machinery and Apparatus	135	49	72	50	79	49	62	47	52
	Computers, Communication and Electric Equipment	79	53	60	52	65	51	56	51	50
	Manufacture of Measuring Instruments	30	62	53	63	56	58	50	50	50
Other Heavy Manufacturing										
	Manufacture of Non-metallic Mineral Products	129	63	65	56	63	58	65	49	54
	Smelting and Pressing of Ferrous Metals	35	53	50	51	59	27	30	17	27
	Smelting and Pressing of Non-ferrous Metals	30	53	50	55	51	48	49	45	47
	Manufacture of Metal Products	120	50	56	52	57	49	47	46	46

Appendix A2.2 Regional Diffusion Index for Cost and Price

			Diffusion Indices							
			Unit Cost		Labor Cost		Raw Material			
Number of			Index		Index		Cost Index		Price Index	
Firms			Q4	Q3	Q4	Q3	Q4	Q3	Q4	Q3
	Nation	2006	54	64	54	68	51	59	48	51
North China										
	Beijing	32	56	63	59	64	55	63	52	54
	Hebei	82	52	66	55	74	48	57	46	48
	Tianjin	45	51	60	51	63	48	58	47	52
Northeast										
	Heilongjiang	19	55	63	53	66	50	61	50	50
	Jilin	20	55	68	55	82	53	63	50	56
	Liaoning	79	52	62	51	66	51	54	48	47
Northwest										
	Gansu	8	44	60	44	65	42	78	43	45
	Inner Mongolia	14	54	57	57	64	50	62	39	43
	Ningxia	2	50	67	50	83	50	67	50	67
	Qinghai	1	100	n.a.	100	n.a.	50	n.a.	50	n.a.
	Shaanxi	20	60	75	60	83	55	56	55	50
	Xinjiang	2	50	50	50	50	50	33	50	17
Central North										
	Henan	74	57	64	57	68	51	58	46	54
	Shandong	182	54	66	54	69	50	61	46	52
	Shanxi	21	60	60	57	67	52	55	48	45
Southwest										
	Guizhou	5	50	75	50	83	50	80	50	50
	Sichuan	57	54	61	53	63	53	53	48	51
	Yunnan	22	52	68	50	70	60	63	39	50
	Chongqing	30	52	63	53	71	48	56	43	46
East China										
	Jiangsu	317	55	65	56	70	49	57	47	51
	Shanghai	101	51	63	54	65	51	62	48	54
	Zhejiang	302	54	61	54	67	51	56	48	49
South China										
	Fujian	101	60	65	57	64	54	62	49	53
	Guangdong	260	54	66	54	67	51	63	49	54
	Guangxi	29	59	65	55	69	57	57	50	52
	Hainan	1	100	100	100	100	50	75	100	75
Central South										
	Anhui	57	52	68	48	69	51	61	44	50
	Hubei	52	55	66	57	71	51	59	50	52
	Hunan	40	51	61	53	64	49	55	50	46
	Jiangxi	31	55	60	56	66	52	49	53	50

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 six 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 Q4 survey, we started from the 2,013 firms in our Q3 response sample, and obtain responses from 1,571 firms. These firms match the population in terms of industry, region, and sizes reasonably well. Nevertheless, we draw an additional survey sample of 2,995 firms 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 435 responses from this new sample, resulting in a total of 2006 firms in our final response sample.

3.3 Survey Process

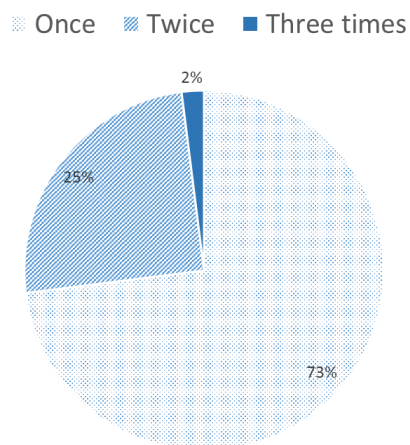
The survey is through phone interviews. Figure A3 reports the distribution of the number of phone calls, duration of the calls, and the interviewees' positions in the companies.

4. Sample Representativeness

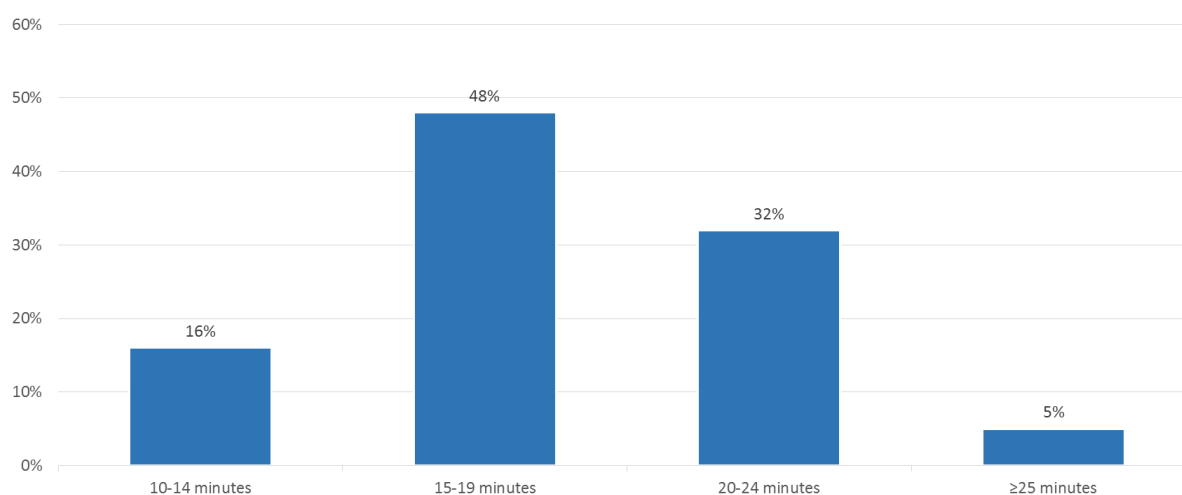
Tables A3.1-A3.3 show that the distribution of the population and the Q4 response sample, as well as the 1,571 firms that were also in the Q3 sample, in terms of industry, region, and sizes. Note that as we are sampling 2.1% of the population, some small strata may not be sampled. Specifically, tobacco and other mining are two industries not sampled and Tibet is not sampled as a region. Overall, our response sample represents the population well.

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

A3.1 Number of Calls



A3.2 Duration of Calls



A3.3 Interviewees' Positions

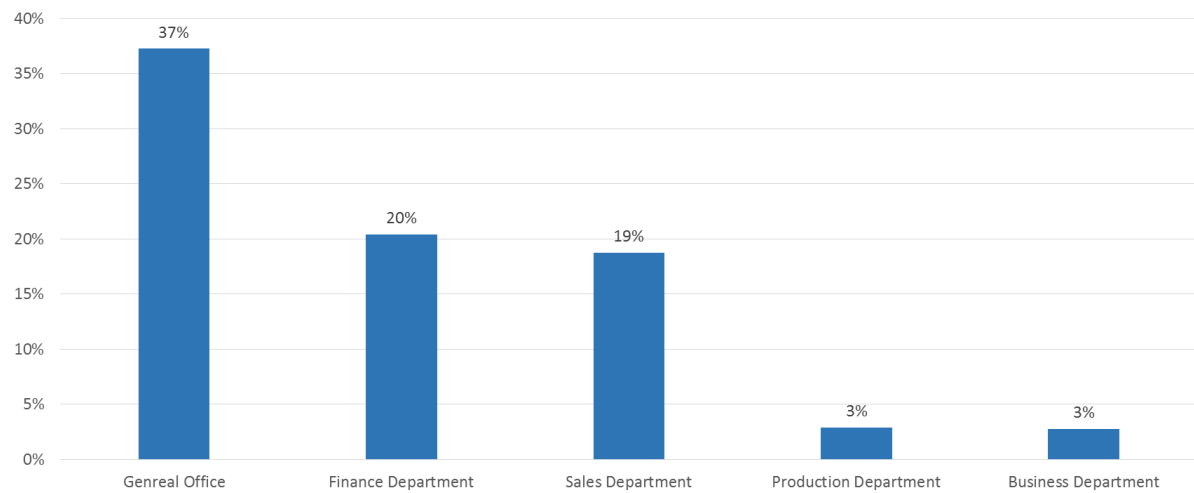


Table A. Comparisons between Survey Sample and the Population

Table A1. Industry Distribution

Industry	Population		1571 Firms From Q3 Survey		Final Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Coal Mining and Washing	12,267	2.5	4	0.3	4	0.2
Extraction of Petroleum and Natural Gas	323	0.1	0	0.0	0	0.0
Mining and Processing of Ferrous Metal Ores	5,391	1.1	1	0.1	1	0.0
Mining and Processing of Non-ferrous Metal	2,885	0.6	6	0.4	7	0.3
Mining and Processing of Nonmetal Ores	4,900	1.0	6	0.4	9	0.4
Mining of other Ores	46	0.0	0	0.0	0	0.0
Processing of Agricultural and Related Products	25,503	5.2	73	4.6	104	5.2
Manufacture of Foods	8,724	1.8	35	2.2	44	2.2
Manufacture of Beverage	5,824	1.2	23	1.5	32	1.6
Manufacture of Tobacco	163	0.0	0	0.0	0	0.0
Manufacture of Textiles	38,945	8.0	78	5.0	96	4.8
Manufacture of Textile Wearing and Apparel	21,272	4.4	52	3.3	69	3.4
Manufacture of Leather, Fur, Feather, Related Products and Footwear	9,932	2.0	17	1.1	31	1.5
Processing of Wood Products	11,471	2.4	13	0.8	29	1.4
Manufacture of Furniture	6,114	1.3	30	1.9	37	1.8
Manufacture of Paper and Paper Products	11,390	2.3	41	2.6	53	2.6
Printing, Reproduction of Recording Media	7,681	1.6	33	2.1	38	1.9
Manufacture of Cultural and Sports Products	5,310	1.1	20	1.3	28	1.4
Processing of Petroleum and Nuclear Fuel	2,669	0.5	10	0.6	10	0.5
Manufacture of Chemical Products	30,571	6.3	104	6.6	139	6.9
Manufacture of Medicines	6,802	1.4	58	3.7	64	3.2
Manufacture of Chemical Fibers	2,374	0.5	6	0.4	7	0.3
Manufacture of Rubber Products	5,277	1.1	28	1.8	35	1.7
Manufacture of Plastics	22,987	4.7	70	4.5	98	4.9
Manufacture of Non-metallic Mineral Products	34,714	7.1	115	7.3	129	6.4
Smelting and Pressing of Ferrous Metals	8,894	1.8	26	1.7	35	1.7
Smelting and Pressing of Non-ferrous Metals	9,176	1.9	20	1.3	30	1.5
Manufacture of Metal Products	29,042	6.0	95	6.0	120	6.0
Manufacture of General-purpose Machinery	42,882	8.8	184	11.7	206	10.3
Manufacture of Special-purpose Machinery	21,838	4.5	109	6.9	128	6.4
Manufacture of Transport Equipment	20,880	4.3	51	3.2	66	3.3
Manufacture of Electric Machinery and Apparatus	28,977	5.9	107	6.8	135	6.7
Computers, Communication and Electric Equipment	16,339	3.3	68	4.3	79	3.9
Manufacture of Measuring Instruments	6,475	1.3	12	0.8	30	1.5
Manufacture of Handicrafts and Others	8,588	1.8	32	2.0	46	2.3
Recycling and Disposal of Waste	1,363	0.3	1	0.1	8	0.4
Power Production and Supply	6,719	1.4	25	1.6	35	1.7
Production and Supply of Gas	1,024	0.2	0	0.0	0	0.0
Production and Supply of Water	2,327	0.5	18	1.1	24	1.2
Total	488,059	100.0	1,571	100.0	2,006	100.0

Table A2. Regional Distribution

Province	Population		1571 Firms From Q3 Survey		Final Response Sample	
	Number of Firms	Percent	Number of Firms	Percent	Number of Firms	Percent
Beijing	7,913	1.6	24	1.5	32	1.6
Tianjin	7,902	1.6	33	2.1	45	2.2
Hebei	17,732	3.6	66	4.2	82	4.1
Shanxi	7,129	1.5	14	0.9	21	1.0
Inner Mongolia	5,269	1.1	9	0.6	14	0.7
Liaoning	22,336	4.6	61	3.9	79	3.9
Jilin	5,328	1.1	15	1.0	20	1.0
Heilongjiang	4,921	1.0	13	0.8	19	0.9
Shanghai	20,256	4.2	67	4.3	101	5.0
Jiangsu	80,696	16.5	251	16.0	317	15.8
Zhejiang	69,938	14.3	250	15.9	302	15.1
Anhui	13,600	2.8	44	2.8	57	2.8
Fujian	19,531	4.0	64	4.1	101	5.0
Jiangxi	10,150	2.1	26	1.7	31	1.5
Shandong	43,347	8.9	145	9.2	182	9.1
Henan	19,395	4.0	57	3.6	74	3.7
Hubei	13,056	2.7	44	2.8	52	2.6
Hunan	12,381	2.5	31	2.0	40	2.0
Guangdong	59,052	12.1	221	14.1	260	13.0
Guangxi	5,699	1.2	24	1.5	29	1.4
Hainan	657	0.1	1	0.1	1	0.0
Chongqing	7,596	1.6	22	1.4	30	1.5
Sichuan	14,796	3.0	45	2.9	57	2.8
Guizhou	3,498	0.7	4	0.3	5	0.2
Yunnan	5,291	1.1	15	1.0	22	1.1
Tibet	112	0.0	0	0.0	0	0.0
Shaanxi	4,398	0.9	15	1.0	20	1.0
Gansu	2,113	0.4	7	0.4	8	0.4
Qinghai	519	0.1	0	0.0	1	0.0
Ningxia	1,288	0.3	1	0.1	2	0.1
Xinjiang	2,126	0.4	2	0.1	2	0.1
Total	488,025	100.0	1,571	100.0	2,006	100.0

Table A3. A Comparison of Company Characteristics

	Population		1571 Firms From Q3 Survey		Final Response Sample	
	Mean	Median	Mean	Median	Mean	Median
Assets	90,050	12,920	117,514	17,378	109,986	16,925
Sales	104,739	20,073	154,528	24,433	138,881	23,389
Employment	182	70	202	83	194	80
Sales Per Capita	687	310	556	306	567	301