

**Improving City Competitiveness  
through the Investment Climate:  
Ranking 23 Chinese Cities**

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## Chapter 1. Investment Climate Matters

During the last decade, major developing countries including China have begun to integrate much more with the global economy. The countries that are aggressively integrating have grown significantly faster than those that are not. In the 1990s, the more rapidly globalizing developing countries (measured in terms of increased trade participation) grew at 5.0 percent per year, while the rest of the developing world posted negative growth of 1.1 percent.<sup>1</sup> Among the more aggressive globalizers were Brazil, China, Mexico, Philippines, Thailand, and India.

That globalizing developing countries are doing well on average is good news. But these averages disguise considerable variation in performance within this group. China has done spectacularly well, and is the unchallenged leader of the pack. The country has doubled its ratio of trade to GDP over the past two decades (to 41 percent of GDP in 1999), and has had per capita GDP growth of nearly 8 percent on average during 1990-99. Malaysia was another winner: in spite of the temporary income compression due to the Asian crisis, it could still enjoy per capita GDP growth of 3.8 percent during the 1990s. Again, despite the crisis, Thailand's per capita GDP growth in the 1990s averaged 3.8 percent. However, the per capita GDP growth of another relatively aggressive globalizer, Brazil, has only been around 1 percent for 1990-99; and growth in the Philippines was only 0.4 percent. India, with per capita GDP growth of 3.3 percent during 1990-99 is in the middle of the pack (figure 1.1).

The implication of these variations is striking. Such differences in growth rates sustained for one or two decades make a huge difference in living standards and the extent of poverty. While in 1990 China and India had comparable levels of GDP per capita (approximately \$1,400 measured at purchasing power parity), in the following decade India's per capita income nearly doubled, but China's nearly tripled. Thus, today, China's per capita income is about 50 percent higher than that of India. Together with its faster growth, China has also had significantly faster poverty reduction (figure 1.2).

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<sup>1</sup> During the same period, the rich countries grew at about 2 percent per capita.

Figure 1.1 Per capita GDP growth rates in globalizing developing countries (average 1990-99)

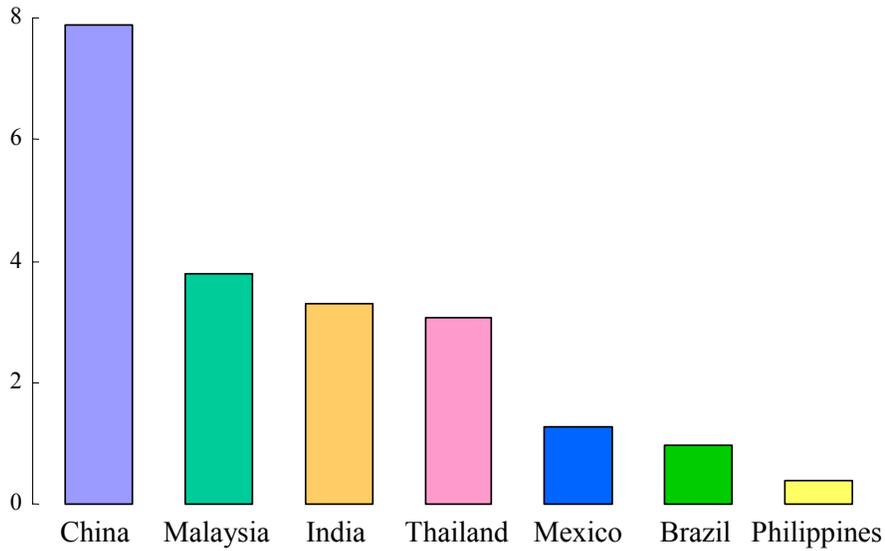
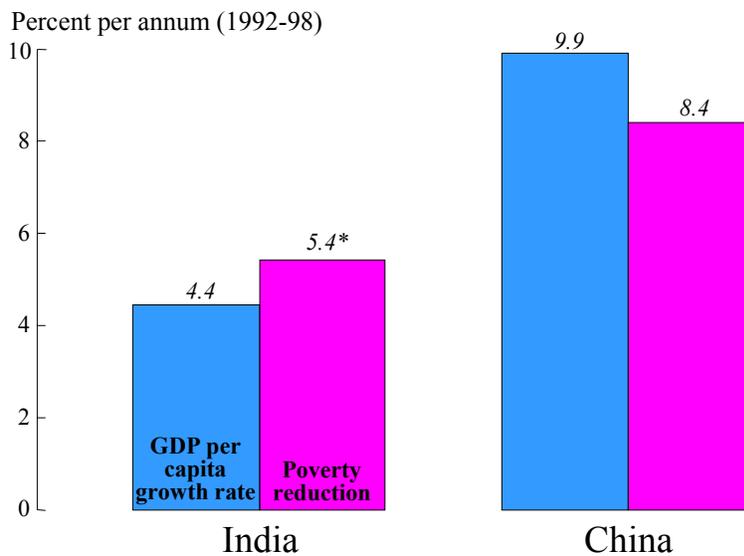


Figure 1.2 Poverty reduction in India and China is closely related to the growth rate



\* India poverty reduction figure is for 1993-99

The purpose of our paper is to examine some of the reasons for such performance variations. Instead of focusing on country-level, we examine 23 cities in China. This has the advantage as these cities have the same legal and institutional frameworks, and the same macro environment. Therefore, it is less likely that we make wrong inference about true determinants of firm performances. Moreover, the large variations across Chinese regions and cities offer ample room to demonstrate the link between firm performance and the investment climate, which is a series of institutional factors and policies that determine firm performances.

In the next section, we define in more detail what we mean by investment climate. Section 2 then briefly reviews some of the macro and micro evidences that show the importance of investment climate for sustained growth and poverty reduction. We also quickly go through a comparison of China versus other countries in the investment climate based on macro (i.e., country-level) observations. In general, China stands out favorably in areas such as macro and political stability, integration into the world market, and infrastructure. Abundance of cheap labor associated with rural-urban migration has been and continues to be a comparative advantage of China. Not everything is rosy, however. The financial sector is not operating efficiently—the vast majority of credit has been provided to state-owned enterprises, which often cannot service their debts, and small- and medium enterprises have to rely mainly on retained earning and personal wealth (or parent company financing) to finance their investment. Moreover, China also lags its more developed East Asian neighbors in terms of education level.

While illuminating about the importance of the investment climate, the macro literature does not really provide much specific guidance about what aspects of the investment climate are important and what specific reforms are needed in particular countries. Moreover, the micro evidence in other countries cannot really tell us what are important for *Chinese* firms. As we shall see after finishing reading this paper, the investment climate determines firm performance in quite different fashions in countries with different institutions, endowment, and technology. For this reason, we go down to China-specific micro surveys in chapters 2 and 3. The source of information includes surveys conducted by the World Bank with the Enterprise Survey Organization of

China's National Statistical Bureau, comparable surveys conducted in other countries, and various cross-country databases.

After describing the investment climate surveys in China in Chapter two, Chapter three compares the investment climate in the 23 cities, using the ESO-WB survey of 3900 firms. Chapter four then analyzes how the investment climate affects firm performance. We obtain several main findings. First, investment climate shows large variations across the 23 cities. We characterize the investment climate as having the following elements: infrastructure, domestic entry and exit barriers, skills and technology endowment, labor market flexibility, international integration, private sector participation, informal payments, tax burdens, court efficiency, and finance. We then use our firm surveys to compare each city in these elements, give a ranking for each element. Judging by the amount of gains a city expects from improving its investment climate (to the level of an ideal city), we then give a city an overall rank in the investment climate. The frontrunners (**A+**) are Hangzhou, Shanghai, Guangzhou and Shenzhen, all in the Yangze-river and Pearl-river Delta areas. The following cities also have excellent ICs (**A**): Chongqing, Jiangmen, Changchun and Wenzhou. The **A-** cities are Tianjin, Dalian, Beijing and Zhengzhou. The **B+** cities include Wuhan, Nanchang, Xian and Changsha. The **B** cities are Chengdu, Guiyang, Kunming and Nanning. The laggard group (**B-**) includes Ha'erbin, Lanzhou and Benxi.

Second, the growth potential from improving the investment climate could be quite large. For instance, we consider what gain an average city would get from reaching the level of investment climate indicators that we observe in a hypothetical city called Nice that would have the 10<sup>th</sup> best IC among 100 cities. We estimate that in this scenario firm productivity could be increased by about 45 percent and that the investment rate of the typical firm would increase from the 14 percent that we actually observe in the sample to about 17 percent. These specific point estimates inevitably have some uncertainty around them, but the general point is that firm productivity, investment, and growth are related to aspects of the investment climate and that addressing weaknesses identified in this analysis should lead to substantially better firm performance.

Third, within the categories of investment climate we have found the most important elements are entry and exit barriers, skills and technology, foreign

participation, labor market flexibility, and finance. Private ownership and tax burdens are not as important as we used to think, but still significantly important. In contrast, infrastructure, court efficiency and informal payment do not appear to be a binding constraints at this stage, either because China has done particularly well (such as in the case of infrastructure, especially in the last five years or so), or perhaps because it is still too early for it to become important (in the case of court efficiency or informal payment).

**A. What do we mean by “investment climate”?**

*The quantity and quality of investment flowing into China or any specific region depend upon the returns that investors expect and the uncertainties around those returns. These expectations can be usefully categorized as the following broad yet interrelated components:*

- First, there are a set of macro or country-level issues concerning economic and political stability and national policy towards foreign trade and investment. By these, we generally refer to macroeconomic, fiscal, monetary, and exchange rate policies as well as political stability. As far as these macro indicators go, China performs quite well, as will be documented in chapter two.
- Second, there is the issue of efficacy of a country’s regulatory framework. As far as firms are concerned, these relate to the issues of entry and exit, labor relations and flexibility in labor use, efficiency and transparency of financing and taxation, and efficiency of regulations concerning the environment, safety, health, and other legitimate public interests. The question is not whether to regulate or not, but whether such regulations are designed in incentive compatible ways, to avoid adverse selection and moral hazard, to serve the public interest, to be implemented expeditiously without harassment and corruption, and to facilitate efficient outcomes. While such variables are hard to measure, our surveys clearly suggest that regulatory efficacy varies widely across countries and, as far as China is concerned, across provinces.
- Third, and no less important, is the quality and quantity of available physical and financial infrastructure, such as power, transport, telecommunications, and banking

and finance; and given the imperfect mobility of skilled workers and the clustering of technology, the endowment of skills and technology. When one surveys entrepreneurs about their problems and bottlenecks, they will often cite infrastructure issues such as power reliability, transport time and cost, and access and efficiency of finance, along with the lack of skilled workers and the difficulty of access to advanced technologies as key determinants of competitiveness and profitability.

China's success in the 1990s suggests that it has many positive features in its investment climate, and one objective of our study is to understand what has contributed to China's success – which can provide useful lessons to other developing countries. The evidence also shows that there is still room for significant improvement in the investment climate. To be sure, China has been excellent in the first dimension of the investment climate (i.e., macro environment), as characterized by political and macro policy stability. However, some recent changes in the structure of the Chinese economy require further structural reforms. The WTO accession, for instance, requires China to shift from a discretion-based governance system to a rule-based one, which requires the reduction of the role of the government in how firms operate. Financing also should be less favorable to one particular type of ownership. Another challenge has been the migration of rural residents to cities, and the pressure of job creation due to both migration and Xia-Gang workers (i.e., laid-off workers from SOEs). This challenge also imposes demand for regulatory reforms. The government should reduce entry barriers for new, and small- and medium-sized enterprises, which have been shown to be the most important force behind job creation. The government should also push for reforms in financial institutions in order to allow SMEs ready access to credit. This paper hopes to shed light on what would be some fruitful areas for further reforms.

Two caveats are in order at this stage. First, we are not interested in the quantity of investment *per se*. Indeed, recent work on economic growth (Easterly 1999) has shown that there is surprisingly little relationship between the *quantity* of investment and the rate of economic growth. In many instances, this is due to a distorted and dysfunctional institutional and policy milieu — where neither public nor private investments produce the benefits that they should. Our focus, therefore, is not on the quantity of investment, but on the overall institutional and policy environment — the 'investment climate' —

that determines whether or not investments pay off in terms of greater competitiveness of firms and sustained growth.

Second, while we recognize that social infrastructure is no less important than its physical and financial counterparts, we have chosen to exclude from our definition of the investment climate such issues as the provision of basic education and health services. It is a deliberate choice. The reforms needed to improve social services are quite different from the issues of infrastructure and regulation of industry on which we concentrate.

### **B... and why does it matter: macro evidence**

Spurred by the endogenous growth theories of Romer (1986) and Lucas (1986), there is now a vast empirical literature that investigates the determinants of growth. Some of the empirical results are fairly robust and provide macro evidence about the importance of the investment climate. Fischer (1993), for example, found that high inflation is bad for growth. There is also a clear negative relationship between government consumption and growth, which was first noted by Easterly and Rebelo (1993). No doubt, some government expenditures are socially productive, but developing countries with very high government spending usually have inefficient bureaucracies and high levels of corruption.

A number of studies, most recently Frankel and Romer (1999) and Dollar and Kraay (2003), find that openness to trade and direct foreign investment accelerates growth. These findings are in the spirit of the new growth models, and emphasize the importance of market size for creating a finer division of labor and stronger incentives to innovate. In addition to macro and trade policies, financial development is also a catalyst for growth (Levine, et al., 2000). All else being controlled for, countries that have more developed stock markets and/or deeper banking systems tend to grow faster.

Investment climate measures such as the strength of property rights, rule of law, and level of corruption are also well correlated with growth (Kaufmann, et al., 1999; Knack and Keefer, 1995). These studies typically use data generated from surveys of private businesses, and reflect the extent to which investors and/or firms perceive problems with

harassment, corruption, and inefficient regulation. A problem of these measures, however, is that they are often based on a small sample of very large entrepreneurs and hence do not provide a robust assessment of how rule of law and corruption are experienced by small and medium enterprises, which form the backbone of the economy.

Thus, the empirical cross-country literature provides evidence that growth and poverty reduction are promoted by a good investment climate — an appropriate policy package of private property rights, sound rule of law, macroeconomic stability, government spending that is not excessive and well focused on public goods, and openness to foreign trade and investment. However, most of the macro-indicators of policy and investment climate used in these studies are quite crude, and are of little help to countries in identifying what specifically needs to be done to create a better climate. For instance, the existing cross-country macroeconomic measures are quite similar for China and India (e.g. rankings on rule of law, corruption, or overall infrastructure quality from different international sources) (World Bank, 2002). Both countries ‘fit’ the empirical growth studies in that both have done relatively well. India has grown at about twice the rate of the OECD countries in the 1990s. Yet, China has grown much faster and had much greater poverty reduction. Macro-indices fail to explain such differences. Thus, while the macro evidence is useful as background and motivation for the rest of our work, it suggests the need to delve at a much more micro level, and to survey large numbers of producers, including SMEs, to understand the rich differential relationship between investment climate and growth.

### **C... and why does it matter: micro evidence from investment climate surveys**

The importance of the investment climate has also been confirmed by several firm surveys conducted by the World Bank in other countries. Particularly noteworthy are two surveys on Pakistan and India. Findings on these two countries suggest that improving the investment climate has important positive effects on firm performance, and more importantly, the important ingredients for the two countries differ greatly—and as we shall see, they also differ from China greatly. This provides justification why we should conduct country-specific investment climate survey: to find out what are the

shortcomings in the investment climate and what ingredients matter more for a particular country, and for particular locations within a country.

Through rigorous analyses of firm-level survey data in India, World Bank (2002) obtains several important findings. First, India lags significantly in many dimensions of the investment climate. In particular, India features heavier regulatory burdens (as measured by the percent of managerial time with government officials) and worse infrastructure. For instance, the median number of days to start a business in India is 90 days, but only 30 days in China. The percent of paved roads are 56% in India, but was 88% in China. The number of personal computer per 1000 people is 3 in India, but 12 in China. The number of telephones in the largest city per 1000 people is 131 in India, but 294 in China. Yet, India features better access to finance than China. Second, the main bottlenecks to firm growth in India are labor market rigidity (i.e., difficult to adjust labor force of the firm), excess burden of regulation, and serious deficiency in the provision of physical infrastructure. Their simulation finds that: (i) reducing the burden of business regulation along to the level of the best-climate states would increase the average business sales growth rate in a poor-climate state by 2 percentage points a year; (ii) improvement in power supply and telecommunications services to the level of good-climates would further add 3 percentage points to the same growth rate.

Pakistan clearly also lags China in a number of IC ingredients, besides the macro factors such as political instability and a unsustainable public debt position. Using a investment climate survey of 965 manufacturing firms sampled from 12 major cities and 9 industries, the World Bank researchers (World Bank, 2003) find that the key deficiency in the investment climate are the provision of physical infrastructure, the state of business regulation, tax and customs administration, the law and order situation, and the functioning of the credit market. They also find that after controlling for some conventional variables, Pakistan lags India in productivity by 20 percent, which in turn lags China in productivity by 20 percent. Indeed, leveling up Pakistan's IC indicators to those of China would raise the average annual sales growth of Pakistan firms by 8.5 percentage points, and raise the net job-creation rate (as measured by employment growth rate) by 3.1 percentage points.

Both the India and the Pakistan studies of the investment climate find that infrastructure and business regulations tend to be important bottleneck for firm performances. For India labor market rigidity is particularly important, while for Pakistan, tax and customs administration, the law and order, and the credit market are also important. Thus it is clearly important to conduct country-specific investment climate survey. One simply cannot assume the investment climate would work the same way in different countries. This is precisely why we have conducted the China investment climate surveys, in two rounds, covering 23 cities. As we shall see, the key bottlenecks in IC in China are indeed quite different from the above two countries.

**D. How does China compare by macro investment climate indicators?**

It has almost become fashionable for other developing countries to compare with China. Not surprisingly, several recent World Bank publications have compared other countries with China in terms of the investment climate (Dollar and Kraay, 2003; World Bank, 2002, 2003). The studies suggest that China indeed has been doing quite well in a number of important dimensions, but also lags behind some neighbors in the East or Southeastern Asian countries in other dimensions:

1. China has been doing well in infrastructure, as mentioned in the comparison with India earlier on. However, the data also show that China lags behind Thailand in telephone density (294/1000 versus 371/1000), computer density (12/1000 versus 23/1000), and percent of paved roads (88% versus 97%).
2. China scores very high on political stability among 174 countries surveyed, near the median for government effectiveness, but below the median for corruption among the sample countries (Kaufman et al., 1999). China's regulation burdens appear to be lower than that in India or Pakistan. Many elements of governance compare favorably to other countries.
3. China is more open to foreign trade than India.
4. Overall, China is comparable in human resources and skills to other East Asian countries, despite a low tertiary enrollment. However, China lags behind some East Asian neighbors in terms of R&D intensity. Thailand, for

instance, spend over 5.6 percent of sales on R&D, while China's number is only 2%.

5. China has a mixed record in terms of entry and exit barriers. Different sources of information yield conflicting findings. Many scholars are concerned about significant regional protectionism in China.
6. China is particularly weak in providing efficient financing to firms, especially small and medium (private) enterprises. Most credits have been provided to state firms, while private firms, especially SMEs, find it hard to obtain bank financing, and instead have to rely on informal sources such as family and friends loans, trade credit (i.e., accounts payable), parent company financing, or rely on own financing from retained earnings.

These findings provide an interesting backdrop for our micro study in the rest of this report. If infrastructure is less a bottleneck than in elsewhere, would it become less a constraining factor in determining firm performance? If financing is suggested as an important bottleneck, would we indeed find that firms are significantly hampered by financing? Does entry and exit barriers significantly affect firm performances? If there are some evidence that skills and technology in China is not a factor that China compare favorably with other East Asian countries, would these factors show up as impediments to firm performances in China? These questions will partly direct our empirical research in the rest of the report.

## **Chapter 2. The Investment Climate Survey**

In light of the importance of the investment climate for growth and poverty reduction for the developing countries, the World Bank has been implementing a series of investment climate survey in a number of countries. China has been one of the earliest one to get done.

The survey has been conducted by the Enterprise Survey Organization (ESO) of the National Statistics Bureau (NBS) of China. The first-phase investment climate survey was conducted in 2001 in five Chinese cities (Beijing, Tianjin, Shanghai, Guangzhou and Chengdu). It surveys 300 firms in each of five cities: Beijing, Tianjin, Shanghai, Guangzhou, and Chengdu, for a total of 1500 firms. The survey collected detailed information on financial statements, and different aspects of corporate governance, financing, firm-government relationship, innovation, technology, labor, and so on. Most quantitative questions cover the period 1997 to 2000, and most qualitative questions cover only the time of the survey. The follow-up investment climate survey was done in 2002, covering the same set of firms, with a small percentage of firms having disappeared between two surveys. The questionnaire covers the following aspects: investment climate constraints to the establishment, infrastructure and services, finance, labor relations, sales and supplies, business-government relations, conflict resolution and legal environment, crime, capacity, innovation and learning.

The sample for the first-round investment climate survey consists of both manufacturing and service firms. The industries covered include: clothing and leather products (14.1 percent); electronic and communication equipment making (12.5 percent); electronic components (14.7 percent); household electrical goods (11 percent); auto and auto parts (14.4 percent); information technology services (8.9 percent); communication services (4.6 percent); accounting, auditing and nonblank financial services (7.1 percent); advertising and marketing services (5.8 percent); and business logistics services (7 percent). Within the sample, firms vary substantially by size and by ownership type. The samples are randomly chosen given pre-determined distribution by city and broad industry and size strata.

The first-phase investment climate survey report has been received enthusiastically by policy makers and general readers alike (David et al., 2003). Chinese Ministry of Finance and State Development Planning Commission co-hosted a conference with the World Bank in Beijing on December 3, 2002 to disseminate the report. Recently, Chinese government adopted the improved investment climate as one criteria to measure local government performance. In the first week since the opening of the Chinese website of the World Bank, for instance, in June this year, the Chinese version of the first IC report has been downloaded 344 times, ranking number 1 among all papers and reports. There are several common feedbacks from the audience while we disseminated in China. Almost all suggest that we should do another survey covering more inland cities. The five cities we picked initially are located in more advanced regions, and are unlikely to be a good representation of all the provinces in China. Some suggest that we have missed key elements of investment climate. For instance, tax rate is obviously an important determinant of investment for firms, but the first-phase investment climate survey did not cover it thoroughly. These feedbacks kindled our interest to do another survey, and aided greatly in our re-design of our questionnaire.

The second-phase survey was conducted in 2003. We selected 18 middle-sized and mega cities, and cover from the coastal region to the less developed mid and western regions (figure 2.1). From the Northeastern region we selected Benxi, Dalian, Changchun, Haerbin. From the coastal region we picked Hangzhou, Wenzhou, Shenzhen, Jiangmen. From the central region we picked Nanchang, Zhenzhou, Wuhan, Changsha. From the Southwestern region we sampled Nanning, Guiyang, Chongqing, Kunming. From the northwest region we selected Xi'an, Langzhou. In total we surveyed 2400 firms. In each city we sampled 100 to 150 firms.

Figure 2.1 A Total of 23 Cities Surveyed in China



In the second round of survey we intended to select randomly from the same 10 manufacturing and service industries. However, many of the new cities are smaller in size, and they often have distributions of industries quite different from the cities in the first-round. As a result, for some cities we added (but limited) more industries to sample. The distribution of industries for the second-round investment climate survey is as follows (Table 2.1):

**Table 2.1 Frequency Distribution of Industrial Sector: 2003**

Sector	freq.	%
Garment and lather products	353	14.71
Electronic equipment	185	7.71
Electronic parts making	276	11.50
Household electronics	63	2.63
Auto and auto parts	358	14.92
Information technology	203	8.46
Accounting and non-banking financial service	157	6.54
Advertisement and marketing	154	6.42
Business services	270	11.25
Food processing	71	2.96
Chemical products and medicine	66	2.75
Biotech products and Chinese medicine	36	1.50
Metallurgical products and manufacturing and tools	158	6.58
Transportation equipments, including telecommunication and ship-building	50	2.08
total	2400	100

Source: Chinese Investment Climate Survey, 2003.

One characteristics of our investment climate survey is that, rather than asking subjective questions on perception of a problem, objective quantitative data is collected. Thus, instead of asking if red tape is an obstacle, managers are asked the amount of time they spend with officials to meet regulation requirements. Or, rather than asking if labor laws are restrictive, information is gathered on the share of temporary workers and the extent to which firms have excess workers. This rich database provides us with information over three years, with large variations both in performance over time and the investment climate across firms and regions.

Since we are combining the two data sets together, it is important to keep in mind several facts when we interpret the results. First, the first-phase covers the period 1998 to 2000, while the second wave covers 2000 to 2002, so we comparing Beijing, Tianjin, Shanghai, Guangzhou and Chengdu between 1998 to 2000 with the other 18 cities between 2000 to 2002. Second, some questions are only asked for the second-round of

survey but not in the first round of the survey. This is mainly because we did not anticipate the importance of those questions when we did the first-found survey, but feedbacks collected after the first report led us to add these questions.

## **Chapter 3. Regional variations in the Investment Climate**

China is a large country with diverse culture, cuisine, geography, and climate. Its investment climate also varies from one region to another. In this chapter we address the differences in the investment climate within China, and in particular, the 23 cities that we have surveyed.

Variation across regions in China is quite considerable, with eastern and coastal areas generally having developed more quickly and attracted more investors than the mid- and Western areas. There are numerous sources of factors that contribute to this situation, such as differences in natural endowments, access to ports, skills of the residents, and the quality and quantity of infrastructure, and the particular nature of how the Chinese economy has been organized and policy making conducted. The differences in initial endowments, regional discretion in policy making, tax arrangements, as well as many other factors have all led to strong regional variations in the investment climate.

Instead of a one-dimensional indicator of “goodness of investment climate, we shall offer a series of measures on the different aspects of investment climate. This approach highlights not only the complex nature of how the investment climate affects firms, but also emphasizes that a region can excel in some areas, while lagging in others. To facilitate discussion, the broad array of indicators is grouped into 9 categories. The final selection of the indicators presented here is based on our empirical investigation of the most important determinants of firm-level performance and by findings of other researchers in the literature. Indeed, we have restricted the presentation to those measures that were the most significant determinants of firm performance. In our discussion of investment climate we have usefully classified a larger list of indicators into the following categories:

1. infrastructure;
2. domestic entry and exit barriers;
3. skills and technology endowment;
4. labor market flexibility;
5. international integration;
6. private sector participation;

7. informal payments;
8. tax burdens;
9. court efficiency;
10. finance.

In the rest of the chapter we shall discuss how we go about measuring each category, and how the 23 cities differ in these aspects.

### **3.1. Infrastructure**

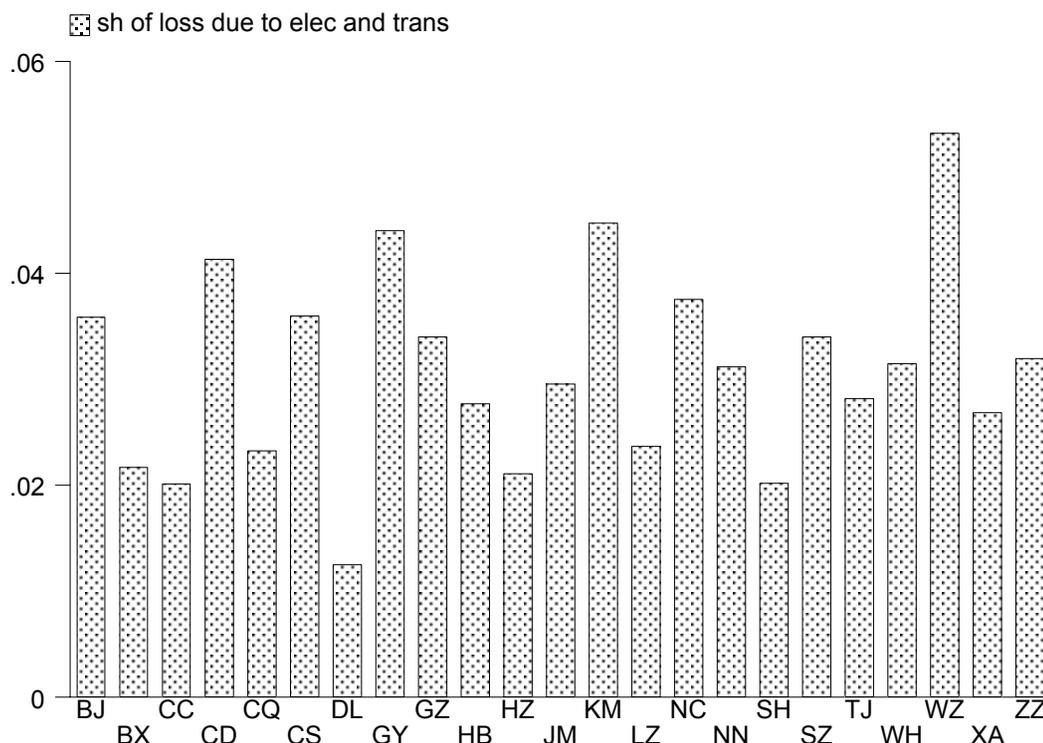
Infrastructure is an important determinant of a firm's productivity. A firm needs to rely on roads to ship out its product and ship in its inputs. It needs to rely on the telecommunications network to do businesses with clients and other firms. Gas, electricity and water are all essential inputs for a firm's production. Thus clearly the quantity and quality of infrastructure constitute an important ingredient of the investment climate: new firms will choose to move to locations with good infrastructure, and existing firms might re-locate to different places when they are unsatisfied with the infrastructure. Yet infrastructure is also expensive, and much of it belongs to the category of public goods. For instance, the percent of investment allocated to infrastructure amounts to roughly 20% of total investment, and 35-55% of public investment. Thus infrastructure could be an important determinant of firm location and productivity, and thus is an important ingredient of a good investment climate.

We measure the quality of infrastructure by the share of losses (in total sales) from electricity outage or theft and breakage during transportation.<sup>2</sup> Figure 3.1 depicts the variations of infrastructure quality for our cities. A lower bar representing the losses due to the infrastructure implies infrastructure of better quality. We shall give each city a grade from A to C, with shades of differences represented by + or -, with + being better, and - being slightly worse.

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<sup>2</sup> The data set provides the losses from electricity outage and from transportation theft/breakage costs (as a share of sales) separately. Upon empirical exploration, we found that their effects tend to be similar. Thus for a parsimonious specification, we aggregate them into one variable. We also have other variables on infrastructure, such as the difficulty to obtain a phone and so on. However, in initial empirical explorations we find that they are not important bottlenecks for firms.

**Figure 3.1. City-wide comparisons in infrastructure**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

The grade is as follows. Dalian earns the only **A<sup>+</sup>** (1.2%). Six cities get **A**: Changchun and Shanghai (2.0%), Hangzhou (2.1%), Benxi (2.2%), Chongqing (2.3%), Lanzhou (2.4%). Three cities have **B<sup>+</sup>**: Xi'an (2.7%), Haerbin and (2.8%). Four cities earn **B**: Jiangmen, Nanning, Wuhan, Zhengzhou, the percentage ranging from 3% to 3.2%. Five cities belong to **B<sup>-</sup>** (3.4% to 3.8%): Shenzhen, Guangzhou, Beijing, Changsha, Nanchang. Four cities have **C** (4.1% to 5.3%): Chengdu, Guiyang, Kunming, and Wenzhou.

There is a caveat to bear in mind. Our infrastructure variable does not include other important components such as the quantity and quality of roads and ports, road congestions, and so on. They are indeed important in measuring the investment climate, particularly in our surveys in countries like India and Pakistan. In our initial empirical exploration in China we didn't find them as important bottlenecks to Chinese firms. This

is probably because of substantial improvement in these sectors due to huge investments pulled by China's central and local governments over the past decades. Thus when we view the results, this caveat should be born in mind.

### **3.2. Domestic entry and exit barriers**

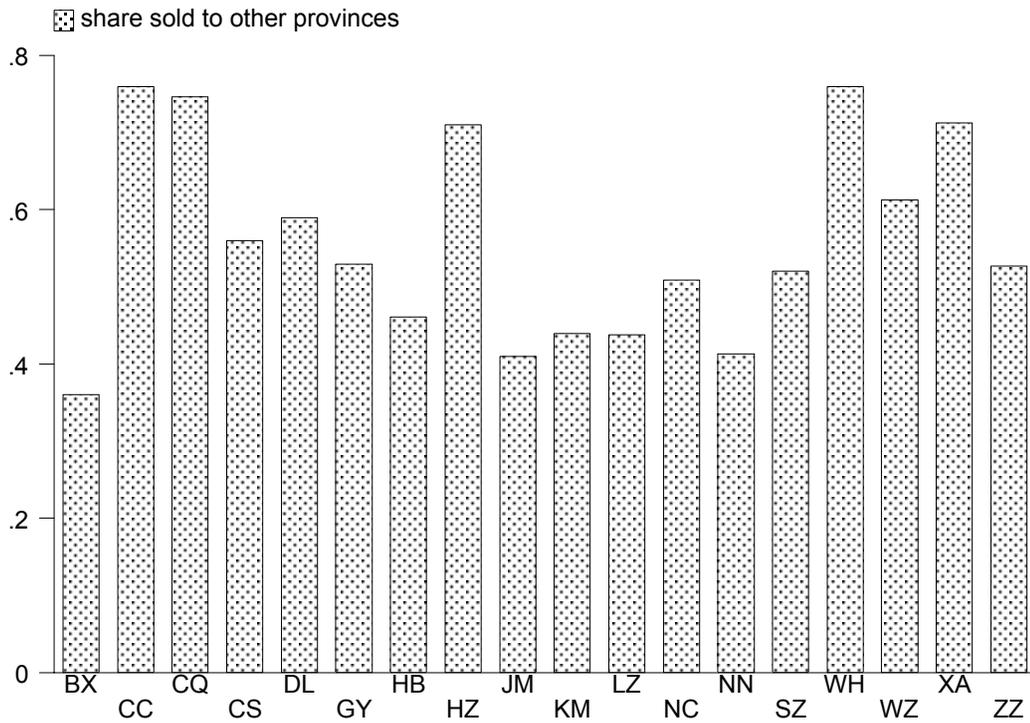
Both policy makers and economic researchers have suspected strong domestic barriers to entry and exit in China (see, for instance, Poncet, 2002). The State Development Planning Commission, for instance, has organized an *ad hoc* team to study this issue, and published a book on this topic in 2000 (State Planning Commission, 2000). The World Bank country team is also conducting a study on regional protectionism. Moreover, entry and exit barriers are clearly an important element of the investment climate—after all, potential investors would be much less likely to invest when either entry or exit barriers are higher.

We have two measures of entry and exit barrier coming from the IC data sets. First, we know the share of a firm's products that are sold to other provinces. We interpret this variable as the entry barriers set forth by *other provinces* toward the province that the firm is located.<sup>3</sup> It is important to note that it does not represent the entry barriers of the province of the firm's location, but nevertheless it represents an important ingredient of the entry barrier faced by a firm. This measure is only available for the second survey, which implies that we do not have this measure for Beijing, Tianjin, Shanghai, Guangzhou, and Chengdu. The city averages are presented in Figure 3.2.

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<sup>3</sup> An alternative interpretation is that it represents the competitiveness of firms rather than entry barriers the firm faced. The data does not allow us to tell which interpretation is more convincing.

**Figure 3.2. City-wide comparisons in extent of market**



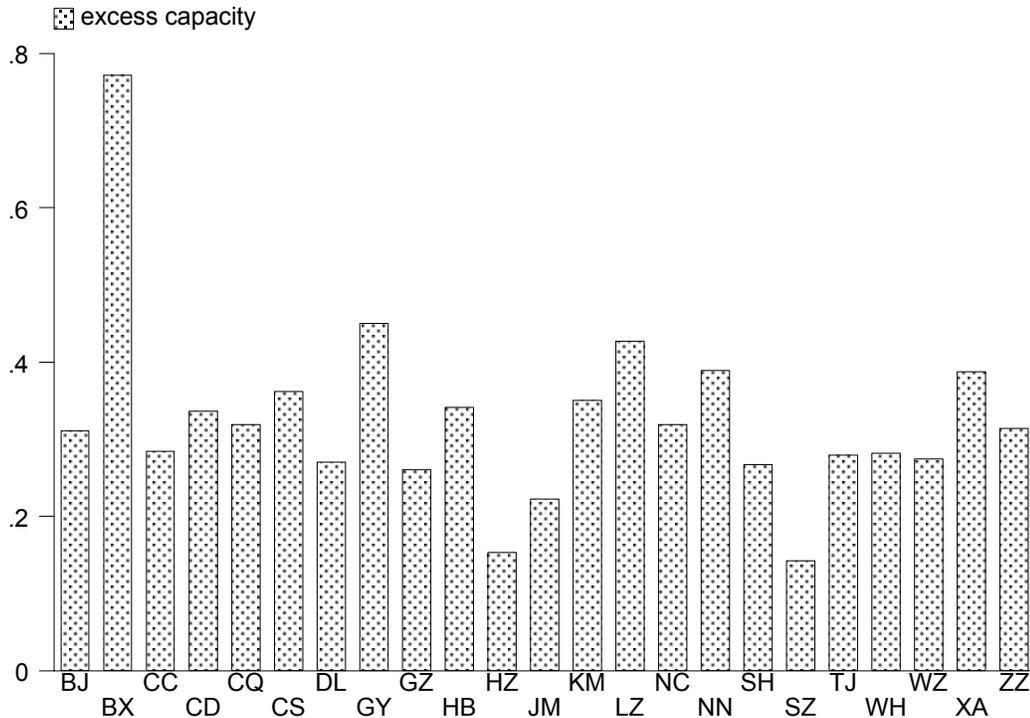
Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

The cities whose firms enjoyed lower entry barriers for their firms (“A<sup>+</sup>”) are Changchun, Wuhan and Chongqing, whose firms sold roughly 75-76% of their products to other provinces. The cities with a score of **A** in entry barriers are Hangzhou and Xi’an, and their firms sold 71% of their products to other provinces. The cities with a score of **B<sup>+</sup>** are Dalian and Wenzhou, which sold 59-61% of their products to other provinces. Five cities have a score of **B**: Changsha, Guiyang, Zhengzhou, Shenzhen, and Nanchang. Roughly 51-56% of their products were sold to other provinces. The **B<sup>-</sup>** provinces are Haerbin, Kunming, and Lanzhou. The firms in these provinces sold 44-46% of their products to other provinces. Three provinces (“C”) lagged significantly. Their firms sold only 36-41% of their products to other provinces. Here, we like to point out that this ranking has its limits. Firms that sold more products to other cities or provinces may be explained by their strong competitiveness or better market access provided by the latter;

but those firms that sold more of their products at local markets can be an indication of protectionism for somewhat.

The second measure is on exit barriers, as measured by the excess capacity that a firm faced. Firms often continue to operate with a certain amount of excess capacity given adjustment costs associated with investment and the hiring and firing of workers. However, significant shares of excess capacity indicate that the barriers to exit can be substantial. Figure 3.3 describes the inter-city variations in excess capacity.

**Figure 3.3. City-wide comparisons in excess capacity**

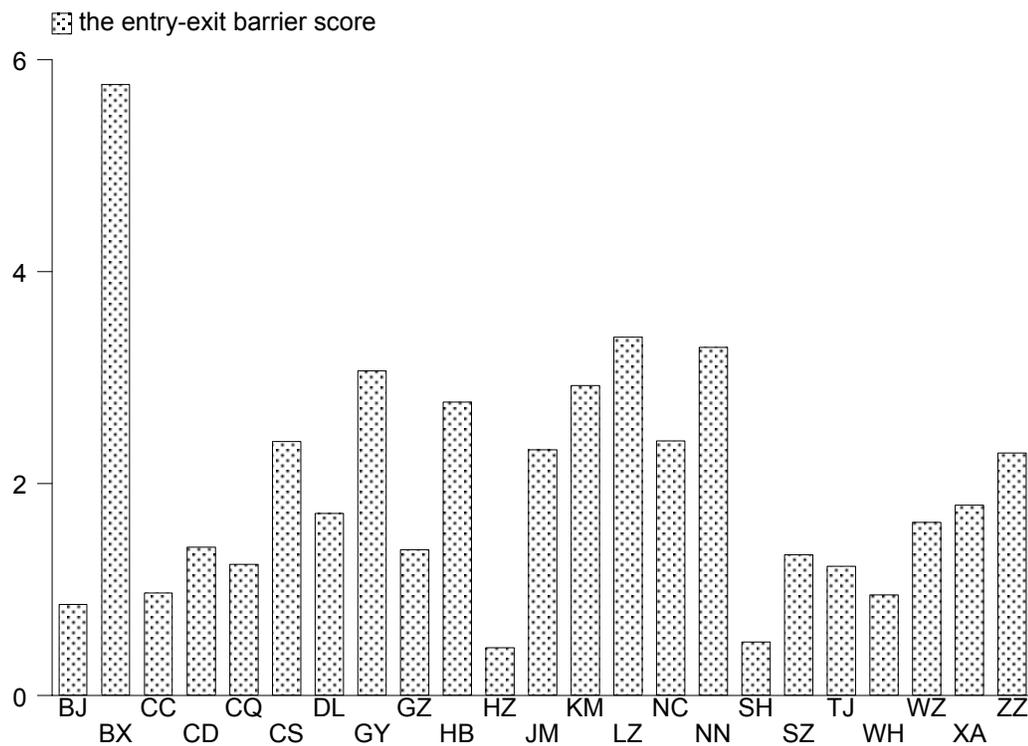


Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

Two cities with the lowest exit barriers (“A<sup>+</sup>”) are Shenzhen (14.3%) and Hangzhou (15.3%), followed by Jiangmen at 22% (“A”). B<sup>+</sup> is defined as a share of excess capacity between 27-28%, and it covers the following cities: Dalian, Guangzhou,

Wenzhou, Shanghai, Wuhan, Tianjin, Changchun, and in this order. **B** covers cities with a share of excess capacity between 30% and 32%, including Beijing, Zhengzhou, Nanchang, Chongqing, and Chengdu. **B**<sup>-</sup> encompasses a list of provinces with a share of excess capacity between 34% to 39%: Haerbin, Kunming, Changsha, Xi'an and Nanning. **C** is justifiably given to Lanzhou and Guiyang, and **C**<sup>-</sup> to Benxi, which had to cross a chasm to join its **C** partners.

**Figure 3.4. The Entry-Exit Score**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

For a simple representation of the entry-exit barriers, we construct an aggregate grade combining the two elements. Since the variable of the share sold outside the province is only available for the second-round cities, we need to find a way to figure out what their likely score would be based on observable information. Luckily, we find that this variable is fairly well predicted by firm size, market share, firm age, city population

and city income level.<sup>4</sup> We thus can plausibly assume the actual value of the five first-round cities to be the predicted value based on these variables.<sup>5</sup> With complete observations now for both variables, we can combine them into a single index using the principal component method.<sup>6</sup> The results are contained in Figure 3.4.

In general, richer cities appear to have lower entry-exit barriers. The **A+** team includes Hangzhou and Shanghai, both located in the Yantze-river economic hub. The **A** cities include Beijing, Wuhan and Changchun. The **B+** cities are Tianjin, Chongqing, Shenzhen, Guangzhou, Chengdu. The **B** score is earned by Wenzhou, Dalian, Xian, Zhengzhou, Jiangmen, Changsha, and Nanchang. The **B-** cities are three, Haerbin, Kunming, and Guiyang. Finally, the **C** team consists of Nanning, Lanzhou, and Benxi.

### 3.3. Labor Flexibility

Besides product markets, an important ingredient for a healthy investment climate is an efficient labor market. A healthy labor market is characterized by flexibility, including low exit barriers. A flexible labor market allows an efficient match between workers and their employers. For instance, when a worker's skills are no longer a good match to the firm's need for skills, or the worker can find better-paid (holding other things constant) job elsewhere, it is optimal to the worker and the firm to separate. While we could incorporate labor market flexibility into the general category on entry and exit barriers, the particular importance of such features in the labor market warranted its own category. Exit barriers for the labor market can come up in various ways, such as specific requirements not to fire workers, government interference in shedding redundant workers, rules or regulations that restrict hiring seasonal and contract workers, or requirements on firms to provide insurance, medical care and pensions. The investment climate surveys provide two measures of exit barriers for labor. The first is the share of workers or staff that is non-permanent. Since it is much easier to shed temporary or

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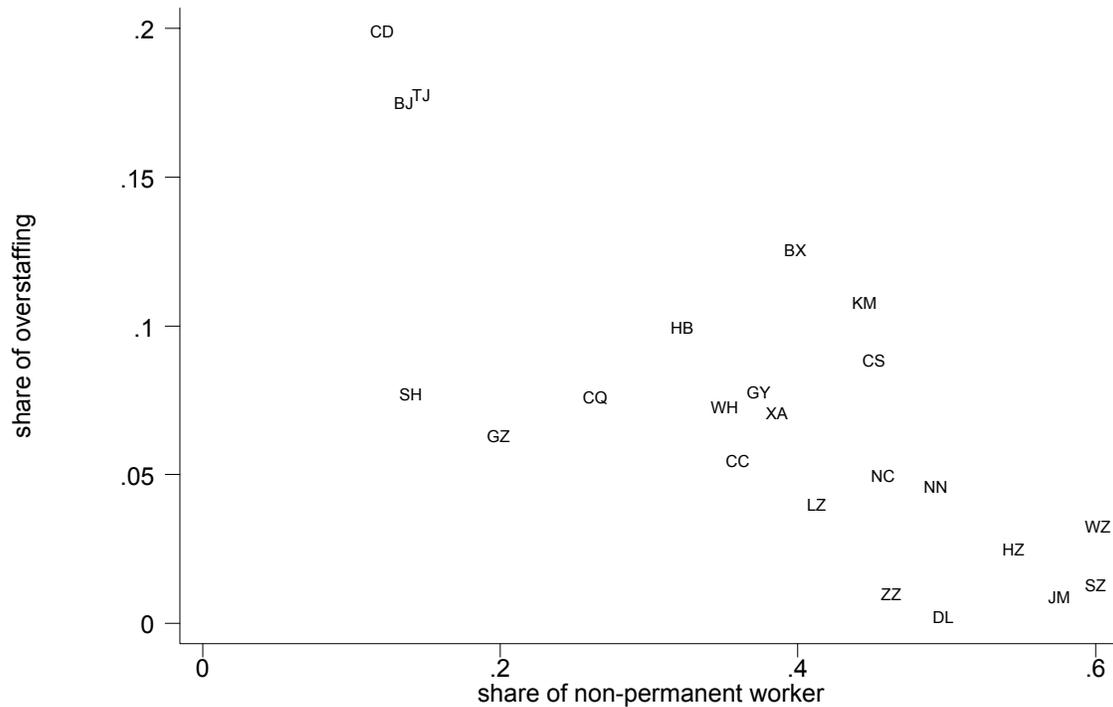
<sup>4</sup> These variables explain 70% of the variance of the dependent variable.

<sup>5</sup> See Greene 1990, pp. 288-289, for methods to deal with missing observations.

<sup>6</sup> In essence, the principal component method finds a linear combination of the variables that are closely correlated such that the newly constructed variable would account for most of the variations of the original set of variables. The correlation coefficient of the two variables here is  $-0.44$ .

seasonal workers, a higher share of non-permanent staff represents a lower exit barrier.<sup>7</sup> In addition, firms were asked directly whether they were overstaffed – i.e. what share of their workforce would they consider redundant if there were no penalties associated with laying-off workers. Thus, more flexible labor markets would be characterized by higher non-permanent labor ratios and lower overstaffing-ratios.

**Figure 3.5. City-wide comparisons in labor market policy**



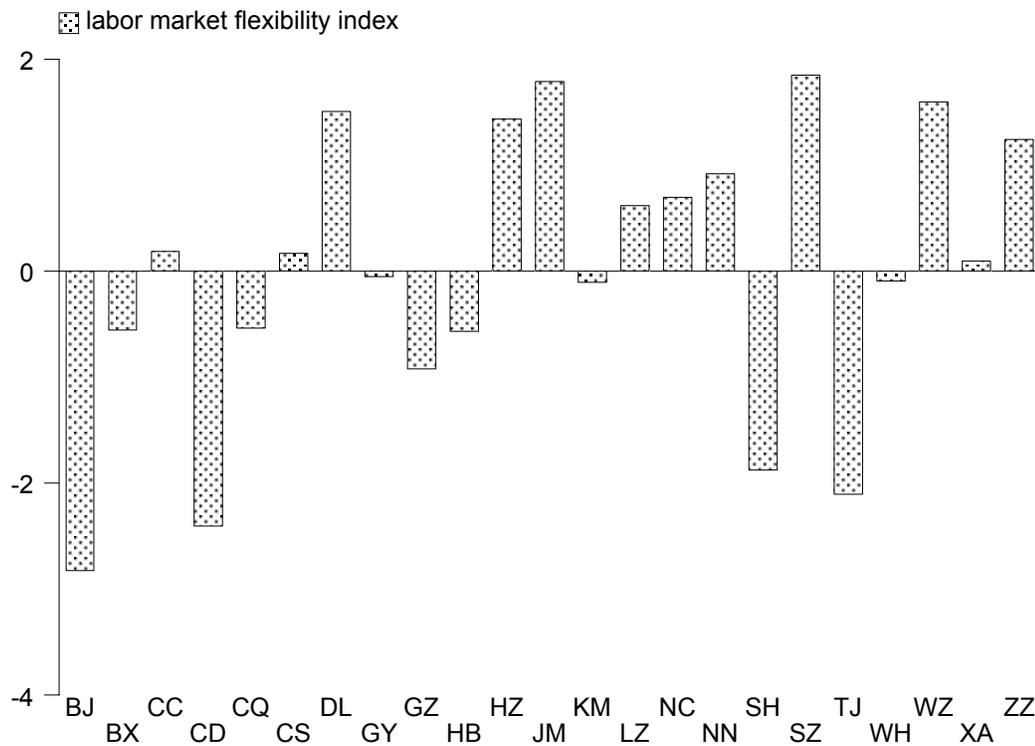
Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

We plot the share of overstaffing and the share of non-permanent workers in Figure 3.5. The first important thing to note is that the two aspects of labor market flexibility is intimately related. We see a negative and close relationship between them.

<sup>7</sup> It is true that in some instances the reliance on a large temporary staff is an indication of high exit barriers (i.e. firms hire temporary workers as a way to get around the burdens imposed by regulations). However, we argue that given the nature of China's migratory labor and residency requirements, allowing the hiring of temporary workers is actually a sign of greater flexibility and a loosening of labor requirements.

Indeed, their correlation coefficient is  $-0.77$ . With this bit of information, it is safe for us to aggregate them into a single index of labor market integration, computed as  $-0.71 \times \text{overstaffing ratio} + 0.71 \times \text{the non-permanent-worker ratio}$  (figure 3.6).<sup>8</sup> It is important to note that the five cities in the first-round of survey all scored lowest among the sample, and we suspect this is because the labor market reform has been going on fast so that the five cities between 1998 to 2000 indeed fared worse than the other cities measured in 2001 to 2002.

**Figure 3.6. The labor market flexibility index**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

Before we proceed to discuss the results, please note that we are comparing the five cities in the first IC survey in 1998-2000 with the other 18 cities in 2000-2002. The A cities in labor market policies are two Guangdong cities (Shenzhen and Jiangmen), two

<sup>8</sup> This is the principal component index for the two variable. The index would capture the main variations contained in the two variables.

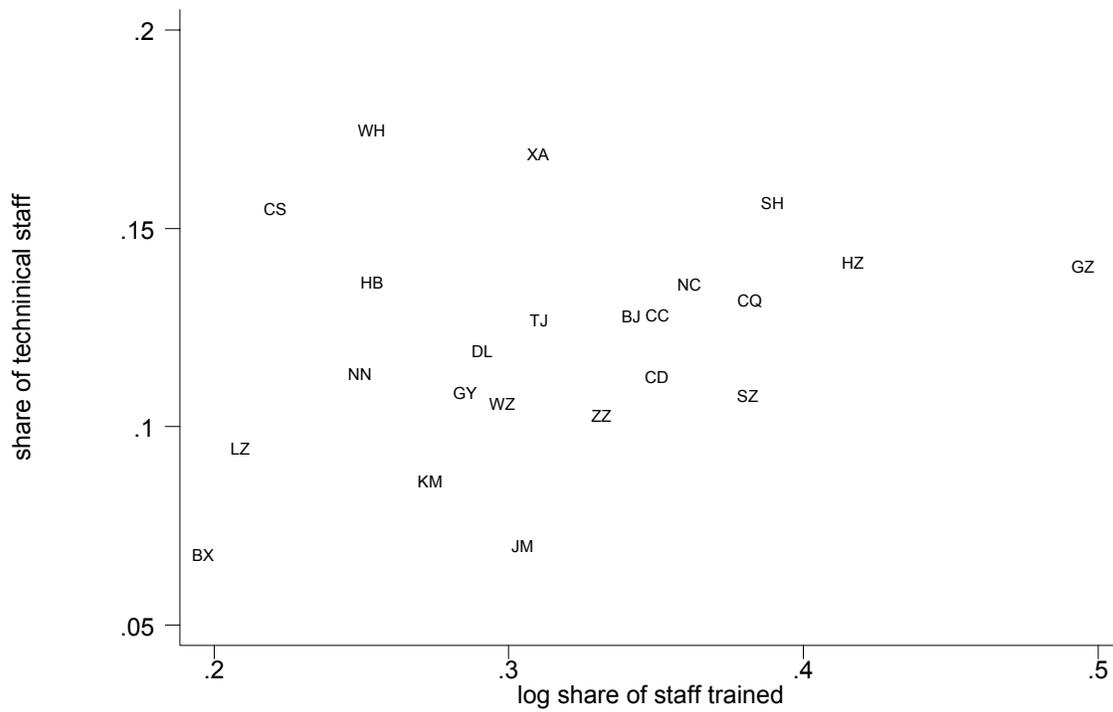
Zhejiang cities (Wenzhou and Hangzhou), and Dalian. The **B+** cities in labor market policies are Zhengzhou, Nanning, Nanchang, and Lanzhou. The **B** cities in labor market policies are Changchun, Changsha, Xi'an, Guiyang, Wuhan, Kunming, Chongqing, Benxi, Ha'erbin and Guangzhou. **B-** cities are Shanghai, Tianjin, Chengdu and Beijing.

#### **3.4. Skills and technology endowment**

Investors are likely to be pulled to locations with abundant skilled workers and advanced technology. Some may argue that skills and technology may not be part of the investment climate because they can be choices of firms, and therefore do not reflect the external investment climate that a firm faces. However, casual observations suggest that people in some cities are much more likely to be better educated and technology-oriented. To the extent that our measures of skills and technology proxy the long-term component of skills and technology for a city, we can view skills and technology as part of the investment climate fabric.

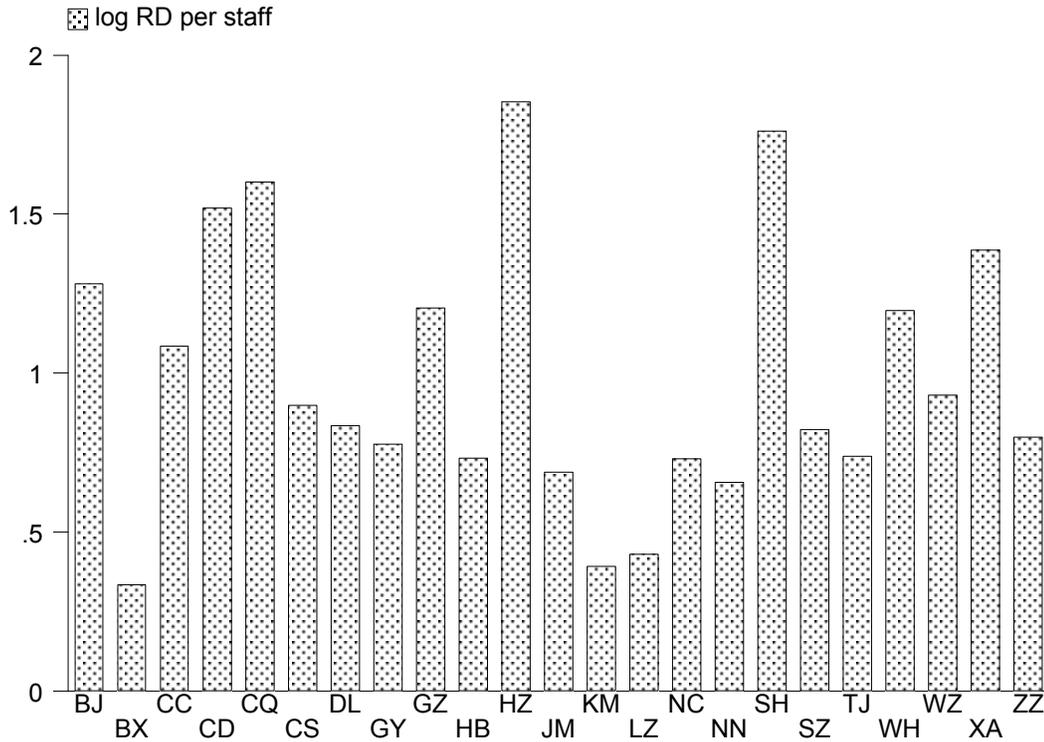
To gauge the skill and technology position of each city, we use the IC surveys to construct three indicators. The first is the share of workers with formal training. Training enhances workers' skills and productivity. The second is the share of technical workers, which usually have the highest level of schooling among different categories of employees. A final measure is log R&D expenditure per worker. The specific values of the three variables are displayed in Figures 3.7 and 3.8.

**Figure 3.7. Inter-city comparisons in staff quality**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

**Figure 3.8. Inter-city comparisons in R&D**

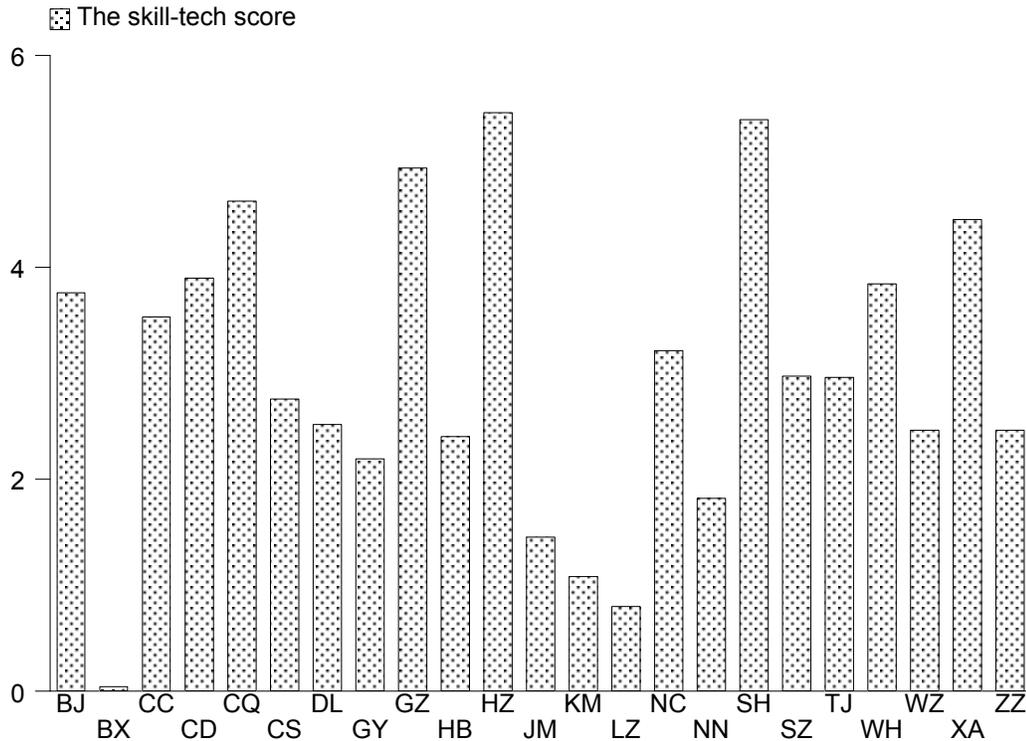


Note. For ease in graphing, the variable is added by 4. The ranking is of course insensitive to the normalization. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha’erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi’an, ZZ=Zhengzhou.

The three measures are reasonably closely correlated. The correlation coefficient between the technical-staff ratio and the training variable is 0.30. The correlation coefficient between the R&D variable and the above variables are both around 0.64. For simplicity in exposition and convenience in grading, we construct a composite score (“Skill-Tech”) of skills and technology, which is  $0.54 \times \text{the training variable} + 0.54 \times \text{the technical-staff ratio} + 0.65 \times \text{the R\&D variable}$ .<sup>9</sup> A higher score of Skill-Tech would of course mean a better environment in terms of skills and technology endowment. The results are in Figure 3.9.

<sup>9</sup> Again, the composite index is the principal component index of the three variable.

**Figure 3.9. The Skill-Tech score**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou. The score is added a constant for visual convenience.

The cities with a score of **A<sup>+</sup>** in Skill-Tech are Hangzhou and Shanghai, with scores of 2.46 and 2.39, respectively. The cities with a score of **A** in Skill-Tech are Guangzhou, Chongqing, and Xi'an; their scores are from 1.45 to 1.94. The cities with a score of **B<sup>+</sup>** are Chengdu, Wuhan, Beijing, Changchun, and Nanchang. The score for the **B<sup>+</sup>** class ranges from -0.03 to 0.89. The **B** cities include Haerbin, Wenzhou, Zhengzhou, Dalian, Changsha, Tianjin, and Shenzhen. The cities with a score of **B<sup>-</sup>** are Guiyang, Nanning and Jiangmen, scoring from -1.55 to -0.81. The cities with a score of **C** are Kunming, Lanzhou and Benxi.

### 3.5. International Integration

There is general consensus that greater openness to international markets facilitates growth. This is true not just demonstrated in the macroeconomic level but is confirmed with micro-evidence. Many firm-level studies have found that firms with foreign partners, firms that participate in international markets and those facing greater import competition are more productive – particularly in developing countries.<sup>10</sup> Foreign entry encourages technological and managerial know-how transfers and helps integrate the domestic market with the international market. A higher proportion of market share accounted for by imports also puts greater pressure on domestic competitors to improve their productivity and expands the range of available inputs for use in domestic production. Thus a friendly investment climate would encourage foreign entry and openness to foreign-made goods.

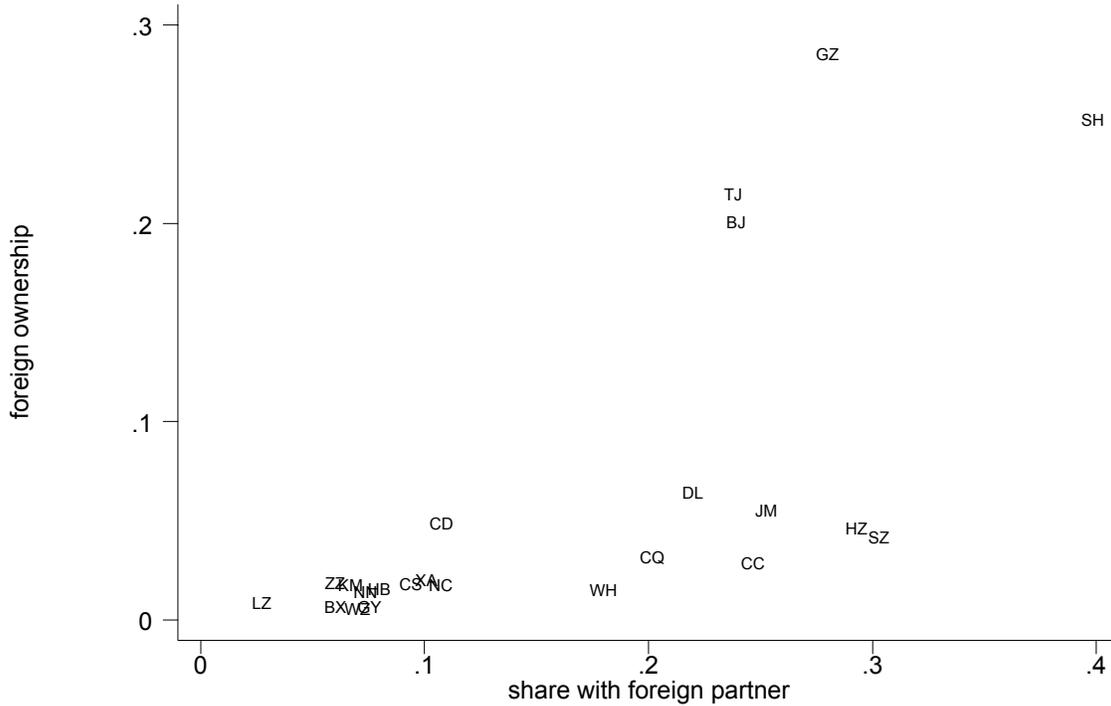
Two measures are used here to capture the extent of international integration. The first measures the extent of foreign ownership. It is the share of total ownership accounted for by foreigners and is a clear indicator of the presence of foreign capital. However, it has long been recognized that the potential for spillovers is often greater if foreigners partner with local firms rather than enter with a wholly owned subsidiary. The second indicator is thus the share of firms in each city that report having a foreign partner. This partnership does often take the form of a joint venture, but this measure has the advantage of including other types of significant collaborations beyond ownership, including joint research and development, training and marketing.

The two measures are, not surprisingly, closely correlated, with a correlation coefficient of 0.68. For simplicity of exposition, we aggregate them into a single measure of international integration with the same approach as before. The raw data on the two measures as in Figure 3.10, and the index is presented in Figure 3.11.

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<sup>10</sup> For a more detailed discussions, see: Roberts and Tybout, 1996, Clerides, Lach and Tybout, 1998, Hallward-Driemeier, Iarossi, and Sokoloff, 2002, Pavcnik, 2000.

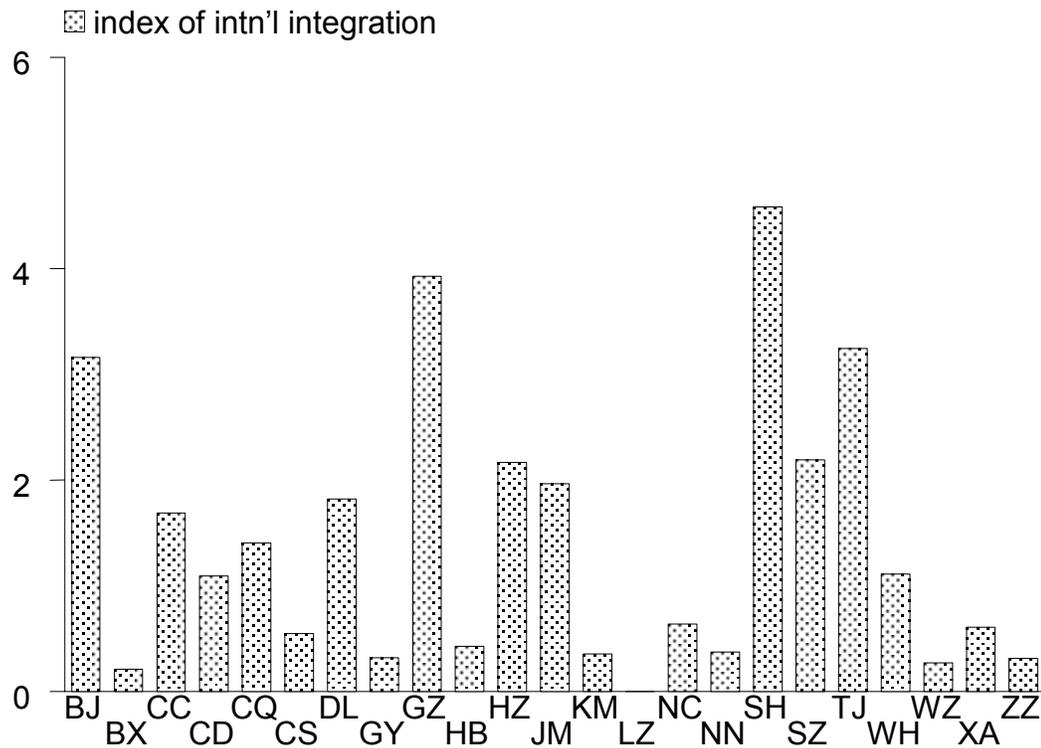
**Figure 3.10. City-wide comparisons in international integration**



BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hangzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

The **A<sup>+</sup>** cities in international integration are Shanghai and Guangzhou, with 20-40% of their firms have foreign connections (ownership or other types). The **A** cities include Tianjin and Beijing. The **B<sup>+</sup>** cities are numerous, and they are Shenzhen, Hangzhou, Jiangmen, Dalian, Changchun, and Chongqing. The **B** cities include many inland provinces: Wuhan, Chengdu, Nanchang, Xi'an, Changsha, and Haerbin. The **B<sup>-</sup>** cities are again mostly inland cities, including Nanning, Kunming, Guiyang, Zhengzhou, Benxi and Lanzhou. The only city in the coastal province that has **B<sup>-</sup>** is Wenzhou.

**Figure 3.11. The international integration index**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

### 3.6. Private Sector Participation

One of the important decisions that the Chinese government made was to diversify ownership types, which mainly manifests in the privatization of small- and medium-sized enterprises, encouraging entry of private firms, and de-politicizing the operations of firms. As private ownership has increased in China, growth and productivity have accelerated. Without a soft budget constraint or guaranteed sales, private firms have greater incentives to innovate and to respond to market signals. In the investment climate surveys, the private firms have significantly higher productivity levels and investment rates than that of the state-owned ones. Competition among privately owned firms is also more likely to be on a level playing field, with resources flowing to the most productive users. SOEs can continue to operate despite their lower efficiency

due to preferential access to finance and the possibilities of bailouts – thereby taking up resources and distorting competition among firms. Cities that the government de-politicizes more are likely to be more dynamic and to bolster the investment climate.

In measuring the extent of private sector participation, the surveys differentiate between domestic and foreign owners. Since we have already grouped foreign ownership under the international integration component of the investment climate, and domestic private ownership is significantly more important than foreign ownership,<sup>11</sup> we shall focus on domestic private ownership here.

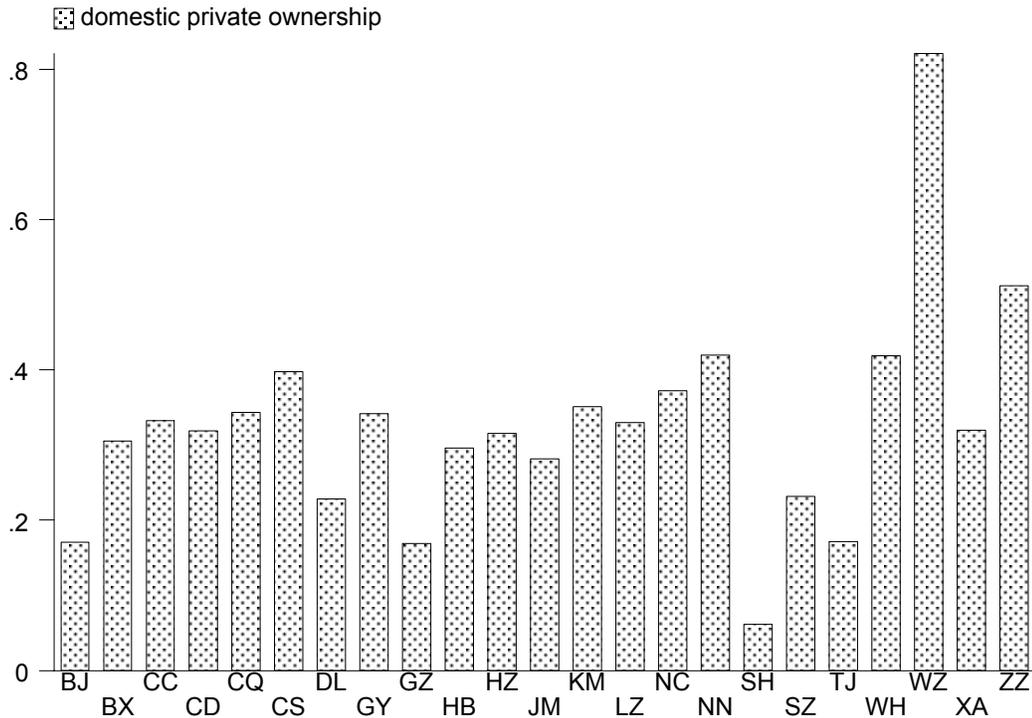
Figure 3.12 depicts the distribution of domestic private ownership among the cities. The front-runners for domestic private ownership is Wenzhou, with a share of 82%, and therefore earns a score of **A<sup>+</sup>**. There is only one **A**, Zhengzhou, with a share of 52%. We give **B<sup>+</sup>** to four cities (37% to 42%): Nanning, Wuhan, Changsha, Nanchang. Eleven cities earn an **B**, with domestic private shares between 28% to 35%: Kunming, Chongqing, Guiyang, Changchun, Lanzhou, Xi'an, Hangzhou, Benxi, Chengdu, Haerbin, Jiangmen. **B<sup>-</sup>** goes to two cities, Shenzhen and Dalian, both have a share of around 23%. The **C** group include Tianjin, Guangzhou and Beijing, with a share of 17%. Shanghai was clearly the laggard, with a domestic private ownership of only 9%. The lower share for the five cities in the first IC survey could be partly explained by the earlier time period, but they likely still are laggards: the two other cities in Guangdong (Jiangmen and Shenzhen) had only slightly higher share than Guangzhou, so hastening up of privatization should not be a major factor.

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<sup>11</sup> The average domestic private ownership is 33%, while the average foreign ownership is only 6%.

**Figure 3.12. City-wide comparisons in (domestic) ownership**

**restructuring**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha’erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi’an, ZZ=Zhengzhou.

**3.7. Government effectiveness**

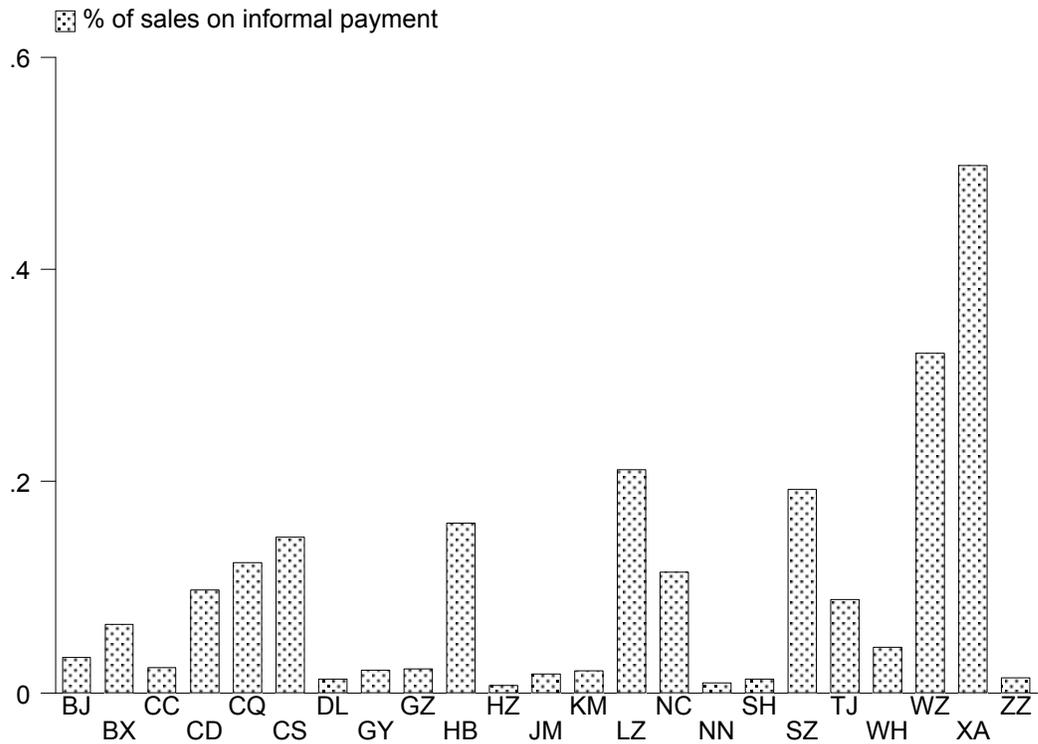
Over the last decade, economists have increasingly paid attention to the role that the state plays for a healthy economy. Indeed, an economy is expected to work much better when the state sets up a level playing field, when bureaucrats are more interested in enforcing market-oriented and efficient rules rather than maximizing bureaucratic budgets, and when the government provides sufficient resources to set up an environment characterized by an adequate supply of public goods (i.e., public safety, infrastructure) (Shleifer and Vishny, 1999).

To measure the effectiveness with which the government provides public goods and services, and plays the role of “helping hand” rather than “grabbing hand”, we construct two measures: a measure of informal payment, and the amount of time that the court uses to resolve a commercial conflicts. We have also tried another measure of

government burden: the amount of time that managers spent on dealing with government officials. However, in preliminary empirical explorations we did not find it to have explanatory power after we have controlled for other variables. We thus decided to drop it from our considerations.

The measure of informal payment is constructed as the share of sales spent on gift or bribes to government and regulatory agencies (or called “informal payment”). Figure 3.13 presents the *percentage* of sales that spent on informal payment to government regulators. The **A+ city** is Hangzhou, whose firms spent as little as 0.007% of its sales in informal payments (to government officials). The **A** cities are Nanning, Shanghai, Dalian, Zhengzhou, Jiangmen, paying something like 0.01% to 0.02% of their sales. The **B+** cities are Kunming, Guiyang, Guangzhou, Changchun, Beijing, and Wuhan; their payments ranged from 0.021% to 0.043%. The **B** cities are Benxi, Tianjin, Chengdu, Nanchang, and Chongqing. Firms in these cities paid between 0.07% to 0.12%. The **B-** cities are Changsha, Haerbin, Shenzhen, and Lanzhou, paying between 0.15% to 0.21%. The worse cities in our sample are Wenzhou and Xi’an, paying 0.32% to 0.50%, and earn an score of **C**. It is interesting to note that the frontrunners of reforms, Wenzhou and Shenzhen, also spent more on informal payments. Our guess is that private firms have stronger incentives to offer informal payment to get things done and quickly—the owners are residual claimants of the firm’s profits after all. This does not imply automatically that reforms lead to corruption—though it often accompanies with such an increase—rather, the government should further deepen its administrative reform, simplify procedure process, make rules and regulations transparent, and get its governance structure more efficient so that there is less need for private business owners to offer informal payment.

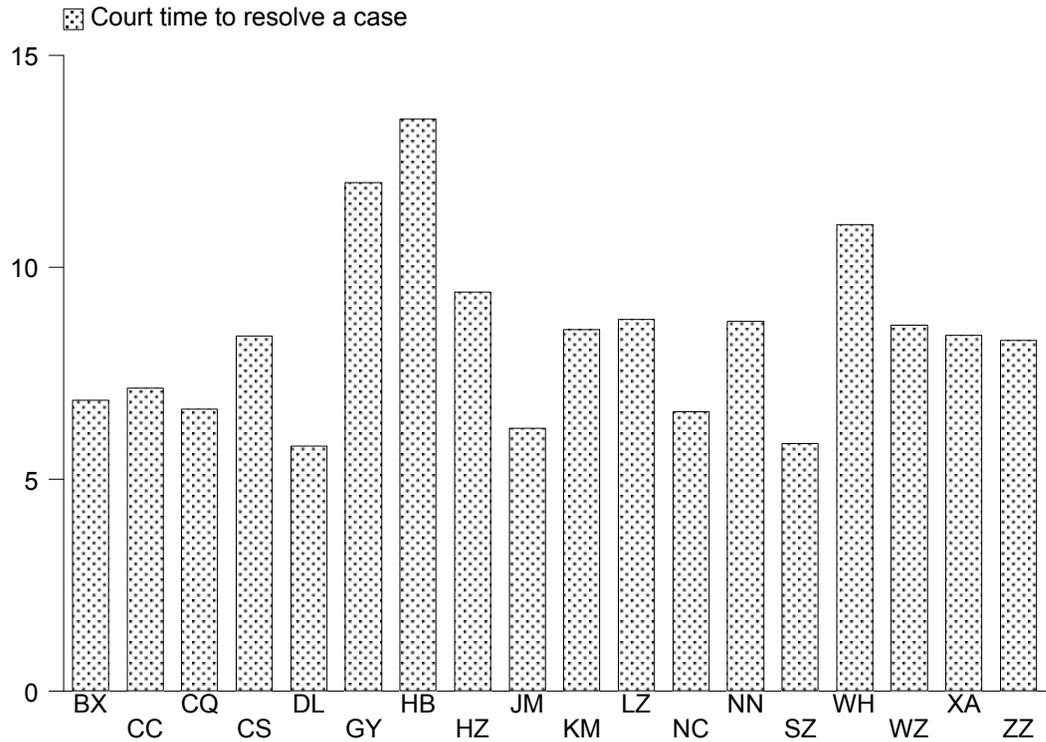
**Figure 3.13. Informal Payments**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

Another important service of the government is the judicial service. As economies grow and producers become more specialized, relational contracts—that is, contracting only with people you know one way or the other—become less and less important, while arms-length relationship become more and more important. Moreover, the needs for transaction also rise to accommodate increasing specialization. To effectively plan and coordinate production, and to safeguard the enforcement of contracts, it becomes more and more important for the judicially system to work properly. We thus construct a measure, the length of time for the local court system to resolve the latest commercial dispute for a firm. The inter-city comparison is presented in Figure 3.14. This measure is available only for the cities in the second-round survey.

**Figure 3.14. Court time (in month) to resolve a case**



Note. The unit is months. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

The variations in court waiting time is substantial, from 5.8 months in Dalian to 13.5 months in Haerbin. The A+ cities include Dalian and Shenzhen (5.8 months). The A cities include Jiangmen (6.2), Nanchang (6.6), Chongqing (6.7), Benxi (6.9). The B+ category only has one member, Changchun (7.2). The B group includes Zhengzhou (8.3), Changsha (8.4), Xi'an (8.4), Kunming (8.5), Wenzhou (8.6), Nanning (8.7), Lanzhou (8.8), and Hangzhou (9.4). The longest-waiting group ("C") are Wuhan (11), Guiyang (12), and Haerbin (13.5).

The waiting time is influenced by various factors: whether a court has enough number of judiciary staff, their knowledge of commercial laws and other related regulations are adequate, and their professional levels and capacity are sufficient to allow them to perform well their judiciary work, etc. All of these can influence the judiciary

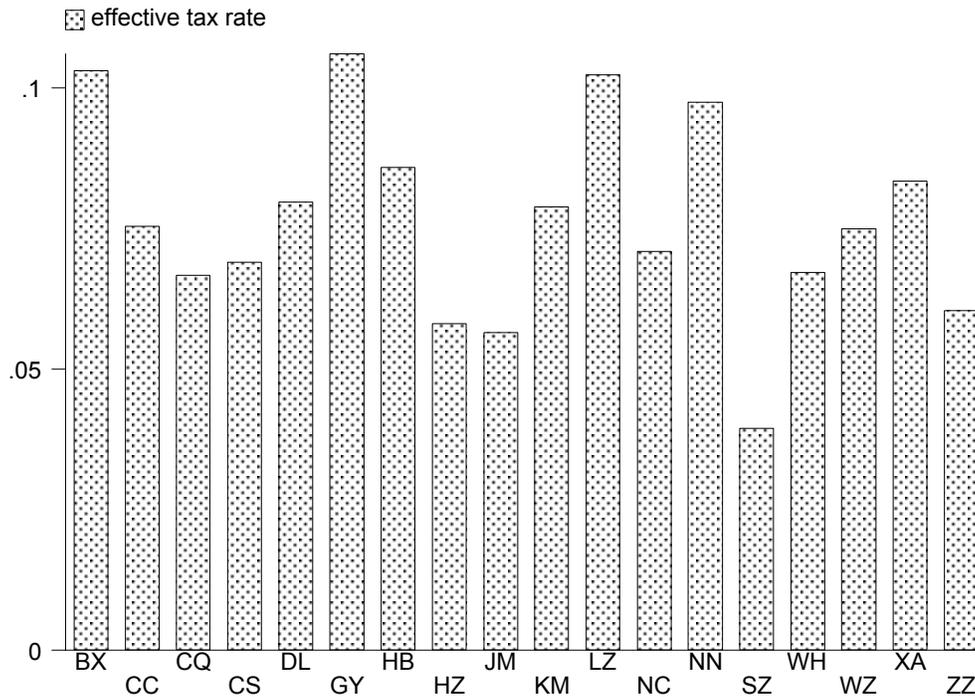
process and the waiting time. It is also worthwhile to note that a country like China is now shifting to an economy ruled by law, it is a good sign to see people go to court to settle their business disputes. The increase of cases at the court can reflect to some extent a growing awareness of legal concept. Nevertheless, if the court waiting time is too long, it would deter people's willingness to take their disputes to court for settlement. To measure the effectiveness and efficacy of a court system, waiting time is only one parameter, others like legal fairness and impartiality are also important. For example, what a probability for a firm to win its case in the jurisdiction other than in its location. In previous and current surveys, we don't have any information on this regard. Here, we just use the waiting time to shed some light on the importance of legal system in the entire investment climate.

### **3.8. Tax Burdens**

Before any investors choose a location, they would surely first look at the tax burdens that they will face in the new location. Moreover, higher tax rate reduces the incentives for firms; it is after-tax return that the firms are interested in. For many countries, tax burdens may not vary much within a country. This is not so within China, as we shall demonstrate very soon. The reason is that Chinese economy is fairly decentralized. A fairly important part of tax burdens are local tax and fees. Thus tax burdens would be an important ingredient of the local investment climate in China.

To measure tax burdens, we construct the effective tax rate, measured as total taxes (including all types of taxes, such as sales tax, value-added tax, income taxes, resources taxes, and so on) and fees over sales. Figure 3.15 shows the inter-city comparison of the effective tax rate.

**Figure 3.15. Effective Tax Rate**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hangzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

The effective tax rate ranges from 3.9% in Shenzhen (A+) to 10.6% in Guiyang. The A cities are Jiangmen (5.6%), Hangzhou (5.8%), and Zhengzhou (6.0%). The B+ cities are Chongqing (6.7%), Wuhan (6.7%), Changsha (6.9%), and Nanchang (7.1%). The B team consists of Wenzhou (7.5%), Changchun (7.5%), Kunming (7.9%), and Dalian (8.0%). The B- cities are just two, Xi'an (8.3%) and Haerbin (8.6%). The C team are Nanning (9.7%), Lanzhou (10.2%), Benxi (10.3%), and Guiyang (10.6%).

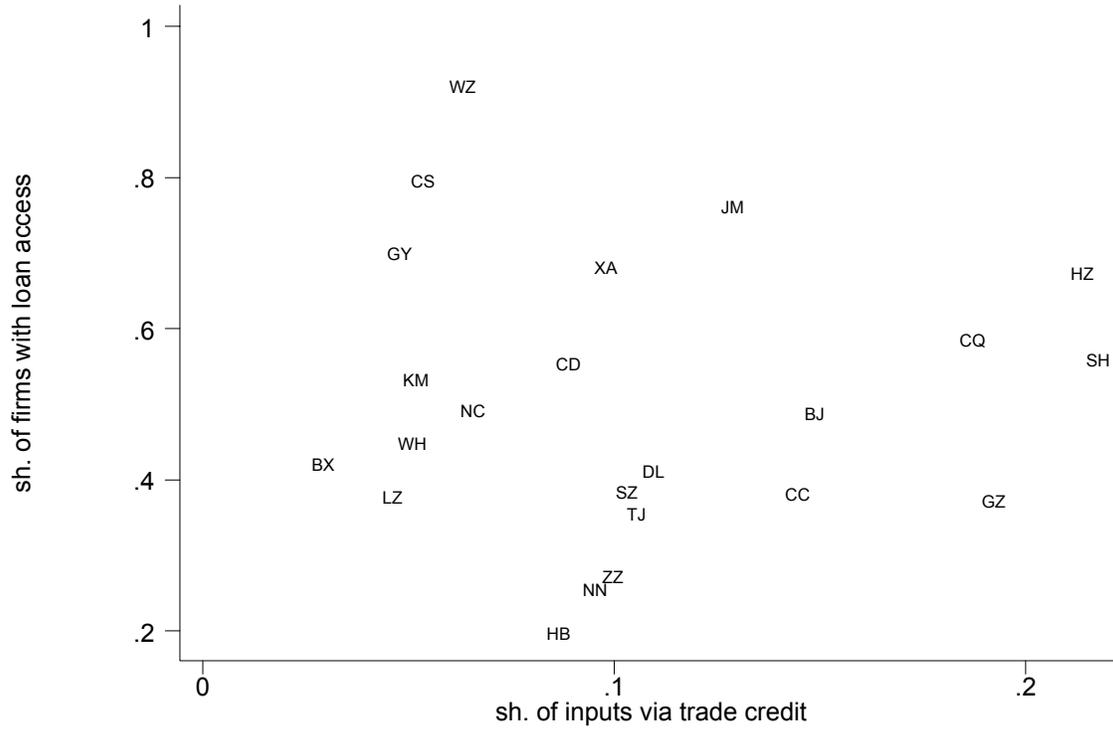
### 3.9. Access to Finance

A healthy financial service industry is vital for firms. It channels funds from savers or private investors to producers. And when it functions well, it allocates funds to the most efficient uses of all production outlets. It also significantly reduces the transaction costs in compared to the scenario in which the firm has to secure development funds for themselves (via informal loans, personal wealth, or direct soliciting of private

investors). Access to finance is perhaps especially important in transitional countries. Indeed, researchers have often called finance the most important market-supporting institutions.

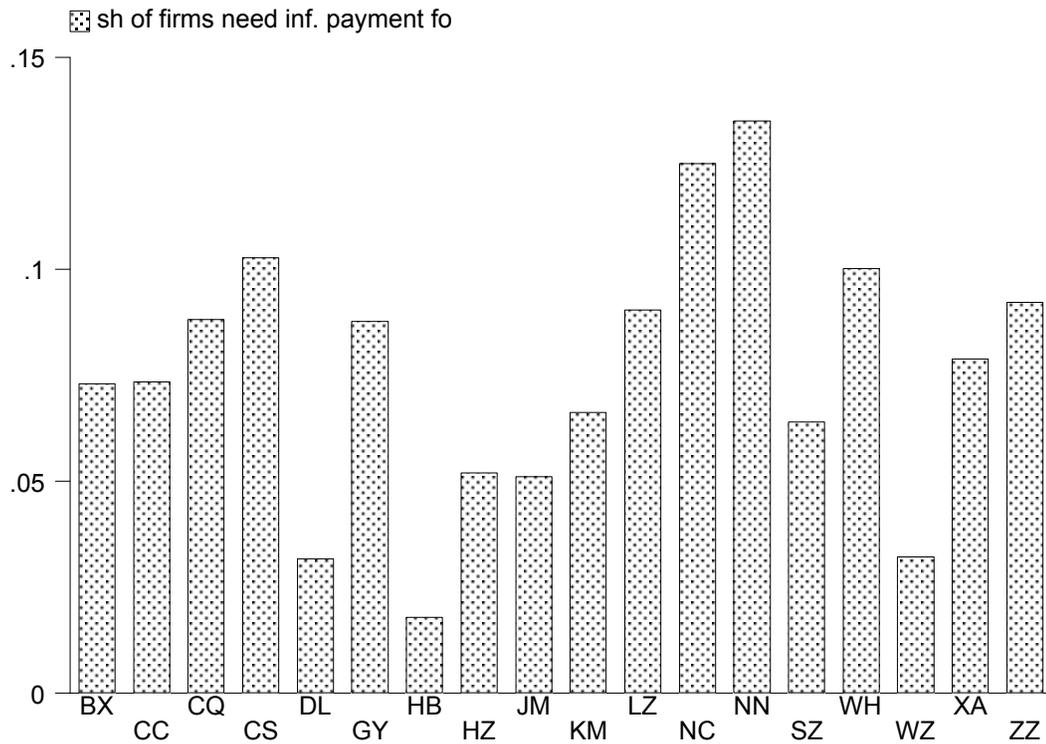
In light of its importance, we construct three measures about the functioning of the financial market: whether a firm has any access to formal bank loans (within a three-year span of a particular year), the share of input purchase via trade credit, and whether it requires informal payment to obtain bank loans. The access to bank loans is certainly important. For most countries, the main financial intermediation has been through the banking system. Residual earning and bank financing have been the most important sources of financing for most countries. Less well-known to many people, however, is that informal loan such as those through trade credit is also quite important in many settings, especially in transitional countries (Cull and Xu, 2003). Indeed, early studies find that the access to trade credit has positive influence to firm performance, and this is especially so for private firms. We know that many of Chinese private firms have little access to formal loans from the banking system, which allocates disproportionately shares of loans to SOEs. How the banks allocate credit, too, is important. When the loan officials of banks are influenced by informal payment in allocating credit, loans then do not necessarily flow to their most productive outlet; instead, they flow to firms that are more willing to pay bribes.

**Figure 3.16 Access to Finance**



Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

**Figure 3.17. Share of firms Needing Informal Payment for Loan**

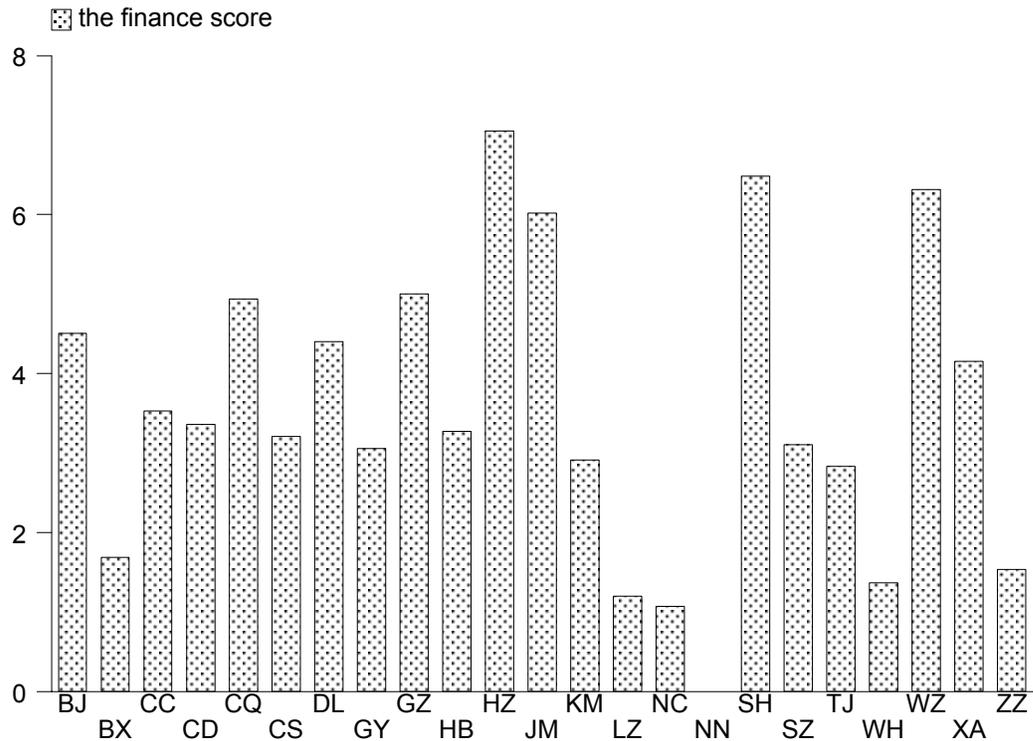


Note. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

Figure 3.16 displays the access to both formal and informal loans. Figure 3.17 displays the share of firms that thought that paying informal payment is necessary for obtaining a loan. It is noted that in Figure 3.17 there appears to be significant correlation between income and informal payment for loans: richer cities appear to be less likely to need informal payment for loans. Since we suspect that all three aspects of the financial sector are important for firm development, and it may be useful to construct an aggregate score of finance, we proceed as follows to construct the finance score. First, we standardize each variable so that they have a mean of zero and a standard deviation of 1. This is purely normalization since the relative variations and order are preserved. Second, the finance score is then the standardized share of firms with loan access plus the standardized share of input purchase via trade credit, minus the standardized share of

firms that thought informal payment as necessary to obtain a loan.<sup>12</sup> The finance score for each city is plotted in Figure 3.18.

**Figure 3.18. The finance score**



Note. The finance score is added a constant for visual display. BX=Benxi, BJ=Beijing, CC=Changchun, CD=Chengdu, CQ=Chongqing, CS=Changsha, DL=Dalian, GY=Guiyang, GZ=Guangzhou, HB=Ha'erbin, HZ=Hanzhou, JM=Jiangmen, KM=Kunming, LZ=Lanzhou, NC=Nanchang, NN=Nanning, TJ=Tianjin, SH=Shanghai, SZ=Shenzhen, WH=Wuhan, WZ=Wenzhou, XA=Xi'an, ZZ=Zhengzhou.

Based on the score, we are able to rank each city in terms of the quality of financing for firms. The **A** team consists of Hangzhou, Shanghai, Wenzhou and Jiangmen. The **B+** team are two mega-cities, Guangzhou and Chongqing. The **B** team includes Beijing, Dalian, Xian, Changchun, and Chengdu. The **B-** team has Haerbin,

<sup>12</sup> The informal payment for loan variable is not available for the 5 cities in the first IC survey. Since this variable is highly correlated with average GDP (with a correlation coefficient of -0.35), we use log average GDP to obtain the predicted value of the informal payment for finance variable, and then assume the predicted value to be the actual value for this variable. Without such imputation we won't be able to obtain the finance score even though we have information on two out of three variables.

Changsha, Shenzhen, Guiyang, Kunming and Tianjin. The C team includes Benxi, Zhengzhou, Wuhan, Lanzhou, Nanchang, and Nanning.

### A brief summary: A score card for the cities

Table 3.1 presents a summary table about the key ingredients of investment climates.

**Table 3.1. The Scorecard for All The IC Elements**

<i>City</i>	<i>Infrastr- ucture-</i>	<i>Entry Exit</i>	<i>L mkt flex</i>	<i>Skill Tech</i>	<i>Inter. Integr.</i>	<i>Priv. Sector</i>	<i>Infor. Pay.</i>	<i>Court Time</i>	<i>Tax Rate</i>	<i>Finance</i>
Benxi	A	C	B	C	B-	B	B	A	C	C
Beijing	B-	A	B-	B+	A	C	B+	A+	B	B
Changchun	A	A	B	B+	B+	B	B+	B+	B	B
Changsha	B-	B	B	B	B	B+	B-	B	B+	B-
Chengdu	C	B+	B-	B+	B	B	B	A	B+	B
Chongqing	A	B+	B	A	B+	B	B	A	B+	B+
Dalian	A+	B	A	B	B+	B-	A	A+	B	B
Guiyang	C	B-	B	B-	B-	B	B+	C	C	B-
Guangzhou	B-	B+	B	A	A+	C	B+	A+	A+	B+
Ha'erbin	B+	B-	B	B	B	B	B-	C	B-	B-
Hangzhou	A	A+	A	A+	B+	B	A+	B	A	A
Jiangmen	B	B	A	B-	B+	B	A	A	A	A
Kunming	C	B-	B	C	B-	B	B+	B	B	B-
Lanzhou	A	C	B+	C	B-	B	B-	B	C	C
Nanchang	B-	B	B+	B+	B	B+	B	A	B+	C
Nanning	B	C	B+	B-	B-	B+	A	B	C	C
Shanghai	A	A+	B-	A+	A+	C	A	A+	A+	A
Shenzhen	B-	B+	A	B	B+	B-	B-	A+	A+	B-
Tianjin	B+	B+	B-	B	A	C	B	C	B+	B-
Wuhan	B	A	B	B+	B	B+	B+	C	B+	C
Wenzhou	C	B	A	B	B-	A+	C	B	B	A
Xi'an	B+	B	B	A	B	B	C	B	B-	B
Zhengzhou	B	B	B+	B	B-	A	A	B	A	C

Note. Court time and tax rate are not available for the five cities in the first IC survey. In general we give them the score with the city that has the closest income with two exceptions: Guangzhou is given the score of the average between Jiangmen and Shenzhen, the other two Guangdong provinces; Chengdu is given the score of the Chongqing, the other city that was originally part of Sichuan province. Beijing is given the score of Dalian, Tianjin is given the score of Wuhan, Shanghai is given the score of Guangzhou.

## Chapter 4. The Investment Climate and Firm Performance

We have already learned that the investment climate varied greatly in the twenty-three cities. This presumes that the investment climate would matter. Instead of just making assertions, we now empirically examine how the investment climate affects firm performance. In addition, if the investment climate turns out to be significant, how important are they? How much can we expect the cities to gain from improving their investment climate? What are the overall ranking of the investment climate for the cities? To answer the first question, we conduct empirical analysis relating firm-level performance (both technical efficiency and dynamic aspects such as sales growth and investment rate) to indicators of investment climate. To answer the second and third questions, we conduct some counter-factual exercises, allowing cities to achieve the investment climate levels of better performing cities and asking how much the typical firm in the city would gain in terms of investment, sales growth or productivity.

### 4.1. Differences in firm performances

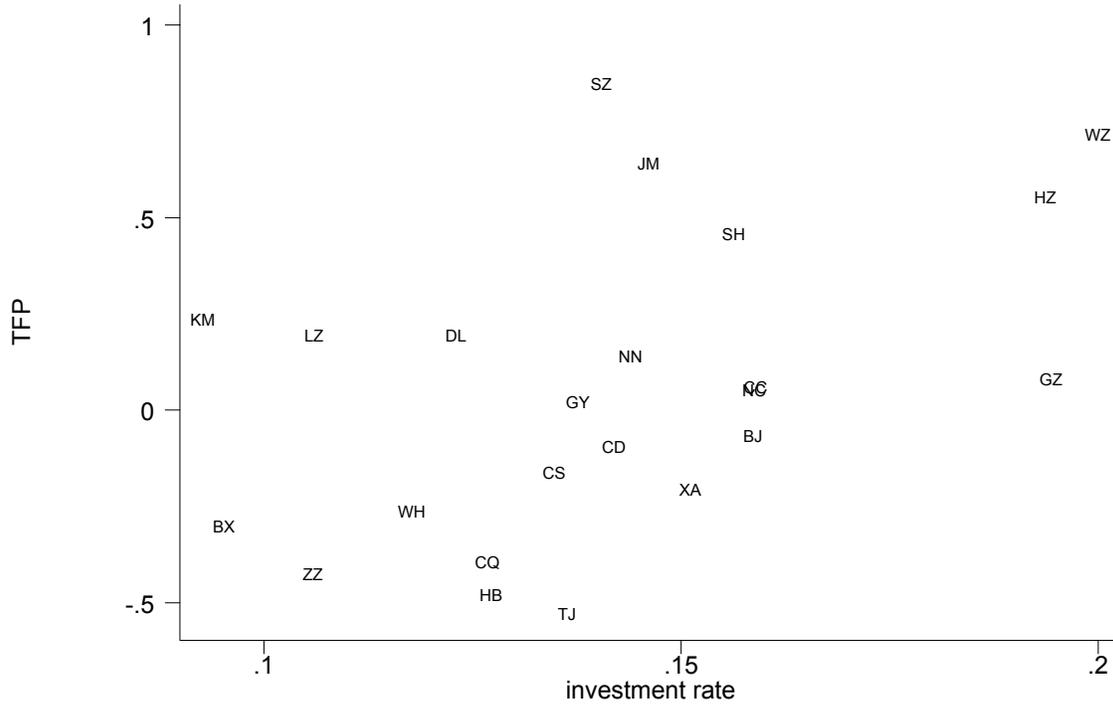
Firm performance differs greatly in these cities. Figure 4.1 graphs TFP and investment rate for each city. The TFP should be understood as the productivity level of a firm after netting out the effects of capital, labor and industry-specific technology. (See Appendix A for details of the construction of TFP.) The investment rate is constructed as investment over capital stock (as proxied by the original value of fixed assets). In general those in the northeastern corner (for instance, Shenzhen, Hangzhou, Shanghai, Jiangmen) have the best performance, while those in the southwest (for instance, Benxi, Zhengzhou) have the worst performance. TFP and the investment rate appear to be positively correlated, with a coefficient of correlation of 0.45. The rank of TFP level is as follows:

- 1) Shenzhen, with a TFP of 0.83,
- 2) Wenzhou (0.70),
- 3) Jiangmen (0.62),
- 4) Hangzhou (0.54),
- 5) Shanghai (0.44),
- 6) Kunming (0.22),

- 7) Dalian (0.18),
- 8) Lanzhou (0.18),
- 9) Nanning (0.12),
- 10) Guangzhou (0.06),
- 11) Changchun (0.04),
- 12) Nanchang (0.04),
- 13) Guiyang (0.005),
- 14) Beijing (-0.08),
- 15) Chengdu (-0.11),
- 16) Changsha (-0.18),
- 17) Xi'an (-0.22),
- 18) Wuhan (-0.28),
- 19) Benxi (-0.32),
- 20) Chongqing (-0.41),
- 21) Zhengzhou (-0.44),
- 22) Ha'erbin (-0.50),
- 23) Tianjin (-0.55).

Note that the differences in the TFP levels between two cities are their difference in productivity level. In other words, the productivity level in Shenzhen is higher by 13% than Wenzhou, which in turn is higher than Jiangmen by 8%.

**Figure 4.1. City-wide comparisons in TFP and investment rate**



The average investment rate also differs greatly among cities. The city that invests the most is Wenzhou, at a rate of 20%. The city with the lowest investment rate is Kunming at the rate of 9.3%, slightly less than half of the level of Wenzhou. Here is a rank of the average investment level:

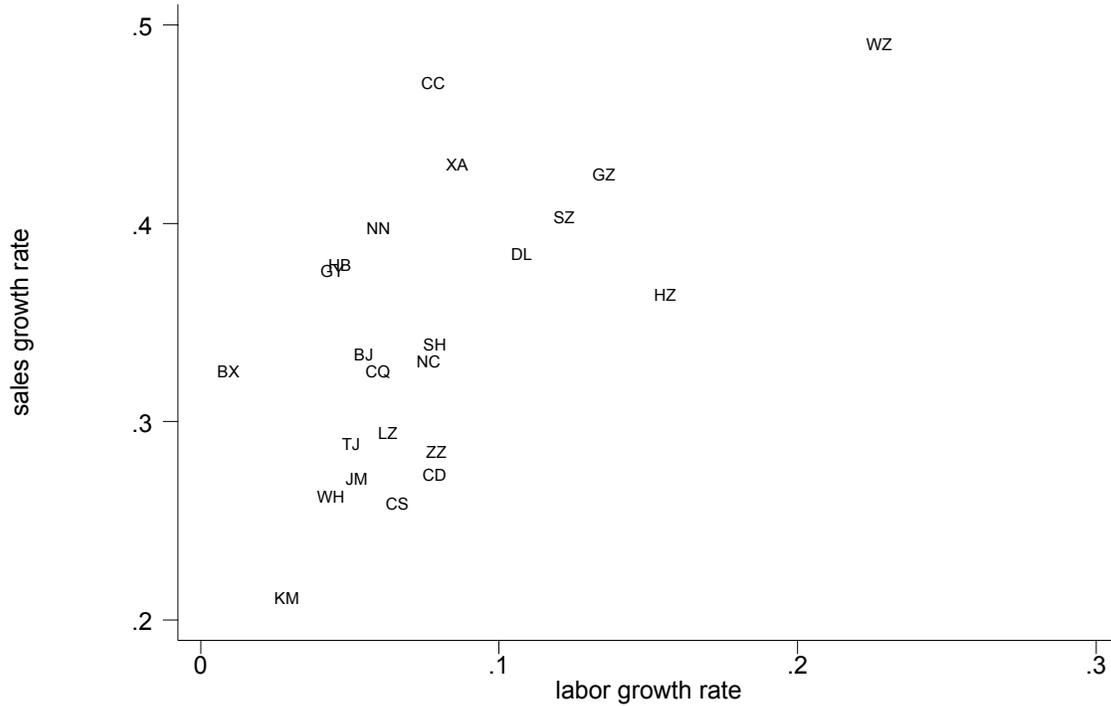
1. Wenzhou (20%),
2. Guangzhou (19.4%),
3. Hangzhou (19.4%),
4. Changchun (15.9%)
5. Nanchang (15.9%),
6. Beijing (15.9%),
7. Shanghai (15.6%),
8. Xi'an (15.1%),
9. Jiangmen (14.6%),
10. Nanning (14.4%),
11. Chengdu (14.2%),
12. Shenzhen (14.0%),

13. Guiyang (13.8%),
14. Tianjin (13.6%),
15. Changsha (13.5%),
16. Ha'erbin (12.7%),
17. Chongqing (12.7%),
18. Dalian (12.3%),
19. Wuhan (11.8%),
20. Lanzhou (10.6%),
21. Zhengzhou (10.6%),
22. Benxi (9.5%),
23. Kunming (9.3%).

Figure 4.2 plots two measures of the dynamism of local economy, the average sales growth rate and the average labor growth rate for each city. As we can see, the two variables have quite strong positive correlation, with a correlation coefficient of 0.76. Again, the cities in the northeastern corner are the best. Wenzhou stands out as the most dynamic city among all, having both the highest sales growth rate (49%) and labor growth rate (23%). Guangzhou, Hangzhou and Shenzhen are also quite good. The southwest corner represents the more lethargic cities, and they include Kunming, Wuhan, Benxi, Jiangmen, Tianjin and Changsha.

Note that we intentionally use the average labor growth rate to measure the dynamism of surveyed cities because we believe that in most of sectors Chinese economy is still labor-intensive, and the current employment pressure is still pretty high for most city authorities. This may do some injustice for cities with big portion of technology or capital intensive sectors. Wenzhou's ranking is very representative: its economy is dominated heavily by small and private sectors, but is also labor-intensive.

**Figure 4.2. Average sales and labor growth rates**



Given the high correlation between the two variables, we construct a single growth index of these two growth variables, and here is the rank of the cities, along with the sales growth and the labor growth rates in the parentheses:

1. Wenzhou (with a sale growth rate of 49%, and a labor growth rate of 23%),
2. Guangzhou (42%, 14%),
3. Hangzhou (36%, 16%),
4. Shenzhen (40%, 12%),
5. Changchun (47%, 8%),
6. Xi'an (43%, 9%),
7. Dalian (38%, 11%),
8. Nanning (39%, 6%),
9. Shanghai (34%, 8%),
10. Ha'erbin (38%, 5%),
11. Nanchang (33%, 8%),
12. Guiyang (38%, 4%),

13. Beijing (33%, 5%),
14. Chongqing (32%, 6%),
15. Zhengzhou (28%, 8%),
16. Chengdu (27%, 8%),
17. Lanzhou (29%, 6%),
18. Tianjin (29%, 5%),
19. Changsha (26%, 7%),
20. Jiangmen (27%, 5%),
21. Benxi (32%, 1%),
22. Wuhan (26%, 4%),
23. Kunming (21%, 3%).

#### **4.2 Main findings on how the investment climate affects firm performances**

The previous section shows that at city level, those cities that perform better in the four measures also tend to have better investment climates. For instance, Hangzhou, Shanghai, Guangzhou tend to be better performers and also have good investment climates, while inland, especially cities in the West region, tends to have worse performance and investment climates. However, there are several reasons we should go to firm-level to examine the relationship between performance and the investment climate. The first reason is to best utilize the firm-level variations, recognizing that the investment climate might differ even within a city. In the extreme, the investment climate might differ for each firm: the enforcement of laws and regulations might be different within the city, and the infrastructure quality might be viewed differently for each firm due to specific location and requirement. We thus use multivariate regressions to relate the investment climate to firm-level performance. Appendix B reports the detail of the regressions. We now report the main findings.

Firm performance is closely related to city characteristics. Firms in larger cities (in terms of population) tend to have lower growth rates (both in labor and sales) and investment rate. Thus medium-sized cities have an advantage in expansion. More advanced cities (as measured by average per-capita GDP level) have higher productivity

level—so they are more efficient in general—but they also suffer from lower growth rates and investment rates.

Firm characteristics matter too. In our samples, larger firms tend to have significantly higher productivity, growth and investment rates. Firms with higher market shares have higher sales and labor growth rate, and invest more. Younger firms have significantly better performance, judging by all four performances. These findings have implications for local governments, which should encourage firms to realize economies of scale through expansion, and encourage new firms to enter.

We now shift our attention to the investment climate variables. Firms with a higher *domestic private ownership* have higher labor growth rates and investment rates. *Foreign participation in local economy* helps too. Foreign ownership and foreign partnerships are both associated with higher productivity and sales and labor growth rates. There is also weak evidence that foreign ownership and partnership are negatively associated with investment rate—foreign players appear to be more cautious in putting in investment.

*Entry and exit barriers* play an important role in determining firm performance. Firms that have higher excess capacity invariably have lower productivity, sales, labor growth and investment rates. Since higher excess capacity is consistent with both higher exit barriers (otherwise firms would have liquidated part of the excess capacity) and higher entry barriers (otherwise firms with high excess capacity would not have survived), this finding implies that cities with higher entry and exit barriers tend to perform less well. We also find that firms that sell more of their product to other provinces tend to have higher productivity and sales growth. Since easiness in selling to other provinces implies lower entry barriers for local firms, this piece of evidence is again consistent with performance-enhancing effects of lower entry barriers.

*The technology and human capital policies* have strong effects on firm performance. Firms with higher shares of technical workers tend to have higher productivity and investment rates. However, such firms also tend to have lower labor growth, due perhaps to the substitution of technology for unskilled workers. Moreover, firms that train more of their employees have higher productivity, sales and labor growth rates, and higher investment rates. Thus policies that encourage training labor would be

helpful for firms. Finally, R&D expenditures (per worker) is positively associated with productivity, sales growth, and investment rates. In short, firms with stronger emphases on skills and technology perform better, especially in productivity, sales growth and investment rates. However, skill-intensive firms may also substitute technology for unskilled workers. Thus cities that want to emphasize both productivity and job growth should encourage the development of both skill-intensive and low-skill-oriented firms.

*Labor market flexibility* appears to be important for firm performance as well. Firms with lower share of overstaffing have higher productivity, sales and labor growth rate, and higher investment rates. In addition, firms with a higher share of non-permanent workers (including both contract and temporal workers) had higher level of productivity and labor growth rates. Thus when firms have discretions to fire workers, they are more likely to hire as well.

For developing countries, one of the most frequently-cited bottlenecks for development is infrastructure. Indeed, in many countries such as India and Bangladesh, recent studies of investment climates suggested that infrastructure is still one of the binding constraints on firm performance. Our result on infrastructure, however, suggests that infrastructure may not be an important binding constraint, at least for medium- and large-sized cities in our sample. This is mainly due to rapid progress China made over the last decade in infrastructure construction such as road, highway, airport, railways, telecom and electricity, etc.. The infrastructure has been substantially improved across the country. The surveyed firms generally didn't report obstacles or hindrances from infrastructure for their business. In order to facilitate international comparison, we use the share of losses (in sales) due to theft and breakage in transportation or due to electricity outage to measure the quality of infrastructure. In China case, it is significant only in the productivity equation; for other three performance measures the infrastructure does not appear to play a role. Thus infrastructure still plays a role in determining firm performance, but substantially weaker than in many other countries that we have looked at.

*Access to finance* appears to be quite important for firm performance. First, firms with access to bank loans also appear to have lower productivity level, though access to bank loans does not affect the other three measures of firm performance. Second, access

to trade credit (i.e., purchasing inputs via accounts payable) is positively associated with both sales and labor growth rates, along with the investment rate. Finally, firms that reports having to offer informal payments to obtain loan had significantly lower productivity level and labor growth rates. Thus a corrupt banking system, when allocating bank loans based on private benefits (in the forms of bribes) rather than project returns, does significant harms to firm performances.

How the government governs appears to affect firm performance as well. First, there is some evidence that firms reporting more expenses (such as reception costs, gifts etc) on government regulators had higher investment rates, and possibly also labor growth rate. This does not suggest that government harassment is good for firms. Rather, it may mean government harassment tends to be higher in firms that requires higher investment and labor hiring because government can influence bank's decision or even give instructions to state banks on how to allocate credit resources. Anyway, it seems to suggest that government harassment may not be a major hindrance to firm performances. Second, for firms where it takes longer to resolve a commercial dispute, their productivity level is lower. Otherwise, the waiting time for court does not significantly affect firm performances. Finally and perhaps most importantly, firms facing higher effective tax rates have lower productivity and sales growth rates. Thus higher tax burdens hurt both static efficiency and dynamic expansion.

To summarize, the investment climate matters for firm performance. Moreover, how the investment climate affects firms differ with countries. In some other countries, infrastructure is one of key determinants; in China it appears not. Another surprising finding is that government regulatory burden does not appear to be an important bottleneck in our sample of cities. Yet corruption in the finance sector appears to hinder firm performance to a greater extent. In addition, giving firms the option to fire workers, instead of reducing job growth, actually increases job growth.

#### **4.3. What can be achieved from improving the investment climate?**

We now know that numerous elements of the investment climate affect firm performance. However, how important is each element? What should local governments

focus on to see the largest payoff from improving the investment climate? What would a laggard city achieve if it has the investment climate of the leading city? In this section, we attempt to answer these important policy questions.

Our earlier graphs clearly show that there is not a single city that is good in everything. In order to pick a city that every other city has something to learn from, yet its feats are within bound of reach with efforts, we create a hypothetical city called Nice, which would take the value of the 90<sup>th</sup> percentile of each IC variable. For variables with a higher value implying worse IC (such as taxation, bribes etc), we give the values of the 10<sup>th</sup> percentile. We then ask, if a city has the investment climate of the city Nice, what types of gains would it achieve? In what areas would the city see the highest payoff?

It is useful to mention why we pick 90 percentile as the threshold. We intentionally stay away from the 100<sup>th</sup> percentile because it will be very hard to reach, and therefore deters the efforts to imitate such a city. For instance, the domestic ownership share of Wenzhou (the 100<sup>th</sup> percentile) is 82%, while the 90<sup>th</sup> percentile is only 42%. The maximum is quite often in the category of a genius, due perhaps to historical and cultural reasons that is beyond imitation. Wenzhou, for instance, had very high level of private ownership long before it became a common practice across the country, and has a long tradition of entrepreneurship, as evidenced in business run by people originating from Wenzhou everywhere in the world (France, United States, to name a few). Yet the 90<sup>th</sup> percentile is like someone with a good level of intelligence, most of which has been achieved through hard work. In others, someone without exceptional endowment could achieve what a 90<sup>th</sup> percentile would achieve when armed with the right policies and hard work.

Before we answer the counterfactual questions, it may be useful to see what the city Nice looks like. The city Nice has a sale growth rate of 43%, a TFP level of 0.62, and a labor growth rate of 13.5%. The investment rate is 19.4%. It has a domestic private ownership share of 42%, and a foreign ownership of 21%. Roughly 29% of its firms partner with foreign players. The average excess capacity is 22%. The share of technical workers is 15%. About 48% of its employees had some training in a year. The share of overstaffing is only 1%, while the share of non-permanent workers is 58%. The losses of sales due to infrastructure problems (electricity outage, transportation losses) are

approximately 2%. Every three of four firms had access to bank loans, and 19% of the inputs are purchased via accounts payable. Only 0.01% of sales are used as informal payment to regulators, and 3% of firms report that they have to offer gifts or informal payment to obtain the access to loans. About 75% of their products are sold to other provinces. The average effective tax rate is 4.6% of sales. The average time to resolve a court case is 6 months or so. In our simulation exercises, we make the following assumptions about the city X:

1. Whenever an IC feature of Nice is better than City X, City X would have the value of the IC element of Nice.
2. When City X has some elements of the investment climate that are in fact better than Nice, it would not change these elements to those of Nice. Instead, City X would simply change the lagging aspects. This assumption is plausible, and resembles the scenario in which local leaders decided to focus on the weak spots after reading the report.
3. The effects of the investment climate on firm performance are captured by the multivariate regressions in Table A.1. In particular, the effects of the variables common to the first and the second data sets are captured by columns (1) to (4), while the effects of the unique variables (to the second data set) are captured by columns (5) to (8).

Under these assumptions, we offer simulations on the following counterfactual questions: What would be the improvement expected when City X has the investment climate of Nice for those lagging elements? Of all the improvements due to the improvement in investment climate, what is the percentage that is accounted for by each category of the investment climate? For convenience, we group the investment climate as having the following categories: domestic private ownership, foreign participation, entry and exit barriers, skills and technology, labor market flexibility, finance, infrastructure, informal payment, court, and taxation. The findings are reported in Tables 4.1 to 4.4. In all tables, column 2 reports the actual level of performance, column 3 reports the expected gains when City X has the investment climate of Nice. Columns 4

to 13 the report the percentage contribution of each category of the investment climate. The simulation results appear in general to be reasonable.

Perhaps the most useful way to discuss the numerous results in Tables 4.1 to 4.4 would be by province. This way we would be able to discuss what would be the areas that each province can most fruitfully focus on.

**Beijing.** If had the better elements of the investment climate of Nice—that is, keep the features that Beijing surpasses this nice city—firms in Beijing is expected to improve their productivity level by 43% (i.e.,  $\exp(.36)-1$ ), their gross sales growth rate by 7%, their labor growth rate by 5%, and their investment rate by 3 percentage points (or 19%). Judging by all the four performance measures, the most important reform areas for Beijing are: (i) labor market flexibility<sup>13</sup> accounts for roughly 39% of the IC gains. (ii) domestic privatization (17%); (iii) entry and exit barriers (16%); (iv) skills and technology (12%); (iv) finance (11%). The other IC elements are far less important. Foreign participation and tax burdens, for instance, each contributed to 2% of the all potential gains to catch up with Nice.

**Benxi.** If catching up with Nice in the investment climate, Benxi may increase its productivity by 177%, the gross sales growth rate by 25%, the gross labor growth rate by 11%, and investment rate by 6 percentage points. The most important reform areas are as follows: (i) entry and exit barriers, which on average accounts for 40% of all IC gains; (ii) skills and technology (20%); (iii) foreign participation (10%); (iv) finance (9%); (v) tax burdens (9%); (vii) labor market flexibility (8%); In addition, increasing domestic private ownership contributes to about 4% of the potential IC gains.

**Changchun.** With the investment climate of Nice, Changchun may increase its productivity by 45%, and its gross sales growth rate by 8%. The significant reform areas are as follows: (i) foreign participation (19%); (ii) skills and technology (16%); (iii) labor market flexibility (15%); (iv) finance (15%); (v) tax burdens (14%); (vi) entry and exit barriers (11%); (vii) domestic private ownership (8%). Infrastructure, informal payment and court do not play a significant role in improving the performances here.

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<sup>13</sup> Note, however, the measure of labor market flexibility is based on data of year 1998 to 2000. Thus there might already be some significant progresses made. All the five cites in the first survey, and especially on the question of labor market flexibility, are subject to this caveat.

**Changsha.** Changsha may increase its productivity by 58%, and its gross sales growth rate by 13% with the IC of Nice. The gross labor growth rate may further increase 5%, while the investment rate increase by 2 percentage points. Important sources of gains are as follows: (i) skills and technology (23%); (ii) entry and exit barriers (21%); (iii) foreign participation (17%); (iv) labor market flexibility (13%); (v) finance (11%); (vi) tax burdens (8%); (vii) domestic private ownership (5%). Again, infrastructure, court and informal payment do not appear to have important impacts.

**Chengdu.** If catching up with Nice, Chengdu may increase its productivity by 60%, its gross sales growth by 11%, its gross labor growth by 5%, and the investment rate by 3 percentage points. The keys to further improvement are as follows: (i) labor market flexibility (30%); (ii) entry and exit (17%); (iii) foreign participation (14%); (iv) finance (13%); (v) skills and technology (9%); (vi) domestic private ownership (8%); (vii) tax burdens (8%).

**Chongqing.** With the IC of Nice, Chongqing may increase its productivity by 38%, its gross sales growth rate by 7%, its gross labor growth rate by 4%, and the investment rate by 1 percentage point. The areas to reform are as follows: (i) labor market flexibility (26%); (ii) foreign participation (21%); (iii) entry and exit (20%); (iv) tax burdens (11%); (v) domestic private ownership (9%); (vi) finance (8%). Of lesser importance is skills and technology (5%).

**Dalian.** If Dalian catches up with Nice, it can expect to increase productivity by 45%, gross sales growth rate by 9%, gross labor growth rate by 4%, and the investment rate by 3 percentage points. The important areas of actions are as follows: (i) skills and technology (24%); (ii) foreign participation (15%); (iii) entry and exit (14%); (iv) domestic private ownership (14%); (v) tax burdens (14%). While as usual, infrastructure, informal payment, and court delay does not matter much here, neither is labor market flexibility an issue (3%).

**Guangzhou.** If Guangzhou has the advantages of the IC of Nice, it can increase its productivity by 31%, its gross sales growth rate by 4%, its gross labor growth by 3%, and its investment rate by 2 percentage points. Guangzhou needs to worry about the following: (i) labor market flexibility (33%), (ii) domestic private ownership (25%), (iii) entry and exit (20%), (iv) finance (12%), and (v) skills and technology (7%). There is no

need to worry about foreign participation, tax burdens, along with the three usual suspects.

**Guiyang.** Guiyang is one of the laggard cities. No wonder it would benefit significantly from changing into Nice. Indeed, Guiyang can increase its productivity by 95%, its gross sales growth rate by 19%, its gross labor growth by 6%, and its investment rate by 3 percentage points. The key areas for reforms are as follows: (i) skills and technology (17%); (ii) foreign participation (14%); (iii) tax burdens (14%); (iv) finance (11%); (v) labor market flexibility (10%). Of marginal importance is domestic private ownership (4%), and court time (2%).

**Ha'erbin.** If catching up with Nice, Ha'erbin can increase its productivity by 101%, the gross sales growth rate by 15%, the gross labor growth rate by 6%, and the investment rate by 3 percentage points. The keys for actions are: (i) entry and exit barriers (20%), (ii) skills and technology (20%), (iii) foreign participation (15%), (iv) labor market flexibility (13%), (v) finance (13%), (vi) domestic privatization (7%). Court time is again of marginal importance (2%). Infrastructure and informal payment is of less concern here.

**Hangzhou.** Hangzhou is the top IC city overall. However, it is not Nice-ly enough. It could increase its productivity by 14%, its gross sales or labor growth rates by 3% respectively, and its investment rate by 1 percentage points. Of the relatively small gains expected, the key reforms should be focused on: (i) foreign participation (32%), (ii) domestic private ownership (15%), (iii) tax burdens (15%). Of less importance though still with some values are: (i) labor market flexibility (8%), (ii) finance (7%), (iii) court time (5%), (iv) entry and exit barriers (5%), and (v) skills and technology (4%). Infrastructure and informal payment are not of concern in Hangzhou.

**Jiangmen.** If Jiangmen catches up with Nice, it can increase its productivity by 25%, the gross sales growth rate by 6%, the gross labor growth rate by 4%, and the investment rate by 3 percentage points (or 20%). Of these potential improvements, the most important components are: (i) skills and technology (33%), (ii) foreign participation (21%), (iii) entry and exit (19%). Of less importance but still significant are (i) domestic private ownership (12%), (ii) finance (8%), (iii) tax burdens (7%). Labor market

flexibility, court time, infrastructure, and informal payment appear less important in comparison to the above-mentioned issues.

**Kunming.** When catching up with Nice, Kunming, one of the laggard city (**B**), can increase its productivity by 80%, the gross sales growth rate by 14%, the gross labor growth rate by 6%, and the investment rate by 4 percentage points. Areas of paramount importance for further policy actions are (i) skills and technology (23%), (ii) entry and exit (23%), (iii) foreign participation (15%), (iv) finance (13%), (v) labor market flexibility (11%), and (vi) finance (9%). The rest (domestic private ownership, infrastructure, informal payment and court time) are of much less importance.

**Lanzhou.** Lanzhou, if in par with Nice in IC, can expect to boost productivity by 112%, the gross sales growth rate by 19%, the gross labor growth rate by 7%, and the investment rate by 4 percentage points. Among the potential gains from IC, the following are relatively important, and the local government therefore should direct their attention to: (i) entry and exit barriers (25%), (ii) skills and technology (24%), (iii) foreign participation (14%), (iv) finance (13%), (v) tax burdens (12%). Two other areas are of less importance and might be worth looking into: labor market flexibility (5%) and domestic private ownership (4%).

**Nanchang.** Nanchang can expect significant gains from catching up with Nice: an increase in productivity of 55%, in gross sales growth rate of 11%, in gross labor growth rate of 5%, and in investment of 2 percentage points (or 12%). The key areas for catching up Nice are: (i) Entry and exit barriers (24%), (ii) foreign participation (20%), (iii) finance (20%), (iv) skills and technology (14%). Of secondary nevertheless still some importance are: (i) tax burdens (9%), (ii) labor market flexibility (8%), (iii) domestic private ownership (4%).

**Nanning.** Nanning, if catching up with Nice in terms of the IC, can improve its productivity by 103%, the gross sales growth rate by 16%, the gross labor growth rate by 5%, and the investment rate by 3 percentage points (or 20%). The main sources of gain among the IC actions are: (i) entry and exit barriers (27%), (ii) skills and technology (24%), (iii) foreign participation (16%), (iv) finance (15%), (v) tax burdens (13%). Of less but still some significance is labor market flexibility (5%).

**Shanghai.** Shanghai, by catching up with Nice and rein in a few shortcomings, can improve its performances moderately: increase productivity by 23%, the gross sales growth rate by 4%, the gross labor growth rate by 4%, and the investment rate by 2 percentage points. The main areas of gains are: (i) labor market flexibility (44%), which is of paramount importance; (ii) domestic privatization (28%), which is also one of the significant lagging areas; (iii) entry and exit barriers (14%). Of some significance are: finance (8%), and foreign participation (6%). Of no concerns here are the three usual suspects, plus skills and technology, and tax burdens.

**Shenzhen.** Shenzhen can still improve a number of aspects of the IC when compared with Nice. If on par with Nice in the nice aspects of IC, Shenzhen can improve its productivity by 26%, the gross sales growth by 4%, the gross labor growth rate by 4%, and the investment rate by 2 percentage points. The key areas for improving the IC are as follows: (i) improve access and services of finance, which would account for roughly 25% of all IC gains; (ii) allow for more foreign participation (23%); (iii) increase domestic private ownership (18%); (iv) improves skills and technology (17%); (v) lower entry and exit barriers (15%). Of no particular concerns for IC improvement for Shenzhen are the three usual suspects, plus the labor market reforms and the tax burden reduction.

**Tianjin.** Tianjin can expect some moderate amount of gains from improving the IC by catching up with Nice. The productivity gain would be 49%, the gross sales growth gain is 8%, the gross labor growth gain is 4%, and the investment rate gain would be 3 percentage points. The key sources of IC gains are: (i) labor market flexibility (30%), (ii) domestic private ownership (17%), (iii) finance (16%), (iv) skills and technology (14%), (v) entry and exit (14%). Reducing tax burdens amounts to 6% of the IC gains. The three usual suspects, along with foreign participation, do not matter for catching up with Nice.

**Wenzhou.** Wenzhou is clearly one of, if not the, leader in firm performance. Yet Wenzhou can still benefit from improvements in IC in a number of ways. Such improvements (to the level of Nice) would improve productivity by 45%, gross sales growth rate by 9%, the gross labor growth rate by 2%. The key areas for improvement in the IC are: (i) skills and technology (26%), (ii) foreign participation (26%), (iii) entry and

exit barriers (15%), (iv) finance (14%), (v) tax burdens (13%). Other minor constraints include labor market inflexibility (3%), court time (2%), along with infrastructure (1.4%). This list makes good sense. For medium, non-provincial-capital cities such as Wenzhou, skills and technology and FDI might be an issue; interestingly, infrastructure shows up (in a minor way though) for the first time among the cities.

**Wuhan.** When catching with Nice, Wuhan could increase productivity by 54%, the gross sales growth rate by 9%, the gross labor growth rate by 5%, and the investment rate by 2 percentage points. The actions should be focused on the following areas: (i) skills and technology (25%), (ii) finance (21%), (iii) foreign participation (19%), (iv) labor market flexibility (15%). Of less importance, but nevertheless useful, are to reduce entry and exit barriers (9%), to reduce tax burdens (8%), and improve court efficiency (3%).

**Xi'an.** The most important city in the northwestern region, Xi'an, when catching up with Nice, can improve productivity by 57%, the gross sales growth rate by 12%, the gross labor growth rate by 5%, and the investment rate by 2 percentage points. The areas for improvements are as follows: (i) entry and exit barriers (24%), (ii) foreign participation (18%), (iii) skills and technology (14%), (iv) tax burdens (13%), (v) labor market flexibility (12%), and (vi) finance (11%). Of less importance but still worth paying attention are domestic private ownership (7%), court time (1%).

**Zhengzhou.** The provincial capital of one of the most populous province (Henan), Zhengzhou expects significant gains from reforming their ICs (up to par with Nice). The expected gains are an increase in productivity by 65%, in gross sales growth rate by 8%, in gross labor growth by 4%, in investment rate by 2 percentage points. The key areas for actions are: (i) entry and exit barriers (24%), (ii) foreign participation (22%), (iii) skills and technology (22%), (iv) finance (20%). Of secondary importance are tax burdens (6%), labor market flexibility (4%), and court time (1%).

**Table 4.1. What would a city achieve in *TFP* with Nice's IC**

<i>City</i>	<i>actual TFP</i>	<i>all IC variables</i>	<i>dom. privat.</i>	<i>foreign particip.</i>	<i>skills &amp; labor</i>				<i>infrastr- ucture payment</i>	<i>informal</i>	<i>court time</i>	<i>effective tax rate</i>
					<i>entry &amp; exit</i>	<i>techno.</i>	<i>market</i>	<i>finance</i>				
Beijing	-0.08	0.36	0	5.5	18.61	9.52	35.32	22.81	1.98	0	3.64	2.62
Benxi	-0.32	1.02	0	11.48	44.48	12.69	6.21	11.04	0.07	0	0.72	13.32
Changchun	0.04	0.37	0	13.88	12.12	9.45	12.23	31.08	0	0	2.34	18.9
Changsha	-0.18	0.46	0	22.62	28.66	16.75	9.52	4.45	1.56	0	4.45	11.99
Chengdu	-0.11	0.47	0	18.8	18.14	6.74	24.66	14.91	2.03	0	4.09	10.64
Chongqing	-0.41	0.32	0	20.15	21.53	3.6	20.26	17.58	0.43	0	1.29	15.17
Dalian	0.18	0.37	0	14.17	16.5	17.39	2.94	27.59	0	0	0	21.4
Guangzhou	0.06	0.27	0	1.55	19.41	5.11	28.24	40.27	2.3	0	3.12	0
Guiyang	0	0.67	0	16.7	29.67	10.76	7.62	5.37	1.61	0	6.94	21.32
Haerbin	-0.5	0.7	0	15.49	19.09	10.68	9.33	23.5	0.49	0	7.9	13.54
Hangzhou	0.54	0.13	0	24.53	5	4.12	6.97	20.28	0.3	0.02	17.03	21.75
Jiangmen	0.62	0.22	0	20.09	26.06	37.05	0	3.39	1.93	0	0	11.47
Kunming	0.22	0.59	0	19.03	24.31	15.71	8.6	13.37	1.88	0	3.85	13.23
Lanzhou	0.18	0.75	0	16.8	26.14	14.88	4.36	16.61	0.21	0	3.32	17.68
Nanchang	0.04	0.44	0	22.29	24.68	8.04	6.74	21.87	1.77	0	1.27	13.33
Nanning	0.12	0.71	0	15.66	24.78	12.17	3.34	22.88	0.7	0	3.19	17.28
Shanghai	0.44	0.21	0	0	18.84	0	49.79	27.43	0	0	3.95	0
Shenzhen	0.83	0.23	0	14.49	16.7	15.77	0.4	49.94	2.69	0	0	0
Tianjin	-0.55	0.4	0	4.45	14.85	10.71	26.75	30.5	0.89	0	3.86	7.99
Wenzhou	0.7	0.37	0.09	30.97	16.66	17.89	2.05	2.68	4.07	0	6.81	18.78
Wuhan	-0.28	0.43	0	17.51	9.95	13.38	12.12	24.68	1.18	0	9.49	11.69
Xian	-0.22	0.45	0	22.21	27.18	7.36	10.32	7.88	0.66	0	4.75	19.63
Zhengzhou	-0.44	0.5	0.02	22.76	20.52	11.36	3.18	30.02	1.06	0	4.24	6.86

**Table 4.2. What would a city achieve in sales growth with Nice's IC**

<i>City</i>	<i>actual gross sale growth</i>	<i>all IC variables</i>	<i>dom. privat.</i>	<i>foreign particip.</i>	<i>entry &amp; exit</i>	<i>skill techno.</i>	<i>&amp; labor market</i>	<i>finance</i>	<i>infrastr- ucture</i>	<i>informal payment</i>	<i>court time</i>	<i>effective tax rate</i>
Beijing	1.33	0.07	4.79	1.12	24.35	11.95	43.44	8.82	0.18	0	0.61	4.75
Benxi	1.32	0.25	0.62	5.75	46.61	13.65	6.64	7.31	0	0	0.1	19.32
Changchun	1.47	0.08	1.57	16.93	14.97	10.68	11.95	10.68	0	0	0.38	32.85
Changsha	1.26	0.12	0.25	11.11	27.96	22.04	9.31	12.66	0.11	0	0.55	16.01
Chengdu	1.27	0.1	1.69	10.22	22.76	6.6	27.23	12.3	0.18	0	0.66	18.37
Chongqing	1.32	0.07	1.53	18.69	26.26	2.05	19.65	5.54	0.04	0	0.21	26.03
Dalian	1.38	0.09	3.03	11.96	19.03	20.49	1.62	10.84	0	0	0	33.03
Guangzhou	1.42	0.04	8.99	0	37.15	5.24	40.42	7.14	0.3	0	0.75	0
Guiyang	1.37	0.17	0.64	8.69	31.06	11.38	6.96	9.49	0.12	0	0.93	30.74
Haerbin	1.38	0.14	1.23	10.01	25.72	16.96	10.88	9.2	0.04	0	1.33	24.61
Hangzhou	1.36	0.03	4.77	38.88	6.33	0.75	7.69	4.35	0.02	0	2.52	34.68
Jiangmen	1.27	0.06	3.03	17.72	26.2	27.87	0	10.53	0.12	0	0	14.52
Kunming	1.21	0.13	0.71	10.23	28.5	17.06	10.31	11.54	0.15	0	0.57	20.94
Lanzhou	1.29	0.17	0.72	8.32	30.16	18.38	3.75	10.34	0.02	0	0.49	27.83
Nanchang	1.33	0.1	0.67	14.09	30.09	8.48	7.03	17.39	0.15	0	0.19	21.91
Nanning	1.39	0.15	0	9.21	30.67	16.28	3.78	10.5	0.06	0	0.5	29
Shanghai	1.34	0.04	11.04	5.51	24.38	0	55.26	3.14	0	0	0.67	0
Shenzhen	1.4	0.04	6	28.36	25.65	12.25	0.76	26.72	0.26	0	0	0
Tianjin	1.29	0.08	4.37	0	20.42	13	31.83	14.63	0.09	0	0.67	14.99
Wenzhou	1.49	0.09	0	16.58	18.56	19.01	3.03	13.38	0.31	0	0.95	28.19
Wuhan	1.26	0.09	0.01	14.7	11.64	22.33	12.09	18.44	0.1	0	1.45	19.25
Xian	1.43	0.11	1.22	11.97	28	10.81	9.31	9.71	0.05	0	0.64	28.3
Zhengzhou	1.28	0.08	0	16.53	33.27	15.23	2.48	16.51	0.12	0	0.86	15.01

**Table 4.3. What would a city achieve in *labor growth* with Nice's IC**

<i>City</i>	<i>actual gross labor growth</i>	<i>all IC variables</i>	<i>dom. privat.</i>	<i>foreign particip.</i>	<i>entry &amp; exit techno.</i>	<i>skill &amp; labor market</i>	<i>labor finance</i>	<i>infrastr- ucture</i>	<i>informal payment</i>	<i>court time</i>	<i>effective tax rate</i>	
Beijing	1.05	0.05	32.59	2.43	13.29	4.82	42.33	4.5	0	0	0	0.05
Benxi	1.01	0.1	7.3	21.49	43.45	9.58	10.47	7.37	0	0	0	0.33
Changchun	1.08	0.04	13.36	46.16	10.81	5.43	16.8	7.02	0.01	0	0	0.41
Changsha	1.07	0.05	2.49	35.86	21.58	13.86	12.74	13.22	0	0	0	0.24
Chengdu	1.08	0.05	13.72	26.58	14.49	3	33.15	8.84	0	0	0	0.22
Chongqing	1.06	0.04	11.27	43.92	16.3	0.69	23.7	3.84	0	0	0	0.28
Dalian	1.11	0.04	28.09	35.48	12.4	11.52	3.57	7.35	0.78	0	0.36	0.45
Guangzhou	1.14	0.03	47.35	0	14.45	1.57	35.59	1.04	0	0	0	0
Guiyang	1.04	0.06	7.47	32.55	28.5	8.02	12.27	10.66	0	0	0	0.53
Haerbin	1.05	0.06	12.79	33.19	19.34	10.85	16.84	6.62	0	0	0	0.37
Hangzhou	1.16	0.03	25.06	65.23	1.78	0	5.69	1.93	0	0.04	0	0.27
Jiangmen	1.05	0.04	23.79	44.39	11	12.67	0	7.99	0	0	0	0.17
Kunming	1.03	0.06	7.45	34.51	21.81	10.77	14.4	10.74	0	0	0	0.32
Lanzhou	1.06	0.07	8.61	31.87	27.37	13.36	7.57	10.73	0	0	0	0.49
Nanchang	1.08	0.05	6.32	42.59	20.56	4.89	10	15.34	0	0	0	0.3
Nanning	1.06	0.05	0	38.23	29.41	12.86	7.06	11.87	0	0.01	0	0.55
Shanghai	1.08	0.04	48.54	4.48	9.08	0	37.66	0.24	0	0	0	0
Shenzhen	1.12	0.04	31.05	46.55	7.1	3.5	0.43	11.06	0	0	0.31	0
Tianjin	1.05	0.04	34.56	0	12.22	6.2	37.84	9.02	0	0	0	0.17
Wenzhou	1.23	0.04	0	54.74	13.83	11.71	3.46	15.83	0	0	0	0.43
Wuhan	1.04	0.05	0.06	42.84	8.99	15.64	17.16	15.05	0	0	0	0.26
Xian	1.09	0.05	11.48	36.08	21.9	8.06	13.34	8.74	0	0	0	0.39
Zhengzhou	1.08	0.04	0	50.11	22.87	8.49	5.58	12.73	0	0	0	0.21

**Table 4.4. What would a city achieve in *investment rates* with Nice's IC**

<i>city</i>	<i>actual invest. rate</i>	<i>all IC variables</i>	<i>dom. privat. particip.</i>	<i>foreign &amp; exit techno.</i>	<i>entry skill &amp; labor market</i>	<i>finance</i>	<i>infrastr- ucture</i>	<i>informal payment</i>	<i>court time</i>	<i>effective tax rate</i>		
Beijing	0.16	0.03	31.7	0	7.6	20.8	33.2	5.9	0.5	0	0	0.3
Benxi	0.1	0.06	7.7	0	27.6	42.3	8.9	11.2	0	0	0	2.2
Changchun	0.16	0.02	18.7	0	7.5	38.8	19.2	12.1	0	0	0	3.7
Changsha	0.13	0.03	2.7	0	16.1	48.6	11.2	19.2	0.4	0	0	1.7
Chengdu	0.14	0.03	17.5	0	11.7	18.5	34.2	15.6	0.7	0	0	1.8
Chongqing	0.13	0.01	22.7	0	16.4	12.3	39	5.8	0.2	0	0	3.6
Dalian	0.12	0.03	26.8	0	10	45.9	2.8	10.9	0	0.8	0	2.7
Guangzhou	0.19	0.02	44.7	1.4	10.1	15.2	27.4	0.6	0.6	0	0	0
Guiyang	0.14	0.03	8.4	0	20.3	39.1	11.2	16.5	0.6	0	0	3.8
Haerbin	0.13	0.03	13.6	0	16	42.3	14.4	11	0.2	0	0	2.5
Hangzhou	0.19	0.01	63.1	0	6.6	10.7	11.5	3.1	0.1	0	0.5	4.3
Jiangmen	0.15	0.03	19.8	0	13.6	56.1	0	9.4	0.3	0	0	0.9
Kunming	0.09	0.04	7.1	0	16.2	48.5	11	14.7	0.6	0	0	2
Lanzhou	0.11	0.04	8.2	0	18.1	50.8	5.9	14	0.1	0	0	3
Nanchang	0.16	0.02	7.8	0	20	35.3	10	23.9	0.6	0	0	2.4
Nanning	0.14	0.03	0	0	22.7	52.9	5.9	14.5	0.3	0	0.1	3.6
Shanghai	0.16	0.02	50.9	12.1	4.7	0	32.1	0.2	0	0	0	0
Shenzhen	0.14	0.02	33.7	1.3	11.4	35.4	0.4	16.6	0.6	0.8	0	0
Tianjin	0.14	0.03	28.4	0	7	28	25.2	10.4	0.2	0	0	0.9
Wenzhou	0.2	0.02	0	0	11.8	55.8	2.9	25.2	1.3	0	0	2.9
Wuhan	0.12	0.02	0.1	0	5.7	48.5	17.7	25.6	0.4	0	0	2.1
Xian	0.15	0.02	17.1	0	17.3	28.1	16.1	17.4	0.3	0	0	3.7
Zhengzhou	0.11	0.02	0	0	20.7	52.9	5.4	19	0.5	0	0	1.5

How important is each IC element in the overall? To see this, we compute the average for Tables 4.1 to 4.4, and present the results in Table 4.5. The results suggest that, on average (both averaging over cities and over the four performance measures):

1. The most important IC element is the entry and exit barriers, which on average accounts for 19.5% of all IC improvements if all the cities are up to par with IC for the nice areas of the city Nice,
2. Skills and technology accounts for 17.2%,
3. Foreign participation contributes to 15.7%,
4. Labor market flexibility is responsible for 14.5%,
5. Finance is 13.4% important,
6. Domestic private ownership accounts for 9.4%,
7. Tax burdens contribute 8.8%,
8. Court waiting time is only responsible for 1.2% of the gains,
9. Infrastructure and informal payment do not account for significant gains.

**Table 4.5. The average importance of each IC category**

	<i>dep. Var = gross sales growth</i>		<i>dep. var = TFP</i>		<i>dep. var. = Gross labor growth</i>		<i>dep. var. = investment rate</i>	
	mean	s.d	mean	s.d	mean	s.d	mean	s.d
dep. Var	1.34	0.07	0.04	0.39	1.08	0.05	0.14	0.03
expected gains from IC improvements	0.10	0.05	0.45	0.21	0.05	0.01	0.03	0.01
% entry and exit ee	25.64	8.42	21.04	7.95	17.50	9.10	13.88	6.10
% foreign participation	12.46	8.72	16.14	7.56	33.45	17.51	0.64	2.53
% skills & technology	13.15	7.18	11.79	7.26	7.72	4.80	35.95	16.31
% labor market flexibility	14.15	15.14	12.65	12.57	15.98	12.89	15.03	11.59
% finance	11.35	5.10	20.44	11.96	8.77	4.41	13.16	7.09
% taxation	20.01	10.74	12.55	6.93	0.28	0.16	2.16	1.34
% domestic private own.	2.47	2.97	0.00	0.02	16.23	14.80	18.73	17.23
% infrastructure	0.11	0.09	1.21	1.04	0.03	0.16	0.37	0.30
% informal payment	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.22
% court	0.65	0.56	4.19	3.75	0.03	0.10	0.02	0.10

#### 4.4. An overall ranking of investment climate for the 23 cities

We have deferred giving an overall ranking of the investment climate until the very end. This is deliberate since it is a sensitive matter. We dare not proceed with such a ranking until we have understood well (at least to the extent we can) relevant factors related to different aspects of the investment climate and its effects on firm performance

We construct our ranking of the investment climate of cities based on the following thoughts:

1. The investment climate is better when the city has less to gain from improving its investment climate to the level of Nice.
2. The investment climate is important only to the extent that it affects firm performance, both in the static and the dynamic senses.
3. Based on the potential gains in TFP (i.e., static productivity efficiency) from improving the investment climate to the Nice level, we obtain a ranking of the investment climate in static productivity. The less the gains, the better the rank.
4. Since the dynamic potential of improving the investment climate is shown up in the other three measures (sales growth rate, labor growth rate, and investment rate), we first obtain individual rank for each of the outcome. For instance, the rank in terms of sales growth potential (relative to Nice) is computed first, with being number one means being the best in this dimension. We then add up the three ranks (based on the three outcomes), and re-normalize the aggregate rank such that the rank goes from 1 to 23. We thus obtain the IC rank in dynamic potential. What is nice about this IC rank in dynamic potential is that it is more robust, less subject to the peculiarity of an individual measure (of the dynamic aspects), and less subject to the outlier problem.
5. The overall IC rank is then computed by adding up the IC rank in static productivity and the IC rank in dynamic potential, and re-normalizing the aggregate rank such that it is between 1 to 23.

Table 6 presents the result. It is useful to note that the ranking can be constructed in a variety of ways. Here we have combined information on both the static and the dynamic dimensions of the investment climate, and give them equal weight. One can also

conceivably use different weights for the two dimensions, or simply use the static dimension. We have tried several ways, and found that the overall ranking tends to be similar (but of course not identical). We feel that the current ranking methodology seems most balanced and defensible. Here, we would like to emphasize that this ranking is only indicative of the investment climate, and a city laggard in investment climate could be better in other non-investment climate indicators. Even leading cities in our investment climate ranking still have room to improve as it is shown in our earlier counterfactual analysis.

From Table 6 we obtain the following observations:

1. The cities with the best overall investment climate is Hangzhou, Guangzhou, Shanghai, Shenzhen, earning a score of A+. Note that the static rank and the dynamic rank differ somewhat. Hangzhou is clearly the best in both dimensions, and Shenzhen is fourth in both. But Guangzhou is only fifth in the static dimension, but second in the dynamic dimension, while Shanghai has both ranks switched, and thus Guangzhou and Shanghai are tied in second place.
2. The A group includes Chongqing, Jiangmen, Changchun and Wenzhou. The interesting thing to note is that Chongqing is actually 3<sup>rd</sup> in terms of the dynamic dimension of the investment climate. Note that two medium-sized cities (Jiangmen and Wenzhou) are doing better than most others of the 23 cities.
3. The A- group consists of four northern cities: Tianjin, Dalian, Beijing, and Zhengzhou. The investment climates in Beijing and Dalian are better in terms of static efficiency. Yet the investment climates in Zhengzhou and Tianjin are better in terms of dynamic potential.
4. The B+ group include several cities in the central and west regions: Wuhan, Nanchang, Xi'an and Changsha, three of them are in the central region.
5. The B group contains four west-region cities: Chengdu, Guiyang, Kunming, and Nanning. Within this group, Chengdu appears to be clearly better than the rest.
6. The B- group include 2 Northeastern cities and one West city: Haerbin, Lanzhou and Benxi.
7. Thus the investment climate has a strong regional distribution, with the Yangtze and pearl river deltas having the best investment climates, while the West and some

Northeastern cities lagging behind. The cities in the central region appear to be in the middle.

**Table 6. The Overall Rank in the Investment Climate for the 23 cities**

City	Overall rank	Overall score	IC Rank in static productivity	IC Rank in dynamic potential
Hangzhou	1	A+	1	1
Shanghai	3	A+	2	5
Guangzhou	2	A+	5	2
Shenzhen	4	A+	4	4
Chongqing	5	A	6	3
Jiangmen	6	A	3	8
Changchun	7	A	9	7
Wenzhou	8	A	10	10
Tianjin	9	A-	11	9
Dalian	10	A-	8	13
Beijing	11	A-	7	15
Zhengzhou	12	A-	17	6
Wuhan	13	B+	12	11
Nanchang	14	B+	13	12
Xian	15	B+	14	14
Changsha	16	B+	15	17
Chengdu	17	B	16	16
Guiyang	18	B	19	19
Kunming	19	B	18	21
Nanning	20	B	21	18
Haerbin	21	B-	20	20
Lanzhou	22	B-	22	22
Benxi	23	B-	23	23

Note.

1. Rank in static productivity is based on the potential gains from improving local investment climate to be in par with Nice.
2. Rank in dynamic potential is based on 3 ranks (sales growth, labor growth, and investment rate) on potential gains from improving the local investment climate to be in par with Nice. Specifically, it is computed as  $\sum_{j=1}^3 R_j$ , where  $R_j$  is one of the 3 ranks. The sum is then renormalized to be from 1 to 23.

## Chapter 5. Policy Implications

The Chinese economy has performed spectacularly well over the past two and half decades, as demonstrated by the highest growth rate in the world coupled with persistent low inflation rate. Yet the progress of Chinese economy so far has always been accomplished by significant reforms: the Household Responsibility System in the rural area, restructuring of SOEs, introducing competition by allowing the entry of TVEs and private firms, increasing integration with the world economy, among others. While some of the road blocks have been removed by past reforms, new challenges still loom large. *One challenge*, for instance, is the sustainability of growth. China has enjoyed a annual growth of above 7% over the past two decades, and export has long been an engine for this growth. The growth rate of export in goods and services reached 32% in 2000. Currently, China's export accounts for roughly 20% of GDP, and this level is already extremely high. To maintain such a high growth in export sector is difficult; after all, the average growth rate for other countries is only about 2 to 3%. Indeed, as major world economies stagnate in 2002, the export growth for China dropped significantly to about only 5%. Thus if China is to maintain a steady growth at the current pace in the future, more emphasis should be placed on creating and spurring domestic demand. *A second challenge* is job creation. China's real urban unemployment is somewhere between 5-10%, and rural underemployment could add up to another 15% of the workforce. Tens of millions of laid-off workers from the SOE sector, plus hundreds of millions of rural redundant farmers flowing into urban areas, make job creation a national priority in public policy. What could the government do to foster domestic demand and create jobs? What other reforms would have important payoff for the Chinese economy and firms?

Our investment climate survey and research, along with some related research conducted by World Bank researchers (as summarized nicely in Jin and Stern, 2002; World Bank, 2003; and a series of paper presented on national market integration held in Beijing organized by the East Asian Region of the World Bank: Amiti, 2003; Boyreau-Debray and Wei, 2003; Fang, 2003; Gong, Xu and Tan, 2003; Wong, 2003; Yang, 2003), shed some light on the types of reforms the Chinese government should consider. In light of the summary of the contribution of IC reforms to catching with the city Nice,

the next-round of reforms should focus on the development of market institutions. To illustrate, important reform measures should be taken in areas such as: to ease and lift market entry and exit barriers and encourage further foreign participation, and both are about the creation of a larger extent of product markets, and to allow the economy of scale and scope to bear fruits; to upgrade skills and technology and increase labor market flexibility; to make labor market working its best; to let skills and workers flow to firms in which skills are more productive; to develop the finance, which is about letting capital market work at its best so that capital will flow to more productive firms and projects; and to increase court efficiency, which is also an important market-supporting institution. As for ownership diversification and privatization, China has made enormous headways with ownership restructuring, so much that it has become less important an issue in our two investment climate surveys. We now consider in details several areas calling for further reforms.<sup>14</sup>

National market integration. China has done pretty well in its integration to the world economy, but not necessarily so internally. Some recent research has found that China still lacks an integrated domestic market, which might hinder its economic development (Poncet, 2002; World Bank 1994; Young 2000). Some recent research found that China still lack an integrated domestic market, which might hinder its economic development (Poncet, 2002; World Bank 1994; Young 2000; Gong, Xu and Tan, 2003; Wong, 2003). Our own research here also indicates that the integration of national market is of importance of first-order. Local governments have incentives to protect firms with high profit margin for tax revenue, and protect SOEs to keep jobs (Bai et al., forthcoming). Such protection would prevent raw materials flow to producers in other provinces that produce more efficiently, or prevent the entry of firms of better quality or lower prices from other provinces. Such hindrances to trade would block the realization of the full benefits of economy of scale and scope, and curb the competitiveness of firms in China. Gong, Xu and Tan (2003), for example, find that firms facing higher regional protectionism have a significantly higher ratio of within-

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<sup>14</sup> Readers interested in how to promote national market integration and growth with equity should consult the new literature mentioned above, which contains complementary evidence and advices on some of the points we make here.

province sales, thus blocking the realization of full benefits from a greater extent of market. When asking about the potential benefits from removing regional protectionism, firms in most provinces imply positive increase in revenue. Firms in some provinces could gain as much as 9% for their revenue on average. The central government, therefore, might consider policies that reduce the extent of regional protectionism. For instance, no province and city should impose any non-tariff barriers to stop firms from other provinces to enter the market. There should be no discrimination to firms of other provinces in terms of taxation, technical standards, and so on. The role and functions of governments at various levels in business should be further simplified and reduced. The elimination of regional protectionism would have added benefits of creating a fluid market that reduces regional disparity, and allow capital and high-skilled labor to flow to places where there are higher returns.

Globalization. The research has found that integration into world economy has important benefits for local economies (see also Dollar, 1997; Collier and Dollar 2002). China has done spectacularly well, and is the unchallenged leader among globalizing developing countries. And indeed, integration has greatly benefited the development of China's economy. The country has doubled its ratio of trade to GDP over the past two decades (to 41% of GDP in 1999), and has per capita GDP growth of nearly 8% during the 1990-99, while the rich economies grew only about 2% per capita and the least globalizing developing world posted negative growth of 1.1%. Though China is the best when comparing to other developing countries, large variations within China remain. Among our five surveyed mega cities, Shanghai and Guangdong benefited significantly from international integration. They succeeded to a greater extent in having foreign partners participate in their economies, using means such as ownership, technological partners, among others. Indeed, a strong part of the advantage of Shanghai and Guangzhou is the high level of foreign involvement in the economy. Moreover, it is found that firms with foreign ownership also created more jobs (Hallward-Dreimeier, Wallsten, and Xu, 2003). Thus local government should encourage the flow of foreign capital into their economies. Such flow is possible, as several coastal cities have already set an example like Shanghai, Guangzhou, and Shenzhen. Creating favorable conditions

for foreign entries, however, does not mean favoring foreign players at the expense of local firms. For one thing, unequal treatments would create opportunities for arbitrage and abuse of the system. For instance, local firms can dress up as a joint venture without significant participation of foreign firms (and therefore benefits related to foreign inflow of capital, management expertise and technological know-how), and thus enjoy tax exemption and other benefits at the expense of tax revenue of local governments. What foreign parties (and capital from other provinces) need is a level playing field that treat domestic players and foreign players equally. It should be expected that the local court would be unbiased in ruling on commercial conflicts as well.

Skills and technology. We have shown that on average skills and technology are among the most important IC ingredients for convergence to a high level of performances. Cross-country evidence also suggests that education has a strong effects of income level, especially so in market-oriented countries (Thomas et al., 2000). Thus government policy should be designed as conducive to promotion of labor skill development and technology innovation. Since technology essentially comes from two dimension—capital good for more technology, skilled personnel and know-hows for implementation—and the capital part is easier to catch up with a good mobility of capital, equal or even more focus should be placed on improving labor quality.

We proposed a two-pronged approach for skill catch up for poor regions. First, More aid or transfer payment would be necessary from national government. Our understanding is that a significant part of the public school budget, urban or rural, is self-financed by local governments and communities. This would inevitably increase the disparity in educational attainment between rich and poor regions, and that between rural and urban residents. This is undesirable both for equity and efficiency reasons. From efficiency point of view, potential resources (human capital embodied in residents in poor areas, say) not fully cultivated and utilized implies efficiency losses. Therefore, more resources from central government should be allocated to poor provinces to insure that the adequate amounts of budget are committed to education and the same level of enrollment maintained compared with developed areas.

Moreover, given government resources for education are often constrained, the private initiatives in running schools and other training centers should be further encouraged, especially those schools that provide vocational training for skilled jobs. Recently, China has passed a law governing running schools by private entities. This is a very positive step forward. We expect that through this measure and others, more funds can be mobilized and allocated to education and other various training purposes. In addition, the voucher scheme for education can be also considered to be applied particularly for poor and rural areas. The voucher scheme would give each school-age children a certain amount of vouchers with which the children can use it to attend either public or private schools. With option to “vote by feed”, public schools and private schools can compete on a equal foot. Thus the voucher system has the potential to reconcile equity and efficiency.

Second, government at all levels should encourage developing vocational training on a large scale. Vocational training would re-tool unemployed or laid-off workers into new post, and train young high-school students useful skills to meet jobs’ requirement. Places such as Shanghai and Hangzhou not only have more college students but also more skilled workers working in modern sectors, and both are important ingredients for their success. Indeed, in our empirical work, firm performances are significantly higher when the firms have more technical (or skilled) workers and provided more training for their employees. Researchers have also credited the large-scale training programs for GIs (i.e., out-of-duty soldiers) for the economic growth after the second World War in the United States.

Labor market reforms. The evidence shows that the labor market in China is not functioning as well as it could be. The market is still segmented despite the significant developments in the past few decades. We’ve found that, for instance, there are significant overstaffing in many firms, but the extent of overstaffing differ significantly across cities. Some firms have quite high ratio of temporary workers, while others are stuck with labor forces of permanent (and old) workers. Our research suggests that there are important gains for firm performance enhancement when firms enjoy the flexibility in labor allocation (Xu, Zhu and Lin, 2002), and in hiring and firing workers.

The government has already taken various measures to ease the rigidity in labor market. Yet still this is an area that firms complain loudly. The reasons for the lack of good progresses include the ( explicit and implicit) restrictions on labor mobility. These restrictions and other rigid institutions reflect the legacy of the planned system, and they must be relaxed and removed. More importantly, China still lacks of an efficient social safety net. In most parts of the country, pension scheme is still at city level and its account is not portable. It is usually difficult for an employee to leave the firm and move to work in another city. Even in the same city such mobility is often difficult as the state social security covers only the public sector, but not the private sector. The lack of appropriate social protection is hindering further labor market reforms. Clearly China should deepen the reform on social security toward a universal system. All types of firms should be covered by universal pension scheme, medical insurance, unemployment and other social programs. These schemes should be portable nationally so as to increase and facilitate labor mobility and labor market flexibility. A good social security system will allow human resources to be more efficiently allocated; individuals can then choose firms that would pay them the highest. It could also help SOEs to get rid of redundant workers relatively easily, and the laid-off workers would also have more flexibility to take jobs available in either the public sector or in the private sector.

Financial reforms. Many recent studies have demonstrated that the financial sector in China has not functioned well (see, for instance, Cull and Xu, 2000, forthcoming, 2003; World Bank 1997). Capital has been persistently channeled to loss-making SOEs. Yet private firms, even with higher marginal productivity of capital and more potential in creating jobs than SOEs, have to rely on other funding channels (such as informal loan from friends, family, suppliers' credit, parent companies' contribution, or retained earning). This pattern of allocation of capital would lower economic growth since resources are not directed to places of highest value, and it hinders the entry of new firms and therefore job creation. Perhaps that's the reason why we've found the access to finance is associated with better sales growth, investment rate, and firm productivity ( Hallward-Dreimeier, Wallsten and Xu, 2003; Cull and Xu, 2003).

Another obstacle to the flow of credit to the private and small businesses is interest rate controls imposed by the government. Existing interest rate controls severely impairs the ability of banks and borrowers to establish mutually advantageous relationships. Between the government-fixed interest rates and the willingness-to-pay levels of private businesses there is likely a large room for mutually advantageous relationship between banks and borrowers. There is some likelihood that usury would happen under liberalized interest rates, but the government and the central bank should be able to contain this through stringent enforcement of regulations. Indeed, interest rate controls are more likely to lead to informal banking (and therefore usury in some cases). In southern China like Guangzhou, for instance, previous studies in China have found that there is a high credit demand among the small businesses but their access to former financing is rather limited. A consequence is that informal banking activities arise to fill the void left by the formal banking sector. We believe that the government should liberalize interest rate controls to foster healthy incentives inherent in bank/borrower relationship. Once such liberalization is allowed, and local branches are provided proper incentives to lend to SMEs, the flow of credit to creditworthy SMEs can be guaranteed, as happened in countless of developing countries. Indeed, growing businesses can easily afford the interest rates and fees that are required by the banks to cover the higher labor costs involved in lending to small business as well as to create reserves for potential loan losses (Scott, 2003).

Another obstacle for SMEs to obtain credit is the existing policy requiring all loans be collateralized by tangible assets. Many local governments in China have established credit guarantee schemes in order to overcome the limitations on the ability of businesses to provide acceptable collateral, and to circumvent interest rate control. But these credit guarantee schemes only partially address the impediments, and may also lead to new distortions such as government intervention (e.g., allocation of loans based on political access) and moral hazard (on the part of borrowing firms to default).

Clearly the government has to restructure the banking sector dramatically so that commercial criteria would be used to allocate funds. Interest controls applicable to loans to small businesses should be relaxed, allowing banks to be able to charge an interest rate to cover the costs and risks inherent in the types of small business loans. Failure to

provide sufficient interest rate flexibility will restrict access to credit by small businesses. The government also needs to foster the development of supporting financial services for small businesses, such as promoting credit information registries, and developing tools that make collateral assessment easier and less costly. Moreover, the entry of foreign and domestic private banks might fill certain niches that state-owned banks have not filled so far. Their competition would also force state-owned banks to compete in these niches that they have not performed successfully so far. To make this happen, of course, some necessary institutional changes such as establishing crediting rating agencies are necessary. The government should encourage experimentations along these lines.

Enterprise restructuring and corporate governance. The Chinese government has pushed through major reforms in enterprises restructuring since the late 1990s via a two-pronged approach: grab the big and let go the small. Most small-and-medium enterprises have been sold/leased or corporatized, while the largest remain in the hands of the state (Broadman 1996). These are important progress; nevertheless some recent research suggests that further steps should be taken. This report finds that corporatization alone would not lead to important gains. Rather, ownership changes coupled with governance improvement are both necessary. The China investment surveys show the positive and large coefficients of various private ownership variables on firm efficiency, investment rate, and growth rate, as well as by other recent studies comparing the relative efficiency of public versus private firms (Xu, Zhu and Lin, 2002; Dollar and Hallward-Drimeier, 2002). In preparing ownership change, policy makers might find it useful to take into account various effects of different privatization strategies. For instance, in spurring firm growth, managerial ownership is superior to outsider dispersed private ownership. Foreign ownership is even better in spurring firm productivity, though foreign firms appear to have lower investment rate than other private ownership. Interestingly, using the same investment climate survey, World Bank researchers also find that firms with foreign ownership also experience higher employment growth (Hallward-Driemeier, Wallsten, and Xu, 2003).

China has relied on public listing as an important way to reform large SOEs. However, recent research suggests that it is not clear this strategy is going to yield large payoff without important improvement in corporate governance (Wang, Xu and Zhu, 2002). A recent study using data of all listed companies finds that publicly-listed firms experienced significant performance drops (as measured by ROA) even after 5 to 6 years, and this is true even after we filter out the influence of financial packaging, or when we use the first year *after* the listing as the benchmark for post-listing performance. This does not necessarily suggest that public listing is not a good way to reform large SOEs; rather, it means that corporate governance for listed enterprises should be improved substantially. The same study also found that listed firms that feature balance of power between the largest shareholders have better listing effects. This suggests that the expropriation of small shareholders might be a problem, and the government should design legislations to constraint the power of the largest shareholder in expropriating smaller shareholders.

Government regulation and contract enforcement. China has made significant progresses in market-oriented reform. It downsized government staff by almost 48% in 1997, and abolished hundreds of regulations in 2001 prior to its access to WTO. But China still needs to make further efforts to shift its traditional and discretion-based governance system to a rule-based and modern one. Our study suggests that the government is still heavily involved in the running of businesses. Many firms still complain of lack of autonomy in many things, especially in labor allocation (Xu, Zhu and Lin, 2002) and investment. Many firms still report that they have to spend informal payment to get things done in the government or banks. Indeed, in the piloting of the survey in Chongqing, a senior government official sharpened his critics by saying that the basic attitude of a local government is whether to help firms, or to create obstacle for firms (i.e., “helping hands” or “grabbing hands”). We find some evidence that different cities differ in the amount of regulatory burdens on firms. More importantly, firms in more advanced regions appear to have lower regulatory burdens than less advanced ones. This might create further divergence between rich and poor provinces:

Capital, for sure, is more likely to flow to regions where it takes less procedures to accomplish.

The local governments can make themselves “helping hands”. An important element is to create the right incentive structure for government officials (World Bank 2002). The performance of government officials can be judged; and their compensation or career promotion should be linked to their job performance. Their rewards should be linked to doing *right* things. For instance, in some localities polices get their bonuses in proportion to issuing tickets to traffic violation, and such distorted incentives can lead to abuses of discretions. Another element to “helping hand” is to have formal and simplified rules for government officials to follow. Such a practice would reduce the starting-up costs (such as waiting time) of businesses, and reduce the incidence of government officials using their discretion for individual benefits.

Another important service the government has to offer is the improved legal framework and enforcement. As economy develops, firms rely less and less on personal relationship to do business, but more and more on arms-length relationship for supplies and clients. Such arms-length relationship would require strong contract enforcements through a strong court system to resolve commercial conflicts. Research has found, for instance, a stronger court system in Eastern Europe is associated with more use of trade credit, which allows firms without access to formal financing to expand (McMillan and Woodruff, 2002). We also uncovered some evidence that court efficiency may also play a positive role for firm performance. At this stage it appears to play a rather small role, but as arms-length relationship prevails in business transactions, court enforcement would become increasingly important, and locations that feature a reputation of sound contract enforcement would reap rewards in attracting capital inflow and prosperous business environment. Thus building up legal capacity and training a sufficient amount of professional judges that understand law and economics are of great importance. Firms should have reasonable expectation that their economic cases be treated impartially and with no much delay.

If governments at all levels can improve some of above-mentioned aspects, important gains are to be expected. We have demonstrated our counterfactual analysis, for instance, that sales growth could on average increase by 10 percent, and TFP could on

average increase 45% from improving the key investment climate obstacles for the 23 cities.

Above-mentioned are some general policy suggestions. However, our research has found that the cities differ in their comparative advantages in various aspects of investment climate. Thus it is important for each city to focus on those aspects that offer the highest payoffs. For specifics on what aspects to focus on, just go back to the last chapter on city-specific analyses.

While we have answered some of the questions posed earlier, it is important to keep in mind that the survey work still has its limitations. *First*, the results need to be treated with some caution. The estimates should be seen as indicative of the relative importance of different dimensions of the investment climate rather than exact predictors of how performance will change should reforms be enacted. Still, the consistency in the regression results across the three performance measures and the levels considered in the counterfactual are based on those actually achieved by the leading city, reinforce the credibility of this analysis. *Second*, some important aspects of the investment climate cannot be captured by survey data. For instance, the survey cannot address some issues surrounding the topic “*entry and exit*” as firms that did not enter the market or those firms that did exit. *Third*, there are no doubt other important aspects that are left out in the categories of our investment climate. In the first survey we did not, but in the second survey we did, include the tax burden variables, and it is shown to be an important ingredient of the IC in our second survey. No doubts there are other relevant variables omitted in our investment climate. However, we do believe we have provided the more comprehensive treatment of the investment climate up to this day. *Fourth*, our classification and interpretations are based on two surveys that we’ve conducted over the past two years, and data available to us it may or may not reflect the true situation each city should present. Even the data may be subject to different interpretations. So we urge the reader to interpret the data as indicative. In particular, it may be a useful exercise to think what you would call for the specific *variables* underlying each of the categories we labeled, and think what different policy implications you might consider. Finally, the current survey still leave out some important provinces such as Jiangsu,

Fujian, Shandong, Inner Mongolia, Xinjiang, Hainan and Tibet. Future surveys covering the remaining are keenly needed, and is currently under implementation between the Enterprise Survey Organization and the World Bank team.

## Technical Appendix

### Appendix A. The Construction of TFP

The total factor productivity is estimated using a production function as follows:

$$\ln V_{it} = \beta_0 + \sum_{j=1}^J D_{ijt} (\alpha_{jL} \ln L_{it} + \alpha_{jK} \ln K_{it}) + e_i + \varepsilon_{it} \quad (\text{A.1.})$$

where  $V_{it}$  is value added for firm  $i$  and period  $t$ .  $L_{it}$  and  $K_{it}$  are the number of employees and the capital stock, respectively. The capital stock is proxied by the original value of fixed assets, the only time-varying measure we have for capital stock.  $D_{ijt}$  is a dummy variable that is one if firm  $i$  is affiliated with sector  $j$ . In total we have ten industries as mentioned above. So equation (A.1.) essentially allows sector-specific shares of labor and capital. The total factor productivity is then constructed as the estimate of  $e_i + \varepsilon_{it}$ , the part of value added that is not explained by capital and labor.

## Appendix B. The Regression framework

To examine how various elements of investment climate affect performance, we estimate the following regressions:

$$Y_{it} = \beta_0 + \beta_1 X + \beta_2 IC_i + \varepsilon_{it} \quad (\text{A.2})$$

where  $Y$  could be sales growth rates, labor growth rates, the investment rate, or TFP as constructed above.  $X$  are a set of control variables, including industry dummies (to allow the performance to have an industry-specific mean), the logarithm of the number of employees, market share, log city population and log average income of the city. City characteristics are controlled for since there might be externality from other firms in the city.  $IC$  is a vector of indicators related to investment climate.

Before we proceed to the regressions, it is important to know that for a small subset of variables, only the second IC data contain such information. We thus run two sets of regressions. In the first four columns of regressions we use the variables related to the investment climate that are common to both the first and the second IC data sets. In the second four columns, we use *only the second IC data set* and all the IC variables. As a result, the second set of results have few number of observations but more complete set of IC variables.

The results, along with some notes concerning the construction of some of the used measured, are reported in Table A.1.

**Table A. 1. Regression results**

	(1)TFP	(2) log gross sales growth	(3) log gross labor growth	(4) investm. rate	(5)TFP	(6) log gross sales growth	(7) log gross labor growth	(8) investm. rate
log city avg	0.261	-0.034	-0.008	0.008	0.343	-0.072	-0.025	-0.014
Income	(0.037)***	(0.014)**	(0.008)	(0.006)	(0.061)***	(0.020)***	(0.013)**	(0.008)*
log(employees)	0.229	0.017	0.023	0.008	0.192	0.005	0.028	0.007
	(0.012)***	(0.005)***	(0.004)***	(0.002)***	(0.015)***	(0.006)	(0.005)***	(0.002)***
market share	0.000	0.081	0.043	0.044	-0.051	0.090	0.040	0.046
	(0.082)	(0.037)**	(0.018)**	(0.016)***	(0.118)	(0.046)*	(0.025)	(0.024)*
log firm age	-0.137	-0.102	-0.069	-0.063	-0.144	-0.086	-0.064	-0.050
	(0.020)***	(0.009)***	(0.005)***	(0.004)***	(0.024)***	(0.010)***	(0.006)***	(0.004)***
domestic private ownership	-0.001	0.014	0.062	0.037	-0.094	-0.002	0.072	0.035
	(0.041)	(0.016)	(0.009)***	(0.007)***	(0.047)**	(0.018)	(0.010)***	(0.007)***
foreign ownership	0.198	0.071	0.102	-0.006	0.292	-0.109	0.095	-0.102
	(0.083)**	(0.037)*	(0.019)***	(0.015)	(0.278)	(0.111)	(0.088)	(0.037)***
has foreign Partner	0.327	-0.021	-0.018	-0.026	0.265	-0.003	-0.009	0.005
	(0.043)***	(0.018)	(0.010)*	(0.007)***	(0.056)***	(0.023)	(0.014)	(0.009)
share of excess Capacity	-0.700	-0.180	-0.068	-0.020	-0.711	-0.164	-0.064	-0.043
	(0.066)***	(0.029)***	(0.016)***	(0.010)*	(0.079)***	(0.033)***	(0.018)***	(0.013)***
Sell to other provinces					0.168	0.048	0.012	0.010
					(0.044)***	(0.016)***	(0.010)	(0.007)
share of technical Workers	0.368	0.015	-0.075	0.044	0.186	-0.009	-0.120	0.047
	(0.113)***	(0.044)	(0.030)**	(0.019)**	(0.141)	(0.053)	(0.040)***	(0.024)*
log (1+share of worker trained)	0.367	0.144	0.040	0.061	0.384	0.136	0.030	0.066
	(0.061)***	(0.025)***	(0.017)**	(0.011)***	(0.080)***	(0.031)***	(0.024)	(0.013)***
log (1 + avg R&D exp. Per worker)	0.020	0.004	0.001	0.006	0.006	0.002	-0.000	0.005
	(0.006)***	(0.002)*	(0.001)	(0.001)***	(0.007)	(0.003)	(0.002)	(0.001)***
share of overstaffing	-0.329	-0.117	-0.058	-0.028	-0.548	-0.145	-0.093	-0.033
	(0.067)***	(0.029)***	(0.015)***	(0.008)***	(0.108)***	(0.042)***	(0.026)***	(0.013)**
share of worker non-permanent	0.141	0.018	0.019	0.010	0.012	0.022	0.023	0.003
	(0.044)***	(0.018)	(0.010)**	(0.007)	(0.051)	(0.020)	(0.011)**	(0.008)
share of losses of sales due to infr.	-0.451	-0.008	0.043	-0.008	-0.370	0.083	0.051	-0.025
	(0.166)***	(0.082)	(0.038)	(0.031)	(0.260)	(0.099)	(0.058)	(0.053)
has access to bank Loan	0.277	0.006	-0.008	-0.005	0.237	0.002	-0.005	0.001
	(0.032)***	(0.013)	(0.008)	(0.005)	(0.039)***	(0.015)	(0.009)	(0.006)
trade credit	0.076	0.092	0.038	0.035	-0.100	0.053	0.045	0.030
	(0.060)	(0.027)***	(0.015)**	(0.011)***	(0.079)	(0.035)	(0.021)**	(0.014)**
Informal payment	0.524	0.004	0.175	0.510	1.038	-0.085	0.230	0.525
	(0.798)	(0.284)	(0.107)	(0.300)*	(0.745)	(0.290)	(0.110)**	(0.305)*
Loan require pay					-0.139	-0.042	-0.025	-0.010
					(0.068)**	(0.027)	(0.014)*	(0.011)
log court time					-0.083	-0.003	0.002	0.003
					(0.048)*	(0.019)	(0.011)	(0.008)
Effective tax rate					-2.362	-0.855	-0.006	-0.022
					(0.168)***	(0.091)***	(0.038)	(0.023)
Observations	8198	7544	7657	8484	5507	5566	5649	5529
R-squared	0.35	0.07	0.10	0.14	0.39	0.09	0.09	0.12

Note. \*, \*\*, \*\*\* represent statistical significance at the 10, 5, and 1 percent levels.

We also control for industry dummies and log city population.

Some variables have missing observations, and to avoid losing too many observations, we impute them with industry and city dummy variables.

The share of losses of sales due to infrastructure is constructed as the losses due to electricity outage or transportation theft and breakage as a share of sales.

Trade credit is constructed as the share of input that is purchased via the use of trade credit.

Informal payment is the share of informal payments (including reception costs) of sales spent on dealing with government officials.

The effective tax rate is constructed as total tax and fees over sales.

“Loan requires pay” is a dummy variable indicating that obtaining a loan by a firm usually requires gifts and informal payment.

“Sell to other provinces” is a dummy variable indicating selling to other provinces.

“log court time” is the logarithm of (court waiting time in months plus 1).

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