

WHY IS ENTREPRENEURSHIP MISSING IN SHANGHAI?

Yasheng Huang

MIT Sloan School of Management

yshuang@mit.edu

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ABSTRACT

Using private sector surveys and household surveys, this paper documents a phenomenon of missing entrepreneurship in Shanghai. Specifically, in terms of employment size, growth, and patent grants, the indigenous private-sector firms in Shanghai significantly lagged behind those elsewhere in the country. The variable that best explains this phenomenon of missing entrepreneurship is the rural private sector policy. The importance of the rural private sector policy is due to the fact that the origins of capitalism in contemporary China are overwhelmingly rural in nature. Regions with a restrictive rural private sector policy in the 1980s and early in the 1990s would end up with substantially smaller *urban* entrepreneurial businesses in early 2000s. Shanghai is the extreme example of a region with a highly restrictive policy toward its rural private sector. The paper also provides data showing a huge discrepancy in the income levels of Shanghai between GDP data and household survey data, very low property income held by Shanghai residents, and a dramatic decline of Shanghai relative to Guangdong and Zhejiang in terms of patenting activities. While this paper makes no attempt to link these factual details about Shanghai with the phenomenon of missing entrepreneurship in Shanghai, they are not inconsistent with it. Based on the findings of this paper, one would argue against the view that Shanghai should be held up as a model of economic development.

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The story of Shanghai is that of two extremes. At the one extreme, it is viewed as a model of economic development and as a symbol of a rising and prosperous China. At the other extreme, Shanghai appears to lack—almost completely, as I will show—a mechanism widely-regarded as important for growth and innovations—private-sector entrepreneurship. Illustrating and attempting to explain this second extreme feature of Shanghai is the purpose of this paper.

Economists and other scholars studying transition economies disagree with each other about the economic and political merits of mass privatization, financial reforms and foreign trade reforms. Few would dispute the vital importance of fostering the development of new, entrepreneurial businesses. Entrepreneurial businesses—defined as new entrants and as privately-owned—create jobs and promote growth at a time when state-owned enterprises (SOEs) are downsized and retrenched. The *de novo* businesses also inject the much welcome dose of competition into economies that have poorly-functioning product and factor markets and are saddled with government distortions.

In this aspect, it is particularly interesting and—as I would argue, analytically important—to note that a city widely regarded as a huge economic success in China, Shanghai, has an extraordinarily low level of entrepreneurship. China as a whole is not short of entrepreneurship, as a number of scholars have noted. Relative to entrepreneurship in the rest of the country, by several measures of entrepreneurship that we will use in this paper Shanghai's entrepreneurship is not only modest but almost completely absent.

The missing entrepreneurship phenomenon in Shanghai holds important policy and analytical implications. For one thing, Shanghai has been held up a model of economic development by policy makers, journalists and economists alike. As this paper will show, relative to this aura conferred on Shanghai, there is in fact very little knowledge of the actual mechanisms and processes that have seemingly propelled the economy of Shanghai forward. Hopefully this paper can contribute to building some knowledge about the microeconomic dimension of Shanghai's economic performance. Based on the findings of this paper, I would argue that Shanghai should not be held up as a model.

Uncovering the missing entrepreneurship in Shanghai is also analytically interesting. This is because our priors are that the city should be richly endowed with entrepreneurship. Shanghai has a long history of entrepreneurship. In the first three decades of 20th century, Shanghai was a major business and financial hub of Asia. It was the home of the country's biggest textile firms and banks. It was the founding venue of a number of firms that are still major MNCs in the world today, such as Hong Kong Shanghai Banking Corporation (HSBC) and American Insurance Group (AIG). A very powerful illustration of Shanghai's rich entrepreneurial heritage is the near absolute dominance of Hong Kong economy by the industrialists who left Shanghai in 1949.¹ During the take-off period of Hong Kong, the most important industry in Hong Kong was textile. The industry produced 47 percent of its export value and employed 45 percent of the workers as recently as 1977. Shanghai industrialists owned twenty-five—out of a total of thirty—cotton spinning mills in Hong Kong as of the late 1970s. Between 1947 and 1959, the Shanghai industrialists created twenty out of twenty-one cotton spinning mills established in that decade. It is not an exaggeration to say that Hong Kong miracle was a Shanghai miracle in disguise. It is surprising that the contemporary Shanghai should be so short of entrepreneurship. Policy reasons, not history or culture, are the most likely culprits.

We use two large-scale private sector surveys—conducted in 1993 and 2003 respectively—as well as survey data on self-employment household businesses to illustrate and then unpack this phenomenon of missing entrepreneurship in Shanghai. To preview the paper, Shanghai's entrepreneurial firms are among the smallest in the country as measured by employment and despite the fact they started out considerably smaller they also grew more slowly over time. Shanghai firms compare poorly not only against firms in rich provinces but also against those in some of the poorest provinces in China. This is true of the employment measure but also of those measures where one would expect Shanghai firms to trump others easily—such as in patent grants. Finally, the relative ranking of Shanghai in terms of employment size per firm *declined* between the two survey years (1993 and 2002), despite the fact that this is a period widely regarded as the golden era for Shanghai.

¹ For a very good account of the role of Shanghai industrialists in Hong Kong, see Wong (1988).

Our finding is that a measure that captures the rural private sector policy offers the best explanation for the phenomenon of missing entrepreneurship in Shanghai. Specifically, Shanghai seemed to have a long-standing policy constraining the self-employment business opportunities of its rural residents and this policy entails implications for the entrepreneurial development *in the urban area* many years down the road. Our construction of this variable and its underlying conceptualization are based on a view that the origins of capitalism in contemporary China are heavily rural in nature. Any policies that promoted rural entrepreneurship would have a positive spillover effect on *urban* entrepreneurship; any policies that restricted rural entrepreneurship would have the opposite effect. Shanghai is the extreme example of the latter; Zhejiang, a province to the south of Shanghai, is the example of the former.

The first section further illustrates the adulation conferred on Shanghai among the broad policy and intellectual community. Based on the findings in this paper, I would argue that much of this adulation is misplaced. The second section explains the datasets and presents the phenomenon of missing entrepreneurship in Shanghai. The third section presents the regression analysis demonstrating the effect of rural policy. The fourth section concludes by offering some broad speculations. Specifically, we ask the question, “Does the absence of entrepreneurship matter for Shanghai and for China?”

WHY STUDY SHANGHAI?

Measured in terms of per capita GDP, Shanghai is the richest province in China. (Shanghai is known as a provincial-level city. In the rest of this paper, I will refer to Shanghai as a province.) Shanghai has the highest GDP per capita in the country. In 2005, its GDP per capita was 12% higher than the second-highest GDP per capita in the country—that of Beijing and it is 3.66 times the national average. It is an important economy to study in its own right.

The more important reason is that many people want to emulate Shanghai. Shanghai is widely regarded as the symbol of the rise of China. Probably nowhere else in the world has Shanghai inspired more imagination—and despair—than in the Indian city of Mumbai (particularly during its monsoon season). Indian intellectuals and business people ask, often in great exasperation, “Why cannot Mumbai be more like Shanghai?” Indian politicians, while disagreeing almost on everything else, agreed on the need for Mumbai to emulate

Shanghai. Jayant Patil, Finance Minister of the state of Maharashtra, recently asked, “Why can’t India plan bullet trains when China can smoothly roll hi-speed trains between Shanghai and Pudong covering a stretch of over 450 km in one hour?” Prime Minister Manmohan Singh, an Oxford-trained economist and a man steeped in humanistic values, also sees the heavy-handed Shanghai as a model. This is an excerpt from his speech given in March 2006²:

When I spoke of turning Mumbai into a Shanghai, many wondered what I had in mind. It is not my intention to draw a road map for Mumbai’s future. But I do believe that Mumbai can learn from Shanghai’s experience in reinventing itself; in rebuilding itself; in rediscovering itself.

Statements by Patil and Singh show a fascinating aspect of the Indians’ perception of Shanghai: The city is deeply admired in India but there is virtually no knowledge about the city. The high-speed train referred to by Patil travels not from Shanghai to Pudong but between two locations in Pudong. It does not cover 450 km but only 30 km and it completes its journey in eight minutes. It is unlikely that Prime Minister Singh has any detailed knowledge about how actually Shanghai generates economic growth and wealth creation and yet the presence in Shanghai of a dynamic economy and a wealth-creating machine is simply presumed.

Academics are equally enthusiastic about the city. Doug Guthrie (2001), a NYU professor, who did his entire field research in Shanghai for his book, Dragon in a Three-Piece Suit, described Shanghai as “the head of the dragon.” Shanghai is the vanguard of market reforms in China and, as he put it, is one of “the most legalistic and institutionalized areas.” Like almost all the academic works touching on Shanghai, Guthrie produced no empirical evidence actually demonstrating Shanghai to be the vanguard of economic reforms. The fact is so obvious and one has only to assert it.

Yusuf and Nabeshima (2006), two economists at the World Bank, have more data about Shanghai in their book, Postindustrial East Asian Cities. But almost all these data are essentially numerical equivalents of tourist pictures of Shanghai. These include the fact that

² The speech is printed on the website of Indian embassy to the United States. See http://www.indianembassy.org/newsite/press_release/2006/Mar/35.asp, accessed on August 23, 2006.

Shanghai constructed more than 3,000 buildings taller than 18 stories since the mid-1990s, that it has a Maglev express train, the most advanced in the world, the massive restoration of its historic buildings to their original grandeur, and the new developments to revitalize Shanghai's cultural life.

The World Bank has long been enamored with Shanghai. In 2004, the Bank convened a large-scale international conference on poverty reduction in a posh Pudong hotel. In the 1980s, Pudong was a large tract of farmland. Today, it is a venue of five-star hotels, modern conference halls, business offices, and luxurious villas. The delegates of the conference had a chance to observe personally what China was supposed to have accomplished. One of the main themes emerging from the conference is that China succeeded in reducing poverty precisely because China did not protect its peasantry. Rapid urbanization was the only way out of poverty, the Bank pronounced at the end of the conference. There was very little discussion on the effects of a state-led and often forcible urbanization program vis-à-vis those of a market-driven urbanization process.

Apart from the policy implications of getting the story right about Shanghai, there are also analytical reasons to focus on Shanghai. One is, as mentioned before, Shanghai has had a long history of entrepreneurship. Thus the absence of entrepreneurship in the more recent years is an anomaly and we can attribute the missing entrepreneurship phenomenon to policies or institutions rather than to something that has a long historical root in the city. Although this is highly anecdotal, the "folk wisdom" in China is that the people in Shanghai satisfy one particular definitional feature of entrepreneurs very well. According to Kirzner (1979), entrepreneurs are those who are particularly alert to business opportunities that often elude others. The reputation of Shanghainese is that they are always alert and are well endowed with business acumen. Again, the absence of entrepreneurship would not have been predicted on the basis of this cultural trait the Shanghainese are supposed to possess.

Shanghai also has other huge advantages. It has a rich endowment of human capital. Its economic growth is fast and it has attracted a lot of FDI. It also has the agglomeration economics that economists believe to be important for economic and business developments. Other than policy factors, it is very hard to think of reasons why entrepreneurship in Shanghai should be under-developed.

IS ENTREPRENEURSHIP MISSING IN SHANGHAI?

Entrepreneurial businesses here are defined as *de novo* private sector firms. They are entrepreneurial businesses in the context of China. They are very small. The average number of employees in the 2002 survey is 152 persons. This is far below the conventional cutoff threshold for large firms used by the World Bank, which is 500 persons (Batra, Kaufmann, and Stone 2003). In an economy dominated by state-owned enterprises (SOEs) and, increasingly, by multinational corporations (MNCs), indigenous private-sector firms are entrepreneurial in a Schumpeterian sense.

They are also entrepreneurial because many of them are still run by their founders. None of them is listed. In the 2002 survey, the average number of shareholders is only 5.6 persons and the median number is only 2. The largest number of shareholders is 54. So unlike managers in SOEs and MNCs, the managers of these private sector firms bear the residual risks and benefits of ownership. They also fit with a behavioral definition of entrepreneurship. These firms are very nimble, completely profit-driven and market-driven. This is one attribute emphasized by writers such as Frank Knight (1921) and Israel Kirzner (1979). Previous research on entrepreneurship in transition economies all treats this type of firms as a form of entrepreneurship (McMillan and Woodruff 2002).

The two private-sector surveys conducted in 1993 and 2002 provide valuable insights into this type of entrepreneurial businesses. The following section first describes these two surveys in more detail and then documents the phenomenon of missing entrepreneurship in Shanghai. We then supplement the findings based on the 1993 and 2002 surveys with descriptive data on self-employment, household businesses—i.e., owner-operated single proprietorships. The formal and legal name for self-employment businesses in China is individual household businesses. The technical definition of an individual household business is that it has a total employment of or under eight persons (including the business owners). This is the primary difference with the private-sector firms surveyed in 1993 and 2002. Thus it is important to emphasize here that entrepreneurship is missing in Shanghai at the both ends of the spectrum—the larger established private-sector firms and the smaller self-employment household businesses.

Private sector surveys in 1993 and 2002

To compare the state of the private-sector firms in Shanghai with those elsewhere in the country, we rely on one of the most well-designed and systematic survey projects in China—the private sector survey regularly conducted by the All-China Federation of Industry and Commerce, the organization that represents the private sector (with heavy inputs from researchers and academics from the Chinese Academy of Social Sciences, the Beijing Academy of Social Sciences, and China People’s University.³)

The findings of this paper are based on the private-sector surveys conducted in 1993 and 2002 but primarily from the 2002 survey. Both surveys were a part of a regular series of surveys on the state of private sector in China. They were nationwide, covering all provinces in China. The 2002 survey is better designed and larger. The maximum number of observations for the 1993 survey is 1,440 firms compared with 3,258 in the 2002 survey. However, there are no company identifiers so the two surveys cannot be linked.

The sample selection is stratified by both economic and political criteria. The private-sector surveys in this series focus on six types of regions selected on the basis of both political and economic criteria. The political criteria were: 1) the provincial capital, 2) a prefecture-level city, and 2) a county-level city. On economic criteria, the survey sampled firms located in the advanced, medium advanced, and least advanced areas. Within each region, the firms were randomly selected from the registration lists maintained by the local bureaus of industry and commerce.

All the surveyed firms were selected from the registration lists maintained by the local bureaus of industry and commerce. This means that these firms already operated in the formal sector at the time of the survey. The potential bias here is that those private firms most severely discriminated against—and therefore having chosen to go underground—are not included in the survey. This is not a debilitating reason for this paper since it is the

³ These surveys were designed by the same group of academics—primarily sociologists—from the Chinese Academy of Social Sciences. Zhang and Ming (1999) discussed the survey method and summarized the findings of the the 1993 survey. The detailed description of the 2002 survey is contained in the dataset available from the University Service Centre of the Chinese University in Hong Kong.

formal sector that provides the meaningful benchmark on entrepreneurial development in a region.

The main questions of the two surveys cover (1) firm size, status of development, organization, and operation; (2) management system and decision-making style; (3) social-economic background of enterprise owners; (4) social mobility and network of owners; (5) source and composition of employees and employee-employer relations; (6) self-assessment by entrepreneurs on a range of issues related to government-business relations, business environment, financing, and (7) income, expenditures, and assets of entrepreneurs. Critical for our purposes, both the 1993 and 2002 surveys have information on employment and a number of critical entrepreneurial characteristics. We will use the information to formulate our variables for analysis.

The second potential bias is that the survey is probably more heavily weighted toward the larger private-sector firms since the members of the All-China Federation of Industry and Commerce are more established firms. This is not a problem for us as long as the distribution of this bias is even across Chinese provinces. Also our theoretical priors are that Shanghai ought to have some of the largest private-sector firms and to the extent that even the largest of the Shanghai firms are still smaller than firms elsewhere this will be an interesting empirical finding.

Missing entrepreneurship in Shanghai: Private-sector firms

We define “entrepreneurial firms” as indigenous private-sector firms. This definition makes sense in the Chinese context. All the sampled firms in the 2002 survey can be considered as “de novo” firms. They were all founded during the reform era. Of 3,158 firms that provided the data only four were founded before 1980. The average age of the firms in the entire sample is only 8 years. Shanghai has a younger cohort of firms. The average age for the Shanghai sample is only 7.1 years. One reason might be that Shanghai lagged behind the rest of the country in terms of development of entrepreneurial businesses, rather than a sampling bias targeting younger firms in Shanghai. As evidence the 1993 survey also has this age difference between Shanghai firms and the firms in the whole sample. In the 1993 survey, the average age of Shanghai firms is 5.3 years compared with 6.9 years for all the firms in the survey.

We measure the development of entrepreneurship by employment size of a private-sector *de novo* firm. Employment size is probably the most common measure of firm size in the economics literature (Kumar, Rajan, and Zingales 1999; Cabral and Mata 2003). But there is a special reason to pay attention to employment in the context of a transition economy. The ability to generate employment by the entrepreneurial businesses at a time when SOEs are shedding jobs entails enormous welfare implications. During the 1990s, while Shanghai's economy grew rapidly, the city lost a large number of jobs. In 1995, the broadest measure of employment in the city stood at 7.9 million; in 2000 it was 6.7 million, a reduction of 15 percent (mainly due to the restructuring in the state sector). Only by 2004, did the aggregate employment in Shanghai recover to the 1995 level to reach 8.1 million.

The absence of entrepreneurship in Shanghai during this period is especially intriguing. To the extent that this absence of entrepreneurship is a result of deliberate policy, as this paper shows that it is, Shanghai did not follow at all what Western economists formulated as the essence of a gradualist strategy—delaying SOE privatization to avoid job loss while encouraging entry (Roland 2000). Actually Shanghai might have done precisely the opposite—aggressively downsizing the state sector while restricting entry.

Although this is not the topic of this paper, it should be noted that the two provinces that perform far better than Shanghai in our measure of entrepreneurship—the average employment size of private-sector firms—experienced rapid employment expansions during the same period. The aggregate employment of Zhejiang expanded from 26.2 million in 1995 to 32 million in 2004. For Guangdong, it was from 35.5 million to 47 million during the same period.

Table 1 presents four measures of employment size of the entrepreneurial businesses across 31 provinces. Column (1) presents the average size of firm employment. By this measure, Shanghai is ranked at 21st place in the country. In the 2002 survey, the average firm size in Shanghai is 131.6 persons. This compares with 308.4 persons in Sichuan, 189.6 persons in Zhejiang, and 158.3 persons in Guangdong. Of the four provincial-level cities—Shanghai, Beijing, Tianjin, and Chongqing, Shanghai has the smallest firms.

Table 1 about here.

Column (2) presents data on the employment of median firms in the Chinese provinces. This measure shows Shanghai in worse light. Shanghai is tied with Yunnan province as the dead last in the country. Each has 35 persons. The fact that Shanghai is on a

par with Yunnan is very revealing. The per capita GDP of Yunnan is about 0.13 of per capita GDP of Shanghai and its urban employment was 25 percent in the mid-1990s compared with Shanghai's 90 percent. Yunnan is a poor, interior, historically background province. (In fact, Yunnan is so poor that the central government created a program to provide economic assistance from Shanghai to Yunnan.)

Median values reflect some of the important dynamics that mean values do not. They are a better reflection of the state of middle-sized firms than mean values. Several studies have shown that the biased business environments often exhibit a “middle-sized firm” problem. The idea is that an inefficient business environment hampers middle-sized firms most severely because small firms are nimble enough to evade the regulatory imperfections and the large firms have the political and financial power to overcome them. Middle-sized firms have neither.⁴ Shanghai seem to exhibit a classic symptom of a “middle-sized firm” problem.

One criticism of the data presented in Columns (1) and (2) of the table is that they do not control for industry characteristics. It may be the case that the industry composition of Shanghai is different from other provinces and that Shanghai's entrepreneurial businesses may specialize in smaller-scale but urban-intensive service industries. It should be noted that the 2002 survey itself is already biased toward urban areas. So it is not the case that the smaller firm size of Shanghai is completely driven by the industry composition. The other point is that Shanghai firms are the smallest in an urban-to-urban comparison. They are the smallest as compared with the other three provincial-level cities.

To purge the industry influences, we run regressions including the industry controls and estimating the provincial fixed effects. The results are presented in Columns (3) and (4) of Table 1. Column (3) is based on the 1993 survey and Column (4) is based on the 2002 survey. Shanghai is the omitted province. Two comments are in order. The first is that in both survey years, the number of positive and statistically significant provincial coefficients far outweighs the number of negative and statistically provincial coefficients. In both survey

⁴ Batra, Kaufmann and Stone (2003) had an extensive discussion of the problems facing firms in the middle. Their findings are based survey data on 10,000 firms in 81 countries. In the survey, middle-sized firms are found to be most constrained by a poor business environment.

years, there is only one province that carries a negative statistically significant coefficient—Hainan in 1993 and Yunnan in 2002. In contrast, there are 11 positive and statistically significant coefficients in 1993 and 15 in 2002 (16 if including Chongqing, which did not become a separate provincial-level city until 1997).

The second comment is that between 1993 and 2002 the relative ranking of Shanghai in our measure of entrepreneurial development declined. The regression of the 2002 data, as pointed out before, produces 15 positive and statistically significant provincial coefficients, compared with 11 based on the 1993 data. In the 1993 survey, Shanghai firms are small but not unduly small. They are ranked in the middle in the country rather than the bottom one-third in 2002.

This relative decline is striking because the period between 1993 and 2002 is usually regarded as the golden era of Shanghai's development. Its nominal GDP expanded from 111.4 billion yuan in 1993 to 540.8 billion yuan in 2002. Between 1993 and 2002, its real GDP grew every year in excess of 11 percent. FDI increased from 2.3 billion dollars to 5.03 billion dollars in 2002. (As a benchmark, the entire nation of India received 6 billion dollars of FDI in 2004.) It is curious that firms located in this richest and the fastest-growing market failed to take off.

Another finding is worth highlighting. Shanghai firms are undersized not only relative to rich provinces such as Guangdong and Zhejiang but also relative to some of the poorest provinces in China—such as Guizhou, Guangxi, and Sichuan. All three provinces have a positive and statistically significant coefficient. The per capita GDP of Guizhou, Guangxi, and Sichuan, relative to Shanghai, is 0.077, 0.128, and 0.137, respectively.

We use employment size because this is a measure frequently used by economists in this type of work. One objection is that this measure may not be an accurate indicator of the entrepreneurial environment. For example, Shanghai may be too expensive to run labor-intensive operations and thus it may have a smaller firm size in our measure. If this is the case, then a rich but entrepreneurially-friendly province would also have a smaller firm size. This is not the case. We apply the same regression analysis to a specification that uses Zhejiang as the benchmarked province. Zhejiang is rich but also it has a very dynamic entrepreneurial sector. It is ranked fourth in per capita income in the country. The regression analysis produces 12 negative and statistically significant provincial coefficients after industry effects are controlled for. Not a single coefficient is negative and statistically significant. This

finding refutes the notion that the employment measure only picks up the income effect, not the effect of the entrepreneurial environment.

Other measures than employment size also show Shanghai rather poorly. For example, Shanghai is often regarded as a high-tech hub in China and the government has poured substantial resources into the high-tech industries. The Shanghai government has an explicit industrial policy targeting R&D and industrial upgrading. For example, in the 1990s, the Shanghai government closed down many textile factories on the ground that the textile industry was a sunset industry. Instead the government has turned to support automobile industry and microelectronics. Foreign analysts, as usual, are very impressed with what Shanghai has done. In a book titled *Technological Superpower China*, Jon Sigurdson (Sigurdson, Jiang, and Kong 2006), a professor at Stockholm School of Economics, argues that “Shanghai’s economic development is based on the twin pillars of knowledge creation and knowledge applications.” Given this perspective on Shanghai, it is only appropriate to ask the question whether or not Shanghai firms are actually innovative.

One measure of technological developments is patent grants. Shanghai firms in the 2002 survey show up very poorly. Fewer Shanghai firms hold patents than the firms in all the benchmarked provinces in 2002. In the survey, 15.3 percent of Shanghai firms responded that they held patents, compared with 16.6 percent for all the firms in the survey. The 2002 survey also asked firms whether they developed products on their own. To this question, 28 percent of Shanghai firms said yes, compared with the national average of 34.2 percent. Interestingly, by this measure Shanghai underperformed significantly against both rich provinces—Zhejiang and Guangdong—and against poor provinces such as Yunnan. 34.7 percent of Yunnan firms said they developed products on their own.

Finally, it should be noted that Shanghai firms not only started out being smaller but they also grew more slowly over time. The 2002 survey asked for information on the employment size in the founding year. The average for Shanghai is 59, compared with 72 for the whole sample. However, the ratio of the 2002 employment to the employment in the founding year is only 4.59 for Shanghai and 5.43 for the whole sample.

Missing entrepreneurship in Shanghai: Self-employment businesses

The data in this section come from the annual household surveys conducted by the National Bureau of Statistics (NBS). These are large-scale surveys. For example, the 1995

rural survey covered 67,000 households (0.03 percent of the rural population) and the urban survey covered 35,000 households (0.04 percent of the urban population). These household surveys are very well designed and China economists have relied on them heavily to undertake research on income distribution and savings behavior in China.⁵ One part of these household surveys focuses on self employment and we will use data from this section of the surveys to look at entrepreneurial developments in Shanghai.

Figure 1 presents data on numbers of self-employers per 100 urban households in the Chinese provinces. The data are arrayed from the high number on the left to the low number on the right of the graph. It has three panels. Panels (1), (2), and (3) cover, respectively, 1991, 1996 and 2004.

Figure 1 about here.

It is easy to document the missing entrepreneurship in Shanghai in 1991: It did not have a single self-employer in that year. Things improved a bit in subsequent years. In 1996, there were 2.3 self-employers per 100 urban households in Shanghai and 5 in 2004. But in terms of the relative rankings in the country, Shanghai was always at the bottom tier. It was No. 9 from the bottom in 1996 and No. 3 from the bottom in 2004. This self-employment ranking of Shanghai—that it is always in the bottom third of the Chinese provinces—is quite comparable to Shanghai’s ranking based on private-sector firms.

Not only is entrepreneurial incidence low in Shanghai, those who chose to go into self-employment businesses in Shanghai earn very little money compared with self-employers in other provinces. In 2004, the urban self employers in Shanghai reported their per capita business income at 500 yuan. In contrast, urban self-employers in rich—and entrepreneurially-oriented—provinces earn far more. In Zhejiang, the per capita business income in 2004 was about 1,400 yuan; in Guangdong, it was about 800 yuan. At 500 yuan, Shanghai was squarely in the same earnings neighborhood as Hunan, Ningxia, Anhui and Yunnan. The GDP per capita of these four provinces is a fraction of that of Shanghai. In terms of GDP per capita ratio to Shanghai (based on the 2003 data), Hunan is 0.162 of Shanghai; Ningxia is 0.143; Anhui is 0.138, and Yunnan is 0.121. This is like finding that self-employers in the United States earning the same amount of money as self-employers in

⁵ One example is Kraay (2000).

Turkey. (Turkey's per capita GDP in 2000 at 3,000 dollars is about 10 percent of the United States.)

Next, we turn to look at self employment activities in the rural areas of Shanghai. While Shanghai is widely viewed as a sophisticated, cosmopolitan metropolis, a surprisingly high number of people still work in the rural areas. By employment, in 2004, 2.48 million worked in the rural areas out of a labor force of 8.36 million. Thus rural employment accounted for 29.7 percent of the employment (National Bureau of Statistics 2005 p. 369), although many of them have non-farm sources of income.

Rural residents are, almost by definition, entrepreneurs. Farmers bear the residual benefits and risks of their production because agricultural production is organized as a business. Although a large number of rural residents in China work in rural enterprises as employees (such as truly collectively owned township and village enterprises or TVEs), many of these rural enterprises themselves were started by rural entrepreneurs. As I will show later in this paper, the origins of Chinese capitalism are heavily rural in nature. Thus the state of rural entrepreneurship in a region would have a substantial impact on the overall development of entrepreneurship in that region. The key to understanding why *urban* entrepreneurship in Shanghai lagged behind other regions is to understand the state of rural entrepreneurship in Shanghai.

We pay special attention to rural entrepreneurship in Shanghai because of our theoretical priors. We know from the early works of Schultz (1953) that urban/industrial centers exert a powerful boosting effect on the surrounding rural areas. Economic development emanates outward from the urban centers because the farmers in their vicinity have greater access to industrial inputs, opportunities to improve their human capital and non-farm business and employment opportunities. To the extent that this idea holds true in China, one would expect that rural entrepreneurs near Shanghai to have outperformed the rest of the country on average during the explosive growth period of the 1990s.

We measure the earnings from self employment with what the NBS describes as "household business incomes" in its surveys. According to NBS, household business incomes derive from "rural residents using households as the production or business units" and from "production coordination and management." The sources of the business incomes include agricultural production but also cover industry, construction, transport, distribution and all other non-agricultural activities. We undertake two types of comparisons. One is to

compare per capita business incomes in rural Shanghai with the rest of the country; the other is to compare per capita business incomes in rural Shanghai with wage income. Wage income, according to NBS, is labor compensation and it is entered into the surveys on a separate line as the business income. Thus wage income is the closest proxy of earnings from the paid employment. The wage income data do not appear to include benefits.

Figure 2 reports these two components of per capita income in rural Shanghai as compared with the national average for 1980, 1985, 1990, 1995, 2000 and 2005. We present all the income data in two ways. One is based on the nominal values of the data; the other is based on the real values of the data. The real values are derived by deflating the nominal values to their 1978 price levels. The national data are deflated using the national consumer price index and the Shanghai data are deflated using the Shanghai consumer price index.⁶

Figure 2 about here.

Panel (1) of Figure 2 compares the level of Shanghai's per capita business income with that of the national average. The ratios based on both the nominal and real business income data show an identical trend: Shanghai was improving relative to the rest of the country between 1980 and 1985 and then it began to decline sharply since 1985. (One should be cautious in drawing the conclusion that the ratio peaked in 1985. We do not have data for the years between 1985 and 1990 and it may be the case that the ratio peaked between 1985 and 1990.) The decline of the measure based on the real business income data is particularly sharp in the 1990s. Shanghai in the 1990s experienced a higher inflation than the rest of the country and Shanghai's position deteriorated both because of the slow nominal growth of its business income and because of the *negative* growth of its business income in the 1990s. When deflated by the 1978 consumer price index for Shanghai, the per capita business income in rural Shanghai peaked at 282 yuan in 1985 and then it declined to 254.8 yuan in 1990, 251.7 yuan in 1995, 196.2 yuan in 2000 and 198.5 yuan in 2005. It is important to emphasize this finding—that business income in Shanghai deteriorated both relatively and absolutely.

⁶ The national consumer price index is available from NBS (2006). The Shanghai data were downloaded from the website of the Shanghai government, <http://www.stats-sh.gov.cn/2003shtj/tjnj/nj05.htm?d1=2005tjnj/C0901.htm>.

Panel (2) presents ratios of Shanghai's per capita business income to its wage income. This is to get at the relative returns story—the earnings from self employment compared with earnings from paid employment. This ratio peaked in 1985 and then it continuously declined since 1985. At its peak, the ratio is 0.86 in 1985; in 2005 it was 0.183. The ratio in 2005 is less than half of the ratio prevailing in 1980 (0.38). Because business income includes returns from agricultural production whereas wage income is most likely all derived from non-agricultural activities, the above comparison may introduce a bias. We may over-estimate the extent of the business income decline if farmers near Shanghai increasingly shifted from farm business activities to non-farm business activities. So Panel (2) also presents ratios of non-agricultural business income relative to wage income. Non-agricultural business income excludes income from primary industries. The results do not show any substantial improvements in the non-agricultural business income relative to wage income. There was a modest increase of the ratio between 1990 and 1995 but the ratio declined in other periods. A related observation is just how low the non-agricultural business income is relative to the wage income. The ratio never exceeded 0.1; the peak in 1995 is 0.07. There is very little evidence that rural Shanghainese were able to receive high business income streams from engaging in the non-agricultural activities.

But is the above finding driven by the fact that rural Shanghai experienced a usually fast growth in the wage income in the 1990s? Not at all. Panel (1) of Figure 1 presents the ratios of per capital wage income in rural Shanghai relative to the rest of the country. This time, the ratio peaked in 1990 and it then flattened out by the nominal measure between 1990 and 1995 and went into a sharp decline by the real measure of the wage income beginning in 1990. Throughout the period from 1995 to 2005, this ratio declined continuously. Recall the previous finding that the business income in rural Shanghai also deteriorated relative to the rest of the country in the 1990s and 2000s. So the rural Shanghainese failed to improve both sources of income—business income and wage income after 1990. The only difference appears that their business income began to fall relatively earlier, in 1985 or in the late 1980s, than their wage income. (The other difference, which is implied in the graph but not expressed explicitly, is that the growth of real wage income in rural Shanghai was positive between 1980 and 2005, rather than negative, as in the case of the business income.)

Figure 3 about here.

The net effect of both declining business income and wage income positions is a deterioration of the income position of rural Shanghainese as a whole compared with the rest of the country. This is indeed the case. Panel (2) of Figure 3 presents ratios of per capita income in rural Shanghai relative to the rest of the country. That ratio climbed in the 1980s both in nominal and real terms. Between 1990 and 1995, the nominal data still show an improvement whereas the real data show a sharp decline (from 2.55 in 1990 to 2.27 in 1995). As of 2005, a typical rural Shanghainese was still better off compared with a typical rural Chinese but the differential is narrowed from 2.49 in 1980 to 1.82 in 2005.

WHY IS ENTREPRENEURSHIP MISSING IN SHANGHAI?

In this section, we try to explain why entrepreneurship in Shanghai is missing. While the economics literature offers some guidance, the main driver of our analysis is a detailed and rich empirical understanding of the reality of the Chinese economic and political dynamics.

There is an important and ongoing debate among economists about the relative importance of property rights security vis-à-vis financing constraints in determining the performance and investment rates of firms and of entrepreneurial businesses in transition economies (Johnson, McMillan, and Woodruff 2002). This paper largely sidesteps this debate. One reason is the enormous technical complications in resolving this question—how to cleanly separate the impact of individual characteristics of entrepreneurs and their institutional and policy treatments and how to identify the unique effect of property rights security and from that of finance when the two may be endogenous of each other.

A more important reason for not orienting this paper on the basis of this debate is substantive: it is more important to identify the reasons why entrepreneurial businesses are subjected to these external constraints—whether in the form of property rights insecurity or financing constraints—than trying to sort out the separate effects of these constraints. If laws and finance are used as policy instruments of the state to promote or repress entrepreneurship, it is much more important to understand why the state has particular policy preferences toward entrepreneurs than demonstrating which policy instrument is used

to carry out the suppression. Studying China and Shanghai provides a way to get at this question.

The reason is that there is a substantial difference between China and East European and Russian transition economies. The European transition economies have made an explicit decision to move to a capitalist economic system. During the thirty years of economic reforms, China has never proclaimed to embrace capitalism as an official goal. Thus the biggest difference between China and the European transition economies lies in their political objectives, rather than in the specific tactics of their reforms.⁷

That China has remained a nominal communist state has implications for how we analyze the constraints on private sector entrepreneurship. A communist economic system is *automatically* biased against private sector due to the Marxian ideology that equates private ownership with labor exploitation. Thus the bias is deliberate, rather than incidental. The laws and financing policies of the state are the instruments with which this ideological bias is enforced. This is fundamentally different from the situation in the typical transition economies where legal or financing biases against private entrepreneurship are really a “teething problem”—that they are rooted in the under-development of capitalistic legal and financial institutions as these transition economies are grappling with new and unfamiliar practices and concepts of capitalism. For these transition economies, identifying the true binding constraints—whether legal or financial—matters because the analysis points to areas needing urgent reforms first. In this paper I will call this type of constraints “residual constraints” to indicate the fact that they are a legacy carried over from the centrally-planned era.

For China, the analysis ought to be framed differently. The key issue here is whether the nominally communist state imposes constraints on private entrepreneurship *deliberately*. The important research question is not to identify whether the Chinese state uses legal or financial instruments to repress the private sector. The presumption is that the Chinese state has used both instruments. (A paper designed to sort out the separate effects of legal and financing biases on reinvestments by Chinese private-sector firms reports the unsurprising

⁷ Scholars studying transition economies tend to view any differences between China and European transition economies as those of tactics rather than objectives. For one example of such a treatment, see Roland. (2000).

finding that everything matters.⁸) The purpose of this paper is to identify those factors that either reinforce or offset these “deliberate” constraints on private entrepreneurship in a communist system. It is here that exploring the regional variations on private entrepreneurship in China—with a focus on Shanghai—can yield some potentially rich insights.

While the Chinese state as a whole remains nominally communist, the degree of deliberate policy constraints on private entrepreneurship varies substantially across regions. Taking advantage of these cross-regional variations within China has been the research tool of choice among China scholars. This paper explores this rich source of variations as a way to construct a measure of policy constraints on private entrepreneurship. The level of region in this paper is a province. Shanghai, along with three other cities in China, Beijing, Chongqing and Tianjin, is what is known in China as a provincial-level city. Politically it has exactly the same rank as other provinces.

There is a methodological payoff with anchoring policy constraints at the provincial level. One of the hardest problems in entrepreneurial research is the issue whether the constructed policy constraints are truly exogenous. This is an especially prominent problem concerning survey research when entrepreneurs are asked to evaluate their policy environment. Undue optimism or unwarranted pessimism on the part of sampled entrepreneurs may give rise to sharply different evaluations of the environmental factors that should not objectively differ. Or policy treatments are endogenous of entrepreneurial characteristics. For example, certain—although unobservable—traits of entrepreneurs may induce better financial treatments and other traits may lead to the opposite treatments. If so it is difficult to distinguish between the effects of entrepreneurial characteristics and the effects of policy.

This paper solves the endogeneity problem in two ways. One is that we anchor the policy constraints at an aggregate level of provinces rather than at a level of individual entrepreneurs. The second solution is that we construct the policy constraint variable using data with a substantial lead time. We use the data from 1995 to construct a number of provincial-level policy constraints. We then incorporate these policy variables into regression analysis of entrepreneurship data from the 2002 private sector survey.

⁸ See Cull and Xu (2005).

There are two substantive reasons to anchor the policy constraints at the provincial level. It is the consensus view among China specialists that the largest source of policy variations is inter-provincial rather than intra-provincial. For example, research on two contrasting developments between two Chinese provinces, Jiangsu and Zhejiang, shows substantial divergence between the two provinces but convergence within them (Huang and Wen 2007). The literature on fiscal federalism all shows that the real variations are at the provincial level (Qian and Weingast 1996).

The second substantive reason is that a policy variable constructed at the provincial level comes closest to capturing the idea that the policy constraints on Chinese entrepreneurship are deliberate rather than residual. The residual constraints may vary substantially on a case-by-case basis. For example, one banker, steeped in central planning, may be more cautious on lending to private businesses than another banker who may have some Western training. Deliberate policy constraints would have been more uniformly distributed across banks or government agencies.

The rural origins of Chinese capitalism

Identifying policy constraints on private sector requires a delineation of some of the stylized facts of the development of Chinese capitalism in the last 30 years. Chinese entrepreneurship is overwhelmingly rural. A striking empirical regularity is that many of the private-sector corporate giants in today's China were rural in origin. Very few of them are based in the metropolitan, industrial centers such as Beijing, Shanghai or Tianjin, none of which comes close to producing microeconomic success stories as some of the initially poorer agricultural provinces.

The reasons for the rural origins of private entrepreneurship are complex. One has to do with the fact that there was still some residual capitalism in rural China even at the height of the Cultural Revolution. In the cities, on the other hand, all the vestiges of private ownership were completely eliminated. The other reason is that rural China lacked social protection and socialized insurance programs that were provided to the urban residents. So the entrepreneurial proclivity was more substantial in rural China than in urban China. The third reason is that the policy reforms in rural China were far-reaching and liberal. The extent of shift toward capitalism in rural China in the 1980s was far more substantial than what many China specialists have been able to recognize.

I set out to document the rural origins of capitalism elsewhere (Huang 2007), but let me highlight some of the main findings here:

--While they are commonly viewed by Western economists as businesses sponsored by local governments,⁹ the famous township and village enterprises (TVEs) are in fact the largest private-sector development phenomenon in history. Based on government documents going back to the early 1980s, I have found that the designation of TVE of a firm was a *geographic*, not an ownership, classification. Ministry of Agriculture in the early 1980s classified all the registered businesses in the rural area as TVEs regardless of their ownership. Of 12 million TVEs in 1985, 10 million were purely private.

--Financial liberalization in rural China in the 1980s went very far. Informal finance was permitted in many regions of the country and formal financial institutions lent actively to private businesses. Surveys after surveys show very high percentage of private businesses able to access bank loans.

--In the first five years of the 1980s, the private share of the fixed asset investments—investments in new plants and property—already reached 20 percent, 100 percent of which was in rural China. This ratio was not exceeded until 2000.

--Only a few years after reforms started, many rural private entrepreneurs were operating their businesses at a substantial scale and they were able to penetrate into the state-controlled distribution network and sold their products in multiple locations of the country.

--In the 1980s, in a number of regions, collective assets were privatized on a massive scale and the rural branches of the Communist Party stopped functioning entirely.

Constructing policy constraint variables

The rural origins of capitalism provide a way to think about how to construct private sector constraint variables. We have several candidate variables although not all of them equally capture the idea that urban bias is a deliberate policy. The first one is a measure that captures the state-sector bias. Because the state sector is heavily urban, it is possible that the provinces with a larger state sector may choose to constrain private entrepreneurship. We

⁹ For example, Naughton (2007) provides a textbook definition that TVEs are mostly owned by local governments.

use the urban state employment share (USES95) of the total urban employment in 1995 to measure the state sector bias.

The second variable is the urban employment share in 1995 (UES95). This is a broader measure than USES95 because it includes employment in the non-state sector as well. The measure also includes the rural employment (in the denominator) and as such UES95 is really an urbanization variable and USES95 measures the extent of state ownership in the urban areas as of 1995.¹⁰ Unless one prepares to argue that private-sector policies follow automatically from the extent of urbanization and urban state ownership both of these variables are not explicitly policy variables. In the regression analysis, we will compare the effects of these two variables with those that are closer to capturing policy.

We use rural business income share (RBIS95) of total rural income—all on a per capita basis—as a variable that more closely captures private-sector policy dynamics. The data are for 1995 and are based on the annual rural household surveys conducted by NBS, which we used to illustrate the missing self-employment businesses in Shanghai. Rural business income refers to the residual income to the rural residents from owning self-employment businesses in *non-agricultural* activities. Total rural income includes rural business income, agricultural income and labor compensations from working in non-agricultural business establishments. It is important to restrict the source of the income to non-agricultural activities for two reasons. One is that the entrepreneurial businesses in the 2002 survey are all engaged in non-agricultural activities. The other reason is that to the extent a rural private sector policy is restrictive it is not restrictive of the private agricultural businesses but of the private non-agricultural businesses.

RBIS95 is a better candidate policy variable than USES95 and UES95. Because the numerator represents returns from owning a business it is directly relevant to entrepreneurial dynamics as entrepreneurs, by definition, are business owners. A restrictive entrepreneurial environment would be associated with a low value of RBIS95 both because the returns from owning a business are curtailed and because the returns from agricultural activities and from labor compensation can be elevated. A complement to the restrictive entrepreneurial policy is often a bias in favor of rural residents staying in the agricultural sector and/or a bias in favor of collectively-sponsored enterprises (such as TVEs truly owned by townships and

¹⁰ The source of these data is NSB (1996).

villages). This complement would push down the value of RBIS as it would increase income from agriculture and from labor contributions.

Given the rural origins of capitalism in China, our hypothesis is that those provinces that had a liberal rural private sector policy by the mid-1990s—i.e., higher RBIS95—would have ended up with a larger *urban* private sector by the first decade of the 2000s at the time of the 2002 survey. One potential mechanism is that those provinces with a more vibrant rural private sector in *non-agricultural activities* would have a higher level of competition in the urban areas and thereby would have more developed private-sector firms overall. So, all else being equal, RBIS95 should be positively correlated with employment size of entrepreneurial businesses.

This is the Shanghai connection. Based on the idea by Schultz (1953) that the urban center exerts a powerful economic boost over the nearby periphery, one would expect that the RBIS95 value for Shanghai to be very high under a neutral policy environment. A systematic suppression of the rural private sector in Shanghai would have resulted in a lower value of RBIS95. If this policy suppression is especially or uniquely severe in Shanghai, RBIS95 would come close to reflecting a Shanghai-specific effect. Thus a regression specification with RBIS95 would make the effect of the Shanghai dummy go away. This is our empirical strategy. We will also try to determine how RBIS95 interacts with USES95 and UES95.

RBIS95, USES95 and UES95 are all provincial-level variables and therefore their interaction terms with Shanghai cannot appear in the same regression that also has a Shanghai dummy. Thus we cannot distinguish directly between the rural policy effect and the Shanghai effect itself. However, one micro-mechanism can be those attributes associated with entrepreneurs who previously had a rural background. In those provinces with a more liberal rural private sector policy, rural entrepreneurs have had the time to accumulate business experience, market knowledge and other capabilities. They have a higher likelihood of success as compared with those rural entrepreneurs operating under a restrictive policy environment. By this logic, Shanghai, by having a more restrictive policy environment for rural entrepreneurs, would have less capable entrepreneurs and would have ended up with undersized firms.

The 2002 private sector provides a way to test this hypothesis. Question B4c2 in the survey asked the respondents to describe their professions after they graduated from school.

The following choices were given: 1) technicians, 2) government agencies, 3) enterprise managers, 4) clerks, 5) workers, 6) service sector employees, 7) farmer, 8) individual proprietors, 9) soldiers, 10) others, and 11) no employment. We created a dummy variable FARMER by coding as one all the firms that gave 7 in their response to this question and zero otherwise.

We provide a further illustration of this dynamic by contrasting the SHANGHAI interaction terms with those of ZHEJIANG. Zhejiang is a province located to the south of Shanghai. It is unambiguously the most entrepreneurial province in China. (More on Zhejiang will appear in the later section.) The vibrancy of entrepreneurship in Zhejiang, as I will show, was rooted in the vibrancy of rural entrepreneurship in the province in the 1980s.

Control variables

There is a large economics literature on the determination of firm size. Technology and human capital intensity are some of the postulated factors.¹¹ This paper has relatively little to say about this literature other than trying to control for some of the postulated factors. Industry fixed effects are often used to control for technology factors in the literature and we will do so here. The 2002 private sector survey has a fifteen industry code. We created fifteen industry dummies on the basis of this code. (In the regression analysis, geological exploration is the omitted industry variable.) This is, admittedly, a very crude industry classification.

We also control for a number of entrepreneurial characteristics. To minimize endogeneity, we only include those entrepreneurial characteristics that clearly preceded the 2002 survey. We include a dummy variable denoting whether an entrepreneur had a university or graduate school education. This is in part to make up for the rather crude industry classification in the 2002 survey and in part because some of the research suggests that human capital is a proxy for business acumen and capabilities to overcome external adversities (Pissarides, Singer, and Svejnar 2003). We also include the year in which the business was founded to control for any year fixed effects.

Entrepreneurial research suggests the importance of financing constraints. While this is not the focus of this paper, it is important to include the factor as a control. Question D7a

¹¹ See, for example, Kumar, Rajan, and Zingales (1999) and Cabral and Mata (2003).

asked whether firms received bank and credit union loans at the time of their founding. We coded those firms that received financing as one and zero otherwise. Existing research suggests the important role of prior wealth—such as inherited wealth—in explaining the incidence of entrepreneurship (Paulson and Townsend 2004). Questions D8a through D8h asked for responses—yes or no—whether the given sources constituted the main start-up capital. We include a series of dummy variables denoting whether the entrepreneur used profits from prior businesses and factory operations, wage savings, and inherited assets. (In the tables, I will only present the coefficient for the inheritance dummy. Including other dummy variables has no effect on the findings on the substantive variables.) We also impose two provincial-level controls. One is the log value of the provincial GDP in 1995.¹² The other is the ratio of foreign trade to GDP in 1995. The summary statistics of the main variables appear in Table 2.

Table 2 about here.

Findings

Table 3 presents the basic results of the regression analysis. Specification (1a) shows that SHANGHAI dummy has a negative and statistically significant coefficient after controlling for entrepreneur/firm characteristics, financing constraints, provincial level economic characteristics (GDP and foreign trade/GDP ratio), and industry fixed effects. This further reinforces the finding reported before that Shanghai firms are small after the industry effects have been purged. Specification (1a) shows that Shanghai firms are still under-sized after controlling for additional variables at both firm and provincial levels. One may ask whether it makes sense to compare Shanghai firms with the rest of China. Shanghai is a city and comparing Shanghai with other provinces that have a large rural sector may be inappropriate. To allay this concern, we present regression estimates based on the urban subsample of firms in the 2002 survey. Urban here is defined as large and medium cities and

¹² An alternative to the GDP variable is the provincial GDP per capita. The problem is that Shanghai's GDP per capita is so much higher than other provinces. Including a GDP per capita measure would cause a serious correlation with the Shanghai dummy. The GDP per capita variable itself is significant and negative. However, in regressions excluding Shanghai firms, GDP per capita variable has no effect on employment size.

development zones. Specification (1b) shows that in an urban-to-urban comparison the SHANGHAI dummy is still negative and statistically significant. (The size of the SHANGHAI coefficient is substantially smaller, however, although the sample size differs significantly from Specification (1a)).

Table 3 about here.

Specification (2a) adds urban state employment share in 1995 (USES95) to the specification in Column (1a). USES95 itself is negative and statistically significant, suggesting that provinces with a larger state sector in 1995 have undersized entrepreneurial businesses. However, USE95 itself has no effect on the SHANGHAI dummy. The SHANGHAI dummy is negative and statistically significant and the size of the coefficient and of the standard errors is little changed from the SHANGHAI dummy in Column (1a), i.e., the specification without USE95. This suggests that the state sector bias contributes to the under-development of the entrepreneurial firms but this bias is distributed equally between Shanghai and other provinces in China. Shanghai is not unique in having this bias.

The Shanghai-specific effects show up explicitly in Specifications (2b) and (2c) where urbanization and rural private sector policy variables are incorporated into the regression analysis. Specification (2b) adds the urban employment share variable—UES95—to Specification (2a) and the SHANGHAI dummy becomes insignificant. UES95 itself is negative and statistically significant. So being urban, as Shanghai is, has a suppressive effect on entrepreneurial development. This finding is consistent with one important stylized fact about Chinese reforms that I highlighted in the previous section—that the origins of Chinese capitalism are heavily rural in nature.

Stipulating the precise mechanisms whereby UES95 suppresses employment size of entrepreneurial businesses is not easy. It could do so because more urban regions are also more state-owned. So UES95 is another proxy for state sector bias. Indeed in Specification (2b), USES95 is no longer statistically significant. (The simple two-way correlation between UES95 and USES95, however, is modestly negative, at -0.079.) Or UES95 can be associated with a rural policy bias, in which case it would be the rural policy bias, not being urban per se, that is suppressive. Specification (2c) adds our rural private sector policy variable, rural business income share in 1995 (RIBS95). Adding RIBS95 causes UES95 to lose its statistical significance and USES95 to gain statistical significance. RIBS95 itself is not significant. Nor is SHANGHAI dummy.

RIBS95, as it turns out, is strongly correlated with UES95. The simple two-way correlation between the two is -0.46. So it may not be appropriate to include both RIB95 and UES95 in a single specification. Table 4 reports on the results from a number of specifications designed to mitigate against the high correlations between these two variables. Specification (1a) omits UES95 and it shows that RIBS95 is negative and statistically significant. Specifications (1b), (1c), (2a) and (2b) minimize the variations in USE95 by only including firms based in the urban areas. These specifications have the additional purpose of making sure that we are comparing Shanghai with comparable regions.

Table 4 about here.

RIBS95 is negative and statistically significant in (1b) and (1c). The difference between the two specifications is that (1b) includes USES95 while (1c) does not. Taking the findings from (1b) and (1c) together suggests that RIBS95 exerts an independent—and downward—effect on firm size and that it does not do so through the state-sector bias, which is proxied by USES95. This gets to the mechanism whereby the SHANGHAI dummy appears to suppress firm size: In every regression that has RIBS95—or UES95, which correlates with RIBS—SHANGHAI dummy is no longer statistically significant.

For reasons that should be explored further, Shanghai has a remarkably low value of RIBS95. It is 0.034, meaning that an average rural Shanghai residents only derived 3.4 percent of his or her income from owning *non-agricultural* business operations in 1995. This is at the bottom of the Chinese provinces. It defies basic economic logic that rural residents who have access to the richest and the fastest growing market in China and who have a long historical tradition of entrepreneurship chose voluntarily not to go into entrepreneurship. The “urbanness” of Shanghai itself does not explain it. Beijing, another metropolis, had an RIBS95 of 10.1 percent, three times that of Shanghai. For Zhejiang, a well-known entrepreneurial province, its RIB95 is 19.9 percent. (Interestingly, Jiangsu province, which has a similar economic model as Shanghai and a one on the opposite of Zhejiang, has an RIB95 of 9 percent.)

Shanghai appears to have a substantial policy bias against rural *non-agricultural* businesses. Next we explore whether there is a specific mechanism that can link this rural policy bias with Shanghai firms being undersized. Specifications (2a) and (2b) include a dummy variable indicating whether an entrepreneur was previously a farmer (FARMER) and an interaction term between FARMER and the SHANGHAI dummy. Given the rural

origins of Chinese capitalism, FARMER should be positively correlated with firm employment size. Its interaction term with SHANGHAI dummy should be negative. The reasoning is that the long-standing suppression of Shanghai rural entrepreneurship should have rendered Shanghai's rural entrepreneurs less capable or more handicapped as compared with rural entrepreneurs elsewhere in the country.

The results reported under (2a) and (2b) verified this hypothesis. FARMER itself is positive, although only statistically significant under (2b); SHANGHAIxFARMER interaction term is always negative and statistically significant. Keep in mind that the firms included here are based in urban areas. So the variables, FARMER and SHANGHAIxFARMER, indicate a spillover effect of the rural policies into the urban private-sector development. Specification (2b) only includes urban firms founded since 1995 and it seems the effects of FARMER and SHANGHAIxFARMER have intensified in more recent years. RIBS95 itself lost its statistical significance. It is not clear how to interpret this development.

Robustness checks

We perform robustness checks by first contrasting our findings on Shanghai with findings on Zhejiang. Zhejiang is a province to the south of Shanghai. While the anti-entrepreneurial bias of Shanghai is not well-known (and hopefully this paper can contribute to increasing knowledge about this phenomenon), Zhejiang is well-known for its pro-entrepreneurial bias. This was first noticed by Professor Fei Xiaotong in 1986, China's preeminent sociologist (Fei Xiaotong 1986). He noted that the Wenzhou region of Zhejiang province was characterized by a heavy reliance on private initiatives, a non-interventionist government style in the management of firms, and a supportive credit policy stance toward private firms. The Zhejiang bias in favor of private sector development became widely known in China as "Wenzhou model." Byrd and Lin (1990, p. 34), the two economists at the World Bank, characterize the Wenzhou model as follows:

The famous 'Wenzhou' model is characterized by free development of private enterprises (mostly household undertakings), a thriving financial market based to a large extent on private financial institutions, and extensive commercial relationships with distant parts of China.

The difference in the direction of the entrepreneurial bias between Shanghai and Zhejiang provides a way to check on the robustness of our findings on Shanghai. We would expect, all else being equal, the directionally opposite effects of ZHEJIANG dummy variable and ZHEJIANG/FARMER interaction terms from those estimated for Shanghai. If the pro-entrepreneurial bias of Zhejiang works through its rural private sector policy, we should also expect to see the effect of ZHEJIANG dummy variable to be heavily conditional on the presence or absence of RIBS95. Specifically, adding RIBS95 should reduce the size and the significance level of the ZHEJIANG coefficient, just as it did to the SHANGHAI coefficient.

Specifications (1a) through (1c) of Table 5 put this hypothesis to test. We restrict our sample to urban firms only. Under (1a), we have the same controls as the ones we used to estimate SHANGHAI coefficient but we include a ZHEJIANG dummy. ZHEJIANG dummy is positive and statistically significant. Adding RIBS95 in (1b) and (1c) causes the ZHEJIANG dummy variable to lose the statistical significance. RIBS95 itself is positive and statistically significant. Under (1c), the ZHEJIANG x FARMER interaction term is positive and statistically significant. Thus entrepreneurs from a rural background but *operating in an urban setting* run larger firms in Zhejiang than the national average.

Table 5 about here.

Specifications (2a) through (2c) are to test the idea whether or not our findings on the Shanghai firms being undersized are conditional on using employment as the dependent variable. While employment is a common measure used by economists, one could argue that Shanghai, being an urban center, may have smaller firms by employment because labor and land are expensive. One may posit that Shanghai firms should be large in other dimensions, specifically in terms of their assets. Shanghai firms may be labor-extensive but asset-intensive. Thus by asset measures, Shanghai firms should be large.

Unfortunately, the 2002 survey does not provide any information on assets of firms. The closest I can find is data on shareholder equity in 2001. So we use the log value of shareholder equity as the dependent variable and assess whether by being located in Shanghai firms command an advantage by our asset measure. Specifications (2a) through (2c) have log value of shareholder equity as the dependent variable. Again we restrict our analysis to the urban subsample of firms only.

There is no Shanghai advantage when the firm size is measured by the shareholder equity. None of the three SHANGHAI coefficients is statistically significant (although positive). While it is true that there is no Shanghai disadvantage as well, but it is surprising that the Shanghai firms are no larger than an average firm anywhere in the country. The Shanghai average of the shareholder equity values is slightly larger than the national average and is about the same as Guangxi. Specification (2b) interacts SHANGHAI with FARMER. Consistent with previous findings, a previously rural entrepreneur has a size disadvantage in Shanghai. The interaction term is negative and statistically significant. That said, variables such as RIBS95 do not explain much of the variation of shareholder equity across regions, although USES95 is consistently negative and statistically significant.

CONCLUSION

Recall the finding in Figure 2 and Figure 3 about the state of rural entrepreneurship in Shanghai in the 1980s and 1990s. The ratios of Shanghai relative to the country as a whole—in terms of rural per capita business income and rural general income—began to decline in the 1990s. In the early 1980s, these ratios rose steeply. For example, the per capital rural business income ratio—Shanghai relative the country average—was around 1.1 in 1980; it was 1.45 in 1985. This development is consistent with what the economic theory would predict—that rural areas near an urban center are best positioned for growth, as theorized by Schultz (1953). But Professor Schultz made his prediction assuming a market economy in place and the sharp decline of rural income—relative to the national average—in Shanghai suggests a rollback of market reforms in rural Shanghai in the 1990s.

Thus something could have happened in the late 1980s that set in motion a reversal of this trend. Researching into government documents uncovers one development in Shanghai in the late 1980s that might explain this turning point. In 1987, Shanghai rolled out “A comprehensive development program for Shanghai.” This program laid out many of the key elements of Shanghai’s aspirations to transform itself into a world-class city in a short order. The program did not have the specifics of what became Shanghai’s hallmarks in the 1990s—the Pudong district, the Maglev train, etc.—but it laid out some mechanisms to achieve this goal. One mechanism was known as “integrated rural/urban planning” and a super municipal agency was set up to carry out the planning headed by the mayor himself.

The idea of “integrated rural/urban planning” is that rural and urban economies should be planned in conjunction with each other and in a context of a planned economy this would inevitably suggest an extension of urban controls over the rural areas. This may be one reason why the rural entrepreneurship began to atrophy in Shanghai in the 1990s. The urban part of Shanghai economy in the early 1990s was completely state-owned; the rural part less so. Thus an integrated planning approach essentially amounted to a takeover of a less state-controlled rural economy by a completely state-controlled urban economy.

If the findings in this paper truly hold, there are important broad implications beyond setting the facts straight about Shanghai. The first question is whether or not the missing entrepreneurship in Shanghai really matters. Much of the hype about Shanghai is heavily based on impressions of that city’s skylines (and on GDP data). The “Shanghai miracle” is assumed, but not demonstrated. The “tyranny of numbers,” in the words of Alwyn Young (1995), at least suggests a need to think about the welfare implications of Shanghai’s exalted GDP numbers.

Let me present a number of factual details beyond Shanghai’s GDP and FDI numbers. These factual details may or may not be connected with the phenomenon of missing entrepreneurship in Shanghai but they are definitively not inconsistent with it. These factual details include:

--There is a huge discrepancy in per capita income level of Shanghai between the national accounting data and the household survey data. For example, in 2004 GDP per capita of Shanghai was 55,037 yuan, a ratio of 1.92 to urban Zhejiang’s 28,869 yuan. But in the urban household survey, the per capita household income in 2004 was 18,501 yuan in Shanghai and 15,881 yuan in Zhejiang. This gives rise to a Shanghai/Zhejiang ratio of 1.17. The discrepancy between these two ratios in and of itself does not necessarily suggest statistical falsification. One possibility is that the income share of GDP in Zhejiang is much higher than income share of Shanghai. If this is the case, then why the income shares differ so much between them is interesting to explore.

-- National income accounting data show Shanghai’s economy in a stellar light as compared with the income data gathered through household surveys. On the basis of the household survey income data, in the 1990s and in the early 2000s, Shanghai’s urban residents in the lowest and the second lowest income groups experienced negative real income growth for a period of years.

--Shanghai has the highest GDP per capita in the country. The second highest GDP per capita region is Beijing but Beijing's per capita GDP is only 0.8 of Shanghai. But for curious reasons, the residents in Shanghai hold a very small property income. Property income is comprised of interest income from holding bank deposits, dividend income from holding stocks, and rental income from leasing—mainly—real estate. Relative to all of urban China, the per capita property income of Shanghai households is between 0.6 (in 1996 and 1999) and 0.8 (in 2002) of the national average. In 2004, the ratio rose to 1.3.

Compared with the entrepreneurial Zhejiang province, Shanghai has a higher GDP per capita and, with a smaller margin, higher surveyed household income. But per capita property income of Shanghai is a fraction of that of Zhejiang. It was less than 0.3 in 1996 and 0.5 in 2002. The differential in the interest income between these two regions is especially striking. Interest income means income from holding bank deposits. The Shanghai/Zhejiang ratio is 0.2 in 2004. The city is income-rich but asset-poor.

--Shanghai is often held up as a high-tech hub of China. This perception of the city is invisible in the hard data. We compare the patenting activities in Shanghai with two of the more entrepreneurial provinces in China, Zhejiang and Guangdong. Figure 4 presents the ratios of Shanghai's annual patent counts to those of Zhejiang and Guangdong, respectively. Panel (1) graphs the ratios of all the patent grants from 1987 to 2005 and Panel (2) shows the ratios of invention patents only and excludes the two other categories of patents, utility model and design. Invention patent applications go through a more rigorous examination for utility, novelty, and non-obviousness. The utility model and design patents are held to a less substantive scrutiny. Incremental improvement, rather than novelty, is required for these two categories of patents. The protection coverage is longer for invention patents. Under the Chinese Patent Law the invention patents enjoy protection for 20 years whereas the protection is only for 10 years for the other two categories of patents.¹³

Figure 4 about here.

Panel (1) shows a steep decline in Shanghai's patent ratios relative to Zhejiang and Guangdong between 1987 and 2005. In 1987, Shanghai had about three times the patent grants as Guangdong and 1.8 times as Zhejiang. In 2005, the ratios are 0.34 and 0.88,

¹³ For a succinct description of the main features of the Chinese patent system, see Hu and Jefferson (2006).

respectively. Except for a blip in 2003, Shanghai consistently under-performed Zhejiang and Guangdong. The ratio vis-à-vis Zhejiang was all smaller than one except for 2003 and it was less than one vis-à-vis Guangdong in all the years between 1990 and 2005. Shanghai began to improve somewhat in the second half of the 1990s. Its patent rank hovered between No. 9 and No. 10 in the first half of the 1990s and then between No. 6 and No. 8 in the second half of the 1990s. In 2004, Shanghai's ranking improved to No. 4 in the country, after Guangdong (No. 1), Zhejiang (No. 2), and Jiangsu (No. 3).

It is important to separate invention patents from the other two categories of patents to see if Shanghai managed to maintain its edge in a more exacting innovative area. It turns out that Shanghai lost much of its initial and substantial lead in invention patents as well. Its decline vis-à-vis Zhejiang and Guangdong was less steep and less linear, as the staggered lines in Panel (2) of Figure 4 show. But a clear declining trend is visible in the graph. The sharpest decline again occurred in the late 1980s and early 1990s, although, compared with the utility model and design patents, Shanghai largely stemmed its decline in the invention patents vis-à-vis Zhejiang in the second half of the 1990s. However, Shanghai continued to lose to Guangdong.

This paper leaves with an empirical puzzle: If Shanghai is so lacking in a mechanism that creates growth and wealth elsewhere in the world and *elsewhere in China* (such as Zhejiang), how do we account for the impressive GDP growth of the city in the 1990s? It should be noted here that the rise of Shanghai and other major urban centers in the 1990s coincided with a huge investment push by the central government and with an intensification of industrial policy. We cannot rule out the possibility that these investments were a huge tax on the efficient entrepreneurs elsewhere in the country and on China's poor rural residents. The rise of Shanghai also coincided with a massive withdrawal of social services by the Chinese government. High fees were charged for basic education and health in rural China and many rural primary schools were closed down. (The effect of these developments is beginning to be felt now. [China Daily](#) in an article entitled, "Illiteracy haunts the country again," reported that the number of illiterate Chinese increased by 30 million between 2000 and 2005.) Would Shanghai go down in history as a modern economic miracle or as the world's grandest Potemkin metropolis?

TABLES AND FIGURES

Table 1 Average and median value of employment by provinces and provincial fixed effects

	Average employment (persons)	Median employment (persons)	Provincial fixed effects after purging industry influences	
			Dependent variable=log employment	
Sources of data:	2002 survey		1993 survey	2002 survey
Sichuan	308.4	125	0.780**	0.883**
Tibet	259.2	80	2.071**	0.403
Gansu	239.7	76	0.264	0.757**
Shanxi	222.42	110	0.308	0.799**
Fujian	220.28	80	0.406**	0.577**
Jiangxi	201	100	0.347	0.624**
Chongqing	200.03	146	n/a	0.986**
Zhejiang	189.59	80	0.245	0.271**
Hubei	174.41	80	0.367	0.410**
Ningxia	173.1	84.5	0.477	0.641**
Guizhou	172.6	82.5	0.117	0.637**
Guangxi	172.33	100	0.050	0.615**
Jilin	161	72.5	1.234**	0.402**
Hainan	159.14	64	-0.403**	0.680
Guangdong	158.32	50	0.637**	0.136
Heilongjiang	157.47	40	0.429	0.178
Tianjin	152.21	60	0.993**	0.289
Beijing	148.515	60	0.319	0.483**
Jiangsu	144.85	65	0.205	0.171**
Anhui	140.8	63	1.074**	0.319**
Shanghai	131.58	35	omitted	omitted
Henan	130.72	59	0.325**	0.056
Shaanxi	126.8	43	0.287	0.077
Hebei	123.79	70	0.611**	0.373**
Shandong	122	60	0.573**	0.175
Qinghai	112.5	127.5	0.103	0.435
Hunan	111	68	0.132	0.284
Inner Mongolia	102.94	37.5	0.605**	-0.081
Xinjiang	97.4	40	0.058	-0.156
Yunnan	85.8	35	0.429	-0.386**
Liaoning	83.37	40	-0.039	-0.117
Summary statistics:	Ranked at 21 st place in the country	Ranked at the last place	# of positive and significant: 11	# of positive and significant: 16 (15)
			# of negative and significant: 1	# of negative and significant: 1

Note: **: Statistically significant at or above 10%.

Table 2 Descriptive statistics of the main variables

Variable	Definition	Mean	Std Dev	Min	Max	Obs
Log (number of employees)	Based on Question N24b1 in the 2002 survey, persons	4.13	1.33	0	8.29	3207
SHANGHAI	Firms based in Shanghai all coded as 1; 0 otherwise			0	1	3258
UESE95	Urban state employment share of urban employment in a province, 1995	0.82	0.06	0.66	0.96	3258
UES95	Urban employment share of total employment in a province, 1995	0.354	0.193	0.143	0.741	3258
RBIS95	Rural business income share of total rural income share, 1995	0.096	0.046	0.032	0.223	3201
FARMER	Coded as 1 if previous job was farming; 0 otherwise			0	1	3258
Higher education dummy	Coded 1 if attended university or graduate school; 0 otherwise			0	1	3258
Founding year	The year the business was founded			1973	2002	3158
Bank loan at founding dummy	Coded 1 if received bank loans at founding; 0 otherwise			0	1	3216
Inheritance dummy	Coded 1 if inheritance was the main source of startup capital; 0 otherwise			0	1	3254
Log(GDP in 1995)	Log value of provincial GDP in 1995, 10,000 yuan	16.97	0.76	13.24	17.81	3258
Foreign trade/GDP ratio in 1995	Foreign trade to provincial GDP ratio in 1995	0.353	0.354	0.074	1.43	3258
Urban unemployment rate in 1997	Urban unemployment rate in 1997 (%)	2.75	0.92	0.7	6.3	3258
ZHEJIANG	Firms based in Zhejiang are coded as 1; 0 otherwise			0	1	3258

Table 3 Regression estimates of employment size with Shanghai dummy and urban variables

Dependent variable: Log value of employment in 2001	Independent variables: Shanghai dummy (plus controls)		Independent variables: Shanghai dummy, urban and rural private sector policy variables (plus controls)		
	(1a) All firms	(1b) Urban firms	(2a) All firms	(2b) All firms	(2c) All firms
<u>Shanghai variable:</u> SHANGHAI dummy	-0.234* (0.079)	-0.164** (0.086)	-0.266* (0.081)	-0.0196 (0.099)	-0.063 (0.117)
<u>Urban variables (1995):</u> Urban state employment share (1995) Urban employment share (1995)			-1.02* (0.51)	-0.648 (0.524)	-1.18** (0.60)
<u>Rural private sector policy variable:</u> Rural business income share (1995)				-0.515* (0.165)	-0.276 (0.18)
<u>Entrepreneur/firm controls:</u> Higher education dummy	0.448* (0.047)	0.371* (0.056)	0.464* (0.047)	0.466* (0.047)	0.456* (0.047)
Founding year dummy	-0.027* (0.005)	-0.0384* (0.0065)	-0.026* (0.005)	-0.026* (0.005)	-0.026* (0.005)
<u>Financing variables:</u> Bank loan at founding dummy	0.203* (0.049)	0.138* (0.065)	0.189* (0.049)	0.189* (0.049)	0.204* (0.05)
Inheritance dummy	-0.113 (0.148)	-0.0384* (0.0065)	-0.109 (0.149)	-0.116 (0.149)	-0.11 (0.149)
Economic controls	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes
No. of observations	3079	2010	3079	3079	3024
R-squared	0.157	0.17	0.16	0.16	0.16

Notes: Heteroskedasticity-robust standard errors are reported in parentheses. Industry controls are 15 industry codes in the 2002 survey. Geological exploration is the omitted industry (industry code #6). Provincial economic controls refer to log value of provincial GDP in 1995, provincial trade/GDP ratio in 1995, and

urban unemployment rate in 1997. The reason for using the 1997 unemployment rate is that data since 1997 are more complete.

*: Statistically significant at 5%.

**: Statistically significant at 10%.

Table 4 Regression estimates of employment size with Shanghai dummy, urban variable, and rural policy and rural entrepreneur variables

Dependent variable: Log value of employment in 2001	Independent variables: Shanghai dummy, urban variables and rural private sector policy variable (plus controls)			Independent variables: Shanghai dummy and rural entrepreneur interaction term (plus controls)	
	(1a) All firms	(1b) Urban firms	(1c) Urban firms	(2a) Urban firms	(2b) Urban firms
<u>Shanghai variable:</u> SHANGHAI dummy	-0.146 (0.105)	-0.052 (0.138)	0.09 (0.116)	-0.002 (0.14)	-0.125 (0.177)
<u>Urban variables:</u>					
Urban state employment share (1995)	-1.35* (0.589)	-1.43* (0.71)		-1.44** (0.70)	-2.01* (0.92)
Urban employment share (1995)		0.226 (0.216)		0.225 (0.217)	0.335 (0.245)
<u>Rural private sector policy variable:</u> Rural business income share (1995)	1.26** (0.71)	2.54* (0.974)	2.73* (0.89)	2.52* (0.957)	1.52 (1.32)
<u>Rural entrepreneur variables:</u> Prior job as a farmer (FARMER)				0.124 (0.08)	0.261* (0.103)
SHANGHAI x FARMER				-0.353** (0.203)	-0.46** (0.258)
<u>Entrepreneur/firm controls:</u>	Yes	Yes	Yes	Yes	Yes
<u>Financing controls:</u>	Yes	Yes	Yes	Yes	Yes
Economic controls	Yes	Yes	Yes	Yes	Yes
Geographic location controls	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes
No. of observations	3024	1965	1965	1965	1199
R-squared	0.162	0.16	0.175	0.179	0.22

Notes: Heteroskedasticity-robust standard errors are reported in parentheses. Industry controls are 15 industry codes in the 2002 survey. Geological exploration is the omitted industry (industry code #6). Provincial economic controls refer to log value of provincial GDP in 1995, provincial trade/GDP ratio in 1995, and urban unemployment rate in 1997. The reason for using the 1997 unemployment rate is that data since 1997

are more complete. Entrepreneur/firm controls refer to higher education dummy and founding year of the firm. Financing controls refer to bank loans at founding dummy and inheritance dummy.

*: Statistically significant at 5%.

**: Statistically significant at 10%.

Table 5 Regression estimates of employment size with Zhejiang dummy and with an alternative dependent variable—shareholder equity in 2001—based on the urban subsample of firms only.

All the firms are based in urban areas.	Benchmarking Zhejiang province			Benchmarking Shanghai		
	Dependent variable=log value of employment in 2001			Dependent variable=log value of shareholder equity in 2001		
	(1a) ZHEJIAN dummy	(1b) Rural policy variable	(1c) ZHEJIANG/ FARMER interaction	(2a) Shanghai dummy	(2a) Rural policy variable	(2b) SHANGHAI /FARMER interaction
<u>Province dummy variables:</u> SHANGHAI				0.166 (0.165)	0.122 (0.188)	0.189 (0.194)
ZHEJIANG	0.352* (0.149)	-0.048 (0.207)	-0.175 (0.215)			
<u>Urban variables:</u>						
Urban state employment share (1995)	-0.05 (0.61)	-1.40* (0.71)	-1.40* (0.715)	-3.39* (0.86)	-4.87* (0.93)	-4.85* (0.925)
Urban employment share (1995)	-0.259** (0.148)	0.212 (0.217)	0.205 (0.218)	-0.089 (0.283)	0.406 (0.298)	0.403 (0.298)
<u>Rural private sector policy variable:</u> Rural business income share (1995)		2.91* (1.19)	2.89* (1.19)		1.86 (1.28)	1.83 (1.28)
<u>Rural entrepreneur variables:</u> Prior job as a farmer (FARMER)			0.049 (0.076)			0.121 (0.10)
SHANGHAI x FARMER						-0.454** (0.254)
ZHEJIANG x FARMER			0.608** (0.338)			
<u>Entrepreneur/firm controls:</u>	Yes	Yes	Yes	Yes	Yes	Yes
<u>Financing controls:</u>	Yes	Yes	Yes	Yes	Yes	Yes
Economic controls	Yes	Yes	Yes	Yes	Yes	Yes

Geographic location controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	2010	1965	1965	1698	1663	1663
R-squared	0.175	0.177	0.179	0.197	0.20	0.20

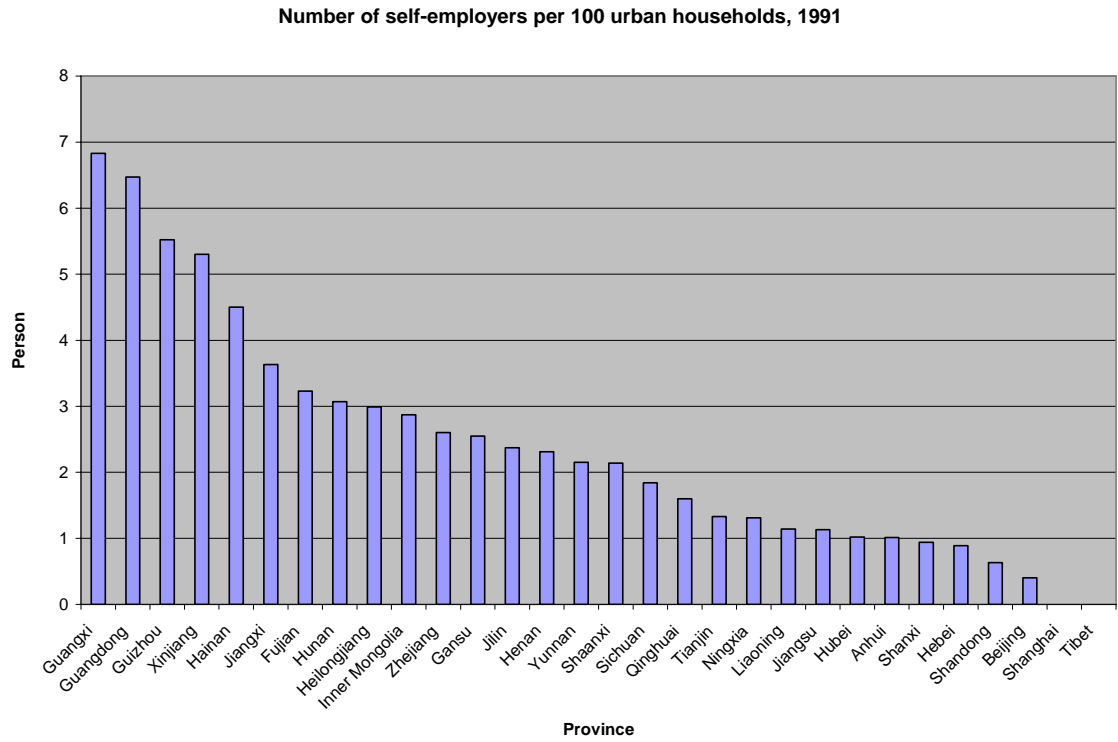
Notes: Heteroskedasticity-robust standard errors are reported in parentheses. Industry controls are 15 industry codes in the 2002 survey. Geological exploration is the omitted industry (industry code #6). Provincial economic controls refer to log value of provincial GDP in 1995, provincial trade/GDP ratio in 1995, and urban unemployment rate in 1997. The reason for using the 1997 unemployment rate is that data since 1997 are more complete. Entrepreneur/firm controls refer to higher education dummy and founding year of the firm. Financing controls refer to bank loans at founding dummy and inheritance dummy.

*: Statistically significant at 5%.

**: Statistically significant at 10%.

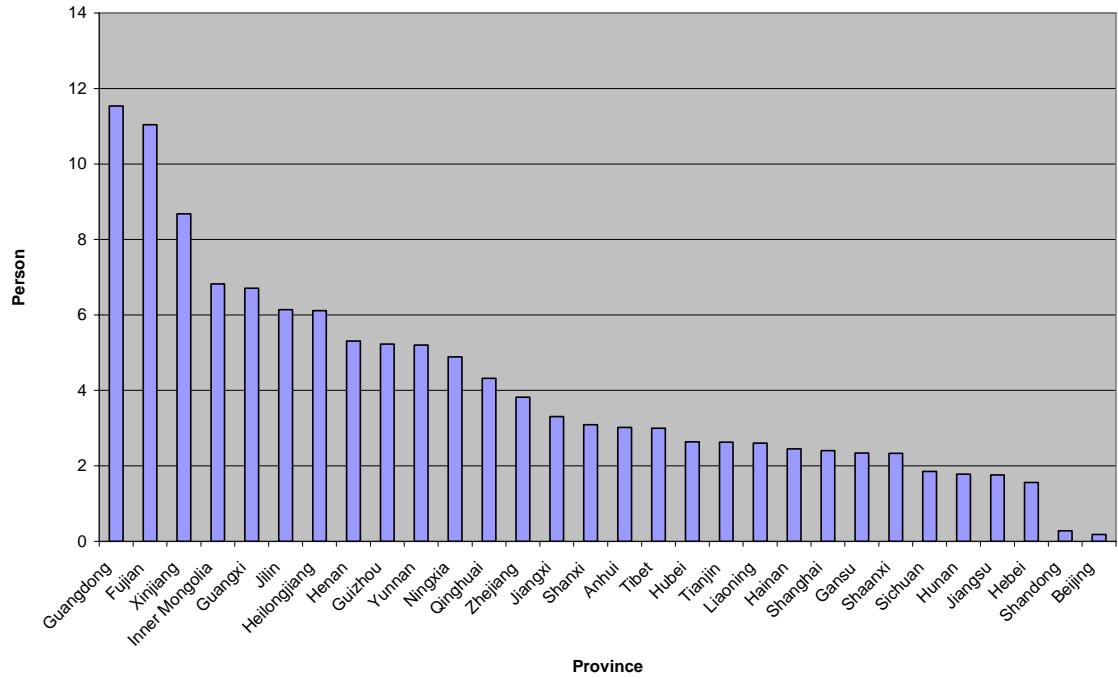
Figure 1 Number of self-employers per 100 urban households, 1991, 1996, and 2004 (persons)

Panel 1: 1991 data



Panel 2: 1996 data

Number of self-employers per 100 urban households, 1996 (persons)



Panel 3: 2004 data

Number of self-employers per 100 urban households, 2004 (persons)

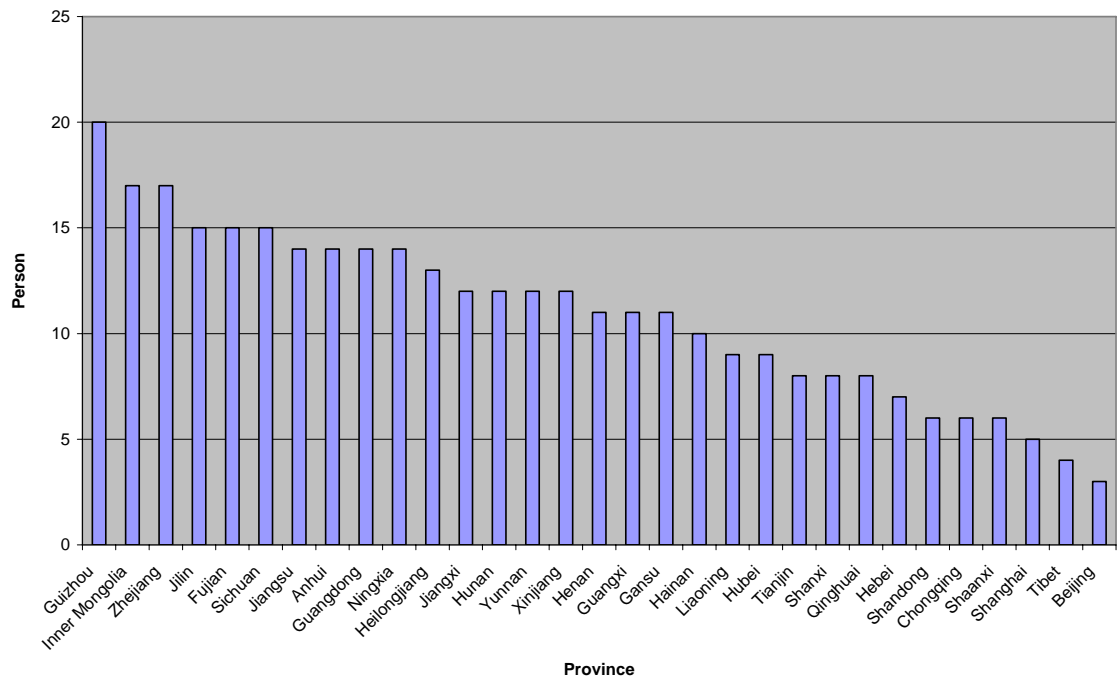
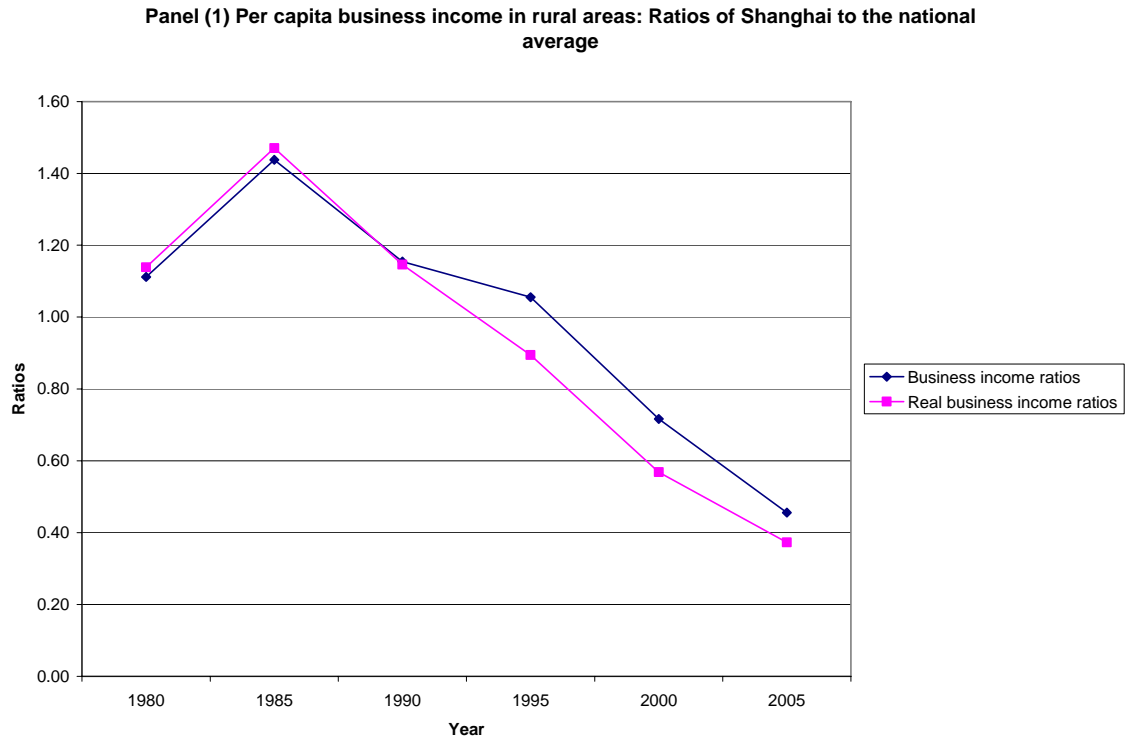
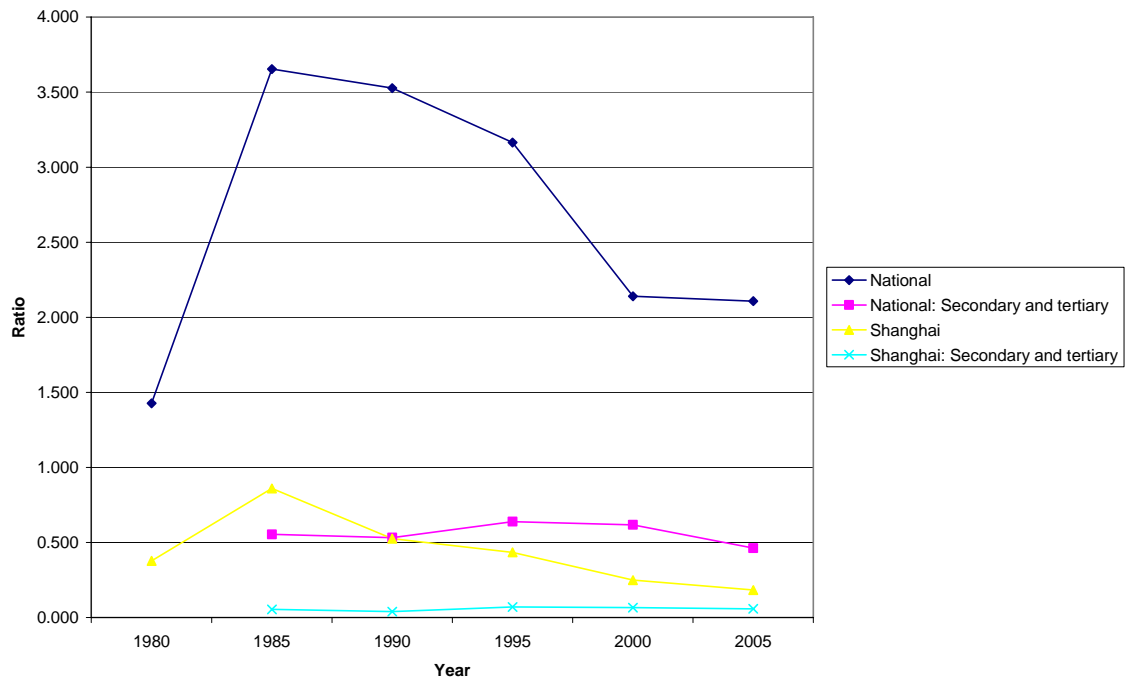


Figure 2 Rural per capita business income: Ratios of Shanghai to the national average, 1980-2005



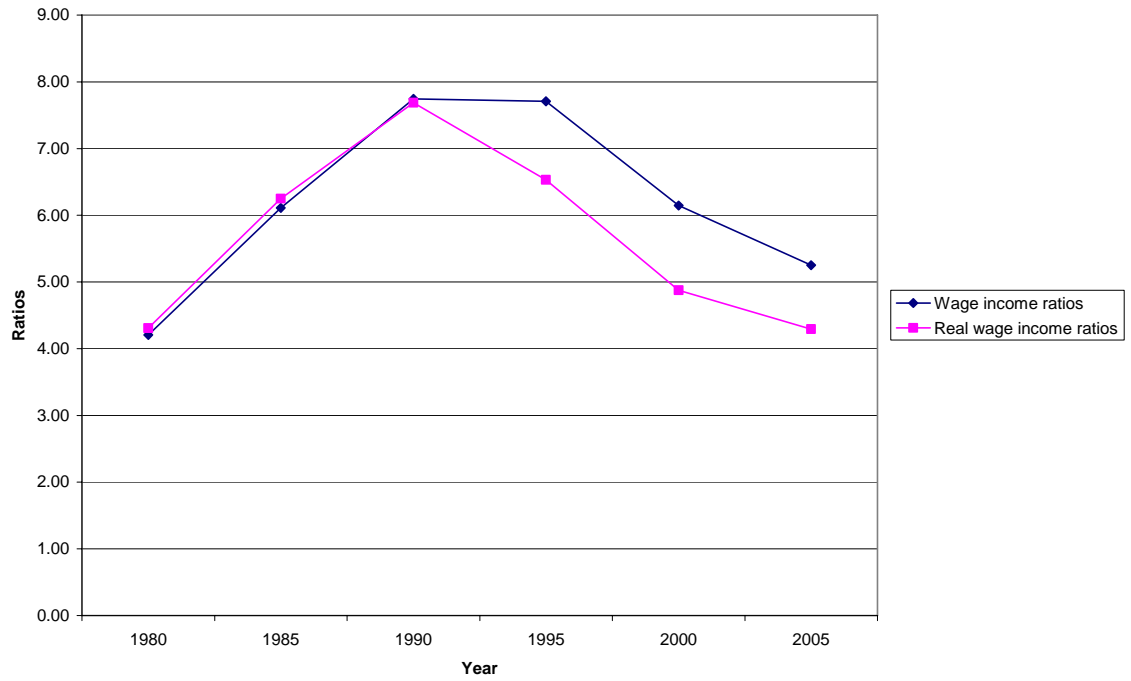
Panel (2) Business/wage income ratios: National and Shanghai



Notes: For 2002 and 2004, the NSB urban surveys asked for “business income” rather than “self-employment business income” as in 1991 and 1996. Business income could encompass income from privately-operated enterprises as well as self-employment household businesses.

Figure 3 Rural per capita income, 1980-2005

Panel (1) Per capita wage income in rural areas: Ratios of Shanghai to national average



Panel (2) Rural per capita income: Ratios of Shanghai to the national average levels

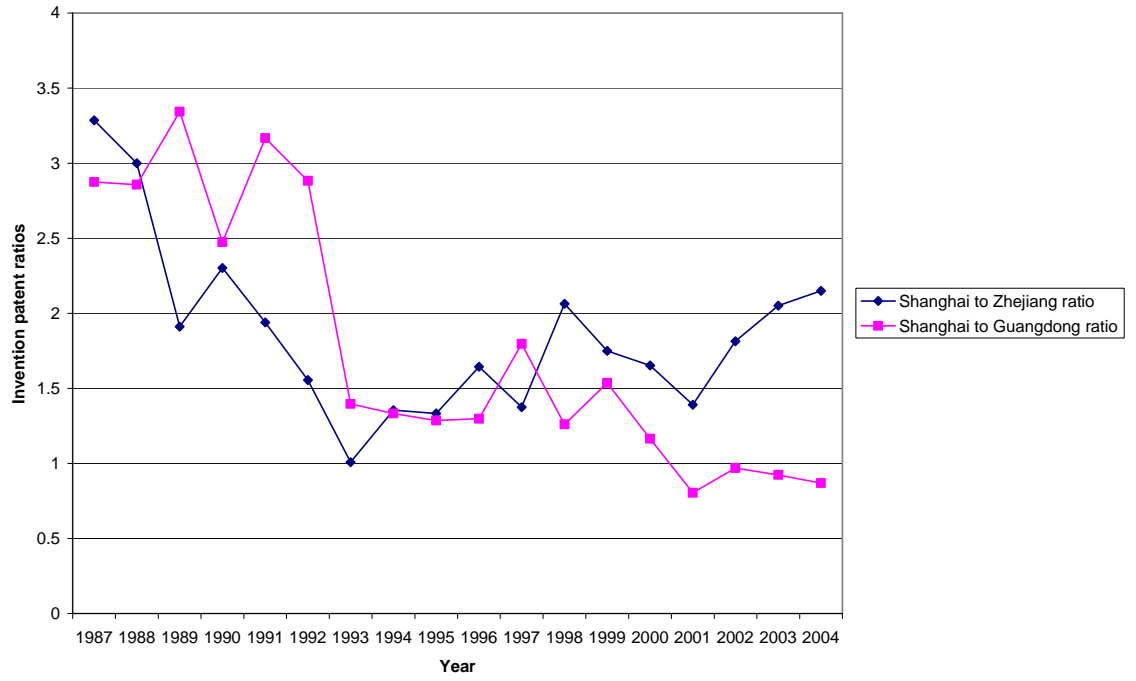


Figure 4 Patenting activities in Shanghai, Zhejiang, and Guangdong: A comparison

Panel (1) Patent count ratios: Shanghai/Zhejiang and Shanghai/Guangdong



Panel (2) Invention patent count ratios: Shanghai/Zhejiang and Shanghai/Guangdong



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