

SELF-EMPLOYMENT WITH CHINESE CHARACTERISTICS: THE FORGOTTEN ENGINE OF RURAL CHINA'S GROWTH

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*This article sketches a picture of the self-employment sector in rural China and examines the nature of its emergence. Using a randomly selected, nationally representative household-level data set that contains detailed information on household self-employment activities, this article provides evidence that although the self-employed enterprises are small, they have grown fast, operate as relatively complex businesses, and perform well in a financially healthy way. **These results, taken together with the pattern of the emergence of self-employed enterprises across China's regions, reveal that the expansion of self-employment is not symptomatic of a failing economy; instead it is a component of the dynamic development process that characterizes rural China during its reform period.** (JEL J23, D21, O12)*

I. INTRODUCTION

Since China initiated its economic reforms in the late 1970s, off-farm employment in rural areas has grown rapidly (de Brauw et al. 2002). The expansion of off-farm employment has increased rural welfare by raising incomes and productivity (Parish et al. 1996; Rozelle 1996). For rural China to be transformed successfully from an agricultural economy to an industrial one, however, its economy needs more than an emerging off-farm sector; it also

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must rely on strong and sustained investment and entrepreneurship. One of the key tenets of economic development is the necessity of profound restructuring that occurs through those that innovate, bringing capital and new ideas together (Schumpeter 1936).

Given the importance of the entrepreneurial sector, it is somewhat surprising that relatively little attention has been directed at the rise of the self-employment sector in rural China—those individuals that are engaged in running nonagricultural enterprises.¹ In fact, the sector was the fastest growing part of the off-farm employment sector between 1988 and 1995 (Rozelle et al. 1999). **The number of self-employed people in rural China increased from 25 to 52 million, representing almost 40% of all new off-farm jobs created during that period.** After 1995, the self-employment sector continued growing at a high rate, although its growth slowed somewhat relative to migration. In other countries with a much smaller self-employed sector—for example, the United States and Great Britain—there has been much more extensive

1. Although farmers and small scale livestock operators also are self-employed, this article does not include them in the analysis.

ABBREVIATIONS

CNRS: China National Rural Survey
SOE: State-Owned Enterprise
TVE: Township and Village Enterprise

coverage of self-employment (Blanchflower and Oswald 1998; Evans and Leighton 1989).

In another sense, however, the lack of attention is understandable. In other developing countries self-employment is not always looked on as a leading sector of the economy. **Some researchers believe that self-employment is primarily a refuge for people that are excluded from formal labor markets** (Tokman 1992). Skeptics frequently raise questions such as how much a person standing at a street corner selling toilet paper or cigarettes can contribute to economic growth. If most of the self-employment in an economy is of this type, it is easy to see how it could be seen as a sign of a deteriorating economy rather than as a growth pole. Hence, despite the dramatic rise in the number of self-employed, the absence of attention in the China literature may reflect the same ambivalence.

Recent findings, however, provide evidence that China's self-employment sector is not a refuge of the rejected and laid off, but is becoming increasingly sophisticated and entrepreneurial. By decomposing the growth in self-employment by occupation and by factor intensity, **Mohapatra (2004) shows that rural China's self-employment sector is becoming more capital-intensive and participating in ever more complex economic activities.** Indeed, based on this evidence, Mohapatra concludes that self-employment in rural China should be considered a source of growth of the rural economy and not a sign of economic distress.

Although some of the recent research on self-employment is convincing, there is little in-depth work that explores how entrepreneurs start and operate their enterprises. Given the dramatic growth and increasing complexity of self-employment, scholars will want to better understand the sector, and policy makers need to understand the dynamics of the sector so they can formulate policies to promote the sector's sustained growth. Hence, both economists and policy makers would like to be able to answer a number of outstanding questions: How do individuals start up their enterprises? How are the operations of the firms organized? How well do firms perform in terms of standard measures from their income statements and balance sheets? Answers to these questions, taken together, will help address another, more fundamental question: Are these firms appearing in the rapidly growing, dynamic regions and sectors of China or

in the more backward ones? Are self-employed firms worth supporting? In the authors' review of the literature, there has been little (if any) effort to systematically answer these questions. The overall goal of this article is to answer these questions by painting a picture of self-employment in rural China, centering attention on analyzing a rich set of primary data.

II. DATA

The data set was collected at the end of 2000 from a randomly selected, almost nationally representative sample of 1,199 households in 60 villages in 6 provinces of rural China (henceforth called the China National Rural Survey or CNRS). To reflect accurately varying income distributions within each province, one county was selected randomly from within each income quintile for the province, as measured by the per capita gross value of industrial output. Two villages were then selected randomly within each county. Finally, the survey teams randomly choose 20 households from each village.

The survey form was designed to collect data on all aspects of the income-earning activities of rural households and their determinants. The CNRS project team also gathered detailed information on household demographics, wealth, agricultural production, and investment. The form included a detailed section on labor allocation, which recorded the number of hours and other information about all wage-earning and non-wage-earning jobs that each household member performed during 2000.

One major block of the survey, consisting of three subsections, was designed to learn about self-employment in rural China. The first subsection asks the household for detailed information on firm start-up. The second part asks firms about the way they organize their operations. The final part of the self-employment block gathers information about the firm's financial performance.

III. GETTING STARTED

One of the most difficult parts of the process facing individuals or groups of individuals that engage in business is the start-up process. During the process, the entrepreneur needs to make many decisions, such as the type of business in which his or her firm will be

engaged, the firm's ownership structure, and the level of initial investment. Using the data on the history of the 473 firms operated by sample households, this section centers on understanding how households launched their businesses.

Occupation Diversification and Transition into Self-Employment

Before the economic reforms in the late 1970s, almost all of the economically active population in rural China was exclusively engaged in farming. A number of policies, especially the household registration system (or *hukou* system) initiated in the 1950s, initially tied rural inhabitants to rural areas. Even after decollectivization in the late 1970s, almost every rural household continued to farm. Land was distributed to each household and, with poorly developed commodity, credit, and insurance markets, almost all households depended heavily on their farming income. As the economic reforms unfolded in the 1980s and 1990s, however, leaders relaxed the constraints on rural labor movement into the off-farm sector to provide labor for the emerging manufacturing sectors. Leaders also allowed farmers to pursue nonagricultural activities. By the late 1980s, the passive nature of China's off-farm employment policy became proactive, and leaders began actively encouraging rural individuals to work for a wage off the farm or start their own businesses.

With the relaxation of the restriction on labor movements, the transition into off-farm occupations has accelerated. The fraction of the rural labor force participating in off-farm occupations grew from 15% in 1981 to 43% in 2000 (de Brauw et al. 2002). Within the off-farm sector, the fraction of the labor force employed in wage jobs rose from 11% to 27%, and the self-employed fraction rose from 4% to 16% in this period.

Despite the shift into off-farm work, according to the data, households today in China are still heavily involved in farming. Although 79% of rural households have members that pursue off-farm occupations, virtually all of these households (94%) still farm. In particular, of the households that run self-employed businesses, 90% are still involved in farming; of the households pursuing wage earning occupations, 96% are still involved in farming.

The emergence of the self-employed, beginning during the early 1980s, did not increase rapidly until the late 1980s. According to the data, before 1989, the entry rate into the self-employed sector was not systematically higher than the exit rate, so during this period the number of self-employed did not increase much, if at all. After 1989 and through the 1990s, the entry rate became systematically higher than the exit rate; self-employment began increasing.

The diversified set of occupations for households and individuals mostly reflects the fact that the move into the self-employed sector has come relatively recently and that today's entrepreneurs actually started in other sectors. For example, 19% of the self-employed in the sample had worked as a nonfarm wage worker before becoming self-employed. On average, these workers-turned-entrepreneurs had worked for eight years before starting their enterprise. Only 31% chose self-employment when they initially entered labor market.

The Actors and Sources of the Start-Up Funds

Despite the diverse occupational background of individuals prior to shifting into self-employment, when individuals launch new firms there are well-established patterns of business operations. Most of the self-employed choose to run their firms by themselves and do not enter into partnerships. Indeed, only 7% of self-employed enterprises began as partnerships while an overwhelming majority, 93%, was initiated as sole proprietorships.

Those individuals that start up enterprises differ in a number of general characteristics when compared with those engaged primarily in wage earning and farming (Table 1). On one hand, the self-employed are more likely to be married and they are older; their marital status and age are closer to those of full-time farmers than wage earners. However, in terms of gender, education level, and access to special training, the self-employed are more like wage earners; namely, they are more likely to be male, more educated, and to have had occupational training than farmers. This profile of the self-employed is consistent with the findings of Parish et al. (1995) and de Brauw et al. (2002), two publications that seek to characterize the off-farm sector using econometric analysis.

TABLE 1
Occupational Choice: Averages and Standard Deviations of Individual Characteristics
for the Three Occupations in 2000

	Sample Average Overall	Subsample		
		Self-Employment	Farming	Wage Earning
Sex (male)	54% (0.5)	70% (0.5)	44% (0.5)	65% (0.5)
Age	38.0 (13.7)	37.4 (11.0)	42.3 (13.3)	29.7 (11.7)
Marital status (1 = married)	78% (0.4)	86% (0.3)	88% (0.3)	52% (0.5)
Education	6.0 (3.5)	6.7 (3.0)	5.0 (3.5)	7.8 (3.0)
Whether receiving training before	20% (0.4)	40% (0.5)	10% (0.3)	30% (0.5)
Sample probability	100%	15%	56%	29%
Observations	3187	486	1792	909

Notes: SDs in parentheses.

Source: Authors' survey.

To examine more rigorously the role of individual characteristics, the authors estimate a multinomial logit model to analyze the determinants of occupational choice (off-farm employment, wage labor, and farming) of rural residents. Parameter estimates are reported in Table 2. Not surprisingly, the multinomial logit results are consistent with the descriptive results already reported. Specifically, **education, skill training, and other human capital investment appear to increase the probability of participation in self-employment in rural China relative to farming. These findings concur with the findings in the literature that human capital, especially education and skill training, promote entrepreneurial activities (e.g., Schultz 1980).**²

Although China's self-employed have a distinct set of characteristics across the nation,

2. In addition to examining individual characteristics, the authors also can use the data to examine what part of the business environment is conducive to self-employment participation. The data show that households in villages that are (a) close to township seats; (b) relatively well off (that is, those without a capital constraint); and (c) have households that had better communication facilities in 1990 are more likely to have a self-employed enterprise in 2000. For example, 40% of surveyed households that live in the villages close to the township seat have at least one member that is in the self-employment sector. In contrast, in more remote villages, only 26% of households have a self-employed member. Moreover, households in villages that were relatively well off in 1990 are more likely to participate in the self-employment sector than those in the poor villages. Perhaps this is because market demand is higher in richer villages. With higher demand, it is possible that there is higher demand for the services and goods provided by the self-employed, and therefore one can observe higher participation rates. Villages with better communication facilities also are associated with a higher proportion of self-employed households.

they appear to differ fundamentally from the self-employed in other developing countries. For example, in rural Honduras most of the self-employed are young women, in many cases with low levels of education (Ruben et al. 2001). In Africa the majority of micro-enterprises also are owned and operated by women (Mead et al. 1998). Grosh et al. (1996) find that rural micro-enterprise owners in Botswana typically have low levels of education; few have achieved a primary education. Compared to the self-employed in other developing countries, China's self-employed also appear to have greater work experience prior to business start-up. In rural Indonesia, around 50% of the self-employed in a study of the cotton industry are female and are limited to young mothers, widows, and the elderly, suggesting that they had little experience in the workforce before they began to be self-employed (Chernichovski 1984; Weijland 1999). **When compared to the self-employed in other developing nations, there appears to be a new class of "self-employed with Chinese characteristics."**

Perhaps because of the dominance of the sole proprietorship structure, and given that those in rural China are still relatively poor and are faced with underdeveloped capital markets, rural firms in China start off small and are relatively undercapitalized. More than 70% of firms have an initial investment of less than 5,000 yuan (about US\$610 at official exchange rates), which amounts to only about 40% of the household's annual income. In contrast, less than 9% of self-employed enterprises invest more than 30,000 yuan. Such a low level

TABLE 2
Multinomial Logit Estimation of the Occupational Choice of Rural Residents
in China, 2000

	Wage Earning	Self-Employment
Gender (1 = male)	1.393 (7.24)***	1.219 (5.54)***
Age	-0.044 (4.08)***	-0.034 (2.77)***
Marriage (1 = yes)	-0.157 (0.51)	1.306 (2.96)***
Education	0.137 (4.61)***	0.085 (2.43)**
Whether receiving professional training before (1 = yes)	0.568 (2.38)**	0.941 (3.50)***
Whether cadre currently or in past (1 = yes)	0.468 (0.65)	1.390 (1.51)
Parents self-employed currently or in past (1 = yes)	0.020 (0.04)	1.242 (3.10)***
Value of housing	0.004 (1.50)	0.006 (2.22)**
Size of household labor force	0.135 (1.58)	0.077 (0.67)
Size of household's land holding	-0.024 (1.52)	0.005 (0.66)

Notes: Robust *z*-statistics in parentheses; statistical significance is defined as: *significant at 10%; **significant at 5% and ***significant at 1%.

Source: Authors' survey.

of capitalization is not surprising in an economy with such labor-intensive firms and is consistent with a farming sector (the other self-employed sector) that also depends on few capital assets. For example, the average farm in China only has about 1,274 yuan of equipment (de Brauw 2002).

The size of the initial investment also undoubtedly affects the way that most entrepreneurs raise their initial funding. Most of the self-employed (64%) are completely self-financed, using only their household's own liquidity. Even in the case of the 36% of the self-employed that rely on borrowed funds, the loans typically are supplemental in nature. For the self-employed firms launched in 2000, 81% of the value of the initial start-up funds comes from the family itself. **Consistent with the underdevelopment of rural credit markets (Findlay et al. 2003), only a small share of the self-employed (26%) obtain any funds from banks; in fact, for firms launched in 2000, only 7% of the start-up funds comes from banks.**

Although funding from formal and informal sources of credit is uncommon in rural China, the reliance of self-employed enterprises in other developing countries on bank credit appears to be even less common. For example, in Kenya 78% of the firms are started with personal savings, whereas only 2% are financed by banks (Fafchamps et al. 1994, 1995). Similarly, in Zimbabwe 90% of the firms are financed by personal savings, and only 3% received bank loans. Moreover, in Honduras start-up funds for self-employed

enterprises also rarely came from formal credit sources (Ruben et al. 2001). Finally, in Mexico, less than 1% of the firms received start-up financing from a banking institution (McKenzie and Woodruff 2003).

The Role of Collectives

One of the most interesting findings from this study of China, a communist country with a history of heavy government involvement in almost all economic activity, is the almost complete absence of the role of the local state in the start-up of self-employed firms. Independence from the state is a characteristic that makes these firms strikingly different than most of the rural firms that arose in the 1980s and early 1990s. During the 1980s the relationship between rural firms and the local state was one of close, interlinked ties (Whiting 2001). Most firms, called township and village enterprises (TVEs), were owned by the township or village government (Oi 1999). When private firms did emerge they typically were highly reliant on the collective. Due to the lack of institutionalized property rights and the exclusion of private firms from the state's planned distribution channels, private firms needed the local state's protection and aid in accessing input and output markets. Hence, during the 1980s, most firms were at least somewhat tied to the local state.

Self-employed firms, in contrast, have almost no relationship with the collective when they begin operating. The questionnaire

asked the entrepreneur about the different ways that the collective could have provided aid to the firm. Did the village provide land and/or buildings? Were the village leaders co-investors? Is the self-employed firm a former TVE? Does the self-employed firm have a contracting relationship with a local TVE? Despite the long list of questions, 92% of self-employed enterprises stated that they were not related to the collective in any way.

Although it is beyond the scope of this article to identify the exact reasons for the absence of linkages between self-employed firms and the collective, there are several reasons why this may be so. First, self-employed firms may be so small that they may pose and, as such, face little or no political risk. As a consequence, they may not need protection from the local state. Alternatively, it could be that because of their small size, the local state might not want to bother either trying to support or regulating the firms.

IV. NATURE OF THE ORGANIZATION OF SELF-EMPLOYED FIRMS

Once businesses have started up, the self-employed pursue a diverse set of activities. Of all of the firms in the sample, the largest share of them, about 25%, are engaged in wholesaling, retailing, and trading activities. These trading firms handle a wide variety of commodities, including household goods, food items, construction material, and electrical equipment. Some firms are simple—the corner mom and pop stores that are run out of the first floor of the owner's home and commodity traders that buy up the output of other farmers in the village and surrounding villages during the harvest season, reselling them in the local periodic market. Others are complex—such as one household that owned several canal- and river-going barges and bought, sold, and delivered bricks and roofing tile all over the Yangtze River delta. Moreover, perhaps reflecting the fact that **China's service sector is underdeveloped in general (World Bank 2002), 21% of self-employed individuals are running businesses** that provide a wide variety of services, such as barber shops, tailor shops, and photo finishing. At the beginning of the economic reform period most of the service-providing firms were operating in the household's own

village; increasingly it is being observed that households are moving to the cities to operate their service-oriented firms (de Brauw 2002).³ Finally, as might be expected of those that live in the rural sector, a significant proportion (14%) is engaged in a farming-related business.

In some sense, the participation of rural Chinese households in trade and service provision is similar to those in the rest of the developing world. Unlike households in most other nations, however, the rural self-employed in China are involved in a number of less traditional sectors. About 15% of the self-employed run transport and communication businesses, and 14% run manufacturing and construction firms. In some villages some individuals run businesses that require fairly high levels of expertise, such as banking and technological services.⁴ A particularly interesting example is the provision of health care services. There are 12 households in the sample that are engaged in the provision of health care services, at least 10 of them having set up clinics in the village. Of these, five households have invested in buildings and medical equipment.

Firm Structure, Family Roles, and Hired Labor

In the same way that most self-employed firms began their business activity with the effort of a single member of the family, the ownership structure of the self-employed enterprises in the sample demonstrates a pattern of organization that mostly relies on a single individual. Interestingly, this approach is different from the pattern described by Unger (2002). In his book, Unger observed that in Xiqiao, a prosperous township in Guangdong Province, almost all of the self-employed initially formed partnerships with relatives, friends, or neighbors to amass sufficient

3. Despite the increasing trend of moving to the cities to operate self-employed firms, it seems that the majority of self-employment in rural China was still pursued locally. In fact, only about 4% of firms operate outside of rural areas. Of these, there is no obvious bias regarding the sector of their operations or financial performance. Hence, the characteristics of the self-employed people and the self-employed firms observed are indeed those of the self-employed in rural areas, and the rapid rise of self-employment mostly benefits the local rural economy rather than the urban economy.

4. Those self-employed people engaged in banking service refer to those people that make money by lending their money to fellow villagers and earn interest by doing so. Although it is illegal to do so, it is not surprising to see this in rural China given that many villagers are rationed out of the formal credit markets.

TABLE 3

Composition of Family Members Pursuing Rural Enterprises in China, 2000

Type	Observations	Percentage	Cumulative
Husband	252	53.3	53.3
Wife	50	10.1	63.4
Husband + wife	120	25.4	88.8
Children only	30	6.3	95.1
Other	23	4.9	100
Total	473	100	

Source: Authors' survey.

capital and diversify their risk. Unger observed, however, that once the enterprise grew to a certain size, the partnerships usually splintered into small individually run family firms. In contrast, a large majority of the enterprises in the present sample begin as sole proprietorships (as discussed in the previous section), and over the life of the firm, they seldom if ever change ownership structure. According to the data, 92.8% of the firms were sole proprietorships when they started up. By 2000, the percentage that was being operated as sole proprietorships was almost unchanged (93.5%). Although it is unclear why the households in this sample (which are randomly chosen from villages across China) differ from those in Unger's study, given that more than 70% of the enterprises in the present sample have an initial investment of less than 5,000 yuan, one plausible explanation may be that Unger's firms were atypically large at start-up. Most firms in the sample do not appear to be facing an immediate capital constraint. Those in Unger's sample, however, may have been because they were chosen from the membership of the local Textile Chamber of Commerce and were trying to build themselves into large manufacturing firms.

Although self-employed enterprises, by definition, are family-based and there are many possible combinations of roles that different family members could take on, in fact, there are fairly strong patterns in rural China (Table 3). More than half of China's self-employed firms (53%) are operated solely by the male, household head (that is, the husband—row 1). In these households, although the other family members do not directly participate, they do so indirectly by shouldering more of the farm work. In fact, in about 52% of the households with husband-only

firms, the head's spouse takes over most of the work on the farm (that is puts in more than 50% of the hours on the family's farming operations). In contrast, in households that do not run self-employed firms, the wife takes over most of the farm work in only 38% of the cases.

The second most common arrangement is intrafamily partnerships, which are run jointly by husband and wife. Husband-wife partnerships account for 25% of the sample enterprises (row 3). Although the data do not include information on the exact work roles of husbands and wives in these jointly run enterprises, Unger (2002) observes that in Xiqiao, wives often oversee production of family firms while husbands take care of sales. If so, these firms would be similar to those found in Taiwan, where there is a fairly well-defined division of labor with the wife responsible for production and the husband for sales (Greenhalgh 1988). Interestingly, for the firms in the sample in which husbands and wives share responsibilities, the husband, on average, takes on a statistically greater share of the farm work (53%) than that for the husband-only firms (46%).

Given the small size of the initial investment, it is not surprising that the number of workers in most of the self-employed enterprises (including the proprietor) also is small. The average number of workers per self-employed enterprise in the sample is only 2.3, although there is considerable variation across firms. For example, the data show that about 60% of the enterprises are operated by only one person, the proprietor, working on his or her own. Only about 3% of firms have greater than 8 workers.

Because firms generally are small with only limited employment, most of the firm's labor force comes from the family rather than labor markets. In fact, 94% of workers in sample enterprises are members of the entrepreneur's immediate family. Of family members working in the household's enterprise, only 1% reported having drawn a wage. In contrast, of the remaining 6% of workers that were nonfamily members, all were hired for a wage.

Like other characteristics of the sample firms, the scale of the enterprise affects hiring. As the firm's size increases, so does its use of paid labor. For example, of the 393 firms with fixed assets below 10,000 yuan, only 28 hired any workers. In contrast, hired workers make up 43% of the labor force for firms with fixed assets between 60,000 and 70,000 yuan.

Though the average self-employed enterprise is small, in the aggregate they contribute a significant amount to national employment. In 2000, rural China had 499 million people in the rural labor force (*China Statistical Yearbook 2001*). The present data show that about 15% of the rural labor force is self-employed. Given that the sample is almost nationally representative, applying this figure to the entire rural labor force yields a rough estimate of almost 80 million rural people involved in self-employed enterprises in 2000. Under these assumptions, given the 712 million people in China's overall labor force (*China Statistical Yearbook 2001*), this would suggest that about 11% of national employment is accounted for by the rural self-employed.

Capital Growth and Investment

Given the shortage of capital in rural China, not surprisingly, most self-employed enterprises use relatively small amounts of capital. On average, China's self-employed enterprises only own about 36,000 yuan (about US\$4,390) of fixed assets, meaning that firms are quite small. As a means of comparison, the average asset value of a TVE in 1995 was 607,000 yuan (Oi 1999)—or about 17 times the level of these self-employed enterprises. Moreover, not only is the average level of fixed assets relatively small, their distribution across enterprises is skewed. Of all enterprises in the sample, 50% have fixed assets of less than 4,400 yuan; 80% have fixed assets of less than 20,000 yuan. Despite this, there are a few enterprises with fixed assets of more than 50,000 yuan (11%).

Although self-employed enterprises are small, they have been growing moderately fast in terms of their rate of capital accumulation. The data show that the fixed asset holdings of rural self-employed firms on average increased about 15% per year. Considering only those enterprises that made at least one additional investment in their firms' fixed asset base after their initial start-up investment, the annual rate of increase is about 34%. Perhaps because of the limited ability of self-employed firms to raise funds and the lack of the help of the local state in facilitating access to formal financial markets, the growth rate of capital in self-employed firms, although fast, is lower than that of TVEs (which was 27% over the period from 1985 to 1995; Oi 1999).

With lower levels of assets, the accumulation of debt in China's self-employed firms is

relatively small. In China, in general, firms have built up huge debt relative to their equity. For example, in 1998 the average debt to equity ratios for state-owned enterprises (SOEs) and collective enterprises were 320% and 199% (Naughton and Yang 2004). In contrast, debt does not appear to be an important mechanism to acquire assets for self-employed firms; most have low levels of liability. About 83% of enterprises have liabilities that are less than 5,000 yuan. Despite this, 49% of enterprises have total assets of less than 5,000 yuan.

The joint distribution of assets and liabilities indicates that overall, the enterprises are financially healthy. On average, liabilities are only 12% of total assets, which shows the low degree to which the enterprise assets are financed through debt. Perhaps this is because the self-employed firms are rationed out of the formal credit market and/or due to the nature of small initial investments required for labor-intensive enterprises. It is possible that both forces are at work. In fact, this pattern is also common outside of China. For example, Fafchamps et al. (1994, 1995) show in Kenya and Zimbabwe that a considerable share of enterprises are rationed out of credit markets; at the same time, a nontrivial percentage of enterprises say that they do not need a bank loan.

V. PERFORMANCE OF SELF-EMPLOYED FIRMS

The potential of the self-employment sector to generate growth depends ultimately on the financial performance of these firms. The authors focus on two important aspects of the financial performance: the profitability of the self-employed and the financial risks that are associated with running them. This section first examines their profitability, assessing the performance of self-employed firms by comparing self-employment earnings with wage earnings. The authors also compare self-employed return on assets to those of SOEs and TVEs. Finally, the authors examine the financial risk of the self-employed enterprises.

Profitability

Compared to workers with wage-earning jobs, those that are self-employed in rural China earn more on an hourly basis but also assume higher risks. According to the data, in 2000, the mean hourly earnings were 7.8 yuan

TABLE 4
Financial Performance of Self-Employed Enterprises by Size in Rural China, 2000

Asset Value	Hourly Earnings				
	Actual Hourly Earnings	Predicted Wage	Capital Income per Hour ^a	Return on Asset	Debt to Asset Ratio
Overall	7.8 (36.8)	2.7	0.77	0.24 (2.86)	0.17 (0.40)
Bottom 10%	3.9 (8.1)	2.6	0.005	10.8 (40.8)	0 (0)
Low middle	2.4 (5.8)	2.8	0.04	-0.03 (3.1)	0.13 (0.40)
High middle	8.8 (38.1)	2.7	0.28	0.19 (0.62)	0.23 (0.42)
Top 10%	31.7 (87.8)	3.0	1.32	0.26 (0.26)	0.24 (0.40)

Note: SDs in parentheses.

^aThe interest rate used for calculating the capital interest income is the annual interest rate (2.25%) for deposits in the China's banking system (*China Statistical Yearbook* 2001).

Source: Authors' survey.

for the self-employed and only 2 yuan for wage earners. Despite being higher on average, the hourly earnings for the self-employed had a standard deviation of 36.8, which was over nine times the standard deviation of hourly wage earnings.

The relatively high earnings of self-employment could be due to several factors. Because many self-employment activities are riskier than wage jobs, part of the self-employment earnings might be thought of as a risk premium. Alternatively, self-employment often requires the use of capital. As seen in the earlier sections, credit in China is limited. Hence, it is possible that the capital requirement of starting a firm could be imposing a barrier to entry, preventing people from entering the self-employed sector and keeping self-employment earnings at a level higher than wages. Finally, it could be that self-employment earnings contain a return to entrepreneurial ability, a scarce input and one that is not required for wage-earning occupations.

Although self-employment earnings in rural China are higher than earnings from wage employment, this relationship is not found in all countries. For example, in Kenya only about one quarter of the self-employed enterprises have earnings above the minimum wage of the modern sector, and only 10% of the self-employed earn more than the average wage (Daniels 1999; Daniels and Mead 1998). This may indicate that in many cases self-employment is not sufficient by itself to move a household out of poverty. In the United States, the self-employed have lower initial earnings than employees with the same observed characteristics (Hamilton 2000). The

growth of earnings in the United States also is greater in the wage sector than that of the self-employed.

Not only are self-employment earnings higher than wage earnings in China, they are also higher than the wage that the enterprise owner could have earned if he or she had chosen to be a wage earner (Table 4). To show this, the authors need to first account for the difference between the characteristics of the self-employed and wage earners. One way to demonstrate this is to use a wage equation estimated from the subset of wage earners in the sample.⁵ The authors can then generate a predicted wage for the self-employed using the parameter estimates from the wage equation and the characteristics of the self-employed. Based on the wage equation estimated with the data set (and reported in de Brauw 2002), the authors show that if the self-employed were wage earners, they would earn, on average, 2.7 yuan per hour (row 1 and column 2). Although this wage is higher than the average earnings of the wage earners in the sample, it is substantially lower than self-employment earnings.⁶

5. To control for possible selection bias in estimating the parameters of the wage equation, the authors follow the conventional two-stage Heckman selection correction procedure.

6. Because the return to self-employment in part includes the entrepreneurs return to capital, in calculating the returns to self-employment, the authors first must remove the return to capital. To do so, the return to capital part is calculated as the interest income that the self-employed would have earned if they had put their investment funds in banks instead of investing in their self-employed firm. The interest rate used for calculating the interest income is the annual interest rate (2.25%) for deposits in the China's banking system (*China Statistical Yearbook* 2001).

The findings from this regression analysis suggest two conclusions. First, the self-employed are somewhat more able in labor markets and would have earned more than the typical wage earner had they opted for a wage-earning job rather than self-employment. Second, even after accounting for their higher ability, the self-employed earn, on average, more by running a business than they would have as a wage earner.

Not only do the self-employed earn more than wage earners, the enterprises run by them also perform well according to several criteria. For example, self-employed firms have a higher return on assets than other types of enterprise, including both SOEs and TVEs. Return on assets, which is calculated as net profits divided by total assets, is one of the key ratios that is used to measure firm profitability. There is, however, one problem with calculating the ratio for the self-employed enterprises, namely, enterprise profit includes a labor component because most of the self-employed also function as unpaid workers in the enterprises. In calculating the return on asset ratio, then, the authors first remove the labor component from the profit by subtracting the predicted wage for the self-employed from the calculated profits. Even after doing this, however, the ratio of return on assets for self-employed enterprises is 0.24, suggesting that an additional dollar of assets in a firm will generate, on average, an additional \$0.24 of profits (Table 4, row 1 and column 4).⁷ Importantly, the ratio for the self-employed is higher than those of either the average SOE or TVE (0.03 and 0.07, respectively).⁸ This indicates that the returns

7. To calculate the return on assets, the authors first obtain the net profit. To do so, they remove the wage component from the firm's profits by subtracting the predicted wage for the self-employed from the firm's reported profits. Second, the authors calculate total asset value as follows. Total assets include two parts: fixed assets and accounts receivable. For fixed assets, the authors have data on the initial fixed assets and fixed asset investments over all years since the start-up of each self-employed firm. These fixed assets include installations such as plants and buildings as well as durable machines and tools. All assets are depreciated by a straight-line depreciation formula. To calculate the depreciation of the firm's assets, the authors assume the expected life of a building structure is 20 years. The expected life of durable machines and tools is 10 years. After accounting for depreciation, the total value of the assets in 2000 is calculated as the sum of the remaining value of the firms fixed assets in 2000 plus the firm's total accounts receivable in 2000.

8. Authors' calculation based on *China Statistical Yearbook* (2001) and *China Rural Statistical Yearbook* (1999).

to assets of self-employed enterprises have been relatively high according to this measure.⁹

Compared to SOEs and TVEs, self-employed enterprises also appear to be financially less risky.¹⁰ The mean debt-to-asset ratio for the sample self-employed enterprises is 0.17, meaning that, on average, 17% of the self-employed firm's total assets is financed through debt (Table 4, row 1 and column 5). However, the debt-to-asset ratios for SOEs and TVEs are three times as high (0.60 for both).¹¹ The higher debt-to-asset ratio is at least in part because SOEs and TVEs have been heavily reliant on bank loans for funding their investments. Given the low profitability of SOEs and TVEs and such high debt, it is not surprising that these firms have not always been able to repay debts (Nyberg and Rozelle 1999). Hence, from a financial analyst's point of view, at least in this dimension, SOEs and TVEs are more risky.¹²

9. To make sure that the results are robust, the authors employ several robustness checks. First, to ensure that the results are not biased by any extreme outliers, they deleted observations that were more than 8 standard deviations above or below the mean. Even after deleting the outliers, the authors find that self-employed firms still perform stronger than the typical SOE or TVE. Second, they also performed sensitivity analysis to test the dependence of some of the results on the assumptions. For example, they depreciated assets using different expected life spans for buildings (10, 15, and 20 years) and machines and tools (5, 10, and 15 years). Using the alternative estimates of expected asset life spans, the authors find that the return on assets ranges between 0.14 and 0.31, which is still higher than those for SOEs (0.03) and TVEs (0.07). Thus, the authors believe that the results are fairly robust to some of the main assumptions.

10. The authors evaluate the financial risk of the self-employed enterprise in the sense that how much of the assets are financed through debt. If the enterprise is sufficiently levered, interest expenses may be so high that under adverse economic conditions the enterprise may not be capable of paying back. That means financial risk is directly proportional to leverage. The authors use the total debt to total assets ratio, which is one of the important leverage ratios and is often used by financial analysts, to assess the financial risk of the self-employed enterprises.

11. Authors' calculation based on *China Statistical Yearbook* (2001) and *China Rural Statistical Yearbook* (1999)

12. Ideally, to compare the performance of self-employed firms with SOEs and TVEs, one would control for other variables such as sector, scale, ownership and other geographic factors. Unfortunately, the authors do not have complete data on TVEs and SOEs. Despite this, to make sure that the results are robust, the authors compare self-employed firm performance with the performances of SOEs and TVEs within the same sectors and within the same provinces (although for brevity they do not show the results). It turns out that self-employed firms also appear to perform much better than SOEs and TVEs within the same sectors and within the same provinces. Thus, in this way, too, the conclusions are robust and unaffected by sector or location bias.

The Heterogeneity of Financial Performance

Although the average self-employed enterprise is both more profitable and less financially risky than SOEs and TVEs, the performance of the enterprises varies considerably within the self-employment sector. For example, according to the data, the highest hourly earnings of the self-employed are about 500 yuan per hour (about \$65 per hour), and the lowest earnings are negative (-40.5 yuan). In addition, while most of the self-employed enterprises have zero debt, several enterprises have a debt-to-asset ratio greater than 0.80.

Despite the variations, clear patterns of the financial performance exist in the self-employment sector. The self-employed with higher levels of total assets have higher hourly earnings (Table 4). For example, the self-employed with asset holdings in the bottom decile of the asset distribution earn only 3.9 yuan per hour. In contrast, those in the top decile earn about 32 yuan per hour (column 1). In fact, those in the bottom 50% do not earn significantly higher hourly earnings than wage earners.

Although returns are higher for the firms with higher levels of assets, so is their risk (Table 4). Enterprises with high levels of assets have high debt-to-asset ratios. For example, the self-employed enterprises in the bottom decile of the asset distribution have no debt (i.e., they have a debt-to-asset ratio of 0). In contrast, the debt-to-asset ratio of firms in the top decile is 0.24 (column 5). A likely explanation is that the self-employed with high assets need to find alternative ways to fund their investments beyond their own savings. The standard deviation also is higher for firms with higher returns.

VI. CONCLUSIONS

This article provided a picture of the self-employment sector in rural China by examining the start-up, operation, and financial performance of self-employed enterprises. Above all, the article shows that there is a standard way that the self-employed initiate their businesses in rural China, and a new class of self-employed with Chinese characteristics appears to be emerging. The article shows that although self-employed firms, on average, employ fewer than three persons, self-employment in the aggregate makes a signifi-

cant contribution to national employment. These firms also have been growing fast in terms of their rate of capital accumulation. Finally, the authors show that the self-employed earn more than wage earners and that self-employed firms have performed better than SOEs and TVEs in a number of senses. In sum, this study provides evidence that although self-employed enterprises are small, they have grown fast, are complex, and are financially healthy.

One question about the self-employment sector that the authors have not yet answered is whether **the expansion of self-employment is an integral component of the healthy and dynamic development process of all rural China or, instead, if self-employment plays this positive role only in relatively rich areas and not in poor regions.** Alternatively it also is possible that most of the expansion is in poor areas and that **as poor areas develop, the importance of self-employment will diminish.** In other words, it is possible that **self-employment is a transient institution.**

To understand in greater depth the nature of the self-employment sector, the authors also used the data to examine regional differences in self-employment. Although for the sake of brevity the results are not shown, the authors find that the self-employment sector in fact has been expanding fast in *both* rich and poor regions.¹³ In both rich and poor areas, the trade, transportation and manufacturing subsectors—those firms that use complex technologies and are more capital-intensive—are growing over time. Likewise, in both rich and poor areas, handicraft and custom labor providers, which are subsectors associated with more rudimentary technologies, are becoming less common. In addition, self-employment earnings are higher than wage earnings in both rich and poor regions. In both areas, the self-employed are relatively better educated.

Given these regional-based results, the authors believe that the findings indicate three things. First, the expansion of self-employment in rural China is not specific to poor regions. Second, in both rich and poor regions, the quality of the self-employment

13. Rich regions are defined as those counties in the sample that have per capita gross value of industrial output greater than the median of the sample while poor regions are defined as those counties with per capita gross value of industrial output less than the median.

sector has been improving over time. Third, in both regions self-employment activities are pursued by people with relatively high human capital who are attracted to the sector, almost certainly seeking more profitable opportunities that self-employment offers. Hence, the authors believe that the rise of self-employment in rural China is part of the nation's dynamic development process; self-employment in China, unlike some other places in the developing world, is not a sign of economic stagnation.

If self-employment in rural China is considered a source of growth of rural China and not a sign of economic distress, self-employed firms almost certainly deserve more attention by policy makers and may be a source of continued output and employment growth. To take advantage of the dynamism of the sector, policy makers should overcome their biases against self-employment. Instead, they should formulate supportive policies for the sector. Those policies that help small entrepreneurs get access to credit and provide rural residents with education and skill training would boost self-employment activities. In the meantime, development economists also need to rethink the role of self-employment in the development process and modify existing intellectual biases about self-employment, at least in the case of China.

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