ISSN 1471-0498

DEPARTMENT OF ECONOMICS

DISCUSSION PAPER SERIES

CHINA'S ENTREPRENEURS

Linda Yueh

Number 324

April 2007

Manor Road Building, Oxford OX1 3UQ

China's Entrepreneurs

Linda Yueh

Pembroke College
University of Oxford
Oxford OX1 1DW
UK
Telephone: +44 (0)1865 276444
E-mail: linda.yueh@economics.ox.ac.uk

March 2007

Abstract. This paper investigates the traits of the self-employed entrepreneurs in urban China, an economy rife with informational and institutional imperfections, under-developed financial markets, but a growing and important non-state sector. The self-employed make on average 20% more than non-entrepreneurs, but are similar in their age, marital status, educational attainment, and socio-economic background. Fewer are Communist Party members and more have experienced unemployment. Social networks are significant in entrepreneurship, while women and older workers are less likely to become self-employed unless they have experienced unemployment. Motivation and drive, as do attitudes toward risk, are also determinative factors.

JEL Classification Nos. J44, O53, O12

Keywords. Asia, China, self-employment, entrepreneurship, social networks, development.

The support of the UK Department for International Development is gratefully acknowledged.

1. INTRODUCTION

Entrepreneurship and starting self-employment are important drivers of growth, particularly for an economy such as China where partial marketization relies on the rapid growth of the non-state sector in driving the transition from central planning (Fan 1994). China's gradualist reforms are associated with a high degree of market imperfection where many sectors are still controlled by the state and private economic activity tends to be characterized by a great deal of uncertainty. Moreover, China is a developing country where there are numerous information-related obstacles which can impede obtaining credit and starting a business.

Self-employment is a challenging proposition in a developing economy characterized by imperfect credit markets, supply chains, and product markets (Banerjee and Newman 1993). The literature on entrepreneurship focuses on institutional factors, such as credit constraints (Blanchflower and Oswald 1998), and individual traits as determinants of those who choose to enter into self-employment or start small and medium sized enterprises (Rees and Shah 1986). Both sets of approaches would support the importance of social networks in fostering entrepreneurship, as well as point to motivation and attitude toward risk as determinative factors.

Considering social networks, they can arise from a need to work within imperfect formal institutions such as a regime of uncertain property rights (Frye and Zhuraskaya 2000) or are developed in the context of community and cultural factors (Portes 1998) as well as a result of individual preferences (Glaeser et al. 2002). It is likely that social networks have both an economic and non-economic function. For instance, social networks can help ease financial constraints and provide needed contacts for operating a

business in a partially marketized environment such as China (Oi 1999, Zhang et al. 2006).

In China, the private sector has rapidly overtaken the state sector in terms of proportion of GDP even though the system is characterized by a poor legal system protecting private assets, credit constraints for private enterprises, and regulatory opacity. However, in spite of this context, there is a growing segment of entrepreneurial activity that has propelled China along its gradualist transition path and helped it to achieve remarkable growth rates in the reform period. In such an imperfect legal and financial system, the characteristics of those who are able to enter self-employment are important to know. Moreover, the dominance of informal and relation-based contracting in China suggests that the elements fostering private sector development are likely to evolve around social networks, as well as other traits associated with managing uncertainty such as motivation or drive, but also more traditional characteristics such as embracing risk.

The determinants of entrepreneurship in China, particularly in urban areas, are yet to be well understood despite the growing importance of the de novo private sector, especially in urban areas. Studies of self-employment include analysis of rural China (Zhang et al. 2006; Mohapatra et al. 2007) and a survey of entrepreneurs by Djankov et al. (2006). The study of rural China by Mohapatra et al. (2007) emphasizes education as the key determinant of rural farmers leaving the agricultural sector and moving into self-employment and wage employment. Zhang et al. (2006) and Djankov et al. (2006) concur that entrepreneurship is more likely if the entrepreneur has friends or family who were entrepreneurs. In the Djankov et al. (2006) study, the most robust determinant of entrepreneurship was knowing people who had tried entrepreneurship. This is consistent

with the work on the importance of social networks. Our original data, with measures of social networks, motivation and attitudes, allows us to build upon these findings. Self-employment is a particularly significant question in urban China which increasingly relies on the private sector to drive growth, as state-owned enterprises (SOEs) are reformed and foreign competition increase.

This paper will use a national urban household data set collected in China in 2000 which has rich data on income and employment, as well as specific and original measures of social networks in the labor market. The rich data includes detailed individual information about the income and work patterns of individuals in urban China. We also have information on both social networks and personal characteristics which will allow us to investigate the characteristics of entrepreneurs and whether social networks are a determinant of entrepreneurship, along with measures of motivation or drive and attitudes toward risk.

Therefore, China is an appropriate economy to study entrepreneurship since it is transition economy and developing country which has a significant lack of formal institutions in the areas of property rights and other features crucial for entrepreneurship, such as complete credit markets, certainty in contracting and investment protection. Moreover, China has traditionally had a cultural and historical emphasis on inter-personal relationships or *guanxi*, which informs business dealings both within and outside of China. This suggests that networking is possibly an important factor in determining non-state sector development.[1]

2. EMPIRICAL APPROACH

We first provide the determinants of entrepreneurship using a national representative urban household sample. This is followed by asking whether social networks are a significant determinant of entrepreneurship as widely suggested, as well as investigating other pertinent traits such as motivation and risk attitudes.

Becoming an entrepreneur should require many of the same personal traits as employed persons working for a wage, such as education. However, an entrepreneur must also contend with the need to obtain credit to start a business and buy inventory, have access to suppliers and distributors, as well as the knowledge to navigate the uncertain regulatory and legal environment in China where licenses are often required for starting a business. Social networks would be useful in all of these respects.

(a) Factors influencing self-employment

(i) Credit and supply networks

In China, self-employed persons often encounter severe credit constraints due to the credit allocation system which is skewed toward state-owned enterprises (Fan 1994). Small and medium enterprises (SMEs) find it difficult to obtain credit and often relied on family and friends, including remittances from migrated family members, to start a business (Oi 1999). Alternatively, self-employed entrepreneurs in China used their social networks to arrange for inventory to be issued without advance payment. Anything which is sold is then split between the entrepreneur and the supplier of the inventory, such as peddlers receiving their goods in advance. We encountered this type of trust-based relationship in conducting the household survey in China, notably in Liaoning which has heavy industry that was hard hit by the large-scale downsizing of the SOEs in the mid 1990s. Access to suppliers and distributors is a significant challenge in a

partially marketized economy in any event, and having a social network would facilitate self-employment.

(ii) Navigating an uncertain institutional environment

Finally, China has an imperfect legal system with a great deal of regulatory complexity. In such an environment, having the contacts and know how to obtain a license would be important. Indeed, licenses and permissions are needed not only for the business but also for the transport of goods at the city and provincial levels. A social network would help in this instance.

(b) Determinants of entrepreneurship

We therefore investigate whether social networks is a significant determinant of entrepreneurship after establishing a profile of the pertinent characteristics of the self-employed in urban China. The reason for this focus is that we hypothesize that having a social network is important in the choice to become an entrepreneur on account of the above factors. It may well be that some people are more entrepreneurial in that they have greater drive or embrace risk and therefore develop relationships to help them achieve their aims. This would again associate entrepreneurs with having social networks, but can be measured separately in some segments of our representative data set.

The probit equation to be estimated is as follows:

$$ENTREPRENEUR_i = \alpha + \beta \mathbf{X}_i + \gamma SN_i + \varepsilon, \qquad (1)$$

where entrepreneur equals one if person *i* is self-employed and zero if not. Entrepreneurship is determined by a vector of observable characteristics associated with occupational choice, including education, age, gender and socio-economic background, and a social network. Given the possibility of heteroskedasticity induced by the selection

bias into labor force participation and also the clustering effect of using a household data set to estimate individual outcomes, we compute robust standard errors that are also adjusted for clustering at the household level.

The explanatory variables are chosen because they are thought to be exogenous. Social networks are thought to be fairly stable over time, but we cannot role out that there are omitted variables which simultaneously predict entrepreneurship and the explanatory variable of networks or reverse causality.[2] Thus, we will test for endogeneity by using an instrumental variable approach (IV) for probit regressions (Smith and Blundell 1986).

The reduced form first stage regression is:

$$SN_i = \varphi + \gamma GIFTS_i + \eta \mathbf{X}_i + \sigma, \qquad (2)$$

where the instrument is the value of gifts given in the survey year. Gifts are often exchanged to build relationships in China, particularly to family and friends. It can be as much personal as business-driven. In fact, the mean value of gifts given was higher for non-entrepreneurs (654 RMB) than for entrepreneurs (336 RMB), as was the maximum value (55,000 RMB versus 4,200 RMB). The large number of outcomes possible under the social networks and gifts variables is also preferable.

To establish whether an instrumental variable approach is unbiased, the instrument must be informative and valid. The gifts variable is correlated with the potentially endogenous variable: cov(*GIFTS,SN*)≠0, so the instrument is informative. Second, the instrumental variable is not correlated with the residual in the structural equation: cov(*GIFTS,*ε)=0, so the instrument is valid. Table 1 gives the first stage regression results.

TABLE 1 HERE

Table 1 shows that the value of gifts given is positively and significantly correlated with social networks at the 5% level. However, there may still be a weak instrument problem. If the correlation between gifts given and social networks is very small and close to zero, and the instrument is valid, it can still be the case that the IV approach produces biased estimates. Staiger and Stock (1997) propose a rule of thumb to detect if there could be a weak instrument problem. If the F-statistic is less than 10 in the case of one potentially endogenous variable, then there is not a weak instrument. We compute a F-statistic of 17.18, suggesting that there is not a weak instrument problem. We also compute the Anderson test for IV relevance and Hansen's J statistic for the orthogonality of the explanatory variables, which both reject the null hypothesis at the 1% level. These tests further imply that instrument is informative and valid.

The second stage probit regression uses the predicted value of social networks instead, and equation (1) is re-formulated as follows:

$$ENTREPRENEUR_i = \alpha + \beta \mathbf{X}_i + \gamma \hat{SN}_i + \upsilon, \qquad (3)$$

We then apply the Smith-Blundell test of exogeneity for probit regressions (Smith and Blundell 1986). The null hypothesis is that all explanatory variables are exogenous. The Smith-Blundell test statistic is evaluated with respect to a Chi-squared distribution in the number of potentially endogenous variables, and the associated p-value either rejects or not the null hypothesis. If the null hypothesis is not rejected, then equation (3) is the appropriate formulation.

3. DATA

The household data set is original and collected in urban China in 2000 pertaining to 1999. It is a representative survey administered across China, enumerated by the

National Bureau for Statistics (NBS) in China, and designed by a team of international researchers from the Chinese Academy of Social Sciences, Japan, Australia and the UK, including the author. The detailed information on type of employment and personal characteristics allow for estimations of entrepreneurship in urban China. The total sample size of the 1999 survey is 4,500 urban households and around 9,000 working-aged people.[3] The survey covered six provinces and 13 cities. In addition, there were questions designed to measure social networks in China. Given the breadth of the survey, there is no need to attempt to normalize the sample as with smaller scale data typically used in this type of study.

FIGURE 1 HERE

The size of social networks is determined by asking the reported number of close contacts of an individual in any context, social or economic. The survey question asked: "In the past year, how many relatives, friends, colleagues or acquaintances did you exchange gifts with or often maintain contact?" The mean size of social network is 6.4 persons and its standard deviation is 6.7. Figure 1 shows that it has a reasonable dispersion. We will investigate entrepreneurs and non-entrepreneurs separately in the next section.

4. EMPIRICAL RESULTS

We first examine the characteristics of entrepreneurs versus non-entrepreneurs in the survey. There are 359 individuals in the 1999 urban sample who are self-employed as entrepreneurs. This constitutes approximately 4% of all urban workers. There are certainly entrepreneurs who are not self-employed, but the data does not cover those individuals. However, starting de novo firms is an important element of transition and

economic development and our survey does allow us to explore the traits of those who start their own businesses in urban China.

First, when asked the reason why the respondent started his or her own business, 37% said that it was because he or she had the requisite skills and experience, 7% had funds, 11% had real estate, and 17% started a business by joining in with relatives.[4] The primary motivation appears to be self-belief and skills, while 11% were motivated by having access to an important asset, e.g., real estate. A small 7% had their own funds, and 17% did so because of their personal relationships. Given the small proportion of entrepreneurs who started with their own funds, credit is likely to be a constraint that social networks can help with by improving information flows to attain credit or indeed access credit from personal networks. Having real estate in China suggests a social network because all urban land is state-owned and land/buildings were only beginning to become privatized. Those who had the resource of real estate would have had the connections to attain such an asset.

The second most important reason for starting one's own business was to join in with relatives and knowing others who will also enter into entrepreneurship. This is consistent with the findings of the entrepreneurship literature which emphasizes the importance of knowing friends or relatives who are entrepreneurs (Blanchflower and Oswald 1998; Djankov et al. 2005). Starting a business with family can also help with finances and is consistent with the importance of social networks in fostering entrepreneurship.

(a) Comparison of conditional means

TABLE 2 HERE

We compare the characteristics of entrepreneurs with non-entrepreneurs in Table 2. The reported figures are conditional means with the difference between entrepreneurs and non-entrepreneurs tested first by Levene's test to establish equality in variances. The Levine's test does not require the same sample sizes and works even if the normality assumption does not hold. In other words, the Levine's test uses the test statistic constructed for analysis of variance. By rejecting the null hypothesis, we can find evidence of a difference in the population variances. If the Levine's test for the equality of variances did not result in a significant *F* value, then equality of variances can be assumed. This is followed by a two-tailed t-test to confirm the ability to compare conditional means between entrepreneurs and non-entrepreneurs.

(i) Personal traits

There are no significant differences in the mean age of entrepreneurs as compared with non-entrepreneurs or in their years of education attained or marital status. The difference in years of employment experience is notable. Entrepreneurs have on average a decade less experience than non-entrepreneurs. The likely interpretation of this question in the context of China is experience in paid employment, as the "iron rice bowl" was only gradually dismantled starting in the mid 1990s, and that is what urban residents would consider when answering the question. This would suggest that entrepreneurs have around on average 10 years of experience starting their own businesses which would be consistent with China's liberalization of its wholesale and retail sectors in the early 1990s which created the opportunity to create a business in consumer goods. Finally, entrepreneurs are also more likely to have experienced being laid-off.

(ii) Social networks and Chinese Communist Party membership

The notable significant differences distinguishing the entrepreneurs from the non-entrepreneurs are in their Communist Party membership and their social networks. Whereas nearly 20% of employed persons are Party members, only 5% of entrepreneurs are members. If Party members are more likely to be allocated desirable jobs and less likely to be laid-off, then that could contribute to their lesser likelihood of leaving the more secure lifetime employment for self-employment, which is more risky. Finally, entrepreneurs have significantly more contacts in their social networks than non-entrepreneurs. The difference in the conditional mean size of their respective social networks could be important in understanding entrepreneurship.

(iii) Socio-economic background

The next set of comparisons is of socio-economic background by examining the differences in family circumstances of entrepreneurs and non-entrepreneurs. There are no significant differences except for mother's occupation. Fewer entrepreneurs have mothers who are professional or non-manual workers as compared with non-entrepreneurs, though there are no notable differences in the father's occupation or any other parental characteristic, including whether the parents were themselves entrepreneurs. Given the prevalence of state-owned sector employment in the earlier generation, it is not unexpected that there were few self-employed among the parents.[5] The importance of mother's occupation could suggest that entrepreneurs from less established backgrounds were hungrier for success and therefore pursued self-employment.

(iv) Income and attitudes

The final set of comparisons is of income and attitudes toward income and work. Entrepreneurs make nearly 30% more than non-entrepreneurs in the survey year, which is a significant difference in their conditional mean income after controlling for age, gender, education, employment experience, occupation, employment sector, and locale (cities). This is despite more entrepreneurs having experienced being laid-off, which typically reduces income upon re-employment. The survey also included recall data of annual income over the past four years. When comparing the average income from 1995-1998, entrepreneurs made more than 20% more than non-entrepreneurs. The trend confirms the higher earnings of entrepreneurs is not an one-off phenomenon. Moreover, the maximum earned income for entrepreneurs was RMB 200,000 while it was RMB 93,780 for non-entrepreneurs. Earning this income is also associated with more variability as the standard deviation of the mean annual income for entrepreneurs was 15,480 as compared with 5,980 for non-entrepreneurs.

Entrepreneurs and non-entrepreneurs have similar attitudes toward most of the usual job considerations. They both value wages, social securities, learning skills on the job, and good work conditions. However, they differ in that entrepreneurs do not worry as much about job stability or about job dignity. The attitude of non-entrepreneurs is consistent with the administered job allocation system in which the desirable jobs are in the state-owned sector and urban workers would not accept undesirable jobs outside the state sector, leaving room for migrants to enter the labor market (Knight and Yueh 2004). The self-employed are less concerned.

In terms of attitudes toward the factors which affect income, entrepreneurs and non-entrepreneurs are very similar except that entrepreneurs believe more strongly that

education is a more important determinant of earnings than before. As entrepreneurs have similar levels of education as non-entrepreneurs but are more likely to have experienced the labor market, this attitude picks up the general trend of greater reward of human capital in China (Yueh 2004; Appleton et al. 2006).

The final attitudinal question asked whether the respondent wished for his or her children to become self-employed. Interestingly, entrepreneurs differed significantly from non-entrepreneurs. Entrepreneurs were less inclined for their own children to become self-employed. This result may pick up the risks and challenges of being self-employed in the transition stage of China's economy, and perhaps also the lingering perception that state-sector employment remains the preferred sector. This is despite the incomes of entrepreneurs as significantly higher than non-entrepreneurs.

(b) Becoming an entrepreneur and having a social network

Table 3 gives the marginal effects of the likelihood of becoming an entrepreneur. We are most interested in the significance of the social network variable, having reviewed a number of factors that suggest that relationships are important in establishing self-employment.

TABLE 3 HERE

The multivariate probit regressions include independent variables which are most likely to be exogenous to occupational choice, such as gender, age, education, and socio-economic background, as well as social networks. We tested for endogeneity of social networks. The Smith-Blundell test statistic gives a Chi-squared distribution in the number of suspected endogenous variables, which was 0.0025 and had a p-value of 0.96. The null hypothesis that all of the explanatory variables are exogenous was not rejected,

and this established that the probit regression with social networks as an explanatory variable was suitable.

Our findings are generally consistent with the studies of self-employment that knowing people who are entrepreneurial or having connections increase the likelihood of entrepreneurship (see e.g., Rees and Shah 1986, Djankov et al. 2005, 2006, Zhang et al. 2006). In fact, the only variable that significantly increases the probability of becoming an entrepreneur is having a social network. The coefficients on gender and age imply that women and each year of age reduce the probability of entrepreneurship. These results mirror the findings for rural China, except that in rural China, education and parents in self-employment also influence the self-employment decision (Zhang et al. 2006). In terms of our social network variable, we find that an one person increase in the size of a social network will increase the probability of entrepreneurship by 0.03%. It is not a large effect, but the only positive one influencing entrepreneurship amongst the personal and family background traits. If a social network were to be expanded by 10 persons, then the probability of entrepreneurship rises to 0.3% and so forth.

Therefore, in China, the probability of becoming an entrepreneur is less if a woman or older, but increases if with having a social network. This finding supports our basic hypothesis that those with networks are more likely to overcome the institutional constraints in China to start a business. Those who have social networks could be more likely to attain credit, have access to suppliers and distributors, and obtain the requisite licenses to operate. The social network variable in our occupational choice regression could also pick up the economic effects of personality traits that are associated with drive for success. Indeed, entrepreneurs have larger networks than non-entrepreneurs. To

attempt to disentangle the personal motivation from the institutional factors, we will include variables for motivation and drive which is available for a sub-sample of the survey.

(c) Motivation

We have a sub-sample of around 1,500 persons who experienced unemployment during the past five years, which encompasses the large-scale SOE layoff program of the mid 1990s. They were given an additional module which gives further information about motivation and attitudes.

Moreover, despite over a quarter of the population of the entrepreneurs having experienced unemployment in our survey, entrepreneurs still earned 30% more on average than non-entrepreneurs. This is contrary to the expectation that the unemployed experience scarring and lower wages. Within this sample, 53% of entrepreneurs said that they were content with their jobs, whereas 58% of non-entrepreneurs claimed that they were content. Perhaps not being content also gives rise to motivation and drive.

TABLE 4 HERE

Table 4 gives the multivariate probit regression results for the same set of explanatory variables as Table 3 but for the sample that had experienced unemployment. The Smith-Blundell test once again confirmed that the null hypothesis that the explanatory variables are exogenous is not rejected and the probit is the appropriate form of estimation. The Smith-Blundell test statistic is 0.7051 and the p-value is 0.4011.

Equations (1)-(3) in Table 4 replicate the set of explanatory variables for the whole sample. For this sub-sample, however, the personal and socio-economic background characteristics do not explain the entrepreneurship decision. For those who

have experienced being laid-off, only social networks significantly increases the probability of becoming self-employed. In this sample, the marginal effect of social networks on entrepreneurship are nearly double that of the sample as a whole. An unit increase in the size of social networks will increase the probability of becoming self-employed by 0.07%. More entrepreneurs experienced layoff than non-entrepreneurs, so the stronger effects in the cohort of those who were unemployed is consistent.

We also estimated a fourth equation which included a number of questions which measured motivation or drive. Once again, the Smith-Blundell test statistic was 0.0086 and the p-value was 0.9263, which means that the null hypothesis that the explanatory variables in the probit regression are exogenous is not rejected.

The social network variable is again significant and its marginal effect is 0.0007, larger than in the other formulations. The motivation variable was also significant. The question asked the respondent what he or she would do to maintain household income in the long-run, and this variable reflects those who said that they would earn as much as possible and save. This answer suggests that the respondent is motivated to work and driven to seek economic opportunities. This economic motivation would be consistent with those who chose entrepreneurship with its higher rewards. Finally, the effects of the family background variables were similar to equations (1)-(3) with a few variables that have become significant such as age and the quadratic education term. And, one's mother being a professional is positively associated with entrepreneurship in equation (4). The influence of mothers in this sample could reflect an additional motivating force. When unemployed, having mothers who are professionals could stimulate drive.

The results from the sub-sample of the unemployed are largely similar to that of the whole sample. One notable difference is that being female no longer significantly reduces the probability of self-employment for those who have experienced unemployment. When forced to seek work in a labor market that is dominated by lifetime employment, gender does not seem to matter. The social network variable remains a significant determinant, and has a larger effect than in the whole sample. Again, those who must seek work are likely to become entrepreneurs if they had a social network. The stronger effect in this sample is not surprising as most of the urban workers in the whole sample are still in their first jobs and have not had the need to seek work in a labor market that is characterized by low mobility.

Finally, for this sample, we also had a set of variables that measured motivation. Having the drive to earn money is found to be a significant determinant of entrepreneurship. This is consistent with the conclusion of Djanvoc et al. (2006) that motivation and greed are important factors alongside knowing people who are entrepreneurs in determining entrepreneurship. Including the motivation variables do not reduce but rather increase the significance of the social network variable. This suggests that social networks are picking up factors other than motivation or drive, but also institutional constraints and other reasons why entrepreneurship is more likely when one has a network of contacts and relationships.

(d) Attitude toward risk

We were able to measure motivation and drive to some extent in this survey. What we do not have explicit measures of is risk. The willingness to embrace risk is

thought to be a feature of entrepreneurship. We will attempt to get at this variable through the typically used proxy, which is variability in expected income.

Recall from Table 2, and also reported in Table 5, that the mean annual income for entrepreneurs was around 9,500 RMB, which is approximately 2,000 RMB more than non-entrepreneurs. The income of entrepreneurs is associated with greater variability as the standard deviation for entrepreneurs was 15,480 as compared with 5,980 for non-entrepreneurs.

We will thus estimate the decision to become an entrepreneur to include a proxy for risk, which is the variance of income. More risk-averse people would prefer wage employment even if the rewards were smaller if the variance of the income was less. On the other hand, if entrepreneurs are risk-loving, then variability of income would not deter them. Attitude toward risk could thus be proxied by the variance of income over the past five years (see e.g., King 1974).

We have recall income data from the previous five years in this survey. Although there is concern about the reliability of recall data, our sample is of NBS survey households who are required to keep detailed records of their income and expenditure to be inspected every ten days (Appleton et al. 2005). Thus, we will use this data for the limited purpose of measuring the variance of income.

TABLE 5 HERE

Table 5 gives the descriptives of the mean incomes for entrepreneurs and non-entrepreneurs for 1995-1999. The variance of income is clearly much higher for entrepreneurs than non-entrepreneurs. Annual mean incomes are also greater for all five

years. Table 6 reports the results from including a proxy of risk in a re-estimation of equation (1).

TABLE 6 HERE

Table 6 confirms that in the baseline model, the version including social networks, and the formulation with socio-economic background variables, that the variance of income is significant and positive. The variance of income positively increases the likelihood of entrepreneurship. As a proxy for risk, this suggests that entrepreneurs are more risk-loving than non-entrepreneurs and that the variability in income increases the prospect of self-employment. The rest of the explanatory variables are virtually unchanged, implying a robustness of the results.

5. CONCLUSION

The growth of the non-state sector during China's gradual transition path has undoubtedly been a driver of economic growth. Entrepreneurship would play an important role in the development of the non-state sector. The decision to become an entrepreneur could be informed by institutional and personal factors. Institutional barriers to starting a business could include credit constraints, lack of access to supply networks, and regulatory complexity. Having a social network would help ease these constraints. Indeed, the second most important reason after having the skills to starting a business is to do so with relatives. Only around 7% of entrepreneurs had sufficient funds. Networks of relatives, friends, etc. could help ease credit constraints, improve access to supply and distribution networks, and gain the necessary licenses to operate. Becoming an entrepreneur is also likely to be associated with personal traits, such as drive or

motivation. Certainly, self-belief that one has the requisite skills as the main reason for entering into self-employment would testify to the significance of personal drive.

We investigated the traits of entrepreneurs and non-entrepreneurs in urban China. First, we compared differences in conditional means of entrepreneurs and non-entrepreneurs and found that they are largely similar in age, marital status, years and education and socio-economic background. Where they differed was in years of employment experience, being a member of the Communist Party and the size of their social networks. We also found that entrepreneurs earn on average 30% more than non-entrepreneurs, despite a greater fraction of entrepreneurs having experienced unemployment.

We also found that entrepreneurs were as concerned as non-entrepreneurs about job conditions, such as learning on the job and good work environment. However, they were significantly less concerned with job stability or job dignity. The former suggests less risk averseness, which is another trait thought to be associated with entrepreneurs. Finally, interestingly, entrepreneurs were less likely to want their own children to become self-employed. The variability of income and likely job dignity may play a role in this view, as entrepreneurs make more on average than non-entrepreneurs.

Next, we estimated multivariate probit regressions to find the determinants of entrepreneurship. We found that being female and older would reduce the likelihood, while having a social network would significantly increase the probability of becoming an entrepreneur. Education and socio-economic background were insignificant.

We next looked at a sub-sample where a member of the household had experienced unemployment. In this sample, there were questions which aimed to capture

economic motivation or drive. Social networks had a stronger effect in this cohort than in the whole sample. This is the group most likely to have had need to look for work, so it is unsurprising that there is a larger effect of networks. However, gender and age are no longer significantly negative determinants of entrepreneurship. When there is a need to work, these traits do not matter. Finally, the motivation variables suggest that entrepreneurs are more motivated to work hard and having drive significantly increases the probability of entrepreneurship. Social networks remain significant as well.

Finally, we used the variance of income as a proxy for risk to estimate whether entrepreneurs are risk-loving. For the whole sample, the variance of income significantly increases the likelihood of entrepreneurship. When the risk variable is included, the social network variable continues to be significant at the same magnitude.

We have examined entrepreneurship in China using rich data from a national household survey and found that there are notable differences between those who seek self-employment and those who do not. Entrepreneurs are more driven, motivated, more likely to be male, younger, fewer are Party members, and tend to start a business with relatives. Few have sufficient funds to start their own business, though those who do earn around 30% more than non-entrepreneurs. Entrepreneurs also have significantly larger social networks and network size is found to increase the likelihood of self-employment.

Holding constant the effects of motivation and attitude toward risk, social networks remain important. Social networks are thus likely to be useful in easing institutional barriers to entrepreneurship, while also reflecting personal motivation. Indeed, in all estimations, social networks are a significant predictor of entrepreneurship.

Therefore, we find that entrepreneurs in China are likely to have larger social networks and there is a relationship between starting a business and having the network to do so. Although we cannot disentangle the areas where social networks are most useful, it is probably due to the fact that social networks have multiple uses, both personal and professional, and this likely depends on the business and the entrepreneur. The evidence simply suggests that relationships are important in starting a business in China during a time when the legal and financial contexts are imperfect and uncertain, but economic growth is admirable.

References

Appleton, S., Song, L., & Xia, Q. (2005). Has China crossed the river? The evolution of wage structure in urban China during reform and retrenchment. *Journal of Comparative Economic: Symposium: Poverty and Labour Markets in China, 33*(4), 644-663.

Banerjee, A., & Newman, A. (1993). Occupational choice and the process of development. *Journal of Political Economy*, *101*(2), 274-298.

Bian, Y. (1994). *Guanxi* and the allocation of urban jobs in China. *The China Quarterly, 140*(December), 971-999.

Blanchflower, D.G., & Oswald, A.J. (1998). What makes an entrepreneur? *Journal of Labor Economics*, *16*(1), 26-60.

Djankov, S., Miguel, E., Qian, Y., Roland, G., & Zhuravskaya, E. (2005). Who are Russia's entrepreneurs? *Journal of the European Economic Association*, *3*(2-3), 587-597.

Djankov, S., Qian, Y., Roland, G., & Zhuravskaya, E. (2006). Who are China's entrepreneurs?" *American Economic Review Paper and Proceedings, 96*(2), 348-352.

Fan, G. (1994). Incremental change and dual-tack transition: Understanding the case of China. *Economic Policy, 19*(Supp.), 100-122.

Frye, T., & Zhuravskaya, E. (2000). Rackets, regulation and the rule of law. *Journal of Law, Economics and Organization*, *16*(2), 478-502.

Glaeser, E.L., Laibson, D., & Sacerdote, B. (2002). An economic approach to social capital. *The Economic Journal*, *112*(483), 437-458.

King, A.G. (1974). Occupational choice, risk aversion, and wealth. *Industrial and Labor Relations Review*, *27*(4), 586-596.

Knight, J., & Yueh, L. (2004). Job mobility of residents and migrants in urban China. *Journal of Comparative Economics*, *32*(4), 637-660.

Mohapatra, S., Rozelle, S., & Goodhue, R. (2007). The rise of self-employment in rural China: Development or distress? *World Development*, *35*(1), 163-181.

Oi, J.C. (1999). *Rural China takes off: Institutional foundations of economic reform.* Berkeley: University of California Press.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, *24*, 1-24.

Rees, H., & Shah, A. (1986). An empirical analysis of self-employment in the U.K. *Journal of Applied Econometrics*, *1*(1), 95-108.

Smith, R.J., & Blundell, R.W. (1986). An exogeneity test for a simultaneous equation Tobit model with an application to labor supply. *Econometrica*, *54*(4), 679-686.

Staiger, D., & Stock, J.H. (1997). Instrumental variable regression with weak instruments. *Econometrica*, *65*(3), 557-586.

Yueh, L. (2004). Wage reforms in China during the 1990s. *Asian Economic Journal, 18*(2), 149-164.

Zhang, J., Zhang, L., Rozelle, S., & Boucher, S. (2006). Self-employment with Chinese characteristics: The forgotten engine of rural China's growth," *Contemporary Economic Policy, 24*(3), 446-458.

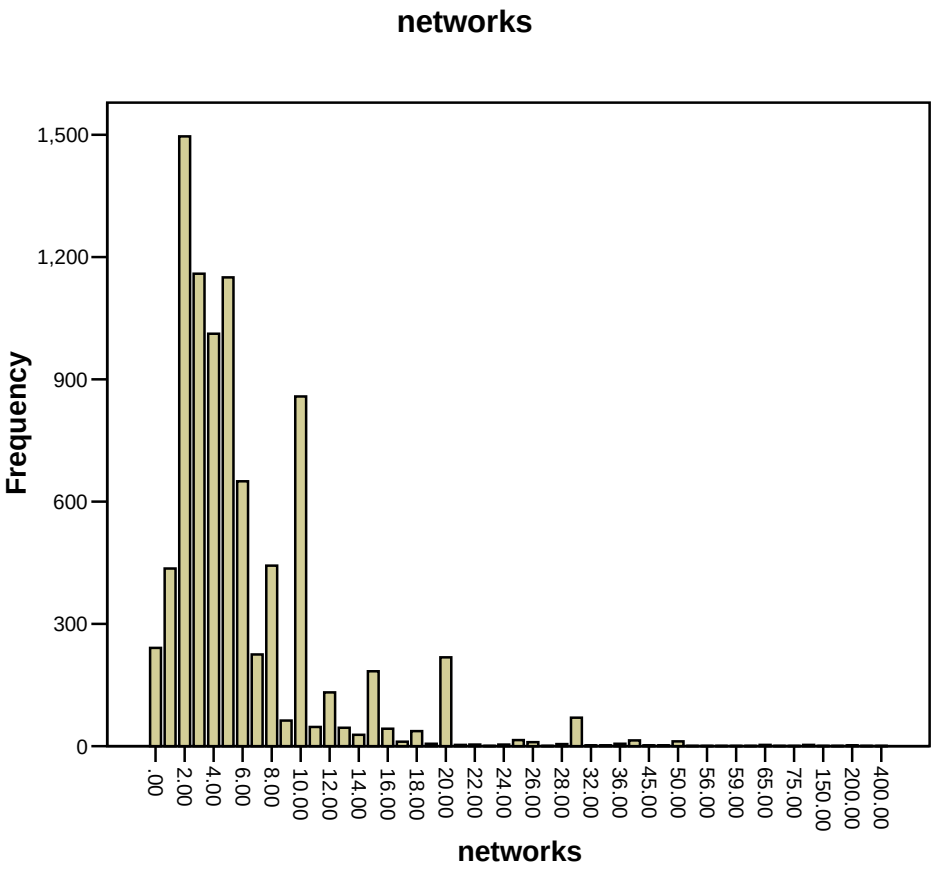
networks
Frequency
1,500
1,200
900
600
300
0
.00
2.00
4.00
6.00
8.00
10.00
12.00
14.00
16.00
18.00
20.00
22.00
24.00
26.00
28.00
32.00
36.00
45.00
50.00
56.00
59.00
65.00
75.00
150.00
200.00
400.00
networks

Figure 1

Table 1
First Stage Regression Results for Instrumental Variable Approach
(t-statistics)

Dependent variable: Social Network	
Gifts given in the survey year	0.0003 (2.05)**
F(17, 2983)	17.18***
Anderson test	8.252***
Hansen's J statistic	0.00***
Number of observations	2984

Notes: 1. Only the coefficient of the excluded instrument is reported. The full set of independent variables is the same as in Table 3.
2. Robust standard errors adjusted for clustering at the household level are computed.
3. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 2
Differences between Entrepreneurs and Non-Entrepreneurs

Personal characteristics	**Entrepreneurs**	**Non-entrepreneurs**	**Mean difference**	**Significance of t-test**
Age	36.2	37.2	-1	Insignificant
Years of employment experience	12.9	22.6	-9.7	***
Experienced layoff	26.6%	19.2%	0.07	***
Years of education	9.2	9.4	-0.2	Insignificant
Gender	55.7% male 44.3% female	49.7% male 51.3% female	0.006	***
Marital status	83.4% married	84.2% married	-0.08	Insignificant
Communist Party member	5.1%	17.7%	-0.12	***
Social Network (size)	*8.2*	*6.2*	*2*	***
Socio-economic background				
Father's education (years)	5.4	5.2	.2	Insignificant
Mother's education (years)	6.0	5.9	0.1	Insignificant
Father is Party member	26.5%	34.2%	-0.08	Insignificant
Mother is Party member	8.7%	10.8%	-0.02	Insignificant
Father is self-employed	3.9%	2.8%	0.01	Insignificant
Mother is self-employed	1.7%	1.8%	-0.001	Insignificant
Father is non-manual worker	22.3%	28.4%	-0.06	Insignificant
Mother is non-manual worker	8.1%	13.7%	-0.05	**
Income and attitudes				
Annual income (RMB)	9526	7429	2097	***
Average income (RMB), 1995-1998	6474	5365	1109	***
Main considerations when choosing a job (answers are ranked 1-4 with 4 being very				

important and 0 as unimportant:				
Wage level	3.6	3.6	0.2	Insignificant
Social security provision	3.2	3.3	-0.1	Insignificant
Job stability	3.3	3.5	-0.2	*
Work condition	2.7	2.8	-0.1	Insignificant
Being able to learn skills	2.9	2.9	-0.06	Insignificant
Job dignity	2.0	2.1	-0.1	**
Have the importance of the following factors that influence household income changed compared with before? Answers are (1) decreased; (2) unchanged; (3) increased				
Education	2.3	2.2	0.1	*
Political status	2.1	2.1	0.04	Insignificant
Rank of work unit	2.1	2.1	0.07	Insignificant
Social connections	2.2	2.2	0.004	Insignificant
Local urban *hukou* (household registration system)	1.9	1.9	0.003	Insignificant
Do you hope that your children will become self-employed? Answers are ranked 1-4, where 1 indicates no and 4 is very much.	1.9	2.2	0.3	***

Note: 1. This table uses a two-tailed t-test for the equality of conditional means. Levene's test for equality of variances is applied first, followed by the t-test.
2. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 3
Determinants of Entrepreneurship, Probit Regression, Marginal Effects
(z-statistics in parentheses)

Dependent variable: 1 if entrepreneur 0 if non-entrepreneur	Baseline Model (1)	Social Networks (2)	Social Networks and Family Background (3)
Personal characteristics			
Gender	-0.0062 (-2.40)***	-0.0063 (-2.23)***	-0.0064 (-2.26)***
Age	-0.0009 (-5.77)***	-0.0013 (-5.98)***	-0.0015 (-6.35)***
Education, in years	-0.0016 (-0.51)	-0.0038 (-0.97)	-0.0041 (-1.07)
Education squared	-0.0001 (-0.73)	-0.0000 (-0.09)	0.0000 (0.09)
Social Network	---	**0.0003 (2.37)*** **	**0.0003 (2.29)*** **
Socio-economic Background			
Father's education			-0.0002 (-0.16)
Mother's education			0.0025 (1.43)
Father is a non-manual worker			0.0061 (1.12)
Mother is a non-manual worker			-0.0037 (-0.86)
Father is a Communist Party member			-0.0047 (-1.27)
Mother is a Communist Party member			0.0019 (0.29)
Cities	Yes	Yes	Yes
Wald χ^2 (16)	85.66***		
Wald χ^2 (17)		86.58***	
Wald χ^2 (23)			90.51***
Pseudo R^2	0.0521	0.0649	0.0713
Number of observations	8509	6875	6714

Notes: 1. Omitted dummy variables for equations (1) and (2) are: male, Pingliang. For equation (3), they are male, Pingliang, father is a manual worker, mother is a manual worker, father is not a Communist Party member, mother is not a Communist Party member.

2. Robust standard errors adjusted for clustering at the household level are computed.

3. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 4
Entrepreneurship, Unemployed Sample, Probit Regression, Marginal Effects
(z-statistics in parentheses)

Dependent variable: 1 if entrepreneur 0 if non-entrepreneur	Baseline Model (1)	Social Networks (2)	Social Networks and Family Background (3)	Social Networks, Family Background, and Drive (4)
Personal characteristics				
Gender	-0.0102 (-1.22)	-0.0083 (-0.91)	-0.0078 (-0.85)	-0.0038 (-0.30)
Age	-0.0011 (-1.63)	-0.0010 (-1.33)	-0.0008 (-1.03)	-0.0018 (-1.74)*
Education, in years	0.0084 (0.59)	0.0184 (1.06)	0.0216 (1.24)	0.0376 (1.52)
Education squared	-0.0005 (-0.75)	-0.0011 (-1.36)	-0.0013 (-1.55)	-0.0022 (-1.83)*
Social Network	**---**	**0.0005 (4.50)*****	**0.0005 (3.88)*****	**0.0007 (3.97)*****
Socio-economic Background				
Father's education			-0.0020 (-0.47)	0.0029 (0.55)
Mother's education			0.0025 (0.47)	0.0022 (0.30)
Father is a non-manual worker			0.0063 (0.40)	0.0160 (0.88)
Mother is a non-manual worker			0.0237 (1.64)	0.0409 (1.92)*
Father is a Communist Party member			0.0007 (0.05)	-0.0105 (-0.72)
Mother is a Communist Party member			-0.0031 (-0.15)	0.0301 (1.33)
Drive and Motivation: Do you agree or disagree with the following statements, in order to ensure a stable household standard of living in the long run?				
Don't want to do much apart from				0.0213 (1.49)

follow the crowd.				
Don't want to do much now that the government won't let us die of starvation.				0.0002 (0.01)
Try to improve my abilities to be more competitive.				-0.0219 (-0.95)
Earn as much as possible while working in order to save for the future.				0.0327 (1.93)*
Cities	Yes	Yes	Yes	Yes
Wald χ^2 (14)	27.08***			
Wald χ^2 (15)		46.49***		
Wald χ^2 (21)			52.94***	
Wald χ^2 (24)				77.21***
Pseudo R^2	0.0462	0.0594	0.0647	0.1177
Number of observations	1411	1222	1186	590

Notes: 1. Omitted dummy variables for equations (1) and (2) are: male, Pingliang. For equation (3), they are male, Pingliang, father is a manual worker, mother is a manual worker, father is not a Communist Party member, mother is not a Communist Party member. For equation (4), they are the same as equation (3) and all of the disagree answers to the motivation questions.

2. The dummy variables for the cities, Shenyang and Nanjing, were dropped from the estimation as they predicted failure perfectly. In equation (4), Kaifeng was also dropped.

3. Robust standard errors adjusted for clustering at the household level are computed.

4. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

Table 5
Descriptives of Mean Annual Income, 1995-1999, in RMB

	1995	1996	1997	1998	1999
Entrepreneurs					
Mean Income	5921	6402	6607	6966	9526
Standard Deviation	8144.705	8356.797	8083.118	7891.365	15479.72
Variance	66336220	69836056	65336797	62273642	239621731
Maximum	70,000	60,000	55,000	50,000	200,000
Non-entrepreneurs					
Mean Income	4674	5062	5538	6183	7429
Standard Deviation	4241.766	4487.486	4741.892	6025.856	5904.999
Variance	17992579	20137531	22485540	36310941	34869013
Maximum	85,000	97,000	120,000	175,000	93,780

Table 6
Determinants of Entrepreneurship, Probit Regression, Marginal Effects
(z-statistics in parentheses)

Dependent variable: 1 if entrepreneur 0 if non-entrepreneur	Baseline Model (1)	Social Networks (2)	Social Networks and Family Background (3)
Personal characteristics			
Gender	-0.0059 (-2.28)**	-0.0059 (-2.10)**	-0.0060 (-2.13)***
Age	-0.0009 (-5.78)***	-0.0013 (-5.95)***	-0.0015 (-6.35)***
Education, in years	-0.0014 (-0.45)	-0.0036 (-0.90)	-0.0038 (-0.99)
Education squared	-0.0001 (-0.79)	-0.0000 (-0.16)	2.52E-06 (0.01)
Social Network	---	**0.0003** **(2.37)*** **	**0.0003** **(2.29)*** **
Variance of Income	1.95E-11 (2.91)***	1.98E-11 (2.78)***	2.10E-11 (3.00)***
Socio-economic Background	No	No	Yes
Cities	Yes	Yes	Yes

Notes: 1. The full specification is the same as Table 3, but for the addition of the risk proxy variable. Only the coefficients of interest are reported.
2. Robust standard errors adjusted for clustering at the household level are computed.
3. *** indicates significance at the 1% level, ** at the 5% level, and * at the 10% level.

[1] Networking and *guanxi* were found to be important under the administered economy as well (see e.g., Bian 1994).

[2] We also regressed social networks on entrepreneurship and a full set of explanatory variables, and found that entrepreneurship is not a significant determinant of social networks, making reverse causality less likely.

[3] Working-age individuals are defined as those aged 19-55 in consideration of the different retirement ages for men and women and the proportion of full-time students.

[4] The remaining 27% chose "other." As this was during the period of the *xiagang* policy where there were large-scale layoffs in the SOE sector, it is likely that some became self-employed or more likely small goods peddlers out of necessity.

[5] Knight and Yueh (2004) find that 78% of urban residents in the late 1990s were still in their first allocated jobs.