

Firm Performance, Government Regulation and Managerial Effort: Evidence from China

Dongxu Wu ^a, and Zhongmin Wu ^b *

^a Investment & Strategy at Razor Group, Germany.

^b Nottingham Business School, Nottingham Trent University, UK.

ABSTRACT:

Using most recent data from the World Bank Enterprise Survey for China, this research shows that ownership structure has a significant impact on firm performance and firm characteristics. Our results show the importance of getting to grips with government regulation, as the time spent by senior management dealing with government regulation is the most significant independent variable. Another key finding of this paper is that China has very good economic institutions that are conducive to doing business. It is far easier to conduct business in China than the other BRIC countries. We conclude that partial privatisations of SOEs on its own is unlikely to bring huge gains in efficiency. Reforms must also include better incentives and monitoring of management. Our findings are robust and consistent to various controls, alternative measures of firm performance, and different estimation methods including quantile regression.

Keywords: Firm Performance; Government Regulation; Managerial Effort; Ownership Types

JEL classification: D21, G38, L25, O43

* Corresponding author, Zhongmin Wu, Associate Professor in Economics, Nottingham Business School, Nottingham Trent University, email: zhongmin.wu@ntu.ac.uk.

INTRODUCTION

This research aims to increase understanding of how firms under different ownership structures respond to business variables and constraints. Our research uses the most recent data available from the World Bank Enterprise Survey for China to determine firm performance among different ownership types. The results from our research can be used for policy makers in constructing effective industrial strategies.

We construct separate models for state owned enterprise, private foreign owned enterprises and private domestic owned enterprises in order to determine the most effective policy for each ownership type. Researching the differences in ownership is crucial. State owned enterprise, private foreign owned enterprises and private domestic owned enterprises face very different constraints and incentives (Peng, Li, Xie, & Su, 2010; Wang & Judge, 2012; Zhang, & Liu, 2017).

The collapse of Socialism in the Soviet Union appeared to offer conclusive evidence that state owned enterprises are inherently inefficient, but the rise of China and the surprising durability of its mammoth state-owned enterprises have renewed interest in this once niche topic. Despite the government's intention of letting the market play a "decisive role" in the economy, state owned enterprises will still form a central pillar of China's industrial strategy. Other countries are also increasingly pursuing their own industrial policies, such as Germany's much praised Industry 4.0. As part of the plan for post-Brexit Britain, the UK government has spearheaded a new "modern industrial strategy" and published a Green Paper, "Building our Industrial Strategy" on 23 January 2017. At its core, the UK government wants to understand what role it should play in fostering firm performance and productivity growth in commercial enterprises and how to help them develop into the next global success story, such as Arm Holdings.

The impact of institutions and regulation on economic development is critical for all countries, but particularly developing or emerging economies. The ultimate purpose of our proposed research is to inform public policy concerning the role governments can play in fostering firm performance and productivity growth. Through data disaggregation and segmentation, we control for different ownership types, thus yielding results that are more accurate and relevant.

The remainder of this paper is organized as follows. Section 2 is the literature review. Section 3 presents the data. The empirical results are provided and discussed in Section 4. Section 5 concludes and suggests further research.

THEORETICAL BACKGROUND

Ownership structures.

In July 2017, the State Council of China announced that all big state enterprises under direct control of the central government must become joint-stock companies by the end of 2017. It is seen as preparation for substantial reforms in the future. Private investors have been encouraged to take minority stakes in state owned enterprises as China pushes ahead with plans for mixed ownership. Over the last several years, China has experimented with mixed ownership, state asset investment holding groups, salary controls and merging SOEs in similar industries. By the time the State-owned Assets Supervision and Administration Commission (SASAC) was set up in 2003, the number of central- government-owned firms had fallen to 196, mainly concentrated in a few sectors like finance, telecommunications, defence, energy, materials and automotive equipment. Currently the central government owns and administers 101 enterprises in sectors ranging from nuclear technology to medicine.

In the coming years, we are likely to see major reforms of SOEs. There have been numerous studies on state owned enterprises (SOEs) of China (Zou & Adams, 2008; Carney, Shapiro & Tang, 2009; Li, Guo, Yi, & Liu, 2010; Holz, 2011; Choi, Lee & Williams, 2011; Cui & Jiang, 2012; Wang & Judge, 2012; Rong, Wu, & Boeing, 2017; Peng, Bruton, Stan, & Huang, 2016; Li & Xia, 2007). Kou and Kroll (2017) find that state ownership inhibits innovative activities, a result which is in line with most previous studies. This result can be applied to labour productivity growth. Companies that are not innovative are also unlikely to increase labour productivity.

The debate concerning SOEs is not one sided. There are strong theoretical foundations in favour of SOEs (Blanchard & Shleifer 2001; Qian 2003; Ralston, Terpstra-Tong, Terpstra, Wang, & Egri, 2006; Tian & Estrin 2008). At its core, the argument made in favour of SOEs is the same one made for merit goods, namely, when left to its own devices, the free market does not provide an efficient quantity due to the existence of positive externalities. The obvious example is infrastructure. In the last 10 years, Chinese SOEs have built more high-speed railway lines than the existing infrastructure in the rest of the world combined. To judge the success or failure of SOEs purely from their financial statements would be a mistake. The new infrastructure provides immeasurable benefits to both other firms and citizens, and such positive externalities are not reflected in the Income Statement of the SOEs constructing the infrastructure. In other countries, it would have taken many decades to plan, contract and sub-contract and then to build such a network.

Examples of positive externalities in the literature include Lin, Cai, & Li (1998, 2003). Holz (2002, 2003, & 2011) finds that for industrial firms, SOE's exhibit the greatest profitability out of all ownership types, after controlling for circulation taxes and capital intensity. Counter examples that highlight negative externalities include Brandt and Zhu (2000, 2001, & 2010) showing SOEs leads to cycles of growth and inflation for the economy.

It is also important to emphasize the non-economic studies. One of the criticisms often levelled at economists is that there is too much focus on models and statistics and not enough emphasis on what is happening on the ground. It is widely perceived in China that some SOEs are managed by well-connected but low ability individuals; are riddled by corruption and inefficiency; provides poor service and uses outdated systems. A job in an SOE is often seen as low pressure and easy work with no overtime.

In theory, different ownership structures should result in differing levels of firm performance and productivity growth. The existing research is mostly qualitative and lacks the rigour of modern quantitative analysis in determining the cause of the differing levels of firm performance and productivity efficiency between different ownership structures (Li and Lu 2014). Although some studies have indicated that state-owned enterprises are more innovative than private enterprises, most research concludes that state-owned enterprise innovation and productivity efficiency is lower than that of private enterprises (Choi et al 2011, Li and Song 2010).

Institutions of China.

An important aspect of our dataset is the many questions related to the ease of doing business in China. Taken together, they reflect the institutions that exist in China. Many studies have shown that institutions are key to firm performance (Kinda, Plane, & Véganzonès-Varoudakis, 2015; Estrin & Prevezer, 2011; Chen, 2015; Yi, Hong, Hsu, & Wang, 2017; Chang & Wong, 2004; Omran, 2004; Peng, Wang & Jiang, 2008). However, the performance of the Chinese economy over the last three decades appears to contradict the universally accepted wisdom that institutions are essential to economic development (Lu, Png, & Tao, 2013), as China is often perceived to have poor institutions. Protection of private

property was only written into China's Constitution in 2004 (Economist, March 15, 2008). There has been clearly a radical and impressive transformation underway in terms of intellectual property protection—with development of special courts—at least for Chinese innovators. Using data from the World Bank Enterprises Survey, Lu, et al. (2013) find that property rights protection has a positive and statistically significant impact on enterprise productivity.

Entrepreneurship and innovation are critical for economic development (Baumol 1968). Nee and Young (1991) finds an inverse relationship between entrepreneurial activity and cadre activity in villages. They argue that direct bureaucratic micro-interventions, discourages entrepreneurship.

McMillan and Woodruff (2002) argue that enterprises require more from the state than the absence of interference. They find evidence that new firms grew more quickly in China than Russia, as the Chinese government engaged in more pro-business activities. He (2009) argues that government policies can promote and encourage the right forms of entrepreneurship, which are critical to long term economic development.

Questions have been raised about China's ability to innovate. Abrami, Kirby, & McFarlan (2014) conclude that the problem is not the inherent innovative capacity of the Chinese people, but the political constraints that the Chinese people faces. However, a growing body of evidence suggests this is not the case. For the past five years, China has filed more patent applications than any other country. China is now home to four of the world's ten largest internet and technology companies. China now outspends the US in late-stage research and development. The U.S. and other countries have seen a flurry of apps that are inspired by Chinese apps such as Meitu. Apple and Facebook are remoulding their messaging apps in the image of China's WeChat.

Such rampant innovation has translated into company valuations. The first eight months of 2017 saw 41 global technology companies reaching unicorn status, according to data intelligence platform CB Insights. Fifteen are from China, while the whole of Europe managed just five. China's growth is astonishing. In 2014, China only had 8 unicorns, by mid-2017, the number went up to 56; while Europe only has 23. Simply put, there appears to be too much evidence countering the claim that China's institutions restrict innovation and entrepreneurship. Indeed, the evidence points to exactly the opposite.

Government regulation.

Most of modern economics is the study of the role of the government in the economy. The debate about the degree of which government intervention is needed is as old as macroeconomics itself. A sub-branch of macroeconomics studies the role of government regulation on labour productivity. Looking at data for 450 manufacturing industries in the US between 1958 and 1978, Gray (1987) finds a large, negative relationship between worker health and safety regulation, and productivity growth. Gray (1987) estimates that about 30 percent of the decline in productivity growth in manufacturing during the 1970's in America may be attributed to such regulation. Most of the literature on the relationship between labour market regulation and productivity growth agrees with Gray (1987) and concludes that the net effect of regulation on productivity growth is negative (Storm, & Naastepad, 2009; Autor, Kugler, & Kerr, 2007).

Another school of thought argues that labour market regulation raises labour costs, which will raise labour productivity growth (Storm, & Naastepad, 2009; Autor et al. 2007). Based on cross-country regression analysis for twenty OECD countries (1984–2004), Storm and

Naastepad (2009) find that labour productivity growth is higher in countries with relatively regulated labour markets.

The premise of our research does not directly assess the impact of government regulation on labour productivity. What our research shows, which is unique, is the cost and effect of complying with government regulation. The variable “management time spent dealing with government regulation” offers a valuable real-life insight into the complexity of countries’ regulations.

Our research will systematically and quantitatively determine the differences in firm performance and productivity characteristics among state owned enterprise, private foreign owned enterprises and private domestic owned enterprises. We will use World Bank Enterprise Survey data to explore the role of government in fostering firm performance and productivity growth.

DATA AND METHOD

We use data from the World Bank Enterprise Survey for China in 2012. Currently there are only two waves of data available for China from the World Bank Enterprises Survey, one in 2012 and another one in 2005. This dataset is recognised as the most comprehensive data on Chinese enterprise (Huang, Salike, Yin, & Zeng 2017). The data in 2012 was collected in China between December 2011 and February 2013. A total of 2,700 firms in the main sample (111 with state shareholding, 164 with foreign shareholding) were successfully interviewed over this period. A special sample of 148 firms (112 with state shareholding, and 2 with foreign shareholding) was included as SOEs are an important part of the economy of China (World Bank, 2017).

The sample for China was selected using stratified random sampling with the surveys implemented following a two-stage procedure. In the first screening stage, a questionnaire was conducted over the phone to determine eligibility; in the second stage, a face-to-face interview took place (World Bank, 2017).

Each company report on their ownership providing details on the percentage split of ownership between “private domestic individuals, companies or organizations”, “private foreign individuals, companies or organisations”, “Government or State, and “Other” (World Bank 2017). The total always comes to 100%. From this, we formed four distinct ownership groups, namely majority state ownership (51%-95%), full state ownership (100%), private foreign ownership (100%), and private domestic ownership (100%). There are no companies where state ownership was between 96-99% in the sample; hence, for state majority ownership we only went up to 95%. There are 16 samples where “Other ownership” was the majority shareholder; these were excluded, as they are a very small sample. For companies with some private domestic ownership, the vast majority has full private domestic ownership. Regression results were also more significant with just the 100% private domestic ownership than when including companies with majority though not full private domestic ownership (51%-95%). Therefore, we chose full private domestic ownership (100%) as a group. The same argument also applied to full private foreign ownership (100%). We sacrificed a limited number of samples to obtain results that are more significant. The exclusion is justifiable as the samples excluded have complex ownership structures, which do not add to our understanding of the topic in discussion in this paper.

Table 1 provides an explanation of the variables used in the model. Our dependent variables are representative for firm performance. The measure of firm performance we adopt in this paper is labour productivity growth and real annual sales growth. Labour productivity growth and real annual sales growth are not only two of the five measures of performance

provided by the World Bank Enterprise Survey (2017), but they also incorporate one of the other measures in annual employment growth. The remaining two measures are capacity utilization, which is only available for manufacturing firms; and percent of firms buying fixed assets, which is not a standard performance measure. Annual labour productivity growth is measured as the percentage change in labour productivity between the last fiscal year and the previous period. Labour productivity is measured as sales divided by the number of full-time permanent employees. An alternative measure is real annual sales growth, which is measured as a percentage change in sales (World Bank, 2017). Our key explanatory variable is Government Regulation, which is senior management's time spent on dealing with government regulations. All other variables are independent variables.

(Insert table 1 about here)

RESULTS AND DISCUSSION

Table 2 provides descriptive statistics. It shows the variable means split by ownership type. The purpose of this paper is to compare the four different ownership types: majority state ownership, full state ownership, full private foreign ownership, and full private domestic ownership. A key independent variable is government regulation, namely the average percentage of senior management's time that is spent dealing with government regulations. Private foreign ownership is the highest at 1.62% followed by full state ownership at 1.30%. It has been well documented that China, similar to elsewhere, has various regulations dealing with private foreign ownership. Private foreign owners are also less familiar with Chinese laws hence the need to spend more time on them.

(Insert table 2 about here)

The variable means for tax rates show firms identifying tax rates as an obstacle, from “no obstacle” (rating of 0), minor obstacle (rating of 1), moderate obstacle (rating of 2), major obstacle (rating of 3), to “very severe obstacle” (rating of 4). In a sign of the ease of doing business in China, the highest rating was 1.13 from private foreign ownership, while the lowest was majority state ownership at 0.40. All groups were unanimous in finding Chinese tax rates as no obstacle or minor obstacle in doing business. The variable informal competitor shows to what degree practices of competitors in the informal sector are an obstacle to operations, with ratings ranging from 0 to 4. Here again is an example of the ease of doing business in China. All four groups reported numbers below 1. The highest was private domestic ownership at 0.89, while the lowest was majority state ownership at 0.47. Finance obstacle, measures firms identifying access/cost of finance as a "major" or "very severe" obstacle, with ratings from 0 to 4, yields interesting and surprising results. It shows majority state ownership noticeably below the other ownership types with an average score of 0.33 while the others were 0.70 – 0.82. What is surprising is that full state ownership did not result in a score significantly below private ownerships. Anecdotally, we hear many complaints about SOEs taking all the loans from SOE banks, and that it is difficult for small private enterprises to get loans. Another variable is the customs & trade, which shows to what degree is Customs and Trade Regulation an obstacle to the current operations of this establishment. Private foreign ownership companies reported the most obstacles at 0.41. However, 0.41 is still very low as it is in between no obstacle and minor obstacle.

The variable means for tax inspection provides interesting results. The variable tax inspection shows that over the last year, what percentage of respondents was visited or inspected by tax officials. Majority government ownership is significantly below the rest at 23.9%. The others were 67.4% - 72.1%. Variable “domestic sales” shows the proportion of total sales that are domestic sales. What is interesting here is that despite a reputation as the

workshop of the world, Chinese owned companies generate a very small proportion of their revenue from abroad. Irrespective of private or state owned, over 90% of sales come from domestic purchases. For foreign owned companies, this number is 61.1%. This result has important policy implications especially under the current environment of American protectionism. Imposing tariffs on Chinese exports will disproportionately harm foreign companies and their investors.

Collectively, the results from table 2 show that China has a great environment to conduct business. There is not a single variable where the mean of respondent's reply was above "minor obstacle". Indeed, most of the means were in between "no obstacle" to "minor obstacle". The biggest impediment appears to be tax rates. Collectively, the result is strong evidence in support that China has good institutions that are conducive to doing business. Table 2 also provides support for the notion that different ownership structures result in significantly differing levels of firm attributes as seen in responses to government regulations, tax rate, informal competitor, finance obstacle, labour law, tax inspection, and domestic sales.

Table 3 provides an international comparison. We compare China to the other BRIC countries of Brazil, Russia and India. For all four countries, we use the average of all firms. We do not segment by ownership type. The government regulations variable provides very strong evidence of the ease of doing business in China. The average percentage of management time spent in dealing with requirements of government regulation is only 1.3% in China, whereas it is 4.3% in India, 15% in Russia and 18% in Brazil. These are tremendous differences. When company management devotes time to regulation, they have less time for managing the company.

(Insert table 3 about here)

The results show that tax rates are a major or moderate obstacle to conducting business in the other BRIC countries but only a minor/no obstacle for doing business in China. For business licensing/permits as an obstacle to doing business, China again scored better than the other BRIC countries. China is often perceived as safer than most countries and indeed China has the best score for theft and disorder as an obstacle to the conduct of business. What is noticeable is how badly Brazil fared on this measure, with the average score approaching “major obstacle”. A similar story is found in informal competitor, though this time, China scored marginally worse than Russia. We know that financing is key to firm development, and therefore finance obstacle is a major constraint. For this measure, China again scores better than the other countries. In the ultra-low interest environment, Russia and India scored well too. With China’s much-admired infrastructure, China scored significantly better than the other three countries for this constraint. In addition, on customs & trade, China scored better than the other countries. The last variable to be brought to attention is labour law obstacle, where China did slightly better than Russia, and significantly better than Brazil and India.

China is also substantially above the other countries in obtaining internationally recognised quality certifications; indicating that Chinese companies are more globally competitive and produce higher quality goods and services. Given China’s far superior economic performance relative to the other BRIC nations over the last four decades, it is not surprising that China would score better than the other countries in these institutional and ease of doing business measures. What is surprising is the magnitude and uniformity of China’s advantage over the other countries. It performed significantly better in almost every single measure.

Collectively, these results provide unanimous support for the success of Chinese economic institutions. It is far easier to conduct business in China than the other BRIC

countries, which is one of the reasons why China has been a top destination for foreign investment over the last two decades. We can therefore conclude that China does indeed have very good institutions that facilitate the conduct of business.

Table 4 is the results of OLS regression with labour productivity growth as the dependent variable. Grolleau, Mzoughi, & Pekovic (2015) use similarly method for the study of Labour productivity. Government regulation is the most significant variable, as it is significant for all the four ownership types. The output from our model demonstrates the importance and benefits of senior management spending time dealing with government regulations. This result shows that dealing with government regulation is important in promoting labour productivity growth in China. Interestingly, although government regulation is significant at the 1% level for state and foreign ownerships, it is only significant at 10% for private domestic ownership. We have also estimated our model for other BRIC countries, using the data from World Bank Enterprise Survey most recent data for Brazil in 2009, Russia in 2012, and India in 2014 (results available upon request). The variable government regulation is not significant, as most of their firms are private owned enterprises.

(Insert table 4 about here)

As for the other independent variables, Informal Competitor, which shows to what degree practices of competitors in the informal sector are an obstacle to operations, is positive and significant for majority state ownership and private domestic ownership. This result is likely due to increased competition spurring on efforts to increase productivity. Labour law shows the degree labour regulations are an obstacle to the operations of this firm. Unsurprisingly, this variable is negative for all four ownership types and it is significant for three ownership types. Firms that cite they are constrained by labour laws are thus more likely to suffer falls in productivity growth.

Quality certification, which shows the effect on labour productivity growth from having an internationally recognized quality certification, i.e. ISO 9000, 9002 or 14000, is positive and significant for full state ownership. This result is probably because SOEs, which acquire such certification, are more likely to be professionally managed. Due to the low level of subscribers, Wamboye, Adekola, & Sergi (2016) find that the number of Internet users exhibits neutral effects on productivity growth. However, our results show that using website does not positively contribute to productivity growth.

Loans, which shows whether the establishment have a line of credit or a loan from a financial institution is positive and significant for private domestic ownership, which is evidence of credit constraint in China. Private companies having loans increases the productivity of workers compared to companies which do not have loans. Domestic sales are negatively significant for private domestic ownership, which means that having a higher portion of sales as exports leads to increases in labour productivity. Firms that are internationally competitive are more likely to be innovative and strive for greater productivity.

Manager experience is positive and significant for private domestic ownership. This result follows standard human capital theory and consistent with other research for China (Mishra, & Smyth, 2013). The reason it is not significant for government owned SOEs is likely that these managers are skilled in politics rather than running companies. Interestingly, it is also not significant for private foreign owned companies. A high proportion of these private foreign owned companies have non-native Chinese as managers. Their years of experience abroad may not help them in China.

The results from the regression analysis offers strong support for the hypothesis that different ownership structures result in differing levels of firm performance and productivity growth.

We have conducted robustness checks, by using annual sales growth as dependent variable (see Table 5). Clearly, our earlier findings regarding some important variables, such as government regulation, are consistent and robust to this new alternative dependent variable.

(Insert table 5 about here)

In order to estimate our model, there is the need to consider the possible endogeneity that may be present in the regression. In our model, we cannot identify any variable that could be endogenous. Self-selection bias is another problem for the survey data. We use Heckman two-stage method to check the result but no self-selection bias was detected.

Following research work on labour productivity by Lu et al. (2013) and Mueller (2015), in further robustness checks, we estimate our model using quantile regression, which are more robust to deal with possible impact of outlying observations. Different measures of central tendency and statistical dispersion in quantile regression obtain a more comprehensive analysis of the relationship between variables (Adelfio, Boscaino, & Capursi, 2014). Tables 6 and 7 presents the results by quantile regression. Clearly, Tables 4, 5, 6 and 7 together show our empirical results are robust and consistent.

(Insert table 6 about here)

(Insert table 7 about here)

CONCLUSIONS

The results show that ownership type has a significant impact on the firm's characteristics. There is a clear difference in the modus operandi between full state-owned firms, majority state owned firms, private domestic owned firms and private foreign owned firms. The results also show the importance of getting to grips with government regulation, as the time spent by senior management dealing with government regulation is the most significant independent variable.

It is well known that the Chinese government played a pivotal role in the Chinese economic miracle over last 40 years. Our empirical results confirm the critical role the Chinese government plays in the economy and shed light on the institutions and business constraints in China, not only for State owned enterprises, but also for private foreign owned enterprises.

The key finding of this paper is that contrary to popular perception, China has very good institutions that are conducive to doing business. Companies, irrespective of ownership type, face minor or no constraints. There is not a single business constraint where the mean of respondent's reply was above "minor obstacle". Indeed, most of the means are in between "no obstacle" to "minor obstacle". The biggest impediment appears to be tax rates. Not only are the absolute levels of constraints low, it is also relatively low compared to the other BRIC countries. This outperformance in institutions certainly in part explains China's far superior economic development vis-à-vis the other BRICs. Collectively, our results show that China has a great environment to conduct business.

China has relatively straightforward regulations for business as evidenced by the relatively low amount of management time dedicated to dealing with government regulation. Although our research cannot offer definitive answers to what extent these straightforward regulations contributed to China's superior economic performance, we can say that our

findings are very much in line with the observed reality of the vibrant start up scene in China and China being a top destination for FDI.

Another key finding is that the time spent on figuring out government regulation is the most important independent variable in determining labour productivity growth. To some extent, this result further supports the conclusion that China has good institutions as it shows Chinese government regulations are coherent and predictable; thus, devoting time to it yields positive results. On a deeper level, this variable is an instrumental variable for management effort and professionalism (Nyantakyi 2016; Cai, Li, Park, & Zhou, 2013). The issue of incentives for SOE management is well-documented and foreign companies in China also struggle with checks and balances for management; whereas most private domestic companies are owner run or owner monitored. In other words, private domestic companies are not generally susceptible to the principal-agent problem. When the management of SOE and foreign owned firms spend time figuring out government regulation, it shows they are professional and exert effort to improve the company.

A key insight from our research is that ownership structure alone is not sufficient to deliver efficiency gains for SOEs. The productivity performance of majority owned SOEs are not statistically better than wholly owned SOEs. However, we see that management effort on government regulation is conducive to productivity growth. This result has an important policy implication. Partial privatisations of SOEs on its own is unlikely to bring huge gains in efficiency. Reforms must also include better incentives and monitoring of management (Grolleau et al. 2015, Zhang & Li 2008).

References:

- Abrami, R. M., Kirby, W. C., & McFarlan, F. W. (2014). Why China Can't Innovate. *Harvard Business Review* 92 (3): 107–111.
- Adelfio, G., Boscaino, G., & Capursi, V. 2014 A new indicator for higher education student performance, *Higher Education*, 68(5), 653-668.
- Autor, D. H., Kugler, A. R. & Kerr, W. D. (2007). Do Employment Protections Reduce Productivity? Evidence from U.S. States. *The Economic Journal* 117 (521): 189-217.
- Baumol, W. (1968). Entrepreneurship in Economic Theory, the *American Economic Review*, 58(2), 64-71.
- Blanchard, O., Shleifer, A. (2001). Federalism with and without political centralization: China versus Russia. IMF Staff Working Papers, Special Issue.
- Brandt, L. & Zhu, X. (2000). Redistribution in a Decentralized Economy: Growth and Inflation in China under Reform. *The Journal of Political Economy* 108 (2), 422–439.
- Brandt, L. & Zhu, X. (2001). Soft Budget Constraint and Inflation Cycles: a Positive Model of the Macro-Dynamics in China during Transition. *Journal of Development Economics* 64 (2), 437–457.
- Brandt, L. & Zhu X. (2010). Accounting for China's Growth. Institute for the Study of Labour, Discussion Paper No. 4764 (February 2010).
- Cai, H., Li, H., Park, A., & Zhou, L.-A. (2013). Family ties and organizational design: Evidence from Chinese private firms. *Review of Economics and Statistics*, 95(3), 850–867.
- Carney, M., Shapiro, D. & Tang, Y. (2009). Business Group Performance in China: Ownership and Temporal Considerations. *Management and Organization Review*, 5(2): 167-193.
- Chang, E. & Wong, S. (2004). Political control and performance in China's listed firms.

Journal of Comparative Economics 32, 617–636.

- Chen, T. (2015). Institutions, board structure, and corporate performance: Evidence from Chinese firms. *Journal of Corporate Finance*, 32: 217–237.
- Choi, S.B., Lee, S.H. & Williams, C. (2011). Ownership and firm innovation in a transition economy: Evidence from China, *Research Policy*, 40 (3), 441-452.
- Cui, L. & Jiang, F. (2012). State ownership effect on firms' FDI ownership decisions under institutional pressure: a study of Chinese outward-investing firms. *Journal of International Business Studies*, 43 (3): 264-284.
- Estrin, S. & Prevezer, M. (2011). The role of informal institutions in corporate governance: Brazil, Russia, India, and China compared. *Asia Pacific Journal of Management*, 28: 41–67.
- Gray, W. B. (1987). The Cost of Regulation: OSHA, EPA and the Productivity Slowdown. *The American Economic Review*, 77 (5), 998–1006
- Grolleau, G., Mzoughi, N. & Pekovic, S. (2015). Work Recognition and Labour Productivity: Evidence from French Data, *Managerial and Decision Economics*, 36: 508–516
- He, X. (2009). The development of entrepreneurship and private enterprise in the People's Republic of China and its relevance to transitional economies, *Journal of Development Entrepreneurship*, 14(1): 39 – 58
- Holz, C. A. (2002). Long Live China's State-owned Enterprises: Deflating the Myth of Poor Financial Performance. *Journal of Asian Economics* 4, 493–529.
- Holz, C. A. (2003). China's Industrial State-owned Enterprises: Between Profitability and Bankruptcy. World Scientific, Singapore.
- Holz, C. A. (2011). The unbalanced growth hypothesis and the role of the state: The case of China's state-owned enterprises, *Journal of Development Economics*, 96, 220–238
- Huang, Y., Salike, N., Yin, Z. & Zeng, D. (2017). Enterprise innovation in China: Does

- ownership or size matter? Xi'an Jiaotong-Liverpool University, RIEI Working Papers Series, Working paper number: 2017-06
- Kinda, T., Plane, P. & Véganonès-Varoudakis, M. (2015). Does Investment Climate Matter for Firm's Technical Efficiency? An Application to Middle Eastern and North African Manufacturing, *Journal of International Development*, 27, 1267–1293
- Kou, K. & Kroll, H. (2017). Innovation output and state ownership: Empirical evidence from China's listed firms, Fraunhofer ISI Discussion Papers, No. 55, ISSN 1612-1430
- Li C. & Song M. (2010). Innovative activities of Chinese manufacturing enterprises: the role of ownership and CEO incentives (in Chinese), *Economic Research*, 2010, (5): 55-66.
- Li, S. & Xia, J. (2007). The Roles and Performance of State Firms and Non-State Firms in China's Economic Transition. *World Development*, 36(1), 39-54.
- Li, Y., Guo, H., Yi, Y. & Liu, Y. (2010). Ownership Concentration and Product Innovation in Chinese Firms: The Mediating Role of Learning Orientation. *Management and Organization Review*, 6(1): 77–100.
- Li Z. & Lu Y. (2014). Does state-owned enterprises really lack the ability to innovate? (in Chinese), *Economics theory and economic Management*, (2), 27-38.
- Lin, J. Y., Cai, F. & Li, Z. (1998). Competition, Policy Burdens, and State-Owned Enterprise Reform, *American Economic Review* 88 (2), 422–427.
- Lin, J. Y., Cai, F. & Li, Z. (2003). The China Miracle: Development Strategy and Economic Reform, The Chinese University Press, Hong Kong.
- Lu, Y., Png, I. & Tao, Z. (2013). Do institutions not matter in China? Evidence from manufacturing enterprises, *Journal of Comparative Economics*, 41, 74–90
- McMillan J. & Woodruff C. (2002). The central role of entrepreneurs in transition economies, *Journal of Economic Perspectives*, 16 (3): 153 – 170
- Mishra, V. and Smyth, R. 2013. Working hours in Chinese enterprises: evidence from

- matched employer–employee data. *Industrial Relations Journal*, 44:1, 57–77.
- Mueller, S. (2015). Works Councils and Labour Productivity: Looking beyond the Mean, *British Journal of Industrial Relations*, 53 (2), 308–325
- Nyantakyi, E. B. (2016). Family ties, firm performance and managerial compensations in African SMEs, *Small Business Economics*, 46: 493-501
- Nee V. & Young F. W. (1991). Peasant entrepreneurs in China’s “second economy”: an institutional analysis, *Economic Development and Cultural Change*, 39(2): 293 – 310.
- Omran, M. (2004). The Performance of State-Owned Enterprises and Newly Privatized Firms: Does Privatization Really Matter? *World Development*, 32(6), 1019-1041
- Peng, M., Wang, D. & Jiang, Y. (2008). An Institution-Based View of International Business Strategy: A Focus on Emerging Economies. *Journal of International Business Studies*, 39(5), 920-936
- Peng, M. W., Li, Y., Xie, E., & Su, Z. (2010). CEO duality, organizational slack, and firm performance in China. *Asia Pacific Journal of Management*, 27: 611–624.
- Peng, M.; Bruton, G.; Stan, C. & Huang, Y. (2016). Theories of the (state-owned) firm. *Asia Pacific Journal of Management*, 33: 293-317.
- Qian, Y. (2003). How reform worked in China. Chapter 11 in: Rodrick, D. (Ed.), *In Search of Prosperity*. Princeton Univ. Press.
- Ralston, D. A., Terpstra-Tong, J., Terpstra, R. H., Wang, X., & Egri, C. (2006). Today’s state-owned enterprises of China: Are they dying dinosaurs or dynamic dynamos? *Strategic Management Journal*, 27, 824–843.
- Rong, Z., Wu, X. & Boeing, P. (2017). The effect of institutional ownership on firm innovation: Evidence from Chinese listed firms. *Research Policy*, 46: 1533–1551
- Storm, S. & Naastepad, C.W.M. (2009). Labor Market Regulation and Productivity Growth:

- Evidence for Twenty OECD Countries 1984–2004. *Industrial Relations: A Journal of Economy and Society*, 48: 629–654.
- Tian, L. & Estrin, S. (2008). Retained state shareholding in Chinese PLCs: Does government ownership always reduce corporate value? *Journal of Comparative Economics*, 36: 74–89.
- Wamboye, E., Adekola, A. & Sergi, B. (2016). ICTs and labour productivity growth in sub-Saharan Africa, *International Labour Review*, 155 (2), 231-252
- Wang, L., & Judge, W. Q. (2012). Managerial ownership and the role of privatization in transition economies: The case of China. *Asia Pacific Journal of Management*, 29: 479–498.
- World Bank Enterprise Surveys. (2017). Enterprise Surveys Indicator Descriptions, International Finance Corporation, World Bank Group.
- Yi, J., Hong, J., Hsu, W. & Wang, C. (2017). The role of state ownership and institutions in the innovation performance of emerging market enterprises: Evidence from China. *Technovation*, 62-63: 4-13.
- Zhang, D., & Liu, D. 2017. Determinants of the capital structure of Chinese non-listed enterprises: Is TFP efficient? *Economic System*, 41: 179-202.
- Zhang, S., & Li, X. (2008). Managerial ties, firm resources, and performance of cluster firms. *Asia Pacific Journal of Management*, 25: 615–633.
- Zou, H. & Adams, M. B. (2008). Corporate Ownership, Equity Risk and Returns in the People's Republic of China. *Journal of International Business Studies*, 39(7): 1149-1168.

Table 1 Variable Name and Description

Variable Name	Variable Description
Labour Productivity growth	Annual labour productivity growth is measured by a percentage change in labour productivity between the last completed fiscal year and a previous period, where labour productivity is sales divided by the number of full-time permanent workers.
Annual Sales growth	Real annual sales growth is measured as a percentage change in sales between the last completed fiscal year and a previous period.
Government regulations	Average percentage of senior management's time that is spent dealing with government regulations
Tax rates	Firms identifying tax rates as a "major" or "very severe" obstacle.
Business licensing	Firms identifying business licensing and permits as "major" or "very severe" obstacle.
Theft & disorder	Firms identifying crime, theft and disorder as a "major" or "very severe" obstacle.
Informal competitor	To what degree are Practices of Competitors in the Informal Sector an obstacle to the current operations
Finance obstacle	Firms identifying access/cost of finance as a "major" or "very severe" obstacle.
Transport obstacle	To what degree is Transport an obstacle to the current operations of this establishment?
Customs & trade	To what degree is Customs and Trade Regulation an obstacle to the current operations of this establishment?
Labour law	To what degree are Labour Regulations an obstacle to the current operations of this establishment?
Quality certification	Percentage of firms that have an internationally recognized quality certification, i.e. ISO 9000, 9002 or 14000.
Website	Percentage of firms using website for business related activities, i.e. sales, product promotion etc.
Tax inspection	Over the last year, was this establishment visited or inspected by tax officials?
Loans	Does this establishment have a line of credit or a loan from a financial institution?
Domestic sales	Proportion of total sales that are domestic sales
Training	Did this establishment have formal training programs for its permanent, full-time employees?
Manager experience	How many years of experience working in this sector does the Top Manager have?
Manufacturing sector	Firm is in the manufacturing sector
Large firm	Firm Size Large: 100+ workers

(Source of data: World Bank Enterprise Survey for China in 2012)

Table 2 Descriptive Statistics of the Data: Variable Means

Variable Name	Majority state ownership (51% - 95%)	Full state ownership (100%)	Private foreign ownership (100%)	Private domestic ownership (100%)
Government regulations	0.708	1.302	1.622	1.147
Tax rates	0.396	0.697	1.131	0.896
Business licensing	0.208	0.229	0.459	0.343
Theft & disorder	0.177	0.174	0.229	0.273
Informal competitor	0.469	0.504	0.655	0.889
Finance obstacle	0.333	0.733	0.704	0.819
Transport obstacle	0.365	0.495	0.672	0.507
Customs & trade	0.229	0.220	0.409	0.228
Labour law	0.281	0.541	0.540	0.505
Quality certification	0.875	0.577	0.754	0.590
Website	0.854	0.761	0.737	0.711
Tax inspection	0.239	0.715	0.721	0.674
Loans	0.156	0.293	0.327	0.287
Domestic sales	0.970	0.917	0.611	0.902
Training	0.948	0.917	0.868	0.843
Manager experience	13.65	19.42	15.95	16.05
Manufacturing sector	0.708	0.229	0.770	0.613
Large firm	0.396	0.532	0.443	0.350
Sample size	96	109	61	2396

(Source of data: World Bank Enterprise Survey for China in 2012)

Table 3 Variable Means for BRIC countries: Brazil, Russia, India, and China

Variable Name	Brazil 2009	Russia 2012	India 2014	China 2012
Government regulations	18.41	15.47	4.327	1.300
Tax rates	3.199	2.474	1.726	0.876
Business licensing	2.265	0.690	1.091	0.333
Theft & disorder	2.609	0.759	0.589	0.272
Informal competitor	2.199	0.786	1.020	0.846
Finance obstacle	2.313	1.274	1.152	0.797
Transport obstacle	1.675	1.065	1.080	0.517
Customs & trade	1.380	0.500	0.775	0.250
Labour law	2.649	0.550	1.099	0.511
Quality certification	0.187	0.113	0.443	0.613
Website	0.635	0.619	0.530	0.724
Tax inspection	0.492	0.493	0.502	0.669
Loans	0.652	0.248	0.273	0.300
Domestic sales	0.959	0.970	0.927	0.893
Training	0.385	0.433	0.424	0.853
Manager experience	22.34	13.80	13.39	16.09
Manufacturing sector	0.743	0.313	0.772	0.606
Large firm	0.205	0.116	0.235	0.372
Sample size	1802	4220	9281	2848

(Source of data: World Bank Enterprise Survey most recent data for Brazil in 2009, Russia in 2012, India in 2014, and China in 2012)

Table 4 OLS Regression Results for Labour productivity growth

	Majority state ownership (51% - 95%)	Full state ownership (100%)	Private foreign ownership (100%)	Private domestic ownership (100%)
Government regulations	4.178*** (1.24)	1.627*** (0.56)	3.499*** (0.99)	0.239* (0.13)
Tax rates	7.158* (3.60)	0.704 (2.60)	0.354 (3.47)	0.362 (0.44)
Business licensing	-14.93** (6.63)	0.430 (4.59)	-4.232 (6.16)	-0.806 (0.74)
Theft & disorder	-11.37*** (3.95)	-3.810 (4.44)	4.033 (5.63)	1.217 (0.74)
Informal competitor	8.642*** (2.53)	-3.057 (2.74)	-3.464 (4.22)	1.680*** (0.45)
Finance obstacle	18.19*** (4.32)	0.881 (2.59)	6.414 (4.41)	-0.913* (0.49)
Transport obstacle	1.347 (2.78)	-0.162 (2.96)	0.558 (4.19)	-1.083* (0.58)
Customs & trade	-2.186 (4.63)	-6.245 (5.26)	-9.644* (5.47)	0.121 (0.90)
Labour law	-1.435 (3.99)	-7.953** (3.23)	-7.582* (4.31)	-1.382*** (0.62)
Quality certification	-4.255 (6.25)	6.806* (4.04)	-5.420 (7.66)	-0.336 (0.86)
Website	-25.29*** (5.68)	-2.483 (4.46)	-5.954 (6.61)	-0.309 (0.90)
Tax inspection	-39.71*** (5.51)	-4.271 (4.20)	-1.969 (5.89)	-0.345 (0.84)
Loans	-11.30* (6.22)	-0.232 (4.44)	-0.822 (6.16)	1.780** (0.88)
Domestic sales	-20.03 (13.20)	-8.067 (12.1)	3.331 (6.84)	-2.869* (1.69)
Training	-23.34** (8.96)	5.561 (7.01)	-11.46 (10.4)	-1.524 (1.08)
Manager experience	0.312 (0.27)	0.096 (0.21)	-0.335 (0.34)	0.112** (0.05)
Manufacturing sector	20.08*** (5.08)	-4.743 (4.50)	10.35 (7.66)	-0.835 (0.82)
Large firm	4.923 (3.83)	1.478 (4.27)	6.363 (5.92)	-0.206 (0.85)
Constant	45.37*** (17.3)	8.159 (14.5)	17.92 (13.4)	4.155* (2.31)
Sample size	96	104	57	2221
F test	9.19	1.96	1.29	2.87
Prob > F	0.0000	0.0211	0.2500	0.0000
R - squared	0.6824	0.2933	0.3787	0.0229

(Source of data: World Bank Enterprise Survey for China in 2012. * Significant at 10% level; ** significant at 5% level; *** significant at 1% level. Standard error values are in parentheses)

Table 5 OLS Regression Results for Annual Sales growth

	Majority state ownership (51% - 95%)	Full state ownership (100%)	Private foreign ownership (100%)	Private domestic ownership (100%)
Government regulations	3.763*** (1.05)	1.326** (0.52)	3.298*** (0.73)	0.397*** (0.12)
Tax rates	2.886 (3.05)	0.338 (2.43)	3.038 (2.58)	-0.153 (0.40)
Business licensing	1.185 (5.62)	1.607 (4.29)	-10.09** (4.58)	-0.491 (0.67)
Theft & disorder	-21.30*** (3.33)	-3.298 (4.14)	2.455 (4.18)	-0.656 (0.67)
Informal competitor	3.096 (2.15)	-0.835 (2.56)	-3.122 (3.14)	0.661 (0.41)
Finance obstacle	4.279 (3.67)	0.771 (2.43)	7.973** (3.28)	-0.869* (0.45)
Transport obstacle	0.578 (2.36)	2.273 (2.76)	3.416 (3.12)	0.129 (0.53)
Customs & trade	-3.498 (3.92)	-6.980 (4.91)	-13.03*** (4.06)	0.536 (0.83)
Labour law	-3.187 (3.38)	-6.301** (3.02)	-6.806** (3.20)	0.585 (0.56)
Quality certification	-0.439 (5.29)	6.937* (3.76)	0.807 (5.69)	0.153 (0.78)
Website	-16.09*** (4.82)	-3.287 (4.16)	1.659 (4.91)	0.138 (0.82)
Tax inspection	-21.65*** (4.67)	-3.264 (3.92)	-2.088 (4.37)	-1.088 (0.76)
Loans	5.273 (5.27)	-1.848 (4.13)	-1.189 (4.58)	3.268*** (0.80)
Domestic sales	-18.39 (11.2)	-4.034 (11.3)	-3.258 (5.08)	-0.001 (1.56)
Training	-6.405 (7.59)	3.175 (6.54)	-4.886 (7.75)	-1.237 (0.98)
Manager experience	0.269 (0.23)	0.307 (0.197)	-0.393 (0.25)	0.026 (0.05)
Manufacturing sector	5.031 (4.30)	-4.579 (4.18)	10.96* (5.69)	-1.961*** (0.75)
Large firm	-0.447 (3.25)	1.938 (3.96)	3.209 (4.40)	0.165 (0.78)
Constant	41.37*** (14.6)	5.512 (13.5)	12.24 (9.92)	11.28*** (2.12)
Sample size	96	105	57	2252
F test	7.21	1.54	2.42	2.62
Prob > F	0.0000	0.0965	0.0107	0.0002
R - squared	0.6276	0.2435	0.5345	0.0206

(Source of data: World Bank Enterprise Survey for China in 2012. * Significant at 10% level; ** significant at 5% level; *** significant at 1% level. Standard error values are in parentheses)

Table 6 Quantile Regression Results for Labour productivity growth

	Majority state ownership (51% - 95%)	Full state ownership (100%)	Private foreign ownership (100%)	Private domestic ownership (100%)
Government regulations	4.812*** (1.32)	1.431*** (0.38)	4.238*** (0.95)	0.109 (0.08)
Tax rates	4.320 (3.81)	0.701 (1.79)	1.105 (3.32)	0.159 (0.25)
Business licensing	-15.81** (7.01)	-3.082 (3.16)	-4.399 (5.91)	-0.332 (0.42)
Theft & disorder	-9.271** (4.16)	-1.709 (3.06)	2.575 (5.39)	0.884** (0.42)
Informal competitor	9.490*** (2.68)	-0.609 (1.88)	-3.511 (4.04)	0.951*** (0.26)
Finance obstacle	11.95** (4.58)	0.992 (1.78)	2.575 (4.22)	-0.382 (0.28)
Transport obstacle	6.269** (2.94)	1.676 (2.03)	1.863 (4.02)	-0.596* (0.33)
Customs & trade	-2.028 (4.89)	-3.583 (3.62)	-5.907 (5.23)	0.333 (0.51)
Labour law	1.973 (4.23)	-4.591** (2.23)	-3.962 (4.12)	-1.403*** (0.35)
Quality certification	3.229 (6.61)	2.581 (2.78)	-12.06 (7.35)	-1.041* (0.49)
Website	-23.81*** (6.02)	-1.051 (3.07)	-4.886 (6.33)	-0.282 (0.51)
Tax inspection	-37.99*** (5.83)	-0.416 (2.89)	-5.230 (5.64)	0.561 (0.48)
Loans	-3.881 (6.58)	-0.388 (3.05)	2.328 (5.91)	0.526 (0.50)
Domestic sales	-22.32 (13.9)	-0.893 (8.33)	-0.982 (6.55)	-4.677*** (0.97)
Training	-20.81** (9.48)	-0.259 (4.83)	-5.284 (9.99)	-0.072 (0.61)
Manager experience	0.259 (0.29)	-0.127 (0.145)	-0.144 (0.33)	0.038 (0.03)
Manufacturing sector	15.52*** (5.37)	-1.013 (3.10)	7.608 (7.34)	-0.964** (0.47)
Large firm	3.867 (4.05)	4.262 (2.93)	6.086 (5.68)	0.373 (0.49)
Constant	41.64** (18.3)	2.043 (9.99)	18.18 (12.8)	4.455*** (1.33)
Sample size	96	104	57	2221
Pseudo R2	0.3032	0.1555	0.2435	0.0132

(Source of data: World Bank Enterprise Survey for China in 2012. * Significant at 10% level; ** significant at 5% level; *** significant at 1% level. Standard error values are in parentheses)

Table 7 Quantile Regression Results for Annual Sales growth

	Majority state ownership (51% - 95%)	Full state ownership (100%)	Private foreign ownership (100%)	Private domestic ownership (100%)
Government regulations	3.969*** (1.00)	0.703** (0.32)	1.273* (0.71)	0.395*** (0.08)
Tax rates	4.365 (2.89)	0.009 (1.49)	0.916 (2.48)	0.072 (0.27)
Business licensing	-12.15** (5.33)	-0.289 (2.63)	-8.579* (4.41)	-0.703 (0.45)
Theft & disorder	-11.61*** (3.17)	-1.016 (2.53)	2.785 (4.03)	0.668 (0.45)
Informal competitor	7.698*** (2.04)	-0.335 (1.58)	-2.344 (3.03)	0.710*** (0.27)
Finance obstacle	5.955* (3.48)	-1.312 (1.48)	6.567** (3.16)	-0.588* (0.30)
Transport obstacle	3.709 (2.23)	3.460** (1.69)	2.576 (3.01)	0.813** (0.36)
Customs & trade	-3.177 (3.73)	-3.042 (3.01)	-12.71*** (3.91)	-0.089 (0.55)
Labour law	1.976 (3.21)	-2.561 (1.85)	-9.395*** (3.08)	-0.476 (0.38)
Quality certification	6.309 (5.03)	2.623 (2.30)	-2.047 (5.49)	0.501 (0.52)
Website	-7.726* (4.58)	-1.104 (2.55)	5.285 (4.73)	-0.437 (0.55)
Tax inspection	-27.83*** (4.43)	0.081 (2.40)	-1.164 (4.22)	-0.277 (0.51)
Loans	-0.867 (5.01)	0.902 (2.53)	-4.095 (4.41)	3.241*** (0.53)
Domestic sales	-22.88** (10.6)	-0.283 (6.92)	-7.132 (4.90)	-1.642 (1.03)
Training	-14.83** (7.21)	3.013 (4.01)	1.547 (7.48)	-0.917 (0.65)
Manager experience	0.485** (0.21)	0.269** (0.12)	-0.327 (0.24)	0.017 (0.03)
Manufacturing sector	4.971 (4.09)	-0.197 (2.56)	9.050 (5.49)	-1.961*** (0.49)
Large firm	0.978 (3.08)	-0.602 (2.43)	4.664 (4.25)	-0.032 (0.51)
Constant	35.00** (13.9)	-2.226 (8.31)	16.91* (9.57)	9.279*** (1.41)
Sample size	96	105	57	2252
Pseudo R2	0.2988	0.1410	0.3053	0.0243

(Source of data: World Bank Enterprise Survey for China in 2012. * Significant at 10% level; ** significant at 5% level; *** significant at 1% level. Standard error values are in parentheses)

Dongxu Wu is Head of Asia-Pacific, Investment & Strategy at Razor Group, Germany. Dongxu graduated from University of Cambridge in 2010. Dongxu has extensive experience in Investment Banking and Consultancy. His research interests include the Chinese economy, labour economics, entrepreneurship, firm performance and innovation.

Zhongmin Wu is an Associate Professor in the Department of Economics, Nottingham Business School, Nottingham Trent University. Zhongmin's research has focused on migration, unemployment, employment, multiple job holding, self-employed and entrepreneurship, firm performance, both in the UK and in China. His research mainly uses econometric analysis of panel data.