Khee Giap Tan • Kong Yam Tan

Foreign Direct Investment and Small and Medium Enterprises

Productivity and Access to Finance

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Khee Giap Tan is the Co-Director of Asia Competitiveness Institute and Associate Professor at the Lee Kuan Yew School of Public Policy. He is also the Chairman of Singapore National Committee for Pacific Economic Cooperation. Upon graduating with a PhD from University of East Anglia, England, in 1987 under the Overseas Research Scheme awarded by the Committee of Vice-Chancellors and Principals of the Universities of the United Kingdom, he joined the banking sector as a treasury manager and served as secretary to the Assets and Liabilities Committee for three years, there after he taught at the Department of Economics and Statistics, National University of Singapore, 1990–1993. Dr Tan joined Nanyang Technological University in 1993 and was Associate Dean, Graduate Studies Office, 2007–2009. He is now with Lee Kuan Yew School of Public Policy, National University of Singapore. Dr Tan has consulted extensively with the various government ministries, statutory boards and government linked companies of Singapore government on policies concerning financial, fiscal, trade, tourism, public housing, labor, telecommunication, tourism, liveable cities, creative industry, media, community development, airport and seaport activities. He has also served as a consultant to international agencies such as the Asian Development Bank, Asian Development Bank Institute, United Nations Industrial Development Group, World Gold Council, ASEAN Secretariat, Central Policy Unit of Hong Kong, Kerzner International, Las Vegas Sands, Marina Bay Sands, and other international financial institutions and multinational corporations. Dr Tan is the lead author for eight books and published in international refereed journals such as Applied Economics (UK), ASEAN Economic Bulletin (Singapore), Asian Economic Papers (US), Competitiveness Review (UK), International Journal of Business Competition and Growth (UK), International Journal of Chinese Culture and Business Management (UK), International Journal of Economics and Business Research (UK), International Journal of Indian Culture and Business Management (UK), Journal of Centrum Cathedra The Business and Economics Research Journal (Peru), Journal of International Commerce, Economics and Policy (UK), Journal of Southeast Asian Economies (Singapore), Review of Pacific Basin Financial Markets and Policies (US), and World Review of Science, Technology and Sustainable Development (Switzerland). He is the associate editor of the journal Review of Pacific Basin Financial Markets and Policies

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Introduction

Foreign Direct Investment (FDI), Productivity Spillovers and the Role of Small and Medium Enterprises (SMEs) Financing

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Abstract

There is a large literature dealing with the spillover effects of foreign direct investment (FDI) flows to emerging and developing economies at the aggregate level. Beyond the aggregate impacts, a growing number of studies also examine the impact of FDI spillovers on firms of different sizes, especially small and medium enterprises (SMEs). This book features seven chapters of empirical studies dedicated to exploring issues relating to the various interactions between FDI flows, productivity spillovers and SMEs in Asia and beyond.

Keywords: Foreign direct investment; small and medium enterprises; productivity spillovers.

The surge in foreign direct investment (FDI) flows to the emerging and developing world, especially to the Asian region as it has given rise to a large body of literature examining the multi-dimensional impacts of FDI on productivity spillovers in domestic economies, both at the aggregate and firm levels. While the focus of the early related literature was mostly aggregate in nature, the development of better firm-level datasets have resulted in a growing number of studies focussing on the spillover effects of FDI on firms of varying sizes, particularly the small and medium enterprises (SMEs). Considering the important role SMEs play in several emerging and developing economies, in terms of employment generation and their contribution to output, it is important to understand the various interactions between the different dimensions of economic globalization and the opportunities and challenges faced by SMEs in these economies. More importantly, the aftermath of the global financial crisis and the resultant rise in risk aversion has resulted in choking the traditional financing channels available to SMEs. Easing credit constraints to revitalise the SMEs remains a policy priority as improved access to financing could allow financially constrained firms to increase their total factor productivity (TFP). In this context, there is a need to design effective policies that will not only address the challenges faced by SMEs, but also ensure that they are not left behind in the process of economic globalization and contribute to greater productivity improvements.

In this light, this book examines a set of important policy issues dealing with FDI, productivity spillovers and SMEs finance in Asia and beyond. It features seven chapters of empirical studies that focus on the various dimensions of economic globalization both at the aggregate and firm-level, which assume immense policy significance.

The book begins with a case study of the impact of FDI flows on regional innovation in China. Chapter 1 by Hein Roelfsema and Yi Zhang titled 'Globalization, Foreign Direct Investment and Regional Innovation in China' examines the connections between globalization, innovation, and disparities in China at the regional level, covering 29 Chinese provincial-level regions over 16 years from 1995 to 2010. In addition to finding those regions that attract inward FDI and exports that have become more innovative during this period, this chapter makes an important contribution to the literature by finding a nonlinear U-shaped relationship between globalization, regional income levels and innovation. Specifically, the empirical results suggest that both the lower middle-income and the most advanced regions gain from globalization relative to the higher middle-income regions in terms of increased innovation. They also find that differences across regions in terms of ownership structures of FDI are important factors in explaining the "within-region" effects of globalization on innovation. Specifically, the authors find that innovation is high when FDI takes the form of joint ventures, while innovation is lower in regions with dominant foreign ownership.

The other emerging growth star in the Asian region that opened up its borders significantly to FDI flows has been India. While there have been a number of studies examining the aggregate trends and implications of FDI flows into India, studies at the firm level examining the impact of liberalization policies on firm productivity have been relatively sparse. Chapter 2 "Trade and Investment Liberalization in India: Implications for Productivity Gains" by Ram Upendra Das tackles these issues by employing a firm-level panel dataset to investigate whether greater trade and FDI flows have jointly contributed to significant productivity improvements since 2000, as measured by increases in total factor productivity (TFP). One of the important contributions of the chapter is its examination of the determinants of TFP across a range of different industries as well as testing for the combined effect of trade and investment liberalization on productivity of firms between 2000 and 2008. The productivity analysis performed for all firms as well as firms with specific characteristics such as export or domestic market orientation or those with different ownership (foreign and domestic-owned) reveal the existence of significant productivity improvements since 2000 owing to trade and investment liberalization. This chapter also identifies variables such as imports of raw materials and capital goods, size of operation, quality of employment captured by wage rates, and technology imports as crucial determinants of firm productivity.

Continuing with the theme of FDI and productivity growth, Chapter 3 by Sasatra Sudsawasd and Santi Chaisrisawatsuk titled, "Foreign Direct Investment, Intellectual

Property Rights, and Productivity Growth" focuses on the crucial role played by intellectual property rights (IPRs) in facilitating productivity enhancements through FDI flows. This chapter uses panel data for 57 countries over the period 1995–2012, to investigate the impact of IPR processes on productivity growth. One of the distinguishing features of the chapter is that it decomposes the IPR processes into three different stages — innovation process, commercialization process, and protection process — and tests whether the impact of FDI on growth depends on the stage of IPR development in the particular country. The empirical analysis in this chapter suggests that better IPR protection is directly associated with productivity improvements only in developed countries, while the contribution of IPR processes on growth through FDI appears to be fairly limited. Further, one of the other important results of the chapter is that FDI inflows create better innovative capability leading to higher growth outcomes only in developed countries, whereas for developing countries, the relevant type of capital flow is FDI outflows and not inflows and that the increase in IPR protection and commercialization help to improve productivity particularly when the country acts as the investing country.

Having examined the different dimensions of FDI flows and its impacts on productivity, the rest of chapters focuses on the growing importance of small and medium enterprises (SMEs), their performance, their constraints as well as the policy priorities of governments moving forward. As Asian countries recover from the global financial crisis and continue to rebalance their economies by promoting domestic demand, SMEs have a pivotal role to play in this process. The related literature notes that SMEs have the capacity to stimulate domestic demand through job creation, innovation, and competition and those SMEs involved in global supply chains also have the potential to facilitate international trade. Considering the importance of fostering the growth and development of SMEs through productivity enhancements, especially to promote inclusive economic growth in emerging economies in Asia and beyond, there is a need to study the various challenges confronting SME growth and development.

Further, since the post global financial crisis phase has been characterized by steep risk aversion, which appears to have had a detrimental impact on providing stable access to funding for SMEs, there is an ever-growing need to focus on designing appropriate policies that would facilitate SME access to finance through alternative sources of funding (beyond conventional bank credit). In this context, Chapter 4 by Shigehiro Shinozaki on "A New Regime of SME Finance in Emerging Asia: Enhancing Access to Growth Capital and Policy Implications" assumes immense policy significance. It focusses on two important policy priorities for Asian policy makers to promote financial accessibility for SMEs in the region — enhancing bank access to credit (bankability) as well as enabling diversified financing models — that will in turn help achieve financial inclusion. This chapter also identifies areas that policies and regulations have not effectively addressed which otherwise would have reduced the impediments faced by SMEs to enter formal financial markets as well as gain access to a variety of alternative financing instruments. It provides a detailed account of the various financing options and instruments available to SMEs and those that should be harnessed effectively. It also complements this policy analysis with an empirical estimation of the financing gap for SMEs in Indonesia, the results of which indicate the limitations of traditional bank lending to SMEs during crisis periods.

It is also important to recognize and emphasize that the financing constraints of several SMEs and micro-SMEs (MSMEs) are largely structural in nature. As reiterated by Subika Farazi in Chapter 5, "Informal Firms and Financial Inclusion: Status and Determinants," a majority of these firms operate in the informal economy and the informal firms face a variety of constraints, among which lack of access to finance ranks as the most prevalent and important operational constraint these firms face. Chapter 5 describes the use of finance and financing patterns of informal firms, highlighting the differences between the use of finance among these firms as well as identifying the most significant characteristics of informal firms associated with higher use of financial services. Specifically, this chapter attempts to identify "associations" between financial inclusion of informal firms and various firm and country characteristics. While informality is not the only barrier firms face in their use of finance, it makes an important contribution to the literature by bringing out the salience of informality of firms as a growth constraint. It provides estimates of actual use of finance by informal firms, while also quantifying the differences in the use of finance between formal and informal firms. This chapter finds that firms in the informal sector are, on average, relatively younger, i.e., less than 11 years old and that a substantial proportion of informal firms finance their daily operations through informal sources, implying that the use of loans and bank accounts is very low. Further, a comparative analysis between formal and informal small-sized firms reveals that registered firms make greater use of bank accounts and loans on a comparative basis, which aligns with conventional wisdom as well. Contrary to informal firms, registered firms on average also rely relatively less on funds from informal and internal sources.

Chapter 6 in this series focusses on Singapore as a case study to understand why Singapore has lagged with respect to labor productivity, which has particularly been a far more serious concern for SMEs. Chapter 6 by Khee Giap Tan and Yan Yi Tan on "Promoting SMEs and Enhancing Labor Productivity in Singapore: A Policy Analysis" identifies the sources of growth in Singapore and simulates different scenarios pertaining to the potential growth the economy could achieve given a level of required productivity derived on the basis of some employment-growth assumptions. This chapter then moves on to address the issue of labor productivity for SMEs particularly given that it has been a relatively bigger problem for SMEs. It examines and evaluates the performance, challenges and opportunities for SMEs in the country as well as suggesting relevant policy strategies to revitalise the SMEs that they become more competitive moving forward.

The last chapter in this book winds up the discussion by focusing on entrepreneurial activities and the importance of institutions in facilitating such activities. Chapter 7 by Salman Doo on "Determinants of Entrepreneurs' Activities: New Evidence from

Cross-Country Data" undertakes an empirical investigation of the main determinants of entrepreneurial activities across three groups of countries over the period 2004–2008, by examining the importance of institutional setting and economic growth on entrepreneurial activities. By utilizing the classification of countries based on Economic Freedom Index and the World Economic Forum, this chater groups them on the basis of whether these countries are innovation-driven, efficiency-driven, or factor-driven. Subsequently, it tests for the importance of economic freedom in spurring entrepreneurial activities in these different groups of countries. The empirical results find a positive and significant role for economic freedom to facilitate entrepreneurial activities as well as economic growth in innovation and efficiency-driven countries which are in turn characterized by strong institutional systems. At the same time, it also finds that in factor-driven countries characterized by relatively less economic freedom and weak institutions, there is a significant negative relationship between economic freedom and entrepreneurial activities.

Overall, the empirical contributions in this volume ought to provide fresh insights about the interactions between FDI flows, productivity spillovers and SMEs in emerging and developing economies.

Chapter 1

Globalization, Foreign Direct Investment, and Regional Innovation in China

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Abstract

This chapter explores the connection between the external opening of China and differences in innovation across Chinese regions. For the period 1995–2010, we find that regions that attract inward foreign direct investment (FDI) and exports have become more innovative. Further, we show a U-shaped relation between globalization, regional income levels, and innovation, where both the lower middle-income and the most advanced regions gain from globalization in terms of increased innovation. The higher middle-income regions gain little from globalization in terms of innovation. We provide evidence that differences in ownership structures of foreign investments and outsourcing drive the results.

Keywords: Globalization; innovation; regional development; China.

1. Introduction

Over the last 20 years, China has gradually opened its market to imports and inward foreign direct investments (FDI). Since 2001, the increased outward orientation of China is cemented by its entry into the World Trade Organization (WTO), further supporting exports and outward investment flows. To date, the drivers of the strong rise of inward FDI and its effects on domestic economic and social development have received considerable academic and policy attention. Although external trade and FDI arguably have lifted hundreds of millions out of poverty, there are two major long-term concerns. First, China is still seen as the factory of the world, concentrating resources on low cost production with a strong focus on the assembly segment of the supply chain. A key concern is whether over time Chinese firms are able to upgrade their competence through innovation, enabling them to supply inputs with a higher value added, so as to capture a larger share of total revenues in consumer markets. If external

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opening improves the innovative capabilities of firms and workers, this is an important link between liberalization and development. Second, an oft-voiced concern in China is that external opening of the economy magnifies the income disparities across regions, as the richest regions are also benefitting most from trade and FDI. In the long run, such increased regional disparities provide pressures for unsustainable migration flows and may add to social unrest.

We take up both these issues in this chapter and study the interaction between external liberalization, longrun development through innovation, and regional income disparities. By using a panel of Chinese regions, for the period 1995–2010, we investigate the (causal) connection between external opening and innovation at the regional level. Controlling for geographical fixed effects and focussing on patterns within regions, we show that regions that engage in trade and attract more FDI indeed become more innovative. We also show that the effects differ among geographical lines and across regional income levels. We show that the effect of globalization on innovation is stronger in the eastern coastal regions and is less pronounced in other regions. Connected to this finding, we show that the effects of external opening are strong for both the richest regions and the poorest regions, while higher middle-income regions are the relative losers from globalization. Overall, our analysis shows that external liberalization in China has had a positive effect on economic development though over time it may magnify income disparities within China through scattered effects on innovation and technological upgrading across regions.

The main contribution of this chapter is that it provides a systematic analysis of the connection between globalization, innovation, and disparities in China at the regional level. Several recent papers, to be discussed in more detail in Sec. 2, also analyze innovation across regions, pointing out the importance of research and development (R&D) spending, public stimulus, and the role of universities. But most of these papers do not address the role played by globalization. In contrast, papers that discuss the role of exports and FDI on technology diffusion in general do not address the issue of the widening regional disparities as a consequence of globalization. We also complement several firm-level studies using survey data that often do not have a time component. In addition, due to the overall improvement and availability of regional data over time, we are able to use broader measures for globalization and innovation, which provides more robust results.[1]

A second contribution of the chapter is that it incorporates many novel multidisciplinary theoretical insights from business studies and economics to empirically analyze the effects of globalization on innovation in China. Although still an important channel, the older literature focuses rather exclusively on the role of regional absorptive capacity as a moderator for inward FDI and high-tech imports to result in

[1] Buckley *et al.* (2002) is the other landmark study of this early period. However, these authors concentrate on differences across industries of inward FDI. They show that firms in industries that attract higher levels of FDI are on average more productive.

technology spillovers (Blomstrom *et al.*, 2001).[2] Recently, several scholars have argued that entry modes matter for the transfer of technology (Antràs, 2003; Grossman and Helpman, 2005; Grossman *et al.*, 2005; Hennart and Brouthers, 2007). As we show in Sec. 3, the dominant entry mode by foreign firms differs markedly across regions, which in turn has a substantial within-region effect of globalization on innovation. We show that joint ventures are correlated with higher levels of local innovation, and that innovation is lower in regions where full foreign ownership dominates. Further, we take account of the recent theoretical arguments that differences across regions in external orientation of firms (exports and outward FDI) account for a substantial share in the variation in innovation (Cheung, 2010).

A third contribution is that the analysis caters to the shift in public policy attention towards long-term economic growth through national innovation policies and systems (see for example, Sun and Liu, 2010; Zhou and Wei, 2011; Wei and Liefner, 2012). When over time factor accumulation growth slows down, economic development will rely on increases in total factor productivity. It is well recognized that large differences in FDI driven capital accumulation initially have contributed to a widening income gap between the coastal and the interior regions. However, since 1992, the Chinese government has aggressively pursued a policy that aims to divert FDI towards the interior regions. Yu *et al.* (2008) show that such policies on average have been a success in channelling FDI to backward regions, so it is of interest to investigate whether this policy change has contributed to innovation and thus to lowering regional income inequality in the long run.

The chapter is set up as follows. In Sec. 2, we discuss related literature that address the effects of FDI on technological development, to those that connect regional development to innovation and technology adoption, ending with closely related papers that also analyze the link between globalization and innovation in a regional context. Section 3 introduces the data and provides a descriptive analysis of the variables that are of the most concern to this chapter: globalization, innovation, and economic development across regions. Section 3 also discusses the econometric methods used in the study. Section 4 presents the empirical results, where we zoom in on differences across income groups, modes of globalization, and changes in the effects of globalization over time. Section 5 concludes this chapter.

2. Related Literature

The effects of trade liberalization and globalization on economic structure and innovation are widely studied in the literature, especially in the context of the early endogenous growth models (Grossman and Helpman, 1990, 1991; Grossman *et al.*, 1993). In general, international technology transfer is widely seen as an important contributor to economic development. The early papers have a strong focus on the

[2] Beyond the scope of this chapter, there is also a large literature that uses China's opening as a natural experiment to study the locational determinant of FDI of western firms from the Ownership–Location–Internalization perspective.

technology diffusion in the networks of multinational corporations that engage in FDI towards developing countries and emerging markets. Key mechanisms are the demonstration effect and the mandatory sharing of technology in mergers, acquisitions and joint ventures, which allow domestic firms to upgrade quality and launch new products. Further, the increase in competition in the domestic market because of entry of foreign multinationals provides stronger incentives for local firms to innovate.

There are several papers that study the effect of inward FDI on the innovation performance of Chinese firms. Buckley *et al.* (2002) analyze the effects of FDI across sectors and firms. They find that the investment of foreign firms has a positive effect on productivity.[3] A large number of studies confirm this finding (see for example, Cheung, 2010 and the references therein). However, there is considerable dispute about the relative importance of FDI when compared to other drivers of innovation, such as public investment in R&D and science and technology policies. On the one hand, for example Tang and Hussler (2011) argue that FDI is more important for innovation than the national innovation system. By contrast, in a study of the information and communication technology (ICT) sector, Wei *et al.* (2012) argue that locational and firm-level capabilities are more important drivers for innovation than FDI. Even stronger, controlling for endogeneity by focussing on a specific sector and specific locations, they show that innovation is negatively associated with the external orientation of firms in the ICT sector.

There have been other important qualifications that concentrate on the interaction of underlying firm and region specific factors to stress the nonlinear effect of FDI on local innovation. When taking account of endogeneity by looking at subsamples of industries and firm size, Hu and Jefferson (2002) show that absorptive capacity and complementarities in capabilities are important moderators for FDI to result in technology spillovers to local firms. In this line, an upcoming issue is whether the mode of cooperation between foreign and domestic firms affects technology transfer between partners. For the ICT sector, Sun and Du (2011) investigate the effects of the nature of the relationship between domestic and foreign owned firms on technology spillovers. They show that when firms only have production linkages, there is no significant effect on technology upgrading. By contrast, their analysis reveals that in general substantial spillovers occur when firms have technology cooperation agreements. Hence, perhaps trivial, when local domestic firms predominantly have arms-length production relations such as outsourced production contracts, the effects of inward FDI on local innovation are much less when compared to joint ventures in which partners cooperate and technology is shared. All in all, there is ample evidence that local conditions such as absorptive capacity, complementarities in production structure, public support, and the nature of the contractual relationships between foreign and domestic firms all matter for the effects of FDI on local innovation.

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[3] As pointed out by Aitken and Harrison (1999), endogeneity is an important issue, for it is likely that foreign firms may want to invest in the more productive sectors and firms.