

IDE Research Bulletin

Research Summary based on papers prepared for publication
in academic journals with the aim of contributing to the academia

Industrial organisation in China: Theory building and analysis of new dimensions

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Background and aim of the research project

By the early years of the 21st century, domestic firms in China succeeded in establishing a strong presence in the domestic market across a range of sectors. A growing accumulation of research has shown that important parts of Chinese manufacturing industries dominated by domestic Chinese firms often exhibit distinctive patterns of industrial organisation (Fujimoto and Shintaku ed. 2005; Marukawa 2007; Watanabe ed. 2014). The first is vertical disintegration, where key value chain functions are split up and undertaken by separate firms. The second is arm's-length relationships between firms that are responsible for different value chain functions. This is unexpected insofar as one might expect vertical disintegration to require more explicitly co-ordinated value chain governance between the fragmented parts. The third is entry of a large number of firms, including those equipped with limited levels of general capabilities. The resulting intense competition between many firms, as well as economies of scale in the production of intermediate inputs, enabled Chinese industries to attain remarkable levels of price-based competitiveness.

Despite the growing research on this topic, a number of issues remain underexplored. First, there is a question of what constitute the essence of industrial organization in China, and if there is a distinctively “Chinese model” of industrial organization – in parallel with the Japanese model of relational contracting developed by Asanuma (1999), Sako (1992) and others, or the model of modular production that initially emerged in the US (Sturgeon 2002). Despite recent attempts to extract the common essence across industries and formulate them into a conceptual framework (Fujimoto and Shintaku eds. 2005; Marukawa 2007; Watanabe 2014), the work is still at inception. More research is needed to lay down the theoretical underpinnings of the Chinese industrial organisation.

Second, there is a question of whether organisational patterns found in the literature, most of which covered periods up the early 2000s, is a temporal phenomenon occurring at a specific stage of development or a fundamental and enduring characteristic of Chinese industries. Indeed, the above model seems to have worked well for Chinese firms serving the low-end domestic market until the

early 2000s, but after that important changes started to take place. On the one hand, as a result of the rapid rise in per capita income, Chinese consumers started to opt for increasingly differentiated products in terms of quality, functionality, and brands. On the other hand, technological changes such as progress in information technology, environmentally-friendly technology, or new materials also affected some industries. The question of how Chinese firms respond to these changes and whether or not the firms' responses transform the original patterns observed up to the 2000s remain to be explored.

Third, there is an issue of whether the organisational pattern can be transferred abroad as Chinese firms internationalise via exports or direct investment. It is well-known that the internationalisation of the Japanese model required lead firms that were able to recreate some elements of the model overseas through practices such as, for example, follow sourcing (encouraging or obliging domestic suppliers to open up plants where assemblers were creating new operations). More research is needed to identify whether the Chinese model would follow a similar course. This issue, along with the second one discussed above, would serve as a test of resilience and adaptability of Chinese industrial organisation.

This research project has addressed the above three questions. By synthesising original data and existing empirical studies with relevant theoretical literature, it has sought to develop an improved understanding of industrial organisation that lay behind the remarkable growth of Chinese manufacturing industries.

Summary of the papers

This project produced a collection of five Discussion Papers. The first paper, by John Humphrey, deals with the theoretical dimension of industrial organization in China (Question 1). Two papers that follow, both co-authored by Ding Ke and Shiro Hioki, provide analyses of the transformation of Chinese industries, focusing on the mobile phone industry (Question 2). The last two papers by Koichiro Kimura and Mai Fujita examine the overseas expansion of Chinese firms (Question 3).

“Value chain governance in the age of platforms” by John Humphrey provides an analysis of platforms. Although the emergence of technology platforms and platform leaders has been observed globally, the platform is a key concept that aides our understanding of the features and transformation of industrial organisation in China. Against this backdrop, this paper considers how global value chain (GVC) governance theory might explain and be enriched by a consideration of industry platforms. The paper argues that these new forms of industrial organisation and the literature on platform governance can contribute to the further development of GVC governance theory. Using secondary material on platform leaders such as Intel and Apple and primary research on Chinese-owned mobile phone

companies, the paper shows how platform governance throws light on the way that lead firms shape both product architecture and industry structure.

“The Role of a Technological Platform in Facilitating Innovation in the Global Value Chain: A Case Study of China’s Mobile Phone Industry” by Ding Ke and Shiro Hioki investigates the role of a technological platform in facilitating innovation in the GVC, using the Chinese mobile industry as a case study. The analysis shows that the value chains driven by the Qualcomm platform have helped China’s leading mobile phone companies achieve significant upgrading, conduct active systemic innovations, and engage in more value creation. It argues that Qualcomm platform, despite its modular architecture, facilitated innovation for the following reasons: (1) innovation in the mobile phone industry has altered into a systemic innovation, (2) Qualcomm formulated a strategy that enables deep product differentiation, which precisely satisfied the upgraded domestic demands in China, (3) Chinese firms have accumulated strong capabilities that receive special technical support from Qualcomm, (4) stimulated by its unique licensing model, Qualcomm has been strongly motivated to help customers create value. The paper concludes that, under some conditions and institutional arrangements, technological platforms can possibly help firms in developing countries to engage in innovation and create value.

“Knowledge and Information Acquisition of Cluster Firms through Personal Networks and Value-Chain Linkages: A Case Study of China’s Mobile Phone Manufacturing Industry” by Shiro Hioki and Ding Ke investigates how heterogeneous firms in China’s industrial clusters (ICs) acquire the external knowledge and information necessary for their businesses. The authors developed an empirical analysis of a sample of 107 firms in China’s mobile phone industry to determine how different types of knowledge and information are conveyed through a variety of conduits, particularly personal network and value-chain linkages. The analysis finds that personal networks played important roles when firms gathered a variety of knowledge and information, whereas firm heterogeneity mattered when they gathered core technological knowledge and information. Larger firms tended to depend more on vertical linkages with suppliers, particularly platform vendors, whereas smaller firms relied more on personal networks when they obtained core technological knowledge and information. Several academic and policy implications are derived from the findings.

“Overseas Expansion and Technological Capabilities: The case of Chinese electronics firms” by Koichiro Kimura turns the focus to the overseas expansion of Chinese firms. It is known that the productivities of internationalising firms are higher on average than those of their non-internationalising counterparts. In view of the fact that indigenous Chinese firms are increasingly outward-looking for further growth, the paper examines how indigenous Chinese firms form their

technological capabilities. The paper analyses the formation of technological capabilities of Chinese major home appliance manufacturers in comparison with telecommunication equipment manufacturers and hardware startups in the electronics industry. To this end, the analysis focuses on the external business environment for major home appliance manufacturers, such as the technological gaps between foreign and Chinese firms in the same industrial industry, the possibility of cross-border mergers and acquisitions (M&A) transactions, the hurdle to start a business and to develop a new product, etc. The analysis shows that there is a variety of the ways for increasing technological capabilities for firms in emerging countries and can be an optimal way for it.

“Suppliers’ autonomous internationalization: A path for Chinese industries going abroad?” by Mai Fujita examines how small Chinese manufacturing firms internationalise into developing country markets. In consideration of the vertically disintegrated and fragmented structure of the Chinese industries in which such firms operate, this paper pioneers a value-chain-focused approach. The analysis of Chinese firms’ internationalisation into the Vietnamese motorcycle industry shows that Chinese suppliers capitalised on de facto component compatibility to serve many local downstream assemblers at the destination to penetrate the low-end Vietnamese motorcycle market. This “suppliers’ autonomous internationalisation” path enables Chinese firms to overcome their disadvantage in the knowledge about consumer demand and the control of distribution channels in low-end developing country markets and focus instead on the provision of key components to multiple locally-owned customers. The findings suggest that the research on internationalisation of Chinese firms needs to be embedded in the context of the transformation of the Chinese industries.

Overall findings

The following summarises the overall findings of the project according to the three questions set out in the beginning of this Research Bulletin. With respect to the first question concerned with theoretical underpinnings of the industrial organisation in China, we found that platforms play a central role in understanding the original features and the transformation of industrial organisation in some industries. The findings of this project provide new insights into some of the key issues surrounding platforms, including the concept of platforms and platform governance (discussed by Humphrey) and the roles of platforms in generating knowledge flows and facilitating innovation and value creation (examined in the two papers by Ding and Hioki).

Second, changes within and outside of China have brought about transformation of the original features of Chinese industrial organisation observed up to the early 2000s, though extent of transformation and the factors that drive the changes vary considerably across industries. The two

papers by Ding and Hioki found that the mobile phone industry experienced remarkable transformation. The levels of concentration increased considerably, relationships between platform vendors and mobile phone companies came to be characterised by closer collaboration and more intense flow of information, and large mobile phone companies came to be vertically integrated. The transformation was driven by changes in both technologies and consumer demand.

Third, changes in China have prompted Chinese firms to accelerate overseas expansion, but the paths of overseas expansion and its consequences differed by the types of firms. The paper by Kimura found that, among major Chinese companies with own-brand products, home appliances manufacturers tended to acquire technologies and strategic assets by buying the businesses of developed country firms via cross-border M&As. In contrast, smaller Chinese companies serving the low-end domestic market explored new low-end consumer markets in developing countries. Drawing on the analysis of the Vietnamese motorcycle industry, the paper by Fujita showed that internationalisation by these smaller companies resulted in the transfer of the Chinese-style industrial organization at the destination, and that this process was driven primarily by Chinese component suppliers linking with local firms at the destination that are engaged in downstream assembly and distribution of the end products.

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