The evolving geography of production hubs and regional value chains across East Asia: Trade in value-added

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ABSTRACT

The interdependence of regional trade and production networks has important implications for national prosperity, regional stability and the internationalization of production. We ask: What are the locational patterns of trade in value-added in East Asia and how are these patterns changing over time? The disintermediation of value chains and the externalization of business activity create hubs of capability and extend value chains between countries. We adopt input-output techniques to analyze the evolution of production networks in East Asia over the period 1990–2005 from a value chain perspective. A high density of cross-border interaction is reported alongside changing geographic dynamics, and an informal integration derived from intermediates trade in value-addition. The locational interdependence of developed and less-developed countries across the region leverages on the heterogeneity of location-specific advantages within the region.

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1. Introduction

Asian preeminence in attracting production activities from internationalizing firms has attracted increased attention of late. China, already the global factory (Buckley, 2011), is predicted to become the world’s largest economy before 2030 (World Bank, 2012). In the 1980s, Japan was heralded as the Asian miracle with Japanese management style acclaimed for its championing Japanese industrial development (Beechler & Yang, 1994; Nonaka & Johansson, 1985). Other Asian economies have recorded envious growth over recent decades too, with the Asian miracle and Asian tigers encapsulating the rise of East Asia in the world economy (Stiglitz, 1996). However, none of these economies has developed in isolation, with production networks across national borders engaging extensively in intermediates trade, often at the regional level.

The discussion of regional economic integration and its impacts has gained significant attention in scholarly research (Dunning, Fujita, & Yakovleva, 2007; Fratianni & Oh, 2009; Murray, 1989; Neffke & Boschma, 2011; Sierra, 2011; Verbeke & Kano, 2012). Policy-makers are concerned with a balance between creating the incentives for firms to engage across borders, and the benefits for long-term national economic development of creating these incentives (Lawton, Lindeque, & McGuire, 2009; UNCTAD, 2009). International business (IB) scholars have raised the question whether this engagement in cross border activities is more extensive at the regional or the global levels (Rugman & Verbeke, 2004). This debate is embedded in the discussion of location specific issues that have been long recognized as key issues in IB research (Beugelsdijk, 2007; Dunning, 1998; Dunning et al., 2007; Vernon, 1966, 1974; Wells, 1972).

Long ago, the pioneering works of Alfred Marshall (1919) identified the externalities appropriation of firms within clusters when these near-neighborhood firms externalize activities to generate concentrations of mutually supportive industries. The externalization of IB activity has created a ‘...’new geography of competition’ for mobile investment (Raines, 2003) and an...
increasingly complex interplay between states, economic regional blocs . . . and semi-autonomous regions” (Buckley & Ghauri, 2004: 91). Likewise, Dunning (1977) elaborated on his location dimension of the OLI paradigm to explain cross-border growth of international business activity and investment. In the more recent IB literature, Rugman and colleagues (2004, 2005, 2007, 2010) have elaborated the L (location) dimension in Dunning’s paradigm in regard to regional dynamics.

Economic geographers have called for a better understanding of locational choice in innovation, knowledge transfer and production networks research (Aoyama, Rigby, Rodriguez-Pose, & Yeung, 2011; Bebbington, 2003). In addition, growth paths of various regions have been studied (Neffke & Boschma, 2011) that illustrate regional agglomeration can accelerate national and regional economic development (Fan & Scott, 2003; Suder, 2011) by ameliorating challenges of foreignness and institutional distance that internationalizing firms face, and that impact business strategy (Luo, 2011; Zaheer, 1995). Yet, it has been argued that there is little overlap between the IB literature studying MNEs' operations across firm boundaries and economic geography which focuses on understanding the location-specific issues of economic activities (Mudambi, 2008).

We contribute to the location choice in IB research and the economic geography rationales by examining the changing structure of production network hubs in East Asia. We understand regional integration to be the interdependence of trade and production networks within a region, and we investigate this interdependence by analyzing intra- and inter-industry industrial production networks using trade in value-added. We chose this approach because trade in intermediates is the largest share of total trade, is growing (Meng, Yamano, & Fang, 2012), and it provides additional insights into the internationalization of production. The research question we address is: What are the locational patterns of trade in value-added in East Asia and how are these patterns changing over time? We use a methodology, novel for the IB field, that focuses on the different stages of production rather than on trade in finished goods or of sales revenue. We conduct a longitudinal analysis on trade in value-added using macro-level input-output (IO) data. This adaptation of analytical techniques from industrial economics to IB provides us with the means to better understand how value chains and locations interlink, and thus, it offers insight about the evolution of locational advantage.

We analyze IO data from three industries (textile, chemical and machinery) from nine East Asian countries over the period 1990–2005 chosen because they are recognized as sectors that experience the most significant cross-border movement of production activity across the Asian region (IDE-JETRO, 1998, 2006; Kamiński & Smarrzyns Javorick, 2001). Our sample comprises China, Japan, Korea, Taiwan, Singapore, Malaysia, Thailand, The Philippines and Indonesia, and our data allow us to distinguish in- and out-flows of finished and unfinished intermediary products at the industry and country levels. This use of multiple country contexts represents yet another extension of the existing IB literature that traditionally focuses either on single-country studies or on emerging or developed contexts separately (Fan & Scott, 2003). We consider this approach important because the distributed production activities of goods typically span across economies at different development levels. We build our analysis on multiple environments, and diverse institutional and economic settings (Bello & Kostova, 2012).

This study is multidisciplinary and contributes to several fields of research. First, IB scholars will be interested in the rationales behind the changing dynamics in regional integration from the value-added perspective. Our findings inform the conversation on how MNEs organize their value-added activities and undertake various types of trade and investment in a world economy that has transformed over the decades (Doh, Bunyaratajev, & Hahn, 2009; Dunning, 1998; Kali & Reyes, 2007). Furthermore, this study offers new measures to understand the underlying forces behind regional integration, and allows us to better comprehend the rationales for business strategic choices between global and regional expansion that have been discussed in the IB literature. Second, this logic extends economics-based explanations for regional integration (Petri, 2006) and its geography (Neffke & Boschma, 2011) which observe that regional and free trade agreements (RTA/FTA) have emerged alongside the internationalization of production in response to globalizing forces (Suder, 2011). Third, our results contribute to a politically-based lens that draws upon macro-data to analyze the influence of harmonized and normalized laws and regulations as strategic inducement for regional integration (Cherry, 2011; Morlino & Magen, 2009; Murray, 2010).

2. Perspectives on regional integration

2.1. The international business perspective

The regional aspect of international expansion has long been the focus of traditional firm internationalization theories. The Uppsala School (Johanson & Vahlne, 1977, 2009) stresses the importance of the home region in the early phases of a firm’s internationalization, arguing that cross-border activity will incrementally follow a path of experiential learning and knowledge acquisition that evolves commensurate with psychic distance considerations, which in general correlate with geographic proximity. In the home region, internationalization is generally less risky because there are fewer differences in national, institutional and business cultures, reinforcing a proximity factor in international business. The liability of foreignness (Eden & Miller, 2001; Zaheer, 1995) is minimized as are the costs of doing business abroad. Recently, scholarly attention has shifted to a global perspective on internationalization although some studies have questioned the dominance of global scale in firm expansion abroad. Scrutiny of foreign sales patterns of large MNEs has revealed regional rather than global distributions, and Rugman and Verbeke (2004), Rugman (2005) and Piekari, Nell, & Ghauri (2010) have observed the regional nature of large Fortune 500 MNEs’ activities.

In the 1980s, Ohmae (1985) argued that successful MNEs were present in three predominant regions of the world, the USA, Europe and Japan. Success or failure within each of these regions has been considered dependent on ‘insiderization’ (Rugman & Verbeke, 2004: 4) rather than ‘outsidership’ (Johanson & Vahlne, 2009), and the availability of what these authors have termed a fourth market in which market share could be obtained more easily compared to other global markets, and typically located in a less-developed economy. Reported by Rugman and Collinson (2005: 430), “… of the 380 firms with regional sales data examined by Rugman and Verbeke (2005), North American firms averaged 77.2% of their sales in their home region, the Europeans averaged 62.8% and the Asian firms averaged 74.3%.” UNCTAD (2007) noted that these three regions represented more than 80% of world manufacturing value-added, raising scholarly interest in scrutinizing internationalization at the regional level.

Interestingly, Rugman and Verbeke (2004) identified that home region oriented MNEs were different from other MNEs in decision styles and downstream firm-specific advantages (FSAs). They argued strong regional interests to be a reflection of unequal sales distributions, unequal accessibility and attractiveness to consumers, limits in applying experience gained in one market across into another market and location specific FSAs (Rugman & Verbeke, 2004). That is, they suggested there is a need to translate country
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