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Global production networks and local institution building: the development of the information-technology industry in Suzhou, China

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Abstract. We discuss how global production networks interact with local institutions to shape the ways in which economic development occurs within a region; the region concerned being the Suzhou municipality in China. We argue that the development of Suzhou's information-technology industry has largely resulted from (1) the transformation of global production networks in the 1990s, in which Taiwanese firms played an important role; (2) the local states' active role in transforming local institutions to fit the needs of foreign firms; and (3) Taiwanese investors' engagement in mediating and transplanting related institutions into the locality to meet the demand of global logistics for speed and flexibility. All these have resulted in Suzhou municipality's rapid growth in the information-technology industry and its embeddedness in the fusion of the global and local contexts. However, we will also demonstrate that the power asymmetry of global players and local states in this area has resulted in the creation of industrial clusters that are institutionally embedded but technologically delinked from the localities.

1 Introduction

As China has become the world's second largest recipient of foreign direct investment (FDI), after the United States, the implications of FDI for China's economic transformation and integration into the global economy have become the subject of intense academic debate and policy interest. Most of the existing studies on this issue focus on the role of FDI in contributing to China's double-digit economic growth, either at the national level in general (Chen et al, 1995; Lardy, 1996; Wei and Liu, 2001; Zweig, 2002), or in the coastal regions in particular (Hsing, 1998; Yeung, 2003; Zhang, 1994), emphasizing the effect of the central state's regionally biased policy on the distribution of FDI (Lardy, 1996; Wei and Liu, 2001), or of the local state's activism in competing for inward investment by manipulating regulations in favor of foreign investors (Hsing, 1998; Zweig, 2002). Few (for an exception, see Yeung, 2001), however, have paid attention to the interaction between international capital and local bureaucrats in shaping local institutional arrangements for attracting FDI.

China has become the world's factory since the late 1990s, and has also since 2002 become the second largest information technology (IT) producer in the world economy (MIC, 2004). Nevertheless, the rapid growth of the Chinese IT industry has to a large extent come about due to the contributions of foreign firms and their reprocessing and exporting activities (Lemoine and Unal-Kesenci, 2004). These foreign IT firms have been funneled mainly into the high-tech experimental zones in the coastal provinces (NBS, 2003, pages 134 – 135). Among these, Suzhou municipality (Suzhou city plus several satellite cities, including Kunshan and Wujiang) stands out as one of China's hottest manufacturing centers (Dolven, 2001) and has become the biggest laptop computer production center in the world, with an annual output close to 10 million

units, or about a quarter of the world's total in 2003 (*Asia Pulse* 2003). In regard to FDI, Taiwanese IT firms have had a salient presence in the area since the late 1990s. In 2001 Taiwanese investments constituted 80%, 53%, and 95% of all FDI in the cities of Kunshan, Suzhou, and Wujiang, respectively (table 1). In Kunshan city, also called 'little Taiwan', Taiwanese firms contributed about 86% of the total local taxes collected in 2002 (Po and Pun, 2004, page 65). The close linkage between Taiwanese IT firms and the economic zones in Suzhou municipality indicates that Suzhou has currently gone beyond the *Sunan* [1] model (Wei, 2002) that was based on township and village enterprises (TVEs). The Suzhou area is thus an economic region that has become deeply embedded in the international production networks in which Taiwanese firms play an important role in the value chain (Chen, 2002; Ernst, 2000). In this sense, Suzhou municipality should not be regarded merely as an economic space that has been created by the active local states. Instead, it is necessary to go beyond existing views and redirect one's focus on the complex and dynamic intermingling of the global and local institutional factors that have cut across different geographical scales.

Table 1. Taiwanese foreign direct investment (FDI) in the Greater Suzhou Area—2001 (source: TRI, 2002a; 2002b; 2002c).

Industrial park	Number of Taiwanese firms in the IT industry [a]	Total FDI in the IT industry (billions of dollars)	% of Taiwanese investments in total FDI
Kunshan	400 (70)	3.16	80
Suzhou [b]	500 (76)	8.5	53
Wujiang	200 (21)	2.6	95

[a] Figures in parentheses are the numbers of firms with investments exceeding US$ 10 million.
[b] Includes both Suzhou New District and Suzhou Industrial Park.

Our purpose in this paper is to analyze the development of the IT industry in Suzhou municipality based on the view that regional development arises due to the interactive effect resulting from the strategic actions of foreign firms coupled with institution building by local actors (Coe et al, 2004; Henderson et al, 2002). We argue that the concentration of Taiwanese IT firms in Suzhou municipality has largely resulted from: (1) the transformation of local states from the Sunan model to the Kunshan model, which has provided preconditions for inward investment; (2) the transformation of the global production networks in the IT industry in the 1990s, in which Taiwanese firms played an important role in terms of searching for lower cost production sites; and (3) the institution building that has resulted in collaboration between Taiwanese firms and Suzhou's local states, which has laid a foundation for local embeddedness thereby enabling the Taiwanese investors to play an important role in mediating and in transplanting related institutions from Taiwan to the locality. However, we also show, in the final section, that the power asymmetry between the global players and the local states has resulted in institution building favoring clustering among foreign firms, which have exhibited a tendency to delink themselves from the localities.

This paper is based on three separate field trips that took place in Shanghai and Suzhou municipality during 1–15 August 2003, 1 April to 30 June 2004, and 20 June

[1] 'Sunan', which literally refers to the southern part of Jiangsu province, has long been the hinterland of Shanghai, covering one provincial-level municipality and four prefectural-level municipalities (Suzhou, Wuxi, Changzhou, and Zhenjiang).

to 10 July 2004, involving both authors. More than sixty interviews were held, and covered the leading figures in governmental agencies, research institutes, technical communities, and industrial consortia. A variety of secondary data were also used, including government and corporate reports, industrial and financial analyses, and business and commercial journals and newspapers.

2 The geography of global production networks

Technological change in the 1990s, in particular the trend toward modularization and digitization, has dramatically altered the architecture of production processes on a global level (Langlois, 2003; Sturgeon, 2002). The uniqueness of the current modularized production is not based on standarization of the production process, which is not very different from classical mass production but, rather, on the standardization of knowledge that is more abstract and codified. Since production knowledge with regard to distinct nodes in the value chain can be formally codified it can be transmitted without specification, and linkages can be achieved by transferring codified information. As long as the participants in the production network adhere to the rules of the game in the value chain, they do not need to communicate in detail regarding their own activities, which reduces the need for management for integration purposes (Langlois, 2003, page 375). The modularization revolution has created a new form of business organization which Sturgeon (2002) calls 'the modular production network', in which the industrial structure is vertically disintegrated and where economies of scale and scope can be achieved by specifying a generic process that cuts across product categories. This trend is described by Langlois (2003) as the 'vanishing hand' because the Chandlerian firms are today giving way to the vertically disintegrated networks that have become the most significant organizational development in the 1990s.

Because a commodity can be decomposed into different modules which are produced in different places and recomposed and reassembled into the final product in a specific locality, the modular production network is currently equivalent to the global production network (GPN). As Ernst and Kim (2002) observed, the severe competition among multinational companies (MNCs), especially in the IT industry, created an important organizational innovation in the 1990s, in which MNCs changed from "focus[ing] on stand-alone overseas investment projects to 'global network flagships' that integrate their dispersed supply, knowledge and customers bases into global (and regional) production networks" (page 1418). The 'flagship' is at the heart of the GPN and provides strategic and organizational leadership, but has outsourced all but R&D and marketing activities to key contractual suppliers. The key contractual supplier, which Sturgeon (2002) refers to as the 'turn-key supplier', and Ernst (2004) calls the 'first-tier supplier', has to develop new organizational competence and technological capability to fulfill the demands (that is, quality, volume, speed, and flexibility) of the flagship firm. It is because of the increase in demand from the flagship firm that the key contractual supplier has to increase vastly the scale of its own operations, which eventually leads to the construction of its own mini-GPNs in order to respond rapidly and flexibly to the stringent demands of the flagship firm. In turn, the lower end supplier, which focuses on improvements in relation to specialization, productivity, and linkages, has to fulfill the demands of the key contractual supplier.

The geography of the GPN indicates the spatial division of labor among the flagships, key contractual suppliers, and the key suppliers' smaller suppliers. Because the flagship firm's competitiveness depends greatly on technological innovation, areas that have an 'innovation milieu' (Castells, 1996) and the 'institutional thickness' (Amin and Thrift, 1994) required for facilitating knowledge creation are the places where these firms tend to be located. These areas tend to be in technologically advanced countries.

By contrast, the competitive strength of the key contractual suppliers is not based on innovation but, instead, on speed, scale, and low cost. It is, therefore, reasonable for them on the one hand to locate their headquarters or offshore offices adjacent to the flagships, in order to maintain close contact with them and access the latest information. On the other hand they may establish their manufacturing facilities and build their mini-GPNs in areas where the requirements of speed and scale can best be met. Due to cost considerations, these manufacturing areas tend to be located in the late industrializing countries.

Given the fact that globalization has resulted in strong competition among regions for FDI throughout the world economy, the central question that needs to be asked is to what extent a specific locality in a late industrializing country is able to attract huge amounts of FDI and generate regional economic development in this age of modular production networks. Our perspective will basically accord with Coe et al's view (2004; see also Henderson et al, 2002), which suggests that regional development constitutes "the interactive complementarity and coupling effects between localized growth factors and the strategic needs of trans-local actors" (Coe et al, 2004, page 469). For them, regional development ultimately depends upon the dynamic '*strategic coupling*' of global production networks (or the strategic needs of the MNCs) with regional assets. It is the appropriate configurations of regional institutions that 'hold down' global production networks and unleash regional potential (page 469). Therefore, regional assets can become advantageous in regional development *only if* they fit the strategic needs of global production networks (page 474).

Following Coe et al's approach, in this paper we identify and analyze the elements of regional assets and global production networks which generate the necessary strategic coupling for the development of the IT industry in Suzhou municipality. In particular, we highlight some aspects that may substantiate further Coe et al's general conceptual framework. First, although Coe et al's approach does not reject the possibility that a focal firm may be a key contractual supplier in shaping the GPNs and in facilitating a local response, our research focuses mainly on the key contractual supplier and its role in helping transform local institutions in the host region. This is especially important because the competitiveness of a key contractual supplier is based on its capability in fulfilling the requirements of low cost, flexibility, scale, and speed of the flagship firms. Therefore, an area that has the appropriate institutional structures to meet these requirements may become articulated into the GPNs and involved in the process of 'fitting'.

Secondly, in a way similar to Coe et al's perspective, which regards the state as an important institutional factor that contributes to a region's ability to 'plug into' the GPNs, we emphasize in particular the local state's *initiatives* in institution building in order to form linkages between the GPNs and local institutions. This is particularly important to the Chinese context, where competition among local states is so severe that it eventually leads to organizational and institutional isomorphism (Powell and DiMaggio, 1991). The decentralized state structure has given some, but not all, local states the power to move a step forward to meet the demands of flexibility and speed. Therefore, in this context we suggest that it is only in those areas where the local states are able to pursue institution building aggressively and meet the requirements of the GPNs that these states can acquire a first-mover advantage and enhance their regional competitiveness and development.

Thirdly, Coe et al suggest that the power relationship between a focal firm and a region is asymmetric because of their different degrees of control over resources and information. Normally, a focal firm has more control over corporate resources and the ability to process and collect information on a global basis, and, therefore, "the more a region is articulated into global production networks, the more likely it is able to reap the benefits of economies of scale and scope in these networks, but the less likely it is

able to control its own fate" (Coe et al, 2004, page 475). However, Coe et al also argue that the power relationship is not necessarily all in favor of the focal firm, because a region can also benefit from being articulated into the GPNs by mobilizing local assets that are highly region specific and highly complementary to the strategic needs of focal firms. Similarly, we can propose that, if a region is weak in terms of the power relationship, the institution building may be of more benefit to the focal firm than to the needs of the locality; on the other hand, if the region is strong in terms of the power relationship, the locality may be able to build institutions which are not only beneficial for focal firms, but which also contribute to the long-term development of the locality. Whether a region can capture and retain a larger proportion of such value is an empirical question that depends on the bargaining power of the localities compared with that of the focal firms.

Based on the above propositions, we argue in this paper that the development of the IT industry in Suzhou municipality has come about as a result of the Taiwanese firms' desperate need for cheaper production sites, and the search for FDI on the part of the local states in Suzhou. However, we also argue that the strong competition among the Chinese states has resulted in their having weak bargaining positions with Taiwanese IT firms for technological transfer. This has ultimately resulted in the region's institution building tending to be coupled with focal firms' needs, and to be technologically delinked from the local society.

3 The significance of Suzhou municipality

The Suzhou area, including Suzhou, Kunshan, and Wujiang, is located close to the border of Jiangsu Province and Shanghai, and is well connected to Shanghai via highways, railroads, and waterways (see figure 1). It is a part of Sunan, which is

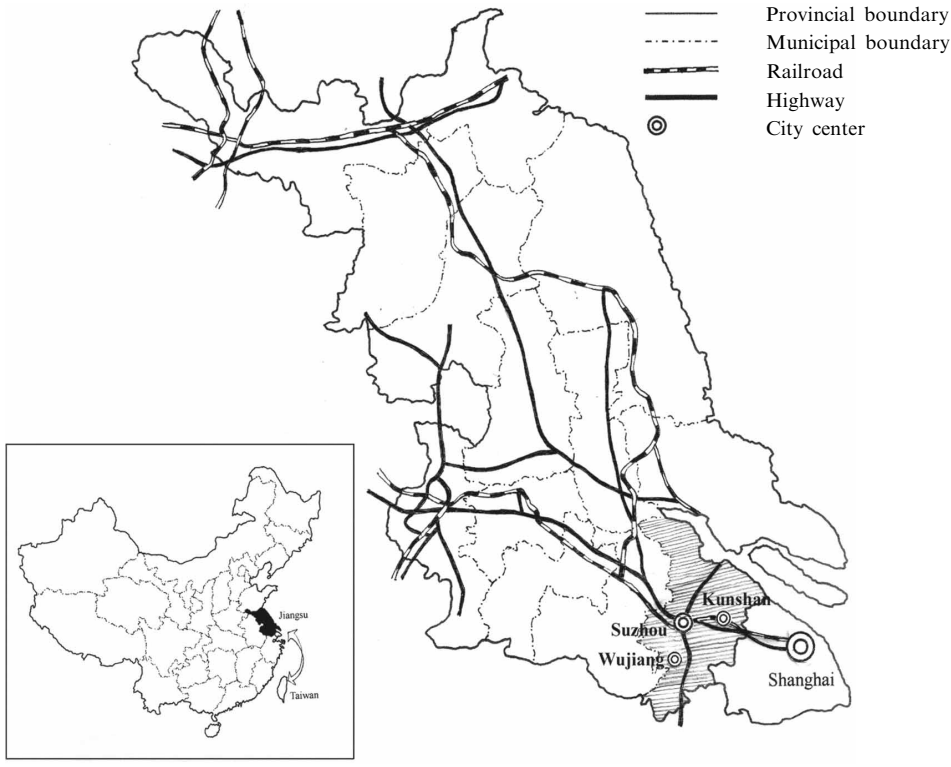

Figure 1. Map of Suzhou municipality.

renowned for the particular way in which rural industrialization has taken place in China—as a result of which it experienced rapid industrialization during the 1980s, based on a large amount of TVEs (Byrd and Lin, 1990; Ho, 1994). The well-established communal and brigade structures of the Mao era helped lay a foundation for local states' involvement in promoting rural industrialization.

In the early 1990s the Sunan model—the regional economic development model that was based on TVEs—experienced major bottlenecks (Smyth, 1999; Wei, 2002). Major cities in the southern part of Jiangsu province had fallen into a developmental crisis after a decade of rural industrialization. At almost the same time, China's central state began to initiate the Pudong Development Project to develop Shanghai as the economic powerhouse on the Yangtze River Delta (YRD)—an ambitious project intended to build the new economic center of the whole of China (She et al, 1997). Faced with these tendencies, local states in the Suzhou area immediately began to change the direction of their economic development and enthusiastically embraced FDI. Since then, they have had some impressive achievements. For example, Suzhou municipality, as one of thirteen major municipalities in Jiangsu province, accounted for only 8% of the total provincial population, but it grabbed 40% of the FDI and contributed 55% of the province's exports as a whole in 2003 (table 2).

Table 2. Performance of Suzhou Municipality in Jiangsu Province (in US$ billion) (source: JSB, 2000–2004; SSB, 1999–2004).

	Jaingsu		Suzhou			
	FDI [(a)]	exports	FDI	exports	FDI (%) [(b)]	exports (%) [(b)]
1990	0.44	2.94	0.07	0.16	16	5
1995	5.29	9.78	2.38	2.34	45	24
1999	6.64	18.31	2.86	6.93	43	38
2000	6.60	25.77	2.88	10.48	44	41
2001	7.35	28.88	3.02	12.31	41	43
2002	10.83	38.48	4.81	18.52	44	48
2003	17.14	59.14	6.81	32.63	40	55

[(a)] FDI—foreign direct investment.
[(b)] As a percentage of Jiangsu Province.

In terms of FDI, Taiwanese firms have been the top investors since the early 1990s, especially in the IT industry (table 1). The concentration of Taiwanese investment in Suzhou municipality came about as a result of collaboration and a coevolution process that involved (1) the transformation of the functioning of the local states, from emphasizing TVEs to seeking FDI; (2) the restructuring of GPNs in the IT world, in which leading Taiwanese firms were the major suppliers; and (3) the construction of export-oriented institutions, mediated by Taiwanese investors, to meet the demands for speed and flexibility.

4 The development of diffusion of the Kunshan model

China began her FDI-oriented development with the opening up of four 'Special Economic Zones', which were later extended to fourteen 'Open Coastal Cities' in the 1980s. A further opening up was launched during the 1990s, after Deng Xiaoping's southern tour in 1992 which had triggered a wave of construction of development zones by different levels of local states all over China. By 1995, there was a total of

422 zones of various kinds that were able to receive FDI (Yang, 1997), including many located in Suzhou municipality.

In essence, the major development pattern of Suzhou municipality has been the replication and diffusion of the Kunshan model. Kunshan is a county-level city [2] in the Sunan area. While it did not catch the first wave of development at the time of the Sunan model, probably because of its backwardness, Kunshan was among the first to change direction and embrace open-door policies. Since the mid-1980s the Kunshan local state has initiated a number of institutional reforms to improve local development conditions both for domestic and for foreign investments. First, it established the Kunshan Economic and Technological Development zone (KETDZ), which was the first industrial park to be initiated and funded by a local state. Second, it initiated a 'land-granting system', which was relatively innovative in the mid-1980s, both in terms of transferring property rights and in terms of land development, in China (Yang, 1991). To maintain the state-owned status of land, it granted only *land-use* rights to foreign investors in return for user fees. With the injection of these fees the Kunshan local authority carried out a self-financing development process, in which investors brought in capital for the improvement of infrastructure and land conditions, which then attracted more investors, brought in more capital, and triggered additional funding for the construction of infrastructure.

As a result of these entrepreneurial efforts, Kunshan experienced rapid growth during the 1980s. By 1989 Kunshan had become one of the richest counties in China in terms of GNP per capita, and the KETDZ was ranked as the country's third-largest development zone in terms of production value compared with the other fourteen Economic and Technological Development Zones (ETDZs) that were endorsed by the central state (Yang, 1991, chapter 5). Kunshan's experiences attracted the attention both of the media and of state officials, which led to a number of cities and counties in Jiangsu province starting to replicate the so-called 'Kunshan model'. The first generation of imitators comprised the neighboring cities of Suzhou and Wujiang. Suzhou is the authority immediately over Kunshan; Wujiang is an adjacent city with the same administrative level. These cities both began to develop their own industrial parks in the early 1990s. As Wei (2002, page 1727) observed,

> "Kunshan led Sunan in taking a development path utilizing both domestic and foreign resources and moving away from the development of TVEs."

During the same period, there was another industrial park under construction in Suzhou but this was an international collaboration between the Singapore government and the central Chinese government. In 1994, the Singapore government worked directly with the central government in Beijing to establish the Suzhou Industrial Park (SIP) as a way of showing the Chinese how to run an industrial park. However, such top-down initiatives later failed to meet the objective of attracting FDI because of the high rents and the reluctance on the part of the local authorities to support the project fully (Pereira, 2004). This made it hard for SIP to compete with other, similar, parks springing up nearby. Therefore, rather than be marginalized by its neighborhood, the Suzhou city government built a replica industrial zone across town, known as the Suzhou New District (SND), which attracted more FDI than the SIP and whose institutional features came not from Singapore but from a smaller city nearby—namely, Kunshan.

[2] China's urban hierarchy from top to bottom includes the directly governed, the provincial level, the prefectural level, and the county level.

There were, however, two unintended consequences of the diffusion of the Kunshan model. First, given that the cost of expropriating land was very low, local governments tended to expropriate more land than was necessary, which resulted in an excessive amount of land being taken over;[3] this led to an oversupply of industrial land, which brought about keen competition among local governments for lower land-use fees. As a result, a quasi-market for industrial land emerged in the Sunan area, which could be divided into four tiers: (1) in the high-end market was SIP, which was renowned for its high-quality infrastructure and services; (2) in the middle-to-high-end tier—the national-level High and New Technology Development Zones, such as SND, enjoyed preferential policies specific to high-tech industries; (3) in the middle-end tier were the national-level ETDZs, such as KETDZ; and (4) in the low-end tier were the subnational level industrial parks, such as that in Wujiang (MIC, 2000). In the 1990s the local state in the Suzhou area actively transformed itself into a service provider, tailoring its services to meet the needs of foreign firms. This varied on a case-by-case basis, from choosing an appropriate site, applying for investment approval, winning preferential treatment, building factories, recruiting labor, importing materials, exporting final products, and even providing personnel services.

5 The formation of GPNs and strategic coupling

Taiwan's IT industry is well known for its networked small and medium-sized enterprises (SMEs) that serve as the original equipment manufacturing (OEM) suppliers producing electronics products for leading global firms (Hobday, 1995; Kim and Nelson, 2000). Quite a few Taiwanese leading IT firms emerged as key contractual suppliers (for example, Acer, MiTac, and Compaq) in the late 1980s and early 1990s when the leading global firms started to release large quantities of OEM orders to Taiwan because of the severe competition in the world market. These Taiwanese leading firms started to construct their own local production networks in order to meet the large volumes of orders placed by the leading global firms. As the severe competition continued and outsourcing from the leading global firms increased, both in scale and in scope (Chen, 2002), these Taiwanese firms also began to move their manufacturing bases offshore in order to sustain the orders and to retain their competitiveness—first by moving to the Southeast Asian countries, and then by moving to China (Wang, 2001).

Indeed, the 1990s witnessed the emergence of GPNs in the IT industry. The leading global firms developed new strategies to strengthen their competitiveness, which in turn forced key contractual suppliers to respond by organizational restructuring. For example, in order to shorten time-to-market and to reduce production and inventory costs, the leading global firms developed the build-to-order model which required contractual suppliers to execute orders within a rather short period of time. As an example, Compaq imposed a '98 – 3' operational formula, which required its key suppliers to collect 98% of the components and parts needed for production within three days of receiving the order, and to ship the final products to the customers within six days of the order having been placed. In order to comply with these stringent requirements, leading Taiwanese contractual suppliers developed a low-cost rapid-response, global logistics model, which involved relocating manufacturing sites to the low-cost areas and synchronizing everything along the supply chain,

[3] Although peasants in communes and brigades were supposed to receive compensation from land expropriation, the compensation was usually very low compared with the sale price of the land. It was reported that one local government expropriated farmland at a cost of 20 000 renminbi per acre and sold it at 300 000 renminbi per acre, and that another local government expanded its ubanized area to two times the amount which its population needed.

including procurement, production, logistics operations, and after-sales service (Chen and Liu, 1999).

This global logistics model involved the building of a shipment hub, which collected major modules, assembled them into semifinal products (or 'bare bones'), and shipped them to inventory centers in major markets all over the world. As China emerged as *the* low-cost site for procurement, production, and logistics operations, the hubs gradually moved from Taiwan to China. By 2002, 55% of desktop production and 40% of notebook production had moved from Taiwan to China (MIC, 2003). Along with this relocation of the shipment hub, the networking firms of the major Taiwanese leading PC firms, for example, also moved to China to serve the nearby leading firms, including those firms that manufactured motherboards, monitors, CD-ROMs, hubs, and network cards (table 3).

Table 3. Production of Taiwanese IT Industries in China – 2002 (source: MIC, 2003).

	Production value (US$ millions)	Production volume (thousands)	Global market share (%)	Production in China (% by volume)	Production in China (% by value)
CD-ROMs	3 146	79 409	45	94	94
Hubs	106	21 004	61	76	41
Monitors	10 190	61 164	53	71	69
Mother-boards	5 636	86 551	65	62	60
Network cards	558	47 572	75	62	24
Desktops	6 933	24 740	23	55	22
Notebooks	13 922	18 199	61	40	30

The relocation of the shipment hub from Taiwan to China also involved the construction by the leading Taiwanese firms of mini-GPNs, which included the selection of a site on which to relocate corporate resources across borders, as well as the formation of clusters through which the production networks were transplanted from Taiwan to China. However, it needs to be asked why the Taiwanese firms favored Suzhou municipality over Shanghai and even Shenzhen in the south.

In the 1990s, major shifts occurred simultaneously in China's open-door policy and Taiwan's cross-Strait investment. On the one hand, China's central government started to shift the focus of its economic reform away from the Pearl River Delta (PRD) region to the YRD region, and initiated a series of projects to develop Shanghai as the economic powerhouse of the YRD, and the new economic center of China as a whole (She et al, 1997). The opening up of Shanghai was based on the following considerations. Firstly, Shanghai has long been China's industrial nucleus and wealthiest region, whereas Shenzhen is too new and small to be a real 'Dragon Head' for the whole nation. Secondly, Shanghai is not tied to any specific foreign force and is more likely to become China's financial center, whereas Shenzhen is too closely connected to Hong Kong. Thirdly, Shanghai is located in the center of China, which is not only easily accessible to the whole of the YRD, but also to both the northern and southern coastal areas; whereas Shenzhen is too remote to be accessed by the central and northern regions of China. Finally, Shanghai has gathered the largest pool of human capital, which may sustain its important role in China's economic development in terms of manufacturing, finance, and management, whereas Shenzhen has pooled only the cheapest labor force, for export processing (Werner, 2001).

On the other hand, Taiwanese investors also started to divert their investments away from the PRD to the YRD in the mid-1990s, led primarily by the IT industry. Before 1992 the YRD attracted less than 20% of the amount of cross-Strait investment annually, but after 1994 the YRD began to overtake the PRD, and in 2004 it had grasped 62% of the annual cross-Strait investment. During the same period of time, from 1994 to 2004, the share of the IT industry in annual cross-Strait investment had also jumped, from 27% to 56% (MOEAIC, 2004).

In searching for new settlements in the YRD, Taiwanese investors preferred the smaller cities adjacent to Shanghai to Shanghai itself. There were three reasons for this. First, production cost was still the primary concern of the firm. Compared with Shanghai, which was notorious for its high land prices and limited supply of land, small cities were able to offer cheaper and more abundant supplies of land. Second, small cities were also more willing to offer better services in meeting the demands of foreign investors, such as preferential treatment and administrative support. Third, the investment by leading Taiwanese IT firms always involved the relocation of whole production networks, which required significant administrative support from the local governments. Small cities provided more room for negotiation and collaboration than did larger or higher level cities. These advantages associated with small cities could be referred to as 'small-government advantages', because their smaller size and lower level in the administrative hierarchy provided these localities with the flexibility and adaptability that enabled them to adapt quickly to the changing environment.

Therefore, a strategic fit appeared between Taiwanese IT firms and Suzhou local states when these firms were targeting the smaller cities adjacent to Shanghai and Suzhou local states had prepared themselves for inward investment. In order to increase the Taiwanese investment, the local states in the Suzhou area adopted an 'anchor tenant' strategy to help nurture the formation and proliferation of supply chains. An 'anchor tenant' was the major MNC or the major contractual supplier in the GPN, which commanded the leadership to summon its followers to follow suit, as well as to raise the public profile of an industrial park. First, the local state would provide the anchor with special preferential terms with respect to land prices, tax exemptions, infrastructure support, and administrative services. Second, having successfully attracted an anchor tenant into the special zone, the local state would then target the firms downstream and upstream along this anchor's supply chain to persuade them to follow. By the early 2000s almost all of the leading firms in the major sectors of Taiwan's IT industries had settled their manufacturing facilities in the Suzhou municipality (TRI, 2002a; 2002b; 2002c). For example, in the case of Kunshan, the city first targeted Wu Li-gan, the owner of WUS Printed Circuit Board Co—a leading character in Taiwan's printed circuit board (PCB) industry. Other PCB firms started to crowd in after WUS succeeded in winning contracts from several leading global firms. Wu later helped the Kunshan local government reconfigure its resources toward attracting inward investment, including changing the type of foreign-invested enterprise from a joint-equity venture to a wholly foreign-owned enterprise,[4] tailoring government

[4] There are three types of foreign-invested enterprise (FIE) in China: joint-equity venture; contractual joint venture; and wholly foreign-owned enterprise. In the early stages of opening up, China's policies favored joint-equity ventures—in anticipation of technology transfer from foreign investors to their Chinese partners. However, in most cases, both parties seemed to regard the joint venture as a means of getting privileged treatment, so this type of FIE was widely criticized later (Young and Lan, 1997). Wu persuaded the Kunshan government to target wholly foreign-owned enterprises because this type of FIE would upgrade technologies over time with a view to sustaining and expanding the enterprise in the long run.

services to the needs of foreign investors, and building infrastructure for promoting export-processing activities (Yang, 1995, chapter 3).

In the case of Suzhou (or, more specifically, SND), it was a collaboration process that linked the local authority with the first Taiwanese firm (BenQ) since both started from scratch—and even shared the same building for the first few years. SND's cadres worked closely with BenQ's Taiwanese managers in planning and constructing the industrial park, and setting up the regulations and codes. In return, BenQ engaged in building up the supply chain of the monitor industry by recruiting suppliers from Taiwan, Malaysia, and the PRD (Zhang, 2003, chapter 7).

The case of Wujiang was even more striking. As a latecomer lagging behind Kunshan and Suzhou, the Wujiang government chose to compete on the basis of low costs and efficiency. It is the stuff of legend that the Wujiang government made a deal with the first Taiwanese firm (Jean, a leading monitor firm in Taiwan), promising that, if it could complete the administrative process from approving to implementing the site plan within 100 days (a process which usually took more than one year in China at that time), then Jean would settle in Wujiang. In the end, the whole process took only 97 days, so Jean became Wujiang's first tenant—just as the firm had promised (Chuang, 2001, chapter 3).

6 Institution building for speed and flexibility

The active role of the local state in the Suzhou area in promoting FDI not only involved the transformation of the domestic institutions, but also entailed the institution building needed to meet the principles of speed and flexibility required by the foreign investors. As discussed above, the major Taiwanese IT firms, under pressure from the leading global players, moved their shipment hub to China; this therefore required that the new manufacturing sites meet the stringent requirements of global logistics. This has been a race in terms of speed and flexibility, and has involved local states' efforts in building the institutions necessary for a shipment hub. Since local governments in Suzhou municipality targeted Taiwanese investors as their major customers, the most efficient way to build up institutions on demand was to import these institutions directly from the home region—Taiwan. Leading characters in the communities of Taiwanese investors started to act as intermediaries in lobbying for the institutions that they desperately needed, in introducing local cadres to the Taiwanese managers, and in educating local cadres about the Taiwan experience, while local cadres became engaged in digesting, absorbing, and duplicating the Taiwan experience. Some scholars have used the term 'transborder governance' to describe the collaboration between Taiwanese investors and local cadres in transferring institutions from Taiwan to China (Po and Pun, 2004).

There are a number of approaches that the Taiwanese investors have adopted in helping further the local institution-building process. The first involves Taiwanese investors lobbying for the institutions that they desperately need by serving as consultants to local states and educating local cadres with regard to the Taiwan experience. Since the Taiwanese investors have a salient presence in the Suzhou municipality, they also have powerful voice in bargaining with local bureaucrats. In some cases, leaders in the Taiwanese circle have established close relationships with party secretaries, mayors, and other high-ranking cadres in local states, and they have thus had easy access to the local power elites to help in transferring their experience in Taiwan to the localities. For example, Wu Li-gan, the owner of WUS and the most notable Taiwanese investor in Kunshan, was regarded as the 'foreign Mayor' of Kunshan because of his intense involvement in the building of local economic institutions (Yang, 1995). In other instances, the Taiwanese investors' associations have also had some say in building a

favorable business environment. The close collaboration between the Taiwanese investors' association and the Kunshan local authority provides an excellent example (Po and Pun, 2004). This was the first county-level Taiwanese investors' association approved by the central state; through it Taiwanese investors as a group can actively participate in local economic governance.

The second approach that the Taiwanese investors have adopted has been to introduce the Taiwanese experience and to import similar institutions from Taiwan to local states in Suzhou municipality. For example, through the mediation of Taiwanese investors, Kunshan's political leaders went on a fact-finding trip to Taiwan—as part of a group that included Kunshan's Communist Party Secretary, Zhang Wei-kuo, as well as the director of the KETDZ, Hsuan Bing-lung. Zhang and Hsuan visited Taiwan's export-processing zones (EPZs) and the Hsinchu Science-Based Industrial Park four times and six times, respectively, to gain experience from Taiwan officials. The documents and materials that they collected were so many that they usually carried them back in 'gunnysacks' as they described them. They also invited retired officials from Taiwan to Kunshan to share their expertise. These intense cross-border interactions helped Kunshan, and the Suzhou area in general, to build institutions that could meet the requirements of a shipment hub, which the leading Taiwanese firms desperately needed.

By 2000, Kunshan had finally received the endorsement it needed from the central state, when it selected Kunshan and fourteen other cities as the first group of experimental sites for establishing EPZs. Compared with the free-trade zones (FTZs) that had been introduced in China in the early 1990s, EPZs enjoy an overwhelming advantage in terms of 'speed'. First, they specialize in export processing, with nonstop Customs services provided in gated zones, which gives them higher efficiency and security compared with FTZs, which are open zones burdened by activities that are too diverse and which have only eight hours of Customs services each day. Second, they have streamlined as many procedures as possible, ranging from tax collection, contract reviews and filing, and import–export declarations, to Customs procedures, which have already reached a state-of-the-art in terms of avoiding the bureaucratic red tape which is the norm in China. Third, they have widely adopted electronic transactions for routine operations, which has tremendously improved bureaucratic efficiency compared with manual methods. For example, adopting the e-governance method, the EPZ has opened up an online application system which allows exporters to apply for contract reviews and filing as well as to pay tax via the Internet. Moreover, a logistics service center has been set up within the EPZ to act as a business-to-business platform for exporters to procure parts and components from domestic and foreign suppliers on a real-time basis. Both systems are linked to the declaration system of the Customs in order to transfer the data seamlessly. In addition, a transportation network has also been built to link the EPZ to airports and seaports: this has greatly enhanced the speed and flexibility of transport so necessary for a shipment hub (table 4). Compared with the FTZ, the time spans required for handling Customs procedures and assembling notebook PCs have been shortened from 72 to 4–6 hours, and from 14 to 7 days, respectively (Yang and Hsia, 2004, page 36).

It is interesting to note that, not only have the Taiwanese investors helped local authorities build suitable institutions for GPNs, but the local authorities have also in return helped the Taiwanese investors tap into local capital resources. Hence, the local institution building has been a mutually beneficial process for both sides. For example, the Kunshan local state has worked closely with branches of state-owned banks to grant loans to Taiwanese investors, giving some of them preferential treatment in terms of collateral requirements and credit lines. It has also established the Institutional

Table 4. Comparison of export processing zones (EPZs) with free-trade zones (FTZs) (source: China Export Processing Zone: http://www.cepz.com.cn.

	EPZs	FTZs
Year of inception	2000	1991
Number	38	15
Functions	Export processing	Export processing trade warehouses showrooms
Administrative level	Administration—local state Customs—Customs General	Administration—local state Customs—Customs General
Management	Closed, gated, zone 24-hour Customs services	Open zone 8-hour Customs services
Tax policies	Tax-free for exported goods and services No collection and no return	Tax-free for exported goods only First collection and then return
Contract review and filing	One-stop shop	Several procedures due to bureaucracy
Import/export declaration	EDI [(a)]	Manual procedures based on Export Processing Registration Manual
Customs procedures	Single unified process for declaration, approval, and examination No inspection during transshipment	Discrete processes for declaration, approval, and examination Manual inspection during transshipment

[(a)] EDI—electronic data interchange.

Reform Committee to help Taiwanese firms go public in China by acting as an intermediary. For example, by buying a 20% stock share of WUS, it has helped transform WUS from a wholly foreign-owned enterprise to a joint-stock corporation. Because of this close relationship, it is expected that WUS will become the first Taiwanese firm to go public in China's A category on the Shanghai stock market in the near future.

To sum up, it has been because of the active role of the local states in the Suzhou area and the assistance received from the Taiwanese investors that the region has become endowed with institutions that are characterized by speed and flexibility. These features meet the demands placed upon the contractual suppliers in the GPNs of the IT industry, which has enabled this region to become an industrial hub in which most major Taiwanese IT firms are located. Indeed, by 2003, all major Taiwanese notebook PC companies, including first-tier and second-tier leading firms, had settled in the Suzhou area, and had been followed by their suppliers. As a consequence, China's share of the world's notebook PC production jumped from nearly zero to about one quarter within only two years (MIC, 2003).

7 Discussion and conclusion

In this paper we have argued that the rapid development of the IT industry in Suzhou municipality has resulted from the expansion of the GPNs, local state activism, and the Taiwanese investors' engagement in helping facilitate local institution building to meet the requirements of speed and flexibility. It was because of the local states' search for FDI in order to escape from the failure of the Sunan model, and the Taiwanese investors' desperate need for cheaper and more supportive economic regions that were adjacent to the Shanghai hub, that the strategic coupling between these two actors

evolved and was subsequently reproduced. Because of this strategic fix, economic activities in the Suzhou municipality have become deeply enmeshed in the global context and have gained momentum in rapid growth. The Taiwanese investors' mediation in helping facilitate local institution building was particularly important, not only because of the transplantation of Taiwanese institutions into the locality, but also because of the establishment of institutions that can meet their strategic needs. It was because of this institution building that almost all of the leading Taiwanese firms relocated their production facilities and networks to this new territory. This has resulted in Suzhou municipality becoming a globally–locally fused economic region that is now part of the global production network.

Although Suzhou municipality has become increasingly important in the IT world, it nevertheless faces some obstacles in moving upward in the global value chain—(largely because of its relatively weak bargaining power in negotiating both with Taiwanese and with other foreign firms. There are two key reasons why the local states' bargaining power has been weakened. The first is the severe competition among local states in the same region for FDI, which has resulted in their becoming weak. On the one hand, the severe competition for inward investment has continuously driven down the prices associated with land development as many local authorities regard a low price as the most effective way of defeating their rivals—in some cases the land-use fee has been reduced so much that it is below the development cost. Faced with the cut-throat competition brought about by the latecomers, especially from those in less favorable locations, Kunshan and the city of Suzhou have already lowered their land-use fee by between one quarter and one third. On the other hand, based on the same reasoning, many local officials informed us that they had never even asked Taiwanese firms to transfer technology to or build production networks with local firms. If they had done so, the Taiwanese firms would have gone to other places, which would not have been favorable to local economic development.

Second, the severe competition among local states in the region has created serious problems regarding policy coordination, and has tended to prevent the region from building the local production networks that are necessary for long-term development regarding innovation. The central state's 'GNPism', in which the political performance of local officials is evaluated based on the local economic growth rate (Zweig, 2002), has encouraged local officials to develop a short-term view of economic growth rather than cultivate a long-term view that is directed toward technological learning and innovation. As a result, local officials do not have the motivation to coordinate their activities with those of the adjacent authorities, and prefer to focus their energies on the promotion of FDI that is visible in terms of economic growth. In the same vein, neither do the local states intend to help foster local production networks by linking foreign firms to local suppliers or large state-owned enterprises to local SMEs. Because both exercises are time consuming, the consequences will not necessarily become visible in the short term.

As a result, the clustering of Taiwanese and foreign firms in the area tends to create an economic enclave that has little organic relationship with the locality. This is not favorable to local firms seeking to acquire technology from foreign firms, and will eventually hamper the region's accumulation of technological knowledge. Indeed, the Suzhou area is in reality a globally embedded but locally delinked economic region whose competitiveness lies in its providing the focal firms with institutions that can fulfill their needs for low cost, speed, and flexibility, rather than in the localities' own specific assets. In this situation, neither Taiwanese nor other foreign firms need much in the way of logistical support from local firms, and they do not tend to nurture local suppliers either. Instead, they prefer to maintain their existing production networks

(that is, the Taiwanese firms) or to import certain essential parts from abroad (Lemoine and Unal-Kesenci, 2004).

Thus, although the Suzhou area has performed remarkably well in recent years in terms of the development of the IT industry, its growth has largely been based on FDI—especially from Taiwanese firms. Suzhou municipality as an economic region is thus still faced with enormous institutional tasks in terms of fostering the local clusters that are needed in the transition toward innovation. The irony of this is that the role of the local state lies at the core of the new challenges.

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