

## **A New Take on Economic Development in China's Pearl River Delta**

Michael Murphree – University of South Carolina

Dan Breznitz – University of Toronto

**Abstract:** In this paper, we discuss the development, boom, reform, upgrading and long-term sustainability of the electronics and information technology hardware industry cluster in Dongguan, China. The cluster has developed in the absence of the types of institutions and background conditions usually considered essential for sustained economic development and upgrading. Development and economic upgrading in Dongguan has been reliant upon the resilience of a collaborative public space (CPS). The CPS is a social space imbued with mutual trust enabling economic and political actors to interact, share concerns and plans, share knowledge and mutually upgrade capabilities. While industrialization in Dongguan began with Hong Kong-invested manufacturing firms, it was only with the arrival of Taiwanese IT hardware firms and their production system made of hundreds of small and medium sized enterprises engaging in sustained exchange relations that the CPS formed. By providing a social space in which firms – including local Chinese firms – can interact and learn from one another, as well as liaise with the local government, the CPS has enabled economic upgrading in Dongguan. As the locus of political and policy activity has moved from the village to township to city, the CPS has enabled Taiwanese firms, and local Chinese firms connected through the CPS, to sustain their activities and profitability. The Dongguan story thus offers a very different picture of how local industrialization can be organized and sustained.

The conventional story of the industrial city of Dongguan in Guangdong province is told much like that of the whole of China since 1978. Dongguan experienced an historic economic modernization and growth miracle. As the first city in China open to foreign investment, Dongguan's economy grew rapidly.<sup>1</sup> Dongguan has experienced growth rates averaging 15.4% per year since 1995, peaking at 19% on average per year from 2001 to 2007.

Manufacturing in Dongguan has upgraded from garments, shoes and toys to specializing in electronics and information technology (IT) hardware. Dongguan's exports account for 4.1% of China's total – surpassed only by Shanghai, Shenzhen, and Suzhou (DGSB, 1996-2015; NSBPRC, 2001-2015; SHSB, 2001-2015; SZSB, 2000-2015). Dongguan alone accounts for 5.31% of China's total electronics exports. Since 1978, millions of migrant workers from interior provinces have made their way to Dongguan's factories, many eventually entering the middle class as white collar workers, some rising to become managers and factory owners in their own right (Chang, 2008; Authors' Interviews).

However, despite the appearance of smooth economic expansion and upgrading, Dongguan's rise has not been easy. Rather, it has been one of constantly challenging the odds. Its beginnings were far from certain. Surveying the landscape of countries, regions and cities interested in pursuing foreign investment and export-led economic modernization in the late 1970s and early 1980s, Dongguan would appear an unlikely candidate for success. Further, even such advantages as enjoyed by Dongguan have been ephemeral.

---

<sup>1</sup> The Taiping Handbag factory opened in Dongguan in the summer of 1978, before China's official "Reform and Opening" era began. Reform and Opening, including a willingness to court foreign direct investment and experiment with worker incentives and market forces was only officially sanctioned at the December 1978 Third Plenum of the 11<sup>th</sup> Central Committee. This Hong Kong-invested factory assembled imported handbag parts for export back to Hong Kong – setting the example for thousands of export processing factories to come (Chang, 2008). As a way of comparison, the first foreign invested factory in Shenzhen, the Eltrinic Electronics factory making heating elements for blow dryers, opened in the Spring of 1979 (Caryl, 2013). Shenzhen Special Economic Zone was not even established until August 26, 1979.

This paper addresses the following question: **how has Dongguan, a city initially deprived of any economic, cultural, or political resources deemed key to success, managed to repeatedly reinvent its local political economy so as to sustain economic growth, foreign investment, and industrial upgrading for almost forty years?**

To answer this question, we have conducted semi-structured interview-based research in Dongguan since 2008. To understand government-level plans and policies, we conducted interviews with government officials from twenty different industrial park, neighborhood committee, township, and city government offices. We also conducted interviews with seven domestic, six Taiwanese, one Hong Kong, one Japanese and one German manufacturing firm. The interviews were semi-structured based on an interview theme instrument consisting of seven areas: Organization and History, Labor Force, Technology, Products or Services, Operational Environment, and State-Firm Relations. Adhering to a semi-structured interview format allowed interviewees to elaborate on areas with which they were more familiar while avoiding topics they could not or preferred not to discuss. Interviews were conducted in Mandarin Chinese and transcribed into English. Interviews lasted between thirty minutes and three hours with sixty minutes being the average interview length. To encourage participation, we guaranteed anonymity for all interviewees. Hence interviewee responses will be marked as (Authors' Interview). Given the somewhat sensitive nature of qualitative interview research in China, the interviewees are not a random representative sample but rather are a sample of convenience built using connections and introductions from other interviewees. This yields a sample set biased toward successful firms; hence challenges these firms face are even more indicative of broader systemic difficulties as even the most successful firms are under these pressures.

This paper argues that Dongguan's success is the result of formation of a collaborative public space. Dongguan's is a story of a successful political economic system, whose strength lies in its ability to reform and adapt to rapidly changing external environments. This paper pays particular attention to shifts in state-firm interactions and the channels of communication over time. Dongguan's ability to channel communication and build trust between foreign and domestic firms and the local government at various levels has been key to ensuring sustained economic upgrading.

Thus the key to Dongguan's success has been the emergence and evolution of a collaborative public space (CPS), developed under conditions of Structured Uncertainty (Breznitz, 2005; Breznitz & Murphree, 2011). A collaborative public space is a social space in which mutual trust enables participants (in Dongguan defined by the interaction and communication channels of Taiwanese invested firms and local government bureaus) to exchange information and engage in collective learning. Structured Uncertainty is an institutional condition of sustained ambiguity as to the normative modes for interaction, outcomes and goals of agents. Under such conditions even traditional formal institutions and reforms are insufficient to reduce uncertainties obstructing business activity. Hence, the existence of a CPS, a space imbued by mutual trust where key actors can exchange information and developed common goals and agreement on the way to achieve them, is crucial. The CPS in Dongguan serves as a conduit for information and learning among firms and between firms and the local state. The CPS evolved from the tightly knit production network among Taiwanese-invested IT hardware and electronics firms which opened facilities in Dongguan in the 1990s, later opening to encompass the local government and even domestic firms, while still keeping its legitimacy as a trusted social space where even competitors can share information between themselves and with

other actors such as the local government. As such the CPS has been the place where the local state learned about the industry and its needs, and more importantly learned to trust industry leaders – even foreign ones – as long-term partners, and the industry learned about the state and how to develop public-private partnerships to ensure growth. This has enabled governments at the township and city level to help coordinate development of the electronics and information technology hardware industries. Without the CPS, such efforts would not have been possible.

The Dongguan CPS has become crucial since it has enabled sustained economic growth and upgrading in Dongguan in the absence of the assortment of background conditions, institutions, organizations and policies usually considered essential for sustained economic vitality. The CPS, supplying an informal and flexible social space, fills these essential roles. Thus, the CPS allowed the city and to foster development and innovative capacity even without the tools commonly deployed by – and recommended for – economic regions seeking to upgrade their capabilities. It is the CPS that has enabled stability throughout the phases of reform and political economic transformation in Dongguan. For policy makers concerned with sustaining or instigating industrial development and cluster formation, the lessons of Dongguan are invaluable, for they show it is possible to upgrade even without implementing the types of policies or reforms usually considered prerequisites of effective economic performance.

The paper first considers the background to Dongguan's economic miracle, with particular attention paid to the insufficiency of commonly cited institutional or resource bases of economic success. Seen through this lens, it can be seen that Dongguan was actually a least likely case – far more likely to fail than succeed. This insufficiency of existing growth arguments makes the case for an alternate explanation for Dongguan's economic success. The paper offers a theoretical account of Dongguan's CPS development and evolution under structured uncertainty,

and its role in sustaining economic vitality. A historical examination of the political economic system in Dongguan comparing the experiences of Hong Kong and Taiwanese invested firms and their indigenous counterparts illustrates the workings – and potential shortcomings – of the CPS. We conclude by calling attention to the broader implications of the Dongguan case for China and other would-be emerging cities and regions worldwide.

*Background: The Insufficiency of Existing Explanations for Economic Success*

Scholars of economic development, particularly when considering countries in Asia, have typically argued that a combination of getting economic institutions right and selective policy interventions account for the economic miracles across Asia (Amsden, 1989, 2001; Amsden & Chu, 2003; Berger & Lester, 2005; Breznitz, 2007; Johnson, 1982; WB, 1993). However, the causal factors in the existing literature including geography, physical infrastructure, government organization, “institutions,” and diaspora relations all fail to account for Dongguan’s success.

If one considers Dongguan in 1978, even compared with other Chinese cities, it was at a distinct disadvantage. Scholars often cite geographic advantage in accounting for economic growth in East Asia (Stiglitz and Yusuf, 2001; Gallup et al, 1999; Yao, 2009). In terms of geography, Dongguan was remote from the sources of demand in US and European markets, a pattern which tends to discourage trade – especially where a participant is economically weak (Frankel 1993). All goods would have to be transported to the coast and then exported by sea typically routed through Hong Kong. The sole advantage for Dongguan could have been its geographic proximity to Hong Kong. Indeed, the literature on economic growth in the Pearl River Delta (PRD) often cites proximity to Hong Kong as a major advantage (Chen, 1996; Wu,

1997).<sup>2</sup> However, other PRD cities had the same advantage. Indeed, sharing a border with Hong Kong meant Shenzhen enjoyed a distinct advantage, being able to use existing rail and road links to connect its nascent industrial parks to Hong Kong's highly efficient container port. Dongguan, in contrast, had to transport cargo via truck over dirt roads to the Hong Kong border – a trip that could take many hours or become impossible after heavy rains.

Infrastructure investment is considered a major source of sustained economic growth (Aschauer, 1989; Demurger, 2001; Esfahani and Ramirez, 2003). However, infrastructure (road, rail, seaport, and industry) investment in the PRD had been limited due to deliberate underdevelopment in the region. Fearing influence from Hong Kong or potential US military involvement due to proximity to Taiwan and Vietnam, investment was concentrated elsewhere – often in China's hinterlands (Vogel, 1971). In 1978, 83% of Dongguan's population worked in agriculture – whether as farmers or fishermen. There was only one kilometer of paved road in the entire county. Hong Kong-based truck drivers had a saying for Dongguan in the 1980s: “We aren't afraid of Dongguan people, but we are afraid of their roads!” (不怕东莞佬，最怕东莞路!). Poor quality roads would remain a problem until the 1988 reorganization of Dongguan into a prefectural city composed of urban townships. Only then was there concerted effort at infrastructure development. In contrast, Shenzhen enjoyed early, sustained and large scale infrastructure development beginning in 1980. Telecommunications infrastructure was similarly underdeveloped. In 1989, a Taiwanese businessman in Dongguan commented he had to ride his bicycle for an hour just to reach a location with a television to hear the news of the Tiananmen crackdown (Chang 2008).

---

<sup>2</sup> The Pearl River Delta lies at the center of Guangdong province. The economic and cultural region of the PRD is generally considered to be bounded by Macao to the south, Hong Kong to the east and Guangzhou to the west. This triangle contains the cities of Shenzhen, Dongguan, Foshan, Zhongshan, Huizhou and Zhuhai.

For central government policy and investment, Dongguan was similarly neglected – even after opening and reform. Shenzhen, as the flagship special economic zone, received the lion’s share of central government investment in the newly opened cities. State-owned electronics factories established in the strategically secure mountainous counties of northern Guangdong were relocated to Shenzhen to open joint ventures (Bachman, 2001). These transfers brought experienced electrical and production engineers to Shenzhen, seeding human capital. Further mandated transfers of engineers, city planners and officials to Shenzhen similarly helped jump start development of human resources (Fu et al., 2012). Dongguan had no such transfers. Rather, such human capital that came was primarily economically motivated, often consisting of migrants with less than a high school level education (Li, 1997; Li & Siu, 1997; Chang 2008).

Scholars of the Japanese and Korean development experiences in particular often cited government organization and structure as causes for successful growth and policy interventions (Johnson, 1982; Amsden, 1989). In Japan and Korea, central coordinating and economic planning agencies emphasized “market rational planning”. In contrast, since 1972, China’s comprehensive central planning – using “plan-ideological” targets had been reinvigorated in the aftermath of the Cultural Revolution. Comprehensive planning in the late 1970s emphasized continuation of collectivized agriculture, natural resource extraction, and further growth of steel and other heavy industries in accordance with traditional Stalinist economic goals (Baum, 1994). Industrial enterprises were managed in accordance with meeting planned output targets; efficient utilization of resources and profits were irrelevant (Ericson, 1991; Laaksonen, 1984; Tung 1981). Managers actually feared exceeding output targets due to the risk of “the ratchet effect” where new targets – without commensurate increases in resource allocations – would be issued for the

firm. Hence, the political structure of a planned economy posed a major obstacle to Dongguan's economic emergence.

Other scholars have cited the general importance of a federalist political structure (Weingast, 1995; McKinnon, 1997). China was, and is, officially unitary – meaning local authorities formally have little discretion for creating or implementing policies. Indeed, local autonomy is antithetical to the Leninist concept of Democratic Centralism which remains enshrined in China's constitution (NPCPRC, 2004). Decentralization of economic authority was only initiated after 1978 and the scope and degree to which it would continue remained unclear. All reform initiatives were still subject to the whims of the central government as political power swung from reformists to conservatives and back again (Baum, 1994).<sup>3</sup> While some scholars have described China's post-reform political system as one of de facto federalism, at least in terms of economic policy (Montinola, Qian, & Weingast, 1995; Qian & Weingast, 1996), many regions enjoyed greater and more certain economic freedom than Dongguan. It did not even enjoy the guaranteed degree of economic and policy autonomy afforded to cities such as Shenzhen. Even as the central government expanded the number of cities with economic and policy autonomy in the 1984 Open Cities initiative, Dongguan was not among them.

Much of the economic growth literature remains skeptical of the efficacy of state planning and targeted policy interventions (See review in Sarel, 1995). When examining Asia's growth miracle, liberal and neoliberal scholars argue that getting basic institutions including

---

<sup>3</sup> Baum characterizes the pendulum swing between increasing openness and retrenchment as the "Fang and Shou cycle". In even years (1980, 1982, 1984, 1986, 1988) the central government loosened social and economic controls. As the economy overheated and newly found social freedoms became perceived as threatening, the central government – led by conservatives in Deng Xiaoping's ruling coalition – would tighten social and economic controls (1981, 1983, 1985, 1987, 1989). With this alternating back and forth between opening and retrenchment, any reforms or new economic policies could be undermined at any time. Indeed, the reforms of the 1980s had produced such social and economic dislocation by the end of the decade that the 1989 retrenchment arguably lasted 3 years, finally ending after Deng's "Southern Tour" in 1992.

property rights, rule of law, basic education, and controlled inflation can account for Asia's growth. However, China most decidedly did not have the institutions right in the early years of reform. In China, market economic institutions were entirely absent. China had no private property law; indeed it did not adopt one until 2007. Private enterprise was not legalized until 1988 (Li, 1997). Establishing private enterprises remained difficult and expensive until the 1994 Company Law. Even once established, the Company Law lacked implementation instructions for provincial authorities resulting in uneven and contradictory practices across China. Even after the dissolution of rural communes, all land belonged to the state, administered by the city, township or village government. Land could only be acquired through long-term leases subject to government approval and under constant risk of appropriation. Foreign investment was permitted with the passage of the Chinese-Foreign Equity Joint Venture Law in 1979, yet China's legal system and government officials had no understanding of contracts or enforcement.

Developing human capital is also cited as a source of sustained growth (World Bank, 1993; Stiglitz, 1996). However, human resource management was an entirely new field in China. Such knowledge of human resource management as existed was done in accordance with the principles of comprehensive economic planning (Tung, 1981). Factories would be assigned a certain number of new workers each year, all of whom were guaranteed lifetime tenure. China's constitution guaranteed employment as a fundamental right for citizens. This made it extremely difficult to fire workers and meant there were frequently large numbers of underutilized workers in most factories. Further, the challenges of efficiently utilizing human resources were even more acute as the urban managerial and entrepreneurial class had either fled in 1949 or been persecuted into submission; their skills and understanding were entirely absent as China began

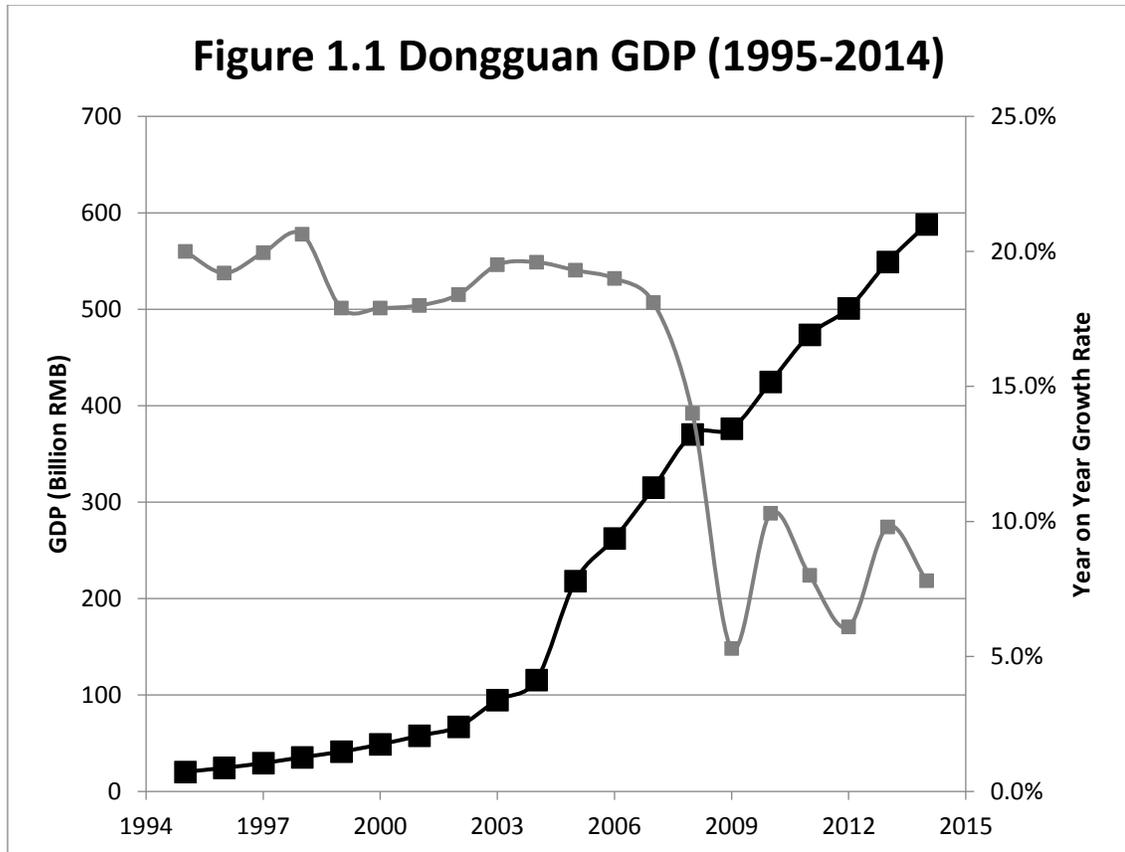
market-based development. Thus, Dongguan faced the task of creating market economic institutions out of nothing.

Diaspora relations are often cited as a source of economic growth and upgrading expertise in East Asia's dynamic economies (Cheung, 2004; Kao, 1993; Lin, 1997; Saxenian, 2006; Saxenian & Hsu, 2001; Vogel, 1989). Family ties did play a role in securing Hong Kong investment in Dongguan in the 1980s in particular; Hong Kong is home to roughly 650,000 residents whose families came from Dongguan (Fu, Diez, & Schiller, 2012). However, this was not the wealthy part of the Chinese diaspora. Through the 1970s, there was large scale sustained emigration from Dongguan to Hong Kong. Some 4,600 working age residents emigrated from Chang'an Commune (today's Chang'an Town) alone in 1978 (CAZ, 2009). Many of the Dongguan-origin Hong Kong residents had only recently arrived and begun to establish themselves in Hong Kong. The wealthiest industrialists and financiers in Hong Kong were scions of Shanghai business families who had fled to Hong Kong in 1949 (Lin, 2002). Similarly, the rest of the economically dynamic Chinese diaspora had closer ties to other regions of China such as coastal Fujian province (Singapore and Malaysia) and Shanghai (Taiwan). As a causal factor, diaspora ties alone are insufficient to differentiate Dongguan's performance.

### *Dongguan's Accomplishment and Recent Struggles*

Despite these headwinds, Dongguan was able to initiate market-based industrial development and expand the participatory base in this developmental process, thus enabling sustained economic development. Growth accelerated with China's accession to the WTO. Increased exposure to international competition as well as the rollback of unique local investment incentives did not hamper development (See Fig. 1.1). Electronic exports – considered the “Dragon's Head” of Dongguan's manufacturing industry – averaged growth rates

of over well over 15% per year in the 2000s even as costs rose and China’s interior provinces began aggressively courting foreign invested export processing factories. The city’s population as well as number of foreign and locally invested industrial firms all grew strongly throughout this period. Industry became increasingly sophisticated as well, with 153 firms receiving certification as national level high technology enterprises by 2008.



Dongguan’s economic growth declined precipitously during the 2008-2009 global financial crisis. Growth had been strong in the first half of the year but by the end of 2008, annualized growth rates showed the onset of recession. Many export-oriented firms collapsed virtually overnight as orders from Western markets were canceled. Thousands of factories closed in last quarter of 2008 and first quarter of 2009. In 2009 manufacturing output contracted by 4%.

The decline in many sectors has continued since. Even in 2013, of the 33 categories of industrial goods whose output is listed in the annual statistics report, 21 showed negative growth – 8 of them contracting by more than 10%.<sup>4</sup> In visits to Dongguan in 2011, 2012 and 2015, we revisited many formerly bustling industrial parks, now replete with shuttered concrete factory buildings with banners advertising industrial space for rent.<sup>5</sup>

Despite ongoing contraction in many manufacturing sectors, Dongguan's overall economy has bounced back from the economic crisis. Growth rates remain 7-9% per year. Exports have long surpassed their pre-recession levels and are growing at 6-10% per year. The collapse of output in many manufacturing sectors has been offset by a combination of rising value added and more sophisticated exports even as overall output volume falls. New manufacturing sectors are taking the place of those in decline, just as has occurred repeatedly since the 1980s. Contributions from emerging technology and capital-intensive industries including mobile phones, integrated circuits, industrial molds, flat glass and solar panels have buoyed overall growth. Their growth suggests that Dongguan's industrial base is moving up the value chain. Official statistics note that "advanced manufacturing" is growing at 13.9% per year and now accounts for 47% of Dongguan's industrial GDP (DGSB, 1996-2015).<sup>6</sup>

As evidence of a shift toward higher value added and more sophisticated industries, high technology exports, are growing at nearly 9% per year.<sup>7</sup> The number of nationally certified high technology firms grew from 153 in 2008 to 755 in 2014. The number of enterprises conducting

---

<sup>4</sup> Given the propensity of China's official government reports to emphasize economic successes, showing such a large number of declining sectors is strong evidence of the breadth of decline in many manufacturing sectors.

<sup>5</sup> We conducted field research visits to Dongguan in each year from 2007 to 2012, each time interviewing government officials, entrepreneurs and factory owners in the electronics and information hardware industries.

<sup>6</sup> Like many Chinese cities, the "second" industry (manufacturing, mining and construction) accounts for a major percentage of Dongguan's economic activity – 46% in 2013.

<sup>7</sup> In China's statistics, "high technology" exports are those goods certified by China Customs as "high technology" for their level of indigenous intellectual property or R&D input.

R&D grew by 17% between 2012 and 2013. R&D spending has reached two percent of Dongguan's GDP. Further, this R&D is concentrated heavily in enterprises. Firms account for nearly 90% of R&D spending. Applications for patents continued to rise even in the midst of the Financial Crisis and grew by over 19% in 2012. Among patent applications, invention patents granted are growing by over 8.6% per year. From economic collapse to resumed economic growth built on a new industry and knowledge base, Dongguan continues to thrive.

With existing explanations ill-suited to the Dongguan experience, and solid evidence that Dongguan nonetheless continues to grow, this paper argues the key to economic development has been the emergence of a collaborative public space. The paper now explains the concepts of collaborative public space and structured uncertainty, arguing how these two variables enabled and shaped the development experience in Dongguan. The subsequent section provides fieldwork based evidence of the formative role played by the CPS.

*Theory: Collaborative Public Space under Structured Uncertainty*

Dongguan's renewing economic success lies in its collaborative public space (CPS) created under conditions of structured uncertainty. We define a collaborative public space similarly as Breznitz (2005): a "structured social space imbued with high mutual trust within which different actors and groups regularly study, cooperate, share information, and partake in collective learning" (Breznitz, 2005). As a social space, a CPS need not be a physical location or formal organization. Hence, a union meeting hall would not qualify as a CPS, but a series of meetings between union members, and management government regulators which allow meaningful and repeated interaction would. A CPS is an arena in which actors, which often lack intrinsic trust, are able to interact and share information.

A CPS can be supplied due to the initiative of one formal organization (in Breznitz's original paper the Israeli Military School for Computing Professions), or the joints efforts of several. Dongguan's CPS brings together township and city-level government officials, Taiwanese and (to a lesser degree) Hong Kong businesses and Chinese-owned businesses. As will be explored below, these groups had little trust amongst each other. The CPS evolved from the established interaction patterns of Taiwanese businesses' component sourcing systems and inter-firm exchange relationships. These established relationships had a high degree of trust due to the long-standing nature of these inter-firm relationships. Bringing this system with them, once in Dongguan, Taiwanese firms were able to cooperate and build sustained networks for communication and exchange among each other. This provided a model for interaction. To build the CPS, however, government and non-Taiwanese business actors needed to be included as well.

Through the Taiwanese Invested Business Association (东莞市台商投资企业协会), Taiwanese firms were able to collectively liaise with township and city-level government offices and officials. In response, Dongguan's township governments formed inter-office working groups charged with promoting industrialization, investment, and industrial upgrading.<sup>8</sup> These working groups – sometimes administered by a single bureaucratic office but often bringing together officials from foreign affairs, economics, statistics, investment and taxation offices – serve as conduits for information sharing and learning between the government and the

---

<sup>8</sup> In China's political geography, the smallest unit of political organization with some economic authority is the village. In semi-urban areas, groups of villages are collectively administered as townships (the village and township correspond to the production team and commune administrations before 1983). Where urban areas predominate, townships are grouped together into a prefectural city. In Dongguan, the administration could be organized as follows: Dongguan City – Qingxi Town – Xie Kang Village. Dongguan adopted this organizational form in 1988 when the region was reorganized as a prefectural level city with 32 officially urban townships (Yang and Liao, 2010).

Taiwanese business community – as well as the broader industrial community (Authors' Interviews).

Structured uncertainty is a concept putting institutional theory on its head, as it describes an institutional pattern whose main outcome is sustained ambiguity as to the proper modes of interactions, outcomes, and goals. Institutional theory argues that formal and informal institutions are a means of reducing uncertainty and risk. However, in structured uncertainty, the presence of institutions which are unevenly enforced actually enhances the uncertainty in social interactions. In the case of economic policy structured uncertainty may be defined as: “an agreement to disagree about the goals and methods of policy” (Breznitz & Murphree, 2011). Under conditions of structured uncertainty the lack of pre-agreed patterns of behavior means that even where there are institutions – such as laws and regulations – it is unclear when and under what circumstances they may be applied, as well as by which actor. Structured uncertainty differs from the traditional conception of “institutional voids” or “institutional distance” as there are formal and informal institutions in place. These are knowable *ex ante*. The challenge is the uncertainty over their implementation, application, or authority. This is different from simply having differing or absent institutions.

In the case of China, structured uncertainty was in many ways a logical outgrowth of the conditions under which economic reform took place. As early reformers could not directly challenge the edifices of comprehensive economic planning or loyalty or the authority of the Communist Party, sub-national administrations were given permission to open and reform as they saw fit. However, with formal institutions remaining unreformed it remained possible – although not guaranteed – for the central state to intervene, proclaiming reform efforts as illegal. For example, a leading center of early and extensive economic reform – Wenzhou in Zhejiang

Province – saw many of its experiments with financial and banking reforms declared illegal by the central government (Tsai, 2002). In Dongguan, city- and township-level governments began ignoring China’s hukou residency and internal migration regulations in the 1980s, facilitating the movement of migrant workers (Li, 1997; Li & Siu, 1997). However, this was in contravention of China’s labor laws, thus migrants were at the risk of being sent back to their home villages – especially if they should lose their employment (For more information on the Hukou system, See Wang, 2005).<sup>9</sup>

In this environment, it is obvious that trust among and between firms and the government will be difficult to achieve. In the absence of trust, collective learning, upgrading and collaboration are difficult, if not impossible (Nielsen and Nielsen, 2009; Nootebloom, 1999). Adding to the difficulty, Wang et al (2011) find that in uncertain environmental conditions, interfirm trust is even more important to facilitating innovation. The political ties literature, often using the Chinese case, emphasizes personal ties to government officials as a potential solution to lack of institutional certainty (Boisot and Child, 1996; Luo, 2003; Podolny, 1994). We find, however, that there is a limit to the efficacy of such ties for Dongguan enterprises. The next section discusses the trust mechanisms utilized by Hong Kong-invested enterprises, and the failure of these to sustain interfirm and firm-state relations in a manner conducive to firm upgrading and innovation.

### *The Limitations of Personal Ties: Hong Kong-Invested Enterprises*

---

<sup>9</sup> The hukou is China’s household registration system (Wang, 2005). It classifies citizens into urban and rural residents and identifies them with the county or prefectural city of their – or their parents’ – birth. A hukou entitles a bearer to social services within the county or city in which the hukou has been issued. For migrant workers, this means children born outside of their home county do not have the right to free local public education. Permission to purchase housing is more difficult for non-local hukou holders and government services generally inaccessible.

Given the conditions in Dongguan in the late 1970s and 1980s, the first foreign investors used kinship ties as a source of trust. Hong Kong investors invested in Dongguan villages with which they had direct family ties (Yeung, 2001). As noted above, the large population base with immediate family or ancestral ties to Dongguan townships provided ample opportunities to use such connections. Given the institutional uncertainties in Dongguan, kinship ties provided the trust necessary to facilitate initial investment. Hong Kong firms would be Dongguan's leading foreign investors by volume until the end of the 1990s. Hong Kong investors typically established "sanlai yibu" firms in Dongguan. These export processing firms had village governments as a managerial partner and a revenue sharing agreement. All inputs had to be imported and all outputs were required to be exported; the only local inputs would be labor, water and electricity. These firms typically specialized in the types of light industrial goods which had been produced in Hong Kong during the 1950s, 60s and 70s such as garments, toys, plastic goods, and fashion accessories.

While effective at attracting investment, Hong Kong firms never built close ties amongst themselves; trust relations were based on kinship to government officials, and not extended to firms or officials outside these networks. Connections between firms remained arms-length. Firms frequently changed suppliers. The only ties which remained constant were those with family – local government officials.<sup>10</sup> There was similarly little connecting the Hong Kong firms to local Chinese manufacturers, especially for firms required to import all components. The result of this sort of interaction was sporadic and ad hoc development at the village level (Liao & Wei, 2012).

---

<sup>10</sup> Chang's study of migrant workers in Dongguan found almost no local people working in factories or even managing them. Local Dongguan residents were very often employed in local government offices (2008).

Interaction with local firms remained limited even after Hong Kong firms began transitioning from “sanlai yibu” into standard foreign invested enterprises in the 1990s. As an interviewee explained: “Most of the sanlaiyibu firms have been converted into quasi-domestic firms by bureaucratic means. Even though they were created using foreign money, it has been possible to change their registration status.” Ties remained vertical, however. As trust was based on kinship, unrelated firms and government actors failed to build sustained trust relations. Further, since the kinship ties were based at the village level, it was difficult for Hong Kong firms to build trustworthy relations with higher level government authorities – such as at the township or city level (Yeung, 2001). As Hong Kong firms acted autonomously through their kinship networks, there was little collective action among Hong Kong firms as a common interest group. The first formal Hong Kong business associations were not established until the early 2000s. In contrast to Taiwanese firms, no interviewee mentioned the Hong Kong business associations as a useful vehicle for communications and interaction. There is no single citywide Hong Kong business association. The broad Foreign Invested Enterprise Association is intended to act as a collective voice for all foreign enterprises. Hong Kong invested enterprises are heavily represented in its membership and leadership. However, the organization was dismissed by interviewees: “Honestly speaking, the Foreign Invested Business Association is pretty useless. Right now, it is basically a social club where the bosses get together for fun.” Similarly, an electronic components firm in Humen Township explained: “We don’t actually have much interaction with Hong Kong firms, except where they are our customers. We do have some boss to boss social relations though.”

Direct kinship-based ties failed to create an environment conducive to collective action, sharing and upgrading. The result has been a stagnation of Hong Kong invested firms. When

asked about the current status of Hong Kong-invested enterprises, an official in Fenggang Township sniffed:

“Hong Kong invested firms are mostly low-tech export processing businesses. They have low profits. Their business model is in labor arbitrage. They have no brands and low value added. Hong Kong businessmen came here in the 1980s and 90s with backpacks full of cash. They just used this to open very small factories. After 2008, with heightened pressures and competition, the small factories closed down.”

The lack of broad and deep ties to Dongguan’s industrial ecosystem means many firms are now relocating to other regions with lower costs. There is little tying them to Dongguan and without the former labor cost advantages, firms have little incentive to remain. In Chang’an Township, an official explained:

“The fact that Hong Kong firms were not willing to meet tells us something about their current situation. They are low tech and are failing. They think too much about spending money so they are cheap. Hong Kong businesses actually have other options back in Hong Kong or they could move to Canada or elsewhere so they don’t try as hard. Taiwanese firms have no choice except here so they try harder – and their technology is better.”

Without the ability to share best practice or learn from other firms’ experiences, there has been little upgrading among Dongguan-based Hong Kong firms in terms of value added or new product introduction. The experience of Taiwanese enterprises, and the lessons they imparted to their domestic counterparts stands in marked contrast.

### *Building and Sustaining a CPS: Taiwanese Businesses in Dongguan*

Dongguan’s CPS took shape as Taiwanese firms began investing in the 1990s. In the 1960s and 70s, Taiwan developed a vibrant export-oriented electronics and information technology hardware manufacturing industry (Berger and Lester, 2005). Through the 1990s, Taiwan led the world in production of many computer peripherals and subcomponent systems such as power supplies, disk drives, printers, keyboards, webcams and microphones. Taiwanese

electronics firms were highly specialized in relatively narrow production niches – such as just producing computer cases or power supplies, rather than a broad selection of products. Thus, they relied on close relations with other specific component suppliers, establishing long lasting and stable production and supply relationships.

Taiwanese investment in Dongguan was spearheaded by garment and show manufacturers in the late 1980s and early 1990s. Early investors spread the word about opportunities in Dongguan:

“I came to Chang’an in 1997 because my brother had come and invested the year before. He was also in electronics and introduced Chang’an to me. So I followed and brought my factory here” (Authors’ Interview).

Rates of investment grew rapidly following major investments by some of Taiwan’s largest IT hardware manufacturers. In the late 1990s, seeking to maintain close geographic proximity to their major customers, Taiwanese supplier firms moved collectively into Dongguan, usually setting up factories in the same township. A Shijie Township official explained the process:

“Delta and Primax came here and brought a huge number of electronics enterprises. They were able to convince their friends who were bosses in supplier firms to come here. These two came, and then they were able to attract their suppliers and customers.”

In the case of Delta – the world’s leading manufacturer of computer power supplies – some 300 manufacturers invested in Shijie Township in order to remain collocated after Delta established its first Dongguan factory in 1992 (Yang, 2006, 2007; Yang & Liao, 2010). An electronics manufacturer elaborated on the need for collocation of their suppliers:

“When we set up here, we grew really quickly. Our output doubled in size each year. We needed more components here as quickly as possible so we started pushing to get our suppliers here. Further, we had easy access to our customers, the final computer companies, from here as well.”

A component supply firm explained their experience following Delta, their largest single customer, to Dongguan:

“We invested here in 1998. Delta was our major customer – 35-40% of our total sales go to Delta so we had to come here. Delta asked us explicitly to move to Shijie Township. At the time, the fastest we could get shipments from Taiwan to Delta’s factory here was one week. Delta wanted parts even faster. Delta wasn’t our only client here. Philips set up a major factory, too. They are also our major customer so this was even more incentive to move our production base to Dongguan. We closed our factory in Taiwan and moved here completely. We initially kept the main business and sales offices in Taiwan but these have now more or less all been relocated here.”

Unlike other purported industrial clusters in China, Dongguan’s electronics industry would thus not be based on large final branded multinational enterprises. Rather, the industry came to consist of complicated networks of small and medium-sized supplier firms, often with business relations to multiple consumers of the same components – as in the quote above.

Taiwanese firms invested by seeking permits through foreign investment promotion offices at the township level. As the spatial requirements for multiple factories employing thousands of workers were greater than village governments could handle, policy, investment approval and coordination activities for Taiwanese-led clusters became the responsibility of township-level governments. Taiwanese firms brought their entire production chain of supplier firms with them meaning patterns of interaction and inter-firm trust were long established. In the absence of enforceable contracts and other formal institutions in Dongguan, bringing trusted partners helped facilitate their establishment and development in Dongguan. It also gave a cohesive network able to collaborate and carry out collective action.

Unlike Hong Kong companies, Taiwanese firms had no kinship or linguistic ties to Dongguan. To liaise with the township governments, Taiwanese businesses established the Association of Taiwanese Invested Firms in 1993, one year after Delta’s first factory opened its doors. This group became the trusted collective voice of Taiwanese electronics, information

technology and computing hardware firms. An electronics manufacturer in Humen Township explained his experience with the association:

“The Taiwanese Association gives us the ability to communicate our problems to the local government and speak collectively. It is good for solving the collective problems we face. The local government does meet with firms individually but it also attends all of the association meetings.”

This organization provided the space in which Taiwanese firms could interact, share tips on operation in Dongguan, and connect newly arrived Taiwanese firms into existing information and trade networks. The organization served as a communication channel, allowing Taiwanese firms to learn from each other in the new environment of Dongguan.

Critically, as there were fewer direct state-to-firm ties, the association provided a point of contact between the local government and industry. The Dongguan government at the township and city level could use the Association as a source for information on the status, concerns, and interests of Taiwanese manufacturers. As explained by one official:

“Our office studies the Taiwanese and Hong Kong firms’ models for technology, systems and IT-based management. We learn from them, particularly, the leading companies, and use these lessons to help the Minying enterprises upgrade their capabilities. We also have sharing meetings where we can learn and disseminate best practice.”

Township level governments in Dongguan learned from their Taiwanese industry clusters. It was the success and influence of the Taiwanese that led township governments to see the value and sustainable advantage of having a complete locally based industry production chain. Township governments adjusted their investment promotion and industry policies accordingly, using the Taiwanese-invested business association as a point of contact and trusted partner.

Through the CPS, the local governments could also convey their plans, policies and opportunities to the dominant Taiwanese firms. An official explained one such example:

“For sharing information, we speak with the Taiwanese Invested Business Association, and different sectoral associations, like the Clothing Industry Association. They all have their membership focusses and we can use these organizations to help disseminate information about our new programs, findings or funding opportunities.”

By the 2000s, township governments could help domestic Chinese firms use the same channel in order to connect into Taiwanese business networks. Working through the township-level governments with which they had direct ties, Chinese manufacturers could learn the identities and contacts for potential Taiwanese suppliers and customers. Taiwanese firms were initially reticent to work with Mainland suppliers. Existing research argued that the Taiwanese production chain in Dongguan consisted almost entirely of other Taiwanese firms. One interviewee mentioned that when they first invested, they had to import all of their components, even screws. However, as one interviewee explained, the system began to change in the mid-2000s:

The other advantage of Chang’an is that our component suppliers are also local. We use 90% Chang’an or Shenzhen components. Only our semiconductors come from overseas. Wires, resistors and boards all come from here in Mainland China. We used to use only Taiwanese components whether local or imported. Around 2005/2006 we started using components from Mainland firms. By that point, minying company sales representatives were coming to us offering contracts, and their quality had improved sufficiently that we could rely on them as new partners. They began to take the place of Taiwanese firms who then shifted to different products further up the value chain.

As will be discussed below, the trust embodied initially in the established Taiwanese production networks anchored by sub-system firms like Delta, had spread throughout Dongguan’s electronics industry.

The tight integration of Taiwanese manufacturers, represented formally by the Association of Taiwanese Invested Firms, is the collaborative public space in Dongguan. It has allowed for integration of new firms both from Taiwan and domestically. It allows for communication with and from the local government. Most importantly, it has enabled Taiwanese

firms to deepen their ties to Dongguan, even as they increase their investment footprint in China. the CPS remains the conduit through which Taiwanese firms collectively express their concerns to the local state and through which the local state responds. In the case study, the current status of the CPS and the efforts to use it for firm and overall industry upgrading will be considered.

*Case Study – The Electronics and Information Technology Hardware Industry in Dongguan*

Dongguan first opened to foreign direct investment in the summer of 1978, with the opening of the Taiping Handbag Factory. Like the vast majority of investments during the 1980s and 1990s, Taiping Handbag Factory was opened with Hong Kong investment, utilizing Dongguan (and later migrant) labor. Businesses relied on labor arbitrage to earn profits – low priced commoditized goods manufactured as inexpensively as possible. Hong Kong investment would account for 64.3% of all pledged foreign investment in Dongguan from 1979 to 1992 (Tong and Wong 2002). To facilitate this type of investment, the Dongguan government opened the “Office of Outward Processing and Assembly” in 1981 – a one-stop shop for foreign investors looking to set up export processing factories (Fu et al, 2012). By law, export processing factories were required to export one-hundred percent of their output. As “processing” companies, the firms were also required to import all of their components, sourcing nothing except assembly labor locally (Yeung, 2001).

During this time, village governments offered inexpensive access to land. However, the terms of usage, incentives and other policies varied from village to village. At this time village leadership usually made “verbal agreements” with foreign investors on how to share profits from the export processing ventures. After the communes were dissolved in 1983, local farmers could benefit as well by renting their land for factory use. In this climate, investment was sporadic, creating a patchwork of factories and industrial parks. These were isolated both physically and

infrastructurally as the provision of roads, electricity, telecommunications and other physical infrastructure was the responsibility of the village governments. Fu et al (2011) argue that this approach to development actually inhibited any potential for successful agglomeration.

Given the conditions at the time in Dongguan, the pattern of investment from Hong Kong enterprises is completely understandable. There was little political certainty or capacity to regulate market economic activity. Hence, agreements necessarily had to be ad hoc. Further, with no long-term guarantees of the right to conduct business in China, firms necessarily did not seek to form long-term relationships with other firms. Instead, the emphasis remained on labor arbitrage and exports. To address the lack of political certainty, Hong Kong investors typically hailed from Dongguan themselves or ancestrally. Yeung notes that 50% of the Hong Kong-based processing and assembly firms in Dongguan in the 1990s were started by Dongguan emigres living in Hong Kong. They invested in their ancestral villages using kinship ties as a means of reducing uncertainty and thus facilitating exchange. With different investors concentrating on their respective ancestral villages and clan homelands, factories were necessarily scattered. Further, with the laws governing export processing restricting components to those imported expressly for use in production of export goods, there was little chance or need to build inter-firm supplier relationships.

By the end of the 1980s, labor costs in Dongguan were already beginning to rise. The lowest value-added labor arbitrage-type export processing businesses became less competitive. By 1995, profits for garment and shoe manufacturers were in steady decline (Fu et al, 2012). The complications of the disorganized structure of investment throughout the 1980s had begun to impact the profitability and efficiency of many of these enterprises. During this time, Taiwanese enterprises began looking to Mainland China for investment opportunities to help counteract

rising land and labor costs in Taiwan. Although still technically forbidden, Taiwanese firms began investing in Mainland China. While there were special economic zones set up in Xiamen and Shantou in order to target Taiwanese investment, the political division between China and Taiwan made investment in these locations inconvenient. Until the late 2000s, it was still impossible to get direct transportation across the Taiwan Strait, thus negating the location benefits of these two cities – directly opposite Taiwan. Since Taiwanese businessmen would be required (generally) to pass through Hong Kong before entering China, it only made sense initially to focus on investment locations closer to Hong Kong. Although Shanghai presented attractive investment opportunities with its large industrial workforce – as well as kinship ties to the Taiwanese business elite – Shanghai was not yet open for easy foreign investment; it would not be declared a Special Economic Zone until 1993. From 1986, some enterprising Taiwanese textile and garment manufacturers had established factories in Dongguan. Their early success would introduce the city to other industrial leaders as a site for possible investment.

In 1989, Taiwanese computer component manufacturer, Primax (东莞市东聚电子电讯制品有限公司), established its first factory in Dongguan, specifically in Shijie Township. The location was remote – far from both the Shenzhen SEZ and Dongguan’s Humen Port. Unlike earlier investment based on kinship ties and coordinated through profit sharing and joint management with village authorities, Primax was going to be a major investor, requiring significant infrastructural development in its chosen investment location. This required attention from township-level officials as demands exceeded the resource and administrative capacity of village officials. Primax also invested as a wholly owned foreign enterprise, without the complex shared revenue and management structures required of the early processing and assembly firms.

It was thus at this stage that the focal point of political economic authority shifted upward to the township level.

To incentivize Primax's investment – and the anchoring benefits this would have in bringing in other Taiwanese electronics firms, the mayor of Shijie went to the Shenzhen-Hong Kong border to personally welcome Primax's CEO to China and bring him to Shijie. The mayor even offered use of his home telephone to Primax, a great gift given the limited telecommunications infrastructure in China at the time.

Following Primax's investment, other Taiwanese electronics firms began considering Dongguan as an investment location. However, the floodgates opened in 1992 with the major investment by Delta Power Supply in Shijie. According to Delta, the number of supplier firms moving to Dongguan to maintain their co-location would grow to nearly 300 firms over the following 20 years (Yang, 2007). While the initial 22 firms were working in direct concert with Delta, other electronics supply firms moved as well to take advantage of the low cost opportunity, but more importantly to remain in close proximity to their major clients – Delta and her 22 direct suppliers. The story of Delta would repeat itself across Dongguan as Taiwanese computer component and peripheral manufacturers moved into other townships including Qingxi and Tangxia. The breakdown of firms by industrial class shows the shift toward electronics and computer products. In 1990, 64.57% of Taiwanese investment was in textiles, apparel and footwear. In contrast, the 2005 industrial census found that 35.6 % of Taiwanese investment was in computers and electronics (versus 12.57% for textiles, apparel and shoes). In terms of numbers of firms, there were 924 Taiwanese electronics firms versus 493 textile, apparel and shoe firms in 2005.

One of the townships which has benefitted the most from Taiwanese investment and the formation of these tight inter-firm linkages is Qingxi.<sup>11</sup> In Qingxi's electronics industry, Taiwanese investment predominates. Concentration of Taiwanese firms in the 1990s made Qingxi into a computer and computer peripheral production base (Yang and Liao, 2010). The cooperative environment created by the clustering of Taiwanese firms set the stage for development of indigenous Mainland enterprises.

Interviews with local government officials explained that Qingxi's emergence as a major production base for computing hardware was similar to that of Shijie. Like Shijie and its emphasis on the introduction of Taiwanese firms and their production organization system, it was the arrival of Taiwanese firms in the 1990s that caused Qingxi city to boom. While Hong Kong investors capitalizing on the geographic proximity of Qingxi to Shenzhen's Yantian port were the first investors, their electronics firms were fragmented, just as they had been in other townships. A foreign economic affairs bureau official explained the arrival of the Taiwanese:

“In the 1990s, the Taiwanese transferred some electronics enterprises here such as power supplies, computer cases, mice, keyboards and LCD screens. Taiwan's electronics industry transferred these sectors although not necessarily very high tech.”

As with Shijie, the arrival of large Taiwanese sub-system manufacturers attracted their Taiwanese-based components suppliers to co-locate. This radically altered the structure of Qingxi's electronics industry. A Qingxi foreign investment official explained:

“In the era when Hong Kong investment dominated, we only had the concept of an electronics enterprise; but now we have the idea of production chains. We have

---

<sup>11</sup> Qingxi is a historically Hakka region at the easternmost edge of Dongguan. It border Shenzhen on the east, making Shenzhen's container ports closer than Dongguan's own Humen port. Qingxi experienced rapid growth beginning in the early 1990s. Its population has exploded as large numbers of migrants have moved in. As of 2008, 92% of the population consisted on non-local hukou residents.

learned that each firm has a role to play in the whole industry chain, making it possible attract and anchor firms in Qingxi.”

As early Hong Kong firms relied on the pure export processing model, they could exist in isolation from one another and the local industrial system. Only with the arrival of the integrated production networks of Taiwanese firms did component sourcing become local. Under the Taiwanese production model, collocated firms should be connected together; firms should draw upon locally based resources and components to produce the final output, not just provide labor arbitrage.

Taiwanese firms, as elsewhere in Dongguan, quickly grouped together to discuss their concerns as well as provide a concerted voice with local government. The Qingxi government in turn holds internal inter- and intra-office meetings to discuss the needs of local industry. Local government leaders conduct studies to learn what is necessary to help complete and sustain the local production network. These activities, however, are common across China. What makes the Dongguan case work is the learning and shared communication. Another official responsible for industrial planning elaborated:

“We learn in detail from Taiwanese and Hong Kong business consultants which parts of the production network are needed. We specifically hold meetings with the large Taiwanese enterprises. This way we can coordinate our activities to make Qingxi more attractive.”

It is through these interactions that common learning and understanding are created. Further, given the lack of ethnic ties, it is the ongoing and repeated interaction that builds trust. These conditions encourage further investment and firm formation.

The question is whether or not such a system can also encourage innovation. Qingxi is small and remote from centers of scientific research in China. It cannot rely on high tech research institutes and locally based R&D centers – indeed, there are none. The work and

innovation or upgrading must thus come from the manufacturing firms themselves. However, the firms are not focused in this area. Most have small R&D teams of mostly BS and MS educated workers (typically 5-10 R&D staff for companies of 500-1000 workers). The R&D staff concentrate on design and incremental improvements to products. The main concern of management is how to produce and sell more – requiring greater efficiencies, especially the introduction of better quality control, production technologies, equipment, etc: get the most benefit out of, increasingly expensive, year migrant workers. Learning best practice for manufacturing efficiency and product upgrading is thus critical. Demands for improvements from locally-based customers encourage locally-based upgrading. Provision of capital from the Dongguan government funds acquisition of advanced production technologies, with the emphasis being on training and utilization, further upgrading the overall capabilities of local industry. The trust built among firms and local government over time makes it possible to share.

Further, it is important to note that the Qingxi government does not just work for and with the Taiwanese. It also seeks to create new entirely Mainland-based enterprises. Mainland enterprises, it should be noted, are far more likely to produce for the domestic market – and are thus going to draw upon the dense local resources in order to be as cost effective as possible in order to sell in the highly competitive and cost sensitive domestic market). The Qingxi local government helps provide startup loans and land. Importantly, the local government does not discriminate against manufacturers: so long as their products include new modifications and fill market or production niches, they are welcomed. There is no hard and fast policy, rather, policy grows out of the reciprocal relations with the Taiwanese and increasingly Mainland firms. For an example of how this has worked to the benefits of Mainland enterprises (as opposed to the Taiwanese – who scholars aver are engaged only in pseudo-integration inasmuch as their

networks remain highly insular). The same types of institutions for exchange and upgrading are open and available to Mainland enterprises. However, not being Taiwanese, new entrepreneurs should be locked out of these stable and sustained networks. To encourage entrepreneurship, the local government draws upon its knowledge and connection base – formed through the CIS which can then plug in new firms.

In our research, we had the opportunity to interview many such firms in the power supply industry – one first begun by Taiwanese firms in Dongguan. One firm in particular, Firm A, was particularly forthcoming in explaining its history of interaction with the local production network and the local government. Firm A is a small manufacturer – employing 400 workers (mostly line workers, 5 full time R&D staff plus a team of 3 in Beijing CAS with whom the firm has cooperative outsourced projects). It was initially founded as an importer and distributor of foreign UPS and power supplies. Its products are self-branded domestically (60% of sales) with the balance being OEM work for foreign brands and foreign markets (Europe and Korea). Firm A entered the power supply and UPS manufacturing business in 2005 to response to the demand for such devices in Dongguan’s explosively growing electronics sector. The necessary components were all available locally – thanks to the Taiwanese production chain. When the firm set up in Qingxi, it was attracted specifically by this complete production chain – meaning the 90% of components which it sources (the other 10% are made in-house), are available locally. While most of its inputs come from Mainland firms, it also draws upon the locally-based Taiwanese component supplier network, particularly for integrated circuits and other high-value inputs. When Firm A began inquiries for investment, the local Qingxi government acted as a surrogate to connect it into the production and knowledge networks. From not knowing anyone, the local government provided the necessary introductions. Having no background in

manufacturing, the firm was able to learn the ropes through its interactions with local firms (domestic and foreign). This extended up to its ability to access credit (through trust based networks of informal loans and promises to pay upon receipt of income – particularly at the end of each production year). The firm was only able to do this because they could get components, knowledge, and money provided locally. It has grown steadily and by following the lead of established Taiwanese power supply firms is seeking to upgrade its products to improve efficiencies and heat tolerance. Communication with the local government – and peer firms – helps the firm share its knowledge and learn from best practice elsewhere. It has also been able to make its concerns known to the government.

#### *Ongoing Challenges and Conclusion*

By the mid 2000s, the Dongguan government – both at the township and city level had come to recognize the limits of Hong Kong investment – as well as the advantages offered by Taiwanese and other foreign investors. In 2001, the Dongguan City-level government established the Songshan Lake High Tech Industrial Park (Fu et al, 2012). The park was the first in Dongguan to have explicit restrictions on the type of companies and investments which would be permitted. However, this first experiment proved that many of the lessons from Taiwanese-led investment had not yet been learned. Rather than simple agglomeration of firms, a cluster requires an ecosystem of firms of multiple sizes with repeated and sustained interaction. In this way customers can demand upgrading from their suppliers and suppliers can independently upgrade in order to increase their appeal to their main customer as well as other locally situated firms with demand for similar components. Instead, the investment requirements of Songshan Lake (such as minimum investment size and restrictions on firm or product types) precluded the

investment of many of the small supplier and mid-level component firms on which the Taiwanese-led industrialization of Dongguan had taken place.

Further, according to Yang (2007), government attempts at planning and fostering explicit inter-firm linkages across the supply chain generally failed. Yang argues that such industrial upgrading and knowledge transfer as has occurred is entirely the product of the importation of Taiwanese firms and their investment patterns. Yang argues that Taiwanese firms have engaged in “pseudo-localization” inasmuch as their localization and local sourcing comes almost entirely from Taiwanese, not local Chinese firms. Our research finds this pessimistic view of Taiwanese activities in Dongguan underestimates the degree to which the Taiwanese have acted as a catalyst for truly local entrepreneurship and creation of a locally based network of firms. While the components supplied by Mainland Chinese firms were (as of the mid 2000s) mostly the lowest value-added ones, so were those produced by Taiwanese firms in the 1980s. As observed by Tong and Wang (2002), by the early 2000s, the density of component suppliers in Dongguan had reached a level comparable to that seen in Taiwan’s Hsinchu high tech industrial development zone in the early 1990s. Just as Hsinchu used inter-firm connections and communication channels as a means of upgrading, so too will Dongguan be able to do so using an industrial system built on the Taiwanese model of a collaborative public space.

The Dongguan CPS plugs firms into both production and knowledge networks. The CPS, as a space of repeated and sustained interaction among otherwise distrustful or unknown actors lowers uncertainty, thus reducing the barriers to entry for new firms which encourages more entrepreneurship. The local government proudly discusses cases of former migrant workers who, by learning the steps to producing various goods were able to establish their own factories and enterprises, thus building upon the local knowledge and production base. The CPS, unlike direct

government connections or those based on kinship and friendship ties is more stable over time. It is also open to new participation, thus making introduction and dissemination of ideas easier.

Looking to the future, Dongguan still faces many challenges. The Taiwanese manufacturers who formed the basis of the CPS and the backbone of the electronics industry are increasingly focusing their new investment and advanced production activities in Suzhou rather than Dongguan. Overall, the global demand for many Dongguan electronics products (such as personal computer monitors, mice and keyboards) is in both relative and absolute decline. Further, rapidly rising labor costs make strategies for labor arbitrage by firms even less attractive. The current city government policy is one of promoting mechanization and automation of production activities. However, to switch models of production is difficult. Into the future, the CPS will continue to act as a conduit for new production technologies and sharing of best practice – as well as channeling demands for government policy and financial support to facilitate this process. Without the CPS, government bodies would be – as they are in many Chinese cities – acting blind in promotion of policies which sound good in principle but are ill-matched to encourage upgrading of the industry as it exists. Instead, with open space for communication, and open to new membership, Dongguan will be able to push forward mechanization and upgrading of the value chain – thus increasing the overall value and economic output of the industry, even as it become more lean, competitive, and less employment intensive.

### **Works Cited**

- Amsden, A. (1989). *Asia's Next Giant: South Korea and Late Industrialization*. Oxford: Oxford University Press.
- Amsden, A. (2001). *The Rise of "The Rest": Challenges to the West from Late-Industrializing Economies*. Oxford: Oxford University Press.

- Amsden, A., & Chu, W.-W. (2003). *Beyond Late Development: Taiwan's Upgrading Policies*. Cambridge, MA: MIT Press.
- Aschauer, D.A., 1989a. Is public expenditure productive. *Journal of Monetary Economics* 23, 177– 200.
- Bachman, D. (2001). Defense Industrialization in Guangdong. *The China Quarterly*, 166, 273-304.
- Baum, R. (1994). *Burying Mao: Chinese Politics in the Age of Deng Xiaoping*. Princeton: Princeton University Press.
- Berger, S., & Lester, K. R. (Eds.). (2005). *Global Taiwan: Building Competitive Strengths in the New Economy*. New York: M.E. Sharpe.
- Boisot M, Child J. 1996. From fiefs to clans and network capitalism: explaining China's emerging economic order. *Administrative Science Quarterly* 41: 600–628.
- Breznitz, D. (2005). Collaborative Public Space in a National Innovation System: A Case Study of the Israeli Military's Impact on the Software Industry. *Industry and Innovation*, 12(1), 31-64.
- Breznitz, D. (2007). *Innovation and The State: Political Choice and Strategies for Growth in Israel, Taiwan, and Ireland*. New Haven: Yale University Press.
- Breznitz, D., & Murphree, M. (2011). *Run of the Red Queen: Government, Innovation, Globalization, and Economic Growth in China*. New Haven, CN: Yale University Press.
- CAZ (2009) “Chang’An 30 Nian: Di Yi Ji: Shidai Liebian” Film, ([http://v.dgca.gov.cn/sofprosp/otherproject/video/casp\\_video.jsp?type=2&website=dgca&xid=21](http://v.dgca.gov.cn/sofprosp/otherproject/video/casp_video.jsp?type=2&website=dgca&xid=21))
- Chang, L. T. (2008). *Factory Girls: From Village to City in a Changing China*. New York: Spiegel and Grau.
- Chen, C. (1996) “Regional Determinants of Foreign Direct Investment in mainland China.” *Journal of Economic Studies*. 23:2, 18-30.
- Cheung, G. C. (2004). Chinese diaspora as a virtual nation: interactive roles between economic and social capital. *Political Studies*, 52(4), 664-684.
- Demurger, S. (2001) “Infrastructure Development and Economic Growth: An Explanation for Regional Disparities in China?” *Journal of Comparative Economics*, 29, 95-117.
- DGSB. (1979-2012). *Dongguan Statistical Yearbook*. Dongguan, China: Dongguan Statistical Bureau.
- DGSB. (1996-2014). 1995-2013 Nian Dong Guan Shi Guo Min Jing Ji He She Hui Fa Zhan Tong Ji Gong Bao. Dongguan, China: Dongguan Statistics Bureau Retrieved from <http://tjj.dg.gov.cn/website/web2/showArticle.jsp?ArticleId=1672&columnId=112&parentcolumnId=114>.
- Ericson, R.E. (1991) “The Classical Soviet-Type Economy: Nature of the System and Implications for Reform.” *The Journal of Economic Perspectives*, 5:4, 11-27.
- Esfahani, H.S., and Ramirez, M.T. (2003) “Institutions, Infrastructure, and Economic Growth.” *Journal of Development Economics*, 70, 443-477.
- Frankel, Jeffrey. 1999. "Economic Forum." *LIF Survey* 19:23.
- Fu, W., Diez, R., & Schiller, D. (2012). Regional Innovation Systems within a transitional context: evolutionary comparison of the electronics industry in Shenzhen and Dongguan since the opening of China. *Journal of Economic Surveys*, 26(3), 534-550.
- Gallup, J.L., Sachs, J.D., and Mellinger, A.D. (1999) “Geography and Economic Development.” *International Regional Science Review*, 22:2, 179-232.

- Ge, W. (1999). *Special Economic Zone and the Economic Transition in China*. Hackensack, NJ: World Scientific.
- Johnson, C. A. (1982). *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975*. Stanford CA: Stanford University Press.
- Kao, J. (1993) 'The Worldwide Web of Chinese Business', *Harvard Business Review*, 71 (2), 24-36.
- Laaksonen, O. (1984). The management and power structure of Chinese enterprises during and after the Cultural Revolution; with empirical data comparing Chinese and European enterprises. *Organization Studies*, 5(1), 1-21.
- Li, S.-M. (1997). Population Migration, Regional Economic Growth and Income Determination: A Comparative Study of Dongguan and Meizhou, China. *Urban Studies*, 34(7), 999-1026.
- Li, S.-M., & Siu, Y.-M. (1997). A Comparative Study of Permanent and Temporary Migration in China: the Case of Dongguan and Meizhou, Guangdong Province. *International Journal of Population Geography*, 3, 63-82.
- Liao, F. H. F., & Wei, Y. H. D. (2012). *Spatial Determinants of Urban Growth in Dongguan, China*. Department of Geography, University of Utah, Salt Lake City, Utah.
- Lin, G.C.S. (1997) *Red Capitalism in South China: Growth and Development of the Pearl River Delta*. Vancouver: University of British Columbia Press.
- Luo Y. 2003. Industrial dynamics and managerial networking in an emerging market: the case of China. *Strategic Management Journal* 24(13): 1315-1327.
- McKinnon, R.I. (1997) "The Logic of Market-Preserving Federalism." *Virginia Law Review*, 83:7. 1573-1580.
- Montinola, G., Qian, Y., & Weingast, B. R. (1995). Federalism, Chinese Style: The Political Basis fo Economic Success in China. *World Politics*, 48(1), 50-81.
- Nielsen, B. B., & Nielsen, S. (2009). Learning and innovation in international strategic alliances: An empirical test of the role of trust and tacitness. *Journal of Management Studies*, 46(6), 1031-1056.
- Nooteboom, B. (1999). Innovation and inter-firm linkages: new implications for policy. *Research policy*, 28(8), 793-805.
- NPCPRC (2004) *Constitution of the People's Republic of China*. Beijing: NPC.
- NSBPRC. (2001-2014). *2000-2013 Nian Guo Min Jing Ji He She Hui Fa Zhan Tong Ji Gong Bao*. Beijing: National Statistics Bureau of China.
- Podolny J. 1994. Market uncertainty and the social character of economic exchange. *Administrative Science Quarterly* 39: 458-483.
- Qian, Y., & Weingast, B. R. (1996). China's Transition to Markets: Market-Preserving Federalism, Chinese Style. *Journal of Economic Policy Reform*, 1(2), 149-185.
- Sarel, Michael, 1995, 'Growth in East Asia: What We Can and What We Cannot Infer from It', International Monetary Fund, Research Department, WP/95/98.
- Saxenian, A. (2006). *The New Argonauts: Regional Advantage in a Global Economy*. Cambridge: Harvard University Press.
- Saxenian, A., & Hsu, J.-Y. (2001). The Silicon Valley-Hsinchu Connection: Technical Communities and Industrial Upgrading. *Industrial and Corporate Change*, 10(4), 893-920.

- SHSB. (2001-2014). Shang Hai Shi 2000-2013 Nian Guo Min Jin Ji He She Hui Fa Zhan Tong Ji Gong Bao. Shanghai: Retrieved from [http://www.china.com.cn/economic/txt/2008-05/05/content\\_15066064.htm](http://www.china.com.cn/economic/txt/2008-05/05/content_15066064.htm).
- SZSB. (2000-2014). Shenzhen Shi 1999-2013 Nian Guo Min Jing Ji He She Hui Fa Zhan Tong Ji Gong Gao. Shenzhen, China: Retrieved from [http://www.sznews.com/news/content/2008-04/10/content\\_1966399.htm](http://www.sznews.com/news/content/2008-04/10/content_1966399.htm).
- Stiglitz, J.E. (1996). Some lessons from the East Asian miracle. *The World Bank research observer*, 11(2), 151-177.
- Stiglitz, J.E. and Yusuf, S. (Eds). (2001) "Rethinking the East Asian Miracle." Washington, DC: World Bank.
- Tsai, K. S. (2002). *Back Alley Banking: Private Entrepreneurs in China*. Ithica, NY: Cornell University Press.
- Tung, R. (1981) "Patterns of Motivation in Chinese Industrial Enterprises." *The Academy of Management Review*, 6:3, 481-489.
- Vogel, E. (1971). *Canton Under Communism: Programs and Politics in a Provincial Capital, 1949-1968*. New York: Harper Torchbook.
- Vogel, E. (1989) *One Step Ahead in China: Guangdong under Reform*. Cambridge, MA: Harvard University Press.
- Wang, F.L. (2005). *Organizing through Division and Exclusion: China's Hukou System*. San Jose, CA: Stanford University Press.
- Wang, L., Yeung, J. H. Y., & Zhang, M. (2011). The impact of trust and contract on innovation performance: The moderating role of environmental uncertainty. *International Journal of Production Economics*, 134(1), 114-122.
- WB. (1993). *The East Asian Miracle - Economic Growth and Public Policy*. Oxford: Oxford University Press.
- Weingast, B. R. (1995). The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development. *Journal of Law, Economics & Organization*, 11(1), 1-31.
- Wu, W. (1997) "Proximity and Complementarity in Hong Kong-Shenzhen Industrialization." *Asian Survey*, 37:8, 771-793.
- Yang, C. (2006). Overseas Chinese Investments in Transition: The Case of Dongguan. *Eurasian Geography and Economics*, 47(5), 604-621.
- Yang, C. (2007). Divergent Hybrid Capitalisms in China: Hong Kong and Taiwanese Electronics Clusters in Dongguan. *Economic Geography*, 83(4), 395-420.
- Yang, C., & Liao, H. (2010). Industrial Agglomeration of Hong Kong and Taiwanese Manufacturing Investment in China: a Town-Level Analysis in Dongguan. *The Annals of Regional Science*, 45(3), 487-517.
- Yao, Y. "The political economy of government policies toward regional inequality in China." *Reshaping Economic Geography in East Asia*. World Bank, Washington, DC (2009): 218-240.
- Yeung, G. (2001). Foreign Direct Investment and Investment Environment in Dongguan Municipality of Southern China. *Journal of Contemporary China*, 10(26), 125-154.