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The Singapore 'Advantage' in Suzhou, China: Premium of Perception?¹

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ABSTRACT

This paper revisits Singapore’s industrial development in Suzhou, China, which has been in operation for more than a decade. We aim to glean insights from this experiment and more importantly, to verify recent claims of it generating political gain and economic capital for Singapore. The flagship project took on an identical framework as the other Singaporean transborder industrialization ventures in the region by adopting Singapore’s expertise and reputation for an efficient and stable government and investment environment. These measures were coupled with the combination of local-specific advantages in the region, such as availability of cheaper labour and market access. Singapore’s regionalization stratagem is placed under scrutiny in this paper; the ensuing competitive interactions between competitor parks and Singaporean-styled parks have raised questions on the economics of competition and sustaining competitive advantage. This calls into question the value of Singapore’s, value-added services and infrastructure.

Key Words: Trans-border Industrialization; China-Singapore Suzhou Industrial Park

INTRODUCTION

Through selective state intervention, Singapore attempts to reallocate central resources via the formation of government partnerships and joint ventures with private as well as semi-private enterprises. This policy of economic reorganization and development highlights the considerable political will and ability of the state to mobilize and deploy resources to achieve national goals (Yeung and Olds, 1998). These endeavors into overseas industrial townships were the main thrust of Singapore's regionalization attempts and are crucial aspects of Singapore's economic restructuring (Singapore Ministry of Finance 1993).

SINGAPORE'S REGIONALIZATION STRATEGIES

The scarcity of resources in Singapore has compelled the island city-state to constantly pursue varying means to remain competitive in the dynamic global economy (Huff, 1995). Since independence, the Singapore government has sought to attract foreign direct investment, technology, management expertise and talent through selective intervention (Pereira, 2000). The state also played a crucial role in developing inter-regional and international economic cooperation (Yeoh et al, 2004). The fuelling of economic progress by extending its economic hinterland beyond its geographic borders is the mainframe of Singapore's regionalization strategy. The following paragraphs trace the development of this state-led initiative.

In the early post-independence years, Singapore's export-led industrialization was heavily dependent on investor-friendly environments and low labour costs to attract investments (Peebles and Wilson, 1996). The 1985 recession emphasized the need for Singapore to restructure its economic policies (MTI, 1986); this period impregnated the vision of expanding Singapore's

economic horizons beyond its geographical constraints². This initiative sought to hasten the embrace of new technology and access to overseas markets, by supporting Singapore companies to form joint ventures with overseas companies in Europe and North America. However, most of these ventures were unsuccessful, being chiefly hampered by the inability of Singapore firms to secure a foothold in these industrialized economies.

The internationalization strategy was modified in 1993 from ‘outer globalization’ to ‘inner globalization’, refocusing on the emerging regional economies such as China, Vietnam, Indonesia and India (Regnier, 1993; Mahizhnan, 1994; Okposin, 1999). The shift from internationalization to regionalization was rationalized by the high growth rates achieved by these economies (Singapore Economic Development Board (SEDB 1993, 1995b), which Singapore sought to capitalize on. The dearth of opportunities for small scale services (such as transport and construction firms) in Singapore, combined with the market possibilities for these services in overseas infrastructural projects, offered another aspect of appeal for industrial township development (Tan, 1995). The strategic intent was to facilitate Singapore’s transition to a ‘total business centre’ by relocating low value-adding manufacturing activities to regional sites, and restructuring the Singapore economy into a regional hub for the higher-end activities of Singapore-based MNCs (Yeung, 1999), and promising local enterprises, or in local parlance, PLEs. The *ration d’etre* for the regionalization stratagem was succinctly expressed in the policy document, *Singapore Unlimited* (SEDB, 1995a, p.9):

“Singapore’s regionalization thrust will help it create economic space beyond the island. It will enable Singapore to ‘borrow’ the region’s resources and markets. In return, the region will also be able to borrow Singapore’s strengths as a global city with international linkages.”

² This vision is encapsulated in the policy document, ‘Gearing Up for an Enhanced Role in the Global Economy’ (Singapore Economic Development Board (SEDB), 1988).

With Singapore's first regional industrial township development, the Batamindo Industrial Park (BIP) in Batam Indonesia, enjoying considerable early successes, the regionalization initiative emphasized replication of Singapore's reputed systemic efficiencies and industrial competencies through the establishment of Singaporean-styled industrial parks in the region (Perry and Yeoh, 2000). By creating these townships, the state was creating familiar environments and stable investment havens for Singapore-based firms, both foreign and indigenous, to operate in. As well, the township projects were positioned to address the reluctance of Singaporean businesses to venture abroad, by providing Singaporeans abroad, access to Singaporean-styled services. Furthermore, in these regional networks, co-operating with the host governments provides the groundwork for greater economic collaboration (Pereira, 2003; Peng and Zhou, 2005).

As well, by banking on its reputable infrastructure and management, Singapore promoted these industrial enclaves as packages with location-specific strengths (such as low labour costs and strategic markets). In this aspect, the Singaporean government played three key roles: first, negotiating the institutional framework for the development of industrial parks; second, conducting ministerial delegations' visits to raise the profiles of the parks and give greater emphasis on interpersonal ties (or *guanxi*) (Redding, 1990; Brown, 1998); third, government-linked companies taking the lead in infrastructural development (Zutshi and Gibbons, 1998) and government agencies such as the Singapore Economic Development Board (Schein, 1996) playing vital roles in the intense promotion of the industrial parks to investors. CS-SIP is amongst the townships which are developed on such a fusion of location-specific factors, governmental intervention, and transplant of reputation, infrastructure and management systems.

To provide the context to this paper, the theoretical considerations underpinning this flagship project are sketched in the next section followed by an account of the origins and progress of the case-study park. The analysis is reinforced by empirical data from our on-site surveys of the parks' tenants, and in-depth case studies of selected tenants in both locations. The final section considers the implications of the SIP experience on the 'exportability' of the Singapore industrial development model, and on a broader note, on the future of Singapore's transborder industrialization strategies.

THEORETICAL FRAMEWORK

Dunning's (1980, 1995, 2001) eclectic paradigm sought to provide the analytical basis for explaining the activities of firms situated beyond their national boundaries. The OLI paradigm was used to explain the ability and willingness of firms to serve markets, and examine the reasons for their choice of exploiting this advantage through foreign production rather than domestic production, exports or portfolio resource flows through the interaction of Ownership-specific (O) advantages, Location-specific (L) advantages, and Internalization-incentive (I) advantages. The paradigm was reconfigured to constitute the 'asset-augmenting' aspects of FDI and MNC activity. For instance, O-advantages have been separated into static and dynamic - static advantages describing the advantages possessed by a firm that generate income at a particular point of time and dynamic advantages illustrating the proprietary factors which permit a firm to boost its incoming-generating assets over time.

In similar vein, Porter (1994), Dunning (1998) and others (surveyed in Jovanovic 2003), have reiterated the importance of the spatial dimension, such as location-advantages as affecting the competitiveness of investing firms. The strategic choice of firms' locations reflects twin aims - to

not only transfer their resources to the host countries, but also to gain access to the available strategic assets (Makino and Delios 1996) and markets (Davies and Weinstein, 2003). Like O-advantages, L-advantages can also be classified as static and dynamic. While an industrial township facilitates companies' resource-dependent operations with its static L-advantages, the geographical concentration of such activity also engenders dynamic L-advantages such as asset-augmenting activities (e.g. R&D) and agglomeration benefits (Krugman, 1991; Porter, 1996). Given their deeply entrenched sources, these dynamic L-advantages cannot be easily replicated elsewhere. Markusen (1996) also points out that although firms may relocate knowledge and similar assets, assets with a public good or collective characteristic cannot be easily moved. And, as firms' core competencies become increasingly knowledge-intensive, the location in which firms locate their production, organization and use of assets emerges as a critical competitive advantage (Porter, 2000).

As well, the roles of governments in advancing the competitiveness of a country or region within a country need to be altered accordingly, as created assets supersede natural factor endowments as a key determinant of location (Dunning and Narula, 1996). Stopford (1999) and others similarly argue that governments need to ensure that the availability, quality and cost-effectiveness of general purpose inputs have to match up to the standards of their global competitors, as well as to create and sustain an institutional framework and ethos. This is to facilitate a continuous upgrading of the resources and capabilities within its jurisdiction and facilitate, rather than impede micro-regional clusters development and upgrading.

CS-SIP represents a collaborative effort by the Singapore and Chinese governments in creating location-bound advantages through a propitious combination of cost-effective factors of production, efficient infrastructure and management expertise; i.e., supplementing natural location-

specific advantages with engineered ones crafted to attract foreign direct investments to the park. This paper assesses whether such a strategic alignment of competitive and comparative advantage has been created in the CS-SIP project.

CHINA-SINGAPORE SUZHOU INDUSTRIAL PARK (CS-SIP)

Launched on May 12, 1994, CS-SIP was Singapore's most ambitious and controversial overseas township project. The project cost was reportedly estimated at US\$20 billion. The 'Singapore model', as applied to CS-SIP, envisaged a large-scale project to facilitate institutional innovation, autonomy from aspects of local government control and investment in administrative practice or 'software development' (SIPAC, 1999). This project encompassed high quality infrastructure, pollution control, 'one-stop', transparent operating and decision-making processes, minimum entry or performance regulations, and the delivery of social and welfare services to support an efficient, work-oriented environment. As well, the model not only encompasses strategies for attracting and establishing local bases for foreign companies. This project is a litmus test of the exportability of the 'Singapore development model' to countries in the region.

The project was developed by a joint venture between a consortium of Chinese and Singapore-based investors known as the CS-SIP Development Company (CSSD). CSSD is overseen by a local authority, the Suzhou Industrial Park Administrative Committee (SIPAC). The Chinese consortia's initial 35% stake was shared amongst 12 organizations, mainly state-owned enterprises and investment companies of Jiangsu province. The Singapore consortia's initial 65% was distributed amongst 24 organizations, mainly Singapore government-linked companies, and the Salim Group (through a subsidiary, KMP China Investments). The two

consortia retained separate identities and responsibilities, taking up projects according to the agreed roles.

CS-SIP was touted as a locale which offers abundant labour, and other local resources, at competitive costs, and in proximity to target markets. The primary factors are purportedly enhanced and strengthened by world-class infrastructure within the park, strong commitment and support from the local authorities, and growing bilateral economic co-operation between Singapore and China. The envisaged product of this combination is an industrial park, distinct amidst the competition, which presents itself as attractive investment enclaves

However, barely five years into the flagship project, Singapore acknowledged that the original vision of transferring its industrial development model to Suzhou was a much more complex and challenging process than previously envisaged. The synergy that was envisioned at the onset did not materialize. Singapore's disappointment was pointedly highlighted by then Senior Minister Lee Kuan Yew's public questioning of the commitment of the Chinese partners to the project. By 1999, the township had attracted only 5,000 residents against a target of 600,000. The park was employing 14,000 workers, while the original projection was 360,000. The slow progress resulted in financial losses for the Singapore-led consortium which funded the land development and infrastructure, and also for investors involved in peripheral projects.

These, and other protracted difficulties, led to the announcement in 1999 that Singapore would transfer majority ownership to the Chinese partners in 2001, with the latter taking a 65% stake in the new alignment of interests. Interestingly, CS-SIP's performance turned around within a year following the transfer of majority ownership and management control. By the end of 2005, CS-SIP had secured cumulative contractual foreign investments exceeding US\$19 billion, and established a tenant profile of over 1,750 foreign investment enterprises, including

52 Fortune 500 MNCs, and over 7,000 domestic companies. Its tenants includes, significantly, a large proportion of American, European and Japanese investors, with over 70% of their investments in electronics, information technology and other high-tech segments.

Taking the momentum forward, CSSD has announced several new development goals for the park: contractual investments to exceed US\$20 billion and utilized investments to surpass US\$10billion. The second and third phase of the transportation network and other infrastructure projects, to be developed at an estimated cost of US\$10billion, is in progress. CSSD plans to list in China, and possibly, in Singapore.

EMPIRICAL ANALYSIS

For a more comprehensive analysis of CS-SIP, and to better ascertain the situation on the ground, it is inadequate to rely on secondary data from official publications and press reports. The success of the park hinges in large measure on its ability to harness the micro-economic processes of specific firms and industries in a global environment. In particular, the alliance between Singapore and China should ideally provide a suitable framework within which firms can pursue and develop strategies which support their global business operations and competitiveness. The premium that underscores the development and management of the Park is that each of the alliance-partners offers different, yet complementary, advantages to firms. As such, the attractiveness and competitiveness of CS-SIP is the extent to which the firms' manufacturing operations are synergistically linked to the advantages proffered by the Park.

To obtain such primary data, we applied the survey questionnaire developed in Yeoh, et al. (2000) through direct interviews with CS-SIP tenants. Our survey questionnaire was designed to gauge the differential impact of various push/pull factors on the tenants' decision to locate in the

case-study parks, along with the differential impact of different types of constraints on their operations. The on-site interviews were carried out in CS-SIP in August 2004 and April 2005.

Profile of Respondents

Of the 78 respondents in CS-SIP, 10 were wholly Singaporean-owned, 31 were wholly Chinese-owned, 31 were wholly foreign-owned, and 6 were joint ventures. With respect to nature of operations, 4 manufactured consumer products, 18 manufactured intermediate products, 8 manufactured capital products, 5 provided industrial services and 42 engaged in other types of operations such as industrial and support services. In terms of employment size, 67 respondents had less than 100 employees, 8 employed between 101 to 500 employees, while 2 employed between 501 and 1,000 employees. In terms of target markets, 59 firms targeted the domestic China market as one of their top three markets, 14 targeted the OECD economies, 17 targeted the East Asian markets, excluding Japan and ASEAN economies.

Statistical Treatment of Survey Results

Apart from analyzing the descriptive statistics and popular rankings on the responses relating to factors and constraints, a logit model³ was applied to compare the perceived advantages

³ The logit model involves a binary choice of the i^{th} firm which can be represented by a random variable, Z_i , which takes the value of 1 if a certain choice is made and the value 0 if that choice is not made. The (cumulative) *logistic* distribution function, estimated by the maximum likelihood, takes the following form:

$$P_i = \exp(Z_i) / [1 + \exp(Z_i)]$$

where: P_i is the probability of firm i choosing the factor in question; \exp refers to the exponentiation operator and

Z_i is a linear function of the firm attributes, defined as

$$Z_i = \alpha_0 + \alpha_1 F_1 + \alpha_2 F_2 + \alpha_3 F_3 + \alpha_4 F_4 + \alpha_5 F_5 + \alpha_6 F_6$$

where: $F_1 = 1$ if 'wholly China-owned' is selected, 0 otherwise; $F_2 = 1$ if 'wholly Singapore-owned' is selected, 0 otherwise; $F_3 = 1$ if 'manufacturing intermediate products' is selected, 0 otherwise; $F_4 = 1$ if 'providing industrial services' is selected, 0 otherwise; $F_5 = 1$ if 'targets Other Asian market' is selected, 0 otherwise; $F_6 = 1$ if 'targets non-Asian markets' is selected, 0 otherwise; α_0 = constant term; α_i = coefficient of independent (explanatory) variable

influencing the tenants' decision to locate in the case-study parks. A similar model was also applied to the constraints faced by the tenants in these parks as well as the firms' responses to these constraints. The logit estimations are set out in Tables 1, 2 and 3 respectively.

Factors influencing respondents' decision to invest in the case-study parks⁴ (Table 1)

The key factors in CS-SIP that attracts investors can be categorized into 3 categories: favourable political and investment climate; the availability of physical and human resources, related and supporting industries; and strategic location.

The logit estimations, presented in Table 1 assert that Chinese tenants are less likely to consider competitive labour as a major pull factor in comparison to foreign companies. This is indicated by the respective negative and statistically significant α_l (= -1.631). In the eyes of many overseas businessmen, the Chinese mainland is a paradise for investment, due to its huge market potential and low labour costs. From Porter, the local-specific factor (in this instance, competitive labour costs) may be deemed as a 'given' advantage for the local Chinese firms.

'Access to overseas markets' is not a significant consideration for Chinese firms as indicated by the negative and significant α_l (= -1.562). Most Chinese firms are not export oriented vis-à-vis their foreign counterparts and hence access to overseas markets features as of lower importance. Chinese firms are also inclined towards favoring the availability of skilled labour, as indicated by the positive and statistically significant α_l (= 1.093). Despite competitive labour costs, Chinese firms face a dearth of adequately trained labour. Compared to Singaporean firms, this is a more significant predicament as the latter are able to post experienced personnel from Singapore with

Hence, if the estimated coefficients in the logit model is statistically significant (as indicated by the *z*-statistics and *p*-values, this would imply that the probability of a firm (e.g. foreign-owned) choosing a particular factor is greater than the probability of another firm (of different ownership type) making the choice, after taking into consideration the types of goods and services produced.

⁴ 'Respondents' decisions to invest' refer to past investment decisions, made at the time the Park was built and/or marketed to the tenants, so as to reveal the effectiveness of Singapore's initial efforts at building a 'second wing'.

relative ease; illustrating a possible competitive advantage Singaporean tenants may have vis-à-vis their Chinese counterparts.

On the other hand, Singaporean firms tend not to consider the political commitment from China as a major pull factor, as substantiated by the negative and statistically significant α_2 (= -2.235). Although this is surprising given that local legislations and reforms undeniably have a heavy impact on the firms operations, it however suggests that the established Singaporean-owned businesses in the park do have the necessary connections or “guanxi”. On a side note, such familiarity of the local business climate by the Singaporean firms suggests some degree of success for the Singapore government in finding a suitable environment for local firms to expand into the region.

Firms providing industrial services tend to disregard the political commitment from China as a major pull factor, as depicted by the negative and statistically significant α_4 (= -3.360). These firms tend to have a smaller capital outlay and are not over-dependent on political commitment from the host country for its long term development. However, firms that target Asian markets, excluding China and Japan, place emphasis on this factor. This is explained by the positive and significant α_7 (= 2.631).

As for the nature of operations, firms manufacturing intermediate products consider investment incentives and conducive industrial relations as pull factors, as suggested by the respective positive and statistically significant α_3 (= 1.165 and 1.214 respectively). Manufacturing intermediate products would incur a relatively large capital outlay and running costs, and investment incentives such as tax exemptions on exported goods offered in CS-SIP offsets this sizeable outlays.

Firms that target OECD economics are attracted to CS-SIP largely because of its provision of a one-stop service. The success of CS-SIP was initially hinged on its being the first Singapore-styled park in China to introduce pro-business services such as the one-stop service centre, and this has indeed drawn in firms whose target markets are not even in proximity to China. The firms targeting OECD markets are often focused on building complementary relationships between local-specific and competitive strengths, and relying on efficiency in operations from the pro-business services available at CS-SIP. Expectedly, these export-oriented firms disregard the presence of major buyers in the vicinity of CS-SIP and access to the Chinese domestic market as pull factors, as indicated by the negative and statistically significant α_8 ($=-1.118$ and -0.985).

Constraints faced by Respondents' Operations (Table 2)

Despite being an established industrial park with 10 years of experience, tenants in CS-SIP face emerging constraints, which have undermined its attractiveness. These constraints, for purposes of analysis, are categorized into four broad segments, namely: labour-related, organizational-related, economic-related and environmental-related constraints.

The logit estimation, as presented in Table 2, demonstrates that the shortage of semi-skilled and skilled labour is a major constraint faced by Singaporean firms as indicated by the positive and significant β_2 ($=2.296$). Many Singaporean firms engage in higher technologically reliant production vis-à-vis the Chinese firms; therefore, a more adequately trained workforce is required. As well, Chinese firms tend not to be constrained by the shortage of professionals and managers, as indicated by the negative and significant β_1 ($=-1.209$). This further supports the analysis above.

Despite the oft-perceived difficulty in sourcing for raw materials, logit estimations reveal that this is not a concern for Chinese companies as indicated by the negative and highly statistically significant β_1 ($=-2.295$). Familiarity with the Chinese market, especially in the Jiang-Nan region, allows Chinese firms to obtain raw materials at competitive prices with relative ease, as compared to foreign firms.

Singaporean-owned firms tend to regard the impact of government regulations as a major constraint, as shown by the positive and statistically significant β_2 ($=1.692$). It is of no surprise that Singaporean-owned companies are more concerned with this constraint, which may impact the firms' efficiency and operational costs. As elaborated earlier, they are cautious of operating in an overseas locale and react more markedly vis-à-vis local firms to changes in government regulation.

Singaporean-owned companies also reflected that they were being constrained by protectionist barriers which restrict market access to developing countries as indicated by the positive and significant β_2 ($=2.293$). Despite possessing a world-class export processing zone and favorable export incentives, CS-SIP's efforts are undermined by developing countries introducing protectionist barriers. This is due to worries that China's low-priced exports may undercut the developing countries' own output. Chinese firms are less affected by these barriers as they primarily target the domestic market.

As expected, the lack of familiarity with local business practices is not a constraint for Chinese firms, as indicated by the negative and significant β_1 ($=-1.427$). Nevertheless, Singaporean firms tend to be constrained by the lack of transparency or frequent changes in host regulations, as reflected by a positive and significant β_2 ($=2.142$). Singaporean firms are more comfortable with Singapore styled regulations which are transparent and stable regulations,

having been attracted to CS-SIP because of its Singaporean-model. However, this has not been fully realized, partly due to the illusory clout and influence which the Singapore consortium had over the issue of regulations and transparency in the park.

Firms' Response to Constraints (Table 3)

In face of these constraints, firms have adopted various responses to resolve them. Singaporean-owned firms are especially likely to source for experienced executives from Singapore when faced with a lack of skilled and professional labour. This is as indicated by the positive and significant λ_2 (=2.500) – being reflective of the combination of location-specific advantages of availability of cheap local labour in the host country, and competitive advantages, such as the availability of experienced executives in the home country.

Firms also encourage training and promote workers' productivity through various support schemes, as reflected in the first and second rankings respectively, in the absolute ranking of response frequencies. Another noteworthy aspect is that firms have not displayed an interest in approaching Singaporean agencies or authorities for assistance. This is also the case for Singaporean firms, despite the 'safety net' provided for them by the vested interests of both the Singaporean and Chinese governments in the township project.

CASE STUDIES

To reinforce our logits estimations, we included 3 in-depth case studies from CS-SIP. To provide a more holistic analysis to the paper, 2 examples Suzhou New District (SND) are also highlighted. SND is perceived as a competitor to CS-SIP and a brief description of the enclave is provided. The case study firms' characteristics are summarized in Table 4.

Case Studies from the China-Singapore Suzhou Industrial Park

Case SIP-1 – Electronic Components. Company SIP-1 is a wholly owned subsidiary of a United Kingdom corporation, which is one of the world's largest producers of electrical and electronic cable assemblies. The parent company owns 27 manufacturing facilities in 15 countries, employing over 12,000 workers. The parent company's regional headquarters for Asia is located in Singapore.

The firm located its operations in CS-SIP mainly for investment incentives, the availability of manpower resources and competitive labour costs. On the issue of political climate, the company believes that its primary concern is the political commitment from China, rather than that from Singapore, primarily because the Chinese government has a veto over legislations that affect the operation of firms in CS-SIP. Also reflected in the logit analysis, this perception (which prevails not just in Singaporean firms, but also in foreign firms) highlights the importance of having steadfast support from the local authorities for the success of the industrial township.

Albeit common opinion of lack of transparency in Chinese government regulations, Company SIP-1 believes that the issue of transparency is considerably well-handled in Suzhou compared to the other Chinese regions. Noteworthy, the company has periodic interactions with the CS-SIP authorities, during which the company may raise concerns with regards to operation constraints. Similar to the logit analyses for Singaporean firms, the foreign company will approach the Park or Chinese authorities rather than Singaporean agencies regarding issues pertaining to operations in CS-SIP.

However, because the primary function of this Suzhou-registered company is in manufacturing, the shortage of skilled and semi-skilled labour in CS-SIP has placed a bottleneck on its development. To tackle this issue, the company posts experienced executives from its

Singapore regional headquarters to assist in managing the CS-SIP subsidiary. Since only a basic skill set is required to handle the company operations, it trains workers locally, instead of sending them abroad for training. This echoes the logit analysis which reveals shortage of skilled and semi-skilled labour as being a major labour-related constraint faced by foreign (Singapore) firms.

Furthermore, CS-SIP's apparent advantage in competitive labour costs (which has been attributed as attracting the company's establishment in the Park), is also *now* being questioned. The lack of suitable labour has driven up costs and has affected the company's evaluation of the labour aspects of CS-SIP adversely. According to its Human Resource Department, government policies, such as wage and manpower policies, are helpful in resolving the labour issue. Nevertheless, the market will eventually determine the factors that influence labour dynamics.

In the near future, the company plans to expand its operations within CS-SIP. Due to space constraints within the current area of development, the expansion will not be within the industrial park. This may be influenced by the increased willingness of expanding firms in branching out to new areas that are currently under development in CS-SIP.

Case SIP-2 – Packaging. Company SIP-2 is an American owned firm, and its parent company (with a workforce of 12,000), is involved in production of diverse products such as bag-in-box packaging, metalized plastics and paper. In CS-SIP, the company produces bags for wine, dairy products and foodstuff for use in Asia. As this company was established only recently, it currently employs fewer than 100 employees. However, they have plans to expand their operation capacity and employment scale within the Park.

The company expressed that the two key reasons for locating in CS-SIP were the political climate and the infrastructural facilities and support services. According to them, CS-SIP is one

of the most reputable of the Chinese parks, hence highlighting the relevance of reputation of CS-SIP in its competition with neighboring industrial parks. The company did consider locating in another park in Wuxi, but considered the infrastructural support in CS-SIP as being better in comparison. On the topic of political climate, the company believes that the political commitment from both China and Singapore are crucial; the transfer of the strength in Singapore's software being crucial for the success of CS-SIP. On the issue of infrastructural facilities, the company expressed concerns that although the infrastructure at CS-SIP was in place, there might be delays in maintenance and operation of infrastructural support. This concern reflects the deterioration of the infrastructural advantage of CS-SIP.

For Company SIP-2, their key operating constraint is the availability of requisite labour in the Park. There is a palpable shortage of skilled and semi-skilled labour. Furthermore, the company mentions that the training of the workers is hampered by a comparatively unsuitable labour pool available. In attempts to resolve the issue, the company sends foreign staff to China; and local staff for training purposes. This is similar to the response to labour constraints made by Singaporean firms, which send executives to manage the firms' establishments in China. In these cases, the unique play upon competitive and local-specific advantages is evident.

On the issue of labour, the company expressed another concern for the worker's welfare – the CS-SIP Provident Fund (SPF). Despite the good intentions of the SPF system, some workers desire to have a higher take-home salary. The company hence expressed concerns over the wage policy in CS-SIP. This view highlights a possible area of neglect in the management policies of CS-SIP.

Case SIP-3 – Molding. Company SIP-3 is involved in molding and is a subsidiary of a Japanese parent company, which is a leader in high performance composite alloys. As the

company was incorporated recently, their number of employees in CS-SIP is fewer than 50. The primary factor attracting Company SIP-3 in setting up in CS-SIP is the preferential access to the domestic market; noting that their parent company has established a subsidiary in Henan, China. However, the company is now shifting its market focus from China to the ASEAN region. This reflects the importance of CS-SIP as an initial gateway to the Chinese market, with firms possibly altering their strategic focus to regional markets thereafter.

Due to the nature of its operations, the company was initially not concerned with the availability of raw materials in CS-SIP because the raw materials are imported from Japan. This concern arose only recently as the Company shifted its procurement of raw materials from Japan to China. This may be a similar scenario for companies which shift their raw material sources upon settling in the Chinese environment.

The highly mechanized operating environment of the company is constrained by a difficulty in introducing new technology to its processes. The firm cites issues concerning the maintenance of equipment and training of its workforce locally. To resolve these problems, the company has posted experienced executives from Japan, and encourages training amongst Chinese employees. The responses of other firms in CS-SIP are seemingly similar and pragmatic. Holistically, the company evaluates the CS-SIP favorably, making special mention of the handling of logistics, where it has experienced little difficulty in transportation and procurement. Another important strength that has persisted in CS-SIP is the reputable infrastructure and town-planning; this contributes to the controversial debate about the whether CS-SIP infrastructure is losing its appeal to investors.

Case Studies from Suzhou New & Hi-tech Industrial Development Zone (SND)

After its construction was approved by the State Council of China in 1992, SND became one of the first four APEC hi-tech development zones in China in 1997. In 1999, SND also became the first ISO14000-certified industrial estate in China. Spanning an area of 258 sq-km, the project was affiliated to the Suzhou municipal government. As well, SND aims to create a diversified township of modern industry, commerce and housing, thus arguably posing the greatest direct competition to CS-SIP. Furthermore, SND offers several benefits modeled after CS-SIP, including the offering a form of the 'one-stop service'. Possessing advantages in lower labour and rental costs, SND had managed to attract a total accumulated foreign capital of US\$11.7 billion by end 2004. 1,050 foreign companies are registered in SND, including 40 Fortune 500 companies.

At present, SND has upped the ante in its challenge to CS-SIP with the completion of its latest phase⁵ of development as well as the development of the Suzhou Technological Complex, International Education Park, Lakeside New City and several other industrial estates. However, the unstable provision of power and utilities is still of a major concern to SND tenants.

Case SND-1. Company SND-1 is a Swiss-owned subsidiary that manufactures electronic components. The parent company is a leader in the production of computer accessories. With sales of more than US\$30 million, Company SND-1 has considerable presence in SND. 80% of the products manufactured are exported to overseas markets, particularly in OECD countries.

The settling of the firm in SND is part of the company's strategy to leverage on the availability of manpower resources in China and to gain preferential access to its target markets. To the company, SND's industrial relations are an important factor for their locating in the

⁵ The initial Phase of SND is subdivided into a Central Business District, sub central residential areas, science research and development area, modern hi-tech industrial area and a logistic area.

industrial estate. SND's infrastructure facilities and support services play the role of another crucial determinant. Similar to the reactions of CS-SIP firms, Company SND-1, despite perceiving the availability of skilled labour being an initial pull-factor, now considers the lack of skilled or semi-skilled labour as a constraint on its operations and development.

Another important constraint highlighted is the impact of government regulations pertaining to the complexity of export procedures. However, the company perceives the export procedures, though complex, as relatively better than elsewhere in China. This is a similar view echoed by firms in CS-SIP. In the area of organization and technology, Company SND-1 faces difficulties in the procurement of capital equipment and in introducing new technology and techniques. To adapt to these constraints, the company has imported technology from its Swiss headquarters into SND and carries out training programs for the local staff.

Holistically, the Company regards the utilities, labour and amenities in SND favorably. With regard to the logistics facilities and services in SND, Company SND-1 feels that the processes are complicated, are likewise, comparably better than in elsewhere. This reflects the extent to which SND has caught up with CS-SIP in terms of logistics and infrastructure.

Case SND-2. Company SND-2 is a subsidiary of a Korean company. An automobile component manufacturer, the company caters for the domestic market, its key market in the Jiangsu Province. It perceives the political climate as being more developed in Suzhou, than in Shenzhen, and hence invested in SND. The presence of its major suppliers in Suzhou also influenced the Company's decision to settle in Suzhou. The availability of manpower resources is viewed by the Korean company as an important strength of SND, and as an added bonus, some of the labour force have a basic grasp of the English and Korean language. This highlights one aspect that has been much overlooked in the academic research regarding overseas industrial

parks – the aspect of the language barrier and communication differences between parent and subsidiary companies.

The key constraint faced by the firm is that of industrial relations; it faces problems managing workers who are often not satisfied with their wages. Also, operations in SND are hampered by occasional electricity supply problems. This may be reflective of views of some companies, who face utilities constraints. Indeed, the premium on CS-SIP's comparably superior in-house utilities services may indeed be qualified. Company SND-2 has been directly negotiating with the SND authorities to rectify this problem.

DISCUSSION AND CONCLUSION

From our logits analysis and case studies, it can be deduced that Singapore's reputation in industrial park management has played a key role in attracting firms to CS-SIP. This non-corrupt, efficient system is one of the key differentiating factors between CS-SIP and competitor parks. Nevertheless, the competitors' efforts in attempting to match CS-SIP's infrastructure and pro-business environment has diluted much of her other advantages. CS-SIP's infrastructure still retains a critical edge over its competitors, with the sporadic incidents of utilities stoppage in SND as a prime example. CS-SIP is currently developing its industrial infrastructure in new areas of development and many of the expanding firms are planning to explore initiatives in these sectors.

As illustrated earlier, firms often place political commitment of Chinese authorities as a crucial pull factor in investing in CS-SIP. The transfer of majority of ownership rights from the Singaporean consortium to the Chinese consortium is deemed as the tipping point in CS-SIP's progress. This is exemplified by the increase in investments after the transfer. The shift is in

accordance with the theoretical value chain model which reflects the requirement of a stable and pro-business governmental support in facilitating mobilization and combination of factors in production.

As well, a readily available labour pool, which was the initial pull factor for many CS-SIP and SND tenants, has declined. Firms now cite improvement in labour conditions as an area requiring improvement. We attribute this to the crowding out effect apparent in all three parks, where the increasing numbers of firms in each park reduces the total amount of labour available to each tenant. Such conditions are, however, beyond the control of the Singapore's planning model. Nevertheless, as cited by one of the firms, market forces may eventually compel the necessary changes in labour systems.

To tackle the labour constraint, firms adopt similar pragmatic strategies. Their primary strategy is that of training locals, and simultaneously posting executives from abroad, on top of providing incentives for training and development. A possible foray for CS-SIP could be the establishment of a seed fund to complement the Skills Development Fund for the training of labour in CS-SIP. This may be a potential distinguishing pull-factor for future investments. Prudent implementation is necessary of such a proposal, because factors such as the local socio-economic circumstances must be taken into consideration to avoid any backlash.

To summarize, the practical intent - in the context of the Suzhou 'experiment' - was to clone the Singapore-styled 'walled city isolated from the rest of China' (Thomas, 2001). In paradox of context, the case-study park encountered greater development challenges when isolated from, than when integrated, into the broader host environment. The protracted difficulties are already well-documented.

Our study, however, contends that the measured experimentation in adapting Singapore's development software, and the transfer of ownership and management to the local partners, have re-aligned the stakeholder-interests and engendered an incentive structure for the local partners to make the project a success. The upsurge in investment commitments to CS-SIP has demonstrated the appeal of the Singapore industrial-township model. The exportability of the Singapore model, suitably adapted, is now more apparent and, *prima facie*, the Suzhou 'experiment' may well provide the model for replication in other regions in China, and other emerging markets.

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Table 1

**Factors Influencing the Respondents' Decisions to Invest in CS-SIP
(By Maximum Likelihood Estimates - Binary Logit)^{ψ, ϕ}**

Variables	Frequency	Rank	Type of Ownership		Nature of Operations		Markets	
			China (α_1)	Singapore (α_2)	Intermed (α_3)	IndSvc (α_4)	Other Asia (α_7)	Non-Asia (α_8)
Political Commitment from China	33	5	-0.859 (0.132)	-2.235 (0.059)***	-0.399 (0.542)	-3.360 (0.045)**	2.631 (0.023)**	0.305 (0.615)
Investment incentives	43	1	-0.777 (0.166)	-1.272 (0.105)	1.165 (0.079)***	-0.367 (0.731)	-0.089 (0.904)	0.332 (0.573)
Efficient Government	15	10	1.425 (0.070)***	0.563 (0.578)	-1.562 (0.162)	-0.168 (0.895)	0.954 (0.318)	0.272 (0.720)
Competitive Labour	21	8	-1.631 (0.027)**	0.612 (0.404)	-0.251 (0.702)	0.147 (0.893)	0.190 (0.785)	-0.140 (0.823)
Conducive Industrial Relations	20	9	-0.161 (0.798)	-0.539 (0.552)	1.214 (0.050)**	-0.168 (0.894)	0.184 (0.814)	-0.287 (0.651)
Availability of Skilled Labour	34	4	1.093 (0.049)**	-0.803 (0.360)	-0.296 (0.629)	-0.165 (0.877)	0.367 (0.614)	-0.157 (0.785)
Major Buyer	35	3	0.450 (0.420)	0.527 (0.490)	1.002 (0.102)	0.441 (0.667)	0.423 (0.553)	-1.118 (0.065)***
One Stop CSSIP	27	6	0.145 (0.797)	0.087 (0.919)	-0.372 (0.556)	-19.938 (0.999)	-1.378 (0.137)	1.019 (0.083)***
Access to Overseas Market	23	7	-1.562 (0.020)**	-0.681 (0.389)	0.227 (0.715)	0.859 (0.424)	-0.436 (0.544)	0.796 (0.178)
Access to Domestic Market	42	2	0.630 (0.253)	0.128 (0.864)	0.797 (0.191)	0.021 (0.984)	0.567 (0.422)	-0.985 (0.086)***

Note: ^ψ Estimated values were taken from the final stepwise regression.

^ϕ Values in parentheses are p-values for 2-tailed tests.

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

Source: Questionnaire surveys

Table 2

**Constraints on Respondents' Operations in CS-SIP
(By Maximum Likelihood Estimates - Binary Logit)^{ψ, ϕ}**

Variables	Frequency	Rank	Type of Ownership		Nature of Operations		Markets	
			China (β ₁)	Singapore (β ₂)	Intermed (β ₃)	IndSvc (β ₄)	Other Asia (β ₇)	Non-Asia (β ₈)
Shortage of semi-skilled/skilled labour	39	1	0.121 (0.827)	2.296 (0.029)**	0.929 (0.140)	2.598 (0.068)***	-1.441 (0.105)	-0.273 (0.642)
Shortage of professionals & managers	28	4	-1.209 (0.037)**	0.006 (0.994)	-0.772 (0.237)	0.590 (0.588)	-1.562 (0.053)***	0.291 (0.621)
Industrial Related Problems	8	12	2.433 (0.107)	2.180 (0.129)	1.412 (0.152)	-19.662 (0.999)	2.986 (0.038)**	-2.641 (0.081)***
Difficulty in obtaining capital equipment	10	10	1.230 (0.191)	1.035 (0.325)	0.885 (0.306)	2.304 (0.054)***	0.010 (0.992)	0.269 (0.757)
Difficulty in sourcing raw materials	14	8	-2.295 (0.008)*	-1.537 (0.219)	0.940 (0.222)	1.237 (0.389)	-2.371 (0.075)***	-1.029 (0.208)
High and/or rising overhead costs	33	3	0.380 (0.508)	0.918 (0.245)	0.460 (0.449)	-0.430 (0.728)	-0.626 (0.407)	1.326 (0.022)**
Impact of government regulations	18	6	0.680 (0.339)	1.692 (0.037)**	0.438 (0.525)	-0.604 (0.627)	0.971 (0.219)	-0.558 (0.433)
Competition from overseas competitors	39	1	0.598 (0.287)	1.198 (0.136)	1.324 (0.036)**	-0.058 (0.956)	-0.035 (0.961)	0.120 (0.834)
Competition from other Chinese Parks	28	4	-0.141 (0.798)	-0.049 (0.955)	0.526 (0.396)	0.160 (0.904)	-2.443 (0.030)**	0.275 (0.640)
Protectionist Barriers Developing	9	11	0.163 (0.861)	2.293 (0.049)**	-1.857 (0.141)	-19.174 (0.999)	-1.970 (0.184)	1.609 (0.062)***
Lack of Familiarity with Location	13	9	-1.427 (0.098)***	0.611 (0.480)	0.501 (0.469)	-19.364 (0.999)	-0.817 (0.379)	0.424 (0.532)
Lack of Transparency	16	7	-1.025 (0.190)	2.142 (0.014)**	-0.724 (0.383)	1.501 (0.244)	-1.261 (0.190)	0.420 (0.556)

Note: ^ψ Estimated values were taken from the final stepwise regression.

^ϕ Values in parentheses are p-values for 2-tailed tests.

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

Source: Questionnaire surveys

Table 3

Responses to Constraints on Respondents' Operations in CS-SIP
(By Maximum Likelihood Estimates - Binary Logit)^{ψ, ϕ}

Variables	Frequency	Rank	Type of Ownership		Nature of Operations		Markets	
			China	Singapore	Intermed	IndSvc	Other Asia	Non-Asia
			(λ ₁)	(λ ₂)	(λ ₃)	(λ ₄)	(λ ₇)	(λ ₈)
Post Experienced Executives from Singapore	16	4	-0.549	2.500	-0.201	-0.714	0.481	-0.140
			(0.500)	(0.003)***	(0.798)	(0.603)	(0.562)	(0.852)
Encourage Training of Employees	52	1	-0.132	0.512	-0.276	1.055	-0.240	1.240
			(0.818)	(0.568)	(0.662)	(0.395)	(0.757)	(0.059)***
Encourage Higher Productivity	30	2	-.361	.413	-.406	-20.848	-.881	-.334
			(0.513)	(0.610)	(0.500)	(0.999)	(0.270)	(0.554)
Adopt Local Practices	13	5	-1.099	0.211	1.257	-19.075	-1.493	-0.474
			(0.154)	(0.830)	(0.074)**	(0.999)	(0.199)	(0.522)
Adopt New Technologies	18	3	-0.141	-0.072	1.085	-19.682	-0.587	-0.461
			(0.824)	(0.939)	(0.088)**	(0.999)	(0.522)	(0.484)
Approach Singapore Agencies	4	6	-19.020	.392	-.316	-19.056	.059	-.871
			(0.998)	(0.758)	(0.795)	(0.999)	(0.963)	(0.481)

Note: ^ψ Estimated values were taken from the final stepwise regression.

^ϕ Values in parentheses are p-values for 2-tailed tests.

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

Source: Questionnaire surveys

Table 4
Summary Information of Case Study Firms
(In the respective Industrial Parks)

Company	Ownership	Industry	Company Employee Strength	Primary Markets
SIP-1*	U.K.	Electronic Components	More than 500	China, Singapore, USA
SIP-2*	U.S.A.	Packaging	Less than 100	China, ASEAN
SIP-3*	Japan	Molding	Less than 50	Singapore, ASEAN
SND-1 ^ψ	Switzerland	Electronic Components	About 3,500	OECD
SND-2 ^ψ	Korea	Auto Components	About 150	China

Note: * Firms located in China-Singapore Suzhou Industrial Park (CS-SIP).

^ψ Firms located in Suzhou National New & Hi-tech Industrial Development Zone (SND).