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**‘ECONOMICS OF COMPETITION’: A STUDY OF LOW-COST
MANUFACTURING ENCLAVES IN BATAM ISLAND, INDONESIA**

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‘ECONOMICS OF COMPETITION’: A STUDY OF LOW-COST MANUFACTURING ENCLAVES IN BATAM ISLAND, INDONESIA

ABSTRACT

Singapore’s transborder industrialization projects in China and India have received much attention. This regionalization initiative was intended to set in place a strategic configuration for the city-state to restructure its domestic industries and, *pari passu*, retain important linkages with contiguous, low-cost environments. Our study reports on Singapore’s pioneering, albeit lesser-known, project - Batamindo Industrial Park – in neighboring Batam Island, Indonesia, and finds that the strategic intent of this policy gambit remains stymied by non-economic, socio-political complexities in the host environment, and the economics of competition from other industrial estates in the vicinity of this prototype, remains to be addressed.

Key words: Singapore - Batam Island, Indonesia - Industrial Parks

INTRODUCTION

Not long after its independence, the island nation of Singapore recognized that it must be plugged into the global economy. A lack of natural resources made it an imperative for the city-state to develop the ability to leverage on global resources for economic growth (Murray and Pereira, 1995). However, by the mid-1980s, a combination of rising domestic labor costs and increasing competition from regional economies created a necessity for Singapore to shift away from a labor-intensive paradigm to one more focused on quality and service. The Singapore government thus takes the initiative to develop regional sites as locations to access resources and markets (Singapore Ministry of Finance, 1993; Singapore Economic Development Board, 1995a, 1995b). This strategic maneuver was premised on the perception that the redistribution of manufacturing activities to low-cost industrial sites will enhance the collective competitiveness of Singapore-based companies that redistribute their resource-dependent operations to these enclaves, as well as Singapore's own competitiveness as a high-value investment location with strategic linkages to the region (Regnier, 1993; Okposin, 1999).

“Going regional is, therefore, about investing our expertise and capabilities in other growth areas in the region, interlocking them with our domestic economy. It is to strengthen our domestic economy, expand our national economic zone, and ratchet up our standard of living. This is the mission of our regionalization drive.”

- Prime Minister, Goh Chok Tong (Regionalization Forum, 1993)

Batamindo Industrial Park (BIP) was the prototype of this strategic initiative and has, indeed, been a centre of investment and growth for the region – so much so, in fact, that it has served to catalyze the growth of competitor parks in the region, parks that are,

ironically, threatening BIP's own exclusive competitive advantages – advantages which may be rather less 'exclusive' and 'advantageous' than initially thought, as we will discuss in the following sections. Against this backdrop, and set within the context of recent announcements that Singapore and Indonesia will work together to develop new Special Economic Zones (SEZs) in Indonesia (*Straits Times, March 19, 2006*), a revisit on the 'measured success' of Batamindo Industrial Park (BIP) – is imperative.

To provide context to this discussion, the theoretical considerations underpinning Singapore's transborder industrialization initiative are sketched in the next section. The following section takes a closer look at BIP's progress and, to briefly introduce several of the major competitor parks in the region. We will then present our data and findings in the following section, examining the challenges confronting the project, using comparative data drawn from empirical surveys of tenants of both BIP and the competitor parks to reinforce the analyses, with particular reference to the parks' progress in attracting investment, as well as, in BIP's case, to Singapore's transborder industrialization initiative. The final section considers the implications of this new evidence to Singapore's broader regionalization initiative, coming to the conclusion that a conflation of environmental factors, both internal and external, has quite arguably shown the structural limitations of this prototype project, and, by extension, the fundamental limitations of the initiative itself.

THEORETICAL CONSIDERATIONS

Dunning's (1988) eclectic paradigm can be utilized to provide the analytical basis for explaining Singapore's heavy investments beyond her national boundaries. The OLI paradigm was used to explain the ability and willingness of firms to serve markets, and to look into 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 framework goes on to assert the importance of each advantage in the OLI triumvirate and how the relationship between them varies across firms, industries and countries. The acquisition of the O advantages through exploitation of firm-specific resources, and the simultaneous procurement of I advantages through the diminution of transaction costs is a common sight among firms. As firms' core competencies become increasingly knowledge-intensive, MNCs will tend to seek locations in which they can best utilize their core competencies; or when there is a balance between the three criteria of the OLI- model. In short, foreign investment will occur only if it is advantageous to combine spatially transferable intermediate products produced in the home country, with at least some immobile factor endowments or other intermediate products in another country.

More recent literature has widened the ambit of the eclectic paradigm to include deliberations on the roles of government in advancing the competitiveness of a country (Dunning and Narula, 1996), or regions within a country, as created assets supersede natural factor endowments as determinants of investment location (Dunning, 1995). Stopford (1999) and others (surveyed in Dunning, 1999) similarly argues that

governments need to ensure that the availability, quality and cost-effectiveness of general purpose inputs have to match up to the standards of global competitors, as well as to create and sustain an institutional framework and ethics.

BIP represents a collaborative effort by the governments of Singapore and Indonesia in creating additional advantages through the 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 industrial township. Abundance of cheap skilled and unskilled labor, combined with superior infrastructure within the park and strong governmental support allows for value-added activities to be conducted at low cost (Perry, 1991; Thant et al, 1994; van Grunsven et al, 1995).

BATAMINDO INDUSTRIAL PARK (BIP), INDONESIA

The late 1960s witnessed Indonesia's ambition to develop the Riau islands, with strategically-located Batam Island being identified as a potential logistics and operational base to support offshore oil and gas fields. A significant step in the island's development was the assignment of Batam's development responsibility to the Batam Industrial Development Authority (BIDA) in 1978. BIDA's then chairman, B.J. Habibie, favored attempts to engineer accelerated technological breakthroughs based on state-directed investment. This was reflected in the 1979 master plan, which focused on the establishment of industrial estates, the development of marshalling areas for imports and exports, the construction of tourist facilities and the provision of infrastructural support. This master plan recognized that the Riau islands with its location-specific advantages,

such as abundant land and cheap labor, were well-positioned to address Singapore's land and labor constraints and, more importantly, to take advantage of Singapore's established business and financial services network and the city-state's efficient facilities for communication, transportation and other services (Yeoh et al, 1992; Ho and So, 1997). BIP was developed as part of the Economic Co-operation Agreement within the Riau Development Framework, which was signed by Singapore and Indonesia in August 1990.

BIP was launched in 1992, and started as a joint-venture between Singapore's government-linked companies (GLCs) and the Salim Group of Indonesia. The Singaporean partners were given control over the development and management of the park, while Salim's role was to facilitate operations and to provide a guarantee of priority over regulatory controls and administrative approvals. Singapore's reputation for transparent and efficient management of projects lent further credibility to the projects and maximized marketing leverage over Singapore-based multinationals (Grundy-Warr, 1999). BIP was envisaged as a self-contained environment with its communication and business linkages through Singapore rather than through Indonesia. Labour was recruited mainly from Java and Sumatra. BIP's first tenants arrived in 1991, mainly subsidiaries of American, European and Japanese multinationals already operating in Singapore. Since then, the number of tenants has increased 5-fold, from 17 in 1991, to 88 at present, and at its peak, BIP registered 94 tenants. More than half are Japanese companies, with Singaporean-owned companies forming the next largest concentration. American and European investors have a limited presence. Cumulative investment, as at 2005, is in excess of US\$1 billion whilst annual export values from the tenant-firms topped US\$2 billion. The Park's industrial niche is in assembly operations, employing young female

labor. Over 85% of the 65,000-strong workforce are female, most aged from 18-22. There is a distinct concentration on electronics operations – mainly various component assembly processes – and on supporting activities to the electronics sector. Despite concerns over the slowdown in new investment commitments, existing tenants are reportedly expanding their operations, whilst plans are in the pipeline to further expand the park. BIP was also the first industrial park in the Asia-Pacific region to be certified ISO 9001:2000 and ISO 14001.

An industrial township, thus, has been developed; but the story is far from over – indeed, this is, in a way, only part of a much larger story, with the development of the entire region introducing, inevitably, the inception of competitors to the erstwhile ‘first-mover’, BIP. Several commentators have alluded to the erosion of BIP’s competitiveness, with the mushrooming of 13 other industrial parks scattered throughout the island. With cheaper alternative sites readily available both within and beyond Batam, the premium placed on BIP’s formulaic one-stop service and self-sufficient operating environment is increasingly called into question. We update on these developments in the next section.

COMPETITOR PARKS

In physical design, the larger industrial townships that are already in operation (or under development) in Batam tend to be patterned along similar lines to BIP. The administrative context, on the other hand, is different. In the BIP model, the Singapore investors are government-linked companies whereas in the other parks, the Singaporean investors are drawn from the private sector. Another difference is the administrative and regulatory environment in BIP compared with those in the competitor parks. For BIP, the

endorsement from senior politicians has provided a degree of administrative certainty further strengthened by the political protection of the local partners in the project. In the competitor parks, the projects must contend with multiple tiers of government administration, and the competition between these tiers during a time of economic and political change. The motivation for the projects in the competitor parks is also more diffused than in the case of BIP. In the latter case, the primary concern has been to exploit the complementarities of the two contiguous economies. The BIP prototype has had a political objective to demonstrate the strength of the ‘Singapore industrial development model’, and its transferability to other Asian environments. The competitor parks have narrower (and much simpler) commercial objectives, based on the perception that Batam has a definite cost-advantage advantage in low-cost industrial activities.

PANBIL INDUSTRIAL ESTATE (PIE), INDONESIA

Panbil is also located in Mukakuning district, in close proximity to BIP. It is connected by a network of roads – and thus provides easy access – to Hang Nadim International Airport, ports and other various commercial centers. It was started by PT Nusatama Properata Panbil, in conjunction with Panbil Investment Holding Company and Harapan Jaya Sentosa group, which includes established companies in the spheres of planning, development, construction and management of industrial, commercial, and residential properties. The development cost of the project is reportedly estimated at US\$150 million, and encompasses an integrated township concept with its own range of facilities and amenities including power supply, a water treatment plant, a commercial centre and a residential village, among others. Investors at Panbil similarly enjoy

incentives such as 100% foreign ownership and other tax concessions – incentives, it has been noted, that are quite comparable to those accorded to BIP’s tenants.

TUNAS INDUSTRIAL ESTATE (TIE), INDONESIA

Tunas Industrial Estate, managed by PT Tritunas Mandiri, is a smaller industrial park compared to the BIP and PIE. TIE is developed by PT Rezeki Putra Riau, which also built and managed Top 100 Plaza and supermarket chains, houses, shophouses, warehouse, and factory buildings in Batam. TIE is located near Batam’s seaport and ferry terminals and, like BIP and PIE, offers telecommunication and information networks, on-site utilities, estate management and security services, dormitories and commercial-cum-residential amenities. TIE’s tenant mix includes 3 Japan firms, 4 Singapore firms, 1 Taiwan firm, 1 Hong Kong firm, and 8 Indonesian firms, while their production mix ranges from warehouse consumer goods, electronics product, metal molding to industrial services. Like BIP and PIE, Tunas Industrial Estate was conceived as an all-in-one service provider.

TIE’s construction commenced in 1999, and the park started operations in 2001. The management team adopted customer-oriented and quality-focused, to differentiate itself from the other industrial estates; there is an emphasis on building rapport with the tenants to foster stronger working relationships.

CITRA NUANA INDUSTRIAL ESTATE

Citra Buana Industrial Estate, managed by PT Citra Buana Prakarsa and PT Citra Buana Batam Industries, consists of three industrial parks – Park I, Park II and Park III,

which are located in different areas within Batam. Park I and Park II, are both located at Kampung Seraya. Park III is located at Batam Centre. The parks have been in operation since 1994, 2000 and 2002 respectively. Unlike the other three parks (BIP, PIE and TIE), Citra Buana does not rely on a self-contained industrial township concept to differentiate itself from the other industrial parks. For instance, the park relies on the national power grid to provide its tenants with electricity. Noticeably, there is a lack of accommodation and commercial facilities within the park, when compared with the other industrial estates. However, Citra Buana maintains that its 'strong connections' with the central government provide its investors with a 'competitive edge'. The occupancy rate in Park I, Park II and Park III are currently at 95%, 100% and 60% respectively. To attract tenants with different needs, Park I is targeted at small-scale industries whose factory space is often used for storage purposes; Park II and Park III, as extensions from Park I, accommodate the larger-scale manufacturing facilities.

LATRADE INDUSTRIAL PARK

Latrade Industrial Park (LIP), reportedly being developed at a cost of US\$180 million, is one of the latest industrial estates in Batam. LIP is strategically situated in the densely populated Tanjung Uncang area and was designed to cater for light to medium industries such as textile, warehousing, packing and printing. It also seeks to rival BIP's infrastructure by offering various forms of utilities and amenities that facilitate business operations. For instance, LIP boasts uninterrupted electricity supply, and reliable water supply as well as modern telecommunications facilities. LIP presently has 68 units of

factory space and, like BIP, also offers dormitories, clinics, banks and a sports centre, as well as a one-stop support services.

BINTANG INDUSTRIAL PARKS I and II

Bintang Industrial Parks I and II are developed by PT Bintang Propertindo, a subsidiary of the BJS Group. Park I was opened in December 1995, and, in the second phase, Park II was launched in 2001. These pseudo-integrated industrial parks boast amenities such as clinics, food centers, and are in the midst of constructing dormitories, restaurants and retail outlets for their clientele. Their tenants of both parks originate mainly from Singapore, Taiwan, Malaysia and Japan.

RESEARCH FINDINGS

Methodology

To extend our earlier research on BIP (Yeoh, et al, 2004a; 2004b), and to reinforce our analysis on the perceived competition from the competitor parks, we surveyed more than 140 tenants in the six case-study parks from August 2004 and February 2006. Our field research sought to highlight the different pull factors that attracted the respondents to relocate their operations in the respective parks, and the operational constraints they encountered. The questionnaire itself was designed as a comparative study to investigate the various factors influencing firms' investment decisions, along with the problems faced by their operations; specifically, to test tenants' perception of the created variables meant to give the parks a competitive advantage, as mentioned earlier in this paper, as well as measure prior perceptions against current operational realities. The questionnaire

comprised three sections. The first section sought to establish the profile of the respondent: type of ownership, nature of operations, size of establishment, and market orientation, among others. The second section gathered information on the pull factors experienced by the tenants. Lastly, the third set investigated the different constraints faced by the tenants. Other questions pertaining to the respondents' view on the facilities and services in the parks were culled from the open-ended questions. Similar question sets were administered in all the case-study parks.

In all cases, the surveyed tenants were carefully selected so as to obtain a representative distribution of all tenants in the surveyed parks across both industry and nature of operations. Surveys were conducted through face-to-face interviews in the case-study parks, lasting an average of 45 minutes, with senior management to ensure the response of the selected tenants, and the holistic and accurate nature of the obtained responses.

Profile of Respondents

There were 61 respondents in the BIP survey, of which 15 were wholly Singapore-owned, 17 were Singaporean joint ventures, and 33 were wholly foreign-owned. The respondents were mainly involved in the manufacturing of intermediate products; 10 of the respondents were involved in the manufacture of consumer products, and another 5 were providers of industrial services. There were 10 respondents with a sales turnovers of less than US\$5 million, 17 respondents with turnovers between US\$5 million and US\$50 million, and the remaining had turnovers exceeding US\$50 million.

Of the 90 respondents from other Batam parks, 29 were wholly Singapore-owned, 35 were wholly Indonesian-owned, 15 were wholly foreign-owned and 14 were joint venture. As for the nature of operations, 12 of the respondents were involved in the manufacturing of intermediate products, 2 were involved in the manufacture of consumer products while the remaining are involved in industrial and other services. 16 respondents had a sales turnover less than US\$5 million and 3 respondents had sales between US\$5 million and US\$50 million.

Statistical Treatment of Survey Results

Apart from analyzing the descriptive statistics and popular rankings on the responses relating to factors and constraints, a logit model was applied to compare the perceived advantages influencing the tenants' decision to locate in the case-study parks. The logit model, estimated by the maximum likelihood, takes the following form:

$$P_i = \frac{e^{Z_i}}{1 + e^{Z_i}}$$

Where: P_i is the probability of firm being located in the particular park

Z_i is a linear function of the pull factors defined as

$$Z_i = \alpha_0 + \sum_{i=1}^{i=6} \alpha_i F_i$$

Where: $F_i = 1$ if the factor i is selected, 0 otherwise

α_0 = constant term

α_j = coefficient of independent (explanatory) variable

Estimated coefficients in the logit model, if statistically significant, would suggest that the firm choosing that particular pull factor is more likely to be from that particular park than the other parks, considered together. For example, where BIP is the dependent variable, if the coefficient of F_1 is *positive* and *significant*, this would suggest that, after taking into account the effects of other pull factors, a firm choosing “political commitment from the Singapore government” has a higher probability of being a tenant-firm located in BIP i.e. political commitment from the Singapore government is a significant pull factor for the BIP tenants, as compared to tenant-firms in the competitor parks. A similar logit model was applied to the constraints faced by the respondents.

FINDINGS

Pull Factors

Singapore leverages on its infrastructure development expertise and the low-cost labor available in the host environments to market BIP. BIP, in theory, supplements these purported advantages with the political commitment from the Singapore government, with the plethora of bilateral agreements between Singapore’s GLCs and host governments, or politically-linked business conglomerates. Furthermore, there exists a host of investment incentives that entice multinationals to locate their lower value-added activities in BIP, giving it a host of advantages over competitor parks – again, in theory.

(Insert table 1 here)

Given BIP’s marketing as a ‘Singapore-styled’ investment locale, supplying quality infrastructural facilities, factories, and amenities, it comes as no surprise that BIP tenants surveyed ranked reliable infrastructure as the foremost factor influencing their decision to invest in the park. Considerations over infrastructural facilities also ranked amongst the

priorities of the tenants in the competitor parks, but a positive and statistically significant α_5 (=2.232) suggested that this was a more significant factor for BIP tenants than those in the competitor parks. It is plausible that BIP tenants, who paid premium rates for the Singapore-styled infrastructure, were more inclined to emphasize this factor. On the other hand, the tenants in the competitor parks were more prepared to strike a compromise between reliable infrastructure and lower overhead costs, and were less likely to place as much emphasis on this factor.

From the popular rankings, BIP respondents located in BIP mainly for privileged access to overseas markets, whereas the non-BIP firms are more reliant on proximity to their relevant buyers. Our survey results also show the importance of agglomeration economics, with the non-BIP parks relying on their role as supporting industries to the multinationals in BIP and Singapore. In addition, BIP firms export more to overseas markets as well as the Singapore market as shown by the positive α_9 = (3.454) and α_8 = (3.307) respectively. Given that non-BIP parks rank their biggest pull factor as “the presence of major buyers”, further indicates that buyers are less of an issue vis-à-vis BIP firms in exporting products.

From the above, then, it would seem as though at least some of BIP’s purported advantages, most notably its excellent infrastructural capability and reliability, would seem to have contributed quite effectively to the attraction of investment into the industrial park. While other such advantages (the Singapore connection, for one) would seem to have been of rather less import to investors, the results would seem to imply that, up till now, BIP does, indeed, enjoy certain competitive advantages over its competitors.

Push Factors

Our study, however, is also concerned with the present; and at the present time, our findings allude to some emerging constraints which have undermined the attractiveness of the parks. These constraints are categorized into four broad groups, namely, labor, organization and technology, competitive environment and the political environment, such as government policies and regulations.

(Insert table 2 here)

On labor-related constraints, high absenteeism was ranked last, whilst rising labor costs was clearly their priority concern in both BIP and non-BIP firms. This points to an overall better attitude of workers in Indonesia, which is not surprising given the high unemployment in the archipelago that results in greater competition for jobs. Firms interviewed mentioned more stringent selection criteria for workers. Industrial relations problems was frequently cited by BIP respondents as compared to non-BIP tenants, and further substantiated by the positive and statistically significant β_5 (=0.759); they were described as being very disruptive to the operations of the tenants in BIP, as workers unhappy with labor laws often employ pressure tactics such as strikes, demonstrations and work-to-rule. On the other hand, shortages of suitable unskilled/semi labor were found to have affected non-BIP tenants to a greater extent than those in BIP, as indicated by the negative and statistically significant β_1 (= -0.817). This finding is not surprising, as the tenants in the competitor parks are largely small and medium-sized enterprises (SMEs), engaged in relatively low-cost supporting industries, and hence their dependence on unskilled/semi-skilled workers to sustain the viability of their operations.

As for organizational and technological-related constraints, the Singapore-styled infrastructure in BIP, though reliable and efficient, also proved to be costly, because facilities such as the power plant, waste-treatment system and water supply are independently managed. This high and rising cost of infrastructure was also felt by respondents in the competitor parks, but more so by BIP respondents. This was suggested by the positive and statistically significant β_5 (=1.703). Another organizational/technological constraints faced by BIP respondents, but to a lesser extent by non-BIP respondents, was difficulty in obtaining raw materials, indicated by the positive and statistically significant β_2 (=1.430). This may be due to perceptions of and frustrations over the government's inefficiency in expediting permits necessary for the procurement of raw materials from overseas. The respondents in the competitor parks, given their limited scale of operations, are possibly more nimble in sourcing for alternatives; as their operations grow in scale, they, too, are likely to suffer more from this constraint.

On competitive constraints, firms in BIP ranked competition from overseas competitors as main challenge. A positive and statistically significant β_1 (=2.203) however suggests this was less acute for the non-BIP respondents. This is because a high percentage of the companies sell overseas and thus they are also facing acute competition from overseas. On the other hand, competition from other industrial parks in Indonesia is less of a concern for BIP respondents, as shown by the negative and statistically significant β_2 (= -0.950), probably because many of the firms in other industrial parks in Indonesia are their suppliers, and thus they are not competing with each other.

For political constraints, a lack of transparency and frequent changes in host government regulations were the most serious host-environment related constraint faced by both respondents in BIP and non-BIP. This problem was particularly acute for BIP respondents with frequent changes in the tax regime among the frequently cited examples during the on-site interviews. This is reinforced by a positive and significant $\beta_3 = (0.810)$. With firms in BIP having higher operations costs and exports, it would be natural for them to face heavy swings in their profit levels given a change in tax rates, vis-à-vis the smaller firms in other parks. The park has seen six presidents come and go, each elected with different political mandates and agendas; varying tax policies have been, to say the least, not insignificant among the many problems this has created for business.

Case Studies

This section presents the findings of our case studies of four companies drawn from BIP's competitor parks, designed to examine the viability of BIP in attracting and retaining its investors in face of the intensifying competition.

Company A

Company A is a wholly-Indonesian owned company located in TIE, and it specializes in carton box manufacturing. It is one of the largest suppliers of carton boxes in Indonesia and its Batam subsidiary employs a workforce of around 250 workers.

The decision to locate in Batam was due to competitive overheads, the reliable infrastructure facilities and competitive labor costs. However, Company A also highlighted that rising 'labor' tax imposed by the government has taken a toll on the company. Other labor-related constraints faced by the company included low motivation

of workers. In response, Company A has embarked on certain policies such as incentive schemes to encourage higher productivity, and adoption of local practices to conform to local cultures. Significantly, the main reason that Company A chose to set up in TIE, instead of BIP, was due to the high rental cost in BIP.

Company B

Company B is a wholly Indonesian-owned company, dealing with the extrusion of aluminum. The management explained that TIE was selected for its strategic location and the availability of land space. Company B's management commented on the professionalism of the Park's management, and effective communication between the tenants and the Park's management. Importantly, the competitive overheads, particularly rental costs, were cited as differentiating factors that sealed the decision to be located in Tunas. As a case in point, Company B categorically stated that the rental rates for BIP proved to be such a great deterrent that the company 'was not interested in BIP at all', while PIE's factories were also not suitable for the company's operations. In contrast, TIE provided factories with designs customized to the company's operations. Company B indicated its satisfaction with TIE's facilities and services, and stated its preferences to expand within the estate.

Company C

Company C established itself first in BIP in 1991, before relocating to Citra Buana Park II. The company completed its shift to Citra Buana Park II in 2000, occupying 70% of the park's land. Wholly Japanese-owned, Company C also has

operations in Malaysia, Vietnam and China which, interestingly, are much smaller scale operations than their Batam operations.

Amongst the reasons cited for its establishment in Batam, and specifically BIP in the early years, were competitive labor costs, tax-free environment, positive market conditions and the strong links between the Park and the government authorities. However, the decision to relocate to Citra Buana Park II was propelled by the cheaper rental costs offered by the latter.

When requested to do a comparison between BIP and Citra Buana, the company affirmed that operational costs were the most significant difference, at a remarkable 60% reduction after the shift. Unlike BIP, Citra Buana did not provide reliable electricity. However, Company C was able to circumvent this problem by generating its own electricity. In addition, the company had also forged partnership with the other companies within Citra Buana Park, whereby the companies would supply each other with manufacturing components. Better management at Citra Buana was also cited as one of the pull factors. However, the decision to relocate eventually came down to the difference in operating costs.

Company D

A Singaporean-owned company involved in the manufacture of medical equipment, Company D located to Batam in 1997 to capitalize on the location advantages apparent in the area. Currently located at Citra Buana Park II, the company exports 100% of its products and employs a workforce of 600.

The company decided to locate in Batam due to the proximity to Singapore which not only facilitated the monitoring the Batam operations, but also access to lower operating costs. However, Company D lamented on the constraints faced, which included ‘unnecessary problems’ with the local authorities, but declined to elaborate further. As well, a lack of work ethics, and a high frequency of strikes also aggravated the already low labor productivity.

Significantly, when asked on his decision to locate in Citra Buana and not BIP (given that BIP was reputed to provide ‘protection from regulatory challenges, and that the intervening presence of the Singapore government has been said to reduce corruption within the host environment), Company D’s managing director explained that the perceived “protection” was not apparent. In reality, there was no difference in the locations except the overhead costs. He supported his view by providing examples of companies which chose to relocate, after realizing the facilities and services offered by BIP can be replicated elsewhere at more competitive rates.

DISCUSSION

From our empirical studies, the consensus is that the political climate created by the Singapore and Indonesian governments, the factor conditions and the created infrastructures are the main determinants that shape the synergistic appeal of BIP. BIP, being the pioneer industrial park in Batam, can also be credited with turning Batam into an attractive low-cost investment location. The subsequent mushrooming of 13 other industrial parks, though not the original strategic intent for commissioning the BIP project, allowed Batam to cater to a wider range of investors, each with varied budgets

and operational requirements. Faced with keen competition, each of these parks is forced to constantly improve and innovate as they seek to survive in the competitive environment, in the process, further augmenting the overall appeal of Batam. The resultant influx and clustering of firms within Batam, albeit in different industrial parks, creates a reinforcing process whereby more firms are encouraged to invest in Batam to capitalize on the economies of agglomeration. This represents a step forward towards achieving the (Singapore) government's long-term vision of twinning the contiguous Singapore-Riau economies. On the other hand, firms invested in PIE and TIE for reasons largely similar to that of BIP investors (although to differing extents), with the exception of political commitment from Singapore. In addition, the presence of major buyers proved to be a more important consideration for PIE/TIE tenants than BIP tenants. Tenants in all three survey industrial parks were also able to tap into the low-cost environments of the parks (although said costs proved to be somewhat less 'low-cost' than they might have thought), as well as leverage on Singapore-styled infrastructure (which PIE and TIE had both sought to emulate), management and expertise. These findings lend support to the rationalization theories presented in this paper, and affirm the agglomeration economies suggested by the location theories.

Nonetheless, as most openly admitted, the strategically 'engineered', inter-government endorsement of the flagship projects, and the enormous resources mobilized through the strategic partnerships, has failed to shield BIP from a gamut of problems. Issues pertaining to the scale and character of development of BIP are well-discussed in earlier papers (Yeoh et al, 2000, 2004a); more recently, press reports have also drawn attention to the influx of immigrants to the islands and, concomitantly, to the social

problems of squatter settlements which threaten to overwhelm the investment value of the Indonesian parks. The decline of the Salim Group political influence has left BIP's ability to gain privileged access to the central government in doubt (Dieleman and Sach, 2005), while the decentralization of power to the provincial government in recent years has exacerbated the increasingly complex regulatory environment for business development. The following observations update on recent developments and offer new insights on BIP in Indonesia.

The growing influence and sophistication of its competitor parks is also a concern for BIP. Competitor parks, some of which are backed by prominent Indonesian politicians, have sprouted around BIP. PIE, as mentioned earlier, is located directly opposite BIP, and offers similar factories at competitive rentals. In fact, PIE has taken BIP's one-stop and self-sufficient environment concept one step further by integrating a shopping complex and executive housing into their industrial park, both with some success. TIE, which clinched seven new tenants within five months in 2006, attributed their success to relationship building; Latrade Industrial Park, Citra Buana Industrial Park I and II and Bintang Industrial Park, have all made significant inroads into the small-and-medium enterprise segment. Competition among these competitor parks had been nothing less than cut-throat, with many park operators willing to provide substantive discounts to attract new tenants.

BIP's growth momentum has stagnated in recent years, with several new investments trending towards competitor parks, persuaded by the lure of lower cost and better value for their investments. The premium placed on BIP's formulaic one-stop service, and self-sufficient operating environment, is increasingly called into question.

As well, competition is not limited to within Batam or other parts of Indonesia. China and India's growing economic importance is increasingly redirecting foreign direct investments otherwise headed for this region into these two countries, as firms seek to benefit through closer proximity to their enormous domestic markets. On a broader front, foreign investors have also taken issue over the perceived reluctance of authorities to clamp down on worksite stoppages¹. Recent press reports on Batam's investor exodus² cited sluggish bureaucracy, lack of legal certainty and security, and unclear investment policies as reasons for investors relocating their investments from the province, and Indonesia. Populist measures such as raising the minimum wage before general elections further heighten the reluctance of investors to pour money into the country. Anecdotal evidence, gathered from our on-site interviews with the management and tenants of the case-study parks revealed that new investments into Batam are drying up as a result of intense competition from competitor parks in the region (notably China and Vietnam), and compounded by the host of internal problems, perceived or otherwise, that radiate from the host environment. Investor interest appears to have shifted to other industrial parks in China, Vietnam and other emerging economies, including a new manufacturing powerhouse, India³.

CONCLUSION

¹ The Straits Times, August 24, 2002.

² The Straits Times, August 30, 2003; The Straits Times, December 5, 2003.

³ Financial Times, November 30, 2005

To a large extent, BIP has succeeded in providing the crucial links within the value-added chain that give client firms a competitive advantage. While BIP is now a well-established project, it has not necessarily achieved all its development goals in the framework of Singapore's transborder industrialization strategy. It has been a springboard for Singapore-Indonesian co-operation in Riau, but it is not yet clear that Singapore has obtained the resource benefits looked for. The problem lies on the flip side of the desired strategic fit – the host country's ability to provide comparative advantages. In both scenarios, the host government has succeeded only in making available the advantages of 'basic factors of production'. Thus, while the case-study parks do provide some components of comparative advantage which the host country does not (e.g. reliable infrastructure), the strategic intent of these flagship projects remains stymied by non-economic, socio-political complexities in the larger host environment. Despite retaining certain first mover advantage, BIP must contend with rising competition from the newer industrial developments, as well as the restricted appeal of its operating conditions.

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TABLE 1
Factors Influencing the Respondents' Decision to Locate in the Case-Study Parks

Variables	Maximum Likelihood Estimates - Binary Logits		Popular Ranking			
			BIP		Non-BIP	
	α_i	<i>p-value</i>	<i>Frequency</i>	<i>Rank</i>	<i>Frequency</i>	<i>Rank</i>
Political commitment from Singapore Government	1.459	0.345	18	6	6	8
Stable Government	1.660	0.042 **	15	7	33	3
Relatively Low restriction on foreign ownership	3.239	0.019 **	7	8	6	8
Availability of Land	- 2.556	0.073 *	4	9	23	5
Reliable Infrastructure facilities in the industrial Estate	2.232	0.028 **	39	1	28	4
Availability of skilled/ educated labour	- 1.007	0.290	20	3	18	6
Presence of Major Buyers	- 1.248	0.199	20	3	42	1
Access to Singapore Market	3.307	0.022 **	19	5	40	2
Access to Overseas Market	3.454	0.017 **	25	2	12	7
Constant	- 6.393	0.000 ** 1 *				

Source: Questionnaire survey

Note: p-values are for two-tailed tests. Forced-entry regression method is used.

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

TABLE 2
Major Constraints On The Respondents' Operations In The Case Study Parks

Variables	Maximum Likelihood Estimates Binary Logits		Popular Ranking			
	α_i	<i>p-value</i>	BIP		Non-BIP	
			<i>Frequ-</i> <i>ency</i>	<i>Ran</i> <i>k</i>	<i>Frequenc</i> <i>y</i>	<i>Rank</i>
<i>Labor Constraint</i>						
Shortage of semi/unskilled	-0.817	0.049 **	11	4	37	2
Shortage of professionals and	-0.146	0.720	16	3	31	3
Rising labor costs	0.511	0.188	33	1	47	1
High absenteeism	-0.234	0.753	3	5	8	5
Industrial relations problems	0.759	0.049 **	23	2	25	4
<i>Organizational/Technological Constraints</i>						
Difficulty in obtaining capital equipment	-0.237	0.624	9	5	23	5
Difficulty in obtaining raw material	1.430	0.001 ***	23	2	22	4
Difficulty introducing new technology and/or techniques	-0.108	0.808	12	4	29	3
Lack of good supporting service	0.062	0.880	21	3	34	2
High overheads	1.703	0.0001 ***	37	1	44	1
<i>Competitive Constraints</i>						
Competition from overseas competitors	2.023	0.001 ***	41	1	40	1
Competition from other industrial park in Indonesia	-0.950	0.073 *	7	2	37	2
Reduced Involvement from Singapore Government	-0.847	0.455	1	4	8	3
Protectionist Barrier: restricting market access to developed	0.503	0.551	3	3	7	4
<i>Host-Environment Constraints</i>						
Lack of special connection with local business groups	-0.570	0.222	9	3	21	3
Problems with local / provincial authorities	0.754	0.049 **	27	2	37	2

Lack of transparency/frequent changes in host government regulation	0.810	0.073 *	40	1	60	1
Lack of support from Singapore government	-1.654	0.015 **	3	4	18	4

Source: Questionnaire survey

Note: p-values are for two-tailed tests. Forced-entry regression method is used.

* Significant at 1% level

** Significant at 5% level

*** Significant at the 10% level