Transborder Industrialization: A Comparative Study of the Measured Success of Singapore's Industrial Parks in Vietnam and India

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Singapore’s Industrial Park in Vietnam and India

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ABSTRACT

Multinationals are drawn to investment enclaves, and centres of international infrastructure. This context creates opportunity for the establishment of Singapore-styled industrial parks, through the provision of superior infrastructure, the ability to negotiate investment concessions at inter-government level and where existing, through the links to influential business groups in the investment location. This paper revisits the debate on privileged investment enclaves for multinational enterprises, with insights from Singapore’s industrial township projects in Vietnam and India. Evidence is drawn from on-site surveys and interviews. This paper contends that progress in these privileged investment zones remains stymied by challenges in their respective host environments.

Key words: Industrial Enclaves – Industrial Townships – Singapore.

INTRODUCTION

Despite its resource-constrained domestic environment, Singapore has achieved significant economic growth by focusing on its core-competencies. Singapore’s infrastructural abilities and technological know-how, coupled with its constant economic reform programs, played a significant role in attracting foreign direct investment into the city-state (Chia, 1986; Pang, 1987; Rodan, 1989; Regnier, 1991; Huff, 1995; Murray & Pereira, 1995; Blomqvist 2001; Yeung, 2001). Such a move started as early as the mid-1960s, which saw the beginnings of the Singapore government’s aggressive approach to woo foreign MNCs to fuel the its economic development. In 1988, Singapore’s economic planners sought to create an external wing for the economy to accelerate access to new technology, or foreign markets, by supporting Singapore companies to form joint ventures with overseas companies in Europe and North America. Most of these investments proved unsuccessful, resulting in enormous losses by the early 1990s (Balakrishnan, 1991; Kanai, 1993; Regnier, 1993). A new phase in the internationalization strategy re-focused on expansion within Asia, rationalized by the liberalization of foreign investment controls and the high growth rates occurring at the time in countries like Indonesia, China and Vietnam (Singapore Economic...
This stratagem was amplified by the Committee to Promote Enterprise Overseas (Singapore Ministry of Finance, 1993: 13):

“… Other countries like South Korea, Taiwan and Hong Kong have invested overseas in Thailand, Malaysia, Indonesia, Vietnam and China in a big way in the last 4-5 years. These investments will give their GNP an added boost. Mature economies like those of the US, Japan, France and Switzerland have this external dimension which broadens their domestic operations and helps upgrade their economy. For the same reasons, we must grow an external wing to our economy.”

To provide context to this paper, the theoretical considerations underpinning the flagship projects in Indonesia and ITPL are sketched in the next section, followed by an account of the origins and progress of the case study parks.

THEORETICAL CONSIDERATIONS

Singapore’s move towards regions outside its shores accompanied by outward investment (FDI), after substantial inward investment for more than two decades, can be explained by Dunning’s Investment Development Path (IDP). Stoever (1985), Dunning (1988) and Porter (1986, 1990) argue that a country’s net outward investment (Outward FDI minus inward FDI) is systematically related to its economic development. In the earliest phase of inward capital flows, a country’s infrastructure will be inadequate to support such inward investment. However, such investment will not only be supported but will continue to increase as economic growth occurs. With rising business costs that diminished its cost competitiveness in the mid-1980s, Singapore looked to channel its financial resources in the form of outward FDI in order to retain its competitiveness. This growth in outward FDI
demonstrates Singapore’s determination in strengthening her economic prospects and further advancing her economic development process by aiming to procure, among other benefits, location-specific advantages in the host country.

Dunning and Narula’s (1996) IDP correlates government policy with economic development in determining the pattern of competitive advantages of foreign investors relative to those of local firms (ownership (O) advantages), the relative competitiveness of local bound resources and capability of the country (location (L) advantages), and the propensity of foreign and local firms to utilize the ownership advantages internally rather than through markets (internalization (I) advantages). There needs to be a balance between these three criteria, which are supportive of each other in the OLI-model (Dunning, 1998). Firms’ strategic choice of location reflects twin aims; to not only transfer their resources to the host countries, but gain access to the available strategic assets as well (Dunning, 1995; Makino and Delios, 1996; Porter, 1994, 1996; Chen and Chen, 1999; Dunning, van Hoesel and Narula, 1998; Frost, 2001).

The impetus to regionalize saw the establishment of Singapore-styled industrial parks in various Asian economies. The case-study parks are described in the next section.

VIETNAM-SINGAPORE INDUSTRIAL PARK

VSIP was first mooted in March 1994 by the then Vietnamese Prime Minister, Vo Van Kiet, and Singapore’s Prime Minister, Goh Chok Tong, and launched in 1996. The 1,000-hectare Park is located in Binh Duong Province, 17 km north of Ho Chi Minh City and is within a 40-minute drive from the international airport and seaports. The project was based on the perception that Singapore agencies have the competitive edge in infrastructure development and had a pseudo-economic objective to demonstrate the transferability of the Batamindo Industrial Park2- prototype to other Asian environments. However, the administrative and regulatory environment surrounding the VSIP project had many complexities and the project had to contend with multiple tiers of

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2 Batamindo Industrial Park (BIP) is Singapore’s first overseas industrial park, located on Indonesia’s Batam Island.
government administration. VSIP is jointly developed by a Singapore consortium led by SembCorp Industries, and Becamex, a state-owned enterprise.

A self-contained, self-sufficient industrial park with prepared land plots, and ready-built factories, bolstered by Singapore-style management expertise and infrastructure support, VSIP provides a ‘hassle-free’, one-stop service to its tenants. VSIP boasts an on-site customs unit, which allows the convenience of customs procedures and documentation to be done within the Park, and customs inspections within tenants’ factories. A 200,000 working population within a 15-km radius from VSIP provides a ready pool of low-cost, skilled labor.

VSIP’s first tenants included 3M, Sakata Inx, Godrej (India), Liwayway Food Industries (Philippines) and a mix of Singapore manufacturers like ST Automotive and Hwa Hup. Investment commitments in VSIP are currently valued at over US$600 million from 124 tenants investing in a broad swathe of industries. 24000 jobs have been created, with the number expected to rise to 40000 when the remainder of the tenants start their operations (Table 1). VSIP’s 15 Singaporean and 10 non-Asian firms come from diverse industries, while the 13 Japanese firms are manufacturers of electronics and other parts and components (Table 2). The Park posted its first profits of US$ 4 million in 2002.

INTERNATIONAL TECH PARK LIMITED (ITPL), BANGALORE, INDIA

The idea to create a Singapore-styled park in India was first mooted by Singapore’s Prime Minister Goh Chok Tong and India’s Premier, P.V. Narasimha Rao, in 1992. Construction commenced in September 1994, and the park was officially inaugurated in 2000. ITPL is located 18km away from Bangalore in India’s Silicon Valley. The partners in the ITPL project are a Singapore consortium of companies led by Ascendas International, the Tata

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3 Other members of the consortium include Temasek Holdings, JTC International, UOL Overseas Investments, Salim’s KMP Vietnam Investment, LKN Construction, Sembawang Engineering and Mitsubishi Corporation.

4 Indian universities reportedly graduate about 20,000 to 30,000 software engineers every year, and Bangalore has been a ‘hunting ground’ for Singapore companies and Singapore-based multinationals seeking low-cost IT specialists.

5 The Singapore consortium, Information Technology Park Investments Pte Ltd, includes RSP Architects, Planners and Engineers, L&M Properties, Sembawang Industrial, Technology Parks (a Jurong Town Corporation subsidiary) and Parameswara Holdings (the investment arm of the Singapore Indian Chamber of Commerce).
Group and the Karnataka state government in an original 40-40-20 arrangement, which has now been changed into a 47-47-6 arrangement.

ITPL was marketed as an environment that “cuts through the red tape and bottlenecks that are a part of India’s infrastructure and operating environment” (The Straits Times, August 8, 1999). More distinctively, ITPL guarantees uninterrupted power supply and telecommunication facilities, immediate-occupancy business incubator space, and the formulaic ‘one-stop’ service. Its futuristic design comes complete with value added services like business/office support centres, medical centres, food courts, recreation and fitness centres. ITPL also houses the Indian Institute of Information Technology, which provides professional and skilled manpower for the Park’s tenants. The blend of location-specific advantages such as technology and infrastructure on one hand, and competitive skilled labor on the other led to high value added activities taking place at ITPL.

ITPL’s first development phase is fully committed. The earliest clients included SAP Labs, First Ring and 24/7. The first 39 tenants started their operations in 1999, and created some 2000 jobs. To-date, there are 100 confirmed tenants, of which 93 are operational with 8500 employees (Table 4). More than half the tenants are wholly or partially foreign-owned firms, and more than 70 percent are in software development, integrated circuit design, research and development and precision technology (Table 6). ITPL’s tenants include global players like AT&T, IBM, Motorola, Sony, Texas Instruments, Citicorp and Thomas Cook. Operating profits have been registered, and ITPL is projected to break even within the next 4 years.

EMPIRICAL FINDINGS

Research Methodology

Much analysis on the Parks has relied primarily on secondary data from official publications, press reports, etc. To obtain primary data on the differential impact of various pull factors on firms’ investment decisions, along with the differential impact of different types of constraints on their operations, we applied the survey questionnaire developed in Yeoh, et al (2000), to the tenants in VSIP and ITPL. The first set of questions sought to determine the
profile of the respondents: type of ownership, nature of operations and size of establishment; and the second set was structured to gather information on the push-pull factors affecting the investment decisions of the tenants. Other questions pertaining to the respondents’ views on the facilities and services in the Parks were culled from the open-ended questions.

On-site surveys and in-depth interviews were undertaken in August 2002 (VSIP) and December 2002 and June 2003 (ITPL). A total of 56 responses were collected from Singapore’s investment enclaves in Vietnam and India. Of these, 23 were located in VSIP, and the remaining 33 were located in ITPL.

Profile of the Respondents

There were 23 respondents in the VSIP survey, 6 were wholly Singapore-owned, 1 was a joint venture and 16 were wholly foreign-owned. There were 7 small firms, 8 medium-sized firms, and 8 large firms. As for the nature of operations, 8 manufactured consumer products, 3 manufactured intermediate products, and 2 were involved in industrial services. None of the companies surveyed were manufacturers of capital goods.

Of the 33 respondents from ITPL, 4 were wholly Singapore-owned, 6 were joint venture and 23 were wholly foreign-owned. As for the nature of operations, 16 of the respondents were involved in software development, 4 were involved in support services and 2 in Research and development. 15 respondents had a sales turnover less than US$ 5 million and 4 respondents had sales between US$ 5 million and US$ 50 million.

Statistical Treatment of Survey Results

Push/Pull factors

The logit model, 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 being located in the particular park

\[ \exp \] refers to the exponentiation operator, and

\( Z_i \) is a linear function of the push/pull factors defined as
\[ Z_i = \alpha_0 + \sum_{i=1}^{6} \alpha_i F_i \]

where: \( F_i \) (1 to 6, depending on the type of push/pull method) = 1 if constraint \( i \) is selected, 0 otherwise

\( \alpha_0 = \) constant term

\( \alpha_i = \) coefficient of independent (explanatory) variable

Estimated coefficients in the logit model, if statistically significant (as indicated by the p-values), would suggest that the firm choosing that particular push/pull factor is more likely to be from VSIP than from ITPL. For example, where VSIP 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 push/pull factors, a firm choosing “political commitment from the Singapore government” has a higher probability of being a firm located in VSIP than ITPL compared to a firm which did not select this choice as one of their reasons for re-locating, i.e. political commitment from the Singapore government is a significant pull factor for the VSIP tenants but not for the ITPL tenants. The results of the statistical test for push/pull factors are presented in Table 7.

**Constraints**

A similar logit model was applied to the constraints faced by the parks’ tenants:

\[ P_i = \frac{\exp(Z_i)}{1 + \exp(Z_i)} \]

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

\( \exp \) refers to the exponentiation operator, and

\( Z_i \) is a linear function of the constraints defined as

\[ Z_i = \beta_0 + \sum_{i=1}^{n} \beta_i C_i \]

where: \( C_i \) (1 to \( n \), depending on the type of constraint) = 1 if constraint \( i \) is selected, 0 otherwise

\( \beta_0 = \) constant term

\( \beta_i = \) coefficient of independent (explanatory) variable
In this case, estimated coefficients in the logit model, if statistically significant, would suggest that the firm choosing that particular constraint is more likely to be from VSIP than from ITPL. For example, where VSIP is the dependent variable, if the coefficient of \( C_1 \) is positive and significant, this would suggest that, after taking into account the effects of other labor constraints, a firm choosing “shortage of professionals and managers” has a higher probability of being a firm located in VSIP than ITPL compared to a firm which did not select this choice as one of the constraints they face, i.e. shortage of professionals and managers is a significant constraint faced by VSIP tenants, but not by the ITPL tenants. The results of the statistical test for constraints are presented in Table 8.

**Factors Influencing Respondents’ Investment Decisions** (Table 7)

Singapore leverages on its infrastructure development expertise and the location-specific advantages available in the host environments to market its industrial parks. It supplements these purported advantages with its political commitment to the Parks, as demonstrated by the many bilateral agreements between the GLCs and host governments or politically linked business conglomerates, and a host of investment incentives to entice multinationals to locate their activities to these self-contained enclaves. However, while VSIP offered businesses cheap labour for their low value-added activities, ITPL with its skilled, as well as cheap manpower could facilitate activities higher up the value chain.

Competitive labour costs is more major a concern for VSIP tenants compared to ITPL tenants, as indicated by the positive and statistically significant \( \alpha_4 (=1.443) \). For VSIP that has industries such as textile and food items, competitive labour cost is an essential factor in production and this is the reason why its tenants are more concerned with this factor. On the other hand, the formulaic ‘one-stop’ service is a more important factor for ITPL than VSIP tenants as indicated by the negative and statistically significant \( \alpha_7 (=1.552) \). This can be attributed to the aggressive efforts by the park to promote its ‘one-stop’ services.

**Constraints Faced by Respondents' Operations** (Table 8)
While VSIP is now an established industrial estate development, ITPL is still relatively new. All the same, our study alludes to some emerging constraints, which have undermined the attractiveness of the Parks. These constraints are categorised into three broad groups: labour-related constraints, organization and technology-related constraints, and those relating to the economic “environment”, such as government policies and regulations.

Firstly, for labour constraints, shortage of professionals and managers was the main constraint cited by 74% of VSIP tenants. VSIP tenants also found it a greater constraint than ITPL counterparts as indicated by the positive and statistically significant $\beta_2 (=2.596)$. This can be attributed to the presence of universities churning out fresh graduates who will work as professionals and also the reputation of Bangalore, where ITPL is located, as India’s Silicon Valley. ITPL tenants on the other hand found “rising labor costs” a greater constraint as indicated by the negative and statistically significant $\beta_3 (= -2.61)$. For organizational constraints, the Singapore-styled infrastructure, though reliable and efficient, also proved to be costly, as facilities such as the power plant, waste-treatment system and water supply are independently managed. This resulted in high overhead costs, especially in VSIP where 48% of respondents cited it as a constraint they faced. ITPL tenants found this high or rising overhead a greater constraint than VSIP tenants as indicated by the negative and statistically significant $\beta_4 (= -1.952)$. The reason for this may come from the difference in infrastructure that is present in both parks, with ITPL having a much more hi-tech infrastructure. For environmental constraints, “Competition from overseas industry competitors” was a constraint faced by both VSIP and ITPL tenants. However, whereas 48% of VSIP tenants cited the above constraint, less than one third of the ITPL tenants indicated likewise. This accounts for the positive and significant $\beta_2 (=1.846)$. A possible reason for this behaviour by ITPL tenants is their greater concern over the numerous technology parks that are present in India itself.

Labor-related constraints such as “shortage of professionals and managers” posed serious problems to most of VSIP’s respondents. High and/or rising overhead costs was the most cited organization and technological constraint faced by ITPL tenants whereas the environmental constraint that VSIP tenants encountered most was competition from overseas industry competitors. The survey results also highlight the importance of one-stop service and competitive labor cost in influencing the companies’ decision to invest in these Parks.
Beyond the statistical result, we have also made some preliminary findings about the ongoing challenges and problems confronting these two parks. These are taken up in the next section

**ISSUES AND CHALLENGES**

The special privileges secured by Singapore’s overseas industrial-park projects share a common trait: many of the privileges obtained were unprecedented, and unique, to the case study parks. For instance, ITPL was permitted to build its own power plant which in India, was an exclusive concession granted to the Singapore partners. Besides, the tenants of these parks are assured of reliable infrastructural facilities which is an anomaly amidst the surrounding environment. Significantly, Singapore’s positive reputation with multinational corporations for its stable, corrupt-free investment environment lends credibility, such that locating within the park seems to enhance a company’s prestige.

Influence can also be exerted through inter-governmental interaction and through the links to influential ethnic business groups in the investment location who often rely on state patronage for their access to infrastructure development projects. The strategic alliances between Singapore’s GLCs, and its counterparts in the regional sites, were instrumental in mobilizing the resources to complete these multi-million projects. The consensus is that the political climate created by the Singapore and host governments, the factor conditions, infrastructure and the proximity to Singapore are the main determinants that shape the competitive environment in the Parks. The tenants were able to tap into the location-specific advantages of the Parks, as well as leverage on Singapore’s infrastructure, management and expertise. These results lend support to rationalization theories, and affirm the agglomeration economies suggested by location theory.

In Vietnam, Singapore’s investment in VSIP takes on an added dimension of rendering development assistance to an ASEAN partner, overtly to foster greater bilateral ties. The focus on specific industries that complement Singapore’s economic restructuring, present in the other Singapore-styled parks, is absent. It is apparent from the mix of ‘targeted’ industries, and the style of park management and operations, that the intention is for the local partners to have a stronger sense of ‘ownership’ of the project. Notwithstanding the explicit or
implicit objectives, intense market competitions, and the inherent problems of corruption, act as constraints to the location advantages that firms would otherwise receive, and work in tandem to test this strategic initiative.

In India, ITPL can be perceived as a strategic thrust by the Singapore government to capitalize upon first mover advantages in a regional economy with immense market potential. As the first entrant to successfully develop and manage a state-of-the-art technology park, ITPL has arguably enhanced Singapore’s reputation for infrastructure efficiency and corrupt-free administration. More subtly, its apparent success has leveraged various Singapore companies’ foray into the Indian IT industry. The apparent success of ITPL should not be overestimated, as the Park’s infrastructure efficiency is constrained by the limited support from the local government.

CONCLUDING REMARKS

The Singapore government’s role in developing, managing and operating the overseas industrial parks has been crucial from the start. However, it is not yet clear whether Singapore has obtained the resource benefits it has been looking for in VSIP. ITPL, on the other hand, has attained considerable success in furnishing Singapore with location-specific advantages. However, differing agendas, sometimes within the same host government, intertwined with the cultural and political complexities of emerging economies, and the uncontrolled external environment, serve to diminish the efficiency and commercial viability of the case study parks. The limits to cloning the Singapore experience in industrial-township development, beyond demarcated geographical boundaries, have been alluded to in this paper.

REFERENCES


Singapore Ministry of Finance. (1993, August) *Final report of the committee to promote enterprise overseas.*


Vietnam-Singapore International Marketing Pte Ltd. *VSIP Connection*, various issues.


Table 1: Vietnam-Singapore Industrial Park
– operational statistics (September 2003)

<table>
<thead>
<tr>
<th>General Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment by Developer</td>
<td>US$600 million</td>
</tr>
<tr>
<td>Committed Tenants</td>
<td>124</td>
</tr>
<tr>
<td>Area Taken Up</td>
<td>300 hectares</td>
</tr>
<tr>
<td>Investment by Tenants</td>
<td>&gt; US$1 billion</td>
</tr>
<tr>
<td>Annual Export Value (for 2002)</td>
<td>&gt; US$2 billion</td>
</tr>
<tr>
<td>No. of Employees</td>
<td>24,000</td>
</tr>
</tbody>
</table>

Source: SembCorp Parks Management.

Table 2: Vietnam-Singapore Industrial Park
– tenant profile by country of origin (September 2003)

<table>
<thead>
<tr>
<th>Country</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>24</td>
</tr>
<tr>
<td>Japan</td>
<td>21</td>
</tr>
<tr>
<td>Taiwan</td>
<td>17</td>
</tr>
<tr>
<td>Other Asian Countries</td>
<td>22</td>
</tr>
<tr>
<td>US and Europe</td>
<td>16</td>
</tr>
</tbody>
</table>

Source: SembCorp Parks Management.

Table 3: Vietnam-Singapore Industrial Park
– tenant profile by sector (September 2003)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percent</th>
<th>Sector</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronics</td>
<td>11</td>
<td>Consumer goods</td>
<td>14</td>
</tr>
<tr>
<td>Food</td>
<td>9</td>
<td>Logistics</td>
<td>14</td>
</tr>
<tr>
<td>Light industries</td>
<td>20</td>
<td>Parts and components</td>
<td>10</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>9</td>
<td>Others</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: SembCorp Parks Management.
Table 4: International Technology Park Limited
Operational Statistics (as at June 2003)

<table>
<thead>
<tr>
<th>General Information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale of Development</td>
<td>About 70 acres</td>
</tr>
<tr>
<td>Developed Area</td>
<td>1.6 million sq ft</td>
</tr>
<tr>
<td>Total Investment Value</td>
<td>SG$200 Million</td>
</tr>
<tr>
<td>Confirmed Tenants</td>
<td>100</td>
</tr>
<tr>
<td>Operating Tenants</td>
<td>93</td>
</tr>
<tr>
<td>Area Taken Up</td>
<td>1.4 million sq ft.</td>
</tr>
<tr>
<td>Park Population</td>
<td>8,500</td>
</tr>
</tbody>
</table>

Source: ITPL, Bangalore

TABLE 5: International Technology Park Limited -
Tenant Profile by Country of Origin (June 2003)

<table>
<thead>
<tr>
<th>Country</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>42</td>
</tr>
<tr>
<td>India</td>
<td>36</td>
</tr>
<tr>
<td>Europe</td>
<td>16</td>
</tr>
<tr>
<td>Asia</td>
<td>6</td>
</tr>
</tbody>
</table>

Source: Ascendas International.

TABLE 6: International Technology Park Limited –
Tenant Profile by Sector (June 2003)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Percent</th>
<th>Sector</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Development</td>
<td>49</td>
<td>IC Design</td>
<td>3</td>
</tr>
<tr>
<td>BPO/ITES</td>
<td>24</td>
<td>R&amp;D</td>
<td>1</td>
</tr>
<tr>
<td>Biotech/Bio Informatics</td>
<td>3</td>
<td>Educational Institutions</td>
<td>2</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>10</td>
<td>Others</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: Ascendas International.
Table 7: Factors Influencing the Respondents’ Decisions to Invest in VSIP/ITPL

<table>
<thead>
<tr>
<th>Variables</th>
<th>Popular Ranking</th>
<th>Maximum Likelihood Estimates- Binary Logit $\psi$, $\phi$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VSIP</td>
<td>ITPL</td>
</tr>
<tr>
<td></td>
<td>Frequency</td>
<td>Rank</td>
</tr>
<tr>
<td>Political commitment from the Singapore government</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Political commitment from the host country government</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Investment incentives</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>Competitive labor costs</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Efficient host government institutions</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Low foreign ownership restrictions</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>One-stop service</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Constant ($\alpha_0$)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * Estimated values were taken from “forced entry” regression
† p-values are for 2-tailed tests.
* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level

Source: Questionnaire surveys.
Table 8: Major Constraints on the Respondents’ Operations in VSIP/ITPL

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Rank</th>
<th>Frequency</th>
<th>Rank</th>
<th>( \alpha_i )</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Labor Constraints</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortage of semi-skilled and skilled labor</td>
<td>12</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>0.619</td>
<td>0.581</td>
</tr>
<tr>
<td>Shortage of professionals and managers</td>
<td>17</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>2.596</td>
<td>0.010**</td>
</tr>
<tr>
<td>Rising labor costs</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>-2.61</td>
<td>0.052***</td>
</tr>
<tr>
<td>Shortage of R&amp;D personnel</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1.067</td>
<td>0.321</td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>1</td>
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<td>Impact of host government regulations</td>
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<td>0.035**</td>
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Note: ^ Estimated values were taken from “forced entry” regression
‡ p-values are for 2-tailed tests.
* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level

Source: Questionnaire surveys.