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The Forefront of the Labor Market in Singapore; A Case Analysis of the Growth Triangle

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One of my research subjects is to cross-nationally compare the labor markets at the forefront of development in Asia. This paper examines the structure of the domestic labor market in Singapore and the development of the peripheral labor market of the Growth Triangle initiated by Singapore.

The formations of the diversified labor markets in this region have shown unique evolutions with interactive regulation between the peculiar socio-institutional factors and the market principles that pervade with an impact mainly from foreign direct investments. In addition to the stratification of the domestic labor markets of Singapore, the multi-layered market becomes prominent internationally causing widening of the labor gap.

JEL Classification: J21, J24, J31, N35, N65

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1. Preface

Singapore has drastically transformed into a hub city of finance, information and business management today from a transit trading port as one of the Strait colonies in British colonial times. Since the majority of its population is Chinese originally from the southern part of China, Singapore made its way to the foundation of its own original city state because of a feud with the Federation of Malaya, which gave preferential treatment to Malays as a national virtue after the war. Despite Singapore being a member of the Southeast Asian nations, in view of its industrialization policies after independence, Singapore's development strategies in the early postwar years were characterized by commonalities with Asian NIEs countries. These characteristics included (1) a development strategy centered on processing trade and service/distribution, given the fact that Singapore has a postage stamp-size market because of its nature as a transit trading port and lacks natural resources, (2) proactive economic assistance from the U.S. and Japan because it is a capitalistic nation (a forward base of the capitalist camp opposing China, the continental socialist camp) built by Chinese under the Cold War regime, and (3) a unique factor arising from its situation as the key junction for the oil strategy of developed nations (oil transport security, above all the U.S. and Japan), thanks to its location as a cornerstone from the Strait of Malacca to the East China Sea, and

the favorable effect this has had on its economic growth. Since the late 1980's, Singapore has shifted the emphasis of its foreign economic relations to Asia along with other Asian NIEs countries, and it formulated clear development strategies specifically emphasizing its stance as a center of ASEAN in the 1990's. In other words, as a hub city of finance, information, and business management, Singapore is attempting to sustain its own *raison d'être* by positioning itself at the nodes of regionalism in ASEAN zone and globalism among the U.S., Japan and NIEs.

Since the 1990's, given the drastic changes in its domestic labor force structure accompanying an increasingly sophisticated industrial structure based on capital/technology intensive service industries, Singapore has facilitated the transformation of domestic enterprises into multinational corporations by transferring conventional labor-intensive industries to surrounding Asian countries (direct investments abroad), and Singapore's diplomatic policies simultaneously have evolved rapidly to address a severe labor shortage. In addition, a regional international division of labor with Singapore as the core nation and restructuring of the labor market within the region have been elicited. By taking up the current characteristics of Singapore's labor market based on macro data analyses and case analyses of individual companies to review the former change, and focusing on the industrial complexes in Batam Island in Indonesia for a case study of the peripheral labor market of the Growth Triangle for the latter, this paper will make a close examination on how Singaporean development strategies are restructuring both its own labor market and that in the regional economic zone in which Singapore plays a pivotal role.

2. Singapore's Development as a Hub City and Its Labor Administration

This chapter summarizes the preliminary considerations of the labor market analyses offered in the subsequent chapters, and roughly outlines Singapore's development strategies after its independence and the labor administration under those strategies (Note 1).

2.1 Historical background of development strategies

Since the separation from Malaysia in 1965, the People's Action Party (PAP) headed by Lee Kwan Yew has excluded forces of criticism (opposition parties and lobbies) to establish a one-party dominant regime in Singapore and pursued government-led development with bold initiatives. Taking charge of policymaking under a robust bureaucrat-administration consistent structure, technocratic minority groups formulated the policies of infrastructure development, land/housing and labor management, and industrial promotion led by government-linked companies. Although import substituting industrialization aimed at breaking away from an *entrepôt*-trade-dependent economic structure was commenced in the late 1950's, Singapore's independence in 1965 forced the nation to abandon the common market concept with Malay-

sia and inevitably led to a shift toward new development strategies. In the late 1960's, Singapore turned away from import substituting industrialization to an export-oriented economy, and government-linked companies and public corporations such as Development Bank, Jurong Town Corporation and International Trading Corporation were founded successively to develop favorable environments for capital import. Thus, specific conditions were created for industrialization by collaboration among foreign-affiliated companies and government-linked public enterprises. Owing to Singapore's aforementioned domestic factors and its geopolitical position — i.e., the global environment during the Cold War-NIEs-type development strategies took firm root in the early stage.

Between the late 1970's and 1980's, various sophisticated industrial structure policies were hammered out under the "second industrial revolution" slogan. In the manufacturing industry, the policy objectives were the relocation of labor-intensive sectors to neighboring counties, fostering capita-and-technology intensive high-value-added sectors, and a high wage policy and expansion of skill training facilities. In the service industry, infrastructure development policies for a postindustrial society were formulated with the aim of a structural transformation into advanced information technology industries, through the introduction of the Operational Headquarters (OHQ, 1986) incentive package and the establishment of the Skills Development Fund (SDF, 1979), the National Computer Board (NCB, 1981) and the Singapore International Monetary Exchange (SIMEX, a financial futures market, 1984). With the stagnation in the petroleum refining and shipbuilding industries due to the second oil crisis, the downturn of the economy in the major market for product exports in the U.S., and other factors, the industrial sophistication policies temporarily slowed down in the early 1980's. Upon entering the late 1980's, however, Singapore clarified its strategies for playing a part in the global economy as a hub of Asia's regional economy, by hammering out new policies in response to the global economy such as privatization of the public sector and deregulation of the financial market.

Foreign investments from developed countries were essential to encourage such sophistication of the industrial structure after independence. Given that it scarcely had full-fledged local industries, it was inevitable that Singapore depend upon foreign investments from developed countries for creating a more sophisticated industrial sector (the ratio of local companies based on the composition ratio of added value in the manufacturing industry was no more than 35.6% for 1970, 19.1% for 1980 and 17.3% for 1987: Hayashi ed., 1990). Foreign investments in the manufacturing industry soared during the high economic growth periods of 1968-72 and 1978-84, when the inflows amounted to one billion Singapore dollars (hereafter S\$) annually. The major international investors were the United States and European nations in 1960's and 1970's (in particular, investments by the United Kingdom and the Netherlands in the petroleum refinery industry), and direct investments from Japan surged in the 1980's. The major investment sectors changed from petroleum refining, shipbuilding/ship maintenance, and traditional labor-intensive sec-

tors (such as the food and textile industries) in the early stage to electrical and electronics industries in the 1980's. The number of multinational enterprises venturing to Singapore from developed nations reached 3,200 in 1988 (of which 650 were in the manufacturing industry), and investments not only in manufacturing but in finance, information and technological service industries were on the rise.

The service industry remained Singapore's steadfast core industry during the high economic growth after independence, yet the composition shifted from commerce in the early stage to finance/business services, as mentioned earlier. With regard to international trade, imports from Japan and exports to the U.S. were expanded in the 1970's and 1980's along with other Asian NIEs nations, but trade (both export and import) with other Asian nations has consistently accounted for more than half of all trade since the 1960's. The major export items were shifted, from raw materials and mineral fuel until the 1970's to machinery in the 1980's. The major import items were machinery from developed nations and raw materials from other Asian nations until the 1970's, but machinery imports from other Asian nations swelled in the late 1980's. These changes imply the evolution of an intra-Asian international division of labor. The trade structure realignment since the late 1980's characterizes Singapore's role as a node among ASEAN and NIEs nations, in that it imports industrial products from ASEAN and re-exports them to Japan and Asian NIEs nations after the addition of service values (quality inspection, marketing, etc).

Thus, aspiring to industrial sophistication led by advanced service industries, Singapore sustained its high growth in the long run with an average annual economic growth rate of 8.6% between 1961 and 1987 despite experiencing two oil crises over this period and economic setback in the mid-1980's. Singapore's development strategies were characterized by powerful government initiatives and the foundation of a well-managed city-state having no tolerance for anti-government – i.e., anti-People's Action Party – criticism.

In light of the aforementioned historical overview of Singapore's development strategies, let us review the industrial structure and investment trends in the 1990's based on certain data.

According to the economic census compiled by the Ministry of Trade and Industry, Singapore marked an average annual real economic growth rate of 9.0% in the 1990's, and recorded no negative growth but achieved positive 0.1% growth even under the severe influence of the Asian economic crisis in 1998. A review of GDP ratios by industry shows that while the manufacturing industry declined slightly from 27.1% of total GDP in 1990 to 26.5% in 2000, the ratio for the service industry rose from 66.2% in 1990 to 67.8% in 2000.

Above all, the finance and business service industries showed remarkable growth from 21.3% to 25.9% of total GDP, which implies a further transition toward a society of advanced service industries in the 1990's (Department of Statistics: 2001).

Table 1 summarizes the foreign direct investments received by Singapore based on the obtained data on stocks. Changes between 1988 and 1998 indi-

cate Japan took over first place from the U.S. (Japan mainly invested in the manufacturing industry, while the U.S. focused on the energy sector), with European nations, the U.S., and Australia topping the list besides Japan. In stark contrast, Singapore's investments in neighboring Asian nations sharply rose in recent years. Table 2 depicts the transition of the top five investment destinations in terms of stocks. Apart from the U.S., Asian nations ranked in the top as investment destinations, and the main feature during this transition between 1993 and 1998 is the steep rise of investments into China and Indonesia. This resulted from the onset of full-scale investments into China, promoting the construction of Singapore's unique industrial complexes, and into Malaysia (mainly Johor State) and Indonesia (development of Batam Island, which is discussed below) constituting the peripheries of a "Growth Triangle" with intensive Singaporean capital. It can be said that the trend of international capital flow through Singapore is embodying Singapore's position in the international economy, namely its status as a node of Asia's regional economy under the global one.

Table 1. Foreign direct investment in Singapore (changes in stock)

1988			1998		
Investors Top 5 Nations	Investment (Million S\$)	Composition Ratio (%)	Investors Top 5 Nations	Investment (Million S\$)	Composition Ratio (%)
1 USA	7,672.5	21.4	1 Japan	22,839.6	18.2
2 Japan	6,489.8	18.1	2 USA	20,002.8	15.9
3 UK	3,920.6	11.0	3 Switzerland	13,350.8	10.6
4 Australia	3,321.6	9.3	4 UK	9,570.3	7.6
5 Canada	2,192.9	6.1	5 Netherlands	9,221.6	7.3
TOTAL	35,799.2	100.0	TOTAL	125,638.2	100.0

Source: Singapore, Department of Statistics [2001].

Table 2. Direct investment abroad by Singapore (changes in stock)

1993			1998		
Top 5 Nations	Investment (Million S\$)	Composition Ratio (%)	Top 5 Nations	Investment (Million S\$)	Composition Ratio (%)
1 Malaysia	4,619	20.8	1 China	8,896	16.8
2 Hong Kong	3,847	17.3	2 Malaysia	6,117	11.6
3 New Zealand	1,830	8.3	3 Indonesia	5,219	9.9
4 USA	1,773	8.0	4 Hong Kong	5,025	9.5
5 China	652	2.9	5 USA	2,892	5.5
TOTAL	22,181	100.0	TOTAL	52,918	100.0

Source: Singapore, Department of Statistics [2001].

2.2 Historical background to labor administration

The government-initiated industrial policies described in the previous chapter are heavily evident in labor administration as well. The government's labor control measures were aimed at integrated labor management by the

government through a series of labor/wage policies. These included foundation of the National Trades Union Congress (NTUC, 1961) under the direct control of the government, the introduction of a tripartite cooperative line among government, labor and management, the authorization of strong rights for business managers (to transfer, discharge and displace employees without collective bargaining) under the Labor-Management Relations Law enacted in 1968, wage policy through establishment of the National Wages Council (NWC, composed of the government, labor and management) in 1972, and the Revised Labor Union Law in 1982. As a result, since the early 1980's, unification of the People's Action Party government and NTUC has been highly evident (e.g., related ministers, an interlocking secretary-general of unions, union leaders elected as parliament members). Under the banner of social security for employees with high wages and the Central Provident Fund (CPF, 1954, compulsory saving by labor and management), the labor administration supporting rapid economic growth entailed labor controls upholding economic growth and the improvement of productivity/efficiency as absolute musts.

While Singapore had a limited domestic supply source of labor, industrial sophistication strained labor demand in the early stages. Although the unemployment rate had remained high during the early industrialization in the 1950's and 1960's, centered on Jurong Industrial Estate, the inducement of labor-intensive enterprises in developed countries went into full swing and by the 1970's, the labor shortage problem had already emerged following certain progress towards the development of highly-educated professional/technical manpower. By this time, the influx of foreign labor had already begun.

At the early stage of industrialization, Singapore relied on foreigners from the U.S. and European nations for professional labor, and the government also encouraged employment and permanent residency of foreigners in administrative/managerial, professional and skilled work (employment as permanent residents; professionals and technicians who regularly renew work permits are employment pass holders). Most of the foreign workers demanded by the subsequent labor shortage, however, were from neighboring Asian nations and engaged in unskilled/manual labor with work permits for temporary employment. Deregulation of foreign laborers in the late 1960's permitted employment of foreigners for unskilled/manual labor in the construction and ship-building industries initially, and subsequently was expanded to the manufacturing industry. In the beginning, these foreign workers were mainly from Malaysia on the basis of strong historical ties, and afterward the source of the labor influx was broadened to the "nontraditional region" (nations other than Malaysia, especially South-east and South Asian nations). With the fear that these foreigners who massively flooded into the low-skill labor market would turn into disparate elements in the highly-controlled nation — namely a disruptive factor — a variety of restrictive measures were taken until the 1970's. The government has gradually eliminated the anti-foreign-laborer regulations since the beginning of the 1980's, however, because it could not resolve the worsening labor shortage (especially the severe shortage of unskilled/manual labor in the construction and other industries). Furthermore, through intro-

duction of a wage levy system for foreign laborers comparable to the Central Provident Fund for Singaporeans, the government amended its scheme to control the influx of foreign workers on a case-by-case basis by adjusting the taxation rate, and spread the employment of laborers from the “nontraditional region” to the manufacturing, construction, hotel and homemaking service industries (Semiskilled and unskilled legal workers with work permits were subject to the wage levy system. Foreign managers, professional technicians and skilled workers, certified as either permanent residents or employment pass holders, were exempt from the levy system. Although the definition of “semi-skilled” workers remained vague, they were considered as persons who had a certain skill with educational attainment of a five-year term of secondary school and above.). The ballooning number of foreign laborers during the 1970’s reached 121,800 in 1980. (Malaysian migrant workers totaled 58,000, and foreign labor comprised 6.2% of the total labor force population. Approximately half of all foreign workers were engaged in the manufacturing industry, 20% were in construction and 9% were in homemaking/maid services, etc; Hayashi ed., 1990)

Bearing in mind this historical background to Singapore’s labor administration, let us review the characteristics of the labor force composition in the 1990’s in the following chapter, based on the public data.

3. Relevant Characteristics of the Labor Force Composition

This chapter examines in greater detail the current status of the domestic labor force composition, based mainly on macro data on the labor force and wage standards released by the government ministries and Statistics Singapore.

3.1 Outline of the labor force composition

Table 3 summarizes the labor force population by age. With regard to workers in their late teens and early 20’s, the female labor force outnumbered the male workforce in both the number of employed and unemployed workers. In this age group, the unemployment rate for females is high, and this fact implies a severe employment status for young women, but there is no large gender segregation among the employed. Foreign residents comprising approximately 30% of the labor force population are included in this statistics, yet age-category-based statistics for foreign laborers are not available due to restrictions on the material. When it comes to the labor of young female Singaporeans (meaning those who possess either Singaporean nationality or permanent residency), however, it can at least be said that the composition of female unskilled/manual labor is on the decrease along with advances in women’s higher academic qualifications, and this has led to a growing reliance on foreign laborers in place of Singaporean women to compensate for the insufficient young labor force. This point is discussed in greater detail below.

Table 4 shows the transition of labor force population by educational attainment. Roughly speaking, Singapore’s education system consists of pri-

Table 3. Labor force population by age (as of 2000)

	Number of the Employed			Number of the Unemployed		
	Males	Females	Total	Males	Females	Total
15–19 Y/O	22,241	23,620	45,861	635	2,937	3,572
20–24 Y/O	123,185	142,775	265,960	4,921	6,426	11,347
25–29 Y/O	231,962	179,908	411,870	7,412	7,028	14,440
30–34 Y/O	226,106	139,884	365,990	6,624	6,025	12,649
35–39 Y/O	207,496	114,093	321,589	7,339	6,043	13,382
40–44 Y/O	176,422	101,867	278,289	8,333	5,997	14,330
45–49 Y/O	138,040	79,227	217,267	7,347	4,859	12,206
50–54 Y/O	101,178	51,211	152,389	6,146	2,967	9,113
55–59 Y/O	49,693	20,291	69,984	2,827	992	3,819
60– Y/O	47,958	15,121	63,079	1,888	717	2,605
Total	1,324,281	867,997	2,192,278	53,472	43,991	97,463

Source: Singapore, Ministry of Manpower [2001a].

mary (6 years) and secondary school (4 or 5 years) education, after which children who graduate go through junior college (usually 2 years) offering professional education, and then to either polytechnics (comparable general technical schools, or college) or the Institute of Technical Education (ITE, vocational college), and finally become eligible to proceed to university. (Students are admitted to enroll in university after graduation from polytechnics; in the case of graduates of ITE, students still need a polytechnics qualification). Although this unique school system makes it difficult to compare with those of other Asian nations, assuming secondary-school graduates generally match high-school graduates in other nations and thus also belong to the category of highly-educated laborers, the ratio of highly-educated laborers jumped from 49.4% in 1990 to 61.9% in 2000. It is noteworthy that the ratio of highly-educated females in 1990 was 55%, surpassing that for males at 42.3%, which implies the highly-educated female bracket had already outstripped males. In 2000 these ratios were 58.5% and 67.0% for males and females, respectively, clarifying women's dominance among the highly-educated. By total composition of educational attainments, low-educated laborers with lower secondary school and below qualifications comprised 50.7% in 1990 and 38.1% even in

Table 4. Changes in labor force population by educational attainment

	1990				2000			
	Males	Females	TOTAL	Share (%)	Males	Females	TOTAL	Share (%)
Primary and Below	343,028	184,599	527,627	33.8	366,658	183,552	550,210	25.1
Lower Secondary	168,188	95,204	263,392	16.9	183,501	102,462	285,963	13.0
Secondary	246,900	228,504	475,404	30.4	302,701	251,514	554,215	25.3
Junior College & ITE	69,888	67,925	137,813	8.8	181,440	157,909	339,349	15.5
Polytechnic	46,822	18,145	64,967	4.2	85,577	49,126	134,703	6.1
University	59,494	34,122	93,616	6.0	204,404	123,434	327,838	15.0
TOTAL	934,320	628,499	1,562,819	100.0	1,324,281	867,997	2,192,278	100.0

Source: Singapore, Ministry of Manpower [2001a].

2000, despite the growing number of highly-educated laborers during this decade, and this low-educated segment is regarded as consisting of quite a few foreign laborers (legal employees with long-term residency are included in the data). This double-layered structure is one characteristic of Singapore's labor force composition, and laborers' educational attainments differentiate the labor markets for them to enter.

Table 5 presents the industry-specific composition of the employed by age group. While the composition ratio of the employed in secondary industries (the manufacturing and construction industries) is 33.9%, the ratio in the service industry is 65.6%. These figures confirm the tertiary industries-dominant industrial structure in the aspect of employment composition as well. Regarding the gender composition of the labor force by age, men account for the overwhelming share of laborers in the construction industry due to its job description, and men are also dominant in the manufacturing and transport/telecommunications industries, except for teenagers. In contrast, the female-dominated industries are the commercial industry for women in their 20's, the finance industry for women in their 20's and 30's, and the hotel/restaurant industries for women in their 40's and 50's. Furthermore, the social/personal service industries show outstanding dominance of females. As a whole, this suggests the entry ratio of females into the service industry is on the rise.

Table 6 indicates the occupation-specific composition of the employed based on the same data. The administrative/managerial, professional, and technical occupations requiring high educational attainments occupy 35.7% of the total. This figure almost corresponds to the aforementioned ratios of the highly-educated. Regarding gender composition by age, the male-dominated occupations are the administrative/managerial and professional occupations in the middle and upper age brackets, as well as the technical production labor of all age groups and the general production labor of the whole other than teenagers. In contrast, the female-dominated jobs are the professional and technical work for laborers in their 20's as well as the clerical and service/sales labor for all age groups, and these echelons appear to correlate with the aforementioned higher academic qualifications of the female laborers. In addition, among female labor, lower-class occupations such as cleaning/general labor show high composition ratios in all age groups, which hints at bipolarization of the female labor force as occurred among males (the lower-class female labor will be discussed later again, as it is related to the occupations in hiring foreign laborers).

In continuous consideration of the same topic as the composition of the employed by occupation from different perspective, Table 7 depicts the labor force structure of Singaporean workers by race (including foreigners who attained permanent residency—permanent resident—besides citizens with Singaporean nationality). It is obvious Chinese comprise a majority of the entire population (76.8%, 2000) and have high composition ratios in the administrative/managerial, professional and technical occupations. In contrast, Malays represent 13.9% of the population and mainly constitute the clerical, services

Table 5. Gender composition of employed population by industry (as of 2000)

	15-19 YO		20-29 YO		30-39 YO		40-49 YO		50-YO		TOTAL		Share (%)	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females		TOTAL
Manufacturing	2,781	3,717	83,083	53,353	101,991	48,716	61,868	36,390	29,539	13,463	279,262	155,639	434,901	20.8
Construction	2,302	166	91,797	5,573	105,593	6,206	43,128	3,546	14,690	1,015	257,510	16,506	274,016	13.1
Commerce	1,014	3,539	30,806	33,936	54,978	36,491	48,939	28,793	35,471	12,825	171,208	115,583	286,791	13.7
Hotel/Restaurant	1,651	1,972	13,818	11,436	14,250	9,922	14,741	17,341	14,440	14,906	58,901	55,577	114,478	5.5
Transport/Telecommunication	339	1,047	22,339	19,594	39,654	14,252	50,871	10,833	34,312	3,301	147,514	49,027	196,541	9.4
Financial Service	68	755	8,689	20,402	16,074	20,529	10,668	9,943	6,384	2,791	41,884	54,420	96,304	4.6
Business/Real Estate Service	505	1,020	31,417	33,146	48,086	29,077	33,146	17,611	23,056	9,150	136,211	90,004	226,215	10.8
Social/Personal Service	12,929	8,418	59,256	131,181	36,396	76,164	32,142	45,196	27,020	24,002	167,744	284,960	452,704	21.6
Others	16	51	1,610	608	2,617	551	3,280	586	3,054	493	10,577	2,289	12,866	0.6
TOTAL	21,605	20,685	342,815	309,229	419,639	241,908	298,783	170,239	187,966	81,946	1,270,811	824,005	2,094,816	100

Source: Singapore, Ministry of Manpower [2001a].

Table 6. Gender composition of employed population by occupation (as of 2000)

	15-19 YO		20-29 YO		30-39 YO		40-49 YO		50-YO		TOTAL		Share (%)	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females		TOTAL
Administrative/Managerial	-	29	13,881	9,468	68,802	23,890	69,445	17,145	40,365	6,265	192,493	56,797	249,290	11.9
Professional	29	15	33,219	30,357	51,506	25,709	19,043	10,251	10,758	5,711	114,555	72,044	186,599	8.9
Technical	170	1,294	48,244	59,211	63,614	46,813	42,151	24,895	18,753	7,915	172,933	140,127	313,060	14.9
Clerical	588	5,663	13,298	61,156	15,623	57,789	13,683	41,104	10,783	11,777	53,984	177,489	231,473	11.0
Service/Sales	3,764	4,245	29,127	26,938	27,760	21,887	28,903	24,062	29,012	16,230	118,567	93,363	211,930	10.1
Production Labor (Craftsmanship)	2,989	433	87,207	4,265	94,638	3,837	46,475	4,167	20,259	2,174	251,567	14,876	266,443	12.7
Production Labor (General)	1,738	2,641	31,925	25,521	44,106	20,949	52,379	22,222	36,337	7,416	166,486	78,749	245,235	11.7
Cleaning/General Labor	1,731	6,282	53,125	91,255	48,708	40,337	23,598	25,831	20,820	24,344	147,982	188,048	336,030	16.0
Others	10,598	81	32,788	1,058	4,873	698	3,105	561	881	114	52,244	2,512	54,756	2.6
TOTAL	21,607	20,683	342,814	309,229	419,630	241,909	298,782	170,238	187,968	81,946	1,270,811	824,005	2,094,816	100

Source: Singapore, Ministry of Manpower [2001a].

Table 7. Composition of Singaporean workers by race (%)

	Chinese		Malay		Indian		Others	
	1990	2000	1990	2000	1990	2000	1990	2000
Administrative/Managerial	11.0	15.9	1.1	2.9	7.1	12.5	13.2	27.0
Professional	5.8	10.7	2.0	4.0	5.2	12.7	10.8	17.5
Technical	13.0	19.6	8.6	16.4	10.0	18.0	16.8	19.0
Clerical	14.9	13.5	16.0	20.0	15.0	15.4	18.2	12.5
Service/Sales	14.0	11.7	15.4	16.2	17.1	13.7	15.9	12.2
Production Labor	26.5	18.6	37.7	27.5	24.1	15.4	12.8	6.7
Cleaning/General Labor	9.7	6.2	16.2	10.7	15.2	8.0	6.5	3.0
Others	5.3	3.8	3.0	2.3	6.4	4.3	5.9	2.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Singapore, Department of Statistics [2000].

and production laborers. Indians, with a population ratio of 7.9%, stand at the intermediate position between those two races, and mark the substantially high composition ratios in professional and technical work. Another point to be noticed is that from a chronological perspective, remarkable declines of those three races' composition ratios in production-related works and cleaning/general labor are perceived, from which it can be assumed the workers in these occupations are being replaced with foreign laborers.

To discern the employment situations of laborers in companies of different business scales, the composition of private companies by business scale is shown in Table 8. The composition of business scale is only publicized under the categorization by number of workers, and can be only grasped with statistics covering the subject companies with 25 workers and more. Large-scale businesses with 250 workers and more account for 7.8% of the total number of businesses and 48.3% of the total number of laborers, which would seem to show the high degree of concentration on large-scale businesses. Laborers

Table 8. Composition of private companies by business scale

(corporate classification by number of workers, as of 2000)

	Number of Businesses				Number of Workers			
	25-99	100-249	250-	TOTAL	25-99	100-249	250-	TOTAL
Manufacturing	1,461	379	241	2,081	73,152	58,321	176,186	307,659
Construction	1,578	311	100	1,989	75,873	46,342	48,028	170,243
Commerce	1,299	182	67	1,548	58,558	27,084	42,603	128,245
Hotel/Restaurant	319	54	49	422	14,430	7,943	31,873	54,246
Transport/Telecommunication	445	87	56	588	20,735	12,726	65,522	98,983
Financial Service	232	88	36	356	11,655	14,213	45,462	71,330
Business/Real Estate Service	826	165	71	1,062	39,366	25,416	34,333	99,115
Social/Personal Service	366	104	44	514	17,120	15,351	38,818	71,289
Others	36	2	5	43	1,732	304	3,636	5,672
TOTAL	6,562	1,372	669	8,603	312,621	207,700	486,461	1,006,782
Composition Ratio	76.3	15.9	7.8	100.0	31.1	20.6	48.3	100.0

Source: Singapore, Ministry of Manpower [2001a].

working in companies with 25 workers and above, however, total approximately 1,010,000. This figure represents 48% of the total number of 2,090,000 laborers (cited from Table 5), the remaining approximately 1,080,000 laborers are employed in small and micro enterprises with less than 25 workers. Therefore, the business gaps between the upper and the lower have to be deemed substantial.

From the information described above, which mainly examined the composition of Singaporean laborers, it can be pointed out that feminization of the labor force as a whole and higher educational attainments of the female labor force have taken root, because women's penetration can be found not only in the service industries but in professional and technical jobs as well, and that Chinese domination in the composition of occupations is palpable with regard to the composition among the three domestic racial groups, and ethnic gaps are undeniable. Moreover, the dual structure of the labor force is perceived in the aspects of academic qualification, skill and business scale, which implies not only disparities among the three domestic racial groups but also that the labor force composition cannot be presumably grasped without examination of the foreign labor force making up approximately 30% of the total labor force.

3.2 The position of foreign laborers

The definitions of "foreigners" and "foreign laborers" presented in Singapore's statistics materials are explained below.

In Singapore, the statistics for "foreigners" include students, employees and their family members with permits for temporary stay and stayers on public affairs. As employees, corporate managers, professionals and technical workers with employment passes, and semiskilled and unskilled workers with work permits can stay temporarily. Malaysians, who are eligible to renew work permits valid for two years in principle, can further obtain permanent residency after acquiring certain levels of academic qualifications, skills and income, and these permanent residents can receive equal treatment to Singaporeans (most permanent residents are Malaysians, yet other Asian foreigners are also authorized in some exceptional cases). Therefore, permanent residents are not counted as foreigners in the statistics. For example, even among workers with Malaysian nationality, those with permanent residency are treated statistically as Singaporeans, not as foreigners. For reference, the latest population census in 2000 shows 3,263,209 Singaporeans consisting of 2,973,091 with Singaporean nationality and 290,118 who are permanent residents, indicating permanent residents comprise 8.9% of all Singaporeans (Department of Statistics, 2000).

Therefore in the analysis based on following statistical data, if no further specifications are given "foreign laborers" refers to employment-pass holders in professional/technical work and work-permit holders engaged in general semiskilled and unskilled labor. As discussed earlier, the Singaporean labor administration has proactively accepted professional/technical workers with employment passes as well as permanent residents with a certain skill level. The key issue now in question is measures to treat the work-permit holders

engaged in low-skill labor who make up the overwhelming majority of foreign laborers. To examine this issue requires an initial understanding of the official acceptable range of foreign laborers with work permits. Table 9 presents a list of the ceilings on foreign employment and surcharges regulated by industry for foreign laborers with work permits. The permissible range of acceptance in each industry is considered to correlate with the extent of demand for foreign laborers in the industry in question. In other words, the labor refused by Singaporeans as so-called (in English) “3D” labor, referring to dangerous, difficult and dirty work, has a wider permissible range of foreign labor. For instance, the fact that construction industry permits foreign laborers up to five-sixths of all laborers reflects a serious labor shortage in the industry. The degree of labor shortage severity is high in the order of the construction, shipbuilding, manufacturing and service industries, and by gender, male foreign laborers enter mainly in the construction industry while females enter in homemaking service.

Table 9. Employment ceilings & surcharges of foreign workers by industry

	Employment Ceilings of Foreigners in Enterprises	Monthly Surcharges per Capita (As of February, 2002)	
Construction	5 Foreigners for One Singaporean	Semi-skilled Workers	S \$ 30
		Unskilled Workers	S \$ 470
Shipbuilding	3 Foreigners for One Singaporean	Semi-skilled Workers	S \$ 30
		Unskilled Workers	S \$ 295
Manufacturing	50% of Total Workers	Semi-skilled Workers	S \$ 30
		Unskilled Workers (<40%)	S \$ 240
		Unskilled Workers (40–50%)	S \$ 310
Service	30% of Total Workers	Semi-skilled Workers	S \$ 30
		Unskilled Workers	S \$ 295

Source: Singapore, International Chamber of Commerce [As of 2002].

Table 10 describes the changes in ratios of foreign laborers. Apparently the number of the foreign population in Singapore has been increasing year by year. The foreign population of 130,000 (5.5% of the total population) in 1980 reached 750,000 (18.8%) in 2000. This rise clearly stemmed from the labor demands. Of the entire foreign population of 750,000 in 2000, 610,000 were employed and accounted for approximately 30% of the total labor force population.

However, the following consideration must be paid to these foreign population statistics. The population census of Singapore does not include short-term stayers/workers for less than one year, and needless to say does not include illegal stayers/workers. Among the employment of Malaysians, who represent the majority of foreigners, there might be quite a few Malaysians commuting everyday between Johor in Malaysia and their workplaces in Singapore via the Causeway, while some other Malaysians live in Singapore, but those commuting workers with short-term employment are not posted in the statistics. Although the precise composition of foreign laborers by nationality

Table 10. Changes in composition ratios of foreign workers

	1980		1990		2000	
		Composition Ratio (%)		Composition Ratio (%)		Composition Ratio (%)
Total Population	2,413,900	100	3,047,100	100	4,017,700	100
Singaporeans	2,282,100	94.5	2,735,900	89.8	3,263,200	81.2
Foreigners	131,800	5.5	311,200	10.2	754,500	18.8
Total Labor Force Population	1,077,100	100	1,537,000	100	2,094,800	100
Singaporeans	955,300	88.7	1,288,800	83.9	1,482,600	70.8
Foreigners	121,800	11.3	248,200	16.1	612,200	29.2

Source: Singapore, Department of Statistics [2000].

cannot be grasped, the number of daily commuting laborers from Johor in Malaysia to Singapore is estimated to have been 25,000 in the late 1980's and 30,000 to 40,000 in the late 1990's (Note 2). The legal employees migrating from Indonesia into Singapore were 41,000 in number in the late 90's according to the data compiled in Indonesia (International Labor Information, July, 1999, No.285). It is also said that there are scores of Filipinas working as home maids and the growing numbers of migrant workers away from Bangladesh, Sri Lanka, Thailand and China in recent years. It is difficult even to estimate the number of illegal laborers, but some estimates indicate 200,000 to 300,000 only for Malaysians and 60,000 as the total of other nationalities such as Filipinos, Indonesians and Thais at a moderate estimate (Hugo, 1995). For one thing, as pointed out by the statement "950 illegal workers on monthly-average basis were charged as illegal immigrants or long-term stayers in construction industry in 1995" (International Labor Information, January, 1997, No.250), there might be a considerable number of illegal workers mainly engaged in the construction industry and homemaking/general labor (Note 3). In this regard, actual dependence on the foreign labor force should be considered far greater than suggested by the statistical figures.

Yet even with the aforementioned restrictions on data, the ratios of foreign workers by industry, calculated based on the population census compiled by the Department of Statistics, are described in Table 11. The construction industry indeed marked an outstanding ratio of foreign workers – 67% in 2000. The ratio in the manufacturing industry reached 34%, and that of all secondary industry is approaching 50%. Although the ratio of foreigners in the service industry is not so high on the whole, the concentration of foreigners in social/personal service might stem from the rise of female home maids. As mentioned earlier, the major occupations for foreigners to enter are construction labor for males and home maids for females, both of which seem to consist mainly of a young labor force. Such compositions of foreign workers might be having considerable impact on Singapore's labor force structures by age, educational attainment, industry, and occupation, which we have already examined based on data.

Table 12 shows the ratios of foreign workers by occupation, calculated from the same census. The labor force distribution of foreign workers is fur-

Table 11. Composition ratios of foreign workers by industry

(Unit: 1000 persons)

	Singaporean Workers		Foreign Workers in Singapore		Ratios of Foreign Workers (%)	
	1990	2000	1990	2000	1990	2000
Asset-producing Industry						
Manufacturing	337.7	289.1	106.5	146.6	24.0	33.6
Construction	76.0	90.4	47.0	184.0	38.2	67.1
Others	11.6	10.4	0.7	2.2	7.3	17.7
Sub Total	425.3	389.9	154.2	332.8	26.5	46.0
Service Industry						
Commerce	232.5	253.5	7.8	33.5	3.3	11.7
Hotel/Restaurant	91.5	93.4	5.3	21.8	5.5	18.9
Transport/Telecommunication	141.8	177.9	4.2	19.0	2.9	9.6
Financial Service	58.0	87.5	3.5	8.9	5.7	9.2
Business Service	105.7	191.3	6.5	34.9	5.8	15.4
Social/Personal Service	233.3	287.6	66.4	164.9	22.2	36.4
Sub Total	862.8	1,091.2	93.7	283.0	9.8	20.6
GRAND TOTAL	1,288.1	1,481.1	247.9	615.8	16.1	29.3

Source: Singapore, Department of Statistics [2000].

Table 12. Composition ratios of foreign workers by occupation

(Unit: 1000 persons)

	Singaporean Workers		Foreign Workers in Singapore		Ratios of Foreign Workers (%)	
	1990	2000	1990	2000	1990	2000
Administrative/Managerial	121.1	212.0	11.1	37.3	8.4	15.0
Professional	68.3	149.7	7.0	36.7	9.3	19.7
Technical	157.2	283.2	8.8	29.9	5.3	9.5
Clerical	194.6	213.5	5.2	16.9	2.6	7.3
Service/Sales	185.6	182.4	9.6	29.2	4.9	13.8
Production Labor	357.0	286.1	116.4	225.0	24.6	44.0
Cleaning/General Labor	140.5	100.8	90.1	234.4	39.1	69.9
Others	65.7	53.4	0.4	1.1	0.6	2.0
TOTAL	1,290.0	1,481.1	248.6	610.5	16.1	29.1

Source: Singapore, Department of Statistics [2000].

ther clarified in categorization by occupation. The production and cleaning/general laborers (including urban general work such as various cleaning work, common labor at construction sites, and home maids) sharply raised the foreign ratios in the 1990's, as seen in 44% for production labor and 70% for general labor in 2000, which implies a vast foreign influx into the low-skill labor market. It can be concluded the laborers entering the low-skill labor market are possibly migrant workers from Asian nations such as Malaysia, Indonesia, the Philippines, Bangladesh, Thailand and China, regardless of the lack of precise information on the nationality composition of foreigners as mentioned

earlier. On the other hand, rising ratios of foreign workers into the labor market for professional and administrative/managerial occupations are obvious, and the majority might be a group of highly-educated laborers from developed nations. Thus, it is believed the foreign worker influx into the labor market is bipolar; that is, professionals and administrative/managerial workers with high educational attainments (high wages) into the high-skill labor market, and unskilled/manual laborers with low educational attainments (low wages), in contrast, into the low-skill labor market.

Lastly, the basic data on the wage structure corresponding to the multi-layered structure of the labor force including foreign laborers should be provided here. Based on the average wages by industry shown in the Table 13, it can be said the wages of the service industry surpass those of the manufacturing and construction industries on the whole. Although in the aspect of wages it again shows the service-industry dominated composition, the remarkable wage disparity within the service industry can be seen between the finance sector, with a great number of highly-educated professionals, and other industries such as commerce or hotel/restaurant. The occupation-specific data on wages in Table 14 also clarifies the wage gaps among distinctive jobs. Workers

Table 13. Average wages by industry (real wages per month, S\$)

	1990			2000		
	Males	Females	All Workers	Males	Females	All Workers
Manufacturing	2,110	1,154	1,637	3,613	2,157	3,003
Construction	1,550	1,270	1,496	2,522	1,780	2,308
Service	2,079	1,623	1,877	3,552	2,621	3,096
Commerce	1,934	1,357	1,688	3,111	2,200	2,691
Hotel/Restaurant	1,190	939	1,073	1,502	1,150	1,318
Transport/Telecommunication	1,980	1,651	1,890	3,303	2,634	3,071
Financial Service	3,582	2,097	2,642	6,486	3,882	4,877
Business/Real Estate Service	2,577	1,723	2,170	3,682	2,776	3,245
Social/Personal Service	2,087	1,842	1,969	3,913	2,785	3,300
TOTAL	2,059	1,465	1,793	3,480	2,502	3,030

Source: Singapore, Ministry of Manpower [2001a].

Table 14. Average wages by occupation (as of 2000, per month, S\$)

	Males		Females		All Workers	
	Basic Pay	Total	Basic Pay	Total	Basic Pay	Total
Administrative/Managerial	6,745	7,237	5,328	5,602	6,275	6,692
Professional	4,078	4,523	3,729	4,033	3,957	4,353
Technical	2,797	3,442	2,360	2,544	2,598	3,037
Clerical	1,716	2,051	1,641	1,813	1,660	1,871
Service/Sales	1,547	2,275	1,254	1,858	1,418	2,084
Agriculture/Fishery	1,393	1,581	1,115	1,241	1,357	1,537
Production Labor (Craftsmanship)	1,668	2,150	1,335	1,688	1,633	2,101
Production Labor (General)	1,542	2,194	943	1,334	1,330	1,890
Cleaning/General Labor	1,168	1,577	1,013	1,232	1,100	1,426

Source: Singapore, Ministry of Manpower [2001a].

in administrative/managerial earn 3.54 times as much as production workers (general work) and 4.69 times as much as cleaning/general laborers. The wages for males exceed those for females in all occupations; in the high-skill occupations, administrative/managerial workers' and technical workers' wages are 1.29 times and 1.35 times higher respectively. Although female penetration into occupations requiring high educational attainments was discussed earlier, the gender segregation in income is undeniable. In addition, even with no concrete wage data available, when the earlier-described segregation of occupational classes among Singapore's three races and the composition of Singaporean and lower-class foreign laborers by industry/occupation are recalled, the industry/occupation specific wage disparities among races including foreigners can be pointed out.

In conclusion, the disparate structures of the labor force described in this chapter are explicit, not only for the three major domestic races but also for foreign laborers in terms of academic qualifications, skills, business scales and so on. These intricate factors are branding the stratified disposition of the domestic labor market of Singapore.

4. Laborers of Japanese-Affiliated Enterprises in Singapore

Let us now turn to the author's surveys of two Japanese-affiliated enterprises as case studies of the in-house labor force structure in Singapore (surveys conducted in August 2001 and June 2002). The survey items mainly concern the internal labor force structure in each company and hiring methods/working conditions.

Company A is an overseas affiliated firm established with the full investment of a leading electronics manufacturer that expanded into the Jurong Industrial Estate in 1994 (capital; approximately S\$ 80 million, turnover in 2000; S\$ 98 million). Company B, which also branched out into the Jurong Industrial Estate in 1986, was fully invested by a precision machinery parts manufacturer (turnover in 2001; approximately S\$ 60 million).

Table 15 shows the race-category-based labor composition by position in both companies; note that as in official data, the permanent-resident qualification holders with Malaysian nationality are treated as Singaporeans. The Singaporean workers' employment term is not set specifically, and such highly-educated individuals as polytechnics and university graduates are mainly hired in the indirect departments on the principle of a promotion-wage consistent system determined through personnel appraisals (evaluations emphasizing achievement of tasks). On the other hand, the direct departments of production labor are staffed largely with workers with elementary and secondary school-level academic qualifications, and their occupation class promotions also are determined through personnel appraisals. Malaysians employed with work permits are entitled to long-term service almost the same as Singaporeans since they have no limits on renewal frequency of their work permits and employment term. These Malaysians climb up the respective job classes after their entry into the indirect departments for highly-educated

Table 15. Composition of workers in Japanese-affiliated companies in Singapore, company A & B

(A) Whole workers

	Company A						Company B					
	Singaporeans		Malaysians		Other Foreigners		Singaporeans		Malaysians		Other Foreigners	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Administrative/Managerial	14	2	—	—	—	—	7	3	—	—	—	—
Clerical/Technical	64	64	4	2	—	—	25	14	1	1	—	—
Forepersons	106	42	2	—	—	—	7	1	—	—	1	—
Line Leaders	144	144	90	70	96	—	7	17	1	4	2	—
Operators							12	88	23	57	41	13
TOTAL	328	252	96	72	96	—	58	123	25	62	44	13

(B) Singaporean workers

	Company A			Company B		
	Chinese	Malay	Indian	Chinese	Malay	Indian
Administrative/Managerial	16	—	—	10	—	—
Clerical/Technical	117	8	3	36	1	2
Forepersons	132	7	5	8	—	—
Line Leaders	246	28	18	24	—	—
Operators				91	6	3
TOTAL	511	43	26	169	7	5

Source: Author's Surveys (November 2001, June 2002).

workers who graduated from junior colleges, professional schools, or universities and in the direct departments for secondary education graduates. Therefore, an internal labor market segmented by positions is formed for Singaporeans and Malaysians, and the principle within each position is identical work in the identical position and a merit/performance-based promotion system (“limited merit system”) regardless of race. Clear division of labor between sexes is not perceived, but in view of in-house personnel deployment, men are slightly dominant in the high-skill occupations. In the promotion system based on competence evaluations, however, uniform evaluation criteria are set for men and women at the same position in principle.

On the other hand, foreign laborers other than Malaysians are short-term employees on a two-year contract, and not eligible for a long-term, stable employment guarantee. As far as the surveyed enterprises are concerned, principally Chinese employees are permitted two renewals with a maximum employment of six years, and Indians, Myanmarese and Bangladeshis can renew once with a maximum of four years. Although the allowable limits on renewal times are not necessarily fixed, because these are occasionally altered in line with the government's foreigner measures, these foreign laborers come under short-term employment in any case (Malaysians are recruited by individual enterprises, and other foreign workers are hired through designated temporary employment agencies with permission for the number of laborers from the Economic Development Board).

Let us now move on to an examination of the correlation between staffing

in the workplace and multi-ethnicity, based on the Table 15 (A). First, in respect to the laborers in the indirect departments, the ratios for Singaporeans are 24.8% for Company A and 27.1% for Company B, while those of Malaysians constituting a part of the foreign labor force are 3.6% for Company A and 2.3% for Company B, and there are no foreign workers from other nations in either company. In addition, regarding the respective indirect departments, the administrative/managerial class is exclusively dominated by Singaporeans, and Malaysians can be found only in clerical and technical work. On the other hand, when it comes to the direct departments of production labor, out of total Singaporeans in the respective companies, 33.9% for Company A and 6.1% for Company B have been promoted to forepersons, while 98.7% and 94.1% of Malaysians belong to the regular labor class (operators and line leaders) in Company A and B, respectively, and likewise 100% and 94.7% for the other foreign laborers at A and B. The in-house segregation among positions is again clarified in this regard.

Turning to Table 15 (B) on the race-specific composition of Singaporean laborers, the table indicates the ratios in the indirect departments for Chinese employees (i.e., the ratios of the Chinese Singaporean workers assigned to indirect departments out of the total Chinese Singaporean workers) are 26.0% and 27.2% for Company A and B, respectively, and likewise 18.6% and 14.3% for Malaysians and 11.5% and 40.0% for Indians at Company A and B. The data on the direct departments again show the Chinese-Singaporean domination in the composition of forepersons as well; Chinese-Singaporean employees accounted for 34.9% of forepersons at Company A and 6.5% at Company B, in contrast to 20.0% and 0% for Malay-Singaporeans and 21.7% and 0% for the Indian-Singaporeans at Company A and B, respectively. In addition, according to the data on the race-specific breakdown of the Malaysian laborers, which were available only for Company B, the Chinese-Malaysians numbered 46, in contrast to one Malay-Malaysian and nine Indian-Malaysians. From the viewpoint of the population composition of Malaysia, this indicates the minority group of Chinese-Malaysians are the overwhelming majority of the Malaysian employees in Company B. Moreover, as mentioned earlier, some Malaysian laborers who acquired permanent residency with Malaysian nationality are counted as Singaporeans (they contribute to CPF—the Central Provident Fund—to gain eligibility for welfare programs that are equal to those for workers with Singaporean nationality). The permanent residents at Company B account for 48 out of 181 Singaporean employees, and they are Chinese-Malaysians as well. Namely, the company's race composition is Chinese-dominated not only for the Singaporean laborers but for the Malaysian laborers.

As above mentioned, the disparity between Singaporeans and foreigners in in-house workforce deployment and the internal racial disparity of Singaporeans/Malaysians are undeniable, even with the introduction of merit-and-performance-based promotion systems within the indirect departments, direct departments or each occupation class. In other words, under the race-specific labor force composition topped with Chinese-Singaporeans, foreign laborers (in

particular, from nations in the “nontraditional region” other than Malaysia) stay at the lowest class.

Let us now examine if this race-specific composition of laborers correlates with the composition of educational attainments. Table 16 presents the composition of laborers by educational attainment. As mentioned earlier, in the definition of those who have educational attainments of higher or equal to secondary schools corresponding to high school graduates and above in other Asian nations as highly-educated Singaporeans, the ratios of highly-educated Singaporeans to total Singaporean laborers are 74.3% and 35.9% in Company A and B, respectively. As for foreigners, when those with qualifications of high schools and above in their home countries are defined as highly-educated, the ratio of highly-educated Malaysians is 54.8% for Company A and 0% for Company B. Concerning other foreign laborers, all the Chinese in Company A belonged to the highly-educated group, since they have received skill trainings at professional schools (or above), and high school graduates and above comprise 19.3% in Company B. These figures show a higher ratio of the highly-educated including foreign laborers at Company A in particular.

Table 16 (A) on race-specific data of Singaporeans indicates the ratios of highly-educated Chinese-Singaporeans are 74.9% and 36.1% for Company A and B, respectively, and likewise 70.7% and 28.6% for Malay-Singaporeans and 68.0% and 40.0% for Indian-Singaporeans. Although Company A marks

Table 16. Composition of workers by educational attainment
in Japanese-affiliated companies in Singapore

(A) Singaporean workers

	Company A			Company B		
	Chinese	Malay	Indian	Chinese	Malay	Indian
Primary and Below	38	3	2	54	4	1
Lower Secondary	90	9	6	54	1	2
Secondary	41	6	2	9	—	—
Junior College	13	—	—	—	—	—
Institute of Technical Education (ITE)	81	15	8	9	2	—
Polytechnic	182	7	4	26	—	—
University	64	1	3	17	—	2
TOTAL	509	41	25	169	7	5

(B) Foreign workers

	Company A		Company B				
	Malaysians	Chinese	Malaysians	Chinese	Indians	Myanmarese	Bangladeshis
Primary and Below	2	—	6	—	—	—	—
Lower Secondary	74	—	81	38	1	7	—
Higher Secondary	40	—	—	—	—	—	1
Junior College/Vocational School	46	91	—	1	3	—	—
University	6	5	—	1	—	1	4
TOTAL	168	96	87	40	4	8	5

Source: Author's Surveys (August 2001, June 2002).

higher ratios of the highly-educated on the whole in a comparison of both companies, no large differences can be found among the race groups within each company. By integrating these findings with the discussed occupation-specific employment composition, it can be assumed Chinese-Singaporeans were assigned to positions in accordance with their pre-employment educational attainments and skills, then promoted in line with their post-employment skill levels. However, it also can be pointed out that among Singaporeans, Malay and Indian-Singaporeans have lower standards in terms of promotion to higher positions compared to Chinese-Singaporeans. Moreover, as for foreign laborers, the tenuous correlation between academic qualifications and occupations is perceived due to their major assignments to positions of clerical and technical work in the indirect departments or to regular labor in the direct departments, despite the relatively high ratios of highly-educated. In other words, on one hand the promotion-wage consistent system within each position is functioning based on merit and performance system (termed as “limited merit system” in this paper) on the premise of academic hierarchy, but on the other hand it is undeniable the factors of nationality/race, which are the given attributes for laborers, prescribe the occupational differentiation.

Thus, Japanese enterprises in Singapore have been introducing the foreign labor force mainly into production labor due to the severe labor shortage under the intra-firm labor force structure descending from Chinese-Singaporeans at the uppermost position, yet the wage standards of employees including foreign laborers are being upgraded. The wage composition of the surveyed companies shows the average monthly amounts (basic pay) are S\$ 850 for the regular labor class of the direct departments, S\$ 1,800 for forepersons, and S\$ 5,900 for the administrative/managerial class of the indirect departments, which reveals overall high wage standards in comparison with neighboring nations even along with the substantial wage gaps among occupation levels. The expansion of enterprises into low-wage regions of neighboring nations, together with the utilization of domestic foreign laborers, were urgent as Singapore’s countermeasure against the severe labor shortage. The extreme case is the Batam Island development, as discussed in the following chapter.

5. The Peripheral Labor Markets of the “Growth Triangle”

Singapore’s development as a hub city and the proactive development of external economic policies have been materialized at a variety of levels today, involving (1) enhancement of functions as an OHQ within ASEAN, with the vision of the AFTA and international division of labor in the region (BBC -Brand to Brand Complementation- Scheme, and AICO -ASEAN Industrial Cooperation-Scheme), (2) the shift overseas of labor-intensive manufacturing industry, establishment of industrial complexes and enticement of enterprises (including both relocation of the developed nation-affiliated enterprises that expanded into Singapore and multinationalization of Singaporean local enterprises) in China (Wuxi) and Viet Nam (Binh Duong Province in the suburbs of Ho Chi

Minh City), and (3) development of the regional market zone embracing neighboring Malaysia and Indonesia. In this chapter, in comparison with the discussed domestic labor market formation of Singapore, the characteristics of peripheral labor markets will be examined using the case of the Batam Island development in Indonesia and its evolving peripheral labor markets, where Singapore's vision of a regional economic zone as part of the "Growth Triangle" is being incorporated (refer to Figure 1 when necessary).

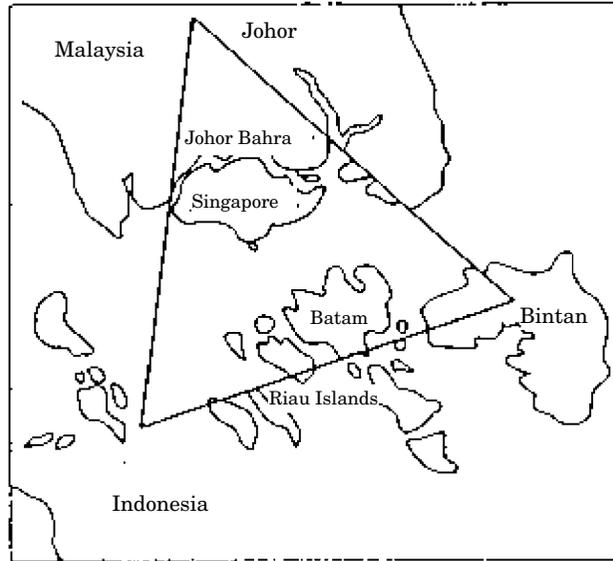


Figure 1. Johor-Singapore-Riau, the "growth triangle"

5.1 "The growth triangle concept"

After the summit between Singaporean Prime Minister Lee Kwan Yew and Indonesian President Suharto in October 1989, Singaporean Senior Minister Goh Chok Tong (Prime Minister of the time) declared in December of the same year the "Growth Triangle" concept. Thereafter the concept was put into practice. This "Growth Triangle" is the concept of a local economic zone straddling Johor State in Malaysia and Riau Province in Indonesia, with the city-state Singapore at the core. At the time of writing this paper in 2002, however, agreement on the government-to-government level had been reached only between Singapore and Indonesia; the mutual interests among three nations were not fully met. Under the intergovernmental accord, this concept made rapid progress in the development of Riau Province in Indonesia, and above all the development of the Batam/Bintan Island industrial complexes (Table 17 outlines the Batamindo Industrial Park, which functions as a hub of the Batam Island development and the Bintan Industrial Estate).

Three factors are particularly significant as reasons for Singapore's active promotion of the development of Riau Islands selected from among neighboring regions.

Table 17. Fast facts of the Batamindo industrial park
and the Bintan industrial estate (as of May, 2002)

	Batamindo	Bintan
Start of Operation	Jan. 1991	Jul. 1994
Planned Development Area	500ha	500ha
Developed Area	320ha	110ha
Number of Tenant Companies	88	35
(Japanese Companies)	42	6
Total Investment	US\$ 1 billion	US\$ 150 million
Number of Workers	66,000	13,000
Gross Product	US\$ 2 billion	US\$ 402 million

Source: Internal Document of Sembcorp Parks Management.

The first is the need to cope with Singapore's severe labor shortage, which was examined earlier. The extreme attractiveness for Singapore lies in the fact Indonesia has an overwhelming excess of labor and is also capable of providing a constant supply of quality labor with low wages (Note 4).

The second factor is to tackle a serious water issue. The joint development of water resources in Riau Province and a 50-year supply to Singapore were pledged in the bilateral accord between Singapore and Indonesia in June 1991. Singapore, which had been totally dependent on the water supply from Johor in Malaysia (Johor Straits), aimed to secure plural supply resources through Riau development. Because of its historical background of separation, Singapore is always concerned about the potential for cooling political relations with Malaysia. Therefore the triangle concept involving the water supply issue is fraught with conflict issues between Singapore and Malaysia.

The third factor is the goal of achieving political stability by strengthening mutual dependence with neighboring nations as a Chinese-dominated city state. Indonesia and Malaysia both bear serious ethnic problems, namely the issue of Chinese within their country. The triangle concept can be seen as a proactive response to the Chinese issue, as Singapore's development as a hub city is nothing short of the centralization of Chinese capital networks. In fact, as described later, the Batam Island development under the government-to-government agreement with Indonesia is aimed at collaboration with the Salim Group, the largest Chinese conglomerate in Indonesia, as a private-sector partner from the Indonesian side.

Indonesia's concrete efforts under the triangle concept are made as the development of Sumatra/Riau Provinces, the area that has drawn attention by the government-to-government agreement with Singapore since the declaration of the concept, as mentioned earlier. With the attempt of a full-scale shift from conventional import substitute-driven development to export-oriented industrialization (deregulation, foreign capital inducement, fostering of exporting manufacturing industry) since the mid-1980s, the attraction of multinational enterprises and establishment of export bases through construction of industrial complexes in the Riau Islands are consistent with Indonesia's new development strategies, while simultaneously investments from domestic pri-

vate enterprises and employment creation are expected. Besides the aforementioned water supply, the initial Riau Islands development program included the industrial complexes and resort development in Batam and Bintan Islands, food processing (of pork, crocodile meat, chicken, etc.) in Bulan Island and the supply of processed food to Singapore, oil refining and ship repair in Karimun Island, ship scrapping in Sinkep Island, and so on. The latter two items aimed to expand Singapore's oil refinery industry into surrounding areas by developing the areas as oil centers (oil transport, processing/refining and storage). It was, however, the industrial complex in Batam Island that rushed to incorporate the triangle concept in 1990's, and the development of Bintan Island also made progress in the late 1990's. The early start of Batam Island development was realized under the right initial conditions, including geographical convenience from Singapore (Batam Island is located within commuting distance by boat for professional technicians and administrative/managerial workers of expanding Singaporean enterprises), collaboration with the Chinese conglomerate enterprises in Indonesia, and the already completed development of infrastructure to a certain stage as Indonesia sought Batam Island development since the 1970's.

In the meantime, in view of the economic collaboration between Johor State in Malaysia and Singapore, before the triangle concept was under full-scale implementation both countries had already been connected by the Causeway, and the private-initiated regional development of Johor had progressed to a certain extent. Singapore's direct investments in Johor amounted to S\$ 800 million in the 1980's with prospects of the latter's development as a manufacturing industry base, and led to on-site job creation for 75,000 workers. In addition to the entries of Singaporean enterprises in the labor-intensive sector such as textiles, electronics and plastics businesses, the iron industries of Taiwan and Korea established production bases in Johor. Johor has been undergoing transformation from a former rubber and palm oil plantation area into an industrial area since the late 1980's, and currently is dealing with the second largest industrial production among all states in Malaysia, with 28 industrial complexes developed in just this single state in the late 1990's. Besides the annual influx of approximately 30,000 laborers from the other states in Malaysia, quite a few illegal laborers enter Johor from all over Indonesia, mainly Sumatra Island. In contrast, Malaysian workers in Johor are commuting out to Singapore, and as mentioned earlier reached 25,000 per day in the late 1980's and 30,000 to 40,000 in the late 1990's. Moreover, annually 7.6 million of tourists visit Johor Bahru from Singapore (The overwhelming majority is visitors from Singapore on one-day sightseeing trips), and this tourism revenue has become a significant financial resource for Johor State. Data on the share of GDP by state in Malaysia indicate that Johor jumped from 11% in 1980 to 28% in 1990, and the annual growth rate of the manufacturing industry in Johor was over 10% in the early 1990's.

In this way, industrialization of Johor made stable progress in the form of peripheralization of the Singaporean economy and is considered to actually play a part in Singapore's triangle concept. However, since Johor is positioned

just as a labor-intensive production base in the triangle concept, this has an aspect rather opposed to the strategies of the Malaysian government's development policies today, which aim at a transition into high value-added and capital/technology intensive industries. The Malaysian government's upholding of "Vision 2020" (Wawasan 2020) might have arisen from skepticism that the beneficiary of the triangle concept is Singapore. These factors are hindering the establishment of full-scale bilateral collaboration in the form of an intergovernmental accord.

Thus, the triangle concept can be regarded as a vision of the "Extended Metropolitan Regions (EMR)" of Singapore, namely, a vision to embrace Johor State in Malaysia and Riau Province in Indonesia on the premise of Singapore's prospective function as a hub city (Ginsburg, et al., 1991). Currently the country responding proactively to Singapore's strategies is Indonesia, which can share some benefits from the development strategies, namely the development of Batam and Bintan Islands under favorable conditions. Because the official intergovernmental documents were signed only between Singapore and Indonesia as mentioned before, however, a scheme on the division of labor between Johor and Riau has not been projected initially. In other words, even under the name of triangle, the actual collaboration remains in a bridge shape with Singapore as the cornerstone. In the case of Batam Island, the following chapter provides an overview of the Batamindo Industrial Park located in the center of this island, of which development progressed rapidly in the 1990's in line with the triangle concept.

5.2 The development of Batam island and the Batamindo industrial park

In 1983, the government-linked conglomerate, Singapore Technologies Industrial Corporation Ltd. (STIC) was established under the Singapore Technology (ST) Group, a Ministry of Finance-led holding company in Singapore, and commenced promotion of the infrastructure development project not only within Singapore but in the Asia region as a Ministry of Finance-affiliated enterprise. The action plan marked the onset of Singapore's development strategies with the aim of encouraging an international division of labor in the region through expansion of production bases to peripheral areas by means of Singapore's specialization as an OHQ, namely an Asia regional center of trade, finance and information, along with its industrial sophistication as mentioned earlier.

The ST Group subsequently divided its project grounds into five fields of land transport, marine, airline, private business, and venture business in line with its organizational restructuring in 1989, and STIC was assigned to private business-related projects. STIC projects were put into practice in 1990s, but the actual progress was made in the industrial development projects in Batam and Bintan Islands, Riau Province in Indonesia, in Wuxi, Jiangsu Province in China, and in Ho Chi Minh City, Viet Nam (the industrial park is located in Binh Duong Province adjacent to Ho Chi Minh City). Afterwards in October 1998, when another restructuring of the project organization was carried out, STIC was merged with Sembawang Corporation under the same Min-

istry of Finance umbrella and reborn as SembCorp Industries. In accordance with this restructuring, the marketing and organizational operation of the Batamindo Industrial Park were taken over by SembCorp Parks Management (SPM) in charge of the infrastructure projects of SembCorp Industries. Currently SPM implements the integrated management of four industrial complexes, i.e., the Batamindo Industrial Park, the Bintan Industrial Estate, the Wuxi Singapore Industrial Park (WSIP in Wuxi), and the Viet Nam Singapore Industrial Park (VSIP in Ho Chi Minh City). The joint development projects with Indonesia, as mentioned before, made progress at a stroke after the declaration of the triangle concept by Senior Minister Go Chok Tong in December 1989, in the wake of the Singapore-Indonesia summit on Batam Island development in October of that year.

The Indonesian government's Batam Island development concept dates back to 1971. In that year, Batam Industrial Development Authority (BIDA) was established and the State Minister for Science and Technology of the time, B. J. Habibie was inaugurated as chairman. In November 1978, the whole of Batam Island was designated a bonded zone. Full-scale Batam Island development, however, started from 1989, and the development plan progressed rapidly when a Singapore-Indonesia joint venture company was founded aimed at construction of the Batamindo Industrial Park (BIP) in January 1990. The development entities are BIM (Batamindo Industrial Management Pte. Ltd.) from the Singapore side and BIC (PT. Batamindo Investment Corporation) from the Indonesia side, and the investment ratio of those entities are likely to be as shown in Table 18. Besides STIC, Jurong Environmental Engineering Pte. Ltd. (JEE, a Ministry of Trade and Industry-affiliated enterprise) from Singapore joined the project, and in Indonesia the Salim Group, the largest Chinese conglomerate, did likewise. In light of the fact that STIC and JEE were government-affiliated enterprises and STIC was substantially engaged in marketing, there was no doubt this was a Singapore-initiated development project from the beginning.

Table 18. Investment ratios of the Batamindo industrial park

	BIM (Singapore)	BIC (Indonesia)
STIC	30%	30%
JEE	20%	10%
Salim Group	50%	60%

Source: STIC Pamphlet (Issued; February, 1998).

The commencement ceremony of the industrial park was held in Batam Island in February 1990, and in April Sumitomo Wiring Systems signed a contract as the first tenant. The project plan preceded according to the "Economic Cooperation Investment Protection Agreement for Development of Riau Province" that both governments formally signed in August of that year.

In the mid-1990's, Riau Province in Sumatra became one of Indonesia's

Table 19. Composition of workers by industry in Riau province/Batam island (1996)

	Riau Province (5 Districts, 2 Cities)		Batam Island	
	Number of Workers	Composition Ratios (%)	Number of Workers	Composition Ratios (%)
Mining	14,279	2.3	134	0.1
Manufacturing	152,999	25.0	49,945	43.9
Electricity/Gas/Water Supply	3,515	0.6	644	0.6
Construction	41,272	6.8	10,818	9.5
Commerce/Hotel/Restaurant	277,254	45.4	29,025	25.5
Transport/Telecommunication	38,246	6.3	8,013	7.0
Finance	10,229	1.7	1,298	1.1
Real Estate/Rental/Service	73,054	12.0	13,833	12.2
TOTAL	610,848	100	113,710	100

Source: Indonesia, Biro Pusat Statistik [1996].

Table 20. Composition of manufacturing businesses by business scale in Riau province/Batam island

Business Scale (Classification by Number of Workers)	Riau Province (5 Districts, 2 Cities)		Batam Island	
	Number of Businesses	Composition Ratios (%)	Number of Businesses	Composition Ratios (%)
≤ 4	18,236	86.9	305	49.0
5 – 19	2,368	11.3	169	27.1
20 – 99	230	1.1	63	10.1
100 – 499	102	0.5	56	9.0
500 ≤	55	0.3	30	4.8
TOTAL	20,991	100	623	100

Source: Indonesia, Biro Pusat Statistik [1996].

domestic development bases (following Jakarta Special Administrative District and West Java Province in terms of investment amount by province), and most of the current investments into Riau Province are related to the Batam Island development. Based on the economic census of Indonesia in 1996 (the latest decennial census), Table 19 indicates the industry-specific laborer composition of Batam Island in Riau Province, and Table 20 the scale-specific composition of the manufacturing businesses (both tables exclude the agricultural census). These tables reveal that laborers and large-scale businesses in the manufacturing industry are concentrated in Batam Island in Riau Province, one of the domestic development-prioritized areas.

Batam was a fishermen's island with a population of approximately 7,000 until the early 1970's. It is located 20 kilometers south of Singapore, with a total land area of 415 square kilometers (around two-thirds the size of Singapore). Construction of industrial parks from the early 1990's rapidly transformed the island, and the population and the labor force population swelled to 155,000 and 69,600, respectively, as of 1995. Among the eight industrial parks on the island, the Batamindo Industrial Park (in Muka Kuning) with completed infrastructure shows intensive progress of the joint development

with Singapore. Apart from the Batamindo Industrial Park, the Kabil Industrial Estate and the Kwang Hwa Industrial Estates are in service, but only a few companies had made contracts as of 1997. Substantially contributing to the sweeping progress of construction, especially in the early 1990's, the total investment amount of Batamindo development reached US\$ 1 billion with a development area of 320ha as of May 2002. Changes in the number of factories in Table 21 show 133 constructed factories, 81 contracted tenants, 74 in-service factories, and 46,000 laborers at the end of 1995. All the enterprises moved in after deregulation in 1989, and these industrial parks maintain the principle of independent entry with full foreign capital. While enjoying the benefits of low wages and low land prices, enterprises expanding into Batamindo are bestowed various favorable conditions, including the possibility to start a business with minimal initial investment thanks to the plant rental system, simplification of tariff procedures based on the area's status as a bonded zone (in addition to common preferential measures such as exemption from the SGS inspections conducted at other industrial parks in Indonesia, the batch processing of tariffs at seaports/airports on Batam Island is simple and convenient for companies), and free raw-material imports on the condition of re-exportation of products.

Table 21. Changes in number of factories
in the Batamindo industrial park

	End of 1993	End of 1994	End of 1995
Constructed	80	104	133
Tenant Acquisition	56	66	81
In Service	50	60	74
Sold during the Duration	0	6	13
Cumulative Sale	0	6	19

Source: *Global Investment* (NRI), No.96-54, June 1996.

Table 22 presents the numbers of tenant companies and their employees in the Batamindo Industrial Park as of April 1998, based on categorization of country/region. Japanese-affiliated enterprises represent 51.8% of the number of enterprises and 60.9% of the number of workers. Some of the Japanese-affiliated enterprises in Batam Island relocated from Singapore, while others expanded into Batam directly from Japan. Twenty out of 43 Japanese-affiliated enterprises in the table transferred from Singapore to Batam or realized new plant expansion on Batam Island rather than within Singapore. In any event, it is obvious the industrial parks on Batam Island are significant expansion sites for Japanese-affiliated firms, and although having their headquarters in Singapore many of these firms export all of the products to third countries through Singapore. This is the typical case of business expansion by multinational enterprises of developed nations in line with Singapore's development as a hub city. Singaporean enterprises are second only to Japanese enterprises in number, and needless to say this movement is a relocation of their production bases to Batam Island. This is a part of the triangle concept and

Table 22. The Batamindo industrial park: occupancy conditions by nation/region

(as of April 1998)

	Number of Companies		Number of Workers		Number of Workers per Company		
		%		%	Average	Maximum	Minimum
Japan	43	51.8	28,887	60.9	672	4,080	13
Singapore	23	27.7	5,879	12.4	256	768	21
Europe	10	12.0	7,309	15.4	731	2,904	34
USA	4	4.8	2,772	5.8	693	1,146	67
Others	3	3.6	2,609	5.5	869	1,715	87
TOTAL	83	100	47,456	100	(572)	—	—

Source: Internal Document of STIC.

also the onset of multinationalization of Singaporean enterprises.

Table 23 gives us industry-specific classification of enterprises and the breakdown by country as of May 2002. The table clarifies that Batamindo has strengthened its characteristics as a high-tech industrial complex, in that electrical and electronics companies are overwhelming in number. Parts production related to high-tech businesses is categorized by labor-intensive industries in which segmentation and smoothing of production processes are advanced significantly, and this is the business sector proactively attracted as the result of Singapore advocating its characteristics as a high-tech city. Thus, functioning as the core of the industrial complexes on Batam Island, Batamindo has a large number of high-tech tenant companies consisting mainly of Japanese-affiliated and Singaporean firms. We can examine characteristics of the labor market in the industrial complexes on Batam Island through a case analysis of expanding enterprises.

Table 23. The Batamindo industrial park: classification of enterprises by industry (as of May 2005)

Industry (Classified by Major Products)	Number of Companies		Breakdown by Countries				
		%	Japan	Singapore	Europe	USA	Others
Electric/Electronic	50	56.8	28	8	8	6	—
Precise Devises	11	12.5	8	2	—	—	1
Plastic	10	11.4	2	7	—	—	1
Package	6	6.9	2	3	—	—	1
Medical Products	3	3.4	1	—	2	—	—
Others	8	9.1	1	4	2	1	—
TOTAL	88	100	42	24	12	7	3

Source: Internal Document of Sembcorp Parks Management.

Note: Others in the Industry column refer to enterprises with difficult identification of their major products.

5.3 The labor market on Batam island

This chapter examines the characteristics of the labor market on Batam Island based on the case of Japanese-affiliated enterprises that play a key role in expanding multinational enterprises. To begin, let us overview Japanese-affiliated Company C (a tenant in the Batamindo Industrial Park) surveyed in

August 1999.

Company C started its operation in 1993 with capital of \$ 1 million through an independent entry with full investment from Japan. This company is a manufacturer of computer peripherals, and developed its business overseas in Malaysia in the late 1980's, leaving the HQ function and R&D department in Japan. Due to the labor shortage and escalating labor costs in Malaysia, however, it decided to shift its production base to Batam Island in its subsequent expansion. According to the international wage level in this industry, the level on Batam Island is one-third the level in Malaysia. Having only an office in Singapore, Company C's plants in Batamindo produced 36 million units of CD-Rom drives and components annually (of which 4,400,000 are drives) (1998). Total sales volume in 1998 was US\$ 271.2 million. Forty-five percent of parts are supplied by associated firms on Batam Island and the balance is dependent on imports from Japan. Sixty-nine percent of the products are re-exported to Japan via Singapore, and 31% are shipped to the local enterprise of Company C in Malaysia.

Although Company C is not a Japanese-affiliated multinational enterprise that moved to Batam Island directly from Singapore, it can still enjoy various preferential treatments offered in the "Growth Triangle", and benefits from corporate management directly linked to Singapore by locating itself in the Batam Industrial Park developed with Singaporean initiatives. From the perspective of Singapore, while averting the soaring domestic land price and labor costs as well as difficulties of labor procurement, this enables Singapore to attract multinational enterprises from developed nations into its own economic zone.

The next section examines characteristics of the labor market in Batamindo such as in-house composition of occupation classes, career patterns and supply-source echelons of laborers, based on data provided by the surveyed company, a compilation of questionnaires collected from laborers (sample survey) and this author's interview survey.

Table 24 depicts the composition of laborers by working class. White-collar staffs are highly-educated with educational attainments of professional schools, junior colleges and above. Most of them are male. They are formally

Table 24. Composition of occupations in a Japanese-affiliated company in Batam island

	Japanese	Indonesians	
		Males	Females
Directors (Board Members)	3	1	—
Ahli Teknik (Technical Advisors)	2	—	—
Staffs (Clerical/Managerial Workers)	1	14	1
Line Leaders (Forepersons)	—	135	56
Operators (Regular Workers)	—	59	2,287
Subkons (Temporary Workers)	—	—	289
TOTAL	6	209	2,633

Source: Author's Survey (August 1999).

hired on two-year contracts, but excluding a tiny number of ineligible individuals more than 95% can convert their status to permanent employment after two years. In reality, they are treated as permanent employees since entry into the workforce. The hierarchy of clerical, technical and administrative/managerial works in the indirect departments, generically termed "staff," is classified into 9 ranks. The ascending order of classifications in accordance with the promotion grade is Supervisor (Junior→Deputy→Senior)→Executive (Junior→Deputy→Senior)→Manager (Junior→Deputy→Senior). This is a consistent promotion and pay-hike system in which workers climb up the hierarchy through promotion appraisals and are given wages based on their positions and service years. More precisely, after working for the prescribed length of service in each rank, an employee who passes a promotion examination with recommendations from his/her boss moves to a higher position. In other words, administrative/managerial workers (or candidates) are able to achieve promotion to a more highly-paid assignment/class after attaining a positive evaluation in a personnel appraisal using the skills acquired through in-house training. Although the labor administration policy on the management side appears to adopt a Japan-style seniority system for the administrative/managerial class, this seniority system is just considered in order to have more elderly workers with longer service in the upper occupational classes on the whole. In reality, age/service-years cannot determine the position/salary, and in personnel appraisals the competence evaluation (task achievements) is highly regarded because promotion and wage gaps are widened through the appraisal. Japanese staffs explained that local highly-educated employees expect a competence evaluation system rather than Japan-style seniority system, and further introduction of a merit system (emphasis on promotion by competence evaluation rather than service years, expansion of the portion of performance-based wage, etc.) is inevitable as a labor incentive for the local administrative/managerial classes (introduction of "limited merit system").

Treatment of operators (regular laborers) who are production workers (in the direct department), on the other hand, is completely different from that of the aforementioned workers in the indirect department. Operators are short-term employees on a two-year contract basis, and renewals are not permitted in principle. This regulation is uniformly applied to all factories in this industrial park in accordance with the inter-enterprise agreement. Despite the fact educational attainments of high school and above are needed as application requirements for entry into the workforce, the overwhelming majority of the applicants are young females. At the production sites, line leaders distinguished from general operators are allocated. The line leaders are hired through employment procedures different from those for operators, and the majority are males with educational attainments of professional schools or junior colleges. As incentives to motivate general operators, Company C renews contracts for only a handful of top-quality human resources selected from operators (a few percent) to position them as senior operators (on a one-year contract), and further hires some of those selected as line leaders. Some Japanese staffs said such Company C-like activities as renewal of a tiny num-

ber of workers are accepted among enterprises and left to the discretion of the enterprise concerned.

At the lowest class of the occupation hierarchy, external workers called subkons (abbreviation of subkontraks) are positioned. Company C entrusts employment of subkons to a temporary employment agency on Batam Island, which takes entire responsibilities for labor management of subkons. Subkons are usually hired on a monthly basis with the maximum term of 6 months, and their employment term is irregular and unstable because subkons play a role of buffer to adjust to fluctuations in labor demand. Nevertheless, subkons fulfill the exactly same duties as general operators, and are distinguished only by the color of work caps.

In this way, highly-educated white-collar workers in clerical, technical and management occupations are clearly differentiated from blue-collar workers who are high school graduates at the production site, in terms of conditions for continued service, gender division of labor and skill formation, which clarifies the segmentation of the internal labor market. Skill formation linked to a promotion/pay raise is required only for staffs, and young female production laborers replaced every two years are engaged only in the unskilled-manual labor in which skill formation is scarcely required and never requested. Some staffs said in the interview that production laborers' works have small differences according to assigned lines, but since these skills can be acquired through approximately 3-10 days of on-the-job training, almost no segregation in works can be found in qualitative and quantitative points of view with the uniform wage payment. Thorough inhibition of labor costs is made by hiring approximately 90% of workers as operators at the minimum wage, who will never promoted and be replaced every two years.

Let us next examine recruiting of workers. Mass employment at the commencement of operation was outsourced to Tunaskarya (a member company of the Salim Group), the exclusive temporary employment agency of the industrial park. While Tunaskarya is successively commissioned to recruit only operators, recruitments of staffs and subkons (temporary workers) are handled by classified ads and the temporary employment agencies on the island, respectively. It is said that for staff recruitment by classified advertisements, applicants are more than 100 times the number of expected hires. Moreover, job seekers are always found in front of the gate, and in the case of operator recruitment dozens of applicants can be found only in front of the gate. The factory never has a shortage of applicants owing to the following conditions: quite a few young job seekers come from Java or Sumatra after hearing of the Batam Industrial Park (Riau has the highest minimum wage of all provinces in Indonesia), and the unemployed who left their jobs at other factories after two-year employment remain while seeking for another job on Batam Island. The fact that excessive labor force is pooled enables operation of several temporary employment agencies on the island (Note 5).

In the case of recruitment through Tunaskarya, staffs in personnel affairs conduct final selections at the examination sites throughout the country from a list of applicants primarily selected by Tunaskarya in the major cities across

the nation. In the recruitment of operators, a general academic examination and a job interview are imposed on high school graduates, and in the staff recruitment, applicants are selected from among the highly-educated professional school, junior college graduates and above with a high regard for linguistic abilities (of English). An employee in personnel affairs indicated Jakarta, Yogyakarta, Malang, Medan, Padang and Palembang as the final examination sites for recent recruitment through Tunaskarya. In each case, laborers are procured from all over Indonesia and not restricted to specific areas. The home-land-specific data of employees offered by the company show 959 (37.1%), the largest in number, are from Central Java, and a throng of Javanese are recruited from Central and East Java (1,598 or 62.2% from all of Java). Local employees from Sumatra numbered 944 (37.0%), which is commensurate in scale with that of Central Java. These situations imply a certain systematic approach and openness in the labor market are achieved, because labor force procurement is carried out through private recruiting companies or by hiring (or rehiring) workers who flock to Batam Island from all over Indonesia through classified ads or local temporary employment companies. At the same time, however, one should not overlook the fact the labor market on Batam Island is characterized by the special factor that from the beginning, the majority of the labor force has been sought outside the island in light of the background of the Batam Island development.

Based on the sample survey, a summary (51 valid responses) of the distribution of social classes (classified by the parents' occupations) indicates high composition ratios are observed in the order of civil servants (administration, 33.3%), the self-employed (21.6%), and farmers (13.7%), with civil servants in a broader sense (including administrators, soldiers and teachers) comprising 45.1% (the sample survey was of the operator class excluding subkons. The subsequent data were taken with the same condition). This means laborers are recruited nationwide mainly from Central and East Java and Sumatra, and many of them are from highly-educated laborer households such as civil servants in a broad sense. The overwhelming majority of production workers in the Batamindo Industrial Park are, as mentioned earlier, young female high school graduates, who are classified as the highly-educated in view of the composition of academic qualifications in Indonesia, and it is noteworthy that upper-class households are the main supply source of laborers.

Compilation of the workers' survey sheets revealed that the composition ratio of the job-transfer experienced workers reached 68%. Their former workplace (41 valid responses) was indicated to be Sumatra for 19 workers (46.3%), of whom 14 were on Batam Island. This suggests a large number of job seekers are looking for re-employment on Batam Island after fulfilling two-year contracts. Many production laborers at the factory are young females; the majority of them are not new graduates, but have certain working experience, and quite a few of these laborers wish to be reemployed on Batam Island after completion of their two-year contract.

Concerning the gender and age composition of laborers, the company data on gender composition indicates that 93% of local laborers are females, and

the results from the sample survey show more than half of all females belong to the under-24 age bracket, which reveals most production workers are young females. Moreover, the composition of workers' educational attainments indicates production laborers who are high school graduates represent over 90% of all laborers. Professional-school/junior-college graduates and above are working as line leaders at production sites or are permanent employees engaged in clerical, technical, and professional work.

From these aspects, we can conclude that more than 90% of the laborers are young female high school graduates on two-year contracts working as unskilled/manual labor with no need of skill formation at workplaces, while many of line leaders, clerks, technicians, and professionals are the highly-educated males; in other words, it is distinctive that the segmented internal labor market is formed based on labor division by academic qualifications and gender.

Company C is run 24 hours on a two-shift system, and 4-hour overtime with no choice for the operators is the normal condition adding up the actual working hours of 11 hours and 20 minutes. For work on Saturdays and Sundays, the workers are mobilized irregularly in response to demand, and in principle the laborers have to work on order from the factory side, which means in fact the workers have no right of choice on the nighttime shift or overtime on Saturdays and Sundays. For example, the working hours for the daytime shift are 8:00 to noon, 12:40 to 16:00, and overwork from 16:00 till 20:00, while those for the nighttime shift are 20:00 to midnight, 0:40 to 4:00, and overwork from 4:00 to 8:00. The author was informed that quality and efficient production was pursued under strict on-site supervision by male line leaders and others of young female production workers in such long working hours.

In relation to this point I would like to make an additional remark on the issue of introduction of so-called Japanese-style management/production systems, as well as the extent of their establishment. Another noticeable point on the inter-enterprise agreement of the industrial parks in Batam Island is that no enterprise conducts mutual headhunting of employees in principle during the two-year contracts. This agreement nips in the bud massive job separation, in a country known for prevalent job-hopping. Since almost no disparity is found in wage standards (legal minimum wage), at least for production laborers, disparities in other working conditions (working hours, welfare programs, labor intensity and disciplines, multiethnic and multi-religious working environments, etc.) tend to trigger job-hopping. Therefore managements attempt to sidestep chaos at production sites by means of this agreement. The situation that requires such an agreement suggests no intention to actively introduce Japanese-style management/production systems and management's awareness of the difficulties of establishing Japanese-style systems. The characteristics of Japanese-style management such as lifetime employment, a seniority system (promotion/wage raise system by seniority), and collective decision-making can be introduced in most job fields for clerical and managerial work. In such production sites where laborers are regularly replaced and

working discipline is prioritized, the aspects of Japanese-style production systems that elicit laborers' ingenuity and flexibility for duty assignments through collective reform/improvement campaigns or cultivation of multi-skilled workers are not devised. In other words, Japanese-style management and production systems are pursued only in a restrictive and limping manner. Rather, the maintenance and improvement of productivity by precise practices of manuals appear to be imposed on short-term-employed young females at production sites under strict working disciplines.

Lastly, let us discuss wage standards. The pay for operators is standardized as the minimum wage in Indonesia in principle, as mentioned before. Line leaders and staffs are evaluated in a personnel appraisal (with greater emphasis on performance than length of service and age), and the promotion system works with a focus on wages based on abilities. Although minute wage data by position are not available, the wage for operators at the time of the survey was Rp.290,000 (per month, the same below; the legal minimum wage at the time of the survey was revised in April 1999), to which commuted rations and overtime allowance are added (a housing allowance is not provided because all operators stay at company dormitories in principle). On the other hand, the local staffs are paid Rp.500,000 to 1,000,000 as a base pay according to post, and the assignment allowance (for administrative/managerial works) (Rp.40,000 to 1,800,000 depending on the post), commutation allowance (Rp.70,000 to 140,000) and housing allowance (Rp.150,000 to 300,000) are added to this. These allowances result in further widening the wage gap with operators. Among local laborers, monthly payment to young female production laborers is approximately Rp.300,000, in contrast to Rp.3,000,000 to 5,000,000 for male staffs in upper positions. In the case of Japanese staffs, the salary probably exceeds Rp.10,000,000 per month. These large wage disparities among working classes are set as incentive for long-term service through in-house promotion, at least for clerical, technical and administrative/managerial workers, which is also part of the wage and personnel policies of Japanese enterprises.

We have identified various working characteristics in the Batamindo Industrial Park using the case of Japanese-affiliated Company C, including the following: (1) the segmented nature of the internal labor market, clearly divided in terms of employment requirements between staffs and operators, conditions of continued service, gender division of labor, skill formation; (2) the unstable employment of subkons at the very bottom of the occupational hierarchy; (3) the extreme wage disparities corresponding to laborer grading; (4) the fact the main supply-source social class of regular workers recruited throughout the country is highly-educated laborer households; (5) the unstable employment and lack of systematic utilization of production laborers (young female laborers) on two-year contracts in principle; and (6) the prioritization of labor discipline and introduction of a "limited merit system". These are the employment characteristics of the labor-intensive sector disposed at the periphery of the regional economic zone anchored by Singapore; that is to say, of the high-tech industrial complex positioned at the bottom of the international division of labor.

6. Conclusions

This paper examined the structure of the domestic labor market in Singapore, the development of the peripheral labor market under the regional economic zone concept proactively initiated by Singapore, and characteristics of both labor markets with macro data and case studies. The key points are again summarized as follows.

What is remarkable within Singapore is the grading of the labor force, with Chinese-Singaporeans and the skilled foreign labor force from developed nations (managers, specialists, and technicians) at the top and unskilled foreign labor force from neighboring Asian nations (in production labor/urban general work) at the bottom. Each labor force enters the segmented and multilayered labor market in accordance with its educational attainments, skills, nationality and race.

The case analysis of Japanese-affiliated enterprises deals with these facts at the level of individual enterprises. The graded in-firm labor force composition topped with Chinese-Singaporeans among the local labor force under Japanese staff can be observed again here. Workers are subject to the constraints of the segmented internal labor market on the premise of a hierarchy based on educational attainments in the local society and a “limited merit system” within each working class, and furthermore, even the “merit system” itself is restricted by the features of the laborers’ given factors such as nationality and race. A production system strongly depending on a foreign labor force is now inevitable in Singapore even for foreign-affiliated companies.

Moreover, such globalization of the labor force expands beyond Singapore to the regional economic zone embracing the surrounding nations in line with the “expanding metropolitan frontier” of the city-state Singapore. The “Growth Triangle,” a straightforward instance approaching realization, is siphoning the labor forces of neighboring nations into international labor markets through the expansion of multinational enterprises from developed nations and multinationalized domestic enterprises.

The Batamindo Industrial Park on Batam Island demonstrated the rapid progress of the “Growth Triangle” development. In this industrial complex, multinational enterprises from Japan and Singapore have settled en masse, and the firms of developed nations and Singapore mainly supply the skilled professional/technical labor force while Indonesia provides the unskilled labor force at production sites. The demands of heterogeneous labor forces from both Singapore and Indonesia are catered to in this venue. The major bracket in the production labor force consists of young females belonging to the highly-educated class in Indonesia, even with their actual status as production laborers, and masses of clusters of highly-educated labor forces, who are unable to enter the upper labor markets such as foreign-affiliated enterprises, are pooled as supply pressure (refer to Chapter IV). The labor force recruited from all over Indonesia forms the explicit disparity structure of employment with its characteristics such as position classification by educational attainments, limping and segmented internal labor market, a “limited merit system” only

open for indirect department laborers, short-term/unskilled production labor, in-house gender division of labor, and wage disparity. The labor market on Batam Island can be regarded as a case of a labor market in labor-intensive industries comprising the bottom of the international division of labor, located on the periphery of the international regional economic zone.

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Notes

1. The following references were consulted for the outline of Singapore's economy: Masato Ikuta and Toshio Matsuzawa (eds.) [2000], Garry Rodan (Keiko Tamura et al., tr.) [1992], Toshiaki Hayashi (eds.) [1990], Lim Chong Yah (eds.) [1995]
2. Since the availability of detailed information on foreign laborers working in Singapore is extremely limited, it is difficult to grasp the actual conditions. The case of the rare survey covering Malaysians completed by Sieh Lee Mei Ling in 1985 is introduced below. Although the survey period was somewhat long ago, interesting data were collected.

The survey covered 408 Malaysians, of which 200 were working in Singapore (including commuters), and 208 were already away from work and back in Malaysia at the time of survey with working experience in Singapore. The essentials of the findings are summarized into five points as follows.

- (1) Malaysian workers mainly consist of youth, more than 50% and approximately 80% of whom are under the ages of 25 and 30, respectively. Of the laborers working in Singapore, those with a work permit account for 79% of the total, while it is said that 68% of the returnees have acquired a work permit previously. Looked at conversely, 20 to 30% of the surveyed individuals were illegal workers.
- (2) The educational attainments of Malaysians entering the workforce in Singapore are relatively high, and approximately 70% of the workers were secondary-education graduates. Looking at Malaysians working in Singapore by race, Chinese comprise about half (around 40% were Malays), and in light of the racial composition ratio of Malaysians this implies that Chinese had a greater concentration. Moreover, Chinese-Malaysians are long-stay workers and have higher skill levels than Malay-Malaysians. Meanwhile, in the returnees' group Chinese are the minority, accounting for less than 30%, and a number of unskilled Malay workers have returned home (details of correlation between race and industry/occupation, and gender segregation remain unclear).
- (3) Regarding the correlation between home land and industry, the largest supply source of working Malaysians is Johor province (25%), and multitudes of Johorean workers are commuters engaged in the manufacturing industry. The second greatest share is comprised of Kelantanese (20%) who are mainly unskilled construction workers. Workers from Perak, of which the majority are Indian Malaysians, rank in third place and are mainly engaged in the shipbuilding industry.
- (4) In classification of occupations categorized by skill level at time of entry into the workforce, 68% are assigned to unskilled labor, and adversely only 7% of laborers are hired as skilled workers. Although skills can be upgraded after certain years of employment, it seems that those who accede to positions as semiskilled workers are

mainly Chinese-Malaysians due to their relatively long working experience. With regard to wage levels, 11% of workers in the occupational classes requiring proficiency earn over S\$ 1,000 per month, while most workers are in the S\$ 500 to S\$ 700 income class (40%).

- (5) With regard to working period in Singapore, the tabulation of returnees shows that 40% of them work for less than one year (several months in most cases), 20% for a period from one to two years and 17% for over five years. This means that scores of workers among work-permit holders had returned home at the time of survey after short-term employment under six months, while some of them repeatedly acquired renewal permission for their work permit (maximum 11 times). On the other hand, 62% of the laborers under employment in Singapore at that time had already stayed over two years, and 27% for more than five years. Most of them were not provided with information on the foreign worker policies of Singapore's government, however. Replying to the question on future employment, 80% answered "Hoping to have another renewal of work permit", but a future employment guarantee at that time depended upon government policies.

The survey results described above imply, in the case of Malaysians taking up employment in Singapore, that quite a number of them are secondary and higher education graduates and they prefer highly-paid jobs in Singapore even when unskilled labor. In such a society of educational credentials, within Malaysia they tend to avoid unskilled jobs (3D jobs: plantation labor, construction labor, etc), and Malaysia itself depends upon a foreign labor force of Indonesians, Bangladeshis and so forth as mentioned in Chapter 3. Moreover, racial segregation can be found among Malaysian residents in Singapore, and it can be said that Chinese-Malaysians stand at a vantage position in terms of work-permit renewal, skill acquisition, and suitable income. When it comes to work-permit renewal, however, no information is provided, and short-term unstable employment is characteristic since short-term workers under two years of employment constitute the majority of Malayan-Malaysian represented in the returnee group.

3. As a precious case of a survey on illegal workers in Singapore, the survey results drawn by Sullivan et al. on Thai workers are available (Sullivan: 1992). As pointed out in the main body of this paper, the mass influx of illegal workers in the 1980's became a major concern of social fear for the Singaporean government, and it repetitively attempted to arrest, jail and repatriate illegal workers. With the amended immigration control law in January 1989, Singapore cracked down on illegal workers, and a measure to raise the monthly surcharge from S\$ 220 to S\$ 250 per capita was taken for legal workers (from S\$ 160 to S\$ 200 for laborers in construction, manufacturing, shipping and homemaking/maid industries). In addition, given a fairly high-handed approach to accusing and repatriating illegal workers, there was rising tension with the governments of neighboring counties discharging those workers. When the number of Thai illegal workers subject to forced repatriation, who were mainly construction workers, reached 10,000 in 1989, the internal and external mass media rolled out this incident as it became the bilateral issue between them.

The survey introduced here is the interview survey of Thai illegal workers forcefully repatriated in March 1989, which was conducted by G. Sullivan et al. and is somewhat old but valuable. The survey covered 129 illegal workers extracted from

those who visited the Thai embassy in Singapore for the procedure to return after settlement of their forced repatriations (25 by interviews, 104 with a questionnaire, all were male). The essentials of the findings are summarized into six points as follows.

- (1) < Home Lands and Families of Workers > The composition ratio of their home lands was 60% from the northeast of Thailand, 32% from the north, 7% from central Thailand and 1% from the south. With regard to marital status, 48% were married, 45% were single and others were divorced or widowers. The average family members of their home households was 5.6 persons.
- (2) < Employment Record > The average length of service in Singapore was 6.8 years. The composition ratios of the industries where they were engaged in Thailand before the disembarkations were 40% for construction, 37% for agriculture/plantation, 10% for service, 6% for manufacturing, 2% for transport, and others.
- (3) < Job Information and Disembarkations > The breakdown of information sources on employment in Singapore shows 37% for employment agencies, 26% for friends, 16% for acquaintances, 13% for mass media, and so forth. To enter Singapore, 85% migrated in a group (of six persons on average, with a maximum of 35 persons). In all, 88% moved to Singapore on sightseeing visas, while the others illegally extended the length of their stays after entering Singapore with work permit.
- (4) < Employment Agencies > Among all workers, 68% of workers commissioned agencies to arrange acquisition of a passport, an itinerary and place to work. The average charge for the arrangements was 12,260 bhat (minimum 2,000 bhat, maximum 45,000 bhat). On average, 11% of the cost was paid to the agencies by the business establishments/managers who hired the Thais. A majority of the workers were indebted from payment of the charge when entering Singapore.
- (5) < Awareness of Illegal Work > When deciding to work in Singapore, only 15% of the laborers were aware from the beginning their jobs were illegal, 47% learned this at disembarkation and 26% at the extension of their stay after entering Singapore with a work permit.
- (6) < Occupations, Employment Terms, Wages > After disembarkation, the first work place for 91% of the workers was a construction site, and 83% were engaged in construction labor right before embarkation. The average employment term was 14 months (minimum several days, maximum eight years). The average day pay was S\$ 18 (minimum S\$ 13, maximum S\$ 25, on basis of the skill level). The workers in debt to employment agencies used an average of 40% of their wages to pay off the debt. Average daily spending was S\$ 7.7. Average savings including remittances during the employment term in Singapore was approximately S\$ 2,000 (note there were large variations; 28% had under S\$ 500, while 9% had S\$ 4,500 or more). The laborers lived together in humble tenement houses at construction sites.

This survey leads us to point out following characteristics as the actual employment situation of Thai illegal workers in the miscellaneous work labor market. Since they were mostly from poor rural areas in northeast Thailand, obtaining the job information from agencies, or friends/acquaintances, there is a lack of public organization/openness in the labor market. On that account, in their dependence on the unofficial international employment network, which is socially conventionalized, homeland based collective employment is normalized. Few laborers were aware of the ille-

gality of their presence from the beginning, and indeed they seem to rely on agencies that have inadequate knowledge of working conditions at work places in the foreign country. Occupations in the construction field are urban general work handled as unskilled/manual labor even in Singapore. This is the largest labor market for low-class foreign male laborers to enter, and the overwhelming majority are hired on long-term daily bases at construction sites, having no choice but to take up an unstable employment due to the nature of illegal work. There are no welfare programs comparable to labor security except the day pay and communal living at work sites. Many laborers are hired owing debt to the agencies, and some are perceived to be working under conditions that could be called “bonded labor”.

4. When the Growth Triangle concept emerged, the wage disparity ranged from US\$ 350 in Singapore, US\$ 150 in Johor, to US\$ 90 on Batam on the average monthly wage basis of manufacturing laborers (Macleod and McGee: 1996). In addition according to the international comparison data of wages in 1995, the labor costs per hour in manufacturing were US\$ 7.28 in Singapore, US\$ 7.40 in Korea, US\$ 5.82 in Taiwan, and US\$ 4.82 in Hong Kong while the average wages per hour in manufacturing were US\$ 6.07 in Singapore, US\$ 5.62 in Asian NIEs, US\$ 0.91 in ASEAN and US\$ 20.26 in Japan (*International Labor Information Jan. 1997*, No. 250).
5. It is said that quite a number of laborers staying on Batam and Bintan islands temporarily work in Singapore after illegal entry, but the scale is unknown. To the author’s knowledge collected on the spot, of the illegal laborers who migrate from the Batam/Bintan islands into Singapore the males mainly work as construction workers while the female as maids or prostitutes.

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