Working Paper No. 68

WAGE/FOREIGN LABOUR POLICIES AND THE PERFORMANCE OF SINGAPORE'S MANUFACTURING IN THE EARLY 1980s

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March 1995

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CONTENTS

This paper is taken from a dissertation written to satisfy the requirements of study towards the award of a Master of Science at the Development Planning Unit.

List of Tables and Figures **Page**

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1. Introduction

The Singapore economy registered a negative annual rate of growth in real GDP of -1.6 percent in 1985. This was in contrast to double digit annual real growth rates in the early 1970s and rates fluctuating around 8 percent in the late 1970s and the early 1980s.

Since the nature of the Singapore economy is a state directed one, where the government intervenes in almost everything, e.g., the long-term and the strategic plans, the regulation of currency and the shaping of a future industrial structure, etc. (Harris 1986: 60), the recession led one to ask whether there were policy mistakes. In fact, the government had instituted a highly controversial programme, which sought to restructure Singapore's economy toward capital- and skill-intensive one by deliberately increasing labour cost. Some studies also identified the tight immigration policy for unskilled foreign labour as one of the causes of the recession together with other various factors.

However, the use of the wage policy and the foreign labour control as instruments of the restructuring programme was not sufficiently substantiated in the previous studies. The previous studies were generally weak in analysing disproportionate effects of these policies on different sections of the economy, since they reduced the complex real economy to a simple one-sector model, as many theorists do. It is very often the case in the economic analysis of the cities that the extraordinary high growth of one sector conceals the declines of others. Therefore, the analysis based on highly aggregated data is often misleading. In addition, it is generally true that without knowing disaggregated features of an economy, it is difficult to formulate a specific set of measures to enhance productivity or cope with a recession.

In this paper, the effects of the wage and foreign labour policies on the performance of the manufacturing sector - the main sufferer of the policies - are examined based on disaggregated data. On the basis of this, a few comments are made for a set of measures taken by the Singapore government to get out of the recession. The methods employed in this analysis are relatively general and unsophisticated ones; therefore, it is expected that they may easily be applied for the economic analysis of other cities, regions and countries.

This paper comprises nine sections. Section 1 is this introductory one. In Section 2, the historical development of Singapore's economy and the government's effort to restructure its economy are briefly described as background information. Section 3 is the review of literature relating to the role of wage/foreign labour policies as one of the causes of the 1985 recession. The research question, a series of hypotheses and research framework are presented in Section 4. Then, following a brief analysis on the changing growth patterns of various manufacturing industries in Singapore in Section 5, three hypotheses concerning, international competitiveness, the increases in labour cost and the role of the wage/labour policies are tested in Sections 6, 7 and 8 respectively. The conclusion is summarised in Section 9.

2.Development of Singapore's Economy and Restructuring Programme

Owing to its lack of resources, Singapore is a re-export economy. As the economy developed, re-exporting activities have evolved from simple processing and repackaging to the transforming of inputs into higher-value outputs. Following a brief experiment with import-substitution between 1959-63, the economy's dependence on imported inputs has led to a stress on free trade. Nevertheless, the state has played an important role in promoting those industries that it foresaw as major export earners. Beginning in the late 1960s, the government favoured the development of labour-intensive manufacturing, particularly light electronics and textiles (Soon and Tan 1993: xi). Generous tax incentives prompted a surge in direct foreign investment, particularly in petroleum refineries and electrical industries from the United States and in textiles and clothing from Hong Kong (Soon and Tan 1993: 12).

With the attainment of full employment in the early 1970, Singapore experienced labour shortage and this created the need to import a large number of unskilled workers. In addition, Singapore experienced a sharp decline in the flow of foreign investment in 1973. In such changed circumstances, the policy makers of Singapore recognised the need to upgrade and restructure the economy from labour-intensive one to capital-, skill and technology-intensive one. A wage policy based on an orderly increase in cash wages was announced in 1973 to ensure the international competitiveness of labour cost in Singapore for medium- and high-technology industries. It was implemented under the guidance of the National Wage Council (NWC), which recommends across-the-board nominal wage increases for the entire economy every year.[i] The promotion of manpower development for

medium- and high-technology industries, an open-door policy for admitting qualified skilled foreign professionals, and the provision of a special tax concession to industries with desired level of technology were also implemented as a part of the restructuring programme (Soon and Tan 1993: 12).

This initial attempt to upgrade the economy was, however, hindered by the first oil crisis in 1973, and the world recession that followed in 1974-75. As noted by Goh (1980 quoted by Soon and Tan 1993: 13), economic upgrading slowed down as "fear of recession and its resulting unemployment cause[d] the economy to cling on to labour-intensive industries". The NWC wage recommendations were used to maintain international competitiveness of labour-intensive industries, rather than to restructure the economy. As a result, some evaluated the economic growth in the 1970s as horizontal one without high total productivity growth (Tsao 1985 and Toh 1985 quoted by Toh and Low 1990: 264). The much desired substitution of capital for labour has not quite taken place. In compromising to keep wages in hand until 1979, it was estimated that Singapore lost 6 percent in productivity increase, one consequence of which is the influx of foreign workers (Toh and Low 1990: 264).[ii]

In the late 1970s, public dissatisfaction with real-income growth became widespread since a most spectacular economic boom was obviously going on and workers were not sharing it. The NWC and others blamed the lagging real wages on a market failure, claiming that the country had been caught in a "low-wage trap" (Grubel 1989: 394). The government came to recognise that wages had been kept too low in the latter half of the 1970s, leading to the inefficient use of labour and low productivity.

Then it decided to institute "corrective" or "high" wage increases - 20 percent per annum[iii] - over the three-year period between 1979-81 to correct the anomalous situation of a tight labour market coexisting with low wages. At the same time, the government steadily raised Central Provident Fund (CPF) contribution rates for both employees and employers, from 16.5 percent in July 1978 to 25 percent in July 1984. It was intended to dampen inflationary spending according to the government (MTI 1986: 99); but surely increased the labour cost in Singapore. The Skill Development Fund (SDF) was established in 1979 to enhance industrial training, but it also became the additional non-wage labour cost. All these measures were justified by the idea that the low-wage trap required a non-market incentive which would encourage entrepreneurs to introduce more labour-saving and productivity-raising capital and technology (Grubel 1989: 394).

An apparent industrial targeting was another important ingredient of the restructuring programme at this time. Eleven primary and supporting industries were designated for promotion, and generous financial incentives were given to them.[iv]

Between 1979-84, the growth rates of capital intensity and labour productivity have increased in response to the restructuring programme (Lee [Tsao] 1987: 192). Manufacturing experienced strong expansion in new, high value-added industries such as computers, electronics, machinery, printing and pharmaceuticals. However, growth in overall manufacturing output averaged only 5.1 percent against the GDP growth of 8.5 percent. Given the heavy investment in manufacturing during this period, the growth in this output was disappointing. Instead, the rapid development of financial and business services - at 13.6 percent per annum between 1979-84, with their productivity rising the fastest during this period, provided further impetus to Singapore's aspiration to be a financial centre (Soon and Tan 1993: 15).

For the first time since the year of the traumatic exit from the Federation of Malaysia and the Independence in 1965, a negative annual rate of growth in real GDP of -1.6 percent was registered in 1985. This was in contrast to double digit annual real growth rates in the early 1970s and rates fluctuating around 8 percent in the late 1970s and early 1980s. Even during the last downturn in 1974 and 1975, the growth rates were 6.8 percent and 4.0 percent respectively.

Recognising that there was little it could do about external conditions, the government implemented various cost-cutting measures. The restructuring programme based on the wage policy was abandoned. The NWC ceased issuing a quantitative annual wage recommendation. The employer's contribution rate to the CPF was cut from 25 percent to 10 percent. The government also sought backing from unions for two years of wage restraint. At the same time, it also lowered income tax rates, reduced charges for utilities as well as for international telephone and telex services, offered rebates on site rentals in the industrial estates, and port fees, etc. (Soon and Tan 1993: 17).

3.Causes of the 1985 Recession: A Review

The severity and unexpectedness of the 1985 recession prompted several attempts to study its causes. The government appointed the Economic Committee under then-Minister of State for Trade and Industry Lee Hsien Loong, which comprised government officials, a trade unionist and private-sector chief executives, to analyse the causes of the recession and to find measures to getting out of it. The Economic Committee Report, made available February 1986, identified various external and internal factors which contributed to the recession.

The external factors identified included: (i) global demand conditions, such as the slump in the oil refining and petrochemical industries because of low oil prices; (ii) the slow-down in U.S. growth, from 6.8 percent in 1984 to 2.4 percent in 1985, resulting in a severe decline in the exports of computer peripherals and electronics; and (iii) the slow-down in the ASEAN region because of low and falling commodity and oil prices (MTI 1986: 4). The report analysed that although the rapid reduction in the U.S. growth has hurt exports and slowed down in all the Asian NICs, the other two external factors disproportionately hit industries which Singapore had specialised in.

The internal factors identified were: (i) the loss of competitiveness on account of rising labour costs and other operating costs such as rentals, interest costs and statutory board charges; (ii) the construction slump; and (iii) high saving rate and excessive investment in construction at the expense of machinery and equipment (MTI 1986: 5).

In particular, the Committee's Interim Report, published in July 1985, highlighted that the loss of competitiveness and the severe squeeze on profitability of companies in Singapore have mainly been the result of labour cost increases unmatched by productivity growth (MTI 1986: 37). It showed that real wage increased much faster than real labour productivity between 1979-84, and the steady increase in the CPF contribution rates further widened the labour cost - productivity gap.

Lim and Associates (1988: 24), based on the quarterly data of the sectoral GDP growth, showed that artificially high growth rates of the construction sector in the early 1980s concealed the fact that some of the major industries, particularly manufacturing, had been fluctuating or growing at decreasing rates since as early as the second quarter of 1982. Between 1979 to 1984, the construction sector's share in the current GDP increased from 5.9 percent to 12.2 percent while its real growth rates shot up from 11.2 percent in 1980 to 18.0 percent in 1981, 37.0 percent in 1982 and 29.7 percent in 1983 before declining to 11.6 percent in 1984. The gluts of residential properties, offices, shops, factories, warehouses and hotels led to a severe downturn of the sector with -15.5 percent growth in 1985. In the manufacturing sector, which accounted for the largest share of Singapore's GDP in 1979, value added declined by 3.5 percent in 1982, slowly increased at 2.8 percent in 1983, recovered to 7.5 percent in 1984, but severely declined by 7.3 percent in 1985.

Lim and Associates (1988: 35) regarded that the contraction of the manufacturing sector and the hyperactive construction sector were the main causes of the recession. The construction sector was a case of oversupply, for most of which the public sector was responsible, while the manufacturing sector suffered from poor global and regional demand.

The corrective wage policy to phase out low quality labour-intensive industries was evaluated by them to be generally sound although it was pointed out that the 1985 recession might be to some extent exacerbated by too rapid restructuring programme. Lim and Associates (1988: 35) mentioned that the policy had impact on automation and robotisation, which helped to overcome the tight labour market and improve product quality and productivity. The analysis by Lim and Associates (1988: 188) based on unit labour cost showed that Singapore has not lost its relative competitiveness vis-a-vis the other Asian NICs in spite of rapidly rising labour cost. This implies that the decline of the manufacturing sector was due to the external factors rather than the loss of competitiveness.

In addition, Lim and Associates (1988: 471) conducted counterfactual simulation experiments by

the use of an econometric model, and indicated that the adverse performance in 1985 was very much due to the collapse of foreign export demand and a drastic decline in foreign investment. This result that wage increases played a small role was shared by the econometric analysis of Otani and Sassanpour (1988). They showed that if relative unit labour cost had remained at 1980 levels during 1981-86 and all other exogenous variables were kept at actual values, GNP would have been unchanged in 1984-85 instead of declining.

Lim and Associates (1988: 205) also argued, by showing that significant percentage of workers received wage increases greater or less that the NWC guidelines, that the NWC guidelines are implemented with sufficient regard to company and individual performance. It suggests that the wage policy was redundant since actual wage increases were determined by market forces.[v]

Lee [Tsao] (1987) emphasised that the lack of co-ordination in macro-economic management led to the 1985 recession. The mistakes of the 1980s were regarded as due to the simultaneous movement of the exchange rate, CPF contributions and wages such as to raise unit labour cost and lower profitability, and that excessive use of public-sector residential building could have been avoided if policy were looked at as a concerted whole (Lee [Tsao] 1987: 169). The latter point about pro-cyclical public construction as a cause of the recession is shared by Lim and Associates (1988); however, Lee [Tsao] asserted that high labour costs have been a major contributing factor to the 1985 recession. There was a rapid fall in profitability and in competitiveness as a result of the steep rise in labour costs (Lee [Tsao] 1987: 161). Interestingly, the similar analysis of unit labour cost by Lee [Tsao] came to a conclusion opposite to that of Lim and Associates, i.e., Singapore has lost its relative competitiveness vis-a-vis the other Asian NICs.[vi]

Regarding the wage policy, Grubel (1989: 392) argued that it was not only unnecessary but probably has done some damage to Singapore's strategy of economic growth with price stability. After 1977 wages were kept too low by the NWC recommendations, and as a result, there was widespread job-hopping and employers complained of difficulties in finding workers. It also adversely affected the substitution of capital for labour to go on continuously, labour productivity to grow correspondingly, and the pressure to allow foreign workers became greater. The wage policy, which produced these labour-market disequilibria in the late 1970s, has led to further action, i.e., higher-than-usual NWC recommendations and the raising of CPF contribution rates between 1979-84, which created an even more serious problem of excessive real-wage levels. Grubel's position is that the NWC recommendations - though not mandatory - effectively determined the levels of wage in Singapore, and contributed to the loss of competitiveness and market share, although he provided little evidence to defend his argument.

By contrast, Lee [Tsao] (1987) suggests that it was the foreign labour policy rather than the wage policy which brought about the rapid increases in labour cost in Singapore. Lee [Tsao] (1987: 182) observed that the actual wage increases followed the NWC recommended wage increases closely between 1973-79, while they exceeded the NWC recommendations by an average of 2.4 percentage points per year between 1980-84. Lee [Tsao] (1987: 195) also showed that the NWC recommended wage increases were less than the growth of nominal labour productivity (NPG) between 1979 and 1984, but the increase in actual wages exceeded the NPG. Therefore, the levels of the NWC recommendations were not too high, but the actual wage went up beyond the growth of productivity. She explained this as a result of the cut back in the use of foreign labour. Toh and Low (1990: 273) also criticised the foreign labour policy by mentioning that vacillating foreign worker policy has sent wrong signals to the market.

4. Issues and Theoretical Framework

The studies introduced in the previous section have relatively well covered the adverse effects on Singapore's economy of the changes in global and regional conditions, and the excessive and pro-cyclical public expenditure on the construction sector as important causes of the 1985 recession. However, the use of the controversial corrective wage policy and the tight foreign labour policy as instruments of the restructuring programme is a major issue, which has not been substantiated yet.

The Economic Committee Report showed that real wage increased much faster than real labour productivity between 1979-84. However, the report's evaluation on the controversial wage correction policy was unclear. It emphasised that real wage increases exceeded productivity growth between 1982-84 by an even greater margin than during the wage correction period between 1979-81, and regarded it as an *unfortunate* event resulted from the tight labour market, especially for professionals and graduates, and the misconstruction of the policy by employees, employers and potential investors as a permanent one (MTI 1986, 99).

Lim and Associates (1988) concluded that the corrective wage policy played a small role on the poor performance of the economy. The basis of their conclusion was the analysis of unit labour cost, which indicated that the increases in labour cost per unit of output were smaller as compared with those in the other Asian NICs. However, the similar analysis by Lee [Tsao] (1987) led to the completely opposite conclusion. This was partly because their analyses were quite rough in a sense that

they treated the manufacturing sector as one industry, i.e., manufacturing in Singapore, Hong Kong, South Korea and Taiwan all produced an identical good and compete each other. This implicit assumption was obviously incorrect. In addition, their analyses did not confirm whether Singapore's manufactured exports actually lost international competitiveness in the world market.

Furthermore, it was often taken granted that wages in Singapore were predominantly determined by the NWC recommendations; but few challenged this proposition. The tight foreign labour policy was rarely discussed as a cause of the rapid wage increases. The study by Lee [Tsao] (1987) was among the few which treated these issues, but did not go into disaggregated sections of the economy.

When a government policy is implemented, its effects are very often disproportionate among different sections of an economy. Therefore, any government policy cannot be evaluated without analysing its disproportionate effects on disaggregated sections of the economy. The previous studies were generally weak in this respect. None of them showed which industries of the manufacturing sector actually lost international competitiveness. None of them compared the changes in the unit labour cost of particular sections of the manufacturing sector with Singapore's rivals. None of them discussed the disproportionate effects of the collective wage policies and the tight foreign labour control on different industries. However, as the extraordinary high growth of the construction sector concealed the declines of manufacturing as mentioned-above, the analysis based on highly aggregated data is often misleading. In addition, it is generally true that without knowing disaggregated features of an economy, it is difficult to formulate a specific set of measures to enhance productivity or cope with a recession.

A major question of the dissertation is how far the wage/foreign labour policies affected the performance of Singapore's manufacturing in the early 1980s. In order to prove/disprove the above question, the following three hypotheses need to be tested:

H1:The slowdown of Singapore's manufacturing was due to the loss of international competitiveness.

H2:The loss of international competitiveness was caused by the rapid increases in labour cost.

H3:The wage/labour policies significantly contributed to the rapid increases in labour cost.

The first hypothesis will be tested by investigating the changes of Singapore's share in the world manufactured goods trade. It will clarify whether the declined exports were attributed to external factors - in this case the Singapore's share must have remained constant, or the loss of international competitiveness - which must have resulted in a declining share of Singapore's exports. The investigation will be done up to three-digit levels of the SITC. Secondly, relative international competitiveness of Singapore's manufacturing industries will be investigated. The changes in unit labour cost of Singapore's manufacturing are compared with the other Asian NICs by industries. The investigation will be done up to four-digit levels of the ISIC. Thirdly, the role of the high wage policy and the foreign labour policy in escalating labour cost for different sections of Singapore's manufacturing will be discussed, mainly by reconsidering Lee [Tsao]'s (1987) argument with some additional evidence.

These three hypotheses will be tested respectively in Sections 6, 7 and 8, following a brief analysis on the changing growth patterns of various industries in Singapore's manufacturing in Section 6.

5.Singapore's Manufacturing in the Early 1980s

As briefed in Section 2, the growth of Singapore's manufacturing has significantly decelerated in the early 1980s. Its growth rate declined from 10.8 percent for 1975-80 to 3.9 percent for 1980-84, before recording a negative rate of -7.3 percent in 1985, as shown in Table 5.1. However the overall growth rate of the economy between 1980-84 was not bad - the rate of 8.2 percent per annum is only 0.3 percent point less than that for 1975-80. This is largely because of the high growth rate of the service sector, particularly financial, insurance and business services, in the early 1980s. Since the financial sector continued to expand at a high growth rate in 1985, it is clear that the poor performance of the manufacturing and construction sectors was the main causes of the 1985 recession.

The growth rates of GDP, manufacturing and service sectors in Singapore between 1975-85 are compared with those in Hong Kong, South Korea and Taiwan in Table 5.2.

The growth rate of Singapore's manufacturing of 3.9 percent between 1980-84 was considerably lower than those in the other Asian NICs, where this sector maintained over 7 percent annual growth for the same period. However, manufacturing in all Asian NICs including Singapore suffered from a marked decline or slowdown in its output growth in 1985, particularly Hong Kong -9.1 percent and Singapore -7.3 percent. This suggests that the large decline of Singapore's manufacturing output in 1985 was, at least, partly because of external factors which affected all the four Asian NICs. The changes within the manufacturing sector between 1975-85 have been shown in Table 5.3.[vii]

For many industries, we can observe a pattern of growth performance depending on the types of industry. Namely, relatively labour-intensive industries, which grew very rapidly in the latter half of the 1970s, have decelerated their growth in the early 1980s, while relatively capital-intensive industries have fared well in the 1980s.

This can be observed within electrical machinery industry (ISIC 383), which was the largest industry in Singapore's manufacturing in terms of value added. The industry was predominantly the relatively labour-intensive production of radio, television, etc.[viii] (ISIC 3832) in 1975, which grew at a very high rate of 24.2 percent per annum between 1975-80, but at a much slower rate of 1.0 percent per annum between 1980-84. On the other hand, the other electrical machinery[ix] (ISIC 383 less 3822) maintained its high annual average growth rate even after 1980, i.e., 29.5 percent between 1980-84 against 34.8 percent between 1975-80.

The same pattern also applies to textiles (ISIC 321), wearing apparels (ISIC 322), leather products (ISIC 323), wood products (ISIC 331), furniture (ISIC 332), plastic products (ISIC 356).[x] These industries, together with labour-intensive electrical industries, grew very rapidly in the latter half of the 1970s; however they experienced a decline or stagnant growth in the 1980s. By contrast, capital-intensive industries of industrial chemicals (ISIC 351), other chemical products (ISIC 352), etc. have accelerated their growth rates in the early 1980s, although many of them experienced a sharp decline in 1985.[xi]

There were some industries which do not follow these patterns. They were petroleum products (ISIC 353/4) and transport equipment (ISIC 384). Petroleum industry, which accounted for the second largest share in Singapore's manufacturing output in 1980, grew relatively fast with an average annual growth rate of 12.7 percent, but became one of the major contributor for the slowdown of Singapore's manufacturing in the first half of the 1980s with a negative growth of -13.4 percent per annum. Although petroleum refining is an extremely capital-intensive industry, its growth performance differed from other capital-intensive industries. Petroleum-related industries, which provide drilling rigs, drilling equipment, etc., represented in shipping and repair (ISIC 3841), iron and steel (ISIC 371), machinery (ISIC 382), etc. grew slowly or declined between 1980-84.

In the case of transport equipment, regardless of its labour-intensity, the growth in the 1970s was already low. The major part of this industry in Singapore was shipping and repair (ISIC 3841), which heavily depended upon unskilled foreign workers.[xii] The industry's rate of output growth was only 2.3 percent per annum between 1975-80, and further down to -12.5% between 1984-85.

In summary, we can observe general patterns in Singapore's manufacturing in the first half of the 1980s; these were severe declines in labour-intensive industries and the relatively high performance of capital-intensive industries. This was in contrast to the 1970s where labour-intensive industries played the role of the engine of economic development for that period of Singapore. Petroleum and related industries were exception to these patterns, since the growth performance seems to have little to do with its capital intensity. In the case of shipping industry, the decline followed the pattern of

labour-intensive industry; but its growth was already slow in the latter half of the 1970s.

Table 5.1

Table 5.2Growth of GDP, Manufacturing and Service Sectors in Singapore and Other Asian NICs: 1975-85

Sector	Country	Average Annual Rate of Growth		
		1975-80	1980-84	1984-85
GDP	Singapore	8.5%	8.2%	-1.6%
	Hong Kong	12.4%	7.0%	-0.9%
	South Korea	7.3%	8.9%	6.9%
	Taiwan	10.5%	6.5%	4.3%
Manufacturing	Singapore	10.8%	3.9%	-7.3%
	Hong Kong	12.3%	7.1%	-9.1%
	South Korea	13.7%	12.2%	7.1%
	Taiwan	13.8%	7.6%	2.2%
Services	Singapore	8.4%	9.0%	5.5%
	Hong Kong	12.1%	7.2%	1.9%
	South Korea	8.3%	7.0%	7.9%
	Taiwan	9.7%	7.1%	6.1%

Source:Compiled from United Nations, UN Yearbook of National Accounts, 1987 (for Singapore), World Bank, World Tables, 1989-90 (for Hong Kong and South Korea), and DGBAS, National Income of the Republic of China, 1985 (for Taiwan).

Note 1:GNP instead of GDP for Hong Kong and South Korea.

Note 2:The growth rates of manufacturing and services in Hong Kong were estimated by applying GDP deflator to current output from each sector because no separate deflators were available.

Table 5.3

6.Export Competitiveness of Singapore's Manufacturing

Singapore is one of the most open economies in the world, with an export market much larger than its domestic market. Therefore, export performance directly affects its economic growth. In this section, the linkage between the export performance and the output growth of the manufacturing sector in Singapore will be analysed.[xiii]

The historical trend of exports from Singapore between 1975-85 is shown in Figure 6.1, together with those of the other Asian NICs, i.e., Hong Kong, South Korea and Taiwan. The values of exports from these countries are shown, and manufactures account for more than 90 percent of total exports respectively.[xiv]

Singapore's exports have rapidly expanded in the late 1970s before it experienced a small decline in 1982, when there was a world recession. This decline in the value of exports was also experienced by Hong Kong and Taiwan. However, a marked difference in the export performance between Singapore and the other Asian NICs can be observed after 1982. The other three regained rapid growth by 1984 while Singapore's recovery was modest. Excluding the exports of petroleum refinery products (SITC 334 and 335), which the other three exported-very little, it can be seen that the relatively stagnant growth of Singapore's exports of non-oil manufactures began in 1980. In 1985, the sluggish global demand adversely affected the export performance of all the Asian NICs, but disproportionately hit Singapore with a large fall in the value of exports.

The above observation has provided a rough picture that the performance of Singapore's manufacturing has started to lag behind the other Asian NICs since 1980. However, as the compositions of exports differ in each economy, a comparison of the performance of total exports provides no clue for the poor growth of Singapore's exports in the early 1980s. Therefore, it is necessary to disaggregate the data. The major components of manufactured exports from Singapore and the other Asian NICs in 1980 are shown in Table 6.1.

Singapore has the largest share in petroleum refinery products such as gasoline (SITC 3342), kerosene (SITC 3342), gas oils (SITC 3343), fuel oils (SITC 3344), lubricants (SITC 3345) and other residual products (SITC 335), which are exported very little from the other three. The second largest export item from Singapore is electrical products, which also rank highly in the other Asian NICs. Singapore's electrical industry specialises in exports of electronic microcircuits (SITC 7764), telecommunications equipment (SITC 764), portable radio receivers (SITC 7622), TV receivers (SITC 761), etc., which seem to compete with the other three. The exports of non-electrical machinery cover parts and accessories for power generating equipment (SITC 71), machinery for special industries (SITC 72), general industrial machinery (SITC 74), and office machinery (SITC 75), which also seem to compete with the other three. However, it is the characteristic of Singapore's non-electrical machinery industry that it produces relatively higher percentage of machinery for special industries, such as for civil engineering (SITC 723). Singapore's exports of transport equipment are concentrated in ships and boats (SITC 793), particularly of relatively small size, while South Korea is a major exporter covering almost full range of sea vessels. Chemical industry in Singapore exports mainly medical and pharmaceutical products (SITC 541), polymerisation products (SITC 583), fertilizers (SITC 562), etc. Clothes and textiles are relatively minor exports in Singapore; but account for large shares in total exports of the other three.

Whether Singapore's manufacturing has lost international competitiveness can be judged by investigating the changes of Singapore's share in the world manufactured goods trade. The investigation has been done as shown in Table 6.2 for the major export items of petroleum products, electrical machinery, non-electrical machinery, ships and boats, clothes and textiles.

Singapore's share of petroleum refinery products has increased over time from 1975 to 1985. During this period, the petroleum industry faced volatile oil prices. The rise in oil prices which began in 1979 brought about net positive consequence on Singapore's petroleum industry and economy at large. Singapore behaved more like an oil producer than an oil consumer, and it was seemingly untouched by the second oil crisis. However, oil prices started to erode in 1981 and began to collapse toward the end of 1985. The margin of oil refining was reduced and it hit directly Singapore's petroleum industry. Therefore, the slowdown of petroleum output between 1980-84 shown in the previous section was largely attributed to the external factor rather than the loss of international competitiveness. In fact, Singapore's petroleum industry strengthened its international competitiveness by expanding its world market share.

Singapore's share of electrical products has steadily increased between 1975-84. However, more labour-intensive section of the industry - assembly of telephones, TV receivers and potable radios, represented in SITC 76 - has lost competitiveness between 1980-84. In contrast, the shares of telecommunications and sound equipment from Hong Kong and Korea have increased during this period. On the other hand, Singapore's share of SITC 77, relatively capital-intensive production of electronic microcircuits and components, has continued to increase up to 1984. Therefore, it can

be said that very slow growth of the relatively labour-intensive section of electrical industry in the early 1980s was because of the lost international competitiveness, while the capita-intensive section of the industry maintained high growth throughout 1975-84 since it strengthened international competitiveness.

The shares in the world trade for electrical products, however, fell in all the four Asian NICs in 1985. In that year, the value of exports from all these

Fig 6.1

Table 6.1 Major Manufactured Exports from Singapore and Other Asian NICs: 1980

Country	Major Manufactured Exports	Share in Total Exports in 1980
Singapore	1. Petroleum Products (SITC 334 and 335)	28.5%
	2. Electrical Machinery (SITC 76 and 77)	16.1%
	3. Non-electrical Machinery (SITC 71 through 75)	6.4%
	4. Transport Equipment (SITC 78 and 79)	4.3%
	5. Chemicals (SITC 5)	3.4%
	6. Clothes (SITC 84)	2.2%
	7. Textiles (SITC 65)	1.9%
Hong Kong	1. Clothes (SITC 84)	25.3%
	2. Electrical Machinery (SITC 76 and 77)	13.0%
	3. Textiles (SITC 65)	9.0%
	5. Non-electrical Machinery (SITC 71 through 75)	4.8%
	5. Chemicals (SITC 5)	3.4%
	6. Metal Products (SITC 69)	2.7%
	7. Transport Equipment (SITC 78 and 79)	1.6%
South Korea	1. Clothes (SITC 84)	16.9%
	2. Textiles (SITC 65)	12.6%
	3. Electrical Machinery (SITC 76 and 77)	11.5%
	4. Transport Equipment (SITC 78 and 79)	6.6%
	5. Metal Products (SITC 69)	4.4%
	6. Chemicals (SITC 5)	4.3%
	7. Wood Products (SITC 63)	2.3%
Taiwan	1. Electrical Machinery (SITC 76 and 77)	18.2%
	2. Clothes (SITC 84)	14.4%
	3. Chemicals (SITC 5)	8.9%
	4. Textiles (SITC 65)	8.2%
	5. Wood Products (SITC 63)	6.0%
	6. Metal Products (SITC 69)	4.3%
	7. Non-electrical Machinery (SITC 71 through 75)	3.8%

Source:Compiled from United Nations, UN Yearbook of International Trade Statistics 1982 (for Singapore, Hong Kong and South Korea) and DGBAS, Statistical Year of the Republic of China, 1985 (for Taiwan).

Note:Chemicals in Taiwan include rubber products.

Table 6.2 Changes in World Export Shares of Selected Manufactures from Singapore and Other Asian NICs: 1975-85

Manufactured Products and Exporting Countries	Share of Exports in World Trade			
	1975	1980	1984	1985
Petroleum Products (SITC 334 and 335)				
Singapore	5.67%	6.81%	7.40%	7.87%
Electrical Machinery (SITC 76 and 77)				
Singapore	1.36%	2.75%	3.57%	3.26%
Hong Kong	1.46%	2.27%	3.73%	3.61%
South Korea	1.10%	1.78%	3.31%	3.16%
Taiwan	1.63%	3.18%	5.42%	5.20%
Telecommunications and Sound Equipment (SITC 76)				
Singapore	1.23%	3.85%	3.28%	2.97%
Hong Kong	2.35%	3.54%	4.41%	4.24%
South Korea	1.35%	3.04%	4.11%	4.07%
Other Electrical Machinery (SITC 77)				
Singapore	1.43%	2.25%	3.74%	3.44%
Hong Kong	0.99%	1.68%	3.33%	3.22%
South Korea	0.96%	1.20%	2.84%	2.57%
Non-electrical Machinery (SITC 71 through 75)				
Singapore	0.41%	0.64%	1.38%	1.29%
Hong Kong	0.21%	0.49%	1.18%	1.25%
South Korea	0.08%	0.18%	0.44%	0.55%
Taiwan	0.21%	0.38%	0.58%	0.58%
Ships and Boats (SITC 793)				
Singapore	0.87%	3.18%	2.21%	0.99%
Hong Kong	0.07%	0.21%	0.09%	0.11%
South Korea	0.92%	4.51%	22.01%	25.62%
Chemicals (SITC 5)				
Singapore	0.33%	0.47%	0.79%	0.81%
Hong Kong	0.36%	0.48%	0.68%	0.78%
South Korea	0.12%	0.53%	0.58%	0.61%
Taiwan	0.64%	1.01%	1.87%	1.94%
Clothes (SITC 84)				
Singapore	0.70%	1.07%	1.21%	1.13%
Hong Kong	12.13%	14.47%	14.78%	14.22%
South Korea	6.85%	7.39%	9.84%	9.42%

Taiwan	5.18%	7.12%	9.15%	8.17%
Textiles (SITC 65)				
Singapore	0.49%	0.66%	0.68%	0.64%
Hong Kong	2.24%	3.16%	5.06%	5.47%
South Korea	2.45%	3.94%	4.85%	4.57%
Taiwan	2.30%	2.90%	3.55%	3.93%

Source:Compiled from United Nations, UN Yearbook of International Trade Statistics, various issues (for Singapore, Hong Kong, South Korea, and for world total) and DGBAS, Statistical Yearbook of the Republic of China, 1985 (for Taiwan).

Note 1:The shares are calculated as the value of exports of a group of goods divided by the world total exports of that goods.

Note 2:No data for SITC three-digit trade data are available for Taiwan.

Note 3:Chemicals in Taiwan include rubber products.

countries declined as shown in Figure 6.2, suggesting that the decline is a regional factor rather than the loss of competitiveness. In fact, the United States, which was the largest export market commonly for all the Asian NICs, reduced the imports of electrical products from these country in 1985, in response to the slow-down of its growth from 6.8 percent in 1984 to 2.4 percent in 1985. However, the decline of exports was larger in Singapore than the other three. Therefore, the large drop of Singapore's exports of electrical goods in 1985 is considered as the combination of the loss of competitiveness and the decline of the external demand, particularly of the United States.

Singapore's share for the exports of chemical products has steadily increased between 1975-84. It is a relatively capital-intensive industry, and its export performance corresponds to the pattern observed for the capital-intensive section of the electrical industry that increased international competitiveness was the reason for the high growth in the early 1980s.

In the case of non-electrical machinery, its market share steadily increased while its output declined between 1980-84. This is considered mainly because Singapore's machinery industry specialised in the supply of petroleum related products. This industry had fast growing products such as office machines (SITC 751), computers (SITC 752), and their accessories (SITC 759); however, the decline from petroleum-related section cancelled out them. As a result, the overall growth rate between 1980-84 was only 0.8 percent per annum regardless of the improvement in international competitiveness.

The competitiveness of ships and boats production has increased between 1975-80, but its output growth was much slower than other labour-intensive industries. During this period, shipbuilding and ship-repairing industry was faced with world-wide structural over-capacity, and the world demand decreased in the current U.S. dollar terms. In the early 1980s, although the external demand started to recover, the share of Singapore's shipping industry has declined like the other labour-intensive products. Therefore, the slow growth of Singapore's shipping industry is considered to be mainly due to the poor global demand condition in the 1970s, while its decline in the 1980s was largely attributed to the loss of international competitiveness.

In the case of clothes and textiles, Singapore barely maintained its world share between 1980-84. However, since the other Asian NICs significantly increased their market shares for the same period, it may be said that the relative competitiveness of Singapore's clothes and textiles industry has deteriorated in the early 1980s.

In summary, the international competitiveness of Singapore's manufacturing has lost in the early 1980s for relatively labour-intensive section of the sector, and it resulted in the poor export performance and the slow growth of output of manufacturing. The capital-intensive industries, except petroleum products, fared relatively well, and increased their market share in the world trade to the same extent as the other Asian NICs did. The declining output of petroleum industry and other related industries may be explained by the fall of oil prices, rather than the loss of international competitiveness. The slowdown of the U.S. economy, which hit all the Asian NICs in 1985, has further contributed to the large decline of the exports and output of Singapore's manufacturing.

7.Labour Cost and the Growth of Singapore's Manufacturing

The labour cost in Singapore was deliberately increased by higher-than-usual NWC recommendations and a rise in of the CPF contribution rates in order to pursue the national policy of industrial restructuring between 1979-81 as mentioned in Section 2. Therefore, it may be argued that the increases in labour cost in Singapore faster than in the other Asian NICs resulted in the deterioration of international competitiveness in the early 1980s. This section attempts to test this argument by comparing the relative increase in labour cost in the four Asian NICs.

The rate of increase in labour cost per worker for the manufacturing sector, which includes employer's contribution to the CPF and other non-wage labour cost, was compared for a period between 1975-80 and 1980-84 in terms of the U.S. dollar in Table 7.1. The rate of increase in labour cost per worker in the U.S. dollar can be decomposed into two components, i.e., the rate of increase in labour cost per worker in national currency plus the rate of revaluation of national currency against the U.S. dollar. This has also been shown in Table 7.1.

Average labour cost per worker in Singapore's manufacturing increased at 9.7 percent per annum between 1975-1980, which was significantly lower than those in the other three Asian NICs. However, between 1980-84 the rate of increase in labour cost per worker in Singapore largely exceeded those of the other three. This seems to be much to do with the changes in exchange rate of national currencies in these four countries. The Singapore dollar revalued against the U.S. dollar both between 1975-80 and 1980-84. The national currencies of the other three depreciated against the U.S. dollar except a slight revaluation of the New Taiwan dollar between 1975-80.[xv]

However, the comparison on the cost side has little economic meaning for the evaluation of changes in the relative competitiveness across countries. One should

take into account productivity in comparing labour cost across countries, since rapid increases in labour cost do not mean the loss of competitiveness if it is matched by more rapid increases in productivity.

An examination of unit labour cost (ULC) among the four Asian NICs is attempted here. The ULC is defined as the ratio of average nominal cost of labour to real labour productivity (value added per

Fig 6.2

Table 7.1 Rate of Increase in Labour Cost per Worker of the Manufacturing Sector in Singapore and Other Asian NICs: 1975-84

Country	1975-80		1980-84	
	Rate of Average Annual Increase in $US		Rate of Average Annual Increase in $US	
	Increasing Rate in National $	Revaluation against $US	Increasing Rate in National $	Revaluation against $US
Singapore	9.7%		13.7%	
	7.5%	2.1%	13.6%	0.1%
Hong Kong	17.9%*		-0.7%	
	18.4%*	-0.4%*	10.0%	-10.7%
South Korea	29.4%		0.0%	
	34.0%	-4.4%	6.8%	-6.8%
Taiwan	15.0%		6.8%	
	14.4%	0.5%	9.3%	-2.3%

Source:Compiled from United Nations, UN Yearbook for Industrial Statistics, various issues (for labour cost and the number of workers) and World Bank, World Tables, 1989-90 (for exchange rates). For Taiwan, DGBAS, National Income of the Republic of China, various issues (for labour cost and exchange rates) and DGBAS, Statistical Year of the Republic of China 1985 (for the number of workers).

Note*: 1976-80.

worker). The ULC depends on the industrial structure of the manufacturing sector. A manufacturing sector with more labour-intensive industries will have a higher ULC than a manufacturing sector with fewer labour-intensive industries. Therefore, one should compare the ULCs for industry which produce same products.

Available data do not allow this, thus the ULCs are calculated for industries for the same ISIC classification number.

The result is shown in Table 7.2 in the form of index for 1980 and 1984 as 1975=100 and 1980=100 respectively.

The ULC increased more slowly than the other Asian NICs between 1975-1980, but faster between 1980-84. It implies that Singapore's manufacturing, at least the labour-intensive industries, gained relative competitiveness over the other Asian NICs between 1975-80, while it has reduced its advantage in the 1980s. This can be confirmed in Table 7.3, which indicates the growth of output of the same selected industries between 1975-80 and 1980-84.

The labour-intensive section of electrical industry, the assembly of radio, TV, etc. (ISIC 3832), increased at 24.2 percent per annum in Singapore between 1975-80, which was much faster than those in Hong Kong (11.1 percent) and South Korea (14.3 percent). However, its average annual growth rate between 1980-84 was only 1.0 percent in Singapore, while it was 11.3 percent and 19.1 percent in Hong Kong and South Korea respectively. Clothing industry (ISIC 322) grew faster in Singapore than in the other three Asian NICs between 1975-80; but its output has slowed down in Singapore between 1980-84, while relatively high growth rates were maintained in the other three. The similar pattern can be observed in other labour-intensive industries of the production of textiles (ISIC 321), and ship building (ISIC 3841) - but only between Singapore and Hong Kong, both of which produce relatively small vessels. The ULC also explained the relative differences in growth performance of non-electric machinery (ISIC 383) between 1980-84, although this industry is slightly more capital-intensive than the average for non-petroleum industries.

This relationship - the less the increase in the ULC, the higher the growth rate of output - does not seem to apply to more capital-intensive section of the manufacturing sector, such as other electrical machinery (ISIC 383 less ISIC 3832, electronic microcircuits, etc.), industrial chemical (ISIC 351) and other chemicals (ISIC 352), where labour cost is a less important component in input costs.[xvi]

In summary, it has been clarified that the labour cost of Singapore's manufacturing has increased much faster than those in the other Asian NICs in the early 1980s. The analysis of the ULC revealed that the growth of labour productivity was not large enough to offset the rapid increase in labour cost in Singapore. As a result, relative competitiveness of Singapore's manufacturing, particularly labour-intensive industries, has deteriorated. Therefore, the rapid increase in labour cost was a major cause of the poor growth of labour-intensive industries in the latter half of the 1980s.

However, the ULC is not an adequate index to analyse the differences in the growth performance of capital-intensive industries across countries.[xvii] In this respect, the present analysis has provided much clearer evidence on the cause of the slowdown of Singapore's manufacturing in the 1980s than the previous analyses by Lim and Associates (1988) and Lee (1987), which treated manufacturing as one industry.

8.Government Policies and the Increases in Labour Cost

The last question to be answered in this thesis is what caused the rapid increase of labour cost in Singapore, which, as shown in the previous sections, led to the loss of international competitiveness and the slowdown or decline of output from labour-intensive section of the manufacturing sector. There are two possible factors, which are responsible for the government, i.e., (i) the corrective wage policy (which was supplemented by the increases in the CPF and the SDF contribution rates), and (ii) the tight foreign labour policy; otherwise the increases in labour cost were simply by market forces. These two factors are accordingly examined in this section.

Wage Policy

There is no wage control or wage regulation in Singapore, but wages are strongly influenced by the NWC. The NWC guidelines were used to during the wage correction period between 1979-81 to induce employers to switch away from labour-intensive methods of production into capital- and skill-intensive ones. The recommended wage increases during this period were said to be higher than usual. In fact, the nominal increases appear to be high as shown in Table 8.1, which summarises the NWC recommendations since 1972.

However, it is more important for the evaluation of wage increases to compare them with the growth rates of labour productivity rather than with increases in the other years. The annual NWC recommendations (converted in a single percentage increase) are compared with the growth of productivity in nominal and real terms for the whole economy and the manufacturing sector in Table 8.2. In this table, the growth of average labour cost is also shown in order to reflect the increases

in employer's contribution to the CPF and the SDF.

The average annual growth rate of nominal productivity growth between 1979-84 was 11.1 percent for the whole economy, while the average recommended wage increase was 9.7 percent. Therefore, the NWC recommendations were within the productivity growth. This result agrees to that of Lee [Tsao] (1987: 195). However, if we consider the increases in employer's contribution to the CPF and

Tables 7.2 & 7.3

Table 8.1 NWC Annual Wage Recommendations: 1972-85

Year	Recommended Wage Increases
1972	8%
1973	9%
1974	10% + $S40
1975	6%
1976	7%
1977	6%
1978	6% + $S12
1979	7% + $S32
1980	7.5% + $S33 + 3%
1981	6-10% + $S32 + 2%
1982	2.5-6.5% + $S18.5
1983	2-6% + $S10
1984	4-8% + $27
1985	3-7%

Source: Ministry of Labour, Yearbook of Labour Statistics, 1984 and 1985.
Note: Refer to the original source for more details.

the SDF, the growth of average labour cost exceeds the productivity growth by 0.4 percent per annum between 1979-84. The years which the rate of increase in average labour cost exceeded productivity growth were 1980, 1981 and 1982, which corresponds to the period of the corrective wage policy with a one-year time lag of implementation.

The labour cost - productivity growth gap was only 0.4 percent per annum between 1979-84 for the whole economy; however, it was much larger for the manufacturing sector with 2.5 percent per annum. There were two reasons for this. One was simply lower-than-average growth of manufacturing's productivity, the other was higher recommendations to the manufacturing sector. The NWC recommendation was across-the-board guideline covering all the sectors of the economy. However, since it was composed of a percentage increase and an absolute value increase, it resulted in a higher rate of wage increases for low-pay workers. Since the average wage of the manufacturing sector was lower than the other sectors, the across-the-board recommendations raised the average labour cost of manufacturing more. Although it cannot be confirmed due to the lack of data, it is probable that the NWC recommendations disproportionately increased the labour cost of the labour-intensive sector of the economy.

The comparison in real terms, which are obtained by deflating output and wage increases with GDP deflators (respectively for the whole economy and the manufacturing sector) and consumer's price indices (CPIs), provides another interesting result.[xviii] The gaps between the growth rates of average labour cost and productivity are 1.2 percent and 4.1 percent per annum respectively for the whole economy and the manufacturing sector, which are much larger than the gaps in nominal values of 0.4 percent and 2.5 percent. The reason behind this may be the increase in interest rates, which are reflected in GDP deflators, but not in CPIs. In fact, capital market tightened in the first half of the 1980s, largely due to very expansionary fiscal policy in the United States.

Lee [Tsao]'s (1987) argument that the NWC recommendations were within the productivity growth was incomplete. The simultaneous increase in the contribution rates of the CPF and the SDF raised labour cost faster than productivity growth, and the rising

interest rate led to the squeeze of profitability of businesses in Singapore. These effects were disproportionate between various sectors of the economy, and particularly severe for manufacturing, but her analysis based on aggregated data failed to reveal this. Further disaggregation within the manufacturing sector in Table 8.3 shows that the rate of increase in labour cost exceeded labour productivity in most industries.

Although the contributions to the CPF and the SDF are compulsory, the wage guidelines are not mandatory. However, they are endorsed by the

Table 8.2 Growth of Labour Productivity, NWC Wage Recommendations and Increases in Average Labour Cost: 1979-84

Item	Growth of Labour Productivity	NWC Wage Recommendations	Increase in Average Labour Cost*
Whole Economy (Nominal Rate)			
1979-80	15.9%	12.4%	16.3%
1980-81	13.2%	12.4%	14.4%
1981-82	8.6%	12.2%	13.0%
1982-83	9.8%	6.7%	7.8%
1983-84	8.4%	5.1%	6.3%
Average 1979-84	11.1%	9.7%	11.5%
Manufacturing (Nominal Rate)			
1979-80	16.6%	13.3%	17.3%
1980-81	13.6%	13.2%	15.3%
1981-82	-5.4%	12.9%	13.7%
1982-83	13.2%	7.0%	8.1%
1983-84	11.5%	5.3%	6.5%
Average 1979-84	9.6%	10.3%	12.1%
Whole Economy (Real Rate)			
1979-80	4.0%	4.0%	7.9%
1980-81	6.1%	4.1%	6.1%
1981-82	4.2%	8.4%	9.2%
1982-83	5.7%	5.4%	6.5%
1983-84	7.6%	2.5%	3.8%
Average 1979-84	5.5%	4.9%	6.7%
Manufacturing (Real Rate)			
1979-80	0.0%	4.9%	8.9%
1980-81	8.6%	4.9%	6.9%

1981-82	-6.4%	9.1%	9.9%
1982-83	6.5%	5.7%	6.8%
1983-84	8.2%	2.7%	4.0%
Average 1979-84	3.2%	5.4%	7.3%

Source:Compiled from United Nations, UN Yearbook of National Accounts, 1987 (for GDP and MVA), Department of Statistics, Yearbook of Statistics: Singapore, various issues (for employment), Lee (1987: 181 & 185) (for NWC wage increases), Lim and Associates (1988: 186) (for ratio of non-wage labour cost to wages), World Bank, World Tables, 1989-90 (for GDP deflators) and IMF, International Financial Statistics, 1987 (for CPIs).

Note*:The rate of increase in average labour cost is a hypothetical rate produced by adding the growth of non-wage labour costs (i.e., increases in employer's contribution rates to the CPF and the SDF) to the NWC recommended wage increases. The ratios of non-wage labour cost to wages changed from 0.434, 0.484, 0.511, 0.522, 0.537 to 0.555 between 1979-1984 (Lim and Associates 1988: 186).

Table 8.3

Cabinet and followed by the public sector, which is the single largest employer, employing 11.2 percent of the labour force in 1982 (Beng 1992: 142). The public and unionised private sectors together account for 25 percent of the workforce in Singapore. Many employers, especially multinationals, also support the NWC guidelines as the guidelines are the result of the tripartite negotiation between representatives from employers, trade unions and the government. The other employers who might not be interested in the NWC guidelines will have to follow the guidelines for fear of losing workers. These represent a general view, including Grubel (1989), that the NWC guidelines will have a definite impact on the wages of many employers in Singapore.

However, the actual wage increases exceeded the NWC recommendations in the early 1980s. Lee [Tsao] (1987) explained that this was caused by the tight foreign labour policy. She maintained a dichotomy that labour market is equilibrated either wages or the influx of foreign labour. She used the survey result that half of the firm had wage increases above that recommended by the NWC as evidence for the adjustment of wages by market forces rather than the NWC recommendations. Then the low growth rates of employment in 1983 and 1984 were suggested as evidence for the clamping down on foreign workers (Lee [Tsao] 1987: 189). Leaving the discussion about the foreign labour policy later, here the discussion was concentrated on how far the NWC recommendations affected to the actual levels of wages.

The survey result on the extent of implementation of NWC guidelines by firms is reproduced from Lee [Tsao] (1987: 187) in Table 8.4, together with the result of the same survey on workers. Approximately 60 percent of firms surveyed had wage increases above the NWC recommendations, and 20-25 percent below recommendations in 1982 and 1983.

In terms of percentage workers, only 5-10 percent received less than that recommended by the NWC. Given that the rate of increase in average labour cost exceeded productivity growth in these years, this low percentage of workers received less than the NWC recommendations is rather surprising. It indicates that there were many small firms which failed to provide the NWC recommended wage increases; but percentage of workers employed by these small firms was small. The majority of workers enjoyed equal to or higher than the NWC recommended wage increase.

From this observation, it may be argued that the NWC recommendations have provided a floor, rather than an average, to annual wage increases. If it was correct, the higher than the NWC recommended wage increases were an institutional characteristic, which had downward rigidity for wage adjustment mechanism. Although available data do not allow further clarification, it may be natural to believe that the wage policy based on the NWC played a certain role in increasing the labour cost above the level of productivity growth.

Foreign Labour Policy

The foreign labour policy is another powerful instrument that the government could intervene the labour market in Singapore. Since Singapore economy has almost been in full employment, the tight foreign labour policy could be used to enforce its restructuring programme. By simply turning down applications for labour importation, the government could reduce the reliance on cheap foreign labour, which it considered as a factor hindering productivity improvement (Pang 1980: 45). At the same time, the increase in wages as a result of labour shortage could encouraged the substitution of capital for labour.

Table 8.4Extent of Implementation of NWC Wage Recommendations by Firms and Workers: 1982 and 1983

Item	1982	1983
By Firms		
Above Recommendations	56.5%	62.6%
Within Recommendations	19.1%	17.8%
Below Recommendations	24.4%	19.6%
Total	100.0%	100.0%
By Workers		
Above Recommendations	60.0%	69.3%
Within Recommendations	30.5%	24.4%

Below Recommendations	9.5%	6.3%
Total	100.0%	100.0%

Source: Lim (1986 quoted by Lee [Tsao] 1987: 187) for firms, and Lim and Associates (1988: 205) for workers.

However, it was not until 1982 that the government seems to have tried this instrument. In his New Year message of 1982, the Prime Minister informedthe country that workers from non-traditional (non-Malaysian) sources, other than those engaged in construction, shipbuilding and domestic services, would become prohibited immigrants beginning January 1983. From that date, as their work permits expired they would have to leave.[xix] From 1991, no work permits will be granted for the recruitment of non-resident workers to achieve wholly Singapore workforce by 1992 (The Straits Times, January 1, 1982).[xx] The employers of those unskilled foreign workers were urged instead to either introduce longer work shifts, from 8 to 12 hours (Harris 1986: 63) or employ married Singaporean women in four-hourly work shifts (Pang and Lim 1982: 552).

Before that, the Singapore's labour market has accepted sizable inflow of foreign labour. Even during the three-year period of the corrective wage policy between 1979-81, employers were allowed to import workers. In mid-1981, the government decided to liberalise for two years the importation of all skilled and unskilled foreign workers from both traditional, and non-traditional sources, mainly Indonesia, Thailand, Sri Lanka, India, Bangladesh and the Philippines, as labour shortages have continues to grow. However, by the end of the year the government altered its foreign labour policy, as mentioned-above.

Lee [Tsao] (1987: 189) suggested that the foreign labour policy was tightened, by indicating a sudden reduction in the rate of increase of employment by about half in 1983 and 1984. However, Pang (1993: 307) mentioned that the policy of phasing out foreign labour was flexibly implemented to accommodate employers who faced difficulties in recruiting labour. For example, in 1982, companies were allowed to retain workers from non-traditional sources not exceeding 5 percent of their total workforce, subject to a ceiling of 50. In 1993, companies were allowed to retain non-traditional source workers up to 50 or a number equivalent to 5 percent of the total workforce, whichever is more favourable (Toh and Low 1990: 273). As a result, the strong demand in manufacturing and construction for foreign workers spread to other sectors previously not dependent on foreign labour, e.g., hotels and restaurants. In addition, foreign workers from new sources - South Korea, Hong Kong, Macau and Taiwan among others - were allowed in in 1984, ostensibly because, being of Chinese or close to Chinese decent, they might blend in better into the society (Lee [Tsao] 1987: 188).[xxi]

Whether there was an actual clamping down on foreign workers after this policy change in 1982 is difficult to prove due to the lack of detailed data. However, some attempts are made here to examine the role of the foreign labour policy in the early 1980s.

There is only one time-series data on the number of foreign workers in Singapore. The Report on the Labour Force Survey of Singapore enumerates the number of non-Singaporean workers every year. Non-Singaporean workers include both permanent residents and non-residents. Non-residents are composed of employment pass holders - skilled and professional workers, and (short-term) work permit holders - low skilled workers. They are treated together in the Labour Force Survey. Much more detailed information about foreign workers is available in the Census; however every 10 years only. Therefore, the growth of foreign workers is estimated based on the Labour Force Survey, with the 1980 Census as a reference.

In 1980, there were 80,000 non-Singaporean workers in Singapore according to the Labour Force Survey. This estimate, however, is not comparable with the 1980 Census figure, because it does not include thousands of foreign workers living on construction site. If one assumes that the foreign construction workers are about 50 percent of the total construction workers (which was about 72,000 in 1980), and that all foreign construction workers live on sites, the Singapore's foreign workforce (including permanent residents) in 1980 was around 116,000 (80,000 plus 36,000).[xxii] This figure is close to the 1980 Census figure of 119,000. Applying the same procedure to 1975 and 1984, the number of foreign workers in these years is estimated to be 74,000 (52,000 + 39,000 x 50%) and 161,000 (111,000 + 100,000 x 50%) respectively. The growth rates of Singaporean and Non-Singaporean workers between 1975-80 and 1980-84 are accordingly estimated as shown in Table 8.5.

The table indicates that the growth of foreign workers was much faster than that of Singaporean workers throughout 1975 to 1984. Particularly between 1980-84, the growth of Singaporean workforce was very low at 1.4 percent per annum, and approximately 45 percent of incremental labour demand was met by foreign workers. The average annual growth rate of foreign workers between 1980-84 is estimated to be 8.5 percent, which was only 0.9 percent point smaller than that between 1975-80. As long as based on this estimate, it may be said that there was no significant tightening on the importation of foreign labour between 1980-84.

However, such aggregated information possibly conceals the tight foreign control for some section of the economy. In fact, the new policy message at the beginning of 1982 was to prohibit workers from non-traditional sources, but exempted these who engaged in construction, shipbuilding and domestic services. Here, the difference in increases in average labour cost between industries is used as one indicator to judge whether there was a clamping down on the use of foreign workers in particular sections of the manufacturing sector. The average annual growth rates of labour cost per worker between 1980-84 were shown in Table 8.6 for selected industries.

The average labour cost of textiles and clothes industries, which were relatively labour-intensive industries in Singapore and suffered from the marked decline or slowdown between 1980-84,

Table 8.5Estimated Numbers and Growth Rates of Foreign Workers in Singapore: 1975-84

Year/ Period	Singaporean Workers	Non-Singaporean Workers	Total Workers
Number			
1975	760,000	74,000	834,000
1980	961,000	116,000	1,077,000
1984	1,014,000	161,000	1,175,000
Growth Rate			
1975-80	4.8%	9.4%	5.2%
1980-84	1.4%	8.5%	2.2%

Source:Compiled from Ministry of Labour, Report on the Labour Force Survey in Singapore, various issues, and Department of Statistics, Statistical Yearbook of Singapore, various issues.

Table 8.6Rate of Increase in Labour Cost per Worker of Selected Industries in Singapore: 1980-84

Industry	Average Annual Rate of Increase in Labour Cost per Worker

Electrical Machinery (ISIC 383)	15.6%
Non-electrical Machinery (ISIC 382)	13.0%
Shipping, Repair (ISIC 3841)	9.3%
Industrial Chemicals (ISIC 351)	18.6%
Other Chemical Products (ISIC 352)	14.8%
Textiles (ISIC 321)	12.8%
Clothes (ISIC 322)	13.5%
Total Manufacturing	13.5%

Source:Compiled from United Nations, UN Yearbook of Industrial Statistics, various issues.

increased approximately the same rate for total manufacturing. However, the rate of growth of average labour cost for shipping and repair industry, in which companies were freely allowed to use non-traditional source workers, was significantly lower than those of the other industries. In addition, the growth rates of average labour cost for industries which were composed of relatively large firms, such as industrial chemicals, other chemical products and electrical machinery, were higher than the average. This may be explained by the tight foreign labour control on relatively large firms, since they were more likely to bound with the concessional condition made available in 1982, which companies were allowed to retain non-traditional source workers not exceeding 5 percent of their total workforce, subject to a ceiling of 50.

In order to clarify the above supposition, more detailed research is essential. However, it may be unable to eliminate the case that there were some constraints on the importation of low-skilled foreign workers, probably for many sections of the manufacturing sector and more likely for larger firms, in the first half of the 1980s.

In summary, both the corrective wage policy and the tight labour control contributed to the rapid increase in labour cost in Singapore. The NWC wage recommendations, to some extent, influenced the wages in Singapore by providing a floor, rather than an average, to annual wage increases. There is some evidence that the use of foreign workers was tight-ened in many sections of the manufacturing sector. The labour cost has increased faster than the growth of labour productivity, as a result of combined effects of the corrective wage policy, the increase in employer's contributions to the CPF and the SDF, and the tight foreign labour control. The effects of these policies were disproportionate among different sectors of the economy, but labour-intensive sections of the manufacturing sector were the main sufferers.

9.Conclusion

The corrective wage policy and the tight foreign labour policy have significantly increased the labour cost in Singapore in the early 1980s. These policies, reinforced by the increases in employer's contributions to the CPF and the SDF, disproportionately affected different sections of Singapore's economy. The gap between the rate of increase in labour cost and the growth of labour productivity grew relatively modestly as the economy as a whole, but it widened very rapidly in the manufacturing sector. This was particularly severe in labour-intensive sections of manufacturing, which were main actors of economic development of Singapore during the 1970s.

The comparison of unit labour cost has been found to be an effective tool at evaluating international competitiveness of particular industries across countries. The unit labour cost of labour-intensive industries, such as the assembly of electrical products, textiles, clothes, etc. increased more slowly in Singapore than in the other Asian NICs in the latter half of the 1970s, while faster in the first half of the 1980s. The suggested changes in international competitiveness have been confirmed by the analysis on the changes in shares in the world export markets. Singapore's shares of labour-intensive products in the world exports steadily increased in the 1970s, but declined or were stagnant in the early 1980s. It has also been confirmed that the loss of international competitiveness directly led to the decline in the output of labour-intensive industries, which largely contributed to the poor growth of the manufacturing sector.

In contrast to labour-intensive industries, capital-intensive sections of manufacturing, e.g., industrial chemicals, other chemicals, other electrical machinery (production of micro-circuits etc.) maintained high growth rates, or some accelerated their output growth in the early 1980s. The unit labour cost was not an adequate index to analyse the difference in the growth performance of capital-intensive industries across countries. In this respect, the previous studies, which treated the manufacturing sectors of the four Asian NICs as an identical industry were misleading.

One may suggest that the decline of labour-intensive industries and the high growth of capital-intensive industries in the early 1980s can be seen as a success of the restructuring programme. In fact, the growth of employment significantly declined for the whole economy, and was negative for the manufacturing sector. However, it may be more realistic to say that the wage/foreign labour policies were rather effective at destroying labour-intensive sections of manufacturing. It is well conceivable that the corrective wage policy and the increases in other non-wage labour cost have also hurt industries other than labour-intensive ones, since labour cost was one of the cost elements, however large or small. Although it is difficult to prove due to a lack of more disaggregated output data, it may be argued that the rapid growth of some sections of industries such as special chemicals and pharmaceuticals, computers and computer peripheral equipment were largely induced by generous financial incentives, which were given to these targeted industries.

The concept of the industrial restructuring was based on the neoclassical theory of production, which assumes flexible substitution of labour and capital. Higher relative price of labour to capital will lead to a greater use of capital and less of labour on the iso-quont curve - without changing the level of output. However, this assumption has been found to be impractical for many industries in the real world, as was the case of Singapore's labour-intensive industries. In addition, policy makers in Singapore appear to have regarded the

economy as a one-sector model, as many theorists in academics do. It has also been found to be an infeasible assumption in the real world. Different sections of the economy require different combinations of input factors, which are much more complex than what is explained by the relative price of labour to capital. It was quite impractical to completely eliminate the use of unskilled labour by mechanisation and automation. On the contrary, it is even probable that the demand for unskilled labour will increase as Singapore further specialises in financial and business activity, which is already fast growing. As Sassen (1991) mentions, the global city specialising in greater shares of financial activity and headquarters functions disproportionately requires workers with top-end and low-bottom of skills. Therefore, the cut back of unskilled foreign labour is potentially dangerous to skill- and information-intensive sections of the economy as well.

One may also argue that the decline of labour-intensive industries can be seen simply as a process of economic development, which is a shift in the structure of an economy from activities of relatively low to those of relatively high levels of productivity. However, the decline of labour-intensive industries occurred very suddenly in the early 1980s, and so did the slowdown of manufacturing. The growth rate of the economy was still comparable with the other Asian NICs in the first half of the 1980s; but if we exclude the deliberately expanded construction sector, the growth performance of Singapore was disappointing. Therefore, we must see that there were policy mistakes, rather than regarding the slowdown of manufacturing as a process of economic development.

The 1985 recession was caused by various external and internal factors. Falling oil prices and other commodity prices adversely affected the petroleum refining and other raw-material-based industries since around 1982. The slowdown of the U.S. economy in 1985 was another major external factor which hit not only Singapore but also the other Asian NICs. As for internal factors, the over supply of real estate was a serious mistake of the government in macro-economic management. The adverse effects of the corrective wage policy and the tight foreign labour control on the economy have emerged early in the 1980s; but they are also contributed to the recession by exacerbating the severity. On the basis of the economic analysis conducted here, a set of measures taken by the Singapore government to get out of recession - the two-year wage restraint, the ceasing of the NWC recommendations, the temporary reduction in employer's contribution rate to the CPF, the cuts in various business charges, etc. were adequate, although it might be true that there was little the government could do other than these. It is also appreciated that the government relaxed the use of unskilled foreign labour later.

Since the wage policy instituted in Singapore was an unorthodox policy, its experience may not directly provide policy lessons for other countries. However, the consequence of the tight foreign labour policy is an important lesson for many other fast growing economies. This problem is often politically sensitive; but, the economic benefits of the use of foreign labour are likely to be large. Therefore, its effective use must be considered with due attention to its negative social impacts. With this regard, Singapore's system of having a revolving pool of foreign workers may be a good solution.

Singapore has a long tradition which the government constantly monitors its economic performance and the changing external environment. The Singapore government has also practised a public leadership in putting together various knowledge and resources scattering within the city. One example was the Economic Committee Report, which was produced by representatives from the government, the trade union and private businesses. These efforts are quite effective at implementing various programmes and projects with consensus, and thus exemplify a good model for the management of cities and countries, although the action was too late in preventing the severe downturn of Singapore's economy in 1985.

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NOTES

i.These wage guidelines are not mandatory but are followed by the public sector (by far the largest employer) and widely implemented in the private sector.

ii.However, there is a view that because of the low wages, manufacturing was able to grow towards the end of the 1970s, helped by the continuing inflow of foreign workers; but without foreign workers, many of the labour-intensive industries would have shifted prematurely out of Singapore during this phase (Soon and Tan 1993: 13).

iii.The NWC's actual annual recommendations ranged around 12-13 percent, as shown in Section 8.

iv.Those included automotive components, machine tools and machinery, medical and surgical apparatus and instruments, specialty chemicals and pharmaceuticals, computers, computer peripheral equipment and software development, electronic instrumentation, optical instruments and equipment (including photocopying machines), advanced electronic components, precision engineering products, and hydraulic and pneumatic control systems (Soon and Tan 1993: 15).

v.However, this suggestion seems to be inconsistent with their evaluation of the corrective wage policy that it was generally sound.

vi.Both Lim and Associates (1988) and Lee (1987) compared the relative change of unit labour cost of the Singapore's manufacturing sector with that of Hong Kong, South Korea and Taiwan. However, Lee excluded petroleum refinery from Singapore's manufacturing for comparison with the other three. In addition, the real labour productivity was defined as value added per worker by Lim and Associates, while as gross output per worker by Lee.

vii.It is noted that Table 5.3 was based on the Industrial Census, which covered establishments with 10 or more workers only, thus not agreeing to the growth rates in Tables 5.1 and 5.2, which were based on the national accounts statistics.

viii.The capital intensity index (CII) of ISIC 3832 in 1984 was 87 against the average of 100 for non-petroleum manufacturing. The CII of industry i is given as CII = (Yi/Y)/(Li/L), where Yi and Li are value added and labour force of industry i, and Y and L are those of total manufacturing. The higher CII indicates more capital-intensive industry. Petroleum industry was excluded from the calculation because of its extremely high capital intensity.

ix.The CII for ISIC 383 less 3832 was 130 in 1984.

x.The CIIs for these industries in 1984 were as follows: ISIC 321: 56 ISIC 322: 38, ISIC 323: 40 ISIC 331: 63, ISIC 332: 47, ISIC 356: 71.

xi.The CIIs for these industries in 1984 were as follows: ISIC 351: 212 ISIC 352: 373. Non-metal products (ISIC 369) also accelerated its growth rate between 1980-84; however, this was due to the rapid expansion of the construction sector, rather than the transformation of Singapore's manufacturing towards capital-intensive one.

xii.The CIIs for these industries in 1984 were as follows: ISIC 384: 108 ISIC 3841: 84.

xiii.There are, however, major difficulties in correspondence between SITC (traded commodity classification) and ISIC (industrial classification). Some commodities in four-digit SITC still cannot be reclassified into the ISIC. In this study, the main parts of the analysis are based on the ISIC, where data are available up to the four-digit level. Thus, manufactured exports are classified up to the three-digit level of the SITC with a rough correspondence with the ISIC.

xiv.It is noted that exports from Singapore and Hong Kong include significant shares of re-exports. It was about 35% in Singapore in the first half of the 1980s. This may create difficulties in linking the export performance with the output growth of Singapore's manufacturing. However, since no SITC data on

domestic exports are available, the current analysis is based on exports including re-exports.

xv. As a yardstick to judge overvaluation and undervaluation of currencies, the purchasing power parity (PPP) theory may be used. According to this with GDP deflators as price index, the exchange rate of Singapore dollar was slightly undervalued against the U.S. dollar by 1.0 percent per annum between 1975-80. The Hong Kong dollar, Korean Won and New Taiwan dollar were overvalued by 2.3 percent, 6.4 percent and 1.6 percent per annum for the same period. Between 1980-84, all national currencies of the four Asian NICs were undervalued. But, the extent of undervaluation was smallest in Singapore with 2.3 percent per annum, while those of Hong Kong, South Korea and Taiwan were 8.4 percent, 4.0 percent and 3.6 percent per annum respectively.

xvi. The labour share of value added can be used to indicate how the increase in labour cost affects the operating surplus, of which profit is the residual of rent and interest. The labour shares of labour-intensive industries are high; ISIC 3832: 40.9 percent, ISIC 321: 56.7 percent, ISIC 322: 64.9 percent and ISIC 3841: 60.9 percent, while those of less labour-intensive industries are low; ISIC (383-3832): 25.9 percent, ISIC 351: 33.3 percent, and ISIC 352: 15.4 percent, respectively in 1984.

xvii. In addition, in order for the ULC to reflect international competitiveness, the conditions of free trade must be satisfied. This might be less satisfactory for South Korea and Taiwan than for Singapore and Hong Kong. This could be a reason for the higher growth of many manufacturing industries in South Korea between 1975-80 regardless of its high growth of the ULCs.

xviii. Base year for GDP deflators and CPIs is 1980.

xix. It meant that they were to be phased out by 1984.

xx. This new policy was repeatedly reminded to employers by the government, including a speech by then-Minister for Labour in May 1982 (Ministry of Culture 1982).

xxi. Toh and Low (1990: 272) argued that the importation of labour from these countries was aimed to support the economic restructuring, rather than to fill the shortage of unskilled labour.

xxii. This method of estimation is by Pang (1991: 28).