

## 香港製造業的生產者價格指數分析

### **An Analysis of the Producer Price Indices for Hong Kong's Manufacturing Industries**

香港製造業的生產者價格指數旨在反映本地製造業產品價格的變動。這些指數可用以監測製造行業產品價格的變動情況，以及評估產品在價格上的競爭力。本文介紹生產者價格指數的基本概念和編製方法，並分析香港製造業的生產者價格指數在一九九一年至一九九七年間的變動情況，以及影響該變動情況的一些因素。

Producer price indices for Hong Kong's manufacturing industries are compiled to reflect changes in prices of local manufacturing output. They are useful for monitoring the price movements of the output of the manufacturing industries and evaluating their price competitiveness. This article introduces the basic concepts of producer price indices and their compilation method. It also analyses the movements of the producer price indices for Hong Kong's manufacturing industries for the period 1991 to 1997 and the factors underlying such movements.

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### 1. 什麼是生產者價格指數？

1.1 香港製造業的生產者價格指數現時是由政府統計處按季編製及發布。

1.2 就製造業而言，生產者價格是指製造商對其產出所收取的銷售價格（即已扣除任何退回買家的折扣或回佣，但包括附加費用）。運輸費用和其他雜費卻不包括在內。

1.3 一個製造行業在某一季度內的生產者價格指數，是量度該製造行業產品價格由基期至有關季度期間的相對變動情況。

1.4 生產者價格指數可用作物價平減指數，從生產價值數據撇除價格的因素，從而量度本地生產量變動的情況。生產者價格指數亦可用以監測本地製造業產品價格的變動情況，以及評估它們相對於其他國家／地區的產品在價格上的競爭力。

1.5 由於編製的複雜性和技術因素，政府統計處尚未能提供香港服務業的生產者價格指數。然而，政府統計處已有計劃就選定服務業中的一些行業組別首先編製生產者價格指數，並逐步推展至其他服務行業組別。

### 1. What is producer price index ?

1.1 Producer price indices are currently compiled by the Census and Statistics Department for Hong Kong's manufacturing industries on a quarterly basis.

1.2 In the case of manufacturing, producer prices are selling prices (net of any discount or rebates allowed to buyers, but including surcharges) received by manufacturers. Transportation and other incidental charges are nevertheless not included.

1.3 The producer price index of a manufacturing industry for a reference quarter measures the relative change in prices of the output of the manufacturing industry concerned over the duration from the base reference period to the quarter concerned.

1.4 Producer price index can be used as a deflator for discounting the effect of price changes in production value when measuring the changes of local manufacturing output in real terms. It is useful also for monitoring the price movements of local manufacturing outputs and evaluating their price competitiveness with those manufactured in other countries/territories.

1.5 For the time being, producer price indices for the services sector are not yet available in Hong Kong due to the complexities and technicalities involved in compiling such indices. However, plan is already in hand to compile producer price indices for the services sector by phase, though on a highly selective basis initially.

## 2. 怎樣編製生產者價格指數？

2.1 香港製造業的生產者價格指數是根據「工業生產按季統計調查」所搜集工業產品／服務的生產者價格數據編製而成。這項統計調查亦有搜集生產數據，用作編製工業生產指數，以反映製造業本地生產量變動的情況。

2.2 個別工業的生產者價格指數，是根據一組選定為該工業較重要的工業產品／服務而編製。指數的編製方法是首先就該工業所包括的每件成份工業產品／服務計算出它的價格對比。價格對比是指統計期的生產者價格相對上年度的平均生產者價格的比率。

2.3 一件工業產品／服務的價格對比，是把每一間製造該工業產品／服務的機構的價格對比，透過其銷售該工業產品／服務的銷售價值作為權數，累加而成。

2.4 個別工業的價格對比，是把所包括的各件成份產品／服務的價格對比，透過其銷售價值作為權數，累加而成。累加時用作權數的銷售價值，是根據最近一輪的「工業生產按年統計調查」所得的資料計算。透過連續相乘的方法，上述以上年度為基期的指數會轉為以一九九零年為基期的生產者價格指數。由於工業產品／服務隨時間迅速改變，採用連續相乘的方法來編製這些指數是最恰當的。

## 2. How is producer price index compiled ?

2.1 Producer price indices for Hong Kong's manufacturing industries are compiled from data on producer prices of industrial goods/services collected from the Quarterly Survey of Industrial Production. The survey also collects production data for the computation of the indices of industrial production, which measure changes in the volume of local manufacturing output.

2.2 Producer price index of a particular industry is compiled on the basis of a selected "bundle" of the more important industrial products/services of that industry. The index is obtained by first computing the price relative of each of the component products/services pertaining to that industry. Price relative refers to the ratio of producer price for the reference quarter to the average producer price of the same product in the preceding year.

2.3 The price relative of a product/service is obtained by aggregating the price relatives of each of the establishments producing that product/service, using the sales values of the product/service produced by the establishments as weights.

2.4 The price relatives of the component products/services are then aggregated, using the sales values of the products as weights, to form the price relative of the respective industry. The sales values that are used as weights for aggregation are obtained from the latest round of the Annual Survey of Industrial Production. The result, being an index with the preceding year as the comparison base, is converted to the producer price index of the industry with 1990 as the base by the method of chaining. The chained index formula is considered most appropriate for compiling the producer price indices given the rapid changes of manufactured products over time.

### 3. 生產者價格指數的變動情況

3.1 表一載列香港各個製造行業從一九九一年至一九九七年的年度生產者價格指數。圖一顯示該等生產者價格指數的變動情況。

3.2 在一九九一年至一九九五年間，整體製造業的生產者價格指數平穩地上升，但由一九九六年起則大致並無變動。在一九九一年至一九九七年間，生產者價格指數只上升百分之七點二，平均按年升幅為百分之一點二。製造業生產者價格指數相對地較低的升幅，部分是由於製造行業的生產力有顯著改善，從而幫助抵銷本地生產成本的增加，及有助香港產品在世界市場保持競爭力。

3.3 個別製造行業方面，紙品及印刷業和塑膠製品業的生產者價格在一九九一年至一九九七年間的平均按年升幅分別為百分之三點五和百分之一點七。與整體製造業比較，這兩個製造行業的生產者價格有較大的波幅，原因是由於它們受到進口原料價格較大波動的影響。

### 3. Movements of producer price indices

3.1 Table 1 presents the annual series (1991 to 1997) of producer price indices for Hong Kong's manufacturing industries. The movements of the indices are also illustrated graphically in Chart 1.

3.2 The producer price index for the manufacturing sector as a whole increased steadily from 1991 to 1995, but remained virtually unchanged since 1996. Over the period from 1991 to 1997, the producer price index rose by 7.2%, with an average annual rate of increase of 1.2%. The relatively low average rate of increase was partly attributable to the significant improvement in productivity in the manufacturing industries, which had helped counteract the rise in production cost and thus maintain the competitiveness of Hong Kong's products in the world market.

3.3 As for individual manufacturing industries, the producer prices of the paper products and printing industry, and the plastic products industry recorded average annual rates of increase of 3.5% and 1.7% respectively from 1991 to 1997. When compared with the manufacturing sector as a whole, the producer prices of these two industries were more volatile, because they had been affected by fluctuations in the prices of imported raw materials of relatively higher magnitude.

表一 一九九一年至一九九七年製造業按年生產者價格指數  
Table 1 Annual producer price indices for manufacturing industries, 1991 to 1997

製造行業 Manufacturing Industry	1991	1992	1993	1994	1995	1996	1997	(1990=100)
								1991至1997 的平均按年變動百分率 Average annual rate of change (%) 1991 to 1997
服裝製品業 (鞋類除外) Wearing apparel (except footwear)	104.2	107.6 (3.2)	108.4 (0.8)	109.8 (1.2)	111.2 (1.3)	111.6 (0.3)	112.0 (0.4)	1.2
紡織製品業 (包括針織) Textiles (including knitting)	105.5	106.7 (1.1)	106.4 (-0.3)	111.7 (4.9)	115.1 (3.1)	115.4 (0.2)	115.8 (0.3)	1.6
紙品及印刷業 # Paper products and printing #	104.9	108.5 (3.5)	110.0 (1.4)	113.5 (3.2)	122.9 (8.3)	125.1 (1.8)	128.7 (2.9)	3.5
塑膠製品業 Plastic products	102.5	102.7 (0.2)	102.1 (-0.7)	105.2 (3.0)	112.7 (7.2)	113.4 (0.7)	113.1 (-0.3)	1.7
金屬製品業 (機械及設備除外) Fabricated metal products (except machinery and equipment)	102.8	107.0 (4.1)	108.9 (1.8)	109.4 (0.5)	109.2 (-0.2)	109.1 (-0.1)	105.5 (-3.3)	0.4
電器及電子製品製造業 Consumer electrical and electronic products	100.0	96.1 (-3.9)	93.8 (-2.4)	90.0 (-4.1)	87.2 (-3.1)	83.6 (-4.2)	80.5 (-3.7)	-3.6
機械、設備、儀器及零件製造業 Machinery, equipment, apparatus, parts and components	101.7	103.7 (1.9)	103.4 (-0.3)	103.5 (0.2)	104.2 (0.7)	102.6 (-1.5)	101.2 (-1.4)	-0.1
其他製造業 @ Other manufacturing industries @	103.4	107.0 (3.5)	109.1 (1.9)	113.5 (4.0)	118.5 (4.4)	119.0 (0.4)	119.1 (0.1)	2.4
所有製造業 All manufacturing industries	103.4	105.3 (1.9)	106.0 (0.7)	108.2 (2.1)	111.2 (2.8)	111.1 (-0.1)	110.8 (-0.3)	1.2

註：括弧內的數字是按年變動的百分率。

Notes: Figures in brackets denote year-on-year percentage changes.

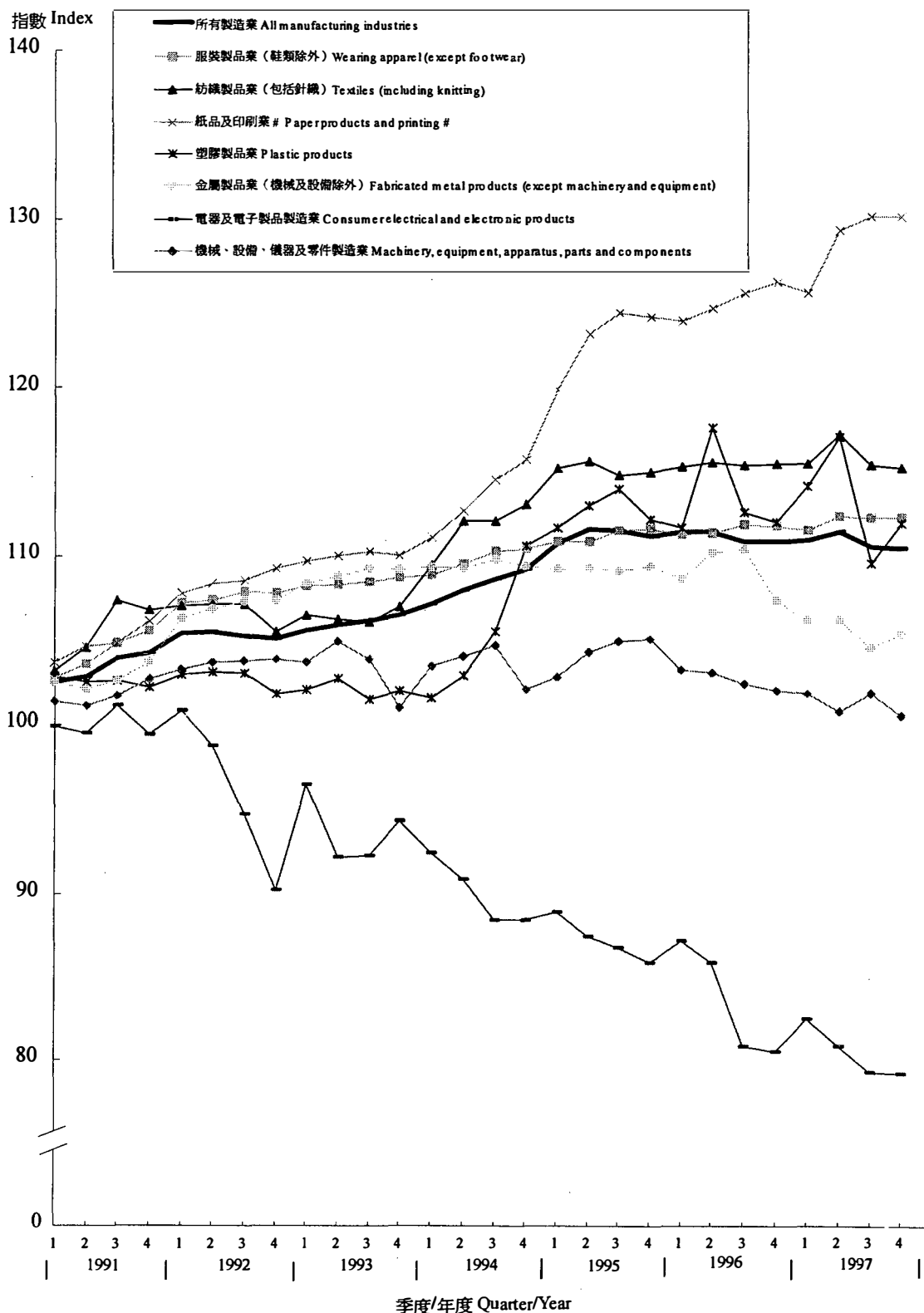
# 由一九九六年第一季開始，紙品及印刷業亦包括從事出版而不負責自行印刷的機構。

# As from the first quarter of 1996, the paper products and printing industry also includes establishments engaged in publishing without printing.

@ 由於“其他製造業”包括生產不同性質產品的製造行業，這工業組別的生產者價格指數或會有較大的波動。

@ As "other manufacturing industries" comprises a combination of industries producing manufactured products of varying nature, the producer price index so compiled for this industry group may tend to be more fluctuating.

圖一 製造業按季生產者價格指數  
 Chart 1 Quarterly producer price index for manufacturing industries



註：# 由一九九六年第一季開始，紙品及印刷業亦包括從事出版而不負責自行印刷的機構。

Note : # As from the first quarter of 1996, the paper products and printing industry also includes establishments engaged in publishing without printing.

3.4 就紙品及印刷業而言，生產者價格指數在一九九一年至一九九三年間平穩地上升，並錄得百分之二點四的平均按年升幅。但從一九九四年下半年起，由於紙及紙板的入口價格上漲，生產者價格指數的按年升幅，由一九九四年第三季的百分之三點九增加至一九九五年第二季的百分之九點四。然而，隨著紙及紙板的入口價格由一九九五年第四季起緩和下來，紙品及印刷業的生產者價格的升幅在一九九五年第四季起開始收窄。到了一九九六年第一季，生產者價格指數與一九九五年同季比較只增加了百分之三點三。然而，由於紙及紙板的入口價格再次上升，該行業的生產者價格指數在接近一九九七年底時有逐漸上升的跡象。

3.5 塑膠製品業的生產者價格指數變動趨勢跟紙品及印刷業的相似。在一九九一年至一九九三年間，塑膠製品業的生產者價格指數大致並無變動，這跟塑膠原料入口價格在同期的平穩趨勢吻合。然而，隨著塑膠原料的入口價格由一九九四年下半年起顯著回升，塑膠製品業的生產者價格指數按年升幅，亦由一九九四年第三季的百分之四急劇上升至一九九五年第三季的百分之八。但是當塑膠原料的入口價格自一九九五年第三季以後開始緩和下來，塑膠製品業的生產者價格的升幅亦從一九九五年第四季起顯著地收窄。

3.4 For the paper products and printing industry, the producer price index increased steadily during 1991 to 1993, registering an average annual rate of increase of 2.4% during the period. As a result of the upsurge in the import prices of paper and paperboard from the second half of 1994 onwards, the year-on-year rate of increase of the producer price index accelerated from 3.9% in 94Q3 to a peak of 9.4% in 95Q2. However, with the moderation in the import prices of paper and paperboard starting in 95Q4, the uptrend in the producer prices of the paper products and printing industry tended to taper off towards the end of the year. By the first quarter of 1996, the producer price index was only 3.3% higher than a year earlier. However, there were signs towards the end of 1997 that the producer price index for this industry was picking up as the import prices of paper and paperboard increased again.

3.5 The producer price index of the plastic products industry followed a similar trend as that of the paper products and printing industry. During 1991 to 1993, the producer price index of the plastic products industry remained virtually unchanged which was in line with the stable trend of import prices of plastic materials during the same period. However, following the drastic increase in the import prices of plastic materials starting from the second half of 1994, the year-on-year rate of increase of the producer price index picked up sharply from 4% in 94Q3 to 8% in 95Q3. But as the import prices of plastic materials became soft after the third quarter of 1995, the producer prices of the plastic products industry showed a marked moderation since the fourth quarter of 1995.

3.6 紡織製品業（包括針織）、服裝製品業（鞋類除外）和金屬製品業（機械及設備除外）的生產者價格在一九九一年至一九九七年間只是溫和上升，平均按年升幅分別為百分之一點六、百分之一點二和百分之零點四。在一九九一年至一九九七年，機械、設備、儀器及零件製造業的生產者價格變動情況反覆不定，就整段期間而言，生產者價格差不多沒有變動，只下跌百分之零點五，平均按年跌幅則為百分之零點一。

3.7 另一方面，電器及電子製品業的生產者價格在一九九一年至一九九七年間持續下跌，平均按年跌幅為百分之三點六，這主要與科技的發展減低電器及電子製品的生產成本有關。

#### 4. 影響生產者價格指數變動情況的因素

4.1 在上文中，我們觀察到不同的製造行業有不同的生產者價格變動趨勢。一些製造行業的生產者價格表現平穩的上升趨勢，而另一些製造行業的生產者價格則有較大的波幅。電器及電子製品製造業的生產者價格更錄得下跌的趨勢。以下為一些相關因素，它們可用以解釋為何各個行業有著不同的生產者價格變動趨勢。

##### *投入要素價格*

4.2 製造商在釐定產品的售價時，該產品的生產成本，包括投入物料的成本、僱員薪酬、工業樓宇及機器的租金等，是一項關鍵的考慮因素。

3.6 The producer prices of the textiles (including knitting) industry, the wearing apparel (except footwear) industry, and the fabricated metal products (except machinery and equipment) industry increased only mildly during the period from 1991 to 1997. Their average annual rates of increase were 1.6%, 1.2% and 0.4% respectively. Meanwhile, the movements of the producer price index of the machinery, equipment, apparatus, parts and components industry were more fluctuating, with positive and negative year-on-year rates of change interwoven between 1991 and 1997. Over the period as a whole, its producer prices showed virtually no change, reduced by only 0.5% over the whole period and by only 0.1% annually on average.

3.7 On the other hand, the producer price index of the consumer electrical and electronic products industry declined throughout the period from 1991 to 1997. The average annual rate of decrease over the period was 3.6%. This was mainly attributable to the advancement in technology which reduced the production costs of consumer electrical and electronic products.

#### 4. Factors underlying the movements of producer price indices

4.1 In the above, we observed that different manufacturing industries had different trends of producer price indices. While the producer prices of some industries exhibited steady uptrends, those of some other industries showed greater volatility. A declining trend was even recorded for the producer prices of the consumer electrical and electronic products industry. Described below are some of the underlying factors which may help explain the differential movements in the producer prices of various industries.

##### *Prices of factor inputs*

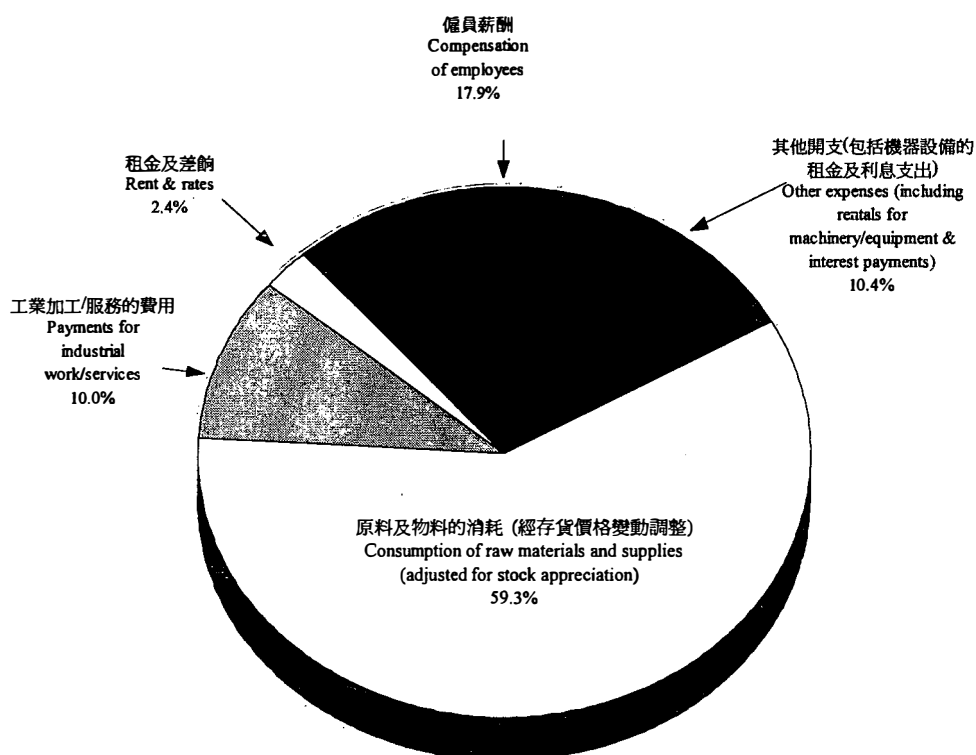
4.2 The production cost of a product, which include such components as cost of material inputs, compensation of employees, rental payments for industrial premises and machinery etc., is a crucial factor considered by a manufacturer in determining the selling prices of the product.



4.3 圖二顯示製造業的成本結構。在一九九五年，生產成本主要集中於原料及物料的消耗，佔總支出的百分之六十，其次是僱員薪酬，佔總額的百分之十八。至於工業樓宇的租金及差餉則佔總額的百分之二點四。製造業的成本結構在近數年均保持平穩。

4.3 The cost structure of the manufacturing sector in 1995 is presented in Chart 2. In 1995, the bulk of the production cost was concentrated in consumption of raw materials and supplies, accounting for about 60% of the total expenses. This was followed by compensation of employees, which accounted for around 18% of the total. As for rent and rates for industrial premises, it accounted for only 2.4% of the total. The cost structure had remained quite stable over the years.

**圖二 一九九五年製造業的成本結構**  
**Chart 2 Cost structure of the manufacturing sector in 1995**



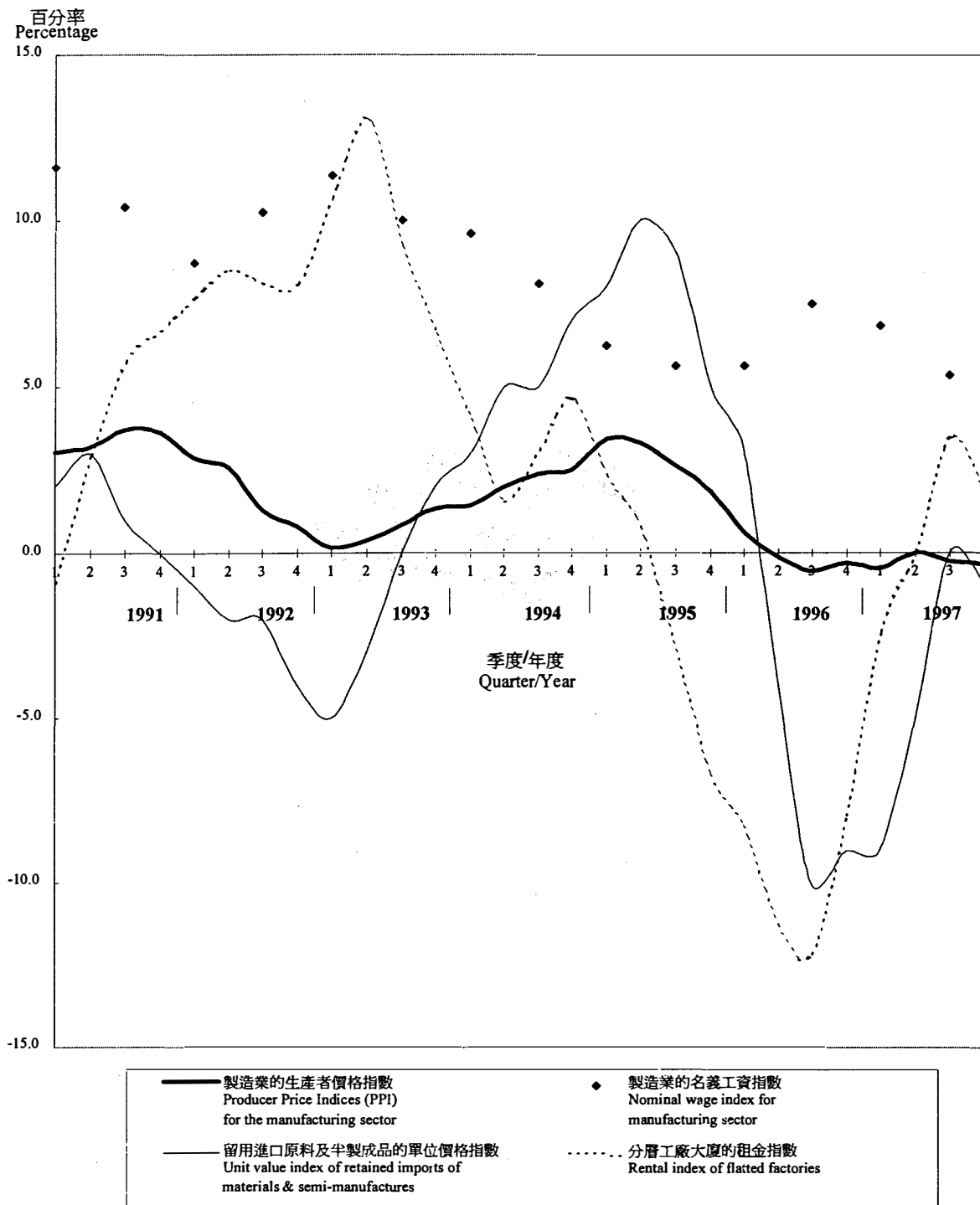
資料來源：政府統計處  
工業生產統計組

Source: Industrial Production Statistics Section  
Census and Statistics Department

4.4 由於本地製造商所消耗的物料大部分均來自外地入口，留用進口原料及半製成品單位價格指數可作為物料價格變動的一項指標。圖三展示了整體製造業生產者價格指數，以及一些相關的生產要素投入價格按年變動百分率。

4.4 As most of the material inputs consumed by the local manufacturers are imported, the unit value index of retained imports of raw materials and semi-manufactures can be used as an indicator of changes in prices of material inputs. In chart 3, the year-on-year percentage changes of the producer price index for the manufacturing sector as a whole, together with those of prices of some relevant factor inputs for production are presented.

**圖三 製造業生產者價格指數及選定生產投入價格指數的按年變動百分率**  
**Chart 3 Year-on-year percentage changes of PPI for the manufacturing sector and price indices of selected inputs for production**



資料來源：政府統計處  
 綜合經濟統計調查組  
 工資及勞工成本統計組  
 貿易資料分析組  
 差餉物業估價署

Source: Census and Statistics Department  
 General Economic Surveys Section  
 Wages and Labour Costs Statistics Section  
 Trade Analysis Section  
 Rating and Valuation Department

4.5 圖三顯示生產者價格指數、製造業的工資指數和分層工廠大廈的租金指數有頗不同的變動趨勢。雖然製造業的工資在一九九一年至一九九七年期間持續上升，但升幅於近期已有所放緩。至於分層大廈的租金方面，由於其在總生產成本中只佔一個很小的比重，因此其對生產者價格指數應只有輕微的影響。

4.6 留用進口原料及半製成品單位價格指數和生產者價格指數顯示大致相近的變動趨勢。在一九九一年和一九九二年，當留用進口原料及半製成品的價格下跌時，製造業產品的生產者價格的升幅亦緩和下來。然而，隨著留用進口原料及半製成品的價格自一九九三年第二季起回升，製造業產品的生產者價格的升幅亦增加。另一方面，當留用進口原料及半製成品價格上升的壓力放緩時，生產者價格在一九九五年後期的升幅亦相對地溫和，而自一九九六年起，生產者價格則保持平穩。然而，雖然兩者有著相近的變動趨勢，但是後者的變動幅度遠較前者為小。

### 生產力

4.7 雖然生產成本總額持續上升，製造業產品的生產者價格在一九九一年至一九九七年間的平均按年升幅只是百分之一點二，這部分是由於本地製造業積極投資機器和設備，以及提高製造業勞動力的素質等所致。透過這些發展，製造業的生產力得以持續增長，從而有助穩定單位生產成本。

4.5 Chart 3 reveals that the producer price index, the wage index for the manufacturing sector and the rental index of flatted factories had quite different trends. While the wage in the manufacturing sector increased throughout the period from 1991 to 1997, it tended to moderate a bit recently. As regards the rentals of flatted factories, it should have only minor effect on the producer prices in view of its small share in the total production cost.

4.6 The unit value index of retained imports of raw materials and semi-manufactures and producer price index showed broadly similar trends. During 1991 and 1992, as the prices of retained imports of raw materials and semi-manufactures fell, the increase in the producer prices of manufacturing output also moderated. However, as the prices of retained imports of raw materials and semi-manufactures firmed up since 93Q2, the rate of increase in the producer prices of manufacturing output accelerated. On the other hand, with the alleviation in the prices of retained imports of raw materials and semi-manufactures, the producer prices increased less rapidly by the latter part of 1995 and remained stable since 1996. Despite their similar trends, it can be seen that the magnitude of changes of the latter series is far smaller that of the former.

### Productivity

4.7 Despite the continued increase in the total production cost, the producer prices of manufacturing output rose only by an average annual rate of 1.2% during 1991 and 1997. This was partly attributable to the continued improvement in manufacturing productivity, brought about by the investment in machinery and equipment, and the improvement in quality of the manufacturing labour force etc., which helped keep the unit production cost down.

4.8 圖四展示製造業和主要製造行業在一九八二年至一九九五年間的勞工生產力變動情況。這些行業的勞工生產力均顯示一致上升的趨勢，其中電器及電子製品業的勞工生產力在這期間顯著地上升（有關一九八二年至一九九五年香港製造業勞工生產力的詳細分析，載列於本刊於一九九七年十二月號的專題文章中）。

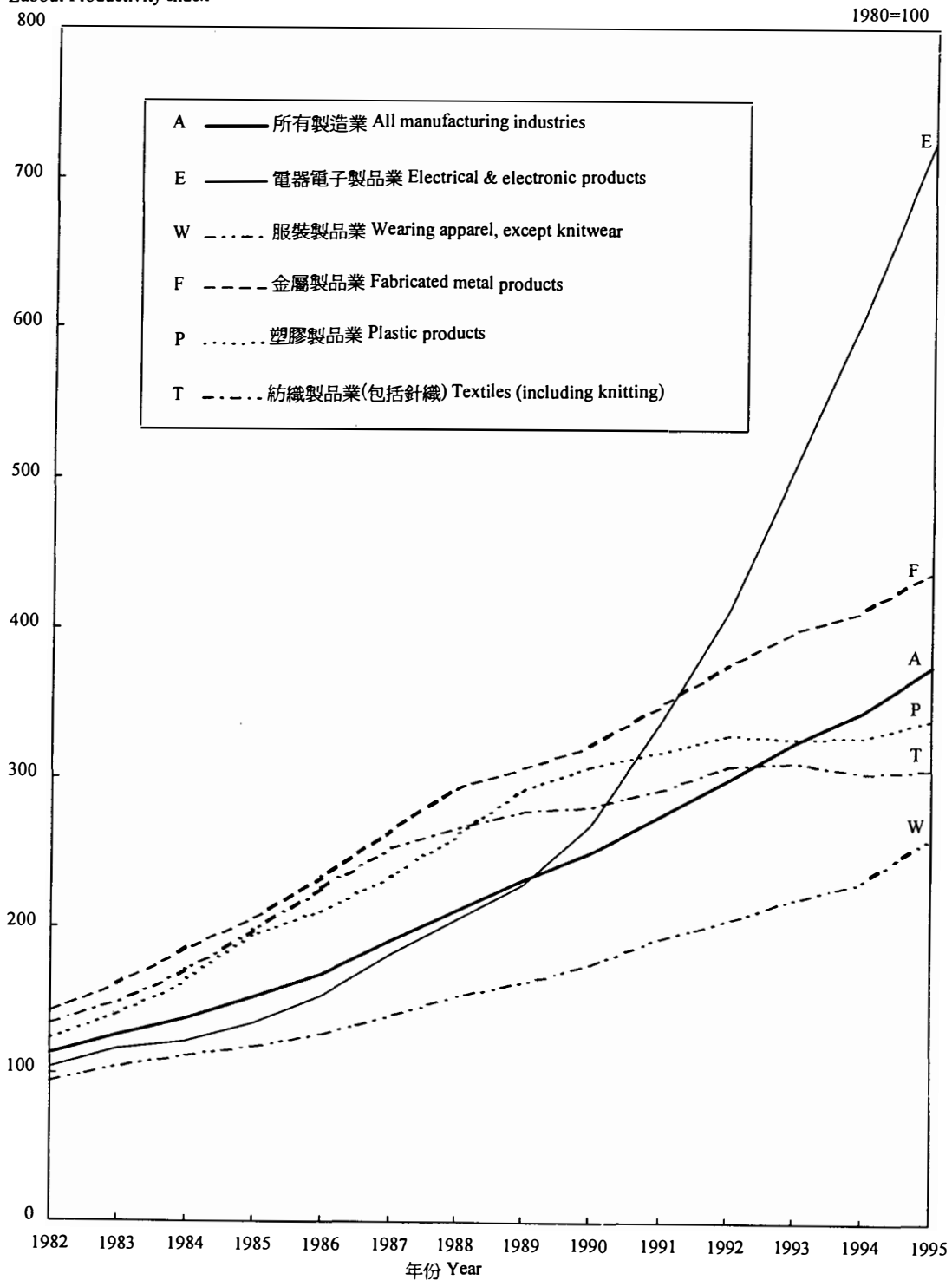
4.9 影響香港製造業生產者價格的因素眾多，除上述兩項因素外，生產者價格亦會受到匯率變動；世界市場的需求；主要競爭對手的出口價格；以及它們的相互關係等因素所影響。然而，這些因素的詳細分析涉及多項範疇，並非本文所能涵蓋。

4.8 The movements of the labour productivity indices for the manufacturing sector and the major manufacturing industries from 1982 to 1995 are presented in chart 4. It was revealed that the labour productivity in these industries all exhibited consistent upward trends. In particular, the labour productivity in the electrical and electronic products industry rose remarkably during the period (a detailed analysis of the labour productivity in Hong Kong's manufacturing industries for the period from 1982 to 1995 is given in a feature article in the December 1997 issue of this publication).

4.9 There are numerous other factors affecting the producer prices in Hong Kong's manufacturing industries. In addition to the above two factors, producer prices may also be subject to the impacts of fluctuations in exchange rates, world market demand, export prices offered by our main competitors etc. as well as their interactive effects. However, a detailed analysis on these factors is not a straight-forward task and is beyond the scope of this article.

**圖四 勞工生產力指數**  
**Chart 4 Labour Productivity Indices**

勞工生產力指數  
 Labour Productivity Index



資料來源： 政府統計處  
 工業生產統計組

Source: Industrial Production Statistics Section  
 Census and Statistics Department