FEATURE ARTICLE

Export Performance in Hong Kong — Offshore Trade and Re-exports

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Hong Kong's export growth has fallen behind that of the Mainland in recent years, reflecting faster export growth in the Yangtze River Delta (YRD) than in the Pearl River Delta (PRD), with which Hong Kong is more closely integrated. There are signs that an increasing portion of the Mainland's exports is shipped direct to final destinations. Direct cross-strait links between the Mainland and Taiwan could pose a further challenge. However, the recent trend of rising offshore trade probably reflects Hong Kong's endeavours to seize the business opportunities provided by the strong growth in the Mainland's direct trade with the rest of the world. Nevertheless, changes in the structure of exports have important implications for employment in the trade sector, since offshore trade requires less employment of labour than do re-exports and domestic exports.

I. INTRODUCTION

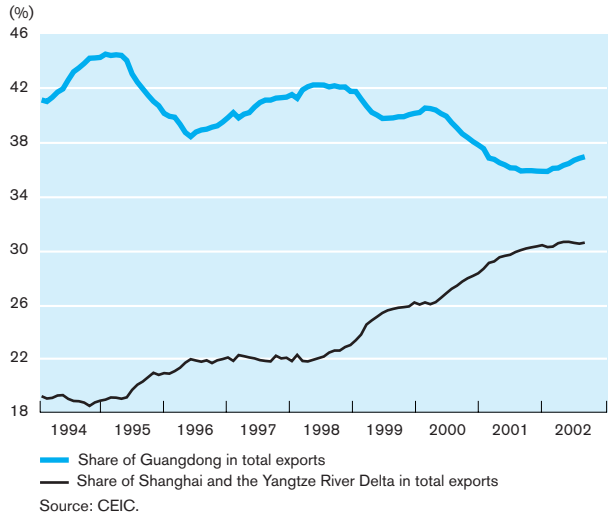
Hong Kong, with its strategic location, well developed trade services industry and sophisticated financial system, has established itself as a significant international trade centre. Over the past two decades, its small, open economy has been mainly driven by external trade. A feature of this external trade is Hong Kong's role as an entrepôt for the Mainland. It has made considerable contributions to, and benefited from, the Mainland's rapid economic growth since the reform programme was introduced more than two decades ago. In particular, Hong Kong has formed a close link with its immediate hinterland, Guangdong province, which has enjoyed remarkable economic expansion associated with rapid export growth.[1]

At the same time, as the Mainland integrates more with the global economy and improves its infrastructure, it is developing its own external trade links, particularly in the northern and eastern parts of the country. Enhanced economic reform and improved efficiency, factors outside Hong Kong's control, may have contributed to the increased growth of the Mainland's exports in the 1990s. First, Taiwanese investment on the Mainland has increased sharply in recent years and is expected to grow in the period ahead — especially in high technology industries — following the lifting of restrictions by the authorities in Taiwan (Appendix 1). Secondly, Japanese investment in Asia, including the Mainland, also rose strongly following the bursting of the asset price bubble in Japan in the early 1990s. These investments were mostly trade-oriented, and located more in the eastern than in the southern part of the Mainland. As a result, Guangdong province's share in the Mainland's total exports has declined, while that of Shanghai and surrounding areas has increased (Chart 1). To the extent that Hong Kong's exports are more closely related to those of Guangdong province than to the rest of the Mainland, the decline in the former's share probably explains the reduced elasticity of Hong Kong's export earnings with respect to the Mainland's overall merchandise exports.

[1] The Guangdong economy grew by an average annual rate of 13 3/4% during 1980-2000, compared with 9 1/2% for the Mainland as a whole.

CHART 1

Regional Composition of Exports on the Mainland (12-month moving average, in per cent)



Source: CEIC.

These developments have led to concerns about the outlook for exports and economic growth in Hong Kong. This article discusses the recent changes in Hong Kong's trade patterns and investigates its relationship with the macroeconomic environment and the external trade of the Mainland, to highlight the opportunities and challenges that lie ahead. The rest of the paper is organised as follows. Section II reviews the developments of exports and their contributions to economic growth. Section III estimates the effects on exports of macroeconomic variables, including the Mainland's exports, and discusses the emerging trend in Hong Kong's trade patterns. Section IV investigates the implications for output and employment growth. Section V provides concluding remarks.

II. A REVIEW OF EXPORT PERFORMANCE

External trade is a major growth engine of the Hong Kong economy. Total export earnings — including domestic exports of goods, re-export earnings, and exports of services — grew by an average annual rate of 7% in real terms and accounted for 70% of the GDP growth over the past two decades (Table 1).[2] Of the three major components, re-export earnings recorded the largest expansion, increasing on average by 20% per annum in real terms and contributing to 40% of the GDP growth over the same period. This was supported by the Mainland's

TABLE 1

Hong Kong's Export Performance 1981-2001

	1981-1989	1990-2001	1981-2001
Growth (%)			
Domestic exports	8.4	-2.5	1.7
Re-export earnings [a]	23.1	18.0	20.0
Exports of services	8.4	5.8	6.8
of which: trade-related	3.3	9.3	6.9
Total export earnings	9.2	5.0	6.7
Contribution to GDP growth (%) [b]			
Domestic exports	32.9	-11.6	7.2
Re-export earnings	8.9	68.6	39.5
Exports of services	25.4	32.3	29.0
of which: trade-related	2.5	12.3	7.0
Total export earnings	67.3	70.0	69.9

Notes: a. Re-export earnings are defined as margins derived from re-export activity.
b. Calculated as the product of growth in exports and the share of exports in GDP.

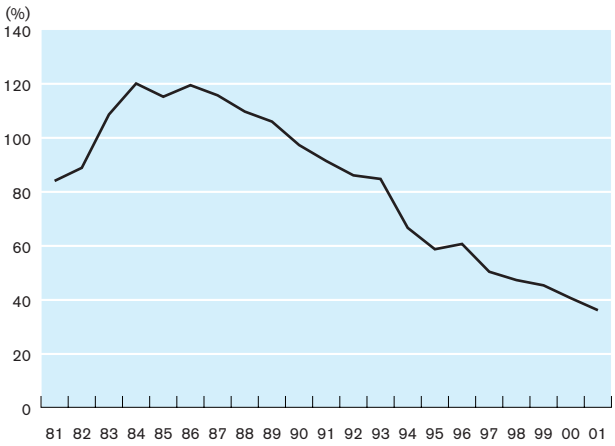
[2] *Domestic exports* are products produced in Hong Kong for export. *Re-export earnings* are profit margins derived from re-export activity, with *re-exports* therein being defined as products first imported into Hong Kong and later re-exported with no change in the shape, nature, form, or utility of the products.

rapid growth and, more specifically, the relocation of the manufacturing sector. As a result, domestic merchandise exports have declined considerably since 1990. The export of services has risen steadily, with the growth of trade-related services dealing mainly with offshore trade, outpacing that of re-exports following the Asian financial crisis.

The export performance in recent years has, however, raised concerns over a divergence of export growth between the two economies and the implications for the growth prospects of Hong Kong. Exports in Hong Kong fell behind those of the Mainland, with export earnings of the former declining sharply from about 120% of the latter's total merchandise exports in the mid-1980s to below 40% in 2001 (Chart 2). An increasing proportion of the Mainland's exports, including those from southern part of the country, is shipped directly to final destinations without passing through Hong Kong (Table 2), reflecting lower shipping costs and increased competitiveness brought about by improved infrastructure and trade services on the Mainland. The disproportionate export growth also reflects faster export growth in the eastern part of the country, particularly Shanghai and the Yangtze River Delta (YRD), rather than in the Pearl River Delta (PRD), with which Hong Kong is more closely integrated.

CHART 2

Ratio of Hong Kong's Export Earnings to the Mainland's Exports (in real terms)



Sources: Census and Statistics Department, CEIC and HKMA estimates.

Note: Hong Kong's export earnings refer to the sum of domestic exports, re-exports margin and exports of services.

TABLE 2

Container throughput of Hong Kong and Shenzhen ('000 TEUs)

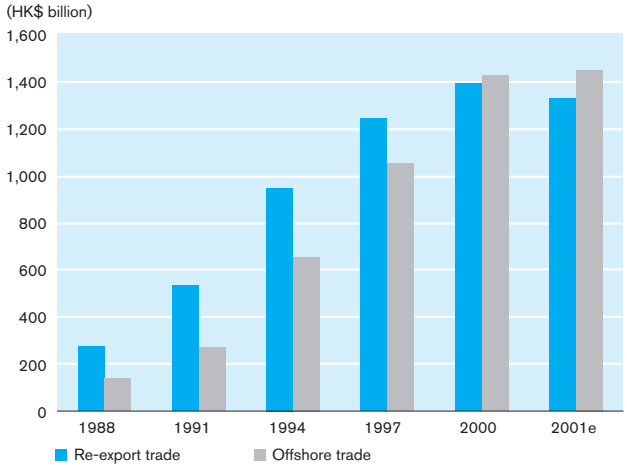
	Hong Kong*		Shenzhen: Yantian		Shekou		Chiwan	
1993	9,204		2		94		33	
1994	11,050	(20)	13	(639)	119	(27)	46	(39)
1995	12,550	(14)	106	(694)	113	(-5)	65	(41)
1996	13,460	(7)	354	(235)	138	(22)	98	(51)
1997	14,386	(8)	640	(81)	284	(106)	213	(118)
1998	14,582	(1)	1038	(62)	604	(113)	274	(29)
1999	16,211	(12)	1588	(53)	848	(40)	481	(75)
2000	18,098	(23)	2140	(35)	1046	(23)	641	(33)
2001	17,826	(-1)	2745	(28)	1187	(13)	905	(41)
2002 H1	8,823	(2)	1798	(59)	630	(15)	681	(84)
Average annual growth (%) (1993-2001)		9		150		37		51

Notes: TEU - twenty-foot equivalent unit.
( ) Figures in brackets represent year-on-year % change.
(*) Starting from 1997, a new series of container throughput has been compiled. The average annual growth rate is compiled with adjusted figures.

An emerging trend is the rapid increase in trade-related services, which move in parallel with offshore trade activities.[3] Growth in offshore trade increasingly outpaced that in re-exports in recent periods (Chart 3). The tendency of shifting from re-exports to offshore trade is also discernible from the reduced share of re-exports in total shipping arrangements for exports originating on the Mainland (Chart 4). Nevertheless, the average rate of profit margins for offshore trade, at 10% in 1999 and 8.6% in 2000, is less than half that of re-exports, according to data released by the Census and Statistics Department. Judging from these developments, it is likely that Hong Kong's trade service sector — including the port and shipping industries — and export production on the Mainland are facing increased competition from the rest of the country and other foreign investors.

CHART 3

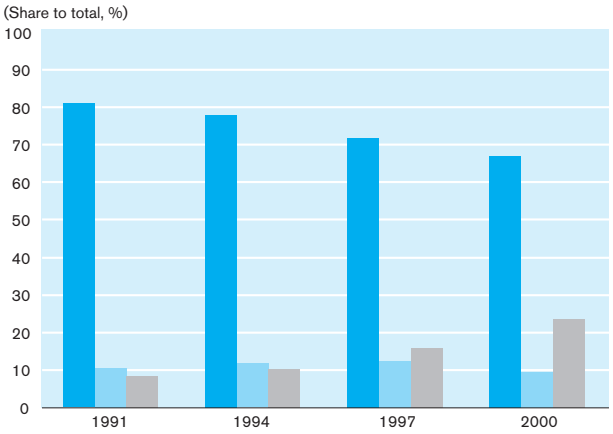
Re-export and Offshore Trade (in nominal terms)



Sources: Census and Statistics Department, Hong Kong Trade Development Council and HKMA estimates.

CHART 4

Shipping Arrangements by Hong Kong Companies for Exports Originating on the Mainland



Source: Hong Kong Trade Development Council.

III. THE EMPIRICAL STUDY

This section provides empirical analysis of possible changes in the trade patterns in recent years, with a focus on the expansion of offshore trade, and discusses the factors behind the changes. As a preliminary, it should be noted that the results should be interpreted with caution due to data availability problems.[4]

Re-exports

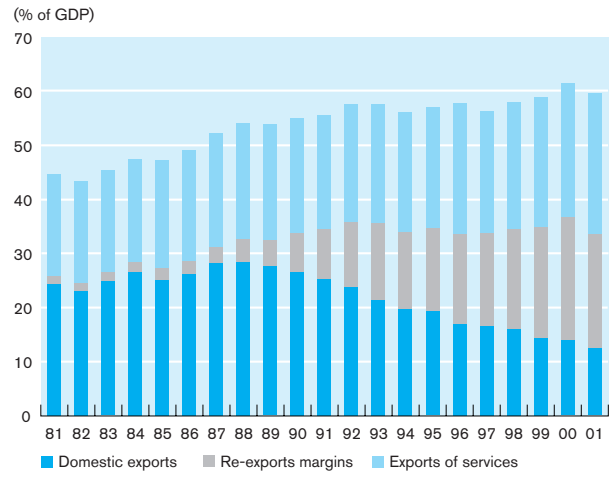
The share of re-export earnings in GDP rose and that of domestic exports fell considerably during the past two decades (Chart 5), reflecting the relocation of the manufacturing sector to the southern part of the Mainland. Hong Kong's re-exports grew faster than the Mainland's exports until the mid-1990s due to

[3] Offshore trade covers the services of both "merchanting" and "merchandising" for offshore transactions. Merchanting is defined as services associated with trading of goods that are purchased from and sold to parties outside Hong Kong without the goods ever entering and leaving Hong Kong. It also includes selling of goods that are manufactured through sub-contract processing arrangements to parties outside Hong Kong without the goods entering and leaving Hong Kong. Merchandising (or purchasing) services for offshore transactions are defined as the services of arranging the purchase/sales of goods on behalf of buyers/sellers outside Hong Kong. Unlike in merchanting, the Hong Kong company, in its capacity as an agent, does not take ownership of the goods involved. In 2000, over 80% of exports of services relating to offshore trade were from merchanting.

[4] Quarterly data on exports of trade-related services, available from 1996, are used as a proxy for earnings from offshore trade, on which data only for 1999 and 2000 have been published by the Census and Statistics Department. The latter accounted for about 85% of the former during 1999-2000. Data on offshore trade compiled by the Hong Kong Trade Development Council are based on a much smaller sample.

CHART 5

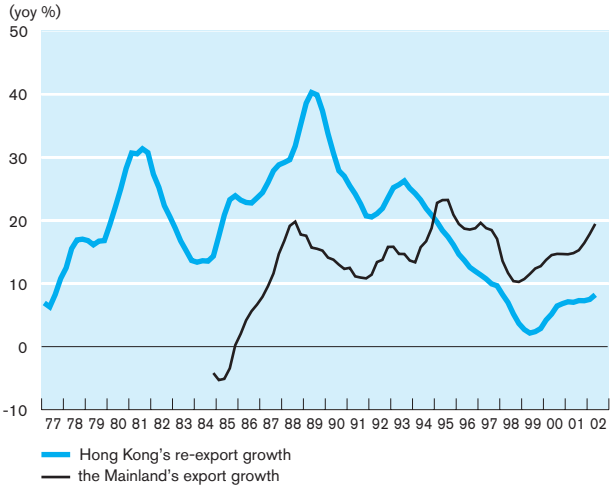
Share of Export Earnings in GDP



Sources: Census and Statistics Department and HKMA estimates.

CHART 6

Hong Kong's Re-export Growth and the Mainland's Export Growth



Source: CEIC.

the rapid expansion of outward processing, but have been falling behind the latter since then (Chart 6). The latest data show that Hong Kong's re-exports increased by a moderate year-on-year rate of $5^{1}/_{4}$% during the first 10 months of the this year, compared with a sharp increase of over 20% in the Mainland's exports during the same period.

The econometric analysis indicates that the elasticity of Hong Kong's re-exports with respect to the Mainland's exports declined to between a quarter and a half during the mid-1990s and the present, from $1^{3}/_{4}$ in the previous 10 years (Table 3). The Hong Kong dollar/renminbi real exchange rate, an indicator of relative competitiveness of the two economies, began to play a significant role from the mid-1990s.

The decline in the elasticity, to a large degree, reflected faster economic growth in the YRD than in the PRD and improvements in market accession and trade-related services on the Mainland — factors that are outside Hong Kong's control. The increased sensitivity of the re-export variables to the bilateral real exchange rate between the Hong Kong dollar and the Chinese renminbi suggests that Hong Kong firms operating on the Mainland are now facing increased competition.

TABLE 3

Re-exports Equations

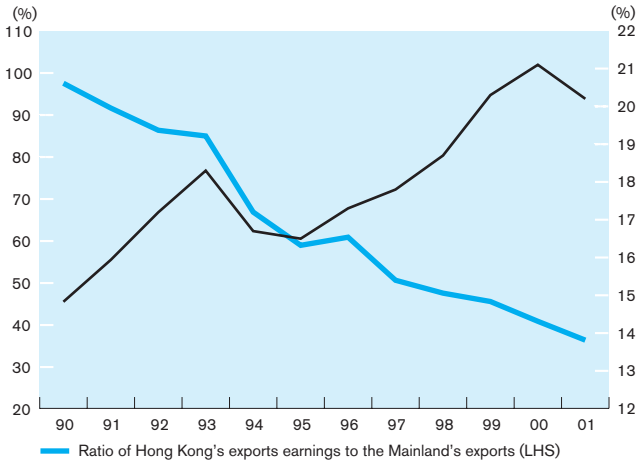
	1984Q1-1993Q4	1994Q1-2002Q2
Elasticities		
HKD-RMB real exchange rate	-0.03 (-0.1)	-0.62 (-3.8)
Mainland's exports	1.83 (12.9)	0.36 (9.3)
Adjusted R-squared	0.97	0.94

Note: t-statistics are in parentheses.

It is probably more important to examine how Hong Kong has coped with the challenges of reduced re-export growth by considering the relationship between re-export volumes and re-export earnings. While the ratio of Hong Kong's re-exports to the Mainland's exports declined, the re-export margin rate rose (Chart 7). This generally reflects effective

CHART 7

Re-export Margins in Hong Kong



Sources: Census and Statistics Department, CEIC and HKMA estimates.

cost reduction as well as an adjustment of Hong Kong's re-exports towards products of higher value added in the face of intense competition in lower-end products.

The shift to higher value added exports is evidenced by the change in the product composition of exports of the two economies. So-called shift-share analysis is employed to compare changes in commodity composition of Hong Kong's merchandise exports, with those of the Mainland (Appendix 2). Any difference between changes in Hong Kong's exports, and that part of the changes that might be ascribed to the growth of the Mainland, is referred to as the shift effect or net shift. A positive net shift implies an improvement in Hong Kong's export performance relative to the Mainland, while a negative value indicates deterioration in Hong Kong's position. The net shift can be decomposed into: (a) industry mix effect; (b) competitive effect; and (c) interaction of the two. The industry mix effect shows how much of the net shift is due to a divergence between the export structure of Hong Kong and the Mainland. The competitive effect indicates how much of the net shift is due to differences between the growth rates of exports of the two economies.

CHART 8
Decomposition of Net Shifts

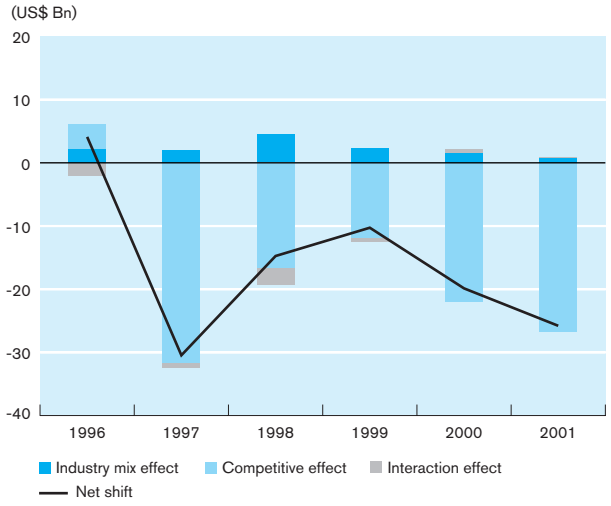
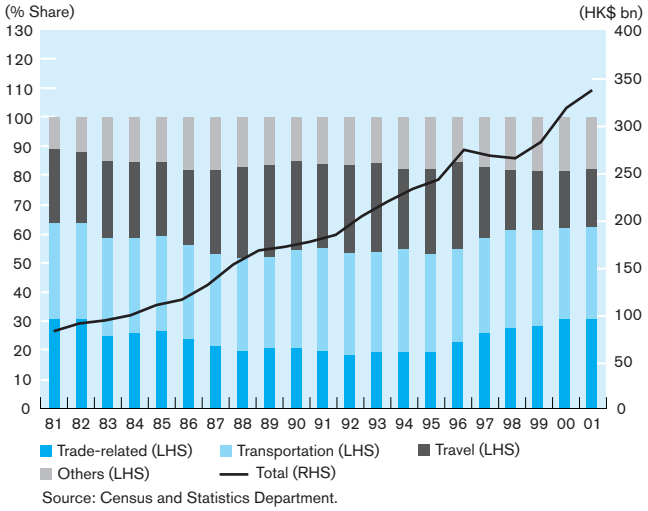


CHART 9
Hong Kong's Exports of Services



Source: Census and Statistics Department.

The results suggest that there has been a negative net shift in recent years, implying a deterioration of Hong Kong's merchandise trade position relative to the Mainland (Chart 8).[5] This reflects, in part, a relocation of Hong Kong firms to the Mainland. The decomposition indicates that the deterioration is due mainly to the competitive effect, as rates of growth in the major export categories were slower than those for the corresponding exports from the Mainland. However, the industry mix effect has been moderately in favour of Hong Kong, because it exports more of the commodities that grow relatively fast on the Mainland.

Both the econometric study and the shift share analysis suggest increased competition faced by Hong Kong's trade-related service industry and its export production on the Mainland. Nevertheless, they also confirm the continued role of Hong Kong as the Mainland's entrepôt because its export mix benefits from the relatively fast growing sectors of the Mainland.

Exports of services

Exports of services — including trade-related services, transport, travel, and others (such as insurance services) — increased steadily in the 1980s, and has accelerated in recent years (Chart 9). Trade-related services registered the largest increase among the various components,

[5] In fact, this could be an ongoing process for many years. The analysis is limited to the recent years because of a lack of data on product composition of the Mainland's exports for the earlier period.

TABLE 4
Exports of Services Equations

	Total exports of services	Exports of trade-related services
Elasticities		
Real effective exchange rate	-0.79 (-3.1)	-0.50 (2.6)
External demand	1.47 (8.8)	–
Mainland's exports	–	0.70 (17.4)
Adjusted R-squared	0.14	0.34
Sample period	1984Q1- 2002Q2	1996Q2-2002Q2

Note: t-statistics are in parentheses.

reflecting accelerating offshore trade. Recent data show that the volume of merchanting offshore trade increased by 54% in 2000, significantly larger than the 18% increase in re-exports. Earnings derived from merchanting and merchandising offshore trade combined rose by 21%, similar to the 23% increase in re-exports.

Analysis of the export of services equations (Table 4) indicates that total exports of services depend on Hong Kong's real effective exchange rate and the trade weighted external demand. The results suggest that the steady increase during the mid-1980s and mid-1990s was mainly due to strong external demand, whereas the recent acceleration in the face of weak external demand was probably helped by the depreciation of the real effective exchange rate and the increase in offshore trade, which is further discussed below.

TABLE 5
Domestic Exports Equation

	1984Q1-1989Q4	1990Q1-2002Q2
Elasticities		
Real effective exchange rate	-1.49 (-3.7)	-0.08 (-0.6)
External demand	1.82 (9.3)	1.52 (3.2)
Trend variable		-0.03 (-4.6)
Adjusted R-squared	0.90	0.89

Note: t-statistics are in parentheses.

By contrast, trade-related services appear to be co-integrated with the real effective exchange rate of the Hong Kong dollar and the Mainland's exports. Compared with the estimates in Table 3, the long-term elasticity with respect to the Mainland's exports doubles that of re-exports. This suggests that in the face of intensified competition in export production, Hong Kong is endeavouring to seize the business opportunities provided by the strong growth in the Mainland's direct trade with the rest of the world.

Domestic Exports

Domestic exports have declined sharply during the past two decades, with the share in total exports falling from 55% in the early 1980s to 9% in 2001. The diminishing role of domestic exports, coupled with the relocation of the local manufacturing industry across the border into southern China, represents a major structural change in Hong Kong's economy. An equation for domestic exports shows the relationship with key macroeconomic variables (Table 5). The analysis shows that domestic exports depended on the real effective exchange rate of the Hong Kong dollar and the trade weighted external demand during the 1980s. In the 1990s, however, the exchange rate variable became less significant. The reduced sensitivity to the real exchange rate suggests that domestic exports have been losing their competitive edge to similar products made on the Mainland and neighbouring countries. The movements of domestic exports are mainly governed by the secular declining trend, despite the influence of external demand.

IV. IMPLICATIONS FOR OUTPUT GROWTH AND EMPLOYMENT

An increase in earnings from exports of goods and services raises employment and income in the trade sector, which in turn boosts domestic demand and output through the so-called multiplier effect. The earnings of different types of exports may differ in their effect on output and employment, depending on how they are derived, distributed and spent, and whether earnings derived from overseas are repatriated. Generally speaking, labour income has a

TABLE 6
Impact of Export Earnings on Output and Employment

	1992Q3-1997Q2	1997Q3-2002Q2
Elasticities		
Output	0.95 (22.30)	0.76 (20.04)
Adjusted R-squared	0.97	0.97
Elasticities		
Employment in the trade sector	1.28 (5.62)	0.28 (3.34)
Adjusted R-squared	0.62	0.35

Note: t-statistics are in parentheses.

larger share in adding value to domestic exports and re-exports than in offshore trade, as the latter involves less employment of labour. Thus, a shift from re-exports to offshore trade may have important implications for employment in the trade sector.

In this respect, it is important to investigate whether the effects of external trade on output and employment have changed alongside the emerging shift to offshore trade. We first estimate the elasticity of output with respect to earnings from exports of goods and services, after controlling for domestic factors such as property prices. The estimation is carried out on a five-year rolling window over the past 10 years. The elasticity is estimated to have declined to about three quarters during the past five years from close to unity during the previous half decade (Table 6). This probably reflects a reduced degree of "filtering-through" from external trade to domestic demand. It should be noted, however, that the estimated decline in the elasticity is not statistically significant. On the other hand, the elasticity of employment in the trade sector with respect to total export earnings is estimated to have fallen considerably from 1 1/4% to 1/4%, pointing to reduced effect on the domestic economy.

An alternative approach is to directly estimate the impact on employment and output of changes in the composition of exports, by regressing employment in the trade sector and real output (in logarithms) on the shares of different export components, after "controlling" for total export earnings (in logarithm). The estimation shows that changes in the composition of exports have important implications for employment. The elasticity of employment with respect to total export earnings is estimated at 0.8 in both regressions (Table 7). The first regression shows that an increase in the share of re-exports and offshore trade, equivalent to a decline in the share of domestic exports of goods and services, reduces employment. The second regression suggests that a switch from re-exports to offshore trade reduces employment. These results seem to confirm the notion that the employment multiplier is larger for domestic exports, smaller for re-exports, and the smallest for offshore trade.

TABLE 7
Effects on Employment and Output of Changes in Trade Patterns

	Employment		Output	
	Regression 1	Regression 2	Regression 1	Regression 2
Constant	3.99 (2.05)	3.87 (2.42)	3.88 (5.27)	3.89 (5.26)
Total exports	0.82 (4.81)	0.82 (5.91)	0.73 (10.88)	0.73 (10.76)
Share of re-exports and offshore trade	1.63 (-5.78)	–	-0.16 (-0.88)	–
Share of re-exports	–	-0.87 (-2.79)	–	-0.24 (-0.84)
Share of offshore trade	–	-3.60 (-4.22)	–	0.05 (0.14)
Adjusted R-squared	0.57	0.65	0.94	0.94

Note: t-statistics are in parentheses.

TABLE 8
Net External Factor Income in Per Cent of GDP in Selected Asian Economies

(%)

	Hong Kong	Singapore	Taiwan	Japan	Korea	China
1993	1.5	0.3	1.9	0.9	-0.1	-0.2
1994	1.2	2.2	1.7	0.8	-0.1	-0.2
1995	1.9	2.8	1.6	0.8	-0.3	-1.7
1996	0.0	1.6	1.4	1.1	-0.3	-1.5
1997	0.8	6.8	1.1	1.3	-0.5	-1.8
1998	2.2	6.0	0.8	1.3	-1.8	-1.7
1999	2.8	2.5	1.0	1.2	-1.3	-1.8
2000	1.7	0.6	1.4	1.3	-0.5	-1.4
2001	2.8	0.8	2.0	1.6	-0.2	-1.6

Source: CEIC.

By contrast, changes in the composition of exports are not found to have a significant impact on output through the multiplier effect. Nevertheless, it is important to note that the results are subject to uncertainty related to limited observations and measurement errors. These arise from the use of data on exports of trade-related services as a proxy for earnings from offshore trade, as well as the difficulty in disentangling the effect of technological progress.

It should also be noted that the above analysis focuses on the effect of external trade on GDP and, therefore, is unrelated to investment income derived from overseas, which is an important part of Hong Kong's worldwide income. Table 8 shows that Hong Kong has the highest ratio of net factor income to GDP among the major Asian economies, reflecting the high degree of openness of the economy and closer links with the Mainland. Factor income from the Mainland, which has the largest share in total factor income, has risen considerably in recent years, while that from Japan and Singapore has fallen markedly. A comprehensive study of external factor income is beyond the scope of this article, but it is important to bear in mind that investment activity outside Hong Kong is also an important source of income, which, like external trade, affects domestic demand.

V. CONCLUDING REMARKS

External trade has been a major driving force behind Hong Kong's economic growth. Hong Kong outpaced the Mainland in export growth during the years prior to the mid-1990s. Nevertheless, recent developments show this trend is being reversed. Arguably, Hong Kong's role as a middleman for the Mainland's external trade has declined somewhat in the past decade. This is probably a natural development as the northern and inner regions of the Mainland increasingly benefit from the economic reforms and the transformation from a highly closed economy to an open market.

Both the econometric and the shift share analyses suggest increased competition faced by Hong Kong's trade service industry and its export production on the Mainland. Nevertheless, they also confirm the continued role of Hong Kong as an entrepôt for the Mainland as its export mix has increasingly benefited from the relatively fast growing sectors of the Mainland. A nascent trend of Hong Kong's external trade is the rapid increase in offshore trade, which has exceeded the growth in re-exports in recent times. This shows that in the face of intensified competition in export production, Hong Kong is endeavouring to seize the business opportunities offered by the strong growth in the

Mainland's direct trade with the rest of the world. Should that trend continue, Hong Kong stands to reap greater benefits in the wake of the Mainland's accession to the World Trade Organisation. However, the impact of external trade on output and employment has probably declined in recent years, because fewer employment opportunities are generated by offshore trade than by re-exports and domestic exports.

Looking ahead, Hong Kong is well positioned to continue playing the role of an international trade centre and benefit from the Mainland's rapid economic growth by providing trade-related services, both onshore and offshore. Such benefits will be maximised in the longer term if Hong Kong's business activity is strategically adjusted to take full advantage of the Mainland's rising market potential which is most likely to grow faster than the rest of the world in the years ahead. This will require a strengthening of the overall competitiveness of the economy, and a proper diversification of Hong Kong's investment on the Mainland with a focus on sectors of higher value added and products with a huge domestic market.

Finally, the empirical results need to be interpreted with caution, because of data availability problems. In particular, it is worth noting that external factor income is an important source of total income and has an influence on domestic demand together with external trade.

APPENDIX 1

TAIWANESE INVESTMENT ON THE MAINLAND

Taiwanese investment on the Mainland rose rapidly in the past decade, with cumulated investment amounting to nearly US$20 billion by 2001, 113 times larger than in 1991, representing an average annual growth rate of over 60% (Table 1A). Over 70% of Taiwanese investment on the Mainland has been in the Pearl River Delta (PRD) and the Yangtze River Delta (YRD). The YRD has been the most favoured destination in recent years. The combined share of Jiangsu and Zhejiang in total Taiwanese investment on the Mainland rose from 29% in 1993 to 41% in 2001, while the corresponding share of Guangdong was 34% in both periods.

Increasingly, Taiwanese investment on the Mainland has been moving towards hi-tech industries. In the early 1990s, a large part of the investment was in labour-intensive industries. The share of investment in industries of high technology, including the manufacturing of precision instruments and IT products, has increased dramatically in more recent years (Table 2A).

TABLE 1A

Taiwanese Investment on the Mainland by Major Province (Cumulative total, US$ million)

	Guangdong		Jiangsu and Zhejiang		Fujian		Total	
1991	73	(73)	25	(25)	56	(56)	**174**	**(174)**
1992	185	(112)	76	(51)	86	(30)	**421**	**(247)**
1993	1,233	(1,048)	1,034	(958)	559	(474)	**3,590**	**(3,168)**
1994	1,464	(231)	1,489	(455)	656	(97)	**4,552**	**(962)**
1995	1,687	(223)	1,941	(452)	778	(122)	**5,644**	**(1,093)**
1996	1,970	(283)	2,515	(575)	889	(111)	**6,874**	**(1,229)**
1997	3,691	(1,721)	3,958	(1,443)	1,361	(472)	**11,208**	**(4,334)**
1998	4,515	(824)	4,739	(781)	1,512	(151)	**13,243**	**(2,035)**
1999	5,015	(500)	5,293	(554)	1,570	(59)	**14,495**	**(1,253)**
2000	6,035	(1,020)	6,613	(1,320)	1,670	(99)	**17,103**	**(2,607)**
2001	6,823	(788)	8,244	(1,631)	1,790	(120)	**19,887**	**(2,784)**

Note: Figures in brackets represent annual investment flows.

TABLE 2A

Taiwanese Investment on the Mainland by Industry

	1994	1997	2000	2001	1994-2001
Food and beverage	15.2	7.7	1.7	2.1	5.8
Textile, garment and footwear	7.0	6.4	2.2	3.3	5.3
Chemicals	9.3	5.3	4.2	5.9	6.6
Plastic products	7.6	8.1	7.1	5.6	6.5
Non-metallic minerals	8.6	8.9	3.2	3.8	5.3
Basic metals and metal products	9.4	9.1	7.1	7.0	0.2
Electronic and electrical appliances	16.3	20.2	56.2	45.1	34.0
Precision instruments	4.6	5.7	3.3	4.5	4.1
Tertiary industries	6.0	7.4	7.5	8.0	7.5

TABLE 3A

Taiwan's Major Policy Changes for Investment on the Mainland

November 2001	The "no haste, be patient" policy is replaced by the new "active opening, effective management" policy.
November 2001	Offshore banking units (OBUs) of Taiwan's financial institutions are allowed to have direct business transactions with the Mainland's financial institutions.
February 2002	Taiwanese banks with domestic banking units (DBUs) that can conduct foreign exchange trading are allowed to remit money directly to and from the Mainland.
March 2002	The ban on investments on the Mainland by Taiwan's semiconductor industry is lifted, although restrictions remain.
April 2002	Profits and dividends earned by Taiwanese companies on the Mainland are exempted from domestic taxes when repatriated.
August 2002	Taiwanese companies are allowed to make direct investment on the Mainland.

Taiwanese investment on the Mainland is expected to further accelerate in the coming years. First, the emerging huge market potential and investment opportunities on the Mainland following WTO accession will attract investment from around the world, including Taiwan. Secondly, the Taiwanese government has progressively relaxed restrictions on cross-strait economic exchanges (Table 3A), in recognition of the rapid growth in cross-strait indirect trade and investment flows. Thirdly, improved infrastructure and human capital, especially in the PRD and YRD, have made the Mainland an attractive manufacturing base in the region.

The YRD is likely to be a more favoured destination for Taiwanese investment than the PRD. First, statistics suggest that both manpower quality and capability in development of science and technology are better in the YRD than in the PRD[6]. Secondly, a complete supply chain of industry groups, including IT-related products, precision equipment and automobile parts and components, has emerged in the YRD. Thirdly, the Mainland economy is likely to grow faster than the rest of the world, at least in the medium term. Taiwanese investors have probably paid greater attention to market potential on the Mainland, while Hong Kong investors have traditionally led foreign investment in the PRD, focusing on manufacturing products for exports. With its better access to the domestic markets on the Mainland, the YRD will be a more attractive investment destination for Taiwanese investors.

[6] Post-secondary graduates accounted for 0.07% of the population in the PRD in 2000, compared with 0.12% in Shanghai, Jiangsu, and Zhejiang combined. Similarly, the population engaged in science and technology in the PRD, at 0.3%, is also lower than the corresponding figure of 0.41% in the YRD.

APPENDIX 2

SHIFT SHARE ANALYSIS FOR HONG KONG'S EXPORTS

The shift share analysis is a tool to assess how different factors contribute to growth in variables such as exports.[7] Applying this approach, the home economy's export performance is compared with that of its competitors. The net shift, alternatively termed as the export differential or shift effect, is the difference between changes in the home economy's exports and that part of the changes that are due to the growth of the reference economy's exports. A positive net shift indicates that the home economy outperforms the reference economy under the assumption that they have the same export structure.

The net shift can be decomposed into three major shifting factors: (a) industry mix effect (IME); (b) competitive effect (CE); and (c) interaction effect (IE), *i.e.*:

Net Shift = Industry Mix Effect + Competitive Effect + Interaction Effect.

More formally, denote the home economy's and reference economy's total exports as X and $\hat{X}$, the net shift decomposition of commodity i is given as:

$$(X_t^i - X_{t-1}^i) - X_{t-1} \bullet \left(\frac{\hat{X}_{t-1}^i}{\hat{X}_{t-1}}\right) \bullet \left(\frac{\hat{X}_t^i}{\hat{X}_{t-1}^i} - 1\right) = \quad \text{Net shift}$$

$$+ X_{t-1} \bullet \left\{\left(\frac{X_{t-1}^i}{X_{t-1}}\right) - \left(\frac{\hat{X}_{t-1}^i}{\hat{X}_{t-1}}\right)\right\} \bullet \left\{\left(\frac{\hat{X}_t^i}{\hat{X}_{t-1}^i}\right) - 1\right\} \quad \text{Industry mix effect}$$

$$+ X_{t-1} \bullet \left(\frac{\hat{X}_{t-1}^i}{\hat{X}_{t-1}}\right) \bullet \left\{\left(\frac{X_t^i}{X_{t-1}^i}\right) - \left(\frac{\hat{X}_t^i}{\hat{X}_{t-1}^i}\right)\right\} \quad \text{Competitive effect}$$

$$+ X_{t-1} \bullet \left\{\left(\frac{X_{t-1}^i}{X_{t-1}}\right) - \left(\frac{\hat{X}_{t-1}^i}{\hat{X}_{t-1}}\right)\right\} \bullet \left\{\left(\frac{X_t^i}{X_{t-1}^i}\right) - \left(\frac{\hat{X}_t^i}{\hat{X}_{t-1}^i}\right)\right\} \quad \text{Interaction effect}$$

The industry mix effect captures the part of the net shift that is attributed to relative structural changes in the exports of the two economies. A sector has a positive IME, interpreted as a structural advantage, if it has a higher weight in the home economy, and is a growth sector in the reference economy.

The competitive effect captures the growth differential between the home and reference economies. The home economy has a competitive advantage if it grows faster in a sector than the reference economy.

The interaction effect calculates how much of the net shift is due to the interaction between the IME and CE. It is positive if the home economy grows faster in sectors where it has a structural advantage, but more slowly in sectors where it has a structural disadvantage.

[7] This approach has been applied by the MAS (2002) to assess competitiveness of Singapore's exports.

This analysis can also be applied to total exports by summing up net shifts and the three component effects across all products:

$$(X_t - X_{t-1}) - X_{t-1} \bullet \sum_i \left(\frac{\hat{X}^i_{t-1}}{\hat{X}_{t-1}}\right) \bullet \left(\frac{\hat{X}^i_t}{\hat{X}^i_{t-1}} - 1\right) = \quad \text{Net shift}$$

$$+ X_{t-1} \bullet \sum_i \left\{\left(\frac{X^i_{t-1}}{X_{t-1}}\right) - \left(\frac{\hat{X}^i_{t-1}}{\hat{X}_{t-1}}\right)\right\} \bullet \left\{\left(\frac{\hat{X}^i_t}{\hat{X}^i_{t-1}}\right) - 1\right\} \quad \text{Industry mix effect}$$

$$+ X_{t-1} \bullet \sum_i \left(\frac{\hat{X}^i_{t-1}}{\hat{X}_{t-1}}\right) \bullet \left\{\left(\frac{X^i_t}{X^i_{t-1}}\right) - \left(\frac{\hat{X}^i_t}{\hat{X}^i_{t-1}}\right)\right\} \quad \text{Competitive effect}$$

$$+ X_{t-1} \bullet \sum_i \left\{\left(\frac{X^i_{t-1}}{X_{t-1}}\right) - \left(\frac{\hat{X}^i_{t-1}}{\hat{X}_{t-1}}\right)\right\} \bullet \left\{\left(\frac{X^i_t}{X^i_{t-1}}\right) - \left(\frac{\hat{X}^i_t}{\hat{X}^i_{t-1}}\right)\right\} \quad \text{Interaction effect}$$

REFERENCE

Monetary Authority of Singapore (2002), "Assessing Singapore's Export Competitiveness Through Dynamic Shift-share Analysis", *MAS Occasional Paper No. 23*.