HONG KONG MONETARY AUTHORITY

SOURCES OF EMPLOYMENT GROWTH IN HONG KONG

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Abstract

Employment has been growing by 2-3% per annum following the economic recovery. What has driven the current employment growth cycle? Our analysis suggests that the import/export sector, instead of the financial sector, is the major contributor to employment creation thanks to the fast-growing re-export trade across the border. Growing service demand in Mainland China will continue to boost domestic employment in areas like trade and financial services, while the construction boom in Macao is expected to create more new jobs for construction workers in Hong Kong. Given that the unemployment rate has declined to close to our estimate of the natural rate, a further rise in labour market tightness may exert upward pressure on wages and inflation.

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I.   **OVERVIEW**

Employment expanded at an average rate of 2-3% year on year from 2004 to 2006 after the economic downturn of the preceding years. Since the trough in 2003, some 318,000 net new jobs have been created by the second quarter of 2007, mainly in the service sector. Disaggregated data show structural shifts in employment across different service sectors in recent years. Specifically, growing cross-border trade and financial activity between Hong Kong and Mainland China has boosted employment growth in the import/export and financial services sectors.

This paper analyses the sources of employment growth and assesses the contribution of China demand to job creation in Hong Kong. Our analysis suggests that the import/export sector, instead of the financial sector, is the major contributor to employment creation thanks to the fast-growing re-export trade across the border.

The strong economic performance in China has created new job opportunities for Hong Kong residents. During 2001-05, about a quarter of employment growth in Hong Kong was derived from growing service demand in China, particularly in areas like trade and financial services. This helped mitigate the negative impact on the domestic labour market during the cyclical downturn of the Hong Kong economy in 2001-03.

Our internal estimate suggests that the natural rate of unemployment remained stable at 4.4% in 2006, with a range estimate of 3.6%-5.2%.[1] If the headline unemployment rate continues to ease, increased tightness in the labour market may exert upward pressure on wages and inflation. Sectoral breakdown shows that the relatively high natural rate partly reflects the structural unemployment in the construction sector due to sluggish growth in residential investment. Looking ahead, increased infrastructure spending by the Government and the construction boom in Macau are expected to create more jobs for domestic construction workers, while growing household spending and inbound tourism will

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[1]   The range estimate represents a 95% confidence interval within which the true natural rate of unemployment would fall.

boost employment in retail trade, restaurants and hotels sectors, which will help drive down the headline and natural rates of unemployment.

II.   SOURCES OF EMPLOYMENT GROWTH

In recent years, stronger growth in employment relative to the labour force has driven down the unemployment rate (seasonally adjusted) from the peak of 8.5% in mid-2003 to a nine-year low of 4.2% in the second quarter of 2007.   Distribution of employment by economic sector shows that growing labour demand in the service sector has been the key driver of employment growth over the past few years, as domestic manufacturing industries continued to downsize their operations in Hong Kong and subdued residential investment restrained labour demand in the construction sector (Chart 1).   The expansion in service sector employment has been across the board, with job creation mainly concentrating in import/export trade, personal, financial and business services (Chart 2).

Chart 1:   Employment by economic sector
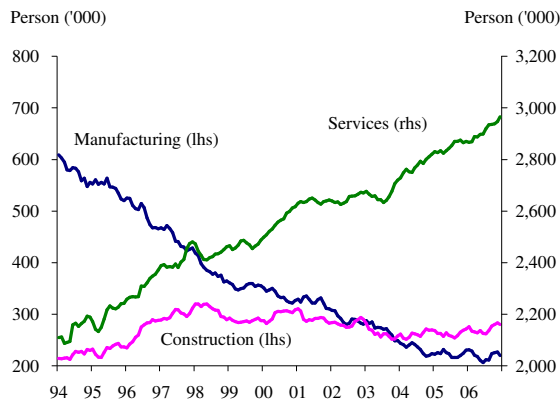
Source: C&SD.

Chart 2:   Contribution to service sector employment growth

Sources: C&SD and staff estimates.

The import/export sector has been the key contributor to output and employment growth in the recent economic upturn.   During 2003-06, nearly one quarter of output was attributed to external trade activities, while employment grew at the fastest annual pace of 7.7%.   As a result, the share of the import/export sector in total employment increased to 15% in 2006 from 10% in 1996, the highest increase among the key

economic sectors (Table 1). This is followed by the real estate and business service sector, whose employment increased by an average annual rate of 4.2% during 2003-06, mainly reflecting strong job growth in accounting and legal services. Over the same period, employment in the financial and insurance sector rose by an annual rate of 3.4%, marginally higher than the overall growth rate in service sector employment. Employment growth also turned positive in wholesale/retail trade, restaurants and hotels sectors, thanks to the strong revival in consumer spending and inbound tourism. However, labour demand remained weak in the construction sector, and employment in the manufacturing sector continued to shrink.

Table 1: Employment growth by economic sector

|	Share in total employment		Average annual growth	
(Unit: %)	1996	2006	1996-2003	2003-2006
Manufacturing	16	6	-8.2	-6.9
Construction	9	8	-0.7	1.2
Service sector	74	85	2.2	3.1
Wholesale & retail	12	10	-1.6	1.2
Import/export	10	15	5.2	7.7
Restaurants & hotels	8	7	-0.5	0.7
Transport & communications	11	11	0.3	2.4
Finance & insurance	5	5	1.6	3.4
Real estate & business services	7	10	5.2	4.2
Social & personal services	22	26	3.4	1.9
- Public administration	*4*	*4*	*0.5*	*-1.9*
- Education & medical	*7*	*8*	*2.5*	*2.2*
- Other personal services	*11*	*15*	*4.9*	*2.8*
Total employment	100	100	0.6	2.2

Sources: C&SD and staff estimates.

III. WHAT HAS DRIVEN THE CURRENT EMPLOYMENT GROWTH CYCLE?

The key driving force behind the recent expansion in service sector employment has been the strong revival in aggregate demand. Historical data show that there is a strong positive relationship between employment growth and output growth, with the former being driven by the latter with a time lag of about one quarter (Chart 3). During 2003-06, real GDP grew at an above-trend rate of 7.7% year on year, turning the output gap positive in 2005 and 2006. The broad-based economic upturn and

growing profitability have supported business owners to expand their workforce and investment.

Chart 3:   Output growth and employment growth
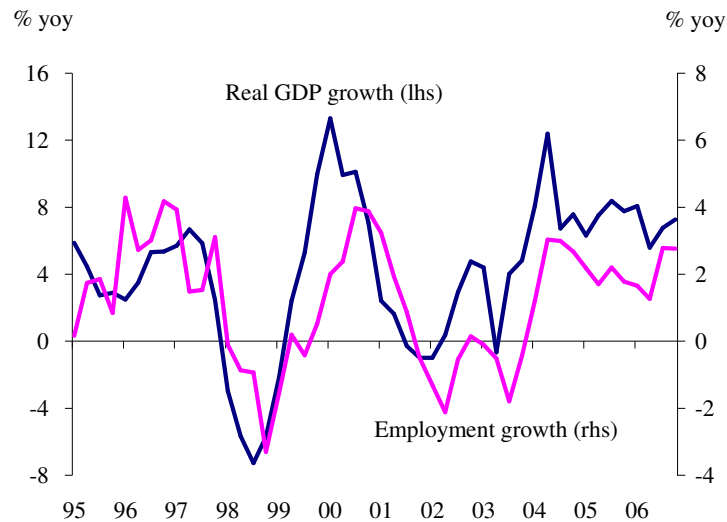
Sources: C&SD and staff estimates.

While service sector employment has in general benefited the most from the recent economic upswing, disaggregated data show that employment growth has varied substantially across different service sectors. Chart 4 compares output growth and employment growth of key service sectors during 2003-06.   Employment growth in real estate and business services sector was shown to be more responsive to output growth, as these sectors were more labour-intensive and the scope of labour-capital substitution was limited.   In contrast, employment growth in communications, restaurants and hotels, wholesale/retail trade sectors remained subdued, and stayed below their respective levels of output growth.   One interesting development is that despite the strong expansion in financial activities in recent years, employment growth in the financial and insurance sector has lagged behind output growth.

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**Chart 4:   Output and employment growth among
key service sectors**

Employment   Average annual growth (2003-2006)
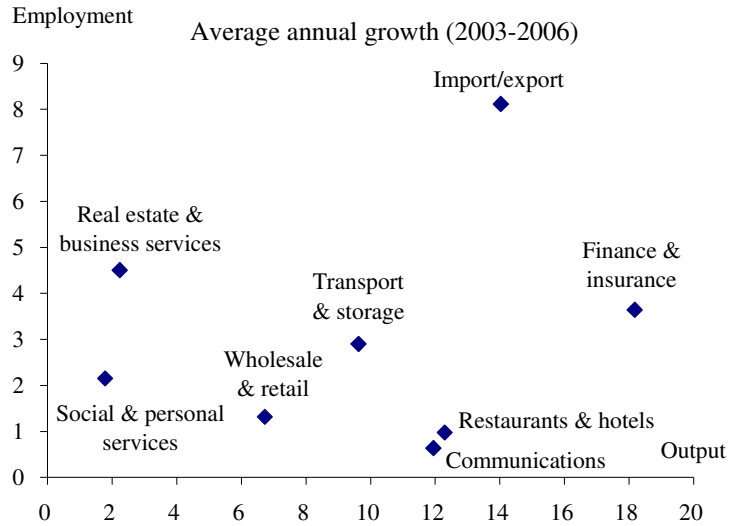
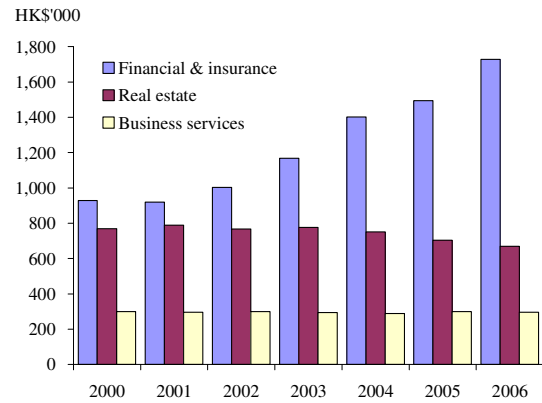Sources: C&SD and staff estimates.

One possible explanation for the tepid growth in financial sector employment relative to output growth is that financial institutions have been investing heavily in information technology (IT) and shifting their business mix to higher value-added services such as financial planning and wealth management.   These factors have helped raise labour productivity and led to higher output per employee.   Per-labour IT spending in the financial and insurance sector is the highest among the service sectors (Chart 5).   The rapid expansion in IT investment and the shift to higher value-added services resulted in faster growth in output per labour in the financial and insurance sector (Chart 6).   The relatively limited labour supply in face of the booming demand may also explain the moderate growth in financial sector employment in recent years.

Chart 5: Per-labour IT investment in the service sector
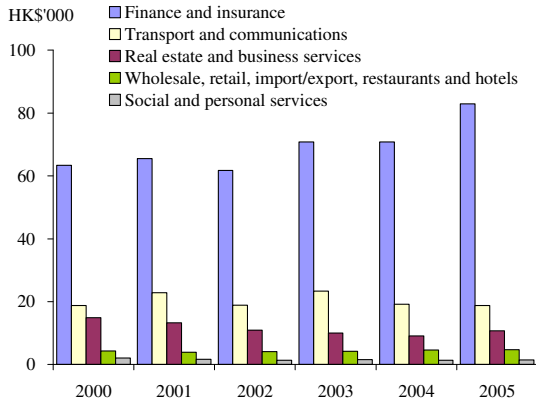
Sources: C&SD and staff estimates.

Chart 6: Output per labour in the financial services sector

Sources: C&SD and staff estimates.

IV. CONTRIBUTIONS FROM DEMAND IN CHINA

While the strong revival in economic activities has been the key driving force of employment growth in recent years, growing business activities with Chinese enterprises and stronger service demand in China have created new job opportunities in the domestic labour market. Rising cross-border economic and financial activities have increased the number of Hong Kong residents working in China. According to the figures released by the Census and Statistics Department (C&SD), about 52,000 Hong Kong employees (2% of total employment) worked in China occasionally or regularly in 1988.[2] By 2005, this number had more than quadrupled to 229,000 (7% of total employment). This is much larger than the number of Chinese residents working in Hong Kong through the Admission Scheme for Mainland Talents and Professionals.[3]

In the 1980s and 1990s, Hong Kong residents working in China mainly concentrated in the manufacturing sector, as domestic manufacturers relocated their production bases from Hong Kong to China. During the initial stage of setting up their assembly lines in China, the

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[2] Figures before 1998 refers to Hong Kong residents who had ever worked in China in the past 12 months at the time of enumeration.

[3] According to the Immigration Department, there have been around 18,000 Chinese residents working in Hong Kong through the Admission Scheme for Mainland Talents and Professionals at the end of April 2007. The Scheme was implemented on 15 July 2003.

managerial expertises of Hong Kong employees were needed to supervise and manage the workforce in the factories in the Pearl River Delta region. In recent years, however, there has been a gradual shift in the number of Hong Kong residents working in China from the manufacturing sector to the service sector. During 1995-2005, the share of Hong Kong residents working in China in the manufacturing sector declined from 56% to 20%, while the service sector's share increased from 39% to 77%. Within the service sector, the import/export sector witnessed the largest increase in the number of Hong Kong residents working in China, from 16,000 in 1995 to 122,000 in 2005 (Chart 7). It was followed by the financial and business service sector, whose number increased from 6,000 to 25,000, mainly reflecting the expansion in business service employment.

Chart 7: Hong Kong residents working in China by economic sector
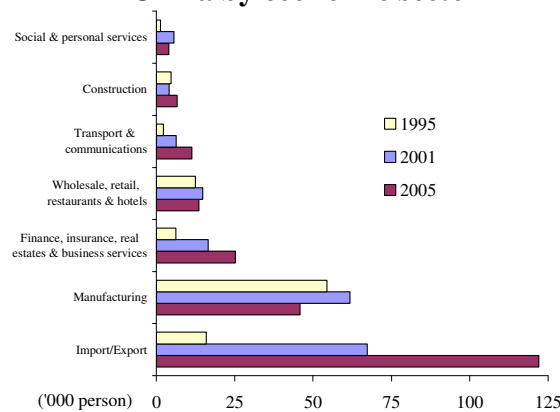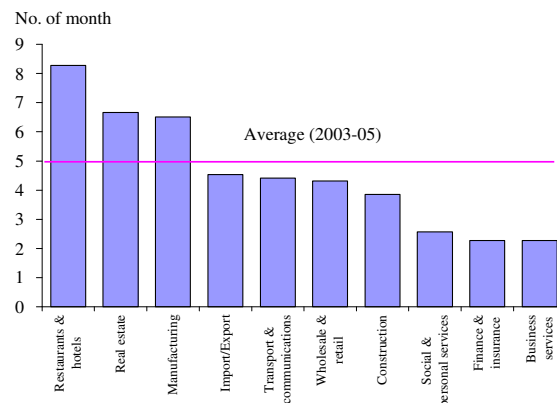

Source: C&SD.

Not all Hong Kong residents working in China are required to stay in China permanently. On average, Hong Kong residents working in China spend about 40% of their time in China, and this ratio has been very stable over the past few years. Reflecting differences in job nature, the average duration of stay in labour-intensive sectors such as restaurants and hotels, real estate and manufacturing is the longest, ranging from three months to more than six months. In contrast, business service professionals, such as accountants and lawyers, on average only spent about two weeks to three months working in China (Chart 8). One notable trend is that an increasing number of accountants are required to provide auditing services to their clients in China towards the end of the financial year, usually staying there for a short period. This has boosted

the number of professionals working in China in recent years (Please see Box 1 for the recent development of Hong Kong residents working in China).

Chart 8: Duration of stay of Hong Kong residents working in China (2003-05)

No. of month

Source: C&SD.

How important has the labour demand from China been to domestic employment growth? Using the number of Hong Kong residents working in China, irrespective of their duration of stay, as a proxy for labour demand from China, it would have contributed about 1.6 percentage points to the overall employment growth of 2.8% in Hong Kong during 2001-05, equivalent to almost 60% of the net increment in domestic employment. However, this figure may have overstated the effect of China demand on domestic employment growth, as the number of man-months spent in China by the employees varies across sectors. After adjusting for the duration of stay, the contributions from China demand to domestic employment growth would decline to 0.7 percentage point. This represents about one quarter of the net increase in domestic employment during 2001-05 (Table 2).
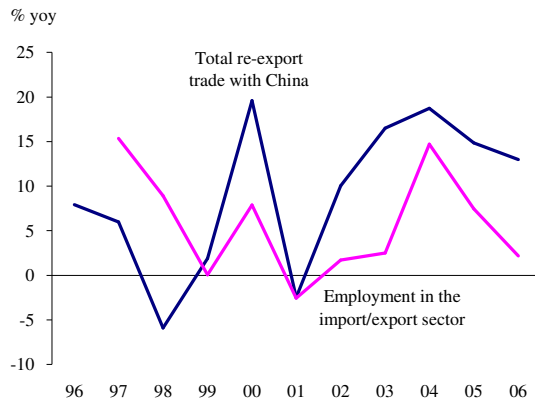
Table 2:   Contribution from China demand to domestic employment growth

(Unit: %)	Employment Growth[1] (2001-05)	Contribution from Mainland China's demand	
		(Not adjusted for duration of stay)	(Adjusted for duration of stay)
Manufacturing	-31.0	-4.9	-3.1
Construction	-9.0	0.9	0.7
Wholesale & retail	2.9	-0.9	-0.3
Import/Export	27.2	13.5	7.0
Restaurants & hotels	-3.0	0.7	0.4
Transport & communications	1.2	1.4	0.9
Finance & insurance	0.4	2.4	1.0
Real estate & business services	7.3	1.5	-0.1
Social & personal services	9.4	-0.2	-0.2
Overall	**2.8**	**1.6**	**0.7**

1. Domestic employment growth between 2001 and 2005.
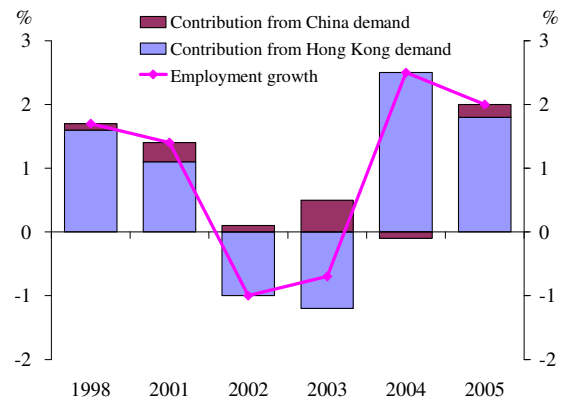Sources: C&SD and staff estimates.

The rapid employment growth in the import/export sector in Hong Kong reflected rising labour demand from China given the growing re-export trade across the border (Chart 9).   The rising China demand for professional services from Hong Kong has mitigated the negative impact of external shocks on domestic labour market.   For example, while Hong Kong experienced a sharp cyclical downturn in labour demand during 2001-03, the number of residents working in China continued to grow strongly.   This reflected the rapid economic expansion in China and increased the willingness of unemployed people in Hong Kong to work in China.   The greater access of the service providers in Hong Kong to the Mainland market under the Closer Economic Partnership Arrangement (CEPA) has also increased cross-border labour flows.   In recent years, however, as domestic labour demand picked up alongside the economic recovery, the contribution from China demand to domestic employment growth has become less significant (Chart 10).

Chart 9: Re-export trade with China and employment in the import/export sector

Chart 10: Contribution from China demand to employment growth in Hong Kong[1]

Source: C&SD.

Note: 1998 and 2001 data are calculated using the average annual growth rate between surveyed dates while figures from 2002 onwards are year-on-year growth rates.
1. Adjusted for duration of stay in China.
Sources: C&SD and staff estimates.

        Another source of employment growth directly related to China demand is the fast-growing number of Mainland visitors in Hong Kong. Following the introduction of the Individual Visit Scheme (IVS) under the CEPA between China and Hong Kong in 2003, the number of Mainland visitors coming to Hong Kong grew by 19% a year between 2002 and 2006, with its share in total inbound visitors rising from 41% to 54% during the period. Of the 13.6 million Mainland visitors in 2006, about 6.7 million (49% of the total) came through the IVS (Chart 11). Mainland visitors are not only an important source of tourism income for Hong Kong, but they also help create many employment opportunities, particularly in the areas of hotels, transportation, retail trade and restaurants. Based on some broad assumptions, Mainland visitors could have contributed some 10-15% of the increase in employment within these tourism-related sectors during 2003-05 (Chart 12).[4,5] However, the contribution from Mainland visitors to overall employment growth is relatively small because these tourism-related sectors account for only about one quarter of total employment in Hong Kong.

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[4] The tourism-related sectors include retail trade, restaurants, hotels and transportation services.
[5] Please refer to the Annex for details about the estimated impact of Mainland visitors on employment growth in the tourism-related sectors in Hong Kong.
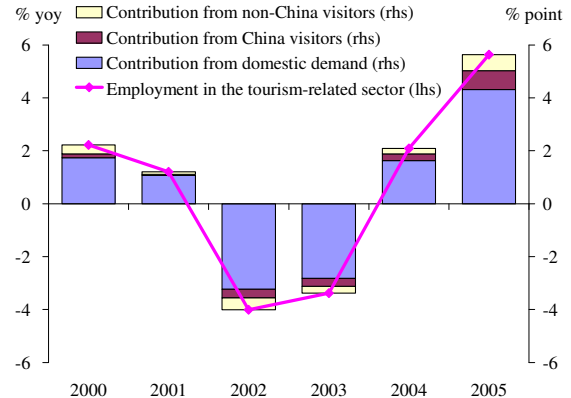
Chart 11: Number of Mainland visitors in Hong Kong[1]

Person (mn)

- Mainland visitors under IVS
- Mainland visitors (non-IVS)
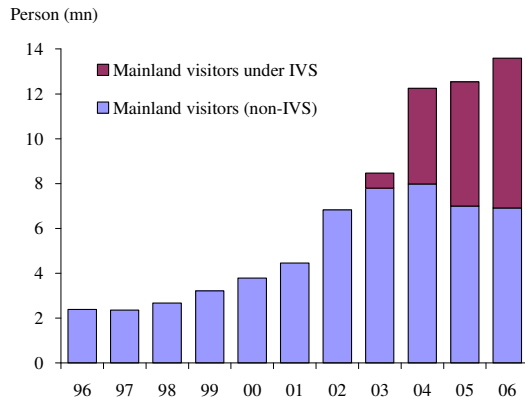
1. Mainland visitors under the IVS with effect from July 2003.

Sources: Immigration Department and the Hong Kong Tourism Board.

Chart 12: Contribution from Mainland visitors to employment growth in the tourism-related sectors[1]

% yoy — Contribution from non-China visitors (rhs) — % point
- Contribution from China visitors (rhs)
- Contribution from domestic demand (rhs)
- Employment in the tourism-related sector (lhs)

1. The tourism-related sectors include retail trade, restaurants, hotels and transportation services.

Sources: C&SD and staff estimates.

While the numbers of Hong Kong residents working in China and inbound tourists from China are useful proxies to gauge the direct impact of China demand on domestic employment growth, it is difficult to measure the overall effect of China factors on the labour market in Hong Kong. Given growing trade and financial activities across the border, China business has become an important source of income for firms in Hong Kong, and has boosted domestic employment growth both directly and indirectly.[6]

V. CAUSES OF HIGHER STRUCTURAL UNEMPLOYMENT IN HONG KONG

The current economic upswing and growing China demand have boosted domestic employment growth and driven down the headline unemployment rate from the peak of 8.5% in June 2003 to 4.2% in June 2007. However, unemployment rates in the construction, restaurants/hotels and wholesale/retail sectors continued to stay above the

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6 Statistics from the C&SD show that Mainland affiliates operating in Hong Kong hired about 18,000 employees at the end of 2004, equivalent to 3.3% of total employment by foreign affiliates operating in Hong Kong. However, the actual figures are expected to be larger than the estimate as some of the Chinese enterprises with operations in Hong Kong may register their business ownerships in offshore financial centres like British Virgin Islands and Bermuda for tax reasons.

headline unemployment rate (Chart 13). [7] In terms of share of unemployment, the construction and the restaurants/hotels sectors remained the highest among the key economic sectors, reflecting modest job creation relative to the size of unemployment (Chart 14).

Chart 13: Unemployment rates by economic sector
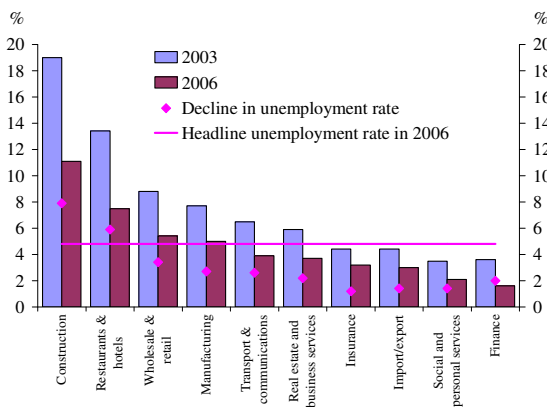
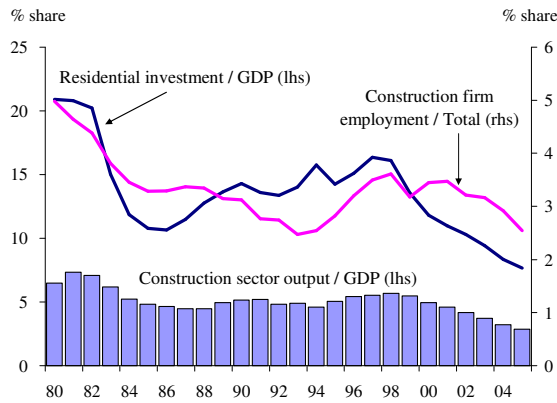**Chart 14: Share of unemployment by economic sector (2003-06)**
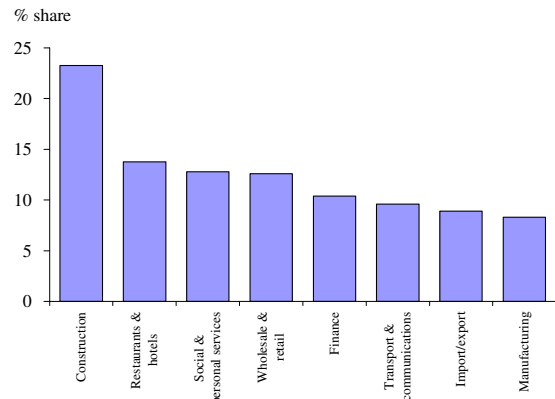
Source: C&SD.

Source: C&SD.

Sluggish construction spending

The persistently high unemployment in the construction sector mainly reflects a structural decline in residential investment in both the private and public sectors, whose share of GDP declined sharply from about 16% in 1997 to below 7% in 2006. As a result, the share of construction output in GDP has been falling since 1998 (Chart 15). Moreover, with their relatively high wages and specialised skill sets, there is greater reluctance for the unemployed construction workers to move to other sectors. The extent of the shortfall in labour demand relative to supply can be seen from the virtually zero vacancies versus the double-digit unemployment rate in the construction sector in recent years (Chart 16).
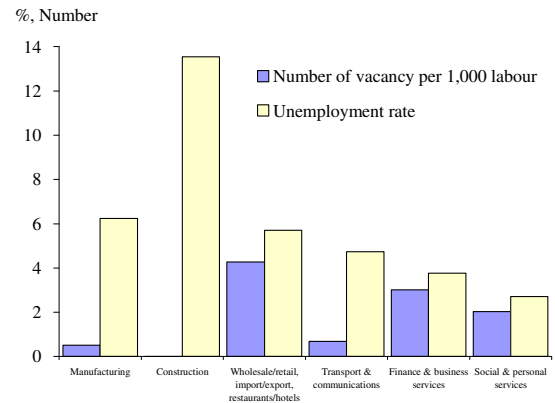
[7] Except for hotel services, of which the unemployment rate has declined to the pre-1997 level.

Chart 15: Residential investment and output in the construction sector

% share   % share

Sources: C&SD and staff estimates.

Chart 16: Vacancy and unemployment rates by economic sector (2004-06)

%, Number

Sources: C&SD and staff estimates.

The deterioration of employment conditions in the domestic construction sector has forced the unemployed to search for job opportunities elsewhere. In recent years, the construction boom in Macau following the opening up of the game and betting industry has attracted about 12,000 Hong Kong residents to work there at the end of 2006, of which about 80% are working in the construction sector.[8] During 2006, the number of Hong Kong's construction workers in Macau increased by 5,800, contributing about 90% of employment growth in the sector (Chart 17). The employment survey conducted at the industry level shows that building companies in Hong Kong have been downsizing their on-site workforce since 2002. However, the employment survey conducted at the household level (the General Household Survey) shows that more construction workers have found jobs in recent years, in line with the rising number of Hong Kong residents working in Macau (Chart 18).
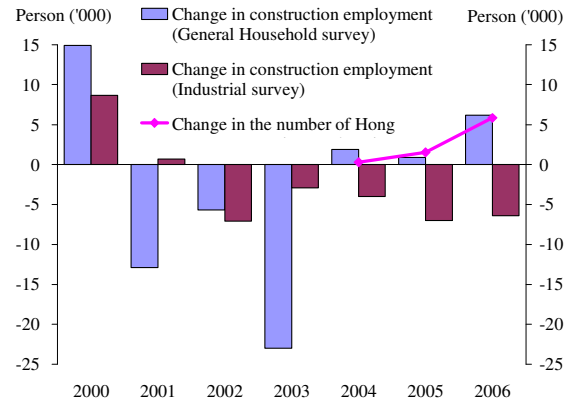
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[8] Figures of Hong Kong residents working in Macau are compiled by Statistics and Census Service of Macau.

Chart 17: Contribution from demand in Macau to construction sector employment in Hong Kong

Chart 18: Different measures of construction sector employment
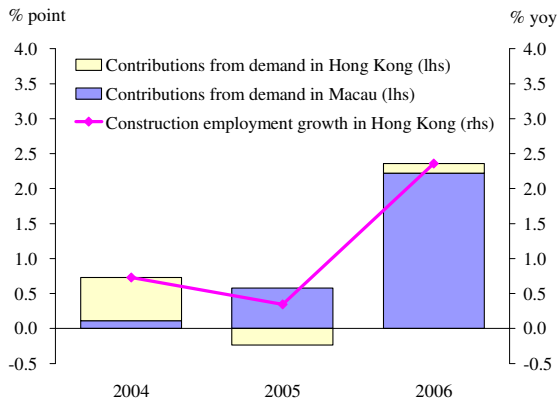
Sources: C&SD, Statistics and Census Service of Macau and staff estimates.

Sources: C&SD and Statistics and Census Service in Macau.

Service outsourcing

Another commonly cited factor contributing to the high unemployment rate in the lower-skilled segment is servicing outsourcing, which has been widely observed in areas such as call centre, data storage, software development and logistics services. Although service outsourcing tends to increase frictional unemployment as it takes time for laid-off workers to search for new jobs, it also brings new job opportunities as firms may use the resources saved from outsourcing efforts in new business areas.

Due to the lack of information about the scale and types of service outsourcing, we use some proxy measures to identify the most affected areas and assess their impact on domestic employment. The communications sector has been widely reported as one of the major areas of service outsourcing in recent years, as domestic operators relocated their call centres and data banks to Shenzhen and Guangzhou. Affected employees are therefore either re-allocated to work in areas with higher value-added such as sourcing and marketing, or laid off. The industrial survey statistics show that the number of people employed in the communications sector has started to diverge from business sales since 2001, with the former continuing to shrink while the latter picking up in

recent years (Chart 19).[9]   As a result, business sales per labour increased markedly by 133% in the communications sector between the ten-year periods of 1986-1995 and 1996-2005, the highest among the key service sectors (Chart 20).

Chart 19:   Employment and business sales in the communications sector
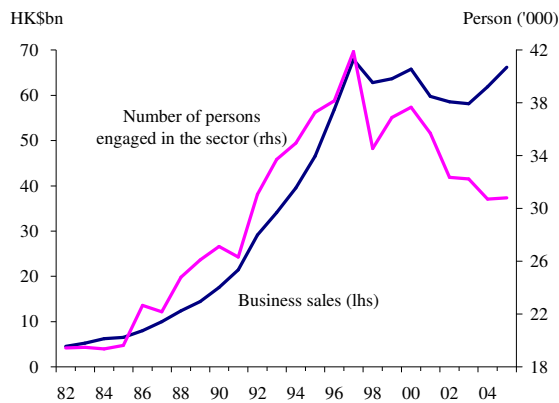
Chart 20:   Business sales per labour among key service sectors

Source: C&SD.
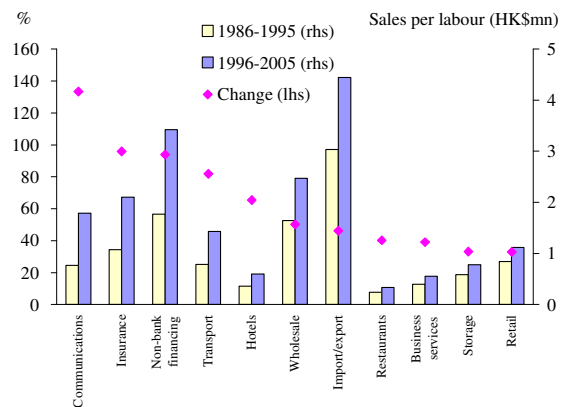
Sources: C&SD and staff estimates.

        The substantial rise in business sales per labour in the communications sector partly reflects improved labour productivity due to advancement and investment in information technology (see Chart 5 for per-labour IT spending).   However, productivity improvement alone appears to be inadequate in explaining the simultaneous increase in business sales and sharp decline in employment in the communications sector.   One possible explanation is that through outsourcing of lower value-added services to their business partners in Mainland China, telecommunication companies in Hong Kong have shifted their focus to areas that create higher value-added and business turnover.

        While service outsourcing may inflict short-term pain on those being laid off, new businesses will create new job opportunities, which is beneficial to both employers and employees over the medium term.   The advantages of outsourcing can be best seen in the relocation of domestic manufacturing industries to China in the 1980s and 1990s, during which manufacturing employment decreased by more than three quarters of the

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[9]   Within the communications sector, most of the decline in employment has been observed in the telecommunication sector, while employment in other communications areas has expanded recently.

total between 1986 and 2006, resulting in job losses of over 700,000. Because most domestic manufacturers maintained a trading office in Hong Kong to support their operations in China in areas such as product design, logistics, sourcing and marketing, a significant portion of manufacturing employees have acquired new skills and are therefore able to provide trade services and technical support to their production plants in China (Chart 21). Reflecting the higher value-added of trade services, remuneration per person employed in the import/export sector has been higher than that in the manufacturing sector (Chart 22).

Chart 21: Employment shift from manufacturing to trade services
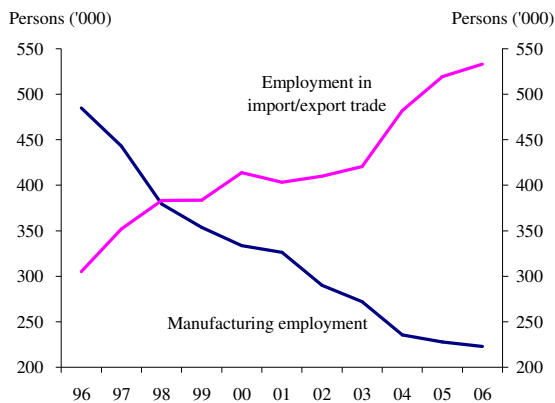
Source: C&SD.

**Chart 22: Remuneration per person in manufacturing and trade services**
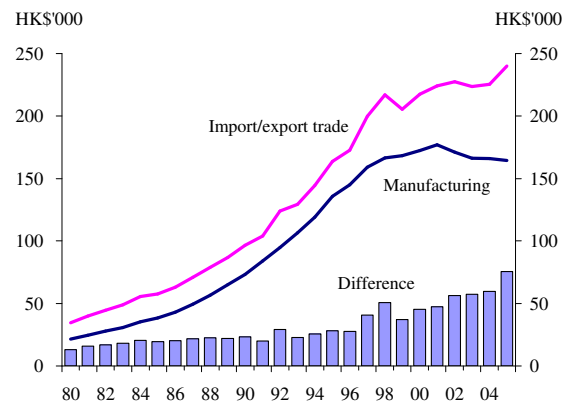
Sources: C&SD and staff estimates.

The anatomy of structural unemployment

The high unemployment in the construction sector and moderate job growth in the lower-skilled segment, partly due to service outsourcing, are generally regarded as the main causes of the relatively high structural unemployment despite the economic upswing in recent years. A breakdown of the headline unemployment rate shows that the unemployment rate in the higher-skilled segment has declined to close to 1-2%, which was the level before the Asian financial crisis. However, the unemployment rate in the lower-skilled segment is still 2 percentage points higher than the pre-crisis level of 2-3% (Chart 23). This reflects sluggish labour demand relative to supply in the lower-skilled segment, with the job-to-applicant ratio (a proxy measure of tightness in the labour market) staying flat in recent years. In contrast, the ratio rose to close to one in the higher-skilled segment, suggesting labour demand for managers and

professionals may have outpaced supply (Chart 24).

Chart 23:   Unemployment rates in the higher- and lower-skilled segments
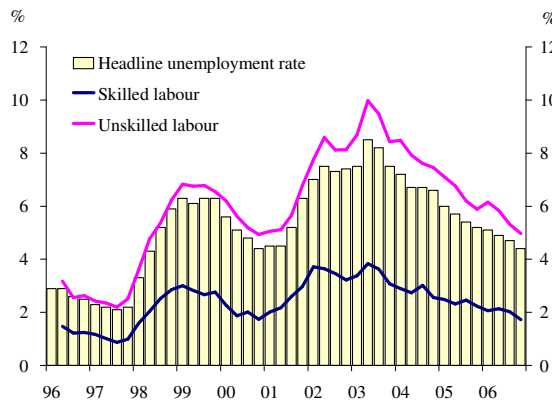
Sources: C&SD and staff estimates.

**Chart 24:   Job-to-applicant ratio of high-skilled and low-skilled labour**

Sources: C&SD and staff estimates.

One commonly used measure of structural unemployment is the natural rate of unemployment, which is the unemployment rate when the economy is operating at full capacity.   Since the natural rate is unobservable, one needs to estimate it based on macroeconomic relationships among labour market, output and inflation.   Using the system of equation approach proposed by Adams and Coe (1990), the natural rate of unemployment is estimated to be 4.4% in 2006, with a 95% confidence interval of 3.6%-5.2%.[10]   The natural rate has picked up gradually from 2-3% in the early 1990s to 4-4.5% in the early 2000s, and has remained stable in recent years (Chart 25).   Past movements in the headline and the estimated natural rates of unemployment suggest that the surge in unemployment following the Asian financial crisis and the burst of the global IT bubble mainly reflected the cyclical downturn of economic activities, resulting in a negative output gap and a considerable period of deflation (Chart 26) (Box 2 discusses the estimation method of the natural rate of unemployment in Hong Kong).
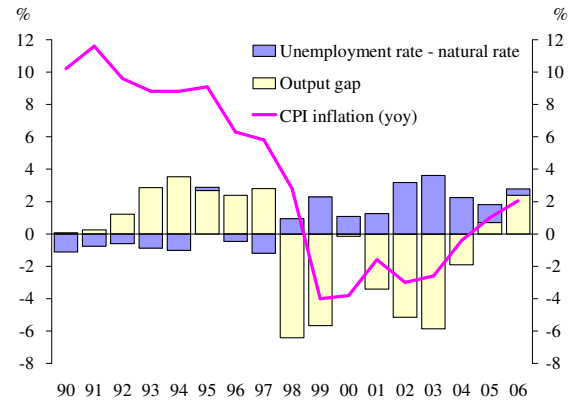
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[10]   Adams, C. and D.T. Coe, "A Systems Approach to Estimating the Natural Rate of Unemployment and Potential Output for the United States", Staff Papers, International Monetary Fund, Vol. 37, No.2, June 1990.

Chart 25: Headline and estimated natural rates of unemployment

%
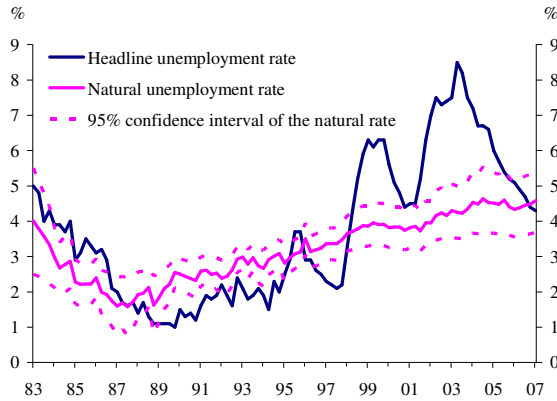
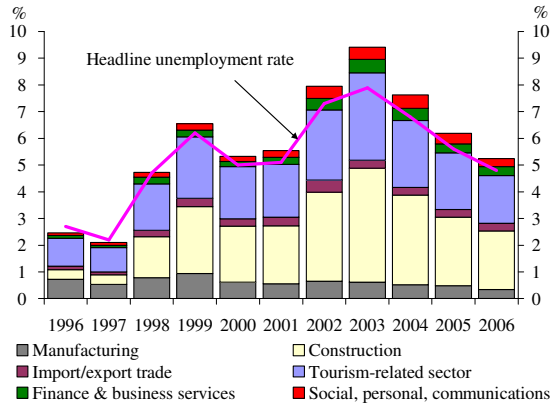Sources: C&SD and staff estimates.

Chart 26: Unemployment rate gap, output gap and inflation[1]

1. The unemployment rate gap is the difference between the headline and natural rates of unemployment.
Sources: C&SD and staff estimates.

The recent strong economic expansion has driven down the headline unemployment rate close to the estimated natural rate, suggesting a further decline in the jobless rate may increase pressures on wages and inflation. The relatively high headline and estimated natural rates of unemployment compared with those in the early 1990s in part reflected the structural unemployment in the construction, restaurants/hotels and wholesale/retail sectors (Chart 27). The revival in construction spending and solid expansion in household spending would drive down both the headline and natural rates of unemployment. For example, if the unemployment rate in the construction sector declined by half to 5.5% from 11% in 2006, the headline unemployment rate would fall by nearly one percentage point. Similar result would apply if the same happened in the restaurants/hotels, wholesale/retail and transportation sectors (Table 3).

Chart 27: Contribution to the rate of unemployment by economic sector

- Manufacturing
- Import/export trade
- Finance & business services
- Construction
- Tourism-related sector
- Social, personal, communications

Sources: C&SD and staff estimates.

Table 3: Sensitivity of the overall unemployment rate to changes in sectoral unemployment rate

Year 2006	Unemployment share	Unemployment rate	Overall unemployment rate if the sectoral unemployment rate is reduced by half
Construction sector	0.22	11.1%	3.6%
Restaurants/hotels, wholesale/retail and transportation	0.34	5.2%	3.9%
Social and personal services	0.12	2.1%	4.7%
Finance and business services	0.11	3.0%	4.6%
Import/export	0.11	3.0%	4.6%
Manufacturing	0.08	5.0%	4.6%
Overall	1.00	4.8%	

Sources: C&SD and staff estimates.

The commencement of new infrastructure projects by the Government in coming years and the steady growth in consumer and inbound tourist spending are expected to boost employment in the construction, restaurants/hotels and wholesale/retail sectors. However, it is less likely that the natural rate would fall back to the level seen in the early 1990s at least for two reasons. First, labour with less education and transferable skills may face the risk of being laid off as a result of business restructuring and becoming unemployed for a considerable period, resulting in longer duration of unemployment (Chart 28). The skill mismatch problem in the service sector can be shown by the outward shift in the Beveridge curve between the 1980s and 1990s, though it is less conclusive in the 2000s. This suggests lower labour mobility across different service sectors (Please see Box 2 for the recent development in the Beveridge curve). Secondly, more generous unemployment benefits compared with the early 1990s may have a tendency to increase the searching time of the unemployed for new placement, keeping the natural rate high (Chart 29). Since unemployment represents output losses as resources are not fully utilised, growing structural unemployment is always a key concern for policymakers.

Chart 28: Average duration of unemployment

No. of month
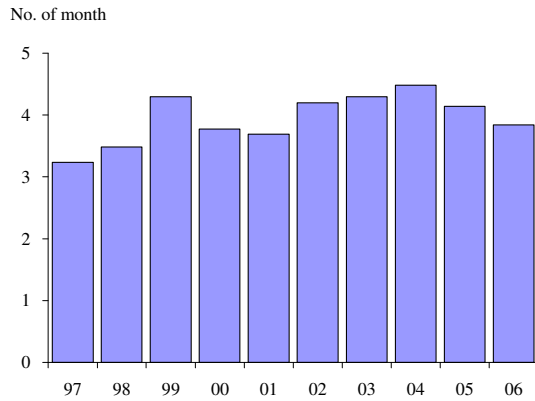
Sources: C&SD and staff estimates.

Chart 29: Structural unemployment and per-case unemployment benefits[1]

Person ('000)   HK$('000)

☐ Unemployment benefits per case deflated by CPI (rhs)
— Structural unemployment (lhs)
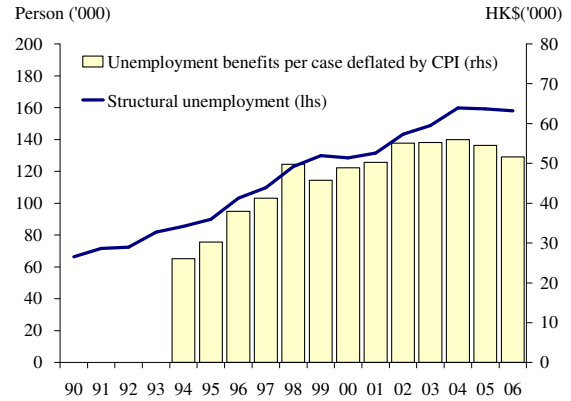
1. Per-case unemployment benefits are calculated by dividing the expenditure on unemployment cases under the Comprehensive Social Security Assistance (CSSA) Scheme by the average number of cases, which are reported on a fiscal-year basis. Data for 2006 are preliminary figures.

Sources: Social Welfare Department and staff estimates.

VI.   NEAR-TERM EMPLOYMENT PROSPECTS

The near-tem employment prospects remain favourable. Although economic growth is expected to moderate somewhat for this year, the solid expansion in domestic demand and growing corporate profits will support employment growth in the service sector. Employment in the external trade and financial services sectors will continue to benefit from the vibrant cross-border trade and financial activities between Hong Kong and the Mainland. The high unemployment rate in the construction, restaurants/hotels and wholesale/retail sectors may limit the decline in the overall unemployment rate. However, increased infrastructure spending by the Government and the construction boom in Macau will create more jobs for domestic construction workers. Growing household income and inbound tourism will boost business volume in the wholesale/retail and restaurants/hotels sectors, improving employment prospects for the less-skilled labour.

Strong economic performance and the fast-growing service industry in China have offered great opportunities for corporations in Hong Kong to expand their businesses. While the manufacturing industry

remained the largest economic sector in China, contribution from the service sector to output has become more significant (Chart 30).   Since the liberalisation of foreign access to the service sector in China is still at an initial stage, there is ample growth potential when the pace of liberalisation accelerated particularly in the financial, insurance and other business services areas.   Over the past years, service sector employment has outpaced manufacturing employment in China, and the trend is expected to continue (Chart 31).   Growing service employment demand in China will create new job opportunities for professionals in Hong Kong given their expertise and international exposures, and their willingness to work across the border appears to have been rising.

Chart 30:   Output share by key industry in Mainland China

% share of GDP
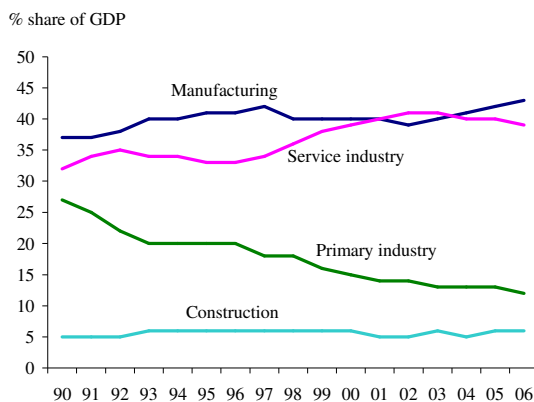
Sources: CEIC and staff estimates.

**Chart 31:   Employment by key industry in Mainland China**

1990=100
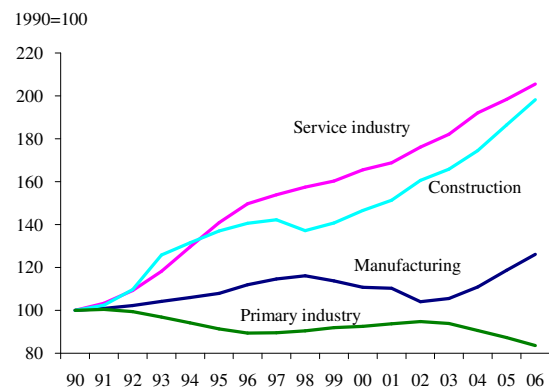
Sources: CEIC and staff estimates.

While labour market conditions remained vibrant in Hong Kong, the uncertain economic outlook for the US economy may hamper the re-export trade between Hong Kong and Mainland China, which may affect overall employment growth, since the import/export sector represents the largest share of total employment.   On the other hand, growing labour demand for financial and business services has pushed up wages and payrolls in these sectors.   However, the highly specialised labour force in Hong Kong suggests that labour in other service sectors may enjoy limited benefits from the employment boom in the financial sector.   The divergence in unemployment rates across different service sectors may therefore persist despite the moderation in the overall unemployment rate.

Box 1: Recent developments of Hong Kong residents working in Mainland China

Along with the growing economic integration between Hong Kong and China and the rising number of Hong Kong residents working across the border, there is an emerging trend of workers with higher education and greater experience becoming more willing to work in China.   According to a C&SD survey, the share of Hong Kong residents working in China with tertiary education increased considerably to 42% in 2005 from 26% in 1995.[11]   Over the same period, the share of employees who are 40 years of age and above also rose to 58% from 46%, suggesting that the Mainland business environment has become more attractive to middle and senior executives in Hong Kong.   Reflecting this, the share of managers and professionals working in China picked up from 64% to 80% between 1995 and 2005 (Chart B1.1).

Chart B1.1:   Hong Kong residents working in China by occupation group
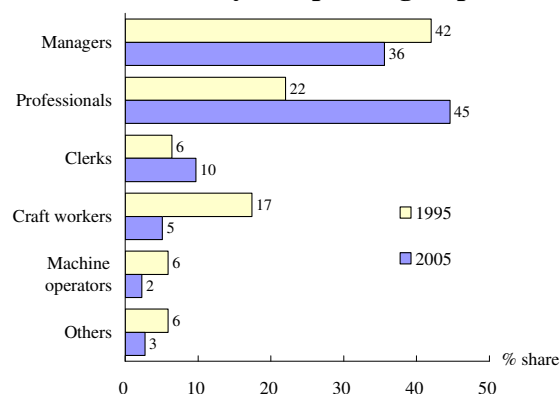
Source: C&SD.

Table B1.2:   Hong Kong residents working in China by monthly labour earnings

	1995		2005	
Monthly earnings	No. of persons ('000)	Share	No. of persons ('000)	Share
<5,000	1	1%	7	3%
5,000 - 9,999	21	22%	37	16%
10,000 - 14,999	28	29%	47	21%
15,000 - 19,999	17	18%	40	18%
20,000 - 29,999	20	20%	53	23%
30,000 or above	10	11%	45	20%
Overall	97	100%	229	100%
Median monthly earnings	(HK$)		(HK$)	
HK residents working in China	13,500		16,000	
Total employed population in HK	9,000		10,000	

Source: C&SD.

The rising share of Hong Kong professionals working in China reflects growing labour demands in the trade, financial and business services sectors.   Following the gradual liberalisation of the service industry in China, increasing business volume and improving career prospects in the fast-growing service areas are key factors attracting middle and senior executives to stay and work in China on a more regular basis.   Reflecting the higher value-added labour services provided by Hong Kong residents in China, the share of monthly earnings of $20,000 or above increased from 31% to 43% between 1995 and 2005.   Their median monthly earnings also grew at a faster rate, by 19% to $16,000 during the above period, compared with 11% growth in median monthly earnings for the total employed population in Hong Kong (Table B1.2).

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[11]   Statistics of Hong Kong residents working in Mainland China are collected via the General Household Survey conducted by the C&SD.   The figures referred to persons covered in the Hong Kong resident population who had worked on the Mainland during the 12-month period before enumeration, irrespective of the number of times they had traveled to work and the duration of each stay.

Following the CEPA-driven liberalisation of the service industry in China, the scope of investment and business activities of Hong Kong companies in some service areas has expanded considerably in recent years. This will boost the number of Hong Kong residents working in China, within which there is a rising share of managers and professionals. While there is little evidence of a brain drain in Hong Kong due to an increased flow of talents across the border, improving career prospects and ample growth potential in China have increased the willingness of Hong Kong people to work and reside in China.

Box 2: Natural rate of unemployment and the Beveridge curve

This box describes the estimation of the natural rate of unemployment and recent developments of the Beveridge curve, which helps explain the relatively high structural unemployment in recent years. Based on the studies by Peng et al (2001)[12], the natural rate of unemployment is estimated based on the following system of structural equations, which comprises the Phillips curve and unemployment equations:

$$UN = a_0 + a_1(\text{Output gap}) + a_2(\text{SEMP}) + a_3(\text{SYLF}) + a_4(UN_{-1}) + e_1 \qquad (1)$$

$$Wg = b_0 + b_1(\pi_{-1}) + b_2(UN - UN^n) + b_3(\text{Prodg}) + e_2 \qquad (2)$$

$$\pi = c_0 + c_1(\text{Output gap}) + c_2(\pi^e) + c_3(Wg) + c_4(\text{Impxg}) + e_3 \qquad (3)$$

$$\text{Output}^p = 0.7(1 - UN^n)(\text{Labour}) + 0.3(\text{Capital}) + d_0 + d_1(\text{SEMP}) + d_2(\text{Trend}) + e_4 \quad (4)$$

where UN and UN^n are headline and natural rates of unemployment. Wg, π, Impxg and Prodg are the growth rates for wages, consumer prices, import prices and labour productivity respectively. SEMP and SYLF represent the share of service sector employment and the share of young workers (aged 15-19) in the labour force respectively. Finally, π^e represents inflation expectations and Output^p is the potential output.

The Phillips curves (Equations (2) and (3)) suggest that if the headline unemployment rate falls below the natural rate, growth in wages and consumer prices would pick up. Since the natural rate should not be affected by changes in cyclical conditions in the real sector and labour market, solving the structural equations would show that the natural rate is mainly determined by the employment share of the service sector (SEMP) and the share of young workers in the labour force (SYLF), that is:

$$UN^n = a_0/(1-a_4) + [a_2/(1-a_4)](\text{SEMP}) + [a_3/(1-a_4)](\text{SYLF}) \qquad (5)^{[13]}$$

Equation (5) suggests that structural unemployment tends to increase when the economy migrates from manufacturing to service industries. On the other hand, the natural rate will decline when more young people receive higher education before joining the labour force. The assumption is that as the economy moves up along the value chain, structural unemployment has a tendency to rise due to skill mismatch. Given that the sign of the slope coefficients is positive, the prevailing trends of steady rise in the share of service sector employment and the gradual fall in the share of young workers in the labour force will have offsetting effects on the natural rate. Their overall impact on the natural rate depends on the size of their respective parameter estimates.

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[12] For details, please read "Sources of Unemployment: Recent Developments and Prospects" by Peng Wensheng, Lillian Cheung and Kelvin Fan, HKMA Quarterly Bulletin, November 2001.

[13] Equation (5) is derived when the labour market and output are in equilibrium conditions, that is, when $UN=UN^n$ and $\text{Output}=\text{Output}^p$.

The estimated natural rate of unemployment is subject to uncertainty in the estimated parameters obtained in Equation (1) due to variance in residuals and sampling distributions. To construct a 95% confidence interval for the estimated natural rate, the variance of the terms on the right-hand side of Equation (5) can be approximated by Taylor expansion. A first order Taylor expansion of a function of two variables $f(x, y)$ around the mean $(\bar{x}, \bar{y})$ is given by:

$$f(x, y) = f(\bar{x}, \bar{y}) + df/dx|_{\bar{x}} (x - \bar{x}) + df/dy|_{\bar{y}} (y - \bar{y})$$

Let

$$k = (1 - a_4); \text{ and}$$

$$Z = a_0 + a_2(SEMP) + a_3(SYLF);$$

which is a linear combination of a_0, a_2 and a_3. Equation (5) can be simplified to:

$$UN^n = \frac{Z}{k}$$

Expanding the right hand side around the mean, the estimated natural rate can be approximated by the first order Taylor expansion as follow:

$$\hat{U}N^n = \frac{\bar{Z}}{\bar{k}} - \frac{\bar{Z}}{\bar{k}^2}(\hat{k} - \bar{k}) + \frac{1}{\bar{k}}(\hat{Z} - \bar{Z})$$

$$\hat{U}N^n = \frac{\bar{Z}}{\bar{k}} + \frac{\bar{Z}}{\bar{k}^2}(\hat{a}_4 - \bar{a}_4) + \frac{1}{\bar{k}}(\hat{Z} - \bar{Z})$$

which is linear in the estimated parameters obtained from Equation (1). The variance of the estimated natural rate can be obtained from:

$$\text{Var}(\hat{U}N^n) = \left(\frac{\bar{Z}}{\bar{k}^2}\right)^2 \text{Var}(\hat{a}_4) + \left(\frac{1}{\bar{k}}\right)^2 \text{Var}(\hat{Z}) + 2\left(\frac{\bar{Z}}{\bar{k}^2}\right)\left(\frac{1}{\bar{k}}\right)\text{Cov}(\hat{a}_4, \hat{Z})$$

The variance of $\hat{Z}$ and the variance-covariance of the parameters estimated from Equation (1) can be computed from:

$$\text{Var}(\hat{Z}) = \sigma^2 \mathbf{x'_0(X'X)^{-1}x_0}$$

$$\text{Var-cov}(\hat{a}) = \sigma^2 \mathbf{(X'X)^{-1}}$$

where σ^2 is the variance of residuals and $\mathbf{X}$ is a vector of the explanatory variables in Equation (1).   The upper and lower bound of the 95% confidence interval of the estimated natural rate of unemployment can be constructed by adding and subtracting two standard errors of $\hat{U}N^n$ derived from Var($\hat{U}N^n$).

Beveridge Curve

One useful measure to gauge the extent of skill mismatch in the labour market is the Beveridge curve, the scatter plot of vacancy rates versus unemployment rates over a defined period.   Between the 1980s and 1990s, the Beveridge curve appeared to have shifted outward in the service sector, though it is less conclusive in the 2000s.   This means that given a certain vacancy rate the unemployed need to spend more time to search for jobs within the service sector, implying higher frictional unemployment (Chart B2.1).   For the non-service sectors (manufacturing and construction), there is no clear sign of an outward shift in the Beveridge curve.   Instead, there has been a downward movement from high vacancy and low unemployment in the 1990s to low vacancy and high unemployment in the 2000s, reflecting the sluggish job creation in the construction sector (Chart B2.2).

Chart B2.1:   Beveridge curve for the service sector
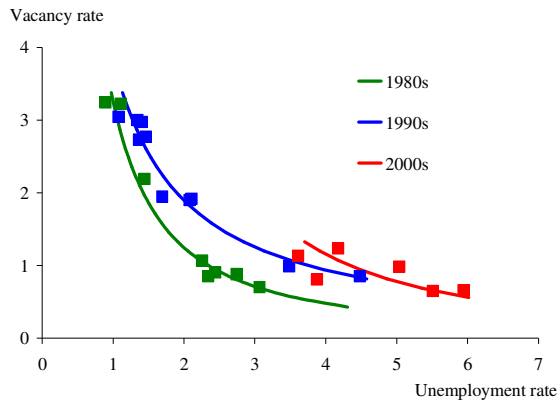
Sources: C&SD and staff estimates.

Chart B2.2:   Beveridge curve for the manufacturing and construction sectors
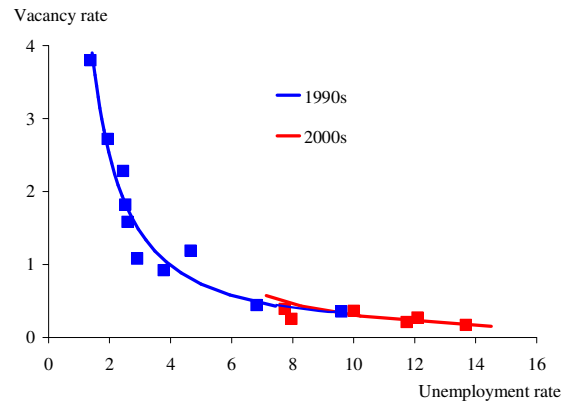
Sources: C&SD and staff estimates.

<div align="right">**Annex**</div>

Contribution from Mainland visitors to tourism-related employment in Hong Kong

The employment survey conducted by the C&SD at the industry level shows that the total number of people employed in the tourism-related sectors (restaurants/hotels, wholesale/retail and transportation) increased by 7.8% to 641,000 between 2003 and 2005. To estimate the contribution from Mainland visitors to tourism-related employment in Hong Kong, we use the industry tourism ratio (ITR), a measure of an industry's reliance on direct tourism consumption, to estimate the extent of job creation due to inbound tourism.[14] Table A1 presents the ITR, employment growth in the tourism-related sectors and the contribution from Mainland visitors during 2003-05.

Table A1: Contribution from Mainland visitors to tourism-related employment

During 2003-05	ITR[1] (a)	Employment growth (%) (b)	Contribution from tourism (% point) (a)*(b)	Of which: Mainland visitors[2] (% point) (a)*(b)*0.55
Retail trade	0.20	8.7	1.7	1.0
Restaurants	0.13	10.8	1.4	0.8
Hotels	0.72	15.8	11.4	6.3
Transport	0.31	3.7	1.1	0.6
Tourism-related industry		**7.8**	**1.8**	**1.0**

1. The ITR figures are for 2003, which are the latest available data from C&SD.
2. The average share of Mainland visitors in the total number of inbound tourists is 55% for 2003-05.
Sources: C&SD and staff estimates.

The results suggest that Mainland visitors accounted for about 13% of growth in tourism-related employment in Hong Kong between 2003 and 2005. However, as the tourism-related sectors only constitute 27% of total employment, the contribution from Mainland visitors to overall employment growth in Hong Kong is likely to be small.

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[14] Industry tourism ratio is the proportion of the total value added of an industry derived from tourism activities.