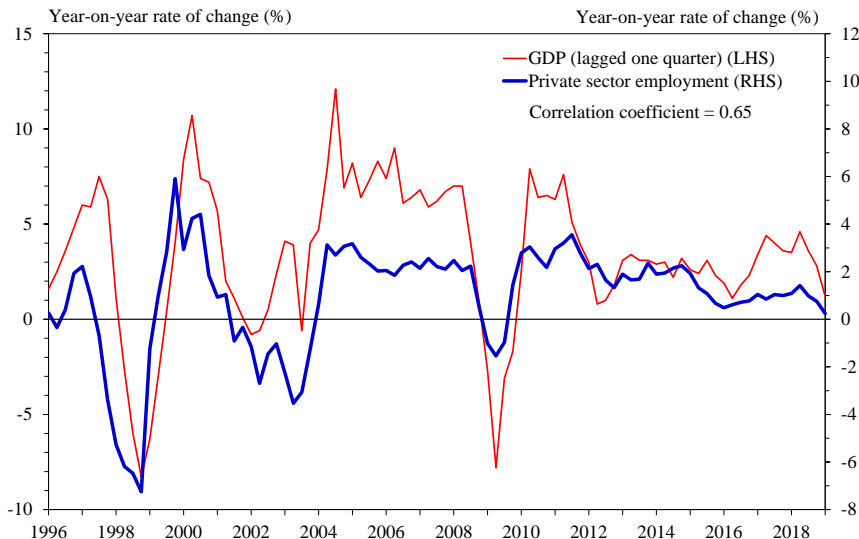


Box 5.1**Sectoral employment in relation to Gross Domestic Product (GDP)**

It is well known that economic growth is conducive to job creation. It follows that economic growth and changes in employment should largely move in sync with each other. However, because it is costly to recruit and train or lay off employees, employers tend to adopt more of a wait-and-see approach in making their hiring or dismissal decisions in the face of economic fluctuations. As such, adjustments in headcount are often lagged responses to changes in economic output⁽¹⁾ (*Chart 1*). This article provides a brief analysis of the relationship between output and employment at the sectoral level.

Chart 1: Economic growth and changes in private sector employment

Note: Figures on private sector employment are sourced from the Quarterly Report of Employment and Vacancies Statistics published by the Census & Statistics Department (C&SD).

How closely employment moves with overall GDP varies across sectors due to the inherent differences between them. For example, some sectors require more higher-skilled workers which are harder to acquire and train. The businesses therein may thus be more hesitant to lay off employees even at times of economic downturn and instead look for other cost-cutting measures to cope with the situation. In addition, some sectors are more closely tied to domestic consumption while some are more externally-oriented. The extent to which the employment in these sectors is affected by the economic cycle may very well depend on whether the change in output is domestically- or externally-driven. That said, there is no clear-cut demarcation as many businesses cater to both domestic and foreign demand.

Focusing on the service sectors, which account for over 90% of private sector employment, *Table 1* shows the correlations between the year-on-year rates of change in GDP (lagged one quarter⁽²⁾) and those in employment in each sector. Notably, employment changes in the “import/export trade and wholesale”, “retail, accommodation and food services” and “financing, insurance, real estate, professional and business services” sectors show a relatively higher degree of correlation with GDP growth (with correlation coefficients of 0.62, 0.58 and 0.63 respectively). In contrast, employment changes in other sectors show less correlation with GDP growth, indicating that employment in these sectors might be less sensitive to GDP variations.

(1) Refers to changes in GDP in real terms. All figures on GDP and its components are in real terms in this article.

(2) The correlation coefficients calculated using more lags of GDP growth were generally smaller, suggesting that sectoral employment is most highly correlated with GDP growth lagged by one quarter.

Box 5.1 (Cont'd)**Table 1: Correlation coefficients between year-on-year rates of change in sectoral employment and those in selected GDP components (lagged one quarter)**

<u>Employment</u>	<u>GDP</u>	<u>Consumption</u> [*]	<u>Exports</u> [^]
Import/export trade and wholesale	0.62	0.47	0.50
Retail, accommodation and food services	0.58	0.69	0.32
Financing, insurance, real estate, professional and business services	0.63	0.74	0.31
Transportation, storage, postal and courier services	0.36	0.45	0.08
Information and communications	0.11	0.36	-0.01
Social and personal services	-0.08	-0.18	-0.10

Notes: Figures on sectoral employment refer to private sector employment as sourced from the Quarterly Report of Employment and Vacancies Statistics published by C&SD. Due to change in industrial classification, analysis for “import/export trade and wholesale” and “retail, accommodation and food services” covers the period of March 1996 to March 2019, whereas that for other sectors only covers March 2001 to March 2019. Year-on-year rates of change in sectoral employment for March 2001 onwards are in Hong Kong Standard Industrial Classification (HSIC) v2.0, while those prior are in HSIC v1.1.

(*) Total consumer spending in the domestic market.

(^) Exports of goods and services.

In order to see whether sectoral employment responds more to developments in domestic or external markets, additional correlation analysis was conducted between the year-on-year rates of change in sectoral employment and those in two major expenditure components of GDP (lagged one quarter): total consumer spending in the domestic market and exports of goods and services. The results are shown in the two columns on the right in *Table 1*. For the three sectors in which employment changes are more closely related to overall GDP growth, the shaded coefficients indicate which GDP component (i.e. consumption or exports) exhibits a greater degree of correlation with employment in the given sector. The results largely match the notion that employment in the more externally-oriented sectors correlates more strongly with external demand, whereas employment in the more domestically-oriented sectors is more linked to consumer spending in the domestic market.

To look at these three sectors in greater detail, the movements of the sectors' employment and the corresponding more-correlated GDP components (lagged one quarter) are illustrated in *Chart 2*. Employment in the “import/export trade and wholesale” sector moves broadly in line with exports (*Chart 2(a)*), though the relationship was looser in recent years, conceivably due to the secular downtrend in employment observed in this sector amid sustained productivity growth. Meanwhile, employment in the “retail, accommodation and food services” (*Chart 2(b)*) and “financing, insurance, real estate, professional and business services” sectors (*Chart 2(c)*) moves closely with consumption in the domestic market⁽³⁾.

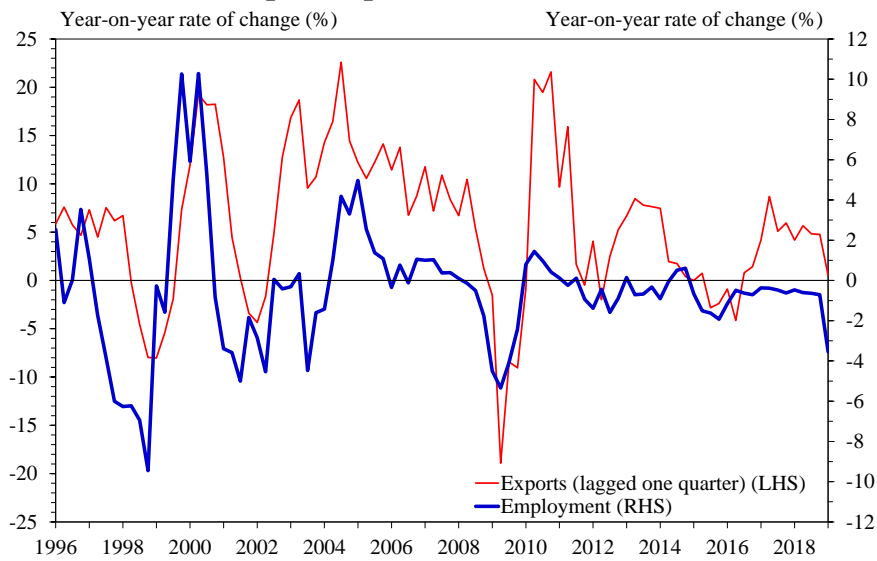
In sum, employment, though probably somewhat lagging, does go hand in hand with economic growth. While the labour market remains broadly stable at present, we need to be mindful of the possibility of a slowdown in employment in future should economic growth stay soft in the coming quarters. We will stay vigilant to the development.

(3) Separately, Granger causality tests were conducted using the seasonally-adjusted, log-transformed, and detrended series of employment and GDP components. The results confirmed that the movements of employment in the three selected sectors shown in *Chart 2* can be explained partly by the lagged values of their more-correlated GDP components.

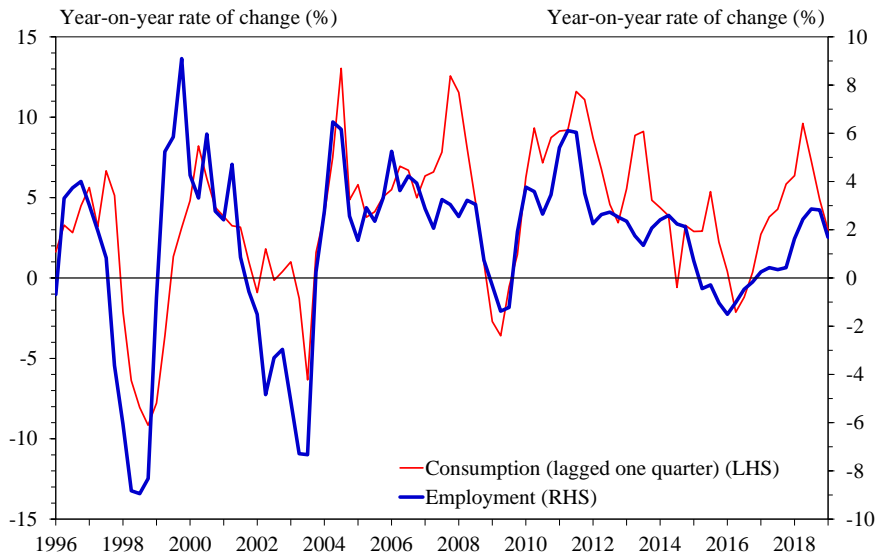
Box 5.1 (Cont'd)

Chart 2: Movements of sectoral employment and selected GDP components

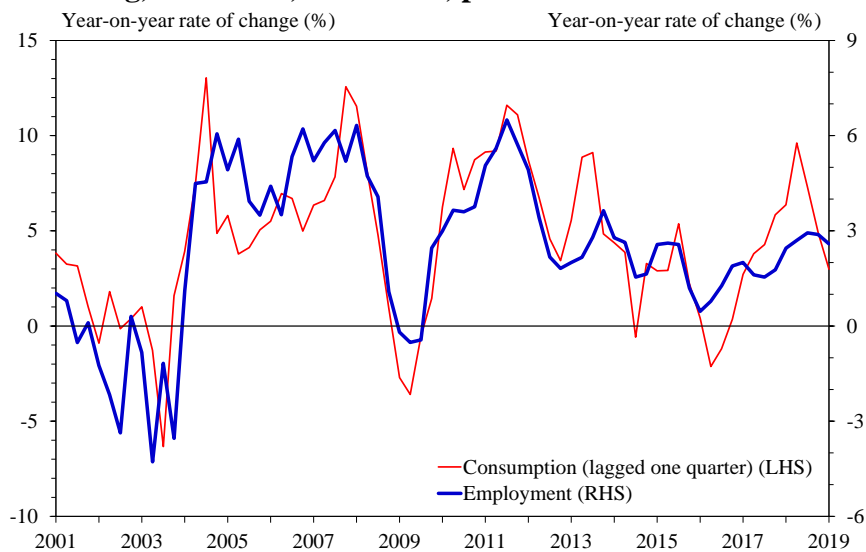
(a) Import/export trade and wholesale



(b) Retail, accommodation and food services



(c) Financing, insurance, real estate, professional and business services



Note: Figures on employment refer to private sector employment as sourced from the Quarterly Report of Employment and Vacancies Statistics published by C&SD.