

information paper
on
business statistics

Quarterly Business Receipts Index For Service Industries

Singapore Department of Statistics
March 2000

This paper should not be quoted without the permission
of the Singapore Department of Statistics

Papers in this Information Paper Series are intended to inform and clarify conceptual and methodological changes and improvements in official statistics. The views expressed are based on the latest methodological developments in the international statistical community. Statistical estimates presented in the papers are based on new or revised official statistics compiled on the best available data. Comments and suggestions are welcome.

QUARTERLY BUSINESS RECEIPTS INDEX FOR SERVICE INDUSTRIES

I Introduction

1 With the growing importance of Singapore as a regional business and financial centre, the services sector has increasingly become an important component of the Singapore economy. In 1999, it accounted for nearly half of GDP as well as the total workforce.

2 Statistics on the services sector have regularly been collected through the Annual Survey of Services. Arising from the growing demand to track the services sector on a short-term basis, the Quarterly Survey of Services (QSS) was launched in 1998 to collect data on business receipts covering major service industries. From the QSS, data are compiled to derive a new quarterly series on the business receipts index (QBRI) for monitoring the performance of the service industries.

3 This paper explains the data source and methodology of the QBRI to enable users to have a better understanding of how the index is constructed. The performance of the services sector as well as major service industries in recent years is also analysed using the QBRI.

II Definition of Business Receipts

4 Business or operating receipts is generally defined as the principal income derived from the main activities of the establishment. In the service industries, it includes the total value of services rendered as well as commissions, agency fees, administration and management fees earned, but excludes the value of the goods and services tax. However, business receipts for the following activities is defined differently:

- a) For freight forwarding agents, operating receipts refers to gross freight/handling charges received less the cost of freight/handling charges paid.

- b) For travel agencies, operating receipts refers to total value of tour and service charges including ticketing commissions less the cost of tickets purchased.
- c) For financial institutions, operating receipts refers to income from interests, commissions and fees earned less interests paid to depositors.
- d) For insurance companies, operating receipts refers to income from premiums received, interests, commissions, fees and dividends earned from investments of reserves less claims paid.

III Data Sources

5 Data on the business receipts of major service industries except financial and insurance services, are sourced from the new QSS. Business receipts of financial and insurance services are obtained from the consolidated returns of financial institutions and insurers provided by the Monetary Authority of Singapore (MAS) to the department in response to the Survey of National Income Estimates (NIE).

6 The QSS was launched in the last quarter of 1998 and has since been conducted every quarter. Survey questionnaires are mailed to selected firms at the close of each quarter. To reduce response burden, firms covered by both QSS and other quarterly surveys like the Business Expectations Survey (BES) and NIE do not receive a separate QSS form. Instead, data on business receipts are extracted from the survey returns of BES and NIE.

IV Coverage of Service Industries

7 The QSS covers twelve major groups of service industries, namely, land transport, water transport, air transport, transport related services, post and telecommunications, IT services, professional services, medical services, real estate services, business services, and financial and insurance services. The types of businesses covered in each group are shown in Appendix I.

8 Excluded from the QSS are government ministries and departments, non-profit organisations and establishments engaged in community, social, and personal

services. Real estate developers are also excluded as development projects are usually long-term, stretching beyond one year. Likewise, investment and holding companies are excluded as their revenue, comprising mainly interest and dividend payments, is usually derived once a year.

9 Companies with fewer than 5 workers are excluded on account of their low turnover (altogether they accounted for less than 5 per cent of the total operating receipts in the services sector). It is, therefore, not cost-effective to cover such small firms.

V Sample Selection and Representation

10 The sample for the QSS was selected by stratified random sampling. Establishments were stratified by industry and employment size within each industry. The industries were classified at the 2- or 3-digit level of the Singapore Standard Industrial Classification 1996 (SSIC). For employment size, three categories were identified, namely, large firms with more than 100 workers; medium-sized firms with 10 - 100 workers; and small firms employing 5 - 9 workers. The use of employment size as a sampling criterion was to ensure adequate representation of small and medium-sized establishments in the survey and ultimately in the QBRI. The sample size within each stratum was determined by the Neyman's Allocation Method to take into account variability in business turnover.

11 A total of about 1,130 establishments were selected, 830 of which are covered by QSS, 240 by BES and 60 by the NIE survey. The selected sample is estimated to account for about two-thirds of the total turnover in the services sector¹.

VI Methodology of QBRI

12 The QBRI is computed using the Laspeyres' formula, which is mathematically expressed as follows:

¹ Excluding non-profit organisations.

$$I_{on} = \frac{\sum_i W_i \frac{P_{in} Q_{in}}{P_{io} Q_{io}}}{\sum_i W_i} \times 100$$

where I_{on} is the index for the current period n compared to the base period o ; 1997 is the base year of the QBRI.

$P_{in} Q_{in}$ denotes the total business receipts of the sample of firms in the i^{th} industry (at 5-digit level of the SSIC) during the current period n ;

$P_{io} Q_{io}$ denotes the total business receipts of the sample of firms in the i^{th} industry during the base period o ;

$\frac{P_{in} Q_{in}}{P_{io} Q_{io}}$ compares the business receipts of the i^{th} industry in the current period n against the base period o . This represents the index of the i^{th} industry.

$\frac{W_i}{\sum_i W_i}$ is the normalised weight assigned to the i^{th} industry in proportion to its share of total business receipts in the services sector.

\sum_i is the summation of all industries to the group or sectoral level.

13 The QBRI is computed by dividing each quarter's total business receipts of all selected establishments within the same industry at the 5-digit level of the SSIC by their average quarterly receipts in base year 1997. The indices at the 5-digit level are then aggregated to the group and overall sectoral level by a series of assigned weights.

Weighting Pattern

14 The weights reflect the relative contribution of each industry within the sector and were derived based on the operating receipts of the service industries as compiled from the Annual Survey of Services 1997 (See Table 1 for the industry

groups and weights). The most important industry in the services sector was financial services which constituted slightly more than one-fifth of the total weightage in the QBRI. Next in importance was water transport services which made up nearly 20 per cent, followed by air transport services with 12 per cent. Together, these three industry groups accounted for more than half of the total receipts in the services sector.

Table 1
Weighting Distribution of the Business Receipts Index

Service Industry	Weights
Total	10,000
Land Transport	386
Water Transport	1,967
Air Transport	1,170
Transport Related Services	643
Post & Telecommunications	638
IT Services	326
Professional Services	890
Real Estate	594
Business Services	469
Medical Services	282
Financial Services	2,120
Insurance Services	515

15 The overall index at the sectoral level is referred to as the composite business receipts index for service industries. It is the weighted average of the twelve component indices as represented by land transport, water transport, air transport, transport-related services, post and telecommunications, IT services, professional services, medical services, real estate services, business services, financial and insurance services.

VII Performance of Service Industries in Recent Years

Overall Sector

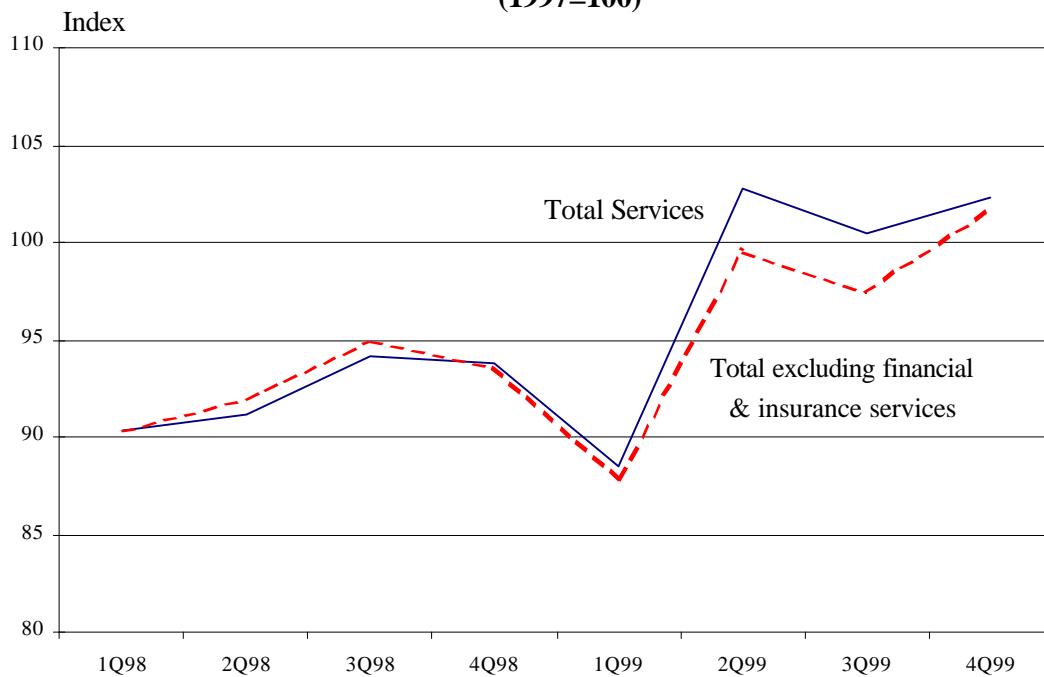
16 The composite business receipts index stood at 98.5 points in 1999. This was below that of 1997 (base year) but higher than 1998 (92.4 points) (see Table 2). In terms of percentage change, the overall index in 1998 showed a drop of 7.6 per cent compared with 1997 but recovered by 6.6 per cent in 1999 over 1998. This reflected the economic downturn encountered by most firms in 1998 and the turnaround in the economy in the subsequent year.

Table 2
Business Receipts Index (1997 = 100)

Service Industry	Index		% Change	
	1998	1999	1997 - 1998	1998 - 1999
Total	92.4	98.5	-7.6	6.6
Total (excl Financial & Insurance Services)	92.7	96.6	-7.3	4.2
Land Transport	94.0	92.0	-6.0	-2.1
Water Transport	78.0	88.1	-22.0	12.9
Air Transport	98.5	110.1	-1.5	11.8
Transport Related Services	92.1	96.2	-7.9	4.5
Post & Telecommunications	104.8	104.8	4.8	-
IT Services	109.2	106.0	9.2	-2.9
Professional Services	95.0	96.1	-5.0	1.2
Real Estate	98.0	88.9	-2.0	-9.3
Business Services	91.9	88.4	-8.1	-3.8
Medical Services	107.4	110.5	7.4	2.9
Financial Services	94.7	109.7	-5.3	15.8
Insurance Services	78.6	79.6	-21.4	1.3

17 A breakdown of the quarterly data for 1999 revealed that the index was in fact at its lowest point of 88.5 points in 1Q99 (see Chart 1). It, however, rebounded strongly to above 100 points in the subsequent three quarters, rising significantly by 13 per cent in 2Q99, 6.8 per cent in 3Q99, and 9.1 per cent in 4Q99 compared with the corresponding quarter of 1998. An examination of the service industries showed that the recovery was most prominent for water & air transport and financial services where their business receipts rose by more than 10 per cent in 1999.

Chart 1
Overall Business Receipts Indices
(1997=100)

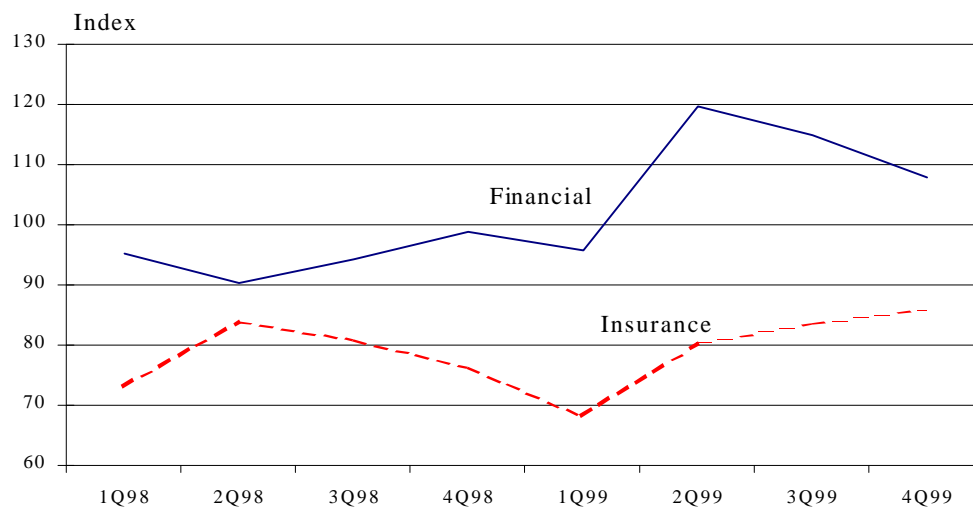


18 Excluding financial and insurance services, the composite business receipts index of the services sector displayed a similar trend. It remained below the base year level for the initial five quarters, from 1Q98 to 1Q99, but rebounded to nearly 100 points in 2Q99. The index retreated to 97 points in 3Q99 before rising above base year level in 4Q99.

Financial and Insurance Services

19 Adversely affected by the Asian economic crisis, financial services registered a decline in business receipts of 5.3 per cent in 1998. However, it staged a strong recovery in 1999, recording a jump of 15.8 per cent over 1998. The rise was boosted mainly by the renewed buoyancy of the local and global stock markets. Similar to the overall trend, the index remained below the base year level for the initial five quarters before rising above 100 points in the last three quarters of 1999 (see Chart 2).

Chart 2
Business Receipts Indices for Financial and Insurance Services
(1997=100)



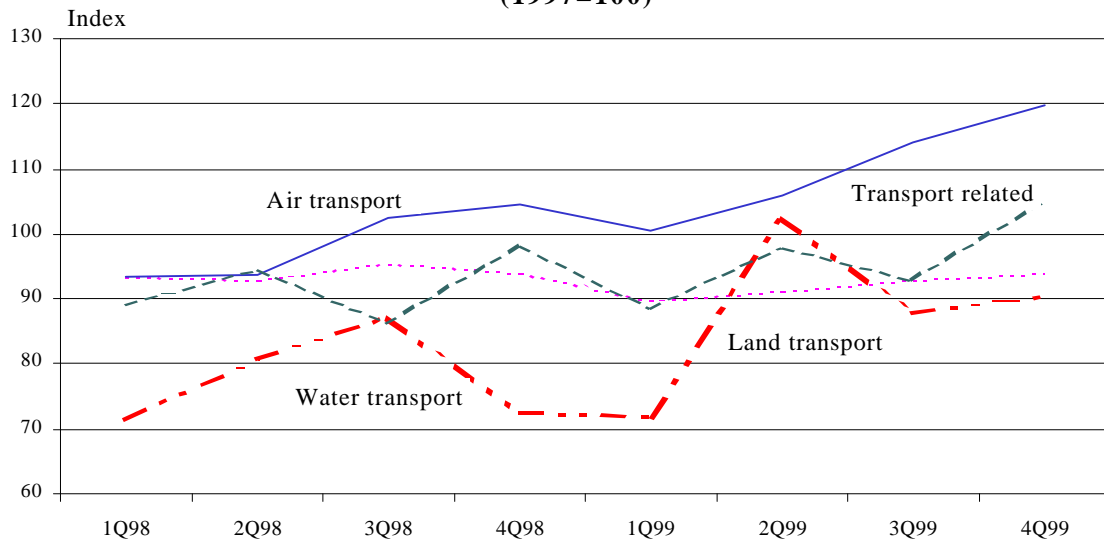
20 The insurance services industry was among the hardest hit by the regional financial crisis. Their business receipts fell by 21 per cent in 1998 but managed to turn around in 1999 with a rise of 1.3 per cent. The decline in business receipts was due largely to the fall in premium income combined with an increase in claims. For the period 1Q98 to 4Q99, the index of insurance services remained below 90 points.

Transport Services

21 Total business receipts of water transport services fell by 22 per cent in 1998, reflecting the decline in sea cargo handled in that year. However, business turned around in 1999 to register a gain of 13 per cent due to the upturn in regional trade. Except for 2Q99 where it hit above 100 points, the business receipts index of water

transport remained below the base year level for the other quarters in 1999 (see Chart 3).

Chart 3
Business Receipts Indices for Transport Services
(1997=100)



22 Air transport services declined marginally by 1.5 per cent in 1998, in line with the drop in air traffic, air cargo/passengers handled as well as aircraft landings. Business picked up in 1999, registering a growth of 12 per cent. The rise was attributed to increased demand for air cargo services as well as a pick-up in visitor flows. Reflecting its strong performance, the air transport index had risen steadily and remained above the base year level for the period 3Q98 to 4Q99.

23 Business receipts of land transport services contracted by 6.0 per cent in 1998, slipping further by 2.1 per cent in 1999. The decline was attributed to freight transport by road whose business receipts fell by 20 per cent in 1998 and again by 6 per cent in 1999. The index moved within a narrow range, oscillating between 89 points and 95 points throughout the last two years.

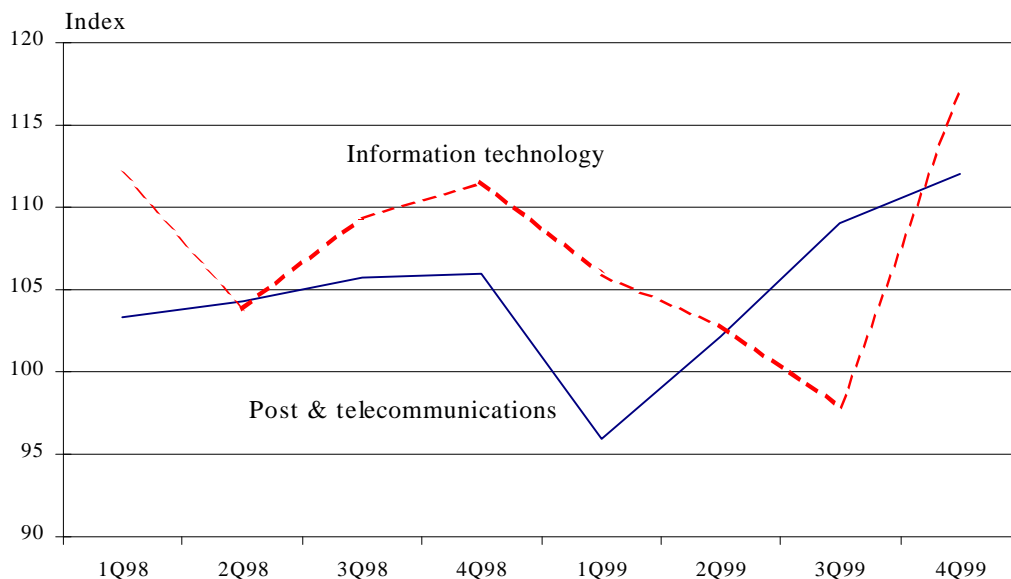
24 Transport related services (comprising mainly storage and warehousing, tourist & travel services, and freight forwarding, packing & crating services) declined by 7.9 per cent in 1998. Affected by lower visitor arrivals as well as the economic downturn, tourist and travel services saw their business receipts dropped by 14 per cent in 1998. Business of transport related services turned around with a growth of 4.5 per cent in 1999, mainly helped by freight forwarding, packing &

crating services whose business receipts registered an increase of 9.5 per cent. The index remained below the base year level for 1Q98 to 3Q99 but managed to recover above the base year level in the last quarter of 1999.

Communications and IT Services

25 With the liberalisation of mobile communications, business receipts of post and telecommunications chalked up by 4.8 per cent in 1998. However, growth was flat in 1999. Gains in mobile cellular and radio paging services were offset by declines in fixed-line services. Nevertheless, the index managed to stay above the base year level for the period 1Q98 to 4Q99, except in 1Q99 when lower revenue from fixed-line services was reported (see Chart 4).

Chart 4
Business Receipts Indices for Communications and IT Services
(1997=100)

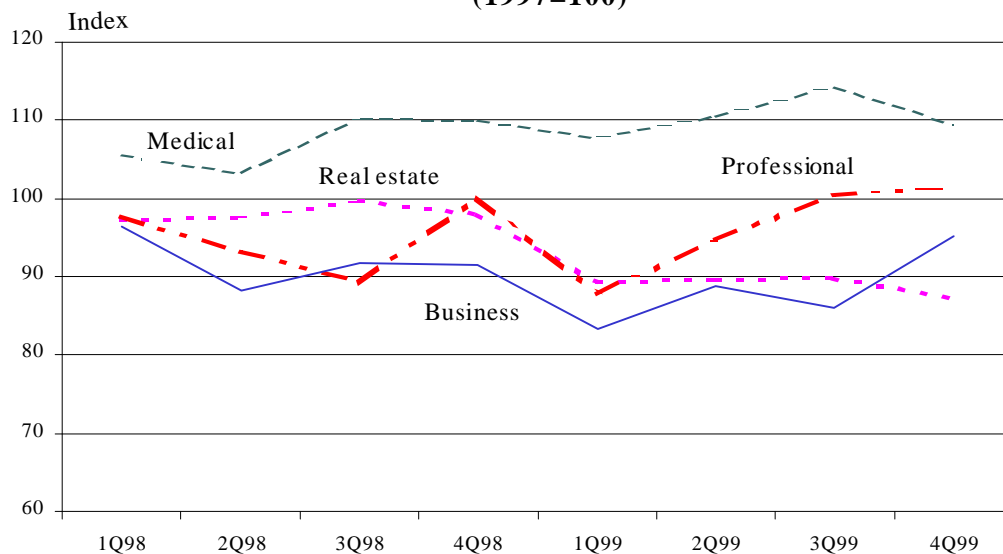


26 In the services sector, IT services registered the highest growth rate of 9.2 per cent in 1998. The Y2K problem as well as e-commerce boosted the demand for IT services. However, it declined by 2.9 per cent in 1999. Industry players attributed the fall to slowdown in demand and the fact that most of their clients were Y2K-ready or postponed their major projects until Y2K was over. The index hovered above the base year level for the period 1Q98 to 4Q99, except in 3Q99 when it hit bottom at 98 points.

Professional and Business Services

27 The slowdown in the economy, in particular the property market, saw the easing of demand for professional services like legal conveyancing and engineering and technical services. Business receipts dropped by 5.0 per cent in 1998 but increased marginally by 1.2 per cent in 1999 over 1998. The index rose above the base year level in 4Q98 and the last two quarters of 1999. (see Chart 5).

Chart 5
Business Receipts Indices for Professional and Business Services
(1997=100)



28 Despite the financial crisis, medical services expanded by 7.4 per cent in 1998, and continued to rise by 3 per cent in 1999. Apparently, the industry had proven to be recession-proof as demand for medical services was not affected by the economic downturn. Medical services was the only industry whose index stayed above the base year level for the period 1Q98 to 4Q99.

29 Amidst the weak property market, real estate services registered a fall of 2.0 per cent in business receipts in 1998. The decline continued into 1999 where a drop of 9.3 per cent was recorded. This reflected mainly the depressed rentals and the difficult operating environment in the letting of commercial and industrial premises. Reflecting its downtrend, the index of real estate declined from 97 points in 1Q98 to reach its bottom with 87 points in 4Q99.

30 Similar to professional services, business services (comprising mainly advertising, labour recruitment, renting of industrial machinery, and security services) encountered a decline of 8.1 per cent in 1998 and dropped further by 3.8 per cent in 1999. The index of business services fluctuated between 83 points and 97 points for the period 1Q98 to 4Q99. Within the industry, only firms engaged in renting out industrial equipment reported higher takings in 1999 compared to 1998. On the other hand, advertising, labour recruitment services, exhibition fair and convention services, security services, stenographic & secretariat services and news agencies did not perform as well.

VIII Conclusion

31 The overall services sector fared unfavourably in 1998, declining by 7.6 per cent. It, however, rebounded strongly by 13 per cent in 2Q99 and continued to record positive growths in the last two quarters of 1999. The fortunes of the twelve major service industries were mixed. While nine out of twelve business industry groups showed declines in their receipts in 1998, the situation was reversed in 1999 with seven groups registering positive growths. In particular, the strongest gains in business receipts came from financial services, and water & air transport services.

Dissemination of Data

32 The QBRI will be published as a regular series in the Department of Statistics' Monthly Digest of Statistics and the Yearbook of Statistics. Users may also retrieve the data from TREND, the Department's on-line Time Series Retrieval and Dissemination System.

33 DOS will also release a quarterly report on the QBRI as well as release it through the Department's Datashop which can be accessed via its homepage at <http://www.singstat.gov.sg>.

Singapore Department of Statistics
March 2000

COVERAGE OF SERVICE INDUSTRIES

Service Industries	Types of Business Covered
Land Transport	Mass rapid transport system; public bus services; chartered bus services; taxi services; freight transport by road; and carpark management and operation services.
Water Transport	Shipping lines; barge, tugboat and sampan services; shipping agencies (freight); port operation services; stevedoring and lighterage services; salvaging of distressed vessels and cargo; ship and boat leasing with operator; and ship management services.
Air Transport	Airlines; airport operation services; airport terminal services; and aircraft chartering with operator.
Transport Related Services	Aerial cableways and funicular railways; storage and warehousing; tourists and travel services; freight forwarding, packing and crating services; cargo surveying services; and crane services.
Post & Telecommunications	Post and courier activities; fixed-line services; mobile cellular and radio paging services; internet service providers; and television broadcasting.
Real Estate	Letting and operating of self-owned real estate; real estate agents (including appraisers, valuers and rental service); residential real estate management other than town councils; and commercial and industrial real estate management.
IT Services	Software development and consultancy; data entry services; information providing services; maintenance and repair of computer hardware, data processing equipment and computer peripherals; computer facilities management services; and computer system integration services.

Service Industries	Types of Business Covered
Professional Services	Legal activities; accounting and auditing services; market research and public opinion polling; business and management consultancy activities; architectural, engineering and other technical activities.
Business Services	Renting of industrial machinery and equipment; advertising; labour recruitment and provision of personnel; security services; stenographic and translation services; exhibition fair and convention services; and news agency activities.
Medical Services	Hospitals; and specialised medical services.
Financial Services	DBUs/ACUs of commercial and merchant banks; finance companies; stockbrokers; investment advisers and fund managers; money brokers; and SIMEX and SIMEX members.
Insurance Services	Life and general insurers; life and general reinsurers; and captive insurers and reinsurers.

TABLE 1
BUSINESS RECEIPTS INDEX
(1997 = 100)

	Total	Total (excluding financial & insurance services)	Land Transport	Water Transport	Air Transport	Transport Related Services	Post & Telecom.	Information Technology Services	Professional Services	Real Estates (excluding developers)	Business Services	Medical Services	Financial Services	Insurance Services
Weights Period	10,000	7,365	386	1,967	1,170	643	638	326	890	594	469	282	2,120	515
1998	92.4	92.7	94.0	78.0	98.5	92.1	104.8	109.2	95.0	98.0	91.9	107.4	94.7	78.6
1999 ^P	98.5	96.6	92.0	88.1	110.1	96.2	104.8	106.0	96.1	88.9	88.4	110.5	109.7	79.6
1998 I	90.4	90.3	93.5	71.3	93.3	89.1	103.3	112.0	97.6	97.1	96.4	105.7	95.3	73.0
II	91.2	91.9	93.0	80.8	93.8	94.6	104.3	103.8	93.1	97.4	88.2	103.4	90.3	83.9
III	94.1	95.0	95.3	87.3	102.4	86.4	105.7	109.4	89.2	99.6	91.7	110.3	94.1	80.9
IV	93.8	93.6	94.0	72.5	104.4	98.3	105.9	111.5	100.2	97.9	91.4	110.2	98.9	76.5
1999 I	88.5	87.8	89.8	71.8	100.6	88.6	95.9	106.0	87.8	89.2	83.4	107.8	95.9	68.3
II	102.8	99.5	91.1	102.5	105.8	98.0	102.2	102.9	94.7	89.4	88.8	110.6	119.8	80.4
III	100.5	97.5	93.0	87.7	114.1	92.8	109.1	97.8	100.4	89.7	86.1	114.3	115.0	83.5
IV ^P	102.3	101.7	93.9	90.4	119.9	105.2	112.0	117.1	101.5	87.3	95.3	109.3	108.0	86.1

^P Preliminary

TABLE 2
PERCENT CHANGE IN BUSINESS RECEIPTS INDEX OVER PREVIOUS QUARTER
(1997 = 100)

	Total	Total (excluding financial & insurance services)	Land Transport	Water Transport	Air Transport	Transport Related Services	Post & Telecom.	Information Technology Services	Professional Services	Real Estates (excluding developers)	Business Services	Medical Services	Financial Services	Insurance Services
Weights Period	10,000	7,365	386	1,967	1,170	643	638	326	890	594	469	282	2,120	515
1998 II	0.9	1.8	-0.5	13.3	0.5	6.2	1.0	-7.3	-4.6	0.3	-8.5	-2.2	-5.2	14.9
III	3.2	3.4	2.5	8.0	9.2	-8.7	1.3	5.4	-4.2	2.3	4.0	6.7	4.2	-3.6
IV	-0.3	-1.5	-1.4	-17.0	2.0	13.8	0.2	1.9	12.3	-1.7	-0.3	-0.1	5.1	-5.4
1999 I	-5.7	-6.2	-4.5	-1.0	-3.6	-9.9	-9.4	-4.9	-12.4	-8.9	-8.8	-2.2	-3.0	-10.7
II	16.2	13.3	1.4	42.8	5.2	10.6	6.6	-2.9	7.9	0.2	6.5	2.6	24.9	17.7
III	-2.2	-2.0	2.1	-14.4	7.8	-5.3	6.8	-5.0	6.0	0.3	-3.0	3.3	-4.0	3.9
IV ^p	1.8	4.3	1.0	3.1	5.1	13.4	2.7	19.7	1.1	-2.7	10.7	-4.4	-6.1	3.1

^p Preliminary

TABLE 3
PERCENT CHANGE IN BUSINESS RECEIPTS INDEX OVER CORRESPONDING PERIOD OF PREVIOUS YEAR
(1997 = 100)

	Total	Total (excluding financial & insurance services)	Land Transport	Water Transport	Air Transport	Transport Related Services	Post & Telecom.	Information Technology Services	Professional Services	Real Estates (excluding developers)	Business Services	Medical Services	Financial Services	Insurance Services
Weights Period	10,000	7,365	386	1,967	1,170	643	638	326	890	594	469	282	2,120	515
1998	-7.6	-7.3	-6.0	-22.0	-1.5	-7.9	4.8	9.2	-5.0	-2.0	-8.1	7.4	-5.3	-21.4
1999 ^P	6.6	4.2	-2.1	12.9	11.8	4.5	-	-2.9	1.2	-9.3	-3.8	2.9	15.8	1.3
1999 I	-2.1	-2.8	-4.0	0.7	7.8	-0.6	-7.2	-5.4	-10.0	-8.1	-13.5	2.0	0.6	-6.4
II	12.7	8.3	-2.0	26.9	12.8	3.6	-2.0	-0.9	1.7	-8.2	0.7	7.0	32.7	-4.2
III	6.8	2.6	-2.4	0.5	11.4	7.4	3.2	-10.6	12.6	-9.9	-6.1	3.6	22.2	3.2
IV ^P	9.1	8.7	-0.1	24.7	14.8	7.0	5.8	5.0	1.3	-10.8	4.3	-0.8	9.2	12.5

^P Preliminary