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## Editor's Foreword

This issue features two articles. The first one introduces the effective exchange rate index (ERRI). Mr. Osbert Wang of Census & Statistics Department outlines the compilation of this index after the launch of Euros in January 2002. He also explains the change of the weights in the index due to the change of the trade pattern.

The second article introduces another index of measure, Hong Kong Consumer satisfaction index (HKCSI). This is a brand new index developed by the Department of Management Science of The City University of Hong Kong. It indicates the satisfaction of Hong Kong customers towards the products sold in Hong Kong. You can find all the details about this index: how it is constructed, what it contributes, etc. in the article.

Recently, a message has been received from the founding President of our Society, Prof. John Aitchison. The message is as follows:

*“I hope the Society is not too surprised to have a message of congratulations on its twenty fifth birthday from the wilds of Scotland. While you are at your Anniversary Chinese Dinner I will be raising my glass to congratulate the Society on a very successful past twenty-five years and to propose a toast that the next twenty-five years may be even more exciting and prosperous. Slainte and Yam Sing.”*

As the last issue in 2002 of the Bulletin of the Society, I would like to take this opportunity to wish you a successful and prosperous New Year. Also, allow me to thank members of the Editorial Board for their help in preparing the bulletin and the authors who have offered to contribute to the Bulletin.

P.S. Chan

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**President' s Forum**

*Professor W.K. Li*

Time really flies. As you know, I will be bowing out as the President of HKSS after three consecutive sessions. I would like to take this opportunity to thank all of you for your support in the last three years. I am particularly grateful for the dedication of members who have been involved in the Council, the professional examination, the statistical project competition and various committees. I excuse myself for not mentioning the names because it will be a rather long list.

Our Society would not be able to move forward without the effort and sacrifices of these members. I am sure that the Society will flourish further under the leadership of the new President.

May I wish you all prosperity and health amid the current situation in Hong Kong.

God bless you all!

# New Series of Effective Exchange Rate Index for the Hong Kong Dollar

*Osbert Wang*

*Census and Statistics Department*

## Introduction

The Effective Exchange Rate Index (EERI) for the Hong Kong Dollar (HKD) compiled by the Census and Statistics Department (C&SD) is an index which measures movements in the weighted average of the exchange rate of the HKD against the currencies of major trading partners of Hong Kong. It serves as an indicator for measuring the overall strength of the HKD relative to selected currencies. Three series of EERI are published daily: import-weighted, export-weighted and trade (i.e. import and export)-weighted.

## Compilation of the EERI

The following is the basic formula for compiling the EERI for the HKD:

$$\text{EERI} = \frac{\text{Appreciation/depreciation of HKD against US Dollar relative to base period}}{\text{Appreciation/depreciation of selected currencies against US Dollar relative to base period}}$$

Mathematically,

$$\text{EERI}_t = \frac{\left( \frac{R_{\text{HK},t}}{R_{\text{HK},B}} \right)^{W_i}}{\prod_i \left( \frac{R_{i,t}}{R_{i,B}} \right)^{W_i}} \times 100$$

where:

$\text{EERI}_t$  = EERI at time  $t$

$R_{\text{HK},t}$  = US Dollar per unit of HKD at time  $t$

$R_{\text{HK},B}$  = US Dollar per unit of HKD at base period

$R_{i,t}$  = US Dollar per unit of currency  $i$  at time  $t$

$R_{i,B}$  = US Dollar per unit of currency  $i$  at base period

$W_i$  = weight of currency  $i$

$\prod$  represents multiplicative product of component elements

The EERI is a Laspeyres type of index in which a fixed set of weights is used.

The weight assigned to each currency is based on the relative share of the economy in Hong Kong's external merchandise trade. Based on experience, the shares of economies are relatively stable over time. Fixed-weights Laspeyres type index based on trade pattern in the base year is therefore considered appropriate for compiling the EERI.

The geometric averaging method is adopted in EERI compilation. Index number compiled using the geometric mean is transitive (i.e. the product of the indices of consecutive periods equal the overall index of the entire period) and free from upward bias. For users of the EERI, which include monetary agencies and financial institutions, these are desirable features. The method is commonly used by monetary agencies in other economies.

### **The new series of EERI**

As from 1 January 2002, Euro notes and coins have replaced notes and coins in national currencies of participating countries of the Euro. The old currency basket of the EERI contained 17 currencies of which five were national currencies of participating countries of the Euro: Deutsche mark, Dutch guilder, French franc, Italian lira, and Belgian franc. These five currencies are replaced by the Euro in the new series of EERI. Another currency, the Philippine peso, is added to the new series following a review of the trade pattern of Hong Kong. The new currency basket of the EERI therefore contains 14 currencies.

Table 1 compares the new and the old currency baskets of the EERI.

Values of merchandise trade are used as currency weights in compiling the EERI. The weights adopted in compiling the old series of EERI were based on the

average merchandise trade pattern of Hong Kong from 1991 to 1993. To reflect the more up-to-date situation, the weights used for compiling the new series of EERI are those based on the average merchandise trade pattern from 1999 to 2000.

Since the Euro zone covers 12 countries, the total value of trade between Hong Kong and all these countries are taken into account in compiling the weight for Euro in the new series of EERI. The 12 countries are Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain.

The weights of currencies covered in the new series of EERI are shown in Table 2.

The economies of those currencies covered in the new series of EERI together accounted for 94% of Hong Kong's total imports in value terms in 1999-2000. The corresponding proportion for exports (including re-exports and domestic exports) was 90% and that for total trade was 93%.

In the new series of import-weighted EERI, the Chinese Renminbi has the most significant weighting. This is followed by the Japanese Yen. The mainland of China (the Mainland) is an important supplier of goods imported to Hong Kong, either for domestic consumption or for re-exports.

The Chinese Renminbi also has the most significant weighting in the new series

of export-weighted EERI. This is followed by the US Dollar. Apart from the Mainland, the USA is a very important destination of goods exported from Hong Kong.

Regarding the new series of trade-weighted EERI, the Chinese Renminbi has the most significant weighting. This is followed by the US Dollar.

The period for setting the EERI to 100 is updated from November 1983 in the old series of EERI to January 2000 in the new series of EERI.

#### **Release of the new series of EERI**

The new series of EERI, based on January 2000 as 100 (i.e. using the daily average exchange rate of January 2000 as the basis for comparison), has replaced the old series as from 2 January 2002. Same as the old series, the new series of EERI is released on a daily basis except for

non-trading days (i.e. public holidays and when banks close for business for reasons such as typhoon).

Daily EERI using the new weights have been compiled for the new series dating back to 3 January 2000, while monthly and annual series are available dating back to January 2000 and 2000 respectively. The new series of EERI dating back to earlier periods are derived based on movements in the old series and using a conversion factor obtained from the values of the two index series in an overlapping period.

Table 3 compares the new and the old series of EERI from 1991 to 2001.

Readers may contact Trade Statistics Branch (1) of C&SD at 19/F Wanchai Tower, 12 Harbour Road, Wan Chai, Hong Kong (Telephone no.: 2582 4899; E-mail: [trade@censtatd.gov.hk](mailto:trade@censtatd.gov.hk)) for more information regarding the new series of EERI.

**Table 1 : Currency Basket of the Effective Exchange Rate Index**

Currency	New basket	Old basket
Chinese Renminbi	√	√
US Dollar	√	√
Japanese Yen	√	√
Euro	√	X
New Taiwan Dollar	√	√
Singapore Dollar	√	√
Republic of Korea Won	√	√
Pound Sterling	√	√
Malaysian Ringgit	√	√
Thai Baht	√	√
Canadian Dollar	√	√
Australian Dollar	√	√
Philippine Peso	√	X
Swiss Franc	√	√
Deutsche Mark	X	√
Italian Lira	X	√
French Franc	X	√
Dutch Guilder	X	√
Belgian Franc	X	√

**Table 2 : Currency Weights of the New Series of Effective Exchange Rate Index**

Currency	Trade-weighted	Import-weighted	Export-weighted
Chinese Renminbi	41.99	46.15	37.53
US Dollar	16.26	7.23	25.96
Japanese Yen	9.41	12.52	6.06
Euro	9.26	6.85	11.84
New Taiwan Dollar	5.37	7.81	2.75
Singapore Dollar	3.69	4.69	2.62
Republic of Korea Won	3.53	5.06	1.89
Pound Sterling	3.20	1.99	4.50
Malaysian Ringgit	1.67	2.35	0.95
Thai Baht	1.38	1.73	1.00
Canadian Dollar	1.17	0.63	1.75
Australian Dollar	1.12	0.84	1.42
Philippine Peso	1.04	0.99	1.10
Swiss Franc	0.91	1.16	0.63
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

**Table 3 : Comparison of the New and the Old Series of Effective Exchange Rate Index**

Year	Trade-weighted		Import-weighted		Export-weighted	
	New (1/2000=100)	Old (11/1983=100)	New (1/2000=100)	Old (11/1983=100)	New (1/2000=100)	Old (11/1983=100)
1991	83.8	111.4	85.1	105.8	82.5	117.7
1992	83.5	111.1	84.2	104.7	82.8	118.1
1993	85.2	113.2	85.0	105.8	85.3	121.7
1994	95.4	126.8	93.6	116.4	97.2	138.6
1995	91.6	121.8	89.6	111.4	93.7	133.7
1996	94.0	125.0	93.0	115.7	95.1	135.6
1997	98.0	130.3	97.9	121.7	98.1	139.9
1998	103.4	137.5	105.5	131.2	101.3	144.5
1999	100.9	134.2	101.4	126.1	100.4	143.2
2000	101.7	135.0	101.5	125.7	101.9	145.4
2001	104.7	139.9	105.1	132.0	104.3	148.7

# Hong Kong Consumer Satisfaction Index (HKCSI): A Local Service Quality Monitor

*Department of Management Sciences  
City University of Hong Kong*

## Introduction

### *What Is HKCSI?*

The Hong Kong Consumer Satisfaction Index (HKCSI) is a new type of *consumer-oriented* performance indicator for Hong Kong businesses, representing the satisfaction level of Hong Kong consumers towards the *quality* of products (goods and services) sold in Hong Kong as evaluated by Hong Kong consumers.

A *large scale* survey study, the HKCSI is constructed from more than **70,000** successful consumer interviews conducted in the last *six years* from 1997 to 2002 using a computer assisted telephone interview (CATI) system by a six-member project team in CityU's Department of Management Sciences.

The HKCSI is the *first* and the *only* uniformed measure of consumer satisfaction in Hong Kong, covering about **70** goods and services in all industries which make up more than 75% of the local household expenditures as measured by the weightings in the Hong Kong Composite Consumer Price Index (CCPI) and hence

reflective of the typical purchases and consumptions of local residents.

A distinct feature of the HKCSI is that it allows for direct comparison of consumer satisfaction levels with goods/services within the same industry and among different industries as well. Levels of satisfaction measured in this way cannot be compared across different products and consumers due to their different comparison baselines. It is thus difficult and even meaningless to aggregate the satisfaction scores of individual consumers into an overall satisfaction index.

The HKCSI is a standardized measure of the Hong Kong's economic health, complementary to conventional measures such as CPI, unemployment and inflation rates, and also compatible with the similar indexes in many countries such as Austria, Germany, Korea, New Zealand, Norway, Sweden and the United States.

### *How Is HKCSI Constructed?*

As widely accepted in the marketing literature, consumer satisfaction for a product is defined and measured in the

HKCSI as consumer's overall evaluation of the *discrepancy* between consumer's pre-purchase expectations and post-consumption assessments of the product's performance based on consumer's entire purchase and consumption experience with the product over time.

This kind of consumer satisfaction information is undoubtedly and perhaps most reliably indicative of the firm's future business performance but cannot be found in the firm's accounting statements. It can only be obtained through consumer surveys.

However, traditional approaches to measuring consumer satisfaction through simple tabulations of consumers' "very dissatisfied" to "very satisfied" responses are questionable since they typically ignore the obvious differences in the satisfaction standards of different consumers with different products.

Using advanced statistical and marketing research methods, the project team has developed techniques that employ multi-item hierarchical scales to measure consumer satisfaction and to link consumer satisfaction with its causes and consequences within a structural equation modeling (SEM) framework.

Under this approach, *satisfaction levels of different consumers with different products can directly be compared and*

*combined* to form a unified Hong Kong Consumer Satisfaction Index (HKCSI) that is able to produce a much more accurate picture of consumer satisfaction to yield valuable insights into the cause-consequence chain of consumer satisfaction.

## **HKCSI Contributions**

### *Fundamental Importance of HKCSI*

Consumer satisfaction has long been recognized in marketing thought and practice as a central concept as well as an important goal of all business activities. Realization of its importance has resulted in a proliferation of research on consumer satisfaction over the past few decades. A causal glance at the business sections of newspapers and magazines will show you how common the subject of customer satisfaction is.

That is not surprising! High consumer satisfaction has many benefits for the firm, such as increased consumer loyalty, enhanced reputation for the firm, reduced price elasticities, lower costs of future transactions, and so on. Most importantly, consumer satisfaction is widely believed to be a good, if not best, indicator for a firm's future profits. The fact that getting new consumers is much more expensive than keeping old ones well explains the corporate drive toward increased consumer satisfaction.

Using both empirical forecasts and econometric models, it has been demonstrated that the economic benefits of increasing consumer satisfaction are significant. For example:

- for a “typical” Swedish firm with an asset base of \$600 million, an annual one-point increase in customer satisfaction index over a five-year span will result in cumulative incremental returns of 16.66% relative to current return on investment;
- an average US firm from the *Business Week* 1000 with assets of \$7.5 billion would net \$94 million in cumulative incremental returns, or 11.4% of current return on investment, from a one-point increase in customer satisfaction index.

Thus, it is natural to suggest that consumer satisfaction ratings of companies might strongly relate to their stock prices. In fact, it has been estimated that a one-point increase in the American Customer Satisfaction Index is associated with a \$654 million increase in the market value of equity above and beyond the accounting-book value of assets and liabilities.

The above well explains the world-wide drive towards establishing national consumer satisfaction indexes since the 1990's. The HKCSI joined this trend as early as in 1997 and, as the practice

in many countries, can be expected to become an important complement to traditional economic performance measures, providing valuable information to all parties concerned: the firms, shareholders and investors, government regulators, as well as the buyers.

#### *Research Achievements and Impacts*

Although this project was originally inspired by comparable Swedish and American practice, a number of significant modifications have been incorporated into the HKCSI study to suit Hong Kong's highly service-based economic structure, including:

- the direct introduction of consumer characteristics in model construction and marketing strategy formation;
- the wide coverage of services, especially free services; and
- the adoption of a CPI-based, not GDP-based, product weighting system.

Other distinct aspects of the HKCSI are:

- both consumers' complaints and appraisals are taken into account to widen the coverage of consumer voice;
- consumer loyalty is extended to include replacement preference as well as quality decrease tolerance;

- the reflectiveness and formativeness of measurement indicators are distinguished explicitly to facilitate better understanding of the underlying constructs and proper use of the estimation method; and
- each product's model is specifically modified for better representation and estimation, taking into consideration that some indicators and/or constructs may be inapplicable to or unavailable for the product.

Our long research paper summarizing the HKCSI practice and findings will soon appear in the referred *European Journal of Marketing*. This is one of the only few published academic papers about consumer satisfaction indexes, signifying our unique contribution to the promising field.

The large scale HKCSI study is the first of its kind in Hong Kong, attracting the society's keen interests. **Four press releases** have been held to announce the annual HKCSI results since 1999, which were well covered each year by most local media including newspapers and radio/TV programs.

#### *A Powerful Service-Quality Information System*

The HKCSI is composed of consumer satisfaction indexes (CSIs) for about **70** locally sold goods/services, and hence can be used to compare consumer satisfaction

levels towards different goods/services. These goods/services make up more than **75%** of the local household expenditures, including:

- *Durable items* such as motor vehicles, electrical appliances, private housing, etc;
- *Medium-term items* such as apparel, footwear, medicines, travel services, etc;
- *Utilities* such as electricity supply, Towngas, local telephone services, etc.;
- *Consumable items* such as newspapers, fresh meat, non-alcoholic beverages, etc;
- *Government services* such as public housing, postal services, water supply, etc.

Each product's CSI is based on the cause-consequence chain of consumer satisfaction towards the product's quality, which can help identify why a product's CSI is up or down and where to improve consumer satisfaction levels. These causes and consequences affecting consumer satisfaction for a typical HKCSI product include:

- *consumer characteristics* such as gender, age, educational level and personal income — used to examine which types of consumers are satisfied or dissatisfied with the good/service;

- *consumer's pre-purchase expectations* for the product's quality, including reliability (i.e., free from deficiency) and customization (i.e., fitness for use), which affect consumer's actual satisfaction with your product and could be improved through appropriate image building;
- *consumer's after-consumption assessment* for the product's quality, also including reliability and customization, which determines consumer's real satisfaction with your product and is where you should work hard on;
- *price-quality ratios* of the good/service—are they reasonable?
- To what extent the product's real performance surpasses or falls in short of consumer's expectations;
- The tendency and frequency of consumer's *word-of-mouth* for the good/service, negative or positive, which can help monitor consumer satisfaction;
- The willingness of consumer's *repurchase/reuse* of the good/service, even under some changes in price and quality, which is key to the business's healthy development.

The large and invaluable HKCSI data base has an important role to play in

monitoring local service quality, it has also benefited a number of educational programs offered in the Department of Management Sciences.

#### *Monitoring Consumer Satisfaction Levels*

Product level CSIs are reflective of the performance of relevant companies in terms of consumer satisfaction with their products, and the HKCSI results can provide explanations about why levels of consumer satisfaction with some products increase while with others decrease. Generally, changes in consumer satisfaction for a product are strongly linked to changes in the product's quality and price as assessed by the consumers. Such information for all products included in the HKCSI is available and can be used to examine the changes in their CSIs and the associated causes.

As the CSI scores have been properly standardized, scores of different products are directly comparable and a Hong Kong-wide uniform standard of consumer satisfaction can be established. For example, Hong Kong consumers in 2002 were much more satisfied with *supermarkets* (71.9) than with *paid TV programs* (60.4) and *job-seeking websites* (61.1) and they were even more satisfied with *music CDs* (74.7) as indicated by the respective CSIs. Different companies and organizations can use these HKCSI results as a yardstick for measuring and then improving consumer satisfaction.

Since most products such as *banks, Chinese & Western restaurants, mobile phones, supermarkets, public transport and travel agents* included in the HKCSI are quite broad in scopes, they can indeed be viewed as representative of the underlying industries. As such, the HKCSI provides a baseline to directly compare the levels of consumer satisfaction with the performance of different industries in Hong Kong.

Such countries as Austria, Germany, Korea, New Zealand, Norway, Sweden and the United States have developed similar satisfaction indices. Although indices from different countries may not be directly comparable, one can at least compare the trends and relative scores of the indices from other countries with the HKCSIs to draw general pictures about improvement rates and distributions of consumer satisfaction with similar products in the countries involved.

#### *Tracking the Overall Service Quality Changes*

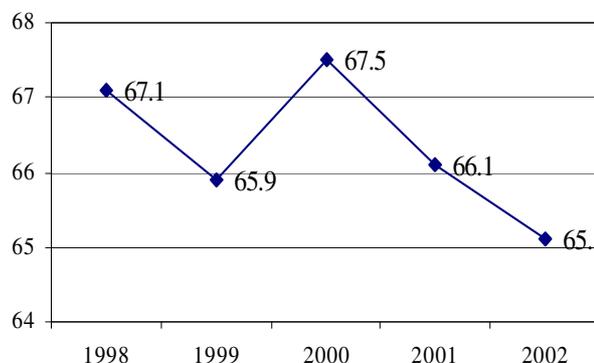
The HKCSI has a scale of 0-100 to represent ascending levels of consumer satisfaction. It scored **67.1**, **65.9**, **67.5**, **66.1**, and **65.1** respectively 1998 to 2002, representing a decrease of **-1.8%** from 1998 to 1999, an increase of **+2.7%** from 1999 to 2000, a drop of **-2.1%** from 2000 to 2001, and a further decline of **-1.5%** from 2001 to 2002 in the overall satisfaction levels of Hong Kong consumers.

It is not surprising that the HKCSI is highly correlated to conventional economic indicators such as local employment rate and average salary level, reflective of its appropriateness in describing local economic health.

The percentage of products whose CSIs report declines/improvements is another good indicator obtainable from the HKCSI to measure the overall service quality changes. For example, it is found that a record high of 76.9% of products' CSIs decreased in 2002 from their 2001 scores, and the same percentage was a moderate high of 54.7% in 2001, a record low of 19.0% in 2000 and a much higher 69.0% in 1999. This trend is consistent with the overall HKCSI changes: decreasing from 1998 to 1999, increasing from 1999 to 2000, decreasing from 2000 to 2001, and further decreasing from 2001 to 2002.

#### *Examining the Outperformers and Underperformers*

**Overall HK Consumer Satisfaction Index**



The outperformers and underperformers in product/service quality provide directions for others to compete. The HKCSI may be the only reliable, complete and continuing source in Hong Kong for such purpose. For example:

- In 2002 *film* ranked No.1 with the highest CSI of 75.7, followed by *music CDs* (74.7) and *rice* (74.6). It is noticed that these three products were on top 4s of CSIs yearly from 2000 to 2002. It is also noticed that five products continuously showed up in the top 10 lists from 1998 to 2002 — *film*, *rice*, *edible oil*, *proprietary medicines & supplies*, and *dairy products & non-alcoholic drinks* — demonstrating their consistent good performance.
- At the other extreme, *shopping in Shenzhen* received the lowest CSI of 54.9 in 2002, preceded by *housing rent (private house)* of 58.8 and *television stations (paid)* of 60.4. *Job-seeking websites* (61.1) and *job-seeking magazines* (63.1) were still among the 10 worst performers as in 2001, and *health foods* (63.1) also showed up in the bottom tens. It is noticed that *housing rent (private house)* was always among the bottom fours from 1998 to 2002, and that *housing rent (public house)*, and *weekly magazines* were always among the bottom tens lists during the five years.

It is also of much interest to examine from the HKCSI who stepped up or down the most in product/service quality. For example, in 2002 *job-seeking magazines* reported the biggest improvement in consumer satisfaction over 2001 with the highest CSI increase rate of 9.9%, and *entertainment in Shenzhen* (4.2%), *broadcasting/radio stations* (3.8%), *mobile phone services* (3.3%) and *job-seeking websites* (2.9) also registered considerable CSI increases. On the other hand, *small/medium electrical appliances* witnessed the biggest deterioration in consumer satisfaction over 2001 with the highest CSI decrease rate of 8.6%, and *air conditioners* of 7.9% and *television stations (paid)* of 7.5% were the next two biggest losers.

#### *Comparing Service Quality with Shenzhen*

In order to help understand Hong Kong residents' consumption initiatives and behaviors in Shenzhen, *shopping in Shenzhen* and *entertainment in Shenzhen* have been included into the HKCSI since 2001. Noticeable results have been found that reveal why so many Hong Kong people spend their money in Shenzhen rather than in Hong Kong, including:

- Hong Kong consumers were *much more satisfied with shopping in Hong Kong than in Shenzhen*, due to the higher product quality and better shopping environment here which cancel off the lower-price advantage of

shopping in Shenzhen. *However*, Shenzhen did surpass Hong Kong in providing *good service* and more *shopping choices* which used to be our competitive advantages over Shenzhen.

- Hong Kong consumers were *less satisfied with entertainment in Hong Kong than in Shenzhen*, due to the much lower price of and, a little bit surprisingly, the better service of entertainment in Shenzhen, *although* Hong Kong still had obvious competitive advantages over Shenzhen in offering better entertainment environment, more entertainment choices, and nicer entertainment atmosphere.

So it is *better service* that influences consumptions, where unfortunately Hong Kong is losing its traditional advantage over its neighboring competitors. Local enterprises and policy-makers should be aware of that, besides a good reputation of quality products, a high level of quality services is essential for attracting consumers and revitalizing the economy, where HKCSI can help.

#### *Future Work*

In the next stage, separate HKCSI scores will be produced for individual companies and organizations. It is therefore possible to track the relation between an organization and its consumers regularly, to

know for sure how the company stands with its consumers and competitors. It is also possible to examine the relationships between the companies' HKCSIs and their business performances (such as net profits and stock values). To do so, we need to select some companies with high qualities or potentials, to modify the questionnaire to include some specific questions for performance diagnostics purpose, and to interview more consumers to increase the modeling reliability. Since satisfied consumers represent a real economic asset to a company, the company should invest in improving consumer satisfaction. However, before consumer satisfaction can be improved, it must be appropriately measured. The HKCSI model could provide companies with a reliable and creditable technique to measure consumer satisfaction.

Preliminary study reveals that the HKCSI is interestingly correlated with some conventional indexes such as the employment rate, GDP growth rate, the Hang Sang Index, and average salary level. Further study will be conducted to gain a deep understanding of the relationships between the HKCSI and local macroeconomic indexes, and possibly to help facilitate the SAR Government's decision-making.

The large HKCSI data base is an invaluable asset for both the Department of Management Sciences and the Faculty of Business. Efforts will continue to make it well facilitate both the teaching programs

and research activities in the Faculty. Also, the data base has unpredictable commercial values which will be appropriately explored in the future.

*Brief Qualifications*

The HKCSI project team is composed of the following six members:

Prof. L. K. Chan:

Professor (Chair) of Applied Statistics and Operational Research,  
Dean of Faculty of Business,  
Ph.D. (*University of Western Ontario*).

Prof. Y. V. Hui:

Professor, Dean of Graduate Studies,  
Ph.D. (*Virginia Polytechnic Institute and State University*).

Dr. H. P. Lo:

Associate Professor, Head of Department of Management Sciences,  
Ph.D. (*University of Calgary*).

Dr. S. K. Tse:

Associate Professor, Ph.D. (*University of Wisconsin, Madison*).

Dr. G.K.F. Tso:

Associate Professor, Ph.D. (*University of Toronto*).

Dr. M. L. Wu:

Research Fellow, Ph.D. (*Academia Sinica*).

Table 1: HKCSI 1998~2002 results

Category	Product	CSI Score					Change Rate			
		1998	1999	2000*	2001	2002	98-99	99-00	00-01	01-02
Clothing & Personal Care	everyday clothes: chain stores	69.8	71.1	71.4	70.8	66.8	1.9%	0.4%	-0.8%	-5.6%
	leather shoes	74.0	69.3	71.7	73.6	69.2	-6.4%	3.5%	2.6%	-6.0%
	sports shoes	72.1	70.8	72.1	72.6	71.3	-1.8%	1.8%	0.7%	-1.8%
	make-up & skin-care products	69.9	67.1	70.6	69.0	69.7	-4.0%	5.2%	-2.3%	1.0%
	jewellery	73.2	72.9	74.5	73.4	71.0	-0.4%	2.2%	-1.5%	-3.3%
	public hospitals: inpatient departments	72.0	72.0	73.4	73.2	71.5	0.0%	1.9%	-0.3%	-2.3%
	proprietary medicines & supplies	74.1	73.2	75.6	75.1	73.5	-1.2%	3.3%	-0.7%	-2.1%
	health food			66.3	66.3	63.1			0.0%	-4.8%
	gym & slimming centres**					65.6				
	municipal sports centres**					70.9				
<b>Sub-HKCSI</b>		<b>71.2</b>	<b>71.0</b>	<b>72.2 (72.2)*</b>	<b>71.7</b>	<b>68.9</b>	<b>-0.3%</b>	<b>1.7%</b>	<b>-0.7%</b>	<b>-3.9%</b>
Food & Drink	fast food shops & cafes	67.6	66.1	68.9	70.0	65.7	-2.2%	4.2%	1.6%	-6.1%
	Chinese & Western restaurants	67.4	63.4	67.5	67.5	66.1	-5.9%	6.5%	0.0%	-2.1%
	rice	73.7	74.8	77.7	76.3	74.6	1.5%	3.9%	-1.8%	-2.2%
	bread, cakes & puddings	70.1	70.1	72.6	71.7	70.0	0.0%	3.6%	-1.2%	-2.4%
	fish and fresh sea products	69.7	68.2	69.9	70.3	70.5	-2.2%	2.5%	0.6%	0.3%
	fresh meat	72.4	71.5	72.7	73.9	71.5	-1.2%	1.7%	1.7%	-3.2%
	fresh fruits	69.9	70.0	71.2	70.1	69.2	0.1%	1.7%	-1.5%	-1.3%
	edible oil	74.8	72.6	76.7	75.9	73.5	-2.9%	5.6%	-1.0%	-3.2%
	dairy products & non-alcoholic drinks	75.6	73.2	74.7	74.7	72.8	-3.2%	2.0%	0.0%	-2.5%
	alcoholic drinks	71.0	71.5	72.3	71.4	69.6	0.7%	1.1%	-1.2%	-2.5%
	<b>Sub-HKCSI</b>		<b>68.8</b>	<b>66.4</b>	<b>69.3 (69.4)*</b>	<b>69.7</b>	<b>67.4</b>	<b>-3.5%</b>	<b>4.5%</b>	<b>0.6%</b>
Housing & Related Items	housing rent: private house	62.5	61.4	62.4	57.9	58.8	-1.8%	1.6%	-7.2%	1.6%
	housing rent: public house	61.3	62.5	62.7	63.5	63.6	2.0%	0.3%	1.3%	0.2%
	water supply	66.0	63.9	64.9	66.9	67.3	-3.2%	1.6%	3.1%	0.6%
	electricity supply	70.0	68.0	69.6	70.6	71.3	-2.9%	2.4%	1.4%	1.0%
	liquefied petroleum gas	70.3	68.6	68.0	69.5		-2.4%	-0.9%	2.2%	
	Towngas	69.2	68.4	71.3	71.9	71.3	-1.2%	4.2%	0.8%	-0.8%
	furniture	66.5	69.6	68.9	71.4	67.4	4.7%	-1.0%	3.6%	-5.6%
	refrigerators	75.6	74.3	77.5	75.0	71.4	-1.7%	4.3%	-3.2%	-4.8%
	washing machines	72.8	69.6	73.9	73.4	72.5	-4.4%	6.2%	-0.7%	-1.2%
	air conditioners	71.8	71.7	73.5	74.3	68.4	-0.1%	2.5%	1.1%	-7.9%
	small/medium electrical appliances	74.7	71.2	74.9	75.8	69.3	-4.7%	5.2%	1.2%	-8.6%
<b>Sub-HKCSI</b>		<b>63.4</b>	<b>62.4</b>	<b>63.6 (63.5)*</b>	<b>60.2</b>	<b>60.7</b>	<b>-1.6%</b>	<b>1.8%</b>	<b>-5.3%</b>	<b>0.8%</b>
Transport	motor vehicles	70.4	70.3	72.0	71.8	69.4	-0.1%	2.4%	-0.3%	-3.3%
	tunnels	66.2	64.6	63.8	64.2	62.0	-2.4%	-1.2%	0.6%	-3.4%
	motor fuel	71.4	70.1	69.3	71.5	70.2	-1.8%	-1.1%	3.2%	-1.8%
	airlines	73.1	69.4	71.0	69.4	69.8	-5.1%	2.3%	-2.3%	0.6%
	public transport: buses	70.6	69.1	70.3	72.0	69.6	-2.1%	1.7%	2.4%	-3.3%
	public transport: railways	66.0	70.5	76.6	74.6	71.0	6.8%	8.7%	-2.6%	-4.8%
	public transport: other modes	66.7	68.3	66.9	66.5	65.5	2.4%	-2.0%	-0.6%	-1.5%
	<b>Sub-HKCSI</b>		<b>68.8</b>	<b>69.5</b>	<b>71.0 (71.2)*</b>	<b>70.9</b>	<b>69.0</b>	<b>1.0%</b>	<b>2.4%</b>	<b>-0.1%</b>
Information & Entertainment	postal services	72.5	71.2	74.9	74.0	73.3	-1.8%	5.2%	-1.2%	-0.9%
	newspapers	71.4	66.0	70.0	67.0	65.8	-7.6%	6.1%	-4.3%	-1.8%
	weekly magazines	61.5	63.3	63.4	63.3	62.1	2.9%	0.2%	-0.2%	-1.9%
	international telephone services	68.2	66.8	70.6	69.8	68.7	-2.1%	5.7%	-1.1%	-1.6%
	paging services	65.1	65.4	67.1			0.5%	2.6%		
	mobile phone services	68.2	65.8	65.7	62.7	64.8	-3.5%	-0.2%	-4.6%	3.3%
	mobile phones			71.8	71.3	69.3			-0.7%	-2.8%
	local telephone services	71.0	65.0	73.3	69.2	67.9	-8.5%	12.8%	-5.6%	-1.9%
	television stations: paid	65.8	66.8	63.2	65.3	60.4	1.5%	-5.4%	3.3%	-7.5%
	video & sound equipment	71.3	71.9	70.1	72.9	69.8	0.8%	-2.5%	4.0%	-4.3%
	package tours: travel agents	69.7	67.9	72.6	71.2	69.6	-2.6%	6.9%	-1.9%	-2.2%
	film	76.3	76.8	77.0	77.4	75.7	0.7%	0.3%	0.5%	-2.2%
	camera & related products	71.8	69.6	72.1	71.6	71.3	-3.1%	3.6%	-0.7%	-0.4%
	movies			69.8	70.5	68.2			1.0%	-3.3%
	personal computers			70.0	69.7	67.3			-0.4%	-3.4%
Internet service providers (ISPs)			61.4	62.6	60.9			2.0%	-2.7%	
music CDs			78.5	78.9	74.7			0.5%	-5.3%	
movie CDs**					71.1					
<b>Sub-HKCSI</b>		<b>69.5</b>	<b>68.1</b>	<b>69.8 (70.3)*</b>	<b>68.8</b>	<b>67.7</b>	<b>-2.0%</b>	<b>3.2%</b>	<b>-1.4%</b>	<b>-1.6%</b>
Non-CPI Items	housing purchase: private house	68.0	65.6	66.4	67.4	66.7	-3.5%	1.2%	1.5%	-1.0%
	housing purchase: public house	63.2	64.5	64.1	62.8		2.1%	-0.6%	-2.0%	
	insurance services	69.0	67.3	69.9	69.3	67.3	-2.5%	3.9%	-0.9%	-2.9%
	television stations: free	68.1	71.2	70.0	71.9	68.4	4.6%	-1.7%	2.7%	-4.9%
	broadcasting/radio stations	72.7	69.0	70.5	70.5	73.2	-5.1%	5.5%	-3.2%	3.8%
	banks: general services	72.8	70.3	73.4	67.5	68.1	-3.4%	4.4%	-8.0%	0.9%
	banks: time deposit	72.4	72.0	71.8	68.4		-0.6%	-0.3%	-4.7%	
	banks: loan	72.4	64.6	67.2	68.0	64.8	-10.8%	4.0%	1.2%	-4.7%
	security agents			71.6	69.5				-2.9%	
	investment services**					67.0				
	supermarkets	71.0	71.0	73.6	74.0	71.9	0.0%	3.7%	0.5%	-2.8%
	department stores	69.2	68.0	73.1	70.3	66.8	-1.7%	7.5%	-3.8%	-5.0%
	real estate agents	62.3	62.1	64.4	63.6	64.2	-0.3%	3.7%	-1.2%	0.9%
	shopping in Shenzhen				57.8	54.9				-5.0%
	entertainment in Shenzhen				61.3	63.9				4.2%
	job-seeking magazines				57.4	63.1				9.9%
	comprehensive websites				67.1	68.0				1.3%
	job-seeking websites				59.4	61.1				2.9%
<b>Sub-HKCSI</b>		<b>69.2</b>	<b>67.8</b>	<b>69.9 (69.9)*</b>	<b>66.2</b>	<b>66.0</b>	<b>-2.0%</b>	<b>3.1%</b>	<b>-5.3%</b>	<b>-0.3%</b>
<b>HKCSI</b>		<b>67.1</b>	<b>65.9</b>	<b>67.5 (67.7)*</b>	<b>66.1</b>	<b>65.1</b>	<b>-1.8%</b>	<b>2.7%</b>	<b>-2.1%</b>	<b>-1.5%</b>

\*: CSIs in brackets were based on the old weights in order to be comparable with those in previous years. \*\*: Newly added products in 2002.

**Table 2: The 10 highest and lowest CSIs each year from 1998 to 2002**

<i>The 10 highest CSIs in 2002</i>		<i>The 10 lowest CSIs in 2002</i>	
<i>film</i>	75.7	housing rent: public house	63.6
music CDs	74.7	health foods	63.1
rice	74.6	job-seeking magazines	63.1
proprietary medicines & supplies	73.5	weekly magazines	62.1
edible oil	73.5	tunnels	62.0
postal services	73.3	job-seeking websites	61.1
broadcasting/radio stations	73.2	Internet service providers (ISPs)	60.9
dairy products & non-alcoholic drinks	72.8	television stations: paid	60.4
washing machines	72.5	housing rent: private house	58.8
supermarkets	71.9	<i>shopping in Shenzhen</i>	54.9
<i>The 10 highest CSIs in 2001</i>		<i>The 10 lowest CSIs in 2001</i>	
<i>music CDs</i>	78.9	housing rent: public house	63.5
film	77.4	weekly magazines	63.3
rice	76.3	housing purchase: public house	62.8
edible oil	75.9	mobile phone services	62.7
small/medium electrical appliances	75.8	Internet service providers (ISPs)	62.6
proprietary medicines & supplies	75.1	entertainment in Shenzhen	61.3
refrigerators	75.0	job-seeking websites	59.4
dairy products & non-alcoholic drinks	74.7	housing rent: private house	57.9
public transport: railways	74.6	shopping in Shenzhen	57.8
air conditioners	74.3	<i>job-seeking magazines</i>	57.4
<i>The 10 highest CSIs in 2000</i>		<i>The 10 lowest CSIs in 2000</i>	
<i>music CDs</i>	78.5	mobile phone services	65.7
rice	77.7	water	64.9
refrigerators	77.5	real estate agents	64.4
film	77.0	housing purchase: public house	64.1
edible oil	76.7	tunnels	63.8
public transport: railways	76.6	weekly magazines	63.4
proprietary medicines & supplies	75.6	television stations: paid	63.2
postal services	74.9	housing rent: public house	62.7
small/medium electrical appliances	74.9	housing rent: private house	62.4
dairy products & non-alcoholic drinks	74.7	<i>Internet service providers (ISPs)</i>	61.4
<i>The 10 highest CSIs in 1999</i>		<i>The 10 lowest CSIs in 1999</i>	
<i>film</i>	76.8	local telephone services	65.0
rice	74.8	tunnels	64.6
refrigerators	74.3	banks: loan	64.6
proprietary medicines & supplies	73.2	housing purchase: public house	64.5
dairy products & non-alcoholic drinks	73.2	water	63.9
jewelries	72.9	Chinese & Western restaurants	63.4
edible oil	72.6	weekly magazines	63.3
public hospitals: inpatient departments	72.0	housing rent: public house	62.5
banks: time deposit	72.0	real estate agents	62.1
video & sound equipment	71.9	<i>housing rent: private house</i>	61.4
<i>The 10 highest CSIs in 1998</i>		<i>The 10 lowest CSIs in 1998</i>	
<i>film</i>	76.3	tunnels	66.2
dairy products & non-alcoholic drinks	75.6	water	66.0
refrigerators	75.6	public transport: railways	66.0
edible oil	74.8	television stations: paid	65.8
small/medium electrical appliances	74.7	paging services	65.1
proprietary medicines & supplies	74.1	housing purchase: public house	63.2
leather shoes	74.0	housing rent: private house	62.5
rice	73.7	real estate agents	62.3
jewelries	73.2	weekly magazines	61.5
airlines	73.1	<i>housing rent: public house</i>	61.3

**Table 3: The 10 highest consumer satisfaction improvement and deterioration rates every two years from 1998 to 2002**

<b><i>The 10 highest consumer satisfaction improvement rates from 2001 to 2002</i></b>		<b><i>The 10 highest consumer satisfaction deterioration rates from 2001 to 2002</i></b>	
job-seeking magazines	9.9%	department stores	-5.0%
entertainment in Shenzhen	4.2%	shopping in Shenzhen	-5.0%
broadcasting/radio stations	3.8%	music CDs	-5.3%
mobile phone services	3.3%	everyday clothes: chain stores	-5.6%
job-seeking websites	2.9%	furniture	-5.6%
housing rent: private house	1.6%	leather shoes	-6.0%
comprehensive websites	1.3%	fast food shops & cafes	-6.1%
make-up & skin-care products	1.0%	television stations: paid	-7.5%
electricity supply	1.0%	air conditioners	-7.9%
banks: general services	0.9%	small/medium electrical appliances	-8.6%
<b><i>The 10 highest consumer satisfaction improvement rates from 2000 to 2001</i></b>		<b><i>The 10 highest consumer satisfaction deterioration rates from 2000 to 2001</i></b>	
video & sound equipment	4.0%	security agents	-2.9%
furniture	3.6%	refrigerators	-3.2%
television stations: paid	3.3%	broadcasting/radio stations	-3.2%
motor fuel & lubricant	3.2%	department stores	-3.8%
water	3.1%	newspapers	-4.3%
television stations: free	2.7%	mobile phone services	-4.6%
leather shoes	2.6%	banks: time deposit	-4.7%
public transport: buses	2.4%	local telephone services	-5.6%
liquefied petroleum gas	2.2%	housing rent: private house	-7.2%
Internet service providers (ISPs)	2.0%	banks: general services	-8.0%
<b><i>The 10 highest consumer satisfaction improvement rates from 1999 to 2000</i></b>		<b><i>The 10 highest consumer satisfaction deterioration rates from 1999 to 2000</i></b>	
local telephone services	12.8%	banks: time deposit	-0.3%
public transport: railways	8.7%	housing purchase: public house	-0.6%
department stores	7.5%	liquefied petroleum gas	-0.9%
package tours: travel agents	6.9%	furniture	-1.0%
Chinese & Western restaurants	6.5%	motor fuel & lubricant	-1.1%
washing machines	6.2%	tunnels	-1.2%
newspapers	6.1%	television stations: free	-1.7%
international telephone services	5.7%	public transport: other modes	-2.0%
edible oil	5.6%	video & sound equipment	-2.5%
broadcasting/radio stations	5.5%	television stations: paid	-5.4%
<b><i>The 10 highest consumer satisfaction improvement rates from 1998 to 1999</i></b>		<b><i>The 10 highest consumer satisfaction deterioration rates from 1998 to 1999</i></b>	
public transport: railways	6.8%	make-up & skin-care products	-4.0%
furniture	4.7%	washing machines	-4.4%
television stations: free	4.6%	small/medium electrical appliances	-4.7%
weekly magazines	2.9%	airlines	-5.1%
public transport: other modes	2.4%	broadcasting/radio stations	-5.1%
housing purchase: public house	2.1%	Chinese & Western restaurants	-5.9%
housing rent: public house	2.0%	leather shoes	-6.4%
everyday clothes: chain stores	1.9%	newspapers	-7.6%
television stations: paid	1.5%	local telephone services	-8.5%
rice	1.5%	banks: loan	-10.8%