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## THE PRE- AND POST-1997 WELL-BEING OF HONG KONG RESIDENTS

**ABSTRACT.** Since July 1997, Hong Kong has become a Special Administrative Region (SAR) under the sovereignty of China. This paper compares the social well-being of Hong Kong residents before and after the change of sovereignty by analyzing six sets of survey data collected between 1990 and 2001. These are six biennial territory wide Social Indicator Surveys conducted to collect subjective assessments of well-being of Hong Kong residents. Analysis of the survey data which are typically categorized subjective evaluations has to deal with the commonly encountered problems of ‘direct quantification’ (Schuessler and Fisher, 1985) and ‘incomplete data’ (Little R.J.A. and Rubin D.B., 2002, *Statistical Analysis with Missing data* (Wiley-Interscience, New Jersey). The problems are handled by applying ‘optimal scaling’ and ‘hot-deck imputation’ as recommended by Shen S.M. and Lai Y.L. (2001, *Social Indicators Research* 55, pp. 121–166). Different life domain measures as well as compound measures in the form of indices are studied. The data analysis indicates that the residents of Hong Kong were most satisfied in 1997 and least satisfied in 1995. It reveals that the sovereignty change had major impact on many life domains of the people of Hong Kong and the effect was compounded by the economic situation of the territory.

### INTRODUCTION

The signing of the Sino-British Joint Declaration in 1984 confirmed the return of sovereignty of Hong Kong to the People’s Republic of China on July 1, 1997 after the city was colonized by the British for more than one and a half centuries. During the transitional period from 1984 to 1997, a lot of issues would have to be negotiated and agreed between the British and the Chinese governments while the residents of Hong Kong had to go through an unprecedented period of political uncertainties.

It was not a straightforward negotiation and the process was less smooth than the residents would prefer. The residents of

Hong Kong experienced stress and anxiety due to uncertainties of the future of Hong Kong. Some chose to migrate to other countries, many remained but watched closely how the Sino-British negotiations progress.

The stability of Hong Kong, however, was not disturbed. Combined with the rapid economic growth in the early 1990s, the Government was able to continue to accumulate reserve and to increase spending on infrastructure construction, tertiary education, social welfare and other social commitments. As the two governments compromised and arrived at many more agreements in the mid-1990s, migrants started to return to the territory and the property market boomed to record high in 1997.

After the change over in 1997, residents of Hong Kong continued their style of living and experienced little change in their daily life. The Government, now the Government of Hong Kong Special Administrative Region of China, tried to introduce many policies to improve different dimensions of Hong Kong. Major education reform at school level and substantial increase in land supply to ease the sky high property market in 1997 were examples of the new moves. The economic downturn resulted from the 1997 Asian economic crisis, however, caused great impact on the budget of the Government, and counteracted the Government's effort.

To compare the quality of life and social well-being of the Hong Kong residents before and after the change over of sovereignty, this study uses data collected from a series of Social Indicator Surveys conducted jointly by The Chinese University of Hong Kong, The Hong Kong Polytechnic University and The University of Hong Kong. They are biennial territory-wide surveys collecting subjective assessments on a spectrum of life domains. In agreement with the mainstream researchers in the field, these surveys utilized the subjective approach in the developments of social indicators which includes perceptions, values, feelings and aspirations of Hong Kong residents toward various facts of their life. Emphasis has been placed in 'experience of life' rather than "condition of life".

Each of the surveys successfully interviewed around 2000–5000 respondents which were randomly selected using

multistage stratified systematic sampling schemes and the response rates achieved have been quite consistently at 50% or slightly higher. Details of the survey methodology have been presented by Shen (1992, 1995, 1997, 1999, 2001, 2003).

In our study, we adopt the approach of Andrew and Withey (1976) and Campbell et al. (1976) and define the subjective quality of life or well-being as the degree of satisfaction of individual's perceived life to match with his/her internal standard or referent and effective evaluation (e.g. happiness).

Subjective satisfaction assessments on 20 life domains collected in six surveys, four conducted before the change over (1990, 1992, 1995 and 1997) and two afterwards (1999 and 2001) are analyzed to make comparisons. In addition to the individual life domains, quality of life indicators on global well-being and well-beings of major dimensions of life based on Shen and Lai (2001) are also used for comparison.

## DATA AND METHODOLOGIES

### *Data*

The data were collected in a series of biennial territory wide surveys. Each of these surveys had different themes of study but they maintained a core part of the questionnaire which remained largely unchanged over time. The core part included 20 life domains covering nine personal life aspects and 11 societal conditions.

The personal life domains are

- (i) Family life (PFAM),
- (ii) Education attainment (PEDU),
- (iii) Health status (PHEA),
- (iv) Financial situation (PFIN),
- (v) Job (PWORK),
- (vi) Relationship with friends (PFRI),
- (vii) Relationship with relatives (PREL),
- (viii) Living environments (PHOU), and
- (ix) Leisure time (PLEI).

The societal conditions are

- (i) General economic situation (SECO),
- (ii) Public order (SORD),
- (iii) General political situation (SPOL),
- (iv) Performance of Hong Kong Government (HKGGOV),
- (v) Transport (STRAN),
- (vi) Housing (SHOU),
- (vii) Medical services (SHEA),
- (viii) Education (SEDU),
- (ix) Social welfare (SWEL)
- (x) Employment situation, and (SOCC),
- (xi) Recreation facilities (SREC).

The questions generally read, 'How satisfied are you with... (a specific life aspect)?'. Responses were measured by an ordinal scale of five categories labeled as

- '1' Very dissatisfied,
- '2' Somewhat dissatisfied,
- '3' Neutral,
- '4' Somewhat satisfied, and
- '5' Very satisfied.

Off scale choices "Don't know" and "No answer" were also provided for respondents who had no idea on the subject or who were unwilling to give their responses.

The labels '1', '2', ..., and '5' were used as initial qualification of satisfaction level but the off-scale choices were not directly quantifiable and hence become missing responses.

Although each survey had a valid sample size of around 2000, the 2000 completed questionnaires contained varied numbers of missing responses due to the off-scale choices. Such missing responses introduced difficulties in data analysis. When life domains are studied item by item, for example, neglecting the missing responses may lead to findings based on different subsets of the sample. Cross tabulation and multivariate statistical analysis will have to decide whether to perform a *complete-case analysis* ignoring the incomplete cases containing missing responses or using other means.

### Methodologies

To enable statistical analysis of empirical data collected from sample surveys, researchers used to perform *complete-case analysis* (Campbell et al., 1976; Rice, 1984; Ying, 1992; Wang, 1994) which simply excludes observations containing missing responses and *direct quantification* which assigns correspondingly the values 1, 2, . . . , 5 to the ordered level of response categories and treats these values as if they were continuous. Shen and Lai (1998a) examine the disadvantages of adopting these simplistic approaches. Firstly, the complete-case analysis incurs serious loss of information from discarding all the partially responded observations. Kim and Curry (1977) study the seriousness of information loss and Shen and Lai (2001) verify that such an approach would lead to serious reduction of valid sample size by at least 30% and in the worst case, a reduction of 60% leaving only 40% of the sampled respondents to be included in the analysis.

The second disadvantage is due to *direct quantification* which uses only a few values, five values in the case of our data sets, to quantify the set of response categories. The measure of degree of satisfaction towards life can be regarded a continuous variable. The crude and artificial quantification categorizes many different degrees of satisfaction to the same value as illustrated in Figure 1.

Respondents A and B, for example, possess different degrees of satisfaction. With limited number of categories, they might choose the same option of 'somewhat dissatisfied' and end up

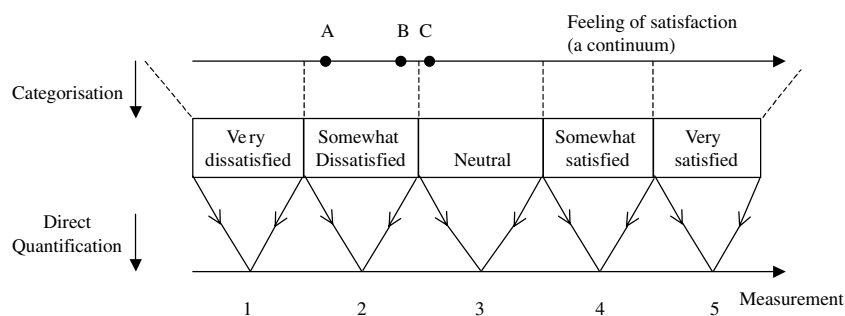


Figure 1. An illustration of the artificiality of direct quantification.

being assigned the same value '2'. Respondent B and C, as shown in the figure, have very similar feeling of satisfaction. Due to their own personal *relative scale*, however, they might have chosen the different categories and end up being assigned values '2' and '3', respectively. Clearly, the ordering of categories describes only the *relative levels*, but not the *absolute values* of the respondents' feelings.

Shen and Lai (1997) recommend to apply *optimal scaling* (OS) to rescale the direct quantification. This method, as pointed out by Young (1981), is a quantification process which assigns 'suitable' numerical values to observation categories in such a way that the relation between the observations and the data analysis model is maximized while respecting the measurement characteristics of the raw data.

As a result of rescaling, the difference between measurements A and B shown in Figure 1 may be restored and assigned values A' and B' as shown in Figure 2 rather than the artificially assigned identical value of '2'. The relative relationship between A, B and C in Figure 1 has an opportunity to be recovered and assigned values A', B' and C' as shown in Figure 2.

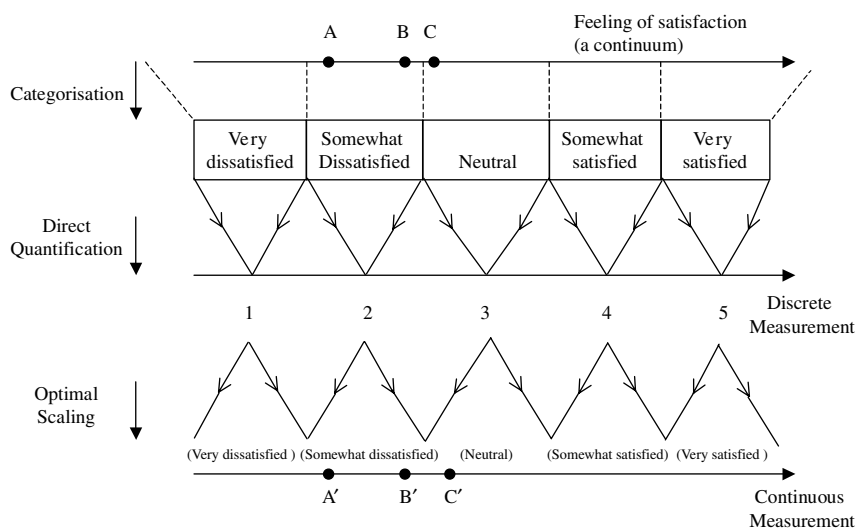


Figure 2. Reconstruction of continuity of measurements.

We combined random hot-deck imputation and OS procedure to analyze the data. Justification of the approach can be found in Shen and Lai (2001). Assuming missing data appeared at random, sample mean of the imputed data set has proved to be an unbiased estimator of the population mean by Lai (1998). The algebraic formula of the standard error of the estimate has also been developed explicitly by Lai (1998).

This paper follows through the methodology employed by Shen and Lai (2001) to construct three sets of quality of life indicators, the *Global Quality of Life Index*, the *Personal Well-Being Index* and the *Societal Well-Being Index*. Separate comparisons based on the 20 life domains are also investigated.

Since the item 'Job satisfaction' does not apply to the group of respondents not holding any paid job and since the previous analysis done by Shen and Lai (2001) has spotted systematic difference between the economically active (EA) and economically inactive (EI) groups, analysis is carried out separately for the two groups.

#### QUALITY OF LIFE (QOL) INDICES

All the 20 life domains listed in Section Data are different items devoted to related aspects of sense of well-being and possess substantial correlation among them. As pointed out by Campbell et al. (1976), it would be appropriate to amalgamate these items into a compound measure or index for more efficient and effective monitoring of the set of items. For this reason, Shen and Lai (2001) aggregate the set of responses over the 20 life domains with an aim to construct some quality of life indicators representing the general sense of well-being in Hong Kong.

This paper follows the same methodology and tries to keep track of the changes on the overall satisfaction as well as the changes on the variations of various life domains.

##### *Global QOL Indices*

Similar to the model used by Campbell et al. (1976) and Rice (1984), the global sense of well being could be assessed by a

weighted average of assessments towards a variety of life domains. Shen and Lai (1998a, b) suggest to adopt and provide justification for using the first principal component of the set of 20 life domains.

With *direct quantification*, the first principal component was able to capture around 20% of the total variance and when missing data were taken care by the random hot deck and OS method described in Section Data and Methodologies, the percentage of variance captured increased to over 50%. The weights represent, in a way, the relative importance of the roles played by respective life domains to the overall satisfaction of life.

Taking 1990 as the base year, we can construct two different series of Global QOL indices, namely the Laspeyres (LA) series and the Weighted Aggregates (WA) series which are defined as

$$LA = \frac{\sum w_b a_c}{\sum w_b a_b} \quad \text{and} \quad WA = \frac{\sum w_c a_c}{\sum w_b a_b}$$

where  $w_b$  and  $w_c$  are the base year and the current years weightings, and  $a_b$  and  $a_c$  are the mean assessments of individual life domains at the base year and the current year. The LA index series hence relies solely on the base year weighting  $w_b$  while the WA index series considers both the base year  $w_b$  and the current year  $w_c$  weightings.

When both base year and current year weightings are used in the index construction as in the case of WA series, changes in the QOL indices reflect a combines result of changes in (1) general satisfaction measures and (2) the relative importance of the life domains in explaining the variation of the global well-being from one period to another. When only the fixed base year weighting is used, in the case of the LA series, changes in the index value reflect only the changes in the QOL assessments. The effect of changes in the relative importance of individual life domain is completely ignored. More details of the conceptual difference between the different index series can be found in Shen (1996).

The measures of Global QOL in Hong Kong from 1990 to 2001 are exhibited in Table I and a graphical presentation of



TABLE I  
Measures of Global QOL with respect to the base year and current year weightings as well as the corresponding LA and WA indices

Group	Year	Global QOL (base year, 1990, weightings)	Laspeyres Index (LA)	Global QOL (current year weightings)	Weighted Aggregates Index (WA)
EA	1990	3.173	100.0	3.173	100.0
	1992	3.136	98.8	3.152	99.3
	1995	3.103	97.8	3.107	97.9
	1997	3.243	102.2	3.231	101.8
	1999	3.152	99.3	3.157	99.5
	2001	3.152	99.3	3.171	99.9
	1990	3.190	100.0	3.190	100.0
	1992	3.138	98.4	3.167	99.3
	1995	3.081	96.6	3.087	96.8
	1997	3.253	102.0	3.248	101.8
EI	1999	3.134	98.3	3.141	98.5
	2001	3.159	99.1	3.158	99.0

the trends of the LA and WA series of the Global QOL is shown in Figure 3. It is obvious that the Global QOL indices for both EA and EI groups declined steadily from 1990 to 1995, followed by a rebound in 1997. The rebound was due to two reasons. The fact that the Chinese and British Governments arrived at more agreements when approaching the date of change-over and the discrepancies between the Chinese and the British reduced gradually. The news comforted all parties and the residents were confident and expect a smooth political transition in 1997. The more important factor was the strong economy in most of the world markets, people were therefore optimistic towards most of the life domains, including both personal and societal measures. The economic downturn since late 1997, therefore, could be the major factor leading to the decline of the Global QOL in 1999 and 2001. Given the continuous poor economic situation, the evaluations in the forthcoming study in 2003 could remain low.

#### *QOL Sub-Indices*

The first principal component impressively explained over half of the total variation of the data. Further examination of the successive principal components suggests that the first two principal components were able to capture 70% of total variation. Shen and Lai (1998b, 2001) show that two meaningful sub-indices can be constructed by applying factor analysis to

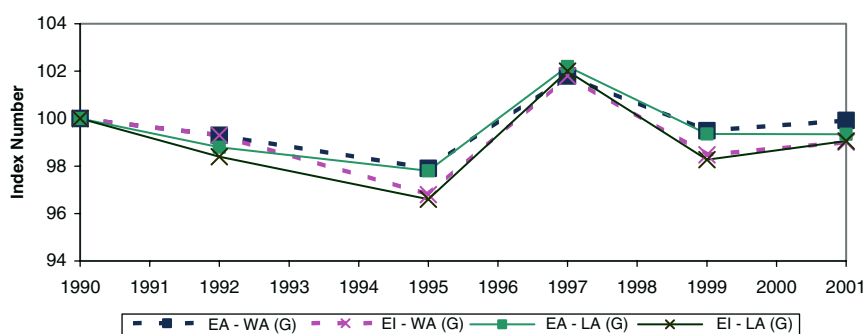


Figure 3. Index series of Global QOL for both the EA and EI groups.

the data. The two sub-indices thus obtained can appropriately named *Personal Well-Being and Societal Well-Being* because they, respectively, comprise all the personal life domains and the societal conditions as given in Section Data.

Measures of Personal Well-Being based on the current and base year weightings, as well as the LA and WA indices are given in Table II.

For the Personal Well-Being sub-indices, there were no significant differences between the LA and WA series as the changes were within 1% throughout the whole study period. Figure 4, shows that the *Personal Well-Being* for the EA and EI groups were quite stable from 1990 to 1995. It experienced a steady increase from 1995 to 1999 and the rate of the increase was more significant for the EA group. However, the EI group recorded a drop in 2001 while the EA group remained more or less the same as in 1999.

Since 1995, the difference between the EA and EI groups has become more significant. Apparently the EA group was more satisfied than the EI group. The bigger gap between the two groups revealed in 2001 could probably be due to the high unemployment rate where some of the respondents became economically inactive simply because they lose their jobs for a prolonged period of time. The un-employment rate in Hong Kong remained high since the 1998 Asian financial crisis. From a low of 2.2% in 1997, the unemployment rate shot up to 4.7% in 1998 and had never come down again. The structural unemployment had disabled many job seekers from entering the job market again. Dissatisfaction in the EI group had therefore been much more serious than those in the EA group.

The relevant data for the *Societal Well-Being* indices are given in Table III and the graph is shown in Figure 5. The trend is dramatically different from the *Personal Well-Being* indices. They rolled down sharply from 1990 to 1995, followed by a spectacular upward shift in 1997. Different from the quality of personal life, the rise and fall of the quality of societal situation was much more considerable. However, the indices fell again after 1997. The overall trends of both the EA and EI

TABLE II  
 Measures of Personal Well-Being with respect to the base year and current year weightings as well as the corresponding LA  
 and WA indices

Group	Year	Personal well-being, (base year, 1990, weightings)	Laspeyres Index (LA)	Personal well-being (current year weightings)	Weighted Aggregates Index (WA)
EA	1990	3.397	100	3.397	100
	1992	3.372	99.2	3.371	99.2
	1995	3.400	100.1	3.400	100.1
	1997	3.445	101.4	3.444	101.4
	1999	3.477	102.333	3.474	102.244
	2001	3.474	102.264	3.473	102.214
	1990	3.378	100	3.378	100
EI	1992	3.364	99.6	3.362	99.5
	1995	3.355	99.3	3.355	99.3
	1997	3.380	100.1	3.378	100
	1999	3.411	100.957	3.407	100.859
	2001	3.381	100.068	3.372	99.799

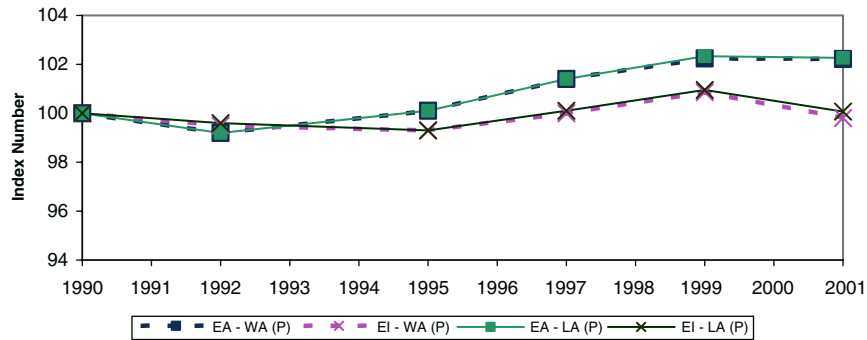


Figure 4. Index series of Personal Well-Being for both the EA and EI groups.

groups are quite similar although the rate of change experienced by the EI group was a bit more substantial.

These QOL sub-indices can be seen as an alarm calling for the attention of the government and society to introduce appropriate policies to lead Hong Kong during times of changes. These indices are the combined result of individual life domains. It will be interesting to see the information given by each of the domains and study the relationship between the aggregated indices and the individual domains.

#### GENERAL PROFILE OF INDIVIDUAL LIFE DOMAINS

Life in a modern society is multi-dimensional. The construction of the Global QOL indicators can be viewed as composite satisfaction feelings towards a variety of aspects of life. We shall present each of the 20 life domains which formed the basis of the indices.

##### *Individual Life Domains Assessed by the EA and EI Group*

The mean assessment of each life domain offers an unbiased estimate of the average level of satisfaction experienced by the residents in Hong Kong. Table IV and Figure 6 summarize the changes of the subjective evaluations of the nine personal life domains for the EA and EI groups while Table V and Figure 7

TABLE III  
 Measures of societal well-being with respect to the base year and current year weightings as well as the corresponding LA  
 and WA indices

Group	Year	Societal well-being (base year, 1990, weightings)	Laspeyres Index (LA)	Societal well-being (current year weightings)	Weighted Aggregates Index (WA)
EA	1990	3.019	100.0	3.019	100.0
	1992	2.975	98.6	2.977	98.6
	1995	2.903	96.2	2.903	96.2
	1997	3.106	102.9	3.107	102.9
	1999	2.931	97.1	2.953	97.8
	2001	2.932	97.1	2.952	97.8
	1990	3.099	100.0	3.099	100.0
	1992	3.030	97.8	3.047	98.3
	1995	2.955	95.3	2.959	95.5
	1997	3.193	103.0	3.204	103.4
EI	1999	3.018	97.4	3.035	97.9
	2001	3.057	98.6	3.046	98.3

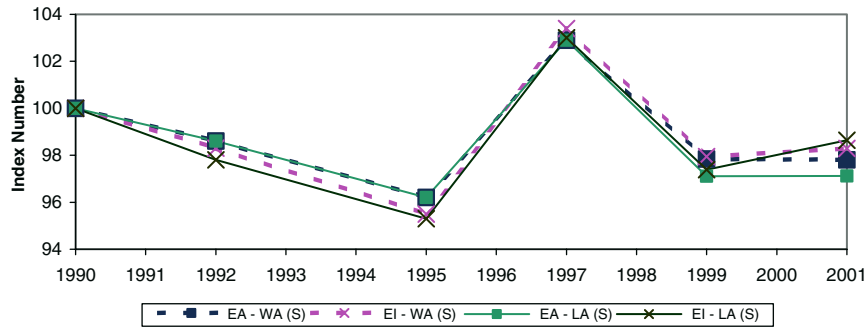


Figure 5. Index series of societal QOL for both the EA and EI groups.

exhibit the results of the eleven societal conditions for the EA and EI groups during the period from 1990 to 2001.

It can be seen that there has not had significant changes in all satisfaction assessments of the personal life domains. They are quite stable over time and are mostly on the satisfied side with mean assessments above the value '3'. The EA group has been more satisfied than the EI group in most of the cases. Most significant difference has been revealed in the domain 'Health' where EA group has a much better perception of their personal health than the EI group.

The societal conditions give a very different picture. Graphs in Figure 7 show that the 'General Economic Situation' was perceived to be much worse and 'Transport' was better after 1997. Out of the 11 domains, the EI group was more satisfied than the EA group in six of them. Only in the domain 'Employment situation', the EA group was more satisfied.

#### *The Personal Life Domains Before and After 1997*

The bar charts shown in Figures 8 and 9 summarize the mean assessments of the nine personal life domains given by the EA group and the EI group, respectively. The separation line at '3.0' represents 'neutral'. A mean assessment above '3' is shown as a positive assessment above the separation line and otherwise as a negative assessment below the separation line.

The evaluations of the EA group and EI group are very similar. Over the entire period, it can be seen that all personal

TABLE IV  
A summary of the mean satisfaction assessments of personal life domains  
from 1990 to 2001

Global QOL items	Group	Mean satisfaction assessments						
			1990	1992	1995	1997	1999	2001
Personal life domains								
Family life	PFAM	EA	3.70	3.76	3.78	3.83	3.84	3.79
		EI	3.66	3.69	3.67	3.67	3.69	3.63
Educational attainment	PEDU	EA	2.87	2.81	2.82	2.88	3.01	3.00
		EI	2.84	2.80	2.72	2.83	2.85	2.82
Health status	PHEA	EA	3.59	3.52	3.56	3.62	3.63	3.62
		EI	3.39	3.28	3.31	3.37	3.36	3.31
Self-financial situation	PFIN	EA	3.20	3.14	3.16	3.24	3.20	3.22
		EI	3.14	3.16	3.10	3.14	3.11	3.07
Job	PWORK	EA	3.4	3.30	3.30	3.33	3.33	3.29
Relationships with friends	PFRI	EA	3.68	3.68	3.71	3.75	3.76	3.76
		EI	3.62	3.64	3.63	3.68	3.70	3.69
Relationships with relatives	PREL	EA	3.51	3.55	3.57	3.64	3.64	3.69
		EI	3.54	3.58	3.59	3.60	3.63	3.60
Living environment	PHOU	EA	3.25	3.26	3.36	3.36	3.45	3.46
		EI	3.36	3.44	3.38	3.42	3.49	3.46
Leisure time	PLEI	EA	3.35	3.30	3.32	3.34	3.39	3.40
		EI	3.37	3.29	3.34	3.38	3.38	3.41

measures, expect 'Educational attainment' (PEDU), have positive mean assessments (above 3.0). In spite of the political change, the satisfaction levels of all the nine domains show slight increases when comparing the assessments immediately before and after 1997.

The most satisfying life domains fall again in the realms of social networking: 'family life' (PFAM), 'relationship with friends' (PFRI) and 'relationship with relatives' (PREL). The finding is in line with the previous quality of life studies on Chinese communities (Ying, 1992; Wang, 1994) and on American societies (Campbell et al., 1976), when intimate social bonding including relationships with family members and friends, was identified as the most favorable life aspect. After the return of Hong Kong to China in 1997, the respondents reported



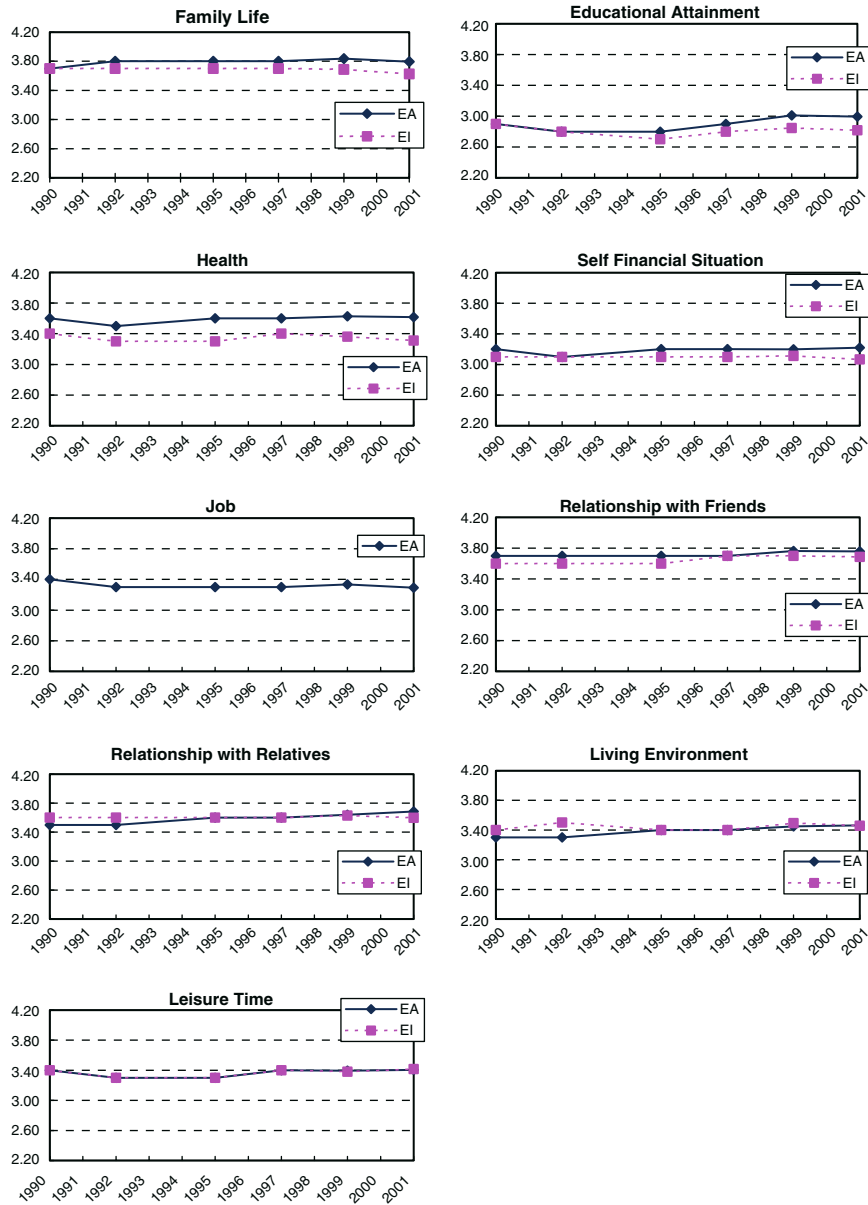


Figure 6. Mean satisfaction assessments of the nine personal life domains from 1990 to 2001.

TABLE V  
A summary of the mean satisfaction assessments of societal conditions from 1990 to 2001

Global QOL items	Group	Mean satisfaction assessments						
		1990	1992	1995	1997	1999	2001	
Societal conditions								
General economic situation	SECO	EA	3.28	3.12	2.71	3.10	2.39	2.38
		EI	3.31	3.10	2.70	3.22	2.45	2.43
Public order	SORD	EA	2.76	2.77	2.91	3.14	3.08	3.13
		EI	2.77	2.64	2.84	3.11	3.05	3.03
General political situation	SPOL	EA	2.73	2.56	2.64	2.96	2.72	2.78
		EI	2.76	2.65	2.79	3.02	2.80	2.91
Performance of Hong Kong	HKGOV	EA	3.02	2.97	2.85	3.13	2.66	2.61
		EI	3.14	3.08	2.87	3.26	2.76	2.78
Transport	STRAN	EA	2.86	2.96	2.88	3.29	3.36	3.48
		EI	2.95	3.09	3.11	3.44	3.45	3.51
Housing	SHOU	EA	2.88	2.77	2.80	2.71	2.98	3.00
		EI	3.07	3.02	2.91	2.92	3.12	3.22
Medical services	SHEA	EA	2.94	3.10	3.15	3.38	3.27	3.37
		EI	3.08	3.13	3.21	3.49	3.39	3.57
Education	SEDU	EA	3.18	3.21	3.28	3.33	3.12	2.94
		EI	3.25	3.26	3.32	3.46	3.28	3.13
Social welfare	SWEL	EA	2.82	2.86	2.88	3.00	3.08	3.00
		EI	3.01	3.04	3.07	3.22	3.27	3.30
Employment situation	SOCC	EA	3.35	3.01	2.42	2.72	2.34	2.37
		EI	3.31	2.88	2.26	2.56	2.25	2.28
Recreational facilities	SREC	EA	3.40	3.39	3.35	3.43	3.28	3.25
		EI	3.46	3.46	3.43	3.44	3.33	3.40

slightly higher satisfaction in the domains revealing the social bonding.

On the other hand, the only negative domain on 'Education attainment', for the very first time, was given a non-negative (above 3) assessment after 1997 by the EA group. This particular observation does not appear among the EI group. Future data will be required to confirm whether the EA group has become more satisfied with their own educational attainment.

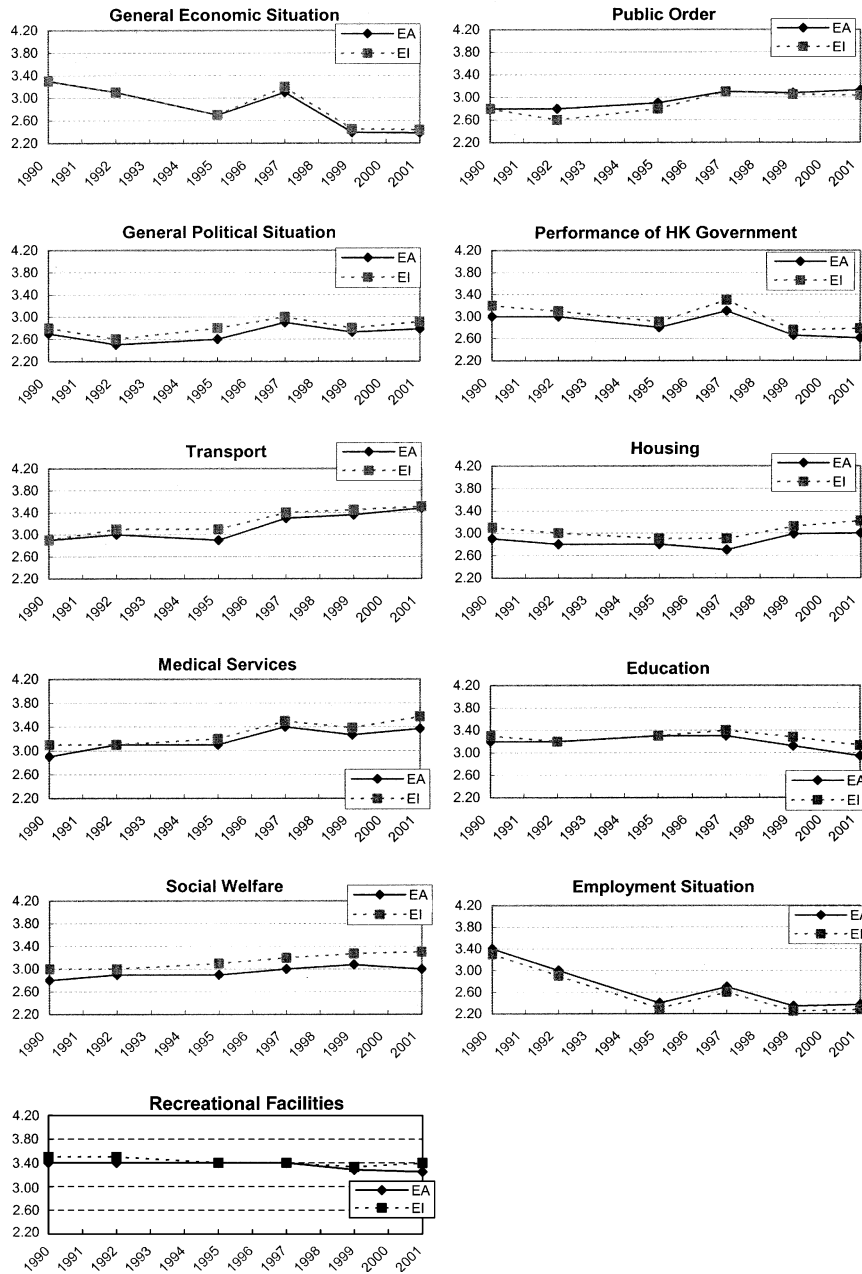


Figure 7. Mean satisfaction assessments of the 11 societal conditions from 1990 to 2001.

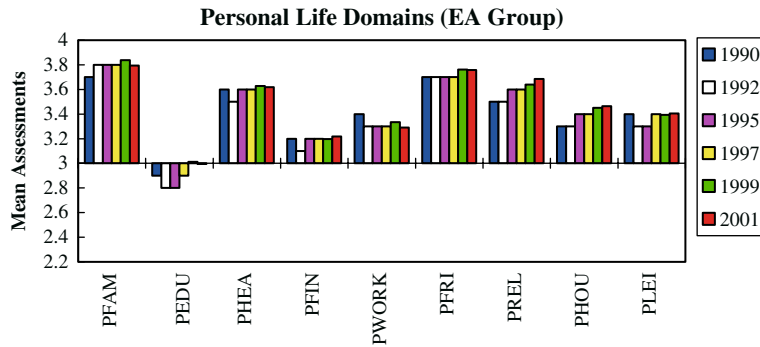


Figure 8. Mean assessments of the nine personal life domains of the EA group from 1990 to 2001.

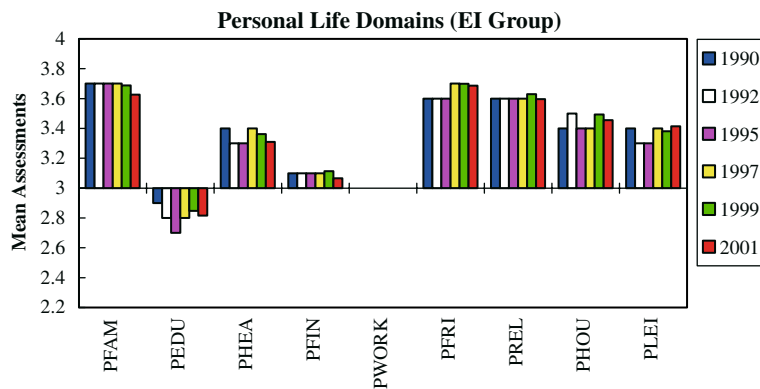


Figure 9. Mean assessments of the nine personal life domains of the EI group from 1990 to 2001.

### *The Societal Conditions Before and After 1997*

The rather consistent evaluations of the personal domains are completely overturned when we study the 11 domains on societal conditions. More fluctuations and discrepancies can be seen from the bar charts shown in Figures 10 and 11. There are many more 'negative' mean assessments and many more significant changes. Eight out of the 11 domains studied displayed significant differences between the pre- and post-1997 time periods. Among the eight domains, five gave negative changes and three positive.

The two economically related domains ‘General economic situation’ (SECO) and ‘Employment situation’ (SOCC) reveal the most significant downward change. This can be largely explained by the impact of the Asian financial crisis and the bursting of the property market bubble in 1997 and 1998. The carry over effect was huge and the unemployment rate went up to record high and worried everybody. The perceptions and feelings reflected by both the EA and EI groups were the same.

With respect to the performance of the new government, however, the domain ‘Performance of Hong Kong Government’ (HKGGOV) reveals disappointment of the residents.

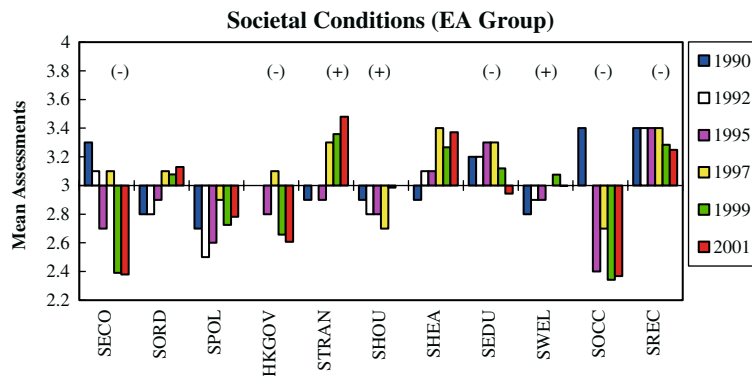


Figure 10. Mean assessments of the 11 societal conditions of the EA group from 1990 to 2001.

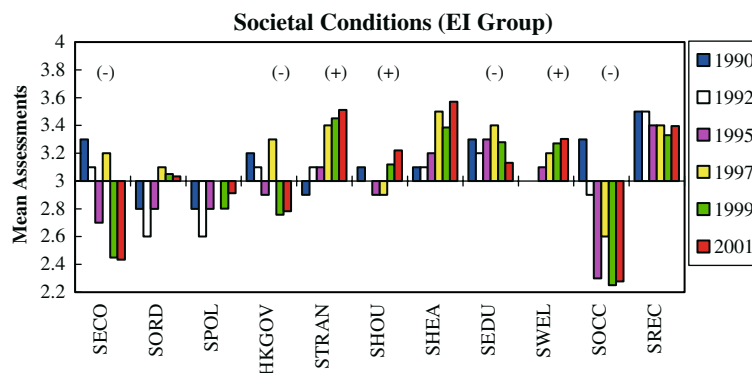


Figure 11. Mean assessments of the 11 societal conditions of the EI group from 1990 to 2001.

Comparing with the assessment before the change over, the post-1997 assessments went down a lot. The Chief Executive of Hong Kong, having no politician's training, little public administration experience and practically no time to learn about the public sector's operations, had faced a lot of difficulties in implementing the new concept of *one country two systems*. Multiplying such difficulties with the economic downturn, the dissatisfaction with the performance of the government could be expected.

One of the major reform introduced by the new government was the educational reform. Nearly everybody in the society is a stakeholder of education, any reform therefore would be closely scrutinized by the citizens and it would take considerable time to accommodate changes. A number of new policies were introduced into the school system within a few years. Such policies touched upon the medium of instruction, curriculum reform, the mode and system of open examinations, etc. A lot of uncertainties were therefore perceived by the teachers, parents and students and accordingly aroused concerns, worries and resistance to changes. The feelings have been reflected in the bar charts in Figures 10 and 11. For the EA group, the latest survey data gave, for the first time, a negative response in the domain 'Education' (SEDU) while the EI group also displayed downward mean assessment values.

'Recreation facilities' (SREC) was another domain where significant drop in satisfaction level is revealed by the EA group. Observations from the EI group do not demonstrate a clear difference in this aspect. This might have arisen from the cautiousness in environmental protection.

In spite of the drops reported in the above five domains, three other domains gave positive changes. They are 'Transport' (STRAN), 'Housing' (SHOU) and 'Social Welfare' (SWEL). The major reason underlying the high assessment of these three domains is the economic downturn. The price of property was halved within a couple of years after 1997. The problem of housing was therefore largely eased. In addition to the reduction of economic activities causing less pressure on transportation, the government's success in introducing

competition in public transport, especially in allowing more bus companies to enter the market was the other reason for easing the problems in transportation. Competition and lower overhead due to deflation offered lower fares and better transport services. This in turn boosted up the level of satisfaction in transportation.

In terms of political situation, the domain 'General political situation' (SPOL) does not reflect disturbing feelings. Although the mean assessments were slightly worse in the latest two surveys than the one in 1997, they were better than those in the early 1990s.

The change in 'Medical Services' (SHEA) has not come from the political change but rather the performance of the Hong Kong Hospital Authority which has not suffered from the political change over. The performance has however been affected by funding. The Government's budget deficit during the economic downturn would not sustain free medical services to be offered at high level. The future assessments will very much depend on the government's financial conditions.

The domain with least noticeable changes is 'Public order' (SORD). Compare with the surveys conducted in 1997 immediately before the change over, respondents' sense of satisfaction on this aspect remain positive with some slight fluctuations among those in the EA group. Within the EI group, there was a downward trend.

Most of the observed changes are common to both the EA and EI groups. Broadly speaking, the residents of Hong Kong were less satisfied in economic and political aspects after 1997 but more satisfied in transportation, housing and social welfare.

## DISCUSSION

The present paper applied various statistical data analysis methods to build up meaningful measures to study the well-being of Hong Kong residents. We focus on the difference between the pre- and post-1997 periods.

Among the nine personal life domains, not much obvious difference could be spotted. The bar charts in Figures 8 and 9

show that the EA group was more satisfied with their 'Education attainment', 'Relationship with friends', 'Relationship with relatives' and 'Living environment' in the post-1997 period. The EI group was more satisfied in their 'Living environment' after 1997. The aggregated effect of these differences can be viewed from Figure 4 which gives the index series of personal quality of life for both the EA and EI groups. The satisfaction level was not distinguishable at the beginning of the series but got further apart as time went on. The overall trends were similar that both went up and down at the same time. As the unemployment rate increased the EI group got more dissatisfied. The overall change, was mild when contrasted with the societal well-being.

Among the 11 societal conditions (Figures 10 and 11), the 'general economic situation', 'performance of Hong Kong Government', 'education' and 'employment situation' had obviously dropped in satisfaction while 'public order', general political situation', 'transport', 'housing' and 'medical services' showed improvement after 1997. The drops, however, were much bigger in magnitude than the rises and hence the *Societal QOL* in Figure 5 shows significant drop which had brought the satisfaction from record high reported just prior to the change over in 1997 to a point which was slightly worse than the beginning period, the early 1990s.

The overall *Global QOL* had followed the trend picked up by the *Societal QOL* with a milder fluctuation because of the more stable *Personal QOL* but it is still obvious that the post-1997 satisfaction level had gone down considerably. The drop was mainly due to the dissatisfaction in 'General economic situation'. The mean assessment dropped from 3.1 to around 2.4 amounting to a drop of over 22%. The other less satisfied domains were 'Performance of Hong Kong Government' and 'Employment situation' which dropped 16% and 15%, respectively. The more satisfied domains 'Housing' and 'Transport' had gained 11% and 6%, respectively.

Without converting to index numbers as presented in Figures 3–5, we can also present the data as three major social indicators, namely,



- (i) Global QOL indicator,
- (ii) Personal well-being indicator, and
- (iii) Societal well-being indicator.

Using the base year weightings, the values of the three indicators are shown in column three of Tables I–III and plotted in Figures 12–14. Choosing the base year weightings rather than the current year weightings has the advantage of saving the tedious calculation in the future.

All the analyses reflected the fact that the key changes were due to economic factors. The relative importance of the perception on the performance of the government is yet to be analysed. Theoretically this can be studied when the economic situation recovers and the performance of the government remains the same. Practically this is rather unlikely because these two assessments are highly correlated and there is confounding effect when we study the impact of these two assessments.

The drops in satisfaction level reported in 1999 and 2001 were foretold by Shen and Lai (2001) based on the economic projection at that time. The future development will still very much depend on the economic situation which is regarded, by the Hong Kong citizens, as of primal importance.

The analysis has shown that the three simple indicators, one global and two sub-indices can summarize the overall situations efficiently. The Laspeyres (LA) series with all weightings readily available is much more conveniently to be adopted in the future.

Although the subjective evaluation of the well-being of Hong Kong residents can be effectively summarized by the indices there

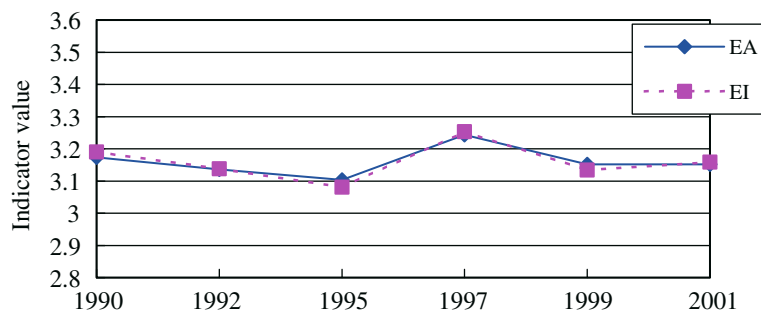


Figure 12. Global QOL indicator.

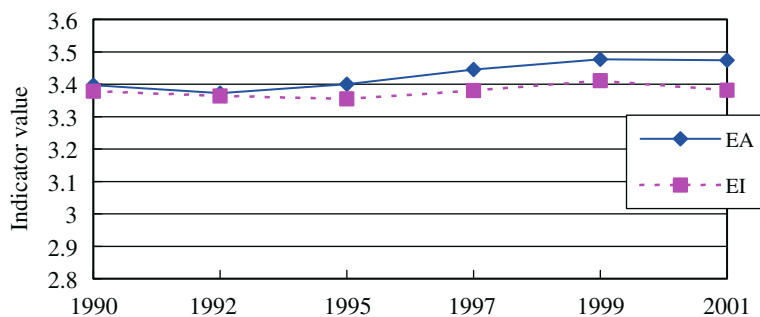


Figure 13. Personal well-being indicator.

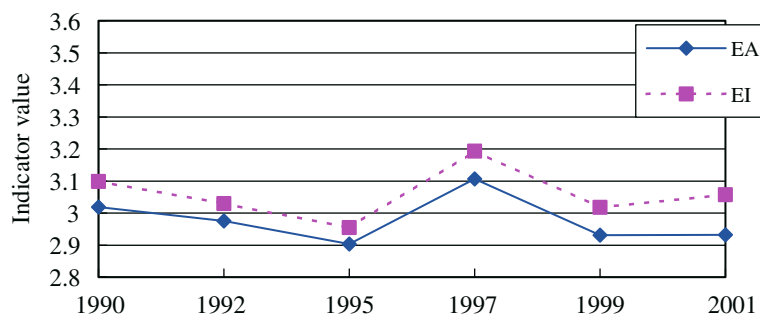


Figure 14. Societal well-being indicator.

is still need to collect similar data in a more frequent and timely manner. The more immediate findings may help the decision and policy makers to manage the social and political risks.

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