

Relationships between Working Hours and Productivity: The Case of Food Services and Information Communication Industries in Hong Kong

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Abstract This paper aims to study the relationships between working hours and productivity in food services and information communication industries in Hong Kong. Though the discussion on productivities determinants and the analysis of opinions provided by management and the non-management staff members in these two industries, the study concludes with a recommendation on a productivity enhancement scheme. In total, 312 employees responded to the questionnaire, the demographic characteristics of two industries' employees were very similar, but the working information was different due to different workplace requirements. Statistical results revealed that the correlation between duration of working hours and productivity are not statistically significant in these two industries. However, the ideas from the management and the non-management level were different on the correlation between critical factors in these two industries. Moreover, statistical results also indicates that the correlation between working environment and personal health with stress and job satisfaction is positive and statistically significant in the food services industry, while the correlation between the job content and information technology skills is also positive and statistically significant in information communication industry. Management should focus on these critical factors for the improvement and enhancement the productivity of employees, thereby benefitting the organization.

Keywords Standard Working Hours, Productivity, Job Satisfaction

1. Introduction

Hong Kong is renowned for having a flexible and hardworking workforce which underpins its economic development and success in face of intense global competition (Labour Department 2012). The International Labour Organization (ILO) had advised Hong Kong to

legislate for the standard working hours regulation and ILO survey results in 1996 showed that one hundred and twenty countries had already legislated the regulation of working hours. Table 1 shows hours of work statistics in Hong Kong, there were around 663.5 thousand employees (around 21% of total employment) working over 55 hours per weeks in 2000 (Census and Statistics Department 2011). The data had nearly doubled from that of 1990 which was around 393.7 thousand (around 15% of total employees) (Census and Statistics Department 2011). Until 2000, Hong Kong remained as the only developed country which had not legislated such standard yet (Legislative Council 2000), those supporting working hours legislation believe that this would enhance employees' safety and health and in return, boost staff productivity and morale, thus benefitting employers, however, those opposing legislation believe that mandatory standard working hour would affect workers of all skill and seniority levels and hence, influence the operational flexibility of businesses which has long been a key competitive edge of Hong Kong. Thus, an empirical research concerning relationship between working hours and productivity can directly acknowledge the increasing public concerns over the impact of long working hours on workers' health and productivity, the discussion on determinants of productivity also in the end shed light on the optimal future labor market policy direction, and facilitate Hong Kong Government in mapping out the way of legislation ahead.

The number of working hours was rising rapidly since 1997, and maximum number of working hours had been become a controversial issue. On 7th June 2000, this issue had turned into a particular political issue – "Proposal for prescribing the maximum number of working hours in Hong Kong" in the Legislative Council of Hong Kong Special Administrative Region of the People's Republic of China (2011), of which the labor sector and the business sectors had already disputed for over ten years. The key point of the contention argued that legislating regular working hours would affect Hong Kong's business competitiveness in the world. The labor sector thought that long working hours

would increase stress and illnesses and affect the health of employees. Hong Kong Government encouraged employers and employees to improve their ability and skills, and also communicate more with their parents and take care of their children. However, employees were difficult to do these due to the long working hours. Thus, low motivation, productiveness and efficiency were resulted, and caused decreasing business competitiveness. Hence, the labor sector urged to legislate the regulation of working hours. Contrarily, if the policy of regular working hours was legislated and implemented, the business and industrial sectors were concerned on the effect to the flexibility of the economy and the overall business competitiveness in the world. Since there were several kinds of job nature in Hong Kong, regular working hours might not be suitable for all business organizations and affected the efficiency and productivity. Up till now, the consultative procedure for legislation is still not yet being commenced (Legislative Council 2011).

2. Research Objectives

The key point of the contention focused on the effect of Hong Kong's business competitiveness which related to productivity and efficiency. This paper aims to study the relationships between working hours and productivity, by comparing long and median working hours' industries in Hong Kong which were the food services and the information and communication industries. In addition, by enhancing the employees' productivity, the organizations'

competitiveness in the business market is increased. Thus, this paper discourse in parallel what factors influencing employees' productivity, more specifically, this paper centers around the food services industry which the working hour was relatively long compared to information and communication industry which the working hour was comparatively low and at the median of all industries (Table 2) (Census and Statistics Department 2011). Moreover, this paper collects opinion from management and non-management level and analyzes what scheme is recommendable to these two industries.

Table 2 also indicates that the median hours of work in Hong Kong was 48 hours in 2010, which was still higher than other developed countries, such as the United States, which the working hours was limited at 40 hours per week by law (International Labour Office 2004). Also, it was found that long working hours mainly happen in retailing, accommodation and food services industries (54 hours) (Table 2) (Census and Statistics Department 2011). In short, this paper consists of three research objectives:

- To develop a conceptual framework for studying labor productivity in long working hours industry.
- To examine empirically if these conceptual variables are related to labor productivity

To evaluate how these conceptual variables are inter-linked with each other, and investigate if these inter-linkages are differ between management and non-management employees working in long-working hours industry

Table 1. Hours of work during the seven days before enumeration

Period	Hours of work during the seven days before enumeration				
	< 35 hours	35 – 44 hours	45 – 54 hours	55 ≥ hours	All hours of work
	Both sexes		Employed persons ('000)		
1990	303.3 (11%)	781.4 (29%)	1233.1 (45%)	393.7 (15%)	2711.5 (100%)
2000	323.3(10%)	1105.6 (34%)	1114.8 (35%)	663.5 (21%)	3207.3 (100%)
2010	394.4 (11%)	1044.3 (30%)	1269.0 (36%)	784.8 (23%)	3492.5 (100%)

Source: Hong Kong Census and Statistics Department 2011

Table 2. Median hours of work during the seven days before enumeration of employed persons by industry

Period	2008	2009	2010
<i>Industry of main employment (Hours)</i>			
Manufacturing	47	45	48
Construction	45	44	45
Import/export trade and wholesale	44	44	44
Retail, accommodation and food services	54	54	54
Transportation, storage, postal and courier services, information and communications	45	45	48
Financing, insurance, real estate, professional and business services	45	45	45
Public administration, social and personal services	48	48	48
Other industries	44	44	44
All industries	45	45	48

Source: Hong Kong Census and Statistics Department 2011

3. Literature Review

International Labour Office (2004) emphasizes various aspects in the analytical framework of relating working hours and labor productivity, namely wages, work arrangement, job content and information technology skills, working condition and personal health, and stress and job satisfaction are considered in constructing the conceptual framework.

With regard to wage, long working hours is a widely known labour market phenomenon in Hong Kong and wages is always theoretically and practically regarded as the most critical factor affecting productivity of employees. In general, employees are eager to earn as much as they can in order to improve their living standards, Akerlof (1984) conducted a case study to examine the effect of wages towards labor productivity and found that productivity was much higher after the incentive system was executed, and the quantity of produced parts was up by 140 percent. In addition, fair wage was another vital issue that employers need to consider in order to enhance satisfaction and motivation of employees, some studies find that if wage was set on acceptable and fair level, positive effect on boosting up productivity can be observed and finally beneficial to the organization (Lindbeck and Snower 1987). Hence, adjustment of wages needed to be considered seriously by the organization, wages of acceptable level could enhance the function of productiveness and benefit the competitiveness of organization.

For work arrangement, Schramm (2010) provided a proof that flexible working hour arrangements could boost labor productivity. One typical example is accounting firms, which were among the top three longer working hours organizations, a certified public accounting firm – LBA in the America started to apply work-life balance strategies in 2006, the working hours of LBA was fixed at 55 hours per week, Monday to Friday and half-day on Saturday. The

managing director proposed all employees kept 55 working hours per week, but employee could re-arrange the working times, including that employees were not required to report duties on Saturdays compulsorily, the profit growth rose from eighteen to twenty percent in two years and this accounting firm was named on the list of fifty fastest growing private companies in their region. Not only employees, but the firm was also the winner on these changes on working arrangement (Trayner 2008). Flexible working arrangements and work life balance were not very popular in Hong Kong, and many employees felt unsatisfied on this (Vernon 2009). Working arrangements was another critical factor to affect the productivity of employees. The effect of flexible working hours and work life balances between work, family and self-enhancement would be investigated in this study.

Regarding to job content and information technology skills, different jobs contain different job duties and natures, thus need different types of employees to handle. Knowledge and qualifications influence employees' ability of using technology, thus skills mismatching could reduce the productivity and quality of outputs and be harmful to the organization in long term. No matter how advanced the technology is, if employees are not knowledgeable to apply technology on performing their jobs, technology is, in principle, useless and could not enhance productivity nor efficiency. Hence, there was a linkage between job content and information technology skills (Mahambare 2010). Figure 1 shows the inter-linkage amongst advanced technologies, employees' ability and productivity, they had their specific characteristics and compatibility. Technology could enhance productivity of employees only if it was applied appropriately, even if the knowledge and skills of the employees were outstanding, if the job characteristics did not match, the productivity and quality would not necessarily be enhanced (Anderson 1989).

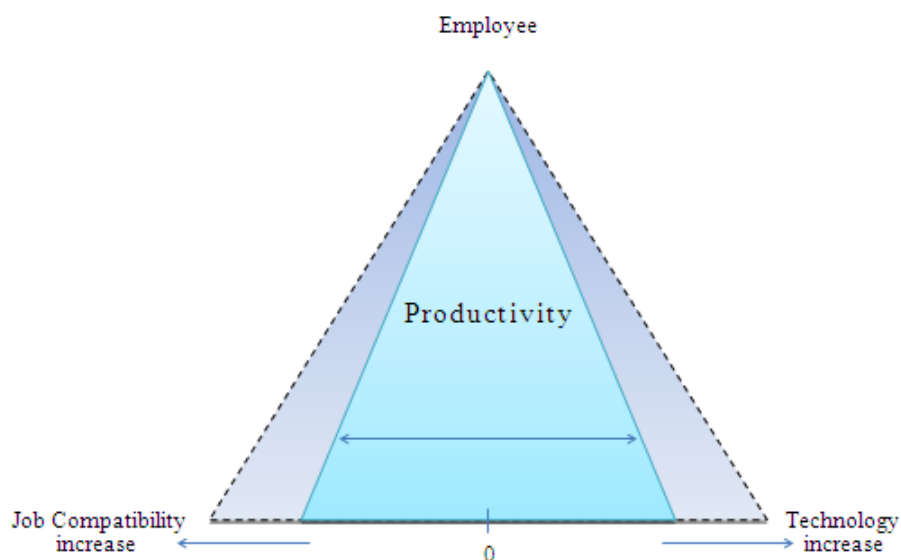


Figure 1. Relationship between employees, jobs and technology on productivity reproduced from Anderson (1989:172)

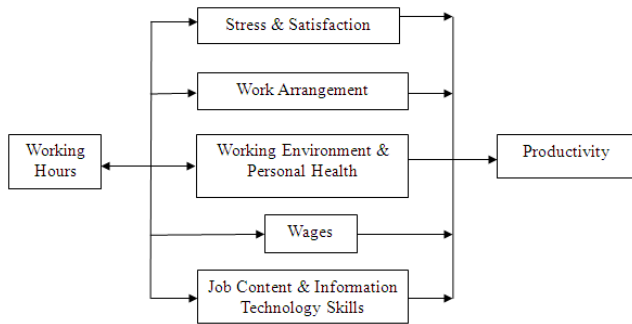


Figure 2. Conceptual Framework

With reference to working environment and personal health, Heuvel *et al.* (2010) found that the percentage of absence on sickness for good performance and bad performance employees was similar at 48 percent and 52 percent respectively, besides, employees who frequently moved inside or out of office, performed physical tasks, and had shift duty would decrease the probability of bad performance. In addition, high emotions, low self-discipline, temporary or part-time contract would cause poorer job performance. It was found that the working conditions influence employees' performance. Regarding to stress and satisfaction, Halkos and Bousinakis (2010) found that employees who obtained satisfying wages and felt safe could directly enhance productivity, and their experiences, knowledge and skills would benefit the organization, hence there is a clear linkage between stress and job satisfaction. In this paper, we hypothesize that wages, working arrangements, job contents and information technology skills, working environment and personal health, and stress and satisfaction were correlated between working hours and productivity, and affected labor productivity of the employees, showed in Figure 2. More importantly, we hypothesize such linkages and the corresponding degree of importance would be differ under different length of working hour arrangement. In short, the following conceptual framework is applied to analyze the empirical linkage between working hours and productivity with specific consideration of each factor in the food services and the information and communication industries.

4. Methodology

A descriptive questionnaire was used to collect primary sample data with various questions on wages, working arrangements, job contents and information and technology skills, working environment and personal health, and stress and job satisfaction, the questionnaire also allows us to investigate the difference of importance and correlation on those critical factors in long and median working hour's industries. Employees from two industries were invited to participate the interview, food services industry was selected as its working hour is the longest (54 weekly working hours) while information and communication industry was selected

as its working hours was around the median (Table 2). Only full time local employees currently working in these two designated industries can be qualified as target participants. The number of respondents engaged in the food services industry and the information and communication industries was around 209,000 and 87,000 in 2009 respectively (Census and Statistics Department 2011). Quota sampling was applied that the population and sample ratio of employees engaged in these two industries are matched, thus target number of respondents was set as 224 and 88 in the food services and the information and communication industry respectively and authors' parents and friends were invited to participate in the survey. Moreover, management and non-management level employees in the food services and the information and communication industry were in 1:15 ratio and 1:10 ratio respectively (Census and Statistics Department 2011).

Regarding the questionnaire structure and contents, the questionnaire was designed bilingually in English and Traditional Chinese for the convenience of participants. Only full time local employees currently working in food services industry and information and communication industry would be invited to complete the questionnaire. There were seven sections in the questionnaire, including job information, wage, working arrangement, job content and information technology skills, working environment and personal health, stress and satisfaction, and personal information. All answers are in five-point Likert scale. Job information was collected in part A, information on wages, working arrangement, job content and information technology skills, working environment and personal health, and stress and satisfaction were collected in part C to F, questions contents were mainly extracted from several rigorous surveys, namely pay satisfaction questionnaire (Heneman and Schwab 1985: 136), flexible work options questionnaire (Albion 2004: 285), job satisfaction survey (Spector 1985: 708-711) and Minnesota satisfaction questionnaire (Department of Psychology, University of Minnesota 1997), There were around 10 % of target respondents in the food services (22 participants) and the information and communication industries (9 participants) invited to conduct a pilot study before the designed questionnaires were widely distributed. There were 312 completed quantitative questionnaires, in which 224 (71.8%) and 88 (28.2%) respondents from the food services and the information and communication industries respectively and it fitted the ratio of engaged person and position levels in these two industries in population.

5. Statistical Methods and Findings

5.1. Descriptive Statistics

Table 3 shows the respondents' information, job position levels, working days, working hours and weekly overtime hours in food services and information and communication industries, as the mean and standard deviations of each

characteristic were very close, so the distribution of each personal characteristics were of no significant difference. The sample of food services industry consists of 116 males (51.8%) and 108 females (48.2%) while the sample of information and communication industry consists of 58 males (65.9%) and 30 females (34.1%). In both industries, around 68% of the employees were within 26 - 35 years old, and over 60% were single and around 30% were married. Also, the distributions in education levels on tertiary or university level and secondary completed were around 60% and 20% respectively in both industries. In addition, around 50% of the respondents earned 10,001 to 20,000 Hong Kong dollars per month, and around 50% had working experiences below 4 years in both industries. The ratio in management and non-management level in the food services and the information and communication industries were at 1:15 (14 and 210 respectively) and 1:10 (8 and 80 respectively) and

fitted the ratio of position levels mentioned in section 4. The mean and standard deviations in working days and weekly working hours were different in long working hours industry (food services: $M = 3.71$, $SD = 0.733$; $M = 3.73$, $SD = 0.948$) and median working hours industry (information and communication: $M = 7.78$, $SD = 1.077$; $M = 2.28$, $SD = 0.802$). But the mean and standard deviations in weekly overtime hours were nearly the same in the food services ($M = 2.36$, $SD = 1.274$) and the information and communication ($M = 2.62$, $SD = 1.206$) industries and hence, the number of working days and weekly working hours in both industries were different. In food services industry, employees mainly had six working days per week (83.5%) and over 55% worked over 48 hours per week. Contrarily, employees from the information and communications industry mainly had five working days per week (60.2%) and over 95% worked below 48 hours per week.

Table 3. Descriptive statistics

Characteristics	Food services (n = 224)		Information and communications (n = 88)		
	Mean	Std. Deviation	Mean	Std. Deviation	
Gender	1.48	.501	1.34	.477	
Age	2.14	.738	2.20	.775	
Marital status	1.39	.541	1.31	.464	
Education level	3.59	.919	3.61	.976	
	Frequency	Percent	Frequency	Percent	
Gender	Male	116	(51.8%)	58	(65.9%)
	Female	108	(48.2%)	30	(34.1%)
Age	16 - 25	28	(12.5%)	9	(10.2%)
	26 - 35	153	(68.3%)	61	(69.3%)
	36 - 45	28	(12.5%)	10	(11.4%)
	46 - 55	13	(5.8%)	7	(8.0%)
	> 55	2	(.9%)	1	(1.1%)
Marital status	Single	142	(63.4%)	61	(69.3%)
	Married	78	(34.8%)	27	(30.7%)
	Divorced	3	(1.3%)	0	(0%)
	Separated	1	(0.4%)	0	(0%)
Education level	Primary Completed	0	(0%)	1	(1.1%)
	Secondary Completed	47	(21.0%)	17	(19.3%)
	Post-Secondary	18	(8.0%)	8	(9.1%)
	Tertiary Level / University Level	139	(62.1%)	51	(58.0%)
	Post-graduate or above	20	(8.9%)	11	(12.5%)
Monthly income per month in Hong	Below \$10,000	31	(13.8%)	13	(14.8%)
	\$10,001 - \$20,000	118	(52.7%)	43	(48.9%)

Kong Dollars	\$20,001 - \$30,000	49	(21.9%)	20	(22.7%)
	\$30,001 - \$40,000	17	(7.6%)	6	(6.8%)
	Above \$40,000	9	(4.0%)	6	(6.8%)
Year of working experience	< 2 years	29	(33.0%)	76	(33.9%)
	2 - 4 years	28	(31.8%)	57	(25.4%)
	5 - 7 years	14	(15.9%)	53	(23.7%)
	8 - 10 years	6	(6.8%)	15	(6.7%)
	> 11 years	11	(12.5%)	23	(10.3%)
Position level	Management	14	(6.2%)	8	(9.1%)
	Non-management	210	(93.8%)	80	(90.9%)
Working days per week	5 days	10	(4.5%)	53	(60.2%)
	5 days with half-day alternate Saturday	7	(3.1%)	10	(11.4%)
	5.5 days	20	(8.9%)	16	(18.2%)
	6 days	187	(83.5%)	9	(10.2%)
Working hours per week	< 41 hours	4	(1.8%)	17	(19.3%)
	41 - 44 hours	10	(4.5%)	31	(35.2%)
	45 - 48 hours	85	(37.9%)	38	(43.2%)
	48 - 52 hours	69	(30.8%)	2	(2.3%)
	> 52 hours	56	(25.0%)	0	(0%)
Overtime hours per week	Nil	64	(28.6%)	15	(17.0%)
	0.5 - 3 hours	81	(36.2%)	31	(35.2%)
	3.5 - 6 hours	38	(17.0%)	24	(27.3%)
	6.5 - 9 hours	16	(7.1%)	8	(9.1%)
	> 9 hours	25	(11.2%)	10	(11.4%)

5.2. Crosstabulation

Table 4 shows the crosstab results, over 90% respondents agreed that those five variables mentioned in the conceptual framework (namely, wages, work arrangement; job content and ICT skills; working environment and personal health; stress and job satisfaction) was related to labor productivity. All Chi-Square test statistics were less than critical value, with p-value higher than level of significance (i.e. 5%), thus the null hypothesis of independence was not rejected, and hence no significant relationship is evident for these five variables. In short, crosstabulation results indicate most employees working in these two industries agreed with the conceptual relationships and no significant difference is evident between two industries.

Table 4. Crosstab of five variables on labour productivity, by industry

Industry		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
<u>Wages</u>							
FS	Freq.	0	1	13	120	90	224
		(0.0%)	(0.4%)	(5.8%)	(53.6%)	(40.2%)	(100.0%)
ICT	Freq.	0	1	6	45	36	88
		(0.0%)	(1.1%)	(6.8%)	(51.1%)	(40.9%)	(100.0%)
	χ^2 test	.655	p-value	.884			
<u>Work arrangement</u>							
FS	Freq.	1	0	6	70	147	224
		(0.4%)	(0.0%)	(2.7%)	(31.2%)	(65.6%)	(100.0%)
ICT	Freq.	0	1	4	28	55	88
		(0.0%)	(1.1%)	(4.5%)	(31.8%)	(62.5%)	(100.0%)
	χ^2 test	3.727	p-value	0.444			
<u>Job content and ICT skills</u>							
FS	Freq.	0	1	10	141	72	224
		(0.0%)	(0.4%)	(4.5%)	(62.9%)	(32.1%)	(100.0%)
ICT	Freq.	0	1	4	50	33	88
		(0.0%)	(1.1%)	(4.5%)	(56.8%)	(37.5%)	(100.0%)
	χ^2 test	1.396	p-value	0.706			
<u>Working environment and personal health</u>							
FS	Freq.	0	1	9	123	91	224
		(0.0%)	(0.4%)	(4.0%)	(54.9%)	(40.6%)	(100.0%)
ICT	Freq.	0	1	3	47	37	88
		(0.0%)	(1.1%)	(3.4%)	(53.4%)	(42.0%)	(100.0%)
	χ^2 test	.587	p-value	0.899			
<u>Stress and job satisfaction</u>							
FS	Freq.	0	2	11	134	77	224
		(0.0%)	(0.9%)	(4.9%)	(59.8%)	(34.4%)	(100.0%)
ICT	Freq.	0	1	8	42	37	88
		(0.0%)	(1.1%)	(9.1%)	(47.7%)	(42.0%)	(100.0%)
	χ^2 test	4.507	p-value	0.212			

Note 1: FS: Food Services; ICT: Information and communications

Note 2: Row percentages are in parentheses

Table 5. Two sample Independence Test

	Industry	N	Mean	Std. Deviation	Std. Error Mean	T-test for Equality of Means (p-value)
Wages variable	FS	224	4.3348	.60598	.04049	0.831
	ICT	88	4.3182	.65294	.06960	
Working arrangement variable	FS	224	4.6161	.58755	.03926	0.435
	ICT	88	4.5568	.64072	.06830	
Job content and information technology skills variable	FS	224	4.2679	.55998	.03742	0.591
	ICT	88	4.3068	.61323	.06537	
Working environment and personal health variable	FS	224	4.3571	.58159	.03886	0.93
	ICT	88	4.3636	.60991	.06502	
Stress and job satisfaction variable	FS	224	4.2768	.59459	.03973	0.701
	ICT	88	4.3068	.68410	.07293	

5.3. Two Independent Samples T-test

In Table 5, sample means of five conceptual variables in food services and information and communications industry are very close, the values all higher than four indicate respondents are mostly agree the relational linkage we hypothesized. For two independent samples T test results, high (higher than 0.05) p-value indicate the null hypothesis of no significant difference between industry's population means was not rejected.

5.4. Correlation

After showing the relationship between the five conceptual variables and productivity in the previous sections, examining the correlations amongst these five conceptual variables allows further understanding if these variables are inter-related empirically, if variables are correlated, it implies management can consider not just the main effect of each variable on productivity, but also the interaction effect amongst variables. Table 6 shows the correlational analysis amongst five conceptual variables in

food services industry, all correlation coefficients are positive, the overall and non-management correlations for each pairs are all statistically significant at 1 percent level, only three coefficients for management group are not statistically significant at 5 percent level, the strength of correlation is mostly moderate (0.2-0.5) except some relatively high correlation (>0.7) in management level. In short, interactive effects amongst these five conceptual variables are evident in food service industry.

Table 7 shows the correlational analysis amongst five conceptual variables in information and communication industry, all correlation coefficients are positive, the overall correlations for each pairs are all statistically significant at 5 percent level, one coefficient for non-management group and six coefficients for management group are not statistically significant at 5 percent level, the strength of correlation is mostly moderate (0.2-0.5) except some relatively high correlation (>0.8) in management level. In short, interactive effects amongst these five conceptual variables are evident in information and communication industry.

Table 6. Correlation matrix of target variables in food services industry

		Wages variable	Working arrangement variable	Job content and information technology skills variable	Working environment and personal health variable	Stress and job satisfaction variable
Wages variable	Overall	1.000	.300**	.276**	.257**	.277**
	p-value		.000	.000	.000	.000
Management	Overall	1.000	.709**	.588*	.352	.764**
	p-value		.005	.027	.217	.001
Non-management	Overall	1.000	.250**	.237**	.240**	.216**
	p-value		.000	.001	.000	.002
Working arrangement variable	Overall	.300**	1.000	.437**	.456**	.357**
	p-value	.000		.000	.000	.000
	Management	.709**	1.000	.760**	.574*	.790**
	p-value	.005		.002	.032	.001
	Non-management	.250**	1.000	.395**	.436**	.299**
	p-value	.000		.000	.000	.000
Job content and information technology skills variable	Overall	.276**	.437**	1.000	.325**	.302**
	p-value	.000	.000		.000	.000
	Management	.588*	.760**	1.000	.441	.722**
	p-value	.027	.002		.115	.004
	Non-management	.237**	.395**	1.000	.304**	.246**
	p-value	.001	.000		.000	.000
Working environment and personal health variable	Overall	.257**	.456**	.325**	1.000	.439**
	p-value	.000	.000	.000		.000
	Management	.352	.574*	.441	1.000	.382
	p-value	.217	.032	.115		.178
	Non-management	.240**	.436**	.304**	1.000	.439**
	p-value	.000	.000	.000		.000
Stress and job satisfaction variable	Overall	.277**	.357**	.302**	.439**	1.000
	p-value	.000	.000	.000	.000	
	Management	.764**	.790**	.722**	.382	1.000
	p-value	.001	.001	.004	.178	
	Non-management	.216**	.299**	.246**	.439**	1.000
	p-value	.002	.000	.000	.000	

**Correlation is significant at the 0.01 level (2-tailed).

Table 7. Correlation matrix of target variables in Information and Communication Industry

		Wages variable	Working arrangement variable	Job content and information technology skills variable	Working environment and personal health variable	Stress and job satisfaction variable
Wages variable	Overall	1.000	.368**	.328**	.312**	.345**
	p-value		.000	.002	.003	.001
	Management	1.000	.895**	.421	.619	.673
	p-value		.003	.299	.102	.067
	Non-management	1.000	.214	.307**	.244*	.248*
	p-value		.057	.006	.029	.027
Working arrangement variable	Overall	.368**	1.000	.467**	.505**	.524**
	p-value	.000		.000	.000	.000
	Management	.895**	1.000	.692	.692	.798*
	p-value	.003		.057	.057	.018
	Non-management	.214	1.000	.432**	.472**	.470**
	p-value	.057		.000	.000	.000
Job content and information technology skills variable	Overall	.328**	.467**	1.000	.497**	.348**
	p-value	.002	.000		.000	.001
	Management	.421	.692	1.000	.652	.709*
	p-value	.299	.057		.080	.049
	Non-management	.307**	.432**	1.000	.476**	.300**
	p-value	.006	.000		.000	.007
Working environment and personal health variable	Overall	.312**	.505**	.497**	1.000	.418**
	p-value	.003	.000	.000		.000
	Management	.619	.692	.652	1.000	.709*
	p-value	.102	.057	.080		.049
	Non-management	.244*	.472**	.476**	1.000	.372**
	p-value	.029	.000	.000		.001
Stress and job satisfaction variable	Overall	.345**	.524**	.348**	.418**	1.000
	p-value	.001	.000	.001	.000	
	Management	.673	.798*	.709*	.709*	1.000
	p-value	.067	.018	.049	.049	
	Non-management	.248*	.470**	.300**	.372**	1.000
	p-value	.027	.000	.007	.001	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

6. Conclusions and Recommendation

This paper aims to study the relationships between working hours and productivity, by comparing long and median working hours' industries in Hong Kong which were the food services and the information and communication

industries. We hypothesize that wages, working arrangements, job contents and information technology skills, working environment and personal health, and stress and satisfaction were correlated between working hours and productivity, and affected labor productivity of the employees. With 312 completed quantitative questionnaires,

we found that most employees working in these two industries agreed with the conceptual relationships and no significant difference is evident between two industries. The two independent samples T test results show the null hypothesis of no significant difference between industry's population means was not rejected and interactive effects amongst five conceptual variables are evident in both food service and information and communication industry.

In both long working hours (food service) and median working hours (information and communication) industries, wages, working arrangements, job contents and information technology skills, working environment and personal health, and stress and job satisfaction were found to be critical factors to enhance the labor productivity. While the view of management and non-management employees were different on the importance of these critical factors, management should communicate with their staff members to have a common view and goals to enhance their productivity, as shown in correlational analysis, management in both industries emphasize more on stress and job satisfaction, while non-management employees in food services and information and communication industries emphasize more on working arrangement and job content and information technology skills respectively. Other critical factors also important and correlated to enhance the productivity of employees, hence management would not ignore them.

Management can learn from the case of LBA to adopt work-life balance and flexible working arrangement schemes to reduce the conflicts between employees' family and work, and enhance the job motivation of employees (Verespej 2000:25). Also, good matching of job contents and information technology skills could make better use of employees' abilities, increasing job satisfaction and productivity in the long term (Anderson 1989:171-186). Employees were important assets in an organization, and the management should make use of the findings to enhance productivity of employees. Learning from other organization and understand the needs of employees were essential for developing optimal schemes to enhancing job motivation and satisfaction, thereby benefit the competitiveness of organization in the long run.

REFERENCES

- [1] Accel-Team (2011) 'What is productivity?' *Productivity Improvement* [online] available from <http://www.accel-team.com/productivity/productivity_01_what.html> [17 March 2011]
- [2] Akerlof, G. A. (1984) 'Gift Exchange and Efficiency-Wage Theory: Four Views.' *The American Economic Review* 74, (2) 80-82
- [3] Albion, M. J. (2004) 'A Measure of Attitudes Towards Flexible Work Options.' *Australian Journal of Management*, 29(2), 285
- [4] Anderson, E. E. (1989) 'The Implementation of Information Systems for Workers: A Structural Equation Model.' *Information & Management* 16, (4) 171-186
- [5] Census and Statistics Department (2011) *Checking Hong Kong Standard Industrial Classification Version 2.0 (HSIC V2.0) - Detailed Structure*. [online] available from <http://www.censtatd.gov.hk/products_and_services/online_services/hsic_search_tool/index.jsp?page=full_hierarchy> [17 March 2011]
- [6] Census and Statistics Department (2011) *Employed persons by hours of work during the seven days before enumeration and sex*. [online] available from http://www.censtatd.gov.hk/hong_kong_statistics/statistical_tables/index.jsp?tableID=015 [17 March 2011]
- [7] Census and Statistics Department (2011) *Median hours of work during the seven days before enumeration of employed persons by sex and industry of main employment*. [online] available from <http://www.censtatd.gov.hk/hong_kong_statistics/statistical_tables/index.jsp?charsetID=1&tableID=016> [17 March 2011]
- [8] Census and Statistics Department (2011) *Number of employed persons by industry and occupation*. Census and Statistics Department, The Government of the Hong Kong Special Administrative Region
- [9] Census and Statistics Department (2011) *Number of establishments, persons engaged and vacancies (other than those in the Civil Service) analysed by industry section*. [online] available from
- [10] <http://www.censtatd.gov.hk/hong_kong_statistics/statistical_tables/index.jsp?tableID=017> [17 March 2011]
- [11] Census and Statistics Department (2011) *Quarterly Survey of Employment and Vacancies*. Census and Statistics Department, The Government of the Hong Kong Special Administrative Region
- [12] Department of Psychology, University of Minnesota (1997) *Minnesota satisfaction questionnaire*. United States: Department of Psychology, University of Minnesota
- [13] Halkos, G. and Bousinakis, D. (2010) 'The effect of stress and satisfaction on productivity.' *International Journal of Productivity and Performance Management* 59, (5) 415-431
- [14] Heneman, H. G., and Schwab, D.P. (1985) 'Pay satisfaction: Its multidimensional nature and measurement.' *International Journal of Psychology* 20, (2) 136
- [15] Heuvel, S. G. V. D., Geuskens, G. A., Hooftman, W. E., Koppes, L. L. J. and Bossche, S. N. J. V. D. (2010) 'Productivity Loss at Work; Health-Related and Work-Related Factors.' *Journal of Occupational Rehabilitation* 20, (3) 331-339
- [16] International Institute for Management development (2009) 'Factor breakdown' *IMD WORLD COMPETITIVENESS YEARBOOK 2009* Switzerland: International Institute for Management development: 36-37
- [17] International Labour Office (2004) *Working time and productivity* Switzerland: International Labour Office, Information sheet No. WT-18
- [18] Legislative Council (2000) 'The Council negated a motion moved by Hon LAU Chin-shek urging the Administration to expeditiously legislate for regulating workers' working hours'

- Proposal for prescribing the maximum number of working hours in Hong Kong.* Legislative Council, The Government of the Hong Kong Special Administrative Region
- [19] Legislative Council (2011) *Proposal for prescribing the maximum number of working hours in Hong Kong* [online] available from <http://www.legco.gov.hk/database/english/data_mp/mp-max-working-hour.htm> [17 March 2011]
- [20] Lindbeck, A. and Snower, D. J. (1987) 'Theories of Involuntary Unemployment: Efficiency Wages Versus Insiders and Outsiders.' *European Economic Review* 31, (1,2) 407-410
- [21] Mahambare, V. (2010) *Getting the best out of our workers.* New Delhi: Mint. 23 September
- [22] Schramm J. (2010) 'Clockwork Productivity.' *HR Magazine* 55, (9) 136
- [23] South-Western (2011) *Labour Productivity* [online] available from <http://www.swlearning.com/features/bef/econ_data/labor_productivity/labor_productivity_definition.html> [17 March 2011]
- [24] Spector, P. E. (1985) 'Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey.' *American Journal of Community Psychology* 13, (6) 708-711
- [25] Trayner, J. (2008) 'No Saturdays. No 55-Hour Requirement. Are You Sure This Is a CPA Firm?' *CPA Practice Management Forum* 4, (6) 5-9
- [26] Vernon, K. (2009) *Work-Life Balance: The Guide Hong Kong: Community Business*
- [27] Yellen, J. L. (1984) 'Efficiency Wage Models of Unemployment.' *The American Economic Review* 74, (2) 200-205