



**HOW FLEXIBLE IS THE LABOUR MARKET IN HONG KONG?  
SOME STATISTICAL OBSERVATIONS**

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**Abstract**

This note provides empirical evidence on the flexibility of the labour market in Hong Kong. Both wages and employment showed a large degree of flexibility during the past 10 years when Hong Kong experienced several episodes of large negative shocks such as the Asian financial crisis, deflation, and SARS outbreak. Nominal wages in all industries showed little downward rigidity, and labour flowed from less productive sectors to more productive sectors. Compared with the US where the labour market is regarded as more flexible than other major economies, the nominal wages in Hong Kong behaved in very similar ways in periods when inflation rates were similar in both economies.

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The views and analysis expressed in this note are those of the authors, and do not necessarily represent the views of the Hong Kong Monetary Authority.

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## I. INTRODUCTION

The currency board system in Hong Kong requires the labour market to be flexible so that the economy can adjust to external shocks efficiently. The labour market in Hong Kong is generally perceived as flexible as there is very limited government intervention in the labour market, and collective bargaining does not play a large role in negotiating terms of employment. But there is limited empirical research to systematically document the evidence for the flexibility in Hong Kong's labour market. This note fills the gap and illustrates how wages and employment behaved during episodes of economic downturns.

The experience of the Hong Kong economy in the past 10 years provides a good opportunity to test labour market flexibility. Hong Kong went through several episodes of economic turmoil, including the Asian Financial Crisis, the burst of the technology bubble in the US, the SARS outbreak, and the deflationary period. This note illustrates that the labour market in Hong Kong showed a large degree of flexibility through these episodes. Disaggregated sector-level data show strong evidence that wages dropped substantially in nominal terms in response to negative shocks, and labour moved from less productive sectors (manufacturing) to more productive sectors (finance, retails, and tourism related industries). The highly disaggregate nature of the data allows us to compare Hong Kong with the US in terms of not only the average wage but also the distribution of wages across sectors. We provide evidence that nominal wages in Hong Kong showed a similar degree of downward flexibility to those in the US – the shares of employees experiencing nominal wage cuts in Hong Kong and in the US during episodes when the two economies experienced similar inflation are quite close.

Most studies on wage flexibility in the literature have been conducted using data from developed economies where labour markets are regulated with minimum wage laws and influenced by trade unions. Fehr and Goette (2005) and Kimura and Ueda (2000) investigate the relationship between recent low inflation years and wage changes in Switzerland and Japan respectively, whereas McLaughlin (1994) analyses the effect of inflation on wage changes using the database on the Panel Study of Income Dynamics and Lebow, Saks and Wilson (2003) using the Employment Cost Index database for the US compiled by the Bureau of Labor Statistics. These studies document that countries experienced limited wage cuts but substantial wage freezes when economies went through downturns, which indicates strong downward wage rigidity. In other words, the distribution of nominal wage growth is asymmetric with limited observations on the left tail but many observations cluster around zero, particularly in periods of low inflation. Section IV of this research note applies similar methodology to the case of Hong Kong, and compares it with the labour market in the US.

The brief is organised as follows. Section II provides some stylized facts on wages and employment over business cycles in Hong Kong and some other economies. Section III explores the sector level variation in wages and employment. Section IV provides histograms and descriptive statistics to analyze the evolution of the distribution of nominal wage growth between 1996 and 2006, and compare them to those in the US. Section V concludes.

## **II. NOMINAL WAGES IN HONG KONG AND OTHER REGIONAL ECONOMIES**

This section compares the nominal wages in Hong Kong with several other important economies: Japan, South Korea, Singapore, Taiwan and the US. Previous research shows that the downward wage rigidity limits the adjustment in nominal wages when inflation is low. Chart 1 depicts nominal wage growth and price inflation in each country in our sample. Nominal wages in Hong Kong showed considerable flexibility as illustrated by the fact that when the economy experienced deflation in 2002 and 2003, average nominal wages declined. Nominal wages in Taiwan, Japan, and Singapore also exhibit signs of flexibility as their nominal wages also declined during deflation. Nominal wages in South Korea increased strongly in 1999 when the inflation was less than 2 percent, but it does not indicate wage rigidity because it partly reflects a rebound from the nominal wage cuts in the previous year. In the case of the US, inflation has stayed positive in the sample period. We will explore the comparison between Hong Kong and the US in Section IV.

The labour market in Hong Kong also exhibits flexibility in employment. Chart 2 depicts unemployment rates and GDP growth rates for the same economies as in Chart 1. Hong Kong's unemployment has been highly correlated with GDP growth and quite volatile. Singapore's unemployment rate seems to respond relatively more smoothly to the large volatility in GDP growth following the Asian financial crisis. Both South Korea and Taiwan display gradual movement in unemployment, but GDP growth rates were also much less volatile than Hong Kong or Singapore. Japan presents an interesting case as its negative wage growth could be the result of labour hoarding during economic downturns. Unemployment only rose moderately and slowly as Japan experienced low economic growth in the mid-nineties and early 2000.

These stylized facts serve to indicate that the labour market in Hong Kong is flexible in both wages and employment dimensions. Since economies have different exchange rate regimes and institutional traditions in labour markets, the difference across economies in wage and employment dynamics does not come as a surprise. For Hong Kong, adjustments to external shocks mostly take place in the labour market. For economies with flexible exchange rate regimes, labour markets do not have to adjust as much given the same magnitude of shocks.

### **III. SECTOR LEVEL DYNAMICS IN WAGES AND EMPLOYMENT**

A well-functioning labour market should exhibit flexibility in both wages and employment when it faces external shocks. Wages should decline to offset the negative shocks, and labour should move from less productive sectors to more productive sectors. This section utilizes sector level data to examine how the labour market in Hong Kong responded to large negative shocks.

Empirical evidence shows that both wages and employment in Hong Kong responded to negative shocks as expected. Chart 3 provides scatter plots of changes in nominal wages versus changes in the amount of people employed across 5 key industries in each year from 1997 to 2004. The five industries are: Wholesale, Retail, Import and Export; Electricity, Gas and Water; Finance/Insurance/Business; Transport services; and Manufacturing. Three scatter plots of particular interest for this exercise are the one for 1998/1999 which illustrates the response to the Asian financial crisis, and the two charts for 2002/2003 and 2003/2004 that indicate the response to deflation. Both scatter plots show a similar pattern. In 1998/1999, wages stagnated in 4 out of 5 industries, and labour reshuffled from manufacturing and other industries to the finance industry. In 2003/2004, wages declined across the board, and labour moved from the manufacturing industry to finance, wholesale & retail, and trade industries. The magnitude of such changes in labour reallocation is large in both years relative to other “normal” years.

The labour market in Hong Kong also exhibit strong capability to respond to prolonged structural challenges. The rise of manufacturing industries in Mainland China led to a decline in these industries in Hong Kong. The scatter plots show that the manufacturing sector went through downsizing for most of the sample, with employment declining by double digit in some years. Nonetheless the unemployment rate for the whole economy also declined in recent years, which implies that the more productive industries have quickly absorbed the labour force that left the manufacturing industries (see Leung, Chow, Woo and Tam, 2007, for a discussion on employment in Hong Kong).

### **IV. DISAGGREGATED WAGE DATA IN HONG KONG**

This section explores the issue of downward wage rigidity. We provide histograms to illustrate the distribution of wages changes in Hong Kong, and compare it with the distribution in the US. The nominal wage data are based on various government publications. The sample covers annual data from 1995 to 2006. There are 316 occupation-industry pairs per year. The details of the sources are discussed in the Appendix.

Table 1 shows some summary statistics on the changes in nominal wages for three distinctive periods in Hong Kong. In the high inflation years (1996, 1997 and 1998), the median wage grew by 5.7% which is close to the inflation rate at 5%. Moreover, only 12.6% of the observations indicate nominal wage cuts. The corresponding histograms for this high inflation period show clearly that the distribution of nominal wage growth is skewed to the right and that most of the observations fall above zero.

The two periods of low inflation years depict much higher number of nominal wage cuts. In the first period (1999, 2000 and 2001), 36.1% of the observations fell below zero nominal wage change. In the second period of low inflation years (2002, 2003 and 2004), 62.7% of observations show wage cuts. The median nominal wage growth rate is around zero for the period from 1999 to 2001 when inflation averaged at -3.1%. The median growth in wages declined further to -1.4% on average in the period from 2002 to 2004, when inflation average at -2%. This latter figure implies that nominal wage did not grow between 2002 and 2004 but rather declined on average. The pronounced decline in nominal wages for the second period reflects the negative shocks (collapse of dot com bubble, terrorist attack in the US, and SARS) that affected Hong Kong economy.

The nominal wage cuts in the year with low inflation are visually striking in histograms. Chart 4 shows the histograms of changes in nominal wages for the three groups of years. In low inflation years, the histograms provide strong evidence of nominal wage cuts, which is not found in other studies on the US or the EU. This is especially evident in the histogram for the period spanning from 2002 – 2004, which is skewed to the left indicating a large amount of wage cuts.

Chart 4 faces a potential bias as each industry carries the same weight in the histogram, so that the industries are not weighted by their number of employees. Large industries and small ones might behave differently and lead to different pictures depending on how to weight the industries. Chart 5 compare employment-weighted histograms and histograms that treat each industry equally. The shapes of the two sets of histograms are very similar, so results in chart 4 are not affected by the choice of weights.

Table 2 compares the distribution of nominal wage growth in Hong Kong with distributions in the US. The results obtained for the US are taken from a similar study by Lebow, Sachs and Wilson (2003), which relies on the US Bureau of Labour Statistics data spanning from 1981 to 1998 across 5000 establishments. The labour market in the US economy is generally regarded as flexible relative to other major economies. This comparison provides us with a benchmark which is regarded as a flexible labour market by international standards.

Descriptive statistics of the whole data set for all years in Hong Kong and the USA reveal that Hong Kong has had a substantial amount of wage cuts compared to the USA (42.4% and 14.4% respectively). This difference might be due to the different shocks the two economies experienced during their respective samples. The average inflation rates in the two economies are indeed quite different (0.3 for Hong Kong and 3.5 for the US). A more informative comparison requires matching two similar periods in Hong Kong and the US.

The labour markets in Hong Kong and the US behaved remarkably similarly once we compare the two economies for periods with similar inflation rates. The labour market in Hong Kong seems to be slightly more flexible, but the difference might not be statistically significant if data were available for a rigorous test. First, we look at the period when both economies experienced inflation of around 6% – 7%. For the US, this was referred to as “high inflation years” (1981, 1982 and 1990) in the study by LSW (2003), with inflation averaged at 7.3 percent. For Hong Kong, 1996 is the best match with inflation of 6.3 percent. Both economies experienced a median wage growth rate at around 7%, tightly following the rate of inflation. Moreover, the shares of observations below zero are low for both economies (7% and 8.7% for Hong Kong and the USA respectively). Next, we turn to comparing “low inflation years” in the USA (1987, 1993 and 1995) and in Hong Kong (2006), where the inflation rate was 2 – 3% for both economies. Although the median wage growth for Hong Kong and the USA are close (1.4% and 2.1%), the percentage of nominal wage cuts in both economies differ. In Hong Kong there were 27.2% of wage cuts, compared with 22.2% in the USA. Conversely, there are more observations at “zero” wage change for the USA, which indicates more downward wage rigidity in the US. It would be interesting to collect wage data from both economies by the same standard so that a statistical test can be utilized to tell if the distributions are indeed different.

## **V. CONCLUSION**

This note provides empirical evidence on the flexibility of the labour market in Hong Kong. Both wages and employment showed remarkable flexibility during the past 10 years when Hong Kong experienced several episodes of large negative shocks such as the Asian financial crisis, deflation, and SARS outbreak. The flexible labour market complemented the currency board system and adjusted to the external shocks quickly and efficiently. Nominal wages in all industries showed little downward rigidity, and labour flowed from less productive sectors to more productive sectors. Compared with the US where the labour market is regarded as more flexible than other major economies, the nominal wages in Hong Kong behaved in very similar ways, showing a large degree of downward flexibility.

The research on wage flexibility in Hong Kong can be extended along two dimensions in the future. First, the findings in this note can be improved if more disaggregate data on nominal wage (preferably at the establishment level) is available, in which case statistical tests can be applied to identify downward wage rigidity. Second, a more rigorous comparison between Hong Kong and other economies would require data collected using the same sampling method across economies. We leave these issues for future research.

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## **APPENDIX: THE DATA**

### **A1. Wages & Salaries**

The wage data is taken from two different dataset: the nominal wage data for non-managers and salary data for managers and professionals in Hong Kong. The two datasets are defined differently. The nominal wage rate data refers to the sum earned for an employee's normal working hours, covering basic wages and regular guaranteed allowances and bonuses. Changes in the wage rate only reflect the change in the basic wages while the working hours and occupational composition of the industry is held constant from one period to the other. The wage rates do not include employees in managerial or professional groups. The nominal wage data is tri-dimensional. There are 46 HSIC 4-digit industries, 4-6 occupational groups per industry and 44 time periods spanning from 1992 until 2006. Prior to 1999 the data is available half-yearly, but since then the data is in quarterly frequency. All the data is converted into yearly average. The 46 industries belong to the 6 main industries: Wholesale, Retail, Import and Export; Electricity, Gas and Water; Finance/Insurance/Business; Transport services; Manufacturing and Personal Service. The Mining and Construction industries were excluded as (1) a negligible number of workers are involved with mining and (2) wages and employment for construction are not reported consistently over the periods used in the analysis. The nominal wage data is publicly available from the "Quarterly Report of Wages and Payroll Statistics" report provided by the Hong Kong Census and Statistics Department. The report provides summary statistics on wages and payroll compiled from a Labour Earning Survey (LES). The LES enquires to 2000 registered establishments, and replaces one quarter of the establishments in each round of survey.

The salary data for managers and professionals over 5 industries (Wholesale, Retail, Import and Export; Electricity, Gas and Water; Finance/Insurance/Business; Transport services and Manufacturing) are taken from the "Report of Salaries and Employee Benefits Statistics: Managerial and Professional Employees" published by the Census and Statistics Department every year from 1995 to 2006. The report only includes data on middle-level managers and professionals, thus excluding salaries of senior-level managers. Data on benefits were excluded in this paper, so that the salary information between managers, professionals and other workers would be comparable.

## **A2. Employment**

The data on employment is obtained from Census and Statistics Department (CSD). It covers the same 6 major industry groups further divided into the 46 HSIC 4-digit industry groups. The employment statistics are obtained from “Quarterly Report of Employment and Vacancies Statistics” and “Employment and Vacancies Statistics (Detailed Tables)”, which is publicly available from the CSD. The employment data for HSIC 4-digit level industry divisions are available annually, and for a selected group of industries the employment data is available quarterly, in which case yearly averages were used. Employment numbers for each of the occupation groups were obtained in the “Quarterly Report on General Household Survey” and the amount of workers in each occupation group for each industry was approximated by using the relative proportion of each occupational group to the total workforce for every year. These estimates are used for weighing nominal wage indices different occupational groups to give a single indicator of overall wage level in an industry.

Chart 1: Inflation-Nominal Wage Growth Comparison

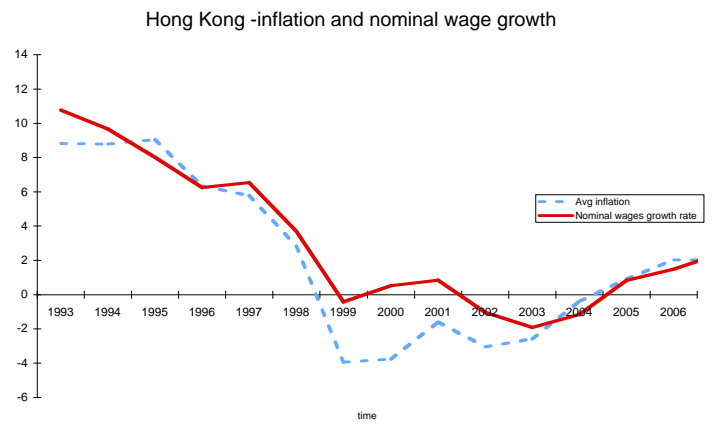
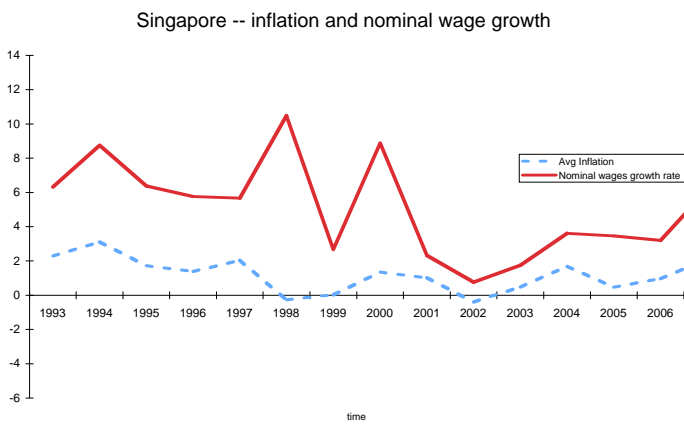
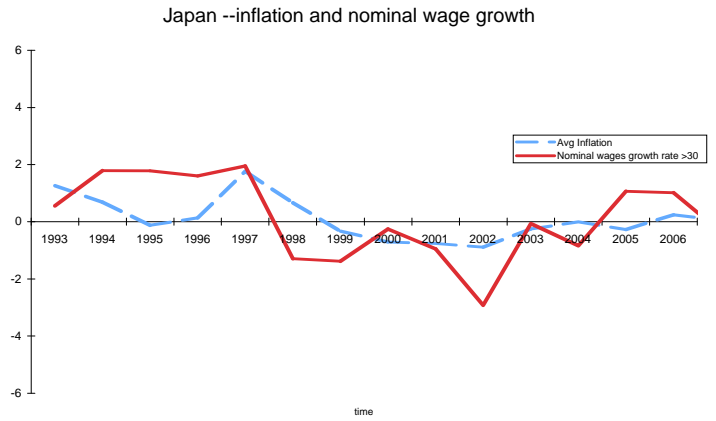
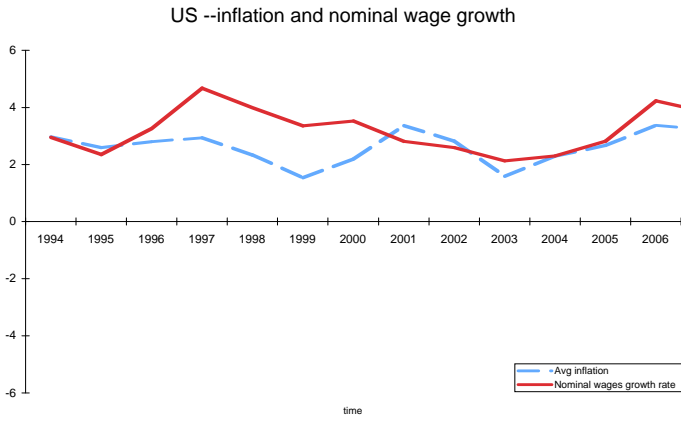
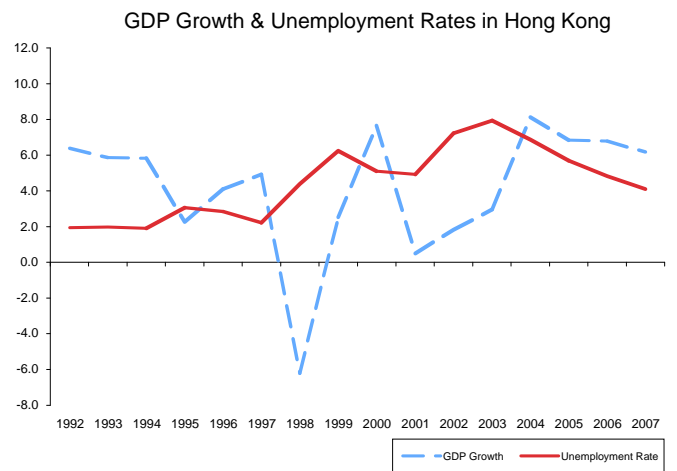
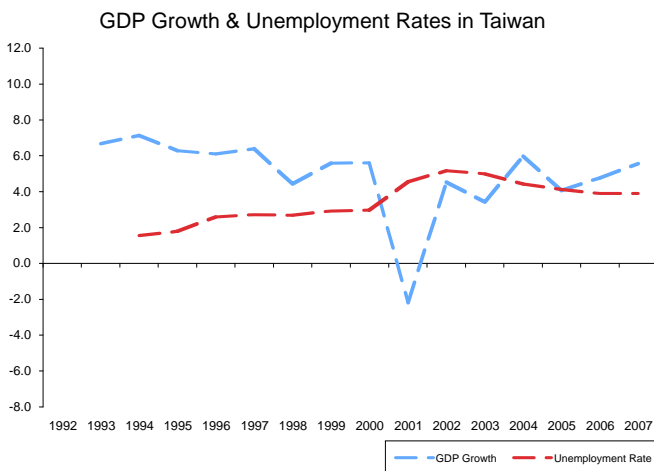
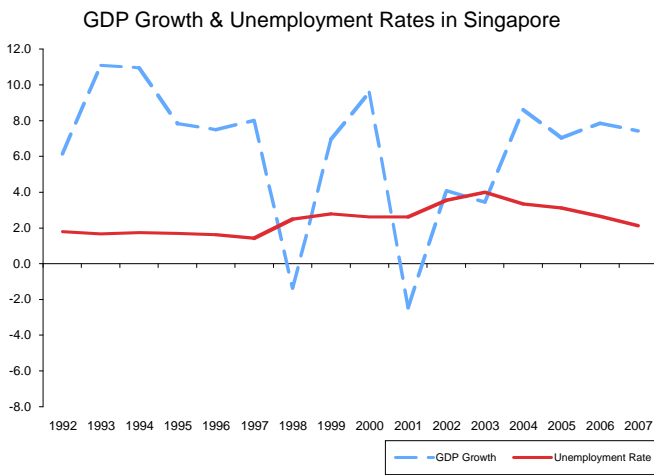
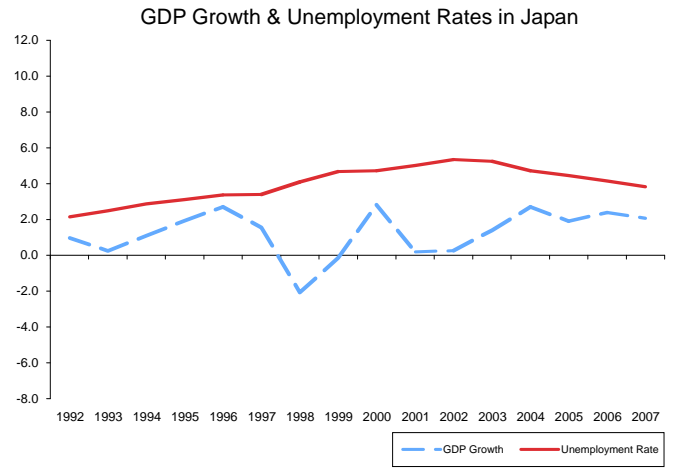
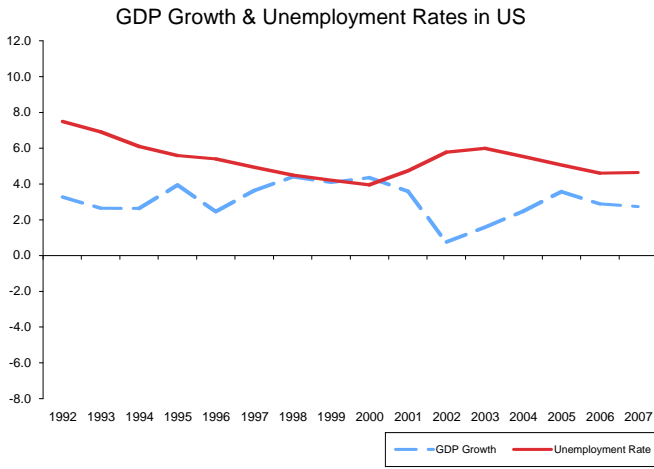
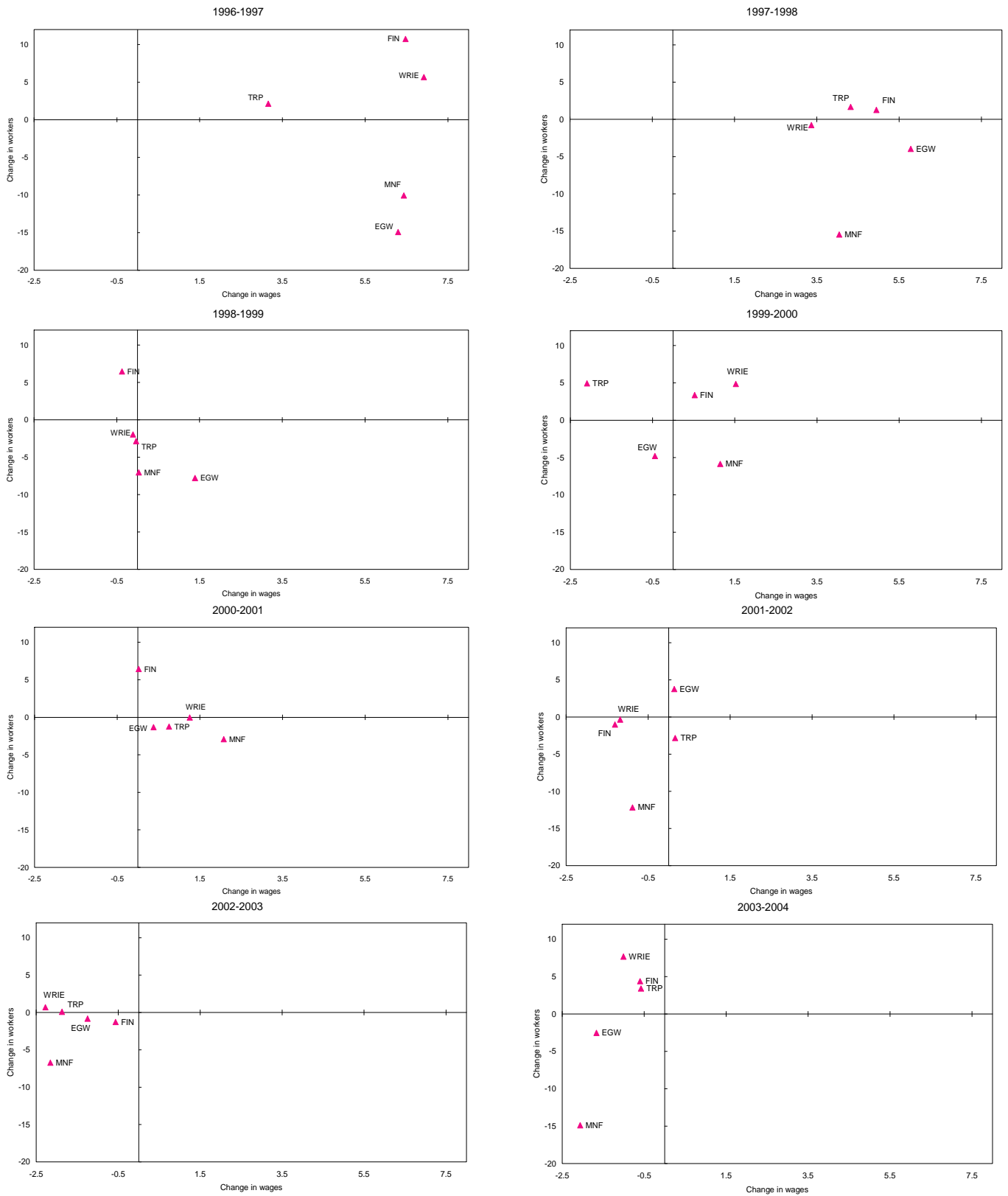


Chart 2: GDP growth versus unemployment rates



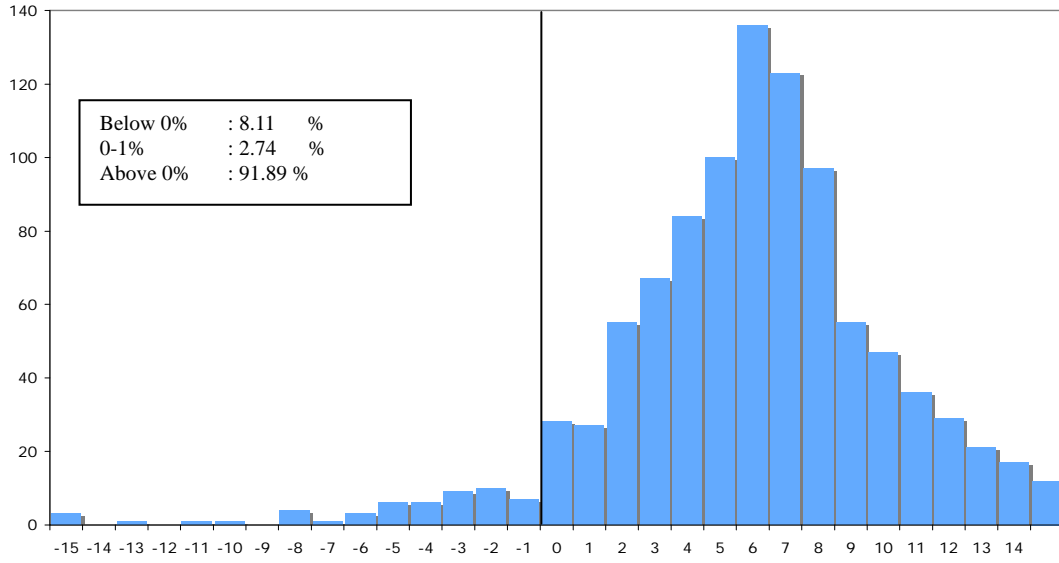
**Chart 3: Scatter plots of change in nominal wages versus change in workers**



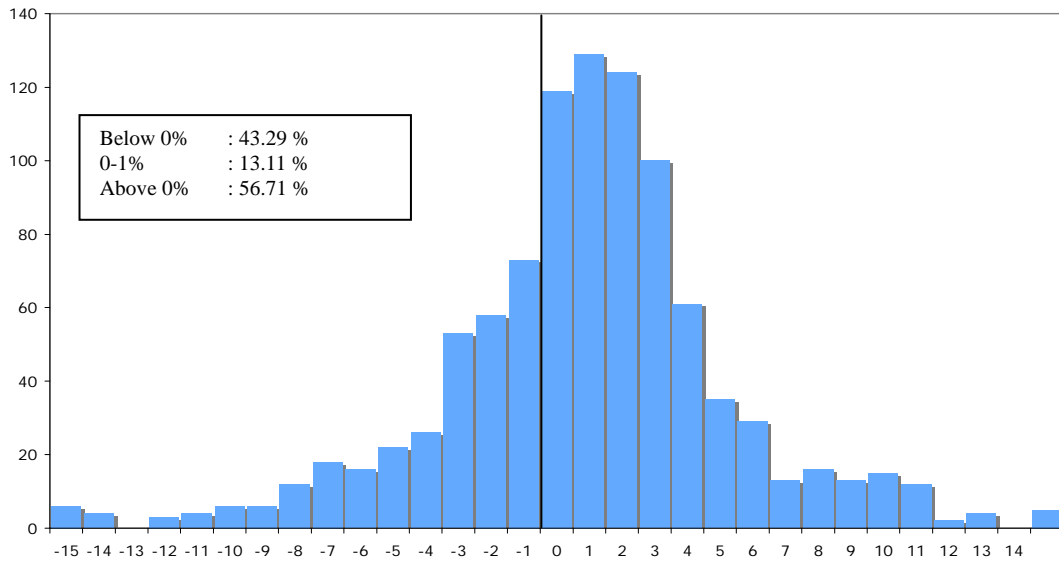
MNF: Manufacturing; EGW: Electricity, Gas & Water; WRIE: Wholesale, Retail, Import/Export; TRP: Transport; FIN: Financial and Business Services

### Chart 4: Histograms of Wage Changes in High and Low Inflation Years

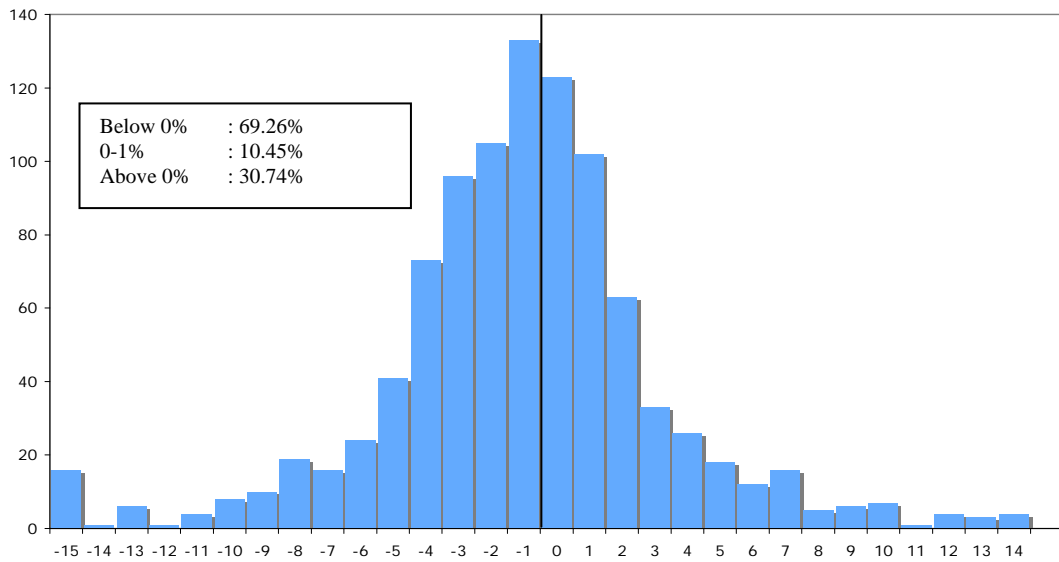
1996-1998 Unweighted Wage Change



1999-2001 Unweighted Wage Change

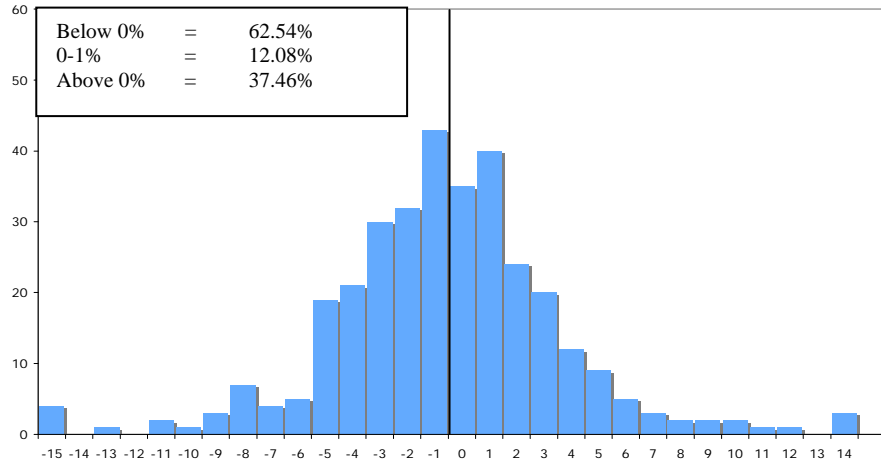


2002-2004 Unweighted Wage Change

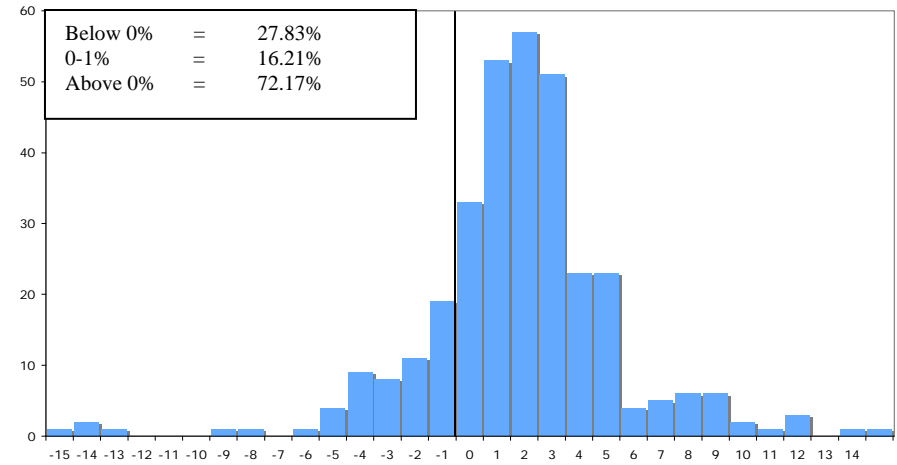


**Chart 5: Comparison between Weighted and Unweighted Histograms**

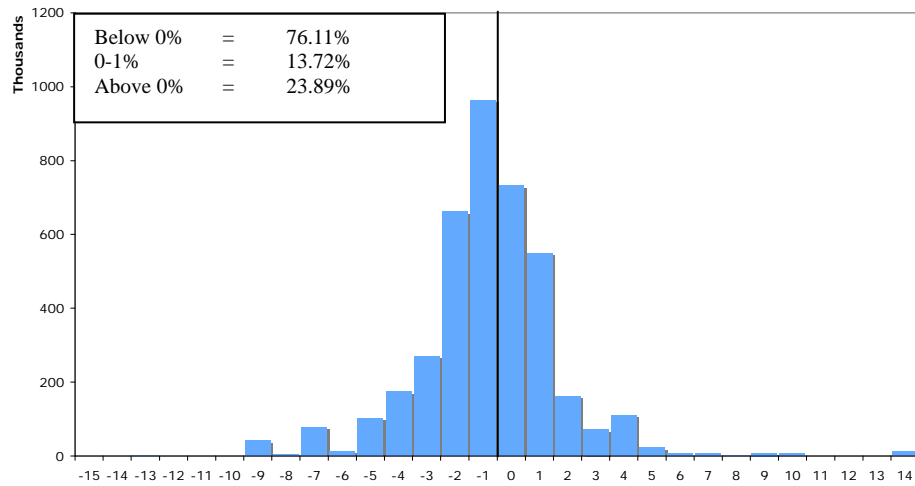
2001-2002 Unweighted Wage Change



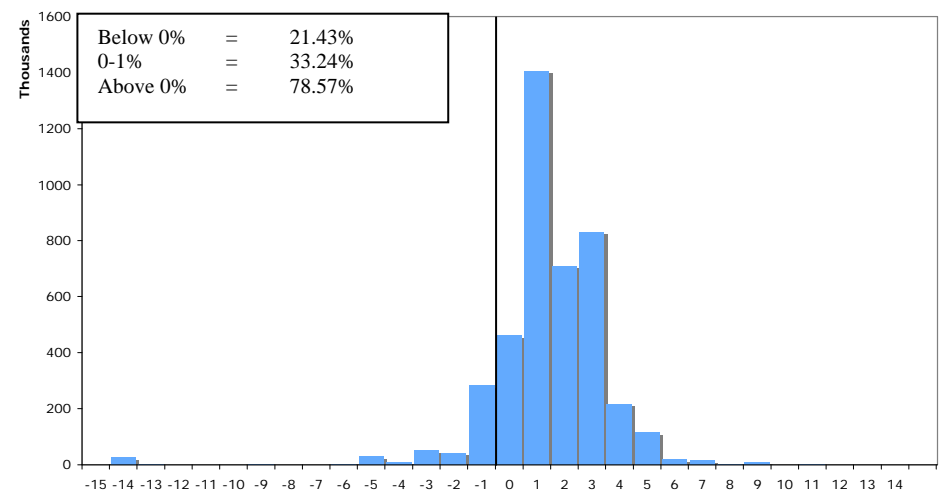
2005-2006 Unweighted Wage Change



2001-2002 Weighted Wage Change



2005-2006 Weighted Wage Change



**Table 1. Summary Statistics on Changes in Wages, Hong Kong**

Sample	Summary Statistics on Changes in Wages					Inflation
	# obs	Median	Std. dev.	% of obs		
				<0	=0	
Low-inflation years (1)	948	0.52	4.98	36.08	10.13	-3.10
Low-inflation years (2)	948	-1.42	5.58	62.66	7.60	-2.00
High-inflation years	948	5.72	4.69	10.13	2.53	4.99

Low-inflation years (1) are 1999, 2000, 2001.

Low-inflation years (2) are 2002, 2003, 2004.

High-inflation years are 1996, 1997, 1998



**Table 2: Nominal Wage Rigidity-- Hong Kong vs US**

Hong Kong							USA								
Sample	Summary Statistics on Changes in Wages						Inflation	Sample	Summary Statistics on Changes in Wages						Inflation
	# obs	Median	Std. dev.	% of obs		Inflation			# obs	Median	Std. dev.	% of obs		Inflation	
				<0	=0							<0	=0		
1996-2006	3476	1.12	5.81	42.41	15.82	0.24	1981-1998	92862	3.4	10.8	14.4	17.6	3.5		
1996	316	6.56	4.58	6.96	1.90	6.33	High infl. (1)	17247	6.9	9.7	8.7	10.6	7.34		
2006	316	1.40	3.84	27.22	17.41	2.02	Low infl. (2)	15917	2.1	10.2	17.6	22.2	3.15		

(1) High inflation years: 1981, 1982 and 1990, (2) Low inflation years: 1987, 1993 and 1995.