

SURVEY COVERAGE AND METHODOLOGY

OCCUPATIONAL WAGE SURVEY, 2009

Introduction

The *Occupational Wage Survey, 2009* was conducted by the Central Provident Fund (CPF) Board, on behalf of the Ministry of Manpower, from July to December 2009. The survey was conducted under Section 76 (1) of the CPF Act (1999 Edition) which empowers the Board to collect and compile statistics relating to employers and employees.

Objective

The survey was conducted to obtain wage statistics of common occupations.

Coverage

The survey covered only establishments in the private sector. A representative sample of private sector establishments with at least 25 employees, stratified by industry, was surveyed. The effective sample consisted of 3,225 private sector establishments, covering some 221,400 CPF contributors in full-time employment. The survey response rate was 91%.

Methodology

The survey was conducted through mail questionnaires. Employers were required to provide information on their employees' wages and job titles. Only employees who contribute CPF were covered.

Reference Period

The survey reference period was the month of June 2009.

Data Collected

Four types of monthly wage statistics were collected, namely commencing basic, commencing gross, basic and gross wages. Wages for the daily and hourly rated contributors were converted to their monthly equivalence using appropriate expansion factors.

The following types of contributors were excluded for the tabulation of monthly basic and gross wages :

- Apprentices/Trainees;
- Temporary workers;
- Part-time workers;
- Piece-rated workers; and
- Workers who worked part month in the month of June 2009

In addition, workers whose pay is based on commission were excluded for the tabulation of monthly basic wage. As for the tabulation of commencing basic and commencing gross wages, besides all of the abovementioned exclusions, managerial occupations which typically require experience are also excluded.

Wage data by gender and age were obtained by matching the survey data with CPF Board's administrative records.

Classification

The occupations of the CPF contributors and the industries of the surveyed establishments were classified according to the Singapore Standard Occupational Classification 2005 and Singapore Standard Industrial Classification 2005 respectively.

Analysis

The analysis of the data will be made principally using the median concept to lessen the "extreme scores" effect. The median is less sensitive to extreme scores than the mean, making it a better measure for highly skewed distributions such as wages which can be skewed by a relatively small number of higher earners at the top end of the distribution.

Statistical Notes

The following should be noted when using wage data obtained from the survey :

- Changes in occupational wage levels over time should be interpreted with care. The changes not only reflect wage increases paid to the workers but also the changes in composition within the occupational group. For instance, a large increase in new entrants into a particular occupation may depress the average wage level for that occupation. Data may also fluctuate year to year due to sampling variability.
- The occupations of the CPF contributors surveyed were based on the job titles provided by their employers. This may result in lower wage data for certain occupations, especially those requiring professional qualifications, when a significant number of contributors without the necessary qualifications (and earning less than their suitably qualified counterparts) were given such professional titles by their employers.
- The wage data compiled exclude bonuses and profit sharing. The wages for certain occupations, especially those where performance-based bonuses constitute a significant portion of total wage, would be lower than expected. Examples of such occupations are brokers, dealers and senior management staff.
- The occupational wage data presented are those of full-time employees only. This provides a more meaningful basis for comparison of wages across occupations.
- Wages are determined by a host of factors, including the scope, responsibilities, requirements and working conditions of the job; as well as the productivity, qualifications, experience and innate ability of the worker. The state of the labour market in terms of the demand and supply factors also influences the wages paid.
- The scope and job responsibilities of CPF contributors classified under the same occupation may vary widely across establishments, especially for occupations like managing director and the various types of managers.

Concepts and Definitions

- Establishment** : An establishment refers to an economic unit that produces goods or services at a single physical location and engages in one, or predominantly one type of economic activity. Thus, each branch of a multi-branch organisation at a different location is conceptually a different establishment. However, if in practice the required statistics are centrally kept such that it is not possible to obtain separate data for each individual unit or branch, the organisation or enterprise is treated as a single reporting unit and allowed to submit a consolidated return covering all the units or branches.
- CPF Contributor** : This refers to an employee who has made CPF contributions for the month of June.
- Monthly Commencing Basic Wage** : This refers to the basic wage paid to a new employee without any prior relevant working experience.
- Monthly Commencing Gross Wage** : This refers to the gross wage paid to a new employee without any prior relevant working experience.
- Monthly Basic Wage** : This refers to the basic pay before deductions of the employee's CPF contributions and personal income tax. It excludes employer's CPF contributions, bonuses, overtime payments, commissions, allowances (on shift, food, housing, transport etc.), service points (for employees in the hotel and catering business), other monetary payments and payments-in-kind.
- Monthly Gross Wage** : This refers is the sum of the basic wage, overtime payments, commissions, allowances, service points and other regular cash payments. However, it excludes employer's CPF contributions, bonuses, stock options, other lump sum payments and payments-in-kind.
- Mean Wage** : This refers to the sum of wages of all employees in a particular group divided by the group size.
- First Quartile Wage** : This refers to the wage at which one quarter of the employees earn below or at that amount.
- Median Wage** : This refers to the wage at which one half of the employees earn below or at that amount.
- Third Quartile Wage** : This refers to the wage at which three quarters of the employees earn below or at that amount.

Reliability of Data

In a sample survey, inferences about the target population are drawn from the data collected from the sample. Errors due to extension of the conclusions based on one sample to the entire population are known as sampling errors. The sampling error of an estimate is the difference between the estimated value obtained from a sample and the actual value from the population. Factors influencing the sampling error include the sample size, the sample design, method of estimation, the variability of the population and the characteristics studied.

The most common measure of the sampling error of an estimate is its standard error, which is a measure of the variation among the estimates derived from all possible samples. An alternative measure is the relative standard error of an estimate which indicates the standard error relative to the magnitude of the estimate. A sample estimate and an estimate of its standard error can be used to construct an interval that will, at specified levels of confidence, include the actual value. About 68, 95 and 99 per cent of estimates from all possible samples will fall within the interval defined by one, two or three standard errors respectively on either side of the estimate. By statistical convention, the confidence level has been set at 95 per cent.

Estimates of the sampling variability of the mean monthly gross wage of selected occupations are as follows:

	Estimate	Standard Error	Relative Standard Error	95% Confidence Interval	
				Lower	Upper
Operations Manager (Finance)	\$8,104	\$72	0.9%	\$7,960	\$8,248
Sales Manager	\$7,050	\$90	1.3%	\$6,870	\$7,230
Semi-Conductor Engineer	\$4,363	\$26	0.6%	\$4,311	\$4,415
Software Engineer	\$4,316	\$49	1.1%	\$4,219	\$4,414
Management Executive	\$3,102	\$17	0.6%	\$3,068	\$3,137
Bank Officer	\$3,545	\$24	0.7%	\$3,497	\$3,593
Office Clerk	\$1,847	\$10	0.5%	\$1,828	\$1,866
Customer Service Clerk	\$1,951	\$12	0.6%	\$1,928	\$1,975
Shop Sales Assistant	\$1,743	\$14	0.8%	\$1,715	\$1,770
Private Security Guard	\$1,438	\$8	0.6%	\$1,421	\$1,455
Machinery Mechanic	\$2,163	\$41	1.9%	\$2,081	\$2,244
Electrician	\$1,945	\$33	1.7%	\$1,880	\$2,011
Electronic Equipment/Component Assembler	\$1,415	\$11	0.8%	\$1,394	\$1,437
Lorry Driver	\$1,921	\$16	0.8%	\$1,889	\$1,952
Office Cleaner	\$809	\$6	0.7%	\$797	\$820
Manufacturing Labourer And Related Worker	\$1,116	\$19	1.7%	\$1,077	\$1,155