Measuring the gender pay gap

New Zealand Government

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Measuring the gender pay gap

This article discusses the gender pay gap in New Zealand and explores four questions:

- What is the gender pay gap?

- How do we measure pay?

- Which measure do we recommend?

- What does the gender pay gap look like in New Zealand?

Summary and recommendation

We consider that median hourly earnings from the New Zealand Income Survey (NZIS) is the best measure for calculating the gender pay gap.

We recommend this measure for three reasons.

- Hourly earnings measure pay for a fixed quantity of work.

- The median is a better measure of 'typical' pay than the average (mean).

- NZIS collects individuals' income from paid jobs, which allows us to build a picture of how pay is distributed across the population.

Using the NZIS measure, we find that in the June 2015 quarter the gender pay gap was 11.8 percent. This means that a typical male earned about 12 percent more for an hour's work than a typical female.

The gender pay gap has generally been decreasing since 1998, and has fluctuated in the last few years.

What is the gender pay gap?

The gender pay gap (or the gender wage gap) is a way to understand the differences in pay for males and females. It uses income received from jobs, rather than the total income available to males and females. Historically, the gender pay gap was used as a measure of fairness or pay equity – are males and females receiving a similar amount of money for doing the same job?

We present the gender pay gap as a percentage, which we calculate as:

$$\frac{\text{Pay for males} - \text{Pay for females}}{\text{Pay for males}} \times 100$$

That is: we subtract female pay from male pay, divide the result by male pay, then multiply by 100.

If males and females received exactly the same pay, the gender pay gap would be zero. If males received twice as much pay as females, the gender pay gap would be 50 percent.

How do we measure 'pay'?

The size of the gender pay gap depends not only on the amounts paid to males and females, but also on the way pay is measured. Internationally, there is no agreement on a standard way of measuring the gender pay gap, although there appears to be a strong preference for comparing hourly pay (see below).

However, there are differences depending on whether the (hourly) pay measured is:

- average or median pay

- full-time pay only, or full-time and part-time pay

- ordinary pay, or pay that includes overtime.

Why we prefer hourly pay

At Statistics NZ we have three main ways to measure pay: hourly pay, weekly pay, and annual pay. Each measure would give a different picture of the gender pay gap.

- Hourly pay is preferred because it measures pay for a fixed amount of work (one hour). It is not directly affected by how many hours a person works, or periods without pay.

- Weekly pay is affected by both the amount of pay received per hour, and the number of hours worked per week. If a person works part time, they have less pay than if they work full time. Weekly pay is less suitable for measuring pay equity because it reflects differences that are due to hours worked.

- Annual pay is even less suitable for measuring pay equity, because (along with hours worked) it is affected by periods out of work, and by unpaid leave. If a person stops paid work during the year, they receive less annual pay than if they had worked continuously.

If we want to understand the fairness of pay (do males and females get equal pay for equal work?) the hourly pay measure is the best. It allows us to compare male and female pay for a fixed amount of work (one hour).

In an ideal world, we would also match males and females on characteristics that influence pay, and see if there is any remaining difference. For example, we expect occupation and qualifications to affect pay. So we would compare the difference in pay for males and females within the same occupations, and holding the same qualifications.

However, we don't do this analysis because it isn't possible to control for all factors that influence pay (and we don't measure all factors). We are also limited by our surveys' sample size.

Why we use median pay

The size of the gender pay gap also depends on the measure used to represent 'typical' pay. The two most common measures are the average (mean) and the median.

We calculate average pay as the sum of all pay, divided by the number of people earning that total pay. That is, the amount of money given to each worker if we take all pay earned, and divide it up evenly among the workers.

Median pay is the middle amount of pay earned. That is, half the workers earn less and half earn more than the median amount.

Averages take into account the pay earned by every worker, whereas medians do not. This means that averages are more influenced by workers who have very low, or very high pay. For example, if we included a highly paid person in the calculation, average pay could increase significantly – even though no one got a pay rise. On the other hand, the median would be relatively unchanged if we included that worker.

Because medians are less influenced by high earners, they are usually a better measure of the pay a typical worker receives. So, to compare the pay of a typical male and a typical female, the median is a good choice.

In our surveys it can be hard to get enough good-quality information about people with high pay. And because averages are more affected by who is included in the data

collection, they fluctuate more than medians. For these reasons, we consider median pay estimates are more robust than average pay estimates.

How part-time and full-time work affects the gap

About one in three employed females work part time, compared with just over one in ten employed males. This influences the gender pay gap because, in general, part-time jobs are lower paid than full-time jobs.

It is not the act of working fewer hours that makes a part-time job lower paid – it is the types of work that offer (or don't offer) part-time hours. For example, it is unusual for someone to hold a part-time CEO position. Relatively lower-paying industries, such as retail trade or accommodation and food services, are characterised by large numbers of part-time workers.

We can measure a gender pay gap for either full-time or part-time workers separately. When we do this, we find that for full-time workers only, the gap is smaller but has a similar up-and-down pattern over time as the 'total' gender pay gap. For part-time workers, the gap reverses – women who work part time typically earn more (per hour) than men who work part time.

When we separate workers into full-time and part-time groups, we hope to remove the differences caused by the types of jobs that offer (or don't offer) part-time hours. However, splitting workers into full-time and part-time work can change the balance of other factors that affect pay, such as age. For example, females working part time are more likely to be older than males working part-time.

Overall, we recommend using the median hourly pay across all workers, rather than using full-time or part-time workers separately.

Data sources available for pay information

We have many sources of income data that could be used for calculating the gender pay gap:

- New Zealand Income Survey
- Quarterly Employment Survey (QES)
- Household Economic Survey
- Linked Employee-Employer Database
- Census of Population and Dwellings.

However, only the NZIS and the QES collect information about hourly pay, and only the NZIS produces a measure of median hourly pay.

The NZIS can calculate median pay because it collects pay information from individual workers. With this information, we see how pay is distributed among workers, and can find the middle pay amount. In contrast, the QES collects pay from businesses, and each business reports the total amount paid to male employees and the total amount paid to female employees. We can't calculate individual pay from the QES.

See User guide for wage and income measures for more information on the sources of income data.

Which measure do we recommend?

We recommend using male and female median hourly pay (as measured by the NZIS) when calculating the gender pay gap.

This is for the following reasons.

- Hourly pay is not influenced by the number of hours worked each week. It measures the amount of pay received (in dollars) for a fixed amount of work (an hour).

- The median is the better measure of 'typical' pay because it is less influenced by very high or very low earners. Averages calculated from surveys fluctuate more than medians.

- NZIS collects pay for individuals, which allows us to build a picture of how pay is distributed across the population.

See New Zealand Income Survey information release (table 10) for estimates of male and female median hourly earnings. We collect these estimates each June quarter and release them in early October.

What does the gender pay gap look like in New Zealand?

In the June 2015 quarter, median hourly pay for males was $24.07 and for females it was $21.23. The gender pay gap was 11.8 percent. This means that a typical male earned about 12 percent more for an hour's work than a typical female.

Gender pay gap
Calculated using median hourly earnings
June quarter 1998 - 2015
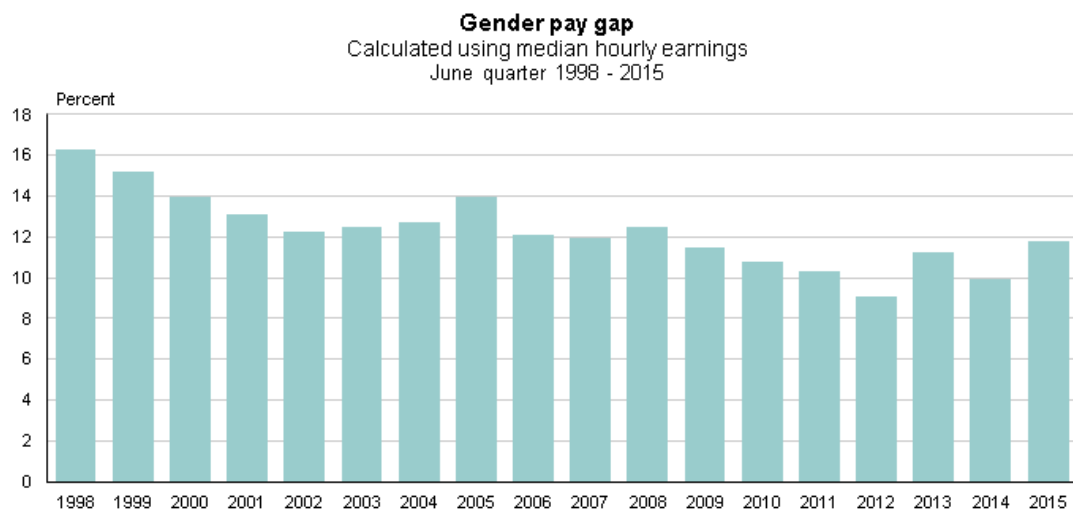
Source: Statistics New Zealand

The graph shows the gender pay gap has generally been decreasing since 1998, but has fluctuated in the last few years. Although it is difficult to say exactly what caused the decrease, the periods of strongest decrease (1998–2002 and 2008–12) are largely in line with periods of higher growth in median hourly pay for females than for males.

Overall, from the June 1998 to the June 2015 quarter the percentage increase in hourly pay for females was 76.0 percent, while for males it was 67.2 percent. In dollar terms, hourly pay for males and females increased by a similar amount ($9.67 and $9.17, respectively).