



# Income volatility

An unexpected decline in income relative to expenses tests the resilience of households as much as an unexpected bill. Unpredictable income also lessens resilience by reducing households' ability to plan and make long-term investments.

Income volatility is a growing area of international research, with many US studies finding that the share of households experiencing a fall in income year-to-year has increased markedly since the 1970s.<sup>1</sup> One study noted that for all the recent attention on income inequality, the instability of incomes had actually risen faster.<sup>2</sup>

To get an idea of the degree of volatility of New Zealanders incomes, we looked at the share of the population who fell two or more income deciles from one year to the next, between 2000 and 2014 based on Statistics New Zealand's Linked Employer-Employee Data (LEED) database.

As an example this would be someone in the top 10% of income earners one year whose income fell to somewhere in the bottom 80% in the second year, or someone in the fifth decile (between 40% and 50% points of the income distribution) who fell into the bottom three deciles (the lowest 30%).

LEED includes data on New Zealanders' income from wages, self-employment and most government transfers – including income-tested benefits, student allowances, paid parental leave, NZ superannuation, and ACC. It does not include income from investments, government transfers that are not taxable (such as childcare payments and disability allowances) or tax transfer payments by IRD or Work and Income New Zealand. As the data is based on tax information, we cannot account for undeclared income.

The reason for confining the analysis to drops of at least two deciles is to remove some of the 'noise' that we might see by including those who have dropped one decile. This group might include people who were just above the bottom limit for an income threshold in one year, and have fallen into a lower bracket in the following year due to a small drop in income, or by being overtaken by increases in the bottom limit for their previous bracket.

This approach means that we do not capture falls in income from the bottom 20% of income earners, who do not have two income deciles below them, but for whom any significant decrease in earnings would be a considerable shock proportional to their incomes. It also understates the volatility of income by not including absolute decreases in income that do not result in someone changing income brackets. For instance, someone at the top end of decile 5 could suffer a fall in income of \$5,000, but still remain in the same decile bracket.

Individuals who were classified as 'absent' in the data set (i.e., not recording any income at all) for either the current year, or previous year, for any of the year to year movements are not counted in this analysis. This therefore excludes people who have died, or left the country between one year and the next. However, it also means that we may not capture people who move from working to studying, but do not receive any income that is taxed. In practice, this is likely to be people that were earning an income in one year, and the following year receive only the living costs component of a student loan (not the student allowance or any other taxable income or benefit).

A notable limitation of this analysis, which is common to the international studies that we have looked at, is that we cannot distinguish between voluntary and involuntary reductions in income. This means that someone who decides to cut back to part-time work and spend more time at home, and who subsequently falls into an income bracket two or more below where they were, will show up in the statistics in the same way that someone who loses their job will. The volatility of males is higher than females at all ages, which suggests that this is not being overly influenced by females taking paid parental leave.<sup>3</sup>

Confining our analysis to New Zealanders between the ages of 20 and 64 avoids what would otherwise be a considerable bunching of the population around the level of New Zealand superannuation. As the data is focused on individual incomes, we also do not get a complete picture of changes for the household as a whole.

**Volatility higher for lower-middle income New Zealanders**

Figure 6 shows, unsurprisingly, that income follows the business cycle (peaking at 12.5% of deciles 3-10 experiencing a two or more decile drop in 2009). However even in relatively benign economic conditions close to 1 in 9 working age New Zealanders in this group will suffer a significant fall in income in any given year.

The highest levels of volatility are concentrated around deciles 4, 5 and 6 – those earning between approximately \$16,000 and \$37,000 in 2014 dollars. For this group, the chance of a two decile drop has largely been in the range of 15-17% - more like a one in six or one in seven chance.

Interestingly, the volatility of this group did not subside in the wake of the financial crisis in the same way that the general population has.

Instead, the chances of a fall in income deciles remained elevated from 2008 onwards for a much longer period.

As an example of what this might mean for a household in terms of income change, for someone earning \$17,660 (the midpoint income for the 4th decile) a two decile drop would represent a fall in income of \$7,820 to around \$9,840 (the decile 2 midpoint).<sup>4</sup> For decile 6, this would be a fall of \$12,775 (from \$30,435 to \$17,660). Of course, some of the people who we are looking at will have fallen more than two deciles; hence the actual loss would be much greater.

**What does this data mean?**

Downwards shifts between income deciles must by necessity correspond to upwards shifts by others in society. As income mobility is typically viewed as a sign of economic opportunity, we would often interpret greater movement over time as a positive thing.<sup>5</sup>

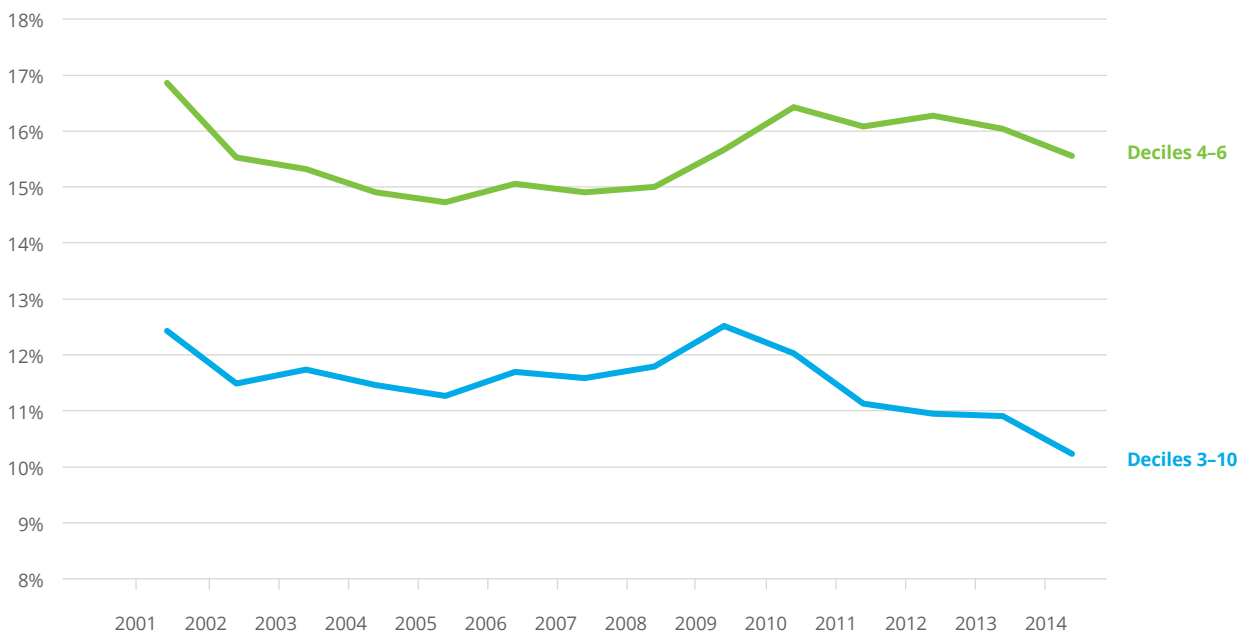
However, we should be careful to distinguish mobility from volatility. It is possible to have a greater degree of lifetime mobility of incomes while still having a lesser degree of year on year fluctuation.

It could be argued that individuals (and by extension, households) are to some degree compensated for the greater risk of downwards shifts by the corresponding chance of upward movement.<sup>6</sup> However, there is good reason not to view those chances as being equivalents.

Loss aversion means that people are more likely put greater value on avoiding the loss than on the benefit of a gain of the same value. And unquestionably, it is a lot easier to adjust household finances to an increase in income than a decrease, as many of our outgoings represent long term commitments (for instance, mortgages and rental accommodation, education costs, childcare).

**Figure 6: Income volatility in New Zealand**

New Zealanders (20-64 years) who fell two income deciles or more the following year, 2001-2014



\*Excluding bottom two income deciles, for whom a two-decile drop is not possible

# Endnotes

1. For a review of the existing literature, see Dynan, K et al, "The Evolution of Household Income Volatility", *B. E. Journal of Economic Analysis & Policy*, 12:2, 2012.
2. Hacker, J; "The New Economic Insecurity – And what can be done about it"; *Harvard Law and Policy Review*, 1, 2007.
3. Although males can claim paid parental leave as the primary carer, the evidence is that this is still overwhelmingly done by females. Crichton, S; "Work Patterns after Paid Parental Leave", Statistics New Zealand, 2008, 10.
4. All example figures are in 2014 dollars.
5. Barker, G; *Income Distribution in New Zealand*, Institute of Policy Studies, 1996, 7.
6. Thanks to Norman Gemmill for this point. For instance, one Treasury working paper found that in 2002/03, New Zealanders had an equal chance (6%) of their income increasing or decreasing \$20,000 or more in the following year. Carter, K, et al; "Income mobility in New Zealand: a descriptive analysis", New Zealand Treasury Working Paper 14/15, November 2014, 14

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