Persistent deprivation in New Zealand children—results from longitudinal survey data

Although household income is a common way to measure poverty, for both adults and children, the complexities around using income as a sole measure of poverty and the mismatch between income and deprivation measures has led to individual deprivation or living standard measures to be included as additional indicators of poverty.\(^1\)\(^-\)\(^3\)

Measures of individual deprivation or living standards are based on an individual’s own assessment of their access to resources, in response to questions evaluating forced economising (such as whether a person has been without fresh fruit and vegetables because of cost; put up with cold because of cost of heating; not visited the doctor or dentist because of cost) and/or enforced lack of items that most people would consider desirable (e.g. two pairs of shoes, a good bed).\(^1\)\(^,\)\(^4\)\(^,\)\(^5\)

Non-income measures of deprivation or poverty are useful because they can directly highlight how issues like costs of heating, doctor’s visits, food security, utility bills, unexpected expenses, etc, impact on people’s lives. In addition, there is only a 50% concordance between the lowest income quintile and lowest deprivation quintile in some comparisons of the two measures, meaning that deprivation indices are capturing different information about poverty than low income.\(^1\)

In New Zealand, the Ministry of Social Development developed the Economic Living Standards Index (ELSI) as a measure of deprivation and affluence. Using ELSI, higher levels of deprivation have been shown in Māori and Pacific people, children aged less than 17 years and those on income-tested benefits.\(^6\) However, these estimates are based on cross-sectional surveys and there is a lack of information in New Zealand on the exposure of children to prolonged or persistent periods of deprivation. This requires a longitudinal survey that follows children over time.

We make use of the New Zealand Survey of Family, Income and Employment (SoFIE), a longitudinal survey which has collected information from a representative sample of families in New Zealand, including individual deprivation at three time points. This is a summary from key results presented in a recently published working paper.\(^7\)

Methods

Survey data—This analysis uses 7 waves of data from SoFIE, which was an annual panel survey administered by Statistics New Zealand (SoFIE data waves 1-7 version two). SoFIE gathered detailed annual information through face-to-face interviews on income, household and family status, demographic factors and health status from over 18,000 individual sample members, including 4930 children who were eligible at wave 1, aged 0 to 17 years at wave 1 and who responded in all 7 years from 2002 to 2009.

The SoFIE-Health module was comprised of 20 minutes of questionnaire time in waves 3 (2004–05), 5 (2006–07) and 7 (2008–09), and included an individual-level
index of socioeconomic deprivation, the New Zealand Individual Deprivation Index (NZiDep). The individual child was the unit of observation for this analysis, so if there were two or more children in a household then their household income was represented two or more times in the analysis population.

Children aged less than 15 years were not asked specific survey questions, but demographic information (age, sex and ethnicity) on all children in the household was collected from the respondent in the household who answered the household questionnaire.

**Deprivation measure**—The NZiDep is a tool used for measuring deprivation for individuals and is a composite score based on eight simple questions, including whether the person in the last 12 months:

- had been forced to buy cheaper food, so that they could pay for other things needed
- had been unemployed for 4 or more weeks
- had put up with feeling cold, to save on heating costs
- had received help in the form of clothes or money from a community organisation had gone without fresh fruit and vegetables, so that they could pay for other things needed
- continued wearing shoes with holes in them, because they could not afford to replace them
- received an income tested benefit
- had made use of special food grants or food banks, because they did not have enough money for food.

We created a binary measure of whether an individual was living in deprivation based on a score of two or more reported measures of deprivation (and three or more, as a sensitivity analysis). For children aged less than 15 years, who did not report an individual score, we calculated an average NZiDep across adults within their household and applied this rounded average score to the children in the household.

The analysis does not control for clustering of multiple children in a household. We calculated the duration a child or household was in deprivation over waves 3, 5 and 7 by adding up the number of waves the child was classified as being in deprivation (range: 0 to 3, with 2 to 3 waves of deprivation being considered ‘persistent’ deprivation).

**Other variables**—Analyses were done for all children (0–17 years) and also by 0–4, 5–9 and 10–17 year age groups.

The age variable used was age at wave 1, therefore by wave 7 the children will have aged by 7 years (e.g. by wave 7, the group of children will be aged 6 to 23 years). However, it is important when using longitudinal data to follow the same cohort of individuals even as the age, in order to track their changes over time.

Other descriptive variables included sex, ethnicity (Māori, Pacific and Other, where ‘Other’ includes NZ European, Asian and Other ethnic groups), family structure and
area deprivation, based on New Zealand Index of Deprivation 2001, which assigns small geographic areas a ranking based on the average deprivation characteristics of people living there.\textsuperscript{10}

\textit{Caveats and cautions}—The numbers presented in the tables were rounded to base 5 due to Statistics New Zealand confidentiality protocols. Results were not weighted to the New Zealand population and relate only to the SoFIE survey balanced panel sample. No statistical tests for differences between groups or trends over time were conducted. Although the sample size of children for this analysis is moderate (over 4000), any proportions or percentages that were based on cell numbers of 10 or less are highlighted in bold in the tables, and these should be interpreted with caution.

\textbf{Results}

Table 1 presents the percentage of children who reported or were in households with deprivation at each of the three waves that deprivation information was collected (waves 3, 5 and 7). Two different thresholds for ‘deprivation’ are given—two or more items from the NZiDep and three or more items.

\begin{table}[h]
\centering
\caption{Percentage of the population in deprivation at each wave}
\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
\textbf{Characteristics} & \textbf{Total N} & \textbf{W3} & \textbf{Row \%} & \textbf{W5} & \textbf{Row \%} & \textbf{W7} & \textbf{Row \%} \\
\hline
\textbf{TWO or more items on the NZiDep} & & & & & & & \\
\hline
\textbf{Overall} & 4930 & 790 & 16.0 & 685 & 13.9 & 870 & 17.6 \\
\textbf{Age (years)} & & & & & & & \\
0 to 5 & 1355 & 290 & 21.4 & 260 & 19.2 & 305 & 22.5 \\
5 to 10 & 1535 & 285 & 18.6 & 245 & 16.0 & 235 & 15.3 \\
10 to 17 & 2040 & 215 & 10.5 & 185 & 9.1 & 330 & 16.2 \\
\textbf{Ethnicity} & & & & & & & \\
Māori & 1045 & 280 & 26.8 & 255 & 24.2 & 290 & 27.8 \\
Pacific & 295 & 75 & 25.4 & 65 & 22.0 & 80 & 27.1 \\
NZ European/Other & 3590 & 435 & 12.1 & 395 & 11.0 & 500 & 13.9 \\
\hline
\textbf{THREE or more items on the NZiDep} & & & & & & & \\
\hline
\textbf{Overall} & 4930 & 470 & 9.5 & 330 & 6.7 & 430 & 8.7 \\
\textbf{Age (years)} & & & & & & & \\
0 to 5 & 1355 & 175 & 12.9 & 145 & 10.7 & 170 & 12.5 \\
5 to 10 & 1535 & 180 & 11.7 & 110 & 7.2 & 130 & 8.5 \\
10 to 17 & 2040 & 115 & 5.6 & 75 & 3.7 & 135 & 6.6 \\
\textbf{Ethnicity} & & & & & & & \\
Māori & 1045 & 185 & 17.7 & 135 & 12.9 & 140 & 13.4 \\
Pacific & 295 & 45 & 15.3 & 30 & 10.2 & 40 & 13.6 \\
NZ European/Other & 3590 & 240 & 6.7 & 165 & 4.6 & 250 & 7.0 \\
\hline
\end{tabular}
\end{table}

Between 14 and 18\% of children were in deprivation using the threshold of two or more items on the NZiDep. This proportion was close to the child deprivation rates
seen when using the Economic Living Standards Index (19%) or a European Union index (18%) in New Zealand.\textsuperscript{6}

Using the threshold of three or more items on the NZiDep to define deprivation, overall rates of deprivation in children were around 7–10%. Around twice as many Māori and Pacific than NZ European/Other children were in deprivation at any of the 3 waves.

Table 2 shows the characteristics of children by the number of waves in deprivation (0 to 3), using the threshold of two or more items on the NZiDep, given that this threshold resulted in a cross sectional prevalence of deprivation similar to that found in other New Zealand surveys. Most of the children were in households without deprivation (72%) over the study period but 13% of children overall experienced persistent deprivation (2 to 3 waves in deprivation).

Some children were more likely to experience persistent deprivation—20% of children aged 0 to 4 years, 22% of Māori and Pacific children, 21% of those living in the most deprived neighbourhoods and a third of children living in sole parent families.

Table 2. Number of waves in deprivation (based on two or more items on the NZiDep)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td>Overall</td>
<td>4930</td>
<td>71.9</td>
<td>14.5</td>
<td>7.7</td>
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<tr>
<td>Age at wave 1 (years)</td>
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<td></td>
<td></td>
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<tr>
<td>0 to 4</td>
<td>1355</td>
<td>67.2</td>
<td>13.3</td>
<td>8.9</td>
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<tr>
<td>5 to 9</td>
<td>1535</td>
<td>72.3</td>
<td>12.4</td>
<td>8.5</td>
</tr>
<tr>
<td>10 to 17</td>
<td>2040</td>
<td>74.8</td>
<td>16.9</td>
<td>6.4</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Māori</td>
<td>1045</td>
<td>57.4</td>
<td>20.1</td>
<td>11.5</td>
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<tr>
<td>Pacific</td>
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<td>22.0</td>
<td>13.6</td>
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<tr>
<td>NZ European/Other</td>
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<td>77.3</td>
<td>12.4</td>
<td>6.3</td>
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<tr>
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<td>13.2</td>
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<td>79.1</td>
<td>12.0</td>
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<tr>
<td>Sole parent</td>
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<td>41.3</td>
<td>25.5</td>
<td>16.3</td>
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<tr>
<td>Not in a family nucleus</td>
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<td>62.5</td>
<td>25.0</td>
<td>12.5</td>
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<td>Area deprivation</td>
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<tr>
<td>NZDepQ1(least)</td>
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<td>85.5</td>
<td>9.2</td>
<td>2.3</td>
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<tr>
<td>NZDepQ2</td>
<td>900</td>
<td>80.6</td>
<td>11.1</td>
<td>5.0</td>
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<tr>
<td>NZDepQ3</td>
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<td>NZDepQ4</td>
<td>1105</td>
<td>64.7</td>
<td>17.6</td>
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<td>NZDepQ5(most)</td>
<td>1075</td>
<td>58.6</td>
<td>20.5</td>
<td>11.2</td>
</tr>
</tbody>
</table>

Cells highlighted in bold are based on small numbers and should be interpreted with caution.
Discussion

Longitudinal estimates of deprivation provide a deeper understanding of children’s experience of deprivation than cross-sectional estimates. One in five Māori and Pacific children, young children (0 to 4 years) and children from the most deprived neighbourhoods experienced persistent deprivation (2 to 3 waves). One third of children of sole parents experienced persistent deprivation.

The individual deprivation measure used in this analysis was not specific to children, unlike some measures that include questions such as having a separate bedroom for children of opposite sexes, being able to invite friends for birthday parties, being unable to pay for school trips, having a quiet place to study, having to limit involvement in sport, music or hobbies, etc.

The NZiDep has also not been calibrated against other deprivation measures with regards to children. However, it was the only measure of deprivation available in the SoFIE dataset. It would be useful, for the monitoring of children’s wellbeing over time, for future surveys to include a deprivation measure that has child-specific individual deprivation questions. The choice of threshold for deprivation appears to matter significantly when describing deprivation prevalence and dynamics (using NZiDep as a measure of deprivation in children).

Non-income measures of poverty are needed to compare New Zealand children’s living standards with other countries and to monitor trends over time. Without ongoing longitudinal data on children that includes deprivation measures, we will not be able to evaluate the impact of different government policies, as well as the effect of the global economic recession, on child deprivation and wellbeing or to able to assess any progress that is being made in reducing children’s exposure to persistent deprivation.

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References: