New Zealand

The Family and Whanau Wellbeing Project: Methodology

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Statistics New Zealand
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Presentation overview

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- Project background
  - Uses census data
- Data access and preparation
  - Variable comparability and non-response
  - Quality assessment outcomes
- Definitions of families and households in the census
  - Families in the census
  - Family and household types
- Building family-level indicators
  - Family-level variables (‘at least one’)
  - Family-level non-response (‘at least one is good enough’)
- Preliminary indicator results
- Conclusions

FWWP Background

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- Five year, FoRST funded programme
- Aims to examine and monitor social and economic determinants of family and whanau wellbeing 1981–2001
- Uses Census of Population and Dwellings to construct indicators of wellbeing
  - An indicator is a summary measure
- Primary units of interest are the family and the household

Published Reports

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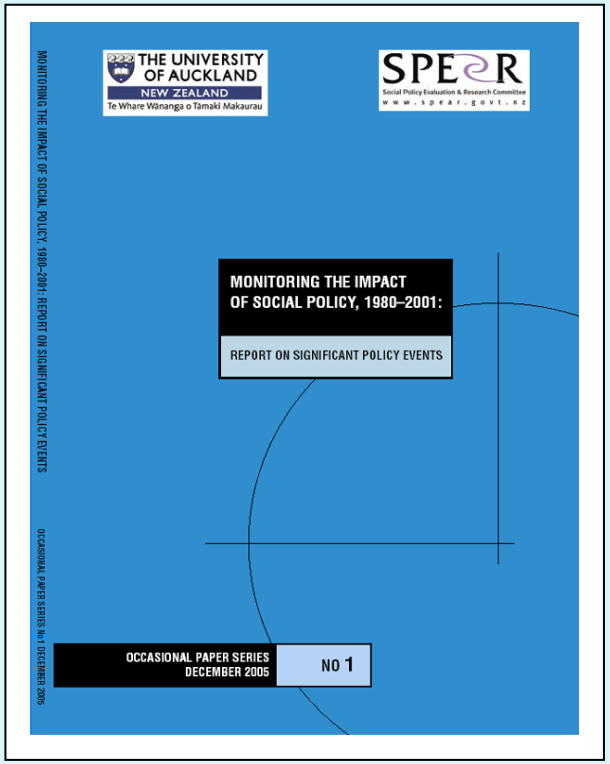
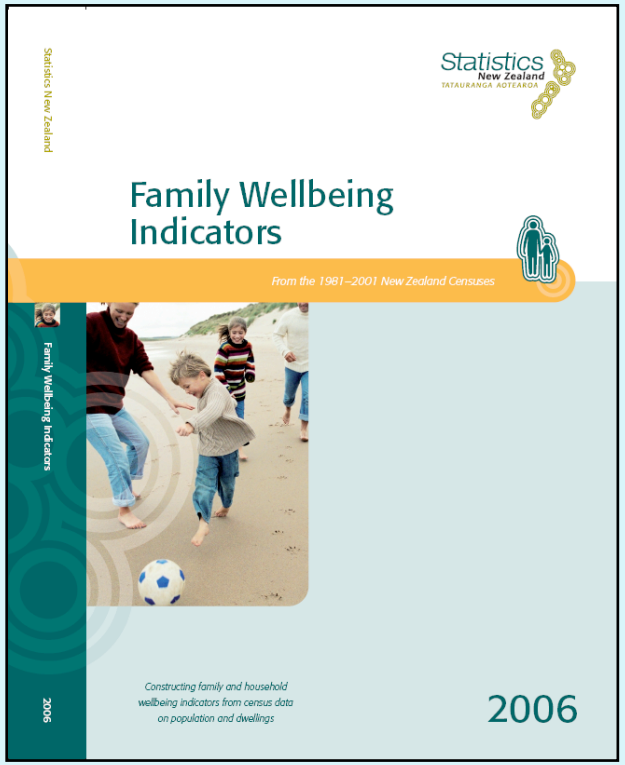


Monitoring the impact of social policy: Report on significant events
(McTaggart, 2005)
http://www.spear.govt.nz/publications



Family Wellbeing Indicators
(Milligan, Fabian, Coope, Errington, 2006)
http://www.snz.govt.nz/analytical-reports

Modelling Wellbeing using Census data

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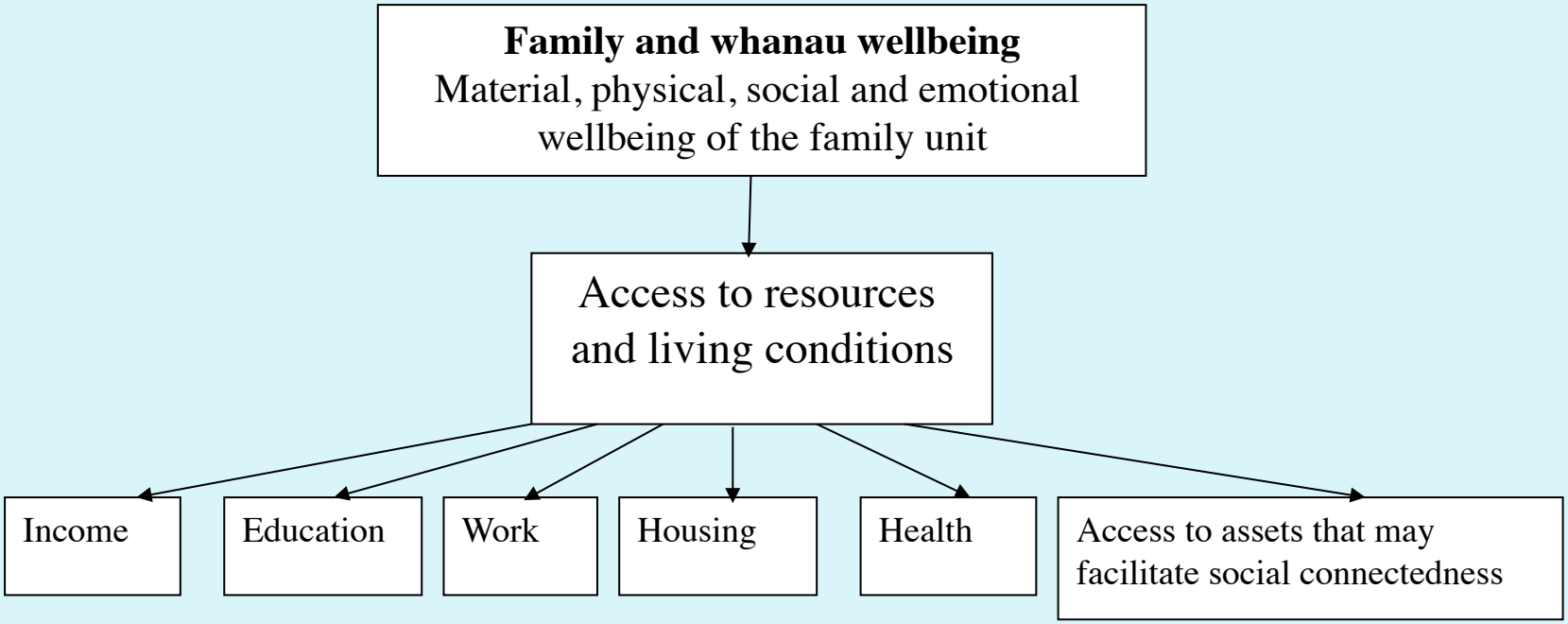
Family and whanau wellbeing model
(as operationalised for constructing indicators Census data)



Milligan et al. (2006, p.29)

Family Wellbeing Indicators

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Wellbeing Component	Indicator selected	Definition
Income	Equivalised family income	The median value of all equivalised family income
	Income source	The proportion of all families with one or more family member receiving any type of government transfer
	Proportion of families with low incomes	The proportion of all families whose equivalised gross family income is less than 60 percent of the median equivalised gross family income
	Income inequality	The X proportion of all families who earn Y percentage of the total income of all families
Education	Secondary educational attainment	The proportion of all families who have one or more family member(s) aged over 15 with any secondary qualifications
	Post-secondary educational attainment	The proportion of all families who have one or more family member(s) aged over 15 with any post-secondary qualifications
Work	Unemployment	The proportion of all families containing at least one family member who is unemployed
	Hours worked	The proportion of all families containing at least one family member who works more than 48 hours a week

Family Wellbeing Indicators

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Wellbeing Component	Indicator selected	Definition
Housing	Tenure	The proportion of households that live in owner-occupied dwellings
	Rental affordability	The proportion of all households in rented dwellings whose weekly rent is greater than 25 percent of their gross equivalised household income
	Dwelling type	The proportion of all households living in temporary private dwellings
	Fuels used to heat dwelling	The proportion of all households that have not used any form of fuel to heat their dwellings
	Crowding	The proportion of all households that require at least one additional bedroom to meet the sleeping needs of the household
Assets that facilitate social connectedness	Telephone access	The proportion of all households that have access to a telephone
	Internet access	The proportion of all households that have access to the Internet
	Motor vehicle access	The proportion of all households that have the private use of one or more motor vehicles
Health	Current cigarette smoking status	The proportion of all families that contain one or more member(s) aged 15 and over who smoke cigarettes regularly (i.e., one or more per day)

Data Access

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- Access to census records was obtained through SNZ DATA LABORATORY
- Allowed use of confidentialised unit record data
- Required working on-site (SNZ Auckland)
- Required application of confidentiality rules to all output taken from the Data Lab, as well as SNZ review of all published and presented outputs (Statistics Act, 1975)

Data Assessment Process

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- Indicator validity is dependent on the nature of source data
- Time-series analysis of 20 years of data from 5 censuses an ambitious task
- Required data dictionaries and detailed variable assessments
  - Sources already available
  - Existing resources enhanced, new ones created.
- Project team was advised by SNZ in this process
- Outlined in *Family Wellbeing Indicators* (Milligan et al., 2006)

Variable Comparability

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- Variable comparability is significant for time-series validity of indicators
- Eighteen different factors affecting variable comparability were identified
- Each variable used in the indicators was assessed using a comparability scale
  - (Milligan et al., 2006, p.46–50)

Variable Comparability

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SNZ variable comparability scale:

Level	Description
Totally comparable	No intercensal variation
Highly comparable	Very little intercensal variation. Any variations are likely to have only a minor impact upon data.
Broadly comparable	Some intercensal variation exists, although basic definitions of the variable are the same. Sometimes there may be differences in some of the classifications, or in the way a particular variable is derived.
Limited comparability	Enough intercensal variation exists (usually in definition, the concept being measured, or in variable derivations) that comparability of data is severely curtailed.

Variable Comparability

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Some common causes of reduced comparability between variables were:

- Changes in question wording/format or instructions,
  - e.g. school quals
- Changes in definitions or categories,
  - e.g. bedrooms
- *Remedy:*
  - Impact minimal
  - Aggregation/re-combining of categories

Variable Comparability

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Some more causes of reduced comparability between variables were:

- Changes in derivation: Some variables are derived from others,
  - e.g., 'family type'. Inter-censal changes in derivation rules significantly compromise comparability
- *Remedy:* Variables re-derived for affected years

- SNZ input procedures: SNZ imposed quality control procedures at input to varying degrees,
  - e.g., 1996 vs. 2001
- *Remedy:* Little can be done but usually affected 'not-stated' categories only

Respondent Non-response

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- Respondent non-response: some questions suffered higher rates of non-response than others,
  - e.g., personal income
- The following scale was used to assesses non-response:

Non-response rate	Interpretation
< 3.0%	low
3.0 – 4.9%	relatively low
5.0 – 6.9%	moderate
7.0 – 8.9%	relatively high
> 9.0%	high

Data Assessment Outcomes

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The data assessment exercise resulted in:

- Longitudinal analysis of census content, 1981–2001
- Summary of census variables available
- Comparability assessments for most census variables (in progress)
- Production of a census data 'guide'

- Development of comparable categories for use with the indicators,
  - e.g., qualification indicators.

Census Families

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- The census definition of family is limited to ‘nuclear’ families consisting of parents and children
- Parents need not be married or in an official union, nor biological parents of their ‘children’,
  - Aunts, grandparents, foster carers, etc., are coded as ‘parents’ if they are in a ‘parenting role’.
- Aunts, grandparents, etc., not in parenting roles are not coded as part of the family by census,
  - This practice is particularly at odds with concepts of the family in some cultures, notably Māori and Pacific Peoples.
- Families must be in the same household

Census Families

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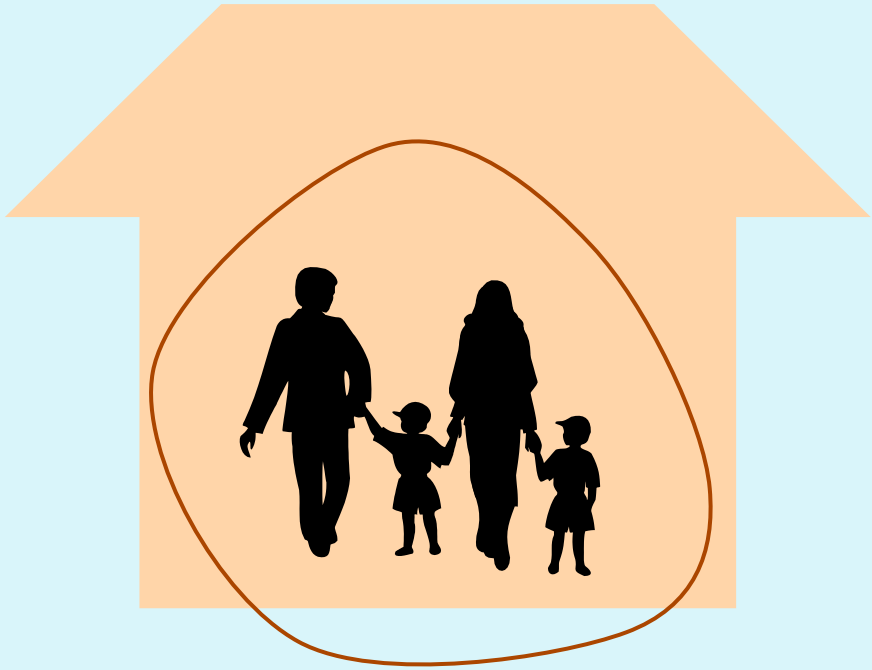
Defining indicators at the family level is limited by census definition:

can identify families in the same household



Census Families

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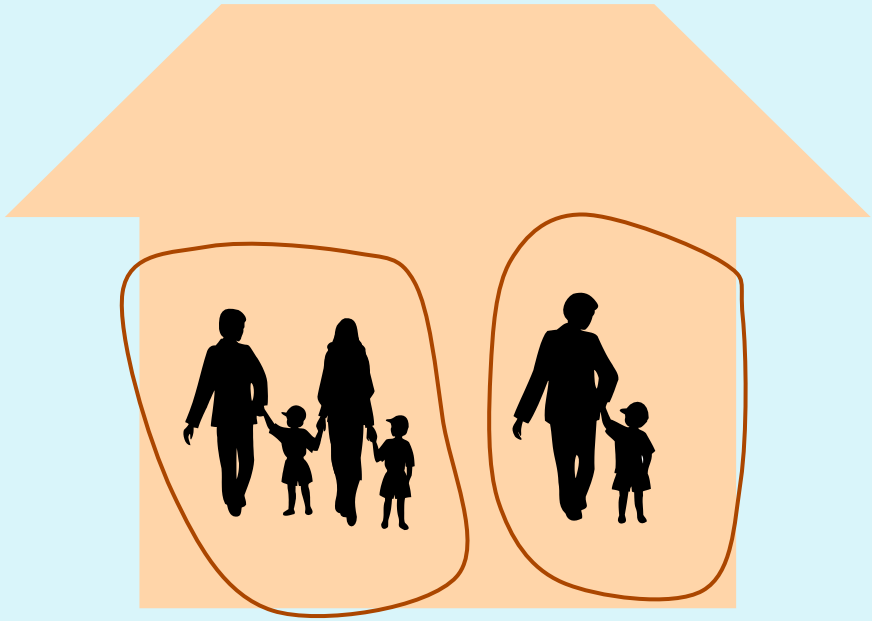
Defining indicators at the family level is limited by census definition:

can identify families in the multi-family households



Census Families

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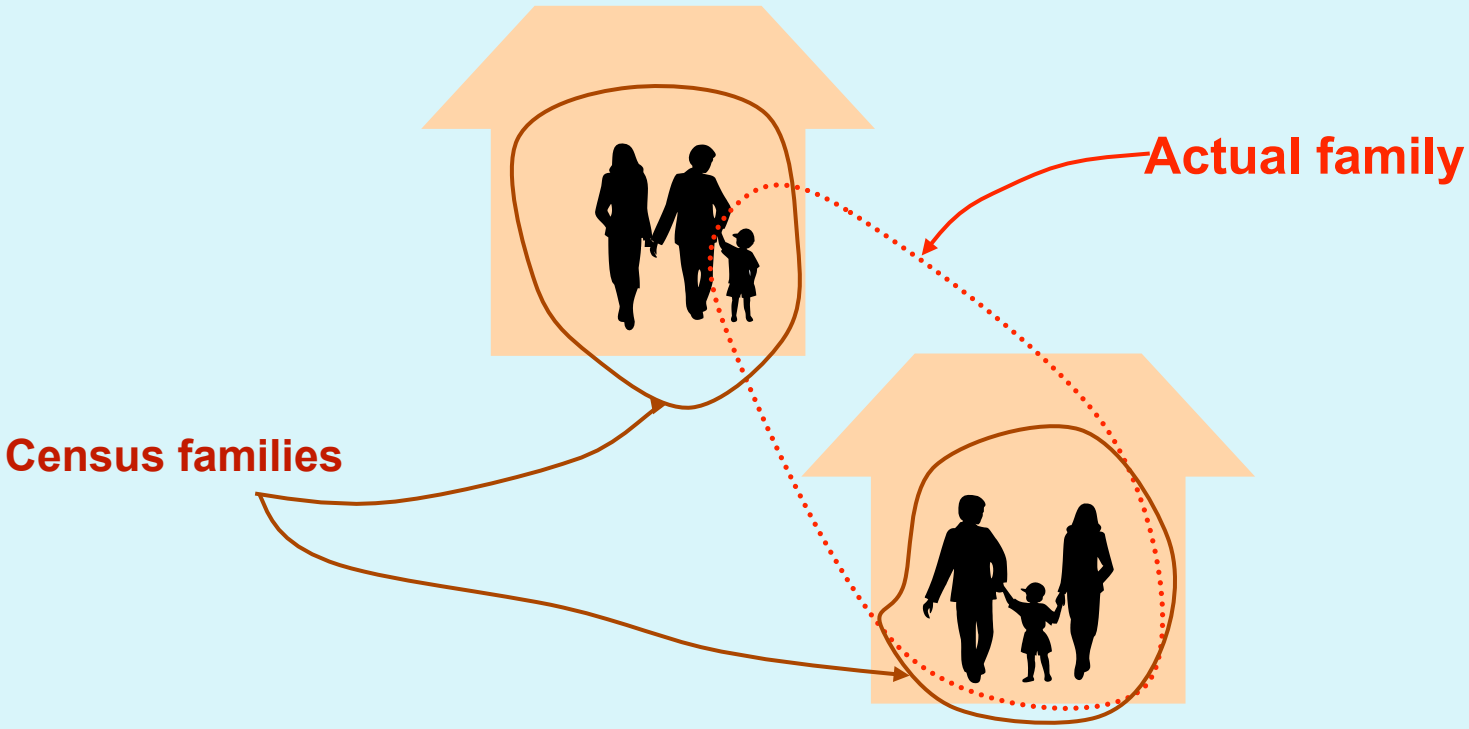
Defining indicators at the family level is limited by census definition:

cannot identify families which cross household boundaries



Multi-household Families

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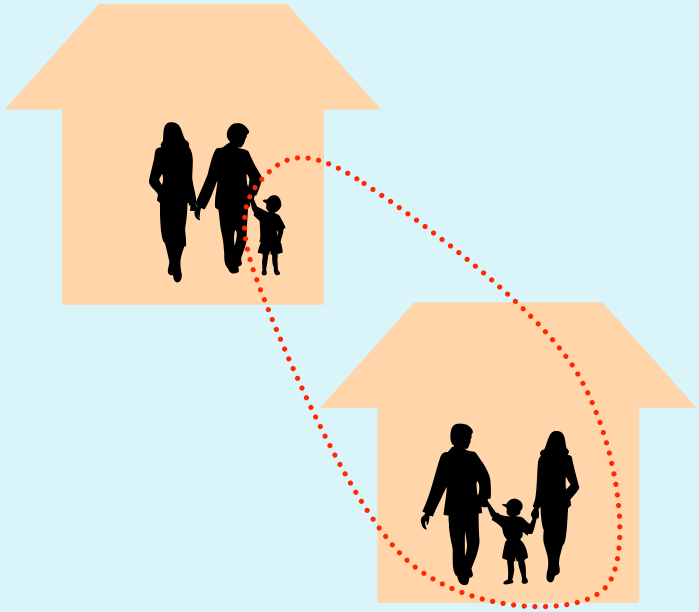
In particular, we cannot easily identify:

- Families where parents have dual custody
- Blended families
- Extended families



Family Roles

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- Within the census family definition, different types of family can be identified using family roles of members
- Each family member is classified according to their role within the family:
  - **parent:** includes anyone in a parenting role, such as aunts, grandparents, but limited to two per family,
  - **child:** anyone who lives in the same household as their parent and has no children of their own living in that household,
    - ***dependent child***
    - ***adult child***

Family Types

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Family types we can identify using census classifications:

Upper level family types	Lower level family types
Couple without children	Couple without children
Couple with children	Couple with dependent children only
	Couple with dependent and adult children
	Couple with adult children only
	Couple with children, dependency status not classifiable
One parent with children	One parent family with dependent children only
	One parent family with dependent and adult children
	One parent family with adult children only
	One parent family with children, dependency status not classifiable
	Family type not classifiable

Household Composition

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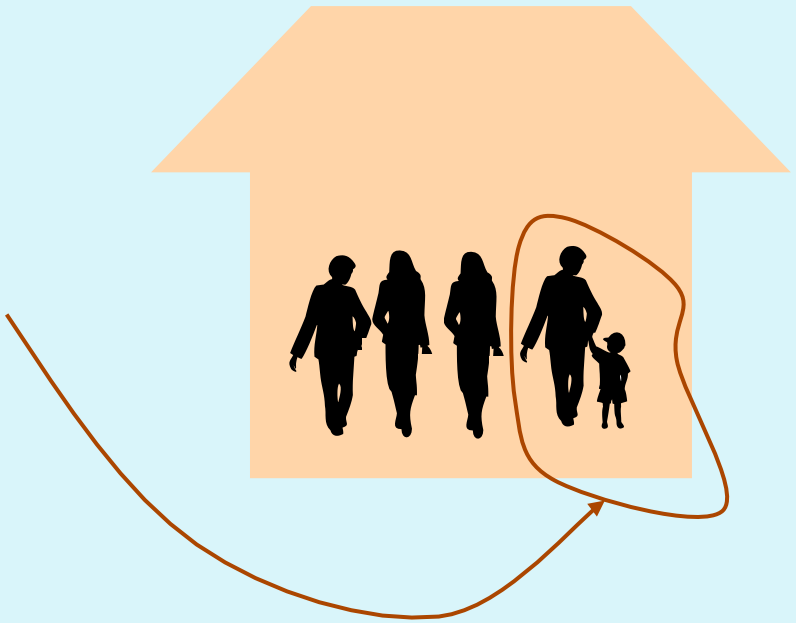
- Further information regarding family circumstances can be obtained from household composition
- This is particularly useful as it identifies families who live with others, e.g., one parent families living with other 'non-family' members
- Wellbeing of families living with others may be different from those living alone,
  - Milligan et al. (2006), p. 38



Individual- to Family-level Variables

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Creating family-level indicators requires family-level variables, but:

- Many of the variables required for the chosen wellbeing domains are individual-level: they pertain to individuals, not families
- Some can be aggregated easily, e.g., family income = sum of personal incomes
- Others cannot, e.g., education:
  - How can we define the education of a family?
  - Education of everyone?
  - Education of certain members?

‘At Least One’ Method

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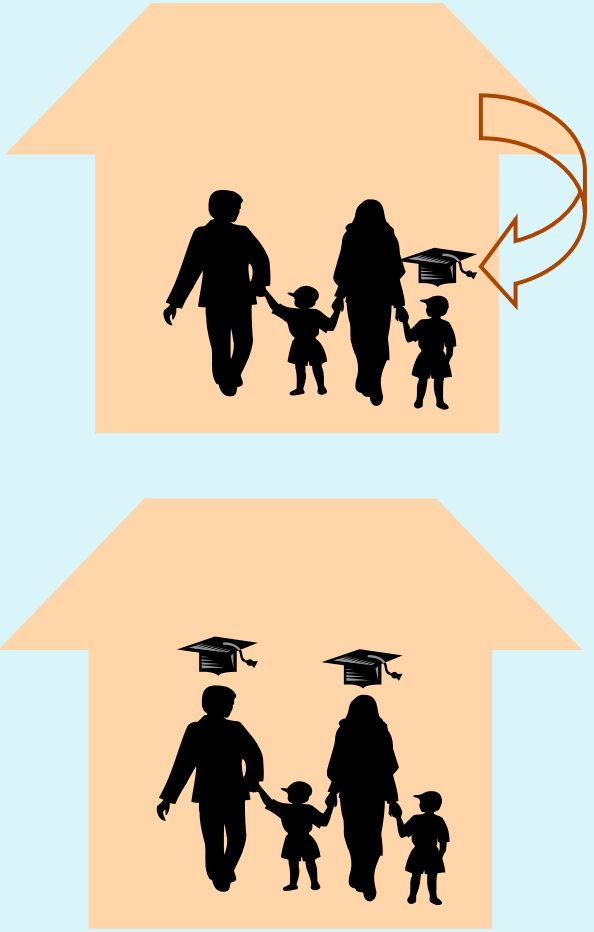
- The indicators use an ‘at least one’ method to ascribe individual characteristics to families, e.g., education:
  - If at least one family member has a post-school qualification, the family ‘has’ a post-school qualification
- This does not account for number of members with attribute, nor their family role



‘At Least One’ Method

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- Scope exists to refine this method:
  - Restriction to certain family members, e.g., look only at post-school qualifications of parents
  - Weighting, e.g., account for number of family members with a post-school qualification
- Different methods may be appropriate for different indicators; certain assumptions about distribution of responsibility and resources within families may have to be made

‘At Least One’ and Missing Values

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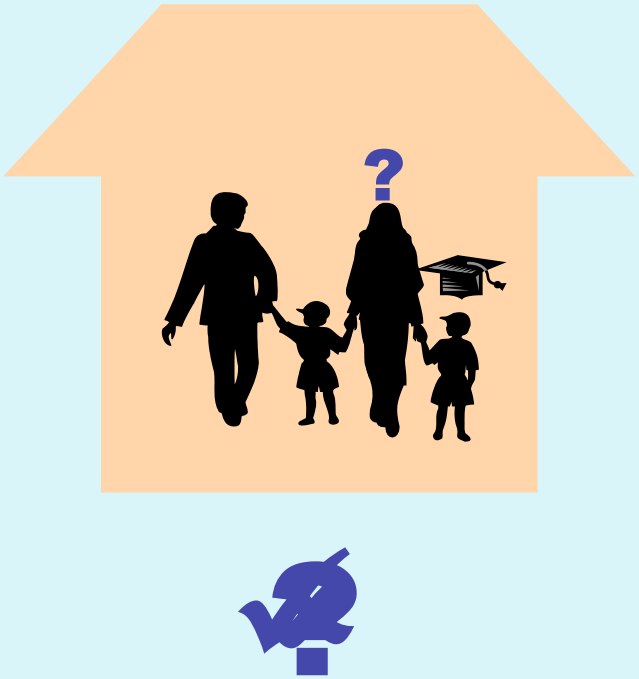
- Converting individual level variables to family level variables is complicated by the presence of missing values
- The ‘at least one’ method was extended to missing values:
  - If at least one family member has a characteristic, so does the family, regardless of others’ missing values
  - If no-one has the characteristic but there are missing values, the family has a missing value
  - Otherwise the family does not have the characteristic



Potential Biases

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- This method may not be optimal and could introduce bias to the indicators
- Imputation of missing values is an alternative but also requires assumptions
- Overall, we expected there to be little difference between the methods in terms of the end result
  - Indicators are highly aggregated: national level, broad family groups

Family-level Non-response

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- Most indicators are presented as percentages
- Baseline/Denominator population for each indicator is the set of all families which do not have a missing value for the given indicator
- The ratio of the denominator population to the total number of families/households can be used as a 'rate of response' at the family/household level for each indicator
- Using non-response scale, some indicators had high levels of non-response,
  - e.g., income, qualifications.

Household-level Variables

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- The remaining variables related to wellbeing domains are at the household-level, e.g., presence of a telephone or motor vehicle
- It is not possible to discern which household members own, or have access to, these resources
- Indicators based on these variables are defined at the household level; assumed that, in general, they will be shared at the household level,
  - This may be problematic for some, e.g., motor vehicles.

Preliminary Results: Family-level Indicators

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Year	Equivalised Income *Median (1999$)*	School Qual *%*	Post-school Qual *%*
2001	37,665	80.8	61.1
1996	35,000	76.7	60.4
1991	33,227	76.2	61.7
1986	34,718	69.7	55.7
1981	37,463	58.7	35.8

The results presented in this study are the work of the author, not Statistics New Zealand.

Preliminary Results: Household-level Indicators

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Year	Tenure %	Rental Affordability %	Motor Vehicles %
2001	67.8	50.1	89.9
1996	70.7	52.3	88.1
1991	73.8	40.8	87.6
1986	73.7	28.6	86.6
1981	71.3	25.7	85.8

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Conclusions

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- Time-series can be constructed from historical census data
- Limitations of census data:
  - Limited number of topics covered (e.g., health)
  - Inter-censal comparability imposes restrictions
  - Highly specific definition of ‘family’
  - Attribution of individual-level variables to families
- Advantages of census data:
  - Nevertheless provides information on a range of topics relevant to wellbeing
  - Unparalleled breadth of contextual information available
  - Long running, ability to assess change over time
  - Mandatory for all New Zealanders

Current and Future Research

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- Wellbeing for different ethnic groups and family types
- Feasibility of family-level cohort studies from census data
- Impact of social policy on family wellbeing as measured by indicators

Further Information

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