



Monitoring Socio-Demographic Risk

Cohort Analysis of Families from the Census



THE UNIVERSITY
OF AUCKLAND

NEW ZEALAND

Te Whare Wānanga o Tāmaki Makaurau

5th Wellington Colloquium
Statistics NZ, Conference Room
22 July 2011



Presentation Outline

- ▣ Summary
- ▣ Background and Methods
- ▣ Results
- ▣ Conclusion
 - ▣ Published – Social Indicators Research, 2011
 - ▣ Co-authors – Mervyl McPherson, Mark Wheldon, Martin von Randow
 - ▣ Funding – Foundation for Research, Science & Technology

Summary

- We apply cohort techniques to 4 measures of socio-demographic risk taken from the Census, 1981–2006
- We are able to track 10 cohorts of mothers focusing on the main child-rearing ages 20–59.
- We identify key age, period and cohort points of interest in a summary table
- The project demonstrates the potential of the Census to act as a social monitor using routine data collections

Percentage of families not living in owner-occupied dwellings, by age-group of mother and census year

Age-group of mother	Census Year						Age-group mean (across year)
	1981	1986	1991	1996	2001	2006	
20–24	60	58	58	67	71	75	64
25–29	36	37	37	47	53	61	44
30–34	26	25	26	33	39	46	32
35–39	21	20	20	25	30	38	26
40–44	20	18	17	20	25	32	22
45–49	19	17	16	17	21	27	20
50–54	18	16	15	16	19	23	18
55–59	17	15	14	16	18	21	17
Period mean (across age)	27	26	25	30	35	41	

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

Background and Methods

- ❑ New Zealand has been through a period of unprecedented social and economic change
- ❑ The Census provides routinely-collected data that can be exploited for monitoring, including cohort analysis
- ❑ We use the mother as the reference person in identifying our cohorts of families
- ❑ We adapt an existing measure of “socio-demographic risk” and find a UNICEF family social monitor

Socio-demographic Risk Factors for Family Wellbeing

Domain	Indicator name	Definition
Income	Household median equivalised income	Median real, gross equivalised family income. Equivalised income is gross income adjusted for family composition using the Revised Jensen Scale (Jensen, 1988) and expressed in 1999 dollars using the March quarter CPI (base 1999) for the relevant year (Statistics New Zealand, 2005)
Education	Parental educational level	The proportion of families where no parent present in the household has any formal educational qualification
Work	Parental paid work status	The proportion of families with no parent present in the household engaged in formal paid employment
Housing	Home ownership status	The proportion of families that do not live in owner-occupied dwellings

Summary of cohort groups analysed

Birth years	1981	1986	1991	1996	2001	2006
1932–1936	45–49	50–54	55–59			
1937–1941	40–44	45–49	50–54	55–59		
1942–1946	35–39	40–44	45–49	50–54	55–59	
1947–1951	30–34	35–39	40–44	45–49	50–54	55–59
1952–1956	25–29	30–34	35–39	40–44	45–49	50–54
1957–1961	20–24	25–29	30–34	35–39	40–44	45–49
1962–1966		20–24	25–29	30–34	35–39	40–44
1967–1971			20–24	25–29	30–34	35–39
1972–1976				20–24	25–29	30–34
1977–1981					20–24	25–29

- Four measures of socio-demographic risk
 - Household median income
 - Parental educational level
 - Parental paid work status
 - Home ownership status

- Three analytical approaches
 - Age and period effects
 - Cohort analysis

- Three summary tables
 - Age, period and cohort effects

Median Jensen-equivalised family income

Age-group of mother	1981	1986	1991	1996	2001	2006	Mean
20–24	38,779	34,984	30,965	30,986	29,382	35,557	33,892
25–29	34,725	32,891	33,107	36,253	39,049	41,983	35,884
30–34	34,567	31,522	31,396	33,625	37,684	42,865	35,134
35–39	37,337	34,984	34,391	34,567	37,394	42,095	36,838
40–44	43,823	41,450	40,497	40,820	40,873	45,106	42,131
45–49	48,462	45,717	44,550	46,459	49,395	50,511	47,792
50–54	46,652	43,702	39,945	44,614	50,416	54,725	47,490
55–59	40,549	38,238	31,041	35,927	40,873	48,865	40,093
Mean	39,779	37,026	35,637	37,908	41,261	45,991	

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

Median income, by birth cohort and age-group of mother

Shaded = low-income period effect in 1991.

Age-group of mother	Birth Cohort									
	1932– 1936	1937– 1941	1942– 1946	1947– 1951	1952– 1956	1957– 1961	1962– 1966	1967– 1971	1972– 1976	1977– 1981
20–24						38,779	34,984	30,965	30,986	29,382
25–29					34,725	32,891	33,107	36,253	39,049	41,983
30–34				34,567	31,522	31,396	33,625	37,684	42,865	
35–39			37,337	34,984	34,391	34,567	37,394	42,095		
40–44		43,823	41,450	40,497	40,820	40,873	45,106			
45–49	48,462	45,717	44,550	46,459	49,395	50,511				
50–54	43,702	39,945	44,614	50,416	54,725					
55–59	31,041	35,927	40,873	48,865						

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

Percentage of families without parental educational qualifications

Age-group of mother	1981	1986	1991	1996	2001	2006	Mean
20–24	26.5	24.9	25.6	26	16.8	15.3	23.3
25–29	24.9	21	21.3	25.8	13.7	12.1	20.4
30–34	33.1	22.3	21	24.7	16.2	10.7	21.3
35–39	39.9	29.6	22.4	24.7	16.4	13.7	23.3
40–44	45.7	34.8	29.6	26.8	17.3	14.7	26
45–49	52	38.1	34.5	34.2	19.4	15.7	29.5
50–54	58.4	42.3	38.1	40.5	27.3	18.2	34.9
55–59	63.7	45.8	43.2	45.9	33.6	26.1	41.2
Mean	40.3	30.4	27.7	29.8	19.4	15.7	

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

Percentage of families without parental paid work

Age-group of mother	1981	1986	1991	1996	2001	2006	Mean
20–24	11.2	17.2	30.2	26.8	27	21.8	21.7
25–29	9.6	12.4	23	20.1	18.8	16.6	16.7
30–34	8.6	10.5	19.3	17.6	15.9	13.2	14.4
35–39	7.9	8.4	15.5	15.1	14	12.1	12.5
40–44	7.4	8	12.6	12.3	11.9	11	10.9
45–49	9.1	9	13.4	11.4	10.6	9.7	10.6
50–54	15.3	15.6	20.3	16.1	12.5	10.4	14.5
55–59	31.6	33.6	40	30.1	22	15.1	27.3
Mean	11.9	13.3	20.4	17.6	15.4	12.9	

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

Percentage of families not living in owner-occupied dwellings

Age-group of mother	1981	1986	1991	1996	2001	2006	Mean
20–24	60.2	57.8	58.1	66.9	71.2	75.2	63.8
25–29	36.4	36.6	36.7	47.1	52.9	61.2	43.9
30–34	25.5	24.7	25.8	32.6	38.8	46.2	32
35–39	21.4	19.7	20.2	24.7	30.3	38.4	26
40–44	19.6	17.9	17.1	20	25	32.4	22.4
45–49	18.8	16.7	15.8	17.1	21.2	27	19.8
50–54	17.6	15.8	14.9	16.1	19.1	23.4	18.1
55–59	17.1	14.7	14.3	15.5	18.4	21.4	17.1
Mean	27.1	25.5	25.4	30	34.6	40.7	

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

Home ownership status, by birth cohort and age-group of mother

Shaded = period effect of a decline in home ownership since 1991.

Age-group of mother	Birth Cohort									
	1932–1936	1937–1941	1942–1946	1947–1951	1952–1956	1957–1961	1962–1966	1967–1971	1972–1976	1977–1981
20–24						60.2	57.8	58.1	66.9	71.2
25–29					36.4	36.6	36.7	47.1	52.9	61.2
30–34				25.5	24.7	25.8	32.6	38.8	46.2	
35–39			21.4	19.7	20.2	24.7	30.3	38.4		
40–44		19.6	17.9	17.1	20	25	32.4			
45–49	18.8	16.7	15.8	17.1	21.2	27				
50–54	15.8	14.9	16.1	19.1	23.4					
55–59	14.3	15.5	18.4	21.4						

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

Rankings of age-group outcomes by socio-demographic risk factor

Socio-demographic risk factor	Age-group of mother							
	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59
Household median income	8	6	7	5	3	1	2	4
Parental educational level	3	1	2	3	5	6	7	8
Parental paid work status	7	6	4	3	2	1	5	8
Home ownership status	8	7	6	5	4	3	2	1
Sum of Rankings	26	20	19	16	14	11	16	21

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

Rankings of period outcomes by socio-demographic risk factor

Socio-demographic risk factor	Census years					
	1981	1986	1991	1996	2001	2006
Household median income	3	5	6	4	2	1
Parental educational level	6	5	3	4	2	1
Parental paid work status	1	3	6	5	4	2
Home ownership status	3	2	1	4	5	6
Sum of Rankings	13	15	16	17	13	10

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

Summary of outcomes comparing three broad groups of cohorts

	Did best	Mixed – outcome varies by age-group	Did worst
Early cohorts (1932–46)	Home ownership	Median income Paid work	Education
Middle cohorts (1947–66)		Median income Paid work	
Recent cohorts (1967–81)	Median income (except 20–24) Education	Paid work	Home ownership

Conclusion

- ❑ Families headed by young mothers (20–24) are the most vulnerable on almost every measure
- ❑ The period mid-1980s to mid-1990s was one of the greatest “socio-demographic” risk
- ❑ Picture on generational profiles is mixed; “baby boomers” do not have unqualified advantage, for example
- ❑ The project demonstrates the potential of the Census to act as a family monitor using routine data collections