Attachment to Place in New Zealand[1]

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1. Introduction

Attachment to place plays an ambiguous role in social science and social policy. While stability dominates over much of the life course, it is population movement which receives most attention because of its association with often rapid changes in the structure of local populations. Although place attachment plays a fundamental role in understanding how and why people move, in New Zealand at least we do not know *who* is attached or *how* they are attached.

There are three motivating factors behind the extensive body of research that already exists on attachment to place. Firstly, attachment to the place is associated with subjective well-being. Secondly it is linked closely to community development. Thirdly, attachment to place tends to be inversely related to residential mobility. All three have potential public policy significance, most notably in the provision of local social services.

This paper investigates both the measurement and determinants of place attachment in the New Zealand context. I review the literature and then introduce the National Attachment Survey. In the main body of the paper I derive the dimensions of place attachment and then look at the association that individual characteristics and those of place have with these dimensions. The conclusion summarises the argument and the evidence.

2. Literature Review

The multi-disciplinary preoccupation with place attachment is voluminous but also extremely fragmented. There is little consensus around the definition, measure, or determinants of attachment. There is, similarly, no consistently used approach to the study of place attachment either theoretically or empirically.

This multi-paradigmatic and methodologically diverse nature of the research has been noted by a number of commentators including Hummon (1992), Theodori (2000), and Hidalgo and Hernandez (2001). As they observe, there is a proliferation of concepts and terms such as sense of place, community satisfaction, community sentiment, community ties, sentimental attachment, and place identity. Many of these terms overlap and are used interchangeably so that it is difficult to tell whether the same concept is being used (Hidalgo & Hernández, 2001). Not surprisingly several have argued that this terminological and conceptual confusion has blocked advances within the field; Giuliani and Feldman (1993) and Lalli (1992)

Despite the multiple definitions, place attachment is generally understood to refer to the affective bond or link between people and specific places. For example Shumaker and Taylor define attachment as "a positive affective bond or association between individuals and their residential environment" (1983, p. pg 233) whilst Low and Altman (1992) refers to place attachment as an individuals cognitive or emotional connection to a particular setting or milieu.

The devil however is in the detail and much of the debate centres around which dimensions and how many dimensions comprise attachment (Giuliani & Feldman, 1993).

There are many different ways individuals can be attached to an area Gerson *et al.,* (1977) and these ways are not always strongly related to each other. Not surprisingly therefore many studies have attempted to define their own dimensions of attachment (for example Cross, 2003; Gerson et al., 1977; Riger & Lavrakas, 1981; Ringel & Finkelstein, 1991).

Rather than trying to agree on a single meaning, it has become more common to use multiple indicators of attachment. Measures of individuals' feelings towards place, or the affective dimension, have dominated the analysis of place attachment, and measures of social interaction, social involvement, and satisfaction with the community are now in widespread use.

Nevertheless there is still no consensus as to how to measure attachment and no one set of indicators has been accepted as standard. Having said that, measures of attachment are usually presented in two categories: *attitudinal* and *behavioural* (Bolan, 1997; R. Sampson, 1988; Stinner, Van Loon, Chung, & Byun, 1990; Woldoff, 2002; Woolever, 1992). Attitudinal attachment is usually divided into reflects an individual's sentiments towards the area and evaluation of the area whereas behavioural attachment measures reflect an individual's involvement and interaction with the area; I examine in turn. Behavioural measures have been divided into formal involvement (involvement with the community, such as membership of local organisations) and social interaction with friends, relatives, and neighbours (Bolan, 1997; Landale & Guest, 1985; Woldoff, 2002) and

Attitudinal measures of attachment

Three main measures of sentimental attachment have been identified. First introduced by Kasarda and Janowitz (1974), they have since been adopted by numerous other researchers (Austin & Baba, 1990; Gerson et al., 1977; Goudy, 1982, 1990; Theodori & Luloff, 2000). The first of these measures identifies whether or not the respondent feels 'at home' in their community? The second asks the respondents, 'to what extent they are interested in knowing what is happening in their community'? The third, and most widely used, asks 'how sorry or pleased the respondent would be if they had to move away from their community'.

Other measures of sentimental attachment include how attached the individual feels towards the local neighbourhood (Ringel & Finkelstein, 1991), whether they feel like part of the community (Austin & Baba, 1990; Buttel, Martinson, & Wilkening, 1979; St. John, Austin, & Baba, 1986), whether there is a sense of community spirit (Robinson & Wilkinson, 1997), a sense of belonging (Woolever, 1992), and pride in the area (Mesch & Manor, 1998).

A number of studies have asked respondents to rate their satisfaction with a large variety of neighbourhood characteristics. Examples of these neighbourhood characteristics include employment opportunities (Filkins, Allen, & Cordes, 2000; McAuley & Nutty, 1982; G. E. Theodori, 2001), medical and healthcare (Parkes & Kearns, 2002; Whorton & Moore, 1984), and local education (G. E. Theodori, 2001; Wasserman, 1982; Whorton & Moore, 1984).

Behavioural measures of attachment

Behavioural measures can be divided into two categories: formal involvement and informal interaction. Examples of formal involvement include participation in local organisations (Beggs, Hurlbert, & Haines, 1996; Gerson et al., 1977; McAuley & Nutty, 1985; Robinson & Wilkinson, 1997; R. Sampson, 1988; Woolever, 1992), undertaking volunteer work (Cuba & Hummon, 1993) and knowledge of local government (Kang & Kwak, 2003).

Informal involvement with the community refers to an individual's social interaction with other individuals (such as family, friends, and neighbours) residing in the local area. Previous studies have often relied on local friendship ties as indicators of attachment and the majority of studies include some measure of local social networks. Community attachment, in a number of studies, is often measured just using social interaction variables (Brown, 1993; Goudy, 1990).

Local social involvement have proved to be the most consistent and significant source of sentimental ties to the community or neighbourhood (Gerson et al., 1977; Goudy, 1982, 1990; Kasarda & Janowitz, 1974; Landale & Guest, 1985; St. John et al., 1986). Gerson *et al.,* (1977) found that voluntary ties, such as neighbouring and local friends, are the most effective in promoting feelings of attachment. The number of friends an individual has in the local area has been shown to be the most important type of social bond influencing community sentiments (Kasarda & Janowitz, 1974). There are also strong associations between the interpersonal (social interactions) and sentiment and social relationships and the development of place attachment (Mesch & Manor, 1998).

In summary, although the literature on place attachment is fragmented it remains focused around the general definition of attachment as an affective bond or link between people and specific places. The *attitudinal* measures relate to the attitudes, feelings, and sentiments an individuals have towards their community as well as their satisfaction with the community. *Behavioural* measures, on the other hand, pick up the individual's social interaction and formal involvement with the community. No consensus exists, however, as to how these measures relate either to particular kinds of people or places.

3. Determinants of Place Attachment

Place attachment is modeled in this paper as a function of two primary drivers: the characteristics and behaviour of the individuals themselves (their age, sex, family characteristics etc.) and the characteristics of places they live in (conventionally size and type of settlement).

It is the characteristics of the individual which have dominated the research on attachment. These include length of residence, socio-demographic characteristics, economic characteristics, life course characteristics, and home ownership. Many studies have found length of residence to be one of the most important determinants of community attachment, including Austin and Baba (1990), Beggs *et al.,* (1996), Brown (1993), Goudy (1982; 1990), Kasarda and Janowitz (1974), Lalli (1992), Sampson (1988), St John *et al.,*

(1986), and Theodori (2001). There are interpretative problems with this variable however including its high colinearity with age of respondent. But more important is the direction of causation for stability can also be a reflection of positive attachment and modeling duration of residence simply as an independent variable can be problematic. For this reason length of residence is not included as one of the 'determinants' of attachment in the following analysis.

Socio-demographic characteristics have been included in the majority of studies on attachment to place (Gerson et al., 1977; Riger & Lavrakas, 1981). Those used to predict attachment include age (Buttel et al., 1979; Goudy, 1982, 1990; R. Sampson, 1988), sex (Beggs et al., 1996; Cuba & Hummon, 1993), ethnicity (Austin & Baba, 1990; Woldoff, 2002), religious status (Brehm, Eisenhauer, & Krannich, 2004; Stinner et al., 1990), and education (Armstrong & Taylor, 1985; Wasserman, 1982; Woolever, 1992).

Previous research has found that those with higher economic status engage in higher levels of social participation but that also carry higher expectations. Other socio-economic determinants include income (Armstrong & Taylor, 1985; Buttel et al., 1979), employment (Filkins et al., 2000; Gerson et al., 1977; R. Sampson, 1988), and housing tenure (Gerson et al., 1977; Speare, 1974).

The presence of children in the household leads to stronger attachment with the community and is an incentive for increased parental involvement in community events and associations (for example Bolan, 1997; Lee, 1994; Theodori & Luloff, 2000; and Woldoff, 2002).

A number of place related factors have also been correlated with place attachment. These include size of the settlement (Buttel et al., 1979; Wasserman, 1982; Woolever, 1992), housing (Friedmann & Woolff, 1982; Gerson et al., 1977; Parkes, Kearns, & Atkinson, 2002; Woolever, 1992), economic conditions (Beggs et al., 1996; Brown, 1993; R. Sampson, 1988), cultural factors (Armstrong & Taylor, 1985; Gerson et al., 1977; Wasserman, 1982), environmental factors (Friedmann & Woolff, 1982; Landale & Guest, 1985), neighbourhood conditions (R. Sampson, 1988; Taylor, 1996; Woldoff, 2002), and community infrastructure conditions (Kang & Kwak, 2003; Matei & Ball-Rokeach, 2001; Meyrowitz, 1986; Rothenbuhler, Mullen, DeLaurell, & Ryu, 1996).

With the above research in mind the following Attachment Survey was developed in order to better understand the nature of place attachment the New Zealand context.

4. The attachment survey

The National Attachment survey was designed by the project research team to obtain a broad national baseline of individual's attachment to their residential location. Telephone interviews were carried out under contract by National Research Bureau Ltd (NBR) in early 2005. A total of 1001 individuals above the age of 15 were selected at random using the national phone directories.[2] Stratification was done in proportion to the population within

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[2] An additional 91 individuals contacted by NBR opted out of taking part in the survey.

each regional council area in order to approximate the distribution of respondent's location throughout urban and rural New Zealand (see Figure 1).

Figure 1: The geographical spread of the respondents to the attachment survey
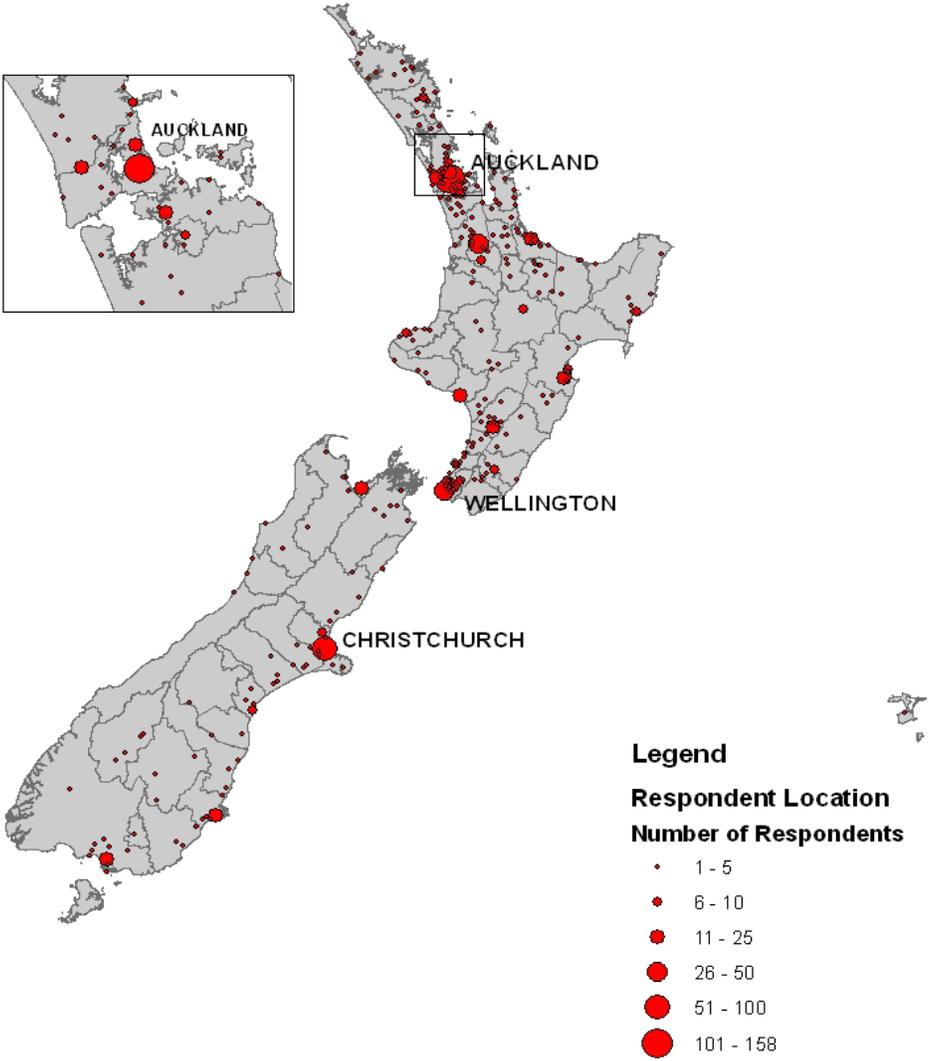
The Attachment Survey instrument included a range of 35 questions and took approximately 15 minutes to complete. One set of questions respondents attitudes to their community while the other set addressed their *behaviour* within the community. The Survey also collected characteristics of individual respondents allowing age, gender, ethnicity, employment, home ownership, household composition, and income to be included as arguments in a regression model of place attachment.

As is quite common in telephone surveys this data set has an over representation of older individuals and an under representation of young people, the latter having a range of reasons for not participating including temporary absence from the household; see Table 1. Approximately, a third of the sample (326 respondents) were over the age of 60 compared to only 21 percent nationally. Nine percent of the national population is between the ages of 15 and 19 while there is only 0.6 percent of the survey sample is within the same age group. Thus, while not biasing the estimates of individuals or place effects on attachment measures, overall level of attachment levels calculated from this survey will be biased upwards as a result of the greater proportion of older households.

Table 1: Age group breakdown for the 2001 Census distribution and the attachment survey sample

Age Group	2001 Census Pop	2001 Census Percent	Survey Pop	Survey Percentage
15-19 Years	265,281	9.18	6	0.6
20-29 Years	486,687	16.84	73	7.3
30-39 Years	576,738	19.96	157	15.7
40-49 Years	537,405	18.60	245	24.5
50-59 Years	418,431	14.48	193	19.3
60 Years and Over	604,995	20.94	326	32.6
Total	2,889,537	100	1000	100

The sample data set has an equal distribution of men and women and approximately 85 percent of respondents identify themselves as New Zealand European (compared with 75 percent nationally) but there is an under representation of New Zealand Māori. Approximately 30 percent of the respondents had dependent children living within their households, and nearly two thirds of the respondents were employed in full or part time work. A fifth (21 percent) of respondents earned less than $15,000 (although half of these were aged over 60) whilst 13 percent of respondents earn over $70,000. Finally, 80 percent of respondents owned there own home with or without a mortgage, slightly more than the census count of 2001.

5. Representing Attachment

As noted above, the literature identifies two distinct groups of attachment measures: *attitudinal* measures which relate to the sentiments and satisfaction individuals have towards their community as well as their satisfaction with the community, and *behavioural* measures which refer to the individual's social interaction and formal involvement with the community. The questions measuring attitudinal attachment are reproduced in Table 2. Responses to question one, 'feeling at home', were coded as either yes (1) or no (0). Question two, 'sorrow on leaving', was measured on a five point Likert scale ranging from

'very pleased to leave' to 'very sorry to leave'. The remaining 11 questions were measured on a five point Likert scale ranging from 'strongly agree' to 'strongly disagree'.

Table 2: Attitudinal Attachment Questions

Number	Question
1	Do you feel settled or "at home" in this area?
2	Suppose for some reason that you had to move away from the area, how would you feel?
3	I am interested in what goes on in this area
4	I would recommend this as a place to live
5	I feel safe here
6	I have the opportunity to have a real say on local issues that are important to me
7	People here would help me out in an emergency
8	There is a strong community spirit here
9	I would be prepared to help out with a community project.
10	Local leaders are doing a good job
11	I am satisfied with job and business opportunities for me here
12	I am satisfied with health services here
13	Education services are satisfactory here

The questions measuring behavioural attachment are shown in Table 3. The responses to the majority of these questions were coded either yes (1) or no (0). The four questions relating to the amount of interaction with friends and relatives (questions 18, 19, 21, and 22) were measured in using the four categories: '4 time or more', '1 to 3 times', 'did not visit or see friends/relatives', and 'no friends/relatives in the area'.

From the initial frequency distribution of the 25 attachment variables it was clear that New Zealanders as a whole felt very positively about their communities. Spread throughout the country, and over all age groups, the level of positive sentiment towards those living in the same area appears very strong. The majority (96 percent) felt settled or at home in their community and most were indeed interested in what was happening in their community (92 percent). Nearly three quarters (73 percent) of respondents said they would be sorry to leave the community while most were satisfied with job and business opportunities, fewer were satisfied with health and education services.

Table 3: Behavioural Attachment Questions

Number	Question
14	Do you belong to a community organisation, club or group in the area?
15	In the past year, did you give money to a community organisation, located or working in the area?
16	Are you involved in any local voluntary work in the area?
17	Do you have any friends who live in the area?
18	In the last month, how many times did you meet up with or visit with such friends?
19	In the last month, how many times did you talk on the phone or cellphone, text message or e-mail these friends?
20	Do you have relatives who live in the area?
21	In the last month, how many times did you meet up with or visit these relatives?
22	In the last month, how many times did you talk on the phone or cellphone, text message or e-mail these relatives?
23	Have you spoken with a neighbour in the last week?
24	In the last month, have you been to church in the area?
25	In the last month, have you been to a Marae in the area?

In terms of formal involvement, approximately half of all respondents belonged to a local organisation and 30 percent of respondents were actively involved in voluntary work in their local community. In terms of informal interaction, the majority (over 80 percent) had friends in the community and 40 percent of respondents had relatives living locally. Interaction with neighbours appears high at nearly 85 percent. Thus while levels of *formal* engagement through membership and participation was limited *informal* interaction appears relatively high and in line with much of the international evidence. With regards to the behavioural measures of attachment on the other hand, the results were a little more varied; informal interaction is relatively high, especially with regards to local friendship whilst the importance of formal interaction appears to be much lower. With these 25 dimensions of attachment in place I turn now to ways of reducing them to a smaller succinct set while still retaining the underlying dimensions they reflect.

Reducing the dimensionality of attachment

Three main methods have been used to generate summary measures of attachment. In several studies all of the individual measures of attachment were used (Austin & Baba, 1990; Brown, 1993; Goudy, 1990; Kasarda & Janowitz, 1974; Mesch & Manor, 1998; R. Sampson, 1988; Stinner et al., 1990; Theodori & Luloff, 2000; G. E. Theodori, 2001). In others, individual variables were combined to form a single scale of attachment (for example Buttel et al., 1979; Crenshaw & St. John, 1989; Goudy, 1982; Liu & Zhang, 1999; Woolever, 1992).

A third approach has been to apply factor analysis to responses to the attachment question in an order to identify a smaller set of dimensions (for example Armstrong & Taylor, 1985; Austin & Baba, 1990; Beggs et al., 1996; Brehm et al., 2004; Landale & Guest, 1985; Riger & Lavrakas, 1981; Wasserman, 1982; Woldoff, 2002). This is the approach I adopt below.

The first step involved generating the inter-correlation matrix. High correlations showed up particularly among the social interaction variables. Those three measuring measuring friendships networks for example are approximately 0.8, while the correlations between the three variables measuring family networks are very close to one, approximately 0.97. As a result two variables relating to friends and relatives living in the area were removed from the analysis. This reduced the number of variables from 25 to 23.

Principal component factor analysis was applied in order to reduce the 23 indicators to a smaller set that still captured the essential variation present in the original measures. Table 4 shows the total variance explained by the factor analysis solution. On the basis of Cattell's Scree Plot (Figure 2) (Cattell, 1966), five factors were retained covering approximately 46 percent of the common variance.

Table 4: Total variance of the 23 variables explained by the factor analysis

Factor	Eigenvalue[3]	Difference	Proportion	Cumulative
1	3.804	1.477	0.165	0.165
2	2.327	0.611	0.101	0.267
3	1.716	0.219	0.075	0.341
4	1.497	0.260	0.065	0.406
5	1.237	0.089	0.054	0.460
6	1.148	0.016	0.050	0.510
7	1.132	0.163	0.049	0.559
8	0.969	0.008	0.042	0.601
9	0.962	0.045	0.042	0.643
10	0.917	0.022	0.040	0.683
11	0.895	0.095	0.039	0.722
12	0.799	0.062	0.035	0.757
13	0.737	0.022	0.032	0.789
14	0.715	0.044	0.031	0.820

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[3] *Eigenvalues* are the characteristic roots of principal components analysis. There is one eigenvalue for each dimension and they describe the amount of the variance that a given factor explains. Eigenvalues reflect the relative importance of the dimensions. The first dimension always explains the most variance and has the largest eigenvalue, the next the second-most, and so on

15	0.671	0.020	0.029	0.849
16	0.652	0.055	0.028	0.877
17	0.597	0.044	0.026	0.903
18	0.553	0.010	0.024	0.927
19	0.543	0.030	0.024	0.951
20	0.513	0.074	0.022	0.973
21	0.439	0.288	0.019	0.992
22	0.151	0.123	0.007	0.999
23	0.028	.	0.001	1.000

Figure 2 Cattell's cree plot for the factor analysis of the 23 attachment variables
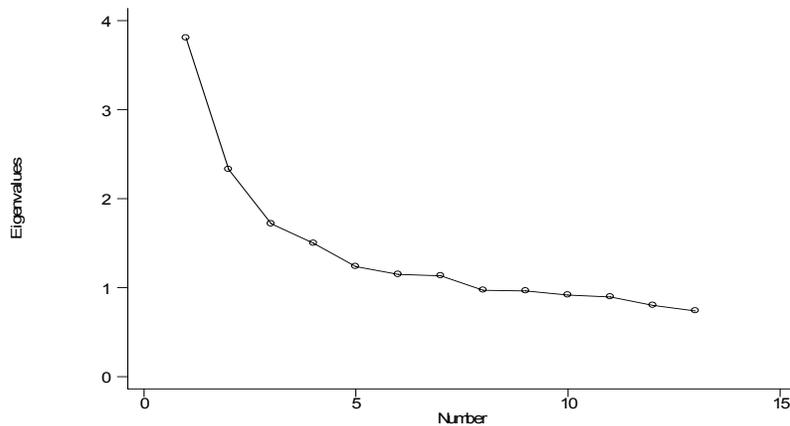
Factor loadings indicate the strength of the correlation between each of the five factors and the 23 variables. Due to the lack of interpretability and ambiguous nature of the initial factor loadings derived, a varimax rotation was applied to the data a step which simplifies the interpretation by reducing the number of variables that have high loadings on each factor. The results are shown in Table 5. Interpretation of each of the dimensions focuses on the loadings themselves. The variables that are of importance to each factor are those that have a high correlation value (and are shaded in Table 5).

Table 5: Rotated varimax factor loadings for the five factors of the 23 attachment variables

Variable	1	2	3	4	5
SettledHome	0.129	0.072	-0.019	0.099	-0.010
InterestOn	0.424	0.076	-0.027	0.223	0.007
FeelMoveAway	0.338	0.120	0.042	0.104	0.038
PlaceLive	0.544	0.019	-0.003	-0.013	0.133
FeelSafe	0.647	-0.012	-0.026	-0.011	0.198
SayLocalIssues	0.304	0.023	-0.052	0.128	0.671
HelpEmerg	0.697	0.177	0.012	0.041	0.039
CommSpirit	0.680	0.156	0.017	0.048	0.180
CommProject	0.358	0.038	-0.013	0.242	0.090
LocalLeaders	0.268	0.022	0.012	0.009	0.726
SatJobBusOpp	0.148	-0.125	0.021	-0.121	0.116
SatHealthServ	-0.254	0.053	0.005	-0.051	0.540
EducationSat	-0.066	-0.018	-0.017	-0.006	0.433
BelongClub	0.071	0.194	0.033	0.738	0.016
ContribMoney	0.073	0.090	0.072	0.613	-0.013
VoluntaryWk	0.074	0.130	-0.023	0.641	-0.039
VisitFriends	0.070	0.927	0.079	0.073	0.012
TalkFriends	0.058	0.932	0.099	0.095	0.022
VisitRelative	-0.005	0.075	0.986	0.025	-0.003
TalkRelative	0.004	0.073	0.987	0.026	-0.008
TalkNeighbor	0.078	0.334	-0.025	-0.015	-0.113
ChurchMonth	-0.116	0.018	0.127	0.593	0.220
MaraeMonth	-0.065	0.012	0.031	0.084	0.004

Using the highest loadings on each factor I labeled them as follows:

1. Sentiments - Feelings about the community
2. Friends - Intensity of interaction with friends in the area
3. Relatives - Intensity of interaction with relatives in the area
4. Participation - Involvement in the community including with the Church
5. Satisfaction - Satisfaction with local services and local community issues

These five separate dimensions each constituted a *dependent* variable for regression on possible individual and place determinants. In preparation for this regression I tested for normality within each of the five dimensions. Two graphs were developed and analysed. The univariate graphs showed that the sentiments, participation, and satisfaction dimensions were approximately normally distributed and linear regression was subsequently applied.

The friends and relatives dimensions, however, were both bi-modal. Hence, they were more appropriately represented as binary variables in a logistic regression. The first binary resulted from the question, "do you have friends who live in the area?" (Yes/No) and the second was, "do you have relatives who live in the area?"

6. Accounting for Dimensions of Attachment

A wide range of possible factors influence an individual's level of attachment to place and include the attributes of the respondents themselves as well as their community. In this New Zealand survey respondents indicated whether they lived in a city, town, or rural area and, if they lived in a city, they were asked the name of their suburb. These areas were then assigned to one of seven classifications from the urban and rural profile of New Zealand, Table 6.[4] Urban areas were defined either as main urban areas, satellite urban communities, or independent urban communities according to the Statistics New Zealand classification. Main urban areas represent the areas that are most urbanised in New Zealand and have a minimum population of 30,000 people. Satellite urban communities represent areas that have strong and significant links to the main urban centres. Finally, independent urban communities represent towns that do not have any significant link or dependence on a main urban centre. Rural areas, in turn, are divided into four categories: rural areas with high urban influence, rural areas with moderate urban influence, rural areas with low urban influence, and highly rural/remote areas.

Table 6: Urban and rural classification of respondents' residential locations

Urban Rural Classification	Freq.	Percent	Cum.
Main urban area	679	67.9	67.9
Independent urban community	134	13.4	81.3
Satellite urban community	17	1.7	83
Rural area with high urban influence	20	2	85
Rural area with moderate urban influence	53	5.3	90.3
Rural area with low urban influence	70	7	97.3
Highly rural/remote area	27	2.7	100

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[4] For full details of the classification see http://www.stats.govt.nz/urban-rural-profiles/defining-urban-rural-nz/default.htm.

Total	1000	100	

NOTE: This table is only out of 1,000 as the Chatham Islands are not included in the urban rural profile of New Zealand.

Approximately 83 percent of respondents were located within urban areas, 68 percent of those living in one of the main urban areas. In total, approximately 53 percent of the respondents were located within the Auckland, Wellington, and Canterbury Regional Councils boundaries, and three quarters of respondents were located in the North Island.

In addition to including settlement type the study also captured the relative social economic context of the area units in which respondents lived by drawing on the New Zealand Deprivation Index (Crampton, Salmond, & Kirkpatrick, 2004). Constructed to house ten percent of area units within each decile, the index runs from the highest level of deprivation 1 through to the lowest 10. Within the survey sample however there turned out to be a much larger proportion of 8 and 9 level communities than would be expected on the basis of a random drawing of area units. There is a corresponding undercount of deciles 1, 4, 5, and 10. Communities at the two extremes, therefore, are under represented as shown in Table 7.

Table 7: Deprivation index classification for respondent's communities

Deprivation Level	Freq.	Percent	Cum.
1	32	3.2	3.2
2	75	7.51	10.71
3	88	8.81	19.52
4	45	4.5	24.02
5	48	4.8	28.83
6	104	10.41	39.24
7	57	5.71	44.94
8	148	14.81	59.76
9	371	37.14	96.9
10	31	3.1	100
Total	*999*	*100*	

Standard linear and logistic regression were used to analyse the relative influence these characteristics had on each of the five place attachment measures. The variables together with the characteristics of area units are listed in Table 8. With one exception, population size, these are dichotomous predictors. The reference group for the categorical explanatory variables is a New Zealand European male who lives in a main urban area of medium

deprivation, is aged between 40 and 49 and has an income of $40,000 to $70,000 per annum.

Table 8: independent variables used in the analysis of attachment

Socio-Demographic Characteristics					
Variable	**Variable Categories**	**Variable Name**	**Num Obs**	**Min**	**Max**
Age groups	15-19 Years	age_15_19	1000	0	1
	20-29 Years	age_20_29	1000	0	1
	30-39 Years	age_30_39	1000	0	1
	40-49 Years	age_40_49	1000	0	1
	50-59 Years	age_50_59	1000	0	1
	60 Years and Over	age_60_over	1000	0	1
	Refused	age_refused	1001	0	1
Family		family	1001	0	1
Income groups	$15,000 or less	income_less15	910	0	1
	$15,001 to $25,000	income_15_25	910	0	1
	$25,001 to $40,000	income_25_40	910	0	1
	$40,001 to $70,000	income_40_70	910	0	1
	$70,001 or more	income_70more	910	0	1
	Don't know	income_dk	937	0	1
	Refused	income_refused	1001	0	1
Home Ownership		ownhouse	1001	0	1
Gender		Sex	1001	0	1
Ethnicity	New Zealand European	NZEuropean	1001	0	1
	New Zealand Māori	NZMāori	1001	0	1
	New Zealand European and New Zealand Māori	NZEuroMāori	1001	0	1
	Other European Ethnicity	OtherEuro	1001	0	1
	Other Ethnicity	OtherEthnicity	1001	0	1
Employment	Employed in full or part-time work	Emp_FullParttime	1000	0	1
	Not employed in paid work, but searching for paid work	Emp_Seaching	1000	0	1
	Not available for paid work	Emp_NotAvail	1000	0	1
	Refused	Emp_Refused	1001	0	1
Retired household		retiredHH	1001	0	1

Place Characteristics					
Variable	**Variable Categories**	**Variable Name**	**Num Obs**	**Min**	**Max**
Log of Population Size		logta_pop	1001	6.57	12.82
Rural Urban Classification	Highly rural/remote area	ur_HighRural	1000	0	1
	Independent urban community	ur_IndepUrban	1000	0	1
	Main urban area	ur_MainUrban	1000	0	1
	Rural area with high urban influence	ur_RuralHigh	1000	0	1
	Rural area with low urban influence	ur_RuralLow	1000	0	1
	Rural area with moderate urban influence	ur_RuralMod	1000	0	1
	Satellite urban community	ur_Satellite	1000	0	1
Auckland		auck	1001	0	1
Wellington		wgtn	1001	0	1
Christchurch		chch	1001	0	1
Deprivation Index Dummies	Very Low	dep_vlow	1001	0	1
	Low	dep_low	1001	0	1
	Medium	dep_med	1001	0	1
	High	dep_high	1001	0	1
	Very High	dep_vhigh	1001	0	1

Source: Attachment Survey, 2005, Centre for Research, Evaluation, and Social Assessment (CRESA)

Five separate analyses were undertaken in which each of the five dimensions of attachment identified through the factor analysis above (sentiments, friends, relatives, participants and satisfaction) were regressed on the same set of individuals and place based arguments. As the following results illustrate, different kinds of attachment have different determinants.

Sentiments dimension

The sentiment dimension refers to the effective bond or emotional connection with specific places. It combines how respondents feel about moving away, how strongly one might recommend the area as a place to live, feelings of safety, availability of emergency help and the strength of community spirit. What we learn from regressing this factor on the independent variables listed in Table 8 is that the respondent, age plays a substantial positive role in accounting for emotional attachment, a finding that supports the results of Goudy (1990) among others.

When it comes to *sentimental* attachment, New Zealand Europeans are much more likely to report positive feelings towards their community than is the case among other ethnic groups. Māori for example show a much lower level of sentimental attachment to place (although attachment through friends and relatives is much higher as I show below).

Although on the margins in terms of the chosen level of statistical significance, it is also worth noting the strong negative, weak sentimental place attachment exhibited by those of Other Ethnic groups (against the New Zealand European base). Of the other individual attributes income has little clear effect, neither does gender or the variables measuring engagement in the labour force.

Table 9: Regression of independent variables against the sentiments dimension of place attachment

Fl_sent	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
A. INDIVIDUAL EFFECTS						
Age_15_19	-0.643	0.490	-1.31	0.190	-1.606	0.320
Age_20_29	-0.264	0.140	-1.87	0.061	-0.540	0.012
Age_30_39	-0.130	0.103	-1.27	0.204	-0.333	0.071
Age_50_59	-0.222*	0.104	-2.14	0.033	-0.427	-0.018
Age_60_over	-0.319*	0.127	-2.51	0.012	-0.569	-0.069
Family	-0.081	0.079	-1.02	0.306	-0.237	0.074
Income_less15	-0.100	0.112	-0.89	0.373	-0.320	0.120
Income_15_25	-0.215	0.114	-1.88	0.061	-0.441	0.009
Income_25_40	-0.057	0.095	-0.61	0.543	-0.245	0.129
Income_70more	-0.019	0.108	-0.18	0.859	-0.231	0.193
Ownhouse	0.199*	0.086	2.32	0.021	0.030	0.368
Sex	0.032	0.069	0.47	0.642	-0.104	0.169
NZMāori	0.011	0.171	0.07	0.945	-0.325	0.349
NZEuroMāori	-0.522*	0.161	-3.23	0.001	-0.840	-0.205
OtherEuro	0.029	0.153	0.20	0.845	-0.270	0.330
OtherEthnicity	-0.249	0.141	-1.76	0.078	-0.528	0.028
Emp_searching	-0.139	0.162	-0.86	0.391	-0.459	0.179
Emp_NotAvail	-0.034	0.102	-0.34	0.734	-0.236	0.166
RetiredHH	-0.018	0.117	-0.16	0.872	-0.248	0.211
B. PLACE EFFECTS						
Ur_Satellite	0.109	0.246	0.44	0.657	-0.373	0.592
Ur_IndepUrban	0.470**	0.101	4.66	0.000	0.272	0.669
Ur_RuralHigh	0.071	0.242	0.30	0.768	-0.404	0.547
Ur_RuralMod	0.301*	0.153	1.96	0.050	-0.000	0.602
Ur_RuralLow	0.443**	0.132	3.36	0.001	0.184	0.702
Ur_HighRural	0.444 *	0.205	2.16	0.031	0.041	0.847
Dep_vlow	0.066	0.129	0.51	0.607	-0.188	0.321
Dep_low	0.200	0.123	1.63	0.104	-0.041	0.441
Dep_high	-0.131	0.112	-1.17	0.243	-0.351	0.089
Dep_vhigh	-0.207*	0.105	-1.97	0.049	-0.413	-0.000
_cons	0.126	0.154	0.82	0.414	-0.177	0.430

People's sentimental attachment is also affected by the type of place they live in the smaller the place the more positive the sentiment and, the further the residents live from the influence of main urban centres the more emotionally attached they appear to be. For example, those living in independent urban communities (134 respondents) exhibited half a standard score improvement on the sentiments dimension over those individuals living in the main urban areas. When the variables representing residence in either of the three main centres were added, those living in Wellington exhibit significantly higher level of place attachment.[5]

A third feature of place is its socio-economic position, measured here by it Deprivation Index. Areas of very high deprivation scores were associated with significantly *lower* levels of sentiment. The more socio-economically deprived a place was, the lower the level of sentimental attachment exhibited by its residents and note that this is after controlling for the respondents own socio-economic characteristics as well as the size and type of settlement.

An additional major influence on sentimental attachment was tenure. Previous research has noted that home ownership has a positive effect on community attachment (Gerson et al., 1977; Speare, 1974) and including home ownership in the model confirms the broad consensus in the literature that investment through tenure does enhance feelings of sentimental attachment.

In summary, sentimental attachment to place is held most strongly by older respondents and among European New Zealanders but gender, family, income and employment play little independent role. When it comes to the characteristics of the places themselves, all three dimensions matter: the size of settlement, the degree of urban influence *and* the level of deprivation in the area. Smaller settlements or higher socio-economic status further from metropolitan centres appear to engender higher levels of sentimental attachment – after controlling for the other variables in the model.

Friends dimension

Social involvement with friends has been identified in the literature as one of the most powerful indicators of place attachment (Gerson et al., 1977). As noted earlier the friends dimension was bi-modal and therefore logistic regression was applied to the binary responses of a representative question loading on this factor.

For this dimension age plays no statistically significant role (although the importance of friendship rises positively with age), and again, neither does employment or income. What does matter is family. Having dependent children in the family increases the likelihood that friendships bind the respondent to the community. The result is strong and significant statistically as apparent in Table 10. The odds of being attached by friends increases by 1.7 times if children are present in the household, a finding that reaffirms similar findings elsewhere (Gerson et al., 1977; McAuley & Nutty, 1985). When it comes to friendship as the basis of attachment home ownership again appears to have an independent, positive

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[5] For a related discussion of the role of place in the subjective wellbeing of respondents from the Quality of Life surveys see Morrison (2007 and 2010).

influence, doubling the likelihood of having friends. Substantively this makes sense; home ownership denotes commitment to an area and is a signal of future presence which makes investment in making friends more worthwhile.

Table 10: Logistic regression of the independent variables against the friends dimension of place attachment

Friends area	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
A. INDIVIDUAL EFFECTS						
Age_20_29	1.083	0.432	0.20	0.841	0.495	2.367
Age_30_39	1.023	0.318	0.07	0.941	0.555	1.885
Age_50_59	1.763	0.612	1.63	0.102	0.892	3.484
Age_60_over	2.200	0.941	1.84	0.065	0.951	5.088
Family	1.722*	0.438	2.14	0.032	1.046	2.83
Income_less15	0.822	0.294	-0.54	0.586	0.407	1.659
Income_15_25	1.331	0.522	0.73	0.465	0.617	2.872
Income_25_40	0.912	0.273	-0.30	0.761	0.506	1.643
Income_70more	1.408	0.510	0.95	0.344	0.692	2.867
Ownhouse	1.976**	0.489	2.75	0.006	1.216	3.210
Sex	0.780	0.176	-1.09	0.274	0.500	1.216
NZMāori	7.38*	7.676	1.92	0.055	0.961	56.683
NZEuroMāori	0.581	0.270	-1.16	0.244	0.233	1.447
OtherEuro	1.127	0.573	0.24	0.814	0.415	3.055
OtherEthnicity	0.642	0.243	-1.17	0.242	0.305	1.348
Emp_searching	1.728	0.965	0.98	0.327	0.578	5.163
Emp_NotAvail	1.118	0.378	0.33	0.741	0.575	2.171
RetiredHH	0.810	0.328	-0.52	0.603	0.365	1.793
B. PLACE EFFECTS						
Ur_Satellite	1.274	1.009	0.31	0.759	0.269	6.020
Ur_IndepUrban	4.501**	2.198	3.08	0.002	1.728	11.723
Ur_RuralHigh	0.541	0.350	-0.95	0.343	0.152	1.923
Ur_RuralMod	1.200	0.603	0.36	0.716	0.448	3.215
Ur_RuralLow	1.349	0.602	0.67	0.503	0.561	3.239
Ur_HighRural	1.169	0.785	0.23	0.815	0.313	4.362
Dep_vlow	0.467	0.227	-1.56	0.118	0.180	1.212
Dep_low	0.348*	0.160	-2.28	0.022	0.141	0.861
Dep_high	0.356*	0.158	-2.32	0.020	0.149	0.850
Dep_vhigh	0.529	0.225	-1.49	0.135	0.229	1.220

In terms of ethnicity, while being New Zealand Māori was associated with lower levels of sentimental attachment, when it comes to *friendship* Maori appeared substantially *more* attached than the New Zealand Europeans in the sample. And again, we find that the odds

of having friends in the area rises with age. Income and the remaining variables such as employment however continue to have little discernable effect.

Again, place matters – in terms of type of settlement, those living in independent urban centres were four and a half times more likely to have friends in the area than those living in the main urban areas, controlling for all other variables in the model. Interestingly, the likelihood of respondents living in either rural areas with high urban influence or highly remote rural areas having friends declines in comparison to the main urban areas, Table 10. And the influence of the area's deprivation level is curious. Deprivation most negatively affects friendship at the extremes, in areas of relatively high *and* low deprivation – relative to the median. However it is in these areas either side of the median where differences in stability are most significant.

In summary, when it comes to place attachment friendship matters, particularly to Maori and increasingly so with age and among those who own their own home. The type of place, especially its size and location relative to metropolitan centres also matters.

Relatives dimension

The relatives dimension was bi-modal and therefore logistic regression was applied to the binary variable that measured whether the respondents had relatives living within the community or not. When age was entered into this model respondents aged 60 and over were found to be significantly more attached to the area, Table 11. The expectation was also that women would be more highly attached to the community through social involvement (Beggs et al., 1996) and the results confirm this expectation with women being 1.5 times more attached via relatives.

Table 11: Logistic regression of the independent variables against the relatives dimension of place attachment

RelativeArea	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
A. INDIVIDUAL EFFECTS						
Age_15_19	2.273	2.612	0.72	0.475	0.239	21.611
Age_20_29	1.683	0.539	1.62	0.105	0.897	3.156
Age_30_39	1.109	0.266	0.43	0.665	0.693	1.776
Age_50_59	1.134	0.320	1.22	0.221	1.298	3.998
Age_60_over	2.278**	0.653	2.87	0.004	1.298	3.998
Family	1.416*	0.260	1.89	0.058	0.987	2.031
Income_less15	1.060	0.266	0.24	0.814	0.648	1.736
Income_15_25	1.252	0.319	0.88	0.377	0.760	2.065
Income_25_40	1.093	0.235	0.42	0.677	0.717	1.668
Income_70more	0.836	0.212	-0.70	0.482	0.508	1.375
Ownhouse	1.346	0.266	1.50	0.132	0.913	1.985
Sex	1.523*	0.238	2.69	0.007	1.120	2.070

NZMāori	2.631*	0.994	2.56	0.010	1.254	5.520
NZEuroMāori	1.486	0.526	1.12	0.263	0.742	2.977
OtherEuro	0.780	0.276	-0.70	0.484	0.390	1.561
OtherEthnicity	0.538	0.197	-1.68	0.092	0.261	1.106
Emp_searching	0.954	0.350	-0.13	0.898	0.464	1.958
Emp_NotAvail	0.944	0.213	-0.25	0.800	0.605	1.471
RetiredHH	0.994	0.252	-0.02	0.982	0.603	1.637
B. PLACE EFFECTS						
Ur_IndepUrban	2.660**	0.594	4.38	0.000	1.716	4.123
Ur_Satellite	1.271	0.694	0.44	0.660	0.435	3.711
Ur_RuralHigh	0.361	0.239	-1.54	0.124	0.098	1.322
Ur_RuralLow	1.603	0.459	1.65	0.099	0.914	2.811
Ur_RuralMod	1.588	0.526	1.40	0.162	0.829	3.041
Ur_HighRural	1.054	0.493	0.11	0.909	0.421	2.640
Dep_vlow	0.664	0.191	-1.42	0.156	0.378	1.167
Dep_low	0.893	0.241	-0.42	0.677	0.525	1.519
Dep_high	0.673	0.167	-1.59	0.113	0.413	1.097
Dep_vhigh	0.631*	0.146	-1.98	0.048	0.400	0.995

Consistent with the literature on the importance of children in generating attachment to the local areas (Gerson et al., 1977) having a child present in the family is associated with the likelihood of having other relatives in the area. The odds of being attached via relatives increases 1.4 times if children are present in the household.

The expectation that New Zealand Māori would be more attached to the area via relatives than any other ethnicities was also confirmed. Identifying as New Zealand Māori raises the likely importance of family 2.6 times over the European base. Once again, neither income nor labour market engagement or other characteristics of the individual had any statistically significant effect on attachment via this dimension.

In terms of settlement type, independent urban communities and rural areas with moderate urban influence did have a significant positive influence. Living in Independent Urban Centres increases the odds of being attached to the community via family - 2.6 times relative to the base of Main Urban Areas.

The level of place deprivation again had a negative effect on attachment but this time via relatives. The odds of respondents in high deprivation areas, being attached to the community via relatives is significantly less than in areas of with less deprivation. This is an interesting and slightly counter intuitive results given the generalisation often voiced about the relative importance of proximate family in areas of lower socio-economic status.

Participation dimension

The relationship between formal participation and attachment has been addressed in several studies (eg Cuba & Hummon, 1993). The participation dimension is roughly normally distributed and linear regression was used to estimate the model of influence.

Two age groups were positive and statistically significant: those aged between 20 and 29 and those aged 60 and over; see Table 12. Those under the age of 39 showed *lower* levels of participation than the base 40-49 year olds, whilst those over the age of 50 exhibited a higher propensity to participate. These results support the findings of Pretty *et al.* (2003) and Sampson (1988) who found that older individuals were more likely to participate in community activities.

Table 12: Regression of the independent variables against the participation dimension of place attachment

F4_part	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
A. INDIVIDUAL EFFECTS						
Age_15_19	-1.055*	0.490	-2.15	0.032	-2.018	-0.092
Age_20_29	-0.163	0.140	-1.16	0.246	-0.440	0.112
Age_30_39	-0.100	0.103	-0.98	0.329	-0.302	0.101
Age_50_59	0.113	0.104	1.09	0.277	-0.091	0.317
Age_60_over	0.380**	0.127	2.99	0.003	1.131	0.630
Family	0.159*	0.079	2.01	0.045	0.003	0.315
Income_less15	0.066	0.112	0.59	0.554	-0.153	0.286
Income_15_25	0.026	0.114	0.23	0.815	-0.198	0.252
Income_25_40	-0.013	0.095	-0.14	0.887	-0.200	0.173
Income_70more	0.062	0.108	0.57	0.566	-0.150	0.274
Ownhouse	0.077	0.086	0.90	0.369	-0.091	0.246
Sex	0.099	0.069	1.42	0.155	-0.027	0.236
NZMāori	0.153	0.171	0.89	0.372	-0.183	0.490
NZEuroMāori	0.170	0.161	1.06	0.291	-0.146	0.488
OtherEuro	0.007	0.153	-0.05	0.958	-0.308	0.292
OtherEthnicity	0.125	0.141	0.89	0.375	-0.152	0.404
Emp_searching	-0.130	0.162	-0.81	0.421	-0.450	0.188
Emp_NotAvail	0.026	0.102	0.26	0.796	-0.174	0.227
RetiredHH	-0.105	0.117	-0.90	0.367	-0.335	0.124
B. PLACE EFFECTS						
Ur_IndepUrban	0.536**	0.101	5.31	0.000	0.337	0.734
Ur_Satellite	-0.120	0.245	-0.49	0.624	-0.603	0.362
Ur_RuralHigh	0.512*	0.242	2.11	0.035	0.036	0.987
Ur_RuralLow	0.599**	0.132	4.54	0.000	0.340	0.858
Ur_RuralMod	0.249	0.153	1.63	0.104	-0.051	0.550
Ur_HighRural	0.238	0.205	1.16	0.246	-0.164	0.641
Dep_vlow	-0.023	0.129	-0.18	0.856	-0.278	0.231
Dep_low	-0.162	0.123	-1.32	0.186	-0.404	0.078
Dep_high	-0.128	0.112	-1.15	0.251	-0.348	0.091
Dep_vhigh	-0.047	0.105	-0.45	0.654	-0.253	0.159
_cons	-0.405	0.154	-2.62	0.009	-0.709	-0.101

It has been often suggested that the presence of children within the household is an incentive for increased parental involvement with the community (Gerson et al., 1977; McAuley & Nutty, 1985) and this was confirmed in this study. Once again, neither income nor employment had any statistical influence on this form of place attachment.

In terms of place effects independent urban centres, rural areas with high urban influence, and rural areas with low urban influence each experienced higher levels of attachment via participation relative to the main urban areas.   This time the deprivation rating of the respondents area unit had no statistically significant influence on attachment. Implicitly people in low and high deprivation areas are equally likely to engage in community activities.

Satisfaction dimension

The fifth and final measure of attachment registered the respondents level of satisfaction with the area. This has been identified as one of the key dimensions of place attachment in a majority of the literature (Goudy, 1982; Mesch & Manor, 1998; Woldoff, 2002), however in this New Zealand study only one age group related significantly to attachment via this dimension, those aged 60 and over, Table 13. In fact there is a notable U shape relationship between satisfaction and the location and age. Those individuals in the young ages (aged between 15 and 19 and aged between 20 and 29) and those in the older categories (aged 60 and over) had greater levels of attachment through satisfaction than those in the middle.   None of the individual effects played a statistically significant role although many of the signs are similar to those observed in the tables above.

Table 13: Regression of the independent variables against the satisfaction dimension of place attachment

F5_sat	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
A. INDIVIDUAL EFFECTS						
Age_15_19	0.690	0.511	1.35	0.177	-0.312	1.694
Age_20_29	0.158	0.146	1.08	0.281	-0.129	0.446
Age_30_39	-0.053	0.107	-0.49	0.621	-0.263	0.157
Age_50_59	-0.003	0.108	-0.03	0.972	-0.216	0.209
Age_60_over	0.315*	0.132	2.38	0.018	0.054	0.575
Family	0.083	0.082	1.00	0.316	-0.079	0.245
Income_less15	0.108	0.117	0.93	0.354	-0.121	0.338
Income_15_25	-0.166	0.119	-1.39	0.165	-0.400	0.068
Income_25_40	0.043	0.099	0.44	0.658	-0.150	0.238
Income_70more	-0.070	0.112	-0.63	0.529	-0.292	0.150
Ownhouse	0.033	0.089	0.38	0.706	-0.142	0.209
Sex	0.098	0.072	1.36	0.174	-0.043	0.241

NZMāori	0.254	0.178	1.42	0.156	-0.096	0.605
NZEuroMāori	-0.285	0.168	-1.69	0.091	-0.615	0.045
OtherEuro	-0.218	0.159	-1.37	0.172	-0.531	0.094
OtherEthnicity	0.197	0.147	1.34	0.182	-0.092	0.487
Emp_searching	0.041	0.169	0.25	0.805	-0.290	0.374
Emp_NotAvail	-0.086	0.106	-0.81	0.418	-0.296	0.123
RetiredHH	-0.088	0.122	-0.73	0.467	-0.328	0.150
B. PLACE EFFECTS						
Ur_ IndepUrban	0.015	0.105	0.15	0.881	-0.190	0.222
Ur_ Satellite	0.215	0.256	0.84	0.401	-0.287	0.718
Ur_RuralHigh	-0.438	0.252	-1.74	0.083	-0.934	0.057
Ur_RuralLow	0.001	0.137	0.01	0.992	-0.268	0.271
Ur_RuralMod	0.126	0.159	0.79	0.428	-0.187	0.440
Ur_HighRural	-0.356	0.213	-1.67	0.096	-0.776	0.063
Dep_vlow	0.054	0.135	0.41	0.685	-0.210	0.320
Dep_low	-0.039	0.128	-0.31	0.759	-0.291	0.212
Dep_high	0.098	0.116	0.84	0.400	-0.130	0.327
Dep_vhigh	0.040	0.109	0.37	0.715	-0.175	0.255
_cons	-0.230	0.161	-1.43	0.154	-0.546	0.086

Nor did this satisfaction dimension produce any significant relationship between the place and satisfaction. Interestingly however when separate metropolitan identifiers were added to the model, Auckland, the largest urban centre, emerged as significantly *less* satisfied with the area than individuals living in either Wellington or Christchurch, a result which again independently supports findings of the 2004 Quality of Life Survey (Morrison, 2007 and 2010).

7. Conclusion

Whilst stability accounts for much of the change we observe in an areas population the fact that people age *in situ* tells us little about what constitutes attachment to place nor does it confirm any link between attachment and stability. This paper has been confined to identifying the main dimensions of attachment and what drives attachment: who is attached, how are they attached, and the role that the characteristics of the place itself plays. Based on a nationwide survey of 1001 residents in New Zealand in 2005 the results show not only that many of the dimensions of attachment identified overseas also apply in New Zealand but also that individuals and places can have separate identifiable influences.

As the international literature has shown, attachment to place is multidimensional and difficult to summarize in a simple model. The principal components factor analysis on the 23 questions relating to place attachment from the Place Attachment Survey developed by the CRESA research team, resulted in five dimensions of attachment which have been used here to characterise the New Zealand experience. What I have called attachment by sentiment dimension proved to be the most important. This factor attracted the highest

loadings from questions on how the respondents would feel if they had to move, their willingness to recommend the place to live in, how safe they felt and the availability of emergency help and the level of community spirit (recall tables 2 and 5). This factor was followed in importance by the friends and relatives dimensions. The fourth dimension was participation and the first factor, satisfaction, was found to be relevant in only in highly selective instances.

Not only is the notion of attachment itself multidimensional but the arguments that lie behind each dimension also differ. For example the presence of children within the household increases the odds of having friends and relatives in the area and also increases the level of attachment through participation, but has no independent effect on sentimental feeling or satisfaction of the community. Home ownership has a significant effect on sentimental attachment and attachment through friends but is not significantly related to the other dimensions. Gender is important but only because women are more likely to be attached through local relatives than men. Additionally, being of New Zealand Māori ethnicity raises the likelihood of being attached but only through the presence of friends and relatives.

If there is one single factor common to all dimensions of attachment it is being in the older age group. Older individuals are more attached and in more ways than younger individuals, with elderly individuals with those aged 60 and over more likely to be sentimentally attached, have relatives nearby, participate in the community and feeling relatively more satisfied with the area they live in.

Of particular interest in this study is the relative importance of the characteristics of places themselves on peoples feelings of attachment. The conventional size of 'community' was complemented with a settlement type variable which took into account both the size *and* the urban/rural-ness of the area including the distance to the nearest large urban centre. Both played a role in resident's feelings of attachment (especially by sentiment), after controlling for their own personal attributes. Community attachment on all dimensions was found to be lowest in the main urban areas.

In the case of the deprivation index. The interest in this centred on how individuals living in areas with relatively high and relatively low levels of deprivation judged their attachment – after controlling for attributes which rendered individuals different from one another on other grounds. The area's deprivation index only featured in the first three factors obtained from the principal components: sentiments, friends and relatives. In each case however, living in areas of relatively high deprivation *reduced* feelings of attachment. This finding, that living in an lower socio-economic areas can reduce the otherwise positive impact which friendship and kinship play in fostering attachment, is of importance, given the widespread belief about the importance of attachment in sustaining such communities. Given the policy interest in service delivery options in poorer communities when mobility rates are high (and by inference attachment levels are low) the relative weakness of friends and family based attachment may deserve greater attention than it appears to have received in New Zealand to date.

Bibliography

Armstrong, H., & Taylor, J., 1985, Spatial variation in the male unemployment inflow rate. *Applied Economics, 17*, 41-54.

Austin, D.M., & Baba, Y., 1990, Social Determinants of Neighborhood Attachment. *Sociological Spectrum, 10*, 59-78.

Beggs, J.J., Hurlbert, J.S., & Haines, V.A., 1996, Community Attachment in a Rural Setting: A Refinement and Empirical Test of the Systemic Model. *Rural Sociology, 61*(3), 407-426.

Bolan, M., 1997, The mobility experience and neighbourhood attachment. *Demography, 34*(2), 225-237.

Brehm, J.M., Eisenhauer, B.W., & Krannich, R.S., 2004, Dimensions of Community Attachment and Their Relationship to Well-Being in the Amentiy-Rich Rural West. *Rural Sociology, 69*(3), 405-429.

Brown, R.B., 1993, Rural Community Satisfaction and Attachment in Mass Consumer Society. *Rural Sociology, 58*(3), 387-403.

Buttel, F.H., Martinson, O.B., & Wilkening, E.A., 1979, Size of Place and Community Attachment: A Reconsideration. *Social Indicators Research, 6*(4), 475-485.

Cattell, R.B., 1966, The Scree Test for the Number of Factors. *Multivariate Behavioural Research, 1*, 245-276.

Crampton, P., Salmond, C., & Kirkpatrick, R., 2004, *Degrees of deprivation in New Zealand* (2nd ed.) David Bateman Ltd, Auckland.

Crenshaw, E., & St. John, C., 1989, The Organizationally Dependent Community: A Comparative Study of Neighborhood Attachment. *Urban Affairs Quarterly, 24*(3), 412-434.

Cross, J., 2003, *Conceptualizing Community Attachment.* Paper presented at the Rural Sociological Society Annual Meeting, Montreal.

Cuba, L., and Hummon, D., 1993, A place to call home: Identification with dwelling, community and region. *Sociological Quarterly, 34*, 111-132.

Filkins, R., Allen, J., & Cordes, S., 2000, Predicting Community Satisfaction Among Rural Residents: An Integrative Model. *Rural Sociology, 65*(1), 72-86.

Friedmann, J., & Woolff, K., 1982, World city formation: an agenda for research and action. *International Journal of Urban and Regional Research, 6*, 309-344.

Gerson, K., Stueve, C.A., & Fischer, C.S., 1977, Attachment to place. In C.S., Fischer, R.M., Jackson, C.A., Stueve, K., Gerson, L.M., Jones & M., Baldessare (Eds.), *Networks and places: social relations in the urban setting* (pp. 139-161). The Free Press, New York.

Giuliani, M.V., & Feldman, R., 1993, Place Attachment in a Developmental and Cultural Context. *Journal of Environmental Psychology, 13*, 267-274.

Goudy, W.J., 1982, Further Consideration of Indicators of Community Attachment. *Social Indicators Research, 11*, 18192.

Goudy, W.J., 1990, Community Attachment in a Rural Region. *Rural Sociology, 55*(2), 178-198.

Hidalgo, M.C., & Hernández, B., 2001, Place Attachment: Conceptual and Empirical Questions. *Journal of Environmental Psychology, 21*, 273-281.

Hummon, D., 1992, Community Attachment: Local Sentiment and Sense of Place. In I. Altman & S. M. Low (Eds.), *Place Attachment* (Vol. 12, pp. 1-12). New York: Plenum Press.

Kang, N., & Kwak, N., 2003, A Multilevel Approach to Civic Participations: Individual Length of Residence, Neighborhood Residential Stability and their Interactive Effects with Media Use. *Communication Research, 30*(1), 80-106.

Kasarda, J.D., & Janowitz, M., 1974, Community Attachment in Mass Society. *American Sociological Review, 39*, 328-339.

Lalli, M., 1992, Urban-Related Identity: Theory, Measurements, and Empirical Findings. *Journal of Environmental Psychology, 12*, 285-303.

Landale, N., & Guest, A.M., 1985, Constraints, satisfaction, and residential mobility: Speare's model reconsidered. *Demography, 22*, 199-222.

Lee, C., 1994, Neighbourhood context and residential mobility. *Demography, 31*(2), 249-270.

Liu, P.-W., & Zhang, J., 1999, Assortative mating versus the cross-productivity effect. *Applied Economics Letters, 6*(8), 523-525.

Low, S.M., & Altman, I., 1992, Place Attachment: A Conceptual Inquiry. In I. Altman & S. M. Low (Eds.), *Place Attachment* (Vol. 12, pp. 1-12). Plenum Press, New York.

Matei, S., & Ball-Rokeach, S.J., 2001, Real and Virtual Social Ties. *The American Behavioral Scientist, 45*(3), 550-564.

McAuley, W.J., & Nutty, C.L., 1982, Residential Preferences and Moving Behavior: A Family Life-Cycle Analysis. *Journal of Marriage and the Family, 44*(2), 301-309.

McAuley, W.J., & Nutty, C.L., 1985, Residential Satisfaction, Community Integration, and Risk Across the Family Life Cycle. *Journal of Marriage and the Family, 47*(1), 125-130.

Mesch, G.S., & Manor, O., 1998, Social Ties, Environmental Perception, and Local Attachment. *Environment and Behavior, 30*, 504-520.

Meyrowitz, J., 1986, *No Sense of Place: The Impact of the Electronic Media on Social Behavior*. Oxford University Press, New York.

Morrison, P.S., 2007, Subjective wellbeing and the city. *Social Policy Journal of New Zealand, 31*(July), 74-103.

Morrison, P.S., 2010, Local expressions of subjective wellbeing: the New Zealand experience *Regional Studies*, 43 (forthcoming)

Parkes, A., & Kearns, A., 2002, *Residential Perceptions and Housing Mobility in Scotland: An Analysis of the Longitudinal Scottish House Condition Survey 1991-1996* (No. CNR Summary 3). ESRC Centre for Neighbourhood Research, Bristol.

Parkes, A., Kearns, A., & Atkinson, R., 2002, What Makes People Dissatisfied with their Neighbourhoods? *Urban Studies, 39*(13), 2413-2438.

Pretty, G., Chipuer, H.M., & Bramston, P., 2003, Sense of place amongst adolescents and adults in two rural Australian towns: The discriminating features of place attachment, sense of community and place dependence in relation to place identity. *Journal of Environmental Psychology, 23*, 273-287.

Riger, S., & Lavrakas, P.J., 1981, Community Ties: Patterns of Attachment and Social Interaction in Urban Neighborhoods. *American Journal of Community Psychology, 9*(1), 55-66.

Ringel, N.B., & Finkelstein, J.C., 1991, Differentiating Neighborhood Satisfaction and Neighborhood Attachment Among Urban Residents. *Basic and Applied Social Psychology, 12*(2), 177-193.

Robinson, D., & Wilkinson, D., 1997, *Community Attachment and Labour Market Events: Elliot Lake and the North Shore Communities.* Paper presented at the Visions of the North, Voices of the North Conference, Nipissing University, North Bay, Ontario, Canada.

Rothenbuhler, E.W., Mullen, L.J., DeLaurell, R., & Ryu, C.R., 1996, Communication, Communtiy Attachment, and Involvment. *Journalism and Mass Communicaiton Quarterly, 73*(2), 445-466.

Sampson, R., 1988, Local friendship ties and community attachment in mass society. *American Sociological Review, 53*, 766-779.

Sampson, R. J., 1988, Local Friendship Ties and Community Attachment in Mass Society: A Multilevel Systemic Model. *American Sociological Review, 53*(5), 766-779.

Schroder, C., 2008, Attachment to place in New Zealand. *New Zealand Population Review, 33 & 34*, 177-212.

Shumaker, S.A., & Taylor, R.B., 1983, Towards a Clarification of People-Place Relationships: A Model of Attachment to Place. In N. R. Feiner & E. S. Geller (Eds.), *Environmental Psychology: Directions and Perspectives* (pp. 219-251).Praeger, New York.

Speare, A., 1974, Residential satisfaction as an intervening variable in residential mobility. *Demography, 11*(2), 173-188.

St. John, C., Austin, D.M., & Baba, Y., 1986, The Question of Community Attachment Revisited. *Sociological Spectrum, 6*, 411-431.

Stinner, W.F., Van Loon, M., Chung, S.-W., & Byun, Y., 1990, Community Size, Individual Social Position, and Community Attachment. *Rural Sociology, 55*(4), 494-521.

Taylor, R.B., 1996, Neighborhood Responses to Disorder and Local Attachments: The Systemic Model of Attachment, Social Disorganization, and Neighborhood Use Value. *Sociological Forum, 11*(1), 41-74.

Theodori, G., 2000, Levels of Analysis and Conceptual Clarification in Community Attachment and Satisfaction Research: Connections to Community Development. *Journal of the Community Development Society, 31*(1), 238-250.

Theodori, G., 2001, Examining the Effects of Community Satisfaction and Attachment on Individual Well-Being. *Rural Sociology, 66*(4), 618-628.

Theodori, G., & Luloff, A.E., 2000, Urbanization and Community Attachment in Rural Areas. *Society & Natural Resources, 13*, 399-420.

Theodori, G.E., 2001, Examining the effects of community satisfaction and attachment on individual well-being. *Rural Sociology, 66*(4), 618-628.

Wasserman, I.M., 1982, Size of Place in Relation to Community Attachment and Satisfaction with Community Services. *Social Indicators Research, 11*, 421-436.

Whorton, J.W., & Moore, A.B., 1984, Summative Scales for Measuring Community Satisfaction. *Social Indicators Research, 15*, 297-307.

Woldoff, R., 2002, The Effects of Local Stressors on Neighborhood Attachment. *Social Forces, 81*(1), 87-116.

Woolever, C., 1992, A Contextual Approach to Neighbourhood Attachment. *Urban Studies, 29*(1), 99-116.