

Appendix 2, Methods and analysis for social capital and climate change regressions

Table A2.1 and A2.2 provide the results for the regression analysis investigating potential relationships that the social capital measures of governmental trust, collective action and solidarity (independent variables of interest) have on perspectives of climate change (Table A2.1) and then on local concerns for risk (Table A2.2). Each regression is performed using hierarchical multiple regression modeling. The initial model includes two demographic variables associated with climate change perspectives: age in years and gender (Knez et al 2013). Age is often negatively associated with concerns on climate change (Knez et al 2013, Newport 2014) and females have been shown to have a higher degree of concern for climate change in general (Knez et al 2013, McCright 2010).

In model 2 a dummy variable is added to test for a significant difference between the incorporated city of La Pine and the rural communities compiled for Greater Crescent. This variable is added as a dummy with 1 representing the incorporated city of La Pine.

In model 3 the social capital variables in question are added in to the regression, governmental trust, collective action and solidarity. These variables are indices generated from the Principal Component Analysis and reliability analyses discussed above.

Table A2.1. Hierarchical multiple regression analyses explaining climate change position for residents in La Pine and Greater Crescent using standardized regression coefficients.

	Model 1	Model 2	Model 3
Socio-demographic control variables			
Gender (Female= 1)	0.04	0.04	0.03
Age	-0.12	-0.15 [†]	-0.16 [†]
Community			
La Pine (La Pine residents= 1)	-	-0.11	-0.11
Social Capital Measures			
Network Ties Index	-	-	-0.07
Governmental Trust Index	-	-	0.29 ^{***}
Collective Action Index	-	-	0.13
Solidarity Index	-	-	-0.13
R ²	0.02	0.03	0.13 ^{**}
Adjusted R ²	0.01	0.01	0.08 ^{**}
N	145	145	145

Note: [†] p.≤0.10, * p.≤0.05, ** p.≤0.01, *** p.≤0.005, **** p.≤0.001

Table A2.2. Hierarchical multiple regression analyses explaining concerns for local climate change risks for residents in La Pine and Greater Crescent using standardized regression coefficients.

	Model 1	Model 2	Model 3
Socio-demographic control variables			
Gender (Female= 1)	-0.10	-0.09	-0.12
Age	-0.11	-0.13	-0.05
Community			
La Pine (La Pine residents= 1)	-	-0.18 [†]	-0.19 [†]
Social Capital Measures			
Network Ties Index	-	-	0.11
Governmental Trust Index	-	-	0.16
Collective Action Index	-	-	0.31**
Solidarity Index	-	-	-0.21 [†]
R ²	0.02	0.05	0.17*
Adjusted R ²	-0.00	0.02	0.11*
N	98	98	98

Note: [†] p.≤0.10, * p.≤0.05, ** p.≤0.01, *** p.≤0.005, **** p.≤0.001

The results of the both hierarchal regressions for climate change perspectives and concerns for local risks are addressed below. It is important to note that the sample size changes for each regression with n= 143 in the first regression on climate change perspectives (Table A2.1) to n=98 in the second regression on concerns for local risks. This is the result of the respondents question specific response rates and by the “unsure” option available on the local concerns questions which reduced the number of available samples for the regressions.

The results found for the demographic variables of Gender and Age in both regressions on Climate change perspectives (Table A2.1) and on concerns for local impacts (Table A2.2) in model 1 show no statistical effect on the dependent variables which is counter to expectations. When community is added in Model 2 we again see no statistical relationship to the dependent variables except for a very slight indicator estimate of b=-0.18 (p≤0.10) when community is added to the model on concerns for local impact yet the R² and Adjusted R² show that the model is insignificant. Yet when we add the social capital variables in Model 3 for both regressions we see statistical significance in at least one social capital variable variables and the R² and Adjusted R² rise in value and show statistical significance.

In the first regression on climate change perspectives (Table A2.1), the variable Governmental Trust shows a positive impact on residents perspectives of climate change in general. This Model (Model 3) also shows an increase in the R² from 0.02 and 0.03 in Models 1 and 2 respectively to 0.13 along with a statistical significance of p≤0.01. In the second regression on concerns for local impacts the social capital index for collective Action shows a positive statistically significant impact on the dependent variable (b=0.31, p≤0.01). Furthermore Model 3 has an R² change from 0.02 and 0.05 from Models 1 and 2 to an R² of 0.10 with the addition of statistical significance at p≤0.05.

These results are not intended for to be predictive, but suggest that there is a positive impact made by trust in governmental institutions on perspectives on climate change and a positive effect of perceptions of a community's collective action potential with concerns for local risks. Furthermore, there is an indication that a potentially negative effect of a residents sense of community solidarity on concerns for local risks in these communities. This indicates that social capital measures should encouraged in further community-based climate change research. More specifically, trust values in various governmental levels and agencies should be taken seriously for addressing climate change adaptation in these communities and that those who perceive the community as a collaborative and collective unit are much more likely to have the concerns on localized climate changes risks.