Research poster: Vulnerability to climate change and policy support in rural Nevada

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My research aims at studying the effect of vulnerability to climate change as a function of exposure, sensitivity, and adaptive capacity on individuals’ support to potentially costly climate change mitigation policies and public policies. I am studying whether differentiated individual vulnerabilities among Nevada ranchers and farmers influence their willingness to adopt and/or accept individual climate change mitigation actions and/or support climate change mitigation public policies. Additionally, I’m investigating the impact of distinct community vulnerabilities among Nevada Native American tribes on their members’ readiness to assume the cost of climate change mitigation. My research questions are:

1. Does physical vulnerability to climate change (exposure) influence acceptance to climate change mitigation actions and policies?
2. Does socioeconomic vulnerability to climate change (sensitivity and adaptive capacity) influence acceptance to climate change mitigation actions and policies?
3. Does vulnerability to climate change as a function of exposure, sensitivity and adaptive capacity influence individuals’ acceptance to climate change mitigation actions and policies?
4. Does being members of more vulnerable communities as a function of exposure, sensitivity and adaptive capacity influence individuals’ acceptance to climate change mitigation actions and policies?

Hypotheses

1. Individual physical exposure to climate change positively influences a) individual support for climate change b) individual behavior to mitigate climate change.
2. Individual socioeconomic vulnerability to climate change positively influences a) individual support for climate change policies, b) individual behavior to mitigate climate change.
3. Individual vulnerability to climate change as a function of physical exposure, sensitivity and adaptive capacity positively influences a) individual support for climate change policies, b) individual behavior to mitigate climate change.
4. Being members of more vulnerable communities in terms of exposure, sensitivity and adaptive capacity influences a) individual support for climate change policies, b) individual behavior to mitigate climate change.

Testing Hypothesis One: I will calculate both Falkenmark index (Population/available water) and criticality ratio (Water use/Water Availability) using the databases described above. From those two indices, I will determine the water resources vulnerability index (WRI) developed by Falkenmark (1992). The WRI index ranges from -1 (least vulnerable) to 1 (most vulnerable). The equation is: LVI = (Ex-Ad) * Se. Using multiple regressions, I will test the influence of these indices on ranchers/farmers’ acceptance of potentially costly individual climate change mitigation measures and public climate change mitigation policies.

Testing Hypothesis Two: Using the socioeconomic data collected through the survey, I will calculate different vulnerability indicators such as the Poverty Index, Social Status Index, Income internal diversity ratio, income external diversity ratio. Using Multiple regression, I will test the influence of these indices on ranchers/farmers’ acceptance of potentially costly individual climate change mitigation measures and public climate change mitigation policies.

Testing Hypothesis Three: I will utilize Hahn, et al. (2009) equations for calculating the Livelihood Vulnerability Index (LVI) from its three major components: exposure (Ex), sensitivity (Se) and adaptive capacity (Ad). LVI index ranges from -1 (least vulnerable) to 1 (most vulnerable). The equation is: LVI = (Ex + Ad)/2. Using multiple regressions, I will test the significance of vulnerability’s influence on respondents’ willingness to assume the cost of climate change mitigation.

Testing Hypothesis Four: the location of the three Native American tribes will be assigned the WRV index value of the location. Trying to gain more Native American partners the research was communicated to 8 Nevada tribal environmental managers on January 13, 2010.

Selected References


