**Is Our House on Fire?**

**Analysis and Prediction of European Attitudes towards Climate Change.**

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ABSTRACT

Nowadays climate change is one of the major issues and challenges that is continuing to grow in intensity and complexity. Understanding individual citizens’ environmental attitudes toward climate change and several factors is one of the key fundamental conditions to promote citizens’ engagement in pro-environmental behaviour and support green development. The study focuses on the prediction and classification of pro-environmental behaviour in a dummy outcome (yes-action, no-action) in European citizens. Scholars have identified several factors that shape pro-environmental behaviour, such as socio-demographic, cognitive, experiential, socio-cultural, and climate change risk perception. The primary aim is to understand what factors shape pro-environmental behavior. However, the literature review suggests that there is a value-action gap. Worried citizens do not perform any pro-environmental behaviours, or unworried citizens act ecologically. The second broader aim of the research study is to better understand the relationship between climate change risk perception and pro-environmental behaviour. Therefore, the second part of the analysis seeks to separately investigate the reasons and the factors that determine the behaviors for worried and unworried citizens.

ANALYSIS

Before to start the predictions, Correlational Class Analysis (CCA) and Partitioning Around Medoids (PAM) Clustering are performed and the created classes are inserted in the final prediction models. CCA finds some shared cultural schemas among citizens. It can control the rules of thinking and interpretation the reality and in this case climate change topic. PAM partition citizens into clusters according to similar attitudes toward climate change, that I call green-identity.

The first part of the analysis starts with Logistic Regression. Nevertheless, the data does not satisfy all the assumptions of this method. Therefore, the analysis continues to non-parametric models: Decision Tree, Random Forest and Gradient Boosting. The choice of using different methods is to compare the results obtained and finding an optimal model that best predicts behaviour. This pro-environmental behaviour model is remarkably traditional, in fact as predictors I insert risk perception, some socio-demographic information, the type of green self-identity and cultural schemas, and lastly country. Random Forest yield the best results in terms of accuracy predictive (0.70) and Macro-f1 (0.65). Climate change risk perception is one of the main important factors in shaping pro-environmental behaviour in all non-parametric models. I have deeply explained that higher individual climate change risk perception positively influences and predicts pro-environmental behaviour. Another important factor that shapes pro-environmental behaviour is extreme green-identity. Individuals who share green values, thus they share the importance to fight climate change, are more likely to behave ecologically. Lastly some socio-demographic variables: age and high-education are important variable in the predictions.

The second part of the analysis continues using these classifiers but dividing the dataset into two: one with worried citizens and one with unworried ones. The explanatory variables are the same as the traditional model, but risk perception is obviously excluded. The best model with the observations of worried citizens is Gradient Boosting (accuracy = 0.66 and macro-f1 0.64). For worried citizens, the important variables remain the same of the complete model: extreme green-identity and higher education have a positive effect on pro-environmental behaviour. instead of unworried citizens subset the best model is once again Random Forest (accuracy 0.64 and macro-f1 0.63). In this case, the youngest unworried adults (15-30 years old) and moderate green-identity have a negative effect and they are less likely to behave eco-friendly.

Conclusion

The importance of the dissertation is to find some strategies for promoting citizens’ engagement in pro-environmental behaviour. Public policy should encourage education or in general information about climate change to increase risk perception and create an extreme-green identity. All these factors lead to an active engagement of European citizens. Some new findings: Eastern countries have a negative effect on pro-environmental behaviour. Some limitations concern data available and impossibility to insert all explanatory variables (especially those relating to external factors). Institutional, economic, and socio-cultural factors are not completely examined. The future research could create a model with all the dimensions’ factors, joining different dataset. Lastly, predictions of the behaviour could be divided according to the nation to examine strategies at a national level to promote pro-environmental behaviour.