

INITIATIVE 1631- THE EFFECT OF WORLDVIEW ON VOTING

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## ABSTRACT

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Research had found that worldview can be a strong predictor of how people view and vote on serious social issues. Cultural cognition theory (CCT) suggests that worldview exists prior to people learning about social issues, and their worldview may help to determine how they will look at and vote on risk issues. CCT says that people can be analyzed using two different but related worldview constructs, the grid and the group. The grid continuum measures how people view classification, with egalitarians at one end of the scale and hierarchists at the other end. The other continuum is the group with individualists at one end and communitarians at the other end. Amazon Mechanical Turk was used to recruit 503 participants who resided in Washington State and who voted in the 2018 general election on a carbon reduction initiative, I-1631. The participants answered several questions about demographics, knowledge of climate science, political party, and two six-question sets that measure the two dimensions of worldview. The initiative proposed to reduce carbon emissions by placing a fee on large emitters of carbon dioxide. The study found that males were more likely than females to vote against I-1631 and Republicans and independents tended to vote against the initiative more than Democrats. The more voters knew about climate science, the more likely they were to vote for the initiative. However, the strongest predictor of how participants voted on I-1631 was their worldview. Voters at the hierarchy end of the grid scale and voters at the individualism end of the group scale were significantly more likely to vote against I-1631 than were voters at the other end of the scales. These findings are consistent with prior research.

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I am greatly indebted to Dr. Shawn Olson Hazboun for showing me the value of environmental sociology as we struggle with overcoming climate change. As are so many issues, climate change is a human-caused problem and solving it will require human-inspired solutions. Sociology is an important part of this solution. During my classes with Dr. Hazboun, I developed a deep appreciation for looking at various environmental issues through the sociology lens. This inspired me to develop a thesis project that used sociology to observe human actions regarding a contemporary carbon reduction attempt, a carbon fee initiative during the 2018 Washington State election. With Dr. Hazboun's kind and effective guidance, I was able to complete a very interesting project that provides evidence on how better to support future carbon reduction efforts.

# CHAPTER I

## INTRODUCTION

This chapter provides a brief introduction to the issue of a voter sponsored initiative in the Washington State general election in November 2018, called Initiative 1631 (I-1631). The initiative attempted to place a fee on the emissions of carbon dioxide (CO<sub>2</sub>) in order to reduce CO<sub>2</sub> emissions in Washington. I-1631 lost approximate 55% to 45% (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018). This research used cultural cognition theory (Dake, 1991; Douglas, 2003; Kahan, 2007; Kahan & Braman, 2006; Wildavsky & Dake, 1990) to examine what factors were related to voters' choice to either vote for or against I-1631. Research suggests that worldview may play a significant role in how people view serious social issues (hence the idea of 'cultural cognition'). Furthermore, worldview is thought to predispose certain voters to having an unfavorable view of CO<sub>2</sub> emissions restriction policies, despite their level of scientific knowledge about climate change (Kahan & Braman, 2006). This chapter includes a statement of the problem and the purpose of the study. It concludes with a hypothesis, research questions, definitions, assumptions, limitations, and a justification for this research.

The purpose of this study was to analyze the role of worldview with respect to voter outcomes in I-1631 in the November 2018 Washington State general election. This research used an online nonprobability survey sample of Washington voters who voted in the 2018 general election. Worldview was measured with two six-item rating scales tested by Braman, Kahan, Peters, Wittlin, and Slovic (2012). The two scales provided a measure of two different dimensions of worldview. Binary logistic regression modeling

was performed to test the relationship between individuals' worldview and how they voted.

The concept of cultural cognition theory is based largely on the works of Douglas and Wildavsky, and a number of authors have used the concept of worldview and cultural cognition theory to understand how people respond to various social issues (Dake, 1991; Douglas, 2003; Kahan, 2007; Kahan & Braman, 2006; Wildavsky & Dake, 1990).

Chapter II will provide a review of the foundational theories.

### Background

According to the Inter-governmental Panel on Climate Change (IPCC), anthropogenic emissions of CO<sub>2</sub> are the main cause of global warming and that reducing these emissions is critical to limiting the amount of global warming the earth will experience in the future (IPCC, 2018: Summary for Policymakers). Seventy percent of Americans believe that global warming is occurring while 58% think that global warming is chiefly caused by human activity (Leiserowitz, Maibach, Roser-Renouf, Rosenthal, Cutler, & Kotcher, 2018). As a global warming mitigation measure in Washington State, I-1631 would have placed a \$15 fee per ton of emitted CO<sub>2</sub> on many of Washington State's biggest emitters (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018). While no state so far has implemented a carbon fee, legislatures in seven states have received carbon fee proposals while an additional two states have considered studying carbon taxing (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018). In 2016 Washington State had another carbon tax initiative, I-732, that also failed during the election, with approximately 59% of the voters voting no (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018).

During the campaign period prior to the 2018 Washington State election, there were two political action committees that supported I-1631 and two that opposed the initiative. The supporting committees spent approximately \$16.4 million trying to get I-1631 passed while the opposing committees spent approximately \$31.5 million to defeat the measure (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018). The opposition committees were sponsored by the Western States Petroleum Association and the Association of Washington Business. The biggest contributor to defeating I-1631 came from BP America which provided \$13.15 million (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018).

Cultural cognition theory (CCT) suggests that people tend to base their approach on how to deal with serious social issues on their worldview which existed prior to their learning about the social issue. In the case of climate change, I-1631 was designed to reduce CO<sub>2</sub> emissions in order to mitigate climate change. How people viewed the issue may have been largely based on their worldview that existed prior to their learning about I-1631. Since most people are not experts in climate science, they depend on others for guidance on how to think about climate change and how to vote on I-1631. People will likely consult those they trust for guidance on this and other important issues. They trust people who share a similar worldview with them (Kahan & Braman, 2006). This worldview can be measured by determining where people fall on two dimensions, the “grid” and the “group” (Douglas, 1970). The grid measures where people fall on a continuum between “individualist” and “communitarian,” while the other dimension, group, measures where people fall on a continuum between “hierarchist” and “egalitarian” (Kahan & Braman, 2006. (p. 153).

In any complex issue, including climate change, people may have the opportunity to focus in on certain aspects of the issue and disregard other aspects (Douglas & Wildavsky, 1982). People who are identified as egalitarians or communitarians tend to focus in on the environmental risk of climate change. Those identified as individualists tend to be concerned about how environmental regulations would affect markets or interfere with business. Hierarchists see environmental regulations as compromising the power of social and governmental elites (Kahan & Braman, 2006). People who are hierarchists, for example, tend to identify with other hierarchists and will rely on them for advice and information on most issues, including climate change. Not only that, they will reject information and advice from the opposite group, egalitarians, who tend to have a very differing approach to climate change. If a hierarchist, for example, might express interest in a differing point of view, it is likely other hierarchists would censure the straying hierarchist (Kahan & Braman, 2006).

According to Kahan and Braman (2006), empirical evidence showed “The more egalitarian and communitarian individuals were, the more concerned they were about global warming. . . the more hierarchical and individualistic they were, the less concerned they were. . . Indeed, cultural worldview predicted individual beliefs about the seriousness of these risks more powerfully than any other factor, including gender, race, income, education, and political ideology” (p. 158).

This study analyzed Washington State residents who voted on I-1631 by asking a number of demographic questions as well as twelve questions that provided an indication of world view on two dimensions, the grid and the group dimensions. These worldview questions were taken from Braman, Kahan, Gastil, Slovic, and Mertz (2007). Braman et

al. developed a 32-item survey designed to evaluate worldview on the two scales, the grid (individualist-communitarian) and the group (hierarchist-egalitarian). The original grid and group questionnaires were reduced to two six-item scales by Braman, Kahan, Peters, Wittlin, and Slovic (2012). The short-form version is the one used in this study (grid,  $\alpha = .76$  and group,  $\alpha = .84$ ) and is part of the survey found in Appendix A.

The respondents were all recruited through Amazon Mechanical Turk. The survey was administered online using Qualtrics. Qualtrics supplied an excel spreadsheet with the results of the surveys. The total number of respondents was 648, however only 503 were usable. If respondents indicated they did not vote on I-1631 or if they did not remember how they voted on I-1631, they were excluded from the usable pool of respondents. The demographic questions included: gender, age, size of community of residence, education level, income, political party affiliation, advertising effects, general knowledge of science, and knowledge of climate science. Two additional questions sought to determine important reasons why respondents voted for or against I-1631. One question asked those who voted for the initiative what was the most important reason why they voted that way. A similar question was given to those who voted against I-1631. Results of the survey are listed in Chapter IV while the complete survey is provided in Appendix A.

### Problem Statement

I-1631 was Washington State voters' second attempt to impose a fee on the emissions of CO<sub>2</sub> through a ballot initiative. Both have failed. The IPCC is unequivocal on the need to reduce GHG emissions, yet there appears to be a reluctance on the part of many people to move towards any meaningful attempt to restrict GHG emissions. As such, there are no fees on CO<sub>2</sub> in any state. The advertising that supported I-1631 tended

to be based on scientific findings warning people about the consequences of continued unfettered GHG emissions. If worldview plays a significant role in how some people view the science arguments against GHG emissions, then by understanding how worldview works, supporters of future CO<sub>2</sub> reduction initiatives could use this knowledge in crafting arguments that might resonate with people whose worldview would normally cause them to reject restrictive initiatives on CO<sub>2</sub>. By understanding how worldview manifest itself on those who oppose restrictive initiatives, supporters of such initiatives could devise new arguments that would convince doubters that such initiatives are in fact worthwhile.

### Research Questions and Related Hypotheses

The key research questions for this study were:

1. Are demographic characteristics (including gender, age, residence, education, income) associated with how Washington residents voted on I-1631?
2. How does political party affiliation relate with how Washington residents voted on I-1631?
3. Is general science knowledge as well as climate science knowledge associated with how Washington residents voted on I-1631?
4. Is exposure to advertising associated with how Washington residents voted on I-1631?
5. Is worldview associated with how people vote on issues involving climate change?

6. Are demographics or worldview more strongly associated with how people vote on issues involving climate change?

The research hypotheses that were tested were:

1. One or more demographic variable (gender, age, residence, education, Income) will be related to how Washington residents voted on I-1631.

2. Political party will be related to how Washington residents voted on I-1631.

3. Knowledge of climate science will be related to how Washington residents voted on I-1631.

4. Voters' worldview as measured by the Hierarchy-Egalitarianism scale (grid) and the Individualism-Communitarianism scale (group) will be statistically significant predictors of how they voted on I-1631.

5. Voters on the Hierarchy end of the grid scale will be more likely to vote against I-1631 than voters at the Egalitarian end of the scale.

6. Voters on the Individualism end of the group scale will be more likely to vote against I-1631 than voters at the Communitarian end of the scale.

7. Worldview will be more strongly related to how individuals voted on I-1631 than demographic characteristics, political party affiliation, science knowledge, or exposure to advertising.



## Definitions

The following terms are used in the study and the definitions that are operationalized for this research accompany each term.

*Climate change:* “Climate change is a long-term shift in global or regional climate patterns. Often climate change refers specifically to the rise in global temperatures from the mid-20th century to present” (National Geographic).

*Global warming:* “Global warming is the long-term warming of the planet’s overall temperature. Though this warming trend has been going on for a long time, its pace has significantly increased in the last hundred years due to the burning of fossil fuels. As the human population has increased, so has the volume of fossil fuels burned. Fossil fuels include coal, oil, and natural gas, and burning them causes what is known as the ‘greenhouse effect’ in Earth’s atmosphere” (National Geographic.) For the purposes of this study, climate change and global warming are used interchangeably.

*Worldview:* Worldview is a construct in culture theory that posits the way people view risks can be evaluated on two continuums, the hierarchy-egalitarianism dimension (referred to as the grid scale), and the individualism-communitarianism dimension (referred to as the group scale). Where people fall on these two dimensions or scales tends to place them with like-minded individuals who share similar attitudes towards various social risk issues. Questionnaires have been developed that place people on these two scales and have been used in various studies (Braman et al., 2012).

## Assumptions

The following assumptions will be made for the purposes of this study:

1. Participants in this study were residents of Washington State and voted in the 201 Washington State general election.
2. All participants understood the instrument.
3. All participants completed the instrument in an honest manner.

## Limitations

The following are acknowledged as factors that may limit the generalizability of study results:

1. The Washington State general election was conducted in November 2018. The study was conducted in July and August 2019. Some people may not have accurately remembered how they voted approximately nine months later.
2. Participants may have received new information since November 2018 that may have altered perceptions or beliefs.
3. Pool of available participants was limited to Amazon Mechanical Turk workers. This pool might not accurately reflect Washington State voters.

## Justification

This study might provide insight as to whether worldview is an area worth future study as it relates to how people vote in general elections in Washington State on issues regarding climate change.

## Summary

Climate change is a growing threat that continues to increase as more GHG is released into the atmosphere each year. I-1631 was one attempt to begin to reduce emissions of GHG. The initiative failed 55% to 45%. This study may offer one prospective as to why voters rejected the initiative. If worldview is closely linked to initiatives such as I-1631, this knowledge could provide a clue on how better to frame supporting arguments that might improve the chances of future success on these initiatives.

## CHAPTER II

### LITERATURE REVIEW

The purpose of this chapter is to review the literature related to the cultural cognition theory (CCT) and how it relates to Initiative 1631 (I-1631), the ballot measure that sought to impose a carbon fee on most large CO<sub>2</sub> emitters in Washington State. The examination of CCT will serve as the theoretical background of this project. In addition, the chapter will review the threat posed by anthropogenic climate change and the deliberate attempt to discount anthropogenic climate change and block attempts to regulate CO<sub>2</sub> emissions. For many years there has been a robust and effective climate denial industry that has successfully clouded the climate change issue in the minds of many American (McCright & Dunlap, 2010). The final sections of chapter will review I-1631, what it proposed to do, and provide a brief look at other carbon tax proposals. The chapter will conclude with a brief summary.

#### Theoretical Foundation – Culture Cognition Theory

“Environmental problems are fundamentally social problems: they result from human social behavior, they are viewed as problematic because of their impact on humans, and their solution requires societal effort” (Dunlap & Marshall, 2007, p. 329).

#### *Worldview*

While scientific evidence continues to overwhelming support that climate change is real and caused by human behavior, the American public continues to be divided on the issue (Hamilton, Hartler, & Bell, 2019). What scientists say seems to have little impact of the diverseness of the climate change issue (Kahan, Jenkins-Smith, & Braman, 2011). As a theory, cultural cognition of risk provides an explanation about the public’s

disagreement over climate change. People tend to be selective about agreeing with or dismissing evidence that fits in with values they share with other people (Kahan, Jenkins-Smith, & Braman, 2011). People, according to cultural cognition, are disposed to believing facts and information that they (and the people they identify with) agree with and disbelieving facts and information they disagree with (Kahn, Braman, Monahan, Callahan, & Peters, 2009). People tend to view the world with latent predispositions that can have a significant effect on how they regard new information. If uncertainty arises, people tend to seek out those with a similar worldview in order to better understand risk issues (Kahn, 2012).

Science has provided a significant increase in the amount of information that is available for many risk areas, including for climate change. Many people lack the time or inclination to carefully study all available information on the subject. Individuals tend to employ heuristics when dealing with new and abundant information such as climate change. As a consequence, individual's heuristics often involve seeking input from those they trust. We tend to trust people who share a common worldview. If the new information we encounter is consistent with our groups and our worldview, we tend to accept it as fact while rejecting information that is contrary to our group and worldview. Often this process will allow people to form quite confident beliefs about harm. Cultural cognition theory suggests that the heuristic process involving risk will interact strongly with people's group commitments. The experts we seek for new information are the people we consider to be credible. These experts tend to be people who have similar worldview beliefs as we do. Culture is a significant part of the cognitive process of people dealing with risk information (Kahan, 2007). Group identification and approval

can lead individuals to provide strong support for the group's position even when the individual may only weakly agree with the dominant position. Additionally, if individuals disagree with the group's position, they will likely remain silent regarding this disagreement (Kahan & Braman, 2006).

Technologies and risks are set in a political context. This is true for both the technologies as well as the often highly charged controversies that accompany them. Many people take a stand either supporting technologies as important to society or see some of these technologies as threatening the environment. This has become one of the leading issues in contemporary society (Dake, 1991). "Worldviews. . .are inductively derived from cultural themes observable in public and expert conflicts over technology; they emerge from a paradigm emphasizing individual variations in the relations of persons to their everyday social and physical environments" (Dake, 1991, p. 77).

As science has provided more and more data about risks, including climate change, it has become harder for many people to be able to sort out fact from fiction. This has led to a multiplication of cultural worldviews and an increased level of conflict between groups with opposing worldviews. The mass of science data has, interestingly, made it harder, not easier, to know and understand risks to society. However, many people have developed very confident beliefs about risks based on their worldviews (Kahan, 2007).

Cultural cognition suggests that people's perception of danger is tied to their cultural values. People tend to associate calamity with behavior they dislike while feeling good about behavior they approve. We tend to have a feeling of trust towards those who share the same values and distrust those who have differing values. This leads to people

feeling that those who have differing values are putting society at risk, cannot be trusted, and need to be controlled (Kahan, 2007).

People tend to share beliefs about risk with their associates. They gravitate to people and groups who have similar worldviews. This carries with it a sense of credibility towards the members of the group. Therefore, when new information arrives, people seek out the view of the group as many are not likely to be able to sort out credibility on their own. If the new information is consistent with the worldview of the group, it will be accepted. On the other hand, if new information is inconsistent with the group worldview, the group will very likely dismiss the new information as biased and wrong (Kahan, 2007). Many risks tend to be complicated and may involve competing claims. As a result, people often seek guidance, usually from people whose views they share, as to how to view some new risk. The people they trust tend to be the people who share the same worldview (Kahan, Slovic, & Braman, 2006).

According to cultural cognition, people tend to base their approach on how to deal with serious social issues on their worldview which exists prior to their dealing with the social issue (Kahan et al., 2009). In the case of climate change, how people view the issues may be largely based on their worldview that existed prior to their learning about the climate change issue. Since most people are not experts in climate science, they depend on others for guidance on how to think about climate change. People will likely consult those they trust for guidance on this and other important issues. They trust people who share a similar worldview with them (Kahan & Braman, 2006). In addition, those who might “even weakly support what appears to be the dominant view are likely to

express unequivocal support for it, while those who disagree will tend to mute their opposition in order to avoid censure” (Kahan & Braman, 2006, p. 156).

Empirical evidence suggests that when people consider both the benefits and risks of particular potentially dangerous activities, benefits and risks tend to be inversely correlated. That is, if they value a particular activity, then they emphasize its positive points and down play its negative aspects. Or, if they are opposed to an activity, then they emphasize its negative aspects and disregard its pluses. They tend to be guided by emotions that are defined by value judgments and support ties to others who share similar feelings. Ordinary people will disagree with experts on important risk issues as well as other lay people who do not share the same worldview (Kahan, Slovic, & Braman, 2006).

Cultural cognition refers to how individuals tend to understand risk which can be at odds with experts in the field. In addition, experts, or sources the public may consider to be experts, often are in disagreement on serious risk issues. This can give rise to intense political conflict over these risk issues. The public’s interpretation of risk, their emotional response to risk, and their comprehension of empirical information about the risks are all part of their cultural worldview. Risk is perceived, not through expert evaluation, but through cultural evaluation (Kahn, Slovic, & Braman, 2006). People tend to mold their understanding of scientific facts, such as climate change, around pre-existing cultural values which provides the context and cultural interpretation of these scientific facts. Worldview can significantly contribute to how people interpret scientific facts (DiMaggio, 1997). Since facts are cognitively interpreted through cultural position, people are not forced “to choose between moral principle and utilitarian efficacy, for most people, it simply never arises” (Kahan & Braman, 2006).



Cultural Cognition Theory is based on the cultural theory of risk developed by Douglas and Wildavsky (1982) in which they contend that culture precedes risks, that is people already have developed attitudes that prescribe how they are likely to react to any new risk that may come along. “Culture is *cognitively* prior to facts in the sense that cultural values shape what individuals *believe* the consequences of such policies to be. Individuals selectively credit and dismiss factual claims in a manner that supports their preferred vision of the good society” (Kahan, Slovic, & Braman, 2006, p. 1083). Douglas and Wildavsky (1982) posit that anytime there is a scientific or technological disagreement or controversy, the “question becomes political” (p. 65). Those who are risk-adverse tend to view the issue as economic growth having harmed the environment. Risk-takers, on the other hand, view the issue as having added to the quality of life and are reluctant to reduce the material advantages just to promote a minor environmental advantage. Risk-aversion and risk-taking are part of the worldview issue that becomes an integral part of any political question involving technology or science.

#### *Grid and group continuums*

Douglas (2003) said that “Culture puts pressure on individuals. They don’t make major decisions without consulting friends. The courage they have to stand up to a risk, or to fail, or to protest, comes from their culture” (Douglas, 2003, p. 1351). Douglas described four kinds of cultures that are identified by culture theory which are connected on two cross-cutting continuums, the grid and the group dimensions. The grid dimension consists of the hierarchical and egalitarian people who differ on boundaries. Hierarchists have strong internal boundaries, they thrive on order, and pay deference to traditional forms of social and political order. Egalitarians, on the other hand, do as they like with

minimal regulation. Egalitarians “are prone to factions. . . their closed community is apt to solve its internal problems indirectly by inculcating hatred against the outside. This leads them to see everything in dire contrasts of black and white. They become a group unable to generate leadership and riven by factionalism” (p. 1349). Hierarchists are high-grid people who value status distinctions and feel that resource distribution ought to be status based (e.g., class, race, gender). Low-grid people are egalitarians who reject status distinctions and believe that all ought to share in material goods and services (Overdevest & Christiansen, 2013, pp. 988-9).

The group dimension ranges from the low group people (individualists) who prefer to live in a freely competitive environment to the high group people (communitarians) who live under close and strong regulations. Individuals who hold these differing views will separate into opposing camps, each of which tends to be certain of the correctness of their incompatible viewpoints. High-group individuals are communitarians who value solidarity and oppose self-interest. They see society as interdependent and oppose competition between individuals or groups. Low-group people believe in self-reliance and self-sufficiency and think the best society is based on “personal ambition and competitive achievement” (Overdevest & Christiansen, 2013, pp. 989). See Figure 1, below.

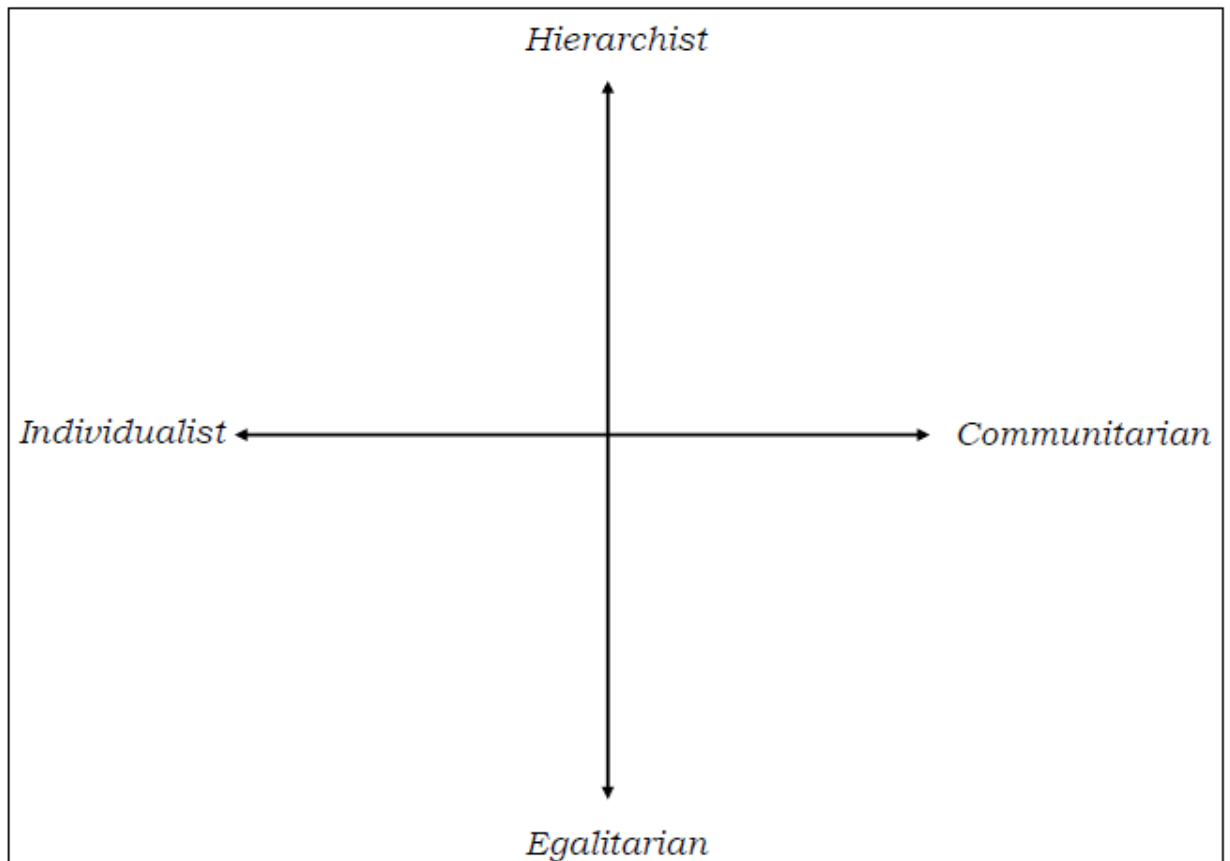


Figure 1: Cultural worldviews: two continuums. (Kahan et al., 2007)

Douglas (2003) said that “Culture is a collective product – the outcome of efforts to form an acceptable, workable social order” (p. 1354). These separate cultures grow and develop based on their differing perspectives. “Culture theory looks to current collectively shared experience. Cultures justify features of organization” (p. 1355). “Culture theory asserts that the polarizing tendency of cultures is necessary to the cultural process” (p. 1357). Cultural cognition theory suggests that people tend to develop

perceptions of risks that are consistent with groups to which they identify (Braman, Kahan, Peters, Wittlin, & Slovic, 2012).

Douglas (1970) developed the social constructs of grid and group as a way to better understand how worldview can affect people. The grid continuum measures how individuals view classification. People who are low in grid (egalitarian) would tend to use their own system of classification while those who are high in grid (hierarchist) would use a shared system of classification with others. A high grid worldview is related to hierarchical society in which rights, responsibilities, and rewards are allocated on characteristics such as race, age, wealth, and gender. A low grid worldview is related to an egalitarian society in which allocation of goods and rights is unrelated to classes such as race, age, wealth or gender. A high group worldview tends to favor a communitarian society in which the individual is subordinate to the collective. A low group (individualist) worldview is a society in which each person is responsible for his or her own wellbeing. The group continuum is similar in that people who are low in group tend to be independent of pressure from others while those who are high in group tend to be controlled by pressure from other people. See Figure 2, below.

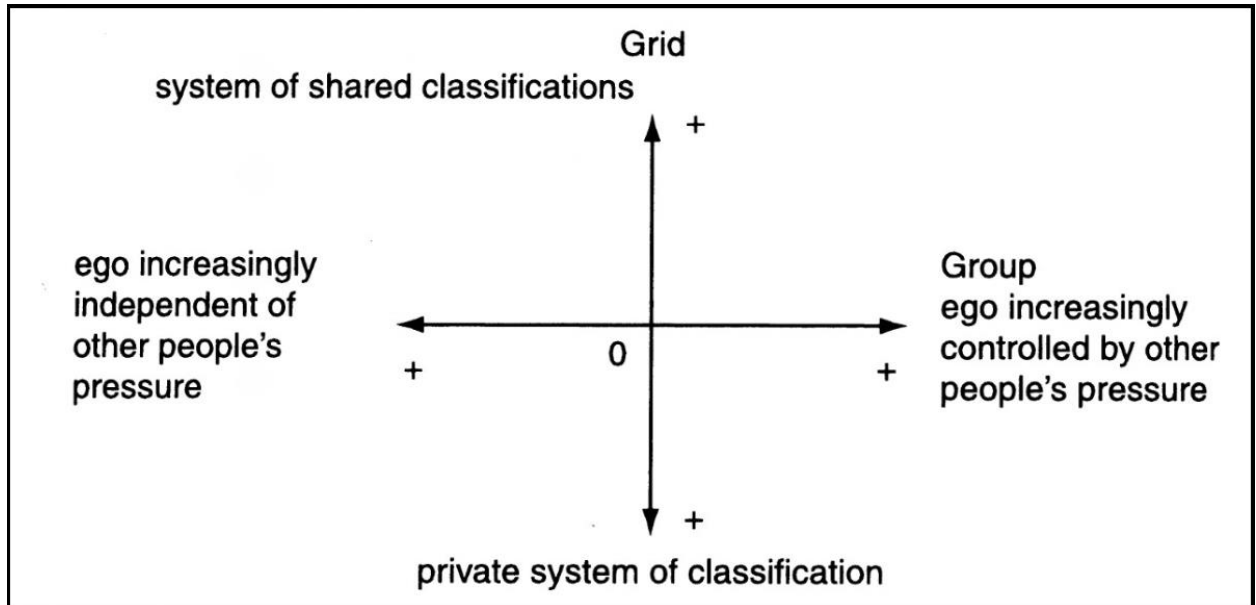


Figure 2. Grid and Group dimensions (Douglas, 1970, p.64)

Cultural theorists have suggested some people choose what should be feared and to what extent it should be feared in order to be consistent with their way of life. These choices of what to fear and what not to fear form cultural biases, or worldviews, that people will defend and that will form the patterns of their social relationships. Culture theory suggests that hierarchists see social deviance as unacceptable because it is contrary to superior-subordinate relationships. Individualists believe in self-regulation and see social deviance as a problem only if it limits freedom. Individualists see nature as a cornucopia that can provide abundance to all. Egalitarians look at nature as fragile and believe that resources should be protected. Hierarchists support technology and business as long as the experts have given their approval. These four different competing worldviews account for a significant pattern of risk perception (Wildavsky & Dake, 1990).

In any complex issue, including climate change, people may have the opportunity to focus in on certain aspects of the issue and disregard other aspects (Douglas & Wildavsky, 1982). People who are identified as egalitarians or communitarians tend to focus in on the environmental risk of climate change. Those identified as individualists tend to be concerned about how environmental regulations would affect markets or interfere with business. Hierarchists see environmental regulations as compromising the power of social and government elites (Kahan & Braman, 2006). People who are hierarchists tend to identify with other hierarchists and will rely on them for advice and information on most issues, including climate change. Not only that, they will reject information and advice from the opposite group, egalitarians, who tend to have a very differing approach to climate change. If a hierarchist, for example, might express interest in a differing point of view, it is likely other hierarchists would censure the straying hierarchist (Kahan & Braman, 2006).

#### *Cultural theory and global warming beliefs*

According to Kahan and Braman (2006), empirical evidence showed “The more egalitarian and communitarian individuals were, the more concerned they were about global warming. . . the more hierarchical and individualistic they were, the less concerned they were. . . Indeed, cultural worldview predicted individual beliefs about the seriousness of these risks more powerfully than any other factor, including gender, race, income, education, and political ideology” (p. 158). Based on this explanation, we might expect those who score high in group and low in grid to support environmental initiatives as well as those who score low in group and high in grid to oppose environmental initiatives (Kahan & Braman, 2006, p. 158).

Ordinary Americans tend to view climate change from the perspective of cultural, social, and moral processes (Dessai, Adger, Hulme, Turpenny, Kuhler, & Warren, 2004). Experts tend to view risks from the position of probability and severity. Common people tend to consider risks in a more complex manner including psychological and social factors, as well as through the lens of worldview (Slovic, 2000). Research found Americans significantly divided on the climate change issue from alarmists to naysayers, people who believe humans will cause a climate catastrophe to people who believe that humans have little to no influence on climate (Leiserowitz, 2005). In between the extremes are people who view the situation as a moderate risk to people who confuse climate risk with ozone depletion. Research has shown that egalitarians and communitarians tended to believe climate change was an important issue while individualists and hierarchists tend to be much less concerned about climate change (Leiserowitz, 2005).

All four worldview groups (hierarchists, egalitarians, individualists, communitarians) would likely agree that the government should work to make its people secure and healthy. However, the four groups would not likely agree on how this public policy ought to be enforced. Policy that would please one group might make another group extremely angry. The disputes would likely be over the facts of the case, not the values. The groups have differing interpretations of the basic facts (Peters, 2006; Gutierrez & Giner-Sorolla, 2007). These four groups “hold sharply opposed beliefs about a range of social risks, including those associated with climate change” (Kahan, Braman, Slovic, Gastil, & Cohen, 2007, p. 1). The culture war in America concerns facts, not values (Kahan, Braman, Slovic, Gastil, & Cohen, 2007, p. 16). Americans tend to care

about the economy, security, and health and safety (Kahan, Braman, Slovic, Gastil, & Cohen, 2007, p. 16). While they agree that these are important issues, they strongly disagree about what are the conditions that threaten these issues and how best to avoid the risks (Kahan, Braman, Slovic, Gastil, & Cohen, 2007).

According to Kahan, Slovic, and Braman (2006), egalitarians (low grid) and communitarians (high group) tend to be sensitive to environmental concerns and be concerned about global warming. Individualists (low group) tend to dismiss environmental concerns because these people are concerned about markets and business. Hierarchists (high grid) tend to doubt environmental concerns because this would question the competence of social and governmental organizations. Individualists and hierarchists would tend to be less concerned about global warming.

### *Measuring worldview*

The concept of cultural risk perception developed by Douglas and Wildavsky was theoretical. Later researchers developed questionnaires to measure where individuals placed on the grid and group dimensions. With these scales, researchers could test to see if grid and group placement was correlated with how people view risk issues such as environmental issues, abortion, gun control, and nuclear energy (Kahan, 2012). Braman, et al. (2007) developed a 14-item egalitarianism-hierarchy (grid) scale ( $\alpha = 0.81$ ) and a 17-item communitarianism-individualism (group) scale ( $\alpha = 0.77$ ) that were used to see if worldview correlated with environmental risk perceptions, gun-risk perceptions, and abortion risk perceptions. The survey was administered to 1844 individuals. As predicted, the more hierarchical and individualistic respondents were, the less concerned



they were on environmental issues. The more egalitarian and communitarian the respondents were, the more they were concerned about environmental issues. Braman, et al. (2012) took the long version of the questionnaire and reduced it to two 6-item scales. This short version was administered to 1540 American adults regarding climate change perceptions. Their findings were consistent with the previous study. Those who were identified as hierarchical or individualist had less concern for climate change while those identified as egalitarian or communitarian showed more concern about climate change. Each six-item scale provided reliable results: egalitarianism-hierarchy (grid) scale ( $\alpha = 0.84$ ) and communitarianism-individualism (group) scale ( $\alpha = 0.76$ ). The short version developed by Wittkin and Slovic (2012) was used in the present thesis project.

To summarize, cultural cognition theory offers three important points. First, it supplies a reasonable theory that policy positions are related to beliefs and values. Next, it provides a method of testing to see if values and beliefs are actually related to how people view various risk activities. Third, the theory provides a method of understanding these principles that people of differing values can understand and thus can promote diverse groups being able to work together on important public policy issues (Kahan, Braman, Monahan, Callahan, & Peters, 2009).

#### *Application of CCT in the climate change debate*

Zinn (2016) suggested that the solution to environmental issues cannot be handled by science alone. Rather, environmental issues require the intervention of various social domains to effectively intervene in the natural world if long-term solutions are to occur. As an example, environmental issues can be framed as a problem in market design. As Zinn explained, “Economic interest and protection of the environment are often

considered to be contrarious forces” (p. 390). In the past, natural resources have been considered an externality, usually with little or no associated cost. As more people realize that there are costs associated with the usage of natural resources, they are now more often thought of as part of the economic process. Zinn explained, “The underpinning rationale of these debates is to marry the needs of the economy with the need of environmental protection. For example, environmental taxes and tradable emission permit systems have been introduced” (p. 391). Some think that the market is one way that social allocation problems can be effectively managed where consensus is difficult and unequal allocation is common. What is not clear is whether economic solutions will be enough to provide adequate environmental protection.

One way that cultural cognition theory can provide a solution to the problem of people disagreeing over facts is to provide strategies to take into account the values from opposing worldview groups.

When policies are framed in ways that affirm rather than threaten citizens’ cultural values, people are less likely to dismiss information that runs contrary to their prior beliefs. They are more willing to weigh and reflect on such information in an environment in which they can see that others who share their values find that information credible (Kahan, Braman, Slovic, Gastil, & Cohen, 2007, p. 16).

### *Summary*

Cultural cognition theory suggests that people’s worldview may play a significant role in how they view social risks. Worldview usually predates learning about new risks, such as climate change. People tend to associate with those who have similar worldviews, and these groups can have an important effect on how people view new information as it

arrives. Information that is consistent with world view will usually be accepted while new information that is contrary to worldview will be rejected (Kahan et al., 2009).

### Anthropogenic Climate Change and Climate Change Denial

According to NASA, global warming is causing climate change (NASA). Climate change denial is anti-intellectualism that is dangerous because science is clear that anthropogenic climate change is occurring and represents a very serious threat to the earth. Already, climate change has had dramatic effects on human and natural systems (Peters, 2018).

Weber and Stern (2011) summarize the findings of the scientific community by saying several conclusions are supported with a high level of confidence. These conclusions include: the earth is warming as a result of human activity, global warming is associated with many climate changes, these changes pose a serious risk to human and natural systems, and that climate change will continue for decades, possibly centuries (pp.315-316).

The IPCC Fifth Assessment Report (IPCC, 2014) provided a number of significant findings. Both the atmosphere and the oceans are warming and that human actions are the chief cause of this. The ice sheets in Antarctica and Greenland are melting due to human caused climate change. The longer that humans wait to reduce greenhouse gas emissions, the more expensive it will be to deal with the consequences.

Climate change is a complex issue that moves relatively slowly in terms of individual life times. Many people who are not scientists lack a full, clear understanding of the forces that are involved in climate change (Weber & Stern, 2011). As a consequence, many people depend on media to help them understand climate change.

The media has not accurately represented the findings of science on this issue. Yet, a good deal of media attention has covered the climate denial movement driven by the fossil fuel industry, wealthy conservative individuals, and by conservative think tanks (Weber & Stern, 2011). The purpose of this climate change denial movement is to financially benefit corporations whose profits depend on fossil fuels. The result is that many Americans have heard of these counter claims that climate change is not really occurring, and it is not caused by human action. Thus, it is not surprising that many people do not believe that climate change is a real, important issue. This leads into worldview being a key way with which many people approach the climate change issue. An example of how the climate change denial movement has operated can be seen by the events of 2007 when a few errors occurred in the IPCC report. The denial movement framed this a proof that climate change was a conspiracy by liberal politicians and grant-seeking scientists. These claims were well-covered by the press and has had a significant impact of many whose worldviews tended the doubt the honesty of liberal claims (Weber & Stern, 2011).

Public opinion polling has assessed the state of Americans' climate change perceptions for decades, making it possible to see trends. Unfortunately, the issue has clearly become more and more polarized over time. In 1997, Democrats and Republicans were nearly united on the issue of whether climate change has already begun with 52% of Democrats indicating the effects had begun as compared to 48% of Republicans agreeing with this claim (Weber & Stern, 2011). Slowly but steadily, the two parties have diverged on this issue. By 2010, 66% of Democrats indicated the effects of climate change were underway as compared to only 32% of Republicans who felt that way

(Weber & Stern, 2011). Yale research noted that in 2018 91% of registered Democrat voters thought that global warming is occurring as compared to only 52% of registered Republican voters (Yale Program on Climate Change Communication, 2018). The long-term efforts of the climate change denial movement appear to have been effective in convincing Republicans that climate change is not an important issue (Weber & Stern, 2011). Partisan polarization on climate change between the political parties, particularly in Congress, is key to conflict and impedes progress on public policy over climate change (Ballew, et al., (2019).

There is a significant disjunction between what the scientific community says about anthropogenic climate change and what many in the public believe about climate change. Much of this divide has been caused by the efforts of the climate change denial movement. For many years, there has been an organized disinformation campaign designed to spread uncertainty about anthropogenic climate change. This campaign has been backed by the fossil fuel industry, conservative foundations, a few contrarian scientists, and the Republican Party (Dunlap, 2013).

Risk is a part of everyday life for modern people. For many risks, including the risk of continuing climate change, there exists deep disagreement about the problem. In addition, different people worry about differing risks including the main categories of foreign affairs, crime, environmental issues, and economic failure (Douglas & Wildavsky, 1982, p. 2). The dialogue about risk will become political if there are disagreements (Douglas & Wildavsky, 1982), and the climate change dialogue has experienced disagreements since the beginning. Ideological polarization has become a common feature in America, and it has extended to ideological conflict over empirical

evidence (Kahan, 2013, p. 1). The political left and right are split over whether or not climate change is occurring, and if it is, whether or not it is caused by human activity (Kahan, 2013).

Conservatives have been opposing environmentalism for decades (Austin, 2002), and conservative think tanks have had considerable success in influencing American environmental policy making (McCright & Dunlap, 2003). Environmentalists have been unable to halt the slide of environmental regulations under continuing pressure from conservatives to weaken environmental protections (Kennedy, 2005).

In the United States, conservative think tanks have had a significant impact in influencing governmental policy to oppose environmentalism. Media in the U.S. portrays more uncertainty about anthropogenic climate change than in other advanced nations as a result of the influence of petroleum and other industries and conservative elements. The environmental movement's reliance on science to promote action on climate change has been countered by the denialists in at least three ways. First, a demand for proof has been used by politicians to stall action. Next, scientists tend to couch findings with probabilistic terminology, and this tentative nature of scientists does not provide the definitive answers that common people and policy makers demand. Third, reliance on scientific claims opens up environmentalists to counter claims provided by skeptic scientists whose work is supported by industry (Dunlap & Marshall, 2007).

Fossil fuels companies are motivated to conceal or distract from the science on climate change. In the 1980s, Exxon Mobil's research indicated that carbon dioxide released into the atmosphere by the burning of fossil fuels posed a serious risk to the world's climate. This research was provided to Exxon Mobile's top executives. However,

the CEO of Exxon Mobile would indicate climate models were not reliable as he helped to block action to reduce fossil fuel emissions. Exxon Mobile actively sought to spread doubt about climate science as it worked with the Bush-Cheney White House to increase confusion about the threat of increased carbon dioxide emissions. Exxon Mobile, after learning about the threat to the climate from emissions decided to stop funding future research on the subject. Instead, Exxon Mobile funded think tanks to spread doubt about the threat of fossil fuel emissions (Insideclimatenews, 2019).

Biased television reporting together with social media and various internet websites that presented incorrect interpretations of climate science feed into a worldview that denies climate change (Peters, 2018). Inaction by the government on climate change has not been accidental. Corporate lobbying and right-wing ideologues have worked diligently for many years to keep the government from addressing the climate change issue. The carbon lobby includes fossil fuel corporations, auto manufactures, politicians, lobbyists, and right-wing propagandists who have worked tirelessly to deny climate change and boost corporate profits. This carbon lobby has stalled not only action by the U.S. Government, but has also interfered with international efforts to address the carbon emissions issue (Hertsgaard, 2011).

During an annual meeting of the National Association of Evangelicals, there was a struggle over the climate change issue. This association represents 30 million evangelicals and encompasses 51 different Christian denominations. Those who felt climate change was a serious issue that the organization ought to embrace were ousted by those who believed that acknowledging climate change was contrary to their political interest. By 2017, fossil-fuel funded right-wing Christians controlled the movement. At

the beginning of the Trump administration, this anti-climate change group held considerable power throughout the Congress, the White House, and the EPA headed by Scott Pruitt, a Christian fundamentalist. Conservative groups have about a billion dollars a year to invest in countering what scientists say is happening with anthropogenic climate change. The funding comes from pro-business billionaires and the fossil fuel industries. Much of this money flows to think tanks, politicians, and lobbyists who are favorable to the interests of the donors. It appears that the relationship between conservative Christian groups and the fossil fuel industry is so strong that even conservative politicians who believe in climate change are afraid to speak up for fear of being primaried out of a job. This is consistent with a wing of the evangelical movement that has long been distrustful of science and modernity (O'Connor, 2017).

This Christian worldview is decidedly pro-business, supports capitalism, and believes that poverty comes from people not following the word of God. In their view, the solution to the problems of the world is unfettered capitalism and that God will take care of environmental problems (O'Connor, 2017). The environmental movement is referred to as the “green dragon” by the religious fundamentalist organization CDR Communications which provides biblical-based media against the environmental movement(O'Connor, 2017, p. 5; CDR Communications, Inc.). The free market is strongly supported by many in the evangelical movement. Some say that capitalism is better for the environment than socialism. In fact, free markets are essential for human welfare as it is the closest approximation that man has come to the teachings of the Bible (O'Connor, 2017). The net result is that the billions and billions that the fossil fuel industry and wealthy business interests have poured into anti-climate change rhetoric has



paid off by stopping the government from any meaningful action on climate change, and the religious right has become an important part of the resistance to effective environmental action (O'Connor, 2017).

### *Organized Climate Denial*

In spite of climate scientists being clear that anthropogenic climate change is a serious threat to the world, many people think there is a debate about climate change or that it is not a problem (Schultz, 2013). The confusion behind the facts and the beliefs lie in a well-funded climate change-denial movement. The think tanks, trade associations, and advocacy organizations that make up the climate change denial movement are funded by individuals and businesses that profit by preventing action against climate change (Schultz, 2013). Many of the tactics the climate change denial movement uses so successfully to thwart action on climate change are similar to how the tobacco industry years before was able to cloud the issue link between smoking and various health issues for many years (Schultz, 2013).

McCright and Dunlop (2010) argue that the American conservative movement has systematically and conscientiously attacked science in order to protect business and industry. One way this has occurred is by challenging the legitimacy of science, particularly impact science. As social movements have arisen that have spelled out the unintended consequences of production science, impact science has looked into these consequences and spelled out their danger to the environment. The conservative movement since the Reagan administration has supported the value of production science and questioned the legitimacy of impact science. The public has been swayed through ideology and propaganda which has led to inaction by the government in dealing with the

findings of impact science in general and climate science in particular. Republican members of Congress have been particularly effective in supporting business and industry against the claims of impact science, so much so that the Federal Government is currently doing virtually nothing regarding climate change issues. Generally, this has been accomplished through legislators attacking scientific evidence that anthropogenic climate change is occurring all the while claiming to be environmentally friendly and environmentally motivated. Conservative legislators have used this tactic in order to protect the industrial capitalist order. The conservative movement's chief tactics have included four effective techniques. According to McCright and Dunlop, they have "(1) obfuscated, misrepresented, manipulated and suppressed the results of scientific research; (2) intimidated or threatened to sanction individual scientists; (3) invoked existing rules or created new procedures in the political system; and (4) invoked an existing bias of the media" (2010, p. 111).

The George W. Bush administration promoted fringe science that disagreed with the widely accepted finding of the vast majority of climate scientists. The majority of fringe scientists who argued that climate change was no problem were receiving funds from various conservative think tanks or similar organizations (McCright and Dunlop, 2010). The Bush administration misrepresented and ignored reports that found climate change to be a serious threat as well as manipulated scientific research from government agencies. The administration attacked individual scientists whose research indicated climate science is a threat and filled agency positions with political appointees with strong partisan credentials. The administration changed rules making it much harder for science to emerge that supported climate change findings (McCright and Dunlop, 2010).

Conservative members of Congress have held hearings that were clearly pre-determined to deny climate change. The conservative movement has been skilled at the natural tendency of the news media to air both sides of an issue making the few fringe scientists who dispute climate change appear to equal the scientists who have found that climate change is real and a serious threat (McCright and Dunlop, 2010). When research finds that many Americans are undecided about climate change or deny it exists, it is based on the effectiveness of the American conservative movement in controlling the dialogue for that very purpose. “Clearly, the American conservative movement has been a powerful counterforce to the environmental movement” (McCright and Dunlop, 2010, p. 126).

Carroll, Graham, Lang, Yunker, and McCartney (2018) found that the fossil fuels corporations have had a significant control over both civil and political society “with generally debilitating implications for democracy” (p. 426). Corporations continue to push for ever increasing extraction and usage of fossil fuels. The fossil fuel industries form an important part of the denial approach that argues against the scientific findings of anthropogenic climate change (Carroll, et al. 2018). In order to promote profit, the industries invoke three common strategies aimed at promoting their supposed concern for the environment. First, they claim that they are developing more efficient extraction and consumption techniques. Next, they claim there are new technologies that will alleviate the problem. Finally, the extraction and consumption industries argue that incremental change will be sufficient to deal with the problem when this is not accurate (Carroll, et al. 2018). There is a single, connected network of fossil fuel corporations devoted to influencing both the government and society and that they are working in the best interest of their primary methods involve lobbying, advertising, and various means of persuasive

communications. Many lawmakers have taken up the denialism of the fossil fuel industries and deny the scientific findings concerning the threat of climate change. The fossil fuel industries talk as though they are dealing with climate change issues while at the same time promoting practices designed to increase profits (Carroll, et al. 2018). Corporations would have the public believe they are taking common sense actions regarding the issue while actually continuing to push for unrestricted fossil fuel usage and maximum industry profits (Carroll, et al. 2018).

In summary, confusion by the American public over whether or not anthropogenic climate change is occurring has been no accident. This confusion has been the result of years of contrary information provided by the climate change denial movement financed by wealthy individuals and corporations whose motive is to maximize profits of the fossil fuel industries. The net result of the efforts of the climate change denial movement is that the American public has heard competing claims regarding climate change for decades, and that has created the opportunity for worldview to be a significant player in how many people regard climate change.

#### Carbon Pricing and Initiative 1631 (I-1631)

According to The World Bank Group (2019), carbon pricing is “recognized as an essential instrument to cost-effectively deliver the transition to low-carbon societies” (p.8). However, gaining support for carbon pricing is difficult even though “carbon pricing is the most effective way to reduce emissions” (p. 3). In 2019 approximately 20% of GHG emissions worldwide were covered by carbon pricing while only about 5% were covered at a sufficient rate in order to reach the goals set out by the Paris Agreement. About 52% of the countries that signed the Paris Agreement have begun to institute

carbon pricing or intend to do so. The U.S. is not one of those countries. There have been some states in the U.S. that are considering carbon pricing including California, Oregon, and New Mexico (p. 9).

I-1631 was Washington State's second attempt to impose a carbon fee. In 2016 another carbon fee, I-732, was also rejected by Washington State voters. 59% voting against the initiative (Smith, 2018). Interestingly, some of the strongest opposition to I-732 came from environmental groups such as the Sierra Club and the League of Conservation voters. These groups opposed I-732 since the most of the proceeds from the initiative would have been used for taxpayer rebates (Leber, 2018).

#### *Background on I-1631*

Initiative 1631 (I-1631) appeared on the ballot in Washington State during the 2018 general election. Had it passed, starting on January 1, 2020, there would have been a \$15 fee per metric ton of emitted carbon placed on many larger emitters in Washington State. There would have been an increase of \$2 per metric ton each year after that until the greenhouse gas reduction goals for 2035 were met. The revenue from this fee would have gone into three different funds. One fund would have supported air quality and energy programs. A second fund would have provided support for water quality and forest projects. The third fund would have provided community support. I-1631 was referred to as a fee rather than a tax since the revenue would have been spent on these three specific projects and would not have gone into the general state treasury for government expenses (Ballotpedia.org, 2018).

### *Support*

There were two committees that registered as supporters of I-1631: Clean Air Clean Energy WA and Fuse Voters. Clean Air Clean Energy WA reported that it received \$16.4 million in contributions and spent the total amount in support of I-1631. Its largest donor was Nature Conservancy which provided \$3.4 million. Bill Gates and Michael Bloomberg each provided \$1 million (Ballotpedia.org, 2018).

### *Opposition*

Two committees registered in opposition to I-1631: No on 1631 and I-1631. The Western States Petroleum Association registered No on 1631 while the Association of Washington Business sponsored I-1631. Together, the two opposition groups raised \$31.6 million and spent \$31.5 million in efforts to defeat the initiative. The Western States Petroleum Association raised by far the larger amount (Ballotpedia.org, 2018). Five companies donated more than \$1 million each: BP America (\$12.9 million), Phillips 66 (\$7.2 million), Andeavor (\$4.4 million), Marathon (\$1.7 million), and American Fuel and Petrochemical Manufactures (\$1.2 million) (Western States Petroleum Association, 2018).

### *Main Arguments*

Supporters tended to claim that I-1631 would create jobs and reduce pollution. This would improve air and water quality and would save natural resources. The opponents claimed that gasoline and energy costs would go up, jobs would be lost, and that the initiative would have no effect on global carbon emissions (Ballotpedia.org, 2018).

## Other Carbon Reduction Efforts

### *Cultural Cognition Theory and I-1631*

Prior research provides possible clues as to what to expect in this study of how people in Washington voted on I-1631 and their voting patterns as related to CCT. Different authors found worldview to be a powerful predictor on how people view risk behavior. Kahan, et al. (2006) found that political ideology, income, education, gender, ethnicity, religion, and community type tended to relate to attitudes towards risk behavior. However, cultural worldview was a stronger predictor than were any of these other factors. Kahan and Braman (2006) found that “cultural worldview predicted individual beliefs about the seriousness of these risks more powerfully than any other factor, including gender, race, income education, and political ideology” (p. 158). Kahan (2012) stated that cultural worldview explains variation better than any other tested factor including ideology. Kahan, et al. (2007) found that, “Individuals’ worldviews . . . explained individuals’ beliefs about global warming more powerfully than any other individual characteristic” (p. 4). The authors stated that how liberal or conservative people were, “explained less than one-third as much of variance in such beliefs as did” cultural world view (p. 4).

### Summary

This chapter started with a review of cultural cognition theory (CCT) and how it relates to climate change and I-1631. This was the theoretical background of the project. Next, the chapter reviewed the seriousness of the threat of anthropogenic climate change followed by the ongoing deliberate attempt to discredit climate change as a real and

pressing issue. The chapter concluded with a brief review of I-1631 and other attempts to institute carbon taxing efforts.



## CHAPTER III

### METHODOLOGY

This chapter provides the method by which this study investigated whether there was a statistical relationship between worldview and how Washington State voters voted on a carbon fee initiative (I-1631) during the November 2018 general election. The study also analyzed the relationship between how people voted on I-1631 and the following demographic characteristics: gender, where people live, age, size of community voters live in, education, income, and political party. The study analyzed individuals' exposure to advertising, knowledge of science in general, and knowledge of climate science. This chapter provides the details on how the survey was conducted, who the participants were, and how the data were analyzed.

To measure worldview, this research used cultural theory (Dake, 1991; Douglas, 2003; Kahan, 2007; Kahan & Braman, 2006; Wildavsky & Dake, 1990) and borrowed two 6-question scales from Braman et al. (2012) which measure two dimensions of worldview, the egalitarianism-hierarchy scale (grid) and the individualism-communitarianism scale (group).

#### Research Design

This study used an online nonprobability survey sample (n = 503) of Washington State voters. The survey was administered during late July and early August 2019, and respondents were recruited using Amazon Mechanical Turk (MTurk). All respondents were required to take a 29-question survey, which included a variety of demographic, political, worldview, and other questions related to I-1631. Please see Appendix A for the full survey instrument. The responses to the survey supplied all data that were analyzed

in this study. A total of 503 respondents successfully completed the questions on the survey and were used for analysis.

The research hypotheses that were tested were:

1. One or more demographic variable (gender, age, residence, education, income) will be related to how Washington residents voted on I-1631.
2. Political party will be related to how Washington residents voted on I-1631.
3. Knowledge of climate science will be related to how Washington residents voted on I-1631.
4. Voters' worldview as measured by the Hierarchy-Egalitarianism scale (grid) and the Individualism-Communitarianism scale (group) will be statistically significant predictors of how Washington residents voted on I-1631.
5. Voters on the Hierarchy end of the grid scale will be more likely to vote against I-1631 than voters at the Egalitarian end of the scale.
6. Voters on the Individualism end of the group scale will be more likely to vote against I-1631 than voters at the Communitarian end of the scale.
7. Worldview will be more strongly related to how individuals voted on I-1631 than demographic characteristics, political party affiliation, science knowledge, or exposure to advertising.

## Respondents

Respondents were recruited through Amazon Mechanical Turk (MTurk). Once identified, respondents were directed to complete the survey on Qualtrics. Respondents received a code at the end of the survey which they used on MTurk to receive pay, \$2.00 per respondent. MTurk can restrict respondents to particular category. In this case, only people who were registered with address in Washington State were recruited by MTurk to be respondents. Control procedures were used to increase the likelihood of recruiting only Washington State residents who voted in the 2018 election and who voted on the I-1631 initiative. Question 1 was: “Do you live in Washington State?” A “No” answer would have automatically ended the session with Qualtrics. Question 2 was: “Did you vote in Washington State in the 2018 general election?” A “No” answer would again have immediately ended the session on Qualtrics. Question 3 was: “In the 2018 general election, how did you vote on initiative 1631?” Possible answers included: “For,” “Against,” “I did not vote on initiative 1631,” and “I do not remember how I voted on initiative 1631.” Only respondents who recorded a “For” or an “Against” were allowed to continue by Qualtrics. Between the filter on MTurk and the first three questions on Qualtrics, it is highly likely all or nearly all of the respondents who successfully completed the survey were actually Washington State residents who voted on I-1631 in November 2018. In addition, MTurk provided the location address for respondents. I eliminated all respondents whose IP address was not within Washington State. Between the screening questions and elimination of respondents who took the survey outside of Washington State, it is likely that most or all respondents were actually Washington State residents.

## Instrumentation

The cultural cognition scales discussed in the previous chapter have been used for research for several years. As a reminder, these consists of two scales, one for measuring hierarchy-egalitarianism (grid) and the other for individualism-communitarianism (group). The full form grid scale consists of 13 questions while the group scale consists of 17 items (Kahan et al. 2007). More recently the original cultural cognition scales have been reduced to two 6-question scales taken from the original longer sets of questions. The present study used the short form, consisting of two 6-item scales. A Cronbach's *alpha* was calculated for the 6 items on the grid scale and the 6 items on the group scale, and both were more than acceptable at alpha of: 0.84 for the hierarchy-egalitarianism (grid) scale, and alpha of 0.76 for the individualism-communitarianism (group) scale (Braman et al., 2012). The response options for both used a four-point Likert 1 to 4.

## Implementation of the Study

The study was conducted with permission of The Evergreen State College Human Subjects Board (Appendix B). Those who qualified were given a link to Qualtrics where the actual survey was placed. Once the survey was complete, Qualtrics provided an Excel spreadsheet with all data.

## Analytical Strategy

The statistical software program, JMP, was used to calculate descriptive statistics and to perform binary logistic regression. In the regression analysis, voting on I-1631 was used as the dependent while gender, age, size of community, education level, income, political party, effects of advertising, knowledge of general science, knowledge of climate science, grid, and group were used as the eleven independent variables.

## Summary

This chapter provided the methodology by which worldview was measured using the two cultural cognition scales and how 503 residents of Washington State were selected to participated in this study. The next chapter presents the results of the logistic regression models, which highlight how various predictor variables relate with how people voted on the I-1631 carbon fee initiative.

## CHAPTER IV

### RESULTS

The purpose of this chapter is to describe the results of the study conducted on voter choice with respect to I-1631. This study analyzed 503 Washington State voters who completed a survey through Amazon Mechanical Turk and Qualtrics. The unit of analysis was the individual survey respondent. The survey asked how respondents voted on I-1631 and 26 additional questions involving demographics and worldviews. The analysis includes both descriptive statistics as well as binary logistic regression, the latter of which was used to investigate relationships between voting on I-1631 and the various demographics as well as how voting related to worldview. The results of the analyses are provided in the following sections.

#### Statistical Analyses

##### *Descriptive Statistics*

Descriptive statistics were computed for both the dependent variable, (voting on I-1631) and for the 11 independent variables. In addition, descriptive statistics were also computed for two additional variables that were not tested in the regression analysis: one question asked those who voted for I-1631 why they voted that way while another question did the same for those who voted against I-1631.

Demographic results and cross tabulations by voting are reported in Table 1. Slightly more females than males responded (52.5% females versus 47.5% males). Nearly 70% of respondents were 39 or younger with about 30% being 40 or older. Over half were residents of cities of 50,001 or greater (56%) while 44% lived in towns of 50,000 or fewer residents. Slightly over 50% had bachelors or graduate degrees while just over 10% had a high school diploma, GED, or less. Slightly over 52% reported earning

\$50,00 or less, nearly 34% earned between \$50,001 and \$100,000, and 14% reported earning in excess of \$100,000 per year. Slightly over 48% were Democrats, 35% were independents, and only 14.5% reported themselves as Republicans.

In addition to the items concerning demographic factors, three additional questions sought responses regarding how advertising may have affected respondents' votes and how knowledge of general science and of climate science may have influenced voting on I-1631. Results of these three questions are also found in Table 1, below. A little over 55% of the participants indicated that advertising had no effect on how they voted while over 44% said advertising had a little, quite a bit, or a great deal of influence on how they voted. Almost 5% said they had only low or very low knowledge of science in general while 10% indicated they had low or very low knowledge of climate science. While 43.5% said they had an average knowledge of science in general, almost 54% said they had average knowledge of climate science. Slightly over half, 51.7%, indicated above average or very high knowledge of science in general while only 36% said they had above average or very high knowledge of climate science.

Table 1 – Descriptive statistics and cross tabulations by voting behavior

Variable	Categories	N	%	For	Against
Gender	Male	233	47.5%	117	116
	Female	258	52.5%	165	93
Age	18-29	175	34.8%	107	68
	30-39	175	34.8%	97	78
	40-49	78	15.5%	41	37
	50-59	50	9.9%	28	22
	60-69	19	3.2%	13	3
	70 and up	6	1.2%	3	3
Population Of	Rural	50	9.9%	21	29
	Up to 10,000	59	11.7%	36	23
Residence	10,001-50,000	111	22.1%	61	50
	50,001-100,000	128	25.4%	78	50
	100,001- 1,000,000	155	30.8%	93	62
Education	Less than HS	4	0.8%	3	1
	HS or GED	49	9.7%	28	21
	Some college	195	38.8%	109	86
	BS/BA	198	39.4%	112	86
	Graduate Degree	57	11.3%	37	20
Income	\$0-\$25,000	99	19.8%	67	32
	\$25,001-\$50,000	163	32.5%	88	75
	\$50,001-\$75,000	118	23.6%	65	53
	\$75,001-\$100,000	51	10.2%	32	19
	\$100,001-\$125,000	47	9.4%	22	25
	\$125,001-\$150,000	12	2.4%	9	3
	\$150,001 and up	11	2.2%	5	6



Party	Democrat	244	48.5%	184	60
	Republican	73	14.5%	25	48
	Independent	178	35.4%	74	104
	Other	8	1.6%	6	2
Advertising	No influence	278	55.3%	167	111
	Some influence	225	44.7%	122	103
General Science	Very low	2	0.3%	0	2
	Low	22	4.4%	11	11
	Average	219	43.5%	116	103
	Above Average	208	41.4%	130	78
	Very high	52	10.3%	32	20
Climate Science	Very low	5	1.0%	0	5
	Low	46	9.1%	17	29
	Average	271	53.9%	146	125
	Above Average	150	29.8%	108	42
	Very high	31	6.2%	18	13

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As Figure 3, below, shows, a little over 57% of the respondents voted for I-1631 as compared to the actual election during which about 45% voted for I-1631. This represents a 12% difference between the survey sample and the actual election.

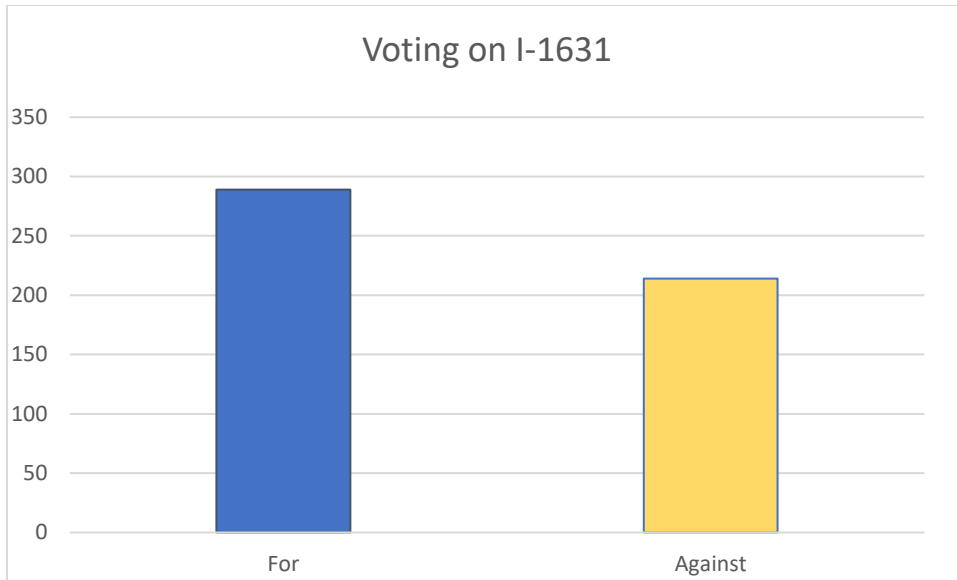


Figure 3: Voting on I-1631. For: 289 Against: 214

Respondents who voted for I-1631 were asked to provide the main reason for their vote. Half of those who voted for the initiative felt that I-1631 “would have been a small step in the right direction to reduce climate change.” An additional 34% mentioned greenhouse gas emissions and global warming as their main reasons for supporting I-1631. Altogether, nearly 85% of supporters provided reasons linked to climate change. Only two respondents mentioned either advertising or opinions of friends as being the main reason for their support. Results are in Table 2, below.

Table 2: Main reasons for voting for I-1631

N	%	Reason
145	50.2	It would have been a small step in the right direction to reduce climate change
53	18.3	It would have helped to reduce greenhouse gas emissions
47	16.3	Global warming is a serious threat
16	5.5	It would have helped many important programs in Washington State
15	5.2	It would have hurt some of the biggest polluters
11	3.8	Washington State would have become the leader in reducing GHG emissions
1	0.3	Advertising convinced me to vote for I-1631
1	0.3	People I know supported I-1631
0	0.0	Other

Respondents who voted against I-1631 were asked to indicate the main reason they opposed the initiative. Four of the top five reasons respondents provided for voting against I-1631 were main talking points that advertising against I-1631 mentioned frequently leading up to the November 2018 election. Advertising continually hit on the themes of taxes, exempt emitters, harm to poor people, and a job loss as what I-1631 would entail. Although only 5 respondents said advertising was the main reason they voted against I-1631, it may be likely that advertising was successful in providing specific objections to I-1631 that resonated with many voters. Thirteen respondents marked “Other” as their main reason for rejecting I-1631. It would be interesting to know what those reasons were. Results are displayed in Table 3, below.

Table 3: Main reasons for voting against I-1631

N	%	Reason
90	42.1	I oppose new taxes
35	16.4	I support the concept but did not like that some large emitters were exempt
33	15.4	I support the concept but felt that I-1631 was not well-written
24	11.2	It would have harmed poor people
13	6.1	It would have caused a loss of jobs
13	6.1	Other
5	2.3	Advertising convinced me to vote against I-1631
1	0.6	People I know opposed I-1631

Gender was a significant factor in how respondents voted on I-1631. Figure 4, below, shows that 65% of females voted for I-1631 while males were almost exactly split between voting for and against the initiative (117 for vs. 116 against). Respondents included 233 males, 258 females, and 12 who did not identify or who selected non-binary.

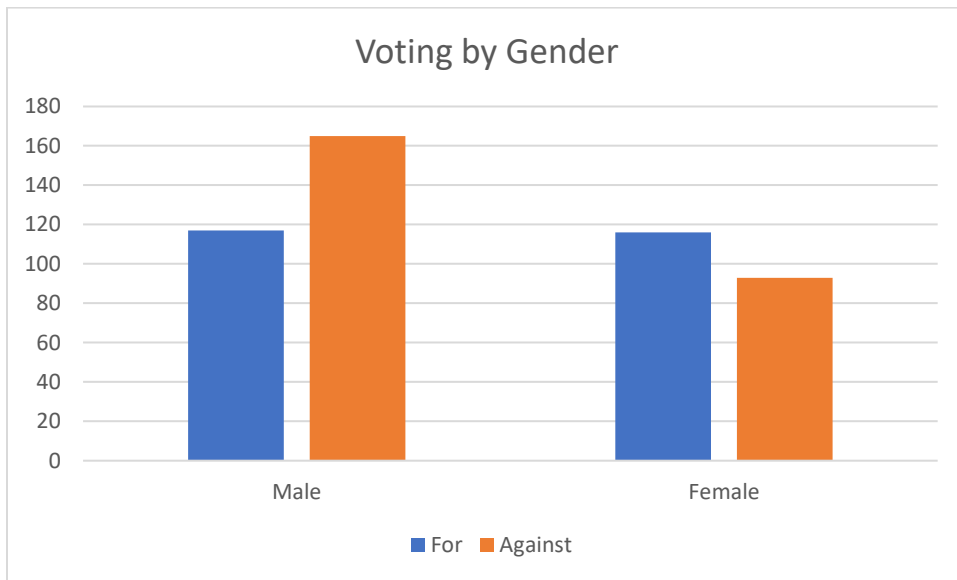


Figure 4: Voting by gender

Where respondents lived showed some significance in how they voted. The rural dwellers were 58% against versus 42% in favor of I-1631. Generally, as the size of the community increased, so did the rate at which respondents voted for I-1631. Nearly 31% of all respondents lived in a city larger than 100,000, and 60% of them voted in favor of I-1631. Please see Figure 5, below.

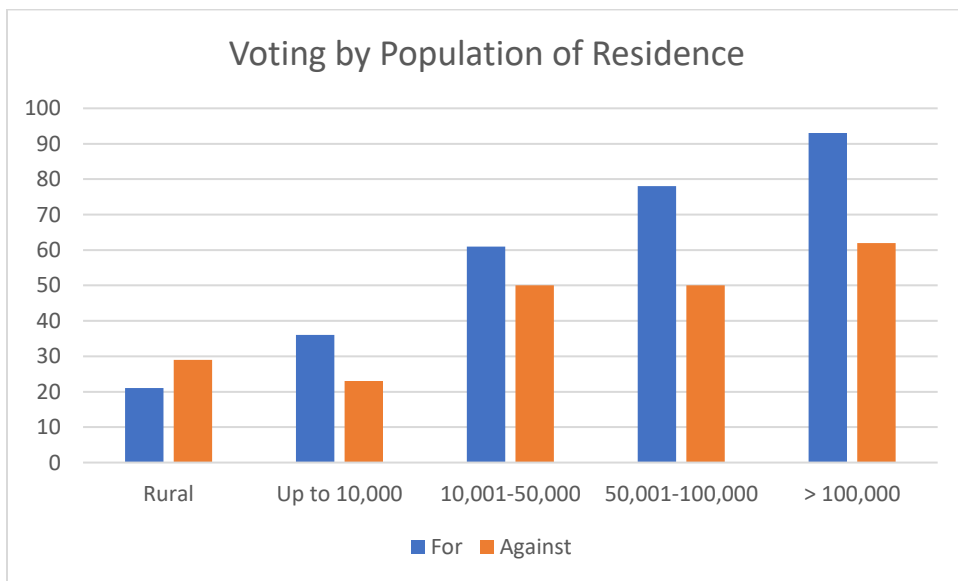


Figure 5: Voting by population of residence

Party affiliation was a significant factor in how respondents voted on I-1631. Democrats voted for I-1631 overwhelmingly (75%) while 60% of Republicans, independents, and others voted against I-1631. Please see Figure 6, below.

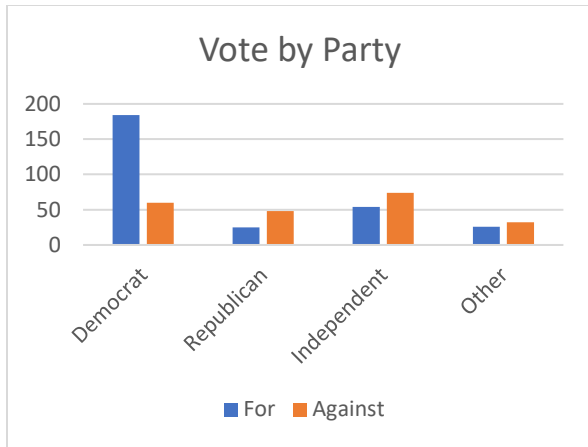


Figure 6: Voting by party affiliation

Self-reported knowledge of climate science was significantly linked to voting. Respondents who rated their knowledge of climate science to be low or very low were more likely to vote against I-1631 while those who rated themselves as having average, above average, or very high knowledge of climate science were more likely to vote for I-1631. Sixty percent of those whose knowledge of climate science was average or above voted in favor of I-1631. Please see Figure 7, below.

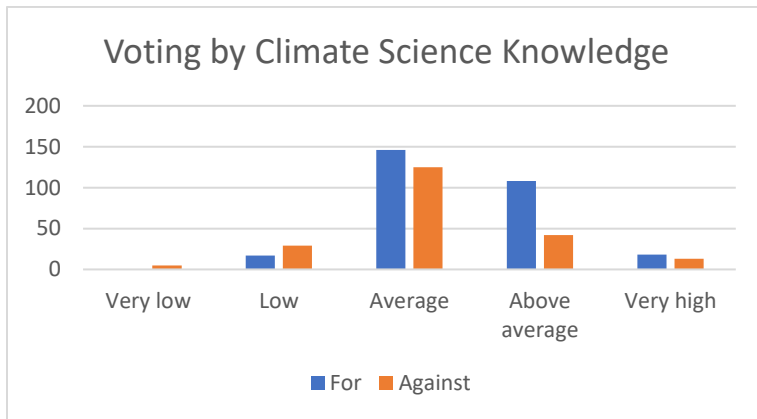


Figure 7: Voting by knowledge of climate science

Binary logistic regression modeling was used due to the binary nature of the dependent variable (for/against I-1631). A cumulative modeling approach was used to separately examine the effects of different predictor variables. Four models were estimated, and the results are presented in Table 4, below. The first regression model, Model 1, included gender, age, population of respondent's community, education level, and income as predictors. The significant findings were that males were less likely than females (6.53,  $p < 0.05$ ) to vote for I-1631 and rural residents (5.53,  $p < 0.05$ ) were less likely to vote for I-1631 than were residents of large cities. Age, education, and income showed no significant effects on I-1631 voting.

The second regression model, Model 2, added party affiliation. Those identifying as Republican (4.38,  $p < 0.05$ ) were significantly less likely to vote for I-1631 than were those who identified as Democrats. The third regression model, Model 3, added respondents' knowledge of general science, respondents' knowledge of climate science, and effects of advertising. Knowledge of science in general had no effect while knowledge of climate science (9.83,  $p < 0.001$ ) showed that the less knowledge respondents had of climate science, the more likely they were to vote against I-1631. Advertising showed no significant results.

The final model, Model 4, added the primary research focus for this study. The results suggest that as individuals' grid scores move towards the hierarchy end of the continuum of the scale and away from the egalitarian end, respondents were significantly more likely to vote against I-1631 (36.99,  $p < 0.0001$ ). As group scores moved away from the communitarianism end of the continuum towards the individualism end,

respondents were significantly more likely to vote against I-1631 (12.41,  $p < .001$ ). Both of these findings were consistent with prior research.

The pseudo  $R^2$  values for the four models in order were: 0.03, 0.12, 0.16, and 0.27, which suggests that of the significant predictor variables (gender, residency population, party, knowledge of climate science, grid, and group), grid and group accounted for the most variance in the dependent variable, while party also showed an important role in how respondent voted. In fact, the  $R^2$  values for the four models suggest that worldview was the most important factor of those investigated in determining how respondents voted on I-1631. These findings support the cultural cognition thesis that worldview is a significant predictor of how people vote on serious risk issues, even greater than the effect of political party. This will be discussed at length in the following chapter.



Table 4: Binary logistic regression predicting voting behavior

	Model 1	Model 2	Model 3	Model 4
	Est(SE)Sig			
Gender	.30(.09)***	.26(10)*	.36(.11)**	.31(.12)*
Age	-.05(.08)	-.03(.09)	.02(.09)	.06(.10)
Income	-.08(.07)	-.01(.07)	-.03(.08)	-.04(.09)
Residence(Large City)				
Rural	-.67(.26)**	-.53(.27)	-.51(.28)	-.47(.32)
Small Town	.25(.24)	.38(.26)	.42(.26)	.70(.30)*
Large Town	.25(.24)	-.21(.20)	-.19(.21)	-.21(.23)
Small City	.02(.19)	.20(.19)	.18(.20)	.07(.22)
Education(Grad Deg)				
Less than HS	-1.07(1.25)	1.43(1.31)	-2.38(1.46)	-2.89(1.58)
HS or GED	-.09(.34)	-.34(.38)	-.40(.39)	-.65(.43)
Some College	.11(.21)	.07(.23)	.03(.24)	.01(.26)
Bachelors Degree	.30(.32)	.18(.35)	.02(.36)	-.17(.38)
Party (Democrat)				
Other		-.39(.25)	-.40(.26)	-.58(.28)*
Independent		-.22(.18)	-.20(.18)	-.10(.21)
Republican		.58(.22)**	-.54(.23)*	.44(.28)
Advertising			-.15(.14)	-.17(.15)
General Science			-.04(.19)	-.02(.20)
Climate Science			.67(.20)***	.65(.21)**
Grid				.21(.03)***
Group				.13(.04)***
n	489	483	483	483
R <sup>2</sup>	.03	.12	.16	.27
AIC	670	608	593	521

Sig <.05 = \* <.01 = \*\* <.001 = \*\*\*

## Summary

The results of this study analyzed the responses of 503 people who voted in the 2018 Washington State general election. It provided support for the hypothesis that worldview is a significant predictor for how people vote on serious social issues, in this case how people voted on I-1631. Gender, size of community, and political party all showed predictive statistical significance. However, worldview showed the strongest predictive power and supported the hypothesis that worldview is consequential for how people vote on critical social issues.

## CHAPTER V DISCUSSION AND CONCLUSION

Climate change is a critical issue and anthropogenic CO<sub>2</sub> emissions are the chief cause (IPCC), Instituting a carbon fee on large emitters may be one way of reducing CO<sub>2</sub> emissions. This thesis centers on the carbon fee initiative that appeared on the 2018 Washington State ballot in the general election, known as I-1631, which was voted down 55% to 45%. This study attempted to determine what factors played a role in how residents of Washington State voted on I-1631, with worldview being the central focus of this analysis. Understanding how worldview is linked to voting on serious risk issues might provide insight into how supporters of future carbon fee initiatives might better present arguments for gaining support for these ballot measures.

Research into cultural cognition theory (CCT) has suggested that worldview may play a larger role into how citizens vote on climate change issues than demographic factors or even political party affiliation (Kahan and Braman, 2006). Climate change is a complex issue with strong opinions and assertions on both sides of the issue. The average voter is not an expert on the issue, and so the voter's worldview may play an important role in how the various arguments, both for and against, are accepted or rejected. People will seek information from those who share a similar worldview while rejecting arguments from those who have differing worldviews (Kahan, 2007).

As a global warming mitigation measure in Washington State, I-1631 would have placed a \$15 fee per ton of emitted CO<sub>2</sub> on many of Washington State's biggest emitters (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018). While no state so far has implemented a carbon fee, legislatures in seven states have received carbon fee

proposals while two additional states have considered studying carbon taxing (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018). In 2016 Washington State had another carbon tax initiative, I-732, that also failed during the election, with approximately 59% of the voters voting no (Washington Initiative 1631, Carbon Emissions Fee Measure, 2018).

Cultural cognition suggests that people's perception of danger is tied to their cultural values. People tend to associate calamity with behavior they dislike while feeling good about behavior they approve. We tend to have a feeling of trust towards those who share the same values and distrust those who have differing values. This leads to people feeling that those who have differing values are putting society at risk, cannot be trusted, and need to be controlled (Kahan, 2007).

This study investigated whether world view of 503 Washington State voters was statistically related to demographics, political party, knowledge of climate science, and exposure to advertising. Cultural worldview was measured using two six-question scales (Kahan et al., 2007). Predictors of voting behavior on I-1631 were analyzed using ordered logistic regression including cultural worldview, voter demographics, political party affiliation, climate science knowledge, and exposure to advertising. This study investigated seven hypotheses involving worldview as it relates to demographics, political party, knowledge of climate science, and exposure to advertising. Each of these is discussed in relation to study results below.

### Major Findings

Analyses of the relationship between eleven independent variables and voting behavior on I-1631 demonstrated that while gender, population of residence, political

party affiliation, and knowledge of climate science were predictive regarding how people voted on I-1631, the strongest predictor was worldview.

### Findings Related to the Research Hypotheses

1. One or more demographic variables (gender, age, income, population of residence, education) will be related to how Washington residents voted on I-1631.

Three of the five variables (age, income, education) failed to be predictive of how people voted on I-1631. Rural voters tended to vote against I-1631 while urban voters favored I-1631. Gender showed a clear pattern with males being more likely than females to vote against I-1631. Males were split on how they voted on I-1631 (117 for versus 116 against) as compared to female respondents who favored I-1631 by 64% for and 36% against. Across all four models, gender played a significant role. Gender appeared to be a variable worth noting for those who may prepare advertising for future initiative voting.

2. Political party will be related to how Washington residents voted on I-1631.

This study found that 75% of those who identified as Democrat voted for I-1631, 66% of those who identified as Republican voted against I-1631, and 58% of those who identified as independent voted against I-1631. In the regression models, party affiliation was a significant predictor of how citizens voted on I-1631. This study suggests that Democrats were much more likely to support I-1631 while Republicans and independents were more likely to oppose I-1631. However, once cultural worldview was added to the regression model, the strength of the political party effect was significantly reduced and Republican versus Democrat was not statistically significant while Independents showed only a small effect.

3. Knowledge of climate science will be related to how Washington residents voted on I-1631.

While knowledge of science in general showed no effect, self-identified knowledge of climate science showed a significant predictive effect. As the knowledge level of climate science increased, voters were more likely to support I-1631. Those who indicated they had a “very low” or “low” knowledge of climate science voted 17 for and 34 against I-1631. Those who said they had an “average”, “above average,” or “very high” knowledge of climate science voted 272 for I-1631 and 180 against. While no attempt was made to actually determine respondent level of climate science and the categories were left open for individual interpretation, the study suggests that the more people know about climate science knowledge the more likely they are to support efforts to control carbon emissions.

4. Voters’ worldview as measured by the Hierarchy-Egalitarianism scale (grid) and the Individualism-Communitarianism scale (group) will be statistically significant predictors of how they voted on I-1631.

This study found that worldview was the factor that was the strongest predictor for how people voted on I-1631.

5. Voters on the Hierarchy end of the grid scale will be more likely to vote against I-1631 than voters at the Egalitarian end of the scale.

This study supported the contention that people on the hierarchy end of the grid scale would tend to vote against I-1631 while those at the Egalitarian would be more likely to vote for I-1631.

6. Voters on the Individualism end of the group scale will be more likely to vote against I-1631 than voters at the Communitarian end of the scale.

This study found that voters who were at the individualism end of the group scale were more likely to vote against I-1631 while those at the communitarian end of the scale were more likely to vote for I-1631.

7. Worldview will be more strongly related to how individuals voted on I-1631 than demographic characteristics, political party affiliation, climate science knowledge, or exposure to advertising.

This study found that worldview as measured by the grid and group scales was a stronger predictor on how people voted than any of the demographic variables, political party affiliation, advertising, or knowledge of climate science. Findings of this study are consistent with earlier studies (Kahan, Slovic, & Braman, 2006; Leiserowitz, 2005; Wildavsky & Marshall, 2007), However, perhaps a more essential point is what this means for future initiatives that propose to limit or reduce carbon emissions. Zinn (2016) provides one possible learning point. It may be possible to develop arguments for carbon reduction that are consistent with a Hierarchy or Individualism worldview. Supporters of carbon reduction will have to expand their science-based arguments to include, for example, economic arguments that would be appealing to those with an opposing worldview. In addition to arguing that carbon reduction will clean up the air, supporters could make a strong case for the economic benefits or the national security benefits of carbon reduction. By looking at the issue from the hierarchy or individualism perspective, supporters can frame arguments that will appeal to those whose worldview might cause them to normally be opposed to carbon reduction.

## Limitations

All 503 participants in this study were recruited through Amazon Mechanical Turk. Since every participant shared in common participation in Turk, this may have limited diversity in unknown ways. Additionally, it is worth noting that in this study, 289 respondents (57%) voted for I-1631 versus 214 (43%) who voted against I-1631. This might suggest that people willing to participate in this study were more likely to vote in favor of climate legislation, which could skew the results.

## Additional Results

This study measured various reasons why participants voted for or against I-1631. These measures were not included in the statistical analysis. However, the results may be of interest. Two sets of questions were developed based on my recollection of the advertising for and against I-1631. No one selected the option “Other” for those who voted for I-1631, and 13 selected “Other” from the group who voted against I-1631. We can assume that the options that were provided tended to reflect most participants’ reasons for voting as they did. Only six total (1 from the for group and 5 from the against group). selected the option “Advertising convinced me to vote (for/against) I-1631 out of a total of 503 total participants. Since only about one percent of the respondents indicated advertising caused them to vote the way they did, we might assume advertising played only a very small role in the outcome. When we consider that the questions tended to reflect the key features of the advertising campaigns, it might be possible to consider that advertising’s role was more significant than the six votes imply. Five who indicated advertising was their chief reason for voting as they did against I-1631 out of a total of 214 who voted against the measure. Four of the top five reasons people selected as why



they voted against I-1631 were points made in opposing advertising. It is possible that advertising may have had a significant role in the defeat of I-1631. Early polls before the election had I-1631 doing well, but as time went on and more opposition advertising was released, polls indicated a slow but steady decline in the support for I-1631. It is possible that the advertising campaign against I-1631 financed by over \$30 million dollars from out of state money may have been a significant factor in the initiative losing.

#### Recommendations for Practice

Supporters of future carbon reduction initiatives may consider developing arguments that support the initiative that are in line with values important to the hierarchalist and individualist worldviews. In 2018 the advertising supporting I-1631 seemed to reflect the values of the communitarian and egalitarian worldviews. To gain support from the other worldviews, supporters would do well to consider that there may be arguments that would resonate with people who might otherwise be opposed to carbon reduction based on worldview. By studying the underlying values of all worldviews, arguments might be developed that would gain support from groups of voters considered to be the opposition.

#### Recommendations for Future Research

While the stated research goal of this study was to determine whether worldview was linked to how Washington State citizens voted on I-1631 in November, 2018, the role of advertising in that election is worthy of note. More than \$30 million dollars from out of state sources was spent on opposing I-1631, and this may have played a role in the defeat of I-1631. This study noted that those who opposed I-1631 provided reasons that were consistent with arguments found in oppositional advertising. Future research might

focus on advertising that addresses values important to each of the four worldview and how effective these differing arguments are on the voters.

### Summary

A number of researchers have found worldview to be closely tied to how people view risk issues. This study provided support for the contention that worldview is a stronger predictor of climate-related attitudes and behaviors (in this case, voting behavior on a carbon reduction initiative) than demographic variables, knowledge of climate science, advertising, or political party affiliation. The strength of the connection between voting and worldview may prove interesting and useful research possibilities for future initiatives

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## APPENDIX A

### Survey Instrument

#### Questionnaire

This survey is part of a college study seeking to learn more about voter reaction to I-1631. The title of the research project is *Initiative 1631: Why Voters Voted for or Against a Carbon Fee in Washington State*. Your assistance is important in helping to complete this study. This survey is for Washington State voters who were 18 or older in November 2018 and who voted in the 2018 general election.

The subject of this survey is Washington Carbon Emissions Fee and Revenue Allocation Initiative, also known as Initiative 1631 (I-1631). I-1631 appeared before voters on the Washington State ballot in November 2018. It proposed to place a \$15 per ton fee on the emission of greenhouse gas.

You are being invited to participate in a research study titled *Initiative 1631: Why Voters Voted for or Against a Carbon Fee in Washington State*. This study is being conducted by Philip Pearson, a student at The Evergreen State College. The purpose of this research study is to understand voting patterns in Washington State regarding the proposed carbon fee. If you agree to take part in this study, you will be asked to complete an online survey/questionnaire. This survey/questionnaire will ask a variety of questions regarding your opinions about carbon fees and related issues. It will take you approximately fifteen minutes to complete.

You will receive \$2 through your Amazon Mechanical Turk account for completing this survey. I expect that your participation in the study may help researchers better understand voting patterns in Washington State regarding carbon fee initiatives.

Risks to you are minimal and are likely to be no more than mild discomfort with sharing your opinion. **The survey will not collect information that could be linked to you personally.** Your answers in this study will remain anonymous. By using the Amazon Mechanical Turk online survey, your answers will be confidential. There is no procedure for disclosing participant identity on this platform.

Your participation in this study is completely voluntary and you can withdraw at any time. You are free to skip any question that you choose. If you have questions about this project or if you have a research-related problem, you may contact the researcher, Philip Pearson at [peaphi12@evergreen.edu](mailto:peaphi12@evergreen.edu). If you have any questions concerning your rights as a research subject, or you experience problems as a result of participating in this research project, you may contact John McLain, Human Subjects Review Administrator at The Evergreen State College at 360.867.6045 or [irb@evergreen.edu](mailto:irb@evergreen.edu)

**By clicking “I agree” below you are indicating that you are at least 18 years old, have read and understood this consent form and agree to participate in this research study. Please print a copy of this page for your records if you wish.**

I AGREE

I DISAGREE

1. Do you live in Washington State?

Yes

No (If no, the survey is finished)

2. Did you vote in Washington State in the 2018 general election?

Yes

No (If no, the survey is finished)

3. In the 2018 general election, how did you vote on Initiative 1631 (I-1631)?

- For
- Against
- I did not vote on initiative 1631 (If so, the survey is finished)
- I do not remember how I voted on Initiative 1631 (If so, the survey is finished)

If you voted on I-1631 in the November 2018 Washington State election, please continue:

4. If you voted for I-1631, please answer this question. What was the most important reason that caused you to vote for I-1631?

- It would have helped to reduce greenhouse gas emissions
- It would have been a small step in the right direction to reduce climate change
- It would have helped many important programs in Washington State
- Washington State would have become the leader in reducing greenhouse gas emissions
- Global warming is a serious threat
- It would have hurt some of the biggest polluters

- Advertising convinced me to vote for I-1631
- People I know supported I-1631
- Other

5. If you voted against I-1631, please answer this question. What was the most important reason that caused you to vote against I-1631?

- I oppose new taxes
- It would have harmed poor people
- It would have caused a loss of jobs
- I support the concept but did not like that some large greenhouse gas emitters were exempt
- I support the concept but felt that I-1631 was not well-written
- Advertising convinced me to vote against I-1631
- People I know opposed I-1631
- Other

6. What is your age? (Select one)

- 18-29
- 30-39
- 40-49
- 50-59

60-69

70 and up

7. What is your political party affiliation? (Select one)

Republican

Democrat

Independent

Tea Party

No Affiliation

Other

8. How would you describe your political views?

Very Conservative

Moderately Conservative

Moderate

Moderately Liberal

Very Liberal

9. Gender:

- Male
- Female
- Nonbinary

10. Where do you live? (Select only one)

- Rural
- Small Town (up to 10,000)
- Large Town (10,001 to 50,000)
- Small City (50,001 to 100,000)
- Large City (100,001 to 100,000,000)

11. Highest education level (Select only one)

- Less than high school diploma
- High school diploma or GED
- Some college
- Bachelor's degree
- Graduate degree

12. Income level (Select only one)

- \$0-\$25,000
- \$25,001-\$50,000
- \$50,001-\$75,000
- \$75,001-\$100,000
- \$100,001-\$125,000
- \$125,001-\$150,000
- Greater than \$150,000

13. Did advertising influence how you voted on Initiative 1631?

- Not at all
- A little
- Quite a bit
- A great deal

14. I would rate my knowledge of science in general to be:

- Very low
- Low
- Average

Above average

Very high

15. I would rate my knowledge of climate science to be:

Very low

Low

Average

Above average

Very high

16. Recently, you may have noticed that global warming has been getting some attention in the news. Global warming refers to the idea that the world's average temperature has been increasing over the past 150 years, may be increasing more in the future, and that the world's climate may change as a result. What do you think? Do you think that global warming is happening?

Yes

No

Don't know



17. Assuming global warming is occurring, do you think it is:

- Caused mostly by human activity
- Caused mostly by natural changes in the environment
- Caused equally by human activities and natural changes in the environment
- None of the above because climate change is not happening

There are no wrong answers to the following questions. Please select the answer that best reflects your beliefs.

18. We have gone too far in pushing equal rights in this country.

- Strongly disagree
- Mildly disagree
- Mildly agree
- Strongly agree

19. Society as a whole has become too soft and feminine

- Strongly disagree
- Mildly disagree
- Mildly agree
- Strongly agree

20. It seems like blacks, women, homosexuals, and other groups don't want equal rights, they want special rights just for them.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

21. Discrimination against minorities is still a very serious problem in our society.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

22. We need to dramatically reduce inequalities between the rich and the poor, whites and people of color, and men and women.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

23. Our society would be better off if the distribution of wealth was more equal.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

24. The government interferes too much in our everyday lives.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

25. The government should stop telling people how to live their lives.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

26. It's not the government's business to try to protect people from themselves.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

27. Sometimes government needs to make laws that keep people from hurting themselves.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

28. Government should put limits on choices individuals can make so they don't get in the way of what's good for society.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

29. The government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals.

Strongly disagree

Mildly disagree

Mildly agree

Strongly agree

---

Thank you for taking this survey

APPENDIX B

HSR Approval



**evergreen**

**Human Subjects Review**

Applicant: Philip L. Pearson  
Project Title: Initiative 1631, Why Voters Voted for or against a Carbon Fee in Washington State  
Protocol Number: 1819-049  
Date: June 21, 2019

Dear Philip L. Pearson,

The Institutional Review Board (IRB) Administrator has reviewed your human subjects review application and has determined that the proposed project is exempt research and does not require IRB approval and oversight. The exemption category for the research is found in 45 CFR §46.104(d)(2)(i):

(2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

(i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects...

In the unlikely event that any harm or risk of harm to human subjects surfaces in the course of your research, we ask you to stop the research immediately and contact the Institutional Review Board office within 1 (one) business day for further review and consultation.

Please keep this letter for your record.

Best wishes on your project,

John McLain  
Institutional Review Board Administrator

**Human Subjects Review | L3207 | (360) 867-6045 | [irb@evergreen.edu](mailto:irb@evergreen.edu) The Evergreen State College | 2700 Evergreen  
Parkway NW | Olympia, Washington 98505 | [evergreen.edu](http://evergreen.edu)**