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Socioeconomic Explanations for Climate Change Denial

 Ever since the mid-1900s, the statistical evidence pointing towards human involvement in the average global temperature increase since the rise of industrialization has been constantly debated and criticized. Despite this criticism, the consensus among the scientific community has grown to become almost unanimous in this debate. The National Aeronautics and Space Administration has released a statistic claiming that, “Ninety-seven percent of climate scientists agree that climate-warming trends over the past century are very likely due to human activities, and most of the leading scientific organizations worldwide have issued public statements endorsing this position.” Additionally, the Intergovernmental Panel on Climate Change has released a statement, claiming: "Taken as a whole, the range of published evidence indicates that the net damage costs of climate change are likely to be significant and to increase over time.” According to these statements, it is clear that the scientific community widely accepts the theories proposing human-induced climate change and that the issue should be treated as a very pressing matter. However, this is clearly not the case in the eyes of the public, as the average person does not perceive climate change as nearly as serious of a threat as climate scientists claim they should. Uncovering possible explanations for this phenomenon is the primary focus of the essay “The Tragedy of the Risk-Perception Commons: Culture Conflict, Rationality Conflict, and Climate Change," By Dan M. Kahan of Yale University and his research team.

 The purpose of the study is to question the “conventional explanation for controversy over climate change [which] emphasizes impediments to public understanding: limited popular knowledge of science, the inability of ordinary citizens to assess technical information, and the resulting widespread use of unreliable cognitive heuristics to assess risk” (Kahan). Simply put, the researchers are exploring the “*science* of science communication” (ibid). The researchers analyzed data taken from a survey of a large number of US adults. The participants were asked questions designed to determine their general social values based on the “hierarchical-egalitarian” and “individualism-communitarianism” scales. The participants were also asked questions that relate to mathematical numeracy, basic scientific concepts, and finally their own perception of the potential risk that climate change poses. These surveys were conducted in order to test three separate theories: The Scientific Illiteracy Theory, the Bonded Rationality Theory, and finally the Cultural Cognition Theory, a theory has had significant contributions made by Professor Kahan himself (Kahan 2). The research team used the results of these experiments to devise what they refer to as the Public Irrationality Thesis – an empirical and theoretical explanation for public climate change dissent.

 The research team first tested the traditional Scientific Illiteracy Theory. The theory itself is fairly straightforward, claiming that, “skepticism about climate change can be traced to poor public comprehension of science” (Kahan 2). This theory is the most conventional and simplest explanation for climate change dissent because a direct correlation between scientific literacy and acceptance of scientifically retrieved information seems logical. However, the data from the survey shows that contrary to popular belief, there is actually a slight *negative* correlation between general scientific literacy and perceived risk of climate change. The realization of this fact is crucial for the members of this research team, as it empirically proves that ignorance to scientific findings is not the sole reason for climate change dissent. By dispelling the Scientific Illiteracy Theory, Kahan is effectively increasing the potential credibility of the findings that are explained in the rest of the study, as it is clear that climate change dissent is not solely based on scientific literacy.

 The second theory tested by Kahan and his team was the Bounded Rationality Theory, which has roots in the psychology of problem-solving. The tests that Kahan and his researchers conducted focused on highlighting the two primary methods of problem solving: algorithms and heuristics. Solving a problem with an algorithm means to start with a set of facts and logically arrive at a conclusion. As long as enough information is provided beforehand, the use of an algorithm will always arrive at the correct conclusion. Algorithms are most often associated with computers, as the use of extremely fast processers allows a computer to calculate all possible outcomes of a situation and determine the solution. While this is extremely effective in computing, the human brain is not powerful enough to use algorithms to solve all of the problems that we come across on a daily basis. Instead, humans have an extremely heavy reliance on heuristics to solve problems (Kahan 3). Heuristics are problem-solving shortcuts that humans develop with experience in order to more quickly arrive at an answer. Some examples of heuristics are common sense, rules of thumb, educated guess, and working backward.

While the use of heuristics definitely saves time and reduces stress, overdependence on heuristics can lead to poor risk-assessment. For example, statistics show that traffic accidents, even in hot zones such as Iraq, Egypt, and Afghanistan, pose a much bigger threat to public safety than terrorist attacks. However, even though the chances of being injured in a terrorist attack are significantly lower than being injured in a car crash, tourists visiting the Middle East are much more wary of potential al-Qaeda threats rather than dangerous intersections and highways. People are much more likely to respond to a crisis that is both clearly visible, and occurs very quickly.

To illustrate this point, the research team conducted a more specific survey, asking questions aimed at identifying their interpretation of the perceived risk that nuclear power poses on the world. While nuclear energy can be weaponized to yield devastating effects, it is also one of the most effective and efficient methods of producing energy. If nuclear energy becomes the new primary form of energy, the potential profits associated with the industry could be as high as the oil or electricity business of the 1970s, thus making it very alluring for rich investors. Unsurprisingly, the tests found that there is a negative correlation between the perceived risk of nuclear power and general science/numerical literacy (Kahan 10). This is because it is unlikely for a scientifically illiterate know much about nuclear power other than what they know from news headlines. This means that they are more likely to associate nuclear energy with events such as Hiroshima, Chernobyl, and the Cuban Missile Crisis. This is a case in which overdependence on heuristics has caused a disregard for scientific reasoning in determining how dangerous a particular source of energy can be.

The third theory tested by the research team was the Cultural Cognition Theory. This theory was tested by the researchers by comparing the subjects’ perceived risk of climate change with their world views based on the “hierarchical-egalitarian” and “individualism-communitarianism” scales. The researchers found that hierarchical individualists were more likely to be skeptics than egalitarian communitarians. Individualists are much less likely to respond to the potential risks posed by climate change because climate change does not pose that big of a threat to the individual person. A communitarian on the other hand, is more likely to respond to a potential crisis that threatens the whole community, which climate change most certainly does. An egalitarian person is someone that favors equality rather than a hierarchy. This means that an egalitarian can assess a problem from the point of view of the community, and not from an individual person. An individual hierarchical person is more inclined to focus time and energy on problems that affect their particular spot on the food chain, as opposed to the prosperity of the whole community. It makes sense that an egalitarian communitarian would be more concerned about climate change than a hierarchical individualist.

After gathering all of this information the researchers come to the conclusion that human reason is irrational at the collective level. This does not mean that once a group of people join together they immediately lose IQ points. On the contrary, this data is evidence pointing towards the phenomenon that when individuals are suddenly treated as a group, a high intelligence level allows humans to incorporate other factors into their decision that are not recognized at the individual level (Kahan 2). The researchers claim that, “merely amplifying or improving the clarity of information on climate change science won't generate public consensus if risk communicators fail to take heed of the cues that determine what climate change risk perceptions express about the cultural commitments of those who form them” (Kahan 15). This realization is very important, as it allows for the further exploration into what factors influence the public’s perception of climate change other than the science of climate change. Since scientists only have influence in the scientific aspect of climate change, there must be other entities that have influence on the matter of overall public climate change risk perception. One of the most obvious examples is politicians.

All politicians are constantly confronted with situations in which they have to choose between doing the right thing for the country and gaining political support. Gaining political support in today’s world while simultaneously doing the right thing is extremely difficult because doing the right thing usually means that an uninvolved person loses money, such as subsidizing medical support to someone that cannot afford it on their own. Whether or not they admit it, politicians want to be reelected. For the best chance of this happening they have to maintain the best possible public image. Sometimes this means that a politician will have to conform to whatever the majority of the population wants, regardless of how much a minority group is hurt. This is a clear example of how the population can affect the decisions of people in politics, but it can also work the other way.

Morally unsound politicians may use their political authority to support certain private entities; support that usually results in personal economic or social benefit. These shady politicians are usually very charismatic, a characteristic that allows them to convince the uneducated general population that their intentions are justified. This is usually the case in countries that have totalitarian governments that limit the spread of information, allowing the government to manipulate its citizens. Influential politicians that oppose the idea of climate change, such as Oklahoma’s Jim Inhofe, have not just gained support from endorsing this view. Their supporters are supportive of them for other fiscal and social reasons. This support can cause American voters that support James Inhofe and his fellow republican congressmen to blindly agree with them regardless of the issue at hand. James Inhofe proudly endorses his view on global warming, evident by the release of his book, *The Greatest Hoax: How the Global Warming Conspiracy Threatens Your Future* (Inhofe).People can become very defensive of their idols, especially when they are a prime target for much criticism from the scientific community. Since partial support in politics unfortunately means next to nothing, politicians will oftentimes have incentive to support one side of an argument not because they agree with it, but because they associate the opposition as the overall enemy. Citizens that are neutral about climate change may support politicians that are anti-climate change based on other reasons.

Politics clearly have a large influence on why the general public does not perceive climate change as a serious threat at the present moment. However, the economics of the energy industry is most certainly the explanation for the long run general dissent of the facts pointing towards climate change.

It is human nature to become more interested in a topic of controversy when it involves a person’s financial status, so it is no surprise that the global economy has a significant influence on the overall global distribution of power (Pearson). Each year, Fortune Magazine compiles a list, ranking the top 500 companies in the world according to overall revenue. According to this list, 17 of the top 25 corporations in the world are involved in oil, gas, and electricity production, two of the top 25 are involved in the production of automobiles, and six of the top 25 are not directly involved in the energy business (Fortune 500). Also, ExxonMobil’s overall revenue is on par with Norway’s GDP, meaning that they each produce roughly the same total value of goods and services. The difference is that ExxonMobil has 77000 employees and Norway, one of the best-off countries in the world, has a population of 4.92 million people, resulting in an enormous difference in productivity per captia (ibid).

Another fact that illustrates the connection between climate change denial and the economy is the fact that all of the oil, gas, and electricity companies in the top 25 are either state-run or publicly owned. For the state-run companies, it means that the government has a low incentive to prove that climate change exists, as it will be directly cutting into potential profits. For public companies, it means that anyone who owns stock in an oil company has economic incentive to deny the risks of climate change.

At the moment Oil is arguably the most lucrative business in the world, and that is because oil and gas are extremely big players in the production of energy, which is easily one of the highest demanded non-essentials that humans have. The demand for energy will probably never fall, so the only way that oil demand will fall is if it is replaced in the energy production process. The wheels are already in motion on this front, as it was realized long ago that fossil fuels are not a reliable long-term source of energy (Pearson). This means that the world will inevitably hit a point in the future where oil and gas will be completely obsolete in the energy production process, a fact that oil companies are well aware of. This means that the goal of oil companies is to turn the most profit before that point is reached. This inevitable point will only come sooner if climate change is declared a serious issue. Therefore, corporations such as ExxonMobil will provide support and endorsements, both financial and social, to politicians that are known to deny the evidence surrounding the theories of human induced climate change, as over time it will definitely increase their profits.

Another possible - and thankfully much more hopeful and promising – explanation behind climate change dissent relates to the Bounded Rationality Theory. An overdependence on heuristics can lead people to not react to a problem unless it is visible and occurs in a relatively short amount of time. Although this is true for all humans of all ages and time periods, the generation of people that was alive for the majority of the cold war was exposed to so much espionage, deception, and unclear government intentions that they have become skeptical towards evidence that is not visible and readily apparent.

On top of the lack of “visible” evidence towards proving human induced climate change, the theories suggesting this phenomenon have fallen prey to the fact that you cannot reverse bad public relations. The “Climategate” scandal that revolved around intercepted emails between fellow climatologists was done in an attempt to slander the science of climate change. After much deliberation, the IPCC claimed that the validity of the information remained constant throughout. However, once there is a story in the news outlining how information concerning climate change may have been falsified, the image is forever hurt regardless of the verdict. The Cold War has caused many people to believe that information retrieved without the consent of the other party is automatically incriminating, regardless of its contents. Hopefully, the generation that did not experience any of the Cold War first hand will not be prone to assuming the worst when it comes to privately kept information.

Overall, it is clear that the science of determining the sources of climate change dissent is much more complex than the traditional theory of a direct correlation between perceived risk and scientific and numerical literacy (Kahan 16). Additionally, dissent is not only always going to be greater in the public as compared to the scientific community, certain factors are in place so that they physically *cannot* be equal. For example, forcing science upon the supporters of James Inhofe will see it as an insult towards the views of their public figure. This animosity will only widen the gap between these two sides.

With all of the current socioeconomic factors that are incorporated into our general lines of thought, it is impossible for the acceptance of climate change on the public level to equal the level of acceptance at the scientific level. In order for that to change, it will take a major paradigm shift that results in everyone to have a more egalitarian-communitarian word view. This could be the result of new political parties, newly found sources of energy, or unfortunately it could be the result of a devastating environmental disaster that can be directly linked to human involvement. Hopefully this general paradigm shift is not too far off in the future, as the sooner this shift occurs, the lesser the socioeconomic impact will be on the world.

Annotated Bibliography

Kahan, Dan M., Wittlin, Maggie, Peters, Ellen, Slovic, Paul, Ouellette, Lisa Larrimore, Braman, Donald and Mandel, Gregory N., *The Tragedy of the Risk-Perception Commons: Culture Conflict, Rationality Conflict, and Climate Change* (2011). Temple University Legal Studies Research Paper No. 2011-26; Cultural Cognition Project Working Paper No. 89; Yale Law & Economics Research Paper No. 435; Yale Law School, Public Law Working Paper No. 230. Print. 24 Jun. 2011.

The research conducted by Dan M. Kahan and his team is the primary source of information used in this research paper. It is an extremely well-written and informative essay that uses both theoretical and empirical data to outline why much of the public is skeptical towards the potential risks that climate change poses on the world. This research provides a foundation for exploring socioeconomic explanations as to why a large part of the population is opposed to accepting the scientific evidence that highlights the devastating effects of uncontrolled human induced climate change.

Pearson, Charles S. *Economics and the Challenge of Global Warming*. New York: Cambridge UP, 2011. Print.

 This source proved to be very useful in this paper, as it provides a good framework for the economics of global warming. This book outlines what economic implications global warming can have on the population.

 "James M. Inhofe, U.S. Senator, Oklahoma." *Senator James M Inhofe*. N.p., n.d. Web. 01 May 2013. <http://www.inhofe.senate.gov/>.

This is the source used to confirm information on James Inhofe, a republican senator that opposes the idea of climate change.

Spencer, Roy W. *The Bad Science and Bad Policy of Obama's Global Warming Agenda*. New York, NY: Encounter, 2010. Print.

 This source did not have any direct links to the data in the paper, but this book provides a very good example of the standpoints that are taken by anti-global warming crusaders, while simultaneously providing evidence of how manipulative writing can be used to skew the facts.

"Fortune 500." *Fortune Magazine*. CNN, 21 May 2012. Web. 29 Apr. 2013.

This magazine source proved to be very useful in this research paper because it provides purely empirical data to show the global demand for energy. Since many of the social sciences are open to interpretation, “proving” theories in these fields can be difficult. Financial data such as this provides undeniable evidence as to the level of influence the energy industry has on non-economic matters, which is used as a base in order to form an argument.

 "Consensus." *National Aeronautics and Space Administration*. NASA, n.d. Web. 05 May 2013. <http://climate.nasa.gov/scientific-consensus>.

This source is very useful, as it allows me to start the paper with two publicly endorsed statements made by an extremely reputable organization, giving the position of human induced climate change an immediate foundation of credibility with which to build the rest of the paper on.