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Clean Energy Research Paper

I. Introduction

Climate change has surrounded a sizable portion of American political discourse in recent years. Regarded as one of the most imminent threats to humanity's way of life, many have called for immediate action to counteract global warming's effects. While much of the American population treats climate change as the greatest problem we face as a society, others refuse to acknowledge its existence at all. Many Americans personally take up daily habits to lessen their negative impact on the environment, but others treat it as if it's out of their realm of responsibility entirely. Since the United States is a notably heterogeneous nation, these attitudes toward climate change differ greatly across different regions and demographics.

Differing attitudes regarding the legitimacy of the threat posed by global warming lead to different preferences regarding the importance of renewable energy sources. Those with stronger concerns surrounding the global state of the environment are more likely to support a quick switch to renewable energy. Those who are less convinced of the life-threatening impacts of global warming are more likely to prioritize their own profits and qualities of life over progress toward increased dependence on clean energy sources. While there have been notable technological innovations in the production of renewable energy in recent years, society is still yet to see a widespread shift toward higher usage of renewable energy. This absence of change has been due to human reluctance and politics.

II. Literature Review

Since the technology for the widespread implementation of renewable energies is present in modern society, the main obstacle preventing further adoption of renewable energy sources is people. Differing politics and an aversion to change make any meaningful progress toward higher usage of renewable energies very difficult to realize. Two possible reasons for human reluctance toward clean energy are a preference for the more familiar fossil fuels and economic concerns.[1] One immediate roadblock to the societal acceptance of a switch to clean energy is the widespread desire to remain dependent on the proven consistency of fossil fuels. Modern technology and society are built around the usage of electricity, which is often powered by coal. Humans are typically risk averse, and therefore we typically oppose substantial changes to our way of life. I believe that this will lead to a correlation between higher ages and increased skepticism toward new forms of energy. Those who are older will have likely developed stronger habits that will keep them dependent on the usage of coal and other fossil fuels.

One other reason for societal pushback against a switch to renewable energy is economic concerns. Although the costs of renewable energy will not ultimately be drastically higher than those of fossil fuels, people's preconceptions about the costliness of renewable energy deter them from investing in these clean energy sources.[2] People worry that a widespread dependence on renewable energy could lead to negative financial

[1] PASQUALETTI, MARTIN J. "SOCIAL BARRIERS TO RENEWABLE ENERGY LANDSCAPES." *Geographical Review*, vol. 101, no. 2, 2011, pp. 201–23. *JSTOR*, http://www.jstor.org/stable/41303623. Accessed 10 Apr. 2023.

[2] Ibid

outcomes for themselves. Therefore, I believe that those who are more confident in the American economy will be more willing to invest in renewable energy. Those who believe that our economy is on a positive trajectory will be more supportive of taking the risk of expanding our reliance on renewable sources of energy.

III. Variables

In this paper, I want to examine the relationship between the value a person places on the future and how willing they are to increase national usage of renewable energy. While the survey directly asks whether or not we should prioritize negating the future effects of climate change, there are other factors in how much a person values society's future. While many progressively minded older respondents may have answered in favor of prioritizing the fight against climate change, they will inherently still value the future less than someone who is destined to experience it. Also, I'd like to examine the effects of an individual's optimism for the future on their desire to invest in renewable energies. The combination of a person's age group and optimism for the future will serve as my independent variables. My dependent variable will be respondents' opinions on further investment in renewable energies.

My first independent variable, specific to this survey, will be the demographic information on respondents' age groups. My second independent variable will be how optimistic respondents are for the future. One question in the survey asks respondents if they believe that our economy will improve, decline, or remain stagnant over the next year. This question serves as a solid indicator of the trajectory that the survey's respondents believe our nation and society are on. My dependent variable will be the

opinions respondents hold on renewable energy. I will use two questions from the survey to measure these opinions. Firstly, I will use a question that asks respondents whether they support further exploration of renewable energy or the expansion of fossil fuel industries. The second question examines tangible actions taken by respondents rather than abstract beliefs. This question asks whether or not respondents engage in a variety of environmentally friendly practices such as eating less meat or reducing waste. I plan to use this question because while it's easy to claim to support environmental protection on a survey, everyday practices such as these paint a better picture of the value a person places on sustainability. I believe that younger and more optimistic people will be more likely to support expanded renewable energy.

IV. Methods

I used a cross-tabulation to measure the correlation between an individual's age and their opinions on renewable energy. I did the same to examine the relationship between the respondents' levels of economic optimism and their views on renewable energy. I created four cross-tabulations in total to explore each of the possible variable relationships. There is one cross table for the relationship between age and each dependent variable, and there is one for each relationship between an individual's economic optimism and their beliefs and habits surrounding the environment. The results for respondents' environmentally friendly habits were divided into 5 different individual habits, so I will create my cross table specifically focused on the habit of reducing the usage of plastic. I believe that assessing an individual's likeliness to partake in environmentally friendly habits better demonstrates their attitudes toward renewable

energies. While they may claim to support renewable energies in a quick survey, a dedication to a specific habit can confirm their emphasis on this goal.

For the age question, response 1 indicated that a respondent was between 18 and 29, response 2 indicated that they were between 30 and 49, response 3 said that they were between 50 and 64, and response 4 indicated that a respondent was above 65. For the economic optimism question, response 1 stated that the economy would improve in the coming year, while response 2 claimed it would get worse, and response 3 believed it would stay the same. For the question measuring the preference between renewable sources and fossil fuels, group 1 supported renewable energies while group 2 supported fossil fuels. Finally, in the question recording active habits, those who responded with 1 engaged in the habit of reducing the usage of single-use plastics, while those in group 2 did not.

V. Data and Findings

Economic optimism vs. adoption of environmentally friendly habits

SUM of EN6F1_ Habit				
Optimism	1	2	99	Grand Total
1	57.45%	25.56%	16.99%	100.00%
2	39.71%	38.49%	21.80%	100.00%
3	44.23%	28.73%	27.04%	100.00%
99	7.42%	10.99%	81.59%	100.00%
Grand Total	**48.42%**	**29.64%**	**21.94%**	**100.00%**

Economic optimism vs. stated preference

SUM of EN6F1_ Renewable vs. fossil				
Optimism	1	2	99	Grand Total
1	86.93%	11.67%	1.40%	100.00%
2	34.32%	61.38%	4.30%	100.00%
3	73.23%	24.11%	2.66%	100.00%
99	38.46%	32.97%	28.57%	100.00%
Grand Total	**68.31%**	**28.73%**	**2.97%**	**100.00%**

Age group vs. adoption of environmentally friendly habits

SUM of EN6F1_ Habit				
Age	1	2	99	Grand Total
1	42.49%	26.40%	31.11%	100.00%
2	54.18%	32.60%	13.22%	100.00%
3	49.66%	29.10%	21.23%	100.00%
4	44.51%	29.14%	26.35%	100.00%
99	71.43%	28.57%		100.00%
Grand Total	**48.42%**	**29.64%**	**21.94%**	**100.00%**

Age group vs. stated preference

SUM of EN1_W	Renewable vs. fossil			
Age	1	2	99	Grand Total
1	43.77%	14.61%	41.62%	100.00%
2	42.28%	19.65%	38.07%	100.00%
3	30.18%	25.72%	44.10%	100.00%
4	27.92%	28.39%	43.69%	100.00%
99	19.08%	15.79%	65.13%	100.00%
Grand Total	**34.48%**	**23.29%**	**42.23%**	**100.00%**

The cross tables supported my original hypothesis. A much higher percentage of the optimistic respondents supported environmentally friendly action than their pessimistic counterparts [57.46% > 39.71%]. Also, members of younger age groups were more likely to support the usage of renewable energy and engage in environmentally friendly habits themselves [43.77% > 42.28% > 30.18% > 19.08%]. The exception to this rule was the youngest age group. Individuals between 18 and 29 were actually the least likely group to have reduced their usage of nonrecyclable plastics. That could have occurred for financial reasons. Single-use plastics are typically very cheap and efficient, so younger groups with lower levels of savings will be incentivized to purchase them. However, besides them, the younger groups engaged in this habit more frequently than their older counterparts. Overall, there seems to be a positive correlation between economic optimism and environmental friendliness, and there seems to be a negative correlation between higher ages and environmental friendliness. This is to say that younger people and people more trusting in the economy are more likely to support increased protection of the environment, and therefore they are more likely to support the usage of renewable fuel.

VI. Conclusion

This data supports my original hypotheses. Both younger people and those who have higher levels of optimism for the trajectory of our economy display a higher willingness to switch to clean sources of energy. Although we can easily observe these demographic disparities in attitudes regarding clean energy, this does not provide a clear solution to the root problems of climate change and global warming. As previously stated, the factors preventing a societal switch to clean energy lie within the opinions held by people. While we can look at and examine which groups presently support environmental initiatives, the only way to remedy the issue of climate change is to incentivize the more reluctant groups to consider switching to sources of renewable energy.