Evaluating the Evolving Determinants of Environmental Concern in the United States: A Decade of Change

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Climate change poses a significant threat to global well-being, yet implementing effective policies to mitigate its impacts has proven challenging due to the need for widespread public support. Environmental concern (EC) among the general populace is a crucial factor influencing climate policy adoption. This study aims to evaluate the relative determinants of EC in the United States and how those factors have evolved over the past decade. The primary research question is: What are the leading determinants of EC in the United States, and how have they changed since 2010? To understand these determinants and their evolution, a comprehensive analysis of public attitudes toward environmental issues is necessary. This study analyzes data from the 2020 International Social Survey Programme using linear regression analysis. Building upon prior research utilizing the same data source from 2010, this investigation offers updated insights into demographic characteristics, values/trust indicators, and economic factors underlying EC levels. Key findings include gender, age, governmental trust, and relative income as significant predictors of EC, with women, younger individuals, those with higher trust in government, and higher-income groups exhibiting heightened concern. These findings highlight the complex and dynamic nature of EC, suggesting that policymakers and environmental advocates may need to tailor their approaches to different demographic and socioeconomic groups to address climate change effectively.

Keywords: Environmental Concern, Environmental Sociology, International Social Survey Program, Determinants

Introduction

Climate Change Threats

Climate change poses a looming threat to the future of humanity. Since the Industrial Revolution, human activities have released numerous pollutants into the atmosphere, leading to significant environmental degradation and health concerns for both human populations and ecosystems. Scientists across the globe concur that these human activities are a significant contributing factor to the rise in Earth's temperature[1].

This trend in the climate is having severe and concrete impacts on human health and well-being. According to Haines & Ebi, a significant rise in morbidity rates is expected in association with various health issues such as heat-related illnesses, ailments due to poor air quality, and malnutrition resulting from diminished food quality and security[2]. Additionally, a decline in worker productivity, especially in regions closer to the equator, is also foreseen. Haines and Ebi further identify a psychological impact stemming from climate change: "The effects of climate change on mental health are increasingly recognized — for example, exposure to floods and other extreme events increases the risk of depression and anxiety, which may disproportionately affect people with preexisting mental health problems."

Role of Policy in Climate Change Mitigation

Given these dire consequences, there is an urgent need to address climate change as an imminent danger to the future of humanity. One widely exercised method to mitigate the impacts of climate change is through public policy. Effective policies have been implemented in the past, but new and more ambitious policies are needed to slow the ever-growing effects of climate change[3]. Goulder & Schein present two potential policies, carbon taxes or cap and trade, that could mitigate climate change from human pollution. However, they identify an overall necessity of implementing some form of climate action policy.

The challenge lies in forming widely supported public policies. Policymakers are incentivized to present policies that are in congruence with public opinion. According to Page & Shapiro, "There has been a great deal of congruence between changes in policy and changes in opinion during the last half-century[4]." While this congruence doesn't definitively prove that public opinion shapes policy, numerous cases show public opinion shifting first, with policy changes following to reenter congruence[4].

Environmental Concern: A Key Factor in Policy Support

This relationship between public opinion and policy implementation brings us to the crucial concept of environmental concern (EC). EC can be defined as an assessment of or perspective on facts, one's own actions, or the actions of others that impact the environment[5]. Understanding the relative determinants of EC is vital to crafting policies that will adequately mitigate the effects of climate change while also being supported by the public. By comprehending what factors drive or hinder individuals' EC, policymakers can tailor their strategies to resonate with the public's values, beliefs, and motivations, making it more likely for these policies to gain widespread support.

However, the determinants of EC have not been sufficiently studied in recent years. Most of the research done on this topic is outdated, with the majority of recent studies based on data gathered in 2010, over a decade from the present. Many global surveys, such as the International Social Survey Programme and the World Values Survey, have published new editions of their findings. Because of this, new research is needed to evaluate the current determinants of EC.

Study Objectives and Significance

This study aims to address this research gap by evaluating the relative determinants of EC in the United States and how those determinants have changed over time. Specifically, our objectives are to:

1. Identify the current leading determinants of EC in the US using the latest available data (2020).

2. Compare these findings with previous research based on 2010 data to track changes over the past decade.

3. Analyze the implications of these changes for policymakers and environmental advocates.

The significance of this research lies in its potential to inform more effective climate change mitigation strategies and policies. By providing up-to-date insights into the factors that influence public environmental concern, this study can help policymakers tailor their approaches to maximize public support and engagement. Furthermore, understanding how these determinants have evolved over time can offer valuable insights into broader societal trends and their impact on environmental attitudes. Ultimately, this research contributes to the critical goal of fostering greater public support for climate action, which is essential for implementing the ambitious policies needed to address the urgent threat of climate change.

Literature Review

Definitions

Environmental Concern (EC) is a fundamental concept in environmental sociology and psychology that reflects individuals' awareness of and attitudes towards environmental issues. More specifically, EC is an assessment of or a perspective on facts, one's own actions, or the actions of others that impact the environment[5]. This broad definition encompasses various aspects of environmental attitudes, including awareness of environmental problems, support for environmental protection efforts, and willingness to engage in pro-environmental behaviors.

This view allows an interpretation of EC to be a specific influence on action but also a general value system. These values can be categorized into four different value systems. Stern provides insight into these four categories[6].

1. **The New Environmental Paradigm (NEP):** NEP is based on maintaining the balance of nature for its intrinsic value or spiritual reasons. This perspective emphasizes the inherent worth of nature, independent of its utility to humans. While NEP has been influential in shaping environmental thought, critics argue that it may be too abstract for many individuals and fail to motivate concrete actions.

2. **Anthropocentric Altruism:** In this view, EC is driven by the notion that environmental harm could pose an impending threat to many people. This view is essentially an extension of the Golden Rule, as Dunlap & Van Liere state[5]. This perspective grounds environmental concern in human welfare, which may be more relatable for some individuals. However, it has been criticized for potentially neglecting non-human species and ecosystems that don't directly benefit humans.

3. **Self-Interest:** The third idea, lacking a formal name, is largely self-centered. It stems from the belief that people will be concerned about environmental damage to the extent they believe it will impact them or their community. This perspective could explain localized environmental concerns but may fall short in explaining concern for global issues like climate change.

4. **Broader Value Orientations:** The fourth and final value system, also lacking a formal name, emphasizes that environmental attitudes are influenced by broader underlying causes. These include terminal values, religious beliefs, or shifts to postmaterialistic cultural values. This perspective acknowledges the complex interplay between environmental attitudes and broader societal values. However, it may be challenging to operationalize and measure in empirical research.

Given the multifaceted nature of EC, it is possible for many of these concepts to be working in tandem with one another. Therefore, it would be difficult to evaluate each concept separately, so for this research, EC will be defined as all four of these categories combined. However, it's important to note that this approach may obscure some of the nuances between different types of environmental concerns. Future research could benefit from attempts to disentangle these various aspects of EC and their relative influences on environmental attitudes and behaviors.

With this comprehensive definition of EC in mind, we can now explore the various factors that influence it. This study will focus on the individual-level determinants of EC in the United States and how those factors have changed over the last decade. The individual-level determinants tested in this study can be split into three categories: demographic characteristics, values and trust, and income level.

Demographic Characteristics

Sex is a major demographic characteristic that has been studied in the literature surrounding EC, and there are many different theories on its effects. A study on college students determined that males were slightly more likely to express EC[7]. Although the effect of gender was significant, it accounted for little variance in EC, according to MacDonald Hara. Conversely, Strapko found that social roles themselves did not influence EC. Instead, she asserts that the value orientations surrounding social roles sway concern for the environment[8]. Strapko found that gender traditionalism exhibits a notable negative relationship with EC among women, while it shows no impact on men. Strapko's findings align with the conclusion made by MacDonald Hara that women are slightly less concerned about the environment when compared to men. However, Xiao McCright collected data that supports the Safety Concerns Hypothesis. In the context of EC, this hypothesis would determine that women, who may perceive environmental issues as posing significant risks to the safety and well-being of themselves and others, are more likely to prioritize environmental protection and engage in environmentally friendly behaviors[9]. This conclusion would contrast those of MacDonald, Hara, and Strapko. Because of current disputes in the literature over how sex impacts EC, this study includes sex as one of the tested variables.

While sex is an important factor to consider, age is another demographic characteristic that has garnered significant attention in the literature. One perspective commonly held among researchers is that age and EC have an inverse relationship[10]. Honnold identifies two possible explanations for this relationship. The first is that the differences are due to the socio-biological process of aging. This means that biological effects during the aging process would impact a person's priorities, perspectives, and lifestyle, which can lessen their concern about environmental issues. The second reason is that important historical events have affected birth cohorts differently. This implies that older generations experience certain historical events that have caused them to be less environmentally concerned. However, other research conflicts with Honnald's conclusions. Gray, Raimi, Wilson, and Arvai found that older generations are not less environmentally concerned than younger ones. They claim that "neither age nor generational cohort correlated with the perceived severity of environmental losses nor support for future actions to prevent them"[11]. Instead, these researchers claim that political and value orientations are a better indicator of EC. Due to the debate over whether age is a reliable indicator of EC, this study includes age as one of the tested variables.

Moving beyond demographic characteristics, we now turn our attention to the role of values and trust in shaping environmental concern

Values and Trust

Postmaterialism has been a hotly debated topic in the literature on determinants of EC. Postmaterialism is a value orientation that emphasizes self-expression and quality of life over economic and physical security. One author asserts that when higher rates of postmaterialism are recorded in the US, there is "an increase in the priority of the environment over growth, environmental group inactive and active membership, contributing to an ecological organization, and attending environmental demonstrations"[12]. However, many researchers do not agree with the theory. Dunlap and York, like Booth, analyzed data from the World Values Survey and determined that the opposite of the Postmaterialism theory was true. Citizens in less financially well-off countries cared more about the environment than their wealthier counterparts[13]. However, Dunlap and Mertig deem the postmaterialism theory on EC to be inadequate and non-falsifiable[14]. They go further to say that the postmaterialism theory cannot be applied to non-industrialized nations, which contradicts the accepted thought that postmaterialism increases once basic needs are met. From Dunlap, York, and Mertig's findings, it can be assumed that the postmaterialism theory on EC does not apply to poorer nations, even when basic needs are met. Due to the disputed validity of the postmaterialism theory, this study tests whether postmaterialistic values impact EC.

While postmaterialism focuses on societal values, individual trust levels also play a crucial role in shaping environmental attitudes. Individuals differ greatly in the amount of trust they have for institutions, the government, and other people. A plethora of research concludes that high levels of interpersonal trust elicit more concern for public good through civic engagement and EC[15]. Franzen Vogl assert that trust in others leads one to believe that many other people are cooperating to provide for the public good[16]. Using Franzen, Vogl, Meyer, and Liebe's logic, one could conclude that trust in governmental institutions

may also affect someone's EC. However, the relationship between people's EC and their trust in government institutions is uncertain [16]. On one hand, governments are supposed to take care of public goods, such as the environment. People who do not trust the government might worry more about environmental issues because they think government officials are not doing their jobs. On the other hand, people who do not trust the government might be less willing to help the environment themselves because they think the government officials are not doing their fair share [16]. Due to the complexity surrounding trust, this study includes both governmental and personal trust as tested variables.

Finally, we consider the role of economic factors in influencing environmental concern, particularly focusing on income levels.

Income Level

Household income level is another area that has been identified to be an indicator of EC. Many studies have shown a positive income effect on the intention to pay for environmental improvement [17]. However, intention does not always materialize into action. Other research has found that higher income leads households to emit higher levels of emissions [18]. This seems to contradict the idea that higher earners exhibit greater levels of EC. Separately, Lo argues against the positive income effect, stating that a negative income effect exists instead. This would mean that lower-income individuals tend to be more concerned about environmental issues. "A possible explanation is that material insecurity reinforces the feeling of risk and danger. People living under more difficult economic situations are more vulnerable and see greater danger" [19]. Because of the discourse surrounding income level's effect on EC, this study evaluates the relationship between the two variables.

I hypothesize that sex, age, trust in others, and income level will be statistically significant predictors, whereas postmaterialism and trust in government will not demonstrate substantial predictive power. This hypothesis is inspired by Franzen and Vogl's analysis of the ISSP Environment 2010 data and is in accordance with their findings.

Methodology

The aim of this research was to evaluate the determinants of EC and see if any determinants changed over the last decade. This study employed a linear regression model using data from the International Social Survey Programme: Environment IV - ISSP 2020 to answer the following question: What are the leading determinants of EC in the United States? Further, this study will analyze whether those determinants have changed since 2010.

The methodology for this study can be broken down into three main phases:

1. Data Source Selection
2. Data Preparation
3. Statistical Analysis

Let's examine each of these phases in detail:

Data Source Selection

The International Social Survey Programme (ISSP) is a collaboration of research institutions in various countries working together to conduct surveys on diverse topics. The ISSP conducted its third edition of a survey on environmental attitudes between 2020 and 2023. The results from the first edition were published in 1993, and the results for the second were published in 2010. This survey includes 28 countries and surveyed people ages 18 and older with over 50,000 respondents. Past versions of this data source have been used in research studies examining a similar question. Numerous peer-reviewed studies have utilized ISSP 1993 and ISSP 2010 in studies similar to this one [16–18].

Data Preparation

Before conducting the regression analysis, several preliminary steps were taken to prepare the data:
Item Selection: Nine specific items were chosen from the ISSP Environment 2020 survey based on previous research [19]. These items can be found in the Appendix. The selection was based on an exploratory factor analysis conducted by Franzen and Meyer on eleven items from the ISSP 1993 survey. They found that nine of the eleven items were needed to adequately capture EC from the data.
Creation of EC Index: The nine selected items were combined into a single variable called the EC index. This index was then standardized on a scale from 0-100 to make the results of the linear regression more intuitive [16].

Specifically, the standardization process involved the following steps:

1. The raw EC index was calculated by summing the scores of the nine selected items.
2. The minimum and maximum values of this raw index were identified across the entire sample.
3. Each individual's raw EC index score was then transformed using the formula: EC_standardized = 100 * (EC_raw – EC_min) / (EC_max – EC_min)

This standardization process ensures that the lowest observed EC score in the sample is mapped to 0, the highest observed score is mapped to 100, and all other scores are scaled proportionally between these extremes. This standardization will result

in more intuitive outputs. The coefficients in the regression results can be interpreted as the change in the EC index (on a 0-100 scale) for a one-unit change in the independent variable.
Preparation of Independent Variables: The factors identified in the Literature Review (postmaterialistic values, trust, age, sex, and income) were prepared for analysis. Descriptions of these variables and any manipulations taken to prepare them for linear regression can be found in the Appendix.

Statistical Analysis

A linear regression was chosen due to its ability to demonstrate the relationship between multiple variables. SPSS software was used to perform the regression. In this case, a linear regression model would aid in showing the relationship between many individual and macro characteristics and EC.

Specifically, we employed an ordinary least squares multiple linear regression. This method was selected because it allows for the simultaneous examination of multiple predictor variables and their individual effects on the dependent variable (EC index), while controlling for the effects of other variables in the model.

Additionally, Franzen & Vogl used this method to analyze the ISSP Environment 2010 to answer the same question this research is aimed to evaluate[16]. I will use the results from Franzen & Vogl's study to determine whether the variables influencing EC have changed since 2010. In order to allow for an honest comparison between the results of these studies, this study will employ the same methods used in Franzen & Vogl's analysis. The EC index was linearly regressed over the prepared independent variables (postmaterialistic values, trust, age, sex, and income). The findings of the linear regression model are reviewed in the Results section.

Results

The results of the linear regression can be seen in Table 1. Firstly, a person's sex was found to be a good predictor of their EC. The results indicate that sex is a statistically significant indicator. Additionally, the results assert that women are more likely to be concerned about the environment. This is similar to the results found in Franzen Vogl's study, where women were slightly more likely to be environmentally concerned, as seen in Table 2.

Next, the findings underscore age as a moderately influential factor. The results affirm that younger people exhibit a heightened concern for environmental issues compared to their elders. Furthermore, the squared age test goes further in describing the relationship. Because the squared age test is statistically significant, there is a concave relationship between age and EC. This means that at younger ages, EC increases, but at older ages, it drops off dramatically. Franzen & Vogl did not have USA-specific data for the square age regression, so no comparison can be made.

Postmaterialistic Values were found to have no relationship with EC. This conclusion aligns with Franzen & Vogl's analysis of the 2010 data, which found that postmaterialism is not statistically significant.

Further, a person's trust in government was another statistically significant variable. The results indicate a positive relationship between trust in government and EC. This means that as a person's trust in government increases, their EC increases as well. However, this is starkly contrasted by the results from the 2010 data. In their study, Franzen & Vogl found that trust in government was not a statistically significant variable.

General trust in people also yielded completely different results. Using the 2020 data, trust in other people was found not to be a statistically significant variable. However, using the 2010 data, Franzen and Vogl found it statistically significant.

Finally, relative household income was found to be statistically significant as well. The relationship between this variable and EC is negative; therefore, this data demonstrates that as a person's relative income increases, their concern for the environment increases also. This is consistent with Franzen & Vogl's results, as well. They found that relative household income had a positive relationship with EC, which was an extremely statistically significant indicator.

Table 1 Results for Model 1 (2020)

Variables	Model 1 (2020)	Std. Error
Sex	1.750**	0.599
Age	-0.329**	0.117
Squared Age	-0.003***	0.001
Postmaterialistic Values	0.014	0.270
Trust (People)	0.098	0.262
Trust (Government)	0.633***	0.148
Relative Household Income	0.079***	0.334
Constant	47.057***	3.931
Adj. R2	0.055	8.81189

Discussions

Summary of Findings

To summarize, this study found that sex is a good predictor of EC, with women being slightly more environmentally concerned than men. Age was also found to be a strong predictor of EC. The data passed the squared age test, meaning that concern increases at younger ages but drops off dramatically at older ages. Additionally, postmaterialistic values were found to have no relationship with EC. Further, trust in other people was found to have no relationship with EC; however, trust in government was found to have a strong inverse relationship with EC. Finally, relative household income was also found to be a strong predictor of EC.

Table 2 Results for Model 1 (2010)

Variables	Model 1 (2010)	Std. Error
Sex	1.31***	1.02
Age	-0.049***	0.032
Squared Age	N/A	N/A
Postmaterialistic Values	1.44	0.84
Trust (People)	2.01***	0.41
Trust (Government)	0.45	0.48
Relative Household Income	0.065***	0.019
Constant	49.0***	3.32
Adj. R2	0.15	8.81189

Notes:

Standard Error: The standard error associated with each coefficient, indicating the precision of the estimate.

P-value: The significance level of each coefficient. ($P < 0.05$, $P < 0.01$, $*P < 0.001$).

Discussions of Findings

The findings of this study offer significant insights into the evolving determinants of environmental concern (EC) in the United States. By comparing our results with those from Franzen & Vogl's 2010 study, we can observe how these determinants have shifted over the past decade, providing valuable information for policymakers and environmental advocates.

Demographic Characteristics

The first notable finding of this study was that women are slightly more environmentally concerned than men. This finding is consistent with many different studies across the literature. Many researchers have found that women exhibit more concern for the environment than men9, 20. However, the reason for this discrepancy in concern is still up for discussion. The Institutional Trust Hypothesis gained prevalence in explaining this discrepancy starting in the 1980s. However, recent research has disproved this theory[9]. Another Hypothesis that could be viable is called the Socialization Theory. This theory states that women's learned gender roles cause their heightened concern for the environment. However, research done by Xiao & McCright found this hypothesis to be untrue. They state, "Much research finds that gender differences in EC are independent of the social roles and statuses that men and women differentially occupy"[9]. Instead, Xiao & McCright claim that " risk perception seem to account for gender differences in worry about both health-related environmental problems (e.g., air and water pollution) and global environmental problems (e.g., global warming and biodiversity loss)"[9]. Other research in this field supports this claim made by Xiao & McCright. Davidson & Fruedenburg argue that the discrepancy between men's and women's EC is the Safety Concern Hypothesis. This hypothesis claims that women are more concerned about issues that could present health or safety issues. They state, "In particular, women appear to care more about the potentially serious if often empirically underdetermined threats to the health and safety of their communities and families"[20]. Out of all the hypotheses that explain the gender difference in EC, the Safety Concern Hypothesis garners the most empirical support in the research community[20].

The finding that women tend to be more environmentally concerned than men has significant implications for policymakers and advocates. It suggests there may be divergent policy preferences and priorities across genders, which could require tailored messaging strategies. For example, framing environmental protection as safeguarding public health may better resonate with women's safety concerns. However, policymaking must be inclusive and validate the perspectives of both genders. Overlooking gender divides risks insufficient public buy-in for addressing environmental challenges collectively.

Another interesting finding that emerged from the analysis is that age has a highly statistically significant relationship with EC. The results affirm that as someone's age increases, their EC decreases. This aligns with the findings in Franzen & Volg's study[16]. However, the squared age test can give deeper insight into the relationship between these variables. The squared age test is more statistically significant than the linear age test. This means that at younger ages, EC increases significantly as one ages, but severely drops off at older ages. One reason for this may be because of education. As the youth is educated in their early adulthood, knowledge of environmental issues increases, thereby increasing the youths's EC[16].

This finding that younger people are much more concerned about the environment has a couple of important real-world implications. First, it suggests that our population is trending toward being more environmentally conscious over time as younger, more environmentally concerned generations replace older ones. Policymakers should take this demographic shift into consideration when formulating environmental policies and regulations. Targeting engagement with the younger generation and keeping them involved with pro-environment action may bode well for the success and public support of such climate policies in the long run. Additionally, understanding what motivates EC among youth could inform more effective messaging and awareness campaigns tailored specifically to resonate with that age group.

Values and Trust

Postmaterialism. The results from this study's analysis, as well as Franzen & Vogl's previous work using 2010 data, both found that postmaterialistic values did not exhibit a statistically significant relationship with EC levels[16]. This casts doubt on the postmaterialism theory that has been posited by some as a factor influencing EC. Analyses by researchers like Dunlap and York using the World Values Survey data agree with this study, find-

ing postmaterialism to be a defective indicator of environmental concern[13]. Dunlap and Mertig further criticize the postmaterialism theory as being inadequate and difficult to empirically test or falsify. They contend the theory may not be rationally applied to non-industrialized countries, as it suggests postmaterialism emerges only once basic needs are met[14]. The lack of significant effects found in this analysis and Franzen & Vogl's study adds to the skepticism around using it as a reliable predictor of environmental attitudes and behaviors.

Trust in Peers. Additionally, unlike Franzen & Vogl, this study found that general trust in others was not a good predictor of EC. The results indicate that trust in other people is not statistically significant, conflicting with earlier findings by Franzen & Vogl, where it was significant. One potential explanation for this discrepancy could be related to changes in societal trust levels in the United States over the past decade. As suggested by Robinson & Jackson, trust in others has been declining across successive generations since the 1940s, leading to trust in others no longer being a significant predictor of EC[21]. Additionally, the rise in political polarization over the past decade, as noted by Hye-Yon Lee, could have further eroded interpersonal trust, creating a more fragmented social landscape and weakening the relationship between general trust and environmental concern[22].

Another possibility is related to methodological differences between the two studies. While both studies used linear regression, differences in the preparation of variables or sample size may have contributed to this shift in statistical significance. The ISSP 2020 data may capture a different societal context, influenced by more recent political and environmental dynamics, compared to the 2010 data used by Franzen & Vogl[16].

Trust in Government. Another difference between this study and Franzen & Vogl's study is the relationship between trust in government and EC. This study found that trust in government is a good predictor of EC. It is unclear what has changed between the 2010 data and the 2020 data to result in this change. Further research may be needed to explore potential factors that could have influenced this shift, such as changes in political climate, environmental policies, or public perception of governmental roles in environmental issues over the past decade. Despite this, Taniguchi and Marshall found that higher governmental trust leads to a higher willingness to make economic sacrifices for the environment, which can be interpreted as a component of EC[23]. Although this is true, greater trust in government does not correspond with most other pro-environmental actions. Therefore, increasing trust in government may not be a particularly viable solution when determining strategies to gain support for environmental policies.

The results from these variables highlight some key implications for understanding EC and promoting environmentally beneficial attitudes and behaviors. The lack of a significant relationship between postmaterialistic values and EC suggests that simply encouraging a shift towards valuing self-expression and quality of life may not be an effective strategy for increasing environmental prioritization. Furthermore, the declining influence of general trust in others on EC levels is concerning, as it may reflect a broader societal trend of eroding social cohesion and interpersonal trust. Efforts to rebuild trust and a sense of shared identity within communities could be valuable for fostering pro-environmental mindsets. While greater trust in government was linked to higher EC, the limited evidence that this translates to tangible pro-environmental actions tempers the potential impact of this finding. Policymakers may need to explore alternative approaches beyond merely attempting to bolster trust in governmental institutions.

Income Level

This study's results reveal a significant positive relationship between relative household income and EC, challenging prior assertions of a negative link. This observation is consistent with Franzen & Vogl's 2013 findings, which demonstrated a positive impact of income on the willingness to invest in environmental improvements[16]. Additional support is provided by Franzen and Meyer's 2010 research, which used ISSP 1993 data to show that higher income levels are associated with an increased readiness to contribute financially to environmental protection[17]. Enzler and Diekmann's work also supports this view, suggesting that individuals with higher incomes tend to prioritize values such as environmental quality over economic security[18]. This trend may be due to the greater financial capacity of wealthier individuals to manage the costs related to eco-friendly practices and policies.

The implications of these findings hint at a potential paradigm where economic growth and environmental sustainability are not necessarily at odds. It suggests that, under appropriate policies and increased awareness, economic advancement could be accompanied by environmental conservation. Such an approach could lead to a broader, albeit gradual, rise in environmental consciousness and proactive measures worldwide.

Limitations and Future Trends

There are some limitations of this study that must be taken into account when considering the implications of the results and analysis. Firstly, due to my limited knowledge of and experience with statistical software such as SPSS, I may have made errors when conducting the regression. I am not an expert when it comes to statistical analyses; therefore, it is possible that certain errors in the execution of the method may have affected the validity of the results. Additionally, due to the nature of the timeline of this research project, I was unable to clean my data source. The data source has over 50,000 responses, so it would be unrealistic to try to clean that data within the given time period. Because I was not able to clean my data, my comparison to Franzen & Vogl's results becomes less credible, as they were

able to clean their data. However, to offset this uncertainty, I only focused on the major changes in statistical significance. I ignored changes in Beta values altogether because those values would have been influenced by the outliers in the data set. The final limitation of this study is that the R^2 of the regression was not very high. This means that the variables being tested have relatively weak explanatory power for EC. One reason this may have occurred is that I was not able to clean the data, but there is no way to be sure. The R^2 value in Franzen & Vogl's study was, while not as low as the one in this study, considerably low. This indicates that individuals are very difficult to predict, and analyzing more macroscopic variables would have more explanatory power[16].

Looking forward, several key trends could shape the future of EC research. One important area is the intersection between technological advancements and environmental concern. As technologies such as renewable energy, artificial intelligence, and carbon capture gain prominence, future studies could explore how public perception of these innovations influences EC and whether these perceptions vary across different demographic groups.

Conclusion

This study aimed to evaluate EC determinants in the United States and track changes over a decade. Using 2020 International Social Survey Programme data and linear regression analysis, key findings emerged. Demographic factors like sex and age moderately predicted EC, with women showing slightly higher concern, aligning with the "safety concern hypothesis." EC declined sharply with age.

Secondly, while post materialistic values did not show a significant relationship with EC, trust emerged as influential. Trust in government correlated positively with EC, unlike previous findings. However, general interpersonal trust wasn't significant, possibly reflecting declining societal trust. Relative household income had a robust negative relationship with EC, reflecting heightened risk perceptions with material insecurity.

These findings highlight the evolving nature of environmental attitudes and implications for policymakers and advocates. Understanding demographic and socioeconomic correlates can inform targeted awareness efforts, but environmental policymaking requires a multifaceted approach considering macro-level drivers and international cooperation.

One potential avenue for future research is analyzing the determinants of EC at a national level. While individual characteristics offer limited predictive power, as evidenced by the low adjusted R^2 value of 0.055, macro-level variables may yield more explanatory insights to inform environmental policies and initiatives globally.

Ultimately, addressing the existential challenge of climate change demands a concerted, interdisciplinary effort that extends past borders and ideological divides. This research contributes to that mission by shedding light on the evolving underpinnings of public EC, a crucial prerequisite for starting collective action to safeguard our planet's future.

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Appendix

Environmental Concern Index Items

1. I do what is right for the environment, even when it costs more money or takes more time.
2. How willing would you be to accept cuts in your standard of living in order to protect the environment?
3. How willing would you be to pay much higher prices in order to protect the environment?
4. How willing would you be to pay much higher taxes in order to protect the environment?
5. Modern science will solve our environmental problems with little change to our way of living.
6. People worry too much about human progress harming the environment.
7. We worry too much about the future of the environment and not enough about prices and jobs.
8. It is just too difficult for someone like me to do much about the environment.
9. In order to protect the environment the country needs economic growth.

Variables	Description
Sex	0 = male, 1 = female
Age	Age in years
Postmaterialism	Number of postmaterialistic goals a country should have from a list of four. The four goals mentioned are maintaining order in the nation, democratic participation, fight rising prices, and freedom of speech.
Trust (personal)	5 point Likert scale from: 1 = you can't be too careful,..., 5 = most people can be trusted.
Trust (governmental)	On a scale of 0 to 10, how much do you personally trust each of the following institutions?: 0 = No trust at all,..., 10 = Complete trust
Relative Household Income	Household income divided by the square root of the number of persons living in the household, z-transformed.

Table 3 Description of Variables