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THE ROLE OF INDIVIDUAL RESPONSIBILITY AND VALUES IN DRIVING ENERGY DECARBONISATION: AN ANALYSIS ACROSS EU COUNTRIES

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Overview of topic

The need for energy decarbonization arises from its pivotal role in addressing climate change. The over-reliance on fossil fuel sources has led to an unnatural accumulation of greenhouse gases in the atmosphere, driving global temperature increases in a process widely known as "global warming" [1]. Addressing this challenge requires coordinated efforts across energy production, consumption, and, importantly, individual behaviour.

Engaging individuals and encouraging virtuous practices are therefore crucial strategies to achieve ambitious decarbonization targets. However, individual behaviors are decisively shaped by values, beliefs, and, in turn, subjective attitudes, which deserve particular attention by policymakers.

Personal responsibility and energy-saving habits are particularly impactful; individuals who believe their actions affect the climate are more likely to adopt sustainable practices[2], [3], [4]; Engaging individuals and encouraging virtuous practices are therefore crucial strategies to achieve ambitious decarbonization targets. However, individual behaviors are decisively shaped by values, beliefs, and, in turn, subjective attitudes, which deserve particular attention by policymakers. Personal responsibility and energy-saving habits are particularly impactful; individuals who believe their actions affect the climate are more likely to adopt sustainable practices.

Limited awareness of climate change and mistrust in institutions often contribute to behaviours that exacerbate emissions [5]. Research shows that beliefs about the causes of climate change—whether human-induced or natural—strongly influence individuals' willingness to take conservation measures. Households that attribute climate change to human activity are more likely to engage in energy-efficient practices and support emission-reduction policies [6].This underscores the importance of fostering awareness and cultivating trust to drive the behavioural changes necessary for successful decarbonization.

The interplay between individual behaviours and policy interventions is critical for maximising the benefits of decarbonisation. Policies that incentivise individual actions, such as subsidies for renewable energy installations or tax rebates for energy-efficient appliances, effectively align personal interests with broader societal goals [7]. However, barriers such as mistrust in institutions, political polarization, and socioeconomic disparities can hinder the widespread adoption of conservation practices [8]. At the same time, individual actions can catalyse collective efforts when supported by appropriate policies. The establishment of energy communities, for example, has shown promise in fostering collaboration in energy consumption and management. Moreover, the macroeconomic impacts of conservation and responsibility extend beyond the environmental domain, influencing social and economic well-being [9], [10].

This paper investigates how individual attitudes—particularly personal responsibility in reducing climate change—are influenced by human values, beliefs, and socioeconomic factors. Our analysis focuses on EU countries, offering a comprehensive perspective on these critical dynamics.

Methodology

Based on individual data, we investigate the influence of human values, beliefs, and socioeconomic factors on individual attitudes, with a particular focus on personal responsibility in mitigating climate change. Our study uses data from the 2023/2024 European Social Survey (ESS) and apply ordinary least square regression to examine the relationships between variables.

Dependent variables: Measures of individual responsibility for climate change.
Independent variables: climate change beliefs, trust in institutions, political orientation, news consumption, human Values and Socio-demographic factors.

We conducted several robustness checks by testing for multicollinearity, heteroscedasticity and omitted variable bias. Interaction terms explore the interplay between socio-demographic characteristics and institutional trust.

Results: Key and Ancillary Findings

Our preliminary results identify a significant relationship between individual socio-demographic factors and personal responsibility attitude.

- Climate Change Beliefs: Individuals who believe human activities predominantly cause climate change are likelier to engage in energy-saving practices and support renewable energy initiatives.
- Institutional Trust: Higher levels of trust in government and environmental organisations are associated with greater participation in conservation behaviours and energy saving.
- Socioeconomic variables**:** Education and income levels positively correlate with energy conservation behaviours, thus highlighting the importance of awareness and resource availability in driving sustainable practices.
- Political orientation, news consumption, and many people limiting their energy use enhance awareness and reinforce pro-environmental behaviours.

Preliminary conclusions

We place our analysis within the literature concerning the impacts of individual responsibility and conservation in decarbonisation [7], [10], [11]. Our preliminary results suggest the critical role of individual responsibility and conservation behaviours in achieving a sustainable energy transition; higher income, higher education level, climate change beliefs and trust in government parliament are found to be significant contributors to responsibility regarding climate change mitigation. Achieving energy decarbonisation goals requires a collective effort, with personal responsibility as a crucial component in the transition towards a low-carbon economy. The findings also inform policymakers and stakeholders of the potential economic benefits of promoting individual responsibility and energy-saving behaviours.

The narrative emphasizes that the energy transition is not solely a technolohgical challenge but a societal endeavour. The difference between countries' environmental responsibility and energy-saving behaviour allows us to understand which country(s) put more effort into commitment and saving on decarbonising energy responsibility for climate change mitigation.

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