Age, period and cohort shifts in environmental values in Europe

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Introduction

Demographic and societal transformations such as urbanization, cohort shifts, and migration are reshaping societies globally. Population and environment continually affect each other, moderated by social, economic, and technological context (Muttarak, 2021). Environmentalism is part of the self-expression values visible in contemporary societies. While demographic research has increasingly explored the relationship between population dynamics and the environment, less attention has been given to how environmental attitudes and values vary across demographic groups and evolve over time (Muttarak, 2021).

This study closes this gap by investigating shifts separately for age, period and cohort (APC). By examining how environmental values are shaped by these effects, the study contributes to demographic understanding of how social and attitudinal characteristics evolve alongside demographic processes.

Theoretical Framework

In a rapidly changing world, understanding the relationship between demographic shifts and cultural values is increasingly important. These changes influence not only the size and composition of populations but also the values, attitudes, and behaviors that shape social and environmental priorities.

The so-called "silent revolution" in value systems across Western Europe is driven by intergenerational shifts rooted in socioeconomic development (Inglehart, 1971). Inglehart argues that extended periods of economic security and affluence, particularly following WWII—have prompted younger cohorts adopt new political and social values. Specifically, this shift moves from materialist priorities, such as economic and physical security, toward postmaterialist values emphasizing freedom of speech, political participation, self-expression, and quality of life. Postmaterialist values also include environmental values. Prosperity, such as economic growth described by Inglehart, thus supports the spread of postmaterialist values. Since then, Inglehart and colleagues have repeatedly found that younger generations prioritize postmaterialist values because they experienced stable economic conditions during their formative years, whereas older generations retain materialist priorities shaped by earlier experiences of insecurity (Inglehart, 1971; Abramson & Inglehart, 1992).

The generational differences in values refer primarily to the *cohort effects*, meaning that individuals born around the same time (birth cohort) share certain socialization contexts, affecting value development in similar ways (Bell, 2020). Inglehart mainly supports changes in values happening due to generational replacement and makes generalizations rather than considering the possible distinction also by age and period. Some authors that distinguish age, period and cohort effects find support for cohort-specific effects in (environmental) value change, irrespective of age and period effects (Haiyan et al., 2024; Tsai & Peng, 2025). Cohorts born during the war periods or those who shared economic crises would show lower environmentally minded attitudes compared to more recent cohorts born in periods of economic prosperity, digitalization, and globalization. However, the relevance might differ for Western and Eastern European countries to a different extent. It has been consistently reported that after World War II, Western societies shifted toward post-materialist values once the basic economic needs were largely met. In contrast, Eastern Europe experienced a more complex situation. In Eastern Europe, socialism promoted some post-materialist ideals like solidarity through free education and healthcare. This led to a "pseudo-post-materialistic" value pattern—people focused on social and altruistic values shaped by ideology rather than prosperity. Therefore, people born in the 1930s–1950s grew up during several crises (war, totalitarianism, austerity), fostering conservative and duty-oriented values (Lilleoja & Raudsepp, 2016). However, the birth cohorts of the 1960s–1970s experienced relative stability, supporting more post-materialist and liberal values. The 1980s–1990s generations experienced both crisis and renewal with the transformation to a market economy, differing notably due to lacking direct Soviet socialization.

Age effects imply that changes in environmentally minded attitudes occur due to biological or developmental processes associated with aging (Bell, 2020). A study on China found that post-materialist values gradually weaken as people age (Haiyan et al., 2024). Other studies do not support that becoming more materialistic increases with age (Tsai & Peng, 2025). This emphasizes that material needs do not necessarily increase when individuals age. Unfavorable socio-economic conditions, which in some cases may exacerbate with retirement, can keep or reverse individuals closer to materialistic values (Nawrotzki & Pampel, 2013). However, it may be difficult to distinguish age effects separate from other factors or contextual situations.

Period effect is primarily related to the year that an individual is being surveyed – that is the effect of contemporary time (Bell, 2020). Period effects arise from external factors such as environmental, social, or economic (e.g., war, famine, economic crisis) events and circumstances that affect all age groups and cohorts at a given time. Even in highly industrialized Northern European countries with strong welfare systems, economic crises can shift people's priorities toward stability and material well-being (Haiyan et al., 2024). According to the global environmentalism hypothesis, not only are affluent individuals environmentally concerned, but environmentalism is becoming a global phenomenon adopted by both the poor and the rich (Nawrotzki & Pampel, 2013). Moreover, Tsai and Peng (2025) mention in their periodic setback hypothesis that the value change toward post-materialism is not linear but can fluctuate. Economic crises, unemployment, or rising costs can push individuals back to materialist values. As an example, during the COVID-19 pandemic, increased insecurity led to a temporary shift in values (Akaliyskie et al., 2024). Period effects in value change can be as powerful as generational ones since all cohorts can adjust their values in response to crises (Tormos, 2020).

Although many studies find that younger people are more concerned about the environment than older generations, this is not always supported by evidence. According to Inglehart and Welzel (2009; 2010), modernization is universal: as societies develop economically, individuals' values shift, which then supports the development of democratic institutions. However, modernization shouldn't be seen as a single Western model to be copied by other nations. Instead, it is a continuous, forever-incomplete, multidimensional process shaped by local culture and history. It contains values, innovation, effective institutions, productivity, and competitiveness that improve the quality of life (Savelyev, 2016). Some findings also contradict Inglehart's modernization theory. Despite the modernization of society since the 1990s, security, conformity, and conventional values were increasingly important among Lithuanians compared to achievement, success, and power (Mockaitis et al., 2025). This change was not due to aging since the youngest cohorts were showing even stronger shifts. Similarly, respect for authority (materialist value) in China was lowest in the 1990s, rose steadily in the 2000s, and slightly declined in 2012 (Haiyan et al., 2024). Contrary to the modernization theory, China's trend shows that this materialist value increased alongside rapid economic development, with both rising simultaneously in the early stages. We aim to estimate separate age, cohort and period effects in environmental value change for different European countries, as few studies have analyzed this.

Study Hypotheses

Different cohorts have experienced diverse socialization contexts that might affect their value development. Specifically, World War I (1914–1918), Great Depression (1929–1939), World War II (1939–1945), start of the Cold War (1945–1950), economic boom (1960s–1970s), environmental crisis (1980s), rejoining of Eastern Europe with Western Europe, globalization, EU integration and digitalization are some of the crucial contexts to consider as leaving a mark on cohorts. We expect cohort effects to differ by a broadly Eastern and Western European distinction, and formulate the following expectations for the cohort effects:

H1a: In general, in Europe, younger cohorts show stronger environmentally minded attitudes than older cohorts, independent of age and period effects, reflecting their socialization context regarding environmental concern.

H1b: In Western European countries, cohorts born before the 1960s show stronger environmentally minded attitudes than similar cohorts born in Eastern Europe, reflecting their socialization context regarding environmental concern.

H1c: In Eastern European countries, the birth cohort effect in environmental value change would magnify with more recent cohorts, especially among those born since the 1980s, reflecting a later emergence of environmental concern compared to Western Europe.

In line with most previous findings on the age effects in (environmental) value change, we expect age as a separate factor to have relatively small or no effect on value change across European countries. The second hypothesis is formulated as follows:

H2: There are no age effects in environmental value change over time in European countries.

Socio-economic developments during recent decades have differed somewhat in various European countries. First, the transformation to a market economy in the 1990s shifted several Eastern European countries towards survival-based attitudes and values. While several Western European countries were experiencing globalization during this period, similar effects were more visible in Eastern European countries since the 2010s. Together with joining the EU around 2004, economic growth started to increase in several Eastern European countries, especially after the economic recession of 2008-2010. The recession hit several Western European countries hard, affecting budget cuts and welfare spending. The pandemic period of 2020-2022 hit European countries at the same time, however, with several variations in lockdown and government measures. During this time, uncertainty is expected to have increased in comparable magnitudes across Europe. Hypotheses for the period effect are as follows:

H3a: Due to the socio-economic difficulties experienced in several Eastern European countries in the 1990s, this period is expected to have a significant deprecating effect in manifesting environmental-related values in the region, irrespective of age and cohort effects.

H3b: The period effect in manifesting environment-related attitudes is expected to diminish with the more recent survey wave period for Western European countries.

Data and Methods

This study draws on data from the World Values Survey (WVS), focusing on environmentally minded attitudes across multiple waves. Three environment-related variables ("Confidence in the environmental protection movement", "Active or inactive membership in an environmental organization", "Preference for protecting the environment versus prioritizing economic growth") were selected based on their consistent inclusion across several survey waves. To ensure cross-temporal comparability, only WVS waves containing all three variables for the same set of countries were included from Wave 7 (2017–2022), Wave 6 (2010–2014), Wave 5 (2005–2009), and Wave 3 (1995–1998). Waves 1, 2, and 4 were excluded due to a lack of data for the selected variables. The analysis focuses on eleven European countries with complete data across at least three waves: Estonia, Finland, Germany, Hungary, the Netherlands, Poland, Romania, Spain, Sweden, Switzerland, and Ukraine. The combined sample size across all selected waves and countries amounts to 58,838 respondents. The age range for all countries is 20 to 85 years. A robustness check will be conducted for the age range of 20 to 75 years to include Sweden. The corresponding birth cohorts include people born in 1910-2002. Using the APC method (Yang & Land, 2006) allows us to separate the effects of age, period, and cohort in environmental value change in Europe, enabling a comparison of the relative magnitude of each effect.

Expected Findings

We expect to find that younger cohorts in Europe will demonstrate stronger environmentally minded attitudes than older cohorts. However, environmental concern is anticipated to have emerged later in Eastern Europe, particularly since the cohorts born in the 1980s, compared to Western Europe, where cohorts born before the 1960s already show stronger environmental concern. No substantial age effect is expected in environmental value change across Europe. Socio-economic difficulties in Eastern Europe during the 1990s likely inhibited environmental values regardless of age or cohort. In Western Europe, the period effect on environmental attitudes is expected to weaken with more recent survey waves.

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