



# A tale of trade-offs: The impact of macroeconomic factors on environmental concern



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## ABSTRACT

**Objective:** We test whether macroeconomic conditions affect individuals' willingness to pay for environmental quality improvements.

**Background:** Improvements in environmental quality, like everything, come at a cost. Individuals facing difficult economic times may be less willing to make trade-offs required for improvements in environmental quality. Using somewhat different methodologies and shorter time frames, prior investigations have generally found a direct relationship between willingness to pay for environmental improvements and macroeconomic conditions.

**Method:** We use a nearly 40-year span (27 periods) of the General Social Survey (1974–2012) to estimate attitudes toward environmental spending while controlling for U.S. macroeconomic conditions and respondent-specific factors such as age, gender, marital status, number of children, residential location, educational attainment, personal financial condition, political party affiliation and ideology. Macroeconomic conditions include one-year lagged controls for the unemployment rate, the rate of economic growth (percentage change in real GDP), and an indicator for whether the U.S. economy was experiencing a recession.

**Results:** We find that, in general, when economic conditions are unfavorable (i.e., during a recession, or with higher unemployment, or lower GDP growth), respondents are more likely to believe the U.S. is spending too much on “improving and protecting the environment”. Interacting lagged macroeconomic controls with respondent's income, we find that these views are at least partially offset by the respondent's own economic condition (i.e., their own real income).

**Conclusion:** Our findings are consistent with the notion that environmental quality is a normal, or procyclical good, i.e., that environmental spending should rise when the economy is expanding and fall during economic contractions.

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...to the degree economic growth is modest, hard-won gains obtained by the environmental movement, as well as advances in environmental protection, may be in serious jeopardy if implicit trade-offs between economic performance and environmental quality dominate the policy agenda (Elliott et al., 1995).

## 1. Introduction

Almost 20 years later, Elliott et al.'s (1995) concerns regarding trade-offs between macroeconomic performance and

environmental quality remain valid. Jacobs (2012), reporting on survey data from the Gallop organization, recently pointed out that until the recent U.S. economic crisis, Gallup respondents had consistently prioritized the environment over the economy. Starting in 2009, however, Americans' priorities appear to have changed with more respondents indicating that they believe economic growth should be given priority over the environment – and by as much as an 18-point gap.<sup>2</sup> The change in Americans' priorities vis-à-vis the economy and the environment coinciding with the Great Recession implies that macroeconomic conditions may affect Americans' attitudes toward environmental protection.

<sup>2</sup> Since 1984, Gallup has been asking Americans “With which one of these statements about the environment and the economy do you most agree? Protection of the environment should be given priority, even at the risk of curbing economic growth (or) economic growth should be given priority, even if the environment suffers to some extent.”

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While the Gallup poll numbers are instructive they fail to provide a complete understanding of the relationship between the economy and attitudes about environmental protection. Perhaps there are other factors that might explain the apparent change in attitudes – for example changing political parties or ideologies? In order to gain a more thorough understanding of the relationship between macroeconomic conditions and environmental attitudes, we use individual-level data from the General Social Survey (GSS) – a nationally representative and comprehensive data set – combined with macroeconomic measures for the period 1974–2012.

We estimate attitudes toward environmental spending while controlling for macroeconomic conditions and respondent-specific factors such as age, gender, marital status, number of children, residential location, educational attainment, personal financial situation, political party and ideology. We find that, in general, when economic conditions are unfavorable (i.e., higher unemployment, lower GDP growth, in recessions), respondents are more likely to believe that the U.S. is spending too much on “improving and protecting the environment”. To some extent, these views are at least partially offset by the respondent's own economic condition (i.e., their own real income). With respect to personal/demographic conditions, we find that being male, White, older, married and having more children at home are all associated with the belief that the U.S. spends too much on the environment. On the other hand, having higher educational attainment and living in an urban area are associated with believing the U.S. is spending too little on the environment. These findings are generally in line with previously published research in this area. The political/ideological characteristics are also consistent with other investigations. Self-identifying as a Democrat or “liberal” are both associated with the belief that the U.S. spends too little on the environment; while those who self-identify as being Republican or “conservative” are more likely to believe the U.S. is spending too much on the environment. Finally, over time, the general trend indicates that, controlling for other factors, GSS respondents increasingly believe too little is spent on the environment.

While social scientists have long understood that a multitude of factors influence an individual's views, attitudes and opinions, relatively little of the research in this area has focused on the role of macroeconomic factors in determining attitudes about environmental spending. In a notable exception, Elliott et al. (1995) investigate the relationship between aggregate views on environmental spending levels and real per capita GDP. Using the GSS and Roper surveys from 1973 to 1991, Elliott et al. estimate the percent of the sample respondents indicating that they believe that “too little” is spent on the environment as a function of real per capita GDP, retrospective and prospective evaluations of the economy, total expenditures on pollution abatement and control, and media attention on environmental issues. They find evidence of a positive relationship between real per capita income and the percent of respondents indicating an opinion that “too little” is spent on the environment. This finding is in contrast to Jones and Dunlap (1992), who did not find any clear support for an “economic contingency” hypothesis (i.e., support for environmental protection falls when economic conditions worsen, at least for those who can least afford it).

Using only GSS data for the same time frame, Elliott et al. (1997) investigate political and economic correlates to explain variations in support for environmental spending. In particular, they focus on individuals' responses to the question “Are we spending too much, too little, or about the right amount on improving and protecting the environment?” Instead of including specific macroeconomic variables, they include year dummies as proxies for macroeconomic conditions and hence infer macroeconomic effects by year. They find that, relative to 1974, individuals were more likely to say there was

“too much” spending on the environment during 1975–1983 and more likely to say that there was “too little” spending during 1987–1991. Elliott et al. (1997) suggest that the oil crises in the mid- to late 1970s and short recession in the early 1980s led Americans to feel too much was being spent on the environment during this time, while the prosperous economic times of the late 1980s and early 1990s caused opinions to move in the opposite direction. The authors rely on correlations between year groupings and general macroeconomic conditions to support their conclusions. While suggestive, their analysis is limited by having only 16 years' worth of data and relying on indirect indicators of macroeconomic conditions (i.e., year dummies, which are correlated with macroeconomic conditions).

Using data from 2008 to 2009 and a different analytical approach, Kahn and Kotchen (2010) find a much stronger connection between economic conditions and concern for the environment. They find that unemployment rates are negatively correlated with: (i) Google searches for “global warming,” (ii) the probability that individuals believe global warming is occurring, (iii) support for U.S. policies targeted to mitigating global warming, and (iv) the probability that Californians identify the environment as the most important policy issue. In a similar vein, Scruggs and Benegal (2012) find that higher unemployment rates in the U.S. and European Union are associated with reductions in the proportion of individuals that believe climate change is a serious issue.

A related line of inquiry on a global scale comes from Inglehart (1995) who finds having a high proportion of a country's population with “post-materialist” values (often associated with high-income, particularly Nordic, countries) is an important determinant of public support for environmental protection. Haring et al. (2011) use a unique Swedish data set to investigate the “ups and downs” of public environmental concern over time and identify two main contributors: the economy and the media. The title of their paper is apparently a nod to seminal work by Downs (1972) who linked the fluctuations in interest about the environment to the issue-attention cycle of the media. Related work by Durr (1993) suggests that changing economic conditions can explain shifting policy sentiments in the U.S. along the liberal-conservative continuum.

Although there is a relative paucity of studies investigating the relationship between specific macroeconomic conditions and environmental concern in the U.S., there is a vast literature analyzing determinants of environmental concern at the individual/household or micro-level (see Jones and Dunlap, 1992; Stern, 2000; and Van Liere and Dunlap, 1980 for summaries).<sup>3</sup> Following Van Liere and Dunlap (1980), there are generally six hypotheses regarding the social bases to explain environmental concern. Three of these seem to have consistent – or at least partially consistent – empirical support (Dietz et al., 1998; Van Liere and Dunlap, 1980; see also Guber, 2003, Ch. 4). These are: the *age hypothesis* (that younger respondents have higher environmental concern – perhaps because they expect to live longer and hence have a higher present value of a clean environment, Elliott et al., 1997), the *ideological hypothesis* (that politically liberal individuals have higher environmental concern) and the *social class hypothesis* (that individuals with higher socioeconomic status have higher environmental concern, i.e., that environmental spending is at least a normal and perhaps even a procyclical good). However, the social class hypothesis seems specific to education, where higher

<sup>3</sup> The term “environmental concern” is often used to encompass a variety of measures including willingness to pay or actual expenditures for environmental quality, engagement in or donations to environmental groups (e.g., Sierra Club, World Wildlife Fund, etc.), and interest in environmental issues (e.g., time spent researching and reading about environmental issues), as well as more direct measures of expressions of concern for the environment.

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