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**DOI**

[10.1093/ijpor/edaf020](https://doi.org/10.1093/ijpor/edaf020)

**Publication date**

2025

**Document Version**

Final published version

**Published in**

International Journal of Public Opinion Research

**License**

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[Link to publication](#)

**Citation for published version (APA):**

Wonneberger, A., Azrout, R., Sun, M., & Jonkman, J. (2025). Mutually Reinforcing or Excluding? How Compatibility Perceptions of Economy and Environment Link to Issue-Related Attitudes and Media Use. *International Journal of Public Opinion Research*, 37(2), Article edaf020. <https://doi.org/10.1093/ijpor/edaf020>

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# Mutually Reinforcing or Excluding? How Compatibility Perceptions of Economy and Environment Link to Issue-Related Attitudes and Media Use

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## Abstract

With growing discussions about the possible contribution of economic growth to increasingly severe environmental crises, scholars have called for greater attention to public opinion on the possible tradeoffs between continuous growths and protecting the environment. While ample research investigates public opinion on the environment-economy dilemma, so far, the role of the media environment has not been considered. Using a scale for perceived compatibility of economic growth and environmental protection, we study how compatibility perceptions relate to individual attitudes about economic growth and environmental protection as well as to individual media consumption. Our results based on a representative survey among Dutch citizens ( $N = 1,863$ ) indicate opposing mechanisms stemming from economic and environmental factors with an overall greater importance of the latter. We discuss the need to further explore the role of media for compatibility perceptions.

A main cause of global environmental crises, such as climate change or biodiversity loss, is the overexploitation of natural resources. Some argue that economic growth should be limited to preserve resources and habitable environments (Hickel, & Kallis, 2020). Others contend that with different choices and future scientific developments economic growth and environmental preservation could very well be compatible (Adamowicz, 2022). With an upsurge of societal discussions about the relationship between economic growth and increasingly severe environmental crises (Augustyn, 2024), authors from multiple disciplines have called for greater attention to public opinion on the relationship between continuous growth and environmental protection (Drews, Antal, & van den Bergh, 2018; Gugushvili, 2021). Since the 1970s, survey research has included so-called trade-off questions, for example, studying political elections or human values (Abou-Chadi, & Kayser, 2017; Inglehart, 1981; Kenny, 2021). Accumulating findings suggest a stronger prioritization of the environment than vice versa in most populations (Drews, & van den Bergh, 2016; Gugushvili, 2021; Kenward, & Brick, 2021; Paulson, & Büchs, 2022). However, to avoid pitfalls linked to prioritization questions, we argue that it is crucial to develop scales that capture the heterogeneity of public opinion toward the compatibility of environmental protection and economic growth (Drews & van den Bergh, 2016; Nadeau, Lachapelle, & Bergeron, 2022).

Next to the debate on adequate measures, there is little systematic knowledge about underlying mechanisms that contribute to compatibility attitudes. Few studies indicate variation due to sociodemographics or individual attitudes

and values, most notably, those related to the environment while less attention has been given to economic attitudes (Drews & van den Bergh, 2016; Kenny, 2021). Although it can be argued that attitudes about an abstract issue such as the compatibility of economic growth and environmental protection might be influenced by media content (Boukes, Damstra, & Vliegthart, 2021; Rice, & Miller, 2023), this relationship has not yet been studied. We, therefore, explore how the perceived compatibility of economic growth and environmental protection can be explained by individuals' prior attitudes towards the separate topics in addition to the information environment they are exposed to. We are interested in the relative importance of these factors in predicting compatibility perceptions. Moreover, we examine the extent to which the information environment (i.e., media attention for the two issues) reinforces possible effects of issue-related attitudes on compatibility perceptions.

## Perceived Compatibility and Key Antecedents

Many recent studies on public opinion about this topic utilize the European Values Study (EVS) or the World Values Survey (WVS) which offer dichotomous approaches (Gugushvili, 2021; Kenny, 2022; Lou, Lin, & Li, 2022; Paulson & Büchs, 2022). Forcing respondents to make a choice to either prioritize environmental or economic goals, however, has been criticized for oversimplifying the problem and masking potential nuances in how people weight the trade-offs between these two goals (Drews, Savin, & van den Bergh, 2018; Kenny, 2021; Nadeau et al., 2022). Kenny (2021) thereby showed that a 10-point trade-off scale as opposed to dichotomous

choice can be considered a measure of support for environmental protection but does not capture economic attitudes. Moreover, several studies have identified economic thresholds for prioritizing the environment (Böhmeit, & Zhang, 2024; Nadeau et al., 2022; Nguyen, & Malesky, 2021). Overcoming the prioritization approach, Drews and van den Bergh (2016) (similarly, Drews et al., 2019; Drews, & van den Bergh, 2017) have shown that perceptions concerning the compatibility of economic growth and environmental protection are reflected by multiple items. Building on these findings, the current study moves beyond the trade-off approach by measuring multiple aspects of the environment-economy relationship to capture the perceived compatibility of economic growth and environmental protection.

In addition to boundaries to prioritizing the environment over the economy, studies found differences between individuals and countries (Gugushvili, 2021; Lou et al., 2022). Prioritizing environmental protection over economic growth has been found to be related to higher levels of education, to post-materialistic and altruistic values, but also income, age, and political orientation played a role (Drews & van den Bergh, 2017; Gugushvili, 2021; Kenny, 2022; Paulson & Büchs, 2022). Moreover, pro-environmental attitudes and values, including environmental threat perceptions (Paulson & Büchs, 2022) and biospheric values (Lou et al., 2022) are linked to prioritizing the environment. While it seems plausible that attitudes toward the compatibility of economic growth and environmental protection are influenced by both prior attitudes toward the environment and the economy, prior findings remain inconsistent. Some research, for instance, has confirmed the longstanding assumption that environmental concern may decline with declining economic conditions (Duijndam, & van Beukering, 2021; Shum, 2012). In contrast, studies using individual-level panel data, indicate that, overall, concern about the environment or climate change did not decrease due to changing economic conditions (Mildenberger, & Leiserowitz, 2017), nor major (economic) disruptions like the COVID-19 pandemic (Evensen et al., 2021; Sisco et al., 2023). However, individual labor market status, financial concerns, and ideological preferences seem to play a role in how economic conditions affect belief in climate change, support for action, and deprioritizing the environment (Beiser-McGrath, 2022; Meyer, 2022). Based on these findings, we assume that individual attitudes toward the economy (i.e., perceptions of economic developments) similarly to environmental attitudes (i.e., threat perceptions) may influence compatibility perceptions. Using comparable measures of attitudes toward the environment and the economy, our study aims to discern and compare their influence on public attitudes toward the compatibility of economic growth and environmental protection.

In addition, research on the environment-economy dilemma has thus far not taken the role of the information environment in shaping public opinion into account. Studies have shown that exposure to environmental media coverage can influence people's issue awareness and environmental attitudes (Rice & Miller, 2023; Taddicken, 2013). Moreover, the media play a role in shaping public economic judgments and consumer confidence (Boukes et al., 2021; Damstra, & Boukes, 2021). Given the complexity of environmental and economic problems and their multifaceted sociopolitical nature, news reports often provide accessible explanations that influence public comprehension and evaluation (Damstra & Boukes,

2021; Wonneberger, Meijers, & Schuck, 2020). Thereby, the type of news media consumed renders exposure to differential viewpoints concerning the economy-environment dilemma more likely. Following opposing political positions (Neumayer, 2004), left-leaning media can be assumed to more often feature media content based on the principles of ecological economics, which oppose the compatibility between economic advancement and ecological preservation. Meanwhile, right-wing media can be assumed to more often take the opposite view following positions of traditional economics. In addition to outlet selection, issue-specific exposure effects have been shown to be related to individual attention paid to these issues (Chaffee, & Schleuder, 1986; Zhao, Leiserowitz, Maibach, & Roser-Renouf, 2011). Finally, some evidence suggests that media use and attitudes, for instance, with respect to climate change, reinforce each other (Wonneberger et al., 2020; Zhao, 2009). Media users with certain attitudes and predispositions may seek out media content that further reinforces these positions (Slater, 1999).

## Data and Methods

We make use of a collaborative online survey about current affairs among a representative sample of Dutch citizens. The design of the survey and general data cleaning procedure were preregistered and approved by the university ERB (Azrout et al., 2023). For the purpose of this study we focus on data from the first out of six survey waves. Fieldwork (November 30 until December 11, 2022) was conducted by I&O Research, a research institute that complies with ICC/ESOMAR guidelines for survey research. A random sample of 5,103 Dutch adults was drawn from the I&O database, with quota's enforced on age, gender, education and region. This led to 2,216 responses. After excluding respondents that did not pass the quality checks, the final sample size was 1,863.

## Dependent Variable

We measured respondents' perceived compatibility of economic growth and environmental protection through four items adapted from Drews and van den Bergh (2016) and Drews et al. (2017, 2019) on a response scale from 1—strongly disagree to 7—strongly agree. Two items tapped into optimistic views: “Economic growth and sustainability are compatible” and “We can solve environmental problems caused by economic growth with new technologies.” The other two items reflected concerns about the compatibility and were reversed: “Economic growth always harms the environment” and “Due to limited availability of natural resources, the economy cannot always continue to grow.” These items were averaged to create an index (Cronbach's alpha = 0.66,  $M = 3.74$ ,  $SD = 1.10$ ).

## Independent Variables

### Issue-Specific Attitudes

For both issues, two comparable items reflected perceptions about personal and more general consequences. While both the economy and the environment are relatively abstract issues, there is a widely shared understanding of how economic development can be evaluated (e.g., using indicators such as the GDP, inflation, employment rate). To prevent that respondents evaluate different environmental issues, we selected climate change as an urgent and highly visible topic.

As economic attitude *economic optimism* was measured by two items: “What do you expect from the financial situation of your household? Will it get better, get worse, or stay the same over the next 12 months?” and “What do you expect from the economic situation of the Netherlands in general for the next twelve months? Will it get better, get worse, or stay the same?” These questions were rated on a scale from -5 (a lot worse) to +5 (a lot better), were positively correlated ( $r = 0.48$ ) and combined in an index scale ( $M = -1.40$ ,  $SD = 1.49$ ). Two items from (Chryst et al., 2018) were adapted to measure *perceived climate change threat* as environmental attitude: “How much do you think climate change will harm you personally?” and “How much do you think climate change will harm future generations of people?,” with response options ranging from 1 (very much), 2 (quite a lot), 3 (a little), 4 (I don’t know), to 5 (not at all). Acknowledging the potential for indifference toward climate change as indicated by prior research (Chryst et al., 2018; Wonneberger et al., 2020), the ‘don’t know’ option was integrated into the scale after data collection while it was presented as last option to respondents. The two positively correlated items ( $r = 0.63$ ) were reversed and used to compute an index scale ( $M = 2.51$ ,  $SD = 0.95$ ).<sup>1</sup>

### Media Use and Issue Attention

Respondents were asked about the frequency with which they are using different print and online newspapers. We selected the outlets with clear political stance or a specific stance regarding environmental or economic issues (Bakker, & Scholten, 2019; Damstra & Boukes, 2021). All clearly ideological-orientated national newspapers were included assuring that the measures cover exposure to the strongest issue-related arguments present in mainstream news media. For each news outlet respondents were asked to select the number of days (0-7) they used this outlet in a typical week. The sum of all items linked to left-wing media outlets which can be considered more likely to focus on environmental issues (de Volkskrant, Trouw, vk.nl, trouw.nl) yielded *left-leaning media usage* ( $M = 1.55$ ;  $SD = 3.35$ ). The items of all right-wing media which are more likely to focus on economic issues (De Telegraaf, Het Financieele Dagblad, NRC, telegraaf.nl, fd.nl, nrc.nl) yielded *right-leaning media usage* ( $M = 2.26$ ,  $SD = 3.95$ ). For comparability, the two media use scales were z-transformed.

To measure participants’ news attention (Chaffee & Schleuder, 1986) regarding the economy and the environment respondents were asked to rate their attention to news about each issue in the past week on a scale from 1 (not at all) to 7 (very much) yielding single-item measures for *environmental news attention* ( $M = 3.47$ ,  $SD = 1.67$ ) and *economic news attention* ( $M = 3.77$ ,  $SD = 1.63$ ).

### Control Variables

Based on previous research on public opinion concerning the environment-economy dilemma several control variables were included: age ( $M = 52.41$  years,  $SD = 16.30$ ), gender (47.9% female), and education ( $M = 4.90$ ,  $SD = 1.51$ , 7-point scale ranging from basic to academic degree). Living standard was measured with a question about the current level

of the overall living standard of the respondent’s household, with a 7-point scale ranging from “very poor” to “very rich” ( $M = 4.38$ ,  $SD = 0.92$ ). The measure of political interest ranged from 0 (not interested at all) to 10 (very interested) ( $M = 5.76$ ,  $SD = 2.82$ ). Respondents were asked to indicate their political left-right self-placement ranging from 0 (left) to 10 (right) ( $M = 4.87$ ,  $SD = 2.50$ ). Liberal-conservative self-placement was measured on a 10-point scale ranging from 0 (progressive) to 10 (conservative) ( $M = 4.09$ ,  $SD = 2.31$ ). The inclusion of the two controls for political orientation was warranted as political orientation may affect economic perceptions (Evans, & Andersen, 2006) and is a crucial factor in explaining environmental attitudes (Hornsey, Harris, Bain, & Fielding, 2016), potentially surpassing the effect of economic perceptions (Mildenberger & Leiserowitz, 2017).

For missing values in the independent and control variables, regression imputation was applied using the other variables included in the analysis. A robustness check was conducted by comparing the findings based on imputed data to findings based on a sub-sample that excludes all cases with missing values in the independent and control variables.

### Results

We estimated multiple regression models on perceived compatibility of economic growth and environmental protection (Table 1) to analyze the relationships outlined above using cross-sectional data. A stepwise approach allowed us to assess the robustness of findings and the influence of possible interrelations between predictors as attitudes and media use/attention are correlated (also see Table A1 in online supplement). Model 1 indicated that individuals scoring higher on perceived climate change threat perceived less compatibility of economic growth and environmental protection ( $b = -0.15$ ,  $se = 0.03$ ,  $p < .001$ ;  $b^* = -0.12$ ). In contrast, we found a positive relationship between economic optimism and the perceived compatibility of economic growth and environmental protection ( $b = 0.05$ ,  $se = 0.02$ ,  $p = .004$ ;  $b^* = 0.07$ ).

The model showed a negative link between the use of left-leaning media outlets and perceived compatibility of economic growth and environmental protection ( $b = -0.09$ ,  $se = 0.03$ ,  $p < .001$ ;  $b^* = -0.08$ ). Conversely, the use of right-leaning media outlets was positively, however, not significantly related to perceived compatibility of economic growth and environmental protection ( $b = 0.04$ ,  $se = 0.03$ ,  $p = .143$ ;  $b^* = 0.03$ ). The results for the role of attention towards environmental and economic issues in the news indicated a negative association between environmental news attention and perceived compatibility ( $b = -0.12$ ,  $se = 0.02$ ,  $p < .001$ ;  $b^* = -0.18$ ). In comparison, a positive association was found between economic news attention and perceived compatibility of economic growth and environmental protection ( $b = 0.11$ ,  $se = 0.02$ ,  $p < .001$ ;  $b^* = 0.16$ ).

Models 2 and 3 introduced the interaction terms. Model 2 revealed a negative interaction effect for perceived climate change threat and environmental news attention ( $b = -0.05$ ,  $se = 0.02$ ,  $p < .001$ ). To illustrate and interpret this interaction, we plotted the marginal effects of perceived climate change threat on perceived compatibility by values of environmental news attention in Figure 1. This shows that the negative association between perceived climate change threat and perceived compatibility was stronger when attention to environmental issues was higher.

<sup>1</sup> Additionally, as a robustness check we tested alternative models where the “don’t know” option was considered as missing value. Conclusions were all in line with the reported findings.

**Table 1.** OLS regression models on perceived compatibility of economic growth and environmental protection

Predictor	Model 1	Model 2	Model 3	Model 4
(Intercept)	4.335*** (0.217)	3.918*** (0.257)	4.259*** (0.224)	3.835*** (0.263)
Age	-0.005*** (0.002)	-0.006*** (0.002)	-0.005*** (0.002)	-0.006*** (0.002)
Female	-0.025 (0.051)	-0.030 (0.051)	-0.020 (0.051)	-0.026 (0.051)
Education	0.000 (0.019)	0.000 (0.019)	-0.001 (0.019)	-0.001 (0.019)
Living standard	0.054 (0.028)	0.051** (0.028)	0.054 (0.028)	0.051 (0.028)
Political interest	-0.019 (0.010)	-0.018 (0.010)	-0.019 (0.010)	-0.018 (0.010)
Left-right self-placement	0.088*** (0.012)	0.088*** (0.012)	0.088*** (0.012)	0.088*** (0.012)
Liberal-conservative self-placement	-0.065*** (0.013)	-0.065*** (0.013)	-0.064*** (0.013)	-0.065*** (0.013)
Perceived climate change threat	-0.145*** (0.03)	-0.012 (0.053)	-0.145*** (0.030)	-0.011 (0.053)
Economic optimism	0.049** (0.017)	0.045** (0.017)	0.001 (0.038)	-0.004 (0.038)
Left-leaning media usage	-0.089*** (0.027)	-0.088*** (0.027)	-0.090*** (0.027)	-0.089*** (0.027)
Right-leaning media usage	0.038 (0.026)	0.034 (0.026)	0.039 (0.026)	0.036 (0.026)
Environmental news attention	-0.117*** (0.019)	0.045 (0.057)	-0.117*** (0.019)	0.047 (0.057)
Economic news attention	0.105*** (0.019)	0.104*** (0.019)	0.124*** (0.023)	0.123*** (0.023)
Perceived climate change threat * environmental news attention		-0.045** (0.015)		-0.046* (0.015)
Economic optimism * Economic news attention			0.012 (0.009)	0.013 (0.009)
Adjusted R-Squared	0.142	0.146	0.142	0.146

Note.  $N = 1,863$ . Unstandardized regression coefficients (and standard errors). \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

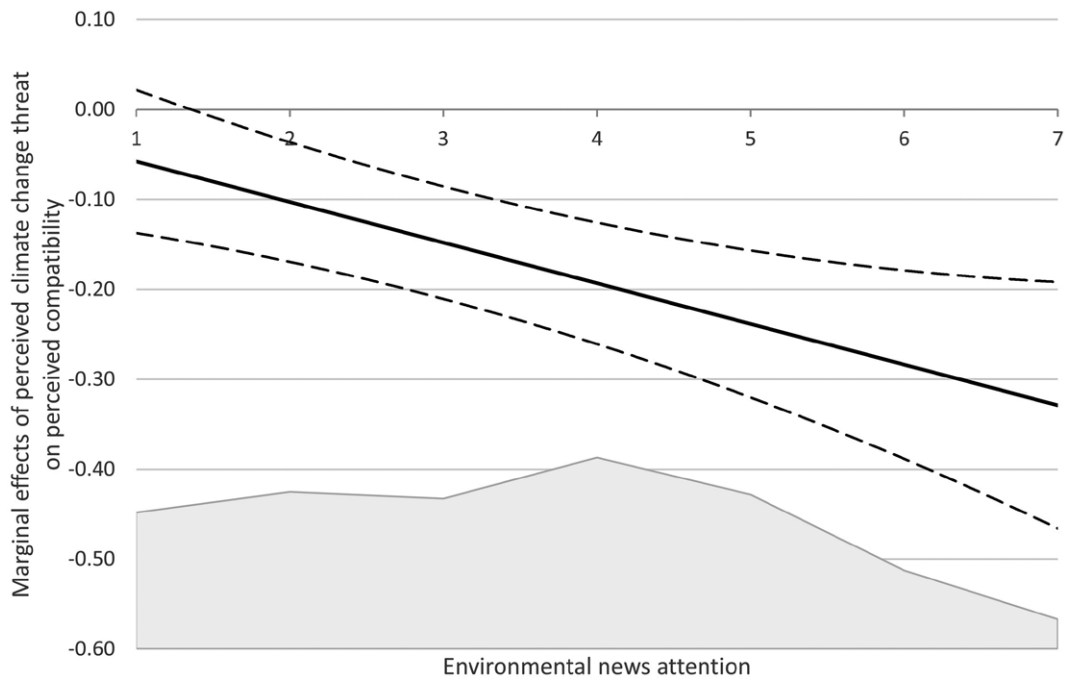
Model 3 yielded a positive but non-significant interaction among economic optimism and economic news attention ( $b = 0.01$ ,  $se = 0.01$ ,  $p = .168$ ). Plotting the marginal effects (Figure 2) we see positive marginal effects which increased when attention increased. While from the middle value upwards the marginal effects were significant, the overlapping confidence intervals at the lower and higher ends of attention indicate that these did not differ significantly, hence, no significant change over values of attention. Model 4 included all predictors and interactions simultaneously and confirmed the earlier findings, leading to similar conclusions as with the previous models.

Finally, we examined whether environmental or economic factors played a more important role. Already indicative is that we observed higher standardized coefficients for environmental factors compared to their economic counterparts. In addition, we examined how model fit increased when including the different sets of variables above the control variables. A model with only the control predicted 9.0% of the variance in

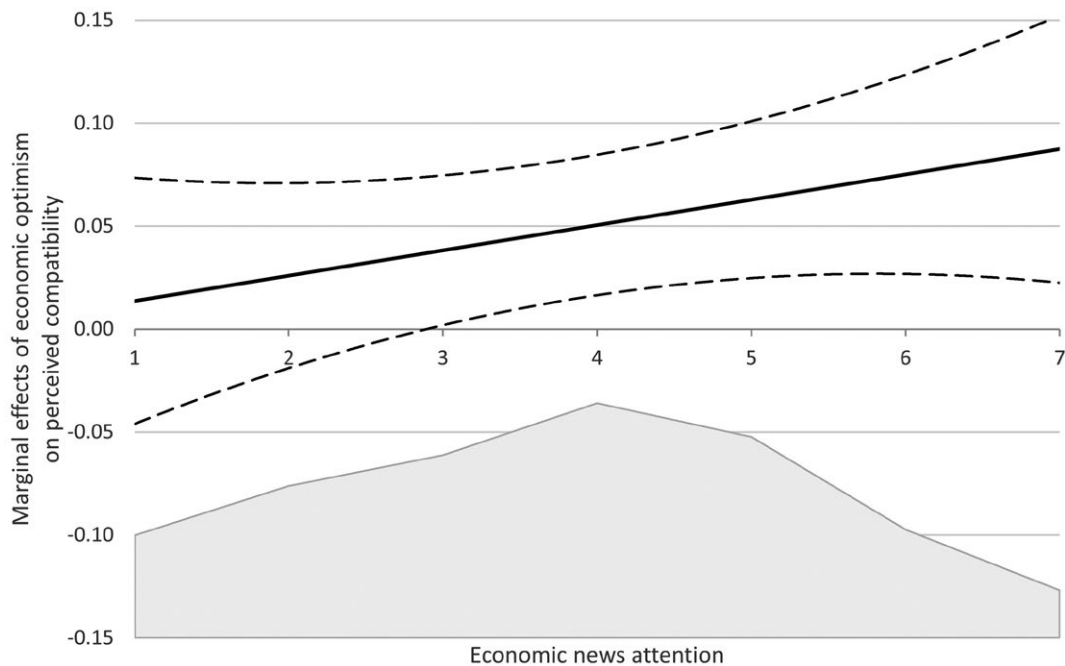
perceived compatibility. When the set of environmental factors was added (i.e., perceived climate change threat, left-leaning usage, environmental news attention, and the interaction between attitudes and attention), R-Squared increased to .134 (adjusted: .129), while it only increased to .102 (adjusted: .097) when adding the economic factors (i.e., economic optimism, right-leaning media usage, economic news attention, and the interaction between attitudes and attention). We conclude that environmental factors had a stronger influence on perceived compatibility compared to economic ones.

## Discussion and Conclusions

While previous research on attitudes concerning the economy-environment dilemma has often focused on the extent to which publics prioritize either the environment over the economy or vice versa, such an approach has been criticized for oversimplifying the relationship between the two issues (Drews & van den Bergh, 2016). The current study,



**Figure 1:** Marginal effects of perceived climate change threat on perceived compatibility by values of environmental news attention  
*Note.* The figure is based on the results from Model 2 of Table 1. The dashed line represents the 95% confidence interval.



**Figure 2:** Marginal effects of economic optimism on perceived compatibility by values of economic news attention  
*Note.* The figure is based on the results from Model 3 of Table 1. The dashed line represents the 95% confidence interval.

therefore, examined how Dutch citizens perceived the compatibility of environmental protection and economic growth, an aspect that can be considered to be at the core of the debate between proponents of green growth versus proponents of degrowth (Smulders, Toman, & Withagen, 2014). Using representative survey data, we aimed to understand how perceived compatibility relates to individual attitudes toward the two issues and one's information environment.

While past studies have found overall stronger tendencies to prioritize the environment over the economy (Drews et al., 2018; Gugushvili, 2021), our compatibility measure revealed an on average rather balanced perception with a slightly optimistic tendency. This finding is in line with other studies that have identified individual thresholds for prioritizing environmental protection linked to personal negative economic consequences (Nadeau et al., 2022; Nguyen & Malesky, 2021) and

coincides with large public support for green growth (Drews et al., 2019). We found that more pessimistic attitudes toward environmental developments, i.e., perceived climate change threat, were related to more negative perceptions about the compatibility of economic growth and environmental protection. Being more optimistic about economic developments, in contrast, was associated with more positive compatibility perceptions. Additional analysis showed that for climate change threat, the ego-tropic ( $r = 0.155$ ,  $p < .001$ ) and socio-tropic ( $r = 0.218$ ,  $p < .001$ ) indicator related about equally to compatibility perceptions whereas for economic optimism, this relationship was mainly driven by the socio-tropic ( $r = 0.05$ ,  $p = .031$ ) and not the ego-tropic indicator ( $r = 0.03$ ,  $p = .230$ ). This points to distinct mechanisms, hence, personal economic perceptions may influence compatibility perceptions differently from environmental concern (e.g., Beiser-McGrath, 2022; Mildenerger & Leiserowitz, 2017) requiring further exploration.

Concerning the role of one's information environment we find similar tendencies: Using left-leaning media that can be assumed to favor pro-environmental viewpoints in addition to paying more attention to environmental issues in the media both related to more negative compatibility perceptions. Jointly, environmental attitudes and media attention further reinforced this negative relationship. In contrast, paying attention to economic issues was linked to positive compatibility views whereas solely relying on right-leaning media that are assumably more pro-economy and pro-compatibility did not seem to be substantially related to compatibility perceptions.

Further supporting our findings, environmental factors were overall more important in explaining perceived compatibility compared to economic factors. A possible explanation might be that green growth at this point forms a relatively accepted position in the Netherlands and can thus be considered a mainstream view (Adamowicz, 2022). Therefore, media exposure is less likely to lead to stronger compatibility perceptions. Viewpoints pertaining to alternatives such as degrowth or agrowth, in contrast, are not yet perceived as mainstream (Drews & van den Bergh, 2016) leaving more room for possible media effects. We can presently observe the onset of discussions about the shape of public narratives challenging the growth paradigm and their potential for opinion formation and social change (Augustyn, 2024; Good, 2022). Based on our findings we can tentatively assume that there lays potential in pro-environmental media coverage to elicit more critical perceptions concerning potential environmental risks of continuous economic growth. At the same time, the reinforcing effects of environmental attitudes and issue attention may give rise to potential polarization on this issue.

Such conclusions, however, need to be further supported by studies on media representations of narratives and frames related to compatibility or incompatibility of economic and environmental goals. While the present study relied on self-reported measures of media use and issue attention, their limitations (de Vreese, & Neijens, 2016) could be overcome by more fine-grained measures informed by media content analysis (Schuck, Vliegthart, & De Vreese, 2016). Moreover, longitudinal research can further assess the possible mutually reinforcing relationships between attitudes and media exposure. Finally, while we have proposed a scale measuring multiple aspects of compatibility perceptions, we recommend to thoroughly develop and validate such a scale to enhance consistency and comparability over time and research contexts.

## Funding

This study was funded by the Amsterdam School of Communication Research.

## Supplementary Data

Supplementary materials are available at *International Journal of Public Opinion Research* online.

## Biographical Notes

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