

Article

Ecological Transition in Spain: Political Polarization Through Institutions and Media

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Abstract: While most Spanish citizens recognize the urgency of climate change, opinions differ on the specific measures to mitigate it, which are grouped under the concept of ecological transition. The ecological transition policies put forward by states, parties, and political leaders have become a factor of political polarization, with the media—through their role as shapers of public discourse—playing a significant part. In this article, we examine the ecological transition from two perspectives. First, we explore the level of political polarization among Spanish society regarding how ecological transition is framed and how ecological transition measures are perceived. Second, we investigate how the media cover these measures and views to identify potential connections between their portrayal of the issue and the public's perceptions. A two-pronged methodological approach is applied: a survey to assess citizens' perceptions and a content analysis of four Spanish newspapers with diverse editorial leanings to evaluate the media treatment of the topic. Results show that left-wing respondents agree more with the idea that ecological transition is the solution to climate change, whereas right-wing respondents more frequently view it as a threat to current lifestyles and as a process imposed by governments. These results are also reflected in the press coverage of ecological transition. We conclude that the press emerges as an actor that reinforces the existing political polarization in society around ecological transition.

Keywords: ecological transition; climate change; polarization; news media; public perception; public opinion; survey; content analysis; Spain



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1. Introduction

Climate change is an issue that has been gaining importance in the public arena since the beginning of the 1990s, when the UN created the Intergovernmental Panel on Climate Change (IPCC). Its relevance increased during the 2010s, with the UN Sustainable Development Goals (SDGs) [1], the Paris Agreements [2], and the European Green Pact [3], whose goal is for each country to establish a series of measures to fight climate change from both an environmental and a social perspective. The actions set out in these agreements are called ecological transition actions and are considered a key concept, as they place us in front of a profound change [4] that, according to García [5], affects multiple areas (institutional, social, productive, consumption, way of life, and values) and must take place in a short time and on a worldwide level [6].

Ecological transition is a concept that is increasingly used in different forums, and according to Jarillo [7], this makes its delimitation and interpretation difficult. Garcia [5]

adds that it is a vague and imprecise concept due to its political origins. Vagueness and imprecision are reflected in the different definitions and interpretations of the phenomenon. Thus, in the face of the emergency framed in the context of the quadruple crisis—ecological, energy, climate, and economic–financial [4]—a transition towards a more environmentally friendly development model is necessary. According to the IPCC, this transition integrates adaptation and mitigation measures, with greater international cooperation, sufficient financial resources, inclusive governance, and better coordinated policies [8].

This set of measures is referred to as the ecological transition and is proposed as the path that will allow for a transformation of the current society into a climate-neutral society. However, as García [5] (p. 94) states, there is not a single way of transition or a single social transformation; there are “different post-carbon societies and different ways to get there”. That is, the ecological transition may involve social and political changes of different intensities that can give rise to different models of society. These can range from those that partially modify the productive model to continue growing, in line with sustainable development and ecological modernization [9,10], to those that seek a profound transformation of the model with proposals for economic degrowth [11,12].

These transformations, whether partial or radical, imply a transformation of the socio-economic model and, therefore, generate social conflict. According to Fischer & Giuliani [13] (p. 1), “how eco-social risks should be addressed and in which way social and ecological policies can and should be combined is highly conflictual”.

Without avoiding the fundamental debate on the depth of the social transformations that the various possible ecological transitions may generate, and the conflicts that can arise from them, in this article, we take as a reference the policies currently being implemented by the European institutions under the name of ecological transition. García [5] (p. 92) defines it as “actually existing” and frames it as a variant of the doctrines of ecological modernization. According to Dimitrova et al. [14], Jarillo [7], and García [5], for the institutions, the ecological transition involves proposing and implementing policies for the transition to a more ecological productive and social model, i.e., maintaining growth that improves social conditions while considering environmental aspects.

Likewise, in Spain, the term “ecological transition” was adopted by the socialist government of Pedro Sánchez to lump together all the policies designed to address climate change, with the creation of the Ministry for Ecological Transition and the Demographic Challenge, which is tasked with “proposing and implementing the Government’s policy in the fight against climate change for the transition to a more ecological productive and social model” [15]. The term “ecological transition”, therefore, includes a series of political measures that the government conveys to public opinion, through the media.

In today’s society, there is much consensus concerning the importance of climate change. In the case of Spain, 83% of citizens believe that it should be a priority, while a quarter place it as one of the three most pressing problems [16] (p. 2). In the same vein, Suso et al. [17] identify only 6% of the population as being climate change denialists. The work of Leon et al. [16] and of Suso et al. [17] also shows the high consensus in Spanish society (around 65%) regarding the need to apply measures to mitigate it. However, there is no such consensus in relation to the measures that should be applied. Regarding knowledge, Suso et al. [17] highlight that the ecological transition is a concept that more than half of the population (51%) is unaware of or has a very vague idea about. Regarding consensus, León et al. [16] point out that different ecological transition measures generate different levels of agreement and that society is divided around these measures.

Thus, these data reveal that while climate change can be considered a cross-cutting issue [18] on which there is some degree of consensus in society, ecological transition (the measures to mitigate it) can be considered a positional issue [18]. The latter author defines

positional issues as those in which different social actors adopt different positions that usually confront each other from different ideological positions that lead to polarization. This logic is also noted by van Eck et al. [19] when they state that polarization dynamics around climate change are shifting from debates about the reality and severity of climate change to debates about climate solutions. In this context of polarization, of ideological dispute regarding the direction that the ecological transition should take [4], several actors interact in the public sphere to establish their positions in relation to this issue [20]. These include the media, which play a key role [21,22] in setting the agenda [23], in creating interpretive frames [24], in disseminating scientific knowledge [21], and in raising the awareness of the citizens [25] in regard to this phenomenon.

Hence, in this paper, we propose to analyse the ecological transition from a dual perspective. On the one hand, we study the level of polarization generated among Spanish society by the different ecological transition measures, and on the other, we analyse how the media treat these measures to identify possible alignments between their treatment of this issue and the citizens' perceptions.

2. Theoretical Framework

2.1. *Ecological Transition and Polarization*

While the fight against climate change is perceived as an important issue for citizens, the ecological transition policies put forward by states, parties, and political leaders to address it have become a factor of political polarization, especially in Anglo-Saxon and Western European democracies [26–30]. Political polarization can be understood as the division of society into two opposing ideological groups that contain the majority of individuals [31,32]. The degree of polarization would be determined, among other things, by the distance between the groups and the uniformity of each group [33]. Such a division is related to people's attitudes, but often, it also has an emotional component in so-called affective polarization, which focuses on the negative sentiments aroused by the social group at the other ideological extreme, beyond the actual political issues in question [34].

As has become evident, political polarization has been widely studied, especially in the context of the United States, where bipartisanship and a largely ideologically aligned media system have contributed to shaping a highly polarized society. These studies conclude that Democrat and Republican followers take different positions on the phenomenon [35–40]. While Democrats are more likely to believe in the anthropogenic origin of climate change and accept measures to mitigate it, Republicans are more resistant to these ideas. However, political polarization has also been detected in other countries with multiparty systems and very different political cultures from that of the US. Hornsey et al. [41] observed this ideological correlation also existed in 56 countries of Europe, Asia, and South America, although with less intensity than in the US. Particularly in Europe, polarization between the positions of progressives and conservatives does also exist [42]. The former consistently showed greater conviction regarding the existence of climate change and greater support for mitigation measures compared to conservative citizens. Garmendia Madariaga et al. [43] explain that Spain is a country with high levels of affective, territorial, and left-right polarization, especially since the emergence of new parties on the political landscape such as Podemos (far left), Ciudadanos (unionist liberal centre), and Vox (far right). In their work conducted in Germany, Coffé et al. [44] observe that polarization between left- and right-wing ideological groups has increased over time. The authors conclude this is due to those on the far-right of the ideological spectrum progressively showing less support for regulations against climate change, confirming a trend observed in other studies [45] regarding the rejection of climate change and mitigation measures by citizens aligned with far-right ideologies. Specifically, this includes measures affecting workers in polluting

industries who, as identified by Heddesheimer et al. [46], may be more likely to support far-right parties that oppose ecological transition measures.

Thus, the cited studies in this regard confirm that citizens' positioning with respect to ecological transition measures is greatly conditioned by their political ideology and by partisan identification; in other words, it is an issue that incites polarization.

Tschötschel [47], however, explains that this polarization is often created artificially and is a response to biased perceptions about the different proposals and positions on the subject rather than to a real difference in attitudes and beliefs. In the same vein, Schwaller et al. [48] note that in the US, political ideology is not a relevant factor in the opinion about policies to combat climate change when referring to concrete and first-hand experiences. ElHaffar et al. [49] and Berkebile-Weinberg et al. [50] use the concept of the "green gap" to refer to the mismatch between people's climate beliefs and their behaviours. These authors state that the green gap affects both pro-climate liberals and climate-sceptic conservatives. The green gap affects the former more intensely, as they do not exhibit sustainable behaviours in energy consumption, food choices, or transportation despite their pro-climate beliefs. In the case of conservatives, the authors found that, even considering their climate scepticism, they can adopt pro-environmental practices.

Regarding the factors that moderate the effect of political affiliation on perceptions concerning climate change and ecological transition measures, the academic literature has highlighted, on the one hand, levels of education and income. It has thus been observed that people with a higher level of knowledge and greater income tend to be more polarized, either in favour (progressive) or against (conservative) climate change mitigation policies, compared to people with lower levels of education and income, who are not so polarized [51,52]. On the other hand, it has been reported, especially in the United States, that factors such as gender, age, or religiosity also condition perceptions of climate change, with the young, female, and less religious population being most in favour of adopting policies to address it [27]. Other research points out at the quality of a country's governance as a factor that influences the support for or rejection of these measures [53].

In Spain, Simón and Claveria [30] have analyzed how social class and place of residence (rural or urban) influence support for environmental policies. These authors find that socio-cultural workers (an electoral stronghold of the left) support these policies more than manual workers (who are increasingly supporting the far-right). Therefore, they link the factor of social class to ideology to explain the polarization towards these measures. Nevertheless, they do not find significant differences in support for these policies by territory (although other, more applied studies, such as the one led by Suso et al. [54], do detect a territorial polarization gap related to policies that directly affect rural areas, such as the implementation of renewable energy installations in the territory).

In conclusion, we can affirm that, although there are different structural factors that can nuance support for climate change mitigation measures, ideology is a determining factor when it comes to generating divisions on the environment and climate.

2.2. Ecological Transition and the Media

In the context of the public debate, the media can play a fundamental role in polarization processes on environmental issues [19,35,53,55] and not just due to their association with certain parties or political positions in relation to climate change [47]. On the one hand, the degree of media coverage of the subject, specifically the volume, frequency, and prominence with which it appears [56,57], affects the population's level of knowledge on the issue [58] and helps shape a public agenda that conditions the citizens' attitudes [59]. On the other hand, the way the media frames climate change can contribute both to exacerbating and moderating polarization around the issue. Thus, according to Cole et al. [34],

in the United States, framing climate change as a threat to national security, linking it to innovation and new, green jobs, or appealing to national identity all increase support among conservatives for measures to mitigate it and, consequently, reduce polarization. In addition, it should be borne in mind that, while the media can cause polarization, they can also be beneficiaries, since their messages have been seen to generate a greater impact on the population in contexts of high polarization [59].

As for Spain, political polarization is also reflected in media consumption, where selective exposure due to ideological reasons is frequent [60,61], especially among those most interested in being informed [62]. In fact, according to Rodríguez [63], historically, the media system has been decisive in the growth of polarization in Spain. Added to this are social networks, which are also highly polarized areas [64,65], where clear signs of territorial polarization can also be observed [66].

Based on the finding that the role of the media, and especially the printed press, in the symbolic construction of reality and in the shaping of public opinion is more relevant in complex risks that are hard to perceive directly and have long-term effects—as is the case of the ecological transition [67]—academic studies highlight that the media are key in many ways.

First, several investigations conclude that the media are decisive in making this matter visible and in establishing the interpretative frames of the issue. In relation to media coverage, in their study on the coverage of the SDG and the 2030 Agenda in the Spanish digital press, López-Carrión and Martí-Sánchez [68] conclude that the appearance of these issues has increased over the years, especially coinciding with international summits, although this coverage is unequal, since the media with the highest audiences and greatest influence do not follow this trend. In respect to interpretive frames, it is concluded that the media generate frames from which the ecological transition is narrated, interpreted, and debated in the public sphere [21]. In their study on the coverage of the ecological transition on Spanish state television networks, Espinar et al. [20] identify four narratives that show that the issue is in constant construction and deconstruction. These ways of approaching the subject include economic techno-optimism, green capitalism, the green new deal, and de-growth and operate as interpretative frames that mark the understanding of the subject; these frames are used according to the ideology of the media [20,22]. Along these lines, the study by Gozzer and Domínguez [69] shows how ecological transition measures that can transform our economic system can lead to media coverage that reflects their rejection in times of economic crisis.

Secondly, another group of studies focuses on the role of the media as intermediaries between science and citizens in processes of awareness-raising and mobilization [70]. These authors demonstrate that the media are an essential source of information and awareness-raising in Spain regarding the ecological transition and highlight, above all, their influence via social networks. In this vein, Fernández-Castrillo & Magallón-Rosa [71] assert that the relationship between the political agenda, public opinion, and the media is decisive in order to understand the evolution in levels of awareness based on the measures that have been adopted in the public sphere. Finally, and in line with the observations made in the previous section, García-Escribano et al. [72] show how the media can bring about affective polarization by creating homogeneous echo chambers that arouse emotional responses in positional issues.

In this article, on the one hand, we propose to observe what are the public's perceptions of the policies, practices, and dilemmas posed by ecological transition in Spain and to determine the extent to which this issue is a cause of political polarization. On the other hand, since we understand that the media are fundamental for shaping opinions and are a relevant actor in polarization processes, we will also look at the presence of the issue in the

agenda of the media and analyze whether citizens' information consumption can be related to their perceptions of the issue. We therefore propose to establish relationships between public perceptions of ecological transition and the media treatment of the issue which, to our knowledge, has been scarcely explored in the literature. One exception is the work by Wædegaard et al. [73] on the relationships between the frames used by the Danish press to deal with the issue of carbon sequestration and storage and public attitudes towards this policy, which focuses on a specific policy and not on ecological transition as a generic concept. In this regard, our research aims to better identify the concept of the "actually existing" ecological transition in Spain and contribute to expanding knowledge on this issue by addressing two research questions:

(RQ1) What are the perceptions of Spanish citizens on issues related to ecological transition, the degree of political polarization in this regard, and the associated media consumption?

(RQ2) Which treatment does the Spanish press give to ecological transition and the policies to implement it, according to editorial policy?

To do so, a two-pronged methodological approach is applied.

3. Method

3.1. Analysis of Citizens' Perceptions

3.1.1. Data Collection Process and Questions

The analysis of citizens' perceptions was carried out based on a survey, which is a particularly useful instrument for collecting information due to its versatility, generalizability, and cost-effectiveness [74]. Some of the questions that were included in a more general survey on the social dimension of ecological transition were used; these questions were part of a research project that focuses on the socio-economic analysis of ecological transition in the regions of Spain. The survey was administered to a representative sample of the Spanish population of legal age ($N = 7029$) during the months of June and July 2023, via computer-assisted telephone interviewing by the Spanish research institute GESOP. The sample of telephone numbers was stratified by autonomous community and municipality size. Sex and age quotas following the actual distribution of the population under study were used for the final selection of the person to be interviewed. Under a $p = q = 0.5$ assumption, the margin of error of the results is 1.2%, with a 95% confidence interval. A total of 48.7% of participants were men, and 51.3% were women, which is quite similar to sex distribution in the Spanish population over 18 years old (47.94% vs. 52.06% on April 2023, according to Instituto Nacional de Estadística [INE]). As for their age, 15% of those surveyed were 18–29 years old (compared to 14.7% of the whole Spanish adult population who is in this age gap, according to INE), 24.6% were 30–44 years old (23% in the whole population), 28.5% were 45–59 years old (27.5% in the whole population), and 31.9% were older than 59 (34.8% in the whole population).

The survey addressed issues such as Spaniards' environmental habits and behaviours and their opinions and knowledge of these matters. Specifically, for this article, an initial set of questions that poses several statements about ecological transition, to which respondents must rate their degree of agreement or disagreement on a Likert scale of 1–5, proves useful. These statements are based on ideological positions present in the public debate on ecological transition in Spain and were detected in a previous exploratory analysis of press articles regarding the ecological transition. Two of the statements denote a rather negative perception of ecological transition ("Ecological transition is a process forced by governments" and "Ecological transition endangers our current way of life"), while a third denotes a positive view ("Ecological transition is the only remedy for the current situation").

Moreover, questions are also analyzed on the respondents' degree of agreement (Likert scale of 1–5) with possible actions to be taken in order to carry out the ecological transition: ban fossil fuels, produce renewable energy, close nuclear power plants, and pay more for energy. All of these actions had a notable presence in the previous exploratory analysis of press articles. Together, the agreement with these actions enables one to determine the respondents' global attitude towards ecological transition policies.

Finally, a question was asked about the use of the media and other sources to obtain information regarding issues related to the environment. Respondents were able to choose up to a maximum of three options. Given their importance in the Spanish context, in the cases of the press (printed and digital), radio, and television, a distinction is made between local/regional, state-wide, and international media. Respondents who mentioned social networks were also asked which ones they use most to find out about environmental issues.

As sociodemographic variables of the study that may present significant associations with perceptions concerning the ecological transition, the survey included questions about sex, age, ideology (left/right on a scale of 1–5), the size of the municipality of residence (up to 10,000 inhabitants, 10,000–100,000 inhabitants, 100,000–500,000 inhabitants, and >500,000 inhabitants), level of studies (none, compulsory, post-compulsory, vocational, and university training), and respondents' prior knowledge of the ecological transition.

To some extent, some of the questions—such as those referring to ideological self-identification, media consumption habits, or knowledge of climate policies—may induce response bias. Although all questions were created following established standards, this is a limitation of surveys that will need to be considered when interpreting the results.

3.1.2. Data Analysis

Nearly all the variables included in the analysis are ordinal variables created through 1–5 Likert scales. However, following Norman (2010) [75], they are treated as interval variables, since many studies have shown that parametric statistics are robust when the data are from these kinds of scales.

First, Pearson correlations are carried out to assess the relationship between several dependent variables regarding ecological transition perceptions and political ideology (independent variable), which will allow to determine the degree of polarization on these issues. Moreover, political ideology is introduced in a regression model, together with other independent sociodemographic variables, to assess the specific importance of ideology in shaping opinions on ecological transition.

Two new variables were created, adding existing questions in the survey. First, "Global attitude towards ecological transition policies", which includes the mean responses in the four questions asking for perceptions about banning fossil fuels, producing renewable energy, closing nuclear power plants, and paying more for energy (1–5 scale). This variable is used as a dependent variable to assess how the general attitude of the public towards ecological transition measures correlates with political ideology.

The second variable was "Level of knowledge about ecological transition", which is used as an independent variable to assess how it impacts ecological transition attitudes and perceptions. This variable was created on the basis of the mean responses to five questions about respondents' knowledge (scarce to considerable, on a scale of 1–5) in relation to the possibility of using hydrogen for energy purposes, the Paris climate agreements, the European Commission's "climate action" project, the Spanish Climate Change act, and the climate and environmental regulation of their autonomous community of residence. All of them were questions included in the general survey due to their presence in the previous exploratory analyses of press articles; thus, they allow one to determine to what extent respondents are aware of ecological transition issues.

3.2. Content Analysis of the Spanish Press

Secondly, and based on the premise that the printed press is the second-most used medium by Spaniards to gain information concerning environmental issues (according to the survey carried out), all the news related to the ecological transition published in the press during the same period in which the fieldwork for the survey was carried out are extracted to observe the media narrative within that same time frame. Despite recognizing that media can influence the public's perception of social and political issues, our intention was not that of establishing a cause-and-effect relationship between the results of the survey and the media coverage. However, by examining both sources simultaneously, we can identify possible alignments between how the press handles the issue and citizens' perceptions.

The sample consisted of a total of four newspapers, two exclusively digital and two that also have a printed edition. It was decided to choose two publications with a conservative editorial policy and two publications with a progressive editorial line in order to observe whether the press is politically polarized regarding this issue. Within these criteria, those that, according to the Spanish audit body Information and Control of Publications (INTROL), have the most monthly readers were chosen. The four selected newspapers were *El País* (printed and digital, progressive editorial line), *El Mundo* (printed and digital, conservative line), *OK Diario* (exclusively digital, conservative), and *Eldiario.es* (digital only, progressive editorial line). All the news items containing the term "transición ecológica" were selected in the four newspapers for the period 25 May–25 July 2023, totalling 433 news items.

For each piece of information, a qualitative content analysis was carried out [76] based on the same variables that constitute the survey. Thus, it was determined whether the news story aligned generally with any of the three statements on ecological transition posed to the respondents ("Ecological transition is a process forced by governments", "Ecological transition endangers our current way of life", and/or "Ecological transition is the only remedy for the current situation"). For example, when a news item explains the push by governments and administrations for ecological transition measures, this aligns it with the claim that ecological transition is a process forced by governments. In another sense, when information focuses on the negative consequences that the implementation of ecological transition measures has for certain social and/or economic sectors, this aligns it with the affirmation that the ecological transition endangers our current way of life. Finally, when a news story stresses the need for and urgency of implementing ecological transition measures, this aligns it with the statement that ecological transition is the only remedy for the current situation. Naturally, one news story can be aligned with more than one of these statements.

In addition, it was also observed whether the news item refers to any of the measures for implementing the ecological transition considered in the survey (banning fossil fuels, producing renewable energy, closing nuclear power plants, and/or paying more for energy). If this is so, it is determined whether the news item denotes a position towards these policies that is either favourable, unfavourable, or neither favourable nor unfavourable.

Two coders analyzed the 433 news items that contained the term "ecological transition". To ensure reliable coding, the two coders met regularly to compare their findings. To achieve consensus, any uncertainties or disagreements were subsequently discussed and assessed in team meetings.

4. Results

4.1. Ecological Transition and Political Polarization

When asked about the degree of agreement with the different statements about ecological transition, most respondents strongly agree with the idea that it is the only remedy for the current situation. At the same time, however, many also consider ecological transition to be a process forced by governments. On the other hand, there is less agreement regarding the consideration that ecological transition endangers our current way of life. Now, when these statements are contrasted with the respondents' ideological standpoint, it is seen that those who consider themselves to be left of centre tend to agree more with the idea that ecological transition is the only remedy for the current situation, while those who consider themselves to be right of centre tend to agree more with the other two, more negative statements: that ecological transition is a forced process and that it endangers our current way of living (Table 1).

Table 1. Degree of respondents' agreement with different statements about ecological transition (scale 1 [strongly disagree]–5 [strongly agree]).

	Mean Agreement (Standard Deviation)	Correlation with Left/Right Ideological Self-Perception
ET is a process forced by governments	3.01 (1.45)	0.336 ($p < 0.001$) *
ET endangers our current way of life	2.52 (1.41)	0.141 ($p < 0.001$) *
ET is the only remedy for the current situation	3.66 (1.32)	−0.310 ($p < 0.001$) *

* Correlation is significant.

The strength of the association of positive and negative perceptions about ecological transition with left- or right-wing ideological positioning, respectively, is evident when this variable is introduced in a multiple linear regression model together with other factors that may be relevant in the perceptions of the respondents, such as age, the size of their municipality of residence, their level of education, or their previous knowledge about ecological transition. As can be seen in Table 2, the ideological scale is the only factor that is statistically significantly associated with the three statements, and it is always associated to a higher degree than other variables such as age or level of education. Variance analysis according to the gender of the respondents, on the other hand, yields an association with this variable, especially in the case of the statement "The ecological transition is the only remedy for the current situation", for which women are far more in agreement than men (3.84 vs. 3.48), which is not the case for the other two statements. In any case, the existence of an ideological polarization of the respondents with respect to their (positive or negative) perceptions about ecological transition is confirmed, which is more explanatory than the other factors considered.

Furthermore, the attitude towards different measures related to ecological transition, although generally positive, is also conditioned by the ideological positioning of the respondents (Table 3). Thus, left-leaning people are more in favour of banning fossil fuels, the production of renewable energy (although in this case with a very weak association), the closure of nuclear power plants, and paying more for energy. The issue of nuclear power plants is the one that generates the most polarization.

Table 2. Multiple linear regression of the agreement with different statements about ecological transition according to the respondents' ideology, age, size of the municipality of residence, level of education, and prior knowledge of ecological transition.

	ET Is a Process Forced by Governments **	ET Endangers Our Current Way of Life ***	ET Is the Only Remedy for the Current Situation ****
Ideological scale	$\beta = 0.241 (p < 0.001) *$	$\beta = 0.144 (p < 0.001) *$	$\beta = -0.313 (p < 0.001) *$
Age	$\beta = 0.069 (p < 0.001) *$	$\beta = 0.027 (p = 0.058)$	$\beta = 0.048 (p < 0.001) *$
Size of municipality	$\beta = -0.008 (p = 0.548)$	$\beta = 0.015 (p = 0.268)$	$\beta = 0.030 (p = 0.027)$
Level of education	$\beta = -0.053 (p < 0.001) *$	$\beta = -0.059 (p < 0.001) *$	$\beta = -0.020 (p = 0.159)$
Knowledge of ET	$\beta = -0.013 (p = 0.342)$	$\beta = 0.015 (p = 0.295)$	$\beta = -0.019 (p = 0.149)$

* Correlation is significant; ** $R^2: 0.068/F: 73.302 (p < 0.001)$; *** $R^2: 0.026/F: 27.448 (p < 0.001)$; **** $R^2: 0.102/F: 116.217 (p < 0.001)$.

Table 3. Degree of respondents' agreement with different measures related to ecological transition (scale 1 [strongly disagree]–5 [strongly agree]).

Measure	Mean Agreement (Standard Deviation)	Correlation with Left-Right Ideological Self-Perception
Ban fossil fuels	3.38 (1.41)	$-0.274 (p < 0.001) *$
Renewable energy production	4.45 (0.85)	$-0.097 (p < 0.001) *$
Closure of nuclear power stations	3.31 (1.48)	$-0.348 (p < 0.001) *$
Pay more for energy	3.03 (1.43)	$-0.186 (p < 0.001) *$

* Correlation is significant.

If we create an index that groups all the above measures, we can see the general attitude of the respondents towards ecological transition policies, which stands at 3.55 on a scale of 1 to 5 (in which 1 equals a very negative and 5 a very positive attitude towards ecological transition policies), with a standard deviation of 0.85. This global attitude has a higher negative association with the respondents' ideological positioning than the specific correlations of each of the measures in Table 3: $-0.369 (p < 0.001)$. Thus, it is observed that the general attitude towards ecological transition policies is clearly conditioned by this factor. Again, multiple linear regression (Table 4) shows that ideology is a more relevant factor than the respondents' age, size of the municipality of residence, level of education, or prior knowledge. Respondents' gender is also less affected (men have a mean attitude of 3.41 and women a mean attitude of 3.69).

Table 4. Multiple linear regression of the respondents' global attitude towards ecological transition policies according to their ideology, age, size of the municipality of residence, level of education, and prior knowledge of ecological transition.

Factor	β	Sig.
Ideological scale	-0.367	$<0.001 *$
Age	0.037	0.007
Level of education	0.049	$<0.001 *$
Size of municipality	0.042	$0.002 *$
Knowledge of ET	0.007	0.580

* Correlation is significant; $R^2: 0.142/F: 160.600 (p < 0.001)$.

4.2. Political Polarization According to the Level of Instruction and Level of Knowledge on Ecological Transition Issues

Given that previous studies in other national contexts reveal greater ideological polarization with respect to the perception of climate change among people with a higher education qualification, this analysis is conducted to observe whether this phenomenon also occurs in Spain (Table 5). The data, in this case, do not clearly support a conclusion that this greater polarization exists among people with a higher level of education. The variations observed in correlating perceptions and attitudes towards ecological transition and the ideological scale in the sample as a whole and in the subpopulation with university studies are, in most cases, minor, and even on some points (such as agreement with the statement that the ecological transition is a process forced by the governments or agreement with the production of renewable energy), less polarization is observed in the population with university studies. Only in relation to the degree of agreement with the banning of fossil fuels is greater polarization observed among the university-qualified population than in the population as a whole.

Table 5. Comparison of the correlation of different opinions and attitudes on ecological transition and political ideology among the general population, the population with a higher education qualification, and the population with a medium and high level of knowledge on ecological transition issues.

Opinions And Attitudes On Ecological Transition	Correlation with Ideological Scale—General Population	Correlation with Ideological Scale—Population with a Higher Education Qualification (N = 3047)	Correlation with Ideological Scale—Population with a Medium and High Level of Knowledge About ET (N = 1143)
Agreement with the statement “ET is a process forced by governments”	0.336 ($p < 0.001$) *	0.289 ($p < 0.001$) *	0.298 ($p < 0.001$) *
Agreement with the statement “ET endangers our current way of life”	0.141 ($p < 0.001$) *	0.166 ($p < 0.001$) *	0.234 ($p < 0.001$) *
Agreement with the statement “ET is the only remedy for the current situation”	−0.310 ($p < 0.001$) *	−0.355 ($p < 0.001$) *	−0.386 ($p < 0.001$) *
Agree with banning fossil fuels	−0.274 ($p < 0.001$) *	−0.324 ($p < 0.001$) *	−0.357 ($p < 0.001$) *
Agree with producing renewable energy	−0.097 ($p < 0.001$) *	−0.073 ($p < 0.001$) *	−0.123 ($p < 0.001$) *
Agree with shutting down nuclear power plants	−0.348 ($p < 0.001$) *	−0.380 ($p < 0.001$) *	−0.364 ($p < 0.001$) *
Agree with paying more for energy	−0.186 ($p < 0.001$) *	−0.223 ($p < 0.001$) *	−0.243 ($p < 0.001$) *
Global attitude towards ecological transition policies	−0.369 ($p < 0.001$) *	−0.405 ($p < 0.001$) *	−0.416 ($p < 0.001$) *

* Correlation is significant.

Concerning prior knowledge about ecological transition issues, it seems logical to think that they may be related to greater ideological polarization about ecological transition, considering that being more informed about these issues could allow respondents to position themselves more forcibly. The analysis shows that prior knowledge is indeed a factor that generally increases ideological polarization around ecological transition in relation to most of the issues considered. For example, the degree of agreement with the

statement “Ecological transition endangers our current way of life” presents significantly greater ideological polarization among people with knowledge on the subject than among the population as a whole, as well as the degree of agreement with the banning of fossil fuels or the degree of agreement with the statement “Ecological transition is the only remedy for the current situation”. In contrast, the degree of agreement with the statement “Ecological transition is a process forced by governments” has a lower correlation with the ideological scale among people with knowledge of the subject.

4.3. Media Consumption and Ecological Transition

When asked about the media they use to keep informed about environmental issues, most respondents select national television and, secondly, the national digital press (see Figure 1). However, regional and local television and digital press are also important sources of information on these issues, and television (either national, regional or local) is the medium selected by 48% of respondents. Social networks come in third place, with Instagram, X, and Facebook most mentioned (Figure 2). Of all respondents, 3.9% answer that they do not get informed about environmental issues. It can be said, therefore, that the media, and especially television, are by far the main source of information for respondents regarding ecological transition, and that there is a preference for national media to the detriment of regional/local and international media.

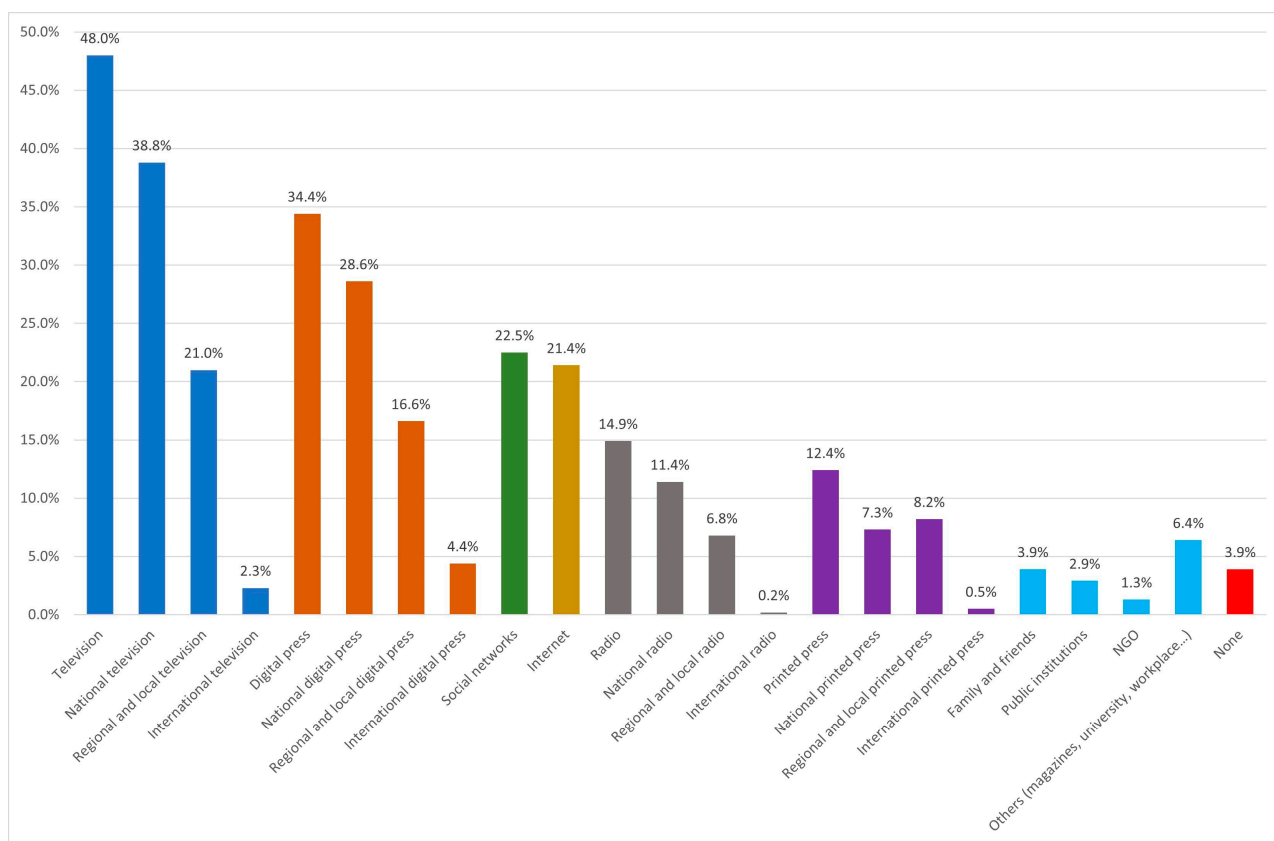


Figure 1. Medium used to keep abreast of environmental issues. Note: respondents could select up to a maximum of three media.

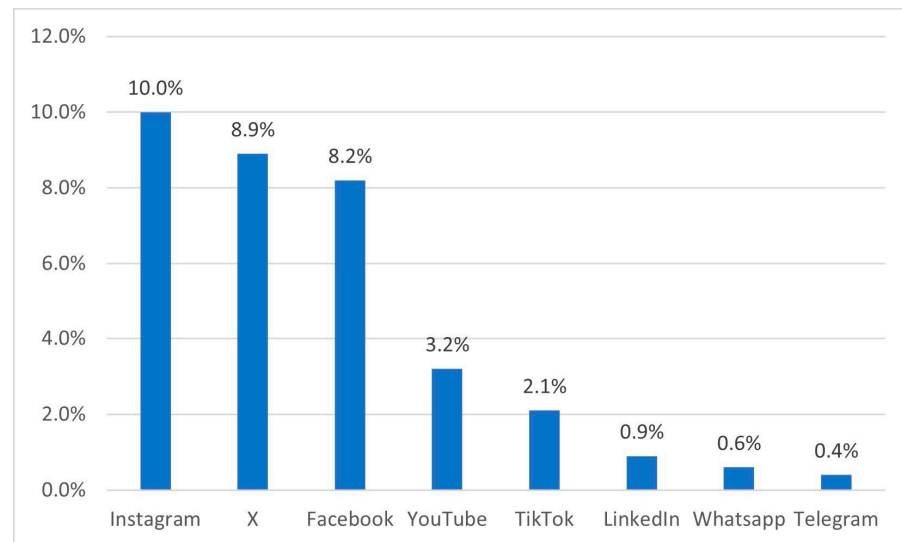


Figure 2. Social networks used to keep abreast of environmental issues.

The use of the different media to keep abreast of environmental issues does not imply significant variations in the perception of ecological transition or in the respondents' attitude towards ecological transition policies (Tables 6–9). Thus, both those who resort to television, as well as those who rely on the printed or digital press, radio, or social networks to keep informed about the environment have positions that are strongly aligned with the average of all respondents. On the other hand, more extreme values are observed among respondents who state that they obtain their information on environmental issues through NGOs, and these respondents have a far more positive perception and attitude than average towards ecological transition. The opposite can be said of respondents who report that they do not inform themselves about environmental issues: their attitude towards and perception of ecological transition is the most negative of the entire sample. To a lesser extent, people who obtain their information through public institutions also tend to have a more negative than average view of the issue.

Table 6. Degree of respondents' agreement with the statement "Ecological transition is a process forced by governments" according to the sources they use to find out about environmental issues (scale 1 [strongly disagree]–5 [strongly agree]).

Mean	Mean Agreement	Number of Persons Surveyed (N)
TV	3.06	3013
Radio	3.06	948
Printed press	2.95	790
Digital press	2.89	2296
Social networks	2.96	1516
Family, friends, and others	2.91	246
Public institutions	3.15	194
NGOs	2.80	87
Internet	2.97	1442
Others	2.70	429
Do not seek information on environmental issues	3.26	227
GLOBAL MEAN	3.01	6405

Note: respondents could select up to a maximum of three media.

Table 7. Degree of respondents' agreement with the statement "Ecological transition endangers our current way of life" according to the sources they use to find out about environmental issues (scale 1 [strongly disagree]–5 [strongly agree]).

Mean	Mean Agreement	Number of Persons Surveyed (N)
TV	2.53	3124
Radio	2.55	983
Printed press	2.58	820
Digital press	2.45	2355
Social networks	2.50	1543
Family, friends, and others	2.46	264
Public institutions	2.59	198
NGOs	2.38	89
Internet	2.48	1456
Others	2.44	432
Do not seek information on environmental issues	2.72	236
GLOBAL MEAN	2.52	6592

Note: respondents could select up to a maximum of three media.

Table 8. Degree of respondents' agreement with the statement "Ecological transition is the only remedy for the current situation" according to the sources they use to find out about environmental issues (scale 1 [strongly disagree]–5 [strongly agree]).

Mean	Mean Agreement	Number of Persons Surveyed (N)
TV	3.75	3129
Radio	3.72	979
Printed press	3.70	812
Digital press	3.66	2344
Social networks	3.67	1538
Family, friends, and others	3.62	260
Public institutions	3.52	201
NGOs	4.15	91
Internet	3.64	1468
Others	3.58	437
Do not seek information on environmental issues	3.26	234
GLOBAL MEAN	3.66	6583

Note: respondents could select up to a maximum of three media.

Table 9. Respondents' global attitude towards ecological transition according to the sources they use to find out about environmental issues (scale 1 [highly negative]–5 [highly positive]).

Mean	Mean Attitude	Number of Persons Surveyed (N)
TV	3.57	2867
Radio	3.58	902
Printed press	3.61	727

Table 9. Cont.

Mean	Mean Attitude	Number of Persons Surveyed (N)
Digital press	3.60	2205
Social networks	3.58	1447
Family, friends, and others	3.62	232
Public institutions	3.38	186
NGOs	3.83	85
Internet	3.54	1366
Others	3.60	409
Do not seek information on environmental issues	3.33	200
GLOBAL MEAN	3.55	6067

Note: respondents could select up to a maximum of three media.

4.4. Presence and Treatment of Ecological Transition in the Press

Eldiario, an exclusively digital medium with a left-wing editorial line, was the only one of the four newspapers analyzed to treat issues related to ecological transition intensively, as it published 244 news stories on the subject during the study period. Meanwhile, in El País, El Mundo, and OK Diario, the topic was covered far less (76, 57, and 56 news items, respectively). Also, in these three latter media outlets, most of the information tended to align with the idea that ecological transition is a process forced by governments (Figure 3), which can be explained by the fact that their news items refer to policies and actions that governments undertake or propose in relation to ecological transition. Thus, for example, El País headlined “The EU will force the inclusion of removable batteries in mobile phones as of 2027” in a news item published on 11 July 2023 [77], which highlighted the contribution of this measure to ecological transition; El Mundo reported on the government’s plan to expand carbon sinks in order to comply with EU commitments (“There are not enough sinks for so much CO₂”, 5 July 2023 [78]); and OK Diario criticized the proliferation of state institutions dedicated to promoting ecological transition (“Pedro Sánchez creates a Climate Observatory when he already has an office, a council and two commissions”, 28 June 2023 [79]).

In contrast, in Eldiario, most information refers to the idea that ecological transition is the only remedy for the current situation (although news presenting ecological transition as a process forced by governments is also greatly present). For example, an opinion article published on 31 May 2023 titled “The conservative drift of society” [80] criticizes the rise of climate denialism among some of the Spanish electorate, or the article “High temperatures set alarms ringing on the Balearic Islands”, published on 22 July 2023 [81], stresses the negative consequences of climate change and the need to ban fossil fuels to remedy it.

It should also be noted that OK Diario, with a right-wing editorial line, is the only medium with a significant presence of news that refers to ecological transition as a danger to our current way of life. Thus, several reports in this newspaper criticize the Spanish government for not wanting to regularize the illegal irrigation of the Doñana natural park for ecological reasons, which endangers the livelihood of strawberry producers in the area, who face a boycott (“Pedro Sánchez and Teresa Ribera spread the boycott by a German association against the Huelva strawberry” [31 May 2023] [82]; “The Junta de Andalucía demands that Sánchez should ‘rectify’ after ‘supporting’ the Huelva strawberry boycott” [1 June 2023] [83]; “Huelva risks losing 167 million in exports due to the German strawberry boycott backed by the government” [1 June 2023] [84]). In addition, the newspaper criticizes the Spanish government’s possible support for the Euro7 standard, which would have a

negative effect on car manufacturers in Spain (“Ribera presses for Sánchez not to oppose the European green standard that France and Italy already reject”, 1 June 2023 [85]), and it highlights that 20% of Spaniards believe that the ecological transition will be negative (“Half of Spaniards do not know what the ecological transition is and 20% think it will be negative”, 28 June 2023 [86]).

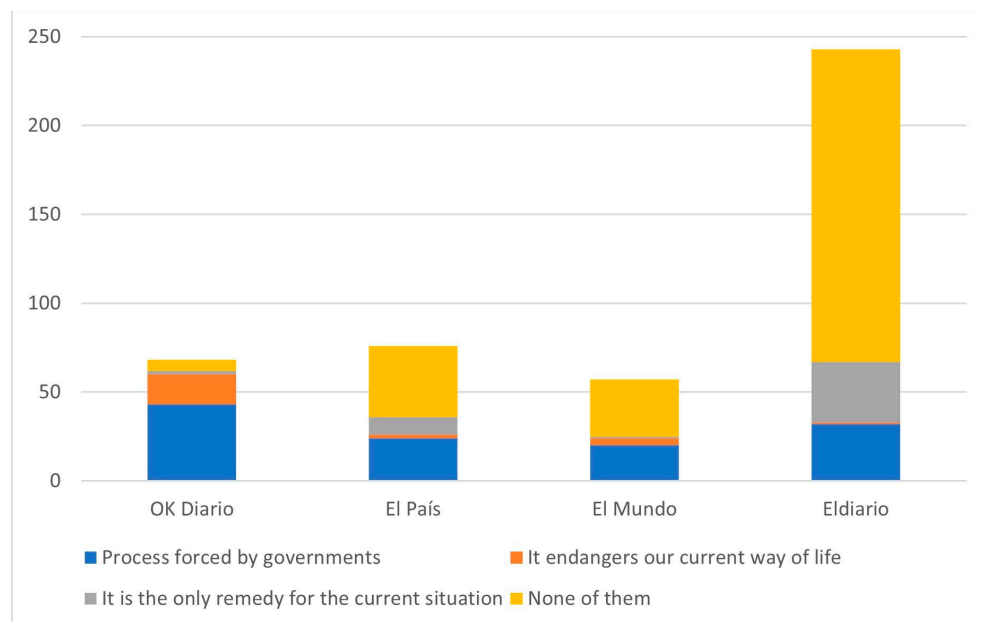


Figure 3. Alignment of ecological transition news with different statements about ecological transition in the newspapers analyzed. Note: A news story can be aligned with different statements.

If we compare these results with citizens’ perceptions as recorded in the survey, it is observed that this treatment by OK Diario is consistent with the tendency of people who consider themselves to be right of centre to believe that ecological transition endangers our way of life, unlike those who consider themselves left of centre; and that Eldiario’s treatment is consistent with the tendency of people who consider themselves to be left of centre to believe that ecological transition is the only remedy for the current situation, in contrast to those who consider themselves to be right of centre.

Finally, regarding the measures for implementing ecological transition, most media outlets make extensive reference to both the production of renewable energy (45 news stories) and the banning of fossil fuels (42 news stories) (Figure 4). The closure of nuclear power plants is covered in 17 news stories, while charging more for energy appears in only eight news items (all published by *OKDiario*). The issue of closing nuclear power plants, which generated considerable ideological polarization among the respondents, is also dealt with in different ways by the four newspapers of the sample. Thus, the only newspapers that publish news against the closure are the two with a right-wing editorial line (*OKDiario* and *El Mundo*). In addition, this is the only measure about which more negative (against) news items are published than positive (for) ones. On the other hand, the production of renewable energy is treated very positively, and in fact, no negative (against) news is published in this regard by any of the four newspapers.

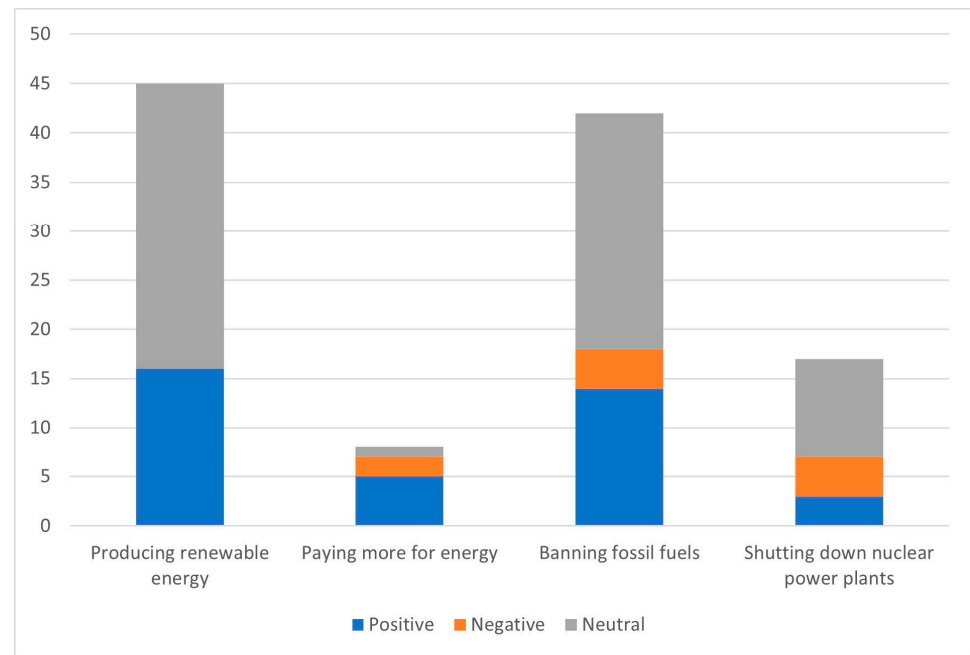


Figure 4. Number of news stories about ecological transition that mention different measures and the vision that emerges from them in the newspapers analyzed. Note: the same story can mention several measures.

5. Discussion and Conclusions

The results of the survey carried out on a representative sample of the Spanish population show a certain political polarization around ecological transition which goes beyond differences in age, sex, level of education, size of the municipality of residence, and previous knowledge of the issue. The further left-wing that respondents consider themselves, the more convinced they are that ecological transition is the only remedy for the current situation; conversely, the more right-wing that respondents consider themselves, the more that they agree with the idea that ecological transition endangers our current way of life and that it is a process forced by governments. In this respect, the results of the survey are similar to the contributions of Ballew et al. [51] and Tranter et al. [52], who already pointed to the ideological axis as a relevant element in the positioning on social and environmental issues.

If we look at the concrete measures related to ecological transition, the polarization around the closure of nuclear power plants stands out (people right of centre are far more opposed to it than those left of centre). However, the production of renewable energy is the measure that generates the lowest political polarization among respondents (a measure with which, generally speaking, the public is very much in agreement). It could be said, in line with the research of van Eck et al. [19], that polarization now lies in climate solutions and not so much in the fact that climate change is something that requires addressing. Galindo and Collado [87] also affirm that Spanish society grants (great) importance to the problem of climate change, but it is subject to specific divisions around policies to mitigate it, fuelled by ideologies. In this sense, the general attitude towards ecological transition measures, in any case, is clearly conditioned by the respondents' political leaning, with those who consider themselves to be left of centre being far more positive than those who consider themselves right of centre, in line with the general views they express on ecological transition.

These results are also reflected in the press treatment of ecological transition. Thus, it has been observed that dailies with a conservative editorial line tend to publish more news

presenting ecological transition and the measures to implement it in a negative way, while the opposite occurs in their counterparts with a progressive editorial line.

Without being able to determine a direct relationship between the press treatment of ecological transition according to their editorial line and the perceptions and attitudes of the public according to their ideology, it seems evident that there is a clear alignment regarding this issue. Indeed, in the case of specific measures such as the closure of nuclear power plants or the production of renewable energy, the treatment by the press very clearly emulates the perceptions of citizens. Thus, while the closure of nuclear power plants was the most polarizing measure among respondents, it is also one of the factors that most differentiates newspapers according to their editorial line, since only newspapers with a conservative editorial line publish news against their closure. Conversely, the low degree of political polarization generated by the promotion of renewable energy production is also reflected in the press, which, in general terms, treats it highly positively, regardless of the editorial line.

The press, therefore, emerges as an actor that reinforces the existing political polarization in society around ecological transition, which, in turn, confirms its role as a social builder of reality. The Mediterranean model of the media—polarized pluralist [88]—is characterized, among other factors, by a high degree of political parallelism in both public and private media. The results of this research enable one to corroborate that the critical positioning towards ecological transition in the conservative media is often related to questioning the policies and behaviour of the current, progressive Spanish government, emphasizing the negative consequences that these policies can have for the citizens and for the economy, thus aligning with the positioning of the conservative opposition.

However, the results of the survey also confirm that the consumption of media according to type (television, press, radio, social networks) to gain information about environmental issues does not significantly influence citizens' perceptions of ecological transition and its measures. There would be a need to see what happens if a distinction is made between different newspapers, TV channels, etc., with marked and differentiated editorial lines.

On the other hand, different perceptions of ecological transition are displayed by respondents who report that they do not keep abreast of environmental issues, who tend to have a more negative view; those who are informed through NGOs, who tend to have a more positive view; and those who are informed through public institutions, who also tend to have a more negative view. This latter result is interesting and can pave the way for future lines of analysis to establish how institutions communicate on these issues and how communication can be improved to have a positive impact on citizens' perceptions. Despite the "level of knowledge variable" not being statistically significant, it should also be noted that, unlike the findings of previous research, political polarization regarding ecological transition in Spain does not appear to be greater among the most highly educated people. In contrast, it is among those who have a deeper knowledge of the subject, which is to be expected if we base ourselves on the premise that greater knowledge denotes greater interest and, therefore, a stronger positioning with respect to the subject matter.

5.1. Limitations and Future Research

The research presented in this article has some limitations. For example, the analysis of citizens' perceptions via the survey can be considered a valid methodology to ascertain in a representative way the opinion of Spanish citizens about ecological transition. However, it provides us with quantitative data that do not enable us to fully understand the reasoning behind the responses of the people surveyed, and some of the questions inevitably may have induced response biases. Similarly, the media analysis focuses only on the press as a representative element of traditional media but does not look at how information about

ecological transition circulates on social networks, which according to Newman et al. [89], occupy an increasingly privileged place in the consumption of information. Lastly, the article presents Spain as a case study, but a comparative perspective with other countries where political polarization around ecological transition policies is evident would enhance the external validity of the conclusions. Future research could, therefore, use qualitative methodologies such as focus groups to investigate the narratives developed by Spanish citizens in relation to ecological transition and study how the contents on this subject are disseminated on digital platforms; in addition, future research could include other countries in the analysis. Furthermore, the analysis presented herein, which identifies the positions of citizens and the media on ecological transition, could be complemented by a study of how political actors define this issue.

5.2. Practical Recommendations

While polarization around the ecological transition needs to be addressed through measures that go beyond how the concept is communicated (e.g., by developing policies that support workers from traditional industries affected by ecological transformation; providing affordable, environmentally friendly public transport options, etc.), effective communication strategies implemented by institutions and the media can positively impact the achievement of a more consensual ecological transition. For example, ideological divides can be mitigated by encouraging dialogue between political actors with opposing views and involving stakeholders in the development of mitigation measures. There is an urgent need to move the discussion of the ecological transition beyond polarization. Communication can either increase or decrease polarization, and the media can play a crucial role in this process by framing the debate around the ecological transition with non-polarizing language and promoting a sense of shared responsibility among all members of society.

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Abbreviations

The following abbreviations are used in this manuscript:

IPCC	Intergovernmental Panel on Climate Change
SDGs	Sustainable Development Goals
INE	Instituto Nacional de Estadística
INTROL	Information and Control of Publications

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